

Intelligent digital display instrument

Option Manual

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Intelligent digital display instrument outline

This series products adopted the surface package modularization craft, have improved greatly the anti-interference ability of the instruments, have display, transmit communication, universal signal input function and so on. They apply to indication and control of various physical quantity check signal such as temperature, humidity, pressure, liquid level, instantaneous flow, velocity etc., and for various nonlinear input signal can carry out high accuracy linear compensation. They may widely used to the fields such as electrical power, metallurgy, chemical industry, petrochemical industry, papermaking printing and dye, making, tobacco, and space flight base, etc.

Adoption of up-to-day non-jumper technique makes the input port to gain universal signal input function, and users can realize light switching between multi input signal (thermocouple, thermo resistance, remote pressure, mV, standard voltage/current signal) only need by change internal parameters. Circuit board through optimization design and continual perfection of production technology, has reduced temperature drift, has improved anti-interference property, ensure products stability and reliability during long-term operation.

Instruments adopt high brightness LED digital display and high-resolution light column display (proportion display) makes measurement/control value display more clear and visual. Output loops all adopt photoelectric isolation; its anti-interference ability is strong. It may with serial communication interface, can carry out both-way communication between it and every device with serial interface, and constitute network control system.

The instruments have various standard outline dimensions, can apply to various measurement control field. Circuitry adopts card insert structure, makes assembly convenient extremely.

Relative explain:

(1) Indication color

LED digital code tube have two colors: red, yellow-green, and light column have two colors: red and green, may be selected. When instrument out of factory approved that: digital display instrument with single screen, LED is red; and digital display instrument with double screen, its main screen is red, assistant screen is yellow-green; light column instrument is red. If need to change display color, it may be explained by user while ordering.

(2) For three screen digital display instrument, three screen all is approved red.

(3) Measurement accuracy class is approved 0.5 when out of factory, if need 0.2 class, explain while ordering, please.

(4) Terminals of instrument explain



(5) Wiring drawing of this type spectrum instrument, for which if change we will not give notice, the random wiring drawing shall prevail.

> Main technical parameter

Input signal	Analog quantity <ul style="list-style-type: none"> ·thermocouple: B, S, K, E, J, T, WRe3-25 etc. ·Thermo-resistance: Pt 100, Cu 50, Pt 100..1 ·Current: 0~10 mA, 4~20 mA etc. (input impedance $\leq 250 \Omega$) ·Voltage: 0~5 V, 1~5V, mV etc. (input impedance $\geq 1 M\Omega$) ·Remote transmission pressure resistance: $30\Omega \sim 350 \Omega$
Output signal	Analog quantity output: <ul style="list-style-type: none"> ·DC 4~20 mA (load resistance $\leq 750\Omega$) ·DC 0~10 mA (load resistance $\leq 1.5 K\Omega$) ·DC 1~5 V (load resistance $\geq 250 K\Omega$) ·DC 0~5 V (load resistance $\geq 250 K\Omega$) Switch quantity output: <ul style="list-style-type: none"> ·relay control output ·Contact capacity (resistive load) –AC220V/3A, DC 24V/3A ·Silicon controllable rectifier (SCR) zero-crossing triggering impulse output——can trigger 600V/100A SCR ·Solid state relay control signal output (SSR) – output DC9V/30 mA ·SCR zero-crossing triggering output –bidirectional thyristor 600V/5A Communication mode RS-232 C, RS-485 Baud rate:300 bps~9600 bps (free set) Feed output:DC 24 V, load ≤ 30 mA
Property	Measurement accuracy: <ul style="list-style-type: none"> ·digital: $\pm 0.5\%$ FS ± 1 character ·light column: $\pm 1\%$ FS Resolution: digital display: ± 1 character light column display: ± 1 line Display range: <ul style="list-style-type: none"> ·digital:-1999~9999 ·light column: 0~100% Display mode: <ul style="list-style-type: none"> ·four bit high brightness LED digital display, ·101 lines high resolution light column display, ·LED working state display, ·single screen digital/double screen digital display, ·single screen digital + single light column display, ·double screen digital + double light column display, Control mode: may choose up limit, down limit, or up-up limit, down-down limit control Control set value: control set value and turn difference value can be free set in full range Temperature compensation: 0~50°C temperature automatic compensation Parameter set: <ul style="list-style-type: none"> ·board light contact push-key digital set ·parameter set value, after black out will permanent keep ·cipher code lock-in parameter setting value Protective mode: <ul style="list-style-type: none"> · alarm when thermocouple/thermo-resistance input line break · alarm for input exceed/under range · flicker alarm for input exceed range · LED indication for relay output state · work abnormality automatic reset
Electromagnetic compatible	Power and I/O terminal all through 2KV/5KHz grouped pulse anti-reference test,IEC NS6100-4A) (electric quick transient pulse group, surge), $\pm 2KV/5KHz$ in the quality, anti-reference, and safety standard aspects in accordance with international standard.
Operation environment	Environment temperature: $-30 \sim 70^{\circ}\text{C}$ Relative humidity: $\leq 85\%$ non-condensate dew, avoid to use in the environment with corrosive and explosive gas Supply voltage: linear power AC190~240 V Switch power AC / DC 90~265 V AC/DC22~26 V Power consumption: <ul style="list-style-type: none"> ·≤ 5 W (AC 190~240 V linear power) ·≤ 4 W (AC/DC85 V~265 V switch power) ·≤ 6 W (AC/DC 22 V~26 V switch power)

➤ Input type table

Input code	Input signal type	Measuring range	Resolution	Match sensor/transmitter	Input impedance
01	B	400~1800℃	1℃	Pt ₃₀ ~Pt ₆ thermocouple	≥1MΩ
02	S	0~1600℃	1℃	Pt ₁₀ ~Pt thermocouple	
03	K	0~1300℃	1℃	NiCr~NiSi thermocouple	
04	E	0~1000℃	1℃	NiCr~CuNi thermocouple	
05	T	0~320.0℃	0.1℃	Cu~CuNi thermocouple	
06	J	0~1200℃	1℃	Fe~CuNi thermocouple	
07	WRe3-25	0~2300℃	1℃	WRe 3~WRe 25 thermocouple	
08	Pt 100	-200~650℃	1℃	Pt thermo resistance R ₀ =100Ω	≥10KΩ
09	Pt 100.1	-99.9~320.0℃	0.1℃	Pt thermo resistance R ₀ =100Ω	
10	Cu 50	-50.0~150.0℃	0.1℃	Cu thermo resistance R ₀ =100Ω	
11	0~20 mV	-1999~9999	Highest 1.6μV	Pressure sensor	≥1MΩ
12	4~20 mA		Highest 1.3μA	DDZ – III transmitter	≤250Ω
13	0~10mA		Highest 0.8μA	DDZ – II transmitter	
14	1~5V		Highest 0.3 mV	DDZ – III transmitter	≥4.7MΩ
15	0~5V		Highest 0.4 mV	DDZ – II transmitter	
16	0~20 mA		Highest 1.6μA	DDZ – II transmitter	≤250Ω
17	30~350Ω		Highest 2.6mΩ	Remote pressure meter	≥10KΩ
18	Special signal		User specify (offer signal type, division number, or corresponding formula)		
19	4~20 mA evolution	-1999~9999	Highest 1.3μA	DDZ – III flow transmitter	≤250Ω
20	0~10mA evolution		Highest 0.8μA	DDZ – II flow transmitter	
21	1~5V evolution		Highest 0.3 mV	DDZ – III flow transmitter	≥4.7MΩ
22	0~5V evolution		Highest 0.4 mV	DDZ – II flow transmitter	
23	Full switch input	Not include function which code is 17, if need then explain please.			

【8 K series intelligent digital/light column display controller】

> Product outline

8 K series intelligent digital/light column display controller, This series products adopt surface package modularization craft, output loops all adopt photoelectric isolation, independently supply, have improved anti-reference ability.

Adopt up-to-day non-jumper technique makes the input port to gain universal signal input function, users can realize light switching between multi input signal (various thermocouple, thermo-resistance, remote pressure, mV, standard voltage / current signal) only need by change internal parameters, so has improved the universality and reliability of instrument.

➤ Outline dimension and open hole dimension



Outline dimension: 96×48×115mm

Open hole dimension: $92^{+0.7}_{-0} \times 45^{+0.7}_{-0}$ mm



Outline dimension: 48×96×115mm

Open hole dimension: $45^{+0.7}_{-0} \times 92^{+0.7}_{-0}$ mm



Outline dimension: 72×72×115mm

Open hole dimension: $68^{+0.7}_{-0} \times 68^{+0.7}_{-0}$ mm



Outline dimension: 160×80×115mm

Open hole dimension: $152^{+0.7}_{-0} \times 76^{+0.7}_{-0}$ mm



Outline dimension: 80×160×115mm

Open hole dimension: $76^{+0.7}_{-0} \times 152^{+0.7}_{-0}$ mm



Outline dimension: 96×96×115mm

Open hole dimension: $92^{+0.7}_{-0} \times 92^{+0.7}_{-0}$ mm



Outline dimension: 48×48×115mm

Open hole dimension: $45^{+0.7}_{-0} \times 45^{+0.7}_{-0}$ mm

> Type spectrum table of 8K series intelligent digital/light column display controller

Model									Explanation
WP-8K	-□	□	-T□□	E□	□	□	□□	-□	
Outline dimension	1								160×80 mm (horizontal type)
	2								80×160 mm (vertical type)
	4								48×48 mm (square type) (note 1)
	5								96×48 mm (horizontal type)
	6								48×96 mm (vertical type)
	7								72×72 mm (square type) (note 2)
	9								96×96 mm (square type)
Display feature	1								Single –screen display
	2								Double-screen display (down screen display input type/alarm set value)
	3								Single-screen single light column (only 1, 2, 9 has outline dimension code)
Input type			□□						See “input type table”
Communication mode				0					No communication interface
				2					RS-232C communication interface
				8					RS-485 communication interface
Control/alarm output				0					Display (no control /alarm output)
				1					One relay + SSR (AL2) DC 9V
				2					Two relays
				4					Four relays
				5					One relay + SCR (AL2), may trigger 600V/100A SCR
				6					One relay + SCR (AL2) load 5A
Transmission output				9					Special control output
				0					No transmitting output
				2					(4~20)mA transmitting output, load ≤750Ω
				3					(0~10) mA transmitting output, load ≤1.5KΩ
				4					(1~5) V transmitting output, load ≥250 KΩ
				5					(0~5)V transmitting output, load ≥250 KΩ
				6					two-loop (4~20)mA transmitting output (note 3)
				7					two-loop (1~5) V transmitting output (note 3)
Feed output				8					one-loop (4~20)mA, one-loop (1~5) V transmitting output (note 3)
				9					two-loop special transmitting output (note 3)
Supply mode									No feed output (may omit)
				P					DC 24V with one feed output, load ≤30mA
				2P					DC 24V with two feed output, each channel load ≤30 mA
Supply mode									AC 220 linear power (may omit)
				T					AC (90~265)V switch power supply
				W					DC 24V supply power

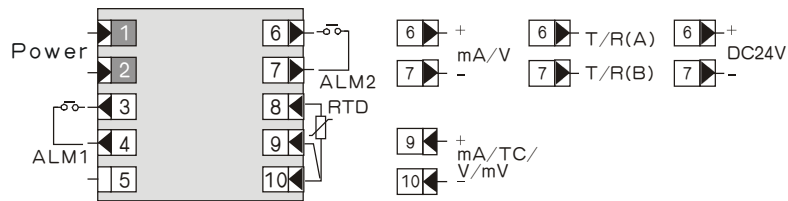
- ★ Note 1: For outline dimension 48×48 instrument, only can select alarm 1 + alarm 2 / transmitting / 485 communication / feed function, can not more than 2; for example: selects up limit alarm + down limit alarm, alarm + communication, alarm + transmitting etc.; transmitting and feed cannot be selected at the same time; no double screen display; no (22~26) V AC-DC power supply.
- ★ Note 2: For outline dimension 72×72 instrument, select alarm +transmitting + 485 communication + feed function, cannot more than 3; Transmitting and feed cannot be selected at the same time.
- ★ Note 3: Two channel transmitting output, only can has one alarm output, no feed output; no (22~26) V AC-DC power supply.

Type example: a project need functions of control temperature instrument are: single screen display communication mode with up-level machine is RS-485, transmit field temperature to standard DC (4~20) mA signal output, with 2 relays control output sensor is K thermocouple, outline dimension is 96×96.

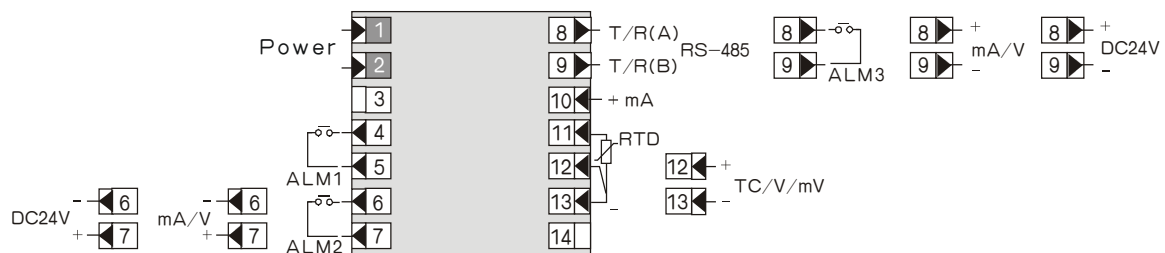
Selected type: WP-8K-91-T03E8220-T

➤ **Wiring diagram**

>> **Instrument wiring diagram of 48×48**

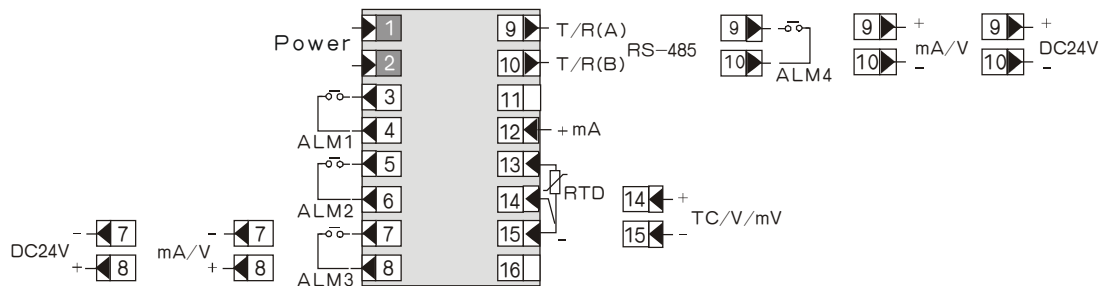


>> **Instrument wiring diagram of 72×72**



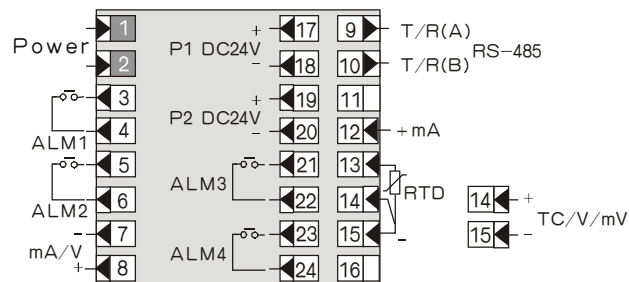
★ Note: If there is communication then transmitting output at 6, 7 terminal; if no communication, at 8, 9 terminal.

>> **Instrument wiring diagram of 96×48, 48×96, 96×96, 160×80, 80×160**

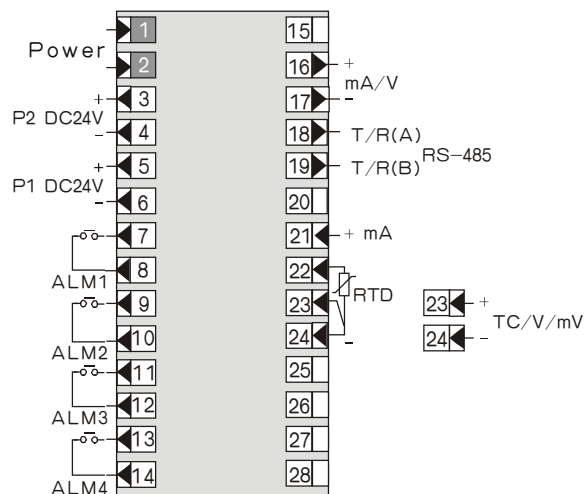


★ Note: If there is communication then transmitting output at 7, 8 terminal, if no communication, at 9, 10 terminal.

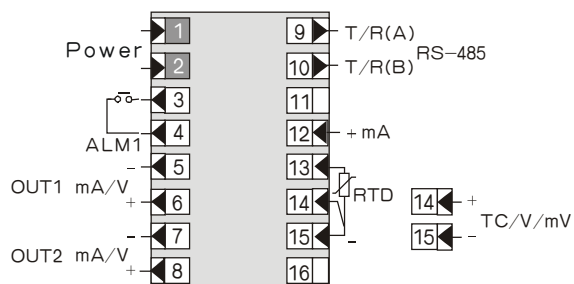
>> **Instrument wiring diagram of 96×96**



>> **Instrument wiring diagram of 160×80, 80×160**



>> Instrument wiring diagram of 96×48, 48×96, 96×96, 160×80, 80×160



【Double-loop digital /light column display controller】

➤ Product outline

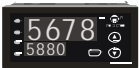




Double-loop digital / light column display controller adopts advanced microprocessors for smart control, and it is suitable for display and control for many variables such as temperature, humidity, pressure, liquid level, instantaneous flow, speed, and so on, as well as can carry out the linear calibration with high accuracy for various non-linear input signals.

It can separate display and control simultaneously for two-loop signals which can be different signal. input ports all have universal signal input, it can realize light switching between various input signal (thermocouple, thermo-resistance, standard voltage / current signals) by making simple selection on instrument menu. Such feature greatly improves its universality and reliability.

It adopts high brightness LED display and high resolution light column display (proportionality display) to makes the measurement or control value more clear and visual. The display mode includes: double screen Digital display, Double screen Digital + Double light column display; control mode: double channel independent each other relay control / alarm output or analog transmitting output.

Output loops all adopt the photoelectric isolation, its anti-interference ability is strong. And it can also carry serial communication interfaces

>Outline dimension and open hole dimension

 Outline dimension: 96×48×115mm Open hole dimension: $45^{+0.7}_{-0} \times 92^{+0.7}_{-0}$ mm	 Outline dimension: 48×96×115mm Open hole dimension: $45^{+0.7}_{-0} \times 92^{+0.7}_{-0}$ mm	 Outline dimension: 96×96×115mm Open hole dimension: $92^{+0.7}_{-0} \times 92^{+0.7}_{-0}$ mm
 Outline dimension: 160×80×115mm Open hole dimension: $152^{+0.7}_{-0} \times 76^{+0.7}_{-0}$ mm	 Outline dimension: 80×160×115mm Open hole dimension: $76^{+0.7}_{-0} \times 152^{+0.7}_{-0}$ mm	

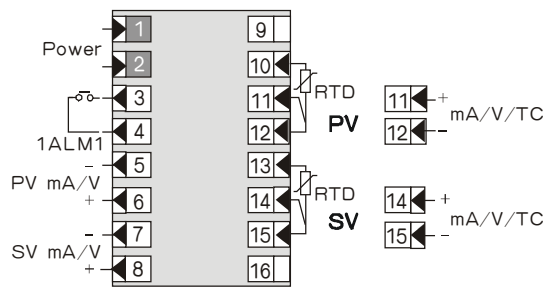
➤ Type spectrum table of double-loop digital / light column display controller

Model											Explanation	
WP-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Outline feature	D											Double screen horizontal display
	S											Double screen vertical display
	TX											Double screen and light column horizontal type display
	T											Double screen and light column vertical type display
Outline dimension		4										96×48 mm horizontal type, 48×96 mm vertical type
		8										160×80 mm horizontal type, 80×160 mm vertical type
		9										96×96 mm
Control action		21										Measurement display
		23										Measurement display with high/low limit control / alarm
Communication mode		0										No communication interface
		2										RS-232C communication interface
		8										RS-485 communication interface
PV output mode		0										No output
		1										Relay output
		2										(4~20)mA output
		3										(0~10)mA output
		4										(1~5)V output
		5										(0~5)V output
		6										SCR zero –crossing triggering pulse output
		7										SSR control signal output
		8										Special specification transmit output
SV output mode		0										No output
		1										Relay output
		2										(4~20)mA output
		3										(0~10)mA output
		4										(1~5)V output
		5										(0~5)V output
		6										SCR zero –crossing triggering pulse output
		7										SSR control signal output
		8										Special specification transmit output
PV input type						<input type="checkbox"/>					See “input type table”	
SV input type							<input type="checkbox"/>				See “input type table”	
PV alarm								N				No alarm
								H/ L				PV alarm is high/low limit alarm
SV alarm								<input type="checkbox"/>				same as PV alarm mode (same then can be omitted)
Feed output										N		No feed output (can be omitted)
										P		Single way DC 24V feed output (only supply 80 series)
										2P		Double way DC 24V feed output (only supply 80 series)
Supply mode											T	AC (90~265)V switch power supply (can be omitted)

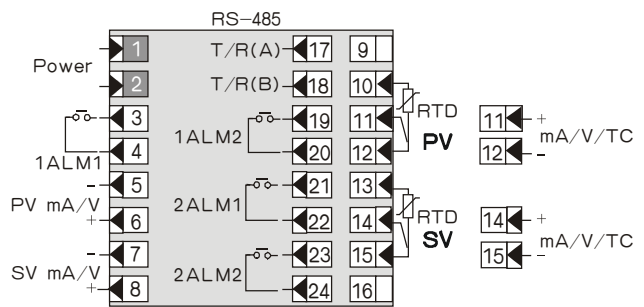
★ Option as an example: WP-D821-000-2323-N; WP-D823-011-0808-HL

➤ **Wiring diagram**

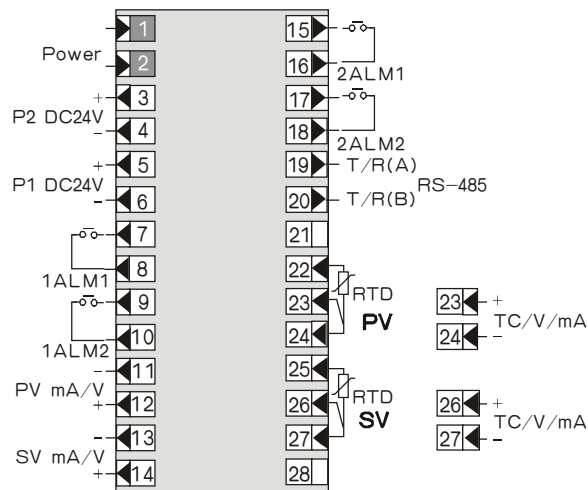
>> **Wiring diagram for 96×48, 48×96**



>> **Wiring diagram for 96×96**



>> **Wiring diagram for 160×80, 80×160**



【Intelligent multi-channel data-logging display controller】

> Summarize

Intelligent multi-channel data-logging display controller adopt advanced microprocessor for smart control, It is suitable for display and control temperature, humidity, pressure, liquid level, instantaneous flow, speed and so on in many physical quantity inspect signal, and can data-logging multi-channel measure signal. it also can carry on high-accuracy linear correction to various non-linear input signals.

Each input port all have function of universal signal input and single channel input, and each channel can input the different type signal at the same time. They only need to simple selection by instrument's menu when input signal is full switching, namely can realized lightly switching in different type input signal (a variety of thermocouple, thermo resistance, standard voltage/current signal), and improved universality and reliability of instrument.

Control output has two kinds: each channel unite alarm / transmit output; each channel respectively independent alarm /transmit output. Unite alarm type again classified into: alarm memory and alarm no memory type. Input/output loop all adopt photoelectric isolation, which have the better anti-jamming ability.

There are two kinds display for high-brightness LED numeric and the whole Chinese large screen LCD liquid crystal. They can take serial communication interface. The whole machine uses cassette insert construction, easy to installation.

