Fitting/Replacing the 4-Way Sounder PCB

The 4-Way Sounder PCB (kit PN: 020-772) supports four configurable monitored outputs and two configurable digital inputs. Various preset combinations of input and output functions are selected via a DIP switch. Up to two, independently-configurable 4-Way Sounder PCBs may be fitted in the fire control panel. Provision is made for connecting an SST LED box.

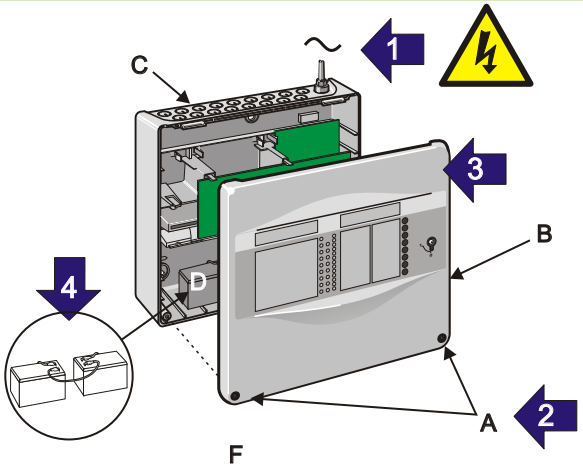
Output options are: sounder, ÜE transmission circuit, SST extinguishing system (three output circuits are used: one for SST output and two for SST inputs), fault routing or fire routing. To connect an SST, a Routing Termination kit (PN: 020-773) and LED Display Box (English version PN: 020-769-001 or German version 020-769) are also required. The 4-Way Sounder PCB detects partial open and short circuits on the output circuits, to meet EN54-13 requirements.

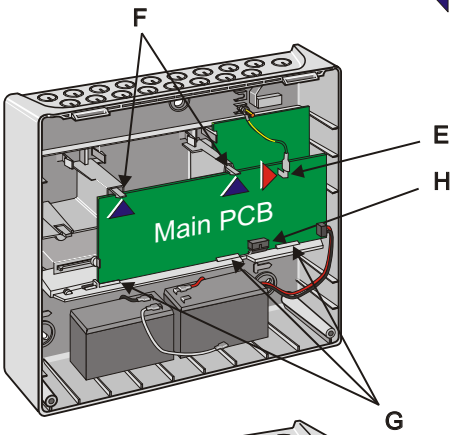
Input options are: fire transmission confirmed, fault transmission confirmed, class change or day mode.

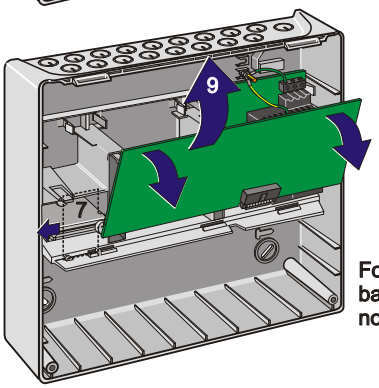
Depending upon its output load, the PCB can be powered from the panel or from an external dc power supply, as set by a jumper link.

Your 4-Way Sounder PCB Kit, PN: 020-772 should contain:

4-Way Sounder PCB	PN: 124-372
16-way Ribbon Cable (x1)	PN: 082-252-002
Nylon Spacers (x2)	PN: 423-262
Nylon locking rivets (x2)	PN: 423-261







For clarity, batteries are not shown.

Check your equipment....

Take suitable anti-static precautions, such as wearing a grounded wrist strap, when following ALL instructions. Remove all packaging from the kit and ensure that it has not been damaged in transit (and that no items are missing - see checklist on the left) before proceeding any further. If no damage is evident, proceed using the instructions below. In the unlikely event that damage has occurred or items are missing, DO NOT PROCEED, contact your supplier and refer to the panel's **Installation, Commissioning &**

Procedure for Fitting/Replacing the 4-Way Sounder PCB

To fit/replace the 4-Way Sounder PCB, **configure it** (see page 3), then proceed as follows:

1 Only carry out this procedure when mains power to the panel has been isolated.

2 Use a 4mm hex key to release the two socket-headed screws (A) that secure the cover (B) to the back box (C).

3 Carefully withdraw the cover from the back box. Store cover safely.

4 Ensure the batteries (D) are disconnected.

5 If replacing the 4-Way Sounder PCB, temporarily disconnect all external cables to the Main PCB.

Removing the Main PCB

6 Disconnect the earth lead from the right-angled, blade connector (E) located at the top right-hand corner of the Main PCB.

