

THREE-PHASE MAINS MONITOR

DNW400, DNW500 and DNW690

Application	The DNW... type three-phase mains monitor is used for the comprehensive monitoring of a three-wire or four-wire mains for phase failure, neutral conductor break, overshooting or undershooting of the three-phase voltages, unbalance of the three phase voltages and the phase sequence (rotating field).	
Function	The three-phase mains monitor permanently checks the voltage values for the 3 phases in order to detect overshooting of the limit values set and also checks for phase sequence, unbalance and a complete phase failure or neutral conductor break. Should one of these faults occur, the output relay will drop out once a configurable delay has elapsed. Immediate shutdown will be initiated in the event of the total failure of phase L2 or L3. Once all values are back within the correct range, the output relay will pick up immediately. The switching state of the output relay and the type of fault occurring are indicated by LEDs. The power supply is drawn from the measuring-circuit voltage (L2, L3); an auxiliary voltage is not required.	
Technical data	Rated voltages	Type DNW400 3x400 V , (no neutral conductor) 3x400/230 V, (with neutral conductor) Type DNW500 3x500 V , (no neutral conductor) 3x500/289 V, (with neutral conductor) Type DNW690 3x690 V , (without neutral conductor) 3x690/400 V, (with neutral conductor)
	Rated frequency	50 Hz and 60 Hz
	Limit values	For overvoltage can be set to 5%, +10%, +15% or +20% of rated value For undervoltage can be set to -5%, -10%, -15% or -20% of rated value For unbalance can be set to 5%, 7.5%, 10% or 15% of rated value With neutral conductor monitoring the limit values indicated relate to the rated value of L – N, on a change of phase. Without neutral conductor monitoring the limit values indicated relate to the rated value of L – L, on a change of all 3 phases, unbalance, change between 2 phases.
	LEDs	U > (red), lights up when overvoltage limit value is overshoot U > (red), lights up when undervoltage limit value is overshoot U > (red) and U < (red), lights up when unbalance limit value is overshoot or in the event of a neutral conductor break fail (red), flashes when phase sequence is incorrect (anti-clockwise or missing rotating field) ok (green), lights up when values are correct (relay picked up)
	Accuracy	= < 2% of rated value
	Hysteresis	2% of rated value
	Relay drop-out time	0.3 – 7.5 s, can be set on the front panel
	Relay outputs	2 floating changeover contacts, contact rating 250 V, 4 A, 1000 VA
	Test voltage	4 kV between contacts and measurement input
	Temperature range	-15 to +20 to +30 to +55°C
	Power consumption	Between L2 and L3 1. VA on Type DNW400 (400 V mains) 1.9 VA on Type DNW500 (500 V mains) 2.4 VA on Type DNW690 (690 V mains)
Regulations	Weight	180 g
	EMC	DIN EN 61 326
	Mechanical strength	DIN EN 61 010 Part 1
	Electrical safety	DIN EN 61010 part 1, housing all insulated, protection class II, at a working voltage up to 300V (network to neutral conductor) degree of pollution 2, overvoltage category CAT III, at a working voltage up to 600V (network to neutral conductor) degree of pollution 2, overvoltage category CAT II
	Isolation	DIN EN 61 010 Part 1, 3.52 kV 50 Hz 10 sec
	Creepages and clearances	DIN EN 61 010 Part 1
	Degree of protection	DIN EN 60 529, housing IP30, terminals IP20

