OAK
CONTRACTING LLC
Builders

ADDENDUM NO. 4

April 9th, 2020

TO: ALL PLANHOLDERS

RE: Burleigh Manor Middle School Secure Vestibule Project

This addendum forms a part of the Contract Documents and modifies the original Bidding Documents dated March 23, 2020. Acknowledge receipt of this Addendum in the space provided on the Bid Form.

Addendum No.4 consists of two (288) pages, including this cover letter.

April 9th, 2020

Addendum No.4

Burleigh Manor MS Secure Vestibule Renovation
Howard County Public School System
Bid Number: 032.20.B4

The following is intended to clarify, correct, revise, and restate various parts of the Drawings and Specifications all of which shall form part of this Contract.

Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bid to be considered as non-responsive.

The following are included in this addendum:

1. Revisions to Specifications and Drawings
2. Pre-bid RFI Log
3. Responses to Pre-bid RFIs 002,003,004,005,006,007

General

The bid period has been extended. The revised date for submission of bids is **No Later than April 21st at 1:00pm**. The bid submission procedure remains unchanged. Any changes to the bid submission procedure will be communicated in a future addendum

Revisions to Specifications and Drawings

Revisions to Specifications:

00 1000 – Notice to Bidders.

In the first paragraph revise the Bid submission date to: No later than **April 21st 2020 at 1:00pm**

00 4500 – Part 2 Specific Scope of Work

Add the following to item 10.: The Contractor shall include an allowance in the amount of $15,000 for this work. Contractor shall provide time and material tickets to the Construction Manager for verification and signature. The Contractor's Contract shall be adjusted up or down once actual cost of this work has been determined.

Add the following specification Sections:

09 3000 – Tiling

09 6816 – Sheet Carpeting

Revisions to Drawings:

Add the following Drawing:

SK-001 – Door Signage Schedule

The following revised drawings are included:

AD-1.1

AD-1.2

A-1.2

A-8.1

SECTION 09 3000 - TILING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Tile for floor applications.

B. Tile for wall applications.

C. Cementitious backer board as tile substrate.

1.2 REFERENCE STANDARDS

A. ANSI A108/A118/A136 - American National Standard Specifications for the Installation of Ceramic Tile (Compendium).

B. ANSI A108.1a - American National Standard Specifications for Installation of Ceramic Tile in the Wet-Set Method, with Portland Cement Mortar.

C. ANSI A108.1b - American National Standard Specifications for Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex-Portland Cement Mortar.

D. ANSI A108.11 - American National Standard Specifications for Interior Installation of Cementitious Backer Units.

E. ANSI A118.3 - American National Standard Specifications for Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy and Water Cleanable Tile-Setting Epoxy Adhesive.

F. ANSI A118.9 - American National Standard Specifications for Test Methods and Specifications for Cementitious Backer Units.

G. ANSI A118.10 - American National Standard Specifications for Load Bearing, Bonded, Waterproof Membranes For Thin-Set Ceramic Tile And Dimension Stone Installation.

H. ANSI A118.12 - American National Standard Specifications for Crack Isolation Membranes for Thin-Set Ceramic Tile and Dimension Stone Installation.

I. ANSI A137.1 - American National Standard Specifications for Ceramic Tile.

J. ASTM C373 - Standard Test Methods for Determination of Water Absorption and Associated Properties by Vacuum Method for Pressed Ceramic Tiles and Glass Tiles and Boil Method for Extruded Ceramic Tiles and Non-tile Fired Ceramic Whiteware Products.

K. TCNA (HB) - Handbook for Ceramic, Glass, and Stone Tile Installation.

1.3 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories. Include instructions for using grouts and adhesives.

C. Shop Drawings: Indicate tile layout, patterns, color arrangement, perimeter conditions, junctions with dissimilar materials, control and expansion joints, thresholds, ceramic accessories, and setting details.

D. Samples: Mount tile and apply grout on two plywood panels, minimum 18 by 18 inches in size illustrating pattern, color variations, and grout joint size variations.

E. Maintenance Data: Include recommended cleaning methods, cleaning materials, and stain removal methods.

F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 6000 - Product Requirements, for additional provisions.
   2. Extra Tile: 4 square feet of each size, color, and surface finish combination.

1.4 QUALITY ASSURANCE

A. Maintain one copy of and ANSI A108/A118/A136 and TCNA (HB) on site.

B. Manufacturer Qualifications: Company specializing in manufacturing the types of products specified in this section, with minimum five years of documented experience.

C. Installer Qualifications: Company specializing in performing tile installation, with minimum of five years of documented experience.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

1.6 FIELD CONDITIONS

A. Do not install solvent-based products in an unventilated environment.

B. Maintain ambient and substrate temperature of 50 degrees F during installation of mortar materials.

PART 2 PRODUCTS

2.1 TILE

A. Manufacturers: All products by the same manufacturer.
   1. American Olean Corporation: www.americanolean.com/#sle.
   2. Dal-Tile Corporation: www.daltile.com/#sle.
   3. Emser Tile, LLC: www.emser.com/#sle.

B. Glazed Wall Tile: ANSI A137.1, standard grade.
   1. Moisture Absorption: 7.0 to 20.0 percent as tested in accordance with ASTM C373.
   2. Size: 6 by 6 inch, nominal.
   3. Edges: Cushioned.
   4. Surface Finish: Medium gloss.
   5. Color(s): To be selected by Architect from manufacturer's full range.
   6. Trim Units: Matching bead, bullnose, cove, and base shapes in sizes coordinated with field tile.

C. Porcelain Tile: ANSI A137.1, standard grade.
   1. Moisture Absorption: 0 to 0.5 percent as tested in accordance with ASTM C373.
   2. Size: 6 by 6 inch, nominal.
   3. Thickness: 5/16 inch.
   4. Edges: Cushioned.
   5. Surface Finish: Matte glazed.
   6. Color(s): To be selected by Architect from manufacturer's full range.
   7. Trim Units: Matching bullnose, double bullnose, cove base, and cove shapes in sizes coordinated with field tile.

2.2 TRIM AND ACCESSORIES

2.3 SETTING MATERIALS

2.4 GROUTS

A. Manufacturers:
   1. ARDEX Engineered Cements: www.ardexamericas.com/#sle.
   2. Bostik Inc: www.bostik-us.com/#sle.
   3. Custom Building Products: www.custombuildingproducts.com/#sle.
   4. LATICRETE International, Inc; LATICRETE PERMACOLOR Grout: www.laticrete.com/#sle.

B. Epoxy Grout: ANSI A118.3 chemical resistant and water-cleanable epoxy grout.
   1. Applications: Where indicated.
   2. Color(s): As selected by Architect from manufacturer's full line.
   3. Products:
      a. ARDEX Engineered Cements; ARDEX WA: www.ardexamericas.com/#sle.
      b. Custom Building Products; CEG-IG 100% Solids Industrial Grade Epoxy Grout: www.custombuildingproducts.com/#sle.
      c. LATICRETE International, Inc; LATICRETE SPECTRALOCK PRO Premium Grout: www.laticrete.com/#sle.

2.5 ACCESSORY MATERIALS

A. Concrete Floor Slab Crack Isolation Membrane: Material complying with ANSI A118.12; not intended as waterproofing.
   1. Type: Fluid-applied.
   2. Thickness: 20 mils, maximum.
   3. Crack Resistance: No failure at 1/16 inch gap, minimum.
   4. Products:
      a. LATICRETE International, Inc; LATICRETE Blue 92 Anti-Fracture Membrane: www.laticrete.com/#sle.
      b. Merkrete, by Parex USA, Inc; Merkrete Fracture Guard: www.merkrete.com/#sle.

B. Waterproofing Membrane at Floors: Specifically designed for bonding to cementitious substrate under thick mortar bed or thin-set tile; complying with ANSI A118.10.
   1. Crack Resistance: No failure at 1/16 inch gap, minimum; comply with ANSI A118.12.
   2. Fluid or Trowel Applied Type:
      a. Material: Synthetic rubber or Acrylic.
      b. Thickness: 25 mils, minimum, dry film thickness.
      c. Products:
         1) ARDEX Engineered Cements; ARDEX 8+9: www.ardexamericas.com/#sle.

2) Custom Building Products; RedGard Crack Prevention and Waterproofing Membrane: www.custombuildingproducts.com/#sle.
3) LATICRETE International, Inc; LATICRETE HYDRO BAN: www.laticrete.com/#sle.

C. Reinforcing Mesh: 2 by 2 inch size weave of 16/16 wire size; welded fabric, galvanized.

D. Backer Board: Cementitious type complying with ANSI A118.9; high density, glass fiber reinforced, 1/2 inch thick; 2 inch wide coated glass fiber tape for joints and corners.

E. Mesh Tape: 2 inch wide self-adhesive fiberglass mesh tape.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that sub-floor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive tile.

B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive tile.

C. Verify that sub-floor surfaces are dust-free and free of substances that could impair bonding of setting materials to sub-floor surfaces.

D. Verify that concrete sub-floor surfaces are ready for tile installation by testing for moisture emission rate and alkalinity; obtain instructions if test results are not within limits recommended by tile manufacturer and setting materials manufacturer.

E. Verify that required floor-mounted utilities are in correct location.

3.2 PREPARATION

A. Protect surrounding work from damage.

B. Vacuum clean surfaces and damp clean.

C. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.

D. Install backer board in accordance with ANSI A108.11 and board manufacturer's instructions. Tape joints and corners, cover with skim coat of setting material to a feather edge.

3.3 INSTALLATION - GENERAL

A. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.

B. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align floor joints.

C. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make grout joints without voids, cracks, excess mortar or excess grout, or too little grout.

D. Form internal angles square and external angles bullnosed.

E. Sound tile after setting. Replace hollow sounding units.

F. Keep control and expansion joints free of mortar, grout, and adhesive.

G. Prior to grouting, allow installation to completely cure; minimum of 48 hours.

H. Grout tile joints unless otherwise indicated. Use standard grout unless otherwise indicated.

I. At changes in plane and tile-to-tile control joints, use tile sealant instead of grout, with either bond breaker tape or backer rod as appropriate to prevent three-sided bonding.

3.4 INSTALLATION - FLOORS - THIN-SET METHODS

A. Over exterior concrete substrates, install in accordance with TCNA (HB) Method F102, with standard grout.

3.5 INSTALLATION - WALL TILE

A. Over cementitious backer units on studs, install in accordance with TCNA (HB) Method W244, using membrane at toilet rooms.

3.6 CLEANING

A. Clean tile and grout surfaces.

3.7 PROTECTION

A. Do not permit traffic over finished floor surface for 4 days after installation.

END OF SECTION

SECTION 09 6816 - SHEET CARPETING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Carpet, Mill-Applied releasable dry adheasive.

B. Accessories.

C. Walk off mats.

1.2 REFERENCE STANDARDS

A. CRI 104 - Standard for Installation of Commercial Carpet.

1.3 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns, colors available, and method of installation.

C. Shop Drawings: Indicate seaming plan, method of joining seams, direction of carpet pile and pattern, location of edge moldings and edge bindings.

D. Samples: Submit two samples 12 by 12 inch in size illustrating color and pattern for each carpet and cushion material specified.

E. Manufacturer's Installation Instructions: Indicate special procedures.

F. Concrete Sub-floor Test Report: Submit a copy of the moisture and alkalinity (pH) test reports.

G. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning.

H. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 6000 - Product Requirements, for additional requirements.
   2. Extra Carpet: 100 sq ft of each type, color, and pattern installed.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing specified carpet with minimum 5 years documented experience.

B. Installer Qualifications: Company specializing in installing carpet with minimum 5 years documented experience.

1.5 FIELD CONDITIONS

A. Store materials in area of installation for minimum period of 24 hours prior to installation.

B. Maintain minimum 70 degrees F ambient temperature 24 hours prior to, during and 24 hours after installation.

C. Ventilate installation area during installation and for 72 hours after installation.

PART 2 PRODUCTS

2.1 CARPET

A. Manufactured by Collins & Aikman Floorcoverings
   1. Expedition Powerbond RS Vinyl Cushion
      a. Construction: Textured Loop
      b. Guage: 1/13 Guage ONLY
      c. Stitch Rate: 9.2/ inch
      d. Tuft Density: 119.6 tufts/sq in
      e. Pile height Average: 0.109 inch
      f. Pile Thickness: 0.062 inch
      g. Density Factor (UM44D): 8,129 oz,cu yd
      h. Fiber system: 100% TDX SD BCF Nylon 6,6 with Static Control & Ensure
      i. Dye Method: Solution Dyed
      j. Total Weight: 77.0 oz/sq yd
      k. Color: As selected by architect from full range

2.2 WALK OFF MATS

A. Manufactured by Tandus Flooring
   1. Abrasive Action II
      a. Construction: Patterned Loop
      b. Guage: 1/12 Guage
      c. Stitch Rate: 8.0 / inch
      d. Pile Height Average: .187 inch
      e. Fiber System: 100% TDX SD BCF Nylon 6,6 with static control & ensure
      f. Face Weight 24.0 oz / sq. yd
      g. Color: As selected by architect from full range

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that sub-floor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive carpet.

B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive carpet.

C. Verify that sub-floor surfaces are dust-free and free of substances that could impair bonding of adhesives to sub floor surfaces.

3.2 INSTALLATION - GENERAL

A. Starting installation constitutes acceptance of sub-floor conditions.

B. Install carpet and cushion in accordance with manufacturer's instructions and CRI 104 (Commercial).

C. Verify carpet match before cutting to ensure minimal variation between dye lots.

D. Lay out carpet and locate seams in accordance with shop drawings.
   1. Locate seams in area of least traffic, out of areas of pivoting traffic, and parallel to main traffic.
   2. Do not locate seams perpendicular through door openings.
   3. Align run of pile in same direction as anticipated traffic and in same direction on adjacent pieces.
   4. Locate change of color or pattern between rooms under door centerline.
   5. Provide monolithic color, pattern, and texture match within any one area.

E. Install carpet tight and flat on subfloor, well fastened at edges, with a uniform appearance.

3.3 DIRECT-GLUED CARPET

A. Double cut carpet seams, with accurate pattern match. Make cuts straight, true, and unfrayed. Apply seam adhesive to cut edges of woven carpet immediately.

B. Apply contact adhesive to floor uniformly at rate recommended by manufacturer. After sufficient open time, press carpet into adhesive.

C. Apply seam adhesive to the base of the edge glued down. Lay adjoining piece with seam straight, not overlapped or peaked, and free of gaps.

D. Roll with appropriate roller for complete contact of adhesive to carpet backing.

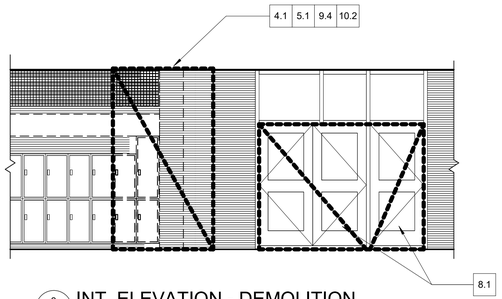
E. Trim carpet neatly at walls and around interruptions.

3.4 CLEANING

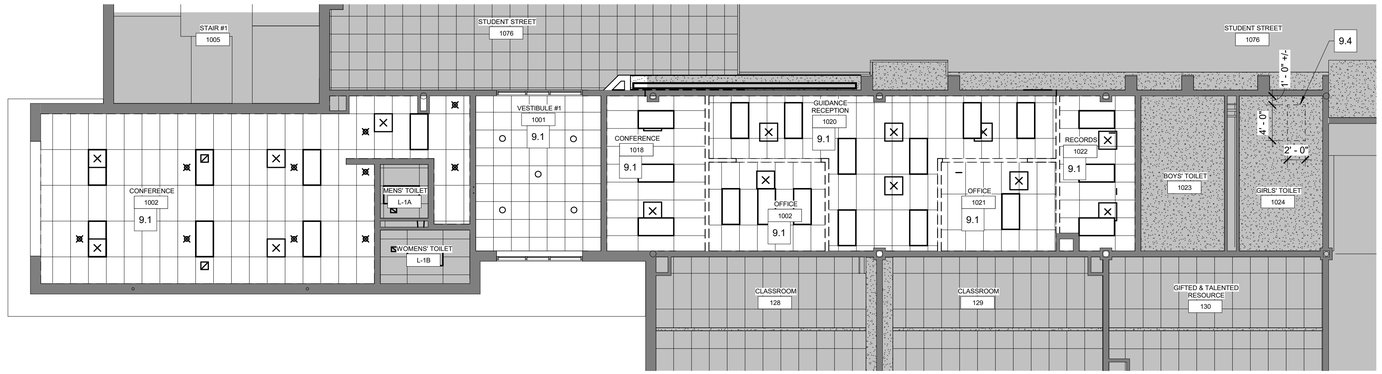
A. Remove excess adhesive from floor and wall surfaces without damage.

B. Clean and vacuum carpet surfaces.

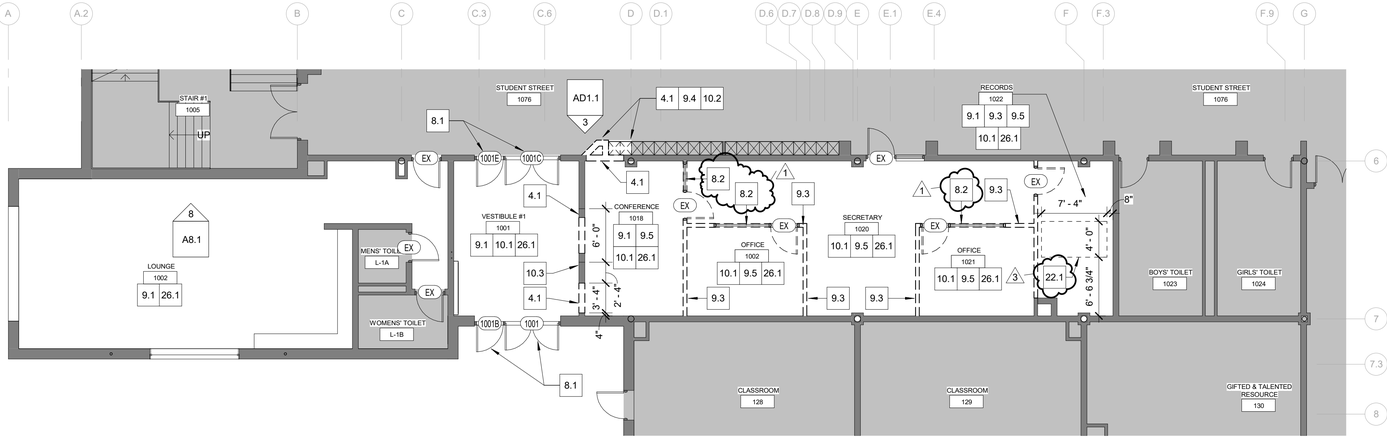
END OF SECTION



3 AD1.1 INT. ELEVATION - DEMOLITION
1/4" = 1'-0"



1 AD1.1 REFLECTED CEILING PLAN - FIRST FLOOR - DEMOLITION
1/8" = 1'-0"



2 AD1.1 FIRST FLOOR PLAN - DEMOLITION
1/8" = 1'-0"

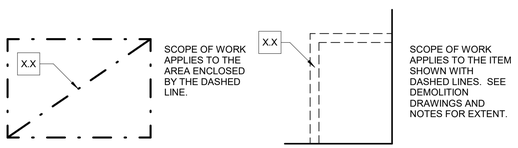
THE FOLLOWING NOTES APPLY TO ALL DEMOLITION WORK WHETHER INDICATED ON THE DEMOLITION DRAWINGS OR REQUIRED ELSEWHERE IN THE CONTRACT DOCUMENTS.

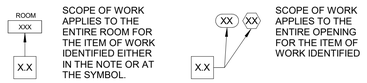
1.1 GENERAL REQUIREMENTS: THE FOLLOWING GENERAL REQUIREMENTS NOTES APPLY TO ALL DEMOLITION WORK. THE NOTES ARE NOT SYMBOLICALLY REFERENCED ELSEWHERE IN THE DRAWINGS.

1.2 THE DEMOLITION AS INDICATED ON THE DRAWINGS APPLIES TO THE DEFINED SCOPE OF WORK. THE DRAWINGS, IN GENERAL, DO NO SPECIFICALLY ADDRESS DEMOLITION THAT IS DEPENDENT ON THE CONTRACTOR'S INDIVIDUAL "MEANS AND METHODS" OF EXECUTING THE WORK. THE REQUIREMENT FOR THIS DEMOLITION IS UNDER SPECIFICATION SECTION "SELECTIVE DEMOLTION."

1.3 THE EXTENT OF DEMOLITION SHALL BE COORDINATED WITH THE NEW AND REBUILT WORK.

1.4 "EXTENT OF WORK" SYMBOLS ARE DEFINED AS FOLLOWS:





DEMOLITION SYMBOLS & NOTES

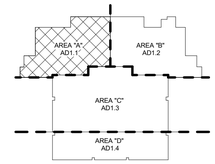
1. ALL WORK SHOWN IS TO REMAIN UNLESS NOTED OR INDICATED AS DASHED LINES TO BE REMOVED. THE EXTENT OF DEMO WORK SHALL INCLUDE ALL INCIDENTAL DEMO WORK NECESSARY TO PROPERLY PROVIDE ALL NEW WORK SHOWN AND SPECIFIED, TO INCLUDE ELECTRICAL AND PLUMBING ITEMS.
2. DEMO WORK SHOWN IS BASED ON EXISTING DWGS AND INSPECTIONS. THE CONTRACTOR SHALL VISUALLY INSPECT ALL EXISTING CONDITIONS AND IS RESPONSIBLE FOR PERFORMING THE INDICATED DEMO WORK EVEN IF ACTUAL CONDITIONS DIFFER FROM THOSE SHOWN ON THE DRAWINGS.
3. DEMO CONTRACTOR SHALL COORD WITH NEW WORK SECTIONS FOR ADDITIONAL INFO RELATED TO EXTENT OF DEMO.
4. REFER TO ALL OTHER DWGS IN THIS SET FOR INCIDENTAL DEMOLITION WORK NOT NOTED ON THE ARCHITECTURAL PLANS.
5. THE OWNER HAS FIRST RIGHT REFUSAL OF ALL SALVAGE ITEMS. THE CONTRACTOR SHALL PROPERLY DISPOSE OF ALL CONSTRUCTION DEBRIS. DO NOT STOCKPILE DEBRIS ON SITE.
6. ITEMS TO BE DEMOLISHED SHALL BE REMOVED COMPLETELY INCLUDING ALL ANCHORS, HANGERS, FASTENERS, PIPES, CONDUITS, DUCTS, ETC UNLESS OTHERWISE INDICATED TO BE ABANDONED IN PLACE. REPAIR/PATCH HOLES AND PAINT.
7. CONC SLAB PATCHES MUST BE FLUSH WITH REMAINING SURFACES TO PERMIT APPLICATION OF FINISHES. PROVIDE WELDED WIRE MESH IN PATCH AREAS LARGER THAN (4) FOUR SQUARE FEET.
8. REMOVE, PATCH AND REPAIR PORTIONS OF WALL PARTITIONS WHICH CONFLICT WITH NEW WORK TO BE INSTALLED, EVEN IF NOT SPECIFICALLY NOTED TO BE DEMOLISHED ON PLANS.
9. ALL EXISTING STRUCTURES SHALL REMAIN, UNLESS NOTED OTHERWISE.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE INTEGRITY OF EXIST BUILDING ELEMENTS TO REMAIN THROUGHOUT SEQUENCE OF WORK. ANY DAMAGE TO EXISTING BUILDING CONDITIONS SHOWN TO REMAIN SHALL BE RESTORED TO NEW WORK CONDITION AT NO ADDITIONAL COST TO THE OWNER.
11. ALL EXIST SURFACES TO REMAIN SHALL BE PROTECTED, REPAIRED IF DAMAGED AND CLEANED PRIOR TO APPLICATION OF FINISHES.
12. REMOVE ELEC AND PLUMBING ITEMS AS NOTED ON ELEC AND PLUMBING PLANS. COORD WITH ELEC AND PLUMBING FOR ADDITIONAL DEMO NOTES. CONTRACTOR SHALL REFER TO ALL STRUCT, MECH, ELEC AND PLUMBING DRAWINGS AND SPECS FOR PROCEDURES CONCERNING RELATED TRADES IN AREAS WHICH REQUIRE DEMO.
13. CONTRACTOR SHALL FILL ALL EXISTING AND NEW VOIDS/OPENINGS/PENETRATIONS IN THE EXISTING CORRIDOR WALLS (SMOKE PARTITIONS) AND 1 HOUR RATED WALLS, INCLUDING WHERE WALLS MEET THE FLOOR OR ROOF DECK ABOVE, WITH FIRE SAFING MATERIAL (OR 5/8" THICK GYPSUM BOARD IF REQUESTED BY AHJ) AND THEN SEAL WITH FIRE SEALANT TO STOP THE PASSAGE OF SMOKE AT THE CORRIDOR WALLS OR PROVIDE 1 HOUR FIRESTOP SYSTEM. PROVIDE SUBMITTAL OF UL RATED ASSEMBLIES THAT CONTRACTOR PLANS ON USING FOR ARCHITECT'S REVIEW.
14. IF A SMOKE PARTITION ONLY REQUIRES ONE SIDE TO BE SEALED PER THE AHJ, THE SIDE TO BE SEALED SHALL BE THE CORRIDOR SIDE; IF APPLICABLE.
15. NEW CEILINGS ARE TO BE INSTALLED AT HEIGHT OF EXISTING CEILINGS, UNLESS OTHERWISE INDICATED.
16. LOWER ALL ELECTRICAL DEVICES (FIRE ALARM, SPEAKERS, PROJECTION SCREENS, ETC.) AS REQUIRED FOR INSTALLATION OF NEW CEILING TILE AND GRID. COORDINATE WITH ELECTRICAL DRAWINGS AND REFER TO ELECTRICAL DRAWINGS FOR ALL DEVICE MOUNTING HEIGHTS.

GENERAL NOTES - PLAN

- 4.1 REMOVE EXISTING CMU/BRICK WALL AND LOCKER BASE AS NEEDED. SALVAGE BRICK TO PATCH/REPAIR WALL AS REQUIRED.
- 8.1 REMOVE GLAZING ONLY, EXSITING DOORS AND FRAMES TO REMAIN
- 8.2 DEMO HOLLOW METAL WINDOW/ DOOR FRAME
- 9.1 REMOVE EXISTING ACOUSTIC PANEL CEILING SYSTEM INCLUDING PANELS AND GRID. REFER TO ELECTRICAL PLANS FOR LIGHTING DEMOLITION.
- 9.3 DEMO PORTION OR ENTITRETY OF EXISTING METAL STUD WALL ASSEMBLY
- 9.4 REMOVE PORTION OF EXIST GYP BD CEILING AS NECESSARY
- 9.5 REMOVE EXISTING FLOORING
- 10.1 REMOVE AND RELOCATE EXISTING TACK AND CHALKBOARD ASSEMBLY VERIFY LOCATION WITH OWNER
- 10.3 REMOVE AND SALVAGE WALL MOUNTED PLAQUE. TO BE REINSTALLED
- 10.2 REMOVE AND SLAVAGE EXISTING LOCKER TO ACCOMMODATE NEW DOOR OPENING. REMOVE/MODIFY PORTION OF LOCKER SLOPED TOP THAT IS DIRECTLY ABOVE LOCKERS TO BE DEMOED
- 22.1 DEMO PORTION OF CONCRETE SLAB FOR SANITARY DRAINS
- 26.1 REMOVE AND RELOCATE ELECTRICAL EQUIPMENT AND DEVICES. SEE ELECTRICAL DRAWINGS. COORD. WITH PLUMBING DRAWINGS

DEMOLITION NOTES

KEY PLAN:



KEYNOTES LISTED ON THIS SHEET ARE FOR CONVENIENCE ONLY. REFER TO SHEET CS.2 FOR COMPLETE LIST

8 0 8 16
SCALE OF FEET
1/8" = 1'-0"

100% CONSTRUCTION DOCUMENTS

Seal:

GWWO INC.
800 WYMAN PARK DRIVE, SUITE 300
BALTIMORE, MARYLAND 21211, 410-332-1009

Seal:

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF A MARYLAND, LICENSE NUMBER , EXPIRATION DATE

Revisions:

No.	Date	Description
1	04/08/2020	RFI# PB-002
3	04/08/2020	RFI# PB-005
4	04/08/2020	RFI# PB-006

BURLEIGH MANOR MIDDLE SCHOOL SECURITY VESTIBULE

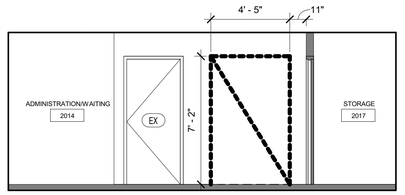
HOWARD COUNTY PUBLIC SCHOOL SYSTEM

Job No.	17038	SMT	Drawn
Scale	As indicated	BM	Checked
Date	03/23/2020	PLH	Approved

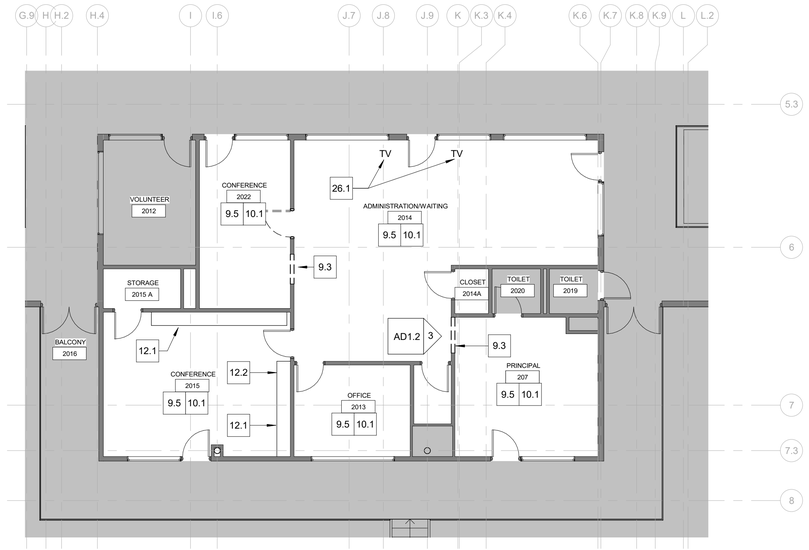
Drawing Title: FIRST FLOOR PLAN & RCP - DEMOLITION

Drawing Number: AD1.1

Sheet: Of

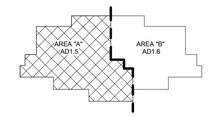


3 AD1.2 CORRIDOR BULKHEAD DEMO
1/4" = 1'-0"



1 AD1.2 SECOND FLOOR PLAN - DEMOLITION
1/8" = 1'-0"

KEY PLAN:



KEYNOTES LISTED ON THIS SHEET ARE FOR CONVENIENCE ONLY. REFER TO SHEET CS.2 FOR COMPLETE LIST

8 0 8 16
SCALE OF FEET
1/8" = 1'-0"

100% CONSTRUCTION DOCUMENTS

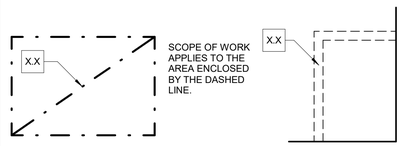
THE FOLLOWING NOTES APPLY TO ALL DEMOLITION WORK WHETHER INDICATED ON THE DEMOLITION DRAWINGS OR REQUIRED ELSEWHERE IN THE CONTRACT DOCUMENTS.

1.1 GENERAL REQUIREMENTS: THE FOLLOWING GENERAL REQUIREMENTS NOTES APPLY TO ALL DEMOLITION WORK. THE NOTES ARE NOT SYMBOLICALLY REFERENCED ELSEWHERE IN THE DRAWINGS.

1.2 THE DEMOLITION AS INDICATED ON THE DRAWINGS APPLIES TO THE DEFINED SCOPE OF WORK. THE DRAWINGS, IN GENERAL, DO NO SPECIFICALLY ADDRESS DEMOLITION THAT IS DEPENDENT ON THE CONTRACTOR'S INDIVIDUAL "MEANS AND METHODS" OF EXECUTING THE WORK. THE REQUIREMENT FOR THIS DEMOLITION IS UNDER SPECIFICATION SECTION "SELECTIVE DEMOLTION."

1.3 THE EXTENT OF DEMOLITION SHALL BE COORDINATED WITH THE NEW AND REBUILT WORK.

1.4 "EXTENT OF WORK" SYMBOLS ARE DEFINED AS FOLLOWS:



SCOPE OF WORK APPLIES TO THE AREA ENCLOSED BY THE DASHED LINE.

SCOPE OF WORK APPLIES TO THE ITEM SHOWN WITH DASHED LINES. SEE DEMOLITION DRAWINGS AND NOTES FOR EXTENT.

SCOPE OF WORK APPLIES TO THE ENTIRE ROOM FOR THE ITEM OF WORK IDENTIFIED EITHER IN THE NOTE OR AT THE SYMBOL.

SCOPE OF WORK APPLIES TO THE ENTIRE OPENING FOR THE ITEM OF WORK IDENTIFIED

DEMOLITION SYMBOLS & NOTES

GENERAL NOTES - PLAN

1. ALL WORK SHOWN IS TO REMAIN UNLESS NOTED OR INDICATED AS DASHED LINES TO BE REMOVED. THE EXTENT OF DEMO WORK SHALL INCLUDE ALL INCIDENTAL DEMO WORK NECESSARY TO PROPERLY PROVIDE ALL NEW WORK SHOWN AND SPECIFIED, TO INCLUDE ELECTRICAL AND PLUMBING ITEMS.
2. DEMO WORK SHOWN IS BASED ON EXISTING DWGS AND INSPECTIONS. THE CONTRACTOR SHALL VISUALLY INSPECT ALL EXISTING CONDITIONS AND IS RESPONSIBLE FOR PERFORMING THE INDICATED DEMO WORK EVEN IF ACTUAL CONDITIONS DIFFER FROM THOSE SHOWN ON THE DRAWINGS.
3. DEMO CONTRACTOR SHALL COORD WITH NEW WORK SECTIONS FOR ADDITIONAL INFO RELATED TO EXTENT OF DEMO.
4. REFER TO ALL OTHER DWGS IN THIS SET FOR INCIDENTAL DEMOLITION WORK NOT NOTED ON THE ARCHITECTURAL PLANS.
5. THE OWNER HAS FIRST RIGHT REFUSAL OF ALL SALVAGE ITEMS. THE CONTRACTOR SHALL PROPERLY DISPOSE OF ALL CONSTRUCTION DEBRIS. DO NOT STOCKPILE DEBRIS ON SITE.
6. ITEMS TO BE DEMOLISHED SHALL BE REMOVED COMPLETELY INCLUDING ALL ANCHORS, HANGERS, FASTENERS, PIPES, CONDUITS, DUCTS, ETC UNLESS OTHERWISE INDICATED TO BE ABANDONED IN PLACE. REPAIR/PATCH HOLES AND PAINT.
7. CONC SLAB PATCHES MUST BE FLUSH WITH REMAINING SURFACES TO PERMIT APPLICATION OF FINISHES. PROVIDE WELDED WIRE MESH IN PATCH AREAS LARGER THAN (4) FOUR SQUARE FEET.
8. REMOVE, PATCH AND REPAIR PORTIONS OF WALL PARTITIONS WHICH CONFLICT WITH NEW WORK TO BE INSTALLED, EVEN IF NOT SPECIFICALLY NOTED TO BE DEMOLISHED ON PLANS.
9. ALL EXISTING STRUCTURES SHALL REMAIN, UNLESS NOTED OTHERWISE.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE INTEGRITY OF EXIST BUILDING ELEMENTS TO REMAIN THROUGHOUT SEQUENCE OF WORK. ANY DAMAGE TO EXISTING BUILDING CONDITIONS SHOWN TO REMAIN SHALL BE RESTORED TO NEW WORK CONDITION AT NO ADDITIONAL COST TO THE OWNER.
11. ALL EXIST SURFACES TO REMAIN SHALL BE PROTECTED, REPAIRED IF DAMAGED AND CLEANED PRIOR TO APPLICATION OF FINISHES.
12. REMOVE ELEC AND PLUMBING ITEMS AS NOTED ON ELEC AND PLUMBING PLANS. COORD WITH ELEC AND PLUMBING FOR ADDITIONAL DEMO NOTES. CONTRACTOR SHALL REFER TO ALL STRUCT, MECH, ELEC AND PLUMBING DRAWINGS AND SPECS FOR PROCEDURES CONCERNING RELATED TRADES IN AREAS WHICH REQUIRE DEMO.
13. CONTRACTOR SHALL FILL ALL EXISTING AND NEW VOIDS/OPENINGS/PENETRATIONS IN THE EXISTING CORRIDOR WALLS (SMOKE PARTITIONS) AND 1 HOUR RATED WALLS, INCLUDING WHERE WALLS MEET THE FLOOR OR ROOF DECK ABOVE, WITH FIRE SAFING MATERIAL (OR 5/8" THICK GYPSUM BOARD IF REQUESTED BY AHJ) AND THEN SEAL WITH FIRE SEALANT TO STOP THE PASSAGE OF SMOKE AT THE CORRIDOR WALLS OR PROVIDE 1 HOUR FIRESTOP SYSTEM. PROVIDE SUBMITTAL OF UL RATED ASSEMBLIES THAT CONTRACTOR PLANS ON USING FOR ARCHITECT'S REVIEW.
14. IF A SMOKE PARTITION ONLY REQUIRES ONE SIDE TO BE SEALED PER THE AHJ, THE SIDE TO BE SEALED SHALL BE THE CORRIDOR SIDE; IF APPLICABLE.
15.
16. NEW CEILINGS ARE TO BE INSTALLED AT HEIGHT OF EXISTING CEILINGS, UNLESS OTHERWISE INDICATED.
17. LOWER ALL ELECTRICAL DEVICES (FIRE ALARM, SPEAKERS, PROJECTION SCREENS, ETC.) AS REQUIRED FOR INSTALLATION OF NEW CEILING TILE AND GRID. COORDINATE WITH ELECTRICAL DRAWINGS AND REFER TO ELECTRICAL DRAWINGS FOR ALL DEVICE MOUNTING HEIGHTS.

DEMOLITION NOTES

9.3 DEMO PORTION OR ENTITRETY OF EXISTING METAL STUD WALL ASSEMBLY

9.5 REMOVE EXISTING FLOORING

10.1 REMOVE AND RELOCATE EXISTING TACK AND CHALKBOARD ASSEMBLY VERIFY LOCATION WITH OWNER

12.1 REMOVE EXISTING CASEWORK

12.2 REMOVE SALVAGE AND RELOCATE SAFE

26.1 REMOVE AND RELOCATE ELECTRICAL EQUIPMENT AND DEVICES. SEE ELECTRICAL DRAWINGS. COORD. WITH PLUMBING DRAWINGS

GWWO INC.
800 WYMAN PARK DRIVE, SUITE 300
BALTIMORE, MARYLAND 21211, 410-332-1009

Seal:

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF A MARYLAND, LICENSE NUMBER , EXPIRATION DATE

Revisions:

No.	Date	Description
4	04/08/2020	RFI# PB-006

BURLEIGH MANOR MIDDLE SCHOOL SECURITY VESTIBULE

HOWARD COUNTY PUBLIC SCHOOL SYSTEM

Job No.	17038	SMT	Drawn
Scale	As indicated	GEW	Checked
Date	03/23/2020	PLH	Approved

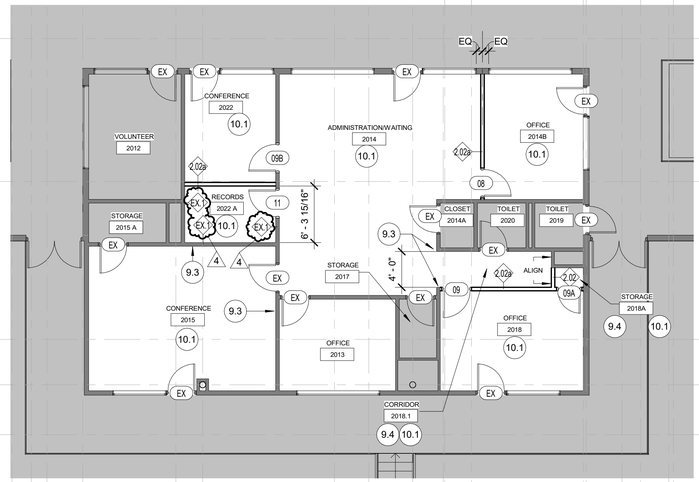
Drawing Title: SECOND FLOOR PLAN & RCP - DEMOLITION

Drawing Number: AD1.2

Sheet: Of

2 A1.2 SECOND FLOOR FURNISHING PLAN - FOR INFORMATION ONLY

1/8" = 1'-0"



1 A1.2 SECOND FLOOR PLAN - NEW

1/8" = 1'-0"

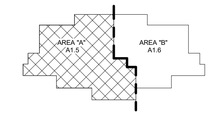
9.3 PATCH/REPAIR AND REPLACE WALLS WHERE CABINETRY OR EXISTING WALLS WERE DEMOLISHED, WITH SAME MATERIALS AS EXISTING ADJACENT MATERIALS.

10.1 RELOCATE EXISTING MARKER BOARD AND TACK BOARD ASSEMBLY

CONSTRUCTION NOTES

SEE ELECTRICAL AND PLUMBING DRAWINGS FOR SYMBOLS RELATING TO M.E.P. WORK

KEY PLAN:



KEYNOTES LISTED ON THIS SHEET ARE FOR CONVENIENCE ONLY. REFER TO SHEET CS.2 FOR COMPLETE LIST

8 0 8 16

SCALE OF FEET
1/8" = 1'-0"

100% CONSTRUCTION DOCUMENTS

Seal:

G|W W|O
GWWO INC.
800 WYMAN PARK DRIVE, SUITE 300
BALTIMORE, MARYLAND 21211, 410-332-1009

Seal:

STATE OF MARYLAND — PAUL L. TAYLOR — 10910 — REGISTERED ARCHITECT

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF A MARYLAND, LICENSE NUMBER _____ EXPIRATION DATE _____

Revisions:

No.	Date	Description
4	04/08/2020	RFI# PB-006

BURLEIGH MANOR MIDDLE SCHOOL SECURITY VESTIBULE

HOWARD COUNTY PUBLIC SCHOOL SYSTEM

Job No.	17038	SMT	Drawn
Scale	As indicated	BM	Checked
Date	03/23/2020	PLH	Approved

Drawing Title: SECOND FLOOR PLAN & REFLECTED CEILING PLAN

Drawing Number: A1.2

Sheet _____ Of _____

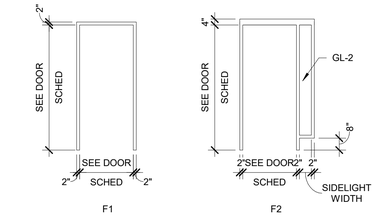
DOOR SCHEDULE - FIRST FLOOR

OPENING NO.	LOCATION FROM	LOCATION TO	DOOR TYPE	DOOR WIDTH	DOOR HEIGHT	DOOR MATERIAL	DOOR FINISH	FRAME TYPE	FRAME MATERIAL	FRAME FINISH	DETAIL REF. HEAD	DETAIL REF. JAMB	FIRE RATING	HARDWARE SET	GLAZING TYPE	COMMENTS
01	1001	A	G	3' - 0"	7' - 0"	WD	CLEAR	F1	HM	PAINTED - P2			60 MIN.	3	GL-1	
01A	A.1	A	F	2' - 6"	7' - 0"	WD	CLEAR	F1	HM	PAINTED - P2				7		
02	1076	A	G	3' - 0"	7' - 0"	WD	CLEAR	F2	HM	PAINTED - P2	HH	JJ	60 MIN.	4	GL-2	ROOM SIGNAGE TO BE PROVIDED ON WALL
03	B	A	G	3' - 0"	7' - 0"	WD	CLEAR	F1	HM	PAINTED - P2				5	GL-2	
04	A	C	G	3' - 0"	7' - 0"	WD	CLEAR	F1	HM	PAINTED - P2				5	GL-2	
05	C	D	F	3' - 0"	7' - 0"	WD	CLEAR	F1	HM	PAINTED - P2				6		
06	A	E	F	3' - 0"	7' - 0"	WD	CLEAR	F1	HM	PAINTED - P2				6		
07	F	G	G	3' - 0"	7' - 0"	WD	CLEAR	F1	HM	PAINTED - P2				5	GL-2	
1001	EXTERIOR	1001	FGFG	EXISTING	EXISTING	EXISTING	EXISTING	-		EXISTING	EXSITING	EXISTING		1	GL-1	NOTE 1
1001B	EXTERIOR	1001	FG	EXISTING	EXISTING	EXISTING	EXISTING	-		EXISTING	EXSITING	EXISTING		1	GL-1	NOTE 1
1001C	1001	1076	FGFG	EXISTING	EXISTING	EXISTING	EXISTING	-		EXISTING	EXSITING	EXISTING		2	GL-1	NOTE 1
1001E	1001	1076	FG	EXISTING	EXISTING	EXISTING	EXISTING	-		EXISTING	EXSITING	EXISTING		2	GL-1	NOTE 1

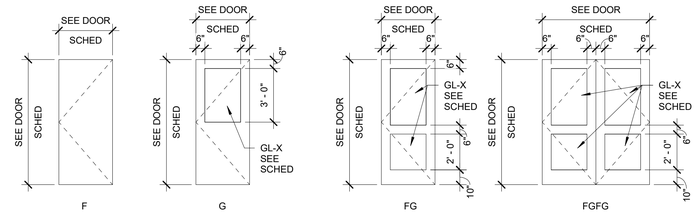
1. PREP EXISTING DOORS AND FRAMES FOR NEW HARWARE

DOOR SCHEDULE - SECOND FLOOR

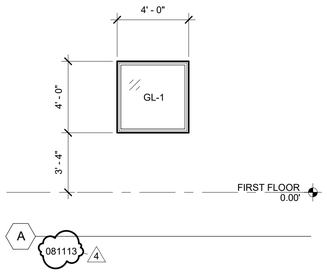
OPENING NO.	LOCATION FROM	LOCATION TO	DOOR TYPE	DOOR WIDTH	DOOR HEIGHT	DOOR MATERIAL	DOOR FINISH	FRAME TYPE	FRAME MATERIAL	FRAME FINISH	DETAIL REF. HEAD	DETAIL REF. JAMB	FIRE RATING	HARDWARE SET	GLAZING TYPE	COMMENTS
08	2014	2014B	G	3' - 0"	7' - 0"	WD	CLEAR	F1	HM	PAINTED - P2				5	GL-3	
09	2018	2018.1	G	3' - 0"	7' - 0"	WD	CLEAR	F1	HM	PAINTED - P2				5	GL-3	
09A	2018A	2018	F	2' - 6"	7' - 0"	WD	CLEAR	F1	HM	PAINTED - P2				7		
09B	2022	2014	F	3' - 0"	7' - 0"	WD	CLEAR	F1	HM	PAINTED - P2				5		
11	2014	2022 A	F	3' - 0"	7' - 0"	WD	CLEAR	F1	HM	PAINTED - P2			20 MIN	5		

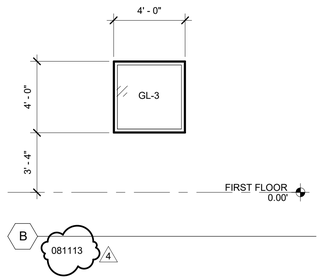


FRAME TYPES

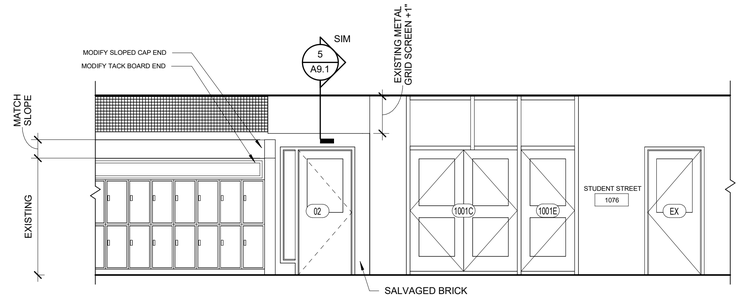


DOOR TYPES

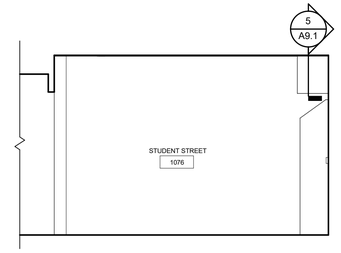




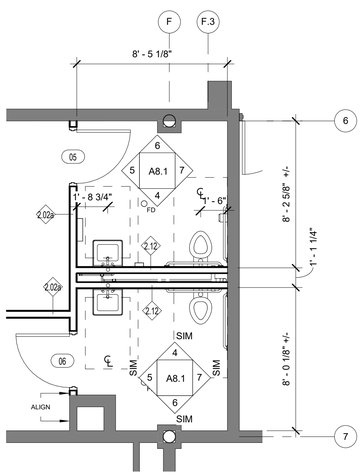
GLAZING TYPE	DESCRIPTION
GL-1	INSULATED TEMPERED GLASS
GL-2	LAMINATED SAFETY GLASS
GL-3	1/4" CLEAR SINGLE PANE SAFETY - TEMPERED GLASS



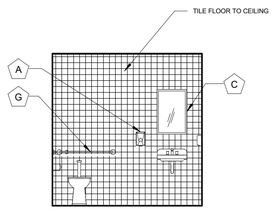
1 A8.1 INT. ELEVATION
1/4" = 1'-0"



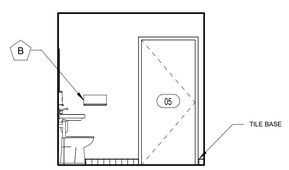
2 A8.1 INT. ELEVATON
1/4" = 1'-0"



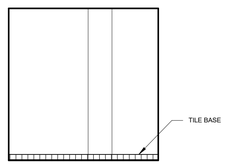
3 A8.1 BATHROOM PLANS
1/4" = 1'-0"



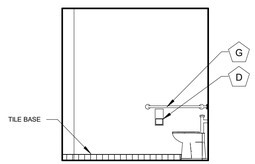
4 A8.1 INT. ELEVATION
1/4" = 1'-0"



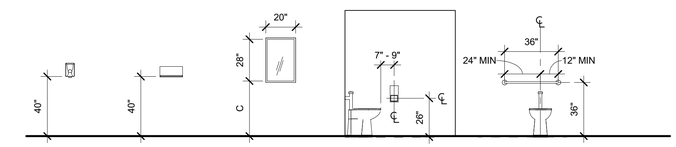
5 A8.1 INT. ELEVATION
1/4" = 1'-0"

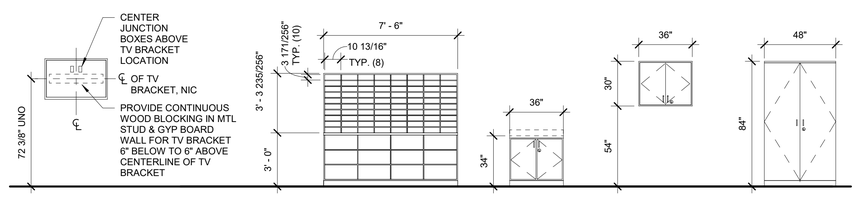


6 A8.1 INT. ELEVATION
1/4" = 1'-0"

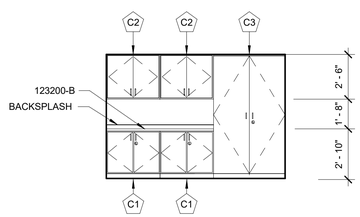


7 A8.1 INT. ELEVATION
1/4" = 1'-0"





ACCESSORY SCHEDULE - SHEET
1/4" = 1'-0"



8 A8.1 ELEVATION CABINETS
1/4" = 1'-0"

KEY PLAN:

KEYNOTES LISTED ON THIS SHEET ARE FOR CONVENIENCE ONLY. REFER TO SHEET CS.2 FOR COMPLETE LIST

081113 HOLLOW METAL DOORS AND FRAME
123200-B COUNTER

100% CONSTRUCTION DOCUMENTS

Seal:

G|W W|O
GWWO INC.
800 WYMAN PARK DRIVE, SUITE 300
BALTIMORE, MARYLAND 21211, 410-332-1009

Seal:

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF A MARYLAND, LICENSE NUMBER . EXPIRATION DATE

Revisions:

No.	Date	Description
4	04/08/2020	RFI# PB-006

BURLEIGH MANOR
MIDDLE SCHOOL
SECURITY VESTIBULE

HOWARD COUNTY PUBLIC SCHOOL SYSTEM

Job No.	17038	SMT	Drawn
Scale		BM	Checked
Date	03/23/2020	PLH	Approved
Drawing Title	DOORS, WINDOWS & BATHROOMS - PLANS, ELEVATIONS & ACCESSORIES	Drawing Number	A8.1
Sheet			Of

SIGNAGE SCHEDULE

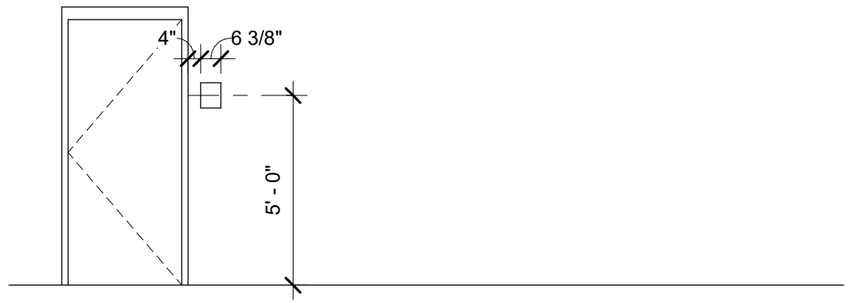
NEW DOORS

OPENING #	ROOM #	ROOM NAME	SIGN LOCATION
01	1020	ADMINISTRATION	OUTSIDE ROOM / VESTIBULE
02	1020	ADMINISTRATION	OUTSIDE ROOM / COORIDOR
03	1019	VICE PRINCIPAL	OUTSIDE ROOM
04	1021	PRINCIPAL	OUTSIDE ROOM
06	1022	TOILET	OUTSIDE ROOM
07	1002B	PRINCIPAL'S ASSISTANT	OUTSIDE ROOM
08	2014B	OFFICE	OUTSIDE ROOM
09	2018	OFFICE	OUTSIDE ROOM
09B	2022	CONFERENCE	OUTSIDE ROOM
11	2022A	RECORDS	OUTSIDE ROOM

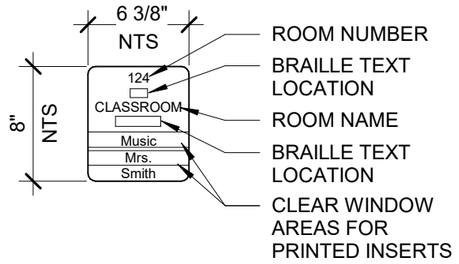
EXISTING DOORS

OPENING #	ROOM #	ROOM NAME	SIGN LOCATION
EX	2013	OFFICE	OUTSIDE ROOM
EX	2014	GUIDANCE OFFICE	OUTSIDE ROOM / COORIDOR
EX	2015	CONFERENCE	OUTSIDE ROOM

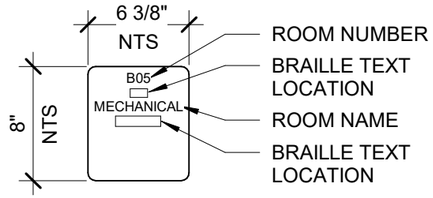
NOTE - ON EXISTING OPENING (EX) REMOVE EXISTING SINGAGE AND PATCH/PAINT FRAME TO MATCH COLOR



ROOM SIGN LOCATION



TYPICAL CLASSROOM SIGN



TYPICAL SUPPORT SPACE SIGN

GENERAL NOTES

1. EXACT SIGN TEXT & NUMBERS TO BE VERIFIED WITH OWNER.
2. ALL SIGNS TO BE PROVIDED WITH BRAILLE TACTILE TEXT WHERE INFORMATION IS REQUIRED FOR HANDICAPPED ACCESS.
3. PROVIDE AND INSTALL ROOM SIGN AT EVERY DOOR ON ALL FLOORS OF THE BUILDING, AND 10 OTHER LOCATIONS TO BE DETERMINED.
4. PROVIDE AND INSTALL SIGNS FOR OCCUPANCY LIMITATIONS, SAFETY EQUIPMENT, DIRECTIONAL, HANDICAPPED ACCESSIBILITY (TOILETS ETC.), AND OTHER SIGNS AS MAY BE REQUIRED BY REGULATORY AUTHORITIES AT SIZES AND HEIGHTS REQUIRED BY SUCH AUTHORITIES.

ROOM SIGN:
PLASTIC, ROUND EDGES WITH BRAILLE TEXT AS INDICATED AND 2 CLEAR WINDOW AREAS

2

DRAWING: DOOR SIGNAGE SCHEDULE

PROJECT: BURLEIGH MANOR MIDDLE SCHOOL SECURITY VESTIBULE

REV #	DATE	RFI NO.	SKETCH NO.
2	04/08/2020	PB-003	SKA-001

SCALE: 1/4" = 1'-0"

JOB NO. 17038

GWWO INC.
800 WYMAN PARK DRIVE, SUITE 300
BALTIMORE, MARYLAND 21211, 410-332-1009

BMMS Pre-bid RFI log

RFI#	Date Recieved	Planholder	Acknowledge Reciept Date	Response - Addenda #
PB-001	4/2/2020	Cooper Building Services	4/2/2020	3
PB-002	4/2/2020	Most Inc	4/2/2020	4
PB-003	4/3/2020	Cooper Building Services	4/3/2020	4
PB-004	4/3/2020	Nichols Contracting	4/3/2020	4
PB-005	4/6/2020	Cooper Building Services	4/6/2020	4
PB-006	4/6/2020	Keller Brothers	4/6/2020	4
PB-007	4/6/2020	Brawner Builders	4/6/2020	4

Request For Information PB-001

Burleigh Manor Middle School
4200 Centennial Lane
Ellicott City, MD 21042

Project # 2002
Tel: Fax:

RFI #: PB-001 **Date Created: 4/2/2020**

Answer Company	Answered By	Author Company	Authored By
Oak Contracting, LLC 1000 Cromwell Bridge Road Towson, MD 21286	Matt Lurz Phone: 410-828-1000 Fax: 410-828-7488	Oak Contracting, LLC 1000 Cromwell Bridge Road Towson, MD 21286	Corey Wixsom Phone: 410-828-1000 Fax:

Co-Respondent **Author RFI Number**

Subject **Discipline** **Category**

Cooper Building Services question

Cc:	Company Name	Contact Name	Copies	Notes

Question **Date Required:**

Please review attached Pre-bid RFI #PB-001 and provide a response.

Suggestion

Answer **Date Answered: 4/6/2020**

1. Project shall be substantially complete by the date enumerated in the Contract Documents.
2. Start date for the project is at the time of Contract Award. Work on site shall begin following the last scheduled day of school on or about June 15, 2020 pending any unforeseen conditions including but not limited to the impact of COVID19 pandemic.
3. Any changes to the bid procedure will be communicated via addenda.

From: Jonathan Goetz
To: Matt Lurz
Cc: Corey Wixsom
Subject: FW: ITB #032.20.B$ HCPSS Burleigh Manor Middle School Secure Vestibule
Date: Thursday, April 2, 2020 2:13:48 PM
Attachments: image001.png
image003.png

Please address this.

Jonathan Goetz, LEED® AP
Senior Project Manager
Oak Contracting
1000 Cromwell Bridge Road, Towson, MD 21286
P (410) 828-1000 / C (410) 215-5799
www.oakcontracting.com

From: Cameron Wilson <cwilson@cooperbuilds.com>
Sent: Thursday, April 2, 2020 2:13 PM
To: Jonathan Goetz <jgoetz@oakcontracting.com>
Subject: ITB #032.20.B$ HCPSS Burleigh Manor Middle School Secure Vestibule

Good Afternoon,

We have three questions:

1. What is the duration period for this project?
2. What is the anticipated start date for this project?
3. Would you except and email bid and mailed original copy due to the current "Stay-at-Home Order" by the Governor?

Thank you,

Cameron Wilson
Estimator
cwilson@cooperbuilds.com
Direct: 240.566.1373
Mobile: 240.405.4040
- -

COOPER
DEMAND EXCELLENCE. EXPECT PRECISION.

Cooper Building Services, LLC
www.cooperbuilds.com

7450 New Technology Way, Suite A
Frederick, MD 21703

Request For Information PB-002

Burleigh Manor Middle School
4200 Centennial Lane
Ellicott City, MD 21042

Project # 2002
Tel: Fax:

RFI #: PB-002 **Date Created: 4/2/2020**

Answer Company	Answered By	Author Company	Authored By
GWWO, Inc./Architects 800 Wyman Park Dr. Suite 300 Baltimore, MD 21211	Brian Minnich Phone: 410-332-1009 Fax: 410-332-0038	Oak Contracting, LLC 1000 Cromwell Bridge Road Towson, MD 21286	Corey Wixsom Phone: 410-828-1000 Fax:

Co-Respondent **Author RFI Number**

Subject	Discipline	Category
Most, Inc. question		

Cc: Company Name	Contact Name	Copies	Notes

Question **Date Required:**

Please review attached Pre-bid RFI #PB-002 and provide a response.

Suggestion

Answer **Date Answered: 4/8/2020**

1. See revised AD1.1 sheet.
2. A schedule from the HVAC Systemic mechanical contractor will be provided prior to the Contractor's start date. Oak will facilitiate coordination between the HVAC Systemic Contractor's schedule and the schedule provided by the Security Vestibule Contractor.

Pre-bid RFI #PB-002

From: Jonathan Goetz
To: Matt Lurz; Corey Wixsom
Subject: FW: RFI - Burleigh Manor M.S. Secure Vestibule Project Bid
Date: Thursday, April 2, 2020 2:43:02 PM
Attachments: image001.png

See below.

Jonathan Goetz, LEED® AP
Senior Project Manager
Oak Contracting
1000 Cromwell Bridge Road, Towson, MD 21286
P (410) 828-1000 / C (410) 215-5799
www.oakcontracting.com

From: Mat Lewis <mat@mostincorporated.com>
Sent: Thursday, April 2, 2020 2:39 PM
To: Jonathan Goetz <jgoetz@oakcontracting.com>
Subject: RFI - Burleigh Manor M.S. Secure Vestibule Project Bid

The following questions were asked during the conference call.

GWWO 1. Drawing *AD1.1, Demolition Notes 8.2 - Demo hollow metal window/door frame*. The drawing shows note 9.2. Please clarify that this is a misprint.

HCPSS 2. Since the above ceiling mechanical work is not part of this scope will the mechanical contractor provide a schedule prior to the award contractors start date?

Thank You,

Mat Lewis / Project Manager

MOST, INC.

REMODELING, GENERAL CONTRACTING

BUILDING MAINTENANCE

7203 BELAIR ROAD

BALTIMORE, MD 21206-1129
Phone: (410) 668-6678 Fax: (410) 668-4973

Request For Information PB-003

.

Burleigh Manor Middle School
4200 Centennial Lane
Ellicott City, MD 21042

Project # 2002
Tel: Fax:

RFI #: PB-003 **Date Created: 4/3/2020**

Answer Company	Answered By	Author Company	Authored By
GWWO, Inc./Architects 800 Wyman Park Dr. Suite 300 Baltimore, MD 21211	Brian Minnich Phone: 410-332-1009 Fax: 410-332-0038	Oak Contracting, LLC 1000 Cromwell Bridge Road Towson, MD 21286	Corey Wixsom Phone: 410-828-1000 Fax:

Co-Respondent

Author RFI Number

Subject	Discipline	Category
Cooper Building Services question		

Cc: Company Name	Contact Name	Copies	Notes

Question **Date Required:**

Please review attached Pre-bid RFI #PB-003 and provide a response.

Suggestion

Answer **Date Answered: 4/8/2020**

1. See SKA-001 DOOR SIGNAGE SCHEDULE in addendem #4

Pre-bid RFI #PB-003

From: Jonathan Goetz
To: Matt Lurz; Corey Wixsom
Subject: Fwd: ITB #032.20.B$ HCPSS Burleigh Manor Middle School Secure Vestibule
Date: Friday, April 3, 2020 9:38:59 AM
Attachments: image003.png
image004.png

See below

Sent from my iPhone

Begin forwarded message:

> **From:** Cameron Wilson <cwilson@cooperbuilds.com>
> **Date:** April 3, 2020 at 8:53:29 AM EDT
> **To:** Jonathan Goetz <jgoetz@oakcontracting.com>
> **Subject: RE: ITB #032.20.B$ HCPSS Burleigh Manor Middle School Secure Vestibule**
>
> Good Morning
>
> We have another question:
>
> GWWO 1. After looking the through the specs and drawings, the specs called out signage. However, there is no signage detail or schedule in the drawings. Can you please provide one?
>
> Thank you,
>
> **Cameron Wilson**
> *Estimator*
> cwilson@cooperbuilds.com
> **Direct:** 240.566.1373
> **Mobile:** 240.405.4040
> -
>
> COOPER
> DEMAND EXCELLENCE. EXPECT PRECISION.
>
> **Cooper Building Services, LLC**
> www.cooperbuilds.com
> 7450 New Technology Way, Suite A
> Frederick, MD 21703

Request For Information PB-004

Burleigh Manor Middle School
4200 Centennial Lane
Ellicott City, MD 21042

Project # 2002
Tel: Fax:

RFI #: PB-004 **Date Created: 4/3/2020**

Answer Company	Answered By	Author Company	Authored By
GWWO, Inc./Architects 800 Wyman Park Dr. Suite 300 Baltimore, MD 21211	Brian Minnich Phone: 410-332-1009 Fax: 410-332-0038	Oak Contracting, LLC 1000 Cromwell Bridge Road Towson, MD 21286	Corey Wixsom Phone: 410-828-1000 Fax:

Co-Respondent **Author RFI Number**

Subject **Discipline** **Category**

Nichols Contracting question

Cc: Company Name **Contact Name** **Copies** **Notes**

Question **Date Required:**

Please review attached Pre-bid RFI #PB-004 and provide a response.

Suggestion

Answer **Date Answered: 4/8/2020**

1. No. Due to COVID-19 Pandemic no one is permitted access to the school.
2. See addendum #4

3. A. Soap Dispenser - Owner Furnished, Contractor Installed
   B. Paper towel dispenser - Cascades 10105
   D. Toilet Paper holder - Cascades 4212

4. An on-site field office is not required for this project
5. The FACP is being replaced by the HVAC systemic contractor in the upcoming phase. A copy of the submittal follows this RFI
6. See specification 09300 Tiling and 096816 Sheet Carpeting included in addendum#4
7. Cabinet dimensions are provided on drawing A8.1

NICHOLS CONTRACTING, INC.

REQUEST FOR INFORMATION

April 2, 2020

Jonathan Goetz
Oak Contracting, LLC
jgoetz@oakcontracting.com

Subject: ITB #032.20.B4 – Burleigh Manor MS Vestibule Renovation

Information Required:

Question 1) Can HCPS provide photographs of the project area?

Question 2) What specific existing furnishings/devices need to be removed/relocated? (If HCPS can not provide photographs)

Question 3) Can HCPS provide manufacturer/model information for bathroom accessories?

Question 4) Will an on-site field office be required during the duration of this project?

Question 5) What is the manufacturer of the existing FACP?

Question 6) What is the manufacturer/model of the interior finishes?

Question 7) Will full Millwork dimensions be provided?

Please advise how to proceed.

Nichols Contracting Inc.

By: Jared Schmith - Estimator

From: Jason Harding
Fresh Air Concepts
5195 Raynor Ave
Linthicum, MD 21090

Dated:

Telephone: 410-789-7800
Fax: 410-789-7804

To: Al-Nisa M. Aduwu
MBP

Project Ref: Burleigh Manor Middle School
16A Electrical

Contract No. 17038

We are sending:

Submittal No: 15
Submittal Sequence No: 2

- [x] Shop Drawings
- [x] Product Data
- [ ] Samples
- [ ] Certificates
- [ ] Test Reports
- [ ] Other:

Copies:	Specification Section:	Description:
1	28 3100	Fire Detection and Alarm Systems

These are Transmitted as checked below:

- [x] For Approval
- [ ] As Requested
- [ ] For your Review/Records
- [ ] Approved as Submitted
- [ ] Approved as Noted
- [ ] Approved as Noted (Resubmission is required)
- [ ] Returned for Corrections
- [ ] Other - Receipt Acknowledgement

Remarks:

Received By:

Sign: _____

Date: _____

Per:

Jason Harding

Jason Harding

Reviewed, Checked and Approved for Compliance with the Contract Documents. Submittal 15.2 - 28 3100 Fire Alarm and Detection Systems
Jason Harding
3/31/2019

HCPS – BURLEIGH MANOR MIDDLE SCHOOL

HOWARD COUNTY, MARYLAND

FIRE ALARM SYSTEM SUBMITTAL

Prepared By:

9176 Red Branch Road
Columbia, Maryland 21045
(410) 997-0188 Phone (410) 997-1191 Fax
ark@arksysinc.com

Job # 2JK021
Date Submitted:
March 7, 2019

HCPS – BURLEIGH MANOR
MIDDLE SCHOOL

INDEX

SECTION 1

HCPS – BURLEIGH MANOR MIDDLE SCHOOL

PROJECT INFORMATION SHEET

Project Location:

4200 Centennial Lane
Ellicott City, Maryland 21042

Electrical Contractor:

Fresh Air Concepts
5195 Raynor Avenue
Linthicum, Maryland 21090

Telephone: (443) 277-9899

Prepared By:

ARK Systems, Inc.
9176 Red Branch Road
Columbia, Maryland 21045

Telephone: (410) 997-0188
(301) 621-5736

Fax: (410) 997-1191

Note:

The following submittal and system design is based on the contract documents. The electrical contractor should contact the installation department at ARK Systems to schedule a preliminary job site meeting prior to starting any work.

Fire, Security, Data & Sound System Integration
9176 Red Branch Road • Columbia, Maryland 21045 • (410) 997-0188 • (301) 621-5736 • FAX: (410) 997-1191

SALES AND SERVICE INFORMATION

For your convenience, listed below are contact names and phone numbers of various departments at ARK to handle your needs throughout this project.

SALES

The Sales Representative for this project is **John Meginnis.** He can be reached at **(410) 995-1220 Ext. 118**. The Sales Representative can assist you with sales-related issues relative to this project.

The Service Sales Representative for this project is **John Meginnis.** He can be reached at **(410) 995-1220 Ext. 118.** The Service Sales Representative can assist you with 24-hour central station monitoring, NFPA and UL testing and maintenance agreements, new security systems, sprinkler system testing, CCTV surveillance systems, card access systems, and more.

PROJECT MANAGEMENT

The Project Manager for this project is **Tony Popoli.** He can be reached at **(410) 995-1220 Ext. 106**. The Project Manager is responsible for the successful completion of the project. Please contact the Project Manager for the pre-wiring site visit to coordinate the proper installation of equipment, as environmental conditions, such as AHU systems, electronic ballast, etc. may affect the proper operation of the fire alarm system. Also, contact the Project Manager for equipment releases, shipping inquiries, progress meetings, submittal questions, technician scheduling, or any technical issues related to the installation.

SERVICE

After the successful installation and turnover of the system to the owner, our Service Department will assume responsibility for ongoing maintenance and service of the system.

If you require service, please contact our Service Department at **(410) 995-1220 Ext. 8,** and they will assist you in dispatching a qualified Service Technician.

MINIMUM INSTALLATION STANDARDS
FOR INSTALLING CONTRACTOR

The following items shall be completed by the installing contractor prior to a technician arriving on site:

- ☐ **100% of devices installed**
- ☐ **All control cabinets installed**
- ☐ **Permanent AC power provided to all panels**
- ☐ **All wire installed per applicable codes, standards, and ARK submittal**
- ☐ **All wires and circuits tested and free from grounds, shorts, and opens**
- ☐ **End-of-Line resistors installed and tested with meter**
- ☐ **Wires installed in appropriate cabinets and identified with proper designation within cabinet**
- ☐ **Active telephone line(s) and RJ31X telephone jacks installed and labeled, if applicable**
- ☐ **Addressable device stickers affixed in submittal, if applicable**
- ☐ **Field verify loads on all audio/visual circuits before installing new devices. (tenant projects only)**
- ☐ **"Data In" and "Data Out" wiring is observed on all devices**

NOTE:
Please call Project Manager two (2) weeks in advance to schedule a technician.

SECTION 2

HCPS - BURLEIGH MANOR
MIDDLE SCHOOL

FIRE ALARM SYSTEM MATRIX

	ANNUNCIATE ON LCD DISPLAY (CONTROL PANEL)	ANNUNCIATE ON MAIN GRAPHIC ANNUNCIATOR	ANNUNCIATE ON REMOTE ALPHA-NUMBERIC ANNUNCIATOR	SOUND THE EVAC MESSAGE DEVICES (SPEAKERS) THROUGH OUT THE FACILTY	FLASH THE VISUAL ALERTING DEVICES (STROBES) THROUGH OUT THE FACILITY	RELEASE SECURITY DOOR LOCKS	MUTE SOUND SYSTEM ACTIVATE GYMNASIUM LIGHTS	RELEASE ALL DOOR HOLDERS	SHUTDOWN HVAC UNIT	ACTIVATE SMOKE DAMPER	INITIATE ELEVATOR RECALL	INITIATE ELEVATOR SHUNT-TRIP	TRANSMIT ALARM TO THE SECURITY PANEL & CENTRAL STATION	TRANSMIT SUPERVISORY TO THE SECURITY PANEL & CENTRAL STATION	TRANSMIT TROUBLE TO THE SECURITY PANEL & CENTRAL STATION	PRINT RECORD EVENT PRINTER
MANUAL STATION	X	X	X	X	X	X	X	X					X			X
COMBO SMOKE / HEAT DETECTOR	X	X	X	X	X	X	X	X					X			X
FLOW SWITCH	X	X	X	X	X	X	X	X					X			X
KITCHEN HOOD	X	X	X	X	X	X	X	X					X			X
CARBON MONOXIDE DETECTOR	X	X	X											X		X
DUCT DETECTOR	X	X	X				X		X	X				X		X
ELEVATOR MACHINE ROOM SMOKE DETECTOR	X	X	X	X	X	X	X	X			X		X			X
ELEVATOR LOBBY SMOKE DETECTOR	X	X	X	X	X	X	X	X			X		X			X
ELEVATOR PIT SMOKE DETECTOR	X	X	X	X	X	X	X	X			X		X			X
ELEVATOR TOP OF SHAFT SMOKE DETECTOR	X	X	X	X	X	X	X	X			X		X			X
ELEVATOR MACHINE ROOM HEAT DETECTOR	X	X	X	X	X	X	X	X				X	X			X
ELEVATOR PIT HEAT DETECTOR	X	X	X	X	X	X	X	X				X	X			X
ELEVATOR TOP OF SHAFT HEAT DETECTOR	X	X	X	X	X	X	X	X				X	X			X
GENERATOR RUN MONITOR	X	X	X											X		X
FIRE PUMP RUN MONITOR	X	X	X											X		X
GENERATOR FAULT MONITOR	X	X	X											X		X
FIRE PUMP FAULT MONITOR	X	X	X											X		X
VALVE TAMPER	X	X	X											X		X
DEVICE OR SYSTEM TROUBLE	X	X	X												X	X

SECTION 3

HCPS – BURLEIGH MANOR
MIDDLE SCHOOL

CONTROL PANEL AND EQUIPMENT LIST

QUANTITY	DESCRIPTION	MODEL #
	CONTROL PANEL #1 COMPONENTS	
1	Main Fire Alarm Cabinet – Back Box	3-CAB14B
1	Main Fire Alarm Cabinet – Door	3-CAB14D
1	Liquid Crystal Display Module	3-LCD
1	Display Module 12 Green, 12 Yellow, 12 Yellow LED's (3x6 switches)	3-6/3S1G2Y
1	Chassis Assembly w/ 7 Local Rail Module Spaces	3-CHAS7
1	Primary Power Supply w/ Monitor Module For Rail	3-PPS/M
1	Booster Power Supply w/ Monitor Module For Rail	3-BPS/M
1	EST-3 Central Processor Module	3-CPU1
1	Network Communication Card – Class B	3-RS485B
2	Dual Signature Series Driver / Controller	3-SDDC1
5	40 Watt Zone Amplifier - Class B	3-ZA40B
1	Master Microphone Module w/ 4 Local Rail Module Spaces	3-ASU/4
9	Local Rail Module Filler	3-LRMF
8	Local Rail Filler Plate	3-FP
2	12 VDC 65 Amp/Hr. Battery	12V65A
2	Battery Cabinet	BC-1
	REMOTE MIC PANEL COMPONENTS (8 TOTAL)	
1	Six Position Base Annuciator w/ CPU Card	3-6ANN
1	Annunciator Wall Box & Door – 6 Slot	6-ANN/B
1	Display Module 12 Green, 12 Yellow, 12 Yellow LED's (3x6 switches)	3-6/3S1G2Y
1	Remote Microphone	3-REMICA

FIELD DEVICES AND COMPONENTS

5	A/V 10 Amp Booster Power Supply	BPS10A
10	12 VDC 7 Amp./Hr. Battery	IM-1270
3	Synchronization Output Module	SIGA-CC1S
26	Manual Pull Station	SIGA-270
26	Manual Station Cover w/ Horn	STI-1100
30	Photoelectric Smoke / Heat Detector	SIGA-PHD
30	Smoke Detector Base - Standard	SIGA-SB4
3	Heat Detector Fixed Temp/Rate of Rise 135°F	SIGA-HRD
3	Detector Base - Standard	SIGA-SB4
1	Carbon Monoxide Detector	SIGA-COD
1	Audible Sounder Base	SIGA-AB4GT
1	Temporal Coder - Sounder Base	SIGA-TCDR
34	Photoelectric Duct Smoke Detector	SIGA-SD
34	Duct Detector Sampling Tube	(see note 1)
34	Duct Detector Test Station	SD-TRK
30	Control Relay Module	SIGA-CR
10	Monitor Module (Single Zone)	SIGA-CT1
16	Monitor Module (Dual Zone)	SIGA-CT2
8	Isolator Module	SIGA-IM
1	Riser Monitor Module	SIGA-RM1
1	SPDT Power Shunt Trip Relay	RIBU1C
11	Strobe (Multi-Candela) – White (Wall Mounted)	G1F-VM
48	Strobe (Multi-Candela) – White (Ceiling Mounted)	GCF-VM
2	Strobe (Multi-Candela) – White (Ceiling Mounted)	GCF-VMH
31	Speaker/Strobe – White (Wall Mounted)	G4HFWF-S7VMC

126	Speaker/Strobe – White (Ceiling Mounted)	GCHFWF-S7VMC
2	Speaker/Strobe – White (Ceiling Mounted)	GCHFWF-S7VMCH
1	Speaker - Wall Mounted	G4HFWF-S7
9	Speaker – Ceiling Mounted	GCHFWF-S7
2	Speaker/Strobe (110cd) – Wall Mount (Weatherproof)	757-8A-RS70
2	Weatherproof Back-Box	757A-WB
4	A/V Wire Guard	SSU03505
20	Electromagnetic Door Holder	1504-AQN5

ANNUNCIATOR PANEL COMPONENTS

1	Annunciator CPU	3-ANNCPU3
2	LED/SWITCH Driver Assembly	3-EVDVRA
1	Plastic Mounting Extrusion	3-EVDVRX
1	Power Supply Assembly	3-EVPWRA
1	Remote LCD Command Module Annunciator	3-LCDANN
1	Remote Command Module LCD Wallbox	RLCM/B
1	18” x 24” Graphic Annunciator Panel	CUSTOM

Notes:

1. The electrical contractor shall provide duct width information prior to shipment of sampling tubes.

HCPS - BURLEIGH MANOR MIDDLE SCHOOL

3-CAB14B FIRE ALARM CONTROL PANEL #1
POWER SUPPLY BATTERY CALCULATION WORKSHEET

DEVICE TYPE	QUANTITY	STANDBY POWER REQUIREMENT (IN AMPS)	TOTAL STANDBY CURRENT (IN AMPS)	ALARM POWER REQUIREMENT (IN AMPS)	TOTAL ALARM CURRENT (IN AMPS)
USER INTERFACE MODULES					
3-LCD	1	0.053	0.053	0.053	0.053
3-6/3S1G2Y	1	0.002	0.002	0.011	0.011
LOCAL RAIL MODULES					
3-BPS/M	1	0.11	0.11	0.11	0.11
3-PPS/M	1	0.085	0.085	0.085	0.085
3-CPU1	1	0.1	0.1	0.12	0.12
3-RS485B	1	0.063	0.063	0.063	0.063
3-RS232	1	0.053	0.053	0.053	0.053
3-SDDC	2	0.242	0.484	0.261	0.522
3-ZA40B	5	0.035	0.175	2.3	11.5
AUDIO & TELEPHONE COMMON CONTROLS					
3-ASU/4	1	0.2	0.2	0.2	0.2
AMPLIFIER AUXILIARY NAC POWER LOADS					
NAC1-1 LOAD	1	0	0	0	0
NAC1-2 LOAD	1	0	0	0	0
NAC1-3 LOAD	1	0	0	0	0
NAC1-4 LOAD	1	0	0	0	0
		BASE SYS. SUPERVISORY CURRENT	**1.325**	BASE SYS. ALARM CURRENT	**12.717**
3-PPS/M AUXILIARY OUTPUT #1					
3-LCDANN	1	0.218	0.218	0.233	0.233
3-EVPWRA	1	0.012	0.012	0.012	0.012
3-EVDVRA	2	0.005	0.01	0.04	0.08
3-ANNCPU	1	0.171	0.171	0.195	0.195
3-REMICA	1	0.045	0.045	0.047	0.047
3-6ANN	1	0.171	0.171	0.195	0.195
3-6/3S1G2Y	1	0.002	0.002	0.011	0.011
		3-PPS/M 24V#1 SUPERVISORY CURRENT	**0.629**	3-PPS/M 24V#1 ALARM CURRENT	**0.773**
3-PPS/M AUXILIARY OUTPUT #2					
1504-AQN5	4	0	0	0.015	0.06
		3-PPS/M 24V#2 SUPERVISORY CURRENT	**0**	3-PPS/M 24V#2 ALARM CURRENT	**0.06**
3-BPS/M #1 AUXILIARY OUTPUT #1					
SPARE	1	0	0	0	0
		3-BPS/M #1 24V#1 SUPERVISORY CURRENT	**0**	3-BPS/M #1 24V#1 ALARM CURRENT	**0**
3-BPS/M #1 AUXILIARY OUTPUT #2					
SPARE	1	0	0	0	0
		3-BPS/M #1 24V#2 SUPERVISORY CURRENT	**0**	3-BPS/M #1 24V#2 ALARM CURRENT	**0**

TOTAL SUPERVISORY CURRENT	**1.954**	TOTAL ALARM CURRENT	**13.55**
HOUR OF SUPERVISORY REQUIRED	**24**	SYSTEM BATTERY REQUIREMENTS + 20% (AMP/HR)	**60.3402**
MINUTES OF ALARM REQUIRED	**15**	SYSTEM BATTERIES PROVIDED (AMP/HR)	**65.0**

Note:

1. **The alarm power requirments for all NAC circuits is based upon the number of A/V devices calculated on the strobe circuit list. For more information see section 4 of this submittal.**

2. **The system battery requirements have been calculated with an additional 20% of the total load to accommodate the system battery spare capacity requirements.**

HCPS -BURLEIGH MANOR
MIDDLE SCHOOL

BOOSTER POWER SUPPLY
BATTERY CALCULATION WORKSHEET

BOOSTER POWER SUPPLY #1

DEVICE TYPE	QUANTITY	STANDBY POWER REQUIREMENT (IN AMPS)	TOTAL STANDBY CURRENT (IN AMPS)	ALARM POWER REQUIREMENT (IN AMPS)	TOTAL ALARM CURRENT (IN AMPS)
(BPS-1)	1	0.07	0.07	0.27	0.27
1-1	1	0	0	1.589	1.589
1-2	1	0	0	1.561	1.561
1-3	1	0	0	1.457	1.457
1-4	1	0	0	1.475	1.475
AUX PWR	1	0	0	0.012	0.012
		TOTAL SUPERVISORY CURRENT	**0.07**	TOTAL ALARM CURRENT	**6.364**

HOUR OF SUPERVISORY REQUIRED	**24**	SYSTEM BATTERY REQUIREMENTS + 20% (AMP/HR)	**3.9252**
MINUTES OF ALARM REQUIRED	**15**	SYSTEM BATTERIES PROVIDED (AMP/HR)	**7**

BOOSTER POWER SUPPLY #2

DEVICE TYPE	QUANTITY	STANDBY POWER REQUIREMENT (IN AMPS)	TOTAL STANDBY CURRENT (IN AMPS)	ALARM POWER REQUIREMENT (IN AMPS)	TOTAL ALARM CURRENT (IN AMPS)
(BPS-2)	1	0.07	0.07	0.27	0.27
2-1	1	0	0	1.407	1.407
2-2	1	0	0	1.579	1.579
2-3	1	0	0	1.349	1.349
2-4	1	0	0	1.6	1.6
AUX PWR	1	0	0	0	0
		TOTAL SUPERVISORY CURRENT	**0.07**	TOTAL ALARM CURRENT	**6.205**

HOUR OF SUPERVISORY REQUIRED	**24**	SYSTEM BATTERY REQUIREMENTS + 20% (AMP/HR)	**3.8775**
MINUTES OF ALARM REQUIRED	**15**	SYSTEM BATTERIES PROVIDED (AMP/HR)	**7**

BOOSTER POWER SUPPLY #3

DEVICE TYPE	QUANTITY	STANDBY POWER REQUIREMENT (IN AMPS)	TOTAL STANDBY CURRENT (IN AMPS)	ALARM POWER REQUIREMENT (IN AMPS)	TOTAL ALARM CURRENT (IN AMPS)
(BPS-3)	1	0.07	0.07	0.27	0.27
3-1	1	0	0	1.555	1.555
3-2	1	0	0	1.6	1.6
3-3	1	0	0	1.565	1.565
3-4	1	0	0	1.594	1.594
AUX PWR	1	0	0	0.012	0.012
		TOTAL SUPERVISORY CURRENT	**0.07**	TOTAL ALARM CURRENT	**6.596**

HOUR OF SUPERVISORY REQUIRED	**24**	SYSTEM BATTERY REQUIREMENTS + 20% (AMP/HR)	**3.9948**
MINUTES OF ALARM REQUIRED	**15**	SYSTEM BATTERIES PROVIDED (AMP/HR)	**7**

NOTE:

1) The alarm power requirements for BPS signal loads is based upon the number of A/V devices calculated on the strobe circuit list. For more information see section 4 of this submittal.

2. The system battery requirements have been calculated with an additional 20% of the total load to accommodate the system battery spare capacity requirements.

HCPS -BURLEIGH MANOR
MIDDLE SCHOOL
BOOSTER POWER SUPPLY
BATTERY CALCULATION WORKSHEET

BOOSTER POWER SUPPLY #4

DEVICE TYPE	QUANTITY	STANDBY POWER REQUIREMENT (IN AMPS)	TOTAL STANDBY CURRENT (IN AMPS)	ALARM POWER REQUIREMENT (IN AMPS)	TOTAL ALARM CURRENT (IN AMPS)
(BPS-4)	1	0.07	0.07	0.27	0.27
4-1	1	0	0	1.554	1.554
4-2	1	0	0	1.674	1.674
4-3	1	0.00146	0.00146	0.052	0.052
4-4	1	0	0	0.24	0.24
AUX PWR	1	0	0	0	0
		TOTAL SUPERVISORY CURRENT	**0.07146**	TOTAL ALARM CURRENT	**3.79**

HOUR OF SUPERVISORY REQUIRED	**24**	SYSTEM BATTERY REQUIREMENTS + 20% (AMP/HR)	**3.195048**
MINUTES OF ALARM REQUIRED	**15**	SYSTEM BATTERIES PROVIDED (AMP/HR)	**7**

BOOSTER POWER SUPPLY #5

DEVICE TYPE	QUANTITY	STANDBY POWER REQUIREMENT (IN AMPS)	TOTAL STANDBY CURRENT (IN AMPS)	ALARM POWER REQUIREMENT (IN AMPS)	TOTAL ALARM CURRENT (IN AMPS)
(BPS-5)	1	0.07	0.07	0.27	0.27
5-1	1	0	0	1.517	1.517
5-2	1	0	0	1.533	1.533
5-3	1	0	0	1.664	1.664
5-4	1	0	0	1.506	1.506
AUX PWR	1	0	0	0.006	0.006
		TOTAL SUPERVISORY CURRENT	**0.07**	TOTAL ALARM CURRENT	**6.496**

HOUR OF SUPERVISORY REQUIRED	**24**	SYSTEM BATTERY REQUIREMENTS + 20% (AMP/HR)	**3.9648**
MINUTES OF ALARM REQUIRED	**15**	SYSTEM BATTERIES PROVIDED (AMP/HR)	**7**

NOTE:

1) The alarm power requirements for BPS signal loads is based upon the number of A/V devices calculated on the strobe circuit list. For more information see section 4 of this submittal.

