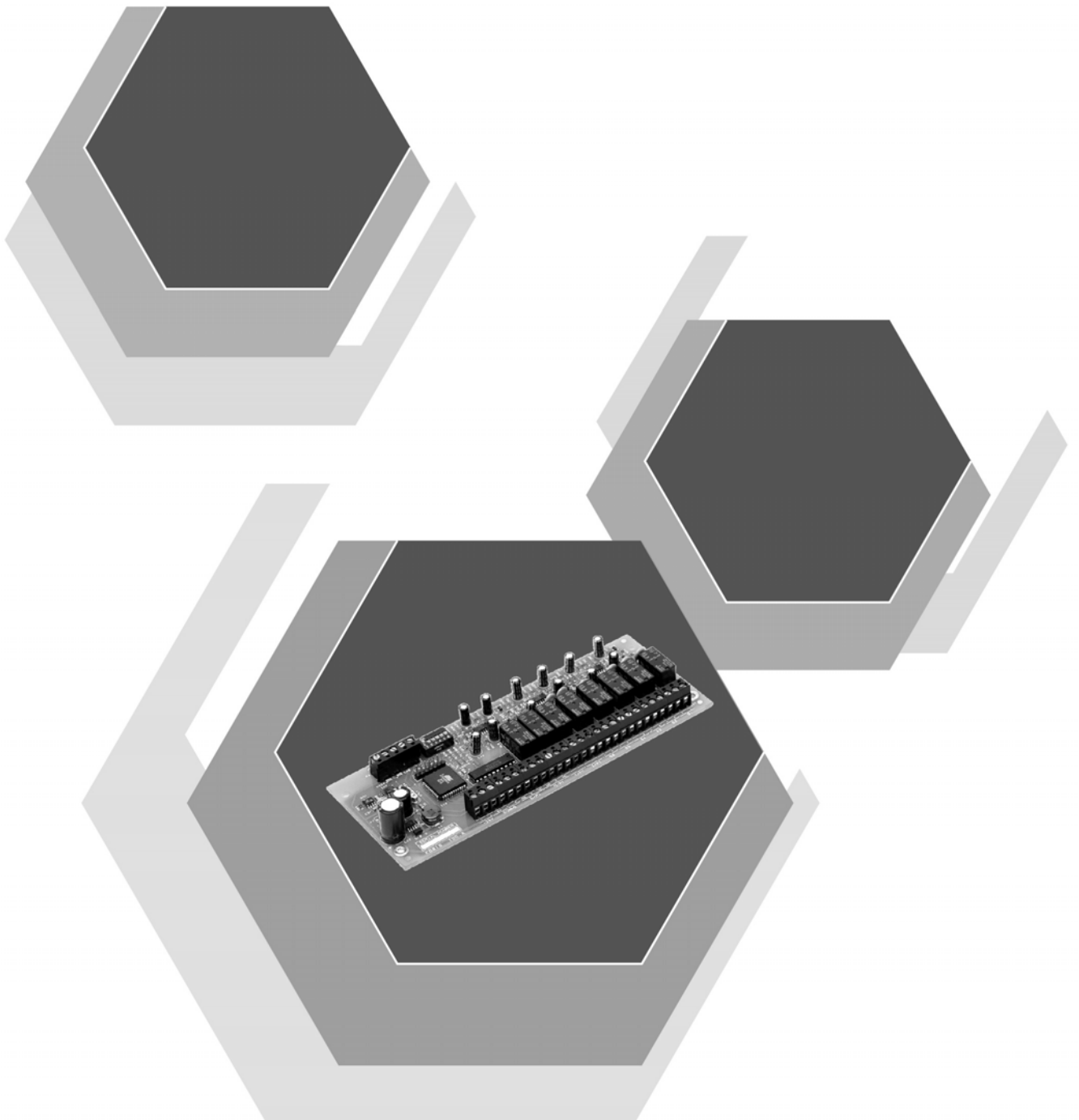


Syncro

Multi Loop Analogue Addressable Fire Control Panel

Sounder Board Manual

Man-1075 Issue 05 June 2013



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1. General

To further enhance the versatility of the Syncro fire alarm system, additional sounder output capability can be added using Syncro sounder boards.

These boards have 6 monitored sounder outputs, each of which can be individually programmed.

