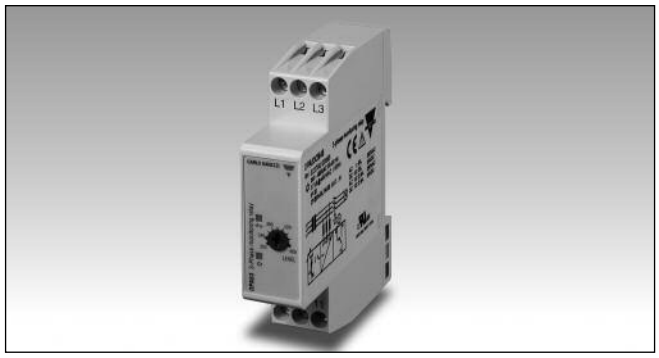
Monitoring Relays
3-Phase Sequence and Phase Loss
Type DPA53



- **3-phase monitoring relay for phase sequence and phase loss**
- **Detects when all phases are present and have the correct sequence**
- **Knob-adjustable undevoltage detection**
- **Measures its own power supply**
- **Power supply range: 208 to 240 and 380 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 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 its own supply
Measuring range		
	M23	160 to 240 VAC
	M48	320 to 480 VAC
Hysteresis	M23	3% on full scale
	M48	4% on full scale

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)

Supply Specifications

Power supply		Overvoltage cat. III (IEC 60664, IEC 60038)
Rated operational voltage through terminals:		L1, L2, L3
	M23	208 to 240 VAC ± 15%, 45 to 65 Hz
	M48	380 to 480 VAC ± 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

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% on full scale
Indication for	
Power supply ON	LED, green
Relay ON	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 x 67.2 mm
Material	PA66 or Noryl
Weight	Approx. 75 g
Screw terminals	
Tightening torque	Max. 0.5 Nm acc. to IEC 60947
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

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.

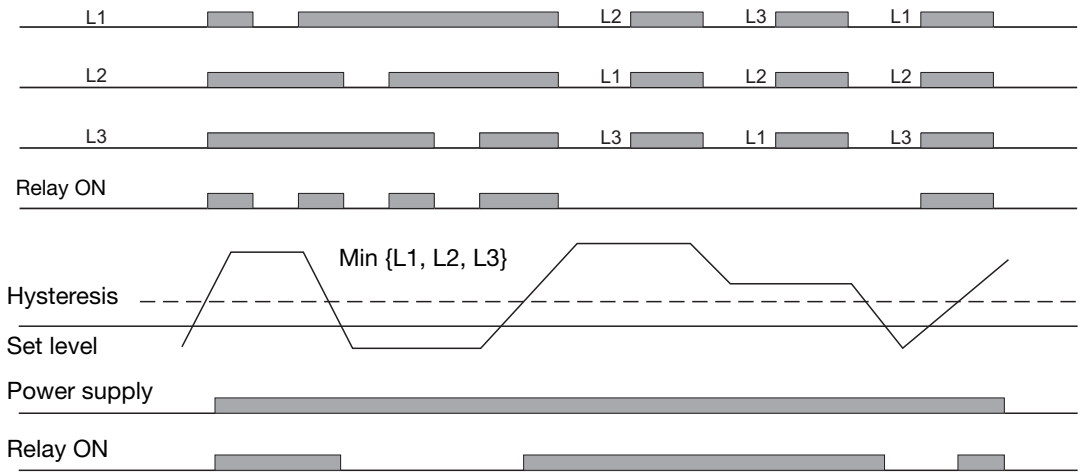
Example 2
The relay releases in case of interruption of one or more phases, provided that the regenerated voltage does not exceed the set voltage.

Level setting

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

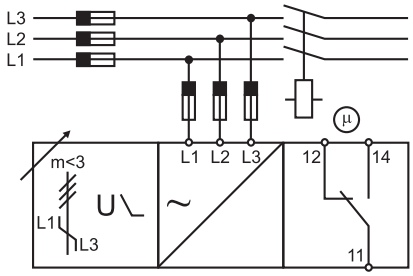
Centre knob:
Setting of under level on absolute scale.

Operation Diagrams

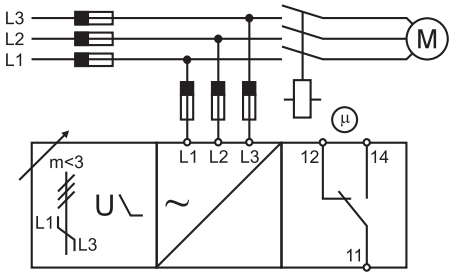


Wiring Diagrams

Example 1



Example 2



Dimensions