

LAND

Software Feature Guide

Landscan WCA

Feature Guide

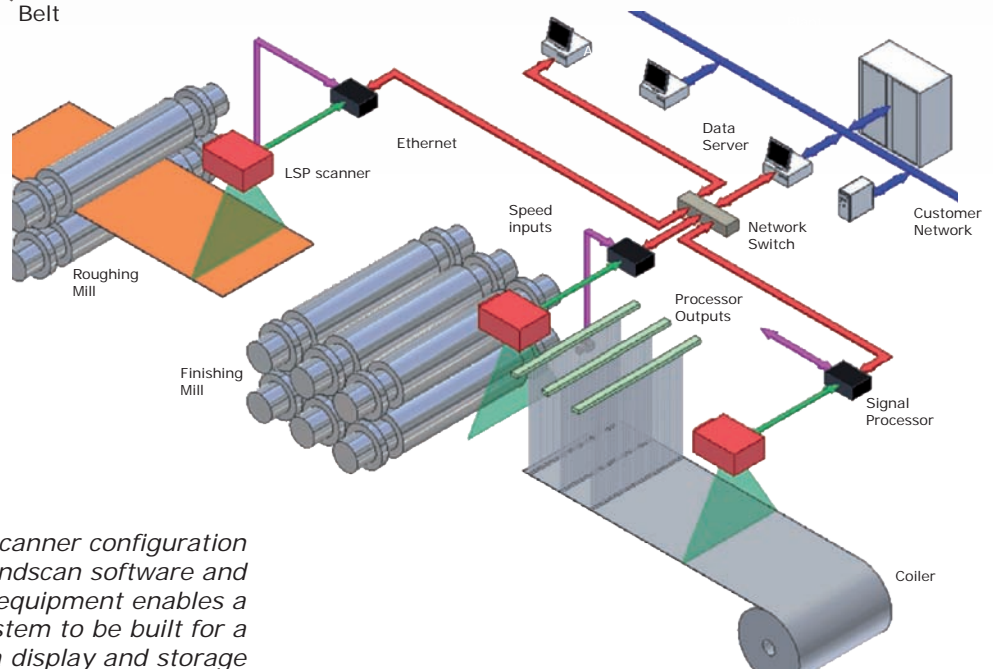
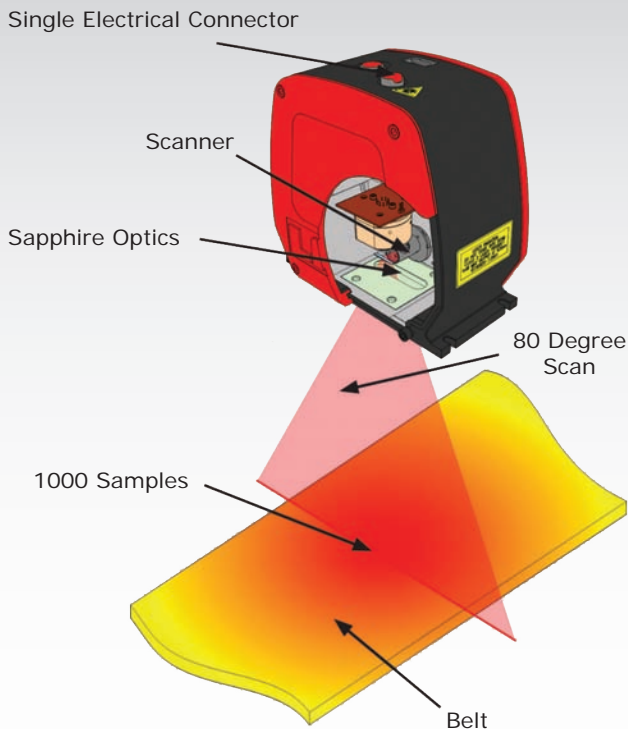
Landscan process imagers provide high resolution thermal images of industrial products. By knowing the exact temperature distribution over the whole product surface you are able to modify your heating or cooling controls to improve product quality. Landscan's precision optics and temperature sensing abilities are complimented by sophisticated and highly capable Landscan WCA software.

WCA has the ability to display live and stored thermal images in various different configurations. Files can be easily stored in a database and subsequently archived.

Live and stored images can be viewed in multiple plant locations. Outputs for logging and process control are available in many formats.

WCA software can process and display data from up to 8 Landscan systems at the same time. WCA senses if the PC has multiple CPU's and will allocate different processing tasks to each CPU if that's the case. This is ideal for processes that require multiple scanning sensors as all of them can be simultaneously monitored on the same PC.

