

Monitoring Relays

3-Phase Sequence and Phase Loss

Types DPA01, PPA01

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DPA01D



PPA01

- 3-phase monitoring relays for phase sequence and phase loss
- Detect when all 3 phases are present and have the correct sequence
- Measure on own power supply
- Power supply range: 208 to 480 VAC ($\pm 15\%$)
- Output: 8 A SPDT relay or 8 A DPDT normally energized
- For mounting on DIN-rail in accordance with DIN/EN 50 022 (DPA01) or plug-in module (PPA01)
- 22.5 mm Euronorm housing (DPA01) or 36 mm plug-in module (PPA01)
- 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 covered by one multi-voltage relay (or by two multi-voltage relays for DPA01D

models). For mounting on DIN-rail or plug-in module. The device detects regenerated voltages up to 70% of the mains nominal voltage (phase-neutral).

Ordering Key

DPA 01 C M44

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

Type Selection

Mounting	Output	Supply: 208-480 VAC	Supply: 208-240 VAC	Supply: 380-480 VAC
DIN-rail	SPDT	DPA 01 C M44		
DIN-rail	DPDT		DPA 01 D M23	DPA 01 D M48
Plug-in	SPDT	PPA 01 C M44		

Input Specifications

Input L1, L2, L3	DPA01: Terminals L1, L2, L3 PPA01: Terminals 5, 6, 7 Measures on own supply
Measuring ranges	
208 to 480 VAC (DPA01C)	177 to 550 VAC
208 to 415 VAC (PPA01C)	177 to 475 VAC
208 to 240 VAC (DPA01D)	177 to 275 VAC
380 to 480 VAC (DPA01D)	323 to 550 VAC
ON-level	> 70% of the mains phase-neutral voltage

Output Specifications

Output	SPDT or DPDT relay, N.E.
Rated insulation voltage	250 VAC
Contact ratings (AgSnO₂)	μ
DPA01C, PPA01 (SPDT):	
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
DPA01D (DPDT):	
Resistive loads AC 1	8 A @ 250 VAC
Small inductive loads AC 15	3 A @ 250 VAC
DC 13	2 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)



Supply Specifications

Power supply Rated operational voltage through terminals: L1, L2, L3 (DPA01) 5, 6, 7 (PPA01) DPA01CM44 PPA01CM44 DPA01DM23 DPA01DM48	Overvoltage cat. III (IEC 60664, IEC 60038) 208 to 480 VAC ± 15%, 45 to 65 Hz 208 to 415 VAC ± 15%, 45 to 65 Hz 208 to 240 VAC ± 15%, 45 to 65 Hz 380 to 480 VAC ± 15%, 45 to 65 Hz
Rated operational power	13 VA @ 400 VAC, 50 Hz 13 VA @ 230 VAC, 50 Hz (DPA01DM23 only) Supplied by L2 and L3

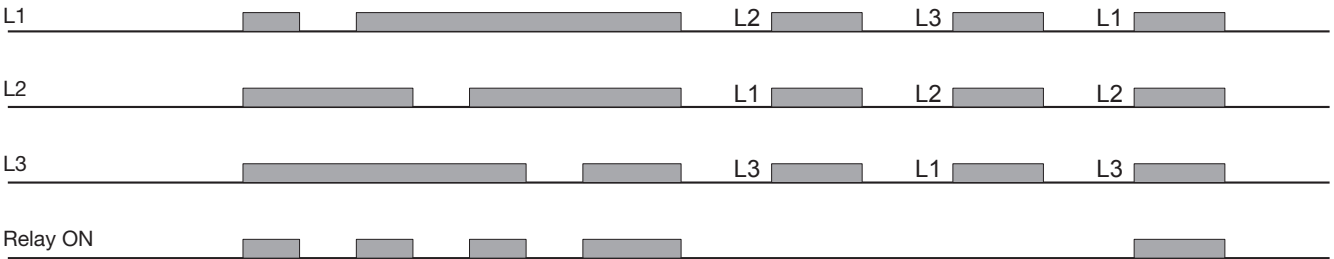
General Specifications

Reaction time Alarm ON delay Alarm OFF delay	< 100 ms < 300 ms
Accuracy Temperature drift Repeatability	(15 min warm-up time) ± 1000 ppm/°C ± 0.5% on full scale
Indication for Power supply ON Relay ON	LED, green LED, yellow
Environment Degree of protection Pollution degree Operating temperature	(EN 60529) IP 20 3 (DPA01), 2 (PPA01) -20 to 60°C, R.H. < 95% @ 475 VAC, 65 Hz -20 to 50°C, R.H. < 95% @ 550 VAC, 65 Hz -30 to 80°C, R.H. < 95%
Housing dimensions DIN-rail version Plug-in version	22.5 x 80 x 99.5 mm 36 x 80 x 87 mm
Weight	Approx. 100 g
Screw terminals Tightening torque	Max. 0.5 Nm acc. to IEC 60947
CE-Marking	Yes

Mode of Operation

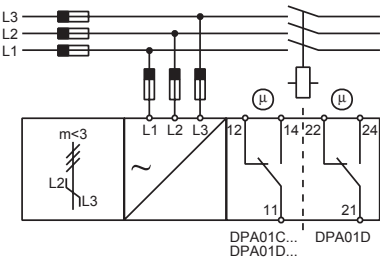
DPA01 and PPA01 monitor their own 3-phase power supply. The relay operates when all the phases are present and the phase sequence is correct. The relay releases when one	phase-neutral voltage drops below 70% of the other phase-neutral voltages.	Example 1 The relay monitors that the power supply has the correct phase sequence and that all phase voltages are present.	Example 2 The relay releases in case of interruption of one or more phases, provided that the regenerated voltage does not exceed 70% of the mains phase-neutral voltage.
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Operation Diagram

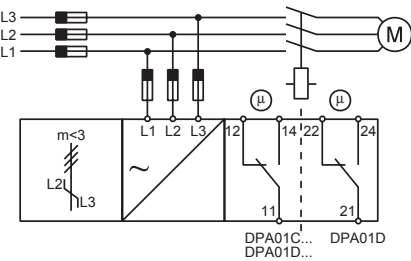


Wiring Diagrams

Example 1

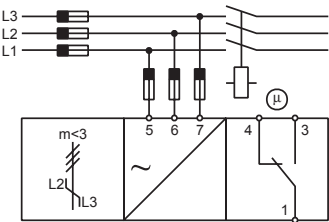


Example 2

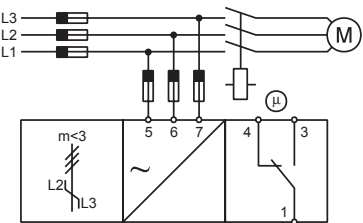


DPA01

Example 1



Example 2



PPA01