YUDIAN

PRODUCT SELECTION GUIDE

◎ Paperless Recorder
◎ PID Controller
◎ Universal Indicator
◎ Flow Totalizer
◎ Power Meter
◎ DIN Rail Mounted Module

CONTENTS

Touch Screen PID Temperature Controller and Recorder

PRODUCT INTRODUCTION

AI series touch screen pid temperature controller and recorder inherit Yudian's various typical technologies. It has the function of measurement, display, control, alarm and data recording. There are three size dimensions for selection, 5 inch, 7 inch and 9 inch and total 12 models for option. Thickness of 9 inch recorder is only 38mm which can be easily installed in various types of equipment.

FUNCTIONS AND FEATURES

- With 0.1%FS measuring accuracy, support multiple input signals such as thermocouple, RTD, voltage, current and etc, and support extended input specification and user-define nonlinear calibration table.

- Armed with standard PID and AI PID intelligent control algorithm function and advanced artificial intelligence adjustment, self-tuning, adaptive, precise and stable controlling ability.

- AI-3559/3759/3959 series support output of three-phase three-wire phase shift trigger, forward and reverse of valve, framing or proportional adjustment, etc.

- AI-3556P/3559P/3756P/3759P/3956P/3959P series have ramp soak program control function and adopt artificial intelligence algorithm to gain good controlling ability.

- Low power consumption. Can provide up to 12 months free warranty. ARM chip in dual CPU mode is used to process graphical man-machine interface and data logging function; Individual single chip CPU ensures real time control and sampling, fulfilling strict industrial site requirements; has passed the anti-interface test of 4KV/5KHz burst of pulses.

- Provide data recording and alarm logging functions in the form of reports along with real time trend curve, bar graph and history trend curve. Supports downloading data through USB for further processing on the computer.

- Embedded with Ethernet socket providing remote monitoring and operation through internet cable.

- There are four internal slots, available for customizing functions by freely installing various modules of analog and digital inputs and outputs.

- When the instrument's own module combination can't meet the customer's requirements, then can connect various types of Yudian temperature modules, switch modules I/O or PLC through the expansion port and up to dozens of measurement and monitoring circuits.


5 寸

7 寸

9 寸

MODEL SELECTION AND SPECIFICATIONS

AI – ☐	☐	☐	☐	☐ – ☐	Specifications
Model	3556					5 inch, 0.1%FS accuracy, pid control , alarm, communication and recording
	3556P					based on AI-3556, 30 segments program control is added
	3559					5 inch, 0.1%FS accuracy, hand-auto switching, valve servo, remote SV setting and etc
	3559P					based on AI-3559, 50 segments program control is added
	3756					7 inch, 0.1%FS accuracy, pid control , alarm, communication and recording
	3756P					based on AI-3756, 30 segments program control is added
	3759					7 inch, 0.1%FS accuracy, hand-auto switching, valve servo, remote SV setting and etc
	3759P					based on AI-3759, 50 segments program control is added
	3956					9 inch, 0.1%FS accuracy, pid control , alarm, communication and recording
	3956P					based on AI-3956, 30 segments program control is added
	3959					9 inch, 0.1%FS accuracy, hand-auto switching, valve servo, remote SV setting and etc
	3959P					based on AI-3959, 50 segments program control is added
Input (MIO)		I4				4-20mA signal input, provide 24VDC to transmitter
		I5				On-off switch signal inputs, allow to switch set value between SP1 and SP2 by an external switch
		V*				V24,V12,V10 for 24VDC/12VDC/10VDC voltage power
Output (OUTP)			L1			Relay output, big volume, 250VAC/2A
			L2			Relay output,small volume, 250VAC/1A
			L4			Relay output, small volume, 250VAC/2A
			L5			Dual channel N/O relay contact output, 250VAC/2A
			G			SSR output (DC 12V/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)
			K50/K60			single-phase thyristor phase-shift trigger output (K50: 220V, K60: 380V)
			K9			three-phase phase-shift trigger output (only for AI-719/733)
Alarm (ALM)				L0		large volume relay contact output (250VAC/2A) (Chinese brand)
				L2~L4		same as modules in OUTP
				L3		dual channel N/O relay contact output (250VAC/2A) (Chinese brand)
				G		SSR output (DC 12V/30mA)
Auxiliary Output (AUX)					L0	large volume relay contact output (250VAC/2A) (Chinese brand)
					L1~L4	same as modules in OUTP
					L3	dual channel N/O relay contact output (250VAC/2A) (Chinese brand)
					G	SSR output (DC 12V/30mA)
					X3/X5	linear current 4-20mA output (X5 has own isolated power)
Ethernet interface					W	support monitoring by PC software

WIRING DIAGRAM

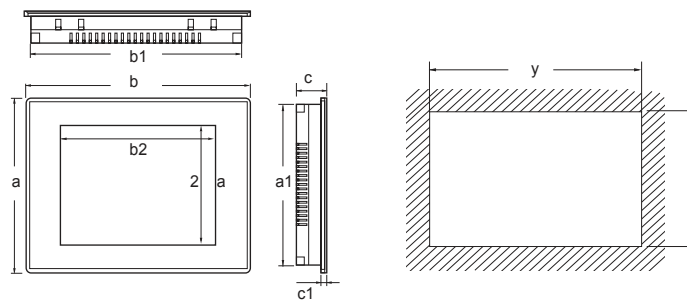AI-3756/3756P/3759/3759P /3956/3956P/3959/3959P

AI-3556/3556P/3559/3559P
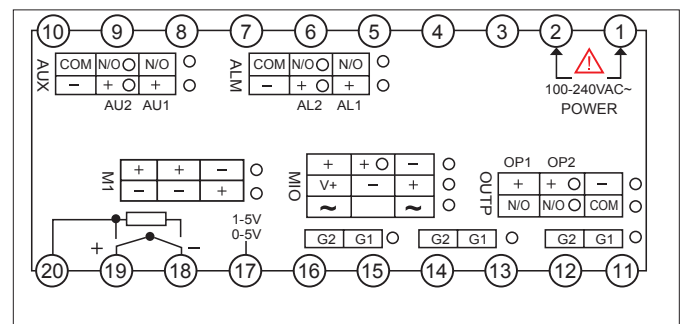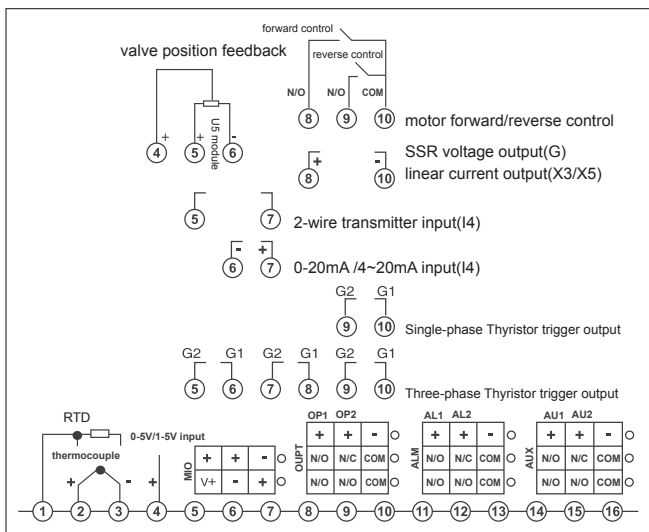
INTERFACE
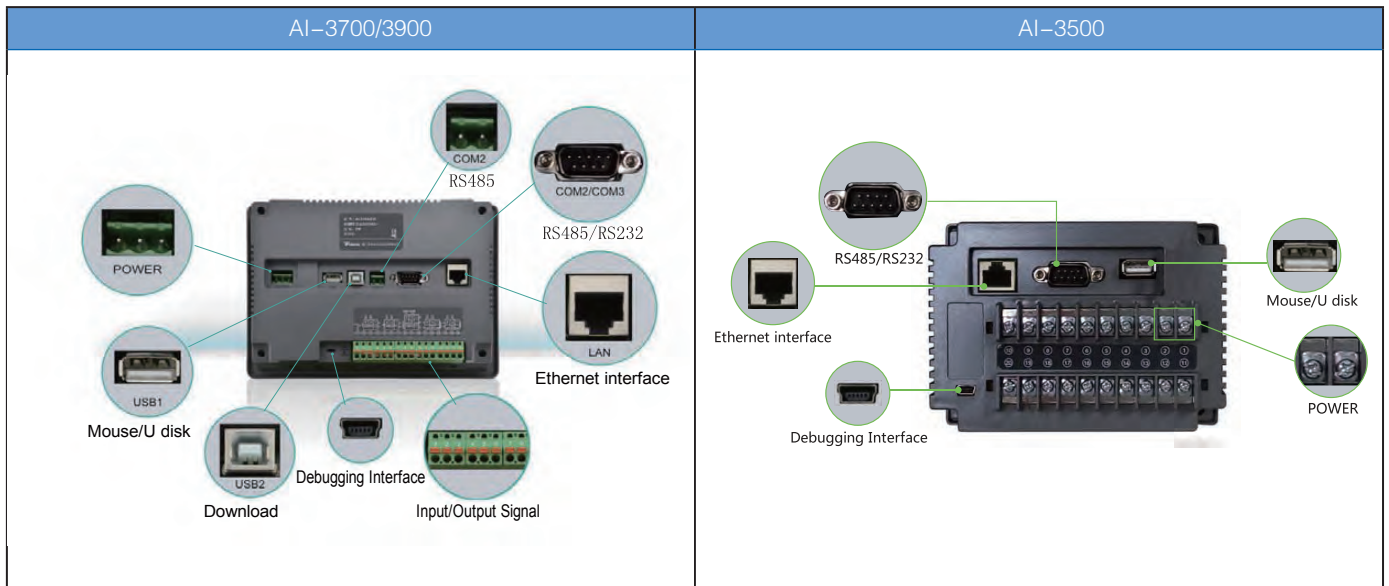
AI-3700/3900	AI-3500

DIMENSION

	Screen diagonal (mm)			Enclosure front (W×H×D) (mm)							Mounting Cutout (mm)	
		a2	b2	a	b	c	a1	b1	c1	x	y
3500 series (3150)	5inch	64	102	105	145	100	94	133	6	96	135
3700 series (3170)	7inch	86	154	150	203	40	137	190	6	139	192
3900 series (3190)	9inch	112	198	170	231	38	158	219	6	160	221

INSTALLATION

AI-3700/3900	AI-3500
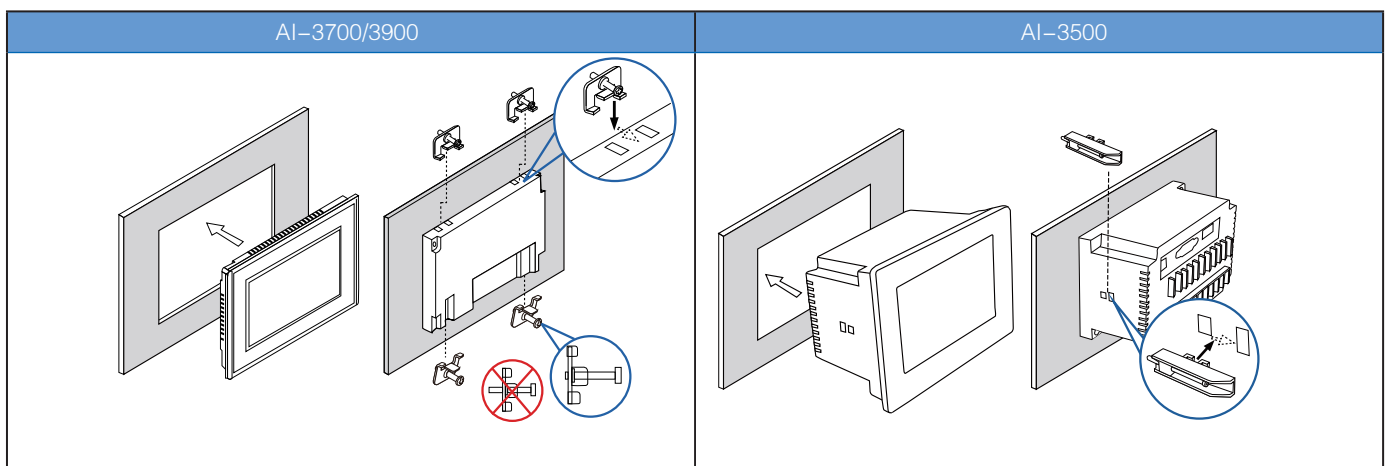
Touch Screen Multi Channel PID Temperature Controller and Recorder

PRODUCT INTRODUCTION

AI series touch screen multi channels PID temperature controller and recorder inherit Yudian's various typical technologies. It has the function of measurement, display, alarm and data recording and can support Max 4 channels input. There are three size dimensions for selection, 5 inch, 7 inch and 9 inch. Every size can support 2-4 channels input. Thickness of 9-inch recorder is only 38mm which can be easily installed in various types of equipment.

FUNCTIONS AND FEATURES

- With 0.2%FS accuracy, support multiple thermocouple input such as K, S, E, J, B, N, T, WRe5-WRe26 and etc, or two-wire Pt100 input. The output signal of PID controller is SSR voltage. Supports max 4 channels control, and each channel works independently.

- Every input channel has digital filtering, and the filter strength can be adjusted or canceled independently

- Advanced artificial intelligence adjustment, auto-tuning, self-adaption, precise and stable controlling ability. With SSR output, controlling period can be adjusted from 0.48 to 5 seconds.

- Low power consumption with up to 12 months free warranty. ARM chip in dual CPU mode is used to process graphical man-machine interface and data logging function; individual single chip CPU ensures real time control and sampling, fulfilling strict industrial site requirements; has passed the anti-interface test of 4KV/5KHz burst of pulses.

- Provide data recording and alarm logging functions in the form of reports along with real time trend curve, bar graph and history trend curve. Supports downloading data through USB for further processing on the computer.

- Embedded web server with Ethernet socket providing remote monitoring and operation through WWW browser.

- There are five internal slots, available for customizing functions by freely installing various modules of analog and digital inputs and outputs.

- By connecting Yudian temperature modules, switch modules I/O or PLC through expansion port, up to dozens of measurement and monitoring circuits can be integrated, when the instrument's own module combination can't meet customers' requirements.

