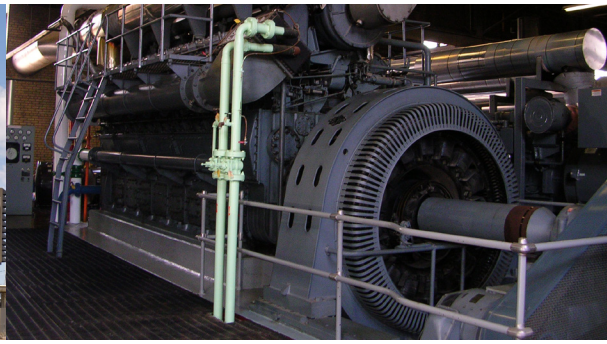
BE1-25 Sync-Check Relay



Overview

The BE1-25 relay monitors the voltages on both sides of a circuit breaker and determines that proper phase angle and voltage exist prior to allowing the breaker to be closed.

Features

- Phase angle limit is adjustable over the range of 1 to 99 degrees.
- Time delay is adjustable over a range of 1 to 99 cycles or 0.1 to 99 seconds.
- Voltage monitoring circuits provide independent determination of bus and line voltage levels for selectable closing conditions.
- Voltage difference provides additional verification of proper breaker closing conditions.
- Expandable phase window option provides the capability to quickly close critical system ties under emergency conditions.
- Separate sync and voltage monitor output contacts.
- Optional external selection of voltage conditions.

Benefits

- Accurate, repeatable, and reliable operation.
- Minimized potential transformer (PT) costs as a result of low sensing burden.
- Reduced battery load with low burden power supply.
- Simple HMI provides clear and intuitive settings for easy configuration without the use of a computer.
- Integrated voltage monitor provides complete supervision for conditions such as dead bus, where sync-check alone is not sufficient to supervise the breaker closing.
- LED indicators provide clear annunciation of status.
- Easily perform in-case system and device tests using test plugs.

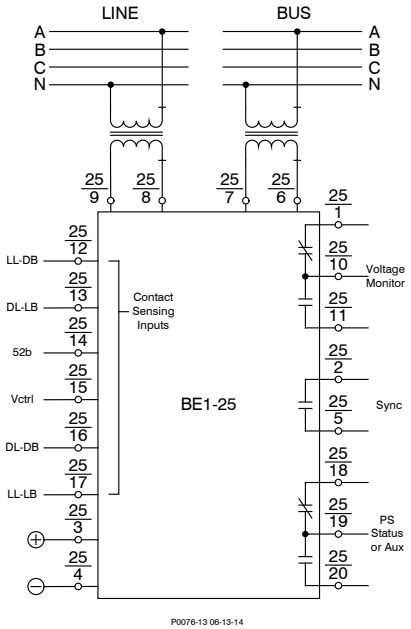


Figure 1 - BE1-25 Connection Diagram for a Typical Application

BE1-25 Sync-Check Relay

Specifications

Power Supply (Nominal)

Style MXX-XXO-XXXXX:	48 Vdc (1.5 W)
Style MXX-XXP-XXXXX:	125 Vdc (1.8 W) or 120 Vac (10.5 VA)
Style MXX-XXR-XXXXX:	24 Vdc (1.6 W)
Style MXX-XXT-XXXXX:	250 Vdc (2.1 W) or 240 Vac (17.4 VA)

Voltage and Phase Sensing

Maximum Continuous:	160% of nominal
Frequency Range:	45 to 65 Hz
Burden:	< 1 VA per phase

Contact Sensing

Minimum Rating:	0.05 A at 250 Vdc
Burden:	
Style MXX-XXO-XXXXX:	2.4 VA
Style MXX-XXP-XXXXX:	6.25 VA
Style MXX-XXR-XXXXX:	1.2 VA
Style MXX-XXT-XXXXX:	12.5 VA

Output Contacts

Resistive:

120 Vac:	Make, break, and carry 7 Adc continuously
250 Vdc:	Make and carry 30 Adc for 0.2 seconds, carry 7 Adc continuously, break 0.3 Adc
500 Vdc:	Make and carry 15 Adc for 0.2 seconds, carry 7 Adc continuously, break 0.3 Adc

Inductive:

120 Vac, 125 Vdc, 250 Vdc:	Break 0.3 A (L/R=0.04)

Phase Angle

Selection Accuracy:	±0.5° or ±5.0%
Setpoint Accuracy:	±0.5° or ±5.0%
Timing Accuracy:	25 ms max or 5.0%
Time Delay Accuracy:	±10 ms or ±2%
Minimum Voltage Requirement:	45 to 55 V typical, 60 V guaranteed

Voltage Difference Option

Range:	1 to 135 Vac
Accuracy:	0.5 V or 5%

Line and Bus Voltage Monitor Option

Range:	10 to 135 Vac
Accuracy:	3%

Environmental

Operating Temp:	-40°C to 70°C (-40°F to 158°F)
Storage Temp:	-65°C to 100°C (-85°F to 212°F)
Radio Frequency Interference (RFI):	Maintains proper operation when tested for interference in accordance with IEEE C37.90.2.
Isolation:	IEC 255-5 and IEEE C37.90, one-minute dielectric tests as follows: All circuits to ground: 2,121 Vdc; Input circuits to output circuits: 1,500 Vac or 2,121 Vdc.
Surge Withstand:	Oscillatory and fast transient qualified to IEEE C37.90.1, Standard Surge Withstand Capability (SWC) Tests for Protective Relays and Relay Systems.
Shock:	15 G in three perpendicular planes
Vibration:	5 G from 18 to 2,000 Hz in three perpendicular planes

Agency/Certifications

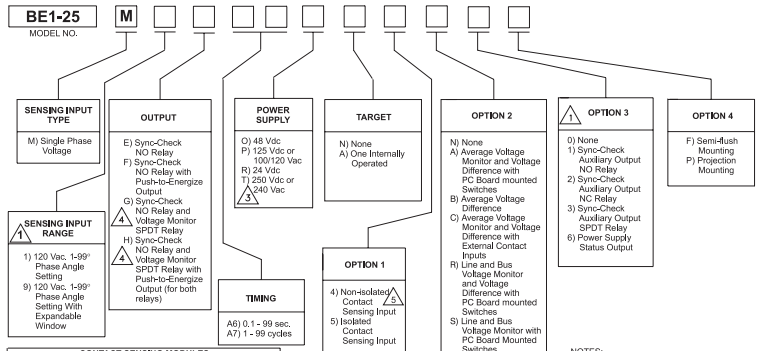
UL recognized

Physical

Weight:	13.7 lb (6.2 kg)
S1 Case Dimensions (WxHxD):	
Double Ended, Semi-Flush Mount:	5.56 x 8.68 x 6.94 inches (141.2 x 220.5 x 176.3 mm)
Single Ended, Semi-Flush Mount:	5.56 x 8.38 x 6.94 inches (141.2 x 212.9m x 176.3 mm)
Double Ended, Projection Mount:	5.56 x 8.68 x 8.14 inches (141.2 x 220.5 x 206.8 mm)
Single Ended, Projection Mount:	5.56 x 8.38 x 8.14 inches (141.2 x 212.9 x 206.8 mm)

For complete specifications, download the instruction manual at www.basler.com.

Style Chart



CONTACT SENSING MODULES
(Required when Type T Power Supply is specified)

Relay Options	Number of Contacts Sensed	Module Ordering Number: Isolated Contact Sensing	Module Ordering Number: Non-Isolated Contact Sensing
Voltage Monitor with External Contact Inputs plus Expandable Phase Window	6	9170206100	9170206106
Voltage Monitor with External Contact Inputs	5	9170206101	9170206107
Expandable Phase Window	2	9170206104	9170206110
None of the above	1	9170206105	9170206111

Related Products

BE1-FLEX Protection, Automation and Control System
Designed to be configurable for nearly any Power System Application.

DECS-2100 Digital Excitation Control System
An extremely powerful and flexible excitation system that precisely controls, protects, and monitors synchronous generators and motors.

DECS-450 Digital Excitation Control System
A versatile digital excitation control system for synchronous generators and motors.

DECS-250 Digital Excitation Control System
Provides precise voltage, var and Power Factor regulation, exceptional system response, and generator protection.

DGC-2020HD Digital Genset Controller
Provides genset and transfer switch control, metering, protection, and programmable logic in a simple, easy to use, reliable, rugged, and cost effective package.

Accessories

Test Plugs: Allow testing of the relay without removing system wiring, order two test plugs. Basler Electric part number 10095.

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