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National Grid

National Grid
Technical
Specification

**Electrical Measurement
Transducers**

NGTS 3.24.73
Issue 1
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CONTENTS	Page
Foreword.....	1
1 Scope.....	1
2 References.....	1
3 General Requirements.....	2
4 Performance Requirements.....	5
5 Test Requirements.....	7
6 Contract SpecifiedOptions	7
Appendix A.....	9

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ELECTRICAL MEASUREMENT TRANSDUCERS

FOREWORD

This specification is a functional specification within the Substation Information, Control and Protection suite of technical specifications. It shall be called up and applied by appropriate bay level specifications.

1 SCOPE

This specification states the functional and performance requirements for electrical measurement transducers supplied for the purpose of providing operational metering and control information in accordance with the Substation Information, Control and Protection (SICAP) suite of technical specifications and is applicable both at bay and substation levels.

This NGTS primarily relates to transducer functions within SICAP hardware platforms.

This specification is applicable only to National Grid owned installations at 400/275/132 kV transmission system substations (including transformer low voltage connections, transformer tertiary connections and associated plant and apparatus).

Appendix A provides additional requirements for transducers having D.C. mA outputs as required to support legacy equipment. These are referred to as "discrete transducers".

For operational metering at customer interface bays such as SGT LVs and generator bays the MW, MVAR and frequency indications shall normally be derived using the operational metering summator.

The electrical quantities covered by this Specification are:-

Current

Voltage

Active and Reactive Power

Frequency

Resistance

Phase Angle

2 REFERENCES

National/International Standards

BS EN 60688 Electrical Measuring Transducers for Converting A.C. Electrical Quantities to Analogue or Digital Signals.

National Grid Technical Specifications (NGTS)

NGTS 1 Ratings and General Requirements for Plant, Equipment, Apparatus and Services for the National Grid System and Connection Points to it.

NGTS 3.12.1 48 V D.C. Supplies.

NGTS 3.12.2 110 V D.C. Supplies.

NGTS 3.24.4 Hardware Platform.

NGTS 3.24.15 Environmental and Test Requirements for Electronic Equipment.

3 GENERAL REQUIREMENTS

General

- 3.1** The requirements of British Standard BS EN 60688 shall apply to all transducers converting an A.C. electrical quantity to a digital signal or direct current.
- 3.2** Resistance transducers, though not covered by BS EN 60688, are specified in the same manner.
- 3.3** Transducers shall meet the requirements of NGTS 3.24.4.
- 3.4** The requirements for transducers for Control and Indication purposes are identical, unless specified otherwise in this specification.
- 3.5** Transducers shall be provided with sufficient range of adjustment to enable calibration to be maintained over the operating life of the equipment.
- 3.6** Current and all types of voltage transducers shall provide an RMS measurement of the input quantity.

Transducer Common Requirements

- 3.7** The nominal frequency for all A.C. input signals shall be 50 Hz.
- 3.8** Transducers, including multi-section units, shall incorporate galvanic isolation between all circuit types (ie input, output, auxiliary supply) and between all circuits of a given type.

Current Transducers

- 3.9** Transducers shall be suitable for use on circuits with nominal currents of 1 A and 2 A.
- 3.10** The transducer types shall be as follows:-

Type	Measurand Current (A)	Overload Current (A)
1	0 to 1	1.5
2	0 to 2	3.0

Full Range Voltage Transducers

- 3.11** Transducers shall be suitable for use on circuits with a nominal voltage of 63.5 V.

Informative: The transducer type is based on the nominal voltage of the HV circuit.