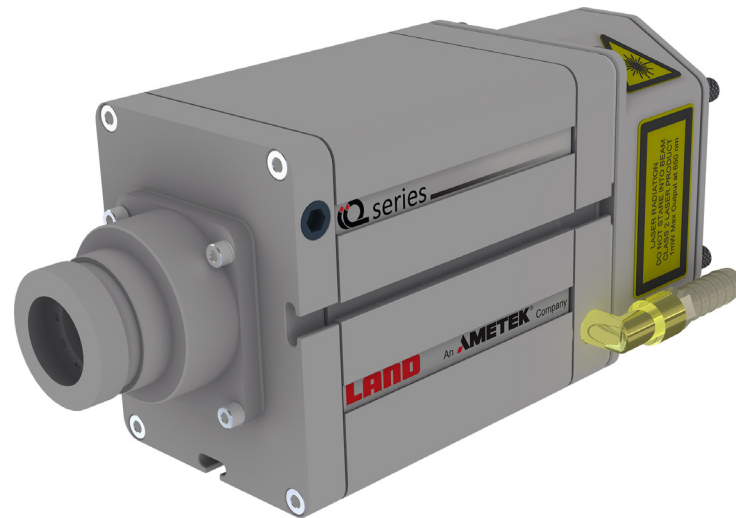


LAND

AMETEK®

PROCESS & ANALYTICAL INSTRUMENTS



iQ series Infrared Thermometer

Windows Configuration Software User Guide

Land Instruments International

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IMPORTANT INFORMATION - PLEASE READ



PROCESS & ANALYTICAL INSTRUMENTS

Health and Safety Information



Read all of the instructions in this booklet - including all the **WARNINGS** and **CAUTIONS** - **before** using this product. If there is any instruction which you do not understand. **DO NOT USE THE PRODUCT.**

Safety Signs



WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or personal injury.



CAUTION

Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury to the user or users, or result in damage to the product or to property.

NOTE

Indicates a potentially hazardous situation which, if not avoided, could result in damage or the loss of data.

Equipment Operation

Use of this instrument in a manner not specified by Land Instruments International may be hazardous. Read **and understand** the user documentation supplied **before** installing and operating the equipment.

Protective Clothing, Face and Eye Protection

It is possible that this equipment is to be installed on, or near to, machinery or equipment operating at high temperatures and high pressures. Suitable protective clothing, along with face and eye protection must be worn. Refer to the health and safety guidelines for the machinery/equipment before installing this product. If in doubt, contact Land Instruments International.

Electrical Power Supply

Before working on the electrical connections, all of the electrical power lines to the equipment must be isolated. All the electrical cables and signal cables must be connected exactly as indicated in these operating instructions. If in doubt, contact Land Instruments International.

Storage

The instrument should be stored in its packaging, in a dry sheltered area.

Unpacking

Check all packages for external signs of damage. Check the contents against the packing note.

Lifting Instructions

Where items are too heavy to be lifted manually, use suitably rated lifting equipment. Refer to the Technical Specification for weights. All lifting should be done as stated in local regulations.



IMPORTANT: Please note radiation safety warning, where this symbol appears



Technical Support

Technical support for the LAND iQ series infrared thermometer can be obtained by using the Contact details shown above.

Contact Us

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For further details on all AMETEK Land offices, distributors and representatives, please visit our websites.

Return of Damaged Goods

IMPORTANT If any item has been damaged in transit, this should be reported to the carrier and to the supplier immediately. Damage caused in transit is the responsibility of the carrier not the supplier.

DO NOT RETURN a damaged instrument to the sender as the carrier will not then consider a claim. Save the packing with the damaged article for inspection by the carrier.

Return of Goods for Repair

If you need to return goods for repair please contact our Customer Service Department. They will be able to advise you on the correct returns procedure.

Any item returned to Land Instruments International should be adequately packaged to prevent damage during transit.

You must include a written report of the problem together with your own name and contact information, address, telephone number, email address etc.

Design and Manufacturing Standards

The Quality Management System of Land Instruments International is approved to BS EN ISO 9001 for the design, manufacture and on-site servicing of combustion, environmental monitoring and non-contact temperature measuring instrumentation.



Approvals apply in the USA

Approvals apply in India



Operation of radio transmitters, telephones or other electrical/electronic devices in close proximity to the equipment while the enclosure doors of the instrument or its peripherals are open, may cause interference and possible failure where the radiated emissions exceed the EMC directive.

