PROTECTOWIRE® FireSystems

DATA SHEET

FireSystem 2000

Commercial and Light Industrial Fire Alarm Control Panel

Features

- Monitors up to 5000 feet of Protectowire liner heat detector per zone
- Alarm point location meter available in feet and meters
- Detection and Releasing capabilities
- Ground fault detection
- Lamp and system trouble circuit test
- LTi Series NEMA 4 / 12 enclosures available

Description

The FireSystem 2000 is a fully supervised, non-coded fire alarm control panel available in multiple zone configurations. The control panels are modular in design and feature individual control modules designed to meet specialized system requirements for commercial, institutional, and light industrial applications.

The system is both UL listed and FM approved and conforms to applicable NFPA 72 requirements for local and auxiliary protective signaling systems. Also capable of sprinkler supervisory service, water flow alarm, preaction sprinkler or deluge system release.

The basic 2-wire system control panel and its associated power supply provide the following standard features: two (2) supervised detection circuits, that may be field wired for either Class A (Style D) or Class B (Style B); two (2) supervised Class B (Styles W & Y) audible appliance circuits; battery charger and monitor; ground fault detection; lamp test; one (1) set of SPDT common alarm contacts, two (2) sets of Form A or B (selectable) common trouble contacts, and one (1) set of Form A or B (selectable) common supervisory contacts. Common trouble contacts may be programmed for silenceable or non-silenceable operation.

Flexibility

The basic 2000 Series Control Panel is designed for easy expansion of system capability by adding additional modules and functions to the standard system. The 2000 will accommodate a combination of the following options:

- Protectowire alarm point location meter
- Extinguishing system release and supervision
- Water flow detection
- Fire and non-fire supervisory monitoring
- Intrinsically safe detection zones
- Supplementary relays

System Features

Nine system status indicators are mounted on the main control board. A green POWER ON LED, a red SYSTEM ALARM LED, a yellow SYSTEM TROUBLE/SUPERVISORY signal LED, and a yellow GROUND FAULT indicator. Additional yellow indicating LED's are provided for ALARM SILENCED, AUDIBLE SIGNAL CIRCUITS OPEN/SHORTED, BATTERY LOW and BATTERY OUT.

Standard system controls consist of four push button switches which provide the following functions: System Reset, Alarm Silence, Trouble Silence, and Lamp and Trouble Test.

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Protectowire Alarm Point Location Meter (Option A)

The PDM-1000-2 Meter (Option A) may be built into the 2000 Series Control Panel to locate a heat actuated point on the Protectowire Linear Heat Detector. The meter will display the distance in feet or meters from the start of the Detector portion of the zone to the overheated or actuated point on the Protectowire Linear Heat Detector.

Solenoid Release & Initiating Device Module (Option F)

The RS-1 Solenoid Release and Initiating Device Modules are designed to operate and supervise solenoid valves used for the actuation of extinguishing systems. The plug-in module provides one (1) supervised solenoid output circuit and one (1) Class B (Style B) initiating device circuit that is jumper selectable for either alarm or supervisory field devices.

Release logic and activation of the module is governed by the appropriate programmed detection zone(s) in the 2000 Series Control Panel. Once the module is activated, a 24VDC output is initiated to energize the solenoid coil of the control valve to begin the extinguishing agent release sequence and a red LED "Trip" indicator will light showing that voltage has been supplied to the releasing circuit field terminals.

Cross zoned operation is achieved through the use of the ZV-91 Zone Voting Module (Option V) or by removing a micro-jumper and applying appropriate outputs from either the MB-91A Main Board or EB-91A Expander Board.

The release circuit is supervised for open and shorted conditions. In the case of an open or short, the system trouble buzzer will pulse and the appropriate yellow trouble LED will illuminate. A circuit disconnect switch is also provided to deactivate the module during servicing of the system. The RS-1 release module is UL listed and is approved by Factory Mutual for actuation of FM Solenoid Groups A, B, and D through K. This option requires half a module space in the system enclosure.

