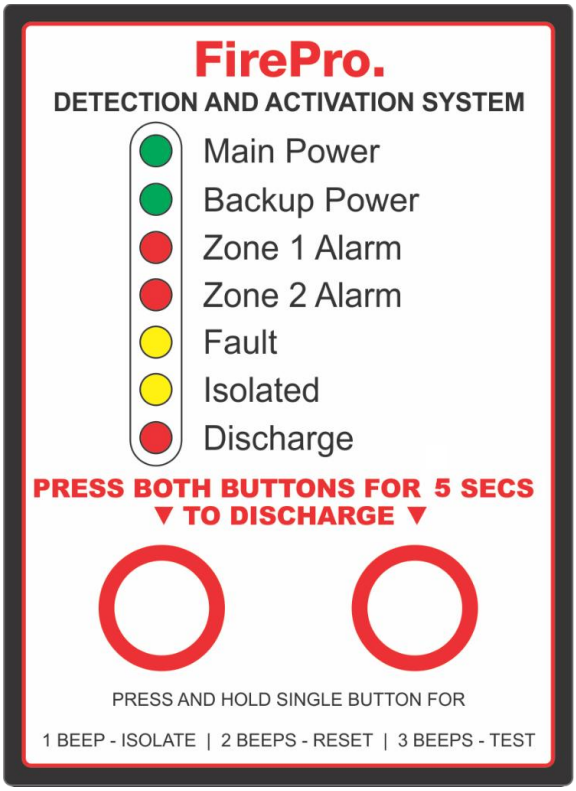
Fire Detection and Activation System
Model 08450

Rev A1.0



AUSTRALIAN MADE

Contents

1 Introduction

1.1 General Information

The FirePro FP-08450 Fire Control Panel is a combined detection and extinguishant system, and is compliant for use in marine (AMSA NSCV).

The FIP (fire indicator panel) incorporates:

1. 2x Detection circuits;
2. 1x Extinguishing Discharge circuit;
3. 1x Siren/Strobe circuit;
4. Programmable Activation (automatic and/or manual);
5. Fault Monitoring system;
6. Isolation Function.

How Does it Work

All **FirePro** Fire Extinguishing Aerosol Generators use the latest generation FPC solid compound. Upon activation, the solid compound is transformed into a rapidly expanding, highly efficient gas, based on Potassium salts. It does not deplete oxygen levels. **Its built-in fail-safe activation system** ensures operation of the generators when required, even if everything else fails. The FirePro Aerosol Generators have a certified life of 15 years, with minimal maintenance required.

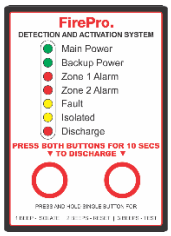
Ozone Depletion Potential (O.D.P.) = 0	Atmospheric Life Time (A.L.T.) = 0
Global Warming Potential (G.W.P.) = 0	Non-corrosive & Non-toxic

1.2 In Case of Fire

If a fire occurs, equipment operators should do the following:

1. Detection will initiate an alarm condition on the FirePro System
2. The siren/strobe will operate and if shutdown relays have been installed, equipment shutdown will be initiated.
3. Evacuate all personnel from the risk area.
4. Close all hatches and openings, and shutdown engines and any extraction fans or vents.
5. **Manual Activation:** Press and hold both mode switches continuously for 5 seconds to activate the system.
6. **Manual Call Points:** The control panel will automatically begin the activation sequence when remote activation switches (where installed) are pushed.
7. Keep the FirePro suppression gas within the risk until the fire is extinguished and not able to re-ignite.
8. Do not start engine or fans until the fire is extinguished. Operating the exhaust fans will enable the gas to escape the risk area and could allow the fire to re-ignite.
9. Do not enter the risk until it has been rendered safe.
10. Recommended clean up after discharge is with soapy water or cleaning agent based on citric acid.
11. Following a discharge, replace all installed Aerosol Generators.

2 Components List



FP-08450
Fire Control Panel
Detection and extinguishant control system

1x DP-3300	Deutsch Plug 3 Pin M/F, c/w heatshrink
3x DP-3310	Deutsch Plug 3 Pin F, c/w heatshrink
2x	End-of-line Plug 4k7Ω ½W (Detection)
1x	End-of-line Diode 1N4004 (Siren/Strobe)
1x	Charging Diode 1N5404 (Backup Power)
1x	End-of-Line Resistor 3k3Ω ½W(Discharge)
1x	Operator's Manual

Agent Release Circuit

FP-08918
Wiring loom and Splitter Cable for installaion of multiple FirePro generators.

Siren / Strobe Circuit

FP-08940
Siren/Strobe

Discharge Circuit

FirePro Aerosol Generator
100g – 500g Unit.
Constructed from Stainless Steel.
Comes with installed Deutsch Plug for easy install

FP-6200
Heavy Duty Bracket 316 SS.
Suits FP-100, 200, 500 FirePro Aerosol Generators.

FirePro Aerosol Generator
1200g – 5700g Unit.
Constructed from Stainless Steel.
Comes with installed Deutsch Plug for easy install.

FP-6100
Heavy Duty Bracket 316 SS.
Suits FP-1200, 2000, 3000 5700 FirePro Aerosol Generators.

Detection Circuit (Circuit 1 Alarm & Circuit 2 Alarm)

FP-08920 / 08930
Marine Grade Thermal Detector 60°C or 90°C Fixed.

FP-14053
Manual Call Point
Internal OR External

FP-08925
Marine Grade PE Smoke Detector

FP-09510
Linear Heat Detection Cable 182° C
Supplied in Cut Lengths with Deutsch Plugs for easy install.
Lengths: 1,2,4,6 & 8m

Installation Components

FP-09500
2 Hour Fire Rated Shielded Cable.

Service Components

FP-08960
Signage for the System. A sheet of different size labels.

FP-8872
Power Control Module
Provides back up power for control panel.

FP-08800
FirePro Simulator – for Testing & Commissioning.

Additional Modules

FP-08850
Discharge Delay Module
Allows additional FirePro generators to be discharged

FP-08860
Shutdown Relay Module
Provides facility for equipment shutdown

3 Design Considerations

3.1 Power Supply Input

NSCV Part C Section 4 Clause 5.5 requires - Control panels must be continuously powered and are to have an automatic changeover to standby power supply.

There are several methods that can be used to comply with this requirement. See 5.1 Power Supply for additional details.

3.2 Siren / Strobe Output

A siren is required for all marine installations. The recommended siren/strobe is the Banshee Sounder Strobe. In a typical install, the maximum number of supported sirens/strobes that can be installed is 5. When installed, Siren/Strobes are to be clearly visible and audible at all points around the vessel. The siren/strobe output is a monitored circuit. The supplied end-of-line diode (1N4004) must be installed on the last siren/strobe in the circuit, otherwise the fire control panel will display a fault.

