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Chapter 1 Preface

1.1 Overview

This operating manual details the installation, operation, calibration and maintenance of the weighfeeder controller .

1.2 Introduction

The feeder controller is a panel-mounted type, controlled by a 32-bit ARM microprocessor, and a 24-bit AD converter, which processes the weight signal and the belt speed signal of the load cell , calculates the flow and cumulative amount of the flowing material, and displays it on the instrument . At the same time, the instrument has a built-in intelligent flow control center, which provides programmed current (voltage) output , controls the operation of the feeder , and provides a remote pulse count output of cumulative amount and a current output proportional to the flow rate . The instrument can be remotely connected to the host computer and printer through the RS-485 interface, and can also communicate between the instruments to complete the data transmission and control .

The instrument adopts the full Chinese operation interface, the font library is 32\*32 fonts, and the operation is intuitive and simple. And it has a variety of automatic detection functions, which is convenient for users to calibrate and maintain.

1.3 Environmental parameters

* Indoor/Outdoor : The installation site should be as close to the load cell as possible , pay attention to dust and moisture.
* Storage temperature : - 3 0℃ —+70℃
* Operating temperature : - 2 0℃ — +50℃
* Maximum relative humidity : 95%

1.4 Power

* + 85~ 265VAC 50Hz ~ 60Hz

1.5 Load Cell

* + instrument provides 9VDC ± 5 %, 250mA excitation power supply, and can connect 8 350R load cells in parallel
  + Sensitivity, 0.5mV/V – 4mV/V
  + Maximum input signal 22 mV
  + **wire of the load cell must be connected to the shielding end of the instrument**

1.6 Speed input

The instrument can provide 12V 100mA drive for external, speed input form: open collector (NPN), transmitter open circuit (PNP), push-pull ( TTL ) or external voltage. Speed pulse range: 5-3000Hz , external voltage is 0~5V .

1.7 Mainboard digital input port

The instrument board provides 4 programmable input ports to receive passive contact switch signals.

1.8 Mainboard digital output port

The instrument board provides 4 programmable passive contact output ports. Output load capacity AC250V 3 A DC 24 V 3 A.

1.9 Communication

Two standard RS-485 interfaces (isolated and protected , one standard, one optional ) , which can be selected for printing, communication, connecting to a large screen or inter-instrument communication.

1.10 Current output

Three channels: The standard configuration of two channels is the current proportional to the flow rate and the flow control current (or voltage) respectively. The output range can be programmed as: 4-20 (1~5V) or 0-20mA (0~5V); one channel is optional The protection current can be programmed for dual frequency control (optional) or proportional to flow, speed, load .

1.11 Current and voltage input

Two channels: one is the control current from the remote (DCS), and the input range can be selected from 4-20mA or 0-20mA ; the other is the voltage proportional to the speed (0~5V) from the inverter .

1.12 Display

Using true color TFT 2.4 -inch screen, resolution: 320\*240, it can display up to 16\*16 Chinese characters and 15 lines\*20 characters in Chinese. Different color displays can make you intuitively distinguish the running status of the instrument.

Chapter 2 Installation

2.1 General

This chapter covers the installation, configuration, and initial programming of the feeder controller. The meter should not be installed in a place with drastic changes in environmental conditions, try to install it indoors, otherwise it is necessary to install protective facilities to avoid direct sunlight, humidity, collision and severe mechanical vibration. The instrument can be installed up to 300 meters away from the load cell .

2.2 Installation

The feeder controller is installed in the control cabinet through the mounting bracket, the opening size is 77mm\*152mm, and the depth is 180mm .

2.3 Safety warning

**warn**

**Do not perform any installation, operation and maintenance operations until after reading the following warnings**

1. Do not connect meter power without fully understanding the manual.
2. Strictly follow the warnings and operating procedures in this manual to avoid personal injury and equipment damage.

2.4 Wiring

1. Make sure the power is off
2. Do not route signal wires and power wires or other cables with strong electromagnetic interference in the same conduit.
3. The instrument case and conduit should be grounded at one point.
4. Check that all connections are correct and secure.
5. It is strictly forbidden to use a "megger" to check the line.
6. A circuit breaker (maximum 20A) should be installed on the incoming power line, and the installation position of the circuit breaker should be easy to operate and clearly marked for this instrument.
7. All conduits should enter from the bottom of the chassis and should not enter from the top or sides of the chassis.
8. The meter should use a separate power supply, using an isolation transformer if necessary.

2.5 Attention

1. Do not shorten the load cell cable .
2. Sensor signal wires should not use the same conduit as power wires.
3. The shield of the shielded cable should be grounded at one end and connected as shown in the figure.
4. The chassis must be grounded.