In addition to the sounder outputs each board has two general purpose, opto-isolated inputs and two volt-free changeover contact outputs.

Up to 32 of these boards can be connected to the dedicated RS485 communications bus in the control panel giving the capability of 192 additional sounder outputs with 64 general purpose inputs and 64 general purpose outputs.

The sounder boards may be mixed on the RS485 bus with 16 channel I/O boards, 4 way conventional detection boards or 8 way relay boards to provide a very flexible system of I/O to satisfy almost any requirement.

All inputs and outputs are configurable in the same way as devices connected to the loops and all may contribute to, or be acted upon, by cause and effect logic.

These boards are typically used in applications that require more than the four standard sounder outputs such as replacement of existing conventional systems.

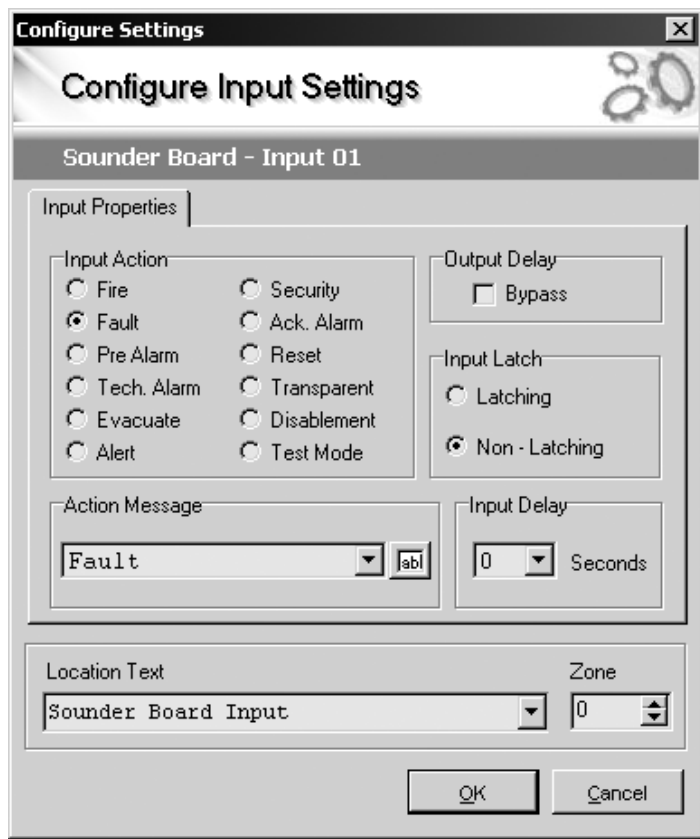
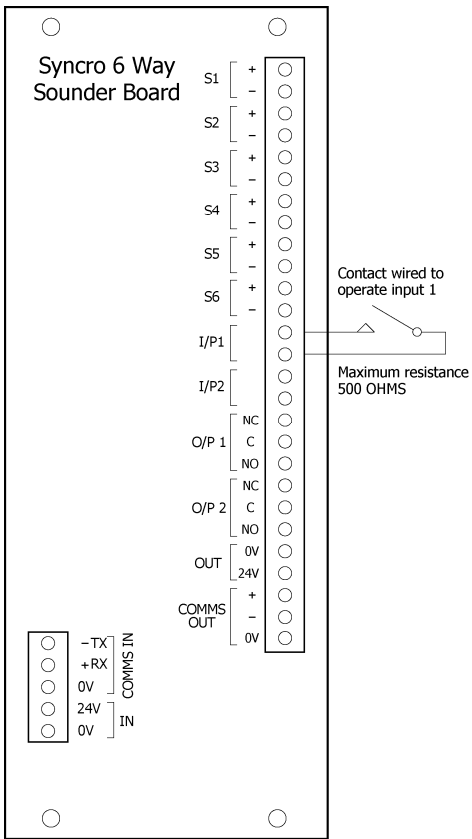
Standard Syncro control panels contain fixings for one sounder, relay, conventional detection or I/O board, which can easily be connected using four small signal wires to the power and comms bus within the panel.

2. Inputs

The general purpose inputs on the sounder board are optically isolated and are activated by connecting the two input terminals together via a contact with a resistance no greater than 500 ohms.

