

SPECIFICATIONS

ThermaViz[®] Melt Pool Sensor for Laser Deposition

The Melt Pool Sensor provides precise temperature measurement using 2-wavelength pyrometry technology and high resolution thermal images. The 2 λ approach effectively eliminates sensitivity to emissivity; where as other 1 λ technologies require the emissivity be estimated and set. A broad range of thermal and dimensional aspects of the melt pool are measured in real-time; peak and average temperature, solidification contour and dimensions (area, length and width), heating and cooling rates. The pyrometer is packaged for harsh environments and the thermal image processing computer is pre-installed with custom, Windows-based software featuring powerful operating modes. ThermaViz is a complete system that provides real-time, true temperature images and measurements.

Specifications

Based on CMOS imaging technology

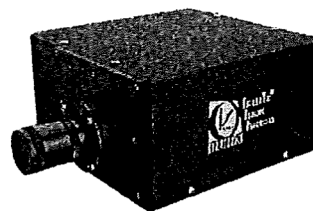
- Detector dimensions: 752 x 480 pixels, pixel spacing 6.45 microns
- Exposure: 0.1 – 130 milliseconds
- Frame rate: 25 frames/second @ 12 bit output

Optical system

- Resolution range: 10 μ m/pixel – 1 mm/pixel
- Field of view range: 5 mm – 500 mm

Temperature Range: : 1000 to 2500° C

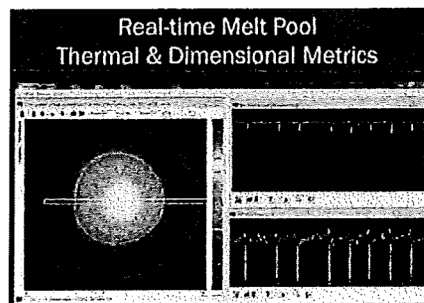
Physical dimensions: 6.25" W, 6.5" L, 3.5" H, weight 5 lbs



ThermaViz[®] Software

The image processing computer is pre-installed with custom, Windows-based software featuring powerful operating modes.

- Computes temperature images
 - Melt Pool: 2 wavelength calibration
- Displays live, real-time temperature thermal imagery data
- Isolates regions of interest for detailed study,
 - Hot Spot Tracking
- Displays profiles, time histories, and histograms of thermal and dimensional data
- Archives thermal image movies for analysis
- Exports data in a variety of standard formats, including .bmp, .emf, .avi, and .csv.
- Synchronize to external hardware signal for triggered data acquisition
- Operates under Windows 7



Calibration System

Calibration and alignment is performed prior to shipment. Both must be repeated once the system is installed in an AM processing unit and calibration should be performed on a yearly basis. The calibration system includes two bulbs, bulb mounting fixture, power supply, and manual.

