Monitoring Relays
3-Phase Sequence and Phase Loss
Types DPA03, PPA03


DPA03


PPA03

- **3-phase monitoring relay for phase sequence and phase loss**
- **Detect when all phases are present and have the correct sequence**
- **Knob-adjustable undervoltage detection**
- **Measure their own power supply**
- **Power supply range: 208 to 240, 380 to 480 and 600 to 690 VAC (±15%)**
- **Output: 8 A SPDT relay normally energized**
- **For mounting on DIN-rail in accordance with DIN/EN 50 022 (DPA03) or plug-in module (PPA03)**
- **22.5 mm Euronorm housing (DPA03) or 36 mm plug-in module (PPA03)**
- **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, 380 to 480 and 600 to 690 VAC covered by three multivoltage relays. For mounting on DIN-rail or plug-in module.

Ordering Key

DPA 03 C M23

- **Housing**
- **Function**
- **Type**
- **Item number**
- **Output**
- **Power supply**

Type Selection

Mounting	Output	Supply: 208 to 240 VAC	Supply: 380 to 415 VAC	Supply: 380 to 480 VAC	Supply: 600 to 690 VAC
DIN-rail	SPDT	**DPA 03 C M23**		**DPA 03 C M48**	**DPA 03 C M69**
Plug-in	SPDT	**PPA 03 C M23**	**PPA 03 C M48**		

Input Specifications

Input	
L1, L2, L3	Terminals L1, L2, L3 Measure their own supply
Measuring range	
M23	160 to 240 VAC
DPA03C M48	320 to 480 VAC
PPA03C M48	320 to 415 VAC
M69	510 to 690 VAC

Output Specifications

Output	SPDT relay, N.E.
Rated insulation voltage	250 VAC
Contact ratings ($AgSnO_2$)	μ
Resistive loads AC 1	8 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 8 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
DPA03C M48	380 to 480 VAC ± 15%, 45 to 65 Hz
PPA03C M48	380 to 415 VAC ± 15%, 45 to 65 Hz
M69	600 to 690 VAC ± 15%, 45 to 65 Hz

Rated operational power	
M23	7 VA @ 230 VAC, 50 Hz
M48	11 VA @ 400 VAC, 50 Hz
M69	17 VA @ 600 VAC, 60 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
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	DPA03	22.5 x 80 x 99.5 mm
	PPA03	36 x 80 x 94 mm
Material		PA66 or Noryl
Weight		Approx. 100 g
Screw terminals		
Tightening torque		Max. 0.5 Nm acc. to IEC 60947
Product standard		EN 60255-6
Approvals		UL, CSA
CE Marking		L.V. Directive 2006/95/EC EMC Directive 2004/108/EC
EMC		
Immunity		According to EN 60255-26 According to EN 61000-6-2
Emissions		According to EN 60255-26 According to EN 61000-6-3

Mode of Operation

DPA03 and PPA03 monitor their 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.

