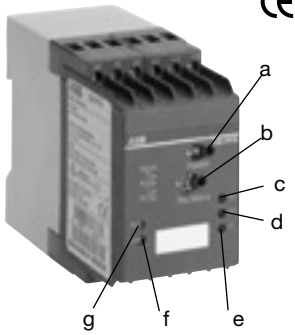


Phase Monitor, Reversal, Loss, Over, Under Voltage (50 Hz only) CM-PFN DPDT Relay Output

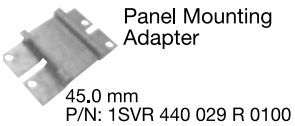


- a Time function ☒ / ■
- b Time adjustment
- c >V: red LED - overvoltage
- d <V: red LED - undervoltage
- e P: red LED - phase loss, phase sequence
- f U: green LED - supply voltage
- g R: yellow LED - relay status

- Three-phase monitoring: phase reversal, overvoltage, undervoltage
- Voltage monitoring range: 0.9...1.1 VN (VN = 3 x 380 V or 3 x 400 V)
- Fixed hysteresis of 5 %
- Selectable ON-delay or trip delay on overvoltage or undervoltage: 0.1...10 s
- DPDT contacts
- 5 LEDs for status indication

Approvals: LISTED

Accessories



See accessory pages for specifications.

Description

Factory fixed over and under voltage set points. The CM-PFN is used to monitor three phase supply voltages for phase reversal, over and under voltage, and phase loss. The output relay is energized when the voltages are in the factory fixed acceptable range. When a voltage exceeds 1.1 times the rated voltage, or falls below 0.9 times the rated voltage, the isolated DPDT relay de-energizes either immediately or after a trip delay. The LEDs indicate the type of fault.

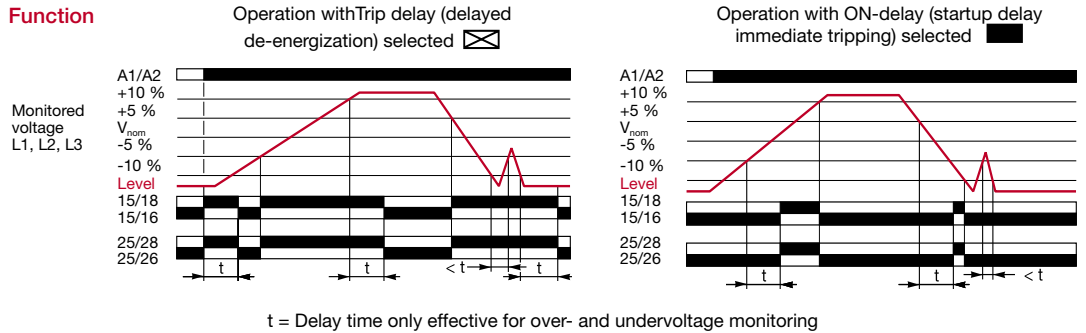
The CM-PFN automatically resets when the voltage returns to normal, plus a fixed 5% hysteresis.

The trip delay function is switch selectable. It can be an ON-delay (startup delay immediate tripping) or a trip delay (delayed de-energization). The time delay is adjustable from 0.1 to 10 seconds. The CM-PFN detects phase loss by sensing low average voltage. Phase loss may not be detected if regenerated voltage is present.

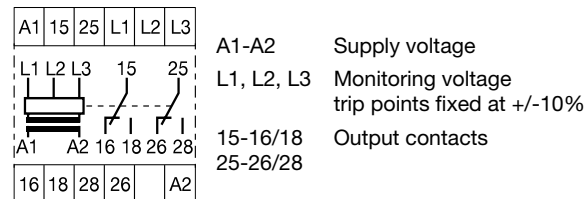
ON-delay (startup delay immediate tripping) : If the ON-delay type is selected, the output relay does not energize until the voltages remain in the correct voltage range for the full ON-delay time. The output relay de-energizes immediately when a fault is sensed.

Trip delay: Upon application of the supply voltage, the output relay energizes. If the voltage reaches an acceptable range before the time delay is complete, the output remains energized. Each time the voltage exceeds the acceptable range, the trip delay begins. If the voltage exceeds the acceptable range for the full trip delay, the output de-energizes.

Function



Connection



Ordering Table

Supply voltage	Part Number
50/60 Hz	
Monitoring voltage 3 x 380 V / 50 Hz	
220 ...240 V AC	1SVR 450 311 R 0400
380...415 V AC	1SVR 450 312 R 0400
Monitoring voltage 3 x 400 V / 50 Hz	
220...240 V AC	1SVR 450 311 R 0500
380...415 V AC	1SVR 450 312 R 0500

Further voltages on request.

