

Installation, Operating & Safety Instructions

Overfill Alarm Panel

SP7829-1

110v, 230v, 24v DC Version



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Additional Information

System Engineered by Commercial Fuel Solutions Ltd.

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Mounting & Probe Installation

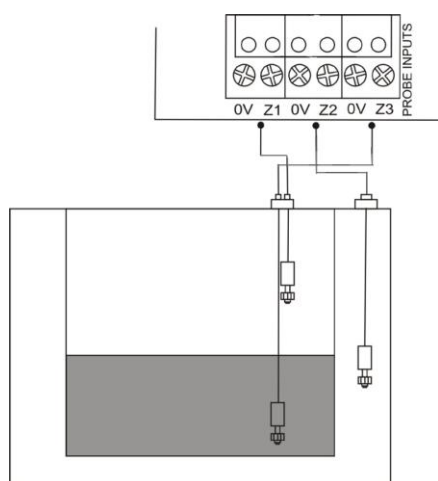
This alarm is IP55 rated and can be installed in exposed locations. Care must be taken at all times to ensure that the front panel integral seal is not damaged resulting in water ingress.



DO NOT CONNECT POWER UNTIL THE ALARM PROBES ARE CORRECTLY WIRED AND THE PANEL IS FIXED SECURELY

1. Remove the Perspex door. Open the door by turning the white tab 90° anticlockwise.
2. Remove the front panel by turning the four plastic screws anticlockwise half a turn.
3. Once all four screw slots are vertical the front panel can be lifted free from its base.
(N.B. Do not allow the front panel to hang unsupported on its cables.)
4. Carefully drill out the four mounting holes in the base and use the holes as a template to mark the mounting surface.
5. To prevent water ingress cable entry grommets must be positioned at the bottom of the enclosure
6. Screw the base to the mounting surface using suitable fixings and cap the fixing aperture by inserting the four sealing caps into the screw recesses to prevent water ingress. ensure the base is flat and not distorted
7. Connect the probes to the alarm panel by passing the sensor probe cable through the grommet and then connecting to the respective probe terminal. Repeat the procedure for the second and third probes. (See below for more detail.) blank off any unused cable gland points to prevent water ingress
8. Refit the front panel and door, ensuring that all integral seals are undamaged and the ribbon cable is connected securely.

There are three probe connections, which are located as shown here:



Zone 1: The probe wired to the 'High' connection should be positioned topmost in the tank and is used to alert that an overfill event has occurred.

Zone 2: The probe wired to the 'Bund' connection should be positioned at low level within the bund (secondary containment) area and is used to alert that the bund has been filled.

Zone 3: The probe wired to the 'Low' connection should be placed near to the bottom of the tank, to indicate a low level.

The probe cable features a twin core cable with a single red core plus a single white core. The red wire should be connected to the corresponding Z(x) terminal and the white wire to the respective 0V terminal.

Before fixing the probes to the storage tank and bund, please refer to the section 'preliminary checks' on page 4.

Electrical Installation

Connecting the power supply. Alarms should only be installed by a suitably qualified engineer.



It is important to take basic safety precautions and ensure the power is off during wiring.

The unit is manufactured to accept a supply voltage of either: 230v AC, 115v AC, 24v DC or 12v DC.



Never connect both AC and DC power simultaneously to the power supply as this will damage the device.

Cable Type

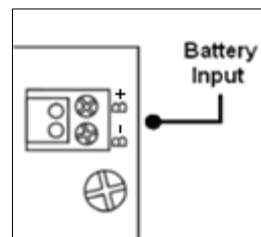
Use 2182Y 0.5mm² Mains Cable (max diameter 5.4mm) in all instances for connecting the power supply

Connecting a DC Supply

It is important to take basic safety precautions and ensure the power is off during wiring.

Strip back outer sheath and cut Live and Neutral cables (Blue and brown) so that they measure 30mm, cap or remove the redundant earth wire.

Connect the wires to the terminal in the top right hand side of the enclosure. Connect Brown wire to positive (B+) and Blue to negative (B-)



Connecting an AC Supply

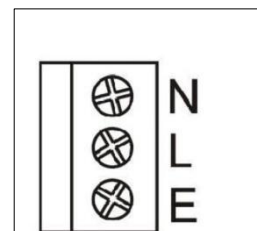
It is important to take basic safety precautions and ensure the power is off during wiring.



Check that the AC voltage switch is set to the correct value
The voltage selection switch is located just above the AC input terminals

Strip back outer sheath 50mm and cut Live and Neutral cables (Blue and brown) so that they measure 30mm, leave the earth wire at 50mm length.

