LAND

AMETEK®
PROCESS & ANALYTICAL INSTRUMENTS

SPOT Thermometer

User Guide

IMPORTANT INFORMATION - PLEASE READ

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.

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For further details on all LAND/Ametek 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

 This instrument complies with current European directives relating to Electromagnetic Compatibility 89/336/EEC and Low Voltage Directive 73/23/EEC.

 The Quality Management System of Ametek Motors (Shanghai) Co. Limited is approved to ISO9001:2008 for the Design and Manufacturing of Motors and the Manufacturing of Gas Analysers.
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 both CE and IP classifications to 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.

Copyright

Contents

1 Introduction

This User Guide gives you instructions on how to install and operate a LAND SPOT Thermometer.

1.1 About the Spot Thermometer

SPOT Thermometers are high performance pyrometers, featuring advanced integrated processing capabilities.

SPOT utilizes the latest technology to make spot temperature measurement more accurate and easier to use than ever before.

Ethernet, Modbus TCP, Video and analog communications are combined within one thermometer, and all are available to the operator.

All essential operator information can be viewed either on the sensor's rear display panel, remotely in a control room, or via a web server.

Features

- Through-the-lens integrated camera
- Easy target alignment in low and high temperature environments
- Rear display
- Target focusing, temperature reading and set-up through simple menu-driven software
- LED Sighting - no laser safety requirements; the sensor confirms the focus distance and spot size; pulsing green/red LED simplifies sighting on all targets
- Single person installation at sensor location - no need to verify control room readings
- Industry standard 4 to 20mA temperature output
- Single Sensor Solution - Ideal for use with customer PLCs or DCS systems; no requirement for a separate processor

The focus display LED is a unique feature which provides a precise confirmation of the thermometer focus distance and target spot size at that distance. This function replaces target size tables, and takes the math or guesswork out of this calculation.

Flexible design provides multiple form factors, resulting in simplified replacement of older thermometers.

SPOT is designed to be fully interchangeable with existing LAND fixed spot thermometers e.g System 4.

SPOT cable options

Digital Cable
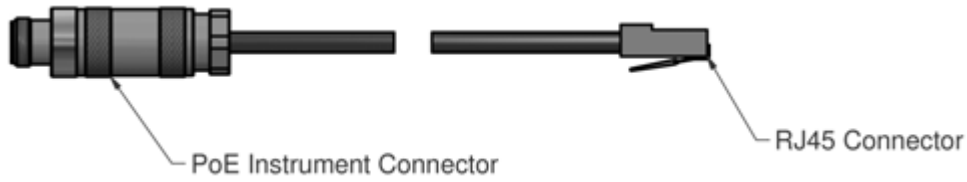
Digital cable options

Digital Cable Part Nº	Cable length
807944	5 m / 16 ft 5 in
807945	20 m / 65 ft 7 in
807946	100 m / 328 ft

Analogue Cable

Analogue cable options

Analogue Cable Part Nº	Cable length
807950	5 m / 16 ft 5 in
807951	20 m / 65 ft 7 in
807952	100 m / 328 ft

Analogue cable pin out details

Wire Colour	Pin Out
Red	+24V
Black	0V
Brown	+mA Out
Blue	-mA Out
Purple	Relay 1A
Green	Relay 1B
Yellow	Trigger in +
White	Trigger in -
Screen	Screen

Fig. 2-1 Spot Cable Options

2   Getting Started

A typical temperature measurement system incorporating a SPOT thermometer will include:

- SPOT Thermometer;
- A thermometer mounting accessory, such as a mounting bracket or water cooled jacket;
- A computer running the Spot Web Server software or Spot Viewer software;
- Cable(s) connecting the thermometer to the computer. Cable details are given in Fig 2-1 opposite.

2.1 Installing the Thermometer

If you are using the thermometer in conjunction with a mounting accessory, refer to the accessory's Installation Guide for help on choosing a location for the thermometer, mounting dimensions, and aligning the thermometer on the target.

Fig. 2-2 shows a thermometer installed in Mounting Bracket.

2.2 Connecting the Thermometer to a Computer

Fig. 2-2

Using the Digital Cable Kit

1)   Insert the end of the cable (RJ45 to M12 Digital Instrument Cable) into the connector on the thermometer (Fig. 2-3).

Fig. 2-3

2)   Insert the mains lead into the PoE Injector unit (Fig. 2-4).

Fig. 2-4

3)   Insert the other end of the RJ45 to M12
     Digital Instrument Cable into the **P+DOUT**
     connector of the PoE Injector (Fig. 2-5).

Fig. 2-5

4)   Insert one end of the RJ45 cable into the
     Data IN connector of the PoE Injector (Fig.
     2-6).

Fig. 2-6

5)   Insert the other end of the RJ45 cable into
     the Ethernet connector on the Computer
     (Fig. 2-7).

In order for the SPOT thermometer to
communicate with the computer, you will now
need to set an appropriate IP address on the
computer.   See Section 2.3.

