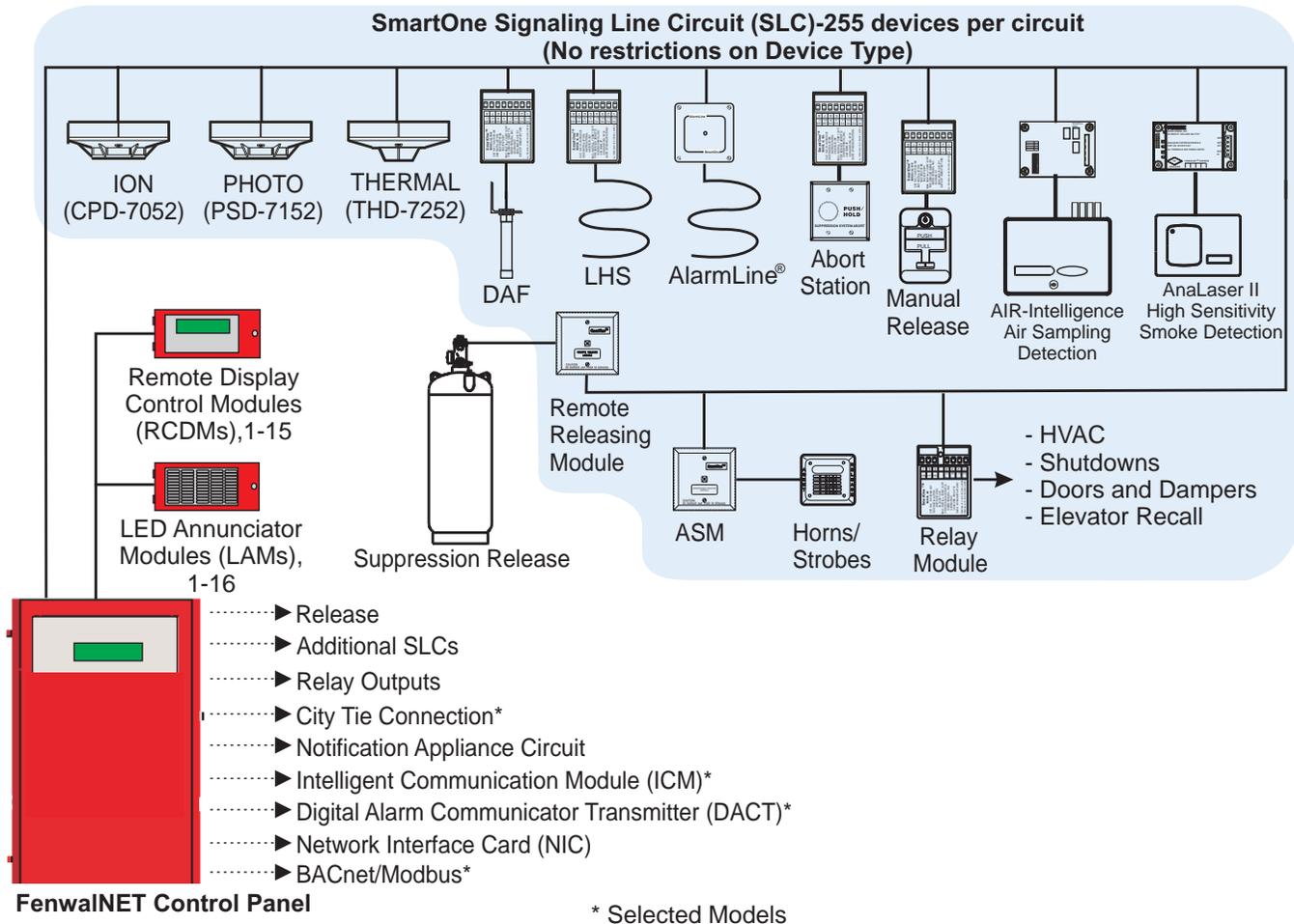


F-74-801

This document describes all SLC devices used on the Fenwal Intelligent Control Panels. 



SmartOne® Intelligent devices and modules provide initiating and control inputs and outputs from a single pair of wires on a Signaling Line Circuit (SLC). All SmartOne devices and modules are designed to provide world-class space/hazard detection and suppression outputs when needed. They offer greater capacity, flexibility, and reliability than conventional and analog detectors because of a built-in microprocessor that gives them on-board intelligence.

In a SmartOne SLC, intelligence is distributed across the loop, not confined to the control unit. Each SmartOne detector has the ability to analyze data and make decisions based on its programmed need.

FenwalNET control units are backward-compatible with the installed base of SmartOne initiating and control devices, preserving your investment in Fenwal fire suppression system products.

To access the [Device Index](#), click here:

To access [Ordering Information](#), click here:



A UTC Fire & Security Company

DEVICE INDEX

SMARTONE® INTELLIGENT DETECTORS

The unique SmartOne® Detectors provide true distributed intelligence by storing and analyzing calibration data and pre-alarm and alarm values. Each detector head continuously makes on-location decisions and reports status to the Control Unit as required. Select the device below to obtain additional product information.

Device	Description	Illustration
SmartOne Ionization Smoke Detector, Model CPD-7052	A low-profile, intelligent smoke detector that uses an ionization sensing chamber. This detector can be utilized for open-area coverage or can be mounted in a duct with air velocities up to 2,000 feet per minute.	
SmartOne Photoelectric Smoke Detector, Model PSD-7152	A low-profile, intelligent smoke detector that uses a light-scattering sensing chamber. This detector can be utilized for open-area coverage or can be mounted in a duct with air velocities up to 4,000 feet per minute.	
SmartOne Thermal Detector, Model THD-7252	The Model THD-7252 Thermal Detector is a low-profile, intelligent heat detector that uses a thermistor sensing chamber for fast response. This detector can be used for open-area coverage on low (< 10 ft.), flat ceilings with a spacing up to 70 ft.	
Flanged Detector Base, Model 6SB	The Model 6SB Detector Base is used in applications where the detector's installed appearance is a primary consideration. This base mounts to standard 3-, 3½-, and 4-inch electrical boxes.	
Flangeless Detector Base, Model 4SB	The Model 4SB Detector Base is used in underfloor applications, or in applications where the detector's installed appearance is not a primary consideration. This base mounts to standard 3- or 3½-inch electrical boxes.	
Detector Base Adapter, Model MA-002	The Model MA-002 Detector Base Adapter allows the low-profile SmartOne detectors to be retrofitted into the older-style SmartOne detector base, P/N 70-400000-001.	
Duct Housing, Model DH-2000	The Model DH-2000 Duct Housing is used to enclose an intelligent smoke detector that is monitoring for smoke in an air duct but located outside of the duct. The duct housing is used with inlet and outlet tubes that allow the air in the duct to be sampled uniformly and transported to the enclosed smoke detector for obscuration-level measurement.	

SMARTONE® INTELLIGENT MODULES

The SmartOne® Addressable Modules are intelligent field devices with their own microprocessor, memory and electronics necessary to interface input and output devices to the intelligent control unit. Select the SmartOne module on the next page to obtain additional product information.

Device	Description	Illustration
SmartOne Addressable Input Module, Model AI	The Model AI Addressable Monitor Module is used to monitor conventional, unpowered, contact-type initiating devices through a Class-B, Style-B initiating device circuit. The AI Modules are designed to be mounted in the electrical box of the device being monitored.	
SmartOne Addressable AlarmLine Module, Model AAM	The Model AAM Addressable AlarmLine Module is a monitor module that enables an AlarmLine sensor cable to report pre-alarm and alarm or overheat events, and trouble signals to the control panel through the signaling line circuit. The AAM, P/N 73-100001-003, is equipped with a metal cover plate for mounting to a 4" square electrical box. P/N 73-100003-001, is a surface-mount, NEMA-4 enclosure for the AAM.	
SmartOne Addressable Relay Module, Model AO	The Model AO Addressable Relay Module provides an unpowered, Form-C contact for remote control applications. The AO Module is designed to be mounted in the electrical box of the device being controlled.	
SmartOne Addressable Signal Module, Model ASM	The Addressable Signal Module permits notification appliances to be controlled by commands issued via the FenwalNET panels. The ASM is supplied with a thermoplastic mounting cover and is designed to mount in a standard 4-11/16" electrical box or a 4" square, extra-deep electrical box.	
AnaLASER II Interface Module, Model AIM	The Model AIM AnaLASER II Interface Module is a monitor module that enables the AnaLASER II High Sensitivity Smoke Detector (HSSD) to report Pre-alarm, Alarm, and Trouble signals to the control unit via its signaling line circuit (SLC). The AIM mounts inside the AnaLASER II detector housing.	
AIR-Intelligence SmartOne Addressable Programmable Interface Card (APIC)	The AIR-Intelligence SmartOne APIC is an interface module which integrates AIR-Intelligence High Sensitivity Smoke Detectors with the control unit via its signaling line circuit (SLC). The APIC mounts inside the AIR-Intelligence detector housing.	
Isolator Modules	Isolator modules are automatic switches that open a segment of the signaling line circuit when a short-circuit fault is detected in that segment. The remainder of the signaling line circuit continues to function normally and is unaffected by the short-circuit fault. The isolator modules will close and resume normal operation when the short-circuit fault is removed.	
SmartOne Remote Releasing Module	The Remote Releasing Module (RRM) provides the ability to remotely activate extinguishing-system control devices (for example, electro-explosive initiators and solenoid valves). Connection is via the control unit's signaling line circuit (SLC).	
Addressable Manual Pull Station Series 3300	The Addressable Manual Pull Station contains its own SmartOne Addressable Input (AI) module and interfaces directly to the FenwalNET control panels.	