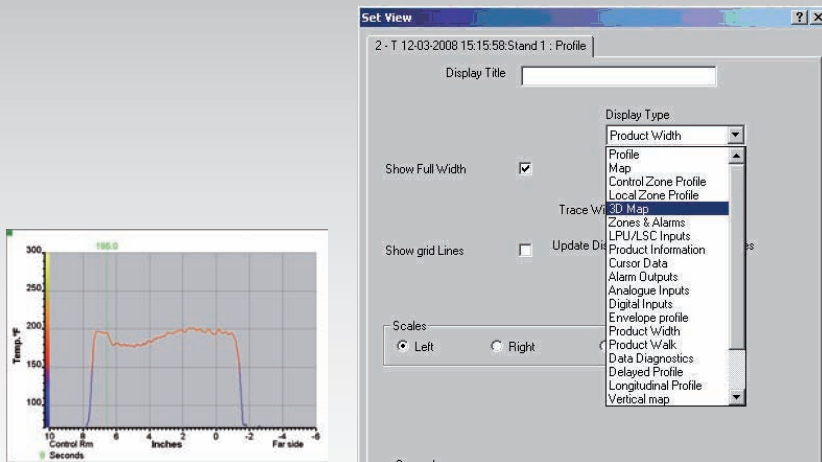
Incoming Landscan sensor data is transmitted over an industry standard Ethernet network. Systems are very easy to construct using standard network switches, bridges and cabling. Landscan data that is stored on the network can be freely accessed, replayed and analyzed by other users with network access to those drives and folders.



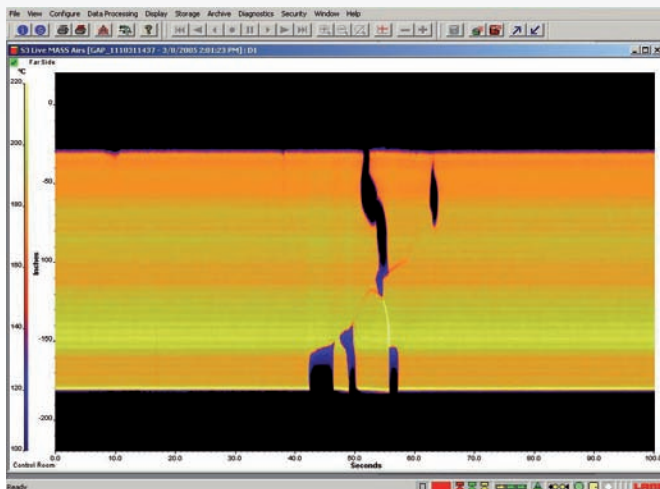
*Typical 3 scanner configuration
The use of Landscan software and
additional equipment enables a
powerful system to be built for a
data display and storage*

Displays

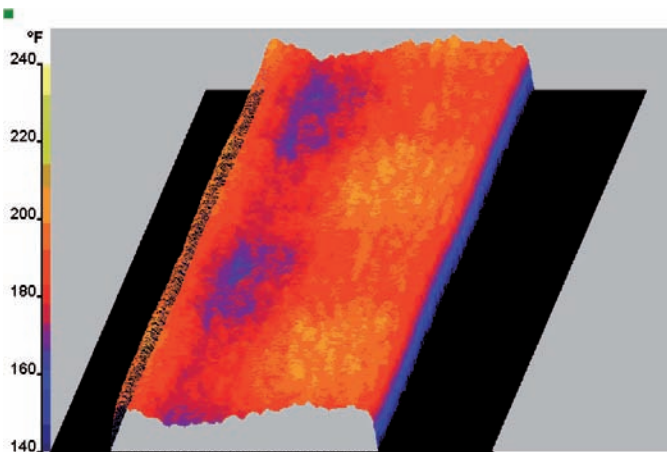
A selection of 23 different types of displays are available including temperature profiles, thermal maps, 3D temperature displays, product width and many more.



- A Temperature profile across the product



- A scrolling thermal map (image) of a passing product. This can scroll right to left, left to right, bottom to top or top to bottom. In this way the screens product movement is easy to relate to

