PROCESS & ANALYTICAL INSTRUMENTS

LSP-HD
Glass Toughening System

Quick Start Guide

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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.

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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.

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Contents

1 Installation of Hardware

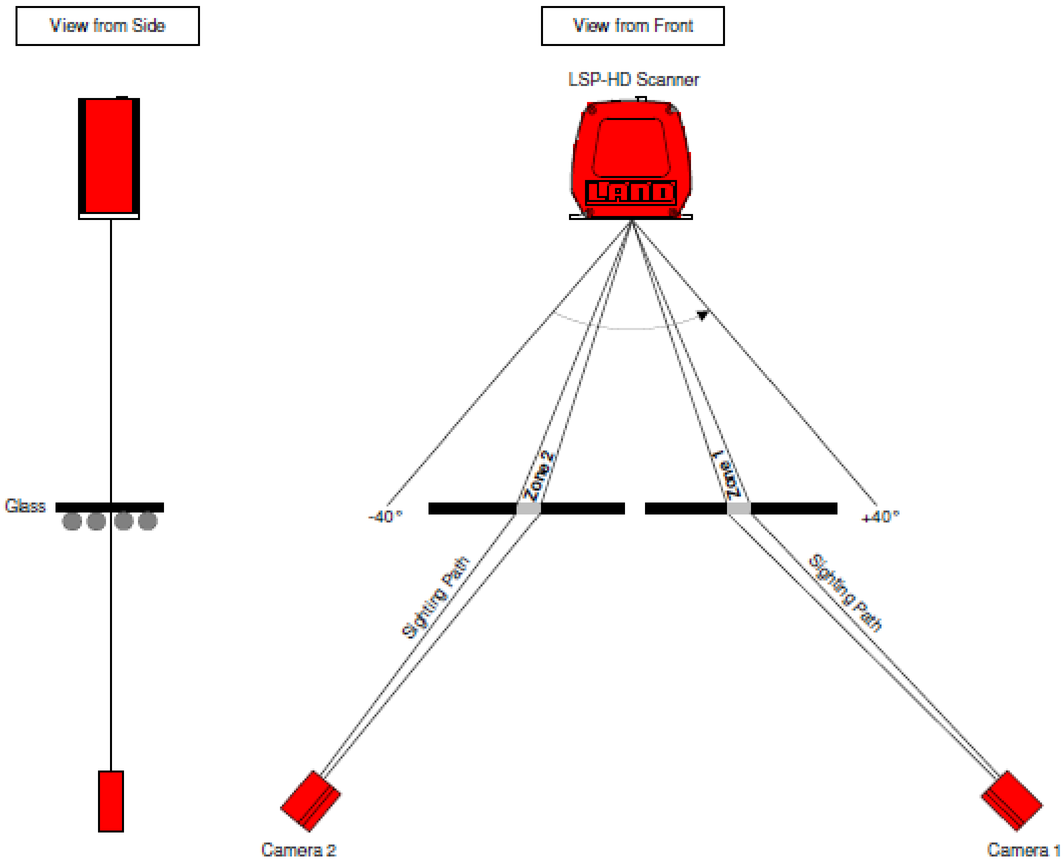
Refer to the Installation Guides for Landscan and IQ Thermometers

1.1 Instructions for Installation

Mount the scanner in the correct position, the scan line of the scanner must not hit a roller or any other reflective material. Protect the scanner and cables against overheating.

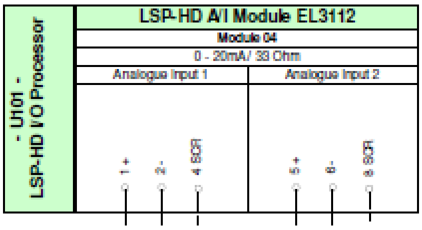
When emissivity correction will be used, install IQ reference Pyrometers under the line

Align the IQs so that the measuring spots look to the scan line position as illustrated below:

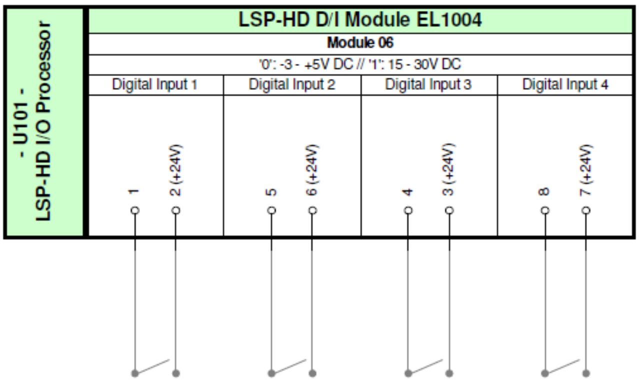


All IQ thermometers are setup with emissivity 0.96 and focussed on 1m distance. This gives a target diameter of 16.7mm @1000mm.

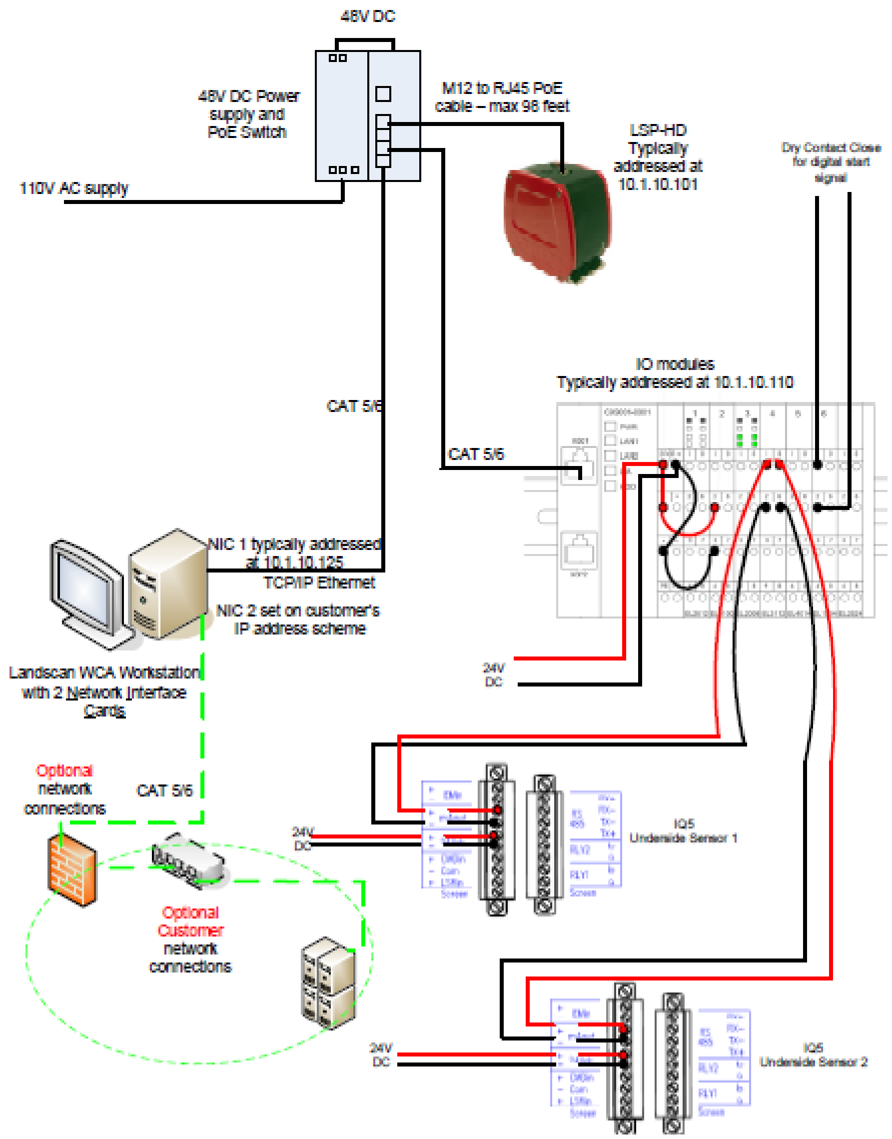
1) Connect the IQ thermometers according to the following connection scheme to the Beckhoff I/O Processor (Camera 1 output to analogue input 1 and Camera 2 to analogue input 2 on module EL3112 of Beckhoff IO Processor):