➤ Outline dimension and open dimension



Less than 16 channels outline dimension: 160×80×140mm

32 channels outline dimension: 160×80×252mm

Open hole dimension: $152^{+0.7}_{-0} \times 76^{+0.7}_{-0}$ mm



less than 16 channel outline dimension: 80×160×140mm

32 channels outline dimension: 80×160×252mm

Open hole dimension: $76^{+0.7}_{-0} \times 152^{+0.7}_{-0}$ mm

> Type spectrum table for intelligent multi-channel data-logging display controller

		Model								Explanation	
WP-		<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Outline feature	D									Double-screen numeric horizontal type display	
	S									Double-screen numeric vertical type display	
	MD									Liquid crystal horizontal type display	
	MS									Liquid crystal vertical type display	
Channel and control		806								Eight-channels data-logging measurement display	
		807								Eight-channels data-logging measurement with unite alarm	
		808								Eight-channels data-logging respectively output measurement controller (note 2)	
		809								Sixteen-channels data-logging measurement display	
		816								Sixteen-channels data-logging measurement with unite alarm	
		832								32-channels data-logging measurement with unite alarm	
Communication mode		0								No communication interface	
		2								RS-232C communication interface	
		8								RS-485 communication interface	
Output mode		1								Relay control or alarm output	
		2								(4~20)mA output	
		3								(0~10)mA output	
		4								(1~5)V output	
		5								(0~5)V output	
		6								SCR zero crossing -trigger pulse output	
		7								SSR control signal output	
		8								Special specification transmission output	
Input type			<input type="checkbox"/> <input type="checkbox"/>							See "input type table"	
First alarm					N					No control/alarm	
					H					First alarm is high limit alarm	
					L					First alarm is low limit alarm	
Second alarm						<input type="checkbox"/>				Same as first alarm mode	
Feed output								P		DC24V feed output (no feed can be omitted)	
Supply mode										AC220V linear power supply (can be omitted)	
									T	AC (90~265) switch power supply	
									W	DC24V supply power	

★ Note 1: 8-channel respective output and 16-channel data logging instrument have aviation plug and post type connection, post type is approved when out of factory, if need aviation plug, explain while ordering, please connection mode of 32 -channel data logging instrument only has aviation plug.

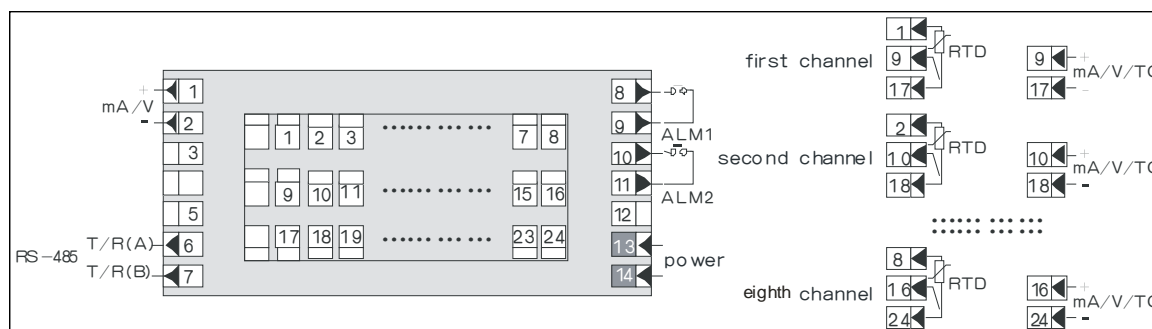
2. Respective output is 8-channel up limit + 8-channel down limit control alarm output or 8-channel respective transmitting output, output relay or transmitting select one.

Option as an example: WP-D806-02-23-N-T; WP-MD832-81-23-HL-T

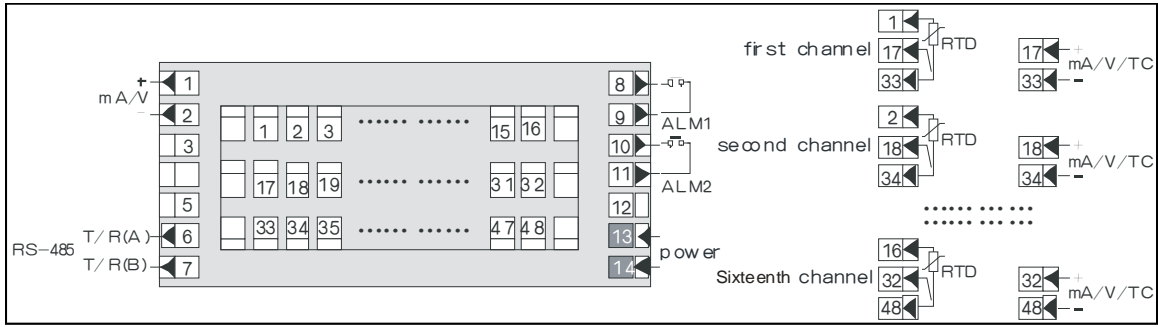
> Wiring diagram

>> Post type wiring diagram (unity output)

8-channel

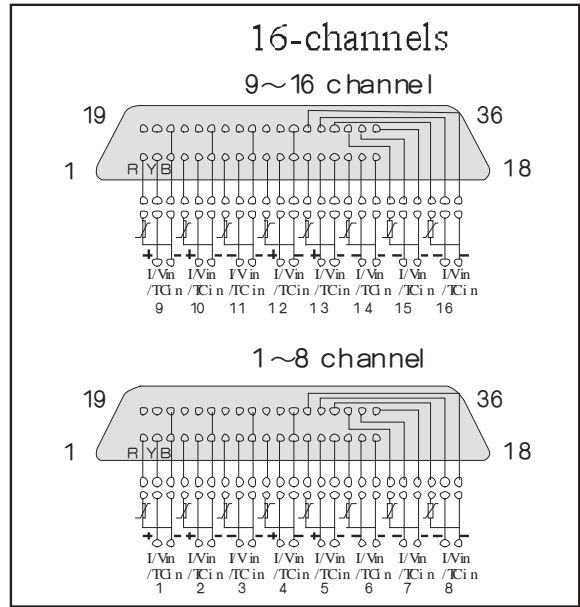
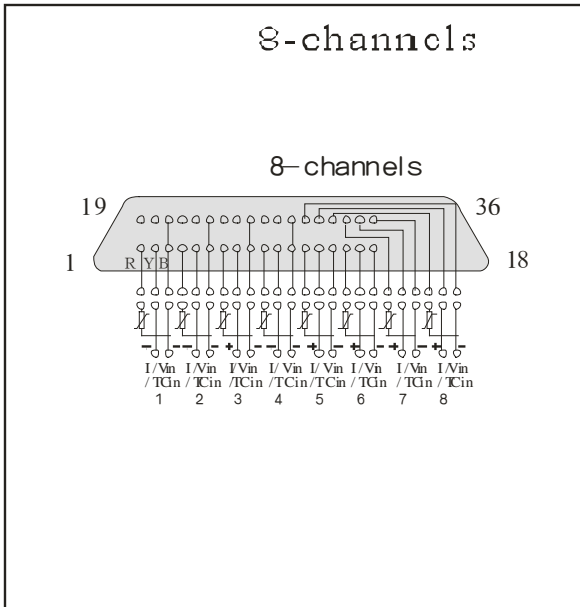
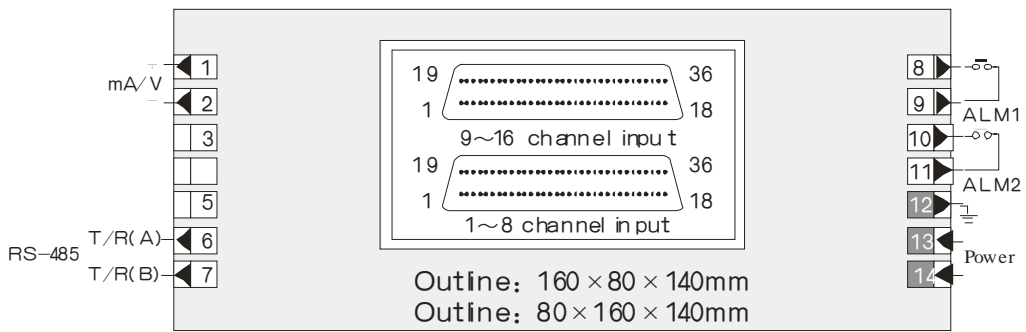


16-channels

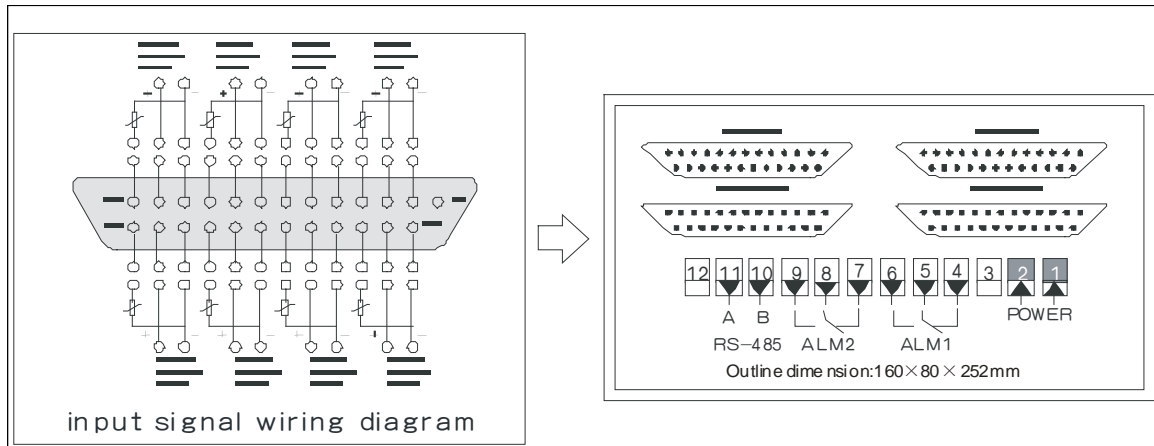


Aviation plug mode

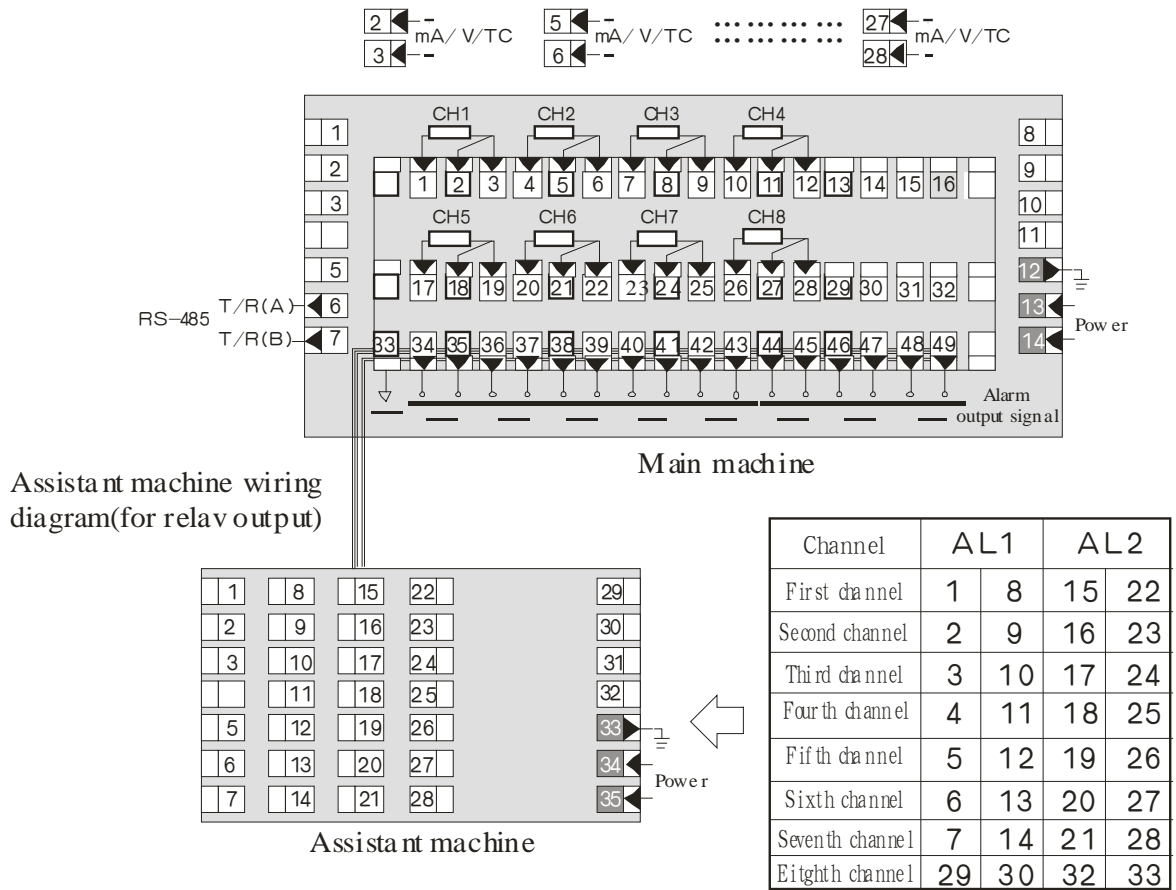
>> Aviation plug mode wiring diagram

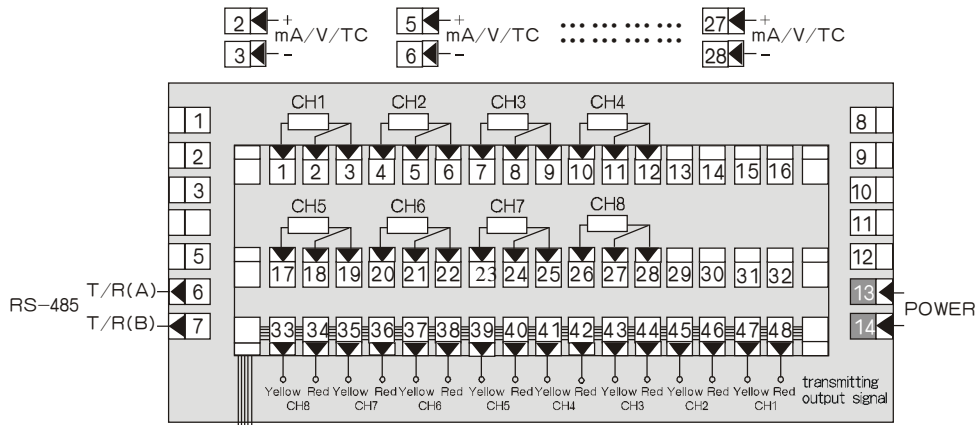


32-channels

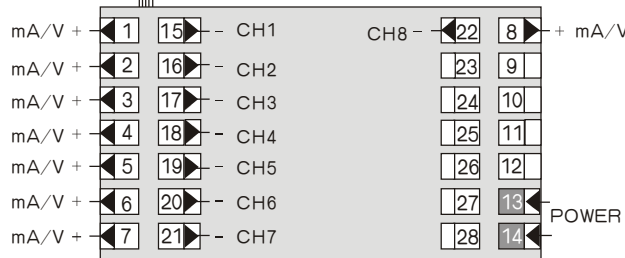


>> Post type wiring diagram (respectively output)



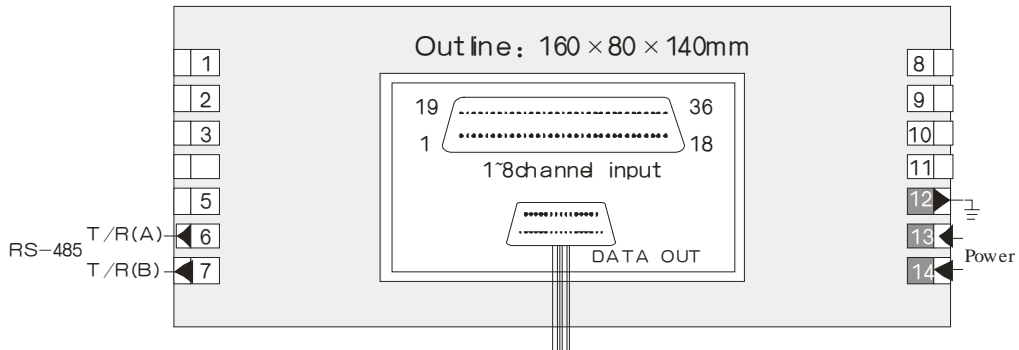


assistant machine wiring diagram (for transmitting output)



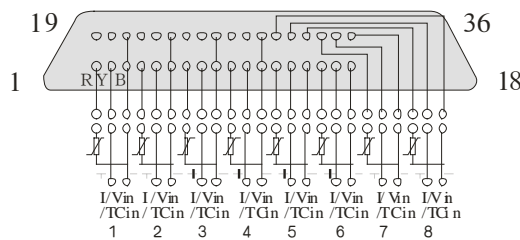
>> Aviation plug type wiring diagram (respective output)

Main machine



Connect to a ssistant machine

8-channels input wiring diagram



【Multi-loop intelligent data logging remote temperature controller】

➤ Product outline

WP multi-loop intelligent data logging remote temperature controller instruments integrate many years of experience for design and production, mix international up-to-date devices and control arithmetic, reflect on a higher level its features of intelligentization, series manufacture and high reliability which is represented by microprocessor.

WP-XTRM series multi-loop intelligent data logging remote temperature controllers (multi-loop temperature transmitters) based on familiar with WP instrument by users offer a wider opening enactment interface for internal parameters, thus users can possess their own right to complete secondary development and no longer rigidly rely on manufacturers for parameters enactment and the series products are widely applied in cements, ceramics and glass industries.

This product adopt Pt 100 thermo-resistance for temperature measurement and the output signal loop among with max. temperature in all loops, it has output of 4~20 mA. In normal operation, the loop with max. Temperature will be shown, but users can sight temperature on any loop through keystrokes on panels. Due to adopt 2-wired international standard signal it possible to communicate with PC or secondary instrument and have strong anti-jamming performance.

Its characteristics such as high performance, low price, smart control, anti-jamming performance, 2-wired signal transmission, field LED display, waterproof and dust-proof performance can well satisfy any requirement for field mounting.

➤ Main technical parameters

>> Input signal

- Measured channel • patrolling measurement for 1~4 loops
- Analog input • resistance: standard thermo-resistance: Pt 100

>> Output signal

- Transmitting output load • 250~750 Ω
- Output • DC 4~20 mA

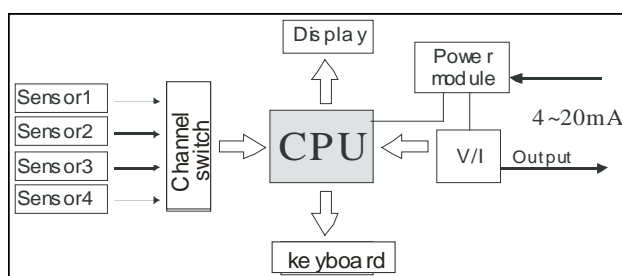
>> Characteristics

- measuring accuracy • display accuracy: $\pm 0.2\%$ FS; transmitting output accuracy: $\pm 0.5\%$ FS
- resolution • 0.1 character
- measuring range 0.0~200.0°C
- weight • 500g
- outline dimensions • 110 (W) × 160 (H) × 67 (D) mm

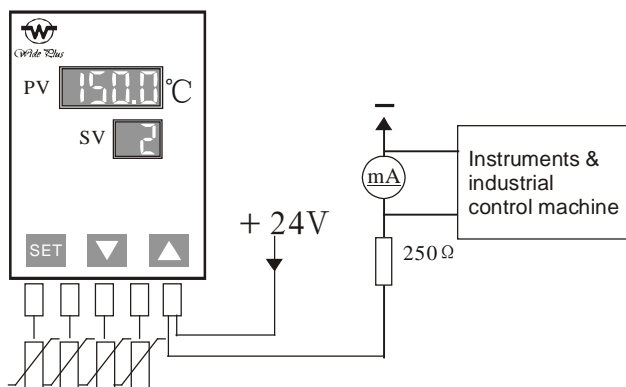
★ WP-XTRM temperature transmitter has multiple inputs and one 2-wired output of 4~20 mA and it is usually installed near the measured point. Its 2-wired output can simultaneously work as both signal output and power supply wire for instruments. The output current can be classified into two parts: the invariable 4 mA –works as “zero” point and as power supply current for electronic circuit of instrument while the variable current of 0~16 mA is direct proportion to variation of measured input signals.

★ The instrument is based on single piece microprocessor of micro power dissipation. The temperature signal from thermo-resistance sensor through input signal circuit can be transrommed from analog signal into digital signal by A/D converter, and after being accurately calibrated by microprocessor according to sampled result send to D/A, the digital signal can be converted to analog signal by D/A converter, which is ultimately converted to output of invariable current of 4~20 mA by V/I converter.

➤ **Block diagram for working principle**



➤ **Drawing for system application**



Outline diagram

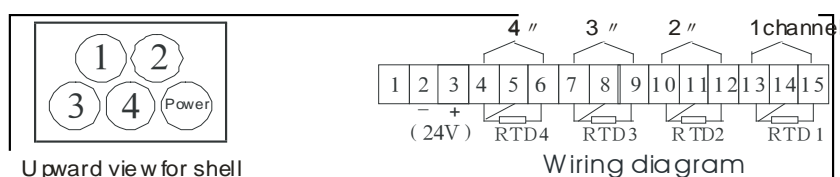


> **Type spectrum table for multi-loop intelligent remote temperature controller (2-wired output wall suspension type)**

Model			explanation
WP-XTRM	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Display mode	1		LED digital display
Input channel	Input platinum resistance: Pt 100	1	One channel input
		2	Two channels input
		3	Three channels input
		4	Four channels input
Measuring range		10	0~100.0 °C
		15	0~150.0 °C
		20	0~200.0 °C

- ★ Note: This product is checking temperature instrument which is special apply in cement industry etc. After every channel is compared it select a channel with max. measurement temperature as transmitting (4~20) mA current output, transmitting output and supply power only share two wires.
- ★ Note: This product may direct install in field, operation environment temperature reachable -20°C ~ 80°C.
- ★ Note: Users need to use a 4 loops temperature monitor with LED display for measurement of Pt 100 between range of 0~150.0°C
- ★ Option as an example: WP-XTRM-1415
- ★ Note: Special requirement ordering contact with WP company, please

➤ **Wiring diagram**



【8-loop flash alarm controller】

➤ Product outline

8-loop flash alarm controller adopts advanced microprocessor for smart control, and can match use with our any control instrument or other contact control instrument. It can detect simultaneously 8-loop signals. Inputs and mainframe both adopt photoelectric isolation structure.

Alarm input signals are: contact open-circuit alarm, contact closed-circuit alarm, TTL level signals. Alarm output modes are: flash alarm, sound alarm, relay contact output alarm (optional for memory function or not)

It adopts high brightness LED or long-lifetime planar luminotron separate indicate the current condition for every loop. The operational parameters exceeds the control point, the alarm controller will alarm with sound or flash, as well as output alarm signal. Can carry serial communication interface.

➤ Main technical parameters

>> Input signals

Switched quantity: • Various independent each other contact signals (On/off)

TTL level: Standard TTL level of 0~5 V, high level alarm

>> Output signals

switched quantity output: • relay control output-On/off (with backlash)

- Contact capacity: AC 220V/3A; DC24 V/5A (resistive load)

communication output: • standard serial both-way communication interface

- communication mode: RS-232C, RS-485
- baud rate 300~9600 bps (free set up)
- (only model X803 has communication function)

>> Features

measuring channel

- 8-channels (in digital alarm, instrument users can shut any channel which are not using)

display mode

- LED of 0.8 inch high brightness displays the operation state for all channels.
- Displays all channels operation state by planar luminotron tube
- Displays LED operation state

Alarm mode

- sound alarm: 220 V/8W electric bell (self-provided by users), buzzer (built-in instrument)
- Flash alarm: flash alarm for current alarm channel.

Alarm output

- Relay contact capacity: AC220V/3A; DC24V/5A (resistive load)

Silencing test

- users self-provide the panel silencing button and external connection silencing test button

Parameter set

- Digital set on gently-touched panel keystroke;
- permanent storage of parameter set value even after breaking off.
- Parameters set value can be locked with cipher code

➤ Outline dimension and open hole dimension



Outline dimension: 160×80×140mm

Open hole dimension: $152^{+0.7}_{-0} \times 76^{+0.7}_{-0}$ mm

➤ **Type spectrum table for 8-loop flash alarm controller**

Model							Explanation
WP-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Outline feature	X						8-bits high brightness LED indication have communication function
	B						Planar luminotron tube indication (is approved red) without communication function
Outline dimension		8					160×80 mm
Control action			03				Flash alarm (with relay output)
Communication mode			0				Without communication interface
			2				RS-232C communication interface
			8				RS-485 communication interface
Input type				A			Contact closed-circuit alarm
				B			Contact open-circuit alarm
				C			Standard TTL level(while ordering marking input scope)
				D			Standard specification input
Feed output					P		DC 24 V feed output (without feed output may be omitted)
Supply mode							AC 220 V linear power supply (can be omitted)
						T	AC(90~265) V (switch power supply)
						W	DC 24 V

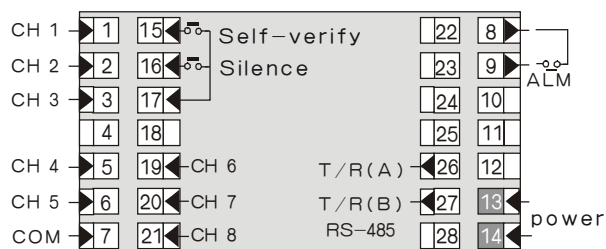
★ Note: WP-B803 without communication function, if need with communication output, choose WP-X803 please.

