


6. Setting of Lower Threshold

The \uparrow key increases the value.
The \downarrow key reduces the value.
Possible indications

measuring range	threshold	display
	off (0.0 A)	00
b1	0.01 A to 0.09 A in steps of 0.01 A	01...09
	0.10 A to 0.90 A in steps of 0.1 A	10...90
	1.0 A	1.0
b2	0.10 A to 0.90 A in steps of 0.1 A	10...90
	1.0 A to 9.8 A in steps of 0.2 A	1.0...9.8
	10 A to 15 A in steps of 1 A	10...15

The [Q] key stores the value.
The display indicates the adjusted value of the upper threshold.




factory setting

7. Setting of Upper Threshold

The \uparrow key increases the value.
The \downarrow key reduces the value.
Possible indications

measuring range	threshold	display
	off (99 A)	99
b1	0.01 A to 0.09 A in steps of 0.01 A	01...09
	0.10 A to 0.90 A in steps of 0.1 A	10...90
	1.0 A	1.0
b2	0.10 A to 0.90 A in steps of 0.1 A	10...90
	1.0 A to 9.8 A in steps of 0.2 A	1.0...9.8
	10 A to 15 A in steps of 1 A	10...15

The [Q] key stores the value.
The display indicates the adjusted value of the start delay of monitoring function.



factory setting


8. Setting of Start Delay of Monitoring Function

The \uparrow key increases the value.
The \downarrow key reduces the value.
Possible indications

0 to 99 seconds

display

The [Q] key stores the value.
The display indicates the adjusted value of the response delay.



factory setting


9. Setting of Response Delay

The \uparrow key increases the value.
The \downarrow key reduces the value.
Possible indications

0.1 to 9.9 seconds

display

The [Q] key stores the value.
The display indicates the adjusted value of error memory.



factory setting


10. Setting of Error Memory, Close Setting Procedure

The \uparrow key increases the value.
The \downarrow key reduces the value.
Possible indications

error memory OFF

error memory ON

The [Q] key stores the value and closes the setting procedure.
The display indicates either a current value or an error.



Declaration of Conformity

The device meets the requirements of the CE guidelines. Conformity was proved. The declaration of conformity is available at the manufacturer BTR NETCOM GmbH.

EIW-C18

Current Monitoring Relay
24 V AC - 110 272 10
230 V AC- 110 272 05



Description

The EIW-C18 serves as monitor for direct or alternate currents in voltage power stations by preventing the current to overrun or underrun the selected thresholds. In case of an error the numeric displays indicate the cause of error. Manual settings on the device allow to select the current type to be measured (AC or DC), one measuring range out of two (0.01 A ... 1 A or 1 A ... 15 A), an upper and a lower threshold, the response delay (0.1 s ... 9.9 s) and the failure memory (activated or deactivated). Failures can be acknowledged directly on the device and via an external contact.

Technical Data

Supply

Operating voltage Ub 24 V AC
230 V AC / 50 Hz
AC max. 15 mA
Operating voltage range 0.9 to 1.1 x Ub
Duty cycle 100 %

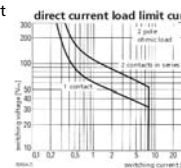
Measuring circuits

Current measuring inputs B1 - B3: 0.01 A to 1 A
B2 - B3: 1 A to 15 A
0.1 to 9.9 s
1 to 30 %
100 ms
Temperature error ≤0.06 % / °C
Measuring error within Ub ≤12 %
Ambient temperature -10 °C to +55 °C

Output

Output contact 2 changeover contacts
AgNi
Contact material 250 V AC/DC
Switching voltage max. 8 A
Nominal current max. 230 V ~ 6 A AC1
230 V ~ 3 A AC3
Making/breaking capacity

Load limit curve for direct current



Contact fuse 6 A
Mechanical endurance 30 x 10⁶ switching cycles
Electrical endurance 1 x 10⁶ switching cycles
Test voltage coil/contact 2 kV 50 Hz 1 min.

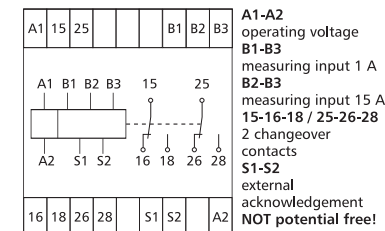
Display

Function green LED
Error display 2 numeric displays
Error signal red LED

Housing

Type of protection (EN 60 529) housing IP40, terminal blocks IP20
Wire cross section 2.5 mm²
Mounting position any
Mounting rail per EN 50022
Material: housing + terminal blocks polyamide 6.6 V0
faceplate polycarbonate
Weight 200 g
Colour green
Housing dimensions WxHxL 50 x 68 x 65 mm

Connection Diagram



Note



S1, S2 together with the shunt circuit B1, B2 und B3 carry voltage! Pay attention to the polarity when measuring direct current!

Shunt circuit b1: B1(+), B3(-)
b2: B2(+), B3(-)

Notes Regarding Device Description

These instructions include indications for use and mounting of the device. In case of questions that cannot be answered with these instructions please consult supplier or manufacturer. The indicated installation directions or rules are applicable to the Federal Republic of Germany. If the device is used in other countries it applies to the equipment installer or the user to meet the national directions.

