

HDM1300 Single Loop Digital PID Controller



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Product Introduction

HDM1300 PID Pressure/Temperature Controller instrument, fool operation, a 0.3 magnitude measurement precision, seven new appearance size, double four LED display, can support the thermocouple, heat resistance, voltage (root operation), current (root operation) and input in the transmitter, suitable temperature, pressure, flow, liquid level, humidity, such as industrial process monitoring. It supports 2-way alarm function, 1-way transformer output or RS485 communication interface using standard MODBUS protocol, 1-way DC24V feed output, photoelectric isolation of input end, output end and power end, 100-240V AC/DC or 12-36V DC switching power supply, standard snap-in installation, working environment temperature is 0-50°C, and relative humidity is 5-85%RH without condensation.

1. Display panel appearance structure drawing

(1) PV display window(measured value)

(2) SV display window

Display parameters like input type in measurement mode;

Display setting value in parameters setting mode;

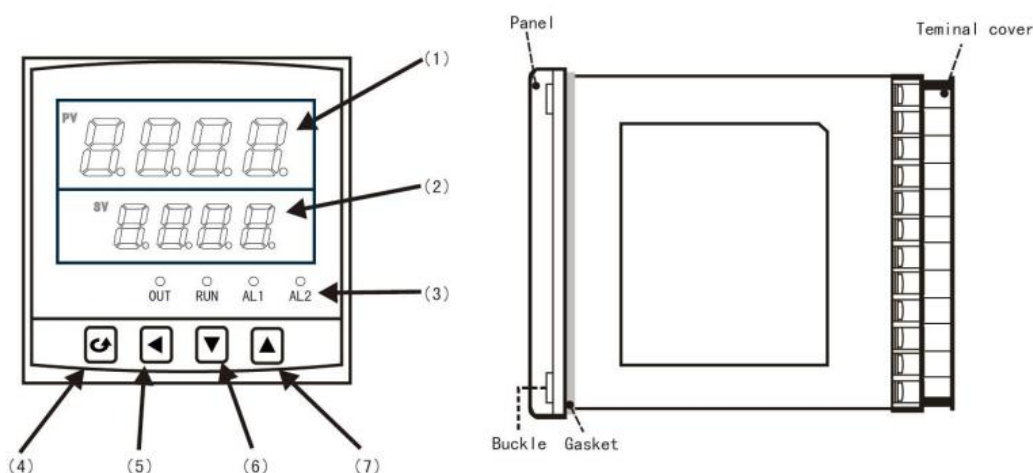
First Alarm(AL1)、 Second Alarm(AL2) Indicator light,Running lights(RUN) and Output lights(OUT)

(4) Confirmation

(5) Shift key

(6) Decrease key

(7) Increase key



External dimensions and hole dimensions of the instrument:

External dimension	Hole dimension	External dimension	Hole dimension
160*80mm (Horizontal type)	152*76mm	96*96mm (Square type)	92*92mm
80*160mm (Vertical type)	76*152mm	72*72mm (Square type)	68*68mm
96*48mm (Horizontal type)	92*45mm	48*48mm (Square type)	45*45mm
48*96mm (Vertical type)	45*92mm		

