

Fitting/ Replacing the 8-Way Relay PCB

The 8-Way Relay PCB supports eight relay output circuits, which are configurable as normally open (N/O) or normally closed (N/C) using the provided jumper links. Other functions are also jumper link-configurable including discrete inputs. These relays are only intended to switch SELV. Up to two 8-way Relay PCBs may be fitted in the fire control panel.

The 8-way Relay PCBs can be independently configured. However, if only one 8-Way Relay PCB and one 4-way Sounder Expansion PCB (kit PN: 020-772) are to be fitted, the relay 8-way Relay PCB must be fitted in the first (i.e. Innermost) position.



Your 8-Way Relay PCB Kit should contain:

8-Way Relay PCB	PN: 124-349
16-way Ribbon Cable (x1)	PN: 082-252-002
Nylon Spacers (x2)	PN: 423-262
Nylon locking rivets (x2)	PN: 423-261
Link (x3)	PN: 542-074

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 & Configuration Manual.

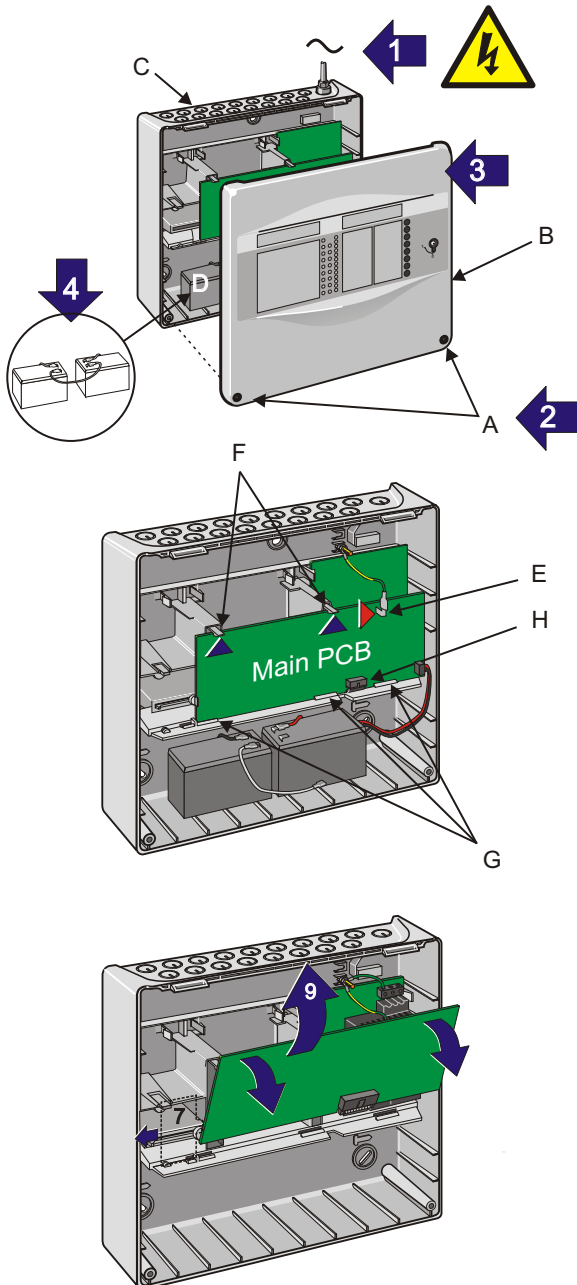
Procedure for Fitting/ Replacing the 8-way Relay PCB

To fit/replace the 8-way Relay PCB, 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 8-way Relay 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.



For clarity, batteries are not shown.

Fitting the 8-way Relay PCB

Follow steps 10-16 below if only fitting one 8-way Relay PCB. If fitting two 8-way Relay PCBs follow steps 10 and 11 then go step 17 before continuing with steps 12 - 16.

