



Technical Specification 41-37  
Issue 1 2015

Switchgear for use on 66 kV to 132 kV distribution systems

Part 6 Disconnecting circuit-breaker with an integral earthing switch

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## Foreword

This Technical Specification (TS) is published by the Energy Networks Association (ENA) and comes into effect from date of publication. It has been prepared under the authority of the ENA Engineering Policy and Standards Manager and has been approved for publication by the ENA Electricity Networks and Futures Group (ENFG). The approved abbreviated title of this engineering document is “ENA TS 41-37 Part 6”.

This Technical Specification has been prepared by the Energy Networks Association.

ENA TS 41-37 is a suite of engineering documents that sets out ENA Member Company requirements for specification of switchgear for use on 66 kV to 132 kV distribution systems. ENA TS 41-37 is a multi-part document comprising of the following parts.

- Part 1 – Common clauses
- Part 2 – Gas-insulated metal-enclosed switchgear
- Part 3 – Alternating current circuit-breakers
- Part 4 – Disconnectors and earthing switches
- Part 5 – Inductive voltage transformers, capacitor voltage transformers, combined unit transformers and current transformers for use on 72.5 kV to 145 kV distribution systems
- Part 6 – Disconnecting circuit breaker with an integral earthing switch for use at 72.5 kV and 145 kV distribution systems

Switchgear covered by this Technical Specification shall conform to the latest issues of the relevant International and British Standards listed. This Technical Specification amplifies and/or clarifies the requirements of those Standards, where alternative arrangements are permitted and where additional information is required.

This specification should be read in conjunction with the relevant International and British Standards, and to assist in cross-reference, the document follows the format of the major International Standards. Where possible, the International Standards' clause numbers have been used preceded with the number of the relevant part of this specification.

The Electricity at Work Regulations 1989 made under the Health and Safety at Work 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 which contain guidance relevant to the Regulations and electrical safety.

Part 1 of the document covers all common clause requirements of switchgear, as defined. This document covers all additional clauses required by the ENA in order to fulfil the requirements of ENA conformance.

Annex A, of the document is the 'Self Certification Conformance Declaration' sheets for the equipment.

## 1 General

The common clauses (Part 1) of this specification, and the requirements of International Standard IEC 62271-108 apply except where modified by the following clauses.

### 1.1 Scope

This specification defines technical requirements for switchgear rated at voltages within the range 72.5 kV to 145 kV and applies to alternating current switchgear, designed for indoor or outdoor installation, cable or overhead conductor connected, and for operation at service frequency of 50 Hz on systems having voltages at 66 kV and up to and including 132 kV.

Equipment covered by this specification is for use on systems with the neutral point earthed solidly, or effectively earthed through a resistor or reactor.

Functional safety of electrical/electronic/programmable electronic safety-related system is not covered by this specification. If these are offered then the principles of IEC 61508 should be considered.

This specification only includes the additional clauses that apply to disconnecting circuit-breakers with integral earthing switches specified by ENA Member Companies, which are in addition to the requirements of IEC 62271-108.

Clause 1.1 of IEC 62271-108 shall apply.

### 1.2 Normative references

The following referenced documents, in whole or part, are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

#### Standards publications

IEC 62231, *Composite station post insulators for substations with a.c. voltages greater than 1 000 V up to 245 kV - Definitions, test methods and acceptance criteria*

IEC 62271-1, *High-voltage switchgear and controlgear – Part 1: Common specifications*

IEC 62271-108, *High-voltage switchgear and controlgear – Part 108: High-voltage alternating current disconnecting circuit-breakers for rated voltages of 72.5 kV and above*

IEC 60947-5-1, *Low-voltage switchgear and controlgear – Part 5: Control circuit devices and switching elements – Electromechanical control circuit devices*

#### Other publications

[N1] ENA TS 41-37 Part 1, *Switchgear for use on 66 kV to 132 kV distribution systems – Common clauses*

[N2] ENA TS 50-18, *Design and application of Ancillary Electrical equipment*

[N3] ENA TS 98-1, *Environmental classification and corrosion protection of structures, plant and equipment*

## **2 Normal and special service conditions**

### **2.1 Normal service conditions**

Clause 2.1 to 2.1.2 inclusive of ENA TS 41-37 Part 1 [N1] shall apply.

### **2.2 Special service conditions**

Clause 2.2 to 2.2.100 inclusive of ENA TS 41-37 Part 1 [N1] shall apply

## **3 Definitions**

Clause 3 of IEC 62271-108 shall apply

### **3.1 General terms**

#### **3.1.1 switchgear and control gear**

General term covering switching devices and their combination with associated control, measuring, protective and regulating equipment, also assemblies of such devices and equipment with associated interconnections, accessories, enclosures and supporting structures For the purposes of this document, the following terms and definitions apply.

### **3.4. Switching devices**

#### **3.4.101 circuit-breaker**

mechanical switching device, capable of making, carrying and breaking currents under normal circuit conditions and also making, carrying for a specified time and breaking currents under specified abnormal circuit conditions such as those of short circuit  
[IEV 441-14-20]

#### **3.4.102 disconnector**

mechanical switching device which provides, in the open position, an isolating distance in accordance with specified requirements

[IEV 441-14-05]

#### **3.4.103 disconnecting circuit-breaker**

circuit-breaker satisfying the requirements of a disconnector, when the contacts are in open position

### **3.6 Operation**

Clauses 3.6.101 to 3.6.103 inclusive of IEC62271-108 shall apply

### **3.7 Characteristic quantities**

Clauses 3.7.101 to 3.7.104 inclusive of IEC 62271-108 shall apply

## **4 Rating**

Clause 4 of IEC 62271-108 shall apply.

### **4.1 Rated voltage ( $U_r$ )**

Clause 4.1 and 4.1.1 of IEC 62271-1 and ENA TS 41-37 Part 1 [N1] shall apply.

### **4.2 Rated insulation level ( $U_p$ )**

Clause 4.2 of IEC 62271-108 and ENA TS 41-37 Part 1 [N1] shall apply.

### **4.3 Rated frequency ( $f_r$ )**

Clause 4.3 of ENA TS 41-37 Part 1 [N1] shall apply.

### **4.4 Rated normal current and temperature rise**