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**NATIONAL STANDARD OF THE
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GB/T 33537.2-2017

**Industrial communication networks -- Fieldbus specifications --
Type 23: CC-Link IE specification -- Part 2: Application layer
protocol specification**

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Foreword

GB/T 33537 "Industrial Communication Network Fieldbus Specification Type 23. CC-LinkIE Specification" is divided into the following three parts.

Part 1. Application layer service definition;

Part 2. Application layer protocol specification;

Part 3. CC-LinkIE Communication Profile.

This part is part 2 of GB/T 33537.

This part is drafted in accordance with the rules given in GB/T 1.1-2009.

This part uses the translation method equivalent to IEC 61158-6-23..2014 "Industrial Communication Network Fieldbus Specification Part 6-23.

Application layer protocol specification type 23 element ".

In this part of the normative reference to the international documents have a consistent correspondence between the following documents.

GB/T 9387.1-1998 Information technology - Open systems interconnection - Basic model - Part 1. Basic model (ISO /

IEC 7498-1..1994, IDT)

Information Technology Abstract Syntax Notation 1 (ASN.1) Part 1. Basic Notation Specification (ISO /

IEC 8824-1..2002, IDT)

Information technology - Open systems interconnection - Application layer structure (ISO /IEC 9545..1994, IDT) - GB/T 17176-1997

--- GB/T 17967-2000 Information technology Open system interconnection Basic See

model OSI service definition agreement (ISO /

IEC 10731...1994, IDT)

--- GB/T 33537.1-2017 Industrial Communication Network Fieldbus Specification Type 23. CC-LinkIE Specification Part 1

. Application layer service definition (IEC 61158-5-23..2014, IDT)

This section makes the following editorial changes.

--- In line with existing standard series, change the standard name to "Industrial Communication Network Fieldbus Specification Type 23. CC-Link

IE specification Part 2. Application layer protocol specification".

This part is made by the China Machinery Industry Federation.

This part is headed by the National Industrial Process Measurement Control and Automation Standardization Technical Committee (SAC/TC124).

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Introduction

Application layer protocols provide application services by using data link layers or other services that are adjacent to lower-level available services. The Lord of this section

The purpose is to provide a set of communication rules that are based on the steps to be performed by the peer application entity (AE) at the time of communication

of. These communication rules attempt to provide a reliable basis for the development of the following objectives.

--- as a guide for the implementor and designer;

- used in equipment testing and procurement;

- as part of the system access to the open system environment;
- as a clear expression of the communication that understands the strict time requirements within the OSI.

This section takes into account the communication and coordination of sensors, actuators and other automation equipment. This part with the OSI or

Fieldbus See the other standards used in the model together, but the combination of the system together may be incompatible.

Industrial Communication Network Fieldbus Specification

Type 23. CC-LinkIE specification

Part 2. Application layer protocol specification

1.1 Overview

The fieldbus application layer (FAL) provides the user program with access to the fieldbus communication environment. In this regard, the fieldbus can be used

The application layer (FAL) is treated as "the window between the corresponding applications".

This section provides basic communication with strict time requirements and non-critical time requirements for applications in an automated environment.

Provide common elements and CC-LinkIE fieldbus specific information. The term "strict time requirement" is used to indicate the presence of a window at this time

In the window, it is required to complete the required one or more prescribed actions with a definite certainty level. At this time the window does not complete the required action

, Will lead to the risk of application of these actions failure, even with the equipment, equipment and possible personal risk.

This section defines the external visual behavior provided by the fieldbus application layer in an abstract manner from the following aspects.

- a) defining the abstract syntax of the application layer protocol data units transmitted between the communication application entities;
- b) defining the transport syntax of the application layer protocol data units transmitted between the communication application entities;
- c) Applying an upper-level relational state machine to the application service behavior that is visible between the communication application entities;
- d) an application relational state machine that defines the visual behavior that is visible

between the communication application entities.

The purpose of this part is to define a protocol for the following purposes.

- a) Define the byte transfer order of the service primitives defined in the CC-LinkIE service file;
- b) Define the external visual behavior associated with its transmission.

This part is based on the OSI Basic Refer to the model (see GB/T 9387) and the OSI Application Layer Structure (ISO /IEC 9545)

IE fieldbus application layer protocol.

FAL services and protocols are provided by FAL application entities (AE) that are included in the application process. FALAE includes a set of goal-oriented

(ASEs) and the management entity (LME) that manages the AE. ASE provides a set of related application process objects

(APO) class of communication services. One of the FALASEs is to manage ASE, which provides a set of common methods for managing FAL instances

service.

Although from the application point of view, these services specify how requests and responses are sent and delivered, but do not include what the request and response application does

specification. That is, there is no provision for the behavior of the application, only the requirements and the response to which they can be issued/received. This is allowed

FAL users have the flexibility to standardize the behavior of these objects. In addition to these services, some support services are also in this section

Defined to provide access to the FAL to control certain aspects of the operation.

1.2 Specification

The primary objective of this section is to specify the syntax and behavior of the application layer protocol, which is transmitted in the application defined in IEC 61158-5-23

Layer service.

The second objective is to provide an upgrade path to existing industrial communication protocols. It is this goal that provides the IEC 61158-6 Standardization Association

Diversity of ideas.

1.3 Consistency