

## Series C Internal Accessories



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## Internal Accessories

## Product Overview

**Alarm Switch**

For remote indication of automatic trip operation. Does not function with manual switching; however, it will operate when either a shunt trip or undervoltage release is operated. A “make” contact closes and a “break” contact opens when the alarm/lockout switch operates. The switch automatically resets when the circuit breaker is reset.

**Auxiliary Switch**

The auxiliary switch provides circuit breaker contact status information by monitoring the position of the molded cross bar that contains the moving contact arms. The auxiliary switch is used for remote indication and interlock system verification, and consists of one or two SPDT switches housed in a plug-in module. Each SPDT switch has one “a” and one “b” contact. When the circuit breaker contacts are open, the “a” contact is open and the “b” contact is closed.

**Auxiliary Switch and Alarm Switch Combination**

Each catalog number listed in tables on **Pages V4-T2-382** and **V4-T2-383** includes one auxiliary switch and one alarm switch. In an auxiliary switch ASL switch combination, the auxiliary switch is always mounted on the side of the plug-in module next to the center pole of the circuit breaker.

**Shunt Trip**

The shunt trip provides remote controlled tripping of the circuit breaker. The shunt trip consists of an intermittent rated solenoid with a tripping plunger and a cutoff switch assembled to a plug-in module. When required for ground fault protection applications, certain AC rated shunt trips, as noted in the electrical rating table, are suitable for operation at 55 percent of rated voltage.

Select shunt trip catalog number for the voltage within the indicated voltage range. Shunt trip coils are designed to be applied at specific AC or DC voltages within the voltage range shown. Electrical ratings are also shown on applicable circuit breaker accessory nameplates.

**Low Energy Shunt Trip**

Low energy shunt trip devices are designed to operate from low energy output signals from dedicated current sensors typically applied in ground fault protection schemes. However, with a proper control voltage source, they may be applied in place of conventional trip devices for special applications. Flux paths surrounding permanent magnets used in the shunt trip assembly hold a charged spring poised in readiness to operate the circuit breaker trip mechanism.

When a 100 microfarad capacitor charged to 28 Vdc is discharged through the shunt trip coil, the resultant flux opposes the permanent magnet flux field, which releases the stored energy in the spring to trip the circuit breaker. As the circuit breaker resets, the shunt trip reset arm is actuated by the circuit breaker handle, resetting the shunt trip. The plug-in module is mounted in retaining slots in the top of the trip unit. Coil is intermittent-rated only. Cutoff provisions required in control circuit.

**Undervoltage Release Mechanism**

The undervoltage release mechanism monitors a voltage (typically a line voltage) and trips the circuit breaker when the voltage falls to between 70 and 35 percent of the solenoid coil rating.

The undervoltage release mechanism consists of a continuous rated solenoid with a plunger and tripping lever mounted in a plug-in module. The tab on the tripping lever resets the undervoltage release mechanism when normal voltage has been restored and the circuit breaker handle is moved to the reset (or OFF) position. With less than pickup voltage applied to the undervoltage release mechanism, the circuit breaker contacts will not touch when a closing operation is attempted.

**Note:** Undervoltage release mechanism accessories are not designed for, and should not be used as, circuit interlocks.

**Accessory Terminal Block (R-Frame)**

(For fixed-mounted configuration.)

Internal accessory wiring leads are normally supplied with pigtail leads (18 AWG) that exit from the right side of the circuit breaker. Where specified, fixed-mounted accessory terminal blocks are available. A maximum of one 24-point terminal block can be installed on the right side of the circuit breaker for the internal accessories.

For convenience in determining the appropriate number of terminal block points required, refer to **Page V4-T2-378**.

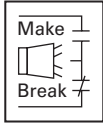
**PowerNet and Zone Interlock Kits (OPTIM 550 only) K-, L- and N-Frames**

Eaton's PowerNet Communications Kit can be ordered to add PowerNet communications to an existing OPTIM 550 breaker in the field. An 18-inch (457.2 mm) wiring pigtail is routed to the rear of the breaker: two wires for PowerNet and two wires for 24 Vdc (45 mA load). It is recommended that the power supply be an "isolated high quality" unit.

