CIRCUIT SHIELD ©
Type 49T
Temperature Relay

Application
The Type 49T is used in conjunction with a Resistance Temperature Detector (RTD) embedded in the stator of the motor to detect an overtemperature condition.

Motors and generators rated 1200 hp or more are generally equipped with one or more RTD when manufactured. Tests are performed to determine which detector indicates the hottest temperature. The relay is then connected to that detector.

The detectors are manufactured of various materials and resistivities, with the most common being 10 ohm copper. This designation means the resistance is 10 ohms at 25°C. A plot of this characteristic is shown in Figure 1.

The Type 49T relay has two settings: pickup and dropout. The dropout is calibrated in percent of pickup as outlined in the specifications. Internal connections are shown in Figure 2.

The relay requires a 120 VAC control power source. The output is two Form C contacts, which may be used to trip a circuit breaker, or to open the holding coil of a motor starter. A typical connection diagram is shown in Figure 3.

Features
- Adjustable Pickup and Drop-Out
- Built-in Test
- Seismic Capability to 6g ZPA
- Drawout Construction
- Transient Immunity
- 2 Year Warranty

Figure 1. 10 OHM Copper Characteristic
Specifications

Temperature Range:
- Adjustable; models available for:
  - 60 - 120°C
  - 120 - 180°C

Dropout: adjustable 60 to 90% of Pickup

RTD Characteristic:
- Models available for:
  - 10 ohms at 25°C (copper)
  - 120 ohms at 0°C (nickel)
  - 100 ohms at 0°C (platinum)

Control Power: 120 Vac, 50/60 Hz.

Burden: 0.08 Amperes

Output Circuit: Two Form C contacts

Output Circuit Rating:
- Each contact:
  - At 125 Vdc: 30 amps, Tripping Duty
  - 5 amps, Continuous
  - 1 amp, Opening Resistive
  - 0.3 amp, Opening Inductive
- At 120 Vac: 30 amps, Tripping Duty
  - 5 amps, Continuous
  - 3 amps, Opening Resistive
  - 1 amp, Opening Inductive

Operating Temperature: Minus 20°C to Plus 70°C

Seismic Capability: More than 6g ZPA either axis biaxial broadband multifrequency vibration without damage or malfunction (ANSI/IEEE C37.98)

Transient Immunity: More than 2500V, MHz bursts at 400 Hz repetition rate, continuous, (ANSI C37.90a SWC); fast transient test; EMI test.

Weight:
- Unboxed: 3.7 lbs. (1.6 Kg)
- Boxed: 4.4 lbs. (1.9 Kg)
- Volume: 0.26 cubic feet

How To Specify

Relay shall be Asea Brown Boveri Type 49T or equal. Relay shall be capable of withstanding up to 6g ZPA seismic stress without malfunction. A magnetic operation indicator which retains position on loss of control power shall be provided. Built-in means shall be provided to allow operational tests without additional equipment.

Further Information

List Prices: PL 41-020
Technical Data: TD 41-025
Instruction Book: IB 18.7.3-36
Motor Protection Paper: TP 18.0-36
Other Protective Relays:
Application Selector Guide, TD 41-016
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### Type 49T Temperature Relay

<table>
<thead>
<tr>
<th>Type</th>
<th>Control Voltage</th>
<th>RTD Type</th>
<th>Pickup Temperature</th>
<th>Catalog Numbers Drawout Test Case</th>
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</thead>
<tbody>
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<td>120 Vac 50/60 Hz</td>
<td>10 ohm copper</td>
<td>60 – 120°C</td>
<td>436B2065</td>
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<td>120 – 160°C</td>
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<td></td>
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<td>120 ohm nickel</td>
<td>60 – 120°C</td>
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<td>120 – 180°C</td>
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<td>100 ohm platinum</td>
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</table>

Internal Connections: 16D236A

- For other control voltages contact nearest District Office.
- Dropout adjustable 60 – 90% of Pickup.

To place an order, or for further information, contact the nearest District Office.

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**Internal Connection Diagram**

Note: Refer to Instruction Book IB18.7.7.3® for contact logic data.

- Available upon request, only from Allentown Plant.

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### 16D236A Type 49T Temperature Relay Drawout Test Case

![Diagram of 16D236A Type 49T Temperature Relay Drawout Test Case](image-url)