2) Connect a digital trigger signal to digital input 1 on module EL1004 of Beckhoff IO Processor (dry contact close for digital start):



3) Connect the scanner and the Beckhoff IO Processor to the Landscan Network as shown in the connection scheme below.



4) After verifying all the cabling and the installation, switch on the complete system.

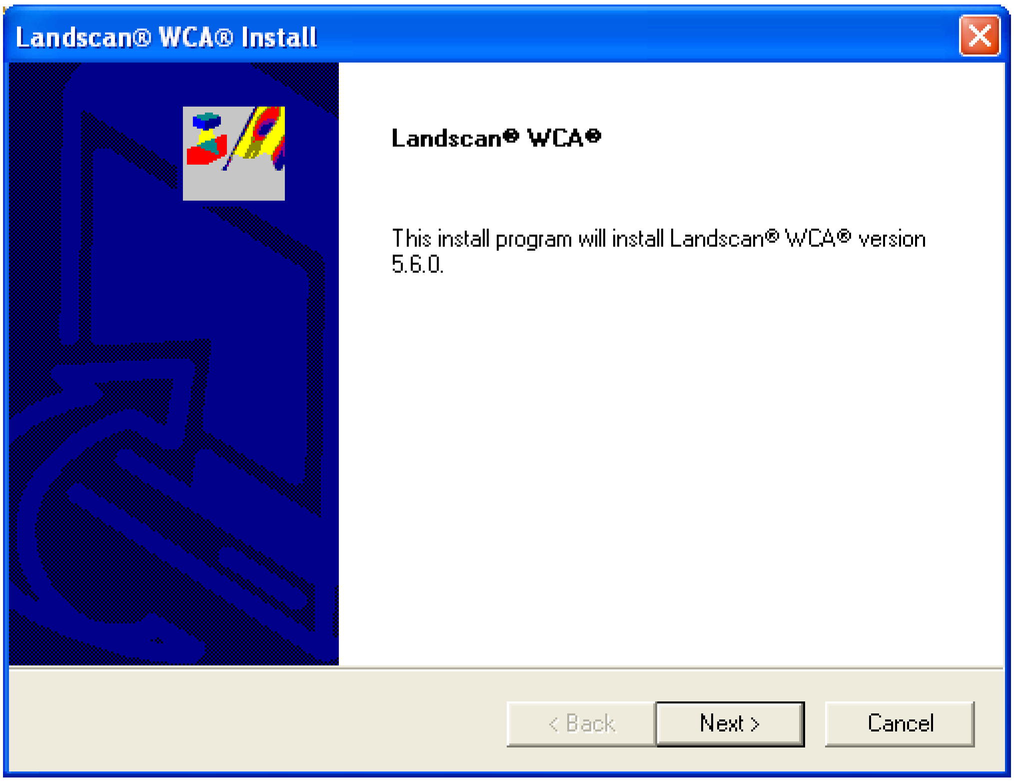
5) If everything runs correctly, install the Software.

2 Installation of WCA Software

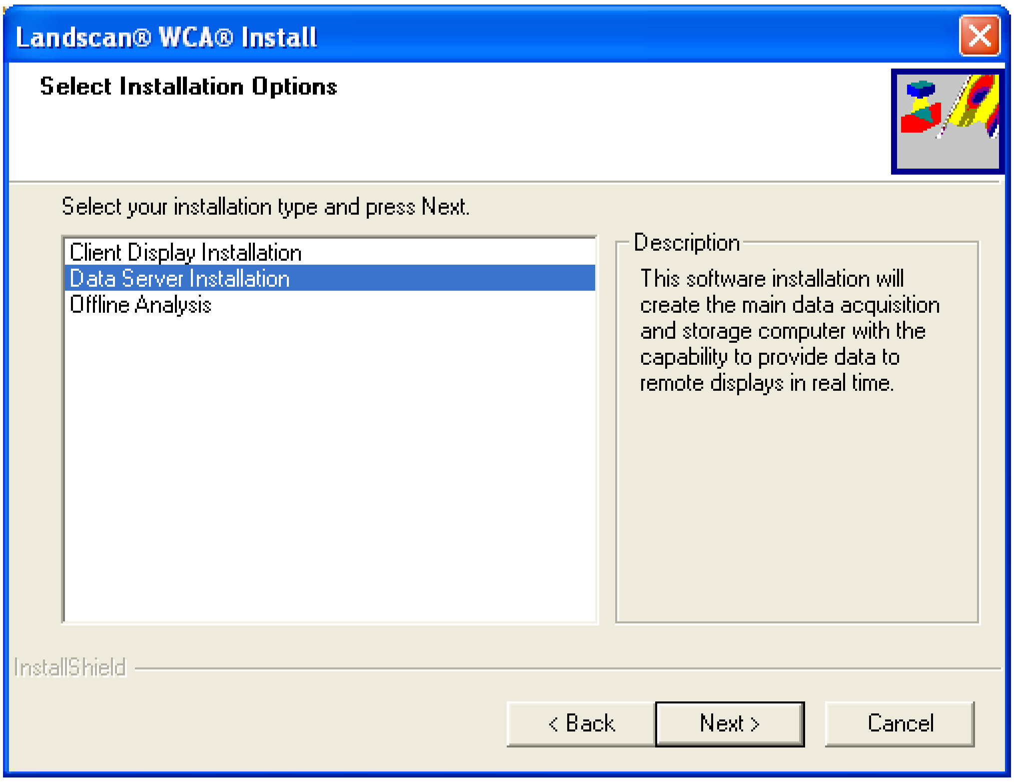
WCA Installation is a user-specific installation. This means it has to be installed under the user name where it will run later.

The user needs local administrator rights.

