



**SLOVENSKI STANDARD**  
**oSIST prEN IEC 62046:2025**  
**01-februar-2025**

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**Varnost strojev - Uporaba zaščitne opreme za zaznavanje prisotnosti oseb**

Safety of machinery - Application of protective equipment to detect the presence of persons

Sicherheit von Maschinen - Anwendung von Schutzeinrichtungen zur Anwesenheitserkennung von Personen

Sécurité des machines - Application des équipements de protection à la détection de la présence de personnes

**Ta slovenski standard je istoveten z: prEN IEC 62046:2024**

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TITLE:

**Safety of machinery - Application of protective equipment to detect the presence of persons**

PROPOSED STABILITY DATE: 2025

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**SAFETY OF MACHINERY – APPLICATION OF PROTECTIVE  
EQUIPMENT TO DETECT THE PRESENCE OF PERSONS**

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## FOREWORD

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271

This bilingual version (2018-11) corresponds to the monolingual English version, published in 2018-03.

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This second edition cancels and replaces IEC 62046, published in 2018. This edition constitutes a technical revision.

274

This edition includes the following significant technical changes with respect to IEC 62046:2018:

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- a) restructuring of the document to aid the user,
- b) additional information on vision and radar systems,
- c) muting requirements have been updated,
- d) information on whole body access has been added.
- e) Whole body access has also been covered in more detail,
- f) alignment to changes in ISO 13855.

281 The text of this International Standard is based on the following documents:

FDIS	Report on voting
44/803/FDIS	44/812/RVD

282  
283 Full information on the voting for the approval of this International Standard can be found in the  
284 report on voting indicated in the above table.

285 The French version of this document has not been voted upon.

286 This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

287 The committee has decided that the contents of this document will remain unchanged until the  
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289 the specific document. At this date, the document will be

- 290 • reconfirmed,
- 291 • withdrawn,
- 292 • replaced by a revised edition, or
- 293 • amended.

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297

## INTRODUCTION

298 This International Standard provides requirements and information on the application of  
299 sensitive protective equipment, which employs sensing devices to detect persons, in order to  
300 reduce or minimize a risk from hazardous parts of machinery, without providing a physical  
301 barrier.

302 The objective of this document is to assist standards writing committees responsible for  
303 developing machine standards (type-C Standards), machine designers, manufacturers and  
304 refurbishers, machine safety certification organizations, workplace authorities and others on  
305 the proper application of sensitive protective equipment to machinery.

