ARICO
長新科技股份有限公司
ARICO TECHNOLOGY CO., LTD.

AR Series

Plastic Machine Controller

Easy To Link
Good Extensibility
Distributed Control System

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ARICO TECHNOLOGY

Total Solutions for Plastic Machines

Desktop

Notebook

Ethernet

Plastic Machine Controllers

Solid State Relays

Displacement Transducers

Inverters

Load Cells

Temperature Controllers

Indicators/Alarm units

Pressure Transducers

Heater Power Regulators

Melt Pressure Transducers

Pressure Controllers

Hot Runner Temperature Controllers

MODBUS

MODBUS

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Please refer to the User Manual for further details.

Products Overview

GEFRAN authorized agent & other products

Pressure Transducers			
	K3 Series	KE Series	KN Series
	M3 Series	ME Series	MN Series
	M5 Series	M6 Series	KS/TK
Displacement Transducers					
	LT/LT67/LTC	PC	PK	PA1	PY1/PY2/PY3
	PZ12/PZ34	PC67/PZ67A/PZ67S	PMA12/PME12/PMI12	PMI-SL/PMI-SLE
	IC	PR65	PS	PCIR 101-102
	WPG-A	WPP/WPA Series	WRP/WRA/WRG Series
Controller/Alarm unit/ Programmer/Indicator										
	4T48	4T96	40TB	40B96	400-401	450	600	650	2400	2500
Power Controller/ Solid State Relay										
	GRM-H	GRP	GRP-H	GRS	GRS-H	GRZ	GRZ-H	GQ		
Ceramic Band Heater										
	Ceramic Band Heater	Insulation Plus Ceramic Band Heater	Air Cooled Ceramic Band Heater							

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Products Overview

Temperature Controllers V Series					
	V100	V200	V300	V400	V500
Temperature Controllers C Series					
	C100	C200	C300	C400	C500
Temperature Controllers A Series							
	A1AN	A1DN	A2DA	A2DD	A3AN	A3AA	A3AD
	A3DA	A3DD	A4AA	A4AD	A4AN	A4DA	A4DD
Temperature Controllers TC Series					
	H2DA	TC2DA	TC3AA	TC3AO	TC3DA
	TC3DO	TC4AA	TC4AO	TC4DA	TC4DO
Hot Runner Temperature Controllers						
			TC5T	TC5H	TC5E Plus	TC5E
	TC5500 / TC5600	TC5100 / TC5200			Valve Gate Controller	
			TC50	TC500		TC5V
Plastic Machine Controllers						
	AR800/AR810/AR1280/AR2000/AR2010/AR2100		AR/FT/FTS Series - HMI			
Solid State Relay					
	ARD24 Series	ARD48 Series	SY Series	SV Series	SW Series
Heatsoft			Signal Transmitter		
	SB Series			TR100/TR200	

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Please refer to the User Manual for further details.

Product Characteristics

- It is simple to update all of program via USB memory driver.
- DCS control (HMI and Remote I/O module) for easy access of external device and/or controller.
- Various HMI size options: 7"/8"/10.1"/10.4"/12.1"/15.6"/17.3"/21.5".
- High speed Ethernet communication between HMI and Remote I/O module.
- RS485 and Ethernet (Option) Interface.
- State-of-the-art window system HMI Screen Editor design by ARICO.
- PLC ladder editor for process program.
- It is non-industrial personal computer board, because the CPU of PC update very fast, face stop manufacture and version change, software maintain and cost will go high.
- I/O function define self and shift function:
  1. Change the defect I/O to another by setting, to solve problem at once.
  2. For some multi function valve, use program control them, it can use one program to apply the timing of the different hydraulic valve in extent permitted.
  3. For some multi function valve, use program control them, and collect them to front I/O to save the I/O ports.
     (DO have to consider the 2A/port, 16 ports max. is 10A)
  4. Define different DI, DO, AI, AO for different model machine, no need to modify the wiring, just setting to suitable hardware.
     (Example: it can be applied at old machine replace new controller, no need re-wire the all wires)
- Flip up icon of screen and alarm message.
- PLC Real-Time control.
- The 10 levels control for user.
- The present screen picture can be saved via USB port to external memory device (USB memory device).

AR800/AR810 System Block Diagram (NPN)

HMI

AR Series

or

FT Series

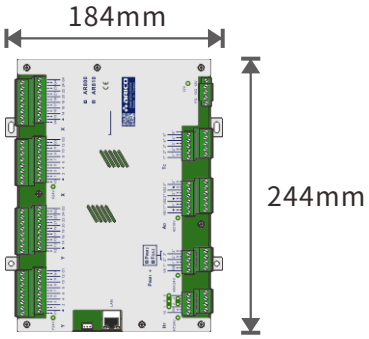
Both of available

Ethernet

Remote I/O Module

Standard

Digital Input	Digital Output
24 ports or 23 ports+1 RPM	24 ports
AD Analog Input 16 bit, 0~10V	PWM Output
3 channels	AR800: 3 ports AR810: 1 port
Temperature Input 12 bit	Tem. Output
5 zones	5 zones
	FDA Analog Output
	2 ports only for AR810



RS-485

Tem. Extended Module

Temperature Input (TC)	Heater Output (HT)
+8 zones	+8 zones
	Cooling Output (CL)
	+8 zones

RS-485

Temperature of 15 groups can be cascaded I/O

AR1280 System Block Diagram (NPN)

HMI

AR Series

or

FT Series

Both of available

Ethernet

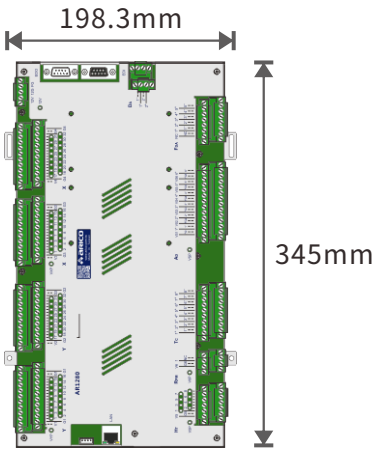
Remote I/O Module

Standard

Digital Input	Digital Output
32 ports	32 ports
AD Analog Input 16 bit 0~10V	Temperature I/O
6 channels	8 zones
RPM Input	FDA Analog Output 0~10V
1 port	5 channels

Option

DA Output 12 bit, ± 10V
2 channels



RS-485

Digital I/O Extended Module

Digital Input
+8 ports
Digital Output
+8 ports

Tem. Extended Module

Temperature Input (TC)	Heater Output (HT)
+8 zones	+8 zones
	Cooling Output (CL)
	+8 zones

