

Safety Standards for Electronic Products

The following are some of the safety standards for all types of electronic products.

- **ANSI C95.3:1972** / Techniques & instrumentation for measurement of potentially hazardous electromagnetic radiation at microwave frequencies.
- **ANSI/ISA S82.01:1994** / Safety standard for electrical & electronic test, measuring, controlling, & related equipment / General requirements
- **ANSI/ISA S82.02.02:1996** / Safety requirements for electrical equipment for measurement control & laboratory use
- **ANSI/ISA S82.02.04:1996** / Safety requirements for electrical equipment for measurement control & laboratory use
- **ANSI/ISA S82.03:1988** / Standard for electrical & electronic test, measuring, controlling, & related equipment / Electrical & electronic process measurement & control equipment
- **EN 563** / Safety of machinery. Temperatures of touchable surfaces. (establish temperature limit values for hot surfaces)
- **EN 626-2** / Safety of machinery. Reduction of risk to health from hazardous substances emitted by machinery. Part 2 - Methodology leading to verification procedures
- **EN 746-2** / Industrial thermoprocessing equipment. Part 2 - Safety requirements for combustion & fuel handling systems
- **EN 746-3** / Industrial thermoprocessing equipment. Part 3 Safety requirements for the generation & use of atmospheric gases.
- **EN 777-4** / Multiburner gas-fired overhead radiant tube heater systems for nondomestic use. Part 4 - System H. Safety
- **EN 793** / Requirements for safety of medical supply units
- **EN 809** / Common safety requirements for pumps & pump units for liquids
- **EN 957-1** / Stationary training equipment. Part 1 - General safety requirements & test methods; Amendment A1:1998 to EN 957-1
- **EN 982** / Hydraulics; safety requirements for fluid power systems & their components
- **EN 983** / Pneumatics; safety requirements for fluid power systems & their components
- **EN 1070** / Terminology, safety of machinery
- **EN 1987-1** / Explicit requirements for safety of electrically propelled road vehicles. Part 1 - Storage of energy on-board
- **EN 1987-2** / Explicit safety requirements for electrically propelled road vehicles. Part 2 - Functional safety means & protection against failures
- **EN 1987-3** / Explicit safety requirements for electrically propelled road vehicles. Part 3 - Protection against electrical hazards for users
- **EN 12547** / Centrifuges; common safety requirements

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- **EN 12626** / Laser processing machines safety requirements (ISO 11553:1996, modified)
- **EN 41003:1998** / Safety requirements particular to equipment to be connected to telecommunications networks
- **EN 45502-1** / Active implantable medical devices. Part 1 - General requirements for safety, marking, & information to be provided by the manufacturer
- **EN 50019** / Electrical apparatus for potentially explosive atmospheres – improved safety
- **EN 50020** / Electrical apparatus for potentially explosive atmospheres - intrinsic safety
- **EN 50061/A1** / Medical electrical equipment; safety of implantable cardiac pacemakers
- **EN 50065-1:1991** / Signaling on low-voltage electrical installations for frequency range of 3 kHz to 148.5 kHz. Part 1 - General requirements, frequency bands, & electromagnetic disturbances; Amendment A3:1996 to EN 50065-1:1991
- **EN 50083-1:1993** / Cabled distribution systems for television, sound, & interactive multimedia signals. Part 1 - Safety requirements; Amend. A2
- **EN 50087:1993** / Safety of household & like electrical appliances
- **EN 50088** / Safety of electric toys. Amendment A1 to EN 50088; Amendment A2 to EN 50088
- **EN 50091-1:1993** / (USP) Uninterruptible power systems. Part 1 - General & safety requirements
- **EN 50091-1-1:1996** / (USP) Uninterruptible power systems. Part 1.1 - General & safety requirements for UPSs used in operator access areas
- **EN 50091-1-2:1998** / Uninterruptible power systems. Part 1.2 - General & safety requirements for UPSs used in restricted access locations
- **EN 50106** / Safety of household & similar electrical appliances / Particular rules for routine tests referring to appliances under the scope of EN 60335-1 & EN 60967; Amendment A1 to EN 50106
- **EN 50116:1996** / Information technology equipment. Routine electrical safety testing in production
- **EN 50144-1** / Safety of handheld electric motor operated tools. Part 1 - General requirements
- **EN 50144-2-1** / Safety of handheld electric motor operated tools Part 2-1 Requirements specifically for drills
- **EN 50144-2-2** / Safety of handheld electric motor operated tools. Part 2.2 - Requirements specifically for screwdrivers & impact wrenches
- **EN 50144-2-4** / Safety of handheld electric motor operated tools. Part 2.4 - Requirements specifically for sanders
- **EN 50144-2-5** / Safety of handheld electric motor operated tools. Part 2.5 - Requirements specific to circular saws & circular knives
- **EN 50144-2-6** / Safety of handheld electric motor operated tools. Part 2.6 - Requirements for hammers

