***भारतीय मानक***

 ***Indian Standard*** **IS/IEC 60255-187-1:2021**

**मापनीय रिले एवं संरक्षण उपकरण**

**भाग 187 विभेदक सुरक्षा के लिए कार्यात्मक अपेक्षाएँ**

**अनुभाग 1 मोटरों, जनित्रों एवं ट्रांसफार्मरों की संयमित एवं असंयमित विभेदक सुरक्षा**

**Measuring relays and protection equipment**

**Part 187 Functional requirements for differential protection**

**Section 1 Restrained and Unrestrained differential protection of motors, generators and transformers**

ICS 29.120.70

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भारतीय मानक ब्यूरो

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**August 2024 Price Group**

Power Systems Relays Sectional Committee ETD 35

 NATIONAL FOREWORD

This Indian Standard which is identical to IEC 60255-187-1:2021 "Measuring relays and protection equipment – Part 187-1: Functional requirements for differential protection – Restrained and Unrestrained differential protection of motors, generators and transformers" issued by the International Electrotechnical Commission (IEC) was adopted by the Bureau of Indian Standards on the recommendation of the Power Systems Relays Sectional Committee and approval of the Electrotechnical Division Council.

This Indian Standard is published in several parts. The other parts in this series are:

 Part 1 Common requirements

Part 12 Directional relays and power relays with two input energizing quantities

Part 13 Biased (Percentage) differential relays

Part 21/Sec 1 Vibration, shock, bump and seismic tests on measuring relays and protection equipment, Section 1 vibration tests (Sinusoidal)

Part 21/Sec 2 Vibration, Shock, Bump and Seismic Tests on Measuring Relays and Protection Equipment, Section 2 Shock and bump tests

Part 21/Sec 3 Vibration, Shock, Bump and Seismic Tests on Measuring Relays and Protection Equipment, Section 3 Seismic tests

Part 24 Common Format for Transient Data Exchange (COMTRADE) for Power Systems

Part 26 Electromagnetic Compatibility Requirements

Part 27 Product Safety Requirements

Part 118/Sec 1 Synchrophasor for Power Systems, Section 1 Measurements

Part 121 Functional requirements for distance protection

Part 127 Functional requirements for over/under voltage protection

Part 149 Functional Requirements for Thermal Electrical Relays

Part 151 Functional requirements for over/under current protection

Part 181 Functional Requirements for Frequency Protection

 The text of the IEC Standard has been approved as suitable for publication as an Indian Standard without deviations. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

1. Wherever the words ‘International Standard' appears referring to this standard, they should be read as 'Indian Standard’.
2. Comma (,) has been used as a decimal marker, while in Indian Standards the current practice is to use a point (.) as the decimal marker.

In this standard, reference appears to International Standards for which Indian Standards also exists. The corresponding Indian Standards, which are to be substituted, are listed below along with their degree of equivalence for the editions indicated:

|  |  |  |
| --- | --- | --- |
| *International Standard* | *Corresponding Indian Standard* | *Degree of Equivalence* |
| IEC 60255-1, Measuring relays and protection equipment -Part1: Common requirements | IS/IEC 60255-1 Measuring relays and protection equipment– Part 1: Common requirements | Identical  |
| IEC 61869-2, Instrument transformers – Part 2: Additional requirements forcurrent transformers | IS 16227 (Part 2): 2016Instrument transformers – Part 2: Additional requirements forcurrent transformers | Identical  |
| IEC 61869-9, Instrument | IS 16227 (Part 9): 2018 | Identical  |
| transformers – Part 9: Digital | Instrument transformers: Part 9 |  |
| interface for instrument | digital interface for instrument |  |
| transformers | transformers |  |

The technical committee has reviewed the provisions of the following international standards referred in this standard and decided that they are acceptable for use in conjunction with this standard:

|  |  |
| --- | --- |
| *International Standard* | *Title* |
| IEC 61850-8-1 | Communication networks and systems for power utility automation – Part 8-1: Specific communication service mapping (SCSM) – Mappingsto MMS (ISO 9506-1 and ISO 9506-2) and to ISO/IEC 8802-3 |

Only the English language text has been retained while adopting it in this Indian Standard, and as such, the page numbers given here are not the same as in the IEC Publication.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated expressing the result of a test or analysis shall be rounded off in accordance with IS 2: 2022 ‘Rules for rounding of numerical values (*second revision*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.