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INTERNATIONAL STANDARD



Industrial **communication** networks – Profiles –
Part 5-12: Installation of fieldbuses – Installation profiles for CPF 12

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

~~INDUSTRIAL COMMUNICATION NETWORKS –~~ PROFILES –

Part 5-12: Installation of fieldbuses – Installation profiles for CPF 12

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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IEC 61784-5-12 has been prepared by subcommittee 65C: Industrial networks, of IEC technical committee 65: Industrial-process measurement, control and automation. It is an International Standard.

This document is to be used in conjunction with IEC 61918:2018, IEC 61918:2018/AMD1:2022 and IEC 61918/AMD2:2024.

This third edition cancels and replaces the second edition published in 2018. This edition constitutes a technical revision.

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

- a) addition of four pair twisted cables;
- b) the references to CP 12/1 and CP 12/2 are replaced by a CPF 12 reference.

The text of this International Standard is based on the following documents:

Draft	Report on voting
65C1283/FDIS	65C/1297/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts of the IEC 61784-5 series, published under the general title *Industrial networks – Profiles – Installation of fieldbuses*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

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- revised.

IMPORTANT – The "colour inside" logo on the cover page of this document 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.

INTRODUCTION

This document is one of a series produced to facilitate the use of communication networks in industrial control systems.

IEC 61918:2018, IEC 61918:2018/AMD1:2022 and IEC 61918/AMD2:2024 provide the common requirements for the installation of communication networks in industrial control systems. This installation profile document provides the installation profiles of the communication profiles (CP) of a specific communication profile family (CPF) by stating which requirements of IEC 61918 fully apply and, where necessary, by supplementing, modifying, or replacing the other requirements (see Figure 1).

For general background on fieldbuses, their profiles, and relationship between the installation profiles specified in this document, see IEC 61158-1.

Each CP installation profile is specified in a separate annex of this document. Each annex is structured exactly as the reference standard IEC 61918 for the benefit of the persons representing the roles in the fieldbus installation process as defined in IEC 61918 (planner, installer, verification personnel, validation personnel, maintenance personnel, administration personnel). By reading the installation profile in conjunction with IEC 61918, these persons immediately know which requirements are common for the installation of all CPs and which are modified or replaced. The conventions used to draft this document are defined in Clause 5.

The provision of the installation profiles in one standard for each CPF (for example IEC 61784-5-12 for CPF 12) allows readers to work with standards of a convenient size.

