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INTERNATIONAL STANDARD

NORME INTERNATIONALE

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Industrial communication networks – Fieldbus specifications – Part 3-28: Data-link layer service definition – Type 28 elements

Réseaux de communication industriels – Spécifications des bus de terrain – Partie 3 28: Définition des services de la couche liaison de données – Éléments de type 28

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INDUSTRIAL COMMUNICATION NETWORKS – FIELDBUS SPECIFICATIONS –

Part 3-28: Data-link layer service definition – Type 28 elements

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IEC 61158-3-28 has been prepared by subcommittee 65C: Industrial networks, of IEC technical committee 65: Industrial-process measurement, control and automation. It is an International Standard.

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

Draft	Report on voting
65C/1206/FDIS	65C/1235/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.

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INTRODUCTION

This document 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 document is a conceptual architectural service, independent of administrative and implementation divisions.

INDUSTRIAL COMMUNICATION NETWORKS – FIELDBUS SPECIFICATIONS –

Part 3-28: Data-link layer service definition – Type 28 elements

1 Scope

1.1 General

This part of IEC 61158 describes basic packet communication services and models in an automation control industrial field environment. The Type 28 data-link layer provides time-critical and non-time-critical communication services. Time-critical refers to the requirement to complete specified functions between devices in a defined time window in an industrial field environment. Failure to complete specified functions within the time window can lead to failure or harm in industrial production.

This document defines in an abstract way the externally visible service provided by the Type 28 fieldbus data-link layer in terms of

a) function description;

b) primitive actions and events with primitive sequence diagram;

c) the form of externally service interface and related parameters.

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

- the Type 28 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 28 DL-service provides both a connected and a connectionless subset of those services provided by OSI data-link protocols as specified in ISO/IEC 8886.

1.2 Specifications

The principal objective of this document 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-sensitive communications. A secondary objective is to provide migration paths from previously-existing industrial communications protocols.

This specification can be used as the basis for formal DL-Programming-Interfaces. However, 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; and

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

1.3 Conformance

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