

DH85 HYGRO-MOISTURE METER

Instruction Manual



⚠ ALWAYS READ THESE INSTRUCTIONS BEFORE PROCEEDING

Thank you for buying 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.

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1 SAFETY INFORMATION

⚠ 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 and refer to instructions**
- ⚡ Caution - risk of electric shock**
- CE Equipment complies with relevant EU Directives**
- ♻ 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

The DH85 must only be used under the conditions and for the purposes for which it has been constructed and specified.

Never connect the test probes to a live circuit or use the DH85 to test the insulation of live conductors.

⚠ Cautions

Before use check the unit for cracks or any other damage. Make sure the unit is free from dust, grease and moisture. **Do not** use if damaged.

Avoid severe mechanical shock or vibration and extreme temperature.

When not in use, fit the protective cover to avoid the risk of injury from the test probes.

To avoid possible corrosion from leaking batteries, remove the batteries if discharged, or when the unit is not in use for an extended period.

2. INTRODUCTION

2.1 Inspection

Examine the shipping carton for any sign of damage. Inspect the unit and any accessories for damage. If there is any damage then consult your distributor immediately.

2.2 Description

The Martindale DH85 has the following measurement functions:

- ◆ Moisture (measures conductivity in the material under test)
- ◆ Relative humidity from 0% to 100% R.H.
- ◆ Dry bulb, dew point and wet bulb temperature from -20°C to 60°C (-4°F to 140°F)

Further functions and features are:

- ◆ Max/Min, Average and Hold functions
- ◆ Auto power off
- ◆ Low battery indication
- ◆ LCD display with backlight
- ◆ Pocket-sized, compact body

2.3 Accessories

The DH85 comes with the following accessories:

- ◆ Protective cover for safe storage
- ◆ 2 x 1.5V AAA batteries
- ◆ Detachable carry strap
- ◆ Instructions


2.4 Battery Installation

Refer to Section 4.1 (Battery Replacement) for the battery installation instructions for the DH85.




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3. OPERATION

3.1 Low Battery Indication

If the  is displayed, the battery needs replacing as measurement accuracy can no longer be guaranteed (see section 4.1 Battery Replacement).

3.2 Description of Press Buttons





	Selects Set mode settings Selects moisture range Selects between R.H., dew point or wet bulb measurement
	Turns on/off the DH85, turns on backlight
	Selects Set mode and Hold mode functions

3.3 Description of LCD symbols





Test:	Indicates test function is selected
Test: OK	Indicates test function passes
wood	Indicates a wood range is selected
mortar	Indicates a mortar range is selected
WB	Indicates wet bulb temperature is being displayed
td	Indicates dew point temperature is being displayed
HOLD	Hold mode is active
MAX	Maximum recorded reading is displayed
MIN	Minimum recorded reading is displayed


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MAX-MIN	The difference between maximum and minimum recorded readings is displayed
AVG	The average of recorded readings is displayed
°C °F %	Units of measurement being displayed
	Indicates press of  button required
	Indicates low batteries
APO	Auto power off is active
ENTER	Indicates press of  button required

3.4 Power On/Off

To power on in Measurement mode, press  for less than 1 second.

To power on in Set mode, press  for 2 seconds.

To power off the unit, press  for 2 seconds.

3.5 Auto Power Off (APO)

If the unit is inactive for a period of 10 minutes it will automatically power off.

To disable this function refer to section 3.7.

3.6 Backlight

Press  for less than 1 second to turn on the backlight.

It will automatically turn off after 15 seconds if there is no further operation of the unit.

3.7 Set Mode

This mode sets the following in the order shown:

- ◆ Temperature scale;
- ◆ Auto power off (APO).


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The Set mode is selected by pressing  for 2 seconds with the unit powered off.

If the unit is switched off while in the Set mode, any changed settings will not be saved, and the unit will revert to the previous settings.

Temperature Scale

The LCD will display **Set Unit** and flash the current temperature scale after entering the Set mode.

Press  to select °C or °F as required.

Press  to advance to the next function.


APO

The LCD will display **APO**

Press  to select **ON** or **OFF** as required.

