

# Control & Monitoring Relays

## Digital Control Relay MCU-10...DC/AC



### DESCRIPTION

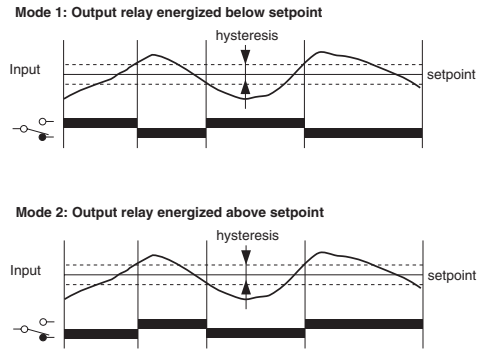
Digital control relay with 3½-digit LCD display.  
 The control relay is used for control and measurement of AC/DC current.  
 The actual input signal type and measuring range must be specified when the control relay is ordered.  
 3½ digit LCD display with selectable read-out of actual input and setpoint.  
 Output relay with LED indication of energized output relay.  
 Built-in power supply for direct mains supply. Galvanic isolation between input and supply.  
 Standardized housing for 11-pole plug-in or DIN rail mounting.  
 Bases for DIN rail, surface and chassis mounting are listed under Accessories for MCP-10, see page128.

### VERSION/ORDERING CODES

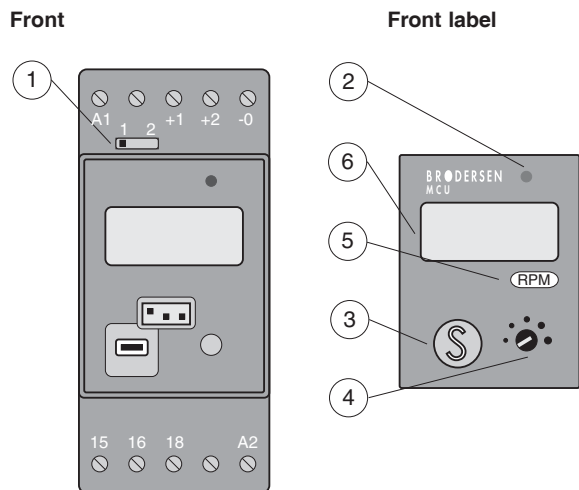
<b>Type:</b> Digital control relay. MCU-10	MCU-10	S	1	230	DC1
<b>Mounting:</b> 11-pole plug-in. DIN rail.		S D			
<b>Output relay:</b> SPDT		1			
<b>Supply voltage:</b> 12-48VDC/10-30V AC 12V AC/DC 24V AC/DC 24V AC 110/120V AC 220/240V AC 380/415V AC	G24 912 <sup>1)</sup> 924 <sup>1)</sup> 024 115 230 400				
<b>Input:</b>					
<b>Current:</b> DC: 0-19.99mA. 0-199.9mA. 0-10.00A. 0-100.0A.	DC1 DC2 DC3 <sup>2)</sup> DC4 <sup>2)</sup>				
AC: 0-19.99mA. 0-199.9mA. 0-1.99A. 0-199.9A. 0-500A.	AC1 AC2 AC3 AC4 <sup>3)</sup> AC5 <sup>4)</sup>				

### OPERATION

The display shows the actual input signal when the supply voltage is connected.  
 The setpoint is displayed by pressing the **S** button and the setpoint is adjusted on the front mounted potentiometer.  
 The output mode switch for selecting whether the output relay should be energized above or below the adjusted setpoint, see the diagrams below.  
 The red LED indicator will light up when the output relay is energized.



### FRONT



1. Output mode selector 2. LED indication of energized output relay 3. Button for setpoint read-out 4. Setpoint adjustment 5. Unit label position 6. Display field.

## TECHNICAL DATA

### Measuring ranges:

AC		DC	
0-19.99mA		0-19.99mA	
0-199.9mA		0-199.9mA	
0-1.99A			
0-199.9A	with external current transformer (1A sec.)	0-10.00A	with external shunt (60mV voltage drop)
0-500A		0-100.0A	

**Input impedance:** 1V  
I max

60mV with shunt.  
I max

**Measuring accuracy:** 1% of full scale  $\pm$  1 digit.

**Hysteresis:** 1% of full range.

**Temperature drift:**  
Voltage, current and temperature: Max. 0.01% per °C.

**Display:** 3½-digit LCD-type (-1999 to 1999).  
Digit height: 6.5 mm.  
Display update time: Typically 0.4 sec.

**Scale:** The scale is adjusted to the actual measuring range listed in the ordering key.

**Output relay:** SPDT (single changeover contact).  
Load ( $\cos\phi=1$ ): D1/S1: Max. 8A/240V AC  
Min. 10mA/24VDC  
Frequency: Max. 1000 operations per hour at max. load.  
Mechanical life time: Min.  $10 \times 10^6$  operations.  
Electrical life time: Min. 100.000 operations at max. load.  
Time delay: Typically 1s.

**Mounting:** S1: 11-pole plug-in.  
D1: Directly on 35 mm DIN-rail (EN50022).

**Terminals:** Max. conductor size 4 mm<sup>2</sup>.  
Screw type terminals with self-lifting clamps shrouded in accordance with VDE0106 (finger and back of hand protection).

**Supply voltage:** 12-48VDC(10.5-60V)/12-30V AC.(10.5-35V).  
12V AC/DC (10-18V) <sup>1)</sup>.  
24V AC/DC (18-35V) <sup>1)</sup>.  
24V AC (22-26V).  
110/120V AC (95-135V).  
220/240V AC (195-265V).  
380/415V AC (342-418V).

**Mains frequency:** 45-66Hz.

**Consumption:** 1-3VA.

**Protection:** S1: IP40.  
D1: IP20.

**EMC:** Conforming to EN 50081-2/EN 50082-1.

**Ambient temperature:** -25-55°C.

**Isolation:**  
AC versions: 4kV AC according to EN 60950 class II.  
G24 version: 1kV AC

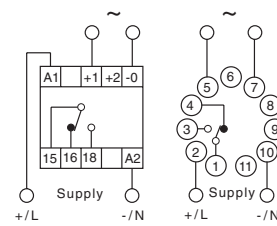
**Dimensions:** Identical with MCP-10, see page 39.

**Housing:** Black Noryl SE-1.

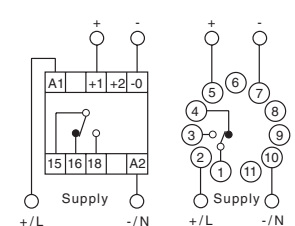
**Weight:** Typically 170 g

## WIRING DIAGRAMS

AC



DC



## NOTES/REMARKS

- 1) There is no galvanic isolation between input and supply. External isolation should be provided to prevent damage to the controller when measuring voltage/current or a G- or other version with internal isolation should be used.
- 2) With external shunt type AAS-010 (0-10.0 A DC) or type AAS-100 (0-100 A DC).
- 3) With external current transformer type AAT-200.1.
- 4) With external current transformer type AAT-500.1.