



FAB Series PLC



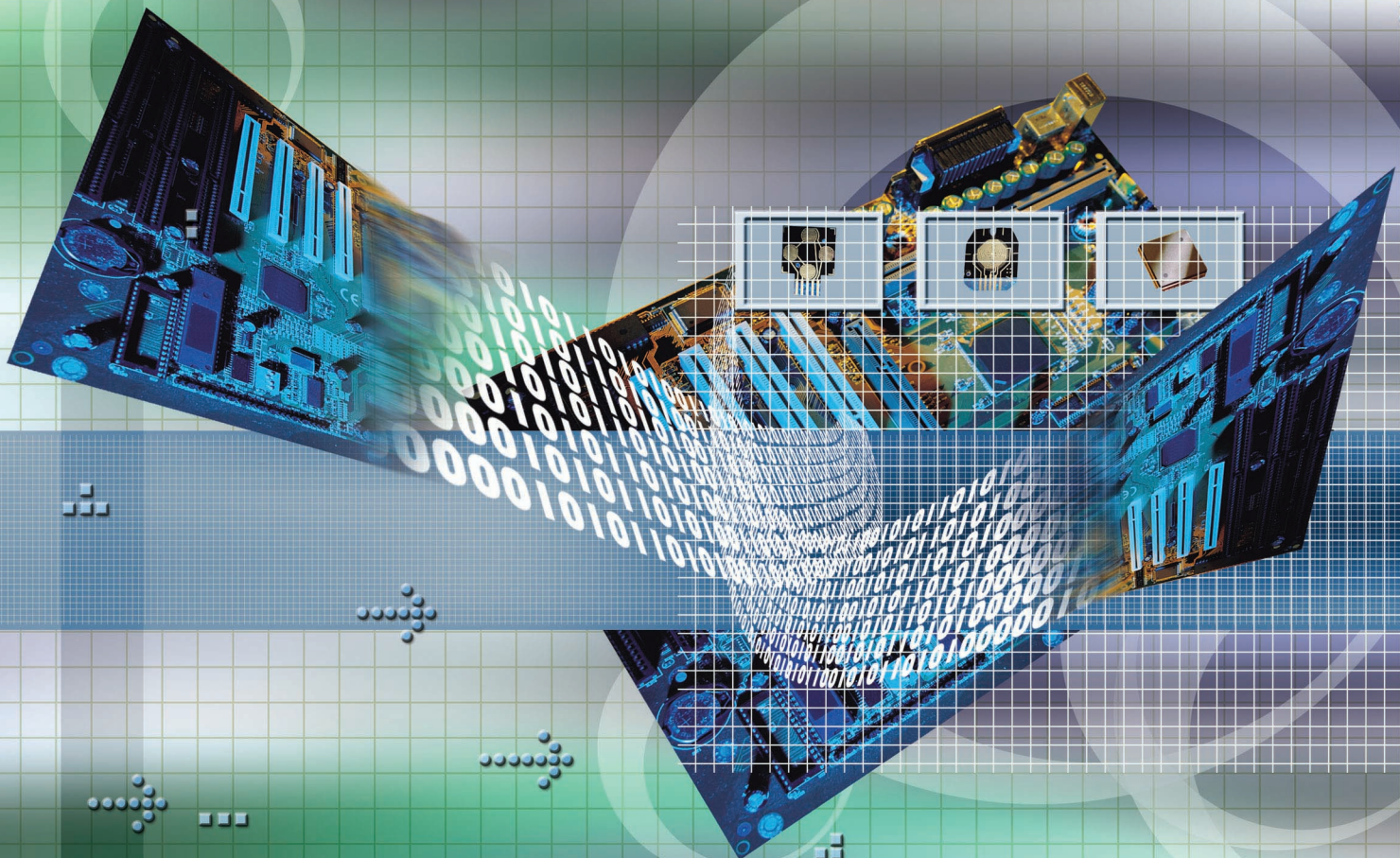
SR Series PLC



APB Series PLC



SH Series Text Panel



SP Switching Power Supply



TC Timer-Counter



TS Digital Time Switch



Distributed Control System

# Brochure

Micro-Automation and Control Products



## FAB Series PLC

- ➔ CE approval
- ➔ 485 network
- ➔ Analog inputs
- ➔ SCADA monitoring
- ➔ Support ARRAY Text Panel
- ➔ Real-time clock and password protection
- ➔ Auto-dialing for alarm and voice broadcasting
- ➔ FB programming and strong program storage capacity
- ➔ Removable programming panel with Liquid Crystal Display
- ➔ Free programming QUICK II software

## Product Models

Type	Power Supply	Input	Output
AF-10MR-A	AC100-240V	6 points AC input	4 points relay output
AF-10MR-E	AC/DC12-24V	6 points AC/DC input	4 points relay output
AF-10MT-E	DC12-24V	6 points DC input	4 points transistor (NPN) output
AF-10MR-D	DC12-24V	6 points DC input (with analog)	4 points relay output
AF-10MT-D	DC12-24V	6 points DC input (with analog)	4 points transistor (NPN) output
AF-10MT-GD	DC12-24V	6 points DC input (with analog)	4 points transistor (PNP) output
AF-20MR-A	AC100-240V	12 points AC input	8 points relay output
AF-20MR-E	AC/DC12-24V	12 points AC/DC input	8 points relay output
AF-20MT-E	DC12-24V	12 points DC input	8 points transistor (NPN) output
AF-20MR-D	DC12-24V	12 points DC input (with analog)	8 points relay output
AF-20MT-D	DC12-24V	12 points DC input (with analog)	8 points transistor (NPN) output
AF-20MT-GD	DC12-24V	12 points DC input (with analog)	8 points transistor (PNP) output

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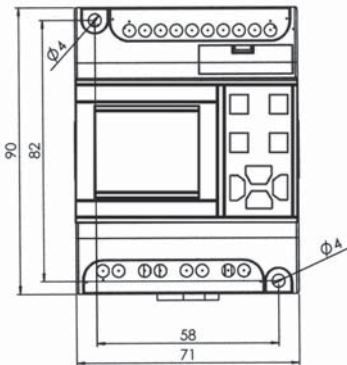
## Product Accessories

AF-MUL-A/D	Telephone voice module (AC/DC Type)	AF-C485	The cable between FAB and RS485 bus (side-plug/direct-plug type )
AF-LCD	The removable LCD panel for programming	/D485	
AF-C232 /D232	The cable between FAB and PC (side-plug/direct-plug type)	AF-P485	The adapter between PC and RS485 bus
		AF-S485	The adapter between RS232 and RS485 (standard DIN-rail installation)
AF(SR)-USB	The adapter between USB and RS232 (standard DIN-rail installation)	AF-AUD	The recording wire between the PC sound card and AF-MUL-A/D
AF_DUSB	The cable between FAB and PC USB port (FIDI232 driver)	AF-COPY	FAB programmable Copy Module

