



A Division of Transnet SOC Limited

RAIL NETWORK

ELECTRICAL DEPARTMENT

SPECIFICATION

4kV PORTABLE DC HIGH VOLTAGE TEST SET

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1. GENERAL REQUIREMENTS

- 1.1. This specification outlines Transnet Freight Rail's requirements for the supply and delivery of a 4kV Portable DC High Voltage Test Set (Tasset V 4.2D) or similar.
- 1.2. The 4kV Portable DC High Voltage Test Set shall be ergonomically designed for maximum operator productivity and safety.
- 1.3. These instruments shall be of robust nature and designed to withstand the rough conditions of the railway environment. Proper casing or carry bag shall be supplied with each instrument.

2. OPERATING CONDITIONS

- 2.1. The 4kV Portable DC High Voltage Test Set will be operated in all weather conditions as well as salt laden and industrial atmosphere.

Altitudes: From sea level to 2000m above sea level.

Relative humidity: 10% to 95%

Atmospheric conditions: May vary from heavily saline to dry and dusty conditions.

Ambient air temperatures: -20° C to 50° C. (daily average +30° C)

3. QUALIFICATIONS

- 3.1. The design of the 4kV Portable DC High Voltage Test Set is to be that of the manufacturer, but must be of robust construction in order to meet sustained heavy duty demands, yet it must be light and easy handled by one operator.
- 3.2. The 4kV Portable DC High Voltage Test Set will be acceptable in standard factory production finish and colour. Details to be furnished.

4. PERFORMANCE REQUIREMENTS

- 4.1. The actual design and service life of the 4kV Portable DC High Voltage Test Set is to be stated.
- 4.2. The 4kV Portable DC High Voltage Test Set are to be easily and economically maintained with standard workshop/calibration tools and equipment.

5. TECHNICAL REQUIREMENTS

5.1. General Description

- 5.1.1. A heavy duty, portable and digital display 4kV Portable DC High Voltage Test Set capable of testing substation switchgear.
- 5.1.2. The equipment must come in a lockable case capable of storing all accessories furnished with the device

5.2. Operational requirements

5.2.1. The following controls must be fitted:

- 5.2.1.1. Warning siren with its control button on the face plate.
- 5.2.1.2. Zero interlock so HV will only switch on when the variac is turned to Zero
- 5.2.1.3. "Dead mains" button which must be held down to keep the HT ON.
- 5.2.1.4. HT on indication
- 5.2.1.5. The output voltage must be indicated on a 96x48 digital display with accuracy of 3.5%
- 5.2.1.6. The output current must be indicated on a 0-200mA ammeter.

5.2.2. Power and test leads shall be supplied with the unit:

- 5.2.2.1. 1x3m H.T. lead with a large crocodile clip.
- 5.2.2.2. 1x2.5mm² x3m insulated earth lead.

5.3. Power supply requirements

- 5.3.1. Voltage: 230VAC – 240VAC
- 5.3.2. Voltage variation: $\pm 10\%$
- 5.3.3. Frequency: 50Hz
- 5.3.4. Frequency variation: $\pm 3\%$

5.4. Measuring Capability

- 5.4.1. **Output:** Voltage.
 - 5.4.1.1. Voltage range: 0 – 4000V

5.5. 5.6 Preferred mass and housing

- 5.5.1. The mass of the unit shall not exceed 30 kg
- 5.5.2. The housing for the units making up this device shall be of robust construction to sustain heavy duty demands under the service conditions as stated in clause 2 of this specification.

5.6. Data Plate

- 5.6.1. The 4kV Portable DC High Voltage Test Set must come with a data plate.
- 5.6.2. The brand and model number of the insulation tester must be clearly shown.
- 5.6.3. The actual weight in kilograms (kg) of the insulation tester must be shown on the machine.
- 5.6.4. The actual dimensions of the insulation tester must be indicated in millimetres (mm).

6. COMPLIANCE AND CERTIFICATION

- 6.1. All 4kV Portable DC High Voltage Test Set must comply with relevant international and local standards.
- 6.2. The instrument must be supplied with calibration certificates traceable to national standards.
- 6.3. The instrument is to be guaranteed for a minimum period of 12 months (1 year) against faulty material and workmanship-fair wear and tear excluded. Full details of guarantee are to be submitted.

7. TECHNICAL EVALUATION

- 7.1. The information as requested by the various clauses in this specification must be supplied in the form of technical data, pamphlets and/or drawings. Failure to comply with this requirement may result in the offer being overlooked.
- 7.2. All bidders must submit data sheets with clear images of the instruments and their accessories.