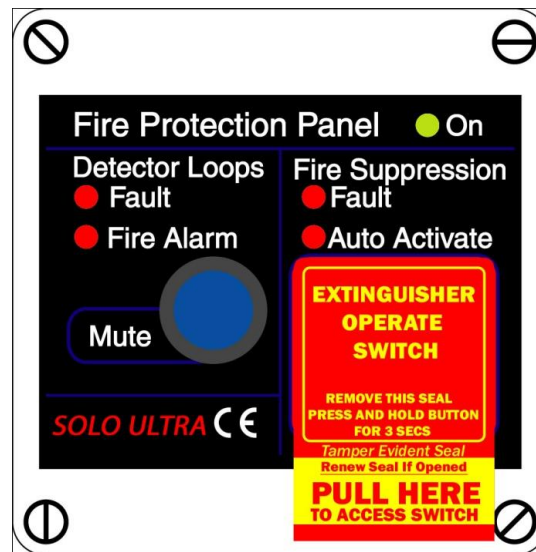




## SOLO ULTRA DUAL LOOP AUTO/MANUAL FIRE CONTROL PANEL

For use on Land and Marine transportation, plant and mobile risks.



### SUMMARY:

- Dual Linear heat or spot detection loops with full fault monitoring.
- Can be programmed for:
  - Manual only;
  - Single stage detection, alarm and release;
  - Full Two stage detection, alarm and release.
- Automatic Engine/fuel/fan shutoff capability via volt free contacts.
- Variable Time delay for actuation.
- Suppression activation button with anti-tamper tag.
- Universal 12 or 30Vdc electrical power.
- Low power consumption in "PARKED/MOORED" mode.
- Full fault monitoring on all detector and extinguisher circuits.
- Supports up to 6 Stat-X fire extinguishers.
- The unit is reverse polarity, transient and EMC protected.

### Solo Ultra

The Solo Ultra has effectively eliminated spurious activation which can occasionally be caused by the inherent characteristics of microprocessors, semiconductor power switches. Our tamper evident tag technology and our strict electronic design rules have proven highly effective. To eliminate the inherent hazards of microprocessor control the SOLO ULTRA uses a fully parallel path programmable logic device, which is coded using a language called VHDL, commissioned by US DOD and used for high reliability and safety critical applications.

## FEATURES:

Dual Linear Heat Sensors up to 50M or conventional spot detectors can be used. Each are continuously monitored for alarms, open circuit and earth faults, LED flash codes indicate the location of an alarm or fault condition.

It also has an internal alarm sounder and relay to drive additional external audible alarm units up to 2Amps. Uncommitted relay change-over contacts for interface with fuel shutoff, engine/fan shutdown etc.

The release time delay option provides a selectable delay from 5 to 30 seconds in 5 second increments to enable elements such as fan shut down, fuel over run, fire dampers to close etc.

“PARKED/MOORED MODE” is entered when the unit senses that ignition is turned off and provides automatic actuation operation should both detection loops alarm - switching off the engine during a double stage alarm will also enter timed auto activation mode (man leaving area protection). There is an electrical input for an override keyswitch to circumvent shutdown circuits.

## FUNCTIONAL NOTES:

Any detection loop alarm condition will operate audible and visual alarm indications as follows:

- **Single loop alarm** condition produces internal pulsed alarm (1 per sec) and fan shutdown.
- **Dual loop alarm** condition produces internal pulsed alarm (2 per sec) and automatic extinguisher and fuel solenoid operation after spindown delay (user set on dip switches), audible alarm goes continuous.
- **Alarm LED flash code** indicates which loop is in alarm (1=1blink, 2=2blinks, 1&2=3blinks).

The actuation time delay allows time for fan and engine to stop before extinguisher is activated. This will assist in reducing the forced ventilation of the suppression medium from the enclosure. The inbuilt timer tracks the spindown of engine/fan(s) as a result of ignition switch-off or shutdown by SOLO ULTRA as a result of an alarm (from either detectors or manual operate switch).