2. Ordering Guide

HDM1300 □-□-□/□/□ () -□- () PID Pressure/Temperature Controller

① ② ③ ④ ⑤ ⑥ ⑦

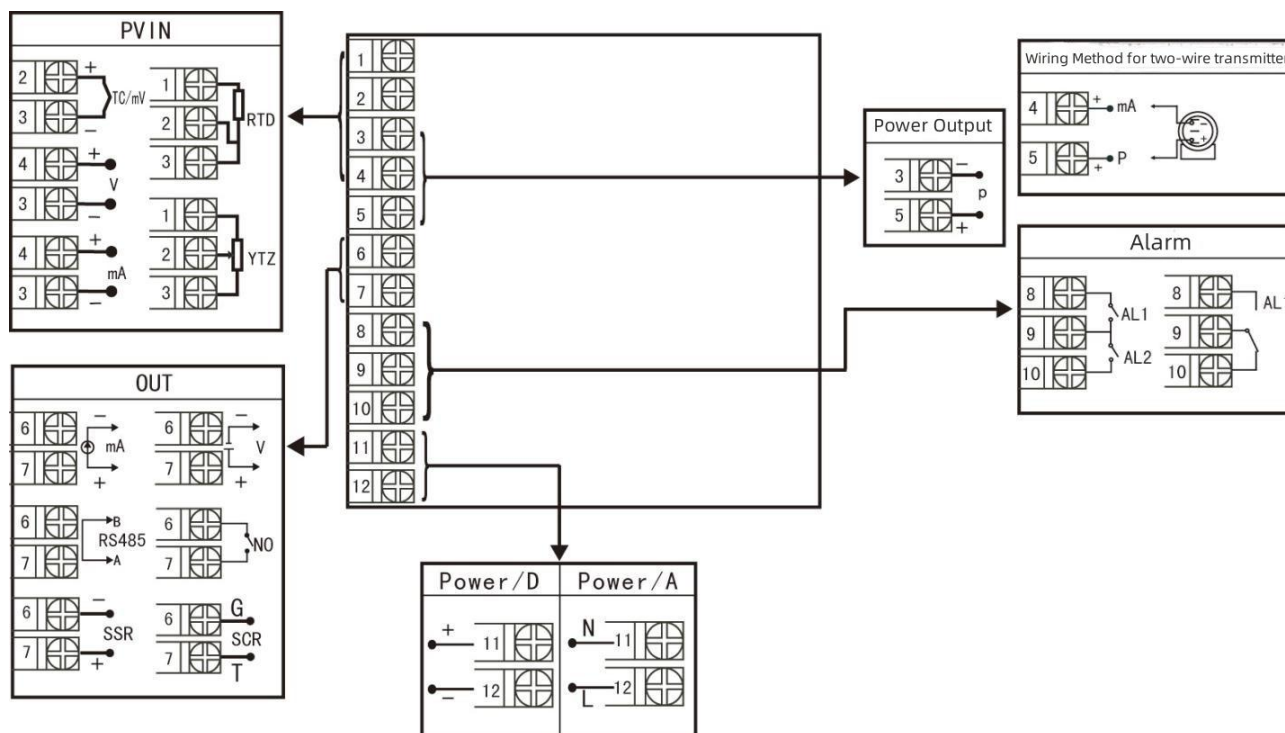
①Size		②Input Signal	
Code	Width * Height * Depth	Code	Type (Measuring Range)
A	160*80*110mm (Horizontal type)	00	Thermocouple B(400~1800°C)
B	80*160*110mm (Vertical type)	01	Thermocouple S(0~1600°C)
C	96*96*110mm (Square type)	02	Thermocouple K(0~1300°C)
D	96*48*110mm (Horizontal type)	03	Thermocouple E(0~1000°C)
E	48*96*110mm (Vertical type)	04	Thermocouple T(-200.0~400.0°C)
F	72*72*110mm (Square type)	05	Thermocouple J(0~1200°C)
H	48*48*110mm (Square type)	06	Thermocouple R(0~1600°C)
③Control Output (OUT)		07	Thermocouple N(0~1300°C)
Code	Output Type (Load Resistance RL)	08	F2(700~2000°C)
0	4-20mA(RL≤500Ω)	09	Thermocouple Wre3-25(0~2300°C)
1	1-5V(RL≥250KΩ)	10	Thermocouple Wre5-26(0~2300°C)
2	0-10mA(RL≤1KΩ)	11	Thermal Resistance CU50(-50.0~150.0°C)
3	0-5V(RL≥250KΩ)	12	Thermal Resistance CU53(-50.0~150.0°C)
4	0-20mA(RL≤500Ω)	13	Thermal Resistance CU100(-50.0~150.0°C)
5	0-10V(RL≥4KΩ)	14	Thermal Resistance PT100(-200.0~650.0°C)
K1	Relay Contact Output	15	Thermal Resistance BA1(-200.0~600.0°C)
K3	Single phase SCR zero - crossing trigger pulse output	16	Thermal Resistance BA2 (-200.0~600.0°C)
K4	The solid-state relay drives the voltage output	17	Linear Resistance 0~1KΩ(-1999~9999)
D1	RS485 Communication interface (Modbus RTU)	18	Far Eastone Resistance 0-350Ω (-1999~9999)
④Alarm Points (Relay Contact Output)		19	Far Eastone Resistance 30-350Ω (-1999~9999)
Code	Alarm points	20	0~20mV (-1999~9999)
X	None	21	0~40mV (-1999~9999)
1	One-way Alarm Point	22	0~100mV (-1999~9999)
2	Two-way Alarm Points	23	Internal retention
⑤Feeding Power Supply		24	Internal retention
Code	Output Voltage	25	0~20mA (-1999~9999)
X	None	26	0~10mA (-1999~9999)
P	One-way feeding power supply (Load current≤30mA) Example:P(24)=feeding power supply 24VDC	27	4~20mA (-1999~9999)
⑥Power Supply		28	0~5V (-1999~9999)
Code	Voltage Range	29	1~5V (-1999~9999)
		30	Internal retention
		31	0~10V (-1999~9999)