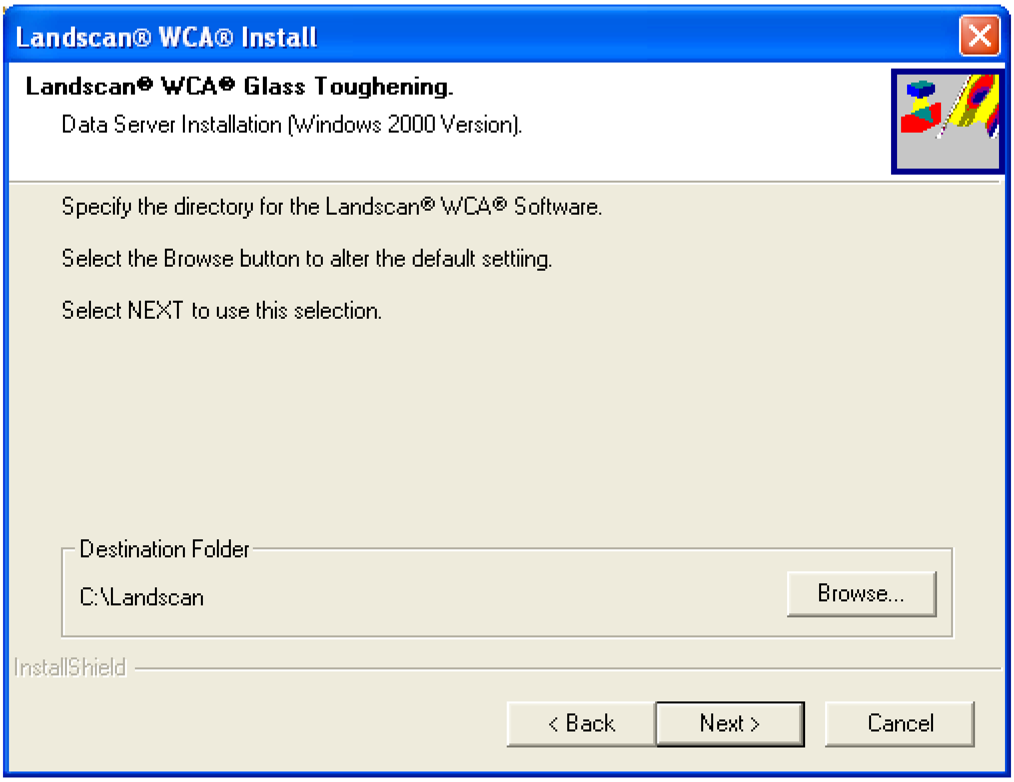
1) Insert the CD. The CD should auto run. If it does not run, start the **setup.exe** from the CD Drive.



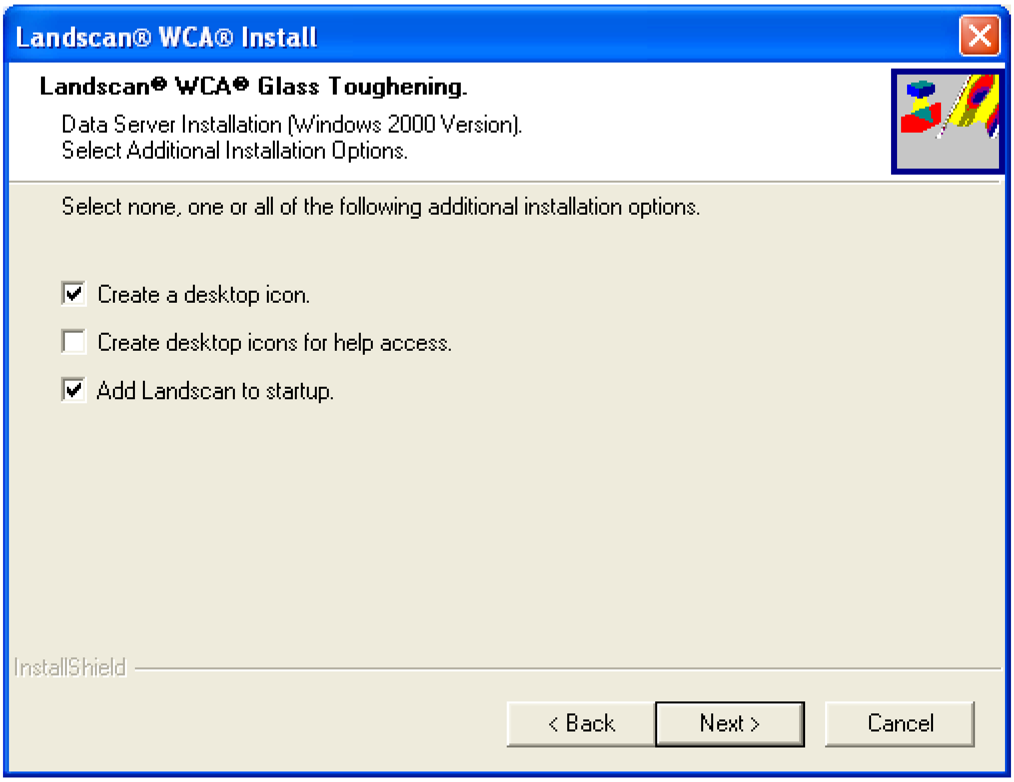
2) Select **Next**.



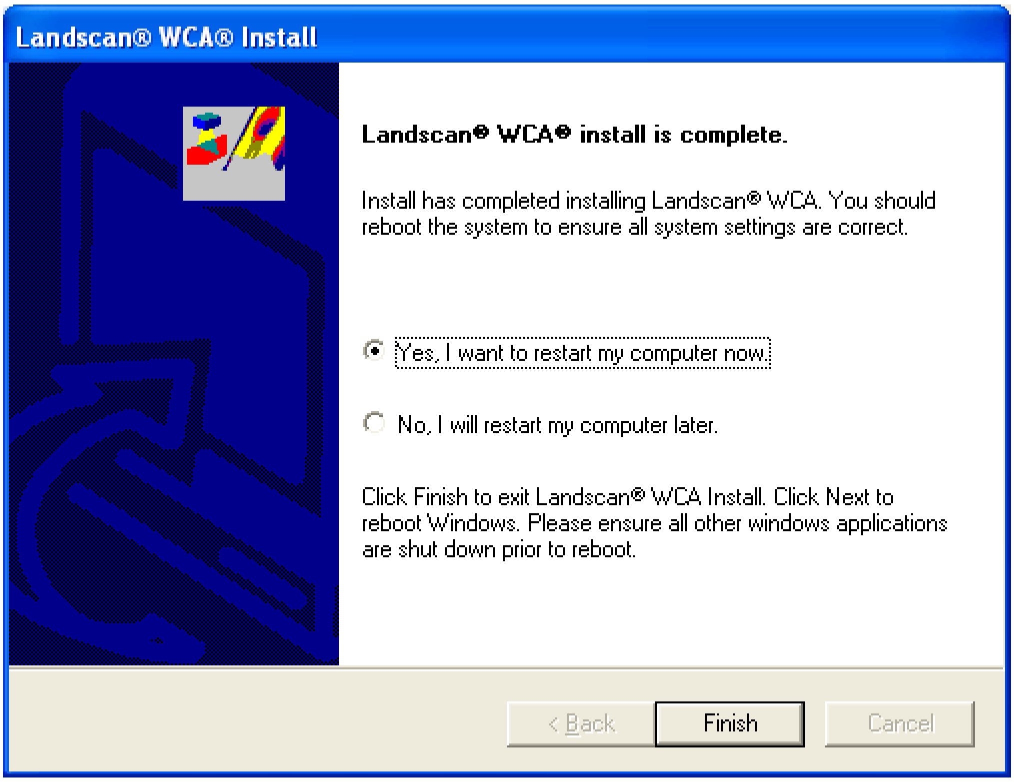
3) Choose **Data Server Installation**, then select **Next.**