With the ignition off the unit enters low power mode and the ON LED will flash to conserve power. Single flash shows the timer is still counting (fans still turning), then adopts a double flash “heartbeat” indicating that “parked mode” is active and suppression actuation operation will be immediate on double alarm or manual activation. In “parked/moored mode” (ignition off for longer than time delay setting) then the fuel shutdown will operate on first alarm and suppression immediately on second alarm.

Switching on the ignition even for a short time will restart the countdown timer and it is also active on initial power-on.

Countdown timer is selectable: NoAUTO, IMMEDIATE, 5 to 30 seconds, 5 sec increments.

A fault in one detector loop will cause the auto mode to fail (because of the double knock logic) however a manufacturing option can allow PARKED/MOORED mode to auto operate the extinguisher after single loop alarm if the other loop is faulty.

Manual operate command must also wait for the engine/fan spindown before extinguisher activation. After 125ms filter time the unit will confirm activation request by flashing 2ALARM=AUTO LED and internal beeper, the shutdown relays are activated immediately. After countdown timeout the suppression unit/s will operate and the internal sounder will be continuous.

## PANEL LED INDICATIONS:

The panel layout has two distinct areas for extinguisher and detector status with separate LED flash pattern indications for each detection loop (1 and 2).

- Power On (**Green** LED)
- Detector Alarm (**Red** LED) - inverse flash pattern indicating affected loop
- Detector Loop Fault (**Red** LED) - inverse flash pattern indicating affected loop
- 2 Alarms=Auto Active (**Red** LED)
- Extinguisher Fault (**Red** LED)

Internal sounder will operate on anything that requires user attention (alarm or fault).

## CONTROLS:

Suppression manual operate button (behind tamper evidence tag)

Auto mode time delay selector DIP switch on panel rear (delay = binary value \* 5 seconds).

### SW1-3

**off-off-off** = immediate actuation,

**on-on-on** = Auto Disabled,

**on-off-off** = 5sec,

**off-on-off** = 10sec, etc.

### SW4

**on** = vfc operates on single alarm,

**off** = vfc operates on double alarm

## CONNECTIONS:

### BLOCK 1 (6 way)

#### **GND**

External Alarm Output (Power via 2A N.O. relay contact)

#### **GND**

Ignition input (sets auto PARKED mode when off)

**Power** (11-32vdc via 4A fuse)

#### **GND**

### BLOCK 2 (6 way)

Detector Loop1A

Detector Loop1B

Detector Loop2A

Detector Loop2B

GND

Aux input

### BLOCK 3 (6 way)

FirexA

FirexB

GND

VFC (2Amps Max)