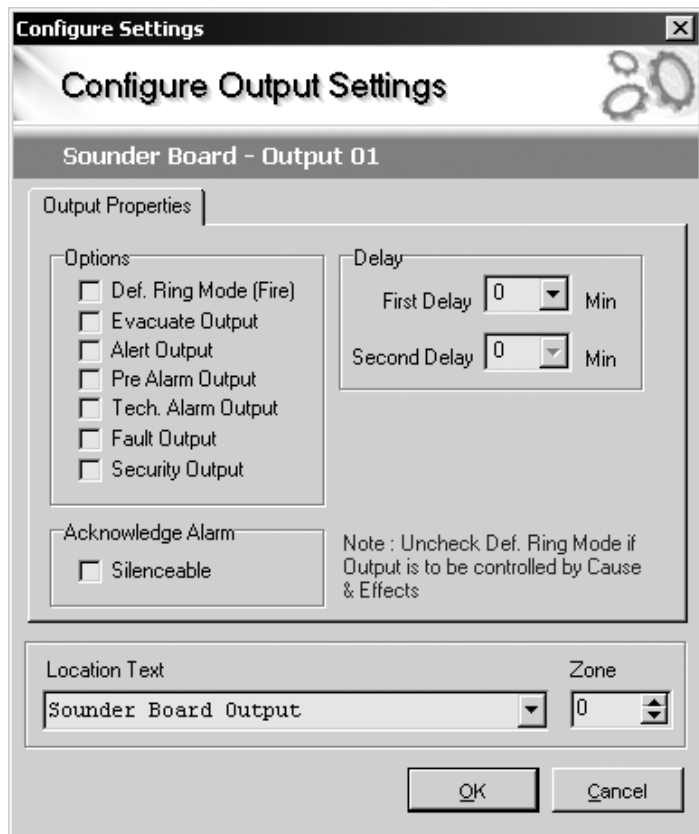
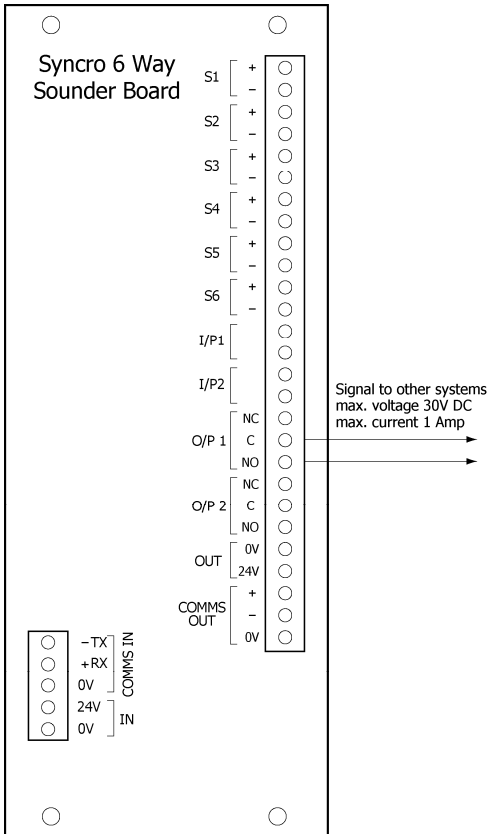
The current switched by the contact will be 3 milliamps (+/- 10%).

Inputs can be configured to generate any event type with the Loop Explorer configuration programme.



3. Relay Outputs

The sounder board is provided with two, general purpose relay outputs for local control where a low voltage relay contact is required. Each output is a voltage free changeover contact with a maximum rating of 1 Amp and 30 Volts DC.



Outputs can be configured to operate upon any event type with the Loop Explorer configuration programme.

4. Sounder Outputs

The six sounder outputs are open and short circuit monitored by fitting a 10K 0.25W resistor across the last device fitted to the field wiring.

