

# 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 undervoltage detection
- Measures its 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

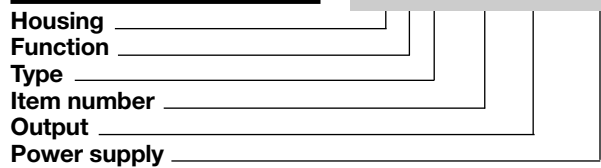
### Product Description

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 multi-voltage 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**



### Type Selection

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

### Input Specifications

<b>Input</b> L1, L2, L3		Terminals L1, L2, L3 Measures its own supply
<b>Measuring range</b>	M23 M48	160 to 240 VAC 320 to 480 VAC
<b>Hysteresis</b>	M23 M48	3% on full scale 4% on full scale

### Output Specifications

<b>Output</b>	SPDT relay, N.E.
<b>Rated insulation voltage</b>	250 VAC
<b>Contact ratings (AgSnO<sub>2</sub>)</b>	$\mu$
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
<b>Mechanical life</b>	$\geq 30 \times 10^6$ operations
<b>Electrical life</b>	$\geq 10^5$ operations (at 5 A, 250 V, $\cos \varphi = 1$ )
<b>Operating frequency</b>	$\leq 7200$ operations/h
<b>Dielectric strength</b>	
Dielectric voltage	$\geq 2$ kVAC (rms)
Rated impulse withstand volt.	4 kV (1.2/50 $\mu$ s)

### Supply Specifications

<b>Power supply</b>		Overvoltage cat. III (IEC 60664, IEC 60038)
Rated operational voltage through terminals:		L1, L2, L3
	M23	208 to 240 VAC $\pm 15\%$ , 45 to 65 Hz
	M48	380 to 480 VAC $\pm 15\%$ , 45 to 65 Hz
<b>Rated operational power</b>		
	M23	7 VA @ 230 VAC, 50 Hz
	M48	13 VA @ 400 VAC, 50 Hz
		Supplied by L1 and L3

### General Specifications

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

## General Specifications (cont.)

<b>Environment</b>	
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%
<b>Housing</b>	
Dimensions	17.5 x 81 x 67.2 mm
Material	PA66 or Noryl
<b>Weight</b>	
	Approx. 75 g
<b>Screw terminals</b>	
Tightening torque	Max. 0.5 Nm acc. to IEC 60947
<b>Product standard</b>	
	EN 60947-5-1
<b>Approvals</b>	
	UL, CSA CCC (GB14048.5)
<b>CE Marking</b>	
	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.

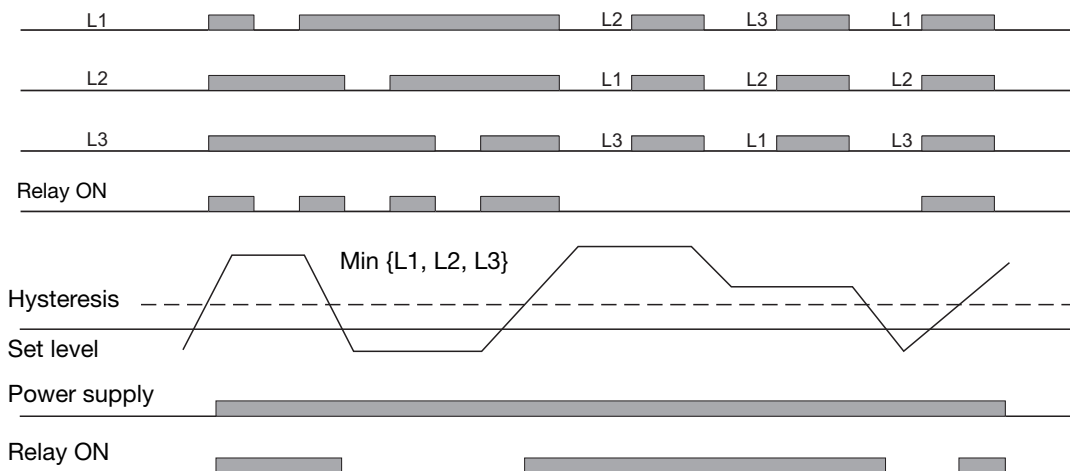
## Level setting

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

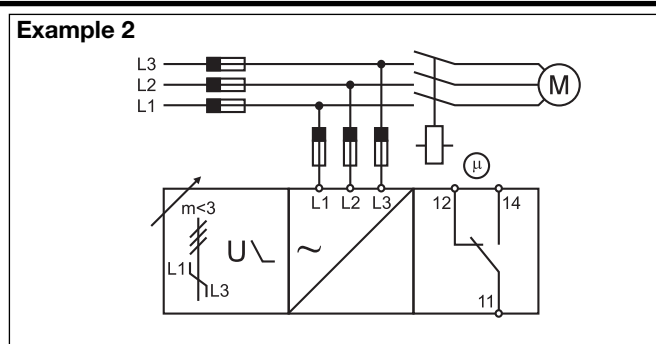
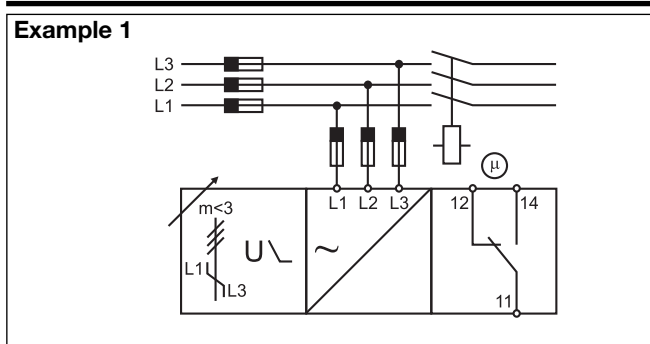
### Centre knob:

Setting of under level on absolute scale.

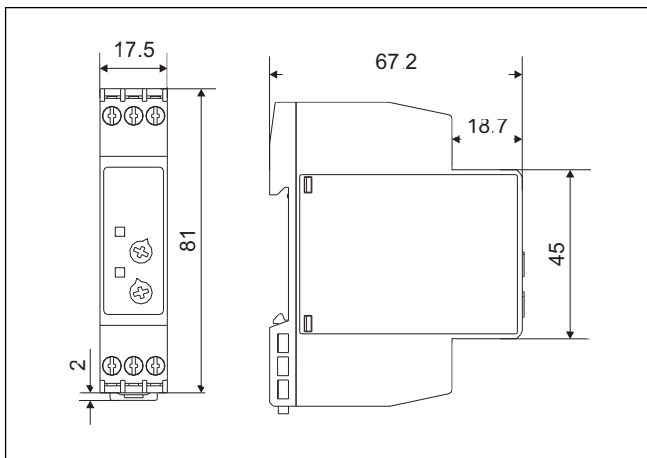
## Operation Diagrams



## Wiring Diagrams



## Dimensions



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