Magnetis

User's manual

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INTRODUCTION

Thank you for purchasing this CARMELEC residual magnetic field meter. We hope the following information will help you to understand all the functions of your MAGNETIS. If you need further information, our team is entirely at your service.

GENERAL DESCRIPTION

MAGNETIS is a residual and/or DC magnetic field strength digital meter. It is not appropriate for the measurement of AC magnetic field.

MAGNETIS is designed to test residual magnetism after demagnetization of components, for instance parts which were inspected by magnetic testing. It is equipped with a data processing algorithm which allows a quick reaction to value changing while displaying a stable measurement.

This device complies with EMC European standard which is required for this type of unit in the heavy industry.

PHYSICAL DESCRIPTION

Mechanical description

MAGNETIS is designed to be easy to use and as light as possible.

It is manufactured with a reinforced ABS plastic case which confers a good robustness to him. The battery is easily accessible by a cover. A clip makes it possible to hang MAGNETIS on the belt or in a pocket.

The probe is fixed in a flexible way on the case in order to avoid the transmission of possible mechanical shocks.

Power is delivered by a 9V battery (type 6F22; PP63; 6LR61). The battery polarity is automatically detected.

Probe details

Probe

Sensor

Flexible joint

10

1.60

Sensitive zone

1.63

27.50

1.63

Sensitive zone

Probe
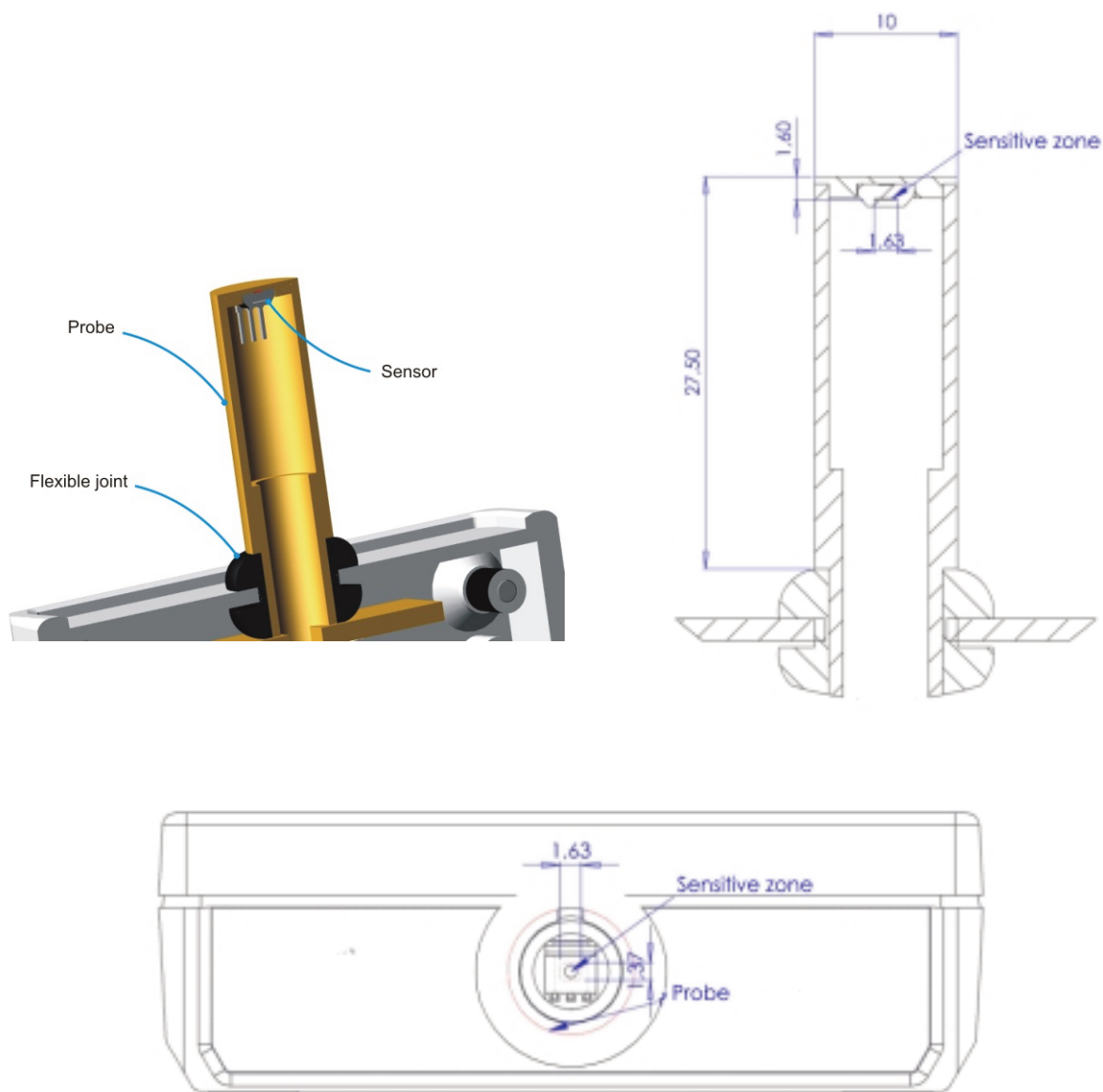
Power On/off

Press the central key to turn on your MAGNETIS.

An opening screen is displayed with CARMELEC logo and the « Help » tab in the bottom right corner (See « Help menu » p. 6). Then MAGNETIS passes to reading screen mode and therefore is ready for use.

MAGNETIS has a pre-programmed automatic power off after 3 minutes (except special request). However you can turn it off by yourself by pressing the central key for at least one second.

Display

The LCD display is equipped with a backlight which can be switched on using the « LIGHT » function of the bottom-right menu. Take care; this function considerably reduces the battery's life.

The unit of measurement is: **Ampere per metre (A/m)**
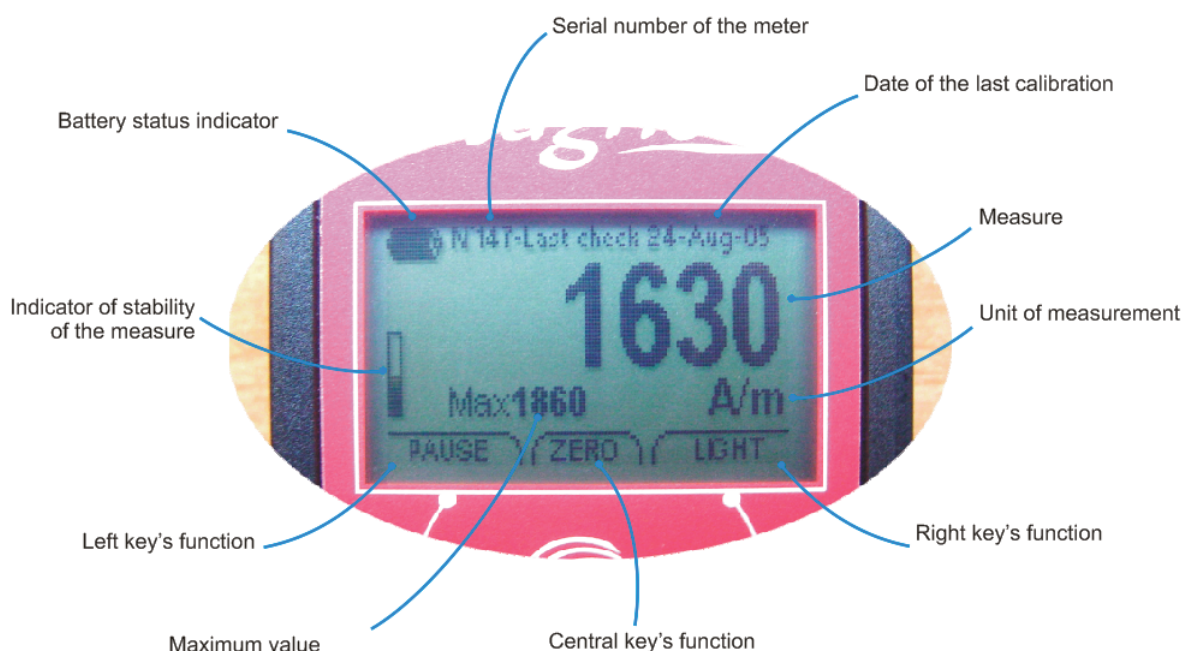
Battery status indicator