Distributed Intelligence Photoelectric & Ionization Smoke and Thermal Detectors

The Intelligent Smoke Detectors



FEATURES

- True Distributed Intelligence
- Field Programmable Alarm and Pre-Alarm Set Points
- Internal Supervision
- Calibrated Alarm Test by Command to Sensor Level
- Drift Compensation
- Non-Polarized
- Full Analog Display of Detector Values
- Electronic Addressing
- UL Listed #S1064
- FM Approved
- CSFM Approved: 7272-1076:142

DESCRIPTION

These unique SmartOne® Detectors provide true distributed intelligence by storing and analyzing calibration data and pre-alarm and alarm values. Each detector head continuously makes on-location decisions and reports status to the Central Control Panel as required.

This distributed intelligence architecture, featuring an intrinsic microprocessor in each individual detector, analyzes data and makes decisions within the monitored area.

SMARTONE IONIZATION SMOKE DETECTOR

CPD-7052 models are dual chamber ionization type detectors which sense both visible and invisible smoke. A unique sensing chamber design permits full 360 degree smoke entry and response.

SMARTONE PHOTOELECTRIC SMOKE DETECTOR

PSD-7152 models are smart photoelectric smoke detectors. These detectors will respond to a broad range of flaming and smoldering fire conditions.

The photoelectric smoke detector can be used for open-area application as well as duct mounting applications with air velocity of 2000ft/min up to 4000ft/min..

SMARTONE THERMAL HEAT DETECTOR

Model THD-7252 are thermistor based analog devices that can be programmed to respond to fixed temperature without problems associated with thermal lag.

The SmartOne thermal detector can be used for open area applications applications as well as in-cabinet applications.

TWO PROGRAMMABLE ALARM SET POINTS

The detector alarm and pre-alarm set point levels are factory-set in units of percent obscuration/foot or degrees Fahrenheit and may be changed by the operator. Both set points, however, can be set within the UL allowable



limits which are stored in the nonvolatile memory of the control panel. The pre-alarm set point typically is used as an early warning signal. On receipt of a pre-alarm signal, a trouble condition is generated at the panel. In addition to a physical investigation, the operator may request actual percent obscuration levels from the detector in alarm or any other detector.

The alarm and pre-alarm setting of each detector may be changed either electronically from the control unit program. For example, a detector located in a cafeteria can be programmed to desensitize automatically every lunch hour except weekends and holidays.

DRIFT COMPENSATION

Each smoke detector is self-monitoring for drift from alarm set point caused by long-term environmental conditions, contamination or electronic component aging.

Using a carefully designed algorithm, the detector measures and averages 32 days of "normal" smoke level.

This data then is used in the drift compensation algorithm to maintain the proper set point as programmed for the unit. If the detector cannot compensate, a trouble signal is sent to the control unit identifying the affected detector and the state "Drift Error."

INTERNAL SUPERVISION

The SmartOne constantly monitors its own status by supervising and reporting a trouble condition when a fault occurs in one of the following items:

1. Internal Power Supply Voltage
2. Improper Line Voltage from the Control Panel
3. Faulty Data being Written to Memory
4. Uncompensated Drift

STATUS LED

An LED is provided on the detector to indicate status of the smoke detector. A high flash rate indicates alarm, a slow rate normal. When a trouble exists, the LED is turned off.

PROGRAMMING INFORMATION

Each detector is field programmed with the owner location message (location of the detector in the building or on the site), the system address (a four digit code), pre-alarm set point and alarm set point (if different from factory settings). In addition, the detector type, photoelectric, ionization or thermal and the proper calibration are stored in memory at the factory. This permits the Control Panel to verify that the proper detector type using the correct address is installed in the system.

The system will reject attempts to program alarm and pre-alarm set point levels exceeding the UL designated window.

ALARM TEST BY COMMAND

Any or all detectors can be tested by command from the Control Panel. This test procedure precisely duplicates in-place testing of each detector by imposing a signal on the detector sensing chamber that will cause an alarm output. Results of the test will be indicated at the Control Panel or any remote location for monitoring or troubleshooting purposes.

COMMUNICATION VERIFICATION

When a detector reaches its pre-alarm or alarm set point, it conducts a verification procedure with the Control Panel which repeats the communication cycle four separate times before the system accepts its change of status. The maximum time for this verification procedure is 2.5 seconds.

INSTALLATION

Detector bases are mounted directly to a 4-in. octagonal box.

The detector base is equipped with an integrally molded locking tab to prevent unauthorized removal. Once locked into place, the detector can be removed only by inserting a screwdriver blade into the slot while turning the detector head counterclockwise.

RADIOACTIVE MATERIAL



Do not attempt disassembly of the factory sealed sensing chamber. This assembly is sealed for your protection and is not intended to be opened for servicing.

Less than 1.0 microcuries Americium 241 in ionization detector. Shielded by stainless steel housing.

APPLICATION DATA

Each SLC circuit can communicate with up to 255 addressable devices. The circuitry may be either Class "A" or Class "B". Class "A" requires a series loop circuitry with the loop returning to the SLC connector within the control unit. Class "B" does not require a return to the SLC connector and permits T-tapping.

All SmartOne detectors utilize the same base and may be interchanged. Installation is both simple and fast using screw-type connections and the non-polarized detector feature. The detector is fitted to the base by a twist-to-lock action. A removable locking tab secures the detector to the base to provide some degree of vandal resistance or inadvertent removal.

Note: While units are interchangeable, changing detector **type** will require a change in system programming.

The ionization smoke detector can be used for open-area application as well as duct mounting applications with air velocity of 2000ft/min up to 4000ft/min.

SMARTONE DETECTOR MOUNTING BASES

All models of SmartOne detection devices use a universal mounting base arrangement. The mounting base is available in two models, Model 6SB and Model 4SB. Base model 6SB provides a trim ring which masks any inconsistencies between the electrical box and the ceiling material. Model 4SB is electrically the same as model 6SB but does not provide the trim ring. The 4SB outside diameter matches that of the detection devices thus allowing installation into tight spaces (i.e., underfloor areas).

MA-002 MECHANICAL RETROFIT ADAPTOR APPLICATION

The MA-002 mechanical retrofit adaptor is used to allow all old style detector bases (Series 70-400000-000) to accept the CPD-7052, PSD-7152 and THD-7252 addressable detectors. No rewiring is required to retrofit the base. The MA-002 is intended primarily for applications such as college dormitories, hotels, and motels where each sleeping room requires a dedicated notification appliance. It is designed to simplify the design and installation of systems that require selective or sympathetic occupant notification with old style detector base. These systems are not only required to notify the occupants in the room of fire origin, but also in either the adjacent rooms or the entire floor of fire origin.

SPECIFICATIONS

Input Voltage:

- 16.5 - 27.5 Vdc

Standby Current:

- 350 μ A, typical

Alarm Current:

- 425 μ A, typical

Max. Detectors per SLC:

- 255

All detectors can be in alarm simultaneously.

LED PULSE MODES

Normal:

- 9 second interval

Trouble:

- LED is off

Alarm:

- 2 second interval

Operating Temperature:

- 32°F (0°C) - 100°F (38°C)

EMI Immunity:

- Meets UL 268

Note: Nominal factory settings of detectors are as follows:

Photoelectric detectors:

- Alarm 2.0%/ft.
- Pre-alarm 1.5%/ft.

Ionization detectors:

- Alarm 1.0%/ft.
- Pre-alarm 0.8%/ft.

