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

GB/T 30966.3-2022

Replacing GB/T 30966.3-2014

**Wind energy generation systems - Communications for
monitoring and control of wind power plants - Part 3:
Information exchange models**

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foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules of Standardization Documents" drafted.

This document is part 3 of GB/T 30966 "Wind Power Plant Monitoring System Communication for Wind Turbines". GB/T 30966 has

The following sections have been published.

- Part 1. Principles and models;
- Part 2. Information model;
- Part 3. Information exchange model;
- Part 4. Mapping to communication protocols;
- Part 5. Conformance testing;
- Part 6. Logical node classes and data classes for state monitoring.

This document replaces GB/T 30966.3-2014 "Wind Turbine Wind Farm Monitoring System Communication Part 3. Information Communication

Compared with GB/T 30966.3-2014, in addition to structural adjustment and editorial changes, the main technical changes are as follows.

- Delete the addition of scheduled services and cancellation of scheduled services (see 9.8.2 and 9.8.3 of the 2014 edition);
- Added Appendix D (normative) ACSI conformance statement (see Appendix D);
- Changed the technical issues ("Tissues") of DL/T 860.72 2nd edition (see 7.3.1 and Chapter 9, 7.3 and 2014 edition Chapter 9).

This document is equivalent to IEC 61400-25-3:2015 "Wind Turbine Part

25-3.Communication of Wind Farm Monitoring System"

Information Exchange Models.

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

--- Change the standard name to "Wind Turbine Wind Farm Monitoring System Communication Part 3.Information Exchange Model".

Please note that some content of this document may be patented. The issuing agency of this document assumes no responsibility for identifying patents.

Introduction

In this document, ACSI refers to a communication system independent of the underlying layer. ACSI describes the technology from implementing all kinds of device writing

Abstracted from the same method, these abstract service definitions are mapped to specific object definitions for specific protocols, mapped to specific protocol stacks in

It is clearly stated in GB/T 30966.4.The wind farm information model and the information exchange model form an interface between the client and the server.

As an interpretive framework for accessing wind farm data, the wind farm information exchange model reflects all the effective functions of the server. information exchange model

The purpose of ACSI is to provide services for communication functions, and there should be corresponding ACSI models and associated services to achieve it.

GB/T 30966 "Wind Turbine Wind Farm Monitoring System Communication" defines the information model and information exchange for wind farm monitoring.

Change the model so that access is common between different clients and servers from different manufacturers and suppliers. GB/T 30966

Mainly based on the equivalent transformation of the international document IEC 61400-25, the modeling method of IEC 61400-25 is used to provide abstract definitions of classes and services,

This makes the specification independent of the specific protocol stack, implementation method and operating system. Mapping of abstract classes and services to specific communication protocols is not part of this article

The scope of the document (GB/T 30966.3), but will be discussed in GB/T 30966.4.GB/T 30966 currently consists of the following six parts.

--- Part 1.Principles and models. The purpose is to study the general communication between the SCADA system of the wind farm and the wind turbine.

sexual requirements.

--- Part 2.Information model. The purpose is to specify the summary description of the logical node class, the wind farm logical node class to the common logical node class definition and requirements.

--- Part 3.Information exchange model. The purpose is to specify the information exchange model that can be used by clients and servers to access

The content and structure of the wind farm information model defined in GB/T 30966.2.

--- Part 4.Mapping to the communication protocol. The purpose is to specify a specific mapping for the protocol stack, between the client and the remote server.

Inter-information exchange provides the required information encoding.

--- Part 5.Conformance testing. The purpose is to specify the components (such as wind turbines) and participants (such as wind turbines) in the wind farm

General requirements for communication between SCADA systems), detailing standard techniques for implementing conformance testing, and deterministic

A specific measurement technique to be applied when a parameter can be used.

--- Part 6.Logical node classes and data classes for state monitoring. The purpose is to specify that the condition monitoring information model can represent the sensor information provided or calculated.

The ACSI description technique abstracts from all the different ways to achieve cooperation of various devices.

These abstract service definitions will be mapped to concrete object definitions for specific protocols. mapped to a specific protocol stack in

It is clearly stated in GB/T 30966.4.

Wind Turbine Wind Farm Monitoring System Communication

Part 3.Information exchange model

1 Scope

IEC 61400-25 is concerned with the communication between components (such as wind turbines) and participants (such as SCADA systems) in wind farms.

General requirements for letters. The internal communication of each part of the wind farm itself is not within the scope of application.

IEC 61400-25 is designed for the communication environment supported by the

client-server model, and defines the following three aspects, and respectively

Modeling to ensure scalability of the implementation.

a) wind farm information model;

b) information exchange model;

c) Information models and information exchange models are mapped to standard communication protocols.

The wind farm information model and the information exchange model constitute an interface between the client and the server. as a solution to access wind farm data

Based on the interpretation framework, the wind farm information model provides unified, component-based wind farm data to the client segment through the server. Information exchange model reflects

the full functionality of the server. IEC 61400-25 enables communication between different clients and servers from different manufacturers and suppliers

Access is generic.

As shown in Figure 1, the server defined by IEC 61400-25 includes the following aspects.

--- Information provided by wind farm components, such as "wind turbine rotor speed" or "total power generation within a certain period of time", these

Information is modeled and can be accessed efficiently. Modeled information is defined in GB/T 30966.2 Information Model.

--- Exchange services for modeled information values, as defined in the Information Exchange Model.

--- Map to the communication protocol, providing a protocol to obtain exchange values from modeled information (GB/T 30966.4).

IEC 61400-25 only defines how to model information, exchange information and map it to specific communication protocols, not how and where

To implement communication interfaces, application programming interfaces, and recommendations for implementation. However, the purpose of IEC 61400-25 is to pass the corresponding logical device

Obtain information related to a single wind farm component such as a wind turbine.

This document specifies an abstract communication service interface that describes the exchange of information between clients and servers.

--- data access and acquisition;