



# FireSystem 2600HD Industrial Fire Control Panel



## Features

- Custom designed to specifications
- Industrial NEMA Type 4 enclosures
- Protectowire Alarm Point Location Meter - standard
- Monitors up to 5,000 feet (1,524m) of Protectowire Linear Heat Detector per zone
- Lamp and initiating device circuit alarm tests
- Ground fault detection
- Trouble silence resound timer
- Available PCLC based touch screen OI color display panel

## Introduction

The 2600HD Series is custom configured to each customer's application requirements and is specifically designed for industrial hazards which demand high reliability and customized system features. Special capabilities, such as custom system operating logic, outdoor or hazardous installation environments, special input voltages, high power demand applications, or multiple extinguishing release circuit activation can all be provided to meet the most demanding application requirements.

## Description

The 2600HD is a fully supervised, fire detection control panel available in multiple zone custom configurations. The system is modular in design and provides a range of functional control features. The system is Factory Mutual Research Corporation (FM) approved and conforms to applicable NFPA 72 requirements for local and auxiliary protective signaling systems. It may also be used as part of a proprietary fire alarm system, and when properly configured, will operate early warning smoke and flame detectors, provide sprinkler supervisory service, water flow alarm, and automatic extinguishing system release including preaction and deluge sprinkler systems.



## System Control Units

The core system is available in three distinct configurations:

- **2600HD1** — The standard system control unit has been designated the 2600HD1. This model consists of an MB-97 Series Main Control Board, associated power supply and standard Protectowire Alarm Point Location Meter. The meter will display the linear distance in feet or meters from the start of the Detector portion of the zone to the heat actuated point on the Protectowire Linear Heat Detector.
- **2600HD2** — A non-metered version of the standard control unit, model 2600HD2 is available for those applications which do not require the use of a Protectowire Alarm Point Location Meter. Should system requirements change after installation, the 2600HD2 has been designed to accommodate easy field installation of an optional Protectowire Alarm Point Location Meter without the need to replace the system's original modules.
- **2600HD3** — The 2600HD3 configuration consists of the MB-97 Series Main Control Board, associated power supply, and PCLC based operator interface (OI) touch screen color display panel. This enhanced system control unit provides a Protectowire Alarm Point Location Meter function with automatic alarm scanning, data history logging, expanded communication capabilities using RS232/422/485 serial ports, and when properly configured, graphic annunciation of the protected hazard area.



*PCLC Graphic Display (2600HD3)*

## System Control Unit Features

Each system control unit contains an MB-97 main board which provides user operated control switches, complete power management, adjustable battery charger with monitor, ground fault detection, lamp test, one Class A/B (Style Z or Y) general alarm notification appliance circuit, one Class A/B (Style Z or Y) programmable auxiliary alarm notification appliance circuit and trouble silence resound timer.

Twelve (12) system status LED indicators are mounted on the MB-97 main board. A green Power On LED, a red General Alarm LED, a red Auxiliary Alarm LED, one each yellow Common Trouble LED, Trouble Silence LED, Ground Fault LED, General Alarm Circuit Open LED, General Alarm Circuit Short LED, Auxiliary Alarm Circuit Open LED, Auxiliary Alarm Circuit Short LED, Battery Out LED and Battery Low LED. On board system controls consist of four slide switches which activate System Alarm Test, System Reset, Alarm/Trouble Silence and Lamp Test functions.

All system alarm, trouble, and supervisory indicators are mounted on the front of the enclosure behind a sealed window, which has been specially designed to maintain the integrity of the enclosure's

NEMA rating. In addition, most individual control and detection modules have on-board LED indicators which duplicate the external LED indicators to assist in identifying various alarm, trouble or off normal conditions once the control panel door has been opened.