3.3 Discharge Output

The maximum number of Aerosol Generators able to be discharged by the FP-08450 Fire Control Panel is limited by the voltage of the main power supply. That is:

Supply Voltage 12vDC Max = 2 Units	**Supply Voltage 24vDC** Max = 4 Units

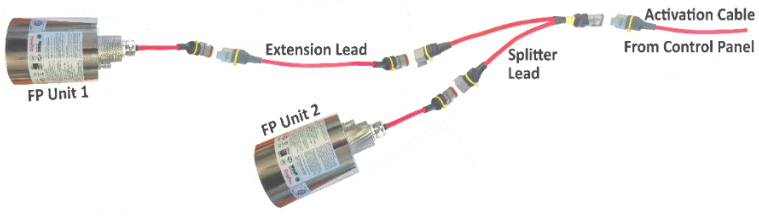
If a risk area requires a greater number of Aerosol Generators, the Discharge Delay module must be used. The module will discharge generators in multiples up to the maximum as above.

If the number of Aerosol Generators connected to each output is greater than the maximum, the fire system will not operate.

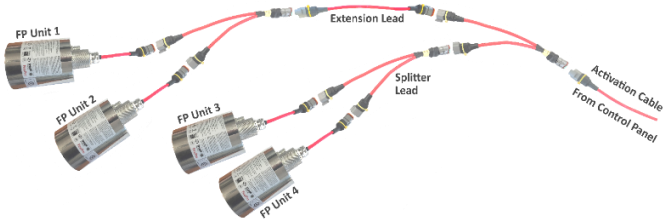
Where multiple Aerosol Generators are installed, connect using the Splitter Lead (P/N FP-08918).

Splitter Leads can be installed at any point on the activation. For ease of install, servicing and efficient field wiring, Splitter Leads should be installed in areas easy to access and minimise extension leads.

Connecting 2 Aerosol Generators



Connecting 4 Aerosol Generators



Where are no aerosol generators installed, the supplied end-of-line resistor (3k3Ω) must be connected to the Discharge output using the supplied deutsch plugs.

3.4 Detection Circuit 1 Alarm Output

The Circuit 1 Alarm Output is a zoned detection circuit capable of operating up to 30 conventional detectors, 100 metres of linear heat detection cable or 30 manual call points.

The Circuit 1 Alarm Output can be programmed for detection and alarm, or for automatic discharge if an alarm is detected on this circuit.

Where remote actuation is needed, the FP-14053 Manual Call Point may be installed, and Circuit 1 Alarm programmed for automatic discharge. **Note:** If remote activation is used, no other detection devices should be installed on Circuit 1 Alarm. The supplied end-of-line resistor (4k7Ω) must be installed on the last detector or manual call point in the circuit, otherwise the fire control panel will display a fault. If not used, the supplied end-of-line resistor (4k7Ω) must be connected to the Circuit 2 Alarm output using the supplied deutsch plugs.

3.5 Detection Circuit 2 Alarm Output

The Circuit 2 Alarm Output is a zoned detection circuit capable of operating up to 30 conventional detectors, 100 metres of linear heat detection cable or 30 manual call points.

The Circuit 2 Alarm Output is a detection and alarm circuit only. When in alarm condition the siren/strobe will operate, however the suppression system will not discharge until manually operated using the control panel.

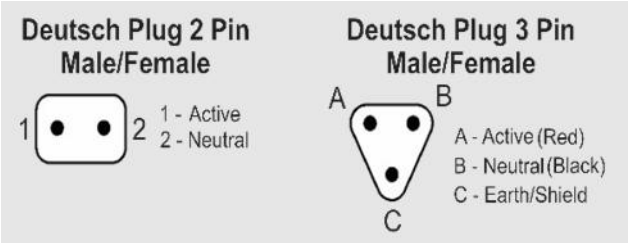
The supplied end-of-line resistor (4k7Ω) must be installed on the last detector or manual call point in the circuit, otherwise the fire control panel will display a fault. If detection is not used, the supplied end-of-line resistor (4k7Ω) must be connected to the Circuit 2 Alarm output using the supplied deutsch plugs.

3.6 Cabling Requirements

Cable Requirements - All cabling in the FirePro Installation MUST be done using 0.75mm shielded Fire Rated Cable. Care taken to ensure that all cables are isolated, and that RF shielding on cable is stripped back to ensure that there is not accidental grounding. Cables are colour coded for easy identification.

Extension Leads - Deutsch Plugs must be used to ensure water-proof connections are made throughout the installation.

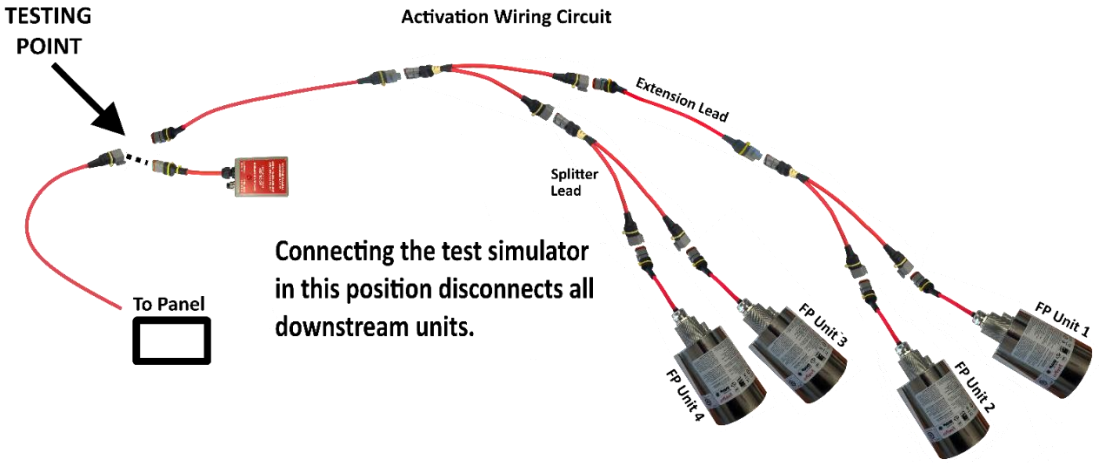
Colour	Circuit
Red 1	Main Power Supply
Red 2	Backup Power Supply
Yellow 1	Activation
Yellow 2	Activation Delayed
Green 1	Detection 1
Green 2	Detection 2
Orange	Siren/Strobe
White	Relay Output



