

# Fire extinguishant control panel

## The Smallest Extinguishant Control Panel Available



SP-1e is an extremely compact and flexible control panel allowing adaptability to most standard instrument modules.

SP-1e is a microprocessor based combined alarm, monitoring and discharge panel used for controlling a wide range of sensors/detectors along with various extinguishing systems.

The panel is robust, having a water & dust resistant front panel with two membrane pushbuttons for activating, silencing and resetting the system. Four LED's are included to indicate Power, Fault, Alarm and Activated.

On the back of the panel there are a number of easy connect terminals to allow the user to connect external

### Features

- 1 monitored, time & current limited discharge output
- 2 monitored Sensor alarm inputs
- 1 monitored external discharge activation input
- Configurable additional output for extended discharge
- Low power consumption
- Operating voltage 8–28 V DC
- Engine & ventilation shut down output
- General fault, alarm & discharged output
- Membrane Press button "Silence" for silencing of audible
- Membrane Press button "Reset" for resetting of the panel
- Membrane Press buttons for activating of extinguisher(s)
- Dual LED indicators for Power, Fault, Alarm and Activated.
- Built-in System & LEDs test program
- Small size & low weight
- CE, e & E mark approvals

sounders, warning beacons and relay connections for controlling fans or hatches as well as automatic engine shut down.

By alteration of the DIP-switches on the back of the panel it can be configured to operate in either automatic or manual mode. In automatic mode signals from connected sensor(s) indicating the existence of a fire, will activate the extinguisher after a preset delay. In manual mode a review of the situation can be made before activation of the extinguishing system by pressing and holding down the two buttons for 5 seconds.

The DIP-switches are also used for configuring the panels input & outputs to have the system tailor made to your requests.

### Applications

SP-1e was originally designed for use with Aerosol generators. However, the panel can be used for controlling other types of extinguishants such as inert– and chemical gas systems.

Typical applications for use of SP-1e:

- Leisure vessels and fishing boats
- Buses and transportation vehicles
- Forest harvesting machines
- CNC machines and production machinery
- Cars and trucks
- Locomotive engines/generators (railway)
- Military vehicles

## Specifications

<b>Power supply</b>	Operating voltage	8 -28 VDC
	Standby current (8 – 28 VDC)	2 mA (ignition off)
	Normal current	50 mA
	Internal automatic fuse	2 A
	Fuse on supply lead (max)	3A (5 A)
<b>Ignition input</b>	From ignition- or main switch	+ 8 to 28 VDC (2 mA)
<b>Alarm input loop 1</b>	Voltage	3 VDC
	Normal current/Alarm current	0.03 / 0.06 mA
	Sensor cable EOL resistor	47k $\Omega$
	Alarm situation	short circuit
<b>Alarm input loop 2</b>	Alarm situation, resistor value on loop	47k $\Omega$
	Norm. situation, resistor value on loop	23,5k $\Omega$
	EOL resistors on NC alarm contact	2x47k $\Omega$ <sup>1</sup>
	Voltage	3 VDC
	Normal current/Alarm current.	0.03/ 0.12 mA
<b>Remote manual discharge loop</b>	Alarm situation, resistor value on loop	47k $\Omega$
	Norm. situation, resistor value on loop	23,5k $\Omega$
	EOL resistors on NC alarm contact	2x47k $\Omega$ <sup>1</sup>
	Voltage	3 VDC
	Normal current/Alarm current.	0.03/ 0.12 mA
<b>Discharge signal</b>	Duration (Pulse time)	5 sec.
	Voltage	8 - 28 VDC
	Discharge current (Max)	1,2 A (current limited)
	Max number of initiating devices	2 (12 V dc) or 4 (24 V dc) <sup>2</sup>
<b>Discharge monitoring</b>	Voltage in sleep mode	< 20 mV
	Voltage in awake mode and no load connected	2,7 V DC
	Normal current at 12V / 24V	0.25 / 1 mA
<b>Output 1 Sounder/Beacon connection</b>	Voltage	8 - 28 V DC
	Current (max)	1.8 A <sup>3</sup>
<b>Output 2 Engine &amp; ventilation shut down</b>	Voltage	8 - 28 V DC
	Current (max)	1.8 A <sup>3</sup>
<b>Output 2 Second discharge output</b>	Duration (Pulse time)	5 sec.
	Voltage	8 – 28 V DC
	Discharge current (Max)	1,2 A (current limited)
	Max number of initiating devices	2 (12 V DC) or 4 (24 V DC) <sup>2</sup>
<b>Dimensions</b>	Front L x W x D	70 x 70 x 30 mm
	Cut out	Ø 60 mm
	Depth in cut out	40 mm
	Weight	110 g
<b>IP Rating</b>	Flush & surface mounted	IP54 (IP65) <sup>4</sup>
<b>Standard service life</b>	Control panel	10 years
<b>Testing</b>	LED test and a more comprehensive test mode for testing all the inputs and outputs as part of installation and service.	

