

HDM5740 Series Four-circuit Digital Display Controller

Instruction Manual

I. Overview

HDM5740 four-circuit digital display controller adopts surface mounting technology and automatic placement machine production with strong disturbance resistance capacity. The controller supports input of several kinds of signals and can be used with a variety of sensors and transmitters to realize measurement display of temperature, pressure, liquid level, speed, force and other physical quantity. It can display measurement signals at four channels simultaneously and be equipped with 8-channel separate alarm output or 4-channel separate alarm output, RS485/232 communication and other output functions, thus suitable for systems to carry out inspection of synchronous measurement of multi-points.

II. Technical Parameters

| Input | | | | |
|--------------------------|---|--|-------------------------|---------------------------|
| Input signal | Current | Voltage | Resistance | Couple |
| Input impedance | $\leq 250 \Omega$ | $\geq 500 \Omega$ | | |
| Maximum input current | 30 mA | | | |
| Maximum input voltage | | $< 6 \text{ V}$ | | |
| Output | | | | |
| Output signal | Current | Voltage | Relay | 24 V distribution or feed |
| Allowable output load | $\leq 500 \Omega$ | $\geq 250 \text{ K}\Omega$ (Note: Higher load capacity necessitates change of the module) | AC220 V/2A DC24 V/2A | $\leq 30 \text{ mA}$ |
| Comprehensive parameters | | | | |
| Measurement accuracy | 0.2%FS \pm 1 word | | | |
| Setting mode | Soft touch panel keys for data setting; set parameter values locked with password; set values eternally saved upon blackout | | | |
| Display mode | -1999~9999 for display of measurement values, set values and working status of light emitting diode | | | |
| Operating environment | Ambient temperature: 0~50 °C; relative humidity: $\leq 85\%$ RH; avoiding strong corrosive gas | | | |
| Operating power source | AC 100~240 V (switch power supply) (50~60 HZ); DC 20~29 V (switch power supply) | | | |
| Power consumption | $\leq 4\text{W}$ | | | |
| Structure | Standard snap-in type | | | |
| Communication | Adopting standard MODBUS communication protocol, the communication distance of RS-485 able to cover 1km and the same of RS-232 able to cover 15m Note: When the controller is equipped with communication function, it is better to use an active converter as the communication converter | | | |

III. Controller Panel and Display Functions



1) Overall dimensions and hole size

| Overall dimensions | Hole size |
|------------------------|-----------|
| 160*80 mm (horizontal) | 152*76 mm |
| 80*160 mm (vertical) | 76*152 mm |
| 96*96 mm (quadrate) | 92*92 mm |

2) Startup display screen

a. Displaying all eights with all indicator lights on:

```
8888 8888
8888 8888
```

b. Controller model and version number

```
5740 81.00
Code 1.0
```

c. Four channel signal types

```
4-20 P 100 —Input type for Channel 1 and Channel 2
P 100 U —Input type for Channel 3 and Channel 4
```





d. Four channel measurement values

```
100.0 80.0 —Measurement values of Channel 1 and Channel 2
260.2 130.5 —Measurement values of Channel 3 and Channel 4
```

3) Panel indicator lights

- AL1: First alarm indicator light
- AL2: Second alarm indicator light
- AL3: Third alarm indicator light
- AL4: Fourth alarm indicator light
- AL5: Fifth alarm indicator light
- AL6: Sixth alarm indicator light
- AL7: Seventh alarm indicator light
- AL8: Eighth alarm indicator light

4) Operation keys

| | |
|---|--|
|  | Confirm key: to confirm revision of data and parameter Page down key: to page down during parameter setting Exit key: to return to the measurement page by pressing the key for two seconds |
|  | Shift key: to move the data left by one digit number; to return to the higher level parameter by pressing the key for two seconds; to display the computation results upon one press at the measurement page |
|  | Decrease key: to decrease data value; to display time when the print function is equipped |
|  | Increase key: to increase data value; to conduct manual printing when the printing function is equipped |

5) Standard wiring

Attention is to be paid to the following aspects upon site wiring of the controller.

PV input (process input)

1.Reduce electrical interference by making the wiring between low voltage D.C. current signals and sensor input far away from strong current routing. Otherwise, use shielded conductor and get grounded at the same point.

2.Any device placed between the sensor and the terminal may affect measurement accuracy due to electric resistance or leakage current.


Thermocouple or pyrometer input




Use compensation wire corresponding with the thermocouple as the extension line and it is better with shielding.



RTD input

The electric resistance of three conductors must be the same with the electric resistance of each conductor no more than 15 Ω.

