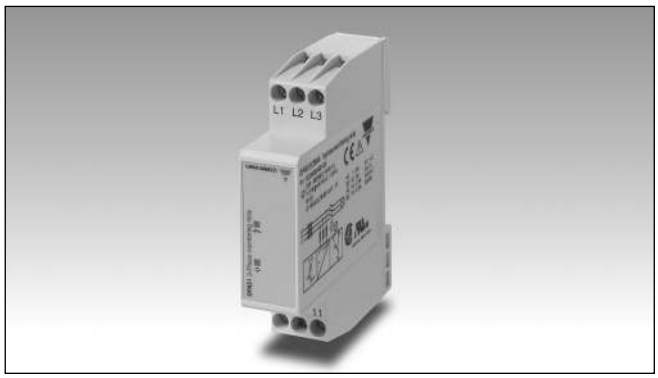
Monitoring Relays
3-Phase Sequence and Phase Loss
Type DPA51



- **3-phase monitoring relay for phase sequence and phase loss**
- **Detects when all phases are present and have the correct sequence**
- **Measures its own power supply**
- **Power supply range: 208 to 480 VAC (±15%)**
- **Output: 5 A SPDT relay normally energized**
- **For mounting on DIN-rail in accordance with DIN/EN 50 022**
- **17.5 mm DIN-rail housing (DIN 43880)**
- **LED indication for relay and power supply ON**

Product Description

3-Phase relay for detection of incorrect phase sequence, total and partial phase loss. Supply range from 208 to 480 VAC. For mounting on DIN-rail.

Housing 17.5 mm wide, SPDT relay output, suitable for back and front panel mounting. The device detects regenerated voltage up to 85% of the nominal voltage (phase-phase).

Ordering Key

DPA 51 C M44

Housing
Function
Type
Item number
Output
Power supply

Type Selection

Mounting	Output	Supply: 208 to 480 VAC
DIN-rail	SPDT	**DPA 51 C M44**

Input Specifications

Input	
L1, L2, L3	Terminals L1, L2, L3 Measures its own supply
Measuring range	
208 to 480 VAC	177 to 550 VAC
ON-level	> 85% of the phase- phase voltage

Supply Specifications

Power supply	Overvoltage cat. III (IEC 60664, IEC 60038)
Rated operational voltage through terminals: L1, L2, L3	208 to 480 VAC ± 15%, 45 to 65 Hz
Rated operational power	13 VA @ 400 VAC, 50 Hz Supplied by L2 and L3

Output Specifications

Output		SPDT relay, N.E.
Rated insulation voltage		250 VAC
Contact ratings ($AgSnO_2$)		µ
Resistive loads	AC 1	5 A @ 250 VAC
	DC 12	5 A @ 24 VDC
Small inductive loads	AC 15	2.5 A @ 250 VAC
	DC 13	2.5 A @ 24 VDC
Mechanical life		≥ 30 x 10^6 operations
Electrical life		≥ 10^5 operations (at 5 A, 250 V, cos φ = 1)
Operating frequency		≤ 7200 operations/h
Dielectric strength		
Dielectric voltage		≥ 2 kVAC (rms)
Rated impulse withstand volt.		4 kV (1.2/50 µs)

General Specifications

Reaction time	
Alarm ON delay	< 100 ms
Alarm OFF delay	< 300 ms
Accuracy	(15 min warm-up time)
Temperature drift	± 1000 ppm/°C
Repeatability	± 0.5%
Indication for	
Power supply ON	LED, green
Relay ON	LED, yellow
Environment	
Degree of protection	IP 20
Pollution degree	3
Operating temperature	
@ Max. voltage, 50 Hz	-20 to +60°C, R.H. < 95%
@ Max. voltage, 60 Hz	-20 to +50°C, R.H. < 95%
Storage temperature	-30 to +80°C, R.H. < 95%

Housing	
Dimensions	17.5 x 81 x 67.2 mm
Material	PA66 or Noryl
Weight	Approx. 75 g
Screw terminals	
Tightening torque	Max. 0.5 Nm acc. to IEC 60947
Wire section	2,5mm² (AWG13) stranded wire
Fusing (for DPA51)	500mA fast blow
Product standard	EN 60947-5-1
Approvals	UL, CSA CCC (GB14048.5)
CE Marking	L.V. Directive 2006/95/EC EMC Directive 2004/108/EC
EMC	
Immunity	According to EN 61000-6-2
Emissions	According to EN 61000-6-3

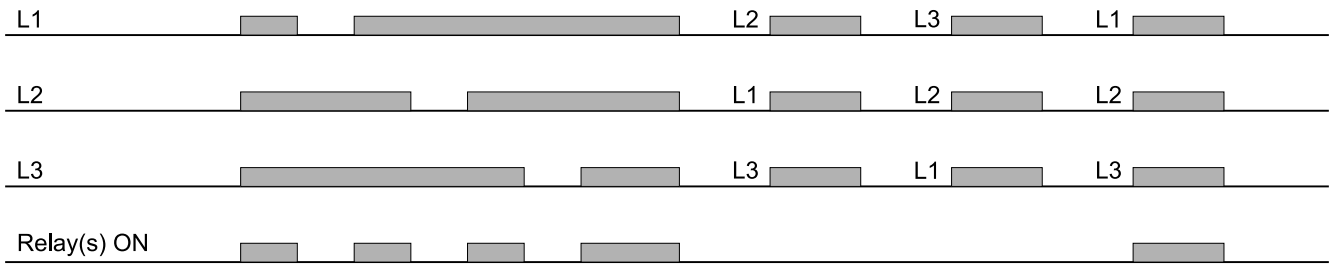
Mode of Operation

DPA51 monitors its own 3-phase power supply voltage. The relay operates when all the phases are present and the phase sequence is correct. The relay releases when one phase-phase voltage drops below 85% of the other phase-phase voltages or when the phase sequence is wrong.

Example 1
The relay monitors that the power supply has the correct phase sequence and that all phases are present.

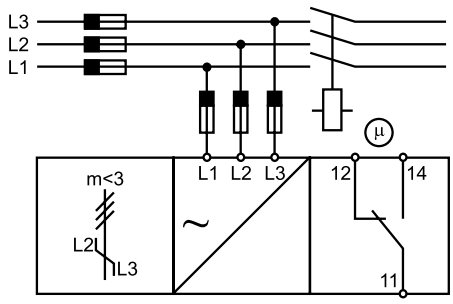
Example 2
The relay releases in case of interruption of one or more phases, provided that the regenerated voltage does not exceed 85% of the phase-phase voltage.

Operation Diagram

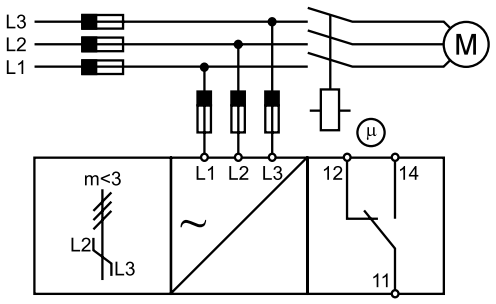


Wiring Diagrams

Example 1



Example 2



Dimensions