Chapter 3 Wiring



3.1 Load cell (connect to the leftmost terminal in the lower row)

The four-core load cell is directly connected to the weighing port of the instrument, the six-wire load cell with compensation, the excitation + and the compensation + are short-circuited, and the excitation- and the compensation- are short-circuited. The shielded wire of the load cell must be connected to the shielded end of the meter.

3.2 Speed sensor (lower row common terminal, signal, power supply)

The speed source can be: external pulse, internal analog, external switch and external voltage, which can be set in "Menu" -> "Scale Data" -> "Speed Input". The pulses generated from encoders, proximity switches or stepper motors are called external pulses. Connect the speed sensor to the speed input, and set the "speed input" to "external pulse"; the 500HZ pulse automatically generated inside the instrument is "Internal simulation" is used for instrument testing, no wiring is required, just set "speed input" to "internal simulation"; "close" and "open" from the outside are used as the presence or absence of speed, which is used for constant speed system , called "external opening and closing", connected to the common terminal and signal of the speed input terminal, there is speed when it is closed, and no speed when it is disconnected. This closing signal can also be taken from the output port of the instrument, and any output port of the instrument It is set to on and off, the port is closed after power on, the instrument generates a speed of 500HZ, and the speed is 0 after shutdown; the voltage signal proportional to the output of the inverter is used for the speed input of the instrument, which is called "external voltage" ( Note: The access range of the instrument is 0-5V), connected to the analog input + and analog input -. **Note: When selecting an external voltage as the speed input, in order to remove the interference, a "speed voltage dead zone" should be set, and the setting path: "Menu->Analog->Speed voltage dead zone"**

3.3 External given (lower exclusive external given + external given-)

The external given signal is a current signal of 0-20mA or 4-20mA (set in "Menu"->"Analog"->"External given current range"), the maximum current represents the set flow as "Maximum scale capacity". ”, the minimum current means the set flow is 0. Only works when working in "Remote Auto".

3.4 Inverter (lower row control+, control-)

The analog quantity that controls the inverter is connected to control+ and control-. The default is voltage control (1~5V) when leaving the factory. If you use 0~5V, set it in "Menu"->"Analog"->"Control Current Range" Set to "0-20mA". If the starting end of the inverter is started with an instrument, please set any "output port" to "start and stop" and connect it to the starting end of the inverter. This output can be changed to current output (I terminal on the main board) or voltage output (V terminal on the main board) through the J302 jumper on the main board of the instrument. 3.5 Flow feedback (lower discharge flow +, flow -)

Feedback to the meter flow of the central control, connect "flow +", "flow -", the range can be set in "menu->analog->flow current range", the flow value represented by the maximum current is in "menu->scale data" ->Maximum scale capacity".

3.6 Extension current (lower row extension +, extension -)

It can be defined as: "flow output", "speed output" or "load output", when it is defined as "flow output", the function is the same as "flow current", and the maximum speed and maximum load are set in "scale data".

3.7 Serial port (lower row 4851B, 4851A, 4852B, 4852A)

The instrument has two serial ports, only serial port 1 (4851A, 4851B) is valid when leaving the factory, and serial port 2 (4852A, 4852B) is an optional function.

3.8 Output ports (upper row output ports 1, 2, 3, 4)

Each group of output ports is paired and is passive contact output (relay output). The function can be customized and set in "Menu -> Input and Output Port -> Output Port".

3.9 Input port (upper row input port 1, 2, 3, 4 and common terminal)

The input port is composed of the common terminal and the input port x. The input type of the input port is passive contact type, and the function is customized. It is set in "Menu -> Input and Output Port -> Input Port". **Note: The common terminal of the input port and the common terminal of the speed input are different and cannot be mixed.**

3.10 Power (upper row N, ground, L)

N, L terminal access voltage range: AC 85~265V 50HZ or 60HZ.

Chapter 4 Main Display

After normal startup, the instrument first enters the main display 1 interface, and the display content will be related to the use of the instrument. Press the ↑↓ scroll key in the main display interface, and the instrument will enter the main display 2 and main display 3 interface in turn. This chapter will discuss the main display interface. Display section for details.

4.1 Main Display 1: Control Interface

In this screen, the set flow rate can be set. The setting method is: press the set key to enter the setting interface, input the set value through the number keys and press ENTER . The batching scale generally uses this interface to display

Manual / Auto:

累计：23563.6t

流量：104.7t/h

设定值：100.0t/h

误差：4.7%

速度：1.21m/s

2011年03月28日 14时10分47秒 星期一

控制：本地自动

累计：23553.8t

流量：104.5t/h

设定值：0%

速度：1.21m/s

2011年03月28日 14时10分47秒 星期一

控制：本地手动

Followed by the cumulative amount, flow, the set value of the flow (in the case of manual control, it is the percentage of the output current), the error between the actual flow and the set value (no in the manual control), and the graphic display of the error (in the manual control If there is an alarm, the lower right corner will display " alarm " in red. At this time, press the alarm key to display the details of the alarm.

