GFP Listing Document

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Rev A

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SECTION 1: AGENCY STANDARDS

In this manual, the term GFP is used to refer to GFP-A/ AR, and GFP-CPU-RB . The term FAAST is used to refer to the FAAST XS, FAAST XM, FAAST XT, and the FAAST XT PRO, unless otherwise noted.

The contents of this manual are important and must be kept in close proximity of the hardware. If building ownership is changed, this manual and all other testing and maintenance information must also be passed to the current owner of the facility. A copy of this manual was shipped with the equipment and is also available from the manufacturer. This product is intended to be installed in accordance with the following standards:

The GFP has been designed to comply with standards set forth by the following regulatory agencies:

Product Standards:

- UL 38 Manually Actuated Signaling Boxes
- UL 217 Smoke Detector, Single and Multiple Station
- UL 228 Door Closers - Holders for Fire Protective Signaling Systems
- UL 268 Smoke Detectors for Fire Protective Signaling Systems
- UL 268A Smoke Detectors for Duct Applications
- UL 346 Waterflow Indicators for Fire Protective Signaling Systems
- UL 464 Audible Signaling Appliances
- UL 521 Heat Detectors for Fire Protective Signaling Systems
- UL 864 Standard for Control Units for Fire Protective Signaling System
- UL 1971 Visual Signaling Appliances
- UL 2017 for General-Purpose Signaling Devices and Systems

This product is intended to be installed in accordance with the following standards:

Installation Standards:

- NFPA 12 Standard on Carbon Dioxide Extinguishing Systems
- NFPA 12A Standard on Halon 1301 Fire Extinguishing Systems
- NFPA 13 Standard for Installation of Sprinkler Systems
- NFPA 15 Standard for Water Spray Fixed Systems
- NFPA 16 Standard for Deluge-Foam Water Systems
- NFPA 17 Standard for Dry Chemical Extinguishing Systems
- NFPA 17A Standard for Wet Chemical Extinguishing Systems
- NFPA 70 National Electrical Code
    - National Electrical Code/ Article 300 Wiring Methods,
    - National Electrical Code/ Article 760 Fire Alarm Systems
- NFPA 72 National Fire Alarm and Signaling Code
    - Central Station Fire Alarm Systems (Automatic, Manual, and Waterflow) Protected Premises Unit (requires CGW-MB)
    - Local (Automatic, Manual, Waterflow and Sprinkler Supervisory) Fire Alarm Systems
    - Remote Station (Automatic, Manual, and Waterflow) Fire Alarm Systems
    - Proprietary (Automatic, Manual and Waterflow) Fire Alarm Systems (Protected Premises Unit)
    - Initiating Devices for Fire Alarm Systems
    - Inspection, Testing and Maintenance for Fire Alarm Systems
    - Notification Appliances for Fire Alarm Systems
    - Auxiliary (Automatic, Manual, and Waterflow) Fire Alarm Systems (requires TM-8)
- NFPA 92 Standard for Design, Installation and Testing of Smoke Control Systems
- NFPA 750 Standard on Water Mist Fire Protection Systems
- NFPA 2001 Standard for Clean Agent Fire Extinguishing Systems
- NFPA 2010 fixed Aerosol Fire Extinguishing Systems
- UL 827 Standard for Central Station Alarm Services

This product is intended to be installed in occupancies defined by the following codes:

- IFC International Fire Code
- NFPA 1 Fire Code
- NFPA 101 Life Safety Code
- NFPA 5000 Building Construction and Safety Code

1.1 UL COMPLIANCE

This product has been certified to comply with the requirements in the Standard for Control Units and Accessories for Fire Alarm Systems, UL 864 10th Edition. Software version must be 3.0 or higher to comply with UL864 10th edition. Operation of the GFP with products not tested for UL 864 9th Edition has not been evaluated and may not comply with NFPA 72 and/ or the latest edition of UL 864. These applications will require the approval of the local Authority Having Jurisdiction (AHJ).

NOTE: All future references to ACM-30 also refer to ACM-30W, unless otherwise stated.

SECTION 2: EQUIPMENT INSTALLATION AND LAYOUT

WARNING: System Malfunction—Improper installation, maintenance, or lack of routine testing could result in system malfunction.

2.1 GFP GUIDELINES FOR EQUIPMENT INSTALLATION

Follow these guidelines when mounting the product's backbox and equipment.

- The backbox should be installed in a dry, indoor location.
- Recommended temperature for installation of fire panel hardware is between 15-27°C/ 60-80°F.
- System operation requirements are 15-27°C/ 60-80°F and at a relative humidity of 93% ±2% RH (non-condensing) at 32°C ±2°C (90°F ±3°F).
- Locate the backbox so the top edge is 66 inches (1.6764 m) above the surface of the finished floor.
- Access to the cabinet shall be in accordance with NFPA 70.
- Allow sufficient clearance around cabinet for door to swing freely.

2.2 GFP A/AR LAYOUT

The following graphic depicts the mounting of core board, PMB and SLM-318 in the GFP-A/ AR cabinet.

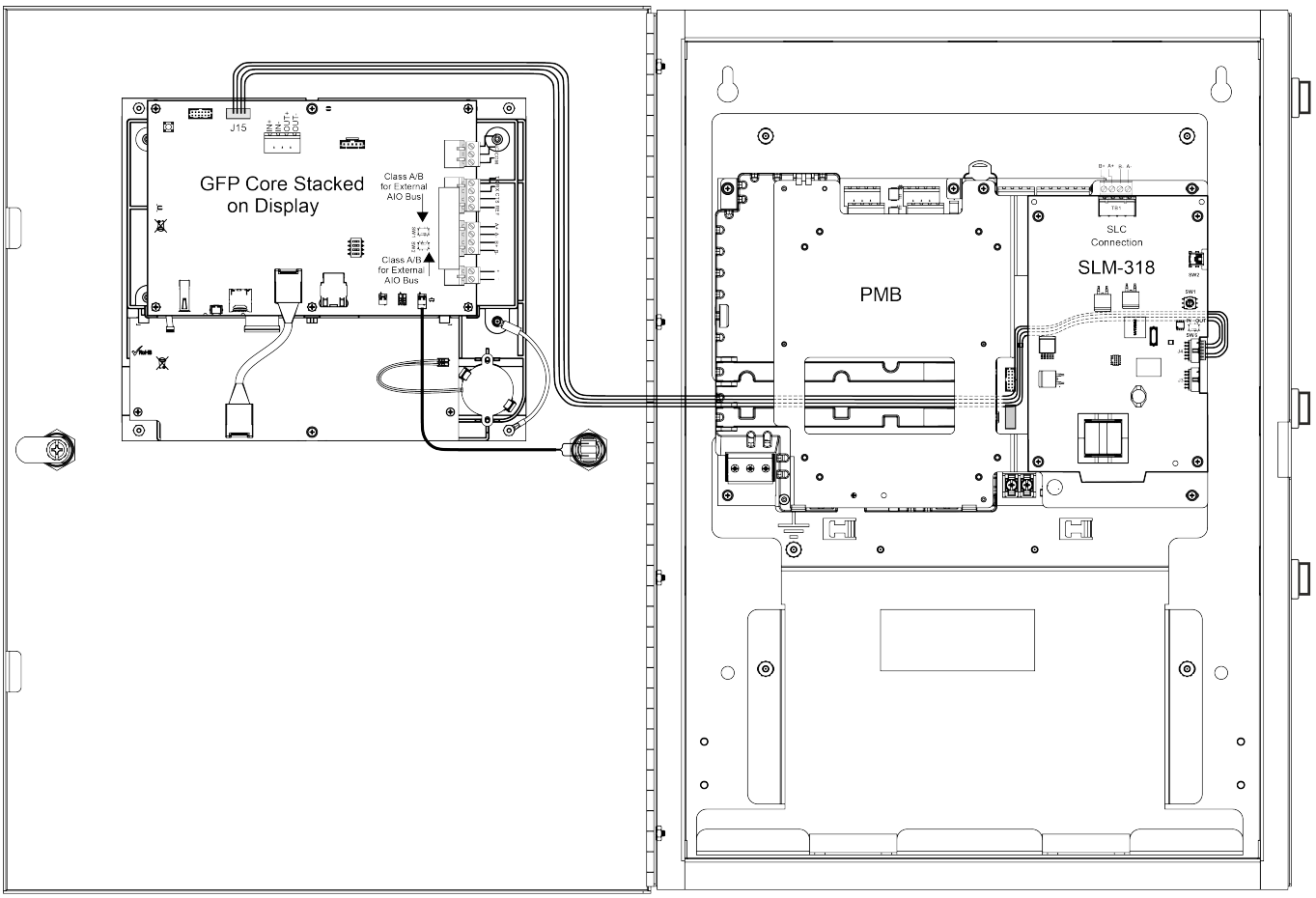


Figure 2-1: GFP Main Layout (shown with Core, PMB, and SLM-318 on Mounting Chassis)

NOTE: Refer to the *SLM-318 Installation Document* (LS10243-000GE-E) and the *PMB Installation Document* (LS10242-000GE-E) for more information on wiring connections and switch settings on these boards

Table 2.1 GFP Core Wiring Connections and Switches

Terminal Block/ Connector on Core Board	Description	Specification
TB1	Future Use	• Future Use
TB2	Trouble Relay	• 30 VDC • 2A, 0.35 PF • Non-power-limited • Form C dry contact
TB3*	Printer Connection (for supplemental use only)	• Power-limited • Supervision of end to end communication • Isolated printer connection (left side) • Equipment must be located in the same room within 20 feet of the panel with cables in conduit
TB4	Internal AIO Bus	• Characteristic impedance: 120 ohms • Supervised • Power-limited • A maximum of 80 annunciator devices can be connected to the system. Up to 10 annunciators can be configured as routers, each supporting 15 additional annunciators. • Long Line Resistance: 100 ohms • Class B only • Wiring Distances: - Class B max wiring distance at 16AWG of 6,000ft from FACP to last annunciator (subject to system power restrictions)
TB5	External AIO Bus	• Characteristic impedance: 120 ohms • Supervised return • Power-limited • A maximum of 80 annunciator devices can be connected to the system. Up to 10 annunciators can be configured as routers, each supporting 15 additional annunciators. • Wiring Distances: - Class B max wiring distance at 16AWG of 6,000ft from FACP to last annunciator (subject to system power restrictions) - Class A max wiring distance at 16AWG of 200ft between FACP end points (A to B) (subject to system power restrictions) • Class B Long line resistance: 100 ohms • Class A Long line resistance: 2 ohms
J1	OCuLink Connection	• To display (DIS-10-RD)
J7	Trouble Input	• Dry contact
J8	Tamper Input	• Dry contact
J9	Future Use	• Future use
J10	Network Service Connection (NUP)	• Power-limited • Supervised • Must be in cabinet located in the same room within 20 feet of the panel with cables in conduit
J11	USB A	• Used to connect flash drive for firmware upgrades and history exports to a USB.
J12	USB B Micro	• Used to connect CAMWorks+ Tools.
J13	Future Use	• Future use

Terminal Block/ Connector on Core Board	Description	Specification
J15	PMB Connection	• RS-485 Interface to panel • 24V power IN, 6A max • Alarm Bus • Sync Bus • CLP Bus terminated on core board
J16	CLP Bus Connection	• RS-485 Interface to panel • 24V power OUT, 6A max • Alarm Bus • Sync Bus • CLP Bus terminated on core board
SW1	Termination In/ Out switch for External AIO bus, A-side Note: Must be set to IN position for CLASS A wiring	• Default: Class B
SW2	Termination In/ Out switch for External AIO bus, B-side	• Default: Class B

Table 2.2 PMB Wiring Connections

Terminal block/ Connector Switch on PMB	Description	Specification
TB2	NAC 1 and NAC 2	• Power-limited • 24VDC, 1.5 Amps per circuit NAC special applications (20.03 - 27.96) - Class A/ B NAC power, Class D door holder power, UZC - 24VDC, 150 mA Regulated Class A/ B NAC power • 2.56 ohm max wire loop resistance at 1.5A • Voltage drop 3.84V using 12-18AWG at alarm current level • 24VDC, 2.0 Amps Releasing Special Applications (19.8-25.8) (with PMBNL-PCC Rev A or later generation, NAC configured as AUX) • End-of-Line Resistor 2.2K 1/ 2 W (ELR-2.2K) • Class B, Aux 2.0 A Special Applications
TB3	NAC 3 and NAC 4	• Power-Limited • 24VDC, 1.5 Amps per circuit NAC special applications (20.03 - 27.96) - Class A/ B NAC power, Class D door holder power, UZC - 24VDC, 150 mA Regulated Class A/ B NAC power • 2.56 ohm max wire loop resistance at 1.5 Amps • Voltage drop 3.84V using 12-18AWG at alarm current level) • 24VDC, 2.0 Amps Releasing Special Applications (19.8-25.8) (with PMBNL-PCC Rev A or later generation, NAC configured as AUX) • End-of-Line Resistor 2.2K 1/ 2 W (ELR-2.2K) • Class B, Aux 2.0 A Special Applications
TB6	Remote Sync Input	• Power-limited

Terminal block/ Connector Switch on PMB	Description	Specification
TB7	Aux Power 1/ Aux Power 2	• Aux Power 1 - 24VDC, Class A/ B (defaults to Class B) (EOLR-1 required for Class B Aux Power monitoring) - Power-limited - Releasing in conjuction with TC810S1000-2.0 A Special Applications (20.04-25.72) - Resettable with a 30 sec timer/ Non-Resettable • Aux Power 2 - 24VDC, defaults to Class B (EOLR-1 required for Class B Aux Power monitoring) - Power-limited - Releasing 2.0 A Special Applications (19.71 - 25.67) - Resettable with a 30 sec timer
TB8	AC Power Connection	• 2.5A, 120VAC, 50/ 60 HZ; 1.25A, 240VAC, 50/ 60 Hz • Non-power-limited • 12AWG recommended
TB9	Battery Connection	• Sealed lead-acid battery charger which will charge 7-100 Ah batteries • Charging current: None/ disabled, 1A, 2A, • Charging voltage: 27.6 VDC nominal
J3	CLP Board Connection	• Carry RS-485 data and internal 24V power to the SLM-318 loop cards and the core board on the GFP CPU assembly • Connect additional PMB boards sequentially with no other boards or cards in betweenSection 4: Equipment Wiring • PMB power supplies use only the RS-485 data).
J6	CLP/ Core Board Connection	• Carry RS-485 data and internal 24V power to the SLM-318 loop cards and the core board on the GFP CPU assembly • Connect additional PMB boards sequentially with no other boards or cards in between (Section 4: Equipment Wiring . • PMB power supplies use only the RS-485 data
SW1	Ground Fault Detection Switch	• Default is enabled • Switch setting must match the setting in the panel configuration tool
SW3	Address Switch	• Addresses the PMB • Default is set to ONE
SW5	PMB/ CLP/ Core Bus Termination	• Default is "OUT" • Set to "IN" when the PMB is the last (end) device on the bus
SW6	Multiple Units Installed Switch	• Turn ON if more than one PMB is installed on the system

WARNING: If there is a change in PMB configuration, a download from CAMWorks+ will cause a reboot or power cycle at TB7. Ensure necessary precautions are taken before download especially if the AUX outputs are used for releasing applications

NOTE: When disabling the battery charger on the PMB Power Supply, the batteries must be shared with a UL 864 compliant, supervised power supply capable of charging batteries with a charger voltage not to exceed 29VDC.

NOTE: The GFP FACP only supports USB Memory Drives formatted in FAT32 and must be 32GB or less.

Table 2.3 Maximum Battery Standby Loads for 24 Hour Standby on the PMB Power Supply

PMBNL generation	Battery Capacity (Ah)	Max. Standby Load (A) @Alarm Time (Min)				
		5	10	15	20	30
PMBNL-PCC	7	0.119	0.089	N/A	N/A	N/A
	12	0.285	0.255	0.226	0.196	0.136
	18	0.485	0.455	0.426	0.396	0.336
	26	0.752	0.722	0.692	0.662	0.603
	33	0.985	0.955	0.926	0.896	0.836
	55	1.719	1.689	1.659	1.629	1.569
	75	2.385	2.355	2.326	2.296	2.236
	100	3.219	3.189	3.159	3.129	3.069

Table 2.4 Standby Current Available at Different Settings

	PMB Charger Setting			
	No Charger	Low Charger (1A)	Medium charger (2A)	High charger (4.25A)
Max battery size supported		26Ah	55Ah	100Ah
Charging current used	0	1A	2A	4.25A
Normal Standby current available (from a single PMB)	6A	6A	5.5A	3.25A
Max Alarm current	8.5A			

Open/Short/Ground Trip Values

The following tables provide the open/ short/ ground trip values for applicable FACP circuits.

Table 2.5 Ground Fault Trip Values

Board	Terminal	Trip Resistance (in ohms)	Restore Value (in ohms)
SLM-318	TB1 - B+	26, 000	27, 000
SLM-318	TB1 - A+	57, 000	59, 000
SLM-318	TB1 - B-	110, 000	120, 000
SLM-318	TB1 - A-	120, 000	140, 000
CORE-2	External AIO Bus +/ -	240,000	300, 000
CORE-2	Internal AIO Bus +/ -	240,000	300, 000
PMB	AUX Power 1 - Class A/ B +/ -	250, 000	400, 000
PMB	AUX Power 2 +/ -	340, 000	450, 000
PMB	NAC +	50, 000	70, 000
PMB	NAC -	225, 000	240, 000

Table 2.6 Open/Short Trip Values

Board	Terminal	Trip Resistance (in ohms)	Restore Value (in ohms)
PMB	NAC 1-4	Shorts below: 1,200	1,700
PMB	NAC 1-4	Opens above: 60,000	20,000
PMB	AUX1-Class A, +/ -	Opens above: 220,000	100,000

Releasing Service and Battery Charging

All PMBs used for these features **MUST be PMBNL-PCC, REV A** or later generation. See Figure 2-2: PMB Designator Location , for PCB designator location on the PMB.

The PMB's hardware version will displayed in the FACP's About screen.

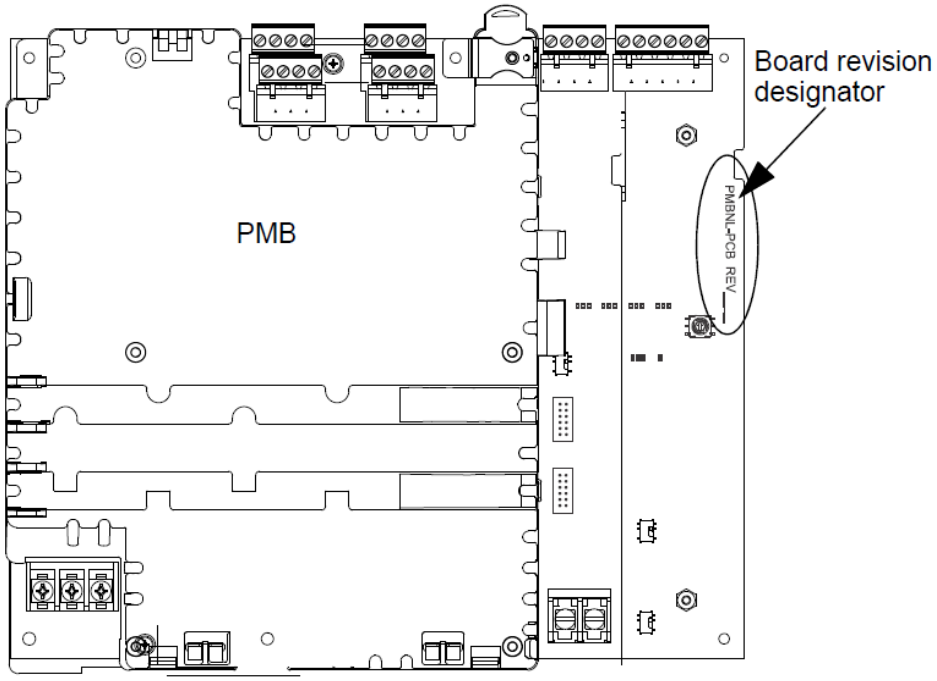


Figure 2-2: PMB Designator Location

CAUTION: RISK OF EQUIPMENT DAMAGE — Due to the significant potential for damage to property and occupants from an accidental release, per NFPA72, it is not recommended to use a panel disable function or a logical bypass for releasing outputs. The solenoid should be isolated via a physical disconnection means.

- **Calculation of maximum allowable wiring assistance for releasing solenoids:**

$$R_{max} = \frac{21.51 - 20.4}{I_s}$$

R_{max} = Maximum allowable resistance of wiring cable

I_s = Solenoid Current

- **Typical voltage drop through** TC810S1000 **releasing module: 0.6 V**

2.3 GFP DISPLAY LAYOUT

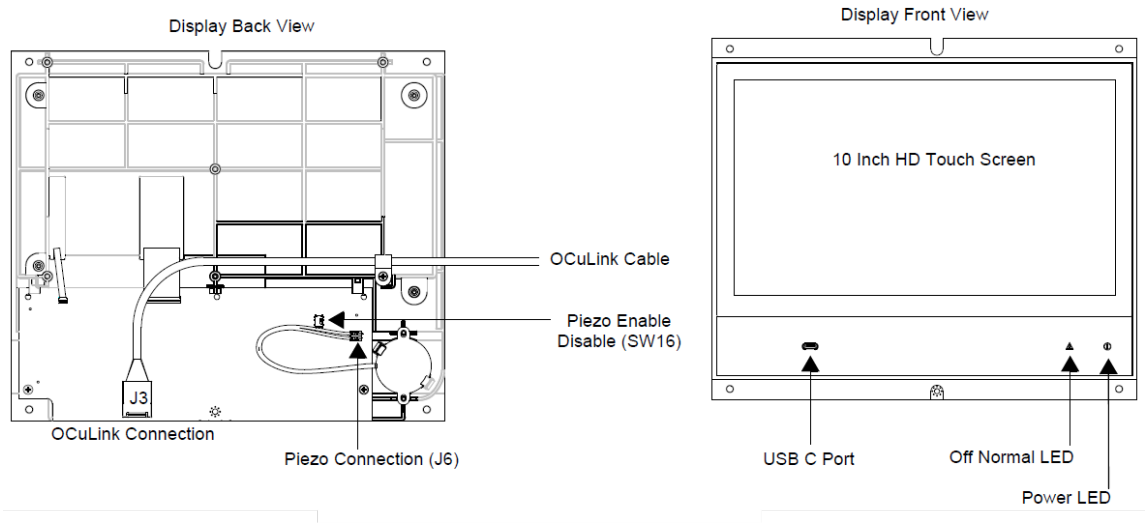


Figure 2-3: Display and Display Interface Board

WARNING: OCuLink Cable —Do not connect or disconnect the OCuLink cable while power is applied to prevent system damage.

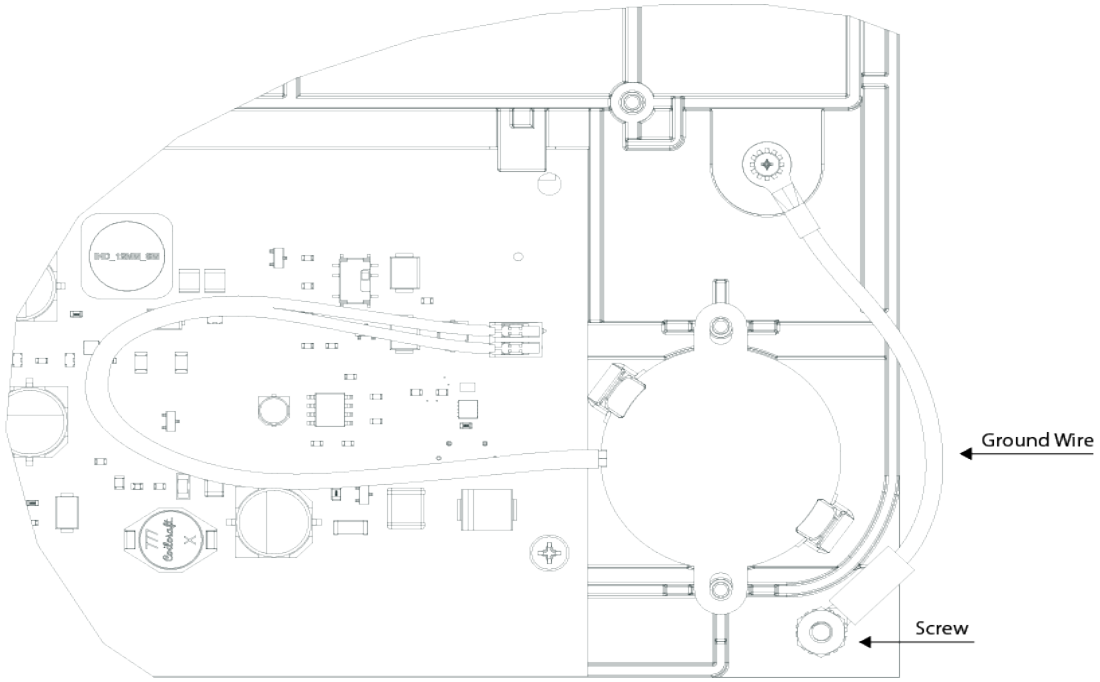


Figure 2-4: DIS-10-RD Ground Strap

NOTE: One end of the ground wire will come disconnected. To connect it to the dress panel, place the disconnected end over the screw and tighten a nut over it to secure.

2.4 SLM-318 SLC LOOP CARD

The SLM-318 is a SLC loop card that offers additional device capacity for the GFP Series Fire Alarm Control Panels. Each card can support 318 points when operated in Velociti protocol, and 198 devices when operated in CLIP protocol.

Refer to the *SLM-318 Product Installation Document (LS10243-000GE-E)* for more information on the SLM-318.

2.4.1 SLM-318 CONNECTIONS

Note the following when installing the SLM-318 boards:

• Set switches and other board settings before layering other boards on top.
• Each SLM-318 should be assigned a unique SLC loop number (1-2) but does not have to match the module's location in the daisy chain.
• Up to two (2) SLM-318 cards can be installed on the fire panel.
• If programmed for CLIP mode, do not install more than 198 devices on the loop.

Refer to the SLM-318 Product Installation Document (LS10243-000GE-E) for more information. Refer to the Device Compatibility Document (LS10428-000GF-E) for a list of compatible Notification Appliances and Releasing Circuits. Refer to the SLC Wiring Manual (LS10414-000GF-E) for SLC devices that are compatible with GFP. For NAC applications, NAC support is provided via the PS Series power supplies and the PMB power supply. Refer to documents provided with these products for NAC application information.

Table 2.7 SLM-318 Connections

Terminal Block/ Connection	Description	Specification
TB1	SLC Connection	24VDC Alarm 210mA Class B/ A/ X Standby 159mA Power-limited Supervised 50 ohms Maximum
J3	CLP Board Connection	• Carry RS-485 data and internal 24V power to the SLM-318 loop cards and the core board on the GFP CPU assembly • PMB power supplies use only the RS-485 data
J4	CLP/ PMB Board Connection	• Carry RS-485 data and internal 24V power to the SLM-318 loop cards and the core board on the GFP CPU assembly • PMB power supplies use only the RS-485 data

2.4.2 SELF-TEST DETECTOR FUNCTION ON THE SLC

The SLM-318 is capable of supporting up to 159 Self Test Detectors. When Self-Test Detectors are installed on the SLM-318 and a self test is being performed the voltage on the SLC Loop will increase to 29.5VDC +/-5% (28.0-30.98VDC). Note: when the SLC loop is polling normally (no self-test in process or activated devices), the voltage will vary between 24VDC, 0VDC and 5VDC so when reading the voltage with a meter you will read the average of 12.5-13.5VDC +/-5%.

CAUTION: Loop Polling Interruption —When the FACP is performing a self test the devices on the loop will not poll.

NOTE: When AC power is disconnected and the FACP is operating off of a secondary power source, a self test will not be performed.

WARNING: Remove all power sources to equipment while connecting electrical components. Leave external, main power breaker off until installation of the entire system is complete. several sources of power can be connected to the control panel. before servicing the control panel, disconnect all sources of input power including the battery. While energized, the control panel and associated equipment can be damaged by removing and/ or inserting cards, modules, or interconnecting cables.

2.5 OPTION CARDS

Option cards may be mounted next to the core board on the GFP chassis, in a stacked configuration. All option modules come with the necessary hardware for mounting.

The following option cards include:

- SLM-318 Installation Document (LS10243-000GE-E) for mounting instructions
- TM-8 Installation Document (LS10388-051NF-E) for mounting instructions
- LDM2-32/ LDM2-60 Installation Document (LS10385-000GE-E) for mounting instructions

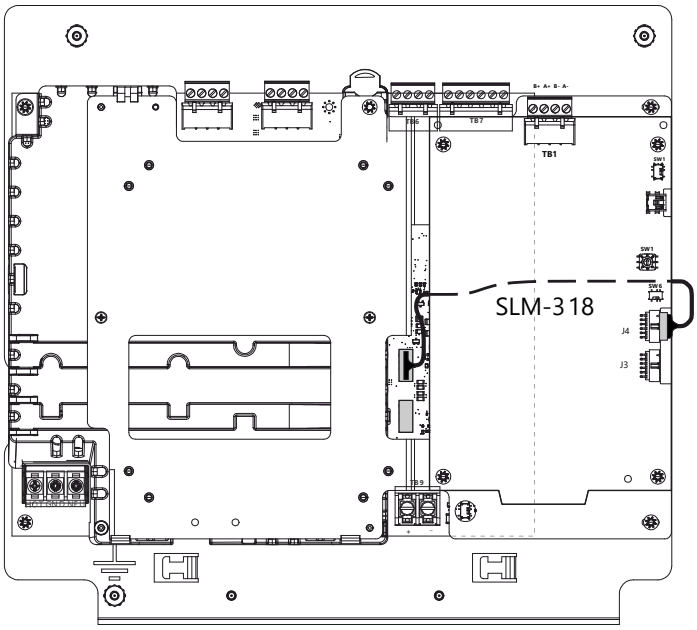


Figure 2-5: CPU Mounting and Option Card Locations

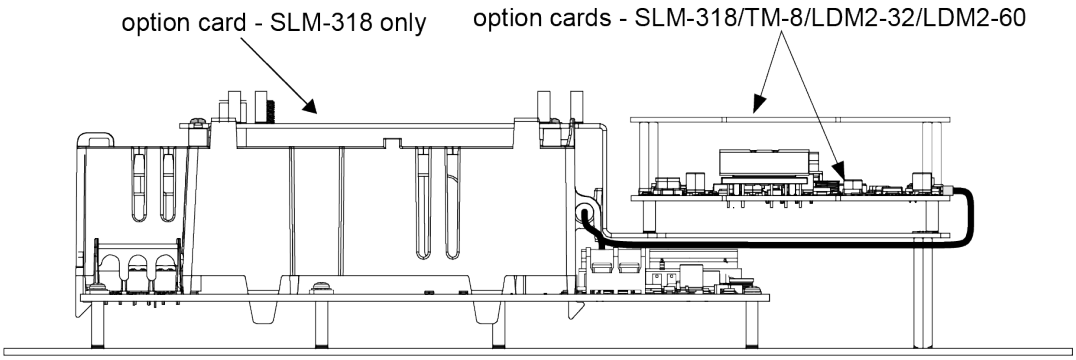


Figure 2-6: GFP Equipment Mounting Options (Shown with Stacked Option Cards)

SECTION 3: POWER

3.1 PRIMARY POWER SOURCE

The GFP uses the PMB power supply. The PMB provides a total of 6A of power in standby and 8.5A in alarm. It charges 7-100Ah sealed lead-acid batteries with PMBNL-PCC Rev A or later generation . Before connecting the batteries, check the AC power to the system. Use Table 3.1 AC Power Guidelines as a guide for checking AC power.

Table 3.1 AC Power Guidelines

Component	Status
Core/ PMB	The green power LED will illuminate when power is coming from the main power supply. The yellow trouble indicator will illuminate until the batteries are connected.

CAUTION: RISK OF EQUIPMENT DAMAGE
While checking power, make sure batteries are not connected. Secondary Power Sources

Batteries provide +24 VDC secondary (backup) power. Batteries can be installed in the fire panel cabinet or in an optional battery backbox. All wiring must be encased in conduit. A secondary power source is required to support the system during primary AC loss.

NOTE: If using multiple power supplies with one set of batteries, refer toSection 4: Equipment Wiring .

3.2 EXTERNAL POWER SOURCES

Additional power can be provided via auxiliary power +24 VDC power supplies that are UL-listed for fire protective service. For additional information on connecting auxiliary power supplies, follow connection procedures specified in the auxiliary power supply manual.

3.3 SYSTEM POWER/SIZE

PMB capabilities are as described in Table 3.2 System Power and Table 3.3 System Size .

Table 3.2 System Power

AC Voltage	AC Current	Max. Ah Capacity	Max. Standby Current	Max. Alarm Current	Max. Standby Time	Max. Alarm Duration
120VAC, 50/ 60 Hz	2.5A	100	Refer to Table 2.3 Maximum Battery Standby Loads for 24 Hour Standby on the PMB Power Supply	8.5 A	Refer to Table 2.3 Maximum Battery Standby Loads for 24 Hour Standby on the PMB Power Supply	
240VAC, 50/ 60 Hz	1.25A					

Table 3.3 System Size

Accessories/ Subassemblies/ Networked panels	Maximum System Capacity
Monitor and Control Modules	159 per loop, up to 318 total in Velociti; 99 per loop, up to 198 in CLIP
Detectors	159 per loop, up to 318 total in Velociti; 99 per loop, up to 198 in CLIP
Signaling Line Circuits (SLC)	2

Accessories/ Subassemblies/ Networked panels	Maximum System Capacity
GFP Fire Alarm Control Panel	-Two Nodes maximum (GFP panel networked with the CLSS Gateway or Dark Dialer) 1 Node (CLSS Gateway or Dark Dialer)

SECTION 4: EQUIPMENT WIRING

4.1 GFP CONFIGURATIONS

The wire harness connections between the GFP Core Board, PMBs and SLM-318s have two primary purposes; they carry communications and they carry power. The communication takes place on a bus with two endpoints. The FACP is always the endpoint of the bus so its termination resistance is hard-wired (e.g. not selectable). The other endpoint will either be a SLM-318 or a PMB and will need its termination resistance enabled through an on-board switch (SW6 on a SLM-318, or SW5 on a PMB). All other (intermediate) SLM-318s/ PMBs on the bus MUST have termination disabled.

NOTE: The Core board on the GFP can only receive power on J15, it cannot pass power out of J15.

NOTE: A maximum of two (2) SLM-318 loop cards can run on one (1) GFP PMB supply.

4.2 UL SYSTEM CONFIGURATION

The following tables display System Configuration information for UL applications. See key and footnotes at end of table.

Table 4.1 System Configuration for UL Requirements

Module	Description	CS	Local	AUX	RS	P (PPU)	P (Burg)	REL	P Rec	Process Mana. (1)	Emerg. Sign. (2)	Smoke Control
ACM-30*	Annunciator	O	O	O	O	O	Y	O	O	O	O	Y(4)
ACM-30W*	Annunciator	O	O	O	O	O	Y	O	O	O	O	Y(4)
GFP-RLD	Remote Display	O	O	O	O	O	O	O	O	O	O	O
HON-CGW-MBB	CLSS Gateway, in a plastic enclosure	Y (4,8,10)	N	N	O	O	N	N	N	N	N	
HON-DACT-DS	Dark Site Dialer	Y (4,8,10)	N	N	O	O	N	N	N	N	N	O
HWF2A-COM	LTE/ IP Dialer Capture Alarm Communicator	O(8,10)	N	N	N	O	N	O	N	O	O(8)	O
HWF2V-COM	LTE/ IP Dialer Capture Alarm Communicator	O(8,10)	N	N	N	O	N	O	N	O	O(8)	O
TG7LAF02	LTE Dialer Capture Alarm Communicator	O(8,10)	N	N	N	O	N	O	N	O	O(8)	O
TG7LVF02	LTE Dialer Capture Alarm Communicator	O(8,10)	N	O	N	O	N	O	N	O	O(8)	O
CCM-ATT-HON	AT&T Cellular Module	O	O	O	N	N	N	O	N	O	O	O
CCM-VZ-HON	Verizon Cellular Module	O	O	O	N	N	N	O	N	O	O	O
CCM2-AV-HON	Dual SIM Cellular Module	O	O	O	N	N	N	O	N	O	O	O

Module	Description	CS	Local	AUX	RS	P (PPU)	P (Burg)	REL	P Rec	Process Mana. (1)	Emerg. Sign. (2)	Smoke Control
CCM2-GLOBAL	Dual SIM Cellular Module	O	O	O	N	N	N	O	N	O	O	O
GFP-CPU-LD	CPU Board (Core/ PMB/ SLM-318) with 10inch HD Display	Y(9)	Y(9)	O	Y(9)	Y(9)	Y(9)	O	Y(9)	Y(9)	Y(9)	Y(9)
GFP-CPU-RB	CPU Board Only (Core)	O	O	O(7)	O	O	O	O(7)	O	O	O	O
DIS-10-RD*	10inch Touch Screen Display	Y(7,9)	Y(7,9)	O	Y (7,9)	Y(7,9)	Y(7,9)	O	Y (7,9)	Y(7,9)	Y(7,9)	Y(7)
PMB-AUX*	Power Supply	O	O	O	O	O	O	O	O	O	O	O
SLM-318*	Signaling Loop Card	Y	Y	O	Y	Y	Y	O	Y	Y	Y	Y
GFP-AR	GFP-AR in Red Enclosure	O	O	O	O	O	O	O	O	O	O	OY(6)
AMM-4SF*	Monitor Module	O	O	O	O	O	O	O	O	O	O	O
AOM-2RF*	Relay Module	O	O	O	Y	O	O	O	O	O	O	O
MCS-COF3*	Fire/ CO Detector	O	O	O	O	O	O	O	O	O	O	O
TC810S1000*	Releasing Module	O	O	O	O	O	O	Y	N	O	O	O
LDM2-32*	Lamp Driver Module, 32 outputs	N	O	N	N	N	N	O	N	O	O	Y(4)
LDM2-60*	Lamp Driver Module, 60 outputs	N	O	O	N	N	N	O	N	O	O	Y(4)
TM-8*	Transmitter and Relay Module	N	O	Y	Y	N	N	O	O	O	O	O

KEY:

*- Modules are listed separately

Y - Yes

N - No

O - Optional

NOTES:
1. Non-emergency
2. Emergency
3. At least one power supply must be utilized.
4. The system must contain one of these units.
5. When configured for Emergency Relocation and Evacuation Equipment, the system must meet Local configuration with a minimum of one amplifier
6. A minimum of one CAB Enclosure must be utilized with appropriate door for application.
7. Various dress panels/ dead fronts/ trim rings must be employed so that internal components and high voltage is not accessible.
8. Also required when devices for Carbon Monoxide signaling are employed
    - When configured for security applications, system must be configured for a maximum of 60 seconds for Entry/ Exit delay.
    - Standby power must provide 24 hours of standby.