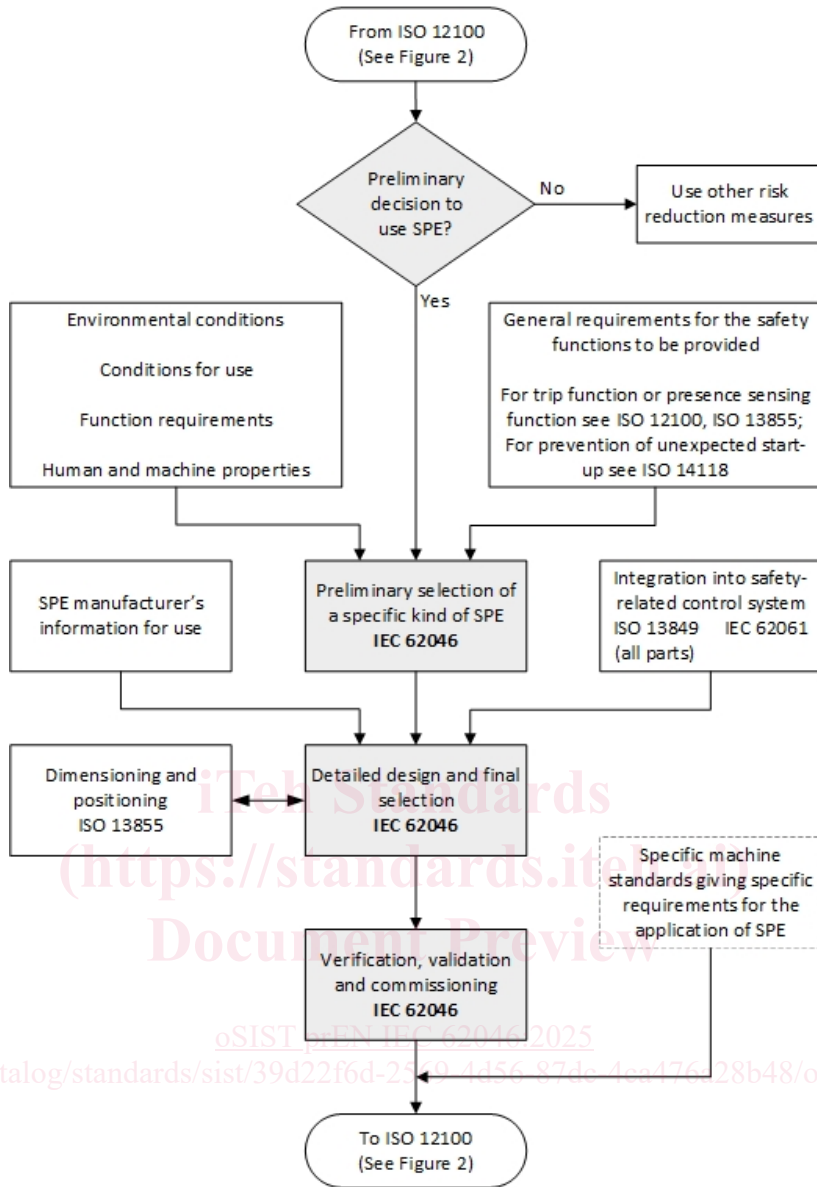
306 Figure 1 shows the general context and the intended use of this standard.

307 Clauses 1 to 5, 7 and 8 of this document apply to all sensitive protective equipment included in  
308 the scope, Clause 6 contains guidance for the application of specific kinds of sensitive  
309 protective equipment.

310 The principles of this document can be useful in the application of devices using other detection  
311 technologies but this document does not give specific requirements for those devices.

312 This document considers devices standardised in the IEC 61496 series and the ISO 13856  
313 series. Unless a product-specific safety-related standard for devices using other sensing  
314 technologies is published, their suitability as the sole means of protection from machine hazards  
315 is unknown. Great care should be taken in the selection and use of devices for which there is  
316 no product-specific safety-related standard because their behaviour, particularly under fault  
317 conditions, is not known to be sufficiently predictable.

318 A SIL (Safety Integrity Level see IEC 62061 or IEC 61508) or PL (Performance Level, see  
319 ISO 13849-1) is not sufficient as an indication of a device's suitability for use as a safeguard.  
320 Suitability depends on appropriate sensing means, environmental conditions especially those  
321 that can affect the detection capability, behaviour under fault conditions, etc.



**Figure 1 – Relationship of this International Standard to other standards**

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# SAFETY OF MACHINERY – APPLICATION OF PROTECTIVE EQUIPMENT TO DETECT THE PRESENCE OF PERSONS

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## 331 1 Scope

332 This International Standard specifies requirements for the selection, positioning, configuration  
333 and commissioning of sensitive protective equipment to detect the momentary or continued  
334 presence of persons in order to protect those persons from dangerous part(s) of machinery in  
335 industrial applications. This standard covers the application of electro-sensitive protective  
336 equipment (ESPE) specified in IEC 61496 (all parts) and pressure-sensitive mats and floors  
337 specified in ISO 13856-1.

338 It takes into account the characteristics of the machinery, the sensitive protective equipment,  
339 the environment and human interaction by persons of 14 years and older.