2. The system battery requirements have been calculated with an additional 20% of the total load to accommodate the system battery spare capacity requirements.

HCPS - BURLEIGH MANOR
MIDDLE SCHOOL

STROBE CIRCUIT LIST

CIRCUIT #	CIRCUIT DESTINATION	DOOR HOLDER 1504-AQN5 0.015	AUDIBLE SOUNDER BASE SIGA-AB4GT 0.052	BPS ACTIVATION BPS10A 0.006	WHITE WALL MOUNT 15cd STROBE G1F-VM 0.071	WHITE WALL MOUNT 30cd STROBE G1F-VM 0.098	WHITE CEILING MOUNT 15cd STROBE GCF-VM 0.074	WHITE CEILING MOUNT 30cd STROBE GCF-VM 0.108	WHITE CEILING MOUNT 75cd STROBE GCF-VM 0.205	WHITE CEILING MOUNT 115cd STROBE GCF-VMH 0.303	WHITE WALL MOUNT 15cd SPEAKER/STROBE STROBE ONLY G4HFWF-S7VMC 0.065	WHITE WALL MOUNT 30cd SPEAKER/STROBE STROBE ONLY G4HFWF-S7VMC 0.093	WHITE WALL MOUNT 75cd SPEAKER/STROBE STROBE ONLY G4HFWF-S7VMC 0.182	WHITE WALL MOUNT 110cd SPEAKER/STROBE STROBE ONLY G4HFWF-S7VMC 0.238	WHITE CEILING MOUNT 15cd SPEAKER/STROBE STROBE ONLY GCHFWF-S7VMC 0.074	WHITE CEILING MOUNT 30cd SPEAKER/STROBE STROBE ONLY GCHFWF-S7VMC 0.108	WHITE CEILING MOUNT 75cd SPEAKER/STROBE STROBE ONLY GCHFWF-S7VMC 0.205	WHITE CEILING MOUNT 115cd SPEAKER/STROBE STROBE ONLY GCHFWF-S7VMCH 0.303	WHITE WALL MOUNTED WEATHERPROOF 110cd SPEAKER/STROBE STROBE ONLY 757-8A-RS70W 0.18	LOAD	MAX. LENGTH (IN FEET)
BPS1-1	FIRST FLOOR STROBE CIRCUIT #1				2		4				1	2			2	1	3			1.589	411
BPS1-2	FIRST FLOOR STROBE CIRCUIT #2				2		5				1			2	1	2	1			1.561	419
BPS1-3	FIRST FLOOR STROBE CIRCUIT #3				2	1	2				2	1	1	2	2					1.457	449
BPS1-4	FIRST FLOOR STROBE CIRCUIT #4						3			2	1				2	2	1			1.475	443
AUX POWER	BPS-1 & BPS-2 ACTIVATION CIRCUIT			2																0.012	54,487
																			TOTAL LOAD FOR BOOSTER POWER SUPPLY #1 NAC CIRCUITS =		6.094	
BPS2-1	FIRST FLOOR STROBE CIRCUIT #5					1						1		4	2	1				1.407	465
BPS2-2	FIRST FLOOR STROBE CIRCUIT #6				3		4				1				3		2		2	1.579	414
BPS2-3	FIRST FLOOR STROBE CIRCUIT #7						5	1							9		1			1.349	485
BPS2-4	FIRST FLOOR STROBE CIRCUIT #8														5		6			1.6	409
AUX POWER	SPARE																			0	
																			TOTAL LOAD FOR BOOSTER POWER SUPPLY #2 NAC CIRCUITS =		5.935	
BPS3-1	FIRST FLOOR STROBE CIRCUIT #9						1				1			3	1		3			1.555	420
BPS3-2	FIRST FLOOR STROBE CIRCUIT #10														5		6			1.6	409
BPS3-3	FIRST FLOOR STROBE CIRCUIT #11						5								9	3	1			1.565	418
BPS3-4	FIRST FLOOR STROBE CIRCUIT #12						1	1							1	1	6			1.594	410
AUX POWER	BPS-3 & BPS-4 ACTIVATION CIRCUIT			2																0.012	54,487
																			TOTAL LOAD FOR BOOSTER POWER SUPPLY #3 NAC CIRCUITS =		6.326	
BPS4-1	FIRST FLOOR STROBE CIRCUIT #13						1	1							1	1	6			1.594	410
BPS4-2	FIRST FLOOR STROBE CIRCUIT #14														6		6			1.674	391
BPS4-3	FIRST FLOOR 24V POWER RISER CIRCUIT		1																	0.052	12,574
BPS4-4	FIRST FLOOR DOOR HOLDER POWER CIRCUIT	16																		0.24	2,724
AUX POWER	SPARE																			0	
																			TOTAL LOAD FOR BOOSTER POWER SUPPLY #4 NAC CIRCUITS =		3.56	
BPS5-1	SECOND FLOOR STROBE CIRCUIT #1						4										3	2		1.517	431
BPS5-2	SECOND FLOOR STROBE CIRCUIT #2						1	1				2		1	4		3			1.533	427
BPS5-3	SECOND FLOOR STROBE CIRCUIT #3						3		1			1		2	6	2				1.664	393
BPS5-4	SECOND FLOOR STROBE CIRCUIT #4						3	1				1		1	3		3			1.506	434
AUX POWER	BPS-5 ACTIVATION CIRCUIT			1																0.006	108,974
																			TOTAL LOAD FOR BOOSTER POWER SUPPLY #5 NAC CIRCUITS =		6.226	
	TOTALS	16	1	5	9	2	42	5	1	2	7	8	1	15	62	13	51	2	2		

Notes:

1. **MAX. LENGTH is based on the use of 14 AWG wire.**
2. **The speaker/strobes calculation on this sheet is for strobe load calculation ONLY. See "SPEAKER CIRCUIT LIST" for speaker load calculations.**

HCPS - BURLEIGH MANOR
MIDDLE SCHOOL

SPEAKER CIRCUIT LIST

CIRCUIT ID	SPEAKER CIRCUIT DESTINATION	WHITE WALL MOUNT SPEAKER G4HFWF-S7 0.5	WHITE WALL MOUNT 15cd SPEAKER/STROBE SPEAKER ONLY G4HFWF-S7VMC 0.5	WHITE WALL MOUNT 30cd SPEAKER/STROBE SPEAKER ONLY G4HFWF-S7VMC 0.5	WHITE WALL MOUNT 75cd SPEAKER/STROBE SPEAKER ONLY G4HFWF-S7VMC 0.5	WHITE WALL MOUNT 110cd SPEAKER/STROBE SPEAKER ONLY G4HFWF-S7VMC 0.5	WHITE CEILING MOUNT SPEAKER GCHFWF-S7 0.5	WHITE CEILING MOUNT 15cd SPEAKER/STROBE SPEAKER ONLY GCHFWF-S7VMC 0.5	WHTE CEILING MOUNT 30cd SPEAKER/STROBE SPEAKER ONLY GCHFWF-S7VMC 0.5	WHITE CEILING MOUNT 75cd SPEAKER/STROBE SPEAKER ONLY GCHFWF-S7VMC 0.5	WHITE CEILING MOUNT 115cd SPEAKER/STROBE SPEAKER ONLY GCHFWF-S7VMCH 0.5	WHITE WEATHERPROOF 110cd SPEAKER/STROBE SPEAKER ONLY 757-8A-RS70W 2	LOAD (WATTS)	MAX. LENGTH (IN FEET)
SPK1-1	FIRST FLOOR SPEAKER CIRCUIT #1		4	4	1	8		11	2	6		2	22	3,311
												TOTAL LOAD FOR PRIMARY AMPLIFIER #1 =	22	
SPK1-2	FIRST FLOOR SPEAKER CIRCUIT #2		3			3	2	26	7	10			25.5	2,859
												TOTAL LOAD FOR PRIMARY AMPLIFIER #2 =	25.5	
SPK1-3	FIRST FLOOR SPEAKER CIRCUIT #3						7	12	2	26			23.5	3,102
												TOTAL LOAD FOR PRIMARY AMPLIFIER #3 =	23.5	
SPK2-1	SECOND FLOOR SPEAKER CIRCUIT	1		4		4		13	2	9	2		17.5	4,165
												TOTAL LOAD FOR PRIMARY AMPLIFIER #4 =	17.5	
	TOTALS	1	7	8	1	15	9	62	13	51	2	2		

1. All speakers are to be tapped at 1/2 watt unless otherwise noted.
2. MAX. LENGTH is based upon a "-1 dB loss" using 16 AWG wire. as recommended on the riser diagram.
3. Refer to the "STROBE CIRCUIT LIST" for strobe calculations.

Life Safety & Communications

EST3 Cabinets and Chassis

3-CAB series, 3-RCC series, 3-CHAS7 series, BC-1

3-CAB Series

3-RCC Series

7165-1657: 0186

FDNY COA 6086

EN54-2:1997+A1 and EN54-4:1997+A1:2002+A2 pending

Overview

EST3 has a wide selection of cabinet arrangements allowing the greatest use of EST3's flexible modular design. Lobby enclosure wallboxes are manufactured from #14 AWG cold rolled steel with a gray baked enamel finish. Lobby enclosure doors are manufactured from #14 AWG cold rolled steel and have a modern contoured door design with integral viewing window. The exception is the small lobby enclosure 3-CAB5. The 3-CAB5 wallbox and non-contoured door are #16 AWG cold rolled steel. Lobby enclosure doors come with gray baked enamel or optional red baked enamel finishes. The EST3 lobby enclosures back boxes, doors and chassis units are ordered and shipped separately. The 3-CAB5 lobby enclosure comes complete with door and back box providing space to mount five local rail modules.

The EST3 remote closet cabinet design allows the installation of control panel electronics in electrical closets. The remote closet cabinets have left hand hinged doors and are available with red finish only. Optional display modules used for system diagnostics display, mount behind the closet cabinet door and are not visible with the door closed.

Standard Features

- Right or left hand hinging of doors
- Lag and Keyway holes for quick mounting
- Attack rated door for security applications
- Knockouts for 3/4 inch conduit
- Attractive contour door design on lobby enclosures
- Combination flush or surface mounting lobby enclosure design
- Remote closet cabinets for electrical closet mounting support up to 65 AMP hour batteries
- Optional earthquake hardening: OSHPD seismic pre-approval for component Importance Factor 1.5

Application

Lobby Enclosures

EST3 lobby enclosures provide space for control, monitoring and display modules where they remain visible even with the door closed and secure. Ideal for mounting in lobby's where appearance is important, maximum mounting flexibility is provided with doors that will mount for right or left hand opening. Lobby enclosures come in several sizes to match individual project requirements.

The **3-CAB5 series** semi-flush or surface mounts. A built in rail assembly provides space for up to five local rail modules, no chassis assembly needed. Back space for 1-1/2 footprints gives room for a power supply and a 1/2 footprint module and 10 AH batteries. The local rail module spaces provide room for amplifiers, common control and annunciation modules.

The **3-CAB7** semi-flush or surface mounts and has a contoured front door with viewing window. Space is provided for two 17 AH batteries and one chassis assembly providing seven local rail module spaces.

The **3-CAB14** semi-flush or surface mounting and has a contoured front door with viewing window. Space is provided for two 17AH batteries and two chassis assemblies each providing seven local rail module spaces.

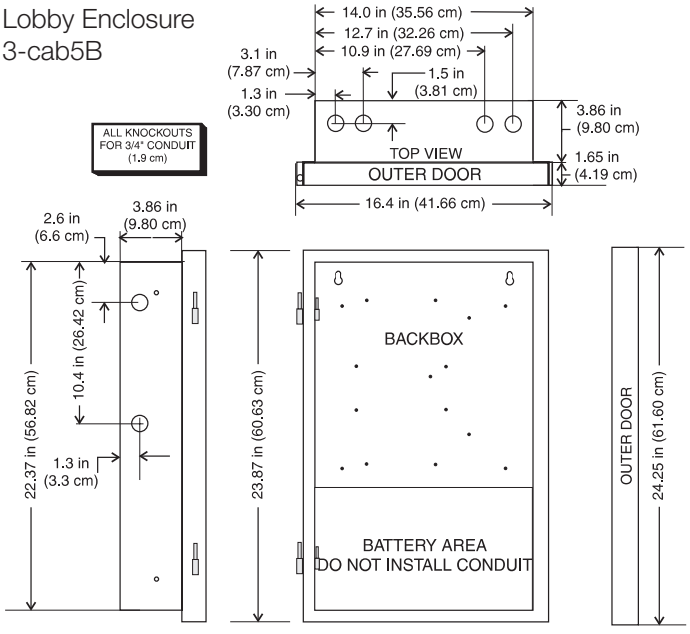
The **3-CAB21** semi-flush or surface mounts and has a contoured front door with viewing window. Space is provided for two 17AH batteries and three chassis assemblies each providing seven local rail module spaces.

Remote Closet Cabinets

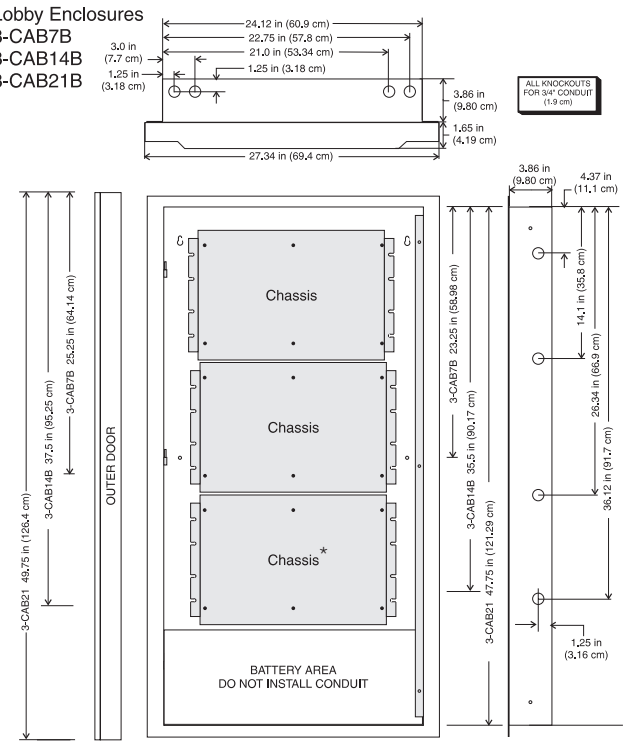
Remote closet cabinets provide an economical way of installing equipment in locations where esthetics are not paramount, like electrical closets. You can have optional display modules used for system diagnostics display mounted behind the front door. These display modules will not be visible with the door closed. Remote closet cabinets are surface mounting and come in sizes providing space for one to three chassis with room for standby batteries. A UL Listed attack rated door having a 2-minute rating is available for the 3-RCC7R cabinet. This door is required for security applications.

Installation and Mounting

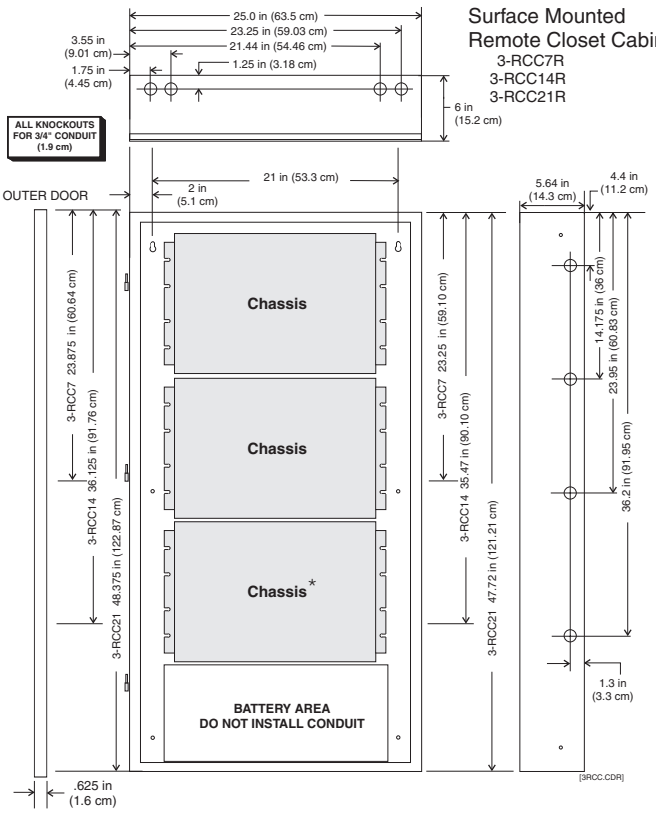
Lobby Enclosure
3-cab5B



Lobby Enclosures
3-CAB7B
3-CAB14B
3-CAB21B

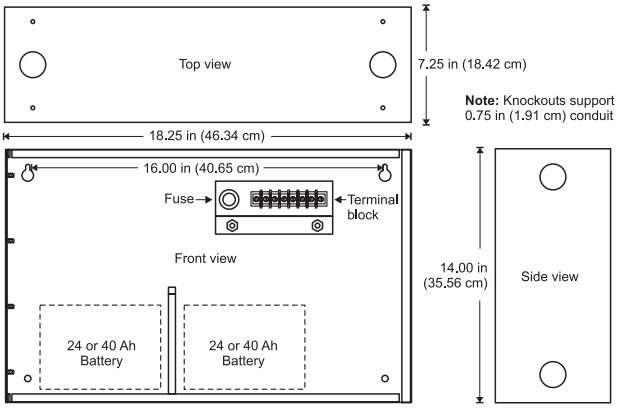


Surface Mounted
Remote Closet Cabinets
3-RCC7R
3-RCC14R
3-RCC21R



* The lower mounting space can be used for an MN-BRKT1 bracket, which holds MNEC interface equipment including an MN-NETSW1 Ethernet network switch, an MN-ABPM Audio bridge, an MN-FVPN VoIP module, and an MN-COM1S Communications module.

BC-1 Dimensions



Ordering Information

Catalog Number	Description	Equipment Mounting Space	Battery Space	Ship Wt. lb. (Kg)
Lobby Enclosures — Outer doors with viewing window				
3-CAB5	Cabinet w/Wallbox, door and chassis	Five local rail modules One footprint and ½ footprint module	Two - 12V10A	30 (13.6)
3-CAB7B	Wallbox only	One Chassis	Four - 6V8A Two - 12V10A Two - 12V17A	30 (13.6)
3-CAB7B-E	Wallbox only, EN54* certified CE	1 Chassis		30 (13.6)
3-CAB7D(R)	Inner and outer doors for 3-CAB7B	N/A		10 (4.5)
3-CAB7D(R)-E	Inner & outer doors for 3-CAB7B, EN54*, CE			10 (4.5)
3-CAB14B	Wallbox only	Two Chassis	Four - 6V8A Two - 12V10A Two - 12V17A	42 (19.1)
3-CAB14B-E	Wallbox only, EN54* certified CE	2 Chassis		42 (19.1)
3-CAB14D(R)	Inner and outer doors for 3-CAB14B	N/A		15 (6.8)
3-CAB14D(R)-E	Inner & outer doors for 3-CAB14B, EN54*, CE			15 (6.8)
3-CAB21B	Wallbox only	Three Chassis	Four - 6V8A Two - 12V10A Two - 12V17A	55 (25)
3-CAB21B-E	Wallbox only, EN54* certified CE	3 Chassis		55 (25)
3-CAB21D(R)	Inner and outer doors for 3-CAB21B	N/A		20 (9.1)
3-CAB21D(R)-E	Inner & outer doors for 3-CAB21B, EN54*, CE			20 (9.1)
Remote Closet Enclosure — No viewing window				
3-RCC7R	Red wallbox and door	One Chassis	Four - 6V8A, Two - 12V10A Two - 12V17A, Two - 12V50A	37.5 (17)
3-RCC7R-E	Red wallbox and door, EN54* certified CE			37.5 (17)
ATCK	Attack rated door for 3-RCC7R	N/A		26 (11.8)
3-RCC14R	Red wallbox and door	Two Chassis	Four - 6V8A Two - 12V10A, Two - 12V17A Two - 12V50A, Two - 12V65[2]	53 (24)
3-RCC14R-E	Red wallbox and door, EN54* certified CE			53(24)
3-RCC21R	Red wallbox and door	Three Chassis		70 (31.8)
3-RCC21R-E	Red wallbox and door, EN54* certified CE			70 (31.8)
Chassis Assemblies				
3-CHAS7	Takes one chassis space in wallbox, provides space for 7 local rail modules, up to two power supplies, and a ½ footprint module.			8.4 (3.8)
3-ASU**	Takes one chassis space in wallbox, provides an audio source unit /w microphone and an inner door filler plate.			15 (6.8)
3-ASU/4**	Takes one chassis space in wallbox, provides an audio source unit /w microphone and four local rail module spaces.			15 (6.8)
3-ASU/FT**	Takes one chassis space in wallbox, provides an audio source unit /w microphone and Firefighters Telephone			20 (9.1)
3-FTCU**	Takes one chassis space in wallbox, provides Firefighters Telephone Control unit and inner door filler plate.			15 (6.8)
MN-BRKT1	Takes one chassis space in wallbox, provides mounting for MNEC interface equipment			4.0 (1.8)
FSB-BRKT	Mounting bracket for FSB-PC communications bridge. Allows FSB-PC to mount on the side of a Chass7			1.0 (0.45)

more...

Notes:

1. All lobby enclosures, wallboxes and doors have a textured gray enamel finish; outer doors are available in red by adding the suffix "R" to the catalog number, i.e. 3-CAB7DR.
2. Remote closet cabinets will support 65 AH batteries with the use of the 3-BATS Battery Shelf, which reduces the enclosure's chassis capacity by one chassis.
3. The EST3 is modularly listed under the following standards:
   UL 864 categories: UOJZ, UOXX, UUKL and SYZV, UL 2572, UL 294 category ALVY, UL 609 category AOTX, UL 636 category ANET, UL 1076 category APOU, UL 365 category APAW, UL 1610 category AMCX, UL 1635 category AMCX ULC-S527, ULC-S301, ULC-S302, ULC-S303, ULC-S306, ULC/ORD-C1076, ULC/ORD-C693
   Please refer to EST3 Installation and Service Manual for complete system requirements.

** EN54-2:1997+A1 and EN54-4:1997+A1:2002+A2 pending*

*** Add "-CC" for City of Chicago.*

Contact us...

Email: edwards.fire@fs.utc.com
Web: *www.est-fire.com*

EST is an **EDWARDS** brand.

1016 Corporate Park Drive
Mebane, NC 27302

In Canada, contact Chubb Edwards...
Email: inquiries@chubbedwards.com
Web: *www.chubbedwards.com*

Accessories		
3-BATS	Battery Shelf for RCC Enclosures. Takes one chassis space. Room for up to one 65 AH or two 50 AH batteries.	3 (1.36)
BC-1	Battery Cabinet - supports up to two 40 amp hour batteries.	
3-BTSEN	Battery sensor/distribution module	0.5 (.2)
BC-1EQ	BC-1 - Seismic Battery hold down for BC-1. Supports up to two 40 Ahr batteries. Order BC-1 Separately.	
3-CABEQ	3-CAB - Seismic Battery hold-down for 3-CAB 7, 14 or 21. Supports two 1 2V batteries from 10 Ah up to 18 Ah. Comes with EST3 Chassis hardening hardware and instructions. Order 3-CAB7, 3-CAB14 or 3-CAB21 separately. See note 1.	
3-RCCEQ50	3-RCC series - Seismic Battery hold-down. Supports one set of two 50 Ah batteries. Comes with EST3 Chassis hardening hardware and instructions. Order 3-RCCxxR separately. See note 1.	
3-RCCEQ65	3-RCC series cabinet - Seismic Battery hold-down. Supports one set of two 65 Ah batteries (one battery in bottom of cabinet, one battery mounted on 3-BATS). Order 3-RCCxxR cabinet and 3-BATS separately. See note 1.	
3-TAMP	Tamper switch for 3-CAB7, 3-CAB14 and 3-CAB21 cabinets. Mounts to side of cabinet.	0.5 (.2)
3-TAMP5	Tamper switch for 3-CAB5. Mounts to side of cabinet.	0.5 (.2)
3-TAMPRCC	3-TAMPRCC Tamper Switch for RCC series cabinets. Mounts to side of cabinet.	0.5 (.2)

1. For earthquake anchorage, including detailed mounting weights and center of gravity detail, please refer to *Seismic Application Guide 3101676*. Approval of panel anchorage to site structure may require local AHJ, structural, or civil engineer review.

Life Safety & Communications

Liquid Crystal Display Module

3-LCD

7165-1657: 0186

S3000

MEA FDNY COA 6086

EN54-2:1997+A1 and EN54-4:1997+A1:2002+A2 pending

Overview

The Main Display interface is the primary user interface in the EST3 Life Safety System. The main display interface focuses on the emergency user by putting information important to the user up front. Hands free, the first highest priority event is shown. The display always gives the last highest priority event. Arriving at the panel and without opening the door the first and last alarm is given. Simple to understand lights and switches help the emergency user execute system commands with confidence.

A menu system supports maintenance functions such as disables or reports for use by staff or service personnel.

Standard Features

- Uses simple lights and switches
- Displays information important to user
- Hands free first alarm display
- Last event of highest priority always displays
- Eight lines by 21 character graphic LCD display — 168 characters total
- Multlingual
  Supports English, French, Spanish, and Russian
- Uses queues to sort events
  A queue is a list of messages Alarm, Supervisory, Trouble and Monitor
- Slide in LED and switch labels
  Makes customization for regional language easy

Application

The 3-LCD module mounts to the local rail over the nodes Central Processing Unit Module (3-CPU). The 3-LCD module is optional in any network node.

Ensuring information clarity the 3-LCD uses a backlit high contrast supertwist graphical display. Eight lines of 21 characters provide the room needed to convey emergency information in a useful format.

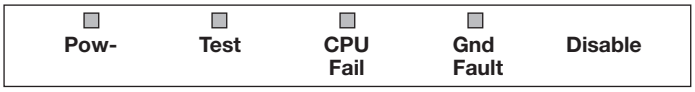
The 3-LCD always displays the last highest priority event even when the user is viewing other message queues. Further message flexibility is provided with EST3's message routing ability. Messages from a node can display at every node on the network or messages can route to specific nodes only. Routing can be initiated at a specific time/shift change. There is no need to have messages display in areas that are not affected by an event.

The 3-LCD can display messages in English, Spanish, French, and Russian. The bilingual display lets the operator select between either of two languages. Consult your representative for available language combinations.

The EST3 system configures for Proprietary, Local or EN54 market operations. The mode of operation is selected through the System Definition Utility (SDU) which may adjust the following operations slightly to fit the system operation selected.

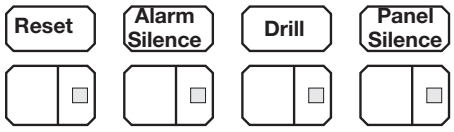
LEDs and Switches

Further enhancing the 3-LCD user interface are easy to read and understand lights and switches. All functions are laid out in a logical order. At the top of the 3-LCD are five system status LEDs. Here determining the general condition of the system is easy.



Power LED: Green, on when AC power is on.

Test LED: Yellow, on when any portion of the system (Group) is under test.



CPU Fail LED: Yellow, on when CPU stops running.

Gnd Fault LED: Yellow, on when a ground exists on the system (group)

Disable LED: Yellow, on when any point or zone is disabled by a user.

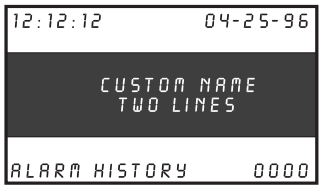
Below the general status LEDs are located four, LED / Switch common controls. The versatility of EST3 allows system designers to define the features as affecting a domain (defined group of nodes) or as global (affects all nodes) across the network. This feature is very useful when configuring systems with multiple buildings on one network. As an example, operating the reset in one building may have adverse effect in other buildings. With EST3 having operational differences between buildings on the same network is not a problem.

Pressing **Reset** starts the system's reset operation. The yellow LED has three flash rates during reset. The LED flashes fast during the smoke power down phase of reset, flashes slow during the restart phase, and turns on steady for the restoral phase. The Reset LED turns off when the system is normal.

Pressing **Alarm Silence** turns off all Notification Appliance Circuits defined as audible. The yellow LED turns on when silence is active via the Alarm Silence switch or via alarm silence software timers.

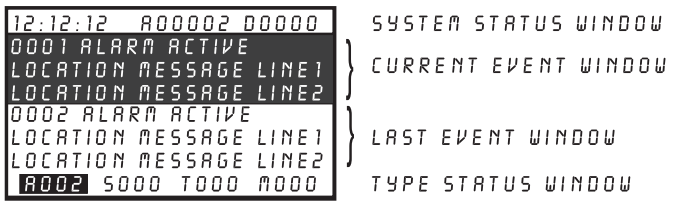
Pressing **Panel Silence** turns off the system's internal audible signal. The yellow LED turns on when panel silence is active. The EST3 panel buzzer has user programmable signal rates for alarm, supervisory, trouble and monitor conditions.

Pressing **Drill** turns on the drill LED and all signals sound evacuation. Drill does not activate city tie connections. Auxiliary relays will not activate unless programmed to do so with drill.



In the center of the 3-LCD is the Liquid Crystal Display. In the normal condition the date and time plus a definable system title display on the LCD. The last line of the display gives an alarm history. This total equals the number of times the system has entered the alarm state from the normal state.

When active events are on display, the LCD formats into four logical windows.

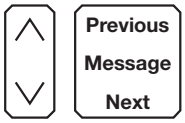


In the system status window, the display shows the time and the status of active and disabled points.

The current event window, lines 2, 3, 4 automatically display the first active event of the highest priority if the user has not taken control of the system. Once the emergency user takes control, this window displays user message selections.

The second line of the display shows system event information. In the example above the display shows the chronological number of the event (0001 is the first alarm) followed by the event type (Alarm Active). EST3 supports over 45 event type messages from which system designers choose. The last two lines of the current event window are custom programmable location message lines with space for 42 characters.

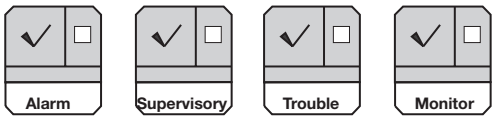
The last event window shows the last highest priority event. This window is always displayed and updated automatically by the system. Here the emergency user can monitor the progress of a fire.



When EST3 is configured for a local mode system viewing the second alarm message is easy, just press the NEXT key. The next message scrolls into the current event window. The last highest priority event always remains on view. No matter what queue the user selects for viewing, the LCD always displays the most recent alarm. A new alarm event resounds the panel audible signal and appears immediately on display without overwriting information the user selected for view.

The final window of the LCD the type status window shows the total number of active events by queue type. A is alarm, S is supervisory, T is trouble, and M is monitor. The number following each letter is the number of active events existing in each queue.

EST3 breaks down event types into queues and automatically displays the first event of the highest priority type.



Priority order is alarm, supervisory, trouble, monitor. By using queues an emergency user does not waste time scrolling through a mixed event list looking for alarms or confusing an alarm message with other message types.

EST3 configures for **Remote proprietary** system operation where every event must be acknowledged by viewing them before the internal buzzer will silence. Or the EST3 will configure for **Local** operation. Here the internal buzzer silences by pressing panel silence. If any events exist in queues that have not been viewed the queue LED continues to flash informing the user of un-seen events.

When all events in a queue are acknowledged or 'seen', the LED associated with the queue turns on steady. If a new event is added to the queue, the EST3 internal buzzer resounds and the queue LED flashes.

EST3 allows device grouping into logical group zones. Here two or more alarm devices (such as detectors or pull stations) make up the zone. When a device in the zone activates, the LCD displays the zone description. Each zone only displays once, regardless of the number of devices active within the zone.

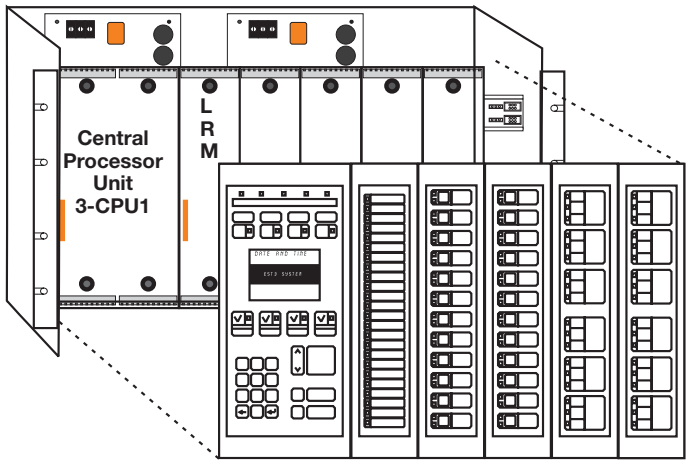
To display device information the user presses the Details key. The device with the lowest address displays in the first window.

If multiple devices are active each is available for viewing by using the arrow associated with the Previous Message Next key and scrolling through the device list.

The common controls easily expand beyond the Main Display interface by adding a Control Display Module and assigning features to its switch controls.

For Maintenance users, the EST3 provides a smooth operating menu system providing powerful tools for system management, reports, and trouble shooting.

Installation and Mounting

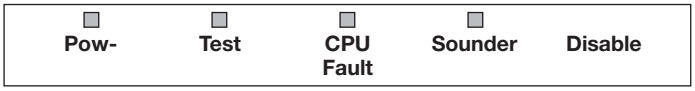


EN54 Compliance

In 1998 the British-based Loss Prevention Certification Board (LPCB) certified EST3 control panels and power supplies as having surpassed the requirements of the pivotal EN54 standard, parts two and four. LPCB Certificate #257c for EST3 fire alarm control panels marked the first such certification since the stringent EN54-2 : 1997 and EN54-4 : 1997 were published by the European Committee for Standardization (CEN). In order to meet these standards, display and control functions have undergone slight modifications for the EN54 marketplace. These differences are highlighted below. All other control and annunciation features remain unchanged.

Note: EN54-2:1997+A1 and EN54-4:1997+A1:2002+A2 approval is pending.

System Status LEDs



Power LED (Green): on when DC power is on.

Test LED (Yellow): on when any portion of the system (Group) is under test.

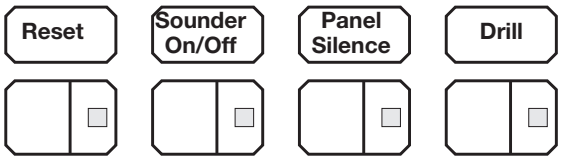
CPU Fault LED (Yellow): on when CPU stops running (processor failures must be manually reset).

Gnd Fault LED: Not available.

Sounder LED (Yellow): flashing indicates fault on sounder circuit. Steady indicates a disabled sounder circuit.

Disable LED (Yellow): on when any point or zone is disabled by a user (disabled conditions have priority over fault conditions).

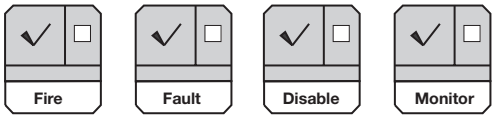
Switch Functions



Pressing **Sounder On/Off** turns off all sounder circuits defined as audible. The yellow LED turns on when silence is activated via the Sounder On/Off or via the alarm silence software timers.

See Page 2 for descriptions of Reset, Panel Silence, and Drill functions.

Event Queues



For EN54 compliance, EST3 configures for remote proprietary system operation. This requires that every event must be acknowledged by viewing them before the internal buzzer will silence. The priority order is Fire, Fault, Disable, Monitor. EN54-2:1997+A1 and EN54-4:1997+A1:2002+A2 approval is pending.

Contact us...

Email: edwards.fire@fs.utc.com
Web: *www.est-fire.com*

EST is an **EDWARDS** brand.

1016 Corporate Park Drive
Mebane, NC 27302

In Canada, contact Chubb Edwards...
Email: inquiries@chubbedwards.com
Web: *www.chubbedwards.com*

Engineering Specification

The system shall provide a user interface that displays system events in a text format, and supports basic common control LEDs and switches. The Common Control Switches and LEDs provided as minimum will be; Reset switch and LED, Alarm Silence switch and LED, Panel Silence switch and LED, Drill switch and LED. It must be possible to add additional common controls as required through the use of modular display units. The user interface must provide an LCD that will allow custom event messages of up to 42 characters. The interface must provide a minimum of eight lines by 21 characters and provide the emergency user, hands free viewing of the first and last highest priority event. The last highest priority event must always display and update automatically. Events shall be automatically placed in easy to access queues. It shall be possible to view specific event types separately. Having to scroll through a mixed list of event types is not acceptable. The total number of active events by type must be displayed. Visual indication must be provided of any event type which has not been acknowledged or viewed. It must be possible to customize the designation of all user interface LEDs and Switches for local language requirements. It shall be possible to have a custom message for each device in addition to zone messages. Custom device messages must support a minimum of 42 characters each. Instructional text messages support a maximum of 1,000 characters each. The display shall be capable of displaying English, Spanish, French, or Russian messages.

Technical Specifications

Catalog Number	3-LCD
Agency Listings	UL, ULC, FM, CE, LPCB EN54* pending.
LCD Display	Eight lines by 21 characters backlit LCD
Mounting	Two local rail spaces on top of 3-CPU
Common Control Switches and LEDs	Reset switch and LED Alarm Silence switch and LED Panel Silence switch and LED Drill Switch and LED
Alarm Current	42mA
Standby Current	40mA

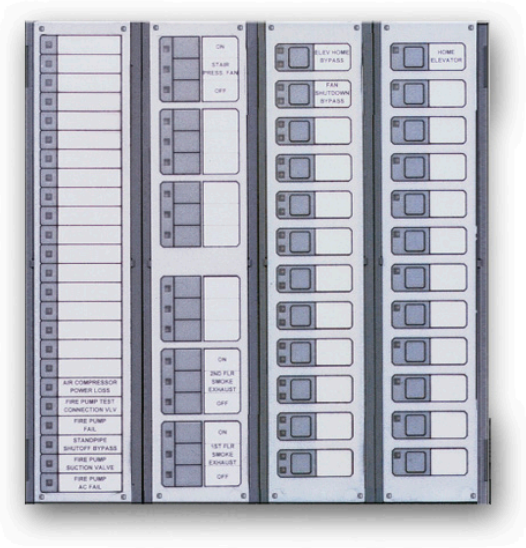
** EN54-2:1997+A1 and EN54-4:1997+A1:2002+A2 pending*

Ordering Information

Catalog Number	Description	Shipping Weight, lb. (kg)
3-LCD	Liquid Crystal Display Module	.8 (.36)
3-LKE	UK English Label Kit	.25 (.11)
3-LKF	French Label Kit	.25 (.11)
3-LKR	Russian Label Kit	.25 (.11)
3-LKS	Spanish Label Kit	.25 (.11)

Control Display Modules

3-LDSM, 3-24x series, 3-12xx series, 3-6/3S1xxx series



FM APPROVED
FDNY COA 6086
S3000
7165-1657: 0186/0193

Overview

The EST3 Control Display modules provide the emergency user with the simplest of interfaces, lights and switch control. The Control Display modules install over local rail modules. The local rail modules supply the power and drivers via a ribbon cable connection to the control display modules. The displays mount over any local rail module maximizing the flexibility of design layout. When a display module is required where no local rail module exists, an LED Display Support Module 3-LDSM mounts to the local rail providing support for one Control Display Module.

Surface mount technology used to minimize space, also reduces the power requirements of display modules. Slide-in labels keep the control display modules flexible and allow labeling for local languages.

Module lamp test can be programmed to any spare control switch or a local node lamp test is initiated by simultaneously operating the Alarm Silence and Trouble Silence switches on the 3-CPU.

Standard Features

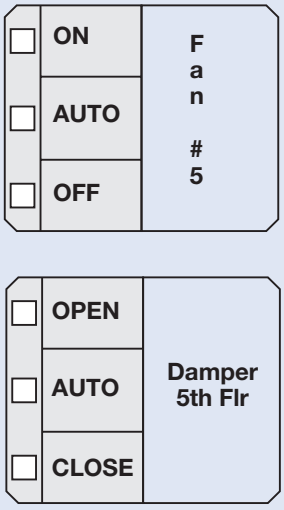
- Programmable LED flash rates
- Membrane style tactile pushbuttons
- Software supported for toggle, and latching interlock switch action
- Slide in labels
- Lamp test

Application Notes

Control Display Modules come in a variety of types providing operational flexibility. There are five types of display modules available with EST3.

Typically alarm zone annunciation appears on any of the first four module types shown. The first module supports simple zone annunciation; the second, zone annunciation with zone disable; the third, alarm and trouble zone annunciation, the fourth alarm and trouble zone annunciation with zone disable. From a simple one LED annunciation point to higher functionality, EST3 fills the requirements.

Simple Control Examples



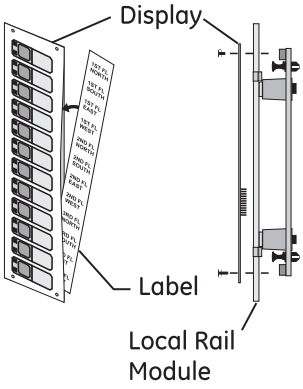
The fifth module is very adaptable to system requirements for audio or remote equipment control. Each module contains 18 LEDs and 18 switches. Each group of three switches has a latching-interlock to support operations that must be kept separated. The interlock is under software control so only one switch is active at a given time. EST3 software makes meeting the wide variety of applications needed with today's codes and building system operations easy.

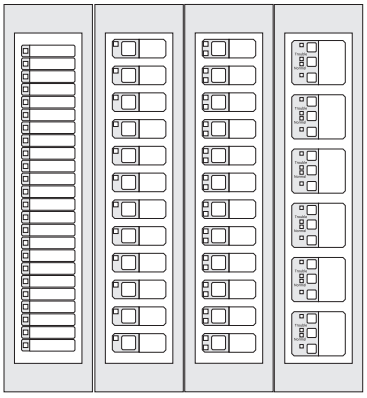
For fan control the emergency user assumes control of the remote device by selecting "On" or "Off." Programming of the switches to multiple relays keeps operational design choices open. The user returns the system control of the remote device to the Life Safety system by simply pressing Auto. The Auto LED programs to its related switch and gives positive feed back to the user by turning on yellow when the system has active control of remote devices.

Individual switch LEDs are also programmable. As an example the "Open" or "On" LED (green) could program to follow its related switch or, program to follow a remote monitor input and provide positive feedback of the remote devices control status. If budget restrictions prevent "sail type" positive feedback, EST's unique command processing satisfy requirements for positive feedback of HVAC control systems. Any switch command will send a signal to the 3-CPU for processing. While in this state the LED associated with the switch will flash. Once the command has been received by a remote Signature Series Module, the module (since it is intelligent with its own microprocessor) will issue a "Processed" command back to the 3-CPU which will latch the LED associated with the switch "ON" steady. This same process is used for all audio speaker selections ensuring the circuit is connected. A variety of switch and associated LED colors are available to meet the demands of the specifiers application.

Life Safety Systems are generally passive requiring only occasional operation. Yet, in an emergency the user must be able to identify system operation and status quickly and easily. LCD displays are excellent for identifying specific information, but even a large LCD can not display overall "system" status as effectively as LEDs and Switches. The EST3 Control Display modules are designed to provide simple identification and operation of system functions for the emergency user. They provide positive feedback of control activity with unrivaled selection of display configurations and mounting location options.

Installation and Mounting

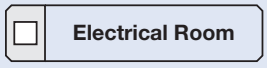
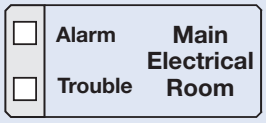
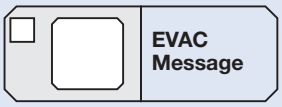
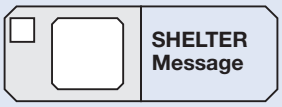
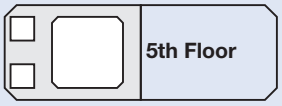
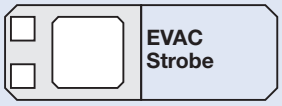
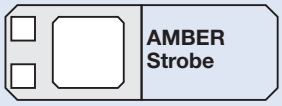
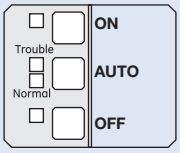
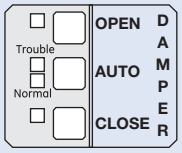
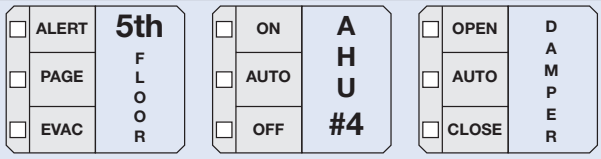




Engineering Specification

The Life Safety system shall incorporate annunciation of Alarm, Supervisory, Trouble and Monitor operations. Annunciation must be through the use of LED display strips complete with a means to custom label each LED as to its function. Where applicable control of remote smoke control devices must be made available at the control center. Switches with LEDs must provide positive feed back to the operator of remote equipment status. Where voice audio is required a means of paging individual zones must be made. The status of each paging zone must be annunciated. It must be possible to selectively page into specific zones. It shall be possible to manipulate the evacuation of the building from the main control center. It must be possible for the emergency operator to put specific zones into evacuation manually.

Technical Specifications

Catalog Number	Number of LEDs	LED Colors	Switches	Applications	Alarm Current
3-LDSM	N/A	N/A	N/A	Provides interface for one Control Display Module	5 mA
 					
3-24R	24	red	0	Alarm Annunciation	2 mA base + 1.5 mA per active LED
3-24Y		yellow		Supervisory and Trouble Annunciation	
3-24G		green		Monitor Annunciation	
3-12RY		12 red over 12 yellow pairs		Red LEDs Alarm Annunciation Yellow LEDs Supervisory Annunciation	
  					
3-12SR	12	red	12	Alarm Annunciation with enable/disable operation	2 mA base + 1.5 mA per active LED
3-12SY		yellow		Supervisory Annunciation with enable/disable operation	
3-12SG		green		Monitor Annunciation, Page select	
  					
3-12/S1GY	12 groups of two w/ switch	green/ yellow	12	Zone Page select with Trouble Annunciation	2 mA base + 1.5 mA per active LED
3-12/S1RY		red/yellow		Alarm and Trouble Annunciation with enable/disable	
3-12/S2Y		yellow/ yellow		Supervisory and Trouble Annunciation with enable/disable	
 					
3-4/3SGYWR	4 LEDs	Green /Yellow and White/Red	1 2 3 switches	On-Auto-Off fan and Open-Auto-Close Damper Control with Trouble and Normal LED indicators	2mA base + 1.5mA per active LED
					
3-6/3S1G2Y	6 groups of 3 w/switch	green/yellow / yellow	Six groups of three	On-Auto-Off fan and Open-Auto-Close Damper Control	2 mA base + 1.5 mA per active LED
3-6/3S1GYR		green/yellow / red		Page and Evacuation select with zone trouble	

Notes:

1) All Control Display Modules are UL and ULC listed.

2) All Control Display Modules mount over one Local Rail Module. If no local rail module exists the 3-LDSM mounts to local rail and supports one control display module.

Contact us...

Email: edwards.fire@fs.utc.com
Web: *www.est-fire.com*

EST is an **EDWARDS** brand.

1016 Corporate Park Drive
Mebane, NC 27302

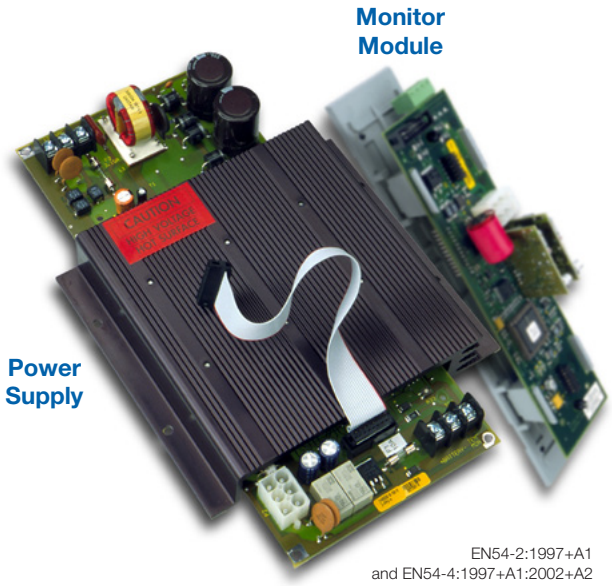
In Canada, contact Chubb Edwards...
Email: inquiries@chubbedwards.com
Web: *www.chubbedwards.com*

Ordering Information

Catalog Number	Description	Shipping Weight
3-LDSM	LED Display Support Module	0.45lb (.2kg)
3-24R	24 Red LED Display Module	
3-24Y	24 Yellow LED Display Module	
3-24G	24 Green LED Display Module	
3-12SR	12 switches with 12 Red LED Display/Control Module	
3-12SY	12 switches with 12 Yellow LED Display/Control Module	
3-12SG	12 switches with 12 Green LED Display/Control Module	
3-12RY	12 Red LED and 12 Yellow LED Display Module	
3-12/S1GY	12 switches with one Green and one Yellow LED per switch Display/ Control Module	
3-12/S1RY	12 switches with one Red and one Yellow LED per switch Display/ Control Module	0.35lb (.12kg)
3-12/S2Y	12 switches with two Yellow LEDs per switch Display/Control Module	
3-6/3S1G2Y	Six groups of three switches. Each switch with one LED. LEDs provided Green, Yellow, Yellow.	
3-4/3SGYWR	12 switches in four groups of three switches, switch one with a green LED, switch two with yellow and white LEDs and switch three with a red LED	
3-6/3S1GYR	Six groups of three switches. Each switch with one LED. LEDs provided Green, Yellow, Red	

EST3 Power Supplies

3-PPS/M series, 3-BPS/M series, 3-BBC/M series



S3000

7165-1657: 0186

FDNY COA 6086

FM APPROVED

EN54-2:1997+A1 and EN54-4:1997+A1:2002+A2 pending

Overview

EST3 Power supplies consist of two assemblies, a high efficiency switch mode power supply card and a power supply monitor module. The monitor module mounts to the local rail and distributes the power from its supply to the local rail. The local rail distributes power from all power supplies to other local rail modules and user interface cards resulting in “Shared Power” throughout the system. By paralleling the power supplies on a rail maximum utilization of available power is possible, resulting in fewer power supplies. Up to four power supplies combine in a single enclosure providing up to 28 amps of available power. Battery backup is provided using from one to four sets of batteries, depending on standby power requirements.

Power supplies mount to the back of the chassis units or wall-boxes. The associated power supply monitor module mounts on the local rail providing system power distribution and mounting space for any control display module. Access to auxiliary power is via easily accessible terminal blocks located on the power supply monitor module. Each power supply produces 7 Amps of filtered and regulated power. With four power supplies located in an enclosure (one primary and three booster power supplies) 28 amps of current is available for local rail modules, control display modules and the eight auxiliary 3.5 amp power outputs (two per supply).

Standard Features

- High efficiency switch mode
- Increased power distribution efficiency
  - power supplies parallel allowing up to 28 amps in a single node
- 120 or 230 Vac operation
- 7 AMP filtered and regulated
- Two 3.5 AMP outputs
- Temperature compensated, dual rated battery charger
- Electronic power limiting
- Automatic load testing of batteries

Application

The primary power supply provides the system with battery charging and voltage regulation. Software configures the charger to either 10-24 AH batteries or 30-65 AH batteries and controls the high/low charge rates. Batteries mounted in the same enclosure as the power supply, have their charge rate monitored and adjusted based on the local enclosure temperature, keeping charging rates within battery specification. For remote batteries a temperature probe is monitored in the remote battery cabinet and charge rates are adjusted automatically. Battery damage is unlikely to occur when environmental short term conditions are outside of normal operating ranges.

The EST3 power supplies automatically load test batteries by shutting down the battery charger and placing a load across the battery. If the battery voltage is outside the specification range the power supply reports a trouble. The trouble clears if the battery is able to recover and pass future load tests.

Battery leads are electronically short circuit protected. If a short occurs in the battery leads the charger automatically disables itself and causes a trouble. The system will constantly look to see if the short has cleared. If the short clears the system automatically restores.

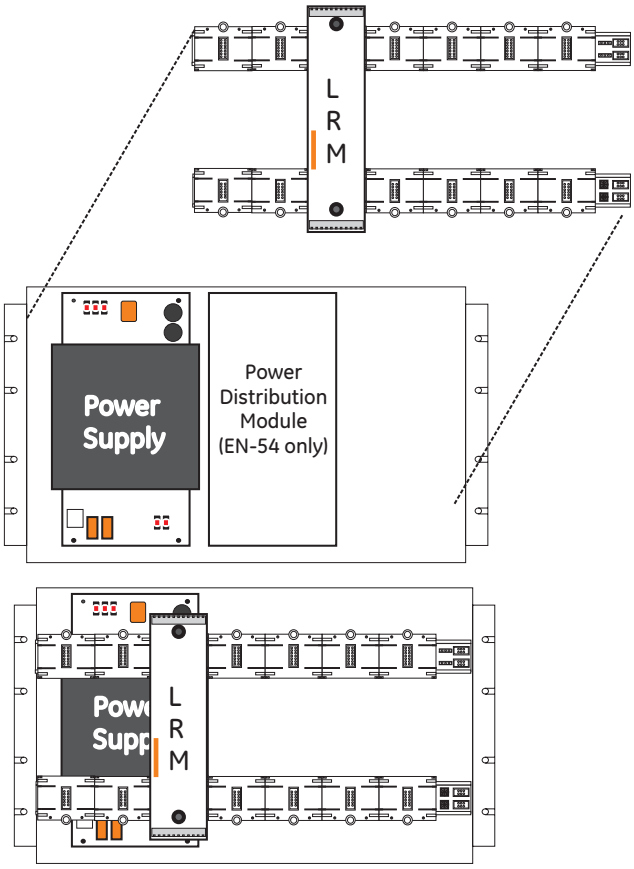
During operation on standby batteries, battery voltage is constantly monitored. A trouble is reported if the battery voltage falls below a specified value.

EST3 power supplies provide specific information back to the 3-CPU(1) designed to help speed trouble shooting of system functions. Should a power supply detect a fault, specific diagnostic codes are available to speed trouble shooting. The 3-LCD will display the power supplies address, a specific trouble code, and a text message describing the specific trouble. Text messages are easy to understand and include items like: Battery Trouble, Aux Power Overload Circuit 1, Aux Power Overload Circuit 2.

Engineering Specification

The fire alarm power supplies must be capable of being paralleled and to load share. Multiple power supplies must be capable of being backed up with a single 24 volt battery set. Each power supply shall be capable of charging up to 65 AH batteries. The power supply must be able to perform an automatic load test of batteries and return a trouble if the batteries fall outside a predetermined range. Power supplies must incorporate the ability to adjust the charge rate of batteries based on ambient temperatures. It shall be possible to adjust for ambient temperature changes in local cabinets as well as remote cabinets.

Installation and Mounting



Power Supply Rules

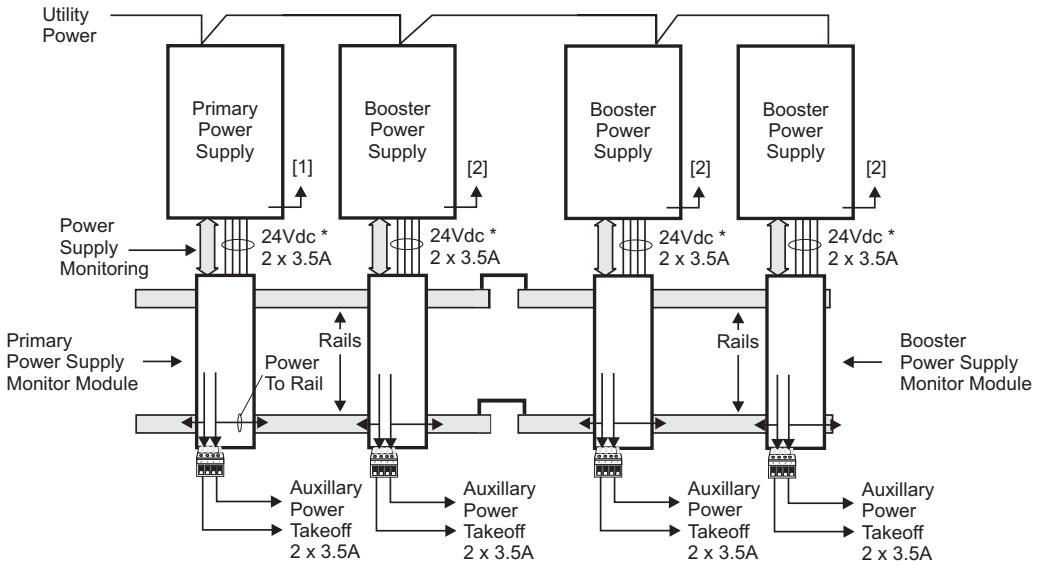
1. Each battery set needs one charger, either a 3-PPS/M or a 3-BBC/M.
2. Each power supply must be connected to a battery set using an identical length and gauge of wire to keep voltage drops identical.
3. Distribute power supplies and loads evenly across rails.
4. **All battery sets for a panel must be the same capacity (AH), same manufacturer, and same manufacturing date code.**

The Table below illustrates the combinations of power supplies and batteries that meet all the power supply rules.

24 VDC Power Supply Output Current

	7A	14A		21A		28A	
Battery Requirements	One Set, 65 AH max	One Set, 65 AH max	Two Identical Sets, 65 AH max	One Set, 65 AH max	Three Identical Sets, 65 AH max	One Set, 65 AH max	Four Identical Sets, 65 AH max
Required Modules	1 3-PPS/M	1 3-PPS/M 1 3-BPS/M	1 3-PPS/M 1 3-BBC/M	1 3-PPS/M 2 3-BPS/M	1 3-PPS/M 2 3-BBC/M	1 3-PPS/M 3 3-BPS/M	1 3-PPS/M 3 3-BBC/M

Typical Wiring



[1] From battery temperature probe terminals.

[2] From battery and from temperature probe terminals if 3-BTSEN-E used.

* Nominal Voltage

Specifications

Catalog Number	3-PPS/M & 3-BBC/M	3-BPS/M	3-PPS/M-230 & 3-BBC/M-230	3-BPS/M-230	3-PPS/M-230-E & 3-BBC/M-230-E	3-BPS/M-230-E
Agency Approvals	UL, ULC	U L, ULC	UL, ULC	UL, ULC	LPCB EN54*, CE	EN54*
Input Voltage	120 Vac (+10%, -15%), 50-60 Hz		230 Vac (+10%, -15%), 50-60 Hz			
Brownout Level	< or = 102 Vac	96 Vac	< or = 195 Vac	184 Vac	< or = 195 Vac	188 Vac
Current Requirements	3-PPS/M included with 3-CPU3 current 3-BBC/M Alarm: 70 mA Standby: 70 mA	Alarm 50mA Standby 50mA	3-PPS/M-230 included with 3-CPU3 current 3-BBC/M-230 Alarm: 70 mA Standby: 70 mA	Alarm: 50 mA Standby: 50 mA	3-PPS/M-230-E included with 3-CPU3 current 3-BBC/M-230-E Alarm: 70 mA Standby: 70 mA	Alarm: 50 mA Standby: 50 mA
Input Current	3.0 A		1.5 A			
Total Output Current	Special Applications: 7.0 Amps					
Battery Charging Capacity	65 AH Sealed Lead-Acid	None	65 AH Sealed Lead-Acid	None	30 AH Sealed Lead-Acid	None
Low Battery Trouble	24 Vdc				22.5 Vdc	
Deep Discharge Cutoff	19.5 Vdc				20.0 Vdc	
Mounting Requirements	1 LRM space, 1 chassis footprint				1 LRM Space + 3-PPS: 2 footprints 3-BBC: 1 footprint	1 LRM space, 1 chassis footprint
Output Voltage	24 Vdc Nominal					
Auxiliary Output Current	Two sources of 3.5 Amps each taken from total output current					
Auxiliary Output Terminal Capacity	18 AWG to 12 AWG (1 mm^2 to 2.5 mm^2)					
Output Protection	Electronic power limiting & heat sink temperature					
Ground Fault Detection	< 10K Ohms					

*EN54-2:1997+A1 and EN54-4:1997+A1:2002+A2 pending

Contact us...

Email: edwards.fire@fs.utc.com
Web: *www.est-fire.com*

EST is an **EDWARDS** brand.

1016 Corporate Park Drive
Mebane, NC 27302

In Canada, contact Chubb Edwards...
Email: inquiries@chubbedwards.com
Web: *www.chubbedwards.com*

Ordering Information

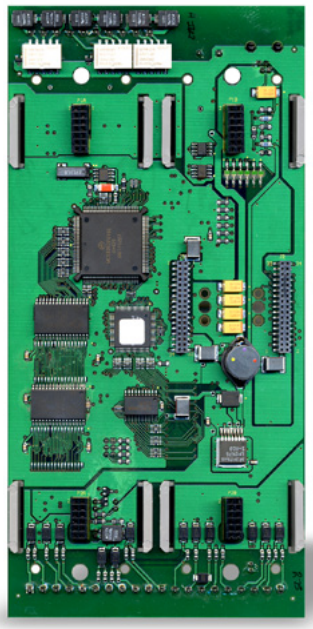
Catalog Number	Description	Ship Wt., lb. (kg)
3-PPS/M	Primary Power Supply w/ local rail module 120V 50/60 Hz	5 (2.3)
3-BPS/M	Booster Power Supply w/ local rail module 120V 50/60 Hz	5 (2.3)
3-PPS/M-230	Primary Power Supply w/ local rail module 230V 50/60 Hz	5 (2.3)
3-BPS/M-230	Booster Power Supply w/ local rail module 230V 50/60 Hz	5 (2.3)
3-PPS/ M-230-E	Primary Power Supply w/local rail module 230V 50 Hz, EN54* Certified, CE	5 (2.3)
3-BPS/ M-230-E	Booster Power Supply w/local rail module 230V 50 Hz, EN54* Certified, CE	5 (2.3)
3-BBC/M	Booster/Charger Supply w/local rail module 120V 50/60Hz	5 (2.3)
3-BBC/M-230	Booster/Charger Supply w/local rail module 230V 50/60Hz	5 (2.3)
3-BBC/ M-230-E	Booster/Charger Supply w/local rail module, 230V 50/60Hz, EN54* Certified, CE	5 (2.3)
3-BBCMON(-E)	Booster/Charger Monitor Module with charger capability (upgrade 3-BPS/M(-230)(-E) to 3-BBC/M-(230)(-E))	5 (2.3)
3-BTSEN	Distribution Module required when battery installed in remote cabinet	.5 (.22)
3-BTSEN-E	Distribution and Temperature Sensor Module. Required in EN54* Markets when battery installed in a remote cabinet.	.5 (.22)
3-FP	Filler Plate, order separately when no LED or LED/Switch module installed.	0.1 (0.05)

*EN54-2:1997+A1 and EN54-4:1997+A1:2002+A2 pending

Life Safety & Communications

EST3 Central Processor Unit

3-CPU3, 3-RS485A, 3-RS485B, 3-RS232



FM APPROVED

CE

UL S3000

7165-1657: 0186

FDNY COA 6086

EN54-2:1997+A1 and EN54-4:1997+A1:2002+A2 pending.

Overview

The 3-CPU3 is the Central Processing Unit Module monitoring the status of all modules and providing the link for network communications. Although each local rail card contains their own microprocessor, the 3-CPU3 provides all inter-module communication and has the ability to download rail module operating parameters. Upon power up the 3-CPU3 automatically learns all local rail module attributes and locations. Site specific software is loaded into the 3-CPU3 which then downloads data to each local rail module. Firmware upgrades are also done from the 3-CPU3 eliminating the need to unplug chips on rail modules.

Mounting must be in the first two local rail spaces of the upper 3-CHAS7 (module chassis). Options for the 3-CPU3 include the addition of an LCD display and User Interface, RS-232 Communication Card, and RS-485 Series Network Communication Cards.

The 3-CPU3 is fully compatible on the same network with the 3-CPU and 3-CPU1 modules.

Standard Features

- Up to 1,000 history events
- RS-485 local rail communications
- Multiplexed audio channels
- Network communication media can consist of twisted copper RS485, short-haul modems and/or single or multimode fiber optic cables
- RS-232 communication card
- Form 'C' contacts for: Alarm, Supervisory and Trouble
- Low voltage memory write protection
- Non-volatile memory

Application

The 3-CPU3 helps make EST3 an extremely powerful and flexible system. As a single node, stand alone system a single 3-CPU3 controls 1 to 19 additional local rail modules. For larger systems, up to 64 nodes interconnect on a peer-to-peer multi-priority token ring protocol network.

The 3-CPU3 controls all local panel responses to automatic, user initiated, or network reported events. As a network node, it is an equal among peers, there is no master on the network. This gives exceptional response times over the network, less than three seconds.

Each 3-CPU3 provides slots at the back for mounting Network, and RS-232, cards. Removable terminal blocks on the 3-CPU3 support connection of network and audio data wiring. On board common relays also terminate at the 3-CPU3 terminals. To aid in trouble shooting and service, status LEDs monitor local rail, network, RS232 and audio data communications.

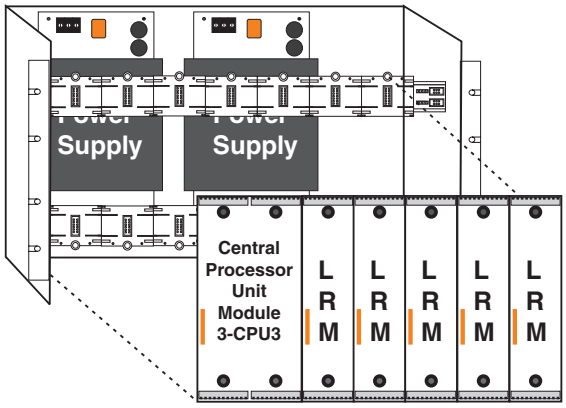
The **Network Communications** card mounts to the back of the Central Processor Unit. The 3-RS485A card provides a Class A (Style 7) or Class B (Style 4) circuit for network communications signals and support for a Class B (Style 4) or Class A (Style 7 - dual Style 4) circuit for the digitized audio signals. The 3-RS485B card provides a Class B (Style 4) or Class A (Style 7) circuit for network communications signals and a second Class B (Style 4) circuit for the digitized audio signals. Network messages received by the Network Communications card are re-transmitted to the next network node. Re-transmission maximizes the wire run lengths between nodes. With 64 nodes miles of network length is possible. Fail safe mechanisms built into the card direct connect the data input and output ports should the network card or its related Central Processor fail. Network communications may be configured via copper or fiber media using the 3-FIBMB.

The **3-RS232 Communication Card** mounts to the back of the 3-CPU3. The 3-RS232 has two optically isolated RS-232 ports. The ports support connection of a printer and/or an external command center. Entire network downloading from one location (to all 64 nodes) is available through the RS-232 card.

Engineering Specification

It must be possible to support a single stand alone node or up to 64 nodes communicating on a peer-to-peer token ring protocol network. Network and digitized audio wiring shall be run in a [choose one: Class A (Style 7) or Class B (Style 4)] configuration. Network alarm response from alarm input to signal activation must be under 3 seconds. All field wiring must be to removable terminal blocks. Status LEDs must be provided for communications of network and internal rail communications. Inter-node communication speed must be programmable. Internal rail communications speed must be programmable.

Installation and Mounting



Data

Maximum resistance between any 3 panels	90 Ohms
Maximum capacitance between any 3 panels	0.3 µF
Maximum distance between any 3 panels via RS485	5,000 ft. (1,524 m)

Capacitance, entire network

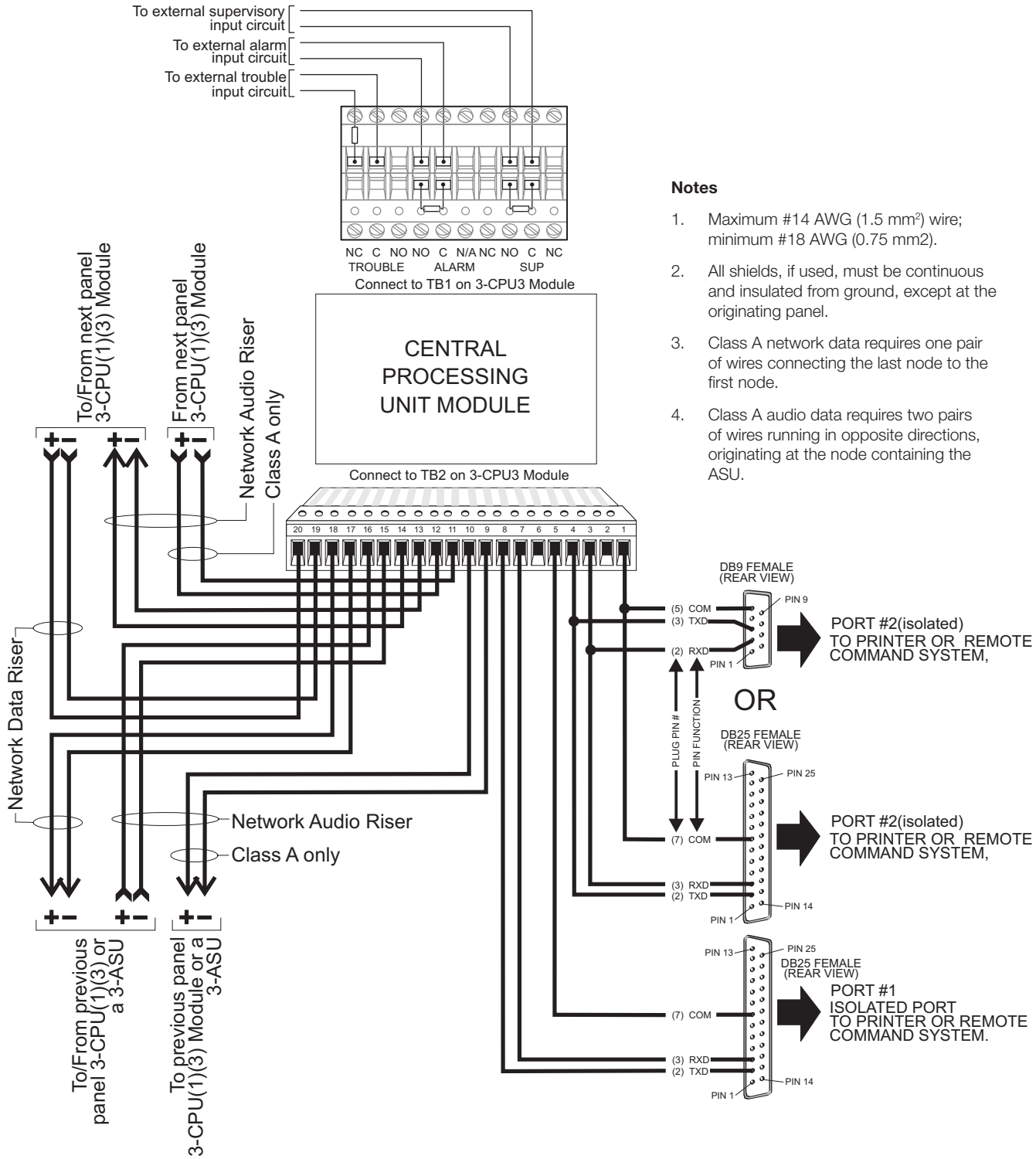
Maximum Accumulative Capacitance

Wire Size	38.4K Baud	19.2K Baud
18 AWG	1.4 µF	2.8 µF
16 AWG	1.8 µF	3.6 µF
14 AWG	2.1 µF	4.2 µF

Audio

Maximum resistance between any 3 panels	90 Ohms
Maximum capacitance between any 3 panels	0.09 µF
Maximum distance between any 3 panels via copper RS485	5,000 ft. (1,524 m)

Typical Wiring



Notes

1. Maximum #14 AWG (1.5 mm^2) wire; minimum #18 AWG (0.75 mm2).
2. All shields, if used, must be continuous and insulated from ground, except at the originating panel.
3. Class A network data requires one pair of wires connecting the last node to the first node.
4. Class A audio data requires two pairs of wires running in opposite directions, originating at the node containing the ASU.

EDWARDS
United Technologies

Contact us...

Email: edwards.fire@fs.utc.com
Web: *www.est-fire.com*

EST is an **EDWARDS** brand.

1016 Corporate Park Drive
Mebane, NC 27302

In Canada, contact Chubb Edwards...
Email: inquiries@chubbedwards.com
Web: *www.chubbedwards.com*

Specifications

3-CPU3

Agency Listings	UL, ULC, CSFM, CE, LPCB EN54* pending.
Mounting	2 - Left most local rail spaces
Terminal Size	18-12 AWG (1.0mm² to 2.5mm²)
Standby Current	155 mA
Alarm Current	165 mA
Contact Ratings	Nonbypassable Alarm, Supervisory and Trouble Form 'C' 1A at 30 Vdc
Data Down Loading	RJ14 Jack
Operating Environment	0°C - 49°C (32° F - 120° F); 93% at 40° C Non-Condensing

**EN54-2:1997+A1 and EN54-4:1997+A1:2002+A2 pending*
Note: CPU current includes the main power supply, since the CPU and PPS cannot be measured separately.

Option Cards

Catalog number	3-RS232	3-RS485A	3-RS485B
Standby Current	58 mA	98 mA	98 mA
Alarm Current	58 mA	98 mA	98 mA
Communication Ports	Two optically isolated RS-232	Three RS-485 Class A (Style 7)	One Class B (Style 4) or Class A (Style 7) network data circuit and one Class B (Style 4) audio data circuit
Agency Listings	UL, ULC. CSFM, CE, LPCB. EN54 pending*.		
Mounting	Back of 3-CPU3		
Operating Environment	0° C - 49° C (32° F - 120° F); 93% at 40° C Non-Condensing		

*EN54-2:1997+A1 and EN54-4:1997+A1:2002+A2 pending

Ordering Information

Catalog Number	Description	Ship Wt. lb (kg)
3-CPU3	Central Processor Unit Module	0.7lb (0.32kg)
3-RS485A	Network Communications Card, Class A (Style 7)	0.33lb (0.15kg)
3-RS485B	One Class A/B network data circuit and one Class B audio data circuit	0.33lb (0.15kg)
3-RS232	RS-232 Communication Card	0.33lb (0.15kg)
3-CPUDR	CPU doors with filler plates. Order separately, one required per CPU where no LCD display is installed.	0.25lb (0.11kg)

EST
Life Safety & Communications

Signature Driver Controller Modules

3-SSDC1, 3-SDDC1, 3-SDC1

7165-1657:
0186/0306

S3000

FDNY
COA 6086

EN54-2:1997+A1: 2006
and EN54-4:1997+2002
+A2 : 2006

Overview

The 3-SSDC1 and 3-SDDC1 Signature Driver Controller modules provide an intelligent interface between the 3-CPU3 module and Signature Series devices. Each module contains its own microprocessor used to coordinate, process and interpret information received from and sent to Signature devices. Power and communications is received directly from the control panel rail assembly. The 3-SSDC1 Single Signature Driver Controller module supports one Signature Data circuit, while the 3-SDDC1 Signature Dual Driver Controller module supports two Signature circuits. Both modules occupy one rail space in the fire alarm control cabinet and provide removable field wiring terminals to aid installation.

Innovative design gives the 3-SSDC1/3-SDDC1 and Signature devices truly “distributed intelligence”. Signature detectors and modules have their own on-board microprocessor communicating with the loop controller in a fully digital communication format. This increases the accuracy of the information coming to and from the loop controller by reducing the effects of capacitance and noise.

With decentralized intelligence much of the decision making moves from the loop controller to the devices. Advanced fire detection algorithms processed within the Signature devices effectively end unwanted alarms. Environmental compensation and multiple sensing element decision making operations are resident in the devices. Intelligent devices allow the Signature Controllers to execute communication and system functions with greater speed and low baud rates, increasing the accuracy of information transmitted between the loop controller and devices.

Standard Features

- One or two circuit versions
- Dedicated microprocessor control
- Full digital communication
- Specialized communication protocol
  – Less sensitive to cable characteristics
  – Utilize existing wiring in most applications
- Loop alarm in under 750 milliseconds
- Device location supervision
  – Unexpected additional device addresses
  – Missing device addresses
  – Switched device locations
  – Programmed device parameters
- Automatic nonvolatile as-built mapping
  – Stores “actual” and “expected” device data
  – Stores physical connection sequence including “T” taps
- Automatic day/night sensitivity
- Supports up to 250 intelligent Signature detectors and 250 Intelligent Signature Modules
- Up to five 3-SDDC1s per node
  – Total of 10 Signature circuits
- Removable field wiring terminal blocks
- Multiple survival modes — stand alone
- Fully backward compatible with 3-SSDC and 3-SDDC
- Supports the full line of Signature II devices, including carbon monixide detection

Application

Up to 125 detectors and 125 modules are supported over a single pair of wires by the 3-SDC1 Signature Cards that plug into the Signature controller modules. Both Class A wiring (style 6 or style 7) and Class B (style 4) wiring are supported. Loop distances over 11,000 feet (3300m) are possible.

The 3-SSDC1 and 3-SDDC1 use advanced communication formats that provide exceptional response. Using a "BROADCAST POLL" the loop controller checks the entire device circuit for any changes of state. Should one or more devices report a change the 3-SSDC1/3-SDDC1 uses "DIRECT ADDRESS SEARCH" to find reporting device(s). Devices that have entered the alarm state or become active are located nearly instantaneously.

The unique use of "BROADCAST POLLING" combined with "DIRECT ADDRESS SEARCH" ensures that only new information is transmitted allowing a reduced baud rate with fast response time. The low baud rate is ideal for retrofit applications since in most applications existing wiring can be used.

To enhance survivability of the system the 3-SSDC1/3-SDDC1 supports a standalone mode for Signature devices. Two catastrophic failure modes are supported. If the 3-CPU(1/3) fails, the loop controller will continue to poll its devices. If an alarm is detected it will be sent on the local rail communication bus and received by other local rail modules. A common alarm condition throughout the panel will result. If the local rail module (3-SSDC1/3-SDDC1) fails, and a device (smoke or module) detects an alarm, specialized circuitry will make the node aware of the alarm condition. The 3-CPU(1/3) will communicate the alarm condition to the rest of the network. Having multiple redundant modes is paramount in a life safety system.

Every time the 3-SSDC1/3-SDDC1 communicates with a detector a green LED on the detector flashes. Normal green LED activity is not disturbing to building occupants, but can be quickly spotted by a maintenance technician. A red LED on the detector turns on only in the alarm condition.

The 3-SSDC1/3-SDDC1 also supervises the device wiring, physical location of each device and the programmed device characteristics. This Edwards/Signature Series unique characteristic is accomplished by "MAPPING" the Signature circuit and committing the map to memory. Upon power up the loop controller will scan device serial numbers and map their physical location sequence on the loop, including "T" taps. After mapping is complete the controller automatically addresses each detector and module through downloading over the loop. There are no switches or dials to set. Each device is assigned a unique soft address generated by the site specific program.

The 3-SSDC1/3-SDDC1 then compares the "Actual" physical device data to the "Expected" site specific program data. If any correlations are different, the loop controller issues a trouble to the CPU identifying the devices which do not match and posting a map fault. Through the 3-CPU3's RS-232 port a graphical map of the loop can be uploaded depicting each device's location on the loop, including branches (T-Taps) and all of the physical attributes associated with the device. This diagnostic information is unparalleled in the fire detection industry and vital for keeping accurate records on how the system was installed.

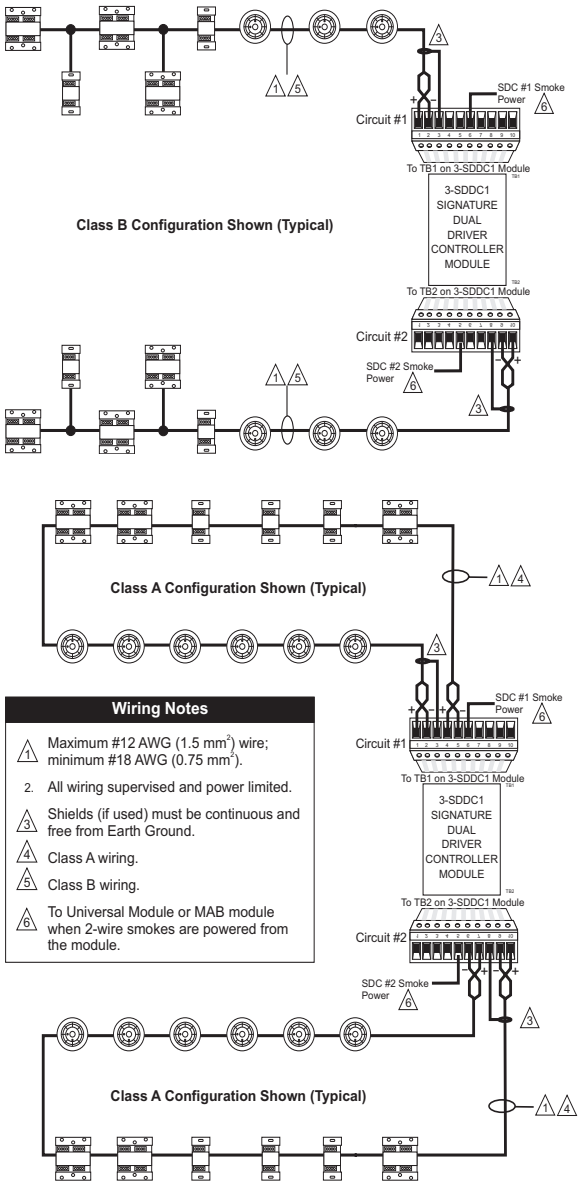
During installation a common problem with analog/ addressable systems is locating ground faults. The 3-SSDC1 and 3-SDDC1 controllers have the ability to locate ground faults by specific module, speeding up the troubleshooting process. Another significant advantage of the 3-SSDC1/3-SDDC1 controllers during commissioning is electronic addressing and mapping. This eliminates duplicate addresses, which are also very difficult for most systems to locate.

During maintenance, should groups of detector heads be removed for service and returned into the wrong smoke detector base (location), the 3-SSDC1/3-SDDC1 will automatically detect the problem. If the attributes of the switched devices are the same, the system will automatically download the correct soft addresses and algorithms to the devices (maintaining location supervision).

If the attributes are not the same the 3-SSDC1/3-SDDC1 will send a map fault indication to the 3-CPU3 and post a trouble indicating the specific devices in fault.

The 3-SSDC1/3-SDDC1 also monitors the Signature Series devices for maintenance and trouble conditions. Each smoke detector contains intelligence to adjust with environmental changes. This expands the amount of time required between cleaning while maintaining a constant alarm threshold. As the detector begins to exhaust the environmental compensation, and reaches the 80% level, the 3-SSDC1/3-SDDC1 will indicate a maintenance alert or dirty condition to the 3-CPU and indicate the specific device requiring cleaning. If cleaning is not performed the detector will continue to operate until all of its environmental compensation is

Typical Wiring



Wiring Notes

1. Maximum #12 AWG (1.5 mm^2) wire; minimum #18 AWG (0.75 mm^2).
2. All wiring supervised and power limited.
3. Shields (if used) must be continuous and free from Earth Ground.
4. Class A wiring.
5. Class B wiring.
6. To Universal Module or MAB module when 2-wire smokes are powered from the module.

utilized. At this point the 3-SSDC1/3-SDDC1 sends a dirty trouble indication to the 3-CPU and posts a trouble condition. If maintenance is still not performed the Signature detector will automatically remove itself from service once the programmed threshold window has been breached (preventing a false alarm).

When a detector includes carbon monoxide (CO) detection, the detector monitors its CO life remaining for the CO sensor element and provides this information automatically to the panel. For maintenance of the system the CO life remaining is also available by simply running a maintenance report at the panel or through the FireWorks graphical interface. A unique CO maintenance signal is automatically generated by the panel when there is 8% (several months) of CO element life remaining. Should the CO sensor element not be replaced after the maintenance signal is reported, an "End of Life" trouble automatically posts on the panel when the CO sensor detection capability is exhausted.

Remote test capability permits devices to be put in alarm, pre-alarm, supervisory, monitor, or security alarm, or trouble from the panel menu or controls. This facilitates testing of smoke and heat detectors as well as monitor and security devices. Fast test is also provided for CO detectors allowing these devices to be tested quickly in the field.

The 3-SSDC1 and 3-SDDC1 local rail modules modules are fully backwards compatible with the 3-SSDC and 3-SDDC local rail modules. 3-SSDC1 and 3-SDDC1 modules provide additional onboard memory to facilitate future Synergy functions. To upgrade a 3-SSDC/3-SDDC to a 3-SSDC1/3-SDDC1 respectively, replace the 3-SSDC/3-SDDC Local Rail Module with a 3-SDDC1-MB Local Rail Module and reuse the 3-SDC Signature Device Cards and filters.

Specifications (Signature Circuits)

Charts assume wire and devices are evenly distributed over length of circuit

Non-twisted, non shielded wire

Device type	# of Detectors	# of Module Addresses	#14 AWG (20pf/foot) (2.53 Ohm/1000ft)	#16 AWG (20pf/foot) (4.02 Ohm/1000ft)	#18 AWG (20pf/foot) (6.38 Ohm/1000ft)
Detectors only	125	0	14,752 feet (4,497 meters)	9,275 feet (2,827 meters)	5,839 feet (1,780 meters)
Modules only	0	125	12,599 feet (3,840 meters)	7,921 feet (2,414 meters)	4,986 feet (1,520 meters)
Detectors and Modules	125	125	5,738 feet (1,749 meters)	3,608 feet (1,100 meters)	2,271 feet (692 meters)
Detectors and Modules with 2-wire smokes	63	55 + 9 SIGA-UM	7,623 feet (2,324 meters)	4,793 feet (1,461 meters)	3,017 feet (920 meters)
Modules with 2-wire smokes	0	107 + 9 SIGA-UM	3,798 feet (1,158 meters)	2,388 feet (728 meters)	1,503 feet (458 meters)

Twisted pair non shielded wire

Device Type	# of Detectors	# of Module Addresses	#14 AWG (38pf/foot) (2.53 Ohm/1000ft)	1.5mm² (36pf/foot) (3.75 Ohm/1000ft)	#16 AWG (36pf/foot) (4.02 Ohm/1000ft)	1.0mm² (25pf/foot) (5.51 Ohm/1000ft)	#18 AWG (25pf/foot) (6.38 Ohm/1000ft)
Detectors only	125	0	13,157 feet (4,010 m)	9,933 feet (3,028 m)	9,275 feet (2,827 m)	6,760 feet (2,061 m)	5,839 feet (1,780 m)
Modules Only	0	125	12,599 feet (3,840 m)	8,483 feet (2,586 m)	7,921 feet (2,414 m)	5,774 feet (1,760 m)	4,986 feet (1,520 m)
Detectors & Modules	125	125	5,738 feet (1,749 m)	3,864 feet (1,178 m)	3,608 feet (1,100 m)	2,630 feet (802 m)	2,271 feet (692 m)
Detectors and modules with 2-wire smokes	63	55 + 9 SIGA-UM	7,623 feet (2,324 m)	5,133 feet (1,565 m)	4,793 feet (1,461 m)	3,494 feet (1,065 m)	3,017 feet (920 m)
Modules with 2-wire smokes	0	107 + 9 SIGA-UM	3,798 feet (1,158 m)	2,558 feet (780 m)	2,388 feet (728 m)	1,741 feet (531 m)	1,503 feet (458 m)

Twisted pair shielded wire

Device Type	# of Detectors	# of Module Addresses	#14 AWG (84pf/foot) (2.53 Ohm/1,000ft)	#16 AWG (82pf/foot) (4.02 Ohm/1,000ft)	#18 AWG (58pf/foot) (6.38 Ohm/1,000ft)
Detectors only	125	0	5,952 feet (1,814 meters)	6,098 feet (1,859 meters)	5,839 feet (1,780 meters)
Modules Only	0	125	5,952 feet (1,814 meters)	6,098 feet (1,859 meters)	4,986 feet (1,520 meters)
Detectors & Modules	125	125	5,738 feet (1,749 meters)	3,608 feet (1,100 meters)	2,271 feet (692 meters)
Detectors and modules with 2-wire smokes	63	55 + 9 SIGA-UM	5,952 feet (1,814 meters)	4,793 feet (1,461 meters)	3,017 feet (920 meters)
Modules with 2-wire smokes	0	107 + 9 SIGA-UM	2,558 feet (780 meters)	2,388 feet (728 meters)	1,503 feet (458 meters)

Contact us...
Email: edwards.fire@fs.utc.com
Web: *www.est-fire.com*

EST is an **EDWARDS** brand.