10. Required if utilizing a central station other than supported by HON-CGW-MBB
11. Required when using CGW-MB alone OR using a HON-DACT-DS.

The units may employ the following features:
•Alarm verification (maximum verification period of 60 for field programmable between 0 and 60s)
• Supports standard 2-wire smoke detectors using Models AMM-4SF. Refer to the *Device Compatibility Document* for compatible 2-wire smoke detectors.
• Supports addressable or analog devices
• Field Programming
• Signal Silence Inhibit
• Remote annunciator outputs
• Automatic Alarm Signal Silence
• Drift compensation
• Detectors automatically test sensitivity with every poll, ~6 seconds

Security Applications:
• System must be configured for a maximum of 60 seconds for Entry/ Exit delay
• Standby power must provide 24 hours of standby

Table 4.2 UL Type of Service Configurations

UL Type Service	Model	IDC Class*	Initiating Device Types	NAC	Type Signaling	Signaling Line Circuit
Local	GFP-A/ AR	A, B	A,M,WF,SS	A, B	C,NC,M	Class B Class A,X
Auxillary	GFP-A/ AR	A, B	A,M,WF	N/ A	N/ A	Class B Class A,X
Remote Station (PPU)	GFP-A/ AR	A, B	A,CO,M,WF,SS	N/ A	DACT (+), Rev. Pol (+)., PB (+)	Class B Class A,X
Proprietary (PPU)	GFP-A/ AR	A, B	A,CO,M,WF,SS	N/ A	DACT (+), PB (+)	Class B Class A,X
Central Station (PPU)	GFP-A/ AR	A, B	A,CO,M,WF,SS	N/ A	DACT, PB (+)	Class B Class A,X
Proprietary Security (PPU) (RU)	GFP-A/ AR	A, B	A, M	N/ A	MX(+)	Class B Class A,X
Process Management (Non-emergency)	GFP-A/ AR	A, B	A, M	A,B	C,NC, DACT (+), PB (+)	Class B, Class A,X
Emergency Signaling	GFP-A/ AR	A, B	A, M	A,B	C,NC	Class B, Class A,X
Non-Emergency Signaling	GFP-A/ AR	A, B	M	A,B	C,NC	Class B, Class A,X
Releasing	GFP-A/ AR	A, B	A,M,WF,SS	A,B	C,NC	Class B, Class A,X
EVAC	GFP-A/ AR	A, B	A,M,WF,SS	A,B	C,NC,M	Class B, Class A,X

(+) Requires seperately listed equipment

* * Requires separately listed SLC module. See SLC Wiring Manual LS10414-000GF-E for compatibility

4.3 UL POWER-LIMITED WIRING REQUIREMENTS

Power-limited and non-power-limited circuit wiring must remain separated in the cabinet. The following requirements apply:

All power-limited circuit wiring must remain 0.25 inches (6.35mm) from non-power-limited circuit wiring.
All power-limited and non-power-limited circuit wiring must enter and exit the cabinet through different knockouts or conduits.
If the device connected is only power-limited when connected to a power-limited source, the power limited marking must be removed, and at the time of installation, each non-power-limited circuit connected to these modules must be identified in the space provided on the cabinet door label.
If additional knockouts are added to the backbox, proper separation of power-limited and non-power-limited wiring should be maintained.

NOTE: Relays are power-limited only when connected to power-limited sources for the relay outputs.

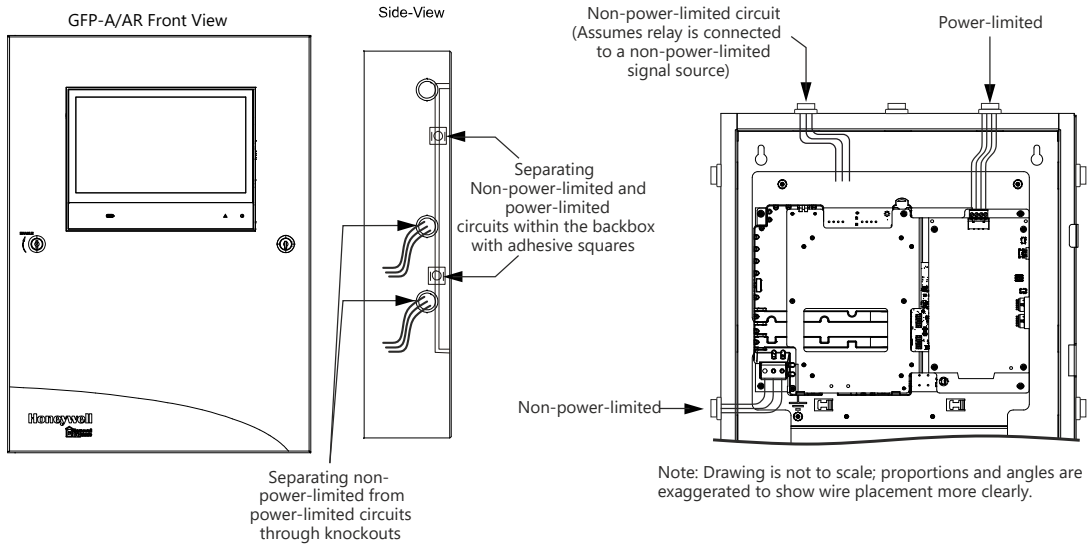


Figure 4-1: Power-Limited and Non-Power Limited Wiring

4.4 NFPA 72 PROPRIETARY FIRE ALARM SYSTEMS

When connected and configured as a protected premises unit with monitor and relay modules, the GFP will automatically transmit General Alarm, General Trouble, General Supervisory signals to a listed compatible Protected Premises Receiving Unit. A simplified drawing of connections between the receiving unit and the GFP protected premises unit is shown in Figure 4-2: Typical Proprietary Fire Alarm Systems Wiring Connections . Connect the receiving unit to the protected premises unit as shown in Figure 4-4: HON-CGW-MBB Connected to GFP CORE via NUP HON-CGW-MBB Figure 4-4: HON-CGW-MBB Connected to GFP CORE via NUP GFP-CPU-LD Figure 4-4: HON-CGW-MBB Connected to GFP CORE via NUP Install and program the Receiving unit with type codes and zone mappings shown in"Type Codes for Monitor Modules" on page 65.

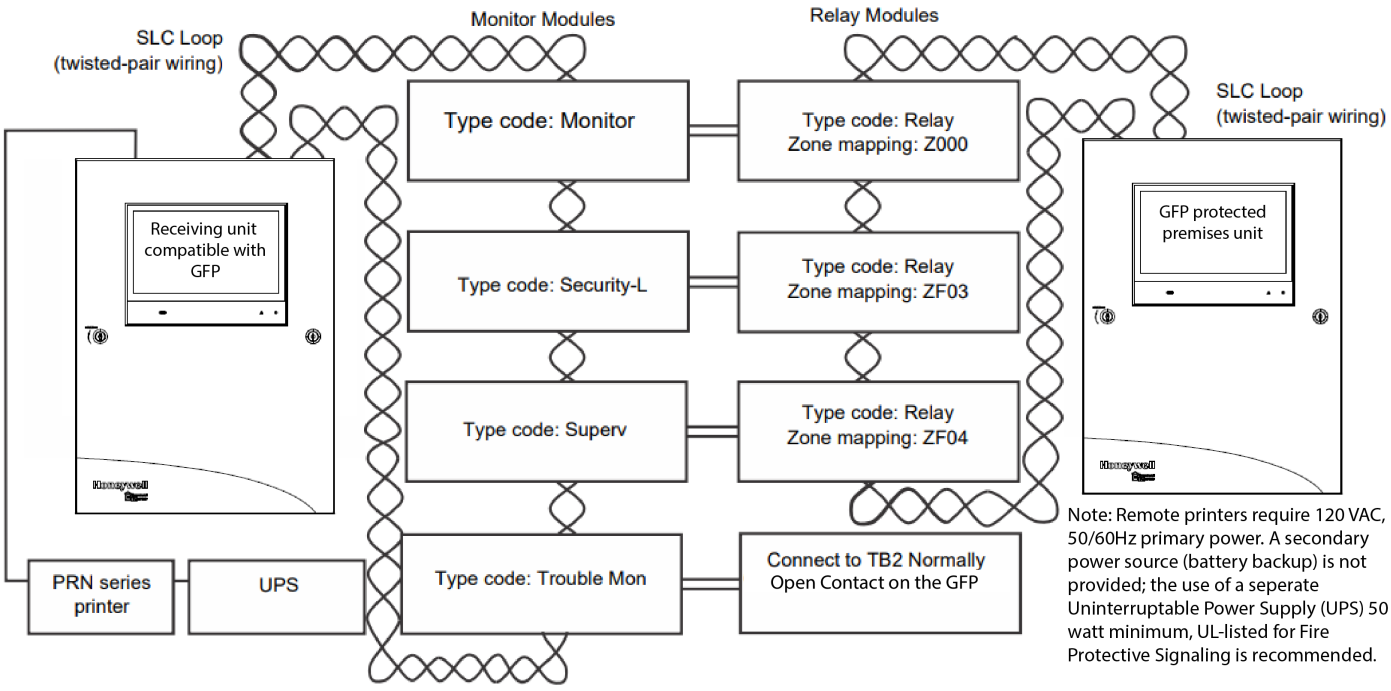


Figure 4-2: Typical Proprietary Fire Alarm Systems Wiring Connections

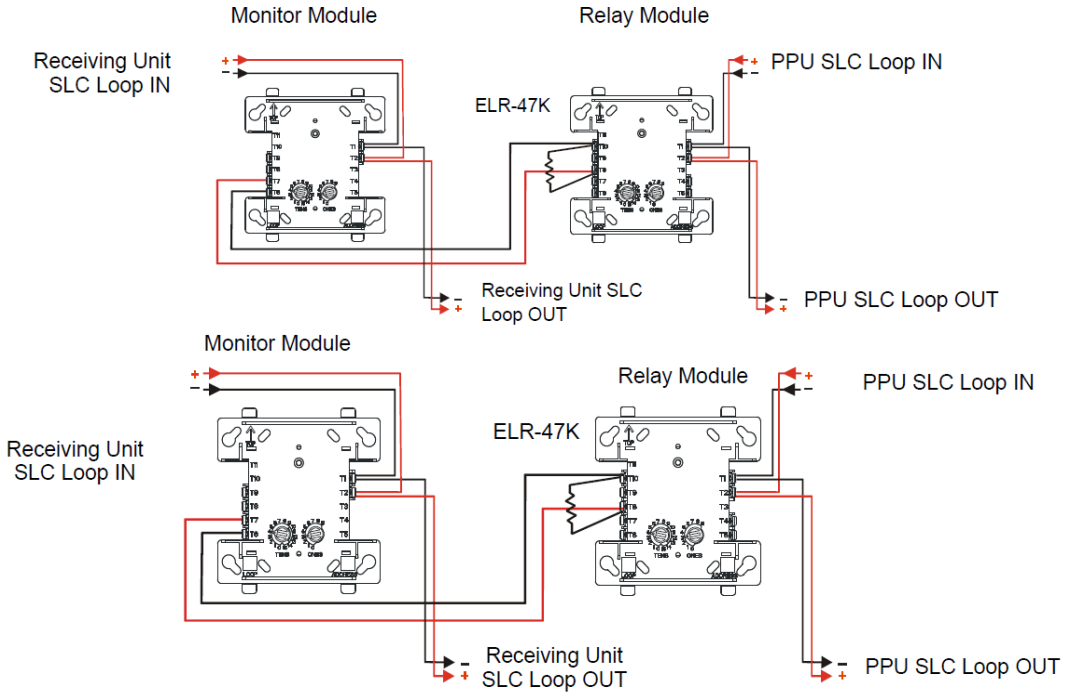


Figure 4-3: Typical Proprietary Fire Alarm Systems Wiring Connections: Detail Views

4.5 NFPA 72 CENTRAL STATION FIRE ALARM SYSTEM (PROTECTED PREMISES UNIT)

The figure below shows a typical wiring diagram for a NFPA 72 Central Station Fire Alarm System (Protected Premises Unit) using the CLSS Gateway in a plastic enclosure (HON-CGW-MBB) and the GFP for a NUP-to-NUP configuration. Connect and program the HON-CGW-MBB according to the directions given in *The CLSS Gateway Manual (LS10248-000HW-E).*

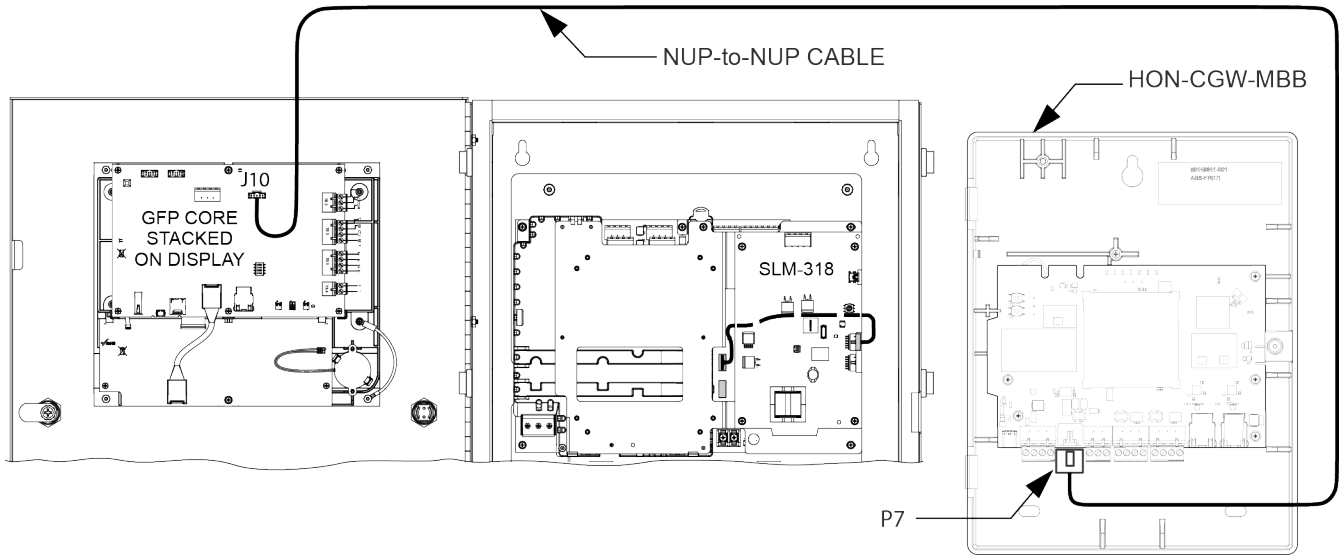


Figure 4-4: HON-CGW-MBB Connected to GFP CORE via NUP

NOTE: An NFPA 72 Central Station requires 24 hours of standby power

4.6 REMOTE STATION APPLICATION USING THE AOM-2RF RELAY MODULE

The AOM-2RF can be used for a Remote Station Application when using a UL864 Contact Closure DACT Listed for Remote Station. Refer to AOM-2RF.

Program each AOM-2RF as follows:

AOM-2RF used to transmit Fire Alarm Signals: CBE: Z0

AOM-2RF used to transmit Supervisory Signals: CBE: ZF4

AOM-2RF used to transmit Trouble Signals: CBE: ZLxxx (Where ZLxxx is the Logic Zone programmed for Trouble Signals)

Logic Zone Programming: OR(ZF1,ZF2)

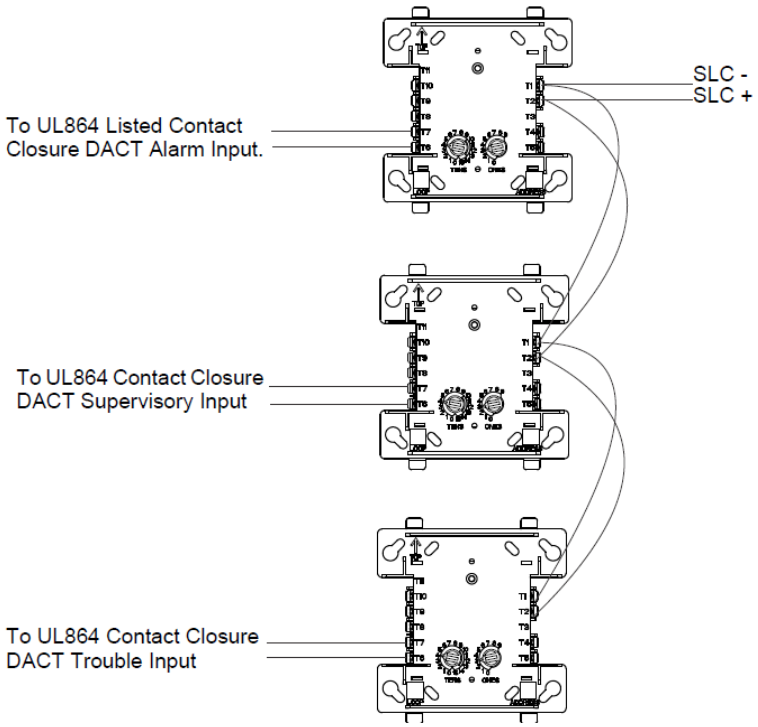


Figure 4-5: Wiring Diagram for Contact Closure Remote Station

NOTE: This service type can also be done with the TM-8 remote transmitter module. See TM-8 manual for more information.

4.7 DARK SITE DIALER

The GFP can report to central stations via the public switched telephone network using the HON-DACT-DS. There are no Gateway capabilities with this configuration. Refer to the *Dark Site Dialer User Manual (*LS10406-010HW-E*)* for more information.

4.8 REMOTE ANNUNCIATOR ENCLOSURES FOR ACM-30(W)

The following cabinets can be used to remotely locate the ACM-30(W) from the main Control Unit enclosure:

- GFP-BB-RA
- GFP-BB-RAR

SECTION 5: OPERATION

The following are approved applications for the GFP.

NOTE: GFP: When operating as a Protected Premises Control Unit, the GFP is UL Listed for monitoring and control of fire alarm notification devices.

The GFP, when installed in accordance with the above manuals, comply with the following NFPA 72 standards for fire protective signaling systems:

- Central station (protected-premises unit, requires HON-CGW-MBB)
- Local, remote station (protected-premises unit, requires UL 864 10th edition listed contact closure DACT)
- Proprietary (protected-premises unit)
- Proprietary (receiving unit)
- Relocation

The GFP is also suitable for use as the following:

- Type of signaling service: Non-Coded, March Time, Coded.
- Class A or B power-limited initiating device circuits. Requires separately listed SLC module. See SLC Wiring Manual LS10414-000GF-E for compatible modules.
- Class A or B power-limited notification appliance circuits
- Power-limited SLC communications loop meeting NFPA 72 Class A, B, and X requirements
- Alarm signal cutoff (if enabled) programmable from 180 – 1200 seconds
- Presignal delay (if enabled) programmable from 60 – 180 seconds
- Signal inhibit (if enabled) programmable from 0 – 300 seconds
- Performance based Technologies (requires HON-DACT-DS

Types of signals: automatic fire alarm, manual fire alarm, waterflow alarm, sprinkler supervisory service

Type of signaling device: Type NM (non-monitoring) and SM (self-monitoring). Installation limits in all categories of service are under the jurisdiction of the local authority and in accordance with NFPA70 National Electrical Code. System and peripherals for indoor dry use (without specific marine listings) in a recommended environment with a nominal room temperature of 15°C to 27°C (60°F to 80°F).

Electrical ratings: 2.5A @120V or 1.25 A @240 V, 50/ 60 Hz (primary power source), and 24 VDC battery (standby power source). Operating system software: software version information may be displayed by navigating to the Settings > About menu on the main display.

Protected premises unit:

- Central station
- Remote station
- Proprietary
- Local

Communication transmission path:

- POTS communication off premises using HON-DACT-DS
- Performance-based with HON-CGW-MBB

The following requirements cover products to be employed in accordance with the following National Fire Protection Association (NFPA) Standards:

- NFPA 12 Carbon Dioxide Fire Extinguishing Systems
- NFPA 12A, Halon 1301 Fire Extinguishing Systems
- NFPA 13, Installation of Sprinkler Systems
- NFPA 15, Water Spray Fixed Systems for Fire Protection
- NFPA 16, Installation of Foam-Water Sprinkler and Foam-Water Spray Systems
- NFPA 17, Dry Chemical Extinguishing Systems
- NFPA 17A, Wet Chemical Extinguishing Systems
- NFPA 70, National Electrical Code
- NFPA 72, National Fire Alarm Code
- NFPA 92, Standard for Design, Installation and Testing of Smoke Control Systems

• NFPA 750, Standard for Water Mist Fire Protection Systems
• NFPA 2001, Clean Agent Fire Extinguishing Systems
• NFPA 2010, Standard for Fixed Aerosol Fire Extinguishing Systems

Process control, non-critical

Regional settings:

• Chicago
  - Panel signal silence button will not function
  - SLC modules should not be programmed with type codes Drill Switch or Sil Switch
  - AIO device inputs should not be programmed for Drill or Silence functions
  - The Alert Bar programming should not include Drill
  - Events must be acknowledged prior to system reset

5.1 GFP DISPLAY

The GFP has a high definition 10 inch touchscreen to display system events. The display features a touchpoint for menu access, a header bar which shows color-coded event status, and touchpoints for acknowledge, signal silence, and reset functions.

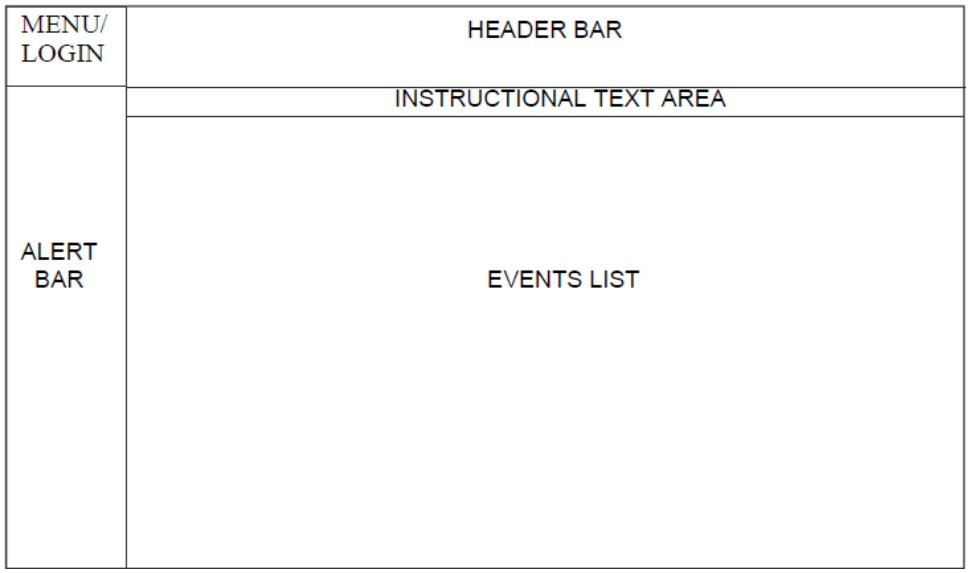


Figure 5-1: Display Regions

CAUTION: Display Life —Setting the display brightness above 75% for prolonged periods of time will decrease the overall life of the display.

5.2 PANEL FEATURES

• Custom banner/ graphics

• Basic Function
  - ACK
  - Silence
  - Reset

• Date and time

• Fire Event List

• History
- Filtering history
- Extracting history

• Look-ahead warning

- Display conditioning mode
- Alarm verification
- Pre-signal/ alarm delay
- Co-operative detection
- Menu
- Alert bar and customization
- Instructional text
- Logic zones (license)
- Special function zones
- General zone (license)
- Control-by-event
- User management
- Firmware update & backup (the trouble for running a backup partition)
- Fire Service Access Elevators (FSAE)
- Smoke Control
- Uninstalled/ Hidden Points
- Drill
- Disable/ enable
- Custom action buttons (license)
- Force on/ off
- Occupancy schedule
- Precedence
- Temperature measurements
- Auto program
- Read status
- Reminders
- Configuration tool user
- Remote access
- Virtual Points
- Multi-Criteria Detector Subaddressing

5.3 DISPLAY CONDITIONING MODE

Every 30 minutes, the display will enter Display Conditioning mode. During Display Conditioning, the display will transition through various screens including a completely blank screen. This process takes about seven seconds. It is done to prevent image persistence, and keeps information clear and undistorted. Any display interaction will abort Display Conditioning mode.

NOTE: Display Conditioning mode is not configurable. Display Conditioning will not engage when there is a Fire or CO alarm on the system, as well as Fire and CO pre-alarm.

5.3.1 CONFIGURABLE ALERT BAR

The number of event types in the Alert Bar is customizable using CAMWorks+ Tools. The Alert Bar can be configured for a minimum of four event types up to a maximum of nine event types.

5.3.2 ALARM VERIFICATION

Alarm Verification delays a device from going into alarm to reduce false alarms. The user programs which devices participate in alarm verification, sets a panel-wide alarm verification time, alarm confirmation time, maximum verification count, and a verification pre-alarm setting. If a device reaches or exceeds the alarm threshold, it will delay going into alarm by the programmed amount of alarm verification time. If during this time, a second device on the same loop reaches its alarm threshold, the first device will immediately go into alarm.

NOTE: The Alarm Verification feature is not allowed to be used for detectors that are employed in either a cross-zone initiation function or a single-zone, multiple-detectors (counting zone) initiation function.

5.3.3 PRE-SIGNAL/ POSITIVE ALARM SEQUENCE (PAS)

Pre-Signal

Presignal is a feature that initially causes alarm signals to only sound in specific areas, monitored by qualified persons. This allows delay of the alarm up to 180 seconds after the start of alarm processing. The control panel Presignal feature provides the two following selections:

• **Presignal Delay Timer** (1:00 to 3:00 minutes) that delays activation selected for PAS/ Presignal Delay participation.. See Figure 5-2: Presignal and PAS Time

• **PAS** (Positive Alarm Sequence) (00:00 to 00:59 seconds) selection, in addition to the Presignal Delay Timer, is a default 15-second timer, for acknowledging an alarm signal from a fire detection/ initiating device. If the alarm is not acknowledged within the time period, all local and remote outputs activate immediately and automatically. See Figure 5-2: Presignal and PAS Time

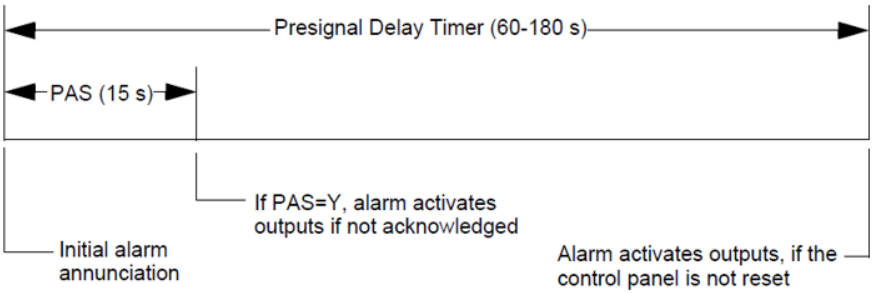


Figure 5-2: Presignal and PAS Time

5.4 SYSTEM RESOUND SETTINGS

5.4.1 RESOUND BY POINT

After outputs are silenced, if another Event comes in that matches an outputs resounds settings, the previously silenced points will turn back on.

Output resound options are as follows:
• Fire
• Supervisory
• Trouble
• CO
• No Resound

5.5 DISPLAY EVENTS BY ZONE

The following applies to the Display Events by Zone feature on the GFP:

• Instead of displaying events by point; Fire, CO and Supervisory events are grouped by zone instead. The highest priority event in the zone will display on top as the primary event.
• Up to 8 zones can be displayed at once on the GFP-A/ AR.
• A counter will show additional number of events that are also in the same zone.
• You can touch the drop-down arrow for the zone and all other events will show beneath it. This list can be collapsed by touching the arrow again.
• When a primary event is acknowledged, all unacknowledged events in that zone and event category will be acknowledged.
• Attached GFP-RLD's will follow the panel's system setting.
• The first CBE of the device is its primary zone.

5.6 MAIN MENU

From the Main Menu of the GFP, the following options can be selected:

Settings This menu provides access to Display Settings, Panel Settings, About, Licensing Information and User Accounts. Refer to "Display" on page 43, "Panel Settings" on page 46, "About" on page 43 , "User Accounts" on page 45, and "Obtaining a License (Licensing)" on page 1 for more information.

Programming This menu provides access to network programming and Autoprogram options. Refer to "Programming Features Accessed from the FACP" on page 43 and "Autoprogram" on page 47 for more information.

> **NOTE:** GFP-A/ AR currently supports standalone applications only.

Point Information Allows the user to enable/ disable points, control points on/ off, perform read status of a point, and view point history. Refer to "Point Information" on page 47 for more information.

Test/ Diagnostics This menu provides access to Diagnostics, Lamp Test, History and also allows for the export of Diagnostics and History. Refer to "History" on page 49, "Diagnostics" on page 48 and "Lamp Test" on page 48 for more information.

Custom Allows the user to customize buttons that can be mapped and assigned to manually control common system commands such as enable/ disable points.

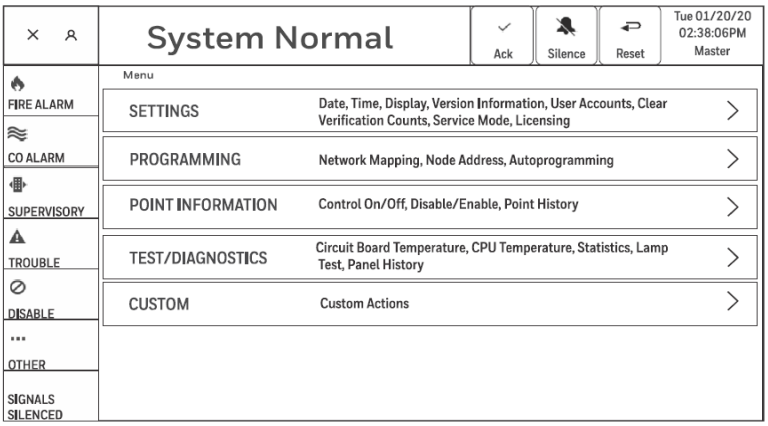


Figure 5-3: Main Menu Screen

5.7 SETTINGS

From the Settings Screen, the following options can be selected

Display Tap to access brightness levels and Clean Mode.

About Tap to access any system update, model, application, boot, kernel, and M4 (co-processor) information, hardware version, database information, loop information, update loops application, serial number, and AIO software versions.

User Accounts Tap to add users, remove a user, change a password, and recover a password.

Panel Tap to clear verification counts, enter service mode, and change the date and time.
NOTE: User should set panel date on first power-up.

Licensing Tap to view status of licensable features such as loops, general zones, logic zones, releasing zones, water releasing zones, custom action buttons, power supplies, UZC (Universal Zone Coding) and CLIP mode.

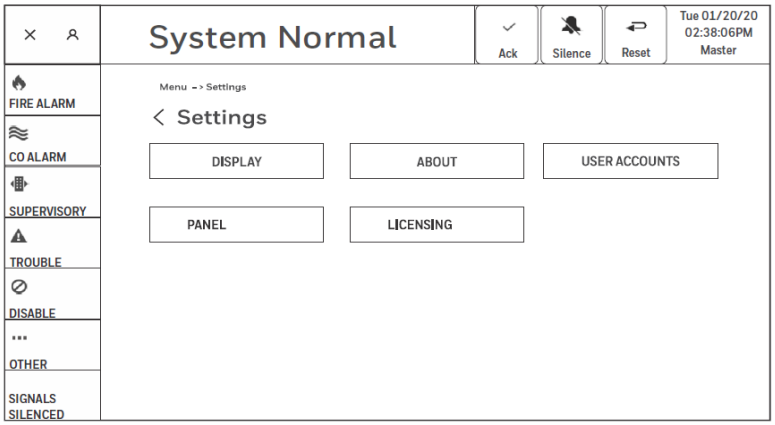


Figure 5-4: Settings Screen

5.8 PROGRAMMING

From the programming screen, the following options can be selected:

Network Tap to view/ change the panel node number and network mapping.

> **NOTE:** GFP-A/ AR can't be networked with another panel in the current release.

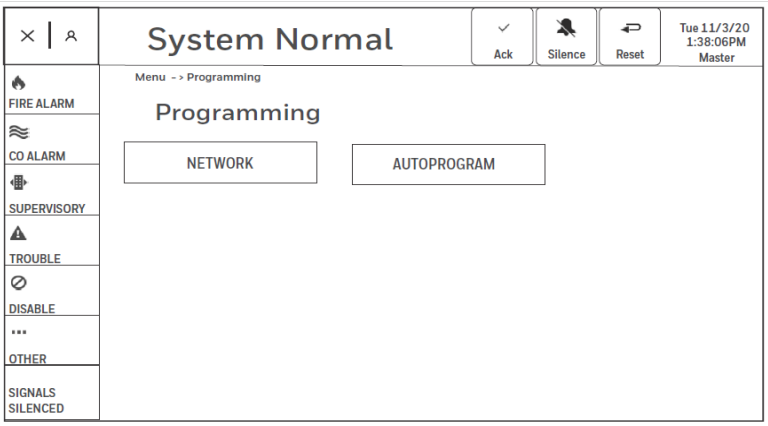


Figure 5-5: Programming Screen

Autoprogram Tap the desired loop to autoprogram the devices connected to the selected loop onto the FACP. Tap START AUTOPROGRAM to begin the autoprogram for selected loops. Deleting and editing of devices cannot be done from the FACP.

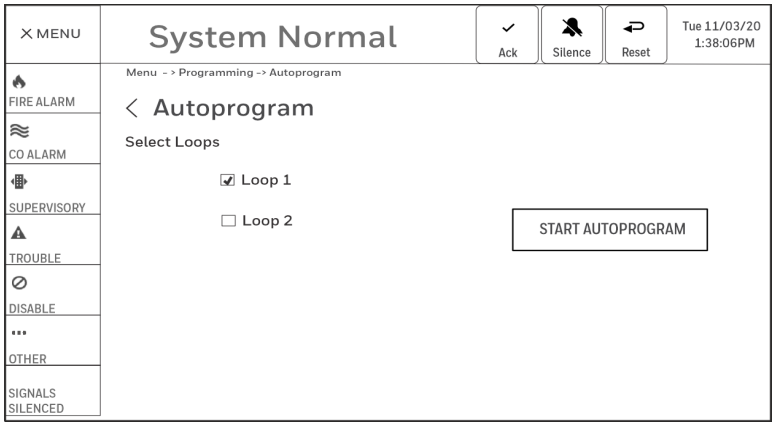


Figure 5-6: Autoprogram Screen

5.9 POINT INFORMATION

The Point Information Screen allows for the selection of points for disabling/ enabling specific points on the FACP as well as controlling ON/ OFF and viewing Point History as well as read status

Point Type Tap to select a specific point type. Can be used as a network node for viewing points over a network that is mapped. Refer to "Point Information" on page 47 for more information.

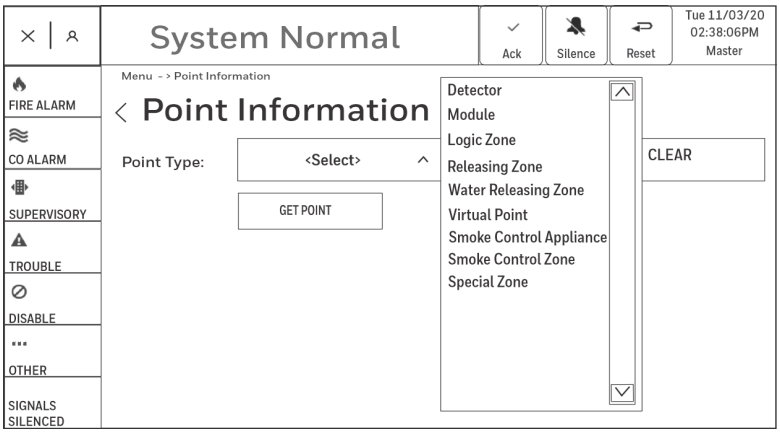


Figure 5-7: Point Information Screen

5.10 TEST/DIAGNOSTICS

The Test/ Diagnostics screen allows access to FACP diagnostics, Lamp Test, History, as well as allowing for the export of diagnostics, clear database and clear licensing.

Diagnostics Tap to view temperature information for the board/ CPU. This will show the current temperature and the highest measured temperature. The user can reset the highest temperature record. The user can also reset the SLM-318, PMB, and AIOcommunication statistics. The diagnostic feature also shows the current occupancy schedule. Note: U= unoccupied.

Lamp Test Tap the lamp test touchpoint to turn on all pixels on the screen. This will illuminate the entire screen as well as the AC Power and Off Normal LED for approximately four seconds. During this time, a tone will sound. A black spot on the screen will indicate that a pixel is out.

View History Tap to view and search panel history.

Export Diagnostics Tap to export the panel diagnostics to a USB flash drive. Diagnostics will be exported as a compressed ".tar" file. To extract the exported diagnostics file you may use: 7-Zip, Winzip, WinRAR or any program compatible with ".tar" files.