Press  to advance to the Measurement mode.

3.8 Test Function

While in Measurement mode, scroll through the measurement ranges with successive presses of the  button for < 1 second until the display flashes **Test :**.

Press the DH85 test probes onto the test resistor contacts at the top of the protective cover.

If **Test : OK** is displayed the unit is ready for use.

If **Test :** continues to flash clean the test probes and resistor contacts and repeat the test.


Press  to return to the Measurement mode.

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3.9 Measurement Mode

The DH85 has 7 moisture content ranges:

- Wood 1 - Hard wood
- Wood 2 - Soft wood
- Mortar 3 - Plaster
- Mortar 4 - Anhydrite screed
- Mortar 5 - Cement mortar
- Mortar 6 - Lime mortar
- Mortar 7 - Bricks


Press  for < 1 second until the required measurement range for the material to be tested is selected.

Lightly press the DH85 test probes into the surface of the material under test.

The **moisture content** is displayed on the upper section of the LCD.

The **dry bulb temperature** is displayed in the lower right section of the LCD.

The lower left section of the LCD displays relative humidity, dew point temperature or wet bulb temperature as required.

Press  for > 2 seconds to scroll through the following measurements on the lower left section of the LCD:

- relative humidity** - the LCD will display %;
- dew point temperature** - the LCD will display **td**;
- wet bulb temperature** - the LCD will display **WB**.

While in Measurement mode, all measured values are recorded at a rate of once per second for use by the Hold mode (See section 3.10).

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3.10 Hold Mode

The DH85 has the facility to display the maximum reading, the minimum reading, the difference between maximum and minimum readings and the average of the recorded readings (**Humidity and temperature measurements only**).


To enter the Hold mode press  while in Measurement mode.

The LCD will display **HOLD** and the last measured values will be held on the display.

Successive presses of the  button will display the following in sequence:

- HOLD MAX** - maximum recorded reading;
- HOLD MIN** - minimum recorded reading;
- HOLD MAX-MIN** - difference between max and min recorded readings;
- HOLD AVG** - average of the recorded readings.

The unit will return to the Measurement mode at the end of the above sequence.

To **clear the recorded readings**, press  for 2 seconds at any point in the above sequence. The unit will return to the Measurement mode.

Note: The Hold mode will not function until at least 3 measurements have been stored to memory.

3.11 Measurement Considerations

The moisture content in the material may vary, so it is advisable to take measurements at more than one point.

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To achieve accurate measurements, it is advisable to allow the DH85 sufficient time to reach temperature and humidity equilibrium with the environment of the material under test.

The following factors can effect temperature measurement – exposure to sunshine during measurement, heating systems, cold external walls, movement of air (e.g. fans), hands or body heat and insufficient stabilisation or measurement time.

The following factors can effect humidity measurement – exposure to steam, water or condensation on the sensor.

4. MAINTENANCE

4.1 Battery Replacement

Push the battery cover up towards the probes and lift away from the back of the DH85.

Remove the old batteries from the battery compartment.

Replace with 2 x new AAA batteries (IEC LR03, NEDA 24A), observing correct polarity as indicated on the base of the battery compartment.

Replace the battery cover.

Note: Do not mix old and new batteries.

4.2 Calibration

To maintain the integrity of measurements made using your instrument, Martindale Electric recommends that it is returned at least once a year to an approved Calibration Laboratory for recalibration and certification.

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Martindale Electric is pleased to offer you this service. Please contact our Service Department for details.
Email: service@martindale-electric.co.uk
Tel: 01923 650660

4.3 Cleaning

If contamination is found, clean with a damp soft cloth and if necessary a mild detergent. Do not use abrasives, abrasive solvents, or detergents which can cause damage to the unit. If a mild detergent is used, the unit should subsequently be thoroughly cleaned with a water dampened soft cloth. After cleaning, dry and allow to remain in a dry environment for 2 hours before use.

4.4 Repair & Service

There are no user serviceable parts in this unit other than those that may be described in section 4. Return to Martindale Electric if faulty. Our service department will provide a quotation to repair any fault that occurs outside the guarantee period.