A	AC/DC 100-240V (50/60Hz)	32	0~10mA (extraction) (-1999~9999)
D	DC 12-36V	33	4~20mA (extraction) (-1999~9999)
⑦Remarks		34	0~5V (extraction) (-1999~9999)
No remarks can be omitted		35	1~5V (extraction) (-1999~9999)
		55	Full switch

Remark:

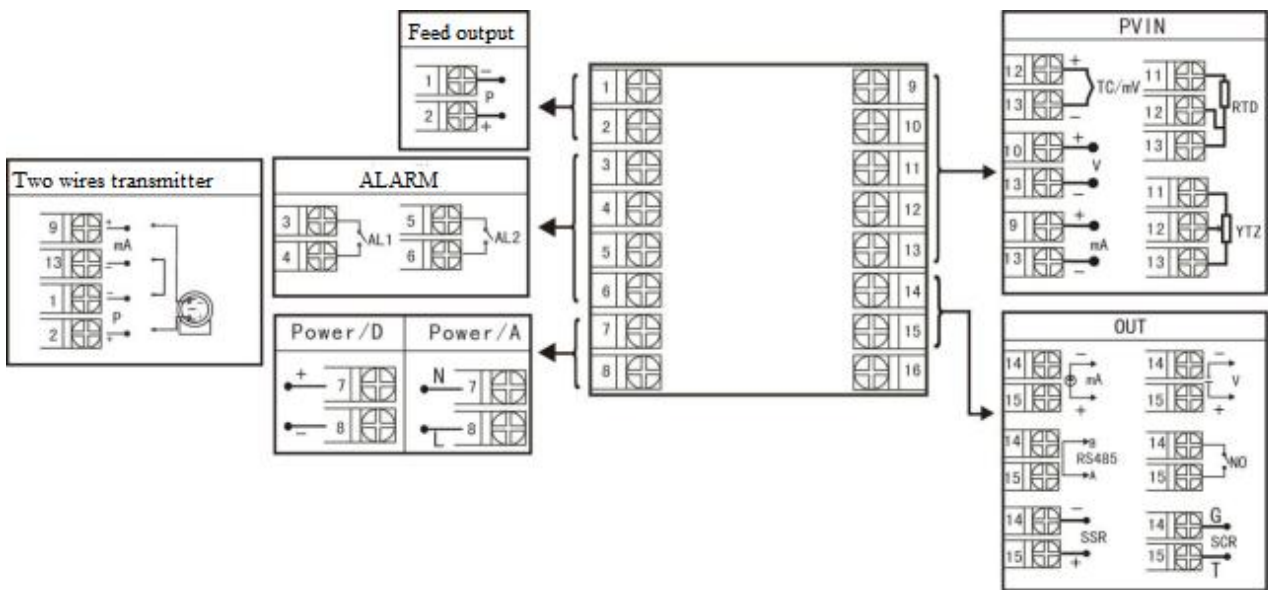
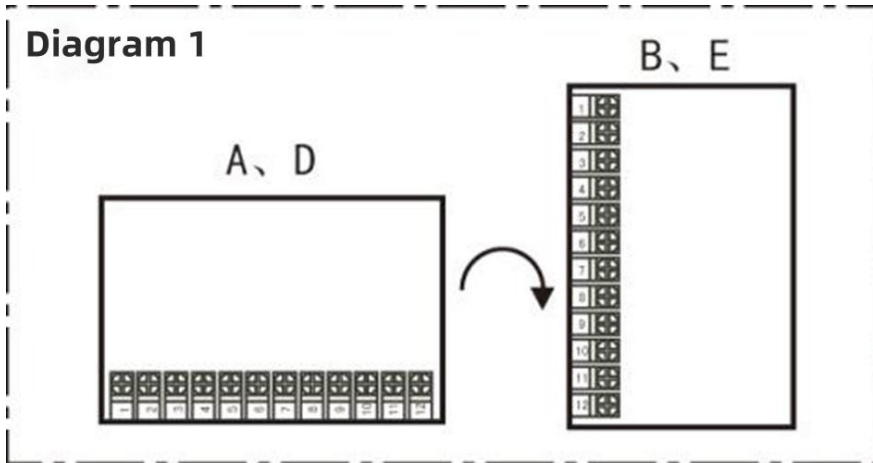
- Contact capacity of one-line relay (with normally open and normally closed contact) : AC220V/3A, DC30V/5A (resistive load); Contact capacity of two-channel relay (only one set of normally open contacts) : AC220V/3A, DC30V/5A (resistive load)
- Instrument size H, relay contact capacity: AC220V/0.6A, DC30V/0.6A(resistive load)

