

橡塑膠機控制系統

Plastic Machine Controller



- 簡易連結
- 良好的擴充性
- 分散式控制系統

- Easy Connectivity
- Flexible Expansion
- Distributed Control System

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長新科技塑膠機械產品解決方案

ARICO TECHNOLOGY Total Solutions for Plastic Machinery



產品總覽 Product Overview

GEFRAN 義大利公司及其他代理產品 / GEFran and other agency products

壓力傳感器 Pressure Transducer												
	K3 Series		KE Series		KN Series							
												
	M3 Series		ME Series		MN Series							
												
	M5 Series		M6 Series		KS/TK							
位移傳感器 Displacement Transducer												
	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			
溫度/壓力/顯示/警示 控制儀表 Controller/Alarm unit/ Programmer/Indicator												
	4T48	4T96	40TB	40B96	450	600	650	2400	2500			
功率控制器/固態繼電器 Power Controller/ Solid State Relay												
	GRM	GRM-H	GRP	GRP-H	GRS	GRS-H	GRZ	GRZ-H	GQ			
陶瓷電熱片 Ceramic Band Heater												
	標準 Standard			保溫 Insulation Plus			氣冷 Air Cooled					

產品總覽 Product Overview

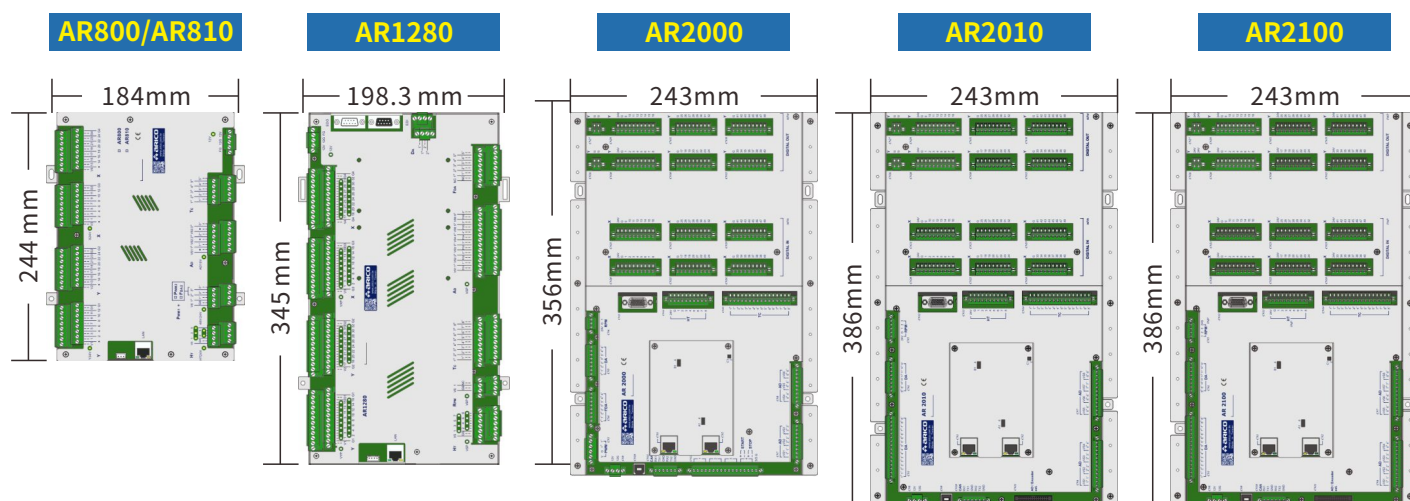
溫度控制器 Temperature Controller V Series										
	V100		V200		V300		V400		V500	
溫度控制器 Temperature Controller C Series										
	C100		C200		C300		C400		C500	
溫度控制器 Temperature Controller A Series										
	A1AN		A1DN		A2DA		A2DD		A3AN	
										
	A3DA		A3DD		A4AA		A4AD		A4AN	
熱澆道溫度控制器 Hot Runner Temperature Controller										
					TC500		TC5T		TC5H	
									閥門控制器 Valve Gate Controller 	
					TC50		TC53			
橡塑膠機控制系統 (射出機/押出機/吹瓶機等...) Plastic Machine Controller										
	AR800/AR810/AR1280/AR2000/AR2010/AR2100					AR/FTS Series HMI				
固態繼電器 Solid State Relay										
	ARD24 Series		ARD48 Series		SY Series		SV Series		SW Series	
電熱調整器 Heatsoft					訊號轉換器 Signal Transmitter					
	SB Series						TR100/TR200			

