

Phase Failure Relay

3-phase sequence, phase loss
and voltage unbalance monitoring

Type DPA51



- 3-phase monitoring relay for phase sequence and phase loss
- Detects when all phases are present and have the correct sequence
- Measures its own power supply
- Power supply range: 200 to 690 VAC ($\pm 15\%$)
- Output: 5A 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
- N-Line auto protection function.

Rated Voltage Specifications:

- 200 to 480VAC $\pm 15\%$ (Ph-Ph) Type: DPA51CM44 / DPA51CM44H
 500 to 690VAC $\pm 15\%$ (Ph-Ph) Type: DPA51CM69
 115 to 277VAC $\pm 15\%$ (Ph-N) Type: DPA51AM44N
 288 to 398VAC $\pm 15\%$ (Ph-N) Type: DPA51AM69N

Option list (●-yes, ○-no):

Type / Function	DPA51CM44	DPA51CM69	DPA51AM44N	DPA51AM69N	DPA51CM44H
Voltage Measuring range	170 to 550VAC (Ph-Ph)	500 to 795VAC (Ph-Ph)	100 to 318VAC (Ph-N)	290 to 450VAC (Ph-N)	170 to 550VAC (Ph-Ph)
Output	1SPDT	1SPDT	1SPNO	1SPNO	1SPDT
Phase sequence	●	●	●	●	○
Phase loss	●	●	●	●	●
Voltage unbalance	●	●	●	●	●
N-Line protection	○	○	●	●	○

Specifications:

	DPA51CM44(H)	DPA51CM69	DPA51AM44N	DPA51AM69N
Input (Ph-Ph)	170 to 550 VAC	500 to 795 VAC	170 to 550 VAC	500 to 795 VAC
Input (Ph-N)	—	—	100 to 318 VAC	288 to 460 VAC
Operational power (ph-ph)	13 VA@400V 50Hz	15VA@660V 50Hz	—	—
Voltage proof (ph-ph)	3600Vdc (2S)	6000Vdc (2S)	—	—
Operational power (ph-N)	—	—	6VA@230V 50Hz	9VA@380V 50Hz
Voltage proof (ph-N)	—	—	1800Vdc (2S)	3400Vdc (2S)

Situation of certification		
Product standard	EN 60947-5-1	
Approvals	UL, CCC (GB14048.5-2008,A037133)	
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	
ROHS Instruction	2011/65/EU	
Indication for		
Power supply ON	LED green ON	
Relay ON	LED yellow ON	
Phase failure and reverse	LED yellow OFF	
N-Line broken	LED all OFF	
Output Specifications		
Output	SPDT\SPNO	
Action principle	Closed circuit	
Contact ratings	AgSnO	
Rated voltage	24VDC, 250VAC	
Rated current	DC12 24V	5A
	AC15 250V	2.5A
	DC13 24V	2.5A
Mechanical life	≥ 10 ⁷ operations	
Electrical life	≥ 10 ⁹ operations (at 5 A, 250 V, cos ψ = 1)	
General Specifications		
Housing		
Dimensions	17.5 x 81x 67.2 mm	
Material	PA66 or PC	
Weight	Approx. 75g	
Screw terminals		
Tightening torque	Max.0.5 Nm(acc. to IEC 60947)	
Wire section	2.5mm ² (AWG13) stranded wire	
Application area	anywhere	
Mounting	DIN-rail(DIN 43880)	
Degree of protection	IP20	
Pollution degree	3	
Operating temperature @ Max.voltage,50Hz	-20...+60℃, R.H. < 95%	
Storage temperature	-30...+80℃, R.H. < 95%	
Dielectric strength		
Dielectric voltage	≥ 2kVAC (rms)	
Rated impulse withstand volt.	4 kV (1.2/50 μ s)	

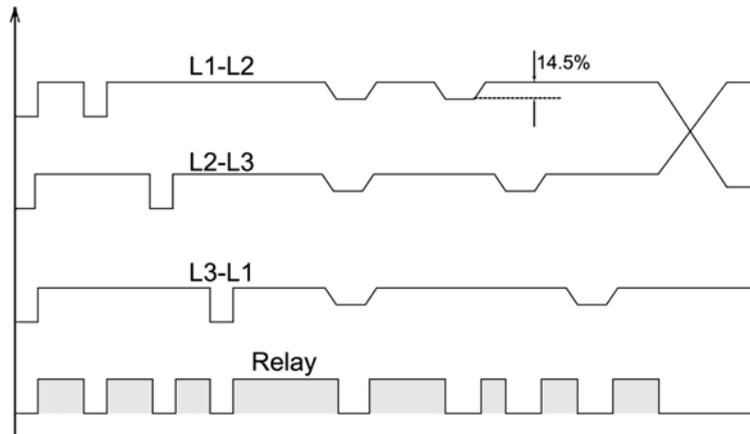
Mode of operation:

DPA51 series monitors its own 3-phase power supply voltage. The relay operates when all the phases are present and the phase sequence is correct.

The relay releases when one phase-phase voltage drops below 85% of the other phase-phase voltages or when the phase sequence is wrong.

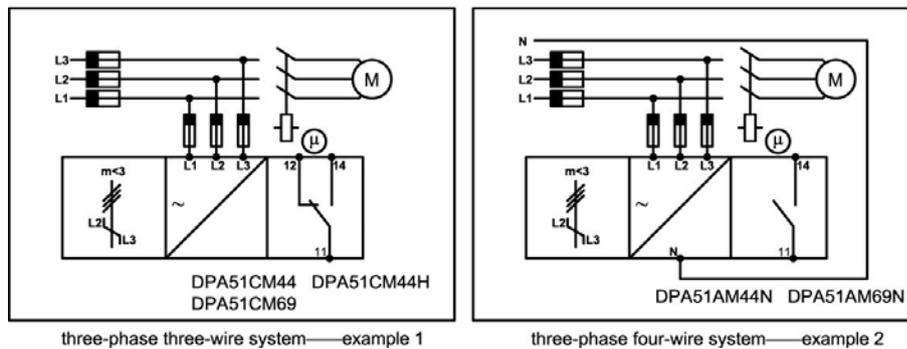
N-Line protection: DPA51AM44N and DPA51AM69N are suitable for 3-phase 4-line system, the relay is OFF when the N-Line is broken.

Operation Diagram:



Wiring Diagrams:

The relay monitors that the power supply has the correct phase sequence and that all phases are present. The relay releases in case of interruption of one or more phases, provided that the regenerated voltage does not exceed 85% of the phase-phase voltage.



Dimensions:

