Irish Standard
I.S. EN 61076-3-114:2009

Connectors for electronic equipment - Product requirements -- Part 3-114: Rectangular connectors - Detail specification for protective housings for use with 8-way shielded and unshielded connectors for frequencies up to 600 MHz for industrial environments incorporating the IEC 60603-7 series interface - Variant 11 related to IEC 61076-3-106 - Bayonet coupling type (IEC 61076-3-114:2009 (EQV))

I.S. EN 61076-3-114:2009

Incorporating amendments/corrigenda issued since publication:

This document replaces:	*This document is based on:* EN 61076-3-114:2009	*Published:* 7 August, 2009

This document was published under the authority of the NSAI and comes into effect on:

14 September, 2009

ICS number: 31.220.10

NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W **NSAI.ie**

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

Price Code: AB

Údarás um Chaighdeáin Náisiúnta na hÉireann

I.S. EN 61076-3-114:2009

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61076-3-114

August 2009

ICS 31.220.10

English version

Connectors for electronic equipment -
Product requirements -
Part 3-114: Rectangular connectors -
Detail specification for protective housings for use with 8-way shielded and unshielded connectors for frequencies up to 600 MHz for industrial environments incorporating the IEC 60603-7 series interface -
Variant 11 related to IEC 61076-3-106 -
Bayonet coupling type
(IEC 61076-3-114:2009)

Connecteurs
pour équipement électroniques -
Exigences de produits -
Partie 3-114: Connecteurs rectangulaires -
Spécification particulière pour boîtiers
de protection utilisés avec
des connecteurs blindés et non blindés
à 8 voies pour des fréquences
inférieures ou égales à 600 MHz dans des
environnements industriels incorporant
l'interface série CEI 60603-7 -
Variante 11 liée à la CEI 61076-3-106 -
Type d'accouplement à baïonnette
(CEI 61076-3-114:2009)

Steckverbinder
für elektronische Einrichtungen -
Produktanforderungen -
Teil 3-114: Rechteckige Steckverbinder -
Bauartspezifikation für Schutzgehäuse
für die Anwendung mit 8-poligen geschirmten
und ungeschirmten Steckverbindern
für Frequenzen bis 600 MHz für industrielle
Umgebungen zur Aufnahme der Schnittstelle
der Reihe IEC 60603-7 -
Ausführung 11 zu IEC 61076-3-106 -
Bajonettausführung
(IEC 61076-3-114:2009)

This European Standard was approved by CENELEC on 2009-07-01. 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.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 61076-3-114:2009 E

Foreword

The text of document 48B/1995/FDIS, future edition 1 of IEC 61076-3-114, prepared by SC 48B, Connectors, of IEC TC 48, Electromechanical components and mechanical structures for electronic equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61076-3-114 on 2009-07-01.

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)	2010-04-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2012-07-01

Annex ZA has been added by CENELEC.

_____

Endorsement notice

The text of the International Standard IEC 61076-3-114:2009 was approved by CENELEC as a European Standard without any modification.

_____

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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

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

Publication	Year	Title	EN/HD	Year
IEC 60050-581	2008	International Electrotechnical Vocabulary (IEV) - Part 581: Electromechanical components for electronic equipment	-	-
IEC 60068-1	-[1)]	Environmental testing - Part 1: General and guidance	EN 60068-1	1994[2)]
IEC 60068-2-14	-[1)]	Environmental testing - Part 2-14: Tests - Test N: Change of temperature	EN 60068-2-14	2009[2)]
IEC 60068-2-30	-[1)]	Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle)	EN 60068-2-30	2005[2)]
IEC 60512-1	-[1)]	Connectors for electronic equipment - Tests and measurements - Part 1: General	EN 60512-1	2001[2)]
IEC 60512-1-100	-[1)]	Connectors for electronic equipment - Tests and measurements - Part 1-100: General - Applicable publications	EN 60512-1-100	2006[2)]
IEC 60529	-[1)]	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991[2)] 1993
IEC 60603-7	-[1)]	Connectors for electronic equipment - Part 7: Detail specification for 8-way, unshielded, free and fixed connectors	-	-
IEC 60603-7-2	-[1)]	Connectors for electronic equipment - Part 7-2: Detail specification for 8-way, unshielded, free and fixed connectors, for data transmissions with frequencies up to 100 MHz	-	-
IEC 60603-7-3	-[1)]	Connectors for electronic equipment - Part 7-3: Detail specification for 8-way, shielded, free and fixed connectors, for data transmission with frequencies up to 100 MHz	-	-
IEC 60603-7-4	-[1)]	Connectors for electronic equipment - Part 7-4: Detail specification for 8-way, unshielded, free and fixed connectors, for data transmissions with frequencies up to 250 MHz	EN 60603-7-4	2005[2)]

[1)] Undated reference.
[2)] Valid edition at date of issue.