1016 Corporate Park Drive
Mebane, NC 27302

In Canada, contact Chubb Edwards...
Email: inquiries@chubbedwards.com
Web: *www.chubbedwards.com*

Engineering Specification

The communication format between the control panel and analog devices shall be 100% digital.

Loop alarm recognition must be within 750 milliseconds of a device going into the alarm state, with system response time no greater than 3 seconds. All devices shall support remote testing.

It must be possible to wire the circuit as Class A or Class B with non-shielded, non-twisted wire. It must be possible to wire branches (T-taps) with Class B wiring.

The driver controller must be manufactured in accordance with ISO 9001 standards.

The system must have tolerance to multiple failures. There must be a standalone mode of operation that will ensure the system is aware of alarms even if the local rail or main CPU fails.

Specifications (controllers)

Catalog Number	3-SSDC1	3-SDDC1
Installation	1 LRM Space	1 LRM Space
Module Configuration	1 Addressable circuit (3-SDC1 Card) expandable to 2 circuits.	2 Addressable circuits (3-SDC1 Cards)
Operating Current [Note 2]	Standby 144 mA Alarm 204 mA	Standby 264 mA Alarm 336 mA
Operating Voltage	24 Vdc, Nominal	
Address Requirements	Automatic	
Detectors Supported	125 per 3-SDC1 Card	
Modules Supported	125 Module Addresses per 3-SDC1 Card	
2-Wire Smoke Power Output	100 mA per 3-SDC1 Card (not included in *Operating Current* above	
Conventional detectors supported	150 of 100 µA type per circuit.	
Signature Circuit Voltage	20 VDC +/- 5%	
Maximum Signature Circuit Resistance	100 Ohms	
Maximum Signature Circuit Capacitance	0.33 µF	
Communications Format	100% Digital	
Circuit Wiring Styles	Class A or Class B	
Termination	Removable plug-in terminal strip(s) on module	
Permissable Wire Size	18 to 12 AWG (0.75 to 2.5 mm²)	
Agency Listings	UL, ULC, CE (see Note 1), LPCB EN54 (see Note 3).	
Operating Environment	32 °F (0 °C) to 120 °F (49 °C) 93% RH, non-condensing	

Note 1: Other EST3 components are modularly listed under the following standards:
UL 864 categories: UOJZ, UOXX, UUKL and SYZV, UL 294 category ALVY, UL 609 category AOTX, UL 636 category ANET, UL 1076 category APOU, UL 365 category APAW, UL 1610 category AMCX, UL 1635 category AMCX
ULC-S527, ULC-S301, ULC-S302, ULC-S303, ULC-S306, ULC/ORD-C1076, ULC/ORD-C693
Please refer to EST3 Installation and Service Manual for complete system requirements.

Note 2: Current shown Includes full loop of devices.

Note 3: EN54-2:1997+A1: 2006 and EN54-4:1997+2002 +A2 : 2006 (verify device and loop controller compatibility)

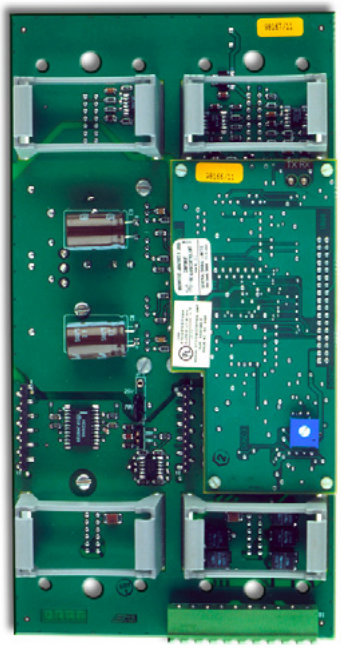
Ordering Information

Catalog Number	Description	Shipping Wt. lb (kg)
3-SSDC1	Single Signature Driver Controller. Comes with one 3-SDC1 Device Card. Mounts to Local Rail. *Add suffix "-E" for EN54 complient versions.*	0.5 (0.23)
3-SDDC1	Dual Signature Driver Controller. Comes with two 3-SDC1s. Mounts to Local Rail. *Add suffix "-E" for EN54 complient versions.*	0.5 (0.23)
3-SDC1	Signature Device Card - upgrades a 3-SSDC1 to a 3-SDDC1	0.25 (0.11)
3-FP	Filler Plate, order separately when no LED or LED/Switch module installed.	0.1 (0.05)

EST
Life Safety & Communications

Zoned Audio Amplifiers

3-ZA20A, 3-ZA20B, 3-ZA40A, 3-ZA40B, 3-ZA95



3-ZA95 shown

S3000

7165-1657: 0186/0306

FDNY COA 6086

FM APPROVED

CE

Overview

The EST3 audio amplifiers take full advantage of proven digital technology to deliver highly intelligible voice audio for evacuation and Mass Notification/Emergency Communication (MNEC) purposes. Digital messages generated by the Audio Source Unit (ASU) and live paging messages are multiplexed into eight separate channels transmitted over fiber optic cable or a single twisted pair of wires. Each zoned amplifier contains integrated demultiplexing circuitry that allows any one of the eight digital audio channels to place messages or signals on the amplifier's built-in speaker circuit.

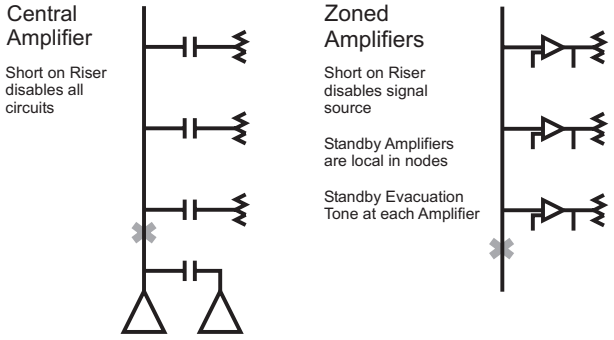
Audio channel selection is network software controlled, and audio amplifiers mount in the same enclosures as other EST3 equipment. Power for the amplifiers comes from standard system power supplies through the local rail. Field wiring connects to removable terminal blocks on the amplifier module. Amplifiers support either 25 V_{RMS} or 70 V_{RMS} power limited speaker circuits. For visual signaling, each 20 or 40 watt amplifier comes standard with one 24 Vdc power limited Notification Appliance Circuit.

Standard Features

- **Three Sizes Available**
  -20 Watts
  -40 Watts
  -95 Watts
- **Simultaneous eight channel digital audio**
  - Superior sound quality
  - Each amplifier does it's own decoding
- **Speaker circuit built into amplifier**
  - Selectable for 70 or 25 VRMS output
  - Class A (Style Z) or Class B (Style Y) output models available
  - Power limited
- **3.5 amp 24 Vdc notification appliance circuit on 20 and 40 watt amplifiers**
  - Class A (Style Z) or Class B (Style Y) output models available
  - Power limited
- **Network software control of channel selection**
- **Integral backup tone generator**
  - 1 KHz temporal (3-3-3) tone evac

Application

EST3 zoned amplifier configurations offer improved reliability and performance. Configuration provides improved survivability in the event of wiring faults that result in a loss of signaling. In the example shown in the diagram, a fault on the system using a central backed-up amplifier disables multiple signal/page circuits, and the standby amplifier is not able to bypass the fault. With EST3, the same fault removes the Audio Source Unit riser.

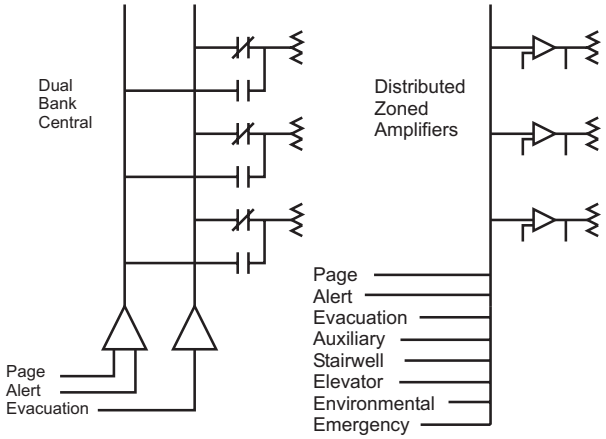


Because all EST3 zoned amplifiers have an integrated backup 1000 Hz temporal tone generator, the locally-generated alarm tones notify occupants of a hazard – even with the primary riser out of commission. The backup tone also operates if the ASU or the audio distribution system fails. To further enhance system survivability, a single standby amplifier can backup any zoned amplifier in the same cabinet.

Zoned amplifiers can be housed in remote cabinets close to the speakers. This minimizes the voltage drop between the amplifier and the load, and permits the use of a smaller wire size than is possible with centrally-located amplification systems.

EST3 easily outperforms banked audio systems with its ability to simultaneously deliver up to eight different signals. When using centrally-banked amplifiers, paging and alert channels typically share a common amplifier. Consequently, when paging, the alert signal goes silent in all alerted areas when a Page is issued. At the end of the Page, the alert signal resumes in the alert area, which could cause confusion because occupants did not receive the page message and do not know why the Page stopped and restarted.

With EST3, simultaneous page, alert, and evacuation signal capability is engineered into the system. With eight channels to choose from, dedicated messages can be delivered to stairwells, elevator cabs, etc. while alert, evacuation, and page instructions are simultaneously being sent to the rest of the building. The eight audio channels allow messages to be automatically routed, and provide specific instructions based on the alarm's location.



For example, with an alarm on Floor Eight, the following automatic message instructions could be given concurrently. **Note:** A Page could also be sent to any other location in the building – without interrupting any of the messages below.

FLOOR 9 HEARS: "A fire alarm has been reported on the floor below. Please evacuate using the stairwell."

FLOOR 8 HEARS: "A fire alarm has been reported on this floor. Please evacuate using the stairwell."

OTHER FLOORS HEAR: "An emergency has been reported on floor 8. Please remain in the building and await further instructions."

ELEVATOR: "A fire alarm has been reported in the building. The elevator is being returned to the ground floor for emergency use. Please evacuate the building."

STAIRWELLS: "Please remain calm and walk down the stairs to evacuate the building in a safe manner."

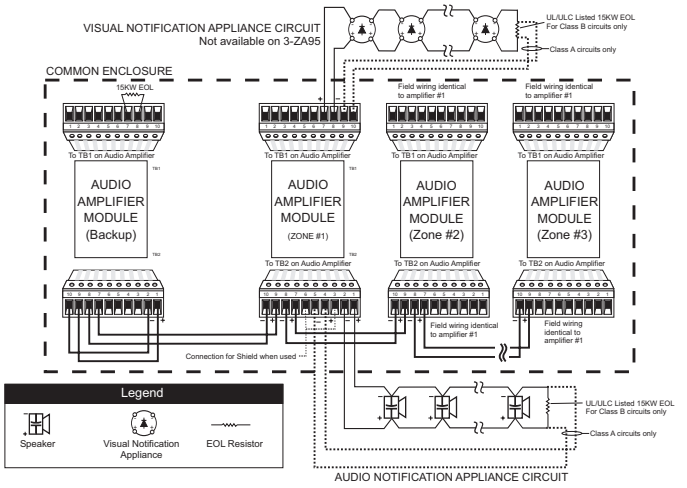
In addition to robust paging, EST3 provides UL-listed Mass Notification/Emergency Communication (MNEC), which overrides fire alarm functions. This capability allows emergency response commanders to advise building occupants of the safest action to take while an emergency is unfolding. Occupants can be instructed to leave, relocate, or seek immediate shelter, depending on the situation. This provides the flexibility for communications to mesh with the facility's risk analysis needs — without the risk of an unexpected fire alarm or general evacuation signal interfering with established emergency response protocols.

Engineering Specification

The audio system shall provide eight simultaneous and distinct audio channels. These shall consist of a minimum of: Local Page, Emergency Communication, Multiple Evacuation, Alert, Auxiliary, and General Signaling. Channels shall support hierarchical operation and be controllable from system programming. The audio system also provides Elevator, Stairwell and Auxiliary signaling. Systems that cause signaling devices to go silent while performing any signaling functions will not be accepted.

The audio system zoned amplifiers must be able to operate 25 V_{RMS} or 70 V_{RMS} speakers. The amplifier output must be power limited, and wired in a <Class A (Style Z)> <Class B (Style Y)> configuration. The amplifiers shall provide an integral backup 1000 KHz temporal tone generator which shall operate in the event signal primary audio signals are lost and the amplifier is instructed to broadcast alarm information. It shall be possible to backup multiple zoned amplifiers with a common backup amplifier.

Typical Wiring



Specifications

	3-ZA20A	3-ZA20B	3-ZA40A	3-ZA40B	3-ZA95
Agency Listing	UL, ULC, CE				
Environmental	0°C - 49°C (32°F - 120°F) 93% RH, Non-condensing				
Frequency Response	400Hz to 4KHz @ +/- 3dB				
Output Voltage	25 VRMS or 70 VRMS				
THD (distortion)	< 7%				
Wire Size	18 to 12 AWG (1.0 to 2.5 mm²)				
Internal Tone Generator	1KHz Temporal (3-3-3) Tone (evacuation); 20 PPM (alert)				
SIGA-CC1/2 Support	10 Units, Maximum				
Standby Current	62mA for 20 and 40 watt amps; 64mA for the 3-ZA95 watt amp				
Alarm Current	1120mA	1120mA	2480mA	2480mA	5540mA
Pwr. Ltd. Audio Output Wiring Configuration EOL Resistor	Class A or B (Style Z or Y) 15K Ohms in Class B	Class B (Style Y) 15K Ohms	Class A or B (Style Z or Y) 15K Ohms in Class B	Class B (Style Y) 15K Ohms	Class A or B (Style Z or Y) 15K Ohms in Class B
Pwr. Ltd. 24 Vdc NAC Wiring Configuration	Class A or B (Style Z or Y)	Class B (Style Y)	Class A or B (Style Z or Y)	Class B (Style Y)	N/A
Line Resistance, Max.* EOL Resistor Line Capacitance, Max	50 Ohms, Max. N/A 0.33µF	50 Ohms, Max. 15 K Ohms 0.33µF	50 Ohms, Max. N/A 0.33µF	50 Ohms, Max. 15K Ohms 0.33µF	
Space Requirements	1 LRM Space				2 LRM Spaces

Maximum Speaker Circuit Distance at 0.5 dB loss*

70 VRMS Output	3-ZA20A	3-ZA20B	3-ZA40A	3-ZA40B	3-ZA95
#12 AWG (3.2 Ohm/1000 ft pair)	4,536 ft (1,382 m)		2,268 ft (691 m)		955 ft (290 m)
#14 AWG (5.2 Ohm/1000 ft pair)	2,792 ft (850 m)		1,396 ft (425 m)		588 ft (179 m)
#16 AWG (8.0 Ohm/1000 ft pair)	1,815 ft (553 m)		907 ft (276 m)		382 ft (116 m)
#18 AWG (13 Ohm/1000 ft pair)	1,117 ft (340 m)		558 ft (170 m)		235 ft (71 m)

25 VRMS Output	3-ZA20A	3-ZA20B	3-ZA40A	3-ZA40B	3-ZA95
#12 AWG (3.2 Ohm/1000 ft pair)	579 ft (176 m)		289 ft (88 m)		122 ft (37 m)
#14 AWG (5.2 Ohm/1000 ft pair)	356 ft (108 m)		178 ft (54 m)		75 ft (22 m)
#16 AWG (8.0 Ohm/1000 ft pair)	231 ft (70 m)		116 ft (35 m)		49 ft (14 m)
#18 AWG (13 Ohm/1000 ft pair)	142 ft (43 m)		71 ft (21 m)		Not supported by 18 AWG

* Refer to product manual for wire run calculations.

Contact us...

Email: edwards.fire@fs.utc.com
Web: *www.est-fire.com*

EST is an **EDWARDS** brand.

1016 Corporate Park Drive
Mebane, NC 27302

In Canada, contact Chubb Edwards...
Email: inquiries@chubbedwards.com
Web: *www.chubbedwards.com*

Ordering Information

Catalog Number	Description	Ship Wt., lb. (kg)
3-ZA20A	20 Watt Zoned Amplifier w/Class A/B (Style Z/Y) Audio & Class A/B (Style Z/Y) 24 VDC outputs	1.55 (0.7)
3-ZA20B	20 Watt Zoned Amplifier w/Class B (Style Y) Audio & Class B (Style Y) 24 VDC outputs	1.55 (0.7)
3-ZA40A	40 Watt Zoned Amplifier w/Class A/B (Style Z/Y) Audio & Class A/B (Style Z/Y) 24 VDC outputs	1.55 (0.7)
3-ZA40B	40 Watt Zoned Amplifier w/Class B (Style Y) Audio & Class B (Style Y) 24 VDC outputs	1.55 (0.7)
3-ZA95	95 Watt Zoned Amplifier w/Class A/B (Style Z/Y) Audio output	3.0 (1.5)
3-FP	Filler Plate, order separately one required per amplifier when no LED or LED/Switch module installed on operator layer.	0.1 (0.05)

Life Safety & Communications

Audio and Telephone Masters

→ 3-ASU series

FM APPROVED CE FDNY COA 6086 7165-1657: 0186 S3000

Overview

The efficient EST3 audio system provides for intuitive local and remote audio control for Mass Notification/Emergency Communications (MNEC), Life Safety and other approved uses. EST3 audio builds from standard modules that fit together easily. Audio components use standard EST3 cabinets and power supplies.

Taking full advantage of digital technology, up to eight channels of audio sources transmit over a single twisted pair of wires or fiber optic cables between nodes. Coupling the inherent reliability and performance of zoned amplifiers with EST3 simplified user interfaces makes audio system design and operation easy and dependable.

The 3-ASU is seamlessly integrated into an EST3 system to provide for a rugged and reliable communications package that can be configured for Mass Notification/Emergency Communication (MNEC), as well as fire alarm and other emergency functions. The 3-ASU audio source unit supports eight channels of clear digital audio that is easily distributed to panels containing 3-ZA rail amplifiers. The 3-ASU supports digital storage and playback of pre-recorded messages as well as live paging. The optional 3-FTCU provides a unique, space-saving and easy-to-operate control point for dedicated emergency/firefighter two-way telephones.

Standard Features

- Eight channels for audio source selection
- Audio data to remote EST3 panels with amplifiers can be transmitted over twisted copper wires or fiber optic cables *(see Data Sheet 85010-0131 for details on EST3 fiber optic communications)*
- Listed for Mass Notification/Emergency Communications
- UL2572 as CCS or ACU or LOC.
- Auxiliary audio input interface for campus paging, telephone interface, etc.
- Single fiber optic filament or one twisted pair of wires between nodes
- VU display shows paging output level
- Ready-to-page LED
- Digital transmission of audio signals
  - greater noise immunity
  - high quality signal transmission
- On board storage of programmed messages and tones
- Optional LCD display of fire phone calls
- Optional earthquake hardening: OSHPD seismic pre-approval for component Importance Factor 1.5

Application

EST3 audio is accomplished by selecting modular components for installation in standard fire alarm cabinet assemblies. At the main control panel location mounting audio control equipment provides an emergency user interface for “Paging” and optionally a “Fire-fighters Master Telephone”. Zoned amplifiers mount in the main control panel and/or in remote nodes. By mounting amplifiers in remote nodes, wire runs and space requirements are reduced at the main control panel.

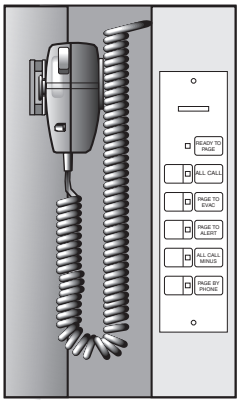
The heart of the EST3 audio package is the Audio Source Unit (ASU). The Audio Source unit converts analog signals to digital signals. On board audio memory stores signal tones and/or alarm-alert verbal messages.

These digitally-stored messages can be recorded onsite using standard PC audio components or downloaded from a library of pre-recorded messages and tones. Messages can be in any language or combination of languages. The ASU comes standard with two minutes of memory for tone and message storage. Available message memory expands easily to 100 minutes with the optional 3-ASUMX/100 memory expansion card.

Audio Source units support connection of a local microphone, remote microphone, telephone voice line , and Mass Notification/ Emergency Communication (MNEC) audio feed. With eight audio channels to choose from combinations of paging, alert, evacuation signaling and automatic messages are available for simultaneous delivery to different parts of a building or to different buildings.

There are two main audio user interface modules: the paging microphone, and the firefighter’s telephone, which supports three-state and four-state firefighter telephones. Available individually or in a set, EST3 audio modules open system design possibilities.

When the Life Safety system requires paging only the 3-ASU or 3-ASU/4 Audio Source Units provides a Master Paging micro-phone with common controls. Switch labeling makes the opera-tion intuitive. Six LEDs and five switches cover paging operations. Three of the five paging switches, All Call, Page to Evacuation, and Page to Alert, cover most paging operations. A VU display shows the user the output level of the page in process. The 3-ASU series mount in one chassis space of a EST3 Lobby enclosure. In addition to the paging microphone the 3-ASU/4 has mounting space for up to four local rail modules, including 20, 40, and 95 watt zone amplifiers and up to four Control Display modules allow-ing layout flexibility. The 3-ASU provides the same functionality as the 3-ASU/4 but is supplied with an inner door filler plate and no local rail module spaces.



Paging Microphone

Ready-to-Page LED turns on after the pre-announce tone has finished indicating the system is ready to page.

All Call selects all amplifiers for page delivery.

Page to EVAC selects all amplifiers cur-rently delivering evacuation signaling for page delivery.

Page to ALERT selects all amplifiers currently delivering alert signaling for page delivery.

All Call Minus selects all amplifiers not programmed for alarm signaling for page delivery (typically stairwells).

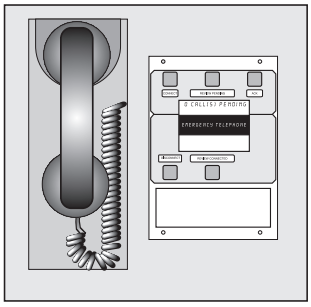
Page by Phone selects the telephone voice line as the paging source.

Operating the Microphone Talk Key stops alarm signaling to se-lected zones and starts pre-announce tone delivery.

When the pre-announce tone finishes, the Ready to Page LED turns on.

When system design calls for paging with Firefighters telephone the 3-ASU/FT provides all the paging features of the 3-ASU series with the added benefit of a master handset assembly. The 3-ASU/FT brings to the emergency user easy to understand switches and text messages displaying on a backlit 8 x 20 character LCD display.

Firefighters telephone



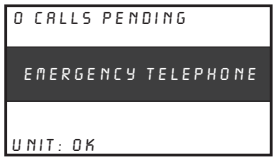
CONNECT switch selects phone circuits shown in the Calls Pending Window.

REVIEW PENDING stops auto-matic display of pending calls and allows the operator to step through each message at his own pace.

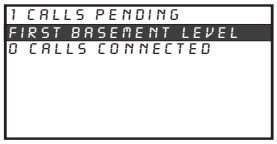
ACK (acknowledge) silences the telephone systems audible signal. The signal resounds for any new call.

DISCONNECT disconnects the highlighted call in the calls con-nected list.

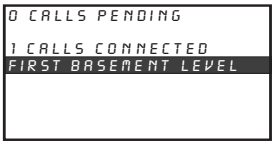
REVIEW CONNECTED scrolls a reverse highlight through the calls connected list.



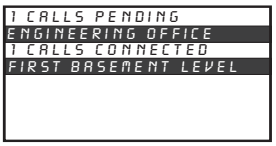
The Firefighters telephone LCD is very similar to the 3-LCD. When there is no active telephone calls the LCD shows a title screen. Active calls display a text message referenc-ing the remote phone location.



When a remote handset is lifted the LCD display updates to show the calls pending and the call-in signal sounds to alert the user of a pending call.



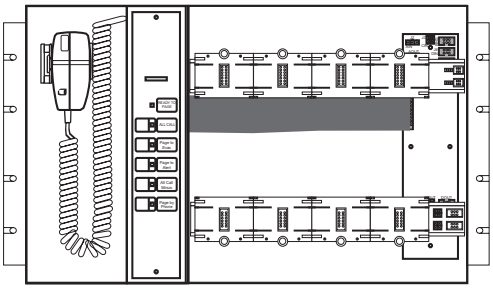
The user answers the call by press-ing the Connect switch. The location message moves from the pending line to the connected line. The call in signal silences. The user simply uses the master telephone to talk with the connected telephone.



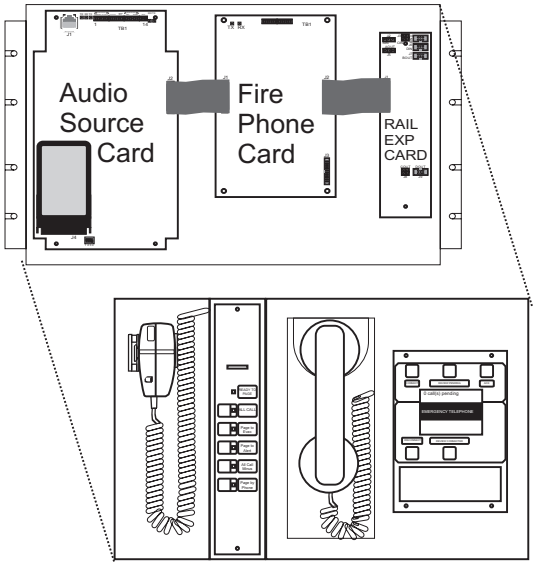
If another call comes in the location message appears in the calls pending line and audible signal resounds. The user can silence the signal by answer-ing the call or by pressing the ACK (acknowledge) switch.

Up to five remote telephone handset assemblies connect to the system simultaneously without any degradation of audio quality.

Installation and Mounting

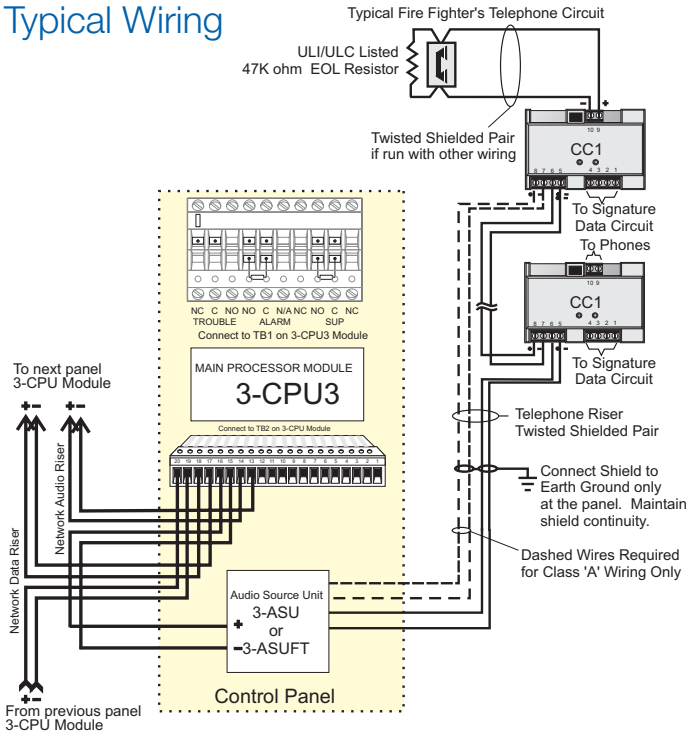


3-ASU/4 has Chassis, Audio Source Unit, Paging Common Control and rail space for four Local Rail Modules. Mounts in lobby enclosure.

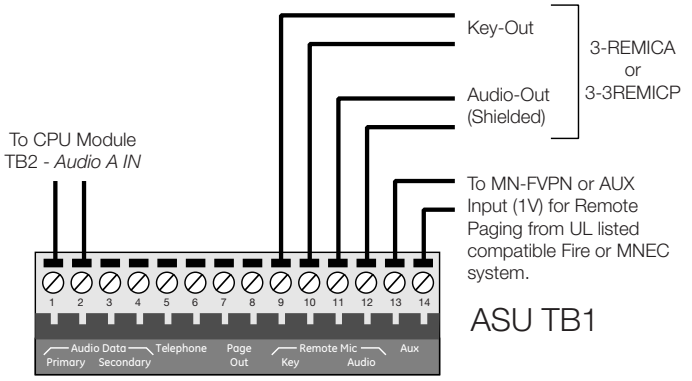


3-ASU/FT has Chassis Assembly /w Audio Source Unit, Paging Common Control and Fire Phone Controls

Typical Wiring



Mass Notification



Engineering Specification

The audio system shall provide eight simultaneous and distinct audio channels. These shall consist of a minimum of: Local Page, Emergency Communication, Multiple Evacuation, Alert, Auxiliary, and General Signaling. Channels shall support hierarchical operation and be controllable from system programming. The audio system also provides Elevator, Stairwell and Auxiliary signaling. Systems that cause signaling devices to go silent while performing any signaling functions will not be accepted.

The system must provide operation to 25Vrms or 70.7Vrms speakers. The system must provide as a minimum the following paging common controls and indicators: Ready to page LED, VU display of paging output level, single switch function for paging to all — Alert zones, Evacuation zones, and areas not programmed for signaling. The system must provide high quality analog to digital conversion of paging sources. Digital transmission of paging must be provided between system nodes. The analog sources must be sampled and converted to digital with a sampling rate no less than 9600 samples per second. It must be possible to transmit signal sources (Alert, Alarm, Page, etc.) together over a single pair of wires between nodes.

System amplifiers must be distributed zoned type. Centrally banked systems are not acceptable. The circuit must carry a minimum rating of 3.5 Amps for operating 24 Vdc signals.

The system shall provide fully integrated fire fighters' telephone system that shall provide 2-way communication between the fire alarm control panel and any fire fighters' telephone station. <<The Audio Source Unit and Firefighters Telephone shall be installed so that a seismic component Importance Factor of 1.5 is achieved.>> The system shall include an alphanumeric user display and controls. When a telephone is activated, a call-in buzzer shall sound, and the location of the phone shall be shown on the alphanumeric display. The display shall be capable of bilingual operation, displaying English, Dutch, Finnish, French, German, Italian, Portuguese or Spanish messages.

The incoming call shall be selected by activating a single button. All subsequent telephone call locations shall be displayed in full text. The system shall display all incoming calls, all connected phone(s) on the alphanumeric display. The system shall be configured so that page messages may be issued from any firefighter's telephone connected to the system, as directed by the emergency operator.

Contact us...

Email: edwards.fire@fs.utc.com
Web: *www.est-fire.com*

EST is an **EDWARDS** brand.

1016 Corporate Park Drive
Mebane, NC 27302

In Canada, contact Chubb Edwards...
Email: inquiries@chubbedwards.com
Web: *www.chubbedwards.com*

Specifications

Catalog Number	3-ASU	3-ASU/4	3-ASU/FT(RC)	3-FTCU
Agency Listings	UL, ULC, CE			
Ambient Temp.	0°C-49°C (32°F-120°F)			
Ambient Humidity	93% Non-condensing @ 32°C			
Mounting	One Chassis Space			
Wire Size	Network Data Riser - One pair twisted 18-12AWG (1.0mm²-2.5mm²) Network Audio Riser - One pair twisted 18-12AWG (1.0mm²-2.5mm²)		Network Data Riser- 18-12AWG (1.0-2.5mm²)(3-ASU/FT only) Network Audio Riser- 18-12AWG (1.0-2.5mm²)(3-ASU/FT only) Telephone Riser - One pair twisted shielded 18 -14 AWG (1.0mm² to 1.5mm²)	
Current Rating	80 mA in Alarm and Supervisory		112 mA Supervisory and Alarm	32 mA Supervisory and Alarm
Audio Inputs	Local Microphone (isolated and supervised); Remote Microphone (isolated and supervised); One MNEC audio input.		Local microphone (isolated and supervised); Remote microphone (isolated and supervised); Firefighters' telephone (isolated and supervised; One MNEC audio input.	
Pre-recorded Message Storage	Two minutes standard expandable to 100 minutes with optional 3-ASUMX/100. Max. message length 40 seconds.			N/A
Supported Message Count	255			N/A
Auxiliary Input impedance	1K Ohm			N/A
Bilingual Support	English, Dutch, Finnish, French, German, Italian, Portuguese, Spanish			

Telephone Riser		
Active Telephones	N/A	Five Maximum
Wire size	N/A	One pair twisted shielded 18 -14 AWG (1.0mm² to1.5mm²)
Line Resistance	N/A	50 Ohm
EOL Resistance	N/A	15K Ohm

Ordering Information

Catalog Number	Description	Ship Wt. lb. (kg)
3-ASU/FT [1,3]	Audio Source Unit with Local Microphone and Firefighters Telephone.	20 (9.1)
3-ASU/FTRC	Audio Source Unit with Local Microphone, Firefighters Telephone and call in buzzer control.	20 (9.1)
3-ASU/4 [1]	Audio Source Unit w/Local Microphone. Provides four local rail spaces.	15 (6.8)
3-ASU [1]	Audio Source Unit w/Local Microphone. Inner door filler plate	15 (6.8)
3-FTCU [1]	Firefighters Telephone Control Unit inner door filler plate.	15 (6.8)
3-ASUMX/100	Audio Source Unit Memory Expansion. Provides 100 minutes of message time.	0.5 (.23)
3-FTEQ	Seismic hardening kit for 3-ASU/FT or 3-FTCU telephone handset [2]	
RC-BRKT	Redundant command center relay bracket	
RFK1	Ferrite Clamp Kit required for EN-54 compliance	.25 (.11)
3-LKE	UK English Label Kit	.25 (.11)
3-LKF	French Label Kit	.25 (.11)
3-LKR	Russian Label Kit	.25 (.11)
3-LKS	Spanish Label Kit	.25 (.11)

1. Add "-CC" for City of Chicago
2. For earthquake anchorage, including detailed mounting weights and center of gravity detail, please refer to *Seismic Application Guide 3101676*. Approval of panel anchorage to site structure may require local AHJ, structural, or civil engineer review.
3. For EN54 compliancy with fire fighter telephone order 3-ASU/FT-E.

Sealed Lead-Acid Batteries

Overview

Rechargeable sealed lead-acid batteries are ideal for use as a secondary (standby) power source as defined by NFPA 72. Their low maintenance and high energy density make them ideal for fire alarm signaling applications.

Standard Features

- Rechargeable
- Non-spillable
- Non-hazardous
- Low maintenance
- High energy density

Application

When multiple power supplies are provided, each power supply's battery requirements should be calculated individually. Consult the specific system manual to determine battery capacity requirements.

Safety Information

Due to a battery's low internal resistance and high power density, high levels of short circuit current can develop across battery terminals. Put on protective eye covering and remove all jewelry before working on batteries. Do not rest tools or cables on the battery, and only use insulated tools. Follow all manufacturers installation instructions and diagrams when installing or maintaining batteries.

EDWARDS
A UTC Fire & Security Company

Detection & alarm since 1872

U.S.
T 888-378-2329
F 866-503-3996

Canada
Chubb-Edwards
T 519 376 2430
F 519 376 7258

Southeast Asia
T : +65 6391 9300
F : +65 6391 9306

India
T : +91 80 4344 2000
F : +91 80 4344 2050

Australia
T +61 3 9239 1200
F +61 3 9239 1299

Europe
T +32 2 725 11 20
F +32 2 721 86 13

Latin America
T 305 593 4301
F 305 593 4300

utcfireandsecurity.com

Specifications

Case Material	ABS Thermoplastic
Regulatory Information	DOT Class 60, Batteries, non-hazardous, non-spillable
Operating Environment	32° F to 120° F (0° C to 49° C) 0 to 93% RH, Non-condensing

Ordering Information

Catalog Number	Description	Shipping Weight, lb (kg)
12V1A2	1.2 Ah Sealed Lead Acid Battery - 12 Vdc	1.25 (0.57)
12V4A	4.5 Ah Sealed Lead Acid Battery - 12 Vdc	5 (2.27)
12V6A5	7.2 Ah Sealed Lead Acid Battery - 12 Vdc	6 (2.72)
6V8A	8 Ah Sealed Lead Acid Battery - 6 Vdc	4 (1.81)
6V10A	12 Ah Sealed Lead Acid Battery - 6 Vdc	5 (2.27)
12V10A	11 Ah Sealed Lead Acid Battery - 12 Vdc	10 (4.45)
12V17A	18 Ah Sealed Lead Acid Battery - 12 Vdc	13 (5.90)
12V24A	26 Ah Sealed Lead Acid Battery - 12 Vdc	20 (9.07)
12V40A	40 Ah Sealed Lead Acid Battery - 12 Vdc	32 (14.51)
12V50A	50 Ah Sealed Lead Acid Battery - 12 Vdc	40 (18.14)
12V65A	65 Ah Sealed Lead Acid Battery - 12 Vdc	49 (22.23)

EST3 Remote Annunciators

3-ANNCPU3, 3-LCDANN, 3-6ANN, 3-10ANN, 3-EVxxx, 3-4ANN

EN54-2:1997+A1 and
EN54-4:1997+A1:2002+A2
pending

Overview

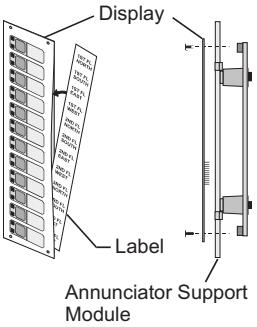
EST3 supports a full range of annunciator options for Mass Notification/Emergency Communication (MNEC), Life Safety and other purposes. Annunciator cabinets are constructed from 16 gauge cold rolled steel. The gray textured enamel finish of the annunciators complements any decor. Both surface and semi-flush mounting cabinet configurations maximize mounting flexibility and esthetic appeal. Cabinet arrangements allow both LED and LCD annunciation to easily combine in a single enclosure. Slide in labeling for LEDs and switches provides designation flexibility for labeling in local languages. For graphic annunciation EST3 offers LED driver boards perfectly suited to operate in most graphic annunciators.

EST3 annunciators are perfect for MNEC applications. They can be used in Central Control Stations (CCS), Autonomous Control Units (ACU), Local Operating Console (LOC) and combination units. In these applications, annunciators are configured to operate as Local Operation Consoles, or even Central Command Stations, from which MNEC is initiated and controlled.

Standard Features

- Standard 3-LCD (168 characters) and large-format 3-LCDXL1 (960 character) display options
- LCD uses queues to sort events
- Variety of wallbox configurations
- Programmable LED flash rates
- Slide-in labels
  Makes customization for regional language easy
- Full line of driver boards for graphic annunciators

Application



Use EST3 remote annunciators when a compact system status display is needed. Annunciator configurations include: LCD only display, LED only displays or combination LED and LCD display in a single enclosure.

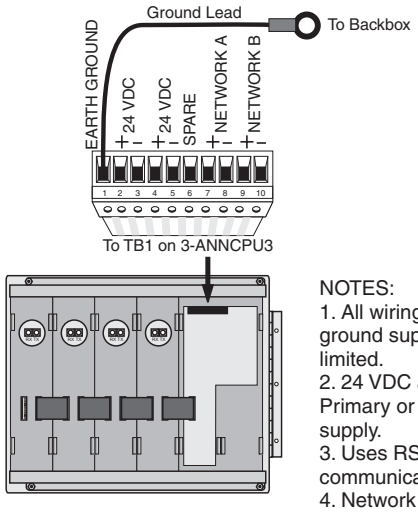
The LCD display uses either the 3-LCD or 3-LCDXL1 Liquid crystal display module. The 3-LCD has a 128 x 64 graphical display typically used to display eight lines of 21 characters on its LCD display while the 3-LCDXL1 has a larger 240 x 320 pixel backlit display that supports 24 lines of 40 characters. Both LDC displays provide the room needed to convey emergency information in a useful format.

The 3-LCD always displays the last highest priority event even when the user is viewing other message queues. To give the greatest message flexibility EST3 event messages can route to specific annunciators. Routing can be initiated at a specific time/shift change. Messages need only display in areas having to respond to an event.

For LED display, the full line of EST3 Control/Display Modules support event display. Control/Display modules install over any annunciator support module maximizing annunciator design flexibility. A Lamptest feature can program to any spare control switch. If an LCD display is installed in the annunciator, simply operate the Alarm Silence and Trouble Silence switches simultaneously to lamptest all LEDs.

Typical Wiring

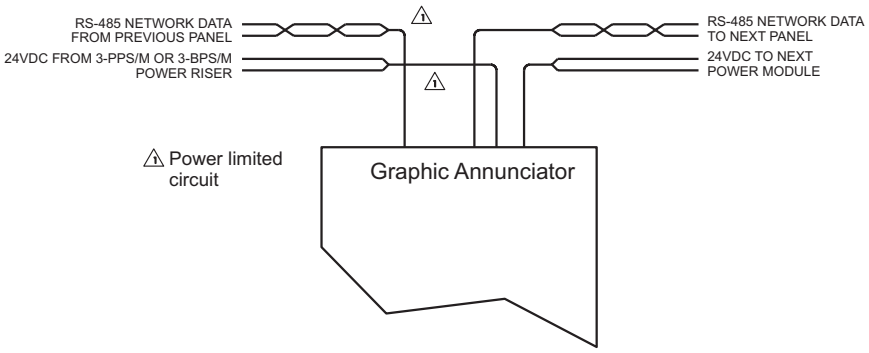
Rear view 3-ANNCPU3 Field Wiring
3-6ANN Shown



NOTES:
1. All wiring except earth ground supervised and power limited.
2. 24 VDC available from Primary or Booster Power supply.
3. Uses RS-485 Network communication format
4. Network wiring Twisted Pair

Power Riser
Calculate wire size for a maximum 3.4 Vdc total line loss from the 24 Vdc nominal voltage.

Graphic Annunciator Field Wiring



Wire Specifications
Network Data Communications - RS485 Format

Minimum Twisted Pair	18 AWG (0.75 mm²).
Maximum Circuit Resistance	90 Ohms
Maximum Circuit Capacitance	0.3 µF
Maximum Distance between any 3 panels	5,000 ft. (1,524 m).

Capacitance, entire network
Maximum Accumulative Capacitance

Wire Size	38.4K Baud	19.2K Baud
18 AWG	1.4 µF	2.8 µF
16 AWG	1.8 µF	3.6 µF
14 AWG	2.1 µF	4.2 µF

Distance limits are determined using the maximum allowable circuit resistance and capacitance, and manufacturer's cable specifications.

Specifications

Catalog Number	3-ANNCPU3	3-ANNSM	3-LCD	3-LCDXL1
Agency Listings	UL, ULC, FM, CE, LPCB EN54* pending.			
Mounting Space	Two Spaces	One Space	Mounts over 3-ANNCPU	Mounts over 3-ANNCPU plus two spaces.
Communication Format	RS-485	N/A	N/A	N/A
Current @ 24 Vdc Standby Alarm	 144 mA 144 mA	 10mA 10mA	 40mA 42mA	 48mA 50mA
Wiring Termination	Plug in terminal strip	N/A		
Wiring Size	Twisted Pair 18-14 AWG (0.75-1.5 mm²)			
Max. Wire Distance	5000 ft (1524m) between any 3 panels			
Relative Humidity	93% non condensing at 90° F (32° C)			
Temperature Rating	0-49° C (32 - 120° F)			
Wiring Styles	Class A or Class B			

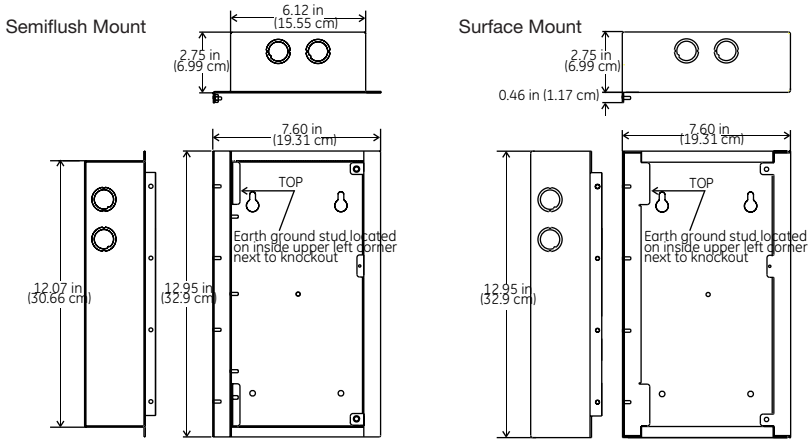
Note: For a complete list of EST3 annunciator display and control modules please refer to Edwards literature sheet part number 85010-0055.
** EN54-2:1997+A1 and EN54-4:1997+A1:2002+A2 pending*

Engineering Specification

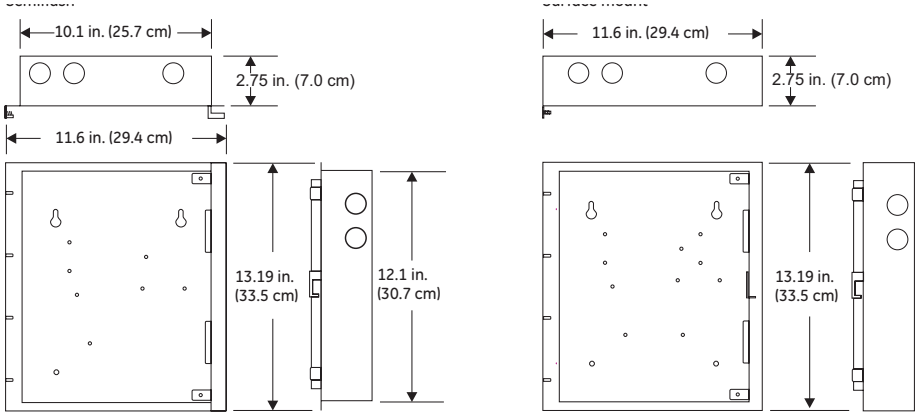
The Life Safety system shall incorporate annunciation of Alarm, Supervisory, Trouble and Monitor operations. Annunciation must be through the use of both LED display strips complete with a means to custom label each LED as to its function. Where applicable control switches must be provided. Switches with LEDs must provide positive feed back to the operator of remote equipment status. An LCD display with basic common control LEDs and switches shall be provided. The Common Control Switches and LEDs provided as minimum will be: Reset switch and LED, Alarm Silence switch and LED, Panel Silence switch and LED, Drill switch and LED. It must be possible to add additional common controls as required though the use of modular display / control units. The LCD interface must provide the ability to display custom event messages of a minimum of 40 characters. The LCD must provide the emergency user, hands free viewing of the first and last highest priority event. The last highest priority event must always display and update automatically. System events must automatically be placed in queues. It shall be possible to view specific event types separately. Having to scroll through a mixed list of events types is not acceptable. The total number of active events by type must be displayed. It must be possible to customize the designations of all user interface LEDs and switches for local language requirements. It must be possible to route system event messages to specific annunciator locations.

Dimensions

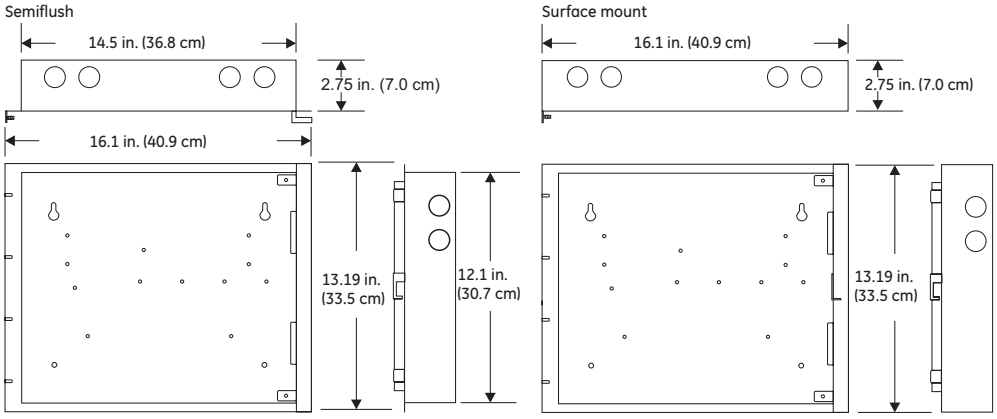
RCLM/B(-S)



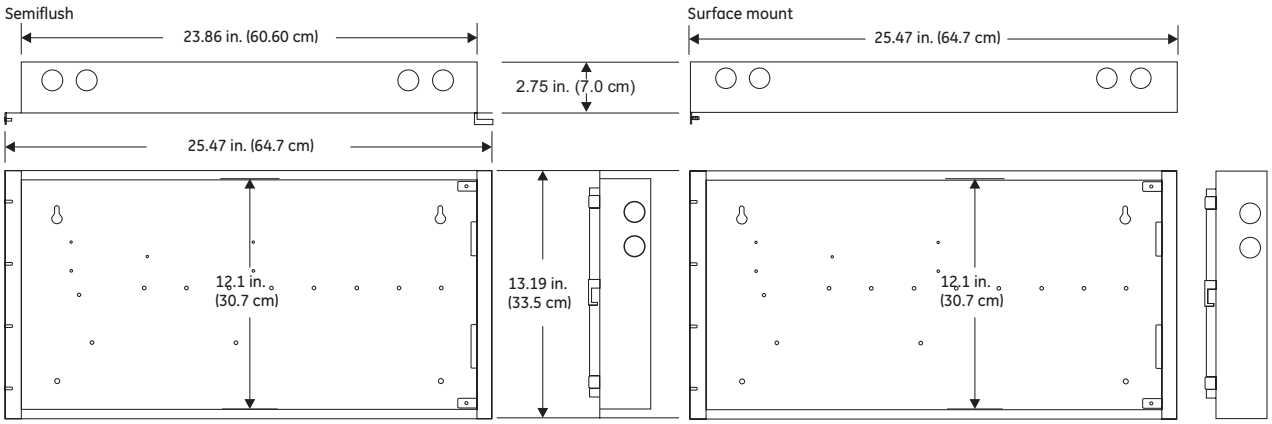
4ANN/B(-S)



6ANN/B(-S)



10ANN/B(-S)



Ordering Information

Catalog Number	Description	Ship Wt. lb (kg)
Command Module Annunciators (Come with CPU, LCD display and doors. Order wallbox separately.)		
3-LCDANN	Remote LCD Command Module Annunciator.	3.8 (1.7)
3-LCDANN-E	Remote LCD Command Module Annunciator. For EN54* market only, CE.	3.8 (1.7)
Base Annunciators (Come with two 3-ANNSM annunciator support modules, a CPU, and doors. Order Display/Control modules, additional support modules & wallbox separately.)		
3-4ANN	Four Position Base Annunciator.	
3-4ANN-E	Four Position Base Annunciator. For EN54* market only, CE.	
3-6ANN	Six Position Base Annunciator.	6.28 (2.85)
3-6ANN-E	Six Position Base Annunciator. For EN54* market only, CE.	6.28 (2.85)
3-10ANN	10 Position Base Annunciator.	10.5 (4.8)
3-10ANN-E	10 Position Base Annunciator. For EN54* market only, CE.	10.5 (4.8)
**EN54-2:1997+A1 and EN54-4:1997+A1:2002+A2 pending*		
CPU, Support Module, & LCD Displays		
3-ANNCPU3	Annunciator CPU	1 (.45)
3-CPUDR	CPU doors with filler plates. Order separately, one required per CPU where no LCD display is installed.	0.25 (.11)
3-ANNSM	Annunciator Support Module	.45 (.2)
3-LCD	Liquid Crystal Display Module, eight lines.	.8 (.36)
3-LCDXL1	Liquid Crystal Display Module, 40 lines mounts in 3-4ANN, 3-6ANN or 3-10ANN anunciators. *Note one 3-LCDXL1KBL, (ordered separately) is required for each 3-LCDXL1 mounting into 3-6ANN or 3-10ANN annunicator boxes.*	
3-LCDXL1KBL	Cable for 3-LCDXL1 (Use to connect from 3-ANNCPU3 to the first annuciator support model. Not required with 3-4ANN and 3-LCDXL1 applications.)	
Control/Display Modules		
3-CPUDR	Two blank filler plates suitable for any annunciator blank space.	.5 (.22)
3-24R	24 Red LED Display Module	.35 (.12)
3-24Y	24 Yellow LED Display Module	.35 (.12)
3-24G	24 Green LED Display Module	.35 (.12)
3-12SR	12 switches with 12 Red LED Display/Control Module	.35 (.12)
3-12SY	12 switches with 12 Yellow LED Display/Control Module	.35 (.12)
3-12SG	12 switches with 12 Green LED Display/Control Module	.35 (.12)
3-12RY	12 Red LED and 12 Yellow LED Display Module	.35 (.12)
3-12/S1GY	12 switches with one Green and one Yellow LED per switch	.35 (.12)
3-12/S1RY	12 switches with one Red and one Yellow LED per switch	.35 (.12)
3-12/S2Y	12 switches with two Yellow LEDs per switch	.35 (.12)
3-6/3S1G2Y	Six groups of three switches. Each switch with one LED: Green, Yellow, Yellow.	.35 (.12)
3-6/3S1GYR	Six groups of three switches. Each switch with one LED: Green, Yellow, Red.	.35 (.12)
3-REMICA	Remote microphone for use in 3-ANN series annunciator cabinets	15 (6.8)
3-FP	Filler Plate, order separately one required per 3-ANNSM when no LED or LED/Switch module installed on operator layer.	0.1 (0.05)
Driver Modules, Power Supplies		
3-EVDVR	LED/SWITCH Driver Module, For Edwards Graphics	.35 (.12)
3-EVDVRA	LED/SWITCH Driver Module Assembly for Third-party Graphics	.35 (.12)
3-EVPWR	Power Supply for Edwards Graphics	.5 (.22)
3-EVPWRA	Power Supply Assembly c/w 19 inch rail mounting chassis assembly space for one 3-ANNCPU3 for Third-party Graphics	2.5 (1.2)
3-EVDVRX	Plastic mounting extrusion 19 inch mounting - Space for up to three 3-EVDVRA modules.	.35 (.12)
Enclosures		
RLCM/B	Remote Command module flush mount LCD wallbox	2.5 (1.2)
RLCM/B-S	Remote Command module surface mount LCD wallbox	2.5 (1.2)
3-RLCM/D	Inner & outer doors for RLCM/B(-S)	2.0 (0.9)
4ANN/B	Four Position LED/LCD flush mount wallbox.	6.0 (2.7)
4ANN/B-S	Four position LED/LCD surface mount wallbox.	6.0 (2.7)
6ANN/B	Six position LED/LCD flush mount wallbox	7.0 (3.2)
6ANN/B-S	Six position LED/LCD surface mount wallbox	7.0 (3.2)
10ANN/B	Ten position LED/LCD flush mount wallbox	9.0 (4.1)
10ANN/B-S	Ten position LED/LCD surface mount wallbox	9.0 (4.1)

EDWARDS
A UTC Fire & Security Company

Detection & alarm since 1872

U.S.
T 888-378-2329
F 866-503-3996

Canada
Chubb-Edwards
T 519 376 2430
F 519 376 7258

Southeast Asia
T : +65 6391 9300
F : +65 6391 9306

India
T : +91 80 4344 2000
F : +91 80 4344 2050

Australia
T +61 3 9239 1200
F +61 3 9239 1299

Europe
T +32 2 725 11 20
F +32 2 721 86 13

Latin America
T 305 593 4301
F 305 593 4300

utcfireandsecurity.com

EST™
Life Safety & Communications

Remote Microphones

3-REMICA, 3-REMICP

3-REMICP

3-REMICA

Overview

The remote microphone panel is a supervised remote microphone, used with the Audio Source Unit's (3-ASU) remote microphone input. The remote microphone panel is available in two packages. The 3-REMICA is designed to mount in two spaces of a 3-ANN series annunciator enclosure. Model 3-REMICP mounts in a CAB series enclosure on a 3-CHASS4 rail assembly. Both panels include a dynamic push-to-talk microphone and operator interface panel.

Each microphone panel has two external audio inputs. Using the external inputs, up to 63 microphone panels can be connected to a single 3-ASU. The first panel to initiate a page seizes control of the remote 3-ASU input and automatically prevents the other remote panels from issuing a page while the first unit is in use. The built-in 3-ASU microphone has a higher priority than any remote microphone, and will override a remote page.

The front panel provides Local Page Active, Remote Page Active, and Trouble LED indicators as well as an integral VU (Volume Unit) meter to indicate page volume level.

All panels utilize a 24 Vdc power source. Provisions are made for redundant power supplies. All wiring is supervised. A form C trouble contact is provided for use with a Signature input module to report trouble back to the system.

Standard Features

- Up to 63 remote microphones per ASU
- Annunciator or cabinet mounting
- VU meter and status LEDs
- Active remote mic has priority with ASU priority override
- All wiring is supervised

Application

The 3-REMICA and 3-REMICP are designed to add remote paging capability at network nodes or remote annunciators that are remotely located from the Audio Source Unit. These areas are typically alternate fire command stations, security desks, or other areas where public messages are issued during an emergency. Selection of paging areas is done with standard EST3 Control Display Modules, which can be programmed as required for each paging application.

DATA SHEET 85010-0105
Not to be used for installation purposes. Issue 2

EDWARDS
A UTC Fire & Security Company

Detection & alarm since 1872

U.S.
T 888-378-2329
F 866-503-3996

Canada
Chubb-Edwards
T 519 376 2430
F 519 376 7258

Southeast Asia
T : +65 6391 9300
F : +65 6391 9306

India
T : +91 80 4344 2000
F : +91 80 4344 2050

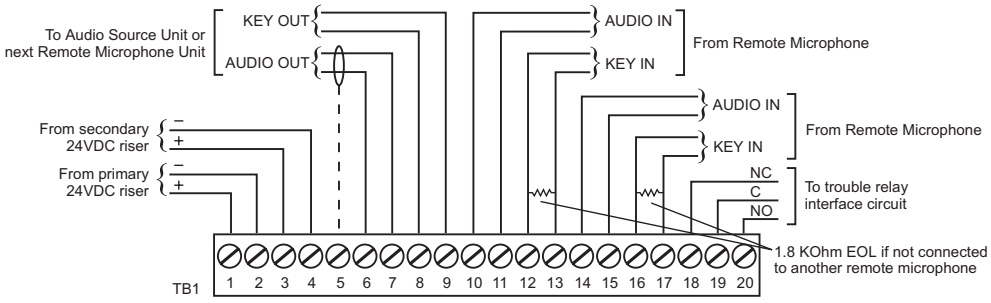
Australia
T +61 3 9239 1200
F +61 3 9239 1299

Europe
T +32 2 725 11 20
F +32 2 721 86 13

Latin America
T 305 593 4301
F 305 593 4300

utcfireandsecurity.com

Typical Wiring



Engineering Specifications

Remote paging microphones shall be provided at the locations specified on the drawings. Each remote microphone shall provide a dynamic Push-to-Talk microphone, Page level meter, Local Page Active LED, Remote Page Active LED, and Trouble LED. Selection of paging areas shall be provided using Control Display Modules, which can be programmed as required for each paging application. The system shall support up to 63 remote microphones.

Technical Specifications

Installation	
3-REMICA	Takes up two spaces in the 3-ANN series of annunciator cabinets.
3-REMICP	Remote microphone in chassis for use in CAB series cabinets.
Input Power	21 to 27 VDC Current: 64 mA
Microphone	Dynamic, PTT
Audio Output	1 VRMS into 1K Ohms
Audio Input	1 VRMS into 1K Ohms
Frequency Response	100 - 4,000 Hz
Supervision Audio Key (PTT)	1 KHz Tone Pulse DC for opens and shorts
Wiring	
Maximum Resistance	210 ohms max. from output of last cascaded remote microphone to 3-ASU remote microphone input
Wire Type	Audio = Twisted-shielded pair, 14 - 26 AWG Key (PTT) = Twisted pair, 14 - 26 AWG
Indicators	Page level meter, Local Page Active LED, Remote Page Active LED, Trouble LED
Agency Listings	UL, ULC
Operating Environment	32°F (0°C) to 120°F (49°C), 93% RH Non-condensing

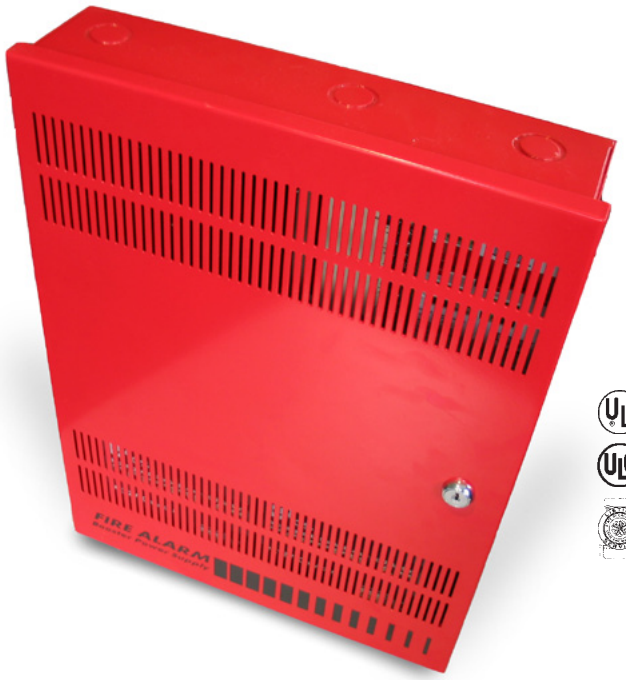
Ordering Information

Catalog Number	Description	Ship Wt. lb (kg)
3-REMICA	Remote microphone for use in 3-ANN series annunciator cabinets	15 (6.8)
3-REMICP	Remote microphone in chassis for use in CAB series cabinets	15 (6.8)
3-CHASS4	Chassis, with space for a 3-REMICP or 3-ASU and four local rail modules, for use in CAB series cabinets	8.5 (3.9)

EST™
Life Safety & Communications

Remote Booster Power Supplies

BPS6A, BPS10A



Overview

The Booster Power Supply (BPS) is a UL 864, 9th Edition listed power supply. It is a 24 Vdc filtered-regulated, and supervised unit that can easily be configured to provide additional notification appliance circuits (NACs) or auxiliary power for Mass Notification/ Emergency Communication (MNEC), as well as life safety, security, and access control applications.

The BPS contains the circuitry to monitor and charge internal or external batteries. Its steel enclosure has room for up to two 10 ampere-hour batteries. For access control-only applications, the BPS can support batteries totaling up to 65 ampere-hours in an external enclosure. The BPS has four Class B (convertible to two Class A) NACs. These can be activated in one or two groups from the BPS's unique dual input circuits.

The BPS is available in 6.5 or 10 ampere models. Each output circuit has a capacity of three amperes; total current draw cannot exceed the unit's rating.

The BPS meets current UL requirements and is listed under the following standards:

Standard (CCN)	Description
UL864 9th ed.ition (UOXX)	Fire Alarm Systems
UL636 (ANET, UEHX7)	Holdup Alarm Units and Systems
UL609 (AOTX, AOTX7)	Local Burglar Alarm Units and Systems
UL294 (ALVY, UEHX7)	Access Control Systems
UL365 (APAW, APAW7)	Police Station Connected Burglar Alarm Units and Systems
UL1076 (APOU, APOU7)	Proprietary Burglar Alarm System Units
UL1610 (AMCX)	Central Station Alarm Unit
ULC-S527 (UOXXC)	Control Units, Fire Alarm (Canada)
ULC-S303 (AOTX7)	Local Burglar Alarm Units and Systems (Canada)
C22.2 No. 205	Signaling Equipment (Canada)

Standard Features

- Allows for reliable filtered and regulated power to be installed where needed
- Cost effective system expansion
- Provides for Genesis and Enhanced Integrity notification appliance synchronization
- Supports coded output operation
- Self-restoring overcurrent protection
- Multiple signal rates
- Can be cascaded or controlled independently
- Easy field configuration
- On-board diagnostic LEDs identify wiring or internal faults
- Standard Edwards keyed lockable steel cabinet with removable door
- 110 and 230 Vac models available
- Accommodates 18 to 12 AWG wire sizes
- Optional tamper switch
- Dual battery charging rates
- Optional earthquake hardening: OSHPD seismic pre-approval for component Importance Factor 1.5

Application

The BPS provides additional power and circuits for notification appliances and other 24 Vdc loads. It is listed for indoor dry locations and can easily be installed where needed.

Fault conditions are indicated on the on-board diagnostic LEDs, opening the BPS input sense circuit and the trouble relay (if programmed). While this provides indication to the host system, the BPS can still be activated upon command. A separate AC Fail contact is available on the BPS circuit board, which can be programmed for trouble or AC Fail. There are seven on-board diagnostic LEDs: one for each NAC fault, one for battery fault, one for ground fault, and one for AC power.

The unique dual-input activation circuits of the BPS can be activated by any voltage from 6 to 45 VDC (filtered-regulated) or 11 to 33 Vdc (full-wave rectified, unfiltered). The first input circuit can be configured to activate 1-4 of the four possible outputs. The second input circuit can be configured to control circuits 3 and 4. When outputs are configured for auxiliary operation, these circuits can be configured to stay on or automatically deactivate 30 seconds after AC power is lost. This feature makes these circuits ideal for door holder applications. The BPS also has a separate 200 mA 24 Vdc output that can be used to power internal activation modules.

BPS NACs can be configured for a 3-3-3 temporal or continuous output. California temporal rate outputs are also available on certain models. This makes the BPS ideal for applications requiring signaling rates that are not available from the main system.

In addition to the internally generated signal rates, the BPS can also be configured to follow the coded signal rate of the main system NACs. This allows for the seamless expansion of existing NACs.

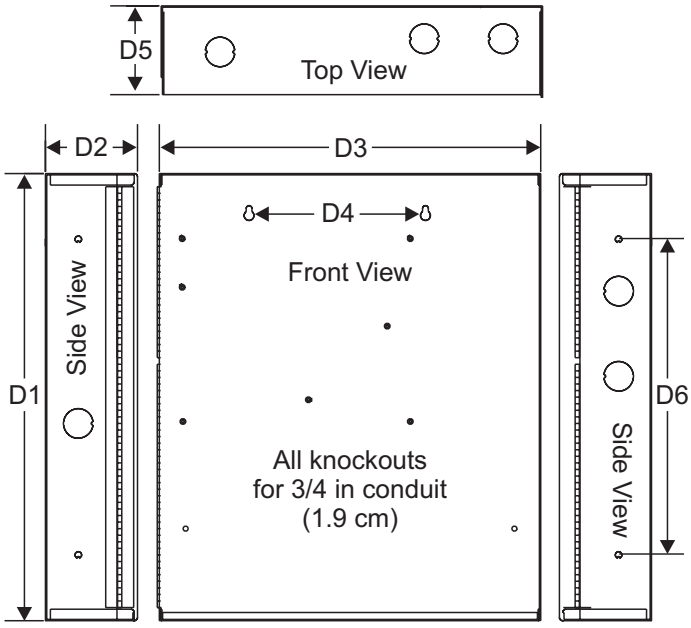
The BPS enclosure has mounting brackets for up to three Signature modules to the right of the circuit board.

Engineering Specification

Supply, where needed, Edwards BPS Series Booster Power Supplies (BPS) that are interconnected to and supervised by the main system. The BPS shall function as a stand-alone auxiliary power supply with its own fully-supervised battery compliment. The BPS battery compliment shall be sized to match the requirements of the main system. The BPS shall be capable of supervising and charging batteries having the capacity of 24 ampere-hours for Mass Notification/Emergency Communication (MNEC), life safety and security applications, and the capacity of 65 ampere-hours for access control applications.

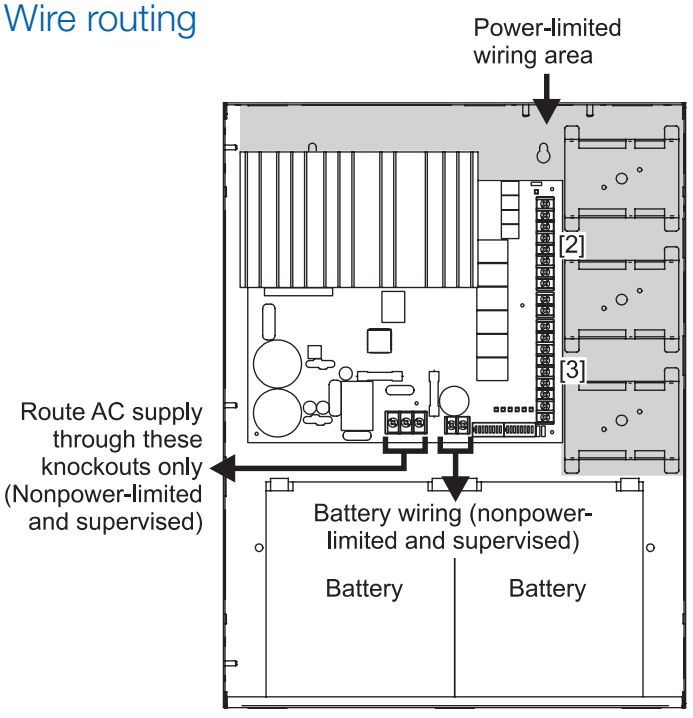
<<The BPS shall be capable of installation for a seismic component Importance Factor of 1.5.>> The BPS shall provide a minimum of four independent, fully supervised Class B circuits that can be field configurable for notification appliance circuits or auxiliary 24 Vdc power circuits. BPS NACs shall be convertible to a minimum of two Class A NACs. Each BPS output circuit shall be rated at 3 amperes at 24 Vdc. Each output circuit shall be provided with automatically restoring overcurrent protection. The BPS shall be operable from the main system NAC and/or Edwards Signature Series control modules. BPS NACs shall be configurable for continuous, 3-3-3 temporal or optionally, California rate. Fault conditions on the BPS shall not impede operation of main system NAC. The BPS shall be provided with ground fault detection circuitry and a separate AC fail relay.

Dimensions



D1	D2	D3	D4	D5	D6
17.0 in (43.2 cm)	3.5 in (8.9 cm)	13.0 in (33.0 cm)	6.5 in (16.5 cm)	3.375 in (8.6 cm)	12.0 in (30.4 cm)

Wire routing



Notes

1. Maintain 1/4-inch (6 mm) spacing between power-limited and nonpower-limited wiring or use type FPL, FPLR, or FPLP cable per NEC.

[2] Power-limited and supervised when not configured as auxiliary power. Non-supervised when configured as auxiliary power.

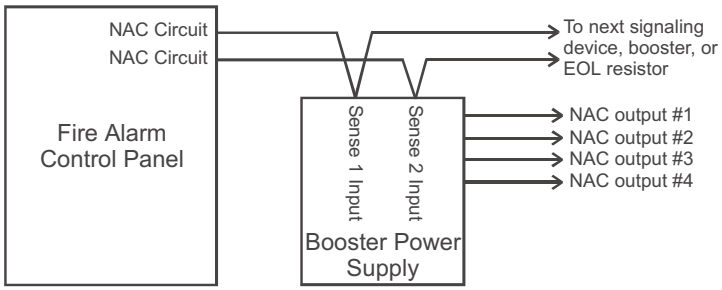
[3] Source must be power-limited. Source determines supervision.

4. When using larger batteries, make sure to position the battery terminals towards the door.

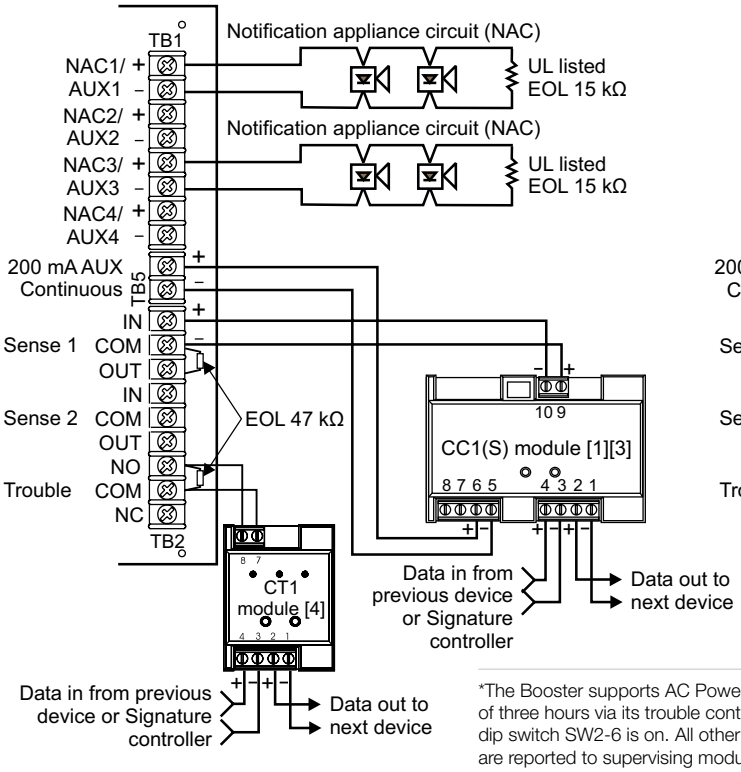
Typical Wiring

Single or cascaded booster anywhere on a notification appliance circuit

Existing NAC end-of-line resistors are not required to be installed at the booster's terminals. This allows multiple boosters to be driven from a single NAC circuit without the need for special configurations.

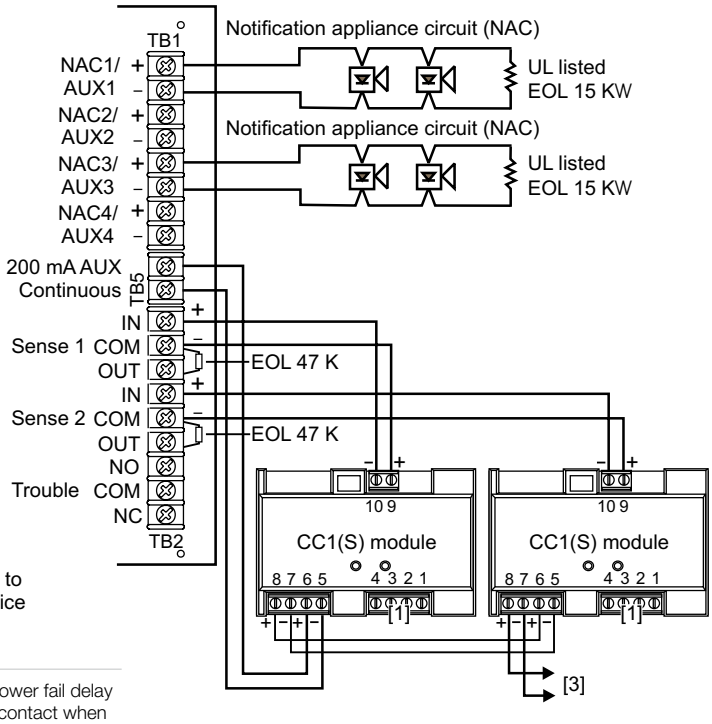


Configuring the Booster for AC Power Fail delay operation*

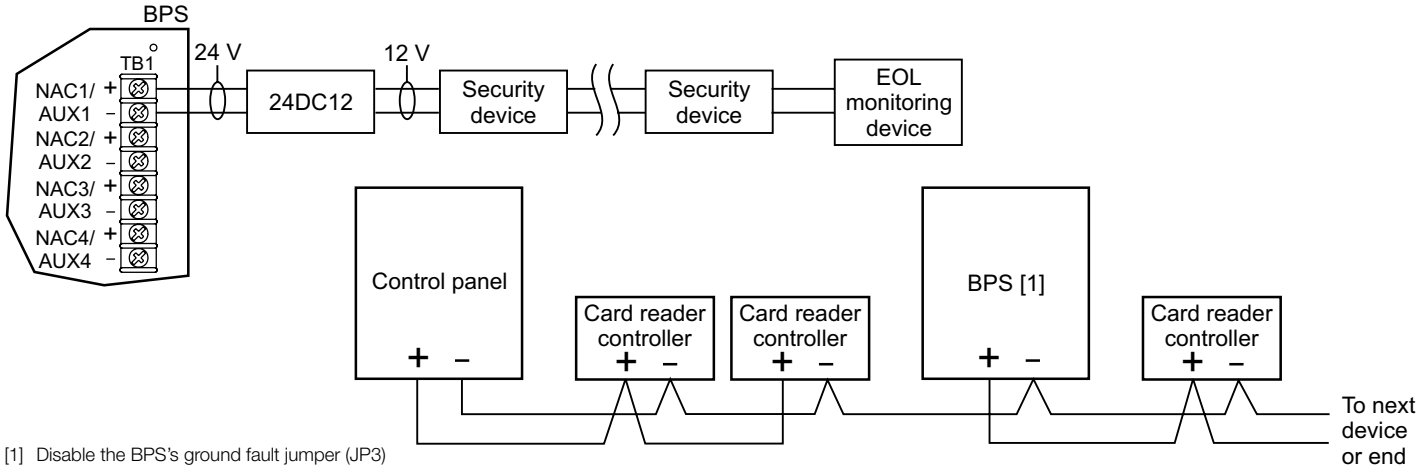


*The Booster supports AC Power fail delay of three hours via its trouble contact when dip switch SW2-6 is on. All other troubles are reported to supervising module or panel without delay via Sense inputs.

Multiple CC1(S) modules using the BPS's sense inputs



Security and access



[1] Disable the BPS's ground fault jumper (JP3)

EDWARDS
A UTC Fire & Security Company

Detection & alarm since 1872

U.S.
T 888-378-2329
F 866-503-3996

Canada
Chubb-Edwards
T 519 376 2430
F 519 376 7258

Southeast Asia
T : +65 6391 9300
F : +65 6391 9306

India
T : +91 80 4344 2000
F : +91 80 4344 2050

Australia
T +61 3 9239 1200
F +61 3 9239 1299

Europe
T +32 2 725 11 20
F +32 2 721 86 13

Latin America
T 305 593 4301
F 305 593 4300

utcfireandsecurity.com

Specifications

Model	6.5 amp Booster	10 amp Booster
AC Line Voltage	120VAC or 220-240VAC 50/60Hz 390 watts	120VAC or 220-240VAC 50/60Hz 580 watts
Notification Appliance Circuit Ratings	3.0A max. per circuit @ 24Vdc nominal 6.5A max total all NACs	3.0A max. per circuit @ 24Vdc nominal 10A max total all NACs
Trouble Relay	2 Amps @ 30Vdc	
Auxiliary Outputs	Four configurable outputs replace NACs 1, 2, 3 or 4. as auxiliary outputs and 200 mA dedicated auxiliary. (See note 2.)	
Input Current (from an existing NAC)	3mA @ 12Vdc, 6mA @ 24Vdc	
Booster Internal Supervisory Current	70mA	
Signature Mounting Space	Accomodates three two-gang modules.	
Maximum Battery Size	10 Amp Hours (2 of 12V10A) in cabinet up to 24 Amp hours with external battery cabinet for fire and security applications; up to 65 Amp hours for access control applications in external battery box.	
Terminal Wire Gauge	18-12 AWG	
Relative Humidity	0 to 93% non condensing @ 32°C	
Temperature Rating	32° to 120°F (0° to 49°C)	
NAC Wiring Styles	Class A or Class B	
Output Signal Rates	Continuous, California rate, 3-3-3 temporal, or follow installed panel's NAC. (See note 1.)	
Ground Fault Detection	Enable or Disable via jumper	
Agency Listings	UL, ULC, CSFM	

1. Model BPS*CAA provides selection for California rate, in place of temporal.
2. Maximum of 8 Amps can be used for auxiliary output.

Ordering Information

Catalog Number	Description	Shipping Wt. lb (kg)
BPS6A	6.5 Amp Booster Power Supply	13 (5.9)
BPS6AC	6.5 Amp Booster Power Supply (ULC)	13 (5.9)
BPS6A/230	6.5 Amp Booster Power Supply (220V)	13 (5.9)
BPS6CAA	6.5 Amp Booster Power Supply with California rate	13 (5.9)
BPS10A	10 Amp Booster Power Supply	13 (5.9)
BPS10AC	10 Amp Booster Power Supply (ULC)	13 (5.9)
BPS10A/230	10 Amp Booster Power Supply (220V)	13 (5.9)
BPS10CAA	10 Amp Booster Power Supply with California rate	13 (5.9)

Related Equipment		
12V6A5	7.2 Amp Hour Battery, two required	3.4 (1.6)
12V10A	10 Amp Hour Battery, two required	9.5 (4.3)
3-TAMP	Tamper switch	
BC-1EQ	Seismic Kit for BC-1. Order BC-1 separately. See note 3.	
BPSEQ	Seismic kit for BPS6A or BPS10 Booster Power Supplies. See note 3	
BC-1	Battery Cabinet (up to 2 - 40 Amp Hour Batteries)	58 (26.4)
BC-2	Battery Cabinet (up to 2 - 17 Amp Hour Batteries)	19 (8.6)
12V17A	18 Amp Hour Battery, two required (see note 1)	13 (5.9)
12V24A	24 Amp Hour Battery, two required (see note 1)	20 (9.07)
12V40A	40 Amp Hour Battery, two required (see notes 1, 2)	32 (14.5)
12V50A	50 Amp Hour Battery, two required (see notes 1, 2)	40 (18.14)
12V65A	65 Amp Hour Battery, two required (see notes 1, 2)	49 (22.2)

1. Requires installation of separate battery cabinet.
2. BPS supports batteries greater than 24 Amp hours for access control applications only.
3. For earthquake anchorage, including detailed mounting weights and center of gravity detail, refer to Seismic Application Guide 3101676. Approval of panel anchorage to site structure may require local AHJ, structural or civil engineer review.

The Proof Is In The Power

UltraTech brings you the power and reliability of sealed lead-acid batteries at affordable prices.

GENERAL SPECIFICATIONS

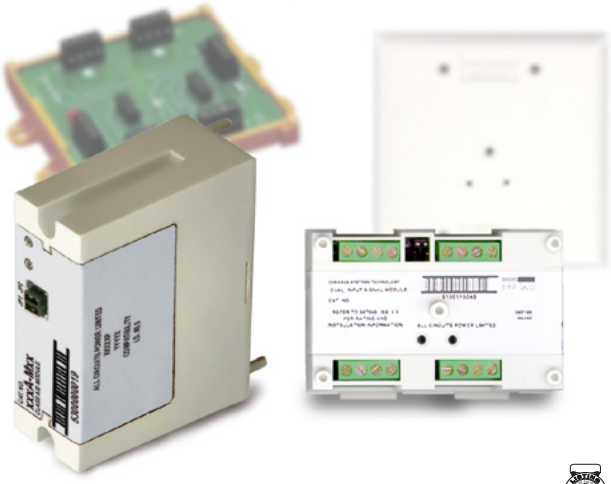
BATTERY MODEL	NORMINAL VOLTAGE (V)	RATED CAPACITY 25°C/77°F (AH)		DIMENSIONS								WEIGHT (approx.) (kg/lb)		TERMINAL TYPE
		20HR 1.75V/CELL	10HR 1.75V/CELL	LENGTH (±1) (mm/inch)		WIDTH (±1) (mm/inch)		HEIGHT (±2) (mm/inch)		TOTAL HEIGHT (±2) (mm/inch)				
IM-1240	12V	4AH	3.7	90	3.54	70	2.76	102	4.02	107	4.21	1.77	3.90	FASTON
IM-1270	12V	7AH	6.5	151	5.94	65	2.56	94	3.70	101	3.98	2.67	5.89	FASTON

UltraTech™
POWER PRODUCTS

EST
Life Safety & Communications

Synchronization Output Module

SIGA-CC1S, MCC1S



Patented

FM APPROVED MEA 7300-1657: 0121 UL ULC S3424

Overview

SIGA-CC1S and MCC1S Synchronization Output Modules are intelligent analog addressable devices that form part of EST's Signature line of products. The actual operation of the SIGA-CC1S and MCC1S is determined by the "personality code" selected by the installer, which is downloaded to the module from the Signature loop controller during system configuration.

Depending on their assigned personality, Synchronization Output Modules may be used as a signal power riser selector to provide synchronization of fire alarm signals across multiple zones, or for connecting, upon command from the loop controller, supervised Class B signal or telephone circuits to their respective power inputs. The power inputs may be polarized 24 Vdc to operate audible and visible signal appliances or 25 and 70 VRMS to operate audio evacuation speakers and firefighter's telephones.

Standard Features

- **Provides UL 1971-compliant auto-sync output for visual signals**
  Use for connecting a supervised output circuit to a supervised 24 Vdc riser input and synchronizing multiple notification appliance circuits.
- **Functions as an audible signal riser selector**
  Use as a synch module or for connecting supervised 24 Vdc Audible/Visible signal circuits, or 25 and 70 VRMS Audio Evacuation and Telephone circuits to their power inputs.
- **Built-in ring-tone generator**
  When configured for telephone circuits, the SIGA-CC1S generates its own ring-tone signal, eliminating the need for a separate ring-tone circuit.
- **Automatic device mapping**
  Signature modules transmit information to the loop controller regarding their circuit locations with respect to other Signature devices on the wire loop.
- **Electronic addressing**
  Programmable addresses are downloaded from the loop controller, a PC, or the SIGA-PRO Signature Program/Service Tool; there are no switches or dials to set.
- **Intelligent device with microprocessor**
  All decisions are made at the module to allow lower communication speed with substantially improved control panel response time and less sensitivity to line noise and loop wiring properties; twisted or shielded wire is not required.

Application

The SIGA-CC1S mounts to a standard North American two-gang electrical box, making it ideal for locations where only one module is required. Separate I/O and data loop connections are made to each module.

The SIGA-MCC1S is part of the UIO family of plug-in Signature Series modules. It functions identically to the SIGA-CC1S, but takes advantage of the modular flexibility and easy installation that characterize all UIO modules. Two- and six-module UIO motherboards are available. These can accommodate individual risers for each on-board module, or risers that are shared by any combination of its UIO modules. All wiring connections are made to terminal blocks on the motherboard. UIO assemblies may be mounted in Edwards enclosures.

Personality Codes

The operation of the SIGA-CC1S is determined by their sub-type code or "Personality Code". The code is selected by the installer depending upon the desired application and is downloaded from the loop controller.

Personality Code 5: Signal Power or Audio Evacuation (single riser). Configures the module for use as a Class B Audible/Visible Signal power (24 Vdc polarized) or Audio Evacuation (25 or 70 VRMS) power selector. The ring-tone generator is disabled. The output circuit is monitored for open or shorted wiring. If a short exists, the control panel inhibits the activation of the audible/visible signal circuit to prevent connection to the power circuit.

Personality Code 6: Telephone with ring-tone (single riser). Configures the module for use as a Telephone power selector. When a telephone handset is plugged into its jack or lifted from its hook, the module generates its own Ring-Tone signal. A separate ring-tone circuit is not needed. The module sends this signal to the control panel to indicate that an off-hook condition is present. When the system operator responds to the call, the ring-tone signal is disabled.

Personality Code 25: Visual Signal Synchronization. This personality code configures the module to provide synchronization of fire alarm signals across multiple zones. It functions as a signal power (24 Vdc) riser selector. The output wiring is monitored for open circuits and short circuits. A short circuit will cause the fire alarm control panel to inhibit the activation of the audible/visual signal circuit so the riser is not connected to the wiring fault.

Warnings & Cautions

This module will not operate without electrical power. As fires frequently cause power interruption, we suggest you discuss further safeguards with your fire protection specialist.

