

Monitoring Relays

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

Type DUB71

CARLO GAVAZZI



- TRMS AC/DC over or under voltage monitoring relays
- Selection of measuring range by DIP-switches
- Measuring ranges from 0.1 to 500 V AC/DC
- 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: 5 A SPDT relay N.D. or N.E. selectable
- For mounting on DIN-rail in accordance with DIN/EN 50 022
- 35.5 mm DIN-rail housing
- LED indication for relay, alarm and power supply ON

Product Description

DUB71 is a precise TRMS AC/DC over or under voltage (selectable by DIP-switch) monitoring relay. 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. 35.5 mm wide housing suitable both for back and front panel mounting.

Ordering Key

DUB 71 C B23 10V

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

Type Selection

Mounting	Output	Measuring range	Supply: 24/48 VAC	Supply: 115/230 VAC
DIN-rail	SPDT	0.1 to 10 V AC/DC	DUB 71 C B48 10V	DUB 71 C B23 10V
DIN-rail	SPDT	2 to 500 V AC/DC	DUB 71 C B48 500V	DUB 71 C B23 500V

Input Specifications

Input (voltage level)	Terminals Y1, Y2	
Measuring ranges	Internal resist.	Max. volt.
Direct		
Selectable by DIP-switch		
..10V:		
0.1 to 1 V AC/DC	>120 kΩ	100 V
0.2 to 2 V AC/DC	>120 kΩ	100 V
0.5 to 5 V AC/DC	>120 kΩ	100 V
1 to 10 V AC/DC	>120 kΩ	100 V
Max. voltage for 1 s		200 V
..500V:		
2 to 20 V AC/DC	500 kΩ	350 V
5 to 50 V AC/DC	500 kΩ	350 V
20 to 200 V AC/DC	500 kΩ	600 V
50 to 500 V AC/DC	500 kΩ	600 V
Max. voltage for 1 s		1000 V
Contact input	Terminals Z1, Y1	
Disabled	> 10 kΩ	
Enabled	< 500 Ω	
Latch disable	> 500 ms	

Output Specifications

Output	SPDT relay
Rated insulation voltage	250 VAC
Contact ratings (AgSnO ₂)	μ
Resistive loads	AC 1
	DC 12
Small inductive loads	AC 15
	DC 13
5 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 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 Rated operational voltage through terminals: A1, A2 or A3, A2	Overvoltage cat. III (IEC 60664, IEC 60038)	Dielectric voltage Supply to input Supply to output Input to output	AC supply 4 kV (1.2/50μs) 4 kV (1.2/50μs) 4 kV (1.2/50μs)
	B48: 24/48 VAC ± 15% 45 to 65 Hz, insulated B23: 115/230 VAC ± 15% 45 to 65 Hz, insulated	Rated operational power AC	3 VA

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	35.5 x 81 x 67.2 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		
Operating temperature	-20 to 60°C, R.H. < 95%		
Storage temperature	-30 to 80°C, R.H. < 95%		

Mode of Operation

DUB71 monitor both AC and DC over or under voltage.

Example 1

(no connection between terminals Z1, Y1 - latch function disabled)

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.

Example 2

(connection between terminals Z1, Y1 - latch function enabled)

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.

Provided that the voltage has dropped below (or has exceeded) the set point (see hysteresis setting) the relay releases when the interconnection between terminals Z1, Y1 is interrupted, or power supply is interrupted as well.

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

Note

When the inhibit contact is opened, if the input signal is already in alarm position, the delay time needs to elapse before relay activation.

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:

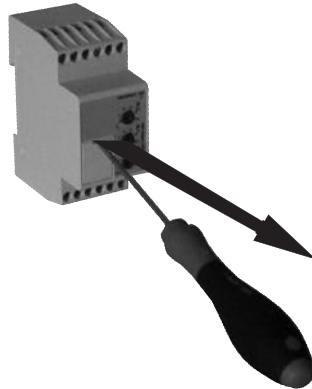
Setting of hysteresis on relative scale: 0 to 30% on set value.

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			
Model	500 V	10 V	
ON OFF	20 V	1 V	
OFF OFF	50 V	2 V	
ON ON	200 V	5 V	
OFF ON	500 V	10 V	

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

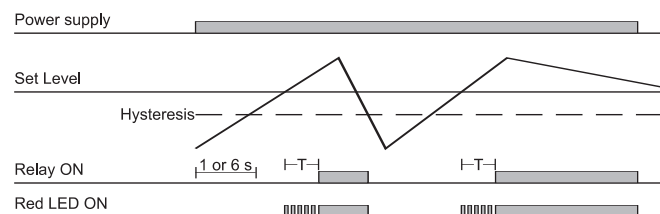
Power ON delay	
ON:	6 s \pm 0.5 s
OFF:	1 s \pm 0.5 s

