



# Control

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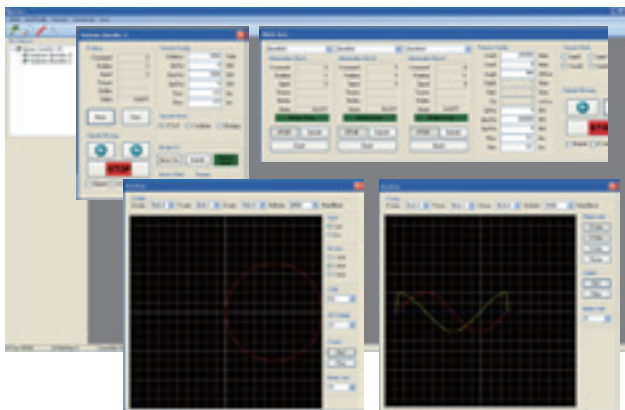
# Programmable Automation Controller MH1 / MP1



## Programmable Automation Controller

### MH1 / MP1 Series

- ▶ **Robust Hardware:** Up to Intel i7 Quad Core 2.1 GHz processor, built-in USB and CFast Card slots, cable-less and fan-less design for increased reliability and low power consumption
- ▶ **Stable Storage:** Easy installation of large-capacity SATA hard disk for easy maintenance and data management
- ▶ **Integrated Control:** Perfect integration of motion control and logic programming control enables better synchronization with EtherCAT communication
- ▶ **Multiple Communication Interfaces:** 1 COM port, 2 giga Ethernet ports and 2 DMCNET communication ports for fast and convenient data transmission
- ▶ **Flexible Extension Interfaces:** 2 PCI or 1 PCIe extension slots for more flexible applications
- ▶ **EtherCAT Master Port:** Up to 4 kHz synchronous cycle time for multi-axis control and automation
- ▶ **Extended Monitor Display:** 1 VGA signal port splits the display into multiple screens for real time monitoring
- ▶ **Complete Functionality:** A compact and modularized controller with capabilities of logic handling, motion control, communication and monitoring
- ▶ **Easy Setting:** Control of the slave modules and servo systems are simple with easy to understand key operation
- ▶ **High Security:** Customizable IC device for secured confidential programming protection



### Motion

- Built-in EtherCAT and DMCNET master
- Enables up to 64 axes of control via EtherCAT or up to 12 axes of servo system units via DMCNET
- Connects max. 100 units of EtherCAT slave modules or 24 units of DMCNET slave modules
- Electronic Cam (E-Cam) function
- Linear, arc and high-speed continuous interpolation

### Software

Easy-to-operate user-defined interface  
Optional Soft HMI functions  
Optional CNC control functions  
Optional robot arm control functions  
Optional IEC61131 PLC functions

- ▶ **Speed Curve Tracing:** Synchronously traces the speed curves of current motion commands to achieve better synchronization effects between multiple axes in more efficient ways
- ▶ **Simulation Scope:** 2D dimension scope function performs timer, sequential and motion events for quick response and high-end motion graphics verification
- ▶ **EtherCAT Automation Software:** EcNAVI development software is for configuring an EtherCAT network that includes an EtherCAT master controller and slave devices for data communication, functional identification, programming and debugging

# Specifications & Ordering Information

## MH1 Series

Model Name		MH1-S30D	MH1-A12D	MH1-A12E	MH1-C50D	MH1-C50E	MH1-C70D	MH1-C70E
<b>Processor System</b>	Processor	VIA Nano X2 Dual Core 1.2GHz	Intel Atom E3845 Quad Core 1.91GHz		Intel Core i5-3610ME Dual Core 2.7GHz		Intel Core i7-3612QE Quad Core 2.1GHz	
	System Chipset	VIA VX900	x		Intel QM77			
	MRAM	128KB						
	BIOS	AMI BIOS						
	System Memory	1 × DDR3-1066 Max. up to 8 GB	DDR3L-1333 4 GB, supports ECC		2 × DDR3-1600 Max. up to 16 GB, supports ECC			
<b>Display Interface</b>	CRT	2048 × 1536 / 75Hz	2560 × 1600 / 60Hz		2048 × 1536 / 75Hz			
	Ethernet	2 × IEEE 802.3/802.3u/802.3ab 1Gbps						
<b>I/O Interface</b>	DMCNET	√	√	x	√	x	√	x
	EtherCAT	x	x	√	x	√	x	√
	USB	4 × USB 2.0						
	Serial Port	1 × RS-232 (Hardware auto flow control)						
	Digital Input	x	1-CH isolated, 24 V <sub>DC</sub> Sink (5 mA/CH)	x	1-CH isolated, 24 V <sub>DC</sub> Sink (5 mA/CH)	x	1-CH isolated, 24 V <sub>DC</sub> Sink (5 mA/CH)	x
	Digital Output	x	1-CH isolated, 24 V <sub>DC</sub> Sink (10 mA/CH)	x	1-CH isolated, 24 V <sub>DC</sub> Sink (10 mA/CH)	x	1-CH isolated, 24 V <sub>DC</sub> Sink (10 mA/CH)	x
	Encoder Input	x	4-CH isolated, QEP±	x	4-CH isolated, QEP±	x	4-CH isolated, QEP±	x
	Compare Output	x	2-CH isolated, CMP±	x	2-CH isolated, CMP±	x	2-CH isolated, CMP±	x
	Expansion	[2 × PCI slot] [2 × PCIe slot] × 1	2 × PCI slot 2 × PCIe slot × 1		[2 × PCI slot] × 1 [2 × PCIe slot] × 1 [1 × PCIe slot] × 4 + [1 × PCIe slot] × 1			
	<b>Storage</b>	CFast card	1 × CFast Cat (optional)					
Micro-SD card		1 × Micro-SD card (optional)	x	x	x	x	x	x
eMMC		x	1 × eMMC (optional)		x	x	x	x
Solid State Disk		1 × 2.5" SATA SSD (optional)						
<b>Power Requirements</b>	Input Voltage	12 ~ 30 V <sub>DC</sub> ± 10%						
	Input Type	ATX						
<b>Certification</b>	Safety	CE						
<b>Dimensions (W × H × D)</b>		127 × 175 × 250 mm (5" × 6.89" × 9.85")						
<b>Operation Temperature</b>		0°C ~ 50°C						
<b>Weight</b>		4.7 Kg						
<b>Software Support</b>		Windows 7.0, Windows XP/7 Embedded, RTX	Windows 7.0, Windows 7 Embedded, RTX		Windows 7.0, Windows XP/7 Embedded, RTX			



# Specifications & Ordering Information

## MP1 Series

Model Name		MP1-A10D-10	MP1-A10G-10	MP1-A12D-12	MP1-A12G-12	MP1-C50D-12	MP1-C50G-12	MP1-C70D-12	MP1-C70G-12
Processor System	Processor	Intel Atom E3825 Quad Core 1.33 GHz		Intel Atom E3845 Quad Core 1.91 GHz		Intel Core i5-3610ME Dual Core 2.7 GHz		Intel Core i7-3612QE Quad Core 2.1 GHz	
	System Chipset	x	x	x	x	Intel QM77			
	MRAM	128KB							
	BIOS	AMI BIOS							
	System Memory	DDR3L-1333 2 GB, supports ECC		DDR3L-1333 4 GB, supports ECC		2 × DDR3-1600 Max. up to 16 GB, supports ECC			
Display Interface	LCD Panel	10.1" TFT LCD (262,144 color) 1024 × 600 pixels (WXGA) LED backlight 222.72(H) × 125.28(V)mm		12.1" TFT-LCD (262K/16.2M color) 1024 × 768 pixels (XGA) LED backlight 245.76(H) × 184.32(V)mm					
	Touch Panel	4-wire Resistive (Max. 10-bit Resolution)							
	LED	POWER/RUN/ERROR							
	CRT	2560 × 1600/60Hz				2048 × 1536/75Hz			
I/O Interface	Ethernet	1 × IEE 802.3/802.3u/ 802.3ab 1 Gbps	2 × IEE 802.3/802.3u/ 802.3ab 1 Gbps	4 × IEE 802.3/802.3u/ 802.3ab 1 Gbps	1 × IEE 802.3/802.3u/ 802.3ab 1 Gbps	4 × IEE 802.3/802.3u/ 802.3ab 1 Gbps	1 × IEE 802.3/802.3u/ 802.3ab 1 Gbps	4 × IEE 802.3/802.3u/ 802.3ab 1 Gbps	1 × IEE 802.3/802.3u/ 802.3ab 1 Gbps
	Ethernet w/ POE	x	x	x	4 × IEE 802.3/802.3u/ 802.3ab 1 Gbps PoE IEEE 802.3af	x	4 × IEE 802.3/802.3u/ 802.3ab 1 Gbps PoE IEEE 802.3af	x	4 × IEE 802.3/802.3u/ 802.3ab 1 Gbps PoE IEEE 802.3af
	DMCNET	√	x	√	x	√	x	√	x
	EtherCAT	x	√	x	√	x	√	x	√
	USB	2 × USB 2.0		1 × USB 3.0 4 × USB 2.0		4 × USB 3.0 2 × USB 2.0			
	Serial Port	1 × RS-232 (w/Hardware auto flow control) 1 × RS-422/485		1 × RS-232 1 × RS-232 (w/Hardware auto flow control) 2 × RS-422/485		2 × RS-232 (w/Hardware auto flow control) 2 × RS-422/485			
	Digital Input	8-CH isolated, 24 V <sub>DC</sub> Sink/Source (5 mA/CH)							
	Digital Output	4-CH isolated, 24 V <sub>DC</sub> Sink (500 mA/CH)							
	Encoder Input	x	2-CH isolated, QEP±						
	Compare Output	x	2-CH isolated, CMP±						
Storage	CFast card	1 × CFast Cat (optional)							
	Solid State Disk	16GB SSD		1 × 2.5" SATA SSD					
	eMMC	1 × eMMC (Optional)				x			
Power Requirements	Input Voltage	12~30 V <sub>DC</sub> ±10%							
	Input Type	ATX							
Certification	Safety	CE							
Dimensions (W × H × D)		271 × 200 × 61 mm		2015 Q4			2015 Q4		
Operation Temperature		0°C ~50°C							
Weight		1.75 KG		2015 Q4			2015 Q4		
Software Support		Windows 7.0, Windows XP/7 Embedded, RTX							

## Model Name Explanation

### MH1-S30D-A11D0

MH1	S30	D	A	1		1		D0		
Product Name	CPU Information	Extension Interface	Slot Interface	CFast Card & SSD Options		DRAM & micro-SD Card Options		Customer Version		
Motion Control Hub 1 <sup>st</sup> Generation	S30 = VIA Nano X2 Dual Core 1.2 GHz A12 = Intel Atom E3845 Quad Core 1.91 GHz C50 = Intel Core i5-3610ME Dual Core 2.7 GHz C70 = Intel Core i7-3612QE Quad Core 2.1 GHz	D = DMCNET E = EtherCAT G = Giga LAN	0 = No Extension Slot A = 2 PCI slot B = 2 PCIe slot [x1+x1] C = 2 PCIe slot [x4+x1]	DRAM	micro-SD	CFast	SSD	D0 = Standard Version		
				0	-	-	0		-	-
				1	4GB	4GB	1		4GB	4GB

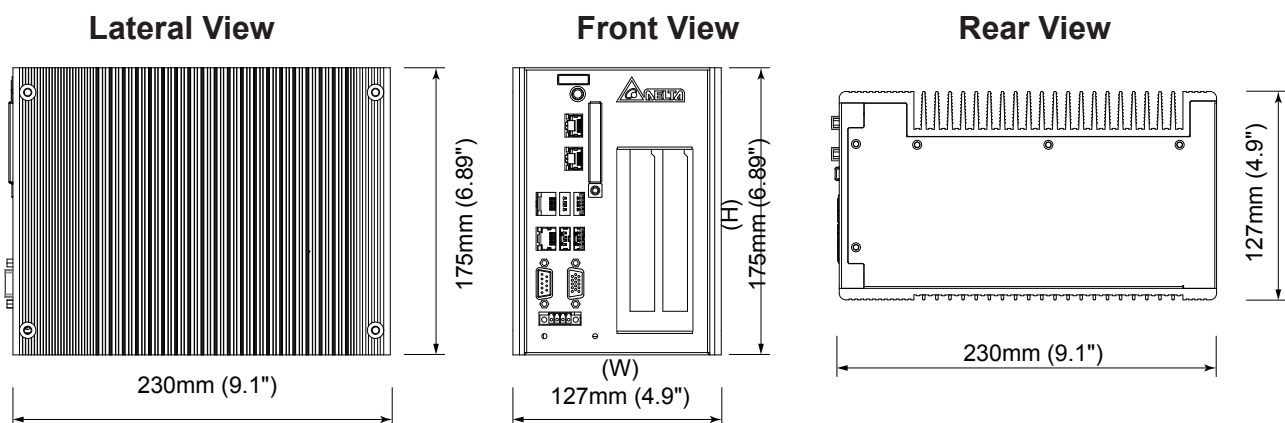
### MP1-A10D-1011D0

MP1	A10	D	10	1		1		D0		
Product Name	CPU Information	Communication	Display Size	CFast Card & SSD Options		DRAM & micro-SD Card Options		Customer Version		
Motion Control Panel 1 <sup>st</sup> Generation	A10 = Intel Atom E3825 Dual Core 1.33 GHz A12 = Intel Atom E3845 Quad Core 1.91 GHz C50 = Intel Core i5-3610ME Dual Core 2.7 GHz C70 = Intel Core i7-3612QE Quad Core 2.1 GHz	D = DMCNET E = EtherCAT G = Giga-LAN	05 = 5" 10 = 10" 12 = 12" 15 = 15"	DRAM	micro-SD	CFast	SSD	D0 = Standard Version		
				0	4GB	-	0		16GB	-
				1	2GB	-	1		16GB	-
				2	-	4GB × 2	2		-	16GB

## Dimensions Dimensions are in mm (in.)

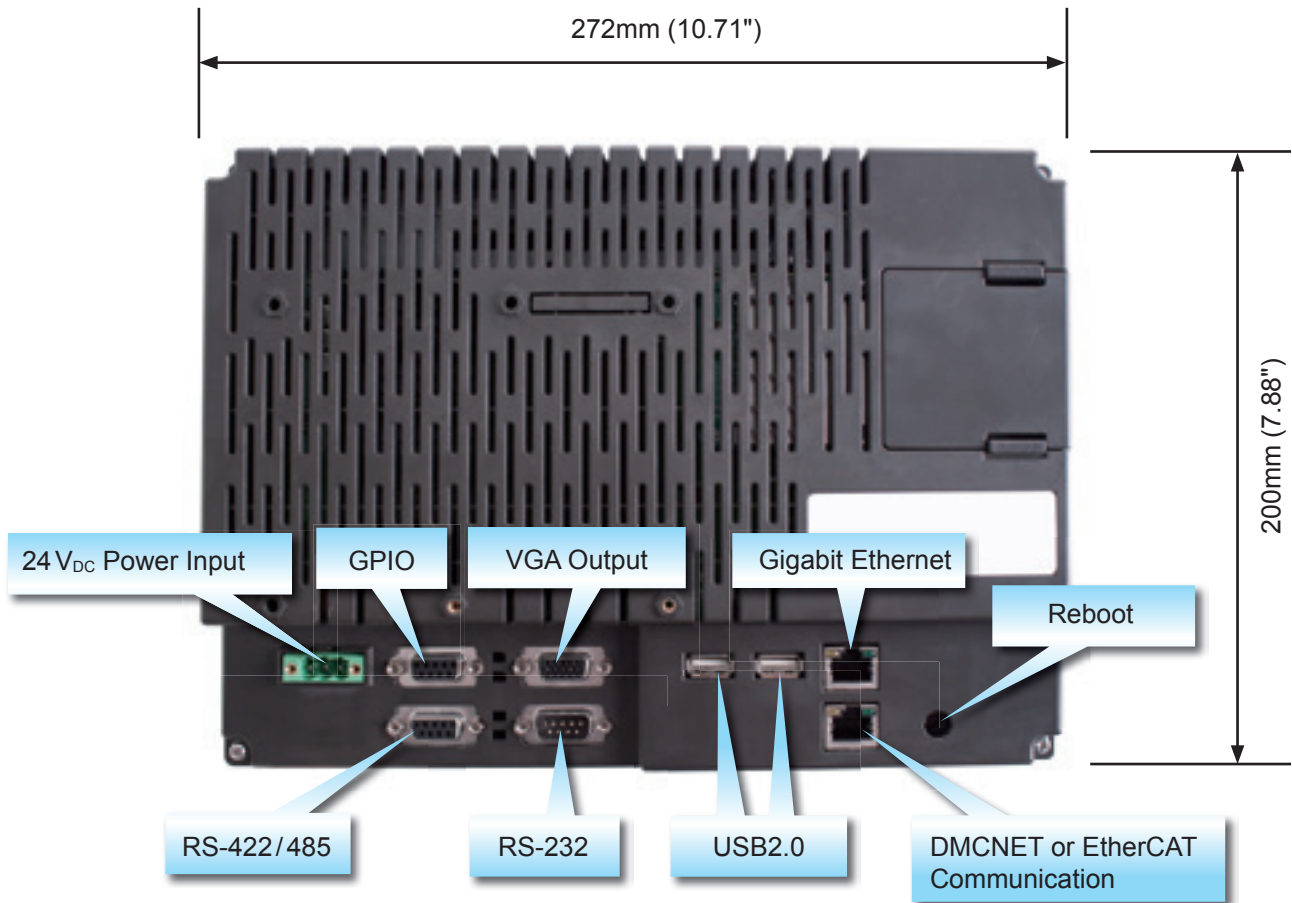
### MH1 Series

MH1-S30D Dimensions: 230mm (L) × 127mm (W) × 175mm (H)



## Dimensions Dimensions are in mm (in.)

### MP1 Series

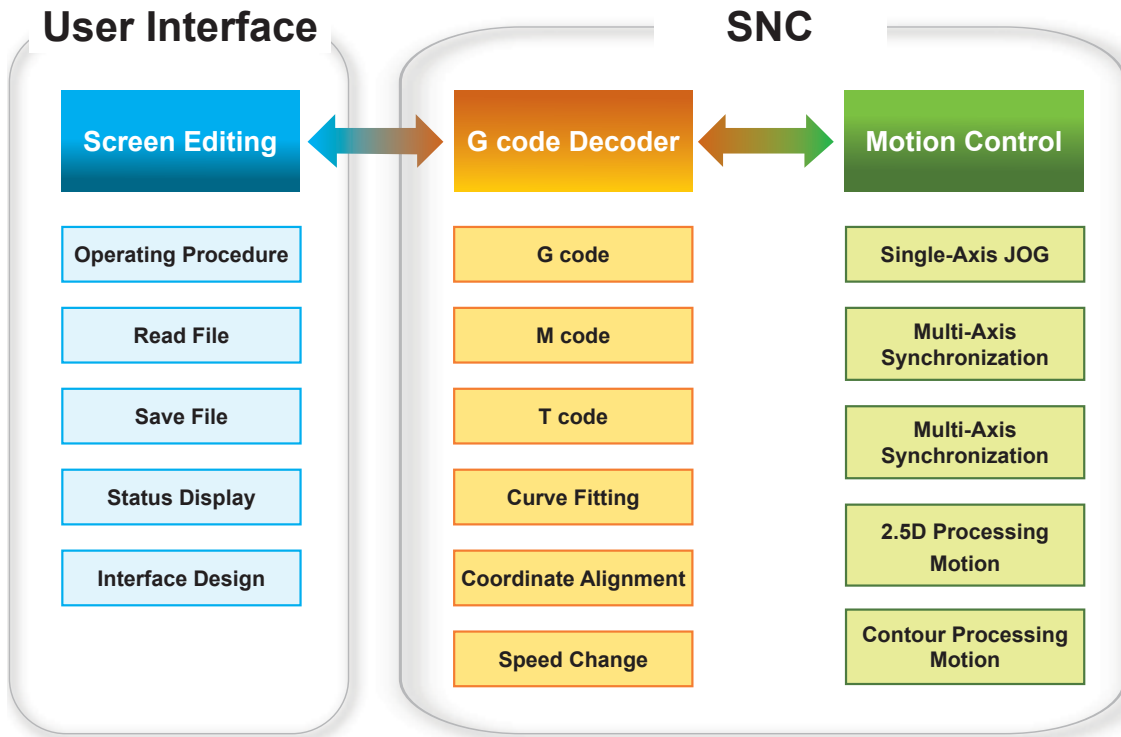


## Accessories

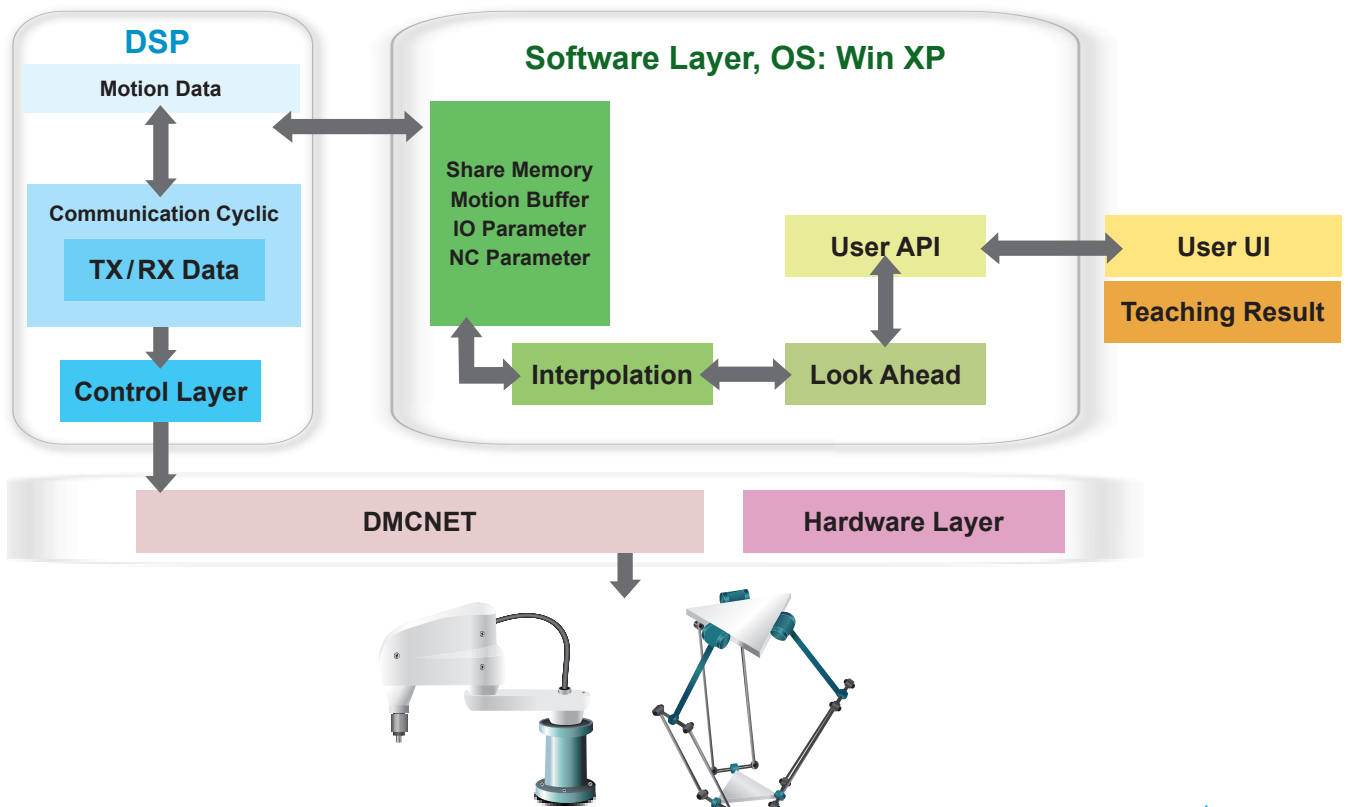
<b>Delta Part Number</b>	IPC-CFAMB01611	<b>Delta Part Number</b>	SAS-0WEMXPE
<b>Descriptions</b>	CFAST MLC SATA III 16GB INNODISK	<b>Descriptions</b>	SW OS WINDOWS XP EMBEDDED
<b>Delta Part Number</b>	IPC-CFASA01610	<b>Delta Part Number</b>	SAS-0RTXX86
<b>Descriptions</b>	CFAST SLC SATA II 16GB TRANSCEND	<b>Descriptions</b>	SW OS RTX RTOS 32-BIT
<b>Delta Part Number</b>	IPC-SSDMB06411	<b>Delta Part Number</b>	SAS-1COMECEM
<b>Descriptions</b>	SSD 2.5" MLC SATA III 64GB INNODISK	<b>Descriptions</b>	SW COMM ETHERCAT MASTER EC-MASTER
<b>Delta Part Number</b>	IPC-SSDMB12811		
<b>Descriptions</b>	SSD 2.5" MLC SATA III 128GB INNODISK		

# Software

## Soft Numeric Control (SNC)



## Soft Robot Control (SRC)



Control

# Programmable Logic Controller AH500



## High Performance Mid-range PLC

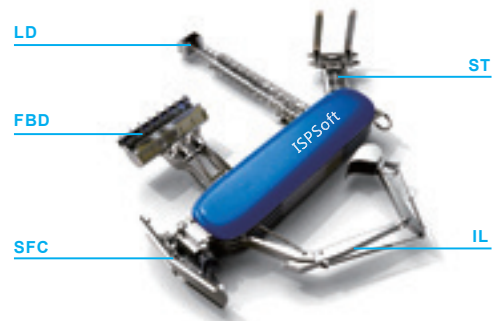
### High performance and capacity

- ▶ Program execution speed: 0.3ms/1K steps
- ▶ Max. I/O points:
  - DIO: 4,352 points
  - AIO: 544 channels
- ▶ Max. program capacity: 256K steps (1MB)
- ▶ Max. data register (D+L): 128K words



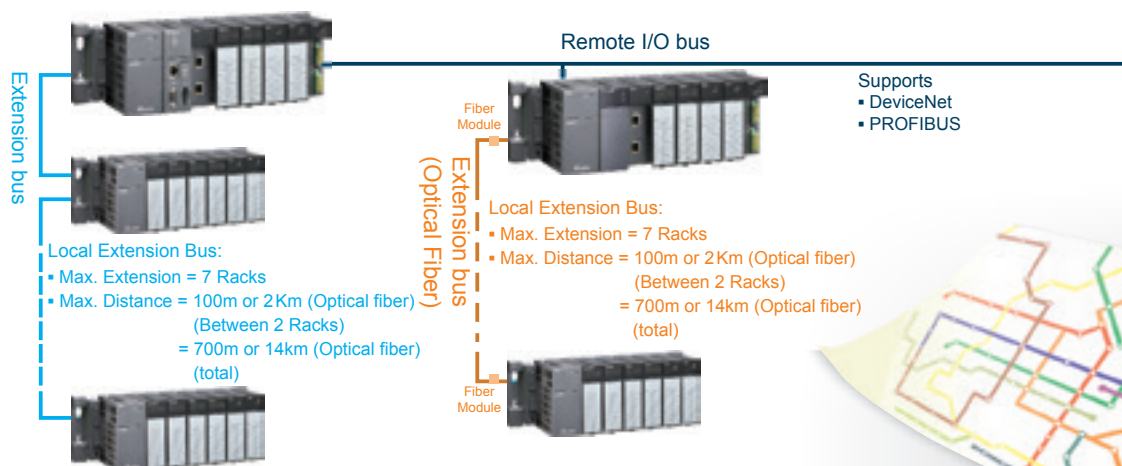
### Highly integrated system

- ▶ CPU built-in RS-232/422/485, Ethernet, Mini-USB and SD Card
- ▶ Supports LAD, FBD, SFC, ST and IL programming languages



### Enhanced expansion flexibility

- ▶ Local expansion
  - Max. expansion racks = 7 expansion racks
  - Max. distance = 100m(cable) or 2Km(fiber) between 2 expansion racks
- ▶ Remote expansion
  - Supports DeviceNet and PROFIBUS
  - Each RTU node supports 7 expansion racks



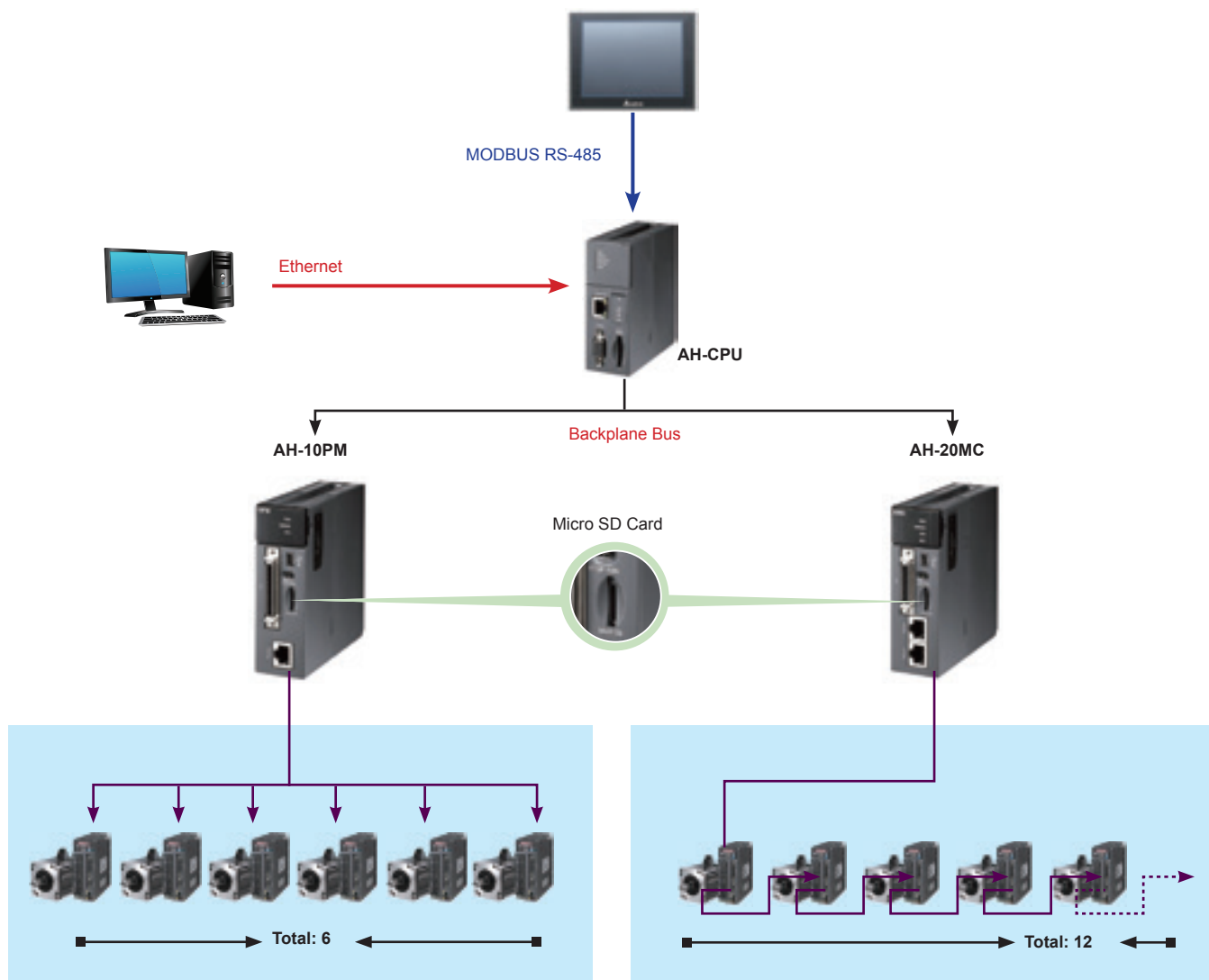
**Improved maintainability**

- ▶ Modularized design
- ▶ Supports hot-swapping



**Convenient motion control platform for multi-axes applications**

- ▶ Supports 144 axes
- ▶ Supports pulse train and DMCNET



Control

## Product Line-up

Item	Specifications	Check	CPU Model							
			AH500-RS2	AH510-RS2	AH520-RS2	AH530-RS2	AH500-EN	AH510-EN	AH520-EN	AH530-EN
Local I/O points	< 768	<input type="checkbox"/>	•					•		
	< 1280	<input type="checkbox"/>		•					•	
	< 2304	<input type="checkbox"/>			•					•
	< 4352	<input type="checkbox"/>				•				•
Program capacity	< 32K steps	<input type="checkbox"/>	•					•		
	< 64K steps	<input type="checkbox"/>		•					•	
	< 128K steps	<input type="checkbox"/>			•					•
	< 256K steps	<input type="checkbox"/>				•				•
Expansion capacity	None	<input type="checkbox"/>	•					•		
	< 1 expansion rack	<input type="checkbox"/>		•					•	
	< 3 expansion racks	<input type="checkbox"/>			•					•
	< 7 expansion racks	<input type="checkbox"/>				•				•
Built-in communication	1 COM port	<input type="checkbox"/>						•	•	•
	2 COM ports	<input type="checkbox"/>	•	•	•	•				
	Ethernet	<input type="checkbox"/>						•	•	•
	Mini-USB	<input type="checkbox"/>	•	•	•	•	•	•	•	•
SD card	V 1.0	<input type="checkbox"/>	•	•	•	•	•	•	•	

## Model Name Explanation

### AH CPU

#### AHCPU500-RS2

AH	CPU	5	0	0	-	RS2
Series	Classification	Model	Function	Version		Type
	CPU		0: No expansion rack 1: 1 expansion rack 2: 3 expansion racks 3: 7 expansion racks			RS2: 2 COM ports EN: 1 COM & 1 Ethernet ports

### AH Power Supply Module

#### AHPS05-5A

AH	PS	05	-	5A
Series	Classification	Function		Type
	Power supply	05: AC input (100~240 V) 15: DC input (24 V)		

### AH Backplane

#### AHBP04M1-5A

AH	BP	04	M1	-	5A
Series	Classification	Function	Function		Type
	Backplane	04: 4-slot 06: 6-slot 08: 8-slot 12: 12-slot	M1: Main backplane E1: Expansion backplane		

### AH Analog I/O Module

#### AH04AD-5A

AH	04	AD	-	5A
Series	I/O Channels	Classification		Type
	04: 4-channel 06: 6-channel 08: 8-channel	AD: Analog input DA: Analog output AX: Analog input/output		5A: Voltage/Current 5B: Voltage 5C: Current

### AH Digital I/O Module

#### AH16AM10N-5A

AH	16	AM	1	0	N	-	5A
Series	I/O points	Classification	Function	Function	Function		Type
	16: 16 points 32: 32 points 64: 64 points	AM: Digital input AN: Digital output AP: Digital input/output AR: Digital input with interrupt	0: No input 1: DC input (24 V) 3: AC input (120~240 V)	0: No output 1: 0.5A transistor/TRIAC output or 2A relay output 2: 0.1 A transistor output	N: No output R: Relay output T: NPN output P: PNP output S: TRIAC output		5A: Removable terminal 5B: DB37 connector 5C: MIL connector

### AH Temperature Module

#### AH04PT-5A

AH	04	PT	-	5A
Series	I/O channels	Classification		Type
	04: 4-channel 08: 8-channel	PT: Platinum resistance thermometer TC: Thermocouple PTG: Platinum resistance thermometer (channel isolation)		

### AH Network Module

#### AH10EN-5A

AH	10	EN	-	5A
Series	Function	Classification		Type
		EN: Ethernet SCM: Serial communication DNET: DeviceNet PFBM: PROFIBUS master PFBS: PROFIBUS slave COPM: CANopen		

### AH RTU Module

#### AHRTU-DNET-5A

AH	RTU	-	DNET	-	5A
Series	Classification		Function		Type
	Remote terminal unit		DNET: DeviceNet PFBS: PROFIBUS		

### AH Motion Module


#### AH02HC-5A

AH	02	HC	-	5A
Series	Function	Classification		Type
	02: 2-channel 04: 4-channel 05: Simple type (PM) 10: Standard type (PM) 15: Advance type (PM) 20: DMCNET	HC: High speed counter PM: Motion controller (Pulse train) MC: Motion controller (Network)		




# Specifications & Ordering Information

## CPU Modules


Model	Local I/O points	Program capacity	Data register D/L/B (note)	Function blocks	Extension backplane	Power consumption (Internal)	Specifications	Certificates
AHCPU500-RS2	768	32K steps (128KB)	16K/16K/512K words	128	0	2w	<ul style="list-style-type: none"> <li>Built-in RS-232/422/485 multi-modes communication port × 2 (RS-232:115.2Kbps/RS-422/485: 921.6Kbps)</li> <li>Built-in SD card slot (supports max. 2 GB)</li> <li>Built-in Mini-USB programming port</li> <li>Program execution speed: LD instruction @ 0.1 μs/1K steps @ 0.3ms</li> <li>System diagnose/status light/online editing and debug functions</li> <li>PLC Link automatic data exchange function</li> <li>MODBUS RTU/ASCII</li> <li>LD/SFC/FBD/IL/ST languages</li> <li>256 interrupts (Timed/IO/External/Low voltage/Communication)</li> <li>2048 timers and counters</li> <li>No battery required</li> <li>RTC function (max. 30 days after power off)</li> </ul>	
AHCPU510-RS2	1280	64K steps (256KB)	32K/32K/1024K words	256	1	2w		
AHCPU520-RS2	2304	128K steps (512KB)	64K/64K/2048K words	512	3	2w		
AHCPU530-RS2	4352	256K steps (1MB)	64K/64K/4096K words	1024	7	2w		
AHCPU500-EN	768	32K steps (128KB)	16K/16K/512K words	128	0	2w		
AHCPU510-EN	1280	64K steps (256KB)	32K/32K/1024K words	256	1	2w	<ul style="list-style-type: none"> <li>Built-in RS-232/422/485 multi-modes communication port x1 (RS-232:115.2Kbps/RS-422/485: 921.6Kbps)</li> <li>Built-in Ethernet communication port (100Mbps)</li> <li>Built-in SD card slot (supports max. 2 GB)</li> <li>Built-in Mini-USB programming port</li> <li>Program execution speed: LD instruction @ 0.1 μs/1K steps @ 0.3ms</li> <li>System diagnose/status light/online editing and debug functions</li> <li>PLC Link automatic data exchange function</li> <li>MODBUS RTU/ASCII</li> <li>LD/SFC/FBD/IL/ST languages</li> <li>256 interrupts (Timed/IO/External/Low voltage/Communication)</li> <li>2048 timers and counters</li> <li>No battery required</li> <li>RTC function (max. 30 days after power off)</li> <li>NTP network time correction function</li> <li>WEB/E-mail/IP Filter function</li> </ul>	
AHCPU520-EN	2304	128K steps (512KB)	64K/64K/2048K words	512	3	2w		
AHCPU530-EN	4352	256K steps (1MB)	64K/64K/4096K words	1024	7	2w		

Note: Data Register B is for the use of function blocks


## Main Backplanes

Model	Slot	Power consumption (Internal)	Specifications	Certificates
AHBP04M1-5A	4	0.01 w	<ul style="list-style-type: none"> <li>Supports CPU modules</li> <li>Supports remote I/O communication modules (RTU)</li> <li>Built-in communication port for extension backplanes</li> <li>Slot spaces are not occupied by Power/CPU/RTU modules</li> </ul>	
AHBP06M1-5A	6	0.01 w		
AHBP08M1-5A	8	0.01 w		
AHBP12M1-5A	12	0.01 w		



## Extension Backplanes

Model	Slot	Power consumption (Internal)	Specifications	Certificates
AHBP06E1-5A	6	1.41 w	<ul style="list-style-type: none"> <li>For main backplane extension</li> <li>Built-in communication port for extension backplanes</li> <li>Slot spaces are not occupied by power modules</li> </ul>	
AHBP08E1-5A	8	1.41 w		

### Power Supply Modules

Model	Power input	Output	Specifications	Certificates
AHPS05-5A	100~240V <sub>AC</sub> 50/60Hz	60W	<ul style="list-style-type: none"> <li>Power supply for the modules on the racks</li> <li>LED power indicator</li> </ul>	
AHPS15-5A	24V <sub>DC</sub>	36W	<ul style="list-style-type: none"> <li>Provides external DC power abnormal signal detection input and triggered interrupt function</li> </ul>	


### Digital I/O Modules (Input)

Model	Points	Signals	Terminal block type	Power consumption (Internal/External)	Accessories (optional)	Specifications	Certificates
AH16AM10N-5A	16	24V <sub>DC</sub> 5mA	JIS removable terminal block	0.1w/1.9w	-	<ul style="list-style-type: none"> <li>PNP/NPN mixed mode design</li> <li>Supports hot-swapping function</li> <li>Individual LED status indicator</li> </ul>	
AH16AM30N-5A	16	120~240V <sub>AC</sub> 4.5~9mA	JIS removable terminal block	0.1w/-	-		
AH32AM10N-5A	32	24V <sub>DC</sub> 5mA	EU removable terminal block	0.2w/3.8w	-		
AH32AM10N-5B	32	24V <sub>DC</sub> 5mA	DB37	0.2w/3.8w	DVPACAB7C10×1 DVPAETB-ID32B×1		
AH32AM10N-5C	32	24V <sub>DC</sub> 5mA	Latched connector	0.2w/3.8w	DVPACAB7A10×1 DVPAETB-ID32A×1		
AH64AM10N-5C	64	24V <sub>DC</sub> 3.2mA	Latched connector	0.2w/4.9w	DVPACAB7A10×2 DVPAETB-ID32A×2	<ul style="list-style-type: none"> <li>PNP/NPN mixed mode design</li> <li>Supports hot-swapping function</li> <li>Individual LED status indicator (32 points)</li> </ul>	
AH16AR10N-5A	16	24V <sub>DC</sub> 5mA	JIS removable terminal block	0.5w/1.9w	-	<ul style="list-style-type: none"> <li>PNP/NPN mixed mode design</li> <li>Supports hot-swapping function</li> <li>Individual LED status indicator</li> <li>Supports I/O interrupts</li> <li>Supports rising/falling-edge trigger modes</li> <li>Supports signal time-delay setting for 0.1/0.5/3/15/20ms</li> </ul>	




# Specifications & Ordering Information


## Digital I/O Modules (Output)

Model	Points	Signals	Terminal block type	Power consumption (Internal/ External)	Accessories (optional)	Specifications	Certificates
AH16AN01R-5A	16	Relay 240 V <sub>AC</sub> /24 V <sub>DC</sub> 2A	JIS removable terminal block	2.1 w/-	-	<ul style="list-style-type: none"> <li>Supports hot-swapping function</li> <li>Individual LED status indicator</li> <li>Supports keep-last-value function when CPU shuts down</li> </ul>	
AH16AN01T-5A	16	NPN (Sink) 12~24 V <sub>DC</sub> 0.5A	JIS removable terminal block	0.2 w/0.4 w	-		
AH16AN01P-5A	16	PNP (Source) 12~24 V <sub>DC</sub> 0.5A	JIS removable terminal block	0.2 w/0.4 w	-		
AH16AN01S-5A	16	TRIAC 120/240 V <sub>AC</sub> 0.5A	JIS removable terminal block	0.6 w/-	-		
AH32AN02T-5A	32	NPN (Sink) 12~24 V <sub>DC</sub> 0.1A	EU removable terminal block	0.4 w/0.8 w	-		
AH32AN02P-5A	32	PNP (Source) 12~24 V <sub>DC</sub> 0.1A	EU removable terminal block	0.4 w/0.8 w	-		
AH32AN02T-5B	32	NPN (Sink) 12~24 V <sub>DC</sub> 0.1A	DB37	0.4 w/0.8 w	(DVPACAB7C10×1 DVPAETB-OR32A×1) or (DVPACAB7C10×1 DVPAETB-OT32B×1)		
AH32AN02P-5B	32	PNP (Source) 12~24 V <sub>DC</sub> 0.1A	DB37	0.4 w/0.8 w	(DVPACAB7C10×1 DVPAETB-OR32B×1) or (DVPACAB7C10×1 DVPAETB-OT32B×1)		
AH32AN02T-5C	32	NPN (Sink) 12~24 V <sub>DC</sub> 0.1A	Latched connector	0.4 w/0.8 w	(DVPACAB7B10×1 DVPAETB-OR16A×2) or (DVPACAB7A10×1 DVPAETB-OT32A×1)		
AH32AN02P-5C	32	PNP (Source) 12~24 V <sub>DC</sub> 0.1A	Latched connector	0.4 w/0.8 w	(DVPACAB7B10×1 DVPAETB-OR16B×2) or (DVPACAB7A10×1 DVPAETB-OT32A×1)		
AH64AN02T-5C	64	NPN (Sink) 12~24 V <sub>DC</sub> 0.1A	Latched connector	0.6 w/1.5 w	(DVPACAB7B10×2 DVPAETB-OR16A×4) or (DVPACAB7A10×2 DVPAETB-OT32A×2)		
AH64AN02P-5C	64	PNP (Source) 12~24 V <sub>DC</sub> 0.1A	Latched connector	0.6 w/1.5 w	(DVPACAB7B10×2 DVPAETB-OR16B×4) or (DVPACAB7A10×2 DVPAETB-OT32A×2)		


## Digital I/O Modules (Mixed)

Model	Inputs	Outputs	Input signals	Output signals	Terminal block type	Power consumption (Internal/ External)	Specifications	Certificates
AH16AP11R-5A	8	8	24 V <sub>DC</sub> 5mA	Relay 240 V <sub>AC</sub> / 24 V <sub>DC</sub> 2A	JIS removable terminal block	1.1 w/-	<ul style="list-style-type: none"> <li>PNP/ NPN mixed mode design</li> <li>Supports hot-swapping function</li> <li>Individual LED status indicator</li> <li>Supports keep-last-value function when CPU shuts down</li> </ul>	
AH16AP11T-5A	8	8	24 V <sub>DC</sub> 5mA	NPN (Sink) 12~24 V <sub>DC</sub> 0.5A	JIS removable terminal block	0.2 w/0.2 w		
AH16AP11P-5A	8	8	24 V <sub>DC</sub> 5mA	PNP (Source) 12~24 V <sub>DC</sub> 0.5A	JIS removable terminal block	0.2 w/0.2 w		


Analog I/O Modules (Input)

Model	Channels	Signals	Terminal block type	Power consumption (Internal/ External)	Specifications	Certificates
AH04AD-5A	4	0/1V~5V, ±5V, 0V~10V, ±10V 0/4mA~20mA ±20mA	JIS removable terminal block	0.35w/1w	<ul style="list-style-type: none"> <li>Hardware resolution: 16-bit</li> <li>Conversion time: 150 μs/channel</li> <li>Base error (ambient temp.): Voltage mode ±0.1% Current mode ±0.1%</li> <li>Base error (full temp. range): Voltage mode ±0.45% Current mode ±0.2%</li> <li>Linearity error (ambient temp.): Voltage mode ±0.07% Current mode ±0.05%</li> <li>Linearity error (full temp. range): Voltage mode ±0.12% Current mode ±0.23%</li> <li>Supports hot-swapping function</li> <li>Isolated signal design</li> <li>Diagnose function</li> <li>Module status LED indicator</li> <li>Supports interrupt function</li> </ul>	
AH08AD-5A	8	0/1V~5V, ±5V, 0V~10V, ±10V 0/4mA~20mA, ±20mA	EU removable terminal block	1.5w/-		
AH08AD-5B	8	0/1V~5V, ±5V, 0V~10V, ±10V	JIS removable terminal block	1.9w/-		
AH08AD-5C	8	0/4mA~20mA, ±20mA	JIS removable terminal block	1.6w/-		

Analog I/O Modules (Output)


Model	Channels	Signals	Terminal block type	Power consumption (Internal/ External)	Specifications	Certificates
AH04DA-5A	4	0/1V~5V, ±5V, 0V~10V, ±10V 0/4mA~20mA	JIS removable terminal block	0.34w/2.6w	<ul style="list-style-type: none"> <li>Hardware resolution: 16-bit</li> <li>Conversion time: 150 μs/channel</li> <li>Base error (ambient temp.): Voltage mode ±0.02% Current mode ±0.06%</li> <li>Base error (full temp. range): Voltage mode ±0.04% Current mode ±0.07%</li> <li>Linearity error (ambient temp.): Voltage mode ±0.004% Current mode ±0.01%</li> <li>Linearity error (full temp. range): Voltage mode ±0.004% Current mode ±0.01%</li> <li>Supports hot-swapping function</li> <li>Isolated signal design</li> <li>Diagnose function</li> <li>Module status LED indicator</li> <li>Supports interrupt function</li> <li>Supports keep-last-value function when CPU shuts down</li> </ul>	
AH08DA-5A	8	0/1V~5V, ±5V, 0V~10V, ±10V 0/4mA~20mA	EU removable terminal block	1w/5w		
AH08DA-5B	8	0/1V~5V, ±5V, 0V~10V, ±10V	JIS removable terminal block	0.25w/2.2w		
AH08DA-5C	8	0/4mA~20mA	JIS removable terminal block	0.25w/3.7w		

Analog I/O Modules (Mixed)

Model	Channels	Signals	Terminal block type	Power consumption (Internal/ External)	Specifications	Certificates
AH06XA-5A	Inputs: 4 Outputs: 2	Input: 0/1V~5V, ±5V, 0V~10V, ±10V 0/4mA~20mA, ±20mA  Output: 0/1V~5V, ±5V, 0V~10V, ±10V 0/4mA~20mA	JIS removable terminal block	0.34w/1.4w	<ul style="list-style-type: none"> <li>Hardware resolution: 16-bit</li> <li>Conversion time: 150 μs/channel</li> <li>Input accuracy: same as AH04AD-5A</li> <li>Output accuracy: same as AH04DA-5A</li> <li>Supports hot-swapping function</li> <li>Isolated signal design</li> <li>Diagnose function</li> <li>Module status LED indicator</li> <li>Supports interrupt function</li> <li>Supports keep-last-value function when CPU shuts down</li> </ul>	

# Specifications & Ordering Information

## Temperature Measurement Modules

Model	Channels	Signals	Resolution	Conversion time	Terminal block type	Power consumption (Internal/External)	Specifications	Certificates
AH04PT-5A	4	(2/3/4-wire RTD input) Pt100, Pt1000, Ni100, Ni1000, 0Ω~300Ω	0.1°C/0.1°F 0.1% (0Ω~300Ω)	2/4-wire: 150 ms/channel 3-wire: 300 ms/channel	JIS removable terminal block	2w/-	<ul style="list-style-type: none"> <li>Effective resolution: 16-bit</li> <li>Accuracy: ±0.6% (Full Scale)</li> <li>Supports hot-swapping function</li> <li>Signal isolated design</li> <li>Diagnose function</li> <li>PID function</li> <li>Module status LED indicator</li> <li>Supports interrupt function</li> <li>Supports disconnection detection function</li> <li><b>Fully isolated channel design (AH08PTG-5A)</b></li> </ul>	
AH04TC-5A	4	Thermocouple input J,K,R,S,T,E,N, ±150 mV	0.1°C/0.1°F	200 ms/channel	JIS removable terminal block	1.5w/-		
AH08TC-5A	8	Thermocouple input J,K,R,S,T,E,N, ±150 mV	0.1°C/0.1°F	200 ms/channel	JIS removable terminal block	1.5w/-		
AH08PTG-5A	8	(2/3/4-wire RTD input) Pt100, Pt1000, Ni100, Ni1000, 0Ω~300Ω	0.1°C/0.1°F 0.1% (0Ω~300Ω)	2/4-wire: 20 ms (fast)~100 ms (normal)/channel 3-wire:200 ms/channel	EU removable terminal block	0.7w/4w		


## Network Modules

Model	Power consumption (Internal/External)	Specifications	Certificates
AH10EN-5A	1.6w/-	<ul style="list-style-type: none"> <li>Ethernet communication module (Master/Slave)</li> <li>100Mbps communication port×2 (switch function available)</li> <li>Ether Link function</li> <li>MODBUS TCP function</li> </ul>	<ul style="list-style-type: none"> <li>Automatic data exchange function</li> <li>NTP network time correction function</li> <li>SNMP/E-mail/IP Filter function</li> </ul> <ul style="list-style-type: none"> <li>Supports user defined communication format (UD Link)</li> <li>MODBUS RTU/ASCII function available</li> <li>Supports automatic data exchange function</li> <li>Supports BACnet Slave function</li> </ul> <ul style="list-style-type: none"> <li>Supports hot-swapping function</li> <li>Diagnose function</li> <li>Module status LED indicator</li> </ul>
AH10SCM-5A	1.2w/-	<ul style="list-style-type: none"> <li>Serial communication module (Master/Slave)</li> <li>Full isolation design in power &amp; signal circuits</li> <li>Built-in RS-422/RS-485 with communication port×2 (multiple modes, 460.8K Kbps)</li> <li>Supports PLC Link function</li> </ul>	
AH10DNET-5A	0.9w/0.72w	<ul style="list-style-type: none"> <li>DeviceNet communication module (Master/Slave)</li> <li>Supports max. speed of 1Mbps</li> <li>Switchable between master and slave modes</li> </ul>	
AH10PFBM-5A	2w/-	<ul style="list-style-type: none"> <li>PROFIBUS-DP master module</li> <li>Supports DPV0/DPV1</li> <li>Max. speed: 12Mbps</li> </ul>	
AH10PFBS-5A	1w/-	<ul style="list-style-type: none"> <li>PROFIBUS-DP slave module</li> <li>Supports DPV0/DPV1</li> <li>Max. speed: 12Mbps</li> </ul>	
AH10COPM-5A	1w/-	<ul style="list-style-type: none"> <li>CANopen module (Master/Slave)</li> <li>Max. speed: 1Mbps</li> <li>Connects up to 100 slaves in master mode</li> </ul>	

## Remote I/O Modules

Model	Power consumption (Internal/External)	Specifications	Certificates
AHRTU-DNET-5A	0.75w/0.72w	<ul style="list-style-type: none"> <li>DeviceNet remote I/O module</li> <li>Supports max. speed of 1Mbps</li> <li>Supports AH500 DIO modules, AIO modules, temperature measurement modules, and the serial communication module AH10SCM</li> </ul>	<ul style="list-style-type: none"> <li>Installing on the main backplane required</li> <li>Supports up to 7 extension racks</li> <li>Diagnose function</li> <li>Module status LED indicator</li> </ul> <ul style="list-style-type: none"> <li>Supports 7 extension backplanes</li> <li>Diagnose function</li> <li>Module status LED indicator</li> <li>Configurable I/O capacity: 122 words for input/122 words for output</li> </ul>
AHRTU-PFBS-5A	1.9w/-	<ul style="list-style-type: none"> <li>PROFIBUS-DP remote I/O module</li> <li>Max. speed: 12Mbps</li> <li>Supports AH500 digital I/O modules, analog I/O modules, temperature measurement modules</li> <li>Installs on main backplane</li> </ul>	






## Motion Control Modules

Model	Terminal block type	Power consumption (Internal)	Accessories (optional)	Specifications		Certificates
AH02HC-5A	EU removable terminal block	2.4 w	-	<ul style="list-style-type: none"> <li>2 high speed counter channels</li> </ul>	<ul style="list-style-type: none"> <li>200kHz input</li> <li>UD/PD/AB/4AB modes</li> <li>Supports interrupt function</li> </ul>	
AH04HC-5A	HDC	2.4 w	DVPACAB7D10 DVPAETB-IO16C	<ul style="list-style-type: none"> <li>4 high speed counter channels</li> </ul>	<ul style="list-style-type: none"> <li>Supports hot-swapping function</li> <li>Diagnose function</li> <li>Module status LED indicator</li> </ul>	
AH05PM-5A	EU removable terminal block	2.7 w	-	<ul style="list-style-type: none"> <li>2-axis pulse train motion control module</li> <li>Supports 1MHz output</li> <li>Supports 2-axis linear interpolation, 2-axis arc interpolation</li> </ul>	<ul style="list-style-type: none"> <li>CPU execution speed: LD instruction @ 0.13µs</li> <li>Program capacity: 64K steps</li> <li>Data register: D=10K words/W=64K words</li> <li>Supports UD/PD/AB/4AB input modes</li> <li>Built-in Mini USB programming communication port</li> <li>Independent programming, program download and execution available</li> <li>Supports G-code</li> <li>Supports hot-swapping function</li> <li>Diagnose function</li> <li>Module status LED indicator</li> </ul>	
AH10PM-5A	HDC	2.7 w	DVPACAB7E10 DVPAETB-IO24C	<ul style="list-style-type: none"> <li>6-axis pulse train motion control module</li> <li>Supports 1MHz output (4 axes)</li> <li>200kHz output (2 axes)</li> <li>Supports 2~6-axis linear interpolation, 2-axis arc interpolation and 3-axis helical interpolation</li> <li>Built in Ethernet communication port</li> <li>Supports Micro SD card</li> </ul>		
AH15PM-5A	HDC	2.7 w	DVPACAB7E10 DVPAETB-IO34C	<ul style="list-style-type: none"> <li>4-axis pulse type motion control module</li> <li>Supports 1MHz output</li> <li>Supports 2~4-axis linear interpolation, 2-axis arc interpolation, 3-axis helical interpolation</li> <li>Built-in Ethernet communication port</li> <li>Supports Micro SD card</li> <li>Supports limit switch</li> </ul>		
AH20MC-5A	HDC	3 w	DVPACAB7D10 DVPAETB-IO16C	<ul style="list-style-type: none"> <li>12-axis DMCNET communication motion control module (10Mbps)</li> <li>12 axes synchronization in 1ms</li> <li>Supports 2~6-axis linear interpolation, 2-axis arc interpolation and 3-axis helical interpolation</li> <li>Built in Ethernet communication port</li> <li>Supports Micro SD card</li> </ul>		
				<ul style="list-style-type: none"> <li>Supports hot-swapping function</li> </ul>		

## Software

Software	Model	License	Descriptions	Compatible Products
ISPSoft [V2]	-	Free	PLC programming software	AH500 series, DVP series PLCs
COMMGR [V1]	-	Free	Communication management software	AH500 series, DVP series PLCs
PMSOFT [V2]	-	Free	Motion control programming software	AH500 series, DVP series motion controllers
DCISoft [V1]	-	Free	Ethernet configuration software	AH500 series Ethernet/serial communication modules, DVP series built-in Ethernet PLCs, DVP series Ethernet/serial communication modules, IFD series Ethernet modules, CMC series Ethernet cards for Delta motor drives
DeviceNet Builder [V2]	-	Free	DeviceNet configuration software	AH500 series DeviceNet modules, DVP series DeviceNet modules, CMC series DeviceNet cards for Delta motor drives
CANopen Builder [V2]	-	Free	CANopen configuration software	AH500 series CANopen modules, DVP series built-in CANopen PLCs, DVP series CANopen modules, DVP10MC motion controller
SYCON.net [V2]	-	Free	PROFIBUS DP configuration software	AH500 series PROFIBUS DP modules
<b>New</b> Delta OPC [V1]	HASP-20-OPC01	Hardware license (USB)	Delta OPC server	AH500 series PLCs

## Accessories

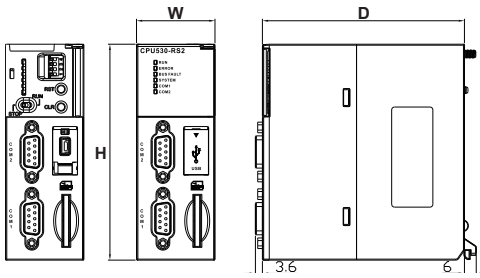
Products	Descriptions	Models	Specifications	Applicable Modules	Certificates
Cables	Extension cable for connecting extension backplane	AHACAB06-5A	0.6m	AHBP04M1-5A/AHBP06M1-5A/AHBP08M1-5A/AHBP12M1-5A/AHBP06E1-5A/AHBP08E1-5A	
		AHACAB10-5A	1.0m		
		AHACAB15-5A	1.5m		
		AHACAB30-5A	3.0m		
		AHACAB50-5A	5.0m		
		AHACABA0-5A	10.0m		
		AHACABA5-5A	15.0m		
		AHACABB0-5A	20.0m		
		AHACABC0-5A	30.0m		
		AHACABD0-5A	40.0m		
		AHACABE0-5A	50.0m		
		AHACABF0-5A	60.0m		
		AHACABG0-5A	70.0m		
		AHACABH0-5A	80.0m		
	AHACABJ0-5A	90.0m			
	AHACABK0-5A	100.0m			
	I/O extension cable for connecting external terminal modules	DVPACAB7A10	1.0m/MIL connector	AH32AM10N-5C/AH32AN02T-5C/AH32AN02P-5C/AH64AM10N-5C/AH64AN02T-5C/AH64AN02P-5C	
		DVPACAB7B10	1.0m/MIL connector	AH32AN02T-5C/AH32AN02P-5C/AH64AN02T-5C/AH64AN02P-5C	
		DVPACAB7C10	1.0m/DB37	AH32AM10N-5B/AH32AN02T-5B/AH32AN02P-5B	
		DVPACAB7D10	1.0m/HDC	AH04HC-5A/AH20MC-5A	
		DVPACAB7E10	1.0m/HDC	AH10PM-5A/AH15PM-5A	
	CANopen/DeviceNet cables	TAP-CB01	305.0m (Thick/Trunk Cable)	AH10COPM-5A/AH10DNET-5A/AHRTU-DNET-5A/TAP-CN01/TAP-CN02/TAP-CN03	
		TAP-CB02	305.0m (Thin/Drop Cable)		
	CANopen/DeviceNet/DMCNET cables	TAP-CB03	0.3m/RJ45	AH20MC-5A/TAP-CN03	
		TAP-CB05	0.5m/RJ45		
		TAP-CB10	1.0m/RJ45		
		TAP-CB20	2.0m/RJ45		
TAP-CB30		3.0m/RJ45			
TAP-CB100	10.0m/RJ45				
PROFIBUS cables	TAP-CBDP	305.0m	AH10PFBM-5A/AH10PFBS-5A/AHRTU-PFBS-5A		
External terminal modules	For digital input modules	DVPAETB-ID32A	MIL connector	AH32AM10N-5C/AH64AM10N-5C	
		DVPAETB-ID32B	DB37	AH32AM10N-5B	
	For digital output modules	DVPAETB-OR16A	16 points relay output (240 Vac/24 Voc, 2A) MIL connector	AH32AN02T-5C/AH64AN02T-5C	
		DVPAETB-OR16B	16 points relay output (240 Vac/24 Voc, 2A) MIL connector	AH32AN02P-5C/AH64AN02P-5C	
		DVPAETB-OR32A	32 points relay output (240 Vac/24 Voc, 2A) DB37	AH32AN02T-5B	
		DVPAETB-OR32B	32 points relay output (240 Vac/24 Voc, 2A) DB37	AH32AN02P-5B	
		DVPAETB-OT32A	Transistor output MIL connector	AH32AN02T-5C/AH32AN02P-5C/AH64AN02T-5C/AH64AN02P-5C	
	DVPAETB-OT32B	Transistor output DB37	AH32AN02T-5B/AH32AN02P-5B		
	For motion control modules	DVPAETB-IO16C	HDC	AH04HC-5A/AH20MC-5A	
		DVPAETB-IO24C	HDC	AH10PM-5A	
		DVPAETB-IO34C	HDC	AH15PM-5A	
Terminal resistors	DMCNET terminal resistors (RJ45)	ASD-TR-DM0008			
	CANopen/DeviceNet terminal resistors (RJ45)	TAP-TR01			
Distribution box	CANopen/DeviceNet distribution Box	TAP-CP01	Power distribution box		
		TAP-CN01	1 for 2		
		TAP-CN02	1 for 4		
		TAP-CN03	1 for 4 (RJ45)		
Dummy modules	To protect empty slots	AHASP01-5A			
DIN rail	Used on DIN rail for rack installation	AHADINADP1-5A			
Fiber optics modules for backplanes	Used for backplane extension via fiber optics (installs at the backplane's lower extension port)	AHAADP01EF-5A	<ul style="list-style-type: none"> <li>Optical fiber connector: SC</li> <li>Supported optical fiber types: multi-modes, 62.5/125 μm or 50/125 μm</li> <li>Optical fiber max. length: 2km</li> </ul>	AHBP04M1-5A/AHBP06M1-5A/AHBP08M1-5A/AHBP12M1-5A/AHBP06E1-5A/AHBP08E1-5A	 
	Used for backplane extension via fiber optics (installs at the backplane's upper extension port)	AHAADP02EF-5A		AHBP06E1-5A/AHBP08E1-5A	
Memory card	SD card: 1 GB	FMC-SD001G	<ul style="list-style-type: none"> <li>Capacity: 1 GB</li> <li>Speed (Read/Write) : Max. 18/15 MB/s</li> </ul>	<ul style="list-style-type: none"> <li>Overwrite: 10,000 times</li> <li>Operation temperature: -40~85°C</li> </ul>	



# Dimensions Dimensions are in mm

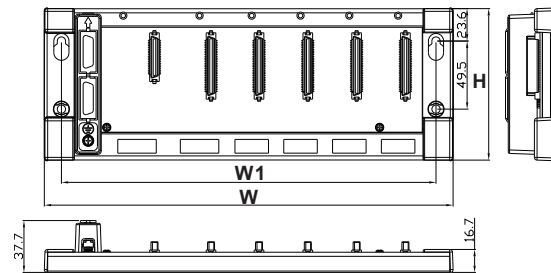
## CPU Modules

Model Name	H	W	D
AHCPU500-RS2	110	40	103
AHCPU510-RS2	110	40	103
AHCPU520-RS2	110	40	103
AHCPU530-RS2	110	40	103



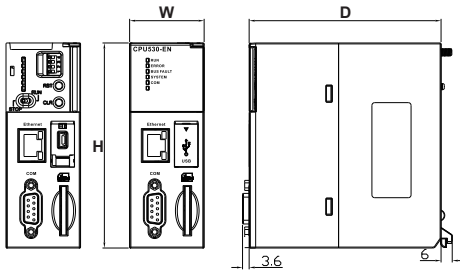
## Backplanes

Model Name	H	W	W1
AHBP04M1-5A	110	298	272.5
AHBP06M1-5A	110	369	343.5
AHBP08M1-5A	110	440	414.5
AHBP12M1-5A	110	582	556.5
AHBP06E1-5A	110	328	303
AHBP08E1-5A	110	399	374



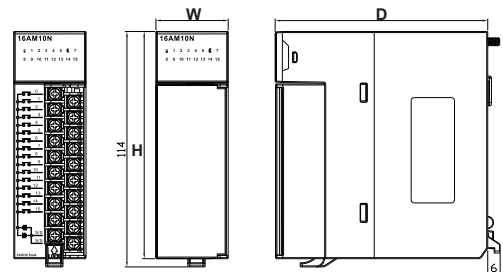
## CPU Modules

Model Name	H	W	D
AHCPU500-EN	110	40	103
AHCPU510-EN	110	40	103
AHCPU520-EN	110	40	103
AHCPU530-EN	110	40	103



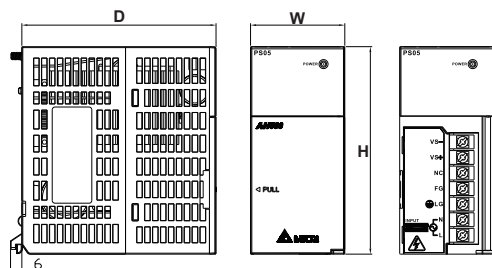
## 16-point Digital I/O Modules

Model Name	H	W	D
AH16AM10N-5A	110	35	103
AH16AM30N-5A	110	35	103
AH16AN01R-5A	110	35	103
AH16AN01T-5A	110	35	103
AH16AN01P-5A	110	35	103
AH16AN01S-5A	110	35	103
AH16AP11R-5A	110	35	103
AH16AP11T-5A	110	35	103
AH16AP11P-5A	110	35	103
AH16AR10N-5A	110	35	103



## Power Supply Modules

Model Name	H	W	D
AHPS05-5A	110	50	103
AHPS15-5A	110	50	103

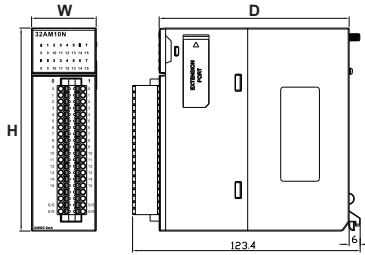




# Dimensions Dimensions are in mm

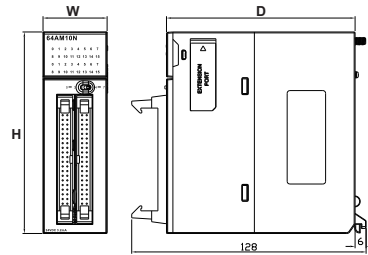
## 32-point Digital I/O Modules

Model Name	H	W	D
AH32AM10N-5A	110	35	103
AH32AN02T-5A	110	35	103
AH32AN02P-5A	110	35	103



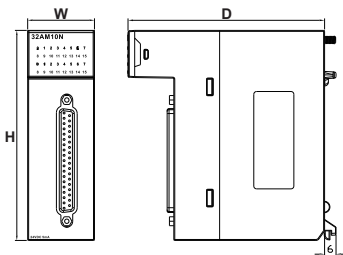
## 64-point Digital I/O Modules

Model Name	H	W	D
AH64AM10N-5C	110	35	103
AH64AN02T-5C	110	35	103
AH64AN02P-5C	110	35	103



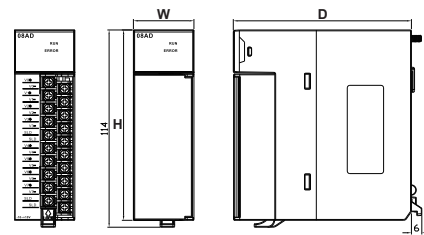
## 32-point Digital I/O Modules

Model Name	H	W	D
AH32AM10N-5B	110	35	103
AH32AN02T-5B	110	35	103
AH32AN02P-5B	110	35	103



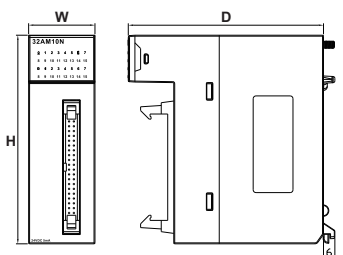
## Analog I/O Modules

Model Name	H	W	D
AH04AD-5A	110	35	103
AH08AD-5B	110	35	103
AH08AD-5C	110	35	103
AH04DA-5A	110	35	103
AH08DA-5B	110	35	103
AH08DA-5C	110	35	103
AH06XA-5A	110	35	103



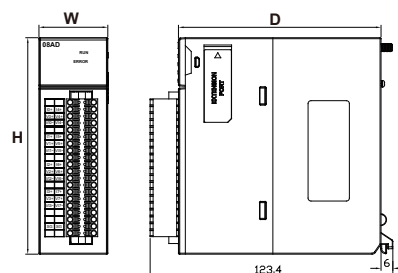
## 32-point Digital I/O Modules

Model Name	H	W	D
AH32AM10N-5C	110	35	103
AH32AN02T-5C	110	35	103
AH32AN02P-5C	110	35	103