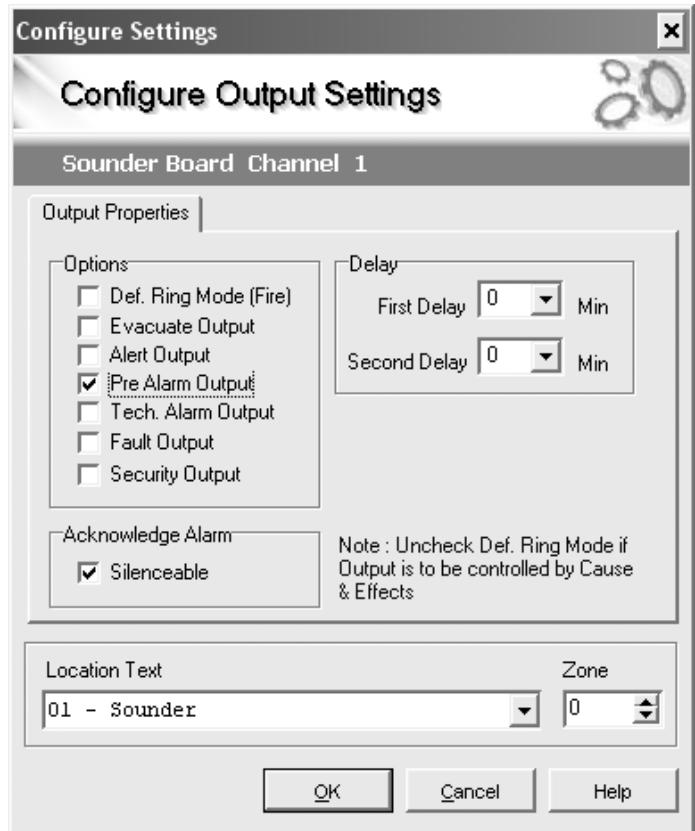
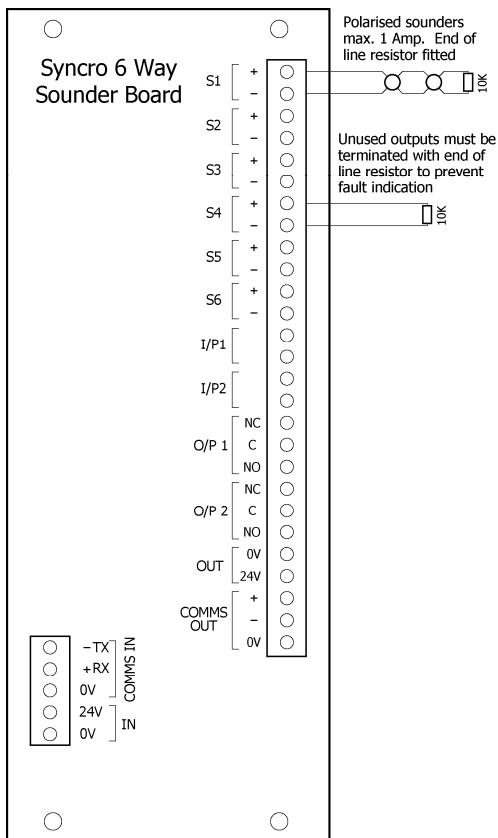
Each output is protected by a 1 Amp, self resetting electronic fuse. A short circuit or overload on one of the outputs will not prevent the other outputs from operating.

All sounder devices used with the board must be polarised. Connecting non-polarised devices to the circuit will result in a fault indication on the board and at the control panel.

Although each of the sounder outputs is fused at 1 Amp, consideration should be given to the rating of the power supply that is powering the sounder board.

The standard Syncro power supply for instance has a rating of 4 Amps of which a total of 2.5 Amps should be used for **all** sounder circuits.

When using many sounder outputs or high power sounder outputs, use a separate power supply (see power supply section).



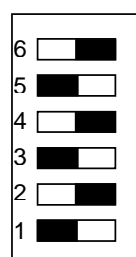
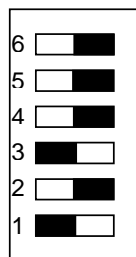
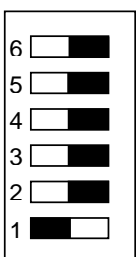
Sounder outputs can be used to provide monitored outputs for other events using the Loop Explorer configuration programme.

5. Addressing

Up to 32 sounder, relay or I/O boards may be connected to a control panel and in order for the panel to recognise them individually; each board must be allocated an address.

This is done via a DIL switch (as is used on many field devices) and setting a binary number. Care should be taken where more than one board is used to give each board a unique address setting.

Some example address number settings are shown below.