Fig. 2-7

2.3 Setting the IP address

In order for the thermometer to communicate with the computer, you must set an appropriate IP address on the computer.
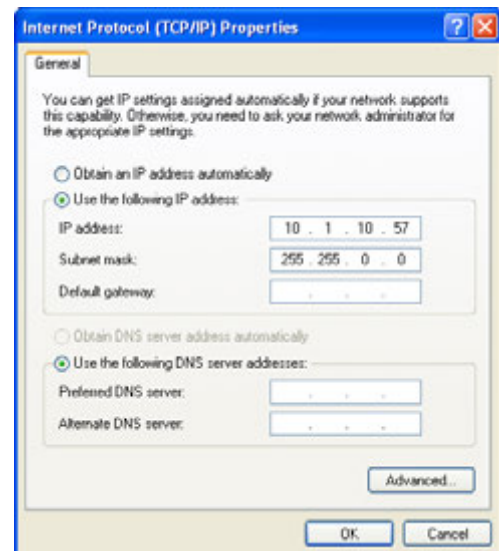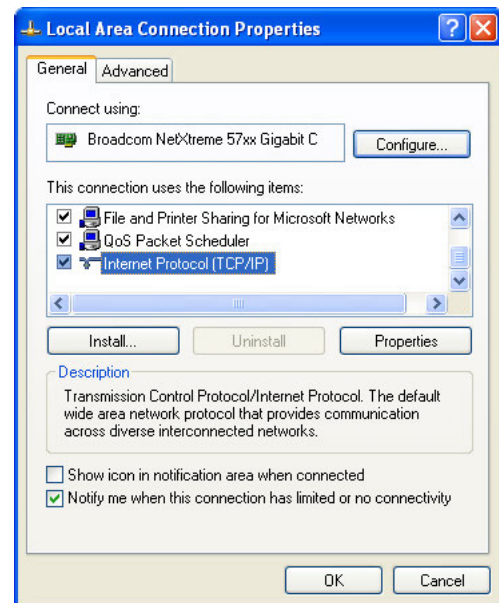
The example below shows how to set the IP address in **Windows**™ **XP** and **Windows**™ **7**. For other version of Windows™, refer to the user documentation or online help supplied with the Windows™ software.

2.3.1 Windows™ XP

1)   Open the **Start** menu and select the **Control Panel** option.

2)   Select the **Network Connections** option.

3)   Right-click on the **Local Area Connection** option and select **Properties**.

4)   In the **Local Area Connection Properties** dialog, select the **Internet TCP/IP Protocol** option and click the **Properties** button.

5)   In the **Internet Protocol (TCP/IP) Properties** dialog, select the **Use the following IP address** option and set the **IP address** to one *similar* to, *but not the same as*, the IP address of the thermometer. The current IP address is shown on the rear display when in temperature measurement mode. The default address is 10.1.10.50.

6)   Set the **Subnet mask** to 255.255.0.0 and click **OK**.

7)   Click **OK** to close the **Local Area Connection Properties** dialog.

   The IP address has been set.

   You will now be able to use the Web Server software incorporated in the thermometer to configure your system and display temperature readings on your PC. See Section 3.

2.3.2 Windows™ 7

If you have problems connecting to a Windows 7 PC due to Firewall blocking access, see Section 2.3.3.

1)   Open the **Start** menu and select the **Control Panel** option.

2)   Select the **Network and Internet** option, then select **Network and Sharing Center**. Select the **Change adapter settings** option.

3)   Right-click on the **Local Area Connection** option and select **Properties**.

4)   In the **Local Area Connection Properties** dialog, select the **Internet TCP/IP Protocol** option and click the **Properties** button.

5)   In the **Internet Protocol (TCP/IP) Properties** dialog, select the **Use the following IP address** option and set the **IP address** to one *similar* to, *but not the same as*, the IP address of the thermometer. The current IP address is shown on the rear display when in temperature measurement mode. The default address is 10.1.10.50.

6)   Set the **Subnet mask** to 255.255.0.0 and click **OK**.

7)   Click **OK** to close the **Local Area Connection Properties** dialog.

The IP address has been set.

You will now be able to use the Web Server software incorporated in the thermometer to configure your system and display temperature readings on your PC. See Section 3.

2.3.3 Connecting to a Windows 7 PC when the firewall is blocking access

You need to configure the connection as a work network, so that it will permit access.

1)   Set the **IP address** and **Subnet mask** on your computer as normal (similar but not the same as the instrument e.g. 10.1.10.52; subnet mask 255.255.0.0).

2)   Then set the **Default Gateway** as the IP address of the instrument e.g. 10.1.10.50. When you click OK and close the box, a box should open asking you to select the network location - select **Work network**. Otherwise double-click on the network in the Network and Sharing Centre to select the network location.

3)   If the firewall is still blocking access, open **Windows Firewall** from the **Control Panel**. The first menu item is **Allow a program or feature through Windows Firewall** which may be necessary for the System 5 SPOT Calibration software. It is also a good idea to click on **Change Notification Settings**' make sure that **Block all incoming connections...** is not ticked.