The 2600HD Series Control Unit has been designed to provide maximum power management flexibility, and is offered in three standard power configurations. Each configuration is identified by a unique ordering code which designates the system's input operating voltage and back-up power source:

**GC1** — 120 VAC, 50/60 Hz. Input with Gel Cell (Sealed Lead Acid) Battery Back-up.

**GC2** — 240 VAC, 50/60 Hz. Input with Gel Cell (Sealed Lead Acid) Battery Back-up.

**UC1** — Universal Primary and Back-up Power Input. Uninterruptible Second Source Back-up Power required.

The UC1 Universal Power Input option utilizes highly efficient switching power supplies for both system primary and secondary back-up power input. Each power supply is capable of operating on input voltage ranges of 120 - 240 VAC or 120 - 250 VDC. In this configuration, emergency back-up batteries are not used in the system and the standard MB-97 main board is replaced by the MB-97-UC1 which does not contain battery charging or monitoring capabilities. All other functional system controls remain the same.

## System Options

### Initiating Device Modules – Options A, AA, B, BB, C & CC

The 2600HD Series Control Panel utilizes two distinct input modules (ZM-2/ZM-3224) for all alarm initiating devices. Both modules have been designed to operate up to 5,000 feet (1,524m) of Protectowire Linear Heat Detector as well as other types of initiating devices such as smoke and flame detectors, water flow switches, manual pull stations and spot heat detectors.

#### Options A & AA (Two Class A Detection Zones)

Option A consists of the ZM-2 Input Module configured to provide two independent Class A (Style D) two wire initiating device circuits. Each initiating circuit is equipped with one red alarm LED, one yellow trouble LED and a push button switch for manual operation of the Protectowire Alarm Point Location Meter (2600HD1 Systems only). The ZM-2 features programmable alarm output signaling, auxiliary alarm and trouble outputs by zone for operation of other devices such as relays, and on board cross-zoning circuit for extinguishing applications.

Option AA consists of the ZM-2 plus a special I/O Interface Module. This option is used only in 2600HD3 Systems.

Options A and AA may not be used with Intrinsic Safety Barriers (Option G).

#### Options B & BB (Four Class B Detection Zones)

The ZM-3224 Input Module as utilized in Options B and BB, provides four independent Class B (Style B) two wire initiating device circuits. Each initiating circuit is equipped with one red alarm LED, one yellow trouble LED and a push-button switch for manual operation of the Protectowire Alarm Point Location Meter (2600HD1 Systems only). The ZM-3224 features programmable alarm output signaling, auxiliary alarm and trouble outputs by zone for operation of other devices such as relays and on-board cross-zoning circuit for extinguishing applications.

Option BB consists of the ZM-3224 plus a special I/O Interface Module used for internal system communications. This option is used only in 2600HD3 Systems.

### **Protectowire Alarm Point Location Meter Scanner – Options D2, D3 & D4**

The 2600HD1 Control System contains a standard Protectowire Alarm Point Location Meter which is designed to locate a heat actuated point on the Protectowire Linear Heat Detector. A Zone Alarm Scanner option is available for this metered system which allows for automatic identification and display of the Protectowire zone in alarm, as well as the alarm point distance location, while still monitoring the remaining Protectowire zones for an alarm condition. The Scanner is available for all 2600HD1 systems in the following configurations: 16 zones (Option D2), 32 zones (Option D3), and 48 zones (Option D4).

### **Supervisory Modules – Options E, EE, F & FF**

Option E consists of the standard ZM-3224 Input Module which has been factory configured to provide four Class B (Style B) Supervisory Circuits that can be used to monitor any device(s) which contains normally open contacts such as temperature monitors, tamper switches, air pressure switches or fire pumps.

When a normally open supervisory switch closes initiating a supervisory alarm, the corresponding zone's red alarm LED indicator becomes active along with the common trouble LED on the main control board. The zone will remain in a supervisory alarm condition until the switch has been restored to its normal open position, and the system alarm reset switch is activated. If an open in the supervisory circuit occurs, the corresponding zone's yellow trouble LED activates along with the common trouble LED on the main control board. These indicators will stay illuminated as long as the trouble condition exists. The system will self-restore to its normal standby condition once the trouble condition(s) has been cleared.

Option F utilizes the ZM-2 Input Module which has been factory configured to provide two Class A (Style D) Supervisory Circuits. The module's operation is the same as that described for Option E.

Options EE and FF incorporate a special I/O Interface in conjunction with their respective ZM Series Input Modules. The I/O Interface Module is required for internal system communications and is used only on 2600HD3 Systems.