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- **EN 50144-2-7** / Safety of handheld electric motor operated tools. Part 2.7 - Requirements for spray guns
- **EN 50144-2-8** / Safety of handheld electric motor operated tools. Part 2.8 – Requirements specific to sheet metal shears & nibblers
- **EN 50144-2-9** / Safety of handheld electric motor operated tools. Part 2.9 - Requirements for tappers
- **EN 50144-2-10** / Safety of handheld electric motor operated tools. Part 2.10 - Requirements for jig saws
- **EN 50144-2-11** / Safety of handheld electric motor operated tools. Part 2.11 - Requirements specific to sabre & reciprocating saws
- **EN 50144-2-14** / Safety of handheld electric motor operated tools. Part 2.14 - Requirements for electronic planing tools
- **EN 50144-2-15** / Safety of handheld electric motor operated tools. Part 2.15 - Requirements for hedge trimmers
- **EN 60065:1993** / Safety for mains-operated electronic & related machinery for household & similar general use. Amendment A11:1997 to EN60065:1993
- **EN 60065:1998** / Audio, video, & comparable electronic equipment
- **EN 60073** / Basic & safety principles for man/machine interface, marking & identification. Coding principles for indication devices & actuators
- **EN 60143-1:1993** / Series capacitors for power systems. Part 1 Performance, testing, & rating. Guide for installation
- **EN 60204-1:1997** / Safety of machinery electrical equipment of machines. Part 1 - General requirements
- **EN 60215:1989** / Safety requirements for radio transmitting equipment. Amendment A1:1992 to EN 60215:1989; Amendment A2:1994 to EN 60215:1989
- **EN 60335-1:1988** / Safety of household & comparable electrical appliances. Part 1 - General requirements; Amendment A2:1988 to EN 60335-1:1988; Amendment A5:1989 to EN 60335-1:1988; Amendment A6:1989 to EN 60335-1:1988; Amendment A51:1991 to EN 60335-1:1988; Amendment A52:1992 to EN 60335-1:1988; Amendment A53:1992 to EN 60335-1:1988; Amendment A54:1992 to EN 60335-1:1988; Amendment A55:1993 to EN 60335-1:1988; Amendment A56:1995 to EN 60335-1:1988
- **EN 60335-1:1994** / Safety of household & comparable electrical appliances. Part 1 - General requirements; Amendment A1:1996 to EN 60335-1:1994; Amendment A11:1995 to EN 60335-1:1994; Amendment A12:1996 to EN 60335-1:1994; Amendment A13:1998 to EN 60335-1:1994; Amendment A14:1998 to EN 60335-1:1994
- **EN 60335-2-2:1995** / Safety of household & comparable electrical appliances. Part 2.2 - Requirements specific to vacuum cleaners & water suction cleaning appliances; Amendment A1:1998 to EN 60335-2-2:1995
- **EN 60335-2-3:1995** / Safety of household & comparable electrical appliances. Part 2.3 - Requirements for electric irons Amendment A1:1999 to EN 60335-2-3:1995

