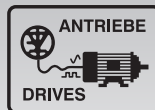




Current clamp

LW-MZ-50



Instruction manual

No need to
disconnect the
current path

Can also be
used for larger
cable cross
sections



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1.0 Important basic information

1.1 Legal notice

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The contents of this instruction manual are accurate at the date of printing. Because it is under continuous development, the manufacturer reserves the right to change the specification of the product and its performance data as well as the contents of this instruction manual, in both technical and commercial terms, without prior notice. The current version is available at www.leakwatch.de or www.epa.de.

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1.3 General equal treatment

EPA GmbH is aware of the importance of language with respect to the equal rights of female, male, and divers persons and makes every effort to take this into account. To ensure better readability, however, it was necessary to abstain from the consistent use of differentiated formulations.

2.0 Symbols

Symbol description



Notice! Observe the instructions in the manual before using the device. Failure to heed or execute the instructions marked with these symbols in this manual can cause bodily injury or damage to the equipment and the system.

Symbol description



The device is double-insulated or protected through reinforced insulation. Connection to a ground wire is not required to ensure electrical safety.

Symbol description



The output of this clamp current transformer is provided with an electronic protection circuit that limits over-voltages in case of inadvertent opening of the secondary circuit of the clamps to max. 30 V peak.

Description of the sign **CAT III**

The current clamp corresponds to overvoltage category III with pollution degree 2 and thus meets the stringent safety and reliability requirements for built-in electrical installations in industrial use and households (see IEC standard 664-1).

Thank you for purchasing an EPA LW-MZ-50 current clamp and for placing your trust in us. Please observe the following for optimal results with your **LEAKWATCH** measuring and analysis system:

- Read these operating instructions carefully
- Observe the safety instructions.

3.0 Safety Instructions

- Never measure currents above 10 A and – if possible – reduce the measuring time if current peaks exceed 10 A.
- Never use the current clamp on non-insulated conductors with a potential of more than 600 V to earth and with an overvoltage category higher than III.
- The permissible environmental conditions must be observed.
- Always keep the clamp gap meticulously clean.

4.0 Warranty

Unless expressly agreed otherwise, our warranty covers a period of 12 months from the date of invoice.

5.0 Device overview

The LW-MZ-50 current clamp is used for measuring alternating currents from 1mA to 10 A.

The current clamp can be connected to the **LEAKWATCH** LW-MK3plus.

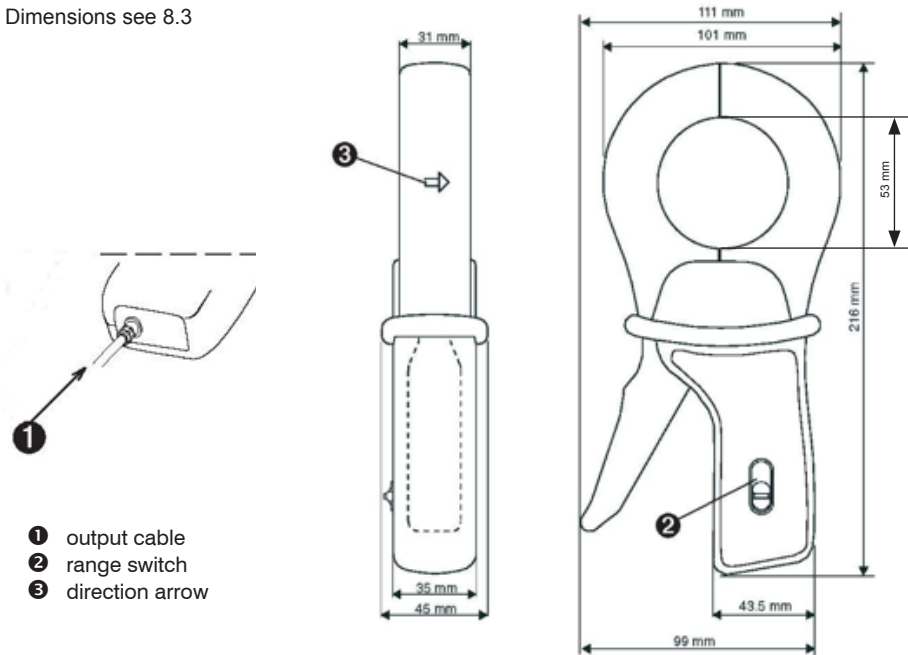
The current measuring range can be set by adjusting the range switch (1 A, and 10 A).

The current clamp is double-insulated or provided with safety insulation and complies with international standards, in particular EN 61010-2-032 for clamp current transformers.


6.0 Device description


- Output: Cable length 2 m
- Range switch 1 A and 10 A
- The arrow stamped on top of the jaws indicates the direction of the current. It is assumed that the electricity flows from the generator to the consumer in a “positive” direction. The direction of flow in alternating currents is only of significance for power measurements, i.e. the simultaneous measurement of current and voltage.