3   Using the Thermometer Controls

3.1 Using the Display and Keypad

The thermometer has a back panel display which, when used in conjunction with the keypad buttons, can be used to:

- Display the Target temperature and the internal ambient temperature of the instrument (as shown in Fig 3-1);
- Display the alarm status of the target and the instrument;
- Display a video image of the target (from the instrument's internal camera);
- Activate the focusing LED, which can be used to align and focus the instrument on the target;
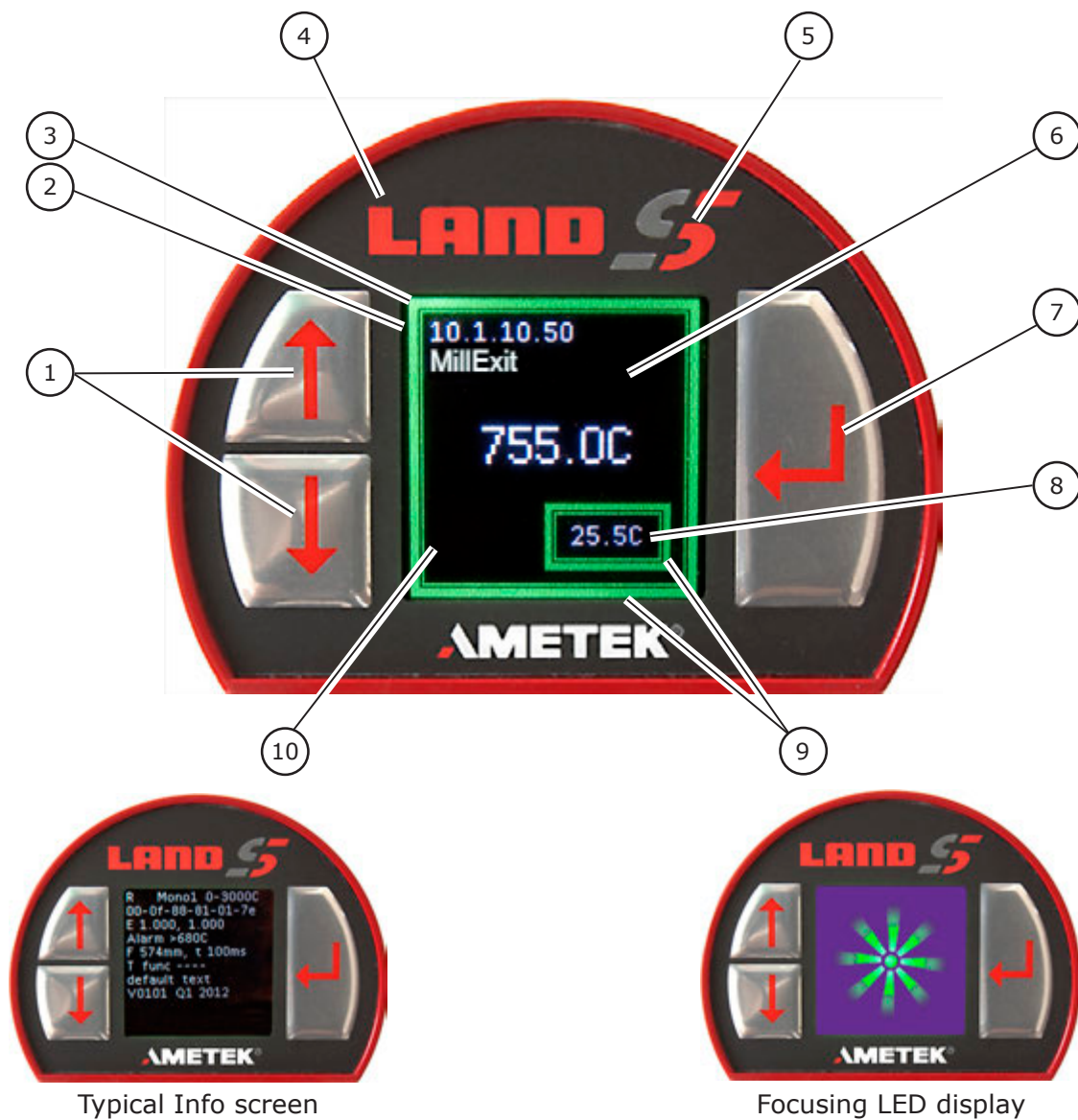- Access the instrument menu system, including the Info screen.

Typical Info screen   Focusing LED display

Fig. 3-1 Rear panel controls and displays
Refer to Section 3.3 for a key to the items

3.2 Using the Web Server Software

The thermometer incorporates Web Server software which allows you to use a web browser to view temperature readings from the thermometer. The browser display updates automatically every 5 seconds, effectively turning the PC into a remote back panel for the thermometer.

The Web Server software interface is designed to mimic the controls on the rear panel of the SPOT thermometer and allows you to access the thermometer's menu structure and configure your temperature measurement system to your requirements.

1) Ensure that your thermometer is installed correctly and connected to the PC (Refer to Section 2).

2) Open a web browser window (e.g. Internet Explorer) and type the IP address of the thermometer (default **10.1.10.50)** into the address bar.