產品特色 Product Features

- 軟體皆可透過 USB 更新，無需複雜的更新步驟。
 - 人機介面和遠端控制主機採用分散式系統控制。
 - 可選用人機尺寸：7"/8"/10.1"/10.4"/12.1"/15.6"/17.3"/21.5"。
 - 採用 Ethernet 高速連線，連接人機介面與遠端控制主機。
 - 具有 RS-485 和 Ethernet(選配) 通訊介面。
 - 使用直覺式物件導向編輯程式，此為 Windows 作業系統下自行開發的人機畫面編輯程式。
 - 採用 AS2000PLC Ladder 編寫流程，簡易流暢。
 - 採用非 IPC 架構，避免因 PC CPU 快速更新或停產而造成硬體改版問題。
 - I/O 可自行定義及移位選擇：
 - (1) 單點硬體故障可直接透過程式設定，選擇其他點進行替換，以排除故障。
 - (2) 多功能特殊閥可透過程式設定搭配不同輸出點，在不同油路閥的時序需求下，於允許範圍內使用同一套程式。
 - (3) 多功能選配閥可透過程式選擇，並集中配置於前段，以節省 DI、DO、AI、AO 段數 (DO 部分應需考量：2A/點，16 點最高 10A)。
 - (4) 不同機台的 DI、DO、AI、AO 配置皆可透過程式設定對應硬體。例如既有機台改造時，即使硬體配置不同，也無需額外修改配線，只需透過程式設定即可。
 - 彈出式畫面與警報說明。
 - PLC 即時控制 (Real-Time)。
 - 使用者權限控制，可設定十層密碼層級。
 - 當前畫面可經由 USB 儲存至外部記憶裝置 (USB 隨身碟)。
-
- Software can be updated via USB without complicated update procedures.
 - The HMI and remote controller adopt a distributed control architecture.
 - A wide range of HMI sizes is available: 7", 8", 10.1", 10.4", 12.1", 15.6", 17.3", and 21.5".
 - High-speed Ethernet communication connects the HMI and remote controller.
 - RS-485 communication is standard, with optional Ethernet connectivity available.
 - An intuitive object-oriented HMI editor developed by ARICO for Windows provides easy screen design and configuration.
 - Machine control is programmed using the AS2000 PLC Ladder platform for simple and smooth operation.
 - The controller uses a non-IPC architecture, avoiding hardware revisions caused by frequent PC CPU updates or CPU discontinuation.
 - Flexible I/O configuration and reassignment:
 - (1) Faulty I/O points can be reassigned through software settings to other points for troubleshooting.
 - (2) Multi-function valves can be configured through software and assigned to different output points, allowing a single program to support different hydraulic valve sequences within the allowable operating range.
 - (3) Optional valve functions can be selected through software and concentrated in the front section to reduce the required number of DI, DO, AI, and AO channels (DO: 2 A per point; 16 points, with a maximum total output of 10 A).
 - (4) Different DI, DO, AI, and AO configurations can be assigned to the corresponding hardware through software settings. For retrofit applications, no additional rewiring is required even when hardware configurations differ; only software configuration is needed.
 - Pop-up screens display alarm messages and operating instructions.
 - Real-time PLC control.
 - User access control supports up to ten password levels.
 - The current HMI screen can be saved to an external USB storage device (USB flash drive).

控制器規格 Controller Specifications

型號 Model 規格 Specs	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 接法 I/O Connection	NPN	NPN	NPN	NPN	PNP
溫度 PID 控制 Temperature PID Control	5	8	8	8	8
DI 數位輸入 DI Digital Input	24 or 23+1 RPM	32	32/48	32/48	32/48
DO 數位輸出 DO Digital Output	24	32	32/48	32/48	32/48
AD 類比輸入 AD Analog Input	16 bit*3	16 bit*6	16 bit*6	16 bit*8	16 bit*8
Start-Stop	×	×	× /4	×	×
FDA 類比輸出 FDA Analog Output	× /2	12 bit*5 (0~+10V)	12 bit*4 (0~+10V)	×	×
DA 類比輸出 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 資料透過 FPGA 並列傳輸，提升控制精度 PLC CPU & Control CPU data transmitted through a parallel FPGA connection, providing higher control accuracy			



人機規格 HMI Specifications

型號 Model 規格 Specs	AR Series			FTS Series		
HMI	7"/8"/10.4"/12.1"			10.1"	15.6"/17.3"/21.5"	
HMI CPU	Vesper/266 MHz	Vela/1 GHz		2 GHz		
乙太網路 Ethernet	○ (選配 optional)	○		○	×	○ (選配 optional)
RS-485	1	1	2	2	1	2 (選配 optional)
CANopen	×	1	×	1	1	
Wi-Fi	×	○ (選配 optional)		○		
觸控面板 Touch Panel	可選配 10.4"/12.1" 擴充觸控面板 Optional 10.4"/12.1" expansion touch panel			○		

備註：7" 為 800×480，其他皆為 800×600。

Note: 7" is 800×480; others are 800×600.

硬體擴充規格 Hardware Expansion Specifications

型號 Model 規格 Specs	AR800 AR810	AR1280	AR2000	AR2010	AR2100
溫度模組 Temperature Module	人機通訊可擴充溫度模組 15 組，每 1 個模組內含 8 段溫度控制 HMI communication supports up to 15 temperature expansion modules, each providing 8 temperature control zones				
I/O 模組 I/O Module	×	可擴充 1 模組 DI/DO*8 (Max=8) Supports one expansion module; each module DI/DO*8 (Max=8)	可擴充 12 模組，每 1 個模組 DI/DO*16 (Max=192) Supports up to 12 expansion modules; each module DI/DO*16 (Max=192)		
AD 模組 AD Module	×	×	×	16 bit*8	16 bit*8
Encoder 模組 Encoder Module	×	×	×	32 bit*4	32 bit*4

AR 人機尺寸 HMI Dimensions

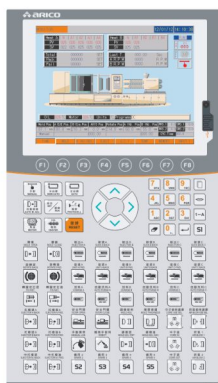
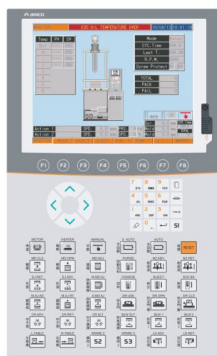
8"

10.4"

10.4"