IV. Power-on Settings


When the power is switched on, the controller enters into the self-checking status; after that, the controller is shifted to the working mode where LOC will appear upon a press of  with the parameter setting of LOC as follows:

1. 1) Loc= any parameter, enter into the main menu (LOC=00; without lock when LOC=132);
- 2) Loc=132, enter into the secondary menu by pressing  for four seconds;
- 3) Loc=130, enter into the time setting menu by pressing  for four seconds, for controller with the print function;
- 4) Loc=any other value, press  for four seconds to exit and return to the measurement page.

2. When Loc=577, press  and  under the Loc menu at the same time for four seconds to restore all parameters to factory defaults.

3. Under whatever menu, press  for four seconds to exit and return to the measurement page.





* Returning to working conditions

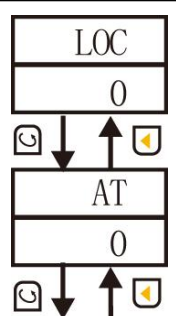

1. Manual return: In the controller parameter setting mode, the controller will automatically return to the real-time measurement status by pressing  for four seconds.





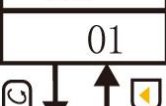


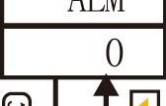
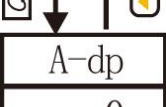
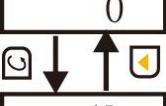
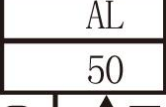

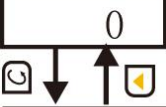
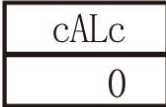
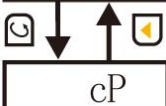

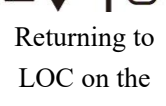
2. Automatic return: In the controller parameter setting mode, the controller will automatically go back to the real-time measurement status after 30 seconds without pressing any key.

V. Parameter Setting

5.1 Primary Parameter Setting






Under working conditions and by pressing , PV will display LOC while SV will show the parameter value, which could be set by  or ; by pressing  for two seconds, the controller can go back to the parameter at a higher level, and when Loc= any parameter, the controller can enter into the primary parameter setting.

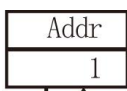
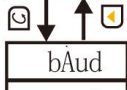
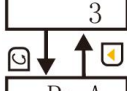
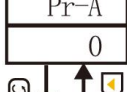
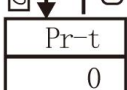
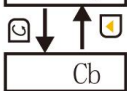
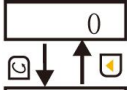

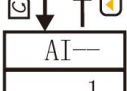
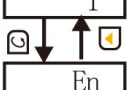
| Factory Defaults | Parameter | Setting Range | Instructions |
|---|--|---------------|---|
|  | <p>LOC</p> <p>Setting parameter lock</p> | 0~999 | <p>LOC=00: without lock (primary parameters able to be revised)</p> <p>LOC≠00, 132: with lock (primary parameters unable to be revised)</p> <p>LOC=132: without lock (primary and secondary parameters able to be revised)</p> |
|  | <p>AT</p> <p>Maintaining parameters</p> | -1999~9999 | Maintaining parameters |

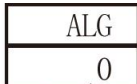

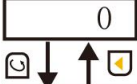
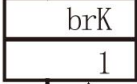

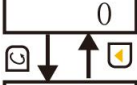
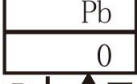