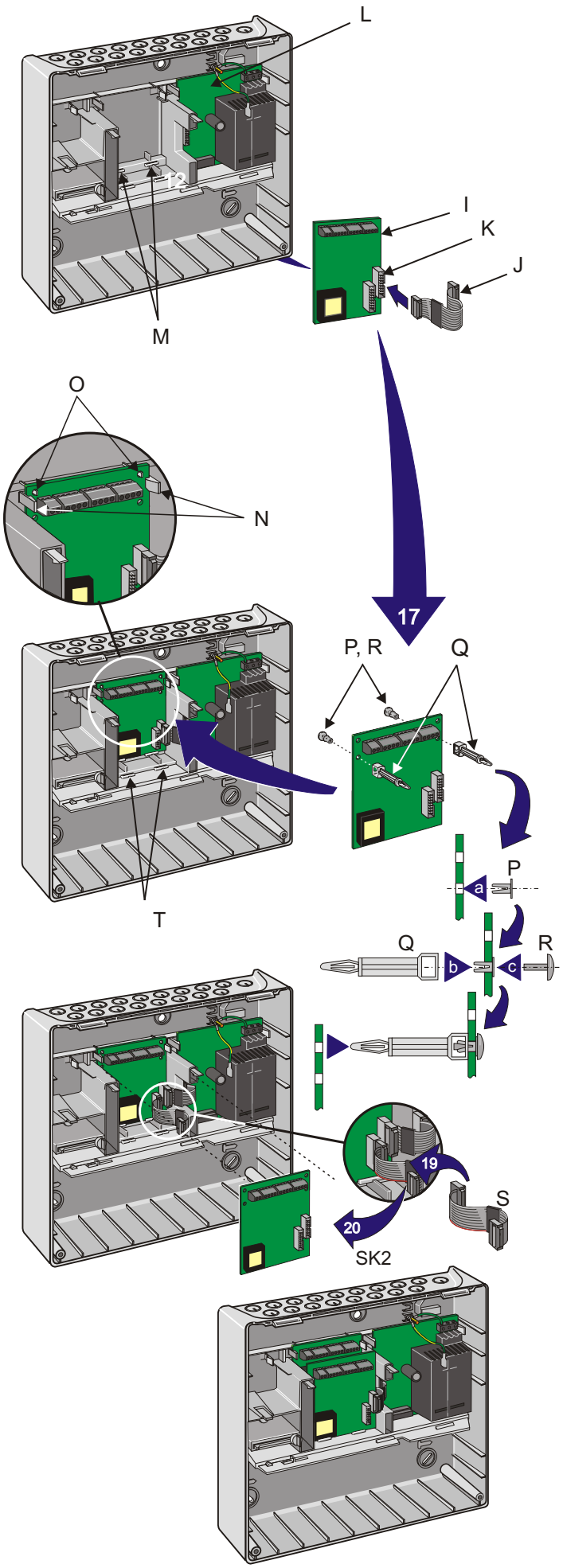
7 Carefully push up the two PCB-retaining clips (F) until the top edge of the Main PCB is free to move - the bottom edge of the PCB is still located by the three tabs (G).

Note: If a 2-Way Relay PCB is fitted, slide it to the left to disengage socket connector SK2 on the Main PCB. Once disengaged, there is no need to remove the 2-Way Relay PCB from the panel.

8 Leave the ribbon cable connected at connector SK4 (H) on the Main PCB, disconnect the ribbon cable at socket connector SK2 on the PSU PCB.

DO NOT forget to reconnect this cable before re-fitting the main PCB.

