



**SLOVENSKI STANDARD**  
**SIST EN 50250:2001**  
**01-september-2001**

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**Conversion adapters for industrial use**

Conversion adapters for industrial use

Übergangsadapter für industrielle Anwendung

Adaptateurs de conversion pour usages industriels

**Ta slovenski standard je istoveten z: EN 50250:1998**

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EUROPEAN STANDARD

EN 50250

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EUROPÄISCHE NORM

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Descriptors: Electrical equipment, industrial facilities, low voltage, connecting equipment, conversion adapters, definitions, specifications, characteristics, tests

English version

**Conversion adapters for industrial use**

Adaptateurs de conversion pour usages  
industriels

Übergangsadapter für industrielle  
Anwendung

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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, Czech Republic, 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

## Foreword

This European Standard was prepared by the CENELEC BTWG 79-1, Conversion adapters for industrial use.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50250 on 1998-04-01.

The following dates were fixed:

- latest date by which the EN has to be implemented  
at national level by publication of an identical  
national standard or by endorsement (dop) 1999-02-01
- latest date by which the national standards conflicting  
with the EN have to be withdrawn (dow) 1999-02-01

This European Standard is to be used in conjunction with EN 60309-1. The clauses in this European Standard amend or replace the clauses of EN 60309-1.

Subclauses, tables and figures which are additional to those in EN 60309-1 are numbered starting with 101. Additional annexes are lettered AA, BB, etc.

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## Introduction

This standard applies to conversion adaptors, hereinafter referred to as adaptors, for industrial use comprising a housing incorporating a plug and socket-outlets which can be used to connect one or two plugs of the domestic type to an industrial 2P +  16 A, 250 V~, 6 h, type socket-outlet.

This standard shall be used jointly with standards EN 60309-1 "Plugs, socket-outlets and couplers for industrial purposes - Part 1: General requirements", EN 60309-2 "Plugs, socket-outlets and couplers for industrial purposes - Part 2: Dimensional interchangeability requirements for pin and contact-tube accessories of harmonised configurations" and with the relevant National Standards for socket-outlets for household and similar use (listed in annex AA). The clauses in this standard amend or replace the clauses of the above mentioned standard EN 60309-1.

## 1 Scope

### *Replacement:*

This standard applies to conversion adaptors intended mainly for industrial use, comprising a housing of insulating material which incorporates an industrial 2P + , 16 A, 6 h 250 V~ type plug part (table 104 in EN 60309-2) and one or two socket-outlets in accordance with the relevant National Standards for socket-outlets for household and similar use, with a rated current up to 16 A, intended mainly for industrial use either indoors or outdoors.

NOTE: Adaptors with three socket-outlets or a different type of plug part, according to EN 60309-2, are under consideration.

This standard applies to all applications where the ambient temperature does not normally exceed 40 °C.

The use of these adaptors on building sites, for agricultural, commercial and domestic applications is not precluded but care should be taken in considering protecting devices in use.

Adaptors are for temporary use only.

In locations where special conditions prevail, for example on board ship or where explosions are liable to occur, additional requirements may be necessary.

## 2 Definitions

This clause of EN 60309-1 is applicable with the following additions:

### 2.101

#### **adaptor**

Portable accessory which allows the connection of one or more types of plug to a socket-outlet not designed to accept such plugs.

#### 2.101.1

##### **single adaptor**

Adaptor having a single plug function and a single socket-outlet function.

#### 2.101.2

##### **double adaptor**

Adaptor having a single plug function and two socket-outlet functions. The two socket-outlets may or may not comply with the same dimensional requirements.

**2.102****rated current of an adaptor**

The rated current of an adaptor is:

- the rated current of the plug part of the adaptor;
- the sum of the rated currents of the plugs that can be inserted into the adaptor,

whichever the lower.

**2.103****serviceable adaptor**

An adaptor which can be disassembled, using ordinary tools (e.g. screwdrivers, etc.) for replacement or maintenance.

**2.104****non-serviceable adaptor**

An adaptor which cannot be disassembled using ordinary tools (e.g. screwdrivers, etc.) without rendering it permanently useless.

**3 Normative references**

This clause of EN 60309-1 is applicable with the following additions:

EN 60309-1:1997, *Plugs, socket outlets and couplers for industrial purposes -- Part 1: General requirements* (IEC 60309-1:1997)

EN 60309-2:1998, *Plugs, socket-outlets and couplers for industrial purposes -- Part 2: Dimensional interchangeability requirements for pin and contact-tube accessories* (IEC 60309-2:1997 + corrigendum 1998)

NOTE: See annex AA for National Standards for domestic socket-outlets.

