***भारतीय मानक***

***Indian Standard***

**IS 17123 (Part 1) : 2024**

**IEC 61800-1 : 2021**

***समायोज्य चाल विद्युतीय पावर***

***ड्राइव प्रणाली***

***भाग 1 सामान्य अपेक्षाएं — निम्‍न वॉल्टता समायोज्य गति डी.सी. चालकों के लिए रेटिंग विशिष्टी***

***(***पहला पुनरीक्षण )

**Adjustable Speed Electrical Power Drive Systems**

**Part 1 General Requirements — Rating specifications for Low Voltage Adjustable Speed DC Power Drive Systems**

( *First Revision )*

ICS 29.160.30; 29.200

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**October 2024 Price Group X**

Power Electronics Sectional Committee, ETD 31

NATIONAL FOREWORD

This Indian Standard (Part 1) (First Revision) which is identical with IEC 61800-1 : 2021 ‘Adjustable speed electrical power drive systems – Part 1: General requirements – Rating specifications for low voltage adjustable speed DC power drive systems’ issued by the International Electrotechnical Commission (IEC) was adopted by the Bureau of Indian Standards on the recommendation of the Power Electronics Sectional Committee and approval of the Electrotechnical Division Council.

This standard was originally published in 2019. The first revision of this standard has been undertaken to align it with the latest version of IEC 61800-1 : 2021.

This standard is published in various parts. Other parts in this series are:

|  |  |
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| Part 6 | Guide for determination of types of load duty and corresponding current ratings |

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 adopted 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:

|  |  |  |
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| *International Standard* | *Corresponding Indian Standard* | *Degree of Equivalence* |
| IEC 60034-1:2017, Rotating electrical machines – Part 1: Rating and performance | IS 15999 (Part 1) : 2021/ IEC 60034-1: 2017 Rotating electrical machines Part 1 Rating and performance | Identical |
| IEC 60034-9, Rotating electrical machines – Part 9: Noise limits | IS 12065 : 1987/ IEC 60034-9 : 1972 Permissible limits of noise levels for rotating electrical machines | Technically  Equivalent |
| IEC 60038, IEC standard voltages | IS 12360 : 1988/ IEC 60038 : 1988 Voltage bands for electrical installations including preferred voltages and frequency | Technically  Equivalent |
| IEC 60068 (all parts), Environmental testing | IS/ IEC 60068 Series) Environmental testing | Identical |
| IEC 60076 (all parts), Power transformers | IS 2026/ IEC 60076 (Series) Power transformers | Identical |
| IEC 60079 (all parts), Explosive atmospheres | IS/ IEC 60079 (Series) Explosive atmospheres | Identical |
| IEC 60146-1-1:2009, Semiconductor converters – General requirement and line commutated converters – Part 1-1: Specification of basic requirements | IS 16539 (Part 1/Sec 1) : 2017 IEC 60146-1-1 : 2009/ Semiconductor Converters Part 1 General and Line Commutated Converters Section 1 Specification of basic requirements | Identical |
| IEC 60364 (all parts), Low voltage electrical installations | IS 16996 : 2018/ IEC 60364-8-1 : 2014 Low-Voltage electrical installations - Energy efficiency | Identical |
| IS 16997 : 2018/ IEC 60364-7-712 Requirements for Low-Voltage special electrical installations or locations solar photovoltaic ( PV ) power supply systems | Identical |
| IS 3043 : 2018/ IEC 60364 (all parts), Code of practice for earthing (*second revision)* | Technically Equivalent |
| IEC 60664-1, Insulation coordination for equipment within low-voltage supply systems – Part 1: Principles, requirements and tests | IS 15382 (Part 1) : 2022/ IEC 60664-1:2020 Insulation Coordination for Equipment Within Low-Voltage Systems Part 1 Principles Requirements and Tests | Identical |
| IEC 60721-3-1:1997, Classification of environmental conditions – Part 3: Classification of groups of environmental parameters and their severities – Section 1: Storage | IS/IEC 60721-3-1) : 2018 Classification of Environmental Conditions Part 3 Classification of groups of environmental parameters and their severities Section 1 Storage | Identical |
| IEC 60721-3-2:1997, Classification of environmental conditions – Part 3: Classification of groups of environmental parameters and their severities – Section 2: Transportation | IS/IEC 60721-3-2) : 2018  Classification of Environmental Conditions Part 3 Classification of groups of environmental parameters and their severities Section 1 Transportation and handling | Identical |
| IEC 60721-3-3:1994, Classification of environmental conditions – Part 3: Classification of groups of environmental parameters and their severities – Section 3: Stationary use at weather protected locations | IS/IEC 60721-3-3) : 2019 Classification of Environmental Conditions Part 3 Classification of groups of environmental parameters and their severities Section 3 Stationary use at weather protected locations | Identical |
| IEC 60721-3-4:1995 Classification of environmental conditions – Part 3-4: Classification of groups of environmental parameters and their severities – Stationary use at non weather protected locations | IS/IEC 60721-3-4) : 2019 Classification of Environmental Conditions Part 3 Classification of groups of environmental parameters and their severities Section 4 Stationary use at non- weather protected locations | Identical |
| IEC 61800-2, Adjustable speed electrical power drive systems – Part 2: General requirements – Rating specifications for low voltage adjustable speed a.c. power drive systems | IS/IEC 61800-2 : 2015 Adjustable speed electrical power drive systems Part 2 General requirements- Rating specifications for low voltage adjustable speed a.c. power drive systems | Identical |
| IEC 61800-3, Adjustable speed electrical power drive systems – Part 3: EMC requirements and specific test methods | IS/IEC 61800-3 : 2017 Adjustable speed electrical power drive systems Part 3 EMC requirements and specific test methods | Identical |
| IEC 61800-5-1, Adjustable speed electrical power drive systems – Part 5-1: Safety requirements – Electrical, thermal and energy | IS/IEC 61800-5-1) : 2016 Adjustable speed electrical power drive systems Part 5 Safety requirements Section 1 Electrical, thermal and energy | Identical |
| IEC 61800-5-2, Adjustable speed electrical power drive systems – Part 5-2: Safety requirements – Functional | IS/IEC 61800-5-2) : 2020 Adjustable speed electrical power drive systems Part 5 Safety requirements Section 2 Functional | Identical |
| IEC TR 61800-6, Adjustable speed electrical power drive systems – Part 6: Guide for determination of types of load duty and corresponding current ratings | IS 17123 (Part 6) : 2019/ IEC TR 61800-6 : 2003 Adjustable speed electrical power drive systems: Part 6 Guide for determination of types of load duty and corresponding current ratings | Identical |

The technical committee has reviewed the provision of the following International Standard referred in this adopted standard and has decided that it is acceptable for use in conjunction with this standard:

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| *International Standard* | *Title* |
| IEC 60050-811:1991 | IEC TS 60034-25, Rotating electrical machines – Part 25: AC electrical machines used in power drive systems – Application guide |
| IEC 60721-2-6 | Classification of environmental conditions – Part 2: Environmental conditions appearing in nature – Earthquake vibration and shock |
| IEC 61158 (all parts) | Industrial communication networks – Fieldbus specifications |
| IEC 61378 (all parts) | Converter transformers |
| IEC 61800-7 (all parts) | Adjustable speed electrical power drive systems – Part 7: Generic interface and use of profiles for power drive systems |
| IEC TS 61800-8 | Adjustable speed electrical power drive systems – Part 8: Specification of voltage on the power interface |
| IEC TS 62578 | Power electronics systems and equipment – Operation conditions and characteristics of active in feed converter (AIC) applications including design recommendations for their emission values below 150 kHz |

Only 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 International Standard.

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, shall be rounded off in accordance with IS 2: 2022 ‘Rules for rounding off 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.