RS-485

Temperature of 15 groups can be cascaded I/O

AR2000 System Block Diagram (NPN)

HMI

AR Series

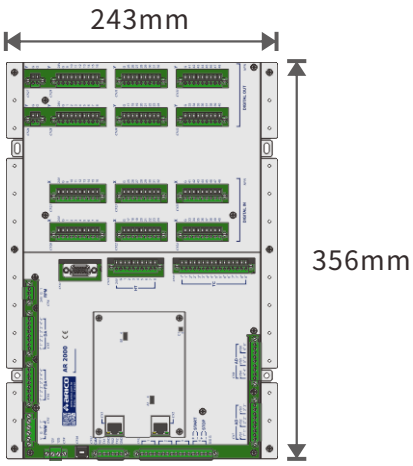
or

FT Series

Both of available

Ethernet

Remote I/O Module



Standard

Digital Input	Digital Output
32 ports	32 ports
AD Input 16 bit, 0~10V	FDA Output 0~10V
6 channels	4 channels
PWM Output	RPM Input
1 port	1 port
Temperature Input 12 bit	Temperature Output
8 zones	8 zones

Option

Digital Input	Digital Output
16 ports	16 ports
DA Output 12 bit, ± 10V	Start-Stop
4 channels	4 sets

MagBridge

Digital Input/Output Extended Module

- Digital Input/Output Module #1~#4
  (+16/+16) or (+32/+32) or (+48/+48) or (+64/+64) ports
- Digital Input/Output Module #5~#8
  (+16/+16) or (+32/+32) or (+48/+48) or (+64/+64) ports
- Digital Input/Output Module #9~#11
  (+16/+16) or (+32/+32) or (+48/+48) or (+64/+64) ports

Tem. Extended Module

Temperature Input (TC)	Heater Output (HT)
+8 zones	+8 zones
	Cooling Output (CL)
	+8 zones

RS-485

RS-485

Temperature of 15 groups can be cascaded I/O

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Please refer to the User Manual for further details.

AR2010 System Block Diagram (NPN)

HMI

AR Series

or

FT Series

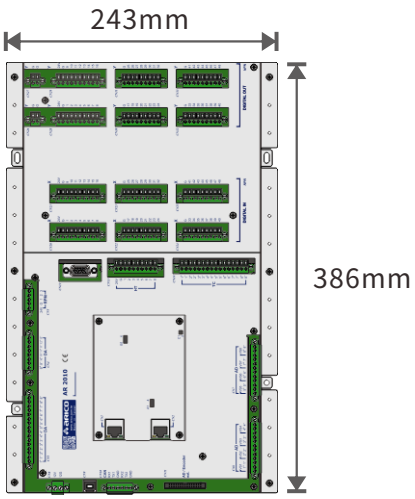
Both of available

Ethernet

Remote I/O Module

Standard

Digital Input	Digital Output
32 ports	32 ports
AD Input 16 bit, 0~10V	DA Output 12 bit, ± 10V
8 channels	8 channels
Temperature Input (TC)	Temperature Output (HT)
8 zones	8 zones
RPM Input	
3 port	



Option

Digital Input	Digital Output
16 ports	16 ports
DA Output 12 bit, ± 10V	
4 channels	

Extended Module

Select only one

- Encoder Input (Single mode): +4 ports
- Encoder Input (Differential mode): +4 ports
- AD Input 16 bit, 0~10V: +8 ports

MagBridge

Digital Input/Output Extended Module

- Digital Input/Output Module #1~#4: (+16/+16) or (+32/+32) or (+48/+48) or (+64/+64) ports
- Digital Input/Output Module #5~#8: (+16/+16) or (+32/+32) or (+48/+48) or (+64/+64) ports
- Digital Input/Output Module #9~#11: (+16/+16) or (+32/+32) or (+48/+48) or (+64/+64) ports

Tem. Extended Module

Temperature Input (TC)	Heater Output (HT)
+8 zones	+8 zones
	Cooling Output (CL)
	+8 zones

RS-485

RS-485

Temperature of 15 groups can be cascaded I/O

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Please refer to the User Manual for further details.

AR2100 System Block Diagram (PNP)

HMI

AR Series

or

FT Series

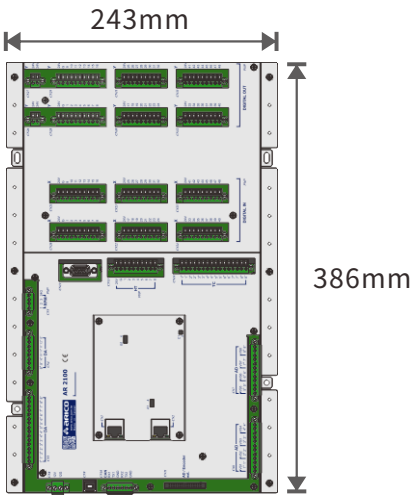
Both of available

Ethernet

Remote I/O Module

Standard

Digital Input	Digital Output
32 ports	32 ports
AD Input 16 bit, 0~10V	DA Output 12 bit, ± 10V
8 channels	8 channels
Temperature Input (TC)	Temperature Output (HT)
8 zones	8 zones
RPM Input	
3 port	



Option

Digital Input	Digital Output
16 ports	16 ports
DA Output 12 bit, ± 10V	
4 channels	

Extended Module

Select only one

Encoder Input (Single mode)
+4 ports
Encoder Input (Differential mode)
+4 ports
AD Input 16 bit, 0~10V
+8 ports

MagBridge

Digital Input/Output Extended Module

Digital Input/Output Module #1~#4
(+16/+16) or (+32/+32) or (+48/+48) or (+64/+64) ports
Digital Input/Output Module #5~#8
(+16/+16) or (+32/+32) or (+48/+48) or (+64/+64) ports
Digital Input/Output Module #9~#11
(+16/+16) or (+32/+32) or (+48/+48) or (+64/+64) ports

Tem. Extended Module

Temperature Input (TC)	Heater Output (HT)
+8 zones	+8 zones
	Cooling Output (CL)
	+8 zones

RS-485

RS-485

Temperature of 15 groups can be cascaded I/O

Specification Comparison Table

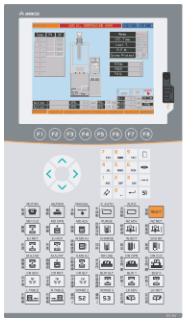
HMI Specifications Comparison Table									
Categories	AR series			FTS series			FT series		
HMI	7"/8"/10.4"/12.1"			10.1"	15.6"		15.6"/17.3"/21.5"		
HMI CPU	Vesper/266 MHz	Vela/1 GHz		2 GHz					
Internet Connection	Yes (optional)	Yes		Yes	×	Yes (optional)	Yes		
RS-485	1	1	2	2	1	2 (optional)	1		
CANopen	×	1	×	1	1		×		
Wi-Fi	×	Yes (optional)		Yes					
Touch Panel	Yes (optional) , able to expand with a touch panel (10.4"/12.1")			Yes					

