

IOE on Space Manufacturing
Project 16: Prabhu Rajagopal and Sathyan Subbiah

Ultrasonic Pulser Receiver Technical Specifications for Tendering

Pulse: Sinusoidal Radio Frequency (RF) Tone Burst

Pulser Bandwidth: 100 kHz to 5 MHz

Max. Output Level: 8 KW RMS

Max. output Voltage into 50Ω: 1800 Vp-p

Max. Duty Cycle: 1%

Max. Pulse Width: 200μs

Freq. Range: 250 kHz to 5 MHz

Internal Diplexer for PE: Yes

Max. Gain: 100 dB

Max. Bandwidth: 50 kHz to 20 MHz

High Pass Filters: 0.05, 0.2, 0.4 and 0.8 MHz

Low Pass Filter: 0.2, 0.4, 0.8 and 2 MHz

Gain Control Range: 80 dB in 0.4 dB steps.

Controllable Pulse width: in time or in cycles of RF

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Supporting Notes and Essential Requirements

1. Documentation requirement

The following documentations should be provided (one set of each in English)

1.1. Operation manual

1.2. Software instruction manual

1.3. Maintenance, troubleshooting and safety guidelines manual

1.4. Manuals to handle accessories and guidelines

1.5. Process Parameters data for common engineering alloy feedstocks should be given in a CD/flash drive.

1.6. Occupational Health and Safety (OHS) guidelines and warnings.

1. Warranty and Annual Maintenance Contract requirements

2.1. 2-year warranty should be provided from the date of installation.

2. Inspection, installation, commissioning and training

3.1. **The system should be installed at IIT Madras should** be supplied.

3.2. Comprehensive training for five research fellows/students should be imparted upon installation.

3. Spares, consumables, mandatory accessories and standard samples

4.1. Bidder should offer a list of essential spare parts and accessories with their part numbers for a continuous operation for three years.

4. Additional mandatory conditions

5.1. A continuous operational support to IIT Madras should be provided without any additional cost during the warranty period (at least two years from the date of installation).

5.2. There should be a minimum of two visits per year by the service engineer and application engineer of the equipment supplier (preferably from OEM).

5.3. The total cost of the system should be inclusive of these visits.

5.4. The bidder must either be OEM or legal representatives of the OEM in India. The bidder and the legal representatives should have ISO certification for quality standards (a copy of ISO certification should be attached with the technical bid).

- 5.5. The bidder should have supplied at least one unit of the pulser-receiver to IITs/NITs/other CFTIs/National laboratories/government organisations.
 - 5.6. A global reference list as well as user list in India should be enclosed.
 - 5.7. The operational status of all supplied equipment in India should be provided.
 - 5.8. Total weight of the system
 - 5.9. Personnel safety accessories (goggles, masks etc.)
 - 5.9.1. Special design/provision should be made to prevent accidents while in operation.
 - 5.9.2. “Emergency Stop” button(s) should be provided at convenient and easily accessible location.
 - 5.9.3. Safety manuals and charts should be provided.
 - 5.9.4. Supplier should provide safety training at the time of installation.
 - 5.10. Flow diagrams and electrical line diagrams should be provided
- 5 . A detailed compliance statement to above mentioned specifications should be provided along with technical and financial quotes.**