MALAYSIAN STANDARD

MS IEC 61158-2:2011

Industrial communication networks - Fieldbus specifications - Part 2: Physical layer specification and service definition (IEC 61158-2:2010, IDT)

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Committee representation

The Industry Standards Committee on Electrical and Electronics Equipments and Accessories (ISC S) under whose authority this Malaysian Standard was adopted, comprises representatives from the following organisations:

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Federation of Malaysian Manufacturers
Jabatan Kerja Raya Malaysia
Malaysian Association of Standards Users
Malaysian Cable Manufacturers Association
Malaysian Communications and Multimedia Commission
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The Working Group on Industrial Networks which recommended the adoption of the IEC Standard as Malaysian Standard consists of representatives from the following organisations:

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Universiti Teknologi PETRONAS

NATIONAL FOREWORD

The adoption of the IEC Standard as a Malaysian Standard was recommended by the Working Group on Industrial Networks under the authority of the Industry Standards Committee on Electrical and Electronics Equipments and Accessories.

This Malaysian Standard is identical with IEC 61158-2:2010, *Industrial communication networks - Fieldbus specifications - Part 2: Physical layer specification and service definition*, published by the International Electrotechnical Commission (IEC). However, for the purposes of this Malaysian Standard, the following apply:

a) in the source text, "this International Standard" should read "this Malaysian Standard";

b) the comma which is used as a decimal sign (if any), to read as a point; and

c) reference to International Standards should be replaced by corresponding Malaysian Standards as follows:

Referenced International Standards	Corresponding Malaysian Standards
IEC 60079-11, *Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"*	MS IEC 60079-11, *Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"*
IEC 60079-25, *Electrical apparatus for explosive gas atmospheres - Part 25: Intrinsically safe systems*	MS IEC 60079-25, *Electrical apparatus for explosive gas atmospheres - Part 25: Intrinsically safe systems*
IEC 60364-4-41, *Low-voltage electrical installations - Part 4-41: Protection for safety - Protection against electric shock*	MS IEC 60364-4-41, *Low-voltage electrical installations - Part 4-41: Protection for safety - Protection against electric shock*
IEC 60364-5-54, *Electrical installations of buildings - Part 5-54: Selection and erection of electrical equipment - Earthing arrangements, protective conductors and protective bonding conductors*	MS IEC 60364-5-54, *Electrical installations of buildings - Part 5-54: Selection and erection of electrical equipment - Earthing arrangements, protective conductors and protective bonding conductors*
IEC 60529, *Degrees of protection provided by enclosures (IP Code)*	MS IEC 60529, *Degrees of protection provided by enclosures (IP Code)*
IEC 61000-4-2, *Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test*	MS IEC 61000-4-2, *Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test*
IEC 61000-4-3, *Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test*	MS IEC 61000-4-3, *Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test*

NATIONAL FOREWORD *(continued)*

Referenced International Standards	Corresponding Malaysian Standards
IEC 61000-4-4, *Electromagnetic compatibility (EMC) - Part 44: Testing and measurement techniques - Electrical fast transient/burst immunity test*	MS IEC 61000-4-4, *Electromagnetic compatibility (EMC) - Part 44: Testing and measurement techniques - Electrical fast transient/burst immunity test*
ISO/IEC 7498 (all parts), *Information technology - Open Systems Interconnection - Basic*	MS ISO/IEC 7498 (all parts), *Information technology - Open Systems Interconnection - Basic Reference Model: The Basic Model*
ISO/IEC 8802-3, *Information technology - Telecommunications and information exchange between systems - Local and metropolitan area networks - Specific requirements - Part 3: Carrier sense multiple access with collision detection (CSMA/CD) access method and physical layer specifications*	MS ISO/IEC 8802-3, *Information technology - Telecommunications and information exchange between systems - Local and metropolitan area networks - Specific requirements - Part 3: Carrier sense multiple access with collision detection (CSMA/CD) access method and physical layer specifications*
ISO/IEC 10731, *Information technology - Open Systems Interconnection - Basic Reference Model - Conventions for the definition of OSI services*	MS ISO/IEC 10731, *Information technology - Open Systems Interconnection - Basic Reference Model - Conventions for the definition of OSI services*

Compliance with a Malaysian Standard does not of itself confer immunity from legal obligations.

NOTE. IDT on the front cover indicates an identical standard i.e. a standard where the technical content, structure, and wording (or is an identical translation) of a Malaysian Standard is exactly the same as in an International Standard or is identical in technical content and structure although it may contain the minimal editorial changes specified in clause 4.2 of ISO/IEC Guide 21-1.

INTERNATIONAL ELECTROTECHNICAL COMMISSION

INDUSTRIAL COMMUNICATION NETWORKS – FIELDBUS SPECIFICATIONS –

Part 2: Physical layer specification and service definition

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.
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International Standard IEC 61158-2 has been prepared by subcommittee 65C: Industrial networks, of IEC technical committee 65: Industrial-process measurement, control and automation.

This fifth edition cancels and replaces the fourth edition published in 2007. This edition constitutes a technical revision.

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

- for Type 18, Table 157 reduced tolerance to 5%;
- for Type 18, in 32.5.3.1 removed minimum cable length;
- for Type 18, in 32.5.4. and R.2.2 cable reference removed;
- for Type 18, Table 160 and 161 terminating resistor value changed to 680 Ω.

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

FDIS	Report on voting
65C/598/FDIS	65C/613/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 ISO/IEC Directives, Part 2.

NOTE Slight variances from the directives have been allowed by the IEC Central Office to provide continuity of subclause numbering with prior editions.

The list of all the parts of the IEC 61158 series, published under the general title *Industrial communication networks — Fieldbus specifications,* can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability 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.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.