Connect the wires to the power supply input terminal in the bottom right hand side of the enclosure. Connect Blue wire to Neutral (N), Brown wire to Live (L) and Yellow/Green wire to Earth (E)



Ensure all cables are firmly attached and secure, also ensure that the wires copper core is in contact with the terminals contacts

Preliminary Checks

Perform these checks to ensure that the installation will operate correctly.

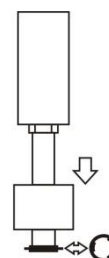
Checking the Power: The power LED should be illuminated, press the 'test' button for 2 seconds to ensure the alarm is operational. If no zones are active all lights and the sounder will stop when the button is released.

Checking the Probe: Before installing the probe sensors in the tank, manually move the float on all probes, as well as the sounder operating you should check that the correct LED illuminates on the front of the panel corresponding to the activated zone (see 'Function' on page 6)

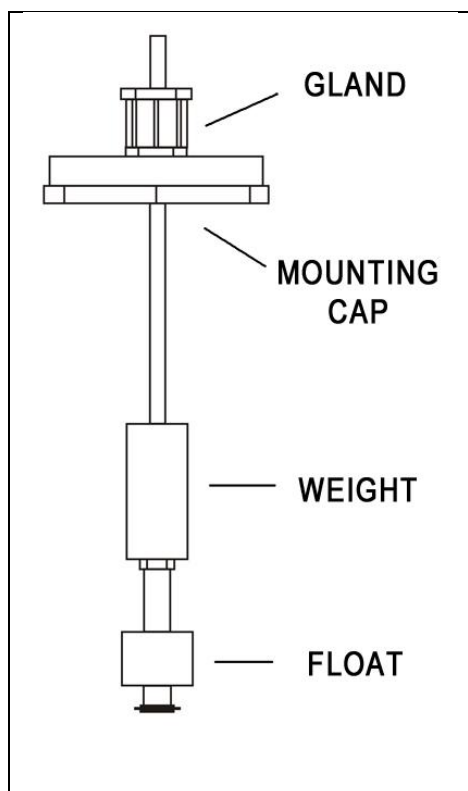
Note that the Overfill and Bund should operate when the float rises and that the Low level should sound when the float falls.

In the event of the float switch operation being in reverse to its intended movement it will be necessary to re-orientate the float on the probe shaft

To perform this operation, release the float by removing the cir-clip at the end of the shaft (see diagram), then rotate the float through 180° and return it back onto the shaft, finally secure the float by fitting the previously removed cir-clip.



Float Depth:



The position of the float can be adjusted to the required height by loosening the cable entry gland on the brass cap.

The cap can then be moved up or down the cable until the required height is achieved, once the desired depth is reached the gland should be tightened to both hold the probe in position and to prevent water ingress.

Overfill Depth: Set the Overfill Probe to the level required to alert the operator in event of a potential overfill. This should be lower than the tank vent between 90-95% of tank volume is recommended.

Low Level Depth: Set the Low Level Probe to the depth required to alert the operator to a low level. This should be at a suitable level to prevent the dry running of pumps or to signal a re-order.

Bund Depth: Set the Bund Probe to the level required to alert the operator in event of bund breach, you should take into consideration the depth of any rain water presence. Note that the environment agency insist that a bund features an available volume of 110% of the inner tank capacity at any given time.

Once these checks are complete it is permissible to connect the probes to the tank using the mounting supplied.

Function

Application: Tank alarms to suit fuel storage tanks complete with high level, low level, bund alarm, adjustable probe depth and relay outputs, suitable for diesel, gas oil and kerosene. Also suitable for bund water. Not suitable for viscous fluids, other liquid compatibility options on request.

Testing: The delivery operator filling the tank should test the alarm before filling. By pressing the test button

- a) the alarm will sound,
- b) the strobe will light,
- c) the segmented display will indicate all zones which are functioning
- d) the NO/NC output will actuate the relay output

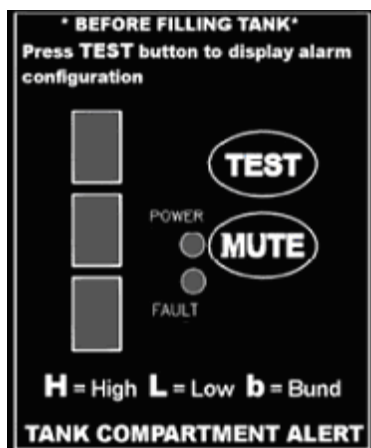
Once the test button is released the alarm will silence, the segmented display will extinguish and the relays will return to resting position.