4) Select **Next.**



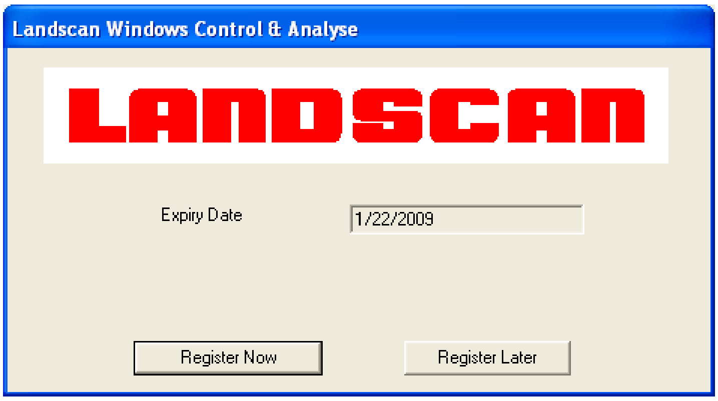
5) Select **Create Desktop Icon** and **Add Landscan To Startup**, then select **Next**.



6) Select **Finish**.

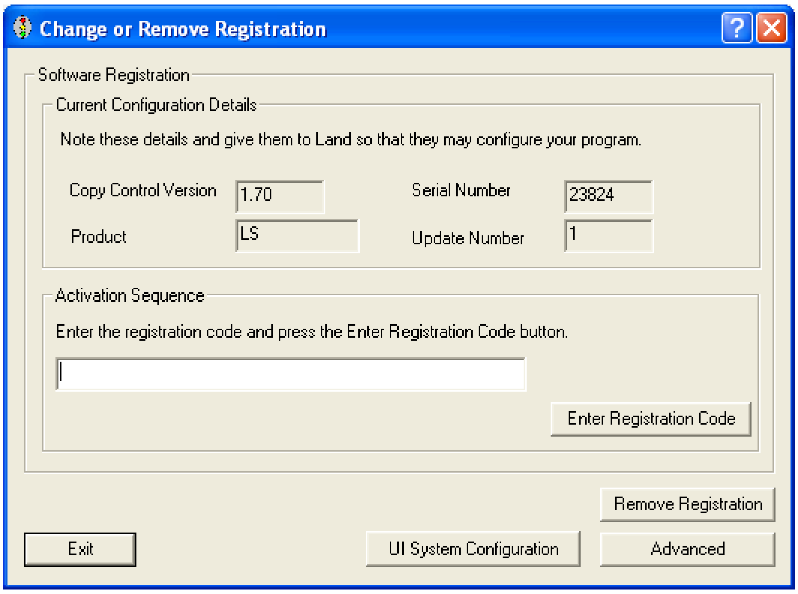
3 Startup and Configure Software

1) Start up the WCA Glass Toughening software (if it is not already started by Windows Auto Start).
2) If everything has been setup correctly and the system has not been licensed yet, the software should start and the following message should appear on screen:



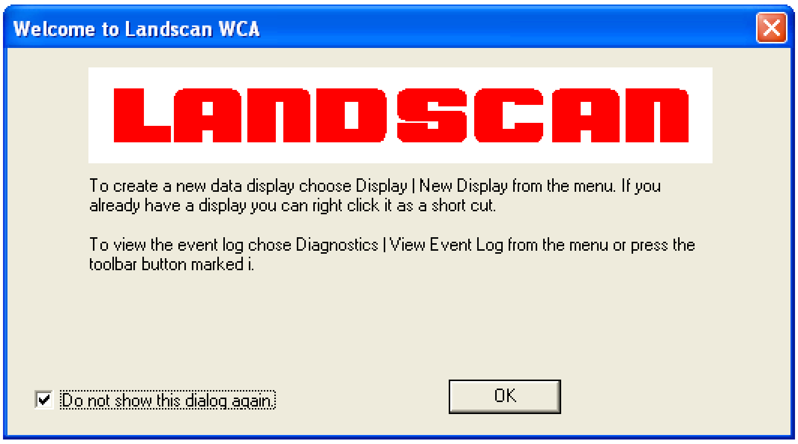
If the software has not been licensed, the software will run only until the Expiry Date.

3) If you want to receive a license from LAND, you need to select the **Register Now** option, or run the or the **Register.exe** application placed in the Landscan installation folder. Provide the required information and forward it to LAND to request the license.



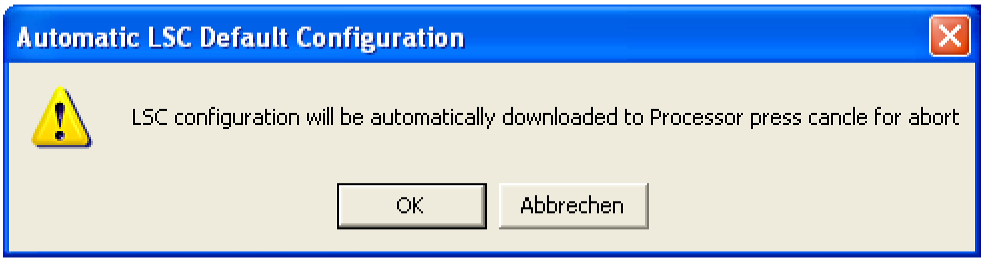
4) Select **Exit**.
5) After you have received the license file from Land, copy it into the LANDSCAN installation folder. Then restart the software and choose **Register Now**, or start the **Register.exe**. The software will tell you that it found a registry file and if it should use it. Confirm with **Yes**.

6) If you don't have a license file, select **Register Later**.
The WCA software will Start.