★ Note: special requirement on type or technical parameters, please provide relative technical parameters

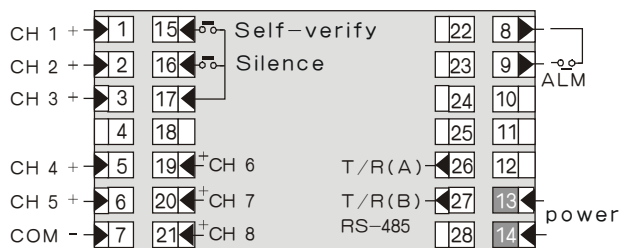
★ Option as an example: WP-X803-0-A; WP-X803-2-B-T

➤ **Wiring diagram**

>> **Wiring diagram for open/close circuit alarm input**



>> **Wiring diagram for TTL level alarm input**



【Single-loop flash and sound alarm controller】

➤ Product outline

Single-loop flash and sound alarm controller adopts advanced microprocessor for smart control, and can match use with our any control instrument or other contact check control instrument.

It can be conveniently fabricated into multi-loop alarm system. On the field normally open/normally closed input mode are optional for users. PC technology; photoelectric isolation; built-in buzzer, these make circuitry anti-jamming ability is strong extremely. Semiconductor planar light emitting device make it high brightness, softened color, low power consumption, parallel driven, long lifespan and convenient replacement of screens. The insert-mount construction with multiple output modes such as relay contact output and voltage output make daily maintenance and operation much more convenient.

➤ Main technical parameters

>> Input signal

switched input passive contact switched input (normally open/normally closed)

level input control signal for acoustics usage, high level signal ≥ 4 V

>> Output signal

switched output ·Output a pair of passive normally open contact switch (which will be closed when alarms), contact action synchronizes with sound alarm

·DC level output signal > 4 V

·Passive switched output (normally open: which will be closed when alarms)

·Contact capacity: 3A/24VDC, 0.7 A/110 VAC (resistive load)

>> Characteristics

measured channel ·single channel

silencing test ·external connecting silencing test button function

display mode ·incline luminotron operation state indication

·planar luminotron operation state indication.

>> Operation environment

ambient temperature 0~50°C

relative humidity $\leq 85\%$ RH, without dew and corrosive gas

power supply DC24 V $\pm 5\%$, input resistance 50Ω

power consumption 1.8 W when alarm, when without alarm 0.1 W

> Type spectrum table for single-loop sound and light alarm controller

Model								Explanation	
WP-	□	□	□□	-□	-□	-□	-□	-□	
Outline feature	B								Large screen flash indication, sound and light alarm
Outline dimension		8							80×40×120 mm
Control action			01						Relay alarm output
Luminous tube color				R					Red
				G					Green
				Y					Yellow
Outline of luminous tube				1					Plane
				2					Incline
Input type					A				Connect closed circuit alarm
					B				Connect open circuit alarm
					C				Standard TTL level (while ordering please users mark input scope)
					D				Special specification input
Memory alarm									Without memory alarm function (may be omitted)
							K		With memory alarm function
Supply mode								W	DC 24 V supply

★ Option as an example: WP-B801-R-1-A-W; WP-B801-R-2-B-W

➤ **outline of instrument**



➤ **Open hole dimension for dense mounting (mm)**

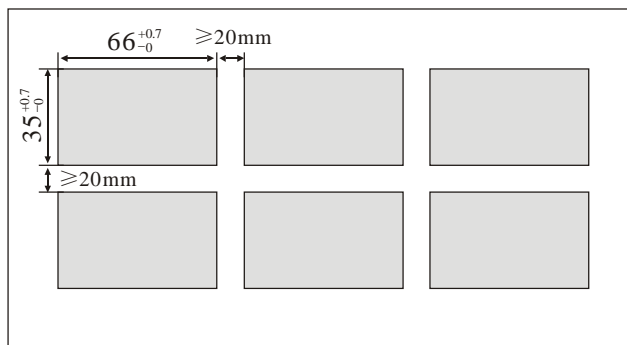


$$M = (40 \times m) - 5$$

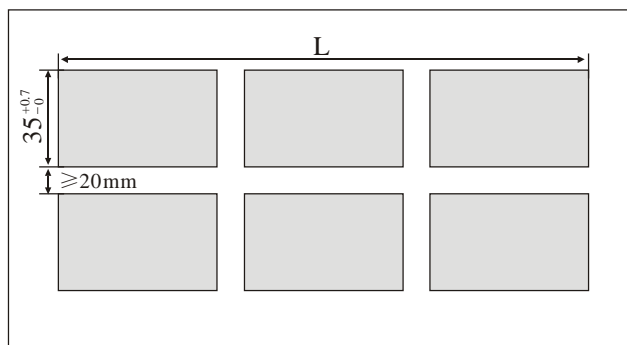
$$L = (80 \times n) - 14$$

M: the number of alarm for every row
 n: the number of alarm for every line

➤ **Open hole dimension for dot matrix mounting (mm)**



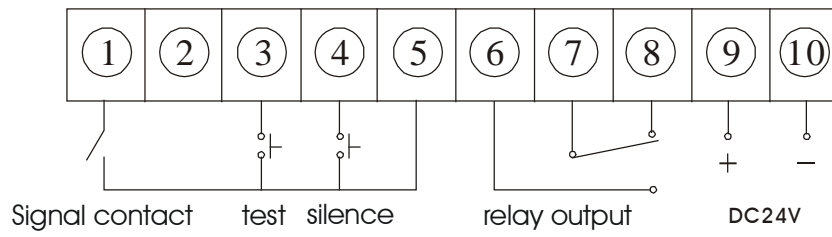
➤ **Open hole dimension for strip mounting (mm)**



$$L = (80 \times n) - 14$$

n: the number of alarm for every line

➤ **Wiring diagram**



➤ **Alarm function**

	Alarm	Normal	Alarm	Affirm	Return to normal	Restore before affirm	Affirm
lamplight							
Acoustics							

★ **Note:**

	Light off		Flashing		Flat light		No sound		Sound
--	------------------	--	-----------------	--	-------------------	--	-----------------	--	--------------

【Intelligent self-tuning PID regulator】

➤ Product outline

Intelligent self-tuning PID regulator adopts advanced microprocessors for smart control, it is suitable for system required the high accuracy regulation and control, and it can automatically figure out the optimal regulating parameters according to different controlled object.

Input ports have universal signal input function, it can realize light switching between various input signal (thermocouple, thermo-resistance, standard voltage/current signal) only need simple selection on instrument menu. So greatly improves instrument universality and reliability.

Instrument can separate with one loop PID regulating signal output and one loop transmitting signal output. output loops all adopt photoelectric isolation and can with serial communication interface.

Instruments adopt high brightness LED digital display and high resolution light column display (proportion display), display mode have two kinds: double screen digital display, double screen digital + double light column display. The later integrates digital instrument and analogue instrument, for measuring value and regulating and controlled target value (or output quantity) carry out simultaneously relative analog quantity proportion display, makes parameter display more clear and visual.

Instrument have auto/manual, manual/auto non-interference switching function.

➤ Outline dimension and open hole dimension of instrument



Outline dimension: 96×48×115mm

Open hole dimension: $92^{+0.7}_{-0} \times 45^{+0.7}_{-0}$ mm



Outline dimension: 48×96×115mm

Open hole dimension: $45^{+0.7}_{-0} \times 92^{+0.7}_{-0}$ mm



Outline dimension: 72×72×115mm

Open hole dimension: $68^{+0.7}_{-0} \times 68^{+0.7}_{-0}$ mm



Outline dimension: 160×80×140mm

Open hole dimension: $152^{+0.7}_{-0} \times 76^{+0.7}_{-0}$ mm



Outline dimension: 80×160×140mm

Open hole dimension: $76^{+0.7}_{-0} \times 152^{+0.7}_{-0}$ mm



Outline dimension: 96×96×115mm

Open hole dimension: $92^{+0.7}_{-0} \times 92^{+0.7}_{-0}$ mm

➤ Type spectrum table for intelligent self-tuning PID regulator

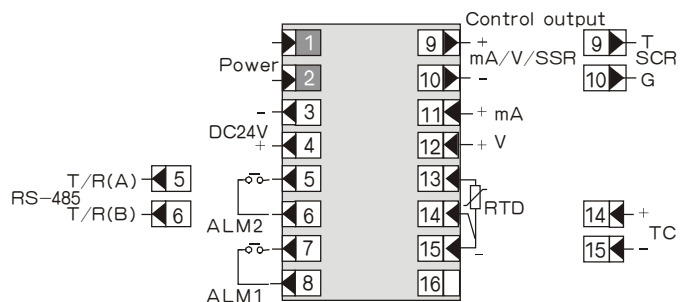
WP-		Model											Explanation	
		□□	□	□□	-□	□	□	-□□	□□	-□	□	□□	□	
Outline feature	D													Double screen digital horizontal display
	S													Double screen digital vertical display
	TX													Double screen double light column horizontal type display
	T													Double screen double light column vertical type display
Outline dimension		4												96×48 mm horizontal type, 48×96 mm vertical type,
		7												72×72 mm
		8												160×80 mm horizontal type 80×160 mm vertical type,
		9												96×96 mm
Control action		05												Measurement display
Communication mode		0												No communication interface
		2												RS-232C communication interface
		8												RS-485 communication interface
control output		0												No output
		1												Relay control output
		2												(4~20)mA output
		3												(0~10)mA output
		4												(1~5)V output
		5												(0~5)V output
		6												SCR zero-crossing triggering pulse output
		7												SSR control output
		8												Special specification transmit output
Transmitting output		0												No transmit output
		2												(4~20)mA output
		3												(0~10)mA output
		4												(1~5)V output
		5												(0~5)V output
		8												Special specification transmitting output
Input type								□□						See "input type table"
First alarm										N				No alarm
										H				First alarm is high limit alarm
										L				First alarm is low limit alarm
Second alarm											□			Same as first alarm mode
Feed output												P		DC 24V output (no feed output can be omitted)
Supply mode														AC220 V linear power (may be omitted)
												T		AC (90~265)V switch power supply
												W		DC 24V supply

★ Note: Display mode is PV measuring value + SV control target value display, with manual/auto, auto/manual non-interference switching function

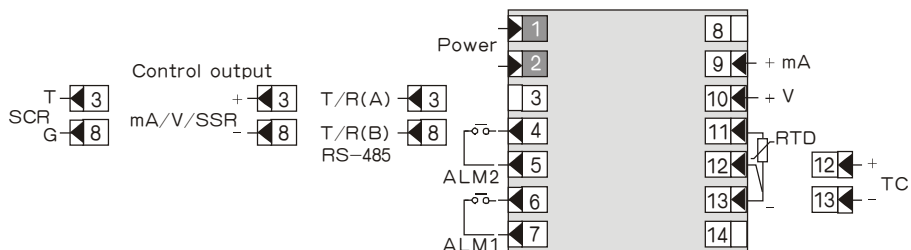
Option as an example: WP-TX805-822-12-HL-P-T

➤ **Wiring diagram**

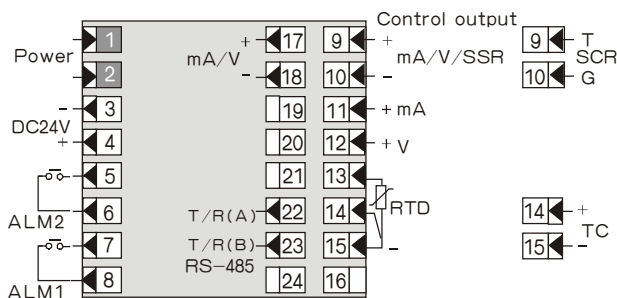
>> **Instrument wiring diagram for 96×48, 48×96**



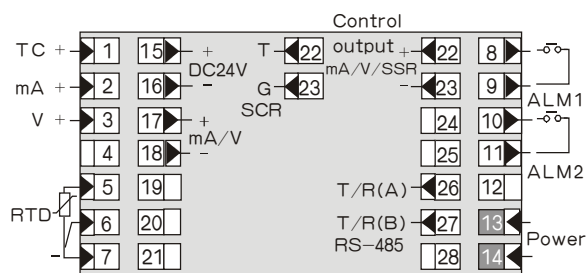
>> **Wiring diagram for 72×72**



>> **Instrument wiring diagram for 96×96**



>> **Instrument wiring diagram for 160×80, 80×160**



【Intelligent double-loop cascade PID regulate controller】

➤ Product outline

WP-KS805 series intelligent double-loop cascade PID regulate controller adopts advance microprocessors for smart control. It has switch function for many kinds of input signal, and double screen digital + double light column display mode, and can select RS232, RS 485 serial communication interface and can realize multi-machine communication. The instruments can be applied to high accuracy regulate control systems for much industry. Between input, output all adopt photoelectric isolation, have good anti-interference ability and stability.

WP-KS 805 series double-loop cascade intelligent PID regulate controller have five analog input (1N1—1N5), two analog output (OUT1, OUT2), one switch input D1, two switch output and abundant control algorithm, and suitable for three impulse control or two impulse control of boiler steam drum level and can with steam drum level pressure compensation function, suitable for the cascade control, feed, forward control, double loop control of various process parameters such as temperature, pressure, level, flow in general industrial process, and can with backup manipulator, which match with backup controller to realize manual / auto non-interference switching.

➤ Main technical parameters

>> Input signal

- Resistance: 1N1, 1N2 supports multi specification thermo-resistance, such as Pt 100, Pt 100.1, Cu 50, Cu 100
- Couple: 1N1, 1N2 supports multi specification thermocouple, such as B, S, K, E, J, T, WRe
- Current: 1N1, 1N2, 1N3, 1N4, 1N5 supports 0~10 mA, 4~20 mA (input resistance $\leq 250\Omega$)
- Voltage: 1N1, 1N2, 1N3, 1N4, 1N5 supports 0~5 V, 1~5 V (input impedance $\geq 250K\Omega$)
- One switch signal: DI input only receive dry contact signal, use to receive manual state signal of backup manipulator, it match with analog input 1N3 realize manual / auto non-interference switching of backup operator
- Cold end compensation range: 0~50°C

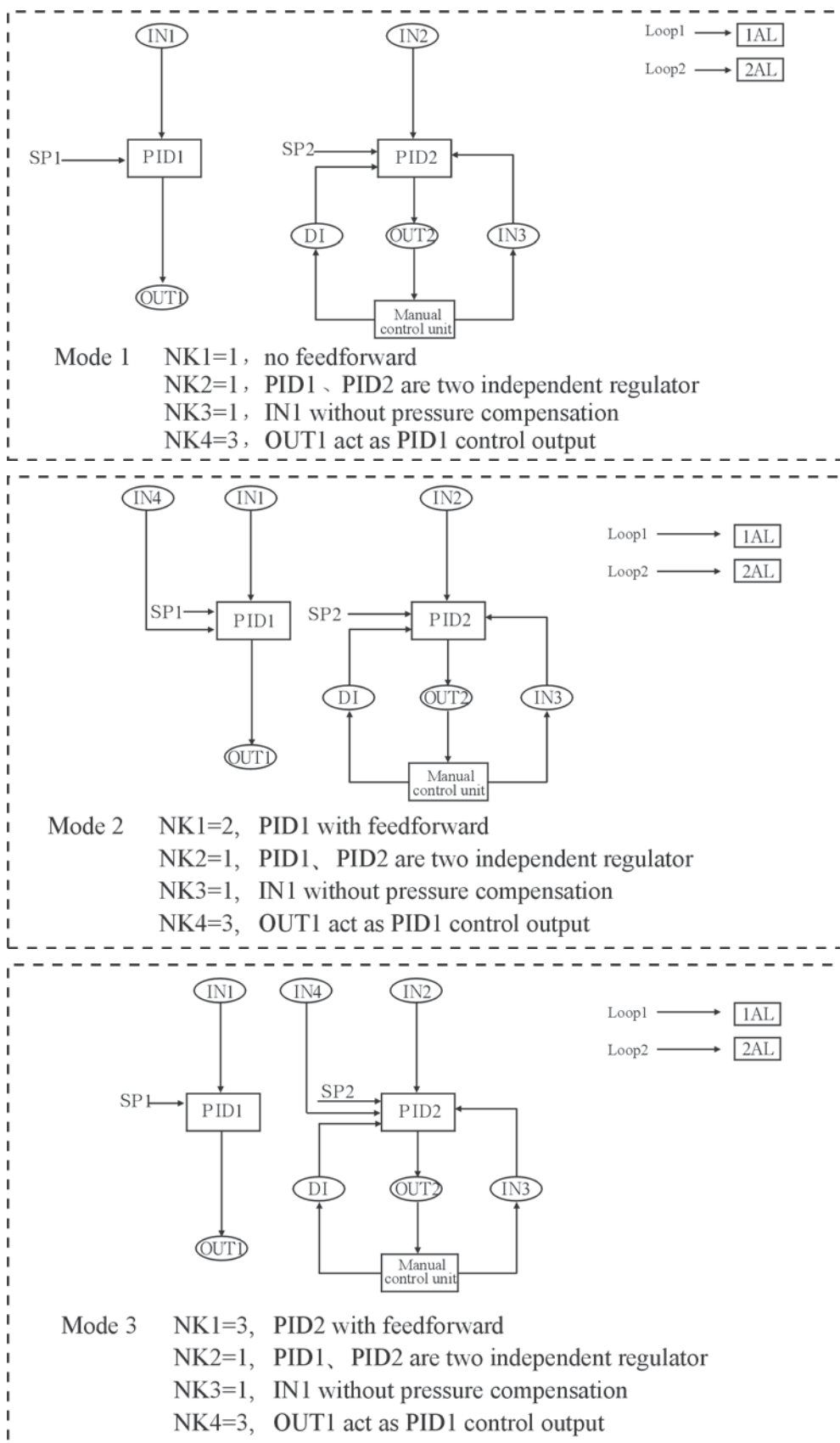
➤ Outline dimension and open hole dimension of instrument