### **Intrinsically Safe Detection Circuits — Option G**

The 2600HD Series can be provided with intrinsically safe Class B (Style B) detection circuits for those areas that are classified as hazardous. In this configuration, the voltage and current in the detection circuits is limited to values which are incapable of causing an explosion in a Division 1 area.

Option G consists of a shunt diode barrier which has been tested by FM as compatible with 2600HD initiating circuits and approved for use in Class I, II, and III, Division 1, Groups A, B, C, D, E, F, and G hazards. When employed on two wire initiating circuits (Option B), one Option G shunt diode barrier is required for each detection zone intended for use in a hazardous location.

The use of Option G requires that the system ground fault detection circuit be disabled. Only Protectowire Linear Heat Detector and/or other non-energy storing contact initiating devices may be used on detection circuits which employ this feature.

### **Solenoid Monitor and Release Modules – Options H, HH, J & JJ**

The RM-2 Series Solenoid Monitor and Release Module is designed to operate and supervise solenoid valves or relays used for the actuation of extinguishing systems. Release logic and activation of each release circuit is governed by a designated detection zone or group of zones in the 2600HD system. When the alarm signal is transferred to the release module(s), a voltage output is initiated to

operate the normally de-energized solenoid or relay thus activating the extinguishing agent release sequence.

### **Option H (Two 24 VDC Solenoid Monitor & Release Circuits)**

Option H consists of the standard RM-2 Solenoid Release module which provides two independent 24 VDC release output circuits. Each release circuit is fused and supervised for open and shorted conditions and provides a disconnect switch on the module to deactivate the circuit during system service. Each circuit is also provided with a red solenoid trip LED to confirm activation and one set of normally open auxiliary alarm contacts rated 1 amp @ 24 VDC. This option has been approved for actuation of FM Solenoid Groups A, B, D, E, F and G.

### **Option HH (Two 24 VDC Star Model D Deluge Valve Monitor & Release Circuits)**

This option utilizes the RM-2D Release Module which has been specifically designed for those applications that require operation of the Star Model D Deluge Valve. The RM-2D Release Module (Option HH) provides all of the same product features described for the RM-2 module (Option H). This option is the only model that is FM Approved for operation of the Star Model D Deluge Valve, FM Solenoid Group C.

### **Options J & JJ (Two High Voltage Solenoid Monitor & Release Circuits)**

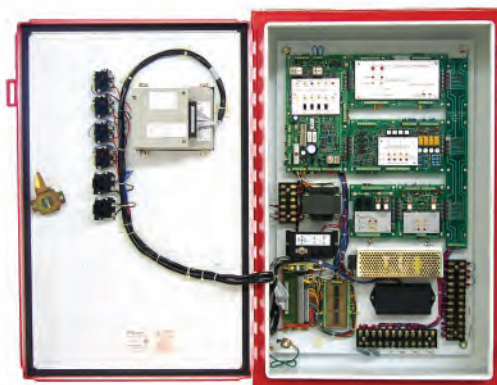
Utilizing the RM-2 Release Module with power switching relays, Option J (120 VAC) and Option JJ (250 VDC) provide supervision and initiating power for high voltage solenoids.

### **Audible Expander Module – Option K**

The Audible Expander Module, Model AE-2, provides the 2600HD with two additional supervised alarm signaling circuits (Notification Appliance Circuits) which may be used for general alarm signaling or operated selectively by input zone. Each power limited signaling circuit reverses polarity upon alarm and may be wired in either a Class A (Styles X & Z) or Class B (Styles W & Y) configuration. Each AE-2 circuit can be separately configured in either a latching or non-latching mode, and is rated for a maximum output of 1.5 amp.

### **Built-in Alarm Indicating Signaling Device – Option L**

This option provides a built-in alarm signaling device which activates upon any common alarm condition. This audible device produces a short intermittent pulsed signal which differentiates the alarm warning sound from the system's common trouble signal. This device is not intended for evacuation or life safety audible alarm signaling.





## Auxiliary Relays – Options M, N, P, Q, R & S

The 2600HD Series offers a wide range of system relay options designed to meet the most demanding functional operating requirements. Features such as plug-in sockets for easy replacement, timing functions, heavy duty contacts and customer specified operating logic all serve to make the 2600HD System the first choice for demanding industrial applications.