5 inch

7 inch

9 inch

MODEL SELECTION AND SPECIFICATIONS

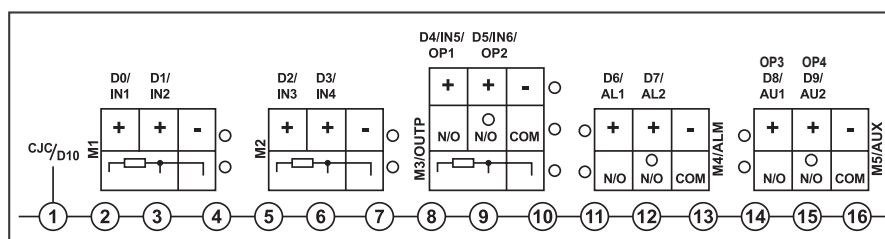| AI –	□	□	□	□	□	□ –	□	Specifications
Model	35028							5 inch, 0.2%FS accuracy, 2 channels PID control , alarm, communication and recording
	35048							5 inch, 0.2%FS accuracy, 4 channels PID control, alarm, communication and recording
	37028							7 inch, 0.2%FS accuracy, 2 channels PID control , alarm, communication and recording
	37048							7 inch, 0.2%FS accuracy, 4 channels PID control, alarm, communication and recording
	39028							9 inch, 0.2%FS accuracy, 2 channel PID control, alarm, communication and recording
	39048							9 inch, 0.2%FS accuracy, 4 channel PID control, alarm, communication and recording
Input 1, 2 (IN1,IN2)		J1						2 channels thermocouple or mV signal input
		J2						2 channels 2-wire RTD input
Input 3, 4 (IN3,IN4)			J1					2 channels thermocouple or mV signal input
			J2					2 channels 2-wire RTD input
Output 1, 2 (OP1, OP2)				G5				dual SSR output
Output 3, 4 (OP3, OP4)					G5			dual SSR output
Alarm (ALM)						L0		relay contact output (250VAC/2A)
						L3		dual channel N/O relay contact output (250VAC/2A)
Ethernet interface							W	support PC monitoring by software

EXAMPLE：

AI-37048   J2   J2   G5   G5   L3
①   ②   ③   ④   ⑤   ⑥

① Main model is AI-37048, 7 inch, 0.2%FS accuracy, 4 channels PID temperature controller and recorder.

② J2 module in Input 1,2, which means 2 channels thermocouple input.

③ J2 module in Input 3,4, which means 2 channels thermocouple input.

④ G5 module in the Output 1,2, which means 2 channels SSR output.

⑤ G5 module in the Output 3,4, which means 2 channels SSR output.

⑥ L3 module in the ALM, which means 2 channels alarm relay output

Wiring Graph

AI-37028/37048/39028/39048

AI-35028/35048
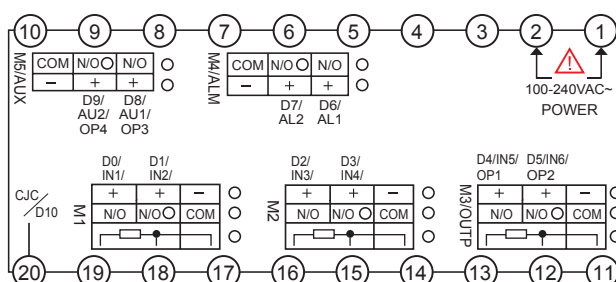
INTERFACE
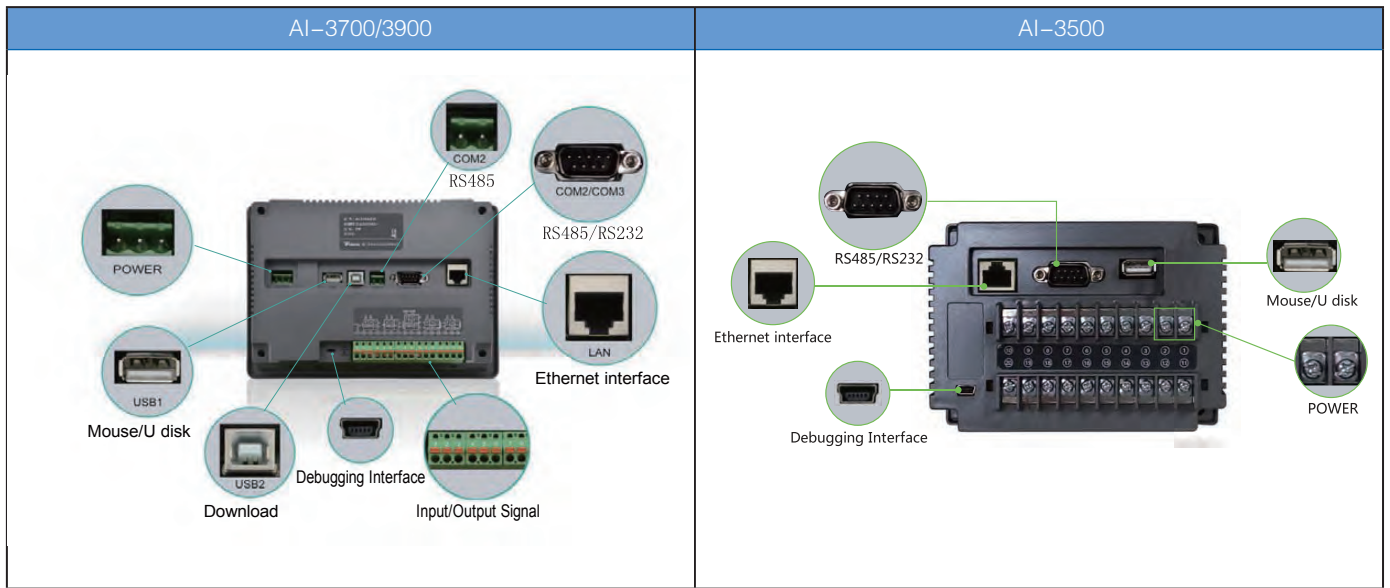
AI-3700/3900	AI-3500

COM2 RS485 · COM2/COM3 RS485/RS232 · POWER · USB1 Mouse/U disk · USB2 Download · Debugging Interface · Input/Output Signal · LAN Ethernet interface

RS485/RS232 · Ethernet interface · Debugging Interface · Mouse/U disk · POWER

DIMENSION
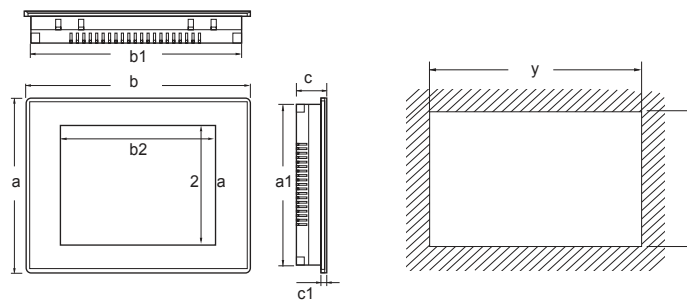
	Screen diagonal (mm)		Enclosure front (W×H×D) (mm)							Mounting Cutout (mm)	
	a2	b2	a	b	c	a1	b1	c1	x	y
3700 series (3170)	7inch	86	154	150	203	40	137	190	6	139	192
3900 series (3190)	9inch	112	198	170	231	38	158	219	6	160	221

INSTALLATION

AI-3700/3900	AI-3500
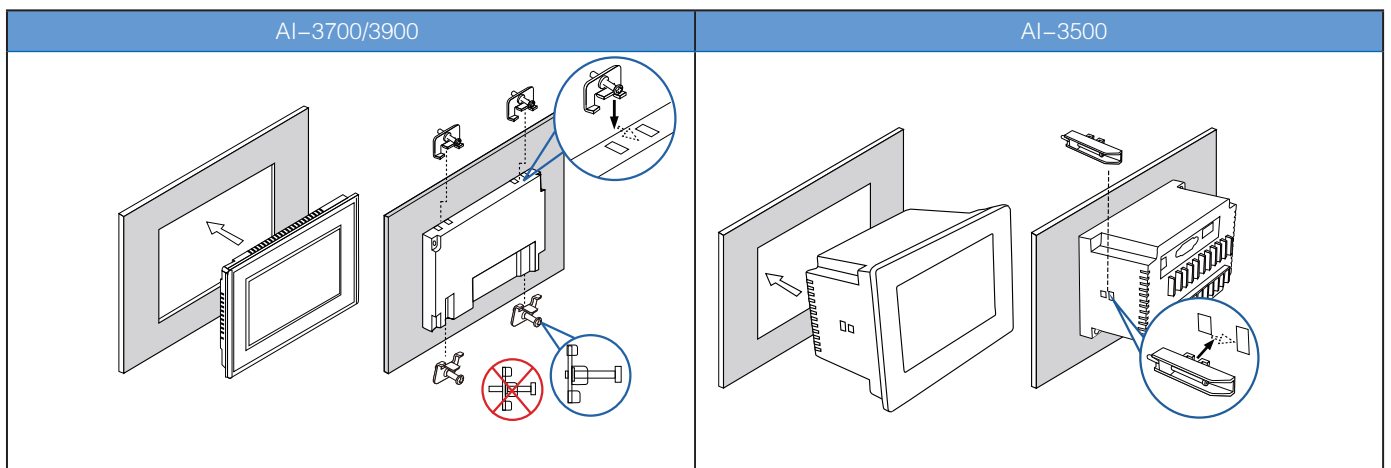
AI–series multi–channel large format touch screen display alarm datalogger

Introduction

AI-series multi-channel touch screen display alarm datalogger inherits from Yudian's various famous technologies. It integrates measurement, display, alarm, data logging into one slim instrument. It supports maximum 6 inputs. There are three different size panel, 5-inch, 7-inch and 9-inch. The thickness of 9-inch datalogger is only 38m which can be easily installed in various kinds of equipment. Main parameters are set in one single interface through the newly industrial graded touch screen. Optional monitor and operation can also be done through mobile phones and tablets.

Recommended Application

- Multiple record data nodes
- Depth of installation is limited compared to traditional datalogger
- External HMI is not desirable
- Upgrading from traditional LED display temperature controller

Functions

- Programmable module input, supporting thermocouple, RTD, mV, mA and two-wire transmitter. 0.2% measuring accuracy. Each channel can have independent input specification, with squre-root, multiplication, addition and subtraction. All channels are equipped with digital adjustment and filtering functions. Each channel has individual digital adjustment and filtering parameters. It provides wind speed and atmospheric pressure constant compensation. By inputting dry-wet Pt100 blub, surrounding temperature and humidity can be obtained.

- Decimal place, display resolution, digital filter, input off-set of each input channel can be set. High performance hardware greatly reduces the temperature drift and the interference between various channels so as to increase accuracy and anti-interference as same level of that of single channel one.

- Low power consumption. 36 months warranty on quality. HMI graphic and data logging are process by one ARM chip in dual CPU mode. Individual single chip CPU ensures real time control and sampling, fulfilling strict request on field. Anti-interference test 4KV/5KHz burst of pulses passed.

- Real time trend graph, bar graph and history trend is provided. History record and alarm record can reviewed in the data-logger itself or exported to external USB storage device. The storage size is 150MB.

- There are 5 internal module slots, available for user customization of function modules such as inputs and alarm modules.

- ★ (Below are optional features. Please contact sales representatives. Limited to languages and regions.)

- Embedded web server with ethernet socket providing remote monitoring and operation through WWW browser.

- Extended socket connecting Yudian temperature control instruments, I/O devices, PLC, etc.

- World first introduced P2P cloud feature supporting remote monitoring and operation using mobile phones and tablets without public IP.
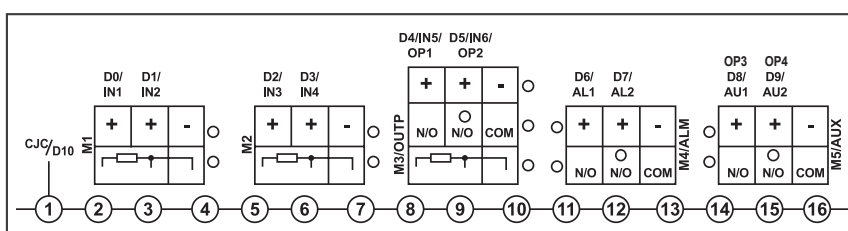
5 Inches
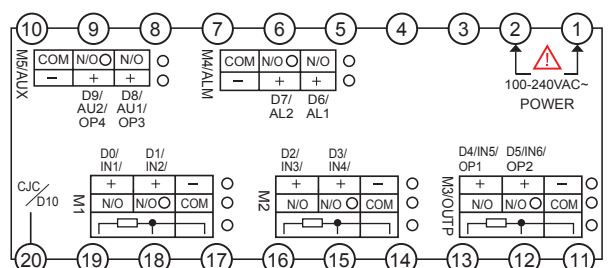
7 Inches

