

FirePro®

TECHNICAL MANUAL



FPC-1

Fire Detection and Extinguishant Controller

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FPC-1 FIRE DETECTION AND EXTINGUISHANT CONTROLLER

1 Introduction

The FPC-1 is a self-contained aerosol activation module.

The FPC-1 includes a heat sensor that operates as a fixed-temperature or Rate-of-Rise and fixed-temperature detector, input for optional manual activation switch and/or linear heat detector, control circuitry, and activation of two FirePro Aerosol units.

The unit reports via open collector alarm condition, trouble condition, and provides "watch-dog" pulses to indicate the unit is alive.

The module is operated by its own supervised power source.

The FPC-1 is not intended to replace fire detection and automatic extinguishing systems that are required according to relevant regulations.

An open or disconnected aerosol generator will not interfere with the operation of the other aerosol.

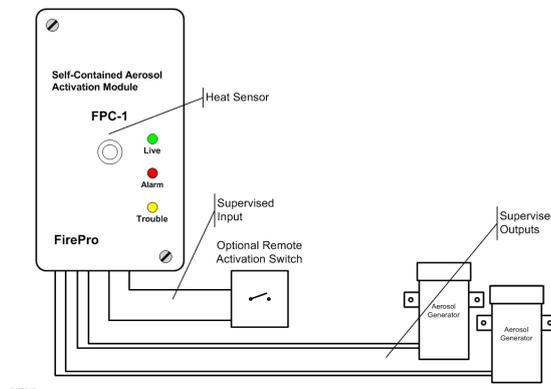


Figure 1 FPC-1 Fire Detection and Extinguishant Controller

2 Installation

Only authorised people should install the FPC-1. Install the unit on the top surface of the protected space or near the top as high as possible. Install the aerosol container according to the manufacturer's specification.

Warning

Disconnect all power sources when installing the FPC-1 in protected spaces that have power sources.

1. Remove the module's top cover.
2. Secure the module to the top surface of the protected space (see Figure 2 on page 2 for location of the openings for mounting screws).
3. Connect the first aerosol extinguisher to the terminal marked "Match 1". Connect the second aerosol extinguisher, if required, to the terminal marked "Match 2". Short "Match 2" output if a second aerosol is not used.

4. Connect the optional remote activation switch to the "Remote Activation" terminal, if required. Connect the 5.1K End of Line resistor to the switch as indicated by Figure 2. If the system is supervised by a Building Management System (BMS), connect the Alarm (AL), Trouble (TR), and Watchdog, (WD) open-collector outputs to the appropriate BMS inputs. Secure the cable mechanically with a tie wrap. Insert four alkaline AA batteries in the battery pack and connect it to connector JP3 (see Figure 2).
5. Ensure proper operation – the green LED flashes every 10 seconds to indicate a normal status.
6. Close the module's cover – take care of the location of the sensor and LEDs.

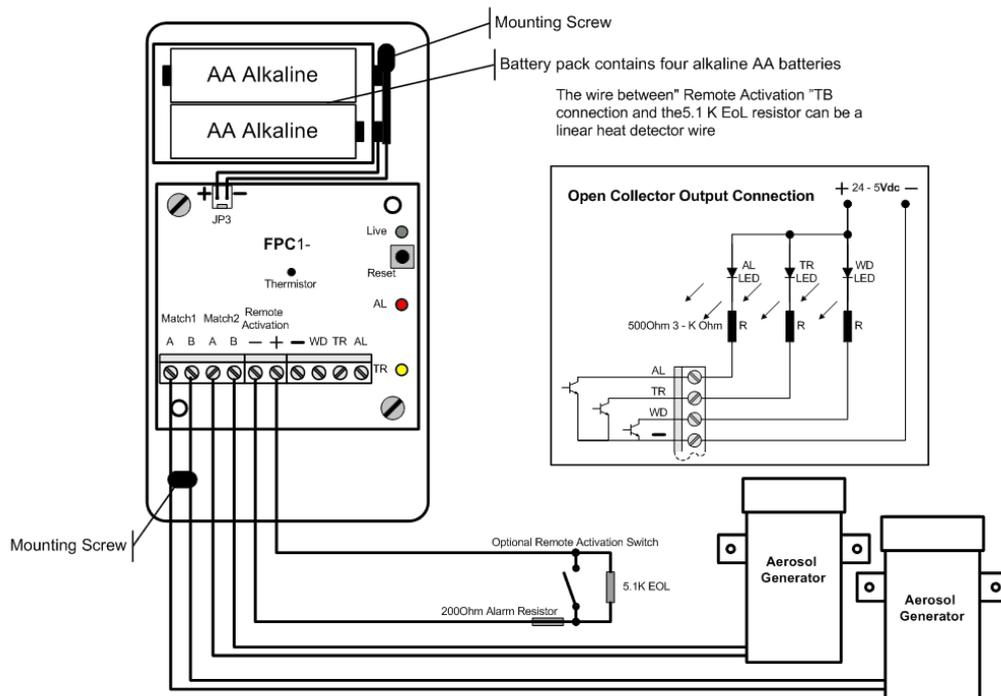


Figure 2 FPC-1 Connection

Warning

The FPC-1 is a self-contained activation module for extinguishing devices that operate by activation of an electric igniter supplied with aerosol extinguishers manufactured by FirePro. The FPC-1 is not intended to replace fire alarm systems that include a control panel, remote annunciators, smoke detectors, heat detectors, call points, sounders, strobes, and extinguishing devices as required by standards and regulations applicable to the installed location.