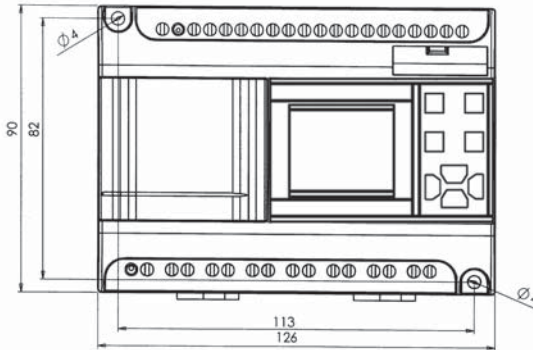
## Technical Parameters

Item	Standard	Condition
<b>Climatic environment</b>		
Humidity	Cold: IEC-68-2-1 Hot: IEC68-2-2	
Horizontal installation Vertical installation		-20°C ~ 70°C -20°C ~ 70°C
Store/Transportation		-40°C ~ +70°C
Relative humidity	IEC68-2-30	5% ~ 95%, without condensation
<b>Mechanical environment</b>		
Protection type		IP20
<b>EMC(Electromagnetic compatibility)</b>		
Static discharge	Severe grade 3	8KV (air discharge) 6KV (contact discharge)
Electromagnetic field	IEC801-1	Field density 10V/m
Anti-interference	EN55011	Limit class B1
Shock pulse	IEC801-4 Severe grade 3	2KV (power line) 2KV (signal line)
<b>Features</b>		
Real time clock accuracy		Max. ± 5S/day
25°C clock buffer		Typ.100 hours
Programming blocks		127 blocks
Communication interfaces		232 interfaces
485 networking		Self-defined protocol, 32 FABs (without anrepeater)
Recording sections of the voice module		Max. 99 segments , any lenth for each segment (with a total length of 8 minutes)

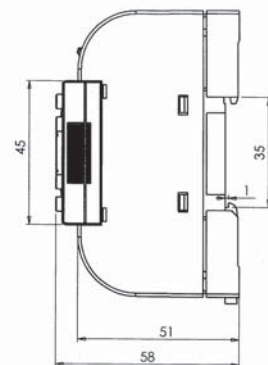
## Installation Dimensions



AF-10(mm)



AF-20(mm)



## SR Series PLC



- ➔ UL/CE approval
- ➔ Wireless remote control
- ➔ Support ARRAY Text Panel
- ➔ Removable panel and cost-saving
- ➔ Power failure protection (customized function )
- ➔ More compact, more powerful, lexible connection/EHC
- ➔ Provid one 1k high-speed input port ( customized function )
- ➔ 30 function blocks, the total amount of function blocks reach 128
- ➔ Telephone remote control, automatic dialing alarm and voice broadcasting
- ➔ I/O can be extended freely, the optimum configuration can be 50DI, 30DO, 8AI
- ➔ Provid 64 Human-machine Interfaces, and the parameters can be displayed and modified directly

## Product Models

Type	Power Supply	Input	Output
SR-12MRAC	AC100-240V	8 points AC digital input	4 points relay output
SR-12MRDC	DC12-24V	8 points DC digital input (6 points AI)	4 points relay output
SR-12MTDC	DC12-24V	8 points DC digital input (6 points AI)	4 points transistor (NPN) output
SR-12MGDC	DC12-24V	8 points DC digital input (6 points AI)	4 points transistor (PNP) output
SR-22MRAC	AC100-240V	14 points AC digital input	8 points relay output
SR-22MRDC	DC12-24V	14 points DC digital input (8 points AI)	8 points relay output
SR-22MTDC	DC12-24V	14 points DC digital input (8 point AI)	8 points transistor (NPN) output
SR-22MGDC	DC12-24V	14 points DC digital input (8 point AI)	8 points transistor (PNP) output
SR-20ERA	AC100-240V	12 points AC digital input	8 points relay output
SR-20ERD	DC12-24V	12 points DC digital input	8 points relay output
SR-20ETD	DC12-24V	12 points DC digital input	8 points transistor (NPN) output
SR-20EGD	DC12-24V	12 points DC digital input	8 points transistor (NPN) output

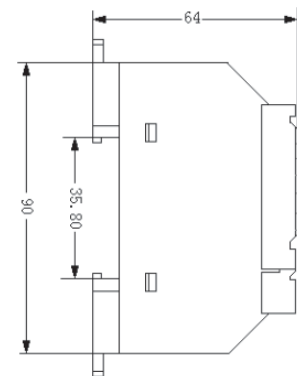
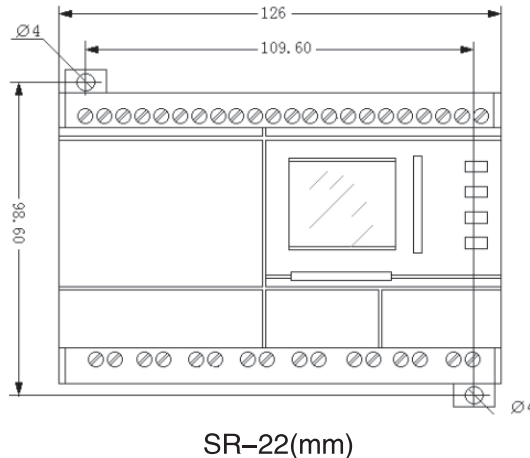
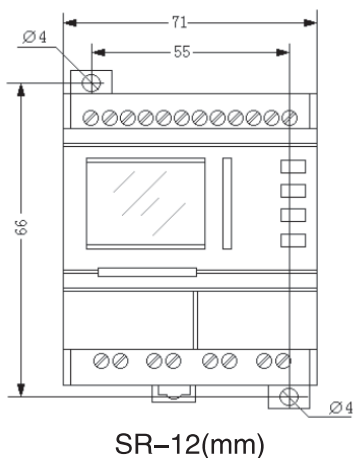
## Product Accessories

SR-VPA/D	Telephone voice module (AC/DC Type)	SR-HMI	Monitoring panel
SR-RCA/D	Remote receiving module (AC/DC Type)	SR-WRT	Programming panel
SR-TC	Remote transmitter	SR-TP	Communication wire between SR and SH300
SR-EANT	Remote lengthened antenna	SR-ECBA/D	Lengthened connecting wire (AC/DC Type)
SR-CP/DCP	The cable between SR and PC(side-plug/ direct -plug type)	SR_DUSB	The cable between SR and PC USB port (FTDI 232 driver)
SR-EHC	Remotely connect SR main machine with SR-HMI	SR-AUD	The recording wire between the PC sound card and SR-VPA/D

## Technical Parameters

Item	Standard	Condition
Climatic environment		
Humidity	Cold: IEC-68-2-1 Hot: IEC68-202	
Horizontal installation Vertical installation		-20°C ~ 70°C -20°C ~ 70°C
Store/transportation		-40 ~ +70°C
Relative humidity	IEC68-2-30	5% ~ 95%, without condensation
Mechanical environment		
Protection type	54	IP20
EMC(Electromagnetic compatibility)		
Static discharge	Severe grade 3	8KV air discharge, 6KV contact discharge
Electromagnetic field	IEC801-1	Field density 10V/M
Anti-interference	EN55011	Limit class B1
Shock pulse	IEC801-4 Severe grade 3	2KV (power line) 2KV (signal line)
Features		
Real time clock accuracy	Max. ± 5S/day	
25°C clock buffer	Typ.100 hours	
Programming blocks	128 blocks	
Work frequency of Remote Control Module	VHF(310 ~ 340MHz) UHF(415 ~ 460 MHz)	
Control distance of Remote Control Module	≤ 70m	
Work voltage of Remote Control Module	DC3V(two AA batteries)	
Recording sections of the voice module	Max. 100 segments , any length for each segment ( less than 15 seconds for each segment and 8 minutes in total )	