Publication	Year	Title	EN/HD	Year
IEC 60603-7-5	-[1)]	Connectors for electronic equipment - Part 7-5: Detail specification for 8-way, shielded, free and fixed connectors, for data transmissions with frequencies up to 250 MHz	-	-
IEC 60603-7-7	-[1)]	Connectors for electronic equipment - Part 7-7: Detail specification for 8-way, shielded, free and fixed connectors for data transmission with frequencies up to 600 MHz	EN 60603-7-7	2006[2)]
IEC 60664-1	-[1)]	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	EN 60664-1	2007[2)]
IEC 61076-1	2006	Connectors for electronic equipment - Product requirements - Part 1: Generic specification	EN 61076-1	2006
IEC 61156	Series	Multicore and symmetrical pair/quad cables for digital communications	-	-
IEC 61156-2	-[1)]	Multicore and symmetrical pair/quad cables for digital communications - Part 2: Horizontal floor wiring - Sectional specification	-	-
IEC 61156-3	-[1)]	Multicore and symmetrical pair/quad cables for digital communications - Part 3: Work area cable - Sectional specification	-	-
IEC 61156-4	-[1)]	Multicore and symmetrical pair/quad cables for digital communications - Part 4: Riser cables - Sectional specification	-	-

CONTENTS

FOREWORD 4
INTRODUCTION 6
1 General data 7
1.1 Scope 7
1.2 Normative references 7
2 Terms and definitions 8
3 Dimensional information 8
3.1 Common features 8
3.2 General 9
3.3 Contact arrangement of all connector types 9
3.4 IP65 and IP67 sealing 9
3.5 Industrial IEC 60603-7 variant 11 – Bayonet coupling 9
3.5.1 Industrial IEC 60603-7 variant 11, fixed connectors 9
3.5.2 Industrial IEC 60603-7 variant 11, free connectors 10
3.6 Termination and mounting information 11
3.7 General 11
3.8 Mounting information for variant 11, fixed connector 11
3.9 Cap for fixed connector 12
3.10 Cap for free connector 13
4 Gauges 13
4.1 Connectors, IEC 60603-7 interface 13
5 Characteristics 13
5.1 Climatic category 13
5.2 Electrical 14
5.2.1 Clearance and creepage distances 14
5.2.2 Voltage proof 14
5.2.3 Current-derating diagram 14
5.2.4 Mating cycles with power applied 15
5.2.5 Initial contact resistance 15
5.2.6 Input-to-output resistance 15
5.2.7 Resistance unbalance 15
5.2.8 Initial insulation resistance 16
5.3 Transmission characteristics 16
5.3.1 General 16
5.3.2 Mechanical operation 16
5.3.3 Effectiveness of connector coupling devices transversal 16
5.3.4 Effectiveness of connector coupling devices 16
5.3.5 Separation and engagement forces 16
6 Test schedule 16
6.1 General 16
6.2 Test procedures and measuring methods 17
6.3 Preconditioning 17
6.4 Wiring and mounting of specimens 17
6.4.1 Wiring 17
6.4.2 Mounting 17
6.5 Arrangement for contact resistance test 17

6.6 Arrangement for dynamic stress tests (test phase AP2) 17
6.7 Basic (minimum) test schedule 17
6.8 Full test schedule 17
6.8.1 Test preliminary group P 18
6.8.2 Test group P 18
6.8.3 Test group AP 19
6.8.4 Test group BP 20
6.8.5 Test group CP 21
6.8.6 Test group DP 21
6.8.7 Test group EP 21
Bibliography 22

Figure 1 – Variant 11, fixed connector 9
Figure 2 – Variant 11, free connector 10
Figure 3 – Variant 11 mounting 11
Figure 4 – Variant 11 cap for fixed connector 12
Figure 5 – Variant 11 cap for free connector 13
Figure 6 – Connector derating diagram 15