9 inches

Model Selection and Specifications

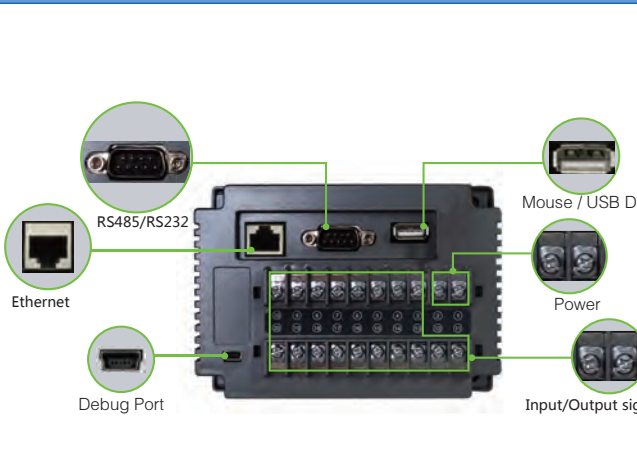| AI– □	□	□	□	□	□ – □	Specifications
Model	3502M						5-inch, 0.2% FS accuracy, 2-channels
	3504M						5-inch, 0.2% FS accuracy, 4-channels
	3506M						5-inch, 0.2% FS accuracy, 6-channels
	3702M						7-inch, 0.2% FS accuracy, 2-channels
	3704M						7-inch, 0.2% FS accuracy, 4-channels
	3706M						7-inch, 0.2% FS accuracy, 6-channels
	3902M						9-inch, 0.2% FS accuracy, 2-channels
	3904M						9-inch, 0.2% FS accuracy, 4-channels
	3906M						9-inch, 0.2% FS accuracy, 6-channels
Input 1 (M1)		J0					Input Module (1 x 3-wire RTD or 1 x thermocouple + 1 x 2-wire RTD)
		J1					Input Module (2 x thermocouple)
		J2					Input Module (2 x 2-wire RTD)
		J3					2 Channel Voltage Input Module (0-5V)
		J4					2 Channel Current Input Module (0-10mA, 4-20mA, 0-20mA)
		J5					2 Channel Input Module (2 Wire Transmitter, 24VDC Power Supply Incorporated)
Input 2 (M2)			J0				Input Module (1 x 3-wire RTD or 1 x thermocouple + 1 x 2-wire RTD)
			J1				Input Module (2 x thermocouple)
			J2				Input Module (2 x 2-wire RTD)
			J3				2 Channel Voltage Input Module (0-5V)
			J4				2 Channel Current Input Module (0-10mA, 4-20mA, 0-20mA)
			J5				2 Channel Input Module (2 Wire Transmitter, 24VDC Power Supply Incorporated)
Input 3 (M3) / Output (OUTP))				J0			Input Module (1 x 3-wire RTD or 1 x thermocouple + 1 x 2-wire RTD)
				J1			Input Module (2 x thermocouple)
				J2			Input Module (2 x 2-wire RTD)
				J3			2 Channel Voltage Input Module (0-5V)
				J4			2 Channel Current Input Module (0-10mA, 4-20mA, 0-20mA)
				J5			2 Channel Input Module (2 Wire Transmitter, 24VDC Power Supply Incorporated)
				L0			Relay Output Module 2A / 250VAC
				L2			Relay Output Module (Omron Relay) 1A / 250VAC
				L3			Dual Relay Output Module 2A / 250VAC
				G			Voltage Output Module (For SSR Control) DC 12V / 30mA
				X3			High precision photoelectric isolated linear current output module. (Use internal 12V power of the instrument)
				X5			High precision photoelectric isolated linear current output module. (With its own isolated power)
Alarm (ALM)					L0		Relay Output Module 2A / 250VAC
					L2		Relay Output Module (Omron Relay) 1A / 250VAC
					L3		Dual Relay Output Module 2A / 250VAC
Auxilary Alarm (AUX)						L0	Relay Output Module (Omron Relay) 1A / 250VAC
						L2	Dual Relay Output Module 2A / 250VAC
						L3	Voltage Output Module (For SSR Control) DC 12V / 30mA
Ethernet (Evaluation)						W	Ethernet Socket for local network, monitoring and operating by web browser
Cloud/Mobile App (Evaluation)						Y	Ethernet Socket for internet, monitoring and operating by web browser

Wiring Diagram

AI-3702M/3704M/3706M/AI-3902M/3904M/3906M Multi-channel display alarm datalogger	AI-3502M/3504M/3506M Multi-channel display alarm datalogger

Connection Ports
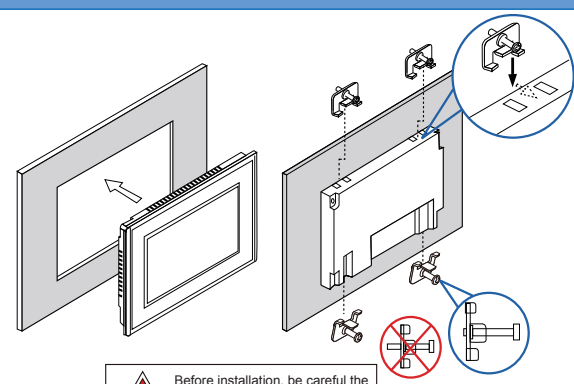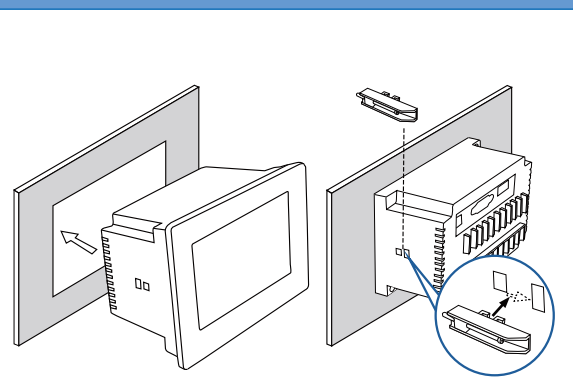
AI-3170/3190/3270/3290/3700/3900	AI-3150/3500
COM2 RS485 / COM2/COM3 RS485/RS232 / POWER — Power / USB1 — Mouse / USB Disk / USB2 — Application Download / Debug Port / Input/Output signal / LAN — Ethernet	RS485/RS232 / Ethernet / Debug Port / Mouse / USB Disk / Power / Input/Output signal
Remarks: There is no debug port and input/output signal port in AI-3170/3190/3270/3290	Remarks: There is no debug port and input/output signal port in AI-3150

Dimensions
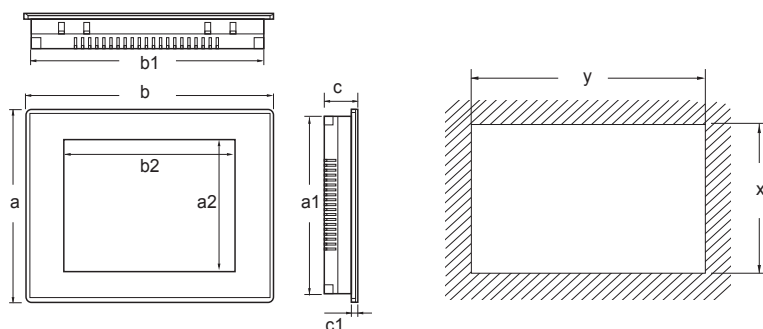
	Display Dimension (mm)		External Dimension (mm)						Cut-out dimension (mm)	
	a2	b2	a	b	c	a1	b1	c1	x	y
3500/3150 Series	5寸	64	102	105	145	100	94	133	6	96	135
3700 Series (3170/3270)	7寸	86	154	150	203	40	137	190	6	139	192
3900 Series (3190/3290)	9寸	112	198	170	231	38	158	219	6	160	221

Installation Diagram

AI-3170/3190/3270/3290/3700/3900	AI-3150/3500
Before installation, be careful the screw heads are level with the edge of the hooks.	

AI SERIES ECONOMICAL TEMPERATURE CONTROLLER/ PID CONTROLLER

PRODUCT INTRODUCTION

AI-2 series is energy saving, environmental protection and simple to use. Designed specially for machinery or equipment working in temperature ranging from 0-999℃, such as light industrial machinery, ambient cooling/heating equipment and small ovens.

FUNCTIONS AND FEATURES

- Mainboard comes with SSR or relay output module and supports installing L0 or L3 for 1 to 2 channels alarm relay output.
- Delay output function to protect the compressor.
- Universal power supply 100~240VAC.
- Armed with AT and AI PID intelligent control algorithm function.
- Qualified with ISO9001 and CQC, satisfying CE and RoHS standard.

RECOMMEND APPLICATION

- Oven
- Plastic Machinery
- Packing Machinery
- Food Machinery
  ......

TECHNICAL SPECIFICATIONS

- Input: K, E, J, N, Pt100
- Measuring accuracy: 0.3%FS.
- Control mode: PID control with auto tuning, ON/OFF control.
- Output:

    G: SSR voltage output: 5VDC/30mA

    L: Relay contact output(NO): 250VAC/2A or 30VDC/2A.
- Alarm: High/low limit alarm, deviation high/low alarm.
- Power supply: 100~240VAC, -15%, +10%/50~60Hz.
- Power consumption: ≤3W.
- Ambient temperature: temperature -10~+60℃, humidity 0~90RH%.

- 0.3%FS measuring accuracy
- Dual 3 digits display
- 1-year free warranty

- 0.3%FS measuring accuracy
- Dual 4 digits display
- 1-year free warranty

MODEL SELECTION AND SPECIFICATIONS

AI– ☐		☐	☐	☐	☐	☐	Specifications
Model	208						economical PID temperature controller, dual 3-digit display
	218						economical PID temperature controller, dual 4-digit display
Panel size		A					96*96*100mm
		B					160*80*100mm
		C					80*160*100mm
		D					72*72*95mm
		D2					48*48*95mm
		E					48*96*100mm
		F					96*48*100mm
Output (OUTP)			G				SSR voltage output (5VDC/30mA)
			L				relay contact output (250VAC/2A or 30VDC/2A)
Auxiliary output (AUX)				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)
Shell Material					–SU		flame retardant shell

ATTENTION:

1.AI-208 doesn't have C(80*160mm) panel size.

2.Output(OUTP) is not modular assembly.

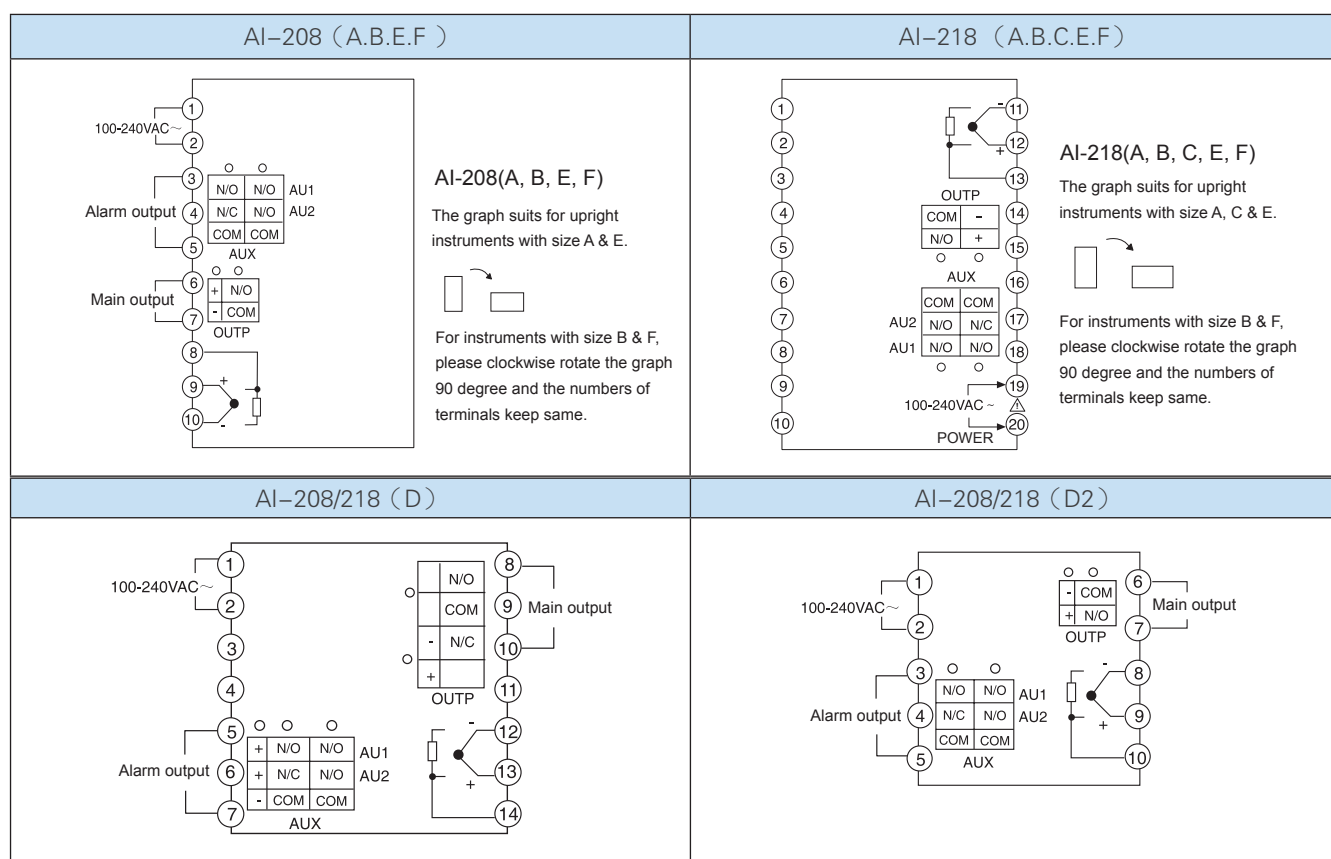## MODEL SELECTION

AI-208AGL3

AI-208   A   G   L3
  ①   ②   ③   ④

① Main model for instrument is AI-208, thermocouple/ RTD input, 0.3%FS measuring accuracy.

② Front panel size is A 96*96mm.

③ Main output is SSR voltage output, 5VDC/30mA.

④ AUX is installed with L3 module which means 2 channels alarm relay output.

WIRING DIAGRAM

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- ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Category	Code	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 (OUPT), 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

100-240VAC

OP2 OP1
OUTP
- COM COM
+ N/C N/O
+ N/O N/O

A
B
COMM

AL1 AL2
ALM
N/O N/O
N/C N/O
COM COM

MIO
- +
+ -
+ V+

AU1 AU2
AUX
+ N/O N/O
+ N/C N/O
- COM COM

TXD
RXD
GND

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

⑪ G1 — Thyristor trigger output(K1/K3)
⑫ G2
⑬ G1 — Thyristor trigger output(K3)
⑭ G2
⑮ G1 — Thyristor trigger output(K3)
⑯ G2
⑰ 0-5V
   1-5V
⑱ -
⑲
⑳ +

⑪ — Thyristor trigger output(K1/K5)
⑫

⑭ + — 0-20mA /4~20mA input(I4)
⑮ -

⑪ — SSR voltage output(G)
   linear current output(X3/X5)
⑬
⑭ — 2-wire transmitter input(I4)
⑯

The graph suits for upright instruments with size A, A2, C, C3, E, E2, E5.