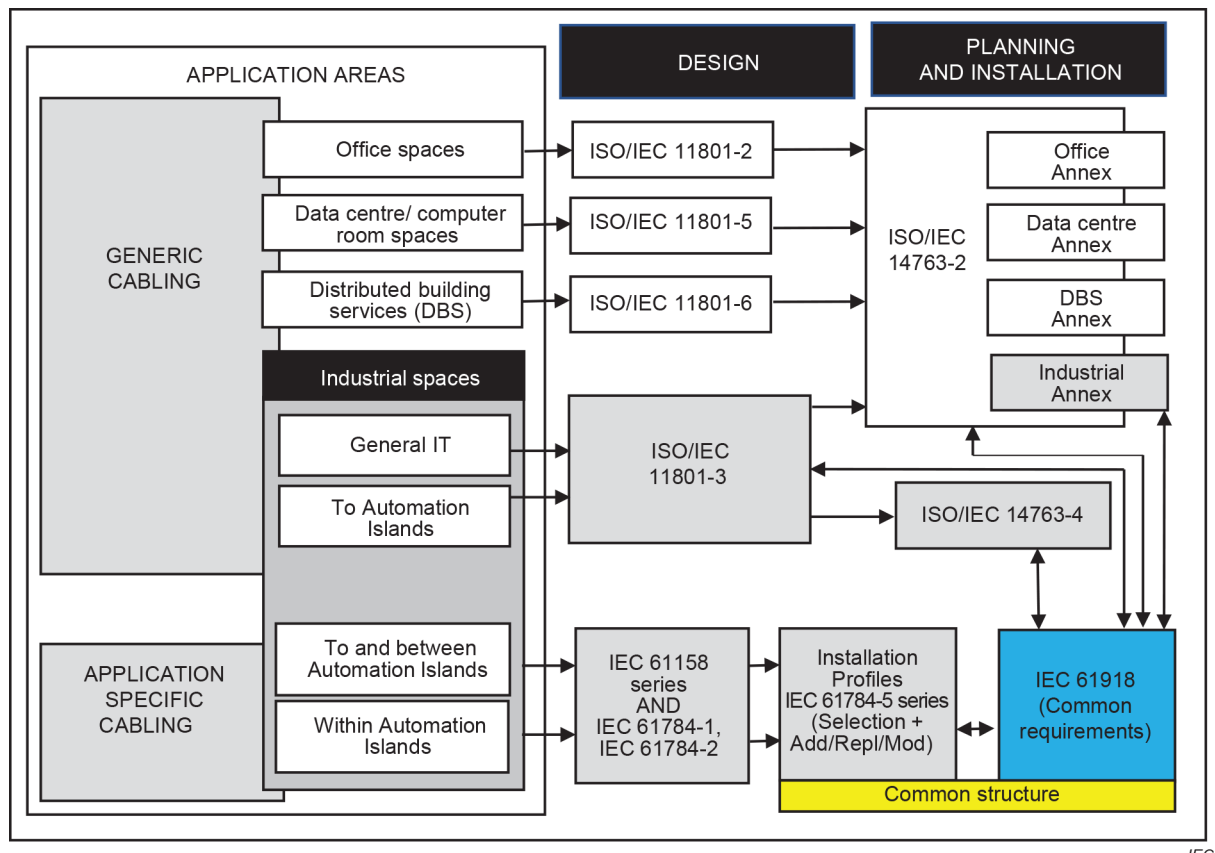
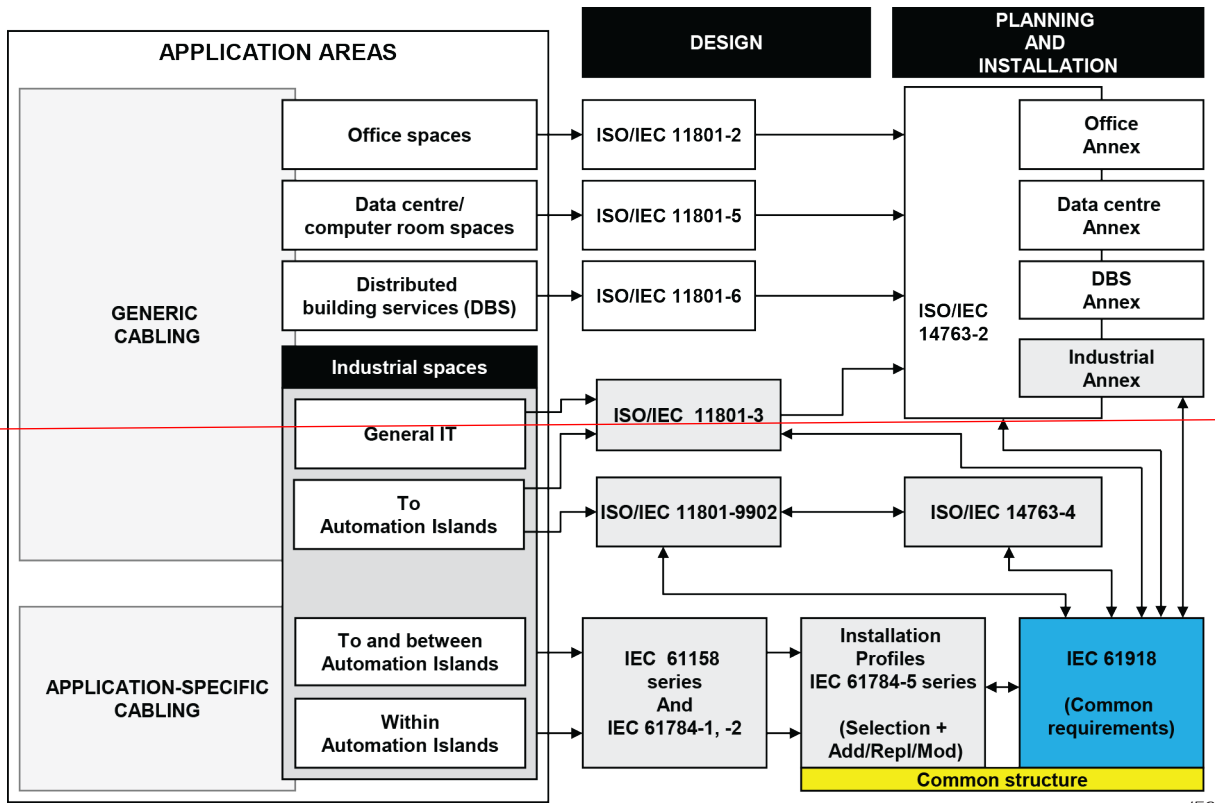


Figure 1 – Standards relationships

~~Attention is drawn to the fact that the document IEC 61918 specifies all the installation requirements that apply to large part of the industrial communication networks and that these requirements automatically apply to each single network with the exception of those requirements that in the relevant document of the IEC 61784-5 series are explicitly defined as modified or replaced.~~

~~All the additions to the latest edition of the IEC 61918 apply to the networks of CPF 12.~~

INDUSTRIAL ~~COMMUNICATION~~ NETWORKS – PROFILES –

Part 5-12: Installation of fieldbuses – Installation profiles for CPF 12

1 Scope

This part of IEC 61784-5 specifies the installation profile for CPF 12 (EtherCAT™¹).