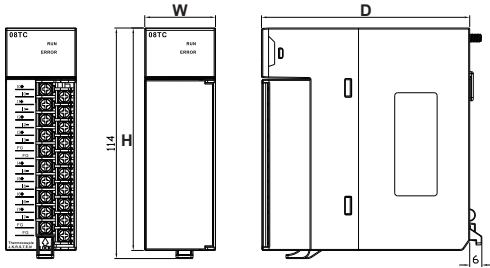
## Analog I/O Modules

Model Name	H	W	D
AH08AD-5A	110	35	103
AH08DA-5A	110	35	103



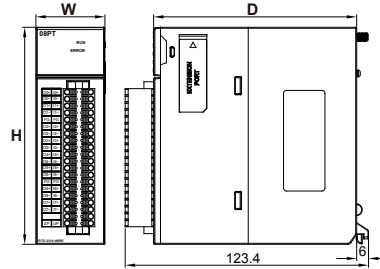
Temperature Measurement Modules

Model Name	H	W	D
AH04PT-5A	110	35	103
AH04TC-5A	110	35	103
AH08TC-5A	110	35	103



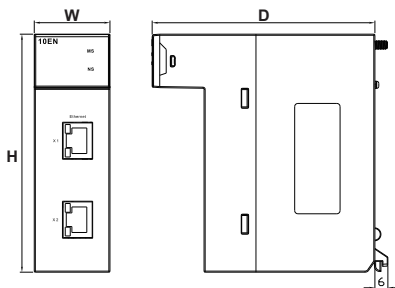
Temperature Measurement Module

Model Name	H	W	D
AH08PTG-5A	110	35	103



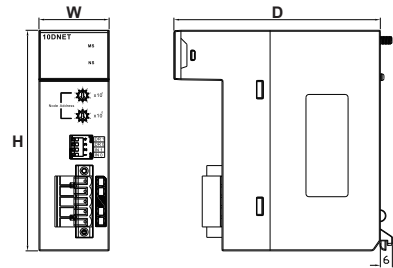
Network Module

Model Name	H	W	D
AH10EN-5A	110	35	103



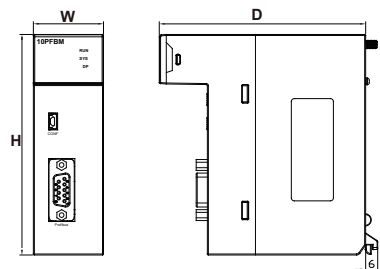
Network Module

Model Name	H	W	D
AH10DNET-5A	110	35	103



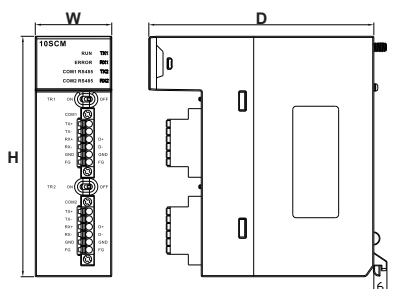
Network Module

Model Name	H	W	D
AH10PFBS-5A	110	35	103



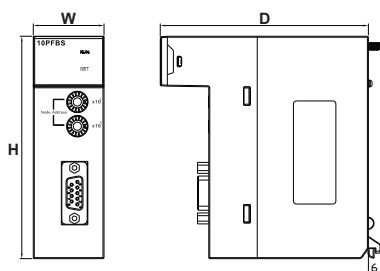
Network Module

Model Name	H	W	D
AH10SCM-5A	110	35	103



Network Module

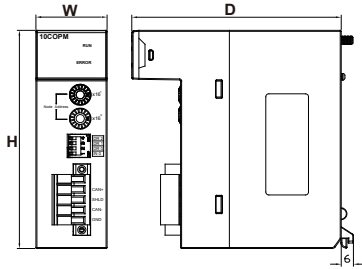
Model Name	H	W	D
AH10PFBS-5A	110	35	103



# Dimensions Dimensions are in mm

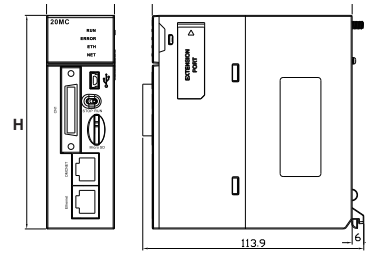
## Network Module

Model Name	H	W	D
AH10COPM-5A	110	35	103



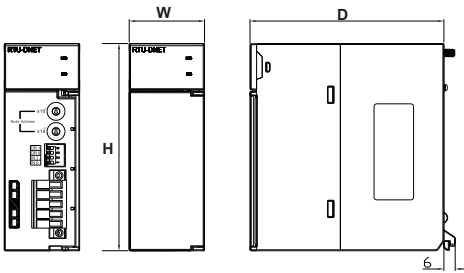
## Motion Control Module

Model Name	H	W	D
AH20MC-5A	110	35	103



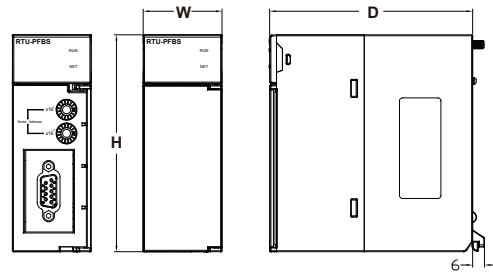
## RTU Module

Model Name	H	W	D
AHRTU-DNET-5A	110	40	103



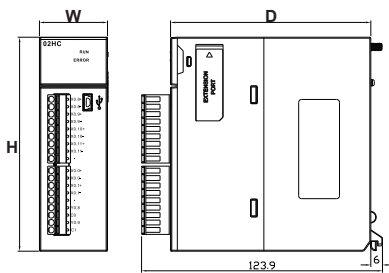
## RTU Module

Model Name	H	W	D
AHRTU-PFBS-5A	110	40	103



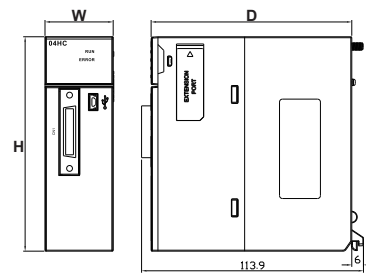
## Motion Control Module

Model Name	H	W	D
AH02HC-5A	110	35	103



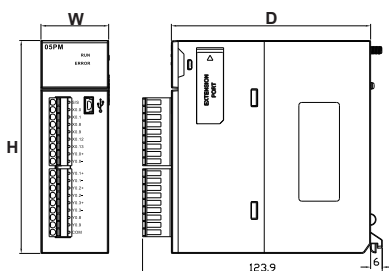
## Motion Control Module

Model Name	H	W	D
AH04HC-5A	110	35	103



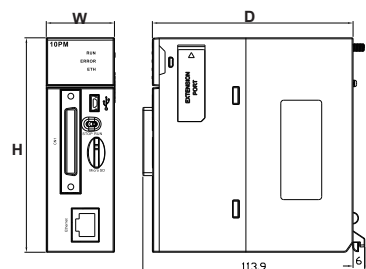
## Motion Control Module

Model Name	H	W	D
AH05PM-5A	110	35	103



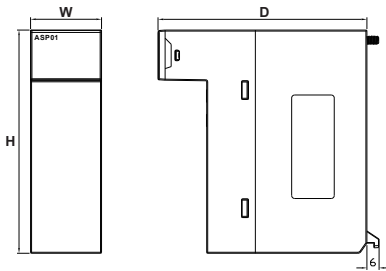
## Motion Control Modules

Model Name	H	W	D
AH10PM-5A	110	35	103
AH15PM-5A	110	35	103



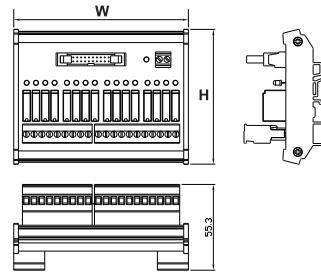
Dummy Module

Model Name	H	W	D
AHASP01-5A	110	35	103



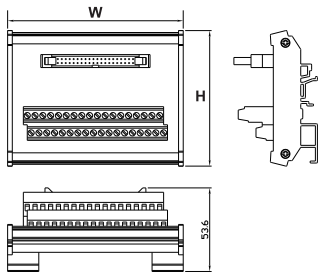
External Terminal Modules

Model Name	H	W
DVPAETB-OR16A	87	113
DVPAETB-OR16B	87	113



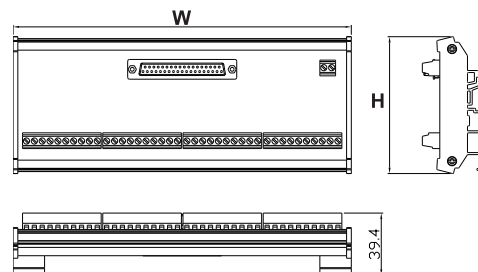
External Terminal Modules

Model Name	H	W
DVPAETB-ID32A	87	113
DVPAETB-OT32A	87	113



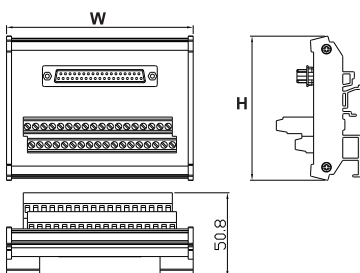
External Terminal Modules

Model Name	H	W
DVPAETB-OR32A	87	215
DVPAETB-OR32B	87	215



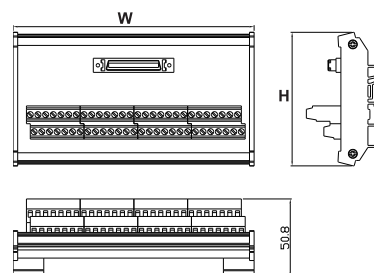
External Terminal Modules

Model Name	H	W
DVPAETB-ID32B	87	113
DVPAETB-OT32B	87	113



External Terminal Modules

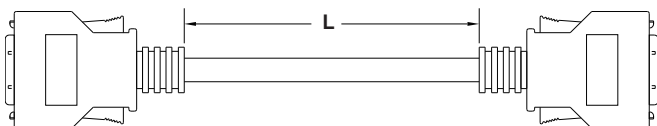
Model Name	H	W
DVPAETB-IO16C	87	125
DVPAETB-IO24C	87	157
DVPAETB-IO34C	87	157



# Dimensions Dimensions are in m

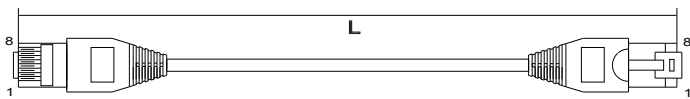
## Cables (HDC)

Model Name	L	Model name	L
AHACAB06-5A	0.6	AHACABD0-5A	40.0
AHACAB10-5A	1.0	AHACABE0-5A	50.0
AHACAB15-5A	1.5	AHACABF0-5A	60.0
AHACAB30-5A	3.0	AHACABG0-5A	70.0
AHACAB50-5A	5.0	AHACABH0-5A	80.0
AHACABA0-5A	10.0	AHACABJ0-5A	90.0
AHACABA5-5A	15.0	AHACABK0-5A	100.0
AHACABB0-5A	20.0	DVPACAB7D10	1.0
AHACABC0-5A	30.0	DVPACAB7E10	1.0



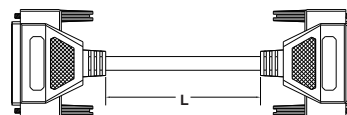
## Cables (RJ45)

Model Name	L	Model name	L
TAP-CB03	0.3	TAP-CB20	2.0
TAP-CB05	0.5	TAP-CB30	3.0
TAP-CB10	1.0	TAP-CB100	10.0



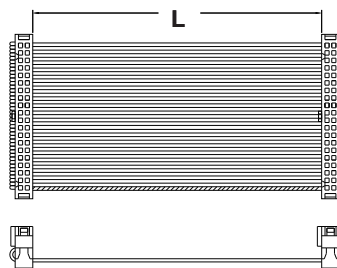
## Cable (DB37)

Model Name	L
DVPACAB7C10	1.0



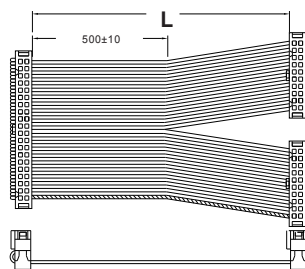
## Cable (MIL connector)

Model Name	L
DVPACAB7A10	1.0



## Cable (MIL connector)

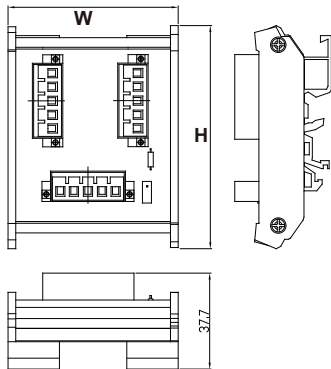
Model Name	L
DVPACAB7B10	1.0



Dimensions are in mm

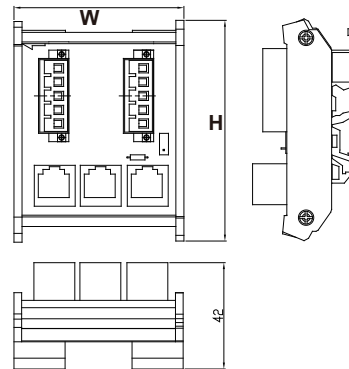
### CANopen Distribution Box

Model Name	H	W
TAP-CN01	87	66.5



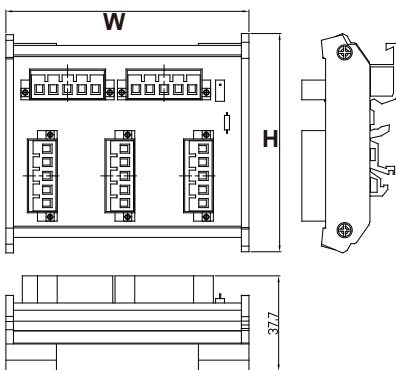
### CANopen Distribution Box

Model Name	H	W
TAP-CN03	87	66.5



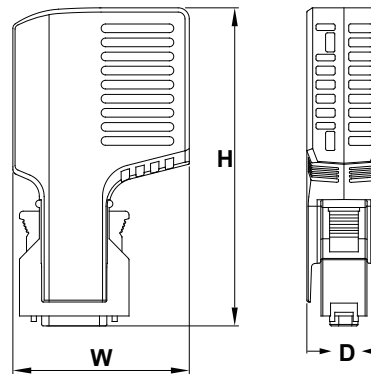
### CANopen Distribution Box

Model Name	H	W
TAP-CN02	87	96.5



### Fiber Optics Modules for Backplanes

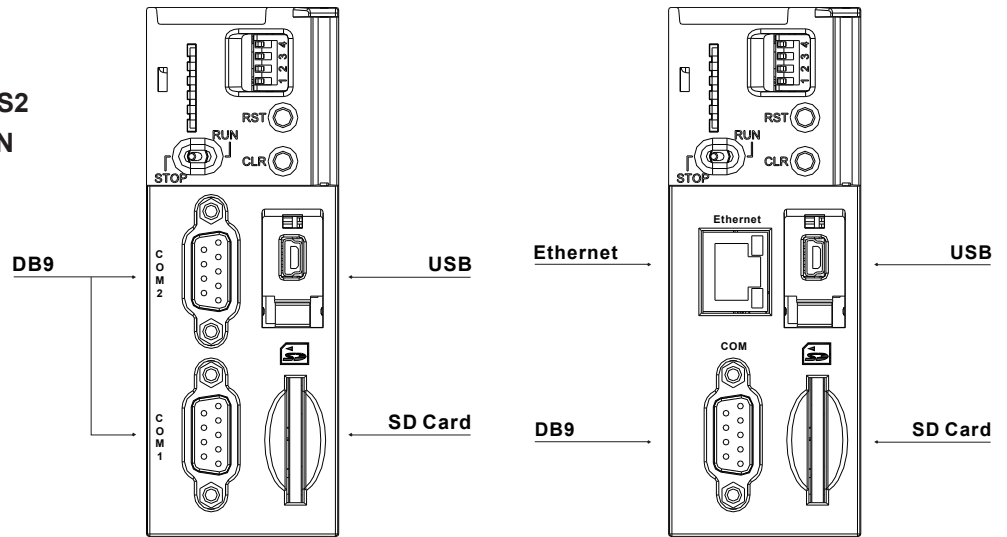
Model Name	H	W	D
AHAADP01EF-5A	86.5	48	20.2
AHAADP02EF-5A	86.5	48	20.2



# Wiring

## ■ CPU Modules

- AHCPU500/510/520/530-RS2
- AHCPU500/510/520/530-EN



### DB9 connector

Pin	Function			
	RS-485	RS-422	RS-232	
1	D+	RX+	N/C	
2	N/C	N/C	RX	
3	N/C	N/C	TX	
4	N/C	TX+	N/C	
5	GROUND	GROUND	GROUND	
6	D-	RX-	N/C	
7	N/C	N/C	N/C	
8	N/C	N/C	N/C	
9	N/C	TX-	N/C	

### USB port

Pin	Function	
1	VBUS (4.4-5.25 V)	
2	D-	
3	D+	
4	Ground	
5	Ground	

### Ethernet port

Pin	Signal	Description	
1	TX+	Transmitting data	
2	TX-	(positive pole)	
3	RX+	Transmitting data	
4	--	(negative pole)	
5	--	Receiving data	
6	RX-	(positive pole)	
7	--	N/C	
8	--	N/C	

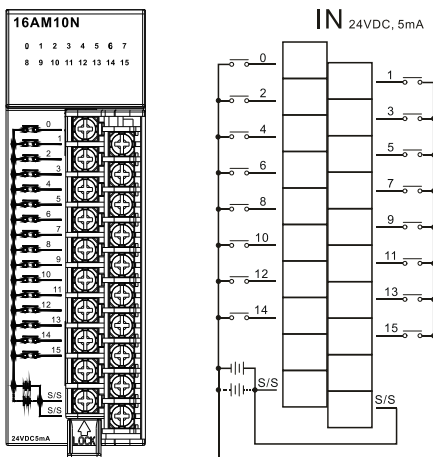
■ Digital Input/Output Modules

Applicable model:

AH16AM10N-5A	AH16AM30N-5A	AH16AR10N-5A	AH16AN01S-5A
AH16AN01R-5A	AH16AN01T-5A	AH16AN01P-5A	AH16AP11R-5A
AH16AP11T-5A	AH16AP11P-5A	AH32AM10N-5A	AH32AM10N-5B
AH32AM10N-5C	AH32AN02T-5A	AH32AN02T-5B	AH32AN02T-5C
AH32AN02P-5A	AH32AN02P-5B	AH32AN02P-5C	AH64AM10N-5C
AH64AN02T-5C	AH64AN02P-5C		

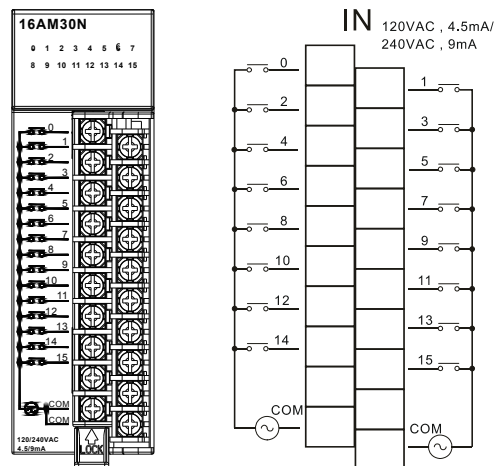
• Wiring AH16AM10N-5A

<b>Input form</b>	Direct current NPN (Sink) or PNP (Source)
<b>Input current</b>	24 V <sub>DC</sub> , 5 mA



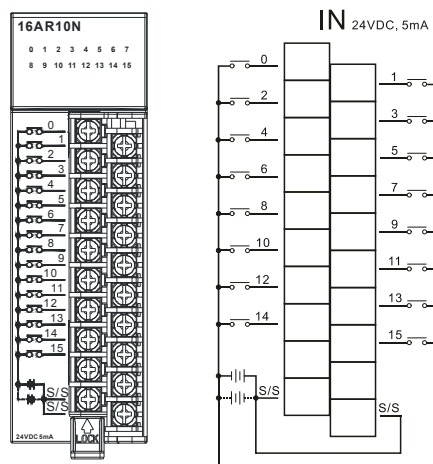
• Wiring AH16AM30N-5A

<b>Input form</b>	Alternating current
<b>Input current</b>	120 V <sub>AC</sub> , 4.5 mA; 240 V <sub>AC</sub> , 9 mA



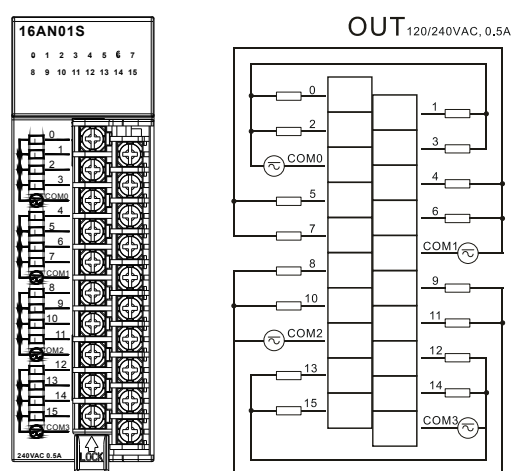
• Wiring AH16AR10N-5A

<b>Input form</b>	Direct current NPN (Sink) or PNP (Source)
<b>Input current</b>	24 V <sub>DC</sub> , 5 mA



• Wiring AH16AN01S-5A

<b>Output type</b>	TRIAC-S
<b>Voltage specifications</b>	120/240 V <sub>AC</sub> , 0.5A

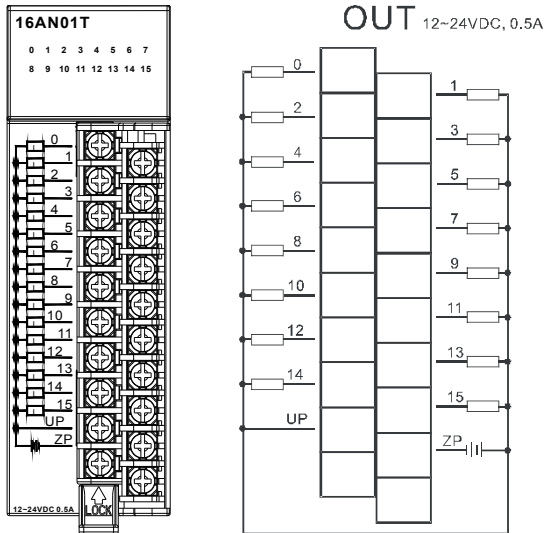




# Wiring

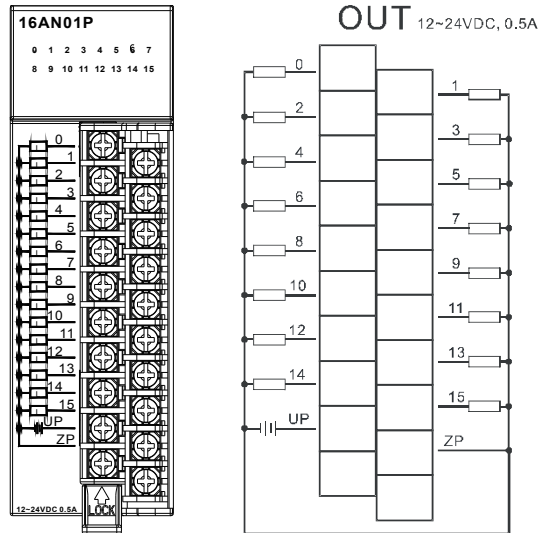
## • Wiring AH16AN01T-5A

<b>Output type</b>	Transistor-T (NPN (Sink))
<b>Voltage specifications</b>	12~24 V <sub>DC</sub> , 0.5A



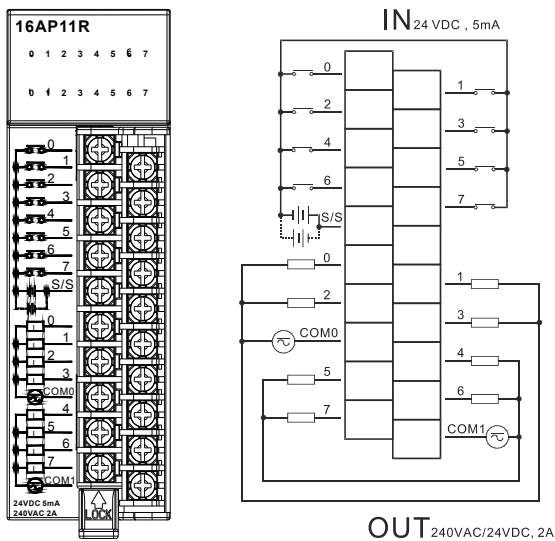
## • Wiring AH16AN01P-5A

<b>Output type</b>	Transistor-P (PNP (Source))
<b>Voltage specifications</b>	12~24 V <sub>DC</sub> , 0.5A



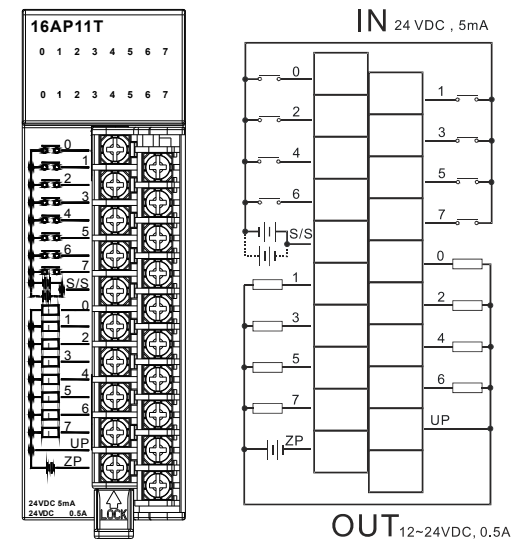
## • Wiring AH16AP11R-5A

<b>Input form</b>	Direct current NPN (Sink) or PNP (Source)
<b>Input current</b>	24 V <sub>DC</sub> , 5 mA
<b>Output type</b>	Relay-R
<b>Voltage specifications</b>	24 V <sub>DC</sub> , 240 V <sub>AC</sub> , 2 A



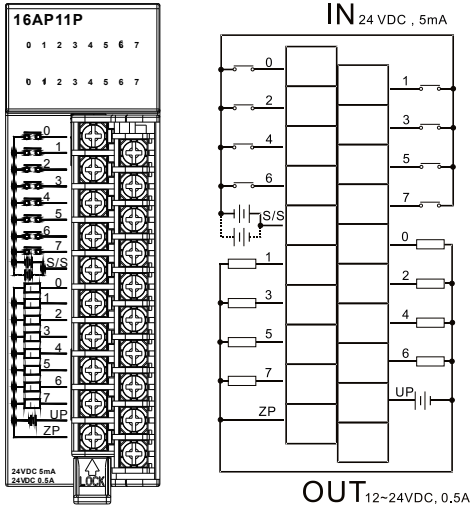
## • Wiring AH16AP11T-5A

<b>Input form</b>	Direct current NPN (Sink) or PNP (Source)
<b>Input current</b>	24 V <sub>DC</sub> , 5 mA
<b>Output type</b>	Transistor-T (NPN (Sink))
<b>Voltage specifications</b>	12~24 V <sub>DC</sub> , 0.5A



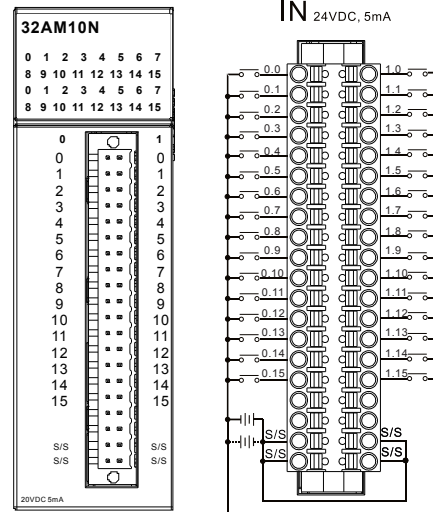
## • Wiring AH16AP11P-5A

<b>Input form</b>	Direct current NPN (Sink) or PNP (Source)
<b>Input current</b>	24 V <sub>DC</sub> , 5 mA
<b>Output type</b>	Transistor-P (PNP (Source))
<b>Voltage specifications</b>	12~24 V <sub>DC</sub> , 0.5A



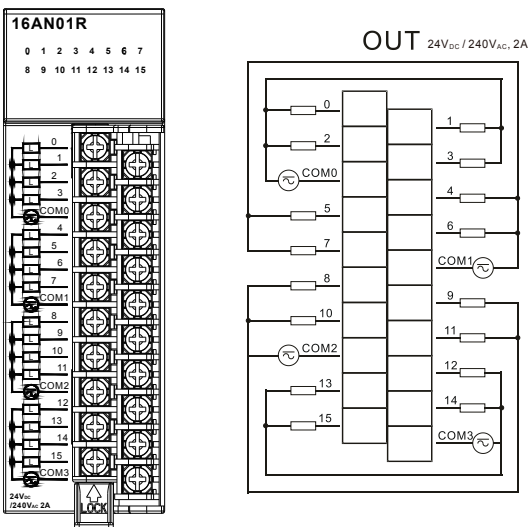
## • Wiring AH32AM10N-5A

<b>Input form</b>	Direct current NPN (Sink) or PNP (Source)
<b>Input current</b>	24 V <sub>DC</sub> , 5 mA



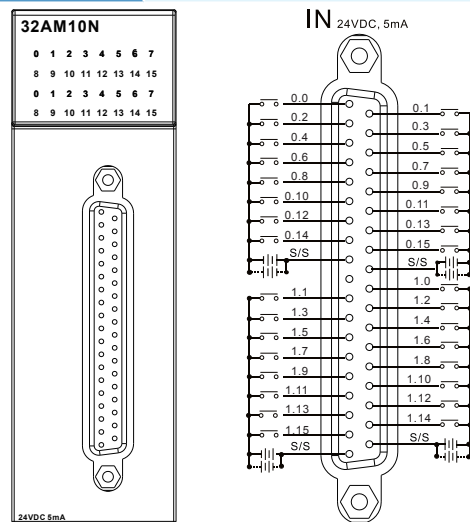
## • Wiring AH16AN01R-5A

<b>Input form</b>	Relay-R
<b>Input current</b>	24 V <sub>DC</sub> , 240 V <sub>AC</sub> , 2A



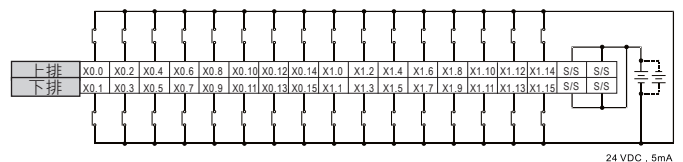
## • Wiring AH32AM10N-5B

<b>Input form</b>	Direct current NPN (Sink) or PNP (Source)
<b>Input current</b>	24 V <sub>DC</sub> , 5 mA



Wiring the external terminal module connected to  
AH32AM10N-5B

DVPAETB-ID32B

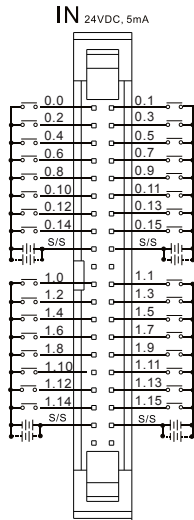
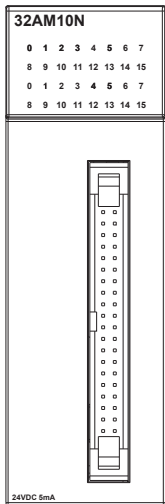


24 VDC, 5mA

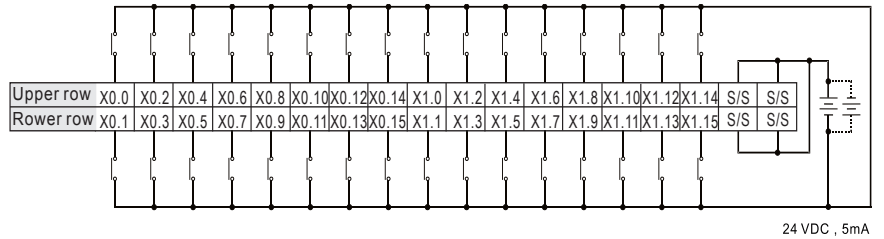
# Wiring

## • Wiring AH32AM10N-5C

<b>Input form</b>	Direct current (NPN (Sink) or PNP (Source))
<b>Input current</b>	24 V <sub>DC</sub> , 5 mA



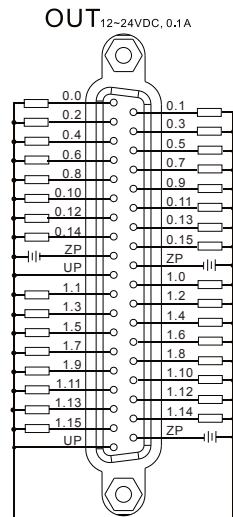
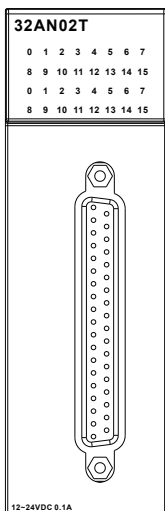
### Wiring the external terminal modules connected to AH32AM10N-5C DVPAETB-ID32A



24 VDC , 5mA

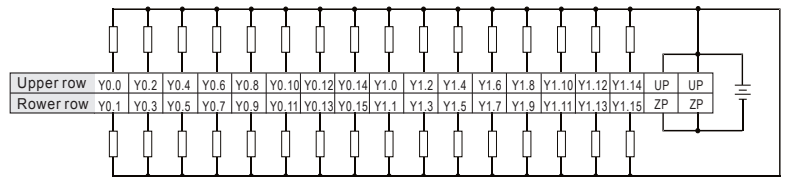
## • Wiring AH32AN02T-5B

<b>Output type</b>	Transistor-T (NPN (Sink))
<b>Voltage specifications</b>	12~24 V <sub>DC</sub> , 0.1A



### Wiring the external terminal module connected to AH32AN02T-5B DVPAETB-OT32B

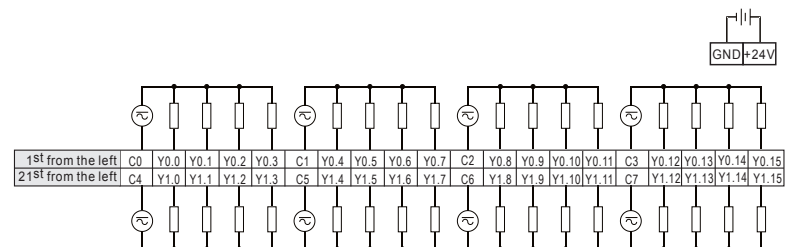
<b>Output type</b>	Transistor-T (NPN (Sink))
<b>Voltage specifications</b>	12~24 V <sub>DC</sub> , 0.1A



12~24VDC, 0.1A

### DVPAETB-ID32A

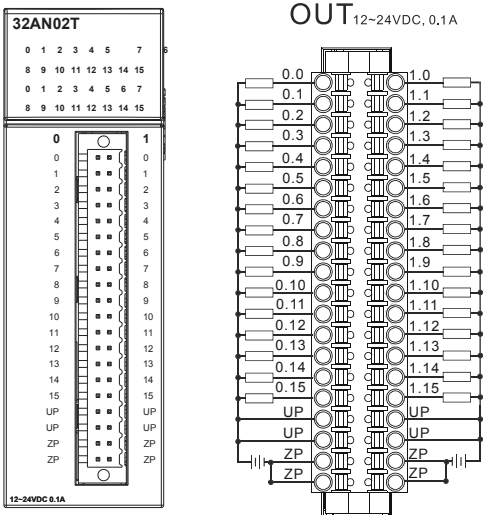
<b>Output type</b>	Transistor-T (NPN (Sink))
<b>Voltage specifications</b>	12~24 V <sub>DC</sub> , 0.1A



250VAC/30VDC, 2A

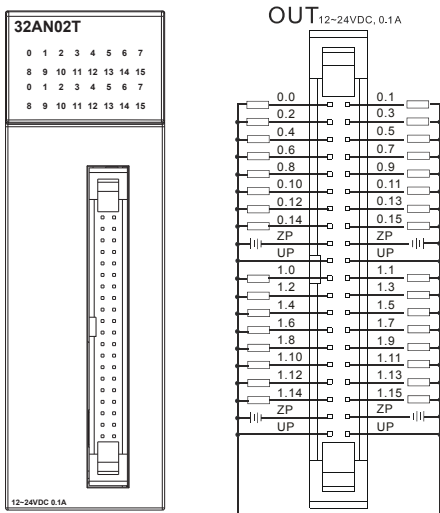
• Wiring AH32AN02T-5A

<b>Output type</b>	Transistor-T (NPN (Sink))
<b>Voltage specifications</b>	12~24 V <sub>DC</sub> , 0.1A



• Wiring AH32AN02T-5C

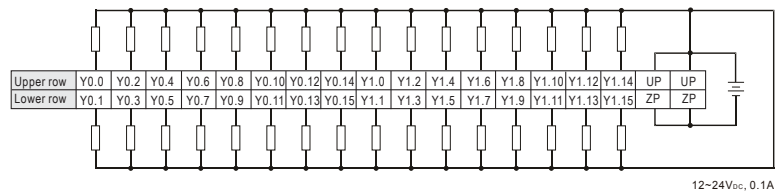
<b>Output type</b>	Transistor-T (NPN (Sink))
<b>Voltage specifications</b>	12~24 V <sub>DC</sub> , 0.1A



Wiring the external terminal module connected to AH32AN02T-5C

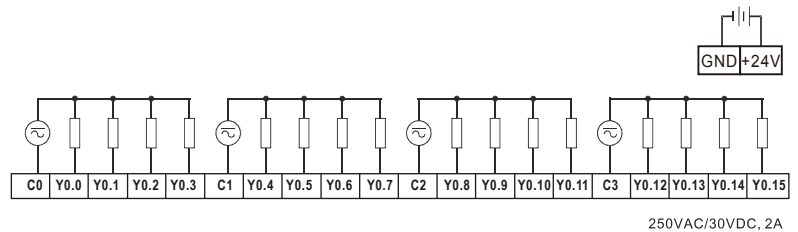
DVPAETB-OT32A

<b>Output type</b>	Transistor-T (NPN (Sink))
<b>Voltage specifications</b>	12~24 V <sub>DC</sub> , 0.1A



DVPAETB-OR16A

<b>Output type</b>	Relay-R
<b>Voltage specifications</b>	250 V <sub>AC</sub> , below 30 V <sub>DC</sub>

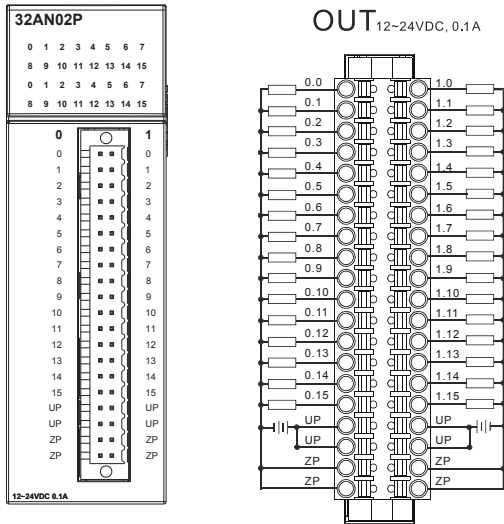


Control

# Wiring

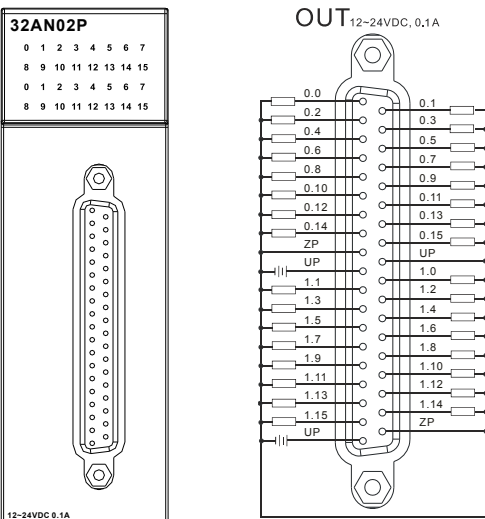
## • Wiring AH32AN02P-5A

<b>Output type</b>	Transistor-P (PNP (Source))
<b>Voltage specifications</b>	12~24 V <sub>DC</sub> , 0.1A



## • Wiring AH32AN02P-5B

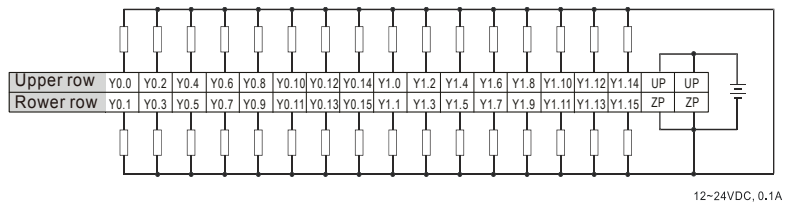
<b>Output type</b>	Transistor-P (PNP (Source))
<b>Voltage specifications</b>	12~24 V <sub>DC</sub> , 0.1A



Wiring the external terminal module connected to AH32AN02P-5B

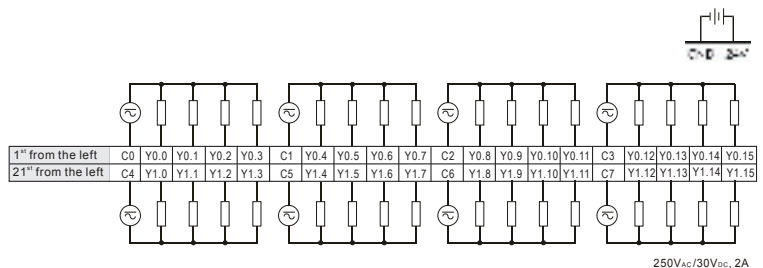
### DVPAETB-OT32B

<b>Output type</b>	Transistor-P (PNP (Source))
<b>Voltage specifications</b>	12~24 V <sub>DC</sub> , 0.1A



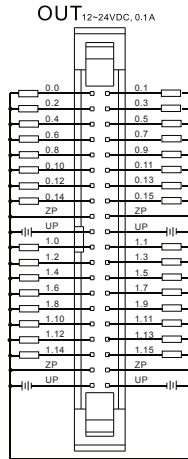
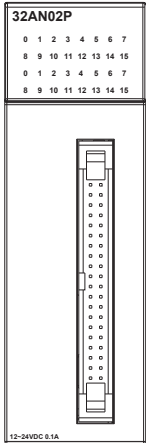
### DVPAETB-OR32B

<b>Output type</b>	Relay-R
<b>Voltage specifications</b>	250 V <sub>AC</sub> , below 30 V <sub>DC</sub>



## • Wiring AH32AN02P-5C

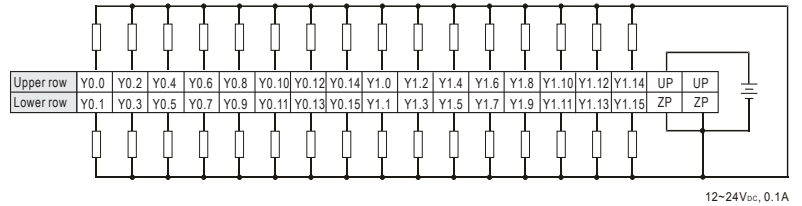
<b>Output type</b>	Transistor-P (PNP (Source))
<b>Voltage specifications</b>	12~24 V <sub>DC</sub> , 0.1A



Wiring the external terminal module connected to AH32AN02P-5C

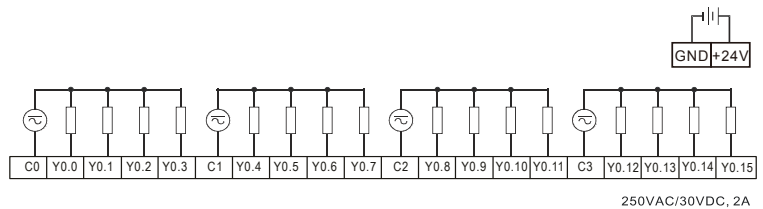
### DVPAETB-OT32A

<b>Output type</b>	Transistor-P (PNP (Source))
<b>Voltage specifications</b>	12~24 V <sub>DC</sub> , 0.1A



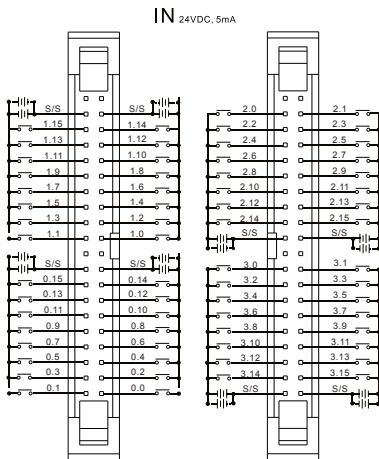
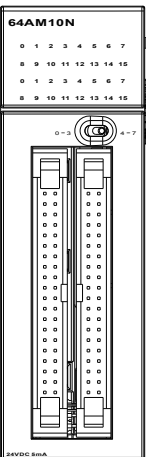
### DVPAETB-OR16B

<b>Output type</b>	Relay-R
<b>Voltage specifications</b>	250 V <sub>AC</sub> , below 30 V <sub>DC</sub>



## • Wiring AH64AM10N-5C

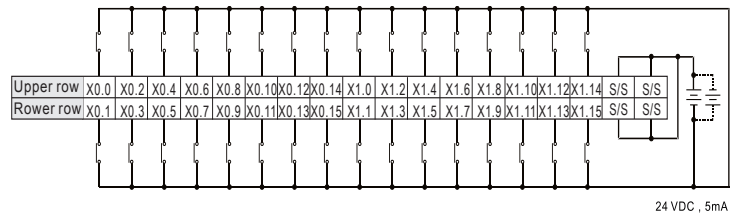
<b>Input form</b>	Direct current (NPN (Sink) or PNP (Source))
<b>Input current</b>	24 V <sub>DC</sub> , 5 mA



Wiring the external terminal module connected to AH64AM10N-5C

### DVPAETB-ID32A

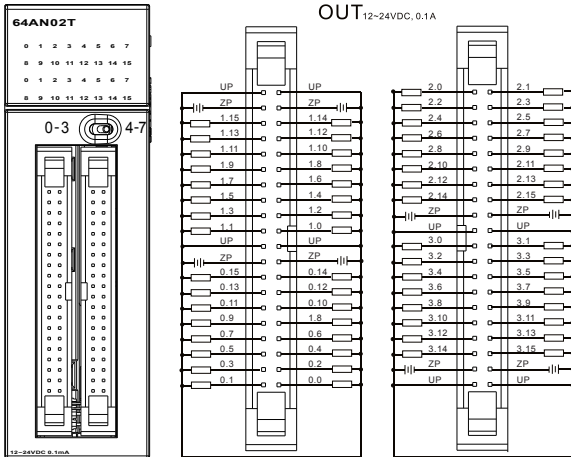
<b>Input form</b>	Direct current (NPN (Sink) or PNP (Source))
<b>Input current</b>	24 V <sub>DC</sub> , 5mA



# Wiring

## • Wiring AH64AN02T-5C

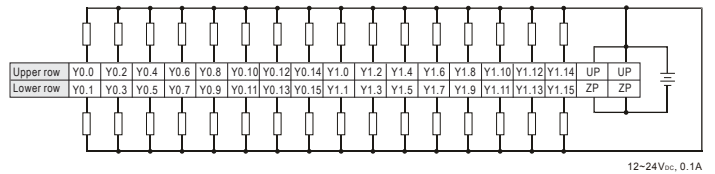
<b>Output type</b>	Transistor-T (NPN (Sink))
<b>Voltage specifications</b>	12~24 V <sub>DC</sub> , 0.1A



Wiring the external terminal module connected to AH64AN02T-5C

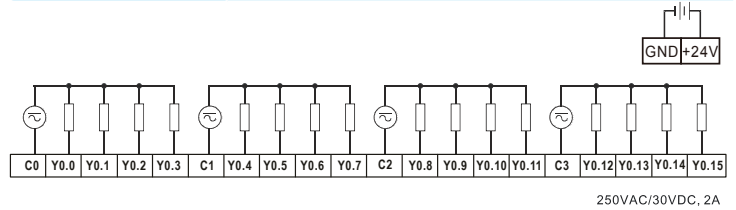
### DVPAETB-OT32A

<b>Output type</b>	Transistor-T (NPN (Sink))
<b>Voltage specifications</b>	12~24 V <sub>DC</sub> , 0.1A



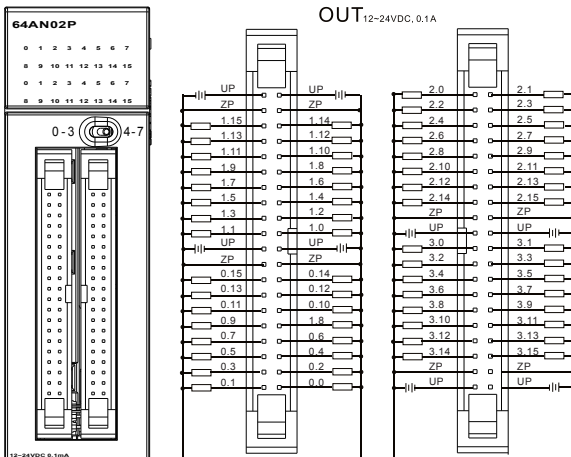
### DVPAETB-OR16A

<b>Output type</b>	Relay-R
<b>Voltage specifications</b>	250 V <sub>AC</sub> , below 30 V <sub>DC</sub>



## • Wiring AH64AN02P-5C

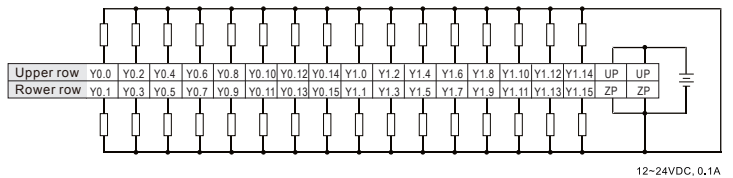
<b>Output type</b>	Transistor-P (PNP (Source))
<b>Voltage specifications</b>	12~24 V <sub>DC</sub> , 0.1A



Wiring the external terminal module connected to AH64AN02P-5C

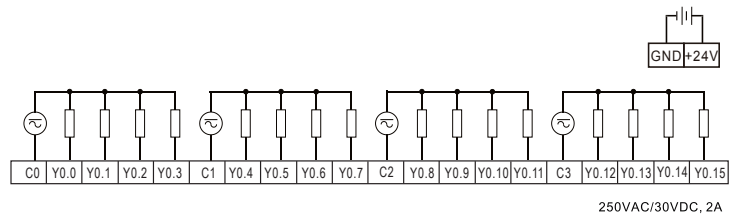
### DVPAETB-OT32A

<b>Output type</b>	Transistor-P (PNP (Source))
<b>Voltage specifications</b>	12~24 V <sub>DC</sub> , 0.1A



### DVPAETB-OR16B

<b>Output type</b>	Relay-R
<b>Voltage specifications</b>	250 V <sub>AC</sub> , below 30 V <sub>DC</sub>



## Analog Modules

AH04AD-5A	AH08AD-5A	AH08AD-5B	AH08AD-5C
AH04DA-5A	AH08DA-5A	AH08DA-5B	AH08DA-5C
AH06XA-5A			

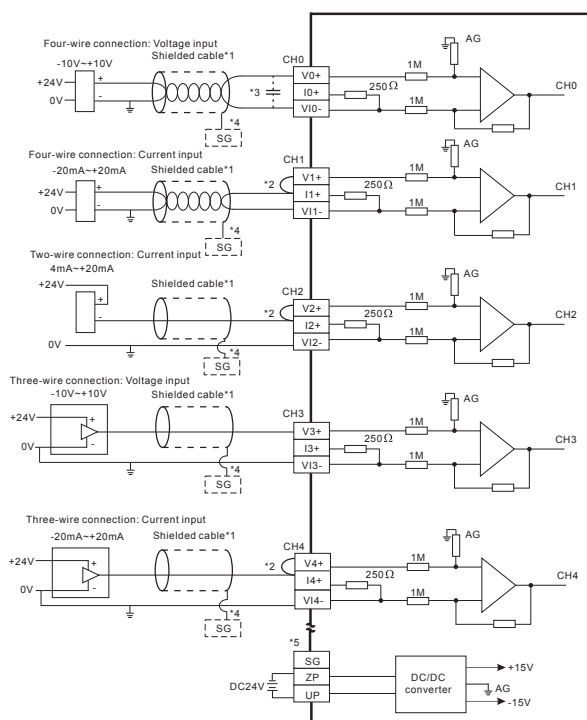
### Two-wire connection/Three-wire connection/Four-wire connection:

- Two-wire connection/Three-wire connection (Passive transducer): A transducer and an analog input module are connected to a power circuit collectively.
- Four-wire connection (Active transducer): A transducer uses an independent power supply. It is not connected to the power circuit which is connected to an analog input module.

### Analog Input Modules

#### Applicable model:

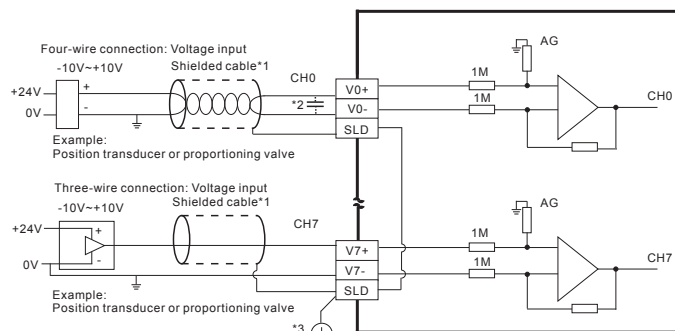
AH04AD-5A/AH08AD-5A



- \*1. Please use a shielded cable as an analog input cable, and isolate the shielded cable from other power cables.
- \*2. If a current signal is connected, the connection between Vn+ and In+ needs to be a short circuit. (n is in the range of 0 to 7.)
- \*3. If ripple voltage results in interference with the wiring, please connect a 0.1~0.47 μF and 25V capacitor.
- \*4. Please connect the ground in the shielded cable to the terminal SG.
- \*5. Once AH04AD-5A/AH08AD-5A is installed on a backplane, the connection between the terminal SG on AH04AD-5A/AH08AD-5A and the terminal SG on the backplane will be a short circuit. Please connect the terminal SG on the backplane to the ground terminal SG.

#### Applicable model:

AH08AD-5B



- \*1. Please use a shielded cable as an analog input cable, and isolate the shielded cable from other power cables.
- \*2. If ripple voltage results in interference with the wiring, please connect a 0.1~0.47 μF and 25V capacitor.
- \*3. Please connect the terminal SLD to the ground terminal SG.

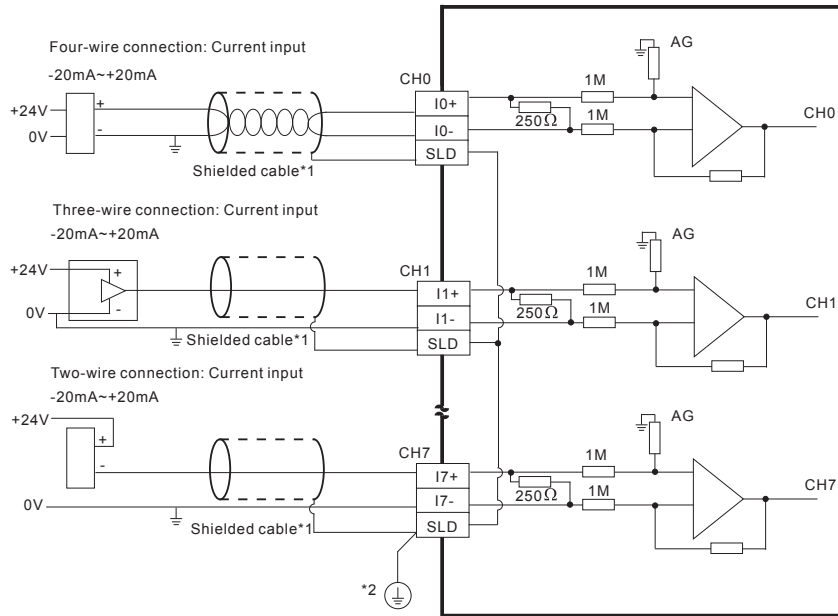


# Wiring

## • Analog Input Modules

### Applicable model:

AH08AD-5C



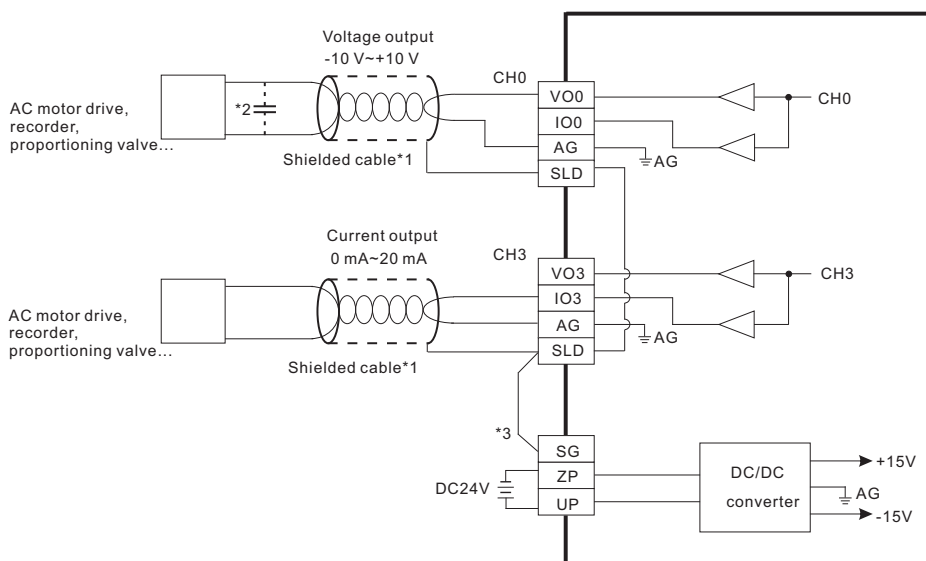
\*1. Please use a shielded cable as an analog input cable, and isolate the shielded cable from other power cables.

\*2. Please connect the terminal SLD to the ground terminal ⊕.

## • Analog Output Modules

### Applicable model:

AH04DA-5A/AH08DA-5A



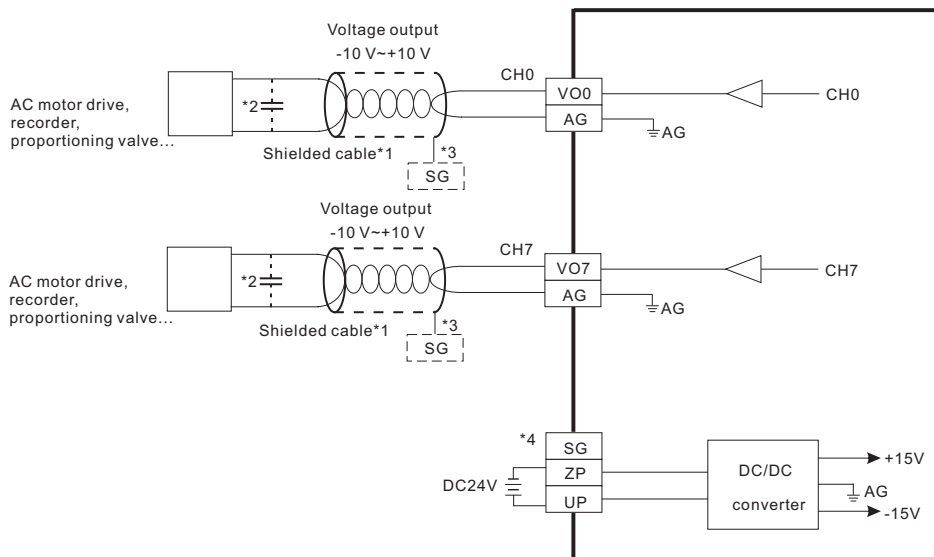
\*1. Please use a shielded cable as an analog output cable, and isolate the shielded cable from other power cables.

\*2. If the ripple voltage of the input terminal of the load connected is large, and results in interference with the wiring, please connect a 0.1~0.47 μF and 25V capacitor.

\*3. Please connect the terminal SLD to the terminal SG. Once AH04DA-5A/AH08DA-5A is installed on a backplane, the connection between the terminal SG on AH04DA-5A/AH08DA-5A and the terminal ⊕ on the backplane will be a short circuit. Please connect the terminal ⊕ on the backplane to the ground terminal ⊕.

## Applicable model:

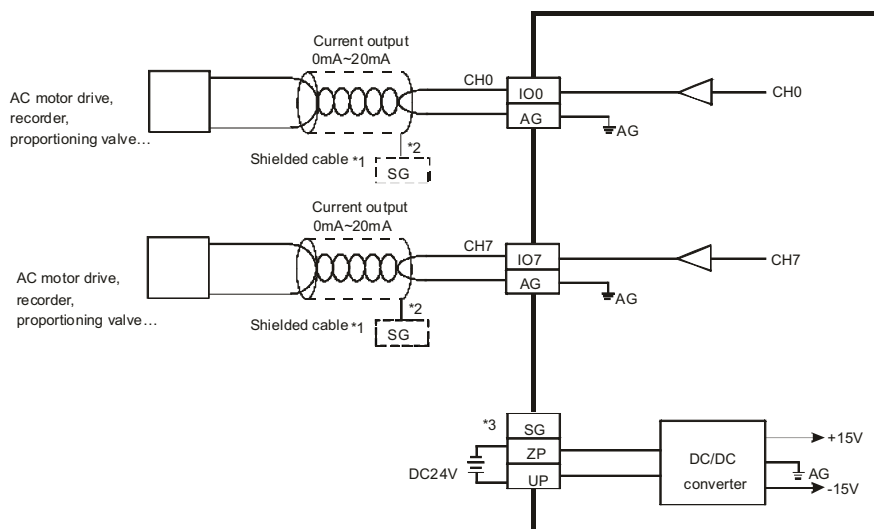
AH08DA-5B



- \*1. Please use a shielded cable as an analog output cable, and isolate the shielded cable from other power cables.
- \*2. If the ripple voltage of the input terminal of the load connected is large, and results in interference with the wiring, please connect a 0.1~0.47  $\mu$ F and 25V capacitor.
- \*3. Please connect the ground in the shielded cable to the terminal SG.
- \*4. Once AH08DA-5B is installed on a backplane, the connection between the terminal SG on AH08DA-5B and the terminal  $\oplus$  on the backplane will be a short circuit. Please connect the terminal  $\oplus$  on the backplane to the ground terminal  $\ominus$ .

## Applicable model:

AH08DA-5C



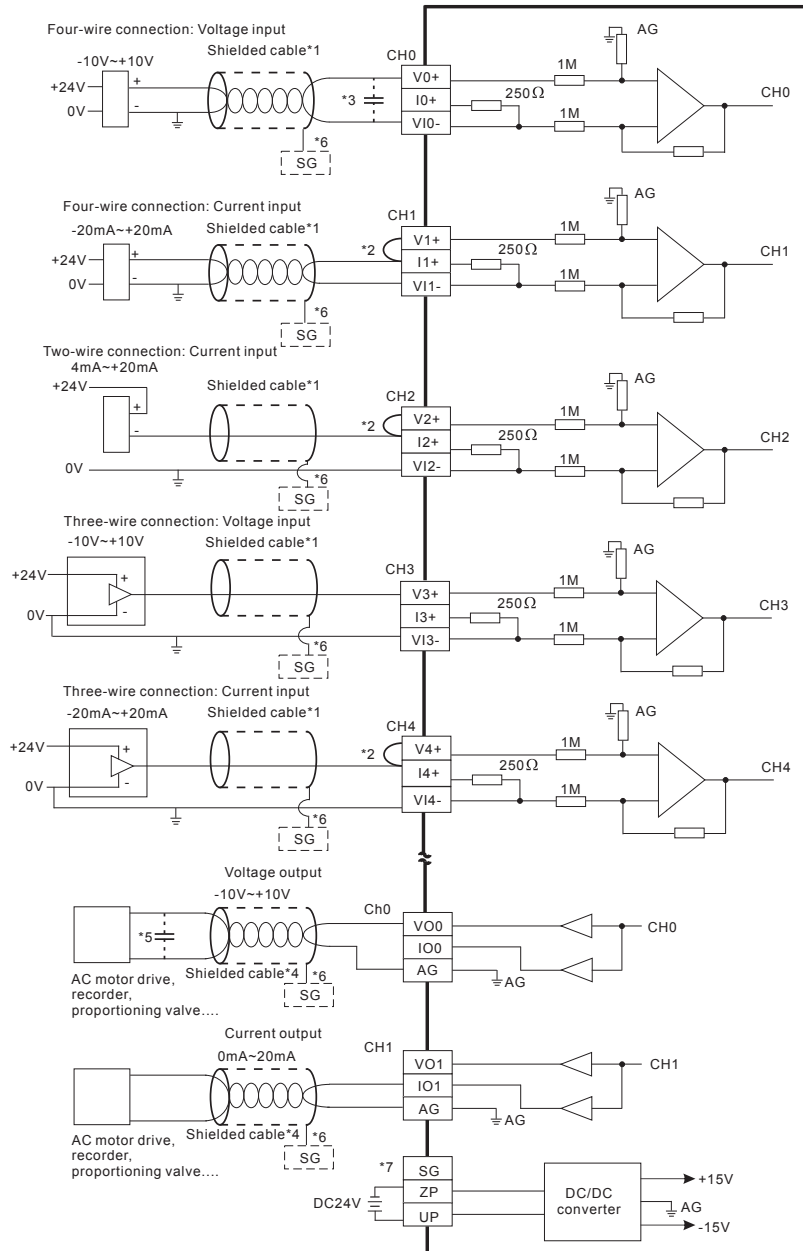
- \*1. Please use a shielded cable as an analog output cable, and isolate the shielded cable from other power cables.
- \*2. Please connect the ground in the shielded cable to the terminal SG.
- \*3. Once AH08DA-5C is installed on a backplane, the connection between the terminal SG on AH08DA-5C and the terminal  $\oplus$  on the backplane will be a short circuit. Please connect the terminal  $\oplus$  on the backplane to the ground terminal  $\ominus$ .

# Wiring

## • Analog input/output module

### Applicable model:

AH06XA-5A



\*1. Please use a shielded cable as an analog input cable, and isolate the shielded cable from other power cables.

\*2. If a current signal is connected, the connection between Vn+ and In+ needs to be a short circuit. (n is in the range of 0 to 7.)

\*3. If ripple voltage results in interference with the wiring, please connect a 0.1~0.47  $\mu$ F and 25V capacitor.

\*4. Please isolate the analog output cable from other power cables.

\*5. If the ripple voltage of the input terminal of the load connected is large, and results in interference with the wiring, please connect a 0.1~0.47  $\mu$ F and 25V capacitor.

\*6. Please connect the ground wire in the shielded cable to the terminal SG.

\*7. Once AH06XA-5A is installed on a backplane, the connection between the terminal SG on AH06XA-5A and the terminal  $\oplus$  on the backplane will be a short circuit. Please connect the terminal  $\oplus$  on the backplane to the ground terminal  $\ominus$ .

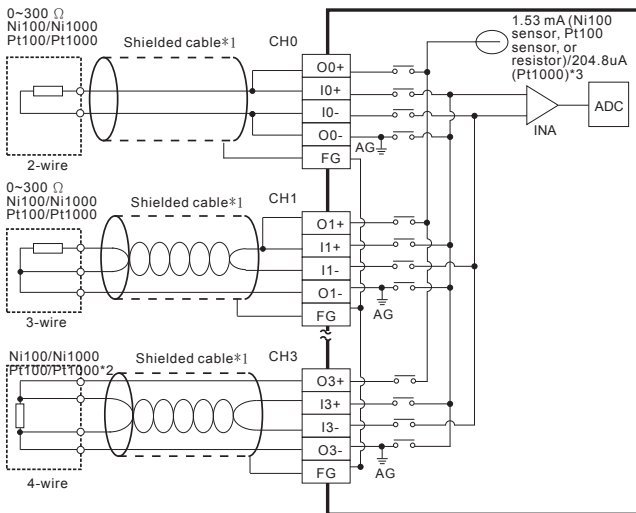
■ Temperature Measurement Modules (RTDs)

AH04PT-5A

AH08PTG-5A

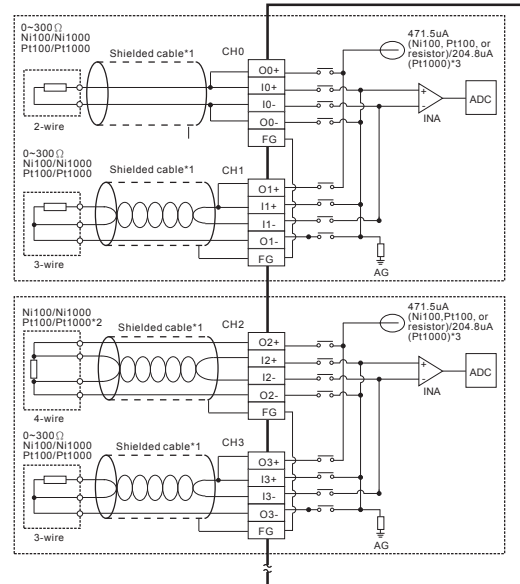
Applicable model:

AH04PT-5A



Applicable model:

AH08PTG-5A



- \*1. The cable connected to the input terminal should be the cable or the shielded twisted pair cable which can be connected to an Ni100/Ni1000/Pt100/Pt1000 sensor, and should be kept separate from other power cables and cables which generate noise. Please use a three-wire temperature sensor. If users want to use a two-wire temperature sensor, On+ and In+ must be short-circuited, and On- and In- must be short-circuited. (n is in the range of 0 to 3.)
- \*2. If users want to measure resistance in the range of 0 Ω to 300 Ω, they can use a two-wire or three-wire sensor instead of a four-wire sensor.
- \*3. Users need to select an appropriate sensor. If an Ni100 temperature sensor, a Pt100 sensor, or a resistance sensor is used, the internal excitation current is 1.53 mA. If an Ni1000 temperature sensor, or a Pt1000 temperature sensor is used, the internal excitation current is 204.8 μA.

- \*1. The cable connected to the input terminal should be the cable or the shielded twisted pair cable which can be connected to an Ni100/Ni1000/Pt100/Pt1000 sensor, and should be kept separate from other power cables and cables which generate noise. Please use a three-wire temperature sensor. If users want to use a two-wire temperature sensor, On+ and In+ must be short-circuited, and On- and In- must be short-circuited. (n is in the range of 0 to 7.)
- \*2. If users want to measure resistance in the range of 0 Ω to 300 Ω, they can use a two-wire or three-wire sensor instead of a four-wire sensor.
- \*3. The user needs to select an appropriate sensor. If an Ni100 temperature sensor, a Pt100 sensor, or a resistance sensor is used, the internal excitation current is 471.5 μA. If an Ni1000 temperature sensor, or a Pt1000 temperature sensor is used, the internal excitation current is 204.8 μA.

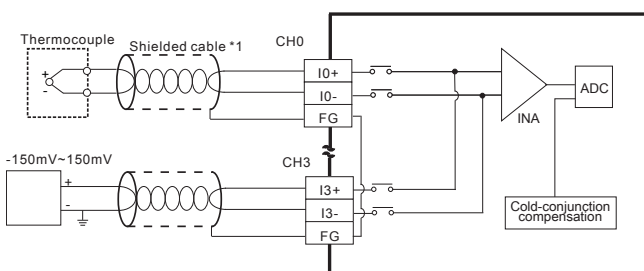
■ Temperature Measurement Modules (Thermocouples)

AH04TC-5A

AH08TC-5A

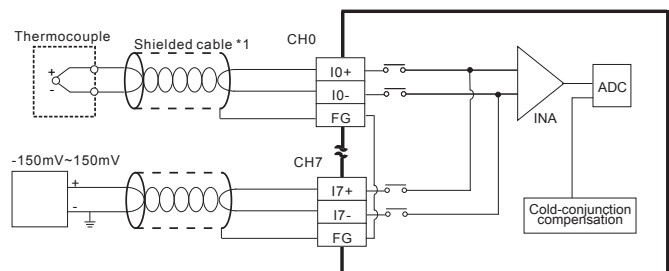
Applicable model:

AH04TC-5A



Applicable model:

AH08TC-5A



- \*1. The cable connected to the input terminal should be the cable or the shielded twisted pair cable which can be connected to a type J, type K, type R, type S, type T, type E, or type N thermocouple, and should be kept separate from other power cables and cables which generate noise.

