

Monitoring Relays

1-Phase True RMS AC/DC Over or Under Voltage

Types DUB03, PUB03

CARLO GAVAZZI



DUB03



PUB03

- TRMS AC/DC over or under voltage monitoring relays
- Selection of measuring range by DIP-switches
- Adjustable voltage on relative scale
- Adjustable hysteresis on relative scale
- Adjustable delay function (0.1 to 30 s)
- Programmable latching or inhibit at set level
- Output: 8 A SPDT relay N.D. or N.E. selectable
- For mounting on DIN-rail in accordance with DIN/EN 50 022 (DUB03) or plug-in module (PUB03)
- 22.5 mm Euronorm housing (DUB03) or 36 mm plug-in module (PUB03)
- LED indication for relay, alarm and power supply ON

Product Description

DUB03 and PUB03 are precise TRMS AC/DC over or under voltage (selectable by DIP-switch) monitoring relays. Owing to the built-in latch function, the ON-position of the relay output can be

maintained. Inhibit function can be used to avoid relay operation when not desired (maintenance, transitions). The LED's indicate the state of the alarm and the output relay.

Ordering Key

DUB 03 C W24

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

Type Selection

Mounting	Output	Frequency
DIN-rail	SPDT	50 - 400 Hz
Plug-in	SPDT	50 - 400 Hz

Supply: 12 to 240V AC/DC

DUB 03 C W24
PUB 03 C W24

Input Specifications

Input (voltage level) DUB03 PUB03	Terminals A1, A2 Terminals 2, 10 Measure their own power supply
Measuring ranges Direct Selectable by DIP-switch 24 VAC/DC 48 VAC/DC 115 VAC/DC 240 VAC/DC	Level 10 to 26 V 50 to 110% 10 to 53 V 20 to 110% 12 to 127 V 10 to 110% 24 to 264 V 10 to 110%
The input voltage cannot raise over 300 VAC/DC with respect to ground (PUB03 only)	

Output Specifications

Output Rated insulation voltage	SPDT relay 250 VAC
Contact ratings (AgSnO ₂) Resistive loads AC 1 DC 12 Small inductive loads AC 15 DC 13	μ 8 A @ 250 VAC 5 A @ 24 VDC 2.5 A @ 250 VAC 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 Rated impulse withstand volt.	≥ 2 kVAC (rms) 4 kV (1.2/50 μs)

Supply Specifications

Power supply Rated operational voltage through terminals: A1 and A2 (DUB03) or 2 and 10 (PUB03) Dielectric voltage	Overvoltage cat. III (IEC 60664, IEC 60038) 12 to 240 V AC/DC +10% -15%; 45 to 440 Hz None
Rated operational power	4 VA (AC) 1.5W (DC)



General Specifications

Power ON delay	1 s ± 0.5 s or 6 s ± 0.5 s	Housing	
Reaction time	(input signal variation from -20% to +20% or from +20% to -20% of set value)	Dimensions	DUB03 22.5 x 80 x 99.5 mm PUB03 36 x 80 x 94 mm
Alarm ON delay	< 100 ms	Material	PA66 or Noryl
Alarm OFF delay	< 100 ms	Weight	Approx. 150 g
Accuracy	(15 min warm-up time)	Screw terminals	
Temperature drift	± 1000 ppm/°C	Tightening torque	Max. 0.5 Nm acc. to IEC 60947
Delay ON alarm	± 10% on set value ± 50 ms	Product standard	EN 60255-6
Repeatability	± 0.5% on full-scale	Approvals	UL, CSA
Indication for		CE Marking	L.V. Directive 2006/95/EC EMC Directive 2004/108/EC
Power supply ON	LED, green	EMC	
Alarm ON	LED, red (flashing 2 Hz during delay time)	Immunity	According to EN 60255-26 According to EN 61000-6-2
Output relay ON	LED, yellow	Emissions	According to EN 60255-26 According to EN 61000-6-3
Environment			
Degree of protection	IP 20		
Pollution degree	3 (DUB03), 2 (PUB03)		
Operating temperature	-20 to 60°C, R.H. < 95%		
Storage temperature	-30 to 80°C, R.H. < 95%		

Mode of Operation

DUB03 and PUB03 monitor both AC and DC over or under voltage.

Example 1
(latch function disabled, ND relay)

The relay operates when the measured value exceeds (or drops below) the set level for more than the set delay time.

It releases when the voltage drops below (or exceeds) the set level (see hysteresis setting), or when power supply is interrupted.

Note
If the voltage drops below the minimum power supply voltage and the relay is set for undervoltage the output contact isn't necessarily ON.

Example 2
(latch function enabled, NE relay)

The relay operates and latches in operating position when the measured value exceeds (or drops below) the set level for more than the set delay time.

The relay releases when power supply is interrupted.