## Installation Dimensions



## SH Text Panel

- ➔ UL/CE approval
- ➔ Multiple password protection
- ➔ Have 14 keys, which can be operated and replaced some mechanical keys
- ➔ Support multiple communication interface mode, including RS232/485/422
- ➔ Alarm list for displaying alarming information line by line in real time
- ➔ Multi-language displaying function and user-defined information
- ➔ Support multipoint PLCs to realize 1:N ( $\leq 256$ ) communication
- ➔ STN-LCD with back light display, showing 24 English characters  $\times$  4rows
- ➔ Support various PLCs, such as Mitsubishi, Omron, Panasonic, Delta, Siemens, AB PLC series etc.



## Product Specifications

### Technical Parameters

Display screen	4.3" SNT LCD
Resolution	192 x 64 pixels
LCM life	With $25 \pm 2^\circ\text{C}$ , $65 \pm 10\%$ RH over 50000 hours
Brightness	$60\text{cd}/\text{m}^2$
Color	Monochrome
Contrast	Adjustable resistor
Background light	Long life LED
Memory	110KB Flash ROM
Communication port	PC RS232 & PLC RS485/422 & PLC RS232
Function button	14 self-definable keys
Allowable power disruption	$\leq 20\text{ms}$
Frame dimension	$171.8 \times 98.8 \times 38.6\text{mm}$
Display dimension	$96 \times 32\text{mm}$
Installation hole dimension	$165 \times 85\text{mm}$
Cooling method	Natural air cooling
Weight	260g

### Electric Specifications

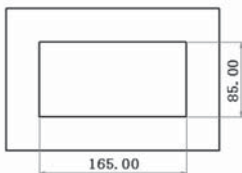
Power voltage	$12 \sim 24\text{VDC} \pm 10\% < 300\text{mA}$
Withstanding voltage	500VAC 1 minute (between signal and GND)
Insulation resistance	Over $10\text{M}\Omega$ @ DC500V (between signal and GND)

### Environmental Conditions

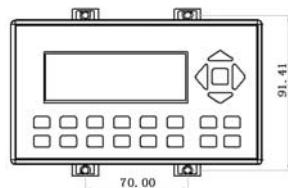
Operation ambient temperature	$10^\circ\text{C} \sim 60^\circ\text{C}$
Operation ambient humidity	20%RH~90%RH(no condensation)
Storage temperature	$-20^\circ\text{C} \sim +70^\circ\text{C}$
Anti-jamming test	Voltage $1500\text{Vp-p}$ , pulse period $1\mu\text{s}$ , continuing 1s
Vibration resistance	$10 \sim 25\text{Hz}$ (2G for 30 min, in any of X,Y,Z axis)
Protection degree	IP65(the front panel)

## Installation Dimensions

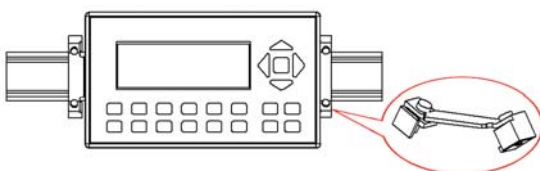
### Flush mounting



### Screw mounting



### DIN rail mounting



## Pin Definition

Pin	Definition
1	TD+
2	RXD
3	TXD
4	VCC(+5V)
5	GND
6	TD-
7	RTS
8	RD-
9	RD+

## Brochure Micro-control

Sales expertise for your applications requirements



### Digital/analog input and high-speed counting

The DC main machine provides 8 analog inputs (I0 ~ I1/0 - 10VDC, A0 ~ A1/4 - 20mA) and 2 high-speed digital outputs at most (Q2 ~ Q3/10KHZ).

### Small size and flexible extension

I/O can be extended to The max. 112DI, 62DO, 2AI, 2AO. And the user can realize the flexible application of the controller with the APB-EXPMC communication extension module.

### Self-define menu multi-language switching

Both APB PLC and its programming software support many languages, such as Chinese, Japanese, English, German, French, and Russian.

### PNP/NPN input

It can receive PNP/NPN sensor signals directly, No more time-consuming rewiring.

### Date Retentivity

Retain the current data after power failure and resume operation at the break point, and ensure the equipments operate safely and reliably.

### 43 FBDs, 320 blocks capacity

APB software integrates 10 basic function blocks and 33 special function blocks. Thus various control circuits can be constructed simply and conveniently.

### Easy programming, simulation and monitoring

By the offline simulation and the online monitoring to modify the variable parameters to save cost and time with FBD programming.

### Converting the summer/winter time

Reduce the required changes and maintenance.

### SMS module and remote control

Fault alarm and remote monitoring through the SMS message, and it can read and modify I/O, register and DW status.

### Password protection

Multiple level password protection, to increase the system security.



## APB Series PLC

- ➔ CE approval
- ➔ Power failure protection
- ➔ Analog input and output
- ➔ High-speed counting input and output
- ➔ New function blocks as PWM, PTO, acceleration/deceleration single-phase pulse, SMS and analog calculation etc.
- ➔ SMS module
- ➔ Real-time clock
- ➔ Password protection
- ➔ Flexible extended function (1141, 640)
- ➔ 320 FBDs logic function blocks MODBUS protocol
- ➔ Small-sized multi-language displaying LCD panel

## Product Models

Type	Power Supply	Input	Output
APB-12MRD(L)	DC12-24V	8 points DC (8 points AI, I4-I7 can be high-speed ports)	4 points relay output
APB-12MTD(L)	DC12-24V	8 points DC (8 points AI, I4-I7 can be high-speed ports)	4 points NPN transistor output Q2, Q3 can be high-speed ports
APB-12MGD(L)	DC12-24V	8 points DC (8 points AI, I4-I7 can be high-speed ports)	4 points PNP transistor output Q2, Q3 can be high-speed ports
APB-12MRA(L)	AC100-240V	8 points AC input	4 points relay output
APB-22MRA(L)	AC100-240V	14 points AC input	8 points relay output
APB-22MRD(L)	DC12-24V	14 points DC input (the first 12 points can be AI, I4-I7 can be high-speed ports)	8 points relay output
APB-22MTD(L)	DC12-24V	14 points DC input (the first 12 points can be AI, I4-I7 can be high-speed ports)	8 points NPN transistor output Q2, Q3 can be high-speed ports
APB-22MGD(L)	DC12-24V	14 points DC input (the first 12 points can be AI, I4-I7 can be high-speed ports)	8 points PNP transistor output Q2, Q3 can be high-speed ports
APB-24MRDL	DC12-24V	2 points for current 4~20mA input, and 14 points for digital input (the first 12 points can be 0~10V analog inputs); I4-I7 can be high-speed ports	6 points relay output + 2 current 4~20mA outputs
APB-22ERA	AC100V-240V	14 points digital input	8 points relay output
APB-22ERD	DC12V-24V	14 points digital input	8 points relay output
APB-22ETD	DC12V-24V	14 points digital input	8 points NPN transistor output
APB-22EGD	DC12V-24V	14 points digital input	8 points NPN transistor output

