doc.metrel.si

www.metrel.si/newsletter

www.metrel.si/academy

Flex current clamps

A 1227

User Manual

Version 1.1.3.; Code No. 20 751 302

METREL®

Distributor:

Producer:

METREL d.o.o.
Ljubljanska 77
SI-1354 Horjul

Tel.: +386 1 75 58 200
E-mail: metrel@metrel.si
http://www.metrel.si

CE Mark on your equipment certifies that this equipment meets the requirements of the EC (European Community) regulations concerning safety and electromagnetic compatibility.

© 2025 Metrel

No part of this publication may be reproduced or utilized in any form or by any means without permission in writing from METREL.

Table of contents

1 Introducing the A1227 4
2 Features 5
3 Safety 6
4 Symbols 7
5 Measuring current with A1227 8
6 Cleaning 9
7 Service 10
8 Technical specifications 11

1 Introducing the A1227

The A1227 Flexible Current Clamps consist of the flexible sensor and an electronic module on the connected wire. It has three current ranges 30A, 300A and 3000A. The current range of the A1227 is selected directly by the connected instrument. The electronic module is powered from the connected instrument to. The flexible sensor permits measurements on conductors where standard clamp-on current transformers can not be used. It is particularly useful for installation in tight spaces, or around breaker panels, cable bundles, wide or large bus bars and irregular shapes. Unlike standard current transformers, this flexible CP does not use magnetic cores. The transformation principle is based on an air core. It presents virtually no load to the system under test, has a low phase shift and excellent frequency response.

Additionally, A1227 cannot be damaged by overloads. The A1227 Flexible Current Clamps are insensitive to DC current and measure only the AC component of the measured signal.

2 Features

- Range setup from the instrument, no additional range setup needed
- Power supply for electronic module is assured from the instrument
- mV output
- Waterproof sensor
- Minimum angle shift to accomplish accurate power measurements
- High accuracy
- Total rejection of d.c.component
- Friendly-use of the closing-opening system of the current sensor (even if wearing gloves) due to its highly ergonomic design
- It is possible to set the seal on the closing system of the current clamp.
- Very light, flexible and fully adaptable to busbar trunking system and insulated cables
- Strengthened security, regardless the working environment industrial or services

3 Safety

Read the operating instructions before use and follow all safety instructions.

If the test equipment is used in a manner that is not specified in this user manual, the protection provided by the equipment might be impaired!

Adhere to local and national safety codes. Individual protective equipment must be used to prevent shock and arc blast injury where hazardous live conductors are exposed.

Before each use, inspect the Current Clamps and its latching system for any damage. Pay particular attention to the insulation surrounding the flexible measuring head. Look for cracks or missing portions of the clamp housing or output cable insulation. Also look for loose or weakened components.

Do not use a clamp that is cracked, damaged, or has a defective cable.

Never use the clamp on a circuit with voltages higher than 1000 V CAT III or 600V CAT IV.

De-energize the installation on which current will be measured or adopt safe operating procedures during application and removal of the current clamp.

Use extreme caution when working around bare conductors or bus bars.

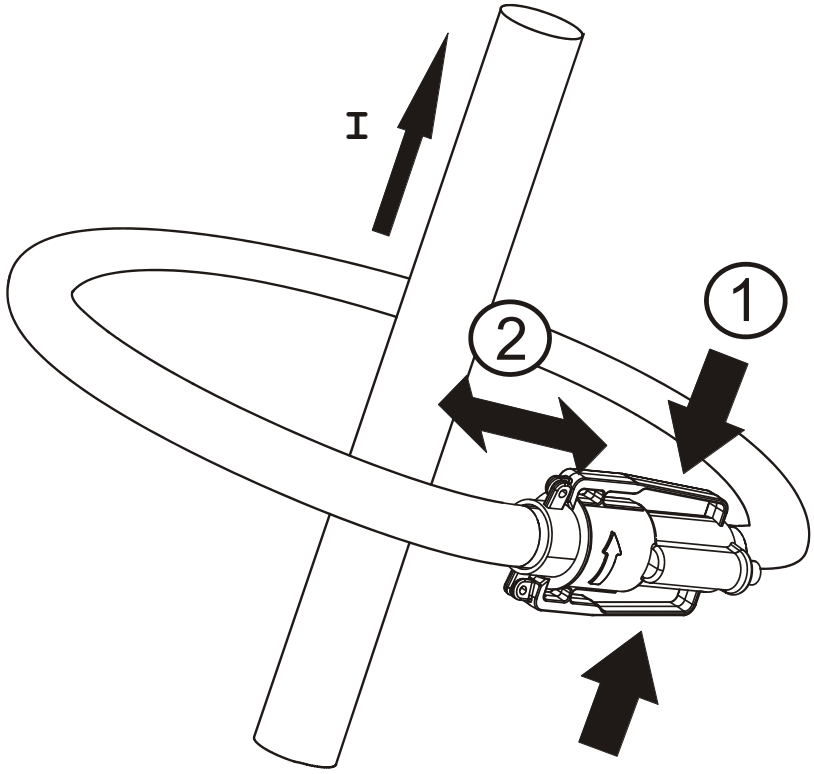
Do not use the Current Clamp to measure bare conductors carrying a voltage from 30V up to 1000V unless you are wearing protective clothing suitable for high-voltage work. Contact with the conductor could result in electric shock. Always use appropriate equipment for personal protection.