**4 General**

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This clause of EN 60309-1 is applicable except as follows:

**4.1 General requirements**

*Replacement:*

Adaptors shall be so designed and constructed that in normal use their performance is reliable and without danger to the user or surroundings.

*In general compliance is checked by carrying out all the tests specified.*

**4.2 General notes on tests****4.2.1 Replacement:**

Tests according to this standard are type tests.

The parts of adaptors are tested, unless otherwise specified, in accordance with the requirements of the relevant standard, as applicable; e.g. plug part is tested according to EN 60309-2 and socket-outlet parts are tested according to the relevant National Standards.

**4.2.4 Replacement:**

Unless otherwise specified, one set of three specimens shall be subjected to all the tests.

**4.2.5 Replace the first paragraph of the note by:**

NOTE: In general, it will only be necessary to repeat the tests which caused the failure, unless the specimens fail in test of clause 21, in which case tests shall be repeated from clause 20 onwards.

*Addition:*

4.2.101 If gauges are used, these shall be of hardened steel, and all corners shall be slightly rounded-off with a maximum radius of 0,1 mm and the surface-finish for all measurement-surfaces shall be  $\sqrt{\frac{Ra}{10}}$  min, unless otherwise specified.

**5 Standard ratings***Replacement:*

## 5.1 Rated voltage:

The recommended rated voltage is 250 V ~.

## 5.2 Rated current:

Rated current: 10 A, 13 A, 15 A and 16 A.

**6 Classification***Replacement:*

## 6.1 Adaptors are classified:

6.1.1 According to the degree of protection against harmful ingress of water in accordance with EN 60529:

- IPX0 (non-protected);
- IP  $\geq$  X4 (protected).

NOTE: The degree of protection of the socket-outlets for industrial use, when used in conjunction with an adaptor, will revert to the protection rating of the adaptor if this is less than that of the socket-outlet.

## 6.1.2 According to the type of construction:

- serviceable adaptors;
- non-serviceable adaptors.

**7 Marking***Replacement:*

## 7.1 Adaptors shall be marked with:

- rated current in amperes;
- rated operating voltage or range in volts;
- symbol for nature of supply.
- either the name or trade mark of the manufacturer or of the responsible vendor;
- type reference, which may be a catalogue number;
- symbol for degree of protection (IP code);
- symbol indicating the position of the earthing contact (plug part side);
- wording "FOR TEMPORARY USE ONLY".



For adaptors with degree of protection IPX0 is required a leaflet indicating to be aware in use of it because it reduces the degree of protection of the industrial socket-outlet in which will be inserted and that it shall not be used in environment with an explosion hazards.

NOTE 1: This wording shall be written in the official language of the country of intended use.

*Compliance is checked by inspection.*

NOTE 2: Marking 10/16 shall be accepted as indication for socket-outlet parts in accordance with standard CEE 7.

The symbol indicating the position of the earthing contact shall be placed before or above the figure indicating the rated operating voltage, and separated from it by a line.

These markings shall be placed after that for rated current, separated from it by a dash, if an oblique line separates the symbol indicating the position of the earthing contact from the figure for the rated operating voltage.

If a symbol for nature of supply is used, it shall be placed next to or below the marking for rated operating voltage.

The marking for rated current, position of the earthing contact, rated operating voltage(s) and the nature of the supply may accordingly be as follows:


16A - 6h/250 V~, or 16 - 6h/250~, or 16 -  $\frac{6h}{250 \sim}$

7.2 When symbols are used, they shall be as follows:

A ..... amperes

V ..... volts

~ ..... alternating current

 ..... earth

IPXX ..... degree of protection according to EN 60529

For marking of rated current(s) and rated operating voltage(s) or range(s), figures may be used alone.


*Compliance is checked by inspection.*

7.3 The marking specified in 7.1 shall be readily visible when the adaptor is equipped and ready for use, with the exception of the wording "FOR TEMPORARY USE ONLY" which shall also be visible when the adaptor is in use.

NOTE 1: The term "ready for use" does not imply that the adaptor is in engagement with its complementary accessory.

NOTE 2: The marking for rated current, nature of supply, rated operating voltage and the name, trade mark of the manufacturer or the responsible vendor, may be repeated on the lid, if any.

