ABB Power T&D Company Inc.
Relay Division
Coral Springs, FL
Allentown, PA

September, 1990
Supersedes Bulletin 7.5.1-1B,
pages 1-2, dated October, 1989
Mailed to: E, D, C/41-100B

Mining & Industrial
Device Number: 76

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

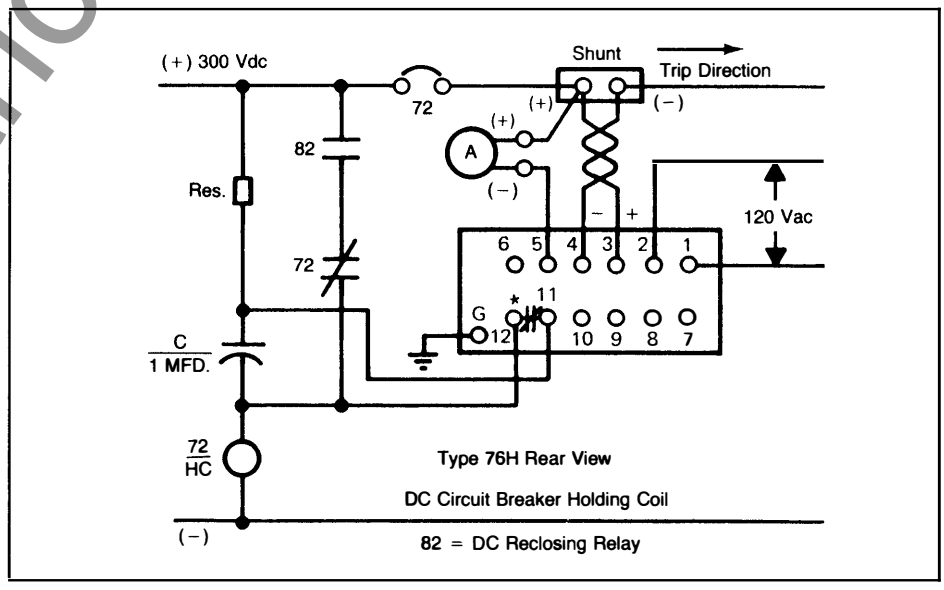

Figure 1. Wiring Diagram for Units with Calibration Feature and 120 VAC Control Voltage

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

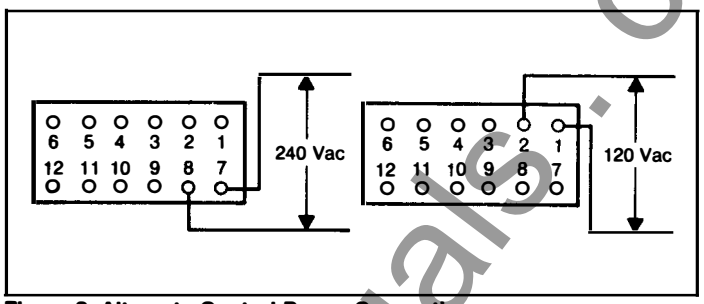

Figure 2. Alternate Control Power Connections

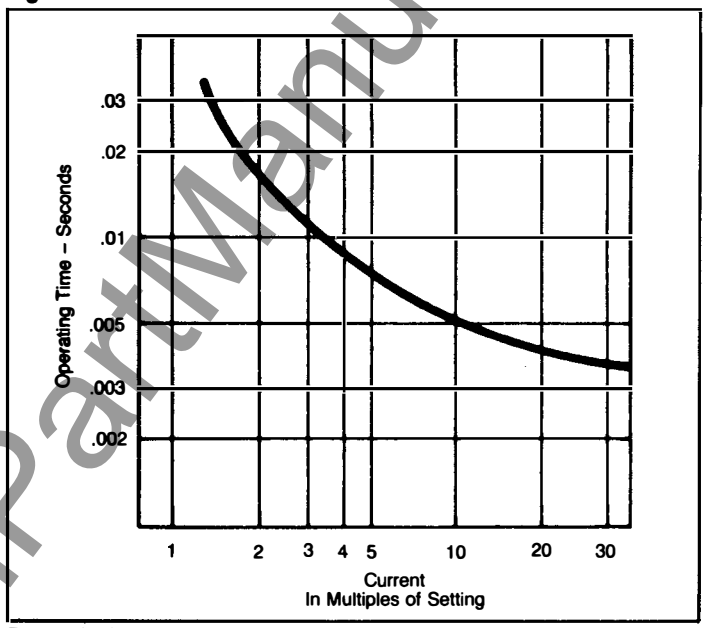

Figure 3. Operating Time Curve

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 18.5.7-1①
Other Protective Relays:
Application Selector Guide, TD 41-016

① Available upon request, only from Allentown Plant.

Printed in U.S.A.

September, 1990
Supersedes Section 7.5.0.3, Type 76H on pages 2 and 3, dated January 1, 1990
Mailed to: E, D, C/41-100B

Mining and Industrial
Shunt Operated with One Circuit-Opening Contact

CIRCUIT SHIELD ®

Type 76H DC Overcurrent Relay

Type	Function	Pickup Range	Operating Time	Control Voltage	Output Rating	Catalog Numbers
76H	Unidirect.	10-100 mV	Inst.	120 Vac or 240 Vac	Opening Contact, 325 Vdc	206A1150
		10-100 mV①				206A1155
		20-200 mV①				206A1755
	Bidirect.	10-100 mV①				228B0101

Note: Internal Connections: 12D206A (Standard Case).

① Includes built-in calibration test facility.

Internal Connection Diagram

12D206A Type 76H
DC Overcurrent Relay
Standard Case