3.7 System Test Point

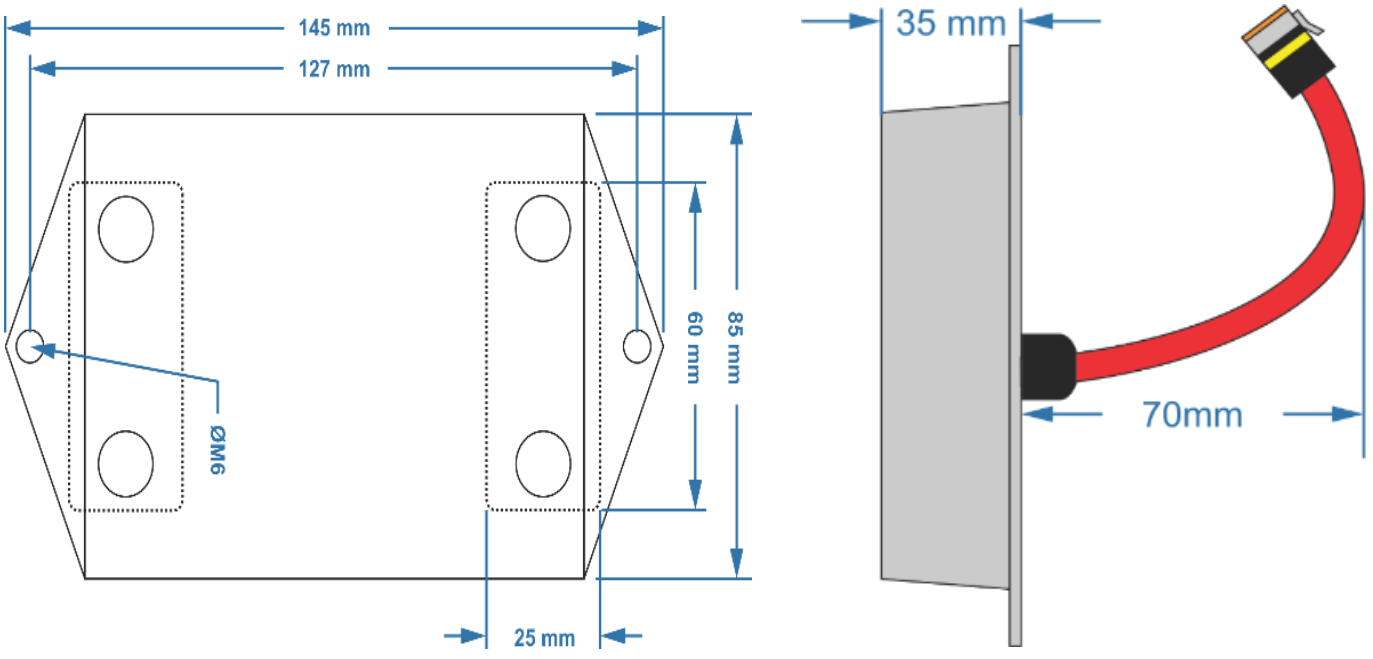
Due to regular testing requirements, it is recommended to install a System Testing Point where multiple Aerosol Generators have been installed. This is a break in the Discharge Circuit between the control panel and the aerosol generators. This creates a single point for testing, where all installed aerosol generators can be disconnected without having to do so individually.

Attach Deutsch plugs which allow the FirePro Simulator to be connected. Locate where it is easy to access and be signed as **"FirePro System Test Point".**



3.8 Mounting

For correct installation, the Fire Control Panel must be mounted by bolts or screws through the mounting holes in the flange on both sides of the Module. **No penetrations are to be made through the casing of the panel.** The Fire Control Panel enclosure is rated IP54, so should be installed in a convenient location, away from where it may be affected by water. It is necessary to complete all wiring and any programming of the detection mode prior to mounting the panel.



4 Installation of Aerosol Generators

FirePro Condensed Aerosol Fire Extinguishing System Arrangement.

- Aerosol Generators and system components installed to allow inspection and maintenance.
- Locate Aerosol Generators where they are not exposed to mechanical damage, exposed to chemicals, or weather conditions, that may render them inoperative. Protective provisions shall be adopted, if necessary.
- Aerosol Generators shall be securely installed. Use heavy duty brackets where necessary. Brackets should be capable of handling the risk environment, including vibration.

Aerosol Generators must be installed **at NOT less than the minimum safe distances** as specified in the design calculations.

Means for prompt rescue of any trapped personnel shall be provided, including:

- Adequate aisle ways/routes of exit.
- Alarms – audible and visual, that operate immediately on detection of the fire.
- Signs in accordance with relevant standards for the installation.

System components shall be positioned to the minimum clearances from energized electrical parts as per: AS 4487 and AS 3000.

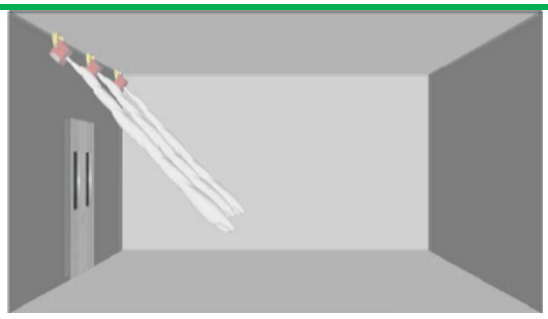
Handling and Storage - when handling the Condensed Aerosol Generators do not:

- Disassemble the unit
- Carry out any welding work in the vicinity of the fire extinguishing system components.
- Exert force or impact which creates physical or mechanical damage to the casing.

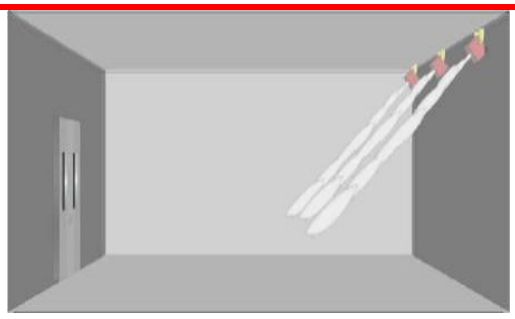
STORAGE and OPERATIONAL CONDITIONS

- Temperature: –54 and +54°C
- Humidity: maximum 98% RH
- Service life: 15 years (date of manufacture appears on each generator)

Positioning



CORRECT
Aerosol Generators directing the aerosol stream away from opening



INCORRECT
Aerosol Generators are directing the stream towards the opening.

5 Installation

Aerosol Generators **must** be disconnected until system is **completed,** and fire control panel is no longer in a fault or alarm. Use the FirePro Test Module to take the panel out of a fault condition.

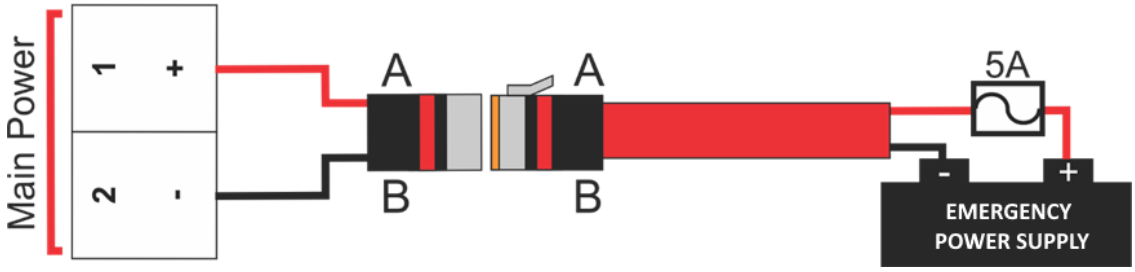
5.1 Power Supply

When panel has been mounted in a suitable location, connect main supply power using a Lead to the power input (marked red). There are several methods that comply with this requirement:

NSCV Part C Section4 Clause 5.5 requires - Control panels must be continuously powered and are to have an automatic changeover to standby power supply

