DT73/DT75
DIGITAL THERMOMETER

INSTRUCTION MANUAL

MARTINDALE ELECTRIC

GENERAL SAFETY INFORMATION: Always read before proceeding.

Warning
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.

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 product must only be used by a competent person capable of interpreting the results under the conditions and for the purposes for which it has been constructed. Particular attention should be paid to the Warnings, Precautions and Technical Specifications. Always check the unit is in good working order before use and that there are no signs of damage to it. Do not use if damaged.
Where applicable other safety measures such as use of protective gloves, goggles etc. should be employed.

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

REMEMBER: SAFETY IS NO ACCIDENT

MEANING OF SYMBOLS:

- **Equipment complies with relevant EU Directives**
- **Caution - risk of danger & refer to instructions**
- **Caution - risk of electric shock**
- **Equipment protected by double or reinforced insulation (Class II)**
- **End of life disposal of this equipment should be in accordance with relevant EU Directives**
- **Direct current (DC)**
- **Alternating current (AC)**
- **Earth (ground)**

Thank you for buying one of our products. For safety and 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. INTRODUCTION

1.1 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.

1.2 Description
The DT73 and DT75 are portable, 3½ digit, compact thermometers for use with Type K thermocouples. The measuring range is from -50°C to 1300°C (-58°F to 2000°F). The DT73 and DT75 have maximum reading and data hold functions.

The DT75 is dual input and may be used in differential mode when thermocouples are connected to both inputs.

1.3 Accessories (included)
The DT73 and DT75 come with the following accessories:
- Rubberised holster
- TT1P type K thermocouple probe (x2 for DT75)
- Velcro strap
- 9V battery (installed)
- Instructions

1.4 Battery Installation
Refer to Section 4.1 (Battery Replacement) for the battery installation instructions for the DT73 and DT75.

2. PRODUCT SPECIFIC SAFETY INFORMATION

Test Equipment Without A Rated Measurement Category is applicable to testing and measurement of circuits **not** connected directly to the MAINS supply. If test and measurement equipment does not have a CAT marking then it should be regarded as a maximum of 50V rating unless otherwise specified.

2.1 Precautions

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

⚠ Warning

This unit must NOT be connected to CAT II, CAT III or CAT IV circuits.

⚠ Warning

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

⚠ Warning

Do not use if the battery/fuse cover is not fitted.

⚠ Warning

To avoid electrical shock, and damage to the instrument, do not use this instrument and the associated temperature probe when voltages at the measurement surface exceed 24V AC rms or 60V DC.

⚠ Caution

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

⚠ Caution

Avoid severe mechanical shock or vibration and extreme temperature.

3. OPERATION

3.1 General

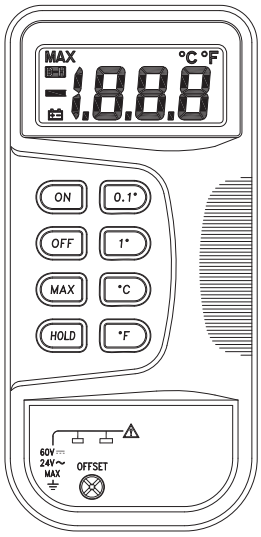
If the thermometer displays OL then the measurement limits of the range have been exceeded.

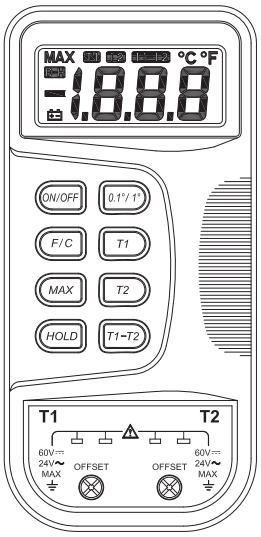
⚠ The maximum temperature measurement of the DT73/DT75 is 1300°C (2000°F), but the thermocouple probe being used may be specified to a lower temperature. For example, the TT1P supplied is specified to 260°C (500°F). Be sure that the thermocouple probe is adequate for the measurement being made.

