



**SLOVENSKI STANDARD**  
**SIST EN 60947-6-2:1998**

**01-september-1998**

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Low-voltage switchgear and controlgear -- Part 6-2: Multiple function equipment - Control and protective switching devices (or equipment) (CPS)

Niederspannungsschaltgeräte -- Teil 6-2: Mehrfunktions-Schaltgeräte - Steuer- und Schutz-Schaltgeräte (CPS)

Appareillage à basse tension -- Partie 6-2: Matériels à fonctions multiples - Appareils (ou matériel) de connexion de commande et de protection (ACP)

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**Ta slovenski standard je istoveten z: EN 60947-6-2:1993**

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**ICS:**

29.130.20	Niskonapetostne stikalne in krmilne naprave	Low voltage switchgear and controlgear
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EUROPEAN STANDARD

EN 60947-6-2

NORME EUROPEENNE

EUROPÄISCHE NORM

January 1993

UDC 621.316.5.027.2

Descriptors: Multiple function equipment, control and protective switching devices (CPS)



REPUBLIKA SLOVENIJA  
MINISTRSTVO ZA ZNANOST IN TEHNOLOGIJO  
Urad RS za standardizacijo in meroslovje  
LJUBLJANA

ENGLISH VERSION

Low-voltage switchgear and controlgear  
Part 6: Multiple function equipment  
Section Two: Control and protective switching  
devices (or equipment) (CPS)  
(IEC 947-6-2:1992)

SIST... EN 60947-6-2  
PREVZET PO METODI RAZGLASITVE

-06 1998

Appareillage à basse tension  
Partie 6: Matériels à fonctions  
multiples  
Section deux: Appareils (ou  
matériel) de connexion de  
commande de protection (ACP)  
(CEI 947-6-2:1992)

Niederspannung-Schaltgeräte  
Teil 6: Mehrfunktion  
Schaltgeräte  
Hauptabschnitt zwei: Steuer- und  
Schutz-Schaltgeräte  
(IEC 947-6-2:1992)

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SIST EN 60947-6-2:1998

This European Standard was approved by CENELEC on 1992-12-09.  
CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations  
which stipulate the conditions for giving this European Standard the status of  
a national standard without any alteration.

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.

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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

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### FOREWORD

The text of document 17B(CO)192, as prepared by Sub-Committee 17B: Low-voltage switchgear and controlgear of IEC Technical Committee No. 17: Switchgear and controlgear, was submitted to the IEC-CENELEC parallel vote in September 1991.

The reference document was approved by CENELEC as EN 60947-6-2 on 9 December 1992.

The following dates were fixed:

- latest date of publication of an identical national standard (dop) 1993-12-01
- latest date of withdrawal of conflicting national standards (dow) 1993-12-01

Annexes designated "normative" are part of the body of the standard. Annexes designated "informative" are given only for information. In this standard, annex ZA is informative and annex ZB is normative.

#### ENDORSEMENT NOTICE

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The text of the International Standard IEC 947-6-2:1992 was approved by CENELEC as a European Standard without any modification.

#### Editorial note:

Replace the note in subclause 9.4.4.2 by:

NOTE - For the note of this subclause of IEC 947-6-2, see annex ZA.



## ANNEX ZA (informative)

## INFORMATION CONCERNING SUBCLAUSE 9.4.4.2

NOTE - In the USA and Canada, minimum values of service short-circuit breaking capacity ( / ) are specified and an additional test sequence is required to verify the single pole interrupting capability of multipole CPS's corresponding to the minimum specified value of the short-circuit breaking capacity and the corresponding phase-to-phase voltage for CPS's marked with phase-to-phase voltage only or phase-to-phase neutral voltage for CPS's marked with phase-neutral/phase-phase voltage.

## ANNEX ZB (normative)

OTHER INTERNATIONAL PUBLICATIONS QUOTED IN THIS STANDARD  
WITH THE REFERENCES OF THE RELEVANT EUROPEAN PUBLICATIONS

When the international publication has been modified by CENELEC common modifications, indicated by (mod), the relevant EN/HD applies.

IEC Publication	Date	Title	EN/HD	Date
34-1 (mod)	1983	Rotating electrical machines Part 1: Rating and performance	HD 53.1 S2	1985
85	1984	Thermal evaluation and classification of electrical insulation	HD 566 S1	1990
410	1973	Sampling plans and procedures for inspection by attributes	-	-
947-1 (mod)	1988	Low-voltage switchgear and controlgear Part 1: General rules	EN 60947-1	1991
947-6-1	1989	Part 6: Multiple function equipment Section one: Automatic transfer switching equipment	EN 60947-6-1	1991

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INTERNATIONALE  
INTERNATIONAL  
STANDARD

CEI  
IEC  
947-6-2

Première édition  
First edition  
1992-08

Appareillage à basse tension

Partie 6:

Matériels à fonctions multiples

Section deux – Appareils (ou matériel) de connexion  
de commande de protection (ACP)

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Low-voltage switchgear and controlgear

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Part 6:

Multiple function equipment

Section Two – Control and protective switching  
devices (or equipment) (CPS)

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International Electrotechnical Commission  
Международная Электротехническая Комиссия

CODE PRIX XA  
PRICE CODE

Pour prix, voir catalogue en vigueur  
For price, see current catalogue

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR

## Part 6: Multiple function equipment

Section 2: Control and protective switching devices  
(or equipment) (CPS)

## FOREWORD

- 1) The formal decisions or agreements of the IEC on technical matters, prepared by Technical Committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.
- 3) In order to promote international unification, the IEC expresses the wish that all National Committees should adopt the text of the IEC recommendation for their national rules in so far as national conditions will permit. Any divergence between the IEC recommendation and the corresponding national rules should, as far as possible, be clearly indicated in the latter.
- 4) The IEC has not laid down any procedure concerning marking as an indication of approval and has no responsibility when an item of equipment is declared to comply with one of its recommendations.