**Note: When the instrument is in the power-on state (after the power-on signal, even if the belt or frequency conversion does not operate), there will be a red key flashing before accumulation. When there is no speed, the flow rate, set value, speed, etc. will be displayed in dark gray, and the main display 2 and 3 are the same.**

4.2 Main Display 2: Common Display Interface

累计：23547.7t

辅累计：21465.4t

流量：104.7t/h

速度：0.411m/s

载荷：70.75kg/m

2011年03月28日 14时10分47秒 星期一

控制：本地手动

The first row is the main cumulative value, which can only be reset during initialization ; the second row is the auxiliary cumulative value, which can be reset by pressing the reset key ; the flow, speed, load, dividing line, clock, and control are displayed in sequence downward, such as If there is an alarm, the lower right corner will display " alarm " in red. At this time, press the alarm key to display the details of the alarm. Large belts are generally displayed using this interface.

**Note:** When the scale is not calibrated, the speed of the meter will be displayed as 0, even if there is a pulse input.

4.3 Main display 3 : Batch weighing interface

In the batch weighing interface , press the "SET key" to set the "Batch". This interface is generally used to display when there is quantitative feeding.

流量：68.28t/h

批次：1

批量：100.0t

已完成：80.5t

剩余量：19.5t

2011年03月28日 14时10分47秒 星期一

控制：本地手动

**Note: If using batch weighing, the meter discharges the material according to the set flow, you can still set the flow in the control interface. Then the meter will still batch batch according to the set flow value. For the detailed usage of batch weighing, see Chapter 6.**

4.4 Main Display 4 : Diagnosis Interface

AD值：36054

脉冲：244

DIDO：1000 0000

Aout：12.0 09.0 00.0

Ain：00.0mA 00.0V

2011年03月28日 14时10分47秒 星期一

控制：本地手动

The first row is the weight signal of the load cell, generally between 1000 and 60000. If it exceeds this range, please check whether the load cell is damaged or whether the selection of the load cell is reasonable.

The second row is the speed pulse value. Generally, it is best to use a key between 100 and 1000.

The third row is the input and output ports, the first four are input ports, the last four are output ports, 1 is closed, 0 is open.

The fourth row is a total of three analog outputs, followed by control current, flow current and expansion current. The displayed value is mA. If the control current is selected as voltage then 4mA is 1V.

The fifth row is a total of two analog inputs, the front is the external given current, and the back is the input analog voltage. Chapter 5 Menu

On the main display, press the menu key to enter the menu interface. This chapter will describe the operation of the menu interface in detail.

菜单（09）

01校准

02秤数据

03输入输出口

04输入输出电流

05报警

06通讯 控制

**Note: The first number in parentheses is the number of sub-options for this menu.**

5.1 Menu Type

menu types mainly include the following : selection menu, prompt menu , input menu , selection change and output query, etc.

5.1.1 Select class menu

The selection menu is divided into submenu selection and parameter selection: in the submenu selection menu, press the ↑↓ scroll key to select the submenu you want to enter, and then press the ENTER key to enter . The numbers in the first row of brackets represent the total number of selected items . In the parameter selection menu, press the ↑↓ scroll key to select the parameter value you want to set, and then press the ENTER key to complete the setting . The number in the first row of brackets is the code of the currently selected item .

**Submenu selection class menu brackets are the total number of items Parameter selection menu, the first line in parentheses is the current value**

校准（06）

01校准数据

02测试周期的建立

03零点校准

04挂码校准

05链码校准

06实物校准

秤分度(01)

01 1

02 0.1

03 0.01

04 0.001

5.1.2 Prompt menu

The prompt class is used to prompt you to check whether the operating conditions are met or to prompt you to perform the consequences of this operation. Please read carefully and make a correct choice .

零点自动校准1

建立提示：

启动皮带空转

待皮带运行

平稳后按确认键

5.1.3 Parameter input menu

After entering the correct parameters according to the range, press OK to complete the setting , and press C to exit .

零点

原值：0

输入值：

范围：0-65535

5.1.4 Select Change Class Menu

Press the Set key to change the setting of the selected item, press OK to save, and press the C key to exit .

