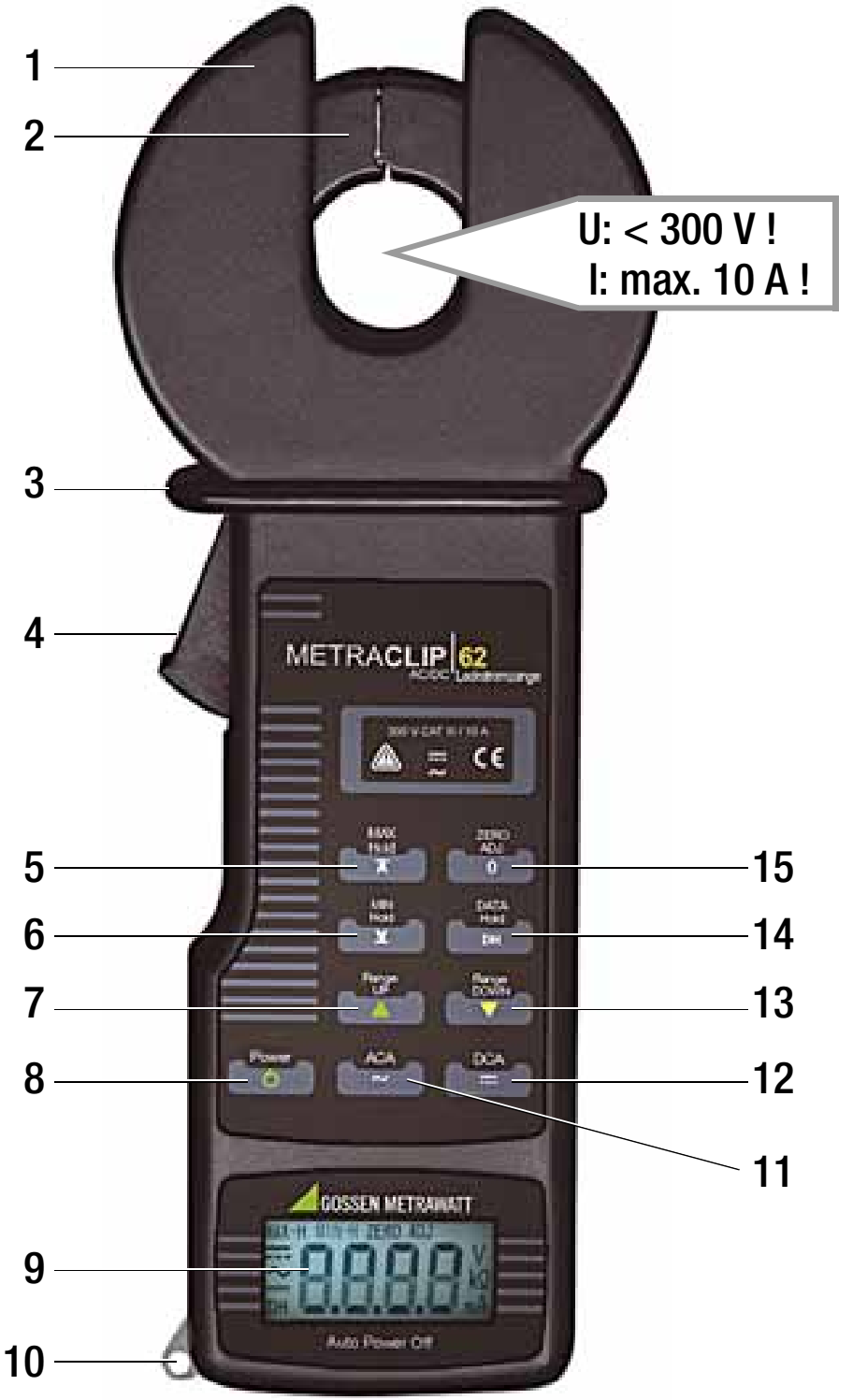
GOSSEN METRAWATT

Operating Instructions

3-349-391-15
2/3.10

METRA**CLIP** | 62
Clip-On Ammeter

Operating Overview



1 Clip guide (+ shield)

2 Clip jaw

3 Clip clearance safety barrier:
Do not reach beyond the safety collar!

4 Button for opening clip

5 **MAX HOLD** key: display max. current measured value

6 **MIN HOLD** key: display min. current measured value

7 **RANGE UP** key: increase measuring range

8 **POWER** key: switch on instrument (LCD test) / switch off instrument

9 LCD panel

10 Eyelet for carrying strap

11 **ACA** key: activate AC measurement

12 **DCA** key: activate DC measurement

13 **RANGE DOWN** key: reduce measuring range

14 **DATA HOLD** key: save measured value by „freezing“ display

15 **ZERO ADJ** key: DCA: zero balancing **(activate before each DC measurement!)**
ACA: define reference value

Standard Equipment

1 Clip-on ammeter
1 Immitation leather bag
1 Set of batteries
1 Operating instructions

Table of Contents Page

1 Safety Precautions

The **METRACLIP** | **62** clip-on ammeter has been manufactured and tested in accordance with safety regulations IEC 61010-1/EN 61010-1/ VDE 0411-1 and IEC 61010-2-032/ EN 61010-2-032/VDE 0411-2-032.

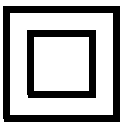
If used for its intended purpose, the safety of the user and of the device is assured. The device may only be operated by properly trained personnel who are capable of recog-

nizing the dangers associated with the measurement of electrical current and voltage.

Read the operating instructions completely and carefully before using the device, and follow all instructions included therein.

Meanings of symbols on the instrument:

Warning concerning a source of danger (Attention: observe documentation!)



Continuous, doubled or reinforced insulation

Indicates EC conformity

Applying the clip to dangerous active conductors is permitted

The clip-on ammeter may not be used:

- If the battery compartment lid has been removed
- If visible damage is apparent
- With damaged connector cables
- If it no longer functions flawlessly
