BS EN 61158-3-20:2014



BSI Standards Publication

Industrial communication networks — Fieldbus specifications

Part 3-20: Data-link layer service definition — Type 20 elements

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The UK participation in its preparation was entrusted to Technical Committee AMT/7, Industrial communications: process measurement and control, including fieldbus, classification and testing.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Foreword

The text of document 65C/759/FDIS, future edition 1 of IEC 61158-3-20, prepared by SC 65C "Industrial networks" of IEC/TC 65 "Industrial-process measurement, control and automation" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61158-3-20:2014.

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- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2017-09-17

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In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 61158-1	NOTE	Harmonized as EN 61158-1.
IEC 61158-2	NOTE	Harmonized as EN 61158-2.
IEC 61158-4-20	NOTE	Harmonized as EN 61158-4-20.
IEC 61158-5-20	NOTE	Harmonized as EN 61158-5-20.
IEC 61158-6-20	NOTE	Harmonized as EN 61158-6-20.
IEC 61784-1:2014	NOTE	Harmonized as EN 61784-1 [1)] (not modified).
IEC 62591:2010	NOTE	Harmonized as EN 62591:2010 (not modified).

[1)] To be published.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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

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

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	Title	EN/HD	Year
ISO/IEC 7498-1	-	Information technology - Open Systems Interconnection - Basic Reference Model: The Basic Model	-	-
ISO/IEC 7498-3	-	Information technology - Open Systems Interconnection - Basic Reference Model: Naming and addressing	-	-
ISO/IEC 8886	-	Information technology - Open Systems Interconnection - Data link service definition	-	-
ISO/IEC 10731	-	Information technology - Open Systems Interconnection - Basic Reference Model - Conventions for the definition of OSI services	-	-

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INTRODUCTION

This standard is one of a series produced to facilitate the interconnection of automation system components. It is related to other standards in the set as defined by the “three-layer” fieldbus reference model described in IEC 61158-1.

Throughout the set of fieldbus standards, the term “service” refers to the abstract capability provided by one layer of the OSI Basic Reference Model to the layer immediately above. Thus, the data-link layer service defined in this standard is a conceptual architectural service, independent of administrative and implementation divisions.

INDUSTRIAL COMMUNICATION NETWORKS – FIELDBUS SPECIFICATIONS –

Part 3-20: Data-link layer service definition – Type 20 elements

1 Scope

1.1 General

This International Standard provides common elements for basic time-critical messaging communications between devices in an automation environment. The term “time-critical” is used to represent the presence of a time-window, within which one or more specified actions are required to be completed with some defined level of certainty. Failure to complete specified actions within the time window risks failure of the applications requesting the actions, with attendant risk to equipment, plant and possibly human life.

This standard defines in an abstract way the externally visible service provided by the Type 20 fieldbus data-link layer in terms of

a) the primitive actions and events of the service;

b) the parameters associated with each primitive action and event, and the form which they take; and

c) the interrelationship between these actions and events, and their valid sequences.

The purpose of this standard is to define the services provided to:

- the Type 20 fieldbus application layer at the boundary between the application and data-link layers of the fieldbus reference model;
- systems management at the boundary between the data-link layer and systems management of the fieldbus reference model.

Type 20 DL-service provides both a connected and a connectionless subset of those services specified in ISO/IEC 8886.

1.2 Specification

The principal objective of this standard is to specify the characteristics of conceptual data-link layer services suitable for time-critical communications and thus supplement the OSI Basic Reference Model in guiding the development of data-link protocols for time-critical communications. A secondary objective is to provide migration paths from previously-existing industrial communications protocols.

This specification may be used as the basis for formal DL-Programming-Interfaces. Nevertheless, it is not a formal programming interface, and any such interface will need to address implementation issues not covered by this specification, including:

a) the sizes and octet ordering of various multi-octet service parameters;

b) the correlation of paired request and confirm, or indication and response, primitives.

1.3 Conformance

This standard does not specify individual implementations or products, nor does it constrain the implementations of data-link entities within industrial automation systems.