The protection provided by this product may be invalidated if alterations or additions are made to the structural, electrical, mechanical or pneumatic parts of this system. Such changes may also invalidate the standard terms of warranty.

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1.0 INTRODUCTION

1.1 General Introduction

This publication gives you the information required to safely operate the Land **iQ series** digital thermometer.

It is important to check all equipment with which you have been supplied, and read all the literature provided with the Land **iQ series** digital thermometer *before* using the thermometer for the first time. Additionally, keep all supplied literature readily available, for reference when the equipment is in general use.

The equipment must only be used and maintained by suitably trained personnel, capable of following the procedures and guidelines given in this User Guide.

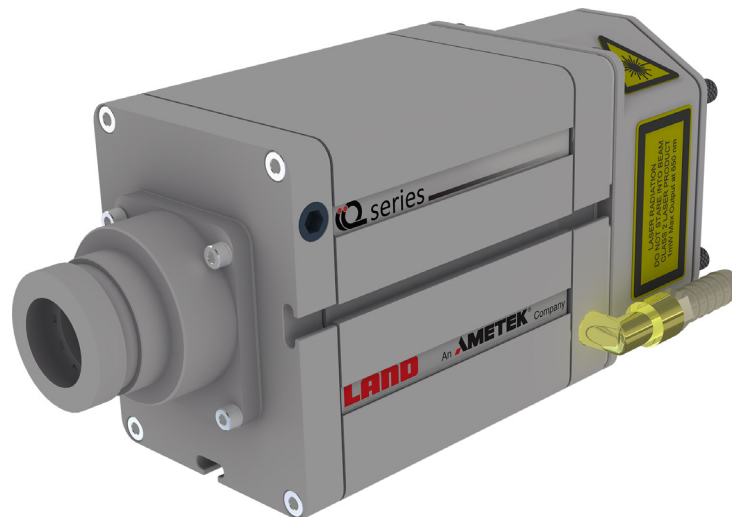


Fig. 1 Land **iQ series** Digital Thermometer

1 *iQ series* Windows Configurator Software (iQ-WCS)

NOTE

The *iQ series* Windows Configurator Software (iQ-WCS) is provided free of charge. This enables low-cost configuration of *iQ series* thermometers for those users who are able to *engineer and support* the required RS 485 physical connection. Land **does** supply a cable, and a recommended RS485communications converter, in relation to this method of connection.

These instructions detail how to install and use the *iQ series* Windows Configurator Software. This allows a *iQ series* thermometer to be configured from any laptop or PC having an RS485 connection.

- 1) Insert the *iQ series* Windows Configurator software CD into your PC/Laptop CD Drive.
- 2) The CD should auto-run.
- 3) If this fails, click the setup.exe file on the CD.

NOTE

If 'Live data' is not displayed (greyed out), check that the laptop/PC comms and the thermometer comms are synchronised. Also check that the thermometer is connected correctly.

If 'Live Data' is 'greyed out';

- 1) Select the **Comms** menu option.
- 2) From the **Comms** drop-down menu, set the following:
 - **Serial Port** - serial port connecting laptop/PC and thermometer, default set to **1**
 - **Baud Rate** - data transfer rate between thermometer and laptop/PC. Ensure that this is set to **57600** (default).
 - **Address** - the configurator address (1 to 254), default set to **1**
 - **1 to 1 (Address 0)** - used when only one **iQ series** thermometer is connected to the RS485 port

 **NOTE**

The **1 to 1 (Address 0)** mode must *not* be used if more than one **iQ series** thermometer is connected to the RS485 port.

The **1 to 1** mode enables communication with the thermometer, regardless of the user-settable thermometer address.

Where multiple thermometers are to be connected to a shared RS485 bus, the instruments should first be configured separately and given a unique address, so that each thermometer on the shared bus will have a separate address.

Once installed on the shared bus, communication with a particular thermometer is achieved by setting the configurator address to match that of the thermometer.

When all the '485 Settings' are synchronised between laptop/PC and thermometer, the dynamic 'Live Data' is then displayed. If this does not happen, check that the thermometer connections are correct, as shown in the standard **iQ series** User Guide.

