



SLOVENSKI STANDARD
SIST EN 61040:1999
01-december-1999

Power and energy measuring detectors, instruments and equipment for laser radiation (IEC 61040:1990)

Power and energy measuring detectors, instruments and equipment for laser radiation

Empfänger, Meßgeräte und Anlagen zur Messung von Leistung und Energie von Laserstrahlung

Détecteurs, instruments et matériels de mesurage de puissance et d'énergie des rayonnements laser

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Ta slovenski standard je istoveten z: EN 61040:1992

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ENGLISH VERSION

Power and energy measuring detectors, instruments
and equipment for laser radiation
(IEC 1040:1990)

Détecteurs, instruments et
matériels de mesurage de
puissance et d'énergie des
rayonnements laser
(CEI 1040:1990)

Empfänger, Meßgeräte
und Anlagen zur Messung von
Leistung und Energie von
Laserstrahlung
(IEC 1040:1990)

This European Standard was approved by CENELEC on 1992-09-15.
CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations
which stipulate the conditions for giving this European Standard the status of
a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards
may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German).
A version in any other language made by translation under the responsibility of
a CENELEC member into its own language and notified to the Central Secretariat
has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium,
Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg,
Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B-1050 Brussels

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FOREWORD

At the request of the CENELEC Technical Committee TC 76, Laser equipment, the International Standard IEC 1040:1990 was submitted to the CENELEC Unique Acceptance Procedure (UAP) in December 1991 for acceptance as a European Standard.

The text of the International Standard was approved by CENELEC as EN 61040 on 15 September 1992.

The following dates were fixed:

- latest date of publication of an identical national standard (dop) 1993-09-01
- latest date of withdrawal of conflicting national standards (dow) 1993-09-01

For products which have complied with the relevant national standard before 1993-09-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 1998-09-01.

Annexes designated "normative" are part of the body of the standard. In this standard, annex ZA is normative.

ENDORSEMENT NOTICE

The text of the International Standard IEC 1040:1990 was approved by CENELEC as a European Standard without any modification.

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ANNEX ZA (normative)

OTHER INTERNATIONAL PUBLICATIONS QUOTED IN THIS STANDARD
WITH THE REFERENCES OF THE RELEVANT EUROPEAN PUBLICATIONS

When the international publication has been modified by CENELEC common modifications, indicated by (mod), the relevant EN/HD applies.

IEC				
<u>Publication</u>	<u>Date</u>	<u>Title</u>	<u>EN/HD</u>	<u>Date</u>
825 (mod)	1984	Radiation safety of laser products, equipment classification, requirements and user's guide	EN 60825*	1991
1010-1	1990	Safety requirements - Electrical equipment for measurement control and laboratory use - Part 1: General requirements	-	-

* EN 60825:1991 includes A1:1990 to IEC 825

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Détecteurs, instruments et matériels de
mesurage de puissance et d'énergie des
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Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

POWER AND ENERGY MEASURING DETECTORS, INSTRUMENTS AND
EQUIPMENT FOR LASER RADIATION

FOREWORD

- 1) The formal decisions or agreements of the IEC on technical matters, prepared by Technical Committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.
- 3) In order to promote international unification, the IEC expresses the wish that all National Committees should adopt the text of the IEC recommendation for their national rules in so far as national conditions will permit. Any divergence between the IEC recommendation and the corresponding national rules should, as far as possible, be clearly indicated in the latter.

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This standard has been prepared by IEC Technical Committee No. 76: Laser equipment.

[SIST EN 61040:1999](#)

The text of this standard is based on the following documents:

Six Months' Rule	Report on Voting	Two Months' Procedure	Report on Voting
76(C0)14	76(C0)17	76(C0)18	76(C0)20

Full information on the voting for the approval of this standard can be found in the Voting Reports indicated in the above table.

The following IEC publications are quoted in this standard:

- Publications Nos. 825 (1984): Radiation safety of laser products, equipment classification, requirements and user's guide.
- 1010-1 (1990): Safety requirements - Electrical equipment for measurement control and laboratory use - Part 1: General requirements.

POWER AND ENERGY MEASURING DETECTORS, INSTRUMENTS AND EQUIPMENT FOR LASER RADIATION

1 Scope and object

This standard is applicable to instruments and equipment measuring the laser radiant power and laser radiant energy in the optical spectral range (with wavelength from 100 nm to 1 mm). If detectors are offered separately, this standard is also applicable to them.

The object of this standard is to lay down definitions and minimum requirements as well as suitable test procedures for the characteristics and the manufacturing standards for detectors, instruments and equipment for the measurement of power and energy of laser radiation.

For the electrical safety of indicators and equipment, see IEC 1010-1.

2 Terminology

For the purposes of this standard, the following definitions apply:

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2.1 Calibration

The set of operations which establish, under specified conditions, the relationship between values indicated by the measuring instrument or output signal of the detector and the corresponding known values of a measurand.

NOTE - The result of a calibration is sometimes expressed as a calibration factor or as a series of calibration factors in the form of a calibration curve.

2.2 Calibration factor

Quotient of instrument indication by the detector input quantity.

2.3 Detector

See laser detector.

2.4 Equipment (for measuring laser power or energy)

Instrument measuring laser power or energy combined with auxiliary devices.

2.5 Error of measurement

The difference between measured value and true value of a measurand.