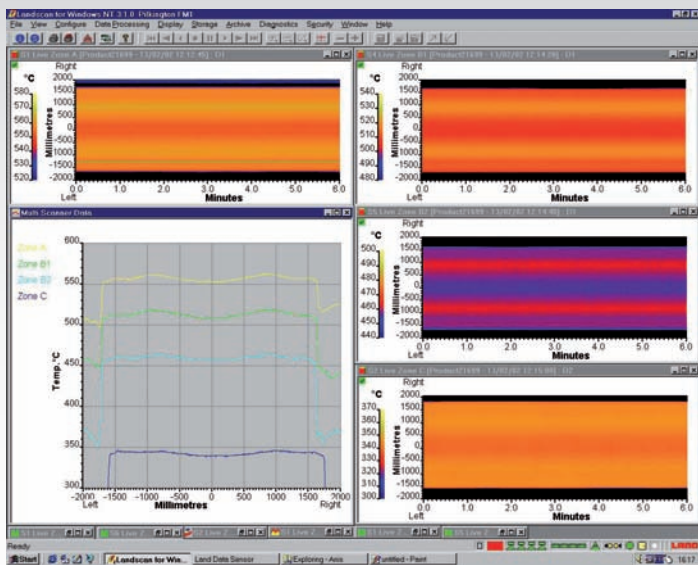


- A 3-D Thermal Map

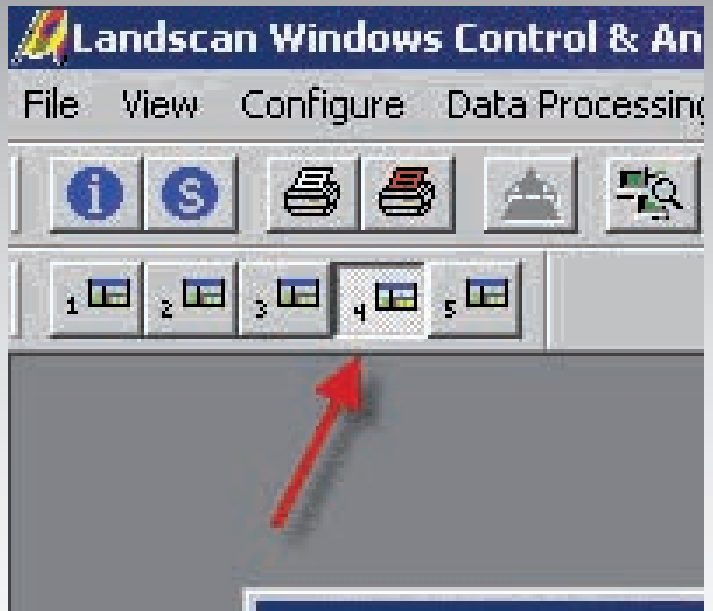
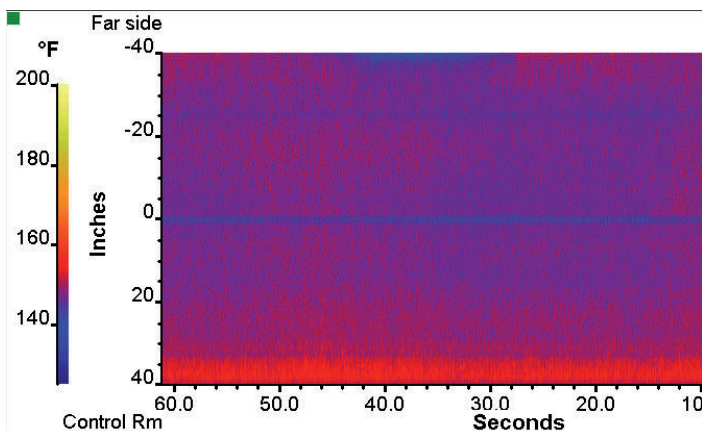
Displays



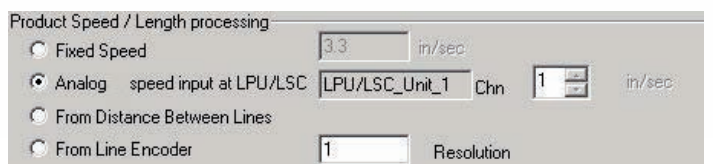
Next is a WCA screen displaying four thermal maps from four Landscan sensors along with a multiple profile display from those same four sensors. This enables plant operators to compare displays from all sensors simultaneously without having to jump from one screen to another. ▼



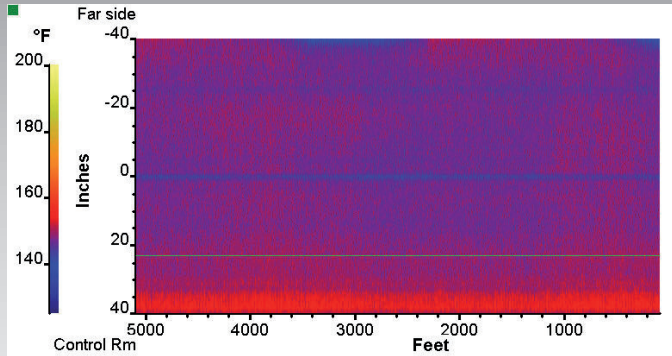
This is a typical thermal image display – notice the X-axis is scaled in seconds – This axis can be configured any length from less than a second upwards. ▼



