

Specifications:

High temperature measurements are needed in the NASA high pressure burner rig testing and laser rig testing for Aero SiC/SiC-environmental barrier coating ceramic matrix composite testing project. A single-wavelength infrared thermometer of 7.9 um wavelength Pro Series system will be required for the testing needs.

The 7.9 um wavelength Infrared Temperature Sensor pyrometer (specified as Williamson model 48-50C-FOV20in/80-IM-AP-SB-NSO357-CF020) shall have a high resolution optic system ensuring the specified FOV20in/80 spot size resolution, which is 0.25 inches temperature sampling spot size at 20 inches working distance (or comparable to D/100 or better; FOV20in/80 shall be a more stringent higher specification resolution definition). NASA specifies the minimum temperature measurement range of 315 to 2200 degrees centigrade, but also requiring the possibility of expanding the measurement temperature range from 200 to 2200 degrees centigrade. The temperature measurement accuracy shall be within 0.5% of the temperature reading or approximately 10 degrees centigrade from the temperature 425 to 2200 degrees centigrade. The pyrometer shall be calibrated down to 200 degrees centigrade by Williamson for meeting NASA low temperature measurement needs. The pyrometer system shall include an Interface Module which uses 90-260 VAC power and providing 24 VDC powers to the pyrometer. The pyrometer system shall also include a lens air purge capability, swirl mounting brackets for long-term reliable laboratory operations and easy aiming of the temperature measurement targets. A Non-Standard Optical Baffling (NOS357) for Radiant Thermal Energy Load on the Detector Element shall be used in order to achieve more accurate temperature measurements in the specified pyrometer measurement ranges.

The 2- color pyrometer (TC-11-32-C-FOV20in/100-D-IM-AP-SB-NSO357-CF025) shall have 0.85-1.1 micron overlapping wavelengths (spectral response) and operating temperature range of 700-1750C. As for the 7.9 micron wavelength, the pyrometer shall also have high spatial resolution optic system ensuring the specified FOV20in/80 spot size resolution, which is 0.25 inches temperature sampling spot size at 20 inches working distance (or comparable to D/100 or better; FOV20in/80 shall be a more stringent higher specification resolution definition).

Each of the pyrometers shall include 25 foot electrical cable assembly with connectors. The pyrometer system shall include an Interface Module which uses 90-260 VAC power and providing 24 VDC powers to the pyrometer. The pyrometer system shall also include a lens air purge capability, swirl mounting brackets for long-term reliable laboratory operations and easy aiming of the temperature measurement targets. A Non-Standard Optical Baffling (NOS357) for Radiant Thermal Energy Load on the Detector Element shall be used in order to achieve more accurate temperature measurements in the specified pyrometer measurement ranges.

Williamson Single Wavelength Pyrometer Nomenclature and system specified:

- 48 = single-wavelength infrared thermometer, 7.9 um

- 50C = 425-2200 C standard temperature range; and NASA specifies expanded temperature measurement range covering 200C or 315C to 2200C.
- FOV20in/80 = 0.25 inches at 20 inches (also as defined as D/100)
- IM = Interface Module (optional) but shall be included
- AP = Air Purge included
- SB = Swivel Mounting Bracket included
- NSO357 = Non-Standard Option #357: Optical Baffling for Radiant Thermal Energy Load on the Detector Element
- CF020 = 25 foot electrical cable
- Proview PC Software shall be included
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- Williamson Two Color Pyrometer
- TC-11-32-C-FOV20in/100-D-IM-AP-SB-NSO357-CF025
- TC= Two color Infrared thermometer
- 32 = 700-1750C
- FOV20in/100 = 0.2 inches at 20 inches
- IM = Interface Module (2-4-20mA outputs)
- AP = Air Purge
- SB = Swivel Mounting Bracket
- NSO357 = Non-Standard Option #357: Optical Baffling for Radiant Thermal Energy Load on the Detector Element
- CF020 = 25 foot electrical cable
- Proview PC Software shall be included