3.2 Low Battery Indication

If the [+ −] symbol is displayed then the battery needs replacing (see section 4.1 Battery Replacement).

3.3 Description of Press Buttons





DT73

ON	Powers up the DT73
OFF	Powers down the DT73
MAX	Selects/deselects the maximum reading function
HOLD	Selects/deselects the data hold function
0.1°	Selects 0.1° resolution
1°	Selects 1° resolution
°C	Selects the Celsius temperature scale
°F	Selects the Fahrenheit temperature scale

DT75

ON/OFF	Powers up/down the DT75
F/C	Selects the Celsius/Fahrenheit temperature scales
MAX	Selects/deselects the maximum reading function
HOLD	Selects/deselects the data hold function
0.1°/1°	Selects 0.1°/1° resolution
T1	Selects thermocouple T1 input
T2	Selects thermocouple T2 input
T1-T2	Selects differential input mode

3.4 Description of LCD Symbols

MAX	Maximum reading function is selected
T1	Thermocouple T1 input is selected (DT75 only)
T2	Thermocouple T2 input is selected (DT75 only)
T1-T2	Differential input mode is selected (DT75 only)
°C	Degrees Celsius temperature scale is selected
°F	Degrees Fahrenheit temperature scale is selected
[+ −]	Indicates battery is low
D-H	hold function is selected

3.5 Temperature Scale Selection

Readings are displayed in either degrees Celsius (°C) or degrees Fahrenheit (°F).

To select the Fahrenheit (°F) scale press the °F (DT73) F/C (DT75) button. The LCD displays the °F symbol.

To select the Celsius (°C) scale press the °C (DT73) F/C (DT75) button. The LCD displays the °C symbol.

On power up, the instrument defaults to the scale last selected before power down.

3.6 Display Resolution Selection

The display resolution can be set to 0.1° or 1° below 200.0°C/°F. Above 199.9°C/°F OL will be displayed if 0.1° resolution is selected.

To select 1° resolution press the 1° (DT73) 0.1°/1° (DT75) button.

To select 0.1° resolution press the 0.1° (DT73) 0.1°/1° (DT75) button.

3.7 MAX Function
Press the MAX button to activate the maximum reading function.

The latest maximum reading will be continually updated and displayed. The LCD displays the MAX symbol.

When in the maximum reading function, pressing the HOLD button will stop the update. Press HOLD again to resume updating.

Press the MAX button to exit the maximum reading function.

3.8 Data Hold
To hold a displayed reading press the HOLD button. The LCD displays the **D-H** symbol.

To exit data hold press the HOLD button.

3.9 Temperature Measurement
Connect a Type K thermocouple probe, suitable for the type of temperature measurement and temperature range being made, to the thermocouple input socket (T1 or T2 or both on the DT75).

For the DT75 only press either the T1 or T2 button to select the thermocouple input to be displayed. The LCD displays the **T1** or **T2** symbol according to the input selection.

Taking all necessary safety precautions position the thermocouple at the surface to be measured and read the measured temperature from the display.

Note: Repeated flexing can break the thermocouple leads. To prolong lead life, avoid sharp bends in the leads, especially near the connector.

3.10 Differential Temperature Measurement (DT75 Only)
Connect Type K thermocouple probes, suitable for the type of temperature measurement and temperature range being made, to the thermocouple input sockets T1 and T2.

Taking all necessary safety precautions position the thermocouples at the surfaces to be measured.

Press the T1-T2 button. The LCD displays the **T1-T2** symbol. The difference between the measured temperatures of thermocouples T1 and T2 will be displayed.

3.11 Temperature Offset Adjustment
The offset adjustment allows an individual Type K thermocouple to be optimised for the best measurement accuracy at a chosen reference temperature.

Connect the thermocouple to the input socket and select 0.1° display resolution.

Place the thermocouple in a known, stable temperature environment at the reference temperature.

Allow the readings to stabilize.