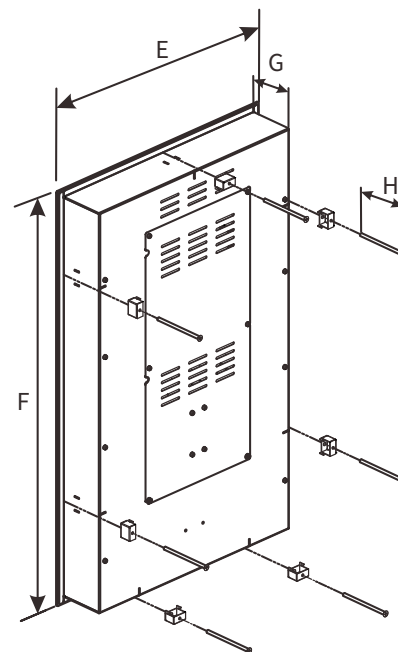
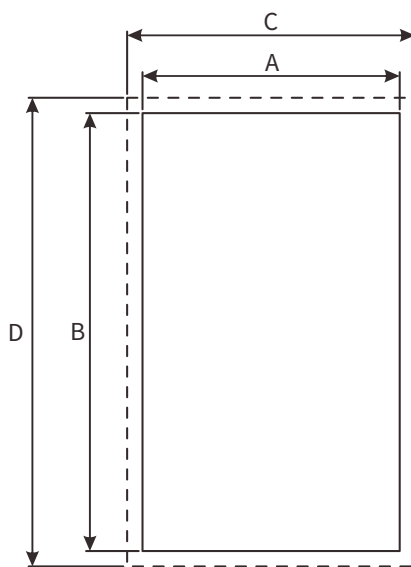
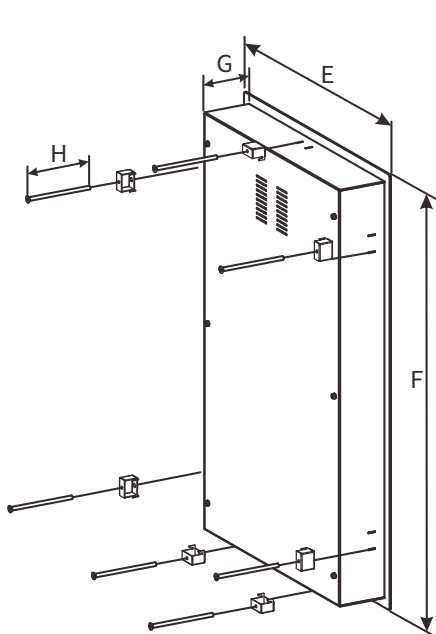
12.1"

12.1"



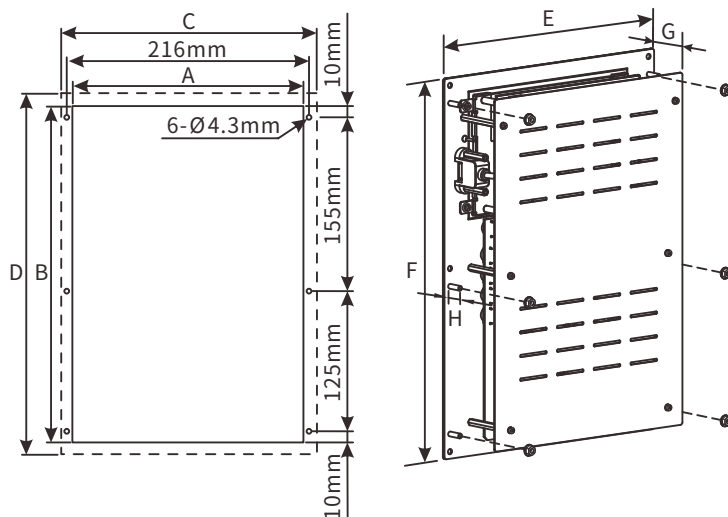
多射機
Multi-color
molding machine

多射機
Multi-color
molding machine



Unit: mm

LCD size	安裝開孔尺寸 Panel cutout dimensions		建議留隙尺寸 (機箱內徑) Recommended clearance (chassis interior diameter)		人機寬度 Width	人機高度 Height	後殼深度 Depth	螺絲長度 Length of screw	建議機箱深度 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" 多射機 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" 多射機 Multi-color molding machine	314	531	394	611	332	548.5			

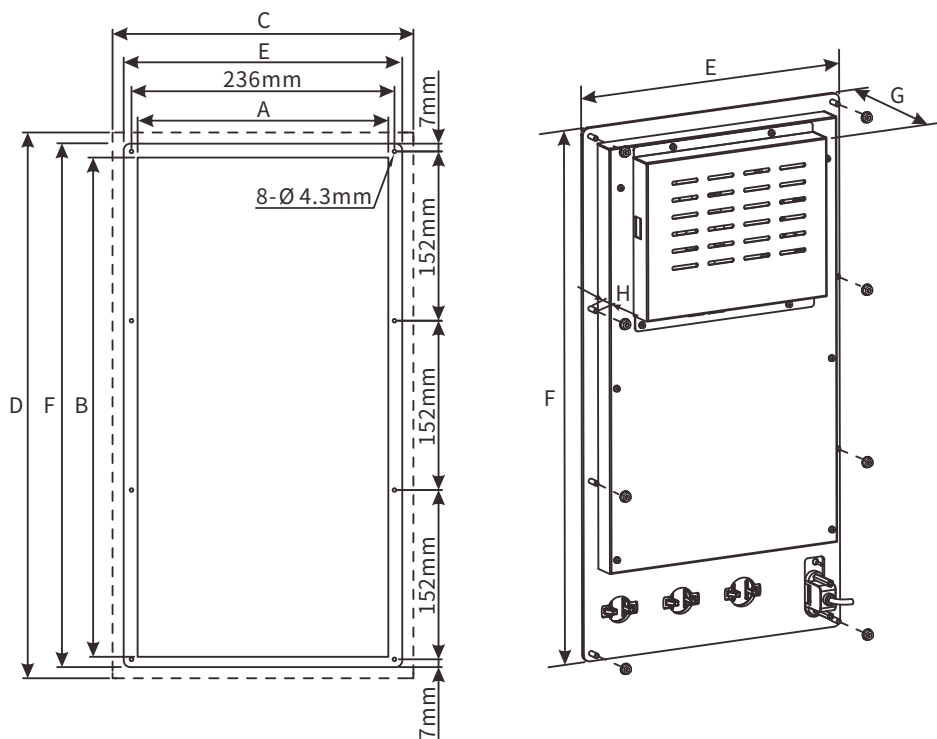


Unit: mm

LCD size	安裝開孔尺寸 Panel cutout dimensions		建議留隙尺寸 (機箱內徑) Recommended clearance (chassis interior diameter)		人機寬度 Width	人機高度 Height	後殼深度 Depth	螺柱長度 Length of screw	建議機箱深度 Recommended chassis depth
	A	B	C	D	E	F	G	H	
7"	206	300	286	380	228	322	51	10	80