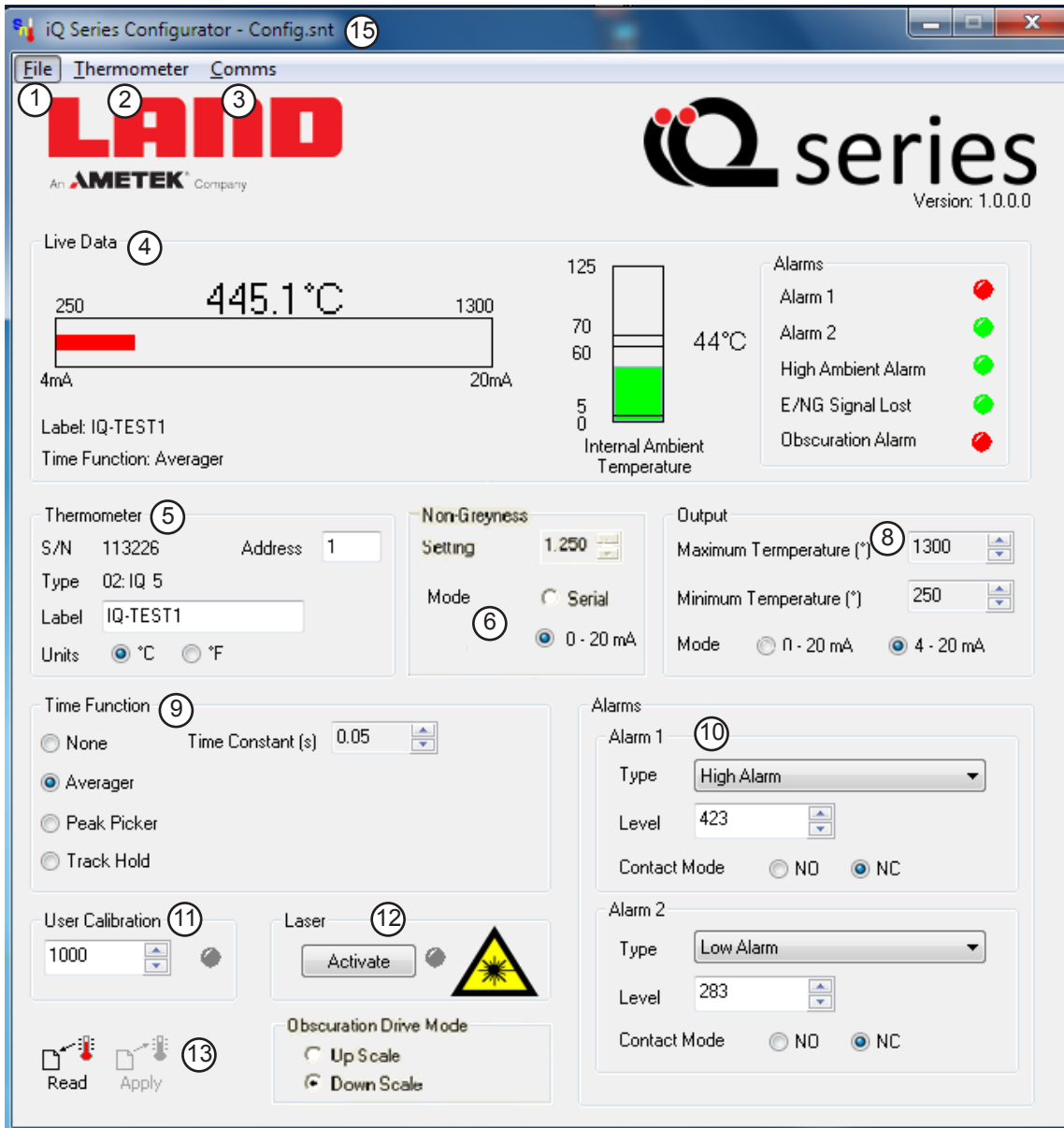


Fig. 2 *iQ series* Configurator with iQ 1, iQ 2 or iQ 5 thermometer connected

IMPORTANT: Please note radiation safety warning, where this symbol appears



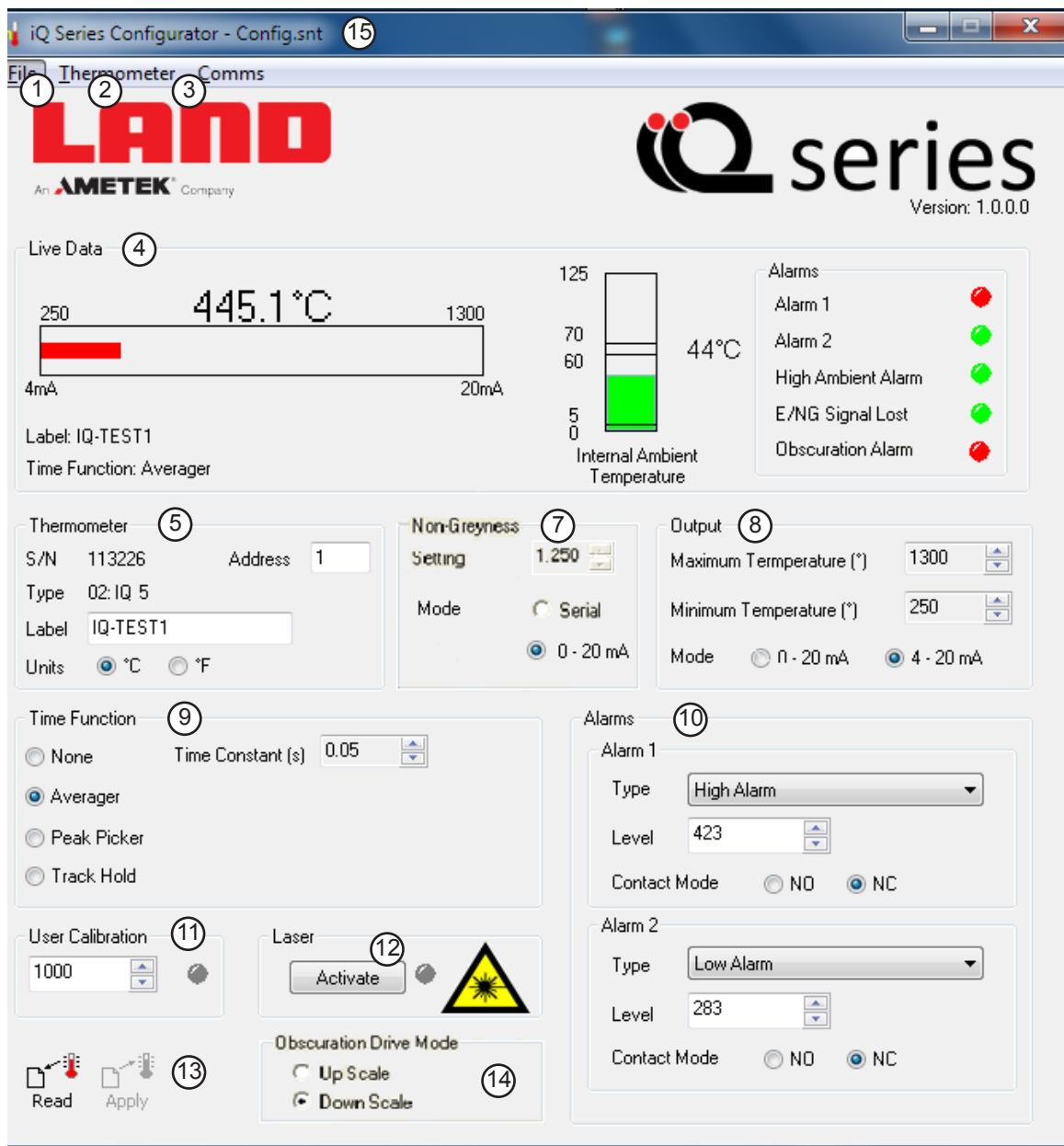


Fig. 3 *iQ series* Configurator with iQ R thermometer connected

IMPORTANT: Please note radiation safety warning, where this symbol appears



Item	Description	User Setting	Function
1	File	Yes	<p>New - resets to a default configuration setting</p> <p>Open - opens a saved configuration file</p> <p>Save - saves the current configuration file. Note: selecting Save when running from the default configuration i.e. Default.snt (Item 15) will create a new default configuration, which will be applied when the configurator is next opened.</p> <p>Save As - saves the current configuration file with a new file name</p> <p>Exit - closes the iQ series Windows Configurator</p>
2	Thermometer	Yes	<p>Apply - applies any changes made to the thermometer</p> <p>Read - reads and displays the parameters set in the thermometer</p>
3	Comms	Yes	<p>485 Settings - displays and allows changes to be made to the RS485 settings. <i>Serial Port, Baud Rate</i> and <i>Address</i> (see Fig. 15). Note that this menu only sets the baud rate of the configurator, not the thermometer.</p> <p>Note: the factory default baud rate setting is 57600 for both the iQ-WCS and for all iQ series thermometers.</p>