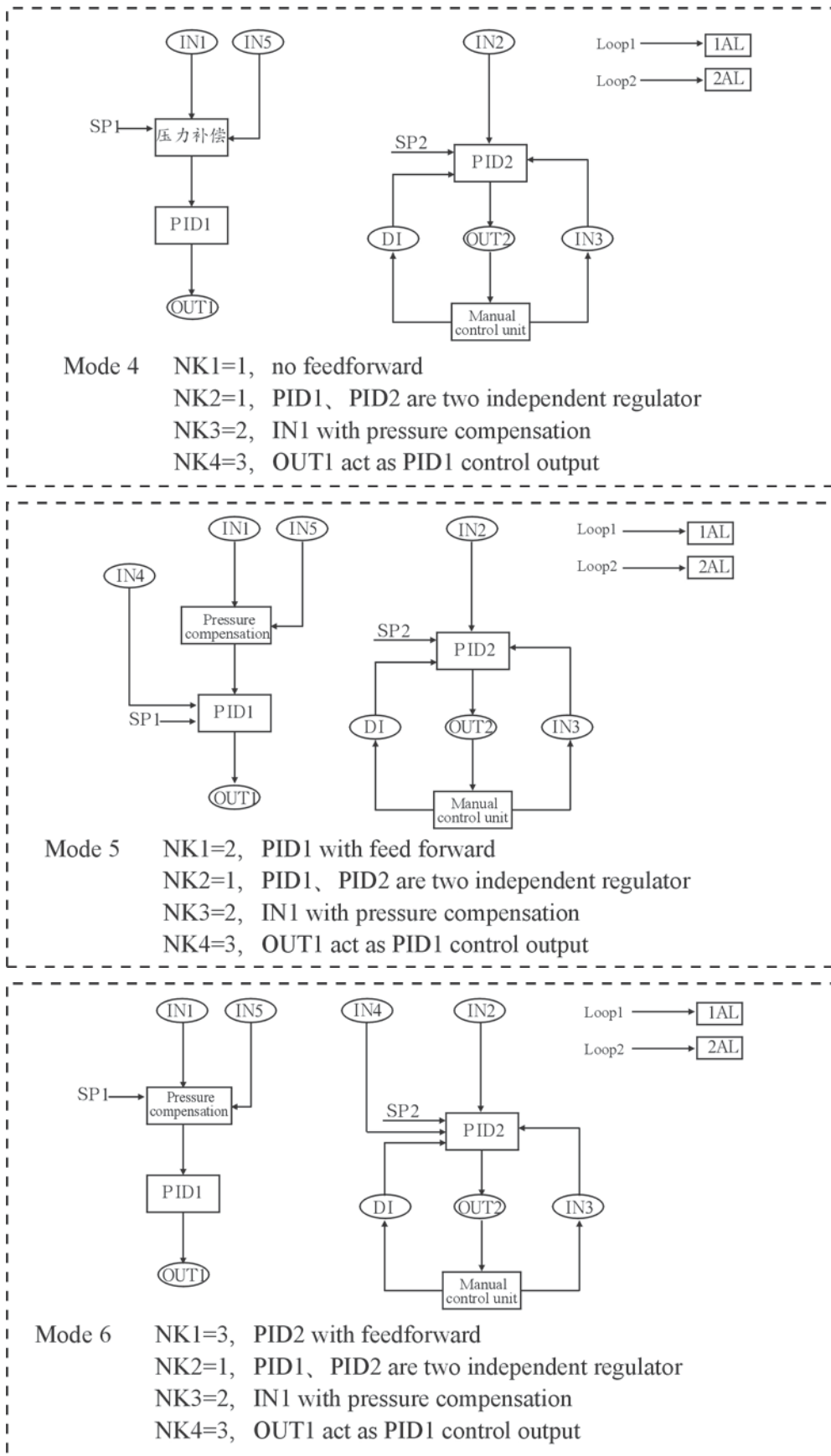


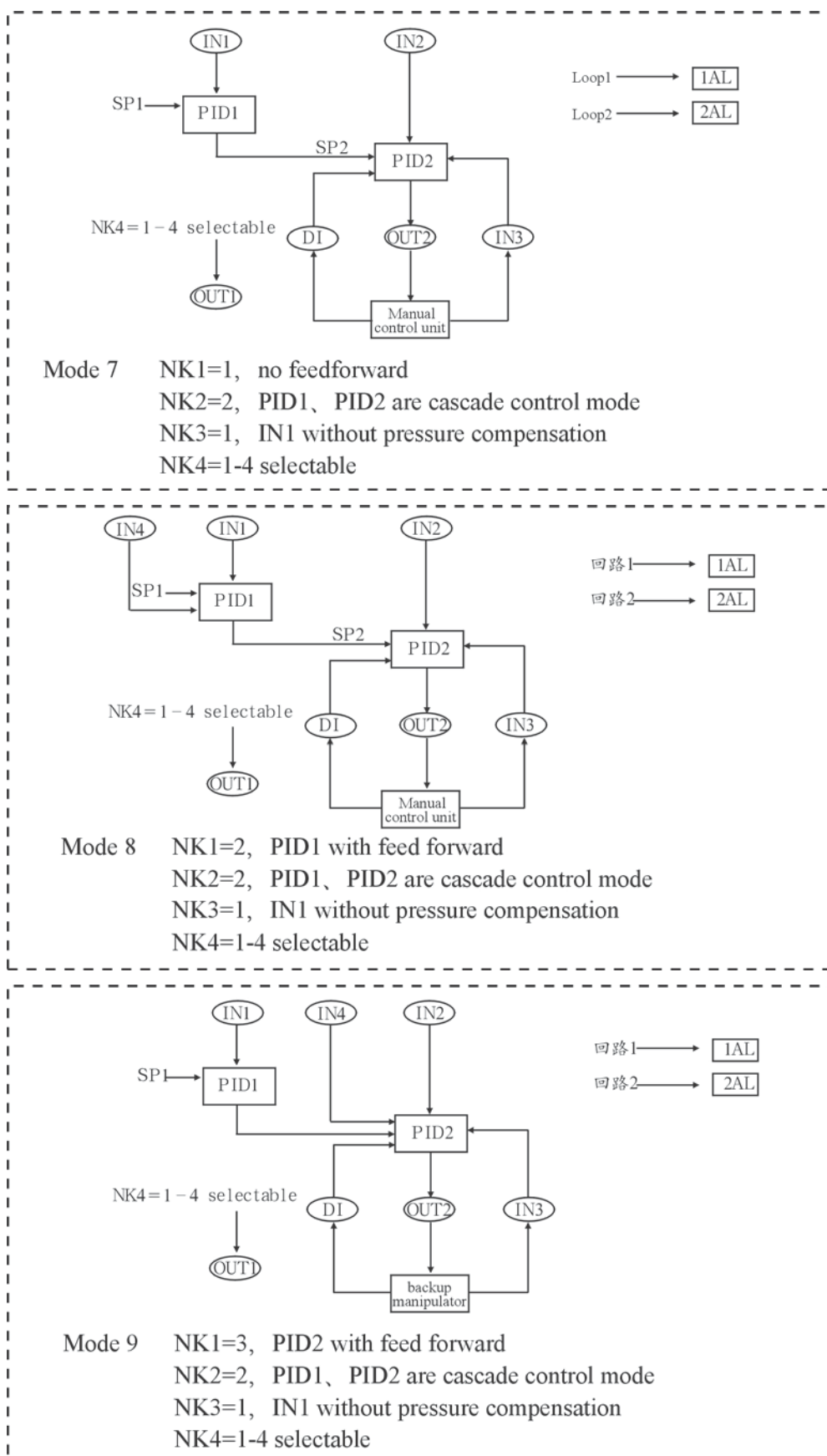
Outline dimension: 80×160×152mm

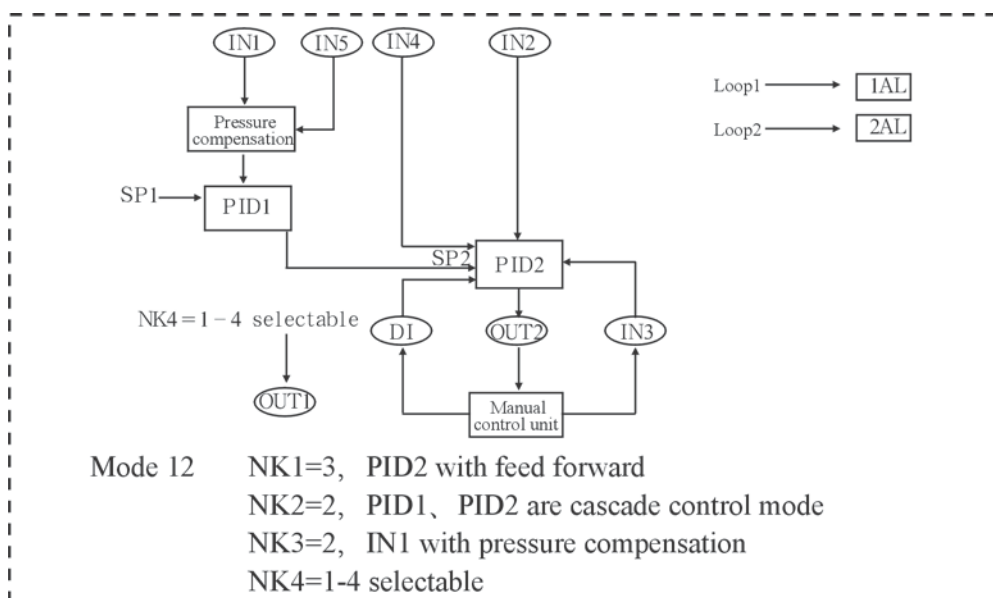
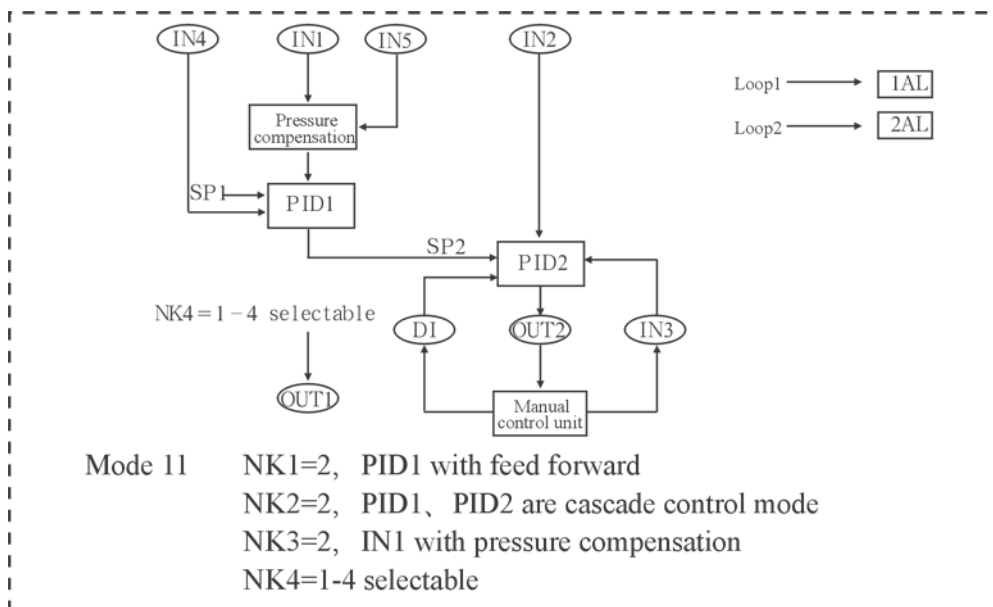
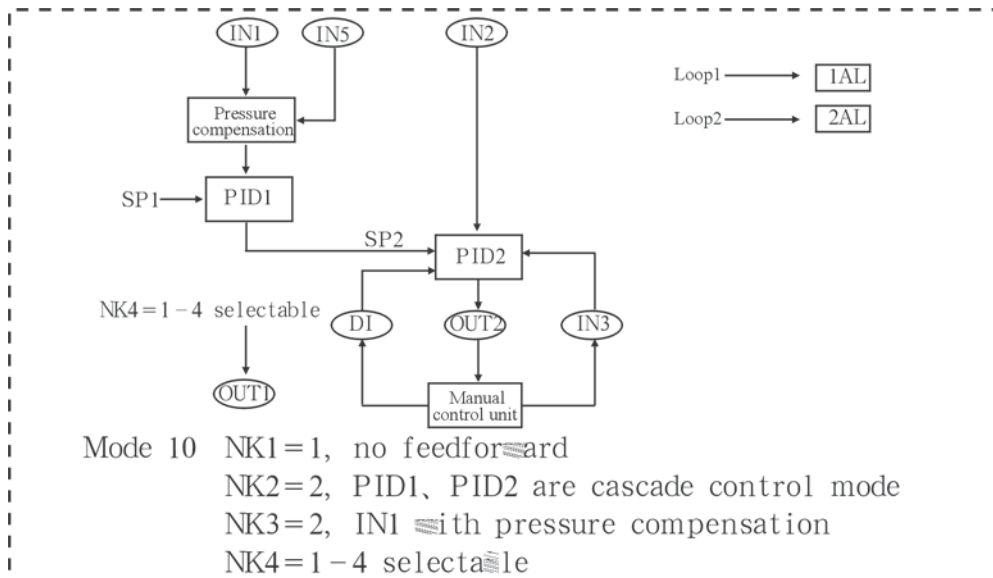
Open hole dimension: $76^{+1}_{-0} \times 152^{+1}_{-0}$ mm

➤ Operation mode for WP-KS805 intelligent double-loop cascade PID regulate controller









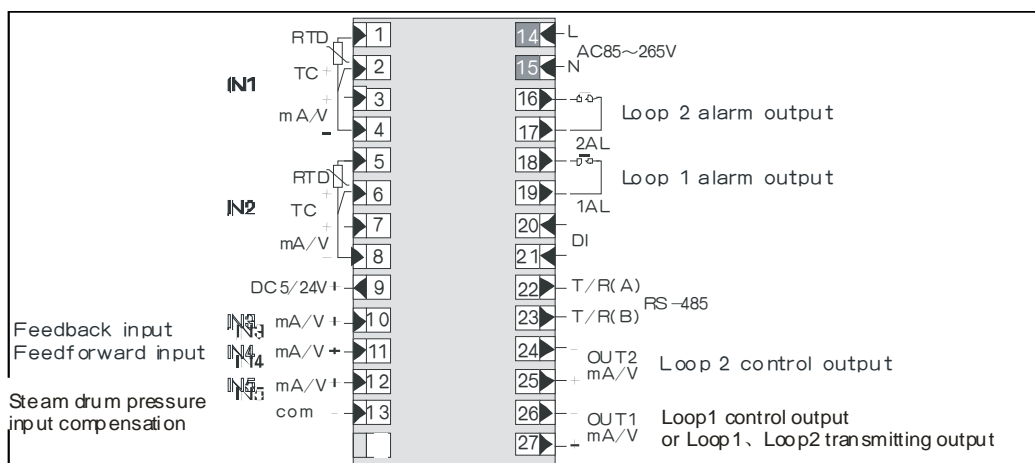
➤ Type spectrum table for intelligent double loop cascade PID regulate controller

Model							Explanation	
WP-KS805	-□	□	□	-□□	□□	-□	-□	
Communication mode	0							No communication
	2							RS-232 isolated communication interface
	8							RS-485 isolated communication interface
Control output OUT2		2						(4~20) mA control output
		3						(0~10)mA control output
		4						(1~5)V control output
		5						(0~5)V control output
Transmitting output or control output OUT1		2						(4~20) mA assistant transmitting output or control output
		3						(0~10)mA assistant transmitting output or control output
		4						(1~5)V assistant transmitting output or control output
		5						(0~5)V assistant transmitting output or control output
Input type IN1, IN2			03					Adaptation thermocouple
			08					Adaptation thermo resistance
			12					Adaptation (4~20) mA input
			13					Adaptation (0~10)mA input
			14					Adaptation (1~5)V input
			15					Adaptation (0~5)V input
			23					full switching division number input
Input type IN3, IN4, IN5				12				Adaptation (4~20) mA input
				13				Adaptation (0~10)mA input
				14				Adaptation (1~5)V input
				15				Adaptation (0~5)V input
Feed output								DC 5/24V feed output (no feed can be omitted)
						P		DC 5/24V feed output (please note)
Supply mode							T	AC (90~265)V switch power supply

Note 1: IN3, IN4, IN5 is (0~10) mA / (4~20) mA / (0~5)V/(1~5)V input available, is approved (4~20) mA

Option as an example: WP-KS805-022-0312-P-T

➤ Wiring diagram



【Intelligent high performance digital regulator】

➤ Product outline

Intelligent high performance digital regulator WP220 series products with microprocessing function, is ISO9001 authentication, collecting high performance, low price, easy and simple to handle, and so on, integrative practical regulator. Besides adopting self-tuning function and manual/auto non-interference switching also possess the lead adaptive function, in addition, there is two-way PID regulating function and measur loop breaking alarm function. when the sensor breaks down, regulator output could witch to preset output, prevent the equipment damage that may cause due to temperature drops suddenly.

This series of products can be applied to heating furnace, industrial kiln、semiconductor stove, precise temperature control of reaction caldron, boiler heat treatment, temperature control and process control system field such as petrochemical industry、 light industrial machinery and so on.

➤ Main technical parameters

>> Input signal

Analog quantity: • thermocouple : standard thermocouple B、 S、 K、 E、 R、 J、 T and so on
 • Platinum resistance Pt 100
 • Current: (0~20) mA、 (4~20) mA
 • voltage: (1~5) V, (0~5) V

>> Output signal

analog quantity output • DC (4~20) mA, (load resistance $\leq 500\Omega$)
 relay output • max AC 250 V, 3A / 1A contact (when resistive load)
 voltage output • SSR drive DC 12V, load resistance above 800 Ω
 control output 1 • proportional band: 0.1~999.9 or 0.01~99.99 • integral time: 0~3600 s
 (heating/cooling) • derivation time: 0~3600s • control period: 1~120 s
 • lagging amplitude: 0.1~100.0% or 0.01~10.00%
 control output 2 • proportional band: primary proportional band 0~1000%
 (heating/cooling) • control period: 1~120 s • dead zone / lapping: -100.0~100.0 or -10.0~10.0
 • lagging amplitude: 0.1~100.0% or 0.01~10.00%

>> Characteristics

measuring accuracy • $\pm 0.5\%$ FS ± 1 character
 resolution • 1 $^{\circ}$ C ($^{\circ}$ F), 0.1 $^{\circ}$ C (except “R” and “S”) selected on parameter picture
 Display mode • double screen digital display
 Control/alarm • No.1 alarm: first alarm AL1 max. AC250V, 3A/1A contact (when resistive load)
 • No 2 alarm: ① second alarm AL2 max. AC 250 V, 3A/1A contact (when resistive load)
 ② heater break alarm: when select CT function, fit three-phase supply(current output cannot use)
 communication function • communication interface: RS485 communication (MODBUS communicated protocol)
 • transmitting output: DC (4~20) mA or DC (1~5) V
 • outer given switching: out connection switch input

➤ Outline and open hole dimension of instrument



Outline dimension: 96×96×100mm

Open hole dimension: $92^{+0.6}_{-0} \times 92^{+0.6}_{-0}$ mm



Outline dimension: 48×96×100mm

Open hole dimension: $45^{+0.6}_{-0} \times 92^{+0.6}_{-0}$ mm

➤ **Type spectrum table for intelligent high performance digital regulator**

Model						Explain	
WP-	□□□	□	□	□	□	□□□	
Outline dimension	225						48×96 mm
	229						96×96 mm
Input signal		C					Thermocouple (E, J, K, B, R, S, T)
		R					Pt thermo-resistance Pt 100
		V					Voltage (1~5) V DC
		A					Current (4~20) mA DC
First output (heating) first alarm "AL1"			A				Current (4~20) mA DC
			M				Relay
			V				SSR drive voltage impulse output: DC 12 V
Option 1 second output (cooling)				N			None
				A			Current (4~20) mA (note: current output is unavailable for WP224)
				M			Relay output (note: this function is unavailable for WP224 when it select second alarm.
				V			SSR drive voltage impulse output: DC 12V
Option 2					0		None
						1	Second alarm (AL2) (note: this function is unavailable if users choose relay as second alarm output of WP20)
						2	Heater breaking alarm (HB) (note: this function is unavailable for current output)
						3	AL2 + HB (this function is unavailable if users have chosen second alarm output function)
Option 3					NNN		None
					CNN		MODBUS communication
					NEN		Event input
					NNA		Transmitting output of (4~20) mA DC
					NNV		Transmitting output of (1~5) V DC
							All options can be freely combined except the combination of communication and transmitting output.

Option as on example: WP-229CAM0CNN

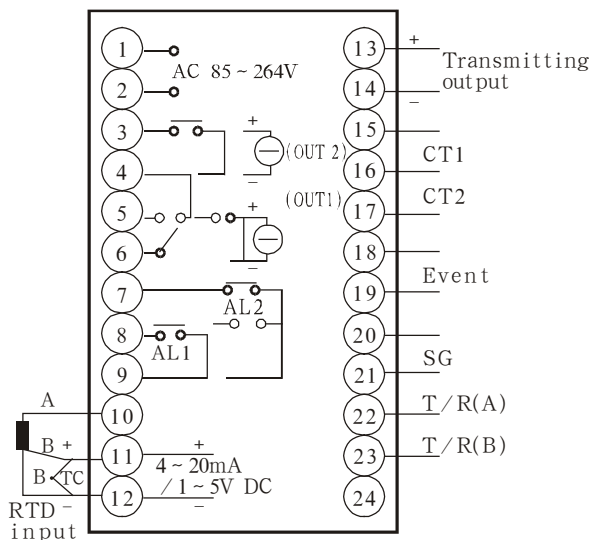
➤ **Input type**

Input signal	Sensor	No.	Resolution	Input range (°C)
Thermocouple	K	1	0.1	-50.0~999.9
			1	-50~1372
	J	2	0.1	-50.0~999.9
			1	-50~1100
	T	3	0.1	-199.9~400.0
			1	-199~400
	E	4	0.1	-199.9~750.0
			1	-199~750
	B	5	0.1	-----
			1	0~1800
Pt resistance	Pt100	8	0.1	-199.9~650.0
			1	-199~650

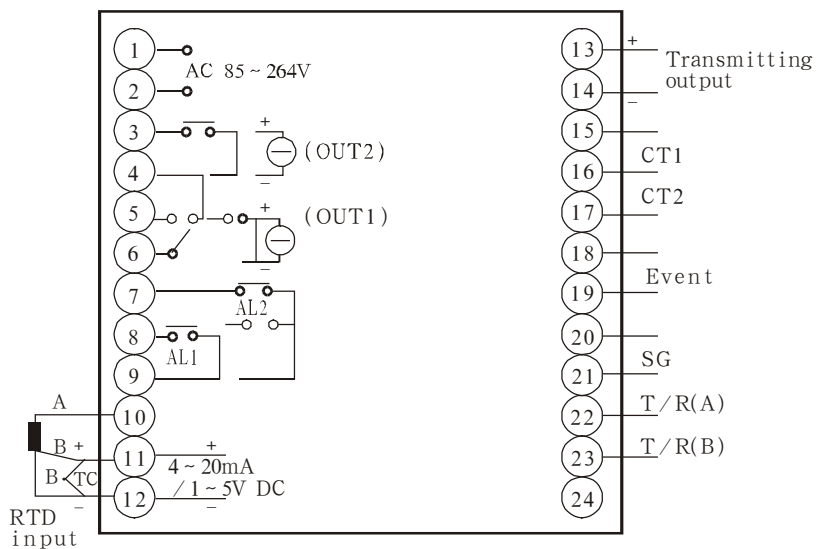
Current/voltage input	$A - 1_{4 \sim 20mA}^{(1 \sim 5)V}$	9	0.01	-19.99~99.99
	$A - 2_{0 \sim 20mA}^{(0 \sim 5)V}$	10	0.1	-199.9~999.9
			1	-199~3200

➤ Wiring diagram

>> Instrument wiring diagram for 48×96



>> Instrument wiring diagram for 96×96



【Intelligent Manipulator】

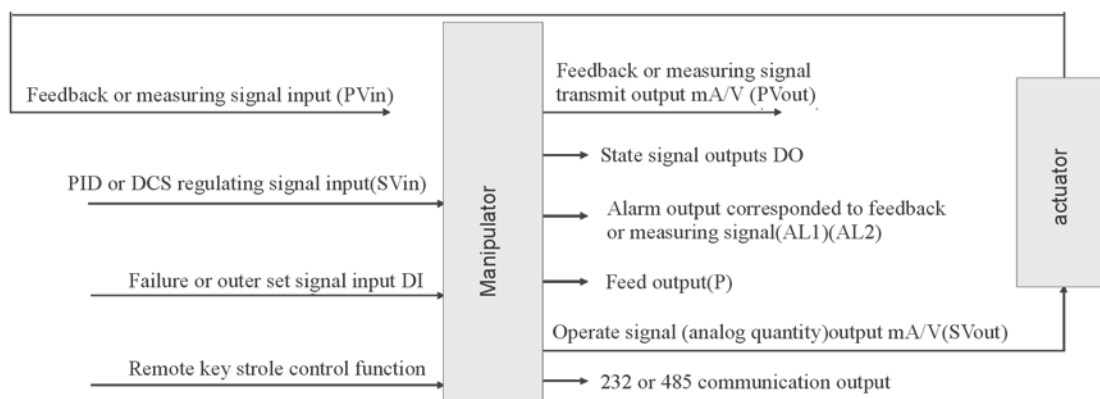
> Product outline

Intelligent manipulator is matching product of PID regulator or DCS and other system, which mainly use to manual regulation under the system running or special condition and to carry out operate as a backup instrument when main machine has happened failure or maintenance. According to field requirement, it provides high-brightness double LED numeric display or high resolution double light column add double LED numeric display, and 160×80, 96×96 and other exterior installation dimensions selectable by user.

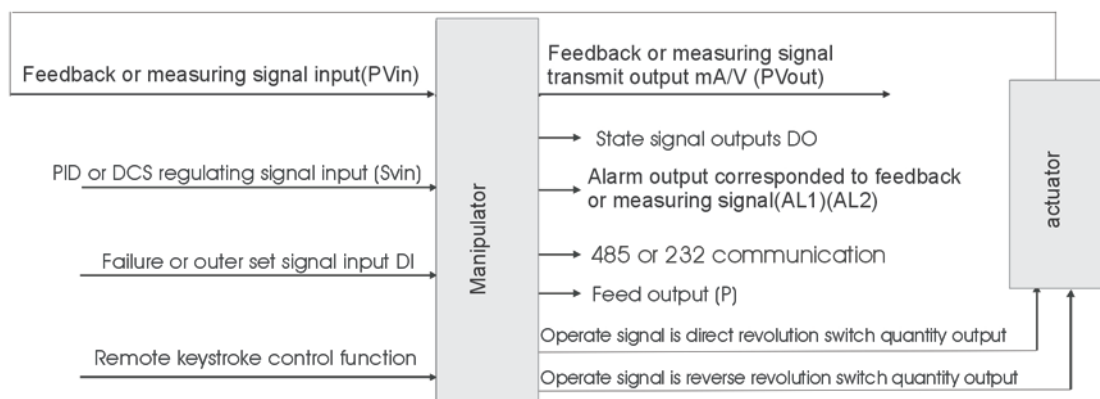
> Mainly technical parameter function characteristic

Intelligent manipulator has manual/automatic control, high/lower amplitude limiting of operation output, follow control and preset control functions and so on. Operational signal has two kinds: one is analog quantity output of direct/reverse action (also called Q type manipulator); the other is direct / reverse revolution switch quantity output (also called D type manipulator), shown as the following block figure (1), (2):

Manipulator signal is analog quantity output (Q type) block diagram (1)



Manipulator signal is direct/reverse revolution (D type) switch quantity output block diagram (2)



1. PID or DCS regulation signal input SVin:

Intelligent manipulator receive the signal of 0~10 mA / 4~20 mA / 0~5V / 1~5V sent from DCS or intelligent regulator.

2. Manipulator signal output

a、Q type manipulator output (Svout): 0~10 mA / 4~20 mA / 0~5V / 1~5V signal, it can directly drive actuator, frequency converter or drive electric regulating valve again from servo amplifier or drive pneumatic thin-film valve from electrical converter and valve positioner. When manipulator is in

automatic work condition, its signal input SVin and operation output signal correspondently is straight-through. in order to realize automatic control of actuator by DCS system or regulator. When in manual work state, its function likes a manipulator, and operational signal output value can direct be modified by increase / decrease key on the panel.

b. D type manipulator output direct/reverse revolution control signal. When manipulator is in automatic work state, its function likes servo amplifier, it carry out regulating control according to the error of input SVin signal and feedback signal of actuator, to ensure actual valve position is following valve position given signal at once and realize automatic control. When manipulator in manual state, its function likes a manipulator, and by the increase or decrease key on the panel can directly operate direct/reverse revolution output signal for which signal 3 ampere relay normal-open contact or 5 ampere capacity bi-directional thyristor, or SSR trigger signal from DC 3 to 24V and so on may be selected.

3. Feedback or measuring signal input (PVin):

PVin signal is valve position signal sent from actuator (linear analog quantity or resistance signal), or field measuring signal. PVin is universal division number switchable input.

4. Feedback or measuring signal transmit output mA/V (PVout)

PVout output signal transmit output to forestage regulator or DCS system, makes system can monitor actual valve position or field measured value at any moment.

5. State signal output DO:

DO is passive switch quantity signal, when manual control, the manipulator outputs the switch quantity closed signal to forestage DCS system or regulator, after they are received DO state signal, then stop PID operation, and make operation signal output follow valve position feedback signal. After manipulator is switched from manual to automatic control, DO state signal is repealed, DCS system or forestage regulator with current output control value as original value to recover PID control. similarly, when manipulator is switched from automatic to manual control state, with current valve position given value as original value, start manual increment / decrement control, thus manual/automatic, automatic/manual state control switching of the manipulator is all non-interference switch.

6. 232 or 485 communication output

According to different option, manipulator may offer 232 or 485 communication function.

7. Failure or outer set signal DI

Manipulator may offer remote compelling manual input signal, the signal can accept dry node or level signal. and usually connect with failure state signal of the forestage DCS system or intelligent regulator, it is use when the forestage DCS system or intelligent regulator happened fault, the manipulator automatically switch into manual state, and makes value position keeping unchanged, to ensure actual valve position can be controlled in pregiven opening without runaway because forestage regulator or DCS system failure.

8. Alarm output corresponded feedback or measuring signal:

According to different option function and requirement of field control, manipulator may have one alarm (AL1) or two alarm (AL1, AL2) outputs, alarm value are corresponding to display value of feedback or measuring signal (PV).