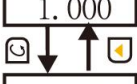
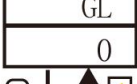
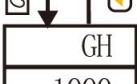
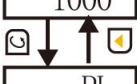
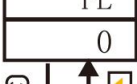
| Factory Defaults | Parameter | Setting Range | Instructions |
|---|---|---------------|---|
|  | <i>UnAL</i> Alarm mode setting | 0~1 | UnAL=0: the alarm mode being separate alarm UnAL=1: the alarm mode being unified alarm |
|  | <i>ALr</i> Alarm memory | -1999~9999 | With alarm memory function |
|  | <i>AL--</i> Alarm channel no. | 1~8 | The following alarm parameters representing the serial number of the alarm channel |
|  | <i>ALi n</i> Input channel | 1~4 | Corresponding input channels of alarm channels 0: computation results 1~4: measurement values of Channels 1~4 |
|  | <i>ALn</i> Alarm mode | 0~2 | ALM=0: no alarm ALM=1: lower limit alarm ALM=2: upper limit alarm |
|  | <i>A-dP</i> Decimal point of alarm value | 0~3 | A-dP=0: no decimal point A-dP=1: decimal point in tenths (displayed as XXX.X) A-dP=2: decimal point in percentiles (displayed as XX.XX) A-dP=3: decimal point in thousands (displayed as X.XXX) |
|  | <i>ALM</i> Alarm value | -1999~9999 | Set alarm value |
|  | <i>AL</i> Alarm return difference | 0~9999 | Alarm return difference value |
|  | <i>AL</i> 50 | | |
|  | <i>AH</i> 0 | | |
|  | <i>cALc</i> Operation unit | 0~5 | cALc=0: no operation function cALc=1: averaging operation: to obtain the average value of the measurement values of Channels 1~4 cALc=2: judging the maximum value: to obtain the maximum value of Channels 1~4 cALc=3: judging the minimum value: to obtain the minimum value of Channels 1~4 cALc=4: additive operation: adding measurement values of Channels 1~4 together, i.e. Value=Channel 1 + Channel 2 + Channel 3 + Channel 4 cALc=5: subtraction operation: subtracting the measurement value of Channel 2 from the measurement value of Channel 1, i.e. Value = Channel 1 - Channel 2 - Channel 3 - Channel 4 (See note 1) |
|  | <i>cP</i> Decimal point of operation results | 0~3 | cP=0: no decimal point cP=1: decimal point in tenths (displayed as XXX.X) cP=2: decimal point in percentiles (displayed as XX.XX) cP=3: decimal point in thousands (displayed as X.XXX) |
|  | | | |
|  | | | |
|  | | | |
|  | | | |
|  | | | |
| Returning to LOC on the original page | | | |

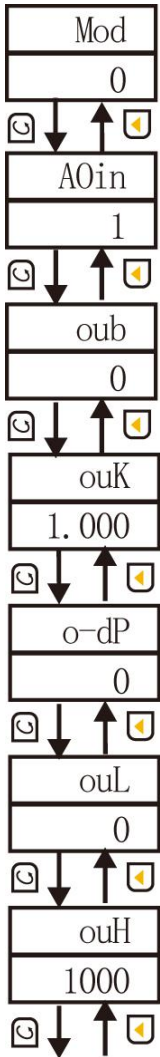
Note (1): The channels involved in the operation depend on the channels opened by the controller. In other words, when only one channel is opened, all operations have no actual significance, as the operation result is the measurement value of Channel 1. When two channels are opened, the operation will involve Channel 1 and Channel 2. When three channels are opened, the operation will involve Channel 1, Channel 2 and Channel 3. When four channels are opened, the operation is conducted among the four channels.

5.2 Secondary Parameter Setting

Under working conditions and in case of pressing , PV will show LOC and SV will show the parameter value, which could be set by pressing  or ; by pressing  for two seconds, the controller will go back to the parameter at a higher level, and when Loc=132, the controller will enter into secondary parameters by pressing  for four seconds.

| Factory Defaults | Parameters | Setting Range | Instructions |
|---|---|---------------|--|
|  | <i>Addr</i> Equipment no. | 0~250 | Setting the equipment code of this controller upon communications |
|  | <i>bAud</i> Communication baud rate | 0~3 | Baud=0: communication baud rate being 1200bps; Baud=1: communication baud rate being 2400bps; Baud=2: communication baud rate being 4800bps; Baud=3: communication baud rate being 9600 bps |
|  | <i>Pr-A</i> Alarm printing function | 0~1 | Pr-A=0: without alarm print function (no such parameter when there is no such function) Pr-A=1: with alarm print function (no such parameter when there is no such function) |
|  | <i>Pr-t</i> Print interval time | 10~2400 (min) | Setting interval time for timed print (no printing in case that the time is less than 10 minutes) (no such parameter when there is no such function) |
|  | <i>Cb</i> Zero point for shift of cold junction compensation | Full scale | Zero shift of cold junction compensation |
|  | <i>CK</i> Shift proportion of cold junction compensation | 0~1.999 times | Amplification proportion of cold junction compensation |
|  | <i>AI--</i> Input channel no. | 1~4 | Representing input channels 1~4 |
|  | <i>En</i> Channel switch | 0~1 | En=0: closing the channel En=1: opening the channel |
|  | <i>Pn</i> Input graduation | 0~35 | Setting the input graduation type (See the Graduation Table) |
|  | <i>dP</i> Decimal point | 0~3 | dP=0: no decimal point; dP=1:decimal point in the tenths(displayed as XXX.X); dP=2:decimal point in the percentiles(displayed as XX.XX); dP=3:decimal point in the thousands(displayed as X.XXX) |