*Compliance is checked by inspection.*

7.4 In serviceable adaptors the earthing contacts shall be indicated by the symbol . This symbol shall be placed close to the corresponding terminals, and should not be placed on screws, washers or other removable parts.

7.5 Markings shall be indelible and easily legible.

*Compliance is checked by inspection and by the following test.*

*After the humidity treatment in clause 18 the marking shall be rubbed vigorously by hand for 15 s with a piece of cloth soaked in water and again for 15 s in a piece of cloth soaked in petroleum spirit.*

*Special attention is paid to the marking of the name, trade mark or identification mark of the manufacturer or the responsible vendor and to that of the nature of supply and to the warning note.*

NOTE: It is recommended that the petroleum spirit used is of a type consisting of a solvent hexane with an aromatic content of maximum 0,1 volume percentage, a kauri-buthanol value of 29, an initial boiling point of approximately 65 °C, a dry point of approximately 69 °C and a density of approximately 0,68 g/cm<sup>3</sup>.

7.6 If, in addition to the marking prescribed, the rated operating voltage is indicated by means of a colour, the colour code shall be blue. An indicating colour, if different from that of the enclosure, shall be used only if it can be easily distinguished.

## 8 Dimensions

This clause of EN 60309-1 is applicable except as follows:

### 8.1 Replacement:

The plug part of adaptors shall comply with standard sheet 2-II of EN 60309-2 insofar as this applies. The socket-outlet part or parts shall comply with the dimensional requirements of the relevant National Standards listed in annex AA.

Deviations from the dimensions specified in the Standard Sheets may be made, but only if they provide a technical advantage and do not adversely affect the purpose and safety of the plug part complying with the Standard Sheets, especially with regard to interchangeability and non-interchangeability.

Socket-outlet or plug parts with a configuration which varies parts relating to the coupling (e.g. distance between centres or pin diameter) are not permitted.

#### Plug part

*Compliance is checked by means of gauges or by measurements for those dimensions not covered by gauges. For plug part of adaptors, the gauges are shown in figures 107 and 108 of EN 60309-2.*

*Gauges shall be moved axially to the centre line of the plug part with the force indicated below applied for one minute:*

Force (Max.) for the "go" gauge: 60 N

Force for the "not go" gauge:  $20 \begin{smallmatrix} 0 \\ -1 \end{smallmatrix}$  N

*Before the test, the test specimen of insulating material shall be stored at a temperature of (20 ± 5)°C and a relative humidity between 45% and 75% for 4 weeks.*

The position of the earthing contact shall be 6 h.

*Compliance is checked by inspection.*

Socket-outlet part

Compliance is checked by the tests specified in the relevant National Standard (listed in annex AA).

**8.2 Replacement:**

It shall not be possible to engage the plug part of the adaptor with socket-outlets or connectors having different ratings, or having different contacts combinations.

In addition, the design of the plug part shall be such that improper connections shall not be possible between:

- the earth contact and a live socket contact, or a live plug contacts and the earth socket contact,
- the phase plug-contact and the neutral socket-contact, if any;
- a neutral plug-contact and phase socket contact

Compliance is checked by inspection and tests using the methods indicated below. These tests are made after storage of test specimens of insulating material at a temperature of  $(20 \pm 5)^\circ\text{C}$  and with relative humidity between 45% and 75% for 4 weeks.

In case of plug parts with a housing of thermoplastic material this test is made at a temperature of  $(35 \pm 2)^\circ\text{C}$ , both the plug parts and the gauges being at this temperature.

**FIRST TEST (key)**

The socket gauge shown in figure 109 of EN 60309-2 is placed before the plug in such a way that during the test the key shall hit the lower part of the shroud of the gauge approximately in the middle.

The force  $F$  is slowly increased in such a way that the total force given in the following table 101 is exerted after 15 s. After that the full force is applied for one minute.

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**Table 101**

Rated Current (A)	16
Force $F$ (N)	175

While the force is applied the gauge is not permitted to move more than 4 mm in relation to the shroud of the plug part.

After the test the plug part shall not be damaged in such a way that impairs the further use of the adaptor.

These force is equal to 1,4 times the corresponding withdrawal force.

**SECOND TEST (earth pin)**

The force  $F$  shall be applied to the earth pin in the same manner and for the same duration as in the previous test.

After the test, the plug part shall comply with the relevant standard sheet.

For the socket-outlet part compliance is checked by the tests specified in relevant National Standard (listed in annex AA).