Solenoid monitor and release module with Class B initiating circuit. (Option F)

Intrinsically Safe Detection Circuits (Options H & K)

The 2000 Series can be provided with intrinsically safe Class B detection circuits for those areas that are classified as hazardous. The voltage and current in the detection circuits will be limited to values which are incapable of causing an explosion in a Class I, Division 1 area. Up to 3,500 ft.(1,067m) of Protectowire Linear Heat Detector and/or other non-energy storing contact initiating devices may be used per circuit. Two FM Approved options are currently offered for the 2000 Series Control Panels:

Option H: Utilizes one shunt diode barrier per zone and has been FM Approved for NEC Classes I, II, and III, Division 1, Groups A, B, C, D, E, F, and G. This option permits the use of the Protec-towire Alarm Point Location Meter (Option A) but requires that the system ground fault detection circuit be disabled.

Option K: Consists of a dual channel DC Isolator interfaced with the detection circuits. One (1) Option K is required for every two (2) zones. This option is FM Approved for NEC Classes I, II, and III, Division 1, Groups A,B, C, D, E, F, and G. Option K permits the use of the system ground fault detection circuit for all other non-isolated system circuits. This option has the following restrictions: Not compatible with the Protectowire Alarm Point Location Meter (Option A). Due to space limitations, the use of Option K is limited to LTi Systems only.

Audible Alarm Circuits (Options T & U)

Each 2000 Series Control Panel contains two standard Class B (Styles W & Y) general alarm circuits which are contained on the main control board. These audible circuits may be wired in a Class A (Styles X & Z) configuration when Option T is ordered.

Additional audible alarm circuits may be added to the system by utilizing AE-91 Audible Expander Modules (Option U). Each module provides one (1) audible alarm signaling circuit which may be wired in either a Class A (Styles X & Z) or Class B (Styles W & Y) configuration. These plug-in modules may be provided in a latching or non-latching mode and will also accept up to four (4) inputs for selective activation by zone or groups of zones. Option U requires half a module space in the system enclosure, and the total circuit load may not exceed 1.0 amp.

Zone Voting Module (Option V)

The ZV-91 Zone Voting Module (Option V) is designed to supply a specific output signal(s) upon the receipt of multiple input signals.

The ZV-91 contains a programmable resistor network that will accept up to 16 input signals. The 16 inputs are arranged into four (4) groups of four (4) with each group capable of providing a designated output signal (total 4). When used in a voting zone format, the module inputs can be selectively programmed to provide an output signal upon activation of any two or three of the 16 inputs. When a cross-zoned configuration is required, the module will accept a maximum of eight (8) inputs or zones, and can provide up to a maximum of four (4) separate ouputs.

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Zone Voting Module (Option V continued)

The module provides excellent system versatility in control function logic. Typical application examples are: actuation of selected relays from the operation of two or more independent initiating circuits; activating an AE-91 Audible Expander Module from a number of select initiating device circuits; and cross-zoning of initiating device circuits and/or supervisory circuits. The ZV-91 is designed for mounting on the side-wall of the enclosure, and does not require a designated module space when sizing the system enclosure.

Auxiliary Power Supply (Option W)

The Auxiliary Power Supply (Option W) is designed to increase the overall system power from 5.25 Amps to 9.0 Amps on any FS2000 Series Control Panel. The PS-2 supplies additional regulated power for detection zones, solenoid release circuits, auxiliary audible circuits, alarm relays, or other high power demand devices which may exceed the capacity of the system's main power supply.

The unit is completely supervised. Should the power supply fail, a trouble signal illuminates the system trouble LED, and the on-board buzzer will activate. The PS-2 operates on primary AC power of 120VAC,

50-60Hz at 1.75 amps maximum, and provides 4.2 amps of DC power under alarm conditions.

