Di-LOG
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Operating Instructions for Infrared Ring Laser Thermometer



Instruction Manual for DL7115 (v1.1)

Please read this manual before switching the meter on. Important safety information included.

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I. Certificate of conformity

As the manufacturer of the instrument listed below, we declare under our sole responsibility that the product:

Di-LOG DL7115

To which this declaration relates is in conformity with the relevant clauses of the following standards:

EMC & RoHS
EN 61326-1:2013
EN 60825-1:2014

The instrument has been factory-calibrated during its manufacturing process, ensuring it fully conforms to our rigorous quality assurance procedures. This guarantees exceptional accuracy and reliability for all your measurement needs.

The safety and performance of this instrument is assured when operated within the specifications in this instruction manual.

The product identified above conforms to the requirements of the UK and EU directives for the Electromagnetic Compatibility Regulations 2016 (EMC Directive 2014/30/EU).

II. Safety

⚠ International Safety Symbol

This symbol, adjacent to another symbol or terminal, indicates the user must refer to the manual for further information.

Safety Notices

⚠ To prevent eye damage or personal injury, read the following safety guidelines before using the thermometer:

- Never point the laser directly or indirectly at people or animals.
- Do not look at the laser beam directly or through optical instruments such as telescopes or microscopes.

CAUTION

- Avoid looking directly at the laser emitter.
- Do not disassemble or modify the thermometer or its laser components.
- For safety and accuracy, repairs should only be performed by qualified professionals using original replacement parts.
- If the battery icon on the LCD flashes, replace the battery immediately to prevent inaccurate measurements.
- Inspect the thermometer casing before use. Do not operate the device if it appears damaged (e.g., cracks or missing parts).
- Refer to emissivity settings for accurate temperature readings. Highly reflective or transparent surfaces may cause readings to appear lower than the actual temperature.
- When measuring high-temperature surfaces, avoid physical contact.
- Do not use the thermometer near flammable or explosive substances.
- Operating in environments with steam, dust, or rapid temperature changes may result in inaccurate measurements.
- For best accuracy, allow the thermometer to acclimate to the measurement environment for at least 30 minutes before use
- Avoid prolonged exposure of the thermometer to high-temperature environments.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

It is important to check the state of the battery before use and to replace it if necessary.

III. Instrument & Manual Symbols

Symbols displayed on the instrument and in the instruction manual:

 Warning! Warns of potential danger, and to comply with the instruction manual.

Do not look at the laser beam directly or through optical instruments such as telescopes or microscopes

 Equipment protected throughout by double or reinforced insulation. Complies with IEC 536, class II

 CE Symbol of conformity confirms conformity with relevant EU directives. The meter complies with EMC directives (2004/08/ EC).

 UKCA Symbol of conformity confirms conformity with relevant UK regulations. The meter complies with EMC regulations (SI 2016 No. 1091).

 The DL7115 meets the standard (2012/19/EU) WEEE Directive in the UK & EU. This marking indicates that this product should not be disposed with other household wastes throughout the EC. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use your local authority return and collection systems or contact the retailer where the product was purchased. They can take this product for environmental safe recycling.

 The instruction manual contains information and references, necessary for safe operation and maintenance of the instrument. Prior to using the instrument, the user is kindly requested to thoroughly read the instruction manual and comply with it in all sections.

 Failure to read the instruction manual or to follow the warnings and references contained herein can result in serious bodily injury or instrument damage. The respective accident prevention regulations established by the professional associations are to be strictly enforced at all times.

IV. Description & Key Features

The DL7115 Infrared Thermometer is a high-performance, non-contact temperature measuring device designed for precision and versatility. With an impressive distance-to-spot ratio of 20:1, it delivers accurate readings from a safe distance, making it ideal for industrial, automotive, and HVAC applications. Featuring a wide measuring range from -32°C to 1100°C (-25.6°F to 2012°F), this thermometer ensures reliable performance in extreme conditions. Its 35mm x 35mm color EBTN LCD display provides clear, vibrant readings even in low-light environments, while advanced features like adjustable emissivity and data storage enhance usability and efficiency.

