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Optics and photonics — Vocabulary for telescopic systems —

Part 3: Terms for telescopic sights

Optique et photonique — Vocabulaire relatif aux systèmes télescopiques —

Partie 3: Termes pour lunettes de pointage

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Foreword

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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 of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 172, *Optics and photonics*, Subcommittee SC 4, *Telescopic systems*.

This third edition cancels and replaces the second edition (ISO 14132-3:2014), which has been technically revised. The main changes compared to the previous edition are as follows:

— the term and definition "critical eye relief" was added and harmonised with "eye relief" and "eye relief range".

A list of all parts in the ISO 14132 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Optics and photonics — Vocabulary for telescopic systems —

Part 3: Terms for telescopic sights

1 Scope

This document applies to telescopic sights used on hand-held firearms and airguns and gives terms and definitions for telescopic sights 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 affect the scope and contents of this document.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
telescopic sight
telescopic observational instrument which is mounted on hand-held firearms and airguns and used for sighting

3.2
main tube
main body of a *telescopic sight* (3.1)

3.3
central tube
in most cases slimmest part of a *telescopic sight* (3.1) located between eyepiece and objective cell

3.4
objective tube
straight, mostly cylindrical part of the *main tube* (3.2) in which the objective housing is mounted

3.5
parallax
angular deviation between the *aiming points* (3.12) for on-axis and off-axis observation

3.6
parallax-free distance
object distance for which the shift between the image of an object and the axial position of the reticle becomes imperceptible for on-axis and off-axis observations

Note 1 to entry: In the above case, the angular deviation for off-axis observation is zero.

3.7
elevation adjustment
system to adjust the relative position of the object image and the reticle in vertical direction

3.8
windage adjustment
system to adjust the relative position of the object image and the reticle in horizontal direction

3.9
reticle adjustment range
independent adjustment range for the relative position of object image and the reticle in each of the two perpendicular directions for windage and elevation corrections

3.10
reticle tracking
angular deviation between the reticle adjustment axes (elevation and windage) and the axes that are defined by the reticle lines

3.11
aiming mark
structural part of the reticle which is used for aiming

Note 1 to entry: Note that besides the term "aiming mark" in some languages (but not in English) there exists a special term for the hunting style type of aiming mark, e.g. in German "Absehen", "Abkommen".

3.12
aiming point
point on an object which corresponds with the *aiming mark* (3.11)

3.13
first image plane
image plane of the objective

3.14
second image plane
image plane of the erecting system

3.15
subtension value
subtension measure
equivalent of a measure of the *aiming mark* (3.11) in the object plane

3.16
point of impact
point where the bullet actually hits the target

3.17
shift of point of impact
sighting in
action to eliminate the deviation of *point of impact* (3.16) from line of sight

3.18
line of sight shift
displacement of the line of sight due to zooming or focusing

3.19
image jump
shift of the *aiming point* (3.12) due to a toggle of the position or change in the movement direction of the magnification changer

3.20
zoom riflescope
telescopic sight (3.1) with continuously changeable magnification

3.21
eye relief range
distance range from the vertex of the last optical surface to the eye's pupil over that the full field of view can be seen without noticeable vignetting

Note 1 to entry: For telescopic sights an eye pupil diameter of 3 mm (representing daylight conditions) is assumed.

3.22
eye relief
d_{max}
maximum distance from the vertex of the last optical surface to the eye's pupil at which the full field of view can still be seen without noticeable vignetting

Note 1 to entry: See ISO 14490-3:2021, Figure 4.

3.23
critical eye relief
d_{rim}
minimum distance from the rim of the riflescope's eyecup to the eye's pupil at which the full field of view can still be seen without noticeable vignetting

Note 1 to entry: See ISO 14490-3:2021, Figure 4.

Note 2 to entry: The critical eye relief distance is a significant information to ensure that the shooter's eye is far enough from the riflescope to protect themselves from recoil injuries. This is particularly important when using high calibre rifles with a large recoil.

Bibliography

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

[2] ISO 14490-3:2021, *Optics and photonics — Test methods for telescopic systems — Part 3: Test methods for telescopic sights*

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