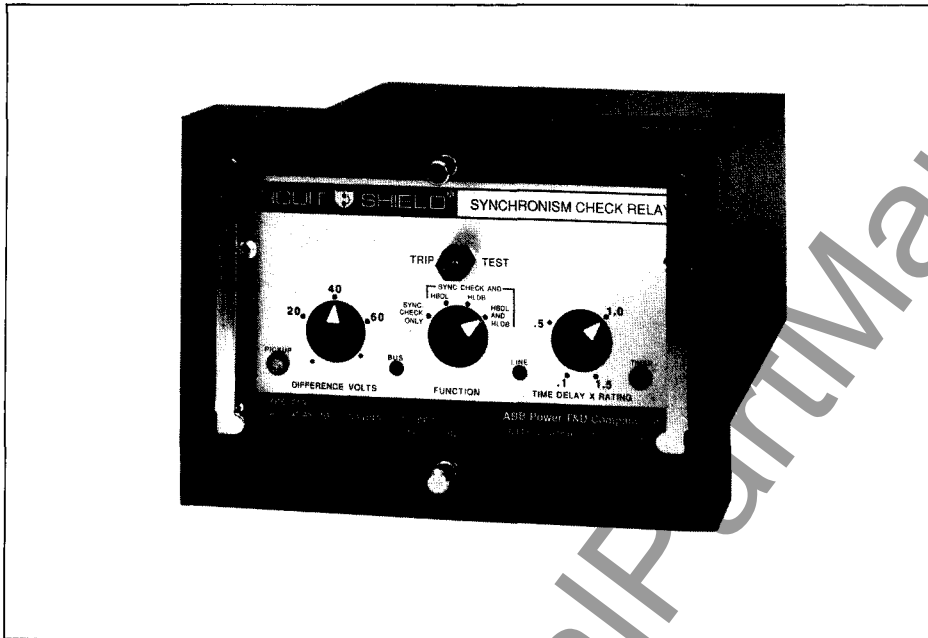


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Device Number: 25

CIRCUIT SHIELD[®] Type 25S and 25V Synchronism Check Relays



Application

These relays are used to verify that the voltages on either side of a circuit breaker are synchronized, and in the proper phase and magnitude relationship to allow automatic closing.

Type 25S allows closing when both bus and line voltages are approximately normal, equal, in phase, and of approximately the same frequency.

Type 25V provides the same functions, but also includes options to allow closing when either the line or the bus is dead. A switch is provided on the front panel of the relay to allow easy selection of the option most suitable to system operating conditions. The options provided are: sync check only; high bus-dead line; high line-dead bus; high bus-dead line or high line-dead bus. The sync check function is active on all positions of the function switch. Both types include precise solid state measuring circuitry and time delay circuitry with calibrated, adjustable controls.

Features

- Flexible settings
- Low burden
- Continuously rated coils
- Seismic capability to 6g ZPA
- Built-in test
- Drawout construction
- 2 year warranty
- UL recognized

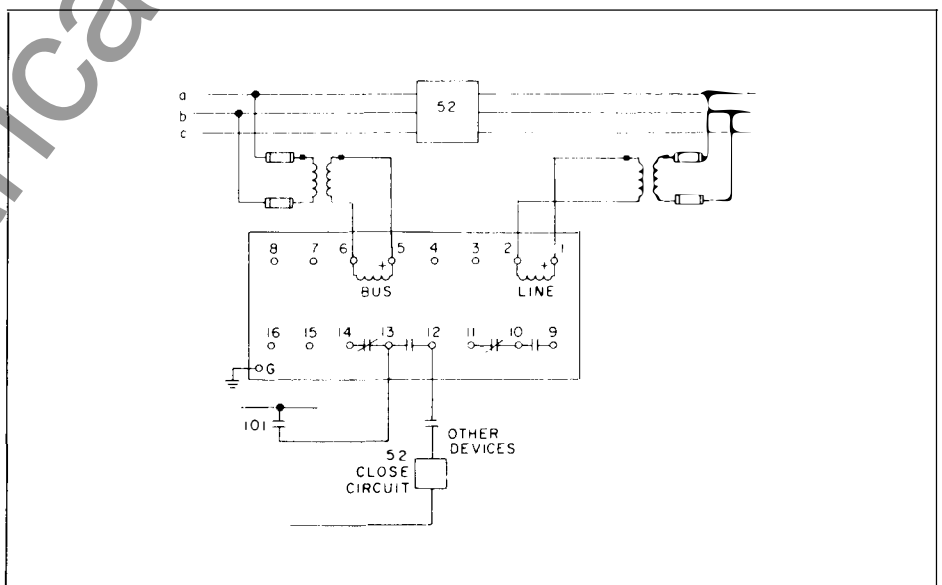


Figure 1. Connections for a Typical Application

Specifications

Input Voltage:

120 Vac, 50/60 Hz nominal
140 Vac maximum continuous

Burden:

2 VA, 1.0 P.F.

Output:

2 Form C Contacts

Output Rating:

Each contact, at 125 Vdc:
30 amps, closing
5 amps, Continuous
1 amp, Opening, Resistive
0.3 amp, Opening, Inductive

Magnitude of Vector

Difference Voltage:

Adjustment range 20 to 80 volts.
See figure 2.

