

SPECIFICATIONS
Low Thermal Voltage Scanner
NB687060-16-01306

Purpose

The National Institute of Standards and Technology (NIST), along with the Superconductive Electronics Group (div. 687) require one (1) Low Thermal Scanner for use with the Programmable Josephson Voltage Standard (PJVS). This will allow the Quantum Voltage Project to connect the PJVS to up to 32 Zener calibration standards.

Deliverables

The contractor shall deliver one (1) Low Thermal Voltage Scanner.

Technical Requirements

The System shall comply with the following electrical specifications:

1. The system must have low thermal offset voltages so that comparisons will not suffer from thermal drift or offsets. The value of this thermal voltage must be less than 30 nV for a typical value.
2. A 32-input configuration to allow 32 different two-wire voltage standards to be compared to the PJVS, which may be switched between connections using both computer (General Purpose Interface Bus (GPIB. A.K.A: IEEE-488) or RS232 – GPIB is preferred) or front panel control.
3. Protection: The unit must protect the cells from either operator error or scanner failure by using protection relays.
4. The unit must contain 32 sets of twisted, shielded wire outputs with a length of approximately 2 meters for connection to the standards.
5. The typical resistance of the switching relays must be less than 0.1 Ohms for a new unit.
6. The unit must be powered for standard 120Vac wall power.

Technical Considerations

The System shall comply with the following mechanical specifications:

1. The system must be rack mountable.
2. The system must have relays tested for switching operations of up to 10,000 cycles.

Commercial Product Requirements

1. This low-thermal scanner must be an established commercial product with multiple units operating successfully in the field. Experimental, prototype, or custom items are not acceptable.
2. The low-thermal scanner shall be a new (not refurbished or reconditioned) item covered by the original manufacturer's full warranty with service provided by that manufacturer's U.S.-based service organization. The use of "gray market" components not authorized for sale in the U.S. by the proposer is not acceptable.

Government Furnished Property or Information

N/A

Delivery Schedule

The Contractor shall deliver the system no later than sixty (60) calendar days after receipt of order.

Inspection and Acceptance

N/A