**ABB Power T&D Company Inc.**
Relay Division
Coral Springs, FL
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July, 1991
Supersedes DB 41-764, pages 1-4,
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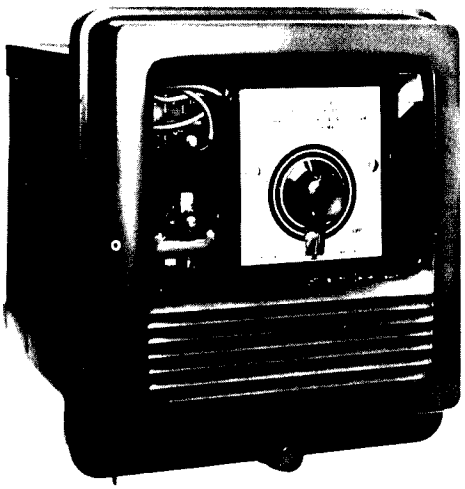
Mailed to: E, D, C/41-100B

Overcurrent Relay for
Class 1E Application
**Device Number: 37 or 50**

# Type SSC-T Current Relay



## Application

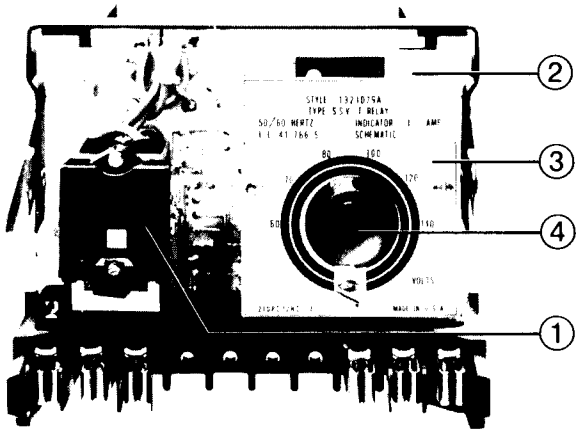
The solid state type SSC-T current relay is a high seismic relay suitable for nuclear power station relaying protection. The relay is adjustable over a wide range of current and has a calibrated scale plate which indicates the pick-up setting. The output unit is a telephone relay and an ICS (Indicating Contactor Switch) seal-in device.

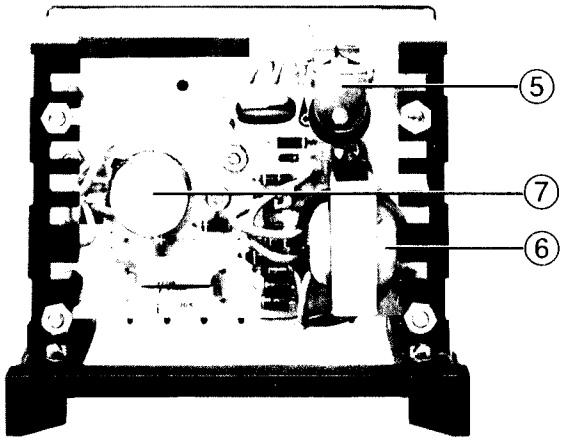
The type SSC-T relay has a high ratio of drop-out and is particularly suitable for use in applications requiring an accurate current level detector.

## Class 1E Application

The SSC-T relay has been specially designed and tested to establish it s suitability for Class 1E applications. Materials have been selected and tested to insure that the relay will perform it s intended function for it s design life when operated in a normal environment as defined by ANSI standard C37.90 – 1971, when exposed to radiation levels up to $10^4$ rads, and when subjected to seismic events producing a Shock Response Spectrum within the limits of the relay rating.

"Class 1E" is the safety classification of the electric equipment and systems in nuclear power generating stations that are essential to emergency shutdown of the reactor, containment isolation, cooling of the reactor, and heat removal from the containment and reactor, or otherwise are essential in preventing significant release of radioactive material to the environment.




## Design Features

① Indicating Control Switch
② Circuit Board Module
③ Calibrated Scale Plate
④ Potentiometer (R2) Dial
⑤ Output Telephone Relay (SSV)
⑥ Transformer
⑦ Potentiometer (R2)

## Characteristics SSC-T

| Range | Continuous Rating |
|---|---|
| 0.5 – 2 amps | 2 amps |
| 2.0 – 8 amps | 8 amps |
| 4.0 – 16 amps | 10 amps |
| 10 – 40 amps | 10 amps |

1 Second Rating: 28 times the continuous rating

Operating Frequency: 50/60 Hz

Temperature Error: 2% between −20°C and 65°C

Dropout Ratio: 90% to 98%

Response Time: Pickup Time = 10 – 13 ms

Dropout Time = 10 – 26 ms

For 2 to 15 times pickup setting value (Fig. 1)

Transient Overreach: 5%

Burden: (Table I)

Frequency Response: (Fig. 2)

## Table I (60 hertz)

| Range (Amps) | Pickup Current Setting | | | |
|---|---|---|---|---|
| | Lowest Setting | | Highest Setting | |
| | VA | P.F. AngleØ | VA | P.F. AngleØ |
| 0.5 – 2.0 | 0.5 | 8.5° | 4.0 | 12.5° |
| 2.0 – 8.0 | 0.5 | 8.5° | 5.0 | 12.5° |
| 4.0 – 16.0 | 0.5 | 8.5° | 5.0 | 12.5° |
| 10.0 – 40.0 | 0.8 | 10.0° | 8.0 | 10.7° |