   The Web Server interface will open (Fig. 3-2). The interface mimics the rear panel of the thermometer shown in Fig. 3-1.
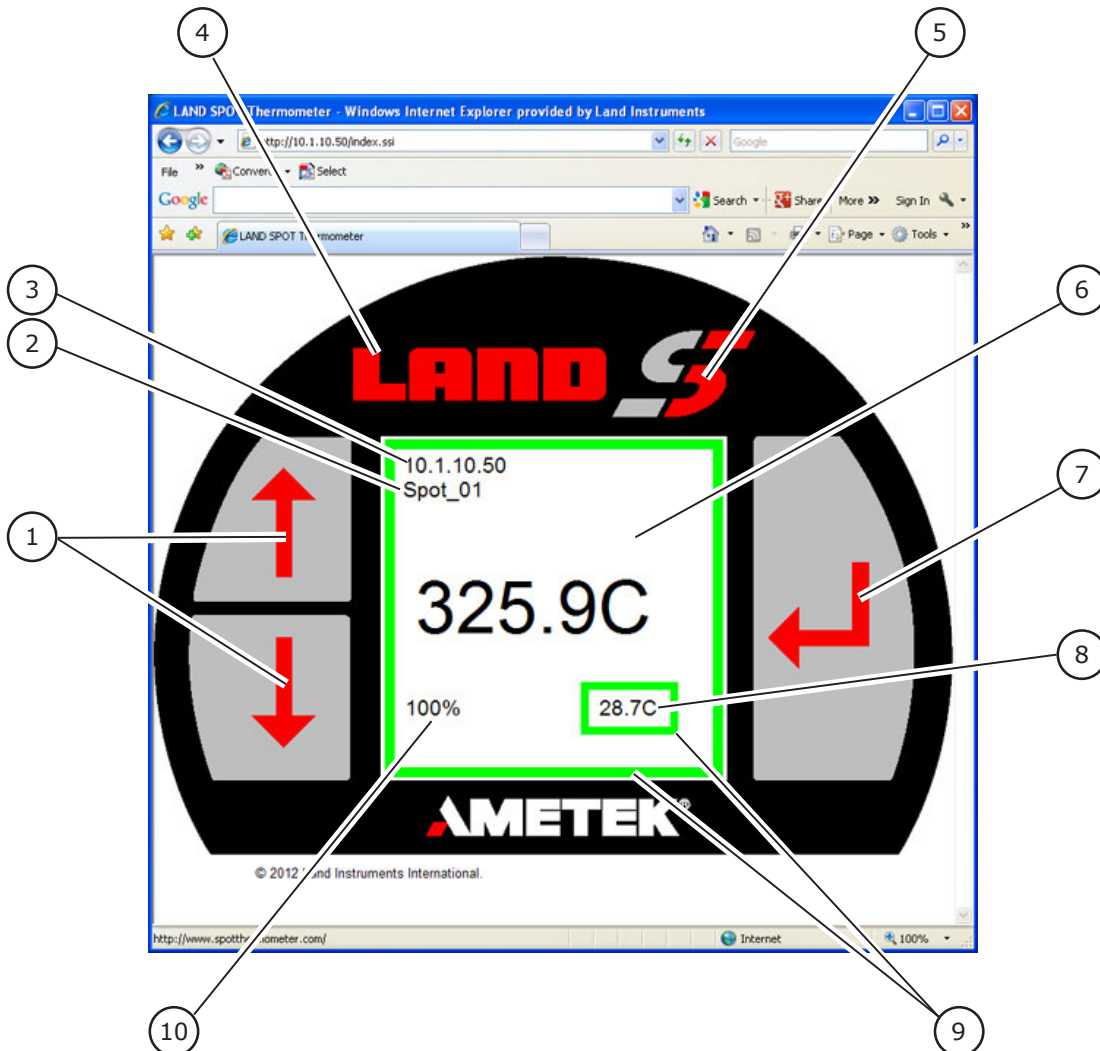

Fig. 3-2 Web Server Interface
Refer to Section 3.3 for a key to the items

3.3 Display and Web Server interface components

The following table give a description of the items shown in Figs. 3-1 and 3-2.

Item	Name	Description
1	Up/Down Keys	On the 'Home' screen (i.e. Temperature display), pressing either key toggles between the Temperature display screen and the Info screen. The Info screen will time-out and revert to the Temperature display.
		When in the menu system, scrolls up/down to the previous/next menu.
		On the thermometer display only: Pressing either key cycles through the Temperature display, Camera display and Info screens.
		When a menu option is selected (highlighted), either increases/decreases the value of the item, or scrolls up/down through the options available for that item.
2	Name	User-defined name for thermometer/measurement location.
3	IP Address	The IP address of the thermometer (set by user).
4	LAND logo	**On the Web Server only:** Click to open an online Web Server simulator and help pages.
5	SPOT logo	**On the Web Server only:** Returns you to the Web Server 'Home' screen i.e. Temperature display.
6	Target Temperature or Menu Display	Displays the target temperature by default.
		Displays the Info screen if either the Up or Down key is pressed.
		Switches to the menu system when the Enter key is pressed.
7	Enter Key	On the 'Home' screen (i.e. Temperature/Info display), pressing the Enter key accesses the menu system.
		When in the menu system, pressing the Enter key selects the highlighted menu item for adjustment.
		When a menu item is selected, pressing the Enter key sets the menu item to the selected value.
		An update to any menu item is confirmed by ✓
8	Internal Temperature Display	Displays the internal temperature of the instrument.
9	Alarm Status Indicators	High and low alarm values for both target temperature and instrument temperature can be set by the user. Colour-coded alarm status:
		Green = OK
		Red = Alarm
10	Signal strength indicator	Only applicable if Ratio or Multi measurement mode is selected.
		If Emissivities E1 and E2 are set correctly, this value gives a measure of the reduction of signal strength due to obscuration e.g. when viewing through a dirty window.
		Alternatively, if the view is unrestricted, this value gives a measure of the emissivity variation in the target surface.