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- **EN 60335-2-4:1995** / Household & like electrical appliances. Part 2.4 - Requirements for spin extractors Amendment A1:1997 to EN 60335-2 4:1995
- **EN 60335-2-5:1995** / Safety of household & comparable electrical appliances. Part 2.5 - Requirements for dishwashers Amendment A1:1999 to EN 60335-2-5:1995; Amendment A11:1997 to EN 60335-2-5:1995
- **EN 60335-2-6:1999** / Safety of household & comparable electrical appliances. Part 2.6 - Requirements for stationary cooking ranges ovens & like appliances
- **EN 60974-1:1990** / Safety requirements for arc welding equipment. Part 1 - Welding power sources
- **EN 60999-1:1993** / Connecting devices. Safety requirements for screw & screwless-type clamping elements for electrical copper conductors. Part 1 - General & specific requirements for conductors from 0.5 mm² to 35 mm²
- **EN 61204:1995** / Low-voltage power supply devices, (dc) direct current output. Performance characteristics & safety requirements
- **EN 61210:1995** / Connecting devices. Safety requirements for flat quick-connect terminations for electrical copper conductors
- **EN 61603-1:1997** / Transmission of audio &/or video & related signals using infrared radiation. Part 1 – General
- **EN 132421:1997** / Blank detail specification. Fixed capacitors for electromagnetic interference suppression. Capacitors for which safety tests only are required
- **EN 133200:1999** / Sectional spec. Passive filter for electromagnetic interference suppression. Filters for which safety tests are obligatory
- **HD 194 S1:1977** / Requirements concerning the electrical safety of laser device & installations
- **HD 251 S3:1982** / Safety of household & like electrical appliances. Part 1 - General requirements; Amendment A1:1985 to HD 251 S3:1982; Amendment A2:1987 to HD 251 S3:1982; Amendment A3:1987 to HD 251 S3:1982
- **IEC 60086-4:2000** / Primary batteries Part 4 - Safety of lithium batteries
- **IEC 60086-5:2000** / Primary batteries Part 5 - Safety of batteries with aqueous electrolyte
- **IEC 60204-1:2000** / Safety of machinery Electrical equipment of machines Part 1 - General requirements
- **IEC 60204-11:2000** / Safety of machinery Electrical equipment of machines Part 11 - Requirements for high voltage equipment for voltages above 1000 V AC or 1500 V DC & not exceeding 36 kV
- **IEC 60252-1:2001** / AC motor capacitors Part 1 - General Performance, testing, & rating Safety requirements Guide for installation & operation
- **IEC 60513 TR3:1994** / Fundamental aspects of safety standards for medical electrical equipment
- **IEC 60601-1:1988** / Medical electrical equipment Part 1 - General requirements for safety
- **IEC 60601-1-2:1993** / Medical electrical equipment Part 1 - General requirements for safety 2. Collateral standard: Electromagnetic compatibility Requirements & tests