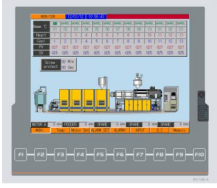
鋁框面板
Aluminum frame



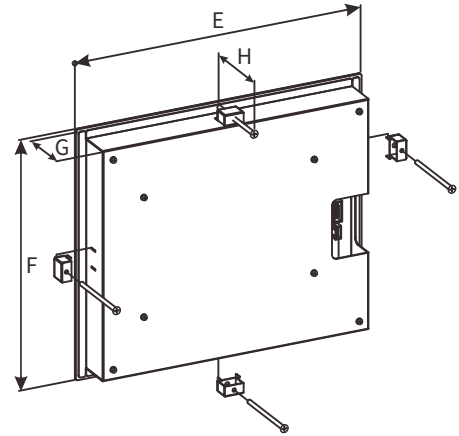
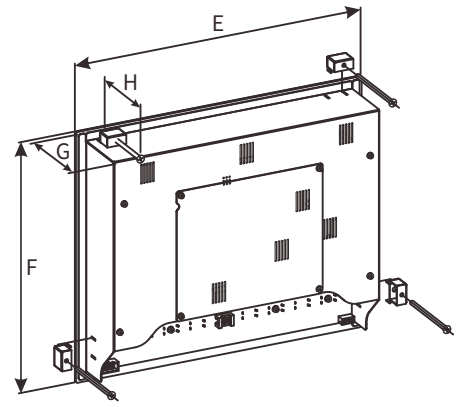
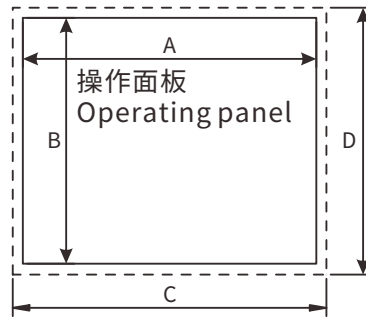
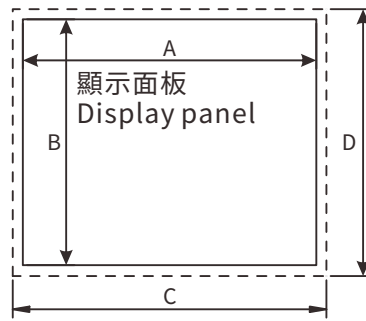
Unit: mm

LCD size	安裝開孔尺寸 Panel cutout dimensions		建議留隙尺寸 (機箱內徑) Recommended clearance (chassis interior diameter)		人機寬度 Width	人機高度 Height	後殼深度 Depth	螺柱長度 Length of screw	建議機箱深度 Recommended chassis depth
	A	B	C	D	E	F	G	H	
8"	224	446	304	526	250	470	51	10	80

10.4"



押出機分離式面板
Extruder machine



Unit: mm

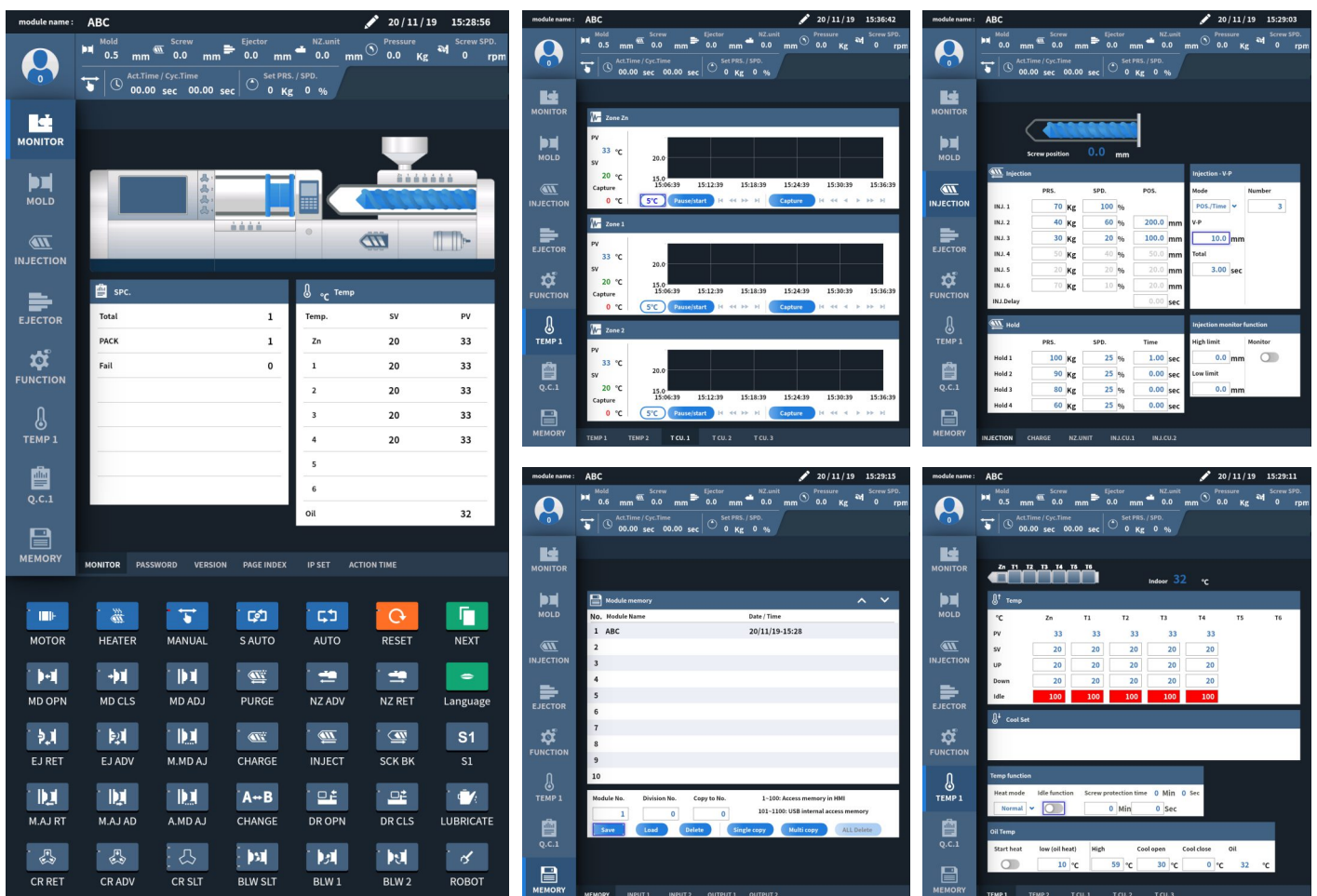
10.4" 面板 10.4" panel	安裝開孔尺寸 Panel cutout dimensions		建議留隙尺寸 (機箱內徑) Recommended clearance (chassis interior diameter)		人機寬度 Width	人機高度 Height	後殼深度 Depth	螺絲長度 Length of screw	建議機箱深度 Recommended chassis depth
	A	B	C	D	E	F	G	H	
顯示面板 Display panel	270	227	350	307	287.6	244.8	61	70	80
操作面板 Operating panel							34		