7) Confirm this window (click **OK**).
After 2 minutes, the system should have the following status.
Both symbols should indicate a healthy communication to the Scanner:

A window will appear on screen when WCA connects first time to the processor:



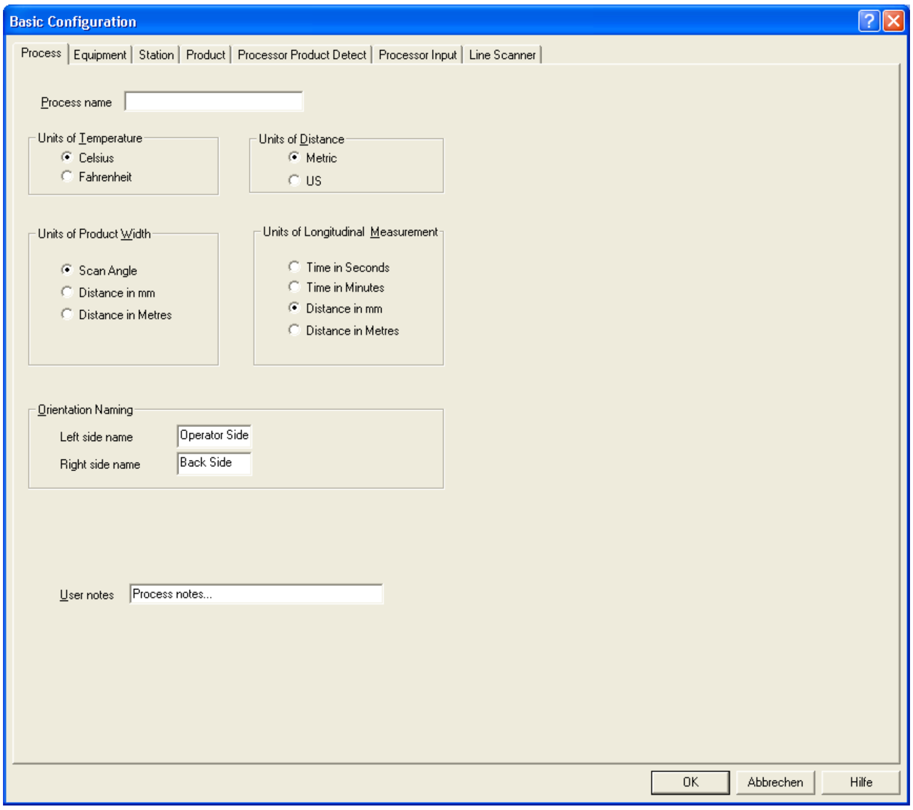
8) Confirm with **OK**.

4 Setup of software parameters

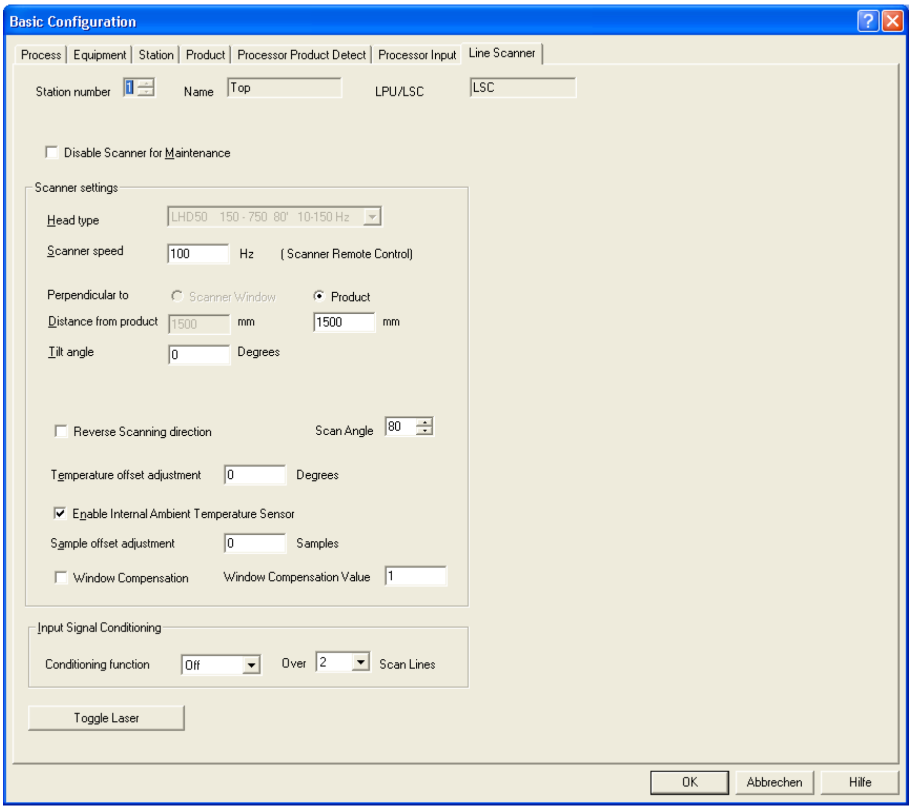
A number of parameters have to be adjusted and verified due to your specific installation.

1) From the WCA Main Menu select **Configure** > **System**.

2) From the **Process** tab choose the units of temperature (Fahrenheit or Celsius) and distance (US or Metric):



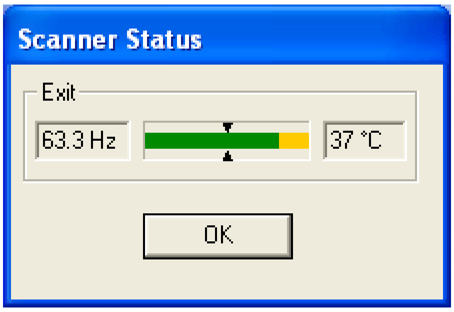
3) Then choose the **Line Scanner** tab.



4) Verify that the correct scanner type is displayed and that the correct Distance to the product is set.

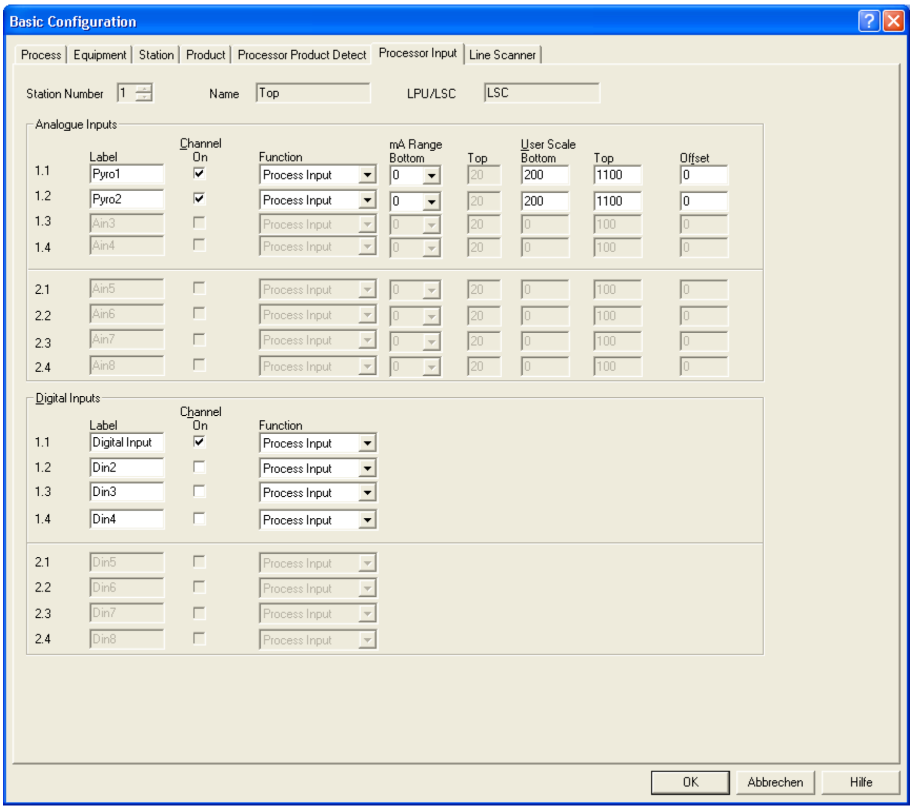
5) Apply a Scanner speed of 100Hz and enable the internal ambient temperature sensor to monitor the temperature of the scanner.