Clear Database Tap to remove all programming and restore panel database back to initial factory setting.

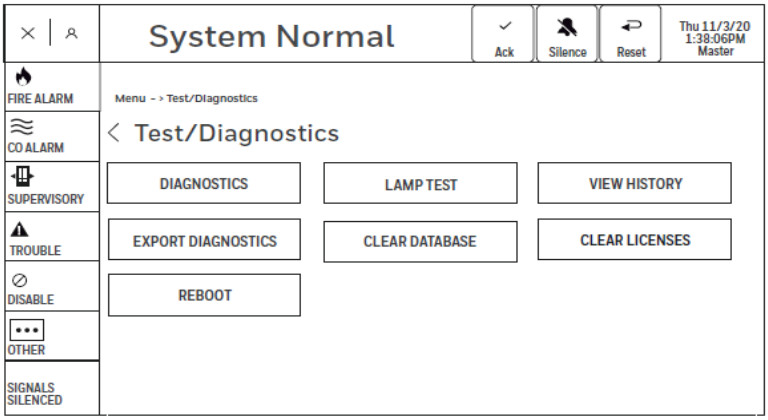


Figure 5-8: Test Diagnostics Screen

5.11 CUSTOM

Custom Actions are buttons (touchpoints) that can be mapped and assigned to manually control common system commands such as enable/ disable points. Custom actions are completely programmable and can be user-defined within CAMWorks+ Tools.

Custom Actions Configured touchpoints and their respective functions will be displayed here.

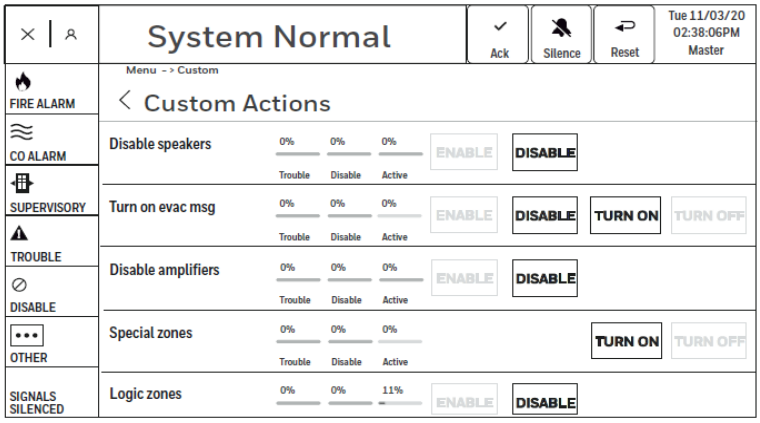


Figure 5-9: Custom Actions Screen

5.12 FIRE ALARM

Fire Alarm Event

- Produces a steady audible tone
- fire alarm appears in the Header Bar
- fire alarm illuminates in the Alert Bar as a red color indicator and provides fire event counts
- Illuminates the yellow Off Normal Event LED
- Displays fire alarm and specific device information in the Events List
- Displays information on how to react to the event in the Instructional Text Area
- Latching events must be corrected and a Reset performed to clear the alarm state from the GFP

Initiating Device Activation

- Produces a steady audible tone
- Flashes the fire alarm
- Displays a type code that indicates the type of fire alarm being generated
- Latches the control panel in alarm (condition must be corrected and a reset performed to clear the alarm state from the panel)
- Activates the general alarm zone (Z000)
- Displays fire alarm in the header bar on the control panel, along with information specific to the device
- Sends an alarm message to the graphic display, remote annunciators, history buffer, and installed printers
- Initiates any control-by-event actions
- Starts timers such as Silence Inhibit and Auto Silence
- Sends an alarm message to the proprietary receiver via the network, if applicable. If the panel is not networked, the CGW-MB will be directly connected to the fire panel and send the alarm message to the proprietary receiver via the CGW-MB

NOTE: If the alarm event is initiated by a device with a waterflow type Code, the control panel will disable the Signal Silence key and the Auto Silence Timer.

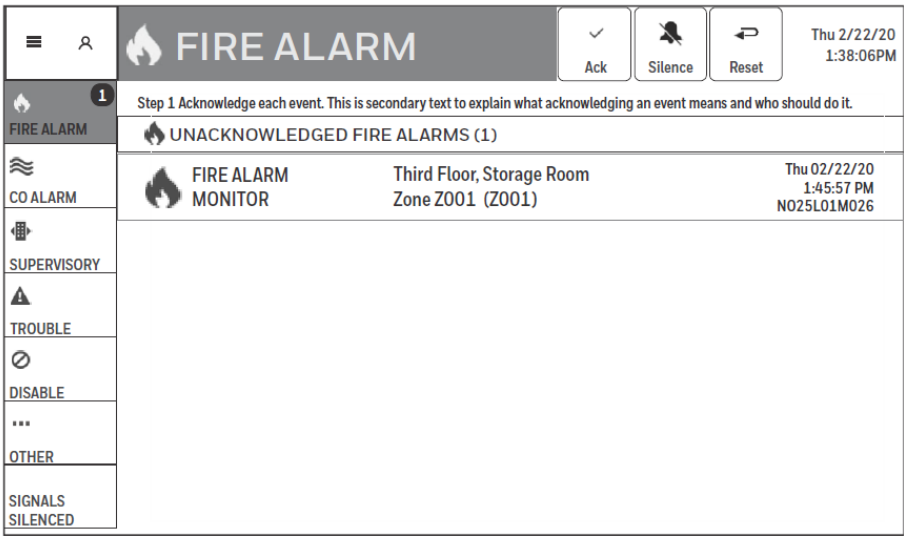


Figure 5-10: Fire Alarm Screen

Responding to a Fire Alarm Event

• The Informational Text Area on the screen will indicate step by step how to acknowledge and silence the event.
• Tap on the acknowledge touchpoint located in the Header Bar, which will be highlighted in blue. A check mark will appear next to the acknowledged event. Acknowledge will need to be tapped for each Fire Event. Block Acknowledge is not available. Once all the events have been acknowledged, the blue highlight indicator will move from the acknowledge touchpoint to the silence touchpoint.
• Tap on the silence touchpoint located in the Header Bar. The silence icon in the Alert Bar will illuminate yellow once the GFP has silenced and all silenceable outputs will turn off.
• Investigate and correct the condition that activated the Fire Alarm.
• Once the GFP has been silenced the blue highlight indicator will move from the silence touchpoint to the reset touchpoint.
• Tap the reset touchpoint located in the Header Bar to return the GFP to normal operations.

5.13 SYSTEM TROUBLE

Trouble Event

System or Point Trouble, electrical or mechanical faults (when no higher priority unacknowledged events exist)

• Produces a pulsed audible tone
• Turns on the trouble relay
• trouble appears in the Header Bar
• trouble appears in the Alert Bar as a yellow color indicator and provides Trouble event counts
• The Off Normal LED flashes yellow
• Displays Trouble and specific device information in the Events List
• Displays information on how to react to the event in the Informational Text Area

NOTE: If an unacknowledged, higher priority event exists, the control panel will retain the indications of the higher priority event, such as the Graphic, audible tone, etc. The Trouble relay, flashing the system Off Normal LED and sending the trouble message to the history buffer and printer, and annunciators will still occur at the time of the event.

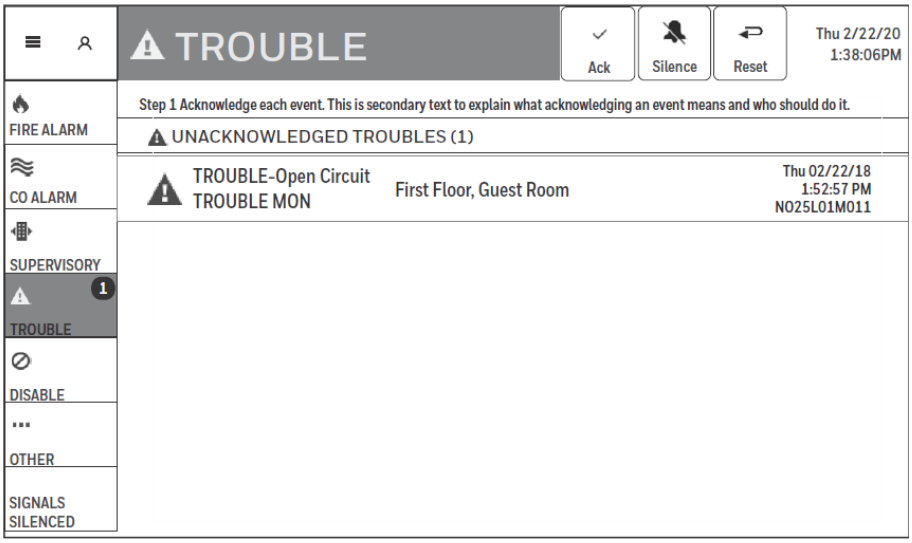


Figure 5-11: Trouble Event Screen

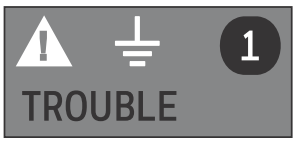
Responding to a Trouble Event

• The Informational Text Area on the screen will indicate step by step what needs to be done to acknowledge the event.
• Tap on the acknowledge touchpoint located in the Header Bar. The acknowledge touchpoint will be highlighted in blue. A check mark will appear next to the acknowledged event.
• block acknowledge allows for multiple events to be acknowledged at once.
• Investigate and correct the condition that initiated the trouble condition.

5.13.1 GROUND FAULT INDICATOR

When enabled, a ground symbol will appear in the Trouble Alert Bar for the following events:

• Any ground fault on any circuit on the local panel is detected, including the Ground Fault monitor module type code. Special Function Zone ZF43 will also go active.
• Any network node that is mapped to the panel that has a ground fault.
• Trouble alert will appear on the left side of screen as shown below.



5.14 CO ALARM

CO Alarm Event

• Activation of a device (detector or module) with a CO Alarm type code. (Refer to "Type Codes for Monitor Modules" on page 65)
• Produces a pulsed audible tone
• co alarm appears in the Header Bar
• co alarm illuminates in the Alert Bar as a blue color indicator and provides CO event counts
• Illuminates the yellow Off Normal LED
• Displays co alarm and specific device information in the Events List
• Displays information on how to react to the event in the Instructional Text Area

NOTE: If an unacknowledged, higher priority event exists, the control panel will retain the indications of the higher priority event, such as an audible tone, etc. The flashing the CO Pre-Alarm Graphic and sending the CO Pre-Alarm message to the history buffer and printer, and annunciators will still occur at the time of the event.

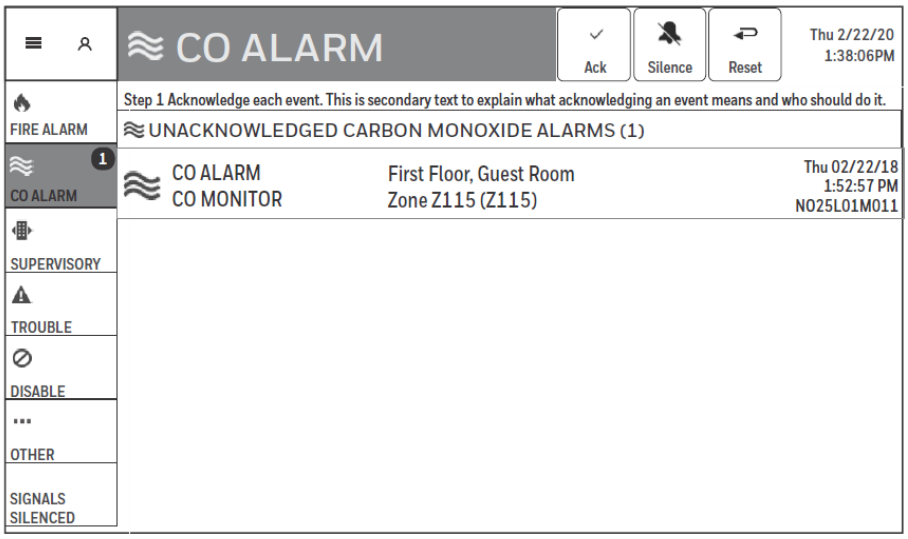


Figure 5-12: CO Alarm Screen

Responding to a CO Alarm Event

• The Informational Text Area on the screen will indicate step by step what needs to be done to acknowledge and silence the event.
• Tap on the acknowledge touchpoint located in the Header Bar. The acknowledge touchpoint will be highlighted in blue. A check mark will appear next to the acknowledged event. Once all the events have been acknowledged the blue highlight indicator will move from the acknowledge touchpoint to the silence touchpoint.
• Tap on the silence touchpoint located in the Header Bar. The silence icon in the Alert Bar will illuminate yellow once the GFP is silenced, all silenceable outputs will turn off.
• Investigate and correct the condition that activated the CO Alarm point.
• Once all events on the GFP have been silenced the blue highlight indicator will move from the silence touchpoint to the reset touchpoint.
• Tap the reset touchpoint located in the Header Bar to return the GFP to normal operations.

5.15 OTHER EVENTS

Events listed as Other are as follows:

• CO Pre-Alarm (blue)
• Critical Processes (yellow)
• Pre-Alarm (red)
• Hazard/ Weather Alert (Yellow)

NOTE: When more than one of these conditions have been activated, they will be listed in order of priority. CO-Pre Alarm will be listed first, followed by Critical Processes, Pre-Alarm and Hazard/ Weather Alert.

Figure 5-13: Other Event Screen

Responding to an Other Event

• The Informational Text Area on the screen will indicate step by step what needs to be done to acknowledge and silence the event.
• Tap on the acknowledge touchpoint located in the Header Bar. The acknowledge touchpoint will be highlighted in blue. A check mark will appear next to the acknowledged event.
• block acknowledge allows for multiple events to be acknowledged at once.
• Tap on the silence touchpoint located in the Header Bar. The silence icon in the Alert Bar will illuminate yellow once the GFP is silenced.

• Once all the events have been acknowledged the blue highlight indicator will move from the acknowledge touchpoint to the silence touchpoint.
• Tap reset for a latched event.

5.16 SUPERVISORY

Supervisory Event (If a fire alarm exists and alarms are silenced, a supervisory alarm will resound the panel sounder)

• Produces a warbling audible tone
• supervisory appears in the Header Bar
• supervisory illuminates on the Alert Bar as a yellow color indicator and provides Supervisory event counts
• Illuminates the yellow off normal LED
• Displays supervisory and specific device information in the Events List
• Displays information on how to react to the event in the Instructional Text Area

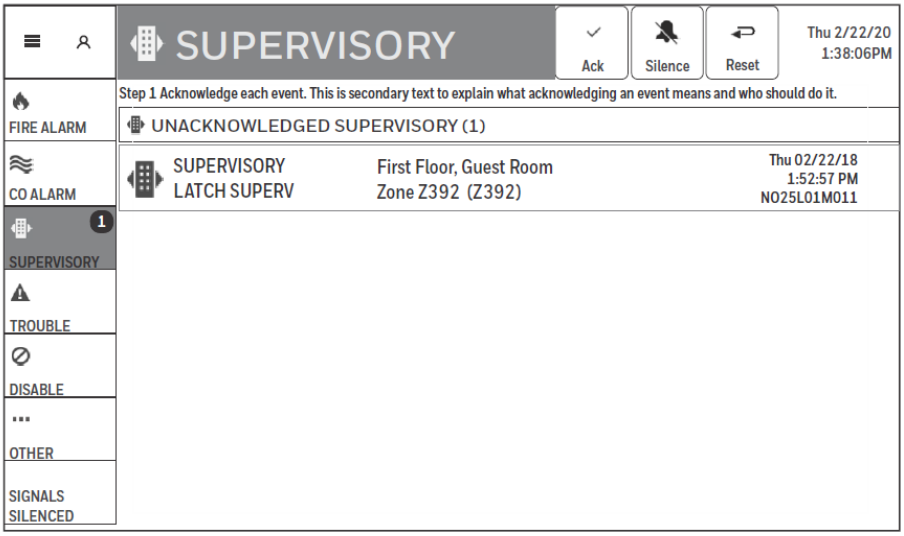


Figure 5-14: Supervisory Event Screen

Responding to a Supervisory Event

• The Informational Text Area on the screen will indicate step by step what needs to be done to acknowledge and silence the event.
• Tap on the acknowledge touchpoint located in the Header Bar. The acknowledge touchpoint will be highlighted in blue. A check mark will appear next to the acknowledged event.
• Tap on the Silence touchpoint located in the Header Bar. The silence icon in the Alert Bar will illuminate yellow once the GFP is silenced. All silenceable will turn off.
• block acknowledge allows for multiple events to be acknowledged at once.
• Investigate and correct the condition that activated the Supervisory point.
• Once all the events have been acknowledged the blue highlight indicator will move from the acknowledge touchpoint to the silence touchpoint.
• For a non-latching event, the GFP will return to normal once the supervisory condition is corrected.
• For a latching event, tap on the reset touchpoint located in the Header Bar to return the GFP to normal.

5.17 DISABLED POINT

Disabled Point Event

• Produces a pulsed audible sound
• Turns on the trouble Relay
• Disabled appears in the Header Bar
• Disabled illuminates in the Alert Bar as a yellow icon and indicated device event count
• Illuminates the yellow off normal LED
• Displays disabled and specific point information in the Event List
• Displays information on how to react to the event in the Informational Text Area

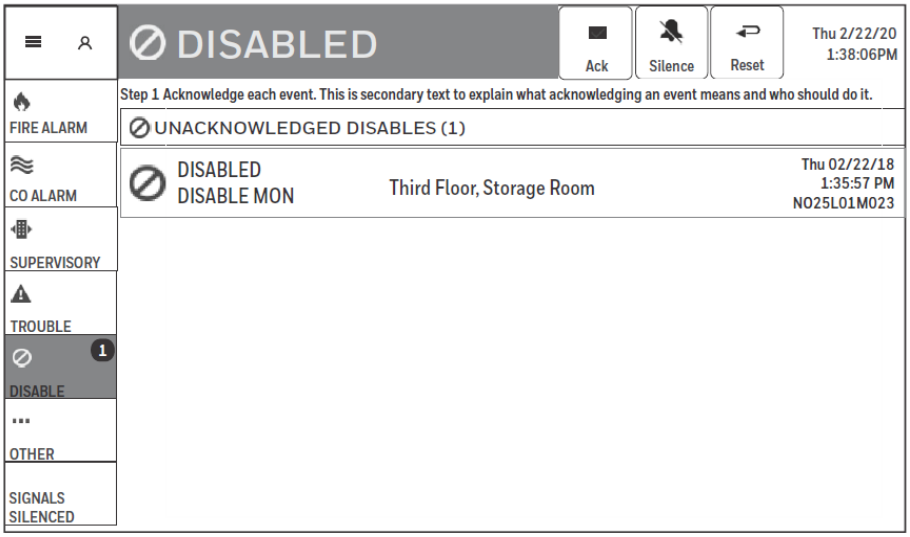


Figure 5-15: Disabled Point Screen

Responding to a Disabled Point

• The Informational Text Area on the screen will indicate step by step what needs to be done to acknowledge the event.
• Tap on the acknowledge touchpoint located in the Header Bar. The acknowledge touchpoint will be highlighted in blue. A check mark will appear next to the acknowledged event.
• Block acknowledge allows for multiple events to be acknowledged at once.
• Enable the disabled point.

5.18 DRILL/FIRE DRILL

NOTE: For this section, "Drill" is used to refer to "Fire Drill" as well.

Drill is used for activating selected outputs for testing. Complete the following step to activate the Drill feature:

• Press and hold "DRILL (HOLD)" for 2 seconds.
  - This produces a pulsed audible tone that turns on the trouble relay.
  - HON-CGW-MBB: "Manual Evacuation Initiated" signal is transmitted off-premises
  - HON-DACT-DS: Contact ID 330 signal will be transmitted off-premises

The following occurs when Drill is activated:
• TROUBLE flashes in the Header Bar
  - TROUBLE also appears in the ALERT BAR as a yellow indicator and provides TROUBLE event counts
• The OFF Normal LED turns yellow
• Alert Bar displays "Fire Drill Active" in yellow
• Displays TROUBLE and “MAN. EVAC INITIATED” in the Events List. Shown in Figure 5-16: Trouble-Man Evac Initiatied Screen
• Displays information on how to react to the event in the Informational Text Area
• Turns on outputs that are selected to participate in Drill. SLC modules or PMB outputs can be selected
• Special Function Zone ZF16 will turn on

NOTE: If Alarm received during Drill, it is immediately ended. Alarms are then processed as normal. Signal Silence or a System Reset will also immediately end Drill.

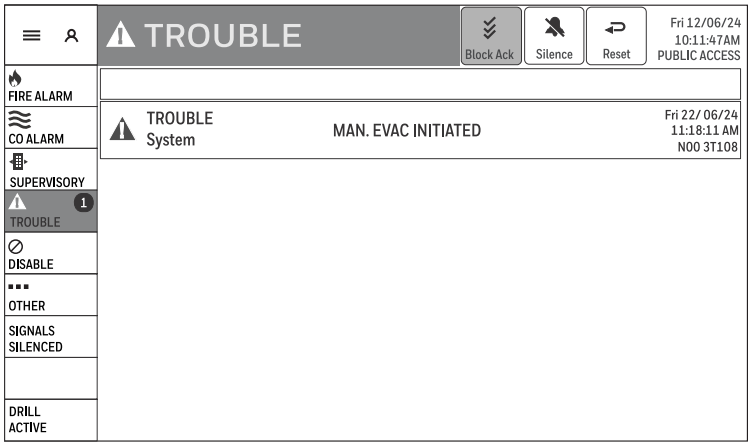


Figure 5-16: Trouble-Man Evac Initiatied Screen

5.19 ABORT SWITCH ACTIVE

The following occurs when the Abort Switch is activated:

• The alert bar tile will turn yellow/ amber when any releasing zone on the local node is in the abort state or the cross abort state. See Figure 5-17: Abort Switch Active Screen
• Only valid for Agent Releasing zone

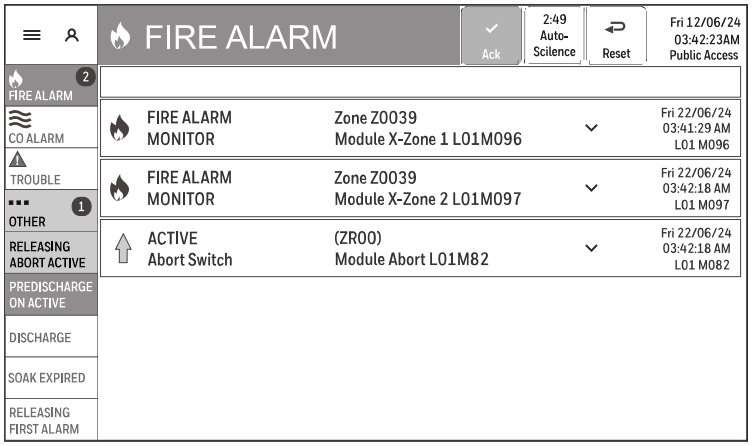


Figure 5-17: Abort Switch Active Screen

5.20 PRE-DISCHARGE

The following occurs when pre-discharge is activated:

• The alert bar tile will turn red when any releasing zone on the local node is in the pre-discharge state. It will remain lit during abort active. See Figure 5-18: Pre-Discharge Screen
• Only valid for Agent Releasing zones

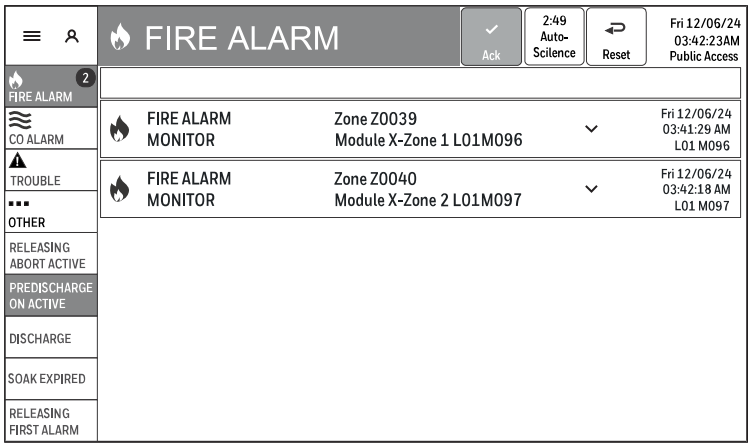


Figure 5-18: Pre-Discharge Screen

5.21 DISCHARGE

The alert bar tile will turn red when any releasing zone on the local node is in the discharge state. This indicator is applicable for both agent and water releasing zones.

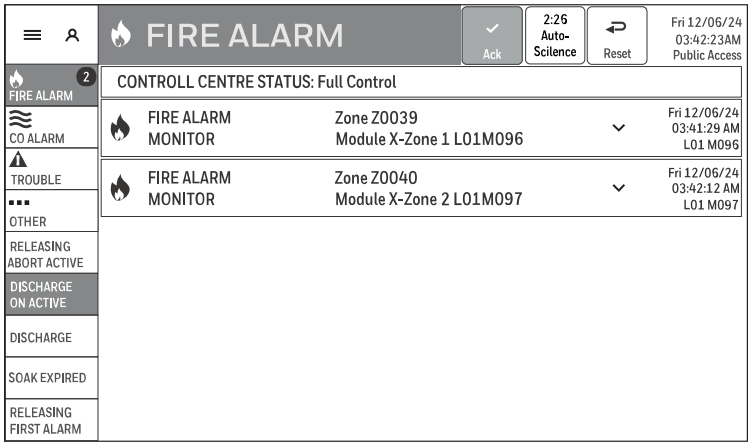


Figure 5-19: Discharge Screen

5.22 SOAK EXPIRED

The alert bar tile will turn yellow/ amber when any releasing zone on the local node is in the soak expired state. This indicator is applicable for both agent and water releasing zones.

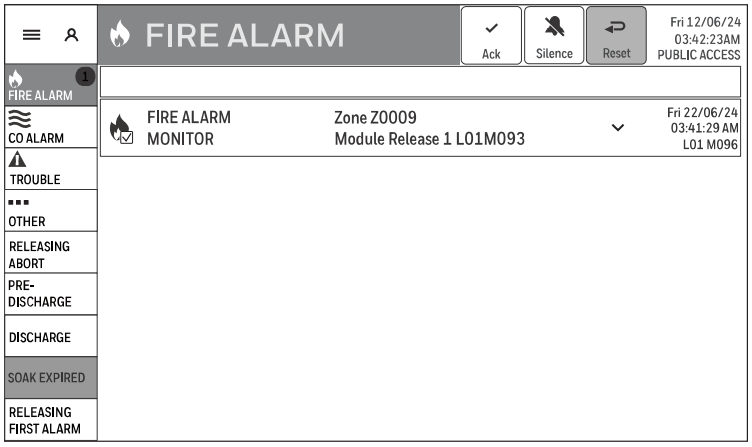


Figure 5-20: Soak Expired Screen

5.23 FIRST ALARM

The alert bar tile will turn red when any releasing zone on the local node is in the first alarm of a Cross state. In IRI mode, it will remain lit when a zone is in the cross abort state. This indicator is applicable for both agent and water releasing zones.

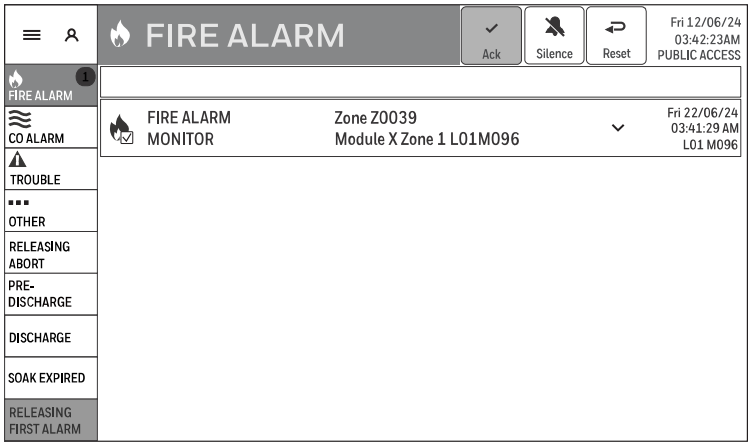


Figure 5-21: First Alarm Screen

5.24 FUNCTIONALITY

The following are approved functions for the GFP:

- Drift Compensation
- Connected Capabilities (CLSS gateway required for Connected Capabilities)
  - CLSS gateway
  - Remote access for diagnostics
  - Remote communication session- requires FACP to be in service mode. Technician required on site
- Service Mode
  - Remote programming. Technician required on-site
- Multiple Detector Operation
  - Units employing multiple detector operation shall include a minimum of two detectors in each protected space and reduce the detector installation spacing to 0.7 times the linear spacing in accordance with National Fire Alarm Code, NFPA
- Pre-signal
- Positive Alarm Sequence
- Alarm verification
- Two-wire compatibility
  - One alarm per initiating device circuit
- Polling Style limitations
  - Polling Style is Velociti or CLIP (Classic Loop Protocol)
  - All detectors and modules on an SLC may be programmed as Velociti. All detectors and modules must be Velociti type devices. Maximum number of devices per SLC: 159 detectors, 159 modules.
  - All detectors and modules on an SLC may be programmed as CLIP. Detectors and modules may be a mix of CLIP and Velociti type devices, but all must be programmed as CLIP. Maximum number of devices per SLC: 99 detectors, 99 modules.
  - All detectors may be programmed as CLIP, all modules as Velociti, on an SLC. Detectors may be a mix of CLIP and Velociti type devices, modules must all be Velociti type devices. Maximum number of devices per SLC: 99 CLIP detectors, 159 Velociti modules.
- Manual release/ abort switch interaction
  - Activation of a Manual Release Switch will override Pre-discharge Delay and override any active Abort switches that are preexisting to the activation of the manual release delay switch. A ten second delay period will start after the activation of the manual release delay switch. Within the delay period, the release can be aborted with a subsequent abort switch activation.

- Multiple abort switches are supported
• NAC Resound
• Local Mode
• Primary power source failure indication
• HON-CGW-MBB Communication Format
  - TCP/IP
• Interconnected control panels
  - Alarm, supervisory, and trouble conditions, as well as reset, alarm silence, or trouble silence actuation originating at this panel are annunciated at this panel.
• Integrated/local functionality
• Circuit disables
• Detection/alarm algorithms
• Day/night sensitivity
• Detection sensitivity adjustment
• Extent/limitations of combination system
  - Priority of signals

SECTION 7: PROGRAMMING

7.1 PROGRAMMING FEATURES SUBJECT TO AHJ APPROVAL

This product incorporates field-programmable software. The features and/ or options listed below must be approved by the local AHJ.

Table 7.2 Programming Features Subject to AHJ Approval

This product incorporates field-programmable software. In order for the product to comply with the requirements in the Standard for Control Units and Accessories for Fire Alarm Systems, UL 864, certain programming features or options must be limited to specific values or not used at all as indicated below.			
Program Feature or Option	**Permitted in UL 864? (Y/ N)**	**Possible Settings**	**Settings Permitted in UL 864**
Service Mode	No	Yes No Timed	No
Releasing: Abort Switch	Yes	NYC AHJ ULI IRI ULA	ULA
Detector Programming: Supervisory Type Codes	Yes	SUP L(DUCTI) SUP T(DUCTI) SUP T(DUCTP) SUP L(DUCTP) SUP L(ION) SUP T(ION) SUP L(PHOTO) SUP T(PHOTO) SUP L(LASER) SUP T(LASER) P/ CO (P SUP) SUP L(DUCTL) SUP T(DUCTL) Fire/ CO (Photo Sup) Accl(P Sup) Accl+(P Sup) Aspir.(SUP)	SUP L(DUCTI) SUP T(DUCTI) SUP L(DUCTP) SUP T(DUCTP)
AC Fail Delay Timer	Yes	0 for no delay, or 1-12 hours	1-3 hours
Regional Settings	Yes	Chicago Default	Default
Alarm Verification Reset Time	Yes	0 to 240 seconds	0 to 30 or 0 to 60 seconds
Alarm Verification Confirmation Time	Yes	0-300 seconds	0 to 60 seconds
Trouble Reminder Duration: Wireless Applications	Yes	Off 4 Hours Daily = 24 Hours	4 Hours
Alarm Reminder	Yes	0-24 Hours	1-24 Hours
Supervisory Reminder	Yes	0-24 Hours	1-24 Hours
CO Reminder	Yes	0-24 Hours	1-24 Hours

This product incorporates field-programmable software. In order for the product to comply with the requirements in the Standard for Control Units and Accessories for Fire Alarm Systems, UL 864, certain programming features or options must be limited to specific values or not used at all as indicated below.			
Program Feature or Option	**Permitted in UL 864? (Y/ N)**	**Possible Settings**	**Settings Permitted in UL 864**
Presignal Delay/ PAS	No	Presignal Delay: 60-180 seconds Alarm Delay:15-59 seconds	No
Auto Silence Timer (Global Setting)	Yes	0-20 min Note: When Auto Silence activates, special function zone ZF40 will activate and will remain active until a system reset, alarm resound or drill is initiated. Acknowledged trouble, supervisory, alarm and CO events will re-annunciate after 24 hours, if not cleared	3 min
Display and Control Center	No	Enabled/ Disabled	Disabled
Signal Silence Inhibit	No	0-300 sec	0 (none)
Fan Appliance Timer	Yes	0-255 Sec	0-60 sec
Damper Appliance Timer	Yes	0-255 Sec	0-75 sec
Virtual Points	Yes	0-511 Points	0-99 Points

* A value of 60 seconds is allowed if alarm verification is only configured for a single zone. If Alarm Verification is to be accomplished on a multiple circuit (zone) or system basis, the duration shall not exceed 30 seconds.

7.2 LEVELS OF PROGRAMMING ACCESS FOR USERS ON THE GFP

There are four access levels (1-4) that can be assigned to 49 of the 50 programmable users. Additionally, there is a master user whose access level is fixed at level five (5). Only one level five user allowed.

Default master or service tool password is 00000000. Default passwords will generate persistent troubles in the panel. The service tool password is used to authenticate downloads to the panel. Service tool password may be reset or changed at the panel once you are logged in as a master. Verifier tools can be used to create a database of user accounts wherein you may add/ remove/ change users and user passwords and access restrictions for all 50 users including the master. User accounts can be downloaded to the panel with service tool authentication.

Refer to "User Level Programming Capabilities Test" on the next page for default information on user level capabilities. Actions defaulted to YES can be changed to NO through the user setup screen. This applies to user levels 1 through 4.

*All user names can be customized to a unique user name in CAMWorks + Tool.

Default Capabilties by User Level

- Master/ Admin User (level 5 user)
- Technician User (level 4 user)
- Alter Status User User (level 3 user)
- Building Maint User/ Minimal Access (level 2 user)
    - A Level 2 user can be programmed to be logged in by default when there is no other user logged in The default user name is set at “General Access”
    - A Level 2 user can also be programmed to be logged in via a key-switch wired to the back of the panel. The default user name is set at “Key-switch Access”
- System Operator (level 1 user)

- A Level 1 user can be programmed to be logged in by default when there is no other user logged in. The default user name is set at “Public Access”

7.3 USER LEVEL PROGRAMMING CAPABILITIES TEST

Table 7.3 User Level Permissions

Action	Master (Level 5)	Technician (Level 4)	Alter Status (Level 3)	Minimal Access/ (Level 2)	Public Access (Level 1)
Acknowledge	Yes	Yes	Yes	Yes	Yes
Signal Silence	Yes	Yes	Yes	Yes	Yes
Reset	Yes	Yes	Yes	Yes	Yes
Enable/ Disable	Yes	Yes	Yes	Yes	No
Modify Point Label	Yes	Yes	Yes	No	No
Clone Points	Yes	Yes	No	No	No
Delete Point	Yes	Yes	No	No	No
Change Password	All Users	Individual Level 4 All Level 3 and 2	Individual Level 3 All Level 2	Individual Level 2	N/ A
Drill	Yes	Yes	Yes	Yes	Yes
Read Status	Yes	Yes	Yes	Yes	Yes
Force ON/ OFF	Yes	Yes	Yes	Yes	No
Upload Database	Yes	Yes	No	No	No
Download Database	Yes	Yes	No	No	No
Change Time/ Date	Yes	Yes	Yes	No	No
Set Network Configuration	Yes	Yes	No	No	No
Ability to Revoke Other Users	Yes	No	No	No	No
View General History	Yes	Yes	Yes	Yes	Yes
View Sensitive History	Yes	No	No	No	No
Export History	Yes	Yes	Yes	No	No
Scroll the Display	Yes	Yes	Yes	Yes	Yes
Resound	Yes	Yes	Yes	No	No
Download Firmware	Yes	Yes	No	No	No
Change Sensitivity	Yes	Yes	Yes	No	No
Change Node Address and Label	Yes	Yes	No	No	No
Autoprogram SLC	Yes	Yes	No	No	No
Autoprogram Node Map	Yes	Yes	No	No	No
Modify Node Map	Yes	Yes	No	No	No
Add Annunciators/ Remote Displays/ Communicator	Yes	Yes	No	No	No
Auto Program (add/ remove) Annunciators/ Remote Displays/ Communicator	Yes	Yes	No	No	No
Add/ remove Loop Cards/ Modules	Yes	Yes	No	No	No
Modify Loop Card/ Module Settings	Yes	Yes	No	No	No
Add Communicator	Yes	Yes	No	No	No
Power Supply Monitoring Settings	Yes	Yes	No	No	No
Lamp Test	Yes	Yes	Yes	Yes	

Action	Master (Level 5)	Technician (Level 4)	Alter Status (Level 3)	Minimal Access/ (Level 2)	Public Access (Level 1)
Service Mode	Yes	Yes	No	No	No
Firmware Update Via USB	Yes	Yes	No	No	No

7.4 USER ACCOUNTS GENERAL SETTINGS

7.4.1 PUBLIC ACCESS

Public Access Username – This text is displayed when the Public Access (level 1) account is the current user logged in. Default text is "Public Access".