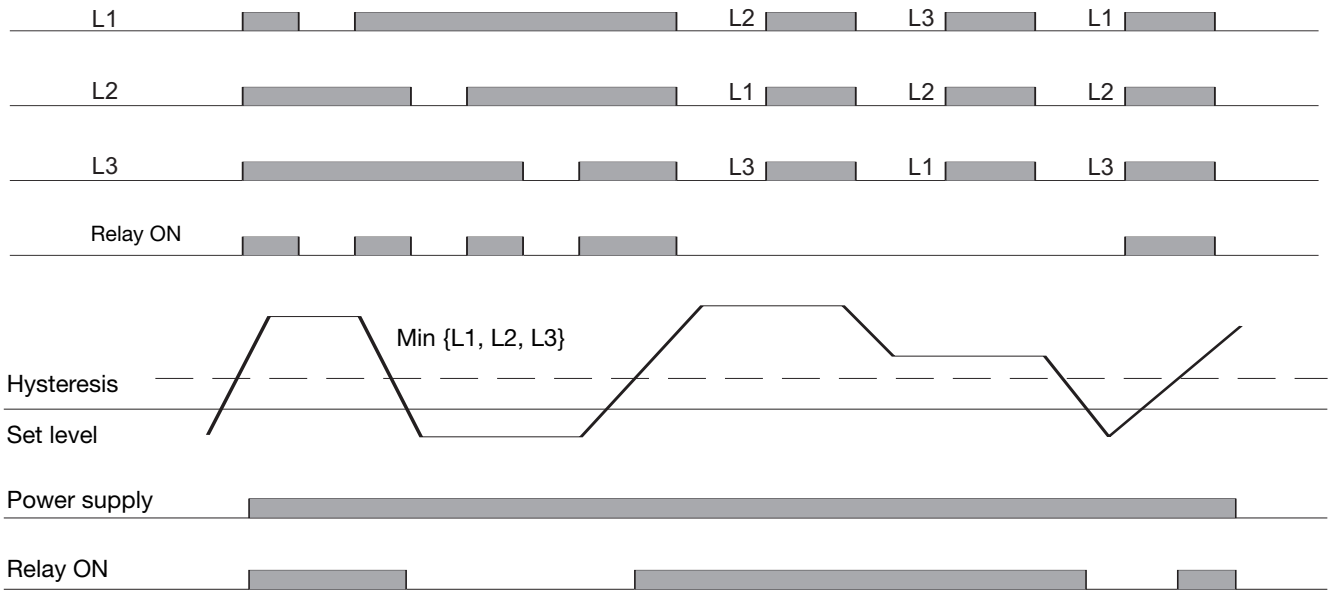
Example 2
The relay releases in case of interruption of one or more phases, provided that the regenerated voltage does not exceed the set voltage.

Level setting

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

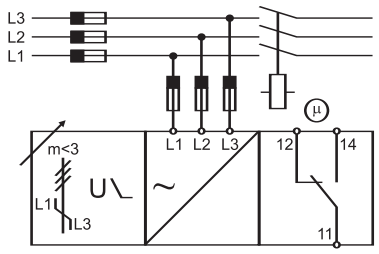
Centre knob:
Setting of under level on absolute scale.

Operation Diagrams



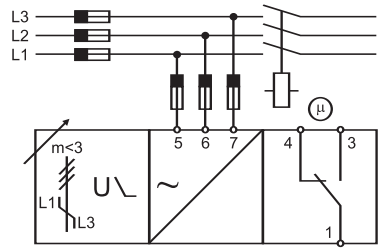
Wiring Diagrams

Example 1



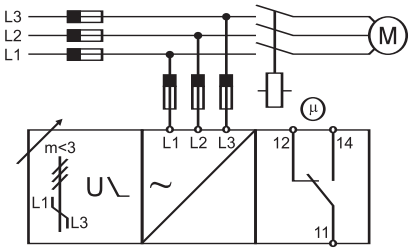
DPA03

Example 1



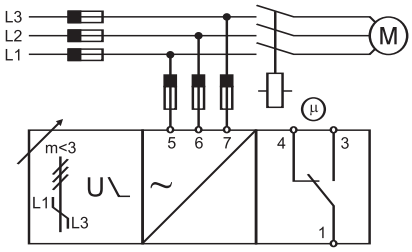
PPA03

Example 2



DPA01

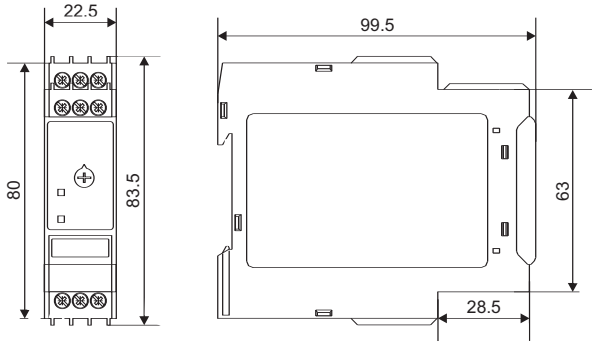
Example 2



PPA03

Dimensions

DIN-rail



Plug-in