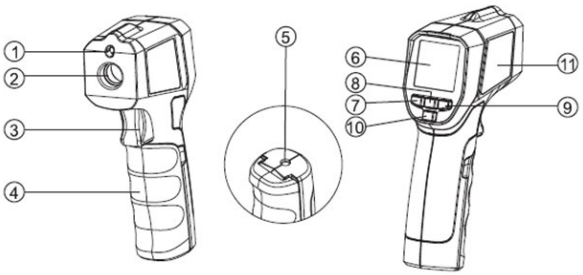
Key Features

- Wide Temperature Range: Measures from -32°C to 1100°C (-25.6°F to 2012°F) for diverse applications
- High Accuracy: ±1.5°C or ±1.5% of reading (whichever is greater) for precise measurements.
- Fast Response Time: ≤250ms for quick and reliable readings.
- Adjustable Emissivity: 0.1–1.0 with 5 preset values for accurate readings on different surfaces.
- Data Management: Stores up to 99 sets of measurements and supports scheduled measurements (1 min to 4 days).
- Advanced Display: 35mm x 35mm color EBTN LCD for clear visibility.
- Laser Targeting: Ring laser (Class 3R) for pinpoint accuracy.
- Multiple Modes: MAX/MIN/AVG/DIF, data hold, and lock measurement functions.
- Safety & Convenience: High/Low temperature alarms (LED & audible), auto power-off (15s), and low battery indication.
- Power: 9V alkaline battery with ≥8 hours continuous use.
- Tripod Mounting – Includes a mounting hole for stable, hands-free operation.



Figure 1

V. DL7115 Lavout



1. Laser
2. Infrared sensor
3. Trigger
4. Battery cover
5. Tripod mounting hole
6. LCD
7. MODE button
8. SET button
9. HI/LO button
10. LOG button
11. Laser warning label

VI. Symbols Used on LCD Display (figure 1)

🔒	Lock measurement indicator
🔇	Audible indicator
HOLD	Temperature hold indicator
🪫	Low battery indicator
ε=0.88	Emissivity indication
HI OK LO	Temperature measurement alarm indicator
⚠	Laser indicator
SCAN	Temperature measurement indicator
°C °F	Temperature unit indicator
8888	Main display of the measured temperature
8888	Auxiliary display of the measured temperature
LOG 888	Temperature logging mode and group number
Auto Interval	Scheduled measurement mark
2088-88-88 88:88	Date and time

VII. Detailed Specifications: Range & Accuracy

D:S ratio	20:1
Measuring range	-32°C~1100°C/ -25.6°F~2012°F
LCD size	35mm*35mm
LCD display	Colour EBTN
Accuracy	<0°C: ± (1.5°C+0.1°C/°C); ≥0°C: ±1.5°C or ±1.5% of reading, whichever is greater. <32°F: ± (3.0°F+0.1°F/°F); ≥32°F: ±3.0°F or ±1.5% of reading, whichever is greater.
Temperature coefficient	±0.1°C/°C or ±0.1%/°C, whichever is greater (±0.1°F/°F or ±0.1%/°F, whichever is greater)
Emissivity	0.1~1.0 (adjustable, can store 5 sets of preset values)
Response time	≤250ms (95% of reading)
Spectral response	8um~14um
Auto power off	15s
Low battery indication	√
High/Low temperature LED alarm	√
High/Low temperature audible alarm	√
Data hold	√
Unit conversion	√
MAX/MIN/AVG/DIF mode	√
Lock measurement	√
Data storage	99 sets
Scheduled measurement	Interval from 1 minute to 4 days; up to 99 times

VII. Detailed Specifications: Range & Accuracy (continued)

Laser	Ring laser, wavelength 630nm~670nm, output power 1mW≤P≤3mW, class 3R laser
Operating temperature	0°C-50°C (32°F-122°F)
Storage Temperature	-20°C-60°C (-4°F-140°F)
Operating humidity	<90%RH (non-condensing)
Drop test	1 Meter
Battery type	9V Alkaline (PP3)
Battery life	≥8 hours (continuous temperature measurement)
Product colour	Grey & Yellow
Product net weight	310g
Product size	179mm×126.5mm×53mm

Product Safety Standards

CE certification: EN61326-1:2013
Laser safety standard: EN60825-1:2014

Note:

In environments with strong electromagnetic interference, measurement results may vary by ±10°C or 20% of the measured value (whichever is greater).

If you notice such a variation, move the thermometer away from the interference source and allow it to recover before continuing measurements.