Minimal Access – The following three selections are available:

1.) **By Username Only:** The system requires the user to create an account and assign a unique password to log in to the panel at level 2. To access the system, the user must select the correct username and enter the matching password.

2.) **Always Logged In:**Does not require user login/ authentication. Level 2 is the lowest level of operation in the absence of a higher level log in.

3.) **Keyswitch or Username:** This setting allows the user to log in to the Minimal Access/ General Access (Level 2) account either by entering a username and password (as indicated in "By Username Only") or by activating the tamper input configured as an AKS Key Switch or Keypad Disable (see "Supervision Settings" on page 53).

Minimal Access Username – Displayed when the General Access/ Minimal Access (Level 2) account is the current user logged in by means of password entry. Default text is "General Access".

Minimal Access Username Keyswitch – Displayed when the General Access/ Minimal Access (Level 2) account is the current user logged in by means of tamper input (keyswitch). Default text is "Keyswitch Access".

Inactivity Timeout – The duration of time before a user is logged out for inactivity. Default is 5 minutes.

SECTION 8: PROGRAMMING FEATURES ACCESSED FROM THE FACP

8.1 DISPLAY

From the main menu, tap the settings touchpoint and then display to access the back-light brightness setting and clean mode.

Brightness

Tap and hold the touchpoint and slide to adjust the backlight brightness. Setting the display brightness above 75% for prolonged periods of time will decrease the overall life of the display.

Clean mode

Tap the clean touchpoint to activate clean mode. Once activated, clean mode disables the touch response to allow for cleaning of the screen. A countdown timer is displayed, providing indication of time left before the system exits Clean Mode. The Clean Mode countdown timer is programmable through CAMWorks+ Tool and defaulted to 15 seconds.

CAUTION: CLEANING RECOMMENDATIONS It is recommended to use only a dry clean, lint free/ microfiber cloth to clean the display. If additional cleaning is needed, apply a small amount of Isopropyl alcohol to the cloth and wipe clean. Do not use detergents, solvents, or water for cleaning. Do not spray liquid directly onto the display.

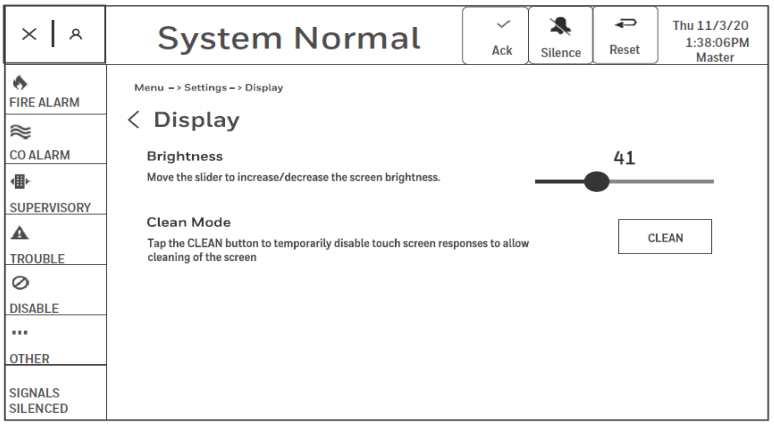


Figure 8-1: Display Screen

8.2 ABOUT

8.2.1 VIEW SYSTEM INFORMATION

The About Screen has multiple sections. There is a scroll bar touchpoint on the right side of the screen. Tap and hold on this touchpoint to scroll up or down through the screens. Certain updates can be initiated from this screen as described in "Update System Information" on the next page.

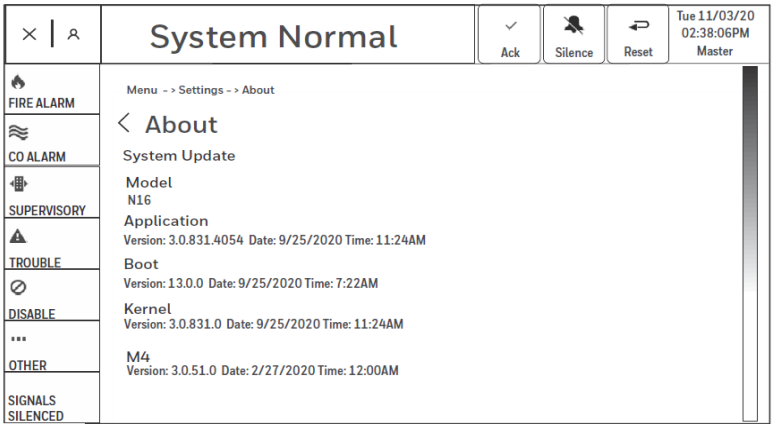


Figure 8-2: About Screen #1

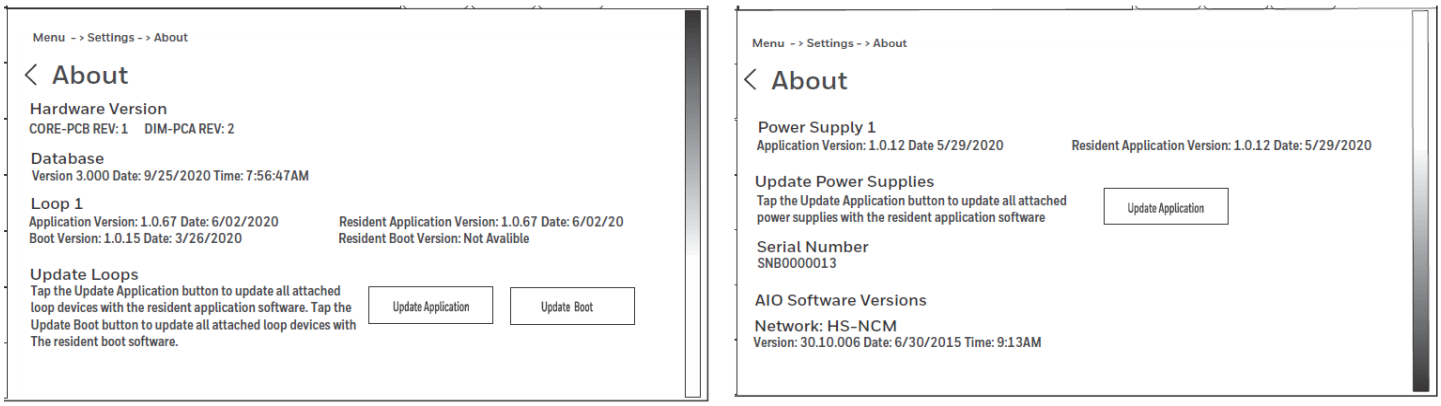


Figure 8-3: About Screens #2 and #3

8.2.2 UPDATE SYSTEM INFORMATION

Tap the about touchpoint to access the system update screen, model information, application information, boot, kernel information, M4 (Co-processor) information, hardware version, database information, loop information, update loops application, serial number, AIO software versions.

System Update The user must be logged into the FACP as either a level 4 or 5 User to perform a system update. Move/ copy the appropriate firmware update image (name.sys) to a USB A flash drive. Insert the USB A memory drive to the USB port on the Core board (J11) of the FACP. Select from the following update types: GFPApplication, OS, GFP Application and OS, SLM Bootloader, SLM Application, PMB Application, AIO V1 Application, and Restore Default Wallpaper.

Tap the System Update touchpoint to access all update capabilities. To update a specific application, tap on that particular application. Tap on PERFORM update to complete the update.

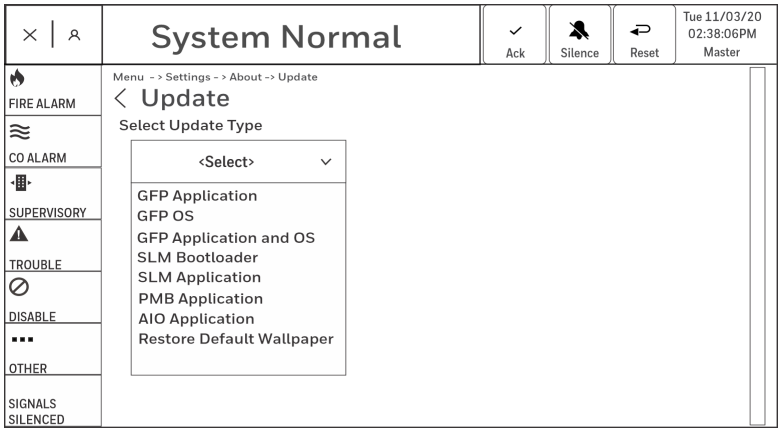


Figure 8-4: System Update Screen

NOTE: The system will copy the image to flash, and reboot running the new image. Do not power down the system during this time.

Updating the GFP When updating the GFP the user should connect the flash drive with the update file on it to the GFP via the USB A port located on the Core Board. The update for the GFP must be initiated from the GFP and will require a file with a ".sys" extension.

CAUTION: Firmware for AIO devices must be updated before updating the GFP.

Update Loops Tap the Update Application touchpoint to update all attached loop devices with resident application software. Tap the Update Boot touchpoint to update all resident loop devices with the resident boot software.

Updating the SLM-318 A SLM-318 firmware update can be initiated from the GFP using a flash drive connected to the USB A port located on the Core Board. Alternately the SLM-318 can be updated from CAMWorks+ Tool. The SLM-318 firmware update will require a file with a ".slmboot" or ".slm" file extension.

Update Power Supplies Tap the Update Application touchpoint to update all attached power supplies with the resident application software.

Updating the PMB A PMB firmware update can be initiated from the GFP using a flash drive connected to the USB A port located on the Core Board. Alternately, the PMB can be updated via CAMWorks+ Tool. The PMB firmware update will require a ".pmb" file extension.

AIO Software Versions Tap the AIO Software Versions touchpoint to view connected AIO devices on both the internal and external AIO Bus. Tap the Resident Version touchpoint to view information about all connected AIO devices and their resident application versions. Tap the Update (relevant connected AIO device) touchpoint to update all connected AIO devices of that particular type.

Updating an AIO Device Firmware updates for AIO devices *excluding GFP-RLD* can be initiated from the GFP or from CAMWorks+ Tool. The AIO device firmware update will require an ".ann" file extension. GFP-RLD updates are initiated from the device; see the GFP-RLD Manual.

8.3 USER ACCOUNTS

Tap the user accounts touchpoint to add a user, remove a user, change a password, and recover a password. The default password for the master user account on the GFP is eight zeros.

> **NOTE:** For firmware version 5.0 or higher a USB Drive is required for password recovery

Add User

At the main menu tap on the settings touchpoint and then users. Once in the Users menu, tap on the add user touchpoint. A virtual keyboard will appear. Type in the name of the user to be added. Type in a password for the added user in the new password box. Re-enter the password in the re-enter password box. If the user is to be visible on the log in screen, tap on the box show on login screen and a check mark will appear. Tap again to remove the check mark. Tap in the access level box to select what access level the added user will be set for (levels 1-4 can be selected). Tap on the add user touchpoint to save and add the new user.

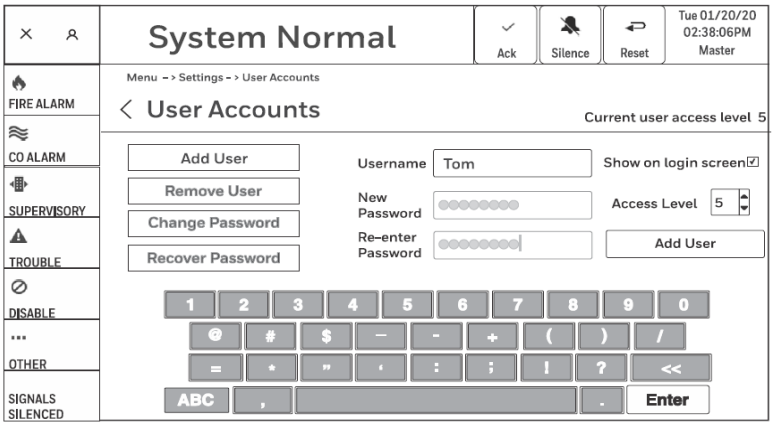


Figure 8-5: User Accounts Screen

Remove User At the main menu, tap on the settings touchpoint and then users. Once in the Users menu, tap on the remove user touchpoint. A virtual keyboard will appear. Tap in the name of the user to be removed in the username text box. Tap on the remove user touchpoint to remove the specified user.

Changing the Password

At the main menu, tap on the settings touchpoint and then users. Once in the user menu, tap on change password.A virtual keyboard will appear and prompt to enter the user name for the password that is changing. Enter the current password, the new password and re-enter the new password. Tap on change password to save the new password.

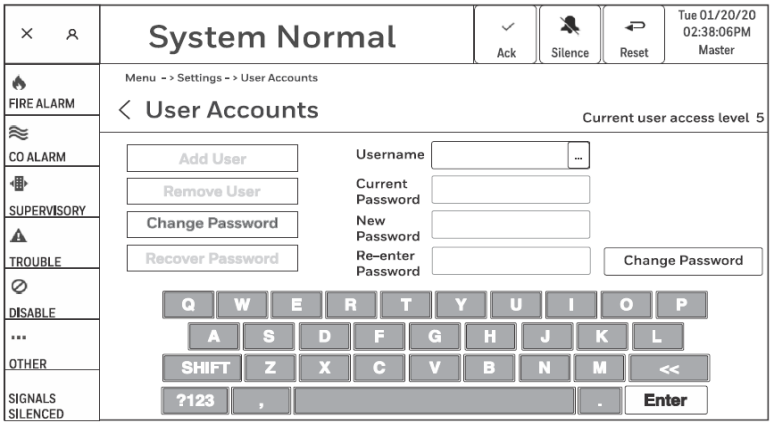


Figure 8-6: Password Screen

Recovering a Master Password

•To recover a master password a USB drive is required. Follow the steps below to recover the master password.

- At the main menu, tap on settings and users
- Once in the users menu, insert the USB drive, tap on recover password and follow the prompts
- A password recovery file will upload to the USB drive
- Once the password change file has been received and uploaded to the panel, the master password must be changed
- The password change file is only active for five days. Once it expires the recovery process must be re-initiated
- Send an email to to initiate the Gamewell-FCI password agreement process

8.4 PANEL SETTINGS

Tap on the panel touchpoint to clear Verification Counts, enter Service Mode and adjust the date and time.

Clear Verification Counts Tap the clear touchpoint to clear verification counters for all detectors connected to the GFP that participate in Alarm Verification.

Service Mode Service Mode must be off to change the settings. The off box will be highlighted when Service Mode is off. When Service Mode is on, time and node settings will be grayed out and unable to be changed. Tap the all nodes box and a check mark will appear. Tap again to remove the check mark. A check mark in this box indicates that all networked nodes on the panel have been enabled for Service Mode. Tap in the time box to select a time period from unlimited to 18 hours. Service Mode will terminate after the selected time period. Tap the on touchpoint to enable Service Mode on the GFP. Tap off to disable Service Mode on the GFP.

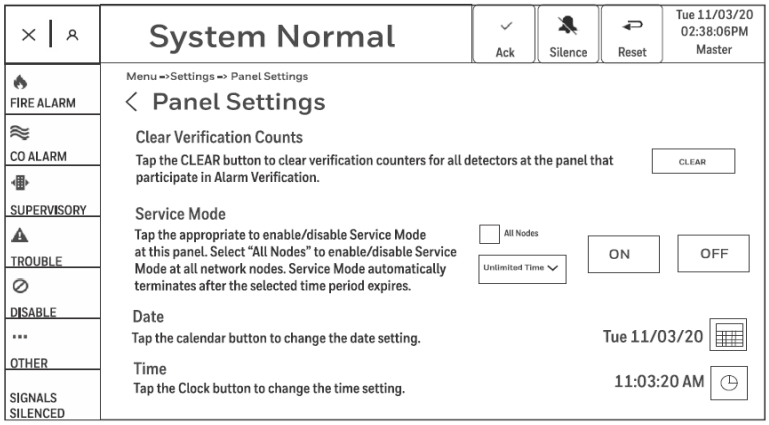
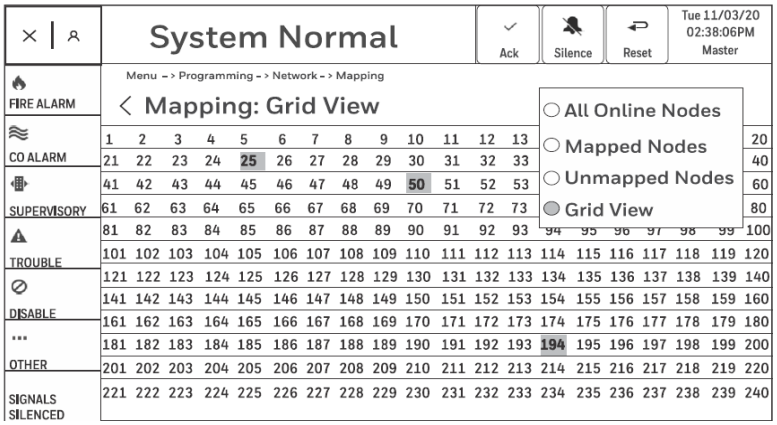


Figure 8-7: Panel Settings Screen

Date and Time Settings Tap the calendar touchpoint to change the date settings. A virtual calendar will appear. Tap in the correct date. Tap the left and right arrows to select the correct month and year. Tap the clock touchpoint to change the time settings. A digital clock with plus, minus and a check mark will appear. Tap the plus and minus touchpoints to adjust the time. Tap the check mark touchpoint to save the settings.



8.5 AUTOPROGRAM

Autoprogram allows the user to select loops 1-2 and program the devices on each installed loop card into the panel. It shows installed and new device counts for each loop and adds any new devices (detectors/ modules). Autoprogram allows the user to install an SLM-318 card on the FACP with default settings. Any editing or additional loop programming must be done through CAMWorks+ Tool. Refer to CAMWorks+ Tool for more information.

NOTE: To delete an installed point, use CAMWorks+ Tool. Autoprogram will not prompt the user to delete a previously installed point. If a point is removed, it will appear on the loop as unresponsive after autoprogram.

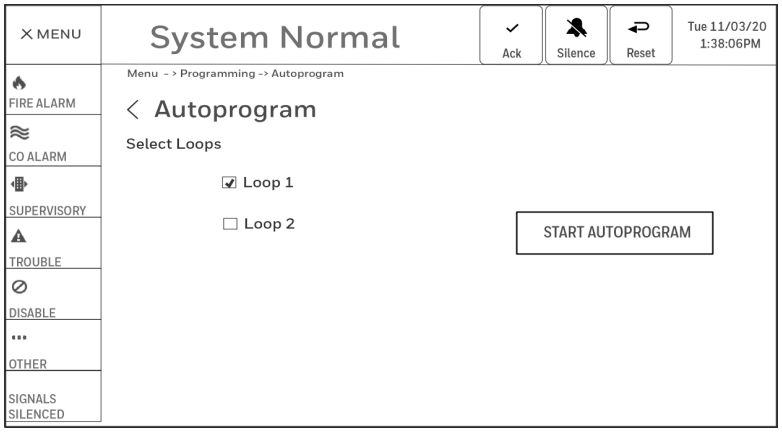


Figure 8-8: Autoprogram Screen

8.6 POINT INFORMATION

From the Main Menu, tap on Point Information. Then, tap on the select touchpoint. A drop-down menu will appear listing the following point types: Detector, Module, General Zone, Logic Zone, Releasing Zone, Water Releasing Zone, Special Zone, Trouble Zone, NAC, and Custom Action Message. Tap on the desired point type. A select box for node will appear. Tap on select for a list of nodes connected to the GFP. Tap the desired node number to select that node. If a point type is not connected to the system, a node number will not appear. Specific point types will display various menu selections that pertain to that point type. Refer to the following point types for specific menus:

NAC Circuit If nac circuit is selected, a drop-down menu for power supply will appear. Tap on select for a list of power supply address numbers. Tap on the desired power supply address number (1-3). A drop-down menu for NAC circuit will appear. Tap on select to for a list of NAC circuits (1-4). Tap on the desired NAC circuit number. Tap get point. The screen will change to the point commands screen. From this screen, the user can disable the point, view the history, as well as view read status for the point. Tap disable to disable the selected point. Tap read status to view the programmed settings of the selected point

Detector/ Module If a detector, or module is selected, a drop-down menu for loop will appear. Tap select and choose the desired loop number (1-2). A drop-down menu for detector or module will appear. Tap select to choose the desired point address. Tap get point. The screen will change to the point commands screen. From this screen the user can disable the point and view the history. Read status is available for SLC detectors and modules. Module points can be forced on. Tap disable to disable the selected point. Tap point history to view and search the history of the selected point. *Detector/ module points:* Tap read status to view the programmed settings of the selected point. *Module points:* Tap force on to force a module point to an active state.

General Zone/ Logic Zone/ Special Zone/ Releasing Zone/ Water Releasing Zone/ Trouble Zone A drop-down menu for the selected zone type will appear. Tap on select to choose the desired point address. Tap on get point. The screen will change to the point commands screen. From this screen the user can disable the point, view the history as well as view read status for the point. For General Zones, this can force on the point. Tap disable to disable the selected point. Tap read status to view the programmed settings of the selected point. For General Zones, tap force on to force the point to an active state. Tap point history to view and search the history of the selected point.

Custom Action Message If Custom Action Message is selected, a drop-down menu for node will appear, tap select to choose the appropriate node number. Tap on the desired node number.

NEXT/ PREV The user may advance to the next point or the previous point using the NEXT or PREV buttons on the point information screen for points that are local.

8.7 DIAGNOSTICS

Tap the diagnostics touchpoint to view the circuit board temperature and the CPU temperature. The screen displays the highest circuit board temperature and the highest CPU temperature. Each may be reset by tapping on the reset touchpoint next to the relevant information. The user can also reset all SLM-318, PMB, and AIO communication statistics. Tap the reset touchpoint next to SLM-318, PMB, and AIO Communication Statistics to reset the statistics.

Exporting diagnostics to a USB flash drive

Tap on the export diagnostics touchpoint. A pop up box will appear prompting you to insert a USB memory drive and then tap continue. Diagnostics will be exported onto the USB memory drive. If the user wishes to cancel exporting of Diagnostics, tap the touchpoint cancel.

NOTE: The user must be logged in as either a lever 5 or 4 user to export diagnostic information.

8.8 LAMP TEST

Tap the lamp testtouchpoint to turn on all pixels on the screen. This will illuminate the entire screen as well as the AC Power and Off Normal LED for approximately four seconds. During this time a tone will sound. A black spot on the screen will indicate that a pixel is out.

8.9 HISTORY

The history feature allows the user to view the panel history. History views may also be filtered.

Filtering Tap on the filter touchpoint. A touchpoint for search and clear will appear along with a virtual keyboard. Enter a date under date range to search a specific date range. Type in a keyword in the contains text section to search the history for particular text. To clear a search, tap the clear touchpoint. Tap on the exclude background activations check box to select that feature. Tap again to clear the field.

History will show, and can be filtered, for the following:

All Events This displays the entire history buffer, regardless of event type. The history buffer can display up to a total of 10,000 events, including alarms.

Time Date Interval This displays a screen to allow for the selection of a time period to define the range of events displayed.

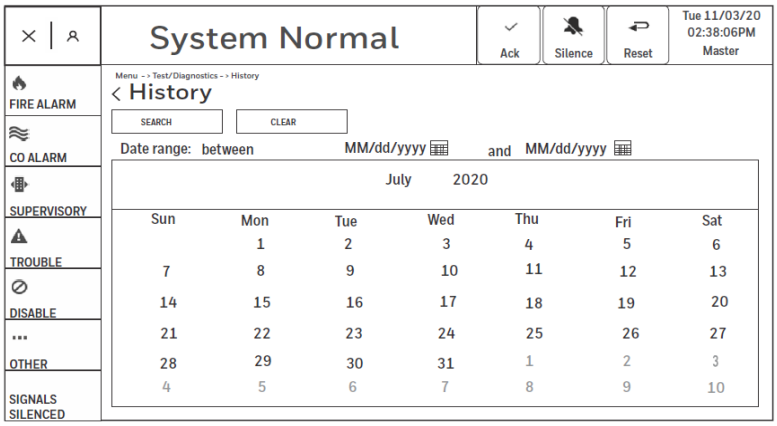


Figure 8-9: History Search Screen

Exporting History to USB Flash Drives: Tap on the export history touchpoint. A pop-up box will appear prompting the user to insert a USB flash drive and then tap continue. The history will be exported onto the USB flash drive as a compressed ".tar" file. To extract the exported history you may use: 7-Zip, Winzip, WinRAR or any program compatible with ".tar" files. Once its extracted you can find the history file in ".csv" format. Tap the cancel touchpoint to cancel history export.

NOTE: The user must be logged in as either a lever 5 or 4 user to export diagnostic information.

8.10 CYBERSECURITY HISTORY

Cybersecurity history events are stored in the panel history. A master level user is the only user level that can access Cybersecurity History.

Items logged in Cybersecurity history are as follows:

- Signing file failed
- Verify file signature failed
- Verify file signature failed-file open
- Verify file signature failed-start
- Verify file signature failed-sign fail
- GFP starting
- GFP shutting down
- GFP shutdown canceled

SECTION 9: PROGRAMMING FEATURES ACCESSED THROUGH CAMWORKS+ TOOLS

NOTE: The following panel functions are programmed through CAMWorks+ Tools only and cannot be done at the FACP. Refer to the CAMWorks+ Tool help files for more information.

9.1 LOCAL CONTROL

This option disables or enables local panel control of the Signal Silence, System Reset, and Drill Fixed Function keys, as well as Signal Silence, System Reset and Acknowledge. A setting of NO (disable) turns the panel piezo sounder off. Default is set to ON.

9.2 AIO MAPPING

• The panel supports up to 10 Router addresses which may be distributed between an Internal or External AIO bus.

• External AIO bus can be configured in Class A or B and primarily used for wiring AIO bus devices outside the FACP enclosure.

• Internal AIO bus can only be configured in Class B and can be used for wiring AIO devices within the panel cabinet can be used for wiring AIO bus devices outside the FACP enclosure.

• The connection on the AIO bus device is labeled as MAIN or LOCAL. A device wired using the Main AIO Bus terminal block is a Router and the device wired via the local terminal is a Peripheral.

• A GFP-RLD can only be a Router, it does not support Peripherals. GFP-RLD is supported on the internal or external bus which reduces rewiring for retrofit applications. Max 10 GFP-RLDs supported per panel.

• ACM-30(W)/ LDM/ TM-8 may be configured to be a Router or Peripheral and can be on the internal or external AIO bus.

• Each Router (except GFP-RLD) can support up to 15 Peripherals. The total number of AIO bus devices (ACM-30(W), LDM2-32,LDM2-60, GFP-RLD, TM-8) per panel shall not exceed 80. Example configurations are as follows:

- 5 GFP-RLDs (Router) + 75 any mix of ACM-30(W)/ LDM2-32/ LDM2-60/ TM-8 (Router and Peripheral)
- 10 GFP-RLDs (Router)
- 9 GFP-RLDs (Router) + 16 any mix of ACM-30(W)/ LDM2-32/ LDM2-60/ TM-8 (Router and Peripheral)

• The AIO-CBL must be ordered whenever configuring AIO devices as peripherals (kit contains 4x6" ribbon cables and 1x48" ribbon cable)

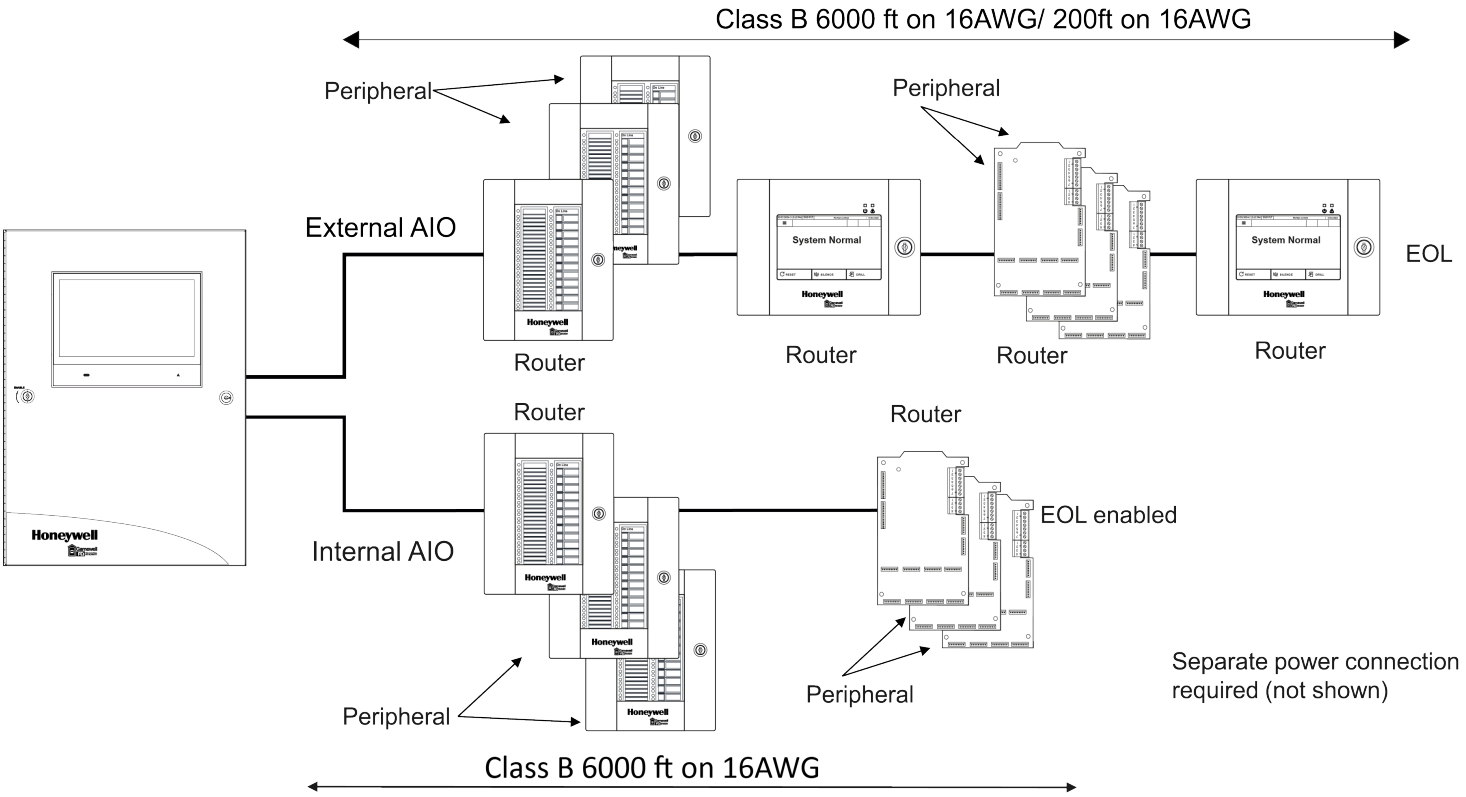


Figure 9-1: AIO Bus Two-Wire Serial Interface

NOTE: When installing an AIO device on the GFP version 6.x or higher, tap the ENROLL DEVICES touch point to initiate the automated process for the device to be recognized on the bus. (See "About" for accessing this touch point.) Dialog box will display the number of devices enrolled; press <STOP> button if all devices are counted before process is completed. When an AIO device is in comm loss the AIO comm loss system trouble will have a drop-down option which when selected will bring you directly to the enroll devices touch-point. Refer to your specific AIO device documents for more information on installation.

NOTE: The following restrictions apply: When mapping alarm points using SWIFT Wireless devices as inputs there is a limit of 8 ACM-30s per node. If no SWIFT Wireless devices are being used as inputs, there is a limit of 32 ACM-30s per node that can be mapped to alarm points.

9.3 EVENT PRIORITY

Event Priority is a configurable option that is selected by using the Event ordering drop down under General settings of GFP in CAMWORKS+. The event priority list when configured for USA is shown below:

USA Event Priority List
- FIRE
- CO
- Supervisory
- Troubles
- Disables

9.4 AUDIO SETTINGS

Piezo: Can be set for Events and Touch Screen Beep. It is defaulted with both settings enabled.

CAUTION: PIEZO DISABLE When the piezo is disabled it is not supervised when the FACP is in alarm and is not an approved method of acknowledging or silencing events on the FACP.

9.5 LOCAL MODE

The SLM-318 is capable of running in Local Mode if it has not received communication from the core board for one minute. A user can create a local mode zone and map both inputs and outputs to this zone. While the SLM-318 is in Local Mode, if any of the inputs placed in the local mode zone activate, the SLM-318 will turn ON all of the outputs mapped to the same zone.

Limitations: Alarm Signals cannot be silenced. The control panel will not report SLC faults/ troubles when in Local Mode. All events are non-latching until the control panel restores communication with the SLM-318.

9.6 POWER MANAGEMENT MODE

The power management mode will conserve power consumption. In this mode, the number of LEDs that can be turned ON for a particular loop will be limited. A maximum of 30 input device (monitor modules and detectors) LEDs will be allowed ON at a time. No output module LEDs will turn ON. When the limit of 30 LEDs is reached, every time a new LED is turned ON, the oldest LED activation will turn OFF and will poll in red rather than the usual green. Default: OFF

9.7 HOLIDAY AND WEEKLY OCCUPANCY SCHEDULING

Holiday Menu The Holiday settings allow a user to program up to 15 holidays which are used with the occupancy schedule to determine holiday occupancy hours.

Weekly Occupancy Schedule: The Weekly Occupancy Schedule allows for up to six different occupancy schedules to be programmed. Choose between schedules 1 - 6. A value of zero indicates no schedule.

9.8 REMINDER SETTINGS

Trouble reminder: Choose between OFF, Every Four Hours, and Daily.

Trouble reminder Time: If Trouble Reminder is enabled: Choose between 4 HOURS and 24 HOURS to select the duration of time between trouble reminders.

CO Reminder Choose to set CO Reminder 0 OFF Set from 1-24 hours. Default value is 24

Supervisory Reminder Choose to set Supervisory Reminder 0 OFF Set from 1-24 hours Default value is 24

Fire Alarm Reminder Choose to set Fire Alarm Reminder 0 OFF Set from 1-24 hours Default value is 24

9.9 PANEL TIMERS SETTINGS

Alarm Verification Reset Time: Set the Alarm Verification timer. Choose a value of 0-240 (seconds), which will delay initiating devices set for Alarm Verification from signaling for the amount of time entered. If a second alarm occurs while the alarm verification timer is counting, the timer will stop and the alarm will signal immediately. Default: 30

NOTE: A value of 60 seconds is allowed if alarm verification is only configured for a single zone. If Alarm Verification is to be accomplished on a multiple circuit (zone) or system basis, the duration shall not exceed 30 seconds . Exceeding these limits is subject to AHJ approval.

Alarm Verification Maximum Count: Enter a value from 0-20 for a maximum verification count threshold value that applies to detectors set to participate in Alarm Verification. A value of zero produces no verification trouble. When the counter exceeds the threshold value entered, a trouble is generated to the panel. Default: 4

Table 9.1 Panel Timer Settings

Program Setting for:	Default:
Alarm Verification Reset Time	30 seconds
Alarm Verification Max Count	0 (disabled)
Alarm Verification Con-formation Time	60 seconds
AC Fail Delay	2 Hours
Silence Inhibit	0 (disabled)
Auto Silence	0 (disabled)
Verify=Pre-alarm	Unchecked
Alarm Delay	Unchecked
Presignal Delay	3 minutes
Alarm Delay Timer	15 seconds

AC Fail Delay: Set the timing for the time delay from AC failure to when the trouble is reported. Choose a value of 1-12 (hours), or select 0. A value of 0 will turn OFF the AC Fail delay.

- The on-board trouble relay (TB2 on the GFP) will activate
- CGW-MBs are notified immediately of AC failure by the panel, regardless of the panel's delay setting. Once the CGW-MB receives notification, it operates according to its own programmed AC Fail Delay reporting schedule.
- Power LED is NOT delayed and will turn off immediately if all installed PMB supplies lose power.
- Delay timer starts the countdown when the first PMB goes into AC Fail, will not reset if additional PMB's also go into AC Failure.

Signal Silence Inhibit Time: Enter a value from 0 (disabled) to 300 sec. This software timer disables the SIGNAL SILENCE function for the time entered when a fire alarm occurs. The timer starts at the first alarm only; it does not restart with each new alarm. Default: 0

Automatic Silence Time: Enter a value from 0 (disabled) to 20 minutes. This global software timer functions like pressing the SIGNAL SILENCE key. For example, if a value of 10 is entered, the control panel will silence all active outputs programmed as silenceable after ten minutes. When Auto Silence activates, special function zone ZF40 will activate and will remain active until a system reset, alarm resound, or drill is initiated. Default: 0

Verify = Pre-Alarm: Check the box to enable Verify = Pre-Alarm. Default unchecked.

Enable Positive Alarm Sequenc: Check the check box to enable Positive Alarm Sequence. Set the timer for between timer for between 0-59 seconds. Default is 15 seconds. Enabling this feature will create a pre-alarm condition for a device that is running alarm verification.

Presignal Delay Time: Enter a value of 00:00 (disabled) or a value of 1:00 to 3:00 minutes (in the format MM:SS, where MM= minutes, SS= seconds). This feature initially causes alarm signals to sound only in specific areas, monitored by qualified personnel. This allows delay of the alarm for up to 3 minutes after the start of alarm processing. Default: 3:00

NOTE: An error box will appear if entering a value greater than 3:00 for the Presignal Delay Time

9.10 SUPERVISION SETTINGS

Printer Types: NONE, 40-COLUMN, 40-COLUMN SUPERVISED, 80-COLUMN, 80-COLUMN SUPERVISED, The printer will not be active if NONE is selected. If a SUPERVISED selection is made, the printer will be supervised. Default: NONE

Choice of Baud Rate Settings:

- 300bps
- 2400bps
- 4800bps
- 9600bps
- 19.2Kbps
- 38.4Kbps
- 57.6Kbps

Auxiliary Trouble Reporting: Enable if a trouble bus cable is attached at J7 on the GFP for supervision.