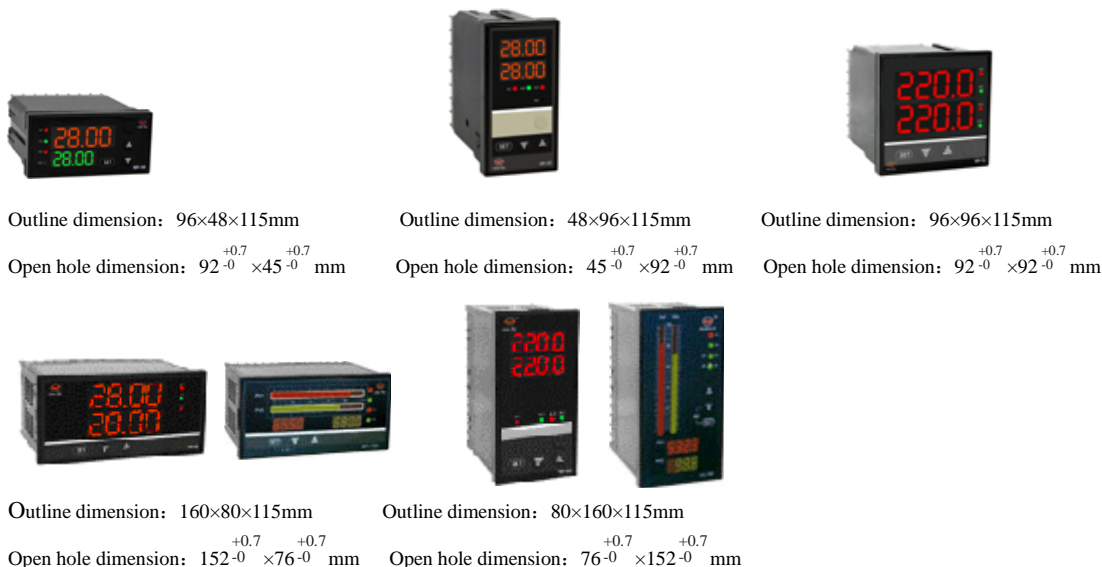
9. Feed output (P):

According to requirement for system control, manipulator may offer one group or two groups isolated each other capacity for 30 mA of DC 24 V feed.

10. Remote keystroke control function:

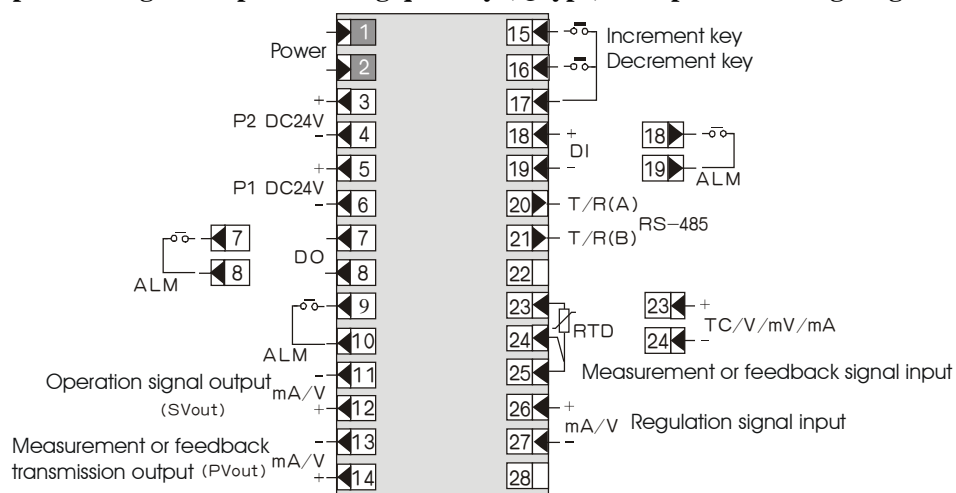
According to technology requirement of field control, manipulator can connect with dry node or level control signal supplied for remote operational instrument, its function is the same as each operational key function on the panel.

➤ Outline and open dimension



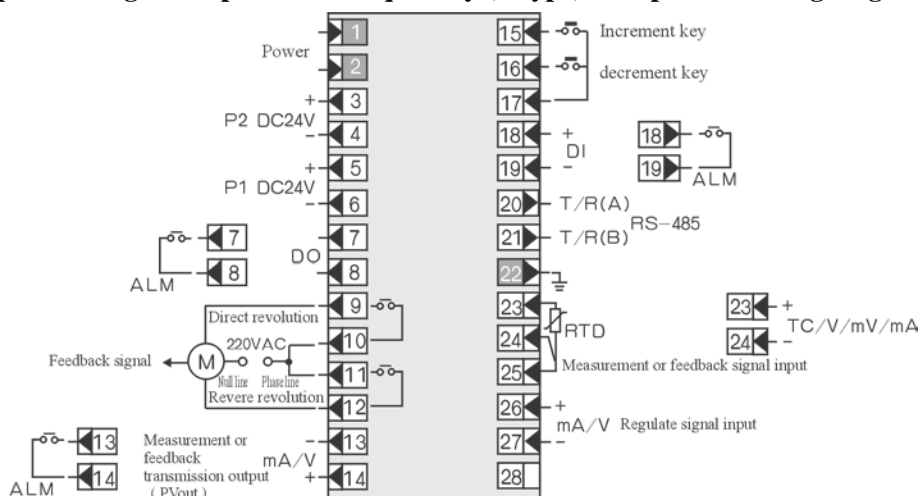
> Instrument wiring diagram for intelligent manipulator 160×80, 80×160

Operation signal output is analog quantity (Q type) manipulator wiring diagram 1



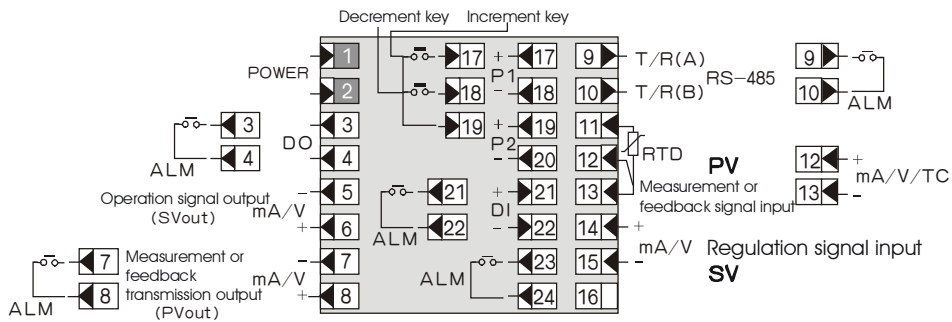
> Wiring diagram for intelligent manipulator 160×80, 80×160

Operation signal output is switch quantity (D type) manipulator wiring diagram 2

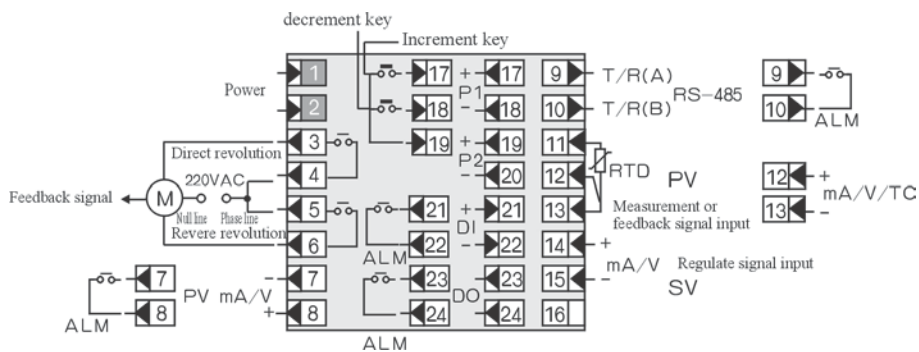


> Instrument wiring diagram for intelligent manipulator 96×96, 96×48, 48×96

Operation signal output is analog quantity (Q type) manipulator wiring diagram 3

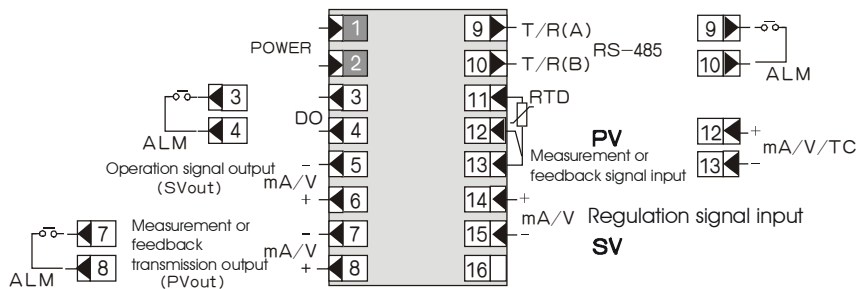


Operation signal output is switch quantity (D type) manipulator wiring diagram 4

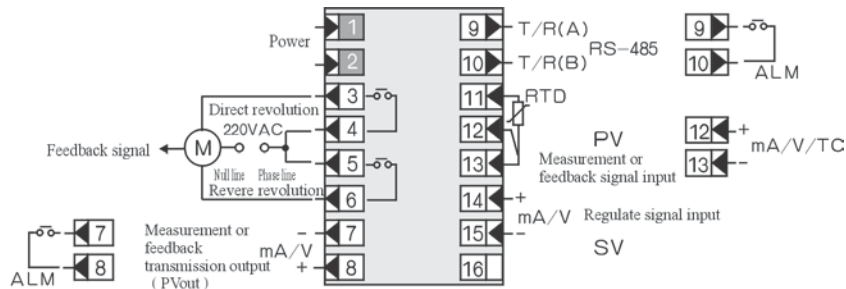


> Instrument wiring diagram for intelligent manipulator 96x96, 96x48, 48x96

Operation signal output is analog quantity (Q type) manipulator wiring diagram 5

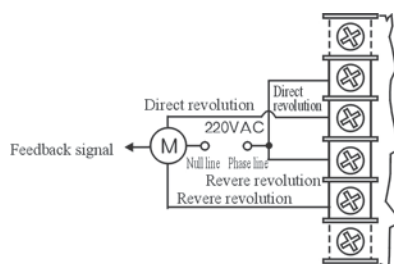


Operation signal output is switch quantity (D type) manipulator wiring diagram 6

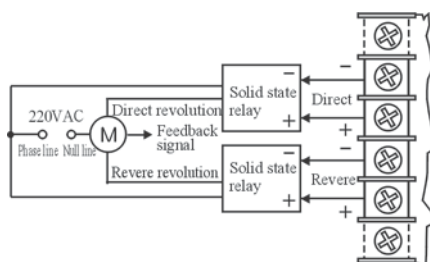


>> External wiring diagram for operation signal of intelligent manipulator

Direct-reverse control signal is bi-directional thyristor output wiring diagram 7



Direct-reverse revolution control signal is SSR solid-state relay wiring diagram 8



> Type spectrum table for intelligent manipulator

Model													Explanation		
WP-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Display feature															Horizontal type double-screen numeric display
	S														Vertical type double-screen numeric display
	T														Vertical type double screen double light column display
	TX														Horizontal type double screen double light column display
Outline dimension		4													96×48 mm (horizontal type),48×96 mm (vertical type)
		8													160×80 mm (horizontal type), 80×160 mm (vertical type)
		9													96×96 mm
Control action			35												Manipulator control
Communication mode				0											No communication interface
				2											RS-232C communication interface
				8											RS-485 communication interface
Operation signal output (SV out)					1										Relay direct-reverse revolution control output (D type)
					2										(4~20) mA output (Q type)
					3										(0~10) mA output (Q type)
					4										(1~5) V output (Q type)
					5										(0~5) V output (Q type)
					6										SCR direct-reverse zero-crossing control output (D type)
					7										SSR control output signal (D type)
					8										Special specification operation signal output
Feedback or measurement transmission output (PV out)					0										No transmission output
					2										(4~20) mA output
					3										(0~10) mA output
					4										(1~5) V output
					5										(0~5) V output
PV input code							<input type="checkbox"/>	<input type="checkbox"/>						See "input type table"	When out of factory setup at division number of user's ordering, if no demand then it is approved "12"
SV input code								<input type="checkbox"/>	<input type="checkbox"/>				12 ~ 16 in the input type table		

Feedback or measured value alarm mode	H				High limit alarm	If no this fuction,it may be omitted.
	L				Lower limit alarm	
State signal DO output	R				Relay	(manual/automatical switch connection signal) without this function may be omitted
	T				TTL level	
Failure or outlay DI input		M			Outer set input (compelling manual function) (there is not the function, can be omitted)	
Remote keystroke control			B		It correspond to panel keystroke input (there is not the function, can be omitted)	
Feed output				P	One-way DC 24 V feed output	Without this function can be omitted
				2P	Two-way DC24V feed output	
Supply mode				T	AC (90~265) V switch power supply	

> Additional explanations for option and wiring diagram

As field control system demand to intelligent manipulator in every function exist difference and limit in installation size and wire terminal number, it is appears that the same terminal marks two or three kinds of different function in above wiring diagram. Like in the wiring diagram (1), No. 7, 8 terminals can defined as state signal output DO (manual closed/automatic break) and alarm output ALM. The instrument calibrate the customer requirement function when out of factory, after leaving calibrate cannot revise. Calibrated function in above each wiring diagram is the function of intelligent manipulator normal meter, otherwise is specific meter, double numeric + double light column display only limited use to 160×80, 80×160 outline dimension instrument. If have unused function can be omitted in the above diagram, for specific meter is by the random wiring diagram shall prevail, when ordering please the customer correct choose mode.

Option as example:

For example 1: Technical requirement: 1. The instrument is backup meter of DCS system; 2. DCS system regulation signal is 0~10 mA; 3. Actuator drive signal is 4~20 mA; 4. actuator feedback signal is 4~20 mA; 5. DCS system receives 1~5 V monitoring signal; 6. DCS system receives manual, automatic state signal; 7. DCS system outputs failure signal; 8. System needs 485 communication; 9. Double screen display of the instrument for outline dimension is 160×80 and 96×96, Option as follows:

- ※ For 160×80 installation model double screen digital display type as: WP-D835-824-1213-RM
- ※ For 96×96 installation model type as: WP-D935-824-1213-RM

For example 2: Technical requirement: 1. The instrument is backup meter of PID regulator; 2. PID regulation signal is 4~20 mA; 3. Actuator drive signal is 4~20 mA; 4. Actuator feedback signal is 1~5 V; 5. PID regulator receive 4~20 mA monitoring signal; 6. PID regulator receives manual, automatic state signal; 7. PID regulator outputs failure signal; 8. System needs a group of 24 V feed; 9. System needs two-limited alarm control output; 10. Double screen double light column display of the instrument for outline dimension is 80×160, option as follows:

- ※ For 80×160 installation model double screen + double light column display option as: WP-T835-024-1412-HL-RM-P

【Simple manipulator】

> Product outline

Simple manipulator may do not outer connect signal or connect one-way measure signal namely can direct control operation signal output by keystroke operate, apply to differential kinds of a variety of valve manual locating control, display screen indicates measured value or output percentage, which can be self-set by customer.

> Main technical parameter function characteristic

- ※ Operation signal outputs analog quantity positive or negative action, which can be set.
- ※ Operation signal output direct-reversing switch quantity, its high/low limiting can be set.
- ※ There are all characteristic of on-off control meter with universal division number input.
- ※ Can carry RS 485/RS 232 isolation communication interface.

➤ Outline and open dimension



Outline dimension: 96×48×115mm

Open hole dimension: $92^{+0.7}_{-0} \times 45^{+0.7}_{-0}$ mm



Outline dimension: 48×96×115mm

Open hole dimension: $45^{+0.7}_{-0} \times 92^{+0.7}_{-0}$ mm



Outline dimension: 72×72×115mm

Open hole dimension: $68^{+0.7}_{-0} \times 68^{+0.7}_{-0}$ mm



Outline dimension: 160×80×115mm

Open hole dimension: $152^{+0.7}_{-0} \times 76^{+0.7}_{-0}$ mm



Outline dimension: 80×160×115mm

Open hole dimension: $76^{+0.7}_{-0} \times 152^{+0.7}_{-0}$ mm



Outline dimension: 96×96×115mm

Open hole dimension: $92^{+0.7}_{-0} \times 92^{+0.7}_{-0}$ mm



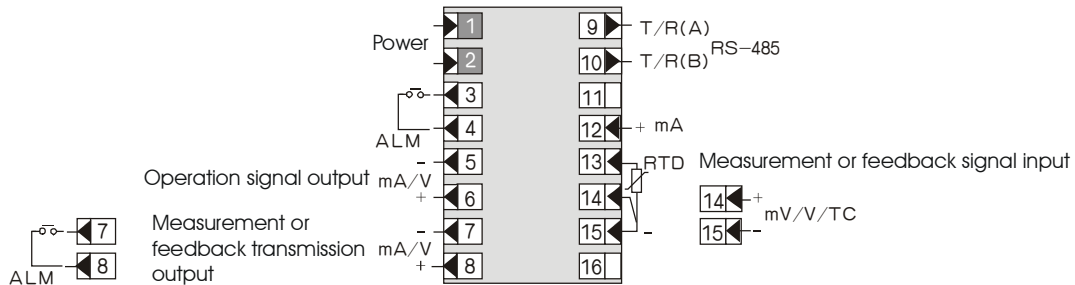
Outline dimension: 48×48×115mm

Open hole dimension: $45^{+0.7}_{-0} \times 45^{+0.7}_{-0}$ mm

> Wiring diagram for Simple manipulator instrument

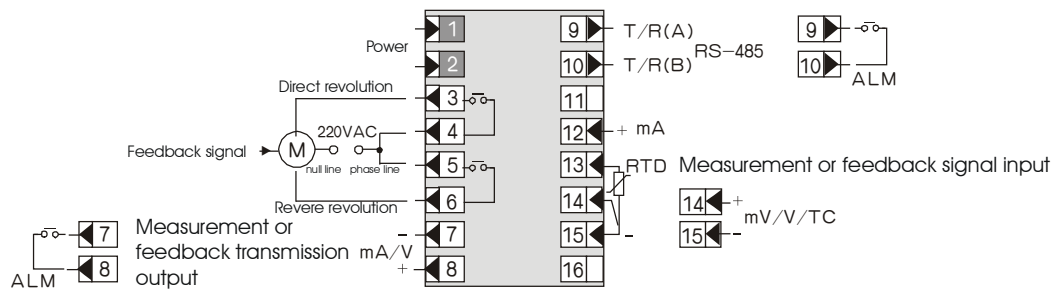
Manipulator wiring diagram 1 for operation signal output is analog quantity

(48×96×115) mm、(96×48×115) mm
 (80×160×115) mm、(160×80×115) mm
 (96×96×115) mm



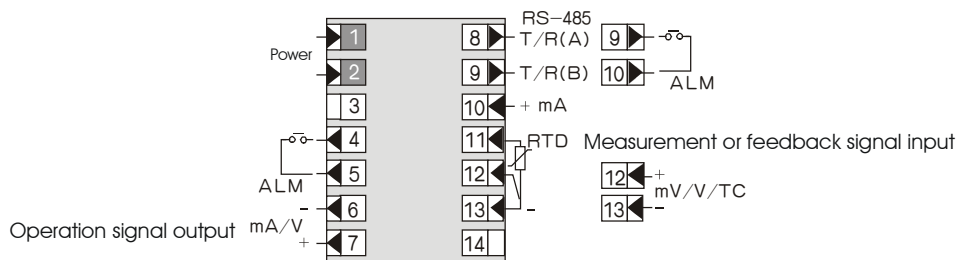
Manipulator wiring diagram 2 for operation signal output is switch quantity

(48×96×115) mm、(48×96×115) mm
 (80×160×115) mm、(160×80×115) mm
 (96×96×115) mm



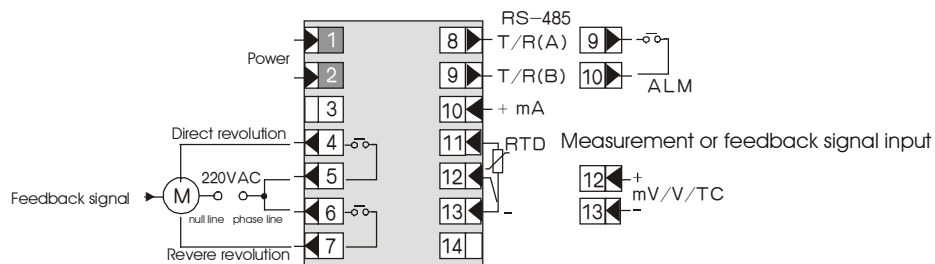
Manipulator wiring diagram 3 for operation signal output is analog quantity

(72×72×115) mm

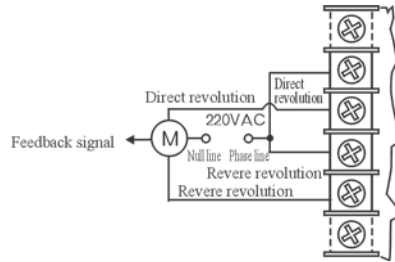


Manipulator wiring diagram 4 for operation signal output is switch quantity

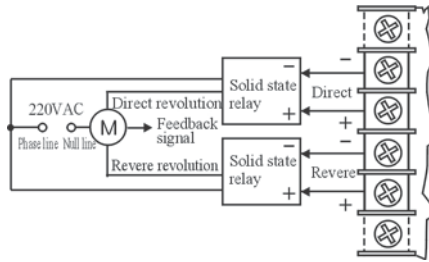
(72×72×115) mm



Wiring diagram 5 for direct-reversing control signal is bi-directional thyristor output



Wiring diagram 6 for direct-reversing control signal is SSR solid-state relay



> Type spectrum table for simple manipulator

Model										Explanation		
WP-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Display feature	C										Horizontal type single screen numeric display	The screen displays measured value or output percentage
	S										Vertical type single screen numeric display	
	D										Horizontal type double screen numeric display	Up screen approves display measured value Low screen approves display measured value
	DS										Vertical type double screen numeric display	
	T										Vertical type single screen single light column display	The screen approves display measured value
	TX										Horizontal type single screen single light column display	Light column approves display output percentage
Outline dimension	4										96×48 mm, 48×96 mm	
	7										72×72 mm	
	8										160×80 mm, 80×160 mm	
	9										96×96 mm	
Control action			45								Simple manipulator	
Communication model				0							No communication interface	
				2							RS-232C communication interface	
				8							RS-485 communication interface	
Operation signal output type				1							Relay direct-reversing revolution control output (D type)	
				2							(4~20) mA output	
				3							(0~10) mA output (Q type)	
				4							(1~5) V output (Q type)	
				5							(0~5) V output (Q type)	
				6							SCR direct-reversing zero-crossing control output	
				7							SSR direct-reversing control signal output	
Transmission output				0							No transmission output	
				2							(4~20) mA output	
				3							(0~10) mA output	
				4							(1~5) V output	
				5							(0~5) V output	
Input type							<input type="checkbox"/>				See "input type table" (manipulator without input signal have only single screen display output percentage, code is 24)	
First alarm model									N		No alarm	
									H		High limit alarm	
									L		Low limit alarm	
Second alarm model									N		No alarm (can be omitted)	
									H		High limit alarm	
									L		Low limit alarm	
Supply mode											AC 220V linear power source (can be omitted)	
									T		AC (90~265) V switch power supply	
									W		DC24V supply	

Option as an example: WP-TX845-822-12-N-T

【Intelligent given manipulator】

> Product outline

Intelligent given manipulator have all characteristic of on-off control meter with universal division number, when automatic operating, measured value compares with given value, by which determine direction or reversion for manipulator output, double screen numeric tube display, up screen display measured value, low screen display given value. When manual operating, by keystroke operation determines direction or reversion switch quantity output, and match with electric actuator can control liquid level or temperature of system.

> Main technical parameter function characteristic

- ※ Operation signal output direct-reversing switch quantity, its high/low limiting can be set.
- ※ There are all characteristic of on-off control meter with universal division number input.
- ※ Can carry RS 485/RS 232 isolation communication interface.