The installation profile is specified in Annex A. This annex is read in conjunction with IEC 61918:2018, IEC 61918:2018/AMD1:2022 and IEC 61918:2018/AMD2:2024.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 61918:2018², *Industrial communication networks – Installation of communication networks in industrial premises*
IEC 61918:2018/AMD1:2022
IEC 61918:2018/AMD2:2024

~~The normative references of IEC 61918:2018, Clause 2, apply.~~

NOTE For profile specific normative references, see Clause A.2.

¹ EtherCAT™ is a trade name of Beckhoff, Verl. This information is given for the convenience of users of this document 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. Use of the trade name requires permission of the trade name holder.

² The normative references of IEC 61918:2018, Clause 2, IEC 61918:2018/AMD1:2022, Clause 2 and IEC 61918:2018/AMD2:2024, Clause 2, apply.

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Industrial networks – Profiles –
Part 5-12: Installation of fieldbuses – Installation profiles for CPF 12**

**Réseaux industriels – Profils –
Partie 5-12: Installation des bus de terrain – Profils d’installation pour CPF 12**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

INDUSTRIAL NETWORKS – PROFILES –

Part 5-12: Installation of fieldbuses – Installation profiles for CPF 12

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INTRODUCTION

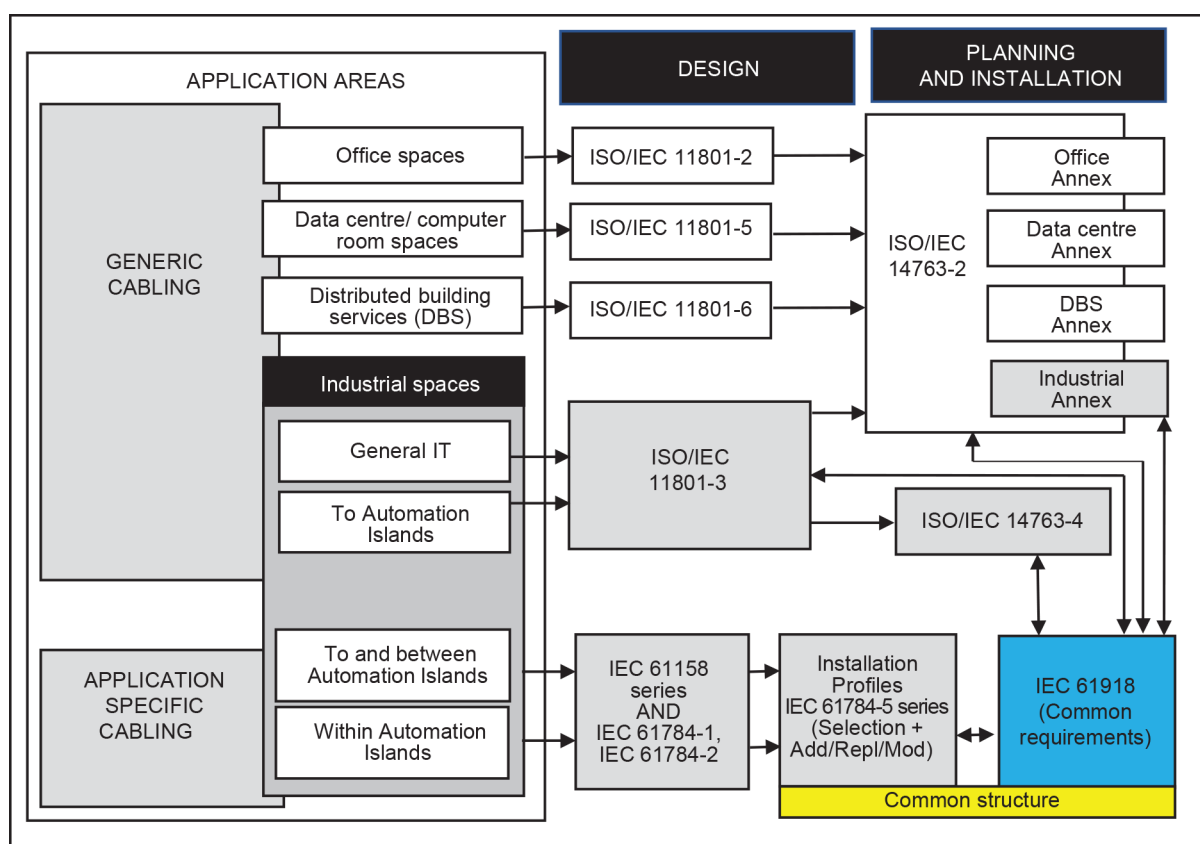
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IEC