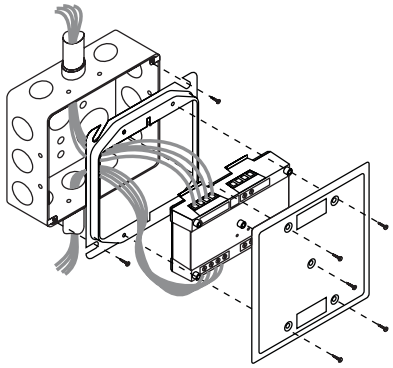
Edwards recommends that these modules be installed according to latest recognized edition of national and local fire alarm codes.

Compatibility

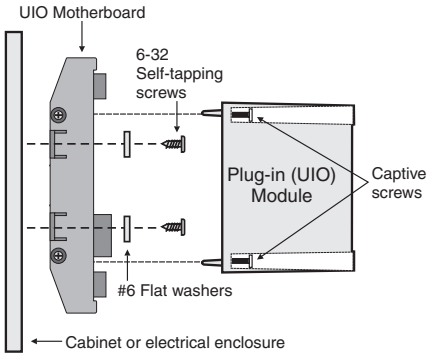
The Synchronization Output Module is compatible with EST's Signature Loop Controller operating under EST3 version 2.0 or higher, and QuickStart Signature Loop Intelligent Controller.

Installation

The SIGA-CC1S: mounts to North American 2-1/2 inch (64 mm) deep 2-gang boxes and 1-1/2 inch (38 mm) deep 4 inch square boxes with 2-gang covers and SIGA-MP mounting plates. The terminals are suited for #12 to #18 AWG (2.5 mm^2 to 0.75 mm^2) wire size.



SIGA-MCC1S: mount the UIOxR motherboard inside a suitable Edwards enclosure with screws and washers provided. Plug the module into any available position on the motherboard and secure the module to the motherboard with the captive screws. Wiring connections are made to the terminals on the motherboard (see wiring diagram). UIOxR motherboard terminals are suited for #12 to #18 AWG (2.5 mm^2 to 0.75 mm^2) wire size.



Electronic Addressing

The loop controller electronically addresses each module saving valuable time during system commissioning. Setting complicated switches or dials is not required. Each module has its own unique serial number stored in its "on-board memory". The loop controller identifies each device on the loop and assigns a "soft" address to each serial number. If desired, the modules can be addressed using the SIGA-PRO Signature Program/Service Tool.

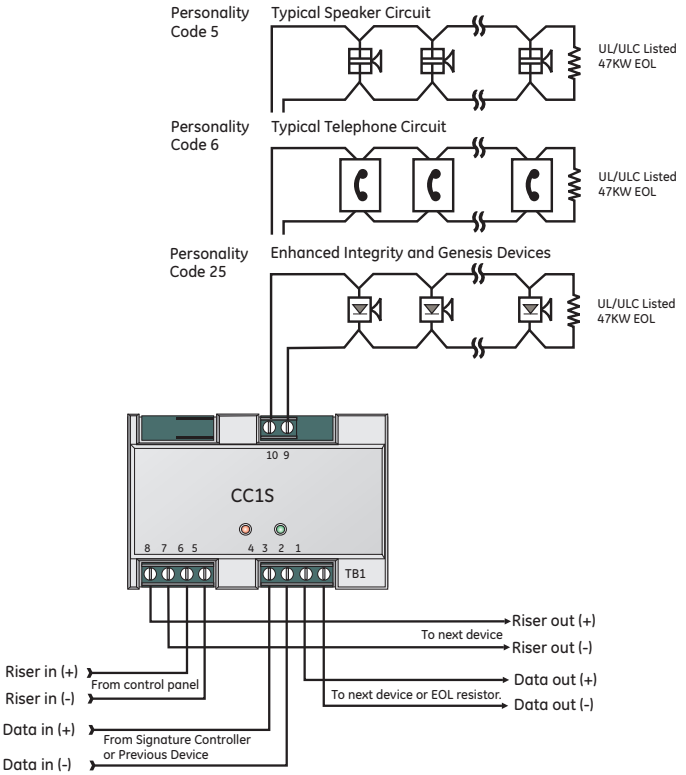
Testing & Maintenance

The module's automatic self-diagnosis identifies when it is defective and causes a trouble message. The user-friendly maintenance program shows the current state of each module and other pertinent messages. Single modules may be turned off (de-activated) temporarily, from the control panel.

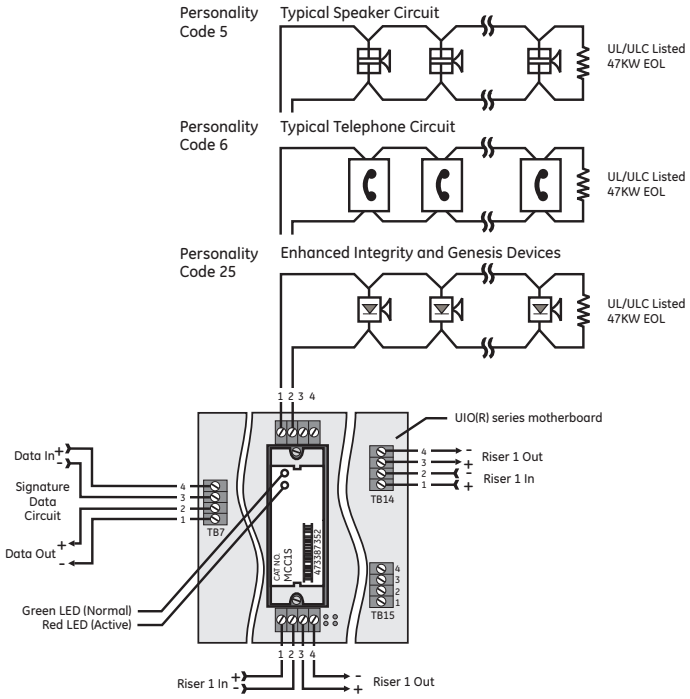
Scheduled maintenance (Regular or Selected) for proper system operation should be planned to meet the requirements of the Authority Having Jurisdiction (AHJ). Refer to current NFPA 72 and ULC CAN/ULC 536 standards.

Typical Wiring

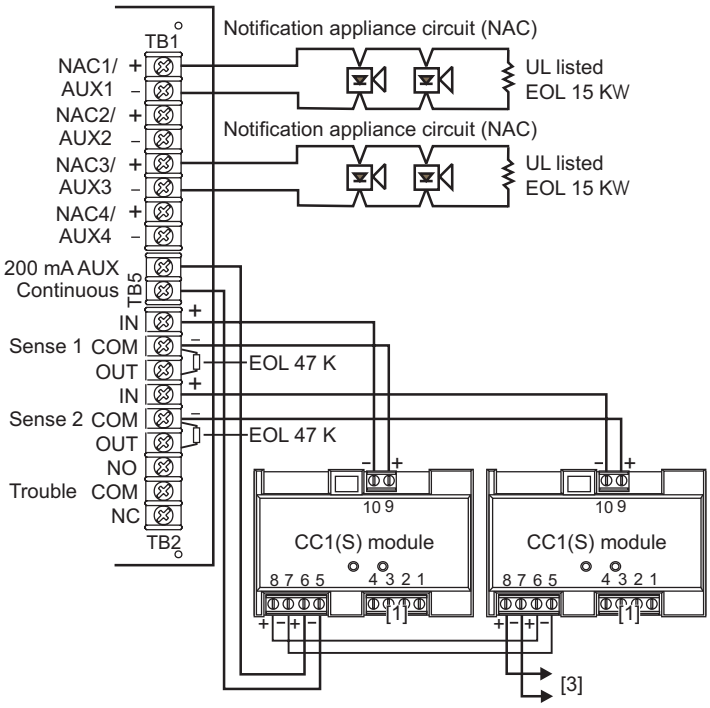
SIGA-CC1S (Standard Mount)



SIGA-MCC1S (UIO Mount)



Multiple CC1(S) modules using the BPS's sense inputs



EDWARDS
United Technologies

Contact us...

Email: edwards.fire@fs.utc.com
Web: *www.est-fire.com*

EST is an **EDWARDS** brand.

1016 Corporate Park Drive
Mebane, NC 27302

In Canada, contact Chubb Edwards...
Email: inquiries@chubbedwards.com
Web: *www.chubbedwards.com*

Specifications

Catalog Number	SIGA-CC1S	SIGA-MCC1S
Mounting	North American 2½ inch (64 mm) deep two-gang boxes and 1½ inch (38 mm) deep 4 inch square boxes with 2-gang covers and SIGA-MP mounting plates	Plugs into UIO2R, UIO6R or UIO6 Motherboards
Description	Synchronization Output Module	
Type Code	50 (factory set)	
Address Requirements	Uses one module address	
Wiring Terminations	Suitable for #12 to #18 AWG (2.5 mm^2 to 0.75mm^2)	
Operating Current	Standby = 223µA Activated = 100µA	
Operating Voltage	15.2 to 19.95 Vdc (19 Vdc nominal)	
Output Rating	24 Vdc = 2 amps 25 V Audio = 50 watts 70 V Audio = 35 watts	
Construction	High Impact Engineering Polymer	
Storage and Operating Environment	Operating: 32°F to 120°F (0°C to 49°C) Storage: -4°F to 140°F (-20°C to 60°C) Humidity: 0 to 93% RH	
LED Operation	Green LED - Flashes when polled Red LED - Flashes when in alarm/ active	
Compatibility	Use with: Signature Loop Controller under EST3 version 2.0 or higher	
Agency Listings	UL, ULC, CSFM, MEA	

Ordering Information

Catalog Number	Description	Shipping Wt. lbs (kg)
SIGA-CC1S	Synchronization Output Module (Standard Mount) - UL/ULC Listed	0.5 (0.23)
SIGA-MCC1S	Synchronization Output Module (UIO Mount) - UL/ULC Listed	0.18 (0.08)

Related Equipment		
27193-21	Surface Mount Box - Red, 2-gang	2 (1.2)
27193-26	Surface Mount Box - White, 2-gang	2 (1.2)
SIGA-UIO2R	Universal Input-Output Module Board w/Riser Inputs - Two Module Positions	0.32 (0.15)
SIGA-UIO6R	Universal Input-Output Module Board w/Riser Inputs - Six Module Positions	0.62 (0.28)
SIGA-UIO6	Universal Input-Output Module Board - Six Module Positions	0.56 (0.25)
235196P	Bi-polar Transient Protector	0.01 (0.05)
MFC-A	Multifunction Fire Cabinet - Red, supports Signature Module Mounting Plates	7.0 (3.1)
SIGA-MP1	Signature Module Mounting Plate, 1 footprint	1.5 (0.70)
SIGA-MP2	Signature Module Mounting Plate, 1/2 footprint	0.5 (0.23)
SIGA-MP2L	Signature Module Mounting Plate, 1/2 extended footprint	1.02 (0.46)

EST
Life Safety & Communications

Manual Pull Stations

SIGA-270, SIGA-270P, SIGA-278

SIGA-270 SERIES

SIGA-278

Patented

MEA FM APPROVED 7150-1657: 0129 S2318

Overview

The SIGA-270 and SIGA-278 series Manual Pull Stations are part of EST's Signature Series system. The SIGA-270 Fire Alarm Manual Pull Stations feature our very familiar teardrop shape. They are made from die-cast zinc and finished with red epoxy powder-coat paint complemented by aluminum colored stripes and markings. With positive pull-lever operation, one pull on the station handle breaks the glass rod and turns in a positive alarm, ensuring protection plus fool-proof operation. Presignal models (SIGA-270P) are equipped with a general alarm (GA) keyswitch for applications where two stage operation is required. The up-front highly visible glass rod discourages tampering, but is not required for proper operation.

EST's double action single stage SIGA-278 station is a contemporary style manual station made from durable red colored lexan. To initiate an alarm, first lift the upper door marked "LIFT THEN PULL HANDLE", then pull the alarm handle.

Standard Features

Note: *Some features described here may not be supported by all control systems. Check your control panel's Installation and Operation Guide for details.*

- **Traditional familiar appearance**
  SIGA-270 models feature our familiar teardrop design with simple positive pull action and sturdy die-cast metal body.
- **One stage (GA), two stage (pre-signal), and double action models**
  SIGA-270 models are available for one or two stage alarm systems. The single stage double action SIGA-278 features a rugged Lexan housing with keyed reset mechanism.
- **Break glass operation**
  An up-front visible glass rod on the SIGA-270 discourages tampering.
- **Intelligent device with integral microprocessor**
  All decisions are made at the station allowing lower communication speed while substantially improving control panel response time. Less sensitive to line noise and loop wiring properties; twisted or shielded wire is not required.
- **ADA Compliant**
  Meets ADA requirements for manual pull stations.
- **Electronic Addressing with Non-volatile memory**
  Permanently stores programmable address, serial number, type of device, and job number. Automatically updates historic information including hours of operation, last maintenance date, number of alarms and troubles, and time and date of last alarm.
- **Automatic device mapping**
  Each station transmits wiring information to the loop controller regarding its location with respect to other devices on the circuit.
- **Stand-alone operation**
  The station inputs an alarm even if the loop controller's polling interrogation stops.
- **Diagnostic LEDs**
  Status LEDs; flashing GREEN shows normal polling; flashing RED shows alarm state.
- **Designed for high ambient temperature operation**
  Install in ambient temperatures up to 120 °F (49 °C).

Application

The operating characteristics of the fire alarm stations are determined by their sub-type code or “Personality Code”. NORMALLY-OPEN ALARM - LATCHING (Pesonality Code 1**)** is assigned by the factory; no user configuration is required. The device is configured for Class B IDC operation. An ALARM signal is sent to the loop controller when the station’s pull lever is operated. The alarm condition is latched at the station.

Compatibility

Signature Series manual stations are compatible only with EST’s Signature Loop Controller.

Warnings & Cautions

This device will not operate without electrical power. As fires frequently cause power interruption, we suggest you discuss further safeguards with your local fire protection specialist.

Testing & Maintenance

To test (or reset) the station simply open the station and operate the exposed switch. The SIGA-270 series are opened with a tool; the SIGA-278 requires the key which is supplied with that station.

The station’s automatic self-diagnosis identifies when it is defective and causes a trouble message. The user-friendly maintenance program shows the current state of each Signature series device and other pertinent messages. Single devices may be deactivated temporarily, from the control panel. Availability of maintenance features is dependent on the fire alarm system used.

Scheduled maintenance (Regular or Selected) for proper system operation should be planned to meet the requirements of the Authority Having Jurisdiction (AHJ). Refer to current NFPA 72 and ULC CAN/ULC 536 standards.

Typical Wiring

The fire alarm station’s terminal block accepts #18 AWG (0.75mm^2) to #12 AWG (2.5mm^2) wire sizes. See Signature Loop Controller catalog sheet for detailed wiring requirement specifications.

Wiring Notes

1. Refer to Signature Loop Controller manual for maximum wire distance.
2. All wiring is power limited and supervised.

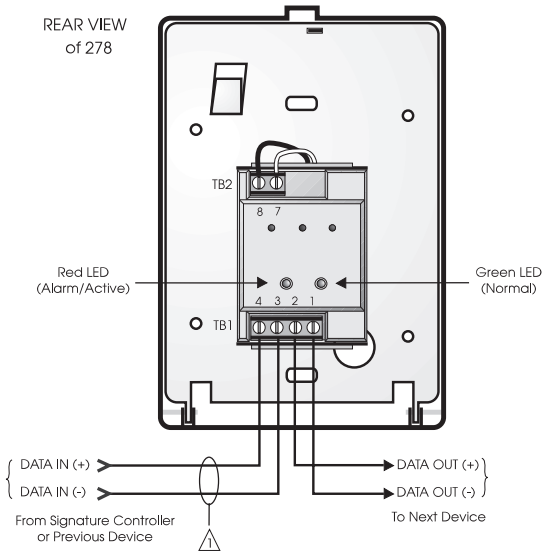


Figure 4. Single Stage Systems

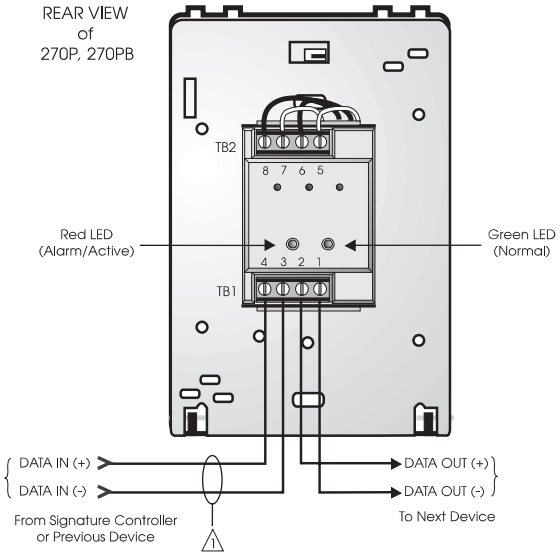


Figure 5. Two Stage Systems

Installation

Single-stage Signature Series fire alarm manual pull stations mount to North American 2½ inch (64 mm) deep 1-gang boxes.

Two stage presignal (270P) models require 1½ inch (38 mm) deep 4-inch square boxes with 1-gang, ½-inch raised covers. Openings must be angular. *Rounded openings are not acceptable.* Recommended box: Steel City Model 52-C-13; in Canada, use Iberville Model CI-52-C-49-1/2.

All models include terminals are suited for #12 to #18 AWG (2.5 mm^2 to 0.75 mm^2) wire size. Edwards recommends that these fire alarm stations be installed according to latest recognized edition of national and local fire alarm codes.

Electronic Addressing: The loop controller electronically addresses each manual station, saving valuable time during system commissioning. Setting complicated switches or dials is not required. Each station has its own unique serial number stored in its on-board memory. The loop controller identifies each device on the loop and assigns a "soft" address to each serial number. If desired, the stations can be addressed using the SIGA-PRO Signature Program/Service Tool.

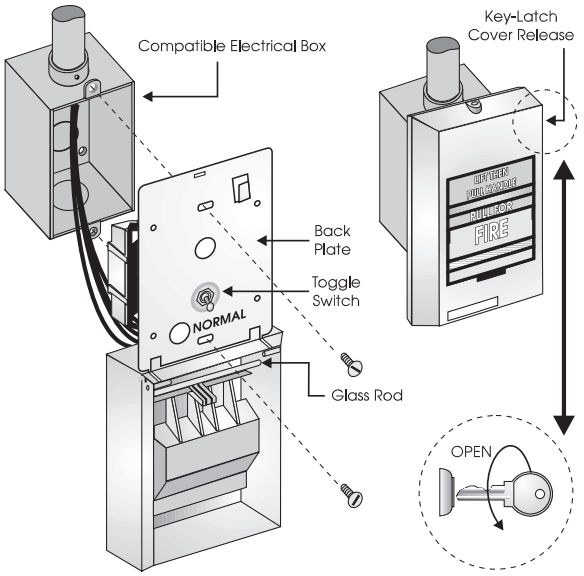


Figure 1. SIGA-278 installation

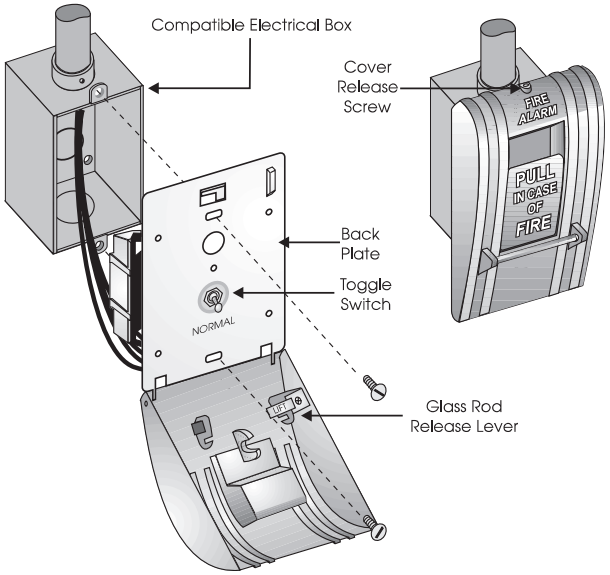


Figure 2. SIGA-270, SIGC-270F, SIGC-270B installation

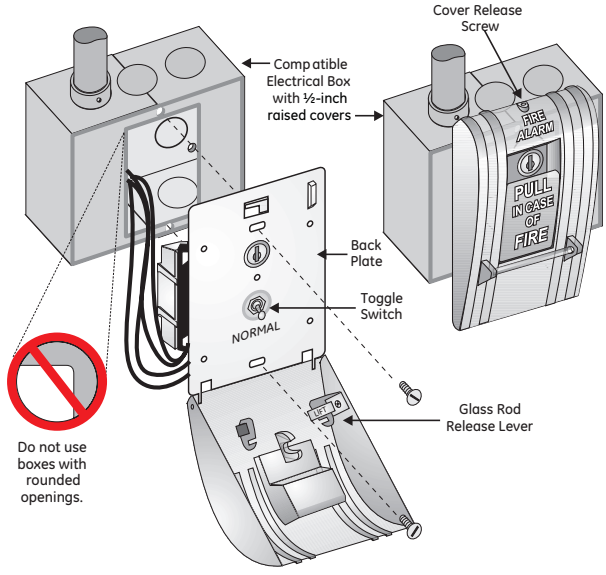


Figure 3. SIGA-270P, SIGC-270PB installation

Contact us...

Email: edwards.fire@fs.utc.com
Web: *www.est-fire.com*

EST is an **EDWARDS** brand.

1016 Corporate Park Drive
Mebane, NC 27302

In Canada, contact Chubb Edwards...
Email: inquiries@chubbedwards.com
Web: *www.chubbedwards.com*

Specifications

Catalog Number	SIGA-270, SIGC-270F, SIGC-270B	SIGA-270P, SIGC-270PB	SIGA-278
Description	Single Action - One Stage	Single Action -Two Stage (Presignal)	Double Action - One Stage
Addressing Requirements	Uses 1 Module Address	Uses 2 Module Addresses	Uses 1 Module Address
Operating Current	Standby = 250µA Activated = 400µA	Standby = 396µA Activated = 680µA	Standby = 250µA Activated = 400µA
Construction & Finish	Diecast Zinc - Red Epoxy with aluminum markings		Lexan - Red with white markings
Type Code	Factory Set		
Operating Voltage	15.2 to 19.95 Vdc (19 Vdc nominal)		
Storage and Operating Environment	Operating Temperature: 32ºF to 120ºF (0ºC to 49ºC) Storage Temperature: -4ºF to 140ºF (-20ºC to 60ºC) Humidity: 0 to 93% RH		
LED Operation	On-board Green LED - Flashes when polled On-board Red LED - Flashes w hen in alarm Both LEDs - Glow steady when in alarm (stand-alone)		
Compatibility	Use With: Signature Loop Controller		
Agency Listings	UL, ULC (note 1), MEA, CSFM		

Note: *SIGC-270F, SIGC-270B and SIGC-270PB are ULC listed only. Suffix "F" indicates French markings. Suffix "B" indicates English/French biling ual markings.*

Ordering Information

Catalog Number	Description	Ship Wt. lbs (kg)
SIGA-270	One Stage Fire Alarm Station, English Markings - UL/ULC Listed	1 (0.5)
SIGC-270F	One Stage Fire Alarm Station, French Markings - ULC Listed	
SIGC-270B	One Stage Fire Alarm Station, French/English Markings - ULC Listed	
SIGA-270P	Two Stage (Presignal) Fire Alarm Station, English Markings - UL/ULC Listed	
SIGC-270PB	Two Stage (Presignal) Fire Alarm Station, French/English Markings - ULC Listed	
SIGA-278	Double Action (One Stage) Fire Alarm Station, English Markings - UL/ULC Listed	

Accessories		
32997	GA Key w/Tag - for pre-signal station (CANADA ONLY)	0.1 (.05)
276-K2	GA Key - for pre-signal station (USA ONLY)	
276-K1	Station Reset Key, Supplied with all Key Reset Stations	
27165	12 Glass Rods - for SIGA-270 series (CANADA ONLY)	
270-GLR	20 Glass Rods - for SIGA-270 series (USA ONLY)	
276-GLR	20 Glass Rods - for SIGA-278 series	
276B-RSB	Surface Mount Box, Red - for SIGA pull stations	1 (0.6)

EST™
Life Safety & Communications

STI Series Stopper® II

UL
ULC
FM
MEA

Overview

This unique and patented device helps to prevent false fire alarms without restricting legitimate alarms. It consists of a tamper-proof, clear Lexan polycarbonate shield and frame that fits easily over manual pull stations. When lifted to gain access to the actual alarm, it sounds a piercing warning horn. Immediate attention is drawn to the pull station and a prankster will run or be caught. Legitimate alarms can still be pulled.

Use proven in thousands of applications around the world-including colleges, schools, hospitals, nursing homes, correctional institutions, hotels/motels and stores.

Testing Approvals

Stopper II has been tested and approved or listed by:

- Underwriter Laboratories No. 49G2
- Underwriter Laboratories of Canada Issue No. 13959C
- Factory Mutual No. OG6A2.AY
- New York City Board of Standards No. 947-81-SA
- State of California (approval not required)
- General Service Administration

Standard Features

- Fits virtually all pull stations
- Tested and approved by wide range of fire prevention and testing authorities
- Unconditional lifetime guarantee against breakage and damage to molded polycarbonate cover
- Guards against physical damage to manual pull station
- Weatherproofing option
- Optional 9-volt alkaline battery (included) powered horn

DATA SHEET 85001-0491
Not to be used for installation purposes. Issue 3.2

Dimensions

Size of Pull Station Accommodated

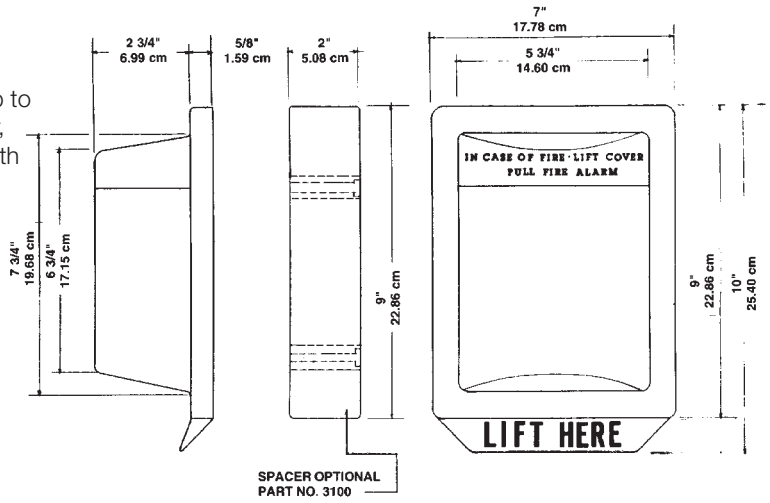
The Stopper II can be installed over a flush-mounted station up to 5½ inches (140mm) wide x 6¾ inches (171mm) high. However, the pull station's maximum dimensions will decrease as its depth (distance from wall) increases. e.g.:

3¼ inch (19mm) deep pull station may be
5 inches (140mm) wide x 6 inches(152mm) high

1-5/8 inch (41mm) deep pull station may be
5 inches (127mm) wide x 6 inches (152mm) high

2-3/8 inch (60mm) deep pull station may be
4 inches (102mm) wide x 5 inches(146mm) high

2 inch (70mm) deep pull station may be
3 inches (76mm) wide x 5 inches (140mm) high



NOTE: If additional depth is needed, use the Conduit Spacer (Part No. STI 3100) which adds 2 inches (51mm) to the depth.

Patent Approval

Stopper II has received patent approval from the United States (No. 4267549) and Canada (No. 1147828Z). Patents for other countries are pending.

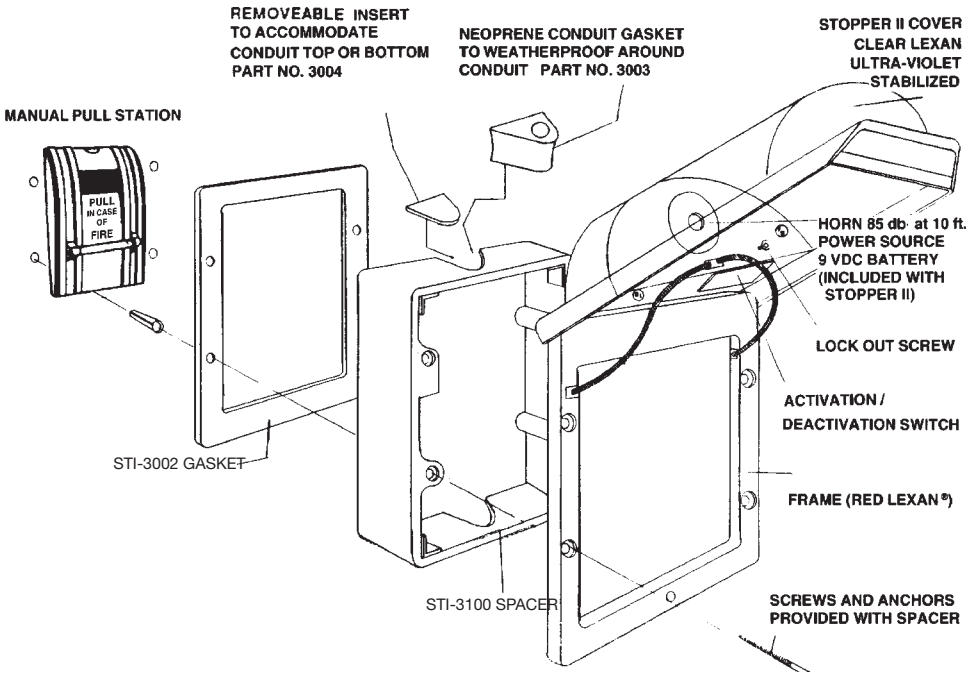
Mounting

Two types of mounting are available. Flush-mounted means the pull station is mounted directly on the wall. Surface-mounted means the pull station is mounted on an electrical box away from the wall.

Surface Mounted: When the pull station is mounted on an electrical box away from the wall, order Part No. STI 1130 (with horn) or Part No. STI 1230 (without horn). Each includes longer screws with anchors and a 2 inch (51mm) conduit spacer (Part No. STI 3100) with knockouts top and bottom to accommodate the conduit pipe.

For Added Weatherproofing

Install gasket (STI 3002) between Stopper II frame and wall. A second gasket must be installed behind the spacer for surface mounting.
A conduit gasket (STI 3003) may be used to seal the conduit pipe.



IMPORTANT NOTICE

Adequate training and instruction must be provided to avoid the possibility that persons, in the event of a real fire, lift the Stopper II cover, hear the horn and think they have set off the fire alarm.

1. Explain the purpose of the Stopper II to authorized personnel.
2. Show them how it works.
3. Instruct them to, upon hearing the Stopper II horn, check for the presence of a fire, and act accordingly by either pulling the fire alarm or shutting off Stopper II by closing the cover.
4. Check with your local fire authorities.
5. When covering a pull station, UL requires stations to be listed for outdoor use.

Ordering Information

Catalog Number	Description	Ship Wt. lbs (kg)
*STI-1100	Stopper II with Horn (UL/ULC) — Flush	1.3 (0.6)
*STI-1130	Stopper II with Horn (UL/ULC) — Surface	
*STI-1200	Stopper II without Horn — Flush	
*STI-1230	Stopper II without Horn — Surface	
*STI-1250	WeatherStopper, flush c/w gasket (STI-3002)	1.3 (0.6)
*STI-3150	WeatherStopper, surface, c/w gaskets (STi-3002 x2), 2” Spacer (STI-3100) and conduit gasket kit	1.3 (0.6)
Accessories		
STI-3100	2 inch (50mm) Spacer	0.5 (0.2)
STI-3002	Weatherproofing Gasket	0.2 (0.1)
STI-3003	Weatherproofing Conduit Gasket	
STI-3004	Conduit Insert	
STI-1280	Black plate for rough wall mounting	

*Suffix “F” for French labelled model

EDWARDS
A UTC Fire & Security Company

Detection & alarm since 1872

U.S.
T 888-378-2329
F 866-503-3996

Canada
Chubb-Edwards
T 519 376 2430
F 519 376 7258

Southeast Asia
T : +65 6391 9300
F : +65 6391 9306

India
T : +91 80 4344 2000
F : +91 80 4344 2050

Australia
T +61 3 9239 1200
F +61 3 9239 1299

Europe
T +32 2 725 11 20
F +32 2 721 86 13

Latin America
T 305 593 4301
F 305 593 4300

utcfireandsecurity.com

EDWARDS
United Technologies
LIFE SAFETY & INCIDENT MANAGEMENT

Intelligent Multisensor Smoke and Heat Detector

SIGA-PHD

S853

Overview

The Signature Series SIGA-PHD detector brings advanced multi-sensor technology to a practical design that increases efficiency, saves installation time, cuts costs, and extends life safety and property protection capabilities. Continuous self-diagnostics ensures reliability over the long-haul, while environmental compensation helps reduce maintenance costs.

The SIGA-PHD provides an optical smoke sensor and a rate-of-rise heat sensor with a fixed temperature setting. Together these sensors efficiently detect smoldering fires, as well as fast flaming fires.

Like all Signature Series detectors, the SIGA-PHD gathers analog information from its sensing elements and converts this data into digital signals. To make an alarm decision, the detector's on-board microprocessor measures and analyzes smoke and heat sensor readings and compares this information to historical data. Digital filters remove signal patterns that are not typical of fires, thus virtually eliminating unwanted alarms.

Standard Features

Note: *Some features described here may not be supported by all control systems. Check your control panel's Installation and Operation Guide for details.*

- Next Generation Detection Technology
- Integrates optical smoke with rate-of-rise heat sensing
- Wide 0.53 to 3.94 %/ft. (1.7 to 12.35 %/m) smoke obscuration
- Uses existing wiring
- Automatic device mapping
- Sensor Markings Provide Easy Testing Identification
- Up To 250 Total Signature Adresses Per Loop
- Two levels of environmental compensation
- Two levels of dirty detector warning
- Twenty pre-alarm settings
- Five sensitivity settings
- Non-volatile memory
- Electronic addressing
- Environmental compensation
- Automatic day/night sensitivity adjustment
- Bicolor (green/red) status LED
- Standard, relay, fault isolator, and audible mounting bases

DATA SHEET E85001-0650
Not to be used for installation purposes. Issue 1

Application

Smoke detection

The SIGA-PHD detects extremely small particles of combustion and triggers an alarm at the first sign of smoke. Thanks to its high-performance forward-scattering reflective response technology, the photoelectric smoke sensor responds quickly and reliably to a wide range of fire types, especially slow burning fires fuelled by combustibles typically found in modern multi-use buildings.

Heat detection

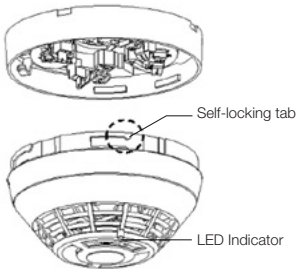
SIGA-PHD's on-board rate-of-rise heat sensor provides a 15 °F (9 °C) per minute for the detection of fast-developing fires while also providing a 135 °F (57.2 °C) fixed detection threshold. The heat sensors monitor the temperature of the air and determines whether an alarm should be initiated.

Compatibility

The SIGA-PHD detector is compatible only with the Signature Loop Controller.

Installation

Signature Series detectors mount to North American 1-gang boxes, 3-1/2 inch or 4 inch octagon boxes, and to 4 inch square electrical boxes 1-1/2 inches (38 mm) deep. They mount to European BESA and 1-gang boxes with 60.3 mm fixing centers. See mounting base installation and wiring for more information.



Testing & Maintenance

Scheduled maintenance (regular or selected) for proper detector operation should be planned to meet the requirements of the Authority Having Jurisdiction (AHJ). Refer to current NFPA 72, NFPA 720, and ULC CAN/ULC 536 standards.

Smoke Sensor Sensitivity

The SIGA-PHD determines when its optical sensor is dirty or defective and can transmit sensitivity data to the loop controller. A sensitivity report can also be printed to satisfy NFPA sensitivity measurements which must be conducted at the end of the first year and every two years thereafter. The availability of maintenance features depends on the fire alarm system used.

Sensing and reporting technology

The microprocessor in each detector provides additional benefits - Self-diagnostics and History Log, Automatic Device Mapping, and Fast, Stable Communication.

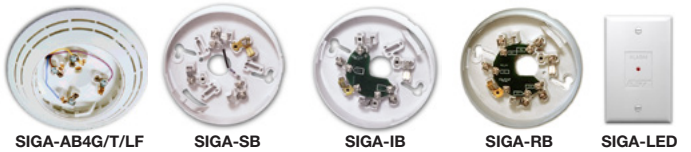
Self-diagnostics and History Log - Each Signature Series detector constantly runs self-checks to provide important maintenance information. The results of the self-check are automatically updated and permanently stored in the detector's non-volatile memory.

Automatic Device Mapping - The loop controller learns where each device's serial number address is installed relative to other devices on the circuit. The mapping feature provides supervision of each device's installed location to prevent a detector from being reinstalled (after cleaning etc.) in a different location from where it was originally.

Fast Stable Communication - On-board intelligence means less information needs to be sent between the detector and the loop controller. Other than regular supervisory polling response, the detector only needs to communicate with the loop controller when it has something new to report.

Accessories

Detector mounting bases have wiring terminals that are accessible from the "room-side" after mounting the base to the electrical box. The bases mount to North American 1-gang boxes and to 3½ inch or 4 inch octagon boxes, 1½ inches (38 mm) deep. They also mount to European BESA and 1-gang boxes with 60.3 mm fixing centers. The SIGA-SB4, SIGA-RB4, and SIGA-IB4 mount to North American 4 inch sq. electrical boxes in addition to the above boxes. They include the SIGA-TS4 Trim Skirt, which is used to cover the "mounting ears" on the base. Sounder bases mount to a 4 inch square boxes only.



SIGA-AB4G/T/LF Audible Base	SIGA-SB Standard Base	SIGA-IB Isolator Base	SIGA-RB Relay Base	SIGA-LED Remote LED

Remote LED SIGA-LED - The remote LED connects to the SIGA-SB or SIGA-SB4 Standard Base only. It features a North American size 1-gang plastic faceplate with a white finish and red alarm LED.

SIGA-TS4 Trim Skirt - Supplied with 4 inch bases, it can also be ordered separately to use with the other bases to help hide surface imperfections not covered by the smaller bases.

Sounder Bases - Signature Series sounder bases are designed for use where localized or group alarm signaling is required.

- **SIGA-AB4G** bases provide sounder capability to Signature Series smoke and heat detectors. They are not for use with devices that include a CO sensor.
- **SIGA-AB4GT** bases provide sounder capability to Signature Series smoke and heat detectors, as well as Signature detectors that include a CO Sensor when used with a SIGA-TCDR Temporal Pattern Generator to separate CO (TC4) and Fire (TC3) tone patterns.
- **SIGA-AB4G-LF** bases provide 520 Hz low frequency sounder capability to Signature Series smoke and heat detectors, as well as Signature detectors that include a CO Sensor when used with a SIGA-TCDR Temporal Pattern Generator to separate CO (TC4) and Fire (TC3) tone patterns. The SIGA-AB4G-LF is suitable for applications requiring low frequency audible tones.

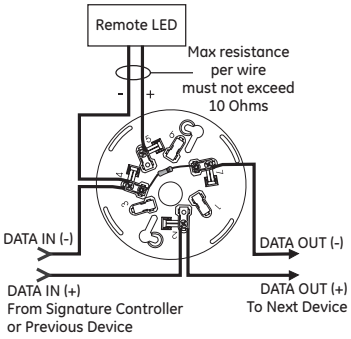
Typical Wiring

The detector mounting bases accept #18 AWG (0.75mm^2), #16 (1.0mm^2), #14 AWG (1.5mm^2), and #12 AWG (2.5mm^2) wire sizes. Sizes #16 AWG (1.0mm^2) and #18 AWG (0.75mm^2) are preferred for ease of installation.

Standard Detector Base, SIGA-SB, SIGA-SB4

This is the basic mounting base for EDWARDS Signature Series detectors. The SIGA-LED Remote LED is supported by this Base.

Term	Description
1	Not Used
2	DATA IN/OUT (+)
3	Not Used
4	DATA IN (-)
4	Remote LED (-)
5	Remote LED (+)
6	Not Used
7	DATA OUT (-)



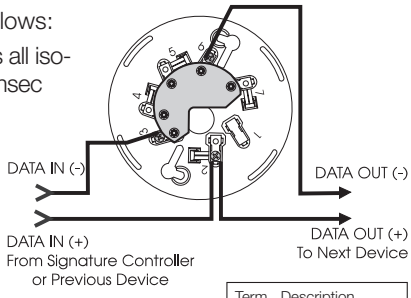
Isolator Detector Base, SIGA-IB, SIGA-IB4

This base includes a built-in line fault isolator for use on Class A circuits. A detector must be installed for it to operate. The isolator base does not support the SIGA-LED Remote LED.

The isolator operates as follows:

- a short on the line causes all isolators to open within 23 msec
- at 10 msec intervals, beginning on one side of the Class A circuit nearest the loop controller, the isolators close to provide the next isolator down the line with power
- when the isolator next to the short closes, it reopens within 10 msec.

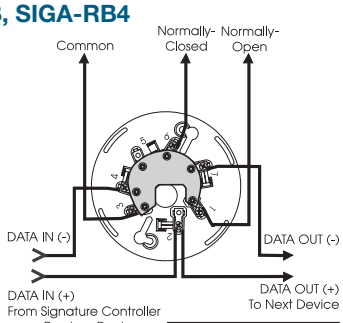
The process repeats beginning on the other side of the loop controller.



Term	Description
1	Not Used
2	DATA IN/OUT (+)
3	DATA IN (-)
4	Not Used
5	Not Used
6	DATA OUT (-)
7	Not Used

Relay Detector Base, SIGA-RB, SIGA-RB4

This base includes a relay. Normally Open or Normally Closed operation is selected during installation. The dry contact is rated for 1 amp (pilot duty) @ 30 Vdc. The relay's position is supervised to avoid accidentally jarring it out of position. The SIGA-RB can be operated as a control relay if programmed to do so at the control panel. The relay base does not support the SIGA-LED Remote LED.

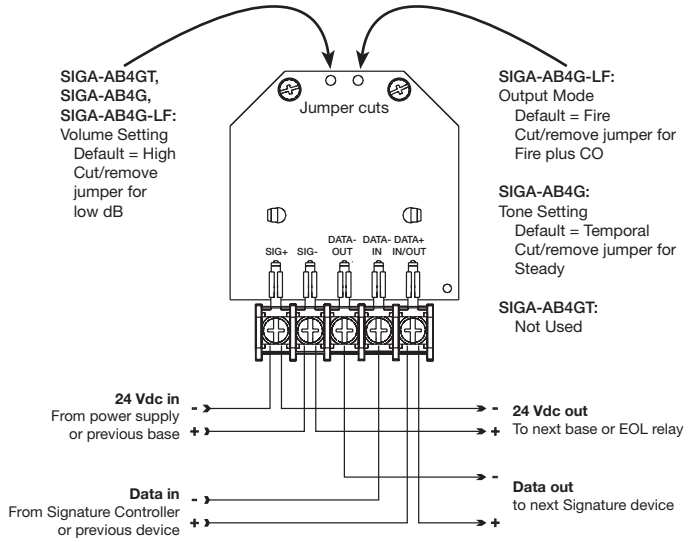


CONTACT RATING
1.0 Amp @ 30 VDC
(Pilot Duty)

Term	Description
1	Normally Open
2	DATA IN/OUT (+)
3	Common
4	DATA IN (-)
5	Not Used
6	Normally-Closed
7	DATA OUT (-)

Audible Sounder Bases, Fire Mode

AB4GT, AB4G, AB4G-LF sounder bases



Warnings & Cautions

- This detector does not operate without electrical power. As fires frequently cause power interruption, discuss further safeguards with the local fire protection specialist.
- This detector does not sense fires in areas where smoke or heat cannot reach the detector. Smoke or heat from fires in walls, roofs, or on the opposite side of closed doors may not reach the detector.
- Photoelectric detectors have a wide range of sensing capabilities, and are best suited for detecting slow, smoldering fires. The heat sensor in this device provides a source of supplemental information. The heat sensor by itself does not provide life safety protection.
- In Canada, install according to the CAN/ULC-S524 *Standard for the Installation of Fire Alarm Systems*, the CSA C22.1 *Canadian Electrical Code*, and the local authority having jurisdiction.
- Upon completion of the original installation and following any modifications or additions to the system, perform a calibrated sensitivity test per NFPA code. Signature Series devices can perform this test and the panel can generate a system sensitivity report.

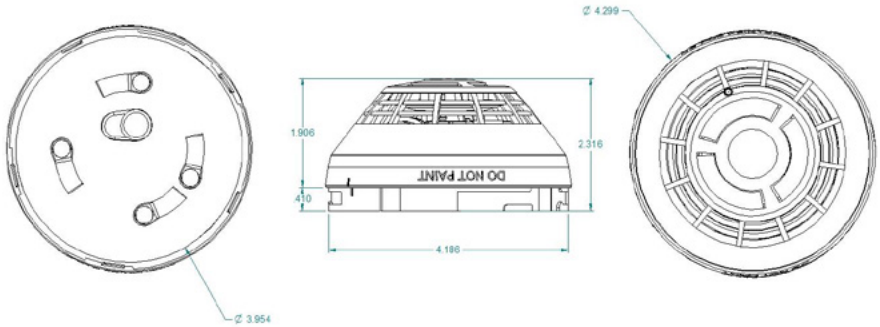
LIFE SAFETY & INCIDENT MANAGEMENT

Contact us...

Email: edwards.fire@fs.utc.com
Web: *Edwards-fire.com*

EDWARDS is a UTC brand.
1016 Corporate Park Drive
Mebane, NC 27302

Dimensions



Specifications

Operating voltage	15.20 to 19.95 VDC
Normal operating current	32 µA
Alarm current	32 µA
Vibration level	10 to 35 Hz, with an amplitude of 0.01 in.
Smoke Sensitivity Range	UL/ULC: 0.53 to 3.94 %/ft. (1.7 to 12.35 %/m) obscuration
Rate-of-rise rating	15°F/min (8°C/min)
Fixed temperature rating	135°F (57.2°C). Actual alarm point 129 to 141°F (53.9 to 60.6°C).
Air velocity	0 to 4,000 ft./min (0 to 20.32 m/s)
Wall mounting	12 in. (305 mm) max. from ceiling
Spacing, heat detectors	Max. 50 ft. (15.2 m) centers
Compatible bases	See Ordering Information
Compatible detector testers	Testifire 1000, Testifire 2000
Operating environment	32 to 100°F (0 to 38°C), 0 to 93% RH, noncondensing
Construction	High Impact Engineering Polymer, White
Storage temperature	-4 to 140°F (-20 to 60°C)
Environmental compensation	Automatic
Agency Listings	CAN/ULC-S529, CAN/ULC-S530, UL 268, UL 268A, UL 521

Ordering Information

Catalog Number	Description	Ship Wt. lbs (kg)
SIGA-PHD	Intelligent Multisensor Smoke and Heat Detector	0.4 (0.16)
Compatible Bases		
SIGA-SB	Detector Mounting Base - Standard	
SIGA-SB4	4-inch Detector Mounting Base c/w Trim Skirt	
SIGA-RB	Detector Mounting Base w/Relay	
SIGA-RB4	4-inch Detector Mounting Base w/Relay, c/w Trim Skirt	0.2 (.09)
SIGA-IB	Detector Mounting Base w/Fault Isolator	
SIGA-IB4	4-inch Detector Mounting Base w/ Fault Isolator, c/w Trim Skirt	
SIGA-LED	Remote Alarm LED (not for EN54 applications)	
SIGA-AB4G-LF	Low Frequency Audible (Sounder) Base for CO and Fire Detectors	0.3 (0.15)
SIGA-AB4GT	Audible (Sounder) Base for CO and Fire Detectors	0.3 (0.15)
SIGA-TS4	Trim Skirt (supplied with 4-inch bases)	0.1 (.04)
SIGA-DMP	Detector Mounting Plate	3.0 (1.4)
SIGA-RTA	Detector Removal Tool	
SIGA-VA	Detector Cleaning Tool	

EDWARDS
United Technologies
LIFE SAFETY & INCIDENT MANAGEMENT

Intelligent Heat Detector

SIGA-HRD

S853

Overview

The SIGA-HRD is an intelligent fixed temperature/rate-of-rise fire detector. It monitors the temperature of the surrounding air and analyzes the data from the sensor to determine whether to initiate an alarm. The rate-of-rise heat function quickly detects a fast, flaming fire. The fixed-temperature heat function detects fire when the air temperature near the detector exceeds the alarm point.

The SIGA-HRD brings advanced sensing technology to a practical design that increases efficiency, saves installation time, cuts costs, and extends property protection capabilities. Continuous self-diagnostics ensures reliability over the long-haul, while the latest thermister technology makes these detectors ideal whereever dependable heat detection is required.

Standard Features

Note: *Some features described here may not be supported by all control systems. Check your control panel's Installation and Operation Guide for details.*

- Next Generation Heat Sensing Technology
- 15 °F (9 °C) per minute rate-of-rise alarm point
- 135 °F (57 °C) fixed temperature alarm point
- Uses existing wiring
- Automatic device mapping
- Sensor Markings Provide Easy Testing Identification
- Up To 250 Total Signature Devices Per Loop
- Non-volatile memory
- Electronic addressing
- Bicolor (green/red) status LED
- Standard, relay, fault isolator, and audible mounting bases
- 50 foot (15.2 meter) spacing

Application

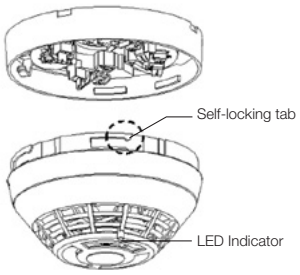
The SIGA-HRD combination fixed temperature/rate-of-rise heat detector provides a 15 °F (9 °C) per minute rate-of-rise heat sensor for the detection of fast-developing fires, as well as a 135°F (57°C) fixed temperature sensor for slow building-fires. The heat sensor monitors the temperature of the air and determines whether an alarm should be initiated.

Compatibility

The SIGA-HRD detector is compatible only with the Signature Loop Controller.

Installation

Signature Series detectors mount to North American 1-gang boxes, 3-1/2 inch or 4 inch octagon boxes, and to 4 inch square electrical boxes 1-1/2 inches (38 mm) deep. They mount to European BESA and 1-gang boxes with 60.3 mm fixing centers. See mounting base installation and wiring for more information.



Sensing and reporting technology

The microprocessor in each detector provides additional benefits - Self-diagnostics and History Log, Automatic Device Mapping, and Fast, Stable Communication.

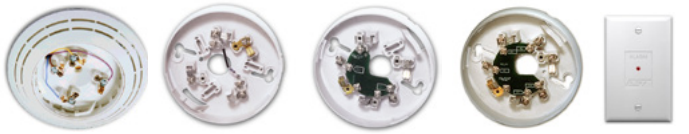
Self-diagnostics and History Log - Each Signature Series detector constantly runs self-checks to provide important maintenance information. The results of the self-check are automatically updated and permanently stored in the detector's non-volatile memory.

Automatic Device Mapping - The loop controller learns where each device's serial number address is installed relative to other devices on the circuit. The mapping feature provides supervision of each device's installed location to prevent a detector from being reinstalled (after cleaning etc.) in a different location from where it was originally.

Fast Stable Communication - On-board intelligence means less information needs to be sent between the detector and the loop controller. Other than regular supervisory polling response, the detector only needs to communicate with the loop controller when it has something new to report.

Accessories

Detector mounting bases have wiring terminals that are accessible from the "room-side" after mounting the base to the electrical box. The bases mount to North American 1-gang boxes and to 3½ inch or 4 inch octagon boxes, 1½ inches (38 mm) deep. They also mount to European BESA and 1-gang boxes with 60.3 mm fixing centers. The SIGA-SB4, SIGA-RB4, and SIGA-IB4 mount to North American 4 inch sq. electrical boxes in addition to the above boxes. They include the SIGA-TS4 Trim Skirt, which is used to cover the "mounting ears" on the base. The SIGA-AB4G mounts to a 4 inch square box only.



SIGA-AB4G/T/LF Audible Base | **SIGA-SB** Standard Base | **SIGA-IB** Isolator Base | **SIGA-RB** Relay Base | **SIGA-LED** Remote LED

Remote LED SIGA-LED - The remote LED connects to the SIGA-SB or SIGA-SB4 Standard Base only. It features a North American size 1-gang plastic faceplate with a white finish and red alarm LED.

SIGA-TS4 Trim Skirt - Supplied with 4 inch bases, it can also be ordered separately to use with the other bases to help hide surface imperfections not covered by the smaller bases.

Sounder Bases - Signature Series sounder bases are designed for use where localized or group alarm signaling is required.

- **SIGA-AB4G** bases provide sounder capability to Signature Series to heat and smoke detectors. They are not intended for use with combination carbon monoxide detectors in Fire-plus-CO mode.
- **SIGA-AB4GT** bases provide sounder capability to Signature Series smoke and heat detectors, as well as carbon monoxide detectors when used with a SIGA-TCDR Temporal Pattern Generator.
- **SIGA-AB4G-LF** bases provide 520 Hz low frequency sounder capability to Signature Series smoke and heat detectors, as well as carbon monoxide detectors when used with a SIGA-TCDR Temporal Pattern Generator. The SIGA-AB4G-LF is suitable for applications requiring low frequency audible tones.

Warnings & Cautions

- This detector does not operate without electrical power. As fires frequently cause power interruption, discuss further safeguards with the local fire protection specialist.
- This detector does not sense fires in areas where heat cannot reach the detector. Heat from fires in walls, roofs, or on the opposite side of closed doors may not reach the detector.
- This heat detector by itself does not provide life safety protection Use this detector with ionization and/or photoelectric smoke detectors.
- This detector does not detect oxygen levels, smoke, toxic gases, or flames. Use this device as part of a broad-based life safety program which includes a variety of information sources pertaining to heat and smoke levels, extinguishment systems, visual and audible devices, and other safety measures.
- Independent studies indicate that heat detectors should only be used when property protection alone is involved. Never rely on heat detectors as the sole means of fire protection.

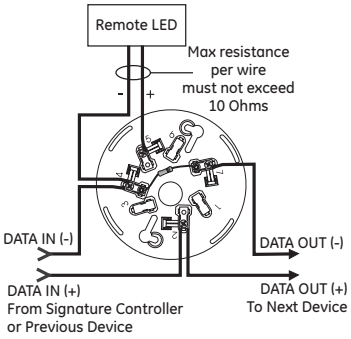
Typical Wiring

The detector mounting bases accept #18 AWG (0.75mm^2), #16 (1.0mm^2), #14 AWG (1.5mm^2), and #12 AWG (2.5mm^2) wire sizes. Sizes #16 AWG (1.0mm^2) and #18 AWG (0.75mm^2) are preferred for ease of installation.

Standard Detector Base, SIGA-SB, SIGA-SB4

This is the basic mounting base for EDWARDS Signature Series detectors. The SIGA-LED Remote LED is supported by this Base.

Term	Description
1	Not Used
2	DATA IN/OUT (+)
3	Not Used
4	DATA IN (-)
4	Remote LED (-)
5	Remote LED (+)
6	Not Used
7	DATA OUT (-)



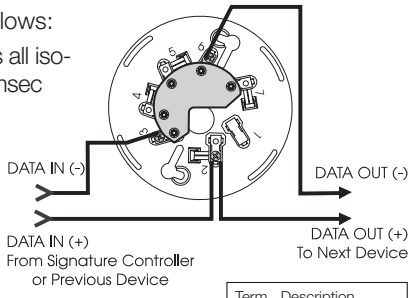
Isolator Detector Base, SIGA-IB, SIGA-IB4

This base includes a built-in line fault isolator for use on Class A circuits. A detector must be installed for it to operate. The isolator base does not support the SIGA-LED Remote LED.

The isolator operates as follows:

- a short on the line causes all isolators to open within 23 msec
- at 10 msec intervals, beginning on one side of the Class A circuit nearest the loop controller, the isolators close to provide the next isolator down the line with power
- when the isolator next to the short closes, it reopens within 10 msec.

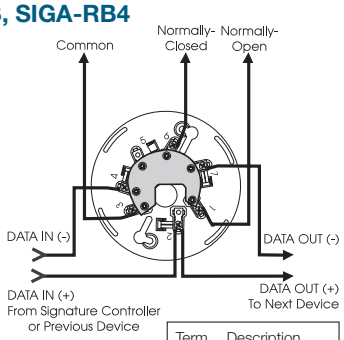
The process repeats beginning on the other side of the loop controller.



Term	Description
1	Not Used
2	DATA IN/OUT (+)
3	DATA IN (-)
4	Not Used
5	Not Used
6	DATA OUT (-)
7	Not Used

Relay Detector Base, SIGA-RB, SIGA-RB4

This base includes a relay. Normally Open or Normally Closed operation is selected during installation. The dry contact is rated for 1 amp (pilot duty) @ 30 Vdc. The relay's position is supervised to avoid accidentally jarring it out of position. The SIGA-RB can be operated as a control relay if programmed to do so at the control panel. The relay base does not support the SIGA-LED Remote LED.

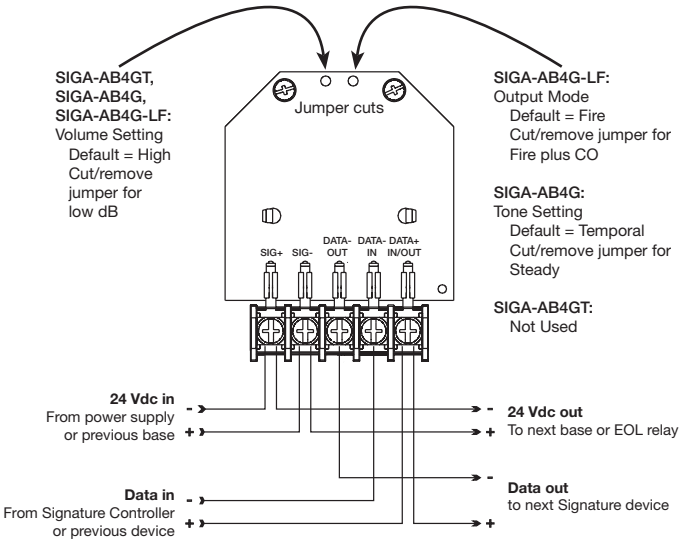


CONTACT RATING
1.0 Amp @ 30 VDC
(Pilot Duty)

Term	Description
1	Normally Open
2	DATA IN/OUT (+)
3	Common
4	DATA IN (-)
5	Not Used
6	Normally-Closed
7	DATA OUT (-)

Audible Sounder Bases, Fire Mode

AB4GT, AB4G, AB4G-LF sounder bases



EDWARDS

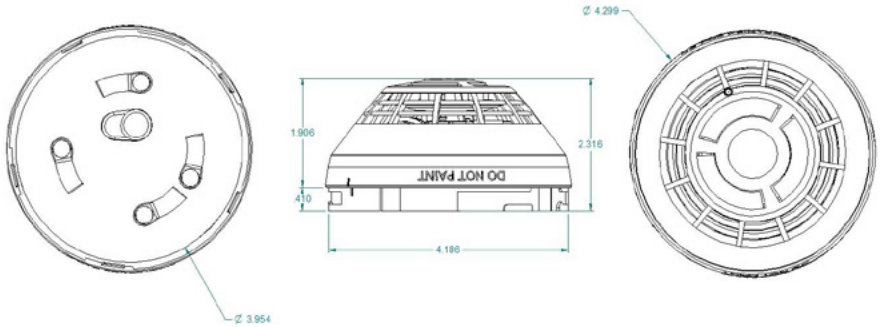
LIFE SAFETY & INCIDENT MANAGEMENT

Contact us...

Email: edwards.fire@fs.utc.com
Web: *Edwards-fire.com*

EDWARDS is a UTC brand.
1016 Corporate Park Drive
Mebane, NC 27302

Dimensions



Specifications

Operating voltage	15.20 to 19.95 VDC
Normal operating current	32 µA
Alarm current	32 µA
Vibration level	10 to 35 Hz, with an amplitude of 0.01 in.
Rate-of-rise rating	15°F/min (8°C/min)
Fixed temperature rating	135°F (57.2°C). Actual alarm point 129 to 141°F (53.9 to 60.6°C).
Maximum spacing	50 ft. (15.2 m) centers
Compatible bases	See Ordering Information
Compatible detector testers	Testifire 1000, Testifire 2000
Operating environment	32 to 100°F (0 to 38°C), 0 to 93% RH, noncondensing
Construction	High Impact Engineering Polymer, White
Storage temperature	-4 to 140°F (-20 to 60°C)
Agency Listings	CAN/ULC-S530, UL 521

Ordering Information

Catalog Number	Description	Ship Wt. lbs (kg)
SIGA-HRD	Intelligent fixed temperature/Rate-of-rise heat detector	0.4 (0.16)
Compatible Bases		
SIGA-SB	Detector Mounting Base - Standard	
SIGA-SB4	4-inch Detector Mounting Base c/w Trim Skirt	
SIGA-RB	Detector Mounting Base w/Relay	
SIGA-RB4	4-inch Detector Mounting Base w/Relay, c/w Trim Skirt	0.2 (.09)
SIGA-IB	Detector Mounting Base w/Fault Isolator	
SIGA-IB4	4-inch Detector Mounting Base w/ Fault Isolator, c/w Trim Skirt	
SIGA-LED	Remote Alarm LED (not for EN54 applications)	
SIGA-AB4G	Audible (Sounder) Base for Fire Detectors	0.3 (0.15)
SIGA-AB4G-LF	Low Frequency Audible (Sounder) Base for CO and Fire Detectors	0.3 (0.15)
SIGA-AB4GT	Audible (Sounder) Base for CO and Fire Detectors	0.3 (0.15)
SIGA-TS4	Trim Skirt (supplied with 4-inch bases)	0.1 (0.04)
SIGA-TS	Trim Skirt - (optional for non 4-inch bases)	0.1 (0.04)
SIGA-DMP	Detector Mounting Plate	3.0 (1.4)
SIGA-RTA	Detector Removal Tool	

EDWARDS
United Technologies
LIFE SAFETY & INCIDENT MANAGEMENT

Intelligent CO Detector

SIGA-COD

S853

Overview

The Signature Series SIGA-COD carbon monixide detector brings advanced sensing technology to a practical design that increases efficiency, saves installation time, cuts costs, and extends life safety capabilities. Continuous self-diagnostics ensures reliability over the long-haul, while advanced electrochemical CO sensing technology provides performance benefits that keep occupants safe from carbon monoxide, the “silent killer”.

Like all Signature Series detectors, the SIGA-COD is an intelligent device that gathers analog information from its CO sensor, converting this data into digital signals. To make an alarm decision, the detector’s on-board microprocessor measures and analyzes sensor readings over time. Digital filters remove signal patterns that are not typical of life safety events, thus virtually eliminating unwanted alarms.

The SIGA-COD includes an advanced carbon monoxide sensor. When the electrochemical cell reaches its end of life after approximately ten years, the detector signals a trouble condition to the control panel. Refer to the control panel documentation for specific end of life timing.

Standard Features

Note: *Some features described here may not be supported by all control systems. Check your control panel’s Installation and Operation Guide for details.*

- Next Generation CO Sensing Technology
- Advanced electrochemical carbon monoxide sensing technology
- Uses existing wiring
- Automatic device mapping
- Sensor Markings Provide Easy Testing Identification
- Up To 250 Total Signature Adresses Per Loop
- Non-volatile memory
- Electronic addressing
- Automatic day/night sensitivity adjustment
- Bicolor (green/red) status LED
- Standard, relay, fault isolator, and audible mounting bases

DATA SHEET E85001-0648
Not to be used for installation purposes. Issue 1

Application

CO detection has rapidly become a standard part of life safety strategies everywhere. Monitored CO detection is mandated with increasing frequency in all types of commercial applications, but particularly in occupancies such as hotels, rooming houses, dormitories, day care facilities, schools, hospitals, assisted living facilities, and nursing homes. In fact, more than half of the U.S. population already lives in states requiring the installation of CO detectors in some commercial occupancies. This is because carbon monoxide is the leading cause of accidental poisoning deaths in America. Known as the "Silent Killer," CO is odorless, tasteless, and colorless. It claims nearly 500 lives, and results in more than 15,000 hospital visits annually.

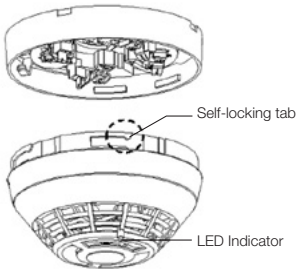
Concentration	Symptoms	Duration of Exposure
35PPM	None	<=8 hours
150PPM	Mild Headache	2 – 3 hours
400PPM	Headache/Nausea	1 – 2 hours
800 PPM	Headache/nausea/dizziness/ Progressing to unconscious	45 min. to 2 hours
6,400 PPM	Headache/nausea & dizziness	1 – 2 min.
12,800 PPM	Immediately dangerous to life or health	

Compatibility

The SIGA-COD detector is compatible only with the Signature Loop Controller.

Installation

Signature Series detectors mount to North American 1-gang boxes, 3-1/2 inch or 4 inch octagon boxes, and to 4 inch square electrical boxes 1-1/2 inches (38 mm) deep. They mount to European BESA and 1-gang boxes with 60.3 mm fixing centers. See mounting base installation and wiring for more information.



Testing & Maintenance

The user-friendly maintenance program shows the current state of each detector and other pertinent messages. Single detectors may be turned off temporarily from the control panel. Availability of maintenance features is dependent on the fire alarm system used. When the CO sensor's electrochemical cell reaches its end of life, the detector signals a Trouble condition to the control panel. Scheduled maintenance (regular or selected) for proper detector operation should be planned to meet the requirements of the Authority Having Jurisdiction (AHJ). Refer to current NFPA 72, NFPA 720, and ULC CAN/ULC 536 standards.

Sensor Life

The CO sensor has a 10-year life from the date of manufacture or when the control panel indicates a sensor end-of-life condition, whichever comes first. The detector signals a "COMMON TRBL ACT" condition on the control panel when the CO sensor reaches its end of life. Pressing the Details button on the control panel displays "END OF LIFE ACT" providing verification that it is an end-of-life trouble of the CO sensor. This trouble remains active until the detector is replaced, even if the panel is reset.

Sensing and reporting technology

The microprocessor in each detector provides additional benefits - Self-diagnostics and History Log, Automatic Device Mapping, and Fast, Stable Communication.

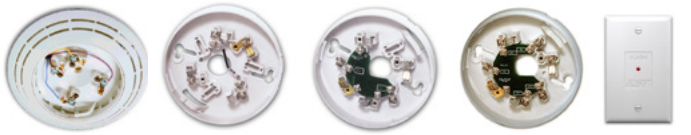
Self-diagnostics and History Log - Each Signature Series detector constantly runs self-checks to provide important maintenance information. The results of the self-check are automatically updated and permanently stored in the detector's non-volatile memory.

Automatic Device Mapping - The loop controller learns where each device's serial number address is installed relative to other devices on the circuit. The mapping feature provides supervision of each device's installed location to prevent a detector from being reinstalled (after cleaning etc.) in a different location from where it was originally.

Fast Stable Communication - On-board intelligence means less information needs to be sent between the detector and the loop controller. Other than regular supervisory polling response, the detector only needs to communicate with the loop controller when it has something new to report.

Accessories

Detector mounting bases have wiring terminals that are accessible from the "room-side" after mounting the base to the electrical box. The bases mount to North American 1-gang boxes and to 3½ inch or 4 inch octagon boxes, 1½ inches (38 mm) deep. They also mount to European BESA and 1-gang boxes with 60.3 mm fixing centers. The SIGA-SB4, SIGA-RB4, and SIGA-IB4 mount to North American 4 inch sq. electrical boxes in addition to the above boxes. They include the SIGA-TS4 Trim Skirt, which is used to cover the "mounting ears" on the base. The SIGA-AB4G mounts to a 4 inch square box only.



SIGA-AB4G/T/LF Audible Base | **SIGA-SB** Standard Base | **SIGA-IB** Isolator Base | **SIGA-RB** Relay Base | **SIGA-LED** Remote LED

Remote LED SIGA-LED - The remote LED connects to the SIGA-SB or SIGA-SB4 Standard Base only. It features a North American size 1-gang plastic faceplate with a white finish and red alarm LED.

SIGA-TS4 Trim Skirt - Supplied with 4 inch bases, it can also be ordered separately to use with the other bases to help hide surface imperfections not covered by the smaller bases.

Sounder Bases - Signature Series sounder bases are designed for use where localized or group alarm signaling is required.

- **SIGA-AB4GT** bases provide sounder capability to the SIGA-COD when used with a SIGA-TCDR Temporal Pattern Generator to produce the appropriate CO (TC4) tone pattern.
- **SIGA-AB4G-LF** bases provide 520 Hz low frequency sounder capability to the SIGA-COD when used with a SIGA-TCDR Temporal Pattern Generator to produce the appropriate CO (TC4) tone pattern. The SIGA-AB4G-LF is suitable for applications requiring low frequency audible tones.

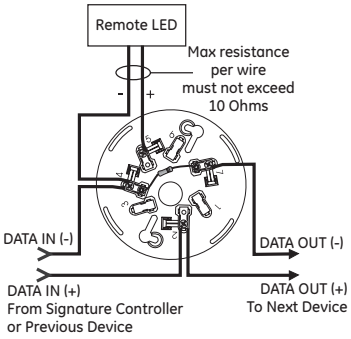
Typical Wiring

The detector mounting bases accept #18 AWG (0.75mm^2), #16 (1.0mm^2), #14 AWG (1.5mm^2), and #12 AWG (2.5mm^2) wire sizes. Sizes #16 AWG (1.0mm^2) and #18 AWG (0.75mm^2) are preferred for ease of installation.

Standard Detector Base, SIGA-SB, SIGA-SB4

This is the basic mounting base for EDWARDS Signature Series detectors. The SIGA-LED Remote LED is supported by this Base.

Term	Description
1	Not Used
2	DATA IN/OUT (+)
3	Not Used
4	DATA IN (-)
4	Remote LED (-)
5	Remote LED (+)
6	Not Used
7	DATA OUT (-)



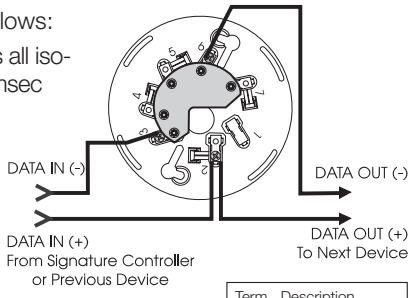
Isolator Detector Base, SIGA-IB, SIGA-IB4

This base includes a built-in line fault isolator for use on Class A circuits. A detector must be installed for it to operate. The isolator base does not support the SIGA-LED Remote LED.

The isolator operates as follows:

- a short on the line causes all isolators to open within 23 msec
- at 10 msec intervals, beginning on one side of the Class A circuit nearest the loop controller, the isolators close to provide the next isolator down the line with power
- when the isolator next to the short closes, it reopens within 10 msec.

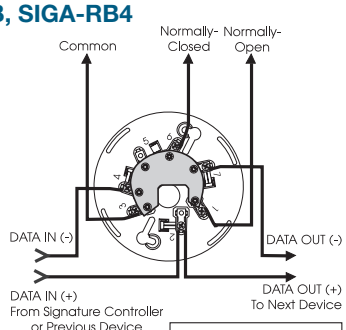
The process repeats beginning on the other side of the loop controller.



Term	Description
1	Not Used
2	DATA IN/OUT (+)
3	DATA IN (-)
4	Not Used
5	Not Used
6	DATA OUT (-)
7	Not Used

Relay Detector Base, SIGA-RB, SIGA-RB4

This base includes a relay. Normally Open or Normally Closed operation is selected during installation. The dry contact is rated for 1 amp (pilot duty) @ 30 Vdc. The relay's position is supervised to avoid accidentally jarring it out of position. The SIGA-RB can be operated as a control relay if programmed to do so at the control panel. The relay base does not support the SIGA-LED Remote LED.



CONTACT RATING
1.0 Amp @ 30 VDC
(Pilot Duty)

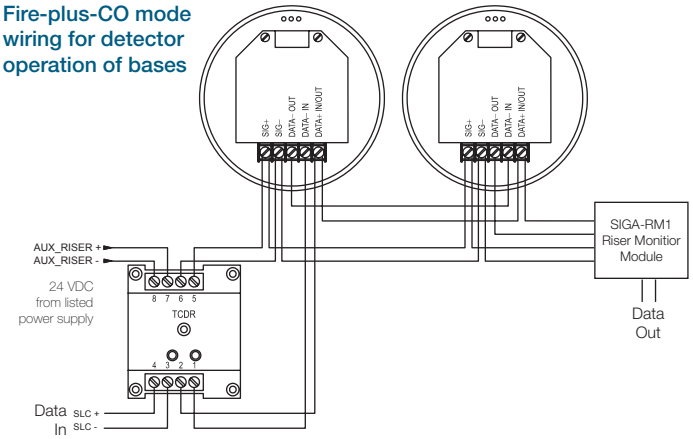
Term	Description
1	Normally Open
2	DATA IN/OUT (+)
3	Common
4	DATA IN (-)
5	Not Used
6	Normally-Closed
7	DATA OUT (-)

Audible Sounder Bases, Fire-plus-CO Mode

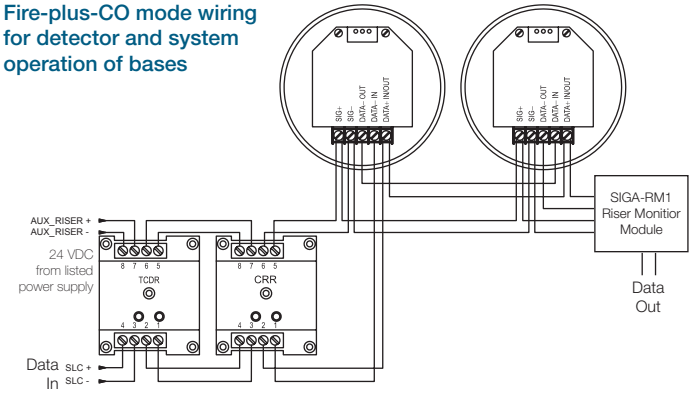
AB4GT and AB4G-LF sounder bases.

These configurations require a SIGA-TCDR Temporal Pattern Generator to produce the appropriate CO (TC4) tone pattern.

Fire-plus-CO mode wiring for detector operation of bases



Fire-plus-CO mode wiring for detector and system operation of bases



Warnings & Cautions

- This detector is designed to protect individuals from the acute affects of CO exposure. It will not fully safeguard individuals with specific medical conditions. People with special medical problems should consider using specialized detection devices with less than 30 ppm (parts per million) alarming capabilities. If in doubt, consult a medical practitioner.
- If the detector is in trouble or at the end of its life, it may not sense CO and cannot be relied upon to monitor CO levels. Replace the detector every ten years from the date of manufacture or when the control panel indicates a sensor end-of-life condition, whichever comes first.
- A detector installed outside a bedroom may not awaken a sleeper.
- Normal noise due to stereos, television, etc. may also prevent the detector from being heard if distance or closed or partly closed doors muffle the sounder. This unit is not designed for the hearing impaired.
- CO detectors are not a substitute for life safety. Though these detectors will warn against increasing CO levels, we do not warrant or imply in any way that they will protect lives from CO poisoning. They should only be considered as an integral part of a comprehensive safety program.

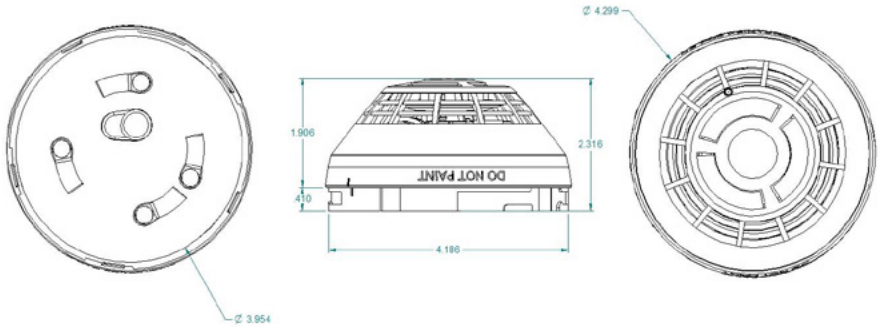
LIFE SAFETY & INCIDENT MANAGEMENT

Contact us...

Email: edwards.fire@fs.utc.com
Web: *Edwards-fire.com*

EDWARDS is a UTC brand.
1016 Corporate Park Drive
Mebane, NC 27302

Dimensions



Specifications

Operating voltage	15.20 to 19.95 VDC
Normal operating current	32 µA
Alarm current	32 µA
Vibration level	10 to 35 Hz, with an amplitude of 0.01 in.
Compatible bases	See Ordering Information
Compatible detector testers	Testifire 1000, Testifire 2000
Operating environment	32 to 120°F (0 to 49°C), 0 to 90% RH, noncondensing
Construction	High Impact Engineering Polymer, White
Storage temperature	-4 to 140°F (-20 to 60°C)
UL CO alarm level per UL 2034, CAN/CSA 6.19	70 ppm 60 to 240 minutes 150 ppm 10 to 50 minutes 400 ppm 4 to 15 minutes
UL CO false alarm level per UL 2034, CAN/CSA 6.19	30 ppm 30 days 70 ppm 60 minutes
Agency Listings, SIGA-COD	UL 2075. Evaluated to the CO alarm sensitivity limits of UL 2034.
Agency Listings, SIGA-COD-CA	ULC Listed to CAN/CSA 6.19.

Ordering Information

Catalog Number	Description	Ship Wt. lbs (kg)
SIGA-COD	Intelligent Carbon Monoxide Detector	0.4 (0.16)
SIGA-COD-CA	Intelligent Carbon Monoxide Detector, Canadian Market	0.4 (0.16)

Compatible Bases		
SIGA-SB	Detector Mounting Base - Standard	0.2 (.09)
SIGA-SB4	4-inch Detector Mounting Base c/w Trim Skirt	
SIGA-RB	Detector Mounting Base w/Relay	
SIGA-RB4	4-inch Detector Mounting Base w/Relay, c/w Trim Skirt	
SIGA-IB	Detector Mounting Base w/Fault Isolator	
SIGA-IB4	4-inch Detector Mounting Base w/ Fault Isolator, c/w Trim Skirt	
SIGA-LED	Remote Alarm LED (not for EN54 applications)	
SIGA-TCDR	Tone Generator for Detector Sounder Bases with CO mode	0.2 (0.1)
SIGA-AB4G-LF	Low Frequency Audible (Sounder) Base for CO and Fire Detectors	0.3 (0.15)
SIGA-AB4GT	Audible (Sounder) Base for CO and Fire Detectors	0.3 (0.15)
SIGA-TS4	Trim Skirt (supplied with 4-inch bases)	0.1 (.04)
SIGA-RTA	Detector Removal Tool	

EST
Life Safety & Communications

Sounder Bases

SIGA-AB4G, SIGA-AB4G-LF, SIGA-AB4GT, SIGA-TCDR


SIGA-AB4G-LF


SIGA-AB4GT


SIGA-AB4G

S853

7300-1657: 0222
7300-1657:0322
7300-1657:0308

Overview

The Signature Series AB4G sounder bases add audible output functions to any Signature Series detector. Bases can operate as independent local alarms, or as part of a zone or system alarm with synchronized audible output.

Three models provide a full range of features that meet application needs and mandated code-compliant requirements:

SIGA-AB4G bases provide sounder capability to Signature Series single-function smoke detectors. They are not intended for use with combination smoke/CO devices in Fire-plus-CO mode.

SIGA-AB4GT bases provide sounder capability to Signature Series single-function smoke detectors, as well as combination smoke/CO detectors when used with a SIGA-TCDR Temporal Pattern Generator.

SIGA-AB4G-LF bases provide 520 Hz low frequency sounder capability to Signature Series single-function smoke detectors, as well as combination smoke/CO detectors in Fire-plus-CO mode when used with a SIGA-TCDR Temporal Pattern Generator. The SIGA-AB4G-LF is suitable for sleeping areas and other applications requiring low frequency audible tones.

All bases are compatible with first and second generation Signature Series intelligent detectors when properly configured.

SIGA-AB4G sounder bases match the finish of Signature Series devices, and the sound output slots complement the air entry openings of the detector. The result is a compact unit with an attractive appearance.

Standard Features

- **Low frequency model available**
  520 Hz output meets new standards for sleeping areas.
- **Temporal or steady tone**
  Jumper selects steady or synchronized temporal output.
- **High or low dB output**
  Jumper selects low or high dBA output.
- **Single or group operation**
  Optional polarity reversing module configures base for group alarm output.
- **UL268 and UL464 listed**
  UL listing under smoke detector and audible signal standards allows application as smoke alarm and/or audible signal.
- **Attractive installation**
  Flush mount to a wide selection of North American boxes or surface mount to optional custom-matched box.

Application

Signature Series AB4G sounder bases are for use with Signature Series detectors in applications where localized or group alarm signaling is required. They are listed by Underwriters Laboratories under the UL268 and UL464 standards, allowing their application where both life safety alarms and/or notification appliances are required.

Programming and Field Configuration

Each AB4G base uses the same address and programming label as the detector it supports.

AB4G sounder bases can be set to simply operate according to the state of its detector, or configured through system programming to operate in conjuction with all sounder bases on the same circuit. They can also be controlled by program rules. Available operating modes are determined by the system that supports the Signature data loop.

Bases may be configured in the field for either high or low dB output. When used for fire alarm-only applications (i.e.: not with CO detectors), AB4G bases may be configured for steady or temporal output. The default setting is high dB with temporal output.

Group Activation and Sychronization

AB4G sounder bases on the same circuit may be activated as a group or zone with the use of a SIGA-CRR polarity reversal module, and the group or zone may be synchronized audible output with the use of a G1M-RM signal master.

Combination Smoke/CO Applications

SIGA-AB4GT and SIGA-AB4G-LF audible bases may be used with combination smoke/CO detectors when a SIGA-TCDR is installed on the same Signature data loop.

The output of these bases is field-configurable for Fire Alarm mode, or Fire Alarm plus CO Alarm mode. The SIGA-AB4G-LF has two operating modes: fire output only, where the unit produces a T3 tone; and, a Fire-plus-CO mode. In the Fire-plus-CO mode, the NAC circuit requires a SIGA-TCDR module to generate and synchronize the TC3 and TC4 tones. These two distinctive tones are necessary to differentiate fire alarm signals from CO alarm signals.

Depending on the system supporting the Signature loop, the base can follow the state of the device it supports, or be controlled by program rules.

Low Frequency Applications

The low frequency model (SIGA-AB4G-LF), is ideal for hotels, dormitories, and other residential occupancies where supplementary audible output is required to meet frequencies required for sleeping areas or areas subject to high levels of ambient noise.

This model features a distinctive 520 Hz signal that results in excellent waking capabilities, superb sound penetration, and an unmistakable warning of danger. This base can be set for low dB output with a jumper cut that reduces audible output by about 4 dB. For sleeping rooms, most codes and standards require 75 dBA-fast at the pillow.

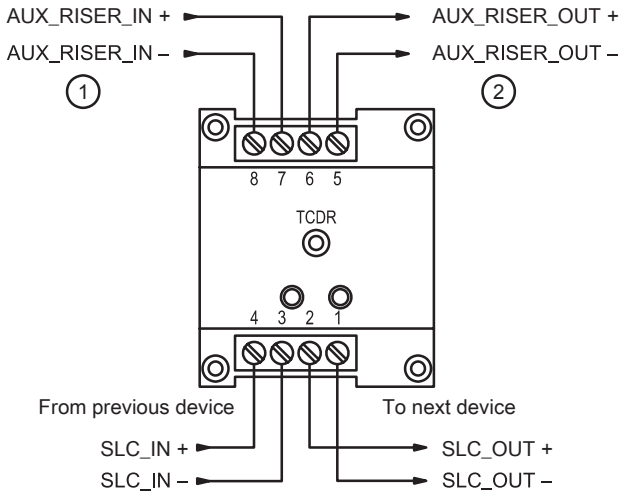
SIGA-TCDR Temporal Pattern Generator

The SIGA-TCDR Temporal Pattern Generator is an addressable device that generates CO and fire signal sound patterns for AB4GT and AB4G-LF sounder bases. The control panel sends synchronization and channel commands to the SIGA-TCDR; the channel selection determines the pattern. In the U.S. Channel 1 is TC3 and Channel 2 is TC4. In Europe, Channel 1 is TC4 and Channel 2 is TC3 (in case both channels are activated Channel 1 has priority). Other markets depend on local requirements.

Temporal patterns

Name	Code	Used for
TC4	NFPA 720	CO
TC3	NFPA 72	Fire

The SIGA-TCDR module uses two addresses on the signaling line circuit (SLC). Address 1 is tied to Channel 1; Address 2 is tied to Channel 2.



1. Use a power-limited and regulated 24 VDC primary or auxiliary power supply that is UL/ULC listed for fire protective signaling systems.
2. Power out to AB4GT sounder base or listed EOL relay and supervising module

Depending on the type of alarm, the panel can select the corresponding pattern and send the activation command to the SIGA-TCDR.

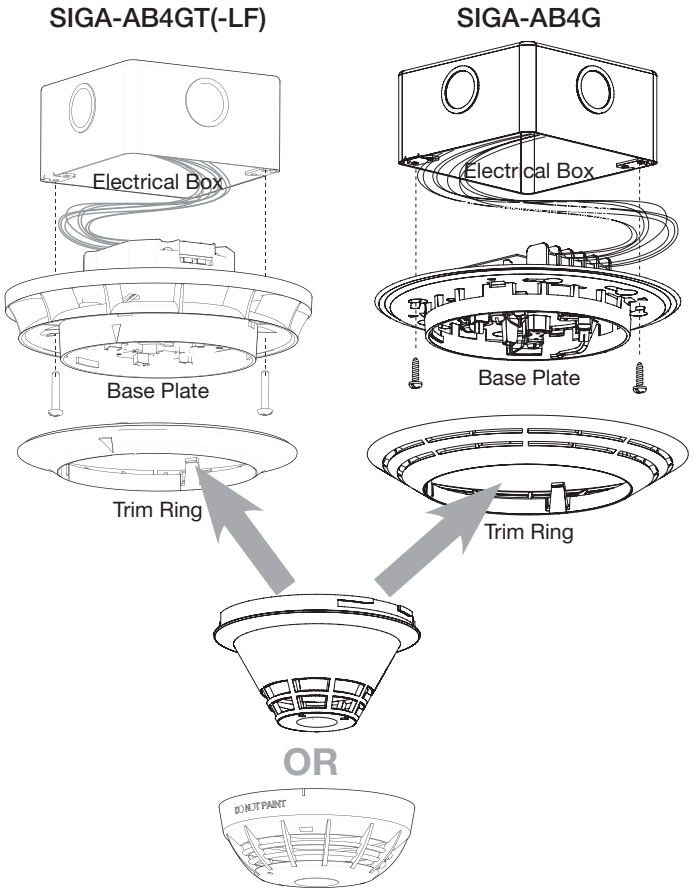
To control all sounder bases in the loop, use a SIGA-CRR module. The panel sends a signal to the SIGA-CRR causing it to reverse polarity. With the polarity on the riser reversed, all the sounder bases on this loop activate. The SIGA-TCDR maintains synchronization by processing the SYNC commands from the loop controller.

EDWARDS recommends that fire alarm systems and their devices always be installed in accordance with the latest recognized edition of national and local fire alarm codes.

Installation and Mounting

Flush Mounting

The sounder base flush mounts into 2-1/8 inch (54 mm) deep standard North American 4 inch square electric box, North American 4 x 4 inch octagonal concrete ring (mud box), and standard European 100 mm square electric boxes. The terminal block makes field wire connections fast and efficient . After wiring, a simple push and twist motion locks the Signature detector into the base.

