Automation for a Changing World

Delta Programmable Logic Controller AH500 Series

TAIWAN EXCELLENCE 2013

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DELTA

Smarter. Greener. Together.

AH - Automation System for High-level Applications

The new generation AH Series PLC provides automation solutions for high-level applications. The combination of modularized hardware structure, advanced functions, and the highly integrated software provides a system solution for process control applications.
In addition to various function blocks, excellent price / performance, and an abundant selection of extension modules, the AH Series PLC also provides exceptional system expandability, greatly reducing the system cost for a broad range of applications.

AH500 Series

» Highly integrated software ISPSoft: graphical interface with 5 programming languages

» Enhanced flexibility: Max. 100m or 2km (optical fiber) between 2 local extension racks

» Hot-swapping function keeps the system running for improved maintainability

» Reliable operations of the supported modules in severe conditions
< Operating condition: -20~60°C / 5 ~95% (No condensation)
< Storage condition: -40~70°C / 5~95% (No condensation)

► Utilizes 32-bit dual-core multitasking processor

► Max. I/O points:
DIO: Max. 4,352 points
AIO: Max. 544 channels

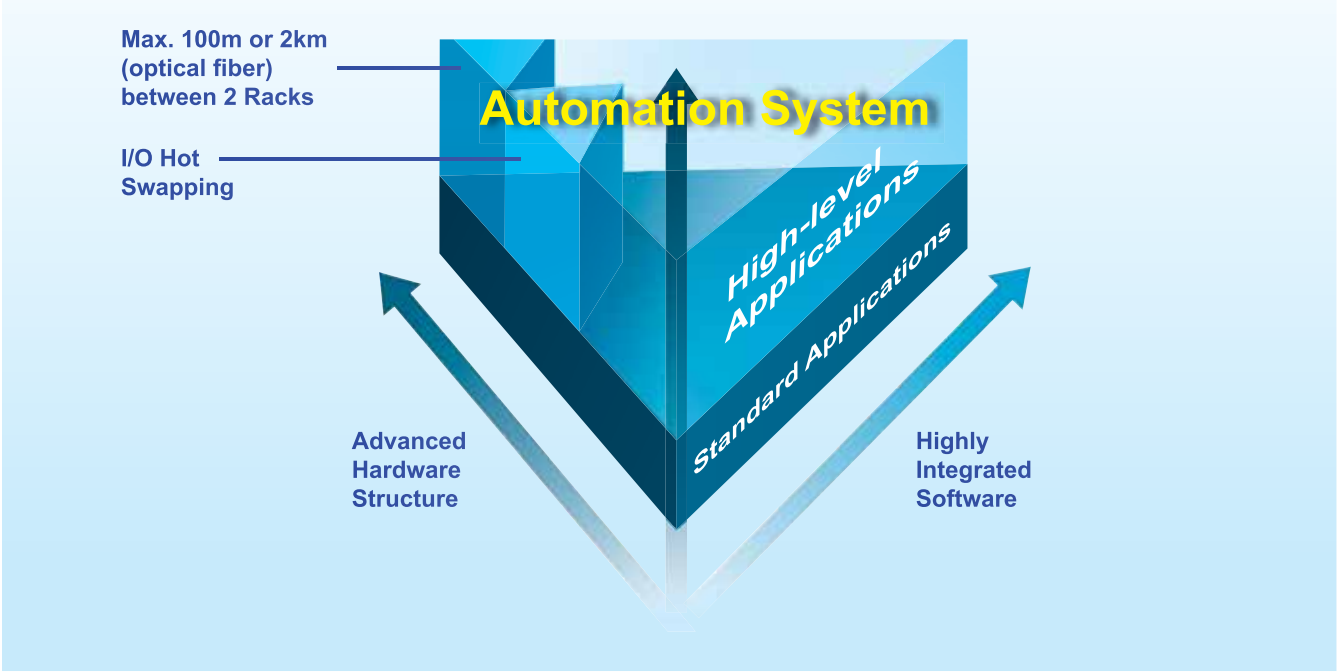
► Program capacity: Max. 256K steps (1MB)
Data register (D+L): 128K words

► Excellent program execution speed:
LD instruction execution speed: 0.1μs

► CPU built-in with fully isolated RS-232 / 422 / 485, Mini-USB, Ethernet, SD Card 1.0

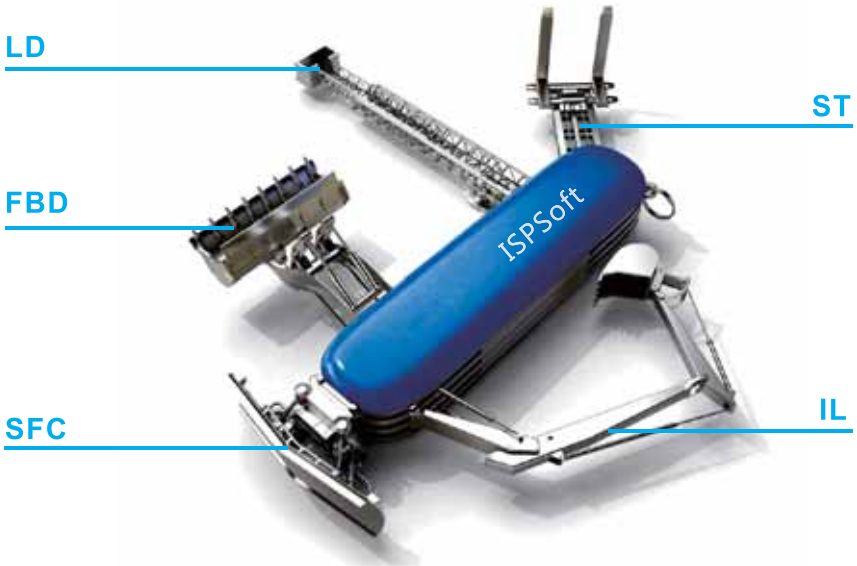
► Abundant selection of DIO modules, AIO modules, temperature measurement modules, network modules, pulse-train modules and DMCNET motion control modules.

AH500 Series PLC – Automation System with Fully Integrated Hardware and Software Interfaces



Highly Integrated Software – Excellent Accessibility

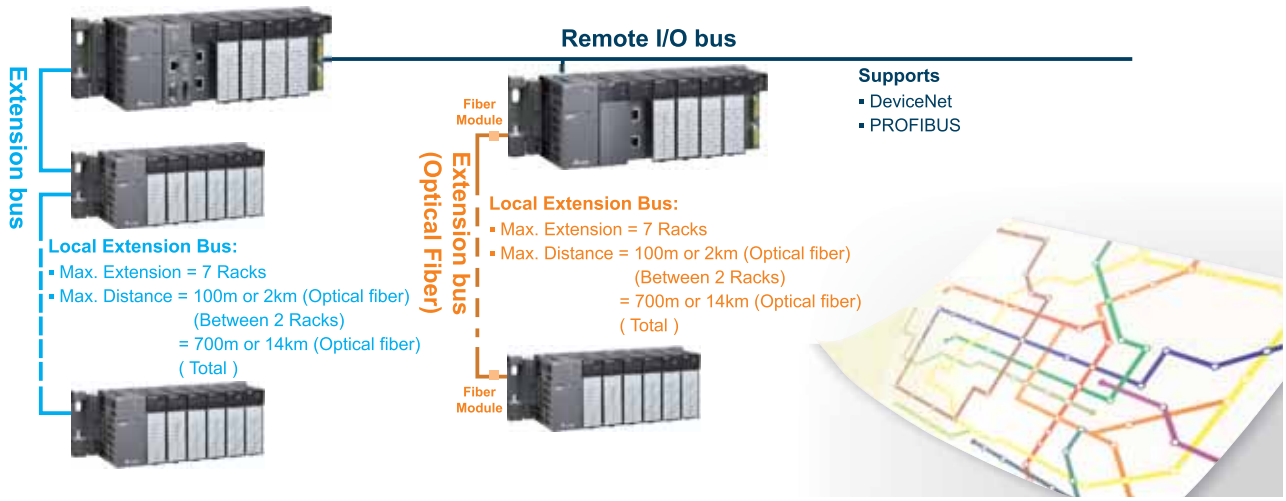
AH500 series PLCs adopt the highly accessible programming software ISPSoft, integrating the main functions that include control process programming, hardware configuration, network configuration, and providing a graphical interface for these functions. In addition, users of ISPSoft can choose their most efficient programming tools from the 5 supported languages: Ladder Diagram (LD), Function Block Diagram (FBD), Sequential Function Chart (SFC), Instruction List (IL) and Structured Text (ST).



Enhanced Flexibility – Extends the System Freely

The length of extension cables between each AH500 local extension rack can reach a maximum of 100m or 2km (optical fiber), greatly enhancing wiring flexibility. In addition, the AH500 provides modularized backplanes and modules applicable for not only CPU racks but also for remote I/O racks. This feature improves the flexibility of system planning and reduces the additional cost that might be generated by preparing two different types of spare backplanes and modules.

System Extension Structure



Improved Maintainability – Keeps the System Running

The hot-swap function provided for AIO and DIO modules increases maintainability when I/O modules fail. Users can replace modules without stopping the operation of the CPU module, preventing a possible loss due to a pause in the system's operation.

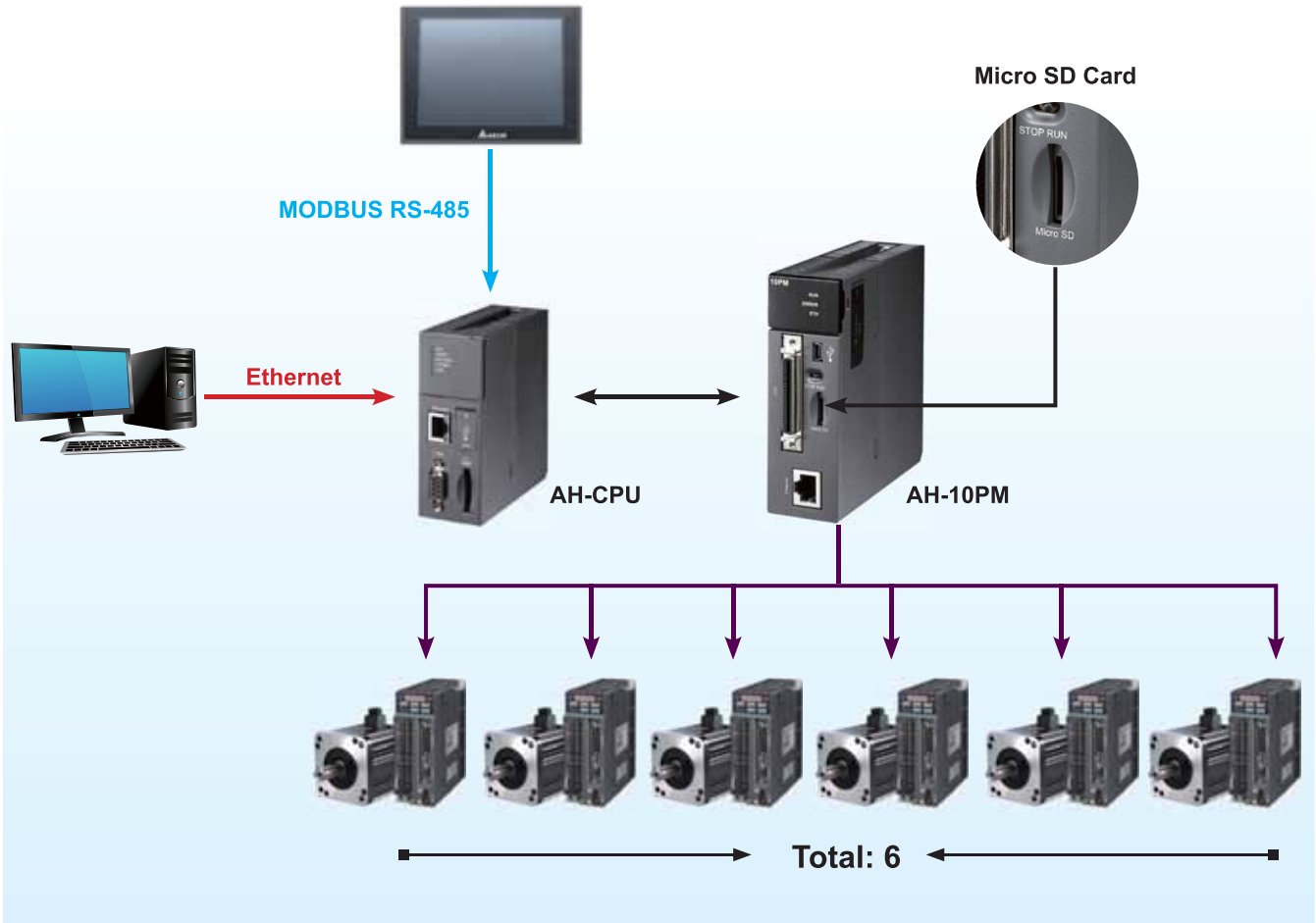
Motion Control Platform for Convenient Multi-axes Applications

Pulse train motion control module AH05PM / AH10PM / AH15PM

- AH05PM / AH10PM / AH15PM is designed to perform independent operations. It features a built-in CPU for programming and execution that greatly improves control efficiency.
- Execution speed: LD instruction @0.13μs
- Capacity: 64K steps
- Data register: D=10K words / W=64K words
- Motion Control Functions
  - > Controllable axis: 2 axes (AH05PM) / 6 axes (AH10PM) / 4 axes (AH15PM)
  - > Supports UD / PD / AB / 4AB input modes and 1M Hz output
  - > Supports MPG inputs / E-Cam / G-code / 2~6 axes axes linear interpolation / 2 axes arc interpolation / 3 axes helical interpolation (AH10PM / AH15PM)