Controller Specifications Comparison Table					
Categories	AR800/AR810	AR1280	AR2000	AR2010	AR2100
PLC CPU	528 MHz	528 MHz	520 MHz		
Control CPU	72 MHz	528 MHz Time base = 0.25ms	520 MHz Time base = 0.25ms		
I/O Connection	NPN	NPN	NPN	NPN	PNP
Temperature PID Control	5	8	8	8	8
DI Digital Input	24 or 23+1 RPM	32	32/48	32/48	32/48
DO Digital Output	24	32	32/48	32/48	32/48
AD Analog Input	16 bit*3	16 bit*6	16 bit*6	16 bit*8	16 bit*8
Start-Stop	×	×	×/4	×	×
FDA Analog Output	×/2	12 bit*5 (0~+10V)	12 bit*4 (0~+10V)	×	×
DA Analog Output	×	12 bit*0/2 (0~± 10V)	12 bit*0/4 (0~± 10V)	12 bit*8/12 (0~± 10V)	12 bit*8/12 (0~± 10V)
PWM Output	3/1	×	1	×	×
RPM Input	×	1	1	3	3
FPGA	×	PLC CPU & Control CPU data transmitted through a parallel FPGA connection; allows more precise control accuracy			

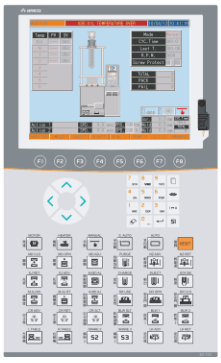
Hardware Expansion Specifications Comparison Table					
Temperature Module	Man-machine communication allows 15 sets of temperature module expansions; each module includes 8-zones temperature control				
I/O Expansion Module	×	Able to expand 1 module; each module DI/DO*8 (Max=8)	Able to expand 12 modules; each module DI/DO*16 (Max=192)		
AD Expansion Module	×	×	×	16 bit*8	16 bit*8
Encoder Expansion Module	×	×	×	32 bit*4	32 bit*4

AR Series HMI Dimensions

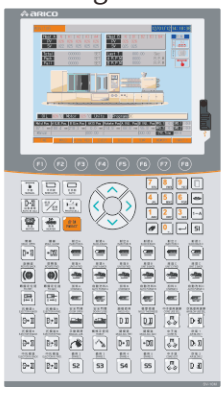
8" HMI



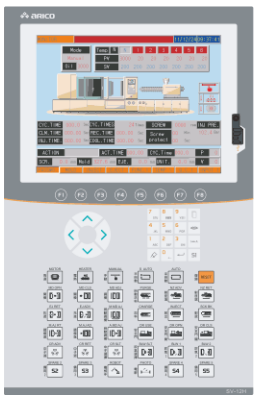
10.4" HMI



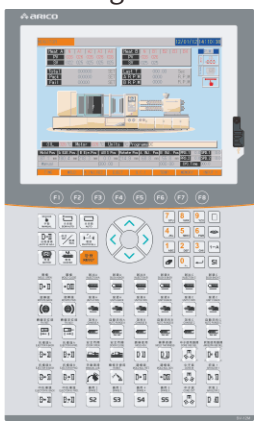
10.4" HMI
Multi Color
Molding Machine

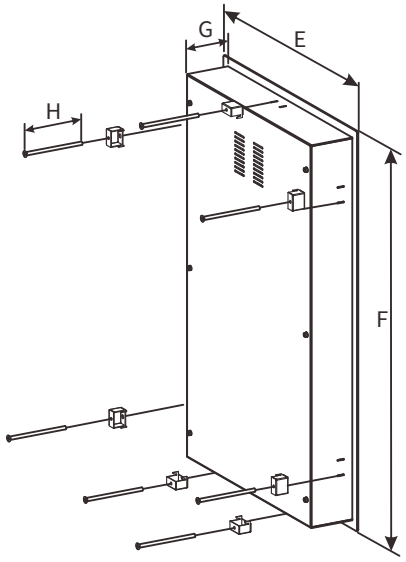


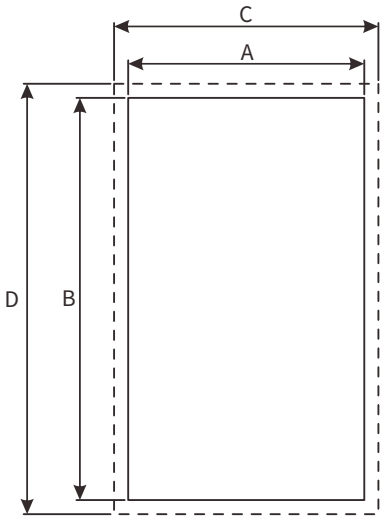
12.1" HMI

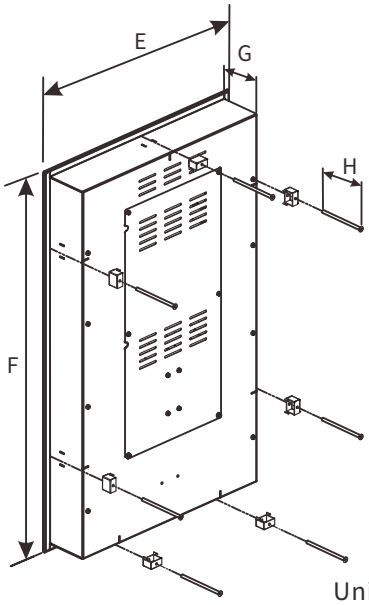


12.1" HMI
Multi Color
Molding Machine





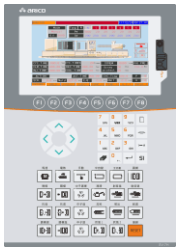




Unit: mm

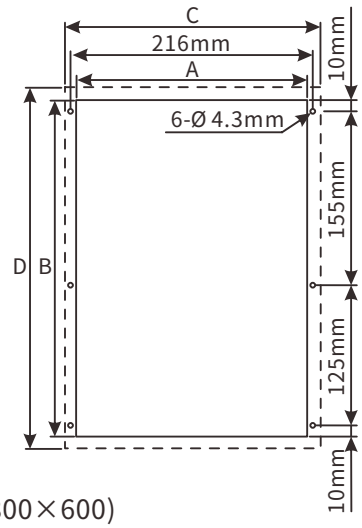
LCD size	Dimensions of Installation Opening		Recommended Margin Dimensions (chassis interior diameter)		Width	Height	Depth	Length of Screw	Recommended Chassis Depth
	A	B	C	D	E	F	G	H	
8"	219	400	299	480	237.5	417.8	61	70	80
10.4"	267	451	347	531	285	469.1			
10.4" Multi Color Molding Machine	271	487	351	567	288.9	505.3	64		
12.1"	314	500	394	580	332	517.5	61		
12.1" Multi Color Molding Machine	314	531	394	611	332	548.5			