340 This document includes informative annexes to provide guidance on the application of sensitive  
341 protective equipment to detect the presence of persons. These annexes contain examples to  
342 illustrate the principles of this standard. These examples are not intended to be the only  
343 solutions to a given application and are not intended to restrict innovation or advancement of  
344 technology. The examples are provided only as representative solutions to illustrate some of  
345 the concepts of integration of sensitive protective equipment, and have been simplified for  
346 clarity, so they may be incomplete.

347 It is intended that this document is used in conjunction with ISO 13855.

## 348 2 Normative references

349 The following documents are referred to in the text in such a way that some or all of their content  
350 constitutes requirements of this document. For dated references, only the edition cited applies.  
351 For undated references, the latest edition of the referenced document (including any  
352 amendments) applies.

353 IEC 62061:2021, *Safety of machinery – Functional safety of safety-related electrical, electronic  
354 and programmable electronic control systems*

355 ISO 12100:2010, *Safety of machinery – General principles for design – Risk assessment and  
356 risk reduction*

357 ISO 13849-1:2023, *Safety of machinery – Safety-related parts of control systems*

358 ISO 13855:2024, *Safety of machinery – Positioning of safeguards with respect to the approach  
359 of the human body*

## 360 3 Terms, definitions and abbreviated terms

### 361 3.1 Terms and definitions

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

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

- 365 • IEC Electropedia: available at <http://www.electropedia.org/>

- 366 • ISO Online browsing platform: available at <http://www.iso.org/obp>

### 367 3.1.1

#### 368 active opto-electronic protective device

#### 369 AOPD

370 device whose sensing function is performed by opto-electronic emitting and receiving elements  
371 detecting the interruption of optical radiations generated, within the device, by an opaque object  
372 present in the specified detection zone (or for a light beam device, on the axis of the light beam)

373 [SOURCE: IEC 61496-2:2020, 3.201]

### 374 3.1.2

#### 375 active opto-electronic protective device responsive to diffuse reflection

#### 376 AOPDDR

377 device, whose sensing function is performed by opto-electronic emitting and receiving  
378 elements, that detects the diffuse reflection of optical radiations generated within the device by  
379 an object present in a detection zone specified in two dimensions

380 [SOURCE: IEC 61496-3:2018, 3.301]

### 381 3.1.3

#### 382 automatic selection of active detection zones

383 optional function that permits the selection/deselection of the active safety-related detection  
384 zone of sensitive protective equipment while still providing protection during the hazardous  
385 machine cycle

386 Note 1 to entry: Examples include selection of pre-defined blanking or reduced resolution configurations; see IEC  
387 61496-2:2020, A.12.

388 Note 2 to entry: The safety-related logic for the automatic selection of active detection zones may be within the  
389 sensitive protective equipment or may be applied externally from within the safety-related parts of the control system.

390 Note 3 to entry: The automatic selection of safety-related detection zones is not a muting function; see IEC 61496-  
391 3:2018, A.10.1, Note 2.

### 392 3.1.4

#### 393 blanking

394 optional function that permits an object of a size greater than the detection capability of the  
395 ESPE to be located within the detection zone without causing an OFF-state of the OSSD(s)

396 Note 1 to entry: Blanked beams are monitored for continued interruption of light.

397 [SOURCE: IEC 61496-1:2020, 3.1, modified – Note 1 to entry has been modified, Note 2 to  
398 entry has been removed]

### 399 3.1.5

#### 400 detection capability

401 sensing function parameter limit specified by the supplier that will cause actuation of the  
402 sensitive protective equipment

403 [SOURCE: IEC 61496-1:2020, 3.3, modified – "electro- " has been removed before "protective  
404 equipment"]

### 405 3.1.6

#### 406 detection zone

407 zone within which a specified test piece will be detected by the sensitive protective equipment

408 Note 1 to entry: The detection zone can also be a point, line, plane or volume.

409 Note 2 to entry: ISO 13856-1 uses the term "effective sensing area" when describing pressure-sensitive mats and  
410 floors. In this document the terms "detection zone" and "effective sensing area" are used synonymously.