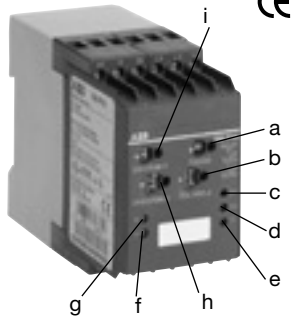


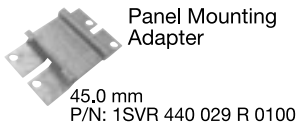
Phase Monitors CM-PVN



- a Time function ☒ / ■
- b Time adjustment
- c >V: red LED - overvoltage
- d <V: red LED - undervoltage
- e P: red LED - phase loss, phase protection
- f U: green LED - supply voltage
- g R: yellow LED - relay status
- h Undervoltage threshold
- i Overvoltage threshold
- Three-phase monitoring: phase sequence, overvoltage, undervoltage
- 3 voltage monitoring ranges: 160...580 V
- 3-phase over- and undervoltage monitoring: V_{min} and V_{max} adjustable
- Fixed switching hysteresis of 5 %
- Selectable ON- or OFF delay on overvoltage or undervoltage: 0.1...10 s
- 2 c/o contacts
- 5 LEDs for status indication

Approvals: c us LISTED

Accessories



See accessory pages for specifications.

Description

Adjustable over and under voltage set points. The CM-PVN is used to monitor three phase supply voltages for phase reversal, over and under voltage, and phase loss. The output relay is energized as long as the voltages are in the adjustable acceptable range.

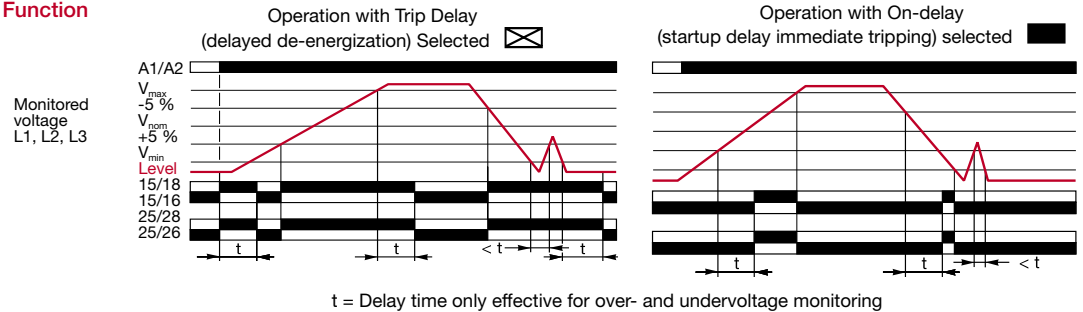
When a voltage exceeds the adjustable overvoltage set point, or falls below the adjustable overvoltage set point, the isolated DPDT relay de-energizes either immediately or after a trip delay. The LEDs indicate the type of fault. The CM-PVN automatically resets when the voltage returns to normal, plus a fixed 5% hysteresis. The CM-PVN sense phase loss by sensing low average voltage. Phase loss may not be detected if regenerated voltage is present.

The trip delay function is switch selectable. It can be an ON-delay (delayed energization) or a trip delay (delayed de-energization). The time delay is adjustable from 0.1 to 10 seconds.

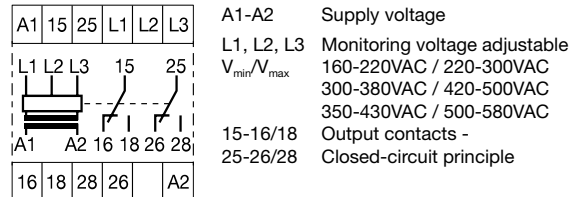
ON-delay: If the ON-delay type is selected, the output relay does not energize until the voltages remain in the correct voltage range for the full ON-Delay time. The output relay de-energizes immediately when a fault is sensed.