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

D (72mm × 72mm)

100-240VAC

OUTP
- COM COM
+ N/C N/O
+ N/O N/O

COMM/AL1
+ A N/O
- B COM

AU1 AU2
AUX
+ N/O N/O
+ N/C N/O
- COM COM

TXD
RXD
GND

① ② ③ ④ ⑤ ⑥ ⑦

⑧ G1 — Thyristor trigger output(K1/K5)
⑨ G2
⑩
⑪ 0-5V
   1-5V
⑫ -
⑬ +
⑭

⑧ — SSR voltage output(G)
   linear current output(X3/X5)
⑩

D2 (48mm × 48mm)

100-240VAC

OUTP
- COM
+ N/O

COMM/AUX
+ A N/O N/O
  N/C N/O
- B COM COM

AU1 AU2

TXD
RXD
GND

① ② ③ ④ ⑤

⑥ G1 — Thyristor trigger output(K1/K5)
⑦ G2
⑧
⑨ +
⑩

⑥ G1 — SSR voltage output(G)
   linear current output(X3/X5)
⑦ G2

D6 (48mm × 48mm)

100-240VAC~

OUTP
- COM
+ N/O
+ N/O

COMM/AUX
A +
B -
N/O
COM

TXD
RXD
GND

① ② ③ ④ ⑤ ⑥

⑦ G1 — Thyristor trigger output(K1)
⑧ G2
⑨
⑩ -
⑪ +
⑫

YUDIAN

AI SERIES UNIVERSIAL TEMPERATURE CONTROLLER/ PID CONTROLLER

PRODUCT INTRODUCTION

AI series high performance PID temperature controller/ PID controller is designed for users with high requirements for control accuracy, supports three-phase three-wire phase-shift triggering output(AI-733/719), position proportional output for valve motor forward/ reverse control, builds a cascade or proportional control system functions(AI-719 /759) etc, in addition to supporting full functionality of universal PID controller.

FUNCTIONS AND FEATURES

- Programmable universal input, non-linear input customized multi-point correction function.
- Advanced modular construction with multiple output types satisfying requirements of various applications.
- 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.
- Allow self-programming operation and self-configured password.
- Adopts advanced modular structure, provides various kinds of output specifications and meeting a wide range of applications.
- AI-716P/ 719P/ 733P/ 756P/ 759P 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.

- 0.2%FS measuring accuracy
- 30 segments program
- AIBUS/ MODBUS dual protocols
- 3-year free warranty

- Dual 5-digit display
- 0.1%FS measuring accuracy
- 30 segments program
- AIBUS/ MODBUS dual protocols
- 3-year free warranty

- 0.1%FS measuring accuracy
- Heating/ cooling dual PID output
- Position proportional output for valve control
- Hand-auto switching function
- 50 segments program
- AIBUS/ MODBUS dual protocols
- 3-year free warranty

- Dual 5-digit display
  (Same as AI-719/719P)

- 0.2%FS measuring accuracy
- three-phase phase-shift trigger output
- Hand-auto switching function
- 30 segments program
- AIBUS/ MODBUS dual protocols
- 3-year free warranty

MODEL SELECTION AND SPECIFICATIONS

AI–	☐	☐	☐	☐	☐	☐	☐	☐	Specifications
Model	716								0.2%FS measuring accuracy, support AIBUS/ MOSBUS protocols
	716P								based on AI-716, 30 segments programmable function is added
	719								0.1%FS measuring accuracy, hand-auto switching, soft-start, support AIBUS/ MOSBUS protocols
	719P								based on AI-719, 50 segments programmable function is added
	733								0.2%FS measuring accuracy, hand-auto switching, support AIBUS/ MOSBUS protocols, three-phase phase-shift trigger output
	733P								based on AI-733, 30 segments programmable function is added
	756								0.1%FS measuring accuracy, dual 5-digit display, same as AI-716
	756P								based on AI-756, 30 segments programmable function is added
	759								0.1%FS measuring accuracy, dual 5-digit display, same as AI-719
	759P								based on AI-759, 50 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)			I4						2-wire transmitter or 4-20mA signal input, provide 24VDC to transmitter
			I5						ON-OFF input module for dual SV switch or run/stop program
			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)
				L5					dual channel N/O relay contact output (250VAC/2A) (Chinese 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)
				K9					three-phase phase-shift trigger output (only for AI-719/733)
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)
						X3/X5			linear current 4-20mA output (X5 has own isolated power)
Communication (COMM)							S/S4		RS485 communication interface (S4 has own isolate power supply)
							X3/X5		linear current 4-20mA output (X5 has own isolated power)
Shell material								–UL	with UL standard certificate, flame retardant shell

ATTENTION:

1.AI-756/ 756P/ 759/ 759P supports only panel size A and E.

2.L5 installed in OUTP for AI-719/ 719P/ 759/ 759P is for position proportional output. X3/X5 installed in COMM is for retransmission output.

3.Output for AI-733/733P is fixed as three-phase phase-shift trigger output and occupies auxiliary input, so panel size doesn't accept D, D2, D6 or E5 when output(OUTP) is K9.

4.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.

5.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.

6.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 (OUPT), alarm (ALAM), auxiliary output (AUX) and communication (COMM). The modules can be purchased together or individual, and can be assembled freely.
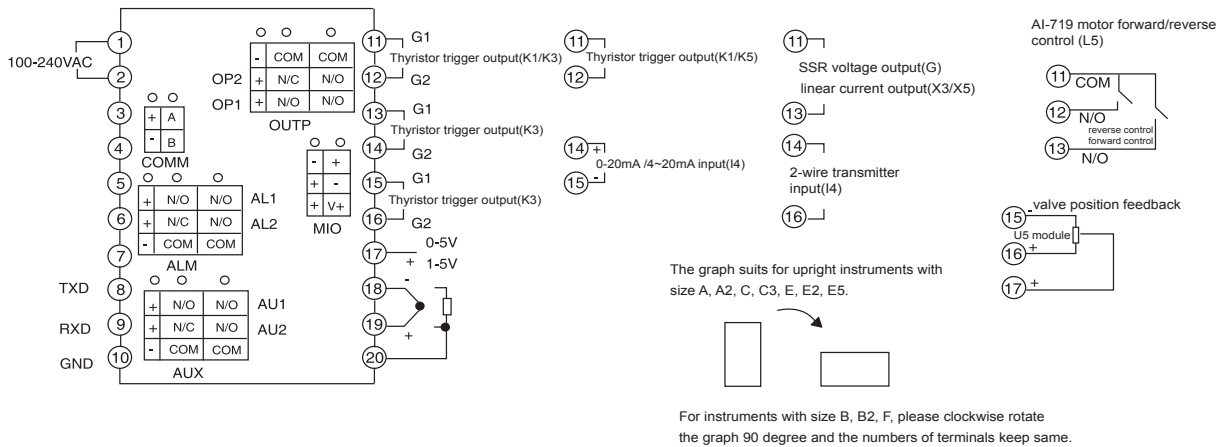
Example:

AI-719AI4X3L3L3S4-24VDC

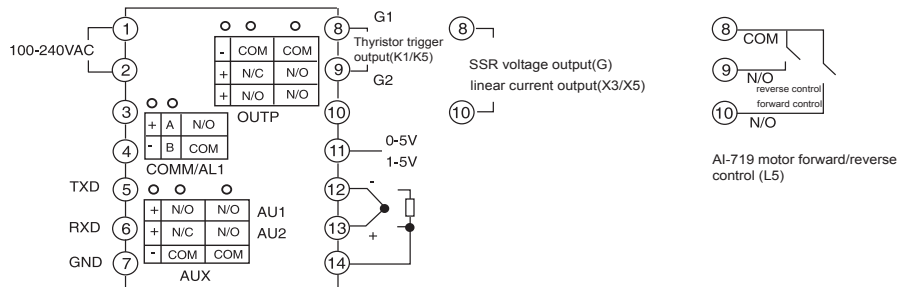AI-719 A I4 X3 L3 L3 S4 -24VDC

①   ②   ③   ④   ⑤   ⑥   ⑦

① Main model for instrument is AI-719, high performance temperature controller/ PID controller, 0.1%FS measuring accuracy, multiple input, PID output, retransmission output, alarm and RS485 communication.

② Front panel size is B 96*96mm.

③ I4 module in MIO means analog signal 4~20mA/0~20mA input or signals from 2-wire transmitter input, providing 24VDC feed supply.

④ Main output is analog output: 0~10mA/ 0~20mA/ 4~20mA.

⑤ Both ALM and AUX are installed with L3 module which means 4 channels alarm relay output.

⑥ Communication module S4 is in COMM which means instrument supports RS485 communication. It is recommended to choose S4 module when there's X3 in OUTP.

⑦ Power supply is 24VDC. If let blank, power supply is 100~240VAC, 50/60Hz.

*Please note AI-719 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.
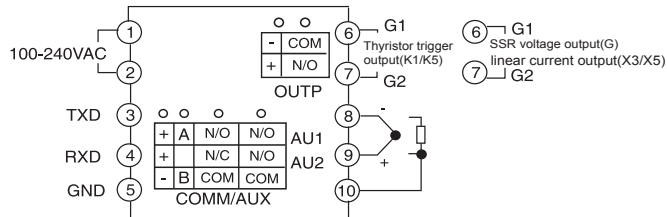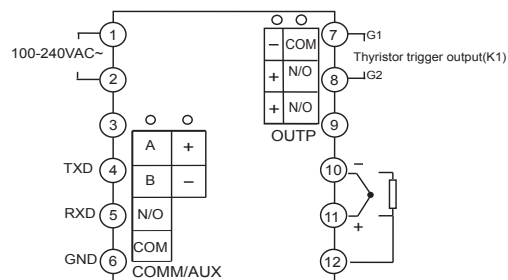
WIRING DIAGRAM

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

100-240VAC

OP2 / OP1 — OUTP

COMM — A, B

ALM — AL1, AL2 (N/O, N/C, COM)

MIO — (-, +, V+)

AUX — AU1, AU2 (N/O, N/C, COM)

TXD, RXD, GND

Terminals:
- 11 G1 / 12 G2 — Thyristor trigger output(K1/K3)
- 13 G1 / 14 G2 — Thyristor trigger output(K3)
- 15 G1 / 16 G2 — Thyristor trigger output(K3)
- 17 / 18 0-5V 1-5V
- 19 / 20

- 11 / 12 Thyristor trigger output(K1/K5)
- 14 + / 15 — 0-20mA /4~20mA input(I4)

- 11 SSR voltage output(G) linear current output(X3/X5)
- 13 +
- 14 + 2-wire transmitter input(I4)
- 16

AI-719 motor forward/reverse control (L5)
- 11 COM
- 12 N/O reverse control
- 13 N/O forward control

valve position feedback
- 15 U5 module
- 16 +
- 17 +

The graph suits for upright instruments with size A, A2, C, C3, E, E2, E5.

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

D（72mm × 72mm）

100-240VAC

OUTP — (-, COM, COM; +, N/C, N/O; +, N/O, N/O)

COMM/AL1 — (+, A, N/O; -, B, COM)

TXD, RXD, GND

AUX — AU1, AU2 (N/O, N/C, COM)

- 8 G1 / 9 G2 — Thyristor trigger output(K1/K5)
- 10
- 11 0-5V 1-5V
- 12 / 13 / 14

- 8 COM
- 9 N/O reverse control
- 10 N/O forward control

AI-719 motor forward/reverse control (L5)

- 8 / 10 SSR voltage output(G) linear current output(X3/X5)

D2（48mm × 48mm）

100-240VAC

OUTP — (-, COM; +, N/O)

COMM/AUX — AU1, AU2 (+, A, N/O, N/O; +, N/C, N/O; -, B, COM, COM)

TXD, RXD, GND

- 6 G1 / 7 G2 — Thyristor trigger output(K1/K5)
- 8 / 9 +
- 10

- 6 G1 / 7 G2 — SSR voltage output(G) linear current output(X3/X5)

D6（48mm × 48mm）

100-240VAC~

COMM/AUX — (A, +; B, -; N/O; COM)

TXD, RXD, GND

OUTP — (-, COM; +, N/O; +, N/O)

- 7 G1 / 8 G2 — Thyristor trigger output(K1)
- 9
- 10 - / 11 + / 12

AI SERIES MULTI–CHANNEL PID TEMPERATUE CONTROLLER

PRODUCT INTRODUCTION

AI series multi-channel PID temperature controller supports thermocouple or two-wire Pt100 input, SSR voltage drive output or L3 relay contact output. Each channel supports different input signal, and is used independently or cooperating with PLC or touch screen system. Products are designed for 10-year life at least and 3-year free warranty, realizing same accuracy and anti-interference ability as single channel temperate controller.

FUNCTIONS AND FEATURES

- Supports 2 or 4 programmable inputs channels, with K, S, E, J, B, N, T, WRe5-WRe2 multiple specifications thermocouple input, automatic cold compensation or two-wire Pt100 input.

- Using high performance component greatly reduces temperature drift and the mutual interference among channels; AI-70482 supports 4 completely isolated channels measurement, suitable for thermocouple which negative electrode is connected to outer shell.

- Has input digital correction, and each channel has digital filtering and the strength of filtering can be adjusted independently or canceled.

- SSR voltage drive output with control cycle adjustable of 0.48~5 seconds.

- Advanced AI control with auto-turning and self-learning, achieving stable and precise control.

- Power consumption is about 75% lower than with 4 units single channel temperate controller.