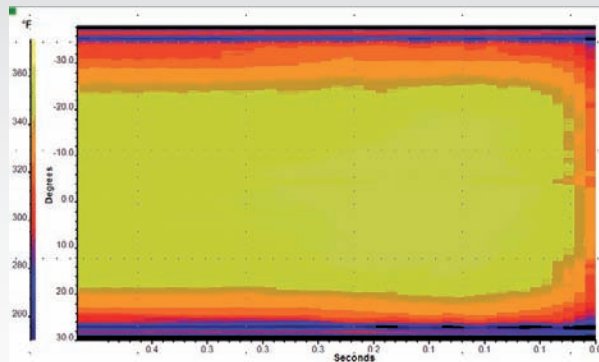
▲ You can configure your displays then save them to a display screen icon – up to 5 of these icons are available to quickly change display views without having to enter a menu.



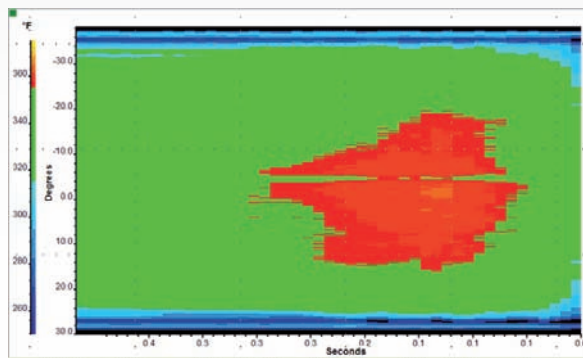
▲ If you have a process line speed measurement from either a pulse encoder or an analog transmitter this can be input to the WCA software.



- The X-axis will dynamically change with line speed to show units of distance like Feet or Inches

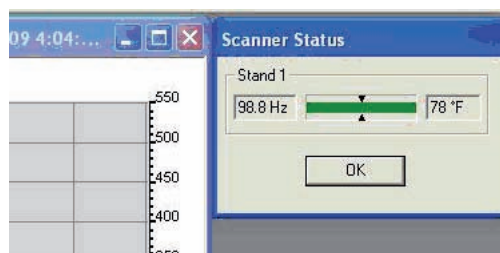


- Thermal maps are commonly viewed with a temperature range scale corresponding to a "heat" color palette like this one



- Another popular way to display this temperature distribution is to show it in relative terms. If your process has a set point and tolerance this can be input and then everything in tolerance will show in green (good) – This display is easy to interpret and you can quickly see if you're making good products or not.

This is the same data as above but displayed with a set point of 335F and a tolerance of +/- 20F. You can easily see what's good (Green) and where hot spots are (Red) and cold areas (Blue).



- Scanner sensor status is available as a display, confirming the scanner's ambient temperature and scan speed.

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Database Files

WCA can identify each data file saved by date and time or accept digitally input names from other computers to allocate a particular product ID. Files can be saved to the local PC or to any mapped drive over a standard Ethernet network. Remote users can access saved files over the network using free display and analysis software. Files can be saved in native binary format and/or ASCII CSV formats. For those just wanting to see screens, image files can also be saved in bmp, jpg, pcx, gif, tif and targa formats.

Choose the database location and size limit Once that limit is reached you select what happens to those database files automatically. You can also reduce the number of data points saved in files if you don't require everything. ▼

The screenshot shows the 'Database Management' settings window. It is divided into three main sections:

- When the Database size becomes :** Three radio button options are available:
 - Greater than % of the Disk size
 - Greater than Products
 - Greater than Days old
- Take the following action:** Three radio button options are available:
 - Delete the oldest products
 - Archive oldest products then delete from Database.
 - Immediately archive products;
Delete oldest products when Database exceeds size limit
- Storage Location:** Three input fields:
 - Store To: (dropdown menu)
 - Default Drive:
 - Path:

The screenshot shows the 'Global Settings' window, which is organized into several sections:

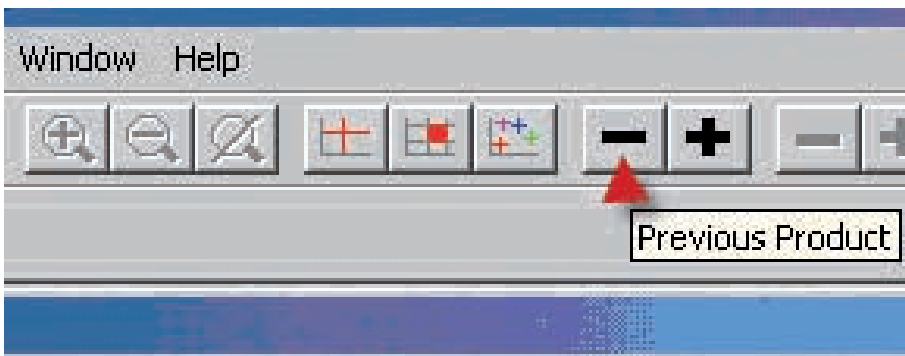
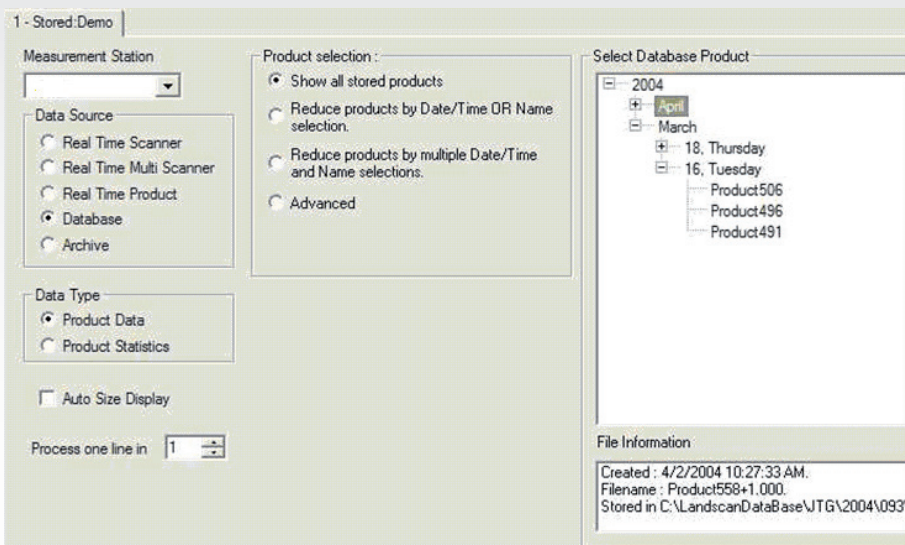
- Global Settings:** Includes a checked checkbox for 'Image Export Enabled' and a text field for 'Image Export Path' containing 'c:\LandscanArchive\Img'.
- Station:** Includes a 'Station Number' spinner box set to '1' and a 'Station Name' text field containing 'Stand 1'.
- Station Image Export Management:** Includes an unchecked checkbox for 'Station Image Export Enabled'.
- Image Format:** A list of radio button options for image formats:
 - Bitmap (bmp)
 - Paintbrush (pcx)
 - JPEG (jpg)
 - TIFF (tif)
 - GIF (gif)
 - TARGA (tga)

▲ Landscan WCA software has excellent capabilities for replaying and analyzing saved data files, however, if you want to analyze data files outside of the Landscan WCA software you can select to save data files in ASCII CSV format as well. Then simply import that file into your favorite analysis software package.

In addition to this you can save screens or display windows as image files to use in presentations or emails. As you can see below there are many common image file formats to select from.

Database files are saved in a logical Year, Month and Day location. When you search for files to replay it's easy to find them. The database has built in advanced search features which help you find specific files, like ones containing the same label.

Because they're data files you can re-scale them to display different characteristics later. In this way specialists like quality managers or metallurgists can re-scale, view and analyze files differently from the way they were originally viewed by a process operator.