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- **IEC 60601-1-3:1994** / Medical electrical equipment Part 1 - General requirements for safety 3. Collateral standard: General requirements for radiation protection in diagnostic x-ray equipment
- **IEC 60601-1-4:2000** / Medical electrical equipment Part 1.4 - General requirements for safety Collateral standard: Programmable electrical medical systems
- **IEC 60601-2-1:1998** / Medical electrical equipment Part 2.1 - Specific requirements for safety of electron accelerators in the range of 1 to 50 MeV
- **IEC 60601-2-2:1998** / Medical electrical equipment Part 2.2 - Specific requirements for high-frequency surgical equipment
- **IEC 60601-2-3:1991** / Medical electrical equipment Part 2 - Specific requirements for short-wave therapy equipment
- **IEC 60601-2-4:1983** / Medical electrical equipment Part 2 - Requirements specific to cardiac defibrillators & cardiac defibrillator monitors
- **IEC 60601-2-5:2000** / Medical electrical equipment Part 2.5 - Requirements for ultrasonic physiotherapy equipment.
- **IEC 60601-2-6:1984** / Medical electrical equipment Part 2 - Requirements for the safety of microwave therapy equipment
- **IEC 60601-2-7:1998** / Medical equipment Part 2.7 - Requirements for the safety of high-voltage generators of diagnostic x-ray generators
- **IEC 60601-2-8:1999** / Medical equipment Part 2.8 - Requirements for the safety of therapeutic x-ray equip operating in the range of 10 kV to 1 MV
- **IEC 60601-2-9:1996** / Medical electrical equipment Part 2 - Requirements for patient contact dosimeters used in radiotherapy with electrically connected radiation detectors
- **IEC 60601-2-11:1997** / Medical equipment Part 2 - Requirements for the safety of gamma-beam treatment equipment
- **IEC 60601-2-15:1988** / Medical equipment Part 2 - Requirements for the safety of capacitor discharge x-ray generators
- **IEC 60601-2-17:1989** / Medical electrical equipment Part 2 -Requirements remote-controlled automatically driven gamma-ray afterloading equipment
- **IEC 60601-2-18:1996** / Medical electrical equipment Part 2-Requirements for the safety of endoscopic equipment
- **IEC 60601-2-22:1995** / Medical electrical equipment Part 2-Requirements for diagnostic & therapeutic laser equipment
- **IEC 60601-2-24:1998** / Medical electrical equipment Part 2.24 Requirements for the safety of infusion pumps & controllers
- **IEC 60601-2-25:1993** / Medical electrical equipment Part 2 - Specific requirements for the safety of electrocardiographs
- **IEC 60601-2-26:1994** / Medical electrical equipment Part 2 - Specific requirements for the safety of electroencephalographs
- **IEC 60601-2-27:1994** / Medical electrical equipment Part 2 - Specific requirements for the safety of electrocardiographic monitoring equipment

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- **IEC 60601-2-28:1993** / Medical electrical equipment Part 2 - Specific requirements for x-ray tube assemblies & x-ray source assemblies for medical diagnosis
- **IEC 60601-2-29:1999** / Medical electrical equipment Part 2.29 - Requirements for the safety of radiotherapy simulators
- **IEC 60601-2-30:1999** / Medical electrical equipment Part 2.30 - Specific requirements for the safety including essential performance of automatic cycling noninvasive blood pressure monitoring equipment
- **IEC 60601-2-31:1994** / Medical electrical equipment Part 2 Requirements for external cardiac pacemakers with an internal power source
- **IEC 60601-2-32:1994** / Medical electrical equipment Part 2 - Specific requirements for associated equipment of x-ray equipment
- **IEC 60601-2-33:1995** / Medical electrical equipment Part 2 - Requirements for magnetic resonance (MRI) equipment for medical diagnosis
- **IEC 60601-2-34:2000** / Medical electrical equipment Part 2.34 Requirements for invasive blood pressure monitoring equipment
- **IEC 60601-2-40** / Medical electrical equipment Part 2.40 - Requirements for the safety of electromyographs & evoked response equipment
- **IEC 60601-2-44:1999** / Medical electrical equipment Part 2.44 - Requirements for the safety of x-ray equipment for computed tomography
- **IEC 60601-2-45:1998** / Medical equipment Part 2.45 - Requirements for the safety of mammographic x-ray equipment & mammographic stereotactic devices
- **IEC 60601-2-46:1998** / Medical electrical equipment / Part 2.46 - Specific requirements for the safety of operating tables
- **IEC 60728-11:1997** / Cabled distribution systems for television & sound signals Part 11 – Safety
- **IEC 60742:1983** / Requirements for isolating & safety transformers
- **IEC 60745-1:1997** / Safety of handheld motor-operated electric tools Part 1 - General requirements
- **IEC 60825-1:1998** / Safety of laser products Part 1 - Equipment classification, requirements, & user's guide
- **IEC 60825-2:2000** / Safety of laser products Part 2 - Safety of fibre optic communication systems
- **IEC 60825-4** / Safety of laser products Part 4 - Laser guards
- **IEC 60825-7 TR2:2000** / Safety of laser products Part 7- Safety of products emitting infrared optical radiation, exclusively used for wireless "free air" data transmission & surveillance
- **IEC 60825-8 TR3:1999** / Safety of laser products Part 8 - Guide for the safe use of medical laser equipment
- **IEC 60825-9 TR3:1999** / Safety of laser products Part 9 - Compilation of maximum permissible exposure to incoherent optical radiation
- **IEC 60924:1990** / DC supplied electronic ballasts for tubular fluorescent lamps General & safety requirements

