

## TIP-450™

### Wallboard Temperature Imaging and Profiling System

### Operator's Manual

Excerpt



# Operation

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The TIP-450 software program follows standard Windows conventions. The following sections were written with the assumption that you are familiar with the Windows NT/2000 operating environment. If you need help using Windows, refer to the manual that came with your Windows software.

When you turn on the computer, the TIP-450 software program will automatically start.

The following sections describe and explain the use of the screens, menus, and buttons.

## SYSTEM ACCESS BUTTONS

All functions are accessed through common buttons located at the top of the screen (see example below).

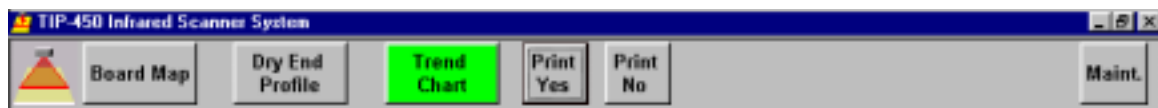
- **Board Map** displays the real-time thermal image for each board set.
- **Dry End Profile** displays the dryer discharge elevation view.
- **Trend Chart** displays the real time and historical trend charts.
- **Maintenance** displays the maintenance access menu.



Access Buttons when printing is not allowed.



Access Buttons when printing is allowed.



Access Buttons to confirm printing operation. Once printing is selected you must select either the **Print Yes** or **Print No** button.

## SCANNER INITIALIZATION

The MP50 linescanner is initialized when the TIP-450 program loads or when **Scanner Comms Reset** is selected from the **Maintenance** screen.

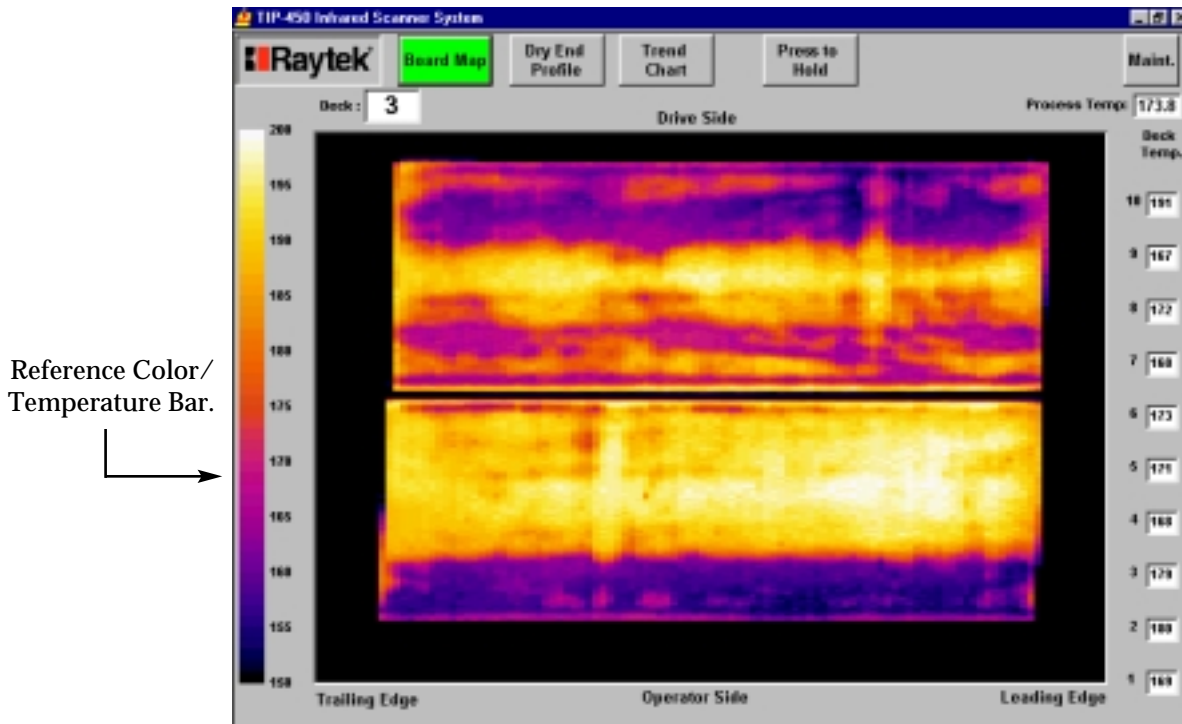
IR Scanner Configure and Test			
Baud Rate	115,200		
Line Mode	LMD	OK	
Data Points / Line	256	OK	
Temperature Range	User Defined	OK	
Maximum Temperature	150 °C 302 °F	OK	
Minimum Temperature	20 °C 68 °F	OK	
Field Of View	90	OK	
Zone Modes	OK OK OK OK		
Zone Flow		OK	
Trigger Temperature	-13 °C 9 °F	OK	
SnapShot Lines	RMH	OK	
Zone Line Count	768	OK	
Average Time	0000	OK	
Scanner I.D.	Scanner ID		
S.W. Rev.	Software Version		
Deck Input Module	7041	"7041"	
Misc. Input Module	7050	"7050"	
Analog Input Module	7017	"7017"	