6) From the WCA Main menu, select Diagnostics > Scanner:



The temperature should not indicate anything in red.

7) Then choose the **Processor Input** tab.



8) Verify that the scale for the Bottom Cameras is correct (Pyro1 is the input channel 1 for bottom camera 1 and Pyro2 is the input channel for bottom camera 2)

9) For IQ Thermometers choose the following input range (°F or °C):

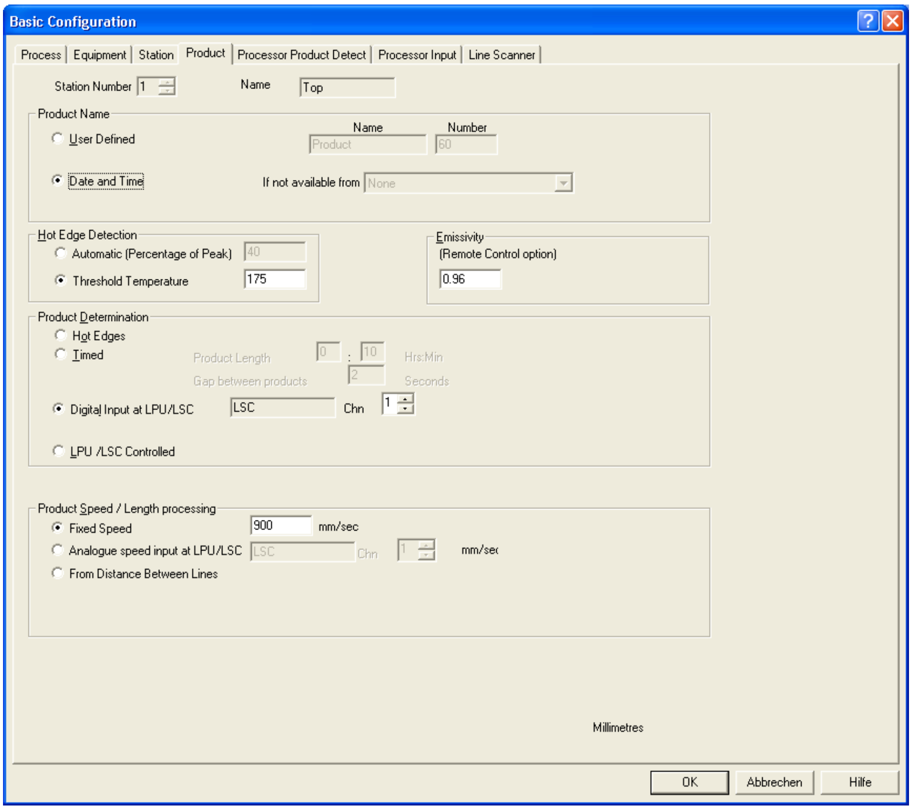
   Pyro1 (Camera 1): mA Range 0 to 20; Scale 362 to 2012(°F) or 200 to 1100 (°C)

   Pyro2 (Camera 2): mA Range 0 to 20; Scale 362 to 2012(°F) or 200 to 1100 (°C)

10) Activate the analogue inputs and activate the first digital input channel for the product determination.

   The product determination is triggered by a digital input signal synchronized with the opening of the furnace door. See connection scheme.

11) Then choose the Product Tab:

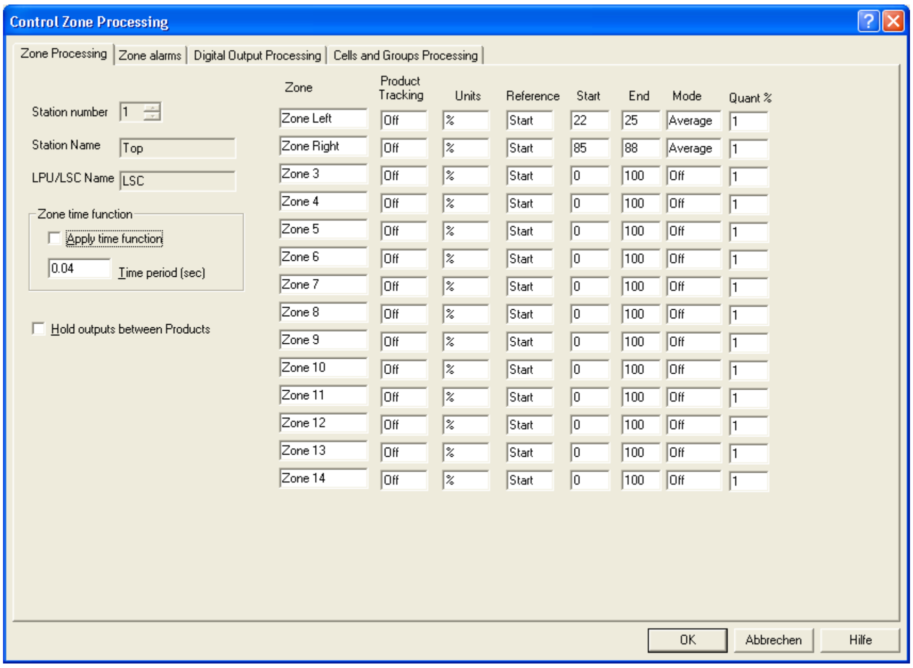


12) Enter values as shown (if not preset)

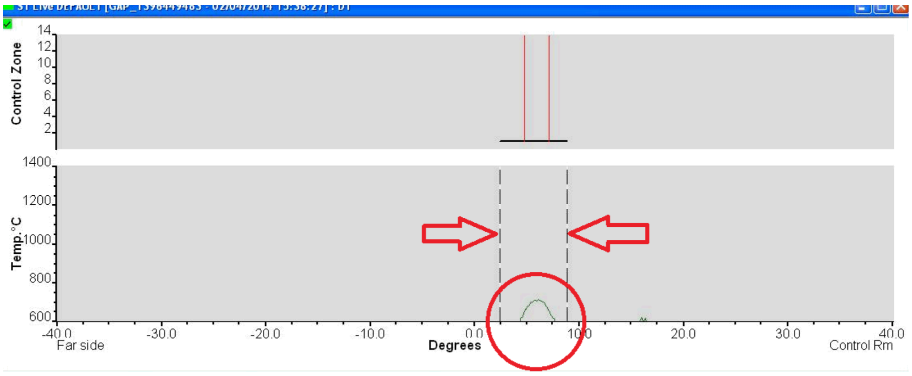
The shown value for threshold temperature of 175 is in °C. For Fahrenheit, enter 347.