Product Selection

Alarm Switch

Alarm Switch



G-Frame Alarm Switch (RH Only) ①

Electrical Ratings			Contact Arrangement	Factory Suffix	Catalog Number ②③④
Volts	Frequency	Amperes			
<b>Alarm Switch</b>					
240	50/60 Hz	6	1 Make/1 Break	<b>B3</b>	<b>1288C75G03</b>
<b>Alarm Switch Auxiliary Switches Combination</b>					
240	50/60 Hz	6	1 Make/1 Break and 1A/1B	<b>B13</b>	<b>1288C76G09</b>

F-Frame Alarm Switch ①

Number of Contacts (Make and Break)	Mounting Location (Pole)	Factory Mounted Connection Type and Location			Factory Installation Kit ⑤		
		18-Inch (457.2 mm) Pigtail Leads			Terminal Block Same Side	Pigtail Leads Catalog Number	Terminal Block Catalog Number
		Same Side Suffix Number	Rear ⑥ Suffix Number	Opposite Side Suffix Number			
1	Left ⑦	<b>B01</b>	<b>B02</b>	<b>B03</b>	<b>B04</b>	<b>A1L1LPK</b>	<b>A1L1LTK</b>
	Right	<b>B05</b>	<b>B06</b>	<b>B07</b>	<b>B08</b>	<b>A1L1RPK</b>	<b>A1L1RTK</b>
2	Left ⑦	<b>B09</b>	<b>B10</b>	—	<b>B11</b>	<b>A2L1LPK</b>	<b>A2L1LTK</b>
	Right	<b>B12</b>	<b>B13</b>	—	<b>B14</b>	<b>A2L1RPK</b>	<b>A2L1RTK</b>
1	Single-pole	<b>B15</b> ⑧	—	—	—	—	—

F-Frame HMCP Alarm Switch ①

Number of Contacts (Make and Break)	Mounting Location (Pole)	Factory Mounted Connection Type and Location			Factory Installation Kit ⑤		
		18-Inch (457.2 mm) Pigtail Leads			Terminal Block Same Side	Pigtail Leads Catalog Number	Terminal Block Catalog Number
		Same Side Suffix Number	Rear ⑥ Suffix Number	Opposite Side Suffix Number			
1	Left ⑦	<b>B01</b>	<b>B02</b>	<b>B03</b>	<b>B04</b>	<b>MA1L1LPK</b>	<b>MA1L1LTK</b>
	Right	<b>B05</b>	<b>B06</b>	<b>B07</b>	<b>B08</b>	<b>MA1L1RPK</b>	<b>MA1L1RTK</b>
2	Left ⑦	<b>B09</b>	<b>B10</b>	—	<b>B11</b>	<b>MA2L1LPK</b>	<b>MA2L1LTK</b>
	Right	<b>B12</b>	<b>B13</b>	—	<b>B14</b>	<b>MA2L1RPK</b>	<b>MA2L1RTK</b>

J-Frame and HMCP (J) Alarm Switch

Number of Contacts (Make and Break)	Mounting Location (Pole)	Factory Mounted Connection Type and Location			Field Mounted Field Installation Kits ⑨		
		18-Inch (457.2 mm) Pigtail Leads			Terminal Block Same Side	Pigtail Leads Catalog Number	Terminal Block Catalog Number
		Same Side Suffix Number	Rear ⑦ Suffix Number	Opposite Side Suffix Number			
1	Left ⑧	<b>B01</b>	<b>B02</b>	<b>B03</b>	<b>B04</b>	<b>A1L2LPK</b>	<b>A1L2LTK</b>
	Right	<b>B05</b>	<b>B06</b>	<b>B07</b>	<b>B08</b>	<b>A1L2RPK</b>	<b>A1L2RTK</b> ⑨

Notes

- ① F-Frame circuit breakers are factory sealed. Underwriters Laboratories requires that internal accessories be installed at the factory. Internal accessories are UL listed for factory installation under E7819. Where local codes and standards permit and UL listing is not required, internal accessories can be field installed; however, this is not recommended for FDE breakers. Accessory installation should be done before the circuit breaker is mounted and connected.
- ② Includes 24-inch (609.6 mm) external pigtail leads, 18 AWG (16–0.010).
- ③ A maximum of two internal accessories may be mounted in a three-pole circuit breaker.
- ④ Suitable for mounting in right pole only of two- or three-pole breaker.
- ⑤ Not listed with Underwriters Laboratories; for field installation.
- ⑥ Standard pigtail lead exit location.
- ⑦ Standard mounting location.
- ⑧ Factory installation only. Leads exit load end of circuit breaker.
- ⑨ Listed with Underwriters Laboratories; for field installation on interchangeable trip unit breakers under E64983.
- ⑩ Standard mounting location—leads exit rear of breaker.