Tamper Input (Not used for Security applications): There are four options available: Not Used, AKS Key Switch, and Keypad Disable.

• Not Used: The condition of the tamper input has no impact on the behavior of the fire system.
• AKS Key Switch: (Annunicator Key Switch) Used when there is an AKS-1 key switch connected to the panel cabinet door. Use this setting in conjunction with The AKS switch to enable level 2 access. Must be programmed to do so in the password database and enabled in the GFP programming database. Short circuit on the tamper input will represent the "not logged in condition". Attempts to control the system will result in a prompt to the user to log in. Access to the menu is permitted. Open circuit on the tamper input will log the user in at General/ Minimal Access.
• Keypad Disable: Use when there is no mechanical protection to the touchscreen interface. Use this setting in conjunction with a mechanical keypad enable keyswitch.
  - Must be programmed in the password database and enabled in the GFP programming database. Short circuit on the tamper input will represent the "not logged in condition". Access to the menu is blocked, there will be no feedback of a touch on the screen. Open circuit on the tamper input will log the user in at General/ Minimal Access.

9.11 LOOP CONFIGURATION

Installed: Choose between YES and NO, depending on whether an SLC is installed at this address

InActive: When a point is configured as "INACTIVE", it is functionally excluded from evaluation as if it is being uninstalled.

However, it is NOT actually being uninstalled and it is NOT removing associated programming.

- This can be beneficial during the installation process. It allows for the programming and configuration of the entire system, without having the entire system installed.
- Points installed in the configuration but not yet installed in the building will create numerous fault conditions, making the system challenging to troubleshoot during the installation. As the building is fitted out, the points can be exposed.

Detector Mode: Select Loop Polling mode for detectors on this loop.

Module Mode: Select Loop Polling mode for modules on this loop.

Wiring Style: Select the NFPA wiring Class (B or A) of the loop. If Class A is entered when the wiring is Class B, a trouble message will be generated at the panel.

Sounder Base Power Monitoring: Enable or Disable the power monitoring for intelligent sounder bases on this loop

Sounder Base Standby Power Monitoring: Used to disable the external power monitoring of intelligent sounder bases (B200S-WH and B200S-IV only) so that a NAC may be used as the external power input. The NAC resides in a reverse-polarity state when in normal stand-by condition, as a result the intelligent sounder base will report at persistent trouble if it does not detect 24 VDC on it’s input. Changing this setting to off will disable the trouble from being reported. An end-of-line resistor is required on the NAC to monitor the integrity of the wiring between the NAC and the sound base.

- Choose between OFF and ON
- If OFF: External power on the sounder base will not be monitored when in standby.
- If ON: External power on the sounder base will be monitored when in standby.
- Default: ON

FSAE Limit 1: (SAFE/ MONITOR threshold): Specify the temperate threshold between the Safe and Monitor condition for FSAE device types on this loop in Fahrenheit. Select a value between 60°F (18°C) and 135°F (57°C) in steps of 5. Default 90°F (32°C). This value must be lower than FSAE Limit 2.

FSAE Limit 2 (MONITOR/ NOT SAFE threshold): Specify the temperate threshold between the Monitor and Not Safe condition for FSAE device types on this loop in Fahrenheit. Select a value between 60°F (18°C) and 135°F (57°C) in steps of 5. Default 90°F (32°C). This value must be greater than FSAE Limit 1.

NOTE: When using 135°F for FSAE limit 2; the "Heat Alarm" event will be prioritized over "not safe".

9.12 SILENCEABLE WATERFLOW

Set for YES or NO. If set for NO the incoming Waterflow events will not be allowed to be silenced. If set for YES the incoming Waterflow events can be silenced. The default is NO.

9.13 POINT PROGRAMMING

Allows the user to edit/ change point information for detectors, modules, general zones, releasing zones, and logic zones.

NOTE: When programming points, take the following into design consideration:
Each general zone must be dedicated to a single event type (i.e. Fire, etc.).
Map inputs only to general zones designated for the input's event type.
Outputs can be mapped to multiple general zones that are dedicated to different event types. For instance, a single output can be mapped to an MN general zone and a Fire general zone.

9.13.1 DETECTOR POINT PROGRAMMING

The following global device type settings for detectors apply to specific type code labels:

FIRE/ CO & PHOTO/ CO (Photo supervisory) Latching: Only applies to "Fire/ CO" detectors programmed as "Fire/ CO (Photo Sup)" as a type code label or "Photo/ CO" detectors programmed as "Photo/ CO (Photo Sup)" as a type code label. Default: NO (the alarm will be tracking). This is a global setting applicable to all devices matching the indicated Type Code Labels.

FIRE/ CO & PHOTO/ CO & CO Only (CO supervisory) Latching: Only applies to "Fire/ CO" detectors programmed as "Fire/ CO (CO Sup)" as a type code label or "Photo/ CO" detectors programmed as "Photo/ CO (CO Sup)" as a type code label or "CO ONLY" detectors programmed as "CO Sup" as a type code label. Default: NO (the alarm will be tracking). This is a global setting applicable to all devices matching the indicated Type Code Labels.

Acclimate Device Settings: Only applies to Acclimate Photo Supervisory detectors (PSUP). Default: NO (The photo element of all Acclimate PSUP detectors is programmable through the service tool.)

The control panel will automatically perform a detector initialization routine when a detector is added/ changed in programming or if the detector was removed for more than 15 seconds. This can take approximately 2.5 minutes. During this time, the detector does not perform fire protection functions. When in this mode, the LEDs of the detectors will be on a steady green (for Velociti) or red (for CLIP). Make sure the detector is free of residual smoke during initialization and do not test the detector until the initialization is complete.

Replacing a detector with a different type of detector: When replacing a detector with a different type of detector, the control panel must be immediately programmed for the new detector type to avoid incorrect panel operation, including false alarms. To replace a detector, follow these steps:

1. Physically remove the old detector.
2. In CAMWorks+ Tools, change the Type and Velociti Code label to the values appropriate for the new detector.
3. Physically install the new detector. Initialization will occur automatically.

NOTE: An "Inspect Device" Trouble will alert to make sure that Legacy AMM-2IF Module is not connected. Old AMM-2IF's need to be replaced. See SLC Wiring Manual LS10414-000GF-E Appendix C for more information. A system reset will clear the "inspect Device" trouble.

Multi-detector: Displays up to 2 other detectors that can be linked with the one being programmed for cooperative multi-detector sensing. The detector addresses do not need to be sequential.

Sensitivity: Set between 1-9 for individual detectors. Can be set for both occupied and unoccupied detectors, for both alarm and prealarm.

Low Temp Enable: Fire/ CO detectors only: Select YES or NO to enable the Low Temperature Warning.

Prealarm: Select ALERT or ACTION for the Prealarm function.

Silenceable: Determines whether a user can manually silence an activated sounder/ relay base.

- NO: Not manually silenceable.
- YES - RESOUND FIRE: Silenceable, resound on fire events
- YES - RESOUND SUPERV: Silenceable, resound on supervisory events
- YES - NO RESOUND: Silenceable, no resound

Specific nodes can be excluded from having the ability to initiate a resound on the local fire panel.

CO Pre-Alarm: Fire/ CO and Photo/ CO detectors only: Select YES or NO to enable the CO Prealarm function for the FIRE/ CO or Photo/ CO smoke detector.

Custom Action Message: Displays the custom action message number (1 through 100). The default value is 0 (no message). Press to display the Custom Action Message screen.

Alarm Verification Participation: Select from Alarm Verification Reset, Alarm Verification Confirmation Timer, and Alarm Verification Max Count to determine the device's participation in Alarm Verification.

Flow Fault Threshold: Set the percentage change from the baseline value when a Flow Fault is detected. Range: 0-45%
DEFAULT: 21%

Flow Fault Delay: Set the amount of time before the panel indicates the Flow Fault. Range 0-255 seconds
DEFAULT: 200s

NOTE: Specific nodes can be excluded from having the ability to initiate a resound on the local fire panel. This option is programmable via CAMWorks+Tools.

Reference Detector Address: Set a FAAST detector for use as a reference for air flow for other FAAST detectors. All 5 detectors of each FAAST device using this detector as a reference must be set with the same reference detector address, have the same Threshold value (set via PipeIQ), and must be on the same loop as the reference detector. Range: 0, 1-159
DEFAULT: 0 (No reference detector programmed)

Zone Map: Up to 10 zones available. During initial programming, the primary zone (position 1) displayed is associated with the loop the device is installed on. For example, the device's default programming set the primary zone as Z003, indicating that the device is installed on Loop 3. Certain zone map positions are used for specific functions.

- Position 1 - Use to link zone label to detector and for group zone disable.
- Position 3 - Fire/ CO Fire/ CO, Photo/ CO, Acclimate Photo Sup, Acclimate Plus Photo Sup: Activates when the photo element of the detector activates.
- Position 4 - Fire/ CO and PHOTO/ CO detectors only: Activates when the CO element of the Fire/ CO detector activates. (Map the zone in this location to one of the Aux Controls of the intelligent sounder bases in order to play the Temp-4 tone for CO Alarms.)
- Position 5 - Fire/ CO, PHOTO/ CO, and CO detectors only: Activates when the detector reports a CO Pre-Alarm.
- Position 10 - Used for detectors set to Prealarm, Action. This zone will activate when the detector reaches its Prealarm threshold; no other zones in this detector's zone map will activate.
- Remote Output Zone'. When enabled, if the zone mapped to the remote output zone activates, the remote output (i.e. sounder base, relay base, or remote LED) of the detector will activate.

Sensitivity: The GFP Control panel provides 9 levels of Prealarm and Alarm in percent per foot obscuration with the following 3 exceptions:

• for heat detectors, the settings are in degrees Centigrade.
• for beam detectors, there are only 6 levels of Alarm. Prealarm is not an option for beam detectors in CLIP mode.
• for MCS-4-Warn detectors, there are only six levels of Alarm and Prealarm for Velociti mode, The sixth level is a fixed 135°F, and it is not available in CLIP mode.

Alarm Sensitivity: Values range from one to nine; one represents the most sensitive level, nine the least sensitive.

Prealarm Sensitivity: Values range from zero to nine; Zero indicates no prealarm, a value of one can be a self-optimizing setting where the control panel selects a suitable prealarm level for the detector. Values one or two through nine represent decreasing sensitivity, with nine being the least sensitive. Refer to "Detector Sensitivity Settings" on page 62 for sensitivity settings for detectors by type.

9.13.2 DETECTOR POINT PROGRAMMING FOR MULTI-CRITERIA DETECTORS WITH SUBADDRESSING

The following multi-criteria detector type code labels will support independent configuration of the device by sensor or function of the sensor:

Table 9.2 Multi-Criteria Detectors with Subaddressing

Detector Type	Type Code Label	CO Alarm	Heat Alarm	Smoke Alarm	Unsafe Tenability	Monitor Tenability	Safe Tenability	Subaddress Activated with Magnet Test
Acclimate	PTIR	NO	YES	YES	NO	NO	NO	Heat Alarm
FSAE Acclimate	FSAE_PTIR	NO	YES	YES	YES	YES	YES	Heat Alarm
FIRE/ CO	Fire_CO	YES	YES	YES	NO	NO	NO	Heat Alarm
FSAE_Fire/ CO	FSAE Fire/ CO	YES	YES	YES	YES	YES	YES	Heat Alarm
Photo/ CO	Photo-CO	YES	NO	YES	NO	NO	NO	Photo Alarm
FSAE PHOTO/ HEAT with SELF TEST	FSAE_ PHOTO/ HEAT	NO	YES	YES	YES	YES	YES	Photo Alarm

NOTE: The type code labels are different from the multi-criteria device type code labels documented in "Detector Point Programming" on page 55.

Pre-Alarm Mode configuration: Applies to the Photo sub-address only. The pre-alarm threshold must be set lower than the alarm threshold for the pre-alarm condition to be indicated.

Alert = Tracking
Action = Latching

CBE 1- Primary Zone assignment: Assign a control by event zone (general zone or agent releasing zone) to activate associated with this subaddress activation. Primary zones address and label may be configured to be displayed as part of the event displayed.

CBE 2 - CBE 10: Additional zone assignments. Assigned control by event zones (general zones or agent releasing zones) to activate associated with the subaddress activation.

Pre-Alarm CBE: Zone assignment associated with the pre-alarm condition of this subaddress activation. (General zones).

Custom Action Message: Displays the custom action message number (1 through 100). The default value is 0 (no message).

Latching/ Tracking: Select if the event shall operate as tracking or latching. Not applicable to alarm conditions. Type code event shall be a supervisory event.

Multi-criteria detectors with subaddressing operational behavior:

• The base address will not generate an activation event related to the sensor (i.e. alarm, supervisory). It will support operational status events (i.e. trouble/ disable).
• The sub addresses will generate state events (alarm/ CO/ etc.). It will not support operational status changes (trouble/ disable).
• When Alarm Verification is enabled, and the device is tested with a heat stimulus, the device will not delay the alarm at the sub address for Heat.

* Refer to (put in the reference to the appendix that has the FSAE content) for additional configuration instructions and operation instructions related to Fire Service Access Elevators (FSAE) and temperature tenabilit

Type Code Labels

CO Alarm subaddress: Select the event to be generated when the alarm condition is reached for the CO element. CO Alarm (default), CO Sup, Non-Fire, None.

CO Alarm subaddress: Select the event to be generated when the alarm condition is reached for the CO element. CO Alarm (default), CO Sup, Non-Fire, None.

Heat Alarm subaddress: Select the event to be generated when the alarm condition is reached for the heat element. Heat Alarm (default), Non-Fire, None.

Photo Alarm subaddress: Select the event to be generated when the alarm/ pre-alarm condition is reached for the photo element. Smoke (Photo) (default), Photo Supervisory, Non-Fire, None

Not Safe Heat subaddress: Select the event to be generated when the temperature is below the alarm condition and above the FSAE limit 1 threshold for the heat element. Not Safe Supervisory (default), Non-Fire, None.

NOTE: The type code label will be displayed with the event condition; and this will be the method of discriminating between different sensor types for common alarm signaling (i.e. fire alarm for smoke(photo) versus fire alarm for Heat).

9.13.3 SOUNDER BASE SETUP

AUX Tone 1: Select CONTINUOUS, TEMP-3, TEMP-4, MARCH or CUSTOM for the first auxiliary tone of the intelligent sounder base.

AUX Tone 1 Control: Enter the Logic Zone or General Zone that will control the activation of the first auxiliary tone of the intelligent sounder base.

AUX Tone 2: Select CONTINUOUS, TEMP-3, TEMP-4, MARCH or CUSTOM for the second auxiliary tone of the intelligent sounder base.

AUX Tone 2 Control: Enter the Logic Zone or General Zone that will control the activation of the second auxiliary tone of the intelligent sounder base.

Volume: Select LOW or HIGH for the intelligent sounder base volume level.

Sounder Base Custom Tone Setup

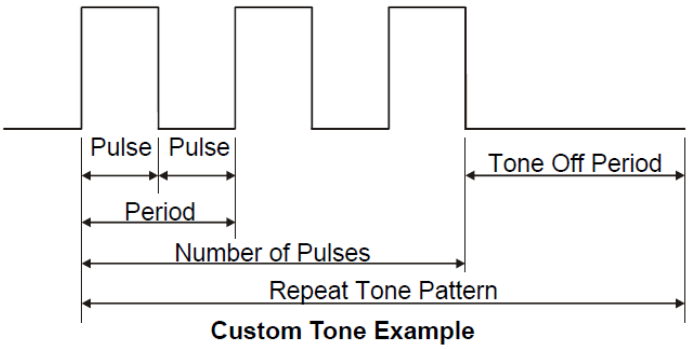
Pulse on Time: The Pulse On time is the amount of time that the tone will be ON within a Period. Enter the amount of time in second and fraction of a second increments.

Period: A Period is the length of time designated for a pulse, including Pulse On time and Pulse Off time. The pulse off time is designated by the amount of time left in a Period after the Pulse On time has expired. Enter the amount of time in second and fraction of a second increments.

Number of Pulses: Enter the number of pulses that will occur before the Tone Off Period.

Tone Off Period: The Tone Off Period is the amount of time that the tone will be silent before running the pulse pattern again.

Temp 3 Sync Setting: Choose between Power Supply and Loop Card. Default: Power Supply



Custom Tone Example

9.13.4 DETECTOR TYPE CODES

The following is a list of intelligent detector Type Codes, which specify the type of detector installed at an SLC address.

Table 9.3 Intelligent Detector Type Codes

Type Code	Point Type	Latching (Y=yes N=no)	Activates CBE	Device/ Point Function
ASPIRATION*	fire	Y	Y	Aspiration laser or Intelligent Aspiration detector
ASPIR. (SUP)*	supervisory	Y	Y	Supervisory for Intelligent Aspiration detector
ASPIR. (PRE)*	prealarm	N	Y	Pre-alarm for Intelligent Aspiration detector
ASPIR. (NON)*	non-fire	N	Y	Non-fire for Intelligent Aspiration detector
ASPIR. (REF)*	non-fire	N	Y	Reference for Intelligent Aspiration detector
SMOKE (ION)	fire	Y	Y	Ionization smoke detector
SUP L(ION)†	supervisory	Y	Y	Ionization smoke detector
SUP T(ION)†	supervisory	N	Y	Ionization smoke detector
SMOKE(DUCTI)	fire	Y	Y	Duct Ionization smoke detector
SUP L(DUCTI)	supervisory	Y	Y	Duct ionization smoke detector
SUP T(DUCTI)	supervisory	N	Y	Ionization smoke detector used as a duct detector to report supervisory condition rather than alarm.
SMOKE(PHOTO)	fire	Y	Y	Photoelectric smoke detector
SUP L(PHOTO)†	supervisory	Y	Y	Photoelectric smoke detector
SUP T(PHOTO)†	supervisory	N	Y	Photoelectric smoke detector
SMOKE(DUCTP)	fire	Y	Y	Duct Photoelectric smoke detector
SUP L(DUCTP)	supervisory	Y	Y	Photoelectric smoke detector used as a duct detector to report supervisory condition rather than alarm
SUP T(DUCTP)	supervisory	N	Y	Photoelectric smoke detector used as a duct detector to report supervisory condition rather than alarm.
RFSMOKE (PHOTO)	fire	Y	Y	Wireless Photoelectric smoke detector
SMOKE(HARSH)	fire	Y	Y	HARSH smoke detector

Type Code	Point Type	Latching (Y=yes N=no)	Activates CBE	Device/ Point Function
SMOKE(LASER)	fire	Y	Y	Laser smoke detector
SUP T (LASER)†	supervisory	N	Y	Laser Smoke Detector
SUP L (LASER)†	supervisory	Y	Y	Laser Smoke Detector
SMOKE(DUCTL)	fire	Y	Y	Duct Laser smoke detector
SUP L(DUCTL)	supervisory	Y	Y	Laser smoke detector used as a duct detector to report supervisory condition rather than alarm.
SUP T(DUCTL)	supervisory	N	Y	Laser smoke detector used as a duct detector to report supervisory condition rather than alarm.
FIRE/ CO	fire	Y	Y	Combination Photoelectric/ CO detector
F/ CO (P SUP)*	fire	Y (See Note below)	Y	Combination Photoelectric/ CO detector. Photo element activation generates a supervisory condition.
F/ CO (C SUP)	fire	Y (See Note below)	Y	Combination Photoelectric/ CO detector. CO element activation generates a supervisory condition.
Note: For Fire/ CO detectors: Detectors programmed as F/ CO (P SUP), the Heat and CO elements will latch and require a system reset to clear. The Photo element will latch or track, depending on the Fire/ CO (Photo SUP) setting. Detectors programmed as F/ CO (C SUP), the Heat and Photo elements will latch and require a system reset to clear. The CO element will latch or track, depending on the Fire/ CO (CO SUP) setting.				
PHOTO/ CO	Fire	Y	Y	PHOTO CO detector
P/ CO (P SUP)	PHOTO- Supervisory CO- Alarm	Y (See note below)	Y	PHOTO CO detector
P/ CO (C SUP)	PHOTO- Fire CO- Supervisory	Y	Y	PHOTO CO detector
CO Alarm	CO Alarm	Y	Y	CO detector
CO SUP	Supervisory	Y (See note below)	Y	CO detector
Note: PHOTO/ CO and CO Detectors programmed as PHOTO/ CO (P SUP)/ CO (CO SUP) will either latch or track, depending on the setting.				
AIR REF	fire	Y	Y	Assign to one or more detectors used to monitor the quality of air entering the protected area. The air quality measurement allows the system to compensate for vehicle fumes, fog, or other particles brought into the protected area through the ventilation system. Poor air quality will lower the sensitivity of all detectors on the SLC. The detector sensitivity, however, remains within approved limits (always less than 1% obscuration per foot).
Note: A reference detector still functions as a smoke detector, but the detector sensitivity level should be set to the least sensitive level—AL:9 and PA:9 Alarm and Pre-Alarm sensitivity. Refer to "Detector Sensitivity Settings" on page 62 for a complete list of detector sensitivity settings.				

Type Code	Point Type	Latching (Y=yes N=no)	Activates CBE	Device/ Point Function
HEAT	fire	Y	Y	190°F heat detector
HEAT+	fire	Y	Y	190°F heat detector with low temperature warning
HEAT(FIXED)	fire	Y	Y	135°F intelligent thermal sensor
HEAT (ROR)	fire	Y	Y	15°F per minute rate-of-rise detector
SMOKE ACCLIM	fire	Y	Y	Combination Photoelectric/ heat detector
SMOKE(ACCLI+)	fire	Y	Y	Combination Photoelectric/ heat detector with low temperature warning, *or* Photoelectric Multi-Criteria Smoke Sensor.
SMOKE(MULTI)‡	fire	Y	Y	Multi-sensor smoke detector
SMOKE(BEAM)	fire	Y	Y	Beam Smoke Detector
ACCL(P SUP)	fire	Y (See note below)	Y	Combination Photoelectric/ Heat detector. Photo element activation generates a supervisory condition.
ACCL+(P SUP)	fire	Y (See note below)	Y	Combination Photoelectric/ Heat detector with low temperature warning. Photo element activation generates a supervisory condition.
FSAE Photo/ Heat	See subaddressing definion below			Multi-criteria Detector
FSAE Acclimate	See subadressing definition below			Multi-criteria Detector
FSAE Fire/ CO	See subadressing definition below			Multi-criteria Detector
Photo-CO	See subadressing definition below			Multi-criteria Detector
PTIR	See subadressing definition below			Multi-criteria Detector
Fire-CO	See subadressing definition below			Multi-criteria Detector
Note: For ACCL/ ACCL+ detectors: Detectors programmed as ACCL (P SUP) or ACCL+(P SUP), the Heat element will latch and require a system reset to clear. The Photo element will latch or track, depending on the ACCL (P SUP) Latching setting.				

* When a device associated with a FAAST device is disabled locally, all devices associated with that FAAST will automatically be disabled as well.
†Use only with approval of AHJcco
‡Clip Mode only

Table 9.4 Multi-Criteria Subaddressing

	CO Subaddres	Heat Subaddres	Photo Subaddres	Not Safe Subaddres	Monitor Subaddres	Safe Subaddres
FSAE Photo/ Heat	N	Y	Y	Y	Y	Y
FSAE Acclimate	N	Y	Y	Y	Y	Y
FSAE Fire/ CO	Y	Y	Y	Y	Y	Y
Photo-CO	Y	N	Y	N	N	N
PTIR	N	Y	Y	N	N	N
Fire-CO	Y	Y	Y	N	N	N
Point Type	CO Alarm, CO pre-alarm, supervisory, non-fire, none	Fire, non-fire, none	Fire, supervisory, pre-alarm, non-fire, none	Supervisory, non-fire, none	Supervisory, non-fire, none	Supervisory, non-fire, none
Latching/ Tracking	configurable	latching	configurable	configurable	configurable	configurable
Activate CBE	Y	Y	Y	Y	Y	Y

	CO Subaddres	Heat Subaddres	Photo Subaddres	Not Safe Subaddres	Monitor Subaddres	Safe Subaddres
Device/ Point Function	Carbon monoxide detection	Heat Alarm threshold =135°F (57°C)	Smoke detection with configurable thresholds	Heat threshold above FSAE limit #2	Between FSAE limit #1 and limit #2	Heat threshold below FSAE limit #1

9.13.5 DETECTOR SENSITIVITY SETTINGS

The following is a table of detector sensitivity settings by detector type. Note the following:

• If a detectors sensitivity is changed to a value in its Special Applications range, the extended label should be modified at this detector address to include the phrase 'SPECIAL APPLICATIONS' or 'SPECIAL APPS'. Refer to the CAMWorks+ Tool help files for more information on extended label programming.

• Detectors (Sampling ports) set to the special application sensitivity are not suitable for use in areas where cooking appliances may be used. If cooking appliances are used within the protected space, a normal application detector or normal application mode or configuration must be used for that area.

• Special application mode is not for general use and the detector may be prone to false alarms if used in unsuitable environments.

Table 9.6 Detector Sensitivity Settings

Detector Type	Alarm (Velociti)	Alarm (CLIP)	Pre-Alarm
Photo Electric SMOKE (PHOTO) FSAE PHOTO HEAT See notes * and † (Includes -SELFT versions)	AL:1=0.50 % AL:2=0.73 % AL:3=0.96 % AL:4=1.19 % AL:5=1.43 % AL:6=1.66 % AL:7=1.89 % AL:8=2.12 %~ AL:9=2.35 %		PA:1=Auto PA:2=0.30 % PA:3=0.47 % PA:4=0.64 % PA:5=0.81 % PA:6=0.99 % PA:7=1.16 % PA:8=1.33 %~ PA:9=1.50 %
Ion SMOKE (ION) See note * and **	AL:1=0.50 % AL:2=0.75 % AL:3=1.00 % AL:4=1.25 % AL:5=1.50 % AL:6=1.75 %~ AL:7=2.00 % AL:8=2.25 % AL:9=2.50 %		PA:1=Auto PA:2=0.40 % PA:3=0.50 % PA:4=0.75 % PA:5=1.00 % PA:6=1.25 %~ PA:7=1.50 % PA:8=1.75 % PA:9=2.00 %
Velociti Laser‡ See note **	AL:1=0.02 % AL:2=0.03 % AL:3=0.05 % AL:4=0.10 % AL:5=0.20 % AL:6=0.50 %~ AL:7=1.00 % AL:8=1.50 % AL:9=2.00 %		PA:1=Auto PA:2=0.02 % PA:3=0.05 % PA:4=0.10 % PA:5=0.20 % PA:6=0.50 %~ PA:7=0.70 % PA:8=1.00 % PA:9=1.50 %

Detector Type	Alarm (Velociti)	Alarm (CLIP)	Pre-Alarm
Acclimate Multi-Sensor See note ††and ‡‡	AL:1=0.50 % AL:2=1.00 % AL:3=1.00 to 2.00 % AL:4=2.00 % AL:5=2.00 to 3.00 % AL:6=3.00 % AL:7=3.00 to 4.00 % AL:8=4.00 %~ AL:9=thermal 135°F	AL:1=1.00 % AL:2=1.00 % AL:3=1.00 to 2.00 % AL:4=2.00 % AL:5=2.00 to 4.00 % AL:6=2.00 to 4.00 % AL:7=2.00 to 4.00 % AL:8=4.00 %~ AL:9=4.00 %	PA:1=0.50 % PA:2=1.00 % PA:3=1.00 % PA:4=1.00 to 2.00 % PA:5=1.00 to 2.00 % PA:6=2.00 % PA:7=2.00 % PA:8=2.00 to 3.00 %~ PA:9=2.00 to 3.00 %
PTIR FSAE PTIR	AL:1=1.00 % AL:2=1.00 % AL:3=2.00 % AL:4=2.00 % AL:5=3.00 % AL:6=3.00 % AL:7=4.00 % AL:8=4.00 %~ AL:9=thermal 135°F		PA:1=1.00% PA:2=1.00% PA:3=1.00% PA:4=1.00 % PA:5=2.00 % PA:6=2.00 % PA:7=3.00 % PA:8=3.00 %~ PA:9=3.00 %
Heat (Adjustable Threshold) (Includes -SELFT versions)	AL:1=43°C AL:2=57°C AL:3=63°C~ AL:4=68°C AL:5=74°C AL:6=88°C AL:7=88°C AL:8=88°C AL:9=88°C		PA:1=40°C PA:2=43°C PA:3=57°C~ PA:4=65°C PA:5=70°C PA:6=75°C PA:7=75°C PA:8=75°C PA:9=75°C
Beam See note ***	AL:1=25% AL:2=30% AL:3=40% AL:4=50% AL:5=30 - 50% AL:6=40 - 50%		PA:1=50% PA:2=55% PA:3=60% PA:4=65% PA:5=70% PA:6=75% PA:7=80% PA:8=85% PA:9=90%
See note †††	AL:1= 1% AL:2= 2% AL:3= 3% AL:4= 3% with 10 minute confirmation period‡‡ AL:5= 4% with 10 minute confirmation period AL:6= Thermal 135°F		PA:1= 1% PA:2= 2% PA:3= 3% PA:4= 3% with 10 minute confirmation period PA:5= 4% with 10 minute confirmation period PA:6= Thermal 135°F

Detector Type	Alarm (Velociti)	Alarm (CLIP)	Pre-Alarm
FSAE Fire/ CO Fire/ CO See note **** PHOTO/ CO See note ††††	AL:1=1% AL:2=2% AL:3=3% AL:4˜=3% For Fire/ CO there is a 10-minute confirmation period‡‡ AL:5=4% For Fire/ CO there is a 10-minute confirmation period‡‡ AL:6=Thermal 135°F		PA:1=1% PA:2=2% PA:3=3% PA:4˜=3% For Fire/ CO there is a 10-minute confirmation period‡‡ PA:5=4% For Fire/ CO there is a 10-minute confirmation period‡‡ PA:6=Thermal 135°F
˜Signifies the factory default setting.			

* Detectors are suitable for open area protection within the listed air velocity range. Typically, this range is 0 - 4,000 ft/min for photoelectric detectors and 0 - 1,200 ft/min for ionization detectors. Be sure to confirm this range before installing the detector by referring to the manufacturer's installation instructions.The nominal sensitivity displayed on the FACP is for reference only

† Photo detectors (ASD-PL3, ASD-PL3R, ASD-PTL3) in UL268 7th Edition compliance must be programmed as follows: Open Area Protection sensitivity level 8 or 9, for Special Applications: sensitivity level 1 through 7 (default is 8).

‡ 1% max. on CLIP. Larger figures may display.

** The use of alarm sensitivities below 0.50% obscuration per foot requires a 90 day test to ensure that the environment for the detectors is suitable for the higher sensitivity setting.

†† For Acclimate detectors installed in Canada: Use only the alarm settings of AL:1 or AL:2.

‡‡ Acclimate detectors (MCS-PTIR/MCS-COF3-IV) in UL 268 7th Edition compliance must be programmed as follows: Open Area Protection: sensitivity level 8, for Special Applications sensitivity level 2, 4, or 6 (default is 8).

*** Refer to the beam detector manual to determine the alarm settings: they are a function of the distance between the detector and its reflector. There is no Pre-alarm for beam detectors in CLIP mode.

††† AL:6 and PA:6 are not available in CLIP mode.

‡‡‡ Within the 10 minute signature confirmation delay period, if there is a detection of another fire signature (Carbon Monoxide, Infrared or Thermal) it overrides the 10 minute confirmation time.

**** Fire/CO detectors (MCS-COF3/MCS-COF3-IV) in UL 268 7th Edition compliance must be programmed as follows: Open Area Protection sensitivity level 3, 4, or 5, for Special Application: sensitivity level 1 and 2 (default is 4).

†††† The heat only setting (sensitivity level 6) applies to Fire/CO only.

9.13.6 MODULE POINT PROGRAMMING

Type Code Label:

Choose the appropriate type code label. (Refer to "Type Codes for Monitor Modules" on the next page for a list of type code labels.)

Module Type: Choose between Control and Monitor.

Velociti Type: Select NONE if the device is not Velociti.

Point Label: If no entry is made, the field will default to the point address.

Custom Action Message: Displays the custom action message number (1 through 100). The default value is 0 (no message).

Zone Map: Displays the zones mapped to this device. Refer to "General Zone Programming" on page 69 for a list of available zone types and their descriptions. Certain zone map positions are used for specific functions.

Position 1 - Use to link zone label to detector and for group zone disable.

Alarm Verification: Choosing Yes will set the device participation to the values entered in Panel Timers. The only module type that can participate in alarm verification the AMM-4SF. Refer to Panel Timers Settings for Panel Timer programming information.

Waterflow delay: When the WATERFLOW DELAY option is set to 0, waterflow events are immediately reported to the panel upon activation. If a non-zero value is entered in the WATERFLOW DELAY, activation of a waterflow event is delayed for the duration of that time. The waterflow event will have to remain active for the duration of the delay. If the waterflow event does not remain active for the entire delay duration, the waterflow event will not be reported to the panel.

Default: 0 Range: 0-60 seconds

9.13.7 TYPE CODES FOR MONITOR MODULES

Following is a list of monitor module Type Codes, which can be used to change the function of a monitor module point.

Table 9.7 Type Codes for Monitor Modules

Type Code	Point Type	Point Characteristics		
		Latching (Y=yes, N=no)	Activates CBE	Device Function
MONITOR	fire alarm	Y	Y	Alarm-monitoring device
NC MONITOR	fire alarm	Y	Y	Alarm monitoring device, where an open circuit=active.
PULL STATION	fire alarm	Y	Y	Manual fire-alarm-activating device
SMOKE CONVEN	fire alarm	Y	Y	Indicates activation of a conventional smoke detector. An AMM-4SF must be used for alarm verification of a two-wire conventional detector.
SMOKE DETECT	fire alarm	Y	Y	Indicates activation of a conventional smoke detector. An AMM-4SF must be used for alarm verification of a two-wire conventional detector
WATERFLOW	fire alarm	Y	Y	Monitor for waterflow alarm switch
WATERFLOW S	supervisory	Y	Y	Indicates supervisory condition for activated waterflow switch
LATCH SUPERV	supervisory	Y	Y	Indicates latching supervisory condition
NC SUP L	supervisory	Y	Y	Indicates latching supervisory condition, where an open circuit=active.
TRACK SUPERV	supervisory	N	Y	Monitors for waterflow tamper switches for alarm points
NC SUP T	supervisory	N	Y	Indicates tracking supervisory condition, where an open circuit=active.
SPRINKLR SYS	supervisory	Y	Y	Monitors a waterflow device
ACK SWITCH	non-alarm	N	N	Performs Acknowledge function
ALLCALL PAGE	non-alarm	N	Y	Performs function AMG-1 All-call and telephone page
DRILL SWITCH	non-alarm*	Y	N	Performs Drill function
EVACUATE SWITCH	non-alarm"Type Codes for Monitor Modules" above	Y	N	Performs Drill function, activates silenceable fire outputs
FIRE CONTROL	non-alarm	N	Y	Monitors non-fire activations
NON FIRE	non-alarm	N	Y	Monitors non-fire activations
NC NON FIRE	non-alarm	N	Y	Monitors non-fire activations, where an open circuit =active.
POWER MONITR	trouble†	N	N	Monitors main and auxiliary power supplies
RESET SWITCH	non-alarm	N	N	Performs Reset function
SIL SWITCH	non alarm	N	N	Performs Signal Silence function
DISABLE MON	disable	N	N	When this point activates it will create a disable on the panel for that point. No CBE generated. Modules cannot be disabled via ACS, or Alter Status.
TROUBLE MON	trouble	N	N	Monitors trouble inputs
Blank	fire alarm	Y	Y	Monitors for a device with no description
HEAT DETECT	fire alarm	Y	Y	Monitors for conventional heat detector
RF MON MODUL	fire alarm	Y	Y	Wireless alarm-monitoring device

Type Code	Point Type	Point Characteristics		
		Latching (Y=yes, N=no)	Activates CBE	Device Function
RF PULL STA	fire alarm	Y	Y	Wireless manual fire-alarm-activating device
RF SUPERVSRY	supervisory	N	Y	Wireless supervisory-monitoring device
ABORT SWITCH	non-alarm	N	Y	Provides an abort function through a monitor module (connected to a UL-listed abort station) for a releasing zone. NOTE: An abort switch can only be associated with one (1) Releasing Zone.
MAN RELEASE	fire alarm‡	Y	Y	Provides a manual release through a monitor module (connected to a UL-listed pull station) for a releasing zone
MAN REL DELAY	fire alarm"Type Codes for Monitor Modules" on the previous page	Y	Y	Provides a manual release with a 10-second delay through a monitor module (connected to a UL-listed pull station) for a releasing zone
SECOND SHOT	fire alarm"Type Codes for Monitor Modules" on the previous page	Y	Y	Provides a second manual release through a monitor module (connected to a UL-listed pull station) for a releasing zone
HAZARD ALRT	non-fire	N	Y	Monitors for a hazard alert
WEATHER ALRT	non-fire	N	Y	Monitors for a weather alert
PROCESS MON	critical process	Y	Y	Monitors for a critical process
PROCESS AUTO	critical process	N	Y	Monitors for a critical process
CO MONITOR	CO alarm	Y	Y	Monitors conventional CO detectors for a CO alarm condition.
RF GATEWAY	non-alarm	N	Y	Provides communication between wireless devices and the fire panel.
ALARM TRACK**	alarm	N	Y	This unit must be installed in accordance with the following requirements: Monitor modules located with the protected premises which are responsible for supervising the state of the protected premises control unit may be programmed for Tracking (non-latching) operation. The supervised protected premises control unit shall be responsible for all notification and evacuation.
PAS INHIBIT	non-alarm	N	N	Inhibits Positive Alarm Sequence

* Local Mode treats this point as a fire alarm point.
† Does not participate in Local Mode.
‡ Local Mode activation of NACs only. No releasing.
** Does not activate General Alarm Zone Z0.

9.14 TYPE CODES FOR SLC OUTPUT DEVICES

The following is a list of Type Codes for SLC control module points. Select from these codes to define the type of point.