System Control Structure

Example: AH10PM

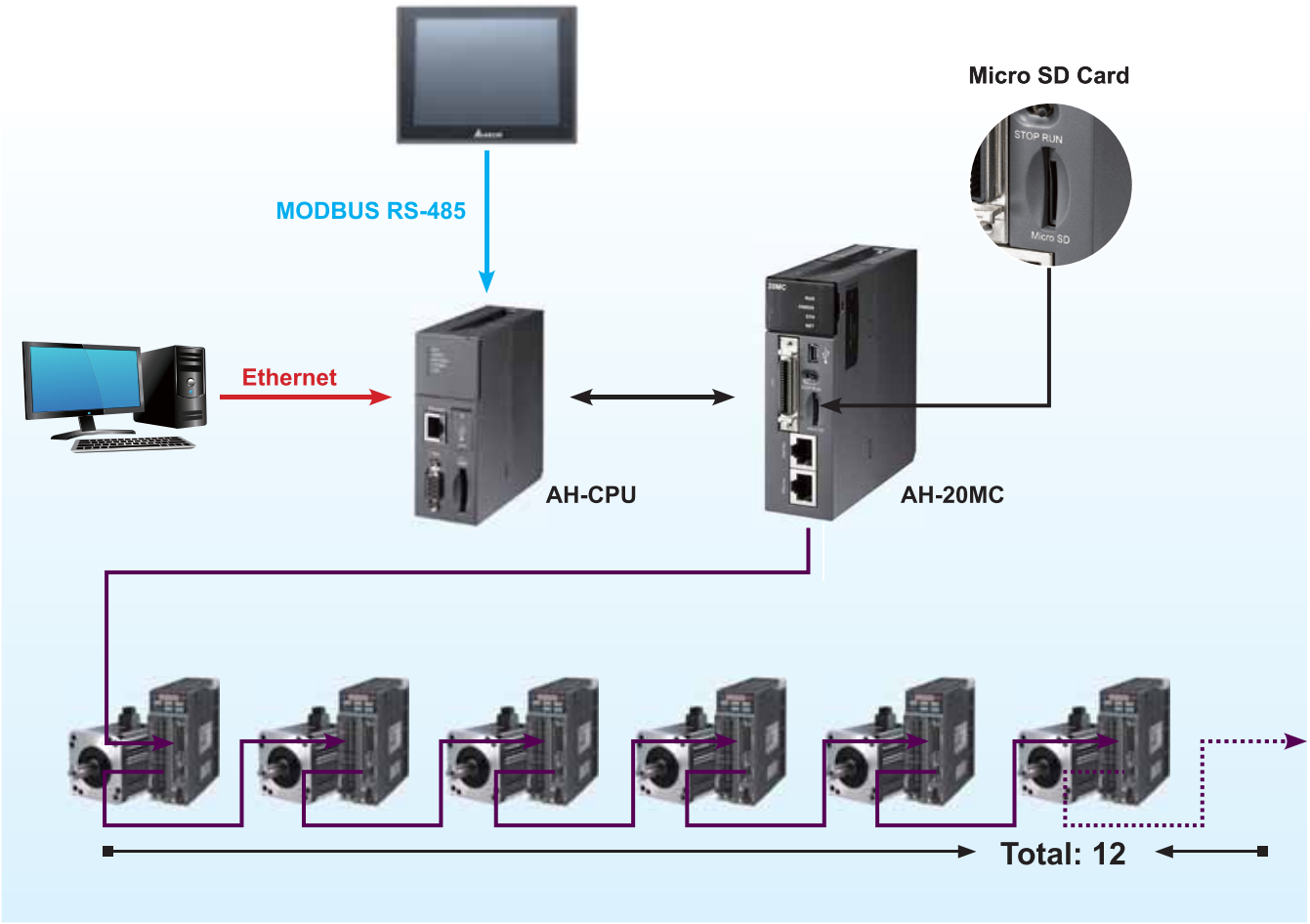


DMCNET communication motion control module AH20MC

- AH20MC is designed to perform independent operations. It features a built-in CPU for programming and execution that greatly improves control efficiency.
- Execution speed: LD instruction @0.13μs
- Capacity: 64K steps
- Data register: D=10K words / W=64K words
- Motion Control Functions
  - > Controllable axis: 12 axes
  - > Synchronous time: 12 axes @1ms
  - > Supports MPG inputs / E-Cam / G-code / 2~6 axes linear interpolation / 2 axes arc interpolation / 3 axes helical interpolation

System Control Structure

Example: AH20MC

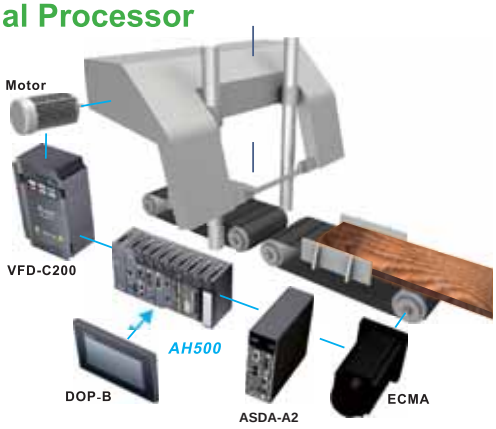


Application Examples

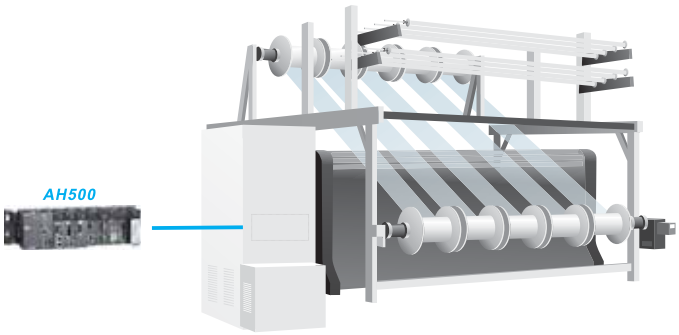
Large Scale Industrial Machines

The features of the AH500 can easily fulfill the system requirements of large scale industrial machines. By utilizing its unique local extension capability with versatile combinations of I/O modules, the AH500 can simplify the complex remote I/O system structure in large scale industrial machines with a local I/O system consisting of a single CPU rack and local extension racks, maintaining a high execution speed and lowering the wiring cost.

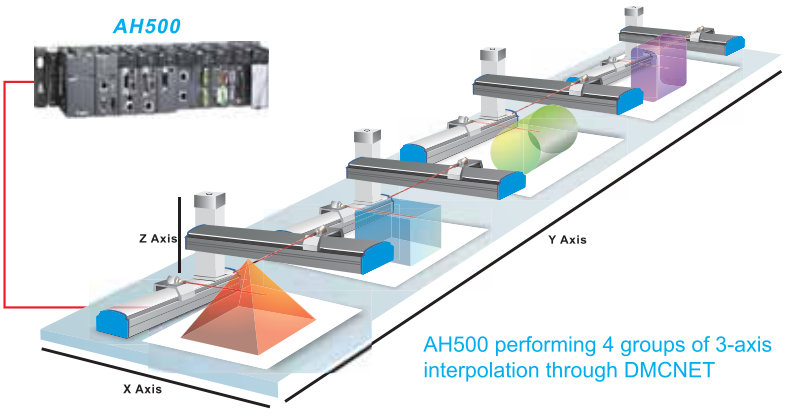
Building Material Processor



Warp Knitting Machine



The AH500 also supports excellent motion control functions including 3-axis linear interpolation, 2-axis arc interpolation, and 3-axis helical interpolation. In addition, the AH500 is capable of controlling up to 12 axes or 4 groups of 3-axis interpolation synchronously through Delta's high speed motion control network DMCNET.

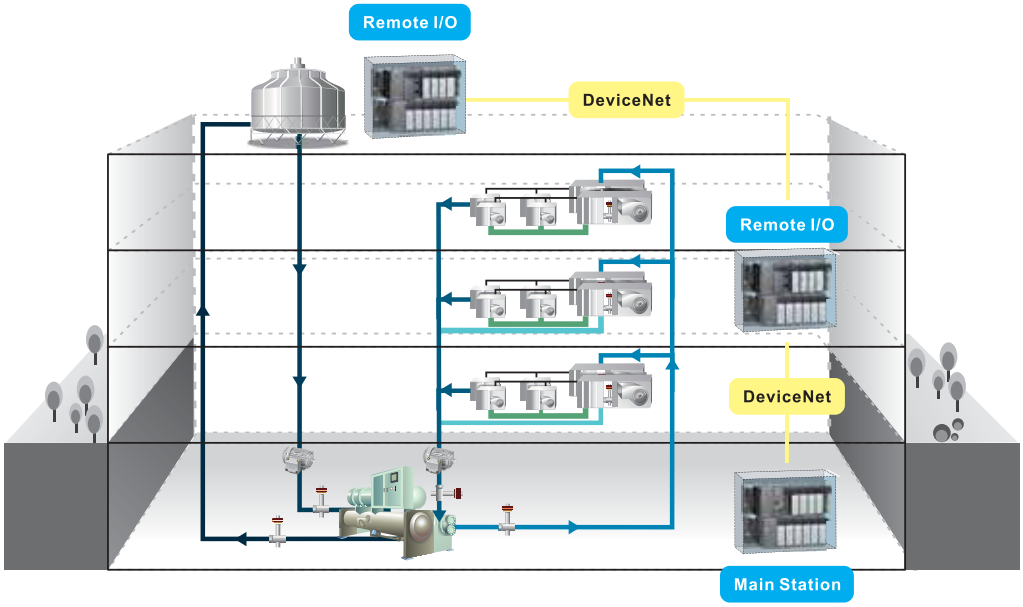


AH500 performing 4 groups of 3-axis interpolation through DMCNET

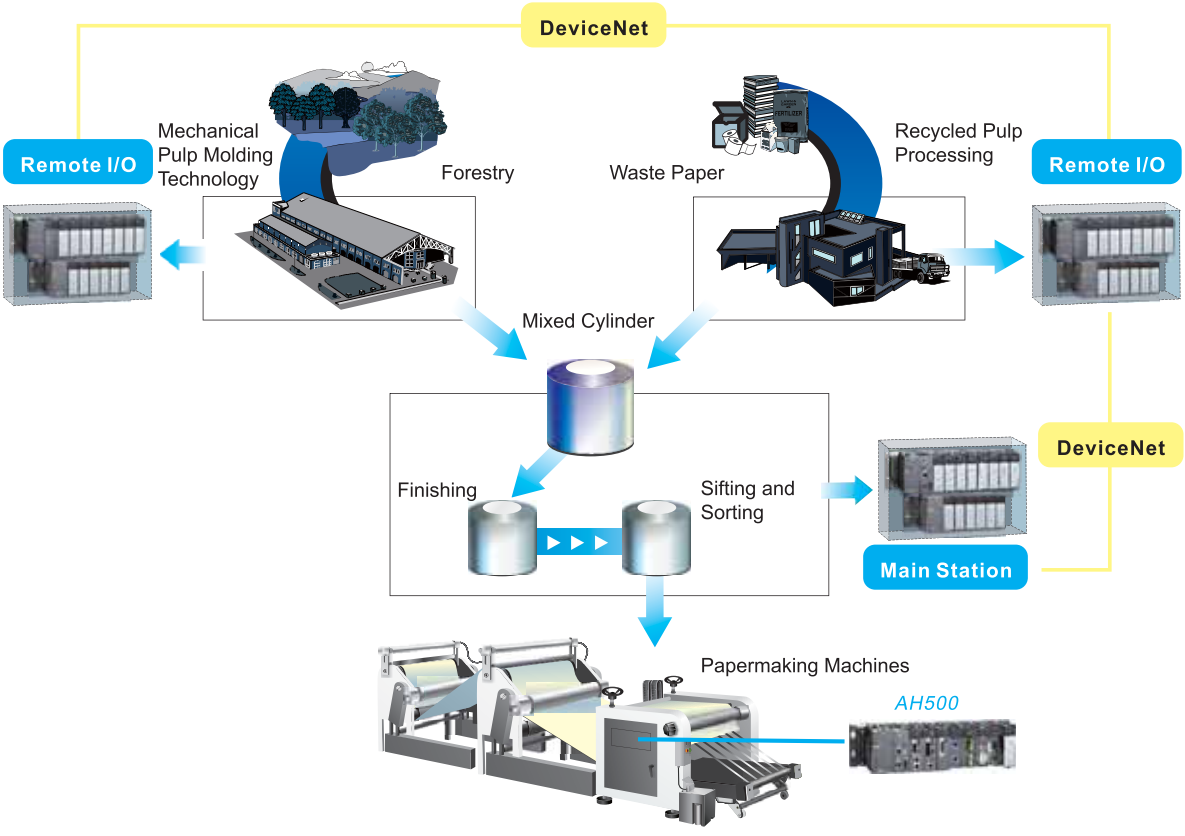
System Applications

The AH500 is a modular system controller designed for almost all kinds of high-level automation tasks. The abundant selection of I/O modules and the flexible system structure provide best solutions for all types of system integration requirements. Through the remote I/O expandability, you can build up the AH500 main station as a central control system and allocate the remote I/O systems on different floors for HVAC applications, or in different processing stations for the paper-making industry. The AH500 can not only fulfill the application requirements of industrial machines or devices, but it can also provide total solutions for automation systems.

HVAC

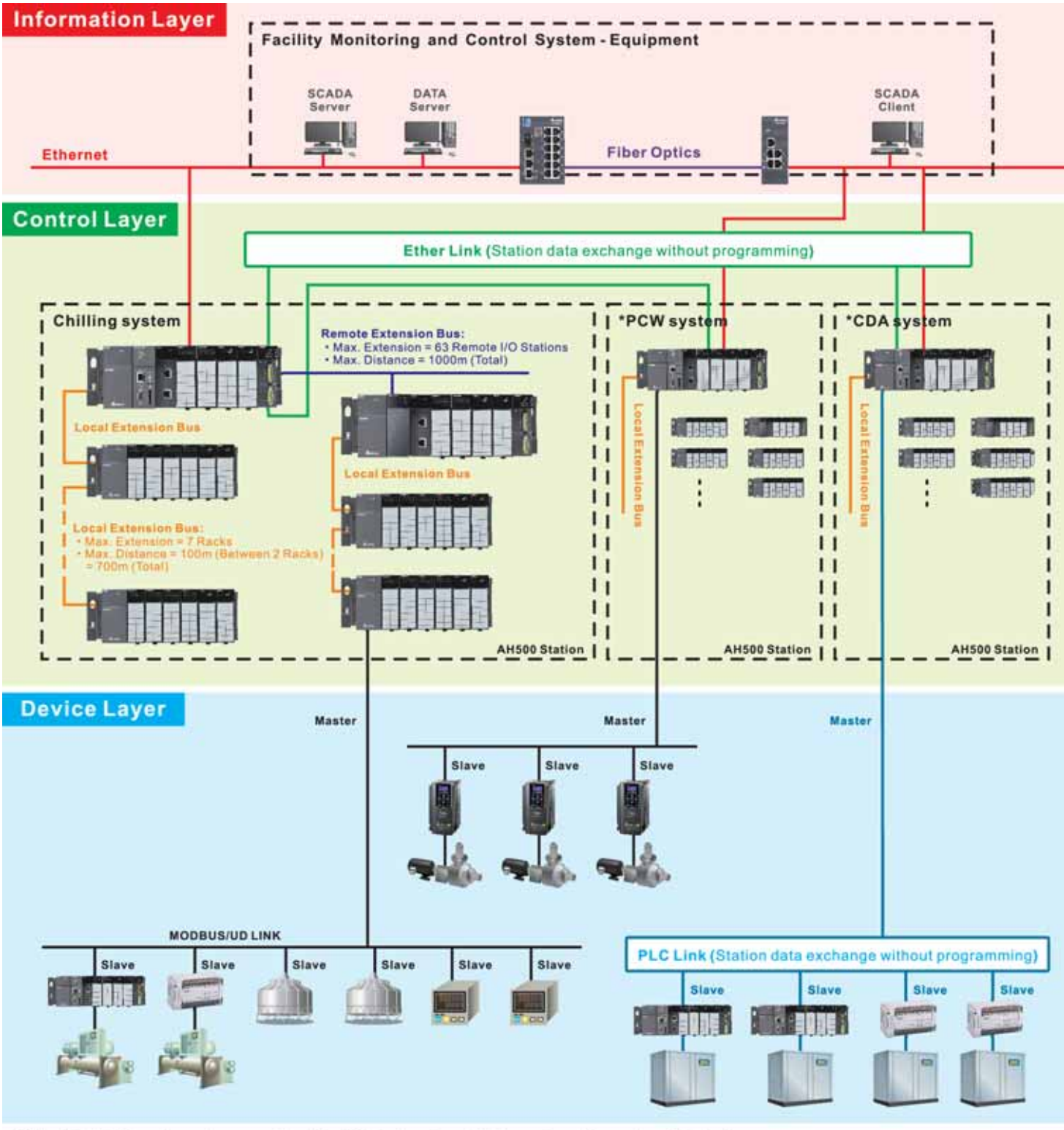


Papermaking Industries



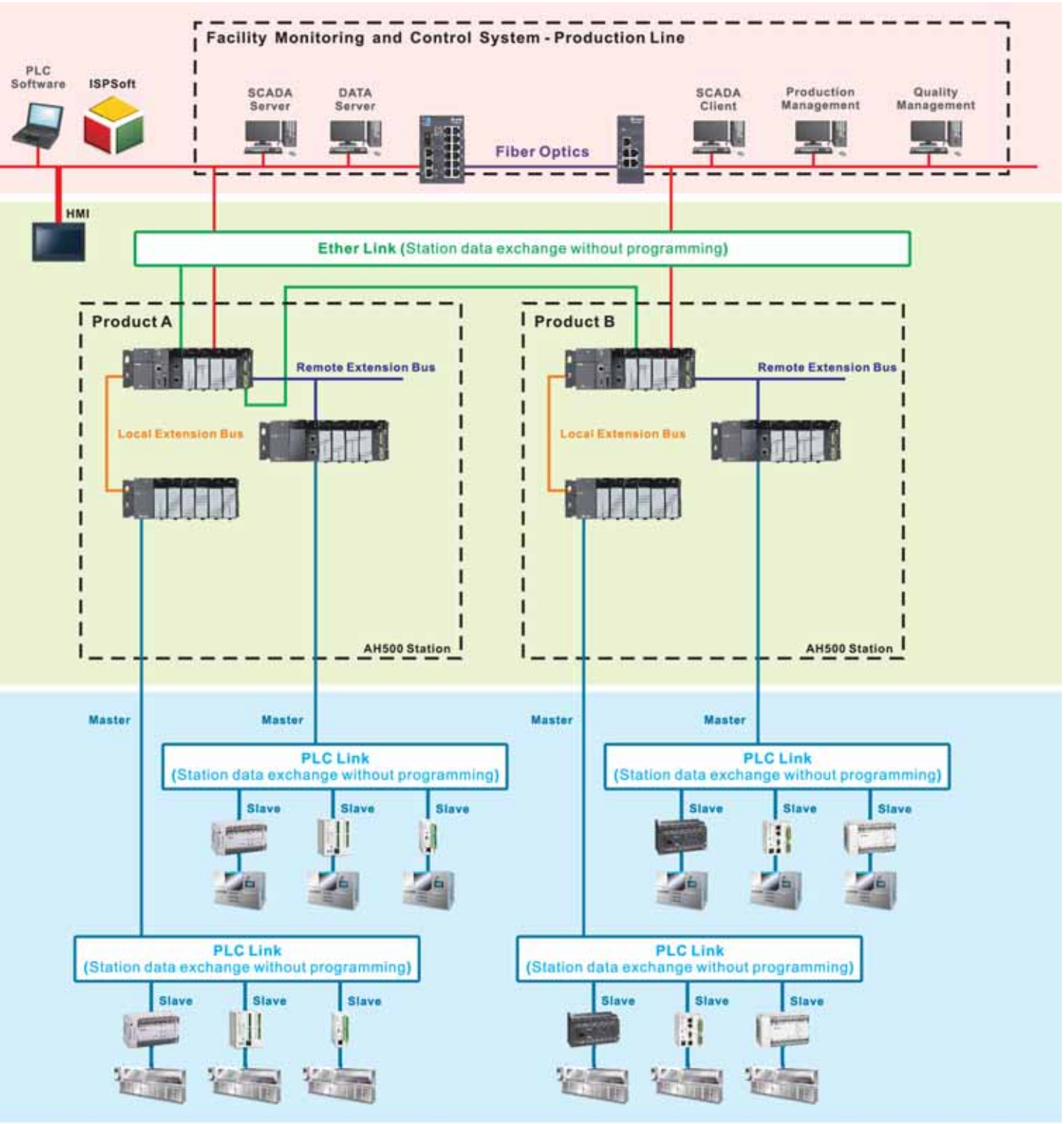
AH500 System Structure – Facility Monitoring and Control System

The system configuration of the AH500 is well demonstrated by the Facility Monitoring and Control System (FMCS).
The AH500 in the control layer connects multiple facility systems and product processing systems and performs data exchange without programming through Delta's convenient PLC Link and Ether Link. PLC Link can be applied for data exchange between masters and slaves, and Ether Link can be applied for data exchange between AH500 master stations. The smart communication feature can save you time spent in programming.



*【Note】 PCW system: Process Cooling Water System ; CDA system: Clean Dry Air System

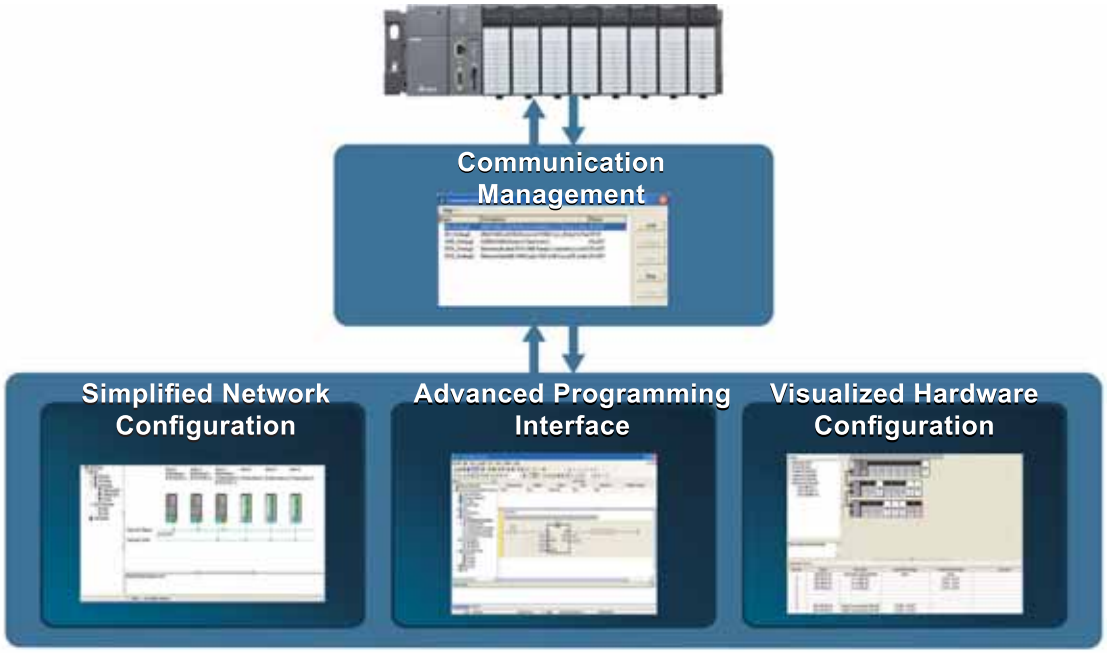
In addition to AH500 PLCs, Delta's industrial automation solution includes human machine interfaces (HMI),
DVS series industrial Ethernet switches, DVP series PLCs, AC motor drives, AC servo drives and temperature controllers.
You can find the best solution for your industry from our product lines across device layer, control layer and information layer.



ISPSoft V2.0
Highly Accessible Programming Software

Fully Integrated Interface

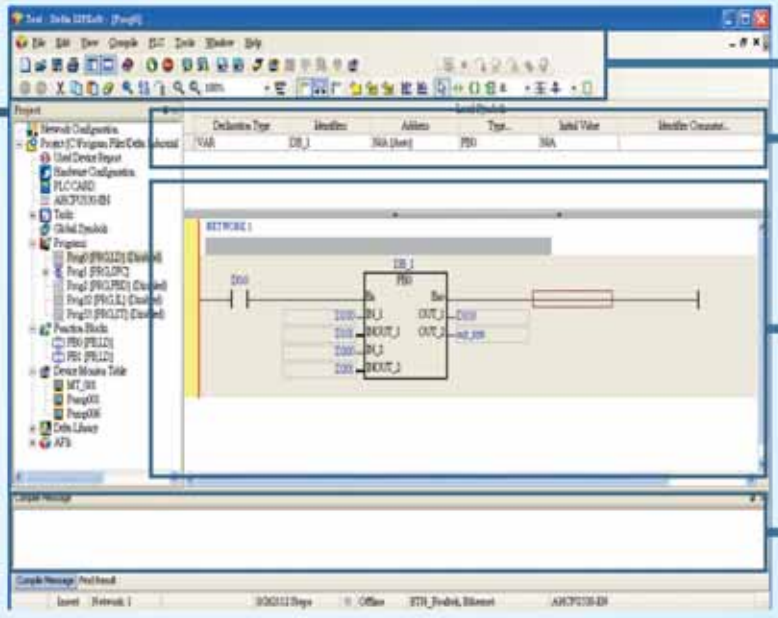
Advanced Programming Interface + Visualized Hardware Configuration + Simplified Network Configuration



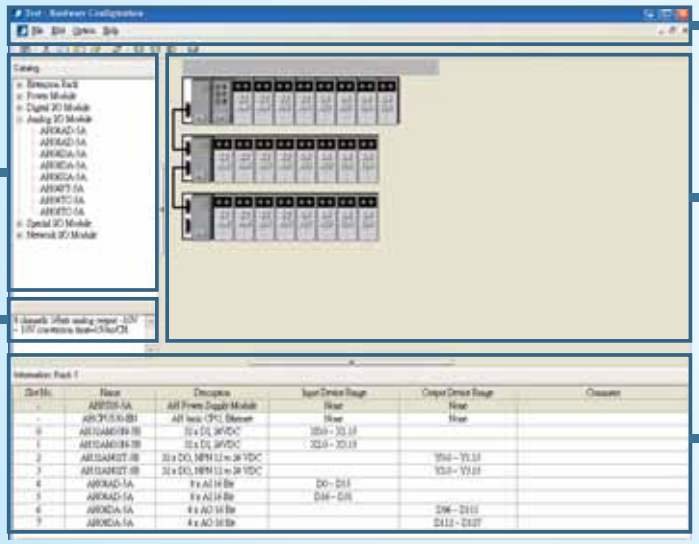
Advanced Programming Interface

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.



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

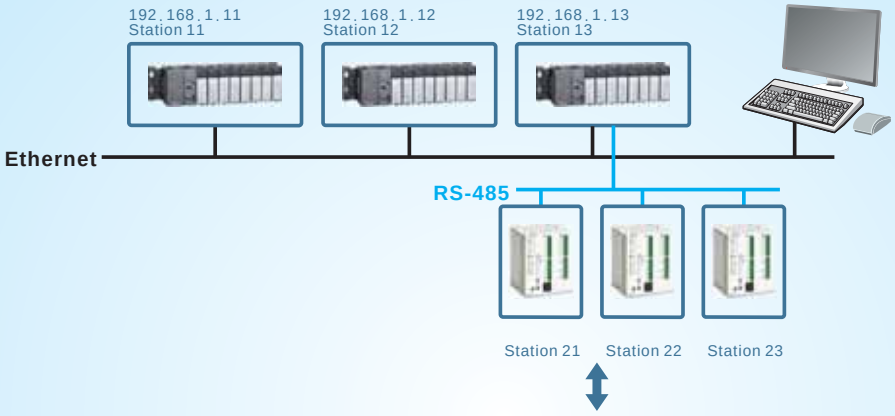
Hardware Configuration Area

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

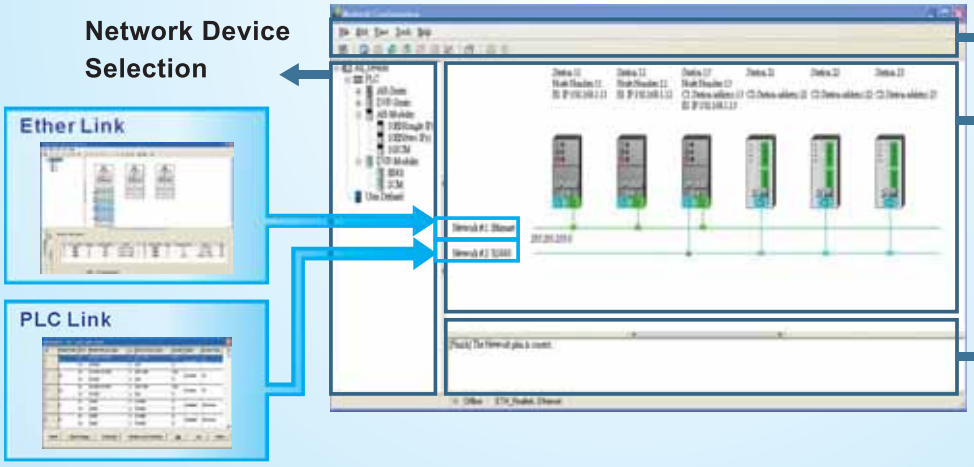
Rack Information

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

Simplified Network Configuration



Network Device Selection



Toolbar

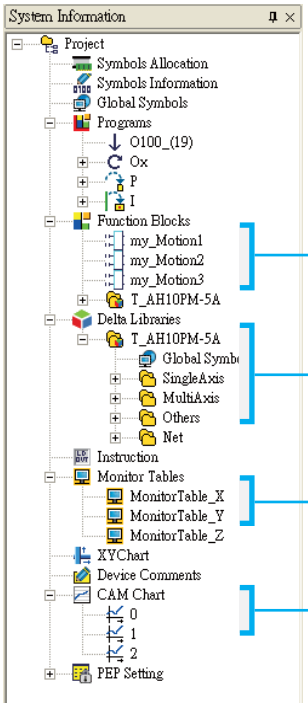
Network Configuration Area

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

Network Information

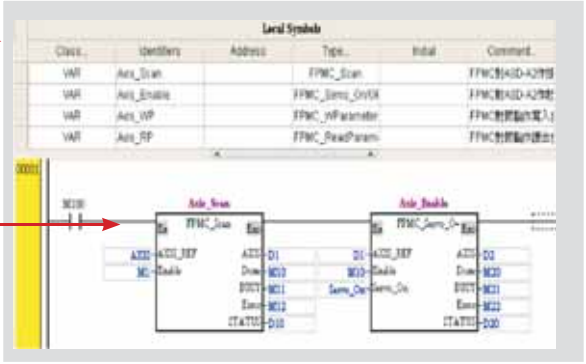
PMSoft V2.0

This programming software is 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.

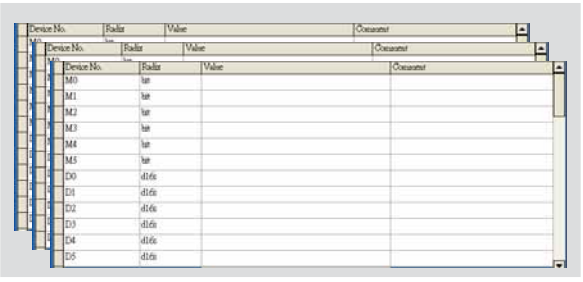


Function Block

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.

Function Block for Motion Control

Provides function block features specifically for motion control, making programming more convenient

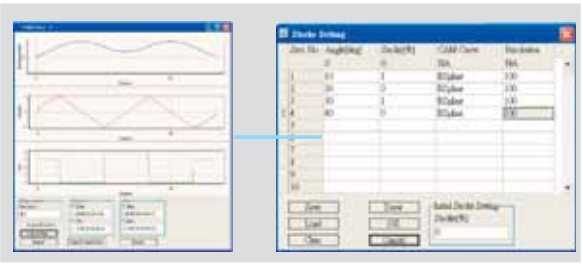


Convenient Monitor Table Management

Users can save and manage monitor tables independently according to their needs.

Electronic Cam

Electronic cam editing

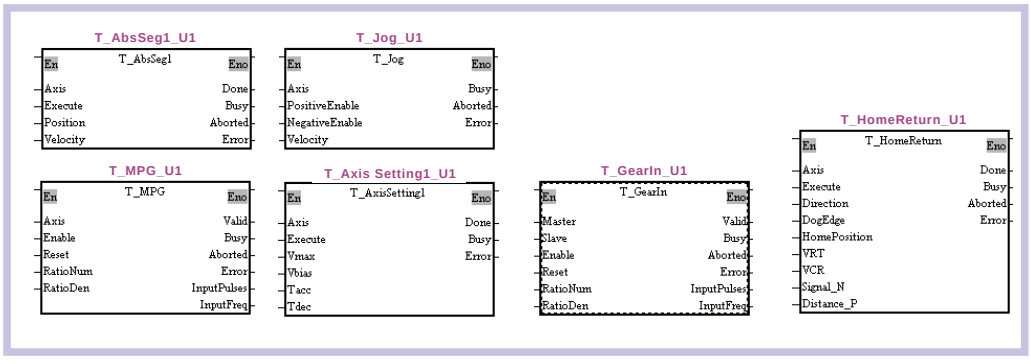


CFC Editor

Supports CFC programming language

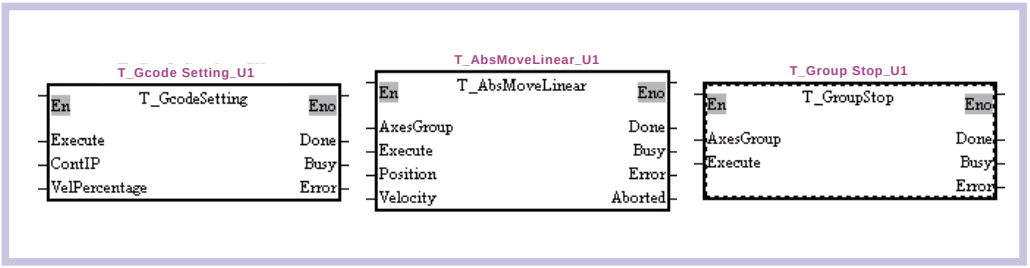
Single axis motion control

1	T_AbsSeg1
2	T_Jog
3	T_MPG
4	T_Axis Setting1
5	T_GearIn
6	T_HomeReturn



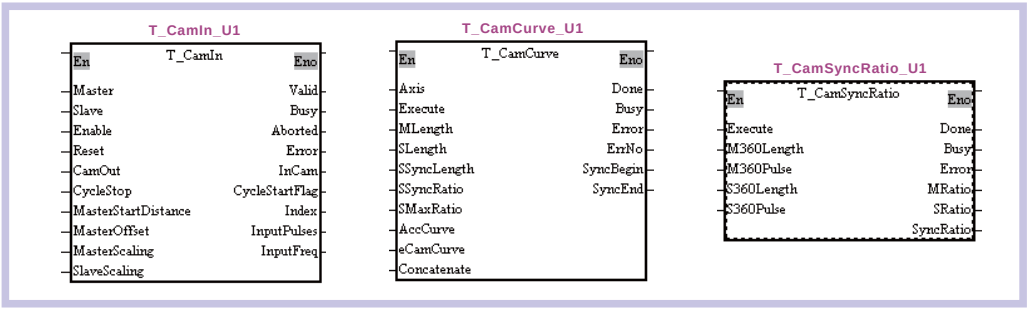
Multi-axis motion control

1. T_Gcode Setting
2. T_AbsMoveLinear
3. T_Group Stop



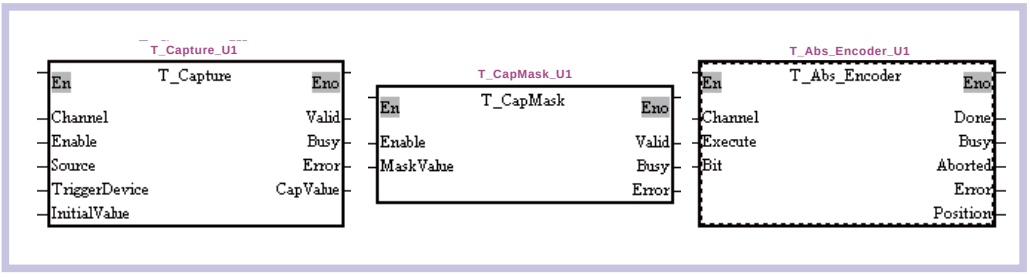
E-Cam motion control

1. T_CamIn
2. T_CamCurve
3. T_CamSyncRatio



Other motion control

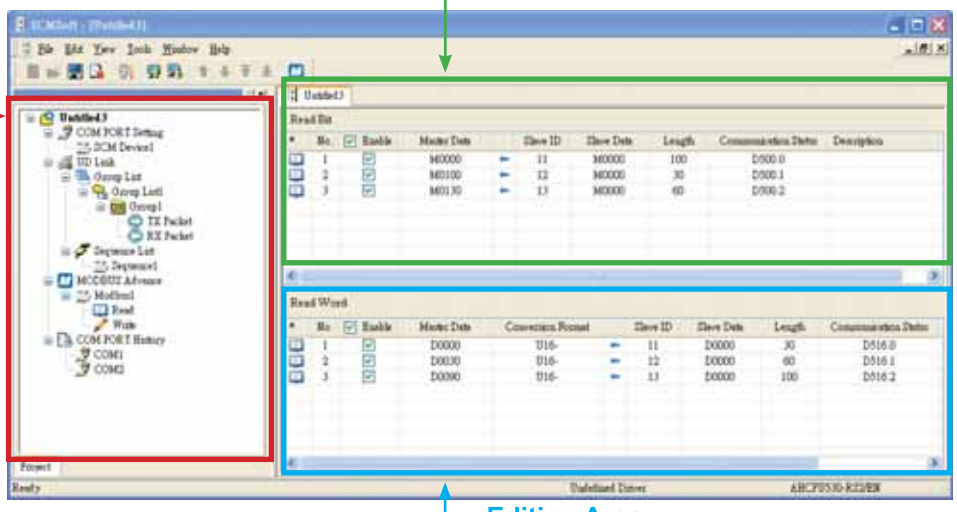
1. T_Capture
2. T_CapMask
3. T_Abs_Encoder



SCMSoft V1.0 Communication Editing Software

Provides SCM module with automatic data exchange setup function

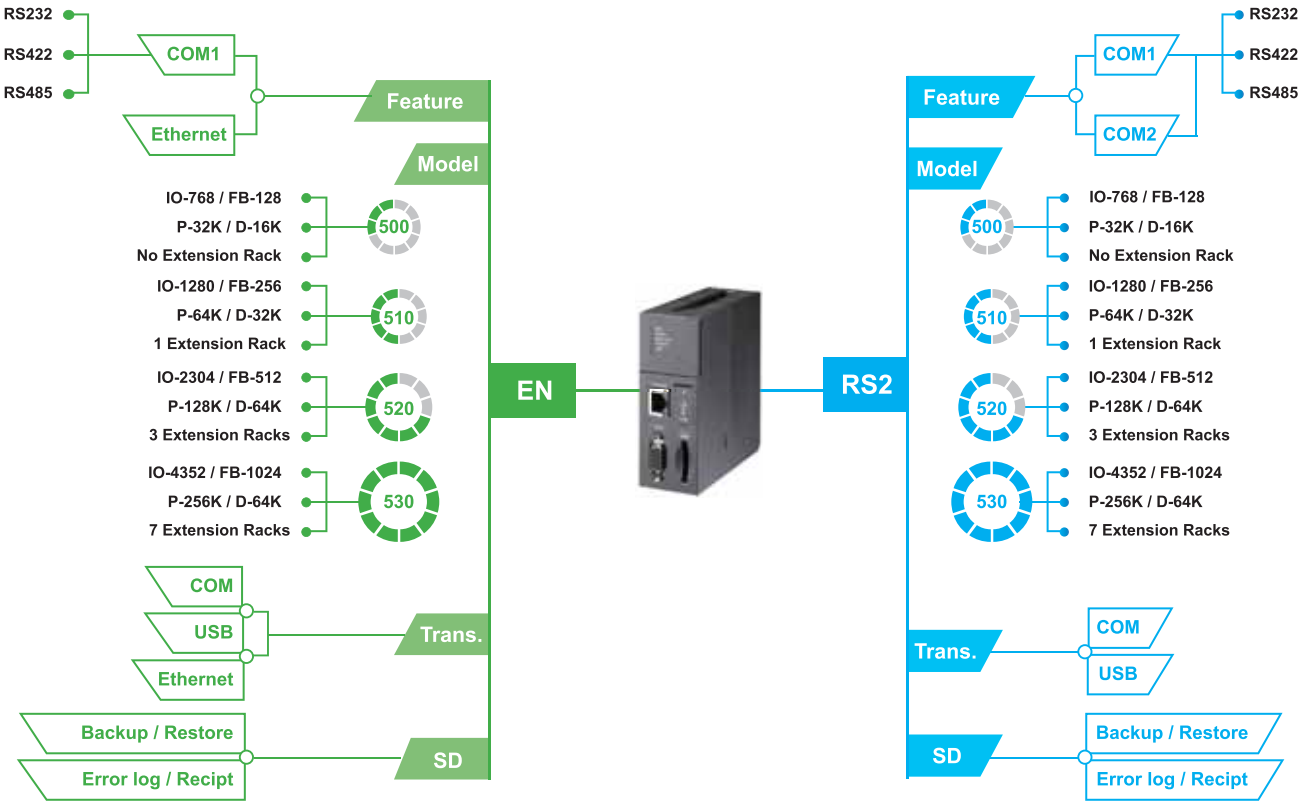
Toolbar
- Upload / Download setup files
- Supports wizards



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

Editing Area
- Data exchange setup
- Status display

Specification Tree



CPU Selection Table

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	☐	•				•			
	< 1280	☐		•				•		
	< 2304	☐			•				•	
	< 4352	☐				•				•
Program capacity	< 32k steps	☐	•				•			
	< 64k steps	☐		•				•		
	< 128k steps	☐			•				•	
	< 256k steps	☐				•				•
Expansion capacity	None	☐	•				•			
	< 1 expansion rack	☐		•				•		
	< 3 expansion racks	☐			•				•	
	< 7 expansion racks	☐				•				•
Built-in communication	1 COM port	☐					•	•	•	•
	2 COM ports	☐	•	•	•	•				
	Ethernet	☐					•	•	•	•
	Mini-USB	☐	•	•	•	•	•	•	•	•
SD card	V 1.0	☐	•	•	•	•	•	•	•	•

Model Name Explanation

AH CPU

AHCPU500-RS2

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

AH Power Supply Module

AHPS05-5A

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

AH Backplane

AHBP04M1-5A

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

AH Analog I/O Module

AH04AD-5A

AH	04	AD	-	5A
Series	**I/O Channels** 04: 4-channel 06: 6-channel 08: 8-channel	**Classification** AD: Analog input DA: Analog output AX: Analog input / output		**Type** 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** 16: 16 points 32: 32 points 64: 64 points	**Classification** AM: Digital input AN: Digital output AP: Digital input / output AR: Digital input with interrupt	**Function** 0: No input 1: DC input (24V) 3: AC input (120~240V)	**Function** 0: No output 1: 0.5A transistor / TRIAC output or 2A relay output 2: 0.1A transistor output	**Function** N: No output R: Relay output T: NPN output P: PNP output S: TRIAC output		**Type** 5A: Removable terminal 5B: DB37 connector 5C: Latched connector

AH Temperature Module

AH04PT-5A

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

AH Network Module

AH10EN-5A

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

AH RTU Module

AHRTU-DNET-5A

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

AH Motion Module

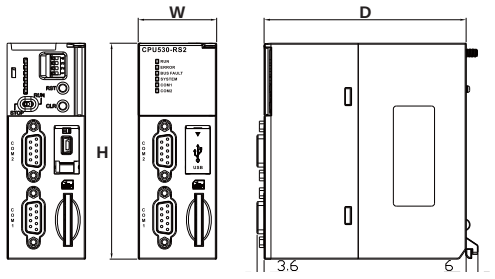
AH02HC-5A

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

Dimensions Unit: mm

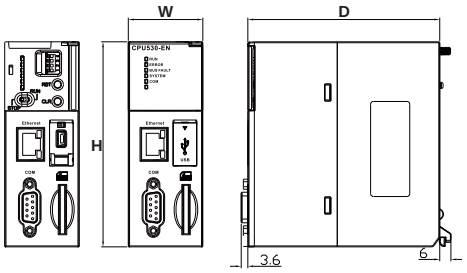
CPU Modules

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



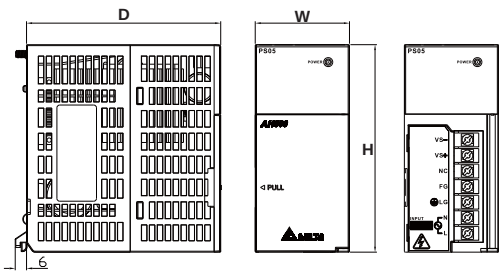
CPU Modules

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



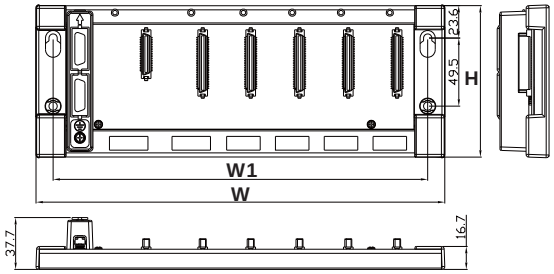
Power Supply Modules

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



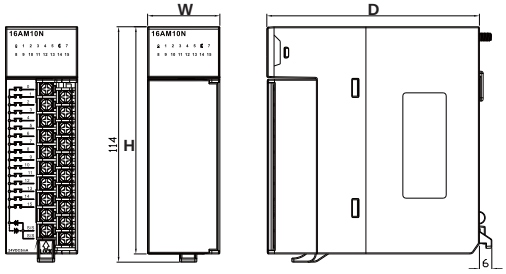
Backplanes

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



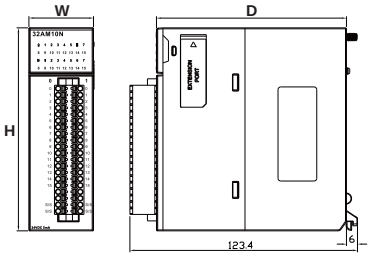
16-point Digital I/O Modules

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



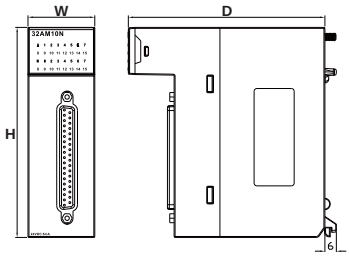
32-point Digital I/O Modules

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



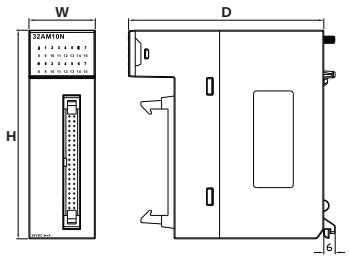
32-point Digital I/O Modules

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



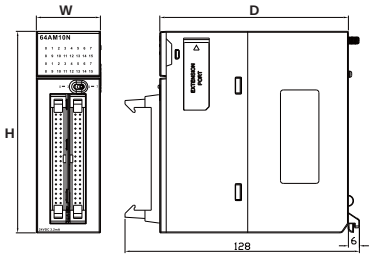
32-point Digital I/O Modules

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



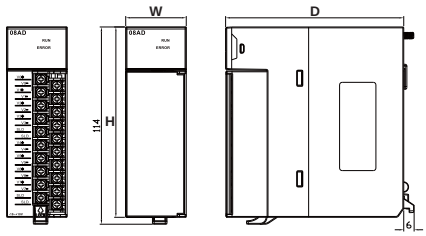
64-point Digital I/O Modules

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



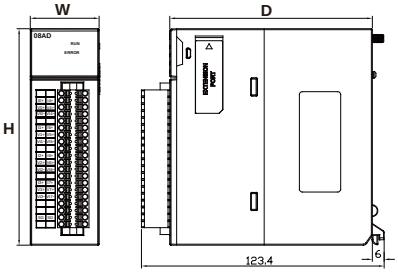
Analog I/O Modules

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



Analog I/O Modules

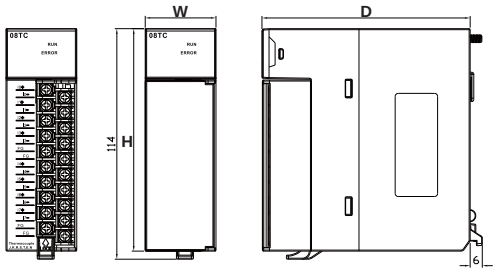
Model name	H	W	D
AH08AD-5A	110	35	103
AH08DA-5A	110	35	103



Dimensions Unit: mm

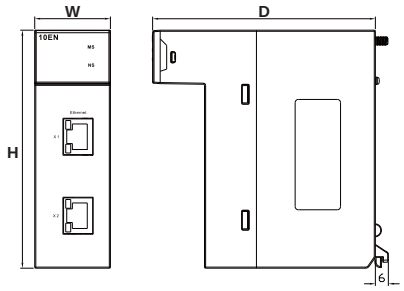
Temperature Measurement Modules

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



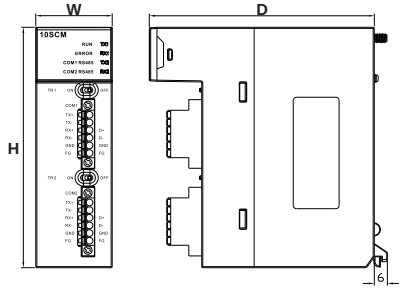
Network Module

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



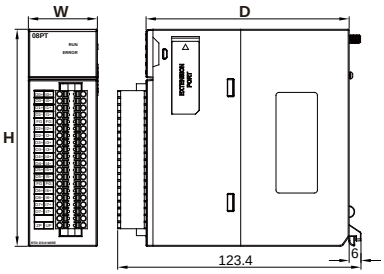
Network Module

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



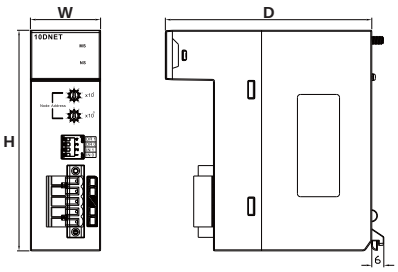
Temperature Measurement Module

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



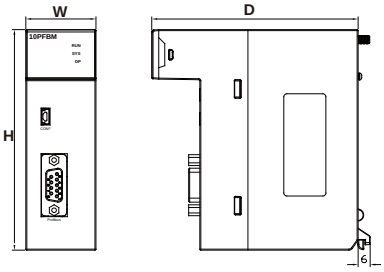
Network Module

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



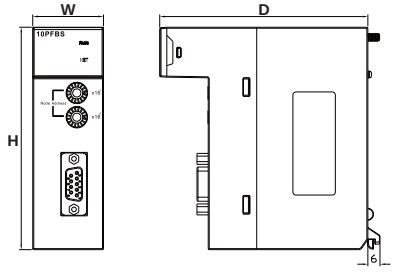
Network Module

Model name	H	W	D
AH10PFBM-5A	110	35	103



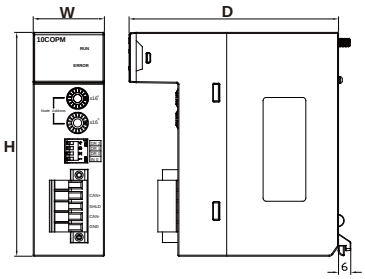
Network Module

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



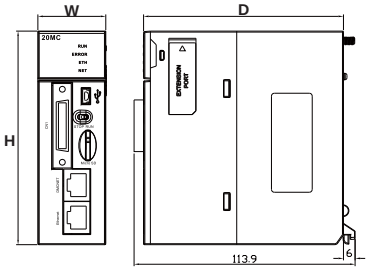
Network Module

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



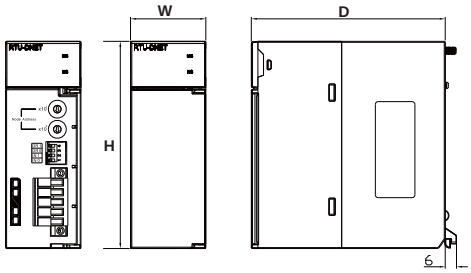
Motion Control Module

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



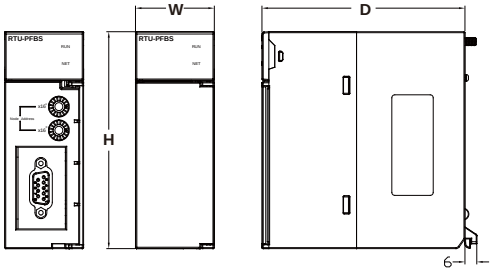
RTU Module

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



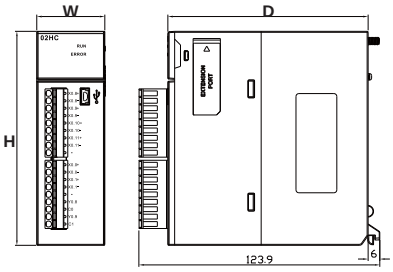
RTU Module

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



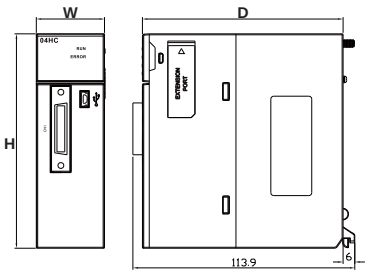
Motion Control Module

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



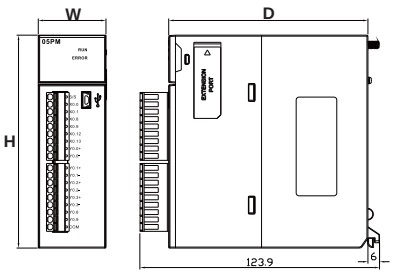
Motion Control Module

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



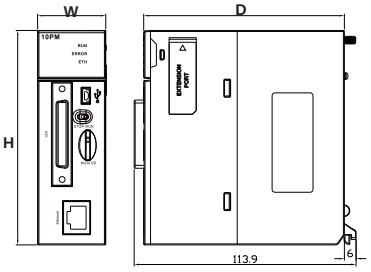
Motion Control Module

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



Motion Control Modules

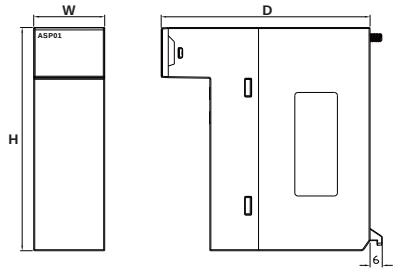
Model name	H	W	D
AH10PM-5A	110	35	103
AH15PM-5A	110	35	103



Dimensions Unit: mm

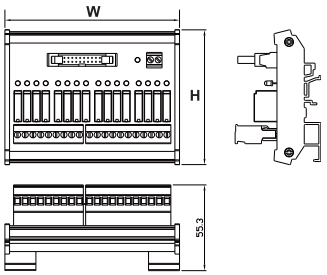
Dummy Module

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



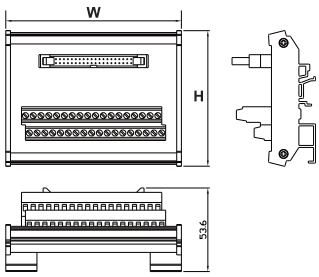
External Terminal Modules

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



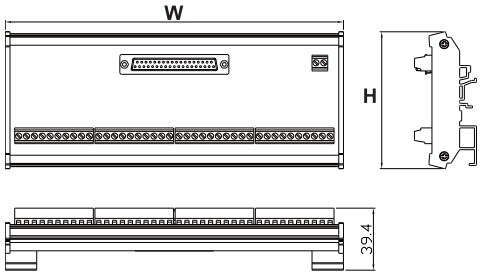
External Terminal Modules

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



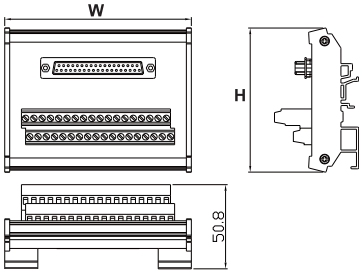
External Terminal Modules

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



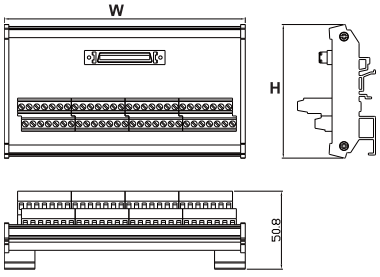
External Terminal Modules

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



External Terminal Modules

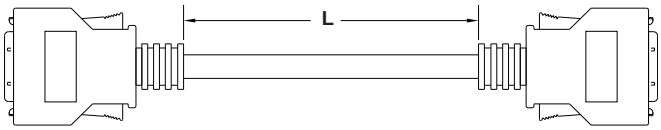
Model name	H	W
DVPAETB-IO16C	87	125
DVPAETB-IO24C	87	157
DVPAETB-IO34C	87	157



Dimensions Unit: m

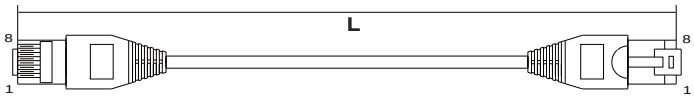
Cables (HDC)

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



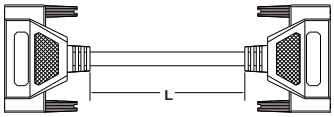
Cables (RJ45)

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



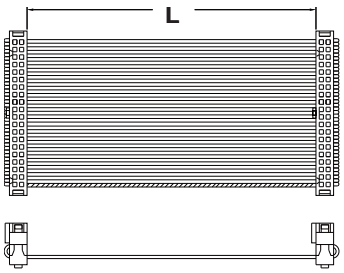
Cable (DB37)

Model name	L
DVPACAB7C10	1.0



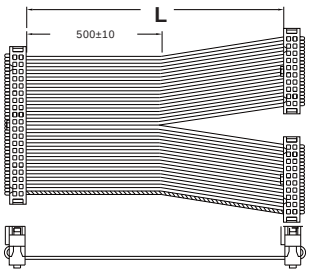
Cable (Latched connector)

Model name	L
DVPACAB7A10	1.0



Cable (Latched connector)

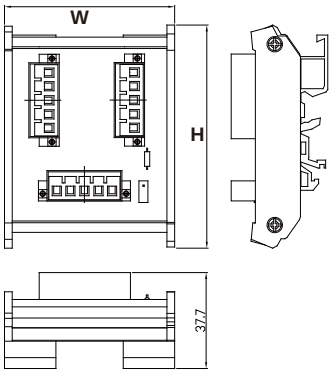
Model name	L
DVPACAB7B10	1.0



Dimensions Unit: mm

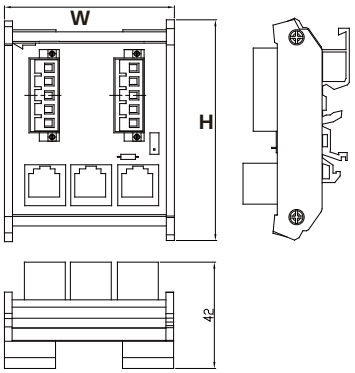
CANopen Distribution Box

Model name	H	W
TAP-CN01	87	66.5



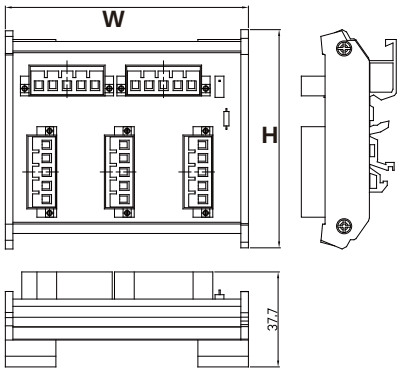
CANopen Distribution Box

Model name	H	W
TAP-CN03	87	66.5



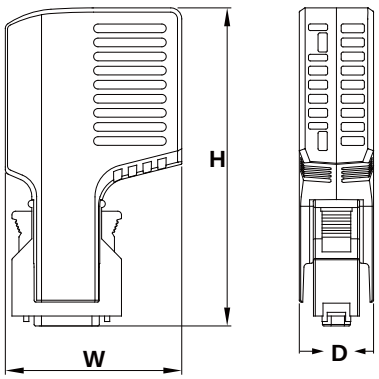
CANopen Distribution Box

Model name	H	W
TAP-CN02	87	96.5



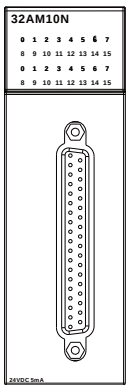
Fiber Optics Modules for Backplanes

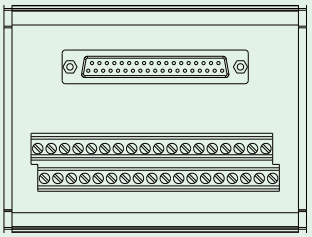
Model name	H	W	D
AHAADP01EF-5A	86.5	48	20.2
AHAADP02EF-5A	86.5	48	20.2



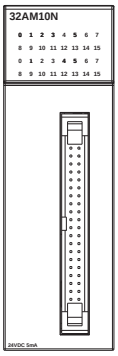
Accessory Selection for High-density Modules

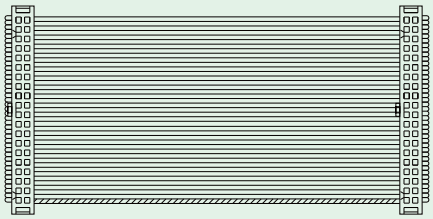
Model name		
AH32AM10N-5B	DVPACAB7C10	DVPAETB-ID32B

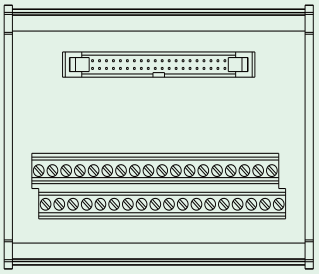




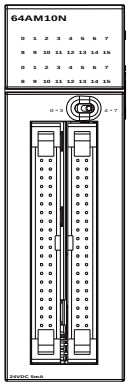
Model name		
AH32AM10N-5C	DVPACAB7A10	DVPAETB-ID32A

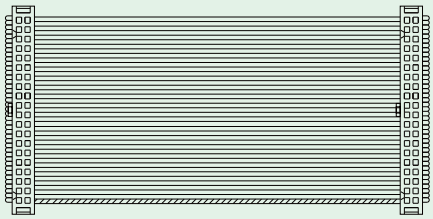


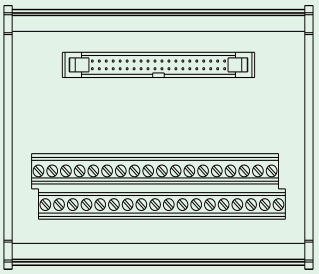




Model name		
AH64AM10N-5C	DVPACAB7A10	DVPAETB-ID32A



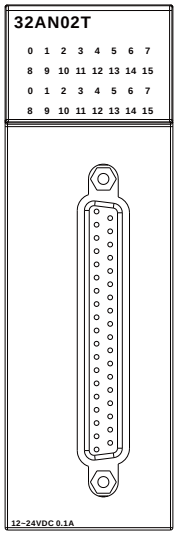


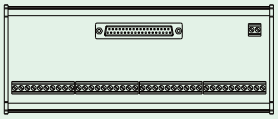


x2

Accessory Selection for High-density Modules

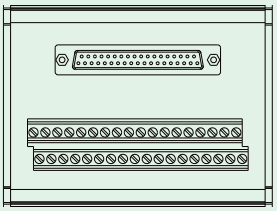
Model name		
AH32AN02T-5B	DVPACAB7C10	1 DVPAETB-OR32A (for relay output)



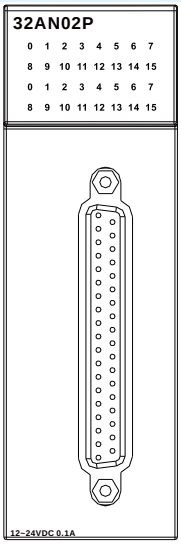


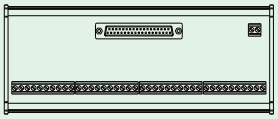
OR

2 DVPAETB-OT32B (for transistor output)



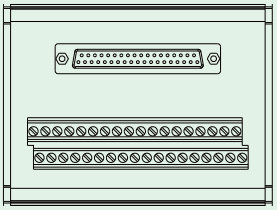
Model name		
AH32AN02P-5B	DVPACAB7C10	1 DVPAETB-OR32B (for relay output)





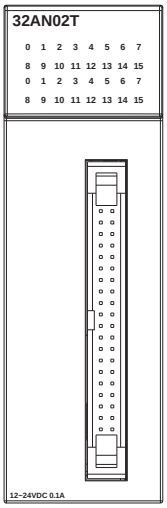
OR

2 DVPAETB-OT32B (for transistor output)

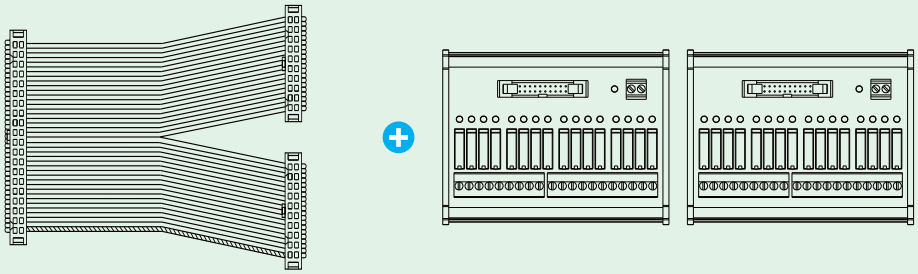


Model name

AH32AN02T-5C

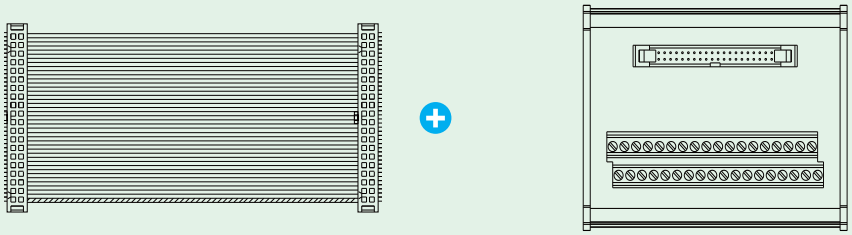


1 DVPACAB7B10 DVPAETB-OR16A (for relay output)



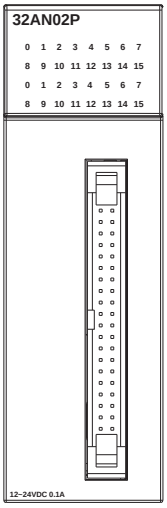
OR

2 DVPACAB7A10 DVPAETB-OT32A (for transistor output)

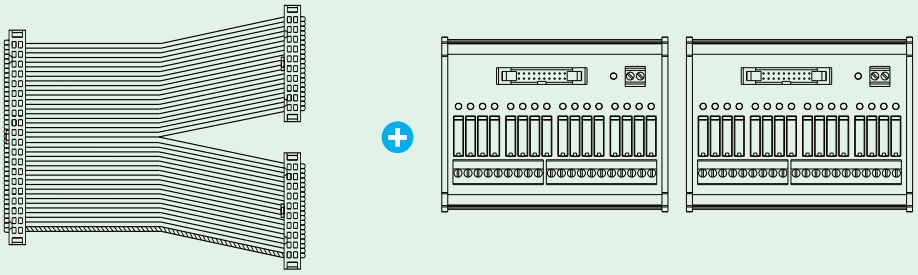


Model name

AH32AN02P-5C

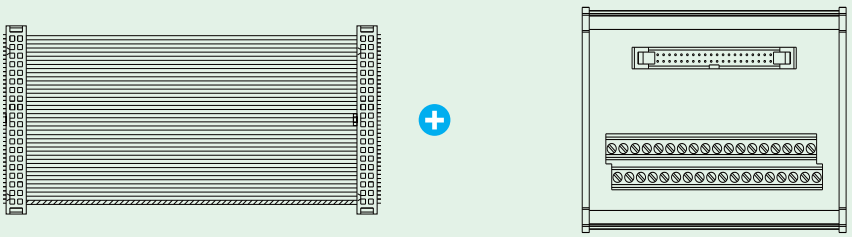


1 DVPACAB7B10 DVPAETB-OR16B (for relay output)



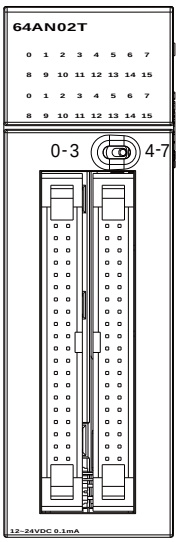
OR

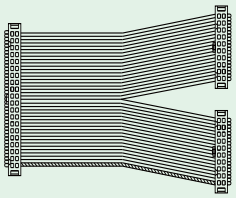
2 DVPACAB7A10 DVPAETB-OT32A (for transistor output)

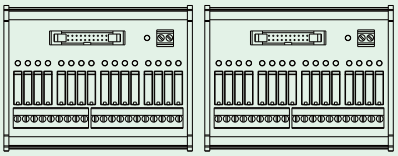


Accessory Selection for High-density Modules

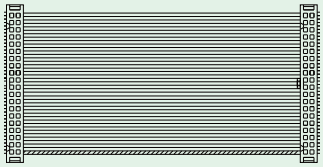
Model name			
AH64AN02T-5C	1	DVPACAB7B10	DVPAETB-OR16A (for relay output)
	OR		
	2	DVPACAB7A10	DVPAETB-OT32A (for transistor output)

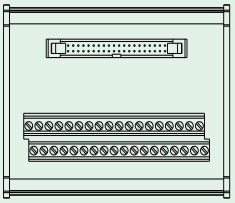






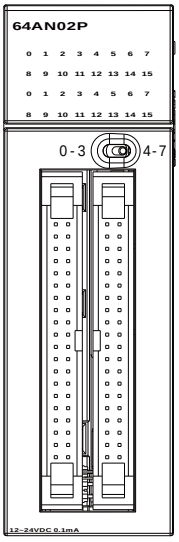
x2

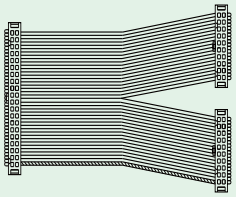


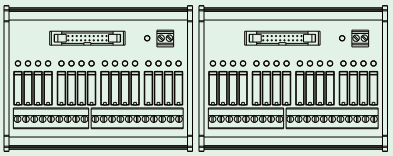


x2

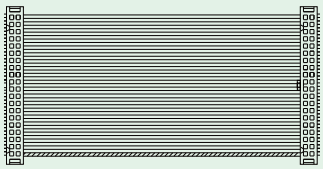
Model name			
H64AN02P-5C	1	DVPACAB7B10	DVPAETB-OR16B (for relay output)
	OR		
	2	DVPACAB7A10	DVPAETB-OT32A (for transistor output)

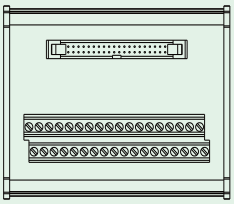






x2





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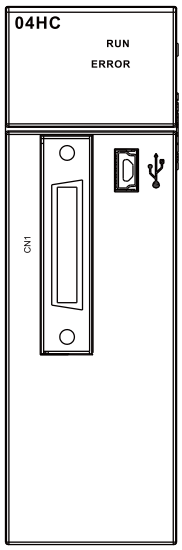
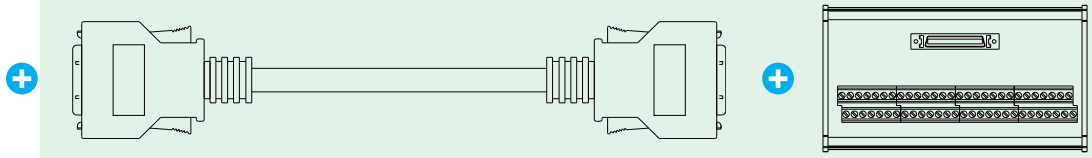
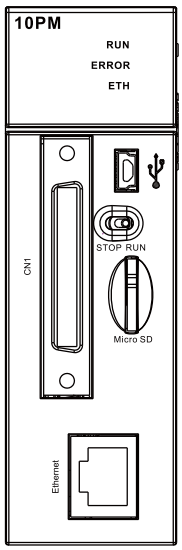
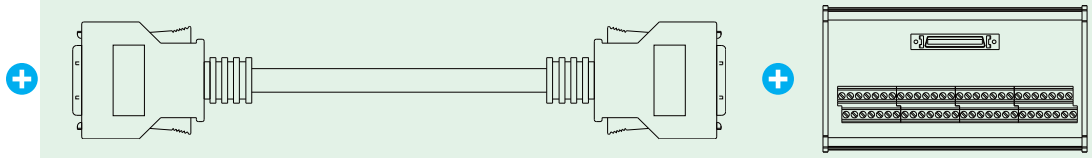
Model name		
AH04HC-5A	DVPACAB7D10	DVPAETB-IO16C





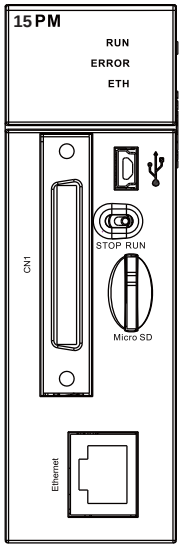
Model name		
AH10PM-5A	DVPACAB7E10	DVPAETB-IO24C

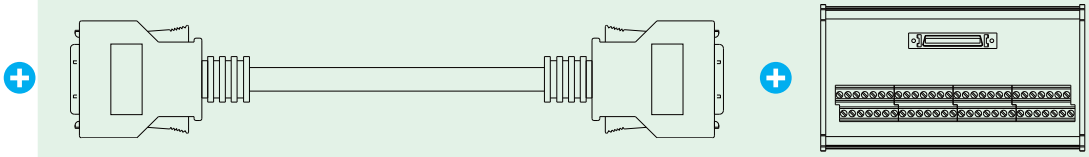




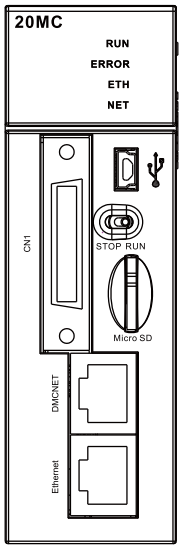
Accessory Selection for High-density Modules

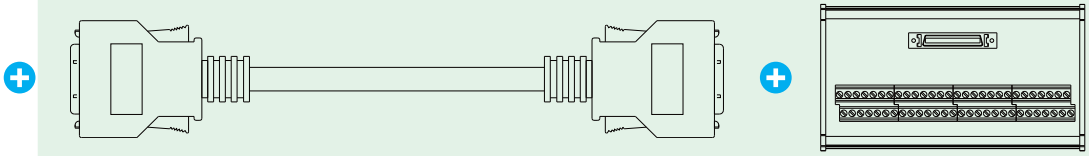
Model name		
AH15PM-5A	DVPACAB7E10	DVPAETB-IO34C





Model name		
AH20MC-5A	DVPACAB7D10	DVPAETB-IO16C





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	▪ Built-in RS-232 / 422 / 485 multi-modes communication port x 2 (RS-232:115.2kbps / RS-422 / 485: 921.6kbps) ▪ Built-in SD card slot (supports max. 2 GB) ▪ Built-in Mini-USB programming port ▪ Program execution speed: LD instruction @ 0.1μs / 1K steps @ 0.3ms ▪ System diagnose / status light / online editing and debug functions ▪ PLC Link automatic data exchange function ▪ MODBUS RTU / ASCII ▪ LD / SFC / FBD / IL / ST languages ▪ 256 interrupts (Timed / IO / External / Low voltage / Communication) ▪ 2048 timers and counters ▪ No battery required ▪ RTC function (max. 30 days after power off)	CE cULus
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	▪ Built-in RS-232 / 422 / 485 multi-modes communication port x1 (RS-232:115.2kbps / RS-422 / 485: 921.6kbps) ▪ Built-in Ethernet communication port (100Mbps) ▪ Built-in SD card slot (supports max. 2 GB) ▪ Built-in Mini-USB programming port ▪ Program execution speed: LD instruction @ 0.1μs / 1K steps @ 0.3ms ▪ System diagnose / status light / online editing and debug functions ▪ PLC Link automatic data exchange function ▪ MODBUS RTU / ASCII ▪ LD / SFC / FBD / IL / ST languages ▪ 256 interrupts (Timed / IO / External / Low voltage / Communication) ▪ 2048 timers and counters ▪ No battery required ▪ RTC function (max. 30 days after power off) ▪ NTP network time correction function ▪ WEB / E-mail / IP Filter function	
AHCPU510-EN	1280	64K steps (256KB)	32K / 32K / 1024K words	256	1	2w		
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	0.01w	▪ Supports CPU modules ▪ Supports remote IO communication modules (RTU) ▪ Built-in communication port for extension backplanes ▪ Slot spaces are not occupied by Power / CPU / RTU modules	CE cULus
AHBP06M1-5A	6	0.01w		
AHBP08M1-5A	8	0.01w		
AHBP12M1-5A	12	0.01w		

Extension Backplanes

Model	Slot	Power consumption (Internal)	Specifications	Certificates
AHBP06E1-5A	6	1.41w	▪ For main backplane extension ▪ Built-in communication port for extension backplanes ▪ Slot spaces are not occupied by power modules	CE cULus
AHBP08E1-5A	8	1.41w		

Ordering Information

Power Supply Modules

Model	Power input	Output	Specifications	Certificates
AHPS05-5A	100~240VAC 50 / 60Hz	60W	▪ Power supply for the modules on the racks ▪ LED power indicator ▪ Provides external DC power abnormal signal detection input and triggered interrupt function	CE cULus
AHPS15-5A	24VDC	36W		

Digital I/O Modules (Input)

Model	Points	Signals	Terminal block type	Power consumption (Internal / External)	Accessories (optional)	Specifications	Certificates
AH16AM10N-5A	16	24VDC 5mA	JIS removable terminal block	0.1w / 1.9w	-	▪ PNP / NPN mixed mode design ▪ Supports hot-swapping function ▪ Individual LED status indicator	CE cULus
AH16AM30N-5A	16	120~240VAC 4.5~9mA	JIS removable terminal block	0.1w / -	-		
AH32AM10N-5A	32	24VDC 5mA	EU removable terminal block	0.2w / 3.8w	-		
AH32AM10N-5B	32	24VDC 5mA	DB37	0.2w / 3.8w	DVPACAB7C10 x 1 DVPAETB-ID32B x 1		
AH32AM10N-5C	32	24VDC 5mA	Latched connector	0.2w / 3.8w	DVPACAB7A10 x 1 DVPAETB-ID32A x 1		
AH64AM10N-5C	64	24VDC 3.2mA	Latched connector	0.2w / 4.9w	DVPACAB7A10 x 2 DVPAETB-ID32A x 2	▪ PNP / NPN mixed mode design ▪ Supports hot-swapping function ▪ Individual LED status indicator (32 points)	
New AH16AR10N-5A	16	24VDC 5mA	JIS removable terminal block	0.5w / 1.9w	-	▪ PNP / NPN mixed mode design ▪ Supports hot-swapping function ▪ Individual LED status indicator ▪ Supports I/O interrupts ▪ Supports rising / falling-edge trigger modes ▪ Supports signal time-delay setting for 0.1 / 0.5 / 3 / 15 / 20 ms	

Digital I/O Modules (Output)

Model	Points	Signals	Terminal block type	Power consumption (Internal / External)	Accessories (optional)	Specifications	Certificates
AH16AN01R-5A	16	Relay 240VAC / 24VDC 2A	JIS removable terminal block	2.1w / -	-	▪ Supports hot-swapping function ▪ Individual LED status indicator ▪ Supports keep-last-value function when CPU shuts down	CE cULus
AH16AN01T-5A	16	NPN (Sink) 12~24VDC 0.5A	JIS removable terminal block	0.2w / 0.4w	-		
AH16AN01P-5A	16	PNP (Source) 12~24VDC 0.5A	JIS removable terminal block	0.2w / 0.4w	-		
AH16AN01S-5A	16	TRIAC 120 / 240VAC 0.5A	JIS removable terminal block	0.6w / -	-		
AH32AN02T-5A	32	NPN (Sink) 12~24VDC 0.1A	EU removable terminal block	0.4w / 0.8w	-		
AH32AN02P-5A	32	PNP (Source) 12~24VDC 0.1A	EU removable terminal block	0.4w / 0.8w	-		
AH32AN02T-5B	32	NPN (Sink) 12~24VDC 0.1A	DB37	0.4w / 0.8w	(DVPACAB7C10 x 1 DVPAETB-OR32A x 1) or (DVPACAB7C10 x 1 DVPAETB-OT32B x 1)		
AH32AN02P-5B	32	PNP (Source) 12~24VDC 0.1A	DB37	0.4w / 0.8w	(DVPACAB7C10 x 1 DVPAETB-OR32B x 1) or (DVPACAB7C10 x 1 DVPAETB-OT32B x 1)		
AH32AN02T-5C	32	NPN (Sink) 12~24VDC 0.1A	Latched connector	0.4w / 0.8w	(DVPACAB7B10 x 1 DVPAETB-OR16A x 2) or (DVPACAB7A10 x 1 DVPAETB-OT32A x 1)		
AH32AN02P-5C	32	PNP (Source) 12~24VDC 0.1A	Latched connector	0.4w / 0.8w	(DVPACAB7B10 x 1 DVPAETB-OR16B x 2) or (DVPACAB7A10 x 1 DVPAETB-OT32A x 1)		
AH64AN02T-5C	64	NPN (Sink) 12~24VDC 0.1A	Latched connector	0.6w / 1.5w	(DVPACAB7B10 x 2 DVPAETB-OR16A x 4) or (DVPACAB7A10 x 2 DVPAETB-OT32A x 2)	▪ Supports hot-swapping function ▪ Individual LED status indicator (32 points) ▪ Supports keep-last-value function when CPU shuts down	
AH64AN02P-5C	64	PNP (Source) 12~24VDC 0.1A	Latched connector	0.6w / 1.5w	(DVPACAB7B10 x 2 DVPAETB-OR16B x 4) or (DVPACAB7A10 x 2 DVPAETB-OT32A x 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	24VDC 5mA	Relay 240VAC / 24VDC 2A	JIS removable terminal block	1.1w / -	▪ PNP / NPN mixed mode design ▪ Supports hot-swapping function ▪ Individual LED status indicator ▪ Supports keep-last-value function when CPU shuts down	CE cULus
AH16AP11T-5A	8	8	24VDC 5mA	NPN (Sink) 12~24VDC 0.5A	JIS removable terminal block	0.2w / 0.2w		
AH16AP11P-5A	8	8	24VDC 5mA	PNP (Source) 12~24VDC 0.5A	JIS removable terminal block	0.2w / 0.2w		