Slowly adjust the OFFSET so that the thermometer reading matches the temperature of the known environment.

Leave sufficient time between adjustments to allow for measurement lag.

The calibration of the thermometer-thermocouple combination is now optimized for measurements at the reference temperature.

The factory setting for the offset adjustment is 0.0°C (32.0°F).

4. MAINTENANCE

4.1 Battery Replacement

⚠ To avoid shock or injury, disconnect the thermocouple/s from any external surface and remove before proceeding.

Using a Phillips screwdriver, remove the three screws from the back of the meter, and lift off the front cover.

Replace the battery with a new standard 9V battery (PP3, NEDA 1604, or equivalent) observing correct polarity.

NOTE: It is essential to transfer the protective insulating sleeve from the old battery to the new battery.

Replace the front cover and re-install the screws.

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.

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
The unit may be cleaned using a soft dry cloth. Do not use moisture, abrasives, solvents, or detergents, which can be conductive.

4.4 Repair & Service
There are no user serviceable parts in this unit other than those that may be described in section 3. Return to Martindale Electric if faulty. Our service department will quote promptly to repair any fault that occurs outside the guarantee period.

Before the unit is returned, please ensure that you have checked the unit, batteries, fuses, poor connections and leads.

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.

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 DT73/DT75 Digital Thermometer

All specified accuracies are at 23°C ± 5°C, <75% RH for 1 year, not including thermocouple error

Temperature coefficient: 0.1 x (specified accuracy) per °C. (0°C to 18°C, 28°C to 50°C)

Temperature scale: Celsius or Fahrenheit user-selectable

Thermocouple type: K

Measurement range: -50°C to 1300°C. (-58°F to 2000°F)

Note: Measurement range will be limited by the range of the thermocouple probe used

Resolution: 0.1° to 199.9°C/°F, 1° ≥ 200°C/°F

Temperature accuracy:

DT73:	-50°C to 1000°C	± (0.3% of rdg + 1°C)
	1000°C to 1300°C	± (0.5% of rdg + 1°C)
	-58°F to 2000°F	± (0.3% of rdg + 2°F)
DT75:	-50°C to 0°C	± 2°C
	0°C to 1000°C	± (0.3% of rdg + 1°C)
	1000°C to 1300°C	± (0.5% of rdg + 1°C)
	-58°F to 32°F	± 4°F
	32°F to 2000°F	± (0.3% of rdg + 2°F)

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Specification DT73/DT75 Digital Thermometer

Input protection: 60V DC or 24V AC rms maximum input voltage on any combination of input pins

Input connector: Accepts standard miniature thermocouple connectors (flat blades spaced 7.9mm. center to center)

TT1P thermocouple probe:

4-foot Type K thermocouple bead probe (teflon tape insulated)

Maximum insulation temperature 260°C (500°F)

Probe accuracy ± 2.2°C or ± 0.75% of reading (whichever is greater)

GENERAL

Display: 3½ digit liquid crystal display (LCD) with maximum reading of 1999

Reading rate: 2.5 times per second.

Ambient operating range: 0°C to 50°C (32°F to 122°F)

Storage temperature: -20°C to 60°C (-4°F to 140°F)

Relative humidity: 0% to 80% (0°C to 35°C) (32°F to 95°F)

0% to 70% (35°C to 50°C) (95°F to 122°F)

Power: Single standard 9V battery (PP3, NEDA 1604, or equivalent)

Battery life: 200 hours typical with carbon zinc battery

Dimensions: 147 mm (H) x 70 mm (W) x 39 mm (D)

Weight: Approx. 210g including battery

Approx. 337g including battery and holster

Includes: Rubberised holster, TT1P Type K thermocouple probe (x2 for DT75), Velcro strap, 9V battery (installed) and instructions

SAFETY:

BS EN 61010-1 50V

Class II Double Insulation

Pollution Degree: 2

EMC: Conforms to BS EN 61326-1

Check out what else you can get from Martindale:

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MARTINDALE ELECTRIC

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