This screen shows the status of the scanner commands and the responses. A response of **OK** to most commands indicates successful configuration and communications. The **Scanner I.D.** and **Software (S.W.) Rev.** fields return the scanner hardware ID number and current version of the scanner firmware.

The **Deck Input**, **Misc. Input**, and **Analog Input** Modules return the values as shown at the right of the text blocks in the above example. A failure in the RIO system will result in blank responses.

## REAL TIME BOARD THERMAL MAP

This screen is a real time display of the board sets as they exit the dryer. As the data from a new board set is received, it over-writes the display from the previous set.



**Deck:** Indicates the deck from which the currently displayed board arrived.

**Lines Scanned:** Indicates the total number of scanner passes for the current board set.

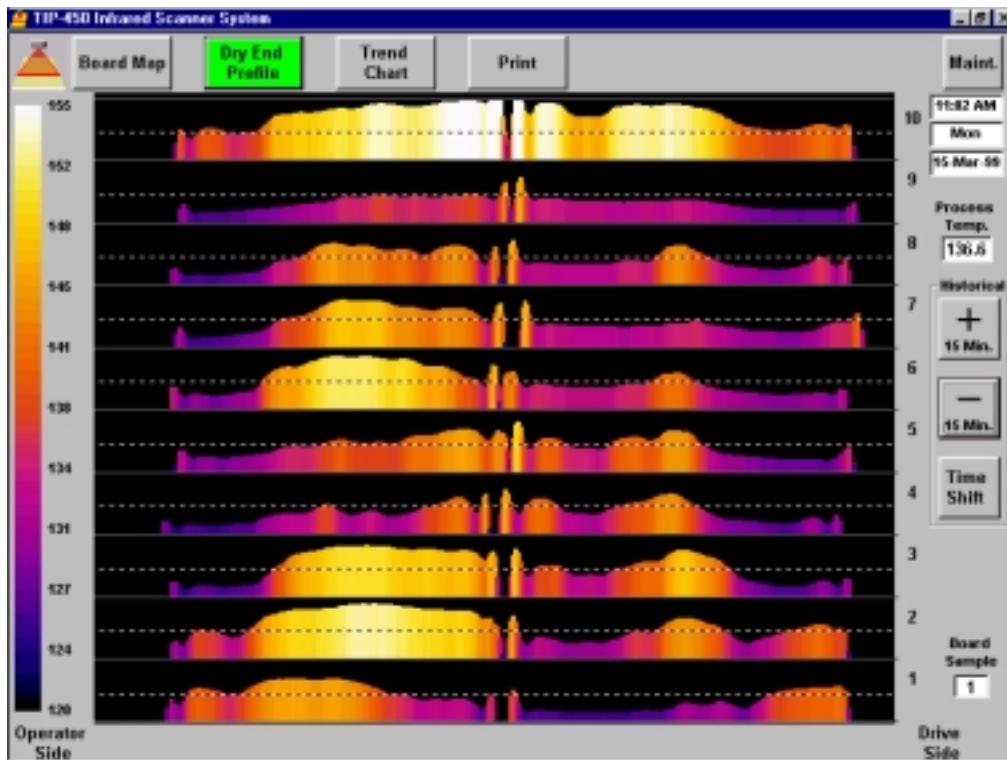
**Process Temp:** Display of the current average temperature of all board sets coming from the dryer.

**Deck Temp.:** In individual display of the average board temperature for each deck.

The **Press to Hold** button can be used to pause the display. Selecting it again continues scan imaging.