Options

A	Protectowire alarm point location meter PDM–1000–2
D	Water flow detection zones (2/card)
E	Switch supervisory circuits Class A/B (2 circuits/module)
F	Solenoid release and initiating device module (1 release and 1 Class B initiating circuit/module)
H	Intrinsic safety barrier for Class B, 2-wire detection circuits (Option not available with system ground fault detection)
K	Dual Channel DC Isolator for two (2) Class B, 2-wire detection circuits (Not compatible with Option A)*
L	Auxiliary output relay – SPDT
LL	Auxiliary output relay – DPDT
Q	Time delay relay
R	Auxiliary common alarm relay – DPDT
RR	Auxiliary relay module – 8-SPDT relays (1 amp @ 24 VDC)
S	Auxiliary common trouble relay – DPDT
T	Class A (NFPA Styles X & Z) audible circuits (main panel, general alarm only)
U	Audible expander card (I circuit, Class A or B)
V	Zone voting module
W	PS–2 auxiliary power supply
Z	Door mounted, key operated, control switches (reset, alarm silence, trouble/supervisory silence & lamp test)

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System Enclosures

EN Commercial Series NEMA Type 1

The EN Series System Enclosures are designed to accommodate all input and output modules, power supplies, and batteries (up to 18AH) utilized in the FireSystem 2000.

Each enclosure consists of a back box and door, fabricated of heavy gauge steel and finished in a fine textured red epoxy enamel finish. The enclosure door, which is mounted on heavy duty sag-resistant hinges, is fitted with a key lock, and may be removed from the back box to permit easy installation and service. Red enclosures are optionally available and may be ordered by adding the suffix to the enclosure model number.

Each enclosure is vented, which allows for internal placement of the emergency standby batteries. The largest battery supplied by the factory, which may be installed in each model enclosure is indicated in the chart below. When the system's battery size requirements exceed the sizes shown, a separately ordered battery cabinet is required. Consult factory for information.

Enclosure	Module Spaces	Max. Battery Size	Width	Height	Depth
EN2R	2	10AH	21in (53.3cm)	17in (43.2cm)	5in (12.7cm)
EN4R	4	18AH	21in (53.3cm)	31in (78.7cm)	5in (12.7cm)
EN6R	6	18AH	26in (66cm)	31in (78.7cm)	5in (12.7cm)
EN9R	9	18AH	26in (66cm)	42in (106.7cm)	5in (12.7cm)
EN12R	12	18AH	26in (66cm)	53" (134.6)	5in (12.7cm)

LTi Industrial Series — NEMA Type 4/12 & 4X

The LTi Series Enclosures are intended for use indoors or outdoors and are designed primarily to provide a degree of protection against windblown dust and rain, splashing water, hose-directed water, and damage from external condensation. To prevent the build-up of dangerous battery gases within the sealed enclosure, a separately ordered battery cabinet is required. For additional information on LTi Enclosures, refer to Data Sheet 9130.

Enclosure Model	Module Spaces	Width	Height	Depth	Enclosure Color
LTi2X	2	19.5in (49.5cm)	17.5in (44.5cm)	9in (22.9cm)	Red
LTi4	4	24in (70cm)	34in (86.4cm)	6.9in (17.4cm)	Red
LTi6	6	29in (73.7cm)	34in (86.4cm)	6.9in (17.4cm)	Red
LTi9	9	29in (73.7cm)	45in (114.3cm)	6.9in (17.4cm)	Red

FireSystem 2000 Specifications

AC Supply
120 or 240VAC, 50-60Hz, 1.75 amp max., 3.5 amp max when employing option W

Battery Supply
24VDC 4.5-55 ampere hour.
Gel cell (standard)
Nickel cadmium (special order)

Environmental Operation Conditions
Ambient temperature: 32°-120°F (0°-49°C).
Humidity: Max. 95% non-condensing.

Primary System Power
24V FWR by TI, 175VA typical.

System Regulated Power
Each board (MB, EB, RS) has full voltage regulation, 12VDC and 24VDC.

Audible Signaling Device Circuits
24V – FWR with battery standby.
Maximum current: 2 amp/circuit, 3 amp combined.
Requires polarized audible devices.

Relay Contact Ratings
Common alarm: 3 amp @ 30VDC.
Common trouble: 1 amp @ 24VDC (silenceable or non-silenceable)
Common supervisory: 1 amp @ 24VDC.

Approvals*
- UL listed (9th Edition) • City of New York #MEA–374–91E
- Factory Mutual • Calif. State Fire Marshal #7165–0854:103

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