AI–7048

- 4-channel PID temperature controller
- 0.2%FS measuring accuracy
- AIBUS communication protocol

AI–70482

- Input signal isolated based on AI-7048
- suitable for thermocouple which negative electrode is connected to outer shell

AI–7028

- 2-channel PID temperature controller
- 0.2%FS measuring accuracy
- AIBUS communication protocol

MODEL SELECTION AND SPECIFICATIONS

AI–	□	□	□	□	□	□	□	□	□	Specifications
Model	7028									2-channel PID temperature controller
	7048									4-channel PID temperature controller
	70482									4-channel PID temperature controller(input signal isolated)
Panel size		A								96*96*100mm
		B								160*80*100mm
		C								80*160*100mm
		E								48*96*100mm
		E5								48*96*100mm, DIN rail mounted type
		F								96*48*100mm
Input1, 2 (IN1,IN2)			J1							2 channels thermocouple or mV signal input
			J2							2 channels 2-wire RTD input
			J3							2 channels voltage input, 0~3V, 0~5V, 1~5V and etc
			J4							2 channels current input, 0~10mA, 4~20mA, 0~20mA and etc
			J5							2 channels transmitter input, with 24VDC feed supply
Input3, 4 (IN3,IN4)				J1						2 channels thermocouple or mV signal input
				J2						2 channels 2-wire RTD input
				J3						2 channels voltage input, 0~3V, 0~5V, 1~5V and etc
				J4						2 channels current input, 0~10mA, 4~20mA, 0~20mA and etc
				J5						2 channels transmitter input, with 24VDC feed supply
OUTPUT1,2(OP1,OP2)					G5					dual SRR output
OUTPUT3,4(OP3,OP4)						G5				dual SRR output
Alarm (ALM)							L0			large volume relay contact output (250VAC/2A) (Chinese brand)
							L3			dual channel N/O relay contact output (250VAC/2A) (Chinese brand)
Communication (COMM)								S		RS485 communication interface (occupy internal power supply)
								S4		RS485 communication interface (with isolated power supply)

ATTENTION:

1.Input specification for AI-70482 can only be thermocouple and there's no alarm relay output.
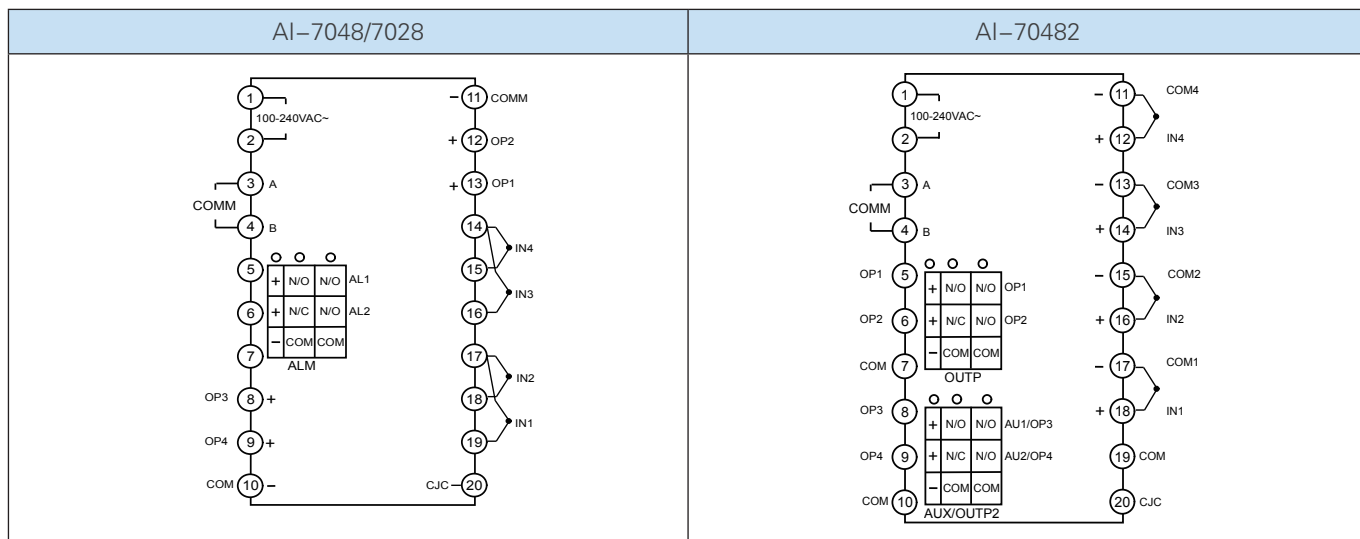
2.E5 panel has communication module S as default.

MODEL SELECTION

AI-7048AJ2J2G5G5L3S

AI-7028E5J1G5L0S

AI-70482EG5G5S

WIRING DIAGRAM

AI SERIES UNIVERSAL INTELLIGENT INDICATOR

PRODUCT INTRODUCTION

AI series universal intelligent indicator is designed for a service life of over 10 years and has 3-year free warranty. Suitable for measuring and displaying temperature, pressure, flow, level, humidity, etc. Widely used in electricity, chemical, metallurgy, food processing and other industries.
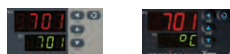
FUNCTIONS AND FEATURES

- The input can be freely selected as thermocouple, RTD, voltage, current, Ohm signal and etc.

- Support up to 4 channels alarm relay output including 2 channels high limit alarms and 2 channels low limit alarms.

- With functions of digit calibrating, digital filtering, and thermocouple cold junction auto compensating, which is easy operated.

- Support high accuracy retransmission output with accuracy up to 14-bit D/A and temperature drift less than 100PPm/℃.

- Support RS485 communication interface, widely used for AIDCS, split paperless recorder and touch screen control system.

Single display	Dual display	Single display	Dual display	Dual 5-digit display
0.3%FS measuring accuracy	0.3%FS measuring accuracy	0.2%FS measuring accuracy	0.2%FS measuring accuracy	0.2%FS measuring accuracy

OVERALL DIMENSIONS

D2（48*48mm）

F（96*48mm）

D（72*72mm）

E（48*96mm）

E2（48*96mm）

E5（DIN rail mounted）

A（96*96mm）

A2（96*96mm）
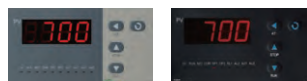
B（160*80mm）

B2（160*80mm）

C（80*160mm）

C3（80*160mm）

MODEL SELECTION AND SPECIFICATIONS

AI–	□	□	□	□	□	□	□	□	Specifications
Model	500								single channel indicator, with single display and measuring accuracy of 0.3%FS
	501								single channel indicator, with dual display and measuring accuracy of 0.3%FS
	700								single channel indicator, with single display and measuring accuracy of 0.2%FS
	701								single channel indicator, with dual display and measuring accuracy of 0.2%FS
	751								single channel indicator, with dual 5-digit display and measuring accuracy of 0.2%FS, support only A and E dimension and MODBUS protocol
Panel size		A							96*96*100mml
		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
		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)			I4						2-wire transmitter or 4-20mA signal input, provide 24VDC to transmitter
			I7						one channel 0~5A AC current input
			I8						one channel 0~500V AC voltage input
			I20						one channel 0~20V DC voltage input
			I50						one channel 0~50V DC voltage input
			I100						one channel 0~100V DC voltage input
			I200						one channel 0~200V DC voltage input
			I500						one channel 0~500V DC voltage input
			I1000						one channel 0~1000V DC voltage input
			V*						V24, V12, V10 is for 24VDC, 12VDC, 10VDC power supply module
Output (OUTP)				X3/X5					linear current 4-20mA output (X5 has own isolated power)
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)
Auxiliary output (AUX)						L0			large volume relay contact output (250VAC/2A) (Chinese brand)
						L2			large volume relay contact output (250VAC/2A) (Chinese brand)
						L3			dual channel N/O relay contact output (250VAC/2A) (Chinese brand)
Communication (COMM)							S/S4		RS485 communication interface (S4 has own isolate power supply)
Panel color								Q	Black
								Z	Grey

ATTENTION:

1. AI-751 supports Modbus RTU protocol and only A and E dimensions are available.

2. AI-500/700 doesn't have light bar.

3. D size doesn't have MIO, and its COMM and ALM share one slot. If indicators installs RS485 module, it doesn't have ALM; If controller requires alarm function it can install alarm module in AUX.

4. 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.

5. 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.

MODEL SELECTION

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

Example 1:

AI-701E5I4X3L3L3S4

$$\underset{①}{\underline{AI\text{-}701}} \quad \underset{②}{\underline{E}} \quad \underset{③}{\underline{I4}} \quad \underset{④}{\underline{X3}} \quad \underset{⑤}{\underline{L3}} \quad \underset{⑤}{\underline{L3}} \quad \underset{⑤}{\underline{S4}}$$

① Main model for instrument is AI-701, single channel indicator, with single display and measuring accuracy of 0.2%FS

② Front panel size is E 48*96mm.

③ I4 module in MIO means 4~20mA/ 0~20mA or signals from 2-wire transmitter input.

④ X3 module in OUTP means linear current 4-20mA retransmission output.

⑤ Both ALM and AUX are installed with L3 module which means 4 channels alarm relay output.

⑥ Communication module S4 is in COMM which means instrument supports RS485 communication with isolate power supply.

WIRING DIAGRAM


A.A2.B.B2.C.C3.E.E2.E5.F
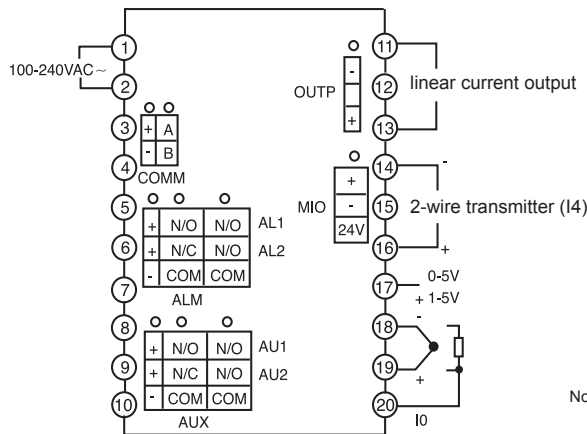
Note: For linear voltage input, if the range is below 500mV, connect to terminals 19+ and 18-; 0~5V, 1~5V or 0~10V signal can be inputted from terminals 17+ and 18-. 4~20mA linear current signal can be transformed to 1~5V voltage signal by connecting 250 ohm resistor, and then be inputted from terminals 17+ and 18-; If I4 module is installed in MIO socket, 4~20mA signal can be inputted from terminals 14+ and 15-, and 2-wire transmitter can be inputted from terminals 16+ and 14-.

D（72mm×72mm）
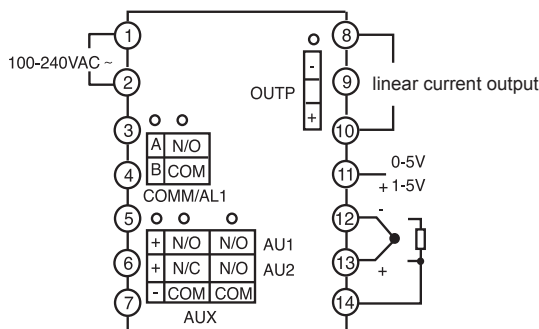
Note: For linear voltage input, if the range is below 500mV, connect to terminals 13+ and 12-. 0~5V, 1~5V or 0~10V signal can be inputted from terminals 11+ and 12-. 4~20mA linear current signal can be transformed to 1~5V voltage signal by connecting 250 ohm resistor, and then be inputted from terminals 11+ and 12-.

D2（48mm×48mm）
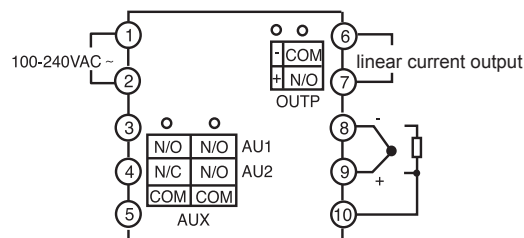
AI–702M/704M/704M2/706M MULTI–CHANNEL INDICATOR

PRODUCT INTRODUCTION

AI series multi-channel indicator suits for measuring, alarm, transmission and communication of multiple physical parameters such as temperature, humidity, pressure, flow, liquid level and etc. Widely used in electric power, chemical, metallurgy, food processing, machinery manufacturing and other fields. Products are designed for 10-year life at least and 3-year free warranty.

FUNCTIONS AND FEATURES

- Programmable modular multiple inputs, thermocouple, RTD, voltage, current, and two-wire transmitter optional with 0.2%FS measuring accuracy. Every channel supports different input specification and freely defined measuring range, decimal position, resolution ratio, digital filtering strength and 0ther parameters.

- Using high performance component greatly reduces temperature drift and the mutual interference among channels,realizing same accuracy and anti-interference ability as single channel indicator.

- AI-702M, AI-704M/AI-704M2 and AI-706M multi-channel indicators provide 1~2, 1~4, 1~6 channels of measuring, and support internal calculation functions including square root extraction, summation, subtraction and multiplication.

- Support RS485 communication using as lower machine of AIDCS intelligent distributed control system, paperless data logger and touch screen control system. Provide switch signal inputs or outputs to upper machine.

- Up to 2 channels retransmission output when RS485 communication no need. Any input channel can be retransmitted by OUTP port or 6 channels can be cyclically retransmitted. Can be edited as 2 IN 2 OUT transmitter.

- Equipped fixed point/patrol measurement display function and 2 patrol speed selectable.

- Supports E5 DIN rail mounted panel, can be edited directly by handheld display E8.

PANEL SIZE
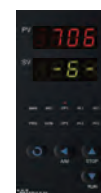
A (size: 96*96mm)

B (sizez: 160*80mm)

C (size: 80*160mm)

E (size: 48*96mm)

E5 (DIN rail mounted)

F (size: 96*48mm)

MODEL SELECTION AND SPECIFICATIONS

AI–	□	□	□	□	□	□	□	□	Specifications
Model	702M								2-channel indicator with alarm, retransmission, communication functions
	704M								1-4 channels indicator with alarm, retransmission, communication functions
	704M2								1-4 channels indicator with alarm, retransmission, communication functions(input signal isolated)
	706M								1-6 channels indicator with alarm, retransmission, communication functions
Panel size		A							96*96*100mm
		B							160*80*100mm
		C							80*160*100mm
		E							48*96*100mm
		E5							48*96*100mm, DIN rail mounted type
		F							96*48*100mm
MIO CHANNEL1(M1)			J0						1 channel three-wire RTD input (or 1 thermocouple + 1 two-wire RTD inputs)
			J1						2 channels thermocouple or mV signal inputs
			J2						2 channels 2-wire RTD inputs
			J3						2 channels 0~3V, 0~5V, 1~5V voltage input
			J31						2 channels 0~10V voltage input
			J4						2 channels current inputs, supports 0~10mA, 4~20mA, 0~20mA current input
			J5						2 channels two-wire transmitter inputs with 24V feed power supply
MIO CHANNEL2(M2)				J0					1 channel three-wire RTD input (or 1 thermocouple + 1 two-wire RTD inputs)
				J1					2 channels thermocouple or mV signal inputs
				J2					2 channels 2-wire RTD inputs
				J3					2 channels 0~3V, 0~5V, 1~5V voltage input
				J31					2 channels 0~10V voltage input
				J4					2 channels current inputs, supports 0~10mA, 4~20mA, 0~20mA current input
				J5					2 channels two-wire transmitter inputs with 24V feed power supply
MIO CHANNEL3(M3)OR MAIN OUTPUT(OUTP)					J0–J5				same as M1
					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)
					G				SSR voltage output (12VDC/30mA)
					X3/X5				linear current 4-20mA output (X3occupy internal power supply,X5with isolated power supply)
Alarm (ALM)						L0–L3			same as OUTP
Auxiliary alarm(AUX)							L0–L3		same as OUTP
Communication (COMM)								S4	RS485 communication interface (S4 has own isolate power supply)
								X3/X5	linear current 4-20mA output (X3occupy internal power supply,X5with isolated power supply)

**ATTENTION:** Input specification for AI-704M2 can only be thermocouple.

MODEL SELECTION

AI-706MAJ1J1J1L3L3S

AI–706M   A   J1 J1 J1   L3 L3   S
①   ②   ③   ④   ⑤

① Main model for instrument is AI-706M, 1-6 channels indicator with alarm, retransmission, communication functions.

