

# IRC325 SPOT THERMAL CAMERA

## 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 cautions that are necessary for the correct operation and maintenance of this product. It is recommended that you read the instructions carefully and ensure that the contents are fully understood.

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

Please keep these instructions for future reference. Updated instructions and product information are available at: [www.martindale-electric.co.uk](http://www.martindale-electric.co.uk)

#### 1.1 Meaning of Symbols and Markings

**⚠** Caution - refer to instructions

**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 IRC325 must only be used by a skilled and competent person who is familiar with the relevant regulations, the safety risks

involved and the consequent normal safe working practices, and under the conditions and for the purposes for which it has been constructed and specified.

Objects may be much hotter than indicated due to factors such as emissivity.

#### **⚠ Cautions**

Avoid severe mechanical shock or vibration and extreme temperature.

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 IRC325 has the following functions and features:

- ◆ Easy to use single button image capture
- ◆ 4.5 cm colour TFT display
- ◆ Blended image for fast troubleshooting
- ◆ Temperature range -20°C to 380°C

### 2.3 Accessories

The IRC325 come with the following accessories:

- ◆ 3 x 1.5V AA alkaline batteries
- ◆ Instructions


### 2.4 Battery Installation

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

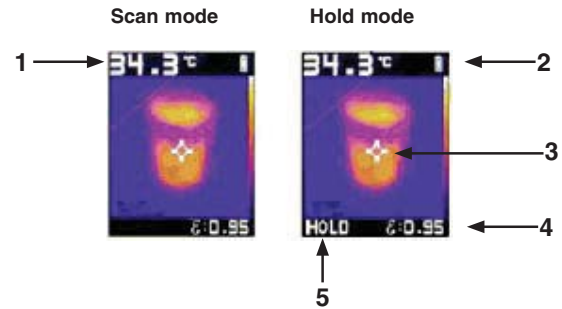
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## 3. OPERATION

### 3.1 Low Battery Indication

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


### 3.2 Description of Display




1	Measured temperature at crosshair
2	Battery level indication
3	Crosshair
4	Emissivity value (fixed at 0.95)
5	Indicates image is held

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### 3.3 Power On/Off

Press the  button to turn on the IRC325.

The screen will display MARTINDALE ELECTRIC for approx. 10 seconds as the unit warms up.

To turn off, press  for >2 seconds. The screen will briefly display POWER OFF.

### 3.4 Auto Power Off

The IRC325 will automatically power off after 5 mins if not in use.

### 3.5 Measurement and Scanning

To scan an object or surface press and hold the IRC325 trigger. **HOLD** will no longer be displayed.

Move the IRC325 until the screen crosshair is aligned with the area of interest.

The temperature at the crosshair centre will be displayed.

Releasing the trigger will hold the image and the displayed temperature.

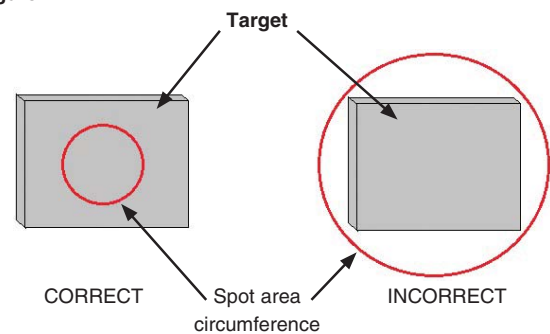
### 3.6 Measurement Considerations

- ◆ The IRC325 has a fixed surface emissivity setting of 0.95. This must be considered when measuring temperatures of surfaces with surface emissivity values other than 0.95. See section 3.7 for typical surface emissivity values of various materials.
- ◆ The distance/spot ratio of the IRC325 is 15:1. At a distance of 15 feet for example, the spot diameter would be 1 foot. This must be considered when making temperature measurements

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because the measured temperature is the average temperature within the area of the spot circumference. Therefore, for accurate temperature measurement the spot circumference must be within the target area. See figure 1.

Figure 1



- ◆ Allow time before use for temperature stabilisation if the IRC325 is moved between locations with differing ambient temperatures, e.g. one location at 23°C and another at 0°C. Up to 30 minutes may be required for extreme temperature changes.
- ◆ Reflected background temperature can effect temperature measurement. Very hot objects or very cold objects in the vicinity of the target or object of interest can affect the apparent temperature and measurement accuracy, especially when surface emissivity is low.