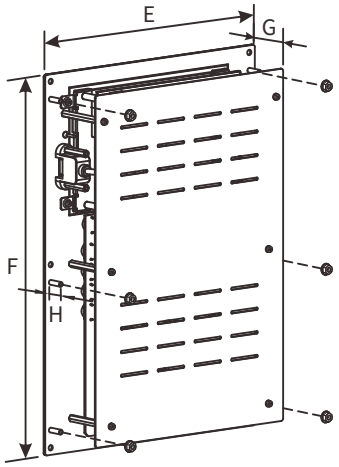
7" HMI



Unit: mm

LCD size	7"	
Dimensions of Installation Opening	A	206
	B	300
Recommended Margin Dimensions (chassis interior diameter)	C	286
	D	380
Width	E	228
Height	F	322
Depth	G	51
Length of Screw	H	10
Recommended Chassis Depth		80





Note: 7" is (800×480), other LCD modules are all (800×600)

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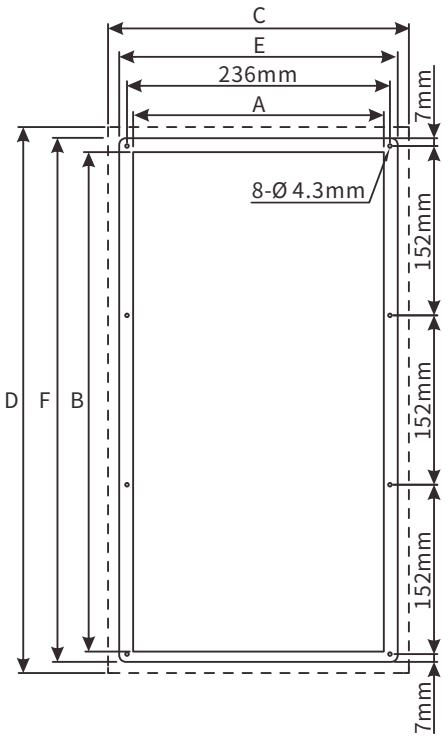
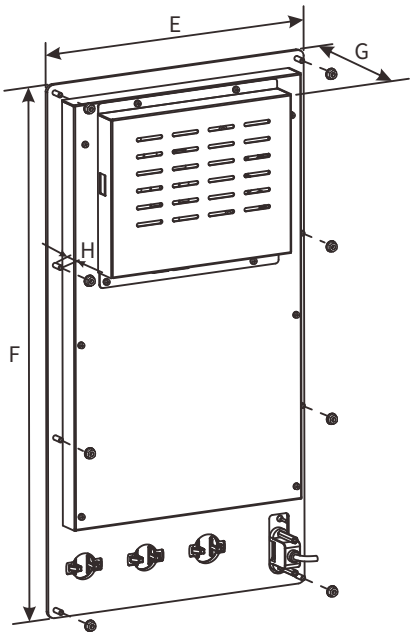
8" HMI

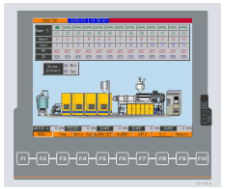


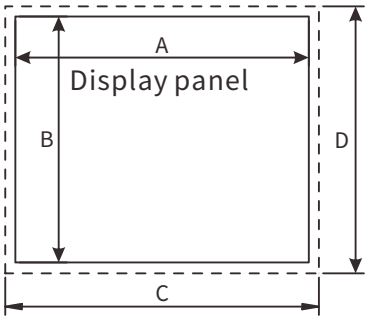


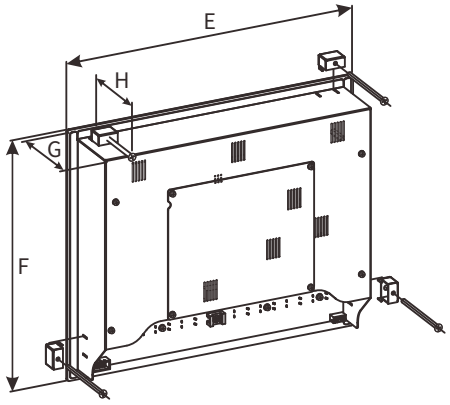
Unit: mm

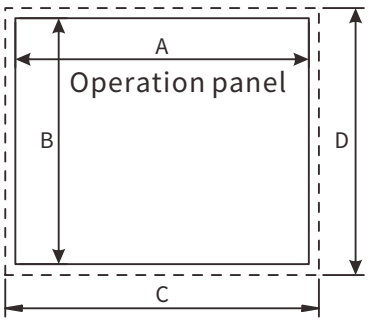
LCD Size	Dimensions of Installation Opening		Recommended Margin Dimensions (chassis interior diameter)		Width	Height	Depth	Length of Screw	Recommended Chassis Depth
	A	B	C	D	E	F	G	H	
8"	224	446	304	526	250	470	51	10	80

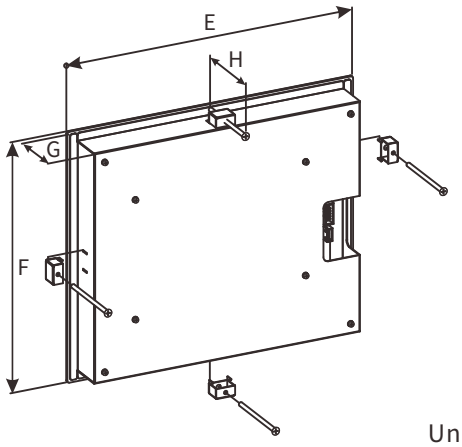
10.4" Extruder Machine











Unit: mm

Panel	Dimensions of Installation Opening		Recommended Chassis Inside Margin		Width	Height	Depth	Length of Screw	Recommended Chassis Depth
	A	B	C	D	E	F	G	H	
10.4" Display	270	227	350	307	287.6	244.8	61	70	80
10.4" Operating							34		