| Factory Defaults | Parameters | Setting Range | Instructions |
|---|---|---------------|---|
|  | <i>ALG</i> Flashing alarm | 0~1 | ALG=0: without flashing alarm ALG=1: with flashing alarm |
|  | <i>FK</i> Filtering coefficient | 0~19 times | Setting controller filtering coefficient to avoid hopping of displayed value (See Parameter Instructions 2) |
|  | <i>brK</i> Wire-break display value | 0~3 | Brk=0: displaying 0 upon wire break Brk=1: displaying maximum graduation value upon wire break Brk=2: displaying maximum value in history upon wire break Brk=3: displaying the measured value before wire break upon wire break |
|  | <i>Unit</i> Print unit | 0~45 | Referring to the Code Table for Unit Setting |
|  | <i>Pb</i> Display input zero shift | Full scale | Setting the controller to display the shift when zero is input (See Parameter Instructions 3) |
|  | <i>PK</i> Display input range proportion | 0~1.999 times | Setting the controller to display the amplification range of input range (See Parameter Instructions 3) |
|  | <i>GL</i> Lower limit of flashing alarm | Full scale | Setting the lower limit measuring range of flashing alarm (When the measured value is lower than the set value, displaying the measured value and flashing; and when ALG=1, the controller having such function) |
|  | <i>GH</i> Upper limit of flashing alarm | Full scale | Setting the upper limit measuring range of flashing alarm (When the measured value is higher than the set value, displaying the measured value and flashing; and when ALG=1, the controller having such function) |
|  | <i>PL</i> Lower limit of measuring range | Full scale | Setting the lower limit measuring range of input signals |
|  | <i>PH</i> Upper limit of measuring range | Full scale | Setting the upper limit measuring range of input signals |
|  | <i>AK</i> Average coefficient | 0.000~1.000 | Weighted average parameters transmitted and output based on the average values |
|  | <i>Cut</i> Cut of small measurement signal | 0~100% | Setting the quantity of small signals to be cut (When input signals are smaller than the set percentage, displaying 0, which is only valid for voltage and current signals) |
|  | <i>AO</i> -- Transmitting channel no. | 1~4 | Representing the transmitting Channels 1~4 |

| Factory Defaults | Parameter | Setting Range | Instructions |
|--|--|---------------|---|
|  <p>Mod 0</p> <p>A0in 1</p> <p>oub 0</p> <p>ouK 1.000</p> <p>o-dP 0</p> <p>ouL 0</p> <p>ouH 1000</p> <p>Returning to the addr On the original page</p> | $\bar{n}od$ Transmitting mode | 0~3 | Mod=0: transmitting in accordance with the sampling value of the specified input channel Mod=1: transmitting in accordance with the weighted average of sampling values of the four channels Mod=2: Transmitting in accordance with the maximum value of input of the four channels Mod=3: Transmitting in accordance with the minimum value of input of the four channels |
| | $A0in$ Input channel | 1~4 | Corresponding input channels of transmitting channels 0: operation result; 1~4: measurement values of Channels 1~4 |
| | oub Zero shift of transmitting | 0~1.2 | Setting zero shift of the first transmitting output (See Parameter Instructions 4) |
| | ouL Transmitting amplification proportion | 0~1.2 | Setting the amplification proportion of the first transmitting output (See Parameter Instructions 4) |
| | $o-dP$ Decimal point of transmitting output value | 0~3 | o-dP=0: no decimal point o-dP=1: decimal point in tenths (displayed as XXX.X) o-dP=2: decimal point in percentiles (displayed as XX.XX) o-dP=3: decimal point in thousands (displayed as X.XXX) |
| | ouL Lower limit of transmitting output range | Full scale | Setting the lower limit measuring range of transmitting output |
| | ouH Upper limit of transmitting output range | Full scale | Setting the upper limit measuring range of transmitting output |

Code Table for Unit Setting

| | | | | | | | | | | |
|------|------------------------|------------------------|------------------------|----------------------|-------------|-------------------------|-------------------------|-------------------------|-----------------------|------------|
| Code | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Unit | Kgf | Pa | KPa | Mpa | mmHg | mmH2O | bar | °C | % | Hz |
| Code | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| Unit | m | t | l | m³ | Kg | J | MJ | GJ | Nm³ | m/h |
| Code | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 |
| Unit | t/h | l/h | m³/h | Kg/h | J/h | MJ/h | GJ/h | Nm³/h | m/m | t/m |
| Code | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
| Unit | l/m | m³/m | Kg/m | J/m | MJ/m | GJ/m | Nm³/m | m/s | t/s | l/s |
| Code | 40 | 41 | 42 | 43 | 44 | 45 | | | | |
| Unit | m³/s | kg/s | J/s | MJ/s | GJ/s | Nm³/s | | | | |