4   Thermometer/Web Server Menu

4.1 About the Thermometer menu/Web Server menu system

The SPOT thermometer incorporates an internal menu system which can be accessed and viewed via the controls on the rear panel of the thermometer.

The menu system can also be accessed via the Web Server software built in to the thermometer (Fig 4-1).

To access the system, click on the **Enter** key.

The **Up** and **Down** keys are used to either navigate through the menu system, or to change the value of a selected item on the display.

The **Enter** key is used either to select a menu item, or confirm a new value setting for a selected item.

The main menu gives access to a series of sub-menus which allow configuration of all the instrument settings:

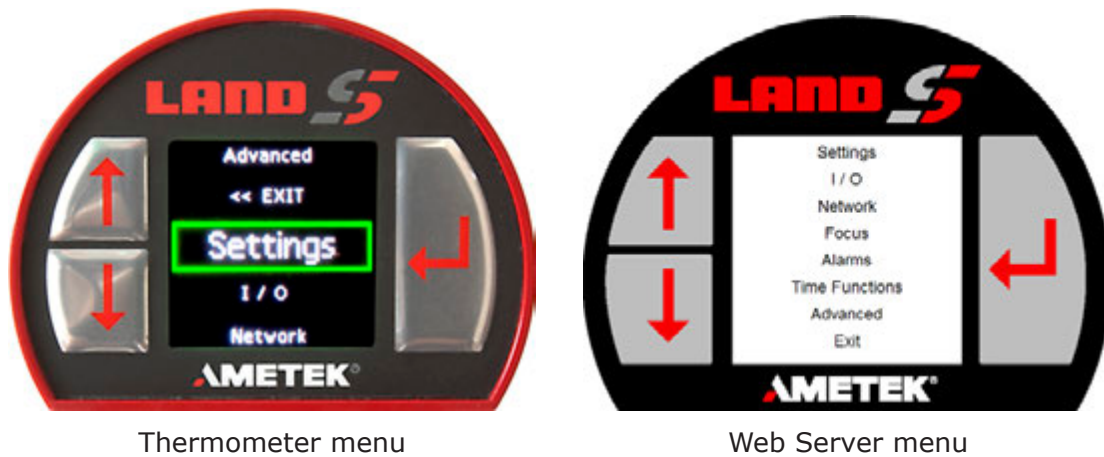Thermometer menu   Web Server menu

Fig 4-1

A graphical representation of the menu system is given in Fig. 4-2 (overleaf), and the various settings are explained in the following sections.
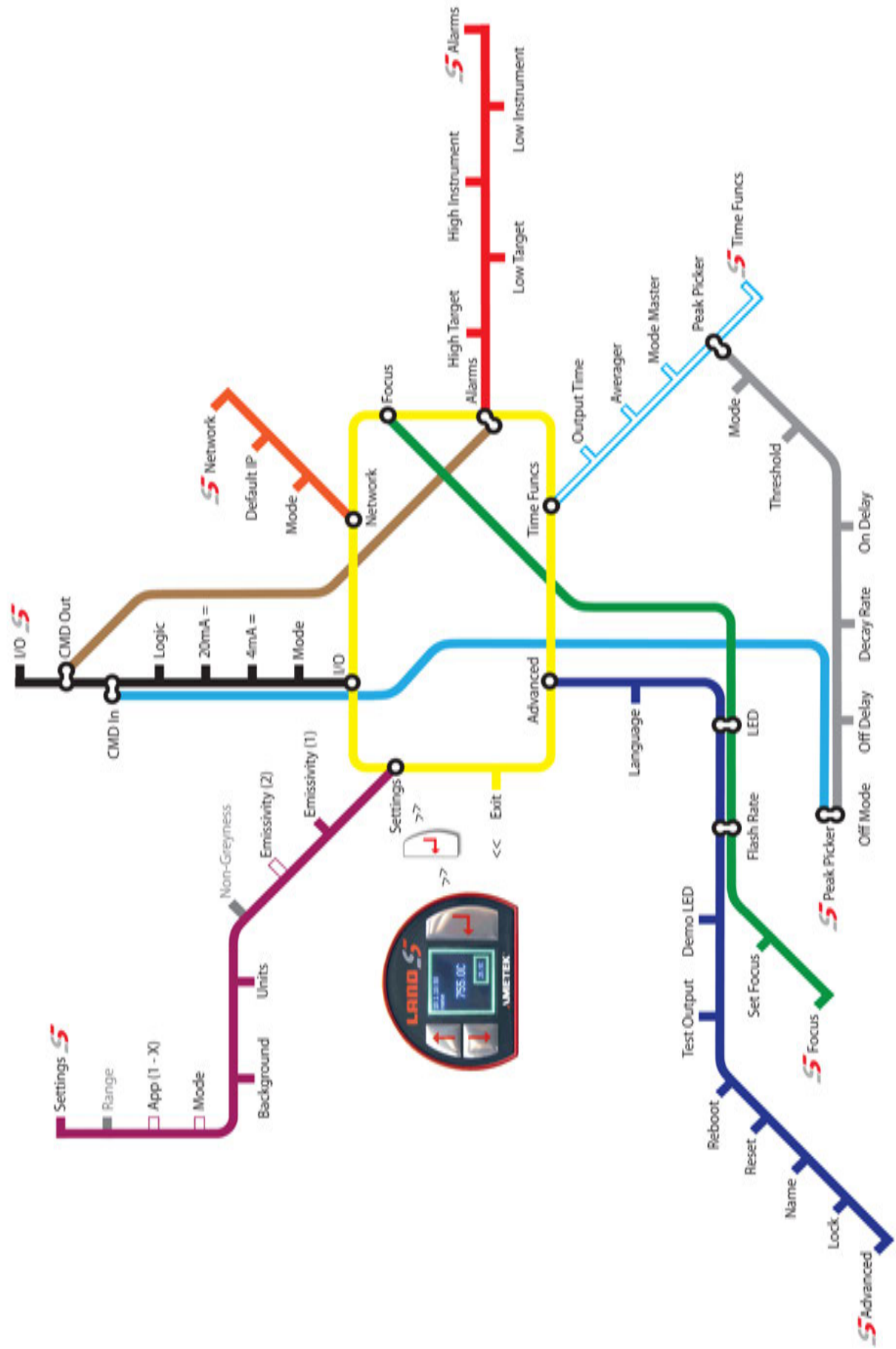
Fig. 4-1 Thermometer display and Web Server menu structure

4.2 Settings

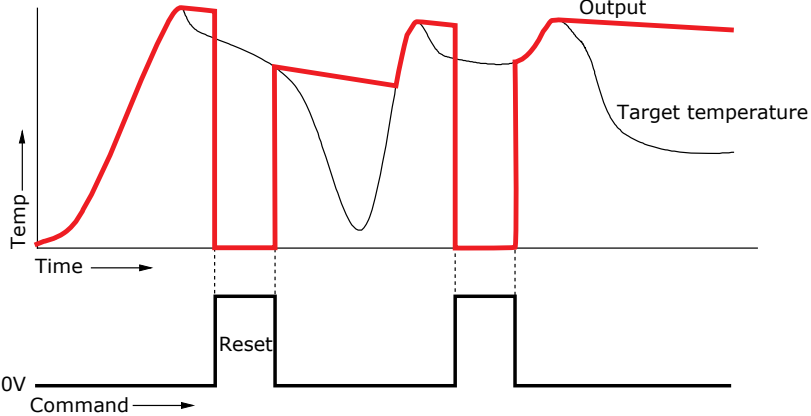The **Settings** menu allows you to specify basic measurement options for your system.

Menu Option	Description
Emissivity	In order to obtain accurate temperature measurements, the **Emissivity** value of the target surface must be known.
	If you are using a single detector thermometer, or using a dual detector thermometer in Mono mode, only one Emissivity setting will be available. If you are using a dual detector thermometer, both the **Emissivity (1)** and **Emissivity (2)** settings will be available.
	The emissivity of an object varies with wavelength. A **Ratio** thermometer uses two detectors at different wavelengths. Therefore, a ratio thermometer sees two different emissivity values: one detector tends to see more energy than the other.