### 3.7 Emissivity Values

The emissivity of the surface of a material is its effectiveness in emitting energy as thermal radiation. Quantitatively, emissivity is the

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ratio of the thermal radiation from a surface to the radiation from an ideal black body surface at the same temperature as given by the Stefan–Boltzmann law.

Refer to table 1 for the nominal surface emissivity values for various materials.

**Table 1**

Material	Value	Material	Value
Aluminium *	0.30	Leather ***	0.78
Asbestos	0.95	Lead *	0.50
Asphalt	0.95	Oil	0.94
Brass *	0.50	Paint	0.93
Ceramic	0.95	Plastic **	0.95
Concrete	0.95	Rubber	0.95
Copper *	0.60	Sand	0.90
Food-frozen	0.90	Steel *	0.80
Food-hot	0.93	Snow	0.83
Glass (plate)	0.85	Skin (human)	0.98
Iron *	0.70	Water	0.93
Ice	0.97	Wood ***	0.94

\* Oxidized    \*\* Opaque, over 20 mils    \*\*\* Natural

## 4. MAINTENANCE

### 4.1 Battery Replacement

The battery compartment is in the handle of the unit.

Remove the battery cover screw and the battery cover.

Replace with 3 new 1.5V, AA alkaline batteries (IEC LR6, NEDA 15A), observing correct polarity.

Replace the battery cover and screw.

**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.

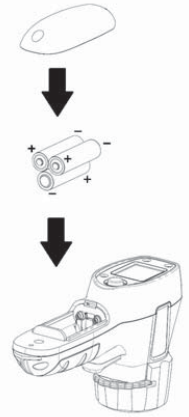
Martindale Electric is pleased to offer you this service. Please contact our Service Department for details.

Email: [service@martindale-electric.co.uk](mailto: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 or alcohol. If required use a cotton bud to clean the lens. 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 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 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.

## 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.



## Specification IRC325 Spot Thermal Camera



### TEMPERATURE

Temperature range: -20°C to 380°C

Temperature resolution: 0.1°C

Temperature accuracy:

Temperature	Accuracy *
≥0°C	±1.5°C or ±1.5% of reading (whichever is greater)
≥-10°C to <0°C	±2°C
<-10°C	±3°C

\* Ambient temperature 23 ± 2°C and calibration geometry

Temperature coefficient: ±0.1°C/°C or ± 0.1%/°C of reading  
(whichever is greater)

Repeatability: ±1.0°C or ± 8% of reading (whichever is greater)

Response time: <125ms to 95% of reading

Spectral response: 8 to 14 microns

Emissivity setting: 0.95

Distance/spot ratio: 15:1

### Thermal Imaging Detector

Type: IR-EX™ Technology (Integrated IR Array Sensor with CMOS Sensor)

Imaging resolution: 16,384 pixels (128 x 128 pixels)\*

Field of view (H x W): 33°

Upper sense range: 380°C

Thermal imaging sensitivity: 150mK

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## Specification IRC325 Spot Thermal Camera

Colour palette: Rainbow

\* Interpolation pixels

### GENERAL

Display: 4.5cm colour TFT (128 x 160 pixels)

Power: 3 x 1.5V, AA alkaline batteries (IEC LR6, NEDA 15A)

Battery Life: 16 hours typical

Auto power off: after 5 minutes

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

Dimensions: 185 x 54 x 104 mm

Weight: Approx. 250g including batteries

Includes: 3 x 1.5V AA batteries and instructions

### ENVIRONMENTAL

Operating environment: -10 to 50°C at <70% R.H.

10 to 90% R.H. non-condensing at 30°C

Storage environment: -20 to 60°C, with batteries removed.

Altitude: up to 2000m (Operating)

up to 12000m (Storage)

### SAFETY

Conforms to BS EN 61010-1

Class II, double insulation

### EMC

Conforms to BS EN 61326-1

## Check out what else you can get from Martindale:

- 18th Edition Testers
- Accessories
- Calibration Equipment
- Continuity Testers
- Electricians' Kits
- Environmental Products
- Full Calibration & Repair Service
- Fuse Finders
- Digital Clamp Meters
- Digital Multimeters
- Labels
- Microwave Leakage Detectors
- Motor Maintenance Equipment
- Multifunction Testers
- Non-trip Loop Testers
- Pat Testers & Accessories
- Phase Rotation Testers
- Proving Units
- Socket Testers
- Thermometers & Probes
- Test Leads
- Voltage Indicators
- Specialist Metrohm Testers (4 & 5kV)
- Specialist Drummond Testers



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