- After lengthy periods of storage under unfavorable conditions (e.g. humidity, dust, temperature).

Attention!
Do not perform measurements in the event of over-ranging!
Current which exceeds the measuring range may not be measured.
Do not perform measurements at bare wires!
Do not perform measurements at busbars!

Safe Handling

- The housing and the handles must be free of dust, grease and moisture.
- The operator's fingers may not be extended beyond the safety collar during measurement.
- Avoid excessive mechanical stress such as impact and vibration, as well as high temperatures, moisture and strong magnetic fields.
- The battery compartment lid must be secured with the appropriate Phillips head screw.

1.1 Special Features of the Hall Effect Sensor

Eliminating the influence of magnetization

The clip-on ammeter **METRACLIP | 62** uses the hall effect for its measurements. The characteristics of the hall effect are subject to a hys-

teresis due to magnetization. As a result, the zero adjustment point for DC measurements may vary. Open and close the clip jaws several times in a row and press the ZERO ADJ key prior to each DC measurement in order to elimitate this effect. When measuring current conducting cables, close and open the clip jaws slowly and firmly in order to avoid any impact on the sensitive hall effect sensor.

Remedy in the Event of Exceeding the Measuring Range

If the maximum measurable current has been exceeded by a large degree, zero balancing can no longer be effected due to the saturation of the current clip.

Remedy:

- ➪ Turn the measuring instrument on with the POWER key.
- ➪ Adjust the smallest measuring range with the RANGE DOWN key (200 mA AC).
- ➪ Close the clip around a conductor with 10 A AC and reduce the current in the conductor gradually to 0 A. This eliminates magnetic saturation.

2 Operation

2.1 Initial Start-Up

Insert the two batteries (see chapter 4.1, page 16.

2.2 Stipulations for All Measurements

Attention!

In order to prevent damage to the instrument and the user, the maximum input quantities may not be exceeded: Voltage range 300 V AC/DC, current range 20 A AC/DC.