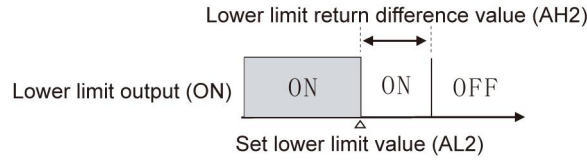
VI. Controller Parameter Instructions

1. Alarm Output (AL1, AL2, AH1, AH2)

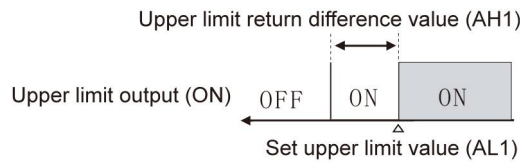
* About return difference

Alarm output of the controller is accompanied with return difference to avoid frequent movement of the output relay at or around the critical point of alarm output. The concrete output state is as follows:

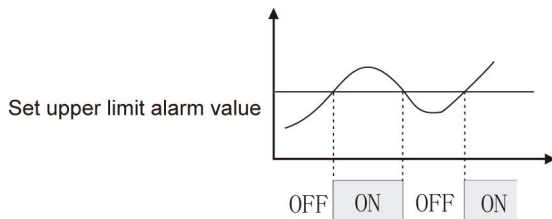
* When the measurement value goes up from a lower value:



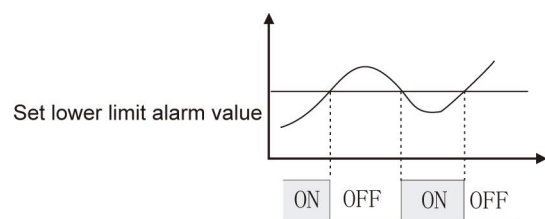
* When the measurement value goes down from a higher value:



* Position upper limit alarm output:



* Position lower-limit alarm output:



2. Filtering coefficient – sampling times, to avoid hopping of displayed measurement values

Sampling cycle – upon output of analog quantity, the time for each data collection of the controller being 0.5 second.

The relation among the PV display value, the filtering coefficient and the sampling cycle is as follows:

e.g. When the analog quantity is input, suppose the filtering coefficient is 6 (times), the controller will obtain the average of sampling values within (6X0.5) 3 seconds and update the PV display by means of recurrence. (In other words, each display is the average sampling value within the first 3 seconds.)

3. Shift and amplification of display input

Upon regular calibration, Pb and Pk can be adjusted to change the error of measurement value display.

The computation formulae of Pb and Pk are:

$$Pk = \text{set display range} \div \text{actual display range} \times \text{original Pk}$$

$$Pb = \text{lower limit of set display range} - \text{lower limit of actual display range} \times Pk + \text{original Pb}$$

e.g. Suppose there is a controller with 4~20mA DC input and a measurement range of -200~1000KPa. It is found upon calibration that when 4mA is input, it displays -202; and when 20mA is input, it displays 1008. (Original Pb=0, original Pk=1.000)

In accordance with the formulae:

$$Pk = \text{Set display range} \div \text{actual display range} \times \text{original Pk}$$

$$= [1000 - (-200)] \div [(1008 - (-202))] \times 1 = 1200 \div 1210 \times 1 \approx 0.992$$

$$Pb = \text{Lower limit of set display range} - \text{lower limit of actual display range} \times Pk + \text{original Pb}$$

$$= -200 - (-200 \times 0.992) + 0 = 0.384$$

Set: Pb=0.384, Pk=0.992

4. Oub and Ouk of transmitting output shift

Transmitting output of the controller is calibrated against 0~20mA or 0~5V, and change of output range or adjustment of output error can be realized with the following formulae.

$$\text{New Oub} = \text{current Oub} - (\text{lower limit of current output} - \text{lower limit of scheduled output}) \div \text{full range}$$

$$\text{New OuK} = \text{current OuK} - (\text{upper limit of current output} - \text{upper limit of scheduled output}) \div \text{full range}$$

Where, when current signals are output, the full range = 20 mA, and when voltage signals are output, the full range = 5 V.

e.g.1 Suppose the output of transmitting current is 0~20mA and now the output shall be changed to 4~20mA. Upon measurement, the zero point output is 0mA and the full range output is 20mA.

$$\text{Current Oub}=0, \text{ current OuK}=1.$$

$$\text{New Oub} = 0 - (0-4) \div 20 = 0.2$$

$$\text{New OuK} = 1 - (20-20) \div 20 = 1$$

Therefore, by setting Oub as 0.2 and keeping the Ouk remain the same, the output is changed from 0~20mA to 4~20mA.