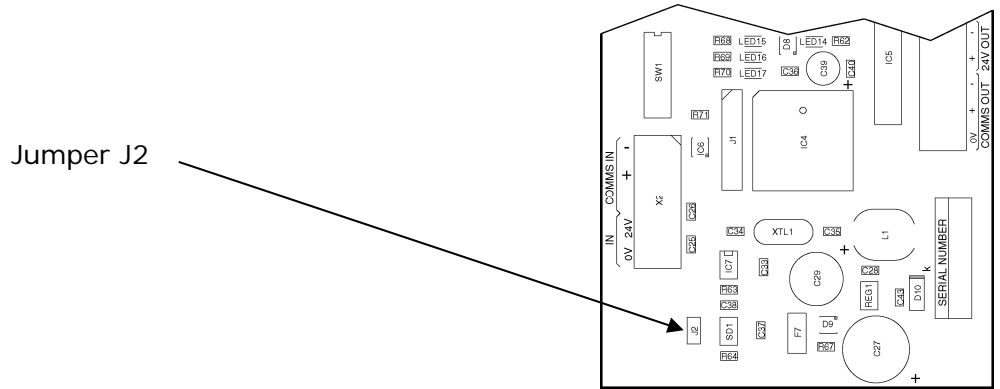
Shows switch actuator in the ON position.
For Address 32 all switches must be off.

Switch Number – 1 2 3 4 5 6
Value – 1 2 4 8 16 not used

6. Data connections

The last board connected to the RS485 communications bus, must have a terminating jumper fitted at position J2 as shown here.

This jumper should be fitted even if only one board is connected to the bus.



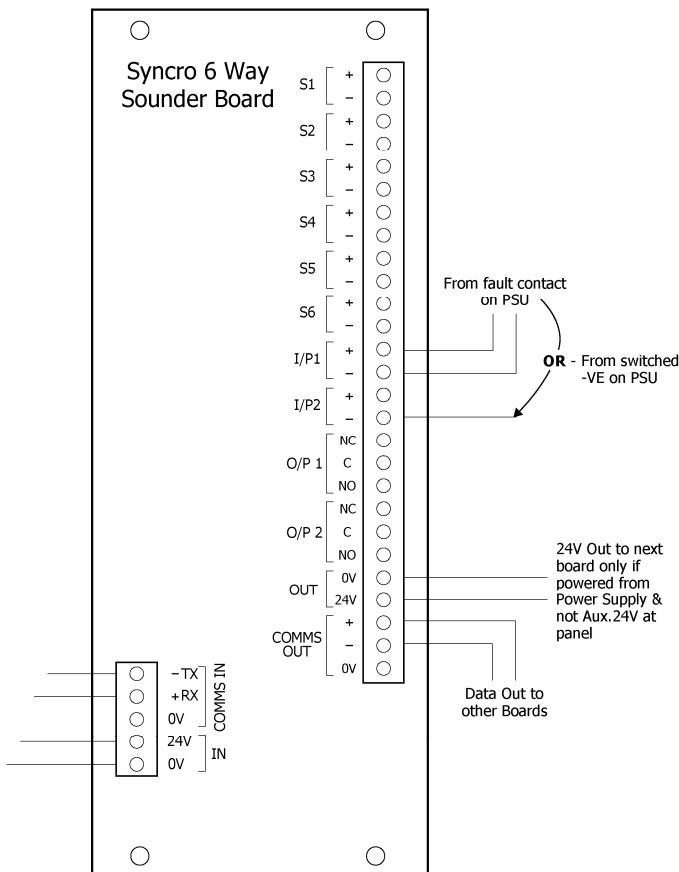
7. Power connections

The sounder board requires a nominal 24V DC supply. This can be between 21 and 30 volts DC, a voltage range, which suits battery-backed systems.

The total power consumption of all sounders must be considered when connecting a power supply. Each sounder output is fused at 1 Amp which gives a potential current consumption of 6 Amps.

If the total sounder load (including any sounders connected to the loops or the standard sounder outputs in the panel) exceeds the maximum available from the Syncro panel power supply, a separate power supply of suitable rating should be connected to the power terminals.

Connections are provided for both incoming and outgoing power as shown below.



When using an additional power supply one of the inputs should be used to monitor for power supply faults and the control panel configured to display accordingly.