FTS 人機介面及尺寸 HMI Screens and Dimensions

- 可遠端監控人機畫面及更新程式，便於維護。
- 可以顯示輔助設備的畫面。
- 可與所有 AR 系列主機板連線運作。
- 可選配獨立式動作操作面板。
- 全觸碰操作，動作按鍵可由軟體自由編排。
- 適用於射出機 / 押出機 / 吹瓶機。
- Supports remote HMI monitoring and program updates for easier maintenance.
- The HMI can display screens from auxiliary equipment.
- Compatible with all AR series controller boards.
- Optional standalone operation panel.
- Full touch operation, with on-screen buttons freely configurable through software.
- Suitable for injection molding, extrusion, and blow molding machines.

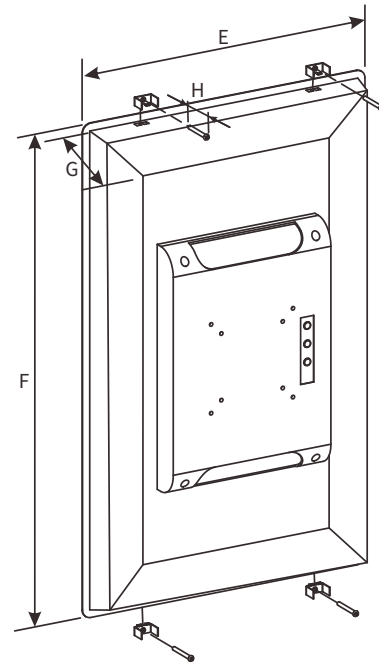
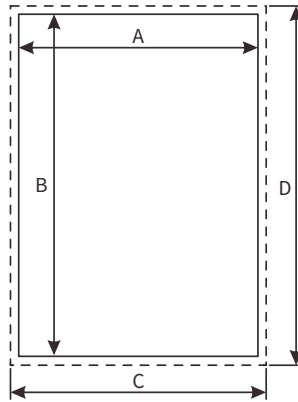
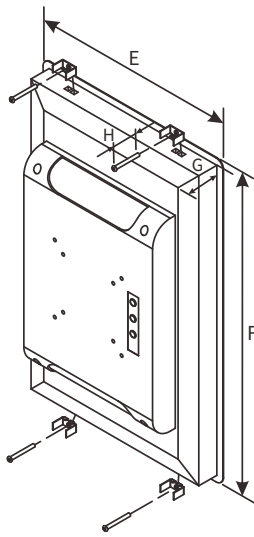


HMI



人機尺寸 HMI Dimensions

15.6"
17.3"

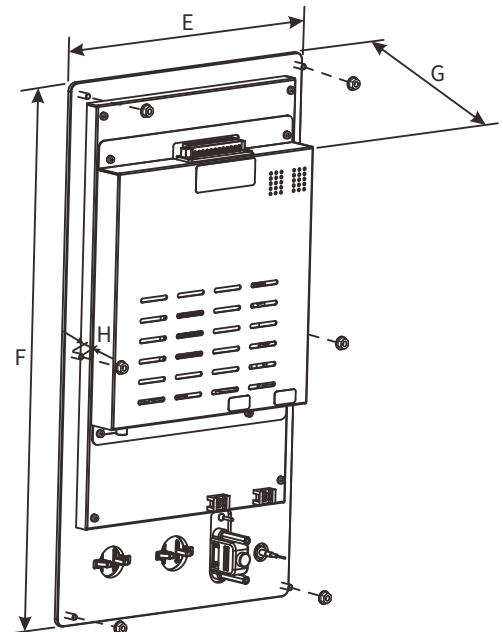
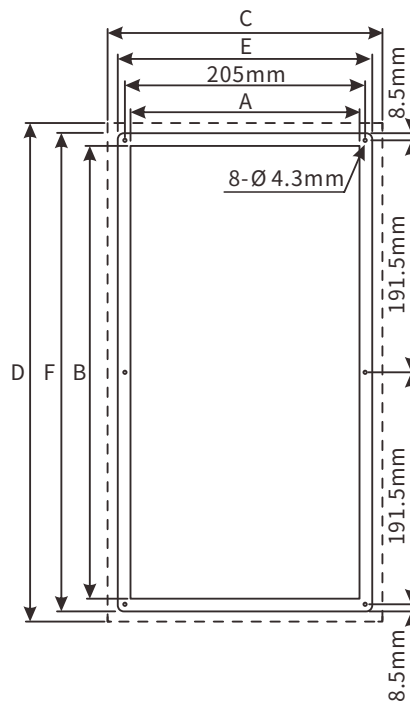


21.5"

Unit: mm

LCD size	安裝開孔尺寸 Panel cutout dimensions		建議留隙尺寸 (機箱內徑) Recommended clearance (chassis interior diameter)		人機寬度 Width	人機高度 Height	後殼深度 Depth	螺絲長度 Length of screw	建議機箱深度 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		