e.g.2 The output of transmitting current is 4~20mA. Upon measurement, the zero point output is 4.2mA, and the full range output is 20.5mA. Current Oub = 0.2, current OuK=1.

$$\text{New Oub} = 0.2 - (4.2-4) \div 20 = 0.19$$

$$\text{New OuK} = 1 - (20.5-20) \div 20 = 0.975$$

VII. Controller Model Chart and Wiring Diagram

HDM5740-□ - □ - □/□/□/□ () - □ - ()

Four-circuit ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

| ① Specifications & Dimensions | | ② Input Graduation Number | |
|---------------------------------------|---------------------------------|---------------------------|--|
| Code | Width*Height*Depth | Code | Graduation No. (Measurement range) |
| A | 160*80*136 mm (horizontal) | 00 | Thermocouple B (400~1800°C) |
| B | 80*160*136 mm (vertical) | 01 | Thermocouple S (0~1600°C) |
| C | 96*96*136 mm (quadrate) | 02 | Thermocouple K (0~1300°C) |
| ③ Transmitting output | | 03 | Thermocouple E graduation (0~1000°C) |
| Code | Output type (output mode) | 04 | Thermocouple T graduation (-200.0~400.0°C) |
| X | No output | 05 | Thermocouple J graduation (0~1200°C) |
| 0 | 4-20 mA (unified transmission) | 06 | Thermocouple R graduation (0~1600°C) |
| 1 | 1-5 V (unified transmission) | 07 | Thermocouple N graduation (0~1300°C) |
| 2 | 0-10 mA (unified transmission) | 08 | Thermocouple F2 graduation (700~2000°C) |
| 3 | 0-5 V (unified transmission) | 09 | Thermocouple Wre3-25 graduation (0~2300°C) |
| 4 | 0-20 mA (unified transmission) | 10 | Thermocouple Wre5-26 graduation (0~2300°C) |
| 5 | 0-10 V (unified transmission) | 11 | Thermal resistance Cu50 (-50.0~150.0°C) |
| 00 | 4-20 mA (separate transmission) | 12 | Thermal resistance Cu53 (-50.0~150.0°C) |
| 01 | 1-5V (separate transmission) | 13 | Thermal resistance Cu100 (-50.0~150.0°C) |
| 02 | 0-10mA (separate transmission) | 14 | Thermal resistance Pt100 (-200.0~650.0°C) |
| 03 | 0-5V (separate transmission) | 15 | Thermal resistance BA1 (-200.0~600.0°C) |
| 04 | 0-20mA (separate transmission) | 16 | Thermal resistance BA2(-200.0~600.0°C) |
| 05 | 0-10V (separate transmission) | 17 | Linear resistance 0~400 Ω(-1999~9999) |
| ④ Alarm Output (Relay contact output) | | 18 | Remote transmitting resistance 0~350 Ω(-1999~9999) |
| Code | Alarm Output | 19 | Remote transmitting resistance 30~350Ω(-1999~9999) |
| X | No output | 20 | 0~20 mV (-1999~9999) |
| 1 | Unified alarm | 21 | 0~40 mV (-1999~9999) |