Table 1 – Dimensions of fixed connector, variant 11 10
Table 2 – Dimensions of free connector, variant 11 11
Table 3 – Mounting information 11
Table 4 – Dimensions of cap for fixed connector variant 11 12
Table 5 – Dimensions of cap for free connector variant 11 13
Table 6 – Climatic categories – Selected values for environmental performance level A 14
Table 7 – 14
Table 8 – Test group P 18
Table 9 – Test group AP – Dynamic/climatic 19
Table 10 – Test group BP – Mechanical 20
Table 11 – Test group CP – Continuity 21

INTERNATIONAL ELECTROTECHNICAL COMMISSION

CONNECTORS FOR ELECTRONIC EQUIPMENT – PRODUCT REQUIREMENTS –

Part 3-114: Rectangular connectors – Detail specification for protective housings for use with 8-way shielded and unshielded connectors for frequencies up to 600 MHz for industrial environments incorporating the IEC 60603-7 series interface – Variant 11 related to IEC 61076-3-106 – Bayonet coupling type

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national Electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with an IEC Publication.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.

International Standard IEC 61076-3-114 has been prepared by subcommittee 48B: Connectors, of IEC technical committee 48: Electromechanical components and mechanical structures for electronic equipment.

This International Standard cancels and replaces IEC/PAS 61076-3-114 (2005).

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

FDIS	Report on voting
48B/1995/FDIS	48B/2013/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

A list of all parts of IEC 61076 series, under the general title *Connectors for electronic equipment – Product requirements*, can be found on the IEC website.

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

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under http://webstore.iec.ch in the data related to the specific publication. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

INTRODUCTION

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

The International Electrotechnical Commission (IEC) draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent concerning Amphenol[1)].

IEC takes no position concerning the evidence, validity and scope of this patent right.

The holder of this patent right has assured the IEC that he/she is willing to negotiate licences under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with IEC. Information may be obtained from:

Amphenol Socapex S.A.S.
948 Promenade de l'Arve
B.P. 29
74311 Thyez Cedex, France

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights other than those identified above. IEC shall not be held responsible for identifying any or all such patent rights.

1) Amphenol is the trade name of Amphenol Socapex S.A.S. This information is given for the information of users of this IS and does not constitute an endorsement by IEC of the trademark holder or any of its products. Compliance to this profile does not require use of the trade name Amphenol. Use of the trade name Amphenol requires permission from Amphenol Socapex S.A.S.

CONNECTORS FOR ELECTRONIC EQUIPMENT – PRODUCT REQUIREMENTS –

Part 3-114: Rectangular connectors – Detail specification for protective housings for use with 8-way shielded and unshielded connectors for frequencies up to 600 MHz for industrial environments incorporating the IEC 60603-7 series interface – Variant 11 related to IEC 61076-3-106 – Bayonet coupling type

1 General data

1.1 Scope

This part of IEC 61076 covers protective housings for upgrading existing 8-way shielded and unshielded connectors utilizing the interface described in IEC 60603-7-2, IEC 60603-7-3, IEC 60603-7-4, IEC 60603-7-5, and IEC 60603-7-7 to IP65 and IP67 ratings, according to IEC 60529, for use in industrial environments.

The housings cover a variety of different locking mechanisms and a variety of different mounting configurations and termination types which are detailed in IEC 60603-7.

Common mating configurations for all variants are defined in IEC 60603-7. The mating dimensions for the housings under Clause 3 allow the mating conditions according to IEC 60603-7 to be fulfilled.

The fully assembled variants (connectors) described in this standard incorporate fixed and free connectors which are fully compliant with IEC 60603-7.

1.2 Normative references

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

IEC 60050-581:2008, *International Electrotechnical Vocabulary (IEV) – Part 581: Electromechanical components for electronic equipment*

IEC 60068-1, *Environmental testing – Part 1: General and guidance*

IEC 60068-2-14, *Environmental testing – Part 2-14: Tests – Test N: Change of temperature*

IEC 60068-2-30, *Environmental testing – Part 2-30: Tests – Test Db: Damp heat, cyclic (12 h + 12 h cycle)*

IEC 60512-1, *Connectors for electronic equipment – Tests and measurements – Part 1: General*

IEC 60512-1-100, *Connectors for electronic equipment – Tests and measurements – Part 1-100: General – Applicable publications* [2]

---

2 The various parts of IEC 60512 are listed in IEC 60512-1-100.