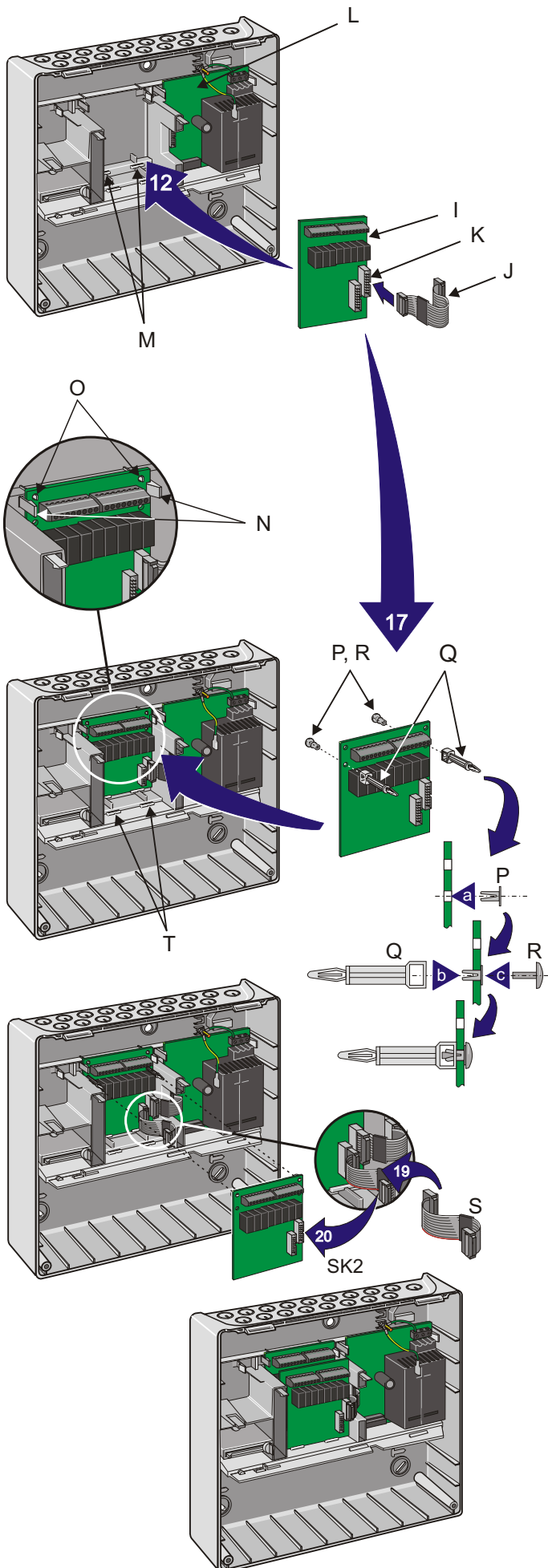
With the Main PCB removed....

- 10 Inspect the 8-Way relay 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 8-Way Relay 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 ribbon cable (J) to Socket 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 a Second-layer 8-way Relay PCB

If two PCBs are being fitted use the spacer and rivet (with collar) supplied with the kit. Where a faulty PCB is 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. Fully insert the collar (P) of each rivet in the holes.
 - b. Place the larger end of the spacer (Q) - the end with the locating hole over the end of the collar until flush with the face of the PCB.
 - c. Holding the spacer against the PCB, insert the rivet (R) in the collar and push 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 8-Way relay 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 8-Way Relay 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 8-way PCB. Slide the ferrite to be beside SK2, closer than in step 11.
- 21 Align and locate the 8-way Relay PCB in the two locating slots (T) and line up the two spacers with the upper two holes on the 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, re-connect ribbon cable to PSU PCB.
- 23 Connect all external wiring to the 8-way Relay 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.



Configuration Options

By default, relay activation will follow the status of the appropriate zone fire indicator. Three output configuration links are provided: LK1, LK2 and LK3. Links LK1 and LK2 select the functions assigned to the outputs. Link LK3 selects Relay 7 Output function as Disabled only or Disable or Test.

Alternatively, some relay circuits may be configured as inputs. A single-piece, 8-way link is used to configure these inputs: this link is only used in positions JP9 (default position) or JP10.

The location of the two-pin and 8-pin jumper links is shown at left.

Link Setting Configuration Options

The following configuration options are selectable:

- Repeat Zonal Output
- Coincident Zonal Output
- Repeat Zonal Output (Zones 1 to 4) and Shop Interface Outputs
- Inputs and Shop Interface Outputs.

Repeat Zonal Output

With the following jumper link settings (default), relay outputs will activate with the appropriate zone indications:

Relay Circuit	Zonal Function
1	Zone 1
2	Zone 2
3	Zone 3
4	Zone 4
5	Zone 5
6	Zone 6
7	Zone 7
8	Zone 8

To select this option make the following jumper link settings:

- LK1 - not fitted
- LK2 - not fitted
- LK3 - not fitted
- JP9 - fitted.

Coincident Zonal Output

Pairs of contiguous zones may be configured for coincident operation as follows:

Relay Circuit	Coincident Function
1	Zone 1 OR Zone 2
2	Zone 1 AND Zone 2
3	Zone 3 OR Zone 4
4	Zone 3 AND Zone 4
5	Zone 5 OR Zone 6
6	Zone 5 AND Zone 6
7	Zone 7 OR Zone 8
8	Zone 7 AND Zone 8

To select this option make the following jumper link settings:

- LK1 - not fitted
- LK2 - fitted
- LK3 - not fitted
- JP9 - fitted.

Repeat Zonal Output & Shop Interface Outputs

The 8 Relay circuits can be split into two groups with relays 1 to 4 following the status of Zones 1 to 4, while Relay circuits 5 to 8 offer discrete function outputs as follows:

Relay Circuit	Output Function
1	Zone 1
2	Zone 2
3	Zone 3
4	Zone 4
5	Local Alarm Pending
6	Local Alarm
7	Disablement only / Disablement or Test
8	Reset Out

To select this option make the following jumper link settings:

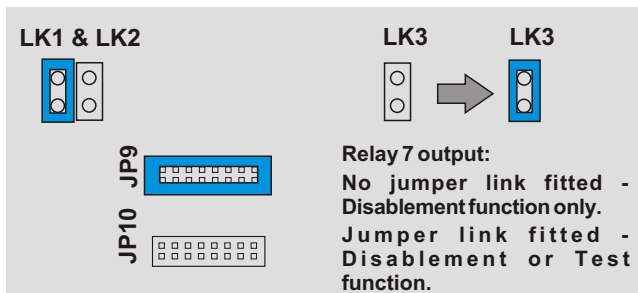
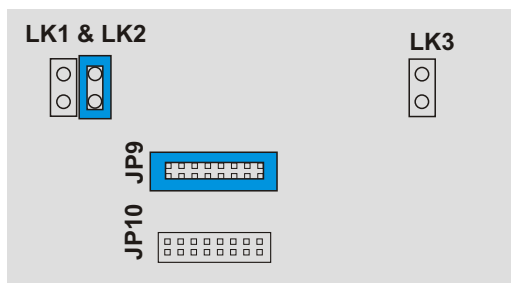
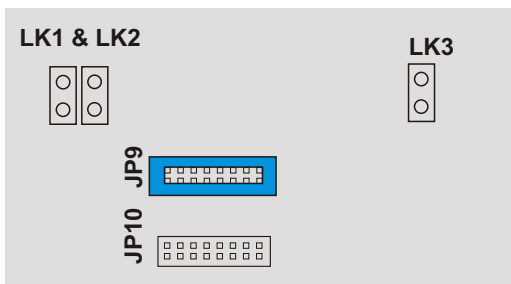
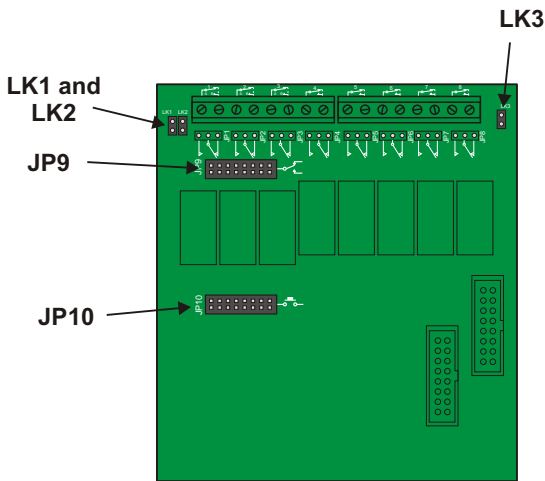
- LK1 - fitted
- LK2 - not fitted
- LK3 - see left for details
- JP9 - fitted.

Local Alarm Pending Output - Will activate with the first zone of a coincident pair or during the output delay. It does not activate with non-latched zones (assumes non-latched zones are from external panels).

Local Alarm Output - Activates with a local panel fire condition. This output does not activate with non-latched zones.

Disablement Output - Activates if a disablement is present on the panel. Can be configured to activate with a disablement or test condition on the panel.

Reset Output - Activates for 5 seconds after the panel reset button is pressed. This can be used to reset beam detectors.



Inputs and Shop Interface Outputs

The function of the 8 Relay circuits can be split as follows:

- i The first 6 terminals (Relays 1 to 3 outputs) can be configured as four discrete inputs and two 0V reference for the inputs and
- ii Relay 4 to 8 provide outputs as described in the table below:

Relay Circuit	Function		
Relay 1 (A)	Remote Reset	Inputs	To select this option make the following jumper link settings: LK1 - fitted LK2 - fitted LK3 - see left for details JP10 - fitted.
Relay 1 (B)	Remote Silence		
Relay 2 (A)	Alert		
Relay 2 (B)	Evacuate (Fire: sounder steady)		
Relay 3 (A)	0V reference for inputs		
Relay 3 (B)	0V reference for inputs		
Relay 4	Fault Out	Outputs	
Relay 5	Local Alarm Pending		
Relay 6	Local Alarm		
Relay 7	Disablement (or Test)		
Relay 8	Reset Out		

Remote Reset In - allows the panel to be reset by a remote switch (Access Level 2 required).

Remote Silence - offers an input for remote silencing of sounders (Access Level 2 required).

Alert - used to operate sounders in pulsing mode (non-fire condition) (Access Level 2 required). This is a non-latching input.

Evacuate - used to operate all sounders in steady mode (as Fire condition) (Access Level 2 required).

Fault Out - activates when a fault is present on the panel.

Relay Function Setting

Each relay function - normally open (default) or normally closed - is set by a jumper link. Changing the relay function is easier to do before fitting the PCB(s). Eight, three-pin jumper headers, JP1 to JP8, are used to configure Relay 1 to Relay 8 respectively.

The jumper links are located immediately below the relays as shown at left.

Specification

Eight pairs of Volt-free contacts, configurable as Normally Open (NO) or Normally Closed (NC), are provided by the 8-way Relay PCB. Link setting allows four different function presets to be configured for all 8 relays.

Up to two 8-way relay 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 8-way Relay PCB communicates with the PSU PCB via 16-way ribbon cables in a daisy-chain arrangement.

Max Current (per PCB):

Quiescent	0.1mA
Alarm /all active	80.1mA

Relay contacts:

Rated at 30V DC, 1A.