1. DL7115 Operating Instructions

1.1. Viewing the Last Measured Value

a. Recalling last result:
- When the thermometer is **OFF, short-press the trigger** (less than 0.5 seconds) to turn it ON.
- The **last measurement data** stored before shut-down will be displayed.

b. Viewing Measurement Statistics
- **Short-press the MODE button** to toggle between:
- **MAX** – Maximum recorded value
- **MIN** – Minimum recorded value
- **AVG** – Average value
- **DIF** – Difference between MAX and MIN

1.2. Auto Power Off

- When in **HOLD mode**, if no operation is performed for **15- seconds**, the thermometer will automatically power off and save the last measured value.

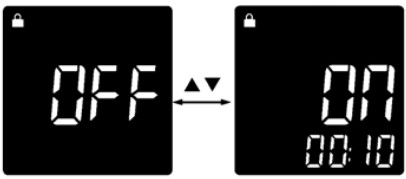
1.3. Manual Measurement

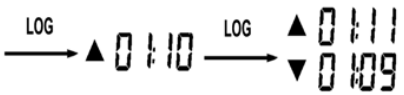
- **Aim and Measure** - Point the thermometer at the target and **pull and hold the trigger**. The **SCAN icon** will flash, indicating that the temperature is being measured. The LCD will continuously update the reading.
- **Hold the Value** - Release the trigger. The **SCAN icon disappears**, and the **HOLD** icon appears, showing that the measurement has stopped and the last value is retained.

1.4. Lock Measurement

- In the **HOLD interface, press and hold the SET button for 3 seconds** to enter the **Lock Measurement Settings**.
- Use the ▲ or ▼ buttons to **turn the lock measurement ON or OFF.**
- When lock measurement is enabled, **short-press the LOG button** to set the timing (default: 00:00).
- The selected time position will flash.
- Adjust the time using the ▲ or ▼ buttons.
- Setting the time to 00:00 disables the timing function.

1.4. Lock Measurement (continued)





- **Enable Lock Measurement -** When lock measurement is turned on, **short-press the trigger (<0.5s)** to activate it. The **Lock icon** will appear on the screen, and the **SCAN icon** will flash, indicating continuous temperature measurement.
- **Stop Lock Measurement -** Pull the trigger again. Both **the Lock** and **SCAN icons** will disappear, and the **HOLD icon** will appear, showing that the thermometer has stopped measuring and is holding the last recorded value.
- **Timed Lock Measurement -** If a lock measurement duration (1 minute to 5 hours) has been set, the thermometer will begin measuring after activation and automatically power off when the set time expires, saving the last measured value.
- **To view the stored value - short press the trigger (<0.5s)** to turn the thermometer back on.
- A long press will clear the stored value.

Note:
For accurate measurements, ensure the target's diameter is at least twice the spot size (S) of the thermometer. Then determine the correct test distance (D) using the D:S ratio (20:1).
Example:
To measure an object with a diameter of approximately 4" (10 cm):

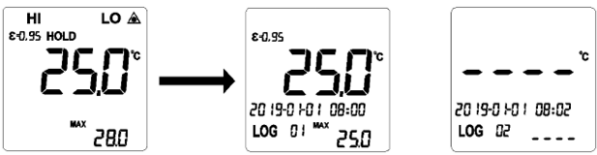
- The spot size (S) should be about 2" (5 cm) for best accuracy.
- According to the D:S diagram, the correct distance (D) is about 40" (100 cm).

1. DL7115 Operating Instructions (continued)

1.5. Measurement Mode with Data Storage Function

a. Enter the measurement mode with data storage function:

- In the **HOLD interface, short press the LOG button** to switch to **measurement mode with data storage.**
- The screen will display the **LOG icon** along with the current log group number.



b. Store data:

- In **Data Storage Mode,** select a storage location **(01–99)** using the ▲ or ▼ buttons.
- If the selected location already contains data, the **temperature value and time-stamp** will be displayed. If empty, the screen will show ----.
- After choosing the location, **pull the trigger** to take a measurement.
- Once the measurement is complete, **short-press the LOG button**.
- The screen will **flash three times** to confirm successful storage.
- The system will then automatically switch to the next available location.

c. Query storage data:

- In **Data Storage Mode**, use the ▲ or ▼ buttons to browse through storage locations.
- The screen will display the **temperature value and times-tamp** for the selected location.
- If no data is stored in that location, the display will show **----.**

d. Delete all storage data:

- In **Data Storage Mode**, **press and hold the LOG button** until the screen flashes for about **10 seconds** and the log group number resets to **"01".**
- This confirms that **all stored data has been deleted.**

