

BUILT-IN DEVICES FOR MEASUREMENT IN POWER SYSTEMS



SIRAX BM1250 • SIRAX BM1400 • SIRAX BM1450 • SIRAX BT5700



Built-in devices for measurement in power systems



Camille Bauer Metrawatt offers a broad spectrum of high-quality measuring instruments for all tasks within electrical power systems. With the built-in units of the SIRAX monitor series, we complement our SINEAX high-performance measuring transducers thus completing our portfolio. They have the basic functionalities of a transmitter at a very good price / performance ratio and are used as cost-effective standard solutions for the acquisition of measurement values in the single-phase or three-phase power network.

The device series is divided into the categories Basic Monitor (BM) and Basic Transducer (BT). The distinguishing features can be found in the display, operating and measuring range of the devices.

The SIRAX monitor series is designed for universal use in electrical distribution networks, automation technology and industrial equipment and machinery.

SIMPLE AND CLEAR

Compact and robust design saves space and costs during installation

Easy installation and commissioning saves time during installation

Simple device operation thanks to intuitive menu guidance

Clear display of the measured data via large LCD or LED displays

Easy switching of measured values via push button

Comprehensive design

MULTIFUNCTIONAL

Measurement of electrical characteristics

Versatile monitoring functions of electrical characteristics

Recording of energy consumption for cost analysis

COMMUNICATIVE

Open communication via RS485 (Modbus RTU) or Ethernet (Modbus TCP)

Software for configuration

Integration as a standard object into the SMARTCOLLECT software

FLEXIBLE

Universal measuring inputs

Configurable analog and digital measurement outputs

Easy on-site parameterization by push button or configuration software

Access authorization / password protection



OVERVIEW SIRAX MONITOR SERIES

**BM1250**1-phase network 2-wire
3-phase network 3- / 4-wire**BM1400**

3-phase mains 3- / 4-wire unequally loaded

**BT5700**

3-phase mains 3- / 4-wire unequally loaded

MEASURING INPUT

Nominal voltage

57.5...346.42 V_{LN}
100 ... 600 V_{LL}

Nominal current

1 or 5 A

Shunt adjustment range

Frequency range

45 ... 50/60 ... 65 Hz

57.7 ... 346 V_{LN}
100 ... 600 V_{LL}

1 or 5 A

45 ... 50/60 ... 66 Hz

254 V_{LN}
440 V_{LL}

1 oder 5 A

45 ... 50/60 ... 65 Hz

POWER SUPPLY100 ... 550 V AC/DC
12 ... 60 V AC/DC60 ... 300 V AC/DC
—100 ... 250 V AC/DC
12 ... 48 V AC/DC**ACCURACY**

Voltage / current

±0,2 % / ±0,2 % / ±0,2 %

Power / reactive power

±0,2 % / ±1,0 % / ±0,2 %

power factor

±3,0 °

THD voltage, current

±3,0 %

Active / reactive / apparent energy

Class 0,2S / Class 2,0 / Class 1

±0,5 % / ±0,5 %

±0,5 % / ±0,5 %

±3,0 %

±1,0 %

Class 0.5 / Class 2

±0,5 % / ±0,5 %

±0,5 % / ±0,5 %

±1,0 %

—

Class 0.5 / Class 2

SAFETY

Insulation

Double

Pollution degree

2

Overvoltage category

300 V CAT III

Protection rating

Front IP54, Housing IP20

Double

2

300 V CAT III

Front IP54, Housing IP20

Double

2

300 V CAT III

Housing IP20

OUTPUTS

2 relay (Limit, Puls, Timer)

—

Analog 2 x 4...20 mA

1 relay (1NO / 1NC)

—

—

METERS

Active and reactive energy meter

Import and Export

Operating hours counter

Consumer and device

Import and Export

Consumer and device

Import and Export

—

COMMUNICATIONRS485 (Modbus RTU)
Ethernet (Modbus TCP)RS485 (Modbus RTU)
Ethernet (Modbus TCP)RS485 (Modbus RTU)
—**MECHANICAL PROPERTIES**

Display

Measurement display number

Housing material

Flammability class

Relative humidity

Operating temperature

Mounting / installation position

Connection

Weight

Dimensions [W x H x D]

LCD display, 4 lines for readings,
1 line for energy values, 3 graphs

LEXAN 940 (polycarbonate)