Figure 1 – Standards relationships

INDUSTRIAL NETWORKS – PROFILES –

Part 5-12: Installation of fieldbuses – Installation profiles for CPF 12

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COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

RÉSEAUX INDUSTRIELS – PROFILS –

Partie 5-12: Installation des bus de terrain – Profils d'installation pour la CPF 12

AVANT-PROPOS

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L'IEC 61784-5-12 a été établie par le sous-comité 65C: Réseaux industriels, du comité d'études 65 de l'IEC: Mesure, commande et automation dans les processus industriels. Il s'agit d'une Norme internationale.

Le présent document est à utiliser conjointement avec l'IEC 61918:2018, l'IEC 61918:2018/AMD1:2022 et l'IEC 61918/AMD2:2024.

Cette troisième édition annule et remplace la deuxième édition parue en 2018. Cette édition constitue une révision technique.

Cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

- a) ajout de câbles à quatre paires torsadées;
- b) remplacement des références au CP 12/1 et au CP 12/2 par une référence à la CPF 12.

Le texte de cette Norme internationale est issu des documents suivants:

Projet	Rapport de vote
65C/1283/FDIS	65C/1297/RVD

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à son approbation.

La langue employée pour l'élaboration de cette Norme internationale est l'anglais.

Ce document a été rédigé selon les Directives ISO/IEC, Partie 2, il a été développé selon les Directives ISO/IEC, Partie 1 et les Directives ISO/IEC, Supplément IEC, disponibles sous www.iec.ch/members_experts/refdocs. Les principaux types de documents développés par l'IEC sont décrits plus en détail sous www.iec.ch/publications.

Une liste de toutes les parties de la série IEC 61784-5, publiées sous le titre général *Réseaux industriels – Profils – Installation des bus de terrain*, se trouve sur le site web de l'IEC.

Le comité a décidé que le contenu de ce document ne sera pas modifié avant la date de stabilité indiquée sur le site Web de l'IEC sous webstore.iec.ch dans les données relatives au document recherché. À cette date, le document sera:

- reconduit,
- supprimé, ou
- révisé.

IMPORTANT – Le logo "colour inside" qui se trouve sur la page de couverture de ce document indique qu'elle contient des couleurs qui sont considérées comme utiles à une bonne compréhension de son contenu. Les utilisateurs devraient, par conséquent, imprimer cette publication en utilisant une imprimante couleur.

INTRODUCTION

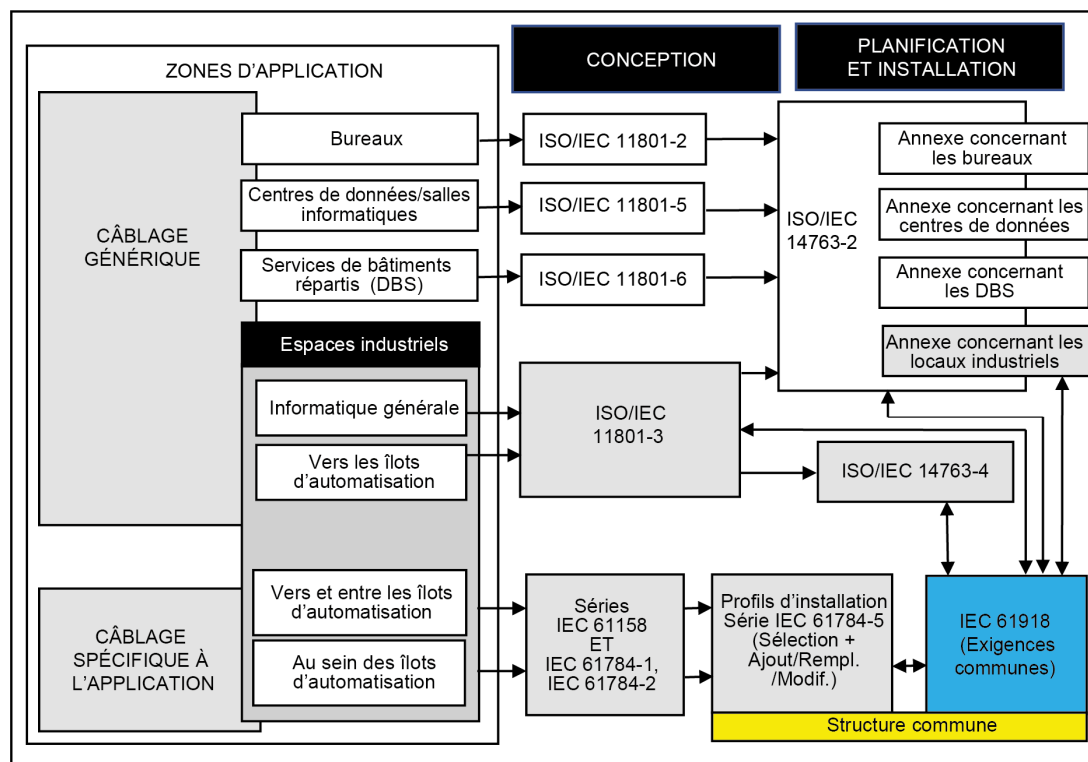
Le présent document fait partie d'une série élaborée pour faciliter l'utilisation des réseaux de communication dans des systèmes de contrôle-commande industriels.