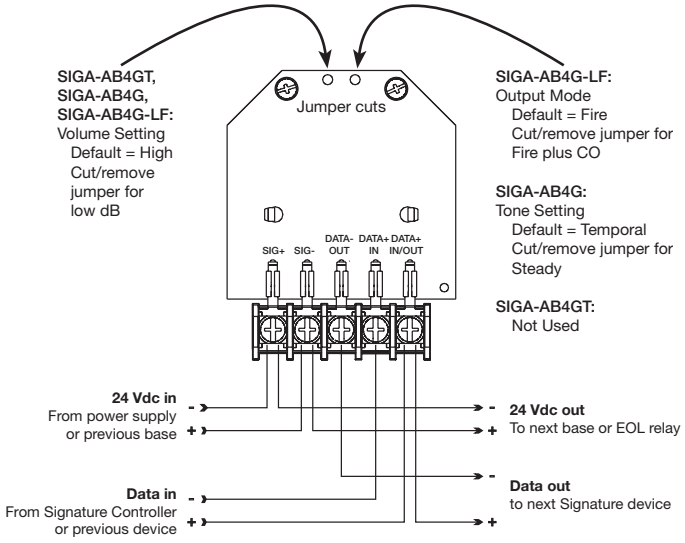


Surface Mounting

AB4G-SB
Optional Surface Box
(6.8” diameter x 1.8” deep)

AB4G-SB: When using the AB4G-SB surface mount box, install a reinforcing plate at every knockout. (Reinforcing plates are included with the box.) Remove the knockout first, and then slide the reinforcing plate into the plastic housing. After the plate is in place, install a conduit connector and nut (not supplied).

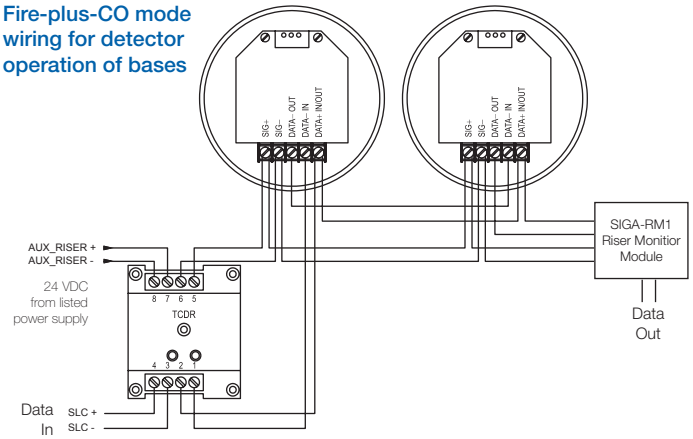
Configuration and Wiring



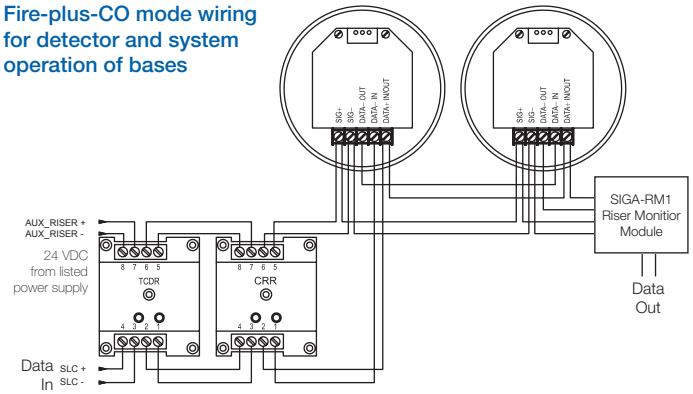
Typical Wiring, Fire-plus-CO mode

AB4GT, AB4G-LF sounder bases

Fire-plus-CO mode wiring for detector operation of bases



Fire-plus-CO mode wiring for detector and system operation of bases

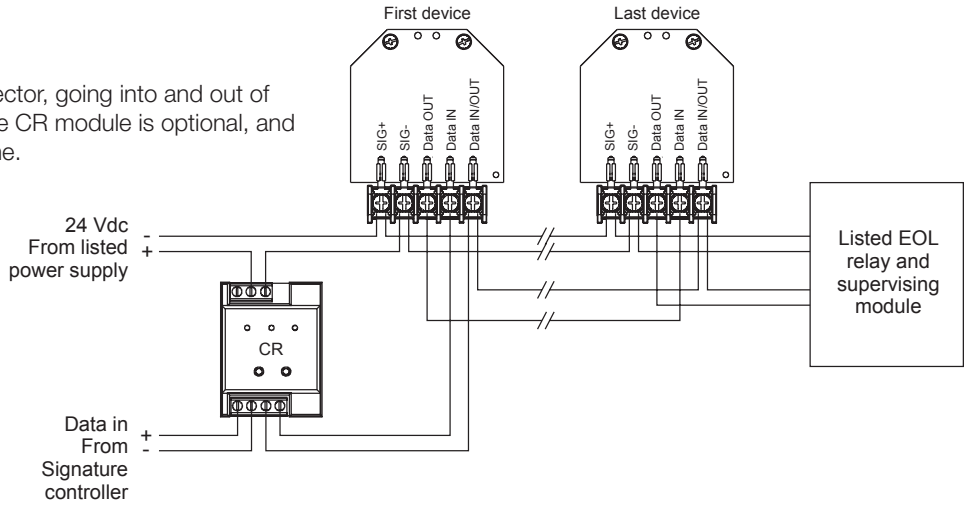


Typical Wiring, Fire mode

AB4G, AB4G-LF sounder bases

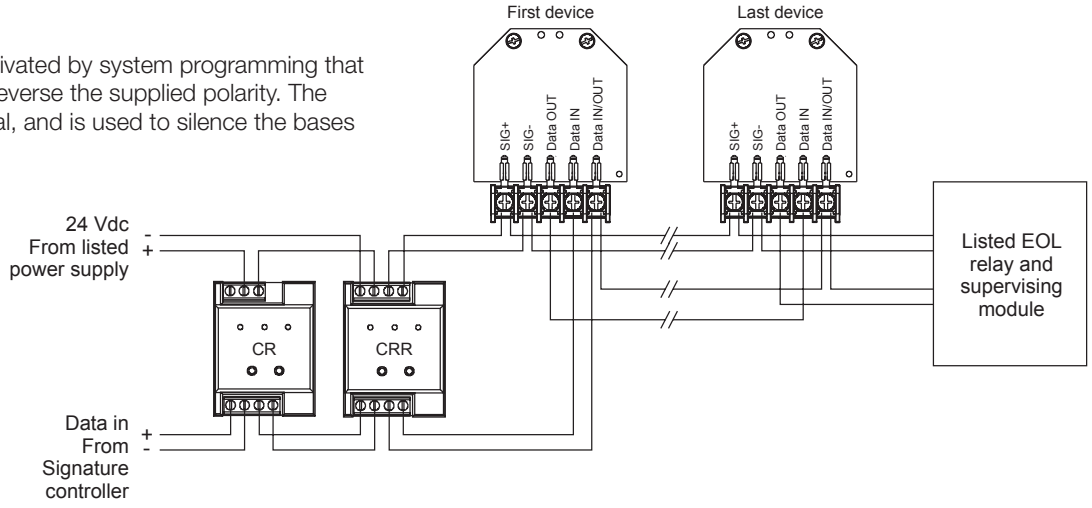
Detector operates the base

The base follows the state of the detector, going into and out of alarm with the detector. The Signature CR module is optional, and is used to silence the bases on the line.



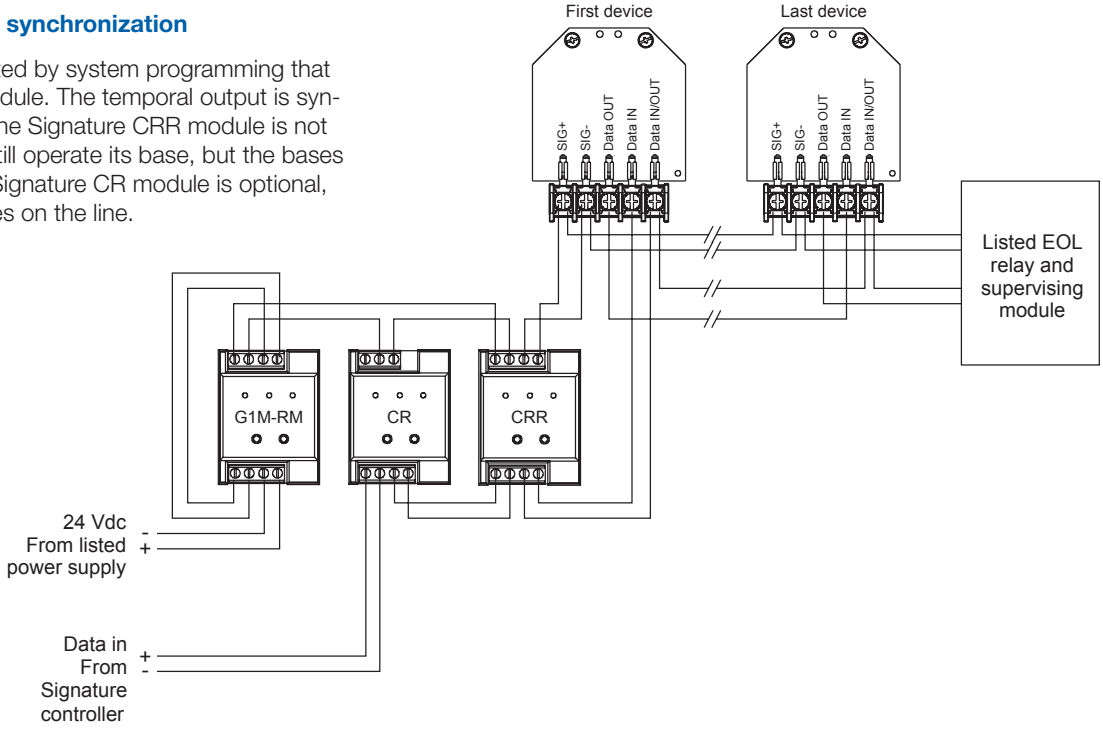
System turns on all bases

All bases on the line can be activated by system programming that triggers the Signature CRR to reverse the supplied polarity. The Signature CR module is optional, and is used to silence the bases on the line.



System turns on bases with synchronization

All bases on the line are activated by system programming that triggers the Signature CRR module. The temporal output is synchronized by the G1M-RM. If the Signature CRR module is not activated, each detector can still operate its base, but the bases will not be synchronized. The Signature CR module is optional, and is used to silence the bases on the line.



Sound Level Output, AB4G-LF

Signal	Low dBA	High dBA [1]
Nominal Sound Level [2]		
Steady/T3/T4	83	87
Per UL 268, UL 521, UL 2075 (reverberant) [3]		
TC3 (fire pattern)	76.3	80.8
TC4 (CO pattern)	73.0	77.4
Steady	80.9	85.3
Per UL 464 (reverberant) [3]		
TC3 (fire pattern)	70.3	74.8
TC4 (CO pattern)	67.0	71.4
Steady	74.9	79.3

[1] For NFPA 72 and NFPA 720 applications, the high dBA settings can be used for public mode evacuation.

[2] Anechoic chamber @ 10ft

[3] As measured in a UL reverberant room at 10 ft.

Operating Current, AB4G-LF

mA RMS UL/ULC ratings

	Low dBA			High dBA		
Signal	16 VDC	24 VDC	33 VDC	16 VDC	24 VDC	33 VDC
TC3	76.0	76.4	85.6	92.0	76.0	93.6
TC4	112.8	148.0	125.6	107.2	150.0	150.8
Steady	75.2	76.0	92.4	143.0	92.0	97.0

Sound Level Output, AB4G

Signal	Voltage	Low dBA	High dBA
Reverberant room per UL 464*			
Temporal	16 Vdc	71.5	78.1
	24 Vdc	75.5	80.7
	33 Vdc	78.5	83.1
Steady	16 Vdc	75.5	81.7
	24 Vdc	79.5	84.5
	33 Vdc	81.8	86.5
Reverberant room per UL 268			
Temporal	16 Vdc	77.5	84.1
	24 Vdc	81.5	86.7
	33 Vdc	84.5	89.1
Steady	16 Vdc	81.5	87.7
	24 Vdc	85.5	90.5
	33 Vdc	87.8	92.5

dBA = Decibels, A-weighted

*For UL 464 applications low dBA settings are for private mode only.

Operating Current (RMS), AB4G

Voltage	Low dBA	High dBA	Notes
16 VDC	17	28	VDC = Volts direct current, regulated and filtered
24 VDC	24	41	
33 VDC	31	52	
16 VFWR	41	48	VFWR = Volts full wave rectified
24 VFWR	51	60	
33 VFWR	60	66	

Sound Level Output, AB4GT

Signal	Voltage	Low dBA	High dBA
Reverberant room per UL 464 [1]			
TC3 (fire pattern)	16 VDC	80.5	85.2
TC4 (CO pattern)	16 VDC	73.9	77.5
Reverberant room per UL 268 and FM [2]			
TC3 (fire pattern)	16 VDC	86.5	90.8
TC4 (CO pattern)	16 VDC	77.5	84.1
Sound pressure level per CAN/ULC-S525 [3]			
Temporal	24 VDC	95	91
Steady	24 VDC	93	89

[1] For UL 464 applications, low dBA settings are for private mode only.
[2] For UL 268 applications, the high setting must be used for evacuation.
[3] Voltage is regulated and filtered.

Operating current (RMS), AB4GT

Low dBA	High dBA
31 mA	52 mA

Contact us...

Email: edwards.fire@fs.utc.com
Web: *www.est-fire.com*

EST is an **EDWARDS** brand.

1016 Corporate Park Drive
Mebane, NC 27302

In Canada, contact Chubb Edwards...
Email: inquiries@chubbedwards.com
Web: *www.chubbedwards.com*

Specifications

	SIGA-AB4G	SIGA-AB4GT	SIGA-AB4G-LF
Riser operating voltage	16 to 33 VDC		
Operating Current	See tables on previous page		
Supervisory Current	DC = 1.46 mA, FWR = 2.15 mA	DC = 1.46 mA	DC = 6.0 mA
Default Output Volume	High dBA		
Default Tone	Temporal	Fire: Steady or TC3; Fire-plus-CO: TC3 or TC4	
Resonant frequency	3.2 kHz		520 Hz +/- 10%
Temporal pattern	0.5 s on, 0.5 s off, 0.5 s on, 0.5 s off, 0.5 s on, 1.5 s off, repeat cycle	As determined by the SIGA-TCDR... Fire: Steady or TC3; Fire-plus-CO: TC3 or TC4	
Compatible detectors	All Signature Series detectors		
Compatible electrical boxes	AB4G-SB surface box for audible base; 4 in. square by 2-1/8 in. (54 mm) deep box; 3-1/2 in. octagonal by 2-1/8 in. (54 mm) deep box; Standard European 100 mm^2 box		
Wire size	12 to 18 AWG (0.75 to 2.50 mm^2)		
Base diameter	6.8 in. (173 mm)		
Base height from box	0.8 in. (21 mm)		1.4 in. (35 mm)
Maximum distance from ceiling	Wall mount — 12 in. (305 mm)		
Environment type	Indoor only		
Operating environment Temperature Relative humidity	 32 to 120°F (0 to 49°C) 0 to 93% noncondensing		
Storage temperature	–4 to 140°F (–20 to 60°C)		
Listings	UL, ULC, CSFM		UL, CSFM

Ordering Information

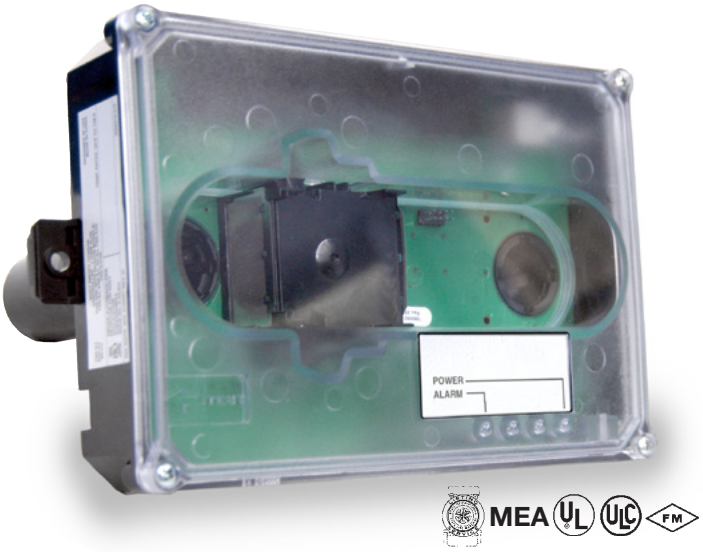
Catalog Number	Description	Ship Wt., lb. (kg)
SIGA-AB4G-LF	Low Frequency Sounder Base for CO and Fire Detectors	0.3 (0.15)
SIGA-AB4GT	Sounder Base for CO and Fire Detectors	0.3 (0.15)
SIGA-AB4G	Sounder Base for Fire Detectors	0.3 (0.15)

Related Equipment		
SIGA-TCDR	Temporal Pattern Generator	0.2 (0.1)
SIGA-MCRR	Polarity Reversal Relay (Plug-in UIO module)	0.18 (0.08)
SIGA-CRR	Polarity Reversal Relay (Standard mount module)	0.2 (0.1)
SIGA-MCR	Control Relay Module (Plug-in UIO module)	0.18 (0.08)
SIGA-CR	Control Relay Module (Standard mount module)	0.2 (0.1)
SIGA-RM1	Riser Monitor Module	0.2 (0.1)
G1M-RM	Signal Master (1-gang remote mount)	0.2 (0.1)
AB4G-SB	Surface Box for Audible Base	1.0 (0.45)

EST™
Life Safety & Communications

Intelligent Duct Smoke Detector

SIGA-SD



Overview

The Edwards *SuperDuct* Signature Series smoke detector is the most advanced and most reliable device in its class. Designed for easy installation and superb reliability, *SuperDuct* represents the perfect balance of practical design and advanced technology.

***SuperDuct* detectors** feature a unique design that speeds installation and simplifies maintenance. Removable dust filters, conformally coated circuit boards, and optional water-resistant gaskets keep contaminants away from components, ensuring years of trouble-free service. When cleaning is required, the assemblies come apart easily and snap back together in seconds.

A Signature Series photoelectric sensor is incorporated into the design of each SIGA-SD duct smoke detector. This sensor inherits the power and benefits of this exceptional line of intelligent devices.

Signature Series sensors gather analog information from their smoke sensing elements and convert it into digital signals. The sensor measures and analyses these signals and compares the information to historical readings and time patterns to make an alarm decision. Digital filters remove signal patterns that are not typical of fires, which virtually eliminates unwanted alarms.

WARNING: Duct detectors have specific limitations. Duct detectors are not a substitute for an open area smoke detector. Duct detectors are not a substitute for early warning detection or a replacement for a building's regular fire detection system. Smoke detectors are not designed to detect toxic gases which can build up to hazardous levels in some fires. These devices will not operate without electrical power. As fires frequently cause power interruptions, Edwards suggests you discuss further safeguards with your local fire protection specialist.

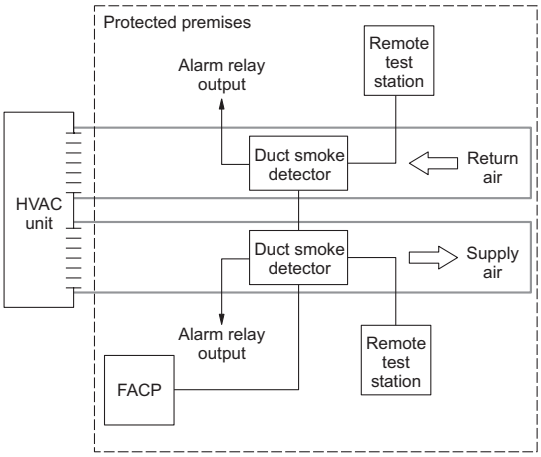
Standard Features

- Less than 2" deep for easy installation and applications where space is tight
- -4°F to 158°F (-20°C to 70°C) operating range with 100 ft/min. to 4,000 ft/min air velocity rating assures reliability under harsh environmental conditions
- Status LEDs remain visible through clear assembly cover
- Cover monitor switch for added security
- Standard sampling tube spacing for easy drop-in migration from other detectors
- Sampling tube can be installed with or without the cover in place and can be rotated in 45-degree increments to ensure proper alignment with duct airflow
- 15.2 to 19.95 Vdc operation
- Magnet-activated test switch
- One Form C auxiliary alarm relay for controlling ancillary equipment (e.g., HVAC controls)
- No special tools required for easy access to field connections
- Signature Series intelligence
- Environmental compensation with differential sensing for reliable, stable, and drift-free sensitivity
- Wide 0.79% to 2.46% obscuration/ft. smoke sensitivity
- Identification of dirty or defective detectors

DATA SHEET 85001-0584
Not to be used for installation purposes. Issue 6

Application

SuperDuct detectors are ideally suited to duct smoke detection applications where early indication of combustion is required within the confined space of ventilation ductwork. Its primary purpose is to provide early warning of an impending fire and to prevent smoke from circulating throughout the building. It is typically used to detect smoke in the supply side of the HVAC system but can provide supervision of the return side as well.



SuperDuct detectors continually sample air flow in the HVAC duct and initiate an alarm condition whenever smoke is detected. An alarm is activated when the quantity (percent obscuration) of combustion products in that air sample exceeds the detector's sensitivity setting.

Signature Series Intelligence

Like all Signature detectors, the SIGA-SD features electronic addressing and issues a dirty sensor warning when it reaches its preset limit. The dirty sensor warning indicates the sensor is operating within its specified limits but is in need of servicing. When the detector's ability to compensate for environmental changes has reached its limit, the duct smoke detector signals a trouble condition.

The SIGA-SD also uses differential sensing to prevent gradual environmental changes from triggering unwanted alarms. A rapid change in environmental conditions, such as smoke from a fire, causes the detector to signal an alarm state, but dust and debris accumulated over time does not change alarm sensitivity.

Each Signature Series SuperDuct detector contains a microprocessor that performs comprehensive self-diagnostics and stores the results in nonvolatile memory. Stored results include details such as hours of operation, last maintenance date, and number of alarms and troubles. This information can be retrieved and reviewed when desired.

Detector Configuration

The detector assembly cover provides easy access to the smoke sensor, its wiring connections, sample and exhaust tubes, and the smoke chamber itself.

Air enters the detector's sensing chamber through a sampling tube (ordered separately) that extends into the duct and is directed back into the ventilation system through an exhaust tube (included). The difference in air pressure between the two tubes pulls the sampled air through the sensing chamber. When a sufficient amount of smoke is detected in the sensing chamber, the detector initiates an alarm.

The sampling tube may be installed from either the duct side of the assembly or from inside the sensor compartment, as preferred by the installer. (The exhaust tube must be installed from the duct side.) Sampling tubes may be rotated in 45-degree increments so that air-holes can be aligned to allow the unit to be mounted at virtually any angle relative to the air flow.

In installations where the duct smoke detector's controls and indicators are hidden from view, a remote test station or an LED indicator can be connected to the detector to provide these functions.

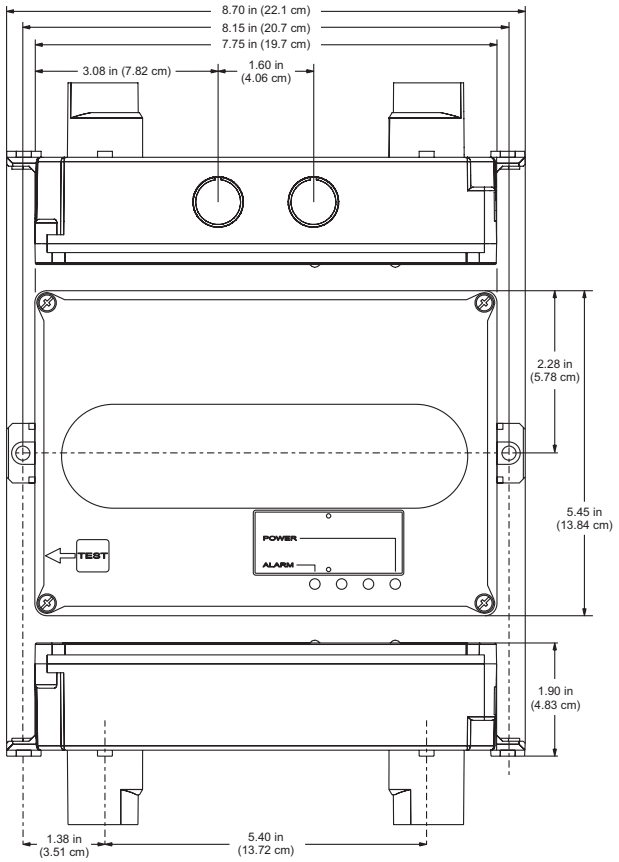
Remote Test Stations

Labor-saving Remote Test/Reset stations provide alarm testing from the convenience of a remote location. Tests can be performed quickly and safely – without having to climb to the roof. Magnetically-operated and key-operated one-gang models are available. Signature SuperDuct detectors are also compatible with SIGA-LED remote alarm LED.

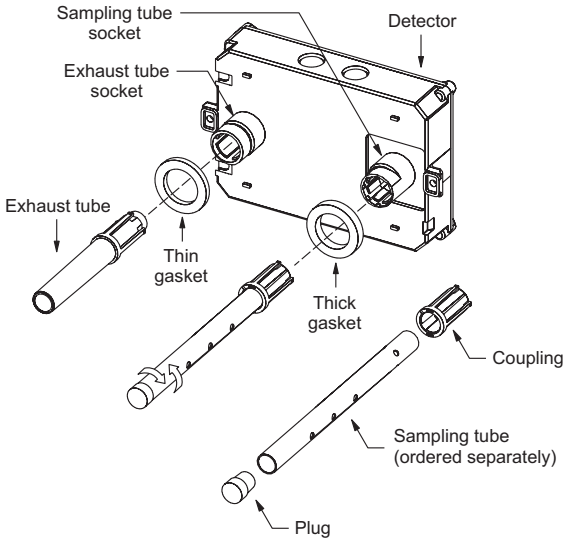
Air velocity in the duct as low as 100 ft/min. maintains adequate air flow into the sensor smoke chamber through air holes in the air sampling tube and discharges through the exhaust tube. *SuperDuct* air sampling tubes must be installed with the inlet holes facing the airstream. Sampling tubes may be rotated in 45-degree increments so that air-holes can be aligned to allow the unit to be mounted in virtually any angle relative to the airflow.

SuperDuct sensors are engineered to operate optimally under the harsh environmental conditions frequently found in HVAC ductwork. Nonetheless, before installing the detector, test the duct air velocity, temperature, and humidity to verify that it is within the operating range of the *SuperDuct* detector. Consult the *SuperDuct* installation sheet for details.

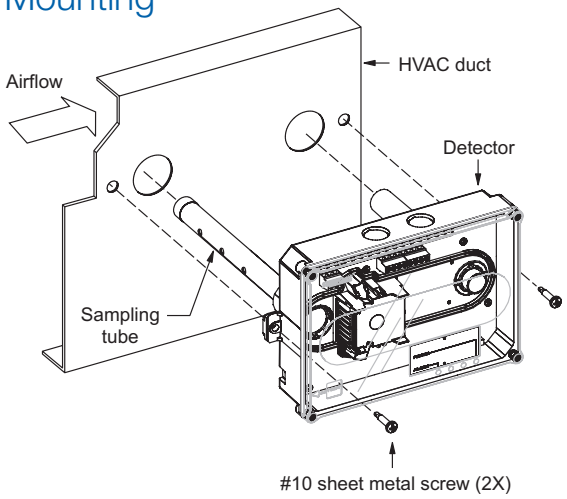
Dimensions



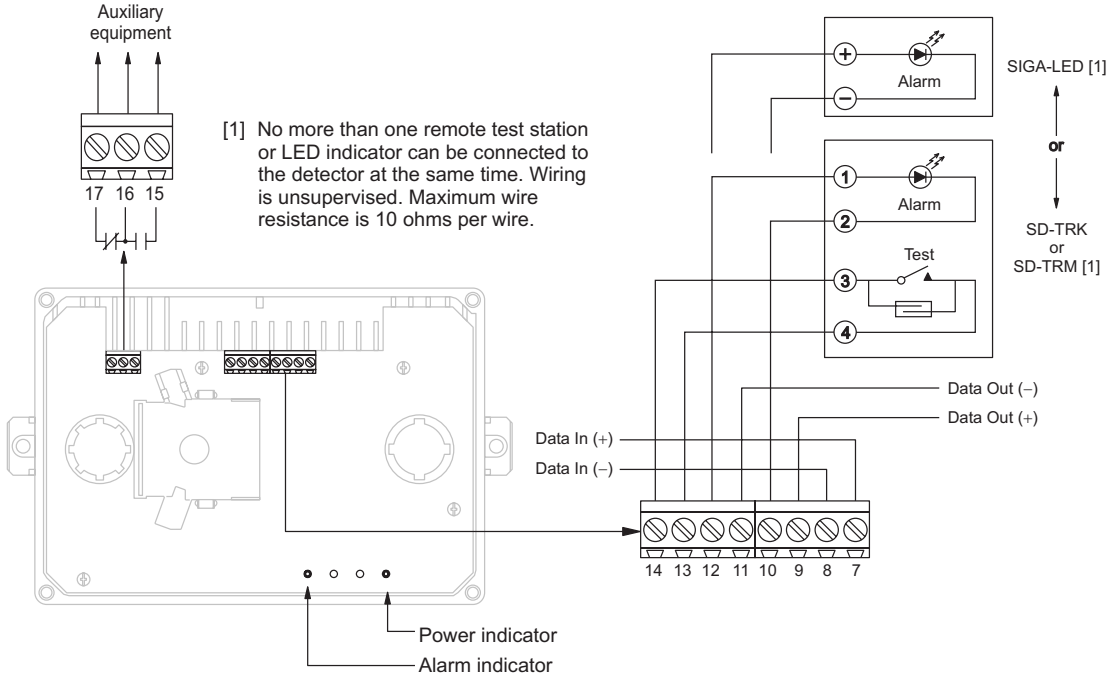
Assembly



Mounting



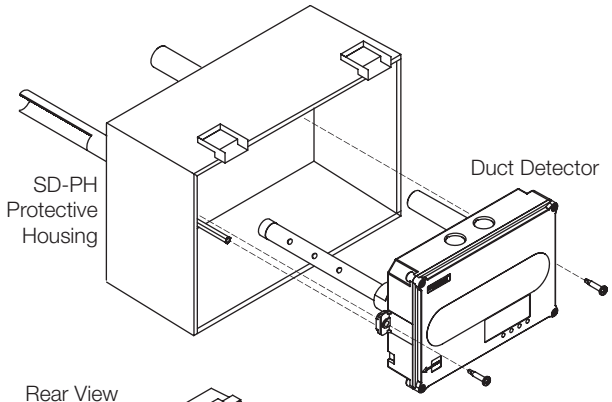
Wiring

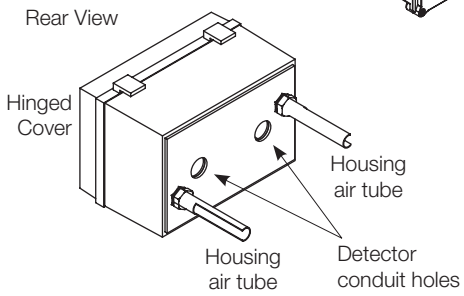


[1] No more than one remote test station or LED indicator can be connected to the detector at the same time. Wiring is unsupervised. Maximum wire resistance is 10 ohms per wire.

High-humidity environments

Use the SD-PH Protective Housing when installing SuperDuct detectors in high-humidity environments. The SD-PH is a weatherized housing that prevents condensation on the device by insulating the detectors and providing circulated air from the monitored HVAC duct. The SD-PH also adds a layer of protection against physical damage to the unit.





The SD-PH is easy to install and service. The hinged and transparent cover provides ready access to the detector, while keeping its status indicators visible at all times.

Note: The SD-PH Protective Housing is weatherized against outdoor air, but it is not intended for direct outdoor exposure.

EDWARDS
A UTC Fire & Security Company

Detection & alarm since 1872

U.S.
T 888 378 2329
F 866 503 3996

Canada
Chubb Edwards
T 519 376 2430
F 519 376 7258

Southeast Asia
T : +65 6391 9300
F : +65 6391 9306

India
T : +91 80 4344 2000
F : +91 80 4344 2050

Australia
T +61 3 9239 1200
F +61 3 9239 1299

Europe
T +32 2 725 11 20
F +32 2 721 86 13

Latin America
T 305 593 4301
F 305 593 4300

utcfireandsecurity.com

Specifications, detector

Dimensions	8.70 x 5.45 x 1.90 inches (221 x 138 x 48 mm)
Wire size	14 to 22 AWG
Detection method	Photoelectric (light scattering principle)
Air velocity rating	100 to 4,000 ft/min and meets the required minimum air pressure differential
Air pressure differential	0.005 to 1.00 inches of water
Sensitivity	0.79 to 2.46 %/ft obscuration
Alarm test response time	5 seconds
LED indicators	Alarm (red), Power (green)
Common alarm relay	Unsupervised and power-limited Quantity: 1 Type: Form C Ratings: 2.0 A at 30 Vdc (resistive)
Operating voltage	15.2 to 19.95 Vdc
Operating current	Standby: 45 µA Alarm: 45 µA Inrush: 1 mA Standalone alarm: 18 mA
Operating environment	Temperature (UL): -4 to 158 °F (-29 to 70 °C). Temperature (ULC): -4 to 120 °F (-29 to 49 °C) Relative humidity: 10 to 93%, noncondensing
Agency listings	UL, ULC, CSFM, FM, MEA

Specifications, test stations

Remote Test/Reset Stations provide alarm test, trouble indication, and reset capability from a remote location. They include a one-gang plate, momentary SPST switch, red alarm LED, and terminal block. Magnetically-operated models (TRM) or key-operated models (TRK) are available.

Compatible electrical boxes	North American 1-gang box Standard 4-in square box, 1-1/2 inches deep, with 1-gang cover
LED indicators	Alarm (red)
LED type	Clear lens
Wire size	14 to 22 AWG
Resistance per wire	10 Ohms, max.
Current requirements	See controller specifications
LED circuit ratings	Voltage: 3 Vdc, max. Current: 30 mA, max.
Switch ratings (SD-TRK)	Voltage: 125 Vdc, max. Current: 4 A, max.
Switch ratings (SD-TRM)	Voltage: 200 Vdc, max. Current: 0.5 A, max.
Compatible detectors	SuperDuct conventional two-wire and Signature duct smoke detectors
Operating environment	-4°F to 158°F (-20°C to 70°C) Humidity: 93% RH, noncondensing
Storage temperature	-4 to 140 °F (-20 to 60 °C)
Agency listings	UL, ULC, MEA, CSFM

Ordering Information

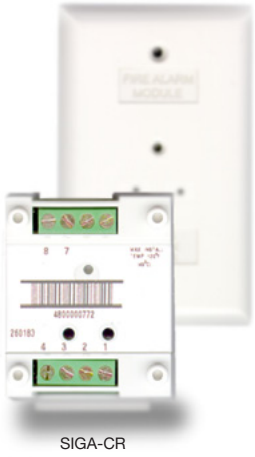
Catalog Number	Description	Ship Wt., lb. (kg)
SIGA-SD	Intelligent SuperDuct Detector	2.4 (1.1)
Accessories		
SD-T8	8-inch sampling tube	0.5 (0.2)
SD-T18	18-inch sampling tube	1.5 (0.7)
SD-T24	24-inch sampling tube	2.7 (1.2)
SD-T36	36-inch sampling tube	3.0 (1.4)
SD-T42	42-inch sampling tube	3.5 (1.6)
SD-T60	60-inch sampling tube	5.8 (2.6)
SD-T78	78-inch sampling tube	7.5 (3.4)
SD-T120	120-inch sampling tube	11.5 (5.2)
SD-PH	Protective housing for high humidity environments	5.5 (2.5)
SIGA-LED	Remote alarm LED	1.0 (0.5)
SD-TRM	Remote test station, magnetic	1.0 (0.5)
SD-TRK	Remote test station, keyed	1.0 (0.5)
SD-VTK	Air velocity test kit (stoppers only, etc)	1.0 (0.5)
SD-GSK	Cover gasket kit	0.5 (0.2)
SD-MAG	Test magnet kit	0.5 (0.2)
SIGA-SDPCB	Replacement PCB/Signature sensor kit	1.0 (0.5)

EST
Life Safety & Communications

Control Relay Modules

SIGA-CR, SIGA-MCR, SIGA-CRR, SIGA-MCRR


SIGA-MCR


SIGA-CR

FM APPROVED MEA 7300-1657: 0121 S3424

Overview

The Control Relay Module and the Polarity Reversal Relay Module are part of the Signature Series system. They are intelligent analog addressable devices available in either plug-in (UIO) versions, or standard 1-gang mount versions.

The SIGA-CR/MCR Control Relay Module provides a Form "C" dry relay contact to control external appliances such as door closers, fans, dampers etc. This device does not provide supervision of the state of the relay contact. Instead, the on-board microprocessor ensures that the relay is in the proper ON/OFF state. Upon command from the loop controller, the SIGA-CR/MCR relay activates the normally open or normally-closed contact.

The SIGA-CRR/MCRR Polarity Reversal Relay Module provides a Form "C" dry relay contact to power and activate a series of SIGA-AB4G Audible Sounder Bases. Upon command from the Signature loop controller, the SIGA-CRR reverses the polarity of its 24 Vdc output, thus activating all Sounder Bases on the data loop.

Standard-mount versions (SIGA-CR and SIGA-CRR) are installed to standard North American 1-gang electrical boxes, making them ideal for locations where only one module is required. Separate I/O and data loop connections are made to each module.

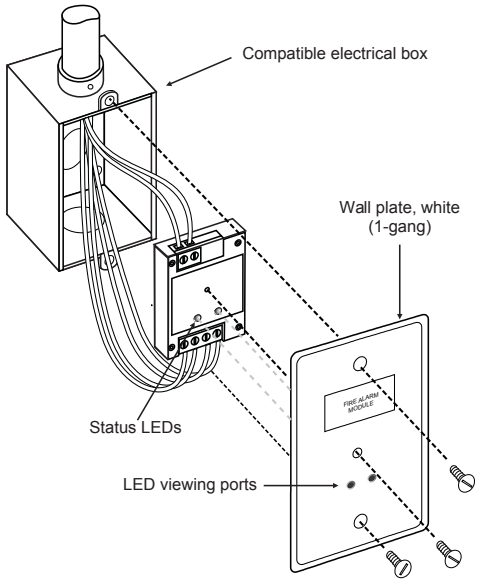
Plug-in UIO versions (SIGA-MCR and SIGA-MCRR) are part of the UIO family of plug-in Signature Series modules. They function identically to the standard mount versions, but take advantage of the modular flexibility and easy installation that characterizes all UIO modules. Two- and six-module UIO motherboards are available. All wiring connections are made to terminal blocks on the motherboard. UIO assemblies may be mounted in Edwards enclosures.

Standard Features

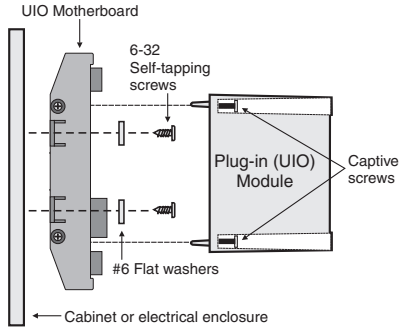
- **Provides one no/nc contact (SIGA-CR/MCR)**
  Form "C" dry relay contact can be used to control external appliances such as door closers, fans, dampers etc.
- **Allows group operation of sounder bases**
  The SIGA-CRR/MCRR reverses the polarity of its 24 Vdc output, thus activating all Sounder Bases on the data loop.
- **Plug-in (UIO) or standard 1-gang mount**
  UIO versions allow quick installation where multiple modules are required. The 1-gang mount version is ideal for remote locations that require a single module.
- **Automatic device mapping**
  Signature modules transmit information to the loop controller regarding their circuit locations with respect to other Signature devices on the wire loop.
- **Electronic addressing**
  Programmable addresses are downloaded from the loop controller, a PC, or the SIGA-PRO Signature Program/Service Tool; there are no switches or dials to set.
- **Intelligent device with microprocessor**
  All decisions are made at the module to allow lower communication speed with substantially improved control panel response time and less sensitivity to line noise and loop wiring properties; twisted or shielded wire is not required.
- **Ground fault detection by address**
  Detects ground faults right down to the device level.

Installation

SIGA-CR and SIGA-CRR: modules mount to North American 2½ inch (64 mm) deep 1-gang boxes and 1½ inch (38 mm) deep 4 inch square boxes with 1-gang covers and SIGA-MP mounting plates. The terminals are suited for #12 to #18 AWG (2.5 mm^2 to 0.75 mm^2) wire size.



SIGA-MCR and SIGA-MCRR: mount the UIO motherboard inside a suitable Edwards enclosure with screws and washers provided. Plug the module into any available position on the motherboard and secure the module to the motherboard with the captive screws. Wiring connections are made to the terminals on the motherboard (see wiring diagram). UIO motherboard terminals are suited for #12 to #18 AWG (2.5 mm^2 to 0.75 mm^2) wire size.



Electronic Addressing - The loop controller electronically addresses each module, saving valuable time during system commissioning. Setting complicated switches or dials is not required. Each module has its own unique serial number stored in its onboard memory. The loop controller identifies each device on the loop and assigns a "soft" address to each serial number. If desired, the modules can be addressed using the SIGA-PRO Signature Program/Service Tool.

Edwards recommends that this module be installed according to latest recognized edition of national and local fire alarm codes.

Application

The operation of Signature Series control relays is determined by their sub-type code or "Personality Code."

Personality Code 8: CONTROL RELAY (SIGA-CR/MCR) - Dry Contact Output. This setting configures the module to provide one Form "C" DRY RELAY CONTACT to control Door Closers, Fans, Dampers, etc. Contact rating is 2.0 amp @ 24 Vdc; 0.5 amp @ 120 Vac (or 0.25A @ 220 Vac for non-UL applications). Personality Code 8 is assigned at the factory. No user configuration is required.

Personality Code 8: POLARITY REVERSAL RELAY MODULE (SIGA-CRR/MCRR). This setting configures the module to reverse the polarity of its 24 Vdc output. Contact rating is 2.0 amp @ 24 Vdc (pilot duty). Personality Code 8 is assigned at the factory. No user configuration is required.

Compatibility

The Signature Series modules are compatible only with EST's Signature Loop Controller.

Warnings & Cautions

This module will not operate without electrical power. As fires frequently cause power interruption, we suggest you discuss further safeguards with your local fire protection specialist.

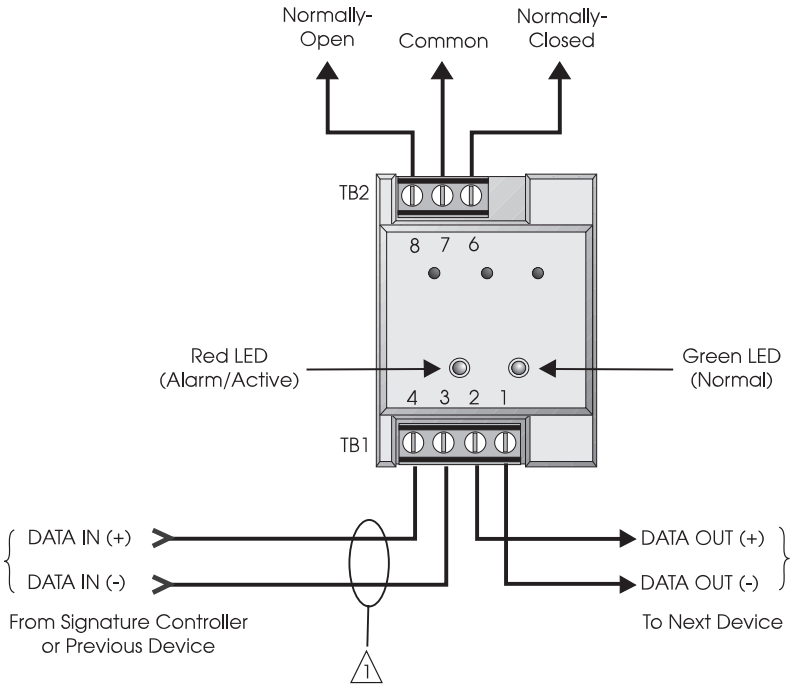
Testing & Maintenance

The module's automatic self-diagnosis identifies when it is defective and causes a trouble message. The user-friendly maintenance program shows the current state of each module and other pertinent messages. Single modules may be turned off (deactivated) temporarily, from the control panel. Availability of maintenance features is dependent on the fire alarm system used. Scheduled maintenance (Regular or Selected) for proper system operation should be planned to meet the requirements of the Authority Having Jurisdiction (AHJ). Refer to current NFPA 72 and ULC CAN/ULC 536 standards.

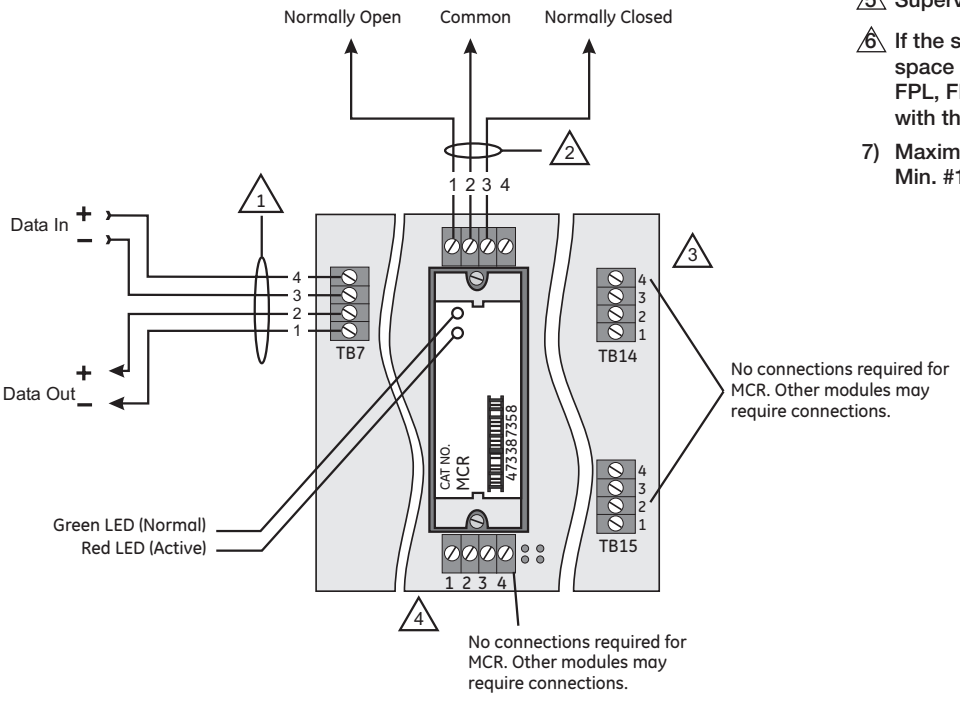
Typical Wiring

Modules will accept #18 AWG (0.75mm^2), #16 (1.0mm^2), #14 AWG (1.50mm^2) and #12 AWG (2.5mm^2) wire sizes.

Note: Sizes #16 AWG (1.0mm^2) and #18 AWG (0.75mm^2) are preferred for ease of installation. See Signature Loop Controller catalog sheet for detailed wiring requirement specifications.



SIGA-CR Control Relay



SIGA-MCR Control Relay

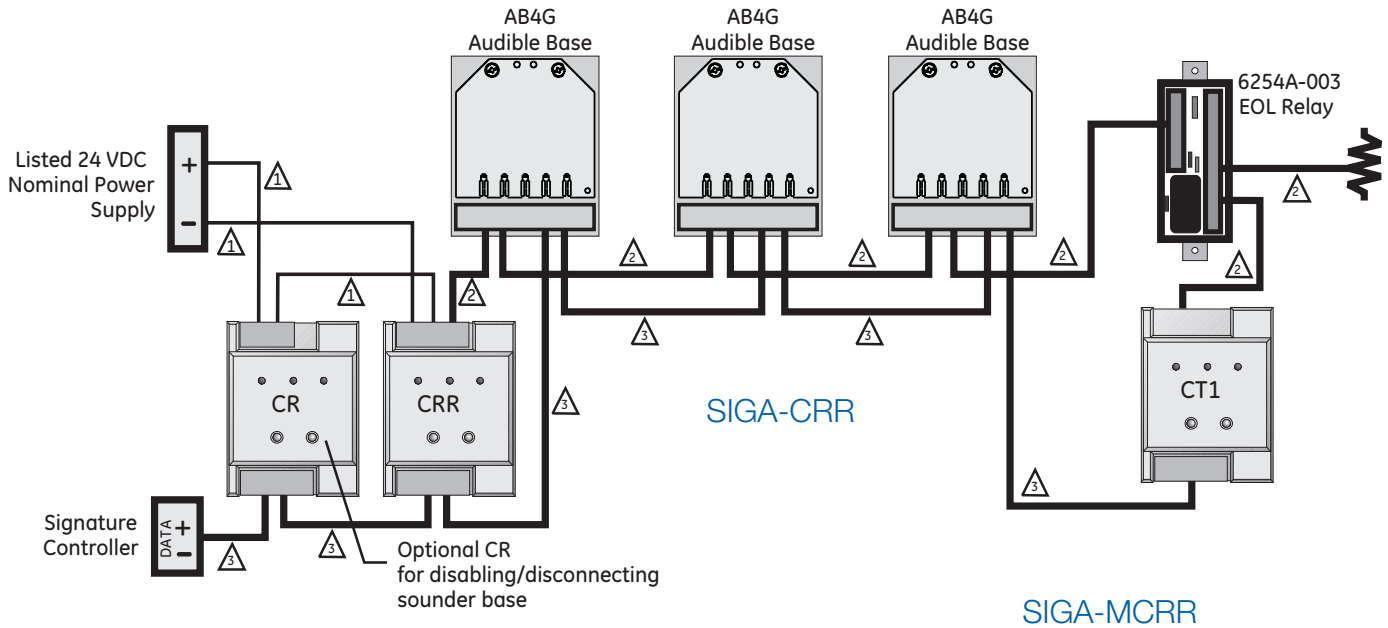
Notes

1. Refer to Signature Loop Controller Installation Sheet for wiring specifications.
2. NFPA 72 requires that the SIGA-CR/SIGA-MCR be installed in the same room as the device it is controlling. This requirement may not apply in all markets. Check with your local AHJ for details.
3. The SIGA-UIO6R and the SIGA-UIO2R do not come with TB14.
4. The SIGA-UIO6 does not come with TB8 through TB13.
5. Supervised and power-limited.
6. If the source is nonpower-limited, maintain a space of 1/4 inch from power-limited wiring or use FPL, FPLP, FPLR, or an equivalent in accordance with the National Electrical Code.
7) Maximum #12 AWG (2.5mm^2) wire. Min. #18 (0.75mm^2).

Typical Wiring

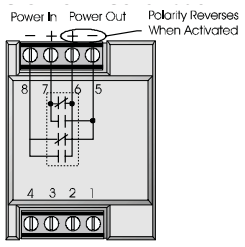
Modules will accept #18 AWG (0.75mm²), #16 (1.0mm²), #14 AWG (1.50mm²) and #12 AWG (2.50mm²) wire sizes.

Note: Sizes #16 AWG (1.0mm²) and #18 AWG (0.75mm²) are preferred for ease of installation. See Signature Loop Controller catalog sheet for detailed wiring requirement specifications.

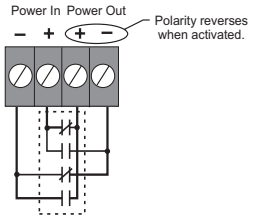


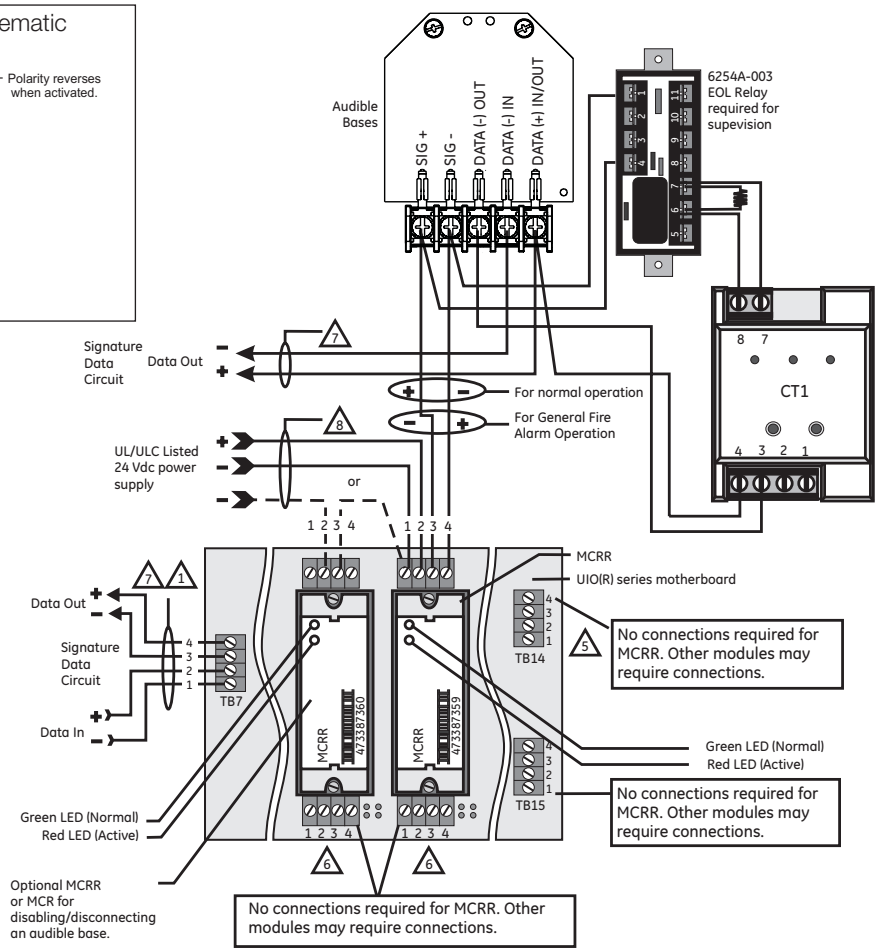
SIGA-MCRR

SIGA-CRR Schematic



SIGA-MCRR Schematic





Notes

1. Refer to the Signature controller installation sheet for wiring.
2. One Pair of Wires (24 Vdc power).
3. One Pair of Wires (Signature Data).
4. Single Wire (24 Vdc power).
5. The SIGA-UIO6R and the SIGA-UIO2R do not come with TB14.
6. The SIGA-UIO6 does not come with TB8 through TB13.
7. Supervised and power-limited.
8. If the source is nonpower-limited, maintain a space of 1/4 inch from power-limited wiring or use FPL, FPLP, FPLR, or an equivalent in accordance with the National Electrical Code.
9. Maximum #12 AWG (2.5 mm²) wire; Minimum #18 AWG (0.75 mm²).
10. End-of-Line Relay must monitor and report power supply trouble to control panel.
11. Class B Data wiring may be “T-tapped.”

Specifications

Catalog Number	SIGA-CR	SIGA-MCR	SIGA-CRR	SIGA-MCRR
Description	Control Relay		Polarity Reversal Relay	
Type Code	Personality Code 8 (Factory Set)		Personality Code 8 (Factory Set)	
Address Requirements	Uses 1 Module Address			
Operating Current	Standby = 75 µA Activated = 75 µA			
Operating Voltage	15.2 to 19.95 Vdc (19 Vdc nominal)			
Relay Type and Rating	Form C, 2 Amps @ 24 Vdc (pilot duty), 0.5 Amps @ 120 Vac and 0.25 Amps @ 220 Vac (220 Vac is non-UL) Not rated for capacitive loads.			
Mounting	North American 2½ inch (64 mm) deep 1-gang boxes and 1½ inch (38 mm) deep 4 inch square boxes with 1-gang covers and SIGA-MP mounting plates	Plugs into UIO2R, UIO6R or UIO6 Motherboards	North American 2½ inch (64 mm) deep 1-gang boxes and 1½ inch (38 mm) deep 4 inch square boxes with 1-gang covers and SIGA-MP mounting plates	Plugs into UIO2R, UIO6R or UIO6 Motherboards
Construction & Finish	High Impact Engineering Polymer			
Storage and Operating Environment	Operating Temperature: 32°F to 120°F (0°C to 49°C) Storage Temperature: -4°F to 140°F (-20°C to 60°C) Humidity: 0 to 93% RH			
LED Operation	On-board Green LED - Flashes when polled On-board Red LED - Flashes when in alarm/active			
Compatibility	Use With: Signature Loop Controller			
Agency Listings	UL, ULC, CSFM, MEA			

Ordering Information

Catalog Number	Description	Ship Weight - lbs (kg)
SIGA-CR	Control Relay Module (Standard Mount)	0.4 (0.15)
SIGA-MCR	Control Relay Module (UIO Mount)	0.18 (0.08)
SIGA-CRR	Polarity Reversal Relay Module (Standard Mount)	0.4 (0.15)
SIGA-MCRR	Polarity Reversal Relay Module (UIO Mount)	0.18 (0.08)
Related Equipment		
27193-11	Surface Mount Box - Red, 1-gang	1 (0.6)
27193-16	Surface Mount Box - White, 1-gang	1 (0.6)
SIGA-UIO2R	Universal Input-Output Module Board w/Riser Inputs - Two Module Positions	0.32 (0.15)
SIGA-UIO6R	Universal Input-Output Module Board w/Riser Inputs - Six Module Positions	0.62 (0.28)
SIGA-UIO6	Universal Input-Output Module Board - Six Module Positions	0.56 (0.25)
SIGA-AB4G	Audible (Sounder) Detector Base	0.3 (0.15)
Accessories		
MFC-A	Multifunction Fire Cabinet - Red, supports Signature Module Mounting Plates	7.0 (3.1)
SIGA-MB4	Transponder Mounting Bracket (allows for mounting two 1-gang modules in a 2-gang box)	0.4 (0.15)
SIGA-MP1	Signature Module Mounting Plate, 1 footprint	1.5 (0.70)
SIGA-MP2	Signature Module Mounting Plate, 1/2 footprint	0.5 (0.23)
SIGA-MP2L	Signature Module Mounting Plate, 1/2 extended footprint	1.02 (0.46)

Contact us...

Email: edwards.fire@fs.utc.com
Web: *www.est-fire.com*

EST is an **EDWARDS** brand.

1016 Corporate Park Drive
Mebane, NC 27302

In Canada, contact Chubb Edwards...
Email: inquiries@chubbedwards.com
Web: *www.chubbedwards.com*

Signature Series Overview

The Signature Series intelligent analog-addressable system from Edwards is an entire family of multi-sensor detectors and mounting bases, multiple-function input and output modules, network and non-network control panels, and user-friendly maintenance and service tools. Analog information from equipment connected to Signature devices is gathered and converted into digital signals. An onboard microprocessor in each Signature device measures and analyzes the signal and decides whether or not to input an alarm. The microprocessor in each Signature device provides four additional benefits – Self-diagnostics and History Log, Automatic Device Mapping, Stand-alone Operation and Fast, Stable Communication.

Self-diagnostics and History Log – Each Signature Series device constantly runs self-checks to provide important maintenance information. The results of the self-check are automatically updated and permanently stored in its non-volatile memory. This information is accessible for review any time at the control panel, PC, or using the SIGA-PRO Signature Program/Service Tool. The information stored in device memory includes:

- Device serial number, address, and type
- Time and date of last alarm
- Most recent trouble code logged by the detector — 32 possible trouble codes may be used to diagnose faults.

Automatic Device Mapping –The Signature Data Controller (SDC) learns where each device's serial number address is installed relative to other devices on the circuit. The SDC keeps a map of all Signature Series devices connected to it. The Signature Series Data Entry Program also uses the mapping feature. With interactive menus and graphic support, the wired circuits between each device can be examined. Layout or "as-built" drawing information showing branch wiring (T-taps), device types and their address are stored on disk for printing hard copy. This takes the mystery out of the installation. The preparation of as-built drawings is fast and efficient.

Device mapping allows the Signature Data Controller to discover:

- Unexpected additional device addresses
- Missing device addresses
- Changes to the wiring in the circuit.

Most Signature modules use a personality code selected by the installer to determine their actual function. Personality codes are downloaded from the SDC during system configuration and are indicated during device mapping.

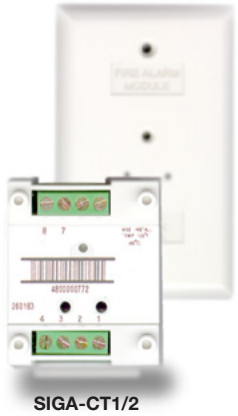
Standalone Operation – A decentralized alarm decision by the device is guaranteed. Onboard intelligence permits the device to operate in standalone (degrade) mode. If Signature loop controller CPU communications fail for more than four seconds, all devices on that circuit go into standalone mode. The circuit acts like a conventional alarm receiving circuit. Each Signature device on the circuit continues to collect and analyze information from its slave devices. When connected to a panel utilizing standalone operation, modules with their "personality" set as alarm devices (IDC) will alarm should their slave alarm-initiating device activate.

EST
Life Safety & Communications

Input Modules

→ SIGA-CT1, SIGA-CT1HT,
→ SIGA-CT2, SIGA-MCT2


SIGA-MCT2


SIGA-CT1/2

FM APPROVED MEA CE Application Notes Available 7300-1657: 0121 UL ULC S3424

Overview

The SIGA-CT1 Single Input Module, SIGA-CT1HT High Temperature Single Input Module and SIGA-CT2/SIGA-MCT2 Dual Input Modules are intelligent analog addressable devices used to connect one or two Class B normally-open Alarm, Supervisory, or Monitor type dry contact Initiating Device Circuits (IDC).

The actual function of these modules is determined by the "personality code" selected by the installer. This code is downloaded to the module from the Signature loop controller during system configuration.

The input modules gather analog information from the initiating devices connected to them and convert it into digital signals. The module's on-board microprocessor analyzes the signal and decides whether or not to input an alarm.

The SIGA-CT1, SIGA-CT1HT and SIGA-CT2 mount to standard North American 1-gang electrical boxes, making them ideal for locations where only one module is required. Separate I/O and data loop connections are made to each module.

The SIGA-CT1HT module operates at an expanded temperature range of 32 ºF to 158 ºF (0 ºC to 70 ºC) for those applications requiring more extreme environmental temperature variation.

The SIGA-MCT2 is part of the UIO family of plug-in Signature Series modules. It functions identically to the SIGA-CT2, but takes advantage of the modular flexibility and easy installation that characterizes all UIO modules. Two- and six-module UIO motherboards are available. All wiring connections are made to terminal blocks on the motherboard. UIO assemblies may be mounted in Edwards enclosures.

Standard Features

- **Multiple applications**
  Including Alarm, Alarm with delayed latching (retard) for waterflow applications, Supervisory, and Monitor. The installer selects one of four "personality codes" to be downloaded to the module through the loop controller.
- **SIGA-CT1HT rated for high temperature environments**
  Suitable for attic installation and monitoring high temperature heat detectors.
- **Plug-in (UIO) or standard 1-gang mount**
  UIO versions allow quick installation where multiple modules are required. The 1-gang mount version is ideal for remote locations that require a single module.
- **Automatic device mapping**
  Signature modules transmit information to the loop controller regarding their circuit locations with respect to other Signature devices on the wire loop.
- **Electronic addressing**
  Programmable addresses are downloaded from the loop controller, a PC, or the SIGA-PRO Signature Program/Service Tool. There are no switches or dials to set.
- **Stand-alone operation**
  The module makes decisions and inputs an alarm from initiating devices connected to it even if the loop controller's polling interrogation stops. (Function availability dependent upon control panel.)
- **Ground fault detection by address**
  Detects ground faults right down to the device level.

Signature Series Overview

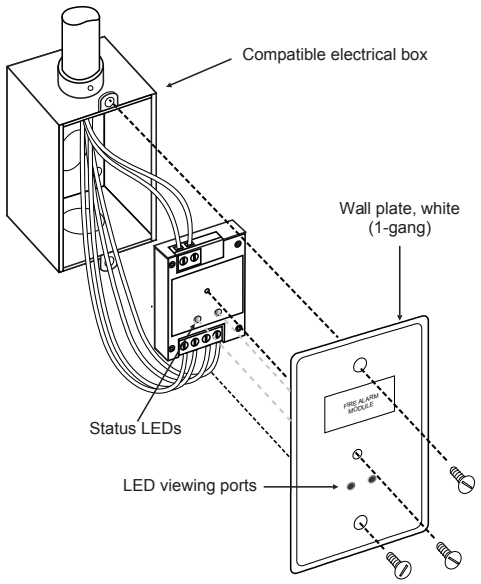
The Signature Series intelligent analog-addressable system from Edwards Security is an entire family of multi-sensor detectors and mounting bases, multiple-function input and output modules, network and non-network control panels, and user-friendly maintenance and service tools. Analog information from equipment connected to Signature devices is gathered and converted into digital signals. An onboard microprocessor in each Signature device measures and analyzes the signal and decides whether or not to input an alarm. The microprocessor in each Signature device provides four additional benefits – Self-diagnostics and History Log, Automatic Device Mapping, Stand-alone Operation and Fast, Stable Communication.

Self-diagnostics and History Log – Each Signature Series device constantly runs self-checks to provide important maintenance information. The results of the self-check are automatically updated and permanently stored in its non-volatile memory. This information is accessible for review any time at the control panel, PC, or using the SIGA-PRO Signature Program/Service Tool.

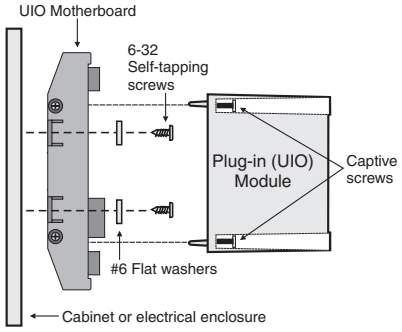
Automatic Device Mapping –The Signature Data Controller (SDC) learns where each device's serial number address is installed relative to other devices on the circuit. The SDC keeps a map of all Signature Series devices connected to it. The Signature Series Data Entry Program also uses the mapping feature. With interactive menus and graphic support, the wired circuits between each device can be examined. Layout or "as-built" drawing information showing branch wiring (T-taps), device types and their address are stored on disk for printing hard copy.

Installation

SIGA-CT1, SIGA-CT1HT and SIGA-CT2: modules mount to North American 2½ inch(64 mm) deep 1-gang boxes and 1½ inch (38 mm) deep 4 inch square boxes with 1-gang covers and SIGA-MP mounting plates. The terminals are suited for #12 to #18 AWG (2.5 mm^2 to 0.75 mm^2) wire size.



SIGA-MCT2: mount the UIO motherboard inside a suitable Edwards enclosure with screws and washers provided. Plug the SIGA-MCT2 into any available position on the motherboard and secure the module to the motherboard with the captive screws. Wiring connections are made to the terminals on the motherboard (see wiring diagram). UIO motherboard terminals are suited for #12 to #18 AWG (2.5 mm^2 to 0.75 mm^2) wire size.



Electronic Addressing - The loop controller electronically addresses each module, saving valuable time during system commissioning. Setting complicated switches or dials is not required. Each module has its own unique serial number stored in its on-board memory. The loop controller identifies each device on the loop and assigns a "soft" address to each serial number. If desired, the modules can be addressed using the SIGA-PRO Signature Program/Service Tool.

Edwards recommends that this module be installed according to latest recognized edition of national and local fire alarm codes.

Application

The duty performed by the SIGA-CT1 and SIGA-CT2/MCT2 is determined by their sub-type code or "Personality Code". The code is selected by the installer depending upon the desired application and is downloaded from the loop controller.

One personality code can be assigned to the SIGA-CT1. Two personality codes can be assigned to the SIGA-CT2/MCT2. Codes 1, 2, 3 and 4 can be mixed on SIGA-CT2/MCT2 modules only. For example, personality code 1 can be assigned to the first address (circuit A) and code 4 can be assigned to the second address (circuit B).

NORMALLY-OPEN ALARM - LATCHING (Personality Code 1) - Assign to one or both circuits. Configures either circuit A or B or both for Class B normally open dry contact initiating devices such as Pull Stations, Heat Detectors, etc. An ALARM signal is sent to the loop controller when the input contact is closed. The alarm condition is latched at the module.

NORMALLY-OPEN ALARM - DELAYED LATCHING (Personality Code 2) - Assign to one or both circuits. Configures either circuit A or B or both for Class B normally-open dry contact initiating devices such as Waterflow Alarm Switches. An ALARM signal is sent to the loop controller when the input contact is closed for approximately 16 seconds. The alarm condition is latched at the module.

NORMALLY-OPEN ACTIVE - NON-LATCHING (Personality Code 3) - Assign to one or both circuits. Configures either circuit A or B or both for Class B normally-open dry contact monitoring input such as from Fans, Dampers, Doors, etc. An ACTIVE signal is sent to the loop controller when the input contact is closed. The active condition is not latched at the module.

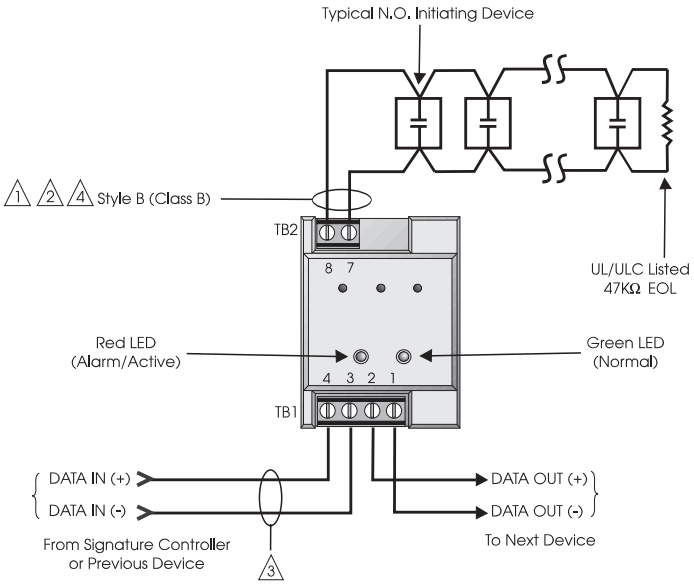
NORMALLY-OPEN ACTIVE - LATCHING (Personality Code 4) - Assign to one or both circuits. Configures either circuit A or B or both for Class B normally open dry contact monitoring input such as from Supervisory and Tamper Switches. An ACTIVE signal is sent to the loop controller when the input contact is closed. The active condition is latched at the module.

Typical Wiring

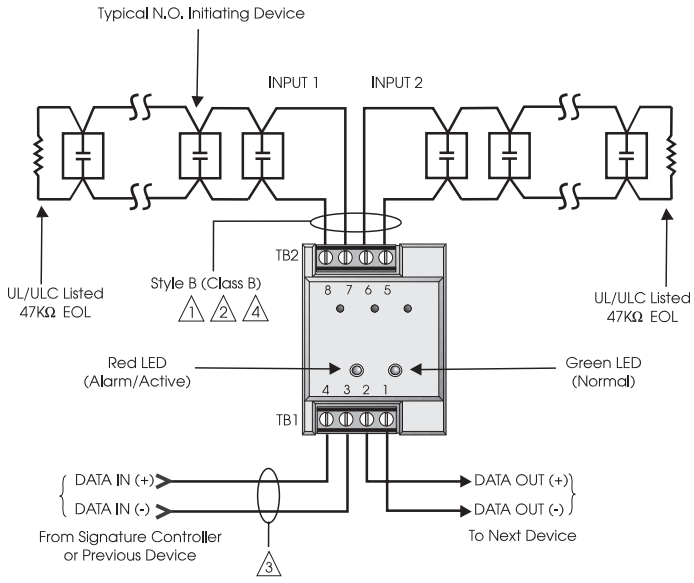
Modules will accept #18 AWG (0.75mm^2), #16 (1.0mm^2), and #14AWG (1.50mm^2), and #12 AWG (2.50mm^2) wire sizes.

Note: Sizes #16 AWG (1.0mm^2) and #18 AWG (0.75mm^2) are preferred for ease of installation. See Signature Loop Controller catalog sheet for detailed wiring requirement specifications.

Initiating (Slave) Device Circuit Wire Specifications		
Maximum Allowable Wire Resistance	50 ohms (25 ohms per wire) per Circuit	
Maximum Allowable Wire Capacitance	0.1µF per Circuit	
For Design Reference:	**Wire Size**	**Maximum Distance to EOLR**
	#18 AWG (0.75 mm^2)	4,000 ft (1,219 m)
	#16 AWG (1.00 mm^2)	
	#14 AWG (1.50 mm^2)	
	#12 AWG (1.50 mm^2)	



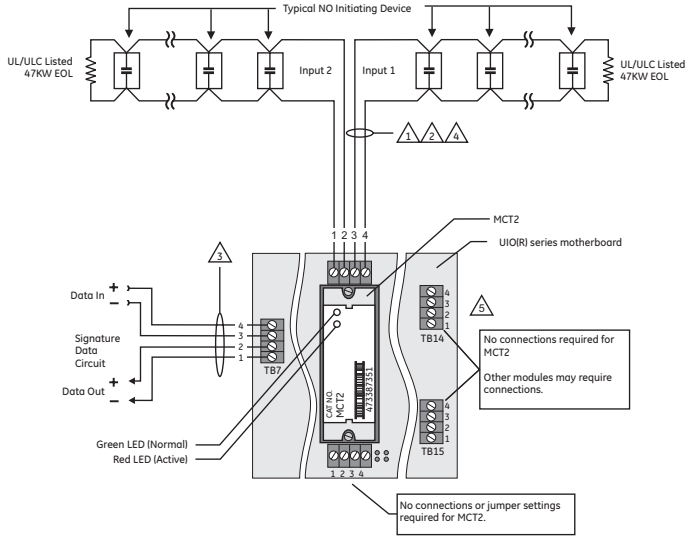
SIGA-CT1, SIGA-CT1HT



SIGA-CT2

NOTES

1. Maximum 25 Ohm resistance per wire.
2. Maximum #12 AWG (2.5 mm^2) wire; Minimum #18 AWG (0.75 mm2).
3. Refer to Signature controller installation sheet for wiring specifications.
4. Maximum 10 Vdc @ 350 µA
5. The SIGA-UIO6R and the SIGA-UIO2R do not come with TB14.
6. All wiring is supervised and power-limited.
7. These modules will not support 2-wire smoke detectors.



SIGA-MCT2

Warnings & Cautions

This module will not operate without electrical power. As fires frequently cause power interruption, we suggest you discuss further safeguards with your local fire protection specialist.

Compatibility

The Signature Series modules are compatible only with EST's Signature Loop Controller.

Contact us...

Email: edwards.fire@fs.utc.com
Web: *www.est-fire.com*

EST is an **EDWARDS** brand.

1016 Corporate Park Drive
Mebane, NC 27302

In Canada, contact Chubb Edwards...
Email: inquiries@chubbedwards.com
Web: *www.chubbedwards.com*

Specifications

Catalog Number	SIGA-CT1HT	SIGA-CT1	SIGA-CT2	SIGA-MCT2
Description	Single Input Module		Dual Input Module	
Type Code	48 (factory set) Four sub-types (personality codes) are available		49 (factory set) Four sub-types (personality codes) are available	
Address Requirements	Uses One Module Address		Uses Two Module Addresses	
Operating Current	Standby = 250µA; Activated = 400µA		Standby = 396µA; Activated = 680µA	
Operating Voltage	15.2 to 19.95 Vdc (19 Vdc nominal)			
Construction	High Impact Engineering Polymer			
Mounting	North American 2½ inch (64 mm) deep one-gang boxes and 1½ inch (38 mm) deep 4 inch square boxes with one-gang covers and SIGA-MP mounting plates			UIO2R/6R/6 Motherboard
Operating Environment	32°F to 158°F (0°C to 70°C)	32°F to 120°F (0°C to 49°C)		
Storage Environment	-4°F to 140°F (-20°C to 60°C); Humidity: 0 to 93% RH			
LED Operation	On-board Green LED - Flashes when polled; On-board Red LED - Flashes when in alarm/active. Both LEDs - Glow steady when in alarm (stand-alone)			
Compatibility	Use with Signature Loop Controller			
Agency Listings	UL, ULC, MEA, CSFM			

Ordering Information

Catalog Number	Description	Ship Wt. lbs (kg)
SIGA-CT1	Single Input Module — UL/ULC Listed	0.4 (0.15)
SIGA-CT1HT	Single Input Module High Temperature Operation UL/ULC Listed	0.4 (0.15)
SIGA-CT2	Dual Input Module — UL/ULC Listed	0.4 (0.15)
SIGA-MCT2	Dual Input Plug-in (UIO) Module — UL, ULC Listed	0.1 (0.05)

Related Equipment		
27193-11	Surface Mount Box - Red, 1-gang	1.0 (0.6)
27193-16	Surface Mount Box - White, 1-gang	1.0 (0.6)
SIGA-UIO2R	Universal Input-Output Module Board w/Riser Inputs — Two Module Positions	0.32 (0.15)
SIGA-UIO6R	Universal Input-Output Module Board w/Riser Inputs — Six Module Positions	0.62 (0.28)
SIGA-UIO6	Universal Input-Output Module Board — Six Module Positions	0.56 (0.25)
MFC-A	Multifunction Fire Cabinet — Red, supports Signature Module Mounting Plates	7.0 (3.1)
SIGA-MB4	Transponder Mounting Bracket (allows for mounting two 1-gang modules in a 2-gang box)	0.4 (0.15)
SIGA-MP1	Signature Module Mounting Plate, 1 footprint	1.5 (0.70)
SIGA-MP2	Signature Module Mounting Plate, 1/2 footprint	0.5 (0.23)
SIGA-MP2L	Signature Module Mounting Plate, 1/2 extended footprint	1.02 (0.46)

EST
Life Safety & Communications

Riser Monitor Modules

MRM1, RM1

Patented

FM APPROVED MEA 7300-1657: 0210 UL UL S3424

Overview

SIGA-RM1 and MRM1 Riser Monitor Modules are intelligent analog addressable devices that form part of EST's Signature line of products. The actual operation of the SIGA-RM1 and MRM1 is determined by the "personality code" selected by the installer, which is downloaded to the module from the Signature loop controller during system configuration.

Depending on their assigned personality, Riser Monitor Modules may be used to monitor telephone risers or 70 Vac audio, 25 Vac audio, or 12 Vdc to 24 Vdc risers.

Upon the loss of a signal, the fire alarm control panel indicates an alert status. The Riser Monitor Module requires one module address.

Standard Features

- **Adjustable time delay**
  0 - 75 seconds (default 15 seconds)
- **Monitors audio power or telephone risers**
  Reports a trouble condition when voltage on the riser drops below the trouble threshold.
- **Plug in (UIO) or standard 2-gang mount**
  UIO versions allow quick installation where multiple modules are required. The 2-gang mount version is ideal for remote locations that require a single module.
- **Automatic device mapping**
  Signature modules transmit information to the loop controller regarding their circuit locations with respect to other Signature devices on the wire loop.
- **Electronic addressing**
  Programmable addresses are downloaded from the loop controller, a PC, or the SIGA-PRO Signature Program/Service Tool. There are no switches or dials to set.
- **Intelligent device with microprocessor**
  All decisions are made at the module to allow lower communication speed with substantially improved control panel response time and less sensitivity to line noise and loop wiring properties; twisted or shielded wire is not required.
- **Non-volatile memory**
  Permanently stores serial number, type of device, and job number. Automatically updates historic information including hours of operation, last maintenance date, number of alarms and troubles, and time and date of last alarm.

Application

The SIGA-RM1 mounts to a standard North American two-gang electrical box, making it ideal for locations where only one module is required. Separate I/O and data loop connections are made to each module.

The SIGA-MRM1 is part of the UIO family of plug-in Signature Series modules. It functions identically to the SIGA-RM1, but takes advantage of the modular flexibility and easy installation that characterize all UIO modules. Two- and six-module UIO motherboards are available. These can accommodate individual risers for each on-board module, or risers that are shared by any combination of its UIO modules. All wiring connections are made to terminal blocks on the motherboard. UIO assemblies may be mounted in Edwards enclosures.

Electronic Addressing

The loop controller electronically addresses each module saving valuable time during system commissioning. Setting complicated switches or dials is not required. Each module has its own unique serial number stored in its "on-board memory". The loop controller identifies each device on the loop and assigns a "soft" address to each serial number. If desired, the modules can be addressed using the SIGA-PRO Signature Program/Service Tool.

Personality Codes

Signature modules require the Signature loop controller to download the personality code that determines how it will operate. The Riser Monitor Module provides personality codes 23 and 24, which are described below.

Personality Code 23: Riser Monitor (factory default)

Personality code 23 configures the Riser Monitor Module to monitor 70 Vac audio, 25 Vac audio, or 12 Vdc and 24 Vdc risers. A trouble condition is reported back to the panel wherever the voltage on the riser drops below the trouble threshold. The hardware jumper on the Riser Monitor Module must be configured for either 70 Vac or 25Vac/24Vdc/12Vdc.

Personality Code 24: Telephone Riser Monitor

Personality code 24 configures the Riser Monitor Module to monitor telephone risers. A trouble condition is reported back to the panel whenever voltage on the riser drops below the trouble threshold.

The delay time from when the device falls below the trouble threshold to when it sends a trouble signal to the panel is user definable in the appropriate data entry program. A delay of 5 to 75 seconds can be assigned to the device; the default delay period is 15 seconds.

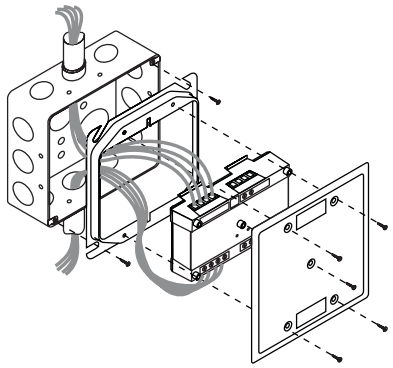
Warnings & Cautions

This module will not operate without electrical power. As fires frequently cause power interruption, we suggest you discuss further safeguards with your fire protection specialist.

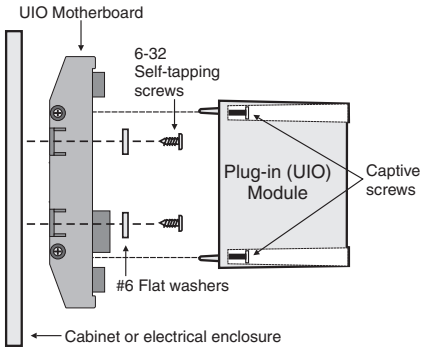
Edwards recommends that these modules be installed according to latest recognized edition of national and local fire alarm codes.

Installation

The SIGA-RM1: mounts to North American 2-1/2 inch (64 mm) deep 2-gang boxes and 1-1/2 inch (38 mm) deep 4 inch square boxes with 2-gang covers and SIGA-MP mounting plates. The terminals are suited for #12 to #18 AWG (2.5 mm^2 to 0.75 mm^2) wire size.



SIGA-MRM1: mount the UIOxR motherboard inside a suitable Edwards enclosure with screws and washers provided. Plug the module into any available position on the motherboard and secure the module to the motherboard with the captive screws. Wiring connections are made to the terminals on the motherboard (see wiring diagram). UIOxR motherboard terminals are suited for #12 to #18 AWG (2.5 mm2 to 0.75 mm2) wire size.



Testing & Maintenance

The module's automatic self-diagnosis identifies when it is defective and causes a trouble message. The user-friendly maintenance program shows the current state of each module and other pertinent messages. Single modules may be turned off (de-activated) temporarily, from the control panel.

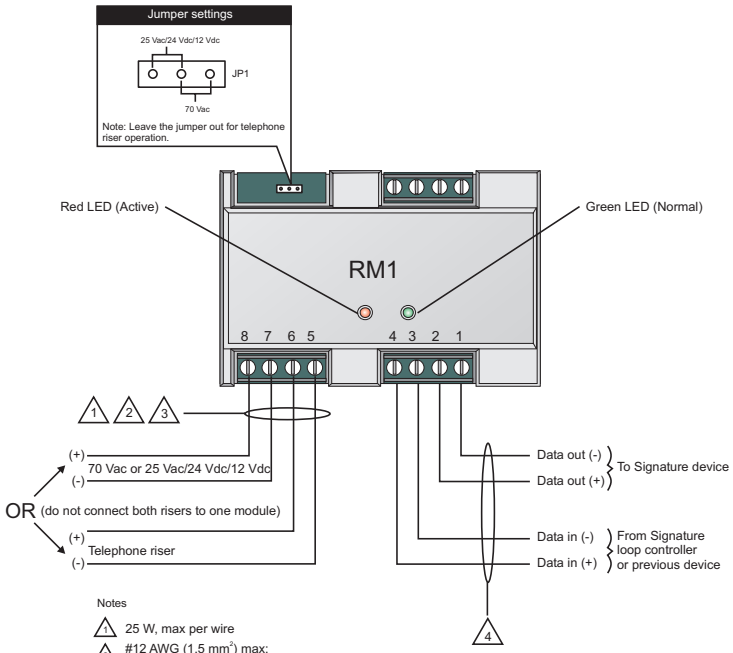
Scheduled maintenance (Regular or Selected) for proper system operation should be planned to meet the requirements of the Authority Having Jurisdiction (AHJ). Refer to current NFPA 72 and ULC CAN/ULC 536 standards.

Compatibility

The Riser Monitor Module is compatible with EST's Signature Loop Controller operating under EST3 version 2.0 or higher, and QuickStart Signature Loop Intelligent Controller.

Typical Wiring (SIGA-RM1)

Modules will accept #18 AWG (0.75mm^2), #16 (1.0mm^2), #14 AWG (1.50mm^2) and #12 AWG (2.50mm^2) wire sizes. Note: Sizes #16 AWG (1.0mm^2) and #18 AWG (0.75mm^2) are preferred for ease of installation. See Signature Loop Controller catalog sheet for detailed wiring requirement specifications.

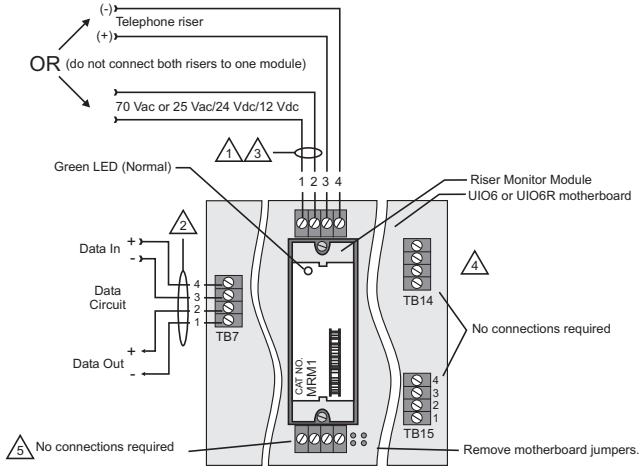


Notes

1. 25 W, max per wire
2. #12 AWG (1.5 mm^2) max; #18 AWG (0.75 mm^2) min
3. 160 mA, max
4. See the Signature loop controller installation sheet for wiring specifications.
5. All wiring is supervised and power-limited.

Typical Wiring (SIGA-MRM1)

Modules will accept #12 AWG (2.5mm^2), #18 AWG (0.75mm^2), #16 (1.0mm^2), and #14 AWG (1.50mm^2) wire sizes. Note: Sizes #16 AWG (1.0mm^2) and #18 AWG (0.75mm^2) are preferred for ease of installation. See Signature Loop Controller catalog sheet for detailed wiring requirement specifications.



Notes

1. Maximum #12 AWG (2.5 mm^2) wire; Minimum #18 AWG (0.75 mm^2)
2. See the loop controller installation sheet for wiring specifications.
3. Power-limited if the source is power-limited. If the source is nonpower-limited, maintain a space of 1/4 inch (6.4 mm) from power-limited wiring. Otherwise, use FPL, FPLP, FPLR, or an equivalent in accordance with the National Electric Code.
4. The UIO6R does not come with TB14.
5. The UIO6 does not come with TB8 through TB13.
7. All wiring is supervised.
8. Wire the Riser Monitor Module in accordance with NFPA 70-1999, National Electric Code 760-54(a)(1), exception no. 2 and no. 3.

Signature Series Overview

The Signature Series intelligent analog-addressable system from Edwards is an entire family of multi-sensor detectors and mounting bases, multiple-function input and output modules, network and non-network control panels, and user-friendly maintenance and service tools. Analog information from equipment connected to Signature devices is gathered and converted into digital signals. An onboard microprocessor in each Signature device measures and analyzes the signal and decides whether or not to input an alarm. The microprocessor in each Signature device provides four additional benefits – Self-diagnostics and History Log, Automatic Device Mapping, Stand-alone Operation and Fast, Stable Communication.