报警的开启和关闭

高流量报警（关闭）

低流量报警（关闭）

控制偏差报警（关闭）

外报警（关闭）

AD错误（关闭）

按设置改变确认保存

5.1.5 Yield query menu

Follow the prompts to query the output of the desired date and print it, and press C to exit .

班产查询

2000年01月01日

1班：0.0 2班： 0.0

3班：0.0 3班：0.0

按打印键打印

显示日期的班产量

按键 改变日期

1. Detailed use

6.1 Preparation

Connect the load cell and speed sensor correctly, and press the scroll key under the main display to enter the diagnosis interface

AD值：36054

脉冲：244

DIDO：1000 0000

Aout：12.0 09.0 00.0

Ain：00.0mA 00.0V

2011年03月28日 14时10分47秒 星期一

控制：本地手动

Turn on the belt to see if the weight signal (AD value) and speed signal (pulse) are normal. The AD value range is between 0 and 65535. If the belt is normal, the value should not be less than 1000 or greater than 50000. Otherwise, carefully check the sensor wiring. Pulse is the number of pulses received by the meter per second, and it is best to choose between 50 and 1000.

The first four of the input and output ports (DIDO) are the states of input ports 1, 2, 3, and 4, and the last four are the states of output ports 1, 2, 3, and 4. 1 is closed, and 0 is open.

The analog output (Aout) is the output current value of the three output currents. It can be measured with a multimeter to see if the displayed size is the same as the actual size. If there is a deviation, it can be corrected. The correction method is: after the instrument is powered off, press and hold the "C" key to power on again, enter the password input interface, enter 12345 and press Enter to enter the calibration interface, follow the prompts to complete the calibration.

The analog input (Ain) is two analog inputs, one current and one voltage.

After confirming that all the signals you are using are normal, go to the next step: calibration.

6.2 Calibration:

Before calibration, set the calibration data and the corresponding parameters in the scale data.

6.2.1 Calibration data

1. Zero point: refers to the average AD value when the belt runs for the set calibration cycles.
2. Interval: The coefficient proportional to the flow rate and weight added when calculating the flow rate and weight.
3. Belt length: the length of a single belt cycle. When using physical calibration, this value is only for reference and does not affect the measurement accuracy. Therefore, when the belt is long, the physical calibration interval value is used. This value does not require accurate measurement.
4. Calibration cycles: the number of weeks the belt runs in a single cycle during test cycle, zero calibration, hanging code calibration, and chain code calibration.
5. Single cycle time: the running time of the belt in a single cycle, accurate to 0.1 seconds.
6. Length of weighing section: It is valid during hanging code calibration, it refers to the length of weighing section that is valid for weighing weight.
7. Hanging code weight: the total weight of the hanging code, which is only valid when the hanging code is calibrated.
8. Chain code weight: The weight value of the chain code per meter, only valid when the chain code is calibrated.

Before calibration, set "Belt Length", "Calibration Weeks", "Single Week Time" etc. in "Calibration Data".

6.2.2 Scale data

1. Scale unit: kg or t, please do not change it if it is not necessary after setting.
2. Scale division: The number of decimal points reserved for flow and cumulative display.
3. Maximum scale capacity: the maximum flow rate when the scale is running, generally set as an integer greater than and close to the maximum flow rate.
4. Flow filter time: The flow is displayed as the average value of the flow filter time.
5. Speed input: See the speed sensor in Chapter 3 Wiring.
6. Accumulated pulse output value: the weight value represented by each pulse. Note: The accumulated pulse is set to output on the output port, and the setting path is: "Menu -> Input and Output Port -> Output Port x".
7. Flow dead zone range: When the flow value is less than "flow dead zone range" \* "maximum scale capacity"/100, the flow rate is displayed as 0.
8. Automatic zero point tracking range: When the belt is idling, if the flow value is less than "automatic zero point tracking range" \* "maximum scale capacity"/100, and remains for more than a week, the meter will automatically track to the new zero point.
9. Maximum speed: used for speed current output.
10. Maximum load: used for load current output.

6.2.3 Calibration steps

A, the establishment of the test cycle

After setting the corresponding parameters, firstly carry out "test cycle establishment", after completing the "test cycle establishment" according to the prompt of the instrument, the instrument can already display "speed", "flow rate" and other information.

1. Zero calibration

Zero calibration should be completed before interval calibration (hanging code, chain code or physical object), according to the prompt of the instrument to complete "zero calibration".

1. interval calibration

It can be "code calibration", "chain code calibration" or "physical calibration", which can be selected according to the on-site mining.