3. Wiring

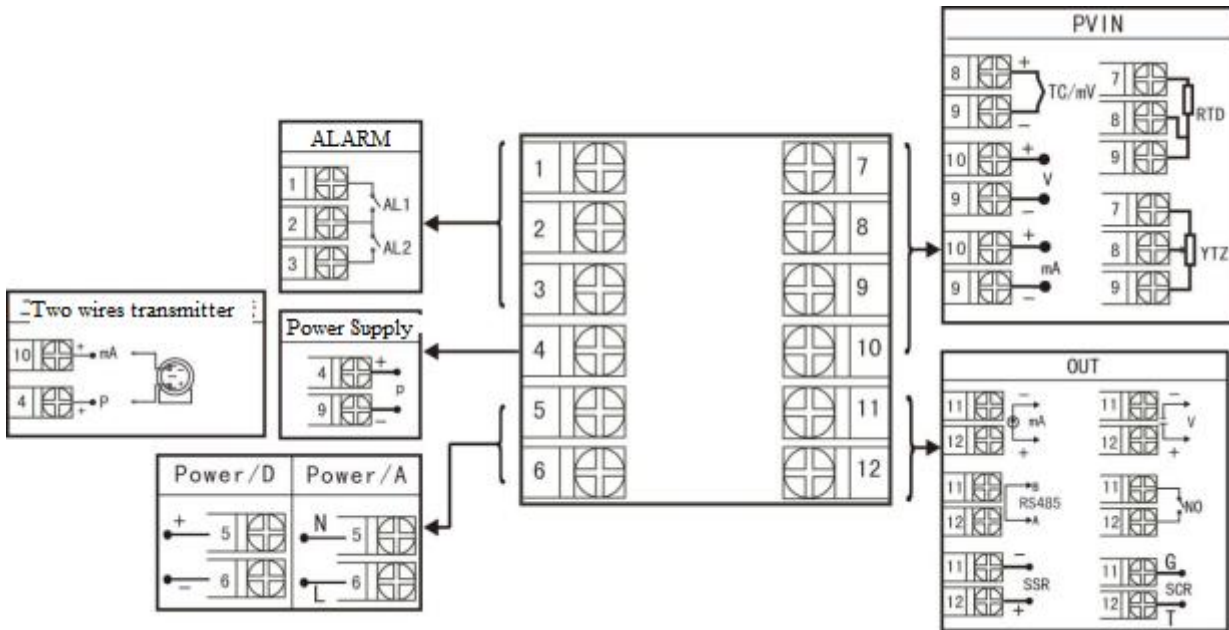


The dimensions are A, B, C, D and E wiring diagrams

Note: The direction of the terminal of the rear cover of the horizontal and vertical instrument is different. See diagram 1.



