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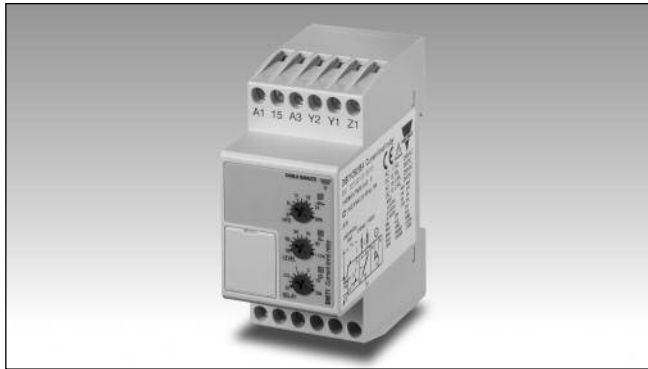


Monitoring Relays

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

Type DIB71

CARLO GAVAZZI



- TRMS AC/DC over or under current monitoring relay
- Current measuring through internal shunt
- Selection of measuring range by DIP-switches
- Measuring ranges from 0.1 mA to 5 A AC/DC
- Adjustable current 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
- Galvanically separated power supply

Product Description

DIB71 is a precise TRMS AC/DC over or under current (selectable by DIP-switch) monitoring relays. Direct measuring or through current transformer. 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. Through the built-in shunt it is possible to monitor loads up to 5 A AC/DC. 35.5 mm wide housing suitable both for back and front panel mounting.

Ordering Key

DIB 71 C B23 5A

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

Type Selection

Mounting	Output	Measuring range	Supply: 24/48 VAC	Supply: 115/230 VAC
DIN-rail	SPDT	0.1 to 5 mA AC/DC	DIB 71 C B48 5mA	DIB 71 C B23 5mA
DIN-rail	SPDT	1 to 50 mA AC/DC	DIB 71 C B48 50mA	DIB 71 C B23 50mA
DIN-rail	SPDT	10 to 500 mA AC/DC	DIB 71 C B48 500mA	DIB 71 C B23 500mA
DIN-rail	SPDT	0.1 to 5 A AC/DC	DIB 71 C B48 5A	DIB 71 C B23 5A

Input Specifications

Input (current level)	Terminals Y1, Y2		Measuring ranges (cont.)	AAC _{rms}	Max. curr.
Measuring ranges	Internal resist.	Max. curr.			
Direct			Standard CT (examples)		
Selectable by DIP-switch			TADK2	5 to 50 A	60 A
..5MA: 0.1 to 1 mA AC/DC	100 Ω	40 mA	CTD1	15 to 150 A	180 A
0.2 to 2 mA AC/DC	100 Ω	40 mA	CTD4	40 to 400 A	480 A
0.5 to 5 mA AC/DC	100 Ω	40 mA	TAD12	100 to 1000 A	1200 A
Max. current for 1 s		100 mA	TACO200	600 to 6000 A	7200 A
..50MA: 1 to 10 mA AC/DC	10 Ω	120 mA			
2 to 20 mA AC/DC	10 Ω	120 mA			
5 to 50 mA AC/DC	10 Ω	120 mA			
Max. current for 1 s		300 mA			
..500MA: 10 to 100 mA AC/DC	1 Ω	700 mA			
20 to 200 mA AC/DC	1 Ω	700 mA			
50 to 500 mA AC/DC	1 Ω	700 mA			
Max. current for 1 s		1.4 A			
..5A: 0.1 to 1 A AC/DC	0.03 Ω	6 A			
0.2 to 2 A AC/DC	0.03 Ω	6 A			
0.5 to 5 A AC/DC	0.03 Ω	6 A			
Max. current for 1 s		15 A			
			Contact input		
			Disabled	Terminals Z1, Y1	
			Enabled	> 10 kΩ	
			Latch disable	< 500 Ω	
				> 500 ms	

Output Specifications

Output	SPDT relay
Rated insulation voltage	250 VAC
Contact ratings (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:	
A1, A2 or A3, A2	
B48:	24/48 VAC ± 15%
	45 to 65 Hz, insulated
B23:	115/230 VAC ± 15%
	45 to 65 Hz, insulated
Dielectric voltage	
Supply to input	4 kV (1.2/50 μs)
Supply to output	4 kV (1.2/50 μs)
Input to output	4 kV (1.2/50 μs)
Rated operational power	
AC	3 VA

General Specifications

Power ON delay	1 s ± 0.5 s or 6 s ± 0.5 s
Reaction time	(input signal variation from -20% to +20% or from +20% to -20% of set value)
Alarm ON delay	< 100 ms
Alarm OFF delay	< 100 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
Indication for	
Power supply ON	LED, green
Alarm ON	LED, red (flashing 2 Hz during delay time)
Output relay ON	LED, yellow
Environment	(EN 60529)
Degree of protection	IP 20
Pollution degree	3
Operating temperature	
	5A -20 to 50°C, R.H. < 95%
	others -20 to 60°C, R.H. < 95%
Storage temperature	-30 to 80°C, R.H. < 95%
Housing	
Dimensions	35.5 x 81 x 67.2 mm
Material	PA66 or Noryl
Weight	Approx. 150 g
Screw terminals	
Tightening torque	Max. 0.5 Nm acc. to IEC 60947
Product standard	EN 60255-6
Approvals	UL, CSA
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

DIB71 monitors both AC and DC over or under current through an internal shunt.