② Front panel size is A 96*96mm.

③ J1 module in M1, M2, M3 means 6 channels thermocouple input.

④ Both ALM and AUX are installed with L3 module which means 4 channels alarm relay output.

⑤ S in COMM which means instrument supports RS485 communication.

WIRING DIAGRAM
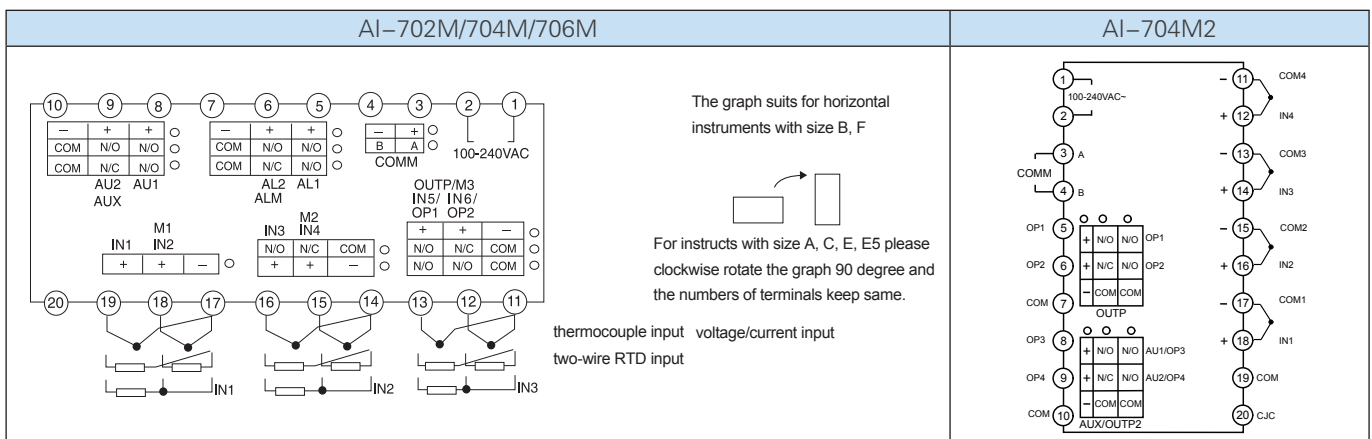
AI–601/6010/6011 CURRENT/ VOLTAGE/ POWER METER

PRODUCT INTRODUCTION

AI series power meter includes AI-601 AC power meter, AI-6010 AC voltage meter and AI-6011 AC current meter. AI-601 AC power meter can display voltage or current as well by parameter setting. Products are designed for 10-year life at least and 3-year free warranty. In addition, user can choose Yudian intelligent indicator AI-500/501/700/701/751 for measuring DC voltage or DC current, including 0~20VDC, 0~50VDC, 0~100VDC, 0~200VDC, 0~500VDC, 0~1000VDC or 0~5ADC and etc.

FUNCTIONS AND FEATURES

- Freely defined measurement scale and decimal point position
- Up to four channels of alarm relay output, including high limit,low limit,second high limit and second low limit.
- Support high accuracy retransmission output with accuracy up to 14-bit D/A and temperature drift less than 100PPm/℃.
- Support RS485 communication to split paperless recorder and touch screen control system.

TECHNICAL SPECIFICATIONS

- Input:

    AC Current: 0~5A (other input specification can be customized)

    AC Voltage: 0~500VAC (0~250VAC or other input specification can be customized)

    Power: Power display range can be freely defined according to the input of AC voltage and current

- Measuring accuracy: 0.2%FS (0.2%FS/℃±1 byte)
- Temperature shift: ≤0.01%FS/℃(typical value is approximate 50ppm/℃)
- Retransmission: PV retransmission output when X3 current module is installed in OUTP slot (max load resistance is 500Ω)
- Alarm function: high limit, low limit, second high limit and second low limit.
- Power consumption: ≤5W, without any module ≤1W

OVERALL DIMENSIONS

A（96*96mm）　A2（96*96mm）　B（160*80mm）

B2（160*80mm）　C（80*160mm）　C3（80*160mm）　D（72*72mm）

E（48*96mm）　E2（48*96mm）　E5（DIN rail mounted）　F（96*48mm）

MODEL SELECTION AND SPECIFICATIONS

AI– □	□	□	□	□	□	□	□	Specifications
Model	601							power meter
	6010							AC volt meter
	6011							AC current meter
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
		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)			V*					V24, V12, V10 is for 24VDC, 12VDC, 10VDC power supply module
Output (OUTP)				X3				linear current 4-20mA output (occupy internal 12V power supply)
				X5				linear current 4-20mA output (with isolated power supply)
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)
					G			SSR voltage output (12VDC/30mA)
					W1/W2			thyristor contactless switch output module(W1: N/O,W2: N/C)
Auxiliary alarm(AUX)						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)
						G		SSR voltage output (12VDC/30mA)
Communication (COMM)							S	RS485 communication interface (occupy internal power supply)
							S4	RS485 communication interface (with isolated power supply)
Color							Q	Black
							Z	Gray

MODEL SELECTION

AI-601AV24X3L2L2S4, main model for instrument is power meter AI-601, front panel size A 96*96mm, 24VDC feed supply, linear current 4-20mA output, with two channels alarm and RS485 communication interface.

WIRING DIAGRAM
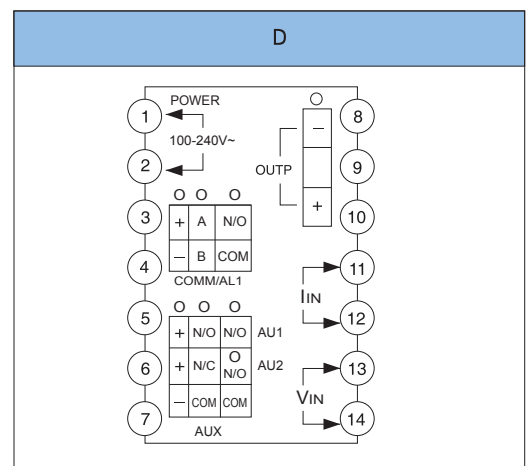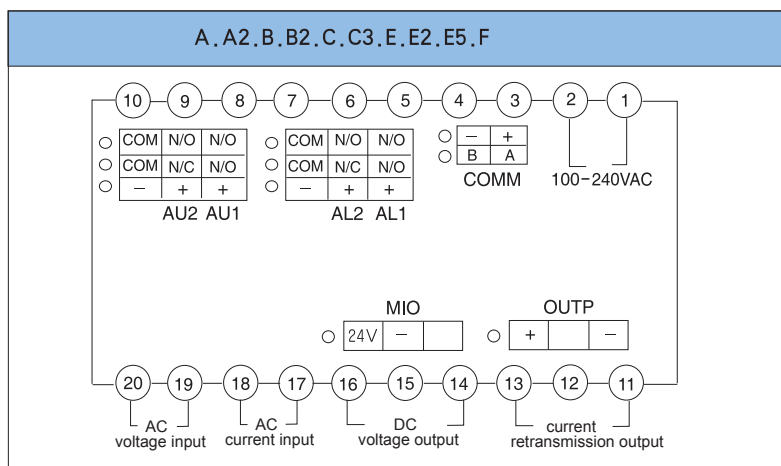
AI–708H/808H INTELLIGENT FLOW TOTALIZER

PRODUCT INTRODUCTION

AI-708H/808H intelligent flow totalizer is designed for a service life of over 10 years and has 3-year free warranty. Suitable for measuring flow of various kinds of liquid, general gas natural gas and etc by using various types of flowmeters such as orifice flowmeter, vortex flowmeter, turbine flowmeter and electromagnetic flowmeter.

FUNCTIONS AND FEATURES

- Accumulate mass, volume or length of medium, provide batch control over the accumulation. As batch controller, it has 4-bit accumulator for control and 12-bit accumulator for total sum individually.
- Modularized and configurable inputs. The flow input can be 1-5V, 0-5V, 0-10mA, 4-20mA or frequency signal, special defined input is also available. Temperature input can be configured to RTD(Pt100), thermocouple(K, E, J type) or standard current signal. Pressure input can be standard voltage or current signal.
- AI-808H has temperature and pressure compensation, using for calculation for temperature and pressure compensation for general gas, saturated steam, superheated steam and liquid. The compensation calculation with the method of table look-up has high accuracy in the steam measurement application. Special function can be carried out by enhancing the compensation formula upon customers' requirements.
- Advanced computation algorithm assures high accuracy in the application of flow measurement even if the input frequency is very low.

TECHNICAL SPECIFICATIONS

- Measuring accuracy: 0.2%FS for temperature, pressure, frequency and instantaneous flow(without temperature-pressure compensation)
- Temperature shift: ≤0.01%FS/℃(typical value is 50ppm/℃) for temperature, pressure, frequency and instantaneous flow(without temperature-pressure compensation)
- Temperature and pressure compensation mode:
  General Gas: temperature-pressure compensation(calculate by equation for ideal gas state)
  Saturated Steam: temperature compensation(table look-up, temperature range: 100℃-276℃)
  Saturated Steam: pressure compensation(table look-up, absolute pressure range: 0.1-3.2MPa)
  Superheated Steam: temperature-pressure compensation(table look-up, temperature and pressure range: 150℃-590℃, 0.1-22MPa)
  General liquid: only use temperature compensation, PA as compensation factor
  Expand formula: special calculation formula available
- Calculation accuracy for temperature-pressure compensation: calculation error is less than 0.3%FS, and less than 0.5%FS after compensation
- Accumulation accuracy: the error is less than 0.01%FS (just caused by the frequency error produced by crystal oscillator)
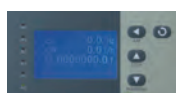- Power consumption: ≤5W
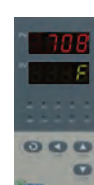
OVERALL DIMENSIONS

A (96*96mm)
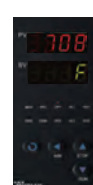
A2 (96*96mm)

A6 (96*96mm)

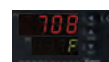B (160*80mm)

B6 (160*80mm)

C (80*160mm)

C3 (80*160mm)

E (48*96mm)

E5 (DIN rail mounted)

F (96*48mm)

MODEL SELECTION AND SPECIFICATIONS

| AI– ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐			Specifications
Model	708H		without temperature-pressure compensation
	808H		with temperature-pressure compensation
Panel size	A		96*96*100mm
	A2		96*96*100mm, with 25 segments and 4 levels of luminosity
	A6		96*96*100mm, LCD display
	B		160*80*100mm
	B6		160*80*100mm, LCD display
	C		80*160*100mm
	C3		80*160*100mm, with 50 segments and 2 levels of luminosity
	E		48*96*100mm
	E5		48*96*100mm, DIN rail mounted type
	F		96*48*100mm
Temperature-pressure input (M1)	I0		temperature: thermocouple, RTD or mV signal; pressure: 0-5V or 1-5V
	J4		2-channel current input, 0-10mA, 0-20mA or 4-20mA
	J51		2-channel 2-wire transmitter input (provide 24VDC feed supply)
Flow input (M2)	I2		frequency/ digital input (provide 12VDC power supply)
	I3		0-5V/1-5V input (provide 24VDC feed supply)
	I4		0-20mA/ 4-20mA input (provide 24VDC feed supply)
Output (OUTP)	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)
	L4		small volume relay contact output (250VAC/2A) (Omron brand)
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)
Auxiliary output (AUX)		X3/X5	linear current 4-20mA output (X5 has own isolated power)
Communication (COMM)		S/S4	RS485 communication interface (S4 has own isolate power supply)

ATTENTION:

AI-808H can be used as calorimeter when installing J21 in M1 slot.

MODEL SELECTION

AI-808HB6I0I2L2X3S4, main model for instrument is AI-808H, intelligent flow totalizer with temperature-pressure compensation; front panel size B6 160*80mm with LCD display; I0 means temperature input: thermocouple or RTD, pressure input: 0-5V or 1-5V; I2 means flow input: frequency; L2 means batch control relay output; X3 means linear current 4-20mA retransmission output; S4 means supports RS485 communication with isolate power supply.

WIRING DIAGRAM
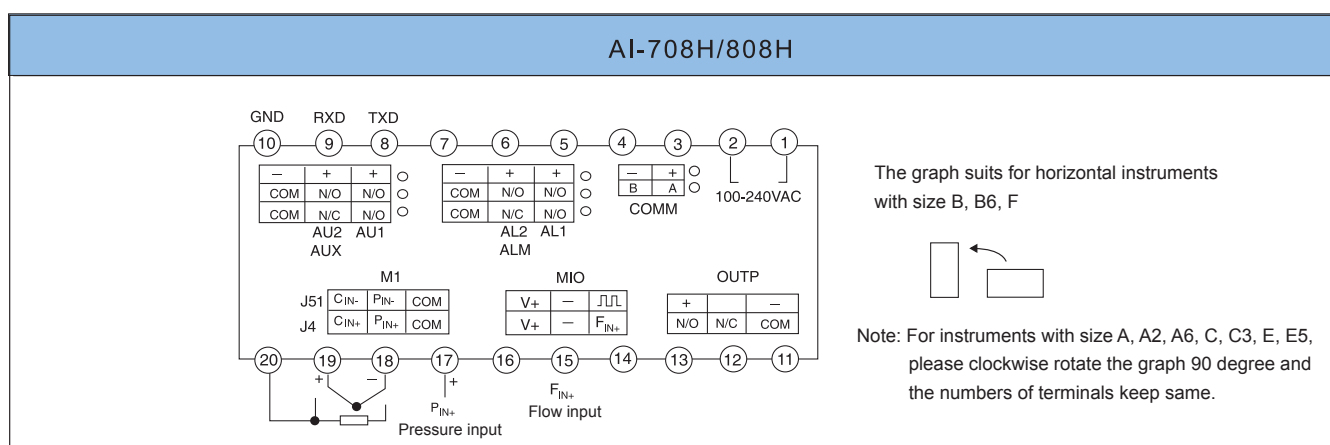
AI SERIES DIN RAIL MOUNTED INDUSTRIAL CONTROL MODULE

PRODUCT INTRODUCTION

D5 series has mounting width of only 22.5mm. AI-7048D5 is the 4 channels PID temperature controller with narrowest width in the world. DIN rail mounted industrial control module is designed for ten years life at least and three-year warranty. It is widely used in occasions that need to save space, collect data and control temperature. Parameter settings can be set by upper machine or YUDIAN handheld display E8.