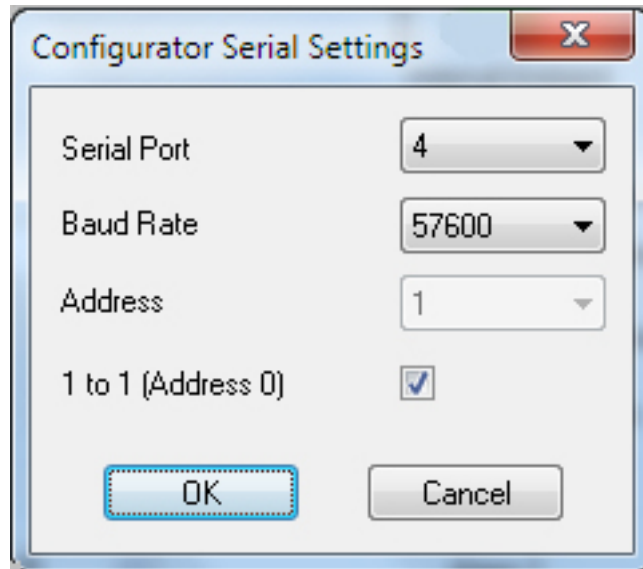



Fig. 4 '485 Settings' sub-menu

4	Live Data	No	Continuously updated information, including target temperature instrument <i>Label, Internal Ambient Temperature</i> , selected <i>Time Function</i> and <i>Alarms</i> status
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Item	Description	User Setting	Function
5	Thermometer		
	S/N	No	instrument serial number
	Address	Yes	the RS485 address of the thermometer. To change the address, type the required address in the text box, then click on <i>Apply</i> (Item 13). Note that in order to maintain communication between the configurator and the thermometer, either the configurator address must be changed to match the new thermometer address, or the 1:1 mode must be selected.
	Type	No	instrument type
	Label	Yes	label or name allocated to the instrument, determined by the user
	Units	Yes	°C or °F, selectable by the user
6	Emissivity (SN version only)		
	Setting	Yes	set by the user, range 0.10 to 1.00
	Mode	Yes	<i>Serial</i> option allows the emissivity to be set using the digital <i>Setting</i> function. <i>0-20mA</i> option, reads the analog emissivity setting directly from the instrument
7	Non greyness (iQR version only)		
	Setting	Yes	set by the user, range 0.800 to 1.250
	Mode	Yes	<i>Serial</i> option allows the non greyness to be set using the digital 'Setting' function. <i>0-20mA</i> option, reads the analog non greyness setting direct from the instrument
8	Output		
	Uses an 'AZAR' system (adjustable zero, adjustable range). Allows the user to set the current output to operate over a reduced span within the operating range of the instrument.		
	Maximum Temperature	Yes	sets the upper limit of the temperature span
	Minimum Temperature	Yes	sets the lower limit of the temperature span
	Mode	Yes	Sets the output mode to <i>0-20mA</i> or <i>4-20mA</i> . <i>Minimum span 50°C / 90°F</i>

(Continued...)

Item Description	User Setting	Function
9 Time Function	Yes	<p>None - No time function selected (see Section 6.0)</p> <p>Averager - Adjustable response speed, smooths the temperature output signal in relation to the temperature input <i>Time Constant:</i> 0, 0.05, 0.1, 0.15, 0.25, 1, 2, 4, 8, 16, 32, 64, 128, 256 or 512s</p> <p>Peak Picker - Allows you to monitor the highest temperature values in a rapidly varying process <i>Mode:</i> 'Reset or Hold' <i>Threshold:</i> 'Tmin° to Tmax°' <i>Decay Rate:</i> '512, 256, 128, 64, 32, 16, 8, 4, 2, 1, 0.5 or 0.25°/s' <i>On Delay:</i> '0 to 10s' in 0.1s increments <i>Off Delay:</i> '0 to 10s' in 0.1s increments</p> <p>Track and Hold - Tracks a temperature value when enabled and holds it when disabled</p>
10 Alarms	Yes	<p>Two configurable alarm functions. Alarm 1 and Alarm 2 - each alarm has the following options: AL1 Level (°) Set alarm 1 temperature level</p> <p>Mode - <i>Low Alarm:</i> indicates when the process temperature falls below the set specified limit <i>High Alarm:</i> indicates when the process temperature exceeds the specified limit. <i>Ambient Alarm:</i> indicates when the internal thermometer temperature exceeds the safe internal ambient limit of 70°C / 158°F <i>E/NG Lost Alarm:</i> indicates loss of the emissivity/non-greyness signal. Activates when the input current is <1mA <i>Obscuration Alarm:</i> indicates excessive obscuration (Ratio thermometers only) <i>Contact Mode:</i> 'NC' (Normally Closed), 'NO' (Normally Open) NOTE: For 'failsafe' operation use the 'NC' option</p> <p>AL2 Level (°) - As AL1 Level (°) above</p>
11 User Calibration	Yes	<p>For advanced users wanting to make a single-point adjustment to match the thermometer reading with a local temperature reference measurement. WARNING - Changing this figure from the default (1000) temporarily changes the calibration of the instrument's temperature output, indicated by a red LED.</p>