Time Delay:

Pickup-adjustable 0.1-1.5 seconds
1-15 second
Dropout - 1 cycle

Operating Temperature:

Minus 20° to Plus 70°C

Seismic Capability

More than 6g ZPA either AXIS Biaxial
broadhead multifrequency vibration without
damage or malfunction. (ANSI/IEEE)
C37.98

Transient Immunity:

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

Dead Bus, Dead Line

Levels:

(Type 25V only)

Adjustable 0 to 120 volts.

Factory set at 30 volts.

Dielectric:

2000 Vac RMS, 60 seconds all circuits to
ground.

How to Specify

Relay shall be Asea Brown Boveri Type 25 or
equal. Relay shall be capable of withstanding
up to 6g ZPA seismic stress without malfunc-
tion. An operation indicator shall be provided.
Built-in means shall be provided to allow oper-
ational tests without additional equipment.

How to Order

For a complete listing of available synchronism
check relays, see TD 41-025.

To place an order, or for further information,
contact the nearest ABB Representative.

Further Information

List Prices: PL 41-020

Technical Data: TD 41-025

Instruction Book: IB 7.3.1.7-1

Other Protective Relays:

Application Selector Guide, TD 41-016

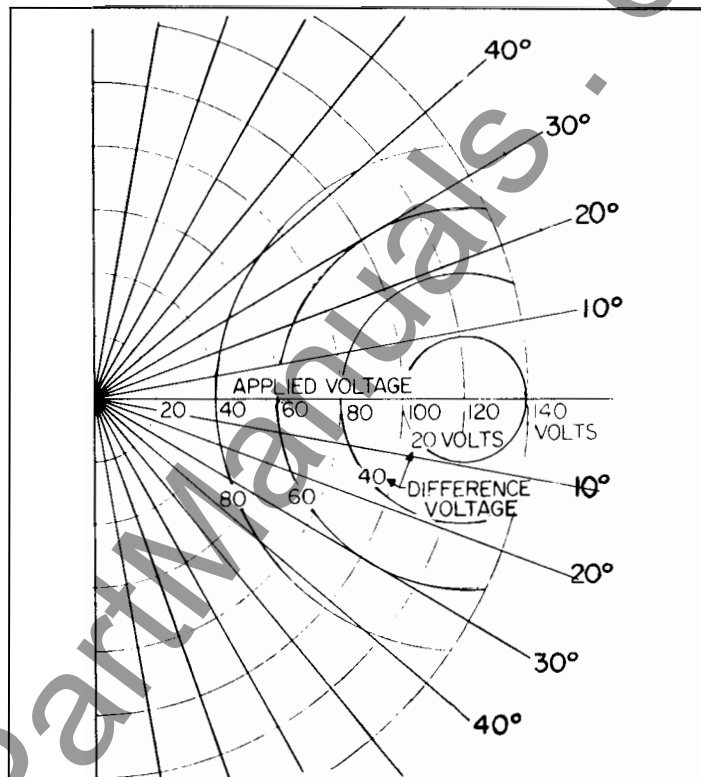


Figure 2. Typical Voltage Difference Closing Characteristic for a 120 Volt 50/60 Hz Relay with Rated Voltage on one Circuit

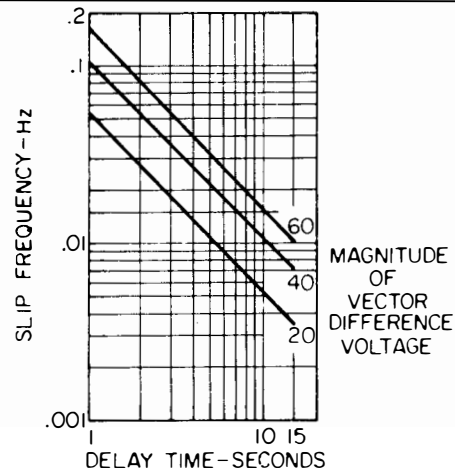


Figure 3. Slip Frequency as a Function of Delay Time for Two 120 Volt Sources

Example: delay time is the time the two sources will be in synchronism. Assume the vector difference voltage is set at 40 volts and it is desired to operate the relay contacts when the slip frequency reaches .015 Hz. Setting the delay time to 7 seconds will cause the relay contacts to close just before the voltages become unsynchronized.



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

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CIRCUIT SHIELD[®] Type 25S and 25V Synchronism Check Relays

Type	Function	Max. Cont. Rating	Output Contacts	Time Delay	Catalog Numbers Drawout Test Case
25S	Synchronism Check	140 Vac. 50/60 Hz.	2 form C	0.1-1.5 s. 1-15 s.	424J2105 424J1105
25V	Synchronism Check with Dead-bus, Dead-line options			0.1-1.5 s. 1-15 s.	424K2105 424K1105

Internal Connection Diagram

16D224A **Types 25S, 25V**
Synchronism Check Relay
Drawout Test Case