	Traditional ratio instruments only require a non-greyness input - the actual emissivity for each detector is not required. The new SPOT algorithm uses both $\varepsilon 1$ and $\varepsilon 2$ to allow calculation and output of the signal strength. If you don't know the $\varepsilon 1$ and $\varepsilon 2$ values explicitly, set $\varepsilon 1$ = NG and $\varepsilon 2$ = 1. The temperature measurement depends only on the ratio of emissivities. The signal strength output will reflect both obscuration and the true emissivity of the target.
	If you have a query regarding the emissivity of the target in your measurement application, contact Land Instruments International.
Non-Greyness	If the instrument is used in Ratio mode, the non-greyness is calculated from the $\varepsilon 1 / \varepsilon 2$ value, and is displayed on the Info screen.
	If you have a query regarding the non-greyness value of the target in your measurement application, contact Land Instruments International.
Units	The Units option allows you to specify whether temperature is displayed in **C** (Celsius) or **F** (Fahrenheit).
Background	The **Background** menu option allows you to specify the temperature of the surroundings of the target object being measured. This is especially useful if the surroundings are at a higher temperature than the target object e.g. when measuring a steel slab in a reheat furnace.
	The **Background** temperature value you set will be used by the thermometer to compensate for the effect of the hot surroundings on the temperature measurement.
Process Window	The **Process Window** option allows you to specify whether or not the thermometer is viewing the target through a 'sealed to process' window.
	If there is a window between the thermometer and the target, there will be a decrease in the signal received by the thermometer due to transmission losses in the window.
	By specifying that a process window is present in your measurement application, the instrument will compensate automatically for the transmission losses and the correct temperature will be displayed.

