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NSAI Standards

Irish Standard
I.S. EN 61515:2016

# Mineral insulated metal-sheathed thermocouple cables and thermocouples

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**I.S. EN 61515:2016**

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# EN 61515

August 2016

ICS 17.200.20

Supersedes EN 61515:1996

English Version

# Mineral insulated metal-sheathed thermocouple cables and thermocouples (IEC 61515:2016)

Câbles et couples thermoélectriques à isolation minérale dits "chemisés" (IEC 61515:2016)

Mineralisolierte metallgeschirmte Mantelthermoelementleitung und Mantelthermoelemente (IEC 61515:2016)

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## European foreword

The text of document 65B/1034/FDIS, future edition 2 of IEC 61515, prepared by SC 65B "Measurement and control devices", of IEC/TC 65 "Industrial-process measurement, control and automation" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61515:2016.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2017-03-01
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2019-06-01

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# Annex ZA
(normative)

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NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

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| Publication | Year | Title | EN/HD | Year |
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| IEC 60068-2-6 | - | Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal) | EN 60068-2-6 | - |
| IEC 60584-1 | - | Thermocouples - Part 1: EMF specifications and tolerances | EN 60584-1 | - |
| ISO 1302 | - | Geometrical Product Specifications (GPS) - Indication of surface texture in technical product documentation | EN ISO 1302 | - |

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# IEC 61515

Edition 2.0 2016-04

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

## Mineral insulated metal-sheathed thermocouple cables and thermocouples

## Câbles et couples thermoélectriques à isolation minérale dits "chemisés"

IEC 61515:2016-04(en-fr)

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# IEC 61515

Edition 2.0 2016-04

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

## Mineral insulated metal-sheathed thermocouple cables and thermocouples

## Câbles et couples thermoélectriques à isolation minérale dits "chemisés"

INTERNATIONAL
ELECTROTECHNICAL
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

# MINERAL INSULATED METAL-SHEATHED THERMOCOUPLE CABLES AND THERMOCOUPLES

## FOREWORD

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International Standard IEC 61515 has been prepared by subcommittee 65B: Measurement and control devices, of IEC technical committee 65: Industrial-process measurement, control and automation.

This second edition cancels and replaces the first edition published in 1995. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) Duplex and triplex are standardized.
b) Specification of insulation resistance is revised so that the user can choose the best product to fit for the purpose.
c) "Table 2 Recommended maximum operating temperatures" in the previous version is expanded significantly including newly developed sheath material and it is moved to Annex C.
d) Test items and their methods are expanded and a guide table (Table 4) is added for userfriendliness.

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

| FDIS | Report on voting |
|---|---|
| 65B/1034/FDIS | 65B/1038/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.

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

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# INTRODUCTION

This new edition of IEC 61515 reflects recent developments in production technology, sheath materials and insulation materials. It aims to be a flexible standard allowing suppliers to provide fit-for-purpose products at an acceptable cost.

It includes informative guidance to help users choose the products that meet their needs.

Annex A gives alternative adjacent conductor configurations for duplex and triplex MIMS thermocouple cables and thermocouples.

Annex B gives recommendations to suppliers with respect to insulation composition.

Annex C gives guidelines to users with regard to temperature limits of operation.

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# MINERAL INSULATED METAL-SHEATHED THERMOCOUPLE CABLES AND THERMOCOUPLES

## 1 Scope

This International Standard establishes the requirements for simplex, duplex and triplex mineral-insulated metal-sheathed thermocouple cables and thermocouples, which are intended for use in general industrial applications. The abbreviation MIMS (for “mineral-insulated metal-sheathed”) will be used hereafter. It covers thermocouple cables and thermocouples with only base-metal conductors of Types T, J, E, K and N. The specifications in this standard apply to new thermocouple cables and thermocouple units as delivered to the user. They do not apply to the product after use.

External seals, terminations, connections and other accessories are not within the scope of this International Standard.

This standard does not apply to precious metal thermocouple cables and thermocouples. The special requirements for nuclear primary loop applications are dealt with in the other standards.

## 2 Normative references

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IEC 60068-2-6, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)*

IEC 60584-1, *Thermocouples: Part 1 – EMF specifications and tolerances*

ISO 1302, *Geometrical Product Specifications (GPS) — Indication of surface texture in technical product documentation*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60584-1 and the following apply.

**3.1**
**mineral insulated metal-sheathed thermocouple cable**
bendable cable consisting of one or more pairs of thermocouple conductors encapsulated in a metal protecting sheath, insulated from each other and from the sheath by a compacted mineral material

Note 1 to entry: Abbreviation MIMS for “mineral insulated metal-sheathed” is used hereafter.

**3.2**
**MIMS thermocouple**
thermocouple manufactured from mineral-insulated metal-sheathed thermocouple cable

Note 1 to entry: This note applies to the French language only.

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