Self-diagnostics and History Log – Each Signature Series device constantly runs self-checks to provide important maintenance information. The results of the self-check are automatically updated and permanently stored in its non-volatile memory. This information is accessible for review any time at the control panel, PC, or using the SIGA-PRO Signature Program/Service Tool.

Automatic Device Mapping –The Signature Data Controller (SDC) learns where each device's serial number address is installed relative to other devices on the circuit. The SDC keeps a "map" of all Signature Series devices connected to it. The Signature Series Data Entry Program also uses the mapping feature. With interactive menus and graphic support, the wired circuits between each device can be examined. Layout or "as-built" drawing information showing branch wiring (T-taps), device types and their address are stored on disk for printing hard copy. This takes the mystery out of the installation. The preparation of "as-built" drawings is fast and efficient.

Most Signature modules use a "personality code" selected by the installer to determine their actual function. Personality codes are downloaded from the SDC during system configuration and are indicated during device mapping.

Standalone Operation – A decentralized alarm decision by the device is guaranteed. Onboard intelligence permits the device to operate in standalone (degrade) mode. If Signature loop controller CPU communications fail for more than four seconds, all devices on that circuit go into standalone mode. The circuit acts like a conventional alarm receiving circuit. Each Signature device on the circuit continues to collect and analyze information from its slave devices. When connected to a panel utilizing standalone operation, modules with their "personality" set as alarm devices (IDC) will alarm should their slave alarm-initiating device activate.

Fast Stable Communication – Built-in intelligence means less information needs to be sent between the device and the Signature Data Controller (SDC). Other than regular supervisory polling response, Signature devices only need to communicate with the SDC when they have something new to report. This provides very fast control panel response and allows a lower baud rate (speed) to be used for communication on the circuit. The lower baud rate offers several advantages including:

- Less sensitivity to circuit wire characteristics.
- Less sensitivity to noise glitches on the cable.
- Less emitted noise from the data wiring.
- Twisted or shielded wiring is not required.

Diagnostic LEDs – Twin LEDs on most Signature devices provide visual indication of normal and alarm-active conditions. A flashing green LED shows normal system polling. A flashing red LED means the module is in alarm-active state. Both LEDs on steady indicates alarm-active state – standalone mode.

Contact us...

Email: edwards.fire@fs.utc.com
Web: *www.est-fire.com*

EST is an **EDWARDS** brand.

1016 Corporate Park Drive
Mebane, NC 27302

In Canada, contact Chubb Edwards...
Email: inquiries@chubbedwards.com
Web: *www.chubbedwards.com*

Specifications

Mounting (SIGA-RM1)	North American 2½ inch (64 mm) deep 2-gang box; 1½ inch (38 mm) deep 4 inch square box with 2-gang cover and SIGA-MP mounting plates
Mounting (SIGA-MRM1)	Plugs into UIO2R, UIO6R or UIO6 Motherboards
Current	
Standby	200 µA
Activated	200 µA
Maximum Input Voltages	
Riser monitor	12 Vdc + 15% 24 Vdc + 15% 25 Vac + 15% 70 Vac + 15%
Telephone	28 Vdc
Input Currents	
12 Vdc	10 mA dc
24 Vdc	10 mA dc
25 Vac	10 mA rms
70 Vac	10 mA rms
Telephone 24 Vdc	20 mA dc
Riser loading	
70 Vac	Z > 11k Ohm
25 Vac	Z > 1k Ohm
24 Vdc	R > 2.4k Ohm (2 amps)
12 Vdc	R > 1.2k Ohm
Telephone	R > 1.2k Ohm, Z > 1.2k Ohm
Trouble Threshold	Approximately 25% of riser input
Wiring Terminations	Suitable for #12 to #18 AWG (2.5 mm^2 to 0.75mm^2)
Personality Codes	Two Selectable Codes Available
Address Requirements	Uses One Module Address
Operating Voltage	15.2 to 19.95 Vdc
Construction	High Impact Engineering Polymer
Storage and Operating Environment	Operating Temperature: 32° F to 120° F (0° C to 49° C) Storage Temperature: -4° F to 140° F (-20° C to 60° C) Humidity: 0 to 93% RH
LED Operation	On-board Green LED - Flashes when polled; On-board Red LED - Flashes when in alarm/active
Compatibility	Use With: Signature Loop Controller
Agency Listings	UL, ULC, MEA, CSFM

Ordering Information

Catalog Number	Description	Ship Wt. lbs (kg)
SIGA-RM1	Riser Monitor Module (Standard Mount) - UL/ULC Listed	0.5 (0.23)
SIGA-MRM1	Riser Monitor Module (Plug-in) - UL/ULC Listed	0.18 (0.08)

Related Equipment		
27193-21	Surface Mount Box - Red, 2-gang	2.0 (1.2)
27193-26	Surface Mount Box - White, 2-gang	2.0 (1.2)
SIGA-UIO2R	Universal Input-Output Module Board w/Riser Inputs - Two Module Positions	0.32 (0.15)
SIGA-UIO6R	Universal Input-Output Module Board w/Riser Inputs - Six Module Positions	0.62 (0.28)
SIGA-UIO6	Universal Input-Output Module Board - Six Module Positions	0.56 (0.25)
MFC-A	UL listed cabinet for mounting releasing modules, red with white “FIRE”.	7.0 (3.1)
SIGA-MP1	Signature Module Mounting Plate, 1 footprint	1.5 (0.70)
SIGA-MP2	Signature Module Mounting Plate, 1/2 footprint	0.5 (0.23)
SIGA-MP2L	Signature Module Mounting Plate, 1/2 extended footprint	1.02 (0.46)

Functional Devices, Inc.
310 South Union Street
Russiaville, IN 46979
www.FunctionalDevices.com

Office 765.883.5538
Sales 800.888.5538
Fax 765.883.7505
Email sales@FunctionalDevices.com

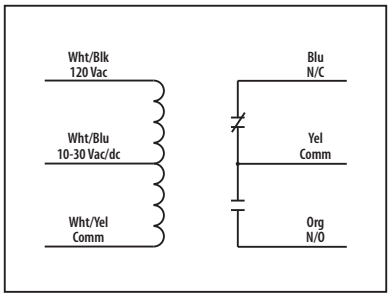
RIBU1C-RD
RIBH1C-RD
» Red housing

RIBU1C-N4
RIBH1C-N4
» NEMA 4X housing
» UL508 only

10 Amp Pilot Control Relays

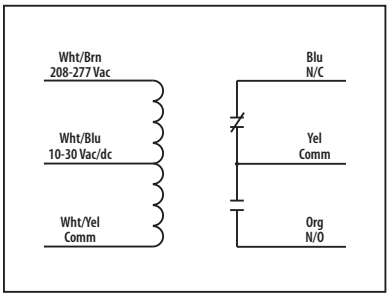
RIBU1C

Enclosed Relay 10 Amp SPDT with 10-30 Vac/dc/ 120 Vac Coil



RIBH1C

Enclosed Relay 10 Amp SPDT with 10-30 Vac/dc/ 208-277 Vac Coil



SPECIFICATIONS

 # Relays & Contact Type: One (1) SPDT Continuous Duty Coil
Expected Relay Life: 10 million cycles minimum mechanical
Operating Temperature: -30 to 140° F
Operate Time: 20mS
Relay Status: LED On = Activated
Dimensions: 1.70˝ x 2.80˝ x 1.50˝ with .50˝ NPT nipple
Wires: 16˝, 600V Rated
Approvals: UL Listed, UL916, UL864, C-UL
California State Fire Marshal, CE, RoHS
Housing Rating: Plenum, NEMA 1
Gold Flash: Yes
Override Switch: No

Contact Ratings:
10 Amp Resistive @ 277 Vac
10 Amp Resistive @ 28 Vdc
480 VA Pilot Duty @ 240-277 Vac
480 VA Ballast @ 277 Vac
600 Watt Tungsten @ 120 Vac N/O
240 Watt Tungsten @ 120 Vac N/C
1/3 HP for N/O @ 120-240 Vac
1/6 HP for N/C @ 120-240 Vac
1/4 HP for N/O @ 277 Vac
1/8 HP for N/C @ 277 Vac

Coil Current:
33 mA @ 10 Vac
35 mA @ 12 Vac
46 mA @ 24 Vac
55 mA @ 30 Vac
28 mA @ 120 Vac (RIBU1C)
39 mA @ 208-277 Vac (RIBH1C)
13 mA @ 10 Vdc
15 mA @ 12 Vdc
18 mA @ 24 Vdc
20 mA @ 30 Vdc

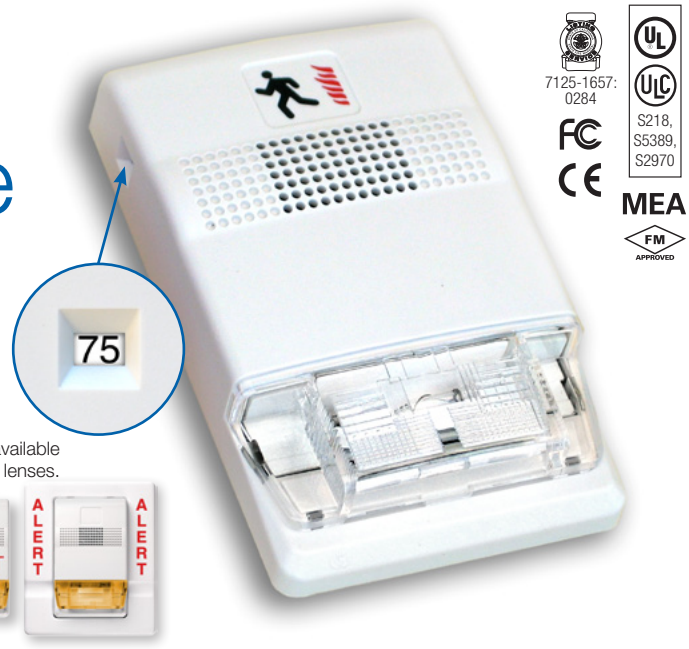
Coil Voltage Input:
10-30 Vac/dc ; 120 Vac ; 50-60 Hz (RIBU1C)
10-30 Vac/dc ; 208-277 Vac ; 50-60 Hz (RIBH1C)
Drop Out = 2.1 Vac / 2.8 Vdc
Pull In = 9 Vac / 10 Vdc

Notes

EST
Life Safety & Communications

Field Configurable Horns and Strobes

Genesis Series



ECS/MNS appliances available with clear or amber lenses.

7125-1657: 0284
S218, S5389, S2970
MEA

Overview

The Genesis line of fire alarm and mass notification/emergency communications (ECS/MNS) signals are among the smallest, most compact audible-visible life safety signaling devices in the world. About the size of a deck of playing cards, these devices are designed to blend with any decor.

Thanks to patented breakthrough technology, Edwards Genesis strobes do not require bulky specular reflectors and lenses. Instead, an exclusive cavity design conditions light to produce a highly controlled distribution pattern. Significant development efforts employing this new technology have given rise to a new benchmark in strobe performance – FullLight technology.

FullLight strobe technology produces a smooth light distribution pattern without the spikes and voids characteristic of specular reflectors. This ensures the entire coverage area receives consistent illumination from the strobe flash. As a result, Genesis strobes with FullLight technology go well beyond the UL-1971 and ULC-S526 light distribution requirements.

Genesis strobes and horn-strobes offer selectable candela output by means of a conveniently-located switch on the side of the device. Models are also available that offer fixed 15/75 cd output. The candela output setting remains clearly visible even after final installation, yet it stays locked in place to prevent unauthorized tampering.

Genesis ECS/MNS appliances offer emergency signaling with clear or amber lenses and with optional ALERT housing labels. They are ideal for applications that require differentiation between fire alarm and mass notification alerts.

Standard Features

- **Unique low-profile design**
  - The most compact UL-1971/ULC-S526 listed strobe available
  - Ultra-slim – protrudes less than one inch
  - Attractive appearance
  - No visible mounting screws
- **Four field-configurable options in one device**
  - Select 15, 30, 75, or 110 cd strobe output
  - Select high (default) or low dB horn output
  - Select temporal (default) or steady horn output
  - Select public mode flash rate (default) or private mode temporal flash
- **Fixed 15/75 cd model available**
- **ECS/MNS models available**
- **Easy to install**
  - Fits standard 1-gang electrical boxes – no trim plate needed
  - Optional trim plate accommodates oversized openings
  - Pre-assembled with captive hardware
  - #12 AWG terminals – ideal for long runs or existing wiring
- **Unparalleled performance**
  - Industry's most even light distribution
  - Meets tough synchronizing standards for strobes
  - Single microprocessor controls both horn and strobe
  - Independent horn control over a single pair of wires
  - Highly regulated in-rush current
  - Multiple frequency tone improves sound penetration
  - Field-programmable temporal strobe output option

DATA SHEET 85001-0573
Not to be used for installation purposes. Issue 11.1

Application

Genesis strobes are UL 1971-listed for use indoors as wall-mounted public-mode notification appliances for the hearing impaired. Prevailing codes require strobes to be used where ambient noise conditions exceed 105 dBA (87dBA in Canada), where occupants use hearing protection, and in areas of public accommodation as defined in the *Americans with Disabilities Act (see application notes – USA)*.

Combination horn-strobe signals must be installed in accordance with guidelines established for strobe devices. Consult with your Authority Having Jurisdiction for details.

All Genesis strobes exceed UL synchronization requirements (within 10 milliseconds over a two-hour period) when used with a synchronization source. Synchronization is important in order to avoid epileptic sensitivity.

WARNING: These devices will not operate without electrical power. As fires frequently cause power interruptions, further safeguards such as backup power supplies may be required.

Horns

Genesis horn output reaches as high as 99 dB and features a unique multiple frequency tone that results in excellent sound penetration and an unmistakable warning of danger. Horns may be configured for either coded or non-coded signal circuits. They can also be set for low dB output with a jumper cut that reduces horn output by about 5 dB. Horn-only models may be ceiling-mounted or wall-mounted.

The suggested sound pressure level for each signaling zone used with alarm signals is at least 15 dB above the average ambient sound level, or 5 dB above the maximum sound level having a duration of at least 60 seconds, whichever is greater, measured 5 feet (1.5 m) above the floor. The average ambient sound level is, A-weighted sound pressure measured over a 24-hour period.

Doubling the distance from the signal to the ear will theoretically result in a 6 dB reduction of the received sound pressure level. The actual effect depends on the acoustic properties of materials in the space. A 3 dBA difference represents a barely noticeable change in volume.

ECS/MNS Applications

Genesis ECS/MNS strobe appliances bring the same high-performance fire alarm features and unobtrusive design to mass notification applications. Available with amber lenses and optional ALERT housing labels, they are ideal for applications that require differentiation between fire alarm and mass notification alerts.

Installation

Genesis horns and strobes mount to any standard one-gang surface or flush electrical box. Matching optional trim plates are used to cover oversized openings and can accommodate one-gang, two-gang, four-inch square, or octagonal boxes, and European 100 mm square.

Genesis Horn/Strobe with optional trim plate

All Genesis signals come pre-assembled with captive mounting screws for easy installation. Two tabs at the top of the signal unlock the cover to reveal the mounting hardware. The shallow depth of Genesis devices leaves ample room behind the signal for extra wiring. Once installed with the cover in place, no mounting screws are visible.

Field Configuration

Temporal horn and horn-strobe models are factory set to sound in a **three-pulse temporal pattern**. Units may be configured for use with coded systems by cutting a jumper on the circuit board. This results in a **steady output** that can be turned on and off (coded) as the system applies and removes power to the signal circuit. A Genesis Signal Master is required when horn-strobe models are configured for coded systems. Non-temporal, horn-only models sound a steady tone.

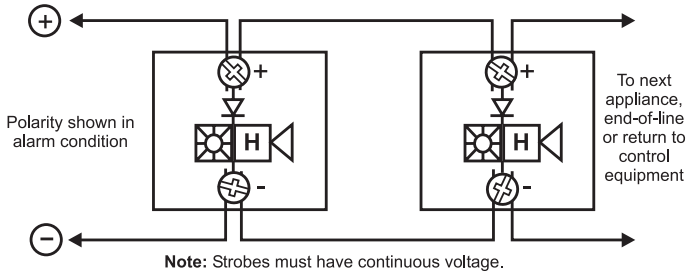
Genesis clear strobes and horn-strobes are shipped from the factory ready for use as **UL 1971 compliant** signals for public mode operation. These signals may be configured for **temporal flash** by cutting a jumper on the circuit board. This battery-saving feature is intended for private mode signaling only.

Genesis clear strobes and horn-strobes may be set for **15, 30, 75, or 110 candela output**. The output setting is changed by simply opening the device and sliding the switch to the desired setting. The device does not have to be removed to change the output setting. The setting remains visible through a small window on the side of the device after the cover is closed.

Horns and horn-strobes are factory set for **high dB output**. **Low dB output** may be selected by cutting a jumper on the circuit board. This reduces the output by about 5 dB.

Wiring

Field wiring terminals accommodate #18 to #12 AWG (0.75 mm² to 2.5 mm²) wiring. Horns, strobes, and combination horn-strobes are interconnected with a single pair of wires as shown below.



Note: Strobes must have continuous voltage.

Current Draw

Strobes, Horn-Strobes

Multi-cd Wall Strobes (G1-VM)

UL Rating	15 cd* RMS	30 cd* RMS	15/75 cd** RMS	75 cd* RMS	110 cd* RMS
16 Vdc	103	141	152	255	311
16 Vfwr	125	179	224	346	392

*G1-VM multi-cd; **G1F-V1575 fixed 15/75 cd

Typical Current	15 cd RMS	30 cd RMS	15/75 RMS	75 cd RMS	110 cd RMS
16 Vdc	85	127	150	245	285
20 Vdc	71	98	123	188	240
24 Vdc	59	82	104	152	191
33 Vdc	46	64	84	112	137
16 Vfwr	119	169	223	332	376
20 Vfwr	103	143	189	253	331
24 Vfwr	94	129	169	218	262
33 Vfwr	87	112	148	179	205

Wall Temporal Horn-strobes – High dB Setting

UL Rating	15 cd* RMS	30 cd* RMS	15/75 cd** RMS	75 cd* RMS	110 cd* RMS
16 Vdc	129	167	172	281	337
16 Vfwr	176	230	269	397	443

*G1-HDVM multi-cd
**G1F-HDV1575 fixed 15/75 cd

Typical Current	15 cd RMS	30 cd RMS	15/75 RMS	75 cd RMS	110 cd RMS
16 Vdc	102	135	160	246	309
20 Vdc	88	109	137	193	248
24 Vdc	81	94	122	161	203
33 Vdc	74	72	106	124	154
16 Vfwr	144	182	247	352	393
20 Vfwr	141	162	220	274	362
24 Vfwr	136	152	203	235	282
33 Vfwr	125	144	196	201	232

Wall Temporal Horn-strobes – Low dB Setting

UL Rating	15 cd* RMS	30 cd* RMS	15/75 cd** RMS	75 cd* RMS	110 cd* RMS
16 Vdc	122	160	146	274	330
16 Vfwr	162	216	231	383	429

*G1-HDVM multi-cd
**G1F-HDV1575 fixed 15/75 cd

Typical Current	15 cd RMS	30 cd RMS	15/75 RMS	75 cd RMS	110 cd RMS
16 Vdc	96	130	158	243	302
20 Vdc	79	104	133	189	241
24 Vdc	68	88	119	156	197
33 Vdc	56	71	100	118	146
16 Vfwr	128	180	241	344	389
20 Vfwr	118	157	213	266	343
24 Vfwr	113	144	195	230	279
33 Vfwr	112	137	182	197	226

Horns

Wall or Ceiling Mounted Temporal Horns (G1-HD)

UL Rating	High dB (RMS)	Low dB (RMS)
16 Vdc	26	19
24 Vdc	36	27
33 Vdc	41	33
16 Vfwr	51	37
24 Vfwr	69	52
33 Vfwr	76	70

Typical Current	High dB RMS	Low dB RMS
16 Vdc	22	17
20 Vdc	24	19
24 Vdc	27	22
33 Vdc	32	26
16 Vfwr	34	30
20 Vfwr	40	34
24 Vfwr	45	38
33 Vfwr	52	47

Wall or Ceiling Mounted Horns (G1-P)

UL Designation	Voltage Range	Max. Current, RMS
Regulated 24 Vdc	16 - 33 Vdc	13 mA
24 fwr	16 - 33 Vfwr	11 mA

Typical Current	RMS
24 Vdc	10
24 Vdc	11
31 Vdc	12
20 Vfwr	9
24 Vfwr	10

Current values are shown in mA.

dBA output

Temporal Horns, Horn-strobes (G1-HD, G1-HDVM series)

High dB Setting	UL464		Average	Peak
	Temporal	Steady	Temporal/ Steady	Temporal/ Steady
16 Vdc	81.4	85.5	91.4	94.2
24 Vdc	84.4	88.6	94.5	97.6
33 Vdc	86.3	90.4	96.9	99.5

Low dB Setting	UL464		Average	Peak
	Temporal	Steady	Temporal/ Steady	Temporal/ Steady
16 Vdc	76.0	80.1	86.3	89.2
24 Vdc	79.4	83.5	89.8	92.5
33 Vdc	82.1	86.5	92.5	95.3

Steady Tone Horns (G1-P series)

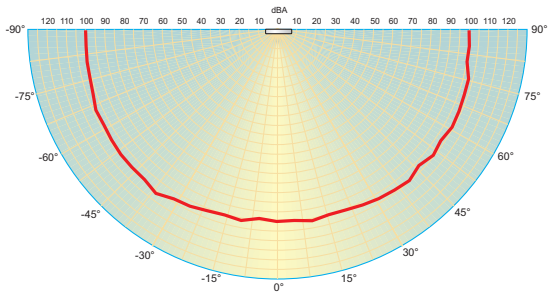
	UL464	Average	Peak
16 Vdc	77 dBA, min	85 dBA	91 dBA
16 Vfwr	77 dBA, min	85 dBA	91 dBA

Notes

1. All values shown are dBA measured at 10 feet (3.01m).
2. UL464 values measured in reverberant room.
3. Average and Peak values are measured in anechoic chamber.

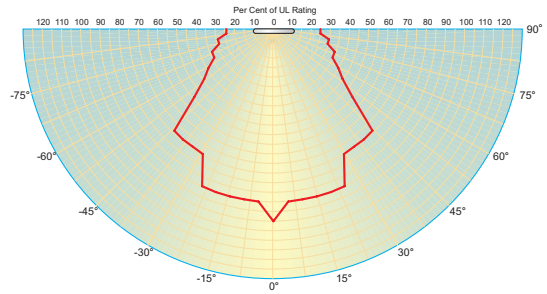
Average Sound Output (dBA)

(High dB setting, anechoic, 24V, measured at 10ft)



Light output - (effective cd)

Percent of UL rating versus angle



Specifications

Housing	Red or white textured UV stabilized, color impregnated engineered plastic. Exceeds 94V-0 UL flammability rating.
Lens	Optical grade polycarbonate (clear)
Mounting (indoor only)	Strobes and horn-strobes are for wall-mount installation only. Horn-only models may be ceiling- or wall-mounted. Flush mount: 2½ inch (64 mm) deep one-gang box Surface mount: Model 27193 surface mount box, wiremold box, or equivalent surface-mount box With optional trim plate: One-gang, two-gang, four-inch square, octagonal, or European single-gang box
Wire connections	Screw terminals: single input for both horn and strobe. #18 to #12 AWG (0.75 mm^2 to 2.5 mm^2) wire size
Operating environment	Indoor only: 32-120°F (0-49°C) ambient temperature. 93% relative humidity
Agency listings/approvals	UL 1971 (S218), UL 1638 (S218), UL 464 (S218), ULC S525, ULC S526, CSFM, CE, FCC, MEA. (All models comply with ADA Code of Federal Regulation Chapter 28 Part 36 Final Rule.)
Dimensions (HxWxD)	Signal: 4-1/2" x 2-3/4" x 13/16" (113 mm x 68 mm x 21 mm) Trimplate: 5" (127 mm); Height – 5-7/8" (149 mm); Depth – ½" (13 mm)
Operating voltage	G1-HD series temporal-tone horns: non-coded, filtered 16-33 Vdc or unfiltered 16-33 Vdc FWR (or coded when horn set to steady tone) G1-HDVM series temporal-tone horn-strobes: non-coded, filtered 16-33 Vdc or unfiltered 16-33 Vdc FWR (or coded (audible NAC only) when used with optional G1M Genesis Signal Master) G1-VM series strobes: non-coded, filtered 16 - 33 Vdc or unfiltered 16-33 Vdc FWR G1-P series steady-tone horns: coded or non-coded, filtered 20-31 Vdc or unfiltered 20-27 Vfwr
Strobe output rating	UL 1971, UL 1638, ULC S526: selectable 15 cd, 30 cd, 75 cd, or 110 cd output UL 1971: 15 cd (fixed 15/75 cd models) UL 1638, ULCS526: 75 cd (fixed 15/75 cd models)
Strobe flash rate	G1-VM strobes and G1-HDVM series temporal-tone horn-strobes: one flash per second synchronized with optional G1M Genesis Signal Master indefinitely within 10 milliseconds. Temporal setting (private mode only): synchronized to temporal output of horns on same circuit
Synchronization Sources	SIGA-CC1S, SIGA-MCC1S, SIGA-CC2A, SIGA-MCC2A, G1M-RM BPS6A, BPS10A, APS6A, APS10A, iO64, iO500, Fireshield Plus 3, 5 and 10 zone. Add G1M for G1-CVM &G1-HDVM devices only.
Horn pulse rate	G1-HD temporal-tone horns and G1-HDVM series temporal-tone horn-strobes: temporal rate synchronized with optional G1M Genesis Signal Master indefinitely within 10 milliseconds. G1-P steady-tone horns: continuous, steady tone only
Temporal audible pattern	½ sec ON, ½ sec OFF, ½ sec ON, ½ sec OFF, ½ sec ON, 1½ sec OFF, then repeat cycle

Candela Output

Lens Color	Rating	Switch Position A	Switch Position B	Switch Position C	Switch Position D
Amber	UL 1638	110 cd	75 cd	30 cd	15 cd
Amber	UL 1971*	88 cd	60 cd	24 cd	12 cd
Clear	UL 1971	110 cd	75 cd	30 cd	15 cd

** Equivalent Rating*

Fire appliances available with white or red housings.

ECS/MNS appliances available with clear or amber lenses.

Ordering Information

Model	Housing	Marking	Lens	Strobe	Horn	Ship Wt. lbs (kg)
Fire Alarm Appliances (c/w running man icon screen printed on housing)						
G1-VM	White	None	Clear	Selectable 15, 30, 75, or 110 cd	Strobe only	0.25 (0.11)
G1F-HD	White	FIRE	Clear	Horn only	Selectable high/low dB	0.25 (0.11)
G1F-HDV1575	White	FIRE	Clear	15/75 cd[1]	Temporal hi/lo dB-24V	0.25 (0.11)
G1F-HDVM	White	FIRE	Clear	Selectable 15, 30, 75, or 110 cd	Selectable high/low dB	0.25 (0.11)
G1F-P	White	FIRE	Clear	Steady Horn (not compatible with Genesis Signal Master)		0.25 (0.11)
G1F-V1575	White	FIRE	Clear	15/75 cd[1]	Strobe only	0.25 (0.11)
G1F-VM	White	FIRE	Clear	Selectable 15, 30, 75, or 110 cd	Strobe only	0.25 (0.11)
G1-HD	White	None	Clear	Horn only	Selectable high/low dB	0.25 (0.11)
G1-HDVM	White	None	Clear	Selectable 15, 30, 75, or 110 cd	Selectable high/low dB	0.25 (0.11)
G1-P	White	None	Clear	Steady Horn (not compatible with Genesis Signal Master)		0.25 (0.11)
G1RF-HD	Red	FIRE	Clear	Horn only	Selectable high/low dB	0.25 (0.11)
G1RF-HDV1575	Red	FIRE	Clear	15/75 cd[1]	Temporal hi/lo dB-24V	0.25 (0.11)
G1RF-HDVM	Red	FIRE	Clear	Selectable 15, 30, 75, or 110 cd	Selectable high/low dB	0.25 (0.11)
G1RF-P	Red	FIRE	Clear	Steady Horn (not compatible with Genesis Signal Master)		0.25 (0.11)
G1RF-V1575	Red	FIRE	Clear	15/75 cd[1]	Strobe only	0.25 (0.11)
G1RF-VM	Red	FIRE	Clear	Selectable 15, 30, 75, or 110 cd	Strobe only	0.25 (0.11)
G1R-HD	Red	None	Clear	Horn only	Selectable high/low dB	0.25 (0.11)
G1R-HDVM	Red	None	Clear	Selectable 15, 30, 75, or 110 cd	Selectable high/low dB	0.25 (0.11)
G1R-P	Red	None	Clear	Steady Horn (not compatible with Genesis Signal Master)		0.25 (0.11)
G1R-VM	Red	None	Clear	Selectable 15, 30, 75, or 110 cd	Strobe only	0.25 (0.11)
ECS/MNS Appliances (no running man icon on housing)						
G1WA-VMA	White	ALERT	Amber	Selectable A, B, C or D	Strobe only	0.25 (0.11)
G1WA-VMC	White	ALERT	Clear	Selectable 15, 30, 75, or 110 cd	Strobe only	0.25 (0.11)
G1WN-VMA	White	None	Amber	Selectable A, B, C or D	Strobe only	0.25 (0.11)
G1WN-VMC	White	None	Clear	Selectable 15, 30, 75, or 110 cd	Strobe only	0.25 (0.11)
Trim Plates						
G1T	White	None	Genesis Trim Plate (for two-gang or 4" square boxes)			0.15 (0.7)
G1RT	Red	None	Genesis Trim Plate (for two-gang or 4" square boxes)			0.15 (0.7)
G1T-FIRE	White	FIRE	Genesis Trim Plate (for two-gang or 4" square boxes)			0.15 (0.7)
G1RT-FIRE	Red	FIRE	Genesis Trim Plate (for two-gang or 4" square boxes)			0.15 (0.7)
G1WT-ALERT	White	ALERT	Genesis Trim Plate (for two-gang or 4" square boxes)			0.15 (0.7)
Surface Boxes						
27193-16	White	N/A	One-gang surface mount box			1 (0.4)
27193-11	Red	N/A	One-gang surface mount box			1 (0.4)

[1] These 15/75 cd models provide fixed output and are not multi-candela devices. The 15 cd output component complies with UL1971, while the 75 cd output component complies with UL 1638.

Contact us...

Email: edwards.fire@fs.utc.com
Web: *www.est-fire.com*

EST is an **EDWARDS** brand.

1016 Corporate Park Drive
Mebane, NC 27302

In Canada, contact Chubb Edwards...
Email: inquiries@chubbedwards.com
Web: *www.chubbedwards.com*

EST™
Life Safety & Communications

Field Configurable Ceiling Strobes

Genesis Series

One or more patents pending.

Overview

Genesis life safety and mass notification/emergency communications (MNEC) ceiling strobes are small, compact, and attractive visible emergency signaling devices. Protruding no more than 1.6" (41 mm) from the ceiling, Genesis strobes blend with any decor.

Thanks to patented breakthrough technology, Edwards Genesis strobes do not require bulky specular reflectors and lenses. Instead, an exclusive cavity design conditions light to produce a highly controlled distribution pattern. Significant development efforts employing this new technology have given rise to a new benchmark in strobe performance – FullLight technology.

FullLight strobe technology produces a smooth light distribution pattern without the spikes and voids characteristic of specular reflectors. This ensures the entire coverage area receives consistent illumination from the strobe flash. As a result, Genesis strobes with FullLight technology go well beyond the minimum UL-required "cross" pattern, significantly exceeding UL-1971 and ULC-S526 light distribution requirements.

Depending on the model, Genesis ceiling strobes feature 15 to 95, or 95 to 177 candela output (see ordering information), which is selectable with a conveniently-located switch. The candela output setting remains clearly visible even after final installation, yet it is locked in place to prevent unauthorized movement after installation.

Genesis MNEC appliances offer emergency signaling with clear or amber lenses and with optional ALERT housing labels. They are ideal for applications that require differentiation between life safety and mass notification alerts.

Standard Features

- **Field configurable – no need to remove the device!**
  - 15/30/75/95 cd and 95/115/150/177 cd clear strobe lens models available
  - Switch settings remain visible even after the unit is installed
- **MNEC models available**
  - 13/26/65/82 and 82/100/130/155 (1971 equivalent) amber lens models available
- **Unique low-profile design**
  - 30 per cent slimmer profile than comparable signals
  - Attractive appearance
  - No visible mounting screws
  - Available with white or red housings
- **Easy to install**
  - Fits all standard 4" square electrical boxes with plenty of room behind the signal for extra wire – no extension ring or trim plate needed
  - #18 to #12 AWG terminals – ideal for long runs or existing wiring
- **Unparalleled performance**
  - Exclusive FullLight strobe technology produces the industry's most even light distribution
  - Precision timing electronics meet tough synchronizing standards for strobes
  - Low current draw minimizes system overhead
- **Approved for public and private mode applications**
  - UL 1971-listed as signaling devices for the hearing impaired
  - UL 1638-listed as protective visual signaling appliances
  - UL/ULC listed for ceiling or wall use

Application

Genesis strobes are UL 1971 or 1638 listed for indoor use. Prevailing codes require strobes to be used where ambient noise conditions exceed specified levels, where occupants use hearing protection, and in areas of public accommodation. Consult with your Authority Having Jurisdiction for details.

All Genesis strobes exceed UL synchronization requirements (within 10 milliseconds over a two-hour period) when used with a synchronization source. Synchronization for multiple strobe lights in a single field of view is required.

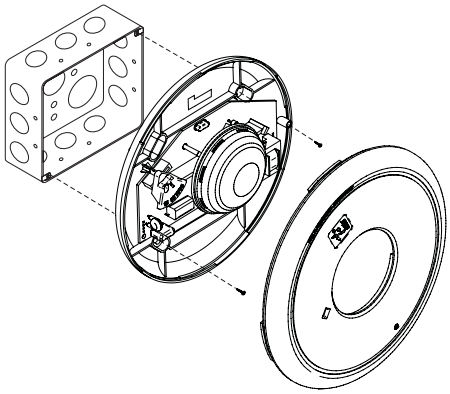
MNEC Applications

Genesis MNEC appliances bring the same high-performance life safety features and unobtrusive design to mass notification applications. Available as standard units with clear or amber lenses with optional ALERT markings, thy are ideal for applications that require differentiation between life safety and MNEC signals. Units are also available (special order) with red, blue or green lenses.

Installation

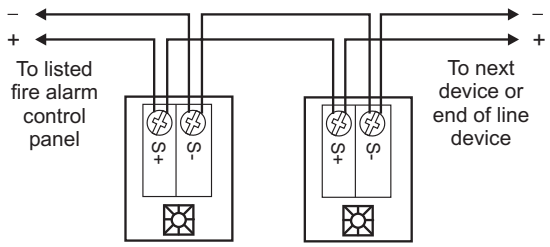
All models are intended for indoor applications only. Strobes mount to any flush North-American 4" square electrical box, $2^1/_8$" (54 mm) deep.

Genesis ceiling strobes simply unlatch and twist to open. This gains access to mounting screws and the selectable candela switch. The shallow depth of Genesis devices leaves ample room behind the signal for extra wiring. Once installed with the cover in place, no mounting screws are visible.

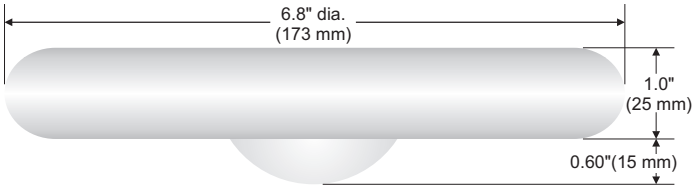


Wiring

Field wiring terminals accommodate #18 to #12 AWG (0.75 mm² to 2.5 mm²) wiring. Strobes are interconnected with a single pair of wires as shown below.

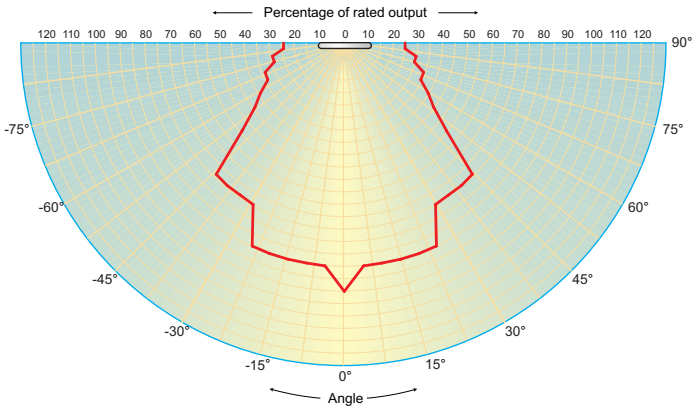


Dimensions



Light output (effective cd)

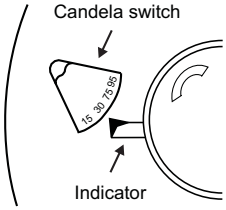
Percent of UL rating versus angle



Horizontal and vertical outputs reflect the same pattern.

Field Configuration

Depending on the model, Genesis ceiling speaker-strobes have multi-candela output (see ordering information). The output setting is changed by simply opening the device and sliding the switch to the desired setting. The strobe does not have to be removed to change the output setting. The setting remains visible through a small window on the front of the device after the cover is closed.



WARNING: These devices will not operate without electrical power. As fires frequently cause power interruptions, we suggest you discuss further safeguards with your local fire protection specialist.

These visible signal appliances' flash intensity may not be adequate to alert or awaken occupants in the protected area. Research indicates that the intensity of strobe needed to awaken 90% of sleeping persons is approximately 100 cd. Edwards recommends that strobes in sleeping rooms be 110 cd minimum.

Current Draw

UL Rating	15 cd RMS	30 cd RMS	75 cd RMS	95 cd RMS	95 cd RMS	115 cd RMS	150 cd RMS	177 cd RMS
16 Vdc	109	151	281	318	330	392	502	565
16 Vfwr	131	194	379	437	432	518	643	693

Typical Current	15 cd RMS	30 cd RMS	75 cd RMS	95 cd RMS	95 cd RMS	115 cd RMS	150 cd RMS	177 cd RMS
16 Vdc	94	140	273	325	333	392	499	551
20 Vdc	74	108	205	244	259	303	378	429
24 Vdc	63	90	168	194	212	245	306	342
33 Vdc	48	70	124	139	155	180	211	236
16 Vfwr	126	187	368	403	484	570	673	724
20 Vfwr	108	156	281	333	380	438	537	604
24 Vfwr	97	139	240	270	318	361	434	484
33 Vfwr	89	119	197	214	245	269	308	338

Notes and Comments

1. Current values are shown in mA.
2. UL nameplate rating is higher than typical current due to measurement methods and instruments used.
3. Edwards recommends using the typical current for system design including NAC and Power Supply loading.
4. Use the Vdc RMS current ratings for filtered power supply and battery AH calculations. Use the Vfwr RMS current ratings for unfiltered power supply calculations.
5. Fuses, circuit breakers and overcurrent protection devices are typically rated for current in RMS values. Most of these devices operate based upon the heating affect of the current flowing through the device. The RMS current (not the mean current) determines the heating affect and therefore, the trip and hold threshold for those devices.

Specifications

Housing	Textured UV stabilized, color impregnated engineered plastic. Exceeds 94V-0 UL flammability rating. Red and white models available.
Lens	Optical grade polycarbonate (clear).
Mounting	Flush mount to North American 4-inch square electrical box, 2-1/8 (54 mm) inches deep. No extension ring required. Suitable for indoor wall or ceiling applications.
Wire Connections	Screw terminals: #18 to #12 AWG (0.75 mm^2 to 2.5 mm^2) wire size.
Operating Voltage	Regulated 16 to 33 Vdc, 16 to 33 Vfwr.
Operating environment	Indoor: 32-120° F (0-49° C) ambient temperature; 0-93% relative humidity.
Agency listings/approvals	Meets or exceeds year 2004 UL requirements for standards UL1638 and UL1971 and Canadian requirements for standards CAN/ULC S526-02 and CAN/ULC S524-01. All models comply with ADA Code of Federal Regulation Chapter 28 Part 36 Final Rule. CSFM, MEA. FM pending.
Strobe output rating	UL 1971, UL 1638, ULC S526: selectable 15/30/75/95 cd (GC-VM) and 95/115/150/177 cd (GC-VMH)
Strobe operating voltage	GC-VM series strobes: non-coded, filtered 16-33 Vdc or unfiltered 16-33 Vdc FWR.
Strobe flash rate	GC-VM series strobes: one flash per second synchronized with optional G1M Genesis Signal Master indefinitely within 10 milliseconds (or self-synchronized within 200 milliseconds over thirty minutes on a common circuit without G1M Genesis Signal Master). Temporal setting (private mode only): synchronized to temporal output of Genesis audible signals on same circuit.
Synchronization	Meets or exceeds UL 1971 requirements. Maximum allowed resistance between any two devices is 20 Ohms. Refer to specifications for the synchronization control module, this strobe, and the control panel to determine allowed wire resistance.
Synchronization Sources	SIGA-CC1S, SIGA-MCC1S, SIGA-CC2A, SIGA-MCC2A, G1M-RM BPS6A, BPS10A, APS6A, APS10A, iO64, iO500, Fireshield Plus 3, 5 and 10 zone. Add G1M for G1-CVM &G1-HDVM devices only.

EDWARDS
A UTC Fire & Security Company

Detection & alarm since 1872

U.S.
T 888-378-2329
F 866-503-3996

Canada
Chubb-Edwards
T 519 376 2430
F 519 376 7258

Southeast Asia
T : +65 6391 9300
F : +65 6391 9306

India
T : +91 80 4344 2000
F : +91 80 4344 2050

Australia
T +61 3 9239 1200
F +61 3 9239 1299

Europe
T +32 2 725 11 20
F +32 2 721 86 13

Latin America
T 305 593 4301
F 305 593 4300

utcfireandsecurity.com

Ordering Information

Model	Housing	Marking	Lens	Strobe	Ship Wt.
Life safety Appliances (c/w running man icon screen printed on housing)					
GC-VM	White	None	Clear	Selectable 15, 30, 75, or 95 cd	1.8 lb. (0.82 kg.)
GCF-VM	White	“FIRE”			
GCFR-VM	Red	“FIRE”			
GC-VMH	White	None		Selectable 95, 115, 150, or 177 cd	
GCF-VMH	White	“FIRE”			
MNEC Appliances (no running man icon on housing)					
GCWA-VMA	White	Alert	Amber	Selectable A, B, C, D	1.8 lb. (0.82 kg.)
GCWA-VMC			Clear		
GCWA-VMHA			Amber	Selectable A, B, C or D	
GCWA-VMHC			Clear		
GCWN-VMA		None	Amber	Selectable A, B, C or D	
GCWN-VMC			Clear		
GCWN-VMHA			Amber	Selectable A, B, C or D	
GCWN-VMHC			Clear		

Units with red, blue or green lenses are available as a special order. Contact customer service for details.

EST
Life Safety & Communications

Wall Speakers, Speaker-Strobes

Genesis G4 Series

MEA FM APPROVED 7320-1657: 0211/0285 S2813

See Specifications Section for listings details.

Overview

The Genesis line of life safety and emergency communications speakers and speaker-strobes combine high performance output with a low profile design to deliver a life safety audio solution that's as versatile as it is effective. Protruding no more than one inch from the wall, these appliances blend inconspicuously with any decor.

Optional amber lens tints, ALERT or FIRE markings, and red or white housing colors ensure there is a device for every application, including mass notification and emergency communications.

Speakers feature selectable wattage taps, while speaker-strobes allow for both wattage and light output levels to be configured in the field. Both settings remain clearly visible — even after final installation, which allows devices to be easily fine-tuned to achieve maximum benefit in exchange for the lowest possible system overhead.

High fidelity models meet the NPFA 520 Hz requirements for newly construced commercial sleeping areas. They also produce crisp, clear voice audio output that is highly intelligible over large areas.

All Genesis speakers include a DC blocking capacitor to allow electrical supervision of the audio distribution circuit. Models for 25 V_{RMS} and 70 V_{RMS} audio circuits are available. With their sealed back construction, these speakers are extra durable and provide outstanding audibility.

Standard Features

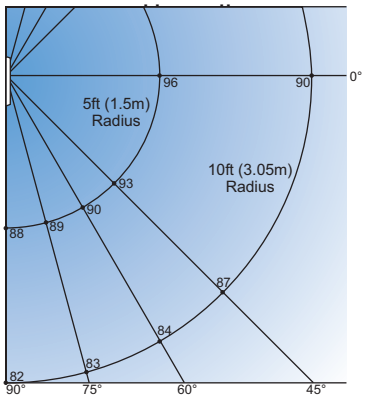
- **High Fidelity 520 Hz speaker models available**
  Low frequency output meets NFPA standards for newly constructed commercial sleeping areas; increases sound fidelity and audio intelligibility.
- **Unique low-profile design**
  - The most compact UL/ULC listed speaker-strobe available
  - Ultra-slim, protrudes a mere one inch from the wall
  - Attractive appearance, no visible mounting screws
- **Field configurable – no need to remove the device**
  - ¼, ½, 1, or 2 watt operation and selectable candela output with convenient switches that remain visible even after the unit is installed
- **Mass Notification models available with amber lenses**
- **Unparalleled performance**
  - loud 90 dBA output ensures clear, crisp audio
  - Exclusive FullLight strobe technology produces even light distribution
  - Precision timing electronics meet tough synchronizing standards for strobes when used with compatible modules
  - Optional field-configurable temporal strobe output
  - 25 Vrms and 70 Vrms models available, all supplied with a DC blocking capacitor for audio circuit supervision
- **Easy to install**
  - Fits all standard 4-inch square electrical boxes with plenty of room behind the signal for extra wire – no extension ring or trim plate needed
  - #18 - #12 AWG terminals – ideal for long runs or using existing wiring

Speaker Application

The suggested sound pressure level for each signaling zone used with alert or alarm signals is a minimum of 15 dB above the average ambient sound level or 5 dB above the maximum sound level having a duration of at least 60 seconds, whichever is greater. This is measured 5 feet (1.5 m) above the floor.

Doubling the distance from the signal to the ear will theoretically cause a 6 dB reduction in the received sound pressure level. The actual effect depends on the acoustic properties of materials in the space. Doubling the power output of a device (e.g.: a speaker from 1W to 2W) will increase the sound pressure level by 3dBA.

Typical Sound Output Distribution dBA Measured in anechoic chamber



Genesis Series Cone Speaker/strobe

G4 speakers are available in combination with a UL 1971-listed strobe light for indoor wall-mounted public-mode notification applications. These audible-visible appliances should be installed in accordance with guidelines established for visible (strobe) devices.

High Fidelity Models

Genesis G4HF Series High Fidelity appliances provide highly intelligible voice audio output. They are also effective in areas subject to high levels of ambient noise. These appliances are approved for use in sleeping areas under conditions described below.

Sleeping Room Applications

Genesis G4HF Series High Fidelity appliances are ideal for hotels, dormitories, and other residential occupancies where audible output must meet the 520 Hz signaling characteristics required by NFPA 72.

In sleeping areas, always ensure that the wattage tap of the speaker is set sufficiently high so that the sound pressure reaches at least 75 dBA-fast at the pillow.

These appliances are part of an end-to-end audio system approved for use in sleeping areas when used in conjunction with approved audio hardware and a factory-supplied 520 Hz tone. Check the System Compatibility List for other 520 Hz signaling requirements.

NOTE: Speakers driven by third-party audio systems are not UL approved for use in sleeping rooms.

Strobe Application

Genesis clear-lensed strobes are UL 1971-listed for use indoors as wall-mounted public-mode notification appliances for the hearing impaired. Prevailing codes require strobes to be used where ambient noise conditions exceed specified levels, where occupants use hearing protection, and in areas of public accommodation. UL 1638-listed colored-lensed strobe lights are available for mass notification applications. Consult with your Authority Having Jurisdiction for details.

When used with a compatible EDWARDS synchronization source, all Genesis xenon-based strobes — audible units, and combination appliances — remain fully synchronized indefinitely. This exceeds the UL synchronization requirements of 10 milliseconds over a two-hour period. Strobe light synchronization is important in order to avoid issues with people that have Photosensitive Epilepsy.

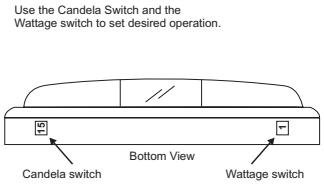
Mass Notification Applications

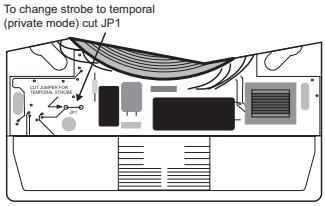
Genesis mass notification appliances bring the same high-performance life safety features and unobtrusive design to mass notification applications. Standard models are available with clear or amber lenses and optional ALERT housing labels, they are ideal for applications that require differentiation between life safety and mass notification alerts. Appliances with red, green or blue lenses are available. Contact EDWARDS Customer Service for details.

Field Configuration

Genesis speakers may be set for ¼, ½, 1, or 2 watt operation. The wattage setting is visible through a small window on the bottom of the device and is changed by simply sliding the switch until the desired setting appears in the window. The speaker does not have to be removed to change the wattage.

Genesis speaker-strobes feature selectable candela output. The output setting is visible through a small window on the bottom of the device and is changed by simply sliding the switch until the desired setting appears in the window. The speaker-strobe does not have to be removed to change the output.





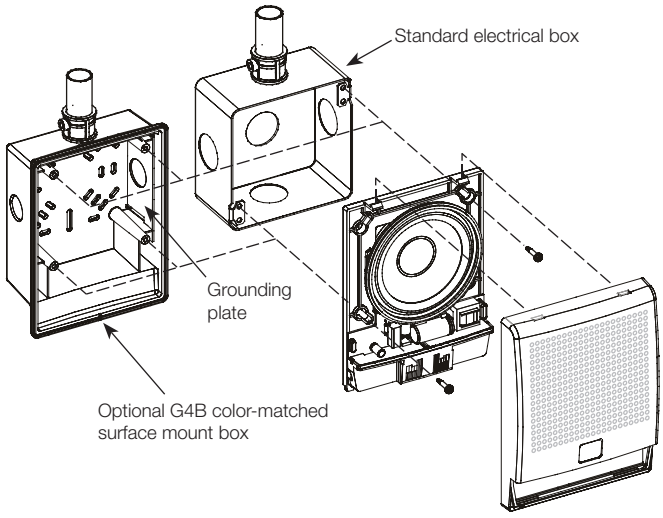
Genesis speaker-strobes may also be configured for temporal flash. This battery-saving feature is intended for private mode signaling only. To set the device for temporal flash, snip the circuit board as shown in the Jumper Locations diagram above.

WARNING: These devices will not operate without electrical power. As fires frequently cause power interruptions, we suggest you discuss further safeguards with your local fire protection specialist.

Installation and Mounting

All models are intended for indoor wall mounted applications only. Speakers and speaker-strobes are flush mounted to a North-American 4" square electrical box, $2^{1}/_{8}$" (54 mm) deep or a European 100 mm square box. Signals may be surface mounted to a Genesis surface-mount box (see ordering information for details).

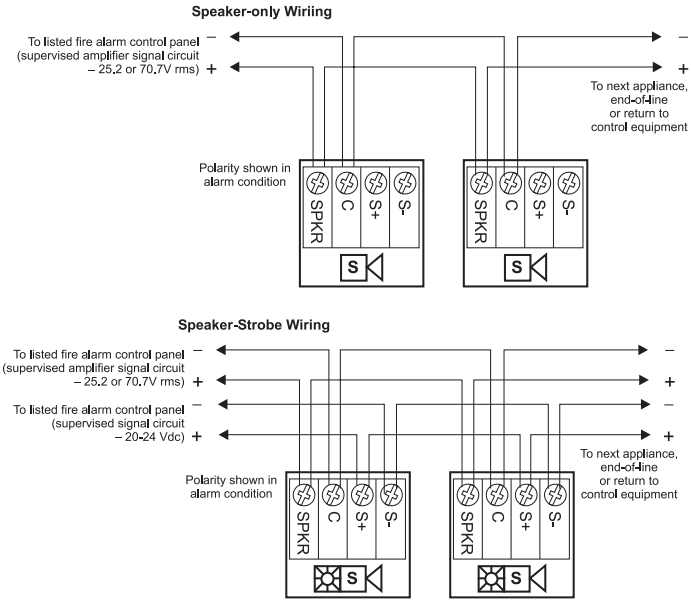
Two tabs at the top of the signal unlock the cover to facilitate mounting. The shallow depth of Genesis devices leaves room behind the signal for extra wiring. Once installed with the cover in place, no mounting screws are visible.



EDWARDS recommends that these speaker-strobes always be installed in accordance with the latest recognized edition of national and local codes. Refer to installation sheet for mounting height information.

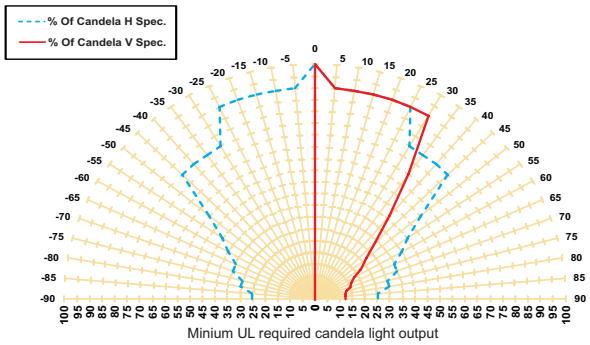
Wiring

Field wiring is connected to Genesis signals with terminals that accommodate #18 to #12 AWG (0.75 mm² to 2.5 mm²) wiring.



Light output

Per cent of UL rating versus angle



Minium UL required candela light output

UL name plate maximum operating current (RMS-mA)

Cd rating	"15" or "D"	"30" or "C"	"75" or "B"	"110" or "A"
16 Vdc	96	130	239	294
16 Vfwr	120	169	329	375

Typical current, milliamps - average (RMS)

Cd rating	"15" or "D"	"30" or "C"	"75" or "B"	"110" or "A"
20 Vdc	65 (78)	93 (101)	182 (188)	238 (245)
24 Vdc	55 (65)	78 (86)	153 (159)	196 (203)
31 Vdc	45 (53)	63 (69)	120 (124)	151 (157)
20 Vfwr	56 (106)	79 (147)	147 (264)	197 (342)
24 Vfwr	50 (95)	68 (130)	121 (225)	155 (283)
27 Vfwr	44 (84)	60 (115)	107 (200)	137 (251)

Light output switch settings for UL 1971 listed models are selectable by numeric candela value. Light output for Mass Notification (ECS/MNS) appliances is selectable by A, B, C, or D designations.

Lens Color	Switch Position A	Switch Position B	Switch Position C	Switch Position D
Clear	110 cd	75 cd	30 cd	15 cd
Amber	95 cd	65 cd	26 cd	13 cd

Sound level output

G4HF High Frequency Models, dBA at 3.05 m (10 ft.)

Voltage	Setting (nominal)	Wattage (actual)	UL 1480 Rating	ULC-S541 Rating	Anechoic (nominal)
25 VRMS	1/4 W	0.25 W	80.9	81.5	81
	1/2 W	0.50 W	84.1	84.3	84
	1 W	1.00 W	86.6	87.2	87
	2 W	2.00 W	89.7	90.1	90
70 VRMS	1/4 W	0.25 W	81.8	81.9	81
	1/2 W	0.50 W	84.6	84.9	84
	1 W	1.00 W	87.3	88.2	87
	2 W	2.00 W	90.5	90.9	90

UL 1480: Sound level output at 10 ft (3.05 m) measured in a reverberant room using 400 to 4,000 Hz band limited pink noise. ULC-S541: Sound level output at 10 ft (3.05 m) measured in anechoic chamber using 0 to 4,000 Hz band limited pink noise.

G4 Standard Frequency Models

Speaker Wattage Tap	Sound Output Level
1/4 Watt	80 dBA
1/2 Watt	83 dBA
1 Watt	86 dBA
2 Watt	89 dBA

UL 1480: Sound level output at 10 ft (3.05 m) measured in a reverberant room using 400 to 4,000 Hz band limited pink noise.

Specifications

Genesis Speakers and Speaker-Strobes	
Housing	Red or white textured UV stabilized, color impregnated engineered plastic.
Dimensions	Height: 6.5” (165 mm). Width: 5” (127 mm). Depth to wall: 1” (25 mm).
Mounting (indoor wall mount only)	Flush: North-American 4” square box, 2 1/8” (54 mm) deep. Surface: model G4B (white) or G4RB (red) surface mount box.
Wire Connections	Screw terminals: separate polarized inputs for speaker and strobe, #18 to #12 AWG (0.75 mm^2 to 2.5 mm^2) wire size
Operating environment	32-120° F (0-49° C) ambient temperature; 0-93% relative humidity.
Agency listings and approvals, G4 Models	Meets ULC-S541, year 2004 UL requirements for standards UL1638 and UL1971. Complies with UL1480 Fifth Edition. UL/ULC File Number: S2813. FM, MEA, CSFM approved. CSFM File Number: 7320-1657: 0211/0285. Speaker-strobes comply with ADA Code of Federal Regulation Chapter 28 Part 36 Final Rule.
Agency listings and approvals, Low Frequency G4HF Models	UL 464 Listed for low frequency signaling applications. Meets ULC-S541, year 2004 UL requirements for standards UL1638 and UL1971. Complies with UL1480 Fifth Edition. FM, MEA, CSFM pending. Speaker-strobes comply with ADA Code of Federal Regulation Chapter 28 Part 36 Final Rule.

Speakers	
Input/Operating Volts	25 VRMS or 70 VRMS. See ordering information.
Speaker Cone	Speaker frequency response: 400 to 4,000 Hz. Optimized for voice intelligibility. 4-inch (102mm) mylar cone, sealed back construction.

Strobes	
Clear Strobe Output Rating	UL 1971, ULC S526: selectable 15 cd, 30 cd, 75 cd, or 110 cd output UL 1971: 15 cd (fixed 15/75 cd models) UL 1638, ULCS526: 75 cd (fixed 15/75 cd models)
Amber Strobe Output Rating	UL 1638: 13 (D), 26 (C), 65 (B), 95 (A)
Strobe Operating Voltage	16 - 33 Vdc Regulated, 16-33 V Full wave rectified (UL Voltage Designations “Regulated 24” and “24 fwr”)
Strobe Flash Rate	One flash per second.
Strobe Flash Synchronization	All strobes: one flash per second (fps) within 200 milliseconds over 30 minutes on common circuit. All strobes: Synchronization source required to comply with UL 1971 synchronization standard. Temporal setting (private mode only): synchronized to temporal output on the same circuit.
Synchronization Sources	SIGA-CC1S, SIGA-MCC1S, SIGA-CC2A, SIGA-MCC2A, G1M-RM BPS6A, BPS10A, APS6A, APS10A, iO Series, Fireshield Plus 3, 5 and 10 zone.
Strobe Lens Material	Polycarbonate

Ordering Information

Model	High Fidelity (520 Hz)	Housing Color	Text Marking	Lens Color	Strobe Output	Speaker Voltage	Shipping Weight
Life safety Appliances							
G4-S2		White	None	None	Speaker only models	25 Volt (Selectable ¼, ½, 1, or 2 watt)	1.5 lbs. (0.68 kg)
G4HFWN-S2	✓						
G4R-S2		Red					
G4HFRN-S2	✓						
G4F-S2		White	FIRE				
G4HFWF-S2	✓						
G4RF-S2		Red					
G4HFRF-S2	✓						
G4-S2VM		White	None	Clear	Selectable 15, 30, 75, or 110 cd		
G4HFWN-S2VMC	✓						
G4R-S2VM		Red					
G4HFRN-S2VMC	✓						
G4F-S2VM		White	FIRE				
G4HFWF-S2VMC	✓						
G4RF-S2VM		Red					
G4HFRF-S2VMC	✓						
G4-S7		White	None	None	Speaker only models	70 V (Selectable ¼, ½, 1, or 2 watt)	
G4HFWN-S7	✓						
G4R-S7		Red					
G4HFRN-S7	✓						
G4F-S7		White	FIRE				
G4HFWF-S7	✓						
G4RF-S7		Red					
G4HFRF-S7	✓						
G4-S7VM		White	None	Clear	Selectable 15, 30, 75, or 110 cd		
G4HFWN-S7VMC	✓						
G4R-S7VM		Red					
G4HFRN-S7VMC	✓						
G4F-S7VM		White	FIRE				
G4HFWF-S7VMC	✓						
G4RF-S7VM		Red					
G4HFRF-S7VMC	✓						
G4F-S7V1575		White	FIRE	Clear	15/75 cd[1]		
G4RF-S7V1575		Red					
Mass Notification Appliances							
G4WA-S2VMA*		White	ALERT	Amber	Selectable 13, 26, 65, or 95 cd	25 Volt (Selectable ¼, ½, 1, or 2 watt)	1.5 lbs. (0.68 kg)
G4HFWA-S2VMA*	✓						
G4WA-S2VMC				Clear	Selectable 15, 30, 75, or 110 cd		
G4HFWA-S2VMC	✓						
G4WN-S2VMA*			None	Amber	Selectable 13, 26, 65, or 95 cd		
G4HFWN-S2VMA*	✓						
G4WN-S2VMC				Clear	15, 30, 75, or 110 cd		
G4WA-S2			ALERT	None	Speaker only models		
G4HFWA-S2	✓						
G4WN-S2			None				
G4WA-S7VMA*		White	ALERT	Amber	Selectable 13, 26, 65, or 95 cd	70 V (Selectable ¼, ½, 1, or 2 watt)	
G4HFWA-S7VMA*	✓						
G4WA-S7VMC				Clear	Selectable 15, 30, 75, or 110 cd		
G4HFWA-S7VMC	✓						
G4WN-S7VMA*			None	Amber	Selectable 13, 26, 65, or 95 cd		
G4HFWN-S7VMA*	✓						
G4WN-S7VMC				Clear	15, 30, 75, or 110 cd		
G4WA-S7			ALERT	None	Speaker only models		
G4HFWA-S7	✓						
G4WN-S7			None				

* Not approved for fire alarm applications

Contact us...

Email: edwards.fire@fs.utc.com
Web: *www.est-fire.com*

EST is an **EDWARDS** brand.

1016 Corporate Park Drive
Mebane, NC 27302

In Canada, contact Chubb EDWARDS...
Email: inquiries@chubbedwards.com
Web: *www.chubbedwards.com*

Accessories

G1M-RM	Synchronization Output Module (1-gang)	0.2 (0.1)
SIGA-CC1S	Intelligent Synchronization Output Module (2-gang)	0.5 (0.23)
SIGA-MCC1S	Synchronization Output Module (Plug-in UIO)	0.18 (0.08)
G4B	Surface mount box, white	0.7 (0.32)
G4RB	Surface mount box, red	0.7 (0.32)

EST
Life Safety & Communications

Ceiling Speakers, Speaker-Strobes

Genesis GC Series

MEA FM APPROVED 7320-1657: 0211/0285 S2813

See Specifications Section for listings details.

Overview

The Genesis line of ceiling life safety and emergency communications speakers and speaker-strobes combine high performance output with a low profile design to deliver a life safety signal solution that's as versatile as it is effective. While they are designed to mount inconspicuously overhead, these devices are also rated for wall-mounted applications.

Clear-lens speaker-strobes are available in high and low candela models, which feature 15 to 95, or 95 to 177 cd output (see ordering information). Ceiling speakers feature ¼ W to 2 W operation, which allows devices to be easily fine-tuned to achieve maximum benefit in exchange for the lowest possible system overhead.

Light output and wattage tap settings are selectable with conveniently-located switches. Settings remain clearly visible even after final installation, yet they are locked in place to prevent unauthorized movement after installation.

High fidelity models meet the NPFA 520 Hz requirements for newly construced commercial sleeping areas. They also produce crisp, clear voice audio output that is highly intelligible over large areas.

These low-profile appliances feature textured housings in architecturally neutral white or eye-catching life safety red. Optional *ALERT* or *FIRE* markings make them ideal for applications that require differentiation between life safety and mass notification alerts.

Standard Features

- **High Fidelity 520 Hz speaker models available**
  Low frequency output meets NFPA standards for newly constructed commercial sleeping areas; increases sound fidelity and audio intelligibility.
- **Field configurable – no need to remove the device**
  – Select ¼, ½, 1, or 2 watt operation
  – 15/30/75/95 cd and 95/115/150/177 cd models available
  – Switch settings remain visible *even after the unit is installed*
- **Ideal for Mass Notification applications**
  – amber lens models available with optional *ALERT* markings
- **Unique low-profile design**
  – 30 per cent slimmer profile than comparable signals
  – Available with white or red housings
- **Unparalleled performance**
  – loud 90 dBA output ensures clear, crisp audio
  – Precision strobe timing meets UL synchronization standards
  – 25 V_{RMS} and 70 V_{RMS} models available
- **Easy to install**
  – Fits all standard 4-inch square electrical boxes with plenty of room for extra wire – *no extension ring or trim plate needed*
  – #18 - #12 AWG terminals – ideal for long runs, existing wiring
- **Approved for public and private mode applications**
  – UL 1971-listed as signaling devices for the hearing impaired
  – UL 1638-listed as protective visual signaling appliances
  – UL 1480-listed as life safety speaker
  – UL/ULC listed for ceiling or wall use

Strobe Application

Genesis strobes are UL 1971 or 1638 listed for indoor use. Prevailing codes require strobes to be used where ambient noise conditions exceed specified levels, where occupants use hearing protection, and in areas of public accommodation. Consult with your Authority Having Jurisdiction for details.

All Genesis strobes exceed UL synchronization requirements (within 10 milliseconds over a two-hour period) when used with a synchronization source. Synchronization for multiple strobe lights in a single field of view is required. See the Specifications table for compatible synchronization sources.

Speaker Application

The suggested sound pressure level for each signaling zone used with alert or alarm signals is a minimum of 15 dB above the average ambient sound level or 5 dB above the maximum sound level having a duration of at least 60 seconds, whichever is greater. This is measured 5 feet (1.5 m) above the floor.

Doubling the distance from the signal to the ear will theoretically cause a 6 dB reduction in the received sound pressure level. The actual effect depends on the acoustic properties of materials in the space. Doubling the power output of a device (e.g.: a speaker from 1 W to 2 W) will increase the sound pressure level by 3 dBA. A 3 dBA difference represents a barely noticeable change in volume.

Combination audible/visual signals must be installed in accordance with guidelines established for strobes.

High Fidelity Models

Genesis G4HF Series High Fidelity appliances provide highly intelligible voice audio output. They are also effective in areas subject to high levels of ambient noise. These appliances are approved for use in sleeping areas under conditions described below.

Sleeping Room Applications

Genesis GCHF Series High Fidelity appliances are ideal for hotels, dormitories, and other residential occupancies where audible output must meet the 520 Hz signaling characteristics required by NFPA 72.

In sleeping areas, always ensure that the wattage tap of the speaker is set sufficiently high so that the sound pressure reaches at least 75 dBA-fast at the pillow.

These appliances are part of an end-to-end audio system approved for use in sleeping areas when used in conjunction with approved audio hardware and a factory-supplied 520 Hz tone. Check the System Compatibility List for other 520 Hz signaling requirements.

NOTE: Speakers driven by third-party audio systems are not UL approved for use in sleeping rooms.

Mass Notification Applications

Genesis Mass Notification appliances bring the same high-performance life safety features and unobtrusive design to mass notification applications. Models are available with optional ALERT housing labels, which make them ideal for applications that require differentiation between life safety and mass notification alerts.

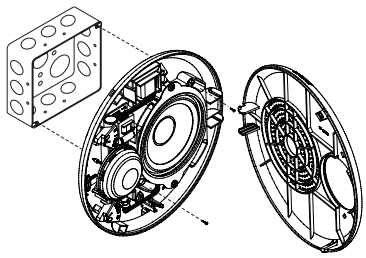
Application Notes - Canada

(Based in part on 1995 Canada National Building Code)

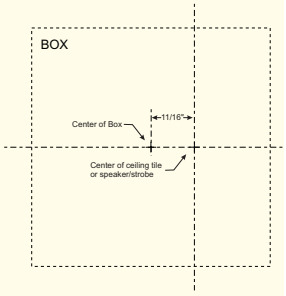
The signal sound pressure level shall not exceed 110 dBA in any normally occupied area. The sound pressure level from an audible signal in a floor area used for occupancies other than residential occupancies shall not be less than 10 dBA above ambient levels, and never less than 65 dBA. In sleeping rooms the sound pressure level from an audible signal shall not be less than 75 dBA when any intervening doors between the device and the sleeping room are closed.

Installation and Mounting

All models are intended for indoor ceiling or wall applications only. Speaker-strobes are mounted to a flush North-American 4" square electrical box, $2^{1}/_{8}$" (54 mm) deep.



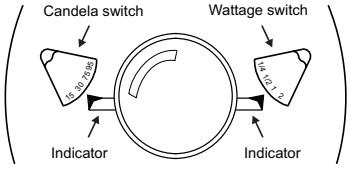
Genesis ceiling speaker-strobes simply unlatch and hinge down to open. This gains access to mounting screws and the selectable candela wattage tap switches. The shallow depth of Genesis devices leaves ample room behind the signal for extra wiring. Once installed with the cover in place, no mounting screws are visible.



Installation Note:

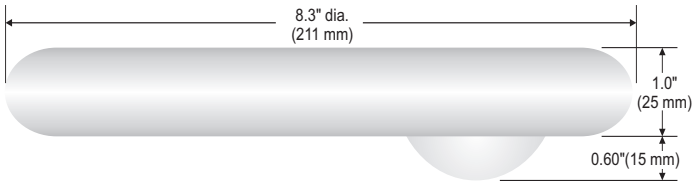
When installed, these devices are not centered on the electrical box. Make sure boxes are mounted to compensate for this difference. Use the mounting template provided with installation sheet 3100614.

Field Configuration

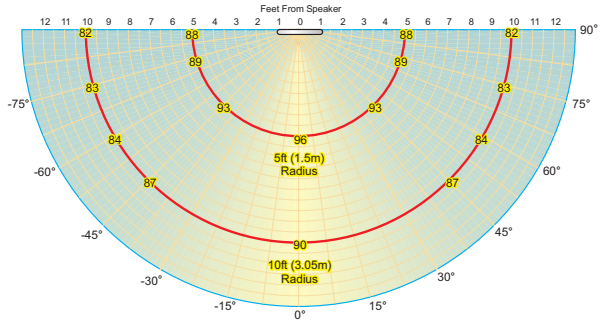


Genesis ceiling speaker-strobes may be set for ¼, ½, 1, or 2 watt operation. Depending on the model, Genesis ceiling speaker-strobes have multi-candela output (see ordering information). Output settings are changed by simply opening the device and sliding the switches to the desired settings. The speaker-strobe does not have to be removed to change the output settings. The settings remain visible through small windows on the front of the device after the cover is closed.

Dimensions

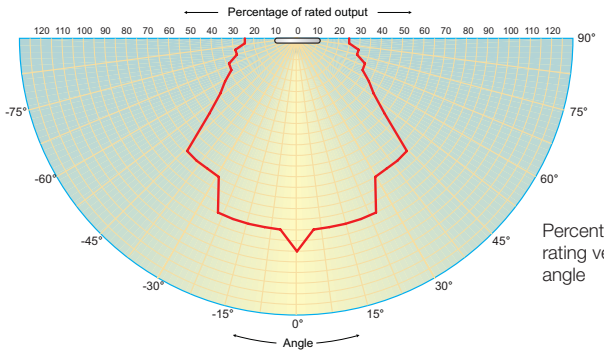


Typical Sound Output (dBA)



Measured at 2 watts setting in anechoic chamber

Light output - (effective cd)



Percent of UL rating versus angle

Horizontal and vertical outputs reflect the same pattern.

Sound Output	Setting (nominal)	Wattage (actual)	UL 1480 Rating	ULC-S541 Rating	Anechoic (nominal)
520 Hz High Fidelity models (dBA) output at 3.05 m (10 ft.)					
25 VRMS	¼ W	0.25 W	81.4	81.5	81
	½ W	0.50 W	84.5	84.3	84
	1 W	1.00 W	88.2	87.2	87
	2 W	2.00 W	90.0	90.1	91
70 VRMS	¼ W	0.25 W	81.5	81.9	81
	½ W	0.50 W	84.1	84.9	84
	1 W	1.10 W	87.9	87.9	87
	2 W	2.30 W	90.8	90.8	91

Standard Hz models (dBA) at 3.05 m (10 ft.)				
25 VRMS	¼ W	0.25 W	81	
	½ W	0.50 W	84	
	1 W	1.00 W	87	
	2 W	2.00 W	90	
70 VRMS	¼ W	0.25 W	81	
	½ W	0.50 W	84	
	1 W	1.00 W	87	
	2 W	2.00 W	91	

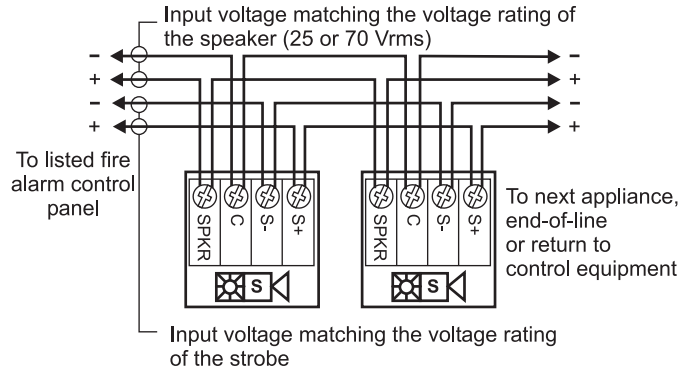
Strobe Output and Current Draw		Candela switch setting			
		D	C	B	A
Standard cd output models					
Operating current, RMS (A)	VDC	0.109	0.151	0.281	0.318
	VFWR	0.131	0.194	0.379	0.437
Light output (cd)	Clear Lens	95	75	30	15
	Amber Lens	82	65	26	13
High cd output models					
Operating current, RMS (A)	VDC	0.330	0.392	0.502	0.565
	VFWR	0.432	0.518	0.643	0.693
Light output (cd)	Clear Lens	177	150	115	95
	Amber Lens	155	130	100	82

VDC = Volts direct current, regulated and filtered
VFWR = Volts full wave rectified
Operating currents shown above were measured at 16 VDC and 16 VFWR.

***Sound level output notes:** dBA = Decibels, A-weighted. **UL1480:** Sound level output at 10 ft (3.05 m) measured in a reverberant room using 400 to 4,000 Hz band limited pink noise. **ULC-S541:** Meets or exceeds 85dBA in an anechoic chamber at 10 ft (3.05 m) on at least one setting per code.
Directional characteristics: Within 6 dB of on-axis sound level when measured 90° off-axis (horizontal).

Wiring

Field wiring terminals accommodate #18 to #12 AWG (0.75 mm² to 2.5 mm²) wiring.



Specifications

Housing	Textured UV stabilized, color impregnated engineered plastic. Exceeds 94V-0 UL flammability rating. Red and white models available.
Mounting	Flush mount to North American 4-inch square electrical box, 2-1/8 (54 mm) inches deep, or 960A-4RF round flush box. No extension ring required. Suitable for indoor wall or ceiling applications.
Wire connections	Screw terminals: polarized inputs for speaker, #18 to #12 AWG (0.75 mm^2 to 2.5 mm^2) wire size.
Operating environment	Indoor only: 32-120° F (0-49° C) ambient temperature; 0-93% relative humidity.
Agency listings and approvals, GC Models	Meets ULC-S541, year 2004 UL requirements for standards UL1638 and UL1971. Complies with UL1480 Fifth Edition. UL/ULC File Number: S2813. FM, MEA, CSFM approved. CSFM File Number: 7320-1657: 0211/0285. Speaker-strobes comply with ADA Code of Federal Regulation Chapter 28 Part 36 Final Rule.
Agency listings and approvals, Low Frequency GCHF Models	UL 464 Listed for low frequency signaling applications. Meets ULC-S541, year 2004 UL requirements for standards UL1638 and UL1971. Complies with UL1480 Fifth Edition. FM, MEA, CSFM pending. Speaker-strobes comply with ADA Code of Federal Regulation Chapter 28 Part 36 Final Rule.
Supervisory voltage	30 V max.
Speaker	
Operating Voltage	25 Vrms or 70 Vrms
Speaker response	400 to 4,000 Hz
Output	See table on previous page.
Strobe	
Light output	Field selectable. See table on previous page.
Operating current	See table on previous page.
Strobe output rating	UL 1971, UL 1638, ULC S526: selectable 15/30/75/95 cd (VM models) and 95/115/150/177 cd (VMH models)
Strobe operating voltage	16 to 33 VDC (24 VDC nominal) or 16 to 33 VFWR (24 VFWR nominal)
Strobe flash rate	One flash per second, default. Temporal setting (private mode only): synchronized to temporal output of Genesis audible signals on same circuit.
Synchronization	Meets or exceeds UL 1971 requirements. Maximum allowed resistance between any two devices is 20 Ohms. Refer to specifications for the synchronization control module, this strobe, and the control panel to determine allowed wire resistance.
Synchronization Sources	SIGA-CC1S, SIGA-MCC1S, SIGA-CC2A, SIGA-MCC2A, G1M-RM, BPS6A, BPS10A, APS6A, APS10A, iO Series, Fireshield Plus 3, 5 and 10 zone.
Lens	Optical grade polycarbonate.

Ordering Information

Model	High Fidelity (520 Hz capable)	Housing Color	Text Marking	Strobe Output	Speaker Voltage	Shipping Weight
Life safety Appliances						
GCHFRF-S2VMC	✓	Red	FIRE	Selectable 15, 30, 75, or 95 cd	25 Volt (Selectable ¼, ½, 1, or 2 watt)	1.62 lb. (0.73 kg.)
GCHFWF-S2VMC	✓	White				
GCF-S2VM						
GC-S2VM			None			
GCHFRN-S2VMC	✓	Red				
GCHFWN-S2VMC	✓	White				
GCHFRF-S2VMCH	✓	Red	FIRE	Selectable 95, 115, 150, 177		
GCHFWF-S2VMCH	✓	White				
GCF-S2VMH						
GCHFRN-S2VMCH	✓	Red	None			
GCHFWN-S2VMCH	✓	White				
GC-S2VMH						
GCHFRF-S2	✓	Red	FIRE	Speaker only models		
GCFR-S2						
GCHFWF-S2	✓	White				
GCF-S2						
GCHFRN-S2	✓	Red	None			
GCHFWN-S2	✓	White				
GC-S2						
GCWN-S2						
GCHFRF-S7VMC	✓	Red	FIRE	15, 30, 75, or 95 cd	70 V (Selectable ¼, ½, 1, or 2 watt)	
GCFR-S7VM						
GCHFWF-S7VMC	✓	White				
GCF-S7VM						
GCHFRN-S7VMC	✓	Red	None			
GCHFWN-S7VMC	✓	White				
GC-S7VM						
GCHFRF-S7VMCH	✓	Red	FIRE	95, 115, 150, 177		
GCHFWF-S7VMCH	✓	White				
GCF-S7VMH						
GCHFRN-S7VMCH	✓	Red	None			
GCHFWN-S7VMCH	✓	White				
GC-S7VMH						
GCHFRF-S7	✓	Red	FIRE	Speaker only models		
GCFR-S7		Red				
GCHFWF-S7	✓	White				
GCF-S7						
GCHFRN-S7	✓	Red	None			
GCHFWN-S7	✓	White				
GC-S7						
GCWN-S7						

Contact us...

Email: edwards.fire@fs.utc.com
Web: *www.est-fire.com*

EST is an **EDWARDS** brand.

1016 Corporate Park Drive
Mebane, NC 27302

In Canada, contact Chubb EDWARDS...
Email: inquiries@chubbedwards.com
Web: *www.chubbedwards.com*

Ordering Information

Model	High Fidelity	Text Marking	Lens Color	Strobe Output	Speaker Voltage	Shipping Weight
Mass Notification Appliances, white housings						
GCHFWA-S2VMA	✓	ALERT	Amber	13, 26, 65, or 82 cd	25 Volt (Selectable ¼, ½, 1, or 2 watt)	1.62 lb. (0.73 kg.)
GCWA-S2VMA						
GCHFWN-S2VMA	✓	None				
GCWN-S2VMA						
GCWN-S2VMC			Clear	15, 30, 75, or 95 cd		
GCHFWA-S2VMC	✓	ALERT				
GCWA-S2VMC						
GCHFWA-S2VMAH	✓		Amber	82, 100, 130, or 155 cd		
GCWA-S2VMHA						
GCHFWN-S2VMAH	✓	None				
GCWN-S2VMHA						
GCWN-S2VMHC			Clear	95, 115, 150, or 177 cd		
GCHFWA-S2VMCH	✓	ALERT				
GCWA-S2VMHC						
GCHFWA-S2	✓		Speaker only models			
GCWA-S2						
GCHFWA-S7VMA	✓	ALERT	Amber	13, 26, 65, or 82 cd	70 V (Selectable ¼, ½, 1, or 2 watt)	
GCWA-S7VMA						
GCHFWN-S7VMA	✓	None				
GCWN-S7VMA						
GCWN-S7VMC			Clear	15, 30, 75, or 95 cd		
GCHFWA-S7VMC	✓	ALERT				
GCWA-S7VMC						
GCHFWA-S7VMAH	✓		Amber	82, 100, 130, or 155 cd		
GCWA-S7VMHA						
GCHFWN-S7VMAH	✓	None				
GCWN-S7VMHA						
GCWN-S7VMHC			Clear	95, 115, 150, or 177 cd		
GCHFWA-S7VMCH	✓	ALERT				
GCWA-S7VMHC						
GCHFWA-S7	✓		Speaker only models			
GCWA-S7						

Accessories

G1M-RM	Synchronization Output Module (1-gang)	0.2 (0.1)
SIGA-CC1S	Intelligent Synchronization Output Module (2-gang)	0.5 (0.23)
SIGA-MCC1S	Synchronization Output Module (Plug-in UIO)	0.18 (0.08)

EST™
Life Safety & Communications

Re-entrant Speaker and Speaker-Strobe

757 Series

MEA
CE
UL
ULC
FM
Patented

Overview

EST's Integrity Series life safety and mass notification/emergency communications (MNEC) re-entrant speakers and speaker-strobes are high quality appliances for emergency voice communications, as well as alert and alarm tone signals.

Integrity's rugged plastic housing is made from durable and fire retardant, high impact plastic with a slightly textured surface. Housings are rated for outdoor use and are available in red or white. Integrity's ingenious mounting plate firmly holds the device in place with a single screw. This ensures quick and attractive installation. A separate trim plate is not required. Speaker terminals accept up to #12 AWG (2.5mm²) wire for polarized connections. Strobe connections are made to color-coded wire leads.

Integrity MNEC appliances offer emergency signaling with amber lenses. They are ideal for applications that require differentiation between life safety and mass notification alerts.

Life safety strobes are shipped with standard wall mount style FIRE lens markings. Where ceiling orientation, other languages, or different lens markings are required, Edwards offers optional LKW and LKC series Lens Marking Kits. These optional lens markings simply snap on to the strobe. Consult Edwards for availability of special lens markings.

Integrity strobes are designed for 16 to 33 Vdc operation and must be connected to signal circuits that output a constant (not pulsed) voltage. A diode is used to allow full signal circuit supervision.

Standard Features

- **UL 1971-listed synchronizing strobe**
  Integrity strobes synchronize to the latest UL 1971 requirements when used with a synchronization source.
- **Genesis-compatible**
  All Genesis and Integrity strobes on the same circuit meet UL 1971 synchronization requirements when used with an external control module.
- **MNEC models with amber lenses available**
- **Listed for public and private mode applications**
  UL 1971-listed as signaling devices for the hearing impaired and UL 1638-listed as protective visual signaling appliances.
- **98 dBA Output**
  High efficency driver produces a loud 98 dBA at 15 watts.
- **Multiple Output Taps, 25 or 70 Volt Models**
  Easy to select for 2, 4, 8, and 15 watt operation. Integrity speakers are supplied with a DC Blocking Capacitor for audio circuit supervision.
- **Outdoor rated**
  Durable red or white Noryl front plate is ideal for outdoor, industrial or harsh environments.
- **Field changeable field markings**
  Lens language or standard "FIRE" marking is easily changed with optional LKW (wall orientation) and LKC (ceiling orientation) lens kits.

Application

NOTE: The installation of visible and audible signals are subject to national and local standards, codes, and ordinances. Consult your Authority Having Jurisdiction for device installation requirements, application standards, and minimum performance specifications.

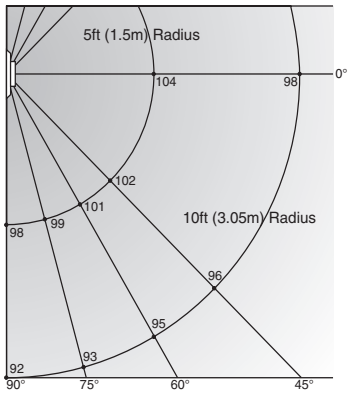
Speakers

All Integrity speakers include a DC blocking capacitor to allow electrical supervision of the audio distribution circuit. Models for 25 V_{RMS} and 70 V_{RMS} circuits are available. Wattage taps from 2 W to 15 W provide on-site flexibility.

The suggested sound pressure level for each signaling zone used with alert or alarm signals is a minimum of 15 dB above the average ambient sound level or 5 dB above the maximum sound level having a duration of at least 60 seconds, whichever is greater. This is measured 5 feet (1.5 m) above the floor.

Doubling the distance from the signal to the ear will theoretically cause a 6dB reduction in the received sound pressure level. The actual effect depends on the acoustic properties of materials in the space. Doubling the power output of a device (e.g.: a speaker from 1W to 2W) will increase the sound pressure level by 3dBA.

Re-entrant Speaker-Strobe



Typical Sound Output Distribution dBA measured in anechoic chamber

Strobes

Edwards clear strobes are UL 1971-listed for use indoors as wall- or ceiling- mounted public-mode notification appliances for the hearing impaired. Prevailing codes require strobes to be used where ambient noise conditions exceed specified levels, where occupants use hearing protection, and in areas of public accommodation. Consult with your Authority Having Jurisdiction for details.

As part of the Enhanced Integrity line of products, 757 Series strobes exceed UL synchronization requirements (within10 milli-seconds over a two-hour period) when used with a synchronization source. Synchronization is important in order to avoid epileptic sensitivity.

Integrity strobes are fully compatible with Edwards Genesis signals.

MNEC Applications

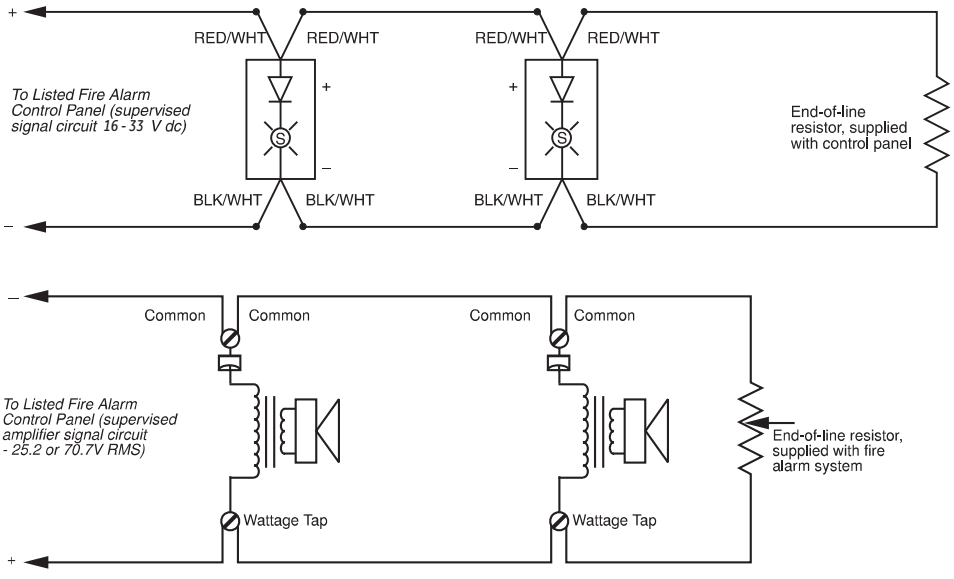
Integrity MNEC appliances are available with amber lenses. They are ideal for applications that require differentiation between life safety and mass notification alerts.