## Further Information

List Prices: PL 41-020
Technical Data: TD 41-025
Instructions: IL 41-766.5
Other Protective Relays:
Application Selector Guide, TD 41-016

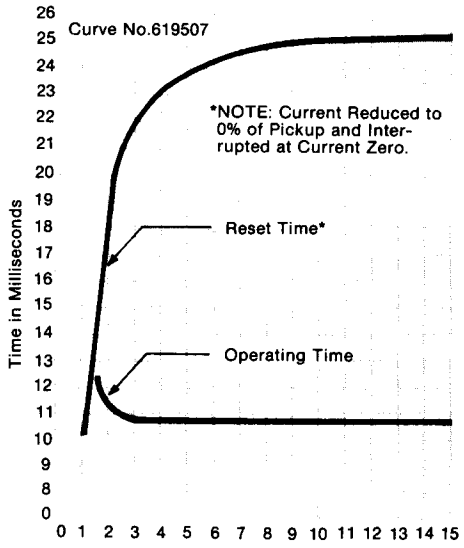



**Fig. 1 Typical Operating and Reset Time Curves of the Type SSC-T Relay (Range 2-8 Amps)**

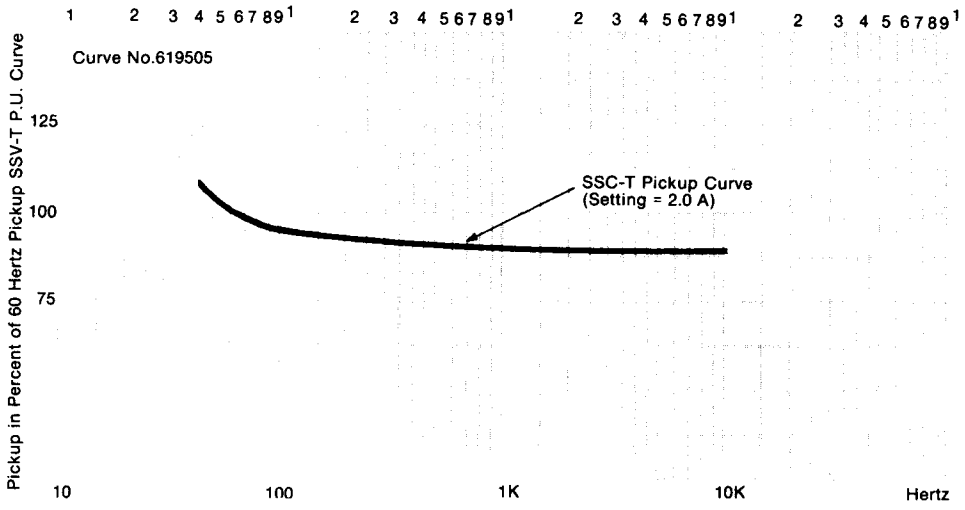



**Fig. 2 Typical Frequency Curve of the Type SSC-T Relay (2-8 Amp)**

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Overcurrent Relay for Class 1E Application

# Type SSC-T Current Relay

## Over or Under Current, Instantaneous, 50/60 Hertz (Device Number: 37 or 50)

| Type | Indicating Contactor Switch | Adjustable Range (Ac) | Drop Out Ratio | Contacts (Each Unit) | Relay Data | | |
|---|---|---|---|---|---|---|---|
| | | | | | Block Diagram | Style Number | Case Size |
| **One Unit Per Case** | | | | | | | |
| **SSC-T** | 1 amp dc | 0.5 – 2.0 amp | 90-98% | 2M① | 3516A15 | 1321D79A03 | **FT-11** |
| | | 2 – 8 | | 2M① | 3516A15 | 1321D79A02 | |
| | | 4 – 16 | | 2M① | 3516A15 | 1321D79A04 | |
| | | 10 – 40 | | 2M① | 3516A15 | 1321D79A05 | |
| | 1 amp dc | 0.5 – 2.0 | | 2M | 3517A80 | 1321D79A07 | |
| | | 2 – 8 | | 2M | 3517A80 | 1321D79A06 | |
| | | 4 – 16 | | 2M | 3517A80 | 1321D79A08 | |
| | | 10 – 40 | | 2M | 3517A80 | 1321D79A09 | |
| **Three Units Per Case** | | | | | | | |
| **SSC-T** | 3 – 1 amp | 0.5 – 2.0 amp | 90-98% | 2M① | 3522A43 | 1334D03A02 | **FT-21** |
| | | 2 – 8 | | 2M① | | 1334D03A01 | |
| | | 4 – 16 | | 2M① | | 1334D03A03 | |
| | | 10 – 40 | | 2M① | | 1334D03A04 | |
| | 1 – 1 amp | 0.5 – 2.0 amp | | 2M① | 3522A44 | 1334D03A06 | |
| | | 2 – 8 | | 2M① | | 1334D03A05 | |
| | | 4 – 16 | | 2M① | | 1334D03A07 | |
| | | 10 – 40 | | 2M① | | 1334D03A08 | |

① Contacts are electrically independent – refer to block diagram reference.