"Hanging code calibration" is to hang a weight on the weighing section, the weight of the weight is pressed on the weighing section, and the simulated material is pressed on the weighing section. Because the weight acts directly on the scale frame, the belt tension change cannot be sensed. There may be errors in actual operation, at this time, the interval value can be manually changed according to the actual weight value to make the scale more accurate. The measurement method is: new interval=old interval\*actual weight/displayed weight.

"Chain code calibration" is to use a chain code longer than the weighing section (the weight per meter of the chain code is fixed) on the belt to cover the entire weighing section (the weight per meter of the chain code should generally be greater than 60% of the weight per meter when the actual material is running) ) to simulate material pressure on the weighing section for calibration. Its accuracy is better than "code calibration", and can replace "physical calibration" under normal circumstances.

"Physical calibration" uses actual materials or simulated materials, placed on the belt and passed through the measuring section together with the belt to calibrate the scale.

All calibrations can be completed according to the prompts.

6.3 Control

If you are using only metering, you can ignore this step.

6.3.1 Start and stop of belt or inverter

You can use the output port of the instrument to start the belt or the inverter. Control steps: the instrument receives the power-on command -> the output port set as "open and stop" in the instrument is closed -> control the external relay to start the belt or the inverter.

The setting of the instrument: "Menu->Communication Control->Control Startup Mode" is set to what you need: "Panel", "Input Port", "Serial Port" or a combination of several. **Note: When several control modes are combined, the input ports "start" and "stop" should be separated, and one port cannot be set to "start and stop", because the "start" and "stop" commands of the "panel" and "serial port" are all the same. are separate.**

6.3.2 Control current (voltage)

The meter only has control current output when it is turned on. The control current output of the meter is related to the control in the bottom row under the main display of the meter. When the control is "manual", the output current of the meter is fixed as a percentage (this percentage setting method For the main display 1 press the setting key to set). When the control is "automatic", this current will be output through the PID algorithm, which is calculated according to the set flow and the actual flow. Manual\Auto switching is done by pressing the Manual/Auto key under the main display. In addition, the control can also be "remote" or "local". Remote means that the "set flow" comes from the central control, that is, the "external given" end of the instrument. "Local" refers to panel settings or serial port settings. In the case of "local automatic", press the setting key under the main display 1 (see the main display chapter) to complete the "setting value" setting. "Control startup current" under the "communication control" menu is the current output by the instrument when it is just started; "control speed" sets the speed of control; "control lag" is used for constant speed occasions, and it adjusts the amount of material to be cut. When the material changes, it will take several seconds for the material to go from the cutting point to the weighing section. At this time, the "control lag" should be set to not less than the time from the cutting point to the weighing section.

6.3.3 Input and output ports

Set the input and output ports to the functions you need

Note: Do not set several input ports to the same function, otherwise there may be logical confusion and the instrument will not work properly. Several output ports can have the same function.

6.4 Batch processing

If you want to quantitatively cut material, you need to do it through batch processing.

6.4.1 Parameters

A. Batch weighing switch: batch weighing is valid when turned on

B. Batch: After a batch is prepared, the batch will be automatically incremented by 1. When the batch is changed, the batch completion amount will become 0. A failed batch can be cleared by changing the batch value.

C. Batch: batch target volume, the weight of materials to be loaded in a batch.

D. Batch advance: When batch completion = batch - batch advance, the "on and off" port of the instrument is disconnected.

E. Batch deceleration point: When the batch completion amount is less than the batch reduction deceleration point, run at the speed before deceleration (the instrument control is local manual). When the batch completion amount is greater than or equal to the batch reduction deceleration point, it will run at the decelerated speed.

F. Speed before deceleration: It is only valid when the instrument control is local manual, and when it is local automatic, frequency conversion speed regulation is carried out according to the set flow before deceleration.

G. Speed after deceleration: The running speed of the instrument after deceleration is a percentage of the maximum output.

6.4.2 Parameter setting

A. Turn on the "Batch Weighing Switch" in "Batch Batch", and set "Batch", "Batch Advance", "Batch Deceleration Point", "Batch Speed Before Deceleration" and "Batch Deceleration Speed".

B. Set "Control Startup Mode" in "Communication Control".

6.4.3 Workflow

It is recommended to set the control of the instrument to: local manual in the main display, so that the instrument runs at a relatively fast speed before reaching the batch deceleration point, and the instrument decelerates after reaching the deceleration point to ensure the accuracy of batch ingredients.

Start the instrument -> the "open/stop" port of the instrument is closed, the control current is output according to the percentage of the speed output before deceleration -> the completion amount is greater than or equal to the batch reduction deceleration point -> run at the speed after deceleration -> the batch completion amount is greater than or equal to the batch reduction in advance Quantity -> "On and Off" port is disconnected.