NOTE: The flash intensity of some visible signals may not be adequate to alert or waken occupants in the protected area. Research indicates that the intensity of strobe needed to awaken 90% of sleeping persons is approximately 100 cd. Edwards recommends that wall-mounted appliances in strobes in sleeping rooms be rated at at least 110 cd.

WARNING: These devices will not operate without electrical power. As fires frequently cause power interruptions, further safeguards such as backup power supplies may be required.

Typical Wiring

The strobe must be connected to signal circuits which output a constant (not pulsed) 24 Vdc voltage. Depending on the model, the speaker must be connected to either 25 or 70 V audio circuits.

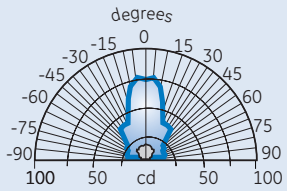


Light Distribution Patterns

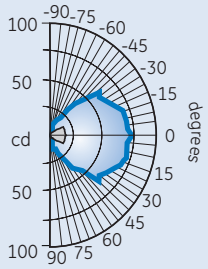
UL 1971 WALL MOUNTED STROBE LIGHT OUTPUT

15/75 cd (-7A) Series Strobes

Horizontal Output

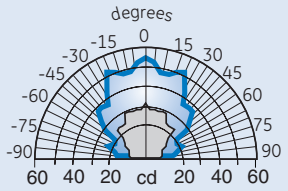


Vertical Output

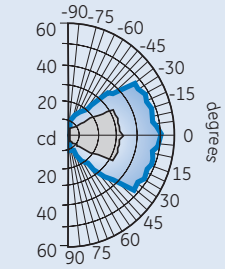


30 cd (-3A) Series Strobes

Horizontal Output

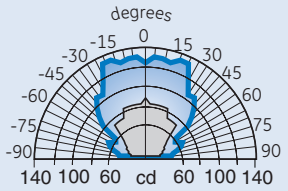


Vertical Output

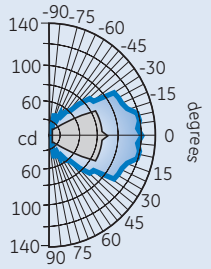


75 cd (-4A) Series Strobes

Horizontal Output

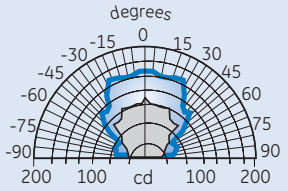


Vertical Output

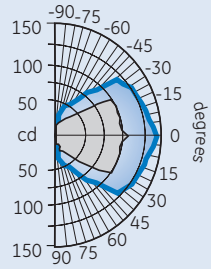


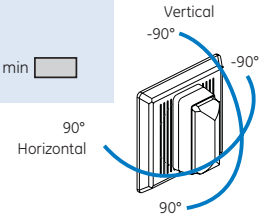
110 cd (-8A) Series Strobes

Horizontal Output



Vertical Output





Operating Current (RMS)

UL Rating	15/75 cd	30 cd	75 cd	110 cd
16 Vdc	150	130	263	329
16 Vfwr	210	189	333	420

Typical Current	15/75 cd	30 cd	75 cd	110 cd
24 Vdc	90	89	159	180
24 Vfwr	128	134	255	260

Vdc: Volts direct current, regulated and filtered
Vfwr: Volts full wave rectified

Current Draw Notes and Comments

1. Current values are shown in mA.
2. UL Nameplate Rating can vary from Typical Current due to measurement methods and instruments used.
3. Edwards recommends using the Typical Current for system design including NAC and Power Supply loading.
4. Use the Vdc RMS current ratings for filtered power supply and battery AH calculations. Use the Vfwr RMS current ratings for unfiltered power supply calculations.
5. Fuses, circuit breakers and other overcurrent protection devices are typically rated for current in RMS values. Most of these devices operate based upon the heating affect of the current flowing through the device. The RMS current determines the heating affect and therefore, the trip and hold threshold for those devices.

Sound Level Output

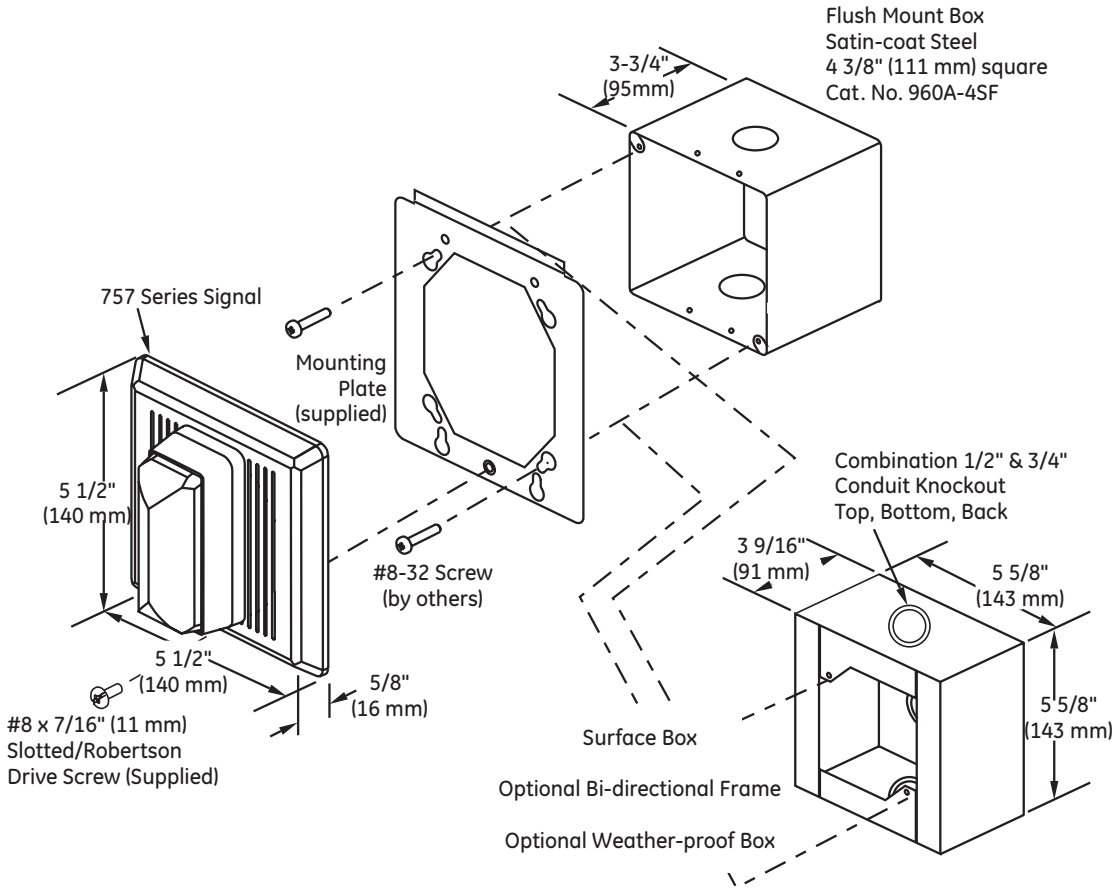
	Speaker		Speaker-strobe	
Wattage	UL 1480	Average	UL 1480	Average
2 W	90.0	90.3	84.0	86.2
4 W	93.0	93.4	87.0	89.4
8 W	96.0	95.7	90.0	91.8
15 W (UL)	96.0	98.2	90.0	94.1

Sound level output notes

- All values shown are dBA measured at 10 feet (3.01m).
- UL1480 values measured in reverberation room.
- Average values are measured in anechoic chamber.

Installation and Mounting

All models fit to flush mounted Edwards box, Catalog Number 960A-4SF. Optional flush trims are not required. For surface mount, use EST's custom indoor and outdoor surface boxes painted in color-matched red or white epoxy. Edwards recommends that these Life safety and MNEC speaker/strobes always be installed in accordance with the latest recognized edition of national and local codes.



Specifications

Model	757-7A-RSxx	757-3A-RSxx	757-8A-RSxx
UL 1638 & ULC S526 Rating (note 2)	75 cd	30 cd	110 cd
UL 1971 Rating (note 2)	15 cd wall, 15 cd ceiling	30 cd wall, 15 cd ceiling	110 cd wall, 60 cd ceiling
Input/Operating Volts	Speaker: 25 VRMS (suffix "-RS25" or 70 VRMS (suffix "-RS70") - see ordering table Strobe: 16-33 Vdc Continuous		
Speaker Taps/Output (note 1)	Measured at 10' (3.05 m): 15W = 98 dBA, 8W = 95 dBA, 4W = 93 dBA, 2W = 90 dBA		
Speaker Driver	Sealed construction, compression driver, 8 ohm voice coil		
Strobe Flash Rate	Synchronized at one flash per second. External control module necessary to meet UL 1971 synchronization requirements of 10 milliseconds over a two-hour period		
Synchronization Sources	SIGA-CC1S, SIGA-MCC1S, SIGA-CC2A, SIGA-MCC2A, G1M-RM BPS6A, BPS10A, APS6A, APS10A, iO64, iO500, Fireshield Plus 3, 5 and 10 zone.		
Flash Tube Enclosure	Clear LEXAN		
Lens Markings	Supplied with LKW-1 "FIRE" red letters, vertical both sides (Wall Mount) - see LKW and LKC series for ceiling style and optional markings		
INDOOR Operating Environment	-31 to 150° F (-35 to 66° C) ambient temperature. 85% relative humidity @ 30° C.		
OUTDOOR Operating Environment (must use weatherproof box)	95% relative humidity @ 60° C; -35-150° F (-31-66° C) ambient temperature (757-7A: rated at 17.7 cd @ -35° C per UL/@ -40° C per ULC) (757-8A: rated at 70.7 cd @ -35° C per UL/@ -40° C per ULC) (757-3A: rated at 9.0 cd @ -35° C per UL/@ -40° C per ULC)		
Wire Connections	Speaker: Terminals for up to #12 AWG (2.5mm^2) Strobe: 6" (150 mm) color-coded polarized wire leads		
Housing (note 3)	Textured, color impregnated engineered plastics - exceeds 94V-0 UL flammability rating		
Mounting - INDOOR	Flush: 960A-4SF Flush Box Surface: 757A-SB Backbox Bi-directional (note 3)' 757A-BDF Mounting Frame (note 3)		
Mounting - OUTDOOR	Surface only: 757A-WB Weatherproof Box (note 3)		
Agency Listings	UL 1971, UL 1638, UL 1480, ULC S526, ULC S541, MEA, CSFM, FM, CE (All models comply with ADA Code of Federal Regulation Chapter 28 Pt. 36 Final Rule)		

Note 1: Measured in reverberant room using 400-4000Hz band linited pink noise per UL 1480. Subtract 3dBA for models with strobes.
Note 2: Strobe candela ratings apply to clear strobes. Amber strobes candela rating is available on the installation sheet.
Note 3: RED housing is standard, add Suffix "W" for WHITE

EDWARDS
A UTC Fire & Security Company

Detection & alarm since 1872

U.S.
T 888-378-2329
F 866-503-3996

Canada
Chubb-Edwards
T 519 376 2430
F 519 376 7258

Southeast Asia
T : +65 6391 9300
F : +65 6391 9306

India
T : +91 80 4344 2000
F : +91 80 4344 2050

Australia
T +61 3 9239 1200
F +61 3 9239 1299

Europe
T +32 2 725 11 20
F +32 2 721 86 13

Latin America
T 305 593 4301
F 305 593 4300

utcfireandsecurity.com

Lens Marking Kits*

LKW-1	"FIRE", Wall Orientation (supplied)
LKW-2	"FEU", Wall Orientation
LKW-3	"FIRE/FEU", Wall Orientation
LKW-4	"SMOKE", Wall Orientation
LKW-5	"HALON", Wall Orientation
LKW-6	"CO2", Wall Orientation
LKW-7	"EMERGENCY", Wall Orientation
LKW-8	"ALARM", Wall Orientation
LKW-9	"FUEGO", Wall Orientation
LKW-10	"ALERT", Wall Orientation

*Change "W" to "C" for Ceiling Mount (e.g. LKC-1)

Ordering Information

Catalog Number	Description	Ship Wt., lb. (kg)
25 Volt Re-Entrant Speakers		
757-1A-R25	Speaker, Red	2.5 (1.2)
757-1A-R25W	Speaker, White	
25 Volt Re-Entrant Speakers/Strobes		
757-7A-RS25	Speaker-Strobe, 15/75cd, Red	2.5 (1.2)
757-7A-RS25W	Speaker-Strobe, 15/75cd, White	
757-3A-RS25	Speaker-Strobe, 30cd, Red	
757-3A-RS25W	Speaker-Strobe, 30cd, White	
757-8A-RS25	Speaker-Strobe, 110cd, Red	
757-8A-RS25W	Speaker-Strobe, 110cd, White	
70 Volt Re-Entrant Speakers		
757-1A-R70	Speaker, Red	2.5 (1.2)
757-1A-R70W	Speaker, White	
70 Volt Re-Entrant Speakers/Strobes		
757-7A-RS70	Speaker-Strobe, 15/75cd, Red	2.5 (1.2)
757-7A-RS70W	Speaker-Strobe, 15/75cd, White	
757-3A-RS70	Speaker-Strobe, 30cd, Red	
757-3A-RS70W	Speaker-Strobe, 30cd, White	
757-8A-RS70	Speaker-Strobe, 110cd, Red	
757-8A-RS70W	Speaker-Strobe, 110cd, White	
MNEC Re-Entrant Speakers/Strobes		
757-7A-RS70WA	Speaker-Strobe, 70 V, 12/75 cd strobe, white housing, amber lens.	2.5 (1.2)
757-7A-RS25WA	Speaker-Strobe, 25 V, 12/75 cd strobe, white housing, amber lens.	
757-8A-RS70WA	Speaker-Strobe, 70 V, 88 cd strobe, white housing, amber lens.	
757-8A-RS25WA	Speaker-Strobe, 25 V, 88 cd strobe, white housing, amber lens.	
Mounting Accessories		
960A-4SF	Flush Box, Indoor	1.5 (0.7)
757A-SB	Surface Box, Red, Indoor	
757A-SBW	Surface Box, White, Indoor	
757A-WB	Weatherproof Box, Red, Surface	
757A-WBW	Weatherproof Box, White, Surface	
757A-BDF	Bi-directional Mounting Frame, Red	4 (1.8)
757A-BDFW	Bi-directional Mounting Frame, White	

NO EXCUSES!

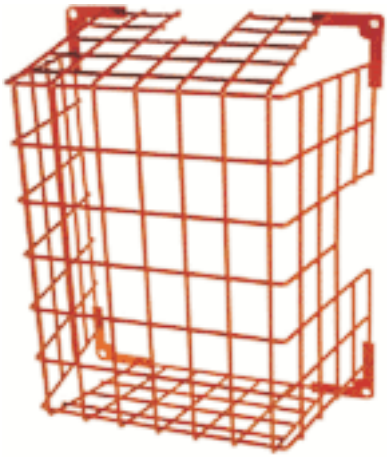
SDG

Signal Device Guards

Smoke Detector Guard
SAE P/N: SSU03500

Heat Detector Guard
SAE P/N: SSU03501

Smoke Detector Guard
SAE P/N: SSU03515



Rectangular Signal Guard
SAE P/N: SSU03505

Our signal Device Guards are designed to protect audio visuals, heat detectors, smoke detectors and a variety of other devices. Manufactured of welded steel wire construction, these durable designs are engineered to protect the vital components of building systems without interfering with the device's operation.

The SDG's universal design provides maximum strength, air flow and visibility. Select from our variety of device guards and add a custom finish to compliment interiors, and to avoid vandalism, add optional custom tamper resistant hardware. Custom hardware and finishes sold separately.

Standard Features:
- Heavy gauge welded steel wire construction
- Durable finishes
- Installation hardware included

Options:
- Tamper resistant hardware
- Custom finish

Made In U.S.A.

NFPA

ISO9001 REGISTERED

ADA

Integration Accessories

Space Age Electronics, Inc.
406 Lincoln Street
Marlboro, MA 01752-2195
www.1sae.com
800.486.1723—voice
508.485.0966
508.485.4740—fax

No Excuses Just Solutions!

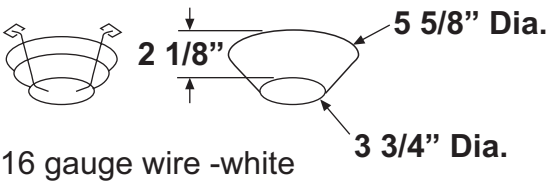
SPACE AGE ELECTRONICS, INC.

Description:

The **SDG Signal Device Guards** are constructed of heavy gauge welded steel wire and come standard in a white, red or chrome finish. Optional custom finishes and tamper resistant hardware available. Mounting hardware included.

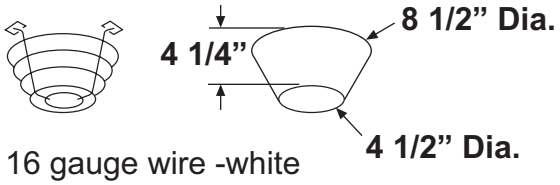
Usable Interior Space

Heat Detector Guard - SSU03501



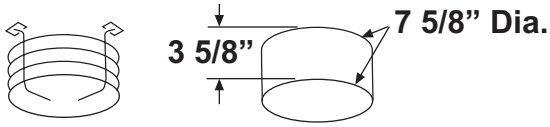
16 gauge wire -white

Smoke Detector Guard - SSU03500



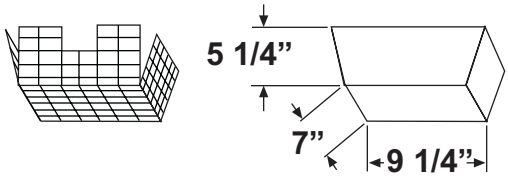
16 gauge wire -white

Smoke Detector Guard - SSU03515

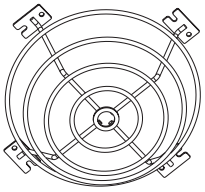


11 gauge wire -chrome

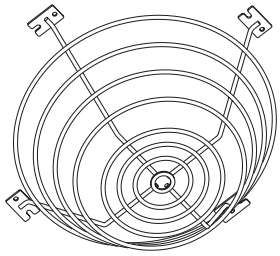
Rectangular Signal Guard - SSU03505



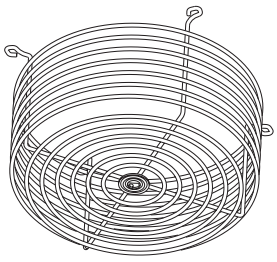
16 gauge wire -red



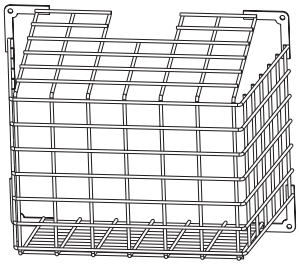
Heat Detector Guard
SSU03501
White



Smoke Detector Guard
SSU03500
White



Smoke Detector Guard
SSU03515
Chrome



Rectangular Signal Guard
SSU03505
Red

Ordering Information:

Part #	Description
SSU03501	Small Round Heat Detector Guard - white
SSU03500	Large Round Smoke Detector Guard - white
SSU03515	Large Round Smoke Detector Guard - chrome
SSU03505	Rectangular Signal Guard - red

Options:

- Tamper resistant hardware
- Custom finish

Integration Accessories

Space Age Electronics, Inc.
406 Lincoln Street
Marlboro, MA 01752-2195
www.1sae.com
800.486.1723—voice
508.485.0966
508.485.4740—fax

No Excuses Just Solutions!

EST
Life Safety & Communications

Electromagnetic Door Holders

MEA

R6291

Overview

Edwards Electromagnetic Door Holders are ruggedly constructed and attractively designed. The housing is finished with an aluminum color, durable baked polyester powder paint. The floor or wall section houses the electromagnet while the contact plate attaches to the door. The contact plate has a shock absorbing nylon (swivel) ball which allows the plate to adjust to any door angle. Floor units are available in single-door or double-door (back to back) versions. Wall units are available in flush or surface mounted versions.

Edwards door releases should be installed wherever doors may be effectively used to confine smoke and fire, or where the release of a self-closing door from a remote location is desirable for other reasons.

Fail-safe operation is an inherent feature of Edwards door holder-releases. If power fails, doors are released automatically but may be opened or closed manually at any time. All units are free of moving parts, are self-contained and require no maintenance.

These door holder-releases have a holding force of approximately 15 to 25 Lbf (66 to 111N). The device holds a door open while energized. When de-energized by a relay controlled by the fire alarm system or other switch, the door is released to a closed position, checking the spread of smoke and flames. Electromagnetic door holders should be used and installed in accordance with local Building Codes and Standards.

Standard Features

- Floor and wall mounted styles
- Low power consumption
- AC/DC models
- Completely silent operation
- 25 Lbf (111N) nominal holding force
- Adjustable, swivel contact plate

Basic Models

Floor Mounted:

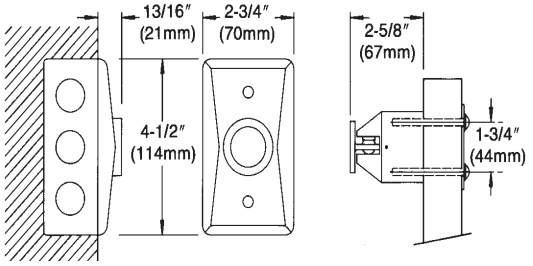
The electromagnet portion consists of a floor plate and a floor housing which when installed with gaskets provided, form a weatherproof electrical junction box. Incoming conduit connects directly into floor plate.

Floor mounted units are available with one (Cat. No. 1501) or two (Cat. No. 1502) magnet faces for holding a single door or two doors back to back.

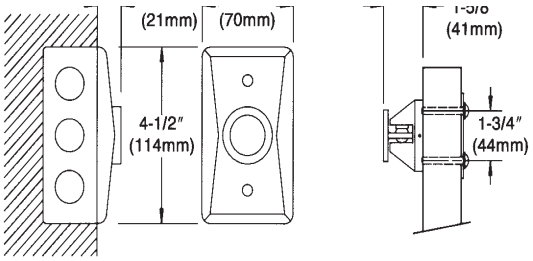
Wall Mounted:

Wall mounted models are available in flush, semi-flush and surface mounting configurations. Flush and semi-flush models are designed for concealed wiring applications and mount on standard single gang (2 x 4 inch) outlet boxes. Surface mounted models mount on a surface adaptor housing (junction box), which is provided.

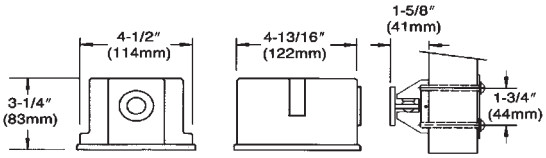
Dimensions



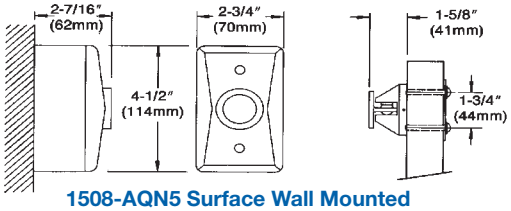
1504-AQN5 Flush Wall Mounted (Long Catch Plate)



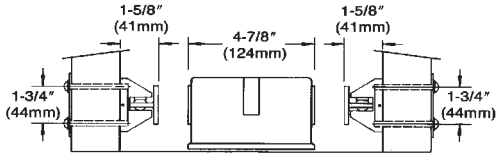
1505-AQN5 Flush Wall Mounted (Short Catch Plate)



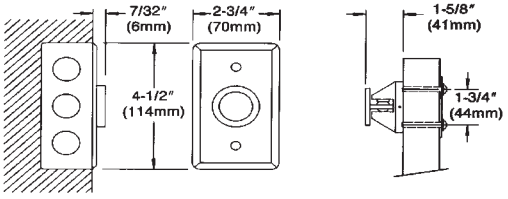
1501-AQN5 Floor Mounted (Single Door)



1508-AQN5 Surface Wall Mounted



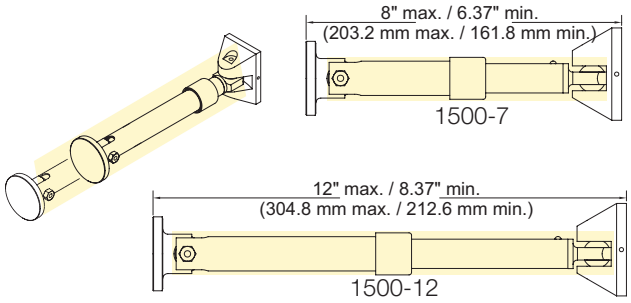
1502-AQN5 Floor Mounted (Double Door)

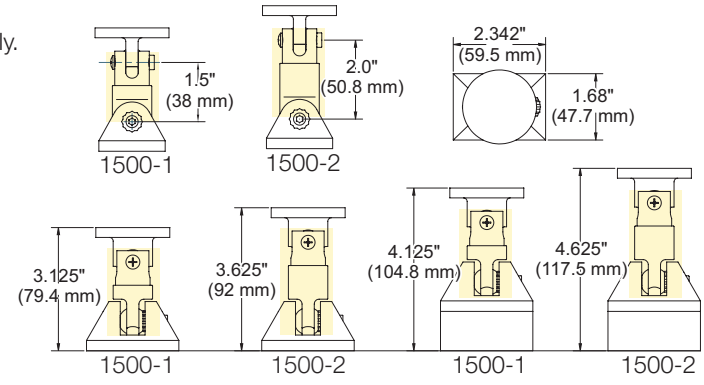


1509-AQN5 Completely Flush Wall Mounted

Catch Plate Extensions

Only the extension rods (highlighted in yellow) are included. The end pieces are included with the doorholders or can be ordered separately.





Specifications

Model No.	Style	Volts	Amps*
1501-AQN5	Floor Mounted (Single Door)	24 Vac 60 Hz 24 Vdc 120 Vac 60 Hz	.015
1502-AQN5	Floor Mounted (Double Door)		
1504-AQN5	Flush Wall Mounted (Long Catch Plate)		
1505-AQN5	Flush Wall Mounted (Short Catch Plate)		
1508-AQN5	Surface Wall Mounted		
1509-AQN5	Completely Flush Wall Mounted		

*1502-AQN5 is a double unit which draws .015 per side

Ordering Information

Model No.	Description	Ship. Wt. lb (kg)
1501-AQN5	Floor Mounted (Single Door)	5.4 (2.45)
1502-AQN5	Floor Mounted (Double Door)	5.0 (2.27)
1504-AQN5	Flush Wall Mounted (Long Catch Plate)	2.0 (0.91)
1505-AQN5	Flush Wall Mounted (Short Catch Plate)	2.0 (0.91)
1508-AQN5	Surface Wall Mounted	3.0 (1.36)
1509-AQN5	Completely Flush Wall Mounted	2.0 (0.91)
Accessories		
1500-1	Catch plate extension assembly, 1.5”	0.25 (0.11)
1500-2	Catch plate extension assembly, 2.5”	0.25 (0.11)
1500-7	Catch plate extension assembly (5.25 to 7.5 inches)	0.5 (0.23)
1500-12	Catch plate extension assembly (7.5 to 12 inches)	1.0 (0.45)
CS2595-5	Replacement armature - short (for use with 1501, 1502, 1505, 1508 and 1509 door holders)	0.25 (0.11)
CS2598-5	Replacement armature - long (for use with 1504 door holder)	0.25 (0.11)

CAUTION: These Door Holder units will not operate without electrical power.

Contact us...

Email: edwards.fire@fs.utc.com
Web: *www.est-fire.com*

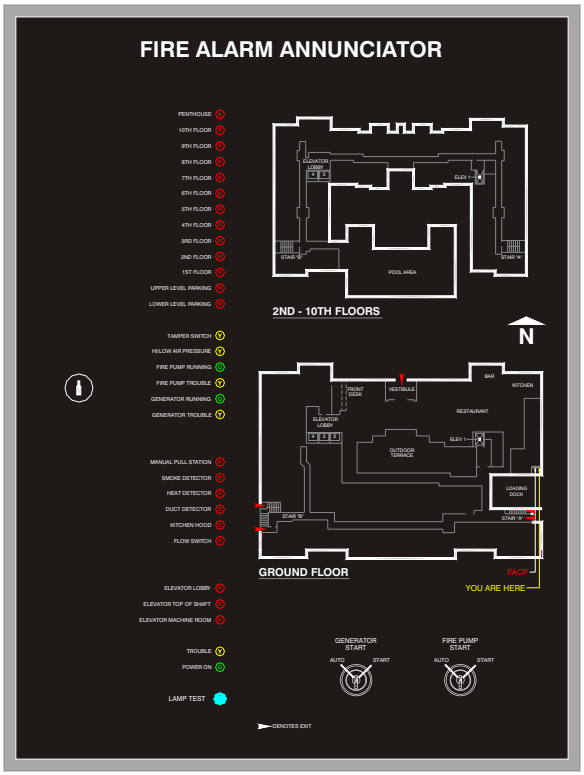
EST is an **EDWARDS** brand.

1016 Corporate Park Drive
Mebane, NC 27302

In Canada, contact Chubb Edwards...
Email: inquiries@chubbedwards.com
Web: *www.chubbedwards.com*

QED-1824

Vertical Mounting



Quality Engraving & Design, Inc. (QED) manufactures its annunciators in both directory and graphic styles. They can be mounted either flush or surface.

There are two types of enclosures available. The first one is a continuous hinge design that allows for convenient removal and re-assembly of the front panel. The second one is a traditional picture frame design in architectural gray aluminum without a hinge.

There is a key lock or hidden screw construction to provide tamper resistance.

Annunciator models include:

> Smoked Plexiglas – White screened graphics, backlit, protected by a layer of non-glare Plexiglas

> Micarta – Black, Red or White

> Various Metals – Stainless Steel, Aluminum, Brass or Bronze

LISTING:	UL / California State Fire Marshal Listed	
INITIATING POLARITY:	Positive/Negative	
OPERATING VOLTAGE	6, 12, 24VDC	
INDICATORS:	High efficiency LED's. Red, Yellow & Green.	
STANDARD DIMENSIONS:	Height	24-1/4"
	Width	18-1/4"

OPTIONAL FEATURES:	Trouble Sonalert	Trouble Indicator
	Trouble Switch	Reset Switch
	Ac Power Indicator	Led Matrixing

Annunciators

QUALITY ENGRAVING & DESIGN, INC. 10417-B Metropolitan Ave Kensington MD, 20895
Tel: 301.949.6230 Fax: 301.949.6233

SECTION 4

SIGNATURE SERIES DETECTOR AND MODULE INSTALLATION INSTRUCTIONS

1. **Identify detector or module location on building plans.**
2. **Locate corresponding device description on the addressable device list located in this section.**
3. **Install correct module type according to the device type number listed on the addressable device list located in this section (see the detector or module device type chart below to cross reference the device type number to the actual module number of the device to be installed).**
4. **Remove the bar code from the detector or module and stick it on the serial number label box located next to the corresponding description on the addressable device list.**

DETECTOR DEVICE TYPE CHART		
DEVICE TYPE CODE	**MODEL NUMBER**	**DESCRIPTION**
1	**SIGA-IS**	**Ionization Smoke Detector**
2	**SIGA-PS**	**Photoelectric Smoke Detector**
3	**SIGA-PHS**	**“3D” Multi-sensor Smoke Detector**
4	**SIGA-IPHS**	**“4D” Multi-sensor Smoke Detector**
5	**SIGA-HFS**	**Fixed Temperature Heat Detector**
6	**SIGA-HRS**	**Rate Of Rise And Fixed Temperature Heat Detector**
	SIGA-IM	**Fault Isolator Module**

STANDARD MODULE DEVICE TYPE CHART		
MODULE TYPE CODE	**MODEL NUMBER**	**DESCRIPTION**
1	**SIGA-DTS**	**Duct Detector Test Station**
1	**SIGA-CT1**	**Single Input Monitor Module**
2	**SIGA-CT2**	**Dual Input Monitor Module**
3	**SIGA-CC1**	**Single Riser Signal Module**
4	**SIGA-CC2**	**Dual Riser Signal Module**
5	**SIGA-CR**	**Relay Module**
6	**SIGA-MM1**	**Monitor Module**
7	**SIGA-WTM**	**Water Flow / Tamper Module**
8	**SIGA-UM**	**Universal Class A/B Module**
9	**SIGA-278**	**Double Action Manual Station**
10	**SIGA-270**	**Manual Station**
11	**SIGA-270P**	**Two Stage Manual Station**

UIO MOUNTED MODULE DEVICE TYPE CHART		
MODULE TYPE CODE	**MODEL NUMBER**	**DESCRIPTION**
M2	**SIGA-MCT2**	**Dual Input Monitor Module Mounted On A UIO Board**
M3	**SIGA-MCC1**	**Single Riser Signal Module Mounted On A UIO Board**
M4	**SIGA-MCC2**	**Dual Riser Signal Module Mounted On A UIO Board**
M5	**SIGA-MCR**	**Relay Module Mounted On A UIO Board**
M8	**SIGA-MAB**	**Universal Class A/B Module Mounted On A UIO Board**

DETECTOR WORKSHEET

LOOP #1

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0001			FIRST FLOOR		ISOLATOR MODULE (SIGA-IM)	CLASS A RETURN LOOP ISOLATION
0002			SECOND FLOOR		ISOLATOR MODULE (SIGA-IM)	CLASS A RETURN LOOP ISOLATION
0003						
0004						
0005						
0006						
0007						
0008						
0009						
0010						
0011						
0012						

DETECTOR WORKSHEET

LOOP #1

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0013						
0014						
0015						
0016						
0017						
0018						
0019						
0020						
0021						
0022						
0023						
0024						

DETECTOR WORKSHEET

LOOP #1

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0025						
0026						
0027						
0028						
0029						
0030						
0031						
0032						
0033						
0034						
0035						
0036						

DETECTOR WORKSHEET

LOOP #1

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0037						
0038						
0039						
0040						
0041						
0042						
0043						
0044						
0045						
0046						
0047						
0048						

DETECTOR WORKSHEET

LOOP #1

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0049						
0050						
0051						
0052						
0053						
0054						
0055						
0056						
0057						
0058						
0059						
0060						

DETECTOR WORKSHEET

LOOP #1

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0061						
0062						
0063						
0064						
0065						
0066						
0067						
0068						
0069						
0070						
0071						
0072						

DETECTOR WORKSHEET

LOOP #1

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0073						
0074						
0075						
0076						
0077						
0078						
0079						
0080						
0081						
0082						
0083						
0084						

DETECTOR WORKSHEET

LOOP #1

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0085						
0086						
0087						
0088						
0089						
0090						
0091						
0092						
0093						
0094						
0095						
0096						

DETECTOR WORKSHEET

LOOP #1

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0097						
0098						
0099						
0100						
0101						
0102						
0103						
0104						
0105						
0106						
0107						
0108						

DETECTOR WORKSHEET

LOOP #1

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0109						
0110						
0111						
0112						
0113						
0114						
0115						
0116						
0117						
0118						
0119						
0120						

DETECTOR WORKSHEET

LOOP #1

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0121						
0122						
0123						
0124						
0125						

MODULES WORKSHEET

LOOP #1

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0126			FIRST FLOOR		MANUAL STATION (SIGA-270)	VESTIBULE #1 1001
0127			FIRST FLOOR		MANUAL STATION (SIGA-270)	STUDENT STREET 1076 @ STAIR #1
0128			FIRST FLOOR		MANUAL STATION (SIGA-270)	GIRLS LOCKER ROOM 131E
0129			FIRST FLOOR		MANUAL STATION (SIGA-270)	BOYS LOCKER ROOM 131D
0130			FIRST FLOOR		MANUAL STATION (SIGA-270)	GYMNASIUM 131
0131			FIRST FLOOR		MANUAL STATION (SIGA-270)	OUTDOOR EQUIPMENT 131B
0132			FIRST FLOOR		MANUAL STATION (SIGA-270)	BOILER 1028
0133			FIRST FLOOR		MANUAL STATION (SIGA-270)	OUTDOOR STORAGE 1029
0134			FIRST FLOOR		MANUAL STATION (SIGA-270)	DINING ROOM 132
0135			FIRST FLOOR		MANUAL STATION (SIGA-270)	KITCHEN 133
0136			FIRST FLOOR		MANUAL STATION (SIGA-270)	ELECTRIC 1045
0137			FIRST FLOOR		MANUAL STATION (SIGA-270)	SHOP/LABORATORY 134

MODULES WORKSHEET

LOOP #1

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0138			FIRST FLOOR		MANUAL STATION (SIGA-270)	SUPPLIES 134A
0139			FIRST FLOOR		MANUAL STATION (SIGA-270)	STUDENT STREET 1076 @ STAIR #2
0140			FIRST FLOOR		MANUAL STATION (SIGA-270)	VESTIBULE #2 1054
0141			FIRST FLOOR		MANUAL STATION (SIGA-270)	CLASSROOM 105
0142			FIRST FLOOR		MANUAL STATION (SIGA-270)	CORRIDOR 1117
0143			FIRST FLOOR		MANUAL STATION (SIGA-270)	CORRIDOR 1089
0144			FIRST FLOOR		MANUAL STATION (SIGA-270)	CLASSROOM 128
0145			FIRST FLOOR		MANUAL STATION (SIGA-270)	CORRIDOR 1124
0146			FIRST FLOOR		MANUAL STATION (SIGA-270)	CORRIDOR 1124
0147			FIRST FLOOR		MANUAL STATION (SIGA-270)	CORRIDOR 1131
0148			FIRST FLOOR		MANUAL STATION (SIGA-270)	CORRIDOR 1136
0149			SECOND FLOOR		MANUAL STATION (SIGA-270)	STAIR #1

MODULES WORKSHEET

LOOP #1

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0150			SECOND FLOOR		MANUAL STATION (SIGA-270)	BALCONY 2016
0151			SECOND FLOOR		MANUAL STATION (SIGA-270)	STAIR #2
0152						
0153						
0154						
0155						
0156						
0157						
0158						
0159						
0160						
0161						

MODULES WORKSHEET

LOOP #1

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0162						
0163						
0164						
0165						
0166						
0167						
0168						
0169						
0170						
0171						
0172						
0173						

MODULES WORKSHEET

LOOP #1

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0174						
0175						
0176						
0177						
0178						
0179						
0180						
0181						
0182						
0183						
0184						
0185						

MODULES WORKSHEET

LOOP #1

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0186						
0187						
0188						
0189						
0190						
0191						
0192						
0193						
0194						
0195						
0196						
0197						

MODULES WORKSHEET

LOOP #1

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0198						
0199						
0200						
0201						
0202						
0203						
0204						
0205						
0206						
0207						
0208						
0209						

MODULES WORKSHEET

LOOP #1

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0210						
0211						
0212						
0213						
0214						
0215						
0216						
0217						
0218						
0219						
0220						
0221						

MODULES WORKSHEET

LOOP #1

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0222						
0223						
0224						
0224						
0226						
0227						
0228						
0229						
0230						
0231						
0232						
0233						

MODULES WORKSHEET

LOOP #1

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0234						
0235						
0236						
0237						
0238						
0239						
0240						
0241						
0242						
0243						
0244						
0245						

MODULES WORKSHEET

LOOP #1

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0246						
0247						
0248						
0249						
0250						

DETECTOR WORKSHEET

LOOP #2

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0251			FIRST FLOOR		ISOLATOR MODULE (SIGA-IM)	CLASS A RETURN LOOP ISOLATION
0252			SECOND FLOOR		ISOLATOR MODULE (SIGA-IM)	CLASS A RETURN LOOP ISOLATION
0253						
0254						
0255						
0256						
0257						
0258						
0259						
0260						
0261						
0262						

DETECTOR WORKSHEET

LOOP #2

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0263						
0264						
0265						
0266						
0267						
0268						
0269						
0270						
0271						
0272						
0273						
0274						

DETECTOR WORKSHEET

LOOP #2

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0275						
0276						
0277						
0278						
0279						
0280						
0281						
0282						
0283						
0284						
0285						
0286						

DETECTOR WORKSHEET

LOOP #2

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0287						
0288						
0289						
0290						
0291						
0292						
0293						
0294						
0295						
0296						
0297						
0298						

DETECTOR WORKSHEET

LOOP #2

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0299						
0300						
0301						
0301						
0303						
0304						
0305						
0306						
0307						
0308						
0309						
0310						

DETECTOR WORKSHEET

LOOP #2

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0311						
0312						
0313						
0314						
0315						
0316						
0317						
0318						
0319						
0320						
0321						
0322						

DETECTOR WORKSHEET

LOOP #2

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0323						
0324						
0325						
0326						
0327						
0328						
0329						
0330						
0331						
0332						
0333						
0334						

DETECTOR WORKSHEET

LOOP #2

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0335						
0336						
0337						
0338						
0339						
0340						
0341						
0342						
0343						
0344						
0345						
0346						

DETECTOR WORKSHEET

LOOP #2

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0347						
0348						
0349						
0350						
0351						
0352						
0353						
0354						
0355						
0356						
0357						
0358						

DETECTOR WORKSHEET

LOOP #2

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0359						
0360						
0361						
0362						
0363						
0364						
0365						
0366						
0367						
0368						
0369						
0370						

DETECTOR WORKSHEET

LOOP #2

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0371						
0372						
0373						
0374						
0375						

MODULES WORKSHEET

LOOP #2

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0376			FIRST FLOOR		MONITOR MODULE (SIGA-CT2) INPUT 1	SPRINKLER FLOW SWITCH (ZONE 3) STUDENT STREET 1076
0377			FIRST FLOOR		MONITOR MODULE (SIGA-CT2) INPUT 2	SPRINKLER VALVE TAMPER SWITCH (ZONE 3) STUDENT STREET 1076
0378			FIRST FLOOR		MONITOR MODULE (SIGA-CT2) INPUT 1	SPRINKLER FLOW SWITCH (ZONE 1) METER ROOM 1029A
0379			FIRST FLOOR		MONITOR MODULE (SIGA-CT2) INPUT 2	SPRINKLER VALVE TAMPER SWITCH (ZONE 1) METER ROOM 1029A
0380			FIRST FLOOR		MONITOR MODULE (SIGA-CT2) INPUT 1	SPRINKLER FLOW SWITCH FIRE PUMP
0381			FIRST FLOOR		MONITOR MODULE (SIGA-CT2) INPUT 2	SPRINKLER VALVE TAMPER SWITCH FIRE PUMP
0382			FIRST FLOOR		MONITOR MODULE (SIGA-CT1)	SPRINKLER VALVE TAMPER SWITCH FIRE PUMP
0383			FIRST FLOOR		MONITOR MODULE (SIGA-CT1)	SPRINKLER VALVE TAMPER SWITCH FIRE PUMP
0384			FIRST FLOOR		MONITOR MODULE (SIGA-CT1)	SPRINKLER VALVE TAMPER SWITCH FIRE PUMP
0385			FIRST FLOOR		MONITOR MODULE (SIGA-CT1)	SPRINKLER VALVE TAMPER SWITCH FIRE PUMP
0386			FIRST FLOOR		MONITOR MODULE (SIGA-CT2) INPUT 1	SPRINKLER FLOW SWITCH MAIN WATER SERVICE
0387			FIRST FLOOR		MONITOR MODULE (SIGA-CT2) INPUT 2	SPRINKLER VALVE TAMPER SWITCH MAIN WATER SERVICE

MODULES WORKSHEET

LOOP #2

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0388			FIRST FLOOR		MONITOR MODULE (SIGA-CT1)	SPRINKLER VALVE TAMPER SWITCH MAIN WATER SERVICE
0389			FIRST FLOOR		MONITOR MODULE (SIGA-CT1)	SPRINKLER VALVE TAMPER SWITCH MAIN WATER SERVICE
0390			FIRST FLOOR		MONITOR MODULE (SIGA-CT2) INPUT 1	SPRINKLER FLOW SWITCH (ZONE 2) KITCHEN 133
0391			FIRST FLOOR		MONITOR MODULE (SIGA-CT2) INPUT 2	SPRINKLER VALVE TAMPER SWITCH (ZONE 2) KITCHEN 133
0392			FIRST FLOOR		MONITOR MODULE (SIGA-CT2) INPUT 1	SPRINKLER FLOW SWITCH (ZONE 4) CORRIDOR 1096
0393			FIRST FLOOR		MONITOR MODULE (SIGA-CT2) INPUT 2	SPRINKLER VALVE TAMPER SWITCH (ZONE 4) CORRIDOR 1096
0394			FIRST FLOOR		MONITOR MODULE (SIGA-CT2) INPUT 1	SPRINKLER FLOW SWITCH (ZONE 5) CORRIDOR 1096
0395			FIRST FLOOR		MONITOR MODULE (SIGA-CT2) INPUT 2	SPRINKLER VALVE TAMPER SWITCH (ZONE 5) CORRIDOR 1096
0396			FIRST FLOOR		MONITOR MODULE (SIGA-CT2) INPUT 1	SPRINKLER FLOW SWITCH (ZONE 6) CORRIDOR 1124
0397			FIRST FLOOR		MONITOR MODULE (SIGA-CT2) INPUT 2	SPRINKLER VALVE TAMPER SWITCH (ZONE 6) CORRIDOR 1124
0398			SECOND FLOOR		MONITOR MODULE (SIGA-CT2) INPUT 1	SPRINKLER FLOW SWITCH (ZONE 9)
0399			SECOND FLOOR		MONITOR MODULE (SIGA-CT2) INPUT 2	SPRINKLER VALVE TAMPER SWITCH (ZONE 9)

MODULES WORKSHEET

LOOP #2

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0400			SECOND FLOOR		MONITOR MODULE (SIGA-CT2) INPUT 1	SPRINKLER FLOW SWITCH (ZONE 10)
0401			SECOND FLOOR		MONITOR MODULE (SIGA-CT2) INPUT 2	SPRINKLER VALVE TAMPER SWITCH (ZONE 10)
0402			SECOND FLOOR		MONITOR MODULE (SIGA-CT2) INPUT 1	SPRINKLER FLOW SWITCH (ZONE 7) BAND 201
0403			SECOND FLOOR		MONITOR MODULE (SIGA-CT2) INPUT 2	SPRINKLER VALVE TAMPER SWITCH (ZONE 7) BAND 201
0404			SECOND FLOOR		MONITOR MODULE (SIGA-CT2) INPUT 1	SPRINKLER FLOW SWITCH (ZONE 10) BAND 201
0405			SECOND FLOOR		MONITOR MODULE (SIGA-CT2) INPUT 2	SPRINKLER VALVE TAMPER SWITCH (ZONE 10) BAND 201
0406			SECOND FLOOR		MONITOR MODULE (SIGA-CT2) INPUT 1	SPRINKLER FLOW SWITCH (ZONE 8) HOME ECONOMICS 203
0407			SECOND FLOOR		MONITOR MODULE (SIGA-CT2) INPUT 2	SPRINKLER VALVE TAMPER SWITCH (ZONE 8) HOME ECONOMICS 203
0408			SECOND FLOOR		MONITOR MODULE (SIGA-CT2) INPUT 1	SPRINKLER FLOW SWITCH (ZONE 10) HOME ECONOMICS 203
0409			SECOND FLOOR		MONITOR MODULE (SIGA-CT2) INPUT 2	SPRINKLER VALVE TAMPER SWITCH (ZONE 10) HOME ECONOMICS 203
0410						
0411						

MODULES WORKSHEET

LOOP #2

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0412						
0413						
0414						
0415						
0416						
0417						
0418						
0419						
0420						
0421						
0422						
0423						

MODULES WORKSHEET

LOOP #2

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0424						
0425						
0426						
0427						
0428						
0429						
0430						
0431						
0432						
0433						
0434						
0435						

MODULES WORKSHEET

LOOP #2

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0436						
0437						
0438						
0439						
0440						
0441						
0442						
0443						
0444						
0445						
0446						
0447						

MODULES WORKSHEET

LOOP #2

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0448						
0449						
0450						
0451						
0452						
0453						
0454						
0455						
0456						
0457						
0458						
0459						

MODULES WORKSHEET

LOOP #2

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0460						
0461						
0462						
0463						
0464						
0465						
0466						
0467						
0468						
0469						
0470						
0471						

MODULES WORKSHEET

LOOP #2

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0472						
0473						
0474						
0475						
0476						
0477						
0478						
0479						
0480						
0481						
0482						
0483						

MODULES WORKSHEET

LOOP #2

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0484						
0485						
0486						
0487						
0488						
0489						
0490						
0491						
0492						
0493						
0494						
0495						

MODULES WORKSHEET

LOOP #2

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0496						
0497						
0498						
0499						
0500						

DETECTOR WORKSHEET

LOOP #3

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0001			FIRST FLOOR		SMOKE/HEAT DETECTOR (SIGA-PHD)	STAIR #1 @ DOOR HOLDER
0002			FIRST FLOOR		SMOKE/HEAT DETECTOR (SIGA-PHD)	STUDENT STREET 1076 @ DOOR HOLDER
0003			FIRST FLOOR		SMOKE/HEAT DETECTOR (SIGA-PHD)	VESTIBULE #1 1001
0004			FIRST FLOOR		CARBON MONOXIDE DET W/ SOUNDER BASE (SIGA-COD/SIGA-AB4GT)	BOILER ROOM 1028
0005			FIRST FLOOR		SMOKE/HEAT DETECTOR (SIGA-PHD)	STAIR #2 @ DOOR HOLDER
0006			FIRST FLOOR		SMOKE/HEAT DETECTOR (SIGA-PHD)	STUDENT STREET 1076 @ DOOR HOLDER
0007			FIRST FLOOR		SMOKE/HEAT DETECTOR (SIGA-PHD)	VESTIBULE #2 1054
0008			FIRST FLOOR		SMOKE/HEAT DETECTOR (SIGA-PHD)	CUSTODIAL CLOSET 1055
0009			FIRST FLOOR		SMOKE/HEAT DETECTOR (SIGA-PHD)	ELEVATOR PIT
0010			FIRST FLOOR		HEAT DETECTOR (SIGA-HRD)	ELEVATOR PIT
0011			FIRST FLOOR		SMOKE/HEAT DETECTOR (SIGA-PHD)	ELEVATOR LOBBY
0012			FIRST FLOOR		SMOKE/HEAT DETECTOR (SIGA-PHD)	ELEVATOR MACHINE ROOM 1034

DETECTOR WORKSHEET

LOOP #3

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0013			FIRST FLOOR		HEAT DETECTOR (SIGA-HRD)	ELEVATOR MACHINE ROOM 1034
0014			FIRST FLOOR		DUCT DETECTOR (SIGA-SD)	SF-2
0015			FIRST FLOOR		DUCT DETECTOR (SIGA-SD)	SF-2
0016			FIRST FLOOR		SMOKE/HEAT DETECTOR (SIGA-PHD)	STUDENT STREET 1076 @ DOOR HOLDER
0017			FIRST FLOOR		SMOKE/HEAT DETECTOR (SIGA-PHD)	CORRIDOR 1073 @ DOOR HOLDERS
0018			FIRST FLOOR		SMOKE/HEAT DETECTOR (SIGA-PHD)	STUDENT STREET 1076 @ DOOR HOLDER
0019			FIRST FLOOR		SMOKE/HEAT DETECTOR (SIGA-PHD)	CORRIDOR 1080 @ DOOR HOLDERS
0020			FIRST FLOOR		SMOKE/HEAT DETECTOR (SIGA-PHD)	MEDIA CENTER 1081 @ DOOR HOLDERS
0021			FIRST FLOOR		SMOKE/HEAT DETECTOR (SIGA-PHD)	CORRIDOR 1117 @ DOOR HOLDERS
0022			FIRST FLOOR		SMOKE/HEAT DETECTOR (SIGA-PHD)	MEDIA CENTER 1081 @ DOOR HOLDERS
0023			FIRST FLOOR		SMOKE/HEAT DETECTOR (SIGA-PHD)	CORRIDOR 1089 @ DOOR HOLDERS
0024			FIRST FLOOR		SMOKE/HEAT DETECTOR (SIGA-PHD)	MEDIA CENTER 1081 @ DOOR HOLDERS

DETECTOR WORKSHEET

LOOP #3

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0025			FIRST FLOOR		SMOKE/HEAT DETECTOR (SIGA-PHD)	CORRIDOR 1116 @ DOOR HOLDERS
0026			FIRST FLOOR		SMOKE/HEAT DETECTOR (SIGA-PHD)	MEDIA CENTER 1081 @ DOOR HOLDERS
0027			FIRST FLOOR		SMOKE/HEAT DETECTOR (SIGA-PHD)	CORRIDOR 1096 @ DOOR HOLDERS
0028			FIRST FLOOR		SMOKE/HEAT DETECTOR (SIGA-PHD)	ELECTRICAL CLOSET 1082
0029			FIRST FLOOR		DUCT DETECTOR (SIGA-SD)	RAHU-1 SUPPLY
0030			FIRST FLOOR		DUCT DETECTOR (SIGA-SD)	RAHU-1 RETURN
0031			FIRST FLOOR		DUCT DETECTOR (SIGA-SD)	RAHU-2 SUPPLY
0032			FIRST FLOOR		DUCT DETECTOR (SIGA-SD)	RAHU-2 SUPPLY
0033			FIRST FLOOR		DUCT DETECTOR (SIGA-SD)	RAHU-2 RETURN
0034			FIRST FLOOR		DUCT DETECTOR (SIGA-SD)	RAHU-3 SUPPLY
0035			FIRST FLOOR		DUCT DETECTOR (SIGA-SD)	RAHU-3 RETURN
0036			FIRST FLOOR		DUCT DETECTOR (SIGA-SD)	RAHU-4 SUPPLY

DETECTOR WORKSHEET

LOOP #3

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0037			FIRST FLOOR		DUCT DETECTOR (SIGA-SD)	RAHU-4 RETURN
0038			FIRST FLOOR		DUCT DETECTOR (SIGA-SD)	FIRE/SMOKE DAMPER
0039			FIRST FLOOR		DUCT DETECTOR (SIGA-SD)	FIRE/SMOKE DAMPER
0040			FIRST FLOOR		DUCT DETECTOR (SIGA-SD)	FIRE/SMOKE DAMPER
0041			FIRST FLOOR		ISOLATOR MODULE (SIGA-IM)	CLASS A RETURN LOOP ISOLATION
0042			SECOND FLOOR		SMOKE/HEAT DETECTOR (SIGA-PHD)	STAIR #1 @ DOOR HOLDER
0043			SECOND FLOOR		SMOKE/HEAT DETECTOR (SIGA-PHD)	STAIR #1 @ DOOR HOLDER
0044			SECOND FLOOR		DUCT DETECTOR (SIGA-SD)	ELEC. CL. 2002A
0045			SECOND FLOOR		DUCT DETECTOR (SIGA-SD)	RAHU-10 SUPPLY
0046			SECOND FLOOR		DUCT DETECTOR (SIGA-SD)	RAHU-10 RETURN
0047			SECOND FLOOR		DUCT DETECTOR (SIGA-SD)	DOAS-1 SUPPLY
0048			SECOND FLOOR		DUCT DETECTOR (SIGA-SD)	DOAS-1 RETURN

DETECTOR WORKSHEET

LOOP #3

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0049			SECOND FLOOR		DUCT DETECTOR (SIGA-SD)	RAHU-6 SUPPLY
0050			SECOND FLOOR		DUCT DETECTOR (SIGA-SD)	RAHU-6 SUPPLY
0051			SECOND FLOOR		DUCT DETECTOR (SIGA-SD)	RAHU-6 RETURN
0052			SECOND FLOOR		DUCT DETECTOR (SIGA-SD)	RAHU-5 SUPPLY
0053			SECOND FLOOR		DUCT DETECTOR (SIGA-SD)	RAHU-5 RETURN
0054			SECOND FLOOR		DUCT DETECTOR (SIGA-SD)	RAHU-12 SUPPLY
0055			SECOND FLOOR		DUCT DETECTOR (SIGA-SD)	RAHU-12 RETURN
0056			SECOND FLOOR		SMOKE/HEAT DETECTOR (SIGA-PHD)	STAIR #1 @ DOOR HOLDER
0057			SECOND FLOOR		SMOKE/HEAT DETECTOR (SIGA-PHD)	STAIR #1 @ DOOR HOLDER
0058			SECOND FLOOR		SMOKE/HEAT DETECTOR (SIGA-PHD)	ELEC. CL. 2034A
0059			SECOND FLOOR		SMOKE/HEAT DETECTOR (SIGA-PHD)	ELEVATOR LOBBY
0060			SECOND FLOOR		SMOKE/HEAT DETECTOR (SIGA-PHD)	ELEVATOR TOP OF SHAFT

DETECTOR WORKSHEET

LOOP #3

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0061			SECOND FLOOR		HEAT DETECTOR (SIGA-HRD)	ELEVATOR TOP OF SHAFT
0062			SECOND FLOOR		DUCT DETECTOR (SIGA-SD)	RAHU-11 SUPPLY
0063			SECOND FLOOR		DUCT DETECTOR (SIGA-SD)	RAHU-11 RETURN
0064			SECOND FLOOR		DUCT DETECTOR (SIGA-SD)	RAHU-8 SUPPLY
0065			SECOND FLOOR		DUCT DETECTOR (SIGA-SD)	RAHU-8 RETURN
0066			SECOND FLOOR		DUCT DETECTOR (SIGA-SD)	RAHU-9 SUPPLY
0067			SECOND FLOOR		DUCT DETECTOR (SIGA-SD)	RAHU-9 RETURN
0068			SECOND FLOOR		DUCT DETECTOR (SIGA-SD)	RAHU-7 SUPPLY
0069			SECOND FLOOR		DUCT DETECTOR (SIGA-SD)	RAHU-7 RETURN
0070			SECOND FLOOR		ISOLATOR MODULE (SIGA-IM)	CLASS A RETURN LOOP ISOLATION
0071						
0072						

DETECTOR WORKSHEET

LOOP #3

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0073						
0074						
0075						
0076						
0077						
0078						
0079						
0080						
0081						
0082						
0083						
0084						

DETECTOR WORKSHEET

LOOP #3

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0085						
0086						
0087						
0088						
0089						
0090						
0091						
0092						
0093						
0094						
0095						
0096						

DETECTOR WORKSHEET

LOOP #3

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0097						
0098						
0099						
0100						
0101						
0102						
0103						
0104						
0105						
0106						
0107						
0108						

DETECTOR WORKSHEET

LOOP #3

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0109						
0110						
0111						
0112						
0113						
0114						
0115						
0116						
0117						
0118						
0119						
0120						

DETECTOR WORKSHEET

LOOP #3

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0121						
0122						
0123						
0124						
0125						

MODULES WORKSHEET

LOOP #3

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0126			FIRST FLOOR		SIGA-TCDR TEMPORAL CODER	CO DETECTOR TEMPORAL PATTERN GENERATOR
0127			FIRST FLOOR		"	CO DETECTOR TEMPORAL PATTERN GENERATOR
0128						
0129						
0130						
0131						
0132						
0133						
0134						
0135						
0136						
0137						

MODULES WORKSHEET

LOOP #3

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0138						
0139						
0140						
0141						
0142						
0143						
0144						
0145						
0146						
0147						
0148						
0149						

MODULES WORKSHEET

LOOP #3

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0150						
0151						
0152						
0153						
0154						
0155						
0156						
0157						
0158						
0159						
0160						
0161						

MODULES WORKSHEET

LOOP #3

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0162						
0163						
0164						
0165						
0166						
0167						
0168						
0169						
0170						
0171						
0172						
0173						

MODULES WORKSHEET

LOOP #3

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0174						
0175						
0176						
0177						
0178						
0179						
0180						
0181						
0182						
0183						
0184						
0185						

MODULES WORKSHEET

LOOP #3

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0186						
0187						
0188						
0189						
0190						
0191						
0192						
0193						
0194						
0195						
0196						
0197						

MODULES WORKSHEET

LOOP #3

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0198						
0199						
0200						
0201						
0202						
0203						
0204						
0205						
0206						
0207						
0208						
0209						

MODULES WORKSHEET

LOOP #3

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0210						
0211						
0212						
0213						
0214						
0215						
0216						
0217						
0218						
0219						
0220						
0221						

MODULES WORKSHEET

LOOP #3

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0222						
0223						
0224						
0224						
0226						
0227						
0228						
0229						
0230						
0231						
0232						
0233						

MODULES WORKSHEET

LOOP #3

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0234						
0235						
0236						
0237						
0238						
0239						
0240						
0241						
0242						
0243						
0244						
0245						

MODULES WORKSHEET

LOOP #3

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0246						
0247						
0248						
0249						
0250						

DETECTOR WORKSHEET

LOOP #4

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0251			FIRST FLOOR		ISOLATOR MODULE (SIGA-IM)	CLASS A RETURN LOOP ISOLATION
0252			SECOND FLOOR		ISOLATOR MODULE (SIGA-IM)	CLASS A RETURN LOOP ISOLATION
0253						
0254						
0255						
0256						
0257						
0258						
0259						
0260						
0261						
0262						

DETECTOR WORKSHEET

LOOP #4

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0263						
0264						
0265						
0266						
0267						
0268						
0269						
0270						
0271						
0272						
0273						
0274						

DETECTOR WORKSHEET

LOOP #4

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0275						
0276						
0277						
0278						
0279						
0280						
0281						
0282						
0283						
0284						
0285						
0286						

DETECTOR WORKSHEET

LOOP #4

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0287						
0288						
0289						
0290						
0291						
0292						
0293						
0294						
0295						
0296						
0297						
0298						

DETECTOR WORKSHEET

LOOP #4

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0299						
0300						
0301						
0301						
0303						
0304						
0305						
0306						
0307						
0308						
0309						
0310						

DETECTOR WORKSHEET

LOOP #4

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0311						
0312						
0313						
0314						
0315						
0316						
0317						
0318						
0319						
0320						
0321						
0322						

DETECTOR WORKSHEET

LOOP #4

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0323						
0324						
0325						
0326						
0327						
0328						
0329						
0330						
0331						
0332						
0333						
0334						

DETECTOR WORKSHEET

LOOP #4

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0335						
0336						
0337						
0338						
0339						
0340						
0341						
0342						
0343						
0344						
0345						
0346						

DETECTOR WORKSHEET

LOOP #4

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0347						
0348						
0349						
0350						
0351						
0352						
0353						
0354						
0355						
0356						
0357						
0358						

DETECTOR WORKSHEET

LOOP #4

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0359						
0360						
0361						
0362						
0363						
0364						
0365						
0366						
0367						
0368						
0369						
0370						

DETECTOR WORKSHEET

LOOP #4

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0371						
0372						
0373						
0374						
0375						

MODULES WORKSHEET

LOOP #4

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0376			FIRST FLOOR		SYNC SIGNAL MODULE (SIGA-CC1S)	BPS-1 & BPS-2 ACTIVATION
0377			FIRST FLOOR		SYNC SIGNAL MODULE (SIGA-CC1S)	BPS-3 & BPS-4 ACTIVATION
0378			FIRST FLOOR		CONTROL RELAY (SIGA-CR)	SECURITY SYSTEM OVERRIDE
0379			FIRST FLOOR		CONTROL RELAY (SIGA-CR)	GYMNASIUM SOUND SYSTEM OVERRIDE
0380			FIRST FLOOR		CONTROL RELAY (SIGA-CR)	DINING ROOM SOUND SYSTEM OVERRIDE
0381			FIRST FLOOR		MONITOR MODULE (SIGA-CT2) INPUT 1	GENERATOR RUNNING
0382			FIRST FLOOR		MONITOR MODULE (SIGA-CT2) INPUT 2	GENERATOR FAULT
0383			FIRST FLOOR		CONTROL RELAY (SIGA-CR)	ACCESS CONTROL SYSTEM OVERRIDE
0384			FIRST FLOOR		MONITOR MODULE (SIGA-CT1)	KITCHEN HOOD SYSTEM
0385			FIRST FLOOR		CONTROL RELAY (SIGA-CR)	KITCHEN GAS SUPPLY SHUTOFF
0386			FIRST FLOOR		CONTROL RELAY (SIGA-CR)	A/V SYSTEM SHUTOFF
0387			FIRST FLOOR		MONITOR MODULE (SIGA-RM1)	24V FLOOR RISER #1 FAULT

MODULES WORKSHEET

LOOP #4

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0388			FIRST FLOOR		TEMPORAL CODER (SIGA-TCDR)	CO DETECTOR TEMPORAL PATTERN GENERATOR
0389			FIRST FLOOR		TEMPORAL CODER (SIGA-TCDR)	CO DETECTOR TEMPORAL PATTERN GENERATOR
0390			FIRST FLOOR		CONTROL RELAY (SIGA-CR)	DOOR HOLDER RELEASE
0391			FIRST FLOOR		CONTROL RELAY (SIGA-CR)	RAHU-1 SHUTDOWN
0392			FIRST FLOOR		CONTROL RELAY (SIGA-CR)	RAHU-2 SHUTDOWN
0393			FIRST FLOOR		CONTROL RELAY (SIGA-CR)	RAHU-3 SHUTDOWN
0394			FIRST FLOOR		CONTROL RELAY (SIGA-CR)	RAHU-4 SHUTDOWN
0395			FIRST FLOOR		CONTROL RELAY (SIGA-CR)	SF-2 SHUTDOWN
0396			FIRST FLOOR		CONTROL RELAY (SIGA-CR)	FIRE/SMOKE DAMPER RELEASE
0397			FIRST FLOOR		CONTROL RELAY (SIGA-CR)	FIRE/SMOKE DAMPER RELEASE
0398			FIRST FLOOR		CONTROL RELAY (SIGA-CR)	FIRE/SMOKE DAMPER RELEASE
0399			FIRST FLOOR		CONTROL RELAY (SIGA-CR)	ELEVATOR PRIMARY RECALL

MODULES WORKSHEET

LOOP #4

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0400			FIRST FLOOR		CONTROL RELAY (SIGA-CR)	ELEVATOR ALTERNATE RECALL
0401			FIRST FLOOR		CONTROL RELAY (SIGA-CR)	ELEVATOR FIREMANS HAT
0402			FIRST FLOOR		CONTROL RELAY (SIGA-CR)	ELEVATOR POWER SHUNT-TRIP
0403			FIRST FLOOR		MONITOR MODULE (SIGA-CT1)	ELEVATOR SHUNT-TRIP STATUS MONITOR
0404			FIRST FLOOR		MONITOR MODULE (SIGA-CT2) INPUT 1	FIRE PUMP RUN
0405			FIRST FLOOR		MONITOR MODULE (SIGA-CT2) INPUT 2	FIRE PUMP FAULT
0406			FIRST FLOOR		MONITOR MODULE (SIGA-CT1)	FIRE PUMP PHASE REVERSAL
0407			SECOND FLOOR		SYNC SIGNAL MODULE (SIGA-CC1S)	BPS-5 ACTIVATION
0408			SECOND FLOOR		MONITOR MODULE (SIGA-CT1)	REMOTE MIC PANEL
0409			SECOND FLOOR		CONTROL RELAY (SIGA-CR)	DOOR HOLDER RELEASE
0410			SECOND FLOOR		CONTROL RELAY (SIGA-CR)	DOAS-1 SHUTDOWN
0411			SECOND FLOOR		CONTROL RELAY (SIGA-CR)	RAHU-5 SHUTDOWN

MODULES WORKSHEET

LOOP #4

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0412			SECOND FLOOR		CONTROL RELAY (SIGA-CR)	RAHU-12 SHUTDOWN
0413			SECOND FLOOR		CONTROL RELAY (SIGA-CR)	RAHU-6 SHUTDOWN
0414			SECOND FLOOR		CONTROL RELAY (SIGA-CR)	RAHU-10 SHUTDOWN
0415			SECOND FLOOR		CONTROL RELAY (SIGA-CR)	RAHU-7 SHUTDOWN
0416			SECOND FLOOR		CONTROL RELAY (SIGA-CR)	RAHU-8 SHUTDOWN
0417			SECOND FLOOR		CONTROL RELAY (SIGA-CR)	RAHU-9 SHUTDOWN
0418			SECOND FLOOR		CONTROL RELAY (SIGA-CR)	RAHU-11 SHUTDOWN
0419			SECOND FLOOR		CONTROL RELAY (SIGA-CR)	DUCT DETECTOR SHUTDOWN
0420						
0421						
0422						
0423						

MODULES WORKSHEET

LOOP #4

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0424						
0425						
0426						
0427						
0428						
0429						
0430						
0431						
0432						
0433						
0434						
0435						

MODULES WORKSHEET

LOOP #4

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0436						
0437						
0438						
0439						
0440						
0441						
0442						
0443						
0444						
0445						
0446						
0447						

MODULES WORKSHEET

LOOP #4

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0448						
0449						
0450						
0451						
0452						
0453						
0454						
0455						
0456						
0457						
0458						
0459						

MODULES WORKSHEET

LOOP #4

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0460						
0461						
0462						
0463						
0464						
0465						
0466						
0467						
0468						
0469						
0470						
0471						

MODULES WORKSHEET

LOOP #4

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0472						
0473						
0474						
0475						
0476						
0477						
0478						
0479						
0480						
0481						
0482						
0483						

MODULES WORKSHEET

LOOP #4

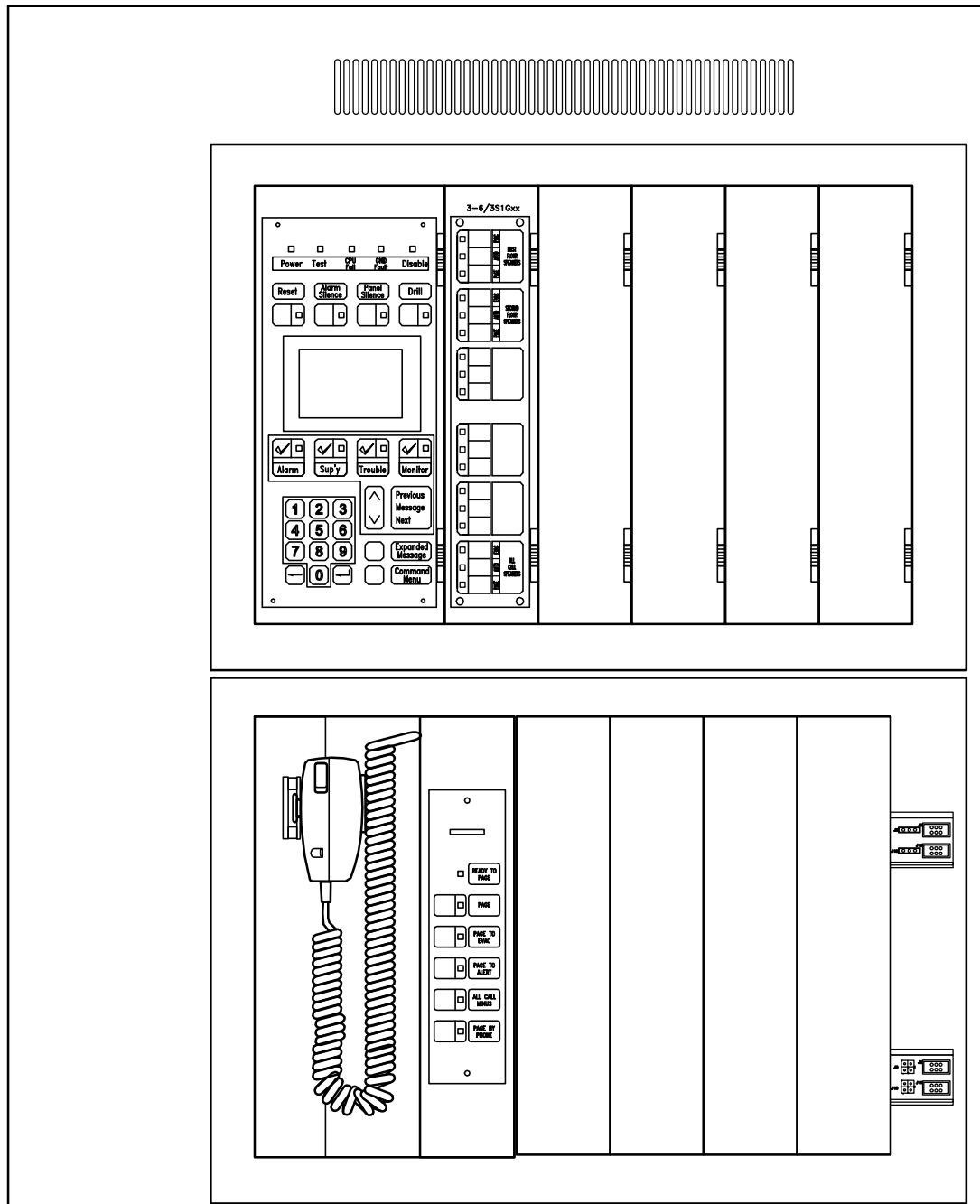
DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0484						
0485						
0486						
0487						
0488						
0489						
0490						
0491						
0492						
0493						
0494						
0495						

MODULES WORKSHEET

LOOP #4

DEVICE ADDRESS	SERIAL No. DEVICE LABEL	TYPE CODE	LEVEL / FLOOR	ZONE	DEVICE TYPE	LOCATION / DESCRIPTION
0496						
0497						
0498						
0499						
0500						

SECTION 5



3-CAB14 - FRONT VIEW

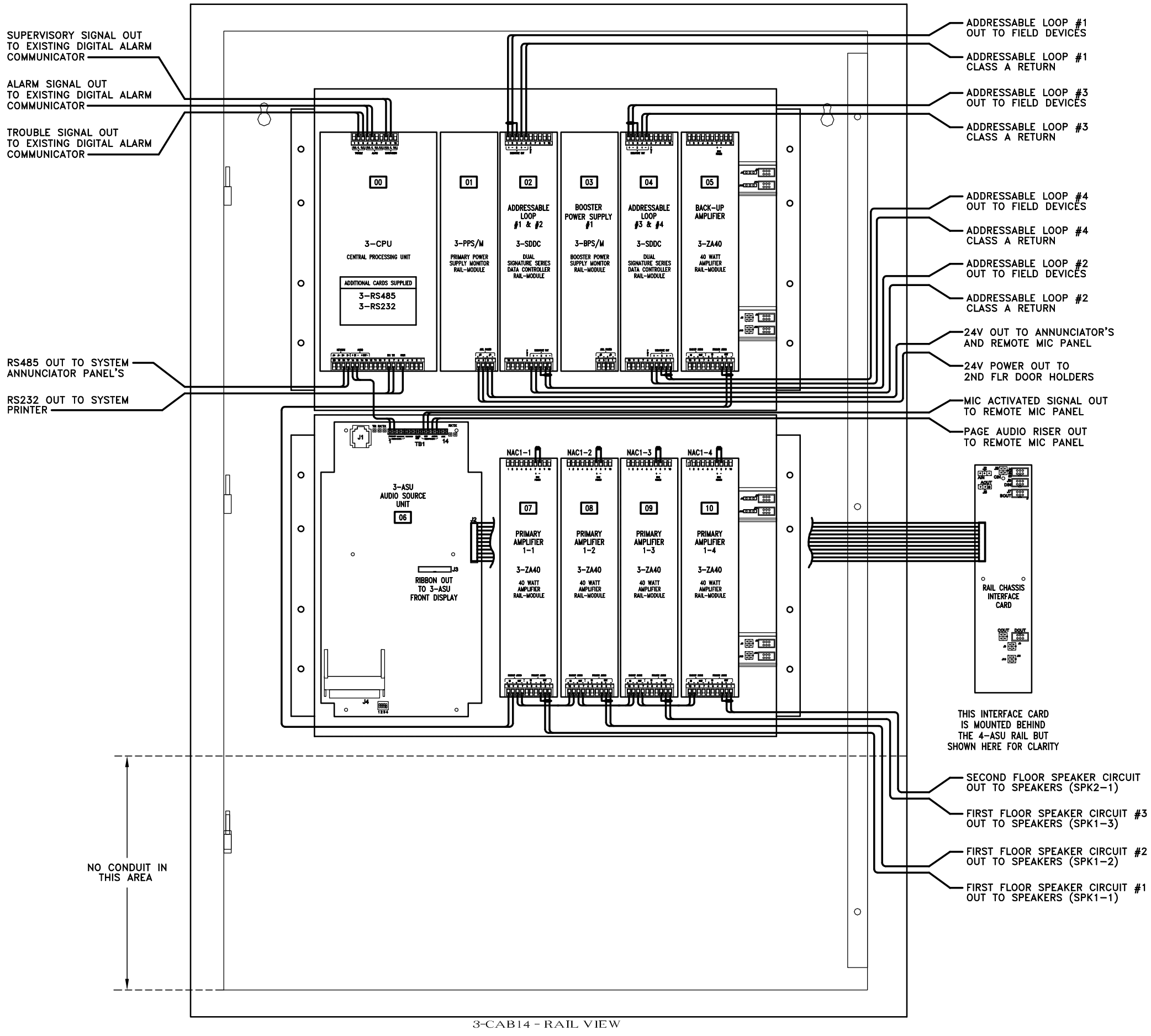
NO.	DATE	REVISIONS
-	-	-

ARK SYSTEMS
9176 RED BRANCH ROAD
COLUMBIA, MARYLAND 21045
BALTIMORE (410) 995-1220
WASHINGTON (301) 621-5736

HCPS - BURLEIGH MANOR MIDDLE SCHOOL

3-CAB14 FIRE ALARM CONTROL PANEL

DATE: 3-7-19
DRAWN BY: AMS
CHECKED BY: CG
SCALE: NONE
FILE NAME: 3-CAB14
SHEET: 1 OF 3
DWG. NO.: 1-1A



3-CAB14 - RAIL VIEW

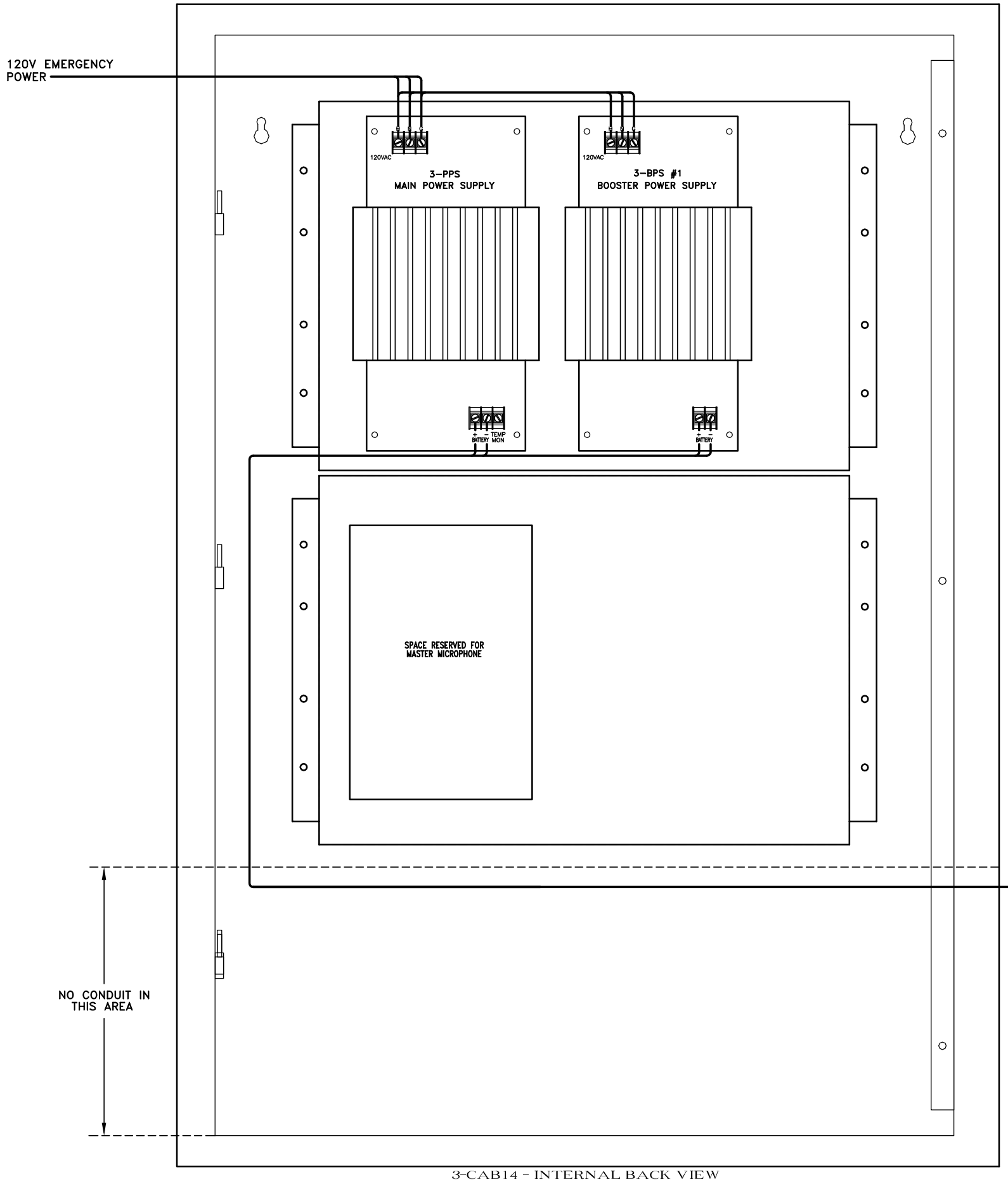
NO.	DATE	REVISIONS
–	–	–

ARK SYSTEMS
9176 RED BRANCH ROAD
COLUMBIA, MARYLAND 21045
BALTIMORE (410) 995-1220
WASHINGTON (301) 621-5736

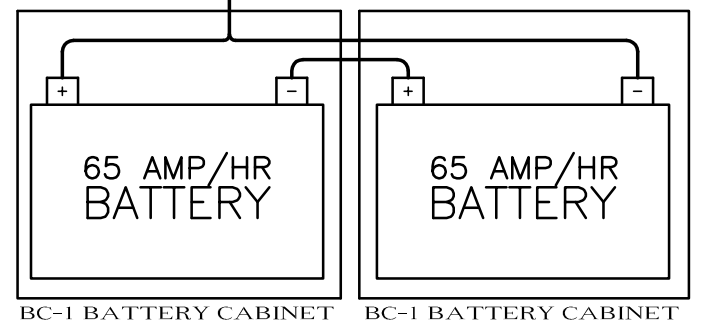
HCPS - BURLEIGH MANOR MIDDLE SCHOOL

3-CAB14 FIRE ALARM CONTROL PANEL

DATE: 3-7-19
DRAWN BY: AMS
CHECKED BY: CG
SCALE: NONE
FILE NAME: 3-CAB14
SHEET: 2 OF 3
DWG. NO.: 1-1B



3-CAB14 - INTERNAL BACK VIEW



BC-1 BATTERY CABINET

BC-1 BATTERY CABINET

NO.	DATE	REVISIONS
-	-	-

ARK SYSTEMS
9176 RED BRANCH ROAD
COLUMBIA, MARYLAND 21045
BALTIMORE (410) 995-1220
WASHINGTON (301) 621-5736

HCPS - BURLEIGH MANOR MIDDLE SCHOOL

3-CAB14 FIRE ALARM CONTROL PANEL

DATE: 3-7-19
DRAWN BY: AMS
CHECKED BY: CG
SCALE: NONE
FILE NAME: 3-CAB14
SHEET: 3 OF 3

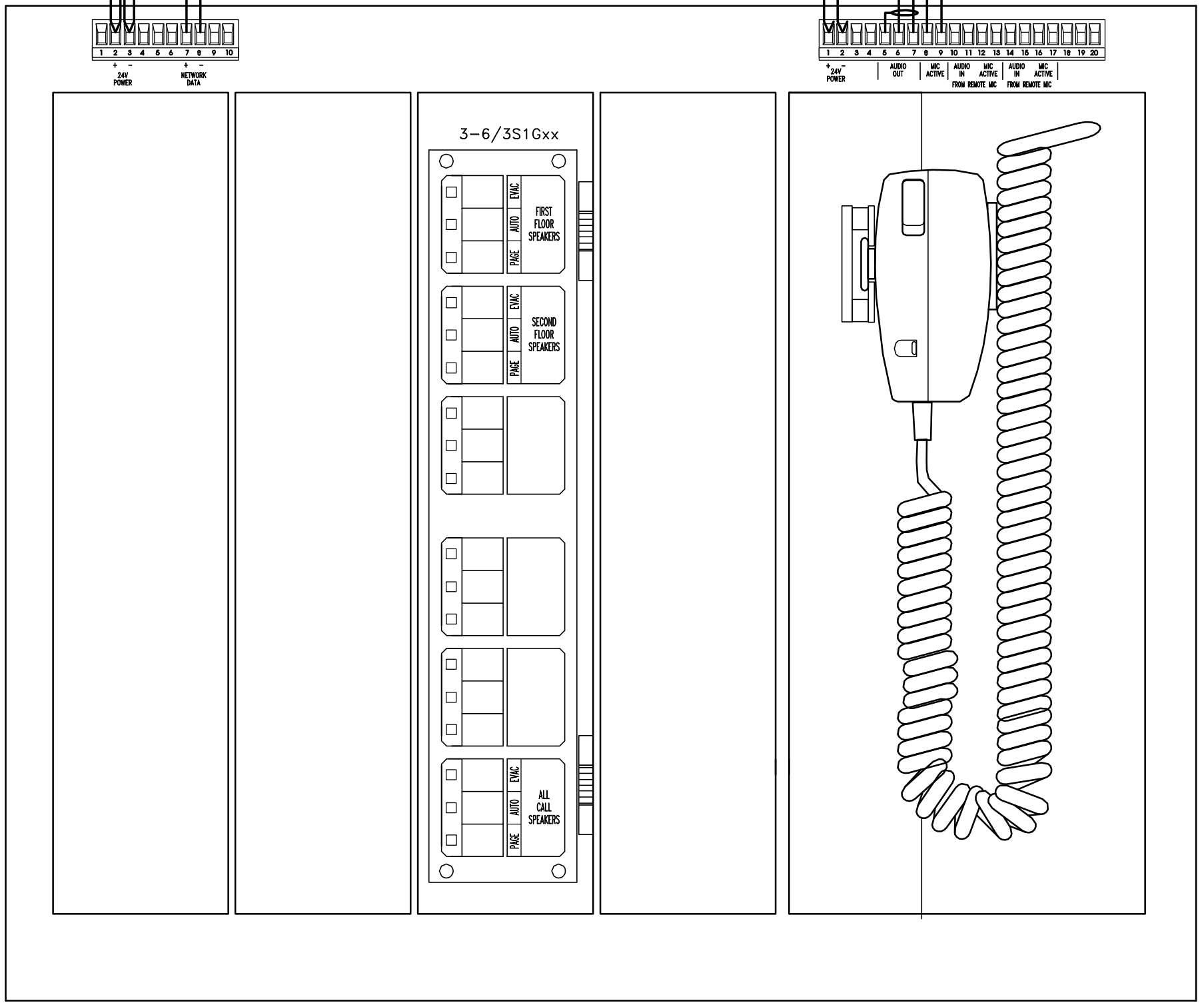
DWG. NO.: 1-1C

MICROPHONE ACTIVATED
SIGNAL IN FROM AUDIO SOURCE
UNIT IN THE FACP

MICROPHONE AUDIO RISER
IN FROM AUDIO SOURCE
UNIT IN THE FACP

RS485 NETWORK COMM
IN FROM ANNUNCIATOR

24V POWER RISER
IN FROM FACP



NO.	DATE	REVISIONS
–	–	–

ARK SYSTEMS
9176 RED BRANCH ROAD
COLUMBIA, MARYLAND 21045
BALTIMORE (410) 995-1220
WASHINGTON (301) 621-5736

HCPS - BURLEIGH MANOR MIDDLE SCHOOL

REMOTE MIC ANNUNCIATOR PANEL

DATE: 3-7-19
DRAWN BY: AMS
CHECKED BY: CG
SCALE: NONE
FILE NAME: 3-6ANN
SHEET: 1 OF 1
DWG. NO.: 1-2

HCPS - BURLEIGH MANOR MIDDLE SCHOOL

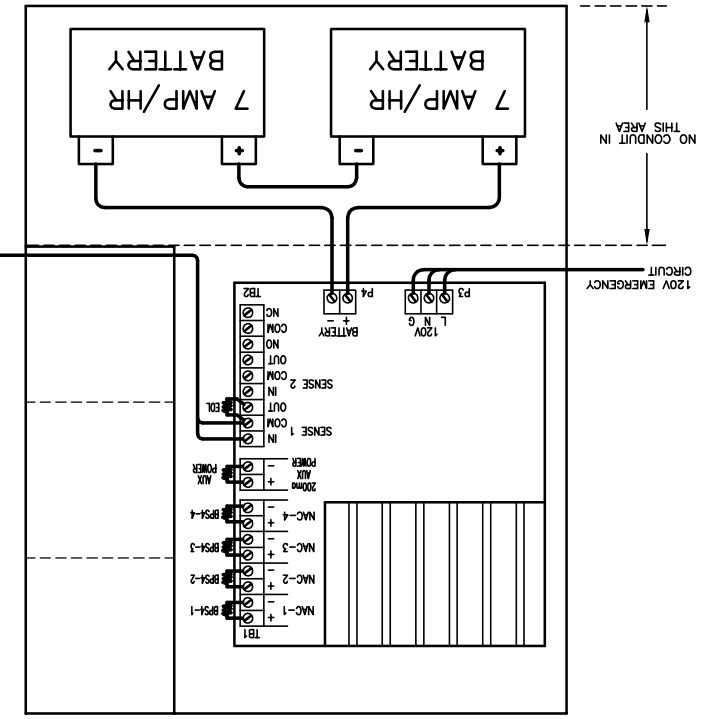
BPS10A
BOOSTER POWER SUPPLYS #1 - #4

DATE: 3-7-19
DRAWN BY: AMS
CHECKED BY: CG
SCALE: NONE
FILE NAME: 1DPM-CC1
SHEET: 1 OF 2
DWG. NO.: 1-3A

NO.	DATE	REVISIONS
–	–	–

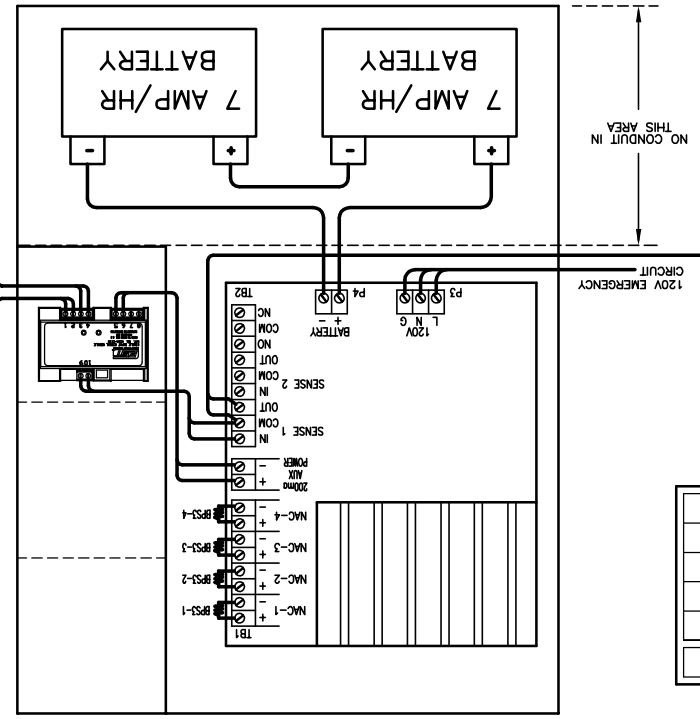
ARK SYSTEMS
9176 RED BRANCH ROAD
COLUMBIA, MARYLAND 21045
BALTIMORE (410) 995-1220
WASHINGTON (301) 621-5736