Thermal detectors:

- Alarm 140°F (60°C)
- Pre-alarm 120°F (49°C)

SENSITIVITY

Open Area:

- Ionization: 0.5 - 1.5%/ft.
- Photoelectric: 0.5 - 3.5%/ft.

High Velocity:

- Ionization: 0.5 - 1.0 %/ft.
- Photoelectric: 0.5 - 2.0%/ft.

THERMAL DETECTOR SPACING

50 ft.:

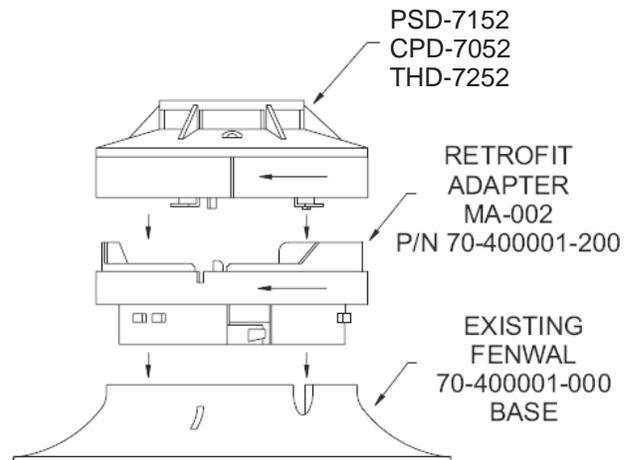
- 135°F (57°C) - 145°F (63°C)

70 ft.:

- 135°F (57°C) - 155°F (68°C)

Thermal detectors are limited to 20 ft. spacing when used on FM approved applications.

Note: These detectors are compatible only with fire alarm systems utilizing an compatible SLC protocol.



Intelligent Air Duct Smoke Detector

FEATURES

- Accommodates Photoelectric and Ionization SmartOne Detectors
- Easily mounts to round or rectangular ducts 8 inches to 12 feet wide
- Air Velocity rating 500 to 4000 FPM
- Clear Lexan cover for easy viewing of smoke detector status and cleanliness
- UL Listed #S1064
- FM Approved #OB2A6AV
- ULC #CS194-E
- CSFM #3240-1076:121

DESCRIPTION

The SmartOne® Model DH-2000 Air Duct smoke detector is designed for detecting particles of combustion in air handling systems. Upon smoke detection the integral detection device will signal the SmartOne compatible control unit to which it is connected.

The duct detector housing accepts the SmartOne Intelligent CPD-7052 ionization and PSD-7152 photoelectric detectors. A transparent Lexan cover over the detection chamber allows visual inspection of the duct detectors chamber and internal detector status. Sampling air in HVAC ducts is accomplished with the use of sampling tubes which extend into the HVAC duct.

AIR HANDLING SYSTEM CHARACTERISTICS

The DH-2000 duct detector is suited for use in commercial, industrial, institutional and residential fire alarm applications.

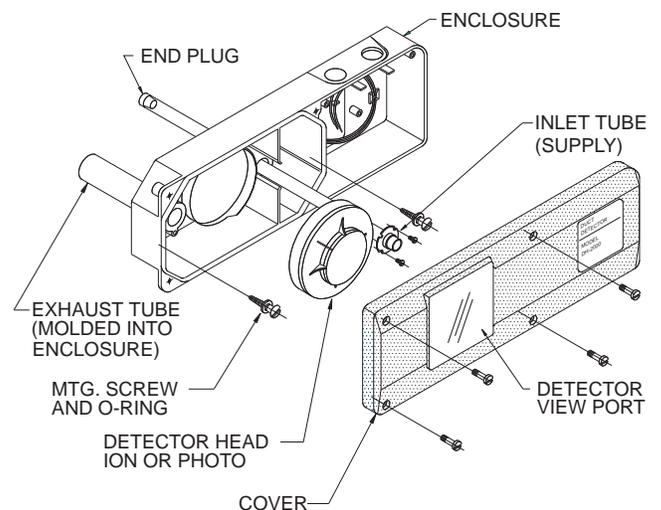
The DH-2000 will accommodate all ducts with air velocities between 500 to 4000 feet per minute. Both the photoelectric (PSD-7152) and the ionization (CPD-7052) smoke detector along with the duct housing will operate over this entire range. The duct detector is easily mounted to both rectangular and round ducts from 8 inches to 12 feet wide.



SAMPLING TUBES

The **DH-2000** duct detector operation is based upon an air sampling principle. Two sampling tubes extend into the HVAC duct to transport air from the inside of the duct into the duct detectors sensing chamber and exhaust it back out into the duct. If the sampled air contains a concentration of smoke greater than or equal to the alarm threshold of the internal smoke detector, the unit will go into alarm.

The duct detector's inlet supply sampling tube is selected according to the size of the HVAC duct. The unit's exhaust tube is molded into the housing to simplify installation.



When used with the DH-2000 unit, both the photoelectric (PSD-7152) and ionization (CPD-7052) detectors must be configured for Duct application when programmed in the control unit.

Addressable Contact Input Device



FEATURES

- Monitors N.O. or N.C/ Unpowered Contacts
- Full Digital Communications
- Class B Initiating Device Circuit
- Remote-led Output
- Alarm Test from Control Unit Keypad
- UL Listed #S3743
- FM Approved #ODA9AY
- CSFM #7300-1076:144

DESCRIPTION

The SmartOne® Addressable Contact Input Device (AI) is an intelligent field device with its own microprocessor, memory and electronics necessary to interface N.O. or N.C. unpowered contacts to the FenwalNET control units. All of the electronics are contained in a high-impact polymer case, creating a very small and durable device for installation.

Two types of AI's are available: an AI/NC for interfacing to normally-closed devices and an AI/NO for interfacing to normally-open devices. The AI may be located up to 2,500 feet from the monitored device with #18 AWG wiring. An end-of-line-resistor is required for supervision of the wiring to the device.

FIELD PROGRAMMING

System address, owner location message and reporting type are programmable via the compatible control unit configuration software program.

The System address is a 4-digit number that uniquely identifies each device. The owner location message is a 40-character, alpha numeric message that describes the location of the device. The reporting type is assigned to the AI depending on the functionality of the device being monitored.

SUPERVISION

The AI continuously monitors the integrity of the following:

- Continuity of supervised wiring
- Power/Communications circuit voltage
- Internal power supply
- Memory data
- Faulty entering of data into AI memory

STATUS LED

A remote status LED may be connected to the AI.



ALARM TEST

Any or all AIs can be tested by command from the compatible control unit. Results of the test may be printed out at the system printer.

SPECIFICATIONS

Input Voltage:

- 16.5 - 27.5 VDC

Standby Current:

- 450 mA Max

Alarm Current:

- 450 mA Max

Operating Temperature:

- -31 - 151°F (-35 -66°C) 0 - 95% RH

LED PULSE MODES

Normal:

- 9 second interval

Trouble:

- LED is off

Alarm:

- 2 second interval

Acceptable Wire Size:

- 14, 16, 18 AWG

Installation:

- The AI can be mounted in a North American 2-1/2-in. (64 mm) deep, 1-gang box, or standard 4-in. square box, 1-1/2-in. (38 mm) deep with cover.

AlarmLine™ Addressable Linear Heat Detector

P/N 73-100001-003



FEATURES

- Interface between AlarmLine™ sensor and FenwalNET panels
- Real-time monitoring
- Software adjustable alarm set point
- Optional pre-alarm and overheat output configuration selections
- Three cable styles (standard, nylon, bronze braided)
- Sensor cable restorable up to 257° F
- Full supervision for short and open circuits
- Intrinsically safe option
- Flexibility in zoning
- UL Listed #S492
- FM Approved #3005511
- CSFM Approved #7270-0074:110



DESCRIPTION

The AlarmLine Addressable Linear Heat Detector provides early detection of fire or overheat condition in protected areas or equipment. It is especially suited for confined areas or environments where adverse ambient conditions cause other detection devices to be unreliable or difficult to use. The detector consists of two major components: A sensor cable and an Addressable AlarmLine Module (AAM).

The AlarmLine can be programmed to send pre-alarm, alarm, and overheat levels for differing ambient conditions as well as sending fault signaling of open and short circuit, and overheat conditions. The cables are self restoring up to 257°F (125°C). The AAM is compatible with the FenwalNET 2000, 6000 and 8000-ML panels.



APPLICATIONS

- Open-area protection
- Cable trays
- Rack storage
- Freezer warehouses
- Belt conveyers
- Floating roof fuel tanks
- Cooling towers
- Dust collectors
- Waste fuel drum storage
- Power distribution apparatus
- Escalators
- Tunnels
- Mines
- Hangars

ANALOG HEAT SENSING

AlarmLine's analog heat sensing characteristics offer several distinct advantages:

Field Adjustable pre-alarm, alarm, and overheat set points: Pre-alarm, alarm, and overheat thresholds may be programmed to meet specific system requirements.

