

METRAFLEX | P300

Flexible AC Current Sensor for PROFITEST MASTER

3-349-570-03
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- Wide range of applications, 3 measuring ranges 3 A/30 A/300 A AC and large bandwidth 20 Hz ... 4 kHz for harmonic analysis
- 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
- 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



Application

The flexible current sensor is used in combination with measuring instruments of up to 3 V AC. The flexible current transformer 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.

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
EN 60529 VDE 0470 Part 1	Test instruments and test procedures - degrees of protection provided by enclosures (IP code)

Technical Data

Feature	Specification		
	3 A	30 A	300 A
Measuring range	3 A	30 A	300 A
Output signal (AC)	1 V/A	100 mV/A	10 mV/A
Residual current / ripple	10 mV eff.	80 mV eff.	400 mV eff.
Overload capacity	unlimited		
Measuring uncertainty (45 ... 65 Hz)	±1% of reading ±0.01 A ¹⁾	±1% of reading ±0.1 A ¹⁾	±1% of reading ±1 A ¹⁾
Bandwidth	20 Hz up to 4 kHz (–10% of reading)		
Phase angle error	< ±15° (45 ... 65 Hz)		
Minimum load impedance	100 kΩ for indicated accuracy		

¹⁾ under reference conditions

Influencing Quantities

Conductor position influence	±2% of reading
External magn. field	±0.2% of measuring range at a distance of > 200 mm from probe
Temperature coefficient	±0.2% of reading/°C

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Flexible AC Current Sensor

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
Load impedance	100 kΩ

Power Supply of Measuring Amplifier

Power supply	two AA MN1500 LR6 alkaline batteries
Battery life	400 hours typical

Display Functions

Battery status	LED (orange) „LOW BATTERY“ lights up: – battery voltage too low
Overcurrent	LED (red) „OVERLOAD“ lights up

Mechanical Design

Measuring Amplifier

Dimensions	110 (H) x 65 (W) x 23 (D) mm
Output measuring signal	0.5 m coaxial cable connected with 4 mm safety plug
Material	ARNITE T06-200SNF double insulation, UL94 V-0
Protection	IP40 per DIN VDE 0470 Part 1/EN 60529

Probe – Flexible Rogowski Current Sensor

Sensor length	450mm, double insulation
Sensor cross-section	9.9 mm
Connector cable	between sensor and measuring amplifier, length 2 m
Material	Sensor: 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 61010-1:2001 EN 61010-031:2002 EN 61010-2-032:2002
Measuring category	1000 V _{RMS} CAT III, 600 V _{RMS} CAT IV
Pollution degree	2 (sensor and measuring amplifier)

Electromagnetic Compatibility EMC

Interference emission	EN 61326-2:2006 class B
Interference immunity	EN 61326-2:2006

Order Information

Description	Type	Article Number
Flexible AC current sensor 3/30/300 A, 1 V/100 mV/10 mV/A, Frequency range 20 Hz ... 4 kHz, current loop length 45 cm, e.g. for connection with PROFITEST MASTER, with batteries, with operating instructions	METRAFLEX P300	Z502E

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