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- **IEC 60926** / Auxiliaries for lamps Starting devices (other than glow starters) General & safety requirements
- **IEC 60928:1999** / Auxiliaries for lamps / Ac-supplied electronic ballasts for tubular fluorescent lamps General & safety requirements
- **IEC 61010-2-010:1992** / Safety requirements for electrical equipment for measurement, control, & laboratory use Part 2.010 – Requirements for laboratory equipment for the heating of material
- **IEC 61010-2-020:1992** / Safety requirements for electrical equipment for measurement, control, & laboratory use / Part 2.020 - Requirements for laboratory centrifuges
- **IEC 61010-2-031:1993** / Safety requirements for electrical equipment for measurement, control, & laboratory use Part 2.031 - Requirements for handheld probe assemblies for electrical measurement & test
- **IEC 61010-2-032:1994** / Safety requirements for electrical equipment for measurement, control, & laboratory use Part 2.032 - Requirements for handheld current clamps for electrical measurement & test
- **IEC 61010-2-061:1995** / Safety requirements for electrical equipment for measurement, control, & laboratory use Part 2.061 - Requirements for laboratory atomic spectrometers with thermal atomization & ionization
- **IEC 61029-1:1990** / Safety of transportable motor operated electric tools Part 1 - General requirements
- **IEC 61046:1993** / Dc-or ac-supplied electronic step-down convertors for filament lamps General & safety requirements
- **IEC 61293:1994** / Marking of electrical equipment with ratings related to electrical supply Safety requirements
- **IEC 61557-1:1997** / Electrical safety in low-voltage distribution systems up to 1000 V AC & 1500 V DC Equipment for testing measuring or monitoring of protective measures Part 1 - General requirements
- **IEC 61557-2:1997** / Electrical safety in low-voltage distribution systems up to 1000 V AC & 1500 V DC / Equipment for testing, measuring or monitoring of protective measures Part 2 - Insulation resistance
- **IEC 61557-3:1997** / Electrical safety in low-voltage distribution systems up to 1000 V AC & 1500 V DC Equipment for testing measuring or monitoring of protective measures Part 3 - Loop impedance
- **IEC 61508-4:1998** / Functional safety of electrical electronic & programmable safety-related systems Part 4 - Definitions & abbreviations
- **IEC 61508-5:1998** / Functional safety of electrical, electronic & programmable safety-related systems Part 5 - Methods for determining safety integrity levels
- **IEC 61508-7:2000** / Functional safety of electrical, electronic & programmable safety-related systems Part 7 - Overview of techniques
- **IEC 61557-1:1997** / Electrical safety in low-voltage distribution systems to 1000V AC & 1500V DC Equipment for testing, measuring, or monitoring of protective measures Part 1 - General requirements