Operation: Designed to record either an overfill, low-level or bund breach event and to identify the activated zone. The operation of the alarm device will ensure that in the event of any of the 3x zone float switches operating (moving from the 'rested' to the 'active' position) that;

- e) the alarm will sound,
- f) the strobe will light,
- g) the segmented display will indicate which zone activated (see below)
- h) the NO/NC output will actuate the relay output

Observing that once the mute button is depressed to mute the alarm, providing that the respective activated float switch is still in the active position;

- a) the alarm will mute,
- b) the strobe will stop flashing,
- c) the segmented display will still indicate which zone activated until the float switch returns to its resting position
- d) the NO/NC output will continue to energise the relay output until the float switch returns to its resting position



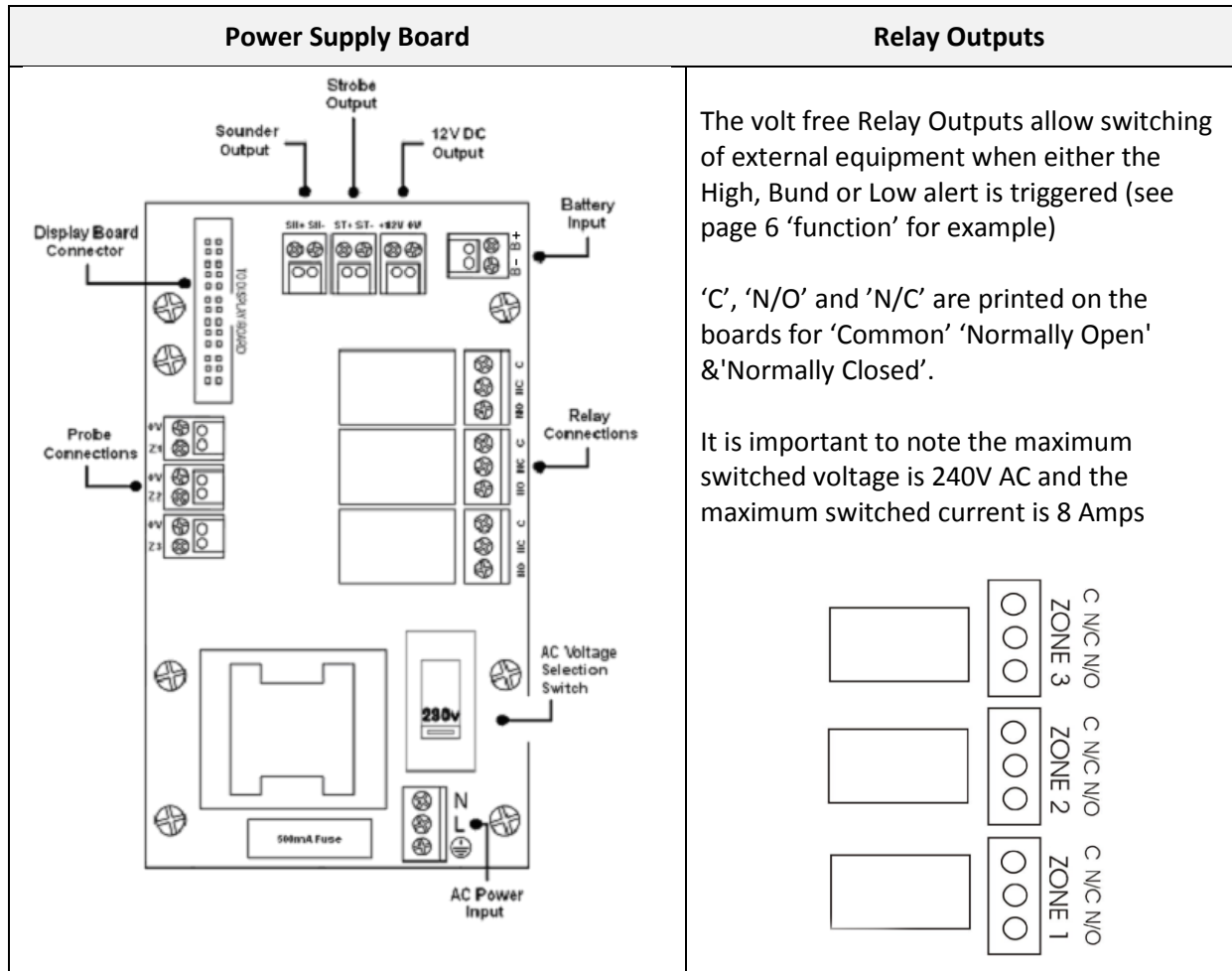
Segmented Display Definitions

H = Overfill Warning

L = Low Level Warning

B = Bund Breach

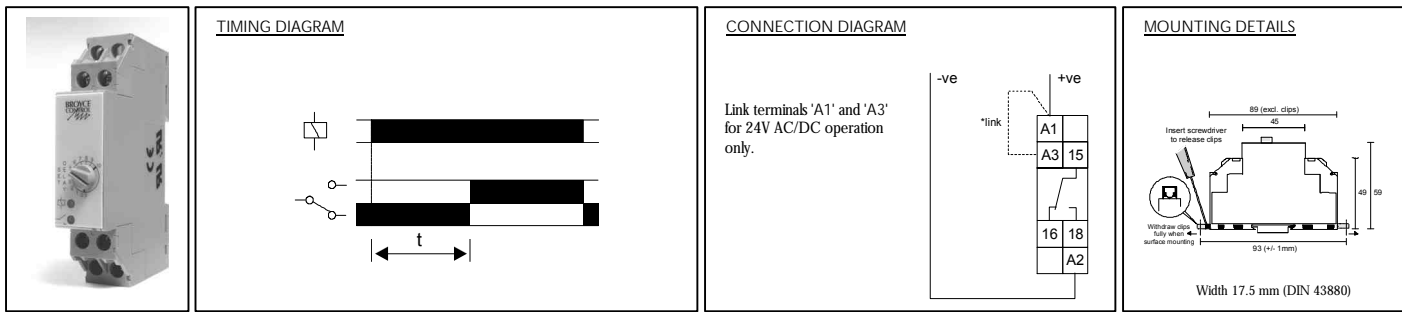
PCB Layout & Relays



Specification

Part No:	SP7829-1
Description:	BT Overfill, Low Level & Bund Alarm Panel c/w Probes & Relay Outputs
Voltage	24v DC (12v DC, 110v AC, 230v AC option)
Current	< 1A
IP Rating	IP55
Op Temp	-20°C to +50°C
Humidity	Up to 100%
Alarm Type	90db Audible Warning, Strobe Light, Segmented LCD Display, Switching NO/NC Solid State Relay (8 Amp)
Panel Dims	145mm x 242mm x 110mm
Sensor Type	Adjustable Depth NO/NC weighted float switch, 5m twin core flex, 1½" BSP(F) mounting, buoyant to 0.7 SG
