



Minolta/Land Cyclops 152 Infrared Thermometer

Inst # 20004049

Description

- The Minolta-Land Cyclops 152 is a portable thermometer designed for temperature in the range 500 to 3200° C.
- Temperature is displayed digitally in the view and on the external LCD.
- Digital output is available over RS-232 communication.
- Target is viewed simultaneously with the temperature display.
- 1/3° measurement angle.
- Wavelength of operation chosen to give maximum freedom from errors due to emissivity.
- Emissivity compensation in range 0.1 to 1.0.
- Three operational modes – Continuous, Peak, and Valley. In the last two the readings corresponds to the highest and lowest temperature respectively during the period of operation.
- Response time 30 ms (Display 0.6 s).
- Accuracy $\pm 0.5\%$ reading.
- Wavelength of operation eliminates the effects of water vapor and carbon dioxide in the atmosphere and the effects of sunlight on temperature readings.
- Three calculating modes – Maximum, Mean, or Minimum of a series of readings.
- Currently the close-up lens #135 is attached to the unit.

Operation Notes

During operation, the Cyclops 152 displays the temperature in the digital display inside the viewfinder. It also displays the temperature data, mode information, and emissivity on the external LCD display.

When the temperature is below 500°C the display will illuminate and will read “-U-“. If the temperature is between 500-600°C the number will be displayed and the digits will blink rapidly alerting the user that this range falls outside the calibration. Between 600-3200°C the temperature will be indicated and the digits will be constant. The temperature value is not held during continuous mode, it is updated in real-time.

The Cyclops 152 operation is detailed in the Cyclops 153/153A manual.

RS-232 Communication Notes

Measured temperature data is available from the digital output terminal in the form of ASCII code, TTL level RS-232. The connector is a Hirose HR10-10P-12P. On our Cyclops 152, data output is continually streamed over the output terminal when in continuous mode and the trigger assemble is removed.

A patch cable was constructed to interface with a RS-232 port. The following connection scheme (as directed in Cyclops 153 manual) is required to communicate with the device:

Hirose Pin 10 to RS-232 Pin 2 "Receive Data"
Hirose Pin 11 to RS-232 Pin 4 "Data Terminal Ready"
Hirose Pin 7 to RS-232 Pin 5 "Signal Ground"

Table 1 shows the communication parameters to use with the Cyclops 152.

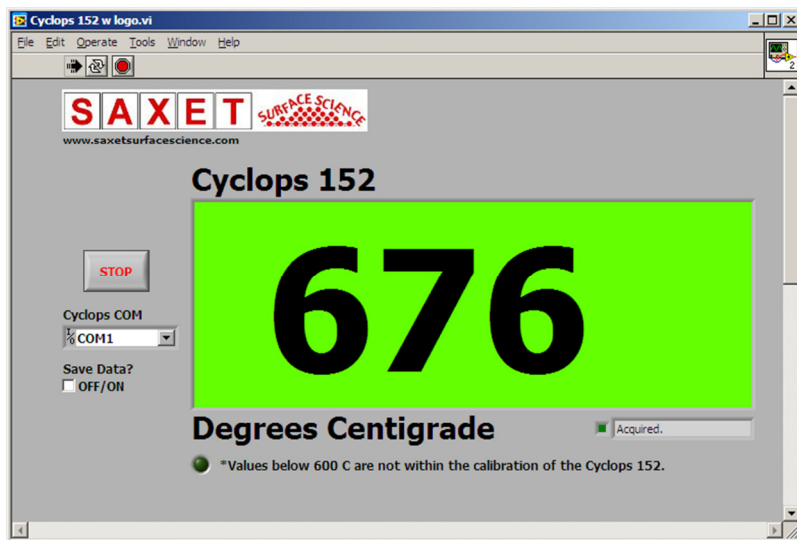
Baud Rate	4800 bps
Data Bits	7
Parity	Even
Start Bit	1
Stop Bits	2.0
Flow Control	None
Termination Character	ASCII LF
Signal Level	TTL Level ONLY

Table 1. RS-232 communication parameters.

The data output is in groups of 10 bytes. The first character is "H" to indicate the thermometer type "High Temperature". The next character is a O, C, P, V, or a U, corresponding to the operation mode and over or under range. This is followed by a space, the temperature digits, a carriage return, and a line feed. An example string would be "HCC[SP]1529CRLF". This would be decoded as continuous mode, measuring trigger held pressed, 1529°C. More examples can be found in the Cyclops 153 manual page 21.

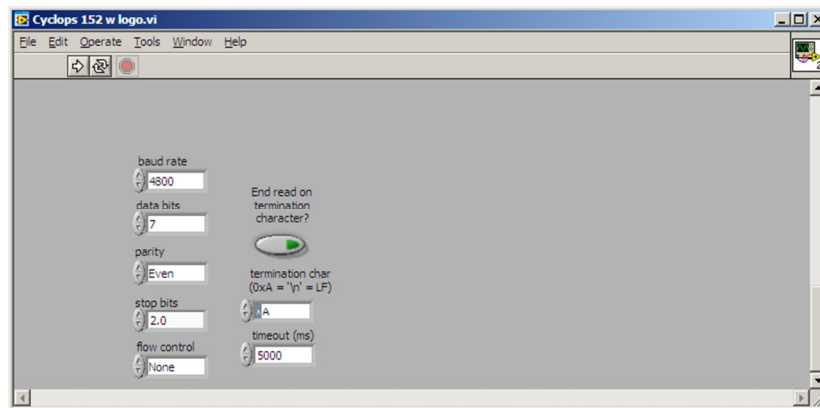
A LabVIEW program "Cyclops 152 Program" was constructed to communicate with the instrument. This program allows for readings to be displayed and data to be saved to a .txt file. The program also indicates when the readings are out of the calibration range of the Cyclops 152.

In the program, the small grey text display and color indicator to the right of "Degrees Centigrade" is the status indicator for the program. The program gathers data from the Cyclops 152 by capturing a part of the data stream, matching a 10-byte segment, displaying the temperature then repeating. If there is no reading or no string match, the status will display "Error", where as if data is successfully captured and matched, it will display "Acquired."



Picture 1. LabVIEW program for Cyclops 152.

Although the communications parameters are set by default in the program, additional changes may be made by scrolling down in the program. For normal operation these values should not be changed. See picture 2.



Picture 2. Communication parameters for Cyclops 152 (scroll down in program).