

METRAFLEX | 6001XBL, 6003XBL

Flexible AC Current Sensors

for Energy and Power Disturbance Analyzers

3-349-890-03
2/6.18

- Wide range of applications, 3 measuring ranges 60 A/600 A/6000 A AC and large bandwidth 10 Hz ... 20 kHz for harmonic analysis
- Simultaneous measurement in all 3 phases (METRAFLEX 6003XBL)
- Precise measurements even with low currents, due to wide dynamic range and high sensor sensitivity
- Low conductor position influence and minimum stray field influence
- Easy to operate in restricted space thanks to small sensor cross-section of 9.9 mm and slim end cap of 13.6 mm
- Safe handling even with protection gloves; opening of sensor and measuring range setting in one-hand operation
- Extremely long battery life of up to 2,000 hours, (METRAFLEX 6003XBL up to 1,000 hours)
- External power supply for long-term measurements METRAFLEX 6001XBL/6003XBL:
 - MAVOWATT 230/240/270/270-400: power supply via MAVOWATT, no further accessory required
 - MAVOWATT 20/30/40/70 incl. DC/DC-Transformer ISOFLEX-MHXL
- Current sensor with protection type IP65, measuring amplifier with IP40
- High level of safety for the user, measurement category 1000 V@CAT III, 600 V @ CAT IV and unlimited overload capacity, rated for continuous use



Application

The METRAFLEX are AC current probes utilising Rogowski principle. They can be used to measure AC current up to 6000 A by being connected to an appropriate measuring device (power analyser).

The flexible probe allows current measurements on conductors that are hard to reach. To this end, the flexible current transformers can be placed around one or several conductors of any type and design (insulated cable, busbars, pipes).

Internal batteries allow for an independent operation of the measuring amplifier.

| Current sensor / Application | MAVOWATT 230, 240, 270 MAVOSYS 10 | MAVOWATT 20, 30, 40, 70 MAVOSYS 10 |
|------------------------------|-----------------------------------|------------------------------------|
| METRAFLEX 3001XBL | • | • |
| METRAFLEX 3003XBL | • | • |

METRAFLEX 6001XBL and 6003XBL

The flexible current sensors can be used for long-term measurements by means of external power supply.

For MAVOWATT 230/240/270/270-400 instruments, the current sensors are supplied with voltage directly from the instrument. No external power supply is required.

METRAFLEX 6003XBL

The 3 current sensors of the METRAFLEX 6003XBL are designed for AC measurements in any desired 3-phase system.

Technical Data

| Feature | METRAFLEX 6001XBL METRAFLEX 6003XBL | | |
|-------------------------|---|-----------|---|
| | 60 A | 600 A | 6000 A |
| Measuring ranges | 60 A | 600 A | 6000 A |
| Scaling factor | 40 | 400 | 4000 |
| Output sensitivity | 25 mV/A | 2,5 mV/A | 0,25 mV/A |
| Accuracy (45 ... 65 Hz) | $\pm 1\%$ of rdg. $\pm 0.1 \text{ A}^{1)}$ | | $\pm 1\%$ of rdg. $\pm 1 \text{ A}^{1)}$ |
| Noise | 8 mV eff. | 2 mV eff. | |
| Output Connector | 4 pin Hypertronics plug | | |

¹⁾ under reference conditions

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Influencing Quantities

| | |
|-------------------------|---|
| Output load | ≥ 100 kΩ for specified accuracy |
| Frequency range | 10 Hz bis 20 kHz (–10% attenuation) |
| Phase angle error | < ± 1° (45 ... 65 Hz) |
| Position sensitivity | ±2% of reading |
| External fields | ±0.2% of measuring range at a distance of > 200 mm from sensor |
| Temperature coefficient | ±0.1% of reading/°K |

Reference Conditions

| | |
|--------------------------------|--|
| Ambient temperature | +15 °C ... +25 °C |
| Relative humidity | 20% ... 75% |
| Operating voltage | 3 V ±0.5 V |
| Frequency of measured quantity | 45 Hz ... 65 Hz |
| Waveshape of measured quantity | Sine |
| Power-frequency magnetic field | < 30 A/m |
| Conductor position | Conductor vertical in relation to sensor level and at the geometrical center |
| Measuring loop shape | circular |
| Output load | 100 kΩ |

