

# Phase Sequence Monitors

## CM-PFE

### SPDT Relay Output



CE

- a R: yellow LED - relay status
- Monitoring of three-phase supply voltage for phase sequence
  - Fast response time
  - Universal voltage range 3 x 208...440 V 50/60 Hz
  - 1 SPDT contact
  - LED for status indication

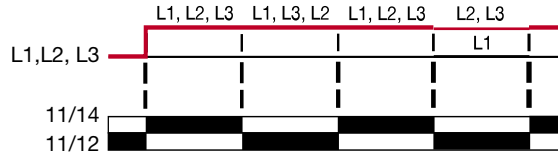
Approvals: c us

#### Description

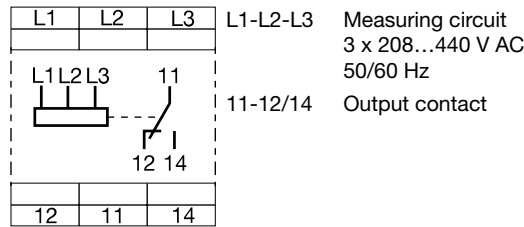
The CM-PFE phase sequence monitor is used to monitor three-phase supply voltages for incorrect phase sequence. The output relay and yellow LED energize when the phase sequence is correct. The output relay and the yellow LED turn off when incorrect phase sequence or phase loss are detected.

If used with motors which continue running on only two phases, the CM-PFE detects phase loss if the regenerated voltage is less than 60% of the nominal voltage. For applications where a regenerated voltage is greater than 60% is expected, we recommend to using a monitor with phase unbalance protection.

#### Function



#### Connection



#### NOTE

If several CM-PFE units are placed side by side and the supply voltage is higher than 415 V, spacing of at least 10 mm has to be maintained between the individual units.

#### Accessories



See accessory pages for specifications.

#### Ordering Table

Supply voltage = measuring voltage	Part Number
3 x 208...440 V AC 50/60 Hz	1SVR 550 824 R 9100

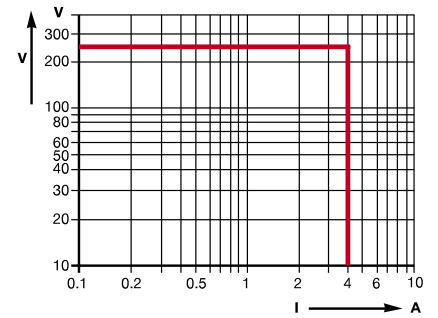
# Phase Sequence Monitors CM-PFE SPDT Relay Output

## Technical Data

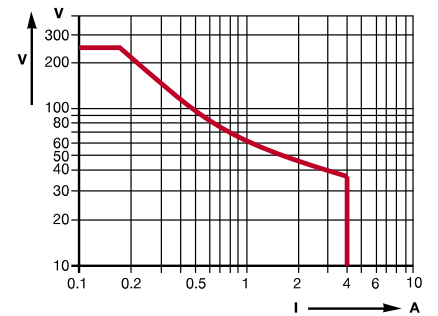
<b>Input</b>		
Supply voltage - power consumption L1, L2, L3		208...440 V AC - 15 VA
Tolerance of supply voltage		-10 % ... +10 %
Supply voltage frequency		50...60 Hz
<b>Measuring Circuit</b>		
Monitoring voltage Vnom.	L1, L2, L3	208...440 V AC
Frequency		50...60 Hz
Response time		500 ms
Timing error over temperature range		≤ 0.06 % / °C
Error over supply voltage range		≤ 0.5 %
<b>Display of Operating Status</b>		
Output relay energized		LED, yellow
<b>Output</b>		
	11-12/14	Relay, 1 SPDT contact
Rated voltage	VDE 0110, IEC 947-1	250 V
Rated switching voltage max.		250 V AC
Rated switching current	AC 12 (resistive)	4 A (at 230 V)
	AC 15 (inductive)	3 A (at 230 V)
	DC 12 (resistive)	4 A (at 24 V)
	DC 13 (inductive)	2 A (at 24 V)
Maximum mechanical life		30 x 10 <sup>6</sup> operations
Maximum electrical life (acc. to AC 12 / 230 V / 4 A)		1 x 10 <sup>5</sup> operations
Short-circuit proof, max. fuse rating		10 A / fast acting
<b>General Data</b>		
Rated impulse withstand voltage Vimp		4 kV
Operating temperature		-20°C ... +60°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 16 AWG (2 x 1.5 mm <sup>2</sup> )
Weight		Approx. 0.17 lb (75 g)

## Load Limit Curves

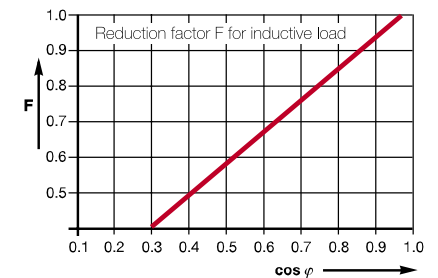
AC Load (Resistive)



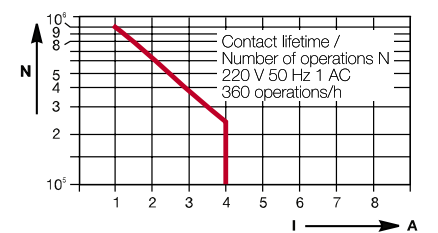
DC Load (Resistive)



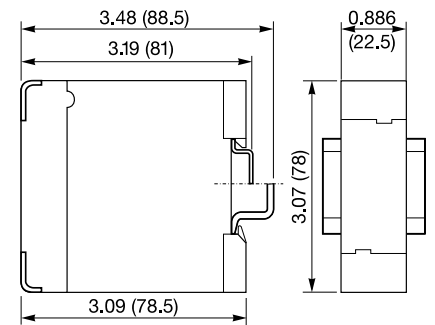
Reduction Factor for Inductive AC Load



Contact Lifetime



## Mechanical View



Inches (Millimeters)