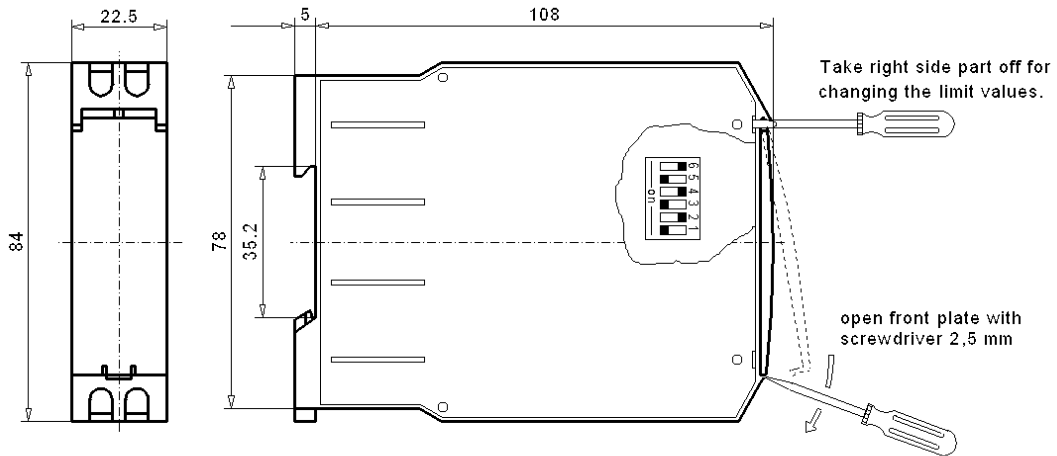
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Dimensions



Electrical connection

To DIN 43807, via screw-type terminal max. 4 mm²
 Without neutral conductor monitoring: Connection of L1, L2 and L3, terminals 12 + 13 must **not** be jumpered!
 With neutral conductor monitoring: Connection of L1, L2, L3 and N, jumper terminals 12 + 13!

Attention! Jumper (terminals 12 + 13) conducts mains voltage, isolate on installation!

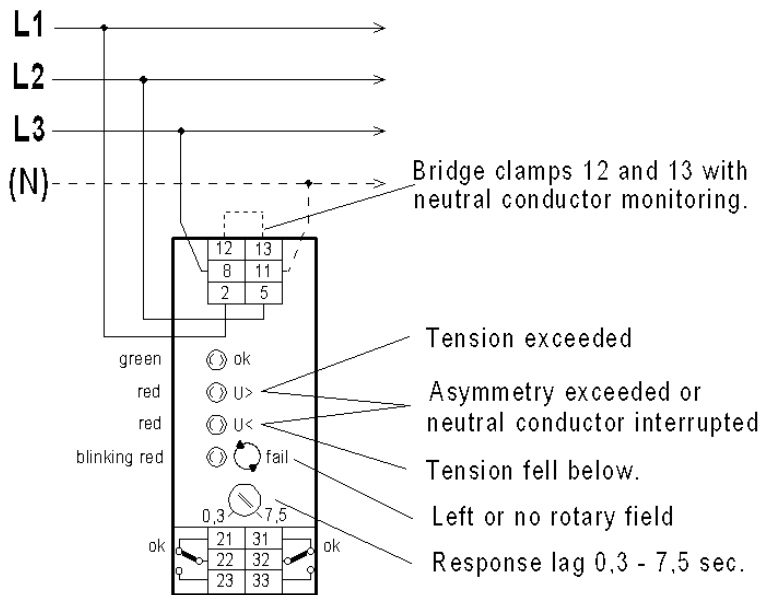
Condition on delivery
Settings

Overvoltage and undervoltage 15%, unbalance 10%, pick-up delay 0.3 s, marked via points in connection diagram (see limit values table).
 Remove the transparent cover to set the pick-up delay between 0.3 and 7.5 seconds (see illustrations).
 Remove the panel on the left-hand side of the housing to change the factory-set limit values (**Attention! Disconnect the mains voltage first!**) (see illustrations).

Fusing

The devices are fitted with short-circuit-proof transformers; an overvoltage protection device is not required for the device.

Connection



limit values

5 on 6 on = 5%	asymmetry	DIL - switch	off on
5 off 6 on = 7.5%			
5 on 6 off = 10%			
5 off 6 off = 15%			
3 on 4 on = -5%	undervoltage	on	6 5 4 3 2 1
3 off 4 on = -10%			
3 on 4 off = -15%			
3 off 4 off = -20%			
1 on 2 on = +5%	overvoltage		
1 off 2 on = +10%			
1 on 2 off = +15%			
1 off 2 off = +20%			

(*= factory setting)