NO VFC (2Amps Max) COM

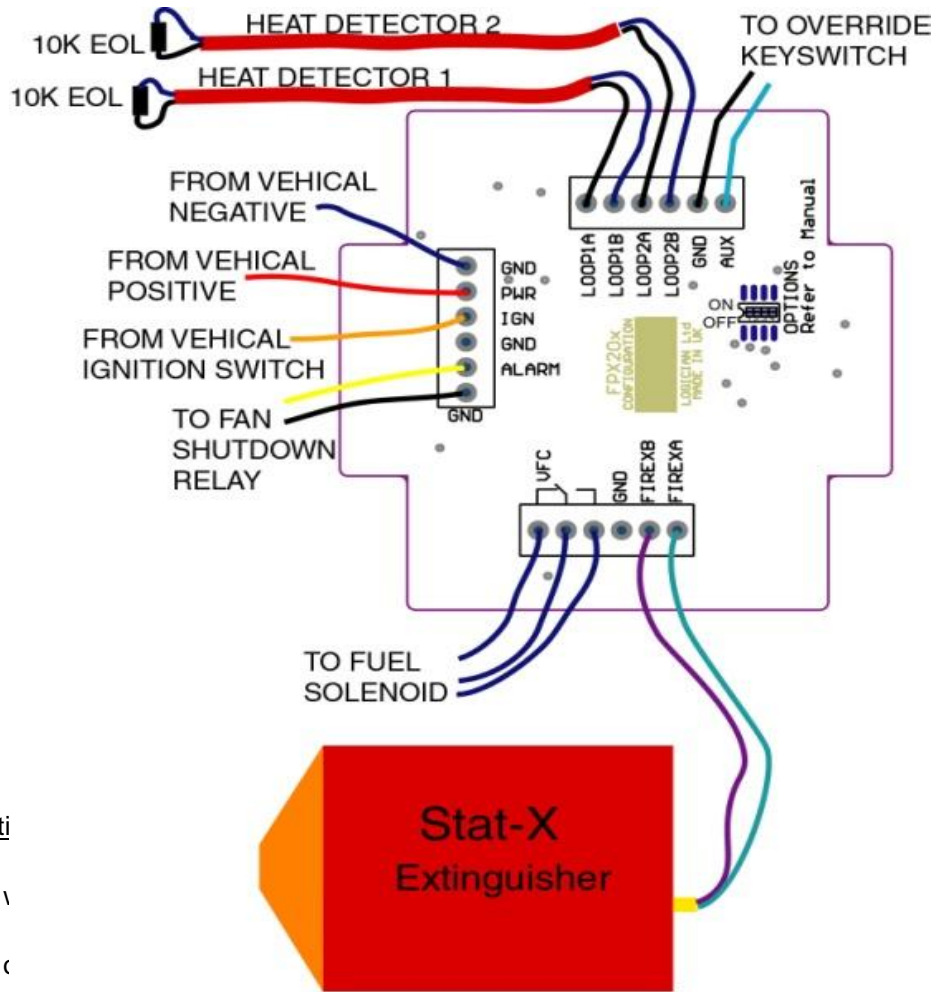
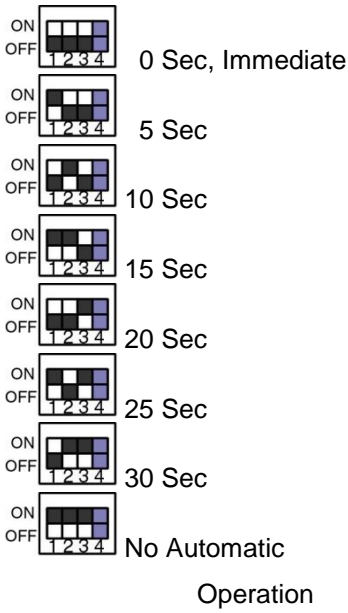
VFC (2Amps Max) NC

**ELECTRICAL SPECIFICATION (at 24VDC supply unless otherwise stated):**

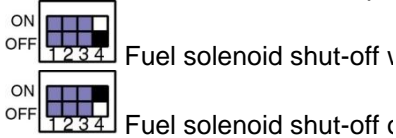
Power Supply	Operating Voltage	11 to 32V DC
	Quescent Current Ign Off	8.5mA Typ (excluding external load currents)
	Ign On	16mA Typ (excluding external load currents)
	Maximum Alarm Current Draw	100mA (excluding external load currents)
	Max current draw	3A (including extinguisher operate current)
	Parked current draw	8.5mA Typ
Suppressor Activation	Discharge Current	1A to 4A depending on voltage and number of suppressors (StatX = 1.8 Ohms nominal each unit) Up to 2 units on 12V, 4 units max on 24V Connect in series with bi-directional catch diodes across each element (see manual).
	Current/Time Limit	Output is Vin via switch with 6 Ohms in series. Constant I2T limit = 9 Amp2*Seconds
	Monitoring current	<4mA, Fault if loop R>300, 12Vmax o/c voltage
Aux In (Override key)	Monitoring current	1.2mA Nominal
	Sense Logic	Norm S/C, >1K active typ.
Sensor Loop Inputs 1+2	Max Output voltage	12VDC regulated, filtered and transient protected
	Output current limit	25mA per loop
	Alarm condition threshold	<700 Ohms Nominal
	Fault condition threshold	Approximately 20K Ohms
	End Of Line Resistor	10K Ohms
	Fault monitoring	Open circuit or ground fault = fault indication
Alarm Output	Relay Contacts	2A @ VinDC (Vin thru NO relay circuit)
VFC Output	Relay Contacts (volt free)	2A @ 24VDC (relay changeover circuit)
Mechanical	Dimensions	H=82mm * W=83mm * D=25mm
	Mounting	75mm diameter round hole, retained by four #6*25 self tapping screws
	Connections	Via 3 * 6 way terminal block accepting <1mm <sup>2</sup> wires with ferrules

## DIP SWITCH SETTINGS

Fan "Countdown" delay time before automatic mode is enabled.