Power Supply of Measuring Amplifier

| | |
|-----------------------|---|
| Power supply | two AA MN1500 LR6 alkaline batteries or external supply (2...3 V DC/max.100 mA) |
| Battery life | METRAFLEX 6001XBL: approx. 2,000 hrs. METRAFLEX 6003XBL: approx. 1,000 hours |
| External power supply | with connector cable, length 0.5 m with 2 mm safety plug |
| Connector* | Barrel plug socket 5.5/2.1 mm minus at center pin |

Display Functions

| | |
|----------------|--|
| Battery status | LED (orange) „LOW BATTERY“ lights up: – battery voltage too low, or – external power supply |
| Overcurrent | LED (red) „OVERLOAD“ lights up |

Mechanical Design

Measuring Amplifier

| | |
|-------------------------|---|
| Dimensions | 110 (H) x 65 (W) x 23 (D) mm |
| Output measuring signal | 1 m coaxial cable connected with 4 pin Hypertronics plug |
| Material | ARNITE T06-200SNF double insulation, UL94 V-0 |
| Protection | IP40 per DIN VDE 0470 Part 1/EN 60529 |

Flexible Rogowski Current Sensor (Probe)

| | |
|-----------------|---|
| Probe length | 61 cm (24 inches), 91 cm (36 inches) or 122 cm (48 inches), double insulation |
| Probe diameter | 9.9 mm, slim end cap of 13.6 mm |
| Connector cable | between probe and housing, length 2 m |
| Material | Probe: Alcryn 2070 NC Lock: LATI LATENE 7H2W V0 |
| Protection | IP65 per DIN VDE 0470 Part 1/EN 60529 |

Ambient Conditions

| | |
|-----------------------|--------------------------------------|
| Operating temperature | –20 °C to +65 °C (–4 °F to +149 °F) |
| Storage temperature | –40 °C to +75 °C (–40 °F to +167 °F) |
| Humidity | 15% to 85%, no condensation allowed |

Electrical Safety

| | |
|-----------------------------------|--|
| Safety class | II, double insulation |
| Safety standards | EN 61010-1:2010 EN 61010-2-032:2012 |
| Measuring category | 1000 V _{RMS} CAT III, 600 V _{RMS} CAT IV |
| Voltage between output and ground | max. 30 V |
| Pollution degree | 2 (probe and measuring amplifier) |

Electromagnetic Compatibility EMC

| | |
|-----------------------|-------------------------|
| Interference emission | EN 61326-1:2013 class B |
| Interference immunity | EN 61326-1:2013 |

Applicable Regulations and Standards

| | |
|--|--|
| DIN EN 61010-2-032 (VDE 0411-2-032) | Safety requirements for electrical equipment for measurement, control and laboratory use – Particular requirements for hand-held and hand-operated current sensors |
| DIN EN 60529 VDE 0470-1 | Test instruments and test procedures – degrees of protection provided by enclosures (IP code) |

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METRAFLEX 6001XBL



METRAFLEX 6003XBL



Order Information

| Type | Description | Article Number |
|----------------------|---|----------------|
| METRAFLEX 6001XBL/24 | Flexible AC Current Probe 60/600/6000A sensor length 61 cm (24"), battery/external supply, 1.5 V output on Hypertronics plug, Operating Instructions | Z461A |
| METRAFLEX 6001XBL/36 | Flexible AC Current Probe 60/600/6000A sensor length 91 cm (36"), battery/external supply, 1.5 V output on Hypertronics plug, Operating Instructions | Z461B |
| METRAFLEX 6001XBL/48 | Flexible AC Current Probe 60/600/6000A sensor length 122 cm (48"), battery/external supply, 1.5 V output on Hypertronics plug, Operating Instructions | Z461C |
| METRAFLEX 6003XBL/24 | Flexible AC Current Probe 60/600/6000A sensor length 61 cm (24"), battery/external supply, 1.5 V output on Hypertronics plug, Operating Instructions | Z463A |
| METRAFLEX 6003XBL/36 | Flexible AC Current Probe 60/600/6000A sensor length 91 cm (36"), battery/external supply, 1.5 V output on Hypertronics plug, Operating Instructions | Z463B |
| METRAFLEX 6003XBL/48 | Flexible AC Current Probe 60/600/6000A sensor length 122 cm (48") battery/external supply, 1.5 V output on Hypertronics plug, Operating Instructions | Z463C |

All METRAFLEX are supplied with batteries.

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 **GOSSEN METRAWATT**

GMC-I Messtechnik GmbH
Südwestpark 15
90449 Nürnberg • Germany

Phone +49 911 8602-111
Fax +49 911 8602-777
E-Mail info@gossenmetrawatt.com
www.gossenmetrawatt.com