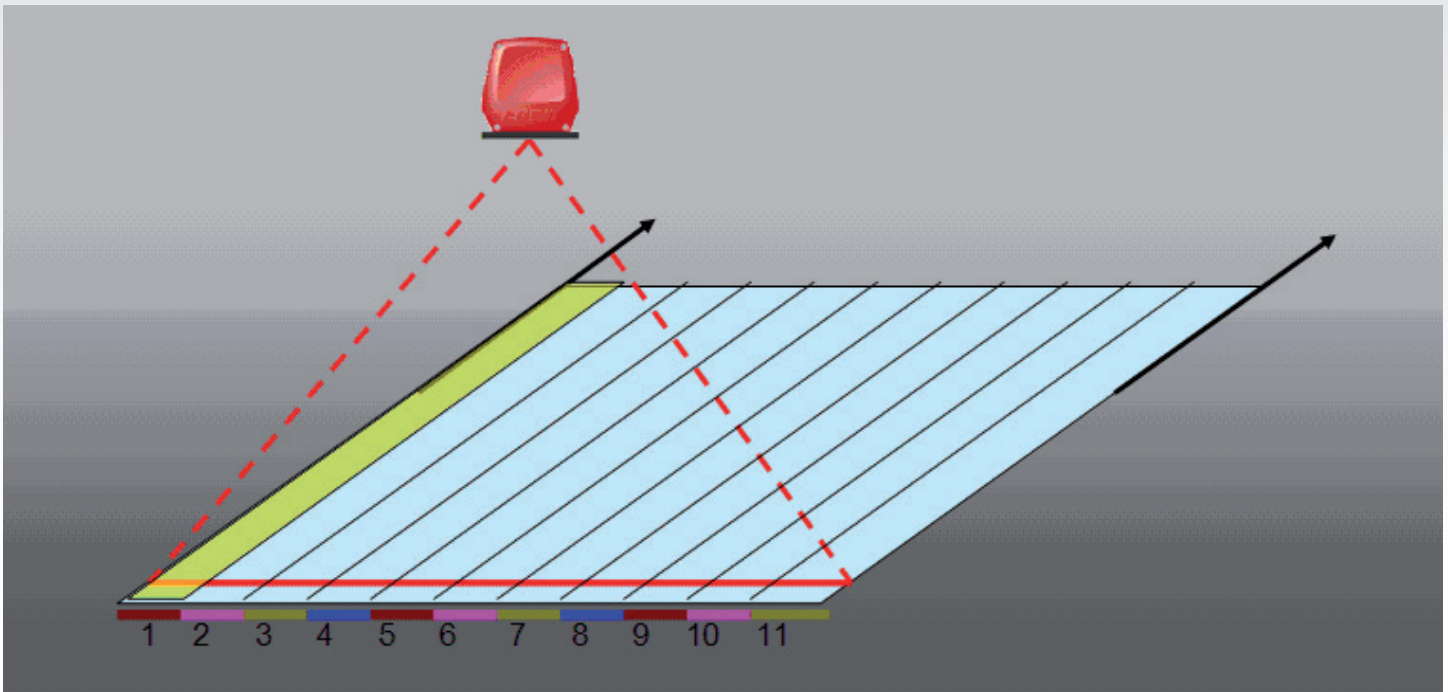


- *Once you're replaying and displaying a data based product you can easily scroll back through products using the quick previous - and next + file buttons.*

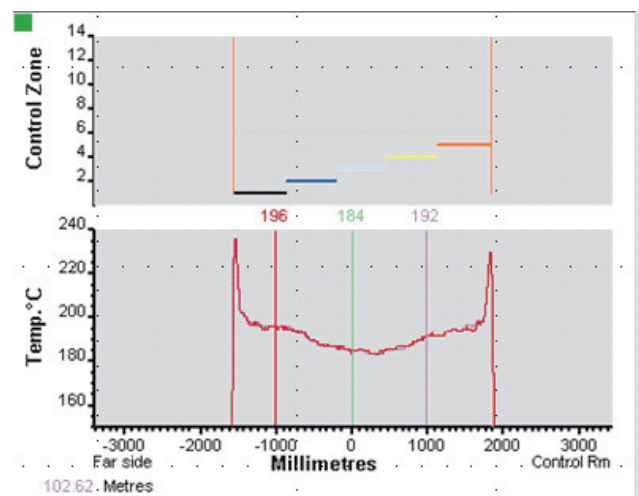
Zone Processing

WCA software enables you to configure up to 14 Control Zones (lane outputs) across the width of the product. Each zone can have its location and width individually set. These lanes can represent the average, minimum or maximum of the temperatures within each lane. In the example below 11 lanes are shown equally spaced, (up to 14 can be configured any size any location). These lanes can output values from a batch processor as 4-20mA or 0-10V analog, ASCII digital over serial

or Ethernet. The software has ActiveX connectivity and an OPC server is available. Additionally the system can output 100, 200, 250, 500 or 1000 digital data points per scan line regardless of scan speed chosen. Even at 100 or 150 Hz scan speeds all 1000 data points are available. The lane locations can either be divided over the entire 80 degree scan angle or they can dynamically track the product edges. Contact alarms can be set for all lanes.



The chosen lane positions and sizes can be displayed above the product's thermal profile. This way it's easy to check that the lanes are positioned correctly. ▶



Auxiliary Inputs

WCA can display and database additional inputs from other flow, level, pressure or temperature sensors. The software will range and scale each input and display it. When you database scanner data files, any of these auxiliary input signals are stored also. When you replay these files the auxiliary files replay with the same time base.

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In this way if a hot or cold spot is related to another measured parameter like flow or pressure you could see that parameter changing before the scanner senses the resulting process temperature change. In this way you have better knowledge of which event caused a temperature deviation.