13) Enter a value to match the roller speed in the box Product Speed/Length processing.

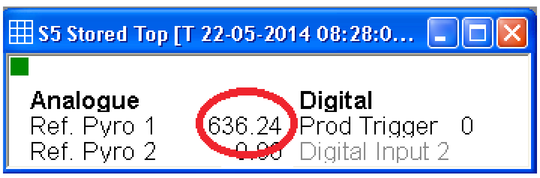
14) From the WCA Main Menu, choose **Data Processing** > **Control Zone Processing**



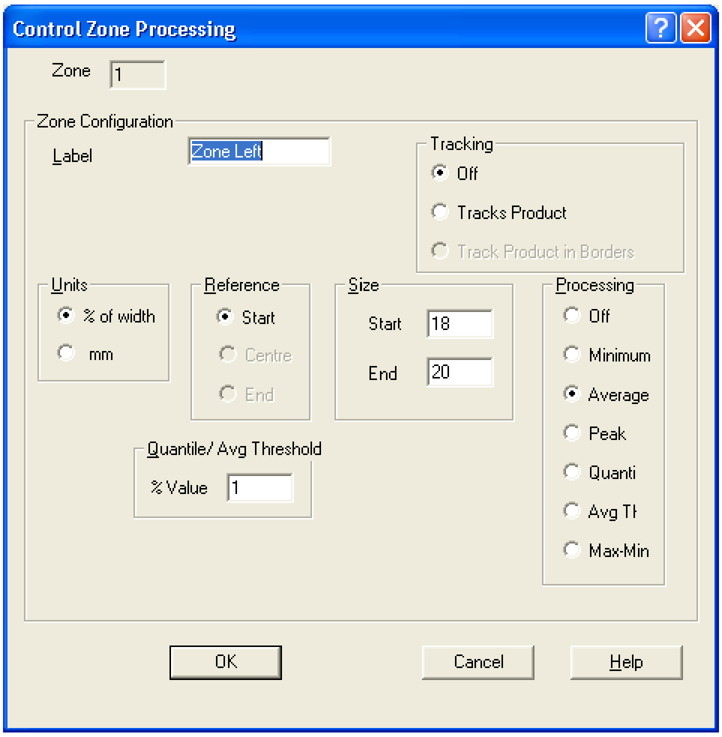
15) The first control zone should match the target area of bottom camera 1 and the second control zone should match the target area of bottom camera 2. This can be verified best by using a hot soldering iron looking into the sight path of the scanner and by using the target laser of the bottom cameras looking to the same spot indicated in a **profile display** of the top camera:



16) Use simultaneously the **LPU/LSC Input display** to verify that the bottom camera sees the same temperature at the same spot:



Trying to modify a parameter in the Control Zone Processing dialog (just a mouse click into the relevant line of Zone Left or Zone Right) will open the following window:



17) Adjust the **Size Start** and **End** value if necessary.

18) Confirm the dialogs with OK and do the same procedure with Zone Right for the second bottom camera.

4.1 How to open the relevant displays:

1) From the WCA Main Menu, choose **Display** > **New Display**. Then select **New** and confim with **OK**.

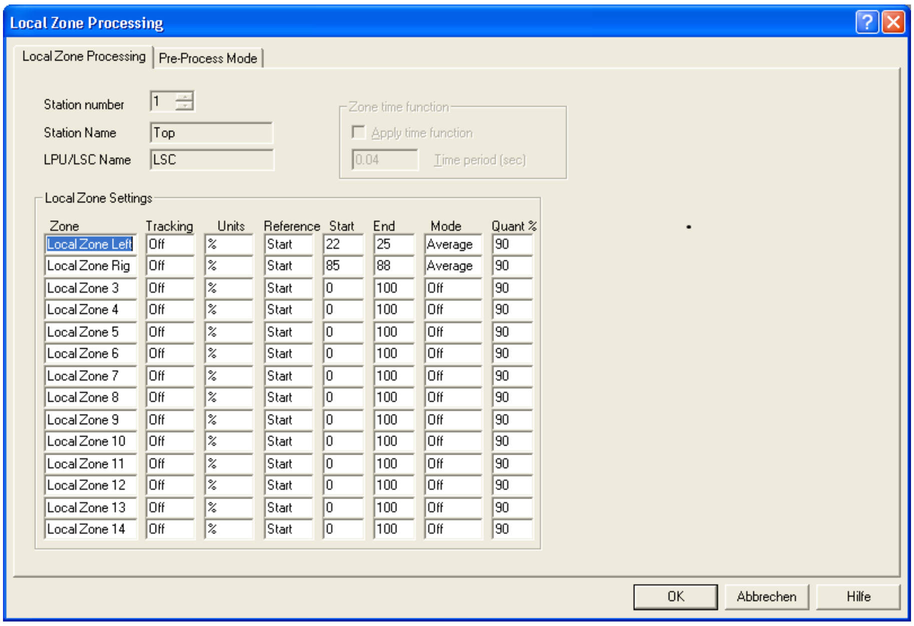
2) From the dialog **Set Data Source**, select **Real Time Scanner** and confirm with OK.

3) From the dialog **Set View** choose **Profile** and confirm with **OK**. Do a right-mouse click into the display and choose **Show Control Zones** from the pop-up window.

4) Then do again a right-mouse click into the display and choose **New Display** from the pop-up window. Choose the existing data source (not New!) and confirm with **OK**.

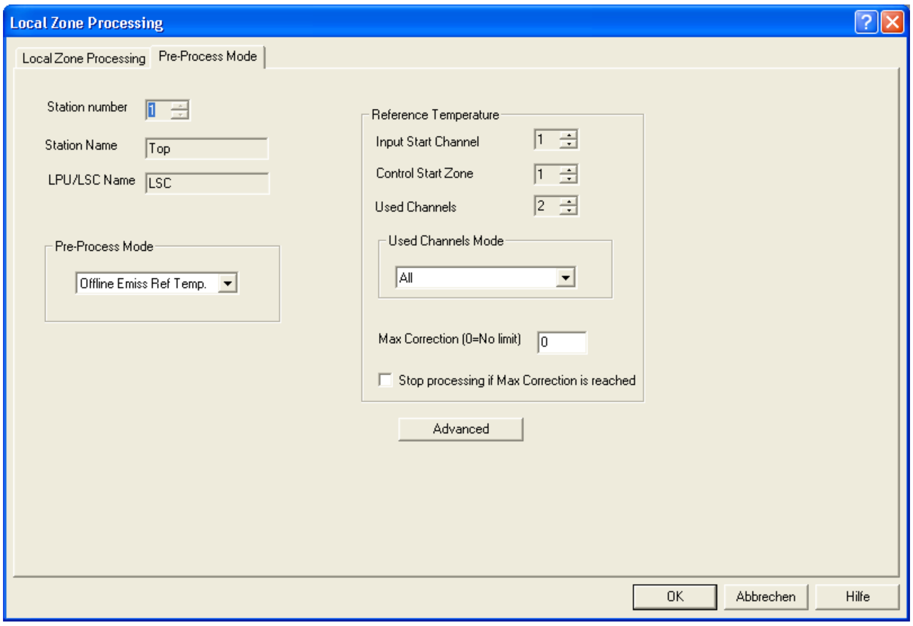
5) From the dialog **Change Views** select the Display Type **LPU/LSC Inputs** and confirm with **OK**.