Before the unit is returned, please ensure that you have checked the unit and batteries.

4.5 Storage Conditions

The instrument 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 unit. It is strongly advised that the unit is not kept in a tool box where other tools may damage it.

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5. WARRANTY AND LIMITATION OF LIABILITY

This Martindale product is warranted to be free from defects in material and workmanship under normal use and service. The warranty period is 2 years and begins on the date of receipt by the end user. This warranty extends only to the original buyer or end-user customer, and does not apply to fuses, disposable batteries, test leads or to any product which, in Martindale's opinion, has been misused, altered, neglected, contaminated, or damaged by accident or abnormal conditions of operation, handling or storage.

Martindale authorised resellers shall extend this warranty on new and unused products to end-user customers only but have no authority to extend a greater or different warranty on behalf of Martindale.

Martindale's warranty obligation is limited, at Martindale's option, to refund of the purchase price, free of charge repair, or replacement of a defective product which is returned to Martindale within the warranty period.

This warranty is the buyer's sole and exclusive remedy and is in lieu of all other warranties, expressed or implied, including but not limited to any implied warranty of merchantability or fitness for a particular purpose. Martindale shall not be liable for any special, indirect, incidental or consequential damages or losses, including loss of data, arising from any cause or theory.

Since some jurisdictions do not allow limitation of the term of an implied warranty, or exclusion or limitation of incidental or consequential damages, the limitations and exclusions of this warranty may not apply to every buyer. If any part of any provision of this warranty is held invalid or unenforceable by a court or other decision-maker of competent jurisdiction, such holding will not affect the validity or enforceability of any other provision or other part of that provision.

Nothing in this statement reduces your statutory rights.

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Specification DH85 Hygro-moisture meter



All specified accuracies are at 23°C ± 5°C, <70% R.H. for 1 year.

Temperature coefficient: 0.1 x (specified accuracy) per °C, (-20°C to 18°C, 28°C to 60°C).

MOISTURE

Range	Resolution	Accuracy
Wood 1 – 8.8% to 54.8% (Hard wood)	0.1%	± 1% (conductivity measurement)
Wood 2 – 7.0% to 47.9% (Soft wood)		
Mortar 3 – 0.9% to 22.1% (Plaster)		
Mortar 4 – 0.0% to 11.0% (Anhydrite screed)		
Mortar 5 – 0.7% to 8.6% (Cement mortar)		
Mortar 6 – 0.6% to 9.9% (Lime mortar)		
Mortar 7 – 0.1% to 16.5% (Bricks)		

RELATIVE HUMIDITY

Range	Resolution	Accuracy
0 to 100% R.H.	0.1% R.H.	± 2.5% (10% to 90% R.H.) ± 5% (0% to 10%, 90% to 100% R.H.)

Sensor: Digital capacitive humidity sensor

Sensor response time for 90% of total range: 60 seconds typical

Sensor hysteresis (excursion of 10% to 90% to 10% R.H.): ±1% R.H. typical



Specification DH85 Hygro-moisture meter

TEMPERATURE

Range	Resolution	Accuracy
-20°C to 60°C	0.1°C	± 0.5°C (0°C to 45°C) ± 1°C (-20°C to 0°C, 45°C to 60°C)
-4°F to 140°F	0.1°F	± 1°F (32°F to 113°F) ± 2°F (-4°F to 32°F, 113°F to 140°F)

Sensor: thermistor temperature sensor


GENERAL

Display: liquid crystal display

Measurement rate: once per second

Power: 2 x 1.5V, AAA alkaline batteries (IEC LR03, NEDA 24A)

Continuous operating time: 200 hours typical with alkaline battery

Low battery indication: The  is displayed when the battery voltage drops below the operating level

Auto power off: after approx. 10 minutes

Dimensions: 132.9(L) x 50.9(W) x 24.7(D) mm

Weight: 118g approx including batteries

Includes: protective cover, 2 x 1.5V AAA batteries, detachable carry strap and instructions

ENVIRONMENTAL

Operating environment: -20°C to 60°C

Storage environment: -20°C to 60°C <80% R.H. with batteries removed

EMC

Conforms to BS EN61326-1

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