

***FLT5B***  
***Thermometer***

***Installation Guide***

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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 loss of data.

### Signs and Symbols used on equipment and Documentation



Caution, risk of electric shock.



Caution, attention to possibility of risk of damage to the product, process or surroundings. Refer to instruction manual.



Caution, hot surface.



Protective Conductor Terminal.



Observe precautions for handling electrostatic discharge sensitive devices.

### Equipment Operation

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

The safety of any system incorporating this equipment is the responsibility of the assembler.

### 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 AMETEK Land.



Wear Protective Gloves



Wear Protective Clothing



Wear Eye Protection



Wear Ear Protection



Wear Safety Boots



Wear Face Protection

### 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 AMETEK Land.

## Contact Us

### UK - Dronfield

Land Instruments International

Tel: +44 (0) 1246 417691

### China

AMETEK Land China Service

Tel: +86 21 5868 5111 ext 122

### USA - Pittsburgh

AMETEK Land, Inc.

Tel: +1 412 826 4444

### India

AMETEK Land India Service

Tel: +91 - 80 67823240

Email: [land.enquiry@ametek.com](mailto:land.enquiry@ametek.com)

Web: [www.ametek-land.com](http://www.ametek-land.com)

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

## Storage

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

The maximum storage temperature is 10°C (18°F) higher than the maximum operating temperature.

The minimum storage temperature is 10°C (18°F) lower than the minimum operating temperature.

Refer to the Technical Specification for details of the operating temperature limits.

## 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 carried out in accordance with local and national regulations.

## 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 for details of the correct returns procedure.

Any item returned to AMETEK Land 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.

Registered ISO9001 Management System approvals apply in the USA.

UK Calibration Laboratory: UKAS 0034.

USA Calibration Laboratory: ANAB Accredited ISO/IEC 17025.

National Accreditation Board for Testing and Calibration Laboratories 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, pneumatic, software or firmware components of this system. Such changes may also invalidate the standard terms of warranty.

## Copyright

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## About this Installation Guide

This guide gives the basic information necessary to install a Land FLT5B thermometer and get it working. More detailed information is contained in the 'User Guide'. Information regarding the repair and calibration of the thermometer is contained in the 'Service Manual'.

It is important to check the equipment with which you have been supplied to ensure that all ordered items and accessories have been delivered.

### NOTE

If the thermometer is to be used in an area of ambient temperature higher than that specified as safe for the thermometer, then the thermometer must be housed in a special cooling jacket available from Land infrared.

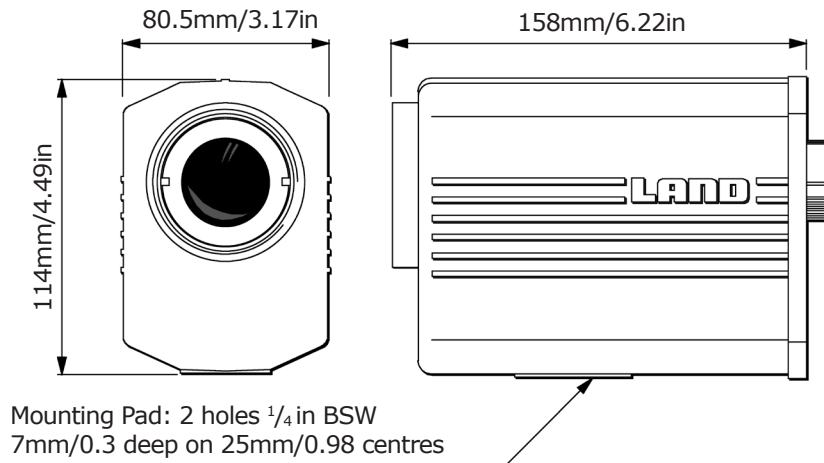
If the thermometer is to be used in an area where the atmosphere contains a high proportion of dust/smoke/steam etc, then the thermometer must be used in conjunction with a special air purge to keep the lens clean. The air purge is available from Land infrared.

The controls for the 'Emissivity' and 'Response Speed' are located behind a screw-on cover on the rear face of the thermometer. If the thermometer is used with a Back Cap, the Back Cap will have to be removed in order to access the controls.

If possible, select the required settings for 'Emissivity' and 'Response Speed' **before** installing the thermometer at the chosen location. (See 'Installation Information' overleaf).

For more information on cooling jackets and air purges, refer to the Installation Guides supplied with those products.