➤ Outline and open dimension



Outline dimension: 96×48×115mm

Open hole dimension: $92^{+0.7}_{-0} \times 45^{+0.7}_{-0}$ mm



Outline dimension: 48×96×115mm

Open hole dimension: $45^{+0.7}_{-0} \times 92^{+0.7}_{-0}$ mm



Outline dimension: 96×96×115mm

Open hole dimension: $92^{+0.7}_{-0} \times 92^{+0.7}_{-0}$ mm



Outline dimension: 160×80×115mm

Open hole dimension: $152^{+0.7}_{-0} \times 76^{+0.7}_{-0}$ mm



Outline dimension: 80×160×115mm

Open hole dimension: $76^{+0.7}_{-0} \times 152^{+0.7}_{-0}$ mm

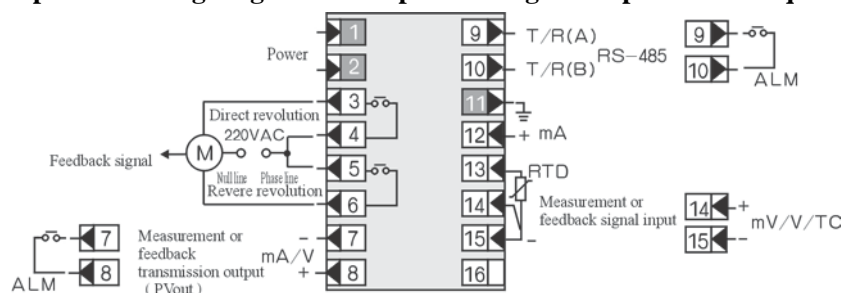


Outline dimension: 72×72×115mm

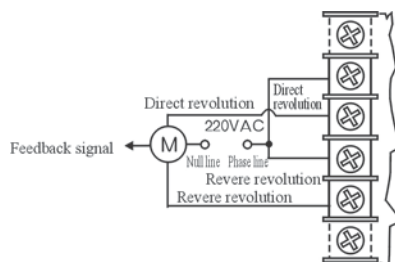
Open hole dimension: $68^{+0.7}_{-0} \times 68^{+0.7}_{-0}$ mm

> Wiring diagram for intelligent given manipulator

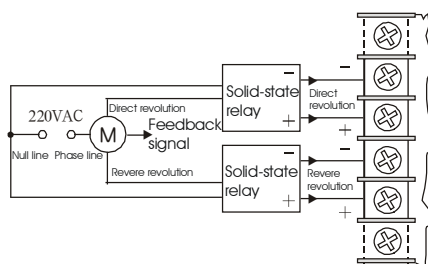
Manipulator wiring diagram 1 for operation signal output is switch quantity,



Wiring diagram 2 for direct-reversing control signal is bi-directional thyristor output



Wiring diagram 3 for direct-reversing control signal is SSR solid-state relay



> Type spectrum table for intelligent given manipulator

Model		Explanation
WP-	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Display feature	D	Horizontal type double screen numeric display
	S	Vertical type double screen numeric display
Outline dimension	4	96×48 mm, 48×96 mm
	8	160×80 mm, 80×160 mm
	9	96×96 mm
Control action	55	Intelligent given manipulator
Communication model	0	No communication interface
	2	RS-232C communication interface
	8	RS-485 communication interface
Operation signal output type	1	Relay direct-reversing control output
	6	SCR direct-reversing zero-crossing control output
	7	SSR direct-reversing control signal output
Transmission output	0	No transmission output
	2	(4~20) mA output
	3	(0~10) mA output
	4	(1~5) V output
	5	(0~5) V output
Input type	<input type="checkbox"/>	See "input type table"
First alarm model	N	No alarm
	H	High limit alarm
	L	Low limit alarm
Second alarm mode	N	No alarm (can be omitted)
	H	High limit alarm
	L	Low limit alarm
Supply mode		AC220V linear power source (can be omitted)
	T	AC (90~265) V switch power supply
	W	DC 24 V supply

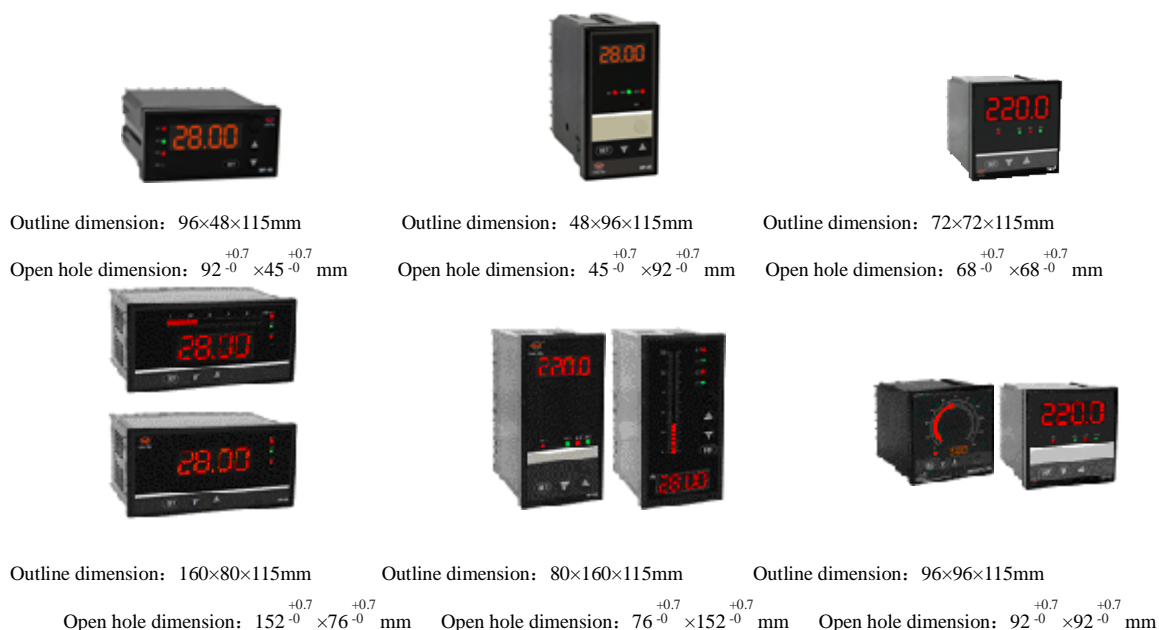
Option as an example: WP-D855-012-03-HL;

【Simple backup manipulator】

> Product outline

Simple backup manipulator receive given analog quantity signal from DCS system or PID regulator, when normal control, manipulator input and output equvalen to straight-through, so as to realize that DCS system or PID regulator automatic control the actuator. When forestage DCS system or PID regulator happened fault, manipulator receiving failure signal immediately switch into manual control state, by keystroke controls operation signal output. When failure is removed, the instrument automatic recover automatic state.

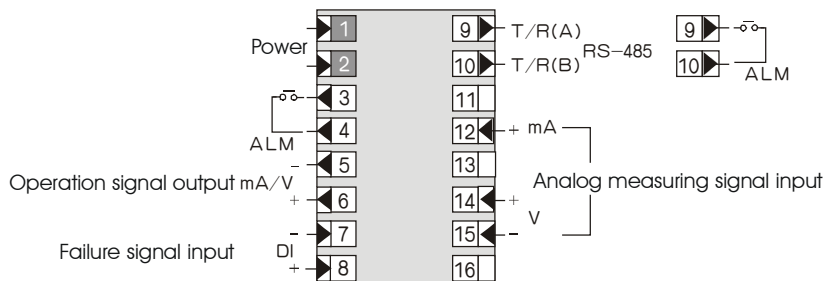
➤ Outline and open dimension



> Wiring diagram for simple backup manipulator instrument

Manipulator wiring diagram for operation signal output is analog quantity

(48×96×115) mm、(96×48×115) mm
(80×160×115) mm、(160×80×115) mm
(96×96×115) mm



> Type spectrum table for simple backup manipulator

Model										Explanation
WP-	□	□	□□	-□	□	-□□	-□	□	□	
Display feature	C									Horizontal type single screen numeric display
	S									Vertical type single screen numeric display
	T									Vertical type single screen single light column display
	TX									Horizontal type single screen single light column display
Outline dimension		4								96×48 mm, 48×96 mm
		8								160×80 mm, 80×160 mm
		9								96×96 mm
Control action			65							Simple backup manipulator
Communication model				0						No communication interface
				2						RS-232C communication interface
				8						RS-485 communication interface
Operation signal output type					2					(4~20) mA output
					3					(0~10) mA output
					4					(1~5) mA output
					5					(0~5) mA output
Input type						12				(4~20) mA input
						13				(0~10) mA input
						14				(1~5) mA input
						15				(0~5) mA input
						16				(0~20) mA input
First alarm mode							N			No alarm
							H			High limit alarm
							L			Low limit alarm
Second alarm mode								N		No alarm (can be omitted)
								H		High limit alarm
								L		Low limit alarm
Supply mode										AC220 V linear power (can be omitted)
								T		AC (90~265) V switch power supply
								W		DC 24 V supply power

Option as example: WP-TX865-82-12-T

【Intelligent flow integrated controller】

> Product outline

Intelligent flow integrated controller adopts advanced microprocessor for smart control, apply to flow detection and integrated control for a variety of liquid, general gas, steam, natural gas and so on. It adopts check table method to carry out density compensate, can automatically carry out high-accurate integrated control for superheat steam, saturated steam. Build-in multiple flow-integrated formulas, suit to a variety of flow measurement field.

The product has multi signal input function. It can match meet a variety of pressure/differential pressure and frequency type flow sensor (like orifice plat, vortex street, turbine, and so on), and only need to pass simple selection of instrument's menu then can realize to lightly switching between above-mentioned input signals, and has improved universality and reliability of the instrument. They have many compensation modes (such as temperature compensation, pressure compensation, temperature compensation + pressure compensation and so on) which offer option for user.

Instrument Measurement display scope is wide can show whole five digits instantaneous flow value, temperature compensation value, pressure compensation value, flow, volume (or differential pressure/frequency) value and so on, and the whole thirteen digit of flow accumulated value (0~9,999,999,999,999), high precision, accumulated value can accurate to back three digit of decimal point (0.001), yet can setting by internal parameter to makes the maximum accumulated value reached $99,999,999,999.99 \times 100$. Display carry measure state sign, so can carry out conveniently observation of measured object, input/output loop all adopt photoelectric isolation.

> Characteristics

Mathematical model See instrument's operation manual

Measuring accuracy measurement display accuracy: $\pm 0.5\% FS \pm 1$

Frequency transform accuracy: ± 1 pulse (LMS) general superior to 0.2%

Display mode high brightness LED digital display

Large screen of all Chinese (with back light) LCD (liquid crystal) display

LED working state display

Current date and time display

Five digit (0~99999) instantaneous flow value display

Eleven digit (0~99,999,999,999) accumulated flow value display

Five digit (0~99999) pressure compensational value display

Five digit (-19999~99999) temperature compensational value display

Five digit (0~99999) flow (or differential pressure / frequency) value display

Control mode selectable high / lower limit or high-higher / low-lower limit control, with normal open/close output.

Control setting value free set in all range of the control setting value and hysteresis error value

Quantitative control selectable flow fixed quantity to control, LED output indication

select flow quantitative process control, LED output indication

Compensation mode temperature, pressure, temperature + pressure automatic compensation

➤ Outline and open dimension



Outline dimension: 160×80×115mm



Outline dimension: 80×160×115mm



Outline dimension: 96×96×115mm

Open hole dimension: $152^{+0.7}_{-0} \times 76^{+0.7}_{-0}$ mm

Open hole dimension: $76^{+0.7}_{-0} \times 152^{+0.7}_{-0}$ mm

Open hole dimension: $92^{+0.7}_{-0} \times 92^{+0.7}_{-0}$ mm

> Type spectrum table for intelligent flow integrated controller

Model										Explanation	
WP-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Outline feature	L										LED digital horizontal type display
	LS										LED digital vertical type display
	LC										Large screen LCD liquid crystal horizontal type display
	LCS										Large screen LCD liquid crystal vertical type display
Outline dimension		8									160×80 mm (horizontal), 80×160 mm (vertical)
		9									96×96 mm
Control action			01								No compensation
			02								carry compensation input
			03								Superheat steam carries temperature, pressure compensation
			04								Saturated steam carries temperature, pressure compensation
			05								User specific curve compensation – check table method
Communication mode			0								No communication output
			2								RS-232C communication interface
			8								RS-485 communication interface
Output mode			0								No output
			1								Relay control or alarm output
			2								(4~20) mA output (instantaneous flow after corresponding compensation)
			3								(0~10) mA output (instantaneous flow after corresponding compensation)
			4								(1~5) V output (instantaneous flow after corresponding compensation)
			5								(0~5) V output (instantaneous flow after corresponding compensation)
			6								SCR zero-crossing trigger pulse output
			7								SSR control signal output
			8								Special specification transmit output
Input mode				<input type="checkbox"/>							Flow, differential pressure or frequency (see input type)
				<input type="checkbox"/>							Pressure compensation input (see input type)
				<input type="checkbox"/>							Temperature compensation input (see input type)
First alarm							N				No alarm
							H				First alarm is high limit alarm
							L				First alarm is lower limit alarm
							B				Automatic start for flow fixed quantity to control
							C				automatic start for flow quantitative process control
Second alarm							D				Automatic clean for flow fixed quantity to control
							N				No alarm
							H				Second alarm is high limit alarm
Feed output							L				Second alarm is lower limit alarm
							B				Manual start for flow fixed quantitative to control
							C				Manual start for flow quantity process control
Supply mode							P				Single loop DC 24 V feed output
							2P				Double loop DC 24 V feed output
Supply mode											AC 220V linear power (can be omitted)
							T				AC (90~265) V switch power supply
							W				DC 24 V supply power

★ Note: 1. Outer connection start,stop,null function see random wiring diagram.

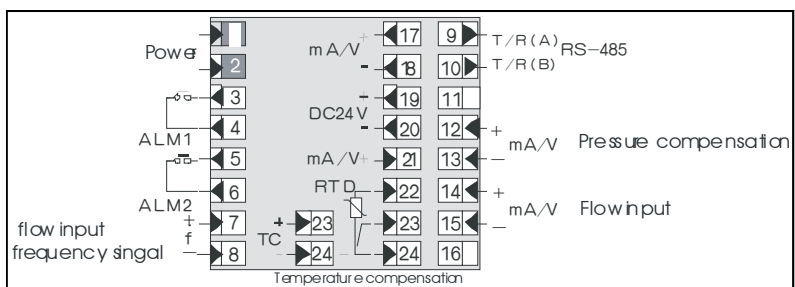
2. L802, L803, L804 series can switch each other by establishes secondary parameter of instrument. It may only free chooses one kind between pressure or temperature compensation while measuring saturated steam.
3. if user chooses specific curve compensation input (checktable method), please when ordering provide relative technical parameter or density form.

Option as an example: WP-L802-02-FAG-HL; WP-LS802-21-AAG-HL
 WP-LCS804-01-ANG-HL-P
 WP-LC804-01-ANG-HL-P

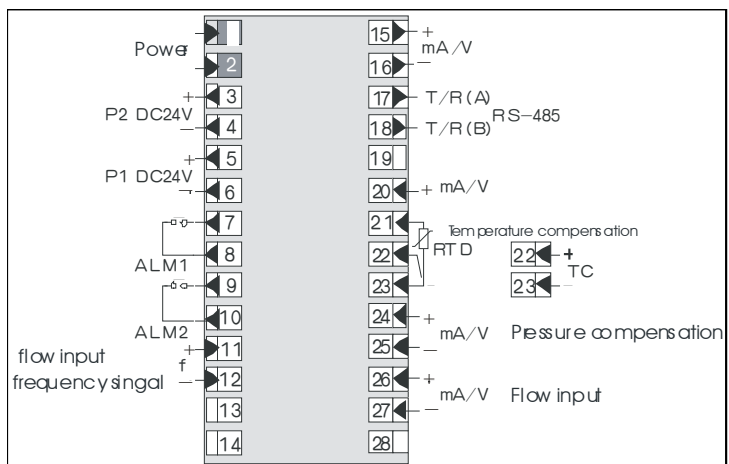
> **Input type**

Code	Input type	Measuring scope	Code	Input type	Measuring scope	Remarks
A	(4~20) mA	-1999~9999d	O	Pulse – collector open circuit	0~5 KHz	The table listed data is the maximum range, user can modify secondary parameter to determine measuring range in the measurement scope
B	(0~10) mA	-1999~9999d	E	Thermocouple E type	0~1000℃	
C	(1~5) V	-1999~9999d	K	Thermocouple K type	0~1300℃	
D	(0~5) V	-1999~9999d	R	User given	-19999~99999d	
F	Pulse	0~5 KHz	N	No compensation input		
G	Pt 100	-200~650℃				

>> **Wiring diagram for 96×96**



>> **Wiring diagram for 160×80, 80×160**



【Intelligent programmable natural gas flow integrated controller】

> Product outline

Intelligent programmable natural gas flow integrated controller adopt advanced microprocessor for smart control, mainly suitable use to flow measurement, integration and control for various natural gas, and with automatic compensation function. when operating, it only need to simply input correspondence parameter, immediately can carry out high accurate measurement and automatic compensation operation.

Due to the component of natural gas is very complex in different zone of our country, the product has taken on special design, it set up "Moore component factor" of thirteen kinds, which offer user to select and setup, so as to satisfy measurement for contains various component natural gas, at the same time established many take-pressure way in order to suit to different measure device, and have automatic calculate and display super-compression factor function. Its set standard completely correspond to SY / T6143-96 "standard orifice plate measurement method of natural gas" and GB / T11062-89 "calculate method in caloric value, density and relative density of natural gas" and other national standard. So can completely satisfy measurement request of various natural gas from all parts of oil and gas field and transmission pipeline in our country.

There are switch function of multi-kind signal input, only need to simple setup by instrument's menu, namely can realize lightly switching between multi-kind input signal, and has jumped universality and reliability of instrument.

Adopt full Chinese large screen (with backlight) LCD liquid crystal display, and have page display function can display instantaneous temperature, pressure, flow, super-compression factor, date and time, instantaneous flow, and accumulate flow and so on. Can with serial communication interface.

> Main technical parameter

>> Input signal

Analog quantity	thermocouple: standard thermocouple --- K, E Resistance: standard thermo-resistance ---- Pt100 Current: 0~10 mA, 4 mA~20 mA etc. (input resistance \leq 250 Ω) Voltage: 0~5 V, 1 V~5 V, mV etc. (input impedance \geq 250 K Ω)
Switch quantity	start, stop, dean
Input signal switch	temperature compensation: Pt 100, K, E, 0~10 mA, 4~20 mA, 0~5 V, 1~5V (can free switch) Pressure compensation: 0~10 mA, 4~20 mA, 0~5 V, 1~5 V (can free switch) Flow input: 0~10 mA, 4~20 mA, 0~5 V, 1~5 V (can free switch)

>> Output signal

Analog quantity	DC 4~20 mA (load resistance \leq 500 Ω) DC 0~10 mA (load resistance \leq 750 Ω) DC 1~5 V (load resistance \geq 250K Ω) DC 0~5 V (load resistance \geq 250K Ω)
Switch quantity	Relay control output ---- ON/OFF with return difference Contact capacity: AC 220V/3A; DC 24V/5A (resistive load)
Communication mode	RS-232C, RS-485 Baud rate - 300~9600 bps (free set)
Feed output	DC 24V/30mA

>> Characteristic

Measuring accuracy	\pm 0.2%FS or \pm 0.5%FS
--------------------	------------------------------

Resolution	±1 character
Display mode	Full Chinese big screen (with backlight) LCD liquid crystal display Display current date and time Display 6-digits (0~999999) instantaneous flow value Display 11- digits (0~9999999999) accumulate flow value Display 6- digits (-19999~99999) temperature compensation value Display 6- digits (-19999~99999) pressure compensation value Display 4- digits (-1999~9999) flow (differential pressure, frequency) value Display 10- digits (0~9999999999) super-compression factor
Control mode	can select high/lower limit or high-higher/low-lower limit control, with normal open/close output
Control setting value	free set for control setting value and return difference value in the full range
Fixed-quantity control	can select flow fixed-quantity to control, LED output indicating Can select flow quantitative process control, LED output indicating
Compensation mode	temperature pressure automatic compensation
Parameter setup	panel touch lightly keystroke digital set Setting value of parameter is permanent retention after power failure Cipher lock for setting value of parameter
Protection mode	Flow accumulation remains more than 5 year after power off Under-voltage of power source can be automatic reset Abnormal work can be automatic reset

➤ **Outline and open dimension**



Outline dimension: 160×80×115mm
 Open hole dimension: $152^{+0.7}_{-0} \times 76^{+0.7}_{-0}$ mm

> Type spectrum table for intelligent programmable natural gas integrated controller

Model										Explanation		
WP-LN	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Outline feature											160×80×115 mm (horizontal type)	
Control action		802									With compensation input (adopt standard formula)	
Communication mode			0								No communication output	
			2								RS-232C communication interface	
			8								RS-485 communication interface	
Control output			0								No output	
			1								Relay control / alarm output	
			2								(4 ~ 20) mA output (instantaneous flow after corresponding compensation)	
			3								(0 ~ 10) mA output (instantaneous flow after corresponding compensation)	
			4								(1~5) V output (instantaneous flow after corresponding compensation)	
			5								(0~5) V output (instantaneous flow after corresponding compensation)	
			6								SCR zero-crossing trigger pulse output	
			7								SSR control output	
		8								Special specification transmit output		
Input mode			<input type="checkbox"/>								Flow, differential pressure (see input type table)	
			<input type="checkbox"/>								Pressure compensation input (see input type table)	
			<input type="checkbox"/>								Temperature compensation input (see input type table)	
First alarm						N					No alarm	
						H					First alarm is high limit alarm	
						L					First alarm is lower limit alarm	
Second alarm						N					No alarm (can be omitted)	
						H					Second alarm is high limit alarm	
						L					Second alarm is lower limit alarm	
Feed output								P			Single-channel DC24V feed output	No feed output can be omitted
								2P			double-channel DC24V feed output	
Supply power mode											AC220V linear power source (can be omitted)	
								T			AC (90~265) V switch power supply	
								W			DC24V supply power	

★ Note: 1. Out connect start, stop, null function see random wiring diagram

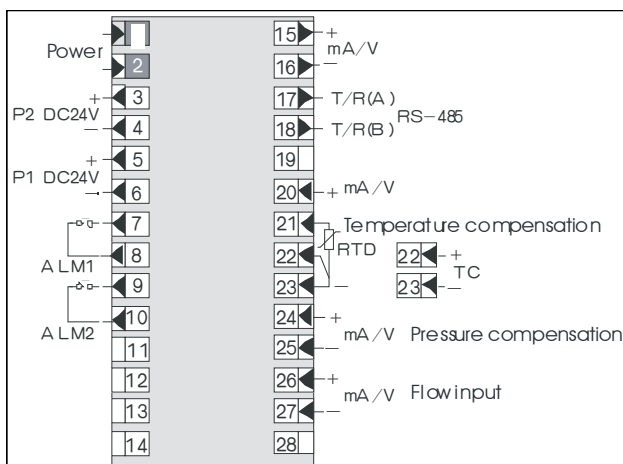
2. If user select specific curve compensation input, please provide relative technical parameter or density form while ordering.

Option as an example: WP-LN802-02-AAG-HL; WP-LNS802-21-AAG-HL-P

> Input type

Code	Input type	Measuring range	Code	Input type	Measuring range	Remarks
A	(4~20) mA	-1999~9999d	G	Pt 100	-200~650℃	The table listed data is the maximum range, user can determine measuring range through modify secondary parameter of instrument in the measuring range
B	(0~10) mA	-1999~9999d	E	Thermocouple E type	0~1000℃	
C	(1~5) V	-1999~9999d	K	Thermocouple K type	0~1300℃	
D	(0~5) V	-1999~9999d	R	User given	-19999~99999d	

> Wiring diagram of 160x80 instrument



【Intelligent heat-energy integrated controller】

> Product outline

Intelligent heat energy integrated controller that adopt advanced microprocessor for smart control, it mainly apply to heat supply, heating, refrigeration and so on heat energy system, for heat energy in the hot water, superheat steam, saturated steam, calcium chloride water or other heating / refrigeration medium carry out high-accurate integration and control. "Heat energy" meanings of the meter includ quantity of heat/cold.

Heat energy enthalpy value table interior contained large capacity, can automatically carry out check table quickly, and calculate corresponding heat energy value (quantity of heat/cold) with real-time flow, and automatically accumulate calculation.

Can inspect energy produced by heat energy system, also can inspect both end temperature in input / output of heat energy system. Through difference value comparison, automatically calculate actual consumption quantity of heat energy by user. Output loop all adopt photoelectric isolation, and have good anti-interference performance. It can carry serial communication interface.

Adopt full Chinese big screen (with backlight) LCD liquid crystal paginally display, it can display whole 6- digits instantaneous flow value, instantaneous heat energy value, temperature compensational value, pressure compensational value, flow (differential pressure, frequency) value and so on, and whole 11- digits accumulating flow value and heat energy value (0~99999999.999 word). Accumulating value can precise to three digits behind the decimal point (0.001).

