

## AI SERIES UNIVERSIAL TEMPERATURE CONTROLLER/ PID CONTROLLER

### PRODUCT INTRODUCTION

AI series universal PID temperature controller/ PID controller is designed for a service life of over 10 years and has 3-year free warranty. Various kinds of products provide various models according to clients' industry, fast delivery time, better accuracy and temperature drift compared with same level instruments.

### FUNCTIONS AND FEATURES

- The input can be freely selected as thermocouple, RTD, voltage, current, etc. There's a non-linear correction table inside, and no need for correction.
- Adopts advanced modular structure, provides various kinds of output specifications and meeting a wide range of applications.
- Humanized operation method, easy to learn and use.
- With standard PID, AI artificial intelligence adjustment APID, MPT and other adjustment methods, and excellent control characteristics including self-tuning, self-learning function, no overshoot and no undershoot.
- Equipped with power-off alarm function to avoid false alarms when powered on.
- Support RS485 or RS232 communication interface, can be used as the lower machine for AIDCS, split paperless recorder and touch screen control system.
- AI-516P/526P has program control function and adopts AI artificial intelligence adjustment algorithm with a curve fitting function to obtain a smooth curve control effect.
- Anti-interference performance meets the requirements of electromagnetic compatibility under harsh industrial conditions.

### RECOMMEND APPLICATION

- Chemical
- Pharmacy
- Metallurgy
- .....



- 0.3%FS measuring accuracy
- Multiple modules output
- AIBUS/ MODBUS dual protocols
- 30 segments program
- 3-year free warranty



- 0.25%FS measuring accuracy
- AIBUS/ MODBUS dual protocols
- Hand-auto switching function
- 3-year free warranty



- 0.25%FS measuring accuracy
- Heating/ cooling dual PID output
- Limitation of ramp rate
- 30 segments program
- 3-year free warranty

# MODEL SELECTION AND SPECIFICATIONS

AI- <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>									Specifications
Model	516								multiple modules output, support AIBUS/ MOSBUS protocols
	516P								based on AI-516, 30 segments programmable function is added
	519								hand-auto switching function
	526								Heating/ cooling dula PID output, limitation of ramp rate, time input selection
	526P								based on AI-526, 30 segments programmable function is added
Panel size	A								96*96*100mm
	A2								96*96*100mm, with 25 segments and 4 levels of luminosity
	B								160*80*100mm
	B2								160*80*100mm, with 25 segments and 4 levels of luminosity
	C								80*160*100mm
	C3								80*160*100mm, with 50 segments and 2 levels of luminosity
	D								72*72*95mm
	D2								48*48*95mm (10 terminals)
	D6								48*48*95mm (12 terminals)
	E								48*96*100mm
	E2								48*96*100mm, with 25 segments and 4 levels of luminosity
	E5								48*96*100mm, DIN rail mounted type
	F								96*48*100mm
Multiple input (MIO)	I2								ON-OFF input module for dual SV switch or run/stop program
	I4								2-wire transmitter or 4-20mA signal input, provide 24VDC to transmitter
	V*								V24, V12, V10 is for 24VDC, 12VDC, 10VDC power supply module
Output (OUTP)	L1								large volume relay contact output (250VAC/2A) (Chinese brand)
	L2								small volume relay contact output (250VAC/1A) (Omron brand)
	L4								small volume relay contact output (250VAC/2A) (Omron brand)
	G								SSR voltage output (12VDC/30mA)
	X3/X5								linear current 4-20mA output (X5 has own isolated power)
	K1/K3								thyristor zero crossing trigger output (K1: single-phase, K3: three-phase)
	K5/K6								single-phase thyristor phase-shift trigger output (K5: 220V, K6: 380V)
Alarm (ALM)	L0								large volume relay contact output (250VAC/2A) (Chinese brand)
	L2								small volume relay contact output (250VAC/1A) (Omron brand)
	L3								dual channel N/O relay contact output (250VAC/2A) (Chinese brand)
	L4								small volume relay contact output (250VAC/2A) (Omron brand)
	G								SSR voltage output (12VDC/30mA)
Auxiliary output (AUX)	L0								large volume relay contact output (250VAC/2A) (Chinese brand)
	L1								large volume relay contact output (250VAC/2A) (Chinese brand)
	L2								small volume relay contact output (250VAC/1A) (Omron brand)
	L3								dual channel N/O relay contact output (250VAC/2A) (Chinese brand)
	L4								small volume relay contact output (250VAC/2A) (Omron brand)
	G								SSR voltage output (12VDC/30mA)
Communication (COMM)							S/S4		RS485 communication interface (S4 has own isolate power supply)
Shell material							-UL		with UL standard certificate, flame retardant shell

### ATTENTION:

1. D size doesn't have MIO, and its COMM and ALM share one slot. If controller installs RS485 module, it doesn't have ALM; If controller requires alarm function it can install alarm module in AUX.
  2. D2 size doesn't have MIO and ALM, and its COMM and AUX share one slot. So controller should choose either RS485 or alarm function. If require both RS485 and alarm, users should choose D6 size which supports module SL. D2 size doesn't support 0~5V/ 1~5V linear current input. Users can transform the signal into 0~500mV/ 100~500mA or choose D6 size.
  3. About MIO: it supports 4~20mA/ 0~20mA input or signals from 2-wire transmitter when installing I4 module. Yudian instruments support thermocouple and RTD input as standard configuration.
- About V\* module: Yudian instruments supply 24VDC, 12VDC, 10VDC and others for feed supply for external equipment, and it can be installed in any slots. It is recommended to installed in the slot of MIO, AUX and COMM by order.