Dimensions see 8.3



- ❶ output cable
- ❷ range switch
- ❸ direction arrow

 Limit the duration of the measurement for currents between 10 A and 12 A: 15 minutes of operation and then 30 minutes break.

 Always connect the clamps to the meter first before clamping a conductor. In the same sense, the clamps must not be disconnected from the meter while still clamped onto a conductor.

- Before connecting the current clamp, check that the **LEAKWATCH** software is properly configured.
- Open the clamps and clamp around the conductor with the current to be measured.

Centre the conductors in the clamps as best as possible and pay attention to the flow direction of the current, if required by the measurement.

- When reading the measured value, pay attention to the measuring range set in the software.

Note: Select the measuring range with the best resolution and accuracy.

7.0 Technical data

Reference conditions

- Temperature : +20° ... +26°C
- Rel. humidity : 20% ... 75%
- The conductor is in the centre of the clamps
- Sinusoidal alternating current with : 48... 65 Hz.
- THD : < 1%
- No DC component
- External DC magnetic field : Earth magnetic field (<40 A/m)
- Input impedance : ≥ 1 MΩ and ≤ 47 pF
- No external AC magnetic field
- No other live conductors in the vicinity

8.0 Use

8.1 Measuring deviation and phase error (under reference conditions)

Bereich 10 A (30 A Spitze max.)

Current strength in A~	0,01...0,5 A	0,5...2 A	2...10 A	10...12 A
Measurement deviation (1)	≤ 2% + 5 mV			
Phase error	(2)	≤ 15°	≤ 10°	≤ 5°

Bereich 1 A (3 A Spitze max.)

Current strength in A~	0,01...0,05 A	0,05...0,2 A	0,2...1 A	1...1,2 A
Measurement deviation (1)	≤ 3% + 10 mV			
Phase error	(2)	(2)	≤ 15°	≤ 5°

(1) In % of the output signal (2) No information

8.2 Operating conditions

To ensure the safety of the user and the metrological properties, the current clamps must be operated under the following conditions.



Maximum current

Limit the measuring time for currents over 10 A!

Current strength	$I < 10 \text{ A}$	$10 \text{ A} \sim < I < 12 \text{ A} \sim$
Operation	Continuous (1)	15 minutes operation, then 30 minutes break

(1) At a frequency $f \leq 1 \text{ kHz}$



Frequencies

- Operating range: 10 Hz to 100 kHz (-3 dB between 50 kHz and 100 kHz)
- At frequencies $> 1 \text{ kHz}$, limit the current according to the following formula:

$$I \text{ duration} = \frac{10 \text{ A}}{f \text{ (in kHz)}}$$



Ambient conditions

- Indoor use only
- Height above sea level : $\leq 2000 \text{ m}$
- Climate conditions : -10° to $+ 55^\circ \text{ C}$ and rel. humidity $< 85\%$
- Do not expose the device to splash water


8.3 Dimensions, weight

- Outer dimensions : 216 x 111 x 45 mm
- Weight : approx. 550 g
- Clamp opening : 53 mm
- Height with open clamps : 139 mm
- Max. enclosure : Cable with $\varnothing 52 \text{ mm}$ or 1 busbar 5 x 5 mm or 4 busbars 30 x 5 mm

Dimension drawing see page 5

8.4 Compliance with international standards

Electrical safety (according to EN 61010-1 and EN 61010-2-032)

- Double insulation 
- Pollution degree 2
- 600 V system class III

Electromagnetic compatibility

- Interference emission and interference immunity in an industrial environment in accordance with EN 61326-1.

Mechanical protection

- Protection class IP40 (according to EN 60529) with closed clamps or IP30 with clamps open.

Mechanical protection

- Protection class IP40 (according to EN 60529) with closed clamps or IP30 with clamps open.

Self-extinguishing material

- Clamp jaws: V0 (acc. to UL 94)

9.0 Maintenance, care



Use only the specified spare parts for repairs. The manufacturer cannot be held liable for any accidents or damage resulting from repairs that are undertaken by persons outside of the manufacturer's customer service network or by unauthorised repairers.

9.1 Cleaning, care

During cleaning, the clamp must not be attached to a conductor and must be disconnected from the meter. Do not splash water on the clamp.

- The air gap of the clamp jaws must always be clean. Remove dust and dirt with a dry soft cloth. From time to time, wipe the air gap with an oil-soaked cloth to protect it against rust.
- Clean the housing with a cloth and a bit of soap water, wipe with a damp cloth. Then dry the device with a cloth or blow dry with warm air of max. 70 °C.

9.2 Inspection

As with other measuring or testing equipment, regular inspection is required. It is recommended that the equipment be checked at least once a year. For inspection and calibration, please contact our authorised measuring laboratories (information and addresses on request) or contact EPA GmbH directly.

9.3 Repair

Send the device to EPA GmbH, Fliederstr. 8, D-63486 Bruchköbel for repairs (within and outside the warranty).



All information without liability for correctness and accuracy.

Presented by:



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