6) From WCA Main Menu then choose **Data Processing** > **Local Processing**:



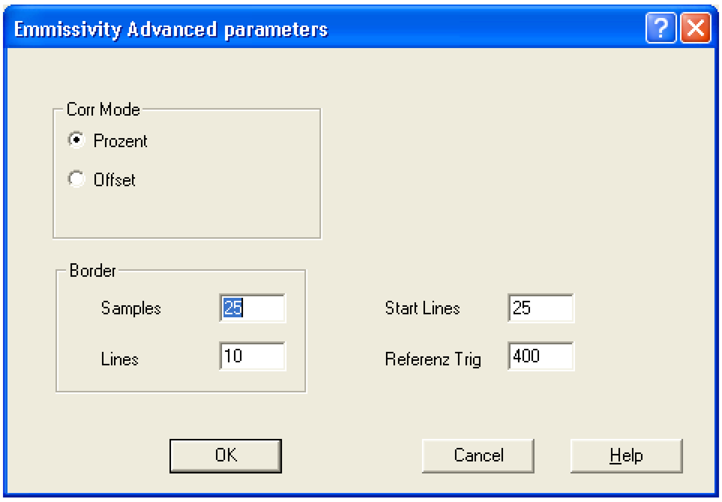
7) Insert here the same zone values as already done in the Control Zone Processing dialog (do a mouse click into the relevant line and adjust the parameters).

8) Then, from the Main Menu, choose **Data Processing** > **Local Processing** > **Pre-Process Mode** tab.



9) Select the parameters as shown for an application with two bottom cameras.

10) Select **Advanced**.



11) Verify that the settings work with your installation:

Reference Trig

Limits the minimum temperature which has to be seen by the reference pyrometer before correction algorithm will start. The value shown is for °C, if setup in °F then choose a value of 700.

Start Lines

The number of scan lines seen by the reference pyrometer and the scanner control zone before the correction starts. This value compensates the slow response time of the reference pyrometer. In the case of using the SOLOnet, reference control zone and pyrometer looking to the same position and you are scanning with 100 Hz the value of 25 works fine. (The calculation is response time of the pyrometer (50 msec) divided by time between 2 scans in msec (1000 /Scan Frequency) in our case 10 msec)

Borders (Samples and Lines)

This parameters define a not used border around a glass sheet.

A thumb value calculation:

Samples:

~ ((uncoated border in mm +10) x 0.4) x Scanner Height in meter

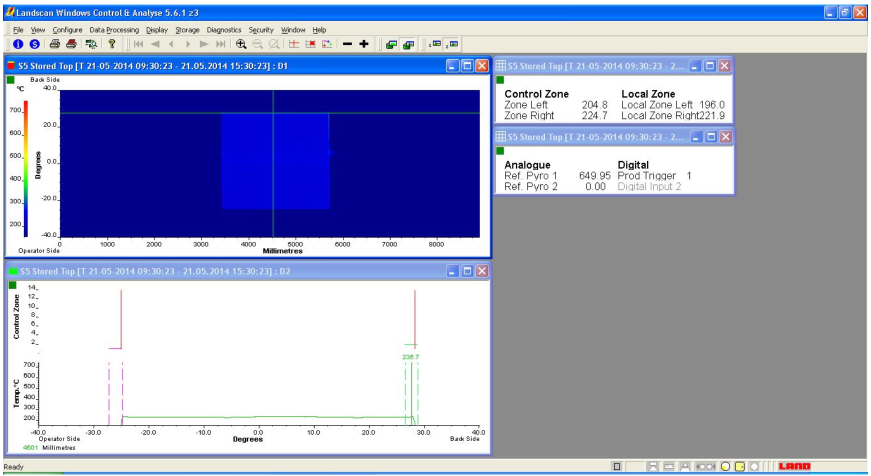
Lines:

~ (uncoated border in mm +10) x 1.25 / Bed Speed x Scan Frequency

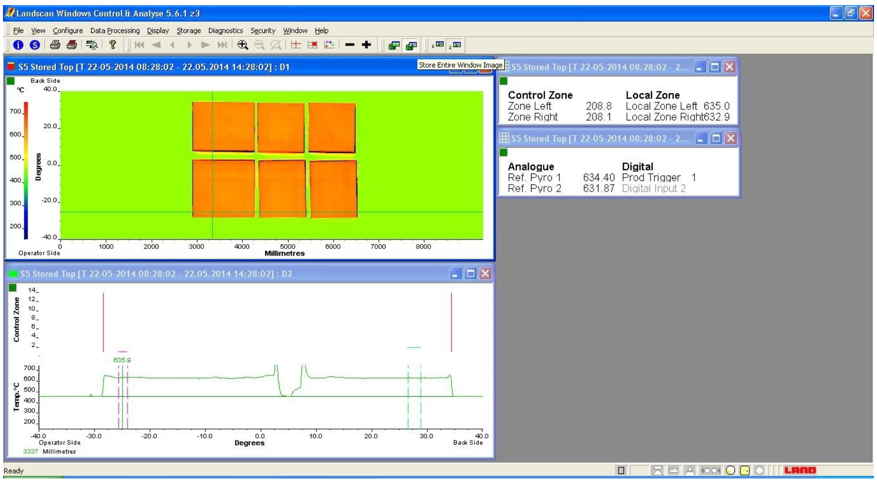
Some practical examples

This section contains some screenshots from product files which show examples of a non-working emissivity correction and a working emissivity correction.

The first one shows that the emissivity correction mode didn't start because the glass sheet didn't match the target spots of the bottom cameras correctly (the left control zone is outside of the glass, the right control zone just hits the border of the glass):



The second display shows a good working emissivity correction on coated glass. Both control zones match within an area overlapping the glass sheets and the correction has started. This is also shown in the display: The analogue input value of Camera 1 (Ref. Pyro1) matches the calculated value shown in the display for the local zone:



To get the emissivity correction mode to work in the correct way and to retrieve a good display, it is essential that the glass load on the roller table matches the target spots of the bottom cameras. Therefore we recommend to mark the positions of the target spots on the table to define for the operators the area where to load the glass. The glass must be positioned so that at least one glass sheet matches one target spot within a good overlapping area.

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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 (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.

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