> Characteristic

Accuracy	measurement display accuracy: $0.5\%FS \pm 1$ character (analog quantity) Frequency conversion accuracy: ± 1 pulse (LMS), general $< 0.2\%$
Display mode	Display instantaneous flow measured value 0~999999 Display flow accumulating value 0~99999999.999 Display heat energy value 0~999999 Display heat-energy accumulating value 0~99999999.999 Display temperature compensation measuring value -199999~999999 Display pressure compensation measuring value -199999~999999 Display flow (differential pressure, frequency) measuring value -199999~999999 Current time display Luminotron work state display
Control mode	ON/OFF with return difference
Print control	direct match connect various type serial micro-printer, communication mode is RS-232C
Alarm mode	may select relay high/lower limit alarm output, LED alarm indicating
Fix-quantity control	may select relay heat-energy fix-quantity to control, LED alarm indicating May select relay heat-energy quantitative process control, LED output indicating
Communication mode	RS-232C, RS-485, baud rate (300~9600) bps ,may set

➤ Outline and open dimension



Outline dimension: 160×80×115mm

Open hole dimension: $152^{+0.7}_{-0} \times 76^{+0.7}_{-0}$ mm



Outline dimension: 80×160×115mm

Open hole dimension: $76^{+0.7}_{-0} \times 152^{+0.7}_{-0}$ mm

> Type spectrum table for intelligent heat-energy integrating controller

Model												Explanation		
WP-L	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Integrating mode	Q												Heat-quantity integration	
	L												Cold-quantity integration	
Outline feature													Big screen LCD liquid crystal horizontal display (can be omitted)	
	S												Big screen LCD liquid crystal vertical display	
Outline dimension		8											160×80 mm, 80×160 mm	
Calculation mode		0											Single-loop energy calculation	
		1											Temperature difference energy calculation	
Measurement medium		1											CaCl ₂ water	
		2											Hot water	
		3											Superheat steam	
		4											Saturated steam	
		5											given curve by user ----check table method	
Communication mode		0											Without communication interface	
		2											RS-232C communication interface	
		8											RS-485 communication interface	
Type of heat-energy transmit output		2											Current (4~20) mA	
		3											Current (0~10) mA	
		4											Voltage (1~5) V	
		5											Voltage (0~5) V	
Type of measuring signal input		<input type="checkbox"/>											Flow, differential pressure or frequency (see input type)	
		<input type="checkbox"/>											Pressure compensation input (see input type)	
		<input type="checkbox"/>											Temperature 1 compensation input (see input type)	
		<input type="checkbox"/>											Temperature 2 compensation input (see input type)	
First alarm		N											Without alarm (can be omitted)	
		H											First alarm is high limit alarm	
		L											First alarm is lower limit alarm	
		B											Heat energy fixed quantity to control --- automatic start	
		C											heat energy Quantitative process control --- automatic start	
		D											Heat energy fixed quantity to control --- automatic clean	
Second alarm		N											Without alarm (can be omitted)	
		H											Second alarm is high alarm	
		L											Second alarm is lower alarm	
		B											Heat energy fixed quantity to control --- automatic start	
		C											Heat energy quantitative process control --- automatic start	
		D											Heat energy fixed quantity to control --- automatic null	
Feed output		P											One-way DC 24V feed output	No-feed output can be omitted
		2P											Double-way DC 24 V feed output	
supply mode													AC 220 V linear power (can be omitted)	
		T											AC (90~265) V switch power supply	
		W											DC 24 V (switch power) supply	

★ Note: When user chooses specific curve compensation input (check table method), please provide correlative technical parameter or density form when ordering.

★ Note: When users choose out connection (start, stop, null) switch quantity, please explain while ordering, wiring diagram the random wiring diagram shall take precedence.

Option as an example: WP-LQ803-02-AAGN-HL; WP-LQ812-82-ANGG-HL-P

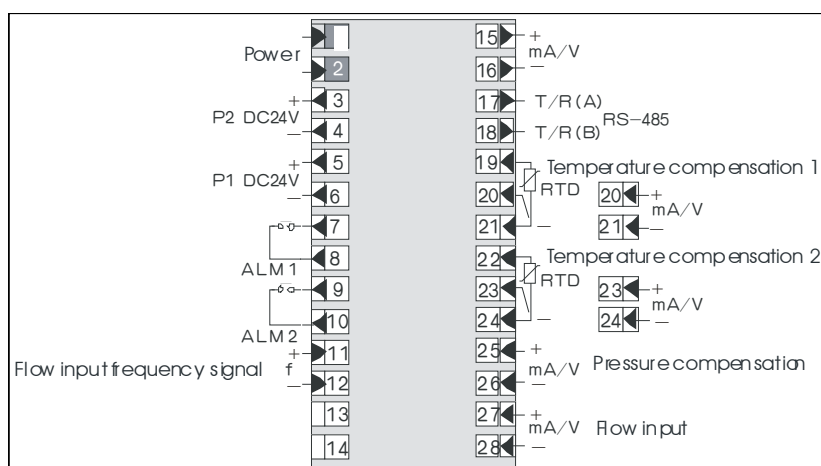
WP-LL811-04-ANAA-HL-2P; WP-LQ813-02-AAGG-HL-2P

> Input type

Code	Input type	Measuring scope	Code	Input type	Measuring scope	Remarks
A	(4~20) mA	-199999~999999d	O	Pulse – collector open circuit	(0~7) KHz	The table listed data is the maximum range; user can determine range in the measurement scope through modify secondary parameter of the instrument TL, PL, PH, CAL, CAH.
B	(0~10) mA	-199999~999999d	W	Passive contact signal	(0~7) KHz	
C	(1~5)V	-199999~999999d	G	Pt 100	-200~650℃	
D	(0~5) V	-199999~999999d	R	User specify	-199999~999999d	
F	Pulse	(0~7) KHz	N	Without compensation input		

★ Note: Compensation temperature 1 or temperature 2 signal type shall be selected.

>> Wiring diagram of 160×80, 80×160



【WP6210 series thermo-resistance temperature transmitter】

➤ Product outline

WP6210 series thermo-resistive temperature transmitter is a kind of module structure guide way type instrument. which transfer the variation of thermo-resistance into linearly relative to the temperature (4~20) mA DC or (1~5) V DC isolation signal output.

> Main technical parameter

Input signal Pt 10, Pt 100 Cu 50, Cu 100 thermo-resistance

Output signal (4~20) mA DC or (1~5) V DC

Load resistance ≤500 Ω when output (4 ~20) mA DC
 ≥250KΩ when output (1~5) V DC

Input lead resistance influence every line resistance ≤5Ω (three -line equal)

Accuracy 0.5 class

Common mode interference < 5 mV when 50 Hz

Response time < 1 s

Isolation isolates each other between input, output power

Power source 24V DC±2V

Power consumption < 1.5 W

Ambient temperature 0~50℃

Environmental atmosphere (86~110) KPa

Relative temperature < 90% (without condensate)

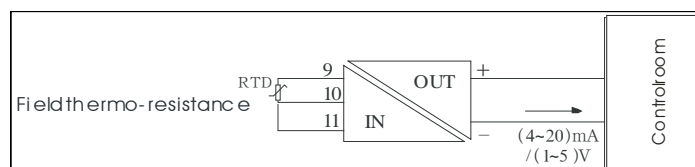
Insulation resistance: ≥100 MΩ between power source, input, output terminal

Insulation strength: when apply 500 V AC for 1 minute, between power source, input, output terminal, no arcing, no breakdown

Weight approximately 150 g

Maintenance the instrument can be changed in the installation distributing line state

> Schematic diagram of function



> Option

Model	Dividing number	Measuring range °C	Output signal	Channel number	Remarks
WP6211	Cu 50	0~150	(4~20) mA/(1~5) V DC	One -in one-out	Output approves (4~20) mA when out of factory, if need (1~5) V please explain while ordering
WP6212	Cu 100	0~150	(4~20) mA/(1~5) V DC		
WP6213	Pt 10	-200~500	(4~20) mA/(1~5) V DC		
WP6214	Pt 100	-200~600	(4~20) mA/(1~5) V DC		
WP6215	Cu 50	0~150	(4~20) mA/(1~5) V DC	One-in two-out	
WP6216	Cu 100	0~150	(4~20) mA/(1~5) V DC		
WP6217	Pt 10	-200~500	(4~20) mA/(1~5) V DC		
WP6218	Pt 100	-200~600	(4~20) mA/(1~5) V DC		

Note: when ordering must mark the scope of measuring range while ordering (can any choice in the scope)

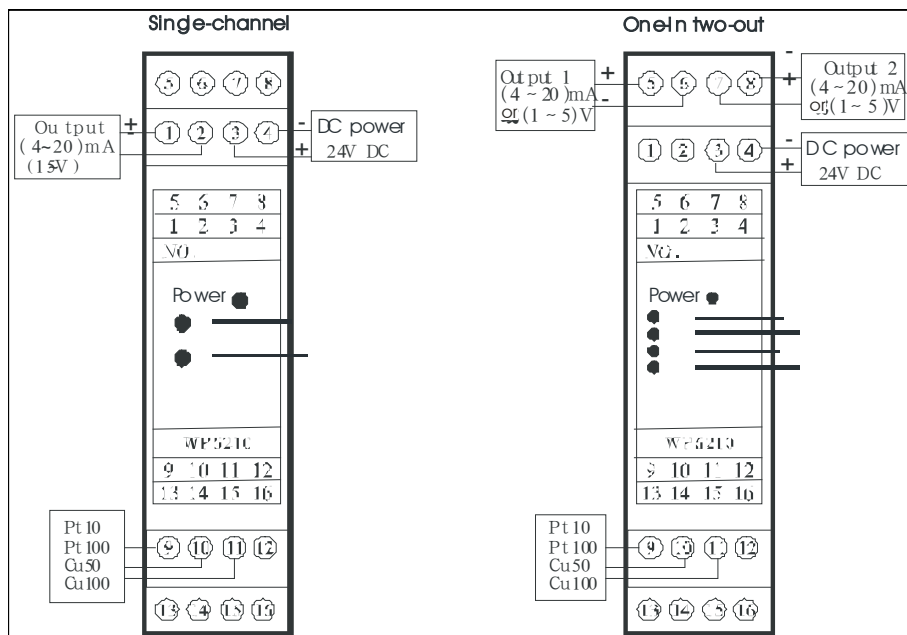
Ordering guide:

If user need thermo-resistance Pt 100 type, then temperature scope of temperature transmitter 0~

200°C

Order model: WP6214 (Pt 100 0~200°C)

> **Wiring diagram**



> **Outline dimension**

Outline dimension: 114.5×99×22.5 (height × width ×depth mm)

Installation: 35 mm DIN guide-way type install

【WP6220/6250 series thermocouple temperature transmitter】

> Product outline

WP6220/6250 series thermocouple temperature transmitter is a kind of module structure guide-way type instrument which transfer the variation of thermocouple into linearly relative to the temperature (4~20) mA DC or (1~5) V DC isolation signal output.

> Main technical parameter

Input signal E, K, S, B, R, J, T, Thermocouple

Output signal (4~20) mA DC or (1~5) V DC

Load resistance $\leq 500 \Omega$ when output (4~20) mA DC
 $\geq 250K\Omega$ when output (1~5) V DC

Accuracy 0.5 class

Compensated resistance Cu 50

Cold-end compensation error $\leq 1^\circ\text{C}$

Common mode interference $< 5 \text{ mV}$ when 50 Hz

Response time $< 1 \text{ s}$

Isolation isolates each other between input, output, power

Power source 24V DC $\pm 2\text{V}$

Power consumption $< 1.5 \text{ W}$

Ambient temperature 0~50 $^\circ\text{C}$

Relative temperature $< 90\%$ (without condensate)

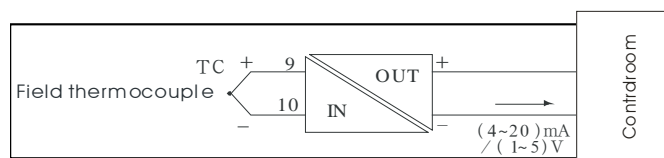
Insulation resistance: $\geq 100 \text{ M}\Omega$ between power source, input, output terminals

Insulation strength: when apply 500 V AC, for 1 minute, between power, input, output terminal, no arcing, no breakdown

Weight approximately 150 g

Maintenance the instrument can be changed in the installation distributing state

> Schematic diagram of the function



> Option

Model	Dividing number	Output signal	Measuring range $^\circ\text{C}$	Channel number	Remarks
WP6221	E	(4~20) mA/(1~5) V DC	0~1000	One-in one-out	Output approves (4~20) mA when out of factory, if need (1~5) V please explain while ordering
WP6222	K	(4~20) mA/(1~5) V DC	0~1300		
WP6223	S	(4~20) mA/(1~5) V DC	0~1600		
WP6224	B	(4~20) mA/(1~5) V DC	400~1800		
WP6225	R	(4~20) mA/(1~5) V DC	0~1600		
WP6226	J	(4~20) mA/(1~5) V DC	0~600		
WP6227	T	(4~20) mA/(1~5) V DC	-200~+300		
WP6251	E	(4~20) mA/(1~5) V DC	0~1000	One-in two-out	
WP6252	K	(4~20) mA/(1~5) V DC	0~1300		
WP6253	S	(4~20) mA/(1~5) V DC	0~1600		
WP6254	B	(4~20) mA/(1~5) V DC	0~1800		
WP6255	R	(4~20) mA/(1~5) V DC	0~1600		
WP6256	J	(4~20) mA/(1~5) V DC	0~600		
WP6257	T	(4~20) mA/(1~5) V DC	-200~+300		

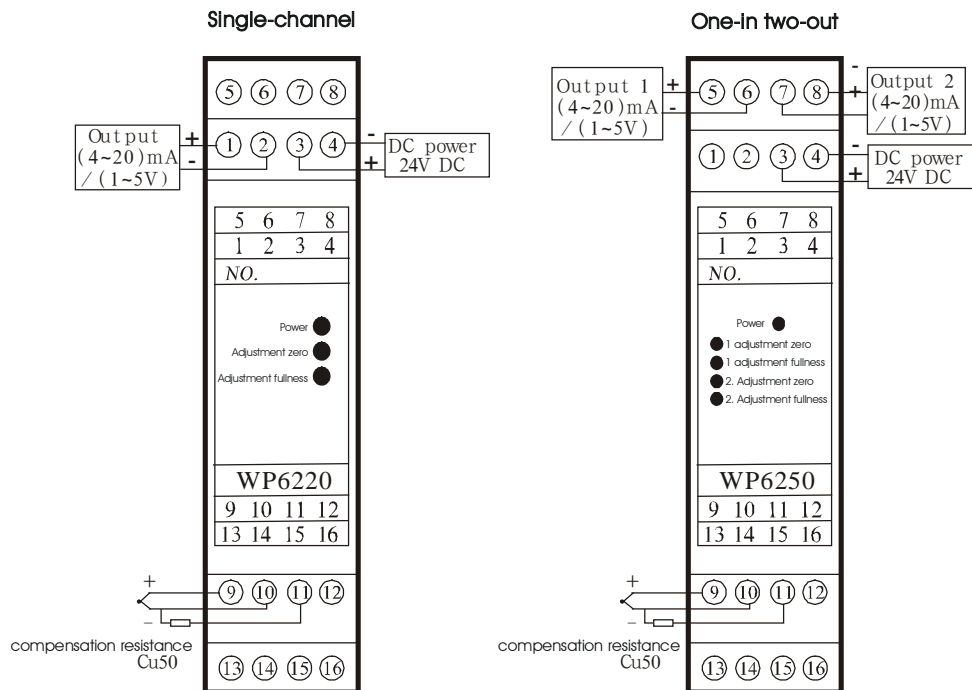
Note: When ordering must mark the measuring range(can any choice in the range)

Ordering guide:

User need thermocouple K type, temperature scope of temperature transmitter 0~800℃

Order model: WP6222 (K 0~800℃)

> **Wiring diagram**



> **Outline dimension**

Outline dimension: 114.5×99×22.5 (height × width ×depth mm)

Installation: 35 mm DIN guide-way type install

【WP6230 series distributor】

> Product outline

WP6230 series distributor is a kind of modularize structural guide way instrument. It provides isolated power to the field two-wire system transmitter from which the (4~20) mA DC signal is transformed into isolated (4~20) mA DC or (1~5) V DC signal output simultaneously. It supplies indicator, recorder, analog regulator, programmable single/multi-loop digital regulator, industrial process controller and decentralized system, to constitute a variety of monitoring control system, widely used to the detection and control system in industry production process. This distributor is an indispensable instrument variety to construct non explosion-proof self-control system.

1. Main technical parameter

Distribution voltage: (18.5~28.5) V

Input signal (4~20) mA DC

Output signal (4~20) mA DC or (1~5) V DC

Load resistance

· ≤500Ω when (4~20) mA DC output, when ordering special load note may provide (250~600)Ω

· ≥250KΩ when (1~5) V DC output

Accuracy 0.5 grade

Common mode interference < 5 mV at the 50 Hz

Response time < 1s

Isolation isolates each other between input, output, power

Power supply 24 V DC ±2V

Power consumption <1.5 W

Environmental temperature (-10~60) °C

Relative humidity <90% (no condensate)

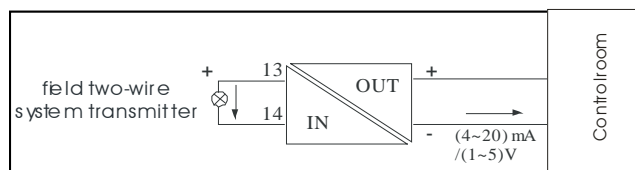
Insulating resistance ≥100 MΩ between power, input and output terminal

Insulating strength when apply 500 VAC, for 1 minute, no arcing, between power, input, output terminal no breakdown

Weight approximately 150 g

Maintenance the instrument may be changed in the installation distributing state

> Schematic diagram of function



> Options

Model	Input signal	Output signal	Channel number	Remark
WP6231	(4~20) mA DC	(4~20) mA DC/(1~5)V DC	Single-channel	Output approved (4~20) mA when leaving the factory, if need (1~5)V please explain while ordering
WP6232	(4~20) mA DC	(4~20) mA DC/(1~5)V DC	Double-channels	
WP6233	(4~20) mA DC	(4~20) mA DC/(1~5)V DC	One-in two-out	

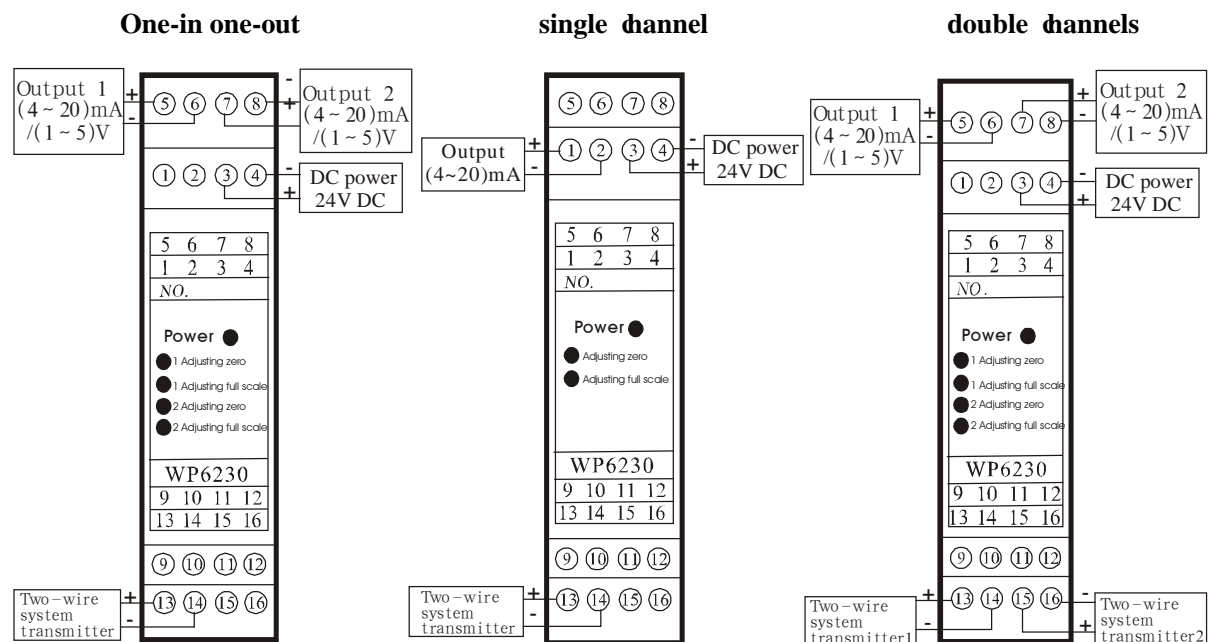
Guide to ordering

User needs in field distribute to pressure/differential pressure transmitter, single channel (4~20) mA

output

model: WP-6231

➤ **Wiring diagram of the instrument**



> **Outline dimension**

Outline dimension: height 114.5, width 99, and depth 22.5(mm)

Installation: 35 mm DIN guide-way type installation

【WP 6240 series DC signal converter】

> Product summary

WP6240 series DC signal converter is a kind of modularize structural guide-way type instrument, which transfer input (4~20) mA DC or (1~5) V DC signal into isolated with it the isolation signal output of isolated (4~20) mA DC or (1~5) V DC, It supplies indicator, recorder, analogy regulator, programmable single/multi loop digital regulator, industrial process controller and decentralized system to constitute a variety of monitoring control system. This converter isolates each other between power, input and output is an indispensable instrument varieties to made up of non explosion-proof self-control system.

> Main technical parameters

Input signal (4~20) mA DC or (1~5) V DC

Output signal (4~20) mA DC or (1~5) V DC

Input resistance > 500KΩ when (1~5) V DC input

>50Ω when (4~20) mA DC input

Load resistance ≤500Ω when (4~20) mA DC output, when special load ordering note may provide (250~600)Ω

≥250KΩ when (1~5) V DC output

Accuracy 0.5 grade

Common mode interference < 5 mV when the 50 Hz

Response time < 1s

Isolation isolates each other between input, output and power

Power 24 V DC ±10%

Power consumption <1.5 W

Environmental temperature (-10~60) °C

Relative humidity <90% (no condensate)

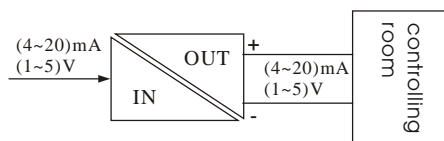
Insulating resistance ≥100 MΩ between power, input and output terminal

Insulating strength when apply 500 VAC, for 1 minute, between power, input, output terminal no arcing, no breakdown

Weight approximately 150 g

Maintenance the instrument may be change under install distributing state

> Schematic diagram of the function



> Options

Model	Input signal	Output signal	Channel number	Remark
WP6241	(4~20) mA DC	(4~20) mA DC/(1~5)V DC	Single-channel	Output approved (4~20) mA when leaving the factory, if need (1~5)V please explain while ordering
WP6242	(4~20) mA DC	(4~20) mA DC/(1~5)V DC	Double-channels	
WP6243	(4~20) mA DC	(4~20) mA DC/(1~5)V DC	One-in one-out	
WP6244	(1~5)V DC	(4~20) mA DC/(1~5)V DC	Single channel	
WP6245	(1~5)V DC	(4~20) mA DC/(1~5)V DC	Double channel	

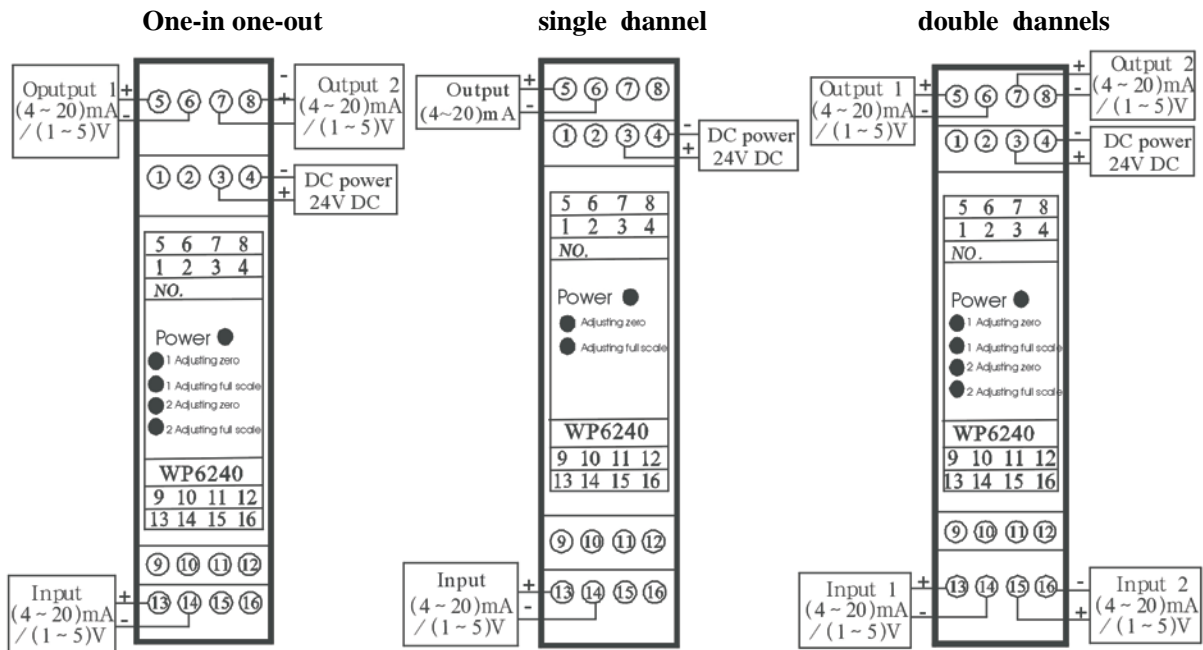
WP6246	(1~5)V DC	(4~20) mA DC/(1~5)V DC	One-in one-out
WP6247	(4~20) mA DC/(1~5)V DC	(4~20) mA DC/(1~5)V DC	Double channels

Guide to ordering

User need field (1~5) V signal to convert into (4~20) mA signal output

model: WP-6244

➤ **Wiring diagram of the instrument**



> **Outline dimension**

Outline dimension: height 114.5, width 99, and depth 22.5(mm)

Installation: 35 mm DIN guide-way type installation

【WP201/202 series isolation transformation module】

> Product summary

WP201/202 series isolation transformation module adopts miniature guide way type structure surface packing technique, has a great improved anti-interference ability of module, It can to transform analog signal such as temperature, pressure, flow, displacement, standard voltage and current and so on into isolated with it the standard voltage or current signal output and wide use to fields such as metallurgy, chemical industries, petroleum chemical, papermaking and printing、dyeing, brewing, tobacco and aerospace base and so on.