Note

Exercise caution when opening and closing the clip jaws around an active conductor.

Save Measured Value Function – DATA HOLD

During the performance of measurements under conditions which impair easy reading of display values, the DATA HOLD key can be activated in order to freeze the momentary measured value at the display. The **DH** symbol appears at the display.

Before starting any new measurements, the DATA HOLD key must be activated once again in order to reset the data hold function.

Display of Extreme Value Function – MAX HOLD / MIN HOLD

In order to indicate the highest (MAX HOLD) or lowest current measured value (MIN HOLD) during a measurement, briefly press the corresponding key before starting the measurement; the symbol **MAX-H** or **MIN-H** appears. During this function, the automatic shutdown

mode is deactivated. Press the key again to cancel this function.

Selecting Current Type – ACA / DCA

The measuring instrument is always set to direct current when switched on. Press the ACA or DCA key to change to the other current type.

Zero Balancing or Reference Value Function – ZERO ADJUST

Zero Balancing for DC measurements DCA

Even if the clip jaws are not closed around a conductor, measured values are continuously displayed when the measuring instrument is set to DC measurement. It is therefore generally necessary to press the ZERO ADJUST key after selecting the measuring range and before starting DC measurements. After pressing the ZERO ADJ key, the symbol **ZERO ADJ** is displayed and *0.0*, *0* or *0.00* appears on the LCD.

After changing the measuring range or the current type, the function must be reactivated.

Reference Value for AC measurements ACA

If the ZERO ADJUST key is pressed during an AC measurement, the measured value is stored as a reference value and deducted from future measurements. After pressing the ZERO ADJ. key, the symbol **ZERO ADJ** is displayed and *0.0*, *0* or *0.00* appears on the LCD.

2.3 Measuring Leakage Current at Grounded Conductors

- ➪ Turn the measuring instrument on with the POWER key.
- ➪ Select the current type via the ACA or DCA key.
- ➪ Set the RANGE UP or RANGE DOWN key to the appropriate range for the current to be measured.
  Otherwise, set the measuring range switch to the highest of the three ranges in order to avoid possible over-ranging.
- ➪ Prior to DC measurements:
  Perform zero balancing via the ZERO ADJUST key.
- ➪ Close the clip around the current conducting cable under test as well as around the current transformer.
- ➪ Read the measured value from the display.
- ➪ After measurement has been completed:
  Remove the clip from the cable and turn the measuring instrument off by pressing the POWER key.

2.4 Measuring Leakage Current at Single-Phase or 3-Phase Systems

- Turn the measuring instrument on with the POWER key.
- Select the current type via the ACA or DCA key.
- Set the RANGE UP or RANGE DOWN key to the appropriate range for the current to be measured.
  Otherwise, set the measuring range switch to the highest of the three ranges in order to avoid possible over-ranging.
- Prior to DC measurements:
  Perform zero balancing via the ZERO ADJUST key.
- **1-Phase System:**
  Close the clip around both conducting cables.
  3-Phase System:
  Close the clip around all 3 conducting cables.
- Read the measured value from the display.
- After measurement has been completed:
  Remove the clip from the cable and turn the measuring instrument off by pressing the POWER key.

2.5 Measuring Line Current

- Turn the measuring instrument on with the POWER key.
- Select the current type via the ACA or DCA key.
- Set the RANGE UP or RANGE DOWN key to the appropriate range for the current to be measured.
  Otherwise, set the measuring range switch to the highest of the three ranges in order to avoid possible over-ranging.
- Prior to DC measurements:
  Perform zero balancing via the ZERO ADJUST key.
- Close the clip around a single current conducting cable only.
- Read the measured value from the display.
- After measurement has been completed:
  Remove the clip from the cable and turn the measuring instrument off by pressing the POWER key.

