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

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**Industrial communication networks -- Installation of
communication networks in industrial premises**

工业通信网络 工业环境中的通信网络安装

(English Translation)

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Foreword

This standard is identical with IEC 61918:2007 "Industrial communication networks in industrial environments communications network installation" (in English), and according to it comes with errata document IEC 61918:2007 (first edition) "Industrial communication networks in industrial environments communications network installation Errata" Editing.

This standard is mainly made editorial changes as follows.

--- Remove IEC 61918 foreword, according to GB/T 1.1-2000 re-write the foreword;

--- According to GB/T 1.1-2000 editorial changes.

The standard proposed by China Machinery Industry Federation.

This standard by the national industrial process measurement and control Standardization Technical Committee (SAC/TC124) centralized.

This standard was drafted. Machinery Industrial Instrumentation Technology and Economy Institute.

Introduction

Process automation and factory automation increasingly rely on communication networks and fieldbus, these communication networks and fieldbus itself is designed in response to specific environmental conditions of the industrial environment. Network and Fieldbus

provide workshop/factory several functional units effective application integration.

Thus, the upper management system integrated with on-site generation can reduce the cost of production data while maintaining or increasing the quality and quantity of production.

Correct network installation is to ensure the availability of communications and communication performance of an important prerequisite. This requires an appropriate place to consider important aspects of industrial automation Surface, such as topology, weather conditions, vibration, chemical pollution, EMC (EMC), functional safety.

These specifications provide a communication network in the following standards.

ISO/IEC 24702 specifies the design of industrial environments common telecommunications facilities, and provides some of the standard transmission performance specifications basis. ISO/IEC 24702 specifies only the original bandwidth of the channel; it does not require the use of a particular network of the useful data transmission channel Rate, or the communication process is expected to consider the error after disturbance.

IEC 61158 fieldbus standard and its companion standard IEC 61784 (including the first 1-4 section and related sub-section) together provides for appropriate for multiple industrial automation CP (communication profile). The CP provides the raw bandwidth capacity, and provides position modulation and Fieldbus the line coding rule. Some profiles also provides a number of useful target level of error rate of data transfer, as well as the process of communication disturbance Maximum.

The standard for industrial environments cabling (telecommunications facilities) to provide a consistent set of rules and fieldbus installation. Find a solution One problem is. different parts of the large-scale automated sites are provided by different vendors, and these vendors having different structures and within Yung different installation guide, which will lead to the risk of a communication system may not work properly.

The standards developed by unifying multiple user groups and industrial organizations approach.

The industry standard for the majority of properties in the most commonly used industrial communication network installation media provides a common reference. This standard covers the following Section installed in the life cycle (see Figure 1 of this standard).

Chapter 4. installation design;

Chapter 5. Installation realized;

Chapter 6. Installing verification and acceptance testing of the installation;

Chapter 7. Installation Management;

Chapter 8. installation and maintenance and fault detection.

These chapters prepare the way of the method adopted is to give many skilled in the art to provide the installation guide.

Figure 1 Industrial Network Installation Lifecycle

For each of the communication system, the present standards and related installation profiles used in conjunction with the installation of these profiles provisions of the present standard of choice, fill Charging and replacement.

About IEC 61784 series of standards defined communication profile family (CPF) communication profiles (CP), the related installation profiles, see IEC 61784-5-x Series of standards, where x is the number CPFx. IEC/T R61158-1 describes the fieldbus and CP as well as related installation between profiles Nature (see Figure 2).

For cabling installation, this standard and ISO/IEC 14763-2 (see Figure 2) together.

2 Standard Room diagram

Industrial communication networks Industrial environment communications network installation

1 Scope

This standard specifies the basic requirements for network media communication in industrial environments and industrial automation field between the island and the island of installation. The standard Including quasi-symmetrical wiring cable and fiber optic cabling, wiring devices and wireless media, but does not include wireless media itself. See other media IEC 61784-5 series of standards.

This standard is a companion standard for industrial automation island communication networks, especially for the IEC 61158 series and the IEC 61784 series of standards A predetermined communication network. In addition, the standard also includes.

--- ISO/IEC industrial environments telecommunications cabling installation 24702 stipulated;

--- 24702 connection specified in the particular wiring telecommunications cabling and automation island between ISO/IEC , in which an automated quote the end (AO) instead of the ISO/IEC 24702 telecommunications terminals (TO).

NOTE: If you are using an interface AO does not comply with ISO/IEC 24702 interfaces provide for TO, then, despite the reservations of some characteristics of cabling (including sex Energy), this wiring is no longer in line with ISO/IEC 24702.

This standard provides the key to solve the problem (topology, weather conditions, vibration, chemical pollution, EMC, functional safety of industrial automation, information Safety, etc.) guidelines.

The standard designers, installers, verification and acceptance testing personnel, management and maintenance personnel assignments, the provisions of the respective responsibilities, and /or give guidance.

2 Normative references the following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB 3836.15 Electrical apparatus for explosive gas atmospheres - Part 15. Electrical installations in hazardous locations (except coal mines) (GB 3836.15-2000, eqv IEC 60079-14:1996) GB/T 13534 logo color code (GB/T 13534-2009, IEC 60757. 1983, IDT) GB/T 14048.10 voltage switchgear and control equipment Part 5-2. Control circuit devices and switching elements proximity switches (GB/T 14048.10-2008, IEC 60947-5-2:2004, IDT) GB/T 15157.7 Printed board connectors for frequencies below 3MHz Part 7. Assessment of quality with common mating features, 8-bit fixed and free connectors detailed specification (GB/T 15157.7-2002, IEC 60603-7:1996, IDT) Part 2 GB/T 16657.2 Industrial communication networks - Fieldbus specifications. Physical layer specification and service definition (GB/T 16657.2-2008, IEC 61158-2:2007, IDT) GB/T 16895.1-2008 low-voltage electrical installations - Part 1. Fundamental principles, assessment of general characteristics and definitions (IEC 60364-1.

2005, IDT)

GB 16895.3 Electrical installations of buildings - Part 5-54. Selection and erection of electrical equipment - Earthing arrangements, protective conductors and Paul Nursing bonding conductor (GB 16895.3-2004, IEC 60364-5-54:2002, IDT) GB/T 18233-2008 Information technology generic customer premises cabling (IEC 11801:2002, IDT) Between ISO/IEC 8802-3 Information technology - Telecommunications and information exchange between local area networks and metropolitan area networks Specific requirements Part 3 Score. with collision detection Carrier Sense Multiple Access (CSMA/CD) Access Method and Physical Layer Specifications ISO/IEC 14763-1 Information technology for customer premises cabling implementation and operation - Part 1. Management