Continued...

Menu Option	Description
Mode	The **Mode** menu option allows you to specify the temperature measurement mode of the thermometer.
	A description of each mode available for SPOT is given below. The Mode options available in your thermometer will depend upon the type of thermometer you are using, and the detectors fitted in the thermometer.
	Mono 1 - In thermometers with more than one detector fitted, the **Mono 1** option selects the shortest wavelength detector to be used for temperature measurement.
	Mono 2 - In thermometers with more than one detector fitted, the **Mono 2** option selects the longest wavelength detector to be used for temperature measurement.
	Duo - In thermometers with more than one detector fitted, the **Duo** option selects the longest wavelength detector at lower temperatures, and switches smoothly and automatically to the shorter wavelength detector at high temperatures.
	Ratio - In thermometers with more than one detector fitted, the Ratio option selects both detectors to be used for temperature measurement. The thermometer will operate as a ratio thermometer, which allows measurement on partially obscured targets, or targets which do not fill the thermometer field of view completely, and of processes where emissivity changes across the wavelength band of both detectors.
	When the Ratio option is selected, an extra **Signal strength** output is available.
	Multi - This option enables the extended temperature range of a thermometer. It uses the Ratio mode at higher temperatures, where both detectors measure, and uses the longer wavelength detector (coupled with signal measurement from the ratio algorithm) to give a temperature output when measuring below the normal minimum temperature limit.
	APP - The **APP** option allows you to select the Application-Specific temperature regime of your thermometer (if configured). This is used in conjunction with **App (1- X)** setting.
App (1 - X)	The **App (1 - X)** option allows you to select the particular application-specific temperature measurement mode for your thermometer. This is used in conjunction with **APP** setting.
Range	The **Range** of the thermometer will depend on the **Mode**, and is displayed for information purposes only.
	You cannot change the range of the thermometer.

4.3 I/O

The I/O menu allows you to specify the settings for the current inputs and outputs from the thermometer.

Menu Option	Description
Mode	The Mode option allows you to specify whether the analog output is **4-20mA** or **0-20mA**.
0mA or 4mA	This option will depend up on the value you selected for the analog output in the **Mode** option. It allows you to set the lower temperature limit of the analog current output (i.e. the temperature that corresponds to an output of either 0mA or 4mA).
20mA	This option allows you to set the upper temperature limit of the analog current output (i.e. the temperature that corresponds to an output of 20mA).
Logic	The Logic option allows to specify whether the Command input and output relays are Normally Open (**N-Open**) or Normally Closed (**N-Closed**).
CMD In	The **CMD In** option allows you to enable/disable the Command Input and configure it to be either be a **Sample & Hold** input, or a **Reset Peak Picker** input. A graphical representation of the **Reset Peak Picker** input is shown below:
CMD Out	If any alarms are in use, the **CMD Out** relay is used as an alarm output. If alarms are not used, the **CMD Out** option allows you to enable/disable the use of the CMD output as a watchdog output, which toggles between open and closed every 1 second.

4.4 Network

The **Network** menu allows you to specify the mode of network connection, and to set the default IP Address for the thermometer.

The **MAC** address of the thermometer is displayed on this screen as read-only information.

Menu Option	Description
Mode	The **Mode** option allows to specify whether the network mode is **Set IP** or **DHCP**.
	The **Set IP** option allows you to set an IP Address manually.
	The **DHCP** option enables IP addresses to be assigned automatically by the network on which the thermometer is installed. DHCP allows a computer to join an IP-based network without having a pre-configured IP address. DHCP is a protocol that assigns unique IP addresses to devices, then releases and renews these addresses as devices leave and re-join the network.
	The default IP address is used if the Set IP option is selected, and is also used if the network cannot assign one via DHCP.
Default IP	The **Default IP** option allows to specify the default network IP address of the thermometer.

4.5 Focus

The **Focus** menu allows you to adjust the focus and switch on the integral LED which can be used as an aid to focusing the thermometer. It will switch off automatically after 30 seconds.

Menu Option	Description
LED	The **LED** check-box allows you to switch on/off the integral LED which can be used as an aid to focusing the thermometer.
	When focused correctly, the LED pattern will be as shown below. The central circle is aligned with the infrared detector and represents the temperature measurement area.
Flash Rate	The **Flash Rate** setting allows you to specify the rate at which the focus LED flashes (when enabled).
	The Flash Rate can be set to between 1 and 30 Hz.
Set Focus	The **Set Focus** option allows you to set the thermometer focus to any value within the focal range of the thermometer.