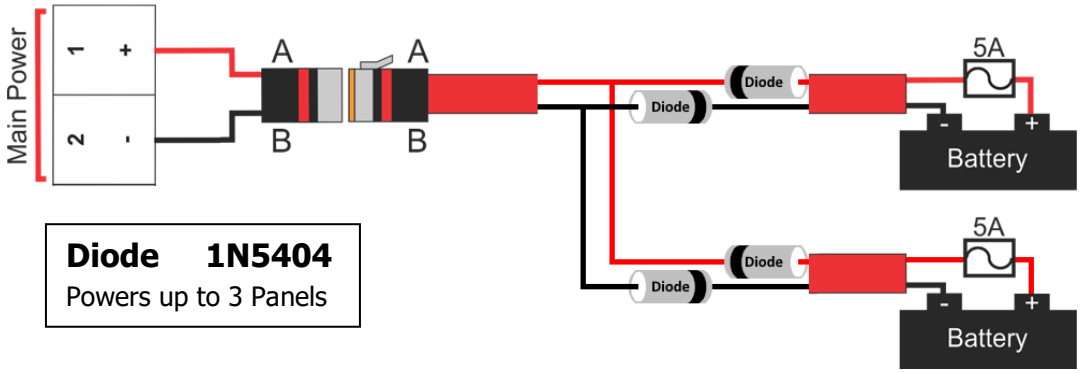
5.1.1 Power from Emergency Supply

Vessels under survey are required to provide emergency batteries to provide continuous power to all emergency equipment. Connection to the emergency power system will satisfy NSCV.



5.1.2 Alternate Power Supply Connection

Where automatic changeover is not installed, a Dual Power Cable (P/N FP-14020) may be used to connect 2 power supplies using a single power input to the panel. The Dual Power Cable can only be used if **both supplies are the same voltage**.



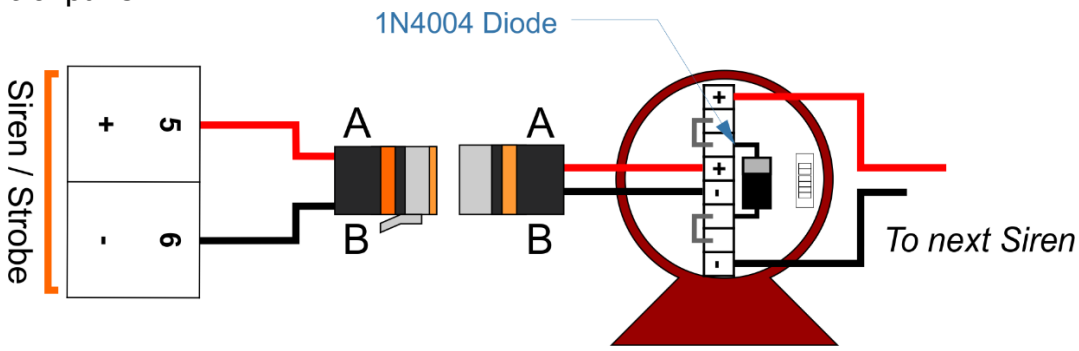
5.1.3 Separate connection of Backup Power

Where necessary a separate connection to a secondary power supply. If used, it **must** be the same voltage as the main power source.

5.2 Siren/Strobe Circuit

Mount the siren/strobe and connect to the "Siren" output on the module (marked orange). If more than one siren/strobe is being installed, they are to be connected using the secondary positive/negative terminals in the sounder.

The supplied end-of-line diode should be installed in the secondary positive/negative terminals of the last siren/strobe in the circuit. The positive lead of the diode (marked with a grey band) should be terminated in the positive terminal of the siren/strobe, otherwise a fault will occur on the fire control panel.



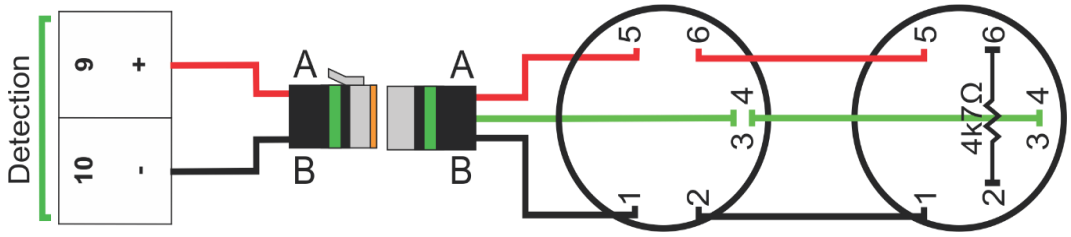
5.3 Circuit 1 Alarm Circuit

This circuit can be programmed for ALARM ONLY (default setting) or AUTOMATIC DISCHARGE (discharges suppression system and operates siren/strobe).

NSCV does not allow Automatic discharge of the fire system. The Automatic Discharge setting is to be used only with a Manual Call point, and no other types of detection devices are to be connected to this circuit.

5.3.1 Conventional Detector (Thermal / Smoke)

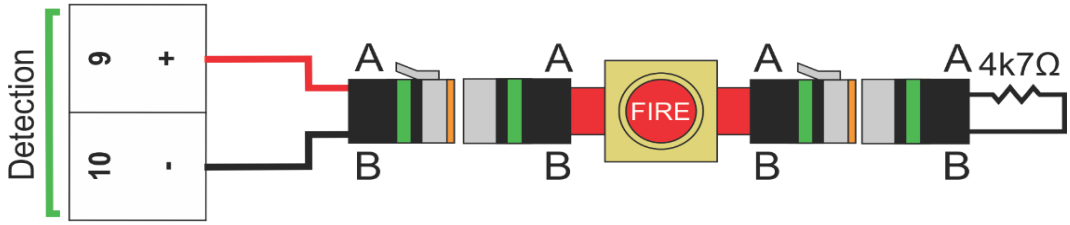
Conventional Detector (FP-08920 Thermal / FP-08925 Smoke) can be connected together in quantities up to 30. A 4k7Ω End-of-line resistor is required in the last detector in the circuit. 60º Thermal Detectors (FP-08920) are recommended for machinery spaces



60º Thermal Detectors are recommended for machinery spaces

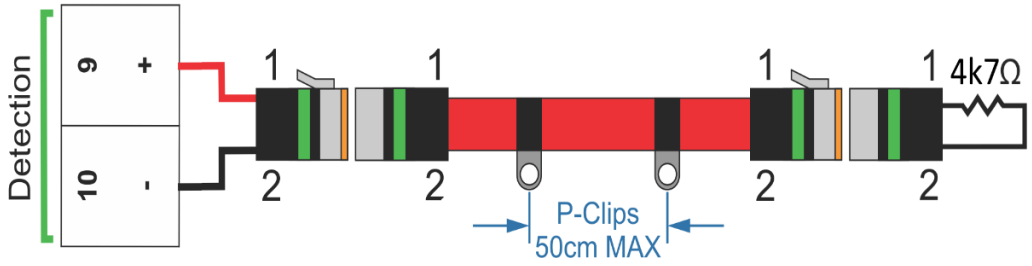
5.3.2 Manual Call Point

Manual Call Points (P/N FP-14053) can be connected together in quantities up to 30. If a manual call point is being used for remote activation, it must be installed on Circuit 1 Alarm. The supplied end-of-line plugs (marked green) must be connected to the last manual call point in the circuit.