Integrating: It is not necessary to reduce sensor spacing with increased ceiling height per NFPA 72-2010 Section 17.6.3.5.1, Exception (1). System sensitivity remains constant as ceiling height increases without reducing spacing.

Short Circuit Discrimination: The system will produce a trouble condition instead of a false alarm in the event of a conductor to conductor short due to damage or electrical faults.

SENSOR CABLE

The AlarmLine sensor cable consists of four 26 AWG copper conductors, each color-coded in an insulated sheath containing a negative temperature coefficient polymer (where an increase in temperature decreases the resistance of the sensor).

Two of the conductors are enameled and provide loop continuity supervision, but not temperature sensing. The conductors are twisted at thirty turns per foot (90 turns per meter) and protected by a flame-retardant outer extrusion or metallic braid (See Figure 1). The color coding of the four inner conductors is repetitively marked on the outer coating every three feet as an aid installation.

The maximum length of sensor cable per zone depends on the maximum ambient temperature defined on the nomogram(s) (See SmartOne AlarmLine Addressable Linear Heat Detector manual, P/N 06-235820-003). Regardless of ambient temperature, however, the maximum length of cable is 3280 feet (1000 meters) per zone for Type "T" cable.

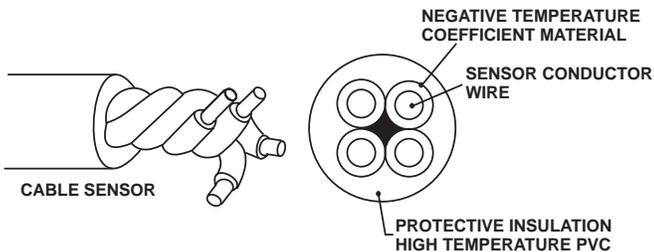


Figure 1. Standard Sensor Cable

Sensor cable types:

Standard Sensor Cable

Recommended for environments ranging from clean and dry to moderate dust and moisture.

Nylon Coated Sensor Cable

Recommended for use in wet, oily, or corrosive environments or outdoors. Use in freezer warehouses.

Phosphor Bronze Braided Sensor

Recommended for applications requiring superior abrasion protection and/or increased tensile strength.

ADDRESSABLE ALARMLINE MODULE (AAM)

The AAM permits an AlarmLine sensor cable to be directly interfaced to a SmartOne compatible control unit. This interface will allow for pre-alarm, alarm, and trouble conditions to be transmitted to the control panel via the Signaling Line Circuit (SLC). The AAM monitors the resistance of the sensor cable and generates a pre-alarm (if enabled), alarm, or overheat output (if enabled) when the resistance drops below the programmed threshold.

The module also supervises the AlarmLine cable for opens and shorts, which will generate a fault condition.

All of the pre-alarm, alarm, overheat, and trouble conditions will be displayed on the control panel. Up to 255 AAM modules can be connected to a single SLC loop. Use of multiple AAMs allows flexibility in zoning larger installations for location of alarm and zone output control; the control panel acts as a central display and control interface.

The AAM receives power directly from the SLC loop which eliminates the need for additional wiring and external power supplies.

CABLE SPECIFICATIONS

Item	SPECIFICATION		
	Standard Sensor	Nylon Coated Sensor	Bronze Braided Sensor
Part Number: Length: Weight:	73-117068-013 656 ft. (200 m) 7 lbs. (3.2 kg)	73-117068-016 656 ft. (200 m) 7 lbs. (3.2 kg)	73-117068-019 656 ft. (200 m) 7 lbs. (3.2 kg)
Part Number: Length: Weight:	73-117068-113 3280 ft. (1000 m) 35 lbs. (14.5 kg)	73-117068-116 3280 ft. (1000 m) 35 lbs. (14.5 kg)	73-117068-119 3280 ft. (1000 m) 35 lbs. (14.5 kg)
Jacket Construction	Blue PVC	Black nylon extrusion over blue PVC	Phosphor bronze braid over blue PVC
External Diameter	0.117 in. (3 mm)	0.153 in. (3.9 mm)	0.153 in. (3.9 mm)
Tensile Strength	100 N		1000N
Conductor Insulation	1 = Orange 2 = White 3 = Red 4 = Blue		
Conductor Material	26 AWG Solid Copper		
Conductor Diameter	0.018 in. (0.460 mm)		
Twist of Inner Conductors	30 per ft. (90 per m)	30 per ft. (90 per m)	
Dielectric Material	Specially Doped Polymer	Specially Doped Polymer	
Standard Outer Jacket Material	High Temperature PVC		
Voltage Proof Between PVC Jacket and a Conductor	10 KV'		
Service Life	Up to 212°F (100°C) = 30 years @ 257°F (125°C) = 24 hours. Self Restores below 257°F (125°C) Above 374°F (190°C) is the destructive temperature.		
Approved Spacing (between parallel runs)	30 ft. (9 m)		

SENSOR MOUNTING HARDWARE

Three types of standard mounting hardware (master clamp, flange clamp, nylon cable tie) for AlarmLine permit safe, secure sensor cable installation in most applications. Other mounting means may be used as required by the specific application. The sensor should be supported at a minimum of ten foot intervals on straight runs when under tension, and more as conditions dictate at corners and transition points to provide suitable strain relief. Local codes or conditions may also require the sensor to be supported at closer intervals.

AAM SPECIFICATIONS

Item	Specification
Part Number	73-100001-003
Supply Voltage	P.C. Line, 16.5 to 27.5 Vdc
Current Consumption, Standby	425 µAmps
Current Consumption, Alarm	440 µAmps
Current Consumption, Fault	425 µAmps
Noise Performance	Withstands 5% RMS 60 Hz supply noise or 1 Vrms 60 Hz sensor noise with negligible performance range. RFI immunity at 10 V/meter field strength over the band of 20 to 900 MHz
LED Pulse Modes	Normal: Slow flash GREEN every nine (9) seconds
	Pre-Alarm: Slow flash RED every nine (9) seconds
	Alarm: Fast flash RED every two (2) seconds
	Trouble: Off
Operating Temperature Range	-40°F to 140°F (-40°C to 60°C)

INTRINSIC SAFETY BARRIERS

In classified hazardous areas where potentially explosive vapors, dust, or fibers exist, AlarmLine cable must be installed using an intrinsic safety barrier. The barrier is a shunt diode safety barrier which limits the current and voltage in the sensor cable to safe levels. Each barrier handles two conductors, so two barriers are needed for each sensor cable. The barriers are designed to mount in separate weather tight enclosures.

Item	Specification
Part Number	73-117068-031
UL Listed and FM Approvals	Class I, Division I, Groups A, B, C, D Class II, Division I, Groups E, F, G: Class III, Division I
Operating Temperature Range	-4°F (-20°C) to 140°F (60°C)
Humidity	5 -95% R.H.
Terminals	Will accept up to #12 AWG
Working Voltage	6V
Maximum Voltage	7.5V
Fuse Rating	100 mA
Leakage Current	1 mA maximum at 6V
End-To-End Resistance	145 ohm maximum 90 ohm minimum
Enclosures	73-117068-732 holds 2 barriers 73-117068-733 holds 5 barriers 73-117068-734 holds 12 barriers 73-117068-735 holds 24 barriers



FEATURES

- Full-digital communications
- Addressable notification-appliance circuit (NAC)
- Class A or Class B wiring on NAC
- Field-programmable for 24-VDC notification appliances or 25 V_{rms} speakers
- Supervises power for notification appliances
- UL Listed
- FM Approved #3005511
- CSFM Approved

DESCRIPTION

The SmartOne® Addressable Signal Module (ASM) is a notification-appliance circuit that connects to the signaling line circuit of a compatible control unit. The ASM is an intelligent field device that contains its own microprocessor, memory and the necessary electronics to provide either 24 VDC for conventional notification-appliances or 25 V_{rms} for speakers.

Operation can be changed on-site using on-board switches and jumpers.

PROGRAMMING

Each ASM can be configured to support speakers or audible-visual notification appliances, and Class B or Class A operation. The module can also be programmed to support water flow, walk test, and drill modes. As with any SmartOne device, addressing can be implemented from the hand-held programmer (P/N 74-227) or the control panel keypad/menu. The Module can also be alarm tested upon command from the control unit. Module faults are individually reported to compatible control units by module address, fault type, and fault-location message.