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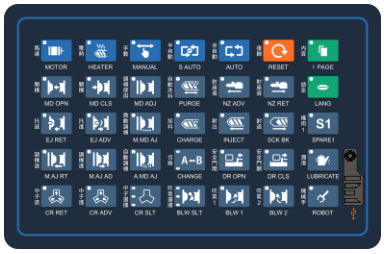
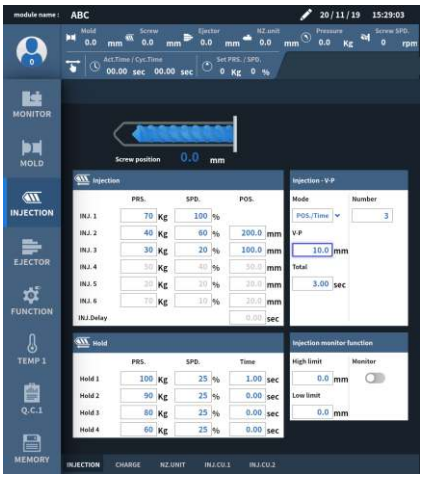
Industrial HMI

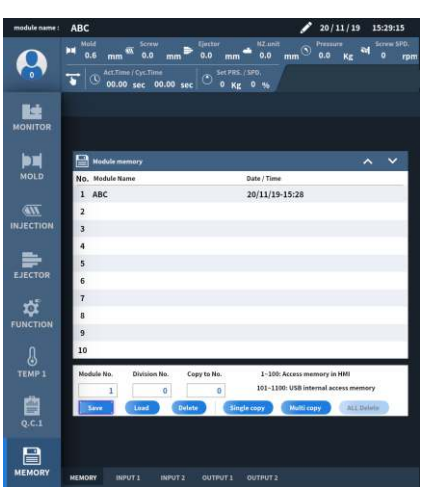
1. Full touch-capacitive HMI can use VNC viewer to monitor the HMI screen and remote to update the program.
2. The HMI can display screens from auxiliary equipment.
3. Connectable with all AR series controllers.
4. Optional independent operation panel.
5. Full touch operation, action keys can be programmed by software.
6. Suitable for injection Molding Machine, Extruder Machine, Blow Molding Machine.

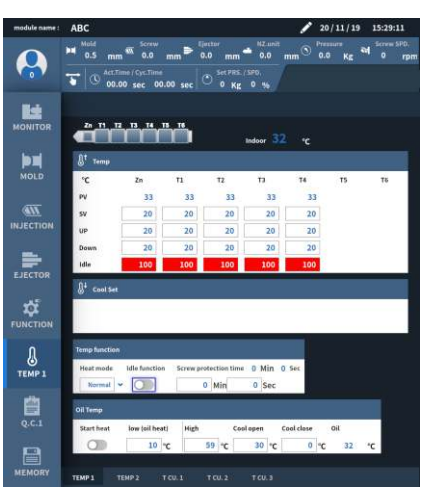


- 10.1"/15.6"/17.3"/21.5" LCD
- 16:9 aspect ratio
- In-built Wi-Fi
- 2G DDR3 RAM, 32G SSD ROM
- Fanless design
- Capacitive touch panel

HMI







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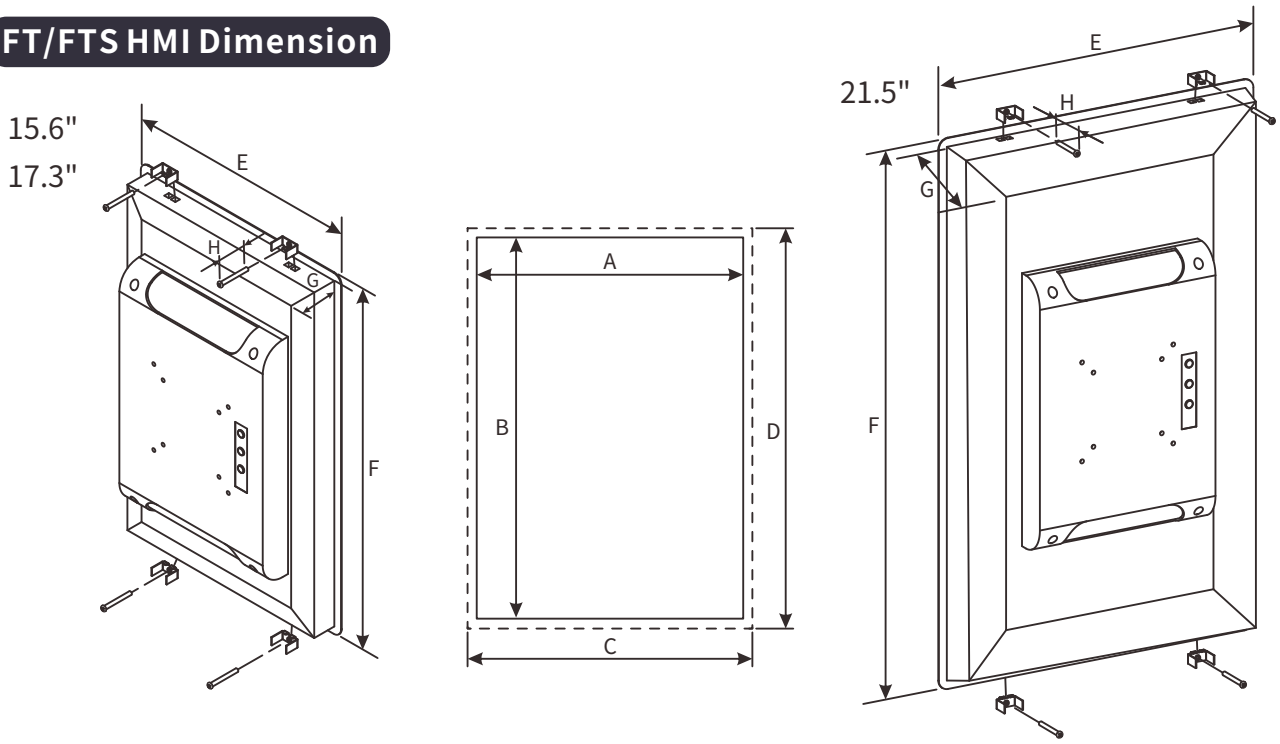
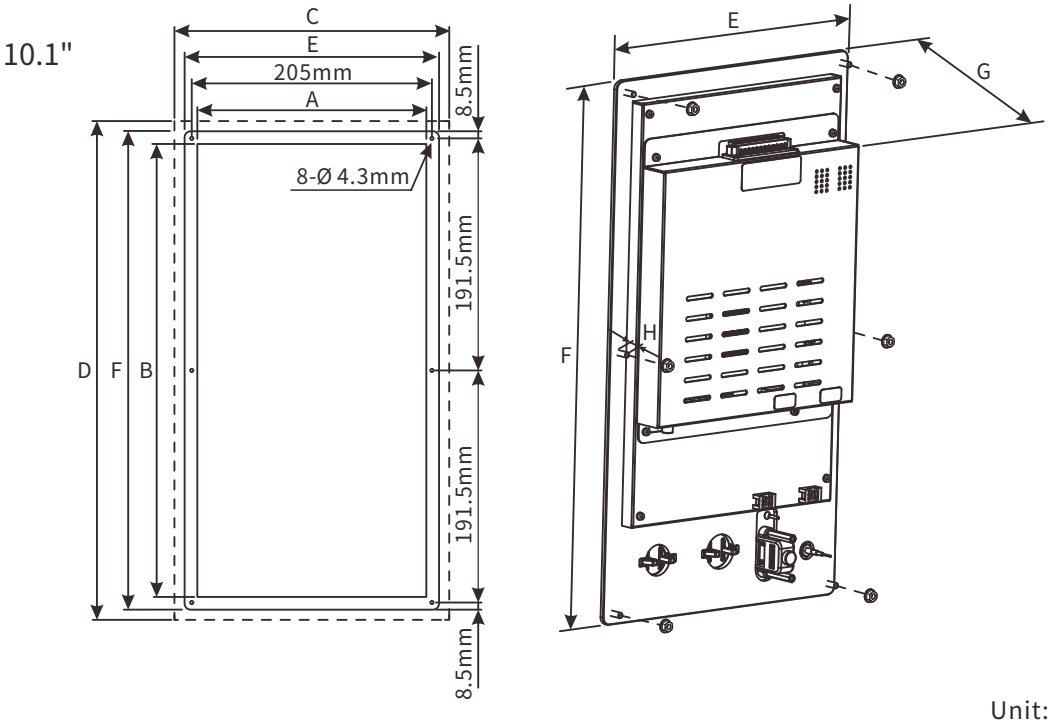
FT/FTS HMI Dimension