5.3.3 Linear Heat Detection

Linear Heat Detection can be installed. P-Clips must be installed at intervals of 50cm maximum to support the cable. The End-of-line resistor is mounted in the Deutsch plug.

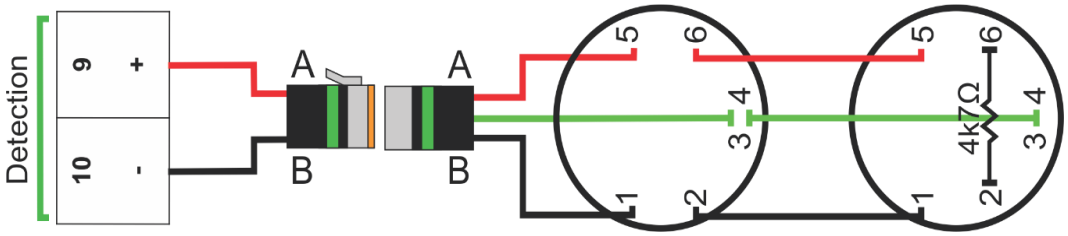


5.3.3 Detection Not Used

If no detection devices are used the supplied end-of-line resistors must be connected.

5.4 Circuit 2 Alarm Circuit

This circuit is ALARM ONLY and will only operate the siren/strobe. Connections for detection devices and manual call points are the same as Circuit 1 Alarm. If detection is not used, the supplied end-of-line plugs (marked green) must be connected to the Circuit 2 Alarm output.

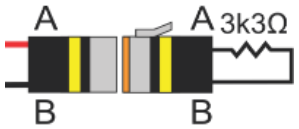


5.5 Discharge Circuit

This circuit should remain disconnected until all other circuits are connected. The control panel must not be in an alarm/fault condition when the FirePro generators are connected, as this may cause an accidental discharge. A Universal Test Lamp (P/N FP-08800) should be connected to the control panel for any commissioning or testing.

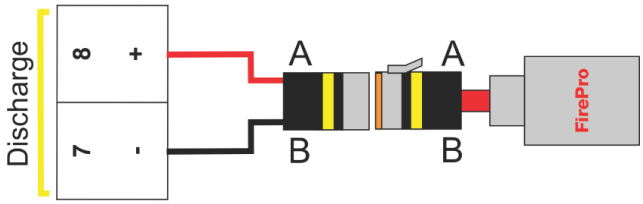
5.5.1 Discharge Not Used

Where no aerosol generators are installed, the supplied end-of-line resistor (3k3Ω) must be connected to the Discharge output.



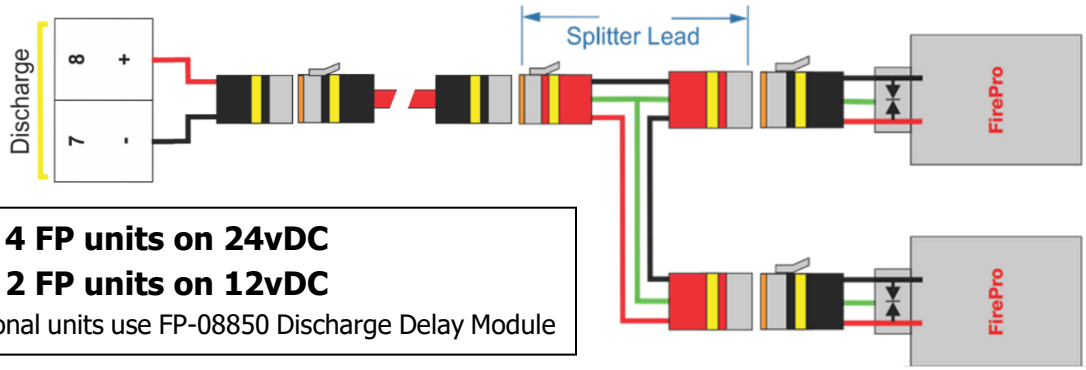
5.5.2 Connecting Single Aerosol Generator

Where a single aerosol generator is installed, it is to be directly to the Discharge output (yellow) on the panel.



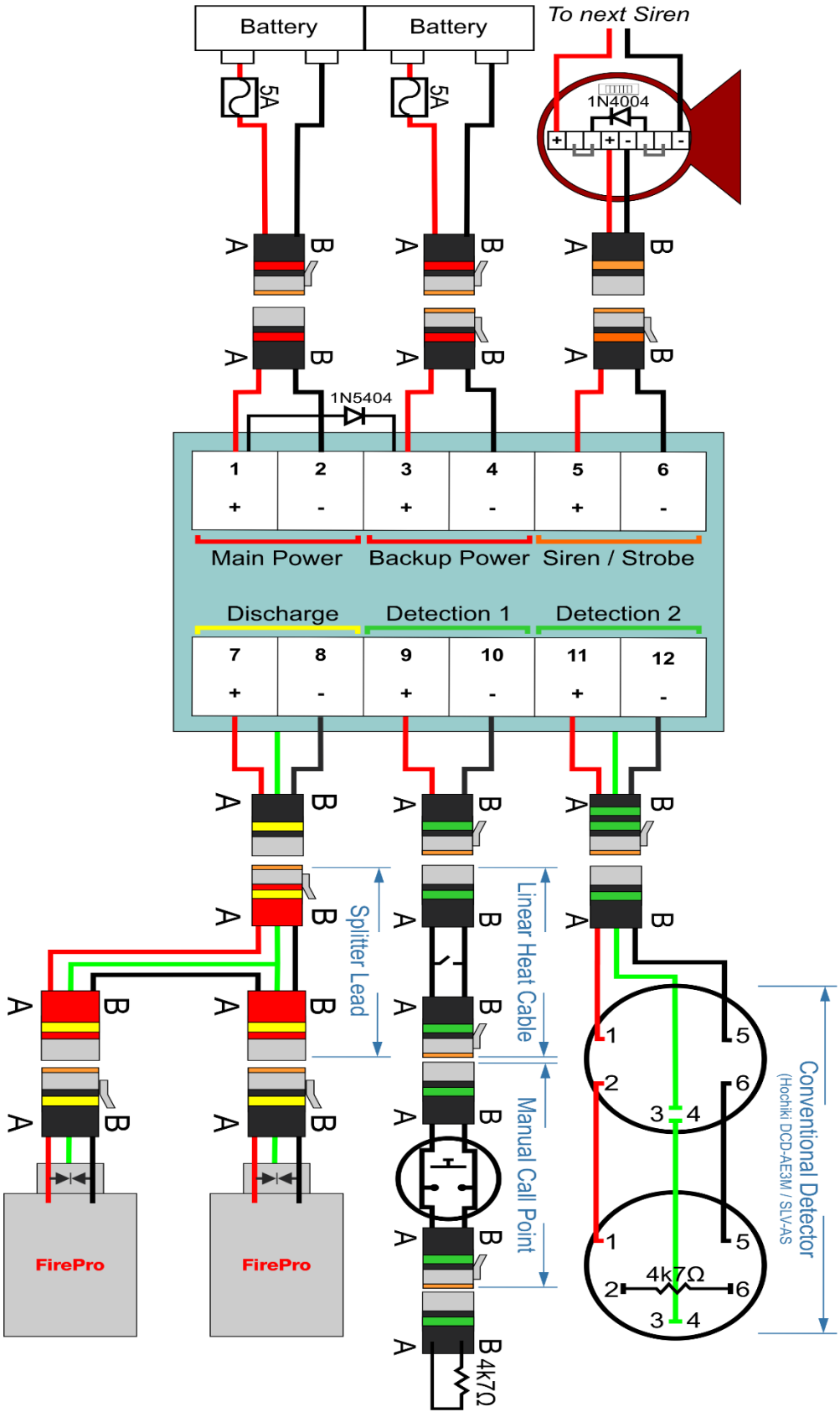
5.5.3 Connecting Multiple FirePro Generators