9 Gently pull the top of the Main PCB away from the back box and lift the PCB clear of the back box and store safely.



Fitting the 4-Way Sounder PCB

Follow steps 10 to16 if only fitting one 4-way Sounder PCB. If fitting two 4-way Sounder PCBs follow steps 10 and 11 then go step 17 before continuing with steps 12 - 16.

With the Main PCB removed....

10 Inspect the 4-Way Sounder PCB (I). If there is no evidence of damage, proceed with fitting.

11 If a second-layer PCB is being fitted go to step 17 before continuing. Otherwise, connect the 16-way ribbon cable (J) to the outermost connector SK2 (K). Observe polarity. Slide the ferrite along the ribbon cable so that it is near to SK2.

12 With the PCB (I) correctly orientated - the wiring connectors must be at the top - offer it to the space to the left of the PSU PCB (L).

13 Align and locate the 4-Way Sounder PCB in the two locating slots (M) and once located, push the top of the PCB to engage the two retaining spring clips (N).

14 Push the PCB home until secure. The two upper holes on the PCB should locate cleanly on the lugs (O).

15 Connect the other end of the 16-way ribbon cable (J) to SK1 on the PSU PCB.

16 If a second-layer PCB (either 8-way Relay or 4-way Sounder) is not being fitted, the Main PCB can now be re-fitted. Ensure that:

i The ribbon cable is re-connected to SK2 on the PSU PCB.

ii The PCB is correctly aligned with the rebates in the side wall ribs before gently pushing it home.

Fitting the Second-layer 4-Way Sounder PCB

If two PCBs are being fitted use the spacer and rivet (with collar) supplied with the kit. Where a faulty PCB being replaced, use the spacers and rivets supplied with this kit. Discard previous type of spacers (i.e without rivet) where used.

17 With reference to the drawings immediately at left, fit two spacers in the lower of the two top pairs of holes on the first-layer PCB as follows:

a. Insert each rivet (P) in the holes as far as the collar (this is about half way along the rivet) and no further at this stage.

b. Place the larger end of the spacer (Q) - the end with the locating hole - over the partially-inserted rivet until flush with the face of the PCB.

c. Holding the spacer against the PCB, now push the rivet fully home; the jaws of the rivet expand inside the spacer to lock it to the PCB. Ensure the spacer is orientated as shown to clear any components.

18 Inspect the 4-Way Sounder PCB to be fitted in the second-layer position. If there is no evidence of damage, proceed as follows.

19 Connect the 16-way ribbon cable (S) - observe polarity - to connector SK1 of the first-layer 4-Way Sounder PCB (I).

20 Offer the bottom edge of the second-layer PCB towards the two lower locating slots (T) and connect the other end - observe polarity - of the ribbon cable to the connector SK2 located on the second-layer 4-Way PCB. Slide the ferrite to be beside SK2, closer than in step 11.

21 Align and locate the 4-Way Sounder PCB in the two locating slots (T) and line up the two spacers with the upper two holes on the second-layer PCB and push the top part of the PCB so that the spacers engage and locate in the holes.

22 Re-fit the Main PCB and re-connect the ribbon cable to the PSU PCB.

23 Connect all external wiring to the 4-Way Sounder PCB(s).

24 Re-connect all external wiring to the Main PCB.

25 Apply power and connect batteries.

26 Ensure any faults are cleared before replacing the cover.

1: PSU Jumper Link

JP1 A B

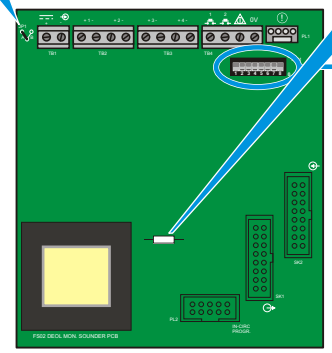
Position A: Sounder PCB is powered from panel via ribbon cable.

Position B: Sounder PCB is powered from external PSU (see Specification).

2: External PSU Earth Link

R63

If an external PSU with its output referenced to earth is used (i.e. continuity between mains earth and 0V), remove R63 to isolate the input. This prevents earth faults from occurring.