Table 9.8 SLC Control Module Type Codes

Type Code	Silenceable (Y=yes N=no)*	Switch Inhibit (Y=yes N=no)*	SLC Output Point	Local Mode Group Point Types	Device Function
CONTROL†	Y	N	NAC	fire	Supervised NAC
RELAY†	Y	N	Relay	n/a	Relay output
BELL CIRCUIT	Y	N	NAC	fire	Supervised NAC
STROBE CKT†	Y	N	NAC	fire	Supervised NAC
HORN CIRCUIT†	Y	N	NAC	fire	Supervised NAC
AUDIBLE CKT	Y	N	NAC	fire	Supervised NAC
SPEAKER	Y	N	NAC	fire	Supervised NAC for speaker circuits
blank†	Y	N	NAC	n/a	Supervised NAC for undefined device
NONRESET CTL†	N	N	Relay or NAC	n/a	Supervised output, unaffected by “System Reset” command
TELEPHONE	N	N	Telephone	fire	Supervised Telephone circuit
CONTROL NAC	Y	N	NAC	fire	Supervised NAC
GEN ALARM†	N	Y	NAC	fire	Single-address control module, XP6-C. This type ID can be used for general alarm activation including retrofits where new equipment replaces XPC-8. NOTE: Retrofits using XP5-C Municipal box should update to TM-8 (see LS10388-000GE-E).
GEN SUPERVIS†	N	Y	NAC	supervisory	Single-address control module or XP6-C activated under any Supervisory condition (includes sprinkler type). Retrofit use replaces XPC-8 and XP5-C (in NAC mode).
GEN TROUBLE†	N	Y	NAC	trouble	Single-address control module or XP6-C activated under any System Trouble condition.This device will not turn ON when it is in trouble (short or open). Retrofit use replaces XPC-8 and XP5-C (in NAC mode).
GENERAL PEND†	N	Y	NAC	trouble	Single-address control module or XP6-C that will activate upon receipt of an alarm and/or trouble condition, and remain in the ON state until all events have been ACKNOWLEDGED. This device will not turn ON when it is in trouble (short or open). Retrofit use replaces XPC-8 and XP5-C (in NAC mode).
TROUBLE PEND†	N	Y	NAC	trouble	Single-address control module or XP6-C that will activate upon receipt of a trouble condition, and remain in the ON state until all troubles have been ACKNOWLEDGED. This device will not turn ON when it is in trouble (short or open). Retrofit use replaces XPC-8 and XP5-C (in NAC mode).
ALARMS PEND†	N	Y	NAC	fire	Control module or NAC for output that will activate upon receipt of an alarm condition, and remain in the alarm state until all alarms have been acknowledged.

INST RELEASE‡	N	Y	NAC (SLC only)	fire	Supervised for open circuits and ground faults. Short = normal
RELFORM . C‡	N	Y	Form-C relay (SLC only)	n/a	Directs relay outputs to perform a releasing function.
RELEASE CKT‡	N	Y	NAC (SLC only)	n/a	Directs outputs to perform a releasing function.Supervised for open circuits and ground faults. Short = normal
REL END BELL	N	Y	NAC	n/a	Activates NAC audio or visual device when releasing circuits shut off.
REL AUDIBLE	Y	Y	NAC	n/a	Activates audio or visual devices steady when releasing starts.
FORM C RESET†	N	Y	Form-C Relay (SLC only)	n/a	Relay module used to interrupt 24V power to four-wire conventional detectors for 30 seconds upon reset. Used in conjunction with a monitor module with a conventional detector Type ID.
ISOLATED NAC	Y	N	NAC	fire	Supervised NAC for notification appliance, used with audio isolators. Activates even if there is a short on its NAC circuit. *For Future Use.*
ISOLATED SPK	Y	N	NAC	fire	Supervised NAC for speaker circuits, used with audio isolators. Activated even if there is a short on its audio circuit. *For Future Use*

* Values represent program defaults.

† This Type Code has external power supervision (Velociti only). An external power-supervision relay is not required. These type codes will have the Short Circuit Protection feature enabled when using AOM-2SF modules. Note that Type Codes RELAY, REL FORM C, and FORM C RESET are for use only with AOM-2RF modules. Refer to the section on devices requiring external power supervision in this panel's installation manual.

‡ The TC810S1000 checks for shorts with all releasing type codes.

9.15 OUTPUT TYPE CODES FOR PMB DEVICES

Table 9.9 PMB Output Type Codes

Type Code			
NAC System Sensor	Inst Relay Door Hold	NAC System Sensor	UZC
Relay/ Power Const	Del 30 Door Hold	NAC Wheelock	NAC Sync Follower
Relay/ Power Reset	NAC Coded Alarm	NAC Gentex	

9.16 UZC PROGRAMMING REQUIREMENTS

When using the UZC function of the PMB, the following parameters must be followed, depending on the application:

• Alarm Coded Signal - A coded alarm signal shall consist of not less than three complete rounds of the number transmitted and each round shall consist of not less than three impulses.

• Coded Supervisory Signal - A coded supervisory signal shall consist of not less than 2 complete rounds of the number transmitted to indicate a supervisory off-normal condition and not less than one complete round of the number transmitted to indicate the restoration of the supervisory condition to normal.

9.17 SELF-TEST VELOCITI CODES

The following are Velociti Codes for Self-Test Devices.

Table 9.10 Self-Test Velociti Codes

Self Test Velocity Code	Device
Photo	ASD-PL3-SELFT
Photo/ Heat	ASD-PTL3-SELFT
Heat	ATD-L3-SELFT

9.18 GENERAL ZONE PROGRAMMING

The following zone programming options are available (Z0-Z1999):

Zone Label: Choose a 20-character maximum zone description that will appear in the zone's display messages.

Non-resettable Control: Select YES to designate the zone as non-resettable (not affected by System Reset), or NO to designate the zone as resettable (zone will turn off when System Reset occurs). Default: NO

Silenceable Zone: Designates the general zone as silenceable. When programmed as silenceable, a signal silence local to the panel will deactivate the zone and any devices mapped to it, unless those devices are programmed with another active zone that is not silenceable. Default: NO

Precedence Participation: Not used at this time. Default: NO

Resound By Zone Participation: Indicates the zones in which an activation will re-activate previously silenced outputs.

9.18.1 ZONES

The following is a list of available zone types for CBE (Control-By-Event) and Zone Map programming when programming devices.

Table 9.11 Zone Types

Zone Type	Description/ Function
General Zone	A general zone is used to link input and output devices. When an input device activates, any general zone in its zone map will be active, and any output device that has an active general zone in its map will be active. General zones can be used as arguments in logic equations. Zone Z000 is a general alarm zone: those points listing Z000 in their zone map participate in a general alarm. The panel will support up to 2000 general zones, designated as Z0 through Z1999. General zones can be used in CCBE applications when a node number is entered before the zone number.
Logic Zone	A logic zone consists of a logic equation. Whenever the logic equation becomes true, all output points mapped to the logic zone will activate. The panel will support up to 2000 logic zones, designated as ZL1 through ZL2000. Logic zones can be used in CCBE applications when a node number is entered before the zone number.
Releasing Zone	A releasing zone is used to control a releasing operation. The panel will support up to 50 agent releasing zones and up to 100 water releasing zones.

9.18.2 SPECIAL FUNCTION ZONES

Table 9.12 Special Function Zones

Special Function Zone	Description
ZF1	(Trouble less AC) An output programmed to turn on/ off if a System Trouble (other than an AC power loss) occurs
ZF2	(AC Trouble) An output programmed to turn on/ off if an AC power loss or a brownout condition occurs
ZF4	(Supervisory) An output programmed to turn on/ off if a Supervisory input activates

Special Function Zone	Description
ZF5	(Alternate Sensitivity Activation) An input programmed to switch from the active detector alarm sensitivities to the alternate alarm sensitivities when a non-fire point with ZF5 in its CBE activates
ZF9	(ALERT, ACTION) An output programmed to turn on/ off if a PreAlarm is active
ZF10	Any detector or module programmed for alarm verification will activate this zone
ZF11	When the Drill touchpoint is activated or Drill Signal is performed, ZF11 will become active. ZF11 will return to normal after a 5 second delay
ZF12	When the Acknowledge touchpoint is tapped, or a Block Acknowledge or Event Acknowledge is performed, ZF12 will become active. After a five-second delay, ZF12 will return to normal
ZF13	When a signal silence is performed, ZF13 will activate. After a five-second delay, ZF13 will return to normal.
ZF14	When the System Reset touchpoint is tapped or a System Reset is performed, ZF14 will become active. After a ten second delay, ZF14 will return to normal.
ZF15	When there are disabled events present in the system, ZF15 will be set to active. When all disabled events have cleared, the state of ZF15 will return to normal.
ZF18	(CO Alarm) When a CO Alarm is present, ZF18 will activate
ZF19	(CO Pre-Alarm) When a CO Pre-Alarm is present, ZF19 will activate
ZF40	(Auto Silence Activation) ZF40 will activate when the Auto Silence Timer has expired and silenceable outputs on the FACP have been silenced. ZF40 will remain active until a System Reset, Resound, or Drill is performed*
ZF43	Ground Fault ZF43 will activate when there is a ground fault present
ZF16 Drill Zone	When a Drill Signal is performed on the FACP, ZF16 will be set to active. ZF16 will return to normal following a system reset or system silence

* Auto Silence is only applicable for Fire Alarm activations

9.18.3 RELEASING ZONE PROGRAMMING

Releasing zones are available with a license for both agent and water (for agent: ZR00 through ZR49 and for water ZW00 through ZW99) refer to Table 1.2 Licensing Requirements and "Obtaining a License (Licensing)" on page 1 for more information on licensing related to releasing applications. Subaddressing is available to show states of the releasing zones (see below).

Programming options for releasing applications in CAMWorks+ Tools are as follows:

Delay Time: Enter a delay value from 0 to 60 (seconds). Default 00
Abort Switch: Select: ULA, ULI, IRI, NYC, or AHJ. Default: ULA
Cross Zone: Select: YES, NO, ZONE, HEAT. Default: NO
Soak Time: enter a value from 0 to 9999 (seconds). Default: 0000

NOTE: For agent releasing with non-zero delay time, the System has an inherent 1-3 second delay to incorporate an ARM operation prior to ACTIVATION depending on the address of the releasing module, which must be factored into the Delay time entry. Design Tip: This delay can be optimized to 1 sec by restricting the releasing modules to 50 sequential addresses per loop.
For releasing applications that do not incorporate a pre-discharge delay period (i.e.deluge applications) the System has an inherent 3-5 second delay to incorporate an ARM operation prior to ACTIVATION depending on the address of the releasing module. Design Tip: This delay can be reduced to 3 sec by restricting the releasing module to 50 sequential addresses per loop.

Releasing Subaddressing

Releasing zones have subaddresses that correspond to the various states of the zone. The subaddresses can be used to play appropriate patterns to NAC circuits and may also be used for annunciation by assigning them to the outputs of the various AIO devices.

There are a total of six subaddresses per agent releasing zone, and three per water releasing zone.

Syntax

When referencing the subaddresses in NAC and AIO programming, the syntax is:

• Agent releasing zone: ZRy.z where y=0-49, z=1–6

• Water releasing Zone is ZWy.z where y=0-99, z=1, 2 or 6

Description

Table 9.13 Releasing Subaddress Behavior

Subaddress (y)	Name	Used by	Description
1	Discharge	Agent and Water	• Activates when the solenoid is activated. • Deactivates when the soak time expires. • If there is no soak time programmed it will stay activated until the system is reset.
2	First Alarm	Agent and Water	• In a system where cross-zoning is used, the subaddress activates after the first alarm and remains active while the cross-zone conditions are not met. • Deactivtes when cross-zone conditions are met. • In IRI mode, it deactivates if the abort switch is held.
3	Pre-discharge	Agent only	• Activates when the delay timer starts and remains active if an abort switch is held. • In IRI mode, it activates when the cross-zone conditions are met while an abort switch is being held. • Deactivates when the delay timer ends, and the solenoid activates.
4	Abort	Agent only	• Activates when an abort switch is used during Pre-discharge, except in IRI mode. • In IRI mode, it activates when the cross-zone conditions are met while an abort switch is being held. • Deactivates when the abort switch is released.
5	Cross Abort (IRI only)	Agent only	• In IRI mode when cross-zoning is used, the subaddress activates when there is a single alarm and an abort switch is held. • Deactivates when the abort switch is released, or the cross-zone conditions are met.
6	Soak Expired	Agent and Water	• Activates when the soak timer expires.
NOTE: All subaddress deactivate upon system reset.			

9.18.4 ULA ABORT SWITCH

A ULA Abort Switch has a standard UL-type delay timer that complies with UL Standard 864.

When an alarm initiates in the programmed releasing zone, the abort switch can be pressed while the delay timer continues to count down, and held for as long as necessary. If the abort switch is pressed after the delay timer has expired, the abort switch has no effect. Releasing the abort switch starts a countdown by a 5 second ULA timer. When the 5 second ULA timer expires, the control panel activates the releasing zone outputs.

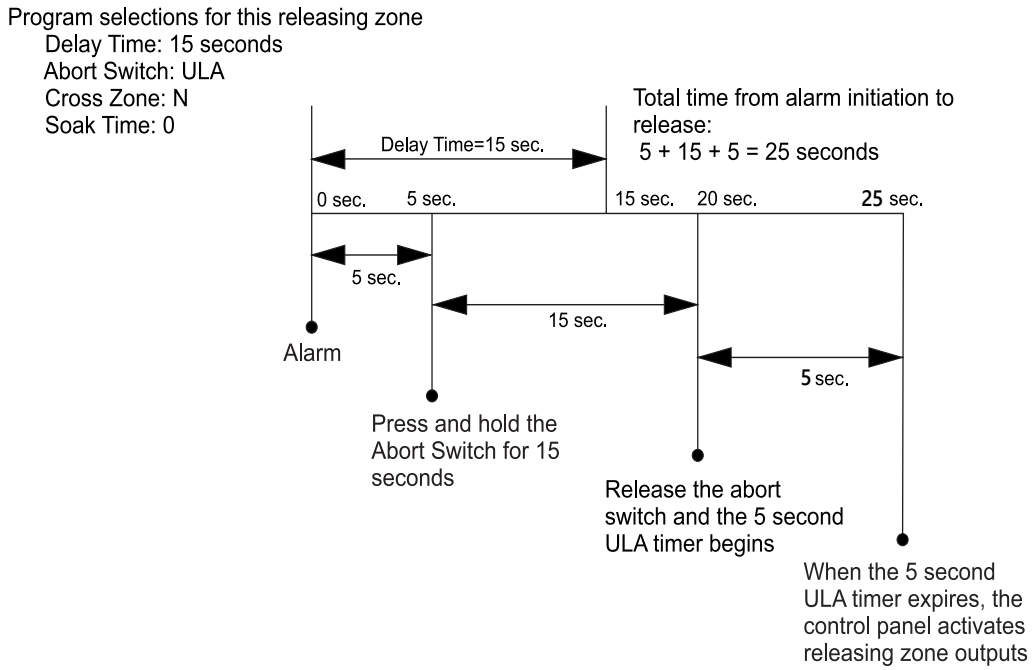


Figure 9-2: ULA Abort Switch

9.18.5 ULI ABORT SWITCH

A ULI Abort Switch operates like ULA, but has a 10 second timer after the abort switch is released.

When an alarm initiates in the programmed releasing zone, the abort switch can be pressed while the delay timer continues to count down, and held for as long as necessary. If the abort switch is pressed after the delay timer has expired, the abort switch has no effect. Releasing the abort switch starts a countdown by a 10-second ULI timer. When the 10-second ULI timer expires, the control panel activates the releasing zone outputs.

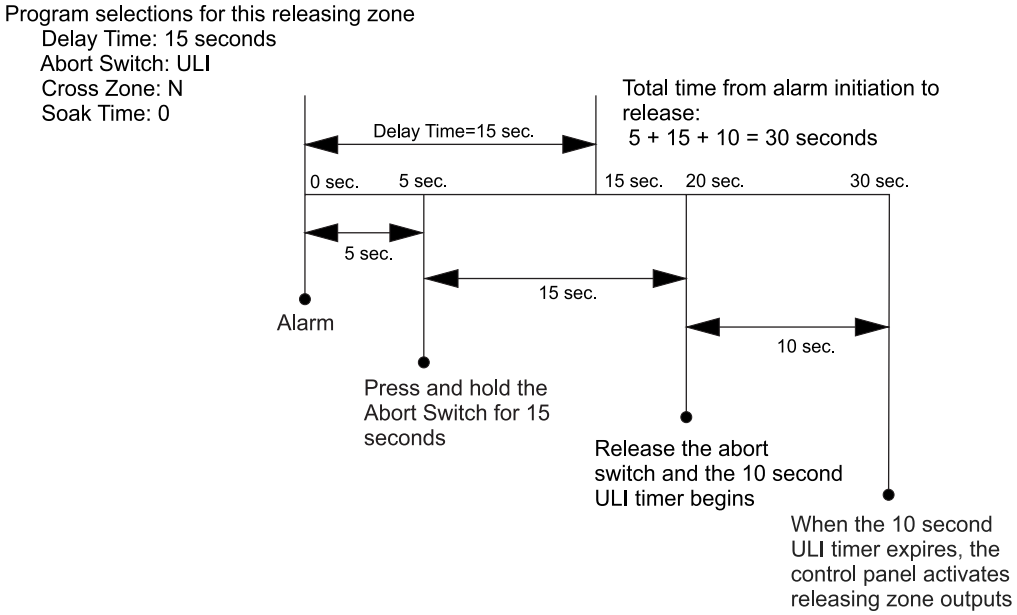


Figure 9-3: ULI Abort Switch

9.18.6 IRI ABORT SWITCH

An IRI Abort Switch operates like ULI but with additional functions for Cross Zones. When the first alarm occurs in a releasing zone programmed with a cross-zone code, pressing the abort switch will prevent activation of the releasing zone should a second alarm occur while the switch is held.

When the abort switch is released, if a second alarm has occurred while the switch was held, the ten-second IRI timer activates immediately, and the control panel activates the releasing zone outputs at the end of the IRI timer countdown.

When the abort switch is released and a second alarm has not occurred while the switch was held, the panel waits for the cross-zone conditions to be met before activating the releasing zone.

WARNING: THE IRI ABORT SWITCH WILL ONLY WORK IF IT IS PUSHED BEFORE THE SECOND ALARM OCCURS. IF IT IS PUSHED AFTER THE SECOND ALARM, THE RELEASING ZONE WILL ALREADY HAVE BEEN ACTIVATED, AND THE SWITCH WILL HAVE NO EFFECT.

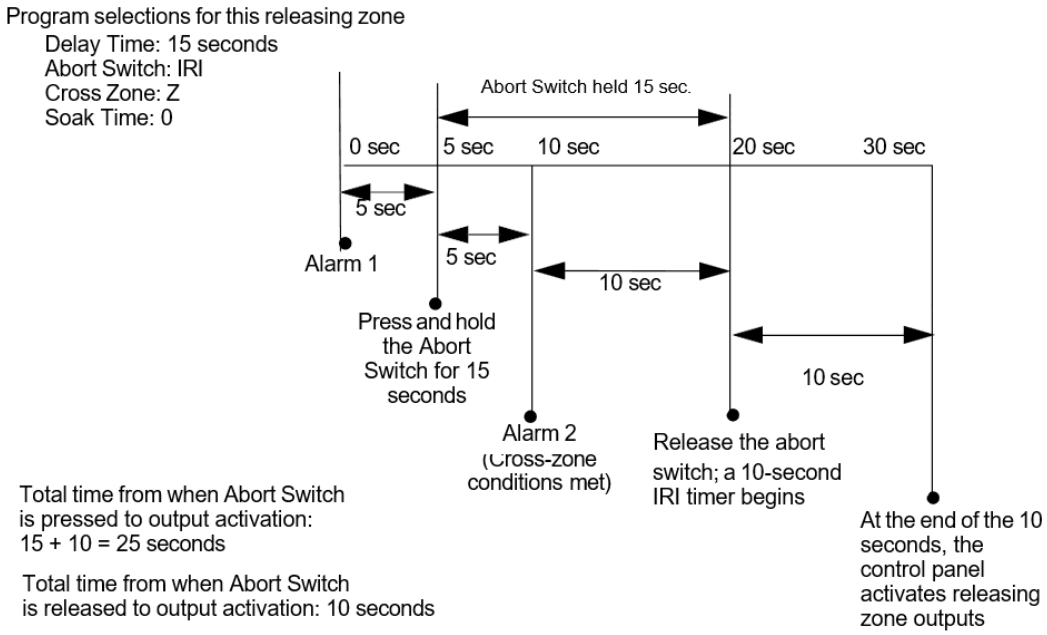


Figure 9-4: IRI Abort Switch

9.18.7 NYC ABORT SWITCH

An NYC Abort Switch has a standard NYC delay timer that adds 90 seconds to the programmed Delay Time.

NOTE: An NYC timer does not comply with UL Standard 864.

When an alarm initiates in the programmed releasing zone, pressing and holding the abort switch stops the delay timer countdown. The delay timer restarts at the beginning of its countdown when the abort switch is released. When the Delay Time expires, the 90-second NYC timer starts counting down. When both timers expire, the control panel activates releasing zone outputs.

NOTE: 120 seconds is the maximum delay after the abort switch is released. If the Delay Time plus the NYC delay time of 90 seconds exceeds 120 seconds, the releasing zone outputs will still be activated at 120 seconds after the abort switch is released.

Example 1 - Delay Time Does Not Exceed 120 Seconds

Program a Delay Time of 15 seconds and an Abort Switch type of NYC. The releasing zone activates and the 15-second delay timer starts. Ten seconds into the delay timer countdown, press and hold the abort switch for 30 seconds, then release the abort switch. The control panel restarts the delay timer at 15 seconds and adds the NYC delay of 90 seconds. The delay timers will both expire at 105 seconds, and releasing zone outputs will begin releasing at that time. Following is a graphic example of a NYC Abort Switch and a delay timer programmed to a releasing zone.

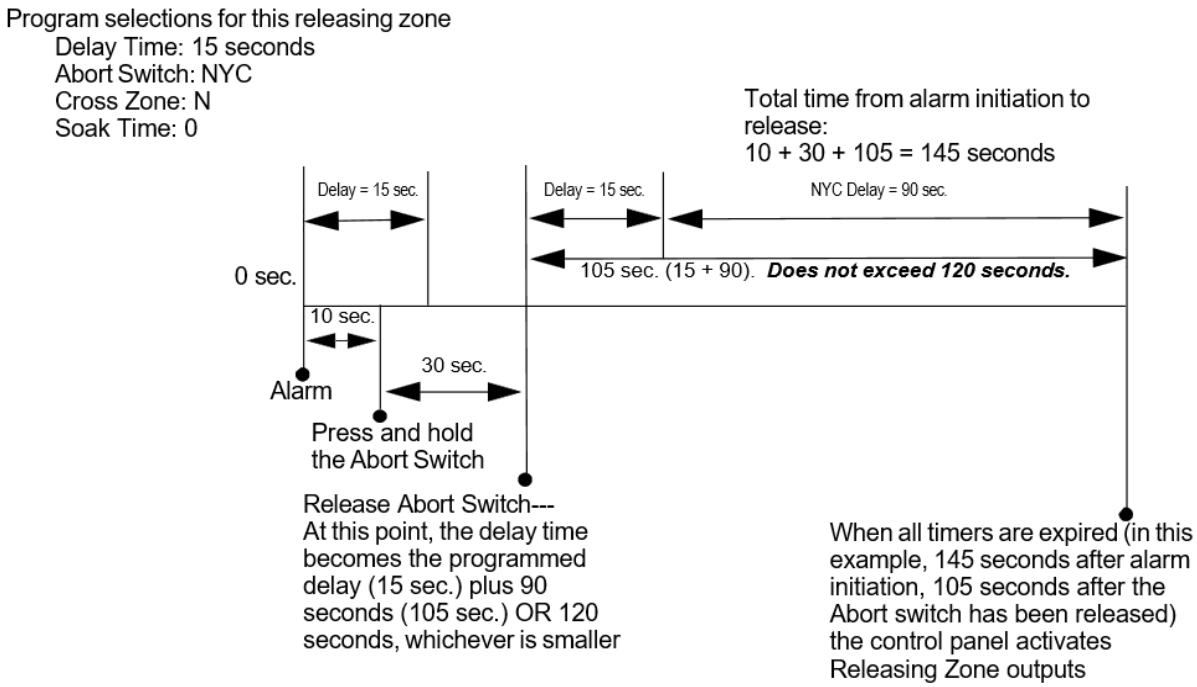


Figure 9-5: NYC Abort Switch - Example 1

Example 2 - Delay Time Exceeds 120 Seconds

Program a Delay Time value of 60 seconds and an Abort Switch type of NYC. The releasing zone activates and the 60-second delay timer starts. Ten seconds into the Delay Time countdown, press and hold the abort switch for 30 seconds, then release the abort switch. The control panel restarts the delay timer at 60 seconds and adds the NYC delay of 90 seconds. The delay timers will both expire at 150 seconds: however, this time exceeds the maximum of 120 seconds, so the releasing zone outputs will begin releasing at 120 seconds, not at 150. Following is a graphic example of an NYC Abort Switch and a delay timer programmed to a releasing zone.

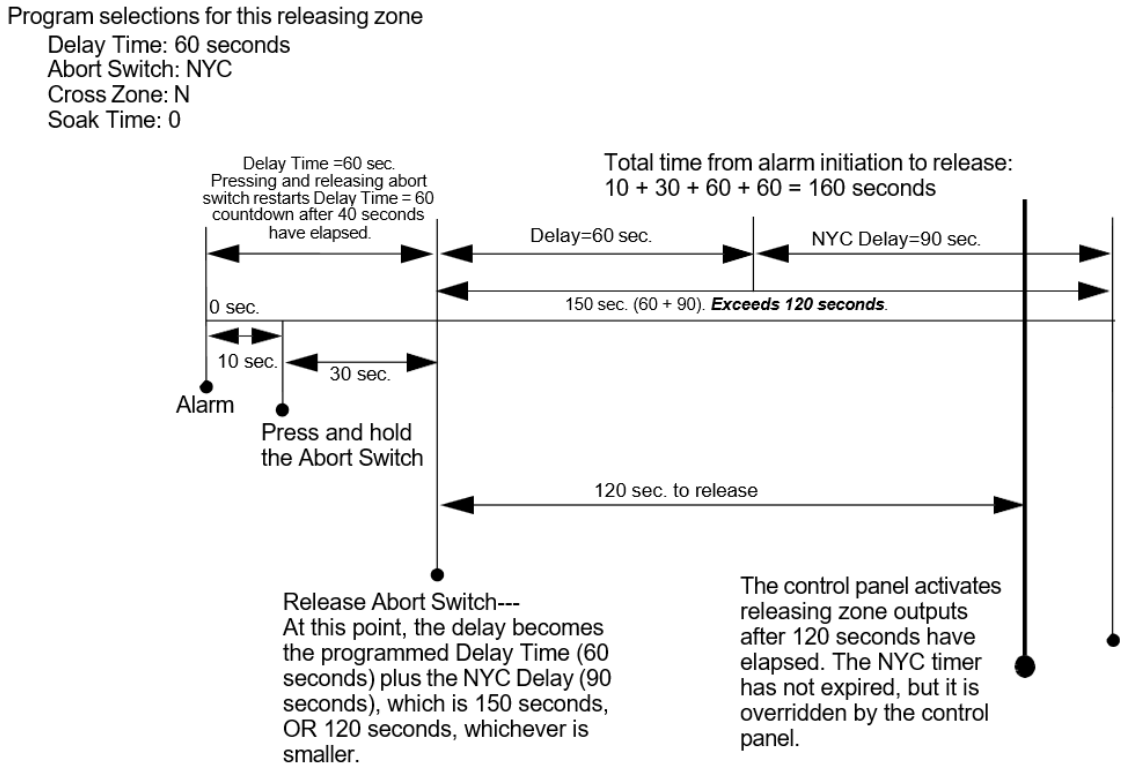


Figure 9-6: NYC Abort Switch - Example 2

9.18.8 AHJ ABORT SWITCH

An AHJ (Authority Having Jurisdiction) Abort Switch has a delay timer that restores the programmed Delay Time.

NOTE: An AHJ timer does not comply with UL Standard 864.

When an alarm initiates in the programmed releasing zone, the programmed Delay Time starts. Pressing and holding the abort switch suspends the delay timer. When the abort switch is released, the control panel restores the value of the programmed Delay Time and the delay timer counts down. When the Delay Time expires, the control panel activates releasing zone outputs.

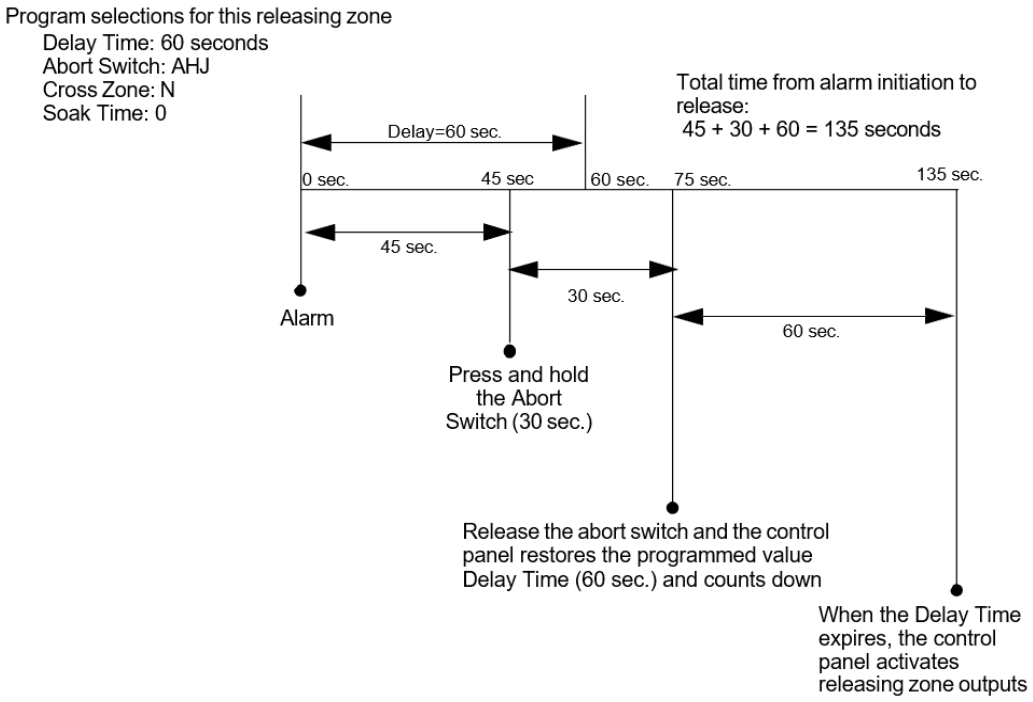


Figure 9-7: AHJ Abort Switch

9.18.9 TROUBLE FUNCTION PROGRAMMING (LOGIC ZONES)

On the GFP, Trouble Zones have been replaced with Logic Zones. A logic equation using the logic function **TBL** will monitor the arguments you place in that equation for trouble conditions. Place points of either a detector, module, or a trouble code into the equation. When a detector or module is in trouble or the system trouble is active the **TBL** operand will go into an active state, activating the logic equation. For system troubles you do not have to use the **TBL** operand you can use the System TBL point directly to activate the logic equation when the trouble is active.

Detector Example:

- OR(TBL(L1D1)) will activate when the local loop 1 detector 1 goes into trouble and not when it activates
- OR(TBL(N1L1D1)) will activate when node 1 loop 1 detector 1 goes into trouble and not when it activates

Module Example:

- OR(TBL(L1M1)) will activate when local loop 1 module 1 goes into trouble and not when it activates
- OR(TBL(N1L1M1)) will activate when node 1 loop 1 module 1 goes into trouble and not when it activates

System Trouble Example:

- OR(TBL(T1)) will activate when local system trouble 1 is active
- OR(TBL(N1T1)) will activate when node 1 system trouble 1 is active

• OR(T1) will activate when local system trouble 1 is active
• OR(N1T1) will activate when node 1 system trouble 1 is active

9.19 SYSTEM TROUBLE CODES

The following table lists possible System Trouble Codes that can be used in Logic Equation programming. The System Trouble index number can be used as an argument in equation building.

Table 9.14 System Trouble Names and Codes

System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name
0	GROUND FAULT	1	AC FAIL	2	BATTERY	3	CLASS A POS. LOOP 1
4	CLASS A POS. LOOP 2	5	CORRUPT LOGIC EQUAT	6	LCD80 SUPERVISORY	7	EPROM ERROR
8	INTERNAL RAM ERROR	9	EXTERNAL RAM ERROR	10	PROGRAM CORRUPTED	11	NO DEV. INST ON L1
12	PANEL DOOR OPEN	13	AUXILIARY TROUBLE	14	TERM. SUPERVISORY	15	ANNUN. 1 TROUBLE
16	ANNUN. 1 NO ANSWER	17	ANNUN. 2 TROUBLE	18	ANNUN. 2 NO ANSWER	19	ANNUN. 3 TROUBLE
20	ANNUN. 3 NO ANSWER	21	ANNUN. 4 TROUBLE	22	ANNUN. 4 NO ANSWER	23	ANNUN. 5 TROUBLE
24	ANNUN. 5 NO ANSWER	25	ANNUN. 6 TROUBLE	26	ANNUN. 6 NO ANSWER	27	ANNUN. 7 TROUBLE
28	ANNUN. 7 NO ANSWER	29	ANNUN. 8 TROUBLE	30	ANNUN. 8 NO ANSWER	31	ANNUN. 9 TROUBLE
32	ANNUN. 9 NO ANSWER	33	ANNUN.10 TROUBLE	34	ANNUN.10 NO ANSWER	35	ANNUN.11 TROUBLE
36	ANNUN.11 NO ANSWER	37	ANNUN.12 TROUBLE	38	ANNUN.12 NO ANSWER	39	ANNUN.13 TROUBLE
40	ANNUN.13 NO ANSWER	41	ANNUN.14 TROUBLE	42	ANNUN.14 NO ANSWER	43	ANNUN.15 TROUBLE
44	ANNUN.15 NO ANSWER	45	ANNUN.16 TROUBLE	46	ANNUN.16 NO ANSWER	47	ANNUN.17 TROUBLE
48	ANNUN.17 NO ANSWER	49	ANNUN.18 TROUBLE	50	ANNUN.18 NO ANSWER	51	ANNUN.19 TROUBLE
52	ANNUN.19 NO ANSWER	53	ANNUN.20 TROUBLE	54	ANNUN.20 NO ANSWER	55	ANNUN.21 TROUBLE
56	ANNUN.21 NO ANSWER	57	ANNUN.22 TROUBLE	58	ANNUN.22 NO ANSWER	59	ANNUN.23 TROUBLE
60	ANNUN.23 NO ANSWER	61	ANNUN.24 TROUBLE	62	ANNUN.24 NO ANSWER	63	ANNUN.25 TROUBLE
64	ANNUN.25 NO ANSWER	65	ANNUN.26 TROUBLE	66	ANNUN.26 NO ANSWER	67	ANNUN.27 TROUBLE
68	ANNUN.27 NO ANSWER	69	ANNUN.28 TROUBLE	70	ANNUN.28 NO ANSWER	71	ANNUN.29 TROUBLE
72	ANNUN.29 NO ANSWER	73	ANNUN.30 TROUBLE	74	ANNUN.30 NO ANSWER	75	ANNUN.31 TROUBLE

System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name
76	ANNUN.31 NO ANSWER	77	ANNUN.32 TROUBLE	78	ANNUN.32 NO ANSWER	79	NETWORK FAIL PORT A
80	NETWORK FAIL PORT B	81	NETWORK FAILURE	82	ADV WALK TEST	83	CHARGER FAIL
84	GROUND FAULT LOOP 2	85	CLASS A NEG. LOOP 1	86	CLASS A NEG. LOOP 2	87	GROUND FAULT LOOP 1
88	UDACT TROUBLE	89	UDACT NO ANSWER	90	PROG MODE ACTIVATED	91	LOADING..NO SERVICE
92	BASIC WALK TEST	93	NFPA 24HR REMINDER	94	NVRAM BATT TROUBLE	95-103	(reserved)
104	OPTION MODULE	105	CLASS A ON LOOP 3	106	AVPS. TROUBLE	107	NAM CCBE PROG. LOST
108	MAN. EVAC INITIATED	109	MAN. EVAC RECEIVED	110	(reserved)	111	(reserved)
112	ANNUN.33 TROUBLE	113	ANNUN.33 NO ANSWER	114	ANNUN.34 TROUBLE	115	ANNUN.34 NO ANSWER
116	ANNUN.35 TROUBLE	117	ANNUN.35 NO ANSWER	118	ANNUN.36 TROUBLE	119	ANNUN.36 NO ANSWER
120	ANNUN.37 TROUBLE	121	ANNUN.37 NO ANSWER	122	ANNUN.38 TROUBLE	123	ANNUN.38 NO ANSWER
124	ANNUN.39 TROUBLE	125	ANNUN.39 NO ANSWER	126	ANNUN.40 TROUBLE	127	ANNUN.40 NO ANSWER
128	ANNUN.41 TROUBLE	129	ANNUN.41 NO ANSWER	130	ANNUN.42 TROUBLE	131	ANNUN.42 NO ANSWER
132	ANNUN.43 TROUBLE	133	ANNUN.43 NO ANSWER	134	ANNUN.44 TROUBLE	135	ANNUN.44 NO ANSWER
136	ANNUN.45 TROUBLE	137	ANNUN.45 NO ANSWER	138	ANNUN.46 TROUBLE	139	ANNUN.46 NO ANSWER
140	ANNUN.47 TROUBLE	141	ANNUN.47 NO ANSWER	142	ANNUN.48 TROUBLE	143	ANNUN.48 NO ANSWER
144	ANNUN.49 TROUBLE	145	ANNUN.49 NO ANSWER	146	ANNUN.50 TROUBLE	147	ANNUN.50 NO ANSWER
148	ANNUN.51 TROUBLE	149	ANNUN.51 NO ANSWER	150	ANNUN.52 TROUBLE	151	ANNUN.52 NO ANSWER
152	ANNUN.53 TROUBLE	153	ANNUN.53 NO ANSWER	154	ANNUN.54 TROUBLE	155	ANNUN.54 NO ANSWER
156	ANNUN.55 TROUBLE	157	ANNUN.55 NO ANSWER	158	ANNUN.56 TROUBLE	159	ANNUN.56 NO ANSWER
160	ANNUN.57 TROUBLE	161	ANNUN.57 NO ANSWER	162	ANNUN.58 TROUBLE	163	ANNUN.58 NO ANSWER
164	ANNUN.59 TROUBLE	165	ANNUN.59 NO ANSWER	166	ANNUN.60 TROUBLE	167	ANNUN.60 NO ANSWER
168	ANNUN.61 TROUBLE	169	ANNUN.61 NO ANSWER	170	ANNUN.62 TROUBLE	171	ANNUN.62 NO ANSWER
172	ANNUN.63 TROUBLE	173	ANNUN.63 NO ANSWER	174	ANNUN.64 TROUBLE	175	ANNUN.64 NO ANSWER