Where multiple aerosol generators are installed, connected to the Discharge output (yellow) the Splitter Lead (P/N FP-08918). Splitter Leads can be installed at any point on the activation circuit. For ease of install and servicing, they should be installed in areas easy to access.



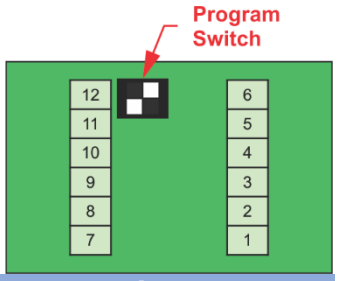
MAX of 4 FP units on 24vDC
MAX of 2 FP units on 12vDC
For additional units use FP-08850 Discharge Delay Module

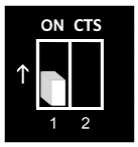
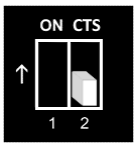
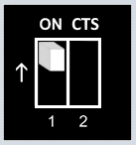
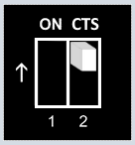
6 Wiring Diagram



7 Programming

The FP-08450 Control Panel provides several programming options, allowing it to be adapted to site conditions. The 2-way DIP switches inside the panel next to the terminal block allow one of 4 modes to be selected. To access the DIP switches, open the panel enclosure. **Note:** All programmed settings should be recorded in the logbook.



Switch 1		Mode	Switch 2		Mode
		DEFAULT			**DEFAULT**
	**OFF**	**Standard Discharge** Power Applied for 2 seconds		**OFF**	**Manual Discharge** Detectors operate siren/strobe only
	**ON**	**Extended Discharge** Power applied for 240 seconds		**ON**	**Automatic Discharge** Detection on Circuit 1 Alarm will discharge system

Note: If a Discharge Delay Module (P/N FP-08850) is installed, panel **must** be programmed for extended discharge.

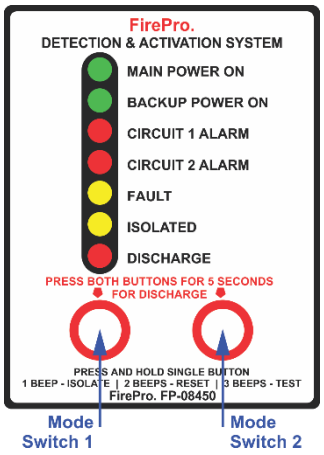
8 Operation

8.1 LED Indicators

The FP-08450 Control Panel uses LED indicators to notify the operator of the condition of the control panel and each of the monitored circuits.

If an LED is illuminated, it indicates the following:

Circuit	LED	Condition
Power		Power supply is available
Circuit 1 Alarm		System is in alarm condition
Circuit 2 Alarm		System is in alarm condition
Fault		System is in fault condition and needs servcing
Isolated		System has been isolated using buttons on panel
Discharging		System has initiated activation sequence



8.2 Isolate Function

To Isolate	Press Mode Switch 1 until 1 beep is heard and the "Isolated" LED is lit.
To Restore	Press Mode Switch 1 and ensure the "Isolated" LED turns off.

Isolating disables Automatic Activation – Manual Activation will operate- When isolated, the control panel continues to monitor for alarm and fault, and show the alarm and fault indications, but will not operate the siren and the automatic discharge. When isolated, any change in the detector status, will cause the panel sounder to operate for 1 second as an alert of the status change, but the panel will remain isolated.

The isolate function will also silence the siren/strobe and the internal sounder but will not cancel the alarm or fault indication.

8.3 Reset Function

To reset the control panel, press and hold Mode Switch 1 until 2 beeps are heard. Following a reset, the control panel will automatically isolate. To restore the control panel to normal operation, press Mode Switch 1 and ensure the "Isolated" LED turns off. **Note:** The control panel **cannot** be reset if the activation sequence has been initiated. When the "Discharging" LED is no longer illuminated, the reset function will become available again.

8.4 Test Function

The control panel includes a test function, enabling the operator to ensure that the control panel is functioning correctly. To operate the test function, press and hold Mode Switch 1 until 3 beeps are heard. The test function will illuminate all LEDS on the control panel and operate the internal sounder and any external siren/strobes for 2 seconds, and then return the control panel to normal operation. The test function does not activate the suppression system. **Note:** If any LEDS or siren/strobes do not operate, contact your supplier.

8.5 Discharging the Fire System

To manually discharge the fire system, press and hold both Mode Switch 1 and Mode Switch 2 continuously for 5 seconds. This will immediately operate any installed siren/strobes and any shutdown relays, to warn any occupants. Manually discharging the fire system should only performed during commissioning/servicing when the system has been appropriately isolated, or in case of fire.

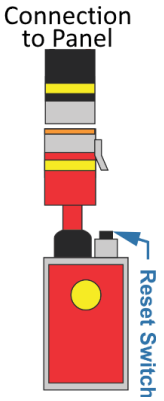
8.6 Alarm Silence

To silence the internal sounder and any installed siren/strobes that have operated due to an alarm condition, press and hold Mode Switch 1 until a 1 beep is heard and the "Isolated" LED is illuminated. This will also override any installed shutdown relays and allow for operation of the equipment. **Note:** Equipment should not be operated until it has been rendered safe by the appropriate authority. The control panel will remain in an alarm/fault condition until serviced and reset.

9 Commissioning and Test Procedure

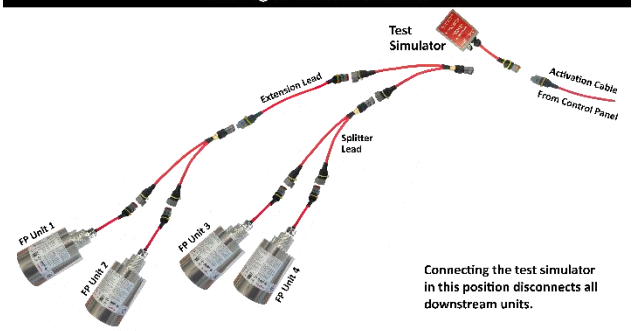
Commissioning should be performed when the fire control panel is not in an alarm/fault condition. **Note:** No personnel should be in the risk area until the fire system is fully isolated.

