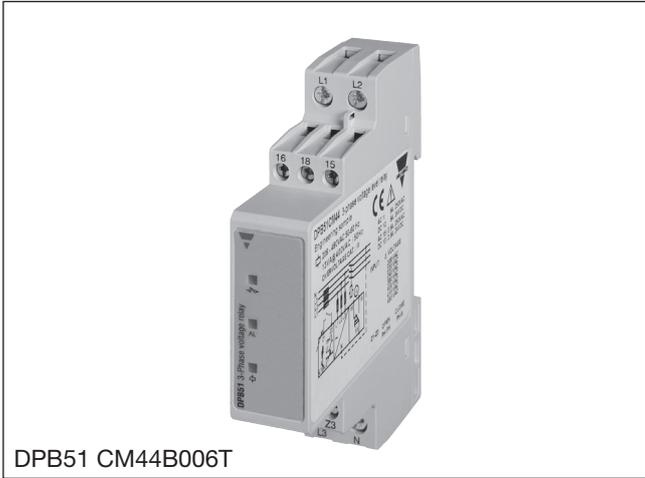


Monitoring Relays

3-Phase, 3-Phase+N

Type DPB51 CM44B006T



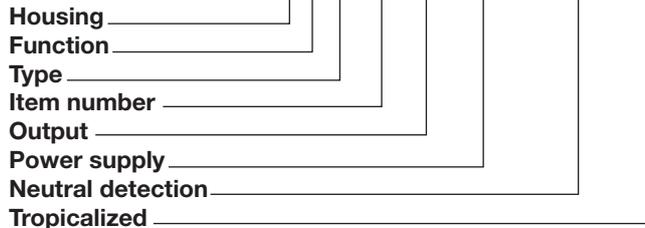
- Phase sequence and phase loss monitoring relay
- Detects when all 3 phases and neutral are present and have the correct phase sequence
- Measures its own power supply
- Tropicalized version available
- Output: 5 A SPDT relay N.E.
- For mounting on DIN-rail in accordance with DIN/EN 50 022
- 17.5 mm DIN-rail housing
- LED indication for relay, alarm and power supply ON

Product Description

3-phase or 3-phase+neutral line voltage monitoring relay for phase sequence, phase loss, or neutral loss. Relay does not require any setting nor adjustment. The selection between delta or star is made by putting a jumper on the terminals

Z1 and Z2. Supply ranges from 208VAC to 480VAC with delta mains, 120VAC to 277VAC with star mains, are covered by one multivoltage relay.
17.5 mm wide housing suitable both for back and front panel mounting.

Ordering Key DPB 51 C M44 B006 T



Type Selection

Mounting	Output	Supply: 208 to 480 VAC	Conformal coating
DIN-rail	SPDT	DPB 51 C M44 B006	No
DIN-rail	SPDT	DPB 51 C M44 B006T	Yes

Input Specifications

Input	
L1, L2, L3, N	Terminals L1, L2, L3, (N) Measures its own supply
Note: Connect the neutral only if it is intrinsically at the star centre	
Measuring ranges 208 to 480 Δ VAC	177 to 550 Δ VAC
Ranges Phase loss	85% of the nominal voltage
Lowest voltage	145VAC LL 84VAC LN
Note: Neutral loss when Z1 and Z2 are connected the relay detects if N is connected.	

Output Specifications

Output	
SPDT relay	
Rated insulation voltage	250 VAC
Contact ratings 208 to 480 Δ VAC	177 to 550 Δ VAC
Ranges (AgSnO₂)	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, N
Delta Voltage:	208 to 480 VAC ± 15% 45 to 65 Hz
Star Voltage:	120 to 277 VAC ± 15% 45 to 65 Hz
Rated operational power	13 VA @ 400 ΔVAC, 50 Hz Supplied by L1 and L2

General Specifications

Power ON delay	1 s ± 0.5 s
Reaction time	
Incorrect phase sequence or total phase loss	< 200 ms
Alarm ON delay	< 200 ms
Alarm OFF delay	< 200 ms
Accuracy	(15 min warm-up time)
Temperature drift	± 1000 ppm/°C
Delay ON alarm	± 10% on set value ± 50 ms
Repeatability	± 0.5% on full-scale

General Specifications (cont.)