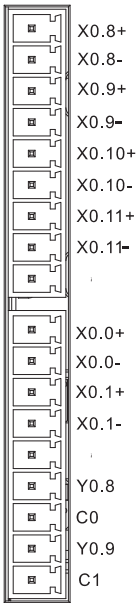
# Wiring

## High-speed Counter Modules

AH02HC-5A

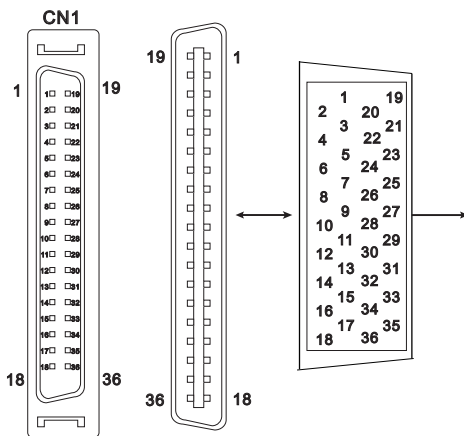
AH04HC-5A

### Terminals on AH02HC-5A



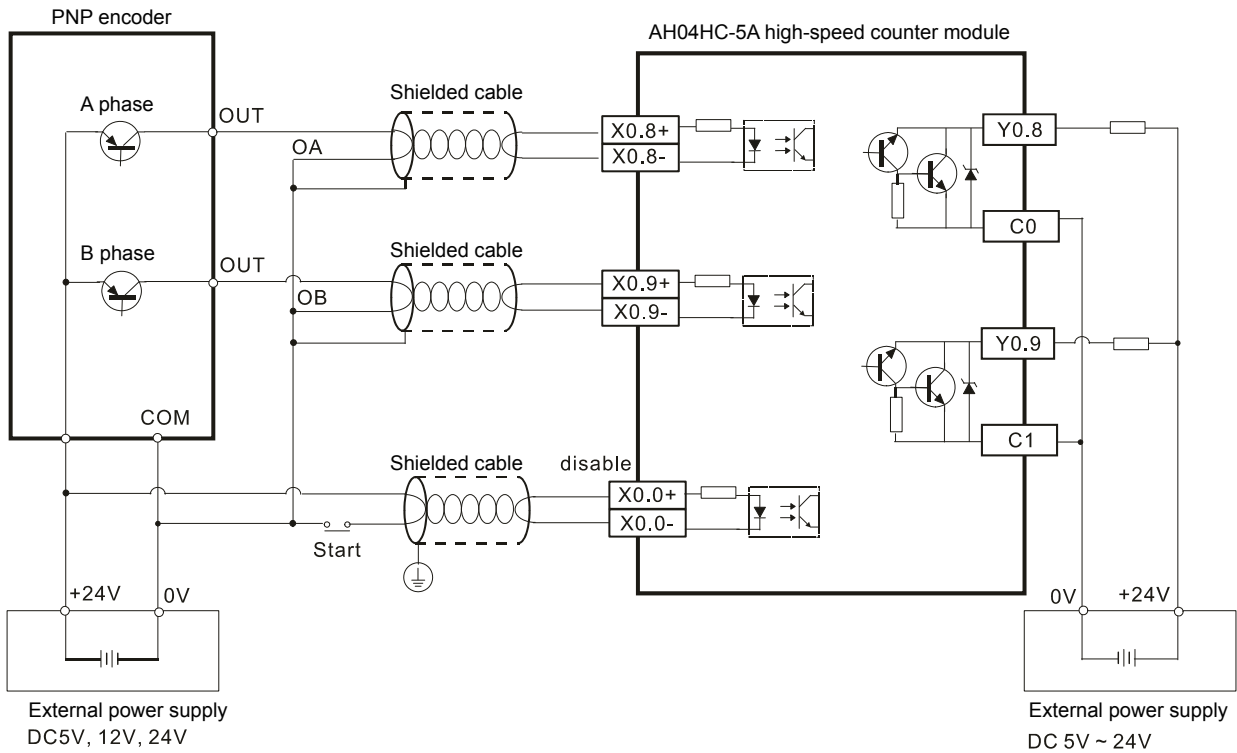
Terminal	Function	Terminal	Function
	Count		Count
X0.8+	CntA0+	X0.0+	Rst0+
X0.8-	CntA0-	X0.0-	Rst0-
X0.9+	CntB0+	X0.1+	Rst1+
X0.9-	CntB0-	X0.1-	Rst1-
X0.10+	CntA1+	Y0.8	Out0
X0.10-	CntA1-	C0	COM0
X0.11+	CntB1+	Y0.9	Out1
X0.11-	CntB1-	C1	COM1

### Connector on AH04HC-5A

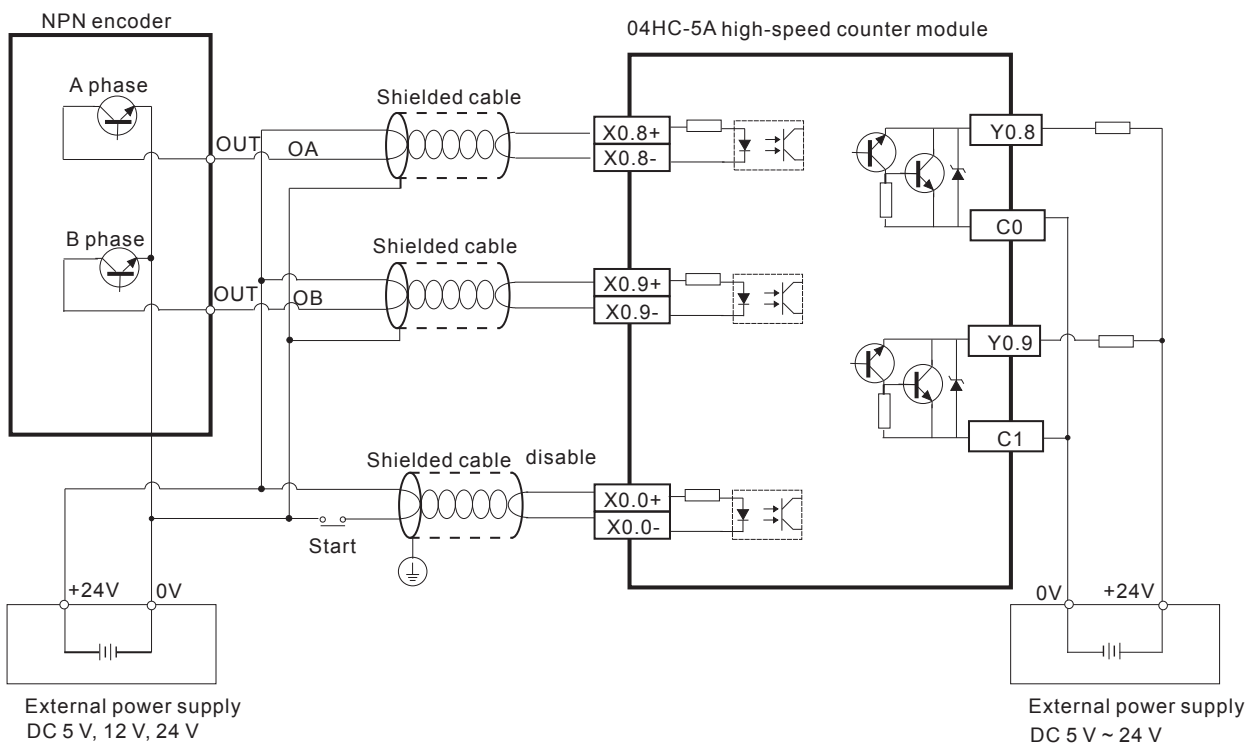


Pin	Terminal	Function	Pin	Terminal	Function
		Count			Count
1	C3	COM3	19	Y0.11	Out3
2	C2	COM2	20	Y0.10	Out2
3	C1	COM1	21	Y0.9	Out1
4	C0	COM0	22	Y0.8	Out0
5	-	-	23	-	-
6	-	-	24	-	-
7	X0.3-	Rst3-	25	X0.3+	Rst3+
8	X0.15-	CntB3-	26	X0.15+	CntB3+
9	X0.14-	CntA3-	27	X0.14+	CntA3+
10	X0.2-	Rst2-	28	X0.2+	Rst2+
11	X0.13-	CntB2-	29	X0.13+	CntB2+
12	X0.12-	CntA2-	30	X0.12+	CntA2+
13	X0.1-	Rst1-	31	X0.1+	Rst1+
14	X0.11-	CntB1-	32	X0.11+	CntB1+
15	X0.10-	CntA1-	33	X0.10+	CntA1+
16	X0.0-	Rst0-	34	X0.0+	Rst0+
17	X0.9-	CntB0-	35	X0.9+	CntB0+
18	X0.8-	CntA0-	36	X0.8+	CntA0+

• **Wiring a PNP encoder**

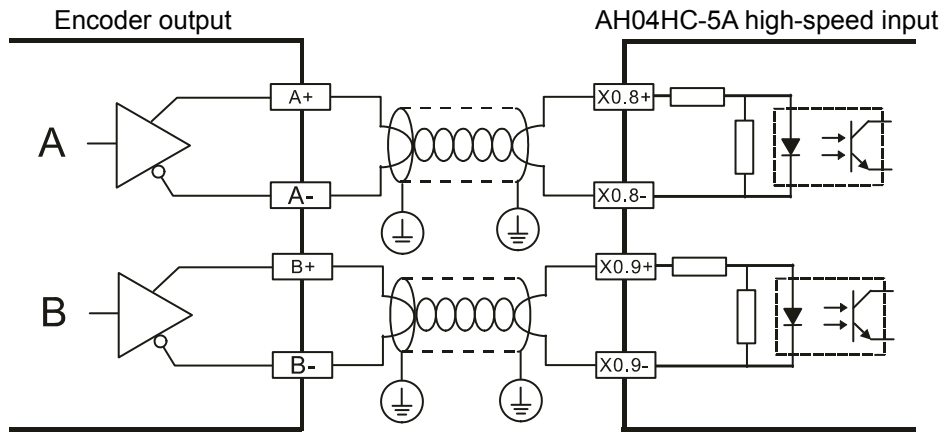


• **Wiring an NPN encoder**



# Wiring

- **Wiring Differential Input Terminals (The wiring below is used for high speed and high noise.)**



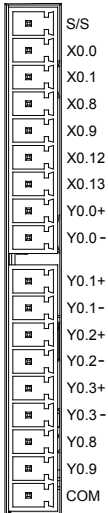
- **Wiring Transistor Output Terminals**

<p>① Direct-current power supply</p>	<p>② Emergency stop</p>	<p>③ Fuse</p>
<p>④ The output terminals of a transistor module are open-collector output terminals. If Y0.8 is a pulse output terminal of a transistor module, the output current passing through the output pull-up resistor of the transistor module must be greater than 0.1A to ensure that the transistor module operates normally. A relay or a solenoid valve is used as a DC load. A diode is connected in parallel to absorb the surge voltage which occurs when the load is OFF.</p>	<p>D: 1N4001 diode</p>	
<p>⑤ A bulb (incandescent lamp) is used as a DC load. A thermistor is connected in series to absorb the surge current which occurs when the load is ON.</p>	<p>NTC: 10Ω</p>	
<p>⑤ Y0.9 cannot be connected to a power supply directly. It must be connected to a load.</p>		
<p>⑥ Mutually exclusive output: For example, Y0.10 controls the clockwise rotation of the motor, and Y0.11 controls the counterclockwise rotation of the motor. The interlock circuit which is formed, and the program in the PLC ensure that there are protective measures if an abnormal condition occurs.</p>		

## Motion Control Modules

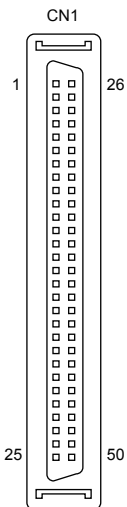
AH05PM-5A	AH10PM-5A	AH15PM-5A
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### Terminals on AH05PM-5A



Terminal	Function		Terminal	Function	
	Pulse	Count		Pulse	Count
S/S	S/S	S/S	Y0.1+	B0+	-
X0.0	PG0	Rst0	Y0.1-	B0-	-
X0.1	PG1	-	Y0.2+	A1+	-
X0.8	MPGA	CntA0	Y0.2-	A1-	-
X0.9	MPGB	CntB0	Y0.3+	B1+	-
X0.12	DOG0	-	Y0.3-	B1-	-
X0.13	DOG1	-	Y0.8	CLR0	-
Y0.0+	A0+	-	Y0.9	CLR1	-
Y0.0-	A0-	-	COM	-	-

### Connector on AH10PM-5A

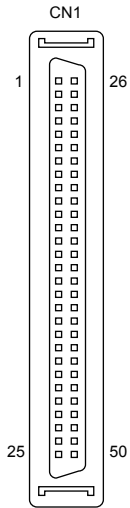


Pin	Terminal	Function		Pin	Terminal	Function	
		Pulse	Count			Pulse	Count
1	C3	COM3	-	26	Y0.11	CLR3/B5	-
2	C2	COM2	-	27	Y0.10	CLR2/A5	-
3	C1	COM1	-	28	Y0.9	CLR1/B4	-
4	C0	COM0	-	29	Y0.8	CLR0/A4	-
5	NC	-	-	30	NC	-	-
6	Y0.7-	B3-	-	31	Y0.7+	B3+	-
7	Y0.6-	A3-	-	32	Y0.6+	A3+	-
8	Y0.5-	B2-	-	33	Y0.5+	B2+	-
9	Y0.4-	A2-	-	34	Y0.4+	A2+	-
10	Y0.3-	B1-	-	35	Y0.3+	B1+	-
11	Y0.2-	A1-	-	36	Y0.2+	A1+	-
12	Y0.1-	B0-/CLR5-	-	37	Y0.1+	B0+/CLR5+	-
13	Y0.0-	A0-/CLR4-	-	38	Y0.0+	A0+/CLR4+	-
14	NC	-	-	39	NC	-	-
15	NC	-	-	40	S/S	S/S	S/S
16	X0.15	DOG3	CntB3/CntB5	41	X0.14	DOG2	CntB3/CntA5
17	X0.13	DOG1	CntB2/CntB4	42	X0.12	DOG0	CntA2/CntA4
18	X0.11	DOG5	CntB1	43	X0.10	DOG4	CntA1
19	X0.9	MPGB	CntB0	44	X0.8	MPGA	CntA0
20	NC	-	-	45	NC	-	-
21	NC	-	-	46	NC	-	-
22	X0.3-	Pg3-	Rst3-/Rst5-	47	X0.3+	Pg3+	Rst3+/Rst5+
23	X0.2-	Pg2-	Rst2-/Rst4-	48	X0.2+	Pg2+	Rst2+/Rst4+
24	X0.1-	Pg1-	Rst1-	49	X0.1+	Pg1+	Rst1+
25	X0.0-	Pg0-	Rst0-	50	X0.0+	Pg0+	Rst0+



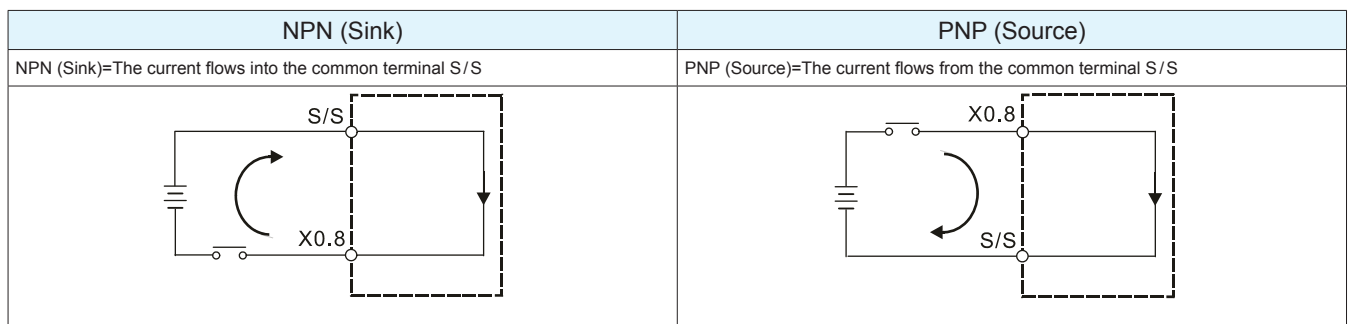
# Wiring

## Connector on AH15PM-5A

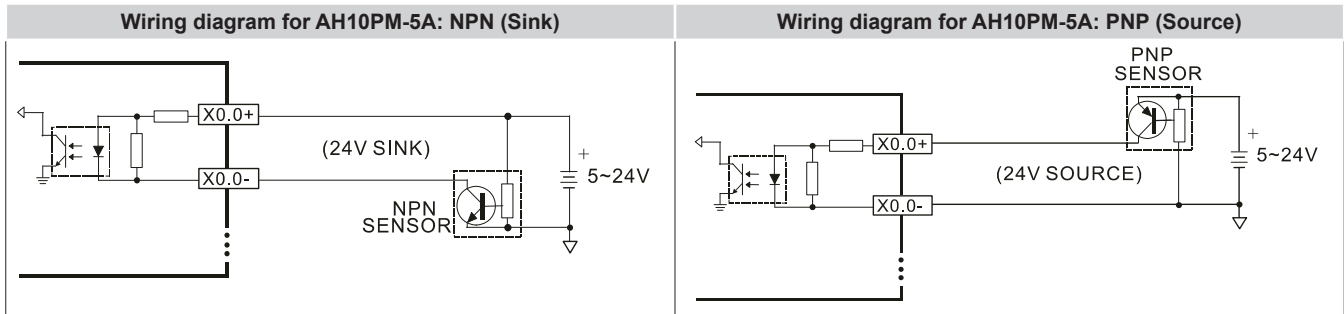


Pin	Terminal	Function		Pin	Terminal	Function	
		Pulse	Count			Pulse	Count
1	Y0.11	CLR3	-	26	Y0.10	CLR2	-
2	Y0.9	CLR1	-	27	Y0.8	CLR0	-
3	COM	COM	-	28	Y0.7+	B3+	-
4	Y0.7-	B3-	-	29	Y0.6+	A3+	-
5	Y0.6-	A3-	-	30	Y0.5+	B2+	-
6	Y0.5-	B2-	-	31	Y0.4+	A2+	-
7	Y0.4-	A2-	-	32	Y0.3+	B1+	-
8	Y0.3-	B1-	-	33	Y0.2+	A1+	-
9	Y0.2-	A1-	-	34	Y0.1+	B0+	-
10	Y0.1-	B0-	-	35	Y0.0+	A0+	-
11	Y0.0-	A0-	-	36	S/S	S/S	S/S
12	X1.5	CHG3	-	37	X1.4	CHG2	-
13	X1.3	CHG1	-	38	X1.2	CHG0	-
14	X1.1	LSN3	-	39	X1.0	LSP3	-
15	X0.15	LSN2	CntB3/CntB5	40	X0.14	LSP2	CntB3/CntA5
16	X0.13	LSN1	CntB2/CntB4	41	X0.12	LSP1	CntA2/CntA4
17	X0.11	LSN0	CntB1	42	X0.10	LSP0	CntA1
18	X0.9-	MPGB-	CntB0-	43	X0.9+	MPGB+	CntB0+
19	X0.8-	MPGA-	CntA0-	44	X0.8+	MPGA+	CntA0+
20	X0.7	DOG3	-	45	X0.6	DOG2	-
21	X0.5	DOG1	-	46	X0.4	DOG0	-
22	X0.3-	Pg3-	Rst3-/Rst5-	47	X0.3+	Pg3+	Rst3+/Rst5+
23	X0.2-	Pg2-	Rst2-/Rst4-	48	X0.2+	Pg2+	Rst2+/Rst4+
24	X0.1-	Pg1-	Rst1-	49	X0.1+	Pg1+	Rst1+
25	X0.0-	Pg0-	Rst0-	50	X0.0+	Pg0+	Rst0+

### • Wiring Input Terminals

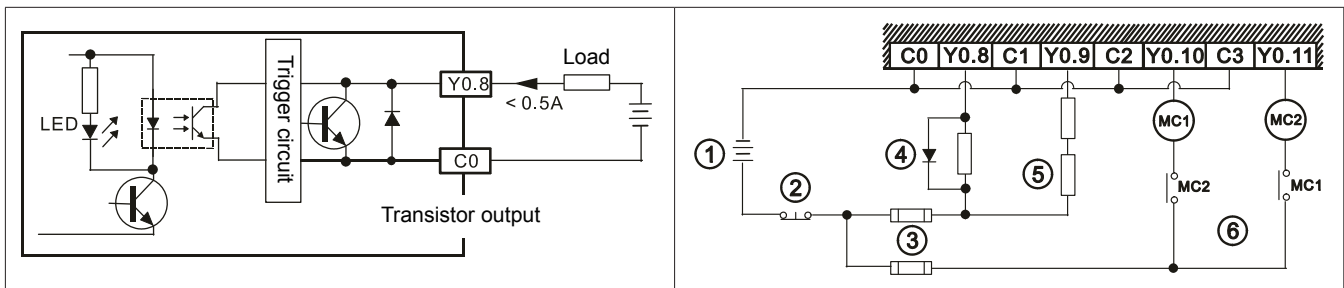


• Wiring Differential Input Terminals



• Wiring Output Terminals

1-Wiring transistor output terminals



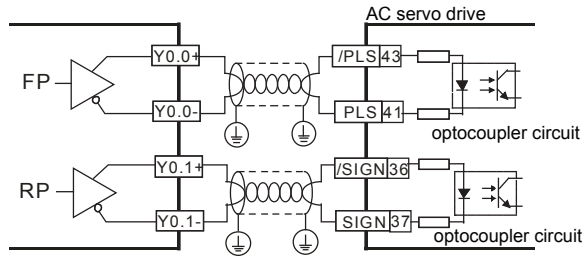
①	Direct-current power supply	②	Emergency stop	③	Fuse
④	<p>The output terminals of a transistor module are open-collector output terminals. If Y0.8 is a pulse output terminal of a transistor module, the output current passing through the output pull-up resistor of the transistor module must be greater than 0.1A to ensure that the transistor module operates normally. A relay or a solenoid valve is used as a DC load. A diode is connected in parallel to absorb the surge voltage which occurs when the load is OFF.</p>				
⑤	<p>A bulb (incandescent lamp) is used as a DC load. A thermistor is connected in series to absorb the surge current which occurs when the load is ON.</p>				
⑥	<p>Y0.9 cannot be connected to a power supply directly. It must be connected to a load.</p>				
⑥	<p>Mutually exclusive output: For example, Y0.10 controls the clockwise rotation of the motor, and Y0.11 controls the counterclockwise rotation of the motor. The interlock circuit which is formed, and the program in the PLC ensure that there are protective measures if an abnormal condition occurs.</p>				

# Wiring

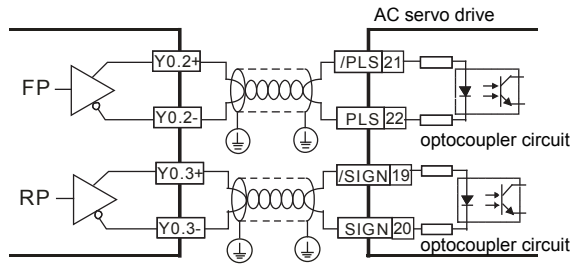
- **Wiring Output Terminals**

- 2 - Wiring differential output terminals

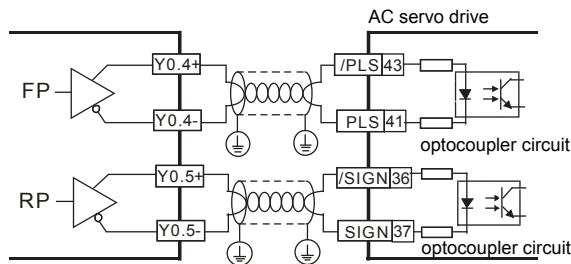
**Wiring differential output terminals on AH05PM-5A/AH10PM-5A/AH15PM-5A, and an ASDA-A/ASDA-A+/ASDA-A2 series AC servo drive**



**Wiring differential output terminals on AH05PM-5A/AH10PM-5A/AH15PM-5A, and an ASDA-B series AC servo drive**

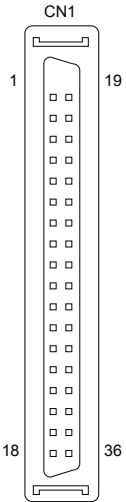


**Wiring differential output terminals on AH05PM-5A/AH10PM-5A/AH15PM-5A, and an ASDA-AB series AC servo drive**



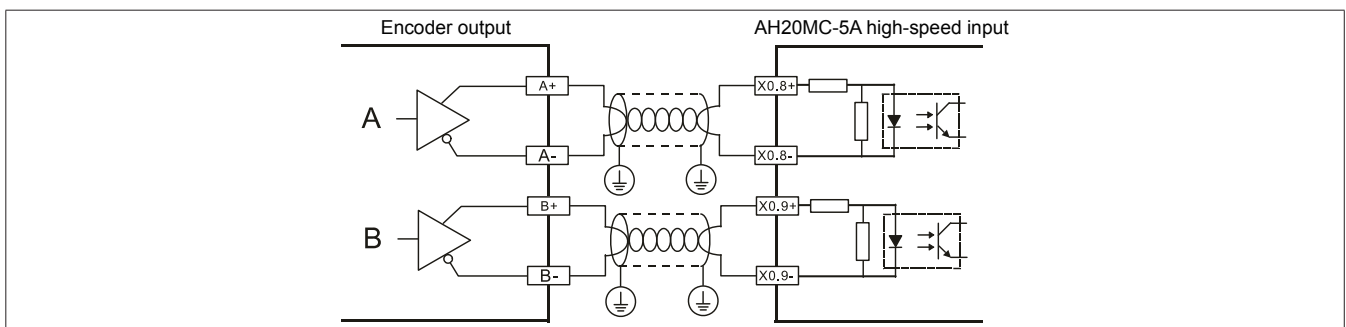
■ Motion Control Modules

AH20MC-5A

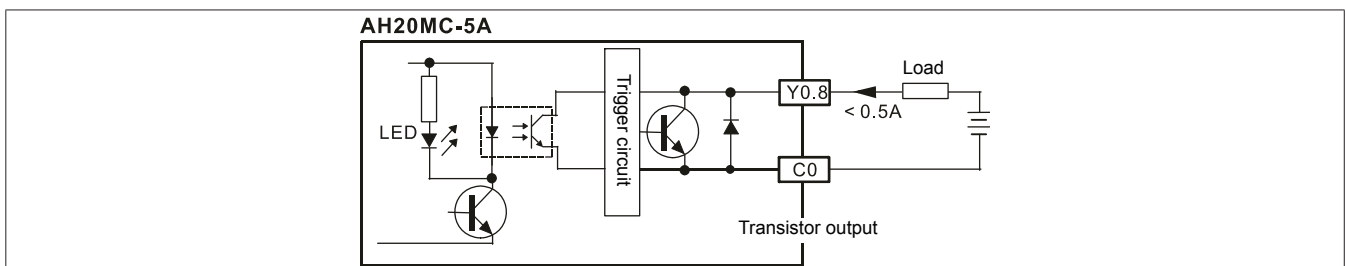


Pin	Terminal	Function		Pin	Terminal	Function	
		Pulse	Count			Pulse	Count
1	C3	-	COM3	19	Y0.11	-	Out3
2	C2	-	COM2	20	Y0.10	-	Out2
3	C1	-	COM1	21	Y0.9	-	Out1
4	C0	-	COM0	22	Y0.8	-	Out0
5	NC	-	-	23	NC	-	-
6	NC	-	-	24	NC	-	-
7	X0.3-	-	Rst3-/Rst5-	25	X0.3+	-	Rst3+/Rst5+
8	X0.15-	DOG3-	CntB3-/CntB5+	26	X0.15+	DOG3+	CntB3+/CntB5+
9	X0.14-	DOG2-	CntA3-/CntA5+	27	X0.14+	DOG2+	CntA3+/CntA5+
10	X0.2-	-	Rst2-/Rst4-	28	X0.2+	-	Rst2+/Rst4+
11	X0.13-	DOG1-	CntB2-/CntB4-	29	X0.13+	DOG1+	CntB2+/CntB4+
12	X0.12-	DOG0-	CntA2-/CntA4-	30	X0.12+	DOG0+	CntA2+/CntA4+
13	X0.1-	-	Rst1-	31	X0.1+	-	Rst1+
14	X0.11-	DOG5-	CntB1-	32	X0.11+	DOG5+	CntB1+
15	X0.10-	DOG4-	CntA1-	33	X0.10+	DOG4+	CntA1+
16	X0.0-	-	Rst0-	34	X0.0+	-	Rst0+
17	X0.9-	MPGB-	CntB0-	35	X0.9+	MPGB+	CntB0+
18	X0.8-	MPGA-	CntA0-	36	X0.8+	MPGA+	CntA0+

• Wiring Input Terminals



• Wiring Transistor Output Terminals



Control

# Wiring

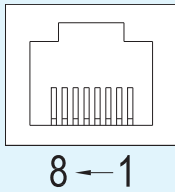
## • Wiring Transistor Output Terminals

①	Direct-current power supply	②	Emergency stop	③	Fuse
④	<p>The output terminals of a transistor module are open-collector output terminals. If Y0.8 is a pulse output terminal of a transistor module, the output current passing through the output pull-up resistor of the transistor module must be greater than 0.1A to ensure that the transistor module operates normally. A relay or a solenoid valve is used as a DC load. A diode is connected in parallel to absorb the surge voltage which occurs when the load is OFF.</p>	<p>D: 1N4001 diode</p>			
⑤	<p>A bulb (incandescent lamp) is used as a DC load. A thermistor is connected in series to absorb the surge current which occurs when the load is ON.</p>	<p>NTC: 10Ω</p>			
⑥	<p>Y0.9 cannot be connected to a power supply directly. It must be connected to a load.</p>				
⑥	<p>Mutually exclusive output: For example, Y0.10 controls the clockwise rotation of the motor, and Y0.11 controls the counterclockwise rotation of the motor. The interlock circuit which is formed, and the program in the PLC ensure that there are protective measures if an abnormal condition occurs.</p>				

■ Network Modules

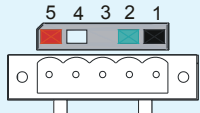
**RJ45 communication port** (Applicable model: AH10EN-5A)

Pin	Signal	Description
1	TX+	Transmitting data (positive pole)
2	TX-	Transmitting data (negative pole)
3	RX+	Receiving data (positive pole)
4	--	N/C
5	--	N/C
6	RX-	Receiving data (negative pole)
7	--	N/C
8	--	N/C



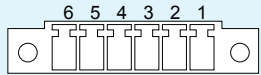
**DeviceNet connector** (Applicable model: AH10DNET-5A, AHRTU-DNET-5A)

Pin	Signal	Color	Description
5	V+	Red	24V <sub>DC</sub>
4	CAN_H	White	Signal (positive pole)
3	SHIELD	-	It is connected to a shielded cable.
2	CAN_L	Blue	Signal (negative pole)
1	V-	Black	0V <sub>DC</sub>



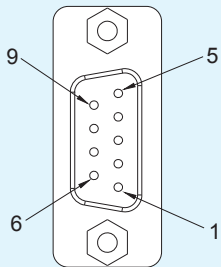
**RS-485/RS-422 communication port** (Applicable model: AH10SCM-5A)

Pin	RS-485	RS-422
1	N/C	TX+
2	N/C	TX-
3	D+	RX+
4	D-	RX-
5	SG	SG
6	N/C	SG



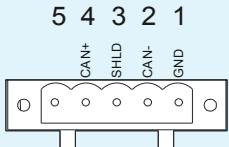
**PROFIBUS-DP port** (Applicable model: AH10PFBM-5A, AH10PFBS-5A, AHRTU-PFBS-5A)

Pin	Definition	Description
1	--	N/C
2	--	N/C
3	RxD/TxD-P	Receiving/Transmitting data (P (B))
4	--	N/C
5	DGND	Signal ground (C)
6	VP	Supplying positive voltage (5 V)
7	--	N/C
8	RxD/TxD-N	Receiving/Sending data (N (A))
9	--	N/C



**CANopen connector** (Applicable model: AH10COPM-5A)

Pin	Signal	Description
5	-	Reserved
4	CAN+	CAN_H
3	SHLD	Shielded cable
2	CAN-	CAN_L
1	GND	0V <sub>DC</sub>

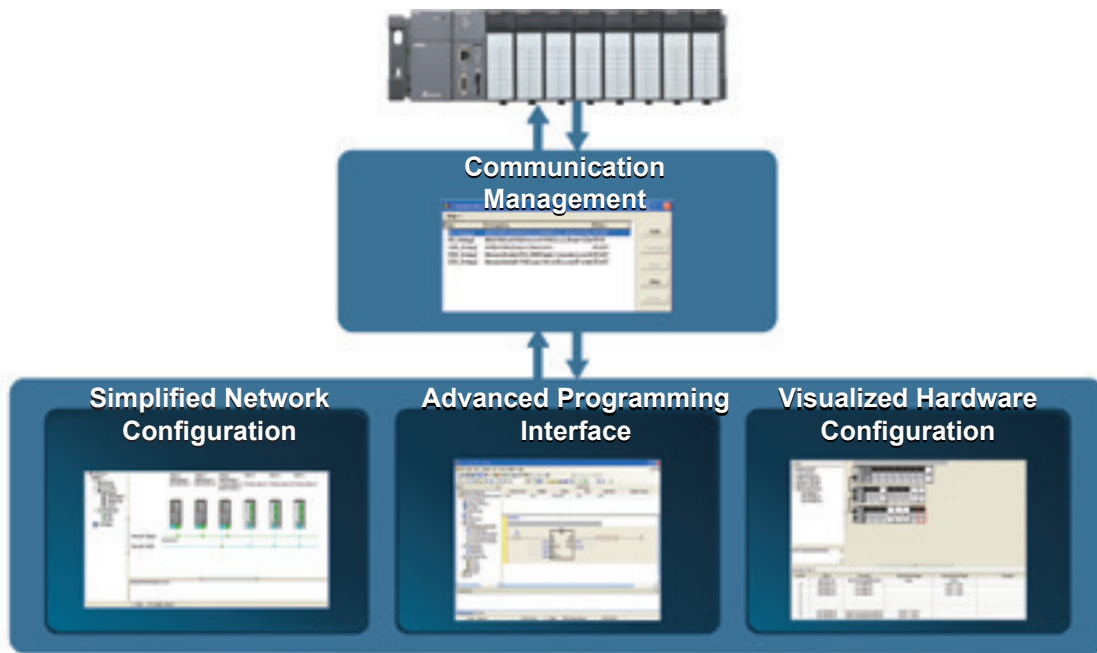


# Software

## ISPSoft V2.0 Highly Accessible Programming Software

### Fully Integrated Interface

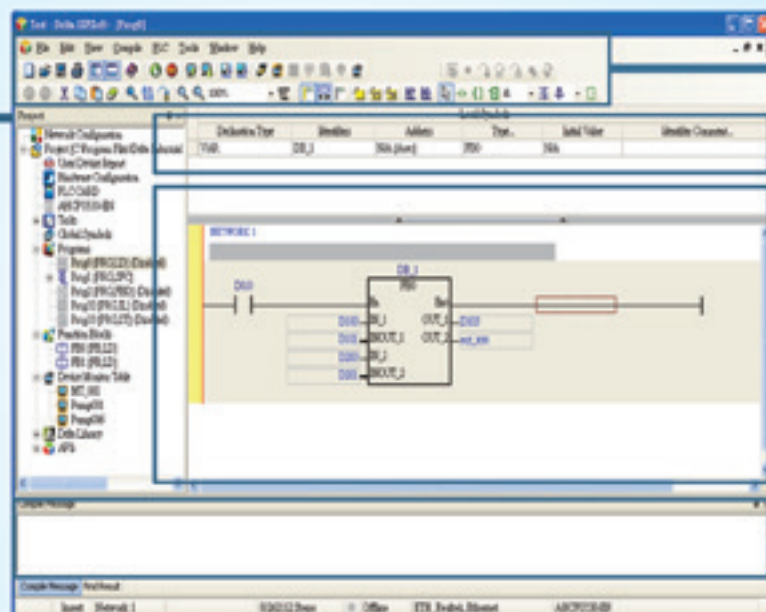
Advanced Programming Interface + Visualized Hardware Configuration + Simplified Network Configuration



### Advanced Programming Interface

#### Project Management Window

- **New Functions:** Network configuration, hardware configuration and PLC card.
- Supports 5 programming languages (LD/FBD/SFC/IL/ST)
- **Function Blocks:** Symbols can be introduced in call-by-value or call-by-reference types. Function blocks can be called in function block for up to 32 levels.
- **Monitor Table:** It can be stored and managed separately. Multiple monitor tables can be stored in a single project.
- **User Library:** Users can design frequently used instructions for specific applications in different industries.
- **Task:** Supports cyclic, I/O interrupt, timer interrupt, external interrupt, and more. Software will provide usable tasks for different CPUs.



Toolbar

Symbol Table

Program Editing Area

Message Window

### Visualized Hardware Configuration

**Module Selection**

**Module Description**

**Toolbar**

- System hardware configuration can be monitored in On-Line mode
- Hardware configuration can be displayed by Scan function

**Hardware Configuration Area**

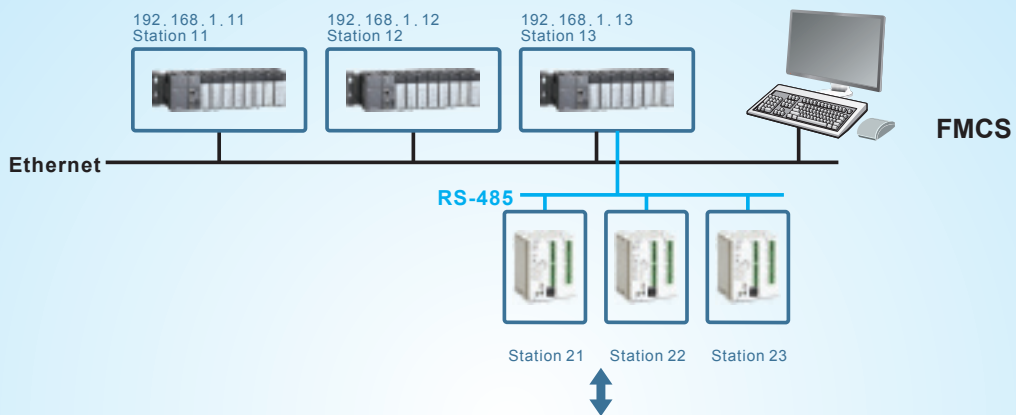
- Operations of Cut/Copy/Paste/Delete are available for modules and racks
- Parameters of each module can be directly configured

**Rack Information**

- I/O device range can be specified by the user

Slot No.	Module	Description	Upper Device Range	Lower Device Range	Comments
1	AP011-0A	AP Power Supply Module			
2	AP012-0A	AP CPU Module	200-20.0		
3	AP013-0A	AP I/O Module	201-20.0		
4	AP014-0A	AP I/O Module	202-20.0		
5	AP015-0A	AP I/O Module	203-20.0		
6	AP016-0A	AP I/O Module	204-20.0		
7	AP017-0A	AP I/O Module	205-20.0		

### Simplified Network Configuration



**Network Device Selection**

**Toolbar**

**Network Configuration Area**

- Master device settings
- Ether Link editing function
- PLC Link editing function

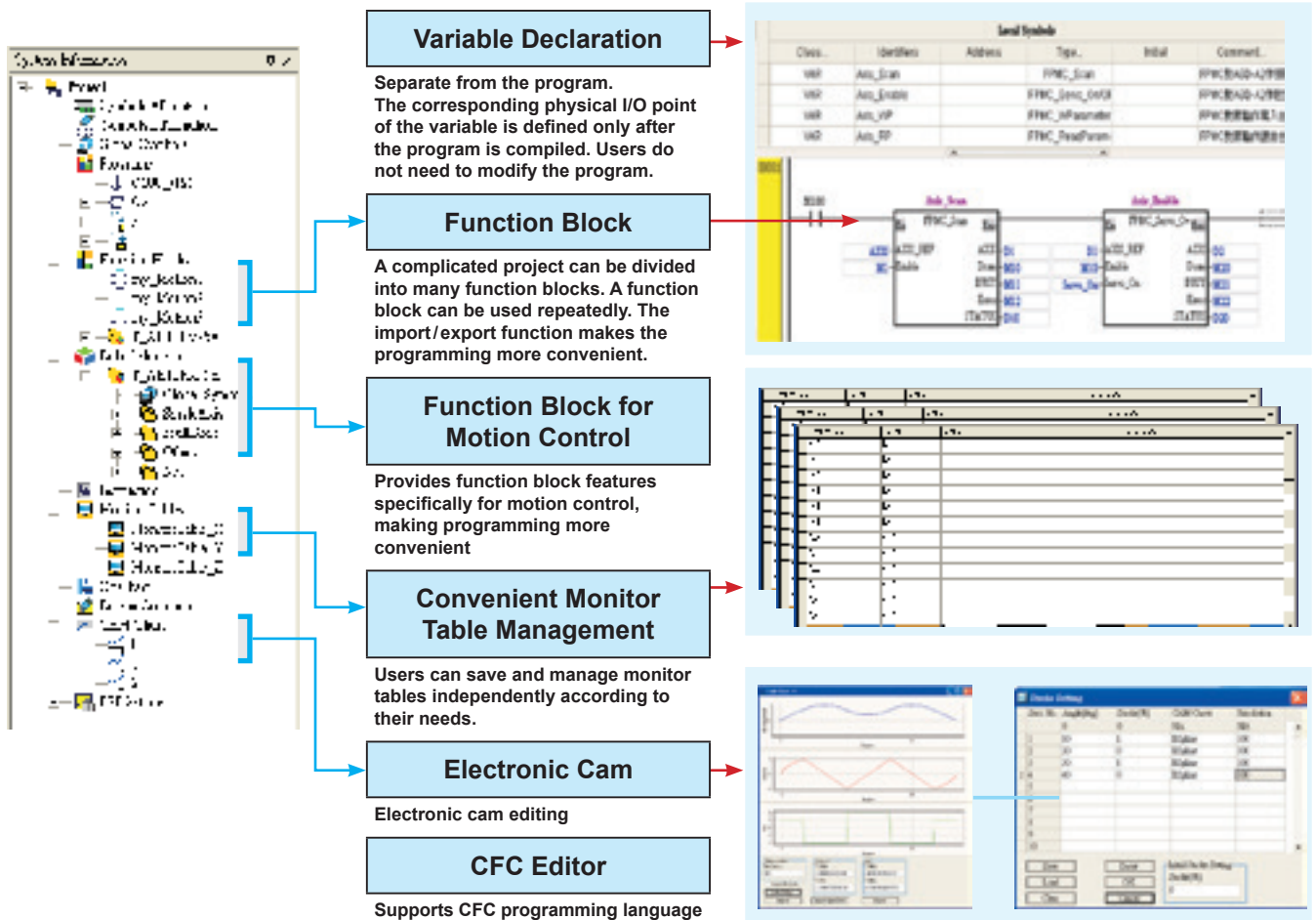
**Network Information**



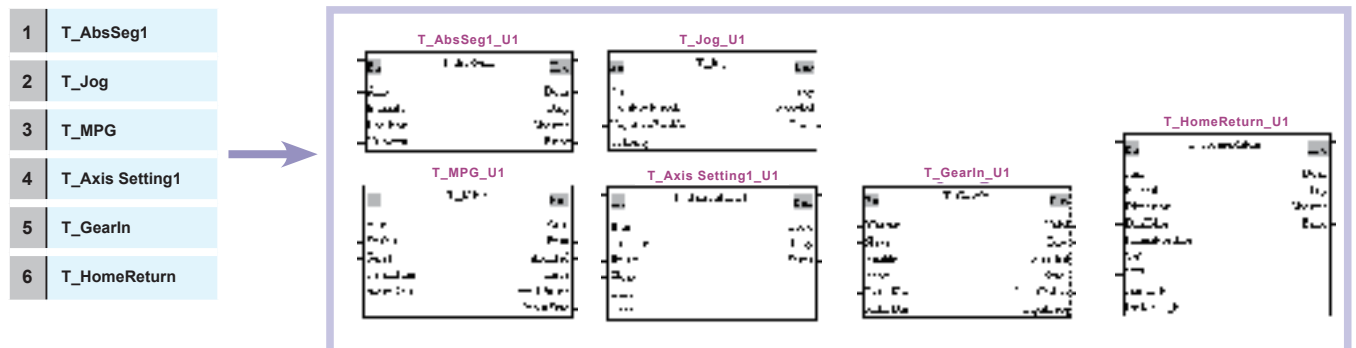
# Software

## PMSoft V2.0

This programming software is for G code editing, motion trajectory simulation, positioning route instruction and electronic cam establishment.

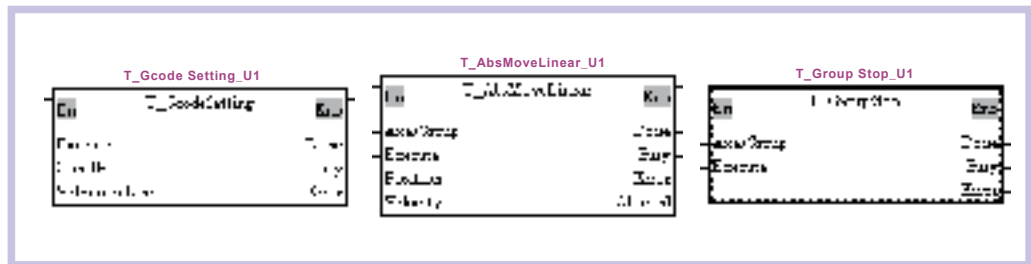


### Single axis motion control



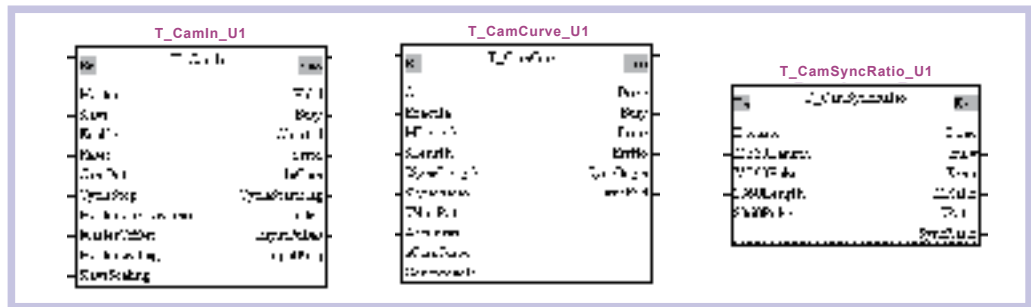
**Multi-axis motion control**

- 1 T\_Gcode Setting
- 2 T\_AbsMoveLinear
- 3 T\_Group Stop



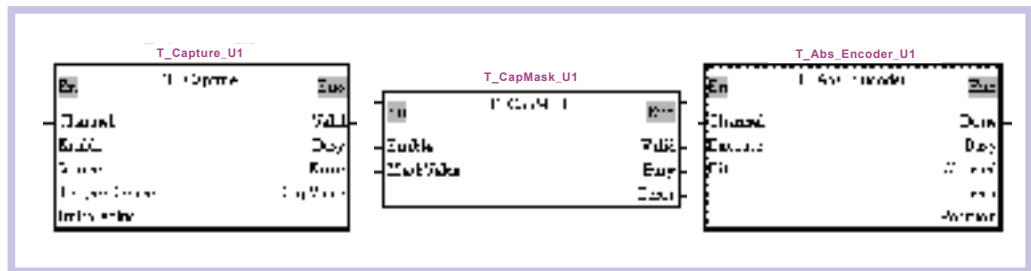
**E-Cam motion control**

- 1 T\_CamIn
- 2 T\_CamCurve
- 3 T\_CamSyncRatio



**Other motion control**

- 1 T\_Capture
- 2 T\_CapMask
- 3 T\_Abs\_Encoder

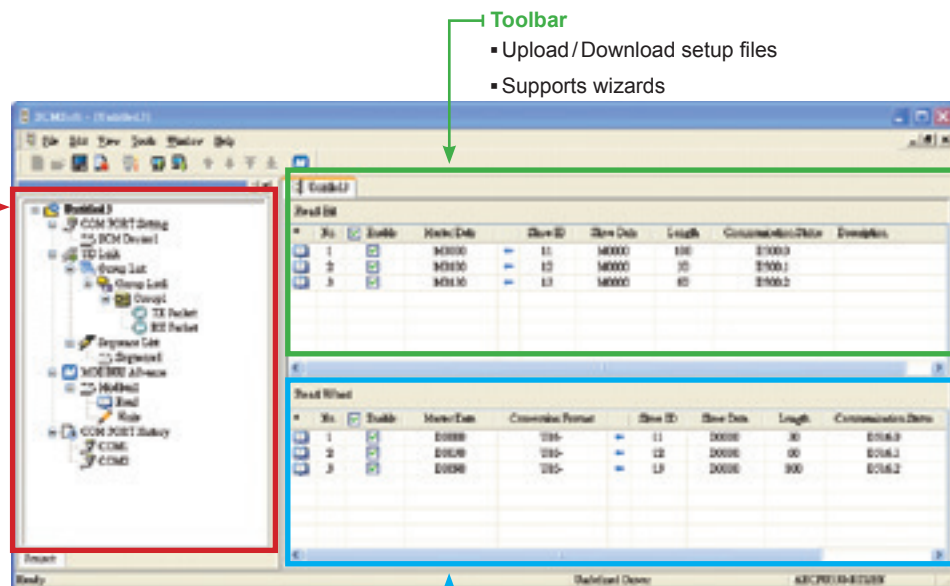


**SCMSoft V1.0 Communication Editing Software**

Provides SCM module with automatic data exchange setup function

**Project Management Interface**

- Supports user defined protocol (UD Link)
- Supports MODBUS protocol
- Supports data monitoring for communication ports



**Toolbar**

- Upload/Download setup files
- Supports wizards

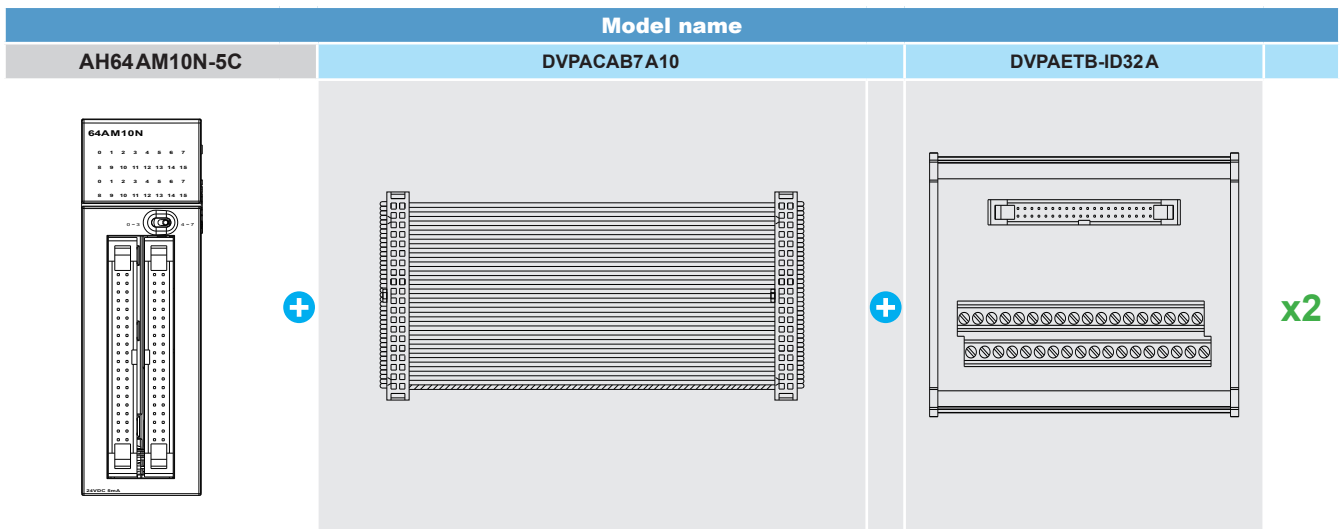
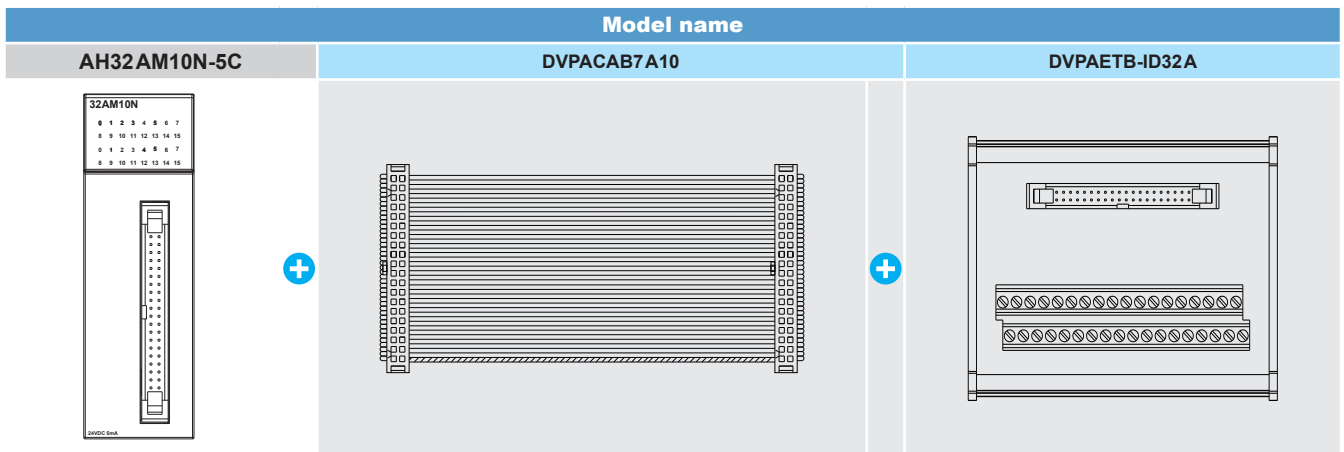
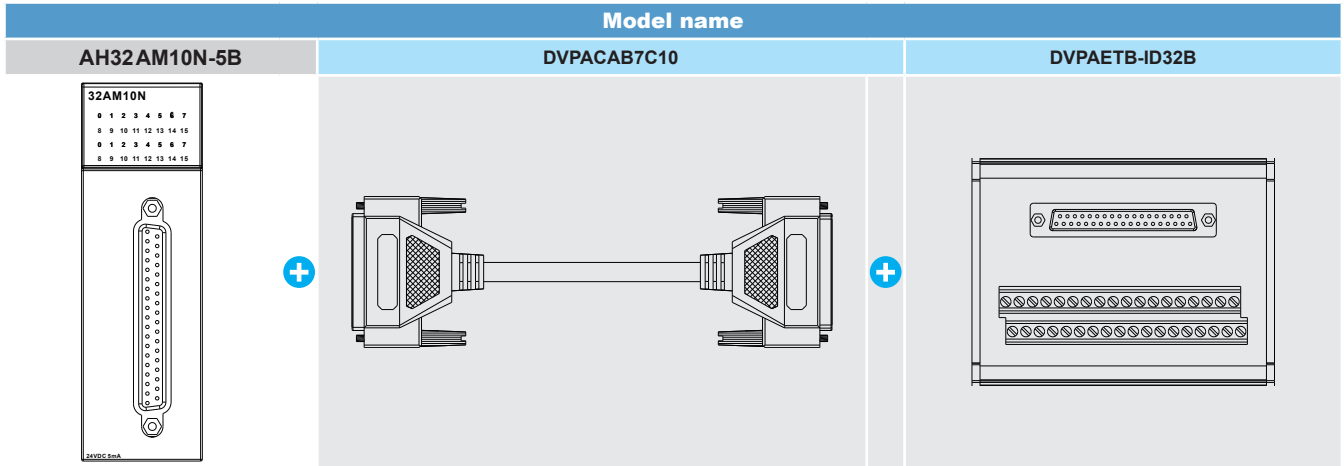
**Editing Area**

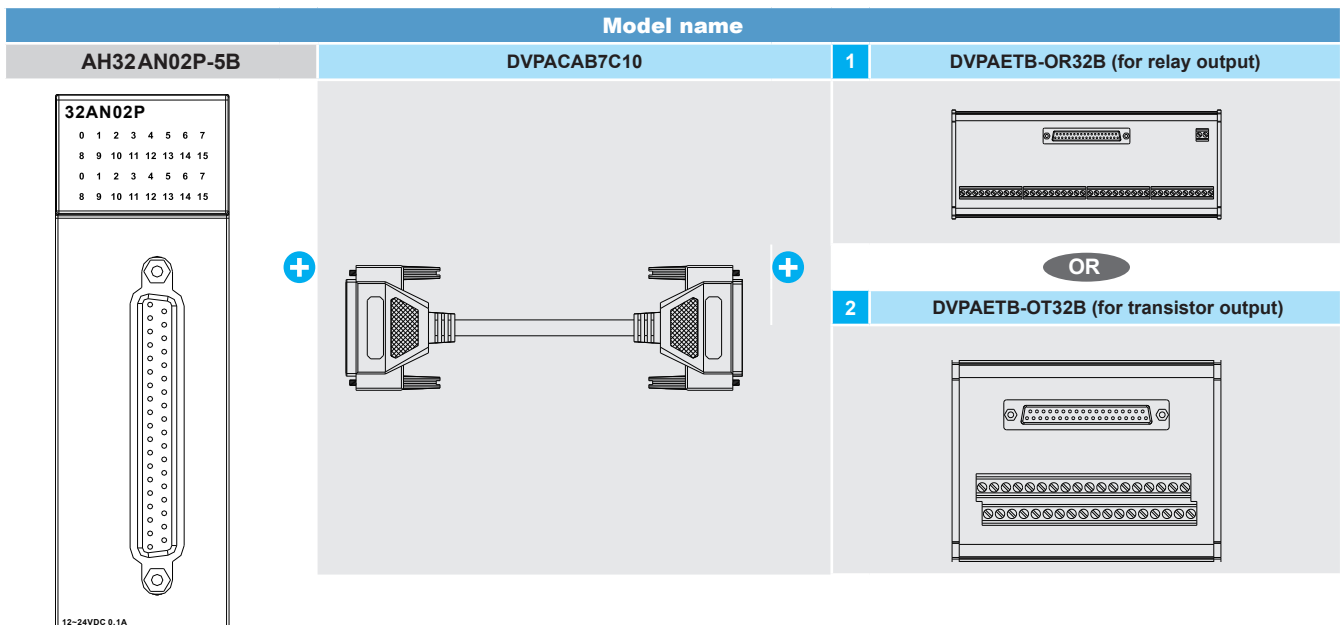
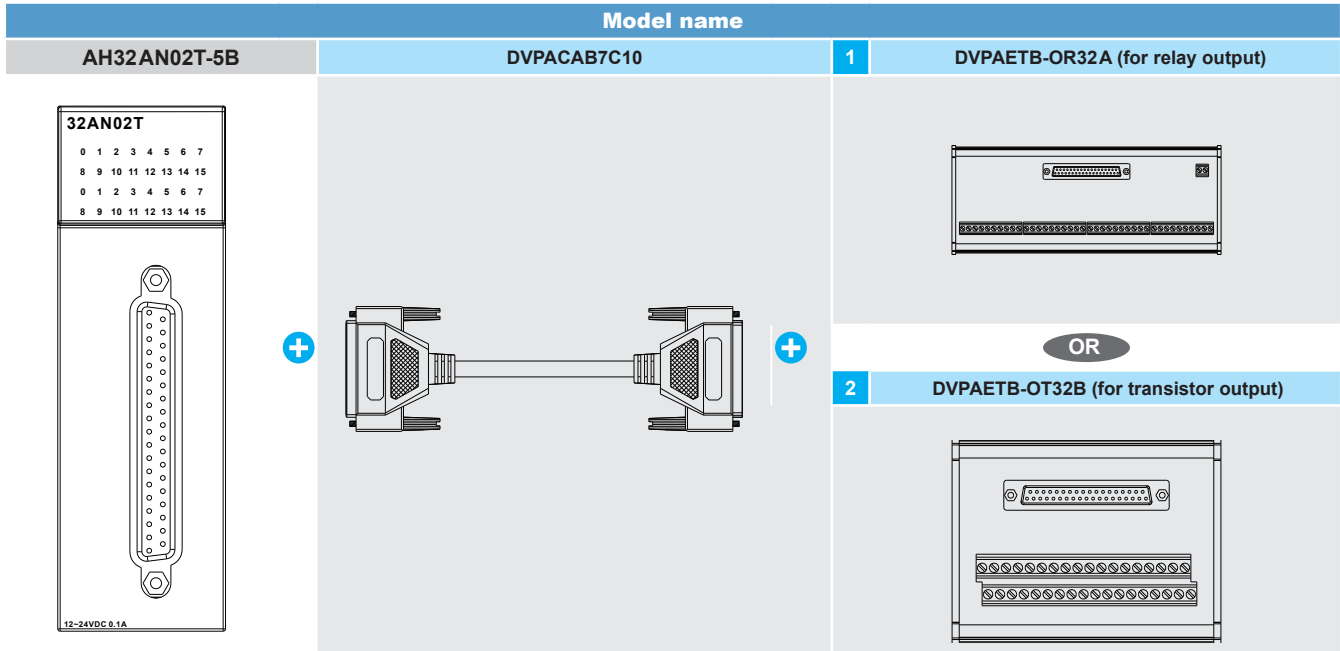
- Data exchange setup
- Status display

Control

# Accessories

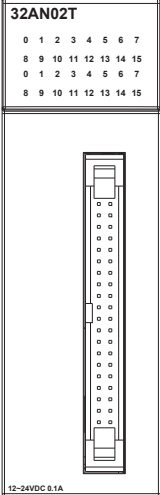
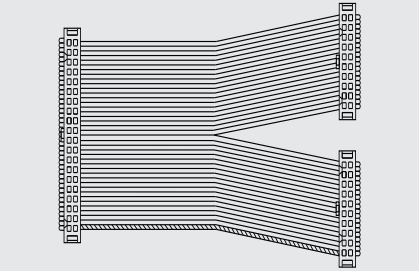
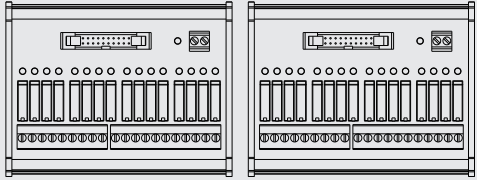
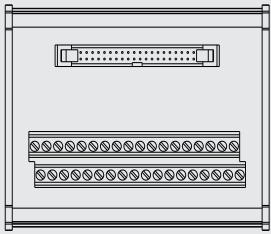
## Selection for High-density Modules

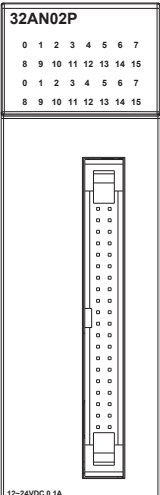
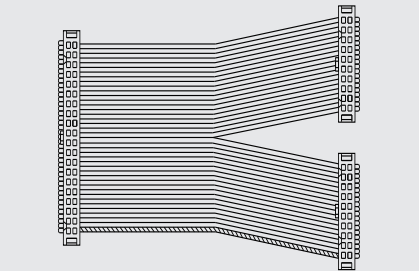
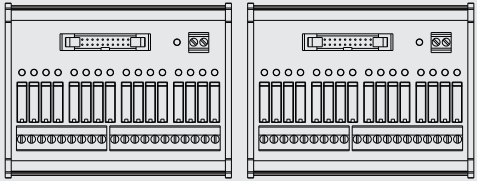
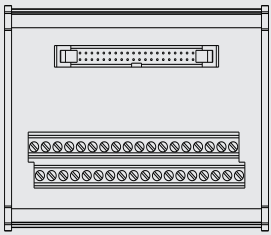


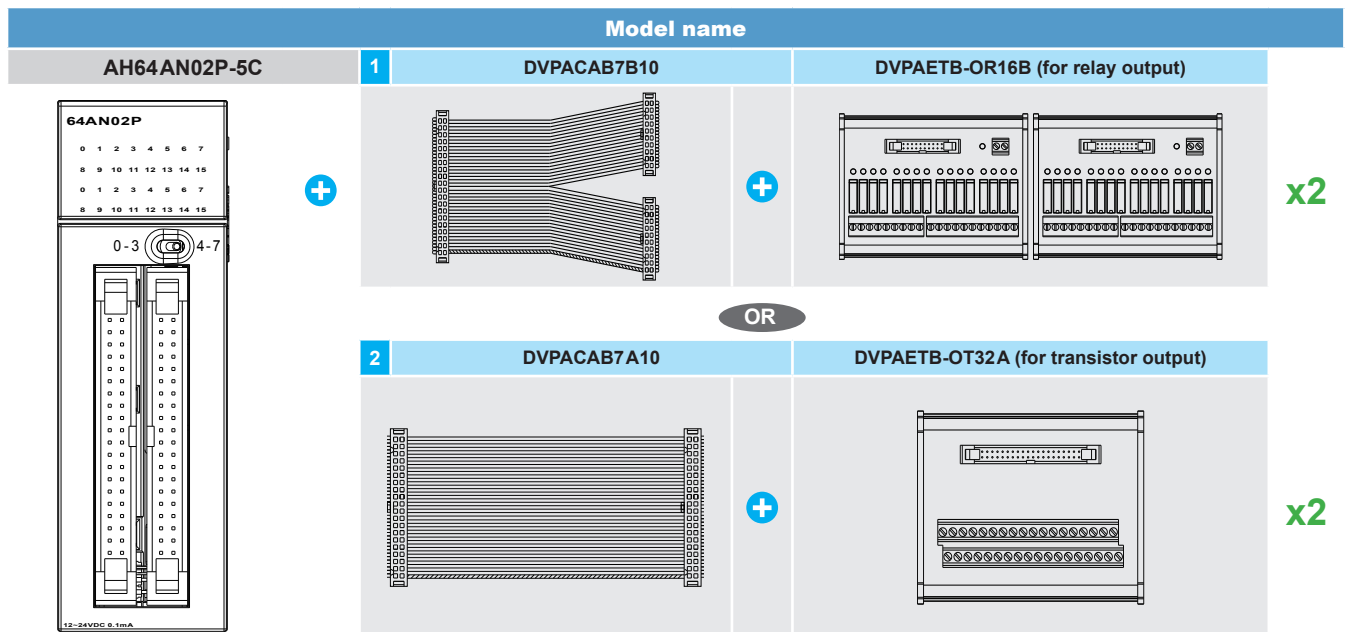
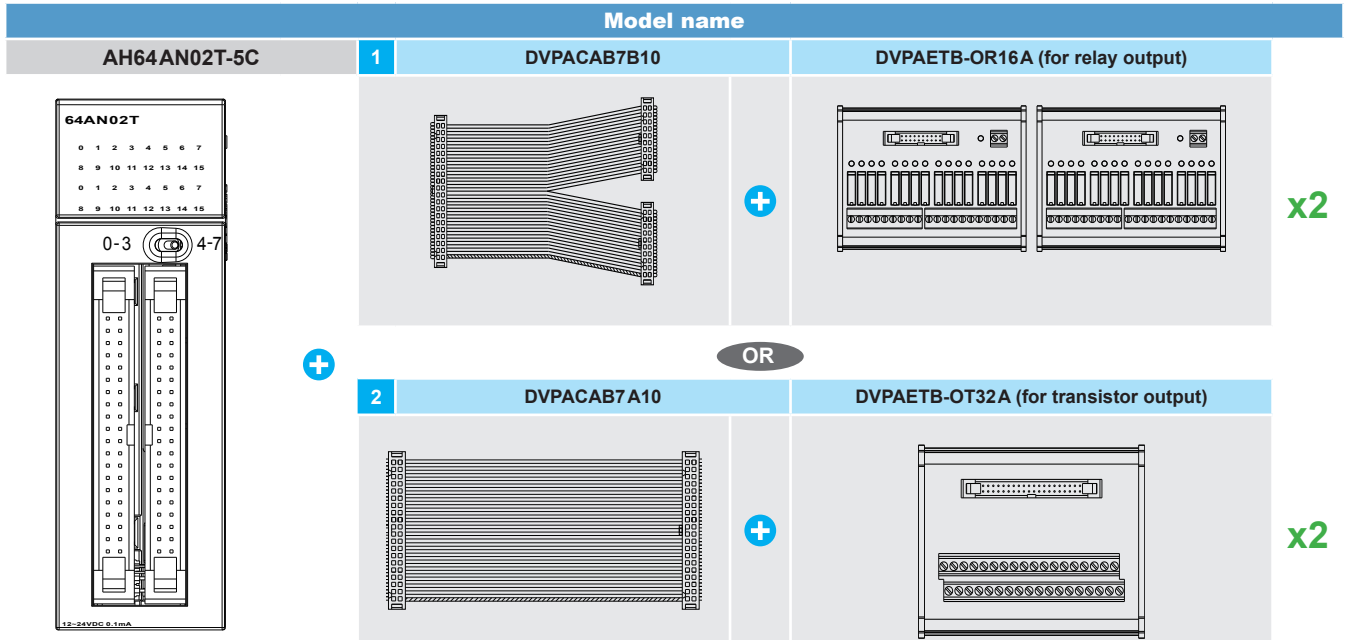


# Accessories

## Selection for High-density Modules

Model name																																					
<b>AH32AN02T-5C</b>	<b>1</b>	<b>DVPACAB7B10</b>	<b>DVPAETB-OR16A (for relay output)</b>																																		
 <p>32AN02T</p> <table border="1"> <tr><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr> <tr><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td></tr> <tr><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr> <tr><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td></tr> </table> <p>12-24VDC 0.1A</p>	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	+			+	
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+		OR																																			
	<b>2</b>	<b>DVPACAB7A10</b>	<b>DVPAETB-OT32A (for transistor output)</b>																																		
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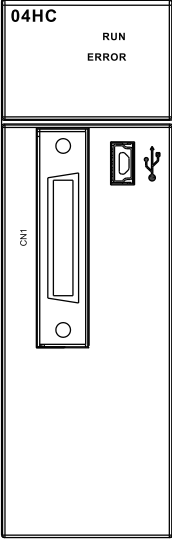
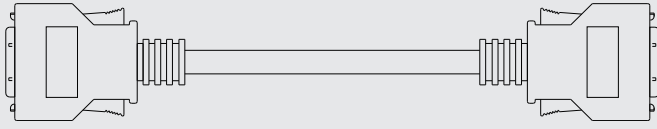
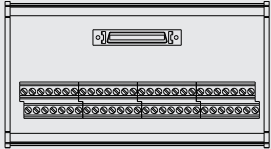
Model name																																					
<b>AH32AN02P-5C</b>	<b>1</b>	<b>DVPACAB7B10</b>	<b>DVPAETB-OR16B (for relay output)</b>																																		
 <p>32AN02P</p> <table border="1"> <tr><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr> <tr><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td></tr> <tr><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr> <tr><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td></tr> </table> <p>12-24VDC 0.1A</p>	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	+			+	
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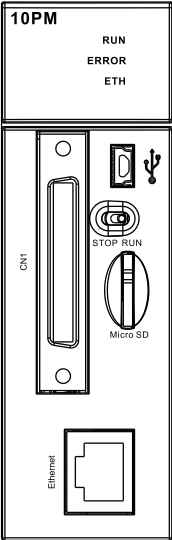
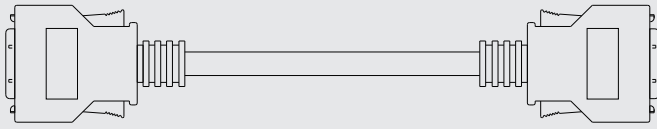
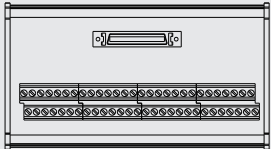


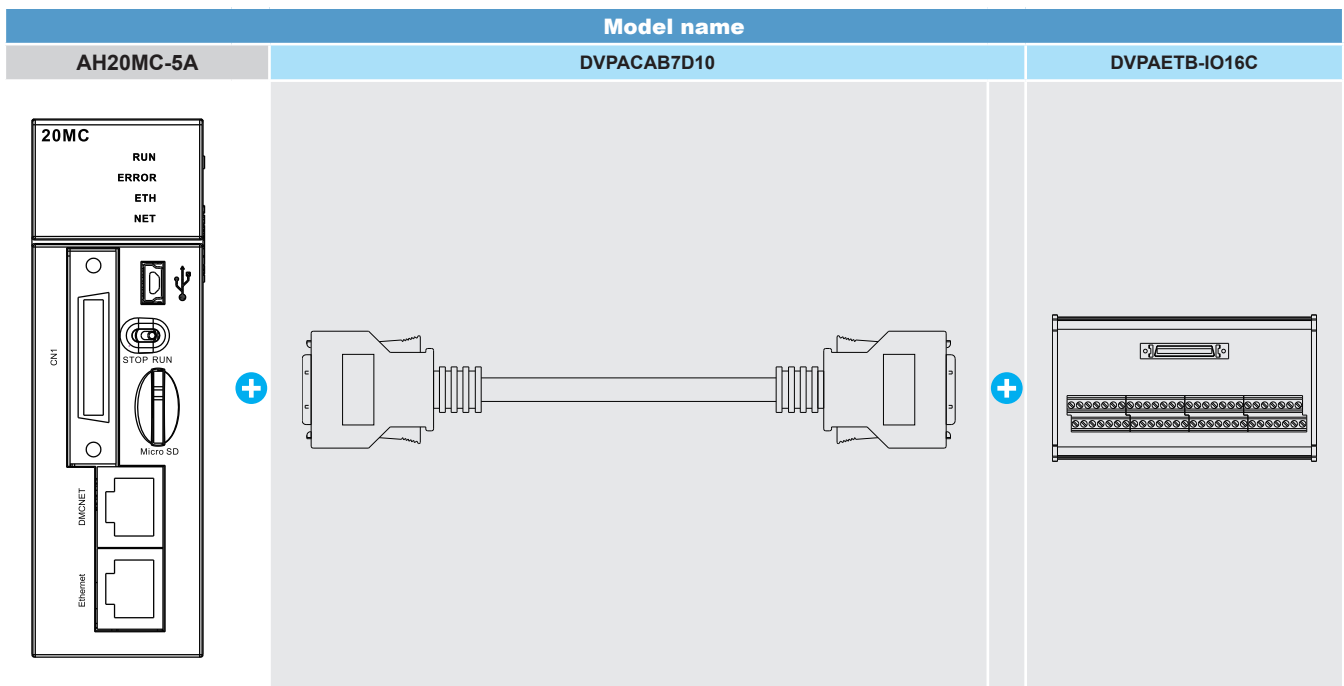
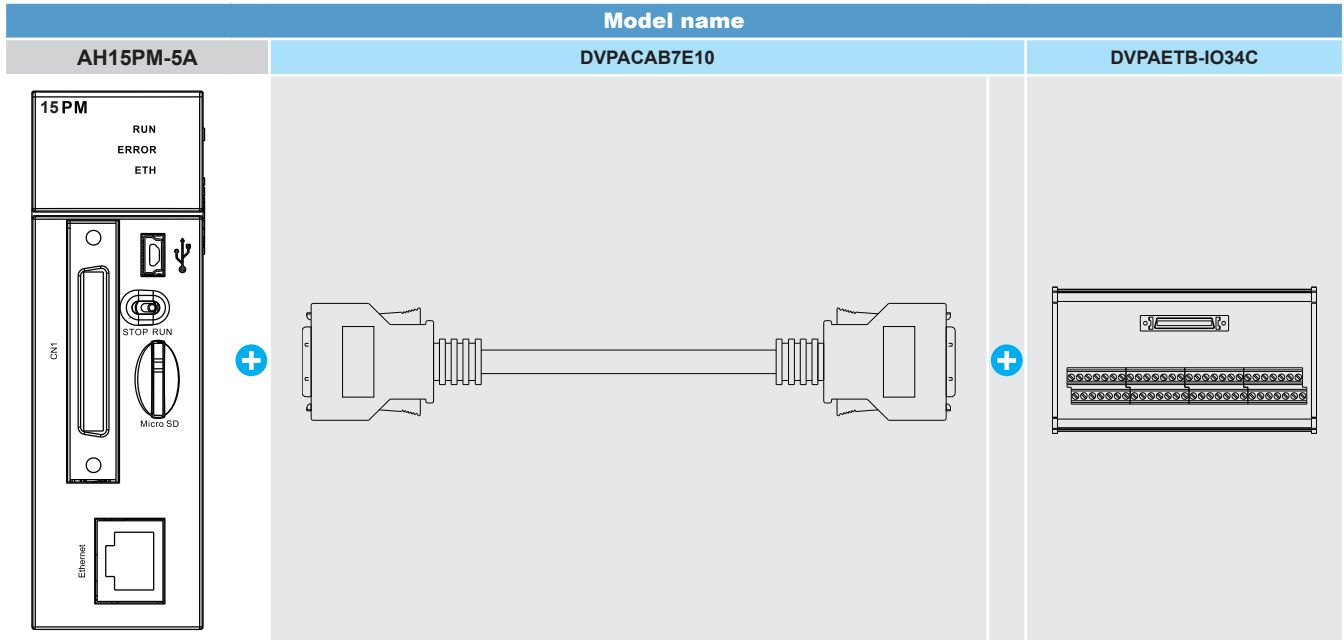
Control

# Accessories

## Selection for High-density Modules

Model name		
AH04HC-5A	DVPACAB7D10	DVPAETB-IO16C
		

Model name		
AH10PM-5A	DVPACAB7E10	DVPAETB-IO24C
		





# Programmable Logic Controller DVP



## 2<sup>nd</sup> Generation Standard Type PLC

### DVP-ES2/EX2

- Integrated communication functions
- Built-in 1 RS-232 and 2 RS-485 ports
- V2.0 and later version models support real time clock (RTC) and file register (5K words)
- ▶ Adopts 32-bit CPU
- ▶ DVP-ES2 provides 16/20/24/32/40/60 I/O points for a variety of applications
- ▶ DVP20EX2 provides 12-bit 4 analog inputs/2 analog outputs. With the aid of 14-bit analog input/output extension module and built-in PID auto tuning function, it offers a complete analog control solution
- ▶ Program capacity: 16K steps/Data register: 10K words
- ▶ Execution speed: LD: 0.35 μs, MOV: 3.4 μs
- ▶ Highly efficient processing ability: 1K steps of programs can be completed within 1 ms
- ▶ Max.100kHz pulse control. Specific motion control instructions such as mark/masking and instant frequency changing are available for multi-axes applications
- ▶ Up to 4 levels of password protection secures your source programs and intellectual property



Built-in High-Speed Counters					
1-phase 1 input		1-phase 2 inputs		2-phase 2 inputs	
Counters	Bandwidth	Counters	Bandwidth	Counters	Bandwidth
2/6	100kHz/10kHz	2	100kHz	1/3	15kHz/5kHz

### New Member of DVP-ES2 Series

## 2<sup>nd</sup> Generation Standard Type PLC with built-in CANopen interface

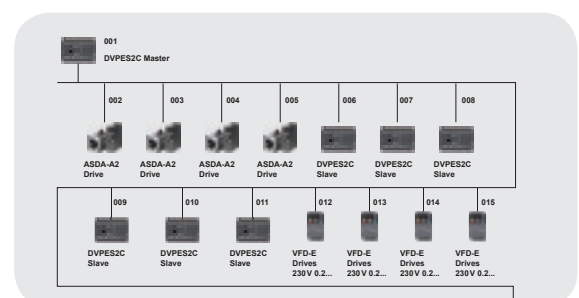
### DVP32ES200RC / TC

Inheriting the fast execution speed of ES2, this series boosts productivity with a built-in 1 Mbps CANopen interface and specializes in noise-immunity and easy wiring

- ▶ Adopts 32-bit CPU
- ▶ COM3 supports standard CANopen DS301 protocol
- ▶ Provides versatile communication types: PDO, SDO, synchronous (SYNC), Emergency, NMT and many more
- ▶ 1 Mbps high speed transmission for large data  
Maximum PDO transmission up to 390 bytes  
Maximum PDO receiving up to 390 bytes
- ▶ Ability to connect with 16 slaves via CANopen
- ▶ CANopen Builder software is used to construct slave nodes

Fast processing speed

High-speed industrial network: CANopen



## New Member of DVP-EX2 Series

### 2<sup>nd</sup> Generation Temperature/Analog I/O PLC

#### DVP30EX200R/T

##### Integrated controller able to control temperature and analog input

- ▶ Adopts 32-bit CPU
- ▶ Built-in 16-bit 3 analog inputs/12-bit 1 analog output
- ▶ With built-in PID auto tuning function, it offers a complete analog control solution
- ▶ Provides 3 analog inputs for Pt/Ni temperature input, precision of 0.1 degree can be readily achieved
- ▶ Suitable for the specific industries that require temperature and analog input control such as boiler industries and HVAC

Built-in Analog I/O in EX2 Model			
Analog Input		Analog Output	
Channels	3	Channels	1
Resolution	16-bit	Resolution	12-bit
Spec.	-20~20mA or -10~10V	Spec.	0~20mA or -10~10V

Built-in Temperature Control Function		
Sensor	Pt100/Pt1000	Ni100/Ni1000
Temperature Range	-200°C~800°C	-100°C~180°C
Value Range	-2000~8000	-1000~1800

## Basic Type PLC

### DVP-EC3

##### Applicable for sequence control and simple RS-485/MODBUS communication

- ▶ Built-in I/O: 10/14/16/20/24/30/32/40/48/60
- ▶ Program capacity: 4K steps
- ▶ COM port: Built-in RS-232 & RS-485 ports (10/14-point models do not support RS-485), compatible with MODBUS ASCII/RTU protocol. Supports 2 points (Y0, Y1) of independent high-speed (max. 10kHz) pulse output

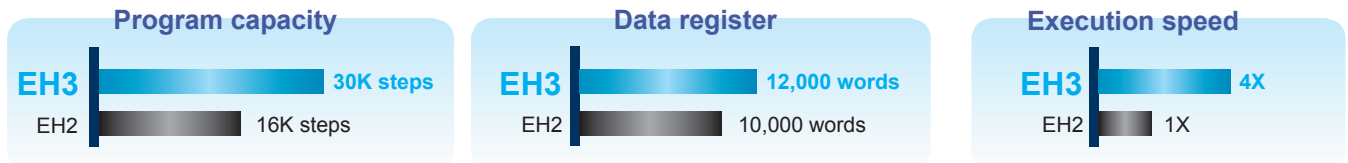
Note: Versions over V8.00 support this function

Built-in High-Speed Counters					
1-phase 1 input		1-phase 2 inputs		2-phase 2 inputs	
Counters	Bandwidth	Counters	Bandwidth	Counters	Bandwidth
2/2	20kHz/10kHz	1	20kHz	1	4kHz

# High Performance PLC

## DVP-EH3

The new generation DVP-EH3 PLC is the high-end model of the Delta DVP-E series. It provides larger program capacity and data registers for more demanding and complex applications.