Configuration Options

By default, the PCB is configured as follows:

All circuits are sounders, activated on first fire, any zone. Sounders steady and load >250mA. Digital inputs set to Class Change and Day Mode.

If other options are required, configure links and DIP switch **before** fitting the PCB into the panel. Perform configuration in the sequence given below:

1 **Jumper link**

Determine whether power is obtained from the panel or from an external dc power supply unit (PSU) - refer to 'Specification' on page 4.

2 **Earth link**

Remove if the external PSU's output is referenced to earth.

3 **DIP switch - circuit configuration functions**

Use switches 1 to 4 to configure the four circuits.

4 **DIP switch - other configuration options**

Switch 5 determines whether the sounders are steady or pulsing.

Switch 6 must be set according to the maximum load current being drawn on an circuit (if configured as an output). This is used by the PCB to detect partial open and short circuits.

Switch 7 determines the function of digital input circuit 1.

Switch 8 determines the function of digital input circuit 2.

3: DIP Switch - Circuit Configuration Functions

DIP switch Settings		Functions			
Option	1 2 3 4	Circuit 1	Circuit 2	Circuit 3	Circuit 4
0	0 0 0 0	Any zone	Any zone	Any zone	Any zone
1	1 0 0 0	200R	Return Signal (unlatched)		
2	0 1 0 0	200R	Return Signal (latched)		
3	1 1 0 0		SST Fault	SST Operated	Any zone
4	0 0 1 0	Any zone	Any zone		
5	1 0 1 0	Any zone	RESET OUT		
6	0 1 1 0	Any zone		Any MCP Zone	Any Detector Zone
7	1 1 1 0	Zone 1	Zone 2	Zone 3	Zone 4
8	0 0 0 1	Zone 5	Zone 6	Zone 7	Zone 8
9	1 0 0 1	Zone 1	Zone 3	Zone 5	Zone 7
10	0 1 0 1	Zone 2	Zone 4	Zone 6	Zone 8
11	1 1 0 1	Zone 1 or Zone 2	Zone 3 or Zone 4	Zone 5 or Zone 6	Zone 7 or Zone 8
12	0 0 1 1	Zone 1 and Zone 2	Zone 3 and Zone 4	Zone 5 and Zone 6	Zone 7 and Zone 8
13	1 0 1 1	Zone 1 and Zone 3	Zone 3 and Zone 5	Zone 5 and Zone 7	Any zone
14	0 1 1 1	Zone 2 and Zone 4	Zone 4 and Zone 6	Zone 6 and Zone 8	Any zone
15	1 1 1 1	Any zone	Any zone	Any zone	Any zone

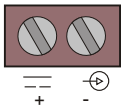
Key

- Sounder activated on first fire in Zone n
- Sounder delayed on first fire in Zone n
- Sounder activated on second fire in Zone n
- Fire Routing Output
- Fault Routing Output
- ÜE Output
- ÜE Input
- SST Output
- SST Input

4: Other Configuration Options

DIP switches: 5-8 settings (5 6 7 8)	Function
	Steady/Pulsing
0 0 0 0	Steady sounders
1 0 0 0	Pulsing sounders, 1second on, 1 second off
	Sounders > 250mA
0 0 0 0	Sounders > 250mA. Use this setting if one or more of the output circuits has a load current of 250mA or above.
0 1 0 0	Sounders < 250mA. Use this setting if none of the output circuits has a load current greater than 250mA.
	Digital input circuit 1
0 0 0 0	Class change
0 0 1 0	Fire transmission confirmed (monitored fire routing output)
	Digital input circuit 2
0 0 0 0	Day mode
0 0 0 1	Fault transmission confirmed (monitored fault routing output)

