Circuit Shield
Type 76H
DC Overcurrent Relay

Application
This DC millivolt relay is used in conjunction with a shunt to provide instantaneous overcurrent protection. Typical applications include rectifier, feeder, and tie breakers in mining traction systems and industrial DC distribution systems.

The relay has very low burden on the shunt due to solid-state design of the input circuit. Installation is easy and economical since standard, #14 uncalibrated leads may be used with existing 50 or 100 mv shunts.

As an option the Type 76H can be provided with a built-in calibrated test circuit, which allows an operator to verify that the relay is operating within its calibration. Just depress the push-to-test button and rotate the test rheostat on the relay’s face plate. When the trip point occurs, the breaker opens and the target on the relay drops. The actual calibration, in amperes, is read directly from the ammeter on the switchboard.

Unidirectional tripping models are applied to rectifier units and operate from 120 to 240 Vac control-power transformers. Bidirectional models are suitable for tie-breaker applications.

Features
- Use with standard shunts
- Low burden – no calibrated leads
- Fast operation
- Calibrated front panel settings
- Optional easy built-in test function requires no additional equipment
- 2 year warranty

Figure 1. Wiring Diagram for Units with Calibration Feature and 120 VAC Control Voltage
Pickup: 10 taps (Switch selected)
10-100 mVdc, or
20-200 mVdc

Vernier Adjustment: Allows continuous adjustment of pickup from tap value to the next higher tap.

Operating Time: Virtually instantaneous, as shown on time curve.

Burden: 1000 ohms load on shunt

Control Power: 120/240V, 50/60 Hz
See Figure 1 for required connections.

Output Circuit: 1 contact, which opens on overcurrent.

Output Rating: At 325 Vdc,
5 Amps, Continuous
1 Amp, Opening Inductive

Operating Temperature: Minus 20° to Plus 70°C

Transient Immunity: More than 2500V, 1 MHz bursts at 400 Hz repetition rate, continuous (ANSI C37.90.1 - SWC);
Fast transient test, EMI test.

Dielectric Strength: 1500V, RMS for 1 minute

Figure 2. Alternate Control Power Connections

Figure 3. Operating Time Curve

How To Specify
DC overcurrent relay shall be Asea Brown Boveri Type 76H or approved equal, drawout case. Relay shall operate from a standard shunt and present a maximum burden of 1000 ohms to the shunt. An optional built-in calibration test circuit to meet the U.S. Bureau of Mines Test Requirement can be provided. A magnetic operation indicator which retains position on loss of control power shall be provided.

How To Order
For a complete listing of available versions of the Type 76H relay for instantaneous DC overcurrent protection, see TD 41-025.

Further Information
List Prices: PL 41-020
Technical Data: TD 41-025
Instruction Book: IB 18.5.7-1
Other Protective Relays:
Application Selector Guide, TD 41-016

© Available upon request, only from Allentown Plant.

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Mailed to: E, D, C/41-100B

Mining and Industrial
Shunt Operated with One Circuit-Opening
Contact

CIRCUIT SHIELD @
Type 76H
DC Overcurrent
Relay

<table>
<thead>
<tr>
<th>Type</th>
<th>Function</th>
<th>Pickup Range</th>
<th>Operating Time</th>
<th>Control Voltage</th>
<th>Output Rating</th>
<th>Catalog Numbers</th>
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<tbody>
<tr>
<td>76H</td>
<td>Unidirect.</td>
<td>10-100 mV</td>
<td>Inst.</td>
<td>120 Vac</td>
<td>Opening</td>
<td>206A1150</td>
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<td>10-100 mV©</td>
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<td>or</td>
<td>Contact</td>
<td>206A1155</td>
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<tr>
<td></td>
<td></td>
<td>20-200 mV©</td>
<td></td>
<td>240 Vac</td>
<td>325 Vdc</td>
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</tbody>
</table>

Note: Internal Connections: 12D206A (Standard Case).
© Includes built-in calibration test facility.

Internal Connection Diagram

12D206A Type 76H
DC Overcurrent Relay
Standard Case

REVERSE TRIP DIRECTION

FORWARD TRIP DIRECTION (SHOWN)

120 VAC CONTROL

230 VAC CONTROL

USE ONLY ONE CONTROL SOURCE