## DRY END PROFILE - REAL TIME

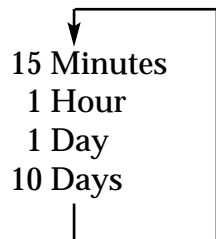
This screen shows a view of the dry end discharge temperature profiles.



The profiles for each deck are displayed with the temperature points indicated by the height and color of the profile graphs. As each new board set is measured, the display is automatically updated.

**Historical:** The temperature profiles are saved to a data file system each 3 minutes. By selecting the Historical system it is possible to view past temperature profiles. When in Historical Mode the Date/Time Display indicates the period for the currently displayed historical data.

- “+” decreases or moves earlier the historical display time by 1 Time Increment.
- “-” increases or moves later the historical display time by 1 Time Increment.
- “Time Shift” rotates the Time Increment through values of the following:

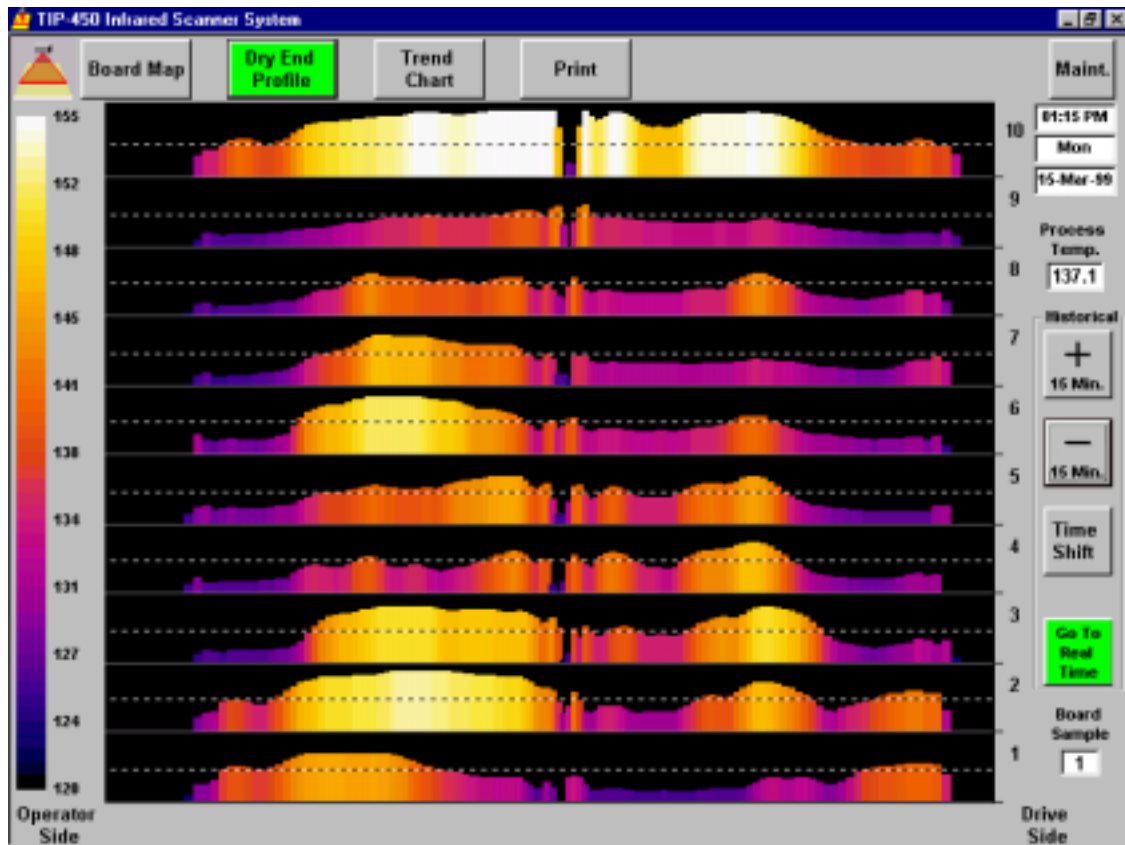


**Process Temp:** Display of the current average temperature of all board sets coming from the dryer.

**Board Sample:** Indicates the number of board groups for each deck that are averaged for the graphical display. This is adjustable from 1 to 10 board groups per deck. See the Maintenance section for adjustment.