### Excellent Motion Control

- ▶ High-speed pulse output: 4 axes of 200 kHz pulse output (DVP40/48/64/80EH00T3)
- ▶ Supports max. 4 hardware 200 kHz high-speed counters
- ▶ Increases many motion control instructions to meet applications that require high-speed and high-precision positioning control such as labeling machines, packaging machines and printing machines
- ▶ Offers linear/arc interpolation motion control
- ▶ Provides up to 16 external interrupt pointers

### Complete Program Protection

- ▶ Auto backup function prevents the loss of programs and data even when the battery runs out
- ▶ Second copy function provides a backup for extra insurance when one set of programs and data are damaged
- ▶ Up to 4-level password protection for your source programs and intellectual property

### Outstanding Operation Performance

32-bit CPU + ASIC dual processors support floating point operations. The max. execution speed of basic instructions is able to reach 0.24 μs.

### Flexible Function Extension Modules & Cards

Multiple selections of extension modules and function cards provide analog I/O, temperature measurement, additional single-axis motion control, high-speed counting, 3<sup>rd</sup> serial communication port and Ethernet communication card are available.

### PLC Link

PLC Link allows users to link up a max. of 32 units to the network without having to install extra communication extension modules.



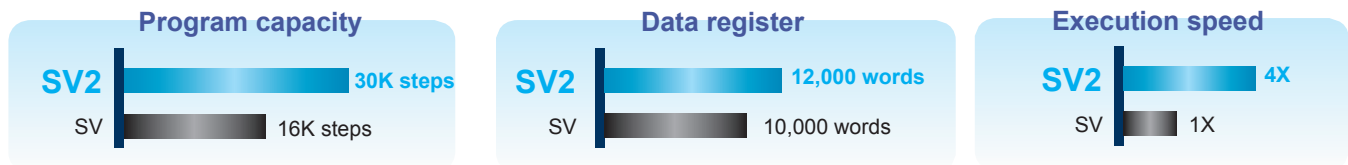
Built-in 4 Hardware High-Speed Counters							
Standard		Hardware high-speed counter					
1-phase 1 input		1-phase 1 input		1-phase 2 inputs		2-phase 2 inputs	
Counters	Bandwidth	Counters	Bandwidth	Counters	Bandwidth	Counters	Bandwidth
8	10kHz	4	200kHz	2/2	200kHz/20kHz	2/2	200kHz/20kHz

\*The specifications in this table are applicable only for DVP40EH00R3/DVP40EH00T3. For input/output specifications of other models, refer to the I/O specifications table in page 20.

# High Performance Slim PLC

## DVP-SV2

The new generation DVP-SV2 PLC is the high-end model of the Delta DVP-S series. It provides larger program capacities and data registers for more demanding and complex applications.



### Excellent Motion Control

- ▶ High-speed pulse output: 4 axes of 200 kHz pulse output
- ▶ Supports 2 hardware 200 kHz and 2 hardware 20 kHz high speed counters
- ▶ Increases many motion control instructions to meet the applications that require high-speed and high-precision positioning control such as labeling machines, packaging machines and printing machines
- ▶ Offers linear/arc interpolation motion control
- ▶ Provides up to 16 external interrupt pointers

### Complete Program Protection

- ▶ Auto backup function prevents the loss of programs and data even when the battery runs out
- ▶ Second copy function provides a backup for extra insurance in the event that one set of programs and data are damaged
- ▶ Up to 4-level password protection protects your source programs and intellectual property

Supports DVP-S series left-side and right-side modules. Added new ETHRW instruction for Ethernet communication

### Outstanding Operation Performance

- ▶ 32-bit CPU + ASIC dual processors support floating point operations. The max. execution speed of basic instructions is able to reach 0.24 μs.

24SV2 PLC has a built-in 2AI (12-bit) with Y10/Y12 of 10KHz output.



Built-in 4 Hardware High-Speed Counters							
Standard		Hardware high-speed counter					
1-phase 1 input		1-phase 1 input		1-phase 2 inputs		2-phase 2 inputs	
Counters	Bandwidth	Counters	Bandwidth	Counters	Bandwidth	Counters	Bandwidth
8	10 kHz	2/2	200 kHz/20 kHz	2/2	200 kHz/20 kHz	2/2	200 kHz/20 kHz

Control

## 2<sup>nd</sup> Generation Standard Slim PLC

### DVP-SS2

#### Economic and Compact PLC Max. 480 I/O points

- ▶ Adopts 32-bit CPU
- ▶ Program capacity: 8K steps/Data register: 5K words
- ▶ Execution speed: LD: 0.35  $\mu$ s, MOV: 3.4  $\mu$ s
- ▶ Built-in RS-232 and RS-485 ports (Master/Slave)
- ▶ Supports standard MODBUS ASCII/RTU protocol and PLC Link function

#### Motion Control Functions

- ▶ 4 points of 10 kHz pulse output
- ▶ 8 points of high-speed counters: 20 kHz/4 points, 10 kHz/4 points



Built-in High-Speed Counters					
1-phase 1 input		1-phase 2 inputs		2-phase 2 inputs	
Counters	Bandwidth	Counters	Bandwidth	Counters	Bandwidth
4/4	20kHz/10kHz	2	20kHz	2/2	10kHz/5kHz

## 2<sup>nd</sup> Generation Advanced Slim PLC

### DVP-SA2

#### Advanced PLC Supporting Left-side High Speed Modules

- ▶ Adopts 32-bit CPU
- ▶ Program capacity: 16K steps/Data register: 10K words
- ▶ Execution speed: LD: 0.35  $\mu$ s, MOV: 3.4  $\mu$ s
- ▶ Built-in 1 RS-232 and 2 RS-485 ports (Master/Slave)
- ▶ Supports standard MODBUS ASCII/RTU protocol and PLC Link function
- ▶ No battery required. Maintenance-free (Real time clock operates for 15 days after power off)
- ▶ Supports DVP-S series left-side and right-side modules

#### Motion Control Functions

- ▶ 4 points of high-speed pulse output: 100kHz/2 points, 10kHz/2 points
- ▶ 8 points of high-speed pulse input: 100kHz/2 points, 10kHz/6 points, 1 set of A/B phase 50kHz
- ▶ Supports 2-axis linear and arc interpolation



Built-in High-Speed Counters					
1-phase 1 input		1-phase 2 inputs		2-phase 2 inputs	
Counters	Bandwidth	Counters	Bandwidth	Counters	Bandwidth
2/6	100kHz/10kHz	2	100kHz	1/3	50kHz/5kHz

## 2<sup>nd</sup> Generation Analog I/O Slim PLC

### DVP-SX2

- Compact PLC with Outstanding Analog Functions
- 4 Analog Inputs, 2 Analog Outputs, High Efficient PID Auto Tuning Performance

- ▶ Adopts 32-bit CPU
- ▶ Program capacity: 16K steps/Data register: 10K words
- ▶ Execution speed: LD: 0.35 μs, MOV: 3.4 μs
- ▶ Built-in mini USB, RS-232 and RS-485 ports (Master/Slave)
- ▶ Supports standard MODBUS ASCII/RTU protocol and PLC Link function
- ▶ Supports real time clock for version 2.0 and above (no battery required)  
It operates for at least one week after power off
- ▶ Supports DVP-S series left-side and right-side modules



#### Motion Control Functions

- ▶ 4 points of high-speed pulse output: 100kHz/2 points, 10kHz/2 points
- ▶ 8 points of high-speed pulse input: 100kHz/2 points, 10kHz/6 points
- ▶ Supports 2-axis linear and arc interpolation

Built-in Analog I/O					
Analog Input			Analog Output		
Channels	4		Channels	2	
Resolution	12-bit		Resolution	12-bit	
Spec.	-20~20 mA or -10~10V or 4~20 mA		Spec.	0~20 mA or -10V~10V or 4~20 mA	

## Network Type Advanced Slim PLC

### DVP-SE

- The most complete network type slim PLC in the industry
- Provides 8 digital inputs and 4 digital outputs
- Built-in mini USB, Ethernet, and 2 RS-485 ports

- ▶ Adopts 32-bit CPU
- ▶ Program capacity: 16K steps/Data register: 12K words
- ▶ Execution speed: LD: 0.64 μs, MOV: 2 μs
- ▶ Built-in Ethernet and supports MODBUS TCP and Ethernet/IP Slave (Adapter)
- ▶ IP Filter function is a firewall that offers the first line of defense and provides protection from malware and network threats
- ▶ Supports DVP-S series left-side and right-side modules
- ▶ No battery required. Maintenance-free (Real time clock operates for 15 days after power off)



#### Motion Control Functions

- ▶ 4 points of high-speed pulse output: 100kHz/2 points, 10kHz/2 points
- ▶ 8 points of high-speed pulse input: 100kHz/2 points, 10kHz/6 points
- ▶ Supports 2-axis linear and arc interpolation

Built-in High-Speed Counters					
1-phase 1 input		1-phase 2 inputs		2-phase 2 inputs	
Counters	Bandwidth	Counters	Bandwidth	Counters	Bandwidth
2/6	100kHz/10kHz	2	100kHz	1/3	50kHz/5kHz

# Pulse-train Motion Controller

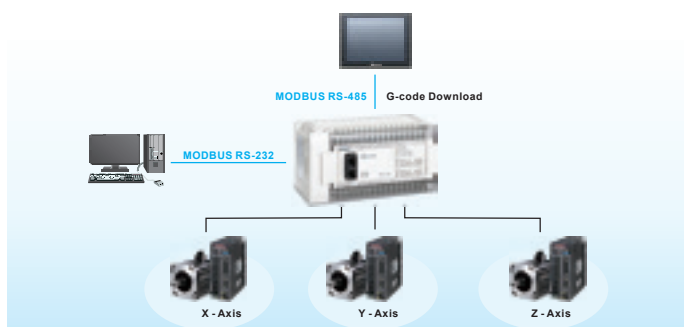
## DVP-PM

### General Purpose Motion Controller



#### DVP10PM00M

- 2/3/4/5/6-axis linear interpolation motion control
- Highly accurate PWM 200 kHz output, resolution 0.3%
- 8 groups of high-speed captures (mark correction, frequency measurement), comparative output, Mark/Mask function (for bag making)
- ▶ Built-in 24 I/O points. Max. 256 I/O points
- ▶ Program capacity: 64K steps/Data register: 10K words
- ▶ Execution speed: LD: 0.13 μs, MOV: 2.1 μs
- ▶ Built-in RS-232 and RS-485 ports
- ▶ Supports standard MODBUS ASCII/RTU protocol
- **Motion Control Functions**
- ▶ High-speed pulse output: built-in 6 sets of A/B phase pulse outputs
- ▶ 2 sets of 200 kHz output, 4 sets of 1 MHz output
- ▶ 6 sets of high-speed counters and hardware digital filter for counting
- ▶ Supports MPG inputs
- ▶ Single axis motion control function (supports 1<sup>st</sup> speed, 2<sup>nd</sup> speed, MPG function)
- ▶ Electronic gear function



#### DVP20PM00D/M/DT

- **Compatible with G-code/M-code**
- 3-axis linear/arc/helical interpolation
- **Not only a motion controller but also an extension module**
- ▶ Functions as an extension module with DVP-PM and DVP-EH2 series
- ▶ PM Series (as an extension module) requires only Start/Stop command from the main PLC to function as a stand-alone motion controller without the limitation of PLC cycle time
- **Supports electronic cam (2048 points) function for flying shear and rotary cut applications**
- ▶ Built-in 16 I/O points. Max. 512 I/O points
- ▶ Program capacity: 64K steps/Data register: 10K words
- ▶ Built-in RS-232 and RS-485 ports
- ▶ Supports standard MODBUS/ASCII/RTU protocol
- **Motion Control Functions**
- ▶ Built-in A/B phase differential signal outputs: 2 sets (DVP20PM00D)/3 sets (DVP20PM00M). Max. differential output frequency is 500 kHz
- ▶ Supports MPG inputs
- ▶ Single axis motion control function (supports 1<sup>st</sup> speed, 2<sup>nd</sup> speed, MPG function)
- ▶ Electronic gear function

#### Function Cards for DVP-PM

Model Name	Specifications	Features
PM-PCC01	Data backup memory card (only supported by 20PM)	Auto read/ write program
DVP-FPMC	Ethernet/CANopen communication card *Supports DVP-EH2 function cards: DVP-F2AD, DVP-F2DA, DVP-F232S, DVP-F485S	<ol style="list-style-type: none"> <li>1. Complies with CANopen CiA301 V4.0.2 protocol.</li> <li>2. Supports CANopen CiA402 V2.0 synchronous axes, 126 asynchronous axes.</li> <li>3. Provides high-speed upload/download of Ethernet program.</li> </ol>



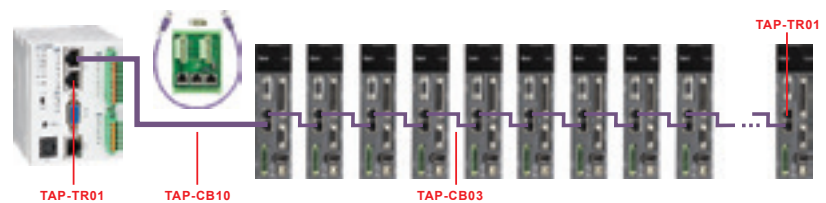
# Network Type Motion Controller

## DVP-MC

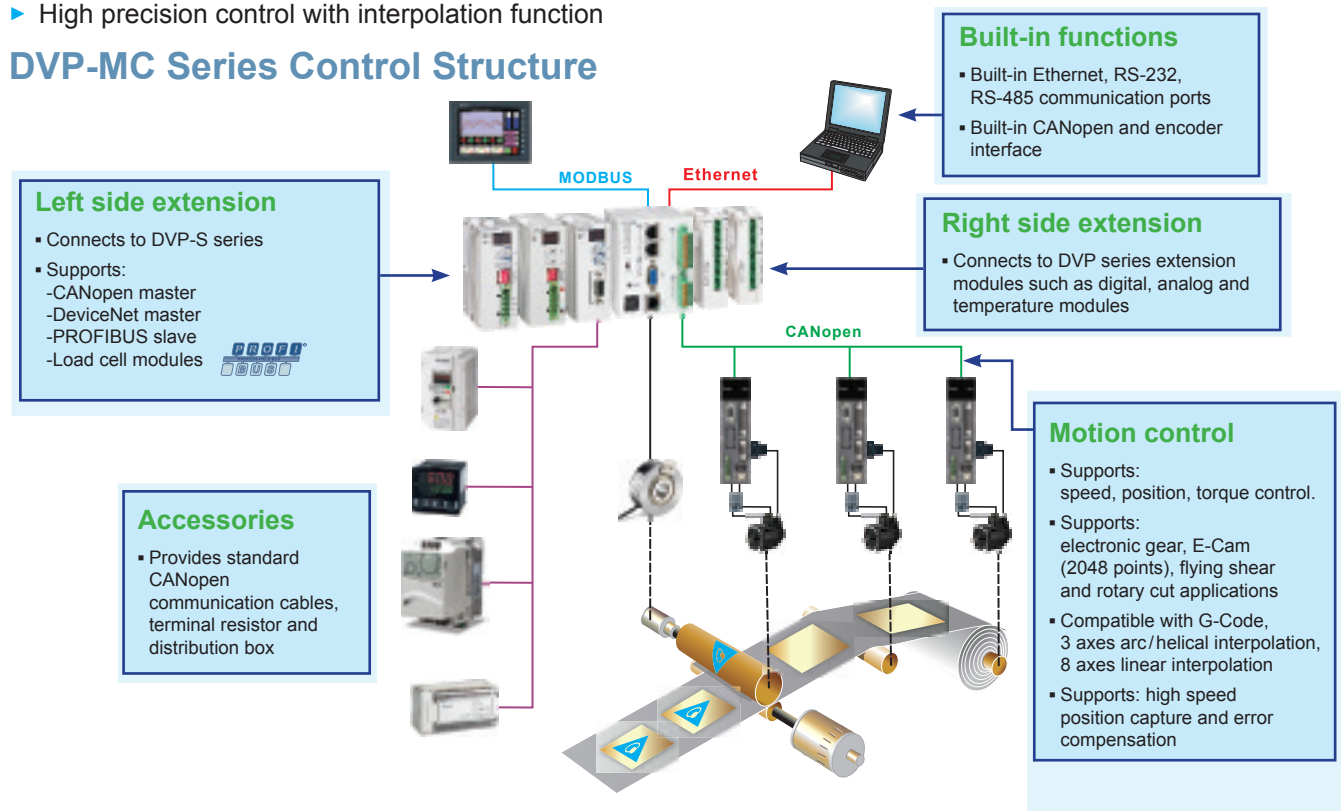
### CANopen Motion Controller

#### DVP10MC11T

- Up to 16 axes can be controlled through high-speed CANopen communication, offering system stability and easier wiring
- Built-in E-Cam, flying shear and rotary cut commands
- ▶ Built-in 12 I/O points (8 sets of high-speed inputs, 4 sets of high-speed outputs)
- ▶ Max. 240 inputs and 240 outputs
- ▶ Built-in motion control commands for easier operation
- ▶ Synchronously controls 4 axes in 2ms and 8 axes in 4ms
- ▶ High precision control with interpolation function



### DVP-MC Series Control Structure



#### CANopen Accessories

Model Name	Specifications	Features
TAP-CB03/CB05/CB10/B20/CB30/CB100	0.3m/0.5m/1m/2m/3m/10m CANopen sub-line	RJ45 connector for both ends
TAP-CB01/CB02	CANopen main-line/sub-line	Adopt AWG18/AWG24 CANopen cables for long distances
TAP-CN01/02/03	Distribution box	Built-in terminal resistor 120 ohm
TAP-TR01	Terminal resistor	Terminal resistor 120 ohm



# EH Series PLC and Extension Modules

## DVP-EH3

Small PLC with the Highest Operation Efficiency!

- ▶ Max. 512 I/O points
- ▶ 200 kHz high-speed pulse output
- ▶ Brand-new high-speed extension modules
- ▶ Supports linear/arc interpolation
- ▶ L type supports left-side extension



### Function Cards

- For RS-232/RS-422/RS-485 Communication (COM3 Port, DVP-EH3 series PLC only)

DVP-F232



DVP-F422



DVP-F485



- For Ethernet Communication

DVP-FEN01



- Analog I/O

DVP-F2AD  
DVP-F2DA



### Accessories

- Data Backup Card

DVP-512FM (EH3 only)



DVPPCC01  
(for general purpose)



- Data Transmission Cable

DVPACAB2A30



**Digital I/O Modules**

■ **Input Point Extension**

- DVP08HM11N
- DVP16HM11N
- DVP32HM11N



■ **Output Point Extension**

- DVP08HN11R/T
- DVP32HN00R/T



■ **Input/Output Point Extension**

- DVP08HP11R/T
- DVP16HP11R/T
- DVP32HP00R/T
- DVP48HP00R/T



**Analog I/O Modules**

**Analog Function Extension**

■ **Analog Input**

- DVP04AD-H2  
V : 14-bit  
I : 13-bit
- DVP04AD-H3  
V : 16-bit  
I : 16-bit



■ **Analog Output**

- DVP04DA-H2  
V : 12-bit  
I : 12-bit
- DVP04DA-H3  
V : 16-bit  
I : 16-bit



■ **Analog Input/Output**

- DVP06XA-H2  
Input 4CH/Output 2CH  
V : 12-bit/V : 12-bit  
I : 11-bit/I : 12-bit
- DVP06XA-H3  
V : 16-bit  
I : 16-bit



**Temperature Measurement**

■ **Sensor: Pt100**

- DVP04PT-H2



■ **Sensor:**

- DVP04TC-H2  
J, K, R, S, E, N, T  
thermocouple  
0~150mV
- DVP08TC-H2  
J, K, R, S, E, N, T  
thermocouple  
±150mV



■ DVP32EH00R3-L & DVP32EH00T3-L are also compatible with left-side high-speed extension modules for DVP-SV2 series.

**Motion Control**

■ **Single-Axis Positioning**

- DVP01PU-H2



■ **High-Speed Counter**

- DVP01HC-H2



# ES2 Series PLC and Extension Modules

## DVP-ES2/EX2

- ▶ 100 kHz pulse output
- ▶ Analog input/output



reddot design award  
winner 2010



### Digital I/O Modules

#### Input Point Extension

DVP08XM211N  
DVP16XM211N



#### Output Point Extension

DVP08XN211R/T  
DVP16XN211R/T  
DVP24XN200R/T



#### Input/Output Point Extension

DVP08XP211R/T  
DVP16XP211R/T  
DVP24XP200R/T  
DVP32XP200R/T



### Analog I/O Modules

#### Input Point Extension

DVP04AD-E2



#### Output Point Extension

DVP04DA-E2  
DVP02DA-E2



#### Input/Output Point Extension

DVP06XA-E2



### Temperature Measurement Modules

DVP04PT-E2



DVP04TC-E2



### Resolver Modules

DVP10RC-E2



### ES2 Series Extension Cable Modules

DVPAEXT01-E2



## Slim Series Extension Modules

### Left-Side High-Speed Extension Modules

#### Network Modules

- **DeviceNet Master**  
DVPDNET-SL
- **CANopen Master**  
DVPCOPM-SL



- **Ethernet**  
DVPEN01-SL



- **PROFIBUS-DP Slave**  
DVPPF02-SL

- **RS-422/RS-485 Serial Communication Module**  
DVPSCM12-SL



- **BACnet MS/TP Slave Serial Communication Module**

#### Analog Function Extension

- **Analog Input**  
DVP04AD-SL
- **Analog Output**  
DVP04DA-SL



#### Load Cell/Tension

- **Load Cell Module**  
DVP01LC-SL  
DVP02LC-SL  
DVP201LC-SL  
DVP211LC-SL<sup>\*1</sup>  
DVP202LC-SL<sup>\*1</sup>



### General Extension Modules

#### I/O Point Extension

- **Input Point Extension**  
DVP08SM11N  
DVP16SM11N



- **Output Point Extension**  
DVP06SN11R  
DVP08SN11R/T  
DVP08SN11TS  
DVP16SN11T  
DVP16SN11TS



- **Input/Output Point Extension**  
DVP08SP11R/T  
DVP08SP11TS  
DVP16SP11R/T  
DVP16SP11TS



- **Pin Header Input**  
DVP32SM11N



- **Pin Header Output**  
DVP32SN11TN



- **Digital Switch**  
DVP08ST11N



#### Analog Function Extension

- **Analog Input**  
DVP04AD-S  
DVP06AD-S  
DVP04AD-S2



- **Analog Output**  
DVP04DA-S  
DVP02DA-S  
DVP04DA-S2



- **Analog Input/Output**  
DVP06XA-S  
DVP06XA-S2



#### Temperature Measurement

- **Sensor : Pt100, Pt1000**  
DVP04PT-S  
DVP06PT-S



- **Sensor : J,K,R,S,T thermocouple**  
DVP04TC-S



#### Motion Control

- **Single-Axis Positioning**  
DVP01PU-S



#### Communication Modules

- **PROFIBUS Slave**  
DVPPF01-S
- **DeviceNet Slave**  
DVPDT01-S



#### Power Supply Modules

- DVPPS01  
DVPPS02  
DVPPS05



\*1. Contact your sales representative for the official launch date of the left-side high-speed extension modules.  
\*2. DVP32EH00R3-L & DVP32EH00T3-L are also compatible with the left-side high-speed extension modules.

# Product Line-up

Select your desired specifications and locate the most suitable PLC.



Item	Specifications	Check	Model							
			ES2	EX2	EH3	SS2	SA2	SX2	SV2	SE
Power Supply	AC	<input type="checkbox"/>	⊙	⊙	○					
	DC	<input type="checkbox"/>				○	○	○	○	○
I/O Points	< 256	<input type="checkbox"/>	△	△						
	< 512	<input type="checkbox"/>			△	△	△	△	△	△
Program Capacity	< 8K	<input type="checkbox"/>				○				
	<16K	<input type="checkbox"/>	○	○			○	○		○
	< 32K	<input type="checkbox"/>			○				○	
Output Type	Transistor (NPN)	<input type="checkbox"/>	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
	Transistor (PNP)	<input type="checkbox"/>				⊙	△	⊙	⊙	△
	Relay	<input type="checkbox"/>	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
	Differential signal	<input type="checkbox"/>			⊙					
Communication	3 COM ports (RS-232/485)	<input type="checkbox"/>	○	○	△		○	△	△	△
	Ethernet	<input type="checkbox"/>	⊙		△		△	△	△	○
	USB	<input type="checkbox"/>						○		○
	DeviceNet	<input type="checkbox"/>			△*1		△*1	△*1	△*1	△*1
	CANopen	<input type="checkbox"/>	⊙		△*1		△*1	△*1	△*1	△*1
	PROFIBUS	<input type="checkbox"/>			△*1		△*1	△*1	△*1	△*1
Positioning	2-axis output	<input type="checkbox"/>	○	○	○	○	○	○		○
	4-axis output	<input type="checkbox"/>			⊙				○	
	> 4 axes	<input type="checkbox"/>			△	△	△	△	△	△
	2-axis interpolation	<input type="checkbox"/>	○	○	○		○	○	○	○
	100kHz high speed	<input type="checkbox"/>	○	○			○	○		○
	200kHz high speed	<input type="checkbox"/>			○	△	△	△	○	△
High-speed Counting	≤ 2 channels	<input type="checkbox"/>	○	○		○	○	○		○
	≥ 3 channels	<input type="checkbox"/>			○*3	△	△	△	○	△
	100kHz high speed	<input type="checkbox"/>	○	○			○	○		○
	200kHz high speed	<input type="checkbox"/>			○	△	△	△	○	△
Analog Function	< 4 channels (AD)	<input type="checkbox"/>	△	○	△	△	△	○	△	△
	< 2 channels (DA)	<input type="checkbox"/>	△	○*2	△	△	△	○*2	△	△

Note:

○ : With such specification, ⊙ : Varies upon model, △ : With such specification when connected to extension module/function card

\*1 : Series that support left-side modules supports master and slave, other series support only slave

\*2 : EX/SX2 series have 4 channels of analog input and 2 channels of analog output

\*3 : Besides the built-in 4 channels of high-speed counters, EH3 series can be connected to high-speed counter modules

## Model Name Explanation

### DVP CPU Module

#### DVP32ES00T2

DVP	32	ES	00	T	2
Series Name	Total I/O	Model	Power Supply	Output Type	Version
		ES/ES2: ES/ES2 series PLC EX/EX2: EX/EX2 series PLC SS/SS2: SS/SS2 series PLC SA/SA2: SA/SA2 series PLC SX/SX2: SX/SX2 series PLC SC: SC series PLC SV: SV series PLC SE: SE series PLC PM: PM series PLC MC: MC series PLC EH: EH series PLC EC: EC series PLC	00: AC power input 11: DC power input	R: Relay T: Transistor (NPN) M: Mixed with differential signal S: Transistor (PNP) RC: Relay + CANopen TC: Transistor + CANopen	2: 2 <sup>nd</sup> generation 3: 3 <sup>rd</sup> generation

### DI / DO Module

#### DVP08SP11T

DVP	08	S	P	11	T
Series Name	Total I/O	Model	I/O Type	Power Supply	Output Type
		X: ES/EX series PLC S: SS/SA/SX/SC/SV/SS2/SA2/SX2/SV2/SE/MC series PLC H: EH2/EH3/PM series PLC	M: Input point N: Output point P: Input + output	00: AC power input 11: DC power input	R: Relay T: Transistor (NPN) TS: Transistor (PNP) N: None output

#### DVP16XP211T

DVP	16	XP2	11	T
Series Name	Total I/O	Model	Power Supply	Output Type
		XP2: Inputs + outputs for ES2/EX2 series XM2: Inputs for ES2/EX2 series XN2: Outputs for ES2/EX2 series	00: AC power input 11: DC power input	R: Relay T: Transistor (NPN) N: None output

### AI / AO Module

#### DVP04AD-E2

DVP	04	AD	-	E2
Series Name	Channel Number	Model		Model
		AD: Analog/digital conversion DA: Digital/analog conversion PT: PT type temperature module TC: Thermocouple type temperature module XA: AD + DA module LC: Load cell module RC: Resolver module		S or S2: SS/SA/SX/SC/SV/SS2/SA2/ S or S2: SX2/SV2/SE/MC series PLC H2 or H3: EH2/EH3/PM series PLC SL: Left-side extension for S series PLC E2: ES2/EX2 series PLC

# Model Name Explanation

## PI / PO Module

### DVP01PU-H2

DVP	01	PU	-	H2
Series Name	Total I/O	Model		Model
		HC: High-speed counter PU: Single axis positioning module		S: SS/SA/SX/SC/SV/SS2/SA2/ S: SX2/SV2/SE/MC series PLC H2/H3: EH2/EH3/PM series PLC SL: Left-side extension for SV series PLC

## Network Module

### DVPDNET-SL

DVP	DNET	-	SL
Series Name	Model		Model
	EN01: MODBUS TCP DNET: DeviceNet master COPM: CANopen master CP02: CANopen Slave DT01/02: DeviceNet Slave PF01/02: PROFIBUS DP Slave		S: SS/SA/SX/SC/SV/SS2/SA2/ S: SX2/SV2/SE/MC series PLC H2/H3: EH2/EH3/PM series PLC SL: Left-side extension for S series PLC

## Function Card

### DVP-F232

DVP	F	232	
Series Name	Function Card	Type	Particular Definition
		232: RS-232 card 422: RS-422 card 485: RS-485 card EN01: Ethernet card 2AD: 2ch analog input 2DA: 2ch analog output	S: Slave mode (applicable to COM3 coding only)

## Accessory: Cable

### DVPACAB7230

DVP	A	CAB	2	30
Series Name	Accessory	Type	Type	Length
		CAB: Cable	1, 2, 3, 4, .....	15: 1.5m 30: 3.0m

## Accessory: Other

### DVPABT01

DVP	A	BT	01
Series Name	Accessory	Type	Type
		Bt: Battery	01, 02 .....

# Specifications & Ordering Information

## Electrical Specifications

	AC	DC
<b>Power Supply Voltage</b>	100~240V <sub>AC</sub> (-15%~10%), 50/60Hz ±5%	24V <sub>DC</sub> (-15%~20%)
<b>Fuse Capacity</b>	2A/250V <sub>AC</sub>	ES: 2A/250V <sub>AC</sub> ; SV: 2.5A/30V <sub>DC</sub>
<b>Spike Voltage Durability</b>	1500V <sub>AC</sub> (Primary-secondary); 1500V <sub>AC</sub> (Primary-PE); 500V <sub>AC</sub> (Secondary-PE)	
<b>Insulation Impedance</b>	>5MΩ (all I/O point-to-ground: 500V <sub>DC</sub> )	
<b>Noise Immunity</b>	ESD: 8kV Air Discharge EFT: Power Line, 2kV Digital I/O: 1kV Analog & Communication I/O: 1kV RS: 26MHz~1GHz, 10V/m	
<b>Earth</b>	The diameter of grounding wire shall not be shorter than that of the power supply cable. (When many PLCs are in use at the same time, please make sure every PLC is properly grounded.)	
<b>Storage/Operation</b>	Storage: -25°C~70°C(temperature); 5%~95% (humidity) Operation: 0°C~55°C(temperature); 5%~95% (humidity); pollution degree 2	

## Input Specifications<sup>\*1</sup>

Max. Input Frequency	10 kHz	20 kHz	100 kHz	200 kHz	
<b>Input Signal Type</b>	NPN (Sink)/PNP (Source)				
<b>Input Signal Voltage</b>	24V <sub>DC</sub> ±10% (5mA)				
<b>Response time<sup>*2</sup></b>	<b>EH3/SV2/PM</b>	OFF→ON: 20μs ON→OFF: 50μs	ES/EX/SX/SS2/SX2 OFF→ON: 3.5μs ON→OFF: 20μs	ES2/EX2/SA2/SX2 OFF ON: 2.5μs ON→OFF: 5μs	EH3/SV2/PM OFF→ON: 0.15μs ON→OFF: 3μs
	<b>ES2/EX2</b>				
	<b>ES/EX</b>				
	<b>SX</b>				
	<b>SS2</b>				
	<b>SA2/SX2/SE</b>				

\*1. For more detailed specifications, see "Specification" section in the instruction sheet of each model.

\*2. When the input point on PLC conducts only general input functions, use D1020 or D1021 to adjust the response time. (Default: 10ms)

## Output Specifications<sup>\*1</sup>

	Relay-R	Transistor-T		
		General speed	High speed	
<b>Max. Exchange (working) Frequency</b>	1Hz <sup>*2</sup>	10kHz	100kHz	200kHz
<b>Current spec.</b>	<b>EH3/SV2/PM</b>	0.3A/point @40°C	SA2/SX2/ES2/EX2/SE Resistive: 0.5A/point (4A/COM) Conductive: 12W (24V <sub>DC</sub> ) Light bulb: 2W (24V <sub>DC</sub> )	EH3/SV2/PM Resistive: 0.5A/point (4A/COM) Conductive: 12W (24V <sub>DC</sub> ) Light bulb: 2W (24V <sub>DC</sub> )
	<b>ES2/EX2</b>			
	<b>ES/EX</b>			
	<b>SX</b>			
	<b>SS2/SA2/SX2/SE</b>			
<b>Voltage Spec.</b>	250V <sub>AC</sub> /30V <sub>DC</sub>	30V <sub>DC</sub>		
<b>Response Time</b>	10ms	OFF→ON: 20μs ON→OFF: 30μs	OFF→ON: 2μs ON→OFF: 3μs	OFF→ON: 0.5μs ON→OFF: 2.5μs


\*1. For more detailed specifications, see "Specification" section in the instruction sheet of each model.

\*2. Relay life: Resistive load more than 200,000 times; conductive load more than 80,000 times.




# Specifications & Ordering Information


## ES/EX Series PLC

Product Name	Power Supply	Output Method	Inputs	Outputs	Model Name	Certificates
ES Series Standard PLC	100~240V <sub>AC</sub>	Relay	8	6	DVP14ES00R2	
	100~240V <sub>AC</sub>	Transistor	8	6	DVP14ES00T2	
	100~240V <sub>AC</sub>	Relay	16	8	DVP24ES00R2	
	100~240V <sub>AC</sub>	Transistor	16	8	DVP24ES00T2	
	100~240V <sub>AC</sub>	Relay	18	12	DVP30ES00R2	
	100~240V <sub>AC</sub>	Relay	16	16	DVP32ES00R2	
	100~240V <sub>AC</sub>	Transistor	16	16	DVP32ES00T2	
	100~240V <sub>AC</sub>	Relay	24	16	DVP40ES00R2	
	100~240V <sub>AC</sub>	Transistor	24	16	DVP40ES00T2	
	100~240V <sub>AC</sub>	Relay	36	24	DVP60ES00R2	
EX Series Analog PLC	100~240V <sub>AC</sub>	Relay	8	6	DVP20EX00R2	
		Analog	4	2		
	100~240V <sub>AC</sub>	Transistor	8	6	DVP20EX00T2	
		Analog	4	2		


## ES/EX Series Digital Module

Product Name	Output Method	Inputs	Outputs	Model Name	Certificates
Digital Module	-	8	-	DVP08XM11N	
	Relay	-	8	DVP08XN11R	
	Transistor	-	8	DVP08XN11T	
	-	16	-	DVP16XM11N	
	Relay	-	16	DVP16XN11R	
	Transistor	-	16	DVP16XN11T	
	Relay	-	24	DVP24XN11R	
	Transistor	-	24	DVP24XN11T	
	Relay	4	4	DVP08XP11R	
	Transistor	4	4	DVP08XP11T	
	Relay	16	8	DVP24XP11R	
	Transistor	16	8	DVP24XP11T	
	Relay	16	16	DVP32XP11R	
	Transistor	16	16	DVP32XP11T	





## EC3 Series PLC

Product Name	Power Supply	Output Method	Inputs	Outputs	Model Name	Certificates
EC3 Series Standard PLC	100~240V <sub>AC</sub>	Relay	6	4	DVP10EC00R3	
	100~240V <sub>AC</sub>	Transistor	6	4	DVP10EC00T3	
	100~240V <sub>AC</sub>	Relay	8	6	DVP14EC00R3	
	100~240V <sub>AC</sub>	Transistor	8	6	DVP14EC00T3	
	100~240V <sub>AC</sub>	Relay	8	8	DVP16EC00R3	
	100~240V <sub>AC</sub>	Transistor	8	8	DVP16EC00T3	
	100~240V <sub>AC</sub>	Relay	12	8	DVP20EC00R3	


### EC3 Series PLC

Product Name	Power Supply	Output Method	Inputs	Outputs	Model Name	Certificates
EC3 Series Standard PLC	100~240 V <sub>AC</sub>	Transistor	12	8	DVP20EC00T3	
	100~240 V <sub>AC</sub>	Relay	12	12	DVP24EC00R3	
	100~240 V <sub>AC</sub>	Transistor	12	12	DVP24EC00T3	
	100~240 V <sub>AC</sub>	Relay	18	12	DVP30EC00R3	
	100~240 V <sub>AC</sub>	Transistor	18	12	DVP30EC00T3	
	100~240 V <sub>AC</sub>	Relay	16	16	DVP32EC00R3	
	100~240 V <sub>AC</sub>	Transistor	16	16	DVP32EC00T3	
	100~240 V <sub>AC</sub>	Relay	24	16	DVP40EC00R3	
	100~240 V <sub>AC</sub>	Transistor	24	16	DVP40EC00T3	
	100~240 V <sub>AC</sub>	Relay	28	20	DVP48EC00R3	
	100~240 V <sub>AC</sub>	Transistor	28	20	DVP48EC00T3	
	100~240 V <sub>AC</sub>	Relay	36	24	DVP60EC00R3	
100~240 V <sub>AC</sub>	Transistor	36	24	DVP60EC00T3		
Fastest execution time of basic instructions		3.8 μs		Execution time of MOV instruction		5.04 μs

### ES2/EX2 Series PLC



Product Name	Power Supply	Output Method	Inputs	Outputs	Model Name	Certificates
ES2 Series Standard PLC	100~240 V <sub>AC</sub>	Relay	8	8	DVP16ES200R	
	100~240 V <sub>AC</sub>	Transistor	8	8	DVP16ES200T	
	100~240 V <sub>AC</sub>	Relay	16	8	DVP24ES200R	
	100~240 V <sub>AC</sub>	Transistor	16	8	DVP24ES200T	
	100~240 V <sub>AC</sub>	Relay	16	16	DVP32ES200R	
	100~240 V <sub>AC</sub>	Transistor	16	16	DVP32ES200T	
	240 V <sub>DC</sub>	Relay	16	16	DVP32ES211T	
	100~240 V <sub>AC</sub>	Transistor	24	16	DVP40ES200R	
	100~240 V <sub>AC</sub>	Relay	24	16	DVP40ES200T	
	100~240 V <sub>AC</sub>	Transistor	36	24	DVP60ES200R	
ES2 Series Built-in CANopen PLC	100~240 V <sub>AC</sub>	Transistor	36	24	DVP32ES200RC	
	100~240 V <sub>AC</sub>	Relay	36	24	DVP32ES200TC	
EX2 Series Analog PLC	100~240 V <sub>AC</sub>	Relay	8	6	DVP20EX200R	
		Analog	4	2		
	100~240 V <sub>AC</sub>	Transistor	8	6	DVP20EX200T	
		Analog	4	2		
EX2 Series Temperature / Analog PLC	100~240 V <sub>AC</sub>	Relay	16	10	DVP30EX200R	
		Analog	3	1		
	100~240 V <sub>AC</sub>	Transistor	16	10	DVP30EX200T	
		Analog	3	1		
Fastest execution time of basic instructions		0.35 μs		Execution time of MOV instruction		3.4 μs

### ES2/EX2 Series Digital I/O Module (AC power supply)

Product Name	Power Supply	Output Method	Inputs	Outputs	Model Name	Certificates
ES2/EX2 Digital Module	100~240 V <sub>AC</sub>	Relay	-	24	DVP24XN200R	
	100~240 V <sub>AC</sub>	Transistor	-	24	DVP24XN200T	
	100~240 V <sub>AC</sub>	Relay	16	8	DVP24XP200R	
	100~240 V <sub>AC</sub>	Transistor	16	8	DVP24XP200T	
	100~240 V <sub>AC</sub>	Relay	16	16	DVP32XP200R	
	100~240 V <sub>AC</sub>	Transistor	16	16	DVP32XP200T	



# Specifications & Ordering Information

## ES2/EX2 Series Digital/Analog Module (24V<sub>DC</sub>)

Product Name	Output Method	Inputs	Outputs	Model Name	Certificates
ES2/EX2 Series Digital Module	-	8	-	DVP08XM211N	 
	Relay	-	8	DVP08XN211R	
	Transistor	-	8	DVP08XN211T	
	Relay	4	4	DVP08XP211R	
	Transistor	4	4	DVP08XP211T	
	-	16	-	DVP16XM211N	
	Relay	-	16	DVP16XN211R	
	Transistor	-	16	DVP16XN211T	
	Relay	8	8	DVP16XP211R	
Transistor	8	8	DVP16XP211T		
ES2/EX2 Series Analog I/O Module	<ul style="list-style-type: none"> <li>• 4 points of analog voltage (10V, 5V)/current (20mA, 0~20mA, 4~20mA) input <sup>*1</sup></li> <li>• Resolution: 14-bit (-32,000~+32,000)</li> </ul>			DVP04AD-E2	
	<ul style="list-style-type: none"> <li>• 4 points of analog voltage (-10V~+10V)/current (0~20mA, 4~20mA) output <sup>*1</sup></li> <li>• Resolution: 14-bit (-32,000~+32,000)/(0~+32,000)</li> </ul>			DVP04DA-E2	
	<ul style="list-style-type: none"> <li>• 2 points of analog voltage (-10V~+10V)/current (0~20mA, 4~20mA) output <sup>*1</sup></li> <li>• Resolution: 14-bit (-32,000~+32,000)/(0~+32,000)</li> </ul>			DVP02DA-E2	
	<ul style="list-style-type: none"> <li>• 4 points of analog voltage (10V, 5V)/current (20mA, 0~20mA, 4~20mA) input <sup>*1</sup></li> <li>• Input resolution: 14-bit (-32,000~+32,000)</li> <li>• 2 points of analog voltage (-10V~+10V)/current (0~20mA, 4~20mA) output</li> <li>• Output resolution: 14-bit (-32,000~+32,000)/(0~+32,000)</li> </ul>			DVP06XA-E2	
ES2/EX2 Series Temperature Measurement Module	<ul style="list-style-type: none"> <li>• 4 points of platinum RTD (Pt100, Pt1000, Ni100, Ni1000) sensor input/0~300Ω resistance input <sup>*1</sup></li> <li>• Resolution: 16-bit</li> <li>• With PID temperature control</li> </ul>			DVP04PT-E2	
	<ul style="list-style-type: none"> <li>• 4 points of thermocouple (J, K, R, S, T, E, N Type) sensor input/-80mV~+80mV voltage input <sup>*1</sup></li> <li>• Resolution: 20-bit</li> <li>• With PID temperature control</li> </ul>			DVP04TC-E2	
Absolute Resolver Module	<ul style="list-style-type: none"> <li>• Converts 1 set of resolver input signal (angle/speed) into digital signals</li> <li>• Resolution: 12-bit</li> <li>• Supports disconnection detection for distance up to 50m</li> </ul>			DVP10RC-E2	

\*1. Digital/analog photocoupler isolation. No isolation among channels.

## EH3 Series PLC

Product name	Power Supply	Output Method	Inputs	Outputs	Model Name	Certificates
EH3 Series Standard PLC	100~240V <sub>AC</sub>	Relay	8	8	DVP16EH00R3	 
	100~240V <sub>AC</sub>	Transistor	8	8	DVP16EH00T3	
	100~240V <sub>AC</sub>	Relay	12	8	DVP20EH00R3	
	100~240V <sub>AC</sub>	Transistor	12	8	DVP20EH00T3	
	100~240V <sub>AC</sub>	Transistor	16	16	DVP32EH00T3	
	100~240V <sub>AC</sub>	Relay	16	16	DVP32EH00R3	
	100~240V <sub>AC</sub>	Differential	16	16	DVP32EH00M3	
	100~240V <sub>AC</sub>	Relay	16	16	DVP32EH00R3-L	
	100~240V <sub>AC</sub>	Transistor	16	16	DVP32EH00T3-L	
	100~240V <sub>AC</sub>	Transistor	24	16	DVP40EH00T3	
	100~240V <sub>AC</sub>	Relay	24	16	DVP40EH00R3	
	100~240V <sub>AC</sub>	Relay	24	24	DVP48EH00R3	
	100~240V <sub>AC</sub>	Transistor	24	24	DVP48EH00T3	
	100~240V <sub>AC</sub>	Relay	32	32	DVP64EH00R3	
	100~240V <sub>AC</sub>	Transistor	32	32	DVP64EH00T3	
	100~240V <sub>AC</sub>	Relay	40	40	DVP80EH00R3	
	100~240V <sub>AC</sub>	Transistor	40	40	DVP80EH00T3	
Execution time of basic instructions				0.24 μs		

### EH3 Series Digital/Analog Module

Product Name	Output Method	Inputs	Outputs	Model Name	Certificates
Digital Module	Relay	4	4	DVP08HP11R	CE cULus
	Transistor	4	4	DVP08HP11T	
	Relay	-	8	DVP08HN11R	
	Transistor	-	8	DVP08HN11T	
	-	8	-	DVP08HM11N	
	Relay	8	8	DVP16HP11R	
	Transistor	8	8	DVP16HP11T	
	-	16	-	DVP16HM11N	
	-	32	-	DVP32HM11N	
	Relay	-	32	DVP32HN00R	
	Transistor	-	32	DVP32HN00T	
	Relay	16	16	DVP32HP00R	
	Transistor	16	16	DVP32HP00T	
	Relay	24	24	DVP48HP00R	
	Transistor	24	24	DVP48HP00T	
Analog Module	<ul style="list-style-type: none"> <li>4 points of analog voltage (-10V~+10V)/current (-20mA~+20mA) <sup>*1</sup></li> <li>Input resolution: 14-bit</li> <li>Built-in RS-485 interface</li> </ul>			DVP04AD-H2	CE cULus
	<ul style="list-style-type: none"> <li>4 points of analog voltage (0V~+10V)/current (0mA~+20mA) output <sup>*1</sup></li> <li>Resolution: 12-bit</li> <li>Built-in RS-485 interface</li> </ul>			DVP04DA-H2	
	<ul style="list-style-type: none"> <li>4 points of analog voltage (-10V~+10V)/current (-20mA~+20mA) input</li> <li>2 points of analog voltage (0V~+10V)/current (0mA~+20mA) output</li> <li>Resolution: 12-bit</li> <li>Built-in RS-485 interface</li> </ul>			DVP06XA-H2	
	<ul style="list-style-type: none"> <li>4 points of platinum RTD (Pt100, Pt1000, Ni100, Ni1000) sensor input <sup>*1</sup>/ 0~300Ω or 0~3000Ω resistance input</li> <li>Resolution: 0.1°C</li> <li>Built-in RS-485 interface</li> </ul>			DVP04PT-H2	
	<ul style="list-style-type: none"> <li>4 points of thermocouple (J, K, R, S, T, E, N Type) sensor input <sup>*1</sup>/0~150mV voltage input</li> <li>Resolution: 0.1°C</li> <li>Built-in RS-485 interface</li> </ul>			DVP04TC-H2	
	<ul style="list-style-type: none"> <li>8 points of thermocouple (J, K, R, S, T, E, N Type) sensor input <sup>*1</sup>/ 0~150mV or ±150mV voltage input</li> <li>Resolution: 0.1°C</li> <li>Built-in RS-485 interface</li> </ul>			DVP08TC-H2	
	<ul style="list-style-type: none"> <li>4 channels of differential voltage (-10V~+10V)/current (-20mA~+20mA) input</li> <li>Resolution: 16-bit</li> <li>Built-in RS-485 interface</li> </ul>			DVP04AD-H3	
	<ul style="list-style-type: none"> <li>4 channels of voltage (-10V~+10V)/current (0~+20mA) output</li> <li>Resolution: 16-bit</li> <li>Built-in RS-485 interface</li> </ul>			DVP04DA-H3	
<ul style="list-style-type: none"> <li>4 channels of differential voltage (-10V~+10V)/ current (-20mA~+20mA) input</li> <li>2 channels of voltage (-10V~+10V)/current (0~+20mA) output</li> <li>Resolution: 16-bit</li> <li>Built-in RS-485 interface</li> </ul>			DVP06XA-H3		





\*1. Digital/analog photocoupler isolation. No isolation among channels.

### EH3 Series Extension Module/Function Card



Product Name	Description	Model Name	Certificates
Positioning Module	Servo position control module (single axis, 200kHz)	DVP01PU-H2	CE cULus
High-Speed Counter	High-speed counter module (1CH)	DVP01HC-H2	
Communication Module	PROFIBUS DP slave communication module	DVPPF02-H2	
	CANopen slave communication module	DVPCP02-H2	
	DeviceNet slave communication module	DVPDT02-H2	
Function Card	RS-232 port conversion (EH2: COM2; EH3: COM3)	DVP-F232	
	RS-422 port conversion (EH2: COM2; EH3: COM3)	DVP-F422	
	RS-485 port extension (COM3), (DVP-EH3 only)	DVP-F485	
	2 points of analog voltage (0~10V)/current (0~20mA) input Resolution: 12-bit	DVP-F2AD	
	2 points of analog voltage (0~10V)/current (0~20mA) output Resolution: 12-bit	DVP-F2DA	
Ethernet communication card		DVP-FEN01	

# Specifications & Ordering Information


## S Series PLC

Product Name	Power Supply	Output Method	Inputs	Outputs	Model Name	Certificates
SV2 Series Functional PLC	24V <sub>DC</sub>	Relay	16	12	DVP28SV11R2	
	24V <sub>DC</sub>	Transistor (NPN)	16	12	DVP28SV11T2	
	24V <sub>DC</sub>	Transistor (PNP)	16	12	DVP28SV11S2	
	24V <sub>DC</sub>	Transistor (NPN)	10 (2AI)	12	DVP24SV11T2	
Execution time of basic instructions			0.24 μs			
SS2 Series Standard PLC	24V <sub>DC</sub>	Relay	8	6	DVP14SS211R	
	24V <sub>DC</sub>	Transistor (NPN)	8	6	DVP14SS211T	
	24V <sub>DC</sub>	Transistor(PNP)	8	4	DVP12SS211S	
SA2 Series Advanced PLC	24V <sub>DC</sub>	Relay	8	4	DVP12SA211R	
	24V <sub>DC</sub>	Transistor	8	4	DVP12SA211T	
SX2 Series Analog PLC	24V <sub>DC</sub>	Relay	8 (4AI)	6(2AO)	DVP20SX211R	
	24V <sub>DC</sub>	Transistor (NPN)	8 (4AI)	6(2AO)	DVP20SX211T	
	24V <sub>DC</sub>	Transistor (PNP)	8 (4AI)	6(2AO)	DVP20SX211S	
Fastest execution time of basic instructions		0.35 μs	Execution time of MOV instruction		3.4 μs	
SE Network PLC	24V <sub>DC</sub>	Relay	8	4	DVP12SE11R	
	24V <sub>DC</sub>	Transistor	8	4	DVP12SE11T	
Fastest execution time of basic instructions		0.64 μs	Execution time of MOV instruction		2 μs	
SX series Analog PLC	24V <sub>DC</sub>	Relay	4 (2AI)	2 (2AO)	DVP10SX11R	
	24V <sub>DC</sub>	Transistor	4 (2AI)	2 (2AO)	DVP10SX11T	
Fastest execution time of basic instructions		3.8 μs	Execution time of MOV instruction		5.04 μs	


## S Series Digital/Analog Module

Product name	Output Method	Inputs	Outputs	Model Name	Certificates
Digital ModuleZ	Relay	-	6	DVP06SN11R	
	Relay	-	8	DVP08SN11R	
	Transistor	-	8	DVP08SN11T	
	Transistor	-	16	DVP16SN11T	
	Relay	4	4	DVP08SP11R	
	Transistor	4	4	DVP08SP11T	
	-	8	-	DVP08SM11N	
	-	8	-	DVP08SM10N	
	Transistor (PNP)	-	8	DVP08SN11TS	
	Digital switch	8	-	DVP08ST11N	
	Relay	8	8	DVP16SP11R	
	Transistor (PNP)	4	4	DVP08SP11TS	
	Transistor (NPN)	8	8	DVP16SP11T	
	Transistor (PNP)	8	8	DVP16SP11TS	
	Transistor (PNP)	-	16	DVP16SN11TS	
	-	16	-	DVP16SM11N	
	Transistor, MIL connector	-	32	DVP32SN11TN	
MIL connector		32	DVP32SM11N		
Product Name	Description			Model Name	Certificates
Analog I/O Module	<ul style="list-style-type: none"> <li>4 points of analog input voltage (-10V~+10V)/ current (-20mA~+20mA)</li> <li>Input resolution: 14-bit</li> </ul>		<ul style="list-style-type: none"> <li>Built-in RS-485 interface</li> <li>Differential input</li> </ul>	DVP04AD-S2	
	<ul style="list-style-type: none"> <li>4 points of analog output voltage (0V~+10V)/ current (0mA~+20mA)</li> </ul>		<ul style="list-style-type: none"> <li>Output resolution: 12-bit</li> <li>Built-in RS-485 interface</li> </ul>	DVP04DA-S2	
	<ul style="list-style-type: none"> <li>Analog input+output module (6 points)</li> <li>4 points of analog input voltage (-10V~+10V)/current (-20mA~+20mA)</li> <li>2 points of analog output voltage (0V~+10V)/ current (0mA~+20mA)</li> </ul>		<ul style="list-style-type: none"> <li>Input/output resolution: 12-bit</li> <li>Built-in RS-485 interface</li> <li>Differential input</li> </ul>	DVP06XA-S2	
	<ul style="list-style-type: none"> <li>4 points of analog input voltage (-10V~+10V)/current (-20mA~+20mA)</li> <li>Input resolution: 14-bit</li> </ul>		<ul style="list-style-type: none"> <li>Built-in RS-485 interface</li> <li>Single-ended input</li> </ul>	DVP04AD-S	

## S Series Analog Module


Product Name	Description	Model Name	Certificates
Analog I/O Module	<ul style="list-style-type: none"> <li>4 points of analog output voltage (0V~+10V)/ current (0mA~+20mA)</li> <li>Output resolution: 12-bit</li> </ul>	Built-in RS-485 interface DVP04DA-S	
	<ul style="list-style-type: none"> <li>2 points of analog output voltage (0V~+10V)/ current (0mA~+20mA)</li> <li>Output resolution: 12-bit</li> </ul>	Built-in RS-485 interface DVP02DA-S	
	<ul style="list-style-type: none"> <li>6 points of analog input voltage (-10V~+10V)/ current (-20mA~+20mA)</li> <li>Input resolution: 14-bit</li> </ul>	Built-in RS-485 interface DVP06AD-S	
	<ul style="list-style-type: none"> <li>Analog input+output modules (6 points)</li> <li>4 points of analog input voltage (-10V~+10V)/ current (-20mA~+20mA)</li> <li>2 points of analog output voltage (0V~+10V)/ current (0mA~+20mA)</li> </ul>	<ul style="list-style-type: none"> <li>Input/output resolution: 12-bit</li> <li>Built-in RS-485 interface</li> <li>Single-ended input</li> </ul> DVP06XA-S	

## S Series Extension Module/Left-Side High-Speed Module


Product Name	Description	Model Name	Certificates
Left-Side High-Speed Analog I/O Module	<ul style="list-style-type: none"> <li>4 groups of analog input *1</li> <li>Signal range: 1~5V, 0~5V, -5~5V, 0~10V, -10~10V, 4~20mA, 0~20mA, -20~20mA</li> <li>Resolution: 16-bit</li> <li>Single channel On/Off setup enhances entire conversion efficiency</li> <li>Conversion time: 250µs/point</li> <li>Off-line alarm (1~5V, 4~20mA)</li> </ul>	DVP04AD-SL	
	<ul style="list-style-type: none"> <li>4 groups of analog output *1</li> <li>Signal range: 0~10V, -10~10V, 4~20mA, 0~20mA</li> <li>Resolution: 16-bit</li> <li>Offers single channel On/Off setup</li> <li>Conversion time: 250µs/point</li> </ul>	DVP04DA-SL	
Left-Side High-Speed Load Cell Module	<ul style="list-style-type: none"> <li>1 set of load cell module*1</li> <li>Resolution: 24-bit</li> </ul>	<ul style="list-style-type: none"> <li>Connectable to 4-wire/6-wire load cell sensor</li> <li>Measurable range: 0~80mV/V</li> </ul> New DVP201LC-SL	
	<ul style="list-style-type: none"> <li>1 set of load cell module*1</li> <li>Resolution: 24-bit</li> <li>Connectable to 4-wire/6-wire load cell sensor</li> </ul>	<ul style="list-style-type: none"> <li>Measurable range: 0~80mV/V</li> <li>Built-in I/O control: 2DI/4DO/1AO</li> </ul> New DVP211LC-SL	
	<ul style="list-style-type: none"> <li>2 sets of load cell module*1</li> <li>Resolution: 24-bit</li> </ul>	<ul style="list-style-type: none"> <li>Connectable to 4-wire/6-wire load cell sensor</li> <li>Measurable range: 0~80mV/V</li> </ul> New DVP202LC-SL	
	<ul style="list-style-type: none"> <li>Supports 2 channels of load cell signal input*1</li> <li>Resolution: 20-bit</li> <li>Connectable to 4-wire/6-wire load cell sensor</li> <li>Measurable range: 0~6mV/V</li> </ul>	DVP02LC-SL	
Temperature Measurement Module	<ul style="list-style-type: none"> <li>6 points of platinum RTD (Pt100, Pt1000, Ni100, Ni1000) sensor input</li> <li>Resolution: 0.1°C</li> </ul>	DVP06PT-S	
	<ul style="list-style-type: none"> <li>4 points of platinum RTD (Pt100, Pt1000, Ni100, Ni1000) sensor input*1 (Version 4.06 and above supports Pt1000, Ni100, Ni1000)</li> <li>Resolution: 0.1°C</li> <li>Built-in RS-485 interface</li> </ul>	DVP04PT-S	
	<ul style="list-style-type: none"> <li>4 points of thermocouple (J, K, R, S, T type) sensor input*1</li> <li>Resolution: 0.1°C</li> <li>Built-in RS-485 interface</li> </ul>	DVP04TC-S	
Positioning Module	Servo position control module (single axis, 200kHz)	DVP01PU-S	
Communication Module	DeviceNet slave communication module	DVPDT01-S	
	PROFIBUS DP slave communication module	DVPPF01-S	
Left-Side High-Speed Communication Module	Ethernet communication module, 10/100Mbps	DVPEN01-SL	
	DeviceNet master communication module, 500Kbps	DVPDNET-SL	
	CANopen master communication module, 1Mbps	DVPCOPM-SL	
	PROFIBUS DP slave communication module, 12Mbps	DVPPF02-SL	
	RS-485/RS-422, serial communication module, 460Kbps	DVPSCM12-SL	
	BACnet MS/TP Slave communication module, 460Kbps	DVPSCM52-SL	
Remote I/O Module	RS-485 remote I/O module, connectable to S series I/O modules	RTU-485	
	Ethernet remote I/O module, connectable to S series I/O modules	RTU-EN01	
	DeviceNet remote I/O module, connectable to S series I/O modules	RTU-DNET	
	PROFIBUS remote I/O module, connectable to S series I/O modules	RTU-PD01	

# Specifications & Ordering Information


## Communication Converter

Product Name	Description	Model Name	Certificates
Converter	USB to RS-485 converter	IFD6500	
	USB to CAN converter	IFD6503	
	USB to RS-485 converter	IFD6530	
	MODBUS TCP to RS-232/485 converter	IFD9506	
	EtherNet/IP to RS-232/485 converter	IFD9507	
	DeviceNet to RS-232/485 converter	IFD9502	
	CANopen to RS-232/485 converter	IFD9503	
	RS-232 to RS-422/485 isolated converter	IFD8500	
	RS-485 to RS-422 isolated repeater	IFD8510	
	RS-422/485 to RS-232 addressable isolated converter	IFD8520	


## PM Series

Product Name	Power Supply	Output Method	Inputs	Outputs	Model Name	Certificates
General Purpose Motion Controller	100~240V <sub>AC</sub>	Differential	16	16	DVP10PM00M	
		(Built-in 4-axis of independent 1MHz pulse output)				
Professional Motion Controller	100~240V <sub>AC</sub>	Differential	8	8	DVP20PM00DT	
		(Built-in 2-axis of independent 500kHz pulse output)			DVP20PM00D	
		(Built-in 3-axis of independent 500kHz pulse output)			DVP20PM00M	
PM Series Extension Module		Description			Model Name	
DVP-PM Communication card		Ethernet/CANopen communication card			DVP-FPMC	
DVP-PM Memory card		Data backup memory card (64K words) (Only supported by 20PM Series)			PM-PCC01	
Execution time of basic instructions		0.13 μs		Execution time of MOV instruction		3.74 μs

## MC Series

Product Name	Power Supply	Communication protocol	Inputs	Outputs	Model Name	Certificates
Network Type Motion Controller	24V <sub>DC</sub>	CANopen DS402	8	4	DVP10MC11T	


## Peripheral Accessories

Product Name	Description	Model Name	Certificates
Accessory	Data backup memory card (DVP-EH3 only)	DVP-512FM	
	Data backup memory card (64K words)	DVPPCC01	
	Communication cable for PC (9-pin & 25-pin D-Sub) and PLC, 3m	DVPACAB230	
	Communication cable for PC (9-pin D-Sub) and PLC, 3m	DVPACAB2A30	
	Communication cable for PC (9-pin D-Sub) and PLC (90° bend), 1m	DVPACAB2B10	
	I/O connection cable for DVP-32SM series	DVPACAB7A10	
	I/O connection cable for DVP-32SN series	DVPACAB7B10	
	External terminal module for DVP-32SM series (Dual-deck Euro type terminal to MIL connector)	DVPAETB-ID32A	
	External terminal module for DVP-32SN series (MIL connector to single-deck Euro type terminal)(16 relays included)	DVPAETB-OR16A	
	Supports 4 types of RS-485 connectors	ADP485-01	
	Connection cable for ADP485-01 and ASDA-A series servo	ADPCAB03A	
	Connection cable for ADP485-01 and ASDA-B series servo	ADPCAB03B	
	I/O extension cable for ES/EX series, 0.3m	DVPACAB403	
	Extension cable for EH series PLC and extension module, 0.7m	DVPACAB4A07	
	DeviceNet/ CANopen distribution box, 1 for 2	TAP-CN01	
	DeviceNet/ CANopen distribution box, 2 for 3	TAP-CN02	
	DeviceNet/ CANopen distribution box, 2 for 3 RJ45	TAP-CN03	
	CANopen main-line AWG18	TAP-CB01	
	CANopen sub-line AWG24	TAP-CB02	
	CANopen sub-line, RJ45 connector, 0.3m	TAP-CB03	
	CANopen sub-line, RJ45 connector, 0.5m	TAP-CB05	
	CANopen sub-line, RJ45 connector, 1m	TAP-CB10	
	CANopen sub-line, RJ45 connector, 2m	TAP-CB20	
	CANopen sub-line, RJ45 connector, 3m	TAP-CB30	
	CANopen sub-line, RJ45 connector, 10m	TAP-CB100	
	3.6V lithium battery (unchargeable) for EH/SX series PLC	DVPABT01	
	Terminal resistance for CANopen communication (RJ45)	TAP-TR01	
	TP programming cable	DVPACAB530	

## Software

Product Name	Description	OS (Windows based software)
ISPSOft	PLC editing software for AH500 and DVP series (supports 5 programming languages: LD, FBD, SFC, ST, IL)	Windows 2000, XP, Vista, Windows 7 (32-bit/64-bit)
WPLSOft	Programming software for DVP-PLC	Windows 98, Me, NT4.0, 2000, XP, Vista, Windows 7 (32-bit/64-bit)
TPEditor	Editing software for TP series HMI	Windows 98, Me, NT4.0, 2000, XP, Vista, Windows 7 (32-bit/64-bit)
PMSOft	Programming software for PM series	Windows 2000, XP, Vista, Windows 7 (32-bit/64-bit)
DCISOft	Delta communication integration software	Windows 2000, XP, Vista, Windows 7 (32-bit/64-bit)
DeviceNet Builder	DeviceNet configuration software	Windows 2000, XP, Vista, Windows 7 (32-bit/64-bit)
CANopen Builder	CANopen configuration software	Windows 2000, XP, Vista, Windows 7 (32-bit/64-bit)
NetView builder	CAN bus Message Analysis Software	Windows 2000, XP, Vista, Windows 7 (32-bit)

## Industrial Power Supply

Series	Power Supply	Inputs	Outputs	Power	Output Current	Model Name	Certificates
DVP	1-phase	85~264V <sub>AC</sub>	24V <sub>DC</sub>	24W	1A	DVPPS01	
				48W	2A	DVPPS02	
				120W	5A	DVPPS05	

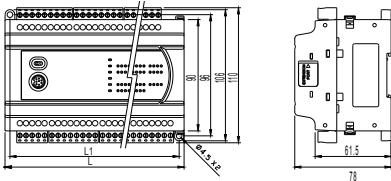
\*Note: For more ordering information, please refer to the catalogue for Delta Industrial Power Supply.



# Dimensions Dimensions are in mm

## ES2/EX2 Series PLC

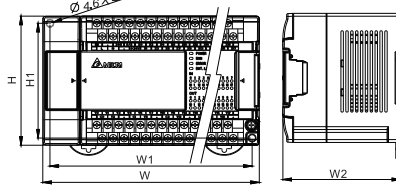
Model Name	L	L1
DVP16ES200R/T	105	97
DVP24ES200R/T	125	117
DVP32ES200R/T	145	137
DVP32ES200RC	145	137
DVP32ES200TC	145	137
DVP32ES211T	145	137
DVP40ES200R/T	165	157
DVP60ES200R/T	225	217
DVP20EX200R/T	145	137
DVP30EX200R/T	165	157



## EH3 Series PLC

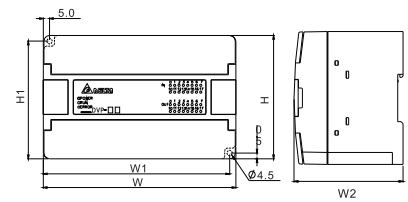
Model Name	H	H1	W	W1	W2
DVP16EH00R3/T3	90	80	113	103	82
DVP20EH00R3/T3	90	80	113	103	82
DVP32EH00M3	90	80	143.5	133.5	82
DVP32EH00R3/T3	90	80	143.5	133.5	82
DVP32EH00R3-L	90	80	143.5	133.5	82
DVP32EH00T3-L	90	80	143.5	133.5	82
DVP40EH00R3/T3	90	80	158.8	153.8	82
DVP48EH00R3/T3	90	80	174	164	82
DVP64EH00R3/T3	90	80	212	202	82
DVP80EH00R3/T3	90	80	276	266	82

\* The dimension of DVP-EH3 series is the same as DVP-EH2 series



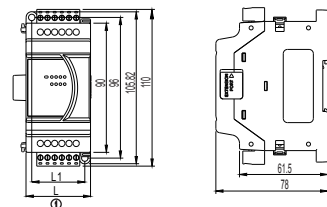
## ES/EX Series PLC

Model Name	H	H1	W	W1	W2
DVP14ES00R2/T2	100	95	104	99	82
DVP24ES00R2/T2	100	95	155	150	82
DVP30ES00R2/T2	100	95	155	150	82
DVP32ES00R2/T2	100	95	155	150	82
DVP40ES00R2/T2	100	95	155	150	82
DVP60ES00R2/T2	90	85.5	185	180.5	89.6
DVP20EX00R2/T2	100	95	155	150	82



## ES2/EX2 Series Extension Modules

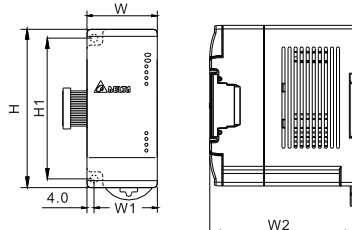
Model Name	L	L1	Type
DVP08XM211N	45	37	(1)
DVP08XP211R/T	45	37	(1)
DVP08XN211R/T	45	37	(1)
DVP16XM211N	70	62	(2)
DVP16XP211R/T	70	62	(2)
DVP16XN211R/T	70	62	(2)
DVP24XP200R/T	145	137	(2)
DVP24XN200R/T	145	137	(2)
DVP32XP200R/T	145	137	(2)
DVP04AD-E2	70	62	(2)
DVP02DA-E2	70	62	(2)
DVP04DA-E2	70	62	(2)
DVP06XA-E2	70	62	(2)
DVP04PT-E2	70	62	(2)
DVP04TC-E2	70	62	(2)
DVP10RC-E2	70	62	(2)



## EH3 Series I/O & Extension Modules

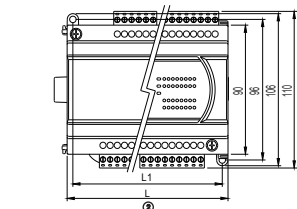
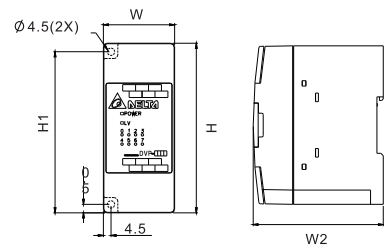
Model Name	H	H1	W	W1	W2
DVP08HM11N	90	80	40	36	82
DVP16HM11N	90	80	55	51	82
DVP32HM11N	90	80	143.5	133.5	82.2
DVP08HN11R/T	90	80	40	36	82
DVP32HN00R/T	90	80	143.5	133.5	82.2
DVP08HP11R/T	90	80	40	36	82
DVP16HP11R/T	90	80	55	51	82
DVP32HP00R/T	90	80	143.5	133.5	82.2
DVP48HP00R/T	90	80	174	164	82.2
Model Name	H	H1	W	W1	W2
DVP04AD-H2	90	80	60	56	82
DVP04DA-H2	90	80	60	56	82
DVP06XA-H2	90	80	60	56	82
DVP04PT-H2	90	80	60	56	82
DVP04TC-H2	90	80	60	56	82
DVP01PU-H2	90	80	60	56	82
DVPDT02-H2	90	80	40	46	82
DVPCP02-H2	90	80	40	46	82
DVPPF02-H2	90	80	40	46	82
DVP04AD-H3	90	80	60	56	82
DVP04DA-H3	90	80	60	56	82
DVP06XA-H3	90	80	60	56	82

\* The dimension of DVP-EH3 series is the same as DVP-EH2 series



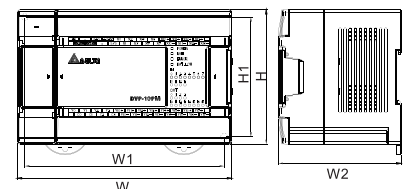
## ES/EX Series I/O & Extension Modules

Model Name	H	H1	W	W1	W2
DVP08XM11N	100	95	42	37.5	82
DVP16XM11N	100	95	104	99	82
DVP08XN11R/T	100	95	42	37.5	82
DVP16XN11R/T	100	95	155	150	82
DVP24XN11R/T	100	95	155	150	82
DVP24XN00R/T	100	95	155	150	82
DVP08XP11R/T	100	95	42	37.5	82
DVP24XP11R/T	100	95	155	150	82



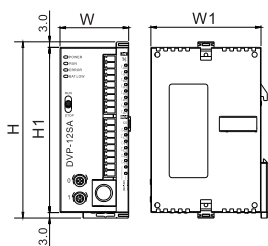
## PM Series PLC

Model Name	H	H1	W	W1	W2
DVP20PM00D	90	80	174	164	82
DVP20PM00M	90	80	174	164	82
DVP10PM00M	90	80	143.5	133.5	82



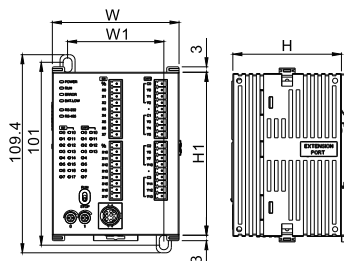
### SE/SX/SS2/SA2 Series PLC

Model Name	H	H1	W	W1
DVP14SS211R/T	96	90	25.2	60
DVP12SS211S	96	90	25.2	60
DVP12SA211R/T	96	90	37.4	60
DVP12SE11R/T	96	90	37.4	60
DVP10SX11R/T	96	90	37.4	60



### SV2/SX2/MC Series PLC

Model Name	H	H1	W	W1
DVP28SV11R2/T2	60	90	70	53.2
DVP20SX211R/T/S	60	90	70	53.2
DVP10MC11T	60	90	70	53.2

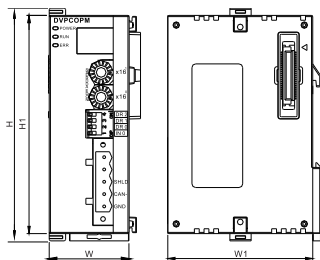


### S Series I/O & Extension Modules

Model Name	H	H1	W	W1
DVP08SM11N	96	90	25.2	60
DVP06SN11R	96	90	25.2	60
DVP08SN11R/T/TS	96	90	25.2	60
DVP08SP11R/T/TS	96	90	25.2	60
DVP16SP11R/T/TS	96	90	25.2	60
DVP16SN11T	96	90	25.2	60
DVP16SN11TS	96	90	25.2	60
DVP04AD-S	96	90	25.2	60
DVP04AD-S2	96	90	25.2	60
DVP06AD-S	96	90	25.2	60
DVP02DA-S	96	90	25.2	60
DVP04DA-S	96	90	25.2	60
DVP04DA-S2	96	90	25.2	60
DVP06XA-S	96	90	25.2	60
DVP06XA-S2	96	90	25.2	60
DVP04PT-S	96	90	25.2	60
DVP06PT-S	96	90	25.2	60
DVP04TC-S	96	90	25.2	60
DVP01PU-S	96	90	25.2	60
DVPPF01-S	96	90	25.2	60
DVPDT01-S	96	90	25.2	60

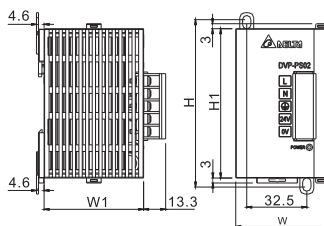
### Left-Side High-Speed Extension Modules

Model Name	H	H1	W	W1
DVPEN01-SL	96	90	33.1	60
DVPCOPM-SL	96	90	33.1	60
DVPDNET-SL	96	90	33.1	60
DVPPF02-SL	96	90	33.1	60
DVPSCM12-SL	96	90	33.1	60
DVPSCM52-SL	96	90	33.1	60
DVP04AD-SL	96	90	33.1	60
DVP04DA-SL	96	90	33.1	60
DVP01LC-SL	96	90	33.1	60
DVP02LC-SL	96	90	33.1	60



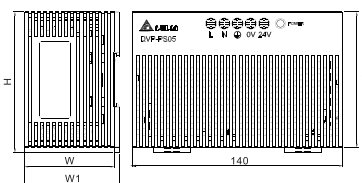
### PS01/02 Power Supply Modules

Model Name	H	H1	W	W1
DVPPS01	100	90	36.5	60
DVPPS02	100	90	55	60



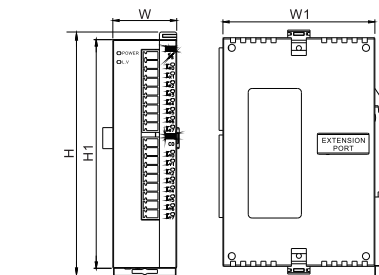
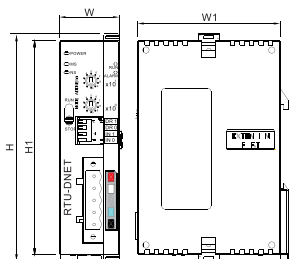
### PS05 Power Supply Modules

Model Name	H	H1	W	W1
DVPPS05	93.3	90	60	63.4

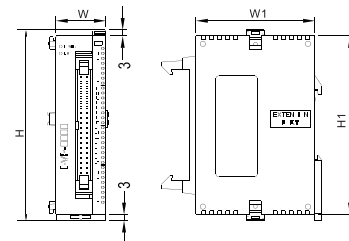


### Remote I/O Modules

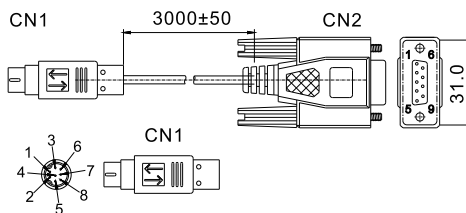
Model Name	H	H1	W	W1
RTU-DNET	96	90	25.2	60
RTU-485	96	90	25.2	60
RTU-EN01	96	90	25.2	60
RTU-PD01	96	90	25.2	60



Model Name	H	H1	W	W1
DVP32SN11TN	96	90	25.2	60
DVP32SM11N	96	90	25.2	60



### PIN Definition of DVPACAB2A30



PC/HMI COM Port 9 PIN D-SUB female		PLC COM1 Port 8 PIN MINI DIN	
Tx	3	Rx	4
Rx	2	Tx	5
GND	5	GND	8
1	7	1,2	5V
4	8		
6			

Unit: mm

# Wiring

## DVP-EH Series High-speed Multi-function PLC

Series	Model
DVP-EH3	DVP16EH00R3, DVP16EH00T3, DVP20EH00R3, DVP20EH00T3, DVP32EH00M3, DVP32EH00R3, DVP32EH00R3-L, DVP32EH00T3, DVP32EH00T3-L, DVP40EH00R3, DVP40EH00T3, DVP48EH00R3, DVP48EH00T3, DVP64EH00R3, DVP64EH00T3, DVP80EH00R3, DVP80EH00T3

### ■ Wiring Input Terminals

#### 1. Open-collector input terminals

##### Applicable model:

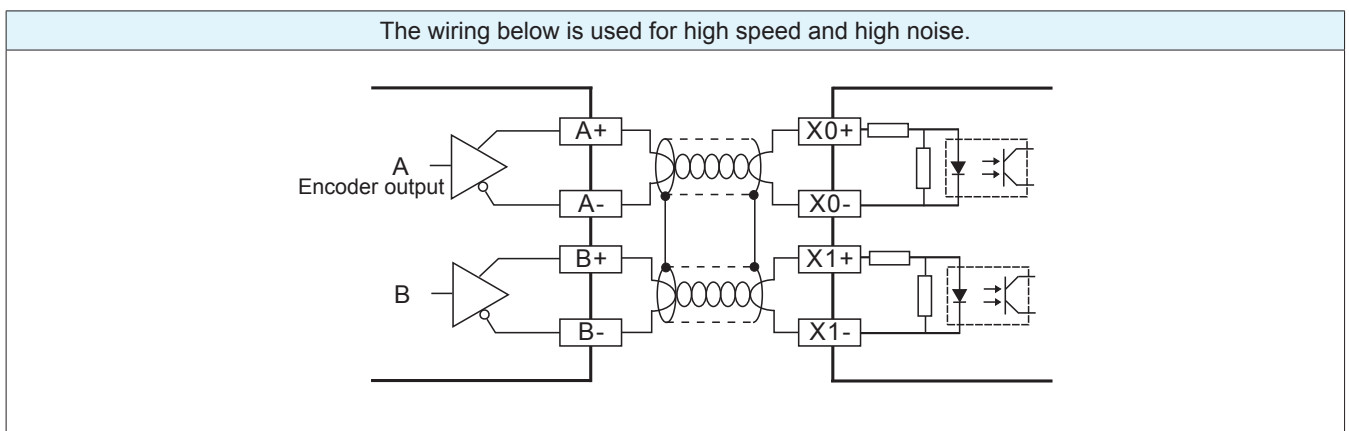
All high-speed multi-function PLCs except the differential input terminals of DVP32EH00M3

NPN (Sink)	PNP (Source)
NPN (Sink)=The current flows into the common terminal S/S	PNP (Source)=The current flows from the common terminal S/S

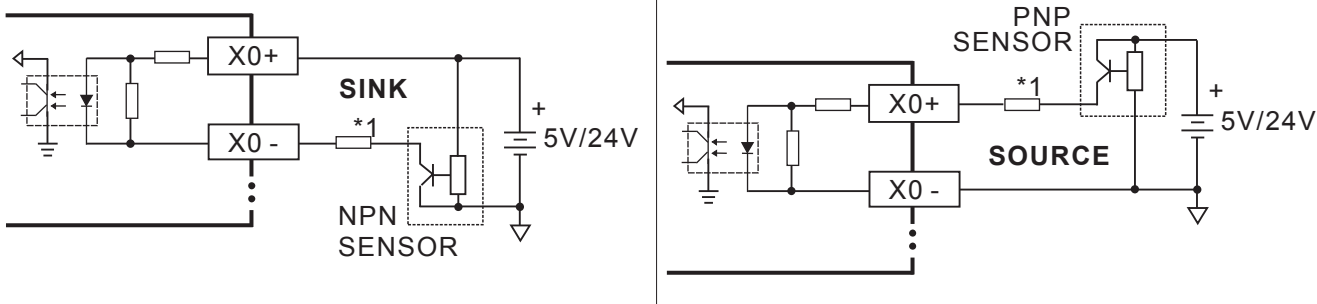
#### 2. Differential input terminals

##### Applicable model:

DVP32EH00M3



If a frequency is less than 50kHz and there is not much noise, input terminals can be connected to 5 V/24 V direct-current power. A wiring diagram for an NPN sensor and a wiring diagram for a PNP sensor are shown below.



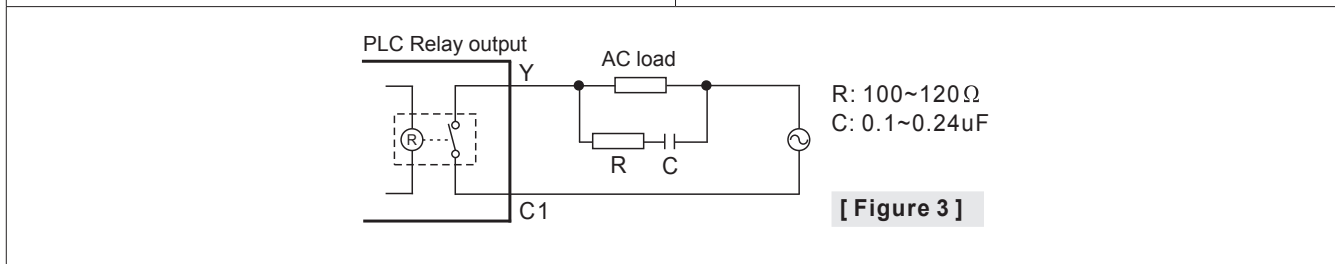
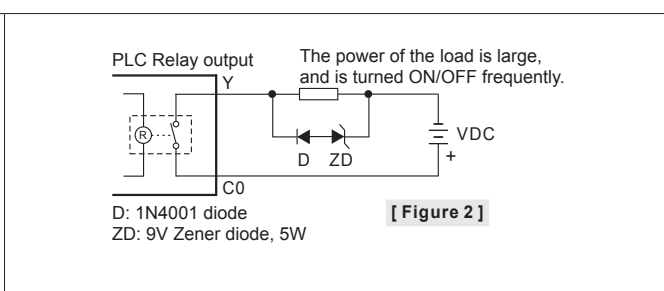
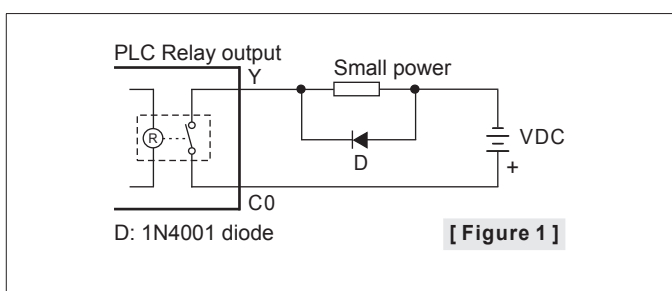
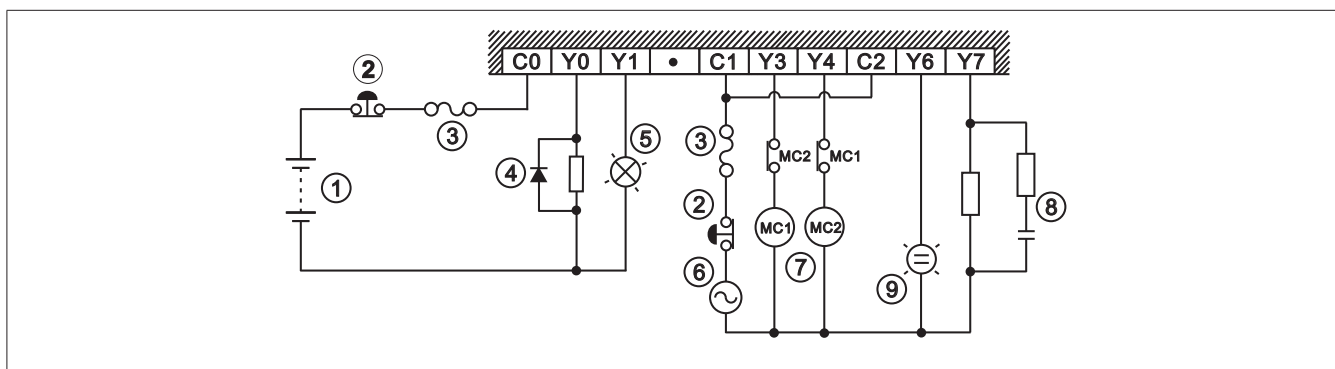
\*1. The resistor is only applicable to 24 V and 2 kΩ/0.5 W wiring.

## ■ Wiring Output Terminals

### 1. Wiring relay output terminals

#### Applicable model:

DVP16EH00R3, DVP20EH00R3, DVP32EH00R3, DVP32EH00R3-L, DVP40EH00R3, DVP48EH00R3, DVP64EH00R3, DVP80EH00R3, DVP32EH00M3 (relay output)



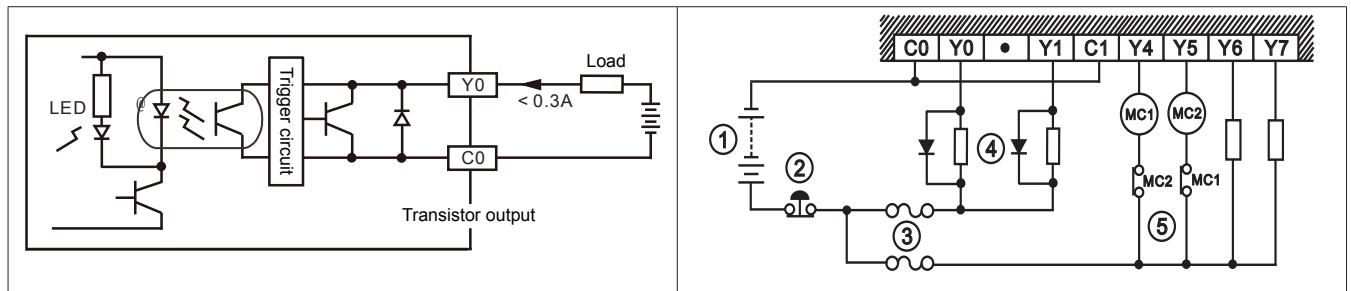
# Wiring

①	Direct-current power supply	②	Emergency stop: An external switch is used.
③	Fuse: To protect an output circuit, a fuse having a breaking capacity in the range of 5A to 10A is connected to a common terminal.		
④	Transient voltage suppression diode: It can be used to lengthen the lifespan that a contact has. 1. A Diode is used to suppress the DC passing a load when the power of the load is small. (Please see [Figure 1].) 2. A Diode and a Zener diode are used to suppress the DC passing a load when the power of the load is large, and is turned ON/OFF frequently. (Please see [Figure 2].)		
⑤	Incandescent lamp (resistive load)	⑥	Alternating-current power supply
⑦	Mutually exclusive output: For example, Y3 controls the clockwise rotation of a motor, and Y4 controls the counterclockwise rotation of the motor. The interlock circuit which is formed, and the program in the PLC ensure that there are protective measures if an abnormal condition occurs.		
⑧	Surge absorber: It can be used to reduce the noise produced by an AC load. (Please see [Figure 3].)		
⑨	Indicator: Neon lamp		

## 2. Wiring (NPN) transistor output terminals

### Applicable model:

DVP16EH00T3, DVP20EH00T3, DVP32EH00T3, DVP32EH00T3-L, DVP40EH00T3, DVP48EH00T3, DDVP64EH00T3, DVP80EH00T3

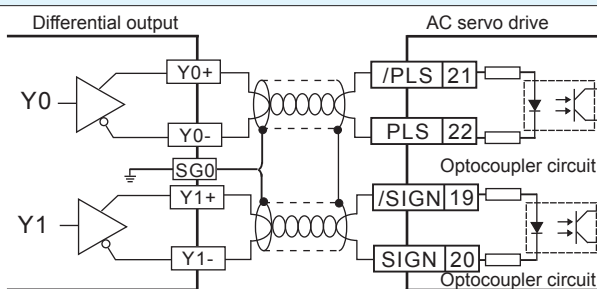


### 3. Wiring differential output terminals

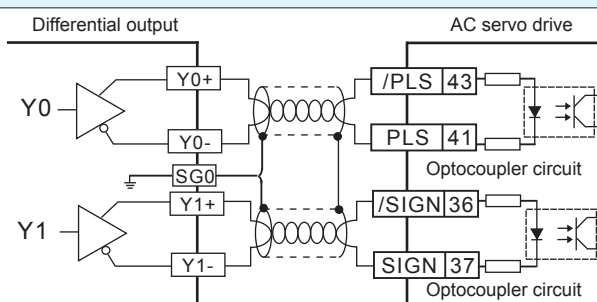
**Applicable model:**

DVP32EH00M3

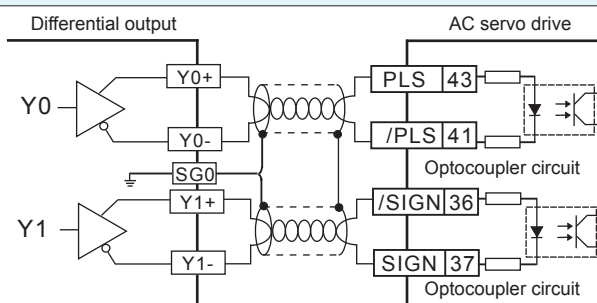
1. Connecting differential output terminals to an AC servo drive ASDA-A/ASDA-A+/ASDA-A2 series AC servo drive



2. Connecting differential output terminals to an AC servo drive ASDA-B series AC servo drive



3. Connecting differential output terminals to an AC servo drive ASDA-AB series AC servo drive



# Wiring

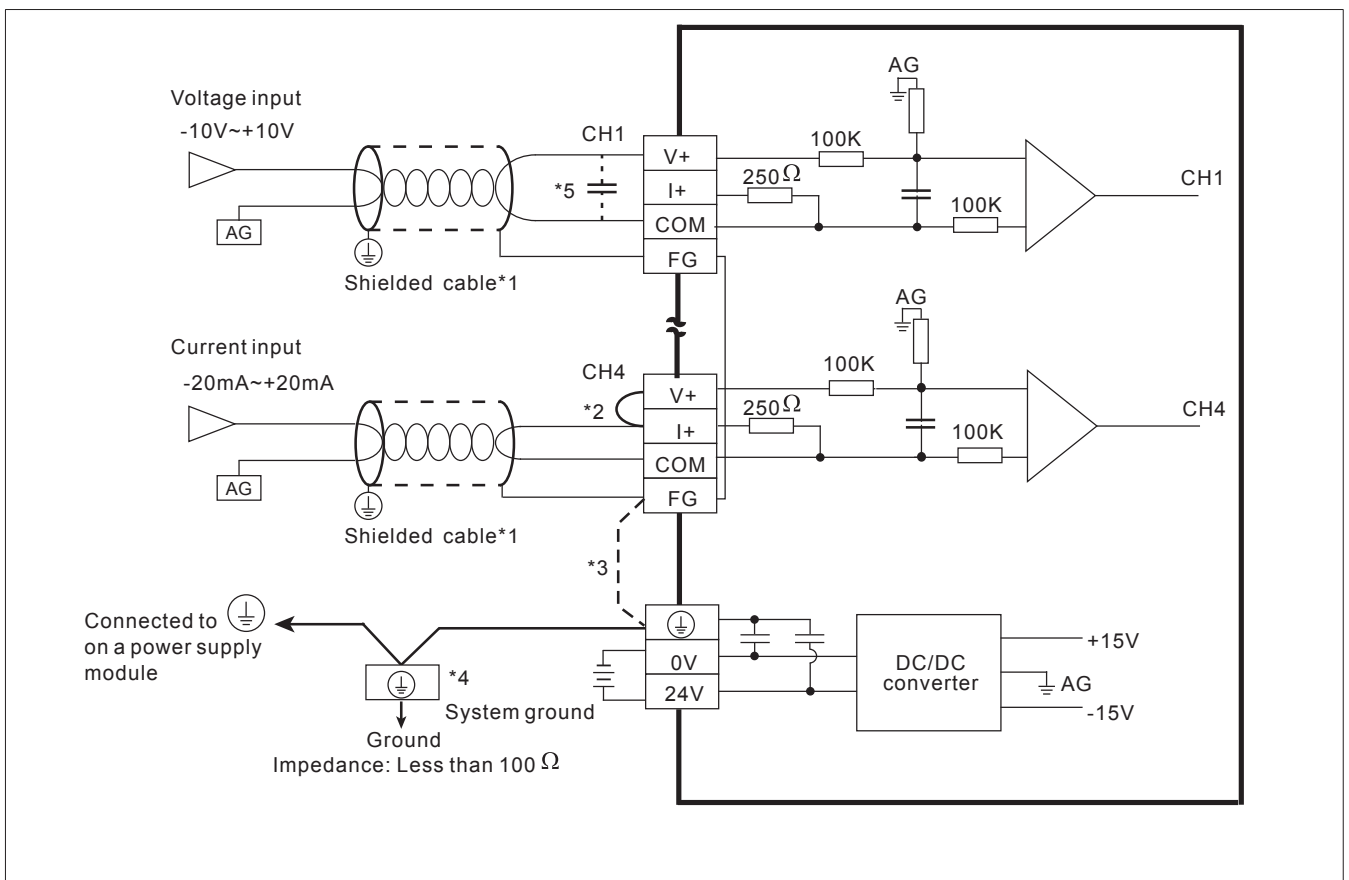
## ■ Analog Modules

Analog input module	DVP04AD-H2	DVP04AD-H3	DVP04DA-H3	DVP04DA-H2
Analog input/output module	DVP06XA-H2	DVP06XA-H3		

### Analog input module

#### Applicable model:

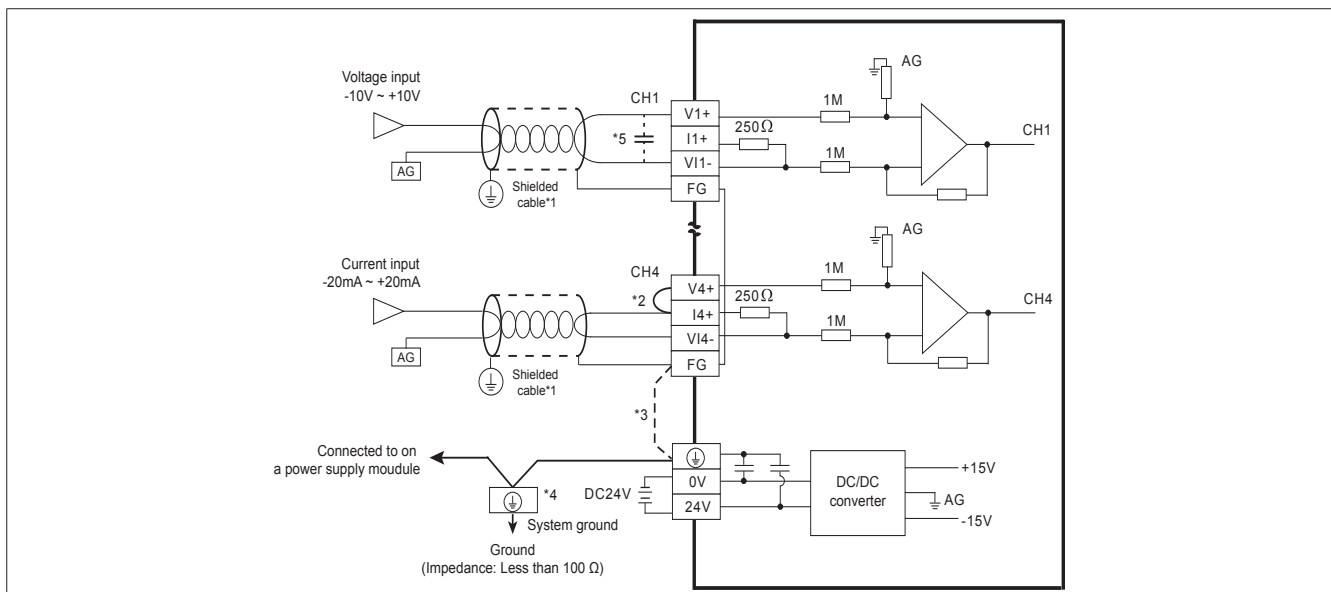
DVP04AD-H2



- \*1. Please isolate the analog input signal cables from other power cables.
  - \*2. If the module is connected to a current signal, the terminals V+ and I+ must be short-circuited.
  - \*3. If there is much noise, please connect the terminal FG to the ground terminal.
  - \*4. Please connect ⊕ on a power supply module and ⊕ on the analog input module to the system ground, and then ground the system ground or connect the system ground to a distribution box.
  - \*5. If a ripple is large for the input terminal of the load and results in the noise interference with the wiring, please connect the module to the capacitor having a capacitance in the range of 0.1 μF to 0.47 μF with a working voltage of 25V.
- Note: Please do not wire the terminal ●.**

**Applicable model:**

DVP04AD-H3

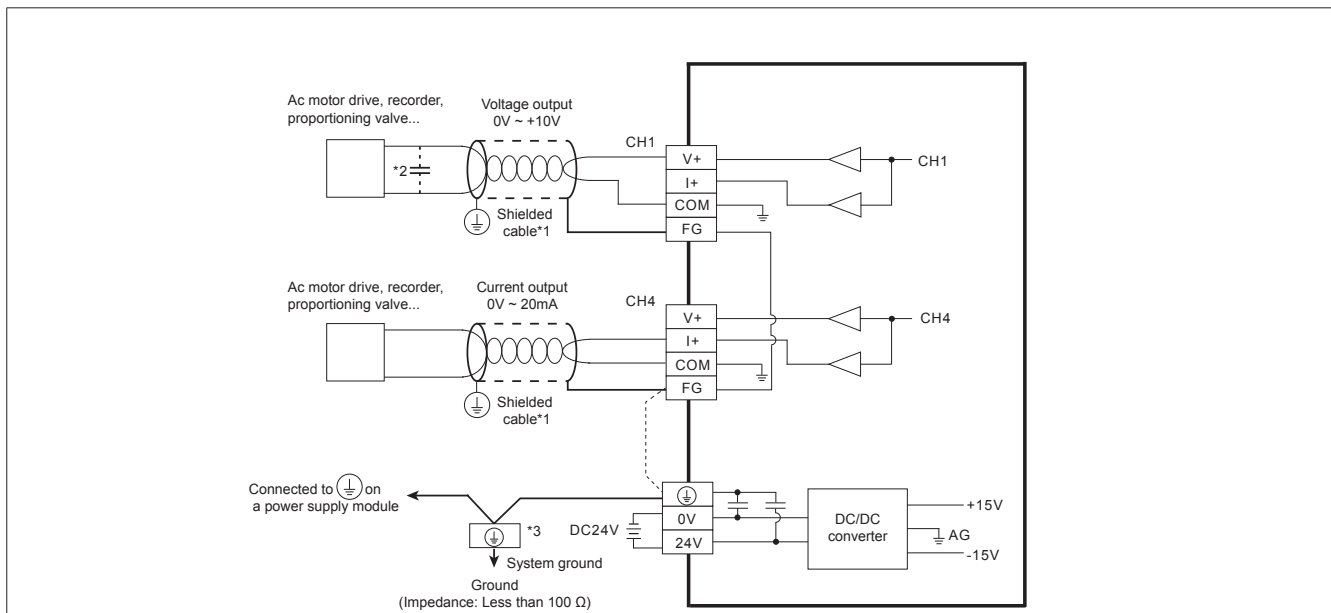


- \*1. Please isolate the analog input signal cables from other power cables.
- \*2. If the module is connected to a current signal, the terminals V4+ and I4+ must be short-circuited.
- \*3. If there is much noise, please connect the terminal FG to the ground terminal.
- \*4. Please connect Ⓧ on a power supply module and Ⓧ on the analog input module to the system ground, and then ground the system ground or connect the system ground to a distribution box.
- \*5. If a ripple is large for the input terminal of the load and results in the noise interference with the wiring, please connect the module to the capacitor having a capacitance in the range of 0.1 μF to 0.47 μF with a working voltage of 25V.

**Note:** Please do not wire the terminal.

**Applicable model:**

DVP04DA-H3, DVP04DA-H2



- \*1. Please isolate the analog output signal cables from other power cables.
- \*2. If a ripple is large for the input terminal of the load and results in the noise interference with the wiring, please connect the module to the capacitor having a capacitance in the range of 0.1 μF to 0.47 μF with a working voltage of 25V.
- \*3. Please connect Ⓧ on a power supply module and Ⓧ on the analog output module to the system ground, and then ground the system ground or connect the system ground to a distribution box.
- \*4. If there is much noise, please connect the terminal FG to the ground terminal.

**Note:** Please do not wire the terminal.

Control

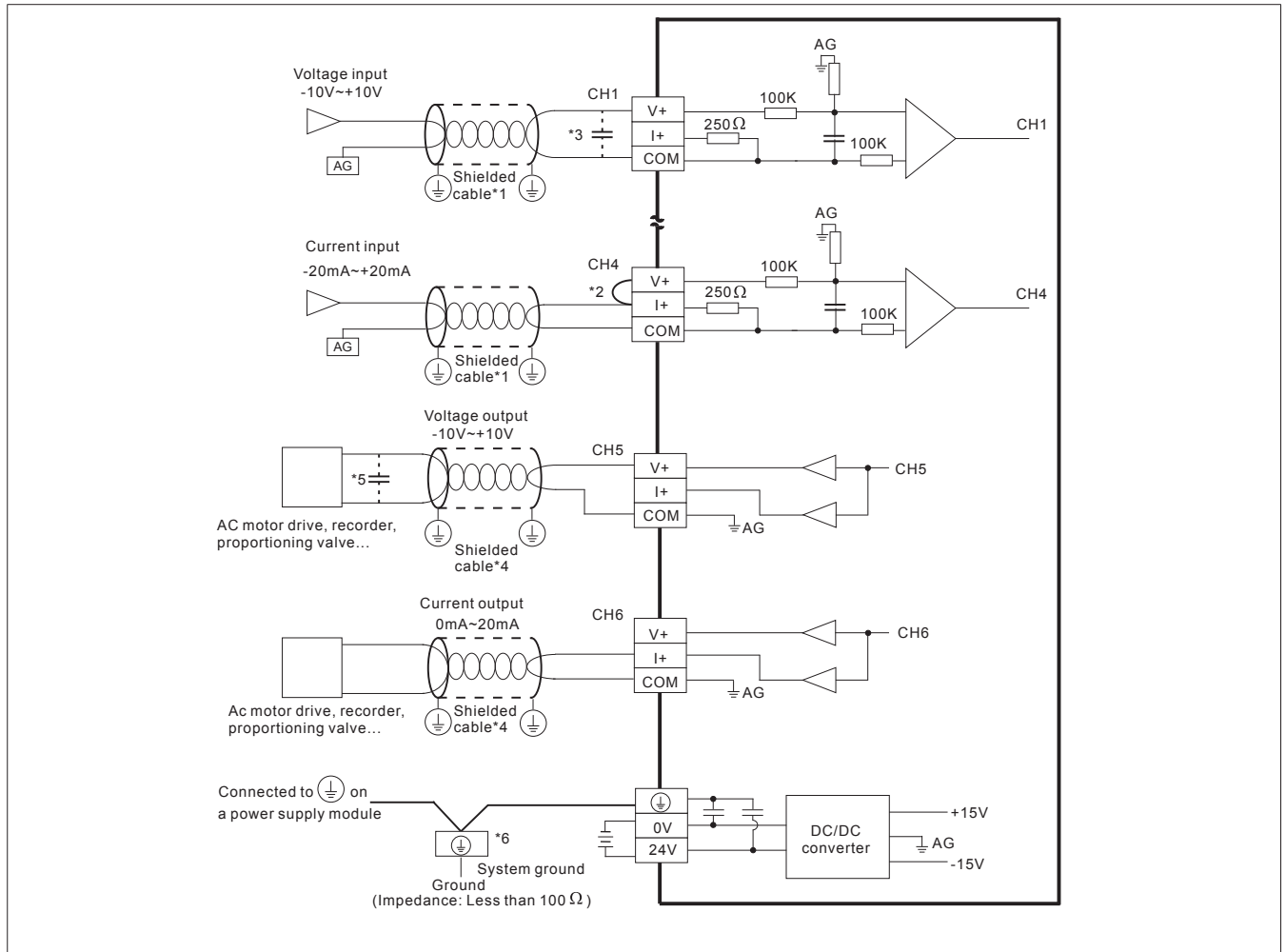


# Wiring

## Analog input / output module

### Applicable model:

DVP06XA-H2



\*1. Please isolate the analog input signal cables from other power cables.

\*2. If the module is connected to a current signal, the terminals V+ and I+ must be short-circuited.

\*3. If the ripple in the input voltage results in the noise interference with the wiring, please connect the module to the capacitor having a capacitance in the range of 0.1  $\mu$ F to 0.47  $\mu$ F with a working voltage of 25V.

\*4. Please isolate the analog output signal cables from other power cables.

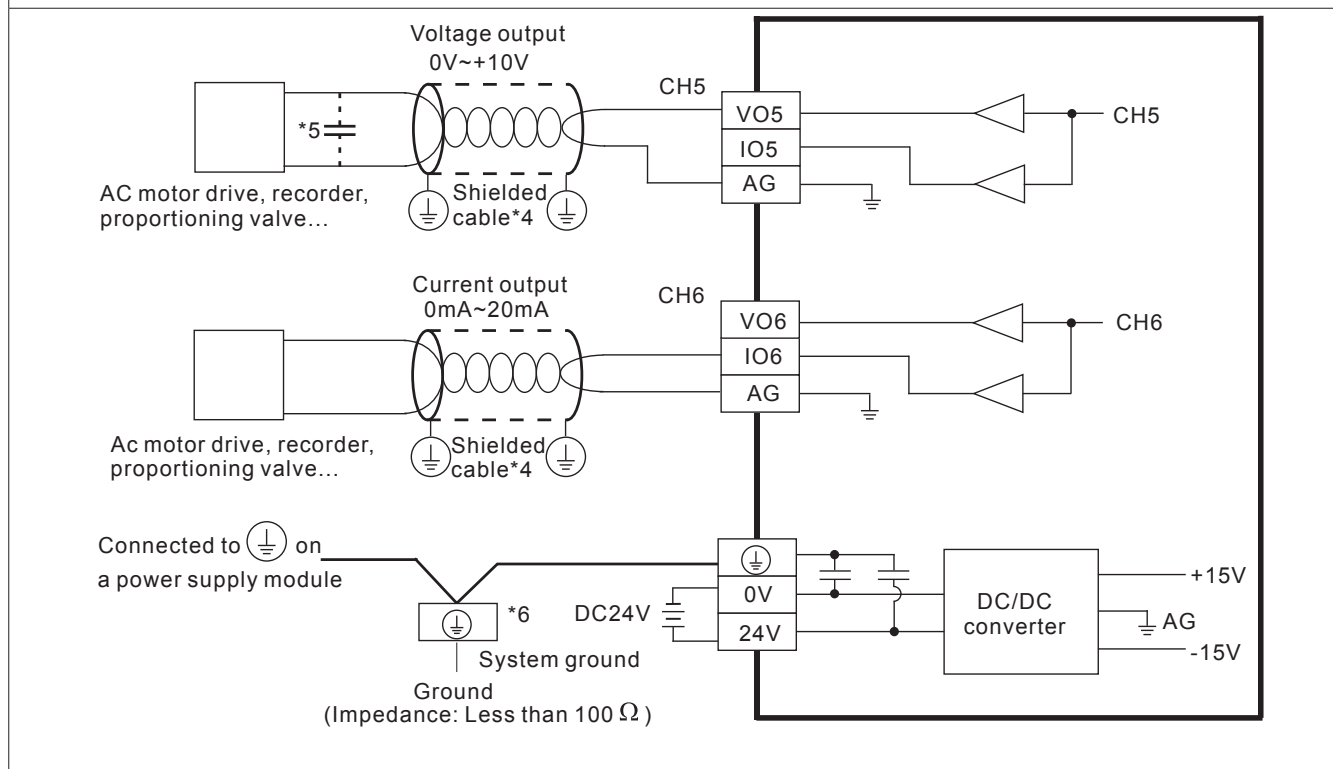
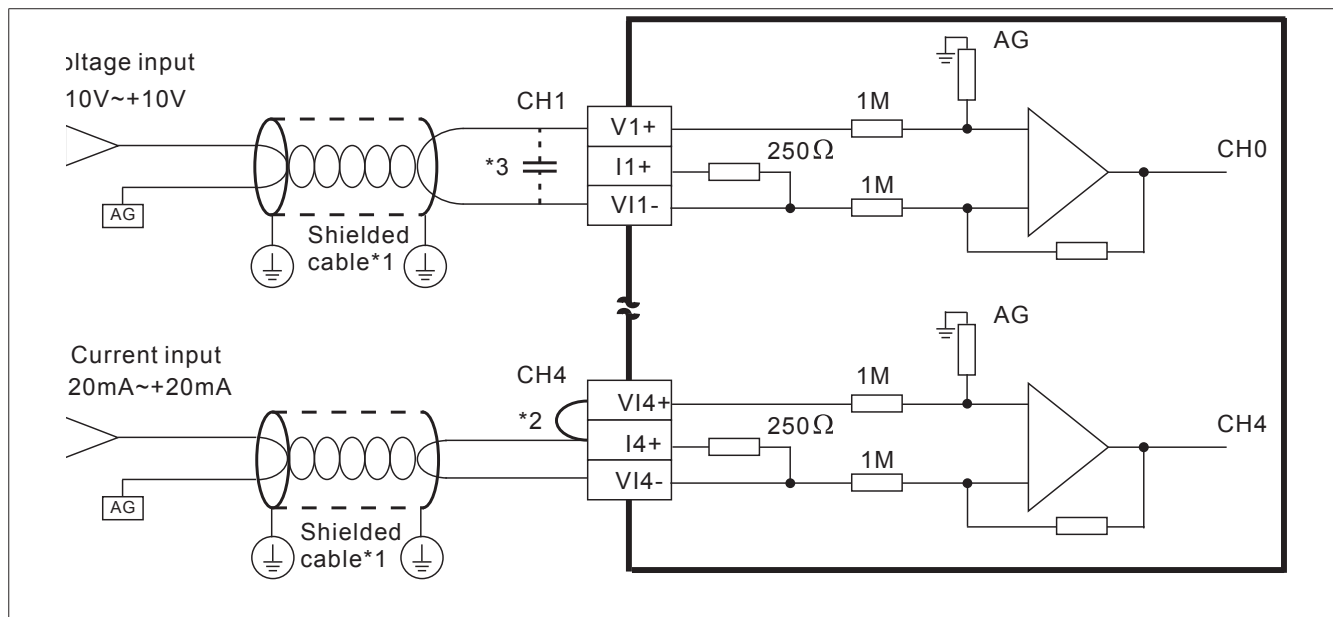
\*5. If a ripple is large for the input terminal of the load and results in the noise interference with the wiring, please connect the module to the capacitor having a capacitance in the range of 0.1  $\mu$ F to 0.47  $\mu$ F with a working voltage of 25V.

\*6. Please connect  $\oplus$  on a power supply module and  $\ominus$  on the module to the system ground, and then ground the system ground or connect the system ground to a distribution box.

**Note: Please do not wire the terminal.**

Applicable model:

DVP06XA-H3



- \*1. Please isolate the analog input signal cables from other power cables.
- \*2. If the module is connected to a current signal, the terminals V+ and I+ must be short-circuited.
- \*3. If the ripple in the input voltage results in the noise interference with the wiring, please connect the module to the capacitor having a capacitance in the range of 0.1  $\mu\text{F}$  to 0.47  $\mu\text{F}$  with a working voltage of 25V.
- \*4. Please isolate the analog output signal cables from other power cables.
- \*5. If a ripple is large for the input terminal of the load and results in the noise interference with the wiring, please connect the module to the capacitor having a capacitance in the range of 0.1  $\mu\text{F}$  to 0.47  $\mu\text{F}$  with a working voltage of 25V.
- \*6. Please connect  $\oplus$  on a power supply module and  $\ominus$  on the module to the system ground, and then ground the system ground or connect the system ground to a distribution box.

Note: Please do not wire the terminal.

# Wiring

## ■ Digital Input/Output Modules

DVP08HM11N	DVP16HM11N	DVP32HM11N	DVP08HN11R	DVP08HP11R
DVP16HP11R	DVP08HN11T	DVP08HP11T	DVP16HP11T	DVP32HN00R
DVP32HP00R	DVP48HP00R	DVP32HN00T	DVP32HP00T	DVP48HP00T

### A. Wiring input terminals

Wiring DC input terminals (NPN (Sink) and PNP (Source))

#### Applicable model:

The input terminals of all digital modules

NPN (Sink)	PNP (Source)
NPN (Sink)=The current flows into the common terminal S/S	PNP (Source)=The current flows from the common terminal S/S

### B. Wiring output terminals

B.1 Wiring relay output terminals

#### Applicable model:

DVP08HN11R, DVP08HP11R, DVP16HP11R, DVP32HN00R, DVP32HP00R, DVP48HP00R

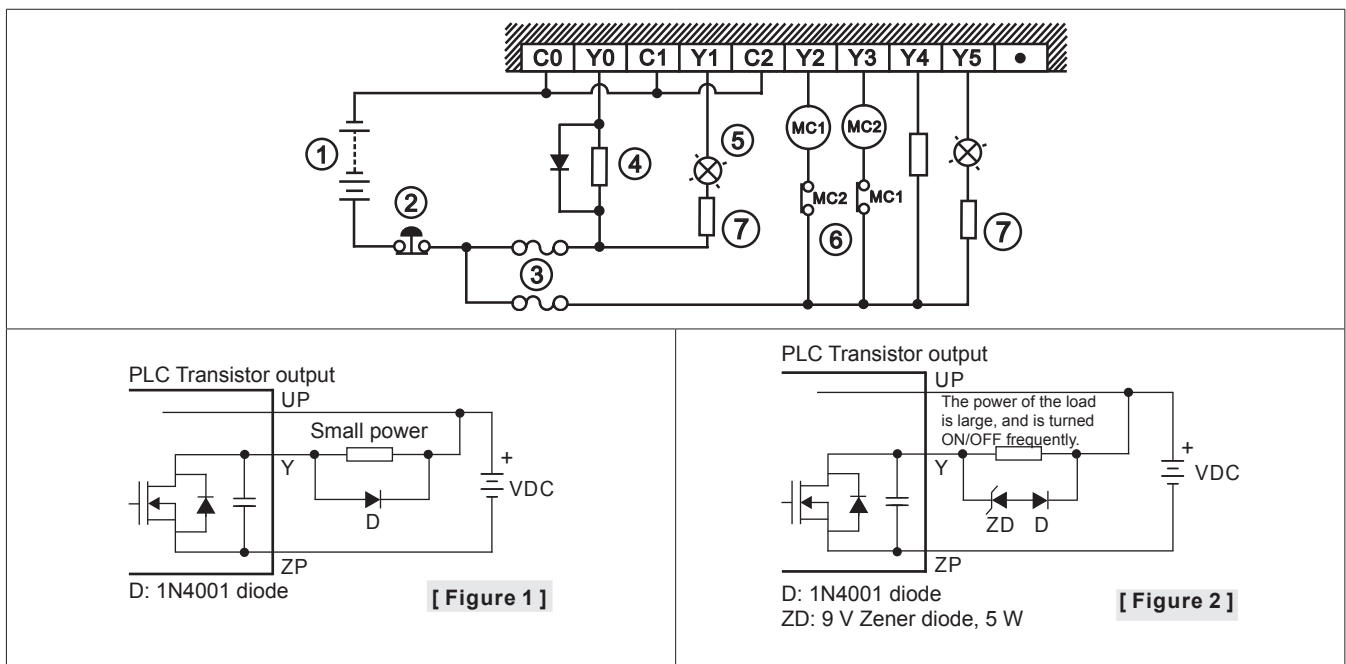
<p>PLC Relay output Y</p> <p>Small power</p> <p>D: 1N4001 diode</p>	<p>PLC Relay output Y</p> <p>The power of the load is large, and is turned ON/OFF frequently.</p> <p>D: 1N4001 diode ZD: 9 V Zener diode, 5 W</p>
<p>PLC Relay output Y</p> <p>AC load</p> <p>R: 100~120 Ω C: 0.1~0.24 μF</p>	

①	Direct-current power supply	②	Emergency stop: An external switch is used.
③	Fuse: To protect an output circuit, a fuse having a breaking capacity in the range of 5A to 10A is connected to a common terminal.		
④	Transient voltage suppression diode: It can be used to lengthen the lifespan that a contact has. 1.A Diode is used to suppress the DC passing a load when the power of the load is small. (Please see [Figure 1].) 2.A Diode and a Zener diode are used to suppress the DC passing a load when the power of the load is large, and is turned ON/OFF frequently. (Please see [Figure 2].)		
⑤	Incandescent lamp (resistive load)	⑥	Alternating-current power supply
⑦	Mutually exclusive output: For example, Y2 controls the clockwise rotation of a motor, and Y3 controls the counterclockwise rotation of the motor. The interlock circuit which is formed, and the program in the PLC ensure that there are protective measures if an abnormal condition occurs.		
⑧	Surge absorber: It can be used to reduce the noise produced by an AC load. (Please see [Figure 3].)		

B.2 Wiring transistor output terminals

**Applicable model:**

DVP08HN11T, DVP08HP11T, DVP16HP11T, DVP32HN00T, DVP32HP00T, DVP48HP00T



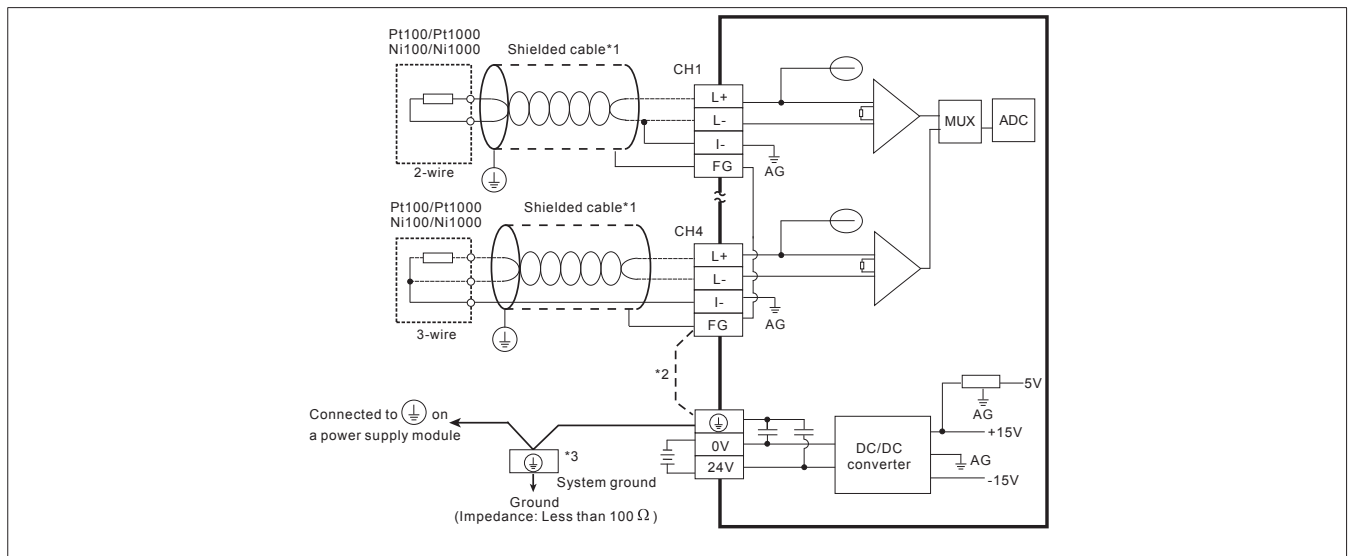
①	Direct-current power supply	②	Emergency stop	④	Fuse
④	The output terminals of a transistor module are open-collector output terminals. If Y0/Y1 is a pulse output terminal of a transistor module, the output current passing through the output pull-up resistor of the transistor module must be greater than 0.1 A to ensure that the transistor module operates normally. 1.A Diode is used to suppress the DC passing a load when the power of the load is small. (Please see [Figure 1].) 2.A Diode and a Zener diode are used to suppress the DC passing a load when the power of the load is large, and is turned ON/OFF frequently. (Please see [Figure 2].)				
⑤	Incandescent lamp (resistive load)				
⑥	Mutually exclusive output: For example, Y2 controls the clockwise rotation of a motor, and Y3 controls the counterclockwise rotation of the motor. The interlock circuit which is formed, and the program in the PLC ensure that there are protective measures if an abnormal condition occurs.				
⑦	If an incandescent lamp (resistive load) is driven, an NTC resistor needs to be connected in series				

# Wiring

## ■ Temperature Measurement Module (RTDs)

### Applicable model:

DVP04PT-H2



\*1. The cables connected to the input terminals should be the cables or the shielded twisted pair cables which can be connected to the temperature sensors, and should be kept separate from other power cables and cables which generate noise. To prevent impedance from affecting the result of measurement, a three-wire temperature sensor should be used. The torque applied to the screw terminals should be 1.95 kg-cm (1.7 in-lbs).

\*2. If there is much noise, please connect the terminal FG to the ground terminal.

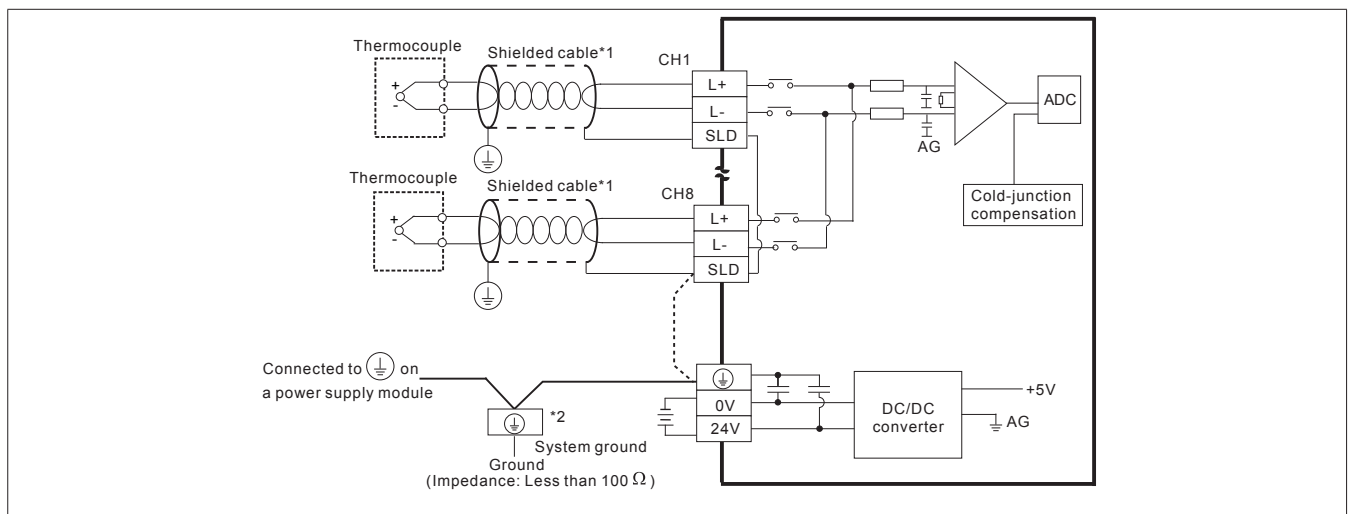
\*3. Please connect on a power supply module and on the temperature measurement module to the system ground, and then ground the system ground or connect the system ground to a distribution box.

**Note: Please do not wire the terminal. Only copper leads which can resist the heat above 60°C/75°C can be used.**

## ■ Temperature Measurement Module (Thermocouples)

### Applicable model:

DVP04TC-H2, DVP08TC-H2



\*1. The cables connected to the input terminals should be the cables or the shielded twisted pair cables which can be connected to Type J, type K, type R, type S, type T, type E, and type N thermocouples are used, and should be kept separate from other power cables and cables which generate noise. The torque applied to the screw terminals should be 1.95 kg-cm (1.7 in-lbs).

\*2. Please connect on a power supply module and on the temperature measurement module to the system ground, and then ground the system ground or connect the system ground to a distribution box.

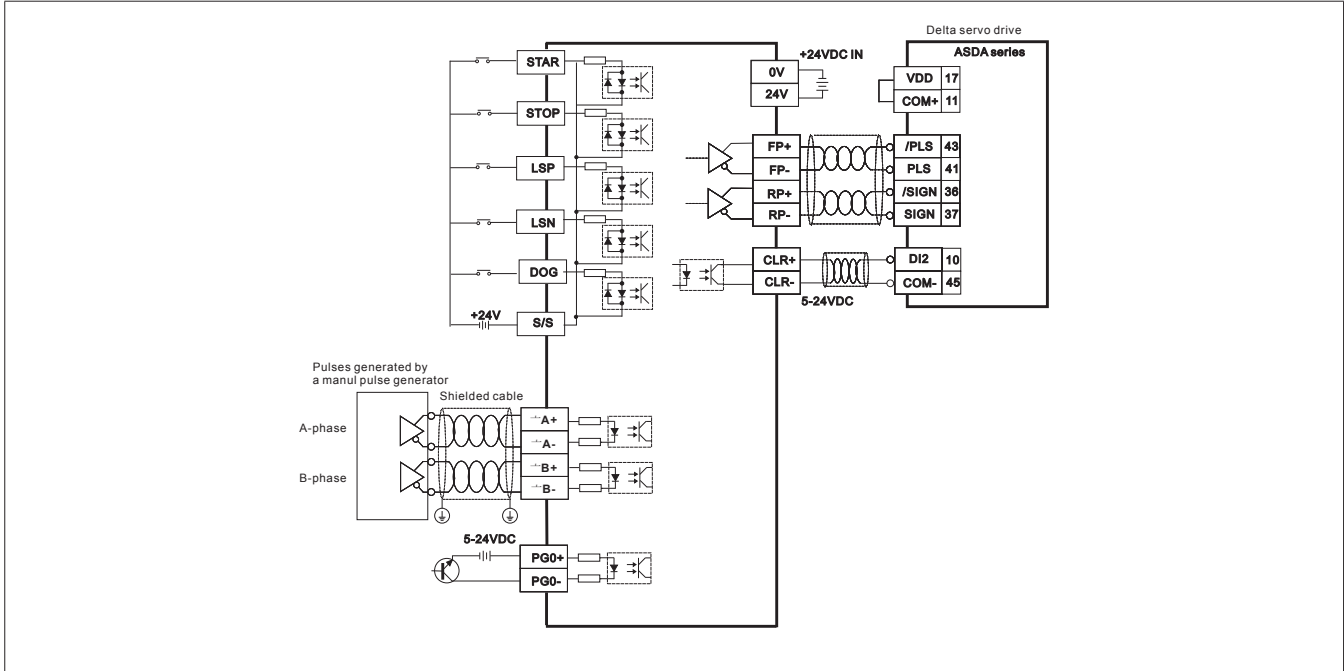
\*3. If there is much noise, please connect the terminal FG to the ground terminal.

**Note: Please do not wire the terminal. Only copper leads which can resist the heat above 60°C/75°C can be used.**

■ Position Control Module

Applicable model:

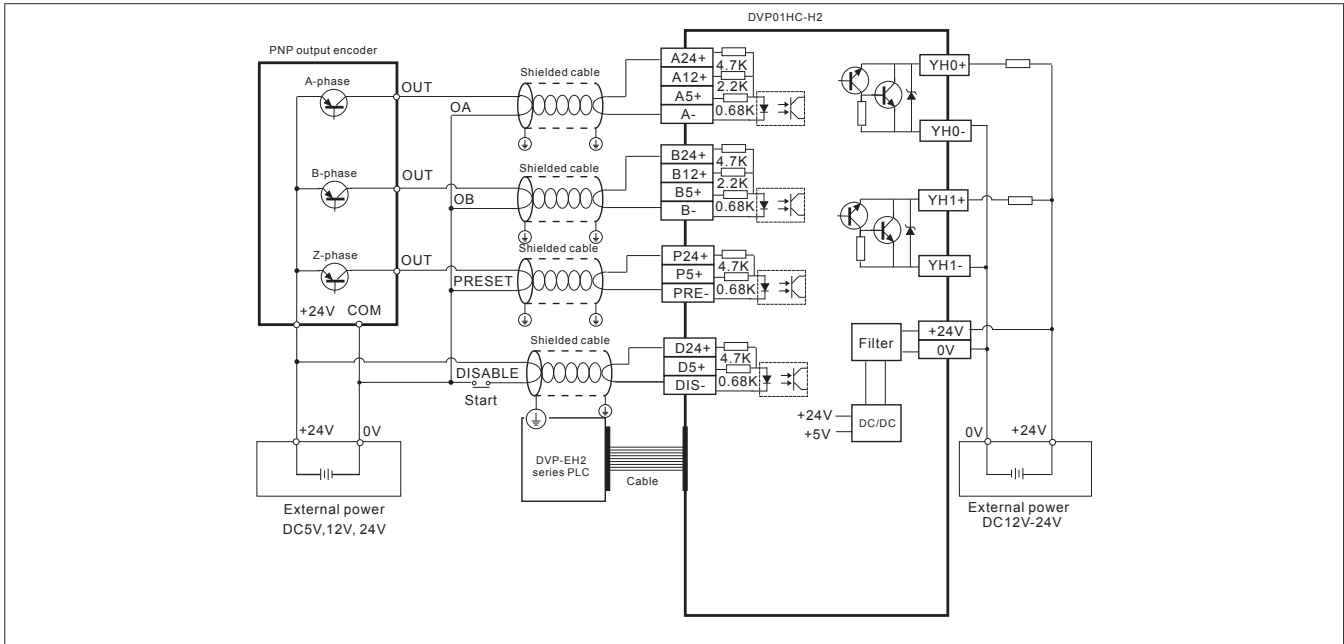
DVP01PU-H2



■ High-speed Counter Module

Applicable model:

DVP01HC-H2



Notes:

\*1. If an NPN output encoder is used, users have to note the polarities of the input terminals of DVP01HC-H2.

\*2. The inrush current drawn by DVP01HC-H2 when DVP01HC-H2 is turned on is 0.8 A. The maximum regular operating current of DVP01HC-H2 is 0.2A. (The voltage of the power input is +24V.)

# Wiring

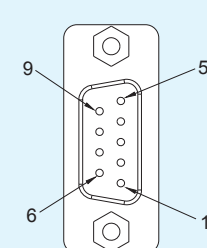
## ■ Communication Modules

### Applicable model:

DVPPF02-H2

### Definitions of the pins in a PROFIBUS-DP connector

Pin	Name	Description
1, 2	-	N/C
3	Rxd/Txd-P	Receiving/Transmitting data (P (B))
4	-	N/C
5	DGND	Signal ground
6	VP	Supply voltage (positive voltage)
7	-	N/C
8	Rxd/Txd-N	Receiving/Transmitting data (N (A))
9	-	N/C

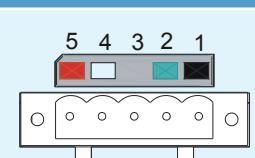


### Applicable model:

DVPDT02-H2

### Definitions of the pins in a DeviceNet connector

Pin	Signal	Color	Description
1	V-	Black	0V <sub>DC</sub>
2	CAN_L	Blue	Signal (negative pole)
3	SHIELD	-	Shield
4	CAN_H	White	Signal (positive pole)
5	V+	Red	24V <sub>DC</sub>

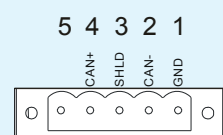


### Applicable model:

DVPCP02-H2

### CANopen connector

Pin	Signal	Description
1	GND	GND
2	CAN_L	Signal (negative pole)
3	SHLD	Shielded cable
4	CAN_H	Signal (positive pole)
5	-	Reserved

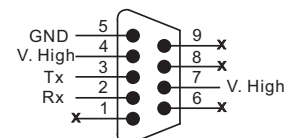


## ■ Function Card

### 1. Applicable model:

DVP-F232 (male DB-9 connector)

### Definitions of the pins in a PROFIBUS-DP connector



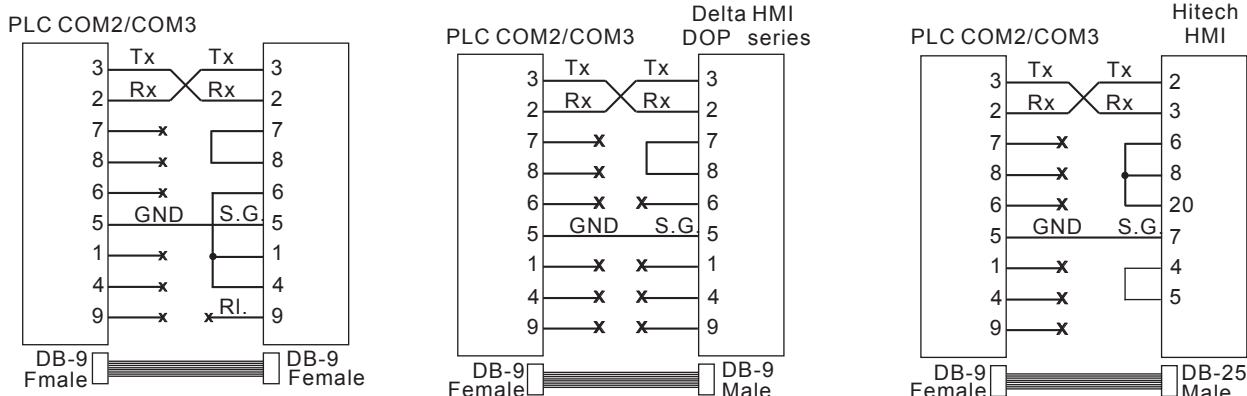
V. High: High potential, i.e. logic 1

\*1. The cables connected to the input terminals should be the cables or the shielded twisted pair cables which can be connected to Type J, type K, type R, type S, type T, type E, and type N thermocouples are used, and should be kept separate from other power cables and cables which generate noise. The torque applied to the screw terminals should be 1.95 kg-cm (1.7 in-lbs).

\*2. Please connect ⊕ on a power supply module and ⊕ on the temperature measurement module to the system ground, and then ground the system ground or connect the system ground to a distribution box.

**Note:** Please do not wire the terminal ⊕. Only copper leads which can resist the heat above 60°C/75°C can be used.

Examples of slave modes



2. Applicable model:

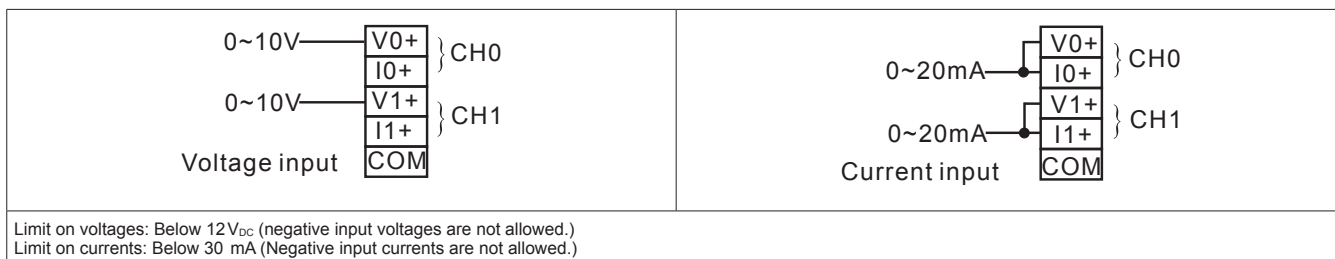
DVP-F422

Signal	Description
Tx+	Transmitting data (positive pole)
Tx-	Transmitting data (negative pole)
Rx+	Receiving data (positive pole)
Rx-	Receiving data (negative pole)

GND	Rx-	Rx+	Tx-	Tx+
-----	-----	-----	-----	-----

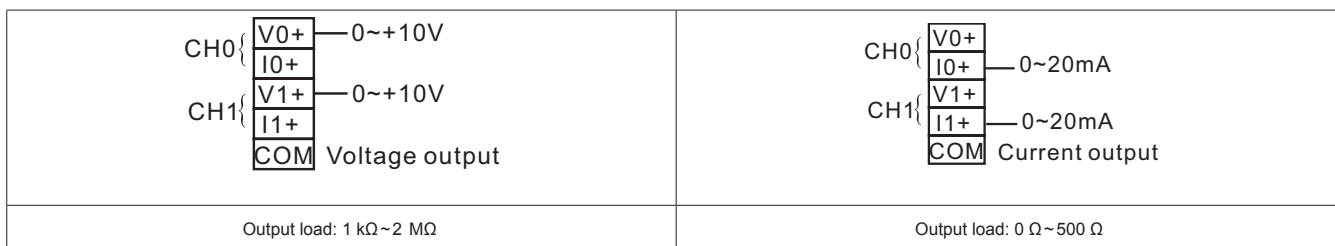
3. Applicable model:

DVP-F2AD



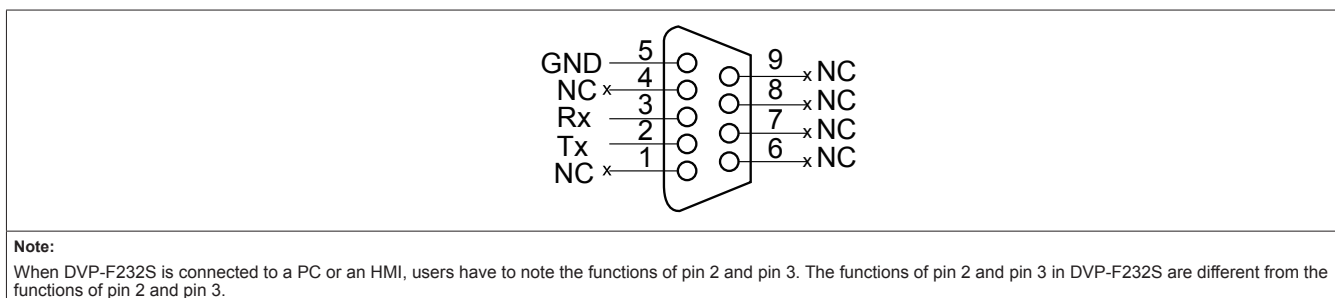
4. Applicable model:

DVP-F2DA



5. Applicable model:

DVP-F232S (female DB-9 connector)






# Wiring

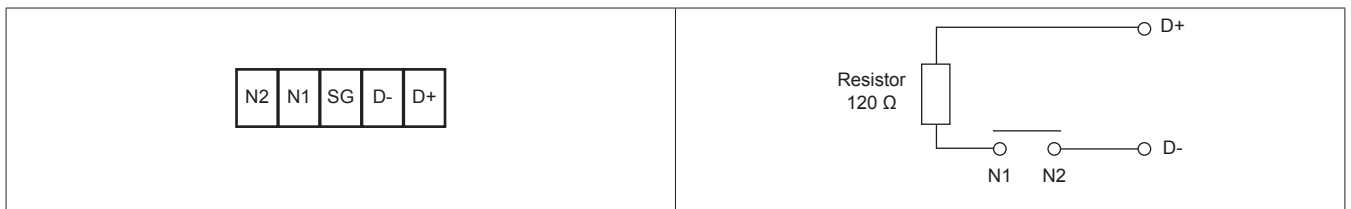
## 6. Applicable model:

DVP-F485S (Only for DVP-EH2 series)

Signal	Description	
D+	Signal (positive pole)	
D-	Signal (negative pole)	

## 7. Applicable model:

DVP-F485 (only for DVP-EH3 series PLCs)



## DVP Series Slim PLC

Series	Model
DVP-SS2	DVP14SS211R, DVP14SS211T, DVP12SS211S
DVP-SA2	DVP12SA211R, DVP12SA211T
DVP-SX	DVP10SX11R, DVP10SX11T
DVP-SX2	DVP20SX211R, DVP20SX211S, DVP20SX211T
DVP-SE	DVP12SE11R, DVP12SE11T
DVP-SV2	DVP28SV11R2, DVP28SV11T2, DVP28SV11S2, DVP24SV11T2

### ■ Wiring Input Terminals (NPN (Sink) and PNP (Source))

**Applicable model:**

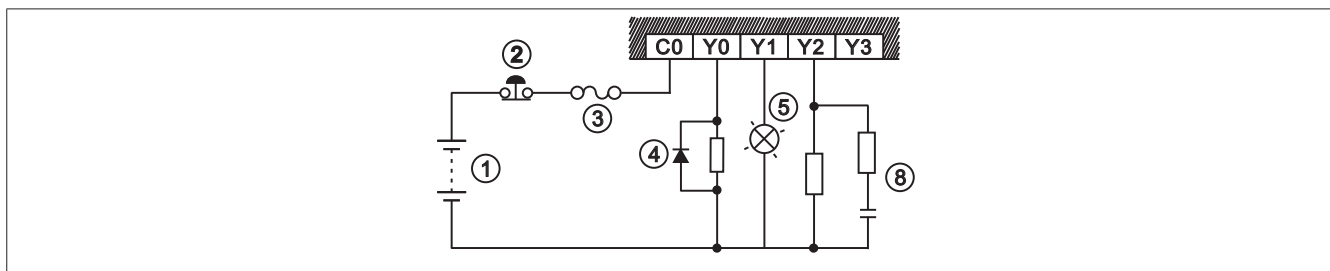
All slim PLCs

NPN (Sink)	PNP (Source)
NPN (Sink)=The current flows into the common terminal S/S	PNP (Source)=The current flows from the common terminal S/S

### Wiring Relay Output Terminals

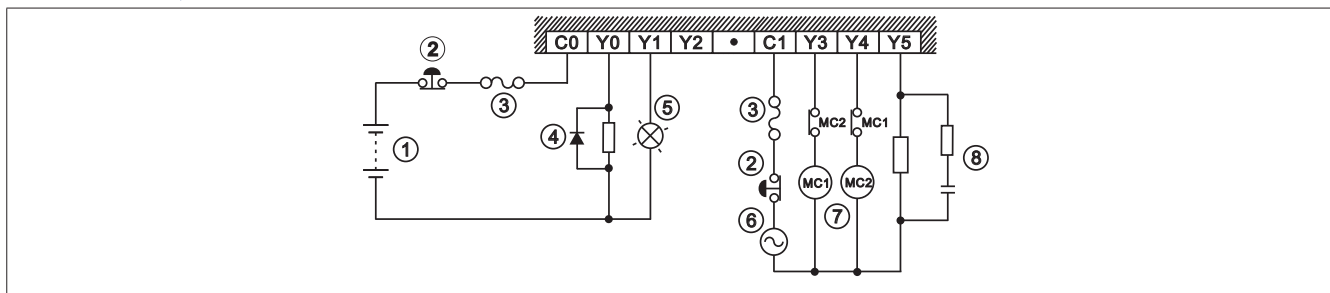
**Applicable model:**

DVP12SA211R, DVP12SE11R



**Applicable model:**

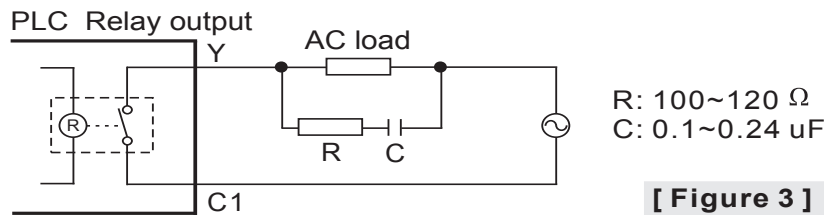
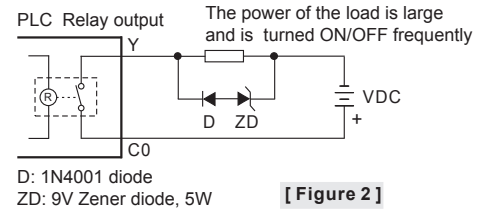
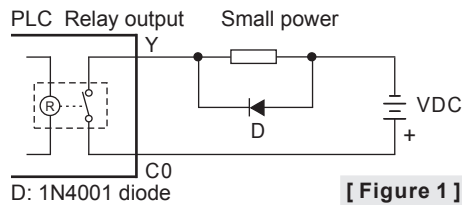
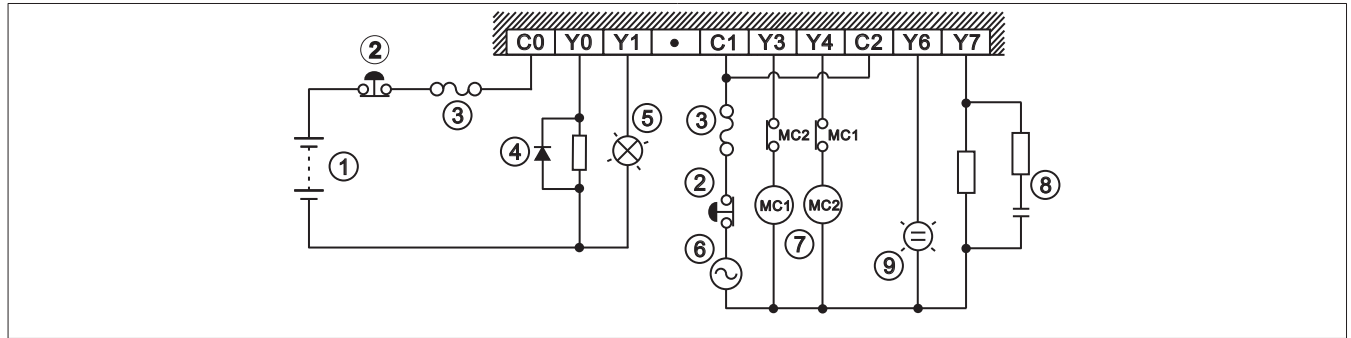
DVP14SS211R, DVP20SX211R



# Wiring

## Applicable model:

DVP28SV11R2



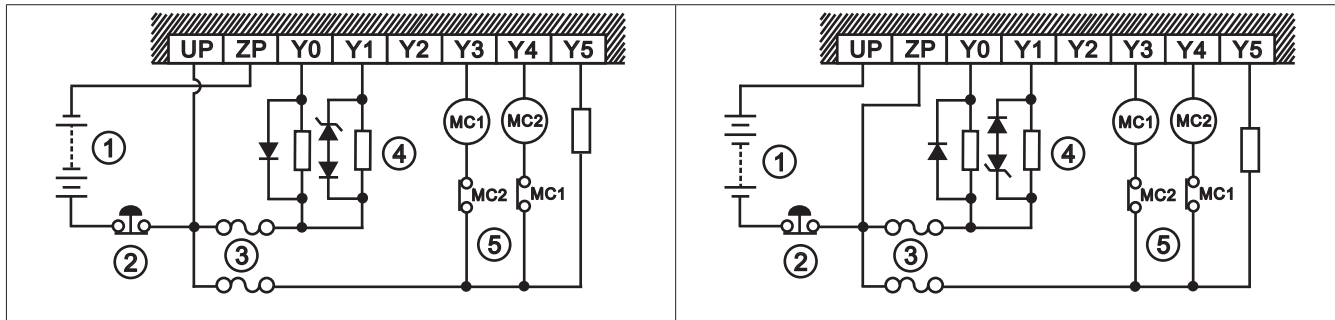
①	Direct-current power supply	②	Emergency stop: An external switch is used.
③	Fuse: To protect an output circuit, a fuse having a breaking capacity in the range of 5A to 10A is connected to a common terminal.		
④	Transient voltage suppression diode: It can be used to lengthen the lifespan that a contact has. 1. A Diode is used to suppress the DC passing a load when the power of the load is small. (Please see [Figure 1].) 2. A Diode and a Zener diode are used to suppress the DC passing a load when the power of the load is large, and is turned ON/OFF frequently. (Please see [Figure 2].)		
⑤	Incandescent lamp (resistive load)	⑥	Alternating-current power supply
⑦	Mutually exclusive output: For example, Y3 controls the clockwise rotation of a motor, and Y4 controls the counterclockwise rotation of the motor. The interlock circuit which is formed, and the program in the PLC ensure that there are protective measures if an abnormal condition occurs.		
⑧	Surge absorber: It can be used to reduce the noise produced by an AC load. (Please see [Figure 3].)		
⑨	Indicator: Neon lamp		

■ Wiring Transistor Output Terminals

Transistor output (NPN)	Transistor output (PNP)
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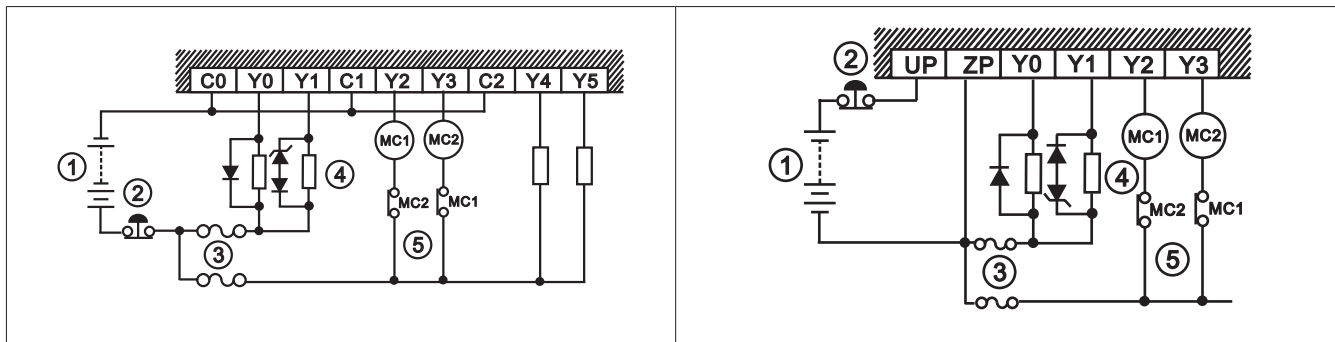
**Applicable model:**  
DVP14SS211T, DVP20SX211T

**Applicable model:**  
DVP20SX211S



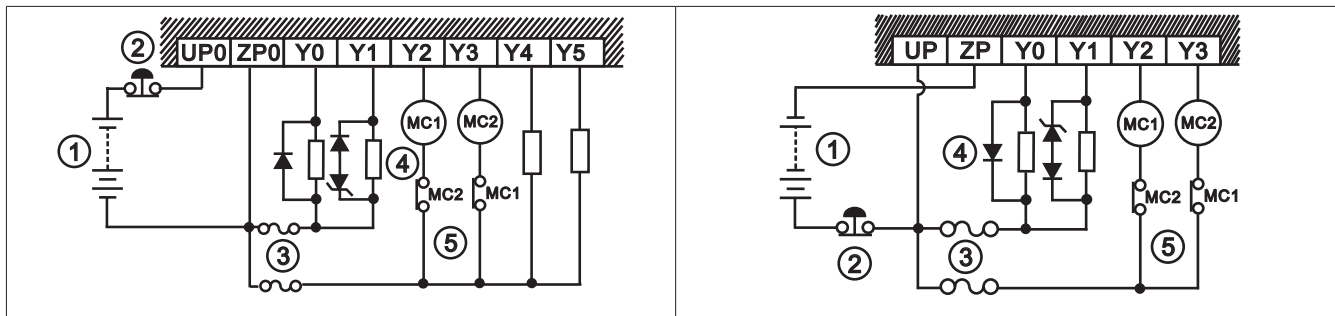
**Applicable model:**  
DVP24SV11T2

**Applicable model:**  
DVP12SS211S



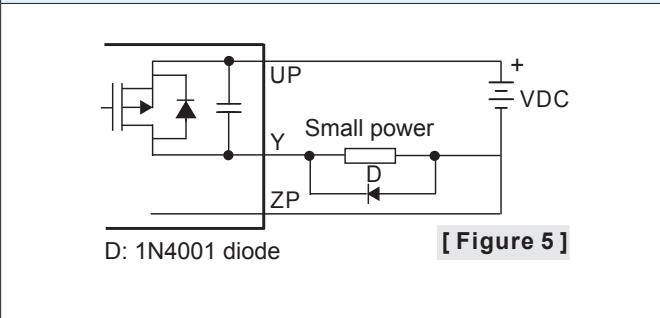
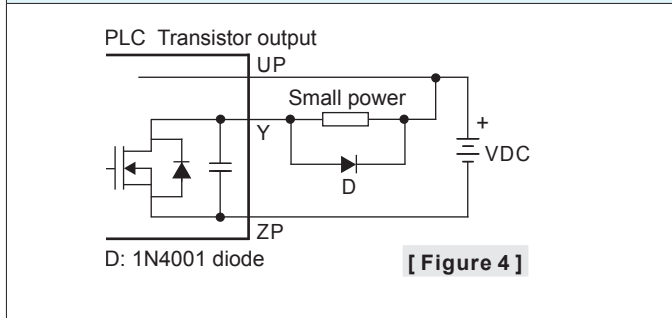
**Applicable model:**  
DVP12SA211T, DVP12SE11T

**Applicable model:**  
DVP28SV11S2



Description of transistor output circuits

Transistor output (NPN)	Transistor output (PNP)
-------------------------	-------------------------



# Wiring

Transistor output (NPN)	Transistor output (PNP)
<p>D: 1N4001 diode ZD: 9V Zener diode, 5W</p> <p style="text-align: right;"><b>[ Figure 6 ]</b></p>	<p>D: 1N4001 diode ZD: 9V Zener diode, 5W</p> <p style="text-align: right;"><b>[ Figure 7 ]</b></p>

### Applicable model:

DVP28SV11T, DVP28SV11T2

<p>D: 1N4001 diode</p> <p style="text-align: right;"><b>[ Figure 8 ]</b></p>	<p>D: 1N4001 diode ZD: 9V Zener diode, 5W</p> <p style="text-align: right;"><b>[ Figure 9 ]</b></p>
--	---

①	Direct-current power supply	②	Emergency stop	④	Fuse
④	<p>Transient voltage suppression diode: It can be used to lengthen the lifespan that a contact has.</p> <p>1.A Diode is used to suppress the DC passing a load when the power of the load is small. (Please see [Figure 4] and [Figure 5].) (Please see [Figure 8] for more information about wiring DVP28SV11T/DVP28SV11T2.)</p> <p>2.A Diode and a Zener diode are used to suppress the DC passing a load when the power of the load is large, and is turned ON/OFF frequently. (Please see [Figure 6] and [Figure 7].) (Please see [Figure 9] for more information about wiring DVP28SV11T/DVP28SV11T2.)</p>				
⑤	<p>Mutually exclusive output: For example, Y3 controls the clockwise rotation of a motor, and Y4 controls the counterclockwise rotation of the motor. The interlock circuit which is formed, and the program in the PLC ensure that there are protective measures if an abnormal condition occurs.</p>				

## ■ Wiring Analog Output

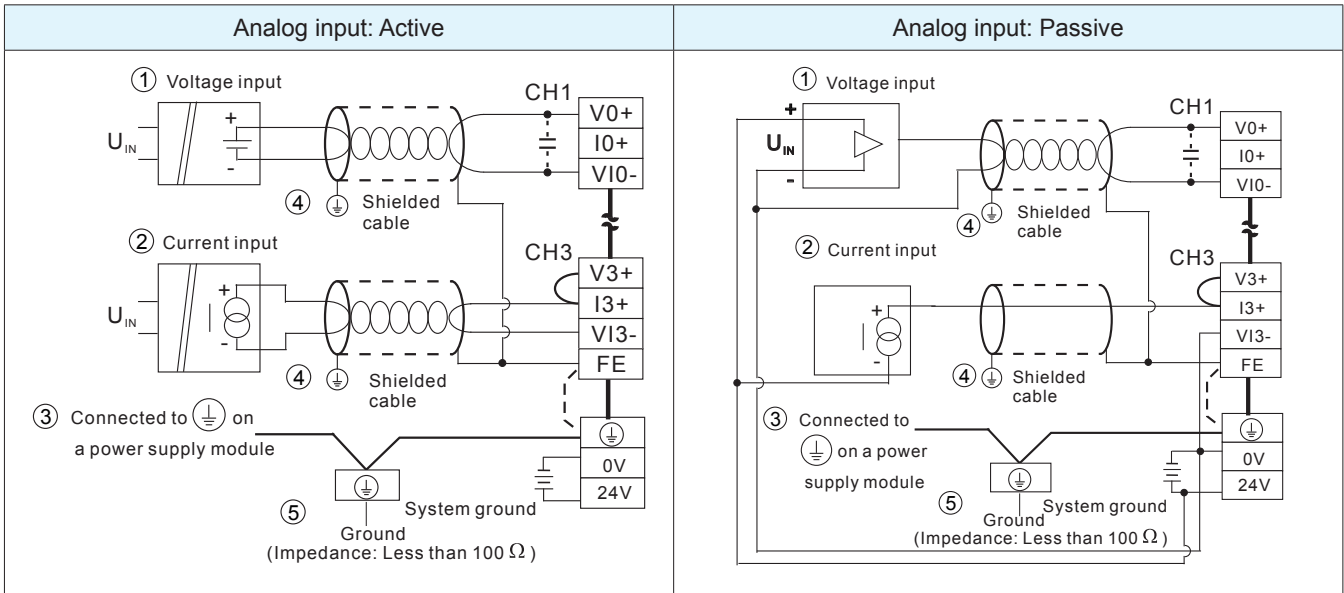
### Applicable model:

DVP12SS211S

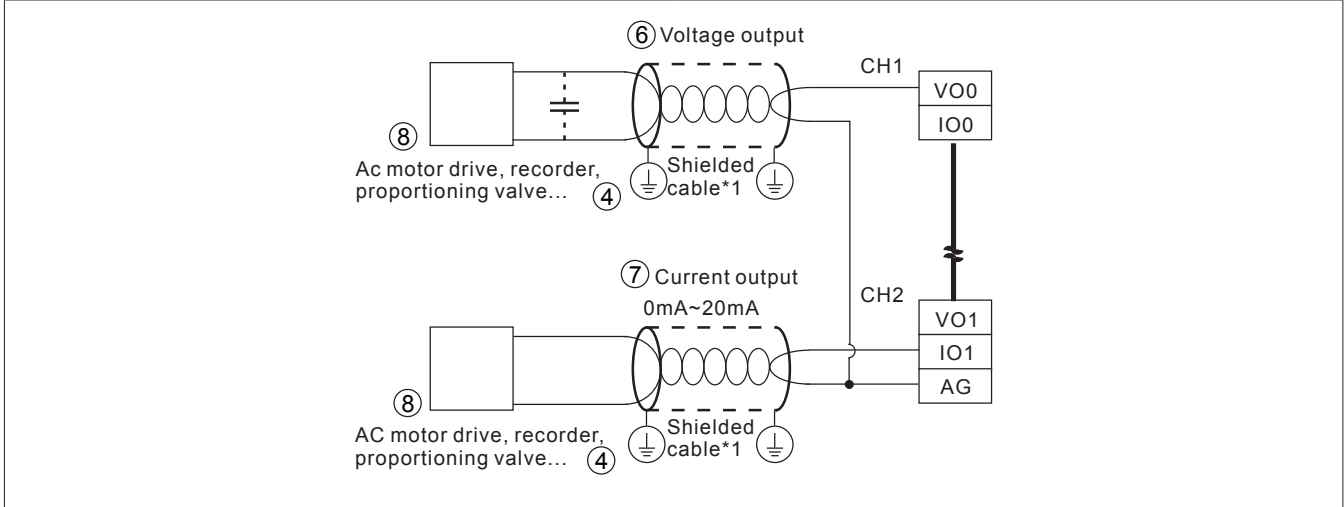
	Item	Specifications
<p>VR is connected to Rin parallel The impedance is about 1.46kΩ</p>	DA range	0~10V <sub>DC</sub>
	Value range	0~100
	Resolution*1	0.1V (1~9V)
	Output impedance	2kΩ
	Minimum load	1.5kΩ
	D/A conversion time	<70ms

\*1. 1V~9V is a linear area. The resolution is 0.1V. 0V~1V and 9V~10V are nonlinear areas. The output probably cannot reach the voltage set.

■ Wiring the Analog Input/Output Terminals of a DVP-SX2 Series PLC



Analog output

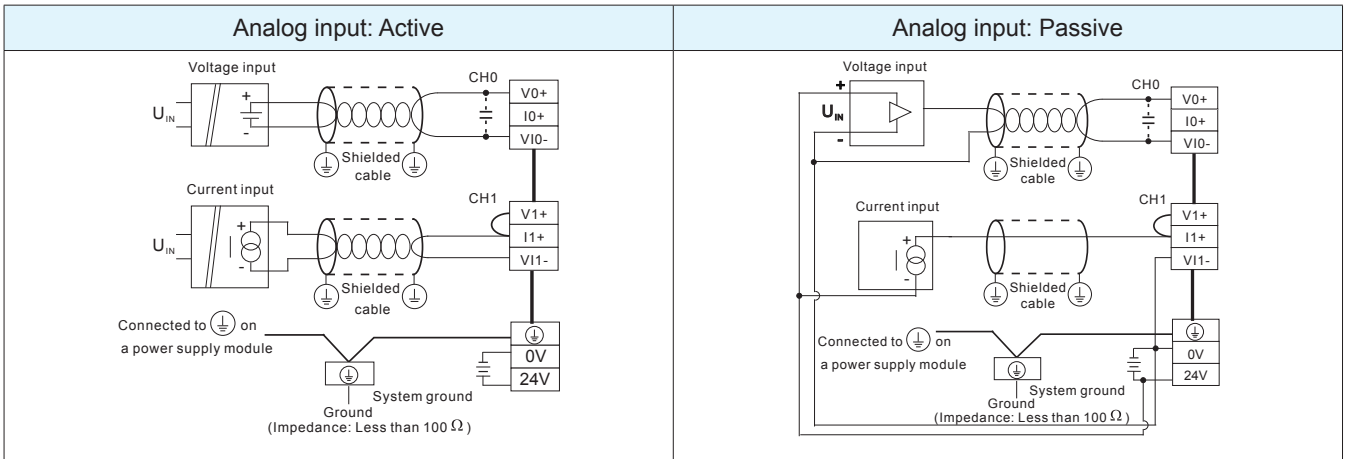


①	Voltage input	②	Current input
③	Connected to Ⓧ on a power supply module	④	Shielded cable
⑤	Third ground (Impedance: Less than 100 Ω)	⑥	Voltage output
⑦	Current output	⑧	AC motor drive, recorder, proportioning valve...

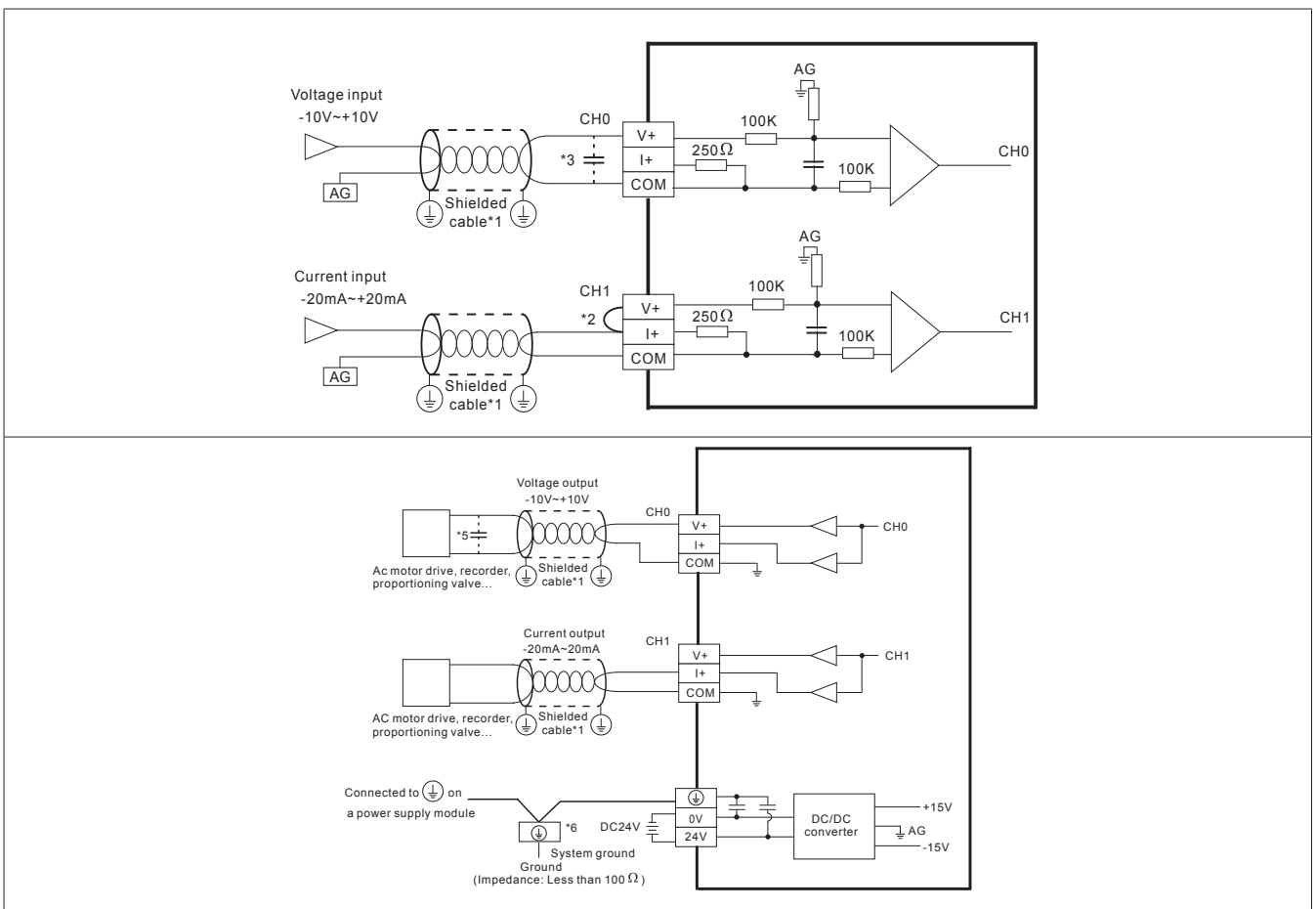
Note: If a module is connected to a current signal, the terminals V+ and I+ must be short-circuited.

# Wiring

## ■ Wiring the Analog Input Terminals of DVP24SV11T2



## ■ Wiring the Analog Input/Output Terminals of a DVP-SX Series PLC



- \*1. Please isolate the analog input signal cables from other power cables.
- \*2. If the module is connected to a current signal, the terminals V+ and I+ must be short-circuited.
- \*3. If the ripple in the input voltage results in the noise interference with the wiring, please connect the module to the capacitor having a capacitance in the range of 0.1  $\mu\text{F}$  to 0.47  $\mu\text{F}$  with a working voltage of 25V.
- \*4. Please isolate the analog output signal cables from other power cables.
- \*5. If a ripple is large for the input terminal of the load and results in the noise interference with the wiring, please connect the module to the capacitor having a capacitance in the range of 0.1  $\mu\text{F}$  to 0.47  $\mu\text{F}$  with a working voltage of 25V.
- \*6. Please connect  $\oplus$  on a power supply module and  $\ominus$  on the module to the system ground, and then ground the system ground or connect the system ground to a distribution box.

**Note: Please do not wire the terminal.**

## ■ Analog Modules

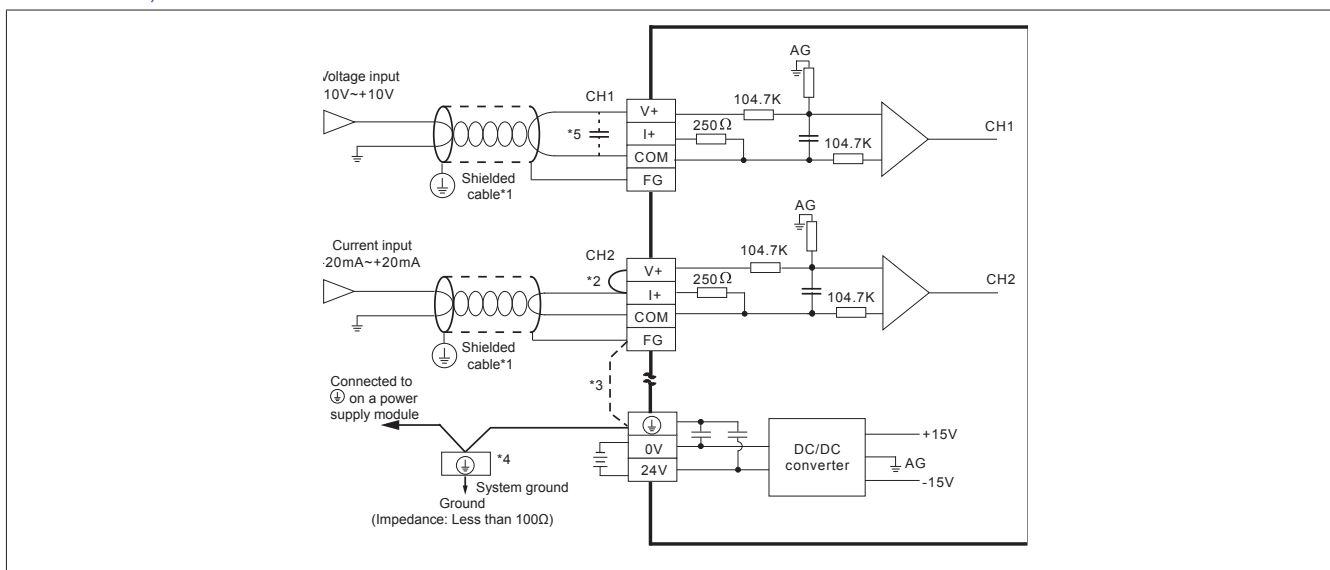
### Applicable model:

DVP04AD-S	DVP06AD-S	DVP02DA-S	DVP06XA-S
DVP04AD-SL	DVP04DA-SL	DVP04AD-S2	DVP04DA-S2
DVP06XA-S2			

### Wiring Analog Modules

#### 1. Applicable model:

DVP04AD-S, DVP06AD-S



\*1. Please isolate the analog input signal cables from other power cables.

\*2. If a current signal is connected, the connection between V+ and I+ (the connection between V4+ and I4+) needs to be a short circuit.

\*3. If there is much noise, please connect the terminal FG to the ground terminal.

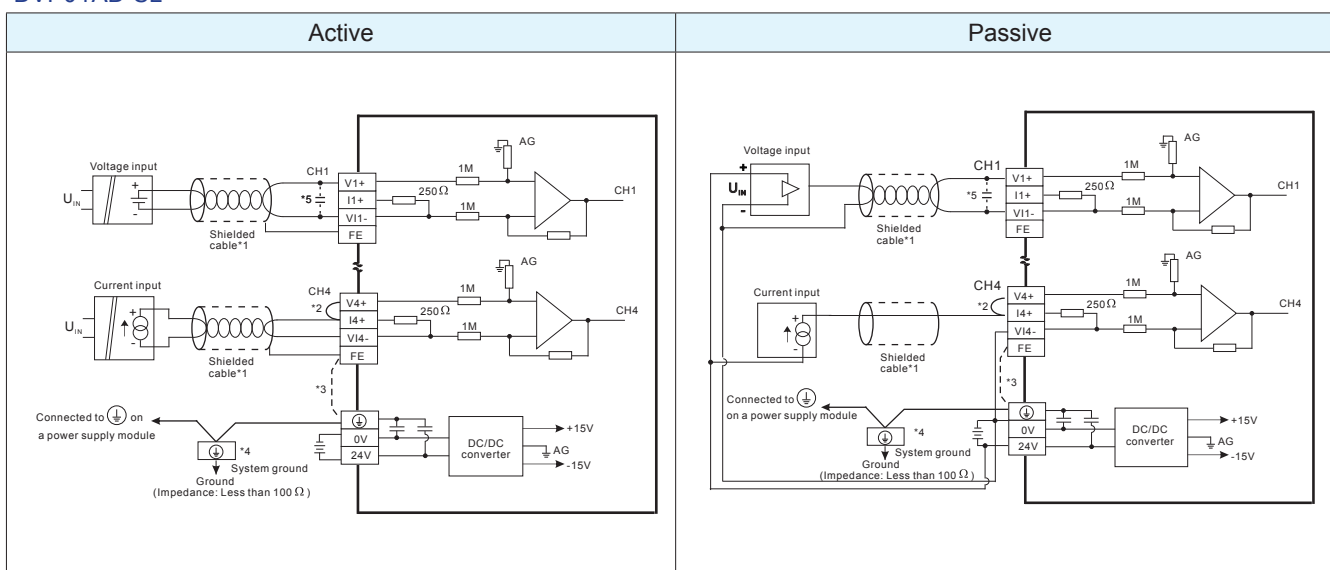
\*4. Please connect ⊕ on a power supply module and ⊕ on the module to the system ground, and then ground the system ground or connect the system ground to a distribution box.

\*5. If ripple voltage results in interference with the wiring, please connect a 0.1~0.47 μF and 25V capacitor.

**Note: Please do not wire the terminal.**

#### 2. Applicable model:

DVP04AD-SL

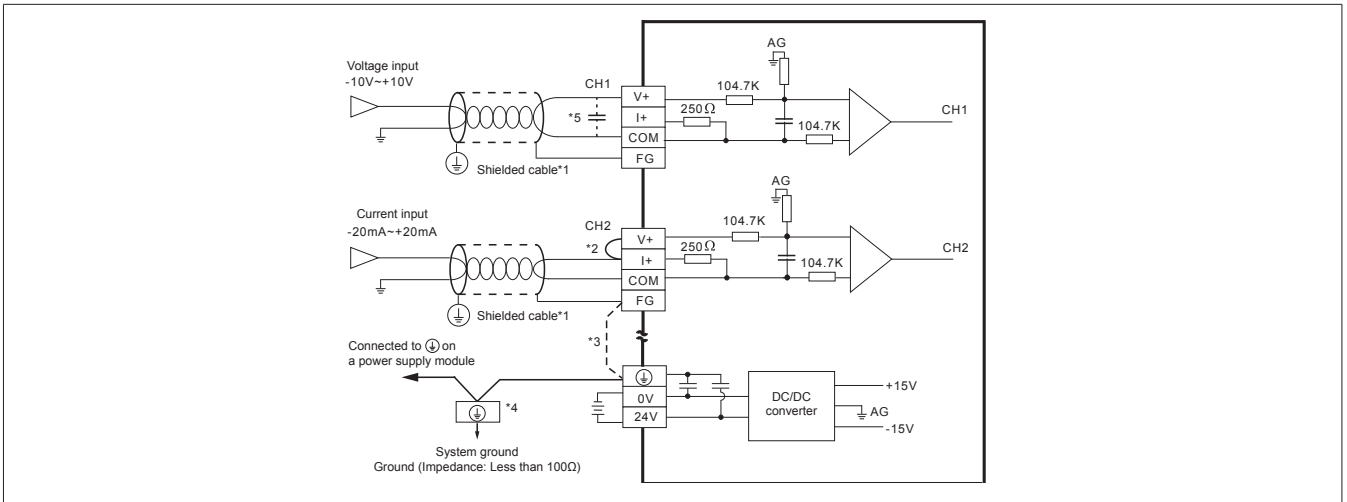




# Wiring

## 3. Applicable model:

DVP02DA-S, DVP04DA-S, DVP04DA-SL



\*1. Please isolate the analog output cable from other power cables.

\*2. If noise interferes with the wiring, and makes the ripple voltage of the input terminal of the load connected high, please connect a 0.1~0.47 μF and 25V capacitor.

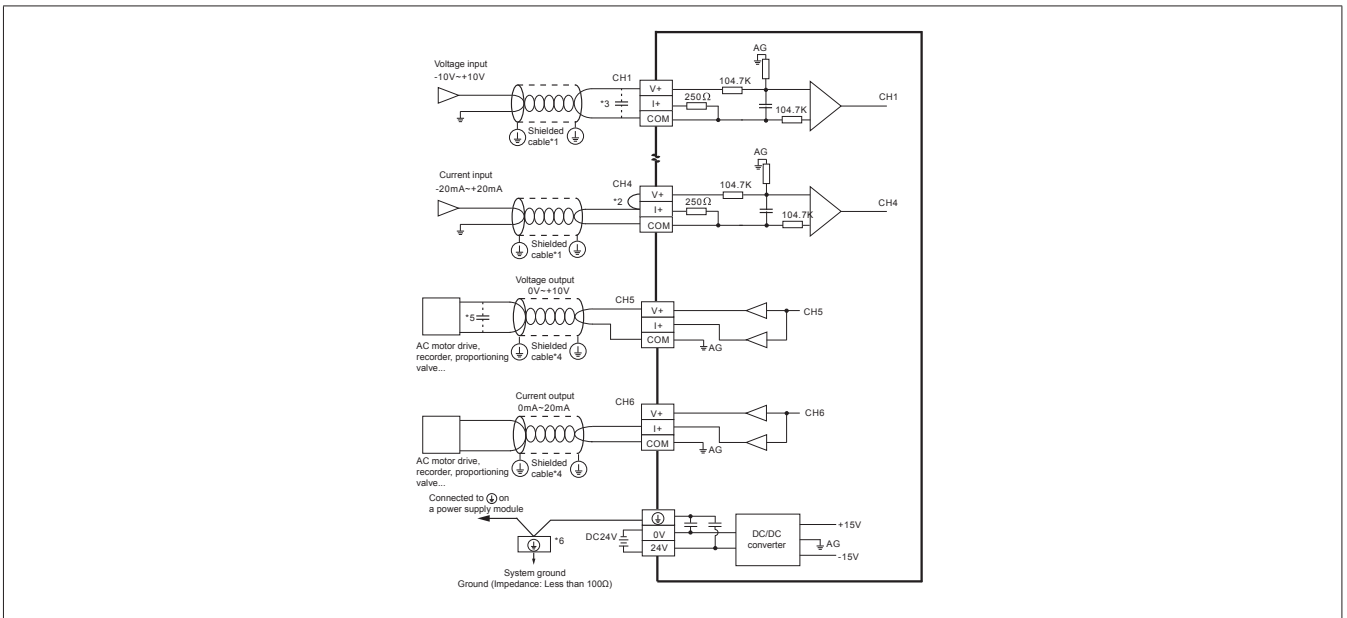
\*3. Please connect Ⓧ on a power supply module and Ⓧ on the analog output module to the system ground, and then ground the system ground or connect the system ground to a distribution box.

\*4. If there is much noise, please connect the terminal FG to the ground terminal.

**Note: Please do not wire the terminal.**

## 4. Applicable model:

DVP06XA-S



\*1. Please isolate the analog input cable from other power cables.

\*2. If a current signal is connected, the connection between V+ and I+ (the connection between V4+ and I4+) needs to be a short circuit.

\*3. If ripple voltage results in interference with the wiring, please connect a 0.1~0.47 μF and 25V capacitor.

\*4. Please isolate the analog output cable from other power cables.

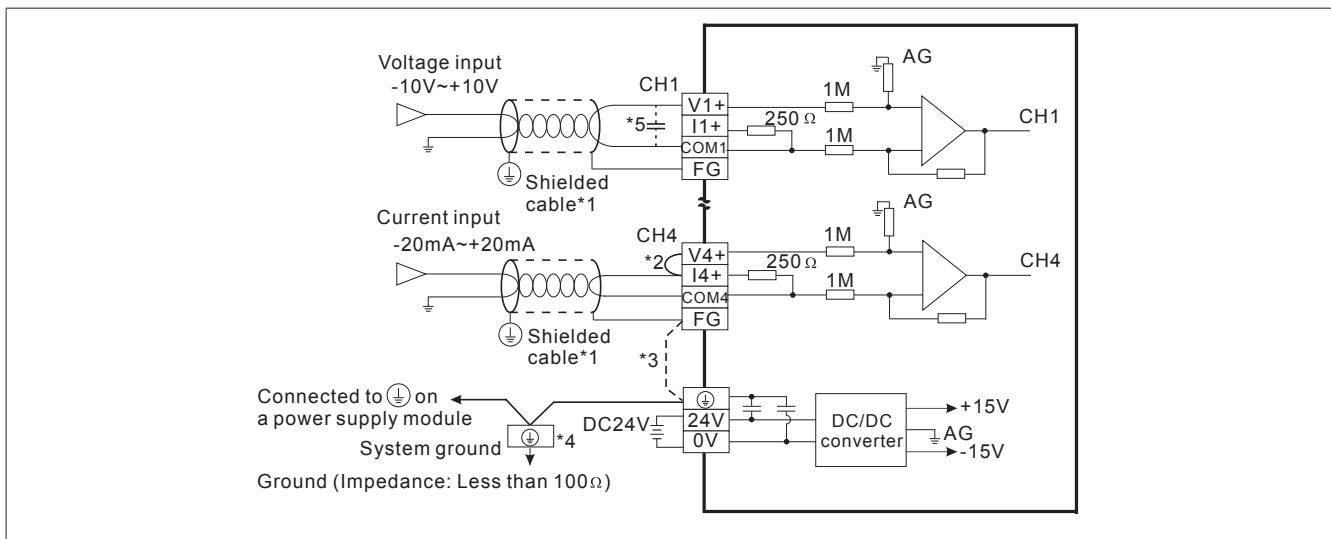
\*5. If noise interferes with the wiring, and makes the ripple voltage of the input terminal of the load connected high, please connect a 0.1~0.47 μF and 25V capacitor.

\*6. Please connect Ⓧ on a power supply module and Ⓧ on the analog input module to the system ground, and then ground the system ground or connect the system ground to a distribution box.

**Note: Please do not wire the terminal.**

5. Applicable model:

DVP04AD-S2

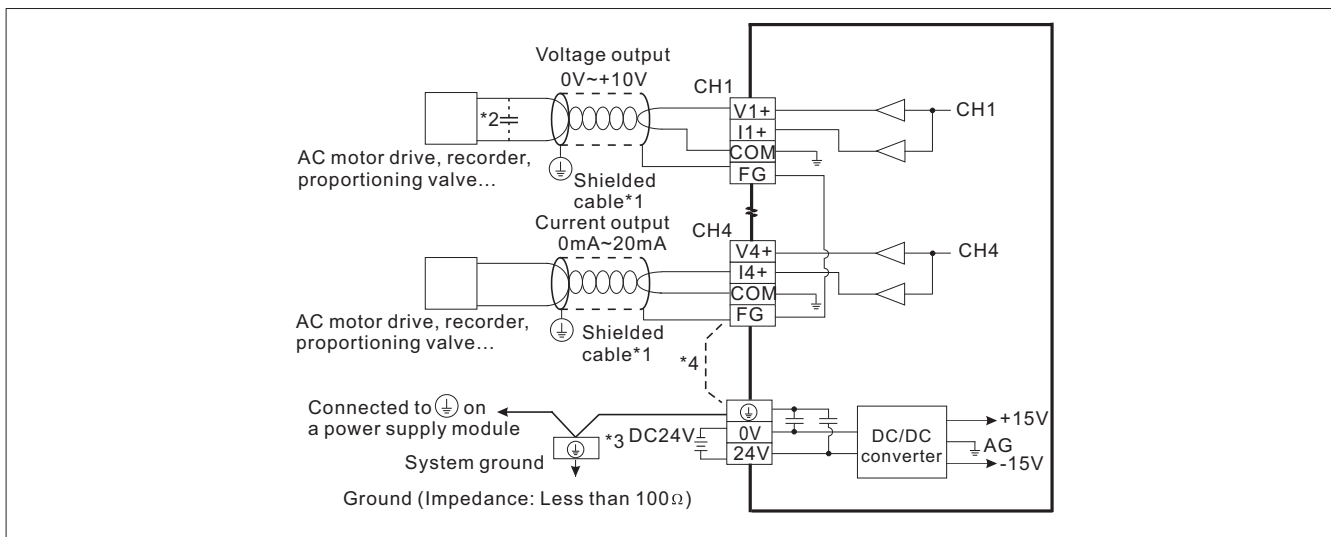


- \*1. Please isolate the analog input signal cables from other power cables.
- \*2. If a current signal is connected, the connection between V+ and I+ (the connection between V4+ and I4+) needs to be a short circuit.
- \*3. If there is much noise, please connect the terminal FG to the ground terminal.
- \*4. Please connect ⊕ on a power supply module and ⊕ on the module to the system ground, and then ground the system ground or connect the system ground to a distribution box.
- \*5. If ripple voltage results in interference with the wiring, please connect a 0.1~0.47 μF and 25V capacitor.

Note: Please do not wire the terminal.

6. Applicable model:

DVP04DA-S2



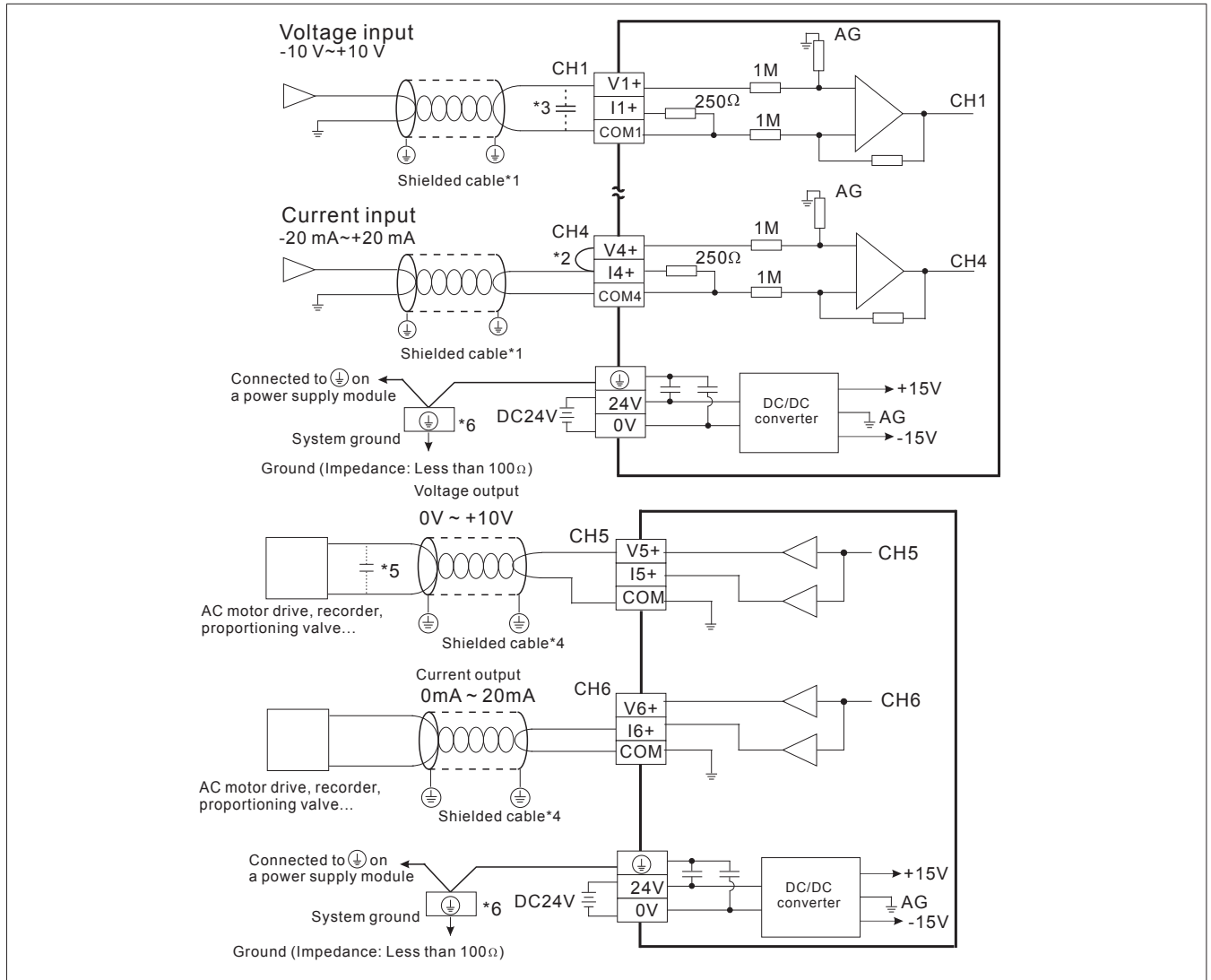
- \*1. Please isolate the analog output cable from other power cables.
- \*2. If noise interferes with the wiring, and makes the ripple voltage of the input terminal of the load connected high, please connect a 0.1~0.47 μF and 25V capacitor.
- \*3. Please connect ⊕ on a power supply module and ⊕ on the analog output module to the system ground, and then ground the system ground or connect the system ground to a distribution box.
- \*4. If there is much noise, please connect the terminal FG to the ground terminal.

Note: Please do not wire the terminal.

# Wiring

## 7. Applicable model:

DVP06XA-S2



## ■ Wiring Digital Input/Output Modules

### Applicable model:

DVP08SM11N	DVP08SM10N	DVP16SM11N	DVP06SN11R
DVP08SN11R	DVP08SN11T	DVP16SN11T	DVP08SN11TS
DVP16SN11TS	DVP08SP11R	DVP08SP11T	DVP16SP11R
DVP08SP11TS	DVP16SP11TS	DVP32SM11N	DVP32SN11TN

### A. Wiring Input Terminals

Wiring DC input terminals (NPN (Sink) and PNP (Source))

#### Applicable model:

All digital modules except DVP08SM10N

NPN (Sink)	PNP (Source)
NPN (Sink)=The current flows into the common terminal S/S	PNP (Source)=The current flows from the common terminal S/S

Wiring AC input terminals

#### Applicable model:

DVP08SM10N

Wiring diagram	Specifications for a 110 V <sub>AC</sub> input terminal	
	Input voltage	85~132V <sub>AC</sub> , 50~60 Hz
	Input impedance	19Kohm/50 Hz, 16Kohm/60 Hz
	Input current	9.2 mA 110 V <sub>AC</sub> /60 Hz
	Voltage level (ON/OFF)	79 V 3.8 mA/30 V 2.5 mA
	Response time	15 ms
	Electrical isolation /Indicator	Optocoupler/The LED indicator is ON.

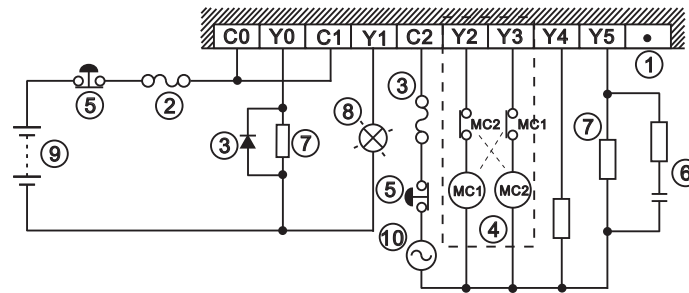
# Wiring

## B. Wiring Output Terminals

### B.1 Wiring relay output terminals

#### Applicable model:

DVP06SN11R, DVP08SN11R, DVP08SP11R, DVP16SP11R

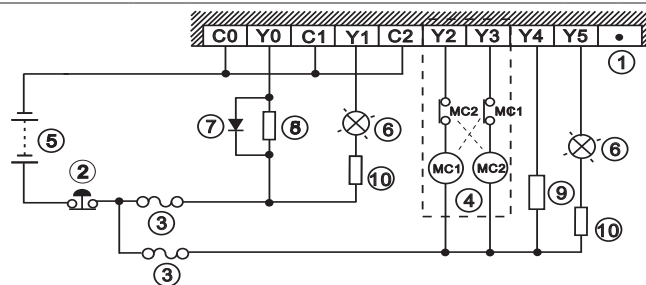


①	Please do not wire the terminal.	②	Fuse
③	Diode: There is no protective mechanism in the relay output terminals of a PLC. If a DC inductive load is used, a diode needs to be connected in parallel. After a diode is connected to a DC load in parallel, the lifespan of the contact of the relay terminal connected to the DC load will be lengthened. The diode which is connected to a DC load must withstand 5~10 times the voltage of the DC load, and the forward current passing through the diode must be greater than the current passing through the DC load		
④	Mutually exclusive output: The interlock circuit which is formed, and the program in the PLC used ensure that there are protective measures if an abnormal condition occurs.	⑤	Emergency stop: An external switch is used.
⑥	Surge absorber: There is no protective mechanism in the relay output terminals of a PLC. If an AC inductive load is used, a surge absorber (a capacitor having a capacitance of 0.1 μF, and a resistor having a resistance in the range of 100 ohm to 120 ohm) needs to be connected in parallel. After a surge absorber is connected to an AC load in parallel, the noise produced by the AC load will be reduced, and the lifespan of the contact of the relay terminal connected to the AC load will be lengthened.		
⑦	Inductive load	⑧	Incandescent lamp (resistive load)
⑨	Direct-current power supply	⑩	Alternating-current power supply

### B.2 Wiring transistor output terminals (NPN (Sink))

#### Applicable model:

DVP08SP11T, DVP08SN11T, DVP16SP11T

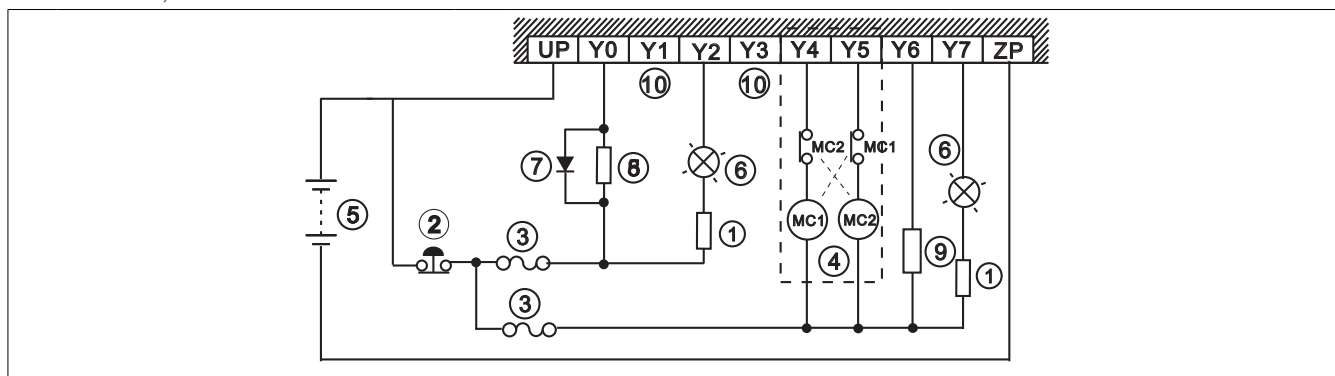


①	Please do not wire the terminal.	②	Emergency stop	④	Fuse
④	Mutually exclusive output: The interlock circuit which is formed, and the program in the PLC used ensure that there are protective measures if an abnormal condition occurs.				
⑤	Direct-current power supply	⑥	Incandescent lamp (resistive load)		
⑦	Diode: The 39 V Zener diode in a PLC protects the transistor output terminals of the PLC. If an inductive load is driven, a Zener diode needs to be connected in parallel.				
⑧	Inductive load	⑨	Resistive load	⑩	If an incandescent lamp (resistive load) is driven, an NTC resistor needs to be connected in series.

B.2 Wiring transistor output terminals (PNP (Source))

**Applicable model:**

DVP16SN11T, DVP32SN11TN

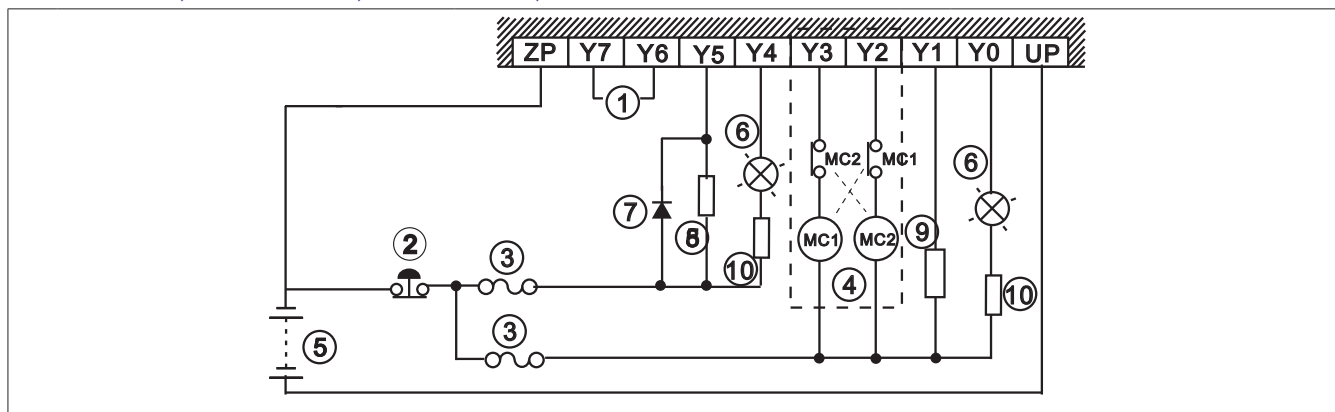


①	If an incandescent lamp (resistive load) is driven, an NTC resistor needs to be connected in series.	②	Emergency stop	③	Fuse
④	Mutually exclusive output: The interlock circuit which is formed, and the program in the PLC used ensure that there are protective measures if an abnormal condition occurs.				
⑤	Direct-current power supply	⑥	Incandescent lamp (resistive load)		
⑦	Diode: If an inductive load is driven, a diode needs to be connected in parallel.	⑧	Inductive load		
⑨	Resistive load	⑩	Please refer to other ways of wiring output terminals for more information about wiring Y1 and Y3.		

B.3 Wiring transistor output terminals (PNP (Source))

**Applicable model:**

DVP08SP11TS, DVP16SP11TS, DVP08SN11TS, DVP16SN11TS



①	Please refer to other ways of wiring output terminals for more information about wiring Y6 and Y7.	②	Emergency stop	③	Fuse
④	Mutually exclusive output: The interlock circuit which is formed, and the program in the PLC used ensure that there are protective measures if an abnormal condition occurs.				
⑤	Direct-current power supply	⑥	Incandescent lamp (resistive load)		
⑦	Diode: The 39 V Zener diode in a PLC protects the transistor output terminals of the PLC. If an inductive load is driven, a Zener diode needs to be connected in parallel.	⑧	Inductive load		
⑨	Resistive load	⑩	If an incandescent lamp (resistive load) is driven, an NTC resistor needs to be connected in series.		

# Wiring

## C.1 Wiring pins

### Applicable model:

DVP32SM11N, DVP32SN11TN

DVP32SM11N				DVP32SN11TN			
X0	1 0	0 2	X1	Y0	1 0	0 2	Y1
X2	3 0	0 4	X3	Y2	3 0	0 4	Y3
X4	5 0	0 6	X5	Y4	5 0	0 6	Y5
X6	7 0	0 8	X7	Y6	7 0	0 8	Y7
X10	9 0	0 10	X11	Y10	9 0	0 10	Y11
X12	11 0	0 12	X13	Y12	11 0	0 12	Y13
X14	13 0	0 14	X15	Y14	13 0	0 14	Y15
X16	15 0	0 16	X17	Y16	15 0	0 16	Y17
S/S	17 0	0 18	S/S	ZP	17 0	0 18	ZP
NC	19 0	0 20	NC	UP	19 0	0 20	UP
X20	21 0	0 22	X21	Y20	21 0	0 22	Y21
X22	23 0	0 24	X23	Y22	23 0	0 24	Y23
X24	25 0	0 26	X25	Y24	25 0	0 26	Y25
X26	27 0	0 28	X27	Y26	27 0	0 28	Y27
X30	29 0	0 30	X31	Y30	29 0	0 30	Y31
X32	31 0	0 32	X33	Y32	31 0	0 32	Y33
X34	33 0	0 34	X35	Y34	33 0	0 34	Y35
X36	35 0	0 36	X37	Y36	35 0	0 36	Y37
S/S	37 0	0 38	S/S	ZP	37 0	0 38	ZP
NC	39 0	0 40	NC	UP	39 0	0 40	UP
DVP32SM				DVP32SN			

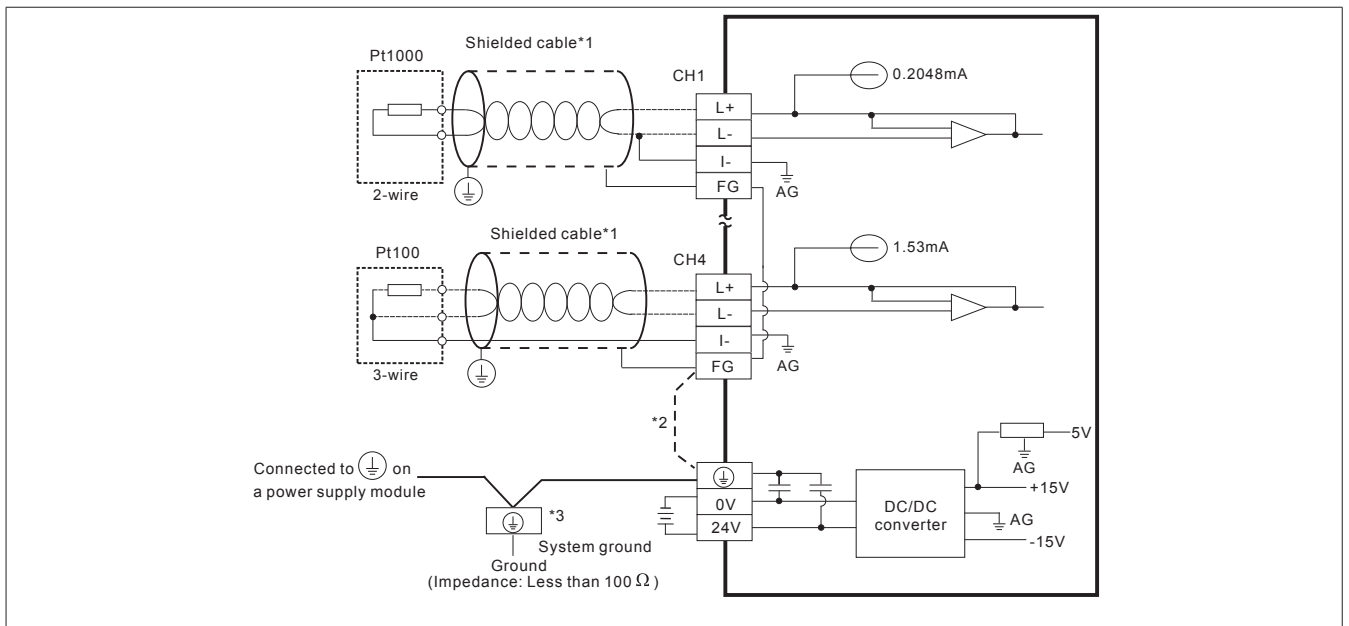
- The pins on DVP32SN11TN are NPN transistor output pins.
- To prevent DVP32SN11TN from being burned out, users have to pay attention to the following points.
  1. Pin 19, pin 20, pin 39, and pin 40 can only be connected to +24V<sub>DC</sub>.
  2. Pin 17, pin 18, pin 37, and pin 38 can only be connected to GND.

## Temperature Measurement Modules

### 1. Temperature measurement module (RTDs)

#### Applicable model :

DVP04PT-S



\*1. The cables connected to the input terminals should be the cables or the shielded twisted pair cables which can be connected to the temperature sensors, and should be kept separate from other power cables and cables which generate noise.

\*2. If there is much noise, please connect the terminal FG to the ground terminal.

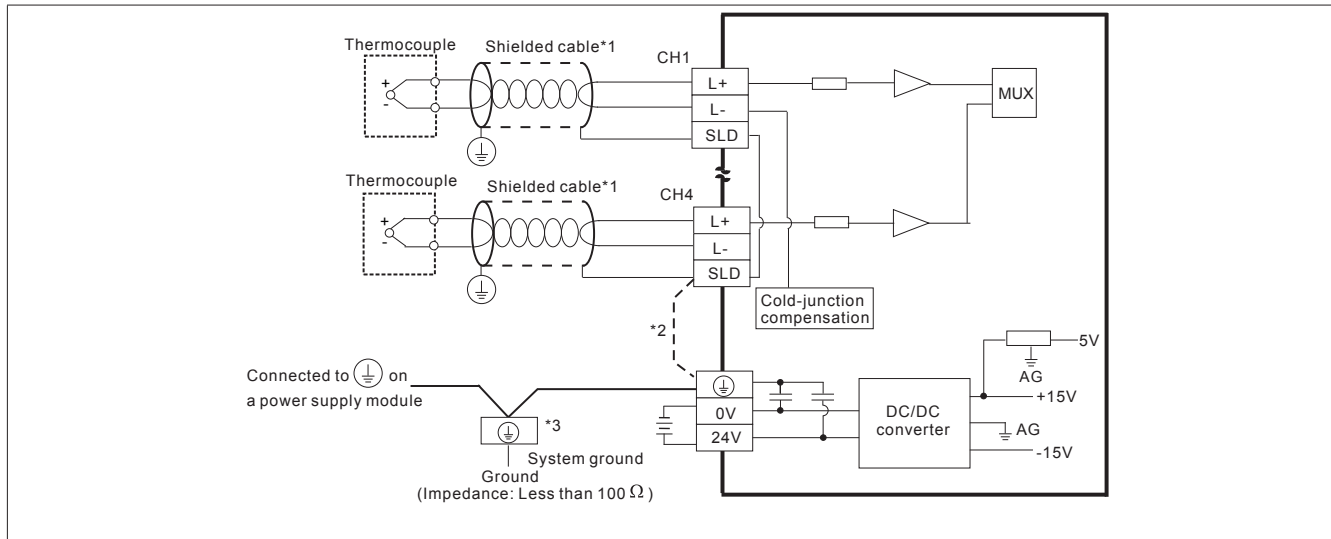
\*3. Please connect Ⓧ on a power supply module and ⊕ on DVP04PT-S to the system ground, and then ground the system ground or connect the system ground to a distribution box.

**Note: Please do not wire the terminal.**

## 2. Temperature measurement module (thermocouples)

### Applicable model:

DVP04TC-S



\*1. The cables connected to the input terminals should be the cables or the shielded twisted pair cables which can be connected to Type J, type K, type R, type S, type T, type E, and type N thermocouples are used, and should be kept separate from other power cables and cables which generate noise. The torque applied to the screw terminals should be 1.95 kg-cm (1.7 in-lbs).

\*2. If there is much noise, please connect the terminal SLD to the ground terminal.

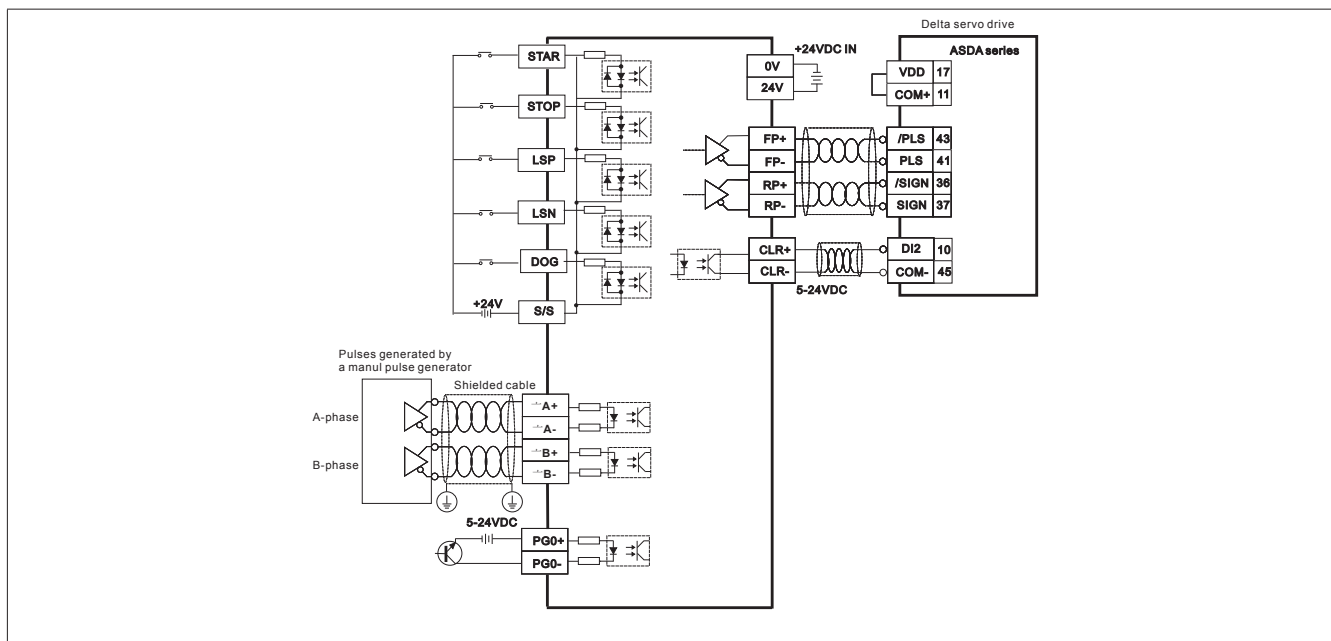
\*3. Please connect ⊕ on a power supply module and ⊕ on DVP04TC-S to the system ground, and then ground the system ground or connect the system ground to a distribution box.

**Note:** Please do not wire the terminal. Only copper leads which can resist the heat above 60°C/75°C can be used.

## ■ Position Control Module

### Applicable model:

DVP01PU-S



\*1. Please use single-core cables or multi-core cables. The diameters of the cables used should be in the range of 22 AWG to 16 AWG (1.5 mm). The torque applied to the screw terminals should be 1.95 kg-cm (1.7 in-lbs).

\*2. Please do not put input signal cables and output signal cables or power cables in a cable tray.

\*3. Please connect ⊕ on a power supply module and ⊕ on DVP04TC-S to the system ground, and then ground the system ground or connect the system ground to a distribution box.

