Monitoring Relays 1-Phase True RMS AC/DC Over or Under Current Types DIB01, PIB01







- TRMS AC/DC over or under current monitoring relay
- monitoring relayCurrent measuring through internal shunt
- Selection of measuring range by DIP-switches
- Measuring ranges from 0.1 mA to 10 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: 8 A SPDT relay N.D. or N.E. selectable
- For mounting on DIN-rail in accordance with DIN/EN 50 022 (DIB01) or plug-in module (PIB01)
- 22.5 mm Euronorm housing (DIB01) or 36 mm plug-in module (PIB01)
- LED indication for relay, alarm and power supply ON
- Galvanically separated power supply

Product Description

DIB01 and PIB01 are 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 10 A AC/DC.

Ordering Key Housing Function DIB 01 C B23 5A

nousing	
Function —	
Type	
Item number —	
Output —	
Power supply —	
Measuring range —	

Type Selection

Mounting	Output	Measuring range	Supply: 24 VDC	Supply: 24/48 VAC	Supply: 115/230 VAC
DIN-rail	SPDT	0.1 to 5 mA AC/DC 1 to 50 mA AC/DC 10 to 500 mA AC/DC 0.1 to 5 A AC/DC 1 to 10 A AC/DC	DIB 01 C 724 5mA DIB 01 C 724 50mA DIB 01 C 724 500mA DIB 01 C 724 5A DIB 01 C 724 10A	DIB 01 C B48 5mA DIB 01 C B48 50mA DIB 01 C B48 500mA DIB 01 C B48 5A DIB 01 C B48 10A	DIB 01 C B23 5mA DIB 01 C B23 50mA DIB 01 C B23 500mA DIB 01 C B23 5A DIB 01 C B23 10A
Plug-in	SPDT	0.1 to 5 mA AC/DC 1 to 50 mA AC/DC 10 to 500 mA AC/DC 0.1 to 5 A AC/DC 1 to 10 A AC/DC	PIB 01 C 724 5mA PIB 01 C 724 50mA PIB 01 C 724 500mA PIB 01 C 724 5A PIB 01 C 724 10A	PIB 01 C B48 5mA PIB 01 C B48 50mA PIB 01 C B48 500mA PIB 01 C B48 5A PIB 01 C B48 10A	PIB 01 C B23 5mA PIB 01 C B23 50mA PIB 01 C B23 500mA PIB 01 C B23 5A PIB 01 C B23 10A

Input Specifications

Input			Measur	ring ranges (cont.)		
Current level	DIB01: Terminals	Y1, Y2			Internal resist.	Max. curr.
	PIB01: Terminals	5, 7	500M	A: 10 to 100 mA AC/DC	$0.5~\Omega$	700 mA
Measuring ranges				20 to 200 mA AC/DC	$0.5~\Omega$	700 mA
g.agee	Internal resist.	Max. curr.		50 to 500 mA AC/DC	$0.5~\Omega$	700 mA
5MA: 0.1 to 1 mA AC/DC	50 Ω	50 mA		Max. current for 1 s		1.4 A
0.2 to 2 mA AC/DC	50 Ω	50 mA	5A:	0.1 to 1 A AC/DC	$0.05~\Omega$	6 A
0.5 to 5 mA AC/DC	50 Ω	50 mA		0.2 to 2 A AC/DC	$0.05~\Omega$	6 A
Max. current for 1 s		100 mA		0.5 to 5 A AC/DC	$0.05~\Omega$	6 A
50MA: 1 to 10 mA AC/DC	5 Ω	150 mA		Max. current for 1 s		15 A
2 to 20 mA AC/DC	5 Ω	150 mA	10A:	1 to 10 A AC/DC	$3~\text{m}\Omega$	11 A
5 to 50 mA AC/DC	5 Ω	150 mA		Max. current for 1 s		15 A
Max. current for 1 s		500 mA				



Input Specifications (cont.)

Measuring ranges (cont.)		
Standard CT (examples) TADK2 50 A/5 A TAD2 150 A/5 A TAD6 400 A/5 A TAD12 1000 A/5 A TACO200 6000 A/5 A Note:	40 to 400 A	Max. curr. 60 A 180 A 480 A 1200 A 7200 A
The input voltage cannot raise over 300 VAC/DC with respect to ground (PIB01 only)		
Contact input DIB01 PIB01 Disabled Enabled Latch disable	Terminals Z1, Y1 Terminals 8, 9 > 10 k Ω < 500 Ω > 500 ms	

