Amp*FLEX* ®
Flexible Current Transformer

3-348-845-03
2/2.99

- Measurement of current to 10 kA~ (10 Hz ... 20 kHz)
- Measuring loop length from 45 to 120 cm
- No stripping of cables
- Power circuit need not be interrupted
- Can be connected to measuring instruments and recording devices with alternating voltage input
- Measurements at confined and difficult to access locations

Applications

Flexible "Amp*FLEX*" current transformers are suited for the measurement of alternating current conducting cables with currents of 0.5 A to 10 kA. Their function is based on the Rogowski coil principle. The high level of isolation between the measuring coil and the output circuit assures safe handling in low-voltage systems of up to 1000 V~. The measurement output circuit has been especially designed for use with digital multimeters. However, it is also suitable for the measurement of current with analog multimeters, as well as for long-term monitoring with recorders, data loggers and power meters or power analyzers, for which the wide frequency range (10 Hz ... 20 kHz) is especially advantageous. Thanks to the optimum flexibility of the pliable, removable measuring loop, the transformer can also be used in difficult to access locations. The snap-in locking mechanism can even be opened when wearing gloves. The length of the coil can be adapted for each of the nominal current ranges. Universal use is provided for with a variety of measuring loops for various measuring ranges, as well as varying loop lengths. A single-range transformer, 0.5...1000 A, is offered as an especially easy to operate and cost effective solution.

Characteristic Values

Meas. Range	Nominal Current, Primary [1]	Output Signal in mV~/A~	Crest Factor [2]	Inherent Deviation
30 A	0.5 A ... 5 A ... 30 A	100	1.5	±(1% V_A + 50 mV)
300 A	0.5 A ... 5 A ... 300 A	10		±(1% V_A + 5 mV)
300 A	0.5 A ... 5 A ... 300 A	10	1.5	±(1% V_A + 5 mV)
3000 A	0.5 A ... 5 A ... 3000 A	1		±(1% V_A + 2 mV)
1 kA	0.5 A ... 5 A ... 1 kA	1	4.5	±(1% V_A + 2 mV)
10 kA	0.5 A ... 50 A ... 10 kA	0.1		±(1% V_A + 1 mV)

[1] Indicated inherent deviation is assured for the underlined range, VA = Output volt.
[2] At measuring range upper limit

Frequency Range	10 Hz ... 100 Hz ... 20 kHz
Frequency Influence	*Amplitude Error:* none up to 1 kHz, max. –7% for 1 kHz < f < 20 kHz *Phase Error:* 2° for 20 Hz < f < 1 kHz
Output Magnitudes	
Max. Peak Voltage	4.5 V
Output Impedance	10 Ω

Display Functions

Exceeded Meas. Range	*red "OL" LED lights up:* primary current in excess of range limit
Stand-By, Battery Monitoring	*green "ON" LED lights up:* stand-by *green "ON" LED blinks:* voltage less than 7 V

Amp*FLEX*®
Flexible Current Transformer

Reference Conditions

Ambient Temperature	+18 °C ... +28 °C
Relative Humidity	20% ... 75%
Operating Voltage	9 V ±0.5 V
Measuring Quantity Frequency	10 Hz ... 100 Hz
Measuring Quantity Waveform	Sine
External Magnetic Field	Constant field/geomagnetic (< 40 A/m)
Conductor Position	Centered within measuring loop
Measuring Loop Shape	Circle
Impedance of Connected Measuring Instrument	≥ 10 kΩ

Ambient Conditions

Operating Temperature	–10 °C ... +55 °C
Storage Temperature	–40 °C ... + 70 °C (without batteries)
Relative Humidity	max. 90% at +50 °C

Power Supply

Battery	9 V flat cell battery; zinc carbon battery per IEC 6 F 22, alkali manganese batt. per IEC 6 LR 61
Nom. Operating Voltage	7 ... 9 V
Service Life	with zinc carbon battery: approx. 150 hr. continuous operation, intermittent operation: approx. 10,000 meas. of 1 min. each

Electrical Safety

Protection Class	II per IEC 61010-1/EN 61010-1
Overvoltage Category	III
Operating Voltage	1000 V
Contamination Level	2

Electromagnetic Compatibility, EMC

Interference Immunity	EN 50082-1: 1992 EN 61000-4-2: 8 kV atmospheric discharge EN 61000-4-2: 4 kV contact discharge EN 61000-4-3: 10 V/m EN 61000-4-4: 1 kV

Applicable Regulations and Standards

IEC 61010-1, DIN EN 61010 Part 1, VDE 0411-1	Safety regulations for electrical measuring, control, regulating and laboratory devices
EN 50082 Part 1	Electromagnetic compatibility (EMC) Generic standard for interference immunity Part 1: residential, business and light industry
VDI/VDE 3540 sheet 2	Reliability of measuring, control and regulating equipment – climatic categories for devices and accessories
EN 60529, VDE 0470 Part 1 IEC 529	Test instruments and procedures level of protection provided by enclosures (IP code)

Mechanical Design

Protection	*Housing:* IP 40, *Flexible Measu. Loop:* IP 65
Shock Resistance	100 g (IEC 68-2-27)
Free Fall	from a height of 1 m (IEC 68-2-32)
Vibration Resistance	per IEC 68-2-6
Material	*Measuring Loop:* V0, self-extinguishing material (per UL 94), resistant to oils
Dimensions/Weight	*Housing:* 140 mm x 64 mm x 28 mm Cable length: 2 m *Loop:*

Type	Loop Length	Weight
AF11A	45 cm	300 g
AF033A	60 cm	340 g
AF33A	90 cm	420 g
AF101A	120 cm	460 g

Included Equipment

1 Amp*FLEX* Current Transformer
1 Battery
1 Operating Instructions

Order Information

Designation	Type	Ident-Number
Current Transformer, Amp*FLEX* 30/300 A; 3 V	AF033A	Z207A
Current Transformer, Amp*FLEX* 300/3000 A; 3 V	AF33A	Z207B
Current Transformer, Amp*FLEX* 1000 A; 1 V	AF11A	Z207D
Current Transformer, Amp*FLEX* 1/10 kA; 1 V	AF101A	Z207C

Printed in Germany • Subject to change without notice

GOSSEN-METRAWATT GMBH
Thomas-Mann-Str. 16-20
90471 Nürnberg, Germany
Phone +49 911 8602-0
Fax +49 911 8602-669
e-mail: info@gmc-instruments.com
http://www.gmc-instruments.com