INTERNATIONAL STANDARD

ISO 14132-4

Second edition
2015-03-01

Optics and photonics — Vocabulary for telescopic systems —

Part 4: Terms for astronomical telescopes

Optique et photonique — Vocabulaire relatif aux systèmes télescopiques —
Partie 4: Termes pour télescopes astronomiques

Reference number
ISO 14132-4:2015(E)

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Published in Switzerland

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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).

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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 14132-4:2002), of which it constitutes a minor revision.

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*

Optics and photonics — Vocabulary for telescopic systems —

Part 4: Terms for astronomical telescopes

1 Scope

This part of ISO 14132 applies to astronomical telescopes and gives terms and definitions for astronomical telescopes only.

The alphabetical indexes of terms that are common for all published parts of ISO 14132 are published in ISO 14132-1.

The definitions can be changed, if required, by introducing derivative attributes into them, revealing the meanings of the terms used, showing the objects covered by the scope of the notion being defined. These changes will not to affect the scope and contents of this part of ISO 14132.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 14132-1:—[1], *Optics and photonics — Vocabulary for telescopic systems — Part 1: General terms and alphabetical indexes of terms in ISO 14132*

3 Terms and definitions

3.1
astronomical telescope
telescopic instrument intended for observations of celestial objects

3.2
clear aperture of objective
D
in the object space, the largest diameter of an incident bundle of rays, the axis of said bundle being parallel to the optical axis, that passes unrestricted by the objective mount

Note 1 to entry: In this definition, “objective” may mean either refracting objective or reflecting objective.

Note 2 to entry: The clear aperture is equal to the entrance pupil diameter of the telescope.

3.3.1
angular resolution
Rayleigh criterion
capability of an optical system to discriminate two points as separate points

Note 1 to entry: It is expressed as the visual angle (in radians or seconds of arc) in the object space.

1) To be published.

3.3.2
limit of angular resolution
ε'
quantity based on Rayleigh criterion given in radians by

$$\varepsilon' = 1{,}22\lambda / D$$

where

λ is the wavelength of the radiation used for the observation, in millimetres;

D is the clear aperture of telescope, in millimetres.

[SOURCE: ISO 14132-1:—, 4.2.13, modified]

3.3.3
diffraction limited telescope
telescope whose limit of angular resolution complies with Rayleigh criterion

3.3.4
resolving power
reciprocal of the angular resolution

3.4
finder telescope
auxiliary telescope attached to the housing of the main telescope and aligned parallel to its axis that facilitates locating a target, such as a star, more readily due to its wider field of view

3.5
diagonal prism
right angle prism that redirects the optical viewing axis at an angle of 90° to the main axis of the telescope for the purpose of allowing easier observation of certain objects

3.6
Barlow lens
negative focal length lens or lens system placed between the objective and its focal plane for providing an increase in effective focal length of the objective

3.7
solar projection plate
projection screen on which an image of the Sun is projected by the eyepiece or a special projection lens

3.8
Herschel wedge
wedge-type prism that is oriented at 45° to the optical axis of a telescope for the purpose of reducing the brightness of the reflected image of the Sun

Note 1 to entry: The optical viewing axis is redirected at an angle of 90° to the main axis of the telescope by a Herschel wedge.

ICS 01.040.37; 37.020

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