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Technical Specification 37-2

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Public Electricity Network Distribution Assemblies

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Public Electricity Network Distribution Assemblies

FOREWORD

The Energy Networks Association has prepared this Technical Specification. It defines technical requirements for Public Electricity Network Distribution Assemblies (formerly known as Substation Cable Distribution Boards or LV Distribution Fuseboards) for operational voltages up to 230V single phase systems, 400V, three phase systems and 460V, split single phase systems. It supersedes Electricity Association Technical Specification 37-2, Issue 4, February 2005. Reasons for change are given in Annex ENATS 1. Annex 2, of the document is the 'Self Certification Conformance Declaration' sheets.

In order to ensure a clear understanding of preferred and standard arrangements this Specification categorises the equipment into (i) Standard range – units including a specific incoming disconnector and a preferred number of fused outgoing circuits, and (ii) Extended range – ASSEMBLIES containing a different number of circuits and/or functional units selected from a wider range in order to meet the needs of a particular user or application.

The Electricity at Work Regulations 1989 (the Regulations), made under the Health and Safety at Work etc Act 1974, apply to switchgear whenever manufactured, purchased or installed. Appendix 2 of the Memorandum of guidance on the Regulations lists Standards, Codes of Practice and other publications that contain guidance relevant to the Regulations and electrical safety.

This Technical Specification lists International and British Standards, including the aforementioned, relevant to switchgear.

Switchgear covered by this Technical Specification shall comply with the latest issue of BS EN 61439-5, Low-voltage switchgear and controlgear assemblies – Assemblies for power distribution in public networks. This document is intended to amplify and/or clarify the requirements of BS EN 61439-5, where alternative arrangements are permitted by this Standard and further information is required.

This Specification should be read in conjunction with BS EN 61439-5. To assist in cross-reference, this document has the same format and the numbering of its clauses and sub-clauses corresponds as BS EN 61439-5.

In general this Specification supplements clauses in BS EN 61439-5. Where there is no corresponding clause or sub-clause in this specification, the clause or sub-clause of BS EN 61439-5 applies without modification.

1 SCOPE

Sub-clause 1 of BS EN 61439-5 is applicable with the following additions.

This specification covers Public Electricity Network Distribution Assemblies (PENDA's) (formerly known as Substation Cable Distribution Boards) and transformer mounted fuseboxes (TFX's) of the following types which supply low voltage combined neutral and earth (CNE) or separate neutral and earth (SNE) networks.

(i) PENDA-I; substation cable distribution board – indoor.
(ii) PENDA-CCO; substation cable distribution board – outdoor ground mounted pillar.
(iii) PENDA-TMO; substation cable distribution board – outdoor transformer mounted fuse cabinet.
(iv) TFX; fusebox – outdoor transformer mounted.

PENDA's as detailed in this specification are suitable for use with 200, 315, 500, 800 and 1000kVA transformer to ENA Technical Specification 35-1. The ASSEMBLIES shall be complete with supporting members as required and, on which shall be mounted an incoming transformer unit, outgoing distributor units, busbars and, an instrument panel, as appropriate.

TFX's as detailed in this specification are suitable for use with 50 and 100kVA cable connected rural transformer and, 200 and 315kVA cable connected transformers, all to ENA Technical Specification 35-1.

The minimum rated operational/insulation voltage (Ue/Ui) shall be 230/255V, 400/440V and 460/510V for single phase, three phase and split single phase ASSEMBLIES respectively.

2 REFERENCES

Clause 2 of BS EN 61439-5 is applicable with the following additions:

This technical specification makes reference to the following documents and it is important that users of all Standards and Technical Specifications ensure that they are applying the most recent editions together with any amendments.

BS EN 61439-1	Specification for low-voltage switchgear and controlgear assemblies Part 1 Type tested and partially type tested assemblies
BS EN 61439-5	Low-voltage switchgear and controlgear assemblies - Part 5: Assemblies for power distribution in public networks
BS 1363-1	13 A plugs, socket-outlets, adaptors and connection units. Specification for rewirable and non-rewirable 13 A fused plugs.
BS 2562	Specification for cable boxes for transformers and reactors

BS 7371-12		Coatings on metal fasteners. Requirements for imperial fasteners.
BS 5372		Dimensions of cable terminations for multi-core extruded solid dielectric insulated distribution cables of voltages 600/1000V and 1900/3300V having copper or aluminium conductors.
BS 5499-1		Graphical symbols and signs. Safety signs, including fire safety signs. Specification for geometric shapes, colours and layout
BS 6001	Part 1	Sampling schemes indexed by acceptable quality limit (AQL) for lot by lot inspection.
BS 6346		Specification for 600/1000V and 1900/3300V armoured electric cables having PVC insulation
BS 7288		Specification for socket outlets incorporating residual current devices (S.R.C.D.s)
BS EN 50274		Low-voltage switchgear and controlgear assemblies – Protection against electric shock – Operation by partial contact protection
BS EN 60044-1		Instrument transformers - Current transformers
BS EN 60269		Low-voltage fuses
	Part 1	General requirements
BS HD 60269-2:2010/BS 88-2:2010		Low-voltage fuses. Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial application). Examples of standardized systems of fuses A to J
BS EN 60529		Specification for the degrees of protection provided by enclosures (IP code)
BS EN 60947		Specification for low-voltage switchgear and controlgear
	Part 1	General rules
	Part 2	Circuit-breakers

	Part 3	Switches, disconnectors, switch disconnectors and fuse combination units
BS EN 61238-1:2003		Compression and mechanical connectors for power cables for rated voltages up to 36 kV (Um = 42 kV). Test methods and requirements
BS EN 61340-5-1:2001		Electrostatics. Protection of electronic devices from electrostatic phenomena. General requirements
ENA Technical Specification 12-8		The application of fuse links to 11kV and 6.6kV/415V distribution networks
ENA Technical Specification 35-1		Distribution transformers from 16kVA to 1000kVA.
ENA Technical Specification 50-18		Design and applications of ancillary equipment
ENA Technical Specification 50-19		Standard Numbering For Small Wiring (For Switchgear And Transformers Together With Their Associated Relay Panels)
HSE document GS38		Fused flexible leads for use with portable measuring instruments at voltages up to 600V a.c./d.c.

3 DEFINITIONS

Sub-clause 3 of BS EN 61439-5 is applicable with the following additions.

3.1.201 TFX – Fusebox

An ASSEMBLY suitable for, outdoor installation and fixing to the low voltage flange of a distribution transformer. These ASSEMBLIES include one or two outgoing distributor units that are directly connected to the LV terminals of the transformer. A separate incoming transformer unit is not included. Fuseboxes may be used with single, split phase, or three phase transformers.

3.1.202 PENDA-CCO

Public electricity network distribution ASSEMBLY (PENDA) – Cable Connected Outdoor
Outdoor public electricity network distribution ASSEMBLY which is independently mounted and connected to the distribution transformer by means of cables.

3.1.202.1 PENDA-CCO - ground mounted

PENDA-CCO suitable for outdoor installation at or slightly above ground level.

3.1.202.2 PENDA-CCO - pole mounted

PENDA-CCO suitable for outdoor installation above ground level on a pole.