The dimension is F wiring diagram



The dimension is H wiring diagram

Note:


If different functions are marked on the same set of terminals in the wiring diagram above, only one of the functions can be selected. For example, the RS485 communication function and control output function are on the same set of OUT terminals, and only one can be selected. If both need to exist at the same time, the control output can only choose the output of switching quantity and the terminal is on AL2.

Input signal type table:



Pn	Signal Type	Measuring Range	Pn	Signal Type	Measuring Range
0	Thermocouple B	400~1800°C	17	0~500Ω Linear Resistance	-1999~9999
1	Thermocouple S	0~1600°C	18	0~350Ω Far Eastone Resistance	-1999~9999
2	Thermocouple K	0~1300°C	19	30~350Ω Far Eastone Resistance	-1999~9999
3	Thermocouple E	0~1000°C	20	0~20mV	-1999~9999
4	Thermocouple T	-200.0~400.0°C	21	0~40mV	-1999~9999
5	Thermocouple J	0~1200°C	22	0~100mV	-1999~9999
6	Thermocouple R	0~1600°C	25	0~20mA	-1999~9999
7	Thermocouple N	0~1300°C	26	0~10mA	-1999~9999
8	Thermocouple F2	700~2000°C	27	4~20mA	-1999~9999
9	Thermocouple Wre3-25	0~2300°C	28	0~5V	-1999~9999
10	Thermocouple Wre5-26	0~2300°C	29	1~5V	-1999~9999
11	Thermal Resistance Cu50	-50.0~150.0°C	31	0~10V	-1999~9999
12	Thermal Resistance Cu53	-50.0~150.0°C			
13	Thermal Resistance Cu100	-50.0~150.0°C			

14	Thermal Resistance Pt100	-200.0~650.0°C			
15	Thermal Resistance BA1	-200.0~600.0°C			
16	Thermal Resistance BA2	-200.0~600.0°C			


4. Operation

After power-on self-test, the instrument will enter operating mode automatically. Press 


for parameters setting.

- 1) Press and hold  for reset.
- 2) Any other menu, press and hold  for 5 seconds to go back to measurement menu.



★ Back to operating mode

- 1) Manual return: in parameters setting mode, hold  for 5 seconds to return to real-time measurement mode;
- 2) Automatic return: in parameters setting mode, inaction for 60 seconds will bring the instrument back to real-time measurement mode.

4.1 L1 Parameters Setting

In the operating mode, press , PV will display LOC and SV will display parameter symbol: press increase/decrease key for setting.

See table below for L1 parameters (matching functions of the ordered model; there will not be parameters for functions not available):

Parameter	Symbol	Name	Setting Range (Value)	Description	Preset value
	LoC	Parameter lock	LoC=00 LoC≠ 00.132 LoC=132	No lock (valid for change of L1 parameters) Lock (valid for change of L1 parameters) No lock (valid for change of L1 and L2 parameters)	00
	AL1	Primary alarm value	-1999-999 9	Setting value for primary alarm	50 or 50.0

AL2	AL2	Secondary alarm value	-1999-9999	Setting value for secondary alarm	50 or 50.0
AH1	AH1	Return difference of primary alarm	0-9999	Return difference value of primary alarm	02 or 2.0
AH2	AH2	Return difference of secondary alarm	0-9999	Return difference value of secondary alarm	02 or 2.0
SdiS	SdiS	SV display screen Content In measurement mode	SdiS=0 SdiS=1 SdiS=2 SdiS=3 SdiS=4 SdiS=6 SdiS=7	Input graduation Primary alarm value Secondary alarm value No content No content °C No content	0

4.2 L2 Parameters Setting

In the operating mode, press **⏏**, PV will display LOC and SV will display parameter

symbol: press increase/decrease key for setting. Loc=132 and hold **⏏** to enter L2

parameters interface.