1.5. Measurement Mode with Data Storage Function (continued)

e. Exit the measurement mode with data storage function:

- In **Data Storage Mode, press and hold the LOG button for about 3 seconds** until the screen begins to flash
- This indicates that the thermometer is exiting **Data Storage Mode** and returning to the **HOLD interface.**

1.6. Scheduled Measurement



a. Scheduled Setting:

- In the **HOLD interface, press and hold the SET button for 3 seconds** to enter the **Lock Measurement Settings.**
- **Short press the SET button once** to access the **Scheduled Measurement** Settings.
- Use the ▲ or ▼ buttons to **turn scheduled measurement ON or OFF.**



b. Set Start Time for Scheduled Measurement

- **Short-press the LOG button** to cycle through and select each parameter in order:
  - **Year → Month → Day → Hour → Minute.**
- **The selected field will flash. Adjust its value using the ▲ or ▼ buttons.**

Note: The start time must be later than the current system time; otherwise, the scheduled measurement will not execute**.**



c. Set Interval Time for Scheduled Measurement

- After setting the start time, **short-press the LOG button** to select the interval parameters in order:
- **Hour → Minute.**
- Adjust each value using the ▲ or ▼ buttons.

1.6. Measurement Mode with Data Storage Function (continued)



d. Set Number of Scheduled Measurements
- After setting the interval time, short-press the LOG button to select the number of measurements (01–99) to be performed during the scheduled measurement cycle.
- Adjust the value using the ▲ or ▼ buttons.

e. Finalise Scheduled Measurement
- After setting all parameters, press the **SET button or pull the trigger** to return to the **HOLD interface**.
- The **Auto Interval icon** will flash, indicating that the scheduled measurement is active.
- When the start time is reached, the thermometer will automatically:
  - Begin temperature measurement.
  - Store the current time and measured value.
- At each interval, the thermometer will repeat the measurement and store the data until the final scheduled interval is completed.

f. View and Manage Scheduled Measurement Logs
- In the HOLD interface, **press and hold the LOG button for 3 seconds** to enter the **Scheduled Measurement Log Query Mode.**
- The screen will display the **Auto Interval icon**, the **LOG icon**, and the **log group number**.
- In this mode:
  - Use the ▲ or ▼ buttons to browse stored temperature values corresponding to each scheduled time
  - **Press and hold the LOG button for 10 seconds** to delete all scheduled measurement logs.
  - **Short-press the LOG button** or pull the trigger to **exit the log query mode.**

1.7. System Time Settings

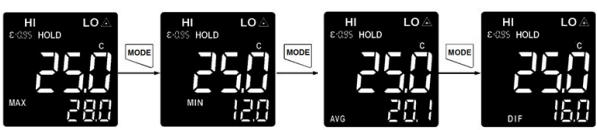


- In the **HOLD interface**, **press and hold the SET button for 3 seconds** to enter the Lock Measurement Settings
- **Short-press the SET button twice** to access the **System Time Settings.**
- **Short-press the LOG button** to cycle through the parameters in order:
  Year → Month → Day → Hour → Minute.
- The selected field will flash. Adjust its value using the ▲ or ▼ buttons:
  - **Short-press** to change by **1 unit.**
  - **Long-press** to change by 1**0 units** per second.
  - To exit, **short-press the SET button** or **pull the trigger** to return to the **HOLD interface.**

Note: System time must be reset after battery replacement or power failure

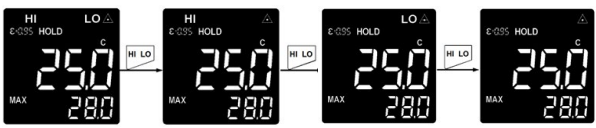
1.8. MAX/MIN/AVG/DIF Value Reading

- Switching Measurement Modes
- **Short press the MODE button** to cycle through the following modes in order:
  MAX → MIN → AVG → DIF.
- The temperature value for the selected mode will appear in the auxiliary display area.