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- **IEC 61557-2:1997** / Electrical safety in low-voltage distribution systems up to 1000V AC & 1500V DC Equipment for testing measuring or monitoring of protective measures Part 2 - Insulation resistance
- **IEC 61557-3:1997** / Electrical safety in low-voltage distribution systems up to 1000V AC & 1500V DC Equipment for testing measuring or monitoring of protective measures Part 3 - Loop impedance
- **IEC 61557-4:1997** / Electrical safety in low-voltage distribution systems up to 1000V AC & 1500V DC Equipment for testing measuring or monitoring of protective measures Part 4 - Resistance of earth connection & equipotential bonding
- **IEC 61557-5:1997** / Electrical safety in low-voltage distribution systems up to 1000V AC & 1500V DC Equipment for testing measuring or monitoring of protective measures Part 5 - Resistance to earth
- **IEC 61557-6:1997** / Electrical safety in low-voltage distribution systems up to 1000V AC & 1500V DC Equipment for testing measuring or monitoring of protective measures Part 6 - Residual current devices (RCD) in TN & TT systems
- **IEC 61557-7:1997** / Electrical safety in low-voltage distribution systems up to 1000V AC & 1500V DC Equipment for testing, measuring, or monitoring of protective measures Part 7- Phase sequence
- **IEC 61557-8:1997** / Electrical safety in low-voltage distribution systems up to 1000V AC & 1500V DC Equipment for testing measuring or monitoring of protective measures Part 8 - Insulation monitoring devices for IT systems
- **IEC 61557-9:1999** / Electrical safety in low-voltage distribution systems up to 1000V AC & 1500V DC Equip. for testing measuring or monitoring of protective measures Part 9 – Equipment for insulation fault location in IT systems
- **IEC 61557-10:2000** / Electrical safety in low-voltage distribution systems up to 1000V AC & 1500V DC Equipment for testing measuring or monitoring of protective measures Part 10 - Combined measuring equipment for testing measuring or monitoring
- **IEC 61558-1:1998** / Safety of power transformers, power-supply units, & like Part 1 - General requirements & tests
- **IEC 61558-2-1:1997** / Safety of power transformers, power-supply units, & like Part 2 - Particular requirements for separating transformers for general use
- **IEC 61558-2-2:1997** / Safety of power transformers, power supply units, & like Part 2.2 - Requirements specific to control transformers
- **IEC 61558-2-4:1997** / Safety of power transformers, power-supply units, & like Part 2 - Requirements for isolating transformers for general use
- **IEC 61558-2-6:1997** / Safety of power transformers, power-supply units, & similar Part 2 - Requirements for isolating transformers for general use
- **IEC 61558-2-7:1997** / Safety of power transformers, power-supply units, & similar Part 2 - Specific requirements for transformers for toys
- **IEC 61558-2-8:1998** / Safety of small power transformers, power-supply units & like Part 2.8 - Requirements for bell & chime transformers
- **IEC 61558-2-13:1999** / Power transformers, power-supply units, & similar devices Part 2.13 - requirements for auto-transformers for general use

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- **IEC 61558-2-15:1999** / Safety of power transformers, power-supply units, & like
Part 2.15 - Requirements for isolating transformers for the supply of medical locations
- **IEC 61558-2-17:1997** / Power transformers, power supply units & like
Part 2 - Requirements for transformers for switch-mode power supplies
- **IEC 61558-2-19:2000** / Power transformers, power supply units, & like devices
Part 2.19 - Requirements for perturbation attenuation transformers
- **IEC 61558-2-20:2000** / Safety of power transformers, power supply units, & like
devices Part 2.20 - Specific requirements for small reactors
- **IEC 62083:2000** / Medical electrical equipment Requirements for the safety of
radiotherapy treatment planning systems
- **IEC 62151:2000** / Safety of equipment connected to a telecommunication network
- **IEEE C95.1:1999** / IEEE standard for safety levels with respect to human exposure
to radio-frequency electromagnetic fields, 3 kHz to 300 GHz
- **IEEE C95.3:1991 (R1997)** / IEEE-recommended practice for the measurement of
potentially hazardous electromagnetic fields RF & microwave
- **IEEE 80:2000** / Safety in ac substation grounding
- **IEEE 81.2:1991** / IEEE guide for measurement of impedance & safety characteristics
of large, extended, or interconnected grounding systems
- **IEEE 510:1983** / IEEE recommended practices for safety in high-power &
high-voltage testing
- **IEEE 902:1998** / IEEE guide for maintenance operation & safety of industrial &
commercial power systems
- **ISO 10079-1:1999** / Medical suction equipment Part 1 - Safety requirements for
electrically powered suction equipment
- **ISO 11197:1996** / Medical electrical equipment Requirements specific to safety of
medical supply units
- **ISO 11553:1996** / Safety of machinery Laser processing machines
- **ISO 13090-1:1998** / Mechanical vibration & shock Guide on safety of tests &
experiments with people Part 1 - Exposure to whole-body mechanical vibration &
repeated shock
- **ISO 14708-1:2000** / Implants for surgery Active implantable medical devices
Part 1 - General requirements for safety marking as well as information to be
provided by the manufacturer
- **SO/TR 16142:1999** / Medical devices Guidance on the selection of standards in
support of recognized essential principles of safety & performance of medical devices