Contact input	
ON:	Latch function enable
OFF:	Inhibit function enable

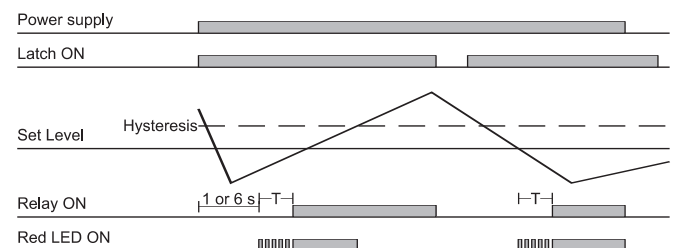
Monitoring function	
ON:	Over voltage
OFF:	Under voltage

Operation Diagrams

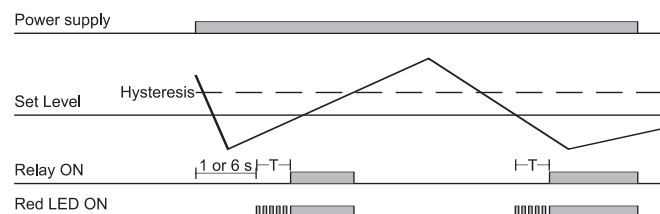
Over voltage - N.D. relay



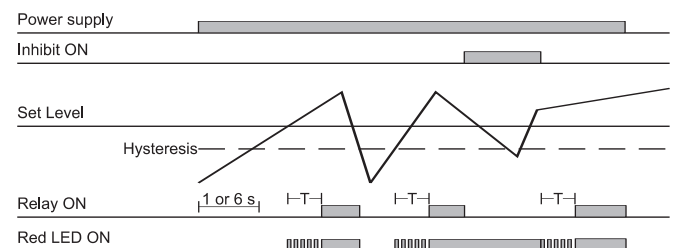
Under voltage - Latch function - N.D. relay



Under voltage - N.D. relay

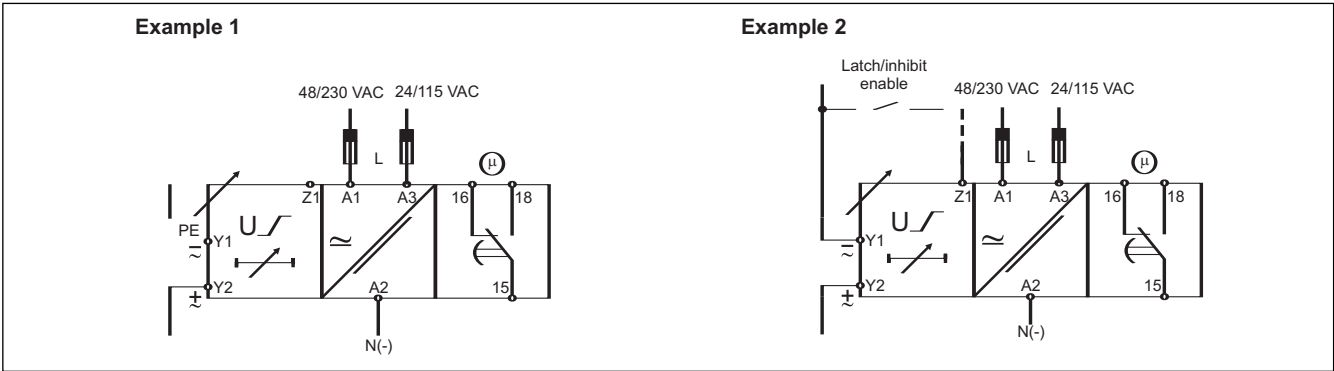


Over voltage - Inhibit function - N.D. relay

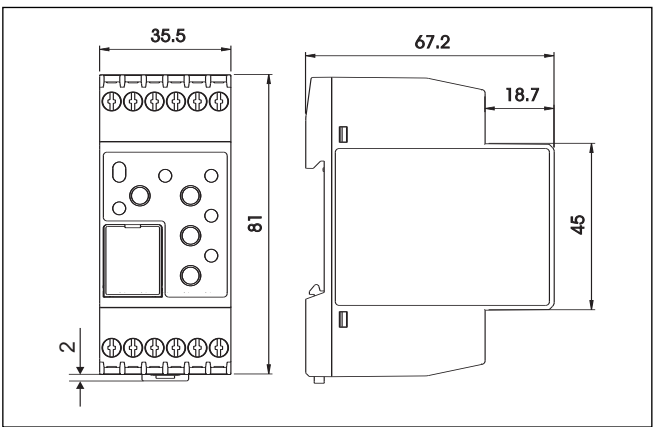




Wiring Diagrams



Dimensions



Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Carlo Gavazzi:](#)

[DUB71CB23500V](#) [DUB71CB2310V](#) [DUB71CB4810V](#) [DUB71CB48500V](#)