SUPERVISION

The module provides continuous internal supervision of:

- Alarm contact position
- Communications with the control unit
- Internal power supply
- Connections to external power supply for notification-appliances

Memory status module supervision prevents switching audible or audio power into a shorted circuit.

STATUS LED

A status LED is mounted on the unit.



SPECIFICATIONS

OUTPUT CIRCUIT CHARACTERISTICS

Output Current Rating:

- 2.0 A max. @ 30 VDC
- 20 W @ 70.7 V_{rms}
- 20 W @ 25.0 V_{rms}

MAXIMUM LINE RESISTANCES (#12 AWG WIRE)

Load (amps)	Resistance (ohms)	Length (ft.)
0.2	20.0	12.0K
0.5	8.0	5.0K
1.0	4.0	2.5K
1.5	2.7	1.6K
2.0	2.0	1.2K

Mounting

- A 4-inch, 2-1/8-inch deep (for #18 AWG) or 4-11/16-inch, 2-1/8-inch deep (for #12 AWG) standard, square electrical box is used. Wiring specifications are recommended as minimums for ease of wiring. See National Electrical Code (370).

Shipping Weight

- 10.5oz (298g)

Current Draw

- 500 uA in standby or alarm

Operating Voltage Range

- 16.5 to 27.5 VDC
- 24 VDC nominal

Notification-Appliance Circuit End Of Line Resistor

- 4.7K ohms, 0.5 W

Notification-Appliance Circuit Output

- 24 VDC, 2 A (max.), power limited, reverse polarity supervised

Audio Circuit Output

- 25 V_{rms}, 20 W (max.), non-power limited, reverse polarity supervised

Power Supply Trouble Circuit End Of Line Resistor

- 4.7Kohms, 0.5 W

Operating Temperature Range

- -31° F to 151° F, (-35° C to 66°C)

Operating Humidity Range

- 0 to 95%, non-condensing

Installation:

- The unit can be mounted in a 4-inch x 4-inch electrical box.

AnaLASER[®] Interface Module

For AnaLASER[®] II Detectors



FEATURES

- Allows AnaLASER to be Connected to an FN-2000, FN-6000, or FN 8000-ML as a SmartOne[®] Detector
- Up to 255 AIMs Per SLC
- Reports Pre-Alarm, Alarm & Trouble to FenwalNET
- Real Time Monitoring of Smoke Levels From Fenwal Intelligent Control Unit
- UL Listed
- FM Approved
- CSFM Listed 7259-1076:167
- NYC MEA Approved MEA 60-02-E

DESCRIPTION

The AnaLASER[®] Interface Module (AIM) is an intelligent loop device that allows an AnaLASER II High Sensitivity Smoke Detector to be directly connected to a Addressable Signaling Line Circuit (SLC) of any compatible control unit. The AIM provides increased flexibility in installing high-sensitivity smoke detection, by providing data from the Detector back to the FenwalNET control panel.

One AIM is required for each AnaLASER II Detector that is to be connected to the SLC.

The AIM transmits pre-alarm, alarm and up to six trouble messages to the control unit. The AIM is fully supervised and continuously monitors all aspects of the AIM and AnaLASER II Detector. Using the menu functions of the control panel, real-time smoke and airflow levels can be transmitted from the AIM and displayed on the panel. In addition, detector sensitivity tests can be performed from commands on the panel.

The AIM circuit board effortlessly plugs into a socket on the termination board inside the AnaLASER II Detector card. Only five field wiring connections are needed for the Addressable Signaling Line Circuit and ground. Power is provided to the AIM via the termination board.

Programming of the AIM (including defining its loop address) and history downloading are done with a computer, running LaserNET[™] Version 3 software that is connected directly to the Detector's RS-232 port.

CONTROL PANEL INTERFACE

The AIM communicates the following detector status information and commands to and from the compatible control unit:

Alarm and Pre-Alarm Conditions: Communicated to the control unit when smoke above the programmed alarm or pre-alarm thresholds is detected.



Real-time Smoke and Airflow Levels: Viewed on the control unit through the control unit menus.

Trouble Conditions: Communicated to the control unit due to trouble with the detector head, airflow, power supply, detector isolation and address loop continuity.

Detector Test: Allows the detector sensitivity test to be performed from the control unit.

SPECIFICATIONS

Input Voltage:

- 5 Vdc (supplied by termination board)

Maximum Input Current:

- 125 mA at 5 Vdc (supplied by termination board)
Adds 20 mA at 24 Vdc to Detector current

Operating Temperature:

- 32° to 120°F (0° to 49°C)

Operating Humidity:

- 10 to 93% RH, non-condensing

Electrical Connections:

18 to 12 AWG (0.75 to 2.5 mm²) wiring to removable terminal block

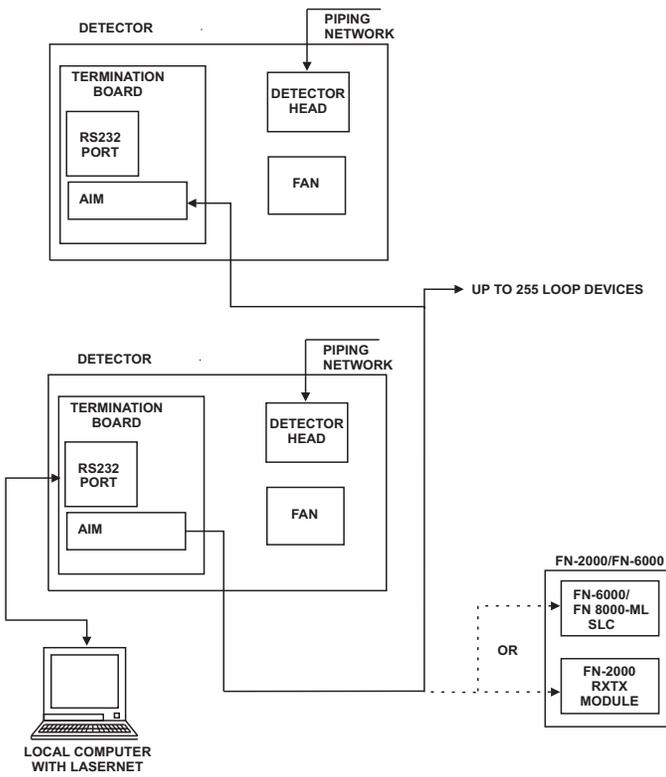
Shipping Weight:

- 0.3 lb. (0.2 kg)

Dimensions:

- 3-15/16 in. W x 2-11/64 in. H x
1-9/16 in. D (100 mm W x 55 mm H x 40 mm D)

AIM BLOCK DIAGRAM



AIR-Intelligence™ SmartONE® Addressable Protocol Interface Card (APIC)



FEATURES

- 2 Distinct Modes of Operation:
 - Single Address Mode
 - Multi-Address Mode
- Seamless Integration with FN2000, FN6000 and FN 8000-ML Fire Alarm Control Panels
- Easy to Install
- Up to 255 APIC Per Signaling Line Circuit (SLC)
- UL Listed
- ULC Listed

DESCRIPTION

The AIR-Intelligence™ SmartONE® APIC is an interface module designed to provide seamless integration between AIR-Intelligence detectors and fire alarm/suppression control panels using the SmartOne Signaling Line Circuit (SLC) protocol. The SmartONE APIC card reports the Aspirating Smoke Detector as an “AIM.”

The SmartONE APIC has two distinct modes of operation:

- Single Address mode
- Multi-Address mode

In single address mode, the SmartONE APIC is connected directly to a detector main circuit board, using a ribbon cable.

In multi-address mode, the SmartONE APIC is connected to a command module using a ribbon cable. The command module is connected to a SenseNET loop containing multiple detectors, and the SmartONE APIC acts as the interface between all these detectors and the control panel. The SmartONE APIC senses whether it is connected to a single detector or a command module when powered up. Therefore, no changes to the SmartONE APIC are required, in order to specify the addressing mode.

Note: In either mode, any change to a detector address must be made manually to the detector or SmartONE card. The control panel can not be used to change a detector’s address.

Single Address Mode

When the interface is set to single address mode, the card is set to a single address on the SLC, and the detector status is read from that address.

The 2 hex switches on the SmartONE APIC card, shown as HEX1 (second decimal place) and HEX2 (first decimal place), are used to specify the address.

In single address mode, the address can be any value between 1 and 255 (inclusive).

