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

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**Grain and oil storage. Monitoring and control system of
stored-grain condition General Requirements
(English Translation)**

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Table of Contents

Foreword	
1 Scope	
2 Normative references	
3 Terms and definitions	
4 Model preparation	
4.1 Compilation principles	
4.2 Preparation method	
5 System components	
5.1 System composition	
5.2 Requirements of each part	
6 Technical requirements	
6.1 General requirements	
6.2 Operating environment	
6.3 Power supply	
6.4 Basic functions	
6.5 Main technical indicators	
6.6 Power fluctuation adaptability	
6.7 Working stability	
6.8 Reliability	
6.9 Anti-interference	
6.10 Explosion-proof	
7 Test methods	
7.1 Experimental conditions	
7.2 Equipment requirements	

Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard was proposed by the National Grain Administration.

This standard is under the jurisdiction of the National Grain and Oil Standardization Technical Committee (SAC/TC270).

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1 Scope

This standard specifies the terms and definitions, model preparation, system composition, technical requirements, test methods, inspection rules, and inspections of the grain condition measurement and control system.

Collection and marking, packaging, transportation, storage and other technical requirements.

This standard applies to grain monitoring and control systems used in grain and oil storage.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 191 packaging storage and transportation icon GB/T 2887 General Specification for Electronic Computer Sites GB 3836 (all parts) Electrical equipment for explosive gas atmospheres GB/T 5080.1 Reliability test Part 1. Test conditions and statistical test principle GB 5080.7 Equipment reliability test Verification efficiency test plan for failure rate and mean time between failures under the assumption of constant failure rate GB/T 9813-2000 General Specification for Microcomputers GB/T 10111 Generation of Random Numbers and Its Application in Product Quality Sampling Inspection GB 17440 Code for dust explosion protection of grain processing, storage and transportation systems GB/T 17626.2 Electromagnetic compatibility test and measurement technology Electrostatic discharge immunity test GB/T 17626.3 Electromagnetic compatibility test and measurement technology RF electromagnetic field radiation immunity test GB/T 17626.4 Electromagnetic compatibility test and measurement technology Electrical fast transient burst immunity test GB/T 17626.5 Electromagnetic compatibility test and measurement technology Surge (impact) immunity test GB/T 29890 Grain and Oil Storage Technical Specifications LS/T 1202 Technical Regulations for Mechanical Ventilation of Grain Storage LS/T 1810 Grain and oil storage grain condition measurement and control extension technical requirements LS/T 1811 Grain and oil storage grain condition measurement and control software technical requirements LS/T 1812 grain and oil storage grain condition control information exchange interface protocol technical requirements LS/T 1813 Grain and oil storage grain

condition measurement and control digital temperature measurement cable technical requirements

3 Terms and definitions

The following terms and definitions apply to this document.

Food condition of stored-grain the state of grain and oil during storage and various factors that affect its quality and quantity, such as temperature, humidity, moisture, oxygen, Carbon dioxide, phosphine, stored grain pests and mites.

Grain condition monitoring and control system
monitoring and control system of stored-grain condition Using computer technology, network technology and electronic technology to detect food, data transmission, data storage and analysis, and through the storage of grain the system is controlled to achieve a system that improves the food situation. Usually by the host computer, transmission interface, extension, sensor, controlled device and other hardware and food the composition of measurement and control software.

Host computer

A computer with software monitoring and control system software installed. Control the actions of various types of devices by issuing commands and receive the checks they collect.

Signal measurement, with signal correction, data display, storage, sound and light alarm, man-machine dialogue, statistical analysis, control print output, and management network connection and other functions.

Transmission interface Measurement and control host A device that receives and transmits signals between a host computer and an extension.

Extension slave computer Receiving the command of the upper computer, returning the grain condition data collected by the field sensor and the state information of the grain control device to the upper computer, completing the pair Equipment controlled by grain control equipment.

Actuator

A device or device that drives, operates, and changes its state to a grain control device under the influence of a control signal.

Grain sensor sensors for condition of stored-grain the general term for various types of sensor components in the grain condition measurement and control system that detect the grain condition and convert it into a signal that can be measured.

Temperature measuring cable thermometric cable A dedicated cable for detecting the

temperature of grain and oil. It usually consists of a temperature sensor, a wire, a tensile wire and a sheath.

4.1 Compilation principles

It is compiled according to system signature, communication method, manufacturer code and product serial number.

4.2.1 Format

System signature

way of communication Manufacturer code Product serial number

4.2.2 System Feature Code

It is represented by the initials LQ of the Chinese alphabet of food.

4.2.3 Communication method

"1"---wired mode; "2"---wireless mode; "9"---other communication methods.

4.2.4 Manufacturer Code

Expressed in Chinese Pinyin, as defined by the manufacturer of the product.

4.2.5 Product serial number

Expressed in Arabic numerals and defined by the manufacturer of the product.

5.1 System composition

The system consists of two parts. hardware and software. The hardware generally includes the host computer, transmission interface, extension, grain sensor, actuator, and controlled Equipment, temperature measuring cables and other necessary components. The software includes system software and special software for grain monitoring and control. The typical structure is shown in Figure 1.

Figure 1 Typical structure of the system

5.2.1 Communication method

Communication can be done in wired or wireless mode.