Note: Where shutdown relays have been installed, all personnel should be made aware equipment will not be operable until testing is completed.

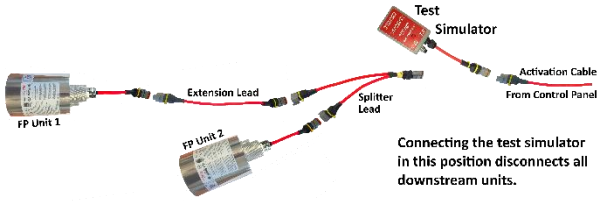


1. **Isolate the control panel** and disconnect the any installed FirePro aerosol generators. This will generate a fault on the fire control panel.
2. **Connect FP-08800 Test Module(s)** to the "Discharge" output to the panel (marked yellow). Turn off the Isolate function.

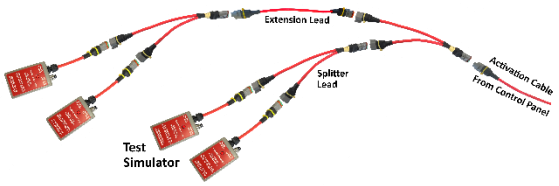
Testing of 4 FirePro Units



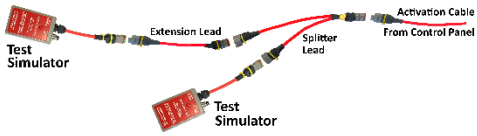
Testing of 2 FirePro Units



Alternate testing of 4 FirePro Units



Alternate testing of 2 FirePro Units



3. **Inspect installed Aerosol Generators** to ensure they are in good condition, and that the relevant stream lengths and thermal clearances are observed.
4. **Test the fault monitoring** system by disconnecting and reconnecting all connected detection devices and the siren strobe circuit one at a time. Ensure the "Fault" LED indicator illuminates and the internal sounder is heard each time a circuit is disconnected.
5. **Manual Discharge Testing:**
    1. Perform a manual discharge test by pressing and holding both mode switches on the control panel continuously for 5 seconds.
    2. Following the activation sequence, ensure the test lamp has operated.
    3. Isolate the panel to silence the alarm. The control panel should now display a fault.
    4. Reset the connected test lamp by pressing the reset button on the lamp. The control panel should no longer be in alarm/fault condition.
    5. Turn off the Isolate function.

6. **Automatic Discharge Testing:**
   Where Manual Call Points have been installed and connected "Circuit 1 Alarm". If no manual call points have been installed, skip to step 7.
   Each manual call point connected to "Circuit 1 Alarm" must be tested individually.
   1. Test each manual call points – ensure activation occurs.
   2. Isolate the panel to silence the alarm. The control panel should now display a fault.
   3. Reset the test lamp by pressing the reset button on the lamp.
   4. Reset the control panel by pressing and holding a single mode switch until 2 beeps are heard. The control panel should no longer be in alarm/fault condition.
   5. Turn off the Isolate function.
7. **During discharge test:**
   - Ensure operation of siren/strobes - must be audible and visible at all points of the vessel.
   - Ensure operation of all installed shutdown relays. This should include shutdown of fuel supply, forced air ventilation and any other equipment specified in the system design and risk assessment.
8. **Test detection device(s)** and ensure that any alarm condition activates the siren. Each detection device must be tested individually. Testing method will depend on the specific device – check the product's manual if unsure.
9. **Disconnect** the FirePro FP-08800 Test Lamp and reconnect all FirePro aerosol generators.
10. **Turn off the Isolation function. System is now operational.**

10 Servicing and Maintenance

Inspection and servicing of the installed fire system should occur in accordance with the relevant Standards. Any alterations to the risk area should be recorded and, check design calculation and installed components must be revised to reflect the new conditions.
A logbook must be kept, recording all the relevant information from the installation and servicing. The logbook must contain the following:

Content of logbook:	Appendices of Logbook:
General details	Schematic diagrams
Devices used	Photos of the original Installation
Date of each inspection	Programming of the control panel
Outcome of each inspection	Inspection reports

10.1 Daily Service Schedule

A daily inspection should be performed by the operator prior to operation of the equipment. If anything does not appear normal, the equipment should not be operated and the fire service provider alerted. The Daily Inspection should include:

- Visual inspection of the control panel and installed components. These should be accessible and free from debris, rust, or electrical faults.
- Visual inspection of the control panel to ensure normal functioning. When functioning normally the only indicator illuminated should be the "Power" indicator (green).
- Visual inspection of anti-tamper seals and travel pins, to ensure they are in place.

10.2 Semi-annual / Annual Service Schedule

Semi-annual and Annual servicing and maintenance **are to be undertaken only by accredited service technicians.** Any misuse of the FIP may result in an accidental discharge of the suppression system and is not covered by warranty.

Servicing should include a visual inspection of all the installed components to ensure they are in good condition, and that the relevant stream lengths and thermal clearances are observed as per the original design calculation and risk assessment.

Operation of the fire system should be tested as outlined in 8. Commissioning.

11 Troubleshooting

The FP-08450 Control Panel provides a comprehensive fault monitoring system that will detect any open-circuit in the Circuit 1 Alarm Output, Circuit 2 Alarm Output, Siren/Strobe Output, Discharge Output and Agent Released Input and any malfunctions of the control panel's internal components. When in a fault condition, the control panel will operate the "Fault" LED indicator and operate the internal sounder. The control panel uses an audible coded sequence to indicate the affected circuit to the operator. **Note:** to diagnose if a fault is internal or external, attempt to isolate the panel. If the control panel can be isolated, the fault is external.

11.1 Fault Indicators

A fault will be indicated if any monitored circuit connected to the panel is not complete. This could be caused by the devices connected or the wiring to each device. This will display as:

Internal Sounder	Fault LED	Fault
1 beep	On	Circuit 1 Alarm
2 beeps	On	Circuit 2 Alarm
3 beeps	On	Discharge Circuit
4 beeps	On	Siren/Strobe Circuit – Version 4 Panel Only

This will require inspection and testing of connections and installed components. End-of-line plugs should be plugged directly into the panel, to return it normal condition, and then used to systematically check along the effected circuit(s). If the fault persists, contact your supplier.

11.2 Panel is Unresponsive

If the panel has become unresponsive, check the incoming power supply. The panel has a minimum operating voltage of approx. 9vDC. If the incoming voltage is above 9vDC and the panel is still unresponsive, contact your supplier.

11.3 Internal Faults

An internal fault cannot be isolated and will display as:

Internal Sounder	Fault LED	Fault
Continuous, steady beep	On	Internal 5vDC Supply OR Watch Dog Circuit
Continuous, pulsing beep	On	Internal Microprocessor

Internal faults can be rectified by powering down the panel and powering up again. This will reset the system to normal conditions. If the fault persists, contact your supplier.

