CM51 CLAMP METER

Instruction Manual

MARTINDALE ELECTRIC

Keeping You Safe

⚠

ALWAYS READ THESE INSTRUCTIONS BEFORE PROCEEDING

Thank you for using one of our products. For safety and a full understanding of its benefits please read this manual before use. Technical support is available from 01923 441717 and support@martindale-electric.co.uk

CONTENTS

1. SAFETY INFORMATION: Always read before proceeding.

⚠ REMEMBER: SAFETY IS NO ACCIDENT

These instructions contain both information and warnings that are necessary for the safe operation and maintenance of this product. It is recommended that you read the instructions carefully and ensure that the contents are fully understood. Failure to understand and to comply with the warnings and instructions can result in serious injury, damage or even death.

Particular attention should be paid to the Warnings, Precautions and Technical Specifications.

Please keep these instructions for future reference. Updated instructions and product information are available at: www.martindale-electric.co.uk

1.1 Meaning of Symbols and Markings

⚠ **Caution - risk of danger & refer to instructions**

⚠ **Caution - risk of electric shock**

⧈ **Equipment protected by double or reinforced insulation (Class II)**

CAT II **(Measurement Category II)** is applicable to test and measuring equipment connected directly to utilization points (socket outlets and similar points) of the low-voltage MAINS installation.

CAT III **(Measurement Category III)** is applicable to test and measuring equipment connected to the distribution part of the building's low-voltage MAINS installation.

CAT IV **(Measurement Category IV)** is applicable to test and measuring equipment connected at the source of the building's low-voltage MAINS installation.

For further information on measurement categories see page 20 or visit: www.martindale-electric.co.uk/measurement_categories.php

Equipment complies with relevant EU Directives

Equipment complies with relevant UK conformity

End of life disposal of this equipment should be in accordance with relevant EU Directives.

1.2 Precautions

This product has been designed with your safety in mind, but please pay attention to the following warnings and cautions before use.

⚠ Warnings

In order to avoid the danger of electrical shock, it is important that proper safety measures are taken when working with voltages exceeding 30V AC rms, 42V AC peak or 60V DC.

This clamp meter must only be used under the conditions and for the purposes for which it has been constructed. Particular attention should be paid to the safety instructions, the technical specifications and the use of the clamp meter in dry surroundings.

Always check the clamp meter is in good working order before use and that there are no signs of damage to the unit. Do not use if damaged.

⚠ Cautions

Avoid severe mechanical shock or vibration and extreme temperature.

When using test leads avoid excessive stresses to the cable entry points at the probe and 4mm plug connector.

To avoid burns or damage to equipment, do not take temperature measurements inside microwave ovens.

To avoid possible corrosion from a leaking battery, remove the battery when the unit is not in use for an extended period.

2. INTRODUCTION

2.1 Features

1. Auto-ranging (40 A and 200 A) and pocket-sized, compact body.
2. Large, 4000 count LCD.
3. Display Hold.
4. Auto Power Off.
5. Safety Design. CE mark approved.

2.2 Unpacking and Inspection

Before unpacking the unit, examine the shipping carton for any sign of damage. Unpack and inspect the clamp meter and accessories for any damage.

If any damage is found or accessories are missing then consult your distributor immediately.

Check that the following accessories are included.

1. One spare 3V type CR2032 battery.
2. Carrying case.
3. Instruction manual.

3. SPECIFICATIONS

3.1 General Specifications

DISPLAY:

Numeric Display: 33/4 digit, 4000 count LCD, maximum reading 4301, 12mm high.

Unit & Symbols: ~, A, DH, BAT, AUTO & decimal point.

Operating Principle: Dual Slope Integration.

Range Selection: Autoranging.

Overrange Indication: OL symbol is shown.

Battery Warning: BAT symbol is shown.

Sampling Rate: 2.5 times per second.

Display Hold: Displays are held by DH key.

Overload Protection: AC current; 400A AC (300V Line) for one minute.

Operating Temperature & Humidity: 0°C to 40°C, less than 80% RH.

Storage Temperature & Humidity: -10°C to 50°C, less than 70% RH.

Temperature Coefficient: 0.1 x specified accuracy / °C for 0°C to 18°C & 28°C to 40°C.

Dielectric Strength: 3.7kV AC for one minute (between case and metal parts).

Safety: EN 61010-1 Overvoltage Cat. III 300V, Class II.

EMC: EN 50082-1:01.92 & EN 55022:08.94 + A1:05.95 + A2:97

Power Consumption: Approx. 5mW (100 hours continuous operation).

Power Supply: One 3V CR2032 battery.
Auto Power Off: Power turns off automatically after 10 minutes.

Note: Current drawn is 1~2μA under Auto Power Off condition.

Conductor Diameters: Maximum 27mm

Dimensions & Weight: 150 x 52 x 24mm, 110 grams.

3.2 Measurement Specifications

AC Current (~A) Average Rectification

Frequency Response: 50~60Hz.

Range	Resolution	Accuracy	Max. Input Current
40.00A	10mA	±1.8% rdg ± 5dgt	200A (Max. 300V)
300.0A	100mA		

40Hz ~500Hz, add 1.5% to above accuracy.