In single address mode, the address set on the detector

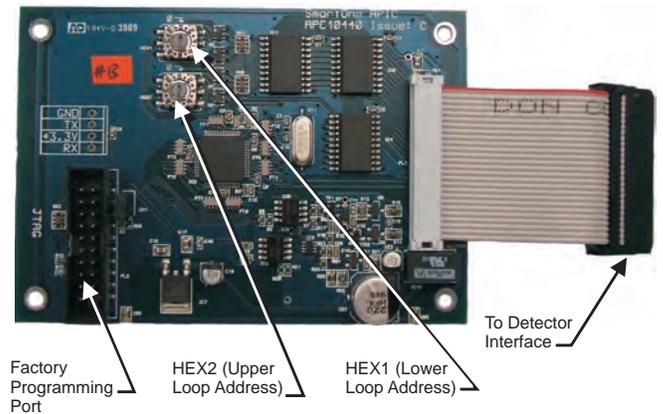


Figure 1. SmartONE APIC

card is ignored by the SmartONE APIC. The address set on the SmartONE APIC card will be the address that is used by the control panel.

Note: If AIR-Intelligence Remote 3 software is used on the detector, the address it sees will be the address set on the detector’s dip switches.

Multi-Address Mode

Multi-address mode is used when using a single SmartONE APIC card to monitor the status of multiple detectors on a Command Module loop. The SmartONE APIC is mounted within the Command Module.

In multi-address mode, the hex switches on the SmartONE APIC card are not used. Instead, the address of each detector is set using the detector’s dip switches. In multi-address mode, the address of each detector can be any value between 1 and 127 (inclusive).

STATUS MODES

The APIC card returns the following status modes, which are interpreted by the control unit:

- Normal
- PC Line Trouble
- Low Airflow Trouble
- High Airflow Trouble
- Detector Trouble
- Isolation Trouble
- Pre-Alarm
- Fire

SPECIFICATIONS

Input Voltage:

- 20.4 to 28.0 Vdc

Operating Current:

- 100µA

Operating Conditions:

- Temperature: - 32°F to 120°F (0°C to 49°C)
- Relative Humidity: - 0-85%

Dimensions:

- 4 in. x 2-3/4 in.(102 mm x 68 mm)

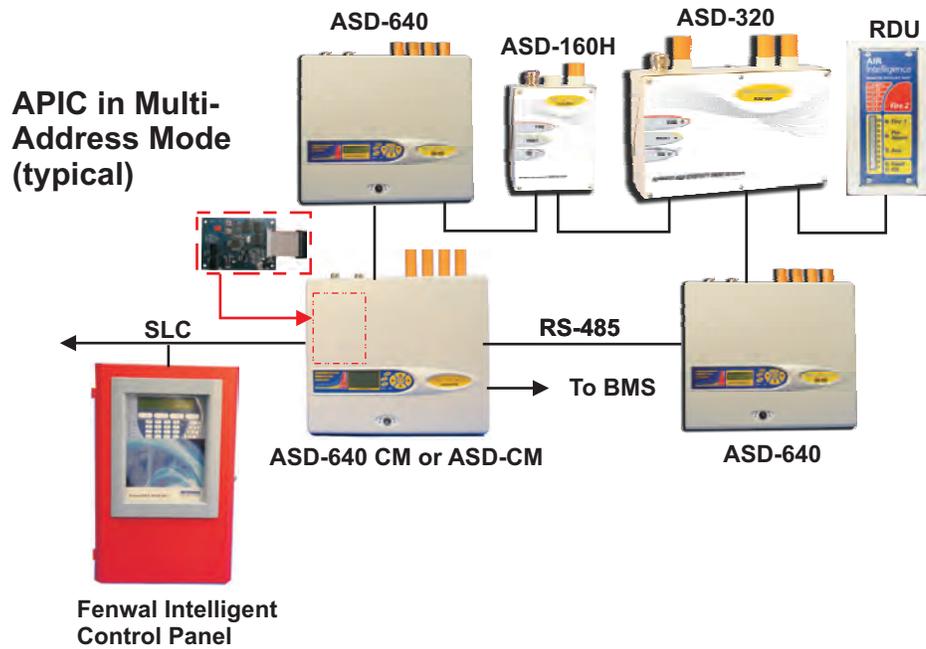


Figure 2. Fire Alarm Control Panel Interface - Multi-Address Mode

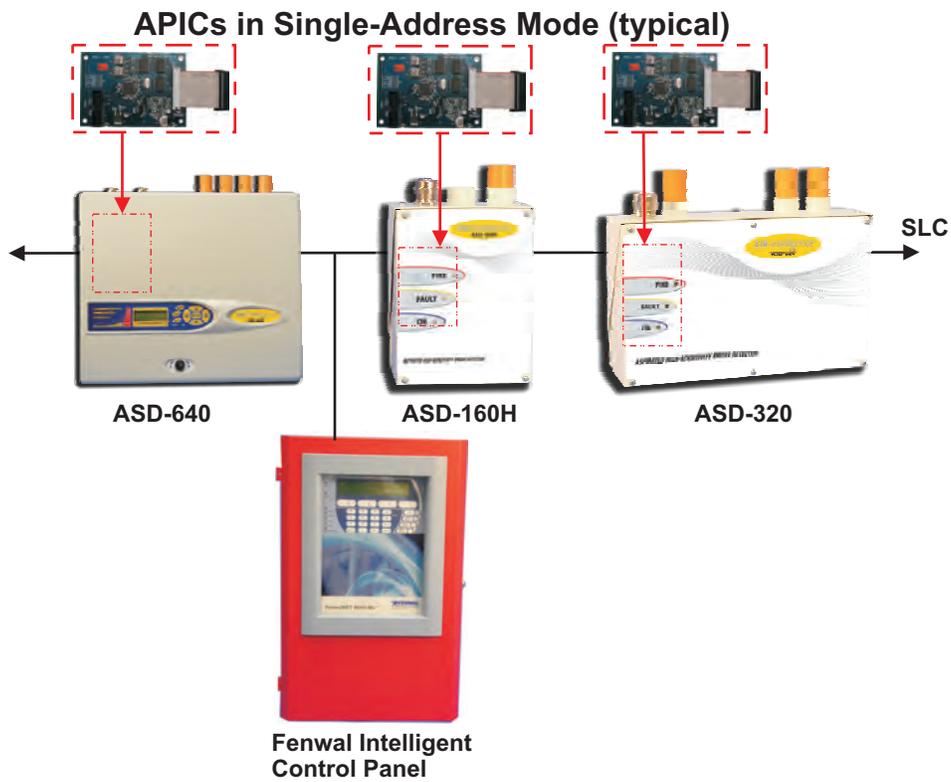


Figure 3. Fire Alarm Control Panel Interface - Single-Address Mode



FEATURES

- Electrical Box or Detector Base Mounting Configurations
- Full Analog Display
- UL Listed
- FM Approved
- CSFM Approved
- ULC Approved

DESCRIPTION

Isolator modules are automatic switches that open a segment of the signaling line circuit when a short-circuit fault is detected in that segment. The remainder of the signaling line circuit continues to function normally and is unaffected by the short-circuit fault. The isolator modules will close and resume normal operation when the short-circuit fault is removed.

Isolator module, P/N 74-200012-002, is supplied with a plastic cover plate for mounting to a single-gang electrical box. Isolator module, P/N 74-200012-004, is designed to mount in the electrical box for the Model 6SB detector base.

Both types of loop isolators are fitted at convenient positions to protect each individual device. The number of devices between each isolator must not exceed 30, and the maximum number of isolators that can be used per SLC is 20.

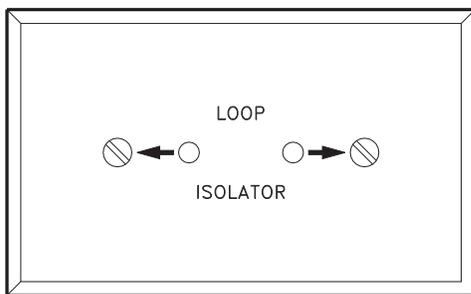


Figure 1. Loop Isolator, Stand Alone (P/N 74-200012-002)

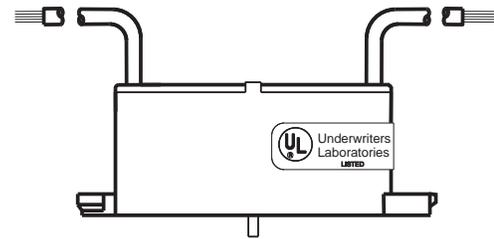
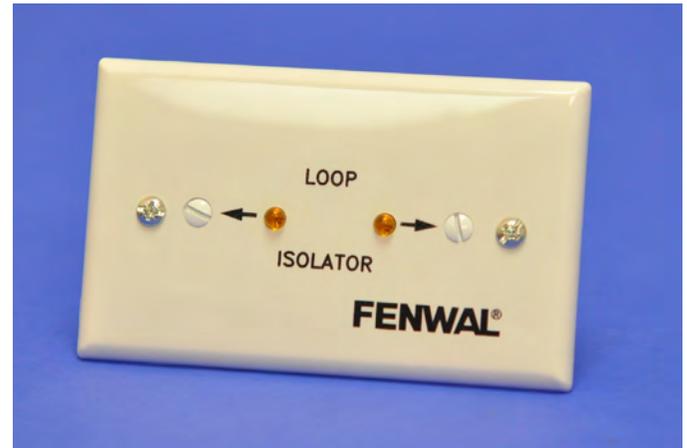


Figure 2. Isolator Loop, 6-inch Detector Base Mount (P/N 74-200012-004)

LOOP ISOLATOR RESISTANCE

Each loop isolator has a typical in-line resistance of 0.12 ohms. Therefore, on systems using loop isolators, the maximum SLC line resistance of 26 ohms must be reduced by 0.12 times the number of loop isolators before using it to calculate the maximum wire length.