## Product Accessories

APB-232	Communication cable between APB with PC RS232
APB-DUSB	Communication cable between APB with PC USB
APB-EXPMC	APB communication extension module
APB-SMS	Send alarming information, query and set APB parameters
APB-ECB	Remotely connect the host with extension module (about 70cm)

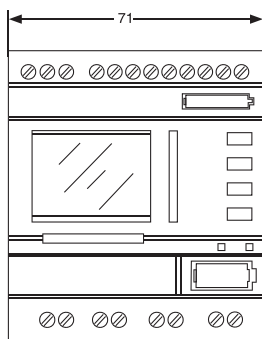


## Technical Parameters

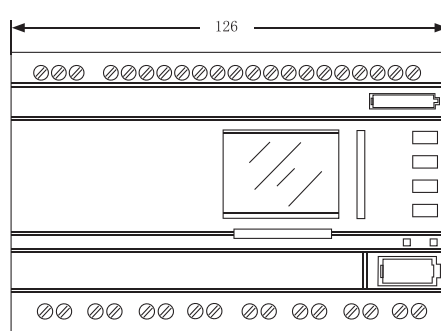
Item	Content
Surge immunity	2kv(common mode), 1kv(differential mode), Level 3 (IEC61000-4-5)
Electrostatic discharge (outer casing)	± 8kv(air discharge)/ ± 6kv(contact discharge), Level 3 (IEC61000-4-5)
Ambient temperature	-10°C ~ +55°C
Storage temperature	-40°C ~ +70°C
Ambient humidity	5% ~ 95%RH
Protection degree	IP20 (Non-waterproof)
Installation	Fixing with M3 screws or Standard DIN rail mounting
Dimensions (mm)	71*99*90 ( 12 points); 126*99*90 ( 22 points); 126*99*90(24 points)
Programming language	FBD
I/O	12 points/22 points/24 points/supporting 7 I/O extension modules
Memory capacity	320 FBDs
Filtering duration of input signal	It can be set to improve the stability of signals.
Real-time clock	160h and a Li-ion battery can be placed when necessary
Password protection	Multiple passwords protection
High-speed operation	At most 4 high-speed inputs 10KHz, and 2 high-speed outputs 10KHz
Analog operation	At most 12 voltage 0~10V and 2 current 4~20mA analog inputs, and 2 analog outputs
Power failure protection	Yes
Simulate monitoring	Yes
Communication interface	TTL interface; besides, communication module supports 2*RS485 and 1*RS232 interfaces
Baud rate	9600bps
Communication protocol	MODBUS RTU

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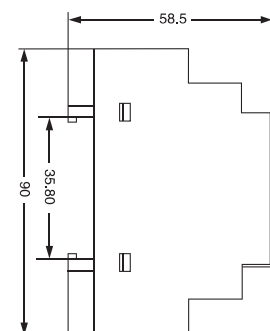
## Installation Dimensions

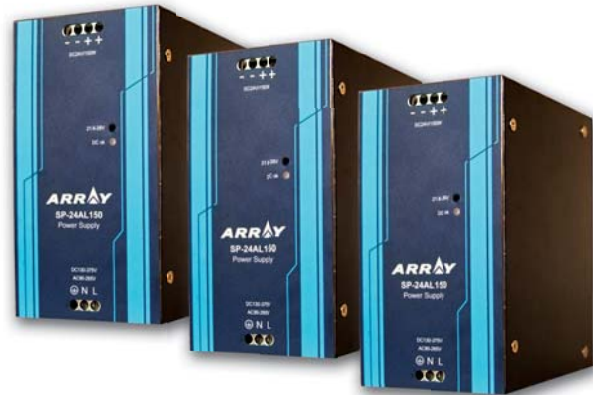


APB-12(mm)



APB-22(mm)





### Low power supply

- ➔ Soft-start function
- ➔ Built-in EMI filter
- ➔ fine-tune the load current
- ➔ Short-circuit and over-load protection
- ➔ Remote Control and UPS Function
- ➔ DIN-rail (EN50022-35)

### 150W power supply

- ➔ Natural cooling
- ➔ DIN-rail
- ➔ UPS function
- ➔ Weight: 1000g
- ➔ Short-circuit/over-heat/over-voltage protection
- ➔ High efficiency, high power factor and high reliability

### Product Specifications

Type	SP-05AS	SP-12AS	SP-24AS	SP-05AL	SP-12AL	SP-24AL	SP-24L150W
Output voltage	5V ± 10%	12V ± 10%	24V ± 10%	5V ± 10%	12V ± 10%	24V ± 10%	DC21.6~28V
Factory setting	DC5V	DC12V	DC24V	DC5V	DC12V	DC24V	DC24V
Output current	6A	3A	1.5A	10A	6A	3A	6.25A ± 5%A
Output Ripple	≤ 150mVp-p						≤ 80mVp-p
Output over-voltage protection	None						Max.37vdc
AC input voltage range	AC 85~265V						AC90~265V
DC input voltage range	DC 130~375V						DC130~375V
Power Factor	0.53	0.53	0.55	0.53	0.56	0.56	Typ.0.99
Efficiency	75%	80%	84%	71%	81%	86%	Typ.91.5%



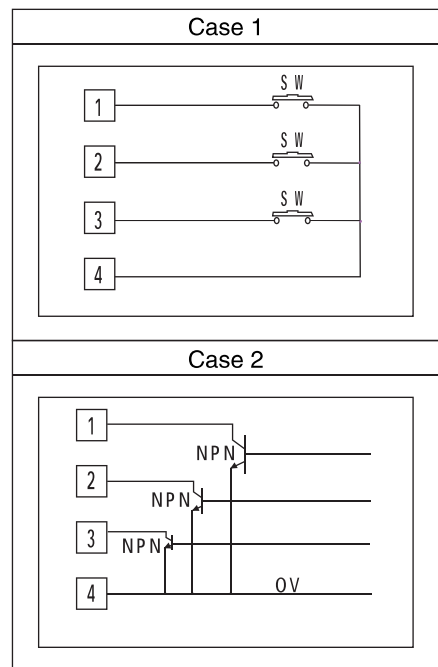
## 2400 Timer-counter

- ➔ 8-digital LCD( 8mm high)
- ➔ Manual Reset and External Reset
- ➔ Unique battery cover design for easy battery replacement
- ➔ Programmable reset button to prevent wrong-button push
- ➔ 23 functions (15 Timer functions, 6 Counters, Frequency Meter and Tachometer)