System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name
176	GROUND FAULT LOOP 3	177	GROUND FAULT LOOP 4	178	GROUND FAULT LOOP 5	179	GROUND FAULT LOOP 6
180	GROUND FAULT LOOP 7	181	GROUND FAULT LOOP 8	182	GROUND FAULT LOOP 9	183	GROUND FAULT LOOP 10
184	CLASS A NEG. LOOP 3	185	CLASS A NEG. LOOP 4	186	CLASS A NEG. LOOP 5	187	CLASS A NEG. LOOP 6
188	CLASS A NEG. LOOP 7	189	CLASS A NEG. LOOP 8	190	CLASS A NEG. LOOP 9	191	CLASS A NEG. LOOP 10
192	CLASS A POS. LOOP 3	193	CLASS A POS. LOOP 4	194	CLASS A POS. LOOP 5	195	CLASS A POS. LOOP 6
196	CLASS A POS. LOOP 7	197	CLASS A POS. LOOP 8	198	CLASS A POS. LOOP 9	199	CLASS A POS. LOOP 10
200	PRINTER SUPERVISORY	201	BUZZER SUPERVISORY	202	CRT SUPERVISORY	203	PRINT QUEUE FULL
204	MEMORY LOSS	205	PRINTER COVER OPEN	206	PRINTER PAPER OUT	207	PRINTER OFF LINE
208	WORKSTATION FAN FAILURE	209	UPS FAILURE	210	MANUAL MODE ENTERED	211	NCM COMM LOSS
212	CLASS B SHORT A LOOP 1	213	CLASS B SHORT B LOOP 1	214	CLASS B SHORT A LOOP 2	215	CLASS B SHORT B LOOP 2
216	CLASS B SHORT A LOOP 3	217	CLASS B SHORT B LOOP 3	218	CLASS B SHORT A LOOP 4	219	CLASS B SHORT B LOOP 4
220	CLASS B SHORT A LOOP 5	221	CLASS B SHORT B LOOP 5	222	CLASS B SHORT A LOOP 6	223	CLASS B SHORT B LOOP 6
224	CLASS B SHORT A LOOP 7	225	CLASS B SHORT B LOOP 7	226	CLASS B SHORT A LOOP 8	227	CLASS B SHORT B LOOP 8
228	CLASS B SHORT A LOOP 9	229	CLASS B SHORT B LOOP 9	230	CLASS B SHORT A LOOP 10	231	CLASS B SHORT B LOOP 10
232	GENERAL PS FAULT	233	CLASS A SHORT LOOP 1	234	CLASS A SHORT LOOP 2	235	CLASS A SHORT LOOP 3
236	CLASS A SHORT LOOP 4	237	CLASS A SHORT LOOP 5	238	CLASS A SHORT LOOP 6	239	CLASS A SHORT LOOP 7
240	CLASS A SHORT LOOP 8	241	CLASS A SHORT LOOP 9	242	CLASS A SHORT LOOP 10	243	NODE xxx COMM FAILURE
244	NCM PIEZO BATTERY FAILURE	245	RESERVED	246	POWER SUPPLY CABLE NOT CONNECTED	247	TM4 TROUBLE
248	TM4 NO ANSWER	249	TM4 DISABLED	250	SELF TEST FAILED	251	NETWORK INCOMPATIBILITY
252	WORKSTATION FAILURE	253	NETWORK MAPPING LIMIT EXCEEDED	254	INVALID NODE TYPE	255	DISPLAY NODE LIMIT EXCEEDED
256	ANNUN. 65 TROUBLE	257	ANNUN. 65 NO ANSWER	258	ANNUN. 66 TROUBLE	259	ANNUN. 66 NO ANSWER
260	ANNUN. 67 TROUBLE	261	ANNUN. 67 NO ANSWER	262	ANNUN. 68 TROUBLE	263	ANNUN. 68 NO ANSWER

System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name
264	ANNUN. 69 TROUBLE	265	ANNUN. 69 NO ANSWER	266	ANNUN. 70 TROUBLE	267	ANNUN. 70 NO ANSWER
268	ANNUN. 71 TROUBLE	269	ANNUN. 71 NO ANSWER	270	ANNUN. 72 TROUBLE	271	ANNUN. 72 NO ANSWER
272	ANNUN. 73 TROUBLE	273	ANNUN. 73 NO ANSWER	274	ANNUN. 74 TROUBLE	275	ANNUN. 74 NO ANSWER
276	ANNUN. 75 TROUBLE	277	ANNUN. 75 NO ANSWER	278	ANNUN. 76 TROUBLE	279	ANNUN. 76 NO ANSWER
280	ANNUN. 77 TROUBLE	281	ANNUN. 77 NO ANSWER	282	ANNUN. 78 TROUBLE	283	ANNUN. 78 NO ANSWER
284	ANNUN. 79 TROUBLE	285	ANNUN. 79 NO ANSWER	286	ANNUN. 80 TROUBLE	287	ANNUN. 80 NO ANSWER
288	ANNUN. 81 TROUBLE	289	ANNUN. 81 NO ANSWER	290	ANNUN. 82 TROUBLE	291	ANNUN. 82 NO ANSWER
292	ANNUN. 83 TROUBLE	293	ANNUN. 83 NO ANSWER	294	ANNUN. 84 TROUBLE	295	ANNUN. 84 NO ANSWER
296	ANNUN. 85 TROUBLE	297	ANNUN. 85 NO ANSWER	298	ANNUN. 86 TROUBLE	299	ANNUN. 86 NO ANSWER
300	ANNUN. 87 TROUBLE	301	ANNUN. 87 NO ANSWER	302	ANNUN. 88 TROUBLE	303	ANNUN. 88 NO ANSWER
304	ANNUN. 89 TROUBLE	305	ANNUN. 89 NO ANSWER	306	ANNUN. 90 TROUBLE	307	ANNUN. 90 NO ANSWER
308	ANNUN. 91 TROUBLE	309	ANNUN. 91 NO ANSWER	310	ANNUN. 92 TROUBLE	311	ANNUN. 92 NO ANSWER
312	ANNUN. 93 TROUBLE	313	ANNUN. 93 NO ANSWER	314	ANNUN. 94 TROUBLE	315	ANNUN. 94 NO ANSWER
316	ANNUN. 95 TROUBLE	317	ANNUN. 95 NO ANSWER	318	ANNUN. 96 TROUBLE	319	ANNUN. 96 NO ANSWER
320	ANNUN. 97 TROUBLE	321	ANNUN. 97 NO ANSWER	322	ANNUN. 98 TROUBLE	323	ANNUN. 98 NO ANSWER
324	ANNUN. 99 TROUBLE	325	ANNUN. 99 NO ANSWER	326	ANNUN. 100 TROUBLE	327	ANNUN. 100 NO ANSWER
328	ANNUN. 101 TROUBLE	329	ANNUN. 101 NO ANSWER	330	ANNUN. 102 TROUBLE	331	ANNUN. 102 NO ANSWER
332	ANNUN. 103 TROUBLE	333	ANNUN. 103 NO ANSWER	334	ANNUN. 104 TROUBLE	335	ANNUN. 104 NO ANSWER
336	ANNUN. 105 TROUBLE	337	ANNUN. 105 NO ANSWER	338	ANNUN. 106 TROUBLE	339	ANNUN. 106 NO ANSWER
340	ANNUN. 107 TROUBLE	341	ANNUN. 107 NO ANSWER	342	ANNUN. 108 TROUBLE	343	ANNUN. 108 NO ANSWER
344	ANNUN. 109 TROUBLE	345	ANNUN. 109 NO ANSWER	346	ANNUN. 110 TROUBLE	347	ANNUN. 110 NO ANSWER
348	ANNUN. 111 TROUBLE	349	ANNUN. 111 NO ANSWER	350	ANNUN. 112 TROUBLE	351	ANNUN. 112 NO ANSWER
352	ANNUN. 113 TROUBLE	353	ANNUN. 113 NO ANSWER	354	ANNUN. 114 TROUBLE	355	ANNUN. 114 NO ANSWER

System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name
356	ANNUN. 115 TROUBLE	357	ANNUN. 115 NO ANSWER	358	ANNUN. 116 TROUBLE	359	ANNUN. 116 NO ANSWER
360	ANNUN. 117 TROUBLE	361	ANNUN. 117 NO ANSWER	362	ANNUN. 118 TROUBLE	363	ANNUN. 118 NO ANSWER
364	ANNUN. 119 TROUBLE	365	ANNUN. 119 NO ANSWER	366	ANNUN. 120 TROUBLE	367	ANNUN. 120 NO ANSWER
368	ANNUN. 121 TROUBLE	369	ANNUN. 121 NO ANSWER	370	ANNUN. 122 TROUBLE	371	ANNUN. 122 NO ANSWER
372	ANNUN. 123 TROUBLE	373	ANNUN. 123 NO ANSWER	374	ANNUN. 124 TROUBLE	375	ANNUN. 124 NO ANSWER
376	ANNUN. 125 TROUBLE	377	ANNUN. 125 NO ANSWER	378	ANNUN. 126 TROUBLE	379	ANNUN. 126 NO ANSWER
380	ANNUN. 127 TROUBLE	381	ANNUN. 127 NO ANSWER	382	ANNUN. 128 TROUBLE	383	ANNUN. 128 NO ANSWER
384	REMOTE DISPLAY 1 TROUBLE	385	REMOTE DISPLAY 1 NO ANSWER	386	REMOTE DISPLAY 2 TROUBLE	387	REMOTE DISPLAY 2 NO ANSWER
388	REMOTE DISPLAY 3 TROUBLE	389	REMOTE DISPLAY 3 NO ANSWER	390	REMOTE DISPLAY 4 TROUBLE	391	REMOTE DISPLAY 4 NO ANSWER
392	REMOTE DISPLAY 5 TROUBLE	393	REMOTE DISPLAY 5 NO ANSWER	394	REMOTE DISPLAY 6 TROUBLE	395	REMOTE DISPLAY 6 NO ANSWER
396	REMOTE DISPLAY 7 TROUBLE	397	REMOTE DISPLAY 7 NO ANSWER	398	REMOTE DISPLAY 8 TROUBLE	399	REMOTE DISPLAY 8 NO ANSWER
400	REMOTE DISPLAY 9 TROUBLE	401	REMOTE DISPLAY 9 NO ANSWER	402	REMOTE DISPLAY 10 TROUBLE	403	REMOTE DISPLAY 10 NO ANSWER
404	REMOTE DISPLAY 11 TROUBLE	405	REMOTE DISPLAY 11 NO ANSWER	406	REMOTE DISPLAY 12 TROUBLE	407	REMOTE DISPLAY 12 NO ANSWER
408	REMOTE DISPLAY 13 TROUBLE	409	REMOTE DISPLAY 13 NO ANSWER	410	REMOTE DISPLAY 14 TROUBLE	411	REMOTE DISPLAY 14 NO ANSWER
412	REMOTE DISPLAY 15 TROUBLE	413	REMOTE DISPLAY 15 NO ANSWER	414	REMOTE DISPLAY 16 TROUBLE	415	REMOTE DISPLAY 16 NO ANSWER
416	REMOTE DISPLAY 17 TROUBLE	417	REMOTE DISPLAY 17 NO ANSWER	418	REMOTE DISPLAY 18 TROUBLE	419	REMOTE DISPLAY 18 NO ANSWER
420	REMOTE DISPLAY 19 TROUBLE	421	REMOTE DISPLAY 19 NO ANSWER	422	REMOTE DISPLAY 20 TROUBLE	423	REMOTE DISPLAY 20 NO ANSWER
424	REMOTE DISPLAY 21 TROUBLE	425	REMOTE DISPLAY 21 NO ANSWER	426	REMOTE DISPLAY 22 TROUBLE	427	REMOTE DISPLAY 22 NO ANSWER
428	REMOTE DISPLAY 23 TROUBLE	429	REMOTE DISPLAY 23 NO ANSWER	430	REMOTE DISPLAY 24 TROUBLE	431	REMOTE DISPLAY 24 NO ANSWER
432	REMOTE DISPLAY 25 TROUBLE	433	REMOTE DISPLAY 25 NO ANSWER	434	REMOTE DISPLAY 26 TROUBLE	435	REMOTE DISPLAY 26 NO ANSWER
436	REMOTE DISPLAY 27 TROUBLE	437	REMOTE DISPLAY 27 NO ANSWER	438	REMOTE DISPLAY 28 TROUBLE	439	REMOTE DISPLAY 28 NO ANSWER
440	REMOTE DISPLAY 29 TROUBLE	441	REMOTE DISPLAY 29 NO ANSWER	442	REMOTE DISPLAY 30 TROUBLE	443	REMOTE DISPLAY 30 NO ANSWER
444	REMOTE DISPLAY 31 TROUBLE	445	REMOTE DISPLAY 31 NO ANSWER	446	REMOTE DISPLAY 32 TROUBLE	447	REMOTE DISPLAY 32 NO ANSWER

System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name
448	SYSTEM INITIALIZATION	449	POWER SUPPLY COMM FAILURE	450-495	Reserved	451	Reserved
496	Reserved	497	Reserved	498	LINK PROTECTOR PRIMARY STATUS	499	LINK PROTECTOR SECONDARY STATUS
500	LINK PROTECTOR NOT PRESENT	501	EVENT BUFFER 80% FULL	502	EBI STATUS	503	Software Mismatch
504	NO POWER SUPPLY INST	505	LOOP 1-2 COMM FAILURE	506	LOOP 3-4 COMM FAILURE	507	LOOP 5-6 COMM FAILURE
508	LOOP 7-8 COMM FAILURE	509	LOOP 9-10 COMM FAILURE	510	TEST PROGRAM UPDATE	511	HISTORY 80% FULL
512	LOOP CONTINUITY TEST FAIL LOOP 1	513	LOOP CONTINUITY TEST FAIL LOOP 2	514	LOOP CONTINUITY TEST FAIL LOOP 3	515	LOOP CONTINUITY TEST FAIL LOOP 4
516	LOOP CONTINUITY TEST FAIL LOOP 5	517	LOOP CONTINUITY TEST FAIL LOOP 6	518	LOOP CONTINUITY TEST FAIL LOOP 7	519	LOOP CONTINUITY TEST FAIL LOOP 8
520	LOOP CONTINUITY TEST FAIL LOOP 9	521	LOOP CONTINUITY TEST FAIL LOOP 10	522	UNPROGRAMMED DEVICE ON LOOP 1	523	UNPROGRAMMED DEVICE ON LOOP 2
524	UNPROGRAMMED DEVICE ON LOOP 3	525	UNPROGRAMMED DEVICE ON LOOP 4	526	UNPROGRAMMED DEVICE ON LOOP 5	527	UNPROGRAMMED DEVICE ON LOOP 6
528	UNPROGRAMMED DEVICE ON LOOP 7	529	UNPROGRAMMED DEVICE ON LOOP 8	530	UNPROGRAMMED DEVICE ON LOOP 9	531	UNPROGRAMMED DEVICE ON LOOP 10
532	IR ENABLED ON LOOP 1	533	IR ENABLED ON LOOP 2	534	IR ENABLED ON LOOP 3	535	IR ENABLED ON LOOP 4
536	IR ENABLED ON LOOP 5	537	IR ENABLED ON LOOP 6	538	IR ENABLED ON LOOP 7	539	IR ENABLED ON LOOP 8
540	IR ENABLED ON LOOP 9	541	IR ENABLED ON LOOP 10	542	TRANSMIT/ RECEIVE ERROR ABOVE LIMIT ON LOOP 1	543	TRANSMIT/ RECEIVE ERROR ABOVE LIMIT ON LOOP 2
544	TRANSMIT/ RECEIVE ERROR ABOVE LIMIT ON LOOP 3	545	TRANSMIT/ RECEIVE ERROR ABOVE LIMIT ON LOOP 4	546	TRANSMIT/ RECEIVE ERROR ABOVE LIMIT ON LOOP 5	547	TRANSMIT/ RECEIVE ERROR ABOVE LIMIT ON LOOP 6
548	TRANSMIT/ RECEIVE ERROR ABOVE LIMIT ON LOOP 7	549	TRANSMIT/ RECEIVE ERROR ABOVE LIMIT ON LOOP 8	550	TRANSMIT/ RECEIVE ERROR ABOVE LIMIT ON LOOP 9	551	TRANSMIT/ RECEIVE ERROR ABOVE LIMIT ON LOOP 10
552	TOO MANY DEVICES ON LOOP 1	553	TOO MANY DEVICES ON LOOP 2	554	TOO MANY DEVICES ON LOOP 3	555	TOO MANY DEVICES ON LOOP 4
556	TOO MANY DEVICES ON LOOP 5	557	TOO MANY DEVICES ON LOOP 6	558	TOO MANY DEVICES ON LOOP 7	559	TOO MANY DEVICES ON LOOP 8
560	TOO MANY DEVICES ON LOOP 9	561	TOO MANY DEVICES ON LOOP 10	562	MISMATCHED LOOP TYPE ON LOOP 1	563	MISMATCHED LOOP TYPE ON LOOP 2
564	MISMATCHED LOOP TYPE ON LOOP 3	565	MISMATCHED LOOP TYPE ON LOOP 4	566	MISMATCHED LOOP TYPE ON LOOP 5	567	MISMATCHED LOOP TYPE ON LOOP 6

System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name
568	MISMATCHED LOOP TYPE ON LOOP 7	569	MISMATCHED LOOP TYPE ON LOOP 8	570	MISMATCHED LOOP TYPE ON LOOP 9	571	MISMATCHED LOOP TYPE ON LOOP 10
572	GROUND FAULT PORT A	573	GROUND FAULT PORT B	574	AMPLIFIER TROUBLE	575	AUXIN TROUBLE
576	DIGIN TROUBLE	577	FFT TROUBLE	578	REMOTE MIC TROUBLE	579	DAP PORT A FAILURE
580	DAP PORT B FAILURE	581	DAL NO ANSWER	582	LOCAL MIC TROUBLE	583	LOCAL PHONE TROUBLE
584	ANALOG OUTPUT A TROUBLE	585	ANALOG OUTPUT B TROUBLE	586	ANALOG OUTPUT C TROUBLE	587	ANALOG OUTPUT D TROUBLE
588	FLASH IMAGE ERROR	589	POWER SUPPLY TROUBLE	590	AMPLIFIER LIMIT	591	AMPLIFIER SUPERVISION
592	DAL ADDRESS CONFLICT	593	DEVICE SERVICING REQUIRED	594	MAPPING IN PROGRESS LOOP 1	595	MAPPING IN PROGRESS LOOP 2
596	MAPPING IN PROGRESS LOOP 3	597	MAPPING IN PROGRESS LOOP 4	598	MAPPING IN PROGRESS LOOP 5	599	MAPPING IN PROGRESS LOOP 6
600	MAPPING IN PROGRESS LOOP 7	601	MAPPING IN PROGRESS LOOP 8	602	MAPPING IN PROGRESS LOOP 9	603	MAPPING IN PROGRESS LOOP 10
604	DATABASE CORRUPTED	605	AUDIO LIBRARY CORRUPTED	606	DATABASE INCOMPATIBLE	607	AUDIO LIBRARY INCOMPATIBLE
608	DAL DOWNLOAD IN PROGRESS	609	FIRE VOICE TROUBLE	610	FIRE VOICE NO ANSWER	611	PHONE CHANNEL LIMIT EXCEEDED
612	NCM SMIFFER MODE ACTIVE	613	LOCAL CONNECTION LIMIT EXCEEDED	614	HARDWARE MISMATCH	615	DAL DEVICE NO ANSWER
616	PRIMARY AMP 1 HARDWARE FAIL	617	PRIMARY AMP 2 HARDWARE FAIL	618	PRIMARY AMP 3 HARDWARE FAIL	619	PRIMARY AMP 4 HARDWARE FAIL
620	BACKUP AMP 1 HARDWARE FAIL	621	BACKUP AMP 2 HARDWARE FAIL	622	BACKUP AMP 3 HARDWARE FAIL	623	BACKUP AMP 4 HARDWARE FAIL
624	DSBUS 1 COMMFAIL	625	DSBUS 2 COMMFAIL	626	DSBUS 3 COMMFAIL	627	DSBUS 4 COMMFAIL
628	AA TROUBLE BUS FAIL	629	NFN PAGING CHANNEL LIMIT EXCEEDED	630	BACKUP AMP LIMIT	631	PRIMARY AMP 1 LIMIT
632	PRIMARY AMP 2 LIMIT	633	PRIMARY AMP 3 LIMIT	634	PRIMARY AMP 4 LIMIT	635	BACKUP AMP 1 LIMIT
636	BACKUP AMP 2 LIMIT	637	BACKUP AMP 3 LIMIT	638	BACKUP AMP 4 LIMIT	639	PRIMARY AMP 1 OVERCURRENT
640	PRIMARY AMP 2 OVERCURRENT	641	PRIMARY AMP 3 OVERCURRENT	642	PRIMARY AMP 4 OVERCURRENT	643	BACKUP AMP 1 OVERCURRENT
644	BACKUP AMP 2 OVERCURRENT	645	BACKUP AMP 3 OVERCURRENT	646	BACKUP AMP 4 OVERCURRENT	647	PRIMARY AMP 1 TRIP
648	PRIMARY AMP 2 TRIP	649	PRIMARY AMP 3 TRIP	650	PRIMARY AMP 4 TRIP	651	BACKUP AMP 1 TRIP

System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name
652	BACKUP AMP 2 TRIP	653	BACKUP AMP 3 TRIP	654	BACKUP AMP 4 TRIP	655	DSBUS 1 AC FAIL
656	DSBUS 2 AC FAIL	657	DSBUS 3 AC FAIL	658	DSBUS 4 AC FAIL	659	DSBUS 1 HIGH BATT
660	DSBUS 2 HIGH BATT	661	DSBUS 3 HIGH BATT	662	DSBUS 4 HIGH BATT	663	DSBUS 1 LOW BATT
664	DSBUS 2 LOW BATT	665	DSBUS 3 LOW BATT	666	DSBUS 4 LOW BATT	667	DSBUS 1 SELF TEST FAIL
668	DSBUS 2 SELF TEST FAIL	669	DSBUS 3 SELF TEST FAIL	670	DSBUS 4 SELF TEST FAIL	671	PRIMARY AMP 1 FAIL
672	PRIMARY AMP 2 FAIL	673	PRIMARY AMP 3 FAIL	674	PRIMARY AMP 4 FAIL	675	BACKUP AMP 1 FAIL
676	BACKUP AMP 2 FAIL	677	BACKUP AMP 3 FAIL	678	BACKUP AMP 4 FAIL	679	BACKUP AMP NOT INSTALLED
680	BACKUP AMP 1 NOT INSTALLED	681	BACKUP AMP 2 NOT INSTALLED	682	BACKUP AMP 3 NOT INSTALLED	683	BACKUP AMP 4 NOT INSTALLED
684	MODBUS COMMUNICATIONS FAULT	685	VESDANET TROUBLE	686	Reserved	687	DOOR INTERLOCK FAULT
688	ANNUN 01 TYPE MISMATCH	689	ANNUN 02 TYPE MISMATCH	690	ANNUN 03 TYPE MISMATCH	691	ANNUN 04 TYPE MISMATCH
692	ANNUN 05 TYPE MISMATCH	693	ANNUN 06 TYPE MISMATCH	694	ANNUN 07 TYPE MISMATCH	695	ANNUN 08 TYPE MISMATCH
696	ANNUN 09 TYPE MISMATCH	697	ANNUN 10 TYPE MISMATCH	698	ANNUN 11 TYPE MISMATCH	699	ANNUN 12 TYPE MISMATCH
700	ANNUN 13 TYPE MISMATCH	701	ANNUN 14 TYPE MISMATCH	702	ANNUN 15 TYPE MISMATCH	703	ANNUN 16 TYPE MISMATCH
704	ANNUN 17 TYPE MISMATCH	705	ANNUN 18 TYPE MISMATCH	706	ANNUN 19 TYPE MISMATCH	707	ANNUN 20 TYPE MISMATCH
708	ANNUN 21 TYPE MISMATCH	709	ANNUN 22 TYPE MISMATCH	710	ANNUN 23 TYPE MISMATCH	711	ANNUN 24 TYPE MISMATCH
712	ANNUN 25 TYPE MISMATCH	713	ANNUN 26 TYPE MISMATCH	714	ANNUN 27 TYPE MISMATCH	715	ANNUN 28 TYPE MISMATCH
716	ANNUN 29 TYPE MISMATCH	717	ANNUN 30 TYPE MISMATCH	718	ANNUN 31 TYPE MISMATCH	719	ANNUN 32 TYPE MISMATCH
720	DISPLAY COMM LOSS	721	ALARM DEVICES DISABLED	722	SMOKE CONTROL DISABLED	723	PANEL HAS REBOOTED
724	ZONES DISABLED BY BRIGADE	725	ALARM SIGNAL	726	KERNEL CORRUPTED	727	Please change service tool password
728	LOOP CARD 1 COMM LOSS	729	LOOP CARD 2 COMM LOSS	730	LOOP CARD 3 COMM LOSS	731	LOOP CARD 4 COMM LOSS
732	LOOP CARD 5 COMM LOSS	733	LOOP CARD 6 COMM LOSS	734	LOOP CARD 7 COMM LOSS	735	LOOP CARD 8 COMM LOSS
736	LOOP CARD 9 COMM LOSS	737	LOOP CARD 10 COMM LOSS	738	Please change password Master user password	739	PASSWORD DATABASE CORRUPTED

System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name
740	Default database. Please program.	741	POWER SUPPLY 1 COMM LOSS	742	POWER SUPPLY 2 COMM LOSS	743	POWER SUPPLY 3 COMM LOSS
744	POWER SUPPLY 4 COMM LOSS	745	POWER SUPPLY 5 COMM LOSS	746	Recovery Partition Application Active	747	AIO COMM CLASS A TROUBLE
748	AC Failure (LSB is PMB address 1-5)	749	Earth Fault (LSB is PMB address 1-5)	750	Earth Fault Switch Mismatch (LSB is PMB address 1-5)	751	Battery Low (LSB is PMB address 1-5)
752	Battery High (LSB is PMB address 1-5)	753	Battery Low or Missing (LSB is PMB address 1-5)	754	Charger Fail (LSB is PMB address 1-5)	755	Power Supply Failure (LSB is PMB address 1-5)
756	AIO Address 1 Comm Loss (LSB is 0 for router, 1-15 for peripheral)	757	AIO Address 2 Comm Loss (LSB is 0 for router, 1-15 for peripheral)	758	AIO Address 3 Comm Loss (LSB is 0 for router, 1-15 for peripheral)	759	AIO Address 4 Comm Loss (LSB is 0 for router, 1-15 for peripheral)
760	AIO Address 5 Comm Loss (LSB is 0 for router, 1-15 for peripheral)	761	AIO Address 6 Comm Loss (LSB is 0 for router, 1-15 for peripheral)	762	AIO Address 7 Comm Loss (LSB is 0 for router, 1-15 for peripheral)	763	AIO Address 8 Comm Loss (LSB is 0 for router, 1-15 for peripheral)
764	AIO Address 9 Comm Loss (LSB is 0 for router, 1-15 for peripheral)	765	AIO Address 10 Comm Loss (LSB is 0 for router, 1-15 for peripheral)	766	Reserved	767	Reserved
768	POTS Card No Answer / Missing	769	POTS Line 1 Failure	770	POTS Line 2 Failure	771	POTS Call (Alarm Routing) Failure
772	POTS Software Mismatch	773	Cellular Card No Answer / Missing	774	Cellular Card No Connectivity	775	WiFi No Connectivity
776	Ethernet 1 No Connectivity	777	Ethernet 2 No Connectivity	778	CLSS Cloud Communication Failure	779	Ethernet/ WiFi Alarm Routing Failure
780	Cellular Alarm Routing Failure	781	Releasing Zone License Exceeded	782	General Zone License Exceeded	783	Zone Coding License Not Present
784	Logic Zone License Exceeded	785	Network License Not Present	786	CLIP License Not Present	787	Custom Action License Exceeded
788	Advanced Logic License Not Present	789	Power Supply No Service (LSB is PMB address 1-5)	790	Power Supply Program Corrupt (LSB is PMB address 1-5)	791	Power Supply Database Corrupt (LSB is PMB address 1-5)
792	Power Supply Database Incompatible (LSB is PMB address 1-5)	793	(Reserved)	794	(Reserved)	795-799	(Reserved)
800	(Reserved)	801	Loop No Database (LSB is loop address 1-10)	802	Loop Database Incompatible (LSB is loop address 1-10)	803	Loop In Bootloader (LSB is loop address 1-10)
804-808	(Reserved)	809	(Reserved)	810	(Reserved)	811	(Reserved)

System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name
812	Service Mode Enabled	813	Trouble reporting	814	Health check over Ethernet	815	Health check over WiFi
816	Hardware Compromised	817	RLD Programming Mode Activated (LSB is AIO router address 1-10)	818	RLD Database Mismatch (LSB is AIO router address 1-10)	819	AIO Addr 1 Buzzer Supervisory (LSB is 0 for router, 1-15 for peripheral)
820	AIO Addr 2 Buzzer Supervisory (LSB is 0 for router, 1-15 for peripheral)	821	AIO Addr 3 Buzzer Supervisory (LSB is 0 for router, 1-15 for peripheral)	822	AIO Addr 4 Buzzer Supervisory (LSB is 0 for router, 1-15 for peripheral)	823	AIO Addr 5 Buzzer Supervisory (LSB is 0 for router, 1-15 for peripheral)
824	AIO Addr 6 Buzzer Supervisory (LSB is 0 for router, 1-15 for peripheral)	825	AIO Addr 7 Buzzer Supervisory (LSB is 0 for router, 1-15 for peripheral)	826	AIO Addr 8 Buzzer Supervisory (LSB is 0 for router, 1-15 for peripheral)	827	AIO Addr 9 Buzzer Supervisory (LSB is 0 for router, 1-15 for peripheral)
828	AIO Addr 10 Buzzer Supervisory (LSB is 0 for router, 1-15 for peripheral)	829	AIO Addr 1 Hardware Mismatch (LSB is 0 for router, 1-15 for peripheral)	830	AIO Addr 2 Hardware Mismatch (LSB is 0 for router, 1-15 for peripheral)	831	AIO Addr 3 Hardware Mismatch (LSB is 0 for router, 1-15 for peripheral)
832	AIO Addr 4 Hardware Mismatch (LSB is 0 for router, 1-15 for peripheral)	833	AIO Addr 5 Hardware Mismatch (LSB is 0 for router, 1-15 for peripheral)	834	AIO Addr 6 Hardware Mismatch (LSB is 0 for router, 1-15 for peripheral)	835	AIO Addr 7 Hardware Mismatch (LSB is 0 for router, 1-15 for peripheral)
836	AIO Addr 8 Hardware Mismatch (LSB is 0 for router, 1-15 for peripheral)	837	AIO Addr 9 Hardware Mismatch (LSB is 0 for router, 1-15 for peripheral)	838	AIO Addr 10 Hardware Mismatch (LSB is 0 for router, 1-15 for peripheral)	839	AIO Addr 1 Hardware Failure (LSB is 0 for router, 1-15 for peripheral)
840	AIO Addr 2 Hardware Failure (LSB is 0 for router, 1-15 for peripheral)	841	AIO Addr 3 Hardware Failure (LSB is 0 for router, 1-15 for peripheral)	842	AIO Addr 4 Hardware Failure (LSB is 0 for router, 1-15 for peripheral)	843	AIO Addr 5 Hardware Failure (LSB is 0 for router, 1-15 for peripheral)
844	AIO Addr 6 Hardware Failure (LSB is 0 for router, 1-15 for peripheral)	845	AIO Addr 7 Hardware Failure (LSB is 0 for router, 1-15 for peripheral)	846	AIO Addr 8 Hardware Failure (LSB is 0 for router, 1-15 for peripheral)	847	AIO Addr 9 Hardware Failure (LSB is 0 for router, 1-15 for peripheral)
848	AIO Addr 10 Hardware Failure (LSB is 0 for router, 1-15 for peripheral)	849	AIO Addr 1 Extra Device (LSB is 0 for router, 1-15 for peripheral)	850	AIO Addr 2 Extra Device (LSB is 0 for router, 1-15 for peripheral)	851	AIO Addr 3 Extra Device (LSB is 0 for router, 1-15 for peripheral)
852	AIO Addr 4 Extra Device (LSB is 0 for router, 1-15 for peripheral)	853	AIO Addr 5 Extra Device (LSB is 0 for router, 1-15 for peripheral)	854	AIO Addr 6 Extra Device (LSB is 0 for router, 1-15 for peripheral)	855	AIO Addr 7 Extra Device (LSB is 0 for router, 1-15 for peripheral)
856	AIO Addr 8 Extra Device (LSB is 0 for router, 1-15 for peripheral)	857	AIO Addr 9 Extra Device (LSB is 0 for router, 1-15 for peripheral)	858	AIO Addr 10 Extra Device (LSB is 0 for router, 1-15 for peripheral)	859	AIO Addr 1 Reserved (LSB is 0 for router, 1-15 for peripheral)

System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name
860	AIO Addr 2 Reserved (LSB is 0 for router, 1-15 for peripheral)	861	AIO Addr 3 Reserved (LSB is 0 for router, 1-15 for peripheral)	862	AIO Addr 4 Reserved (LSB is 0 for router, 1-15 for peripheral)	863	AIO Addr 5 Reserved (LSB is 0 for router, 1-15 for peripheral)
864	AIO Addr 6 Reserved (LSB is 0 for router, 1-15 for peripheral)	865	AIO Addr 7 Reserved (LSB is 0 for router, 1-15 for peripheral)	866	AIO Addr 8 Reserved (LSB is 0 for router, 1-15 for peripheral)	867	AIO Addr 9 Reserved (LSB is 0 for router, 1-15 for peripheral)
868	AIO Addr 10 Reserved(LSB is 0 for router, 1-15 for peripheral)	869	History Flash Error	870	Remote Autoprogram In Progress	871	Network Installation Mode
872	AIO Addr 1 Relay Voltage Fault (LSB Is 0 For Router, 1-15 For Peripheral)	873	AIO Addr 2 Relay Voltage Fault (LSB Is 0 For Router, 1-15 For Peripheral)	874	AIO Addr 3 Relay Voltage Fault (LSB Is 0 For Router, 1-15 For Peripheral)	875	AIO Addr 4 Relay Voltage Fault (LSB Is 0 For Router, 1-15 For Peripheral)
876	AIO Addr 5 Relay Voltage Fault (LSB Is 0 For Router, 1-15 For Peripheral)	877	AIO Addr 6 Relay Voltage Fault (LSB Is 0 For Router, 1-15 For Peripheral)	878	AIO Addr 7 Relay Voltage Fault (LSB Is 0 For Router, 1-15 For Peripheral)	879	AIO Addr 8 Relay Voltage Fault (LSB Is 0 For Router, 1-15 For Peripheral)
880	AIO Addr 9 Relay Voltage Fault (LSB Is 0 For Router, 1-15 For Peripheral)	881	AIO Addr 10 Relay Voltage Fault (LSB Is 0 For Router, 1-15 For Peripheral)	882	AIO Addr 1 Municipal Fault (LSB Is 0 For Router, 1-15 For Peripheral)	883	AIO Addr 2 Municipal Fault (LSB Is 0 For Router, 1-15 For Peripheral)
884	AIO Addr 3 Municipal Fault (LSB Is 0 For Router, 1-15 For Peripheral)	885	AIO Addr 4 Municipal Fault (LSB Is 0 For Router, 1-15 For Peripheral)	886	AIO Addr 5 Municipal Fault (LSB Is 0 For Router, 1-15 For Peripheral)	887	AIO Addr 6 Municipal Fault (LSB Is 0 For Router, 1-15 For Peripheral)
888	AIO Addr 7 Municipal Fault (LSB Is 0 For Router, 1-15 For Peripheral)	889	AIO Addr 8 Municipal Fault (LSB Is 0 For Router, 1-15 For Peripheral)	890	AIO Addr 9 Municipal Fault (LSB Is 0 For Router, 1-15 For Peripheral)	891	AIO Addr 10 Municipal Fault (LSB Is 0 For Router, 1-15 For Peripheral)
892	AIO Addr 1 Isolated Voltage Fault (LSB Is 0 For Router, 1-15 For Peripheral)	893	AIO Addr 2 Isolated Voltage Fault (LSB Is 0 For Router, 1-15 For Peripheral)	894	AIO Addr 3 Isolated Voltage Fault (LSB Is 0 For Router, 1-15 For Peripheral)	895	AIO Addr 4 Isolated Voltage Fault (LSB Is 0 For Router, 1-15 For Peripheral)
896	AIO Addr 5 Isolated Voltage Fault (LSB Is 0 For Router, 1-15 For Peripheral)	897	AIO Addr 6 Isolated Voltage Fault (LSB Is 0 For Router, 1-15 For Peripheral)	898	AIO Addr 7 Isolated Voltage Fault (LSB Is 0 For Router, 1-15 For Peripheral)	899	AIO Addr 8 Isolated Voltage Fault (LSB Is 0 For Router, 1-15 For Peripheral)

System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name	System Trouble Index	System Trouble Name
900	AIO Addr 9 Isolated Voltage Fault (LSB Is 0 For Router, 1-15 For Peripheral)	901	AIO Addr 10 Isolated Voltage Fault (LSB Is 0 For Router, 1-15 For Peripheral)	902	Water Releasing Zone License Exceeded	903	DCC License Not Present
904	Ground Fault Indication License Not Present	905	Loop License Exceeded	906	Power Supply License Exceeded	907	Panel Upgrade Not Present
908	Alarm Signal License Not Present	909	Zone View License Not Present	910	AIO Addr 1 Alarm Disconnect	911	AIO Addr 2 Alarm Disconnect
912	AIO Addr 3 Alarm Disconnect	913	AIO Addr 4 Alarm Disconnect	914	AIO Addr 5 Alarm Disconnect	915	AIO Addr 6 Alarm Disconnect
916	AIO Addr 7 Alarm Disconnect	917	AIO Addr 8 Alarm Disconnect	918	AIO Addr 9 Alarm Disconnect	919	AIO Addr 10 Alarm Disconnect
920	Missing Audio Daughter Board	921	AIO Addr 1 Incompatible (LSB Is 0 For Router, 1-15 For Peripheral)	922	AIO Addr 2 Incompatible (LSB Is 0 For Router, 1-15 For Peripheral)	923	AIO Addr 3 Incompatible (LSB Is 0 For Router, 1-15 For Peripheral)
924	AIO Addr 4 Incompatible (LSB Is 0 For Router, 1-15 For Peripheral)	925	AIO Addr 5 Incompatible (LSB Is 0 For Router, 1-15 For Peripheral)	926	AIO Addr 6 Incompatible (LSB Is 0 For Router, 1-15 For Peripheral)	927	AIO Addr 7 Incompatible (LSB Is 0 For Router, 1-15 For Peripheral)
928	AIO Addr 8 Incompatible (LSB Is 0 For Router, 1-15 For Peripheral)	929	AIO Addr 9 Incompatible (LSB Is 0 For Router, 1-15 For Peripheral)	930	AIO Addr 10 Incompatible (LSB Is 0 For Router, 1-15 For Peripheral)	931	Network Address Conflict
932	Loop Card Incompatible (LSB Indicates Loop Address)	933	Power Supply Incompatible (LSB Indicates Power Supply Address)	934	Virtual Point License Exceeded	935	Sub-addressing Point License Exceeded
936	FSAE Point License Exceeded	937	Smoke Control Appliance License Exceeded	938	SMOKE CONTROL ZONE LICENSE	939	HVAC License Missing
940	AIO ADDR 1 MODIFIED (LSB is 0 for router, 1-15 for peripheral)	941	AIO ADDR 2 MODIFIED (LSB is 0 for router, 1-15 for peripheral)	942	AIO ADDR 3 MODIFIED (LSB is 0 for router, 1-15 for peripheral)	943	AIO ADDR 4 MODIFIED (LSB is 0 for router, 1-15 for peripheral)
944	AIO ADDR 5 MODIFIED (LSB is 0 for router, 1-15 for peripheral)	945	AIO ADDR 6 MODIFIED (LSB is 0 for router, 1-15 for peripheral)	946	AIO ADDR 7 MODIFIED (LSB is 0 for router, 1-15 for peripheral)	947	AIO ADDR 8 MODIFIED (LSB is 0 for router, 1-15 for peripheral)
948	AIO ADDR 9 MODIFIED (LSB is 0 for router, 1-15 for peripheral)	949	AIO ADDR 10 MODIFIED (LSB is 0 for router, 1-15 for peripheral)	950	LOOP CARD MODIFIED (LSB indicates loop address)	951	POWER SUPPLY MODIFIED (LSB indicates power supply address)
952	SMOKE CONTROL TEST FAULT						

9.20 PSEUDO/VIRTUAL POINTS

Virtual points are used to create displayable, reportable events without required physical hardware. They are activated by a user (system operator), or by automatic means through a general zone or logic zone, and can be programmed to activate a general zone to trigger cause-by-effect (CBE).