Station Number Name LPU/LSC

Analog Inputs

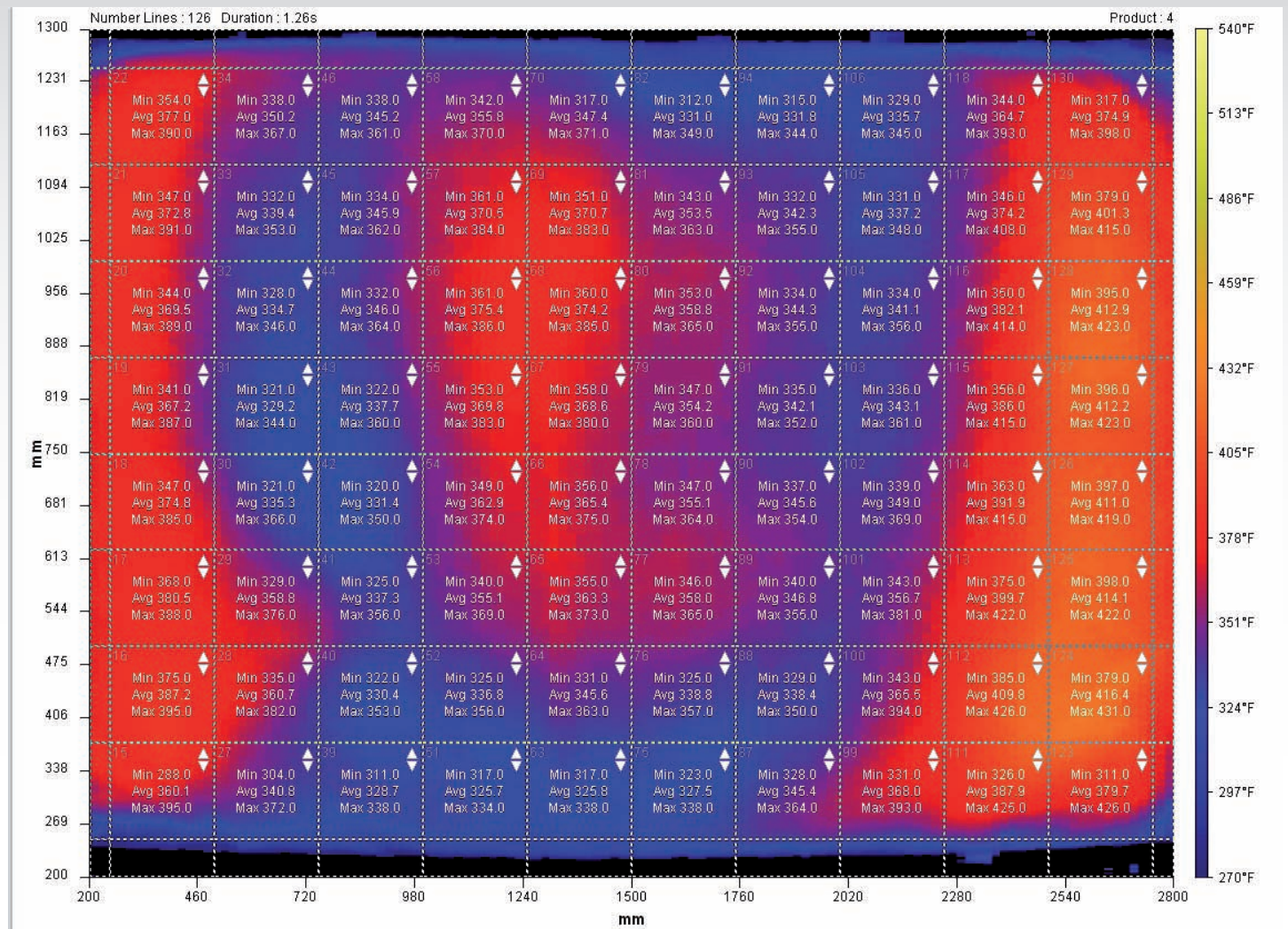
	Label	Channel On	Function	Voltage Range		User Scale	
				Bottom	Top	Bottom	Top
1.1	Analog Input 1	<input checked="" type="checkbox"/>	Process Speed	0	10	100	700
1.2	Analog Inp	<input checked="" type="checkbox"/>	Process Input	1	5	20	250
1.3	Analog Input	<input checked="" type="checkbox"/>	Process Input	1	5	0	100
1.4	Analog Input	<input checked="" type="checkbox"/>	Process Input	0	10	0	1000
2.1	Analog Input	<input type="checkbox"/>	Process Input	0	10	0	10
2.2	Analog Input	<input type="checkbox"/>	Process Input	0	10	0	10
2.3	Analog Input	<input type="checkbox"/>	Process Input	0	10	0	10
2.4	Analog Input	<input type="checkbox"/>	Process Input	0	10	0	10

- The dialog box shows a system with 8 analog inputs, 4 of which have been activated, the first input was configured for a line speed transmitter scaled 100 to 700 Feet per Minute for a 0-10Volt signal. The next 3 channels are for other process transmitter inputs.

