BS ISO 14132-1:2015

BSI Standards Publication

Optics and photonics — Vocabulary for telescopic systems

Part 1: General terms and alphabetical indexes of terms in ISO 14132

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National foreword

This British Standard is the UK implementation of ISO 14132-1:2015.

The UK participation in its preparation was entrusted to Technical Committee CPW/172, Optics and Photonics.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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INTERNATIONAL STANDARD

ISO 14132-1

Second edition
2015-11-15

Optics and photonics — Vocabulary for telescopic systems —

Part 1: General terms and alphabetical indexes of terms in ISO 14132

Optique et photonique — Vocabulaire relatif aux systèmes télescopiques —

Partie 1: Termes généraux et index alphabétiques des termes dans l'ISO 14132

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: Foreword — Supplementary information.

The committee responsible for this document is ISO/TC 172, *Optics and photonics*, Subcommittee SC 4, *Telescopic systems*.

This second edition cancels and replaces the first edition (ISO 14132-1:2002), which has been technically revised with the following changes:

a) the term "telescopic system" has been introduced replacing the term "telescope" where appropriate;

b) the useful magnification (4.2.12) is now identified by Γ';

c) telescopic acuity of vision v' is now given in minutes of arc;

d) two new symbols were added to the term veiling glare index (4.2.27): Φ_B (luminous flux of black object on the white background) and Φ_W (luminous flux caused by the white background);

e) two new terms were added: "zoom ratio" (4.2.30) and "zoom range" (4.2.31);

f) the term "teleobjective" (4.3.5) has been replaced by "telephoto lens".

ISO 14132 consists of the following parts, under the general title *Optics and photonics — Vocabulary for telescopic systems*:

— *Part 1: General terms and alphabetical indexes of terms in ISO 14132*

— *Part 2: Terms for binoculars, monoculars and spotting scopes*

— *Part 3: Terms for telescopic sights*

— *Part 4: Terms for astronomical telescopes*

— *Part 5: Terms for night vision devices*

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Optics and photonics — Vocabulary for telescopic systems —

Part 1: General terms and alphabetical indexes of terms in ISO 14132

1 Scope

This part of ISO 14132 gives terms, definitions and letter symbols of common notions that are typical for all types of telescopic systems.

The alphabetical indexes of terms that are common for all published parts of ISO 14132 are published in this part of ISO 14132. See Annex A.

2 Normative references

There are no normative references in this document.

3 Symbols and abbreviated terms

Letters symbols of common values that are typical for telescopic systems are given in Table 1.

Table 1 — Symbols

Symbol	Description	Reference part and clause in ISO 14132
b	distance between centres of eyepieces	ISO 14132-2:2015, 3.1.14
b'	interpupillary distance	ISO 14132-2:2015, 3.1.11
B	distance between centres of objectives	ISO 14132-2:2015, 3.1.14
D	entrance pupil diameter; clear aperture of objective	4.2.9, ISO 14132-4:2015, 3.2
D'	exit pupil diameter	4.2.10
L	efficiency of telescopic system	4.2.15
L_H	daylight efficiency when the telescope is hand-held	4.2.16
L_s	daylight efficiency when the telescope is fixed against a support	4.2.16
L_t	geometric twilight number	4.2.17
l	distance from the objective of the instrument to the object plane	4.2.5
P	plasticity	ISO 14132-2:2015, 3.1.15
P_l	specific plasticity	ISO 14132-2:2015, 3.1.14
R	distance to the object that defines the depth of stereoscopic vision	ISO 14132-2:2015, 3.1.17
R_0	range of stereoscopic vision	ISO 14132-2:2015, 3.1.16
ΔR	threshold depth of stereoscopic vision	ISO 14132-2:2015, 3.1.17
w	angular subtense of the object	4.2.1
w'	angular subtense of the image	4.2.1
$2y$	linear field of view in object space	4.2.5

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Table 1 *(continued)*

Symbol	Description	Reference part and clause in ISO 14132
Γ	magnification; power	4.2.1
Γ'	useful magnification	4.2.12
ε	limit of angular resolution	4.2.13, ISO 14132-4:2015, 3.3.2
η_e	threshold of stereoscopic vision of the unaided eye	ISO 14132-2:2015, 3.1.16
λ	wavelength of optical radiation	ISO 14132-4:2015, 3.3.2
ν	acuity of vision of an unaided eye	4.2.15
ν'	telescopic acuity of vision	4.2.14
2ω	angular field of view in object space	4.2.2
$2\omega'$	angular field of view in image space	4.2.3
Φ_B	Luminous flux of black object on the white background	4.2.27
Φ_W	Luminous flux caused by the white background	4.2.27

4 Terms and definitions

4.1 General definitions

4.1.1
telescopic system
afocal system
optical system which, having received a bundle of rays coming from an infinitely distant object incident upon its objective, forms a conjugate emergent bundle of parallel rays

4.1.2
Keplerian telescopic system
Keplerian telescope
telescopic system which includes an objective lens and an eyepiece, both having positive focal lengths

4.1.3
Galilean telescopic system
Galilean telescope
telescopic system which includes an objective lens having positive focal length and an eyepiece having negative focal length

4.1.4
telescopic observational instrument
telescope
optical instrument which includes a telescopic system and is used for watching remote objects

EXAMPLE Binoculars, monoculars, spotting scopes, amateur astronomical telescopes, telescopic sights and night-vision devices.

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