V-0 acc. to UL94, self-extinguishing,
non-dripping, free of halogen

0 ... 95 % (without condensation)

-20 ... +70 °C

Panel mounting / any

1 x < 4.0 mm² oder 2 x 1.5 mm²

approx. 620 g

96 X 96 X 57/75 mm

LED display, 3 line, 4 digits
3 measurements

LEXAN 940 (polycarbonate)

V-0 acc. to UL94, self-extinguishing,
non-dripping, free of halogen

0 ... 90 % (without condensation)

-10 ... +55 °C

Panel mounting / any

1 x < 4.0 mm² oder 2 x 1.5 mm²

approx. 620 g

96 x 96 x 80 mm

LCD display, 2 line, 13 digits
2 measurements

LEXAN 940 (polycarbonate)

V-0 acc. to UL94, self-extinguishing,
non-dripping, free of halogen

0 ... 90 % (without condensation)

-5 ... +60 °C

DIN rail mounting / any

1 x < 4.0 mm² oder 2 x 1.5 mm²

approx. 620 g

96 x 96 x 117 mm



BM1450

DC energy measurement
4 channels / external shunt

MEASURING INPUT

Nominal voltage

Nominal current
Shunt adjustment range
Frequency range

10...60 VDC / 61...200 VDC /
201...1000 VDC

1 ... 20 kA
50...150 mV
45 ... 50/60 ... 65 Hz

POWER SUPPLY

60 ... 300 V AC/DC

—

ACCURACY

Voltage / current
Power / reactive power
power factor
THD voltage, current
Active / reactive / apparent energy

±0,5 % / ±0,5 %
±0,5 %

Class 1

SAFETY

Insulation
Pollution degree
Overvoltage category
Protection rating

Double
2
1000V CAT II / 600 V CAT III
Front IP54, Housing IP20

OUTPUTS

4 relay (1NO / 1NC)

—

METERS

Active and reactive energy meter
Operating hours counter

Import and Export
Consumer and device

COMMUNICATION

RS485 (Modbus RTU)

—

MECHANICAL PROPERTIES

Display
Measurement display number
Housing material
Flammability class

Relative humidity
Operating temperature
Mounting / installation position
Connection
Weight
Dimensions [W x H x D]

LED display, 4 line, 8 digits,
4 measurements
LEXAN 940 (polycarbonate)
V-0 acc. to UL94, self-extinguishing,
non-dripping, free of halogen
0 ... 90 % (without condensation)
-10 ... +55 °C
Panel mounting / any
1 x < 4.0 mm² oder 2 x 1.5 mm²
approx. 620 g
96 x 96 x 80 mm



MEASURED VALUES

The measured values listed below are a selection of options for the individual device variants. It should be taken into consideration that not every device version can measure the same measured values.

MEASURED VALUE GROUP	APPLICATION
INSTANTANEOUS VALUES U, I, F, P, Q, S, PF, LF, QF ... Angle between voltage phasors Min/max of instantaneous values	Transparent monitoring of present system state Fault detection, connection check, sense of rotation check Determination of grid variable variance with time reference
EXTENDED REACTIVE POWER ANALYSIS Total reactive power, fundamental frequency, harmonics, $\cos\varphi$, $\tan\varphi$ of the fundamental frequency with min values in all quadrants	Reactive power compensation Verification of specified power factor
HARMONICS ANALYSIS Total harmonics content THD U/I Individual harmonics U/I up to 56 th	Evaluation of the thermic load of equipment Analysis of system perturbation and consumer structure
ENERGY BALANCE ANALYSIS Meters for Import/Export of active / blind energy and active / apparent power	Determination of energy consumption, preparation of (internal) energy billing
OPERATING HOURS Run hour of the device On hour of the device Number of interruptions	Monitoring of service and maintenance intervals of equipments



VISUALISATION

CLEAR REPRESENTATION OF MEASURED VALUES

Depending on the device variant, different displays are available. The measured values can be displayed directly on-site via the LCD display or LED display.

- Display of input and output parameters
- High-contrast display with backlit for good reading of measurement values
- Clear and unambiguous display of measured data
- Graphical representation of vector diagram, curve and bar graphs possible with TFT display
- Simple navigation via two push buttons



SIMPLE ON-SITE PROGRAMMING OF MEASURED VALUES

The following parameters can be set directly on site by means of the display and two or three push buttons.