Unit: mm

LCD Size	Dimensions of Installation Opening		Recommended Margin Dimensions (chassis interior diameter)		Width	Height	Depth	Length of Screw	Recommended Chassis Depth
	A	B	C	D	E	F	G	H	
15.6"	253	404	333	484	269	420	70	35	80
17.3"	274	441	354	521	291	458	62		
21.5"	329.5	541.5	409.5	621.5	345	557	63		



Unit: mm

LCD Size	Dimensions of Installation Opening		Recommended Margin Dimensions (chassis interior diameter)		Width	Height	Depth	Length of Screw	Recommended Chassis Depth
	A	B	C	D	E	F	G	H	
10.1"	191	372	271	452	220	400	40	10	80

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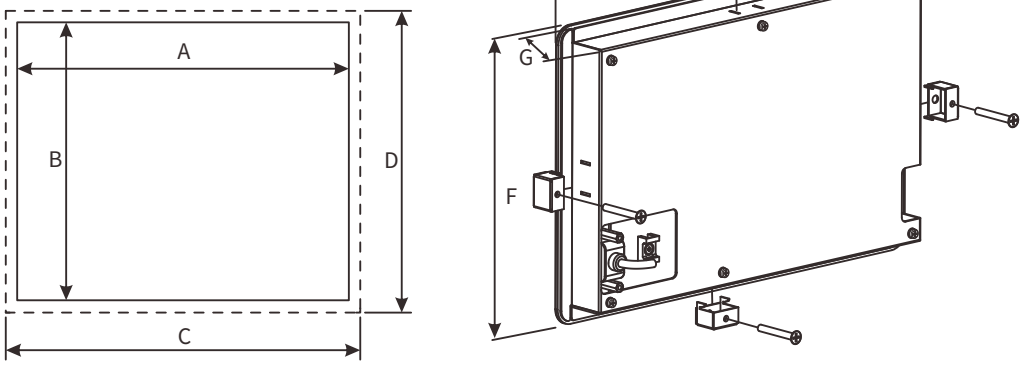
35 Keys Operation Panel



Unit: mm

Operation Panel	Dimensions of Installation Opening		Recommended Margin Dimensions (chassis interior diameter)		Width	Height	Depth	Length of Screw	Recommended Chassis Depth
	A	B	C	D	E	F	G	H	
35 Keys	251	157	331	237	269	175	25	30	80

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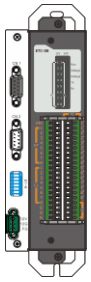
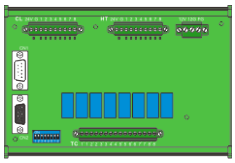
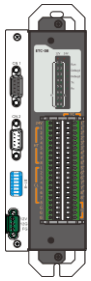
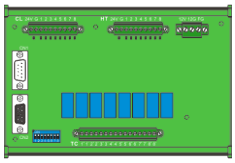
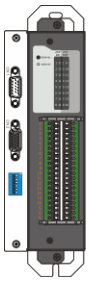
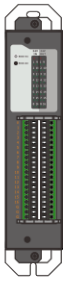
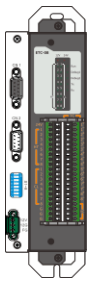
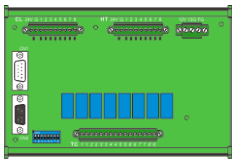
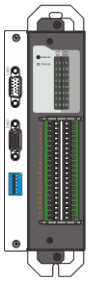
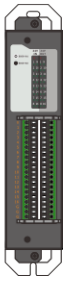
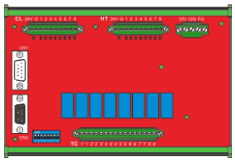
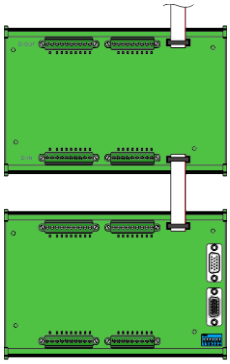
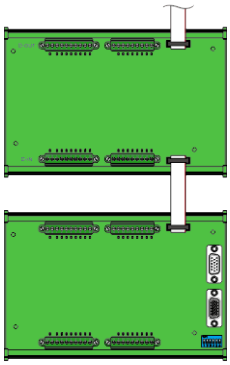
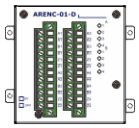
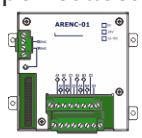
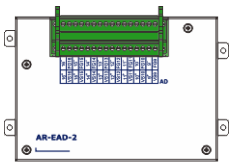
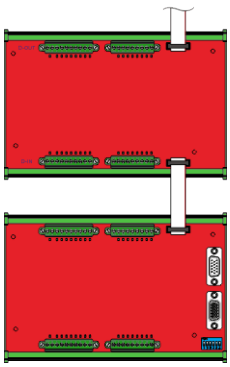
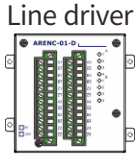
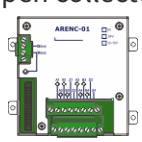
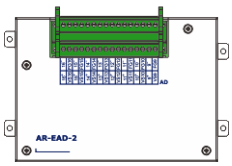
External Expansion Modules