During the batch batching process, "stop" batch batching (through the set stop mode), the meter will suspend batching, and wait for the "start" signal, and continue to complete the batch batching after "starting". If the batching process happens unexpectedly and want to restart a new batch, change the batch value in "Menu->Batch->Batch", then the meter will start a new batch of batching after restarting. Batch completion starts from 0. The batch completed quantity is saved after power-off, and the meter will still complete the unfinished batching before power-off when starting batching after power-on.

6.5 Others

6.5.1 Clock

Set the time and date in Clock Safe. Make sure the clock is accurate when using the "shift output" function. If the time is lost when the power is off, it may be that the button battery of the meter is dead, and it can be replaced.

6.5.2 Security

Set in "Clock Security".

After the "data protection switch" is turned on, the data protection password needs to be entered to modify the data of the instrument. After the password is successfully input, it will always be valid under the non-main display, and will be invalid after 5 minutes under the main display.

"Data protection password" can be modified according to the prompt, the default is 88888888 when it leaves the factory.

The instrument data can be backed up in "Data Backup", so that "Data Recovery" can be performed after the data is lost. It is recommended that the meter data be backed up regularly after the meter is working normally.

6.5.3 Shift output

The instrument can store the shift output data within one year at most. The instrument supports up to four shifts a day. The start time of the shift can be set. The start time of the next shift is the stop time of the previous shift. If the start and end time of the shift The same class does not exist, if the start and end time of a class spans the day, only this class is counted on the day where the start time is located. For example: the start time of the fourth shift is 22:00 on the 2nd, and the end time (also the start time of the 1st shift) is 2:00 on the 3rd, then the output of the fourth shift is counted into the four shifts on the 2nd.

6.5.4 Secondary blanking

The secondary blanking is suitable for the two-stage cutting method. The former stage controls the amount of material to be cut, and the latter stage is generally a constant-speed conveying device. When the secondary blanking is generally used, the start-up zero adjustment and the shutdown delay stop are used. Backstage conveyor and other functions.

When the "start-up zero-adjustment switch" is turned on, the zero-point calibration should be performed after the "start-up zero-adjustment delay" time; the inverter should be turned on after the "start-up frequency conversion delay" time. **Note: "On-frequency delay" is greater than the sum of "Start-on zero-adjustment delay" plus the time required for zero-adjustment. When the "start-up zero-adjustment switch" is turned on, the automatic zero tracking is invalid.**

"Stop delay" means that the instrument stops the inverter first after receiving the stop command, and then stops the next-level conveying device after the "stop delay" time, so as to ensure that there is no residual material on the latter-stage conveying device.

Chapter 7 Frequently Asked Questions and Solutions

1. The meter cannot measure properly

Check whether the AD value and the number of pulses are normal in the diagnostic interface of the main display. The AD value represents the weight signal, and the number of pulses represents the speed signal.

Abnormal AD value: observe whether the AD value becomes larger after adding pressure to the sensor. If the pressure AD value becomes smaller, it is because the "excitation" and "signal" lines of the sensor are reversed (the signal receives the excitation and the excitation receives the signal ). If it is unchanged or greater than 60000, use the mV file of the multimeter to measure the voltage between "signal +" and "signal -". If the voltage is greater than 40mV, the load cell is damaged; if it is greater than 20mV and less than 40mV, consider that the load cell range is selected to be small; if If the measured voltage is unstable, turn the multimeter to 20V to measure the voltage between "excitation +" and "excitation -", which should be between 8.5V and 9V. If it is incorrect, the meter may be damaged.

Abnormal number of pulses: Check whether the speed is selected correctly in the "Menu" -> "Scale Data" -> "Speed Input" of the instrument. The default speed input of the meter is NPN (low level J803 jumper cap is on the NPN side), if you are using PNP, turn on the meter and jump J803 to the PNP side. The multimeter can be used to judge whether the pulse detection of the instrument is abnormal. The method is: first measure whether there is a 12V voltage between the common terminal and the power supply, if not, the instrument is damaged; if it is normal, turn the multimeter to the current measuring state, and the J803 jumper cap is On the NPN side, the meter is displayed on the diagnostic interface, the black pen of the multimeter is connected to the common terminal of the meter, and the red pen clicks the signal terminal, the number of pulses will be displayed (non-zero). If you can't judge whether the current range of the multimeter is normal, you can also use a wire to test, one end of the wire is connected to the common terminal, and the other end of the wire clicks the signal terminal, and the meter pulse will be displayed (non-zero).