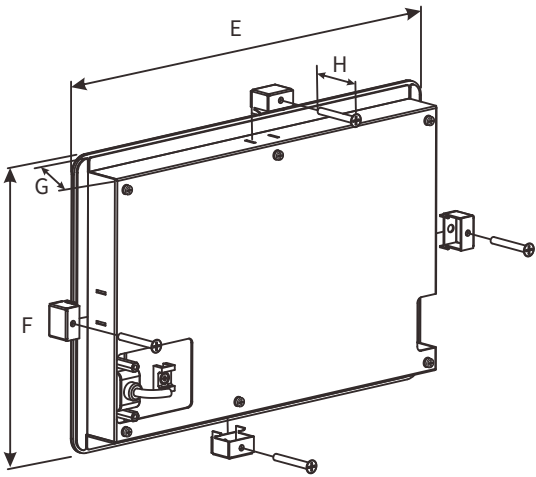
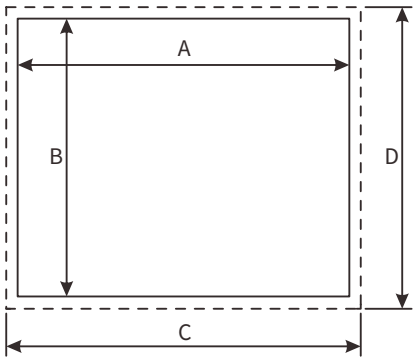
10.1"



Unit: mm

LCD size	安裝開孔尺寸 Panel cutout dimensions		建議留隙尺寸 (機箱內徑) Recommended clearance (chassis interior diameter)		人機寬度 Width	人機高度 Height	後殼深度 Depth	螺柱長度 Length of screw	建議機箱深度 Recommended chassis depth
	A	B	C	D	E	F	G	H	
10.1"	191	372	271	452	220	400	40	10	80

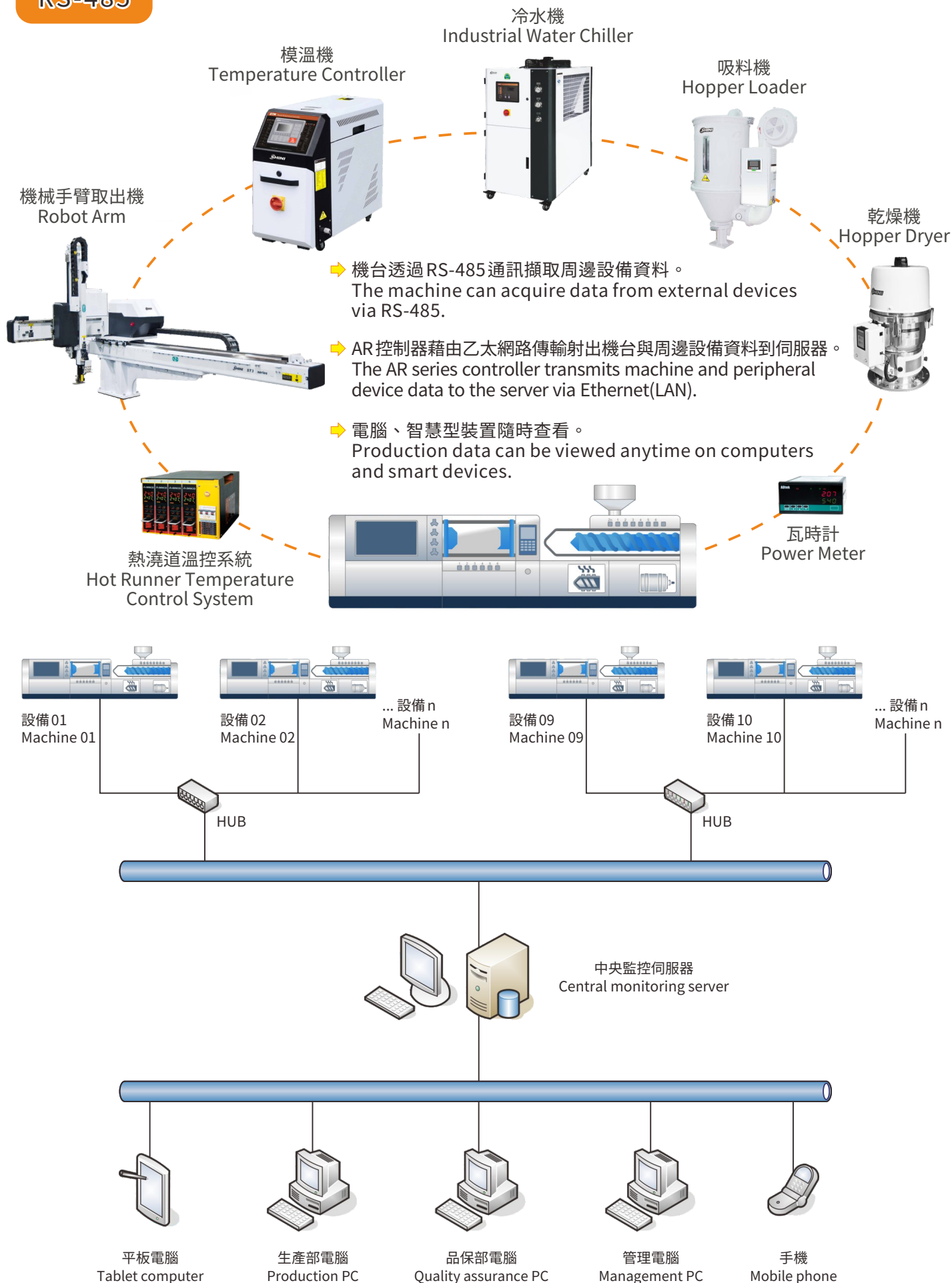
操作面板 Operation Panel



Unit: mm

操作面板 Operation panel	安裝開孔尺寸 Panel cutout dimensions		建議留隙尺寸 (機箱內徑) Recommended clearance (chassis interior diameter)		人機寬度 Width	人機高度 Height	後殼深度 Depth	螺柱長度 Length of screw	建議機箱深度 Recommended chassis depth
	A	B	C	D	E	F	G	H	
35 keys	251	157	331	237	269	175	25	30	80