The fault condition from the power supply can be from a voltage free contact or a switched -ve input

When using a switched -ve, the input should be connected to the lower of the two input terminals as shown on the left.

8. Power consumption – battery standby

The effect of the power consumption of sounder boards must be considered when calculating battery standby.

Each sounder board has a current consumption of 30mA which require $24 \times 30\text{mA} + 25\% = 0.9\text{Ah}$ of extra battery capacity per 24 hour standby period.

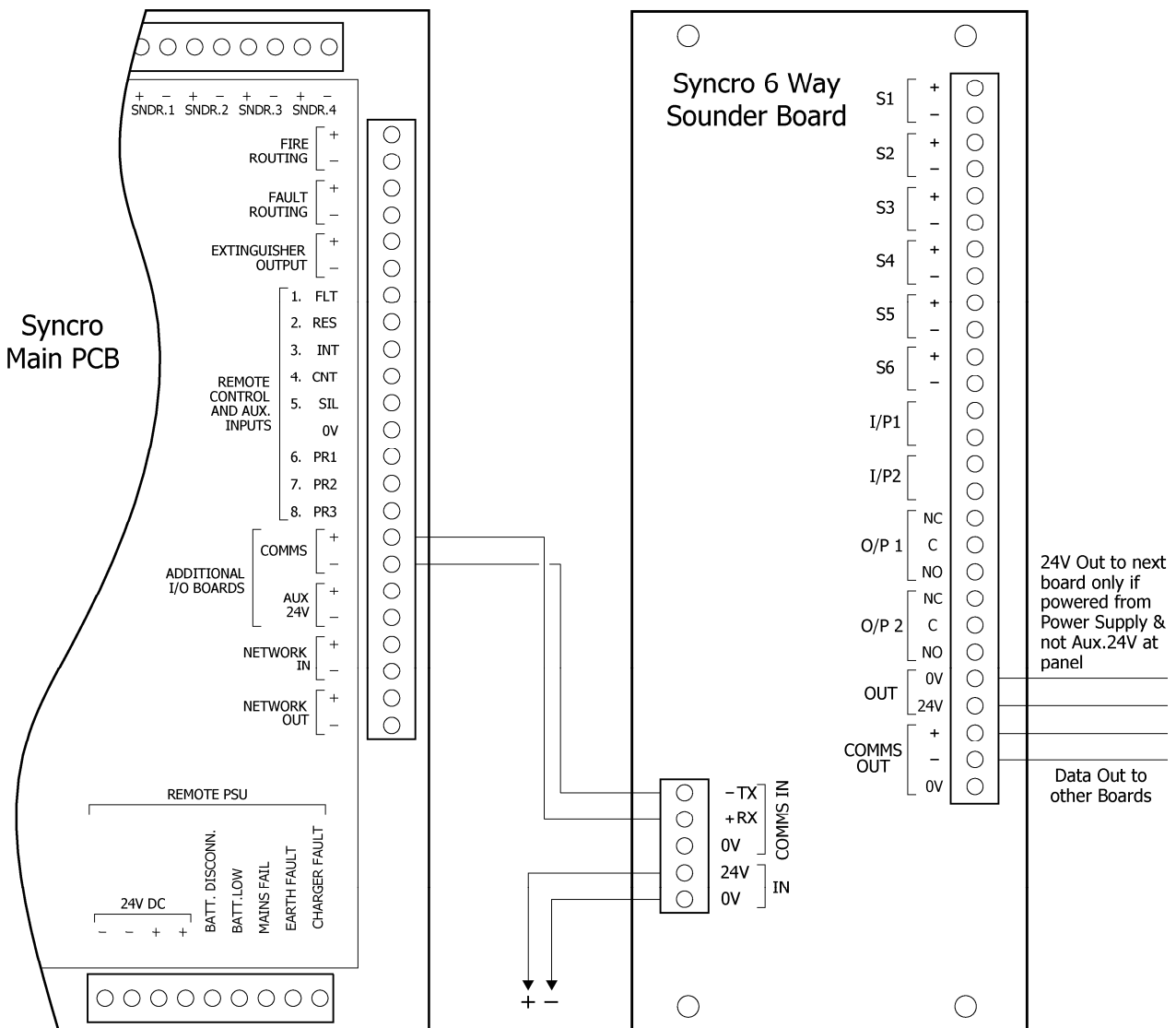
The sounders must be able to operate for half an hour at the end of the standby period so additional capacity of $0.5 \times$ total sounder load in Amps + 0.13Ah (consumption of board in full alarm) should be added to the required battery capacity to cover this.