<sup>1</sup> R1=47k $\Omega$  in series with NC alarm contact, and R2=47k in parallel with the NC alarm contact and R1.

<sup>2</sup> Depending upon specific resistance of connected initiators. Max. allowed resistance 12 VDC: 10 $\Omega$  24 VDC: 20 $\Omega$

<sup>3</sup> Max same time load for the out 1 & out 2 are 2 Amp.

<sup>4</sup> If fitted in separate box

# SP-1e Fire extinguishant control panel

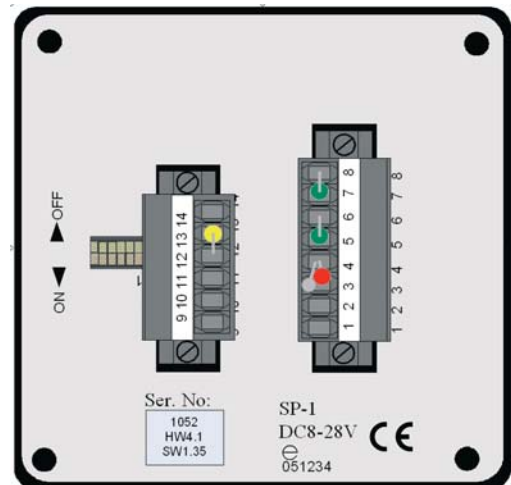
## Conforming to the following Directives and Standards

<b>EMC</b>	95/94 EC Automotive Directive (e & E marking)
	89/336/EEC CE marking
<b>Generic standards</b>	EN50081-1:1992, EN61000-6-3:2001, EN 50082-1:1997, EN61000-6-1:2001
<b>Basic standards</b>	EN55022B, EN55025
	EN61000-4-2 ESD immunity
	EN61000-4-3 Radiated immunity
	EN61000-4-4 EFT/B0
	EN61000-4-5 Surge
	EN61000-4-6 Conducted RF
	EN61000-4-11 Voltage dips and interruptions
	EN61000-3-2 Harmonics
	EN50130-4 EMC Alarm
	Functions in harmony with EN 12094-1



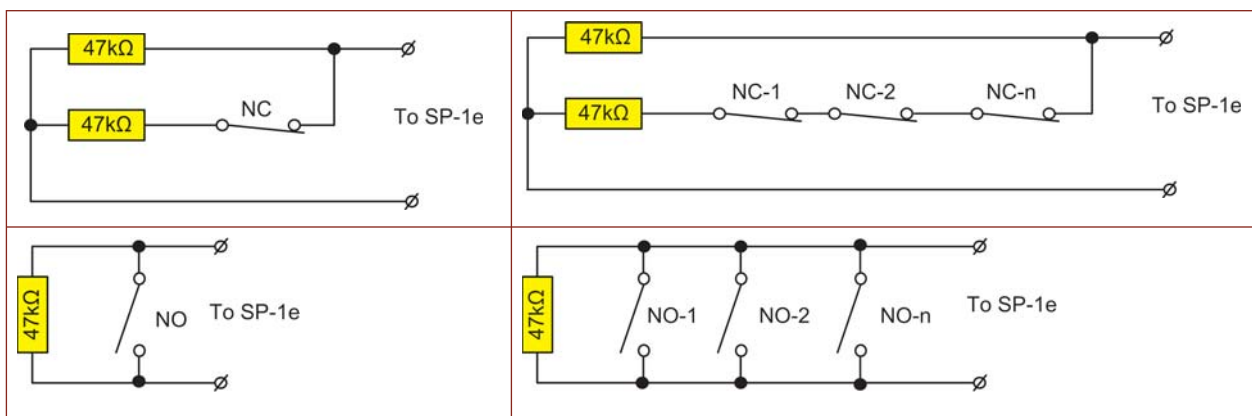
## Terminal strip connections

1	Power supply (+) 12 or 24 V (through a 3A fuse)
2	Power supply (-) GND
3	Extinguisher initiator (-)
4	Extinguisher initiator (+)
5	Input loop 2 (+)
6	Input loop 2 (GND)
7	Input Remote Manual Discharge Switch (+)
8	Input Remote Manual Discharge Switch (GND)
9	Out 1 (+)
10	Out 1 & 2 (GND)
11	Out 2 (+) / delayed 2. Shot (depending upon dip switch settings)
12	Input loop 1 (+)
13	Input loop 1 (GND)
14	Ignition +