AD value and pulse number are normal: check whether the calibration data is normal in "Menu" -> "Calibration" -> "Calibration Data", all data should be within the normal range; has the test cycle been established correctly? Are zero calibration and interval calibration done correctly? If the above items have been handled correctly, the meter measurement is still incorrect, you can manually clear the data in the meter and then do the above work. The method of clearing the data is: after power off, press and hold the "C" key to power on again, enter 34567 and complete the data initialization according to the prompts.

1. The instrument cannot be controlled normally
2. In "Menu" -> "Control" -> "Control Startup Mode", check whether the startup mode of the instrument is set correctly. "On and Off" ( **note that when a port is set to "On", the port should be "jog", and when it is set to "on and off", the port should be "normally open and normally closed"** ).
3. See if the control displayed in the bottom row of the main display is what you want, if not through the "remote local", "manual and automatic" keys to adjust.
4. Check the status of the IO port and whether the input and output currents are correct in the diagnostic interface of the main display.
5. In the control display interface of the main display, check whether the running key head (red) is flashing. Shows that the representative is already running.
6. Do not stop when the batch weighing reaches the set value
7. In the batch weighing interface, check whether the batch completion amount has reached the batch - batch advance amount.
8. In the main display interface, check whether the status of the output port of start and stop is correct.
9. Check whether the input and output ports are set correctly in the input and output ports.

Appendix 1 Keys

YN2000给料机控制器

1

2

3

4/远程本地

5/报警

6/打印

7/设置

8/手动自动

9/开始

0/停止

·/主显示

C

↑

↓

菜单

Enter

1, Scroll key: It is used to scroll to different display interfaces and switch the selected item in the menu when the main display is displayed.

2. The numeric keys 0~9 are used for data input , and the multi-function key is the second function in the non-data input interface .

3. . is used for decimal input , and returns to the main display interface in the non-data input interface

4. The data input interface C is used to clear numbers, one at a time ; press C in the main display to clear the auxiliary accumulation; in the menu, you can return to the previous menu.

5. ENTER: Enter the selected item, confirm the modification of the input value, respond positively to the prompt menu, etc.

6. Setting key: used to enter the setting flow input interface in the main display interface and auxiliary functions in other menus (with prompts).

7. Menu key: used to enter the main menu interface.

8. Alarm: when there is an alarm, press this key to display the existing alarm content.

9. Printing: The main accumulation and auxiliary accumulation are printed under the main display, and the shift output is printed in the shift output query.

10. Start - up and shutdown: cooperate with the output port to complete startup and shutdown.

1 1. Remote/local: Switch the control mode between remote and local. The current control mode is displayed on the last line.

1 2. Manual/Automatic: The control mode can be switched between manual and automatic. The current control mode is displayed on the last line.

Appendix 2 Wiring Diagram



**illustrate:**

1. Please ensure that the instrument shell is well grounded .

2. When using the encoder as the speed acquisition, the +12 V of the instrument and the common terminal are used as the power supply of the encoder. The encoder should preferably choose an open-collector (default) output.

3. The instrument can provide 24V 200mA power supply for external ( +24V and 24V ground).

4. Description of the jumper inside the instrument:

1) J803 jumps to NPN terminal (default) for speed sensor output as NPN output (low level), switch output or push-pull output, jumps to PNP terminal for speed sensor output as PNP output (high level) ) or push-pull output.

2) J302 current (voltage) output (4-20mA (1-5V), or 0-20mA (0-5V) program selection) when it jumps to V, it is voltage when it jumps to I, it is current.

5. The input port away from the 24-end (right end) is the common end. Any end of the output port can be used as a common end.

Appendix 3 Input and output current calibration and main accumulation reset

Press and hold the C key when powering on, the meter displays:

输入密码后按ENTER

密码：

Press ENTER after entering 12345 to display:

输出电流1（ 0mA）校准

DA值：32

+1 -1 7键+10 ·键-10

按ENTER键保存

按ESC键退出

Use the mA file of the multimeter, connect the test leads of the multimeter to the + and - terminals of the current output, and follow the prompts to complete the calibration.

**Note: 0mA means that the multimeter measuring the current after the DA value decreases by 1 from a large number shows from non-zero to zero.**

Enter 23456 in the password input interface and press ENTER to enter the calibration of the input current (voltage).

外给定电流( 4mA)校准

请输入 4mA电流后校准

AD值：580

按ENTER键保存

按ESC键退出

After entering the corresponding current at the corresponding input terminal, press ENTER to complete the calibration.

The main accumulation is cleared:

After entering 45678 in the password input interface, follow the prompts to complete the reset of the main accumulation.