9. Comms connections

The panel communicates with sounder boards using a 2 wire RS485 data bus. This bus is available on the main termination board in the control panel.

Connections to sounder boards within the control panel can be made with small gauge equipment wire. Connections to boards mounted outside of the control panel should be made using a suitable RS485 data communications cable such as Belden 9271.

Connections are provided for both incoming and outgoing comms as shown below.



10. Indications

LED indicators on the sounder board give some simple diagnostic information and show that the boards are communicating with the control panel.

The red LEDs (LED16 and LED17) are used to show serial data communication is being received from the control panel.

This LEDs should be flickering more or less continuously when the board is operating normally.

If this LED is not lit, then the board is not receiving data from the control panel and the comms connection should be checked.

If the LEDs are permanently lit, then it is likely that data is being received but that it is being corrupted.

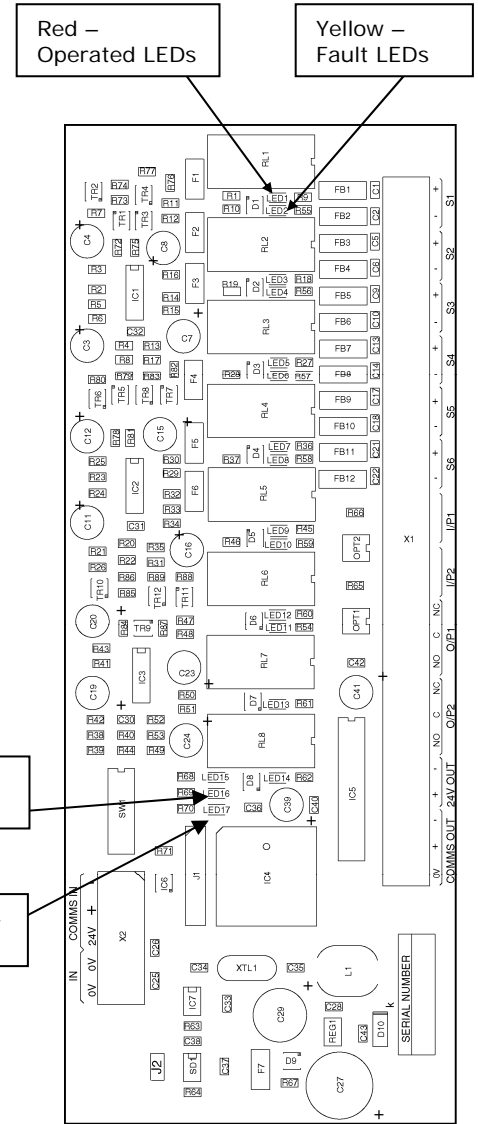
In this case the quality of the comms connection should be checked for interference from mains or other noise generating sources.

These simple indications are not designed to provide detailed diagnostic help but should assist in establishing whether boards are communicating correctly with the control panel.

Red and yellow LEDs are provided for each of the six sounder outputs. The yellow LED indicates an open or short circuit fault on the output and the red LED indicates that the output is operated.

Faults on the outputs are transmitted to the main control panel.

Each of the two volt free relay outputs has a red LED to indicate when the output is operated.



11. Specifications

Part number – S546

Supply voltage range – 21 to 30 Volts DC

End of line resistor value - 10K Ohms

Quiescent current consumption – 30 milliamps

Full alarm current consumption – 260 milliamps

Current per input – 3 milliamps maximum

Current per sounder output – 1 Amp maximum

Output contact rating – 30 V DC 1 Amp

Communications – RS485 two wire

Maximum distance from control panel – 1200 metres (subject to correct type of cable)

PCB size – 190mm X 74mm

Fixing centres – 51.5mm X 180mm

Cable capacity – 2.5mm² per terminal

Operating temperature - -5° to +40° Celsius

Operating humidity - <95% non-condensing

Control panel compatibility – Compatible with control panels fitted with software version V3.4 upwards