WIRING STYLES

The loop isolator can be used with the following wiring styles:

- Class B, Style 4
- Class A, Style 6
- Class A, Style 7

Depending on the type of Loop Isolator, mount the unit to the gang box using 2 screws or twist the loop isolator onto the detector base.

Remote Releasing Module (RRM)

FEATURES

- Up to 64 RRM's Per Signaling Line Circuit
- Supports Both Gaseous and Pre-Action/Deluge Sprinkler Systems
- Triple R Protection Against Inadvertent Extinguishing-System Activation
- Versatile Mounting Configurations
- Internal Communication and External Power Supervision
- UL Listed
- FM Approved
- CSFM Approved

DESCRIPTION

The Remote Releasing Module (RRM) is a SmartOne® field device connected to a SmartOne SLC of compatible control unit to provide the ability to remotely activate extinguishing-system control devices. The control unit's SLC supports a maximum of 64 RRM's. Up to 16 RRM's can be configured for simultaneous group activation, with a maximum of 4 groups.

Release circuits are power-limited and supervised for short circuit by using an In-line Releasing-Circuit Device (P/N 06-220023-001). In the event of a ground fault, open, short or a relay contact failure, the device will transmit a trouble status to the compatible control unit.

PROGRAMMING

As with any SmartOne device, addressing can be implemented from the hand-held programmer (P/N 70-600000-100) or from the compatible control unit keypad menu. A 24VDC power supply is required for the RRM to program with a hand-held programmer.

STATUS LED

A status LED is mounted on the unit and indicates the module's status.



INSTALLATION

The RRM can be mounted in the following ways:

P/N 70-600000-001 : Standard Mounting

- North American 4-11/16 in. electrical box with a double gang plaster ring (Rayco Model 841 or equivalent), 1/2 in. raised
- 4 in. square, 2-1/8 in. deep electrical box

P/N 70-600000-002 : In-Cabinet Mounting

- Any UL-864 Listed enclosure with no other electronics.

SPECIFICATIONS

CIRCUIT CHARACTERISTICS

Activation:

- Up to 64 RRM's per SLC (Activated Consecutively)
- Up to 4 Groups of 16 RRM's per group (RRM's in a group activate simultaneously, groups activate consecutively)

Releasing Circuit Output Current:

- 2.4A Max @ 24.0 VDC

Operating Voltage:

- 24 CVDC Nominal

Trouble Circuit Input

- 4.7K End of Line Resistor "Open" contact = normal condition

Power Consumption

- From Power Supply:
 - Normal, Standby: 6.1 mA
 - Alarm: 45 mA
- From SLC:
 - Normal, Standby: 410 μ A
 - Alarm: 410 μ A

SHIPPING WEIGHT

- 10.5oz (298g)

OPERATING TEMPERATURE RANGE

- -32°F to 120°F, (0°C to 49°C), Indoor/Dry location use only

OPERATING HUMIDITY RANGE

- 93% \pm 2% RH at 90°F \pm 3°F (32°C \pm 2°C),

CONSTRUCTION

- High Impact Polymer Faceplate with a 16 gauge Aluminum Bracket

ACCEPTABLE WIRE SIZE:

- Terminal connections support wiring from #18 AWG to #12 AWG. Wire sizes determine electrical box depth.

LED PULSE MODES:

- Normal, Standby:
 - flash at 9-second repetition rate
- Output Active:
 - On steady
- Trouble:
 - Off

The following power supplies are compatible with the power supplies

Description	Manufacturer	Part Number
Multi-Zone Power Supply Assembly	Fenwal	89-300020-001
24 VDC, 1A Auxiliary Power Output of FN6000 Control Uni, Qty 2 (See Note 1)	Fenwal	74-600000-001 and 74-600000-501
24 VDC, 3A Power Supply, red enclosure	Altronix	AL 400ULXR
24 VDC, 3A Power Supply, grey enclosure	Altronix	AL 400ULX
24 VDC, 6A Power Supply, red enclosure	Altronix	AL 600ULXR
24 VDC, 6A Power Supply, grey enclosure	Altronix	AL 600ULX
24 VDC, 8A Power Supply, red enclosure	Altronix	AL 1024ULXR
24 VDC, 8A Power Supply, grey enclosure	Altronix	AL 1024ULX

Notes:

1. Both auxiliary circuits may be wired together to obtain 2 A at 24 VDC.
2. Altronix power supplies may be ordered through an authorized Altronix dealer. For a list of dealers, visit www.altronix.com or call (888) 258-7669.

Addressable Manual Pull Station Series 3300



A UTC Fire & Security Company

FEATURES

- Interfaces to Fenwal® SmartOne™-compatible control units
- Unique Field Labeling for either Fire Alarm or Suppression Applications
- Dual Action Operation
- Surface and Weatherproof Backboxes
- Flashing LED
- Keylock for Reset
- Optional Glass Breakrods (One Included)
- UL Listed #S5654
- FM Approved
- cUL Listed #7150-1076:147

DESCRIPTION

The Fenwal Addressable Manual Pull Station is an intelligent initiating device that contains its own SmartOne Addressable Input (AI) module and interfaces directly to any SmartOne-compatible control unit. The initiating device circuit is wired as NFPA Class B.

The Manual Pull Station is constructed of heavy die-cast aluminum for long life and uses an internal toggle switch for reliable operation.

Similar to the SmartOne devices, the unit is field programmable using the control unit keypad or Hand-Held Programmer. The owner location message and reporting type can be customized by the use of a programming utility utilized with the control unit. A status LED is mounted on the station and indicates the status by a 2 or 9 second flash interval. A Trouble condition inhibits the status LED completely.

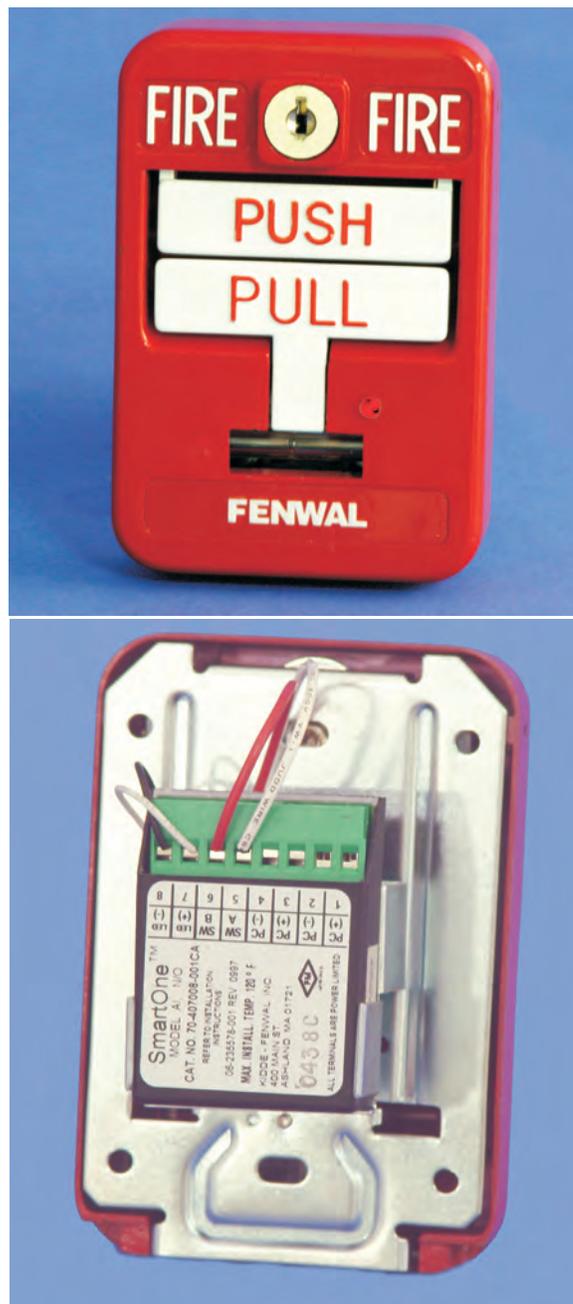
While the Pull Station is designed for quick, efficient emergency response, its double action PUSH/PULL levers prevent accidental operation. An optional glass breakrod may be easily installed underneath the lever. One rod is provided with the Pull Station and a package of 12 rods may be purchased separately.