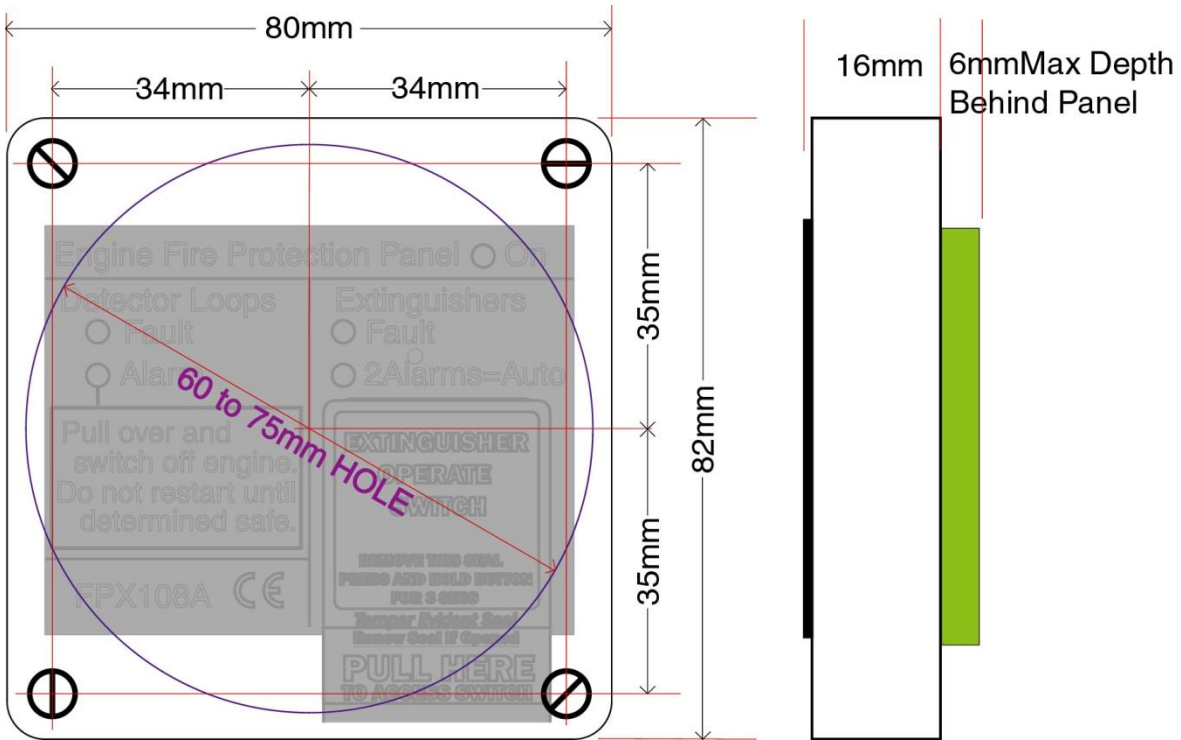
### Early fuel solenoid shutdown opti



### Installation Notes:

Front of panel is splash proof but it must be located to prevent excessive moisture or water getting to the unit, This is mainly through the manual release cover. It is supplied with a back box that is well sealed (IP68).