4.6 Alarms

The **Alarms** menu allows you to set high and low alarm temperature values for both the target being viewed and the ambient temperature of the thermometer.
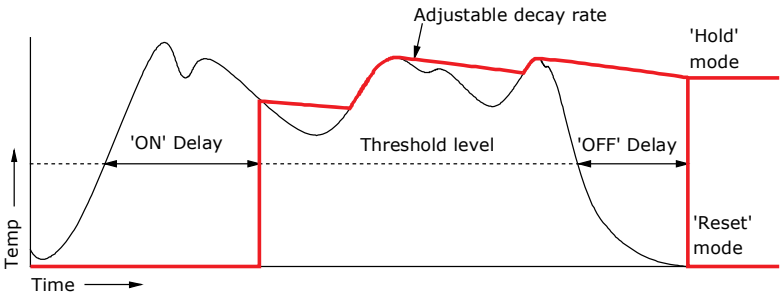
When active, an alarm state is indicated by red bars next to the camera image on the rear panel display, or a red box around the data view on the display or Web Server.

Menu Option	Description
High Target	The **High Target** option allows you to enable and set the high alarm threshold value for the target being viewed by the thermometer.
Low Target	The **Low Target** option allows you to enable and set the low alarm threshold value for the target being viewed by the thermometer.
High Ambient	The **High Ambient** option allows you to enable and set the high alarm threshold value for the ambient temperature of the thermometer.
Low Ambient	The **Low Ambient** option allows you to enable and set the low alarm threshold value for the ambient temperature of the thermometer.

4.7 Time Functions

The **Time Functions** menu allows you to select which time functions are applied to the thermometer temperature readings.

Menu Option	Description
Output Time	The **Output Time** option allows you to specify a time interval over which temperature measurements are averaged. The range of possible measurements is 1 to 10,000 milliseconds (10 seconds).
Averager	The Averager option allows you to specify a further number of values over which the temperature measurement is averaged i.e. smoothed. The number you specify corresponds to the number of Output Time intervals over which the measurement is averaged. i.e. Averager set to *n* smooths over *n* output time intervals. This is useful if you want to smooth out any intermittent 'spikes' or 'troughs' in the target temperature. The range of possible measurements is 1 to 255 values.
ModeMaster	The **ModeMaster** option is a function which can be used in applications such as viewing a stream of hot metal. In such applications, there is likely to be occasional obscuration of the target by smoke or other interference - this would lead to lower (and extremely variable) temperature readings. Conversely, sparks or cavitation in the metal stream would lead to high (but short-lived) readings. The **ModeMaster** function minimises both types of error by continuously 'buffering' and filtering batches of temperature readings over a specific time period (approx. 2 seconds). The average temperature over this time period is calculated and displayed.

Menu Option	Description
Peak Picker

The **Peak Picker** function can be used to monitor the highest temperature measured by the thermometer. This feature is useful especially for moving targets and/or where the target is obscured partially e.g. a steel slab on a rolling mill where parts of the surface are covered with scale.

The 'clean' area will be at the higher (i.e. true) temperature.

The Peak Picker has the following features.

Mode (Peaks or Valleys)

Peaks - this mode measures and tracks the highest temperature (as illustrated).

Valleys - this mode measures and tracks the lowest temperature.

Threshold level - Temperature above which the Peak Picker is active, used in conjunction with the ON and OFF delay.

On Delay - Time period between the temperature rising above the threshold level and the Peak Picker function switching on.

Decay Time - A user-adjustable value at which the stored temperature output signal decays.

Off Delay - Time period between the temperature falling below the threshold level and the Peak Picker function switching off.

Off Mode (Hold, Reset or CMD In Reset)

Hold - at the end of the 'Off Delay', the temperature output value is held constant until the temperature input next rises above the threshold level.

Reset - at the end of the 'Off Delay', the temperature output signal falls to 'under-range' until the temperature input next rises above the threshold level.

CMD In reset - Selecting this option allows you to reset the peak Picker at any time via the command input. |

4.8 Advanced

The **Advanced** menu contains items which are likely to be used only occasionally.

These items control the 'look and feel' of the Web Server interface, and may be useful during set up.

Menu Option	Description
Language	This option allows you to select the language for the Web Server interface screens.
LED	This option allows you to switch on the LED which illuminates the thermometer's field of view and defines the target size. This is useful for aligning the thermometer on the required target.
	You can also define the frequency at which the LED flashes.
Demo LED	When the **Demo LED** option is selected, the LED is activated each time a key is pressed on the rear face of the thermometer. The LED switches off automatically after a preset time.
Test Output	This option allows you to switch on a test current output from the thermometer.
	This is useful for confirming that the thermometer is operating correctly
	You can also specify the current (in **mA**) for the test output.
	The test current output switches off automatically after 15 minutes.
Reboot	This option restarts the thermometer.
Reset	This option resets the thermometer settings to factory default values.
	Note: selecting this option will lose any changes that you have made to the thermometer settings.
Name	This option allows you to specify a name, label, or location identifier for the thermometer connected to the Web Server e.g. Furnace1.
	The maximum name length is 8 characters.
Lock	The **Lock** option allows you to password-protect the screens on the SPOT Web Server, so that changes cannot be made to any of the settings.
	When the Lock function is enabled, you will have to enter the correct **Unlock** code in order to make any further changes to the system.

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 (Fibroptic 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-authorised repair centre.