### MODEL SELECTION

There are maximum five module slots: multi-function input (MIO), main output (OUP), alarm (ALAM), auxiliary output (AUX) and communication (COMM). The modules can be purchased together or individual, and can be assembled freely.

#### Example 1:

AI-526BI2GL3L3S

AI-526	B	I2	G	L3	L3	S
①	②	③	④	⑤	⑥	

- ① Main model for instrument is AI-526, universal temperature controller/ PID controller, 0.25%FS measuring accuracy, multiple input, PID output or retransmission output(occupied main output), alarm and RS485 communication.
- ② Front panel size is B 160\*80mm.
- ③ I2 module in MIO means dual SV switching. Users can also install I4 module in MIO to get analog signal or signals from 2-wire transmitter input.
- ④ Main output is SSR voltage output, 12VDC/30mA.
- ⑤ Both ALM and AUX are installed with L3 module which means 4 channels alarm relay output.
- ⑥ Communication module S is in COMM which means instrument supports RS485 communication. It is recommended to choose S4 module when there's X3 in OUTP.

\*Please note AI-526 supports heating/ cooling dual PID output, so users can install output module in AUX and then set OPL≤0, the controller will support dual PID output.

#### Example 2:

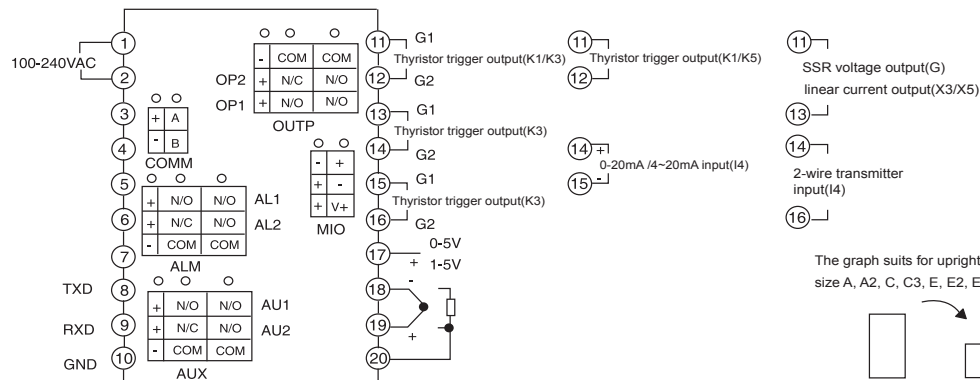
AI-526PAI4X3L3X5S4

AI-526P	A	I4	X3	L3	X5	S4
①	②	③	④	⑤	⑥	⑦

- ① Main model for instrument is AI-526P, universal temperature controller/ PID controller, 30 segments program control, 0.25%FS measuring accuracy, multiple input, PID output or retransmission output(occupied main output), alarm and RS485 communication.
- ② Front panel size is A 96\*96mm.
- ③ I4 module in MIO means 4~20mA/ 0~20mA or signals from 2-wire transmitter input.
- ④⑥ Instrument is used for heating/ cooling dual PID control. (See more information for parameter settin for OPT and OPL in user manual)
- ⑤ L3 module in ALM means 2 channels alarm relay output.
- ⑦ S4 module in COMM means RS485 communication function.

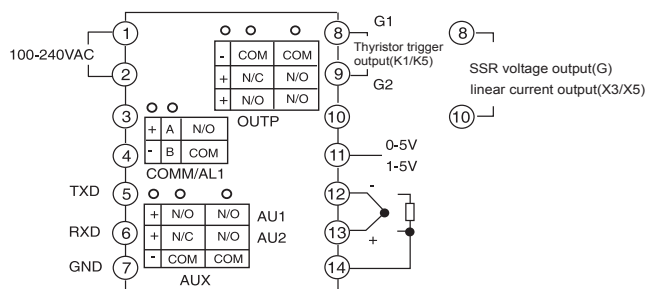
## WIRING DIAGRAM

## A.A2.B.B2.C.C3.E.E2.E5.F

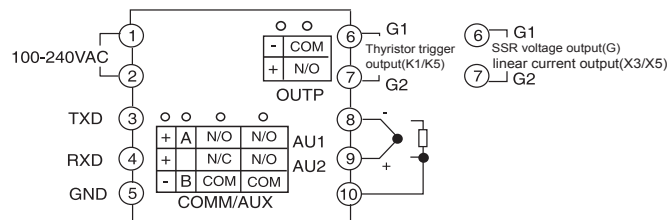


For instruments with size B, B2, F, please clockwise rotate the graph 90 degree and the numbers of terminals keep same.

## D (72mm × 72mm)



## D2 (48mm × 48mm)



## D6 (48mm × 48mm)