## Installation Dimensions



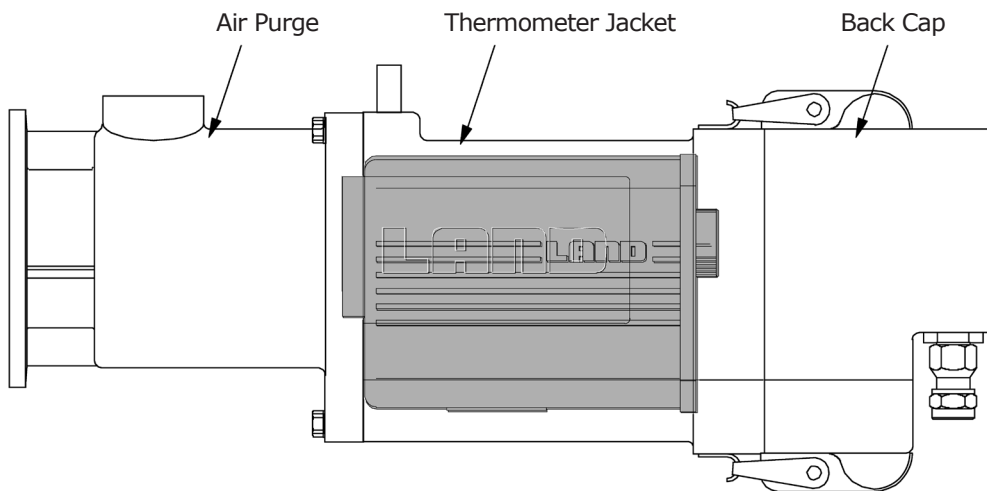
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## Installation Accessories

The **FLT5B** thermometer is compatible with all Land System 4 Mountings and Accessories. For the majority of float line applications, the following package of accessories is recommended:

- Air Purge: Part N° 091.561
- Jacket: Part N° 091.560
- Back Cap: Part N° 091.562

For more information refer to the "Thermometer Mountings and Accessories Installation Guide".



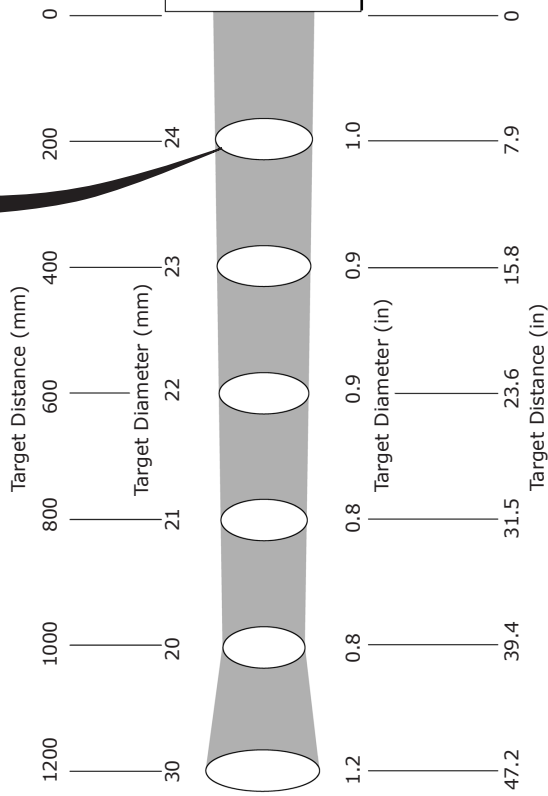
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## Specification

	<b>FLT5B</b>	<b>FLT51B</b>
Range	250 to 1100 °C 500 to 2000 °F	400 to 1300 °C
Spectral response	4.8 to 5.2 μm	
Field of view	50:1 at 1 m focus (fixed) 50:1 at 39.4 in focus (fixed)	
Output	4 to 20 mA current loop	
Response time (0 to 95%)	1 to 10 seconds adjustable	
Emissivity adjustment	0.1 to 1.09 in steps of 0.01	
Resolution	0.2 °C (slow response setting) 0.4 °F (slow response setting)	
Stability	0.023 % of span per 1°C change in ambient temperature 0.023 % of span per 2°F change in ambient temperature	
Accuracy	0.25 %K or 5 °C 0.25 %K or 9 °F (Whichever is higher)	
Ambient limits	0 to 60 °C specified; -10 to 80 °C operating 32 to 140 °F specified; 14 to 176 °F operating	
EMC	EN 50 082-2 (immunity); EN 50 081-1 (emission); IEC 1010 (safety)	
Sealing	IP65	
Vibration	3g (10 to 300Hz)	
Power supply	12 to 45 V d.c.	