TYPICAL APPLICATION

RS485

RS485

PLC

RS485

Used as lower machine for AIDCS intelligent distributed control system, paperless data logger/ touch screen control system and PLC.

MODEL SELECTION AND SPECIFICATIONS

Type	Model	Function Specifications
Single channel PID temperature controller	AI-516D5	0.3%FS measuring accuracy, AIBUS/MODBUS dual communication protocol, modular OUTP optional: SSR, relay, single-phase thyristor zero crossing trigger output, single-phase thyristor phase-shift trigger output(inductive load, resistive load), with one alarm relay output and RS485 communication integrated
	AI-516PD5	based on AI-516D5, 30 segments programmable function is added
	AI-519D5	0.25%FS measuring accuracy, AIBUS/ MODBUS dual communication protocol, modular OUTP optional: SSR, relay, single-phase thyristor zero crossing trigger output, single-phase thyristor phase-shift trigger output(inductive load, resistive load), with one alarm relay output and RS485 communication integrated, with hand-auto switching and soft-start
	AI-526D5	0.25%FS measuring accuracy, AIBUS/ MODBUS dual communication protocol, modular OUTP optional: SSR, relay, single-phase thyristor zero crossing trigger output, single-phase thyristor phase-shift trigger output(inductive load, resistive load), with one alarm relay output and RS485 communication integrated, with heating and cooling dual PID output
	AI-526PD5	based on AI-526D5, 30 segments programmable function is added
Two-channel PID temperature controller	AI-7028D5	2-channel PID temperature controller, two channels input (thermocouple: K, S, E, J, B, N, T, WRe5-WRe26 or two-wire Pt100), two channels control output(SSR voltage output, 12VDC/20mA each loop), with RS485 communication interface and input digital correction and digital filtering function, every channel can have different input specification
Four-channel PID temperature controller	AI-7048D5	4-channel PID temperature controller, four channels input (thermocouple: K, S, E, J, B, N, T, WRe5-WRe26 or two-wire Pt100), four channels control output(SSR voltage output, 12VDC/20mA each loop), with RS485 communication interface and input digital correction and digital filtering function, every channel can have different input specification
10-point switch signal input module	AI−3011D5	used as switch signal input for PC control system, paperless logger and touch screen, and can catch the jump from off to on for 4 channels from to adapt switch button input
18-point relay output module	AI−3013D5	used as switching control output for PC control system, paperless logger and touch screen
Switch signal input/ output combination module	AI-301ME5	used as switch signal and frequency input and relay output for PC control system, paperless logger and touch screen. Up to 10 I/O points, one module supports different input/output signal, more flexible than same type I/O module. (Panel type optional: E5, A, B, C, E, F) See table below for model selection.

ATTENTION: All modules except AI-301ME5 are D5 rail mounted type(installation width: 22.5mm).

PRODUCT INTRODUCTION

AI−301ME5 □	□	□	□	□	□	Specifications
Channel 1 (M1)	I5					dual channel external switch signal or frequency input
	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)
Channel 2 (M2)		I5				dual channel external switch signal or frequency input
		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)
Channel 3 (M3)			I5			dual channel external switch signal or frequency input
			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)
Channel 4 (M4)				I5		dual channel external switch signal or frequency input
				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)
Channel 5 (M5)					I5	dual channel external switch signal or frequency input
					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)
Communication (COMM)					S	RS485 communication interface (occupy internal power supply)
					S4	RS485 communication interface (with isolated power supply)

ATTENTION: AI−301ME5 supports frequency input only when I2 installed in M1.

MODEL SELECTION SPECIFICATION:

AI-301M have 6 module slots. Communication (COMM) is for installing communication module to communicate with computer; M1, M2, M3, M4, M5 can install dual channel switch input module or 1/2 channels relay output module. M1 can install I2 module for frequency input.

MODEL SELECTION：

Example: AI-301ME5I5I5I5L3L3S-24VDC

$$\underset{①}{\underline{AI-301M}}\ \underset{②}{\underline{E5}}\ \underset{③}{\underline{I5\ I5\ I5}}\ \underset{④}{\underline{L3\ L3}}\ \underset{⑤}{\underline{S}}\ \underset{⑥}{-24VDC}$$

① Main model for instrument is AI-301M, switch signal input/output module.

② Front panel size is E5 48*96*100mm, DIN rail mounted type.

③ I5 module in M1, M2, M3 means 6 channels switch signal input.

④ L3 module in M4 & M5 means 4 channels relay output.

⑤ S module in COMM means instrument supports RS485 communication with PC.

⑥ Power supply is 24VDC. If let blank, power supply is 100~240VAC, 50/60Hz.
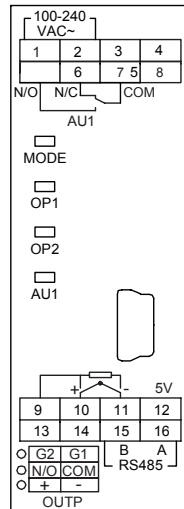
E8 HANDHELD DISPLAY

- Used for D5/E5 DIN rail mounted series for display and keyboard operation.
- Support hot-plugging.
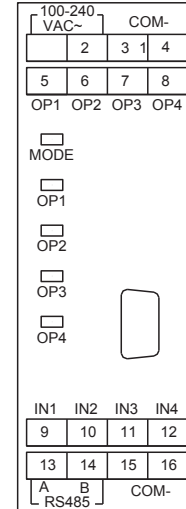- Can be DIN rail mounted or handled operated

WIRING DIAGRAM

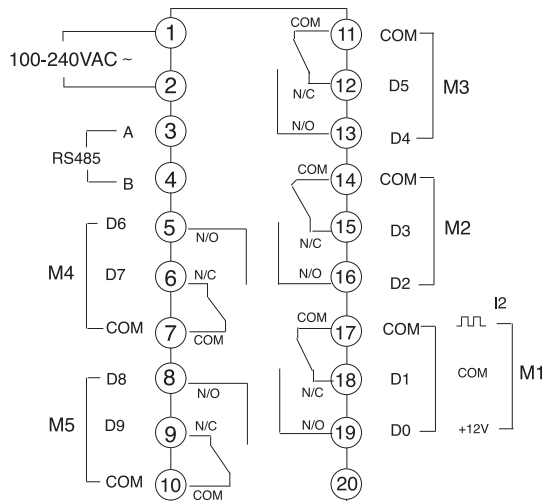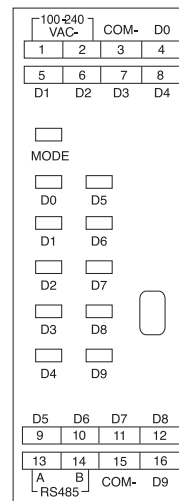### AI-516/516P/519/526/526P
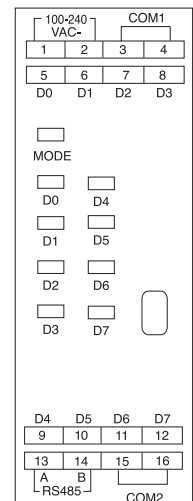

AI-7028D5、AI-7048D5

AI-301ME5

AI-3011D5

AI-3013D5

AI-301ME5: M1-M5 is defined by installed module. When single channel relay output module is installed, there will be one channel relay output(NO/NC).

AI SERIES DIN RAIL MOUNTED MODULE WITH DIGITAL DISPLAY

PRODUCT INTRODUCTION

D7/E7 DIN rail mounted module with digital display has installation width of only 22.5mm, which is designed for ten years life at least and three-year warranty. It is widely used in occasions that need to save space, to collect data and control temperature, pressure, humidity and etc.

FUNCTIONS AND FEATURES

- With digital display and physical buttons, which allows data checking and operation setting on module.

- 22.5mm installation width, widely used in occasions that need to save space.

- Special custom LED display, perfect dual 4-digit display in limited space.

- Products designed for ten years life at least and three-year warranty.

- One channel L0 relay output and RS485 communication integrated, convenient for users.

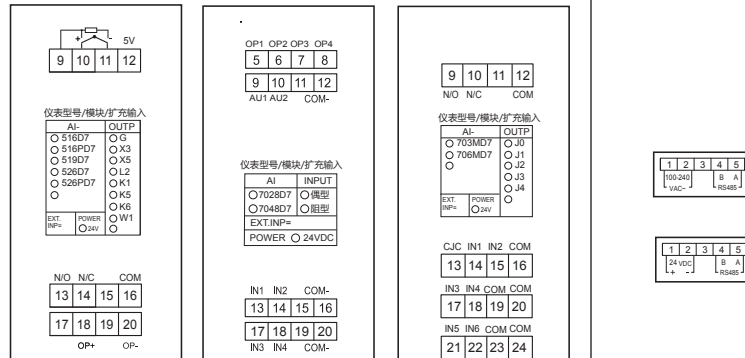- D7 Terminals for power and communication share one-wire port for plug and unplug.

MODEL SELECTION AND SPECIFICATIONS

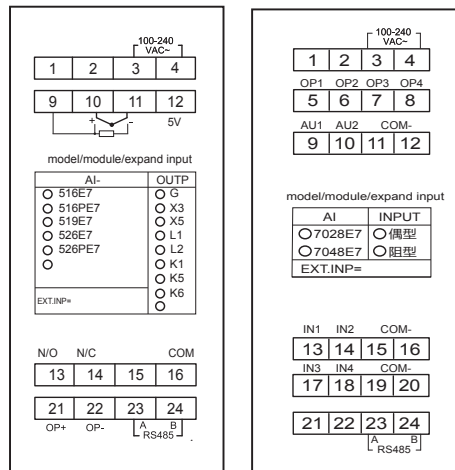| Type	Model	Function Specifications
Single channel PID temperature controller	AI – 516D7 AI – 516E7	0.3%FS measuring accuracy, AIBUS/MODBUS dual communication protocol, modular OUTP optional: G, X5, L2, K1, K5, K6, W1
	AI – 516PD7 AI – 516PE7	based on AI-516D7/AI-516E7, 30 segments programmable function is added
	AI – 519D7 AI – 519E7	0.250.25%FS measuring accuracy, hand-auto switching, soft-start, AIBUS/MODBUS dual communication protocol, modular OUTP optional: G, X5, L2, K1, K5, K6, W1
	AI – 526D7 AI – 526E7	0.25%FS measuring accuracy, heating and cooling dual PID output, AIBUS/MODBUS dual communication protocol, modular OUTP optional: G, X5, L2, K1, K5, K6, W1
	AI – 526PD7 AI – 526PE7	based on AI-526D7/AI-526E7, 30 segments programmable function is added
Multi-channel PID temperature controller	AI – 7028D7 AI – 7028E7	2-channel PID temperature controller, 0.2%FS measuring accuracy, SSR output, thermocouple input(two-wire Pt100 customized)
	AI – 7048D7 AI – 7048E7	4--channel PID temperature controller, 0.2%FS measuring accuracy, SSR output, thermocouple input(two-wire Pt100 customized)
Multi-channel indicator	AI – 703MD7J0	3-channel indicator, 0.2%FS measuring accuracy, 3 channels three-wire Pt100 input, with subtraction and multiplication calculation functions
	AI – 706MD7J1	6-channel indicator, 0.2%FS measuring accuracy, 6 channels thermocouple input, with subtraction and multiplication calculation functions
	AI – 706MD7J2	6-channel indicator, 0.2%FS measuring accuracy, 6 channels two-wire Pt100 input, with subtraction and multiplication calculation functions
	AI – 706MD7J3	6-channel indicator, 0.2%FS measuring accuracy, 6 channels voltage input, with subtraction and multiplication calculation functions
	AI – 706MD7J4	6-channel indicator, 0.2%FS measuring accuracy, 6 channels current input,with subtraction and multiplication calculation functions

DIMENSIONS

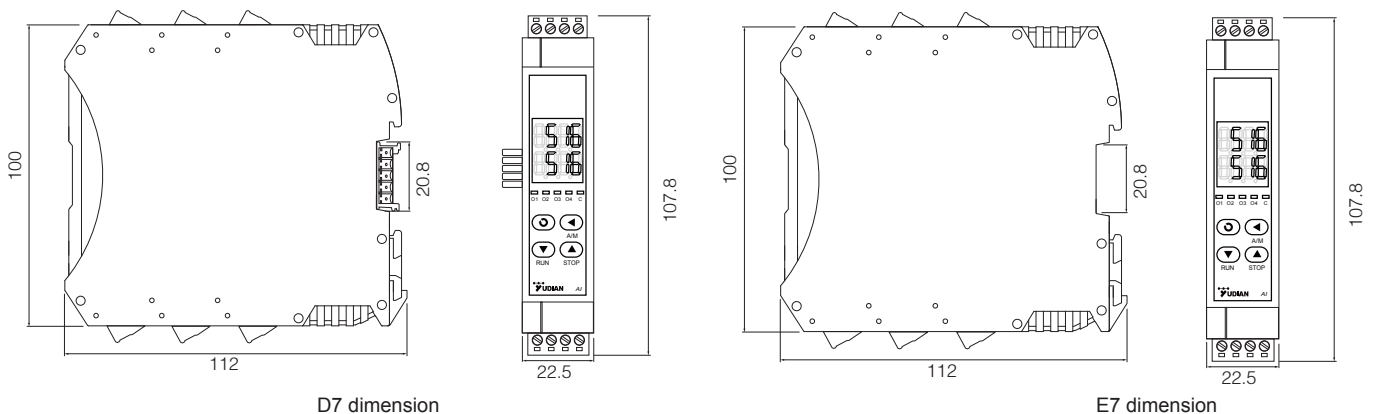### D7 WIRING DIAGRAM (AI-516/516P, AI-519, AI-526/526P, AI-7028, AI-7048, AI-703M, AI-706M)