## DRY END PROFILE - HISTORICAL

This screen shows a view of the dry end discharge temperature profiles for historical data.

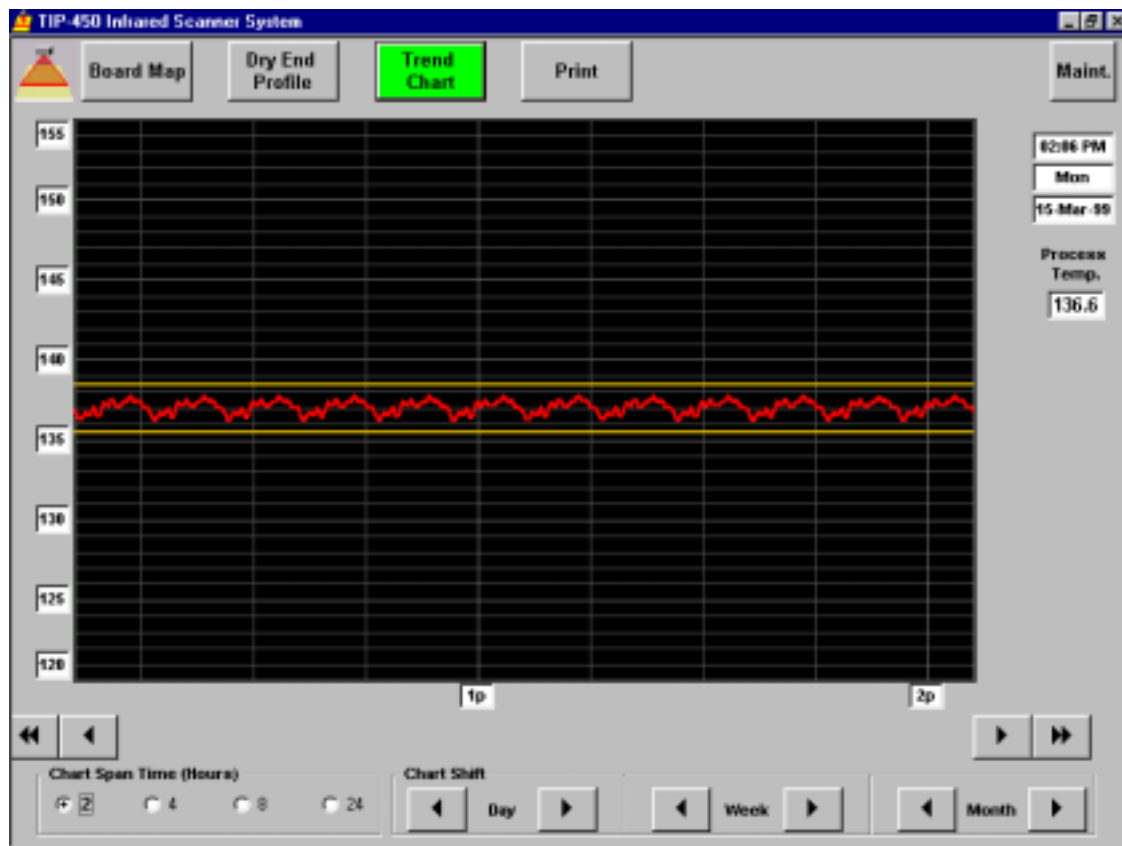


Most of the displayed data is the same as for **Dry End Profile - Real Time**. The data is for the period shown in the Date / Time display.

**Go to Real Time:** Pressing this button automatically returns the display to Real Time Mode.

## TREND CHART - REAL TIME

This screen shows a time trend chart of the bulk average temperature of all board sets for the current time.



**Chart Span Time:** The span of the displayed data from 2 through 24 hours is changed by touching the appropriate option button.

The Arrow Buttons and Chart Shift area are for the Historical Trend Chart display and are described on the following page.

# HISTORICAL TREND CHART

This screen shows Historical trend chart data.



**Chart Span Time:** The span of the displayed data from 8 through 24 hours is changed by touching the appropriate option button. The Date/Time of the selected data is displayed. For Historical Data, 2 and 4 hour resolution is not available.

