

**TECHNICAL SPECIFICATIONS AND OTHER ALLIED REQUIREMENTS**

| Sl No.                   | Description of items  | Quantity |
|--------------------------|---|----------|
| PUR/256/R&A/MP/E/2020-21 |   |          |
| 1                        | ONLINE DUAL WAVELENGTH INFRA RED<br>PYROMETER FOR NON-CONTACT<br>MEASURING TEMPERATURE OF VARIOUS<br>METALS IN WELDING PROCESS<br>(DETAILS AS PER ANNEXURE A) | 1        |

**1. INSTALLATION, COMMISSIONING AND TRAINING**

1.1. NOT REQUIRED.

**2. WARRANTY**

2.1. Comprehensive on-site warranty for a period of one year must be provided to be effective from the date of successful completion of the job and final acceptance of the items / equipment at the user's laboratory / Institute.

Annexure A

**Technical specifications of Online Dual Wavelength Infra Red Pyrometer for non-contact measuring temperature of various metals in welding process**

| Parameter   | Value  |
|---|--|
| Instrument  | Online Non-Contact Dual-wavelength IR pyrometer  |
| Sensor-Type   | Dual-wavelength pyrometer  |
| Temperature range                                   | 200-950 <sup>0</sup> C   |
| Nominal Spectral Response                           | 2 micron range   |
| Targeted Optical Resolution                         | D/15   |
| Acceptable Accuracy Range                           | 0.25% of Reading or 2°C whichever is greater   |
| Repeatability                                       | Better than 1°C  |
| Emissivity Output Requirement                       | Automatic emissivity output is required without adjustments. Capable of tolerating change in texture, and different metal alloys   |
| Analog signal of emissivity                         | Sensor shall detect and read emissivity without human intervention and it has to be displayed on the remote module and an analog output should be available with respect to emissivity                               |
| Targeted metal alloys for Temperature Sensing       | Inconel, SS, carbon steel with or without making any manual adjustments to the emissivity in the pyrometer   |
| Sensor Response Time                                | 40ms to 60 ms (earliest initial response)  |
| Update Time   | Less than 50 ms  |
| Mode of Sensing and Acquiring Data of Targeted Area | Fiber-optic (Torch light beam)   |
| Fiber-optic Material                                | FO cable should be of quartz material, glass is not acceptable   |
| In-built filters                                    | Suitable Signal strength and signal dilution filters should be in the sensor for eliminating interference from sources such as Reflections, flames, sparklers, and misalignment                                      |
| Human Interface                                     | Required for Accessing Averaging, Peak/Valley Hold (Time or Temp Reset), Programming Outputs and Alarms  |
| Analog Inputs                                       | Sample and Hold, External Peak Hold Reset, Analog input for remote parameter adjustments   |
| Programmable Relay Alarms                           | Select alarm parameter and set point   |
| Analog outputs                                      | Minimum 2 outputs required from sensor for Temperature and Emissivity  |
| Ambient Temperature Tolerance                       | For Sensor: Greater than 50°C<br>For Fiber optic cable & Lens Barrel: Greater than 100°C   |
| Alarm   | Ambient temperature alarm from remote display  |
| Enclosure   | Corrosion Resistant, Aluminum Enclosure with NEMA 4X (IP65) Rating.  |
| Parameters required from Sensor                     | Unfiltered temperature of aluminum, Filtered temperature of metal, Emissivity of material, Signal Dilution, Ambient Temperature of Sensor, Simultaneous measurement in single wavelength mode for diagnostic purpose |
| Minimum Warranty                                    | 12 Months  |
| CE Certification                                    | EMI / RFI for heavy industry; LVD (Low Voltage Directive)  |
| Note  | Accessories (Cables, Connectors) and necessary software to acquire data through a communication port should be provided with the Pyrometer   |