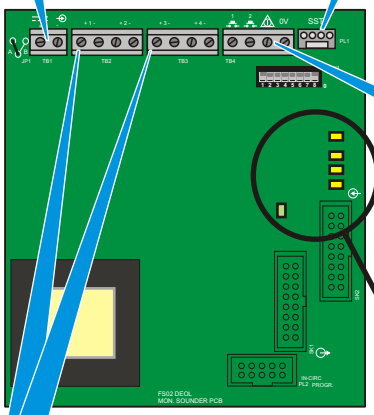
External Power Input



± 20 - 30V dc, 5A

SST LED Box Connection

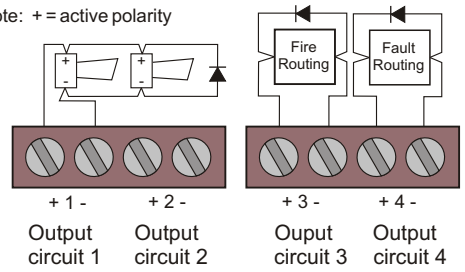
This connection is provided for LED box (English PN: 020-769-001 or German PN: 020-769).



OUTPUT CIRCUIT APPLICATIONS:
Typical connections

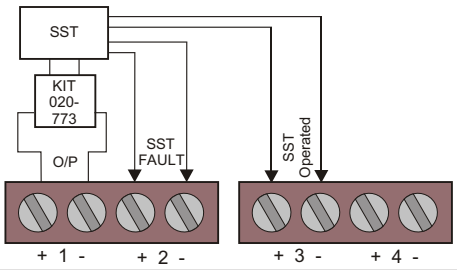
SOUNDERS **FIRE/FAULT ROUTING**

Note: + = active polarity

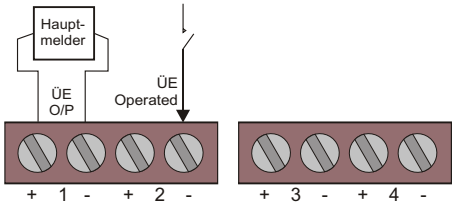


OUTPUT & INPUT CIRCUIT APPLICATIONS:
Typical connections

SST



ÜE



External Wiring

Configurable Circuits

Typical wiring examples are given below. The functions available on a particular circuit are determined by the configuration options described on the previous page.

The PCB is supplied with an end-of-line diode across each circuit connector. Remove these diodes and either (depending upon the usage of the circuit) place across the end-of-line, or discard if not required in this usage.

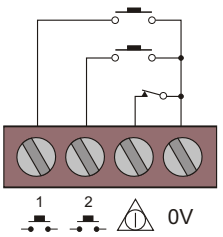
Digital Inputs

Typical wiring examples are given below. The functions available on a particular input are determined by the configuration options described on the previous page.

External PSU

If an external PSU is being used, connect the dc input as shown at left, and the fault input as shown below. Links JP1 and R63 must be set correctly as described on the previous page.

DIGITAL INPUTS AND EXTERNAL PSU FAULT INPUT



1 Digital input circuit 1. Must be linked to 0V if not used.

2 Digital input circuit 2. Must be linked to 0V if not used.

Power fault output from EN54-4 compliant PSU:

Note: Must be linked to 0V if internal PSU is used.

Connect normally closed to this terminal.

0V Connect common to this terminal.

LEDs

Heartbeat LED is green, all others are yellow.

Heartbeat
Normal: 0.5s on, 5 sec off
Panel/PCB Comms fault: flashes at 1Hz, 50% duty cycle

- Output channel 1 fault
- Output channel 2 fault
- Output channel 3 fault
- Output channel 4 fault

Specification

Outputs:

Sounder PCB outputs:	26 - 28.5V dc
If DIP switch 6 is set to >250mA:	4 x 1A (maximum of 1.5A in total for 2 or more outputs)
If DIP switch 6 is set to <250mA:	4 x 250mA
Digital Inputs:	2 x 5V - 32V dc

Up to two 4-Way Sounder PCBs may be fitted in the panel. If it is intended to install an 8-way Relay PCB and a 4-way Sounder PCB, the Relay PCB **must** be in the first (innermost) position.

Each 4-Way Sounder PCB communicates with the PSU PCB via 16-way ribbon cables in a daisy-chain arrangement.

External power supply unit (if used):

Sounder PCB input: 20-30V dc, 5A
Compliancy: EN54 Part 4 with power status volt-free contact (normally closed when there are no faults present)

Max Current (per PCB):

Quiescent:	47mA
Alarm/all active:	1547mA