Each panel supports 511 virtual points (0 to 510). The following describes the configurable elements of virtual points.

NOTE: Only Virtual Points 0 to 99 are reported to the central station. If a Virtual Point needs to be reported the Central Station, please use one of the first 100 points.

Custom Label - 40 character custom label displayed and recorded in history. Recommended usage: to provide a descriptive label specifying a particular point. i.e. the building location.	**Activation Event -** This setting configures the type of event that is displayed on screen when the Virtual Point is activated.Selection of Fire Alarm, Critical Process, Supervisory, Trouble, displayable non-fire, or background non-fire. Default is "none" to indicate the virtual point is not used/ installed.	**Silenceable -** Yes or No; default Yes. A virtual point configured for silence-able, will turn off when the system is signal silenced. The virtual point will reactivate/ resound by a subsequent manual activation, or the reverse zone turning off and re-activating.
Forward Zone - Optional. Map a general zone to follow the condition of the virtual point. The general zone is used to trigger addition control-by-event conditions required by the activation of the virtual point.	**Reverse Zone -** Optional. Map a general zone or logic zone to activate the virtual point by automation.	**Reportable -** Yes or No; default Yes. A virtual point configured for report-able will send the activation to a 3rd party monitoring solution (i.e. cent-ral station). Only available for the first 100 virtual point addresses when using a dialer solution with contact ID. All virtual point activ-ations are transmitted to CLSS.
Type Code Label - 40 character custom label is displayed and recorded in history. Recom-mended usage: to have a descriptive label specific to that function for grouping of vir-tual points that are associated with a com-mon function. i.e. Bypass Function, Smoke Control System or Alarm Signal Activation.	**History -** Yes or No; default Yes. Selection to record the activation and de-activation (clear) of this point to panel history.	**Virtual Point operational behavior -** Manual activation of the point (via annunicator points, alert bar map-ping, or custom actions) will be latching until manual restoral, reset, or signal silence (when configured as silenceable). Automated activ-ations of the point via reverse zone activation will track the condition of the assigned reverse zone. To make the virtual points latch on an auto-mated activation; a latching logic equation is used.
Smoke Control - Refer to the document LS10424-051GF-E for programming and operational instructions of this product sup-porting smoke control operations.		

SECTION 10: TESTING/MAINTENANCE

When installation and programming is finished, conduct a complete operational test on the entire installation to verify compliance with applicable NFPA standards. Testing should be conducted by a factory-trained fire alarm technician in the presence of a representative of the Authority Having Jurisdiction and the owner's representative. Follow procedures outlined in NFPA Standard 72's section on Inspection, Testing and Maintenance.

NOTE: Use 0 (zero) ohm impedance when testing wire-to-wire faults

WARNING: Physically disconnect releasing devices
Do not rely on disable/ enable software settings to lock out releasing devices.

CAUTION: ZONE DISABLE/ ENABLE
WHEN A ZONE IS DISABLED, ANY INPUT AND OUTPUT DEVICES MAPPED TO THE ZONE ARE DISABLED IF THE ZONE IS THE POINT'S PRIMARY ZONE. (THE PRIMARY ZONE IS THE ZONE IN THE FIRST POSITION OF THE ZONE MAP.)WHEN A DISABLED OUTPUT IS ENABLED, IT WILL BE AFFECTED BY CONDITIONS PRE-EXISTING IN THE SYSTEM. WHEN A CONDITION EXISTS IN THE SYSTEM THAT WOULD NORMALLY TURN THE OUTPUT ON, THE OUTPUT WILL TURN ON WHEN IT IS ENABLED.

Disable/ Enable Points or Zones: Points or zones can be disabled for testing or maintenance via the Point Information Menu in CAMWorks+ Tools. Refer to CAMWorks+ Tools for more information.

Disable/ Enable: Choose enable or disable to either enable or disable an installed, programmed point or enable a previously disabled point.

Group Zone Disable: Disabling a general zone will disable all devices with that zone programmed in the first zone map position.

When an input or output associated with releasing functions is disabled, a single supervisory trouble will be generated.

When a point associated with a FAAST device is disabled, all 5 detector addresses programmed for the device will be disabled.

10.1 PERIODIC TESTING AND SERVICE

Periodic testing and servicing of the control panel, all initiating and notification devices, and any other associated equipment is essential to ensure proper and reliable operation. Test and service the control panel according to the schedules and procedures outlined in the following documents:

• NFPA Standard 72's section on Inspection, Testing and Maintenance.
• Service manuals and instructions for the peripheral devices installed in the system. Correct any trouble condition or malfunction immediately.
• Drill: Use the Drill Participation Setting to activate all silenceable outputs and NACs. Press and hold the Drill key for 2 seconds. During a drill the panel will turn on all silenceable NACs and sends a Manual Evacuate message to the History Buffer and installed printers.
• Lamp Test: Use the Lamp Test function to test the control panel LEDs and panel sounder. Activated through the GUI. The panel will light all control panel LEDs, turn on the panel sounder, and light all segments of the Graphic Display.

10.2 OPERATIONAL CHECKS

Before proceeding: a) notify the fire department and the central alarm receiving station if transmitting alarm conditions; b) notify facility personnel of the test so that alarm sounding devices are disregarded during the test period; and c) when necessary, disable activation of alarm notification appliances and speakers to prevent their sounding.

• Check that the green POWER LED is illuminated.
• Check that the off normal LED is off, that there are no active events on the system, and that there are no active alert bar indicators.

• Tap the LAMP TEST touchpoint to turn on all pixels on the screen. This will illuminate the entire screen as well as the AC Power and Off Normal LED for approximately four seconds. During this time a tone will sound. A black spot on the screen will indicate that a pixel is out. Verify that all LEDs and all Graphic Display segments work.
• Activate an Initiating Device Circuit using an alarm initiating device or an addressable initiating device on the SLC and check that all programmed active notification appliances function. Reset the alarm initiating device, the control panel, and any other associated equipment. In voice alarm applications, confirm that the proper tone(s) and/ or messages sound during alarm conditions. Select the paging function and confirm that the message can be heard in the affected fire zones. Repeat the above step with each Initiating Device Circuit and each addressable device.
• On systems equipped with a fire fighter's telephone circuit, make a call from a telephone circuit and confirm a ring tone. Answer the call and confirm communication with the incoming caller. End the call and repeat for each telephone circuit in the system.
• Remove AC power, activate an Initiating Device Circuit through an alarm initiating device or an addressable initiating device on the SLC, and check that programmed active notification appliances sound, and alarm indicators illuminate. Measure the battery voltage with notification appliances active. Replace any battery with a terminal voltage less than 21.6 VDC and reapply AC Power.

NOTE: The battery test requires fully charged batteries. If batteries are new or discharged due to a recent power outage, allow the batteries to charge for 48 hours before testing.

• Return all circuits to their pretest condition.
• Check that the off normal LED is off and the green POWER LED is on.
• Notify fire, central station and/ or building personnel when you finish testing the system.

10.3 BATTERY CHECKS AND MAINTENANCE

Maintenance-free sealed lead-acid batteries used in the system do not require the addition of water or electrolyte. These batteries are charged and maintained in a fully charged state by the main power supply's charger during normal system operation. A discharged battery typically reaches the voltage of 27.6 VDC within 48 hours; the charge rate depends on the battery size (1 amp for 7-26 Ah, 2 Amps for 33-55 Ah, 4.25 Amps for 60-100 AH).

Sealed lead-acid batteries must be replaced within at most 5 years from their date of manufacture. Minimal replacement battery capacity appears on the control panel marking label. Immediately replace a leaking or damaged battery. Replacement batteries are available from the manufacturer.

WARNING: Sulfuric Acid
Batteries contain Sulfuric Acid which can cause severe burns to the skin and eyes and damage to fabrics.

If a battery leaks and contact is made with the Sulfuric Acid, immediately flush skin and/ or eyes with water for at least 15 minutes. Water and household baking soda provides a good neutralizing solution for Sulfuric Acid.

• If Sulfuric Acid gets into eyes, seek immediate medical attention.
• Ensure proper handling of the battery to prevent short circuits.
• Take care to avoid accidental shorting of the leads from uninsulated work benches, tools, bracelets, rings, and coins.

WARNING: Equipment Damage
Shorting the battery leads can damage the battery, equipment, and could cause injury to personnel.

SECTION 11: ADDITIONAL REFERENCES

The table below provides a list of documents referenced in this manual, as well as documents for selected other compatible devices.

Table 11.2 Related Documentation

Compatible Conventional Devices (Non) Addressable	**Document Number**
Device Compatibility Document	LS10428-000GF-E
Fire Alarm Control Panel (FACP) and Main Power Supply Installation	**Document Number**
PMB-AUX Installation Document	LS10242-000GE-E
GFP SLC Wiring Manual	LS10414-000GF-E
Note: For individual SLC Devices, refer to the *SLC Wiring Manual*	
Off-line Programming Utility	**Document Number**
CAMWorks+ Tools help file	*Available for download*
Cabinets & Chassis	**Document Number**
ABB Series Annunciator Backboxes	LS10249-000GE-E
Compatible Conventional Devices (Non-addressable)	**Document Number**
FCPS-24S6/ FCPS-24S8 Field Charger/ Power Supply	51977
HPF24S6/ S8 Field Charger/ Power Supply	52751
HPF-PS6/ 10 Series Power Supplies	LS10227-003HP-E
Accessories	**Document #**
ACM-30(W)	LS10238-000G-E
LDM2-32/ 60	LS10385-000GE-E
TM-8	LS10388-000GE-E

Frame and mount the GFP Operating Instructions, p/n LS10240-002GF-E, adjacent to the control panel.

APPENDIX A: FSAE INTRODUCTION

A.1 DESCRIPTION

The Fire Service Access Elevator (FSAE) monitoring application allows first responders to rapidly assess the temperature and smoke conditions of elevator lobbies adjoining specialized fire service elevators prior to deploying personnel in emergency situations. This application monitors one or more elevators identified and labeled as fire service access elevators, and evaluates the temperature and presence of smoke in elevator lobbies and utility rooms. It continuously monitors the temperature and smoke range and displays this information at the Fire Alarm System and annunciator(s).

The instructions in this document are intended to assist in setting up and configuring the FSAE application by means of the CAMWorks+ utility. For additional information on these tools, refer to the associated Help files.

A.2 AGENCY STANDARDS AND REQUIREMENTS

This product must be installed in compliance with the Local and Agency Standards.

A.2.1 COMPLIANCE

This product is intended to be installed in accordance with the following standards:

- NFPA 72 National Fire Alarm Code
- 21.5 Fire Service Access Elevator Requirements

A.2.2 ENVIRONMENTAL REQUIREMENTS

This product must be installed in the following environmental conditions:

- Backbox should be installed in a dry, indoor location.
- Recommended temperature for installation of fire panel hardware is between 15-27°C/ 60-80°F.
- System operation requirements are 15-27°C/ 60-80°F with a relative humidity of 93% ±2% RH (non-condensing) at 32°C±2°C (90°F ±3°F).
- Monitoring Temperature range 80° to 135°

A.2.3 LABELING REQUIREMENTS

A standardized symbol must be placed on each side of the hoistway doorframeat a right angle to the FSAE lobby on each floor. The symbol must be noticeable immediately upon entry to the FSAE lobby. The helmet shall contrastwith the background, with either a light helmet on a dark background or a dark helmet on a light background (Figure 1.1).

The vertical center line of this FSAE label shall be centered on the hoistway door frame. Each symbol shall be no less than 78 inches (1981 mm), and no more than 84 inches (2134 mm) above the finished floor at the threshold.

Figure 1.1 illustrates an example of a compliant symbol and the label dimensions for display in the FSAE lobby.

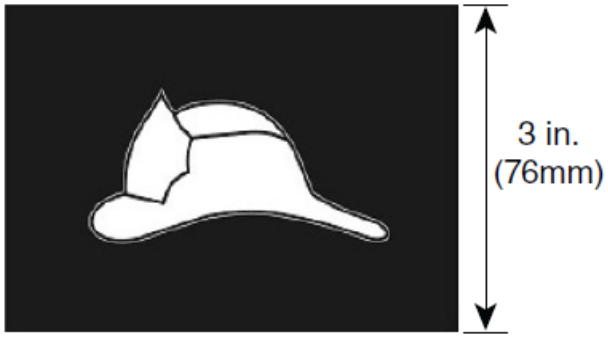


Figure A-1: Example FSAE Label

A.2.4 MOUNTING LOCATION REQUIREMENTS

The FSAE annunciator must be installed in the same room and within 20 feet of the Fire Alarm Control Panel (FACP). It canbe mounted in the cabinet with the FACP or installed in a separate enclosure. If it is installed in a separate enclosure, wiringmust be in a conduit. All wiring connections are supervised and power-limited.

A.3 RELATED DOCUMEMTS

Table 1.1 lists the related Gamewell-FCI products that can be used with the FSAE System and the related documentation. To access the referenced documentation, refer to www.honeywell.com.

Table A.1 Reference Documents

Product Type	Description	Document Part No.
Fire Alarm Control Panel	GFP Fire Alarm Control Panel ULLD	LS10239-053GF-E
Annunciators	ACM-30(W) Annunciator Control Module Instruction Manual	LS10238-000GE-E
	LDM2-32/60 Lamp Driver Module Instruction Manual	LS10385-000GE-E

A.4 HARDWARE REQUIREMENTS

The following hardware is required:

- Fire Panel: GFP-A/AR
- Annunciators: ACM-30(W) or LDM2-32/60
- Devices: ASD-PTL3, ASD-PTL3-SELFT, MCS-PTIR, MCS-COF3

A.5 SOFTWARE REQUIREMENTS

Minimum software requirements for this application are as follows:

- CAMWorks+ Tools Version 7.20 or higher
- FACP Software Version 11.0 or higher
- Detectors must have, "CERTIFIED FOR TEMPERATURE MONITORING" displayed on nameplate

A.6 INSTALLATION REQUIREMENTS

To install the FSAE application, the following are required.

- One detector from Table 3.1 is required in each elevator lobby.
- The FACP must be programmed in compliance with AHJ specified implementation.
- An LDM2-32/60 or ACM-30(W) is required for visual annunciation.

APPENDIX B: FSAE INSTALLATION

For Fire Service Access Elevator applications, the LDM2-32/60 Lamp Driver Module or the ACM-30(W) LED annunciator is used in conjunction with the Fire Alarm Control Panel to monitor smoke and heat temperatures. This hardware and software solution allows first responders to rapidly identify conditions in elevator lobbies on each floor in the building.

B.1 INSTALLATION

The following components must be installed in accordance with NFPA 72 and local electrical codes:

1. From the FACP, connect the annunciator (AIO) to the LDM2-32/60 Lamp Driver Module.
2. From the LDM2-32/60, connect the FSAE remote annunciator. (Refer to the Lamp Driver Module Manual #LS10385-00GE-E for more information.)
3. Affix the Fire Service Access Elevator (FSAE) label onto the FSAE annunciator (Figure 2.1). Be sure the FSAE label is clearly displayed.
4. In the Verifier Tools Programming Utility, configure the FSAE settings. (Refer to Section 3, “Setup and Configuration”).

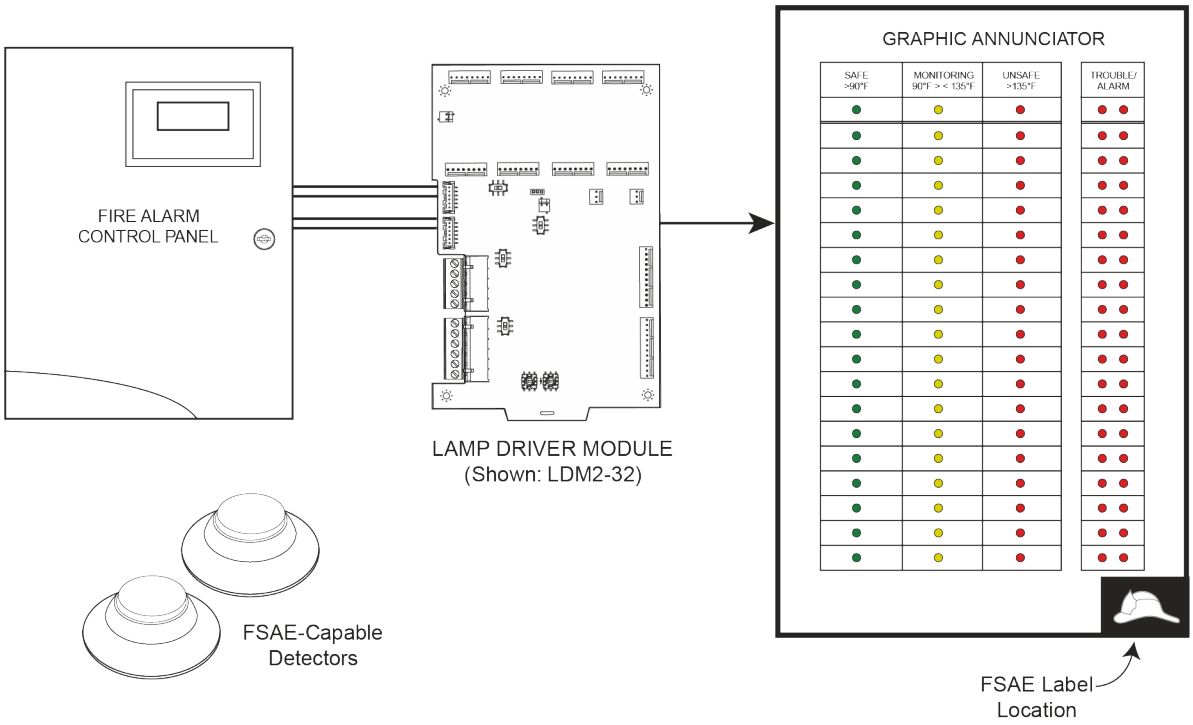


Figure B-1: FSAE Implementation with the GFP FACP

B.2 LED INDICATORS

Figure B-1: FSAE Implementation with the GFP FACP shows typical LED indications set up on the FSAE custom annunciator.

B.3 FSAE OPERATION

The table below lists the heat and smoke conditions that activate a heat or smoke FSAE status indication on the annunciator, or an event on the fire alarm control panel.

Condition	Detector Behavior	HEat FSAE Status Indication
Heat Temperature Condition	Temperature in lobby is below (or returns) the Monitor temperature setting.	Green LED illuminates to the annunciator.
	Temperature exceeds Monitor temperature setting, but the temperature is still below the Unsafe temperature setting.	Triggers a supervisory event and the Yellow LED illuminates on the annunciator.
	Unsafe temperature threshold set to 135°F and that temperature is exceeded.	Triggers a Fire Alarm event and the Red LED illuminates on the annunciator.
	Unsafe threshold set less than 135°F and temperature is above Unsafe threshold, but below 135°F.	Red LED illuminates on annunciator.
	Note: Latching setting requires a System Reset (Refer to Section 3.2.3, “Latching Thresholds” for details.)	
Smoke Condition	Detector detects the presence of smoke.	Triggers a fire alarm event and the Red LED illuminates on the annunciator.
	annunciator. Note: Troubles will report as either device trouble/ disable.	

APPENDIX C: FSAE SETUP AND CONFIGURATION

Notice to Users, Installers, Authorities Having Jurisdiction and Other Involved Parties

The FSAE application is set up and configured using CAMWorks+ Tools at a system workstation. You will not be able to program the FSAE application from the Display Panel. For general information on using the programming utility, refer to the CAMWorks+ Tools Help Files. Be aware that only a factory trained and certified technician is authorized to program the GFP A/R FACP software.

• Consult relevant codes and standards to ensure that all aspects of the FSAE monitoring system comply with applicable building codes and fire safety standards.

• Consult the CAMWorks+ Tools Help Files for detailed instructions on programming each function.

• Consult with a factory trained and certified technician as needed for assistance with fire alarm system programming, or about the requirements for an FSAE system.

NOTE: ESD Website, https://buildings.honeywell.com/us/en/brands/our-brands/gamewell-fci

C.1 FSAE GUIDELINES

The following sequence provides general guidelines in setting up and operating an FSAE system:

1. Connect to the Fire Alarm System

• Connect a laptop (with CAMWorks+ Tools installed) to the fire alarm control panel.
This is typically done via a USB.
• Open CAMWorks+ and establish a connection to the panel.

2. Access the Panel Configuration

• Once connected, log in to the fire alarm panel. The fire alarm system, organized into nodes and loops, will usually be displayed.

3. Identify and Label FSAE Components

• Within the panel configuration, locate the supported detectors (Table 3.1) that shall monitor the FSAE lobbies and utility rooms. These devices should already be installed according to relevant codes and standards.
• Use CAMWorks+ Tools to clearly label these devices, for example, "FSAE Lobby Smoke Detector - Floor 10", or "Utility Room Heat Sensor - FSAE".

4. Configure the Monitoring Parameters (Refer to "FSAE Configuration" on the next page for details.)

• Define the temperature and smoke density thresholds that will trigger different monitoring states, such as Safe, Monitoring, Unsafe. These thresholds should comply with applicable codes and standards.
• Configure the actions to be taken when these thresholds are reached. Such actions can be to display information on the annunciator, trigger specific outputs, etc.

5. Configure the FSAE Annunciator Panel (Refer to "FSAE Configuration" on the next page for details.)

• Set up the FSAE annunciator panel to display the monitoring information (temperature, smoke conditions) for each FSAE lobby and relevant utility room.
• Ensure the annunciator panel is located at the Fire Command Center (FCC) and meets all regulatory requirements.
• Configure the annunciator to visually indicate the different monitoring states using distinct LEDs, such as green for Safe, yellow for Monitoring, red for Unsafe.

6. Testing and Validation:

• After configuration, thoroughly test the FSAE application to ensure it functions as intended.
• Verify that the detectors are accurately reporting conditions and the annunciator is displaying the status as intended.

C.2 FSAE CONFIGURATION

C.2.1 THERMAL THRESHOLDS

The thermal thresholds are set loop-wide, that is, they are implemented across all FSAE elements. The monitor threshold is a temperature range used to define the Safe state, Monitoring (supervisory) state, and the Unsafe state of conditions in elevator lobbies. This thermal range and thresholds are also user configurable as shown in Figure 3.1 and described in the paragraphs that follow.

- FSAE Limit 1 (Safe/ Monitor threshold default is 90°F)
- FSAE Limit 2 (Monitor/ Unsafe threshold default is 135°F)

C.3 DEFAULT AND CUSTOMIZED THRESHOLDS

The FSAE application will operate based on the default or customized thermal thresholds, as described below:

With Default Range:

FSAE Limit 1 (Safe/ Monitor Threshold) = 90°F

FSAE Limit 2 (Monitor/ Not-Safe Threshold) = 135°F

- <90°F = Temperature is in Safe Range and Safe LED will be lit
- >90°F to <135°F = Temperature is in Monitor range and Monitor LED will be lit.
- >135°F = Temperature is in Unsafe Range and Unsafe LED will be lit and Fire Alarm on Panel

NOTE: The subaddress for "unsafe" is not used when Limit 2 matches the alarm threshold for heat (135°F).

With Customized Range:

FSAE Limit 1 (Safe/ Monitor Threshold) = 80°F FSAE

Limit 2 (Monitor/ Not-Safe Threshold) = 125°F

- Below 80°F = Temperature is in Safe Range and Safe LED will be lit
- >80°F to <125°F = Temperature is in Monitor range and Monitor LED will be lit.
- >125°F = Temperature is in Unsafe Range and Unsafe LED will be lit.
- >135°F = Fire Alarm on Panel

NOTE: The unsafe threshold can be configured as Latching Event, which will keep the unsafe subaddress active when the device reaches the Fire Alarm threshold.

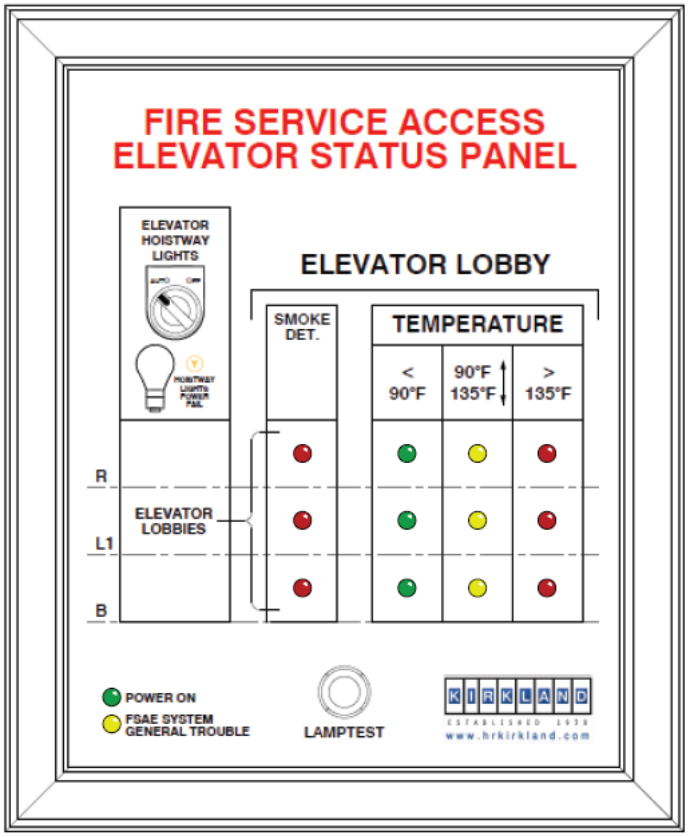


Figure C-1: Default or Configured Thresholds

C.3.1 LATCHING THRESHOLDS

Threshold configuration allows the user to set whether the application should track (default) or latch threshold limit 1 and limit 2 when conditions exceed Safe and Monitor states. When configured for latching, an Unsafe state will cause LED indicator(s) to stay red; a system reset will be required to clear the indication when temperatures return to safe levels.

NOTE: If user selects latching with threshold limit 2 at a value less than 135°F, there will be two events latched for the same point when that detector returns to the alarm threshold after being in the unsafe range. This two-event condition can be avoided by setting the limit 2 threshold to 135°F.

C.3.2 CONFIGURE DETECTORS

Refer to the table below to configure FSAE-capable detectors with the proper Velociti Type and Type Code Label. Once a supported detector has been configured with the proper FSAE Velociti Type, the fire panel will send a command to the device, put it into FSAE operation mode. Only specific detectors manufactured after the FSAE release date can support FSAE operation. Detectors that support FSAE operation will have the text "Certified for Temperature Monitoring" on their labels.

Table C.2 Detector Velociti Type and Type Code Label

Detector	Type Code Level	Velociti Type
ASD-PTL3-SELFT	Smoke (Photo)	FSAE PHOTO/ HEAT WITH SELF TEST
MCS-COF3	Fire/ CO	FSAE FIRE/ CO
ASD-PTL3	Smoke (Photo)	FSAE PHOTO/ HEAT

Detector	Type Code Level	Velociti Type
MCS-PTIR	Smoke Acclim	FSAE ACCLIMATE

NOTE: Detectors manufactured prior to release of the FSAE feature will be unable to operate in FSAE mode. In this situation, the FACP will display a "Mismatch Hardware Type". Similarly, a FSAE-capable detector that has been put in FSAE mode will not function if moved to an older system that does not support FSAE functionality.

C.3.3 CONFIGURE DETECTOR SUBADDRESSES

Detectors configured with an FSAE Velociti Type will have up to six (6) sub-addresses available to program, as listed in the table below. Note that there will be a new Pre-Alarm CBE, which only applies to the Photo and CO subaddresses.

Table C.3 Detector Subaddressing

Subaddress Syntax	Element	Default Type Code Label	Optional Type Code Labels
.CO	CO (Fire/ CO device only)	CO Alarm	CO Supervisory Non-Fire (N/ A for Photo?heat and PTIR)
.HEAT	THERMAL	Heat	Non-Fire
.PHOTO	PHOTO	Smoke (Photo)	Sup L (Photo) Sup T (Photo) Non-Fire
.UNSAFE	Unsafe (thermal)	Non-Fire	Heat (Sup L) Heat (Sup T)
.MON	Monitor (thermal)	Heat (Sup)	Heat (Sup T) Non-Fire
.SAFE	SAFE	Non-Fire	

C.3.4 MAP ANNUNCIATOR POINTS

For the required FSAE visual indication, the subaddresses described in Table 3.2 shall be mapped to the ACM-30 (with top and bottom LEDs mapped to different subaddresses) or to the LDM2-32/ 60 points as appropriate. Subaddresses are mapped to annunciator points using the following syntax:

LxDy.z

Lx= Loop number
Dy= Device Address
.z= Subaddress element of device (refer to "Detector Subaddressing" above)

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GFP Operating Instructions

Section 1 Operating Information

Normal Standby Operation.

1. System Normal indicated on the Header Bar
2. Green POWER LED lit steadily.
3. No Red FIRE ALARM indication.
4. No Blue CO ALARM indication.
5. No Yellow SUPERVISORY, TROUBLE, DISABLE, OTHER or Signals SILENCED indications.
6. Off Normal LED off

Alarm Condition.

1. Red FIRE ALARM, Blue CO ALARM, and/ or Yellow OTHER indication(s) on the touch screen display.
2. Alarm signaling devices activated.
3. Alarm information is visible on the touch screen display.
4. Off Normal LED illuminated.

Pre-Alarm Condition.

1. Red PreAlarm, and/ or Blue CO PreAlarm indication(s) on the touch screen display.

2. PreAlarm information is visible on the touch screen display.

3. Off Normal LED illuminated.

Alarm Reset. After locating and correcting the alarm condition, reset the control panel by tapping the RESET touch point.

Trouble Condition. Activation of trouble signal under normal operation indicates a condition that requires immediate attention. Contact your local service representative. Silence the audible signal by tapping the ACK touch point. The trouble indication will remain on the GFP till the trouble is cleared.

Manual Release/ Abort Switch. Activation of a Manual Release Switch will override Pre-Discharge Delay and override an active Abort Switch, resulting in an immediate agent release.

Section 2 GFP Touch Point Functions

ACK (ACKNOWLEDGE). This silences the piezo sounder, steadies the flashing event on the header bars, and changes each condition to Acknowledged. If more than one event exists, it advances the display to the next item and displays it until ACKNOWLEDGE is tapped again. Only one tap is necessary for non-fire, trouble, or supervisory signals. Fire alarms require one tap for each activation.

SILENCE. The SILENCE touch point turns off all silenceable circuits and illuminates the SIGNALS SILENCED indicator on the Alert Bar. A subsequent alarm will then resound the system.

Notes:

1. This system is programmed to inhibit signal silence for ____ seconds.
2. This system is programmed to automatically silence alarm signal after _____ minutes.

DRILL. The GFP waits for the DRILL switch to be pressed for 2 seconds (to prevent accidental activations), then turns on all silenceable circuits (all control modules/ panel circuits that are programmed silenceable), and turns off the SIGNAL SILENCED LED. This event shows on the LCD, printer, and History file.

RESET. Resets the GFP in standalone applications.

LAMP TEST. A Lamp Test can be performed via the Test/ Diagnostics option on the GFP. Press the Menu option and select Test/ Diagnostics. Tap the LAMP

TEST touch point to turn on all pixels on the screen, sound the piezo, and illuminate the Power and Off Normal Event LEDs for four (4) seconds.

Section 3 Event Indicators

Fire Alarm. Red indication on the Alert Bar and flashes on the Header Bar when one or more alarms occur. Illuminates steadily after alarms are acknowledged, and turns off after pressing RESET and the alarm(s) clear.

CO Alarm. Blue indication on the Alert Bar and flashes on the Header Bar for a CO alarm. Illuminates steadily after alarms are acknowledged, and turns off after pressing RESET and the alarm(s) clear.

Supervisory. Yellow indication on the Alert Bar and flashes on the Header Bar when a Supervisory or Tamper condition occurs, such as a sprinkler valve tamper condition. The indication illuminates steady after conditions are acknowledged, and turns off when the conditions are cleared. A Tamper indication will latch until RESET is pushed. RESET is required for any latched event.

Trouble. Yellow indication on the Alert Bar and flashes on the Header Bar when one or more troubles occur. Illuminates steadily when ACKNOWLEDGE is pressed, and turns off when all trouble conditions are cleared.

Disable. Yellow indication on the Alert Bar and flashes on the Header Bar when one or more points are disabled. The display will indicate which points have been disabled. Turns off when points are re-enabled.

Other Event. Yellow indication on the Alert Bar and flashes on the Header Bar when a Critical Process or Hazard / Weather Alert occurs. When a CO Prealarm occurs, indication flashes blue, and a Pre-alarm indication will flash red. Illuminates steady when Acknowledge is pressed, and turns off when the condition is cleared.

Signals Silenced. Yellow indication that illuminates after SIGNALS SILENCED has been pressed. Turns off when DRILL or RESET is pressed.

Section 4 LED Indicators

Power. Green LED which illuminates when primary power is applied to the GFP.

Off Normal. Yellow LED which illuminates when any off normal event is present on the GFP.

Section 5 GFP Audible Sounder

Alarm. A continuous sounding tone.

Trouble, Disable, Pre-alarm. One beep per second.

CO-Alarm. Four beeps per second.

Supervisory. One beep per second.

Other Event. Four beeps per second.

Section 6 Periodic Testing and Maintenance

To ensure proper and reliable operation, system inspection and testing should be scheduled monthly, or as required by NFPA 72 or local fire codes. A qualified Service Representative should perform testing. Test batteries semi-annually, replace with LED acid free according to the manufacture.

Before Testing. Notify fire department if alarm condition is transmitted. Notify facility personnel of the test so alarm sounding devices are ignored during the test periods. Physically disconnect all releasingdevices.

After Testing. Notify all fire, and/ or building personnel when testing is complete. Re-connect releasing devices.

Section 7 Local Service Representative

NAME: _____

ADDRESS: _____

TELEPHONE NUMBER: _____

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This sheet must be framed and mounted adjacent to the control panel.

Cut along dotted line.