L'IEC 61918:2018, l'IEC 61918:2018/AMD1:2022 et l'IEC 61918/AMD2:2024 fournissent les exigences communes applicables à l'installation de réseaux de communication dans des systèmes de contrôle-commande industriels. La présente norme décrit les profils d'installation des profils de communication (CP) d'une famille spécifique de profils de communication (CPF) en indiquant les exigences de l'IEC 61918 qui s'appliquent pleinement et, si nécessaire, en complétant, en modifiant ou en remplaçant les autres exigences (voir la Figure 1).

Voir l'IEC 61158-1 pour un contexte général sur les bus de terrain, leurs profils et la relation entre les profils d'installation spécifiés dans le présent document.

Chaque profil d'installation de CP est spécifié dans une annexe séparée du présent document. Chaque annexe est structurée exactement de la même manière que la norme de référence IEC 61918 compte tenu des rôles des différentes personnes impliquées dans le processus d'installation des bus de terrain tels que définis dans l'IEC 61918 (planificateur, installateur, vérificateur, valideur, personnel chargé de la maintenance, personnel chargé de l'administration). Ces personnes, par la lecture du profil d'installation conjointement avec l'IEC 61918, déterminent immédiatement quelles sont les exigences communes relatives à l'installation de tous les CP et quelles exigences font l'objet d'une modification ou d'un remplacement. Les conventions utilisées pour la rédaction du présent document sont définies à l'Article 5.

La définition d'une norme de profil d'installation pour chaque CPF (par exemple l'IEC 61784-5-12 pour la CPF 12) permet aux utilisateurs de travailler avec des documents de taille convenable.



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Figure 1 – Relations entre les normes

RÉSEAUX INDUSTRIELS – PROFILS –

Partie 5-12: Installation des bus de terrain – Profils d'installation pour la CPF 12

1 Domaine d'application

La présente partie de l'IEC 61784-5 définit les profils d'installation pour la CPF 12 (EtherCAT™)¹.

Le profil d'installation est spécifié à l'Annexe A. Cette annexe est à lire conjointement avec l'IEC 61918:2018, l'IEC 61918:2018/AMD1:2022 et l'IEC 61918:2018/AMD2:2024.

2 Références normatives

Les documents suivants sont cités dans le texte de sorte qu'ils constituent, pour tout ou partie de leur contenu, des exigences du présent document. Pour les références datées, seule l'édition citée s'applique. Pour les références non datées, la dernière édition du document de référence s'applique (y compris les éventuels amendements).

IEC 61918:2018², *Réseaux de communication industriels – Installation de réseaux de communication dans des locaux industriels*
IEC 61918:2018/AMD1:2022
IEC 61918:2018/AMD2:2024

NOTE Pour les références normatives spécifiques aux profils, voir l'Article A.2.

¹ EtherCAT™ est une appellation commerciale de Beckhoff, Verl. Cette information est donnée à l'intention des utilisateurs du présent document et ne signifie nullement que l'IEC approuve l'emploi du produit ainsi désigné. La conformité à ce profil n'exige pas l'utilisation de l'appellation commerciale. L'utilisation de l'appellation commerciale exige l'autorisation du détenteur de celle-ci.

² Les références normatives de l'IEC 61918:2018, Article 2, de l'IEC 61918:2018/AMD1:2022, Article 2 et de l'IEC 61918:2018/AMD2:2024, Article 2, s'appliquent.