### Option M (Auxiliary DPDT Alarm Relay)

This relay option features a plug-in design and may be configured for common alarm, zone alarm, or selective multiple alarm input operation. Contacts are rated 10 amp @ 24 VDC or 115 VAC.

### Option N (Auxiliary DPDT Trouble/Supervisory Relay)

Option N provides a plug-in relay that can be configured for common trouble, zone trouble, or selective multiple trouble input operation. This option may also be utilized for supervisory alarm functions which are not required to initiate a system fire alarm condition. Contacts are rated 10 amp @ 24 VDC or 115 VAC.

### Options P, Q & R (Heavy Duty Multi-Pole Relays)

The heavy duty relay options consist of rugged 600 volt relays that can be used for any alarm, trouble or supervisory function requiring high power handling capabilities. These relays have the advantages of a direct drive design which prevents an overlap condition between N.O. and N.C. contacts, plus convertible contact cartridges with swing-around terminals for N.O./N.C. convertibility. Contact ratings for Option P (4 pole), Option Q (6 pole) and Option R (8 pole) relays are NEMA A600 and NEMA P600.

### Option S (Time Delay Relay)

This option consists of a plug-in time delay relay which combines a solid state digital timing circuit with an electromechanical relay. The relay's operating delay is manually adjustable from .6 to 60 seconds, and is typically configured to provide timed operating delays of system outputs such as solenoid activation. The Option S Time Delay Relay contains two SPDT contacts rated 10 amp resistive @ 120 VAC.

## External Key Operated Control Switches – Option T

Option T consists of four externally mounted key operated switches. These switches are used to duplicate the main control functions normally operated by the momentary switches mounted on the MB-97 Series Main Board inside the system enclosure. External key switches consist of System Reset, Alarm Silence, Trouble/Supervisory Silence and Lamp Test. All external key switches are NEMA-4 rated.

## Battery Charging Meters – Option U

Option U consists of a DC volt meter and DC ammeter which provide a numerical indication of the system's battery condition. The ammeter continuously displays battery charger current draw. To display the charger voltage level, it is necessary to manually depress the volt meter read switch. While in the normal standby "Power On" mode, the voltage reading reflects the battery set and charger level in a charging state. Readings taken in a "Power Out" mode reflect the actual battery set voltage level. Option U is not available when the UC1 Universal Power Input Option is ordered.

## Auxiliary Power Supplies – Options V & W

Option V consists of the APS-1 Power Supervisory Module with bridge rectifier and step-down transformer. The power supply provides 5 amps of additional full wave rectified power for heavy duty relays, or other high power demand devices that may exceed the 7 amp capacity of the system's main power supply.

Option W utilizes the APS-1 Power Supervisory Module and a switching regulated power supply. This option provides 7 amps of additional regulated power for detection zones, solenoid release circuits, auxiliary audible circuits, or any other devices that require regulated power.

Both units are completely supervised. Should the unit fail, a trouble signal illuminates the on-board trouble LED and allows the battery backup source to supply the panel with the necessary power.

## System Enclosures

The 2600HD Series is provided in NEMA- 4 rated enclosures. These enclosures are intended for use indoors or outdoors, and are designed primarily to provide a degree of protection against wind-blown dust and rain, splashing water, hose directed water, and damage from external condensation.

Each enclosure consists of a back box and door, fabricated of heavy gauge steel, and finished in a durable red enamel finish. The enclosure door utilizes a gasketed window which permits viewing of all appropriate visual indicators while still maintaining the enclosure's NEMA rating and FM Approval. To prevent the buildup of dangerous battery gases within the sealed enclosure, emergency standby batteries must be mounted in a separately ordered battery cabinet.

Enclosure Model	Module Space	Height Inches (cm)	Width Inches (cm)	Depth Inches (cm)
EHD4230	20	42 (107)	30 (76)	8 (20)
EHD4236	28	42 (107)	36 (91)	8 (20)
EHD4836	35	48 (122)	36 (91)	8 (20)
EHD6036	45	60 (152)	36 (91)	8 (20)

## Field Expansion

The zone capacity and optional features of the 2600HD Control Panel can be expanded after installation by utilizing an E2600HD System Extender Panel. In its basic form, the extender panel provides additional detection zones only. On large and more complex systems, design flexibility enables an extender to be configured to duplicate many of the same options contained in the main 2600HD Control Panel, thereby maintaining complete system integration and expansion capabilities. Consult Factory for assistance in determining specific configurations.

