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**NATIONAL STANDARD OF THE
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GB/T 47014.4-2026

**Industrial communication networks - Fieldbus specifications -
Type 2 elements: EtherNet/IP, ControlNet and DeviceNet
specifications - Part 4: Applicatoin layer protocol specification**

工业通信网络 现场总线规范 类型2元素: EtherNet/IP;ControlNet和DeviceNet
规范 第4部分: 应用层协议规范

(English Translation)

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document is based on GB/T 47014 "Industrial Communication Network Fieldbus Specification Type 2 Element. EtherNet/IP, ControlNet and..." Part 4 of the DeviceNet specification, GB/T 47014, has been published, including the following parts.

- Part 1: Data Link Layer Service Definition;
- Part 2: Data Link Layer Protocol Specifications;
- Part 3: Application Layer Service Definition;

---Part 4: Application Layer Protocol Specifications.

This document is equivalent to IEC 61158-6-2:2023 "Industrial communication networks - Fieldbus specification - Part 6-2.Application layer protocol specification".

Type 2 element.

The following minimal editorial changes have been made to this document.

---To align with existing standards, the standard name has been changed to "Industrial Communication Network Fieldbus Specification Type 2 Element.

EtherNet/IP, ControlNet and DeviceNet Specifications Part 4: Application Layer Protocol Specifications.

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the China Machinery Industry Federation.

This document is under the jurisdiction of the National Technical Committee on Standardization of Industrial Process Measurement, Control and Automation (SAC/TC124).

Introduction

This document, as part of the Type 2 series of documents, aims to facilitate easier interconnection between components of automated systems. This document is consistent with...

Other standards within the standard set established by the "three-layer" fieldbus reference model described in IEC 61158-1.

Application protocols utilize available services from data links or other directly lower layers to provide application services. The main purpose of this document is...

It provides a set of communication rules, which are represented based on the procedures executed by peer application entities (AEs) during communication. The purpose of these communication rules is...

It provides a solid foundation for development and serves the following purposes.

---A guide for designers and implementers;

---Used for testing and procuring equipment;

---As part of a protocol that allows the system to access an open systems environment;

---As a more precise understanding of time-strict communication within the OSI model.

This document focuses specifically on the communication and interconnection of sensors, actuators, and other automation equipment. By using this document and [the document

located at...] the OSI or other standards within the fieldbus reference model allow incompatible systems to work together in any combination.

GB/T 47014 "Industrial Communication Network Fieldbus Specification Type 2 Elements. EtherNet/IP, ControlNet and DeviceNet" the standard is proposed to consist of four parts.

---Part 1: Data Link Layer Service Definition. The purpose is to define conceptual data link layer services applicable to time-strict communication.

The characteristics of the service.

---Part 2: Data Link Layer Protocol Specification. The purpose is to provide a set of communication rules that are used by peer data link entities in...

It is represented by the program to be executed during communication.

---Part 3: Application Layer Service Definition. The purpose is to define the application services that fieldbus applications and/or system management may utilize.

feature.

---Part 4: Application Layer Protocol Specifications. The purpose is to provide a set of communication rules, which are based on the communication between peer application entities.

It is represented by the program being executed.

Industrial Communication Network Fieldbus Specification Type 2 Elements. EtherNet/IP, ControlNet, and DeviceNet Specification Part 4: Application Layer Protocol Specification

1.1 Overview

The Fieldbus Application Layer (FAL) provides user programs with a method to access the fieldbus communication environment. In this respect, the FAL can...

It is considered a "window" between the corresponding applications.

This document outlines the basic time-strict and non-time-sensitive communication between applications in automated environments and materials specific to Type 2 fieldbus.

Time-strict message communication provides common elements. "Time-strict" indicates the existence of a time window within which communication must adhere to certain time limits.

Complete one or more specified actions with the prescribed degree of certainty. Failure to complete the specified actions within the time window will result in penalties.

The application of the request action has the risk of failure, and may also bring additional risks to equipment, factories and even people's lives.

This document specifies the interaction between remote applications and defines the