RS-485



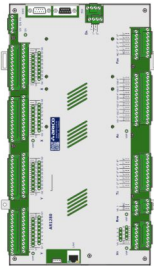
外部擴充模組 External Expansion Modules

HMI

溫度擴充 Temperature Expansion (鐵殼 Iron Shell)

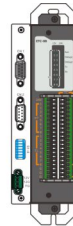
溫度擴充 Temperature Expansion (塑膠殼 Plastic Shell)

AR1280 **NPN**



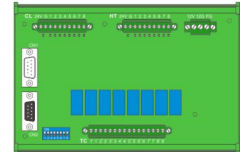
- 連接人機主板
- 線長標準：5m(可客製)
- Connect HMI board
- Standard cable: 5m or customized

NPN

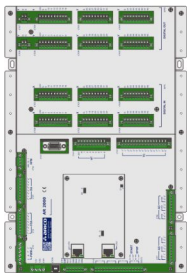


- 擴充板
- 線長標準：0.45m
- Expansion board
- Standard cable: 0.45m

NPN



AR2000 **NPN**



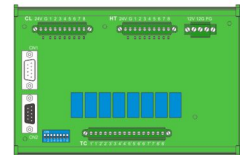
- 連接人機主板
- 線長標準：5m(可客製)
- Connect HMI board
- Standard cable: 5m or customized

NPN

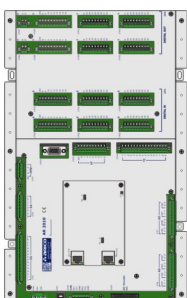


- 擴充板
- 線長標準：0.45m
- Expansion board
- Standard cable: 0.45m

NPN



AR2010 **NPN**



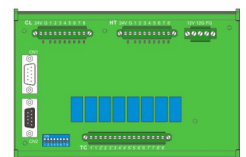
- 連接人機主板
- 線長標準：5m(可客製)
- Connect HMI board
- Standard cable: 5m or customized

NPN

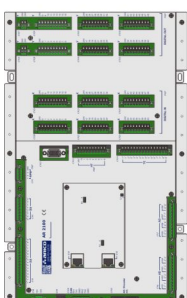


- 擴充板
- 線長標準：0.45m
- Expansion board
- Standard cable: 0.45m

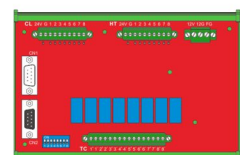
NPN



AR2100 **PNP**



PNP



遠端控制 Remote I/O

16*DI & 16*DO
擴充 Expansion
(鐵殼 Iron Shell)

16*DI & 16*DO
擴充 Expansion
(塑膠殼 Plastic Shell)

4 段 Encoder 擴充
4-Channel
Encoder Expansion

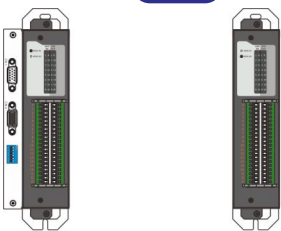
8*DI & 8*DO
擴充 Expansion

AD 擴充
AD Expansion

NPN

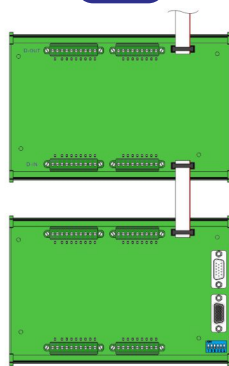


NPN

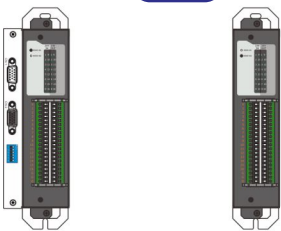


- 擴充主板 (最多192點)
- Main board (Max. 192 ports)
- 擴充板
- Expansion board

NPN

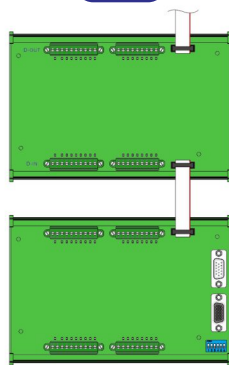


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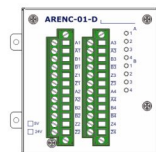


- 擴充主板 (最多192點)
- Main board (Max. 192 ports)
- 擴充板
- Expansion board

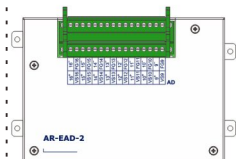
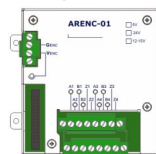
NPN



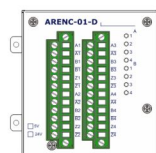
差動型 Line driver



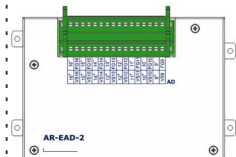
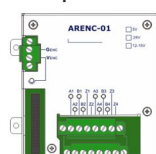
單極型 Open collector