The Pull Station can be mounted in an indoor or outdoor weatherproof backbox (Model SBG-32S or Model SGB-32C) or a North American 2-1/2 in. (64 mm) deep single-gang box.

The Station terminal block on the AI module accepts 14, 16 and 18 AWG (1.5 mm², 1.0 mm², and 0.75 mm²) wire. Size #18 is the minimum requirement.

FIRE ALARM OR SUPPRESSION RELEASE LABELING

The Pull Station has a unique labeling method which provides the installer the greatest amount of flexibility without the expense of having to carry extra inventory. Six heavy-duty Lexan® self-adhesive labels are shipped with each station:



- FIRE ALARM
- NOVEC 1230 RELEASE
- FIRE SYSTEMS RELEASE
- FM-200 RELEASE
- FE-13 RELEASE
- HALON RELEASE

OPERATION

The dual action Series 3300 manual stations are operated by simply pushing the PUSH bar inwards, allowing the PULL handle to be grasped in a one-handed motion. The handle is then pulled down as far as it will go. If the optional breakrod is installed, it would break at this point. The handle is now locked in place, and is easily visible from up to 50 feet away.

The handle is reset by opening the station with the key and placing the handle in the normal upright position. Place the switch actuator in the down position, insert breakrod into cavity beneath handle (if applicable), and re-lock the station. To reset the control unit, refer to the corresponding control unit manual.

SPECIFICATIONS

Station Type:

- Double Action, with integral SmartOne Addressable Module

Initiating Device Circuit:

- EOL Resistor Value:
 - 0 K Ohm (06-129025-003)
- Max. Circuit Resistance:
 - 50 Ohm (25 ohm per conductor)
- Max. Circuit Capacitance:
 - 0.1 μ F

Operating Temperature Range:

- -40°F to 150°F (-40°C to 66°C)

Operating Humidity Range:

- 0-95% RH

Construction:

- Die-cast metal housing

Compatible Electrical Boxes:

- Indoor:
 - Sheet metal Model SGB-32S
- Outdoor:
 - Weatherproof Die-cast Model SGB-32C

Shipping Weight:

- 1.12 lbs. (510 g)

SGB-32S INTERIOR SURFACE BACKBOX

Dimensions:

- 4-3/4 in. H x 3-1/4 in. W x 2-1/4 in. D

Construction:

- Steel sheet metal

Conduit:

- Two knockouts for 1/2 in. conduit connectors, one on top and bottom

Mounting:

- Mounts to the box with (4) 8/32 screws, which ship with each box

SGB-32C WEATHERPROOF SURFACE BACKBOX

Dimensions:

- 4-3/4 in. H x 3-1/4 in. W x 2-1/4 in. D

Construction:

- Cast aluminum

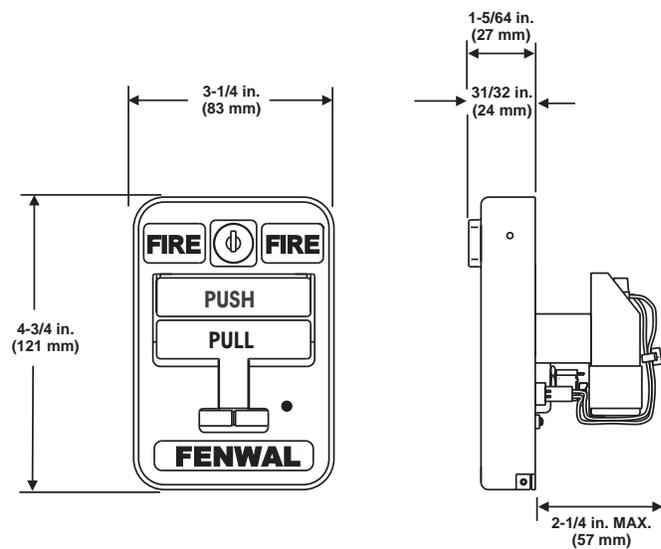
Conduit:

- One threaded opening for 1/2 in. conduit connector

Mounting:

- Mounts to the box with (4) 8/32 screws and a foam gasket, which ship with each box

DIMENSIONS



SmartOne Intelligent Devices & Modules Ordering Information

Effective: July 2012



Ordering Information

DESCRIPTION	PART NUMBER
Distributed Intelligence Photoelectric & Ionization Smoke and Thermal Detectors	
Ionization Detector Model CPD 7052	70-402001-100
Photoelectric Detector Model PSD 7152	71-402001-100
Thermal Heat Detector Model THD 7252	70-404001-100
Flanged Detector Base, Model 6SB	70-400001-100
Flangeless Detector Base, Model 4SB	70-400001-101
Detector Base Adaptor Model MA-002	70-400001-200
Intelligent Air Duct Smoke Detector	
Duct detector with SmartOne™ Photoelectric Detector included DH-2000PSDI	70-403001-152
Duct detector with SmartOne™ Ionization Detector included DH-2000CPDI	70-403001-052
Duct detector housing (without detector)	70-403001-100
12 inch sampling tube (For ducts less than 2 ft.)	06-129500-001
24 inch sampling tube (For ducts between 2 and 3 ft.)	06-129500-002
48 inch sampling tube (For ducts between 3 and 4 ft.)	06-129500-003
72 inch sampling tube (For ducts between 4 and 6 ft.)	06-129500-004
96 inch sampling tube (For ducts between 6 and 8 ft.)	06-129500-005
120 inch sampling tube (For ducts between 8 and 10ft.)	06-129500-006
Exhaust tube kit	06-129554-001
Addressable Contact Input Device	
Addressable Contact Input Device N.O.	70-407008-001
Addressable Contact Input Device N.C.	70-407008-002
Package of 10 End-of-Line Resistors	70-411001-005
AlarmLine Addressable Linear Heat Detector	
AlarmLine Addressable Linear Module (AAM)	73-100001-003
NEMA-4 Sealed, Protective Polycarbonate Enclosure, Used to mount AAM in wet or dusty environments	73-100003-001
Standard Sensor Cable	73-117068-013 (656 ft./200 m) 73-117068-113 (3280 ft./1000 m)
Nylon Coated Sensor Cable	73-117068-016 (656 ft./200 m) 73-117068-116 (3280 ft./1000 m)
Bronze Braided Sensor Cable	73-117068-019 (656 ft./200 m) 73-117068-119 (3280 ft./1000 m)
Addressable Relay Output Device	
AO Control Module	70-408004-001

Ordering Information (Continued)

DESCRIPTION	PART NUMBER
Addressable Signal Module	
Addressable Signal Module	70-200200-003
AnaLASER Interface Module	
AnaLASER Interface Module	89-300010-001
AIR-Intelligence SmartOne Addressable Protocol Interface Card (APIC)	
APIC	74-333001-001
Loop Isolator	
Loop Isolator—1 Gang Box mounted	74-200012-002
Loop Isolator—Detector Base mounted	74-200012-004
Remote Releasing Module	
Remote Releasing Module (With Standard Bracket and Front Cover Plate)	70-600000-001
Remote Releasing Module (With In-Cabinet Bracket and Mounting Hardware)	70-600000-002
Inline Releasing-Circuit Device (One Required For Each Release Circuit to be Supervised and Power Limited)	06-220023-001
Addressable Manual Pull Station Series 3300	
Addressable, Double Action Manual Pull Station (Ships with mounting hardware, 2 keys, 1 break rod, and label set.)	30-330002-001
Addressable Input Module (Normally Open Devices)	70-407008-001
SGB-32S Indoor Backbox	30-195001-001
SGB-32C Outdoor Waterproof Backbox	30-195001-002
10 K Ohm Resistor	06-129025-003
Pkg. of (12) Breakrods	30195002-001
Spare Key	06-118013-001
Label Set	06-231866-931

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