- ◀ Press this button to shift the chart display EARLIER by 1 time division as displayed by the vertical division lines on the chart area.
- ◀◀ Press this button to shift the chart display EARLIER by chart 1 width. Example: 8 hours if Chart Span Time is selected for 8 hours.
- ▶ Press this button to shift the chart display LATER by 1 time division as displayed by the vertical division lines on the chart area.
- ▶▶ Press this button to shift the chart display LATER by 1 chart width. Example: 8 hours if Chart Span Time is selected for 8 hours.

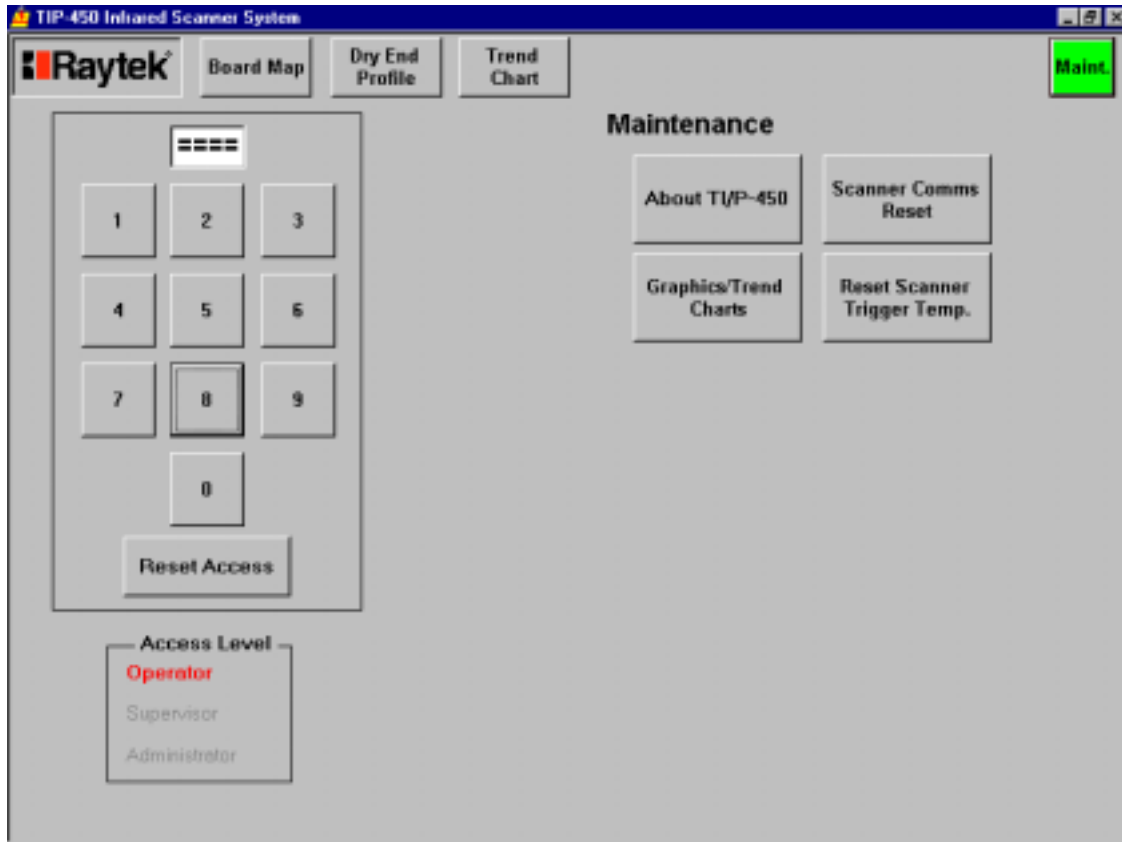
## Chart Shift:

- ◀ Press to shift the displayed time EARLIER by 1 Day, 1 Week, or 1 Month.
- ▶ Press to shift the displayed time LATER by 1 Day, 1 Week, or 1 Month.

**Reset To Real Time:** After reviewing historical data, the Trend Chart can be reset to current data by pressing this button.

## MAINTENANCE

Some Maintenance features are available for use during normal production while others are only available for system configuration and setup. This section describes the production-related features while **Setup** and **Configuration** are covered in the Maintenance section of this manual.

