

ICS 25.040

CCS N 10



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 33537.1-2017

**Industrial communication networks -- Fieldbus specifications --
Type 23: CC-Link IE specification -- Part 1: Application layer
service definition**

Issued on: February 28, 2017

Implemented on: September 1, 2017

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine of the People's Republic of China, Standardization
Administration of the People's Republic of China**

Table of Contents

- Foreword
- Introduction
- 1 Scope
 - 1.1 Overview
 - 1.2 Specification

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 1 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 61158-5-23..2014 "Industrial Communication Network Fieldbus Specification Part 5-23.

Application layer service definition type 23 element ".

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

GB/T 1988-1998 Seven-bit coded character set for information technology information exchange (ISO /IEC 646..1991, EQV)

Information technology - Open systems interconnection - Basic reference model - Part 1. Basic model (ISO /

IEC 7498-1..1994, IDT)

GB/T 15695-2008 Information technology Open system interconnection representation Service definition (ISO /IEC 8822..1994, IDT)

Information technology - Abstract Syntax Notation 1 (ASN.1) - Part 1. Basic notation specification - GB/T 16262.1-2006.

(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 reference model OSI service definition agreement (ISO / IEC 10731..1994, 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 1. Application layer service definition".

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

This section is used for the interconnection between automation system components. This part is defined in the IEC 61158-1 "three-tier" fieldbus reference model

Other standards related.

Application layer protocols provide application services by using data link layers or other services that are adjacent to lower-level available services. This section is defined

Application service features that can be used by fieldbus applications and/or system management.

In the fieldbus standard, the term " service " refers to an abstract energy

provided by a layer of the OSI base reference model to an adjacent upper layer force. Therefore, the application layer services defined in this section are conceptual services that are independent of the management and implementation aspects.

Industrial Communication Network Fieldbus Specification

Type 23. CC-LinkIE specification

Part 1. Application layer service definition

1.1 Overview

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

As "the window between the corresponding applications".

This section provides a basic message for strict time requirements and non-strict time requirements for applications in an automated environment.

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

, It is required to complete one or more prescribed actions with a certain certainty of certainty. At this time the window does not complete the specified action, will

Resulting in the risk of application for the failure of these actions, and even with the equipment, plant (plant) and possible personal hazards.

This section defines the external visual services provided by different types of fieldbus application layers in an abstract manner from the following aspects.

- a) an abstract model for defining application resources (objects) that users can use to utilize these resources by using FAL services;
- b) the original action and events of the service;
- c) the parameters associated with each of the primitive actions and events, and the form in which they are taken;
- d) the relationship between these actions and events and their effective order.

The purpose of this section is to define a number of services provided to.

- a) FAL users at the junction between the user and the application layer of the fieldbus reference model;
- b) System management of the interface between the application layer and the system management of the fieldbus reference model.

This section specifies the field total based on the OSI basic reference model (see GB/T

9387) and the OSI application layer structure (ISO /IEC 9545)

Line application layer structure and services.

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

(ASE) and the management layer (LME) of the management AE. ASE provides a set of related application process objects

(APO) class to operate the communication services. FALASE has an element that manages ASE, which provides a universal service set for

FAL class instance management.

Although these services dictate how to issue and send requests and responses from an application perspective, these services do not specify the use of requests and

Respond to the purpose of the application. That does not specify the behavior of the application, but only provides them to be able to send/receive what kind of request

And the definition of response. In this way, when the behavior of such objects is standardized, the FAL users are given greater flexibility. In addition to these clothes

This section also defines some support services for FAL access to control certain aspects of its operations.

1.2 Specification

The primary objective of this section is to specify the application layer service characteristics that are conceptually suitable for communication with strict time requirements, thereby supplementing OSI

Basic reference model to guide the development of application layer protocols for the development of communications for strict time requirements.

The second objective is to provide a migration path for existing industrial communication protocols. It is this target that causes different types of IEC 61158-6

The diversity of services.

This specification can be used as a basis for formal application programming interfaces. However it is not a formal programming interface, any one of this

Such as the implementation of the specification does not include the implementation of the content, including.