

Apollo Series 65 Relay Bases

S65 Relay Base	Part No. 45681-245
Auxiliary Base	Part No. 45681-246
EOL 12 Volt Base	Part No. 45681-247
EOL 24 Volt Base	Part No. 45681-248

Description These relay bases are intended for use with Apollo Series 65 fire detectors and a compatible control unit. They must not be used with any other type of detector.

Relay base 45681-245 provides one set of volt-free, form C (changeover) contacts that change state when the detector signals an alarm. The coil of the relay is connected across base terminals L1 IN and -R. **It is essential that L1 IN is connected to the positive supply line from the control unit, see Figs. 1, 2 and 3.**

Auxiliary relay base 45681-246 provides two sets of volt-free form C contacts to facilitate the switching of a remote LED or other auxiliary device.

EOL12V relay base 45681-247 is intended for use with 4-wire circuits having a supply voltage between 9 and 18 volts DC. It features two sets of form C contacts and a power supervision relay. The end-of-line device specified by the control unit manufacturer should be connected across the terminals marked EOL. When the detector is connected as shown in Fig. 1, the EOL device will be connected across the initiating circuit when power is supplied to the detector.

EOL24V relay base 45681-248 has the same functionality as base 45681-247 except that it is intended for use with 4-wire, 16 to 33 volts circuits.

Operation The current limited output available at terminal -R of all Series 65 detectors enables the relay connected to this terminal to be operated over a supply voltage range of 9 to 33 volts. **It is essential that the supply to the detector does not fall below 9 volts when the detector signals a fire alarm.** The relay resets when the detector is reset or the supply voltage falls below its drop-out voltage.

Application These relay bases are primarily intended for use with control units using 4-wire detector supply and alarm initiating circuits. Where local codes allow, they may also be used in 2- and 4- wire circuits to provide volt-free control signals to an auxiliary system such as an automatic door closer. **They are not suitable for use in systems where it is specified or required that operation of the auxiliary system shall be fail-safe.**

Warning These bases must not be connected to a mains supply. The maximum voltage applied to the relay contact terminals must not exceed the Extra Low Voltage limits of 50 V AC and 75 V DC.

4-Wire Systems Fig. 1 shows how these bases are to be wired when connecting Series 65 detectors to a control unit with a 4-wire supply and alarm initiating circuit. In this configuration, the detectors are powered from one pair of wires, and the normally open relay contacts are connected across the initiating circuit. When a fire is detected the relay applies a short across the initiating circuit to signal an alarm. The supply supervisory relay in the last base connects an end-of-line device across the initiating circuit when the supply is present. Use the auxiliary contacts of base 45681-246 to switch, for example, a remote indicator.

2-Wire Systems: Do not connect a relay base to a 2-wire initiating circuit without the approval of the manufacturer of the control unit. Fig. 2 shows Series 65 relay bases connected to a 2-wire supply and initiating circuit. In this arrangement it is essential that the control unit is able to maintain at least 9 volts across the wires when and after the detector signals an alarm. This requirement may not be met when two or more detectors are connected to the circuit and one or all of these additional detectors alarm before the detector in the relay base. **Conformance with the 9 volt requirement must be guaranteed for safety critical applications, i.e. applications that require operation of the relay to be always available in the event of a fire.**

When required, use the auxiliary contacts of base 45681-246 to switch a low current remote LED as shown in Fig. 3. **Under no circumstances connect a remote LED indicator or other device to the -R terminal.**

Installation Before installing these relay bases check the continuity, polarity and insulation resistance of all wiring. Confirm that siting is in accord with fire system drawings and conforms to all applicable local codes such as BS5839 Part 1, NFPA 72, and (NEMA) *Guide for the Proper Use of System Smoke Detectors*.

Check that the mounting surface for the base is substantially flat, then secure the base to the ceiling or wiring box using appropriate screws. **Do not over-tighten the screws.** Use the raised web on the side of the base for aligning the detector's LED.

Connect wiring to base terminals in accordance with the fire system wiring diagram. This should be in accord with Figure 1 or 2 overleaf. Terminate any screen or earth wires to the unconnected ground terminal. Plug in specified S65 detector and, where security demands, turn the tamper resistant 1.5mm hexagonal socket screw in the head clockwise until the head cannot be removed from the base. A 1.5mm hex drive, Part No. 29600-095, is available from Apollo.