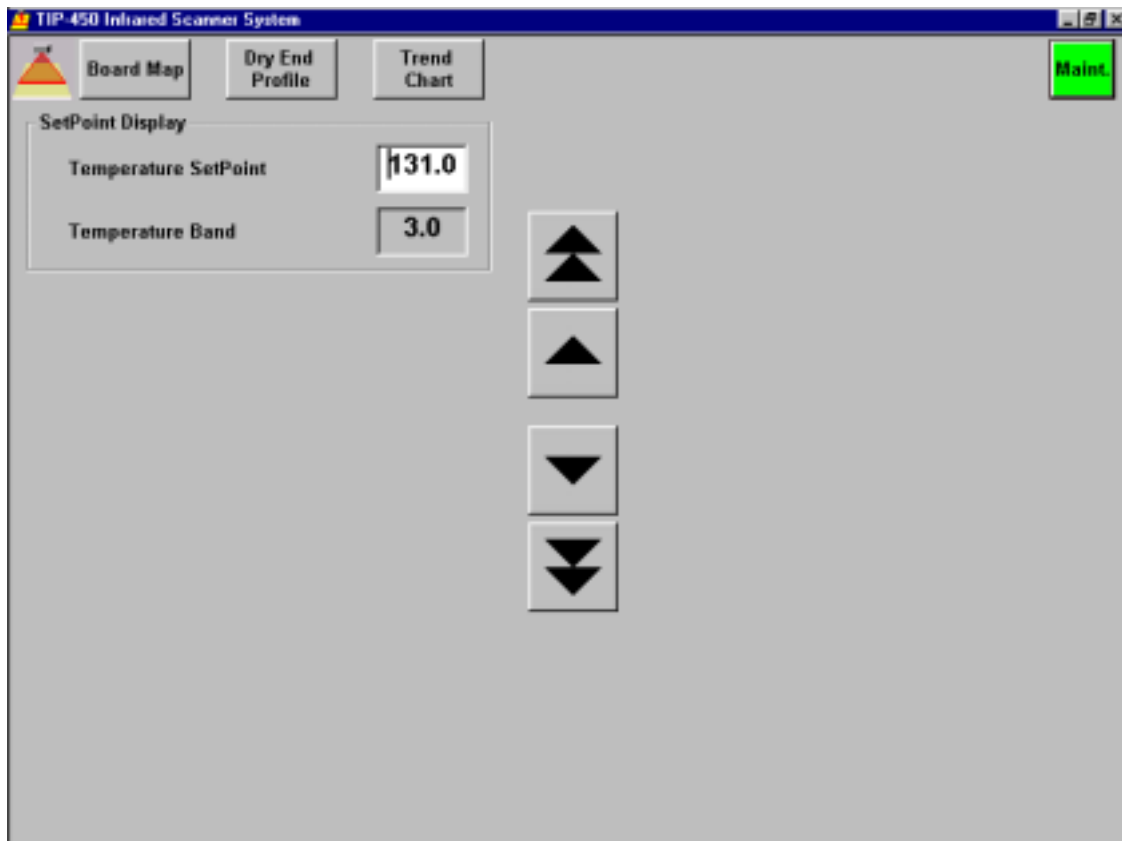


**About TIP-450:** Information about the Software version as well as copyright notices.

**Graphics/Trend Charts, Scanner Comms Reset, and Reset Scanner Trigger Temp.** are explained on following pages.

## GRAPHICS / TREND CHARTS

This screen adjusts the setpoint display as shown on the **TREND CHART** screens.



To change numeric values, do the following:

- Touch the appropriate Text Box to change to a white background
- Increase or Decrease the value with the UP and DOWN arrow buttons. The Single Arrow changes the value by 1 digit. The Double Arrow changes the value by 10 digits.