- Network configuration
- Values of current and voltage transformers
- Input and output parameters
- Communication parameter Modbus RTU
- Password protection



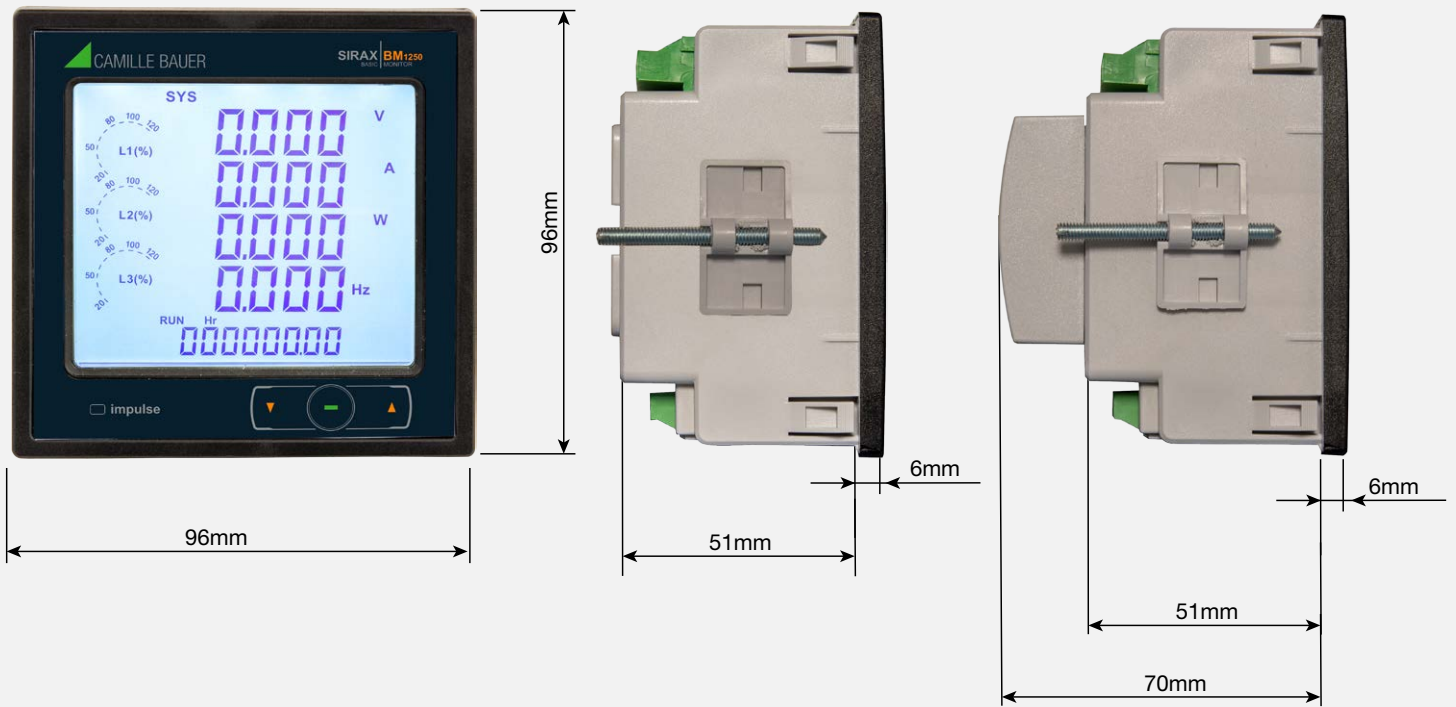
ADDITIONAL PROGRAMMING OF MEASURED VALUES VIA CONFIGURATION-SOFTWARE

Via RS485 (Modbus RTU) or Ethernet (Modbus TCP) interface and the configuration-software the measured values may be programmed even more easily.