HMI

	Temperature Expansion Module (iron shell)	Temperature Expansion Module (plastic shell)	16 * DI & 16 * DO Expansion Board (iron shell)
AR1280 NPN	NPN (Connect HMI) (Extension)  Cable standard = 5m or customize Cable standard = 0.45m	NPN 	
AR2000 NPN	NPN (Connect HMI) (Extension)  Cable standard = 5m or customize Cable standard = 0.45m	NPN 	NPN   Main board (Max. 192 ports) Expansion board
AR2010 NPN	NPN (Connect HMI) (Extension)  Cable standard = 5m or customize Cable standard = 0.45m	NPN 	NPN   Main board (Max. 192 ports) Expansion board
AR2100 PNP		PNP 	

Remote I/O Module

	16 * DI & 16 * DO Expansion Board (plastic shell)	4 Channels Encoder Expansion Module	8 * DI & 8 * DO Expansion Module	AD Expansion Module
			NPN	
	NPN 			
	NPN 	Line driver  Open collector 		
	PNP 	Line driver  Open collector 		

IoT System Architecture

Image source: SHINI PLASTICS TECHNOLOGIES, INC.

RS-485

Industrial Water Chiller

Temperature Controller

Hopper Loader

Robot Arm

Hopper Dryer

- The machine can access the data from external devices with RS-485
- The AR- series controller can transmit the data of working machine and it's external device to serve with Ethernet (Local Access Network)
- The computers and electrical smart devices browser function are available

Hot Runner Temperature Control System

Power Meter

Machine 01 Machine 02 ...Machine xx

Machine 09 Machine 10 ...Machine xx

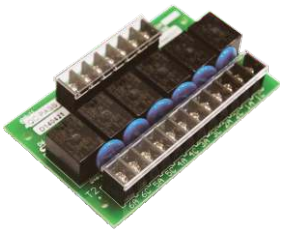
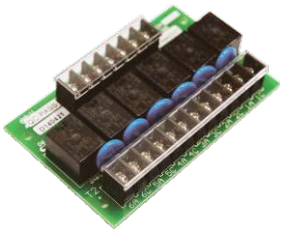
HUB HUB

Central controller server

Tablet computer | Manufacture department PC | Production insurance section PC | Manager computer | Mobile phone

Other Accessories

Amplifier Board	FPV-01	FPV-01N	ARPV-01	ARPV-04
AC Auxiliary Power	15Vac/0Vac/15Vac		-	
AC Input Power	50Vac (40Ω)/24Vac (10Ω)		-	
DC Auxiliary Power	-		24Vdc	
DC Input Power	-		48Vdc	
Power Output (Max.)	25.6W (40Ω)/6.4W (10Ω) Jumper Select			160W
Load Impedance	40/10Ω			10Ω
Output Current (Max.)	0.8A			4A
Control Signal Input	0~10Vdc			
Fuse	2A			5A
Vibration Frequency	120Hz			
Ascending Speed	Coarse Adjustment (Three-quarters turn)			
Descent Speed	Coarse Adjustment (Three-quarters turn)			
Output Value (Max.)	Fine Adjustment (25 rpm)			
Output Value (Min.)	Fine Adjustment (25 rpm)	Coarse Adjustment (Three-quarters turn)	Fine Adjustment (25 rpm)	Fine Adjustment (25 rpm)

Relay Board	Relay-04 (NPN)	Relay-05 (PNP)
Control Output		
Rated Carrying Current	12A	12A
Min. Applicable Load	10 mA 5Vdc	10 mA 5Vdc
Max. Allowable Voltage	250Vac/30Vdc	250Vac/30Vdc
Rated Load	12A/120Vac 10A/24Vdc 10A/240Vac	12A/120Vac 10A/24Vdc 10A/240Vac
Control Input		
Nominal Voltage	24Vdc	24Vdc
Nominal Current	15 mA	15 mA
Pick Up Voltage	< 2.4Vdc	> 18Vdc
Drop Out Voltage	> 18Vdc	< 2.4Vdc
Max. Applicable Voltage	26.4Vdc	26.4Vdc
Operate Time	10 ms	10 ms
Release Time	5 ms	5 ms
Power Consumption	0.36W	0.36W

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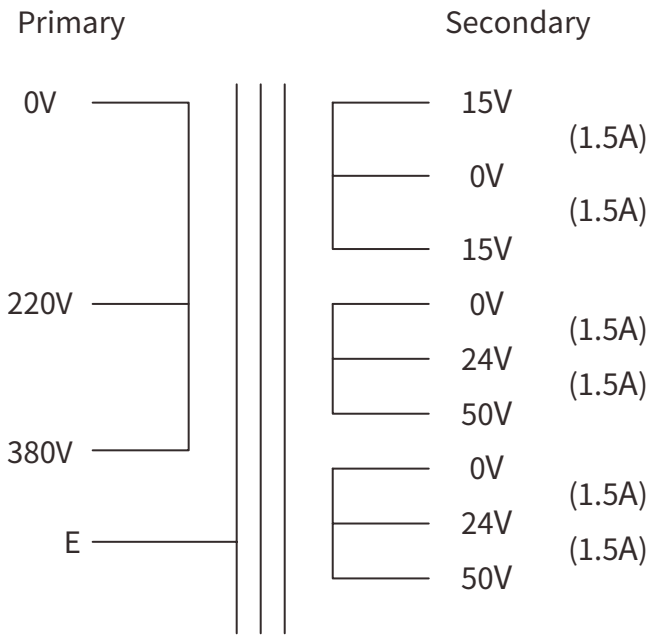
Please refer to the User Manual for further details.