Output Specifications

Output Rated insulation voltage	SPDT relay 250 VAC	
Contact ratings (AgSnO ₂)	μ	
Resistive loads AC 1 DC 12	8 A @ 250 VAC 5 A @ 24 VDC	
Small inductive loads AC 15 DC 13	2.5 A @ 250 VAC 2.5 A @ 24 VDC	
Mechanical life	≥ 30 x 10 ⁶ operations	
Electrical life	\geq 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

Supply Specifications			
Overvoltage cat. III (IEC 60664, IEC 60038) 24 VDC ± 20%, insulated 24/48 VAC ± 15% 45 to 65 Hz, insulated 115/230 VAC ± 15% 45 to 65 Hz, insulated			
DC supply 2 kV 4 kV 4 kV 4 kV 4 kV 4 kV 4 kV			

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 Alarm OFF delay	< 100 ms < 100 ms
Accuracy Temperature drift Delay ON alarm Repeatability	(15 min warm-up time) ± 1000 ppm/°C ± 10% on set value ± 50 ms ± 0.5% on full-scale
Indication for Power supply ON Alarm ON Output relay ON	LED, green LED, red (flashing 2 Hz during delay time) LED, yellow
Environment Degree of protection Pollution degree Operating temperature Storage temperature	(EN 60529) IP 20 3 (DIB01), 2 (PIB01) -20 to 60°C, R.H. < 95% -30 to 80°C, R.H. < 95%
Housing dimensions DIn-rail version Plug-in version	22.5 x 80 x 99.5 mm 36 x 80 x 87 mm
Weight	Approx. 150 g
Screw terminals Tightening torque	Max. 0.5 Nm acc. to IEC 60947
CE-Marking	Yes



Mode of Operation

DIB01 and PIB01 monitor both AC and DC over or under current through an internal shunt.

Example 1

(connection between terminals Z1, Y1 or 8, 9 - 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 or 8, 9 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 (Stardard CT)

(no connection between terminals Z1, Y1 or 8, 9 - 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

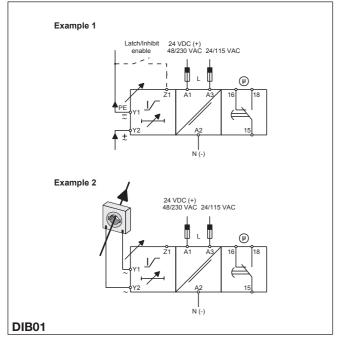
When the inhibit contact is opened, if the input signal is already in alarm position, the delay time needs to elapse before relay activation.

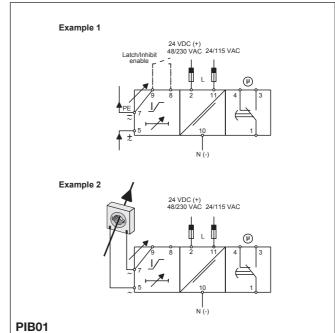
Function/Range/Level and Time Delay Setting

Selection of measuring range: DIP-switch selector (1 to 2)	Selection of function: DIP-switch selector (3 to 5)	Selection of function: DIP-switch selector (6)	Selection of level and time delay:
5MA 1 2 Input range: ○N	 Relay de-energized in normal condition. Relay energized in normal condition. 	6 Over current monitoring relay. The alarm condition occurs when the current input is over the set point value.	Upper knob: Setting of hysteresis on relative scale: 0 to 30% on set value. Centre knob:
1 2 Input range: 1 - 10 mA 2 - 20 mA 5 - 50 mA	4 Power ON delay 6 ± 0.5 s	☐ Under current monitoring relay. The alarm condition occurs when the current input is under the set point value.	Current level setting on relative scale: 10 to 110% on full scale. Lower knob:
500MA 1 2 Input range: 10 - 100 mA 20 - 200 mA 50 - 500 mA	 ■ Power ON delay 1 ± 0.5 s 5 ■ Contact input as latch function enable. When the contact is closed, the latch function is 		Setting of delay on alarm time on absolute scale (0.1 to 30 s).
1 2 Input range: ○N	activated. Reset of the latch condition occurs when the contact is open or by power down. Contact input as inhibit of alarm enable. When the contact is closed the relay remains in normal position even if the alarm condition occurs.		



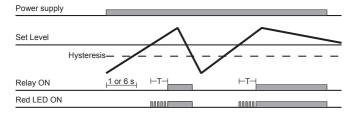
Wiring Diagrams



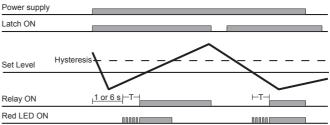


Operation Diagrams

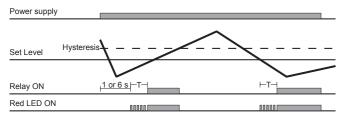
Over current



Under current - Latch function



Under current



Over current - Inhibit function

