STATIC AUXILIARY TRIPPING RELAY
TYPE SLA12T
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DESCRIPTION

These instructions supplement the basic SLA instruction book, GEK-27877, which is included in this book. The combination of the two forms instructions for Type SLA12T relay.

The Type SLA12T relay is an auxiliary logic and tripping unit for use with Type CS26B carrier equipment in directional comparison schemes with one phase relay and one ground relay. Optional relays that may be used with the Type SLA12T are an out-of-step (SLL) relay, a data-logging-amplifier (DLA), and one additional auxiliary (SLA) relay for additional output circuits.

The models of this relay are tabulated below to show the corresponding battery voltages for each model.

<table>
<thead>
<tr>
<th>MODEL</th>
<th>RELAY POWER SUPPLY DC VOLTAGE</th>
<th>TRIP CIRCUIT DC VOLTAGE</th>
<th>INTERNAL CONNECTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLA12T1</td>
<td>125</td>
<td>125</td>
<td>FIG. 1</td>
</tr>
<tr>
<td>SLA12T2</td>
<td>48</td>
<td>250</td>
<td>FIG. 1</td>
</tr>
<tr>
<td>SLA12T3</td>
<td>48</td>
<td>125</td>
<td>FIG. 1</td>
</tr>
<tr>
<td>SLA12T4</td>
<td>250</td>
<td>250</td>
<td>FIG. 1</td>
</tr>
<tr>
<td>SLA12T6</td>
<td>125</td>
<td>125</td>
<td>FIG. 2</td>
</tr>
</tbody>
</table>

The Type SLA12T relay provides the following output functions:

1) Two electrically separate silicon controlled rectifier (SCR) tripping circuits, each containing a series, hand-reset, mechanical target and a reed relay. The reed relay is part of a logic circuit which permits the target lamps to light only if trip current has flowed in the SCR trip circuit.

2) A breaker failure initiation (BFI) auxiliary telephone-type relay with two normally open, electrically separate contact outputs. Type SLA12T5 relay BFI function includes a third BFI normally open contact designated as ER.

3) A reclose initiation (RI) auxiliary telephone-type relay with two normally open, electrically separate contact outputs.

4) Four indicating lamps designate the type of local trip as follows:
   - Carrier Phase Trip----------------------------- (PH)
   - Carrier Ground Trip-------------------------- (G)
   - Instantaneous Phase Overcurrent Trip---------- (P4)
   - Instantaneous Ground Overcurrent Trip-------- (G4)

5) Two contact converters are provided to enable the user to control the local carrier transmitter from external contacts.

Closure of an external set of contacts produces a logic output from contact converter 61 which stops all local carrier. This feature is sometimes employed in conjunction with breaker failure schemes.

These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to the General Electric Company.

To the extent required the products described herein meet applicable ANSI, IEEE and NEMA standards; but no such assurance is given with respect to local codes and ordinances because they vary greatly.
Closure of another set of contacts produces a logic output from contact converter 62 which blocks received-carrier tripping and relay control of carrier transmitter but permits auxiliary use of the carrier transmitter. Normally this set of contacts is part of the CCS (Channel Cutoff Switch), which is closed in the CO (Cutoff) position.

The relay also contains channel control and logic circuitry necessary for the coordination of a directional comparison scheme.

The circuitry for the above functions is shown on the internal connection diagrams (Figs. 1, 2). The component location diagram is shown in Figure 3, and the outline and mounting dimensions are shown in Figure 4.

**APPLICATION**

Information describing the output circuits, target operation, and the operation of the scheme can be obtained by referring to the overall logic diagram and descriptive writeup. This section covers the timer settings which are basically provided for field adjustment by the user. The procedure for setting timers is given in the basic SLA instruction book.

**TIMER SETTINGS**

1. The 5-30/0 timer is provided to enable the user to control the number of lamps which will light under fault conditions. With a short pickup setting (5-10 ms) only those lamps associated with the functions which first sensed the fault will light. With longer pickup settings, all lamps associated with functions which operated will light.

2. The P/5-32 timer adds security to the relay scheme by prolonging blocking-transmission after an external fault is cleared. A reset time on the order of 18 ms to 20 ms is suggested.

**RATINGS**

The operating times of the telephone-type relays are shown below:

<table>
<thead>
<tr>
<th>Relay Type</th>
<th>Pickup Time</th>
<th>Dropout Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>BFI PICKUP TIME</td>
<td>3 - 5 milliseconds</td>
<td></td>
</tr>
<tr>
<td>BFI DROPOUT TIME</td>
<td>14 - 17 milliseconds</td>
<td></td>
</tr>
<tr>
<td>RI PICKUP TIME</td>
<td>14 - 17 milliseconds</td>
<td></td>
</tr>
<tr>
<td>RI DROPOUT TIME</td>
<td>130 - 160 milliseconds</td>
<td></td>
</tr>
</tbody>
</table>

**D-C BURDEN**

Each contact converter, when energized, will draw approximately 11 milliamperes from the station battery.

When energized, the burden of the BFI coil circuit requires approximately 185 milliamperes from a 48 V station battery or 48 milliamperes from a 125 V battery.

The maximum current required from the SSA power supply is 300 milliamperes plus 80 milliamperes for each target lamp.
FIG. 1 (0133C4315-7) INTERNAL CONNECTION DIAGRAM FOR THE SLA12TT, 2, 3, 4 LOGIC UNITS
FIG. 3 (0226A7224-0) COMPONENT LOCATION DIAGRAM FOR THE SLA12T RELAY
FIG. 4 (0165A7662-3) OUTLINE AND MOUNTING DIMENSIONS FOR THE SLA12T RELAY