Conform to the country's relevant standards and regulations applicable to the system's location when installing automatic extinguishing systems. Some applications are not compatible with the FPC-1 due to regulations, local laws, or applicable standards. Ensure that the requirements and regulations relevant to the installed location do not prohibit such a system. The FPC-1 is intended for applications where relevant regulations do not specify a fire alarm and extinguishing system.

The FPC-1 operates by heat detection. Do not use the FPC-1 if smoke detection is required.

In instances where the module's characteristics conflict with any standard, you should install a system that is fully compliant with the relevant standards. In such cases you may install the FPC-1 module in addition to the system that is required by regulation

3 Changing Operating Mode

The FPC-1's default operation mode is fixed-temperature (80 °C). It is possible to change the operating mode to rate-of-rise. To change from fixed-temperature mode to rate-of-rise jumper JP4 (to the right of the battery connector) pins 1 and 3 and press the "Reset" button or power the FPC-1 off and on. Remove the jumper after power on process is complete.

Warning

The FPC-1 will revert to fixed-temperature mode after power off and on or after pressing the Reset button. Repeat the above procedure to change it again to rate-of-rise mode.

4 Indicating LEDs

The system has three LEDs for status indication, Live, Alarm, and Trouble. Alarm signal is latched until reset. Trouble signal changes back to normal once the trouble event is resolved.

4.1 Live

Green LED. Flashes every 10 seconds to indicate a normal status.

4.2 Alarm

Red LED.

- Off during normal operation
- A repeated pattern of a single beep and a single flash to indicate activation by the built-in temperature sensor
- A repeated pattern of a single beep and a double flash to indicate activation from the remote activation switch

4.2.1 Alarm Indications

- A beep and a single flash of the Alarm (red) LED every 0.5 second – alarm activated by the thermistor.
- A beep and two flashes of the Alarm (red) LED every 0.8 second – alarm activated by the Remote Activation input.

4.3 Trouble

Yellow LED.

- Off during normal operation
- Flashes to indicate a fault condition

4.3.1 Fault Indications

- A beep and a single flash of the Trouble (yellow) LED every 3 seconds – an open wire in the "Electric Match" input.
- A beep and two flashes of the Trouble (yellow) LED every 3 seconds – an open wire or short in the Remote Activation input.
- A beep and three flashes of the Trouble (yellow) LED every 3 seconds – an open wire in the Thermistor input.
- A beep and three flash of the Trouble (yellow) LED every minute – a weak battery.

5 Remote Activation Input

The FPC-1 has a remote activation input that can be used in one of two ways:

- A manual activation switch – remove the End of Line resistor and install it at the switch as shown in Figure 2.
- A linear heat detection wire – when connecting a linear heat cable remove the End of Line resistor and install it at the end of the cable.

6 Open Collector Outputs

The FPC-1 has three open collector outputs that can activate an auxiliary indicating LEDs or relays. Make sure that the current flow through the open collector does not exceed the maximum current as specified in the specification section on page 5.

7 What to Do After Activation

Replace the aerosol container and the batteries and verify normal operation (Live LED flashes every 10 seconds to indicate a normal status).

8 Periodic Maintenance

8.1 Weekly Inspection by the Site's Safety Supervisor

The FPC-1 module should be inspected weekly by the site's safety supervisor for normal operation:

- Live LED (green) flashes every 10 seconds
- Alarm (red) and Trouble (yellow) LEDs are off
- The buzzer is off

Call your service organisation if any of these conditions are not met.

9 Warnings and Limitations

Please Note

The FPC-1 module contains various elements, including a control module, and a heat detection sensor that are intended to activate a compatible extinguishing unit by triggering a pre-defined electric igniter.

When used with an extinguishing device, proper planning of the system's configuration and all its components including infrastructure, and installation according to the manufacturer's instructions and applicable standards is an imperative and reliant prerequisite and condition precedent for the system's proper and effective operation. The designer and installer should possess the appropriate skills for said implementation and any loss or damage caused due to improper planning or installation will befall solely upon the planner and/or installer.

The responsibility for any improper action performed that results in loss or damage will befall solely upon the planner and/or installer.

The manufacture bears no responsibility for fire and/or fire outset in locations where fire detection systems are installed and/or damages direct or indirect caused to any person and/or property or third parties as a result of use of this product or resulting from any malefaction thereof.

Note

Do not install, commission, or maintain the system prior to reading this manual in full.

10 Specification

Dimensions (W/H/D)	73/130/35 mm
Weight	220 g. including batteries
Operating Temperature Range	0 °C – +60 °C (32 °F – 140 °F)
Relative Humidity Range	10% – 93% non-condensing
Operating Voltage	6V
(supplied by 4 AA alkaline batteries such as Duracell or equivalent)	
Battery Operating Time	2 – 3 years, dependant on battery and environmental conditions
Average Current Consumption:	Standby: 70µA/Alarm: 3.0mA
Activation Pulse (good battery)	0.9A/4 seconds
Activation temperature – Fixed Temperature	80 °C
Activation temperature – Rate of Rise	8 °C/minute, if over 40 °C
or Fixed Temperature	80 °C
Remote Activation resistance to trigger alarm	150 – 600 Ohm
Remote Activation End of Line Resistor	5.1 K Ohm
Max current draw from open collector output	50mA

All values are nominal. Specifications are subject to change without prior notice.