It is possible to check the battery level of MAGNETIS with the battery charge indicator on the top-left corner of the display. When the indicator is flashing, the battery must be replaced by a new one. If it is not replaced and becomes unable to make measurement, MAGNETIS is automatically turned off and « Low battery » is displayed.

Help menu

A help menu can be accessed at the power on, by pressing the right key when the logo screen appears with the help tab in the bottom-right corner.

Scroll the text using the right and left hand keys. Press the central key to exit from help menu.

Data processing

MAGNETIS has a smart data processing method implemented.

It combines a moving average with an algorithm of measurement monitoring. This method allows checking continuously if the displayed measure really matches the instantaneous measure as detected by the probe.

If a shift due to integration in time is detected, the table of moving average is automatically erased. After a very short time of fluctuation (0.5 second), the average is rebuilt ensuring a good measuring stability.

In order to indicate the quality of the displayed measure, a bar-graph of stability appears on the left side of the display when the moving average is restored.

MEASUREMENT PROCEDURE

Zero

MAGNETIS has an automatic zero process. It can by access by briefly pressing (<1s) the central key. This setting is to be done by placing **horizontally** the meter, far away from any magnetic mass and if possible in the **east-west** direction to free itself from the terrestrial magnetic field (which can reach +/- 40 A/m).

Gain

To facilitate its use, MAGNETIS has **no gain adjustment feature** which would be accessible by the user. This setting is made at the manufacturer factory and does not fluctuate.

Checking before measuring

We advise you to check the meter before any use with a reference calibrated magnet.

Measuring

The zero of the meter should be adjusted before taking any measurement (See paragraph « Zero »).

The measurement is then taken by placing the probe face on the surface of the component and by direct reading of the residual value on the display.

MAGNETIS incorporates features which allow you to obtain reliable measures:

Stability indicator

It looks like a bar-graph which is filled as MAGNETIS integrates the values of the magnetic field. The reading is stable as soon as it disappears.

Maximum indicator

It allows keeping on the display the maximum detected value. This value is erased during zero process.

MAINTENANCE

Annual calibration

To ensure the accuracy of your meter, we advise you to carry out an annual checking of this device in a testing laboratory.

Cleaning

You can clean the device with any classic cleaning product.

TECHNICAL DATA

Detection specifications

- Sensor: Hall effect sensor

- Measurement range: from - 47 000 to 47 000 A/m

- Resolution:

    From 0 to 100 A/m: 1 A/m
    > 100 A/m: 10 A/m

Mechanical and environmental characteristics

- Size: Case:

    120 mm x 65 mm x 22 mm (without probe)

    Probe:

    Ø 10mm x L 27,5mm

- Weight: 180 g with battery

- Case: Reinforced ABS plastic

- Humidity & Dust tightness :   IP 64

The first figure represents the tightness to solids: 6 for the total protection against dust.

The second figure represents the tightness to liquids: 4 for the protection against water.

Electrical specifications

- Electro-magnetic compatibility: Complies with EN 61326 Ed.97 + A1
                                    Ed.98 + A2 Ed.01 European standards.

- Power: 9V battery (PP3/ 6F22 / 6LR61)

- Current consumption: 17 mA

- Useful life of the battery: 30 hours (without back-light)

AFTER-SALES SERVICE

The CARMELEC after-sales service is entirely at your service. Do not hesitate to contact us for any further information.

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