Item Description	User Setting	Function
12 Laser 	Class 2 laser product - Do not stare into beam Observe precautions for working with Class 2 lasers.	Yes Activate - switches on the built-in laser, which can be used to align the thermometer accurately. An LED illuminates when the laser is active
13 Read/Apply	Yes	Apply - applies any changes made to the thermometer Read - reads and displays the parameters set in the thermometer
14 Obscuration Drive Mode (used only when iQR connected)	Yes	Up Scale - drives the output upscale if the target is excessively obscured. Down Scale - drives the output upscale if the target is excessively obscured.

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PRODUCT WARRANTY

Thank you for purchasing your new product from Land Instruments International. This Land manufacturer's 'back-to-base' warranty covers product malfunctions arising from defects in design or manufacture. The warranty period commences on the instrument despatch date from the Land Instruments International Ltd. factory in Dronfield, UK.

36 MONTHS WARRANTY



Building upon the reputation for reliability and longevity that System 4 and UNO thermometers have earned, Land are delighted to be able to provide our customers with an industry-leading 36 month warranty for the following products:-

- SPOT thermometers, accessories and mountings and special instruments based on SPOT.
- System 4 thermometers, processors, accessories and mountings and special instruments based on System 4.
- UNO thermometers, accessories and mountings and special instruments based on UNO.
- Application-dedicated processors based on LANDMARK® Graphic.
- ABTS/S and ABTS/U
- FTS
- VDT/S and VDT/U
- DTT
- FLT5/A

This 36 month warranty is provided as standard for all orders for the products listed above received from 1st May 2002.

We believe that our customers expect us to set the standard in terms of performance, quality, reliability and value for money. This 36 months warranty, as a part of an on-going program of continuous improvement, is just one way in which Land strive to maintain our position as the temperature measurement partner of choice.

24 MONTHS WARRANTY

The following Land Instruments International products are provided with a 24 months warranty:

- ARC
- FTI-E
- NIR

12 MONTHS WARRANTY

All Land Instruments International products not provided with either a 36 month or 24 month warranty (see lists above), are provided with a 12 months warranty.

PRODUCT WARRANTY

EXCLUSIONS FROM WARRANTY

It should be noted that costs associated with calibration checks which may be requested during the warranty period are not covered within the warranty.

Land reserve the right to charge for service/calibration checks undertaken during the warranty period if the cause is deemed to fall outside the terms of the warranty.

This Land manufacturer's warranty does not cover product malfunction arising from:-

- incorrect electrical wiring.
- connection to electrical power sources outside the rating of the product.
- physical shock (being dropped, etc.) and impact damage.
- inappropriate routing, support, physical shock & strain protection, etc. of the lightguide (Fiberoptic thermometers only).
- environmental conditions exceeding the IP / NEMA rating of the product.
- environmental conditions outside the Ambient Temperature, Humidity and Vibration rating of the product.
- environmental contamination (solvent vapours, deposition of airborne contamination, cooling liquids of non-neutral pH, etc.).
- overheating as a result of interruption of water/air flow through cooling jackets or of incorrect installation.
- inappropriate modification of product (drilling holes in thermometer bodies, etc.).
- inappropriate recalibration which results in product calibration being taken outside specification.
- improper resealing of thermometer following parameter adjustment (UNO, FLT5/A, etc.).
- attempted repair by a non-Land-authorized repair centre.

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For a complete list of our international offices, please visit www.landinst.com

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