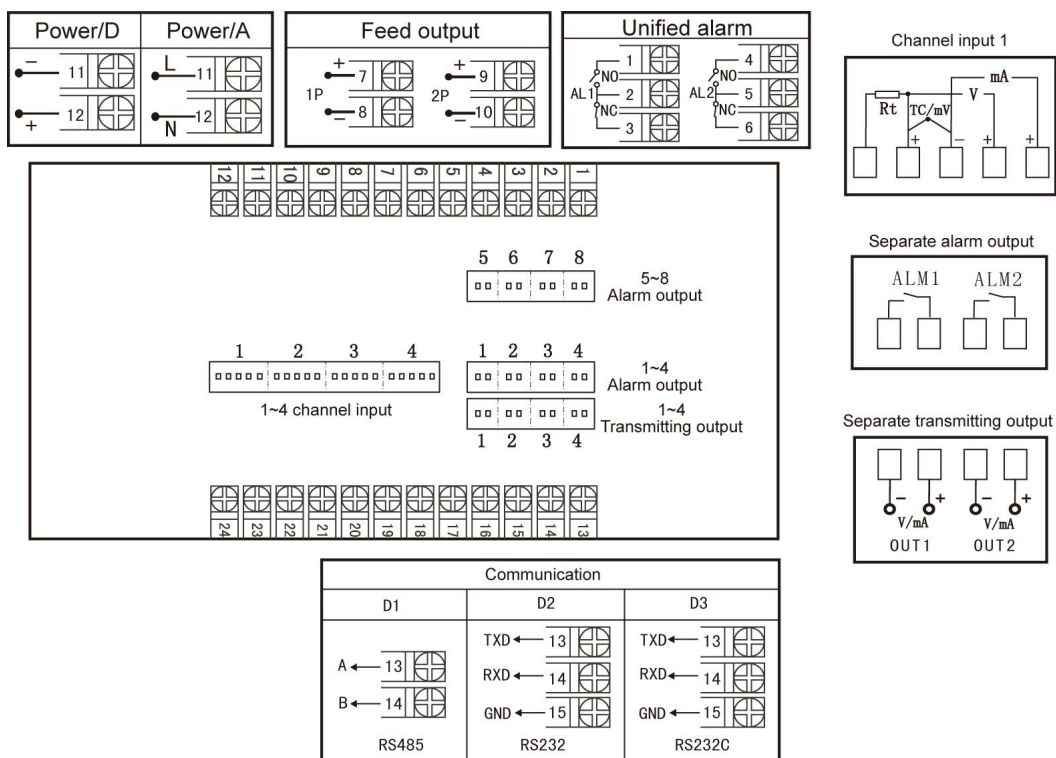
| | | | |
|-----------------------|---|---------------------------------------|--|
| 2 | Separate alarm | 22 | 0~100 mV (-1999~9999) |
| ⑤Communication Output | | 23 | -20~20 mV (-1999~9999) |
| Code | Communication interface(communication protocol) | 24 | -100~100 mV (-1999~9999) |
| X | No output | 25 | 0~20 mA (-1999~9999) |
| D1 | RS-485 communication interface (Modbus) | 26 | 0~10 mA (-1999~9999) |
| D2 | RS232 communication interface (Modbus) | 27 | 4~20 mA (-1999~9999) |
| D3 | RS232 printer interface | 28 | 0~5 V (-1999~9999) |
| ⑥Feed Output | | 29 | 1~5 V (-1999~9999) |
| Code | Feed output (output voltage) | 30 | -5~5 V (-1999~9999) |
| X | No output | 31 | 0~10 V (-1999~9999) (unable to switch) |
| 1P | Channel 1 feed output | 32 | Extraction of 1~10 mA (-1999~9999) |
| 2P | Channel 2 feed output | 33 | Extraction of 4~20 mA (-1999~9999) |
| | e.g. "2P (12/24)" means feed output of 12V of Channel 1 and feed output of 24 V of Channel 2. | 34 | Extraction of 0~5 V (-1999~9999) |
| | | 35 | Extraction of 1~5 V (-1999~9999) |
| | | 55 | Overall switch |
| | | 56 | Special specifications |
| ⑦Power Source | | ⑧Remarks (None or able to be omitted) | |
| Code | Voltage range | | |
| A | AC100~240 V (AC/50~60 Hz) | | |
| D | DC20~29 V | | |

Notes:

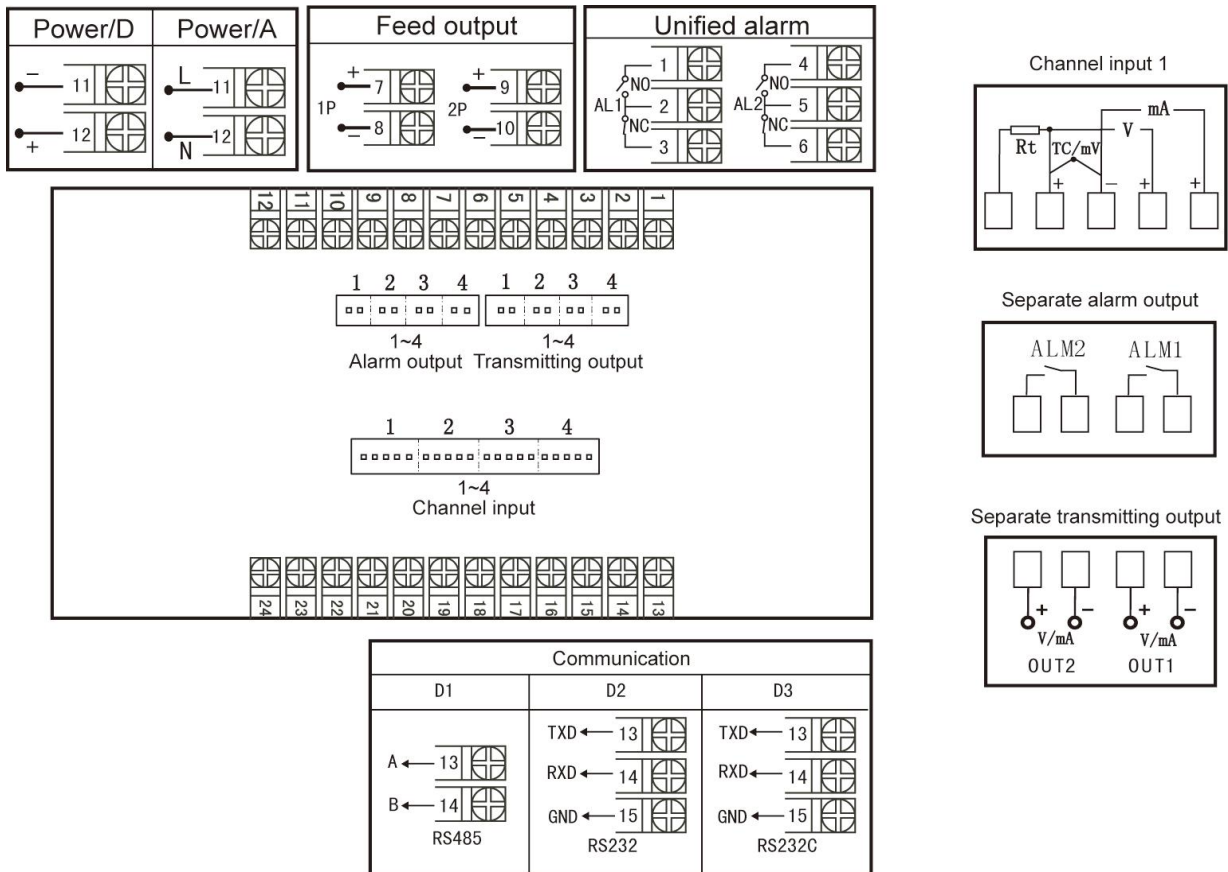
1. For model selection, selection of functions has to depend on the wiring diagram. As a controller of a small size has fewer terminal connectors, comprehensive functions cannot be achieved and sometimes, only one function can be selected for a set of terminal connectors.

Controller Wiring Diagram

Wiring Diagram of Type A and B



Wiring Diagram of Type C



* Notes:

1. Although the same set of terminal connectors in the diagram is marked with different functions, only one function can be selected. When RS485 and RS232 are available for a set of terminal connectors, only one of them can be selected.

2. The connection terminal of unified transmitting output is on the number one output terminal.

VIII. Time Setting and Display

When the controller PV displays measurement values, press to enter into parameter setting. Set LOC=130, and when PV displays LOC and SV displays 130, press for four seconds to enter into time parameter setting. When the controller PV displays “dATE” and SV displays the current date (such as 090720 meaning July 20, 2009), the current date can be set by reference to controller parameter setting. If the current date is displayed, press and the controller PV will display “Time” and controller SV will display the current time (such as 183047 meaning 18:30:47). At such status, current time can be set by reference to controller parameter setting. When current time is displayed, press once again to exit from time setting and return to display of PV measurement values. On the actual measurement page and in case of automatic controller inspection, press the down arrow key to display the current time. Upon release of the key, the time will disappear and the screen will display measurement values.

IX. Printing

1. Manual printing

When the controller displays measurement values, press and then current measurement values will be printed.

2. Timed printing

When timing is equal to the interval time, the controller will make the printer conduct timed printing, which will print current real-time measurement values. The printing format is:

TIME PRINT
 09-01-02
 15:35:42
 C01=500.0 °C
 C02=30.2 °C
 C03=360.5 °C
 C04=1000 °C
 A01:○○●●○○○○

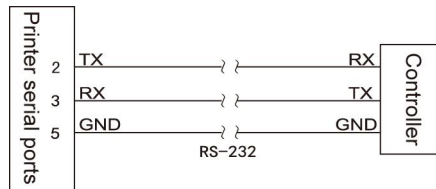
Instructions:

C01~C04: representing measurement values of 1~4 input channels respectively;

A01: representing the status of 1~8 alarm contact points respectively from left to right

Hollow circles mean no alarm, while filled circles indicate alarm.

3. Wire connection mode



X. Communication Setting

The controller is able to achieve communication with the principal computer, which can realize automatic calibration, parameter setting, data collection, monitoring control and other functions of lower computers. With industrial control software and in Chinese Windows environment, it can accomplish dynamic page display, controller data setting, chart generation, saving and recording, statement printing and other functions.

Technical indexes communication mode serial communications RS-485 and RS-232 with the baud ratio falling between 1200 and 9600 bps

Data format one bit as start bit, eight bits as data bits, and one bit as stop bit

* For details, please refer to the Instrument Communication Manual.