## Technical parameters

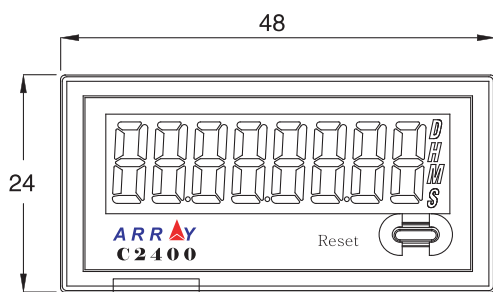
Item	C2400
Size	48 × 24 × 45.7 (unit: MM)
Timer range	0–99999999 (when set unit is S)
Counter range	0–99999999
Response frequency range	2.5Hz~1300Hz
RPM range	150~78000 (unit: Round/minute)
Power Supply	1.5V GP910A
Operation temperature	-10°C~55°C
Screw type	M3
Front panel waterproof protection	IP66
Rear panel waterproof protection	IP20
Vibration	IEC60068-2-6
Electrostatic discharge	IEC1000-4-2 (4KV Air/2KV contact)
Electromagnetic field	IEC1000-4-3 (field strength 10V/m, frequency 80MHz~1GMHz)
Shock pulse	IEC1000-4-4 (1KV input)
Weight	About 33g
Opening size	45 × 22 (unit: MM)

## Wiring example

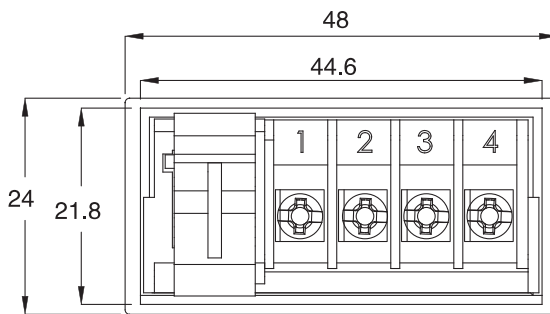


- 1 — External reset terminal
- 2 — Reset button
- 3 — signal input terminal
- 4 — Common line

## Installation Dimensions



Front view



Side view

## 48X Timer-Counter



- ➔ 6–digital LCD with back light display
- ➔ Conform to the key design of ergonomics
- ➔ Five Key protection modes:KP–1~KP–5
- ➔ NPN/PNP switchable DC–voltage input
- ➔ Support R232/485/422 Communication Interface
- ➔ EEPROM (overwrites:100,000 times min. )
- ➔ Support MOBUS protocol and applied toconnect HMI/ text panel/OPC/user–defined software
- ➔ 12VDC external supply power can drive the external optical sensors, such as encoder, infrared switches etc.

## Product Models

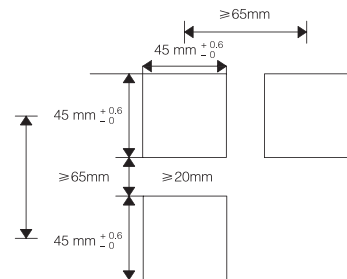
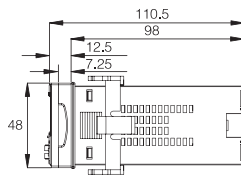
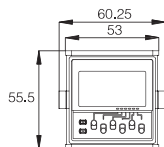
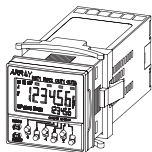
TC-Pro 48 ①②③④-⑤	1-Model	2-Communication	3-Output	4-Supply voltage	5-Mounting method
	Timer/counter Timer and counter	S: Standard C: Communication	R: Relay T: Transistor	AC100V~240V AC/DC24V	D: DIN-track mounting None: flush mounting
TC-Pro480 SRA	TC-Pro481 SRA			TC-Pro482 SRA	
TC-Pro480 SRD	TC-Pro481 SRD			TC-Pro482 SRD	
TC-Pro480 STA	TC-Pro481 STA			TC-Pro482 STA	
TC-Pro480 STD	TC-Pro481 STD			TC-Pro482 STD	
TC-Pro480 CRA	TC-Pro481 CRA			TC-Pro482 CRA	
TC-Pro480 CRD	TC-Pro481 CRD			TC-Pro482 CRD	
TC-Pro480 CTA	TC-Pro481 CTA			TC-Pro482 CTA	
TC-Pro480 CTD	TC-Pro481 CTD			TC-Pro482 CTD	
TC-Pro480 SRA-D	TC-Pro481 SRA-D			TC-Pro482 SRA-D	
TC-Pro480 SRD-D	TC-Pro481 SRD-D			TC-Pro482 SRD-D	
TC-Pro480 STA-D	TC-Pro481 STA-D			TC-Pro482 STA-D	
TC-Pro480 STD-D	TC-Pro481 STD-D			TC-Pro482 STD-D	
TC-Pro480 CRA-D	TC-Pro481 CRA-D			TC-Pro482 CRA-D	
TC-Pro480 CRD-D	TC-Pro481 CRD-D			TC-Pro482 CRD-D	
TC-Pro480 CTA-D	TC-Pro481 CTA-D			TC-Pro482 CTA-D	
TC-Pro480 CTD-D	TC-Pro481 CTD-D			TC-Pro482 CTD-D	

## Product Parameter

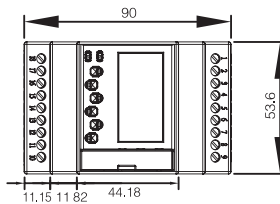
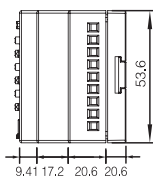
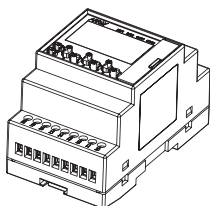
Model	TC-Pro480(D)	TC-Pro481(D)	TC-Pro482(D)
Type	Digital Timer	Digital Counter /Tachometer	Digital Timer/Counter /Tachometer
Supported configurations	Timer, Dual Timer, 2-Stage Timer	1-Stage Counter, 2-Stage Counter, 1-Stage Total Counter, 1-Stage Batch Counter, Dual Counter, and Tachometer (selectable)	Timer, Dual Timer, 2-Stage Timer, 1-Stage Counter, 2-Stage Counter, 1-Stage Total Counter, 1-Stage Batch Counter, Dual Counter, and Tachometer (selectable)
Rated supply voltage	100~240VAC(50/60HZ), 24VAC(50/60HZ), 12~24VDC (permissible ripple: 20%(p-p) max. )		
Operating voltage	85%~110% rated supply voltage (12 ~ 24VDC: 90%~110%)		
Power consumption	Approx. 6.2VA at 264VAC, Approx. 5.1VA at 26.4VAC, Approx. 2.4W at 12VDC		
Mounting method	Flush mounting and DIN-rail mounting		
External connection	Screw terminals		
Input signals	CP1, CP2, Reset 1	CP1, CP2, Reset 1, Reset 2	CP1, CP2, Reset 1, Reset 2
Max. counter speed	None	30Hz or 5KHz (10KHz for Tachometer)	30Hz or 5KHz (10KHz for Tachometer)
Timer mode	Elapsed time (UP), Remaining time (down) (selectable)	None	Elapsed time (UP), Remaining time (down) (selectable)
Input method	No-voltage input: ON impedance: 1kΩ max. ( leakage current: 5~20 mA when 0Ω ) ON residual voltage: 3V max. OFF impedance: 100kΩ min.Voltage Input: High (logic) level: 4.5~30 VDC Low (logic) level: 0~2 VDC( Input resistance: approx. 4.7 kΩ )		
Output method	Relay/transistor output		
Control output	SPDT contact output: 5A at 250 VAC, resistive load (cosΦ=1) Minimum applied load: 10 mA at 5 VDC Transistor output: NPN open collector, max. 100mA at 30 VDC Residual voltage : 1.5 VDC max.(approx. 1V) Output category according to EN60947-5-1 for timers with Contact outputs (AC-15; 250V 3A / AC-13; 250V 5A / DC-13; 30V 0.5A) Output category according to EN60947-5-2 for timers with Transistor outputs (DC-13; 30V 100 mA) NEMA B300 Pilot Duty, 1/4 HP 5-A resistive load at 120 VAC, 1/3 HP 5-A resistive load at 240 VAC		
Key protection	Yes		
Life expectancy	Mechanical: 10,000,000 operations min. Electrical: 100,000 operations min.(5 A at 250 VAC , resistance load)		
Weight	About 168g		