## FireSystem 2600HD Specifications

- AC Supply — 120 VAC 50/60 Hz, 1.75 amp max. or 240 VAC 50/60 Hz., .85 amp max.
- Battery Supply — 24 VDC, 4.5 to 60 ampere hour, Sealed Lead Acid (Gel Cell).
- Primary System Power — 24 Volts Full Wave Rectified, 175 VA, typical. Greater VA rating as required by system options.
- System Regulated Power — 24 VDC for system controls.
- Main Panel Common Alarm Contact Ratings — 2 amp @ 30 VDC, resistive load, latching.
- Main Panel Common Trouble Contact Rating — 2 amp @ 30 VDC, resistive load, selectable latching or non-latching.
- Environmental Operating Conditions:
  - Ambient temperature: 32°-120°F (0°-49°C)
  - Humidity: Maximum 95% non-condensing.
- Notification Appliance Circuits:
  - 24 volts full wave rectified with battery standby. Maximum cur-

rent is 2 amp per circuit, 3 amp maximum combined. Requires polarized audible devices.

All specifications are subject to change without notice.

## How To Order

**Step 1.** Select the model number of the basic system control unit and note module space.

- **2600HD1** - System control unit with Protectowire Alarm Point Location Meter. *Requires 10.0 module spaces.*
- **2600HD2** - System control unit without Protectowire Alarm Point Location Meter. *Requires 9.0 module spaces.*
- **2600HD3** - System control unit with PCLC Touch Screen Graphic Annunciator. (Includes Alarm Location Meter and Automatic Zone Alarm Scanner.) *Requires 12.0 module spaces.*

**Step 2.** Specify system input and back-up power option.

Option	Mod. Space	Description
GC1	—	120 VAC Power Input with Gel Cell Battery Back-up
GC2	—	240 VAC Power Input with Gel Cell Battery Back-up
UC1	4.0	Universal Primary and Back-up Power Input. Uninterruptible Second Source Back-up Power required

**Step 3.** Select system option ordering code letter(s) and show quantity. Note module space(s) required by each option in the system enclosure.

Option	Mod. Space	Description
A	2.0	Two (2) Zone Class A Detection Module
AA	2.5	Two (2) Zone Class A Detection Module w/ I/O Interface (2600HD3 Systems Only)
B	2.0	Four (4) Zone Class B Detection Module
BB	2.5	Four (4) Zone Class B Detection Module w/ I/O Interface (2600HD3 Systems Only)
D2	—	16 Zone Alarm Location Meter Scanner <sup>1</sup>
D3	—	32 Zone Alarm Location Meter Scanner <sup>1</sup>
D4	—	48 Zone Alarm Location Meter Scanner <sup>1</sup>
E	2.0	Four (4) Circuit Switch Supervisory Module (Class B)
EE	2.5	Four (4) Circuit Class B Supervisory Module w/ I/O Interface (2600HD3 Systems Only)
F	2.0	Two (2) Circuit Switch Supervisory Module (Class A)
FF	2.5	Two (2) Circuit Class A Supervisory Module w/ I/O Interface (2600HD3 Systems Only)
G	(1st. Barrier) 2.0 (Ea. Add'l) 1.0	Intrinsic Safety Barriers, Class B <sup>2</sup> (Detection/Supervisory Circuits Only)
H	1.0	Two (2) Circuit Solenoid Monitor & Release Module, 24 VDC