Phase Monitor, Reversal, Loss, Over, Under Voltage (50 Hz only)

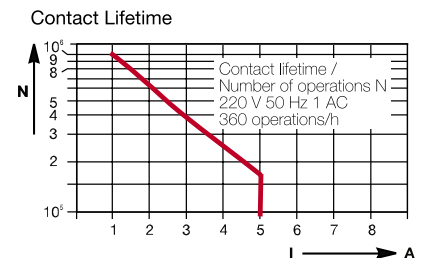
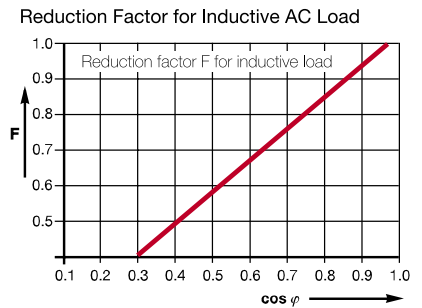
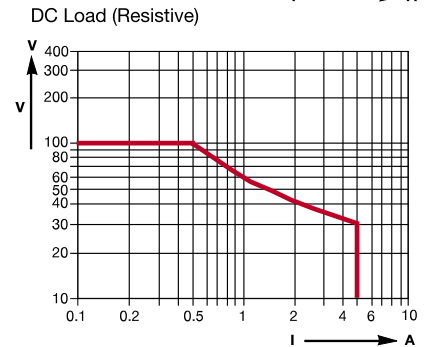
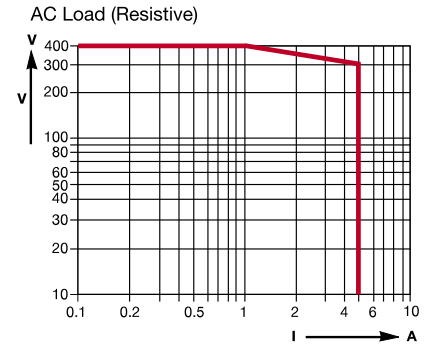
CM-PFN

DPDT Relay Output

Technical Data

Input		
Supply voltage - power consumption	A1-A2	110...130 V AC - 3 VA
	A1-A2	220...240 V AC - 3 VA
	A1-A2	380...415 V AC - 3 VA
Tolerance of supply voltage		-15 % ... +10 %
Supply voltage frequency		50...60 Hz
Time delay		Overvoltage, undervoltage
ON-delay time adjustable		0.1...10 s
Trip delay time adjustable		0.1...10 s
Timing error over the supply voltage range		≤ 0.5 %
Timing error over the temperature range		≤ 0.06 % / °C
Measuring Circuit		L1, L2, L3
Monitoring voltage Vnom.		380 V AC, 400 V AC
Frequency		50 Hz
Response value at overvoltage/ undervoltage		0.9/1.1-VNom (o. 0.85/1.1 for 380 V/50 Hz version)
Reset value at overvoltage/ undervoltage		0.95/1.05-VNom (o. 0.9/1.05 for 380 V/50 Hz version)
Measuring cycle max.		80 ms
Hysteresis (fixed)		5 %
Temperature error over the temperature range		≤ 0.06 % / °C
Error over the supply voltage range		≤ 0.5 %
Display of Operating Status		
Supply voltage	U	LED, green
Output relay energized	R	LED, yellow
Overvoltage	>V	LED, red
Undervoltage	<V	LED, red
Phase failure and phase sequence error	P	LED, red
Output		Relay, 2 SPDT contacts, normally energized
Rated voltage	15-16/18, 25-26/28	400 V
Rated switching voltage max.	VDE 0110, IEC 947-1	400 V AC
Rated switching current	AC 12 (resistive)	5 A (at 230 V)
	AC 15 (inductive)	3 A (at 230 V)
	DC 12 (resistive)	5 A (at 24 V)
	DC 13 (inductive)	2.5 A (at 24 V)
Maximum mechanical life		30 x 10 ⁶ operations
Maximum electrical life (acc. to AC 12 / 230 V / 5 A)		1 x 10 ⁵ operations
Short-circuit proof, max. fuse rating		5 A / fast acting
General Data		
Rated impulse withstand voltage Vimp		4 kV
Operating temperature		-25°C ... +65°C
Storage temperature		-40°C ... + 85°C
Mounting to DIN rail (EN 50022)		Snap-on mounting/Screw mounting using an adapter
Cable size stranded with wire end ferrule		2 x 14 AWG (2 x 2.5 mm ²)
Weight		Approx. 0.66 lb (300 g)

Load Limit Curves



Mechanical View

