

ICS 35.240.99
CCS B 20

LS

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

LS/T 1812-2017

**Grain and oil storage. Monitoring and control system of
stored-grain condition technical requirements for information
exchange interface protocol**

(English Translation)

Issued on: March 10, 2017

Implemented on: June 1, 2017

Issued by: National Grain Administration

Table of Contents

Foreword

1 Scope

2 Normative references

3 Terms and definitions

4 Food situation monitoring and control system communication and information exchange

4.2 Information exchange control system information exchange mode

5 Interface definition

5.1 Communication interface between the host computer and the extension

5.2 Information exchange between the grain monitoring and control system and other systems

6 Library points referred to as kdjc character type a.20

7 Library point enterprise nature kdqyx character type a.1

8 Library point category kdlb character type a.20

9 Built-in date jcrq date type YYYYMMDD

10 Library design warehouse kdsjcr numerical type n.8

12 Library point phone kddh character type a.50

13 Library point fax kdcz character type a.50

14 Library point address kddz character type a.200

15 Library point zip code kdyzbn character type a.6

16 Library point administrative division name kdxzqhmc character type a.50

17 Library administrative division code kdxzqhdm character type a.6

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).

1 Scope

This standard specifies the technical content of the terminology and definition of the grain condition measurement and control information exchange interface protocol, the basic framework of the system, and the interface definition.

This standard applies to the design and construction of the information exchange system for grain condition measurement and control systems.

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.

LS/T 1802-2016 Grain Warehousing Business Data Element

3 Terms and definitions

The following terms and definitions apply to this document.

Data

A formal representation of a fact, concept, or instruction that applies to communication, interpretation, or processing in a human or automated manner.

Representation

A combination of a range of values and a data type, including a unit of measure or a character set, if necessary.

Data exchange interface A set of conventions defined between different systems for data exchange. In the grain monitoring and control system, the data exchange interface is responsible for accessing the grain.

The data resource call, implementation and feedback result set of the situation control system and other systems. Between the grain monitoring and control system and other systems the request method of the interface accesses the other party's data, and the other party is responsible for providing the response service.

Data item dataunit

It consists of three elements. data item identifier, data item name, and data item value.

Data record

The basic unit that makes up a data set, representing a record, which consists of one or

more data items.

Dataset

Consists of one or more data records.

Blank point blankspot it is used to indicate the state of the corresponding detection point where there is no sensor.

4 Food situation monitoring and control system communication and information exchange

4.1

The communication mode between the upper computer and the extension of the grain condition measurement and control system each part of the grain condition measurement and control system mainly includes the grain condition measurement and control software system (host computer) and the grain condition measurement and control hardware system (extension), and their communication the letter mode is as follows.

- a) The host computer sends a read or control command to the extension;
- b) The extension responds to the host computer command, sends back the corresponding data or performs the corresponding control.

4.2 Information exchange control system information exchange mode

The information exchange mode of the grain situation monitoring and control system is as follows.

- a) The food situation monitoring system and other systems request service from the other party and call the other party's service interface;
- b) The food condition monitoring system or other system responds to the request and returns structured data encapsulated with the data set to the other party.

5.1.1.1 Serial Port Configuration

The grain inbound and outbound business information system generally consists of inbound and outbound registration, sample management, inspection management, measurement management, value warehouse management, and settlement management.

It consists of seven modules, such as statistical analysis, and the related modules are extensible, as shown in Table 1.

The serial port should be configured as follows.

- a) 1 start position;

- b) 8-bit data bits;
- c) no check digits;
- d) 1 stop position;
- e) Baud rate.

Note: The value of the baud rate can be, but is not limited to, the following values (unit. Bps). 1200, 4800, 9600, etc.

Table 1 Data frame format

Field name code length/Byte Initial character 55HAAH55HAAH 4 Extension address
KADDL 1 Control character Command 1 Data length Length 2 Data segment DataSegment
L Verify CRC-16a 2 End character 16HE9H16HE9H 4 a where CRC-16 checksum data is
all data from the start of the start to the check.

5.1.1.2 Ethernet Mode Configuration

The Ethernet configuration is as follows.

- a) The IP address of the server and the IP address of the measurement and control extension are set to the same network segment;
- b) server TCP port. 1238; UDP port. 1240;
- c) The server sends various query commands in UPD broadcast mode. The target IP is all. 255.255.255.255; target port. 5000;
- d) The measurement and control extension returns data in TCP mode, and the TCP port of the measurement and control extension. 3000.

5.1.1.3 Data frame format

The data frame of the communication interface shall conform to the format of Table 1.

5.1.1.4 Command response time

The command response time (the time from the end of the command transmission to the receipt of the first byte of the extension return data) is less than or equal to 200ms.

5.1.2.1 Reading Extension Status Commands

- a) The upper computer read extension status command shall be sent in the format of Table 2.

Table 2 Host computer read extension status command format