Safety Instructions

Keep the applicable directions for industrial safety and the prevention of accidents as well as the VDE rules. Technicians and/or installers are informed that they have to electrically discharge themselves as prescribed before installation or maintenance of the devices. Only qualified personnel shall do mounting and installation work with the devices, see section "qualified personnel". The information of these instructions have to be read and understood by every person using this device.

Symbols

Warning of dangerous electrical voltage

Danger

means that non-observance may cause risk of life, grievous bodily harm or heavy material damage.

Qualified Personnel

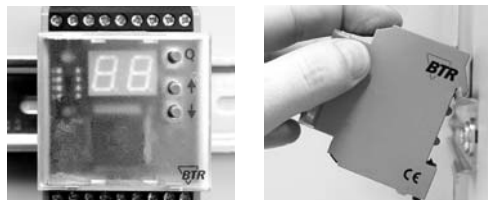
Qualified personnel in the sense of these instructions are persons who are well versed in the use and installation of such devices and whose professional qualification meets the requirements of their work.

This includes for example:

- Qualification to connect the device according to the VDE specifications and the local regulations and a qualification to put this device into operation, to power it down or to activate it by respecting the internal directions.
- Knowledge of safety rules.
- Knowledge about application and use of the device within the equipment system etc.

Mounting

On standard DIN rail per DIN EN 50022 (35 x 7.5 mm), in junction boxes and/or on distribution panels.



Installation

Electric installation and device termination shall be done by qualified persons only, by respecting the VDE specifications and local regulations.

1. Power down the equipment.



- Strip the wire by 7 mm, put on the end sleeve, insert to terminal body and tighten the terminal screw with a screwdriver.
Wire cross section:
0.5 mm² - 4 mm² solid wire or
0.5 mm² - 2.5 mm² stranded wire with end sleeve

3. Device connection per connection diagram.

Display and Operation



- Green LED - status indication of relay output
Status of the applied operating voltage:
at uF → relay actuated
at bF → relay dropped out
- Numeric display:
- error indication
- display of parameter settings
- Red LED - error signal
- Acknowledgment key (Q)
- ↑ key - increases parameter value
- ↓ key - reduces parameter value

Error Indications

The numeric display indicates the error type when the preset thresholds are over- or under-run.

Error indication → relay dropped off (setting uF)
→ relay actuated (setting bF)

Type of error	Display
Current under-runs the lower threshold	10
Current overruns the upper threshold	10



The red LED lights at each error - error signal

Adjustable Parameters

All parameters are stored in an EEPROM and are saved in case of power outage.

Relay Function

Adjustment of function: Monitoring function (uF) or operating function (bF). The following chart applies for the relay function:

operating voltage	current	relay at uF	relay at bF	green LED	red LED
off	any	off	off	off	off
on	too low	off	on	off	on
on	ok	on	off	on	off
on	too high	off	on	off	on

Factory setting: uF

Type of current

Adjustment of the type of current that is monitored: alternating current (AC) or direct current (DC).

Factory setting: AC

Measuring Range

Adjustment of the monitored current.

measuring range (b1) = 0.0 to 1 A at contacts B1-B3

measuring range (b2) = 0.0 to 15 A at contacts B2-B3

Factory setting: b2

Release hysteresis

The hysteresis is indicated in percent based on the respective threshold. Hysteresis is adjustable between 1 % and 30 %. The over-current state starts when the upper threshold plus hysteresis is exceeded. The over-current state ends when the current again falls below the upper threshold.

Example:

With a hysteresis of 15 % and a threshold of 0.6 A over-current starts at $0.6 \text{ A} * 1.15 = 0.69 \text{ A}$; the over-current ends at 0.6 A.

The state of under-current starts when the lower threshold minus hysteresis is underrun. The state of under-current ends when the current again exceeds the lower threshold.

Example:

With a hysteresis of 15 % and a threshold of 0.4 A under-current starts at $0.4 \text{ A} * 0.85 = 0.34 \text{ A}$; the under-current ends at 0.4 A.

Factory setting: 10 %

Lower threshold

Adjustment of the threshold that the monitored current is **not allowed** to under-run.

Measuring range b1:

0.00 A to 0.09 A in steps of 0.01 A and

0.10 A to 1.00 A in steps of 0.1 A

Measuring range b2:

0.00 A to 0.90 A in steps of 0.1 A;

1.0 A to 9.8 A in steps of 0.2 A and

10 A to 15 A in steps of 1.0 A

Factory setting: 0 0 (off) in measuring range b1 and b2

Upper Threshold

Adjustment of the threshold that the monitored current is **not allowed** to exceed.

Measuring range b1:
0.01 A to 0.09 A in steps of 0.01 A and
0.10 A to 1.00 A; 99 A in steps of 0.1 A

Measuring range b2:
0.10 A to 0.90 A in steps of 0.1 A;
1.0 A to 9.8 A in steps of 0.2 A and
10 A to 15 A; 99 A in steps of 1.0 A

The upper threshold **cannot be lower** than the lower threshold.

