

## SIRAX BM1450 Multifunctional DC Energy Meter

### Description

The SIRAX BM1450 multifunctional DC energy meter can be used for monitoring and controlling in DC systems. These meters measure a wide range of electrical parameters such as DC voltage, current, power, energy and many more. It supports bi-directional voltage and current measurement, 1 channel voltage input, 4 channel current input and 4 relay outputs. The large 4 line 8 digit LED display provides easy to read data directly on the meter front. The configuration can be done on site via three push buttons or over Modbus RTU via RS485.

### Main Features

- Multi-Channel support (single meter measures energy consumption of four independent loads connected to one voltage source)
- Bi-directional voltage and current measurement (the meter has a unique feature of measuring both charging and discharging current)
- Onsite configuration (configuration can be done via push buttons or via RS485/Modbus RTU)
- Various relay functions possible (Limit Switch, pulse output, timer, remote operation)
- DC power system metering
- Monitoring and control power switches

### Applications

- Solar Photovoltaic Systems
- Wind Power Generation
- Power Distribution for Telecommunication
- Battery chargers and systems
- DC Energy Management Systems
- Industrial DC Control System
- Metallurgy and Electroplating Industries
- Data Center
- DC Excitation Systems
- Cellular Tower Energy Monitoring
- EV Charging Monitoring

### Applications of Relay Outputs

- Alarming via lamp or horn
- Load shedding
- Remote controlling



### Technical data

#### Input

##### Input voltage

Nominal input range  
10 ... 60 V  
61 ... 200 V  
201 ... 1000 V

Max continuous input 125% of nominal value  
Operating measuring range  $\pm 2 \dots 125\%$  of nominal value  
Nominal input burden  $< 0.4 \text{ W}$   
Overload indication  $> 126\%$  of nominal value  
Overload withstand 2 x rated value (1s application repeated 10 times at 10s intervals)

##### Input current

Full scale setting range 1 ... 20 kA  
Numbers of channels 4  
Current Sensor External Shunt  
Shunt setting range 50 ... 150 mV  
Max continuous input 125% of nominal value  
Operating measuring range  $\pm 0.2 \dots 125\%$  of nominal value  
Nominal input burden  $< 0.1 \text{ W}$  per channel  
Overload indication  $> 126\%$  of nominal value  
Overload withstand 20 x rated value (1s application repeated 5 times at 5min intervals)

##### Power supply

Nominal voltage 60 ... 300 V AC/DC  
Frequency 45 ... 65 Hz  
power supply burden  $< 6 \text{ VA}$

# SIRAX BM1450

## Multifunctional DC Energy Meter

### Accuracy

Reference Conditions	23 °C / ± 2 °C
Voltage	± 0.5% of nominal value (± 5 ... ± 120%)
Current	± 0.5% of nominal value (± 5 ... ± 120%)
Power	± 0.5% of nominal value (± 5 ... ± 120%)
Energy	Class 1
Temperature drift	0.05% / °C

### Operation and display

#### Operation elements

User operation	3 push buttons
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#### Display

Type	4 line 8-digit LED Display
Display height	9 mm
Update rate	1 sec approx.
Display range voltage	0 ... ± 9999 V
Display range current	0 ... ± 9999 A
Display range power	0 ... ± 9999 kW
Display range energy	0 ... ± 99999999 kWh (import & export)

### Mechanical properties

Orientation	any
Material	Polycarbonate
Flammability class	V-0 acc. to UL94, self-extinguishing, non-dripping, free of halogen
Weight	620 g Approx.
Terminals	Screw-type terminals

### Environmental

Operating temperature	-10 ... +55 °C
Storage temperature	-20 ... +70 °C
Relative humidity	0 ... 90% non condensing
Shock	15g in 3 planes
Vibration	10 ... 55 ... 10 Hz, 0.15 mm amplitude, 10 sweeps per axis

### Safety

Overvoltage category	1000 V CATII, 600V CATII (measuring inputs) 300 V CATIII (power supply)
Degree of pollution	2
Protective class	II
IP protection class	IP 54
Test voltage (50 Hz, 1 min)	4.4 kV AC, enclosure versus all electrical circuits 3.7 kV AC, power supply versus all other electrical circuits 2.2 kV AC, measuring terminals versus all other electrical circuits 2.2 kV AC, relay versus relay 2.2 kV AC, RS485 versus all other electrical circuits

### Communication interface

Modbus /RTU	Via plug terminals, 2.5 mm <sup>2</sup>
Protocol	Modbus/RTU
Physics	RS-485, max. 1200 M (4000 ft)
Baud rate	4'800, 9'600, 19'200, 38'400, 57'600 Baude
Number of participants	< 32

### Relay output

Number of relays	4 (Freely selectable for limit, pulse or timer output)
Max load voltage	250 VAC / 30 VDC
Max load current	2 A

### Standard compliance

Safety standard	IEC 61010-1
EMC standard	IEC 61326-1, IEC 61000-4-3

### Dimensions



### Order Information

Type	Measuring input	Output	Article No.
SIRAX BM1450	10 ... 60 VDC	RS485, 4 relays	177065
SIRAX BM1450	61 ... 200 VDC	RS485, 4 relays	177073
SIRAX BM1450	201 ... 1000 VDC	RS485, 4 relays	177081



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