See table below for L2 parameters (matching functions of the ordered model; there will not be parameters for functions not available):

Parameter	Symbol	Name	Setting Range (Value)	Description	Preset value
Pn	Pn	Input graduation	0~35	Set input graduation type (see L2 Parameters Pn Lookup Table)	27
dP	Dp	Decimal point	dp=0 dp=1 dp=2 dp=3	No decimal point Ten decimal places (XXX.X) One hundred decimal places (XX.XX) One thousand decimal places (X.XXX)	0
ALn1	ALM1	Primary alarm mode	ALM1=0 ALM1=1 ALM1=2	No alarm Lower-limit alarm Upper-limit alarm	2

ALM2	ALM2	Secondary alarm mode	ALM2=0 ALM2=1 ALM2=2	No alarm Lower-limit alarm Upper-limit alarm	1		
FK	FK	Filter coefficient	0-4	To prevent flopping of displayed value	0		
Addr	Addr	Equipment code	0-250	Setting of equipment code of the instrument in communication	1		
Baud	Baud	Baud rate	1200 2400 4800	Baud rate: 1200bps Baud rate: 2400bps Baud rate: 4800bps	9600		
			9600	Baud rate: 9600bps			
PB	PB	Display input zero shift	Full range	Set and display shift of input zero	0		
PK	PK	Display input range scale	0-1.999 times	Set and display amplification scale of input range	1.000		
ouL	OuL	Lower limit of measurement range of transducing output	Full range	Set lower limit of measurement range of transducing output	0		
ouH	ouH	Upper limit of measurement range of transducing output	Full range	Set upper limit of measurement range of transducing output	1000		
PL	PL	Lower limit of measurement range	Full range	Set lower limit of measurement range of input signal	0		
PH	PH	Upper limit of measurement range	Full range	Set upper limit of measurement range of input signal	1000		
Cut	Cut	Small measuring signal cutting	0.000-1.000	This function only works for voltage/current extraction signal; when input signal<lower limit of input signal+(upper limit of input signal-lower limit of input signal)*set percentage, the instrument displays lower limit of measurement range.	0.000		
Out	Out	Transducing output type	Signal type	Parameter symbol	Signal type	Parameter symbol	4-20mA
			0-20mA	20mA	0-5V	0-5V	
			0-10mA	10mA	1-5V	1-5V	
			4-20mA	4-20	No output	0mA	

$\Gamma - P_b$	T-Pb	Zero correction at cold junction	Full range	Set zero correction value at cold junction	0
$\Gamma - P_L$	T-Pk	Gain correction at cold junction	0-1.999 times	Set gain correction value at cold junction	1.000
$\sigma - P_b$	O-Pb	Zero shift of the transmitting	Full range	Setting of the zero shift of the transmitting output	0

★ L2 Parameters Pn Lookup Table

Degree no .Pn	Signal types	measuring range	Degree no Pn	Signal types	measuring range
0	Thermocouple B	400~1800°C	18	Remote Resistance 0~350Ω	-1999~9999
1	Thermocouple S	0~1600°C	19	Remote Resistance 3 0~350Ω	-1999~9999
2	Thermocouple K	0~1300°C	20	0~20mV	-1999~9999
3	Thermocouple E	0~1000°C	21	0~40mV	-1999~9999
4	Thermocouple T	-200.0~400.0°C	22	0~100mV	-1999~9999
5	Thermocouple J	0~1200°C	23	-20~20mV	-1999~9999
6	Thermocouple R	0~1600°C	24	-100~100mV	-1999~9999
7	Thermocouple N	0~1300°C	25	0~20mA	-1999~9999
8	F2	700~2000°C	26	0~10mA	-1999~9999
9	Thermocouple Wre3-25	0~2300°C	27	4~20mA	-1999~9999
10	Thermocouple Wre5-26	0~2300°C	28	0~5V	-1999~9999
11	RTD Cu50	-50.0~150.0°C	29	1~5V	-1999~9999
12	RTD Cu53	-50.0~150.0°C	30	-5~5V	-1999~9999
13	RTD Cu100	-50.0~150.0°C	31	0~10V	-1999~9999
14	RTD Pt100	-200.0~650.0°C	32	0~10mA square	-1999~9999
15	RTD BA1	-200.0~600.0°C	33	4~20mA square	-1999~9999
16	RTD BA2	-200.0~600.0°C	34	0~5V square	-1999~9999
17	Linear resistance 0~500Ω	-1999~9999	35	1~5V square	-1999~9999