BOOSTER POWER SUPPLY #4 WIRING DETAIL



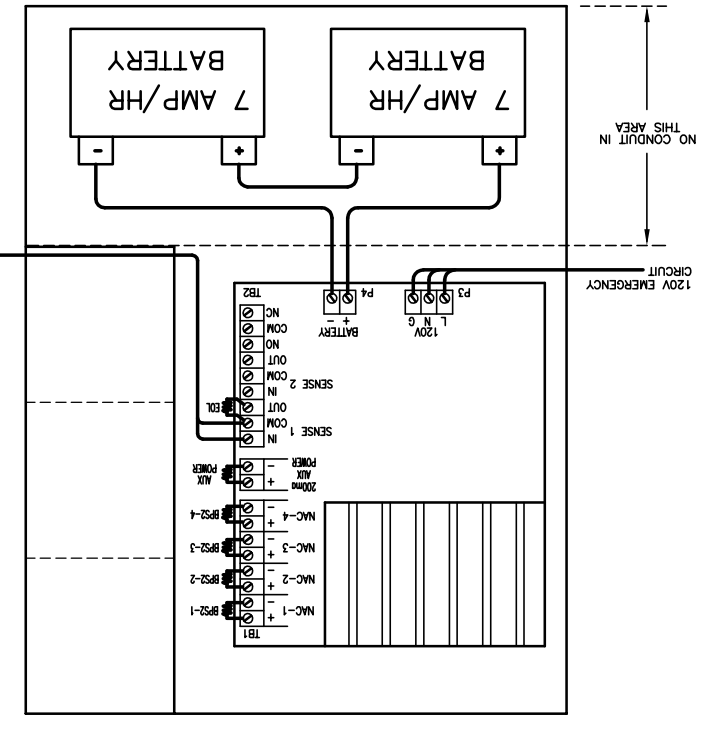
CKT.#	DESCRIPTION
BPS4-1	FIRST FLOOR STROBE CIRCUIT #13
BPS4-2	FIRST FLOOR STROBE CIRCUIT #14
BPS4-3	24V POWER RISER CIRCUIT
BPS4-4	FIRST FLOOR DOOR HOLDER CIRCUIT
AUX PWR	SPARE

BOOSTER POWER SUPPLY #3 WIRING DETAIL



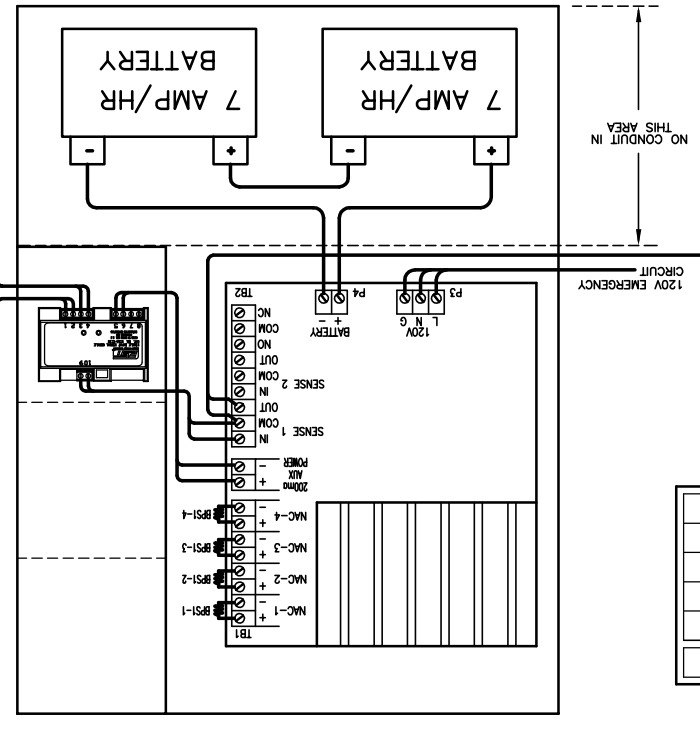
CKT.#	DESCRIPTION
BPS3-1	FIRST FLOOR STROBE CIRCUIT #9
BPS3-2	FIRST FLOOR STROBE CIRCUIT #10
BPS3-3	FIRST FLOOR STROBE CIRCUIT #11
BPS3-4	FIRST FLOOR STROBE CIRCUIT #12
AUX PWR	BPS-3 & BPS-4 ACTIVATION CIRCUIT

BOOSTER POWER SUPPLY #2 WIRING DETAIL

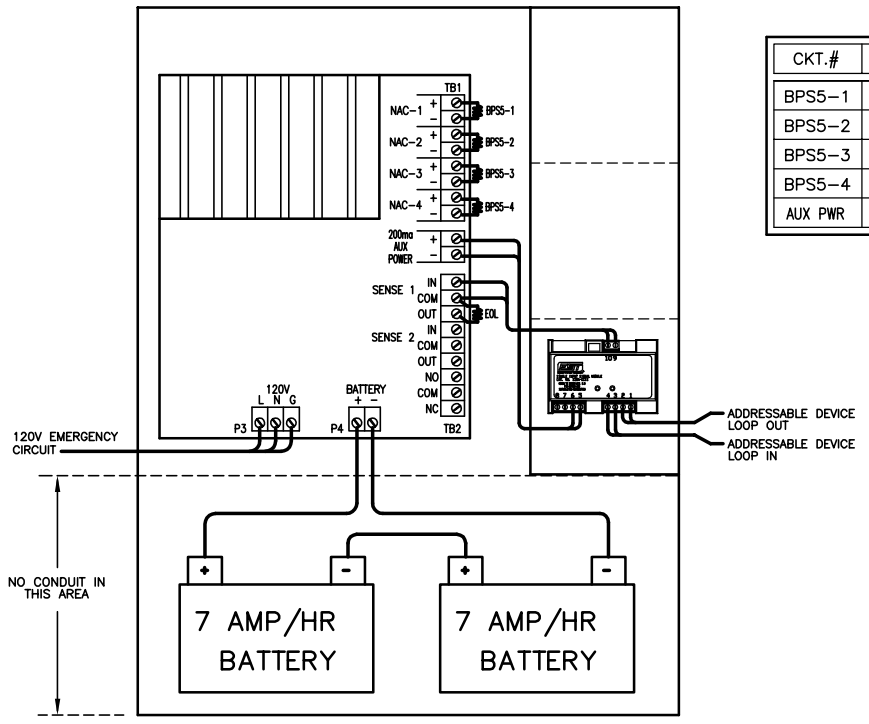


CKT.#	DESCRIPTION
BPS2-1	FIRST FLOOR STROBE CIRCUIT #5
BPS2-2	FIRST FLOOR STROBE CIRCUIT #6
BPS2-3	FIRST FLOOR STROBE CIRCUIT #7
BPS2-4	FIRST FLOOR STROBE CIRCUIT #8
AUX PWR	SPARE

BOOSTER POWER SUPPLY #1 WIRING DETAIL



CKT.#	DESCRIPTION
BPS1-1	FIRST FLOOR STROBE CIRCUIT #1
BPS1-2	FIRST FLOOR STROBE CIRCUIT #2
BPS1-3	FIRST FLOOR STROBE CIRCUIT #3
BPS1-4	FIRST FLOOR STROBE CIRCUIT #4
AUX PWR	BPS-1 & BPS-2 ACTIVATION CIRCUIT



BOOSTER POWER SUPPLY #5 WIRING DETAIL

CKT.#	DESCRIPTION
BPS5-1	SECOND FLOOR STROBE CIRCUIT #1
BPS5-2	SECOND FLOOR STROBE CIRCUIT #2
BPS5-3	SECOND FLOOR STROBE CIRCUIT #3
BPS5-4	SECOND FLOOR STROBE CIRCUIT #4
AUX PWR	BPS-5 ACTIVATION CIRCUIT

NO.	DATE	REVISIONS
-	-	-

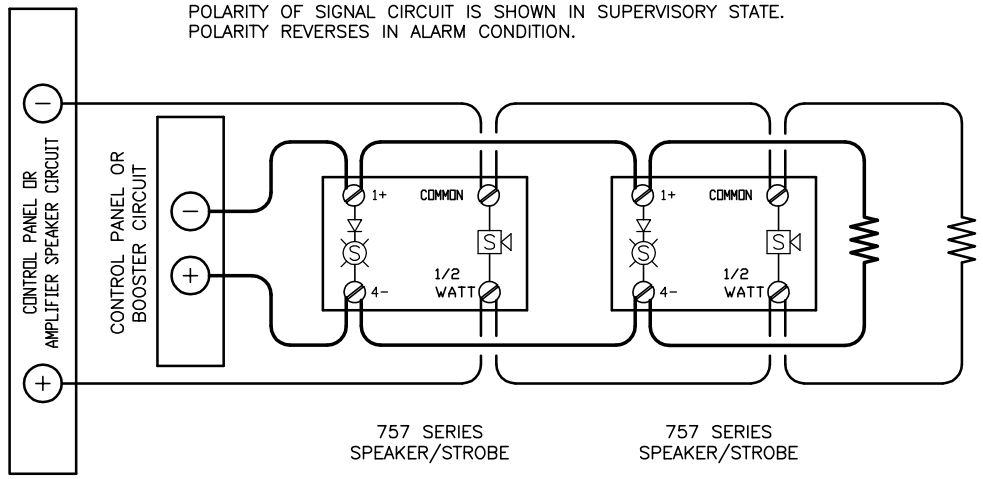
ARK SYSTEMS
9176 RED BRANCH ROAD
COLUMBIA, MARYLAND 21045
BALTIMORE (410) 995-1220
WASHINGTON (301) 621-5736

HCPS - BURLEIGH MANOR MIDDLE SCHOOL

BPS10A
BOOSTER POWER SUPPLY #5

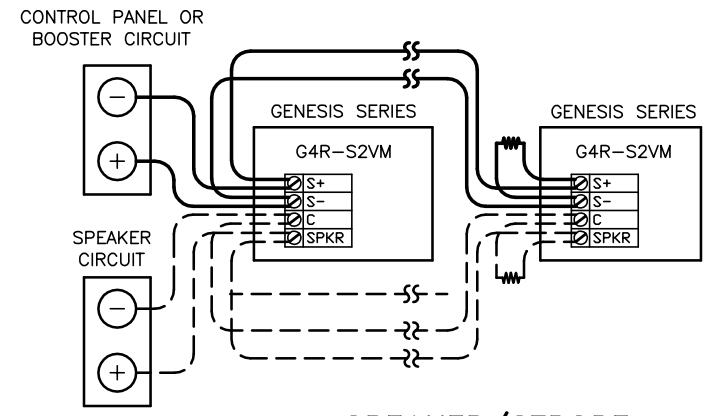
DATE: 3-7-19
DRAWN BY: AMS
CHECKED BY: CG
SCALE: NONE
FILE NAME: 1DPM-CC1
SHEET: 2 OF 2
DWG. NO.: 1-3B

NOTE:
POLARITY OF SIGNAL CIRCUIT IS SHOWN IN SUPERVISORY STATE.
POLARITY REVERSES IN ALARM CONDITION.



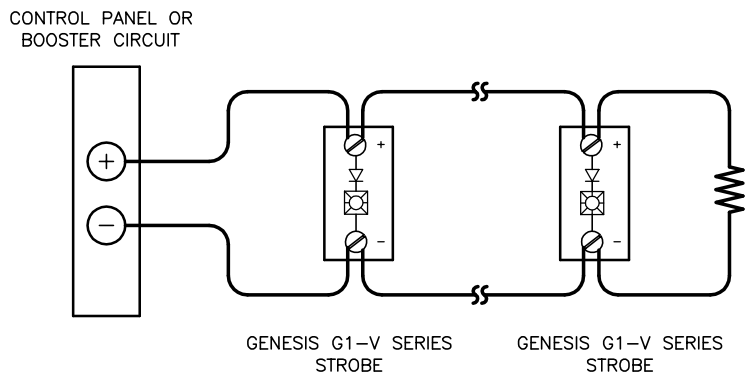
SPEAKER/STROBE WIRING DETAIL

NOTE:
POLARITY OF SIGNAL CIRCUIT IS SHOWN IN SUPERVISORY STATE.
POLARITY REVERSES IN ALARM CONDITION.



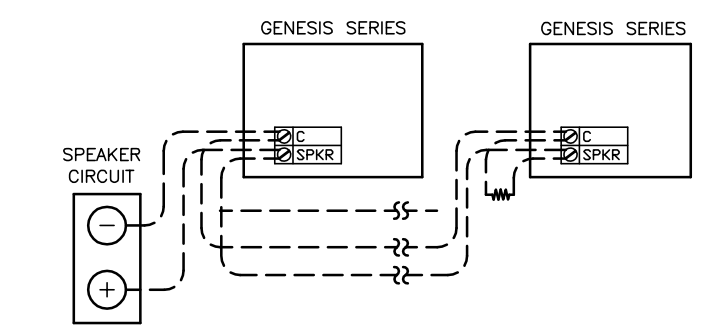
SPEAKER/STROBE WIRING DETAIL

NOTE:
POLARITY OF SIGNAL CIRCUIT IS SHOWN IN SUPERVISORY STATE.
POLARITY REVERSES IN ALARM CONDITION.



STROBE WIRING DETAIL

NOTE:
POLARITY OF SIGNAL CIRCUIT IS SHOWN IN SUPERVISORY STATE.
POLARITY REVERSES IN ALARM CONDITION.



SPEAKER WIRING DETAIL

NOTE: DATA IN AND DATA OUT WIRING MUST BE OBSERVED ON ALL DEVICES

NO.	DATE	REVISIONS
-	-	-

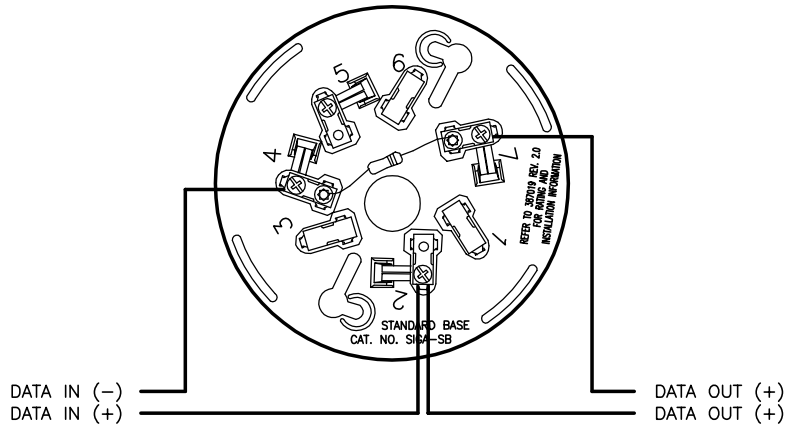
ARK SYSTEMS
9176 RED BRANCH ROAD
COLUMBIA, MARYLAND 21045
BALTIMORE (410) 995-1220
WASHINGTON (301) 621-5736

HCPS - BURLEIGH MANOR MIDDLE SCHOOL

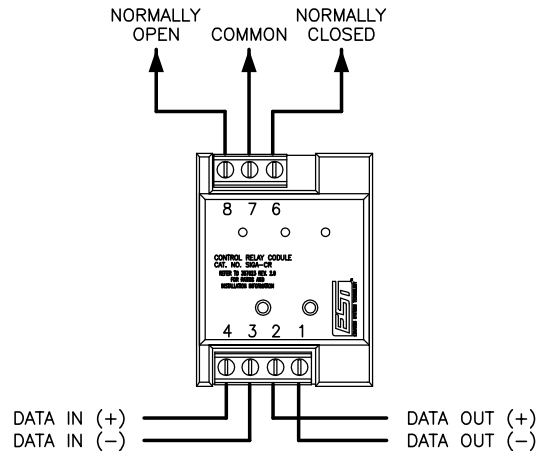
TYPICAL DEVICE WIRING DETAILS

DATE: 3-7-19
DRAWN BY: AMS
CHECKED BY: CG
SCALE: NONE
FILE NAME: TYP-DEV
SHEET: 1 OF 3

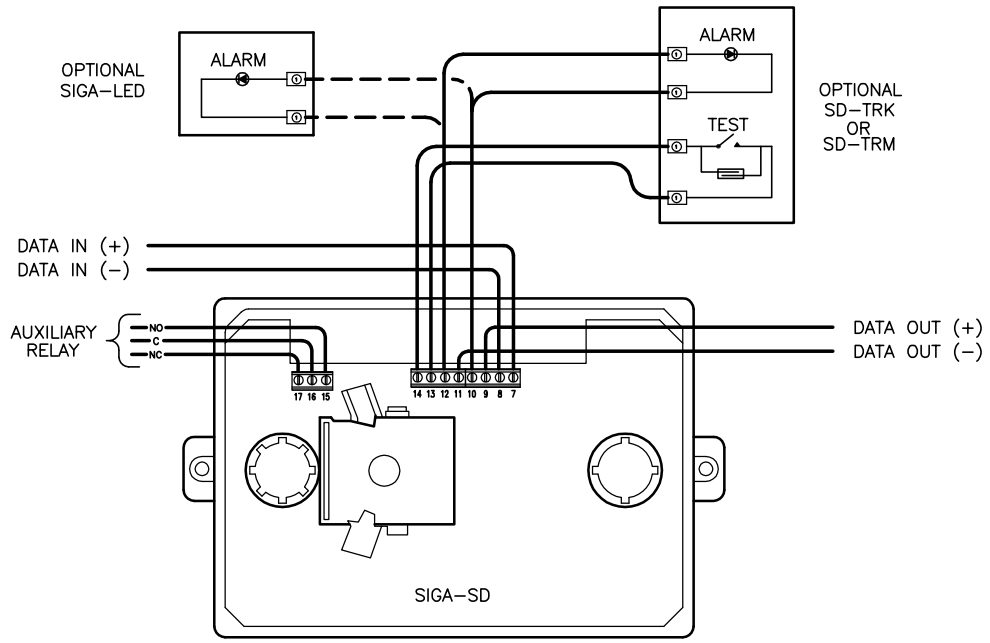
DWG. NO.: 2A



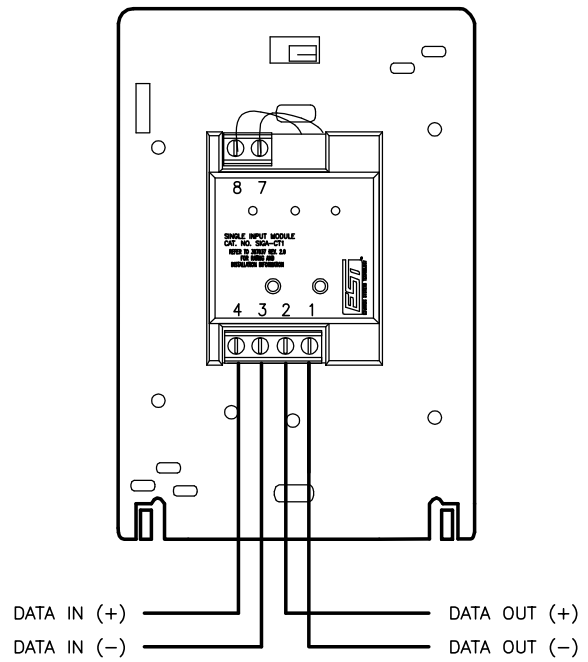
STANDARD DETECTOR BASE WIRING DETAIL



RELAY MODULE WIRING DETAIL



DUCT DETECTOR WIRING DETAIL



MANUAL STATION WIRING DETAIL

NOTE: DATA IN AND DATA OUT WIRING MUST BE OBSERVED ON ALL DEVICES

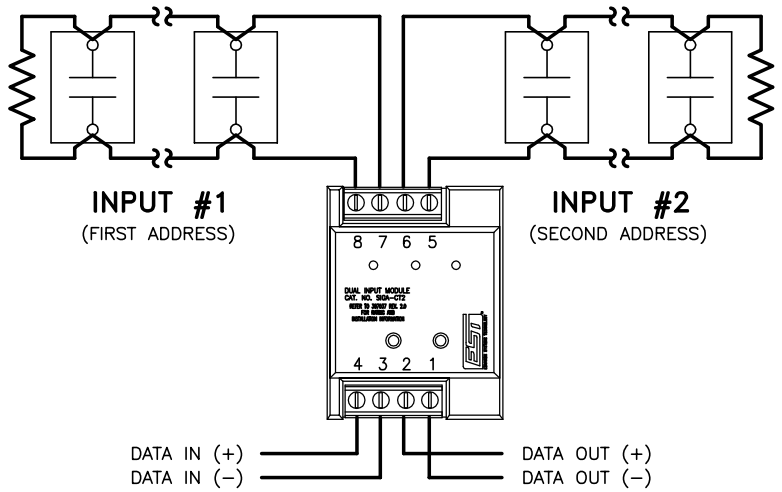
NO.	DATE	REVISIONS
–	–	-

ARK SYSTEMS
9176 RED BRANCH ROAD
COLUMBIA, MARYLAND 21045
BALTIMORE (410) 995-1220
WASHINGTON (301) 621-5736

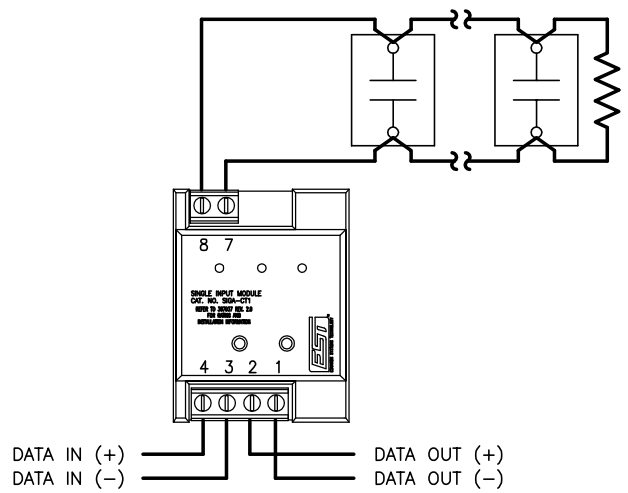
HCPS - BURLEIGH MANOR MIDDLE SCHOOL

TYPICAL DEVICE WIRING DETAILS

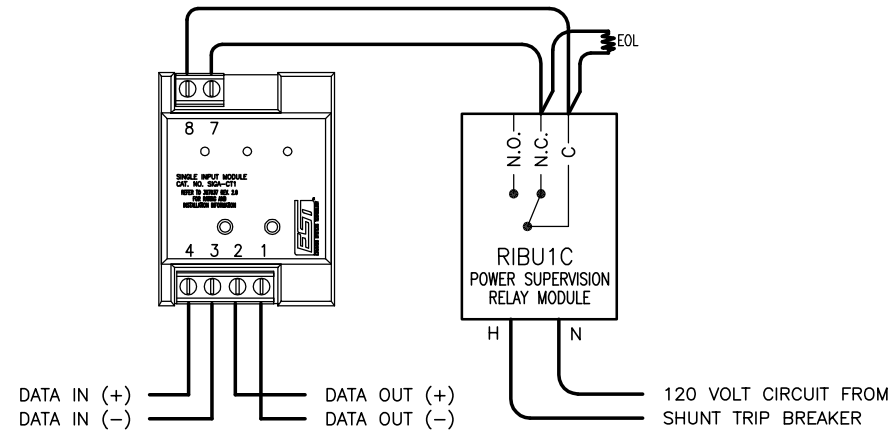
DATE: 3-7-19
DRAWN BY: AMS
CHECKED BY: CG
SCALE: NONE
FILE NAME: TYP-DEV
SHEET: 2 OF 3
DWG. NO.: 2B



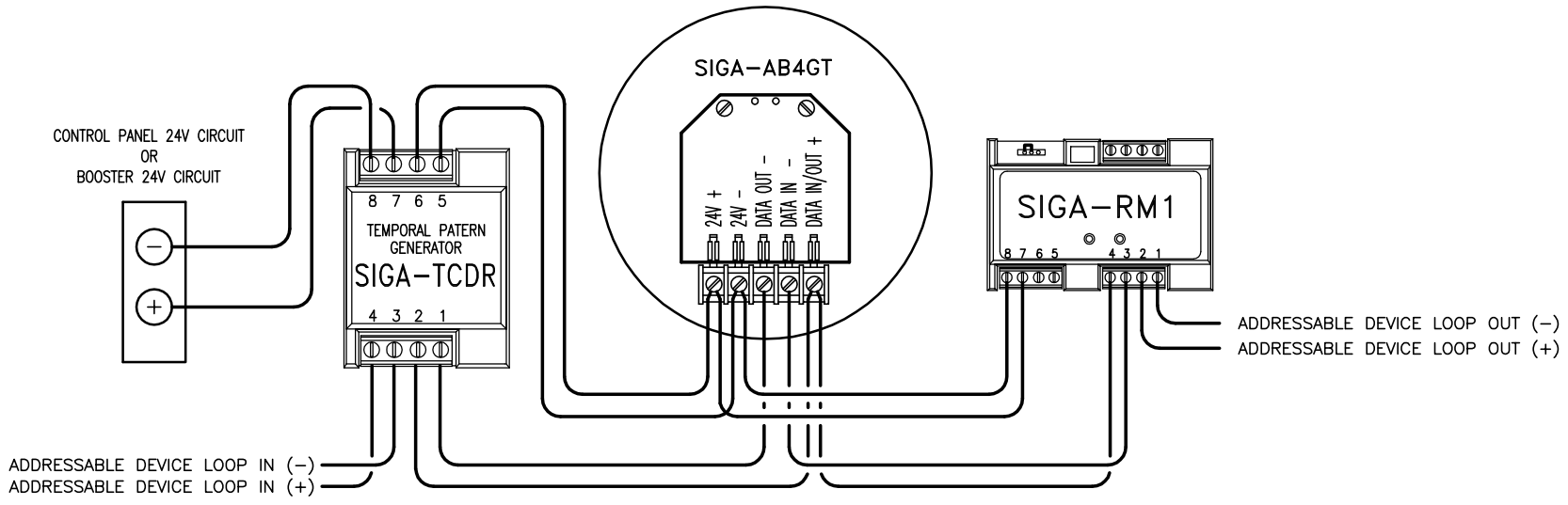
DUAL ZONE MONITOR
MODULE WIRING DETAIL



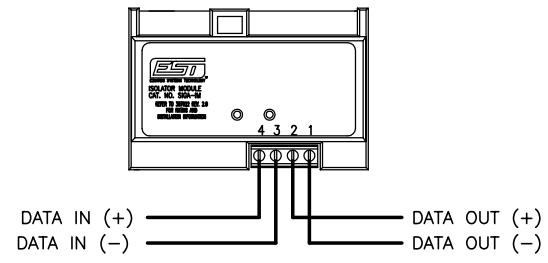
SINGLE ZONE MONITOR
MODULE WIRING DETAIL



ELEVATOR SHUNT–TRIP POWER MONITORING
WIRING DETAIL



AUDIBLE SOUNDER DETECTOR BASE WIRING DETAIL
WITH & CO DETECTOR IN CIRCUIT



ISOLATOR MODULE
WIRING DETAIL

NOTE: DATA IN AND DATA OUT WIRING MUST BE OBSERVED ON ALL DEVICES

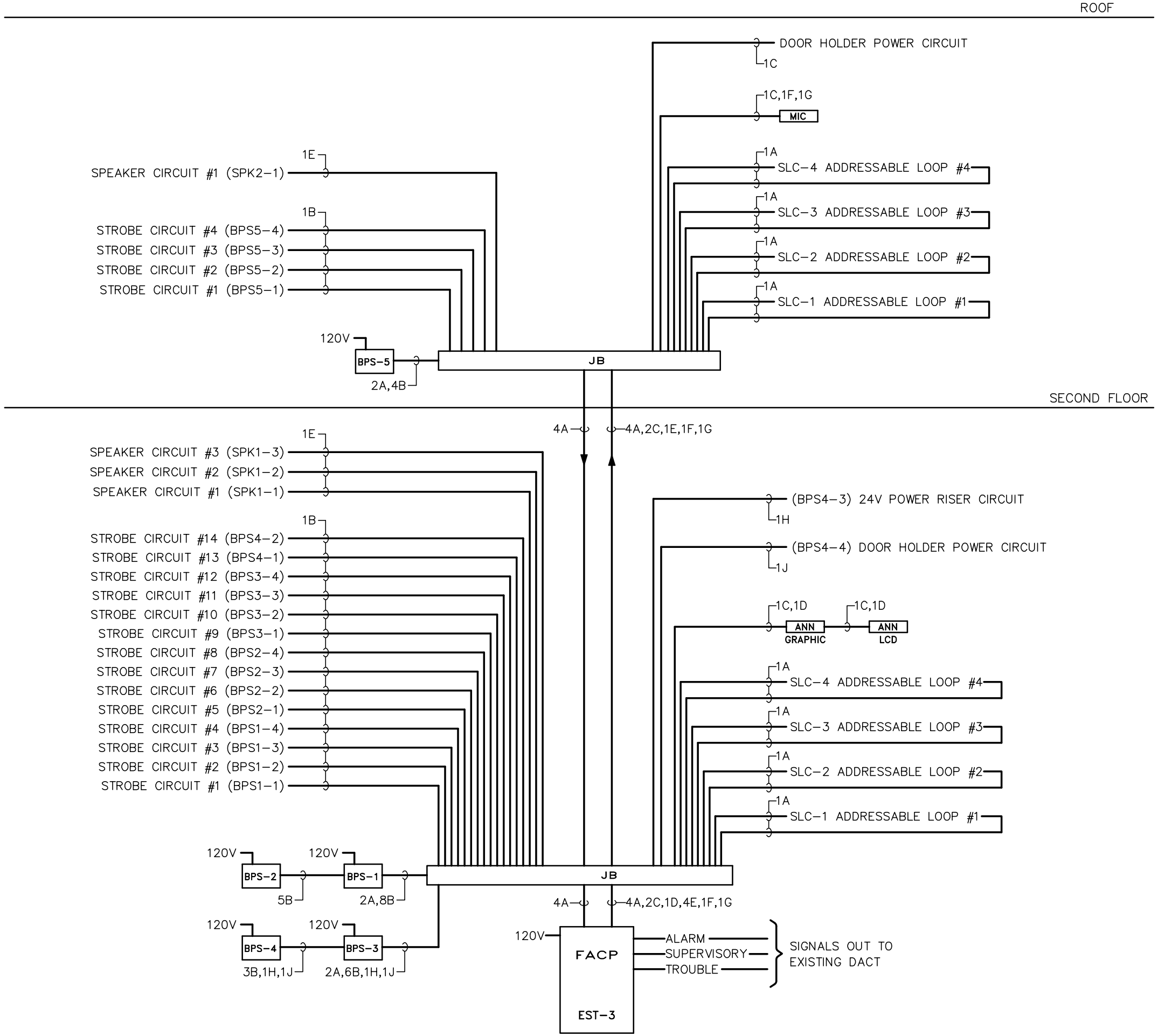
NO.	DATE	REVISIONS
–	–	–

ARK SYSTEMS
9176 RED BRANCH ROAD
COLUMBIA, MARYLAND 21045
BALTIMORE (410) 995-1220
WASHINGTON (301) 621-5736

HCPS - BURLEIGH MANOR
MIDDLE SCHOOL

TYPICAL
DEVICE
WIRING DETAILS

DATE: 3-7-19
DRAWN BY: AMS
CHECKED BY: CG
SCALE: NONE
FILE NAME: TYP-DEV
SHEET: 3 OF 3
DWG. NO.: 2C



SYMBOL LEGEND

FACP	= FIRE ALARM CONTROL PANEL
ANN	= FIRE ALARM ANNUNCIATOR PANEL
MIC	= FIRE ALARM REMOTE MICROPHONE
BPS	= BOOSTER POWER SUPPLY
JB	= JUNCTION BOX

WIRE LEGEND

DESIG.	DESCRIPTION	WIRE TYPE
A	ADDRESSABLE LOOP	2 #16 THHN
B	STROBE CIRCUIT	2 #14 CONDUCTORS
C	24VDC	2 #14 CONDUCTORS
D	RS485	1 #18 TWISTED PAIR
E	SPEAKER CIRCUIT	1 #16 TWISTED PAIR
F	REMOTE MIC ACTIVATE	1 #14 TWISTED PAIR
G	REMOTE MIC PAGE RISER	1 #14 TWISTED PAIR
H	24V POWER RISER CKT	2 #14 CONDUCTORS
J	DOOR HOLDER CKT	2 #14 CONDUCTORS
K	RS232	1 #22 FOUR CONDUCTOR CABLE

NOTE: DATA IN AND DATA OUT WIRING MUST BE OBSERVED ON ALL DEVICES

NO.	DATE	REVISIONS
-	-	-

ARK SYSTEMS
9176 RED BRANCH ROAD
COLUMBIA, MARYLAND 21045
BALTIMORE (410) 995-1220
WASHINGTON (301) 621-5736

HCPS - BURLEIGH MANOR MIDDLE SCHOOL

FIRE ALARM SYSTEM RISER DIAGRAM

DATE: 3-7-19
DRAWN BY: AMS
CHECKED BY: CG
SCALE: NONE
FILE NAME: RISER
SHEET: 1 OF 1
DWG. NO.: 3

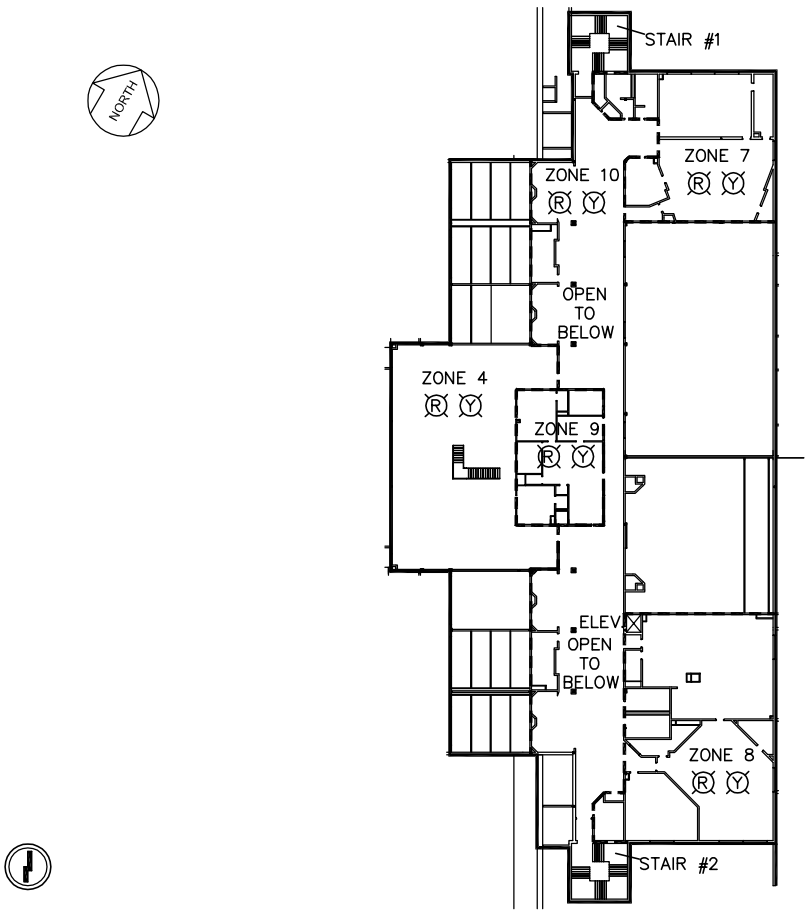
18"

24"

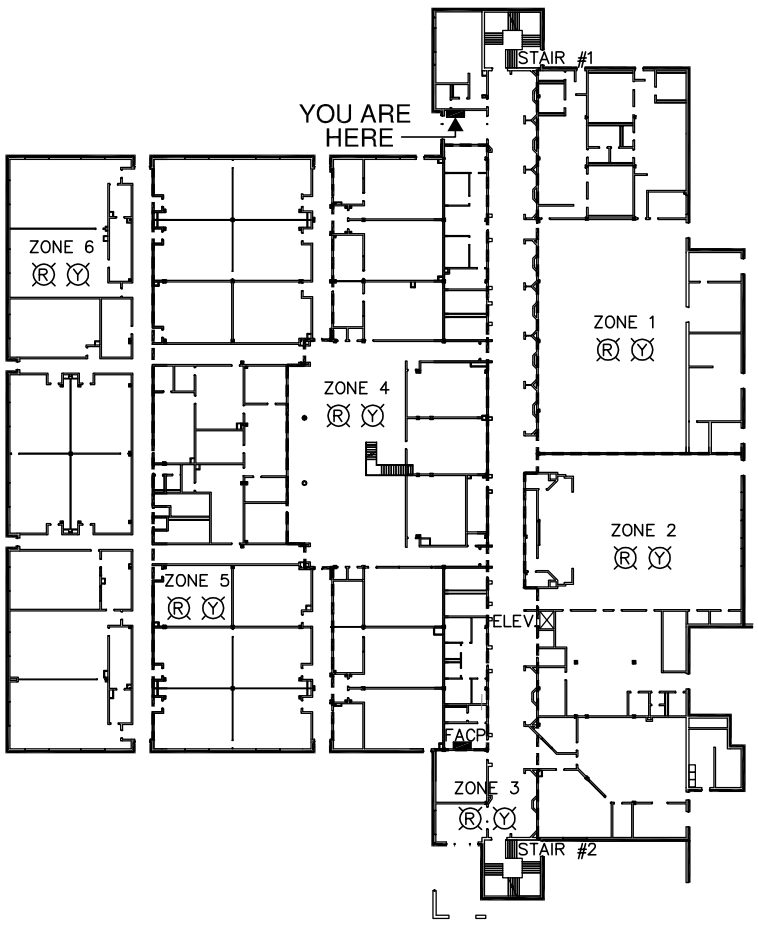
FIRE ALARM ANNUNCIATOR

BURLEIGH MANOR MIDDLE SCHOOL

4200 CENTENNIAL LANE ELLICOTT CITY, MARYLAND 21042



2ND FLOOR



1ST FLOOR

- MANUAL PULL STATION
- AREA SMOKE DETECTOR
- HEAT DETECTOR
- ELEVATOR SHAFT
- ELEVATOR PIT
- ELEVATOR LOBBY
- ELEVATOR MACHINE ROOM
- DUCT SMOKE DETECTOR
- CARBON MONOXIDE DETECTOR
- SPRINKLER FLOW SWITCH
- KITCHEN HOOD
- PORTABLE CLASSROOMS
- TAMPER SWITCH
- SPRINKLER VALVE SWITCH
- MAIN VALVE TAMPER
- FIRE PUMP RUNNING
- FIRE PUMP FAULT
- FIRE PUMP PHASE REVERSAL
- GENERATOR RUNNING
- GENERATOR FAULT
- TROUBLE
- POWER ON
- ALARM

ALARM SILENCE

TROUBLE SILENCE

LAMP TEST

ARK SYSTEMS

LEGEND

- = RED LED
- = YELLOW LED
- = GREEN LED
- = KEY SWITCH
- = PUSH BUTTON SWITCH

DWG. NO.: 4-1

SHEET: 1 OF 1

18"x24" GRAPHIC ANNUNCIATOR

DATE: 3-8-19

DRAWN BY: AMS

CHECKED BY: CG

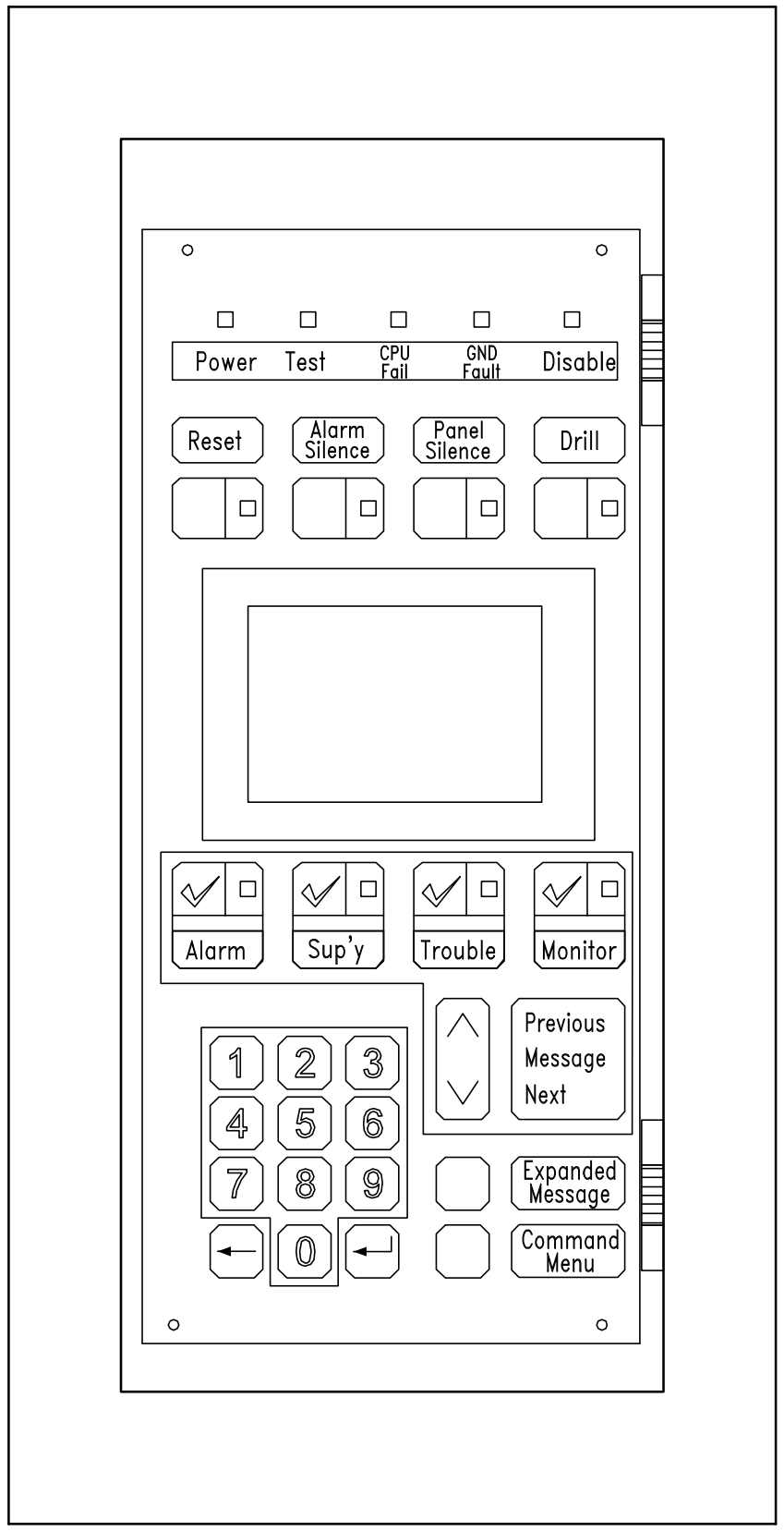
SCALE: NONE

FILE NAME: FAA-150

HCPS - BURLEIGH MANOR MIDDLE SCHOOL

ARK SYSTEMS
9176 RED BRANCH ROAD
COLUMBIA, MARYLAND 21045
BALTIMORE (410) 995-1220
WASHINGTON (301) 621-5736

NO.	DATE	REVISIONS
-	-	-



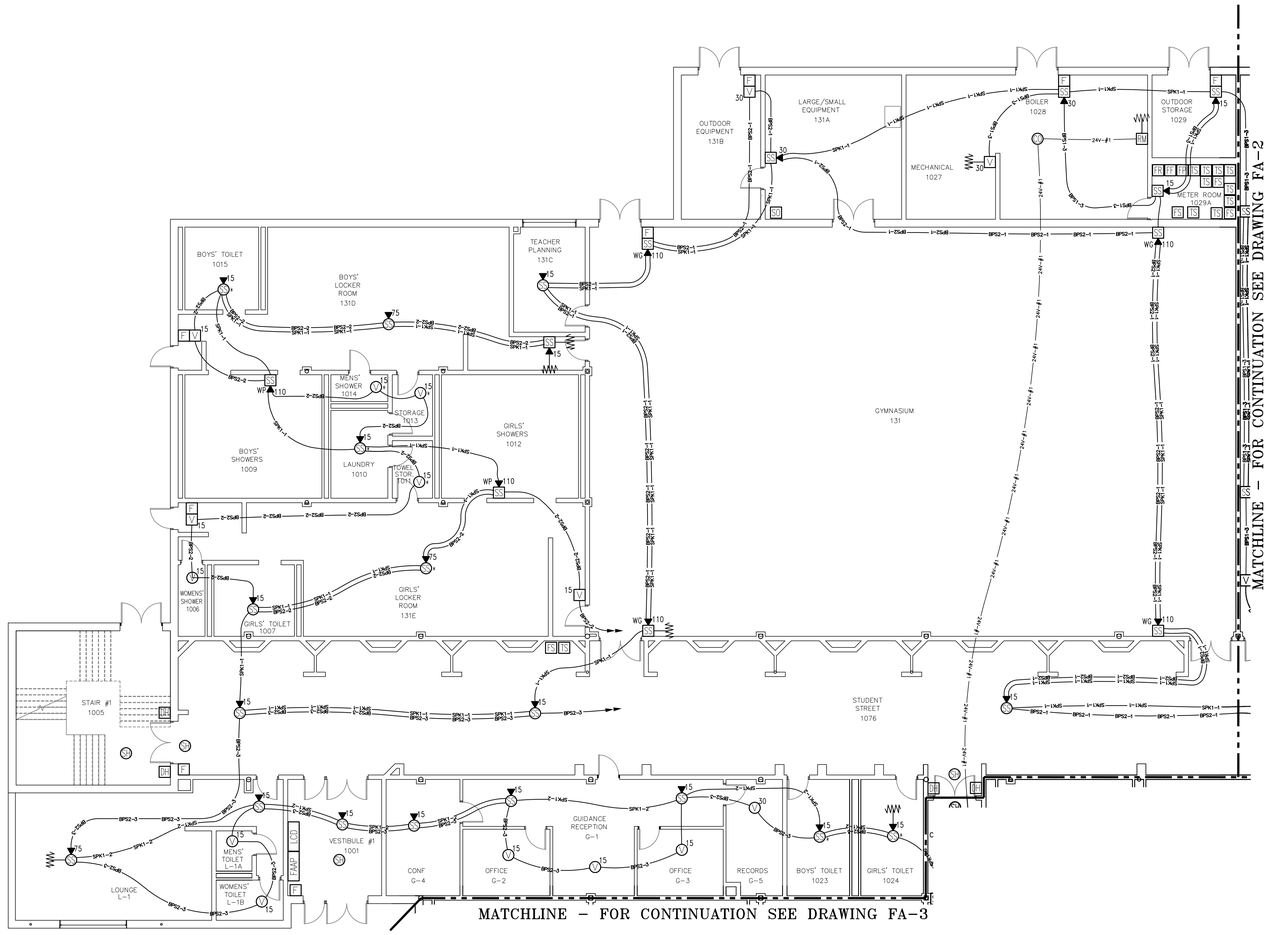
NO.	DATE	REVISIONS
-	-	-

ARK SYSTEMS
9176 RED BRANCH ROAD
COLUMBIA, MARYLAND 21045
BALTIMORE (410) 995-1220
WASHINGTON (301) 621-5736

HCPS - BURLEIGH MANOR MIDDLE SCHOOL

3-LCDANN DIRECTORY
ANNUNCIATOR PANEL

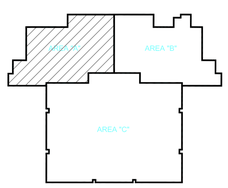
DATE: 3-7-19
DRAWN BY: AMS
CHECKED BY: CG
SCALE: NONE
FILE NAME: 3-LCDANN
SHEET: 1 OF 1
DWG. NO.: 4-2



SYMBOLS LEGEND

SYMBOL	DESCRIPTION
FACP	FIRE ALARM CONTROL PANEL
BPS-#	A/V BOOSTER POWER SUPPLY w/ NUMBER
FAAP	FIRE ALARM GRAPHIC ANNUNCIATOR PANEL
LCD	FIRE ALARM ALPHA-NUMERIC ANNUNCIATOR PANEL
RMP	REMOTE MIC PANEL
F	MANUAL PULL STATION w/ PROTECTIVE COVER
S	COMBINATION PHOTOELECTRIC SMOKE & HEAT DETECTOR
S^W	COMBO PHOTOELECTRIC SMOKE & HEAT DETECTOR - WALL MOUNTED
H	HEAT DETECTOR
CM	CARBON MONOXIDE DETECTOR w/ SOUNDER BASE
D	PHOTOELECTRIC DUCT SMOKE DETECTOR
D^S	PHOTOELECTRIC DUCT SMOKE DETECTOR - SUPPLY
D^R	PHOTOELECTRIC DUCT SMOKE DETECTOR - RETURN
V^15	STROBE UNIT w/ CANDELA RATING - CEILING MOUNTED
V^15	STROBE UNIT w/ CANDELA RATING - WALL MOUNTED
S	SPEAKER UNIT - CEILING MOUNTED
SV^15	SPEAKER/STROBE UNIT w/ CANDELA RATING - CEILING MOUNTED
SV^15	SPEAKER/STROBE UNIT w/ CANDELA RATING - WALL MOUNTED
SP	SPEAKER UNIT - WALL MOUNTED
FS	SPRINKLER FLOW SWITCH
TS	SPRINKLER VALVE TAMPER SWITCH
DH	24V DOOR HOLDER
DC	DOOR CONTROL RELAY
ER	ELEVATOR RECALL RELAY - PRIMARY & ALTERNATE
EP	ELEVATOR POWER SHUNT-TRIP RELAY
EM	ELEVATOR POWER SHUNT-TRIP STATUS MONITOR
LR	ELEVATOR CAB LIGHT RELAY
TG	TEMPORAL PATTERN TONE GENERATOR
PM	24V POWER SUPERVISORY RELAY MONITOR
DR	DAMPER CONTROL RELAY
SR	AHU SHUTDOWN RELAY
SO	SOUND SYSTEM OVERRIDE RELAY
AC	ACCESS CONTROL RELAY
GR	GENERATOR RUNNING MONITOR
GF	GENERATOR FAULT MONITOR
FR	FIRE PUMP RUNNING MONITOR
FF	FIRE PUMP FAULT MONITOR
FP	FIRE PUMP PHASE REVERSAL MONITOR
KH	KITCHEN HOOD SYSTEM MONITOR
WP	DENOTES WEATHERPROOF DEVICE
WG	DENOTES WIRE GUARD PROTECTIVE COVER
24V-#1	24V POWER RISER CIRCUIT
BPS1-1	STROBE CIRCUIT (BOOSTER #1 / CIRCUIT #1) TYPICAL
SPK1-1	SPEAKER CIRCUIT (ZONE #1 / CIRCUIT #1) TYPICAL
	CIRCUIT HOMERUN
	END OF LINE RESISTOR

* UTILIZE SURFACE METAL RACEWAY ON EXSITING TO REMAIN GYPSUM CEILING TO SERVE FIRE ALARM DEVICES INDICATED.



KEY PLAN

Rev. #	Description	Date	Approved

ARK JOB # 2JK021

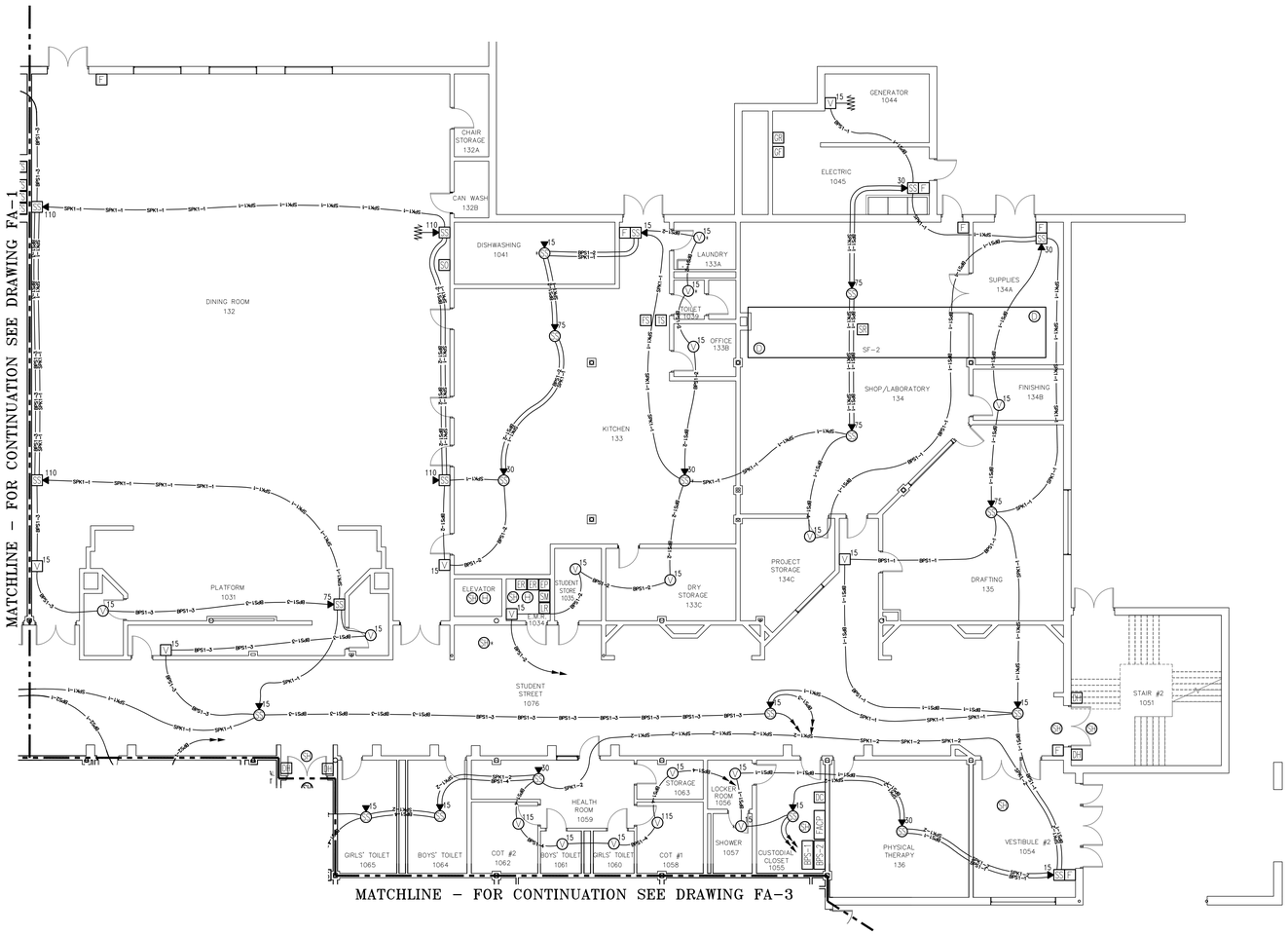
ARK SYSTEMS
8170 BED BRANCH ROAD
COLUMBIA, MARYLAND 21045
BALTIMORE (410) 995-1020
WASHINGTON (301) 621-0796

HCPS - BURLEIGH MANOR MIDDLE SCHOOL
4200 CENTENNIAL LANE ELLICOTT CITY, MD 21042

FIRST FLOOR - AREA A
FIRE ALARM DEVICE LAYOUT

DRAWN BY:	AMS	DATE:	3-8-19
CHECKED BY:	CG	SCALE:	1/8" = 1'-0"

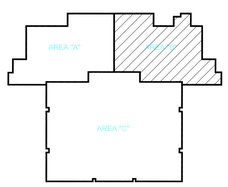
FA-1



SYMBOLS LEGEND

SYMBOL	DESCRIPTION
FACP	FIRE ALARM CONTROL PANEL
BPS-#	A/V BOOSTER POWER SUPPLY w/ NUMBER
FAAP	FIRE ALARM GRAPHIC ANNUNCIATOR PANEL
LCD	FIRE ALARM ALPHA-NUMERIC ANNUNCIATOR PANEL
RMP	REMOTE MIC PANEL
F	MANUAL PULL STATION w/ PROTECTIVE COVER
S	COMBINATION PHOTOELECTRIC SMOKE & HEAT DETECTOR
S^W	COMBO PHOTOELECTRIC SMOKE & HEAT DETECTOR – WALL MOUNTED
H	HEAT DETECTOR
C	CARBON MONOXIDE DETECTOR w/ SOUNDER BASE
D	PHOTOELECTRIC DUCT SMOKE DETECTOR
D^S	PHOTOELECTRIC DUCT SMOKE DETECTOR – SUPPLY
D^R	PHOTOELECTRIC DUCT SMOKE DETECTOR – RETURN
V^15	STROBE UNIT w/ CANDELA RATING – CEILING MOUNTED
V^15	STROBE UNIT w/ CANDELA RATING – WALL MOUNTED
S	SPEAKER UNIT – CEILING MOUNTED
S^15	SPEAKER/STROBE UNIT w/ CANDELA RATING – CEILING MOUNTED
S^15	SPEAKER/STROBE UNIT w/ CANDELA RATING – WALL MOUNTED
SP	SPEAKER UNIT – WALL MOUNTED
FS	SPRINKLER FLOW SWITCH
TS	SPRINKLER VALVE TAMPER SWITCH
DH	24V DOOR HOLDER
DC	DOOR CONTROL RELAY
ER	ELEVATOR RECALL RELAY – PRIMARY & ALTERNATE
EP	ELEVATOR POWER SHUNT-TRIP RELAY
EM	ELEVATOR POWER SHUNT-TRIP STATUS MONITOR
LR	ELEVATOR CAB LIGHT RELAY
TG	TEMPORAL PATTERN TONE GENERATOR
PM	24V POWER SUPERVISORY RELAY MONITOR
DR	DAMPER CONTROL RELAY
SR	AHU SHUTDOWN RELAY
SO	SOUND SYSTEM OVERRIDE RELAY
AC	ACCESS CONTROL RELAY
GR	GENERATOR RUNNING MONITOR
GF	GENERATOR FAULT MONITOR
FR	FIRE PUMP RUNNING MONITOR
FF	FIRE PUMP FAULT MONITOR
FP	FIRE PUMP PHASE REVERSAL MONITOR
KH	KITCHEN HOOD SYSTEM MONITOR
WP	DENOTES WEATHERPROOF DEVICE
WG	DENOTES WIRE GUARD PROTECTIVE COVER
24V-#1	24V POWER RISER CIRCUIT
BPS1-1	STROBE CIRCUIT (BOOSTER #1 / CIRCUIT #1) TYPICAL
SPK1-1	SPEAKER CIRCUIT (ZONE #1 / CIRCUIT #1) TYPICAL
	CIRCUIT HOMERUN
	END OF LINE RESISTOR

* UTILIZE SURFACE METAL RACEWAY ON EXSITING TO REMAIN GYPSUM CEILING TO SERVE FIRE ALARM DEVICES INDICATED.



KEY PLAN

Rev. #	Description	Date	Approved

ARK JOB # 2JK021

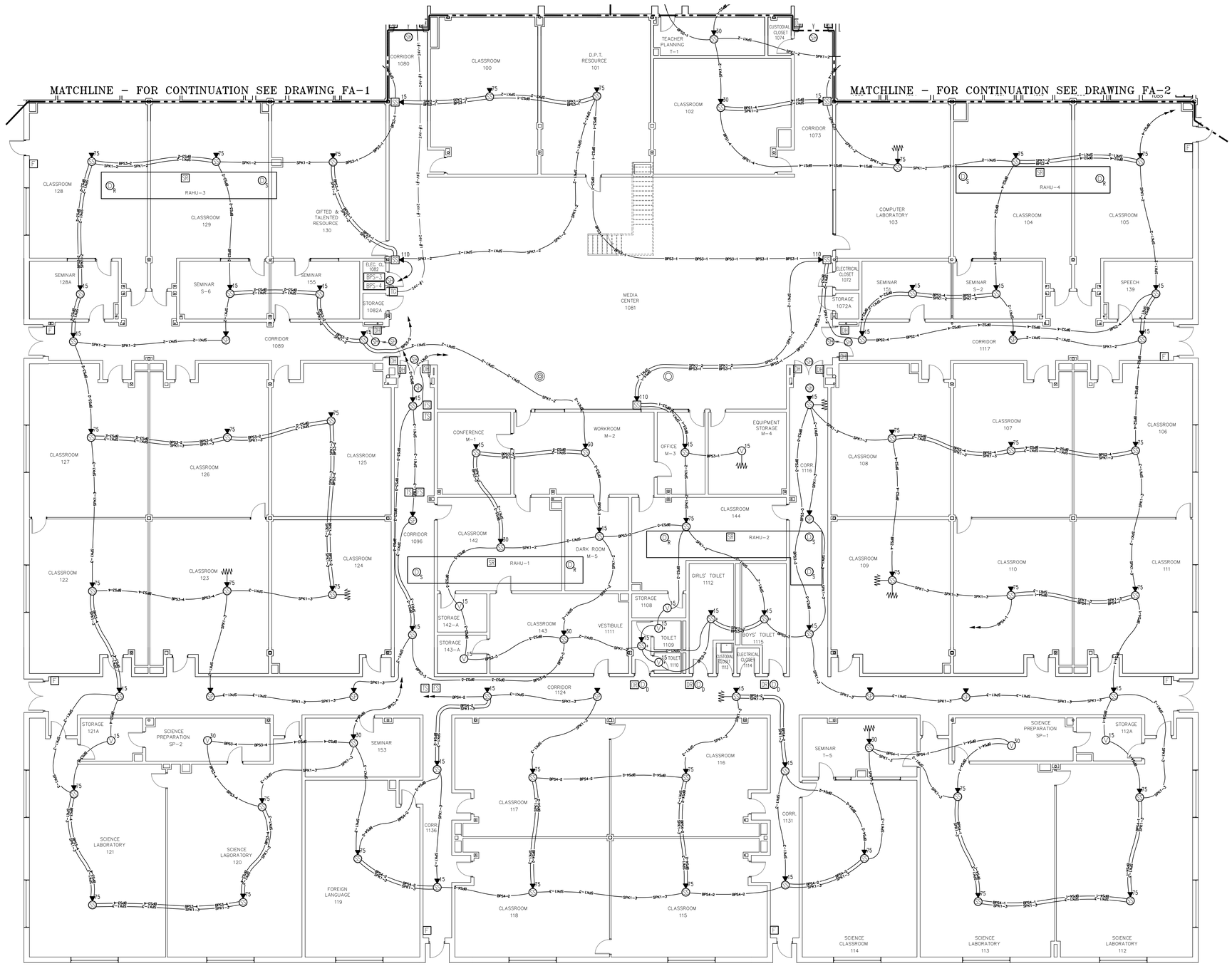
ARK SYSTEMS
9170 RED BRANCH ROAD
COLUMBIA, MARYLAND 21045
BALTIMORE (410) 995-1220
WASHINGTON (301) 621-5736

HCPS – BURLEIGH MANOR MIDDLE SCHOOL
4200 CENTENNIAL LANE ELLICOTT CITY, MD 21042

FIRST FLOOR – AREA B FIRE ALARM DEVICE LAYOUT

DRAWN BY:	AMS	DATE:	3-8-19
CHECKED BY:	CG	SCALE:	1/8" = 1'-0"

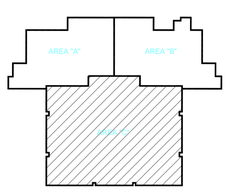
FA-2



SYMBOLS LEGEND

SYMBOL	DESCRIPTION
FACP	FIRE ALARM CONTROL PANEL
BPS-#	A/V BOOSTER POWER SUPPLY w/ NUMBER
FAAP	FIRE ALARM GRAPHIC ANNUNCIATOR PANEL
LCD	FIRE ALARM ALPHA-NUMERIC ANNUNCIATOR PANEL
RMP	REMOTE MIC PANEL
PS	MANUAL PULL STATION w/ PROTECTIVE COVER
S	COMBINATION PHOTOELECTRIC SMOKE & HEAT DETECTOR
S^W	COMBO PHOTOELECTRIC SMOKE & HEAT DETECTOR – WALL MOUNTED
H	HEAT DETECTOR
C	CARBON MONOXIDE DETECTOR w/ SOUNDER BASE
D	PHOTOELECTRIC DUCT SMOKE DETECTOR
D^S	PHOTOELECTRIC DUCT SMOKE DETECTOR – SUPPLY
D^R	PHOTOELECTRIC DUCT SMOKE DETECTOR – RETURN
V^15	STROBE UNIT w/ CANDELA RATING – CEILING MOUNTED
V^15	STROBE UNIT w/ CANDELA RATING – WALL MOUNTED
SP	SPEAKER UNIT – CEILING MOUNTED
SP^15	SPEAKER/STROBE UNIT w/ CANDELA RATING – CEILING MOUNTED
SP^15	SPEAKER/STROBE UNIT w/ CANDELA RATING – WALL MOUNTED
SP	SPEAKER UNIT – WALL MOUNTED
FS	SPRINKLER FLOW SWITCH
TS	SPRINKLER VALVE TAMPER SWITCH
DH	24V DOOR HOLDER
DC	DOOR CONTROL RELAY
ER	ELEVATOR RECALL RELAY – PRIMARY & ALTERNATE
EP	ELEVATOR POWER SHUNT-TRIP RELAY
EM	ELEVATOR POWER SHUNT-TRIP STATUS MONITOR
LR	ELEVATOR CAB LIGHT RELAY
TG	TEMPORAL PATTERN TONE GENERATOR
PM	24V POWER SUPERVISORY RELAY MONITOR
DR	DAMPER CONTROL RELAY
SR	AHU SHUTDOWN RELAY
SO	SOUND SYSTEM OVERRIDE RELAY
AC	ACCESS CONTROL RELAY
GR	GENERATOR RUNNING MONITOR
GF	GENERATOR FAULT MONITOR
FR	FIRE PUMP RUNNING MONITOR
FF	FIRE PUMP FAULT MONITOR
FP	FIRE PUMP PHASE REVERSAL MONITOR
KH	KITCHEN HOOD SYSTEM MONITOR
WP	DENOTES WEATHERPROOF DEVICE
WG	DENOTES WIRE GUARD PROTECTIVE COVER
24V-#1	24V POWER RISER CIRCUIT
BPS1-4	STROBE CIRCUIT (BOOSTER #1 / CIRCUIT #1) TYPICAL
SPK1-4	SPEAKER CIRCUIT (ZONE #1 / CIRCUIT #1) TYPICAL
	CIRCUIT HOMERUN
	END OF LINE RESISTOR

* UTILIZE SURFACE METAL RACEWAY ON EXSITING TO REMAIN GYPSUM CEILING TO SERVE FIRE ALARM DEVICES INDICATED.



KEY PLAN

Rev. #	Description	Date	Approved

ARK JOB # 2JK021

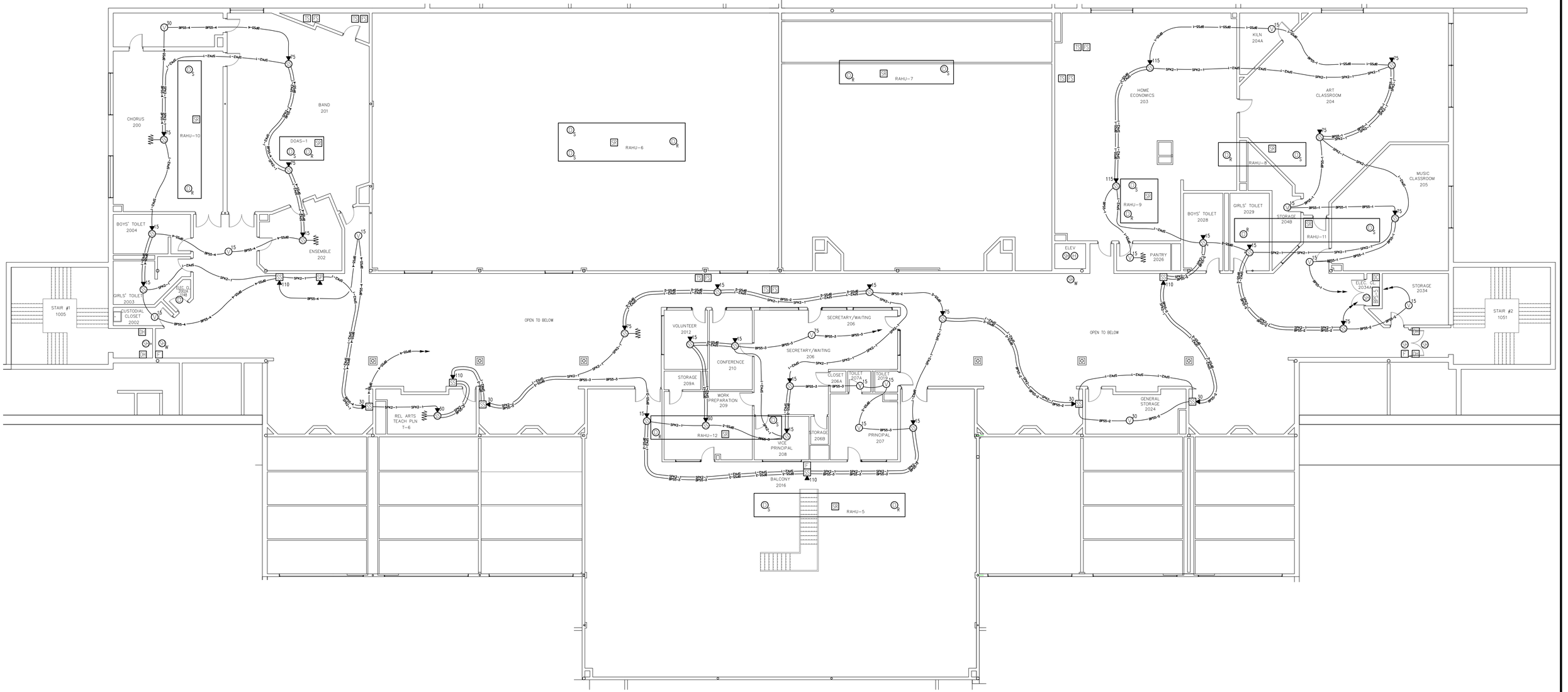
ARK SYSTEMS
8170 RED BRANCH ROAD
COLUMBIA, MARYLAND 21045
BALTIMORE (410) 995-1220
WASHINGTON (301) 621-5706

HCPS – BURLEIGH MANOR MIDDLE SCHOOL
4200 CENTENNIAL LANE ELLICOTT CITY, MD 21042

FIRST FLOOR – AREA C
FIRE ALARM DEVICE LAYOUT

DRAWN BY:	AMS	DATE:	3-8-19
CHECKED BY:	CG	SCALE:	1/8" = 1'-0"

FA-3



SYMBOLS LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
FACP	FIRE ALARM CONTROL PANEL	ER	ELEVATOR RECALL RELAY – PRIMARY & ALTERNATE
BPS-#	A/V BOOSTER POWER SUPPLY w/ NUMBER	EP	ELEVATOR POWER SHUNT-TRIP RELAY
FAAP	FIRE ALARM GRAPHIC ANNUNCIATOR PANEL	EM	ELEVATOR POWER SHUNT-TRIP STATUS MONITOR
LCD	FIRE ALARM ALPHA-NUMERIC ANNUNCIATOR PANEL	EL	ELEVATOR CAB LIGHT RELAY
RMP	REMOTE MIC PANEL	TG	TEMPORAL PATTERN TONE GENERATOR
P	MANUAL PULL STATION w/ PROTECTIVE COVER	PM	24V POWER SUPERVISORY RELAY MONITOR
CPH	COMBINATION PHOTOELECTRIC SMOKE & HEAT DETECTOR	DR	DAMPER CONTROL RELAY
CPHW	COMBO PHOTOELECTRIC SMOKE & HEAT DETECTOR – WALL MOUNTED	SD	AHU SHUTDOWN RELAY
H	HEAT DETECTOR	SO	SOUND SYSTEM OVERRIDE RELAY
CM	CARBON MONOXIDE DETECTOR w/ SOUNDER BASE	AC	ACCESS CONTROL RELAY
D	PHOTOELECTRIC DUCT SMOKE DETECTOR	GR	GENERATOR RUNNING MONITOR
DS	PHOTOELECTRIC DUCT SMOKE DETECTOR – SUPPLY	GF	GENERATOR FAULT MONITOR
DR	PHOTOELECTRIC DUCT SMOKE DETECTOR – RETURN	FR	FIRE PUMP RUNNING MONITOR
S15	STROBE UNIT w/ CANDELA RATING – CEILING MOUNTED	FT	FIRE PUMP FAULT MONITOR
V15	STROBE UNIT w/ CANDELA RATING – WALL MOUNTED	FP	FIRE PUMP PHASE REVERSAL MONITOR
SP	SPEAKER UNIT – CEILING MOUNTED	KH	KITCHEN HOOD SYSTEM MONITOR
SS15	SPEAKER/STROBE UNIT w/ CANDELA RATING – CEILING MOUNTED	WP	DENOTES WEATHERPROOF DEVICE
SSW15	SPEAKER/STROBE UNIT w/ CANDELA RATING – WALL MOUNTED	WG	DENOTES WIRE GUARD PROTECTIVE COVER
SW	SPEAKER UNIT – WALL MOUNTED	24V-#1	24V POWER RISER CIRCUIT
FS	SPRINKLER FLOW SWITCH	BPS1-1	STROBE CIRCUIT (BOOSTER #1 / CIRCUIT #1) TYPICAL
TS	SPRINKLER VALVE TAMPER SWITCH	SPK1-1	SPEAKER CIRCUIT (ZONE #1 / CIRCUIT #1) TYPICAL
DH	24V DOOR HOLDER		CIRCUIT HOMERUN
DC	DOOR CONTROL RELAY		END OF LINE RESISTOR

* UTILIZE SURFACE METAL RACEWAY ON EXSITING TO REMAIN GYPSUM CEILING TO SERVE FIRE ALARM DEVICES INDICATED.

ARK JOB # 2JK021

Rev. #	Description	Date	Approved

ARK SYSTEMS
8170 RED BRANCH ROAD
COLUMBIA, MARYLAND 21045
BALTIMORE (410) 995-1220
WASHINGTON (301) 621-5706

HCPS – BURLEIGH MANOR MIDDLE SCHOOL
4200 CENTENNIAL LANE ELLICOTT CITY, MD 21042

SECOND FLOOR FIRE ALARM DEVICE LAYOUT

DRAWN BY: AMS	DATE: 3-8-19	FA-4
CHECKED BY: CG	SCALE: 1/8" = 1'-0"	

Request For Information PB-005

.

Burleigh Manor Middle School
4200 Centennial Lane
Ellicott City, MD 21042

Project # 2002
Tel: Fax:

RFI #: PB-005 **Date Created: 4/6/2020**

Answer Company	Answered By	Author Company	Authored By
GWWO, Inc./Architects 800 Wyman Park Dr. Suite 300 Baltimore, MD 21211	Brian Minnich Phone: 410-332-1009 Fax: 410-332-0038	Oak Contracting, LLC 1000 Cromwell Bridge Road Towson, MD 21286	Matt Lurz Phone: 410-828-1000 Fax: 410-828-7488

Co-Respondent **Author RFI Number**

Subject **Discipline** **Category**

Cooper Building Services questions

Cc:	Company Name	Contact Name	Copies	Notes

Question **Date Required:**

Please review attached Pre-bid RFI#005 and provide a response.

Suggestion

Answer **Date Answered: 4/8/2020**

1. See updated demo note on revised AD1.1 .

Matt Lurz

RFI-PB-005

From: Cameron Wilson <cwilson@cooperbuilds.com>
Sent: Monday, April 6, 2020 8:24 AM
To: Jonathan Goetz <jgoetz@oakcontracting.com>
Subject: RE: ITB #032.20.B$ HCPSS Burleigh Manor Middle School Secure Vestibule

Good Morning

1. What slab is to be demoed for this bid? Plumbing pages don't quantify the slab demo, nor does the demo pages.
   Can't locate demo note 22.1 that calls out the slab demo.

Thank you,

Cameron Wilson
Estimator
cwilson@cooperbuilds.com
Direct: 240.566.1373
Mobile: 240.405.4040
- -

COOPER
DEMAND EXCELLENCE. EXPECT PRECISION.

Cooper Building Services, LLC
www.cooperbuilds.com
7450 New Technology Way, Suite A
Frederick, MD 21703

Request For Information PB-006

Burleigh Manor Middle School
4200 Centennial Lane
Ellicott City, MD 21042

Project # 2002
Tel: Fax:

RFI #: PB-006 **Date Created: 4/6/2020**

Answer Company	Answered By	Author Company	Authored By
GWWO, Inc./Architects 800 Wyman Park Dr. Suite 300 Baltimore, MD 21211	Brian Minnich Phone: 410-332-1009 Fax: 410-332-0038	Oak Contracting, LLC 1000 Cromwell Bridge Road Towson, MD 21286	Matt Lurz Phone: 410-828-1000 Fax: 410-828-7488

Co-Respondent **Author RFI Number**

Subject	Discipline	Category
Keller Brothers Questions		

Cc: Company Name	Contact Name	Copies	Notes

Question **Date Required:**

Please review attached Pre-bid RFI and provide a response.

Suggestion

Answer **Date Answered: 4/8/2020**

1. Specification Section 079200, 1.4 item C requires that the contractor provide independent testing. Item D provides testing requirements.
2. See revised 10 1400 signage specification in addendum #4
3. Keynote revised to 081113 See revised A8.1 sheet in addendum #4
4. See response to RFI #PB-005
5. EX.1 wall type is in new records room See revised A1.2 sheet in Addendum #4
6. Contractor to have an allowance of 2 boards per tag. See revised sheets AD1.1 and AD1.2 pdfs attached.
7. HVAC not part of contract.

Matt Lurz

Pre-bid RFI# PB-006

From: Brendan Doherty <bdoherty@kellerbrothers.com>
Sent: Monday, April 6, 2020 11:59 AM
To: Jonathan Goetz <jgoetz@oakcontracting.com>
Cc: Sarah Mouradian <smouradian@kellerbrothers.com>
Subject: Burleigh Manor MS Vestibule 1A Package - Pre-Bid RFIs

Good Morning Jonathan,

Please see the below questions for Burleigh Manor MS 1A package and let me know if you have any questions. Thank you.

1. Part 3.4.A of specification 079200 Joint Sealants references "field quality control inspection/testing as specified in part 1", however part 1 does not outline any such measures. Please confirm that field quality control measures pertaining to joint sealants will be the responsibility of the Owner/Construction Manager's testing and inspections agency. If not, please provide information regarding required procedures.
2. Part 2.1.A of specification 101400 Signage appears to be incomplete, as no manufacturers are listed. Please clarify.
3. Window elevations A and B on sheet A8.1 are tagged "084313 Aluminum Framed Storefronts", however no specification for aluminum storefronts has been provided. Please confirm that the intent is for these interior window elevations to be aluminum storefront and if so, please provide a specification section for this work.
4. Reference detail 2/AD1.1. There is a 4'-0" x 7'-4" dashed area in existing room Records 1022 noted 26.1 regarding the removal of electrical equipment. Should this note rather be 22.1 indicating slab removal for sanitary connections pertaining to the proposed toilet and sink fixtures in this vicinity?
5. We are unable to locate wall type "EX.1" (detailed on sheet AC.1) on the floor plans. Please clarify where this condition applies to the project.
6. Please clarify the number and locations of markerboard/tackboard assemblies to be removed and relocated in the second floor area of work. Keynote 10.1 is applied in detail 1/A1.2 to multiple room tags but board locations are not indicated. For example, keynote 10.1 is applied to rooms Storage 2018A, Records 2022A, and Corridor 2018.1. Do marker/tackboards actually exist in all of these rooms, and if so in what quantities/locations?
7. It is assumed that exhaust ventilation would be required in the newly created restrooms and that ceiling HVAC devices would need to be removed and reinstalled/relocated to accommodate new room / ceiling layouts, however these items are not shown in the issued documents for this project. Please confirm that this work and all other work pertaining to the existing HVAC system is not to be included in the bid, and that all mechanical work pertaining to these renovations will be performed by others under separate contract.

Brendan Doherty | *Estimator*

CELEBRATING 60 YEARS KELLER

WE FOCUS ON YOU

Request For Information PB-007

Burleigh Manor Middle School
4200 Centennial Lane
Ellicott City, MD 21042

Project # 2002
Tel: Fax:

RFI #: PB-007 **Date Created: 4/7/2020**

Answer Company	Answered By	Author Company	Authored By
GWWO, Inc./Architects 800 Wyman Park Dr. Suite 300 Baltimore, MD 21211	Brian Minnich Phone: 410-332-1009 Fax: 410-332-0038	Oak Contracting, LLC 1000 Cromwell Bridge Road Towson, MD 21286	Corey Wixsom Phone: 410-828-1000 Fax:

Co-Respondent **Author RFI Number**

Subject	Discipline	Category
Brawner Builders question		

Cc: Company Name	Contact Name	Copies	Notes

Question **Date Required:**

Please review attached Pre-bid RFI #PB-007 and provide a response.

Suggestion

Answer **Date Answered: 4/8/2020**

1. Refer to spec section 01 7000 for final cleaning procedures
2. See response tp Pre-bid RFI PB-006
3. See specification sections 093000 Tiling and 096816 Sheet Carpeting in Addendum #4
4. Contractors shall not use the elevator for any reason. Furnishings will only need to be removed from the first floor area of work. Second floor furnishings will be moved by others.
5. All items currently in the area of work shall be stored offsite as required in the Contract Documents. The only exception will be student records and vending machinces which will be relocated within the school as directed by the Construction Manager.
6. The Contractor shall provide all moving supplies as required by the Contract Documents
7. The Contractor shall disconnect and reconnect all electronic equipment
8. Multiple trips for removal of furnishings is permitted
9. The Contractor is only responsible for removing furnishings from the 1st floor. Furnishings on the 2nd floor will be moved by others. Furnishings shall be stored offsite as required by the Contract Documents.
10. The Contractor is allowed no more than three sea containers for on site material storage. Contractor shall locate sea containers in an area approved by the Construction Manager.
11. Phasing will not be required for this project
12. Start date for the project is at the time of Contract Award. Work on site shall begin following the last scheduled day of school on or about June 15, 2020 pending any unforeseen conditions including but not limited to the impact of COVID19 pandemic.
13. In area of work, all existing blinds are to be cleaned.
14. All windows with note 12 2113-A are to receive new blinds.

Pre-bid RFI #PB-007

From:	Jonathan Goetz
To:	Matt Lurz
Cc:	Corey Wixsom
Subject:	FW: HCPSS Burleigh Manor School Secure Vestibule Renovation-RFIs
Date:	Monday, April 6, 2020 2:39:02 PM
Attachments:	image001.png

See below.

Jonathan Goetz, LEED® AP
Senior Project Manager
Oak Contracting
1000 Cromwell Bridge Road, Towson, MD 21286
P (410) 828-1000 / C (410) 215-5799
www.oakcontracting.com

From: Brigitte Keimig <brigittekeimig@brawnerbuilders.com>
Sent: Monday, April 6, 2020 1:54 PM
To: Jonathan Goetz <jgoetz@oakcontracting.com>
Cc: Woo Kang <wookang@brawnerbuilders.com>; Erik Bird <erikbird@brawnerbuilders.com>; Teka Farquharson <tekafarquharson@brawnerbuilders.com>
Subject: HCPSS Burleigh Manor School Secure Vestibule Renovation-RFIs

Good Afternoon,

Please review the following questions for the subject bid opportunity.

1. Are we responsible for final cleaning? If so, please provide the cleaning specification section as it was not provided.
2. There is a spec. sec. for visual display boards but none shown on the drawings. Please advise if there are any new visual display boards.
3. There are no specification sections provided for carpet and porcelain tile. Please provide.
4. Is there a working elevator in the school that will be available to the moving crew?
5. Will all furniture and contents be able to stay inside the school during the renovation?
6. Will the moving company need to supply boxes for school staff to pack office contents?
7. Who is responsible for the disconnect and reconnect of electronic equipment?
8. Will furniture Moving subcontractors be allowed to make multiple trips to pack the contents?
9. Is the plan to move all furniture out from both areas (admin second floor and guidance 1st floor), store onsite, then move the furniture back to the new rooms?
10. Per the miscellaneous scope in section 004500, it notes that Onsite storage and staging areas are minimal. The Contractor shall provide adequate offsite storage at no additional cost to the Owner. Please confirm if there will be any areas nearby that can be used for offsite storage.
11. The specs mention phases. Please confirm if phasing will be required.

12. The substantial completion date is provided. Please also confirm the target start date.
13. Per item 25 of the 01A scope, there is a note to remove, clean and reinstall blinds and shades and there is also a spec provided for horizontal louver blinds (spec section 12 2113). Please confirm if we are to also provide new blinds in addition to remove/clean and reinstall existing blinds.
14. Per spec section 12 2113, please confirm if we should provide blinds for the exterior window as well as the interior windows in the offices.

Please confirm receipt of this email.

Thank you,

Brigitte Keimig

Assistant Project Manager | **Brawner Builders, Inc.**
11011 McCormick Rd. STE 300 | Hunt Valley, MD 21031
Office: 410.666.2500 | Direct: 410.584.1865