4. FUNCTIONAL DESCRIPTION

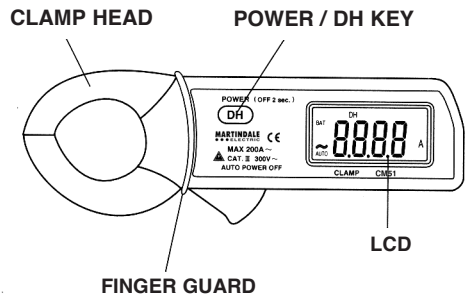
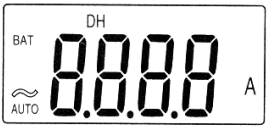


Fig. 1

4.1 LCD



~	Alternating Current (AC)
BAT	Battery Warning
AUTO	Autoranging
DH	Display Hold
A	Amperes

4.2 Power / DH Key (Display Hold)

The first press of this key turns the power on. Then the DH symbol turns on and off on LCD with each press of this key. To turn off power, press this key for longer than 2 seconds when the DH symbol is off..

4.3 Unpacking and Inspection

When measuring AC current, open the clamp head and clamp on to the **single** conductor to be monitored.

NOTE: If two or three conductors are clamped at a time, the measurement cannot be made.

4.4 Finger Guard

For safety, finger tips must not go beyond the Finger Guard.

5. PRECAUTIONS

⚠ WARNING

Before use check the clamp meter for cracks or any other damage, and make sure the clamp meter is free from dust, grease and moisture.

⚠ WARNING

When using the clamp meter always keep your fingers behind the finger guard.

⚠ WARNING

The maximum allowable line voltage of the conductor being measured is 300V AC rms.

⚠ WARNING

Do not measure current > 200A rms.

⚠ WARNING

Avoid severe mechanical shock or vibration, extreme temperature or very strong magnetic fields.

⚠ WARNING

Remove the battery when not in use for an extended period to avoid corrosion from leaking battery electrolyte.

6. OPERATION

6.1 Preparation For Use

Instruction Manual

Read this instruction manual completely before proceeding, paying particular attention to the safety warnings and precautions.

Battery

3V type CR2032 battery is installed in the instrument, with a spare battery provided. If the BAT symbol is displayed on the LCD replace the battery. (Refer to 6.1 Battery Replacement).

Overrange Indication

If the measured current exceeds 430 A AC the OL symbol appears on the LCD.

Auto Power Off

10 minutes after the last operation of the POWER/DH button the clamp meter will automatically turn off. In this condition there is <0.01 mW power consumption.

6.2 AC Current (~A) Measurement

⚠ WARNING

The maximum allowable voltage of the conductor being measured is 300 V AC rms.

Do not measure current > 200 A rms.

Always keep your fingers behind the finger guard.

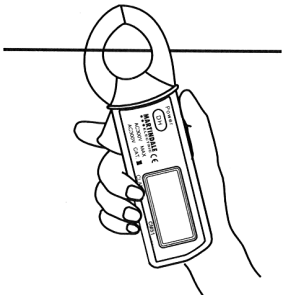


Fig. 2

1. Press the POWER/DH key to turn on the clamp meter.

2. Open the clamp head and clamp onto a single conductor. NOTE: If two or three conductors are clamped at the same time, the measurement cannot be made.

3. Read the measured current on the LCD.

4. Display Hold is available by pressing the POWER/DH key.

5. When measurements are finished, remove the clamp head from the conductor. Press the POWER/DH key for longer than two seconds to turn off the power. Note the DH symbol must be off.

7. MAINTENANCE

7.1 Battery Replacement

⚠ WARNING

Remove the clamp head from the circuit being measured before removing the battery cover.

1. If the BAT symbol is displayed on the LCD then replace the battery.
2. Turn off the power.
3. Referring to figure 3 unscrew the battery cover retaining screw and slide off the battery cover.
4. Replace the 3V type CR2032 battery. Note: Ensure correct polarity.
5. Replace the battery cover and retaining screw.

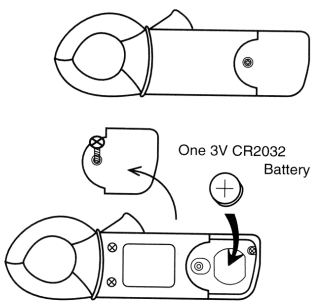


Fig. 3

7.2 Cleaning

After removal from any live circuits the clamp meter may be cleaned using a soft damp cloth. Do not polish the clamp meter casing or use abrasives, solvents, cleaning fluid, gasoline, benzene etc. If necessary use silicon oil or anti-static fluid.

7.3 Repair & Service

If the clamp meter is not operating correctly, check the following before returning the unit to the distributor for repair:

1. Check the battery connection.
2. Check the battery is installed with the correct polarity.
3. Check the condition of the battery.

7.4 Calibration

It is recommended that the clamp meter is calibrated every 12 months and/or after repair.

7.5 Storage Conditions

The clamp meter should be kept in warm dry conditions away from direct sources of heat or sunlight and in such a manner as to preserve the working life of the camp meter. It is strongly advised that the clamp meter is not kept in a tool box where other tools may damage it..

Check out what else you can get from Martindale:

- 18th Edition Testers
- Accessories
- Cable Locators
- Calibration Equipment
- Continuity Testers
- Digital Clamp Meters
- Digital Multimeters
- Electricians' Kits
- Environmental Products
- Full Calibration & Repair Service
- Fuse Finders
- Labels
- Microwave Leakage Detectors
- Multifunction Testers
- PAT Testers & Accessories
- Phase Rotation Testers
- Proving Units
- Safe Isolation Kits
- Socket Testers
- Specialist Drummond Testers
- Thermometers & Probes
- Test Leads
- Voltage Indicators

Martindale Electric Co. Ltd. Metrohm House,
12 Imperial Park, Imperial Way, Watford WD24 4PP, UK.
T: +44 (0)1923 441717
www.martindale-electric.co.uk sales@martindale-electric.co.uk

Ver. G1.0