## Installation Dimensions

### Flushing Mounting:



### Din-rail Mounting:



Note: M3 Screw terminals are preferred during installation (effective length:8mm).

## TS4848 Digital Time Switch



- ➔ Provide two independent output circuits, 20 groups of operation time can be set for each circuit
- ➔ Support override and automatic return function
- ➔ Allow manual operation to control output ON/OFF directly
- ➔ Provide cyclic operation (CYCLIC) and pulse operation (PULSE)
- ➔ The operation time for each group can be set with random operation date
- ➔ Provide basic mode (BSC) and advanced mode (ADV) for selection
- ➔ support Modbus RTU /ASCII
- ➔ Temporary holiday setting function makes output ON/OFF conveniently on holidays

### 产品规格

TS-4848□□□-□ 1 2 3 4	1-Communication		2-Output		3-Output power supply		4-Installation method	
	S: No communication C: Communication		R: Relay output T: Transistor output		AC: 100~240V DC: 24 VDC		None: Flushing mounting D: DIN-rail mounting	
Parameter	Output method	Input power	Communication interface	Model				
Flushing mounting	Relay output(1a*2)	100-240VAC 50/60Hz	None	TS-4848SRAC				
		24VDC	None	TS-4848SRDC				
DIN-rail mounting	Relay output(1a*2)	100-240VAC 50/60Hz	RS-232/485/422	TS-4848CRAC-D				
		24VDC	RS-232/485/422	TS-4848CRDC-D				

### Product Parameters

Item	TS-4848SRAC	TS-4848CRAC-D	TS-4848SRDC	TS-4848CRDC-D
Operating voltage	100~240V(50/60HZ)		24VDC	
voltage range	85%~110% rated supply voltage		85%~120% rated supply voltage	
control outputs	capacity			
SPDT contact output: 5A at 250VAC, resistive load (cos ψ =1) Transistor output: NPN, Max.100mA at 30VDC, Residual voltage: Max.1.5VDC (about 1V)				
Storage temperature	-25 ° C ~ 65° C(without icing or condensation)			
Ambient operating temperature	-10 ° C ~ 55° C(without icing or condensation)			
Ambient operating humidity	25% ~ 85%			
Case color	Black			
Power consumption (max)	2.4w			
Weight	About 152g			

## Product Accessories

Item	Property
9-pin female D-sub cable for RS232 connector, 1.5m cable	CAB-090B232
9-pin female D-sub cable for RS485 connector, 1.5m cable	CAB-090B485
9-pin female D-sub cable for RS422 connector, 1.5m cable	CAB-090B422
9-pin female D-sub cable for CAB-090B232/CAB-090B485/CAB-090B422	ADP-090401

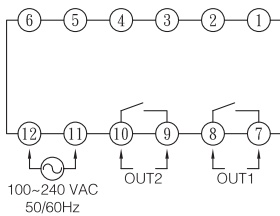
## Communication Protocol

Item	Supporting type	Default value
Communication protocol	Modbus RTU/ASC	RTU
Communication station	1~255	1
Baud rate	1200/2400/4800/9600/14400/19200/28800/38400/57600/115200	9600
Parity	n/o/e	n
Data bit	7/8	8
Stop bit	1/2	1
Write-in	on/off	on

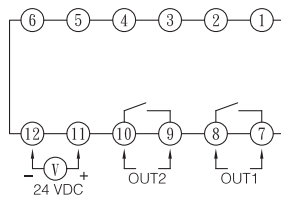
## Pin Assignment

Flush mounting:

●TS-4848SRAC

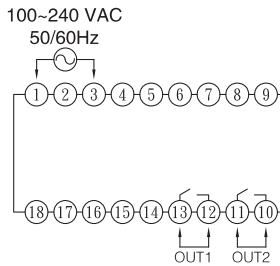


●TS-4848SRDC

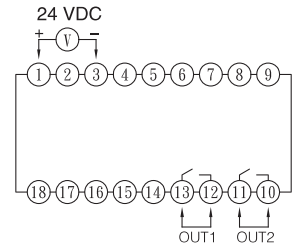


DIN-rail mounting:

●TS-4848CRAC-D

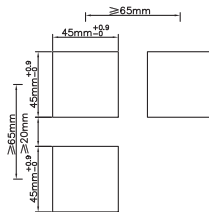
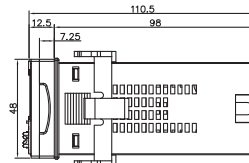
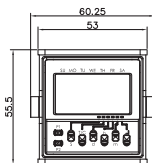
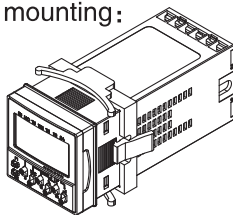


●TS-4848CRDC-D

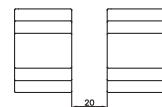
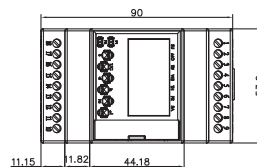
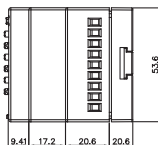
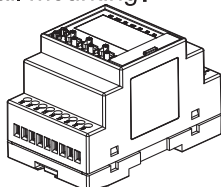


## Installation Dimensions

Flush mounting:



DIN-rail mounting:





## Industrial Communication

- ➔ ESD protection
- ➔ DIN-Rail
- ➔ 3000VDC isolation protection
- ➔ Support operating temperature from  $-20^{\circ}\text{C}\sim+75^{\circ}\text{C}$
- ➔ Auto Tuner baud rate, 300~115200bps

## Product Models

AR-1520	Isolated RS232 to RS485 Converter
AR-1521	Isolated RS232 to RS232/422/485 Converter
AR-1520U	Isolated USB to RS485 Converter
AR-1521U	Isolated USB to RS232/422/485 Converter