**Note:** Please do not wire the terminal. Only copper leads which can resist the heat above 60°C/75°C can be used.

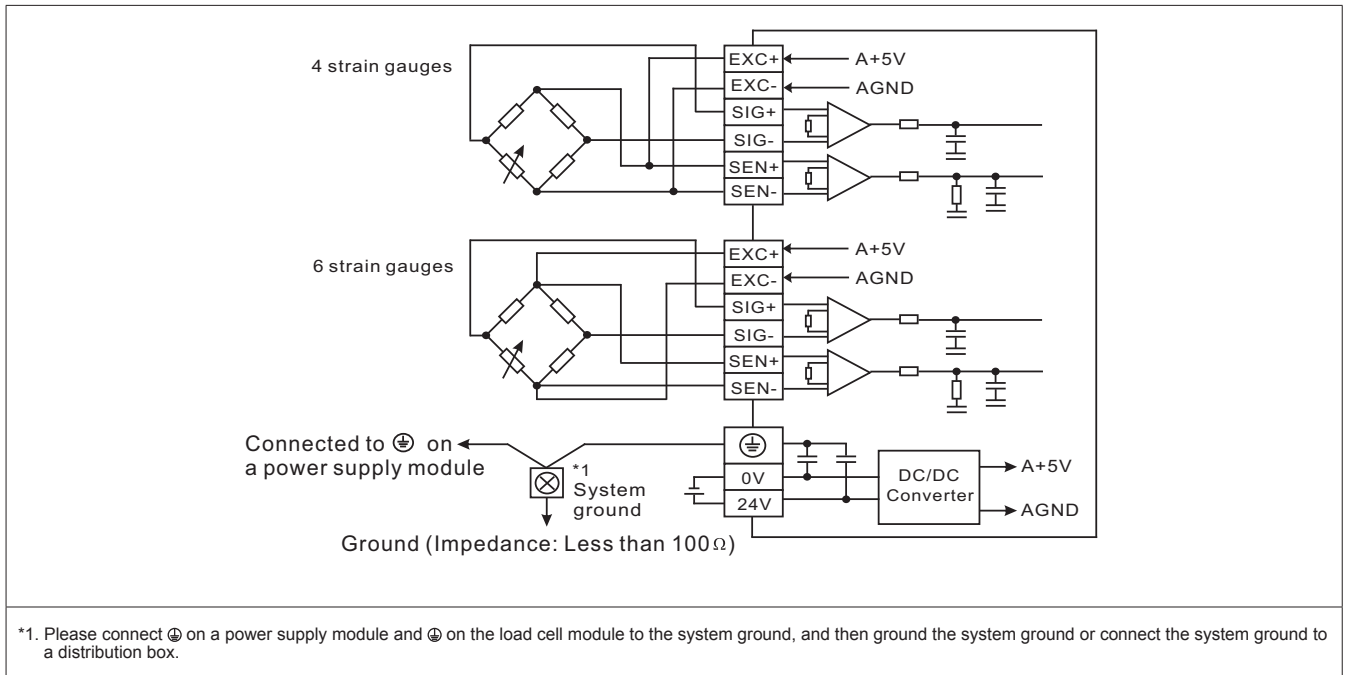


# Wiring

## ■ Load Cell Modules

### Applicable model:

DVP01LC-SL, DVP02LC-SL, DVP201LC-SL, DVP202LC-SL, DVP211LC-SL



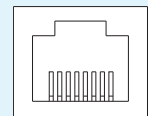
## ■ Communication Modules

### 1. Applicable model:

DVPEN01-SL, RTU-EN01

#### Definitions of the pins in an RJ-45 connector

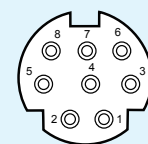
Pin	Signal	Description	Pin	Signal	Description
1	Tx+	Transmitting data (positive pole)	5	--	N/C
2	Tx-	Transmitting data (negative pole)	6	Rx-	Receiving data (negative pole)
3	Rx+	Receiving data (positive pole)	7	--	N/C
4	--	N/C	8	--	N/C



8 ← 1

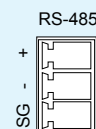
#### Definitions of the pins in an RS-232 connector

Pin	Signal	Description	Pin	Signal	Description
1	--	N/C	5	Tx	Transmitting data
2	--	N/C	6	--	N/C
3	--	N/C	7	--	N/C
4	Rx	Receiving data	8	GND	Ground



#### Definitions of a European terminal block

Pin	Signal	Description
1	SG	Signal ground
2	D-	Data (negative pole)
3	D+	Data (positive pole)

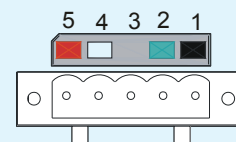


**2. Applicable model:**

DVPDNET-SL, RTU-DNET

**DeviceNet connector**

Pin	Signal	Color	Description
1	V-	Black	0V <sub>DC</sub>
2	CAN_L	Blue	Signal (negative pole)
3	SHIELD	-	Shield
4	CAN_H	White	Signal (positive pole)
5	V+	Red	24V <sub>DC</sub>

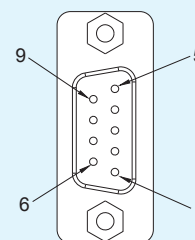


**3. Applicable model:**

DVPPF01-S, DVPPF02-SL

**Definitions of the pins in a PROFIBUS-DP connector**

Pin	Name	Description
1, 2	-	N/C
3	Rxd/Txd-P	Receiving/Transmitting data (P (B))
4	-	N/C
5	DGND	Signal ground
6	VP	Supply voltage (positive voltage)
7	-	N/C
8	Rxd/Txd-N	Receiving/Transmitting data (N (A))
9	-	N/C

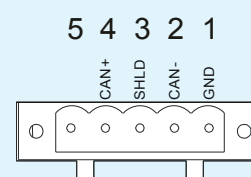


**4. Applicable model:**

DVPCOPM-SL

**CANopen connector**

Pin	Signal	Description
1	GND	GND
2	CAN_L	Signal (negative pole)
3	SHLD	Shielded cable
4	CAN_H	Signal (positive pole)
5	-	Reserved



**5. Applicable model:**

DVPSCM12-SL, DVPSCM52-SL

**Definitions of the pins in an RS-485/RS-422 connector**

Pin	Signal	Description
1	-	TX+
2	-	TX-
3	D+	RX+
4	D-	RX-
5	SG	SG
6	-	SG



# Wiring

## DVP-ES/ES2 Series PLC

Series	Model
DVP-ES	DVP14ES00R2, DVP14ES00T2, DVP24ES00R2, DVP24ES00T2, DVP30ES00R2, DVP30ES00T2, DVP32ES00R2, DVP32ES00T2, DVP40ES00R2, DVP40ES00T2, DVP60ES00R2, DVP60ES00T2
DVP-EC3	DVP10EC00R3, DVP10EC00T3, DVP14EC00R3, DVP14EC00T3, DVP16EC00R3, DVP16EC00T3, DVP20EC00R3, DVP20EC00T3, DVP24EC00R3, DVP24EC00T3, DVP30EC00R3, DVP30EC00T3, DVP32EC00R3, DVP32EC00T3, DVP40EC00R3, DVP40EC00T3, DVP60EC00R3, DVP60EC00T3
DVP-EX	DVP20EX00R2, DVP20EX00T2
DVP-ES2	DVP16ES200R, DVP16ES200T, DVP24ES200R, DVP24ES200T, DVP32ES200R, DVP32ES200T, DVP32ES211T, DVP40ES200R, DVP40ES200T, DVP60ES200R, DVP60ES200T
DVP-ES2-C	DVP32ES200RC, DVP32ES200TC
DVP-EX2	DVP20EX200R, DVP20EX200T, DVP30EX200R, DVP30EX200T

### ■ Wiring Input Terminals (NPN (Sink) and PNP (Source))

#### Applicable model:

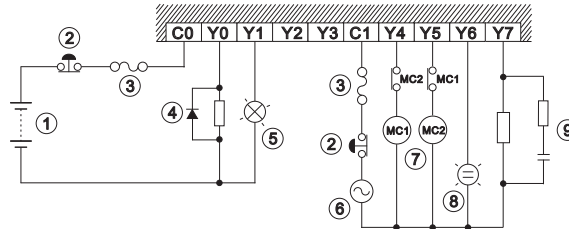
All DVP-ES/ES2 series PLCs

NPN (Sink)	PNP (Source)
NPN (Sink)=The current flows into the common terminal S/S	PNP (Source)=The current flows from the common terminal S/S

### ■ Wiring Relay Output Terminals

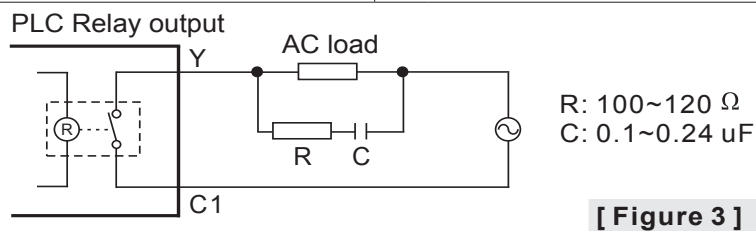
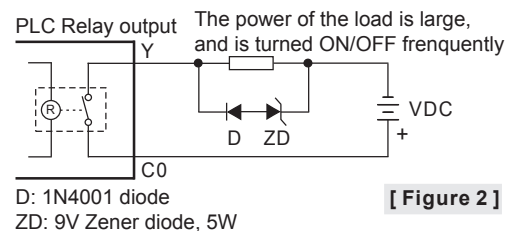
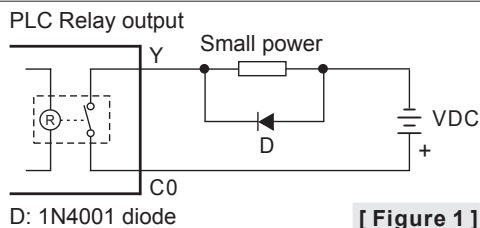
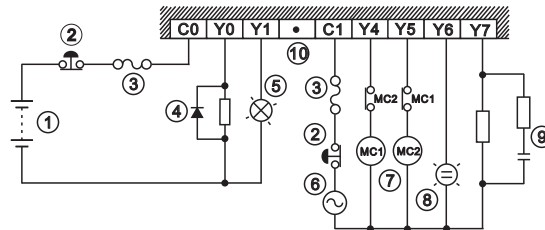
#### Applicable model:

DVP16ES200R, DVP24ES200R, DVP32ES200R, DVP40ES200R, DVP60ES200R, DVP20EX200R, DVP30EX200R, DVP32ES200RC



#### Applicable model:

DVP14ES00R2, DVP14ES01R2, DVP24ES00R, DVP24ES00R2, DVP24ES01R2, DVP24ES11R2, DVP30ES00R2, DVP32ES00R, DVP32ES00R2, DVP32ES01R2, DVP40ES00R2, DVP60ES00R2, DVP20EX00R2, DVP20EX11R2, DVP10EC00R3, DVP14EC00R3, DVP16EC00R3, DVP20EC00R3, DVP24EC00R3, DVP30EC00R3, DVP32EC00R3, DVP40EC00R3, DVP60EC00R3



①	Direct-current power supply	②	Emergency stop: An external switch is used.
③	Fuse: To protect an output circuit, a fuse having a breaking capacity in the range of 5A to 10A is connected to a common terminal.		
④	Transient voltage suppression diode: It can be used to lengthen the lifespan that a contact has. A Diode is used to suppress the DC passing a load when the power of the load is small. (Please see [Figure 1].) A Diode and a Zener diode are used to suppress the DC passing a load when the power of the load is large, and is turned ON/OFF frequently. (Please see [Figure 2].)		
⑤	Incandescent lamp (resistive load)	⑥	Alternating-current power supply
⑦	Mutually exclusive output: For example, Y4 controls the clockwise rotation of a motor, and Y5 controls the counterclockwise rotation of the motor. The interlock circuit which is formed, and the program in the PLC ensure that there are protective measures if an abnormal condition occurs.		
⑧	Indicator: Neon lamp	⑨	Surge absorber: It can be used to reduce the noise produced by an AC load. (Please see [Figure 3].)

# Wiring

## ■ Wiring Transistor Output Terminals

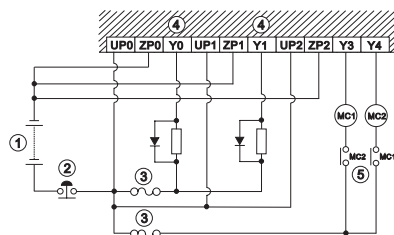
Applicable model:

**DVP-ES/EX series:** DVP14ES00T2, DVP24ES00T2, DVP32ES00T2, DVP40ES00T2, DVP60ES00T2, DVP20EX00T2

①	Direct-current power supply
②	Emergency stop
③	Fuse
④	The output terminals of a transistor module are open-collector output terminals. If Y0 is a pulse output terminal of a transistor module (the instruction PLSY is used), the output current passing through the output pull-up resistor of the transistor module must be greater than 0.1A to ensure that the transistor module operates normally.
⑤	The output terminals of a transistor module are open-collector output terminals. If Y1 is a pulse output terminal of a transistor module (the instruction PWM is used), the output current passing through the output pull-up resistor of the transistor module must be greater than 0.1A to ensure that the transistor module operates normally.
⑥	Mutually exclusive output: The interlock circuit which is formed, and the program in the PLC used ensure that there are protective measures if an abnormal condition occurs.
⑦	Please do not wire the terminal●.

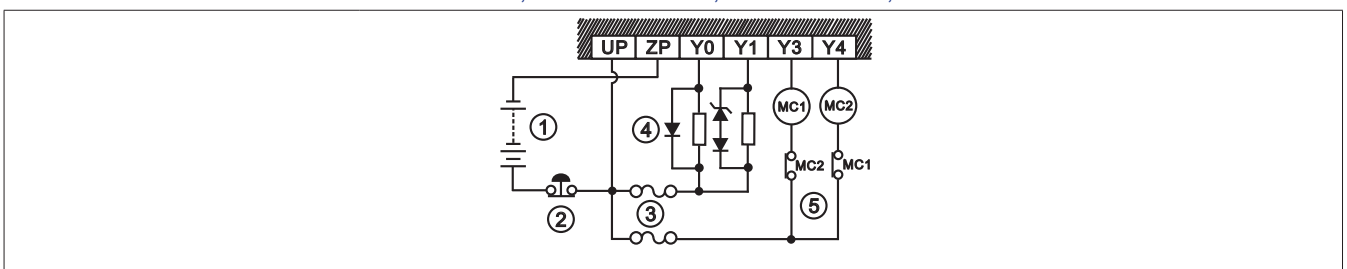
Applicable model:

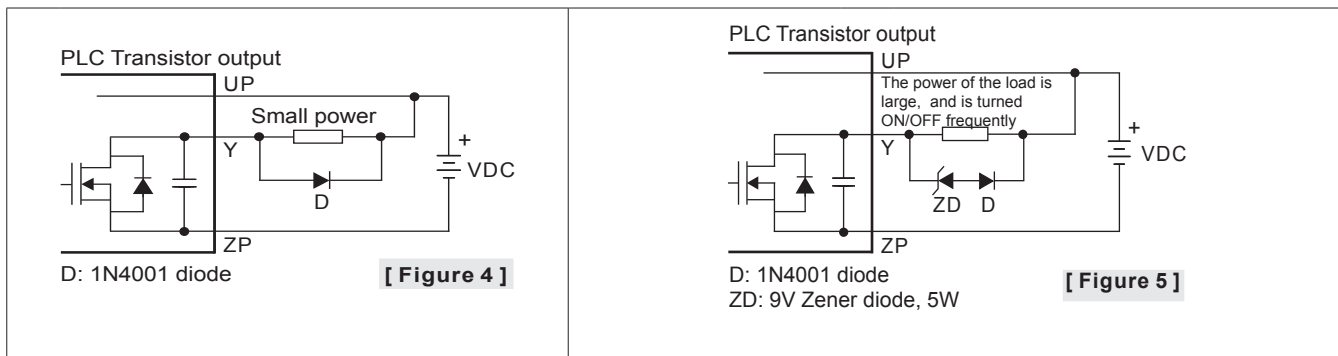
**DVP-ES/EC3 series:** DVP30ES00T2, DVP10EC00T3, DVP14EC00T3, DVP16EC00T3, DVP20EC00T3, DVP24EC00T3, DVP30EC00T3, DVP32EC00T3, DVP40EC00T3, DVP60EC00T3



**DVP-ES2/EX2 series:**

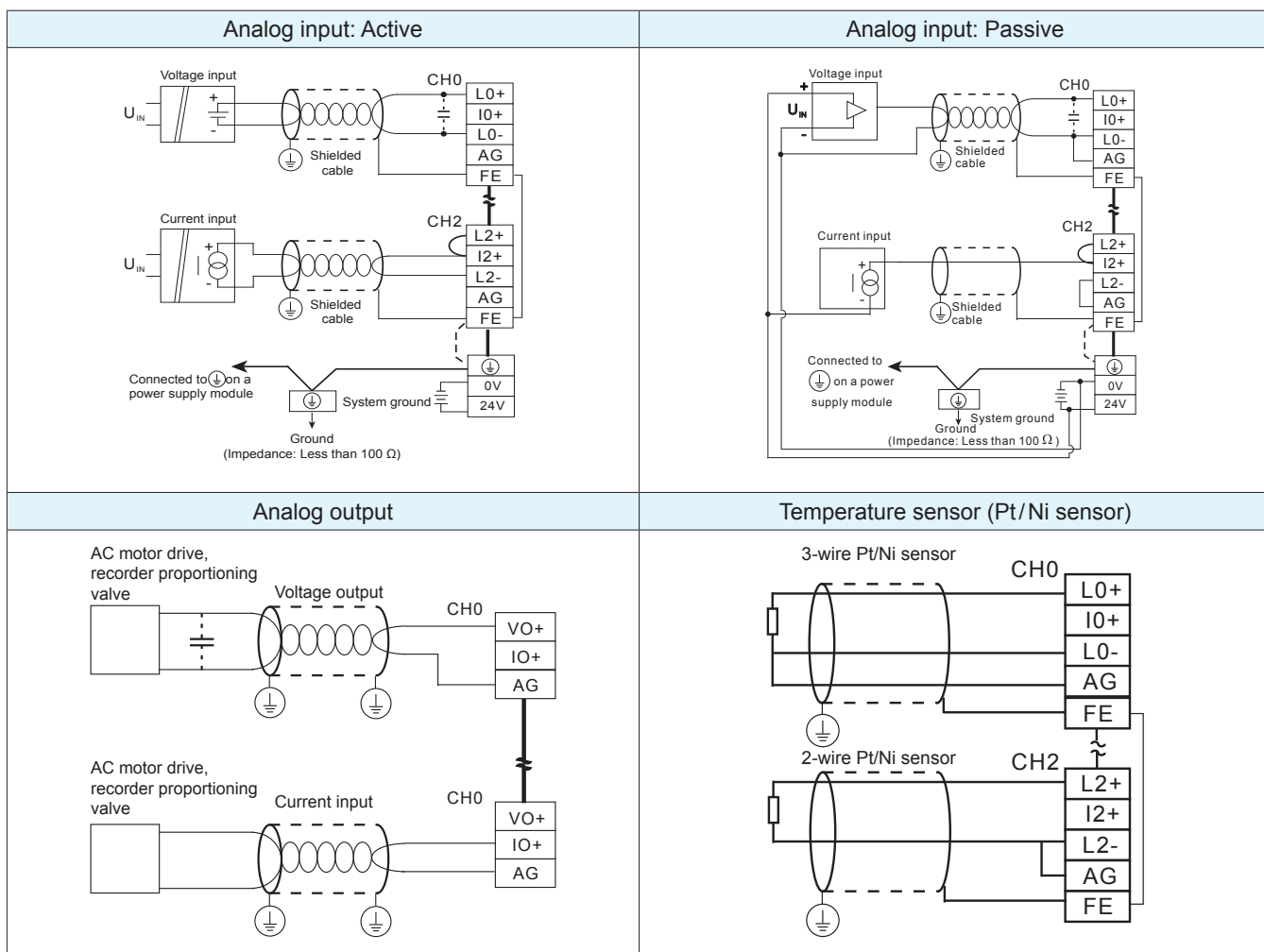
DVP16ES200T, DVP24ES200T, DVP32ES200T, DVP32ES211T, DVP40ES200T, DVP60ES200T, DVP32ES200TC, DVP20EX200T, DVP30EX200T





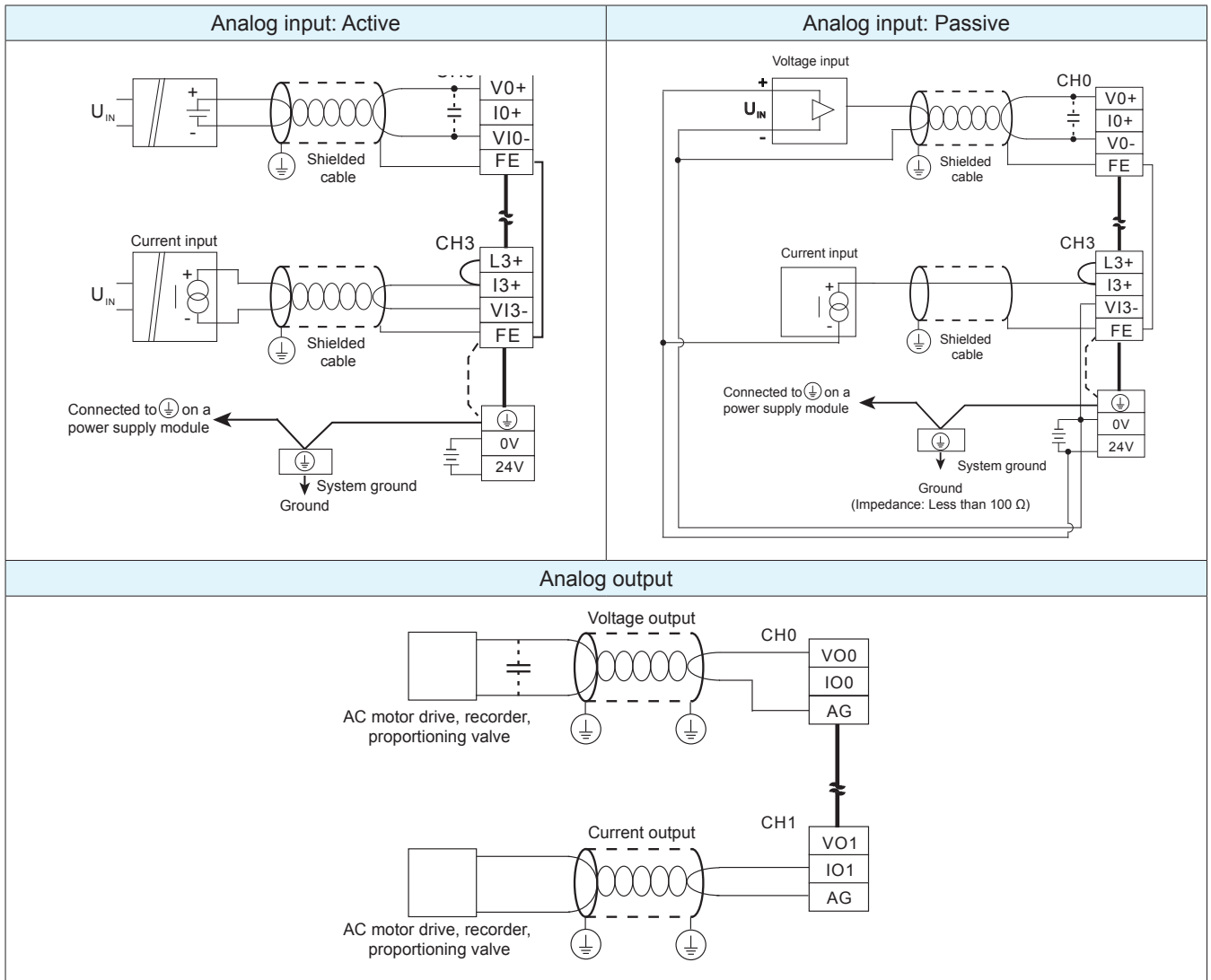
<b>①</b>	Direct-current power supply	<b>②</b>	Emergency stop
<b>③</b>	Fuse		
<b>④</b>	<p>Transient voltage suppression diode: It can be used to lengthen the lifespan that a contact has.</p> <p>A Diode is used to suppress the DC passing a load when the power of the load is small. (Please see [Figure 4].)</p> <p>A Diode and a Zener diode are used to suppress the DC passing a load when the power of the load is large, and is turned ON/OFF frequently. (Please see [Figure 5].)</p>		
<b>⑤</b>	<p>Mutually exclusive output: For example, Y3 controls the clockwise rotation of a motor, and Y4 controls the counterclockwise rotation of the motor. The interlock circuit which is formed, and the program in the PLC ensure that there are protective measures if an abnormal condition occurs.</p>		

**■ Wiring the Analog Input/Output Terminals and the Temperature Sensors of DVP30EX200R/DVP30EX200T**

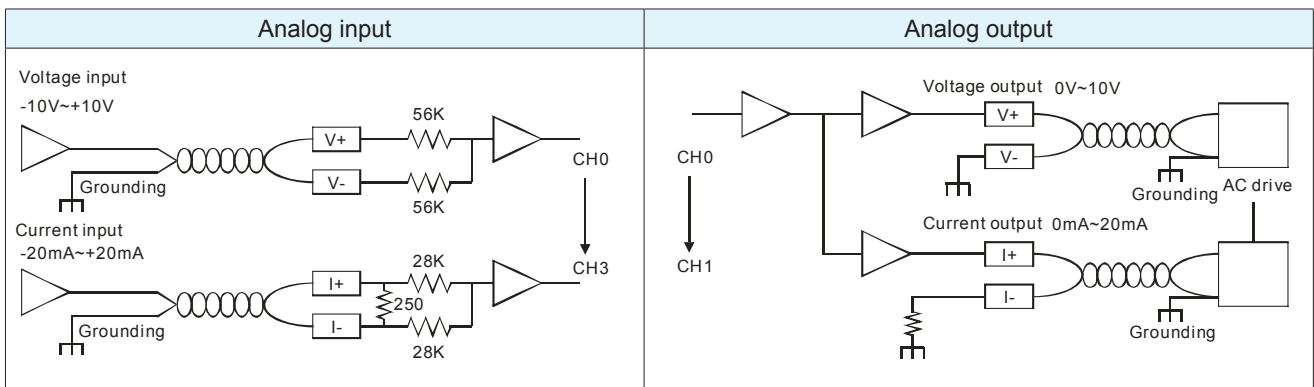


# Wiring

## ■ Wiring the Analog Input/Output Terminals of DVP20EX200R/DVP20EX200T



## ■ Wiring the Analog Input/Output Terminals of DVP20EX00R2/DVP20EX00T2



# Analog Modules

## Applicable model

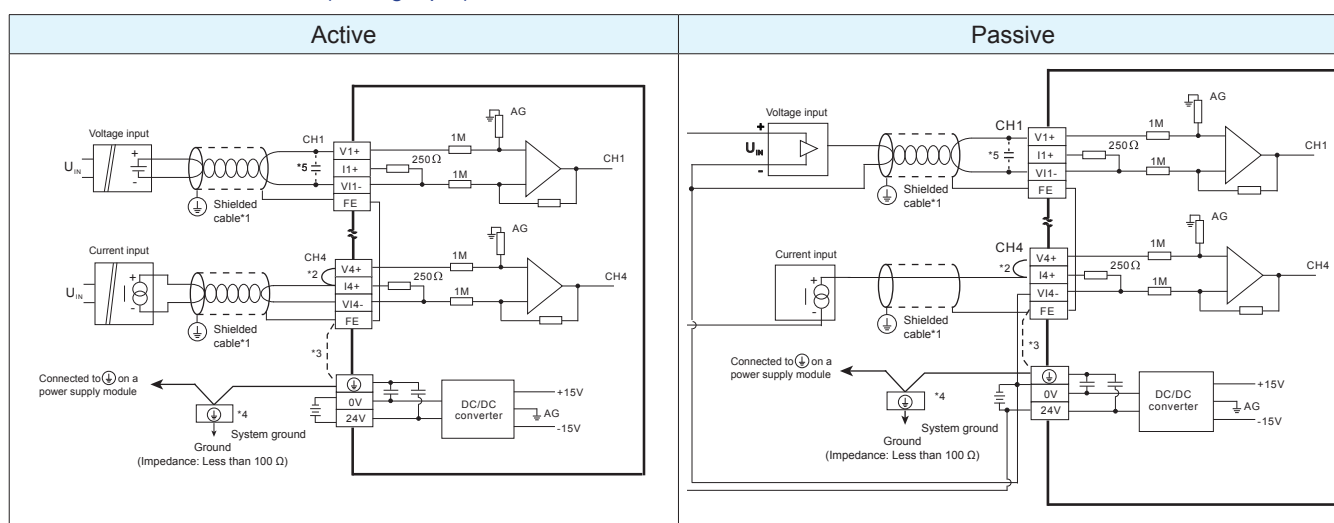
DVP-ES2/EX2 series modules

DVP04AD-E2, DVP02DA-E2, DVP04DA-E2, DVP06XA-E2

## ■ Wiring Analog Modules

### 1.Applicable model:

DVP04AD-E2, DVP06XA-E2 (analog input)



\*1. Please isolate the analog input signal cables from other power cables.

\*2. If the module is connected to a current signal, the terminals V4+ and I4+ must be short-circuited.

\*3. If there is much noise, please connect the terminal FE to the ground terminal.

\*4. Please connect  $\oplus$  on a power supply module and  $\ominus$  on the module to the system ground, and then ground the system ground or connect the system ground to a distribution box.

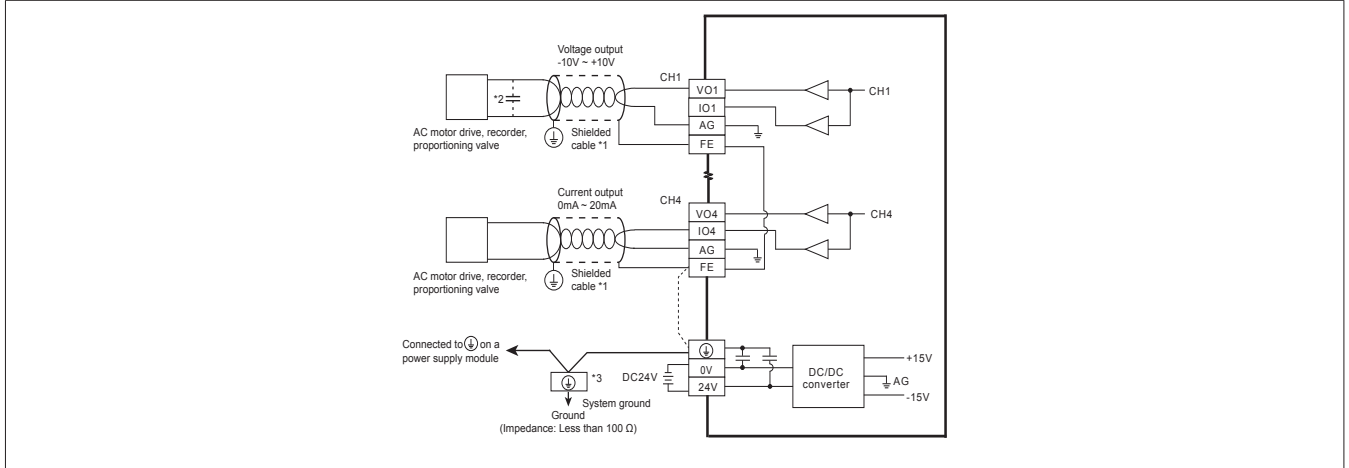
\*5. If the ripple in the input voltage results in the noise interference with the wiring, please connect the module to the capacitor having a capacitance in the range of 0.1  $\mu\text{F}$  to 0.47  $\mu\text{F}$  with a working voltage of 25V.



# Wiring

## 2.Applicable model:

DVP02DA-E2, DVP04DA-E2, DVP06XA-E2 (analog output)



- \*1. Please isolate the analog input signal cables from other power cables.
- \*2. If a ripple is large for the input terminal of the load and results in the noise interference with the wiring, please connect the module to the capacitor having a capacitance in the range of 0.1  $\mu\text{F}$  to 0.47  $\mu\text{F}$  with a working voltage of 25V.
- \*3. Please connect  $\oplus$  on a power supply module and  $\ominus$  on the module to the system ground, and then ground the system ground or connect the system ground to a distribution box.

# Wiring Digital Input / Output Modules

## Applicable model:

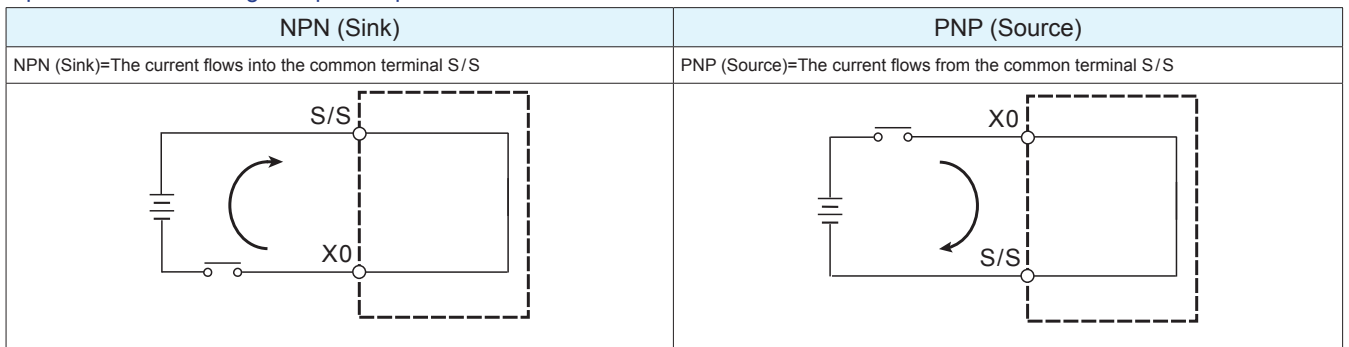
<b>DVP-ES/EX series</b>	DVP08XM11N, DVP08XP11R, DVP08XP11T, DVP08XN11R, DVP08XN11T, DVP16XM11N, DVP16XN11R, DVP16XN11T, DVP24XN11R, DVP24XP11R, DVP32XP11R, DVP24XN11T, DVP24XP11T, DVP32XP11T
<b>DVP-ES2/EX2 series</b>	DVP08XM211N, DVP08XP211R, DVP08XP211T, DVP08XN211R, DVP08XN211T, DVP16XM211N, DVP16XP211R, DVP16XP211T, DVP16XN211R, DVP16XN211T, DVP24XN200R, DVP24XN200T, DVP24XP200R, DVP24XP200T, DVP32XP200R, DVP32XP200T

## A. Wiring input terminals

Wiring DC input terminals (NPN (Sink) and PNP (Source))

### Applicable model:

Input terminals of all digital input/output modules



## B. Wiring output terminals

### B.1 Wiring relay output terminals

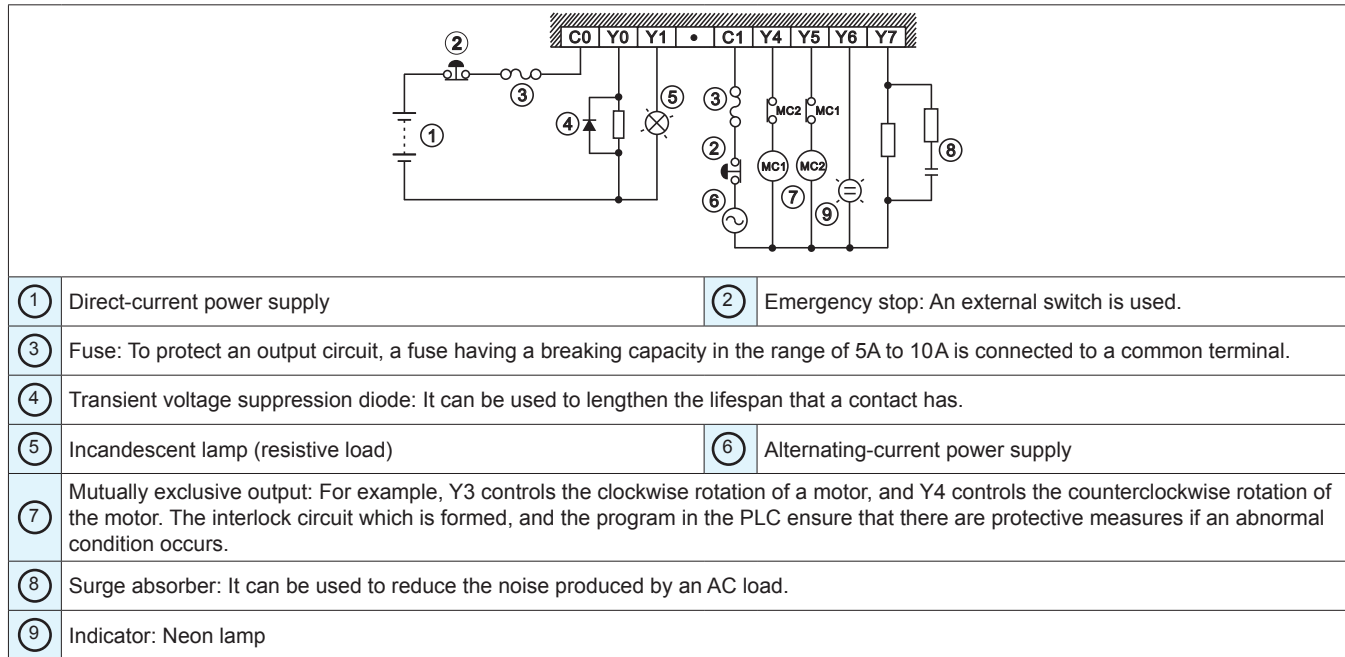
**Applicable model:**

**DVP-ES/EX series:**

DVP08XN11R, DVP16XN11R, DVP24XN11R, DVP08XP11R, DVP24XP11R, DVP32XP11R

**DVP-ES2/EX2 series:**

DVP24XN200R, DVP24XP200R, DVP32XP200R, DVP08XN211R, DVP08XP211R, DVP16XN211R, DVP16XP211R

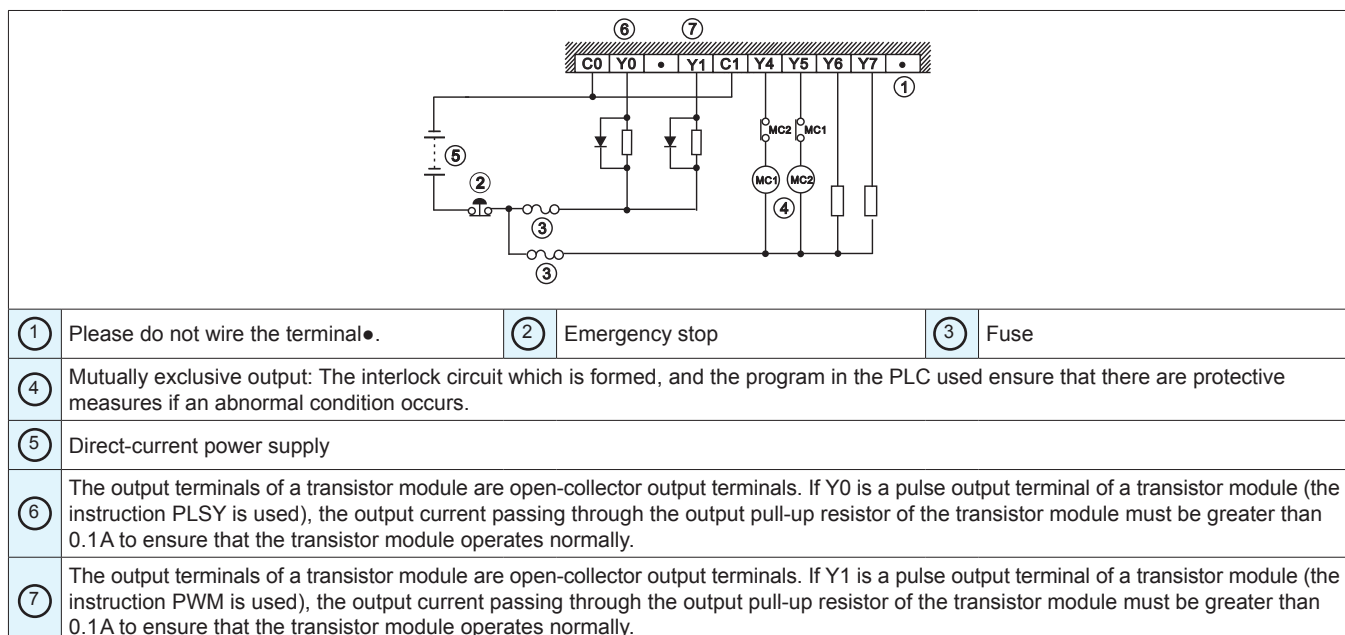


### B.2 Wiring Transistor Output Terminals

**Applicable model:**

**DVP-ES/EX series:**

DVP08XN11T, DVP16XN11T, DVP24XN11T, DVP08XP11T, DVP24XP11T, DVP32XP11T

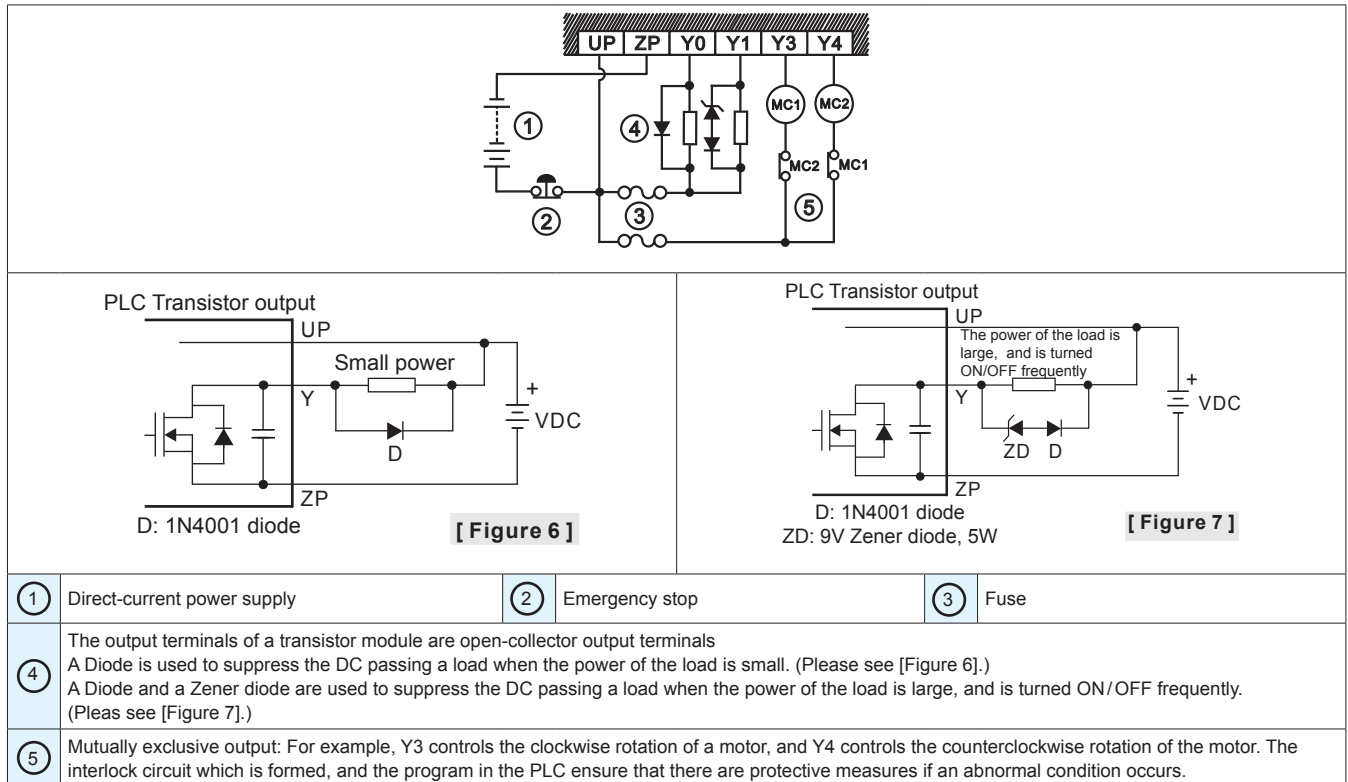


# Wiring

## Applicable model:

### DVP-ES2/EX2 series:

DVP24XN200T, DVP24XP200T, DVP32XP200T, DVP08XN211T, DVP08XP211T, DVP16XN211T, DVP16XP211T

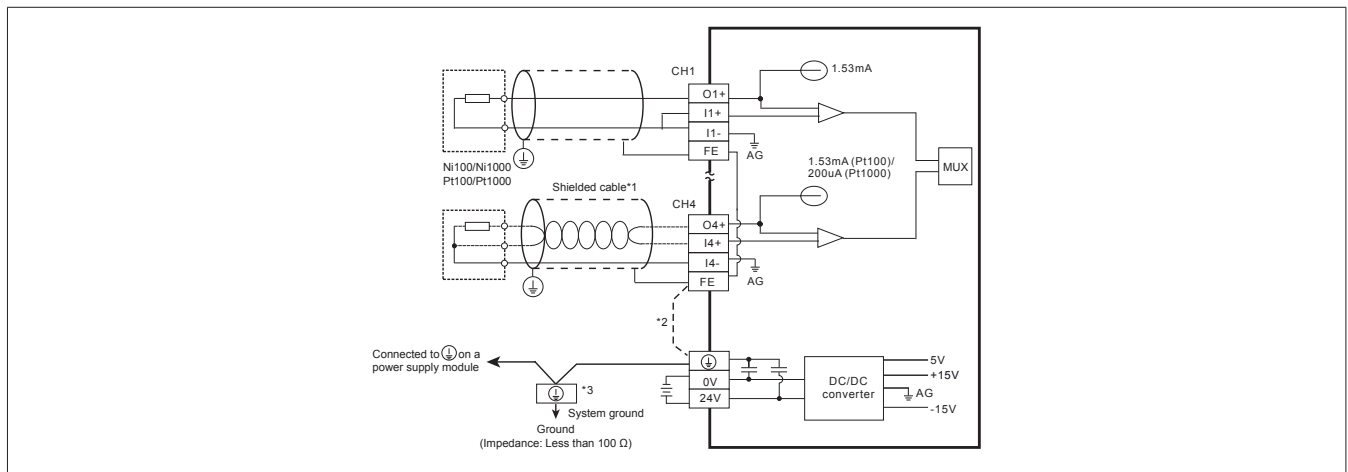


## Temperature Measurement Module

### 1. Temperature measurement module (RTD)

#### Applicable model: DVP-ES2/EX2 series:

DVP04PT-E2



\*1. The cables connected to the input terminals should be the cables or the shielded twisted pair cables which can be connected to Pt100/Pt1000 sensors, and should be kept separate from other power cables and cables which generate noise. Please use a three-wire temperature sensor. If users want to use a two-wire temperature sensor, I+ and I- must be short-circuited.

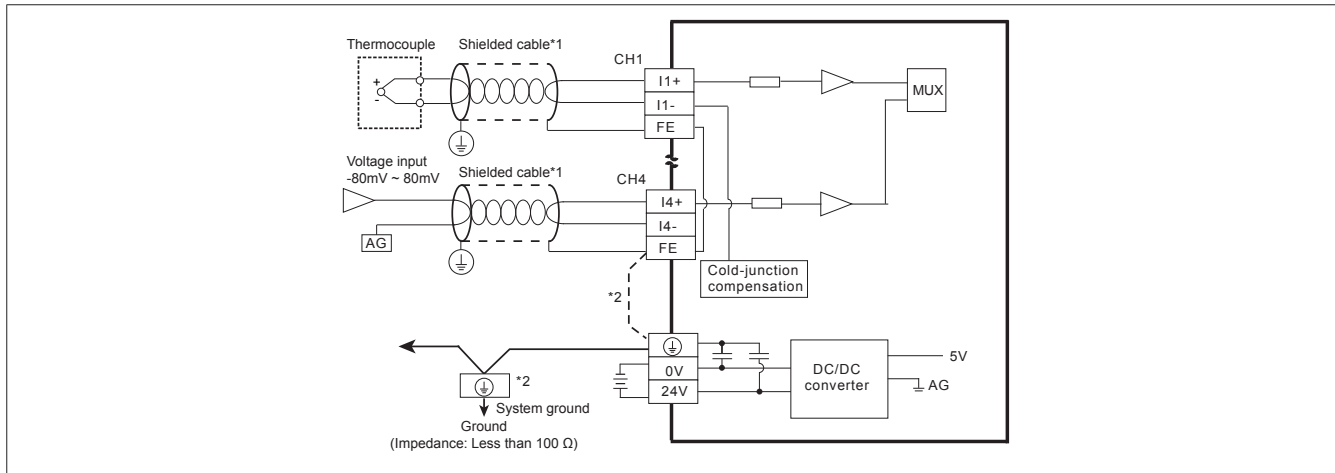
\*2. If there is much noise, please connect the terminal FE to the ground terminal.

\*3. Please connect ① on a power supply module and ② on the module to the system ground, and then ground the system ground or connect the system ground to a distribution box.

## 2. Temperature measurement module (thermocouple)

Applicable model: DVP-ES2/EX2 series:

DVP04TC-E2



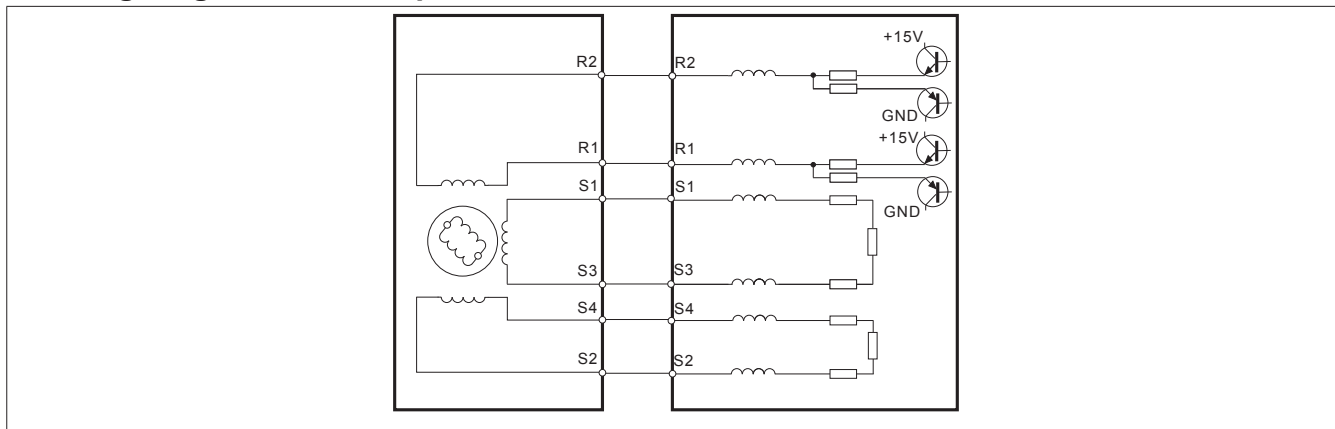
- \*1. The cables connected to the input terminals should be the cables or the shielded twisted pair cables which can be connected to Type J, type K, type R, type S, type T, type E, and type N thermocouples are used, and should be kept separate from other power cables and cables which generate noise.
- \*2. Please connect ⊕ on a power supply module and ⊕ on the temperature measurement module to the system ground, and then ground the system ground or connect the system ground to a distribution box.

## Resolver Input Module

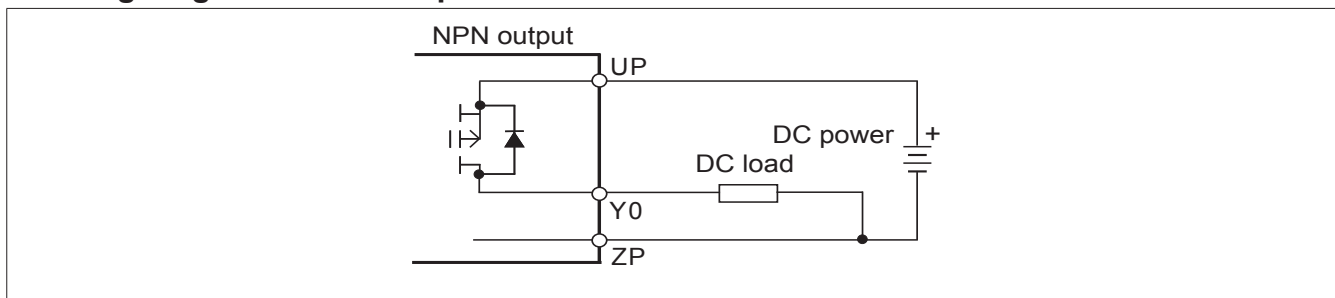
Applicable model: DVP-ES2/EX2 series:

DVP10RC-E2

### ■ Wiring diagram for the input terminals



### ■ Wiring diagram for the output terminals



# Wiring

## Motion Control Series PLC

Applicable model:

DVP10PM00M

DVP20PM00D

DVP20PM00M

DVP20PM00DT

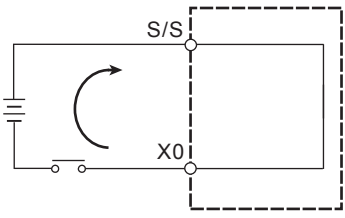
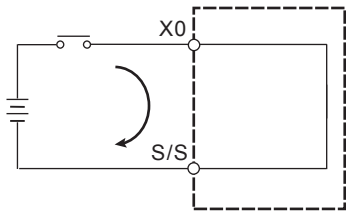
DVP10MC11T

### 1. Wiring input terminals

#### A. Open-collector input terminals

Applicable model:

DVP10PM00M, DVP20PM00D, DVP20PM00M, DVP20PM00DT, DVP10MC11T

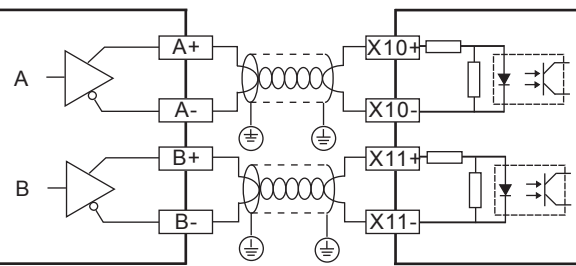
NPN (Sink)	PNP (Source)
NPN (Sink)=The current flows into the common terminal S/S	PNP (Source)=The current flows from the common terminal S/S
	

#### B. Differential input terminals

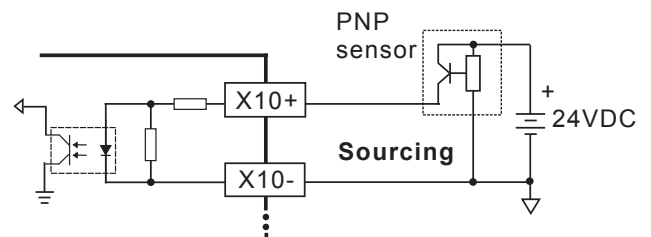
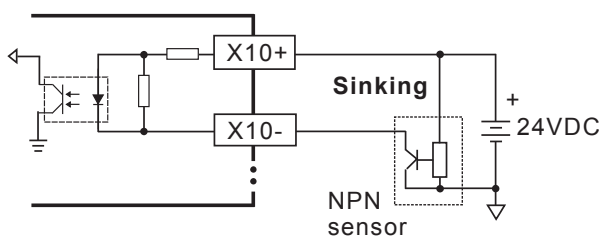
Applicable model:

DVP10PM00M

(1) The wiring below is used for high speed and high noise.



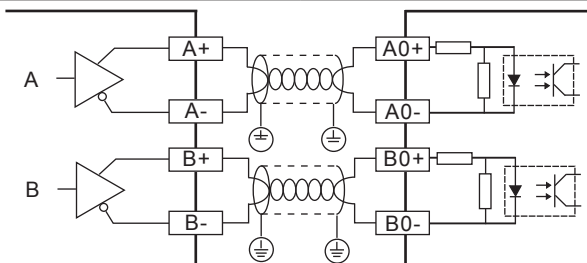
(2) Differential input terminals are connected to a sensor.



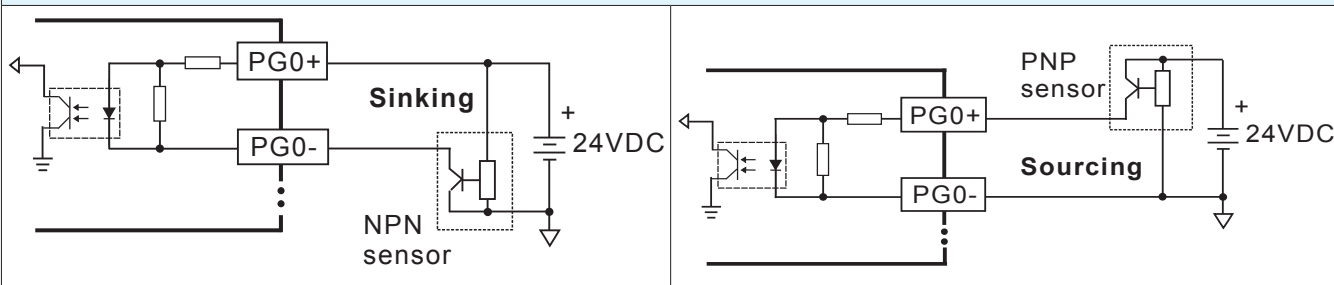
**Applicable model:**

DVP20PM00D, DVP20PM00M, DVP20PM00DT

(1) The wiring below is used for high speed and high noise.



(2) The wiring below will be used if a frequency is less than 50 kHz and there is not much noise.



**2. Wiring output terminals**

**A. Relay output terminals**

**Applicable model:**

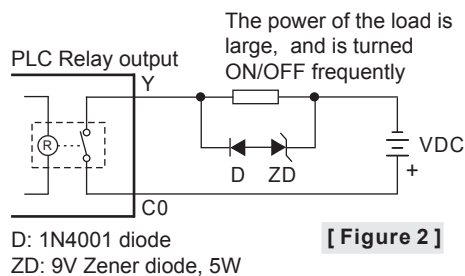
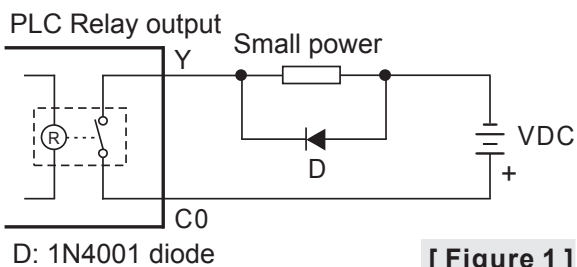
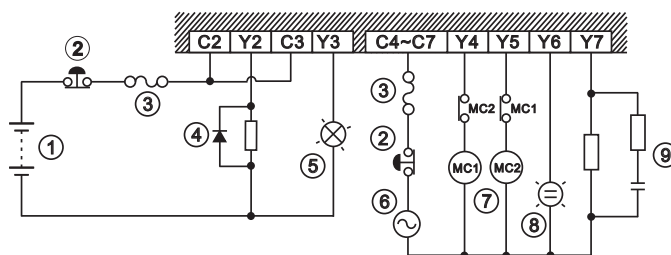
DVP20PM00D, DVP20PM00M

**Note:**

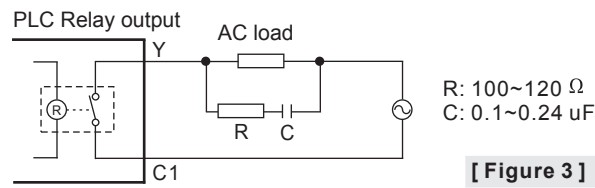
Y0~Y7 of DVP20PM00D are relay output terminals.

Y2~Y3 of DVP20PM00M are low-speed transistor output terminals, and

Y4~Y7 of DVP20PM00M are relay output terminals.



# Wiring

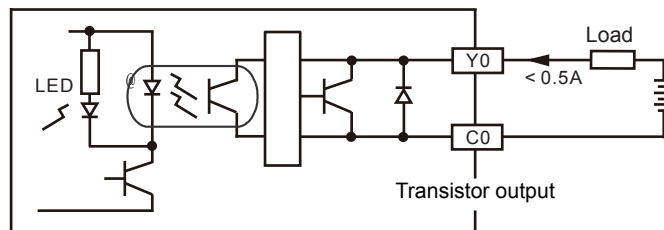


①	Direct-current power supply	②	Emergency stop: An external switch is used.
③	Fuse: To protect an output circuit, a fuse having a breaking capacity in the range of 5A to 10A is connected to a common terminal.		
④	Transient voltage suppression diode: It can be used to lengthen the lifespan that a contact has. A Diode is used to suppress the DC passing a load when the power of the load is small. (Please see [Figure 1].) A Diode and a Zener diode are used to suppress the DC passing a load when the power of the load is large, and is turned ON/OFF frequently. (Please see [Figure 2].)		
⑤	Incandescent lamp (resistive load)	⑥	Alternating-current power supply
⑦	Mutually exclusive output: For example, Y4 controls the clockwise rotation of a motor, and Y5 controls the counterclockwise rotation of the motor. The interlock circuit which is formed, and the program in the PLC ensure that there are protective measures if an abnormal condition occurs.		
⑧	Indicator: Neon lamp		
⑨	Surge absorber: It can be used to reduce the noise produced by an AC load. (Please see [Figure 3].)		

## B. Transistor output terminals

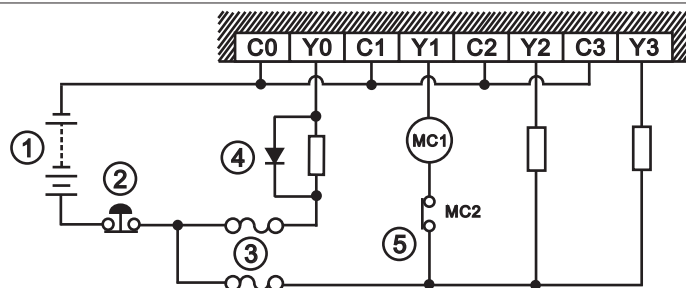
### Applicable model:

DVP10PM00M, DVP20PM00M, DVP20PM00DT .



### Applicable model:

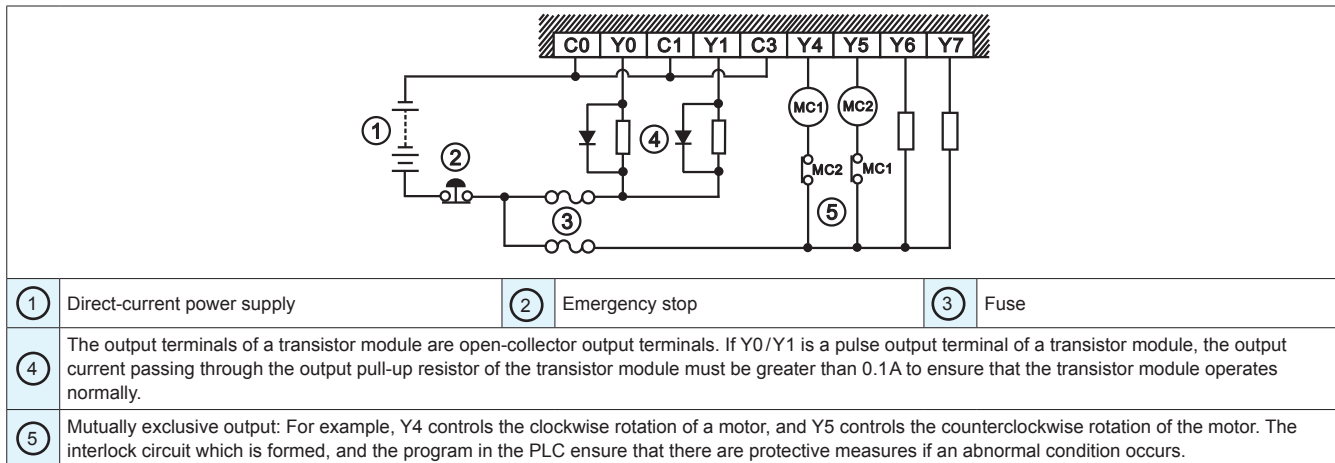
DVP10PM00M



**Applicable model:**

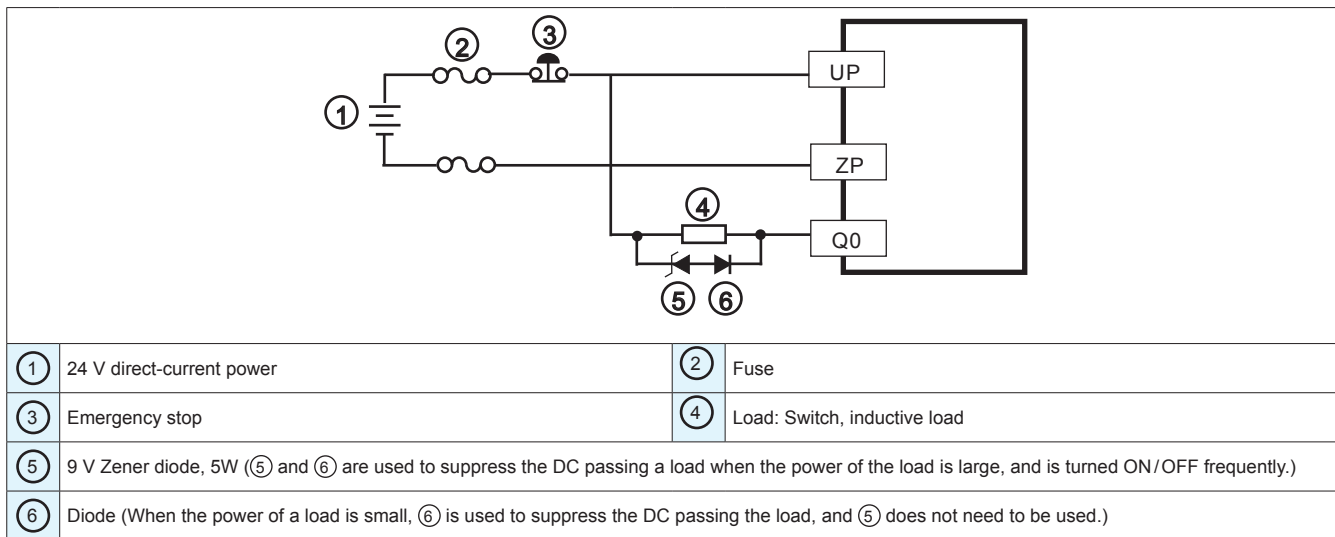
DVP20PM00M, DVP20PM00DT

Note: Y2~Y3 of DVP20PM00M are low-speed transistor output terminals, and Y4~Y7 of DVP20PM00M are relay output terminals. Y0~Y7 of DVP20PM00DT are low-speed transistor output terminals.



**Applicable model:**

DVP10MC11T





# Wiring

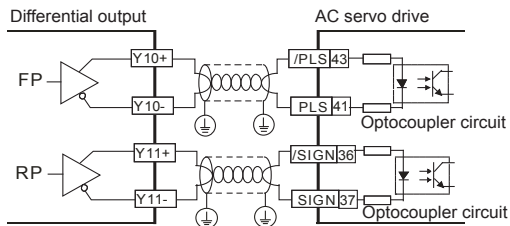
## C. Differential output terminals

### Applicable model:

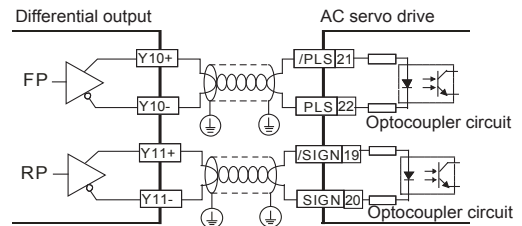
DVP10PM00M

#### Connecting differential output terminals to an AC servo drive

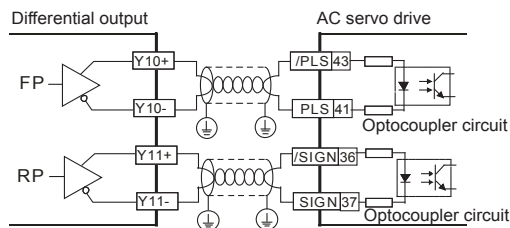
##### • ASDA-A/ASDA-A+ /ASDA-A2 series AC servo drive



##### • ASDA-B series AC servo drive



##### • ASDA-AB series AC servo drive

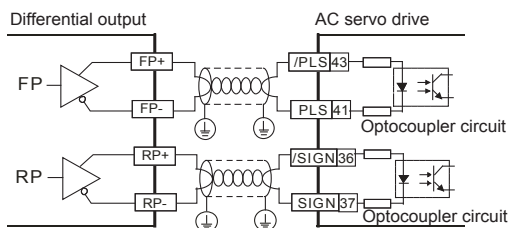


### Applicable model:

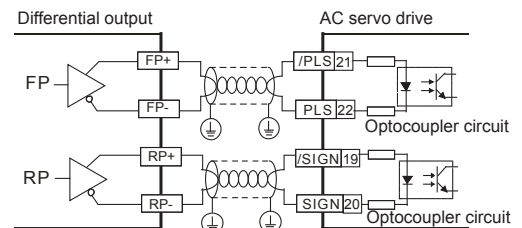
DVP20PM00D, DVP20PM00M, DVP20PM00DT

#### Connecting differential output terminals to an AC servo drive

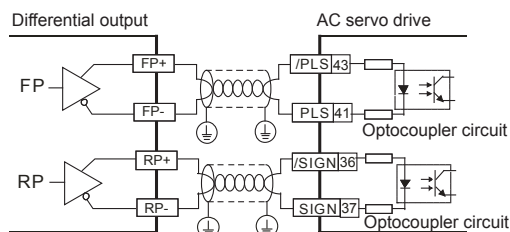
##### • ASDA-A/ASDA-A+ /ASDA-A2 series AC servo drive



##### • ASDA-B series AC servo drive



##### • ASDA-AB series AC servo drive



# Software

## PMSoft

The programming software for G-Code editing, motion trajectory simulation, positioning route instruction and electronic cam establishment

**Variable Declaration**

Separate from the program. The corresponding physical I/O point of the variable is defined only after the program is compiled. Users do not need to modify the program.

**Function Block**

A complicated project can be divided into many function blocks. A function block can be used repeatedly. The import/export function makes the programming more convenient.

**Full Monitoring**

The "program monitoring" and "device monitoring" allow users to keep track of the operation of the program.