**Appendix 4 Communication Protocol of the Meter**

1. The instrument adopts modbus RTU communication protocol.
2. Communication format: address + function code + data field + CRC16

The address is a single-byte unsigned integer, range: 0-255; the function code is a single-byte unsigned integer, which is only defined in this protocol: 03H (multiple register read) 10H (multiple register write) 06H (single register write) ); the data field contains the starting address of the register to be read and written, the number of registers, data length, data, etc.; CRC16 is the check of data accuracy.

3. 03H multi-register read format: address + 03H + register first address high byte + register first address low byte + register number high byte + register number low byte + CRC16.

Correct response: address + 03H + number of bytes + data 1 -----+ data n + CRC16.

Error response: address + 83H + error code + CRC16.

Example: read the value of 4 registers whose first address is 9C40H. The meter address is 01H, and the values of the four registers are 0064H

Send: 01H 03H 9CH 40H 00H 04H CRC high byte CRC low byte

Correct response: 01H 03H 08H 00H 64H 00H 64H 00H 64H 00H 64H CRC high byte CRC low byte

Error response: 01H 83H Error code (01H – 04H) CRC high byte CRC low byte

4. 10H multi-register write data format: address + 10H + register address high order + register address low order + register number high order + register number low order + byte number + data 1 + data 2 + ---- + data n + CRC16.

Correct response: address + 10H + register address high order + register address low order + register number high order + register number low order + CRC16.

Error response: address + 90H + error code + CRC16.

Example: Write a value of 64H to each of the 4 registers whose starting address is 9C64H, and the meter address is 01H

Send: 01H 10H 9CH 64H 00H 04H 08H 00H 64H 00H 64H 00H 64H 00H 64H CRC high byte CRC low byte

Correct response: 01H 10H 9CH 64H 00H 04H CRC high byte CRC low byte

Error response: 01H 90H Error code (01H – 04H) CRC high byte CRC low byte

1. Single-byte write format: address + 06H + register address high order + register address low order + data high order + data low order + CRC16.

For example: write the start control command, the instrument address is 1

Start command: 01H 06H 00H 0AH 00H 01H CRC high byte CRC low byte

Correct response: 01H 06H 00H 0AH 00H 01H CRC high byte CRC low byte

Stop command: 01H 06H 00H 0AH 00H 00H CRC high byte CRC low byte

Correct response: 01H 06H 00H 0AH 00H 00H CRC high byte CRC low byte

Attached: List of supported registers:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| register name | register type | type of data | register address | Notes |
| Cumulative weight | read and write | long integer | 40000 | The cumulative multiplication is 1000, only zero can be written to clear |
| Cumulative weight | read and write |  |
| Auxiliary cumulative weight | read and write | long integer | 40002 | The auxiliary accumulation is multiplied by 1000, and only zero can be written to clear it |
| Auxiliary cumulative weight | read and write |  |
| high byte of traffic | read only | long integer | 40004 | Multiply flow by 1000 |
| low byte of traffic | read only |  |
| Set flow high | read and write | long integer | 40006 | Multiply the set flow by 1000 |
| Set flow low | read and write |  |
| high byte of speed | read only | long integer | 40008 | Speed value multiplied by 1000 |
| low byte of speed | read only |  |
| high byte of payload | read only | long integer | 40010 | The load value is multiplied by 1000 |
| low byte of payload | read only |  |
| Status word | read and write | Integer | 40012 | see note 1 |
| Batch weighing completed high byte | read only | long integer | 40013 | Multiply the amount completed by 1000 |
| Batch weighing completed low byte | read only |  |
| batch high byte | read and write | long integer | 40015 | batch multiplied by 1000 |
| batch low byte | read and write |  |
| batch | read and write | Integer | 40017 |  |

**Note 1: The meaning of a single bit of the return word when reading is as follows (D0 is the lowest bit), when there is an alarm, the status of the alarm is 1, when there is no alarm, it is 0, and the status is the front when it is 1, and the status is the back when it is 0.**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| D15-D7 | D6 | D5 | D4 | D3 | D2 | D1 | D0 |
| undefined | undefined | undefined | undefined | Whether there is an alarm | automatic / manual | remote/local | start/stop |

**Only 0 or 1 can be written to it, 0 is stop, and 1 is run.**

**Note 2: D0 high flow alarm, D1 low flow alarm, D2 control deviation alarm, D3 external alarm, D4 AD error**

**Note 3: Addresses start at 0 or 40000.**

**Note 4: When communicating with Kingview, add 1 to the address, for example, 40000 should be set to 40001**

**For example: the command to read cumulative amount, auxiliary cumulative, flow rate and set flow rate is (the address of the instrument is 1):**

**01 03 00 00 00 08 44 0C or 01 03 9C 40 00 08 6B 88**