1.9. High/Low Temperature Alarm On/Off

- **To Enable/Disable Alarm** - **Short-press the HI/LO button** to toggle the **High (HI)** and **Low (LO)** limit alarm functions on or off in sequence.
- **HI Limit Alarm** - When enabled and the measured temperature exceeds the high limit, the **red LED** and **HI indicator** will flash.
- If the audible alarm is active, the **buzzer will sound.**
- **LO Limit Alarm -** When enabled and the measured temperature falls below the low limit, the **blue LED** and **LO indicator** will flash.
- If the audible alarm is active, the **buzzer will sound.**
- **Normal Range** - When both HI and LO alarms are enabled and the measured temperature is within the set range, the **green LED** lights up and the **OK indicator** appears, confirming normal temperature.



1.10. Exiting Function Setting

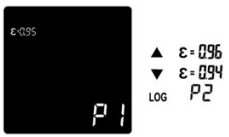
- While in **Setting Mode**, you can exit by:
  - **Pulling the trigger**,
  - **Short-pressing** the **SET button** repeatedly, or
  - **Waiting for 10 seconds** without any operation.

1.11. Adjust High/Low Alarm Limit Setting

- In the **HOLD interface**, **short-press the SET button once or twice** to enter the High/Low Alarm Limit Settings screen.
- **Short-press the LOG button** to quickly select a preset alarm limit value **(P1–P5).**
- If none of the preset values meet your requirement, select the closest value and adjust it using the ▲ or ▼ buttons:
  - **Short-press** to increase or decrease by **1 unit.**
  - **Long-press** to increase or decrease by **10 units per second.**



1.12. Adjust Emissivity Setting



- In the HOLD interface, short-press the SET button until the Emissivity Settings screen appears.
- Short-press the LOG button to quickly select a preset emissivity value (P1–P5).
- If none of the preset values meet your requirement, select the closest value and adjust it using the ▲ or ▼ buttons:
  - Short-press to change by 0.01.
  - Long-press to change by 0.1 per second.

1.13. Change Temperature Unit Setting

- In the **HOLD interface, short press the SET button** until the Temperature Unit Settings screen appears.
- Use the ▲ or ▼ buttons to **switch between °C and °F**.

1.14. Turn On/Off the Audible Alarm

- In the **HOLD interface, short press the SET button repeatedly** until you reach the **Audible Alarm Setting screen.**
- Use the ▲ (up) or ▼ (down) button to toggle the **audible alarm ON or OFF.**

1.15. Enable/Disable the Laser Indication Function

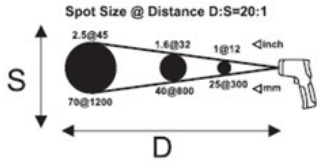
- In the **HOLD interface, short press the SET button repeatedly** until you reach the **Laser Indication Function Setting** screen.
- Press the ▲ (up) or ▼ (down) button to turn the **laser indication ON or OFF.**
- When the laser is **ON,** the **laser indicator icon** will appear on the LCD.
- During temperature measurement, the laser will accurately indicate the position being measured

Warning: Always follow laser safety precautions when the laser is ON to prevent eye damage to humans or animals.

2. D:S (Distance and Spot Size)

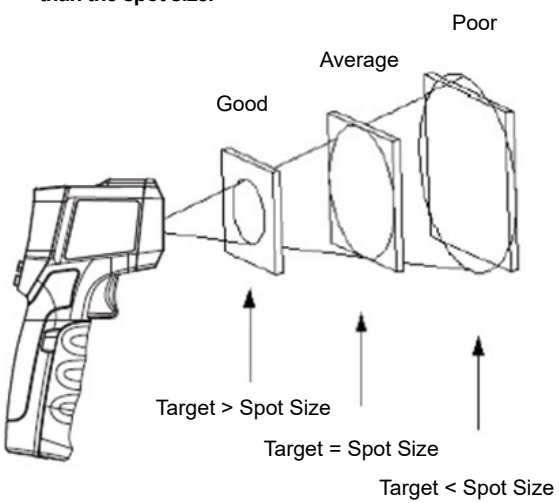
As the distance from the target increases, the measurement area (spot size) becomes larger, reducing accuracy if the target is small. Typically, this relationship is shown in the diagram below:

- **X-axis:** Distance (D)
- **Y-axis:** Spot Size (S)
- A line or curve showing how S increases with D (often linear for most devices).



3. Field of View

- Ensure the **measured target is larger than the spot size**.
- **Smaller targets require closer measurement distances** (refer to the **D:S ratio chart** for spot size at different distances).
- For **optimal accuracy**, the target should be at least **2× larger than the spot size.**



4. Emissivity

Emissivity refers to the ability of a material to radiate energy. Most organic materials, as well as coated or oxidised surfaces, have an emissivity of approximately 0.95.