The specification of Transformer MA-02

1. The Primary side input: AC 0V, 220V, 380V, E
2. The secondary side have 3 sets output:
   (1) AC 15V, 0V, 15V (1.5A)
   (2) AC 0V, 24V, 50V (1.5A)
   (3) AC 0V, 24V, 50V (1.5A)
3. The total Watt: 195W
4. The diagram as follow:



116×110×105mm

Power Supply

PMT-12V50W2BA

LRS-350-24

LRS-75-12

LRS-100-48

Output Voltage	12V	24V	12V	48V
Output Power	50.4W	350.4W	72W	110.4W
Output Current	4.2A	14.6A	6A	2.3A
Input Voltage Range	90-264Vac	90~132Vac / 180~264Vac by switch 240~370Vdc (switch on 230Vac)	85~264Vac 120~373Vdc	85~264Vac 120~373Vdc (Withstand 300Vac surge for 5sec. Without damage)
Dimensions	99×82×29 mm	215×115×30 mm	99×97×30 mm	129×97×30 mm
Unit Weight	0.176 kg	0.76 kg	0.23 kg	0.33 kg
Specifications Reference	DeltaPSU	MEAN WELL	MEAN WELL	MEAN WELL

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TC500 Multi-Cavity Hot Runner Temperature Controller

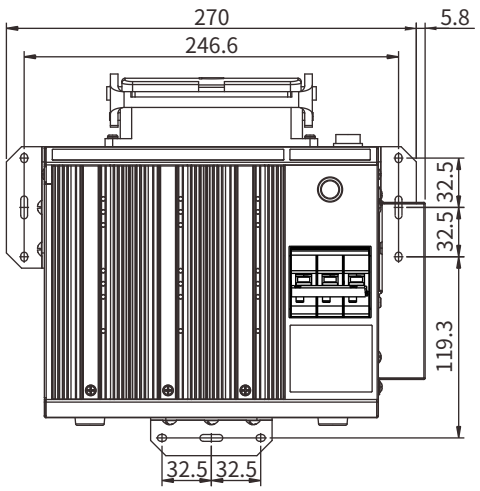
Features

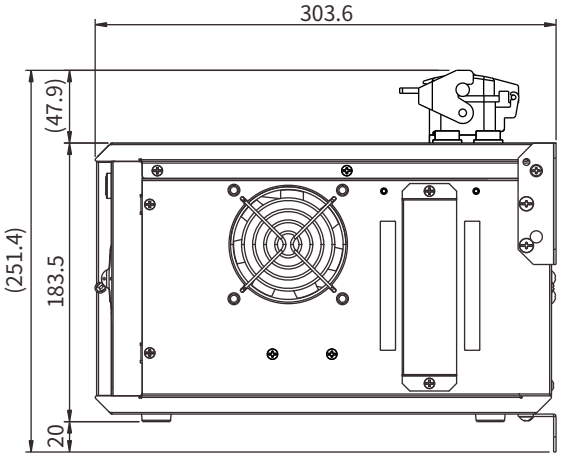
- Wiring Friendly design
- Easy swapping for individual module failures
- Compact size, light weight, installed directly on the injection molding machine
- Automatic ID recognition
- Fast alternative for 230V/380V power input

Function

- Built-in NFB switch
- Auto/Manual function
- PID auto temperature control
- Current, output percentage display function
- Setting for output percentage limit
- Heat sink temperature detection
- Detection fuse breakage
- RS-485 communication function: ASCII and RTU mode
- Temperature range: K TYPE: 0~600°C (32~999°F)
  J TYPE: 0~600°C (32~999°F)
- Thermocouple break and inverse detect
- Detection for heater open and short circuits
- Automatic shutdown for heater abnormality
- Automatic switch to manual mode if thermocouple breaks
- Selectable two thermocouple types (J/K)
- Selectable two temperature scales (°C/°F)
- Selectable six alarm modes
- Selectable two output trigger modes (Phase angle/Zero cross)

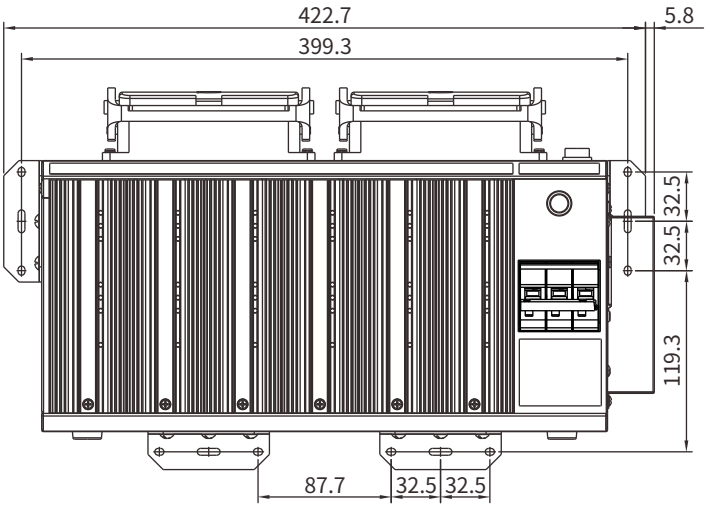
6 Zones (3 Modules)

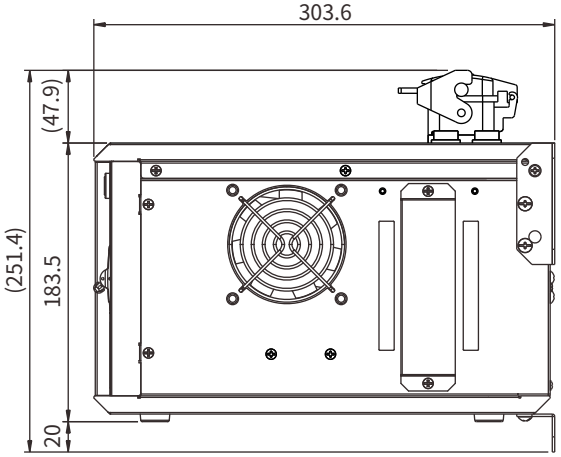




Bracket (Fixed by screw M4)

12 Zones (6 Modules)





Bracket (Fixed by screw M4)

Unit: mm

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長新科技股份有限公司

ARICO TECHNOLOGY CO., LTD.

總公司【Headquarters】
+886-2-2910-1266
+886-2-2915-9434
info@arico.com.tw
231028 新北市新店區寶橋路 235 巷 1 弄 1 號 8 樓
8F., No. 1, Alley 1, Lane 235, Baoqiao Rd.,
Xindian Dist., New Taipei City 231028, Taiwan
www.arico.com.tw/www.arico.tw

台 北 工 廠【Taipei Factory】
+886-2-2910-1077
+886-2-2910-1056

台中分公司【Taichung Branch】
+886-4-2291-7011
+886-4-2292-4021

台南分公司【Tainan Branch】
+886-6-253-9940
+886-6-253-9945

華南總經銷
東莞亞洛克【Dongguan】
+86-769-8390-2101~3
+86-769-8398-8791

華東總經銷
上海瑞昂【Shanghai】
+86-21-6111-5256~9
+86-21-6227-0065

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