**Outline & Mounting drawing:**



**Additional features recently added:**

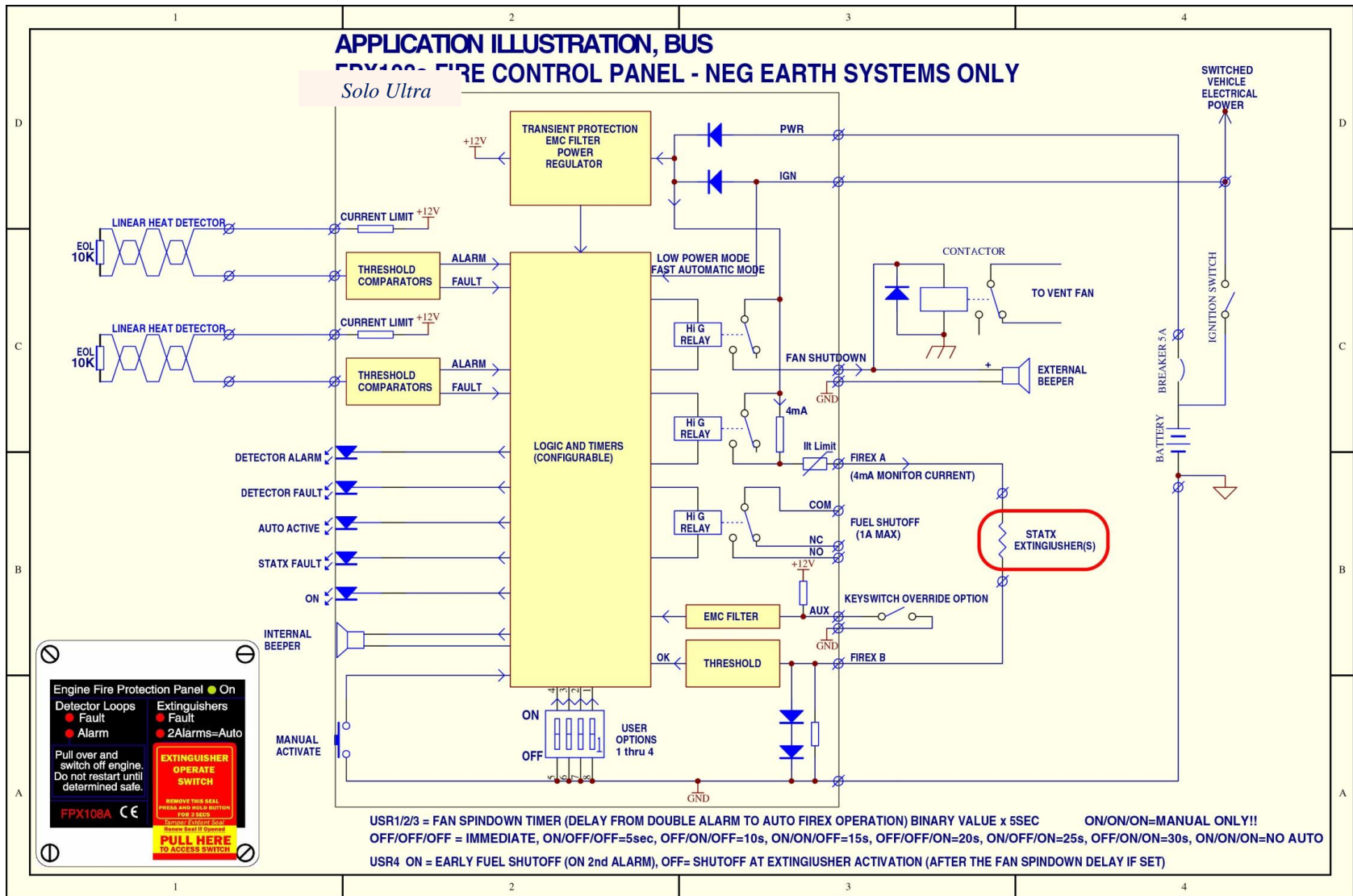
The Mute function has been added. On pressing on this button the field sounders will be silenced. The internal panel sounder will continue to alarm.

If the button is pressed and held for 5 seconds and released then the power will be dropped to the detectors in order to perform a reset function. If fire/smoke is still present the control panel will revert to fire condition.

The button can also be used as a "Hold off" to interrupt the EXT output and timer. If pressed continuously the EXT output will be inhibited until the button is released. It will then revert to countdown and release after a 5 second delay.

**Note:**

The following wiring diagram shows linear heat detectors. Powered spot heat detectors use the same connections and have the same end of line resistor of 10Ω.



Call to discuss your specific requirements with one of our professionals.