	5V
9	10	11	12

仪表型号/模块/扩充输入

AI-	OUTP
○ 516D7	○ G
○ 516PD7	○ X3
○ 519D7	○ X5
○ 526D7	○ L2
○ 526PD7	○ K1
○	○ K5
	○ K6
EXT. INP=	○ W1
POWER ○ 24V	

N/O	N/C	COM	
13	14	15	16
17	18	19	20

OP+ OP-

OP1	OP2	OP3	OP4
5	6	7	8
9	10	11	12

AU1 AU2 COM-

仪表型号/模块/扩充输入

AI	INPUT
○ 7028D7	○ 偶型
○ 7048D7	○ 阻型
EXT.INP=	
POWER ○ 24VDC	

IN1	IN2	COM-	
13	14	15	16
17	18	19	20

IN3 IN4 COM-

9	10	11	12

N/O N/C COM

仪表型号/模块/扩充输入

AI-	OUTP
○ 703MD7	○ J0
○ 706MD7	○ J1
○	○ J2
	○ J3
EXT. INP= POWER	○ J4
○ 24V	○

CJC	IN1	IN2	COM
13	14	15	16

IN3 IN4 COM COM

17	18	19	20

IN5 IN6 COM COM

21	22	23	24

input and output wiring

1	2	3	4	5
100-240 VAC~			B	A
			RS485	

1	2	3	4	5
24 VDC + -			B	A
			RS485	

power and communication

E7 WIRING DIAGRAM (AI-516/516P, AI-519, AI-526/526P, AI-7028, AI-7048)

1	2	3	4

100-240 VAC~

9	10	11	12

5V

model/module/expand input

AI-	OUTP
○ 516E7	○ G
○ 516PE7	○ X3
○ 519E7	○ X5
○ 526E7	○ L1
○ 526PE7	○ L2
○	○ K1
	○ K5
EXT. INP=	○ K6
	○

N/O	N/C		COM
13	14	15	16
21	22	23	24

OP+ OP- A B RS485

1	2	3	4

100-240 VAC~

OP1	OP2	OP3	OP4
5	6	7	8

AU1 AU2 COM-

9	10	11	12

model/module/expand input

AI	INPUT
○ 7028E7	○ 偶型
○ 7048E7	○ 阻型
EXT.INP=	

IN1	IN2	COM-	
13	14	15	16

IN3 IN4 COM-

17	18	19	20

21	22	23	24

A B RS485

外形尺寸图：

100
20.8
112
107.8
22.5

D7 dimension

100
20.8
112
107.8
22.5

E7 dimension

SSR SERIES SOLID STATE RELAY

PRODUCT INTRODUCTION

SSR series solid state relay produced by Yudian adopts constant current drive circuit for high-end relays. The typical drive current is constant at 5~6mA, with low power consumption and high reliability. With the photoelectric coupling zero-crossing trigger, it has the advantages of small interference to the power grid and high insulation withstand voltage. The output adopts a varistor to absorb the peak voltage of the power grid, and the leakage current is small and can be used reliably for a long time.

FUNCTIONS AND FEATURES

- Input voltage: 3V~32V
- Input current: ≤8mA
- Turn-off voltage: ≥1.2V
- Control mode: zero-crossing trigger
- State voltage drop(Vpk): ≤1.2V
- Leakage current: ≤2mA
- Response time: <10ms
- Installation: bolting

- Insulation strength: ≥2500V
- Insulation resistance: ≥100M
- Rate of voltage index rise(dv/dt): ≥500VUS
- Work instruction: LED light
- Work temperature: -20℃~80℃
- Shell: inflaming retarding& insulating
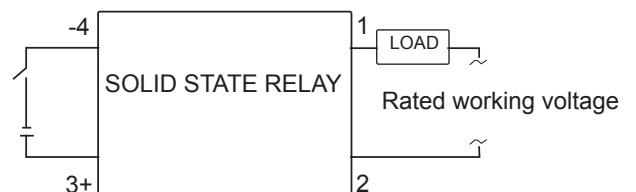- Weight: 85g

MODEL & SPECIFICATION

Model	Rated Current	Rated working voltage
SSR12	12A	24~240VAC
SSR15	15A	24~240VAC
SSR20	20A	24~240VAC
SSR25	25A	24~240VAC
SSR40	40A	24~240VAC
SSR40H	40A	24~415VAC

ATTENTION: Heat sink optional

INSTALLATION DIMENSION
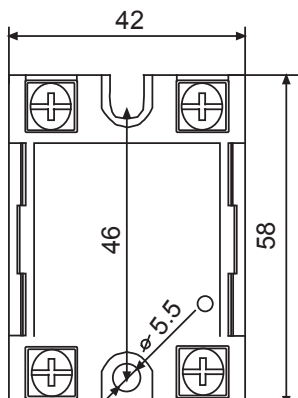
WIRING DIAGRAM

INTELLIGENT PROGRAMMABLE TEMPERATURE TRANSMITTER/ SIGNAL ISOLATOR

PRODUCT INTRODUCTION

AI-7011/7021 intelligent programmable temperature transmitter/signal isolator, supports input signal: thermocouple, RTD, mV signal and 4~20mA/0~20mA by precision resistors parallel, with digital filtering function, and supports output signal: 4~20mA/0~20mA. AI-7021 can be used as 2 pcs independent transmitters or signal isolators to save the cost and installation space.

7011D5
[1 IN 1 OUT]

7021D5
[2 IN 2 OUT]

FUNCTIONS AND FEATURES

- DIN rail mounted type, 22.5mm installation width.
- Adopt high-performance components, significantly reduce temperature shift and mutual interference between channels.
- Digital-correct current output, no potentiometer, improved the accuracy and stability for current output.
- Can be programmed by E8 handheld display with 1394 wiring, such as input type, define range of retransmission output.

TECHNICAL SPECIFICATIONS

- power supply
  100~240VAC/50Hz+10%, -15% or 24VDC/AC optional
  power consumption: ≤3W
- input:
  thermocouple: K, S, R, E, J, T, B, N, WRe5-WRe26
  RTD: Pt100, Cu50
  liner voltage: 0~20mA, 0~60mV, 0~100mV, 0~1V, 0.2~1V,
          -20~+20mA, -10~+100mV and etc.
- measure range:
  K(-50~+1300℃), S(-50~+1700℃), R(-50~+1700℃),
  T(-200~+350℃), E(0~+1000℃), J(0~+1200℃),
  B(0~+1800℃), N(-50~+1300℃), WRe5~WRe26(0~+2300℃),
  Pt100(-200~+900℃).

- transmit accuracy: ±0.3%FS±1(including input and output deviation)
- temperature shift: ≤0.015%FS/℃
          (including input and output deviation)
- electromagnetic compatibility: IEC6100-4-4(EFT), ±4KV/5KHz;
          IEC61000-4-5(electrical surge), 4KV
- isolated withstand voltage:
  power, input and output ≥2300VDC
  input and 2 channels output ≥200VDC
- output:
  freely define in 0~22mA, max output voltage≥11V
- operating environment: -10~+60℃, 0~90%HR

Note: B type thermocouple supports measuring range of 60~400℃
    but accuracy can't meet standard, except for 400~1800℃.

MODUEL DEFINITION

AI-7011D5 single channel temperature transmitter/signal isolator

AI-7021D5 dual-channel temperature transmitter/signal isolator

WIRING DIAGRAM

AI-7011D5	AI-7021D5
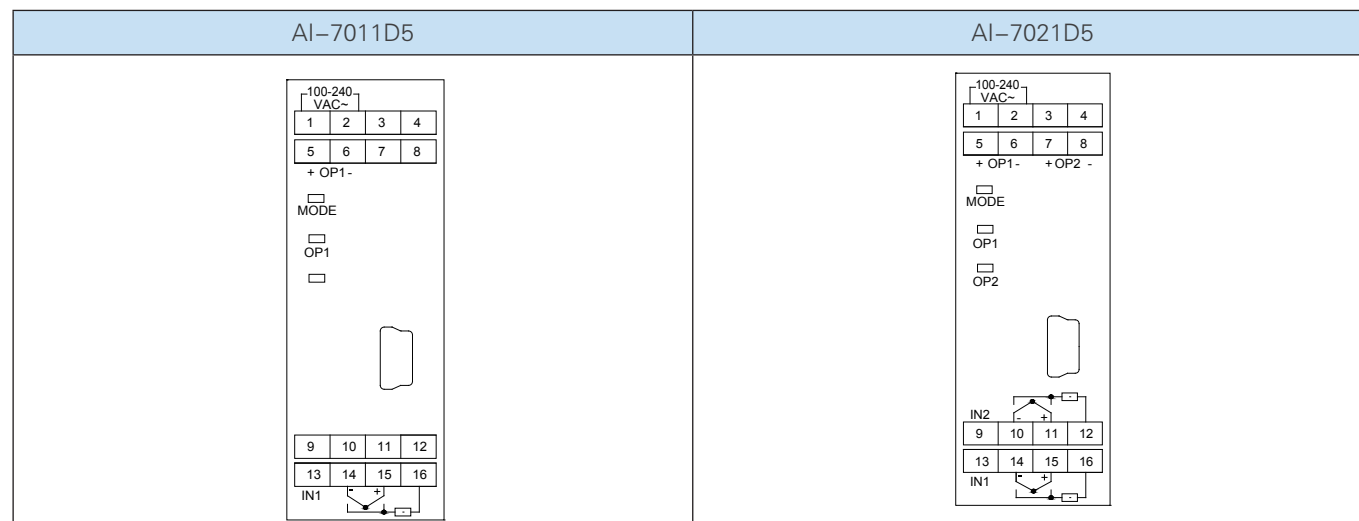
AI–MODBUS CONVERTER

PRODUCT INTRODUCTION

AIBUS communication protocol is developed by Yudian, which is simpler and faster than MODBUS protocol. For example: it takes only 20ms to read 3 common variables and 1 parameter in 19.2K baud rate, which is 2~10 times faster than MODBUS. Yudian developed AI-MODBUS converter to realize communication between MODBUS and AIBUS protocol by one single bus and make two different protocols compatible. AI-MODBUS converter supports 4 subcommands by MODBUS protocol, and adopts RTU mode which supports 03H, 04H and 10H.
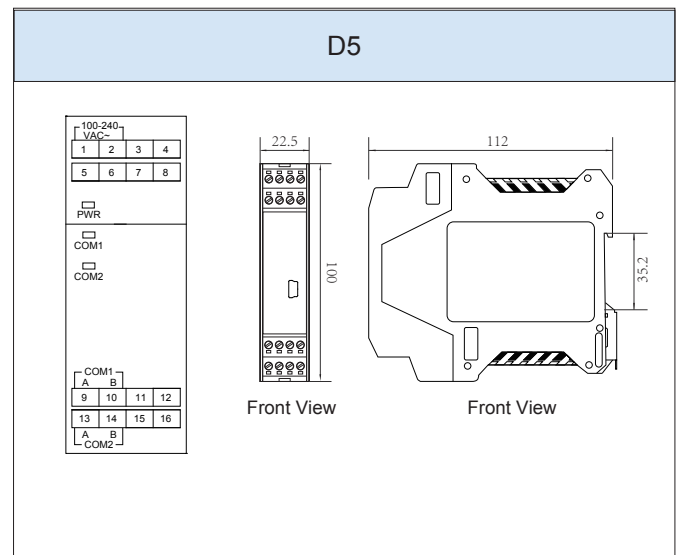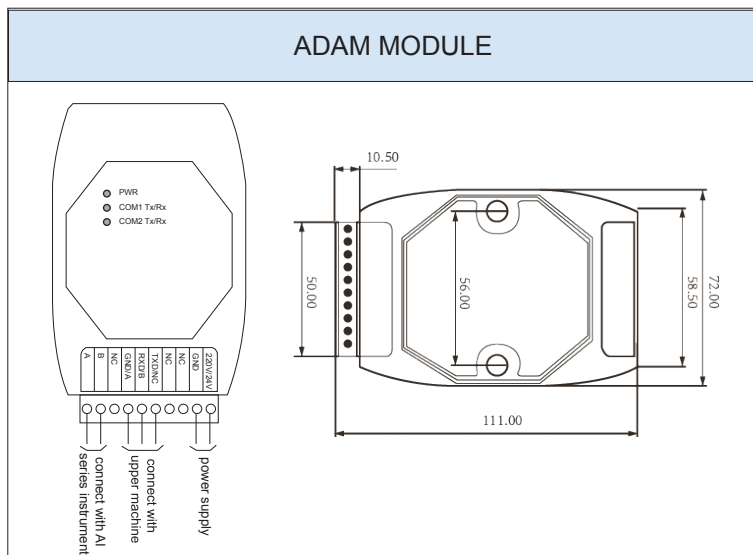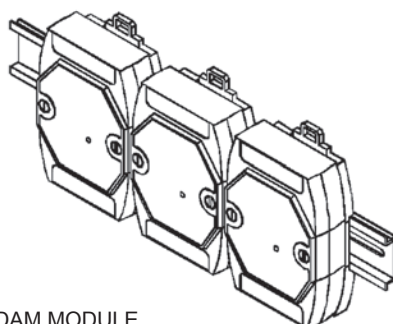
ADAM MODULE   D5

MODEL SELECTION AND SPECIFICATIONS

AI -		- ☐	- ☐	- ☐	- ☐	Specifications
Model	MODBUS					AI-MODBUS converter
Interface		R				Instrument: RS485 interface, upper machine: RS232 interface
		S				Instrument: RS485 interface, upper machine: RS485 interface
Panel size						Adam module, DIN rail mounted
			D5			22.5mm width, DIN rail mounted
Power						Default 100~240VAC
				24V		24VDC

DIMENSIONS AND WIRING DIAGRAM

ADAM MODULE	D5

ADAM MODULE

D5

Front View   Front View

INSTALLATION DIAGRAM

ADAM MODULE
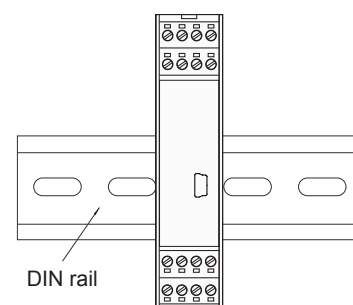
D5 vertical installation diagram