Example 1

(connection between terminals Z1, Y1 - latching 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 current 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 the power supply is interrupted as well.

The red LED flashes until the delay time has expired or the measured value comes back to a non-alarm value (see hysteresis setting).

Example 2 (Standard CT)

(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 current drops below (or exceeds) the set level (see hysteresis setting) or when power supply is interrupted.

Note

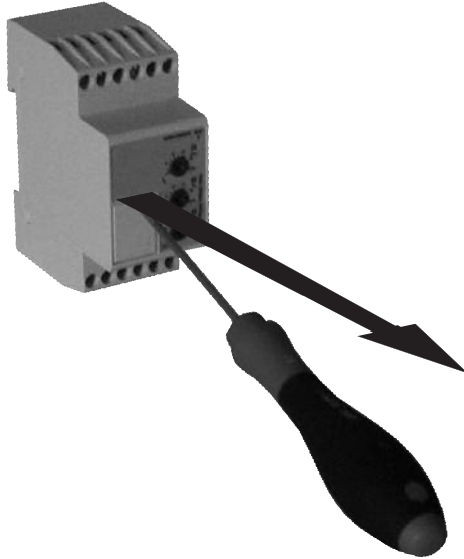
When the inhibit contact is opened, if the input signal is already in alarm position, the delay time needs to elapse before relay activation.

Function/Range/Level and Time Delay Setting

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

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

To access the DIP switches open the plastic cover as shown in figure.



Selection of level and time delay:

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

Centre knob: Current 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			
SW1	ON	ON	OFF
SW2	OFF	ON	ON
5MA	1 mA	2 mA	5 mA
50MA	10 mA	20 mA	50 mA
500MA	100 mA	200 mA	500 mA
5A	1 A	2 A	5 A

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

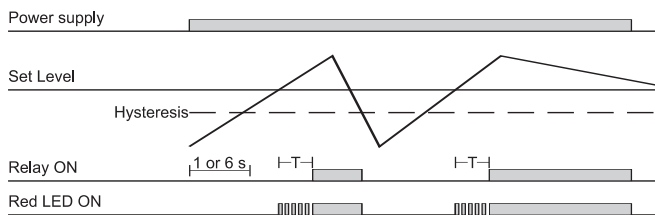
Power ON delay	
ON:	6 s ± 0.5 s
OFF:	1 s ± 0.5 s

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

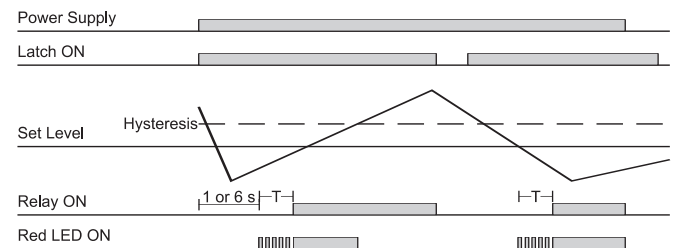
Monitoring function	
ON:	Over current
OFF:	Under current

Operation Diagrams

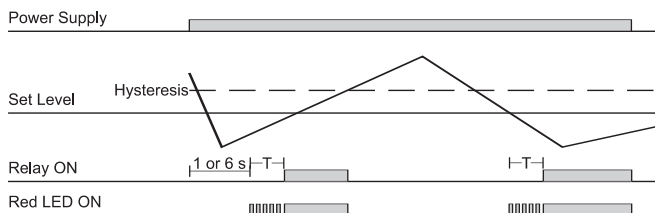
Over current - N.D. relay



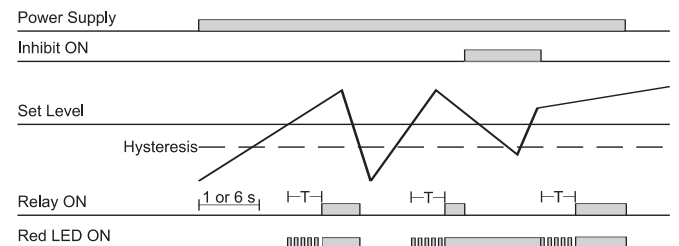
Under current - Latch function - N.D. relay



Under current - N.D. relay

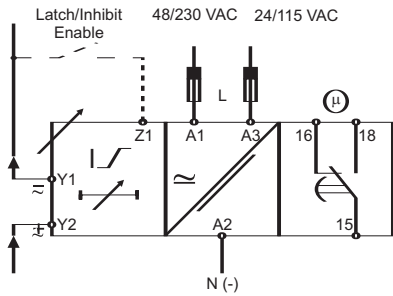


Over current - Inhibit function - N.D. relay

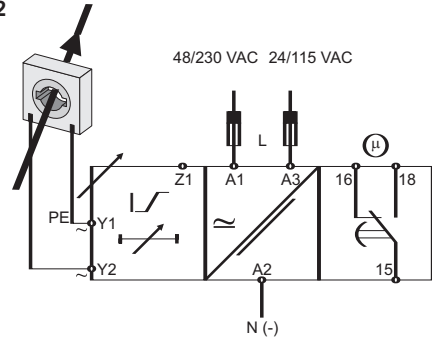


Wiring Diagrams

Example 1



Example 2



Dimensions