Use caution when working with voltages above 60 V dc, 30 V ac rms or 42 V ac peak. Such voltages pose a shock hazard.

4 Symbols

Symbol	Description
	Inportant information. Refer to the manual.
	Risk of Electric Shock.
	Product is protected by Double/Reinforced insulation
	Do not apply around or remove from HAZARDUS LIVE conductors.
	Do not dispose of this product as unsorted municipal waste. Contact Metrel or a qualified recycler for disposal.
	Complies with the relevant European standards.

5 Measuring current with A1227



Picture 5.1: Wrap the measured cable with the measuring clamp

To use the A1227 Flexible Current Clamps, follow these instructions:

1. Connect the D01 3 Pin connector of the A1227 Flexible Current Clamps to the desired input on the measuring instrument (power meter,..) .
2. Select the corresponding sensitivity (.. mV/A) on your instrument.
3. Wrap the flexible measuring head around the conductor to be tested, close coupling (See Picture 5.1).
4. It is very important that the conductor is as the center and perpendicular to the measuring head. (if it is no possible additional error of 2% of full scale can occur).
5. Do not measure close to other current-carrying conductors if possible. (An external field of 40 A/m can cause an additional measurement error of 1% of full scale).
6. Make sure that the arrow marked on the clamp coupling points toward the correct orientation for correct phase. (See Picture 5.1)
7. Keep the clamp coupling more than 2.5 cm (1 inch) away from the conductor to be tested and other nearby conductors.
8. Observe the current value and waveform on the instrument’s display. If desired, select the lower range on the measurement instrument.

6 Cleaning

Use soft patch, slightly moistened with soap water or alcohol, to clean the surface of the A1227 and leave it to dry totally, before using it.

Do not use liquids based on petrol or hydrocarbons!

Do not spill cleaning liquid over the A1227!

7 Service

For repairs under or out of warranty time please contact your Metrel distributor for further information.
Name and address of manufacturer:

METREL d.d.
Ljubljanska cesta 77
SI-1354 Horjul
Tel.: +386 1 75 58 200
http://www.metrel.si
E-mail: metrel@metrel.si

8 Technical specifications

FEATURES	NOTES	DESCRIPTION
Length of the sensor		48 cm
Measuring range		30 A / 300 A / 3000A ac rms
Overscale		60A / 600A / 6000 A sinus
Sensitivities		33.3 mV / A; 3.33 mV / A; 0.33 mV / A
Bandwidth	1	10 Hz up to 8 kHz
Accuracy	2,3,4	+/-1 %
Linearity (10 % to 100 %)	2,3,4	+/-0,2 %
Position sensitivity	5	+/-2 % of full scale
Temperature dependency	7	+/-0.02 % of reading / ºC
External fields	6	+/- 1% of full scale
Noise (residual current)	2,4	<4 mV / <1 mV / <1 mV, equivalent to 0.12 A (range 30 A) / 0.3 A (range 300 A) / 3 A (range 3000 A)
Nominal output voltage		1 V at full scale
Minimum load impedance in output	2	10 kΩ (internal output is 150 Ω)
Phase error		<1° @ 50 Hz <10° @1.5 kHz
Crest factor		Up to 3.0
Electrical Security		Double insulation EN 61010 – 1000 V- Cat III- Contamination Deg. 2
Environment Conditions		**Sensor**: Usage and storage: -20 to 85 ºC and 15 % to 85 % RH (without condensing) **Module**: Usage and storage: -20 to 70 ºC and 15 % to 85 % RH (without condensing)
Weight of flexible sensor		< 130 g
Water and dustpruffing		**Sensor**: IP 64 **Module**: IP 40

1: Limits of bandwidth corresponding to a relative gain > - 3 dB
2: Reference conditions: 45 Hz – 65 Hz, conductor is in the center and preipedicular to the measuring head, temperature between 15 ºC to 25 ºC; 10 kΩ of load impedance; laboratory environment electrical noise free.
3: Error of reading in reference conditions.
4: Expression of error measurement in refence conditions
error % = (Iresidual / I measured) x 100 + linearity + Accuracy
5: Distance between cable and clamp coupling should be >25 mm (1").
6: Adjacent conductor ≥ 20 cm or 8 inch from head. (<40 A/m)
7: No additional error in range 15 ºC – 25ºC,

- for higher temperatures: Temp. error = (Temp - 25ºC) * Temperature dependency
- for lower temperatures: Temp. error = (15ºC - Temp) * Temperature dependency