Indication for	
Power supply ON	LED, green
Alarm ON	LED, red
Output relay ON	LED, yellow
Environment	
Degree of protection	IP 20
Pollution degree	3
Operating temperature	-20 to 60°C, R.H. < 95%
Storage temperature	-30 to 80°C, R.H. < 95%
Housing	
Dimensions	17.5 x 90 x 67.2 mm
Material	Noryl
Weight	Approx. 100 g
Screw terminals	
Tightening torque	
L1, L2, L3, N	Min. 0.5 Nm, Max. 1.1 Nm
15, 16, 18, Z1, Z2	Min. 0.4 Nm, Max. 0.8 Nm
Product standard	EN 60255-6
Approvals	cULus, CCC
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

Connected to the 3 phases (and neutral) DPB51 operates when all 3 phases are present at the same time, the phase sequence is correct and the phase-phase (or phase-neutral) voltage levels are within the tolerated values. If the phase sequence is wrong, one phase is lost, or the neutral is lost the output relay releases immediately. Only 200 ms delay occurs. The failure is indicated by the red LED flashing 5 Hz during the alarm condition. If voltage goes below minimum range the red LED will turn on fixed.

Example 1

(mains network monitoring)
The relay monitors the correct phase sequence and presence of all phases and the neutral. In case of failure the breaker is opened.

Example 2

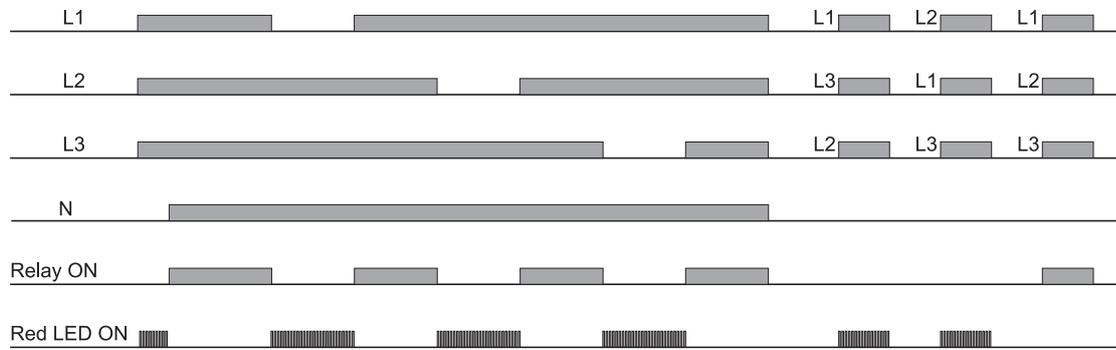
(load monitoring)
The relay releases in case of interruption of one or more phases, or the sequence is not correct for the required motor rotating direction.

Mains Type Setting

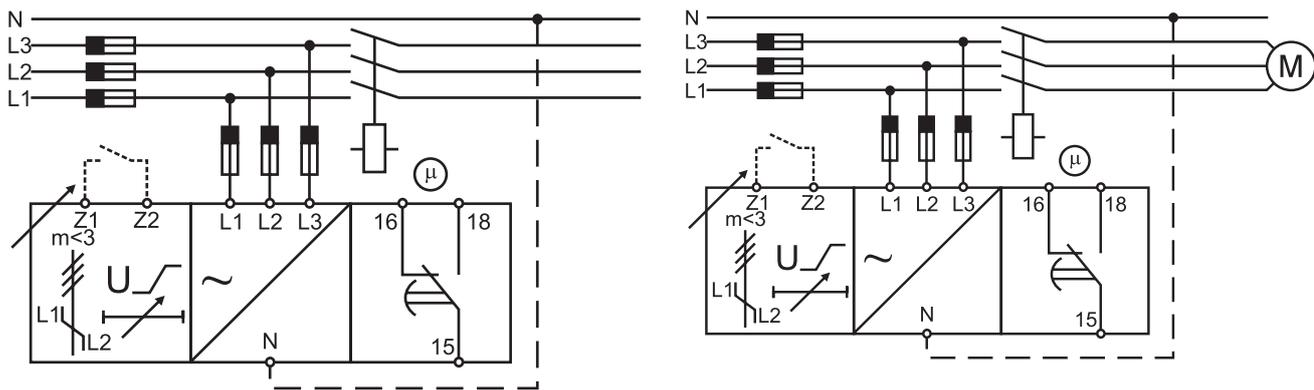
Selection of monitored voltage:
Connecting the terminals Z1 and Z2:

No connection: phase-phase.
Connected: phase-neutral.

Operation Diagrams



Wiring Diagram



Dimensions