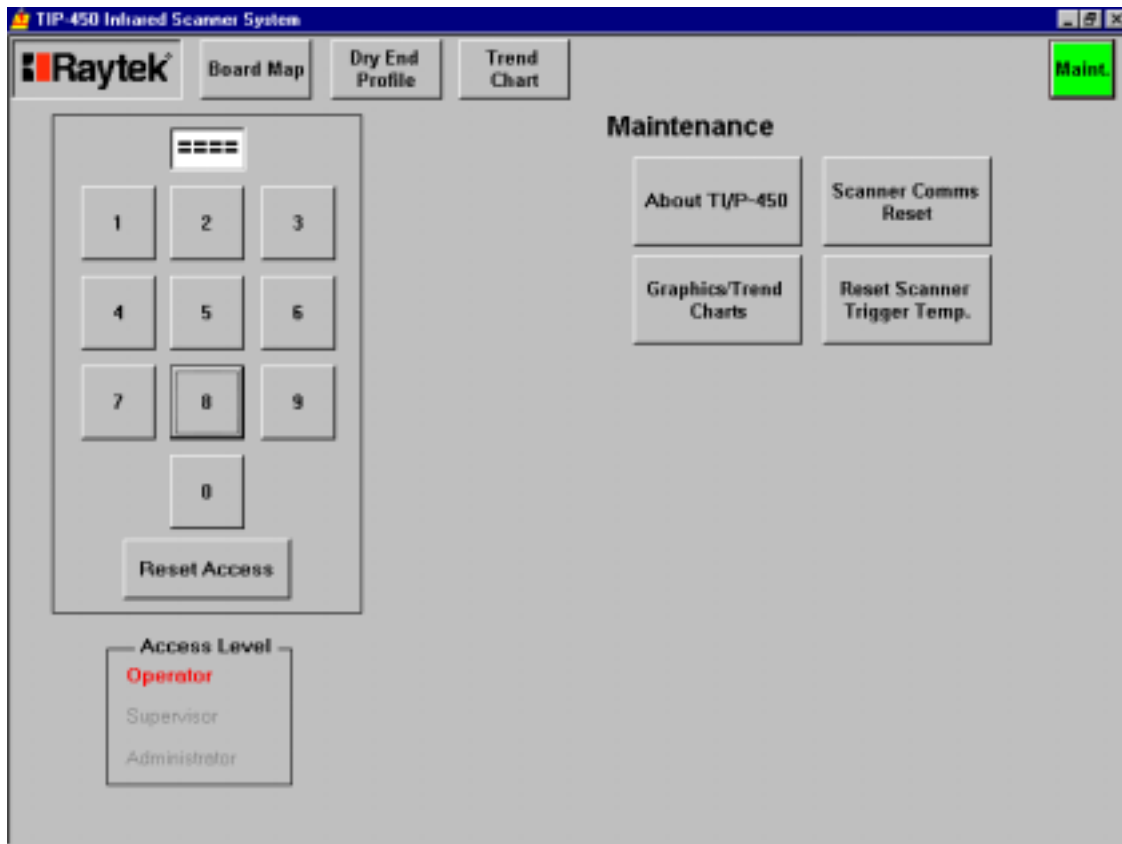
### SETPOINT DISPLAY (OPERATOR ACCESS)

**Temperature Setpoint:** Set the temperature Setpoint as displayed on the Real Time Trend Chart.

**Temperature Band:** The allowable operating range is displayed on the Real Time Trend Chart. This value represents the width of the allowable band. For example, if the Band is set to 10°, the range is  $\pm 5^\circ$ .

## SCANNER COMMS RESET

The **SCANNER** continuously reads the temperatures in the field of view. As soon as boards are detected, the scanner begins to send data. When the end of the board is recognized by the **COMPUTER**, a message is sent to the **SCANNER** to stop sending data.



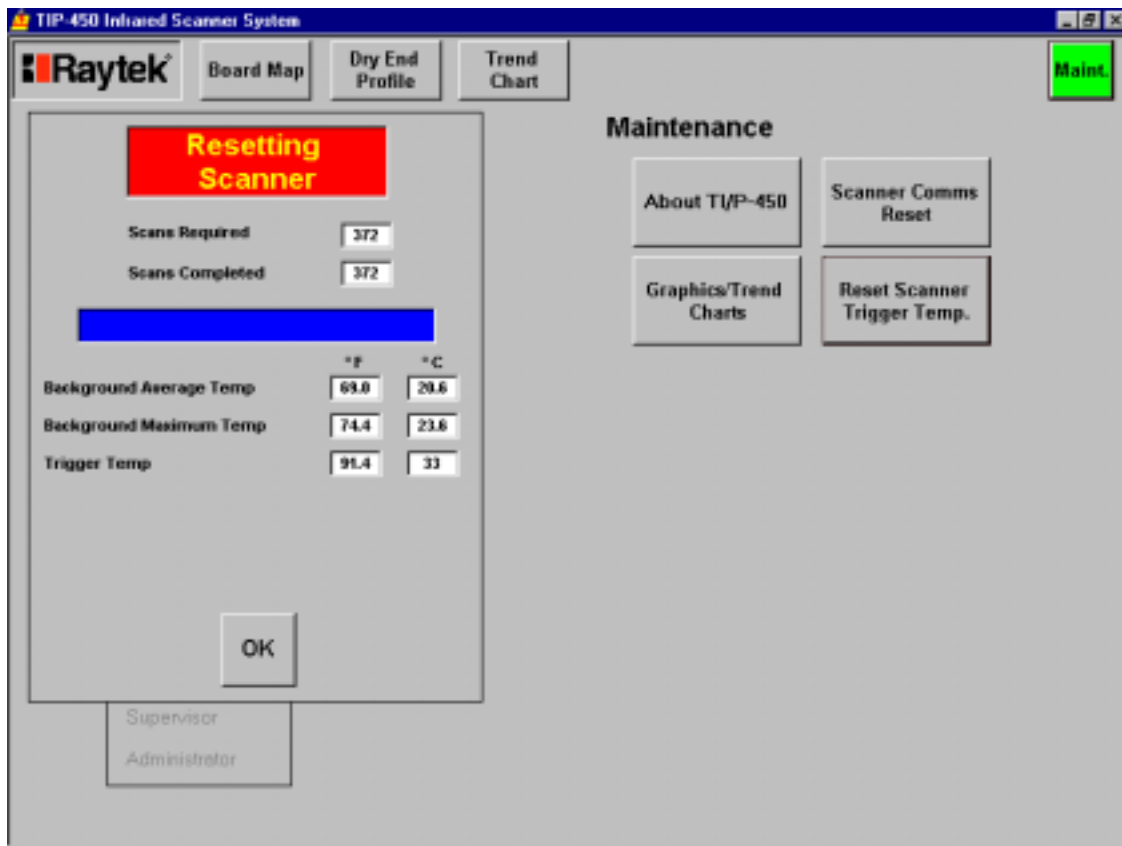
If the communications sequence is interrupted due to a power surge or some other external force, it is possible for the operator to **RESET** the communications by selecting this button.

If boards are passing under the scanner head and no data is being transmitted to the computer as seen on the Board Map Screen, press the **Scanner Comms Reset** button. The Scanner Comms Status screen will appear (See Page 2). All applicable text items should show “OK” to indicate communications have been reestablished. After 10 seconds the system will switch to Real Time Board Map and resume normal operation.

If it is necessary to use the **Scanner Comms Reset** often there is a problem with one of the configuration settings. Contact your supervisor or System Administrator.

## RESET SCANNER TRIGGER

The **Trigger Temperature** previously described may require adjustment from time to time due to changes in board or conveyor equipment temperatures as the plant temperature changes. Pressing the **Reset Scanner Trigger Temperature** will activate a system where the scanner will read temperature data continuously for at least 1.5 time normal board passage time. The system then analyzes this data and established a new **Trigger Temperature** level. The screen pictured below shows the progress of the reset process, which will take a few seconds. Once complete the **OK** button appears. Pressing the **OK** button resets the scanner communications and returns the system to normal operation.



The following information is displayed:

**Scans Required:** The number of lines the scanner will execute to assure a full view of passing boards and the background. This is calculated on the basis of the conveyor speed and maximum board length.

**Scans Completed:** This shows the status as the process is executed. The horizontal bar shows the same information.

**Background Average Temperature and Background Maximum Temperature:** These are data calculated from the accumulated data. This is shown as a potential aid in assisting troubleshooting.

**Trigger Temp:** The actual trigger temperature that is used by the scanner. It is automatically computed on the basis of the data gathered by the Trigger Reset process and setup parameters established within the Maintenance system.

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**NOTES ON RESETTING THE SCANNER TRIGGER:**

- **When boards are passing under the scanner and are not being detected, a Trigger Reset is probably necessary. This is typically caused by large shifts in background temperature due to daily or seasonal weather changes.**
  - **Unusually cold board coming from the dryer may not be detected. This is usually due to non-standard drying conditions. If the board temperatures are very low resetting the trigger temperature may not have an effect.**
  - **Frequently resetting the Scanner Trigger Temperature does no harm but is not necessary. If you think a reset is required then perform the procedure.**
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