## Pin Assignment

Model	AR-1520		AR-1521	
	Terminal No.	Pin assignment	Terminal No.	Pin assignment
RS-485	1	DATA+	1	DATA+
	2	DATA-	2	DATA-
RS-422/485	3		3	TX+
	4		4	TX-
	5		5	RX+/D2+
	6		6	RX-/D2-
RS-232	7		7	TXD
	8		8	RXD
	9		9	(B)GND
	10		10	(B)GND
	11		11	NC
	12	(R)+VS	12	(R)+VS
	13	(B)GND	13	(B)GND

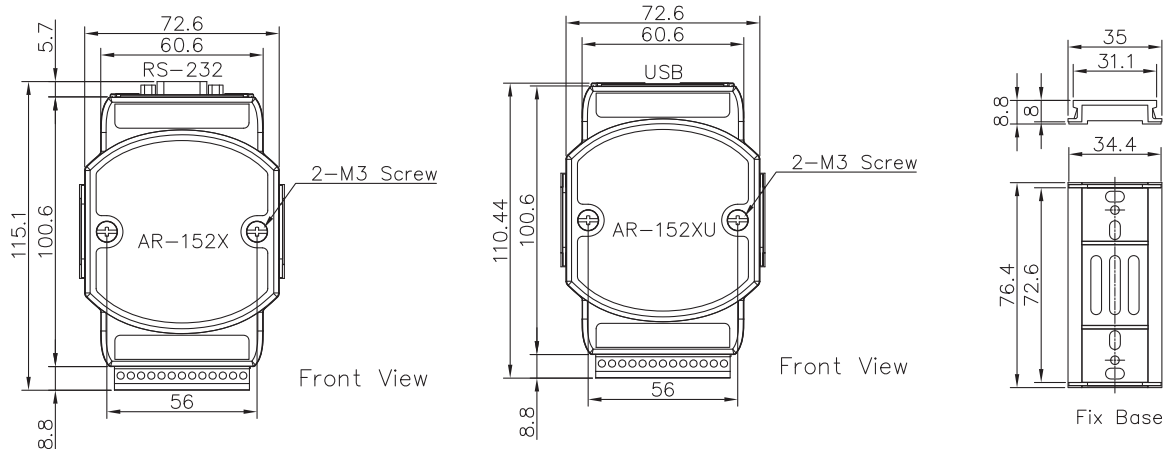
Model	AR-1520U		AR-1521U	
	Terminal No.	Pin assignment	Terminal No.	Pin assignment
RS-485	1	DATA+	1	DATA+
	2	DATA-	2	DATA-
RS-422/485	3		3	TX+
	4		4	TX-
	5		5	RX+/D2+
	6		6	RX-/D2-
RS-232	7		7	TXD
	8		8	RXD
	9		9	(B)GND
	10		10	(B)GND
	11		11	NC
	12		12	NC
	13		13	NC



## Technical Parameters

	1520/1521	1520U/1521U
Transmission distance	Max. 1,200 m for speed 9.6 K bps; Max. 400 m for speed 115.2Kbps	
Max devices	Maximum of 256 devices (Without repeater).	
Auto-Tuner function	Yes	
Speed	300 ~ 115200 bps	
ESD protection	Yes	
Isolation voltage	3000 VDC	
Connection	B9 (Female to RS-232); Removable 13-pin Terminal Block ( For RS-422 / 485 / 232 )	Standard USB1.1& USB2.0 Removable13-pin Terminal Block ( For RS-232/ 422 / 485 )
LED display	LED as Power / Communication Indicator	
Power consumption	+10 ~ +30 VDC; 0.5W@24V	+5 VDC From USB ; 0.1A @ 5V = 0.5W, ±5%
Mechanical	Plastic mechanical	
Flammability	Fire Retardant Materials	
Size	115.1 mm x 76.4 mm x 38.5 mm	110.44mm x 76.4mm x 38.5mm
Installation	Din-Rail	
Operating temperature	-20° C ~ +75°C	
Storage temperature	-25° C ~ +80°C	
Ambient relative humidity	10% ~ 90% RH, no-condensation	

## Installation Dimensions



Unit :mm



## Distributed Control System

- Din-rail
- LED output indicator
- 3000VDC isolation Protection
- Input voltage: +10VDC~+30VDC
- Support Modbus RTU/ASCII protocols
- Operating temperature from -20°C to +75°C