## Installation Information

**Sight Path**  
Ensure that the thermometer has an unobstructed view of the target



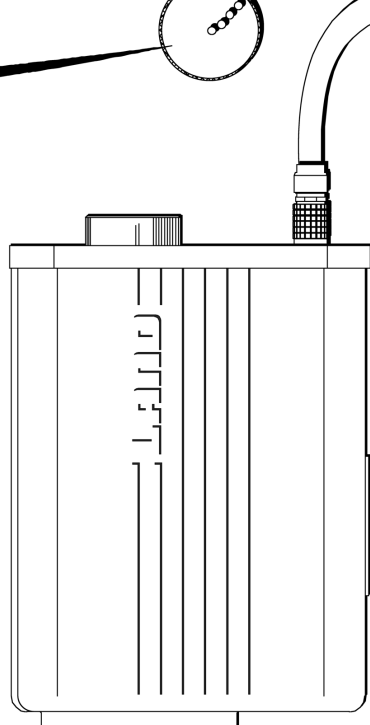
### Screw-on cover

Unscrew the cover to reveal the 'Emissivity' and 'Response Speed' controls.  
Refit the cover after adjusting the controls.

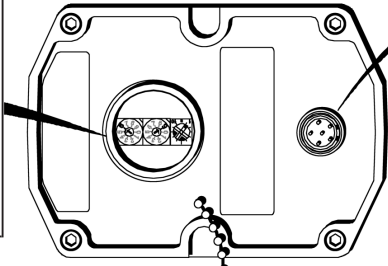
**'Emissivity' and 'Response Speed' settings**

**Emissivity**  
Example = 0.96

**Response Speed**  
Fully anticlockwise = 1sec  
Fully clockwise = 1.0sec

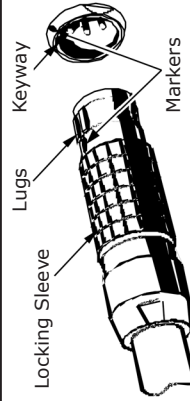


View on Side



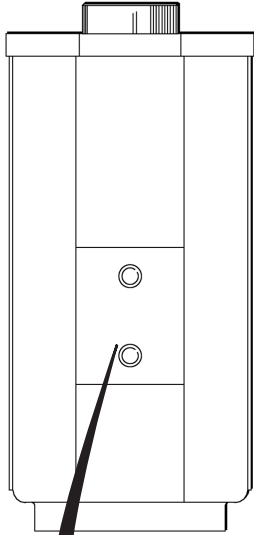
View on Rear

### Electrical Connection



Align the two red markers. (i.e., align the lugs on the plug end of the pre-wired cable with the keyway in the connector on the thermometer). Push the plug into the connector.

**Mounting Pad (Tripod Mounting)**  
2 holes, 1/4in BSW, 7mm/0.3in deep on 25mm/1.0in centres



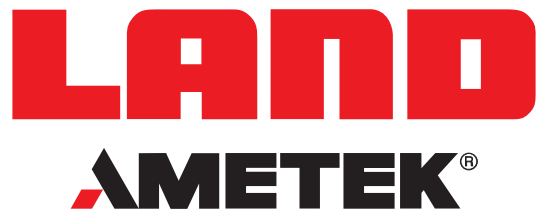
View on Underside

### Cable Schedule

Cable Colour	Function
Red	4 to 20mA linear temperature signal drive
Black	4 to 20mA linear temperature signal return

**NOTE**  
24V nominal at thermometer pins

The screen is connected to the thermometer case. The case must be grounded at the installation using your preferred method.



## 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.  
*\*Note: SPOT Actuators are provided with an 12 months Warranty.*
- 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/B
- 4500 MkIII (Transmissometer and AFU-APS-I/O only)
- LWIR Thermal Imaging Cameras
- NIR-B / MWIR-B Thermal Imaging Cameras

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:

- LSP-HD Linescanners
- NIR
- SDS-640

### 12 MONTHS WARRANTY

All other AMETEK Land products including NIR-B Camera Retraction and Mounting Systems, VIRALERT Human Body Temperature Screening Systems, Water Cooled Housings & Accessories, SPOT Actuator, and Air PurgeEquipment

# PRODUCT WARRANTY

## EXCLUSIONS FROM WARRANTY

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

AMETEK 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:-

- improper installation
- misuse
- unauthorised alteration
- inappropriate routing, support, physical shock & strain protection, etc. of the fibre-optic lightguide (where fitted)
- environmental conditions exceeding the IP / NEMA rating of the product
- inappropriate recalibration which results in product calibration being taken outside specification
- improper resealing of thermometer following parameter adjustment (UNO, FLT5/A, etc.)
- damage caused by an unauthorised repair
- consumables including filters, electrochemical cells, batteries and sorbents

Land Instruments International Ltd • Dronfield S18 1DJ • England • Tel: +44 (0) 1246 417691 • Fax: +44 (0) 1246 410585  
Email: [land.enquiry@ametek.com](mailto:land.enquiry@ametek.com) • [www.ametek-land.com](http://www.ametek-land.com)

AMETEK Land, Inc. • 150 Freeport Rd. • Pittsburgh, PA 15238 • U.S.A. • Tel: +1 (412) 826 4444  
Email: [land.enquiry@ametek.com](mailto:land.enquiry@ametek.com) • [www.ametek-land.com](http://www.ametek-land.com)

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