Commissioning After installing the relay base and all other devices connected to the fire system, in-situ smoke or heat test the Series 65 detector. Check that the fire detection and alarm system and the auxiliary equipment controlled by the relay operate correctly. Repeat this test with the system supplied only by its standby battery.

Maintenance In accordance with applicable local codes, regularly subject the detector to an in-situ smoke or heat test as appropriate and check that all systems respond correctly. Annually check supply voltage, the condition of terminals and the integrity of wiring. The plastic surface of the base may be cleaned with a damp cloth. These relay bases are not field serviceable and must be replaced if any way defective.

Specification

Environment:	Indoor, non-icing, non-condensing.
Temperature range:	-30 to + 70 °C storage. -20 to + 70 °C operating.
Humidity:	0 to 95% RH.
Base material:	white polycarbonate V-O to UL94.
Relay ratings	
Max. switching power:	30 W, 50 VA.
Max. switching current:	1A (resistive load).
Max. switching voltage:	50 V AC, 75 V DC.
Min. capability:	10 µA, 10 mV DC.
Drop-out voltage:	< 6 V (minimum 0.9 V).
Coil current:	15 mA with supply above 9 V.

Diagram illustrating the wiring connections for three relay bases: END OF LINE RELAY BASE, AUXILIARY BASE, and RELAY BASE. The connections are as follows:

- RELAY BASE (P/N 45681-245):**
 - +9 TO +33V DC SUPPLY:** Connected to L1 IN.
 - FIRE ALARM INITIATING CIRCUIT:** Connected to L1 OUT.
 - COMPATIBLE CONTROL UNIT:** Connected to L2.
 - 0V:** Connected to R-.
 - DO NOT CONNECT TO -R:** Warning label.
- AUXILIARY BASE (P/N 45681-246):**
 - +9 TO +33V DC SUPPLY:** Connected to L1 IN.
 - FIRE ALARM INITIATING CIRCUIT:** Connected to L1 OUT.
 - COMPATIBLE CONTROL UNIT:** Connected to L2.
 - 0V:** Connected to R-.
 - REMOTE LED:** Connected to R-.
- END OF LINE RELAY BASE (P/N 45681-247 FOR 9 TO 18 VOLT SUPPLY, P/N 45681-248 FOR 16 TO 33 VOLT SUPPLY):**
 - +9 TO +33V DC SUPPLY:** Connected to L1 IN.
 - FIRE ALARM INITIATING CIRCUIT:** Connected to L1 OUT.
 - COMPATIBLE CONTROL UNIT:** Connected to L2.
 - 0V:** Connected to R-.
 - E.O.L. RESISTOR:** Connected between L1 IN and L1 OUT.
 - E.O.L. APPROPRIATE TO CONTROL UNIT:** Label for the E.O.L. resistor connection.

RELAY BASE PART No. 45681-246

Diagram 1 (Left):

- Terminal **L1 IN** is connected to the **+** terminal of the **FIRE ALARM INITIATING CIRCUIT**.
- Terminal **L1 OUT** is connected to the **+** terminal of the **COMPATIBLE CONTROL UNIT**.
- Terminal **L2** is connected to the **-** terminal of the **COMPATIBLE CONTROL UNIT**.
- Terminal **-R** is connected to the **-** terminal of the **COMPATIBLE CONTROL UNIT**.
- Internal components: A battery symbol and an **EOL** (End of Line) resistor are connected between **L1 OUT** and **L2**.
- Wiring paths:
 - TO ANCILLARY**: N/O, N/O, C, C, N/C
 - TO EQUIPMENT**: N/O, N/O, C, C, N/C

Diagram 2 (Right):

- Terminal **L1 IN** is connected to the **+** terminal of the **FIRE ALARM INITIATING CIRCUIT**.
- Terminal **L1 OUT** is connected to the **+** terminal of the **COMPATIBLE CONTROL UNIT**.
- Terminal **L2** is connected to the **-** terminal of the **COMPATIBLE CONTROL UNIT**.
- Terminal **-R** is connected to the **-** terminal of the **COMPATIBLE CONTROL UNIT**.
- Internal components: No battery or EOL resistor is present between **L1 OUT** and **L2**.
- Wiring paths:
 - TO ANCILLARY**: N/O, N/O, C, C, N/C
 - TO EQUIPMENT**: N/O, N/O, C, C, N/C

DO NOT CONNECT TO -R

LOW CURRENT REMOTE LED.

Fig. 3 TWO-WIRE ZONE CIRCUIT WITH AUXILIARY CONTACTS.