3 Characteristic Values

Measuring sensor Hall Effect

Measuring Ranges

Meas. Range	Input	Reso-lution	Accuracy at 18 ... 28 °C, max. 80% relative humidity
A AC TRMS with automatic zero balancing			
200 mA	0 … 199.9 mA	100 µA	±1.0% rdg. ±5 digits [1]
2000 mA	0 … 1999 mA	1 mA	±1.0% rdg. ±5 digits [1]
10 A	0 … 9.99 A	0.01 A	±1.0% rdg. ±10 digits [1]
A DC with automatic zero balancing			
200 mA	0 … 199.9 mA	100 µA	±1.0% rdg. ±3 digits [2]
2000 mA	0 … 1999 mA	1 mA	±1.0% rdg. ±3 digits [2]
10 A	0 … 9.99 A	0.01 A	±1.0% rdg. ±10 digits [2]

[1] Frequency range: 50 … 60 Hz, corner frequency 2 kHz

[2] additional error for hall effect due to hysteresis: 3% rdg.

Key:

rdg. = measured value (reading)

Reference Conditions

Ambient temperature +23 °C ±5 °C

Relative humidity max. 80%

LCD

Display	7-segment characters
Number of places	3½ digits, max. display 1999
Sampling rate	Digital display: 1.6/s
Overflow display	**OL** appears
DATA HOLD display	**DH** appears

Power Supply

Batteries	2 ea. LR6 (AA size)
Service life	with alkaline manganese batteries: approx. 120 hours
Battery test	Symbol **B** is displayed automatically if battery voltage is too low.
Automatic shutdown	The device turns itself off automatically 10 minutes after it has been switched on.

Electrical Safety

Dielectric strength	2.3 kV AC max. 1 min between the clip jaws and the exposed clip housing
Measuring category	300 V CAT III 10 A

Electromagnetic Compatibility (EMC)

Interference emission/ Interference immunity	IEC 61326

Ambient Conditions

Operating temperatures	0 °C … +50 °C < 80% humidity (no condensation allowed)
Storage temperatures	–20 °C … +60 °C < 75% humidity (no condensation allowed) (without batteries)

Mechanical Design

Clip opening	max. dia. 18 mm
Dimensions	W x H x D: 76 mm x 194 mm x 30 mm
Weight	approx. 350 g with batteries

4 Maintenance

4.1 Battery Replacement

If the battery symbol **B** appears at the display, the batteries are either depleted or no longer supply sufficient operating voltage, and must be replaced. The batteries should also be removed if the instrument is placed into storage for a lengthy period of time, because leakage might otherwise occur.

Attention!
Remove the clip from the measuring circuit first.
Only then may the battery compartment lid be removed in order to replace the batteries.

- ➪ Set the on/off switch (POWER) to the **OFF** position.
- ➪ Remove the screw (size 0) which is used to secure the battery compartment lid.
- ➪ Pull the battery compartment lid off in the direction of the arrow symbol (OPEN).
- ➪ Carefully pry the batteries out of the compartment with the Phillips head screwdriver. Replace the depleted batteries. Make sure the batteries are inserted with correct polarity.

Note
Always replace both batteries at once.

- Slide the battery compartment lid back into place so that the two pins engage in the recesses provided.
- Reinsert and tighten the screw.

Note
The measuring instrument does not include any replaceable fuses!

4.2 Housing

No special maintenance is required for the housing. Keep outside surfaces clean. Use a slightly dampened cloth for cleaning. Avoid the use of cleansers, abrasives and solvents.

Product Support

When you need support, please contact:

GMC-I Messtechnik GmbH
Product Support Hotline
Phone +49 911 8602-0
Fax +49 911 8602-709
E-Mail support@gossenmetrawatt.com

Repair and Replacement Parts Service

When you need service, please contact:

GMC-I Service GmbH
Service Center
Thomas-Mann-Straße 20
90471 Nürnberg • Germany
Phone +49 911 817718-0
Fax +49 911 817718-253
E-Mail service@gossenmetrawatt.com

This address is only valid in Germany.
Please contact our representatives or subsidiaries for service in other countries.

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