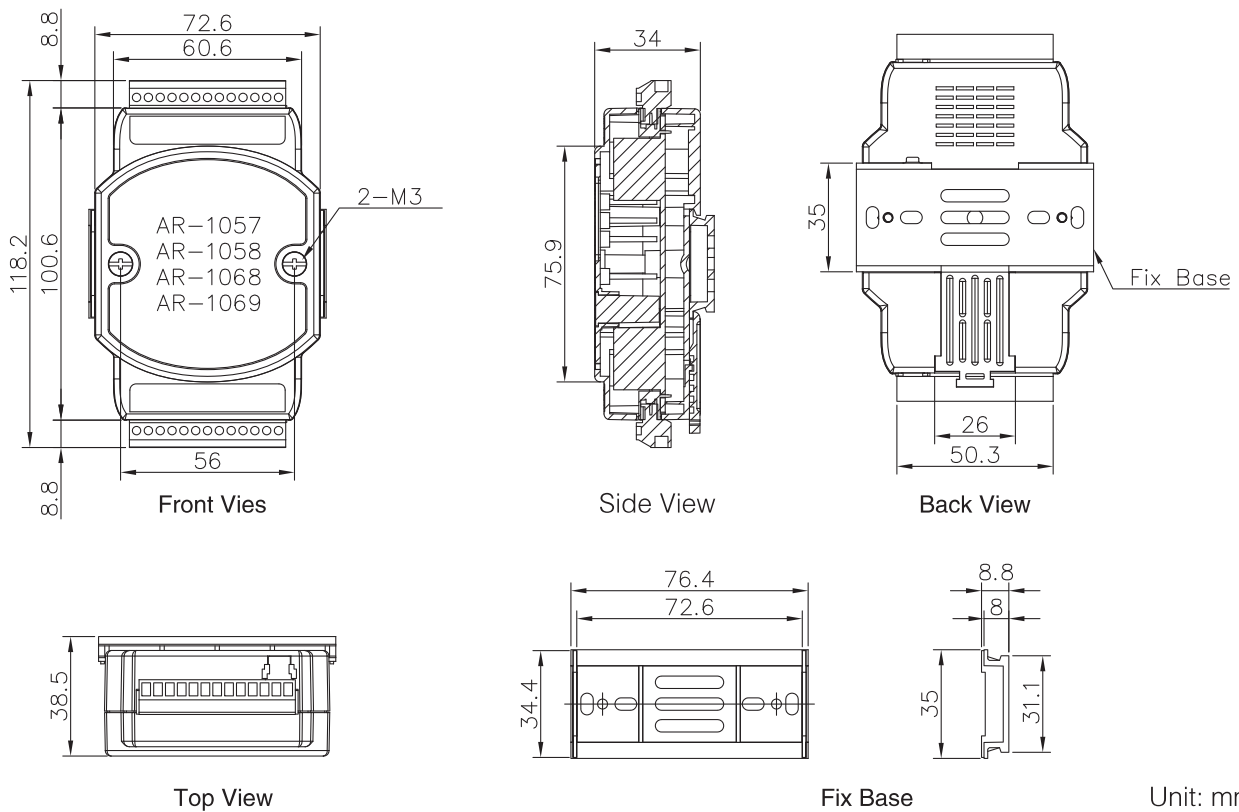
## Product Parameters

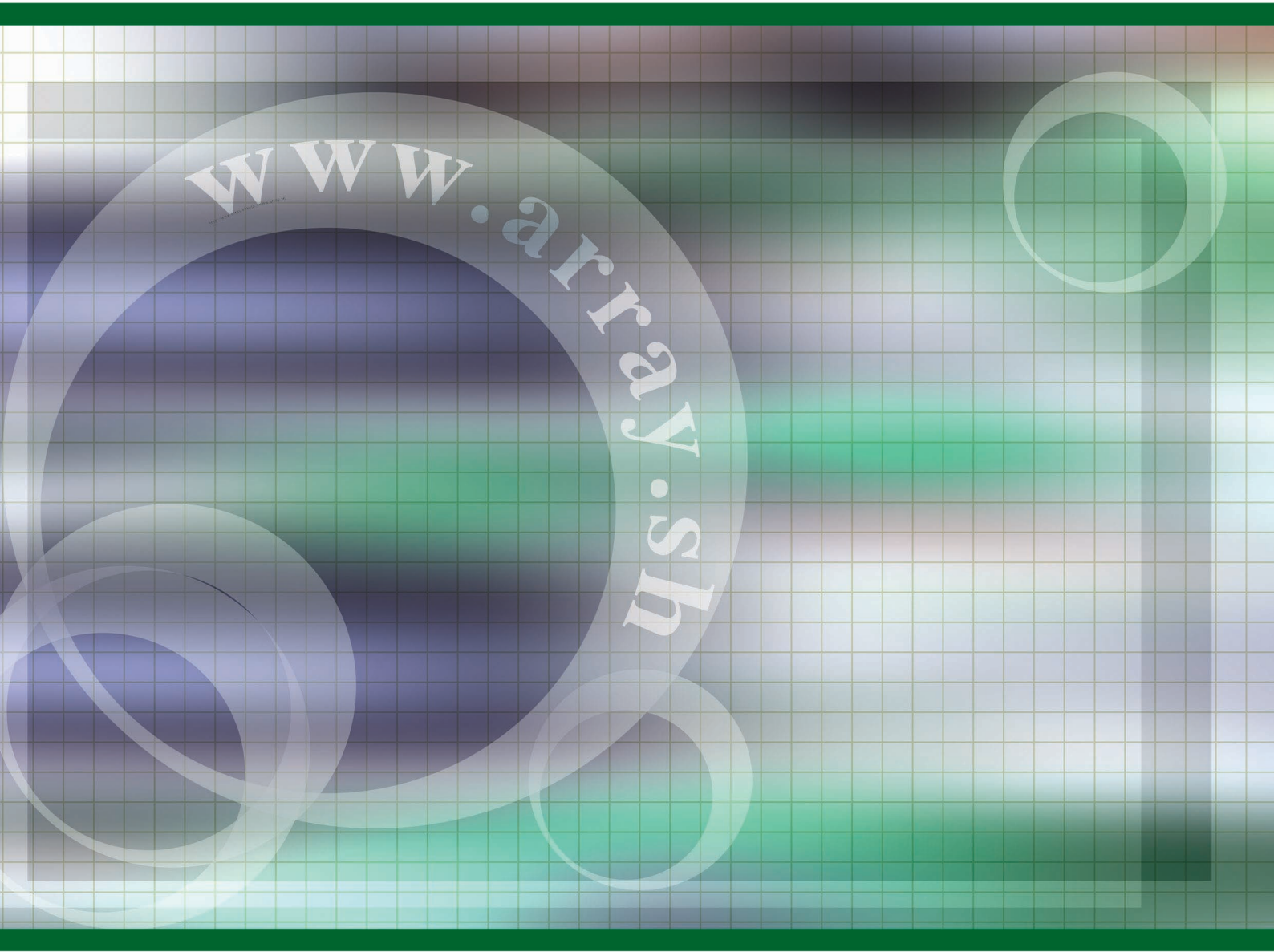
Interface				
	AR 1057	AR 1058	AR 1068	AR 1069
Output channels	12	12	8	8
Connectors	2X plug-in terminal blocks (#14~28AWG)			
Power consumption	0.96W@24VDC	0.96W@24VDC	1.68W@24VDC	2.88W@24VDC
Supported protocols	Modbus-RTU/Modbus-ASCII			
Output type	Souce	Sink	Relay	Power Relay
Output isolation voltage	3000VDC			
LED indicators	Yes			
Output rating (max)	10~35VDC / 1A	40VDC / 200mA (Open Collector)	0.5A@120VAC / 1A@30V	5A@250V / 5A@30VDC
Channel type	Digital	Digital	6X form C / 2X form A	3X form C / 5X form A
Output off time	<1ms	<1ms	<8ms	<8ms
Output on time	<1ms	<1ms	<7ms	<7ms
Power on set value	Yes (Power on Output Set Value)			
Communication Fail Set Value	Yes (Force the DO channels to safety status when communication in time-out and over pre-defined period)			
Casing				
Mechanical	Plastic			
Flammability	Fire Retardant Materials			
Size	118.2mm X 76.4mm X 38.5mm			
Installation	Installation			
Environment				
Operation temperature	-20°C ~ +75°C			
Storage temperature	-25°C ~ +80°C			
Humidity	10%~90% RH, no condensation			

## Pin Assignment

	AR 1057 / 58	AR 1068 / 69		AR 1057 / 58	AR 1068	AR 1069
Item	Pin assignment		Item	Pin assignment		
1	DO 7~9 COM	RL5 NO	14	DO 0~2 COM	RL0 NO	RL0 NO
2	DO 7	RL5 COM	15	DO 0	RL0 COM	RL0 COM
3	DO 8	RL5 NC	16	DDO 1	RL0 NC	NC
4	DO 9	RL6 NO	17	DO 2	RL1 NO	RL1 NO
5	DO 7~9 GND	RL6 COM	18	DO 0~2 GND	RL1 COM	RL1 COM
6	DO 10~11 COM	RL6 NC	19	DO 3~4 COM	RL1 NC	NC
7	DDO 10	RL7 NO	20	RL2 NO	RL2 NO	RL2 NO
8	DO 11	RL7 COM	21	DO4	RL2 COM	RL2 COM
9	DO 10~11 GND	RL7 NC	22	DO 3~4 GND	RL2 NC	RL3 NO
10	(Y)DATA +	(Y)DATA +	23	DO 5~6 GND	RL3 COM	RL3 COM
11	(G)DATA -	(G)DATA -	24	DO5	RL3 NO	NC
12	(R)+VS	(R)+VS	25	DO6	RL4 COM	RL4 NO
13	(B)GND	(B)GND	26	DO 5~6 GND	RL4 NO	RL4 COM

## Installation Dimensions





**ARRAY ELECTRONIC(Nanjing) Co.,LTD**