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This section of International Standard IEC 947-6 has been prepared by Sub-Committee 17B: Low-voltage switchgear and controlgear, of IEC Technical Committee No. 17: Switchgear and controlgear.

The text of this section is based on the following documents:

Six Months' Rule	Report on Voting
17B(CO)192	17B(CO)199

Full information on the voting for the approval of this section can be found in the Voting Report indicated in the above table.

Annexes A, B and C form an integral part of this section.

Annex D is for information only.

## INTRODUCTION

The provisions of the General Rules are applicable to this section of IEC 947-6, where specifically called for. General Rules clauses and sub-clauses thus applicable as well as tables, figures and appendices are identified by reference to Part 1 IEC 947-1, for example, 1.2.3, table IV, or annex A of Part 1.

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## LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR

### Part 6: Multiple function equipment

#### Section 2: Control and protective switching devices (or equipment) (CPS)

##### 1 Scope and object

This section of IEC 947-6 applies to control and protective switching devices (or equipment) (CPS), the main contacts of which are intended to be connected to circuits of rated voltage not exceeding 1 000 V a.c. or 1 500 V d.c.

CPS's are intended to provide both protective and control functions for remotely controlled circuits. They may also fulfill additional functions, such as isolation.

The object of this section is to state:

- The characteristics of CPS's;
- The conditions with which CPS's shall comply with reference to their operation and behaviour, their dielectric properties, the degree of protection provided by their enclosure where applicable;
- The tests intended to verify that these conditions have been met, and the methods to be adopted for these tests;
- The information to be marked on or given with the CPS's.

##### 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this section of IEC 947-6. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this section of IEC 947-6 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

34-1: 1983, *Rotating electrical machines. Part 1: Rating and performance.*

85: 1984, *Thermal evaluation and classification of electrical insulation.*

410: 1973, *Sampling plans and procedures for inspection by attributes.*

947-1: 1988, *Low-voltage switchgear and controlgear. Part 1: General rules.*

947-6-1: 1989, *Low-voltage switchgear and controlgear. Part 6: Multiple function equipment. Section One – Automatic transfer switching equipment.*

### 3 Definitions

Clause 2 of Part 1 applies with the following additional definitions:

#### 3.1 *Control and protective switching device (or equipment) (CPS)*

A switching device (or equipment) capable of being operated by remote control, with or without local manual operating means.

A CPS is capable of making, carrying and breaking currents under normal conditions, including specified operating overload conditions and of making, carrying for a specified time and breaking currents under specified abnormal conditions such as those of short-circuits.

A CPS has overload and short-circuit protection, these functions being associated and coordinated so as to permit continuity of service up to its service short-circuit rating. A CPS may or may not consist of a single device but is always rated as a unit. Coordination may be either inherent or obtained by correct selection of releases in accordance with the manufacturer's instructions.

In the context of this standard "continuity of service" means that CPS can be returned to service after occurrence of an over-current under the conditions specified of this section.

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NOTE - A CPS may have more than one position of rest.

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#### 3.2 *CPS suitable for isolation* [.iteh.ai/catalog/standards/sist/960177b2-bd7e-437d-bbd1-cf913cd9c6a3/sist-en-60947-6-2-1998](https://standards.iteh.ai/catalog/standards/sist/960177b2-bd7e-437d-bbd1-cf913cd9c6a3/sist-en-60947-6-2-1998)

A CPS which in the open position complies with the requirements specified for the isolating function (see 8.1.6).

#### 3.3 *CPS for motor control and protection*

##### 3.3.1 *Direct-on-line CPS*

A CPS which connects the line voltage across the motor terminals in one step.

##### 3.3.2 *Reversing CPS*

A CPS for starting a motor, intended to cause a motor to reverse the direction of rotation by reversing the motor primary connections while the motor may be running.

##### 3.3.3 *Two-direction CPS*

A CPS for starting a motor, intended to cause a motor to reverse the direction of rotation by reversing the motor primary connections only when the motor is not running.

### 3.4 Opening time

Sub-clause 2.5.39 of Part 1 applies, with the following additions:

- in the case of a CPS tripped by an over-current relay or release, the instant of initiation of the opening time is the instant when the current reaches a value large enough to cause the CPS to operate.
- in the case of a CPS operated by any form of auxiliary power, the instant of initiation of the opening time is the instant of application of the auxiliary power to or its removal from the opening release.

NOTE - For CPS's "opening time" is commonly referred to as "tripping time", although strictly speaking, tripping time applies to the time between the instant of initiation of the opening time and the instant when the opening command becomes irreversible.

### 3.5 Phase loss sensitive relay or release (for motor protection)

A multipole relay or release for motor protection which operates in case of loss of phase in accordance with specified requirements.

## 4 Classification

Data which may be used as criteria for classification are given in 5.2.

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## 5 Characteristics

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### 5.1 Summary of characteristics

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The characteristics of a CPS shall be stated in terms of the following, as applicable:

- type of CPS (5.2);
- rated and limiting values of the main circuit (5.3);
- utilization categories (5.4);
- control circuits (5.5);
- auxiliary circuits (5.6);
- relays and releases (5.7);
- switching over-voltages (5.8).

### 5.2 Type of CPS

The following shall be stated:

#### 5.2.1 Number of poles

#### 5.2.2 Kind of current (a.c. or d.c.)

#### 5.2.3 Method of operation

For example:

- electromagnetic, manual, motor operated.