ENGINEERING SPECIFICATION 336

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INTERPOSING TRANSFORMERS FOR TELECONTROL CURRENT AND VOLTAGE MEASUREMENT

Contents

Approved for issue by the Technical Policy Panel

INTERPOSING TRANSFORMERS FOR TELECONTROL CURRENT AND VOLTAGE MEASUREMENT

FOREWORD

This specification covers wedding-ring type transformers for use as input devices to Electricity North West Limited telecontrol system.

1. GENERAL REQUIREMENTS FOR APPROVALS AND TESTING

1.1 Product not to be changed

No change in the products, their packaging or labelling shall be made without prior notice to and agreement of the Construction Manager in writing to the proposed change.

1.2 Electricity North West Technical Approval

1.2.1 The tenderer shall submit, with his tender, proposals for testing which will demonstrate to the satisfaction of the Construction Manager compliance with this Specification. Such tests shall be carried out without expense to Electricity North West.

1.2.2 Alternatively, the tenderer may submit technical reports or other data which he considers will demonstrate to the satisfaction of the Construction Manager, compliance with this Specification. Acceptance of this evidence shall be at the discretion of the Construction Manager, but shall not be unreasonably withheld.

1.3 Quality Assurance

1.3.1 The tender shall confirm whether or not approval is held in accordance with the provision of either the ESI Quality Assurance Registration Scheme or with BS5750. If not, he shall advise the Construction Manager of details of quality assurance procedures employed to control the quality of the product, including the performance of suppliers and sub-contractors.

1.3.2 The right is reserved for the Construction Manager to require, from time to time, the repeat of such tests as he may deem to be reasonably necessary to demonstrate continued compliance with the Specification.

1.3.3 The tenderer shall submit, with his tender, a list of tests and inspections which are carried out on the product prior to despatch which shall demonstrate, to the satisfaction of the Construction Manager, fitness for installation and service.

1.3.4 The tenderer shall provide free of charge to Electricity North West such samples as may, in the opinion of the Construction Manager be reasonably required for inspection and/or retention as quality control samples. The requirement for samples will be confirmed by the Construction Manager at the time of tendering.

1.3.5 The right is reserved for the Construction Manager to make from time to time, such inspections of the tenderer's facilities as he may deem to be reasonably necessary to ensure compliance with this Specification and any Contract of which it forms a part.

1.4 Identification Markings

The tenderer shall submit with his tender details of marking which it is proposed to apply to the product or its packaging to identify manufacturing batches or items. The form and content of such markings shall be subject to approval by the construction Manager.

1.5 Manufacturers Already Approved

Clauses 1.2.1, 1.2.2, 1.3.1, 1.3.3, 1.3.4, 1.4, and 1.5 will be waived in the case of products already approved.

2. CURRENT TRANSFORMERS

2.1 General Considerations

2.1.1 Generally these transformers comply with the requirements of BS 3938.

2.1.2 The service environment is that generally associated with switchgear mounted control or relay panels in either indoor or outdoor substations.

2.1.3 The aperture of the transformer must permit the winding of 10 full turns of 7/0.67mm PVC insulated cable to BS 6231, type B; or equivalent.

2.1.4 The insulation of the secondary winding shall be 2kV rms, 50 Hz. For testing purposes this shall be proven by winding a primary of 10 turns of bare copper wire evenly around a toroid, and flash testing between this winding and the secondary winding 1 minute.

2.1.5 The secondary winding termination and mounting details shall be agreed with Electricity North West's Construction Manager.

2.2 Electrical Requirements

The electrical requirements are contained in Table 2A below.

Table 2A

Frequency Range	41Hz - 51Hz
Rated Primary Current	10A
Secondary Burden	100 ohm
Current Transformation Ratio	10A : 0.01A
Accuracy	± 0.5%

3. VOLTAGE TRANSFORMERS

3.1 General Considerations

3.1.1 Generally these transformers comply with the requirements of BS 3941.

3.1.2 The service environment is that generally associated with switchgear mounted controller relay panels in either indoor or outdoor substations.

3.1.3 The secondary winding termination and mounting details shall be agreed with Electricity North West's Construction Manager.

3.1.4 Flexible lead out wires of suitable cross section shall be fitted to both primary and secondary windings. The lead out wires shall be sleeved at the point of exit from the toroid to prevent chaffing of the lead out wires.

3.1.5 The secondary winding shall be wound first.

3.1.6 Two half lap layers of glass tape insulation to be wound between the primary and secondary windings.

3.1.7 A flash test of 2kV rms shall be applied between primary and secondary windings for 1 minute.

3.1.8 Transformers to this specification must be marked with a white spot on the label.

3.2 Electrical Requirements

The electrical requirements area contained in Table 3A below.

Table 3A

Rated Primary Voltage	110V
Insulation Level	2kV rms, 50Hz
Frequency	50Hz
Phase	Single
Ratio	110:1
Secondary Burden	100 ohm resistive
Accuracy	± 0.5%
Magnetising Impedance	not less than 130 kilo ohm

LIST OF APPROVED TENDERERS

C.C. No.	Description	Manufacturer	Item Description	Date of Approval	Approved by
		Zenith Electric	Interposing Voltage Transformer (white Spot) WSM/25465	12:88	DJH
		Zenith Electric	Interposing Current Transformer WSM/25466	LONG STANDING	