HH	1.0	Two (2) Circuit Solenoid Monitor & Release Module, 24 VDC Star Model D Valve
J	1.5	Two (2) Circuit Solenoid Monitor & Release Module w/Relays for 120 VAC Solenoids
JJ	2.5	Two (2) Circuit Solenoid Monitor & Release Module w/Relays for 250 VDC Solenoids
K	1.0	Audible Extender Module (2 Circuits/Module, Class A/B)
L	—	Built-in Alarm Indicating Sonalert
M	1.0	Auxiliary DPDT Alarm Relay, 10 amp @ 120 VAC or 28 VDC
N	1.0	Auxiliary DPDT Trouble Relay, 10 amp @ 120 VAC or 28 VDC
P	1.0	HD 4 Pole Relay, Ratings to 600 VAC and 240 VDC
Q	1.5	HD 6 Pole Relay, Ratings to 600 VAC and 240 VDC
R	1.5	HD 8 Pole Relay, Ratings to 600 VAC and 240 VDC
S	0.5	Time Delay Relay-Solid State .6 — 60 Seconds
T	—	External NEMA-4X Key Operated Switches (Consists of Switches for Lamp Test, Alarm Silence, Trouble/ Supervisory Silence & System Reset)
U	—	Battery Charging Meters (DC Volt and Ammeter)
V	1.5	Auxiliary FWR 5 amp Power Supply (APS-1 w/ Transformer)
W	2.0	Auxiliary Regulated 7 amp Power Supply w/ APS-1 Module

<sup>1</sup>This option not available on 2600HD2 or HD3 Systems.

<sup>2</sup>This option is not available with system ground fault detection.

#### Step 4. System Enclosures

To determine the proper size system enclosure, it is necessary to calculate the total space required by all system components. Begin by adding the number of module spaces required for the basic control unit in Step 1, power input option from Step 2 and for the quantity of each option selected in Step 3. The sum of these numbers equals the total space required by the system you have configured. Select an enclosure whose total space capacity exceeds this number. *If the total module spaces required for the system exceed the size of the largest enclosure, a custom sized enclosure is required. Consult the Factory.*

<u>Model</u>	<u>Description</u>	<u>Module Space</u>
• EHD4230	Industrial Type—NEMA 4 Rated	20
• EHD4236	Industrial Type—NEMA 4 Rated	28
• EHD4836	Industrial Type—NEMA 4 Rated	35
• EHD6036	Industrial Type—NEMA 4 Rated	45

#### *System Enclosure Disclaimer*

Due to the custom design features of the 2600HD Series and the potential for system variations requiring ancillary devices not accounted for by standard factory options, all 2600HD system enclosures estimated and/or ordered using this information are considered preliminary and are subject to change upon final Factory review.

**Step 5.** Finalize the complete system model number by listing the configuration selected in Steps 1, 2, 3 and 4 in the same format as shown in this example:

2600HD1-GC1-BEH2-EHD4230

Control unit with Protectowire Alarm Point Location Meter, operating on 120 VAC, 50-60 Hz. input and gel cell battery backup; (1) ZM-3224 Input Module (Option B) with four Class B detection zones; (1) ZM-3224 Input Module (Option E) with four Class B switch supervisory circuits; (2) RM-2 Solenoid Monitor & Release Modules (Option H) (4 Release Circuits/2 per module) all in a red EHD4230 NEMA-4 enclosure.

**Step 6.** Each 2600HD Series Control Panel is custom assembled and tested at the factory as a complete system. In order to ensure conformance with each customer's operating requirements, every order must be accompanied by a brief description of the panel's operating logic and zone functions.

## How To Order A 2600HD Extender Panel

- A. Select model number of basic 2600HD Extender Panel. *Each model requires 2 module spaces in the enclosure.*
  - **E2600HD1** — System Extender Panel for use with a 2600HD1 Control Panel containing a Protectowire Alarm Point Location Meter.
  - **E2600HD2** — System Extender Panel for use with a 2600HD2 Control Panel *without* a Protectowire Alarm Point Location Meter.
  - **E2600HD3** — System Extender Panel for use with a 2600HD3 Control Panel containing a Touch Screen PCLC Graphic Display.
- B. Select Option Code Letter(s) from those listed in Step 3 and show quantity.
- C. Determine the size of the extender's enclosure by calculating the total space required by all system components. Begin by adding the number of module spaces required by the basic 2600HD Extender Panel and for the quantity of each option selected. The sum of these numbers equals the total space required by the extender you have configured. Follow the procedure previously outlined in Step 4 to select the proper size enclosure.
- D. Finalize complete 2600HD Extender Model Number as shown in the example. Note that the quantity of each option ordered is shown after its Option Code Letter.

E2600HD1-B2G4M8-EHD4230