It may intuitively indicates measuring value, can modify the parameter, easy to field debugging and operation. Two-way transmitter output isolates each other and has current/voltage output choice function also can against the different scope to transmit output respectively, and satisfy field variety requirement.

> Spectrum table for WP201/202 series isolation transformational module

Model										Explanation
WP-20	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Intelligent numeral display isolation module
Input channel	1									Single channel input
	2									Double channel input
Input type	TC									Intelligent thermocouple temperature isolation transmit
	TR									Intelligent thermo resistance temperature isolation transmit
	IC									Intelligent current/voltage transformation module
	DL									Intelligent distributor (double channels input has no this function)
	TI									Other type transformation module
First channel Output mode	1									First channel output is (1~5) V
	2									First channel output is (4~20) mA
	3									First channel output is (0~5) V
	4									First channel output is (0~10) mA
	5									Special specification transmitter output
Second channel Output mode	0									No second channel output
	1									Second channel output is (1~5) V
	2									Second channel output is (4~20) mA
	3									Second channel output is (0~5) V
	4									Second channel output is (0~10) mA
	5									Special specification transmit output
Third channel Output mode	0									No third channel output (double channel has no this function)
	1									third channel output is relay
	2									third channel output is SCR
	3									third channel output is SSR
	4									third channel output is RS-485 communication interface
PV input code				<input type="checkbox"/>	<input type="checkbox"/>					See "input type table"
SV input code						<input type="checkbox"/>	<input type="checkbox"/>			See "input type table" (single channel input has no this code)
Supply mode								T		AC90~265 V switch power supply (can be omitted)
								W		DC24 V supply
Scope of output range								()		The scope of output range

Option as an example: WP-201TC224-03 (0~1300℃), user demands single channel input thermocouple temperature isolation transformation module, two channels output both are 4~20 mA, with 485 communication, input type is K type thermocouple, the scope of output range is 0~1300℃.

WP-202TC220-0303 (0~1300℃), user requires double channels input thermocouple temperature isolation transformation module, two channel output both are 4~20 mA with 485 communication, input type is K type thermocouple, the scope of output range is 0~1300℃.

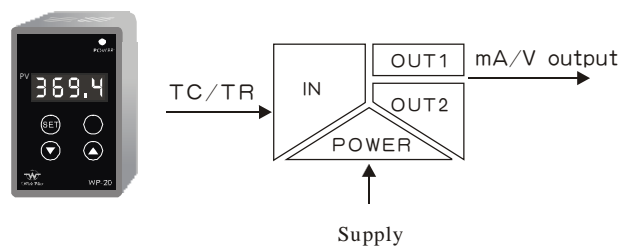
> Spectrum table for intelligent frequency transformation module

Model		Explanation	
WP-201	-□ □ □ □ -□ -□	Intelligent single channel input numeral displaying transformation module	
Input type	F	Intelligent frequency transformation module (frequency: 0~7 KHz)	
Input code	1	adapt triangular wave, sine wave, square wave signal (500 mV~24 V)	
	2	adapt NPN, PNP triode OC gate signal	
	3	adapt passive contact signal	
	4	adapt (8~220 V) AC wave	
Communication mode	0	No communication interface	
	8	RS-485 communication interface	
Transmission output	1	(1~5) V	
	2	(4~20) mA	
	3	(0~5) V	
	4	(0~10) mA	
	5	Special specification transmitter output	
Alarm output	N	No alarm output	
	H	High limit alarm output	
	L	Low limit alarm output	
supply mode	T	AC (90~265) switch power supply (can be omitted)	

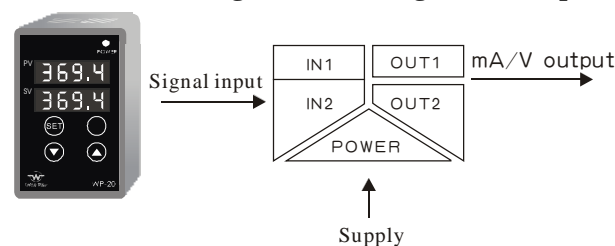
Option as an example: WP201-F101-H-T, users demand LED numeral display intelligent frequency transformation module, frequency is 0~7 KHz, adapt triangular wave, sine wave and square wave signal, without communication interface, output is (1~5) V, high limit alarm output, supply mode is AC (90~265) V switch power supply.

> Outline drawing

WP201 outline drawing and block diagram of the principle

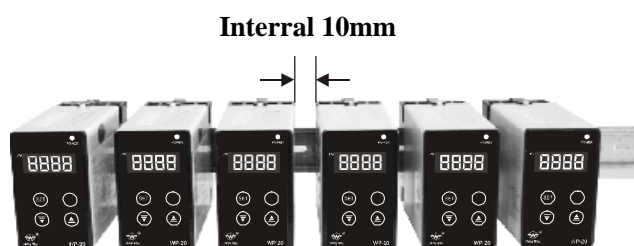


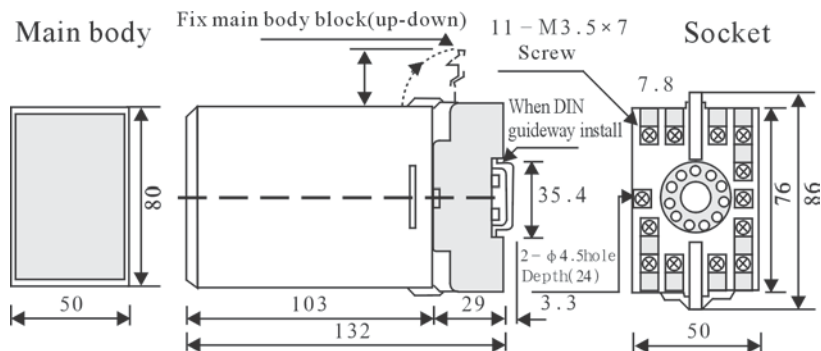
WP202 outline drawing and block diagram of the principle



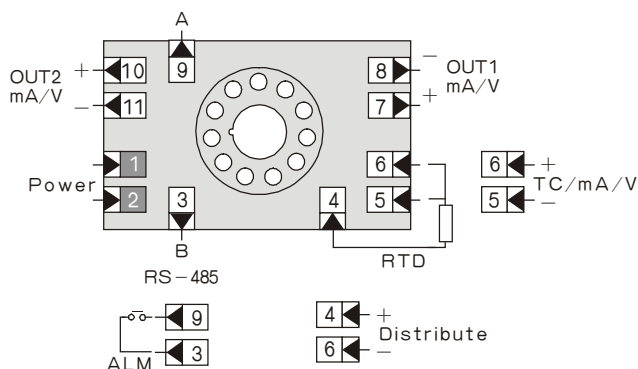
➤ Schematic diagram for WP module universal installation (DIN guide way installation or wall-mounting outline dimension, unit: mm)

➤

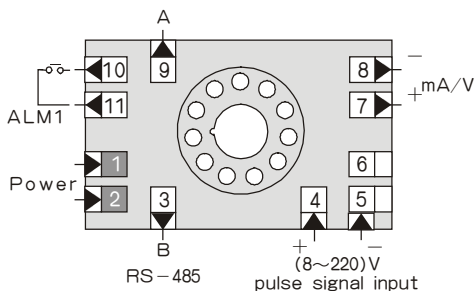




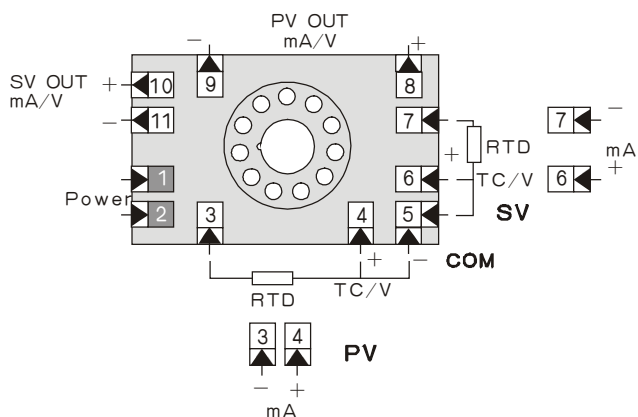
➤ **Wiring diagram for WP201 series isolation transformation module**



>> **Wiring diagram for WP201 series intelligent frequency transformational module**



>> **Wiring diagram for WP 202 series isolation transformation module**



【Intelligent mathematics arithmetical unit】

Intelligent mathematics arithmetical unit adopt mini insert structure, inside employ advanced microprocessor to carry out intelligent arithmetical control, to input parameter can carry out digital arithmetical such as evolution, addition and subtraction, multiplication and division, ration value, and transform into photoelectric isolated voltage or current signal output, and can carry out high accuracy linear calibration to various value of nonlinear input signal.

The unit may select special program display module, may take measuring value corresponded with input signal clearly and intuitionally display in digital mode, pass through company matched programmer user can any select evolution arithmetical scope, and can set small signal removal function. Parameter setup value is permanence store after power failure. Output loops are adopt photoelectric isolation, anti-interference performance is superior, transmission output have voltage or current signal option.

> Main technical parameters

Input voltage or current (may be select by users)

Input resistance $>500\text{ K}\Omega$ (when voltage input)

$<250\Omega$ (when current input)

Evolution: $S_0=S_1$ $S_0 \geq \text{CUT}$ $S_0=S_1$ ($S_0 < \text{CUT}$)

mathematic mode • here: S_0 —output signal, S_1 、 S_2 —input signal, CUT —small signal cut off point ($0 \sim 100$)A、B—coefficient(set up by special programmer)

- note: unused input channel regard as zero to carry out calculate, input/output in famula is that voltage、voltage、current is expressed in normaliged numerical value of $0 \sim 1.000$)

Calculation accuracy $\pm 0.3\% \text{FS}$

arithmetical period 0.4 s

parameter setup to be setting by our company special programmer

output two channel output (photoelectric isolation)

first channel: voltage or current (please noted it while ordering)

second channel: voltage or current, or control/alarm relay ON/OFF output

(AC 220V/0.5A, DC 24 V/1A, resistive load)

or serial communication output: RS-232C, RS-485 (please noted it while ordering)

permission load resistance • $\geq 250\text{ K}\Omega$ (when voltage output) $0 \sim 600\Omega$ (when current output)

Insulating resistance • between each terminal and grounding terminal $100\text{ M}\Omega/\text{DC}500\text{V}$

Insulating strength • between power terminal and grounding terminal: AC 1500 V/1 minute

• between input/output terminal and grounding terminal: DC 500 V/ 1 minute

Construction • miniaturization inserted structure color: (Manze) N4.0

Weight • main body approximately 180 g socket: approximately 80 g

Maintenance • under the installation conductor configuration state, main body may be change special programmer communication interface locate in the front of main body

> Type spectrum table

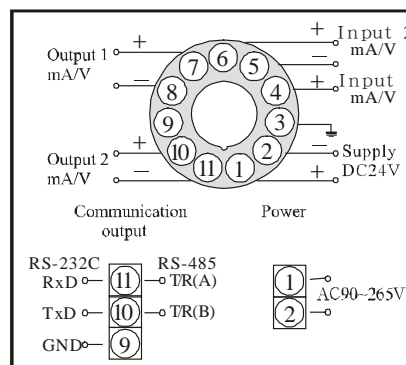
		Model							Explanation	
WP-20	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Input channel	2									Double channel input
Evolution function		B								No
		Q								Have
Evolution mode		A								Addition—subtraction operation
		D								Multiply—divide operation
		E								Single-channel input evolution
		Q								Special operation
First channel			1							First channel output is (1~5) V
			2							First channel output is (4~20) mA
			3							First channel output is Relay contact signal
			4							First channel output is SCR output
			5							First channel output is SSR output
			7							First channel output is Special specification
			8							First channel output is (0~10) mA
			9							First channel output is (0~5) V
	Second channel			0						
			1							Second channel output is (1~5) V
			2							Second channel output is (4~20) mA
			3							Second channel output is Relay contact signal
			4							Second channel output is RS-232C communication interface
			5							Second channel output is RS-485 communication interface
			7							Second channel output Special specification
			8							Second channel output is (0~10) mA
			9							Second channel output is (0~5) V
No. 1 input mode							<input type="checkbox"/>			See “input type (12~16)”
No. 2 input mode								<input type="checkbox"/>		See “input type (12~16)”
Supply mode									T	AC 90~265 V switch power (can be omitted)
									W	DC24 V supply power

Option as an example: WP-202BA22-1212

> Outline schematic drawing



> Wiring diagram



【WP30 voltage/current/distribution isolating transformation module】

WP30 voltage/current/distribution isolating transformation module is a kind of miniaturization inserted structural converter, which have three isolations for power terminal, input signal and output signal. and input/output signal employs magnetic isolation, have many features such as high accuracy, good linearity, easy debugging, stable and reliable and so on, suitable use to remove signal interference and uncommon grounding transfer field, especially adaptable to isolation transmission between sensor signal and back-level instrument.

> Main technical parameter

input signal: input (4~20) mA, 0~10 mA, (1~5) V, 0~5 V, 0~10 V or distribution input (the detail the order forms shall prevail, if need other input, user can explaine it while ordering)

input resistance: > 250 K Ω (voltage input), 250 Ω (current input)

output • No. 1: voltage or current No. 2: voltage or current

permission load resistance: < 250 Ω (when voltage output) 0~600 Ω (when current output)

accuracy: $\pm 0.5\%$ FS or $\pm 0.2\%$ FS

isolation: isolate each other between input and output

power source: AC power supply AC 90~265 V or AC 220 V

DC power supply DC24 V $\pm 10\%$ (the random wiring diagram shall prevail)

power consumption when 220V AC, $\leq 3W$, when 24 V DC, ≤ 300 mA

environment temperature: 0~55 $^{\circ}C$

relative humidity: 5~99% RH (no condensate)

Insulating resistance: between each terminal and grounding terminal 300 M Ω /500V DC

Insulating strength: between power terminal and grounding terminal 1500V AC,for 1 minute

between Input/output terminal and grounding terminal 500V DC,for 1 minute.

Construction: miniaturization inserted structure color manser N4.0

Weight: main body: approximately 180 g socket: approximately 80 g

Maintenance: under the installation conductor configuration state, main body may be change

Adjusting zero, full range: precision potentiometer on the instrument's panel:

1 adjusting zero: No. 1 output zero minitrim

1 adjusting full: No. 1 output full range mini trim

2 adjusting zero: No. 2 output zero mini trim

2 adjusting full: No. 2 output full range mini trim

➤ Outline drawing



> Type spectrum table

Model						Explanation
WP-30	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Input channel	1					Single-channel input
	2					Double channel input
Input type	DL					Distributor
	IC					Current/voltage transformation module
	TI					Other type transformation module
First channel Output mode	1					(1~5) V
	2					(4~20) mA
	3					(0~5) V
	4					(0~10) mA
	5					Special specification
Second channel Output mode	0					No
	1					(1~5) V
	2					(4~20) mA
	3					(0~5) V
	4					(0~10) mA
5					Special specification output	
Input code			<input type="checkbox"/>			See "input signal type table"
Supply mode				T		AC (90~265) V switch power (can be omitted)
				W		DC24 V supply

Option as an example: WP-301IC2-12; WP-302IC22-12

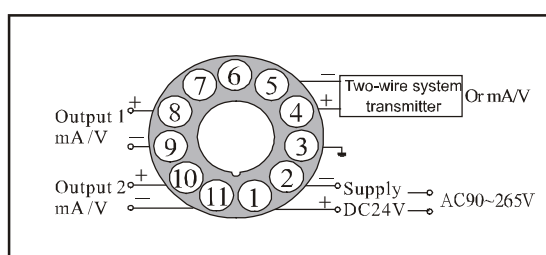
> Input type table

Code	Input type
V	DC (1~5) V, DC 0~5 V or AC voltage input, please noted it while ordering
I	DC (4~20) mA, DC (0~10) mA or AC (0~5) A, please noted it while ordering
K	Others type input, please noted it while ordering

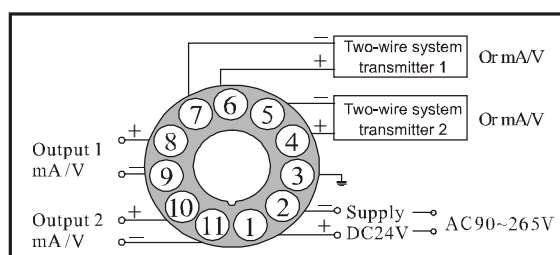
Note: only have one channel input and one channel output for AC voltage or current input signal and output signal.

➤ Wiring diagram

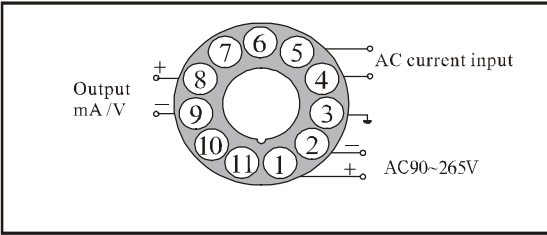
>> Wiring diagram for 301 voltage/current/distribution



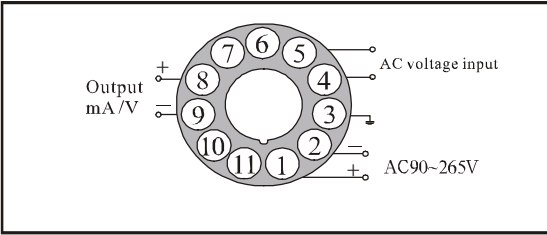
>> Wiring diagram for 302 voltage/current/distribution



>> **Wiring diagram for 301 AC current**



>> **Wiring diagram for 301 AC voltage**



【Intelligent counter/digital frequency/ rotating speed/ line velocity instrument 】

Intelligent counter/digital frequency/ rotating speed/ line velocity display control transmit instruments are all adopt used advanced microprocessor for smart control. Input is pulsed quantity or contact switch quantity signal, after CPU operation processing, count, rotating speed or line velocity will be clearly intuitional indicated by high brightness LED numeral tube, at the same time, these signals can be changed into standard voltage/current signal to transmit output. and have the functions of super-limited alarm, standard serial communication function. inside the instrument has many kinds of scaling conversation formula which can carry out chosen scale conversation (such as convert into length etc.).

> Type spectrum table for intelligent counter/digital frequency/rotating speed/line velocity instrument

WP-LE	Model									Explanation
	□□	-□	□	□	□	□	□	□□	□	
Category of the instrument	QN									Intelligent counter/digital frequency/rotating speed/line velocity instrument
Instrument name	1									Rotating speed/digital frequency/line velocity instrument
	2									Counter instrument
Display mode	1									Four digit display
	2									Six digit display (note 1)
Input code	1									Adapt triangular wave, sine wave, square wave signal (500 mV~24V)
	2									Adapt NPN, PNP triode OC gate signal
	3									Adapt passive contact signal
Outline dimension	1									(160×80) mm
	2									(80×160) mm
	4									(48×96) mm
	6									(96×48) mm
	9									(96×96) mm
Communication mode	0									No communication interface (can be omitted)
	2									RS-232C communication interface
	8									RS-485 communication interface
Output mode	0									No transmit output
	2									(4~20) mA transmit output
	3									(1~10) mA transmit output
	4									(1~5) V transmit output
	5									(0~5) V transmit output
	9									Special requirement transmit output
Control mode	N									No control/alarm
	HL									High limit alarm +lower limit alarm
	HH									High limit alarm +high-higher limit alarm
	LL									Lower limit alarm +low-lower limit alarm
Supply mode										AC220V linear power (can be omitted)
	T									AC(90~265) V (switch power)
	W									DC 24 V

Note 1: six digit counter, six digit tachometer, six digit frequency meter only can choose (180×60)

Option as example:

(1) WP-LEQN-111180HL

Four digit tachometer; four digit display outline dimension 160×80; RS485 communication. without transmit output, high limit + lower limit alarm, adapt triangular wave, sine wave, square wave signal (500 mV~24V)

➤ **outline dimension and open dimension**



Outline dimension: 96×48×115mm
 Open hole dimension: $92^{-0} \times 45^{-0}$ mm



Outline dimension: 48×96×115mm
 Open hole dimension: $45^{-0} \times 92^{-0}$ mm



Outline dimension: 96×96×115mm
 Open hole dimension: $92^{-0} \times 92^{-0}$ mm



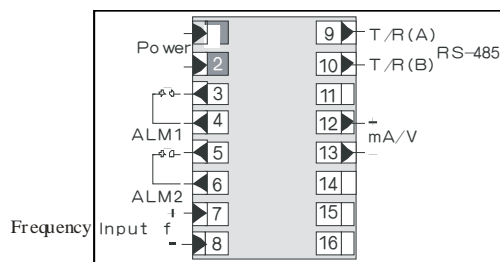
Outline dimension: 160×80×115mm
 Open hole dimension: $152^{-0} \times 76^{-0}$ mm



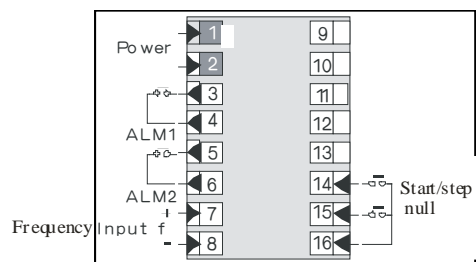
Outline dimension: 80×160×115mm
 Open hole dimension: $76^{-0} \times 152^{-0}$ mm

> **Wiring diagram**

Digital frequency/ rotating speed/ line velocity instrument wiring diagram



Counter wiring diagram



【Digital clock/timer/segment timer】

Digital clock/timer wide use to clocking, timing in every industry field. It is operate brief, clocking accuracy, timing alarm, and with outer connected start/stop, clear function.

Segment timer may use to record present year, month, date, display present time, and with four-segment alarm function, alarm circlate in the sequence of time from first segment to forth segment alarm point it is display intuitional, clocking accuracy, alarm reliable, with clock keep function while key off function. widely apply to bazz, ringdown etc. every alarm field, like enterprise ringdown when communter time

➤ **Outline dimension and open dimension**



Outline dimension: 96×48×115mm
Open hole dimension: $92^{+0.7}_{-0} \times 45^{+0.7}_{-0}$ mm



Outline dimension: 48×96×115mm
Open hole dimension: $45^{+0.7}_{-0} \times 92^{+0.7}_{-0}$ mm



Outline dimension: 96×96×115mm
Open hole dimension: $92^{+0.7}_{-0} \times 92^{+0.7}_{-0}$ mm



Outline dimension: 160×80×115mm
Open hole dimension: $152^{+0.7}_{-0} \times 76^{+0.7}_{-0}$ mm

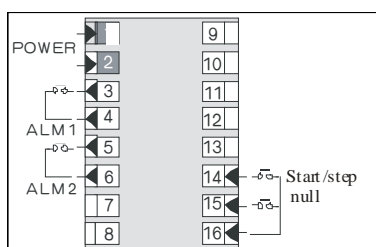


Outline dimension: 80×160×115mm
Open hole dimension: $76^{+0.7}_{-0} \times 152^{+0.7}_{-0}$ mm

> **Spectrum table**

Model							Explanation
WP-LE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Category of the instrument	QT						Clocking instrument
Instrument name	1						Digital clock segment circle alarm
	2						Timer
	3						Timer
	4						Digital clock (wiring diagram only has power)
Instrument's function	C						Display
	K						Display + alarm
Outline dimension	1						(160×80) mm
	2						(80×160) mm
	4						(48×96) mm
	6						(96×48) mm
	9						(96×96) mm
Display mode	E1						Single screen LED digital display
	E2						Double screen LED digital display
Supply mode							AC220V linear power (can be omitted)
	T						AC(90~265) V (switch power)
	W						DC 24 V supply

> **Wiring diagram**



【guide-way /socket】

Guide way: use to fix 100 series, 200 series unit combination instrument of this company. can ordering along.

Outline dimension: breadth: 35 mm (the length can be determined according to requirement)

Model name: WP200DIN-□-the length of guide way (m)



Guide way

Socket: employs match with our 200 series unit combination instrument (has matched with instrument when out of factory) can ordering along.

Outline dimension: length × breadth × height: 76×50×18 mm

Model name: WP200TBA



socket