Factory setting: 9 9 (off) in measuring range b1 and b2

Start Delay of Monitoring Function

The start delay of monitoring function begins when the operating voltage is activated. Current monitoring only starts after the end of the preset delay. The start delay of monitoring function allows settings between 0 and 99 seconds.

Factory setting: 0 s

Response Delay

Response delay determines the length of time that an error has to apply (under-running or overrunning of the thresholds) before the failure is signaled to the relay and indicated by the display. Current has to return to normal for the same length of time before the error signal is automatically canceled. Response delay can be set between 0.1 and 9.9 seconds.

Factory setting: 5 seconds

Error Memory

When the error memory (FA) is off the relay restarts automatically when no error is stated for the period of the response delay. When the error memory is on (FE), the error is stored until it is acknowledged by the button [Q]. Then the relay returns to its normal position.

Factory setting: FA

Normal Mode

When current is in the permitted range it is displayed in one of the following ways. The green LED is lighting, the red LED is off.

Display

00 ... 09 current 0 to 90 mA

10 ... 99 current 100 to 990 mA

1.0 ... 9.9 current 1.0 to 9.9 A

10. ... 15. current 10 to 15 A

When the current is not in the permitted range the red LED is lighting and the green LED is off. The error is displayed in the numeric display (see error indications).

Key Functions

Parameter Storing

Pressing the [Q] key stores the previously adjusted parameter in the EEPROM and the next parameter setting is displayed.

Repeat Function of Buttons

Short pushing of the keys [↓] or [↑] reduces or increases the value gradually, push and hold them pressed changes the value continuously.

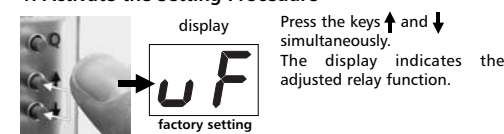
Timeout

If during parameter setting no key is pushed for **three minutes** the setting procedure is stopped. The numeric displays turn off and the last parameter is **not** stored in the EEPROM.

Parameter Setting

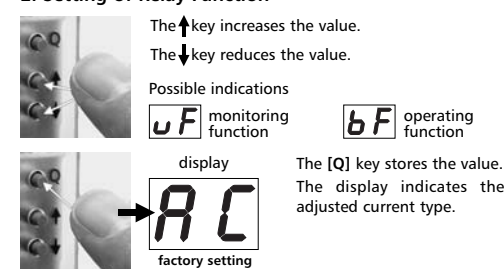
Feeding voltage must be applied for parameter setting!

1. Activate the Setting Procedure



Press the keys ↑ and ↓ simultaneously.
The display indicates the adjusted relay function.

2. Setting of Relay Function



The ↑ key increases the value.
The ↓ key reduces the value.

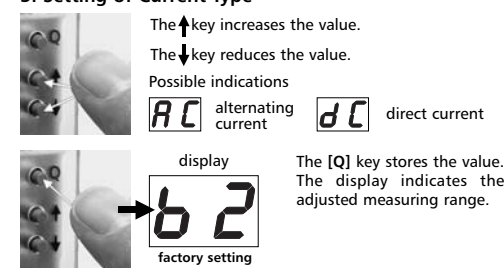
Possible indications

uF monitoring function

bF operating function

The [Q] key stores the value.
The display indicates the adjusted current type.

3. Setting of Current Type



The ↑ key increases the value.
The ↓ key reduces the value.

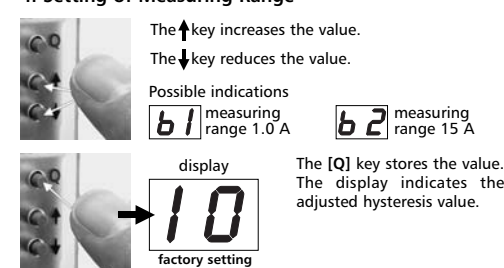
Possible indications

AC alternating current

DC direct current

The [Q] key stores the value.
The display indicates the adjusted measuring range.

4. Setting of Measuring Range



The ↑ key increases the value.
The ↓ key reduces the value.

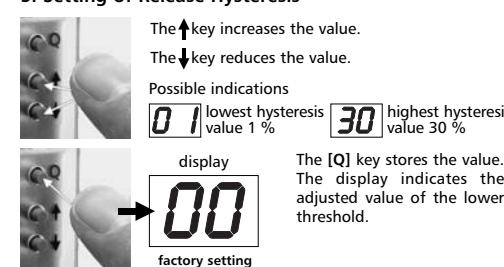
Possible indications

b1 measuring range 1.0 A

b2 measuring range 15 A

The [Q] key stores the value.
The display indicates the adjusted hysteresis value.

5. Setting of Release Hysteresis



The ↑ key increases the value.
The ↓ key reduces the value.

Possible indications

01 lowest hysteresis value 1 %

30 highest hysteresis value 30 %

The [Q] key stores the value.
The display indicates the adjusted value of the lower threshold.