

Monitoring Relays

3-Phase Sequence and Phase Loss

Type DPA53

CARLO GAVAZZI



- 3-phase monitoring relay for phase sequence and phase loss
- Detects when all phases are present and have the correct sequence
- Knob-adjustable undervoltage detection
- Measures own power supply
- Power supply range: 208 to 240 and 380 to 480 VAC ($\pm 15\%$)
- 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 and phase loss.

Using the front knob it can be decided the undervoltage setpoint of the unit.

Supply range from 208 to 240 VAC and 380 to 480 VAC covered by two multivoltage relays. For mounting on DIN-rail. Housing 17.5 mm wide suitable both for back and front panel mounting.

Ordering Key

DPA 53 C M23

Housing _____
 Function _____
 Type _____
 Item number _____
 Output _____
 Power supply _____

Type Selection

Mounting	Output	Supply: 208 to 240 VAC	Supply: 380 to 480 VAC
DIN-rail	SPDT	DPA 53 C M23	DPA 53 C M48

Input Specifications

Input L1, L2, L3	Terminals L1, L2, L3 Measures on own supply
Measuring range	
M23	160 to 240 VAC
M48	320 to 480 VAC

Supply Specifications

Power supply Rated operational voltage through terminals:	Overvoltage cat. II (IEC 60664, IEC 60038) L1, L2, L3 208 to 240 VAC $\pm 15\%$, 45 to 65 Hz
M23	
M48	380 to 480 VAC $\pm 15\%$, 45 to 65 Hz
Rated operational power	
M23	7 VA @ 230 VAC, 50 Hz
M48	13 VA @ 400 VAC, 50 Hz
	Supplied by L1 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	$\geq 30 \times 10^6$ operations
Electrical life	$\geq 10^5$ operations (at 8 A, 250 V, $\cos \varphi = 1$)
Operating frequency	≤ 7200 operations/h
Dielectric strength	
Dielectric voltage	≥ 2 kVAC (rms)
Rated impulse withstand volt.	4 kV (1.2/50 μ s)

General Specifications

Reaction time Alarm ON delay Alarm OFF delay	< 100 ms < 300 ms
Accuracy Temperature drift Repeatability	(15 min warm-up time) ± 1000 ppm/ $^{\circ}$ C $\pm 0.5\%$ on full scale
Indication for Power supply ON Relay ON	LED, green LED, yellow



General Specifications (cont.)

Environment	
Degree of protection	IP 20
Pollution degree	2
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 81.5 x 67 mm
Weight	Approx. 75 g
Screw terminals	
Tightening torque	Max. 0.5 Nm acc. to IEC 60947
Approvals	UL, CSA
CE Marking	Yes
EMC	
Immunity	Electromagnetic Compatibility
Emission	According to EN 61000-6-2 According to EN 50081-1

Level setting

Select the proper undervoltage level using the knob according to the phase-phase voltage and the needed sensitivity.

Centre knob:
Setting of under level on absolute scale.

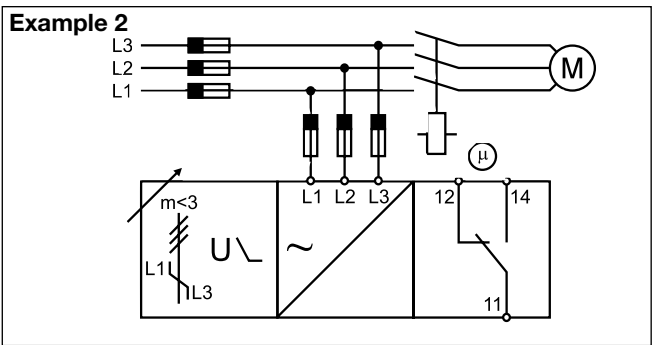
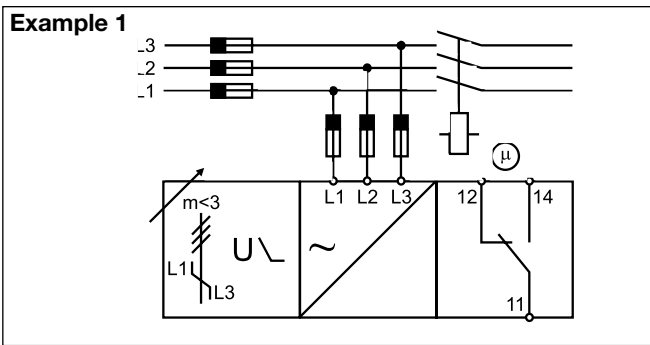
Mode of Operation

DPA53 monitors its own 3- phase power supply. The relay operates when all the phases are present, the phase sequence is correct and each phase-phase voltage is above the adjusted setpoint. The relay releases when one phase-phase voltage drops below the setpoint or when the phase sequence is incorrect.

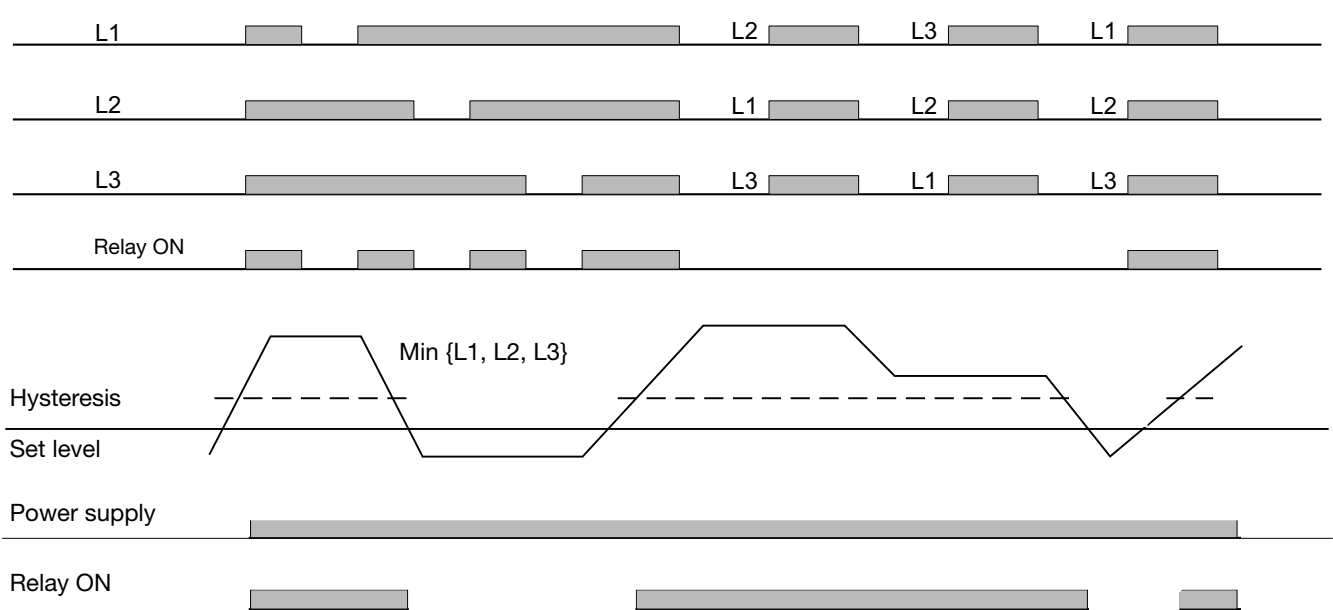
Example 1
The relay monitors that the power supply has the correct phase sequence and that all phases are present.

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

Wiring Diagrams



Operation Diagrams



Dimensions