Display and Output Cell Data

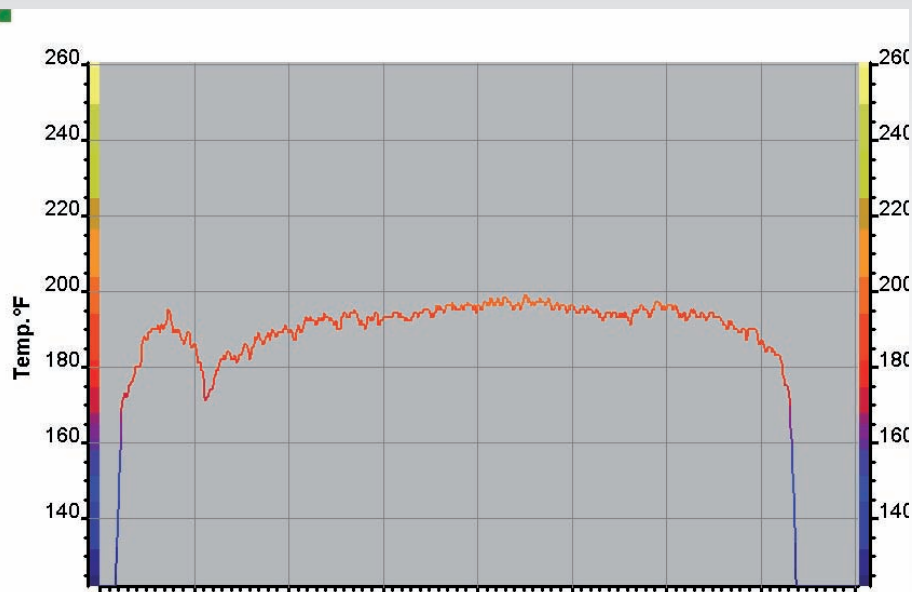
If you use the WCA software in conjunction with a Landscan Batch processor you can also configure cell matrix overlays on the thermal images. Cells can be in a contiguous grid or alternatively as individually sized and placed cells. Values in each cell are available via a Landscan OPC server. Any OPC Client standard

software can communicate with this and pull values from these OPC tags. High and Low alarms can be set for each cell and display as red up or down arrows in the cell. Cell names can be automatically assigned or individually labeled.



Combining Scanner Profiles

In some cases a product is so wide that it is impractical to position one Landscan sensor far enough away from it and still produce a fine detailed image. WCA software has the capability to combine multiple Landscan sensor inputs. WCA can then combine these profiles and "stitch" them together into one contiguous profile or thermal image. The resulting profile or thermal image of such a wide product has very fine temperature detail.



● *2 scanner profiles combined into one image*

Landscan Software Features

VERSION	Landscan Config Pro	WCA	WCA Pro
Hardware			
Maximum Simultaneous Connected Scanners	1	2	8
Adjust Emissivity and Scan Speed from software	Yes	Yes	Yes
Analog/Digital input and output modules	Optional	Optional	Optional
Data Files			
Database Files	Yes	Yes	Yes
Custom File naming and storage over networks	No	Yes	Yes
Automatically manage Database and Archive files	No	Yes	Yes
Binary and ASCII files	Binary	Either or Both	Either or Both
Save Image files – BMP, PCX, JPG, TIF, GIF, TGA	No	Yes	Yes
Auto save files on events	Yes	Yes	Yes
Data file size filtering for efficient storage	No	Yes	Yes
Displays			
Display types	Profile & image	24 choices	24 choices
Multiple, simultaneous on screen display windows	2	Only limited by Monitor size*	Only limited by Monitor size*
Saved & live data displays simultaneously	No	Yes	Yes
Combine multiple scanners into a single display profile	No	Yes - 2	Yes - 4
Scale displays via live process speed transmitter input	Yes	Yes	Yes
Data Sharing and Communications			
Offline Data file replay and analysis software	Yes	Yes	Yes
Access and replay files on other PC's via network	No	Yes	Yes
Receive action commands via network	No	Yes	Yes
Data strings via network	Yes	Yes	Yes
Receive remote configurations via network	No	Yes	Yes
User Settings			
Save 5 user screen display formats - Recall by button	No	Yes	Yes
Save multiple configuration settings - Recall from menu	Yes	Yes	Yes
Access security settings via different password levels	No	Yes	Yes
Available Options			
OPC Server	No	Yes	Yes
Live Client Displays via network	No	4	4
Live ActiveX	No	Yes	Yes

* Monitor size, resolution and graphics card resolution are the only limits on the number of display windows.

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Non-Contact Temperature
Measurement Solutions

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