12 RFI Environments

The control panel's circuit arrangement provides protection designed for the effects of electromagnetic emissions and prevent accidental discharges of the system. Shielded, fire rated cable (FP-09500) is MUST to be used throughout every installation to protect the fire system from electromagnetic emissions. Cables should be installed with appropriate clearances from any cables or equipment that may produce high levels of RF interference.

13 Safety Data Sheet (SDS) - FirePro

This is an EXTRACT ONLY from the full SDS. To view the full SDS go to **www.chemwatch.com.au**.

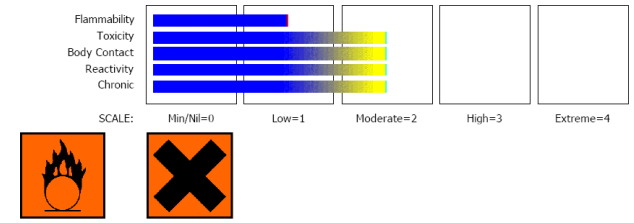
CHEMWATCH

PRODUCT NAME CELANOVA FIREPRO

PRODUCT USE Fire extinguishing agent.

HAZARDOUS SUBSTANCE. DANGEROUS GOODS.
According to NOHSC Criteria, and ADG Code.

CHEMWATCH HAZARD RATINGS



POISONS SCHEDULE - None

RISK	SAFETY
• Contact with combustible material may cause fire. • Harmful if swallowed • Irritating to eyes and skin. • May cause SENSITISATION by skin contact. • Harmful to aquatic organisms may cause long- adverse effects in the aquatic environment. • Cumulative effects may result following exposure • May produce discomfort of the respiratory. system* • Possible respiratory sensitiser*. • May possibly affect fertility* (limited evidence).	• Keep away from combustible material • Avoid exposure - obtain special instructions before use. • To clean the floor and all objects contaminated by this material use water and detergent. • Keep away from food drink and animal feeding stuffs. • In case of contact with eyes rinse with plenty term of water and contact Doctor or Poisons Information Centre. • If swallowed IMMEDIATELY contact Doctor or. Poisons Information Centre (show this container or label). • This material and its container must be disposed of as hazardous waste.

FIRST AID MEASURES	
SWALLOWED	• If swallowed do NOT induce vomiting. • If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. Observe the patient carefully. • Never give liquid to a person showing signs of being sleepy or with reduced awareness. • Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. • Seek medical advice.
EYE	• If this product comes in contact with the eyes: • Wash out immediately with fresh running water. • Ensure complete irrigation of the eye. • Seek medical attention without delay; if pain persists or recurs seek medical attention. • Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
SKIN	• If skin contact occurs: • Immediately remove all contaminated clothing, including footwear. • Flush skin and hair with running water (and soap if available). • Seek medical attention in event of irritation.
INHALED	• If dust is inhaled, remove from contaminated area. • Encourage patient to blow nose to ensure clear passage of breathing. • If irritation or discomfort persists, seek medical attention.

14 Marine Installation Notes (AMSA NSCV)

For AMSA marine installations, fire systems are to comply with NSCV Part C Section 4, with reference to ISO 15779: Requirements for Aerosol Systems. The following is required:

Control Panel Location: The control panel must be located in the operating compartment or another normally manned control station and have safe access that is unlikely to be blocked off in case of a fire. Instructions should be included at each control station, outlining prerequisite tasks and operation of the control panel in case of fire.

Manual Discharge: The control panel shall be programmed for manual discharge on alarm (see 6. Programming). Automatic discharge on alarm is not to be used.
Where remote actuation is needed, the FP-14053 Manual Call Point may be installed, and Circuit 1 Alarm programmed for automatic discharge. If remote activation is used, no other detection devices should be installed on Circuit 1 Alarm.

Equipment Shutdown: Any equipment that may impede operation of the fire system must be shutdown prior to system discharge. This includes any forced air ventilation and fuel supplies. This requires the installation of the FP-08860 Shutdown Relay Module.

Siren/Strobes: Siren/strobes must be installed and should clearly audible and visible at all points of the vessel. Fire alarms must be separate and distinct from any other alarm (including a different sound), so as to be easily distinguished when indicating a fire.

Detection: Due to typical operating conditions, thermal detectors (FP-08920) are the recommended detection device for most installations. However, NSCV limits the use of these detectors and cannot be used for spaces with a height more than 5 metres.

15 Specifications

General	**Dimensions**	143L x 84W x 31D mm	
	Material	ABS plastics, black colour	
	Ingress Protection	IP54	
	Operating Temperature	-40 to 85 degrees Celsius	
	Fault Monitoring – External	- Circuit 1 Alarm – Open/Closed - Circuit 2 Alarm – Open/Closed - Siren/Strobe – Open/Closed - Discharge – Open/Closed	
	Fault Monitoring – Internal	- Poly-switch fuse operated - Loss of internal 5V supply - Internal microprocessor malfunction	
Power Supply Input	**Mains Operating Voltage**	12-30VDC	
	Mains Operating Current	36mA on 12V	42mA on 24V
	Backup Power	See FP-08870 / 08871 / 08872 manual	
Detection Output Circuit 1 Alarm & Circuit 2 Alarm	**No. of Detection Zones**	2	
	Operating Voltage	12-30VDC (same as main supply voltage)	
	Detection End-of-line	4k7Ω ½W Resistor	
	Maximum Detectors per Zone	- 30 Conventional Detectors - 100m Linear Heat Detection - 30 Manual Call Points	
	Alarm Threshold	3.6V Fault sensing threshold: 0.53V	
	Compatible Detectors	Hochiki SLV-AS Smoke Detector Hochiki DCD-AE3M Thermal Detector 14053 External Call Point 09510 180˚C Linear Heat Detection	
Discharge Output	**Discharge Output Current**	2A at 12VDC	4A at 24VDC
	Discharge End-of-line	3K3Ω ½W Resistor	
	Maximum FirePro Generators	2 in series at 12VDC	4 in series at 24VDC
	Standard Discharge Delay	5 seconds from automatic/manual activation	
	Max Discharge Delay Modules	2 DDM's at 12vDC	3 DDM's at 24vDC
	Max FirePro units using DDM's	6 at 12vDC	16 at 24vDC
Siren/Strobe Output	**Siren/Strobe Output Current**	Max 0.5A	
	Siren/Strobe Output Protection	0.5A poly-switch resettable fuse	
	Siren/Strobe End-of-line	1N4004 Diode	
	Maximum Siren/Strobes	5	
	Compatible Siren/Strobes	Banshee Sounder Strobe	
	Max Siren Shutdown Modules	2 at 12vDC	4 at 24vDC

BANSHEE multi-tone sounder/strobe - suitable for internal or external locations.

Specifications		
Voltage:	9 – 30vDC	
Current:	12v - Max 60mA	24v - Max 39mA
Sound Output:	101dB(A)	
Beacon:	0.7j	
Flash Rate:	60/min (1Hz)	
Temperature:	-20 C to +55 C	
IP Rating:	FP-08940 – IP 45	FP-08941 – IP 66