**Motion Network Function Block**

PLC Open Function Block function

**Electronic Cam**

Electronic cam editing

Class	Identifiers	Address	Type	Initial	Comment
VAR	Axis_Scan		FPMC_Scan		FPMC轴扫描
VAR	Axis_Enable		FPMC_Servo_OnOFF		FPMC轴使能
VAR	Axis_PP		FPMC_PPParameter		FPMC轴定位
VAR	Axis_PP		FPMC_ReadParam		FPMC轴参数

## CANopen Builder

- Featuring network arrangement, motion control programming, G-code editor/graph preview and E-Cam curve planning
- Supports international standard function blocks for motion control, enhancing program editing efficiency

**Network arrangement**

Supports network scanning for listing all the equipment

**Program editing**

Supports CFC, function blocks connection and syntax check

**G-code editor and preview**

Supports G-code editing and preview, direct DXF files import available

**E-Cam curve planning**

Users can plan E-Cam curves according to their needs for more complex control

# Touch / Text Panel HMI

## TP



## 7-Inch Touch Panel HMI with Built-in PLC

### TP70P-RM0

- ▶ Adopts core of SS2 series PLC with program of 2K steps and D devices of 5K words
- ▶ 7" TFT-LCD
- ▶ Touch screen
- ▶ Built-in USB port for program upload/download
- ▶ Built-in 2 sets of communication port
- ▶ Supports MODBUS ASCII/RTU modes
- ▶ Built-in real time clock (RTC)

<b>Dimensions</b>	7" (154 × 85 mm)
<b>Resolution</b>	800 × 480
<b>Display Color</b>	65535 colors
<b>Flash Memory</b>	64M bytes
<b>SRAM</b>	64K bytes
<b>Function Keys</b>	Not available
<b>Password</b>	Available
<b>Recipe Function</b>	Not available
<b>Real-time Clock</b>	Available
<b>Serial COM Port</b>	2 Sets of Communication Port
<b>Editing Software</b>	TPEditor

## 4-Line Text Panel HMI

### TP04G-AL-C

### TP04G-AL2

- ▶ 4.1" STN-LCD
- ▶ User-defined function keys available
- ▶ Supports RS-232/RS-422/RS-485 COM ports (TP04G-AL2)
- ▶ Password protection function available
- ▶ User-defined boot screen available
- ▶ Built-in real time clock (RTC)

<b>Dimensions</b>	4.1" (101.8 × 35.24 mm)
<b>Resolution</b>	192 × 64
<b>Display Color</b>	Monochrome
<b>Flash Memory</b>	256K bytes
<b>SRAM</b>	16k/10K bytes
<b>Function Keys</b>	10 function keys
<b>Password</b>	Available
<b>Recipe Function</b>	Not available
<b>Real-time Clock</b>	Available
<b>Serial COM Port</b>	RS-232 & RS-422/485
<b>Editing Software</b>	TPEditor

## 4-Line Text Panel HMI

### TP04G-BL-C

- ▶ 4.1" STN-LCD
- ▶ 0~9 numeric keys and user-defined function available
- ▶ Built-in RS-232 and RS-422/RS-485 ports
- ▶ Supports MODBUS ASCII/RTU modes
- ▶ Password protection function available
- ▶ User-defined boot screen available
- ▶ Built-in real time clock (RTC)

<b>Dimensions</b>	4.1" (101.8 × 35.24 mm)
<b>Resolution</b>	192 × 64
<b>Display Color</b>	Monochrome
<b>Flash Memory</b>	256K bytes
<b>SRAM</b>	10K bytes
<b>Function Keys</b>	17 function keys
<b>Password</b>	Available
<b>Recipe Function</b>	Not available
<b>Real-time Clock</b>	Available
<b>Serial COM Port</b>	RS-232 & RS-422/485
<b>Editing Software</b>	TPEditor

## 8-Line Text Panel HMI

### TP08G-BT2

- ▶ 3.8" STN-LCD
- ▶ Resolution: 240 × 128 dots
- ▶ Built-in 1024KB flash memory
- ▶ 24 user-defined function keys
- ▶ Built-in RS-232 and RS-422/RS-485 COM ports
- ▶ Supports recipes and macro functions

<b>Dimensions</b>	3.8" ( 83×41 mm)
<b>Resolution</b>	240 × 128
<b>Display Color</b>	Monochrome
<b>Flash Memory</b>	1M bytes
<b>SRAM</b>	64K bytes
<b>Function Keys</b>	24 function keys
<b>Password</b>	Available
<b>Recipe Function</b>	Available
<b>Real-time Clock</b>	Available
<b>Serial COM Port</b>	RS-232 & RS-422/485
<b>Editing Software</b>	TPEditor

## 7-Inch Touch Panel HMI with Built-in PLC

### TP70P

- ▶ Adopts core of SS2 series PLC with program of 4K steps and D devices of 5K words
- ▶ Provides 2 sets of 10 kHz high speed pulse input
- ▶ 7" TFT-LCD
- ▶ Touch screen
- ▶ Built-in USB port for program upload/download
- ▶ Built-in 2 sets of communication port
- ▶ Supports MODBUS ASCII/RTU modes
- ▶ Built-in real time clock (RTC)
- ▶ Digital and Analog I/O points available

<b>Dimensions</b>	7" (154 × 85 mm)
<b>Resolution</b>	800 × 480
<b>Display Color</b>	65535 colors
<b>Flash Memory</b>	64M bytes
<b>SRAM</b>	64K bytes
<b>Function Keys</b>	Not available
<b>Password</b>	Available
<b>Recipe Function</b>	Not available
<b>Real-time Clock</b>	Available
<b>Serial COM Port</b>	2 sets for RS-485
<b>Editing Software</b>	TPEditor

## 4-Line Text Panel HMI with Built-in PLC

### TP04P

- ▶ Adopts core of SS2 series PLC with program of 8K steps and D devices of 5K words
- ▶ Provides 2 sets of 10 kHz high speed pulse input
- ▶ 4.1" STN-LCD
- ▶ Provides 0~9 numeric keys with user defined function
- ▶ Built-in USB port for program upload/download
- ▶ Built-in 2 sets of RS-485 communication port
- ▶ Supports MODBUS ASCII/RTU modes
- ▶ User-defined boot screen available
- ▶ Built-in real time clock (RTC)
- ▶ Digital and Analog I/O points available

<b>Dimensions</b>	4.1" (101.8 × 35.24 mm)
<b>Resolution</b>	192 × 64
<b>Display Color</b>	Monochrome
<b>Flash Memory</b>	1M bytes
<b>SRAM</b>	64K bytes
<b>Function Keys</b>	17 function keys
<b>Password</b>	Available
<b>Recipe Function</b>	Not available
<b>Real-time Clock</b>	Available
<b>Serial COM Port</b>	2 sets for RS-485
<b>Editing Software</b>	TPEditor

# Product Line-up

## Text Panel HMI

Specifications		Check	Model					
			TP04G-AS2	TP02G-AS1	TP08G-BT2	TP04G-AL2	TP04G-AL-C	TP04G-BL-C
Display Size	2.8"	<input type="checkbox"/>		•				
	3"	<input type="checkbox"/>	•					
	3.8"	<input type="checkbox"/>			•			
	4.1"	<input type="checkbox"/>				•	•	•
Display Color	STN Mono	<input type="checkbox"/>	•	•	•	•	•	•
Resolution	128 × 64	<input type="checkbox"/>	•					
	160 × 32	<input type="checkbox"/>		•				
	192 × 64	<input type="checkbox"/>				•	•	•
	240 × 128	<input type="checkbox"/>			•			
Memory	256KB	<input type="checkbox"/>	•	•		•	•	•
	1MB	<input type="checkbox"/>			•			
Serial Communication	RS-232/RS-485	<input type="checkbox"/>		•			•	
	RS-232/RS-485/RS-422	<input type="checkbox"/>	•		•	•		•
Memory Card	TP-PCC01	<input type="checkbox"/>	•	•	•	•	•	•
Function Key	10	<input type="checkbox"/>				•	•	
	12	<input type="checkbox"/>		•				
	16	<input type="checkbox"/>	•					
	17	<input type="checkbox"/>						
	24	<input type="checkbox"/>			•			•

## Text Panel / Touch Panel HMI with Built-in PLC

Specifications		Check	Model									
			TP04P-16TP1R	TP04P-32TP1R	TP04P-22XA1R	TP04P-21EX1R	TP70P-16TP1R	TP70P-32TP1R	TP70P-22XA1R	TP70P-21EX1R	TP70P-RM0	TP70P-RM1
Display Size	4.1"	<input type="checkbox"/>	•	•	•	•						
	7"	<input type="checkbox"/>					•	•	•	•	•	•
Display Color	STN Mono	<input type="checkbox"/>	•	•	•	•						
	TFT Color	<input type="checkbox"/>					•	•	•	•	•	•
Resolution	192 × 64	<input type="checkbox"/>	•	•	•	•						
	800 × 480	<input type="checkbox"/>					•	•	•	•	•	•
Memory	64Mb	<input type="checkbox"/>	•	•	•	•	•	•	•	•	•	•
Serial Communication	RS-485 × 2	<input type="checkbox"/>	•	•	•	•	•	•	•			
	RS-232 & RS-485	<input type="checkbox"/>								•		
	RS-232 & RS-485/RS-422	<input type="checkbox"/>										•
USB Device	1	<input type="checkbox"/>	•	•	•	•	•	•	•	•	•	•
Memory Card	TP-PCC01	<input type="checkbox"/>	•	•	•	•						
Function Key	17	<input type="checkbox"/>	•	•	•	•						
DI	8	<input type="checkbox"/>	•		•	•	•		•	•		
	16	<input type="checkbox"/>		•				•				
DO	8	<input type="checkbox"/>	•		•	•	•		•	•		
	16	<input type="checkbox"/>		•				•				
AI	2	<input type="checkbox"/>				•				•		
	4	<input type="checkbox"/>			•				•			
AO	1	<input type="checkbox"/>				•				•		
	2	<input type="checkbox"/>			•				•			
PT	2	<input type="checkbox"/>				•			•			

## Model Name Explanation

### Text Panel

#### TP04G-AS2









TP	04	G	A	S	1	□	□
Series Name	LCM Spec.	Graphic Mode		Model Type	Communication Interface	Safety Class	Extension Function
Text Panel	02: 2 lines 04: 4 lines 08: 8 lines		A: Function key B: Function key + Numeric key	S: Standard white T: Standard black L: Economy black	1: RS-232,RS-485, No RTC 2: RS-232,RS-485, RTC	Blank: CE/UL C: CE Only	Blank: No extension U: USB supported

### Text Panel PLC

#### TP04P-32TP1R

TP	04	P	32	TP	1	R
Series Name	LCM Spec.	PLC Mode	Number of Input/Output Points	Type Description		Output Type
Text Panel	Mono Series 04: 4 lines Color Series 70: 7" TFT	P: Graphic + built-in PLC	Blank: No I/O XX: Numbers of I/O	EN: Ethernet EN/RM: Ethernet remote I/O RM: Remote I/O TP: Digital input/output module EX: Digital input/output module + Analog input/output module + PT module XA: Digital input/output module + Analog input/output module	0: Compact 1: Standard	Blank: No Output P: PMOS transistor type output R: Relay type output T: NMOS transistor type output

# Specifications

		Text Panel HMI						Text Panel/Touch Panel HMI with Built-in PLC	
		TP02G-AS1	TP04G-AS2	TP08G-BT2	TP04G-AL-C	TP04G-AL2	TP04G-BL-C	TP04P-Series	TP70P-Series
<b>Model</b>									
<b>Display Specifications</b>	Screen Type	STN-LCD							TFT-LCD
	Display Color	Monochrome							65535
	Resolution	160 × 32	128 × 64	240 × 128	192 × 64			800 × 480	
	Backlight	Life span of backlight is about 50,000 hours at 25°C							20,000 hours
	Display Range	72 × 22mm	3" (67 × 32mm)	3.8" (83 × 41mm)	4.1" (101.8 × 35.24mm)			7" (154 × 85mm)	
<b>Flash Memory</b>		256K bytes		1M bytes	256K bytes		1M bytes	64M bytes	
<b>Program Download Port</b>		COM1 (RS-232)						COM1(USB)	USB
<b>Serial COM Port</b>	COM1	RS-232	RS-232/422		RS-232	RS-232/422	RS-232	-	-
	COM2	RS-485		-	RS-485	RS-485	RS-485	TP70P with I/O: RS-485 TP70P-RM0: RS-232	
	COM3	-		-	-	-	RS-485		
<b>Extension Interface</b>		The slot for program copy card							-
<b>Real-time Clock</b>		-	Built-in						
<b>Auxiliary Keys</b>	System Keys	6	7	12	5		7	-	
	Function Keys	10	5	12	5		10	-	
<b>Operating Voltage</b>		+24 V <sub>DC</sub> (-10% ~ +20%)							-
<b>Backup Battery</b>		3V lithium battery CR2032 × 1/battery life: 5 years							
<b>Buzzer</b>		85 dB							
<b>Cooling Method</b>		Natural air circulation							
<b>Operating Temperature</b>		0°C ~ 50°C							
<b>Storage Temperature</b>		-20°C ~ +60°C							
<b>Operating Humidity</b>		10% ~ 90% RH (0 ~ 40°C)							
<b>Vibration</b>		IEC 61131-2, IEC 68-2-6 (TEST Fc); 5 Hz ≤ f < 8.4 Hz Continuous: 3.5 mm; 8.4 Hz ≤ f ≤ 150 Hz Continuous: 1.0 g							
<b>Shock</b>		IEC 61131-2, IEC 68-2-27 (TEST Ea); 15 g peak, 11 ms duration, half-sine, three shocks in each direction per axis, on 3 mutually perpendicular axes (total of 18 shocks)							
<b>Radiated Emission</b>		CISPR11, Class A Frequency: 30 ~ 230 MHz, Limits: 40 dB uV/m; Frequency: 230 MHz ~ 1 GHz, Limits: 47 dB uV/m							
<b>Radiated Electromagnetic Field</b>		EN61000-4-3, Frequency: 80 ~ 2000 MHz, Limits: 10 V/m							
<b>Electrostatic Discharge</b>		EN61000-4-2, Air Discharge: 8 KV, Contact Discharge: 4 KV							
<b>Fast Transient Burst</b>		EN61000-4-4, Power Line: 1 KV, Communication I/O: 500 V							
<b>Dimensions (Width (W) × Height (H) × Depth (D))</b>		147 × 97 × 35.5		210 × 122 × 45	163.6 × 108.6 × 37		175.8 × 108.8 × 37	175.8 × 108.6 × 59.2	TP70P with I/O: 205.6 × 142.6 × 49 TP70-RM0: 205.6 × 142.6 × 37
<b>Panel Cutout</b>		136 × 85		196 × 108	151 × 96		163 × 96	163 × 96	191 × 128
<b>Weight</b>		240 g		430 g	268 g	270 g	292 g	500 g	TP70P with I/O: 680 g TP70P-RM0: 620 g
<b>Safety Approvals (Waterproof Class of Front Panel)</b>		IP65/NEMA4 & CE, UL Type 4 indoor				IP65/NEMA4 & CE, UL			

## Ordering Information

Product Name	Description							Model Name	Certificates
TP02	Resolution: 160 × 32, Serial COM ports: RS-232 & RS-485							TP02G-AS1	CE UL <sub>us</sub>
TP04	Resolution: 128 × 64, Serial COM ports: RS-232 & RS-422/RS-485							TP04G-AS2	
	Resolution: 192 × 64, Serial COM ports: RS-232 & RS-422/RS-485							TP04G-AL2	
	Resolution: 192 × 64, Serial COM ports: RS-232							TP04G-AL-C	
TP04P	Resolution: 192 × 64, Serial COM ports: USB & RS-485							TP04G-BL-C	CE
	8DI	8DO	-	-	-	Relay	TP04P-16TP1R		
	8DI	16DO	-	-	-	Relay	TP04P-32TP1R		
	8DI	8DO	4AI	2AO	-	Relay	TP04P-22XA1R		
	8DI	8DO	2AI	1AO	2PT	Relay	TP04P-21EX1R		
TP70P	Resolution: 800 × 400 Serial COM ports: USB & RS-485							TP70P-16TP1R	CE UL <sub>us</sub>
	8DI	8DO	-	-	-	Relay	TP70P-16TP1R		
	16DI	16DO	-	-	-	Relay	TP70P-32TP1R		
	8DI	8DO	4AI	2AO	-	Relay	TP70P-22XA1R		
	8DI	8DO	2AI	1AO	2PT	Relay	TP70P-21EX1R		
TP70P	Resolution: 800 × 400 Serial COM ports: USB & RS-232/485							TP70P-RM0	
	-	-	-	-	-	-	-		
TP08	Resolution: 240 × 128, Serial COM ports: RS-232 & RS-422/RS-485, 0~9 numeric keys available							TP08G-BT2	



# Dimensions Dimensions are in mm



# Wiring

## TP04P/TP70P Series

TP04P/TP70P-16TP1R

TP04P/TP70P-32TP1R

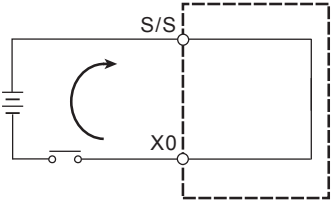
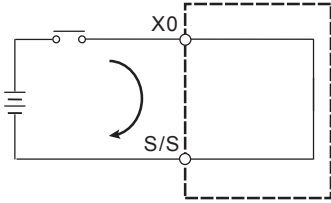
TP04P/TP70P-22XA1R

TP04P/TP70P-21EX1R

### 1. Wiring input terminals (NPN (Sink) and PNP (Source))

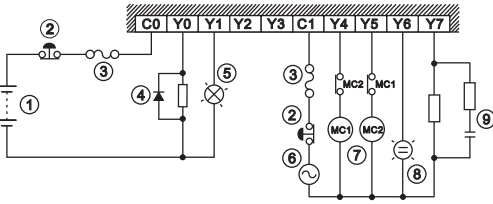
#### Applicable model:

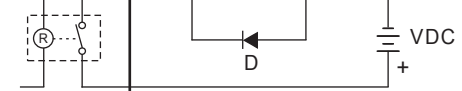
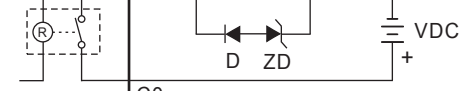
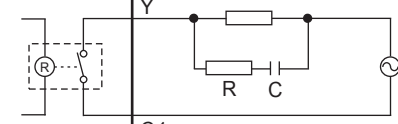
All TP04P/TP70P series

NPN (Sink)	PNP (Source)
NPN (Sink)=The current flows into the common terminal S/S	PNP (Source)=The current flows from the common terminal S/S
	

### 2. Wiring relay output terminals

Applicable model: All TP04P/TP70P series

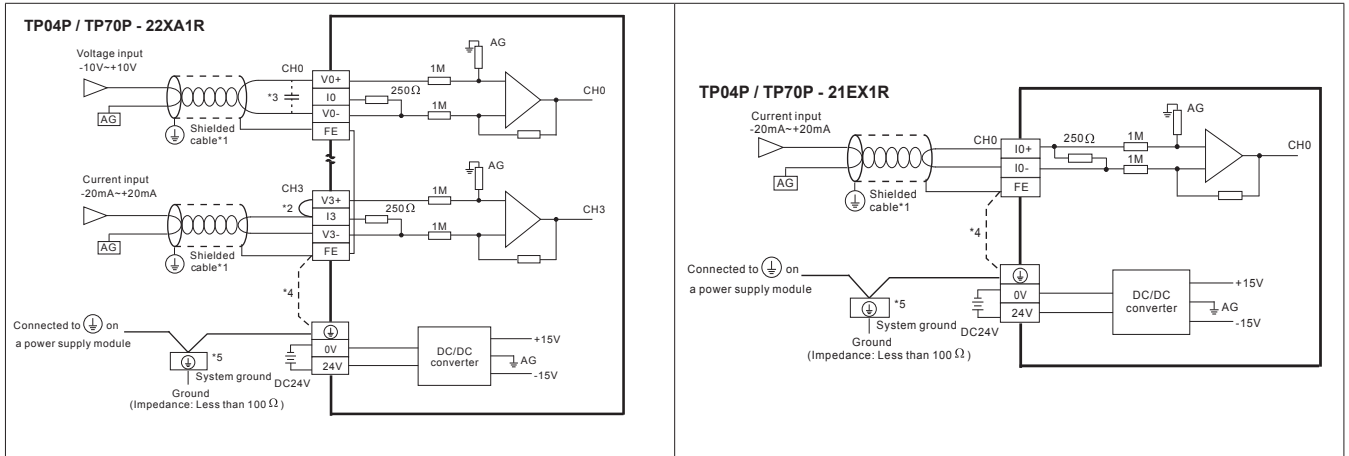


<p>PLC Relay output Y</p> <p>Small power</p>  <p>C0</p> <p>D: 1N4001 diode</p> <p>[ Figure 1 ]</p>	<p>PLC Relay output Y</p> <p>The power of the load is large, and is turned ON/OFF frequently</p>  <p>C0</p> <p>D: 1N4001 diode ZD: 9V Zener diode, 5W</p> <p>[ Figure 2 ]</p>
<p>PLC Relay output Y</p> <p>AC load</p>  <p>C1</p> <p>R: 100~120 Ω C: 0.1~0.24 μF</p> <p>[ Figure 3 ]</p>	

① Direct-current power supply	② Emergency stop: An external switch is used.
③ Fuse: To protect an output circuit, a fuse having a breaking capacity in the range of 5A to 10A is connected to a common terminal.	
④ Transient voltage suppression diode: It can be used to lengthen the lifespan that a contact has. A Diode is used to suppress the DC passing a load when the power of the load is small. (Please see [Figure 1].) A Diode and a Zener diode are used to suppress the DC passing a load when the power of the load is large, and is turned ON/OFF frequently. (Please see [Figure 2].)	
⑤ Incandescent lamp (resistive load)	⑥ Alternating-current power supply
⑦ Mutually exclusive output: For example, Y4 controls the clockwise rotation of a motor, and Y5 controls the counterclockwise rotation of the motor. The interlock circuit which is formed, and the program in the TP04P series text panel ensure that there are protective measures if an abnormal condition occurs.	
⑧ Indicator: Neon lamp	⑨ Surge absorber: It can be used to reduce the noise produced by an AC load. (Please see [Figure 3].)

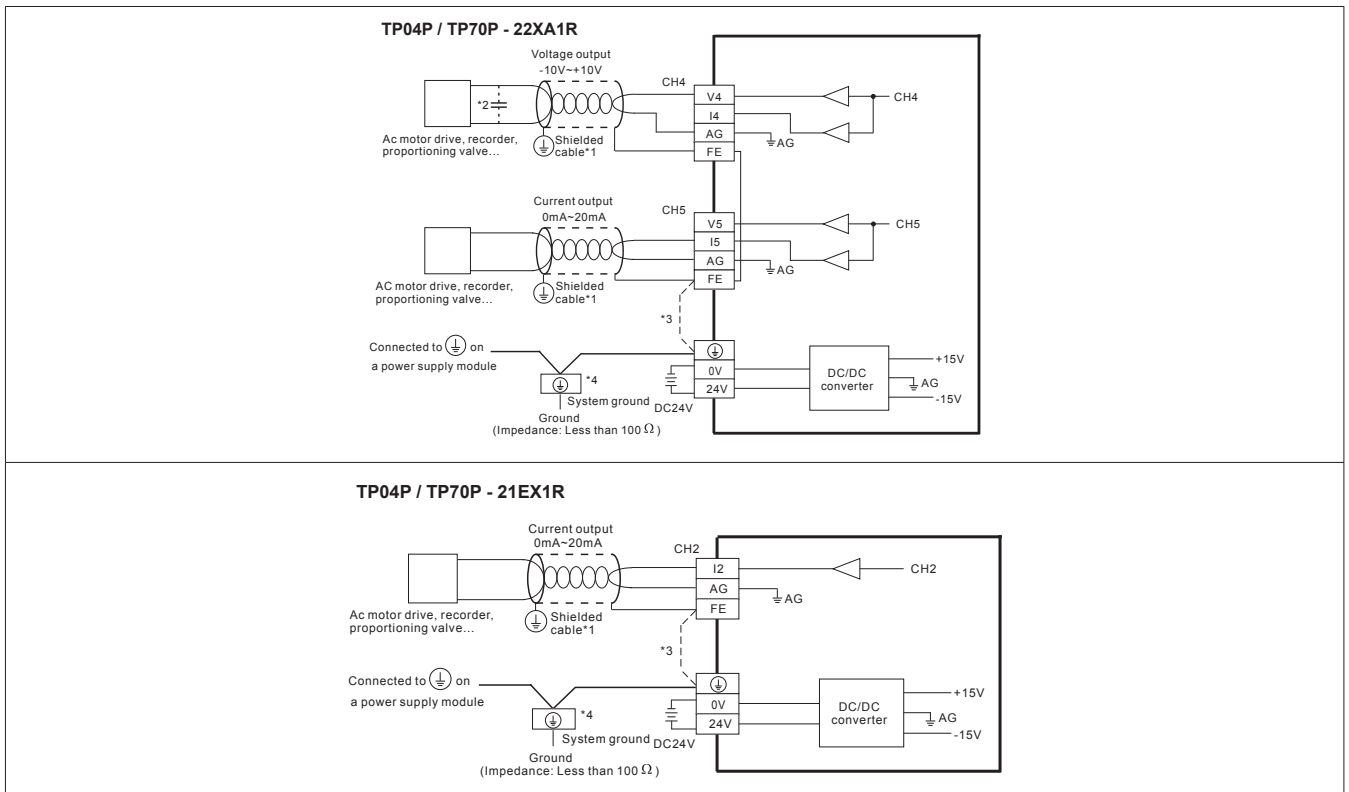
# Wiring

## 3. Wiring analog input terminals



- \*1. Please isolate the analog input signal cables from other power cables.
- \*2. If the text panel is connected to a current signal, the terminals V3+ and I3+ must be short-circuited.
- \*3. If the ripple in the input voltage results in noise interference with the wiring, please connect the text panel to the capacitor having a capacitance in the range of 0.1 μF to 0.47 μF with a working voltage of 25V.
- \*4. If there is much noise, please connect the terminal FE to the ground terminal.
- \*5. Please connect the ground terminal on a power supply module and the analog input terminal FE to the system ground, and then ground the system ground or connect the system ground to a distribution box.

## 4. Wiring analog output terminals



- \*1. Please isolate the analog output signal cables from other power cables.
- \*2. If a ripple is large for the input terminal of the load and results in noise interference with the wiring, please connect the module to the capacitor having a capacitance in the range of 0.1 μF to 0.47 μF with a working voltage of 25V.
- \*3. If there is much noise, please connect the terminal FE to the ground terminal.
- \*4. Please connect the ground terminal on a power supply module and the analog output terminal FE to the system ground, and then ground the system ground or connect the system ground to a distribution box.

# Touch Panel HMI

## DOP-B



### 4.3-inch Widescreen HMI

#### DOP-B03S(E)211

- ▶ 4.3" 16: 9 widescreen, 65536 colors TFT
- ▶ Display Resolution: 480 × 272 pixels
- ▶ Supports Ethernet
- ▶ USB Client for high-speed data transfer
- ▶ USB Host for direct connection to USB disk, printer, mouse and keypad



### 5.6-inch HMI

#### DOP-B05S111

- ▶ 5.6" 65536 colors TFT
- ▶ Display Resolution: 320 × 234 pixels
- ▶ USB Client for high-speed data transfer
- ▶ USB Host for direct connection to USB disk, printer, mouse and keypad



### 7-inch Widescreen HMI

#### DOP-B07S411 / DOP-B07S(E)415

- ▶ 7" 16: 9 widescreen, 65536 colors TFT
- ▶ Display Resolution: 800 × 480 pixels
- ▶ Supports Ethernet
- ▶ Supports SDHC card
- ▶ USB Client for high-speed data transfer
- ▶ USB Host for direct connection to USB disk, printer, mouse and keypad
- ▶ Supports audio output: MP3, Wav files



### 7-inch Widescreen HMI with Delta Professional Functions

#### DOP-B07PS415

- ▶ 7" 16: 9 widescreen, 65536 colors TFT
- ▶ Display Resolution: 800 × 480 pixels
- ▶ Supports SDHC card
- ▶ USB Client for high-speed data transfer
- ▶ USB Host for direct connection to USB disk, printer, mouse and keypad
- ▶ Supports audio output: MP3, Wav files
- ▶ Supports Electronic Cam (E-Cam) function (ASDA-A2)
- ▶ Supports G-Code download function (DVP-10MC / DVP-20PM / AH20MC)



# 7-inch HMI with Delta Professional Functions

## DOP-B07PS515

- ▶ 7" 65536 colors TFT
- ▶ Display Resolution: 800 × 600 pixels
- ▶ Supports SDHC card
- ▶ USB Client for high-speed data transfer
- ▶ USB Host for direct connection to USB disk, printer, mouse and keypad
- ▶ Supports audio output: MP3, Wav files
- ▶ Supports Electronic Cam (E-Cam) function (ASDA-A2)
- ▶ **Supports G-Code download function (DVP-10MC/DVP-20PM/AH20MC)**
- ▶ The world's first design: the effective display area is the same as 7-inch models, but the panel cutout's dimensions are just the same as 5.6-inch models.



## 7-inch HMI

### DOP-B07S(E)515

- ▶ 7" 65536 colors TFT
- ▶ Display Resolution: 800 × 600 pixels
- ▶ USB Client for high-speed data transfer
- ▶ USB Host for direct connection to USB disk, printer, mouse and keypad
- ▶ Supports audio output: MP3, Wav files
- ▶ The world's first design: the effective display area is the same as 7-inch models, but the panel cutout's dimensions are just the same as 5.6-inch models.
- ▶ Supports Ethernet
- ▶ Supports SDHC card



## 8-inch HMI

### DOP-B08S(E)515

- ▶ 8" 65536 colors TFT
- ▶ Display Resolution: 800 × 600 pixels
- ▶ USB Client for high-speed data transfer
- ▶ USB Host for direct connection to USB disk, printer, mouse and keypad
- ▶ Supports audio output: MP3, Wav files
- ▶ Supports Ethernet
- ▶ Supports SDHC card



## 10.1-inch Widescreen HMI

### DOP-B10S411/DOP-B10S(E)615

- ▶ 10.1" 16: 9 widescreen, 65536 colors TFT
- ▶ Display Resolution: 800 × 480 pixels / 1024 × 600 pixels
- ▶ USB Client for high-speed data transfer
- ▶ USB Host for direct connection to USB disk, printer, mouse and keypad
- ▶ Supports audio output: MP3, Wav files
- ▶ Supports Ethernet
- ▶ Supports SDHC card



# 10.4-inch HMI

## DOP-B10S511 / DOP-B10E515

- ▶ 10.4" 65536 colors TFT
- ▶ Display Resolution: 800 × 600 pixels
- ▶ Supports audio output: MP3, Wav files
- ▶ Host for direct connection to USB disk, printer, mouse and keypad
- ▶ Supports Ethernet
- ▶ Supports SDHC card



## Model Name Explanation

### DOP-B07S411K

DOP-	B	07	S	4	1	1	K
Product Name	Series	Display Size	Type	Resolution	Appearance	Peripheral	Function Code
DOP: Delta Operation Panel	B: B series HMI	03: 4.3 inches 05: 5.6 inches 07: 7 inches 08: 8 inches 10: 10.1/10.4 inches	S: Standard Type E: Ethernet Type PS: Standard with Professional function	1: QVGA 4: WVGA 5: SVGA 6: WXGA		0: None 1: USB Host only 5: USB Host and SD	K: Keypad

# Product Line-up

Item	Specifications	Check								
			B03S211	B03E211	B05S111	B07S411	B07S401K	B07S411K	B07S415	B07E
Display Size	4.3"	<input type="checkbox"/>	•	•						
	5.6"	<input type="checkbox"/>			•					
	7"	<input type="checkbox"/>				•	•	•	•	•
	8"	<input type="checkbox"/>								
	10.1"	<input type="checkbox"/>								
	10.4"	<input type="checkbox"/>								
Display Colors	65536 Colors	<input type="checkbox"/>	•	•	•	•	•	•	•	•
Resolution	320 × 234	<input type="checkbox"/>			•					
	480 × 272	<input type="checkbox"/>	•	•						
	800 × 480	<input type="checkbox"/>				•	•	•	•	•
	800 × 600	<input type="checkbox"/>								
	1024 × 600	<input type="checkbox"/>								
ROM	128MB	<input type="checkbox"/>	•	•	•	•	•	•	•	•
Ethernet Communication	1 Port	<input type="checkbox"/>		•						•
USB	Host	<input type="checkbox"/>	•	•	•	•	•	•	•	•
	Client	<input type="checkbox"/>	•	•	•	•	•	•	•	•
Memory Card	SD Card	<input type="checkbox"/>							•	•
Audio Output		<input type="checkbox"/>								•
Function Key	8 Keys	<input type="checkbox"/>					•	•		
Delta Professional Integration Function		<input type="checkbox"/>								
Serial Communication	COM1	<input type="checkbox"/>	RS-232/ RS-485	RS-232/ RS-485	RS-232	RS-232	RS-232	RS-232	RS-232	RS-232
	COM2	<input type="checkbox"/>	RS-422/ RS-485*	RS-422/ RS-485*	RS-232/ RS-485	RS-232/ RS-485	RS-232/ RS-485	RS-232/ RS-485	RS-232/ RS-485/ RS-422	RS-232/ RS-485/ RS-422
	COM3	<input type="checkbox"/>			RS-422/ RS-485*	RS-422/ RS-485*	RS-422/ RS-485*	RS-422/ RS-485*	RS-232/ RS-485/ RS-422	RS-232/ RS-485/ RS-422
		<b>Check</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

\* Users can extend COM3 connection through COM2 as a virtual COM port which appears to the system and applications as a real port for interface extension. For more detailed information on instructions

Models												
	B07PS415	B07S515	B07E515	B07PS515	B08S515	B08E515	B10S411	B10S511	B10E515	B10PE515	B10S615	B10E615
	•	•	•	•								
					•	•						
							•				•	•
								•	•	•		
	•	•	•	•	•	•	•	•	•	•	•	•
	•						•					
		•	•	•	•	•		•	•	•		
											•	•
	•	•	•	•	•	•	•	•	•	•	•	•
						•			•	•		•
	•	•	•	•	•	•	•	•	•	•	•	•
	•	•	•	•	•	•	•	•	•	•	•	•
	•	•	•	•	•	•			•	•	•	•
						•			•	•		•
	•			•						•		
232	RS-232	RS-232	RS-232	RS-232	RS-232	RS-232	RS-232	RS-232	RS-232	RS-232	RS-232	RS-232
232/ 485/ 422	RS-232/ RS-485/ RS-422	RS-232/ RS-485	RS-232/ RS-485	RS-232/ RS-485	RS-232/ RS-485/ RS-422	RS-232/ RS-485/ RS-422	RS-232/ RS-485	RS-232/ RS-485	RS-232/ RS-485/ RS-422	RS-232/ RS-485/ RS-422	RS-232/ RS-485/ RS-422	RS-232/ RS-485/ RS-422
232/ 485/ 422	RS-232/ RS-485/ RS-422	RS-422/ RS-485*	RS-422/ RS-485*	RS-422/ RS-485*	RS-422/ RS-485	RS-422/ RS-485	RS-422/ RS-485*	RS-422/ RS-485*	RS-232/ RS-485/ RS-422	RS-232/ RS-485/ RS-422	RS-232/ RS-485/ RS-422	RS-232/ RS-485/ RS-422
	□	□	□	□	□	□	□	□	□	□	□	□

and operation, please refer to the user manual of the DOP-B series.



# Specifications & Ordering Information

MODEL		DOP-B03S211	DOP-B03E211	DOP-B05S111	DOP-B07S411	DOP-B07S401K DOP-B07S411K	DOP-B07S415 DOP-B07PS415	DOP-B07E415	DOP-B07E415
LCD MODULE	Display Type	4.3" TFT LCD (65536 colors)		5.6" TFT LCD (65536 colors)	7" Widescreen TFT LCD (65536 colors)				
	Resolution	480 × 272 pixels		320 × 234 pixels	800 × 480 pixels				
	Backlight	less than 20,000 hours half-life at 25°C <sup>(Note 1)</sup>	less than 10,000 hours half-life at 25°C <sup>(Note 1)</sup>	less than 20,000 hours half-life at 25°C <sup>(Note 1)</sup>					
	Display Size	95.04 × 53.856 mm		113.28 × 84.70 mm	154.08 × 85.92 mm		152.4 × 91.44 mm		
Operating System		Delta Real Time OS							
MCU		32-bit RISC Micro-controller							
Flash ROM		Flash ROM 128 MB (OS System: 30 MB/Backup: 16 MB/User Application: 82 MB)							
SDRAM		64 Mbytes							
Backup Memory		16 Mbytes							
Sound Effect Output	Buzzer	Multi-Tone Frequency (2K~4KHz)/85dB							
	AUX	N/A	N/A	N/A	N/A	N/A	N/A	Stereo output	
Ethernet Interface		N/A	IEEE 802.3, IEEE 802.3u 10/100 Mbps Auto-sensing (has built-in isolated power circuit <sup>(Note 3)</sup> )	N/A	N/A	N/A	N/A	IEEE 802.3, IEEE 802.3u 10/100 Mbps Auto-sensing (has built-in isolated power circuit <sup>(Note 3)</sup> )	
Memory Card		N/A	N/A	N/A	N/A	N/A	SD card (support SDHC)		
USB		1 USB Host <sup>(Note 2)</sup> Ver 1.1/1 USB Client Ver 2.0							
Serial COM Port	COM1	RS-232 (Supports hardware flow control) / RS-485		RS-232 (supports hardware flow control)					
	COM2	RS-422/RS-485		RS-232/RS-485			RS-232/RS-422 RS-485	RS-232/RS-422 RS-485 (has built-in isolated power circuit <sup>(Note 3)</sup> )	
	COM3	N/A		RS-422/RS-485			RS-232/RS-422 RS-485	RS-232/RS-422 RS-485 (has built-in isolated power circuit <sup>(Note 3)</sup> )	
Function Key		N/A				8		N/A	
Perpetual Calendar (RTC)		Built-in							
Cooling Method		Natural air circulation							
Safety Approval		CE/UL <sup>(Note 4)</sup> / KCC <sup>(Note 4)</sup>							
Waterproof Degree		IP65/NEMA4							
Operation Voltage <sup>(Note 5)</sup>		+24 V <sub>DC</sub> (-10% ~ +15%) (please use isolated power supply)						+24 V <sub>DC</sub> (-10% ~ +15%) (has built-in isolated power circuit <sup>(Note 3)</sup> )	+24 V <sub>DC</sub> (-10% ~ +15%) (has built-in isolated power circuit <sup>(Note 3)</sup> )
Voltage Endurance		500 V <sub>AC</sub> for 1 minute (between charging DC24 terminal and FG terminals)							
Power Consumption <sup>(Note 5)</sup>		2.64 W	2.64 W	3.0 W	4 W	4 W	5 W	7.5 W	7.5 W
Backup Battery		3V lithium battery CR2032 × 1							
Backup Battery Life		It depends on the temperature used and the conditions of usage, about 3 years or more at 25°C							
Operation Temp		0°C ~ 50°C							
Storage Temp		-20°C ~ +60°C							
Ambient Humidity		10% ~ 90% RH (0 ~ 0°C), 10% ~ 55% RH (41 ~ 50°C), Pollution Degree 2							
Vibration/Shock		IEC 61131-2 compliant 5 Hz ~ 8.3 Hz = Continuous: 3.5 mm, 8.3 Hz ~ 150 Hz = Continuous: 1.0 g IEC 60068-2-27 compliant 15g peak for 11 ms duration, X, Y, Z directions for 6 times							
Dimensions (W) × (H) × (D) mm		129 × 103 × 39	129 × 103 × 39	184 × 144 × 50	215 × 161 × 50	215 × 161 × 50	215 × 161 × 50	215 × 161 × 50	184 × 144 × 50
Panel Cutout (W) × (H) mm		118.8 × 92.8	118.8 × 92.8	172.4 × 132.4	196.9 × 142.9	196.9 × 142.9	196.9 × 142.9	196.9 × 142.9	172.4 × 132.4
Weight		Approx. 230 g	Approx. 264 g	Approx. 670 g	Approx. 820 g	Approx. 820 g	Approx. 970 g	Approx. 970 g	Approx. 670 g

1) The half-life of backlight is defined as original luminance being reduced by 50% when the Maximum driving current is supplied to HMI.

2) USB Host port can provide up to 5V / 500mA of power.

3) The isolated power circuit can withstand a 1500V voltage peak for 1 minute.

4) Some models are in the process of application for UL and KCC certification. For more information, please consult our distributors.

B07S515	DOP-B07PS515	DOP-B07E515	DOP-B08S515	DOP-B08E515	DOP-B10S511	DOP-B10E515	DOP-B10S411	DOP-B10S615	DOP-B10E615
7" TFT LCD (65536 colors)			8" TFT LCD (65536 colors)		10.4" TFT LCD (65536 colors)		10.1" Widescreen TFT LCD (65536 colors)		
800 × 600 pixels							800 × 480 pixels	1024 × 600 pixels	
less than 25,000 hours half-life at 25°C <sup>(Note 1)</sup>			less than 10,000 hours half-life at 25°C <sup>(Note 1)</sup>		less than 20,000 hours half-life at 25°C <sup>(Note 1)</sup>		less than 15,000 hours half-life at 25°C <sup>(Note 1)</sup>		
141 × 105.75 mm			162 × 121.5 mm		211.2 × 158.4 mm		219.6 × 131.76 mm		226 × 128.7 mm
Delta Real Time OS									
32-bit RISC Micro-controller									
Flash ROM 128 MB (OS System: 30 MB/Backup: 16 MB/User Application: 82 MB)									
64 Mbytes									
16 Mbytes									
Multi-Tone Frequency (2K~4KHz)/85dB									
N/A	N/A	Stereo output	N/A	Stereo output	N/A	Stereo output	N/A	N/A	Stereo output
N/A	N/A	IEEE 802.3, IEEE 802.3u	N/A	IEEE 802.3, IEEE 802.3u	N/A	IEEE 802.3, IEEE 802.3u	N/A	N/A	IEEE 802.3, IEEE 802.3u
N/A	N/A	10/100Mbps Auto-sensing (has built-in isolated power circuit <sup>(Note 3)</sup> )	N/A	10/100Mbps Auto-sensing (has built-in isolated power circuit <sup>(Note 3)</sup> )	N/A	10/100Mbps Auto-sensing (has built-in isolated power circuit <sup>(Note 3)</sup> )	N/A	N/A	10/100Mbps Auto-sensing (has built-in isolated power circuit <sup>(Note 3)</sup> )
SD card (support SDHC)					N/A	SD card (support SDHC)	N/A	SD card (support SDHC)	
1 USB Host <sup>(Note 2)</sup> Ver 1.1/1 USB Client Ver 2.0									
RS-232 (supports hardware flow control)									
RS-232/RS-422/RS-485		RS-232/RS-422 RS-485 (has built-in isolated power circuit <sup>(Note 3)</sup> )	RS-232/RS-422/RS-485		RS-232/RS-485 (has built-in isolated power circuit <sup>(Note 3)</sup> )		RS-232/RS-422/RS-485 (has built-in isolated power circuit <sup>(Note 3)</sup> )		
RS-232/RS-422/RS-485		RS-232/RS-422 RS-485 (has built-in isolated power circuit <sup>(Note 3)</sup> )	RS-232/RS-422/RS-485	RS-232/RS-485 (has built-in isolated power circuit <sup>(Note 3)</sup> )					
N/A									
Built-in									
Natural air circulation									
CE/UL <sup>(Note 4)</sup> / KCC <sup>(Note 4)</sup>									
IP65/NEMA4									
24 V <sub>DC</sub> (-10%~+15%) (use isolated power supply)	+24 V <sub>DC</sub> (-10%~+15%) (has built-in isolated power circuit <sup>(Note 3)</sup> )	+24 V <sub>DC</sub> (-10%~+15%) (please use isolated power supply)	+24 V <sub>DC</sub> (-10%~+15%) (has built-in isolated power circuit <sup>(Note 3)</sup> )	+24 V <sub>DC</sub> (-10%~+15%) (has built-in isolated power circuit <sup>(Note 3)</sup> )					
500 V <sub>AC</sub> for 1 minute (between charging DC24 terminal and FG terminals)									
7.68 W	7.68 W	7.68 W	5.2 W	7.8 W	6.1 W	9.6 W	6.6 W	12 W	12 W
3 V lithium battery CR2032 × 1									
It depends on the temperature used and the conditions of usage, about 3 years or more at 25°C									
0°C~50°C									
-20°C~+60°C									
10%~90%RH (0~40°C), 10%~55%RH (41~50°C), Pollution Degree 2									
IEC 61131-2 compliant 5Hz~8.3Hz = Continuous: 3.5 mm, 8.3Hz~150Hz = Continuous: 1.0g IEC 60068-2-27 compliant 15g peak for 11 ms duration, X, Y, Z directions for 6 times									
144 × 50	184 × 144 × 50	184 × 144 × 50	227.1 × 174.1 × 61	227.1 × 174.1 × 61	299 × 224 × 51.1	299 × 224 × 51.1	272 × 200 × 61	272 × 200 × 61	272 × 200 × 61
14 × 132.4	172.4 × 132.4	172.4 × 132.4	219.4 × 166.5	219.4 × 166.5	285.2 × 210.2	285.2 × 210.2	261.3 × 189.3	261.3 × 189.3	261.3 × 189.3
Approx. 800g	Approx. 800g	Approx. 800g	Approx. 1226g	Approx. 1228g	Approx. 1700g	Approx. 1700g	Approx. 1520g	Approx. 1520g	Approx. 1520g

5) The value of the power consumption indicates the electrical power consumed by HMI with no peripheral devices connected.

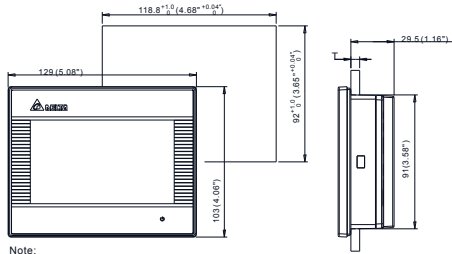
To ensure normal operation, it is recommended using a power supply with a capacity 1.5~2 times the value of the power consumption.

6) Users can download the DOPSoft, the program editor of Delta HMI products and the user manual via the following link: <http://www.deltaww.com>

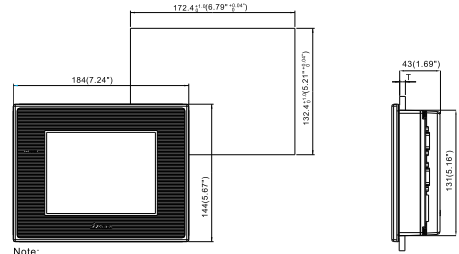
7) The content of this catalogue may be revised without prior notice. Please consult our distributors or download the most updated version at <http://www.deltaww.com>

# Dimensions Dimensions are in mm (in.)

Model Name	DOP-B03S(E)211	Model Name	DOP-B05S111
------------	----------------	------------	-------------

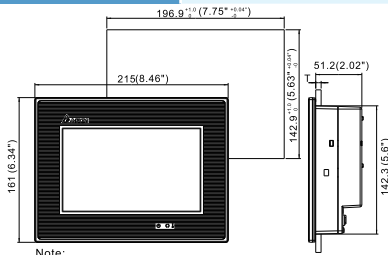


Note:  
T=1.6mm(0.063")~6mm(0.24")

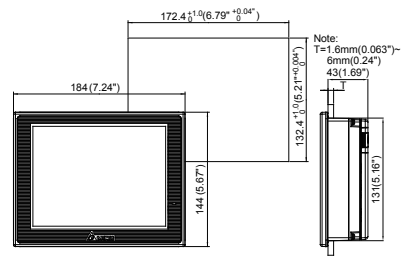


Note:  
T=1.6mm(0.063")~6mm(0.24")

Model Name	DOP-B07S401K/DOP-B07S411(K) DOP-B07S(E)415/DOP-B07PS415	Model Name	DOP-B07S(E)515/DOP-B07PS515
------------	--	------------	-----------------------------

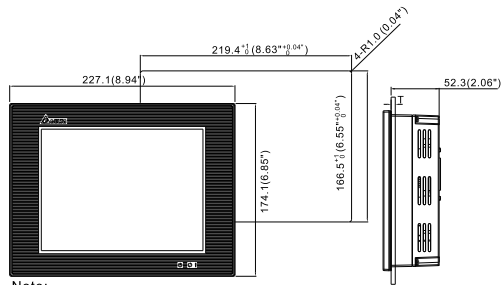


Note:  
T=1.6mm(0.063")~6mm(0.24")

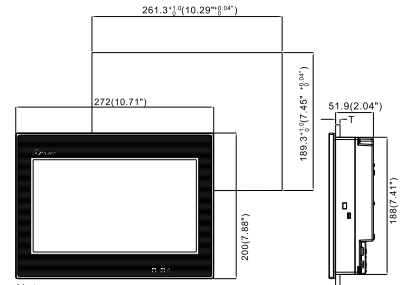


Note:  
T=1.6mm(0.063")~6mm(0.24")  
43(1.69")

Model Name	DOP-B08S(E)515	Model Name	DOP-B10S411 DOP-B10S(E)615
------------	----------------	------------	-------------------------------

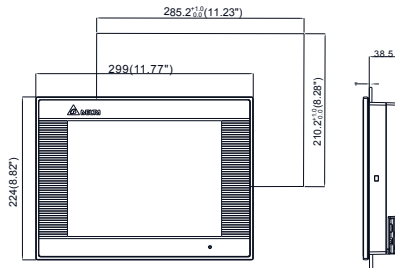


Note:  
T=1.6mm(0.063")~5.0mm(0.19")



Note:  
T=1.6mm(0.063")~6mm(0.24")

Model Name	DOP-B10S511 DOP-B10E515
------------	----------------------------

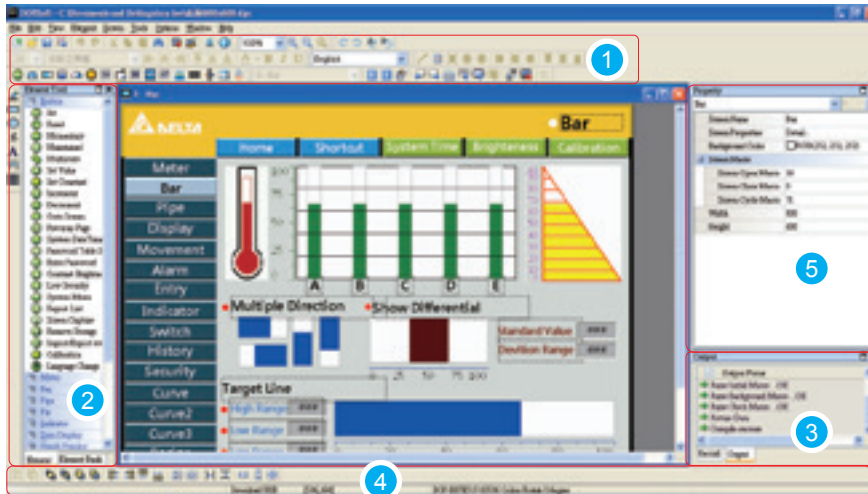


Note:  
T=1.6mm(0.063")~6mm(0.24")

# Software

## DOPSoft

The all new and upgraded configuration software provides complete functions and a user-friendly operator interface. Make editing easier than ever with a whole new level of design.



**1 Toolbar**  
Actions such as edit, save, upload and compile can be executed easily just by clicking the attractive and easy-to-see icons on the toolbar.

**2 Element Tool Window**  
The Element Tool Window provides a wide variety of element icons for selection. Use the mouse to select the desired element icon and drag it onto the work place to create a new element.

**3 Output Window**  
The Output Window displays all the editing actions and output messages when the compile function is enabled. Once an error occurs, the error messages are displayed in Output Window as well.

**4 Layout Toolbar**  
The Layout Toolbar offers Bring to Front, Send to Bottom, Align, Across/Down Space Evenly, Make Same Size and other functions for the benefit of creating intricate and beautiful elements.

**5 Property Table**  
The Property Table displays the element property settings for each element.

### Convenient Screen Data Conversion

Compatible with the existing Screen Editor software, the project file created by Screen Editor can be easily upgraded and converted to DOPSoft format.



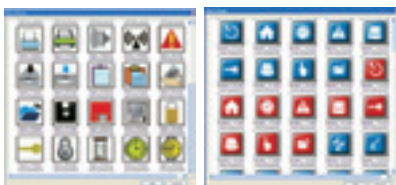
The screen data can be converted to different models even if the display size is not the same. The same project can be applied on different models.



\*After the screen data is converted, it still needs to confirm the element position, text size and other settings.

### Picture Bank

Newly designed picture bank offers more colorful and attractive elements.



### Minimum System Requirements of DOPSoft

Hardware / Software	System Requirements
CPU	Pentium4 1.6 GHz or greater is recommended
Memory	2G MB and above is recommended
Hard Disk	Capacity: 400MB and above
Monitor	Supports resolution: 800 × 600 or higher full-color display
Printer	Printer compatible with Windows 2000 Windows XP/Windows Vista/Windows 7
Operating System	Windows 2000/Windows XP Windows Vista/Windows 7

\* Users can download the DOPSoft configuration software and the user manual at Delta's website via the following link: <http://www.deltaww.com>

### Accessories

Model Name	Descriptions
DOP-CA232DP	DOP-CA232DP: RS-232 Communication Cable for DVP Series PLC (Female Socket)
DVPACAB2A30	DVPACAB2A30: RS-232 Communication Cable for DVP Series PLC (Male Socket)
DOP-CAUSBAB	DOP-CAUSBAB: USB Communication Cable

# Touch Panel HMI

## DOP-W



### 10.4-inch Large-Size HMI

#### DOP-W105B

- ▶ 10.4" 65536 colors TFT LCD
- ▶ Display Resolution: 800 × 600 pixels
- ▶ 1 GHz high speed processor
- ▶ Supports audio output (MP3, Wav files)
- ▶ USB Host for direct connection to USB disk, printer, mouse and keypad
- ▶ Supports 2 Ethernet ports
- ▶ Supports SDHC card
- ▶ Supports video format: MPEG1, MPEG2, WMV



### 12-inch Large-Size HMI

#### DOP-W127B

- ▶ 12" 65536 colors TFT LCD
- ▶ Display Resolution: 1024 × 768 pixels
- ▶ 1 GHz high speed processor
- ▶ Aluminum enclosure with dark gray mold texturing
- ▶ 2 sets of COM ports, support RS-232 / RS-422 / RS-485
- ▶ USB Host for direct connection to USB disk, printer, mouse and keypad
- ▶ Supports 2 Ethernet ports
- ▶ Supports SDHC card
- ▶ Supports video format: MPEG1, MPEG2, WMV
- ▶ Supports audio output: MP3, Wav files (built-in front speaker)



### 15-inch Large-Size HMI

#### DOP-W157B

- ▶ 15" 65536 colors TFT LCD
- ▶ Display Resolution: 1024 × 768 pixels
- ▶ 1 GHz high speed processor
- ▶ Aluminum enclosure with dark gray mold texturing
- ▶ 2 sets of COM ports, support RS-232 / RS-422 / RS-485
- ▶ USB Host for direct connection to USB disk, printer, mouse and keypad
- ▶ Supports 2 Ethernet ports
- ▶ Supports SDHC card
- ▶ Supports video format: MPEG1, MPEG2, WMV
- ▶ Supports audio output: MP3, Wav files (built-in front speaker)



## Model Name Explanation

### DOP-W127B

DOP	W	12	7	B
<b>Product Name</b>	<b>Series</b>	<b>Display Size</b>	<b>Resolution</b>	<b>Type</b>
DOP: Delta Operation Panel	W: W series HMI	10: 10 inches 12: 12.1 inches 15: 15 inches	5: SVGA TFT (800 × 600 pixels) 7: XGA TFT (1024 × 768 pixels)	B : Standard Type

## Specifications & Ordering Information

MODEL		DOP-W105B	DOP-W127B	DOP-W157B
LCD MODULE	Display Type	10.4" TFT LCD	12.1" TFT LCD	15" TFT LCD
	Resolution	800 × 600 pixels	1024 × 768 pixels	
	Backlight	LED Backlight		
	Backlight Life	less than 10,000 hours	less than 30,000 hours	less than 100,000 hours
	Luminance	300 cd/m <sup>2</sup> (Typ.)	500 cd/m <sup>2</sup> (Typ.)	450 cd/m <sup>2</sup> (Typ.)
	Display Size	211.20 × 158.40mm	245.76 × 184.32mm	304.1 × 228.1mm
MCU	ARM Cortex-A8 (1 GHz)			
NOR Flash ROM	256 MB			
SDRAM	256 MB			
Backup Memory	800,000 numbers of data (alarm data + historical data)			
Touch Screen Interface	4-wire resistive touch screen > 10,000,000 operated			
Buzzer	Multi-Tone Frequency (2K~4KHz)/80dB			
Audio Output	Stereo Headphone jack	Stereo Headphone jack + Built in 1.5W Speaker		
USB	3 USB Host Ver 2.0			
SD	SDHC × 1			
Serial COM Port	COM1	N/A		
	COM2	RS-232/RS-422/RS-485 (has built-in isolated power circuit <sup>(Note 1)</sup> )		
	COM3	RS-232/RS-422/RS-485 (has built-in isolated power circuit <sup>(Note 1)</sup> )		
Ethernet	2 Ports IEEE 802.3 (10BASE-T) IEEE 802.3u (100BASE-TX) IEEE 802.3x (Full Duplex and flow control)			
Perpetual Calendar (RTC)	Built-in			
Cooling Method	Natural air circulation			
Safety Approval	CE/UL			
Waterproof Degree	IP65/NEMA4	IP65/NEMA1		
Operation Voltage <sup>(Note2)</sup>	+24 V <sub>DC</sub> (-10% ~ +15%) (has built-in isolated power circuit)			
Voltage Endurance	500V <sub>AC</sub> for 1 minute 【 between charging (24V <sub>DC</sub> terminal) and FG terminals】			
Power Consumption <sup>(Note 2)</sup>	13.5W (Max)	18.5W (Max)	21.6W (Max)	
Backup Battery	uses a gold-capacitor instead of a battery, no need for replacement of batteries			
Backup Battery Life	Keeps the RTC working at least seven days in a working environment where the conditions do not exceed the specifications for the DOP-W series.			
Operation Temperature	0°C to 50°C (32°F to 122°F)			
Storage Temperature	-20°C to 60°C (-4°F to 140°F)			
Ambient Humidity	10%~90% RH 【0~40°C】 , 10%~55% RH 【41~50°C】 , Pollution Degree 2			
Vibration	IEC61131-2 compliant 5Hz~8.3Hz = Continuous: 3.5mm, 8.3Hz~150Hz = Continuous: 1G			
Shock	IEC 60068-2-27 compliant 15g peak for 11ms duration X, Y, Z directions for 6 times			
Dimensions (W) × (H) × (D) mm	299 × 224 × 46.8	313 × 239.5 × 67.5	384.4 × 295.8 × 67.8	
Panel Cut-out (W) × (H) mm	285.2 × 210.2	302.7 × 228.7	372.4 × 283.7	
Weight	Approx. 1,750g	Approx. 2,830g	Approx. 3,880g	

## NOTE:

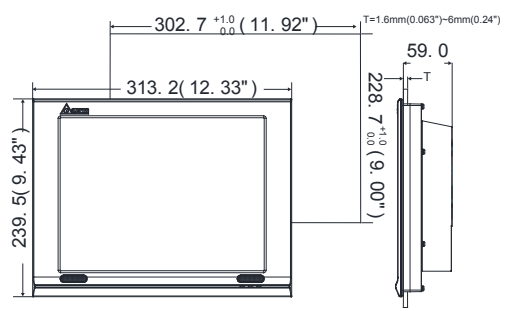
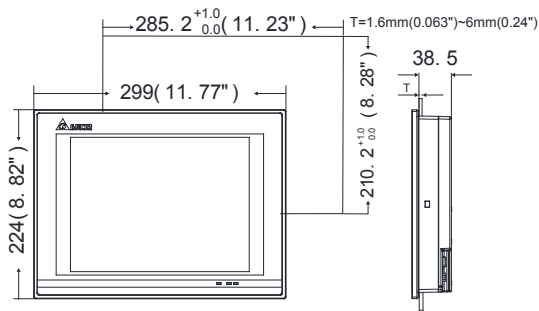
- 1) The isolated power circuit can withstand voltage of a 1500V peak for 1 minute.
- 2) The value of the power consumption indicates the electrical power consumed by HMI only without connecting to any peripheral devices. To ensure normal operation, it is recommended using a power supply with a capacity that is 1.5~2 times the value of the power consumption.
- 3) The content of this brochure may be revised without prior notice. Please consult our distributors or download the most updated version at <http://www.deltaww.com>.

# Product Line-up

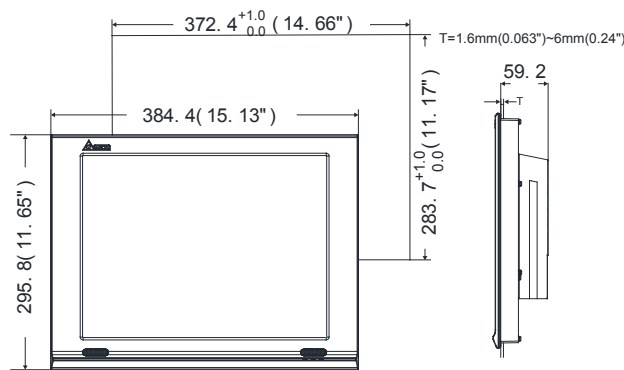
Item	Specifications	Check	Model		
			DOP-W105B	DOP-W127B	DOP-W157B
Display Size	10"	<input type="checkbox"/>	•		
	12.1"	<input type="checkbox"/>		•	
	15"	<input type="checkbox"/>			•
Display Colors	65536 Colors	<input type="checkbox"/>	•	•	•
Resolution	800 × 600	<input type="checkbox"/>	•		
	1024 × 768	<input type="checkbox"/>		•	•
ROM	256 MB	<input type="checkbox"/>	•	•	•
Ethernet Communication	2 Port	<input type="checkbox"/>	•	•	•
USB	Host V2.0	<input type="checkbox"/>	•	•	•
Memory Card	SD Card	<input type="checkbox"/>	•	•	•
Serial Communication	COM1	<input type="checkbox"/>	N/A	N/A	N/A
	COM2	<input type="checkbox"/>	RS-232/RS-422/RS-485	RS-232/RS-422/RS-485	RS-232/RS-422/RS-485
	COM3	<input type="checkbox"/>	RS-232/RS-422/RS-485	RS-232/RS-422/RS-485	RS-232/RS-422/RS-485
		<b>Check</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

# Dimensions Dimensions are in mm (in.)

Model Name	DOP-W105B (Panel Cut-out)	Model Name	DOP-W127B (Panel Cut-out)
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Model Name	DOP-W157B (Panel Cut-out)
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# Controller with Human Machine Interface

# HMC



## 7-inch Controller with HMI, Handheld Type

### HMC07-N510(1)52

- ▶ 7" 65536 colors TFT
- ▶ Display Resolution: 800 × 600 pixels
- ▶ **Built-in PLC functions**
- ▶ RS-422 high-speed remote I/O connection
- ▶ Supports audio output: MP3, Wav files
- ▶ USB Host for direct connection to USB disk, printer, mouse and keypad
- ▶ Supports Ethernet
- ▶ Supports SDHC card
- ▶ Supports DMCNET



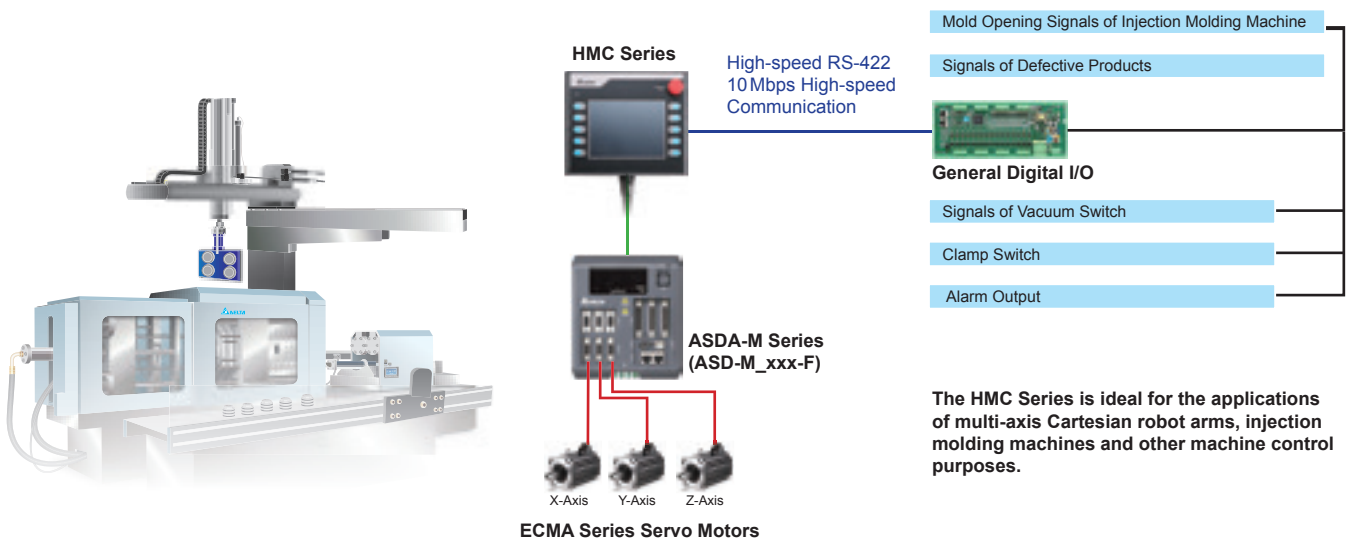
## 8-inch Controller with HMI

### HMC08-N500S52

- ▶ 8" 65536 colors TFT
- ▶ Display Resolution: 800 × 600 pixels
- ▶ **Built-in PLC functions**
- ▶ RS-422 high-speed remote I/O connection
- ▶ Supports MPG (Manual Pulse Generator) Input
- ▶ Supports audio output: MP3, Wav files
- ▶ USB Host for direct connection to USB disk, printer, mouse and keypad
- ▶ Supports Ethernet
- ▶ Supports SDHC card
- ▶ Supports DMCNET



### Applications





## Product Line-up

Item	Specifications	Check	Model		
			HMC08-N500H52	HMC07-N510H52	HMC07-N511H52
Display Size	7"	<input type="checkbox"/>		•	•
	8"	<input type="checkbox"/>	•		
Display Colors	65536 Colors	<input type="checkbox"/>	•	•	•
Resolution	800×600	<input type="checkbox"/>	•	•	•
ROM	128 MB	<input type="checkbox"/>	•	•	•
Ethernet Communication	1 Port	<input type="checkbox"/>	•	•	•
DMCNET Communication	1 Port	<input type="checkbox"/>	•	•	•
USB	Host	<input type="checkbox"/>	•	•	•
	Client	<input type="checkbox"/>	•	•	•
Memory Card	SD Card	<input type="checkbox"/>	•	•	•
Function Key	10 Keys	<input type="checkbox"/>		•	•
Max. Control Axes	4	<input type="checkbox"/>		•	
	12	<input type="checkbox"/>	•		•
Serial Communication	COM1	<input type="checkbox"/>	RS-232	RS-232/RS-485/RS-422	RS-232/RS-485/RS-422
	COM2	<input type="checkbox"/>	RS-232/RS-485/RS-422		
	COM3	<input type="checkbox"/>	RS-232/RS-485/RS-422		
		<b>Check</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Model Name Explanation

### HMC07-N511H52

HMC	07	N	5
<b>Product Name</b>	<b>Display Size</b>	<b>Type of Industries</b>	<b>Resolution</b>
HMC: Controller with Human Machine Interface	07: 7 inch TFT LCD 08: 8 inch TFT LCD	N: General Purpose	4: WVGA TFT 5: SVGA TFT 6: WXGA
11	H	5	2
<b>Version</b>	<b>Type of Model</b>	<b>External Control Interface (Bus)</b>	<b>Peripheral Interface</b>
10: Up to 4 axes of control 11: Up to 12 axes of control	H: Hand-held S: Standard	0: None 5: DMCNET	0: None 2: SD + USB

## Specifications & Ordering Information

MODEL		HMC07-N510H52	HMC07-N511H52	HMC08-N500S52		
LCD MODULE	Display Type	7" TFT LCD (65536 colors)		8" TFT LCD (65536 colors)		
	Resolution	800 × 600 pixels				
	Backlight	LED Back Light (less than 20,000 hours half-life at 25°C) <sup>(Note 1)</sup>				
	Display Size	141 × 105.75mm	162 × 121.5mm			
Axes of Control		up to 4 axes	up to 12 axes	up to 12 axes		
Operation System		Delta Real Time OS				
MCU		32-bit RISC Micro-controller + DSP				
Flash ROM		Flash ROM 128MB (OS System: 30MB/Backup: 16MB/User Application: 82MB)				
Backup Memory (Bytes)		16M bytes				
Sound Effect Output	Buzzer	Multi-Tone Frequency (2K~4 kHz)/85 dB				
	AUX	-	Stereo output			
Ethernet Interface		10/100Mbps auto-sensing (has built-in isolated power circuit) <sup>(Note 3)</sup>				
Memory Card		SD Card (supports SDHC)				
USB		1 USB Host <sup>(Note 2)</sup> Ver 1.1/1 USB Client Ver 2.0				
Serial COM Port	COM1	RS-232/RS-422/RS-485		RS-232		
	COM2	-		RS-232/RS-422/RS-485		
	COM3	-		RS-232/RS-422/RS-485		
Emergency Stop Switch		<ul style="list-style-type: none"> <li>▪ Push-lock switch 2 contacts a-contact (normally open): 1 contact b-contact (normally closed): 1 contact</li> <li>▪ Rated voltage: 30V<sub>DC</sub></li> <li>▪ Maximum rated current: 500 mA</li> <li>▪ Minimum allowable load: 5V<sub>DC</sub>, 1 mA</li> <li>▪ IEC60947-5-1, EN60947-5-1, IEC60947-5-5, EN60947-5-5, UL508 (UL Approval), CSA C22.2 No.14 (UL Approval)</li> </ul>			-	
3-Position Operation Switch		<ul style="list-style-type: none"> <li>▪ Output switch 1 contact a-contact (normally open): 1 contact</li> <li>▪ Rated voltage: 30V<sub>DC</sub></li> <li>▪ Maximum rated current: 500 mA</li> <li>▪ Minimum allowable load: 3V<sub>DC</sub>, 5 mA</li> <li>▪ IEC60497-5-8, EN60497-5-8, IEC60947-5-1, EN60947-5-1, JIS C8201-5-1, UL508 (UL Approval), CSA C22.2 No.14 (UL Approval), ISO12100-1, ISO12100-2/EN60204-1, EN60204-2, IEC60204-1/EN60204-1, SO11161/prEN11161, ISO10218/EN775, ANSI/RIA R15.06, ANSI B11.19</li> </ul>			-	
Function Key		10		N/A		
Perpetual Calendar		Built-in				
Cooling Method		Natural air circulation				
Safety Approval		CE/UL <sup>(Note 4)</sup> /KCC <sup>(Note 4)</sup>				
Waterproof Degree		IP65/NEMA4		IP65/NEMA4 (Touchscreen only)		
Operation Voltage		+24V <sub>DC</sub> (-10%~+15%) (has built-in isolated power circuit) <sup>(Note 3)</sup>				
Voltage Endurance		500V <sub>AC</sub> for 1 minute [ between charging (24V <sub>DC</sub> terminal) and FG terminals]				

MODEL	HMC07-N510H52	HMC07-N511H52	HMC08-N500S52
Power Consumption <sup>(Note 5)</sup>	8W		11W
Backup Battery	3V lithium battery CR2032 × 1		
Backup Battery Life	It depends on the temperature used and the conditions of usage, about 3 years or more at 25°C		
Operation Temperature	0°C to 50°C (32°F to 122°F)		
Storage Temperature	-20°C to 60°C (-4°F to 140°F)		
Ambient Humidity	10% ~ 90% RH [0 ~ 40°C], 10% ~ 55% RH [41 ~ 50°C], Pollution Degree 2		
Vibration	IEC 61131-2 compliant 5 Hz ~ 8.3 Hz = Continuous: 3.5 mm, 8.3 Hz ~ 150 Hz = Continuous: 1.0 g		
Shock	IEC 60068-2-27 compliant 15 g peak for 11 ms duration X, Y, Z directions for 6 times		
Dimensions (W) × (H) × (D) mm	237.9 × 199 × 129		227.1 × 174.1 × 61
Panel Cutout (W) × (H) mm	-		219.4 × 166.5
Weight	Approx. 1500 g		Approx. 1228 g

**Note:**

- 1) The half-life of the backlight is defined as the original luminance reduced by 50% when the maximum driving current is supplied to the HMI.
- 2) USB Host port can provide up to 5V/500mA of power.
- 3) The isolated power circuit can withstand a 1500V voltage peak for 1 minute.
- 4) Some models are in the process of application for UL and KCC certification. For more information, please consult our distributors.
- 5) The value of the power consumption indicates the electrical power consumed by HMI with no peripheral devices connected. To ensure normal operation, it is recommended using a power supply with a capacity 1.5-2 times the value of the power consumption.
- 6) Users can download the DOPSoft, the HMI screen editor & PLC programming software of Delta HMC product and the user manual via the following link: <http://www.deltaww.com>.
- 7) The content of this catalogue may be revised without prior notice. Please consult our distributors or download the most recent version at <http://www.deltaww.com>.

## Electrical Specifications of Remote I/O Modules

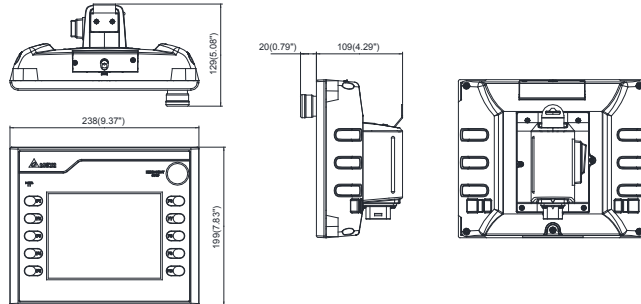
Items/Model Name	Power Supply	Input Unit		Output Unit	
		Points	Type	Points	Type
HM-RIO3232T12	24 V <sub>DC</sub>	32	NPN (Sink)	32	Transistor
<b>Input Point Electrical Specifications</b>			<b>Output Point Electrical Specifications</b>		
Input Impedance		4.7KΩ		Max. Switching Frequency	
Max. Switching Frequency		100 kHz		500 kHz	
Active Level	Off → On	> 16.5 V <sub>DC</sub>		Response Time (Relay)	On → Off
	On → Off	< 5 V <sub>DC</sub>			On → Off
Response Time	Off → On	< 3 μs		-	
	On → Off	< 40 μs		-	

Items/Model Name	Power Supply	Input Unit		Output Unit	
		Points	Type	Points	Type
HMC-RIO3232RT5	24 V <sub>DC</sub>	32	NPN (Sink)/ PNP (Source)	16 Relay/16 TR	Relay/Transistor
<b>Input Point Electrical Specifications</b>			<b>Output Point Electrical Specifications</b>		
Input Impedance		4.7KΩ		Max. Switching Frequency	
Max. Switching Frequency		10 kHz		1Hz (Relay) 8 kHz (TR)	
Active Level	Off → On	> 16.5 V <sub>DC</sub>		Response Time (Relay)	Resistive Load
	On → Off	< 5 V <sub>DC</sub>			Off → On
-			-	On → Off	10 ms
				Response Time (TR)	Off → On
-			-		On → Off

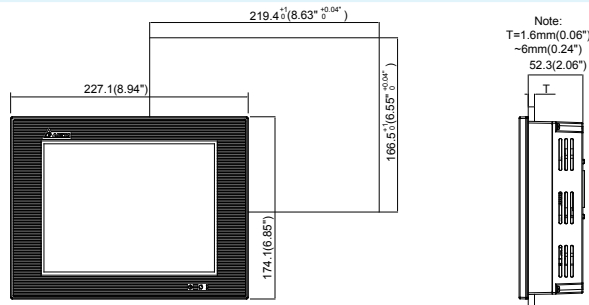
# Dimensions

Dimensions are in mm (in.)

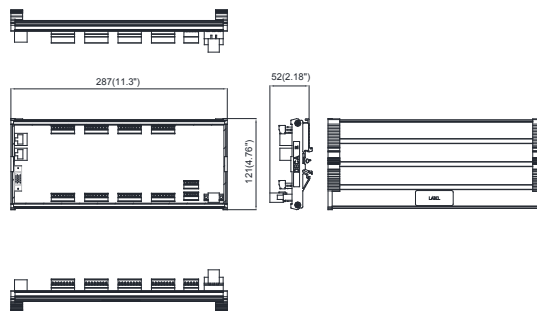
<b>Model Name</b>	<b>HMC07</b>
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<b>Model Name</b>	<b>HMC08</b>
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<b>Model Name</b>	<b>Remote I/O Module</b>
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# Accessories

Model Name	Descriptions
HMC-CA3205B0	5m connection cable for HMC handheld type models (32-pin)
HMC-CA3210B0	10m connection cable for HMC handheld type models (32-pin)
HMC-CA1205B0	5m connection cable for HMC handheld type models (12-pin)
HMC-CA1210B0	10m connection cable for HMC handheld type models (12-pin)
NC-CAB-DMC003	DMCNET/Remote I/O connection cable (0.3 m)
NC-CAB-DMC015	DMCNET/Remote I/O connection cable (1.5 m)
NC-CAB-DMC050	DMCNET/Remote I/O connection cable (5 m)
NC-CAB-DMC100	DMCNET/Remote I/O connection cable (10 m)