To measure the temperature of a bright metal surface, cover the area to be tested with masking tape or matt black paint (with a high emissivity setting, if possible). Allow sufficient time for the tape or paint to reach the same temperature as the underlying surface, then measure the temperature of the tape or painted area.

The emissivity values for various metals and non-metals are shown in the following table.

Measured Surfaces	Emissivity
Metal	
Aluminum	
Oxidization	0.2-0.4
A3003 Alloy	
Oxidization	0.3
Rough	0.1-0.3
Brass	
Burnishing	0.3
Oxidization	0.5
Copper	
Oxidization	0.4-0.8
Electric Terminal Board	0.6
Hastelloy	
Alloy	0.3-0.8
Inconel	
Oxidization	0.7-0.95
Sand-Blasting	0.3-0.6
Electro Burnishing	0.15

4. Emissivity (continued)

Iron	
Oxidization	0.5-0.9
Rusting	0.5-0.7
Iron (Casting)	
Oxidization	0.6-0.95
Non-Oxidization	0.2
Casting	0.2-0.3
Iron (Forging)	
Passivation	0.9
Lead	
Rough	0.4
Oxidization	0.2-0.6
Molybdenum	
Oxidization	0.2-0.6
Nickel	
Oxidization	0.2-0.5
Platinum	
Black	0.9
Steel	
Cold Rolling	0.7-0.9
Steel Plate Rubbing	0.4-0.6
Steel Plate Burnishing	0.1
Zinc	
Oxidization	0.1

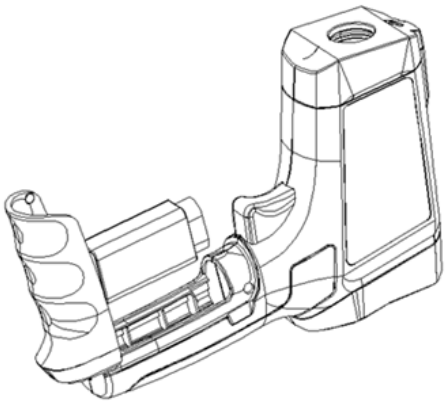
4. Emissivity (continued)

Non-Metal	
Asbestos	0.95
Asphalt	0.95
Basalt	0.7
Carbon	
Non-Oxidization	0.8-0.9
Graphite	0.7-0.8
Silicon Carbide	0.9
Ceramics	0.95
Clay	0.95
Concrete	0.95
Cloth	0.9
Glass	
Convex Glass	0.76-0.8
Smooth Glass	0.92-0.94
Lead-Boron Glass	0.78-0.82
Plates	0.96
Plaster	0.8-0.95
Ice	0.98
Limestone	0.98
Paper	0.95
Plastics	0.95
Water	0.93
Soil	0.9-0.98
Wood	0.9-0.95

5. Battery Replacement

To Install or replace the 9V alkaline battery (PP3/1604A) as follows:

- **Open the battery cover.**
- **Insert the battery and pay attention to the polarity.**
- **Close the battery cover.**



6. Maintenance & Cleaning

The maintenance and other services of this instrument must be carried out by the manufacturer or an approved service centre so not to invalidate the warranty. Test leads are classed as a wear and tear item and are available to purchase as an accessory. Please contact product support for more information. The outer casing should be regularly cleaned with either a dry or slightly damp cloth. Do not use detergents, especially if they contain abrasives or solvents.

7. Warranty & Calibration

Di-LOG instruments are subject to stringent quality controls. If in the course of normal daily use a fault occurs we provide a 24 month warranty (only valid with proof of purchase). Faults in manufacture and material defects will be rectified by us free of charge, provided the instrument has not been tampered with and returned to us unopened. Damage due to dropping, abuse or misuse are not covered by the warranty.

Product Support
support@dilog.co.uk

To maintain the specified accuracy of the measurement results, the instrument must be recalibrated at regular intervals by Di-LOG. Di-LOG's service partner, Re-CAL Calibration, are the only authorised agent with the facility to adjust and service the DL7115 Infrared Thermometer We recommend an annual recalibration period from the date of purchase.

Service & Calibration

www.recal.biz

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Di-LOG
...measurably better

Infrared Thermometer
Instruction Manual

Register your product with us to keep in contact with the latest updates and service reminders.

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