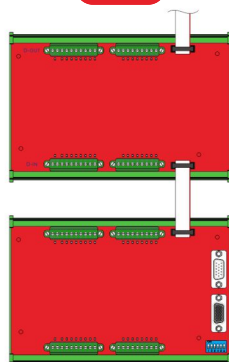
差動型 Line driver



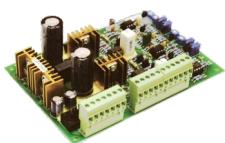
單極型 Open collector



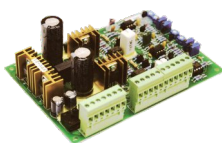
PNP



配件 Accessories



FPV-01



FPV-01N

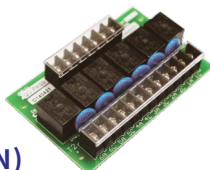


ARPV-01

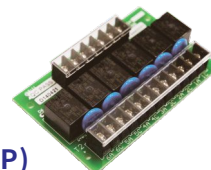


ARPV-04

比例壓力 / 流量放大板 Amplifier Board			
AC 輔助電源 AC Auxiliary Power	15Vac/0Vac/15Vac		-
AC 輸入電源 AC Input Power	50Vac (40 Ω)/24Vac (10 Ω)		-
DC 輔助電源 DC Auxiliary Power	-		24Vdc
DC 輸入電源 DC Input Power	-		48Vdc
輸出功率 (最大) Power Output (Max.)	25.6W (40 Ω)/6.4W (10 Ω) Jumper select		160W
負載阻抗 Load Impedance	40/10 Ω		10 Ω
最大輸出電流 Output Current (Max.)	0.8A		4A
控制信號輸入 Control Signal Input	0~10Vdc		
保險絲 Fuse	2A		5A
振動頻率 Vibration Frequency	120Hz		
上升速率 Ascending Speed	粗調 (3/4 轉) Coarse adjustment (three-quarters turn)		
下降速率 Descent Speed	粗調 (3/4 轉) Coarse adjustment (three-quarters turn)		
輸出最大值 Output Value (Max.)	微調 (25 轉) Fine adjustment (25 rpm)		
輸出最小值 Output Value (Min.)	微調 (25 轉) Fine adjustment (25rpm)	粗調 (3/4 轉) Coarse adjustment (three-quarters turn)	微調 (25 轉) Fine adjustment (25rpm)



Relay-04 (NPN)



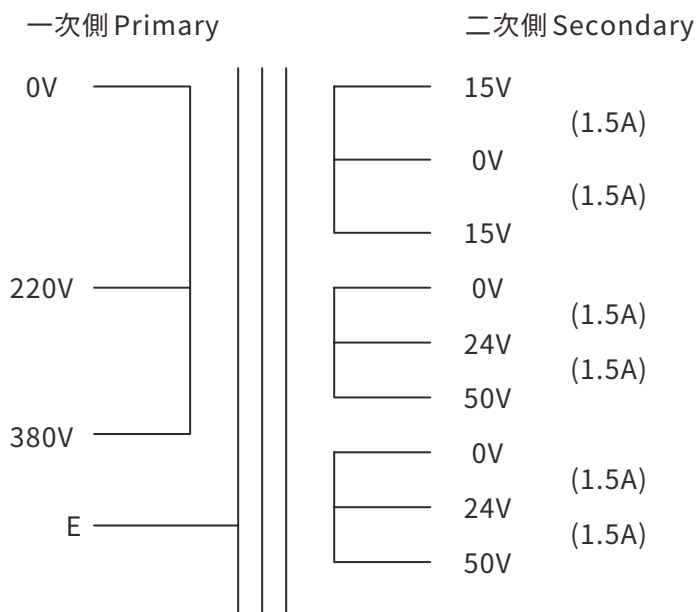
Relay-05 (PNP)

繼電器板 Relay Board		Relay-04 (NPN)		Relay-05 (PNP)	
輸出控制 Control Output					
額定電流 Rated Carrying Current	12A			12A	
最小負載值 Min. Applicable Load	10mA 5Vdc			10mA 5Vdc	
最大允許電壓 Max. Allowable Voltage	250Vac/30Vdc			250Vac/30Vdc	
額定負載 Rated Load	12A/120Vac	10A/24Vdc	10A/240Vac	12A/120Vac	10A/24Vdc 10A/240Vac
輸入控制 Control Input					
標準電壓 Nominal Voltage	24Vdc			24Vdc	
標準電流 Nominal Current	15mA			15mA	
驅動電壓 Pick Up Voltage	<2.4Vdc			>18Vdc	
停止電壓 Drop Out Voltage	>18Vdc			<2.4Vdc	
過載電壓 Max. Applicable Voltage	26.4Vdc			26.4Vdc	
動作時間 Operate Time	10ms			10ms	
釋放時間 Release Time	5ms			5ms	
功耗 Power Consumption	0.36W			0.36W	

變壓器 Transformer MA-02

1. 一次側輸入：AC 0V, 220V, 380V, E
2. 二次側有 3 組輸出：
 - (1) AC 15V, 0V, 15V (1.5A)
 - (2) AC 0V, 24V, 50V (1.5A)
 - (3) AC 0V, 24V, 50V (1.5A)
3. 總功率：195W
4. 圖示如下：

1. Primary input: AC 0V, 220V, 380V, E
2. Secondary outputs: 3 sets:
 - (1) AC 15V, 0V, 15V (1.5A)
 - (2) AC 0V, 24V, 50V (1.5A)
 - (3) AC 0V, 24V, 50V (1.5A)
3. Total power: 195W
4. Diagram:



116×110×105mm

電源供應器 Power Supply



型號 Model 規格 Specs	PMT-12V50W2BA	LRS-350-24	LRS-75-12	LRS-100-48
輸出電壓 Output Voltage	12V	24V	12V	48V
輸出功率 Output Power	50.4W	350.4W	72W	110.4W
輸出電流 Output Current	4.2A	14.6A	6A	2.3A
輸入電壓範圍 Input Voltage Range	90~264Vac	90~132Vac/ 180~264Vac by switch 240~370Vdc (switch on 230Vac)	85~264Vac 120~373Vdc	85~264Vac 120~373Vdc (可承受 300Vac 浪湧輸入 5 秒 不損壞) (Withstand 300Vac surge for 5 sec. without damage)
尺寸 Dimensions	99×82×29mm	215×115×30mm	99×97×30mm	129×97×30mm
重量 Unit Weight	0.176kg	0.76kg	0.23kg	0.33kg
詳細規格參照 Specifications Reference	DeltaPSU	MEAN WELL	MEAN WELL	MEAN WELL

授權經銷商 Distributors



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】

☎ +86-769-8390-2101~2

☎ +86-769-8398-8791

華東總經銷

上海亞洛克【Shanghai】

☎ +86-21-6111-5256~7

☎ +86-21-6227-0065