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

JT/T 1277-2019

**Technical specifications for online monitoring system of port
energy consumption**

港口能耗在线监测系统技术要求 清晰版

(English Translation)

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Foreword

This standard is in accordance with GB/T Draft the rules given in 1-2009.

This standard was proposed and managed by the National Port Standardization Technical Committee (SAC/TC 530).

This standard was drafted. Water Transport Research Institute of Ministry of Transport, Jiangsu Gangjia Energy-saving Technology Co., Ltd., Rizhao Port Group Co., Ltd.

1 Scope

This standard specifies the system architecture of the online monitoring system for port energy consumption, as well as technical requirements for functions, performance, quality and safety.

This standard applies to the design, development and construction of an online monitoring system for port energy consumption.

2 Normative references

The following documents are essential for the application of this document. For dated references, only the dated version applies to this article Pieces. For undated references, the latest version (including all amendments) applies to this document.

GB/T 600 General specifications for marine pipeline valves GB/T 16260 Software Engineering Product Quality GB 17167 General Rules for the Provision and Management of Energy Measuring Instruments in Energy-Used Units GB/T 19582 Industrial automation network specification based on Modbus protocol GB/T 20271 Information security technology-General security technical requirements for information systems GB/T 21339 Statistics and analysis methods of port energy consumption GB/T 22229 Information security technology-Basic requirements for security level protection of information systems GB/T 2871 Technical Agreement on Universal Data Interface for Energy Metering Instruments GB/T 34000 China Shipbuilding Quality Standard GB/T 34000 China Ship Repair Quality Standard GB 50003 Code for Construction and Quality Acceptance of Automation Instrumentation Engineering CB/Y 345 Marine piping arrangement and installation process requirements CB 3515 Ship Construction Safety Management CB/T 3619 Quality requirements for installation and tightness test of marine systems and power lines CB/T 3790 Technical Conditions for Pipe Processing DL/T 645 Multifunction Energy Meter Communication Protocol DL/T 825 Electricity metering device installation and wiring rules JT S/T.1996 ~ 13 Technical Regulations for Energy Efficiency Management of Ports and Terminals QD 5201 Code of Practice for Safety Production in Communication Construction Projects

3 Terms and definitions

The following terms and definitions apply to this document.

On-line monitoring system for port energy consumption on-line monitoring system of port energy conference Install energy metering equipment on various energy-consuming equipment and facilities of port enterprises, and collect energy consumption data in real time by remote transmission and other means to achieve energy efficiency.

System for online monitoring and dynamic analysis of source consumption.

Classified energy consumption cone of off of offsorts JT/T 1277-2019 Energy consumption by energy consumption type.

Itemized energy consumption cone of off diff itents Energy consumption by energy consumption purpose.

Data transfer station data switch center Cache the energy consumption data uploaded by the energy consumption data collector, and completely forward it to the data server of the energy consumption data management system.

3. Five

Large number of audits date data auditing the process of reviewing whether data or data changes are consistent with actual energy usage and whether there are logical or trending errors.

4 System architecture

4.1

General requirements

4.1.1

The port energy on-line monitoring system should adopt an architectural model with low coupling.

4.1.2

The online monitoring system for port energy consumption should adopt a service-oriented architecture or a microservice architecture model.

4.1.3

The design of the port energy online monitoring system architecture should fully consider the needs of future system expansion and upgrading.

4.2

System composition

4.2.1

The online monitoring system of port energy consumption shall consist of three parts. energy consumption data collection system, energy consumption data transmission system and energy consumption data management system.

Sub-composition.

4.2.2

The energy consumption data collection system shall include energy measuring instruments and energy consumption data collectors. The equipment of energy measuring instruments shall meet the following requirements.

a) The selection and allocation rate of energy measuring instruments should meet the relevant requirements of GB 1167;

b) The main energy-consuming equipment and facilities should be equipped with energy measuring instruments in accordance with the relevant requirements of GB 17167, and should meet the port energy consumption the requirements for separate measurement of energy-consuming equipment and facilities in the second-level sub-items of this item.

4.2.3

The energy consumption data transmission system shall include transmission networks and communication protocols, and shall meet the following requirements.

a) The data transmission network between the energy consumption data collector and the

energy consumption data management system should be wired or based on the TCP/IP protocol.

Wireless data network

b) The data communication protocol between the energy measuring instrument and the energy consumption data collector shall comply with GB/T 2871, GB/T 19582 and Relevant provisions of DL/T 645.

4.2.4

Energy consumption data management system should include hardware such as servers, storage equipment, backup equipment, uninterruptible power supply equipment, switches and cabinets Facilities, basic software such as operating system, database software and backup software, and application software for online monitoring system of port energy consumption.

5 Functional requirements

5.1

Energy consumption data acquisition system

5.1.1

The energy consumption data collection system should have data collection, data reporting and management functions.

5.1.2

The data collection function of the energy consumption data collection system shall meet the following requirements.

a) It should support three collection methods. real-time collection, timing collection, and collection according to the command of the energy consumption data management system.

Large time interval should not be greater than 1h;

b) When the timing automatic data collection fails, it shall have automatic and manual supplementary functions.

5.1.3

The energy consumption data collection system should have the function of reporting energy consumption data to the energy consumption data management system, either actively or passively.

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