HS	WEEE & RoHS Compliant

Time Delay Relay Wiring (additional module required)



- DELAY ON ENERGISATION
- SUPPLY INDICATION
- RELAY INDICATION
- DUAL VOLTAGE
- SLIM DESIGN

▪ INSTALLATION AND SETTING



Installation work must be carried out by qualified personnel.

- BEFORE INSTALLATION, ISOLATE THE SUPPLY.
- Connect the unit as shown in the diagram above.
- Apply power (green LED on).
- Unit will operate according to function selected (see 'timing diagram').

Troubleshooting

- Check wiring and voltage present.
- Check polarity (for DC supplies only).

▪ TECHNICAL SPECIFICATION

Supply voltage Un:	12V AC, 12V DC
(AC: 48 - 63Hz)	24V AC/DC / 110V AC *
	24V AC/DC / 230V AC *
	* Dual Voltage
Supply variation:	0.85 - 1.15 x Un
Power consumption:	AC: 1.2VA (27.6V), 3VA (126V)
(1.15 X Un)	13VA (264V)
	DC: 0.4W (13.8V), 0.6W (27.6V)
Time delay (t):	0.5 - 10, 1 - 30, 2 - 60S
	0.5 - 10, 2 - 60M
Repeat Accuracy:	± 0.5% @ constant condition
Reset time:	≈ 100mS
Ambient temperature:	-20 to +60°C
Relative humidity:	+ 95%
Contact rating:	1 x C.O.
	AC1 250V AC 8A (2000VA)
	AC15 250V AC 5A (no), 3A (nc)
	DC1 25V DC 8A (200W)
Electrical life:	≥ 150,000 (AC1)
Housing:	to UL94 VO
Weight:	≈ 66g
Mounting option:	to BS5584:1978 (EN50 002, DIN 46277-3)
Terminal conductor size:	≤ 2 x 2.5mm ² solid / stranded
Approvals:	UL, CUL. Conforms to: CSA, IEC, CE and Compliant

The information provided in this literature is believed to be accurate (subject to change without prior notice); however, use of such information shall be entirely at the user's own risk

Example of wiring to CFS Alarm Panel