The red LED flashes until the delay time has expired or the measured value has dropped below the set point (see hysteresis setting).

Function/Range/Level and Time Delay Setting

Adjust the input range setting the DIP switches 1 and 2 as shown below.

Select the desired function setting the DIP switches 3 to 6 as shown below.

To access the DIP switches open the grey plastic cover as shown below.

Selection of level and time delay:

Upper knob:
Setting of hysteresis on relative scale: 0 to 30% on set value.

Centre knob:
Voltage level setting on relative scale: 10 to 110% on full scale.

Lower knob:
Setting of delay on alarm time on absolute scale (0.1 to 30 s).

Measuring range			
ON	OFF	24 V	
OFF	OFF	48 V	
ON	ON	115 V	
OFF	ON	240 V	

Relay working mode	
ON:	Normally De-Energized
OFF:	Normally Energized

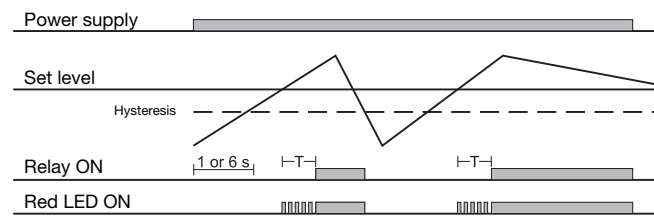
Power ON delay	
ON:	6 s ± 0.5 s
OFF:	1 s ± 0.5 s

Contact input	
ON:	Latching
OFF:	Not latching

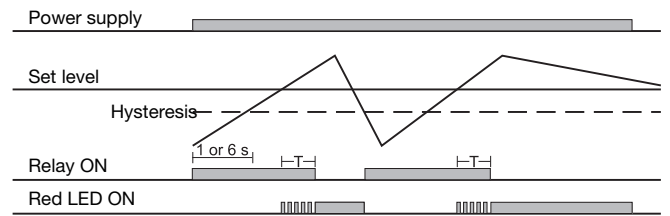
Monitoring function	
ON:	Over voltage
OFF:	Under voltage

Operation Diagrams

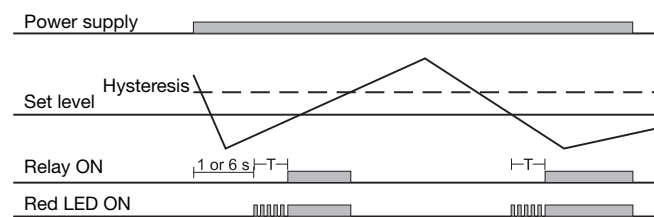
Over voltage - N.D. relay



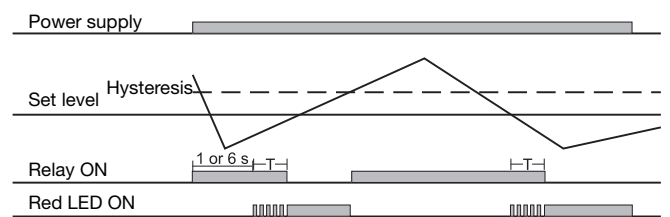
Over voltage - N.E. relay



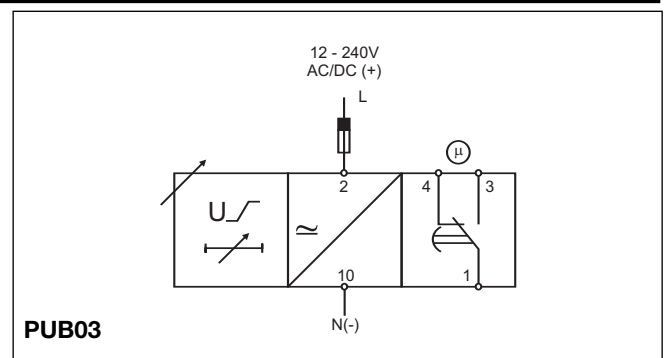
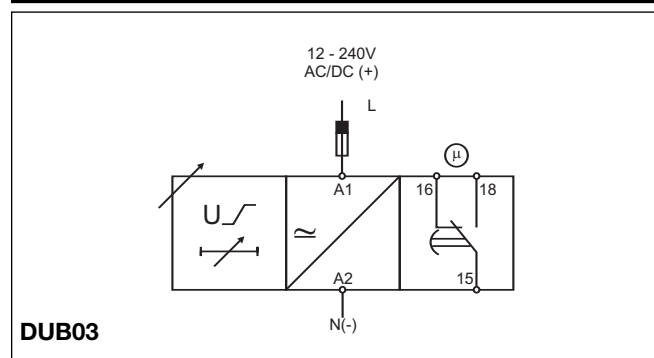
Under voltage - N.D. relay



Under voltage - N.E. relay



Wiring Diagrams



Dimensions