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
Monitoring voltage: V_{min} 160...220 V AC 50/60 Hz, V_{max} 220...300 V AC 50/60 Hz	
90...145 V AC	1SVR 450 300 R 1200
160...300 V AC	1SVR 450 301 R 1200
Monitoring voltage: V_{min} 300...380 V AC 50/60 Hz, V_{max} 420...500 V AC 50/60 Hz	
90...145 V AC	1SVR 450 300 R 1500
160...300 V AC	1SVR 450 301 R 1500
300...500 V AC	1SVR 450 302 R 1500
Monitoring voltage: V_{min} 350...430 V AC 50/60 Hz, V_{max} 500...580 V AC 50/60 Hz	
90...145 V AC	1SVR 450 300 R 1700
300...500 V AC	1SVR 450 302 R 1700

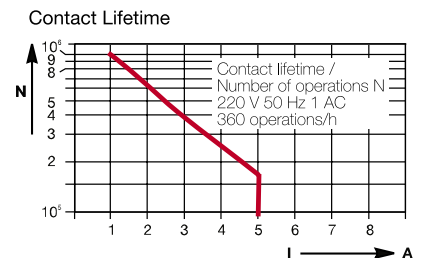
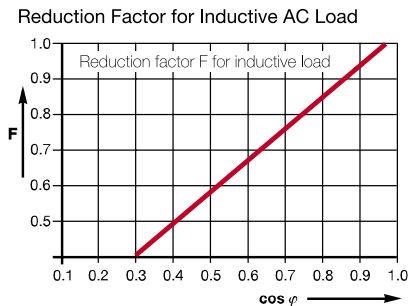
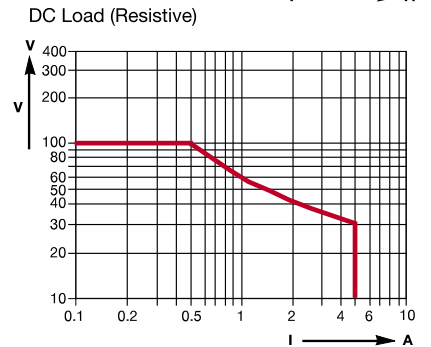
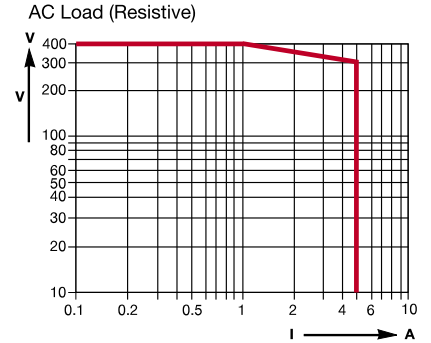
Further voltages on request.

Phase Monitors CM-PVN

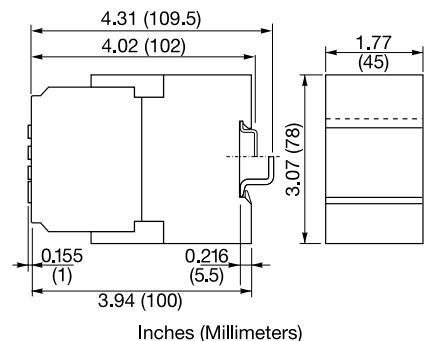
Technical Data

Input		
Supply voltage - power consumption	A1-A2	90...145 V AC - Approx. 3 VA
	A1-A2	160...300 V AC - 3 VA
	A1-A2	300...500 V AC - 3 VA
Tolerance of supply voltage		-15 % ... +10 %
Supply voltage frequency		50...60 Hz
Duty time		100 %
Time Delay		
Delay on operate time adjustable		0.1...10 s
Delay on release time adjustable		0.1...10 s
Timing error within tolerance of supply voltage		≤ 0.5 %
Timing error within temperature range		≤ 0.06 % / °C
Measuring Circuit		
	L1, L2, L3	Monitoring voltage adjustable
Response value adjustable for overvoltage and undervoltage	V _{min} / V _{max}	160...220 V AC / 220...300 V AC 300...380 V AC / 420...500 V AC 350...430 V AC / 500...580 V AC
Frequency		50...60 Hz
Hysteresis (ref. to the set response value)		5 %
Measuring cycle max.		80 ms
Temperature error		≤ 0.06 % / °C
Error within tolerance of supply voltage		≤ 0.5 %
Display of Operational 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 failure		P LED, red
Output		
	15-16/18, 25-26/28	Relay, 2 SPDT contacts, closed-circuit principle
Rated voltage	VDE 0110, IEC 60947-1	400 V
Rated switching voltage max.		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 (to AC 12 / 230 V / 5 A)		1 x 10 ⁵ operations
Short-circuit proof, max. fuse rating		5 A / fast, operating class
General Data		
Rated impulse withstand voltage V _{imp}		4 kV
Operating temperature		-25°C...+65°C
Storage temperature		-40°C...+ 85°C
Mounting position		Any
Mounting to DIN rail		Snap-on mounting/Screw mounting by 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



7