DIMENSIONS

SIRAX BM1250

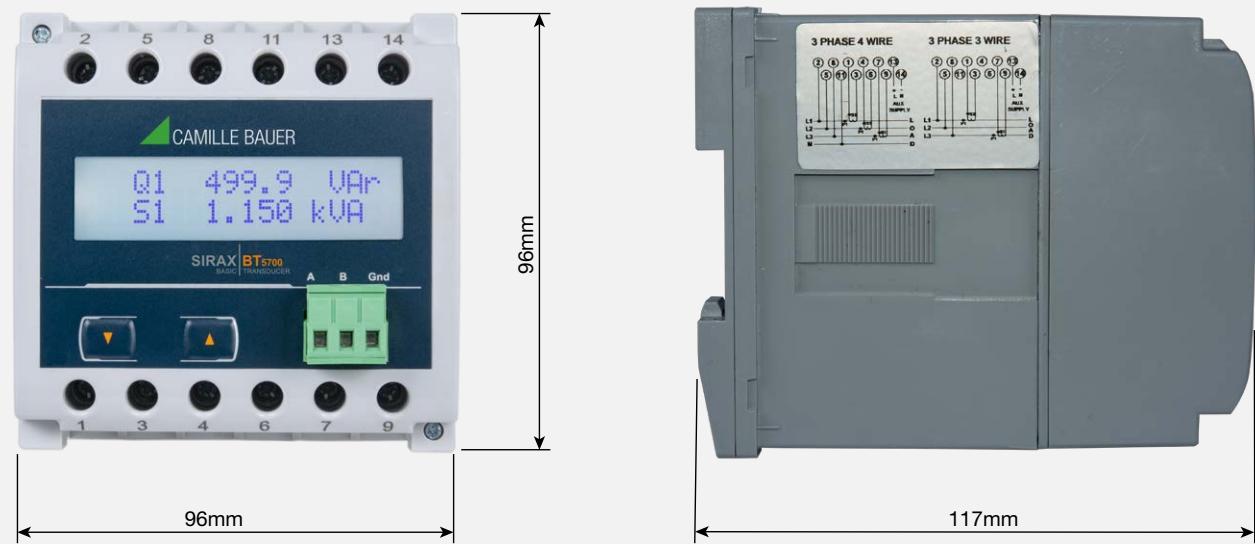


SIRAX BM1400 UND BM1450





SIRAX BT5700





ORDER CODE

SIRAX® family, uni- and multifunctional transmitters and power monitoring devices

	Basic device			Power system			Frequency range		Measuring input current		Measuring input voltage AC						Measuring input voltage DC			
	With LED display, for instrument panel mounting 96 x 96	Mit LCD Display Schalttafeleinbau 96x96	With LCD display, for top-hat rail-mounting	Without	3P	3PN	50/60 Hz	45-65 Hz	3 current transformer inputs 5A/1A	50 ... 150 mV	Without	415 VL-L	57 ... 500 V L-L	100... 600 VL-L	110 VL-L	440 VL-L	Without	10 ... 60 V DC	61 ... 200 V DC	201... 1000 V DC
1	-	•	-	-	•	-	-	•	•	-	-	-	-	•	-	-	•	-	-	-
2	-	•	-	-	•	-	-	•	•	-	-	-	-	•	-	-	•	-	-	-
3	-	•	-	-	•	-	-	•	•	-	-	-	-	•	-	-	•	-	-	-
4	-	•	-	-	•	-	-	•	•	-	-	-	-	•	-	-	•	-	-	-
5	-	•	-	-	•	-	-	•	•	-	-	-	-	•	-	-	•	-	-	-
6	-	•	-	-	•	-	-	•	•	-	-	-	-	•	-	-	•	-	-	-
7	-	•	-	-	•	-	-	•	•	-	-	-	-	•	-	-	•	-	-	-
8	-	•	-	-	•	-	-	•	•	-	-	-	-	•	-	-	•	-	-	-
9	-	•	-	-	•	-	-	•	•	-	-	-	-	•	-	-	•	-	-	-
10	-	•	-	-	•	-	-	•	•	-	-	-	-	•	-	-	•	-	-	-
11	-	•	-	-	•	-	-	•	•	-	-	-	-	•	-	-	•	-	-	-
12	-	•	-	-	•	-	-	•	•	-	-	-	-	•	-	-	•	-	-	-
13	-	•	-	-	•	-	-	•	•	-	-	-	-	•	-	-	•	-	-	-
14	•	-	-	•	-	-	-	•	-	•	•	-	-	-	-	-	-	•	-	-
15	•	-	-	•	-	-	-	•	-	•	•	-	-	-	-	-	-	-	•	-
16	•	-	-	•	-	-	-	•	-	•	•	-	-	-	-	-	-	-	-	•
17	-	-	•	-	-	•	-	•	•	-	-	-	-	-	-	•	•	-	-	-
18	-	-	•	-	-	•	-	•	•	-	-	-	-	-	-	•	•	-	-	-

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