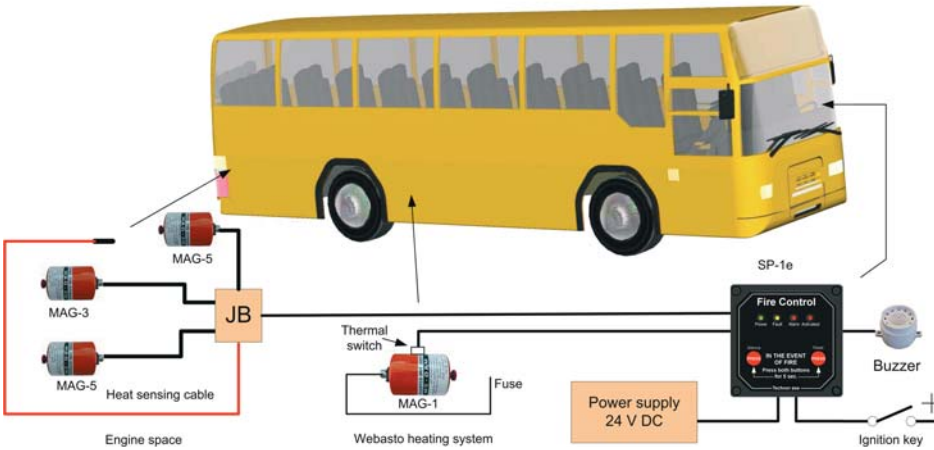


## Connecting sensors to the SP-1e control panel

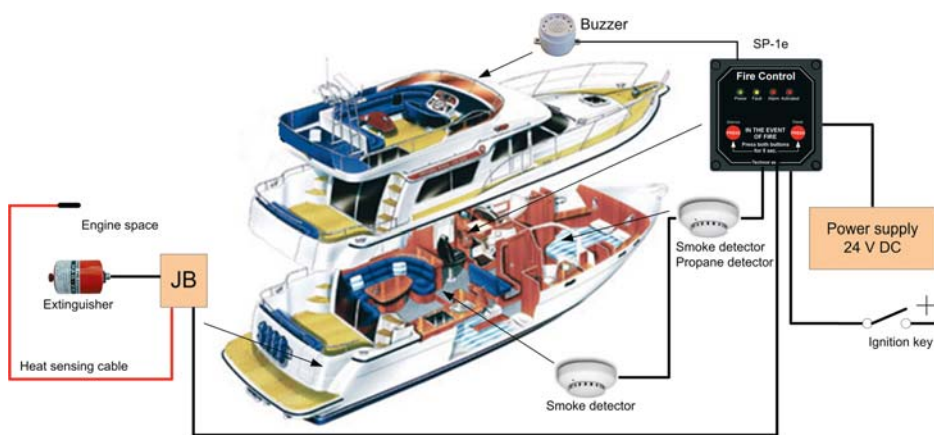
Sensors using normally closed (NC) or normally open (NO) alarm contacts as outputs may be connected to the SP-1e using resistor networks as shown below. Several NC contacts may be wired in series and several NO contacts in parallel with each other.



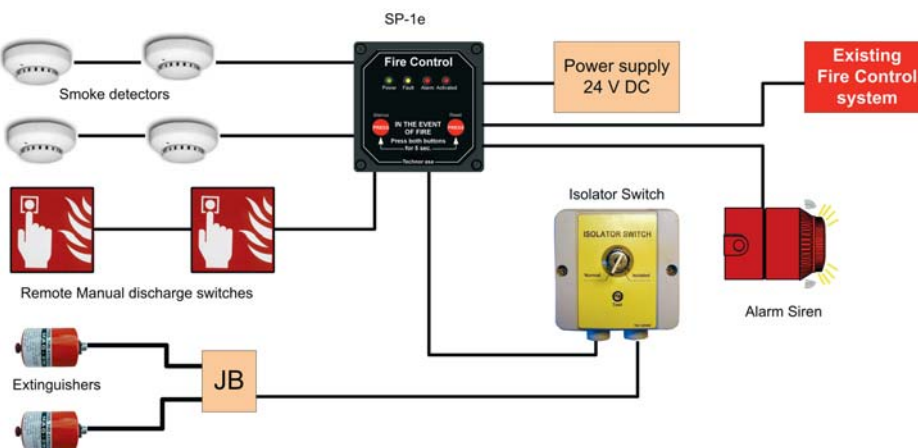
## Application examples



The SP-1e control panel is ideal for extinguishing systems on buses. It complies with the Automotive Directive for EMC protection and is tested according to 95/94 EC. The control panel automatically controls all actions in the event of a fire. This allows the driver to concentrate on evacuation of the passengers.



The flexibility of the SP-1e control panel allows control of more than the fire extinguishing process. It is possible to have different type of detectors connected to the panel. These may be smoke, heat, gas, water leakage and any sensor/detector with a potential free contact output. When ignition is off, the panel turns to sleep mode and the current consumption is limited to a minimum to save batteries.



The SP-1e can be configured to automatically activate the extinguishers based on single or double knock input signals. It may also be configured to discharge a second delayed shot to increase the holding time. The control panel is ideal for detection of fire and activation of extinguishing systems for protection of objects such as CNS machines, cabinets and other spaces.