Ordering Information

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	▪ Hardware resolution: 16-bit ▪ Conversion time: 150 μs / channel ▪ Base error (ambient temp.): Voltage mode ±0.1% Current mode ±0.1% ▪ Base error (full temp. range): Voltage mode ±0.45% Current mode ±0.2% ▪ Linearity error (ambient temp.): Voltage mode ±0.07% Current mode ±0.05% ▪ Linearity error (full temp. range): Voltage mode ±0.12% Current mode ±0.23% ▪ Supports hot-swapping function ▪ Isolated signal design ▪ Diagnose function ▪ Module status LED indicator ▪ Supports interrupt function	CE cULus
New 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	▪ Hardware resolution: 16-bit ▪ Conversion time: 150 μs / channel ▪ Base error (ambient temp.): Voltage mode ±0.02% Current mode ±0.06% ▪ Base error (full temp. range): Voltage mode ±0.04% Current mode ±0.07% ▪ Linearity error (ambient temp.): Voltage mode ±0.004% Current mode ±0.01% ▪ Linearity error (full temp. range): Voltage mode ±0.004% Current mode ±0.01% ▪ Supports hot-swapping function ▪ Isolated signal design ▪ Diagnose function ▪ Module status LED indicator ▪ Supports interrupt function ▪ Supports keep-last-value function when CPU shuts down	CE cULus
New 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	▪ Hardware resolution: 16-bit ▪ Conversion time: 150μs / channel ▪ Input accuracy: same as AH04AD-5A ▪ Output accuracy: same as AH04DA-5A ▪ Supports hot-swapping function ▪ Isolated signal design ▪ Diagnose function ▪ Module status LED indicator ▪ Supports interrupt function ▪ Supports keep-last-value function when CPU shuts down	CE cULus

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: 150ms / channel 3-wire: 300ms / channel	JIS removable terminal block	2w / -	▪ Effective resolution: 16-bit ▪ Accuracy: ±0.6% (Full Scale) ▪ Supports hot-swapping function ▪ Signal isolated design ▪ Diagnose function ▪ PID function ▪ Module status LED indicator ▪ Supports interrupt function ▪ Supports disconnection detection function ▪ Fully isolated channel design (AH08PTG-5A)	CE cULus
AH04TC-5A	4	Thermocouple input J,K,R,S,T,E,N, ±150mV	0.1°C / 0.1°F	200ms / channel	JIS removable terminal block	1.5w / -		
AH08TC-5A	8	Thermocouple input J,K,R,S,T,E,N, ±150mV	0.1°C / 0.1°F	200ms / channel	JIS removable terminal block	1.5w / -		
New 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: 20ms (fast)~100ms (normal) / channel 3-wire:200ms / channel	EU removable terminal block	0.7w / 4w		

Network Modules

Model	Power consumption (Internal / External)	Specifications			Certificates
AH10EN-5A	1.6w / -	▪ Ethernet communication module (Master / Salve) ▪ 100Mbps communication port x 2 (switch function available) ▪ Ether Link function ▪ MODBUS TCP function	▪ Automatic data exchange function ▪ NTP network time correction function ▪ SNMP / E-mail / IP Filter function	▪ Supports hot-swapping function ▪ Diagnose function ▪ Module status LED indicator	CE cULus
AH10SCM-5A	1.2w / -	▪ Serial communication module (Master / Slave) ▪ Full isolation design in power & signal circuits ▪ Built-in RS-422 / 485 with communication port x 2 (multiple modes, 460.8Kkbps) ▪ Supports PLC Link function	▪ Supports user defined communication format (UD Link) ▪ MODBUS RTU / ASCII function available ▪ Supports automatic data exchange function ▪ Supports BACnet Slave function		
AH10DNET-5A	0.9w / 0.72w	▪ DeviceNet communication module (Master / Slave) ▪ Supports max. speed of 1Mbps ▪ Switchable between master and slave modes	▪ Connecting up to 63 slave stations in master mode ▪ RIO capacity in master mode: 490 words IN / OUT		
New AH10PFBM-5A	2w / -	▪ PROFIBUS-DP master module ▪ Supports DPV0 / DPV1 ▪ Max. speed: 12Mbps	▪ Connects up to 124 slaves ▪ Configurable I/O capacity: 2880 words for input / 2880 words for output		
AH10PFBS-5A	1w / -	▪ PROFIBUS-DP slave module ▪ Supports DPV0 / DPV1 ▪ Max. speed: 12Mbps	▪ Configurable I/O capacity: 100 words for input / 100 words for output		
New AH10COPM-5A	1w / -	▪ CANopen module (Master / Slave) ▪ Max. speed: 1Mbps ▪ Connects up to 100 slaves in master mode			

Remote I/O Modules

Model	Power consumption (Internal / External)	Specifications		Certificates
AHRTU-DNET-5A	0.75w / 0.72w	▪ DeviceNet remote I/O module ▪ Supports max. speed of 1Mbps ▪ Supports AH500 DIO modules, AIO modules, temperature measurement modules, and the serial communication module AH10SCM	▪ Installing on the main backplane required ▪ Supports up to 7 extension racks ▪ Diagnose function ▪ Module status LED indicator	CE cULus
New AHRTU-PFBS-5A	1.9w / -	▪ PROFIBUS-DP remote I/O module ▪ Max. speed: 12Mbps ▪ Supports AH500 digital I/O modules, analog I/O modules, temperature measurement modules ▪ Installs on main backplane	▪ Supports 7 extension backplanes ▪ Diagnose function ▪ Module status LED indicator ▪ Configurable I/O capacity: 122 words for input / 122 words for output	

Ordering Information

Motion Control Modules

Model	Terminal block type	Power consumption (Internal)	Accessories (optional)	Specifications		Certificates
AH02HC-5A	EU removable terminal block	2.4w	-	▪ 2 high speed counter channels	▪ 200K Hz input ▪ UD / PD / AB / 4AB modes ▪ Supports interrupt function ▪ Supports hot-swapping function ▪ Diagnose function ▪ Module status LED indicator	CE cULus
AH04HC-5A	HDC	2.4w	DVPACAB7D10 DVPAETB-IO16C	▪ 4 high speed counter channels		
AH05PM-5A	EU removable terminal block	2.7w	-	▪ 2-axis pulse train motion control module ▪ Supports 1MHz output ▪ Supports 2-axis linear interpolation, 2-axis arc interpolation	▪ CPU execution speed: LD instruction @ 0.13μs ▪ Program capacity: 64K steps ▪ Data register: D=10K words / W=64K words ▪ Supports UD / PD / AB / 4AB input modes ▪ Built-in Mini USB programming communication port ▪ Independent programming, program download and execution available ▪ Supports G-code ▪ Supports hot-swapping function ▪ Diagnose function ▪ Module status LED indicator	
AH10PM-5A	HDC	2.7w	DVPACAB7E10 DVPAETB-IO24C	▪ 6-axis pulse train motion control module ▪ Supports 1MHz output (4 axes) 200K Hz output (2 axes) ▪ Supports 2~6 axis linear interpolation, 2-axis arc interpolation and 3-axis helical interpolation ▪ Built in Ethernet communication port ▪ Supports Micro SD card		
New AH15PM-5A	HDC	2.7w	DVPACAB7E10 DVPAETB-IO34C	▪ 4-axis pulse type motion control module ▪ Supports 1MHz output ▪ Supports 2~4-axis linear interpolation, 2-axis arc interpolation, 3-axis helical interpolation ▪ Built-in Ethernet communication port ▪ Supports Micro SD card ▪ Supports limit switch		
AH20MC-5A	HDC	3w	DVPACAB7D10 DVPAETB-IO16C	▪ 12-axis DMCNET communication motion control module (10Mbps) ▪ 12 axes synchronization in 1ms ▪ Supports 2~6 axes linear interpolation, 2-axis arc interpolation and 3-axis helical interpolation ▪ Built in Ethernet communication port ▪ Supports Micro SD card		

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
New 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	c UL us
		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 / Latched connector	AH32AM10N-5C / AH32AN02T-5C / AH32AN02P-5C / AH64AM10N-5C / AH64AN02T-5C / AH64AN02P-5C	
		DVPACAB7B10	1.0m / Latched 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	Latched connector	AH32AM10N-5C / AH64AM10N-5C	CE
		DVPAETB-ID32B	DB37	AH32AM10N-5B	
	For digital output modules	DVPAETB-OR16A	16 points relay output (240VAC / 24VDC, 2A) Latched connector	AH32AN02T-5C / AH64AN02T-5C	
		DVPAETB-OR16B	16 points relay output (240VAC / 24VDC, 2A) Latched connector	AH32AN02P-5C / AH64AN02P-5C	
		DVPAETB-OR32A	32 points relay output (240VAC / 24VDC, 2A) DB37	AH32AN02T-5B	
		DVPAETB-OR32B	32 points relay output (240VAC / 24VDC, 2A) DB37	AH32AN02P-5B	
		DVPAETB-OT32A	Transistor output latched 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		CE
		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			
New Fiber optics modules for backplanes	Used for backplane extension via fiber optics (installs at the backplane's lower extension port)	AHAADP01EF-5A	▪ Optical fiber connector: SC ▪ Supported optical fiber types: multi-modes, 62.5/125 μm or 50/125 μm ▪ Optical fiber max. length: 2km	AHBP04M1-5A / AHBP06M1-5A / AHBP08M1-5A / AHBP12M1-5A / AHBP06E1-5A / AHBP08E1-5A	CE
	Used for backplane extension via fiber optics (installs at the backplane's upper extension port)	AHAADP02EF-5A		AHBP06E1-5A / AHBP08E1-5A	c UL us
Memory card	SD card: 1 GB	FMC-SD001G	▪ Capacity: 1 GB ▪ Speed (Read / Write) : Max. 18/15 MB/s	▪ Overwrite: 10,000 times ▪ Operation temperature: -40~85°C	

Global Operations

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(Green Building)

Taoyuan Plant 1

Taoyuan Plant
(Diamond-rated Green Building)

ASIA (China)

Wujiang Plant 3

Delta Electronics

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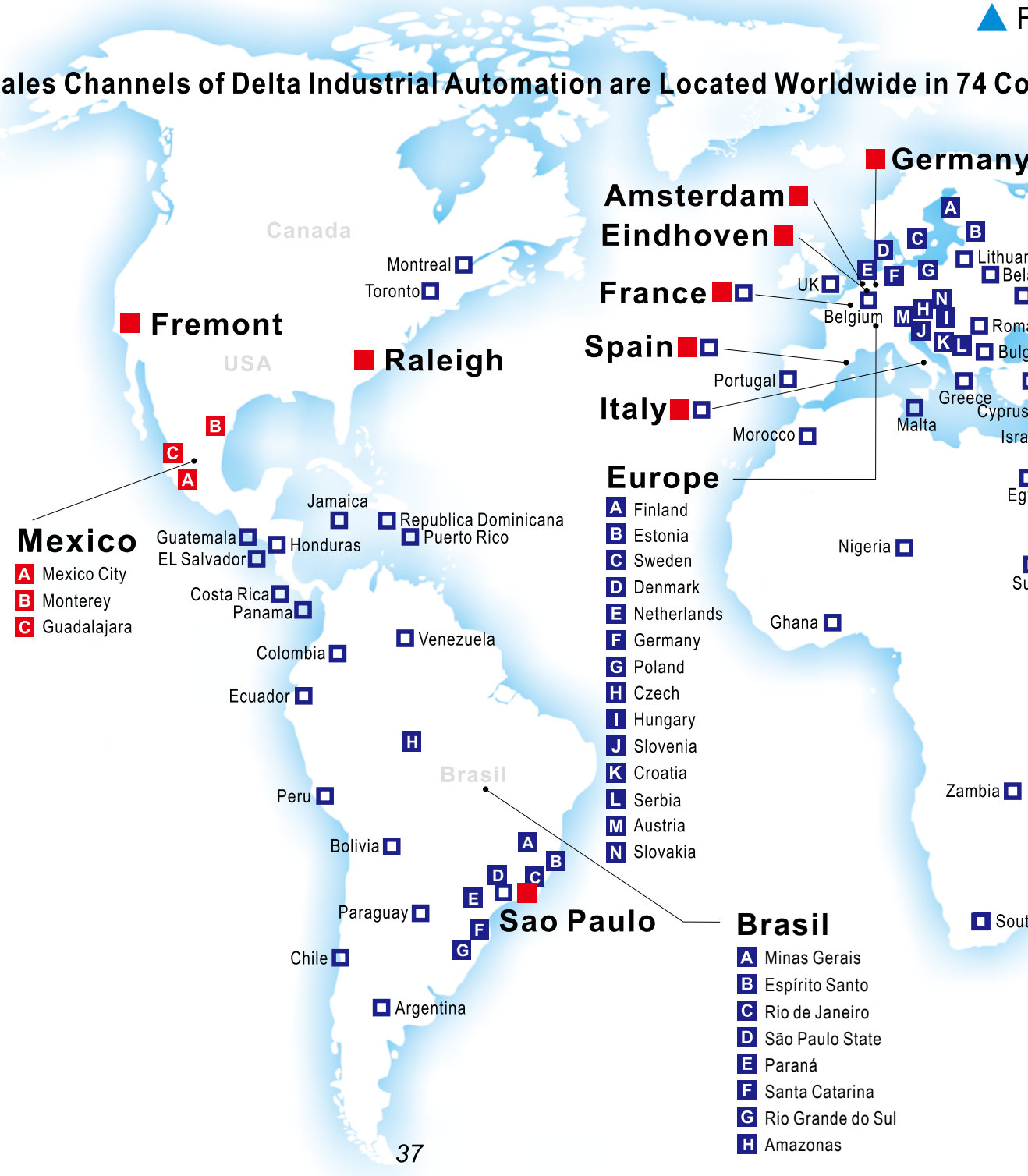

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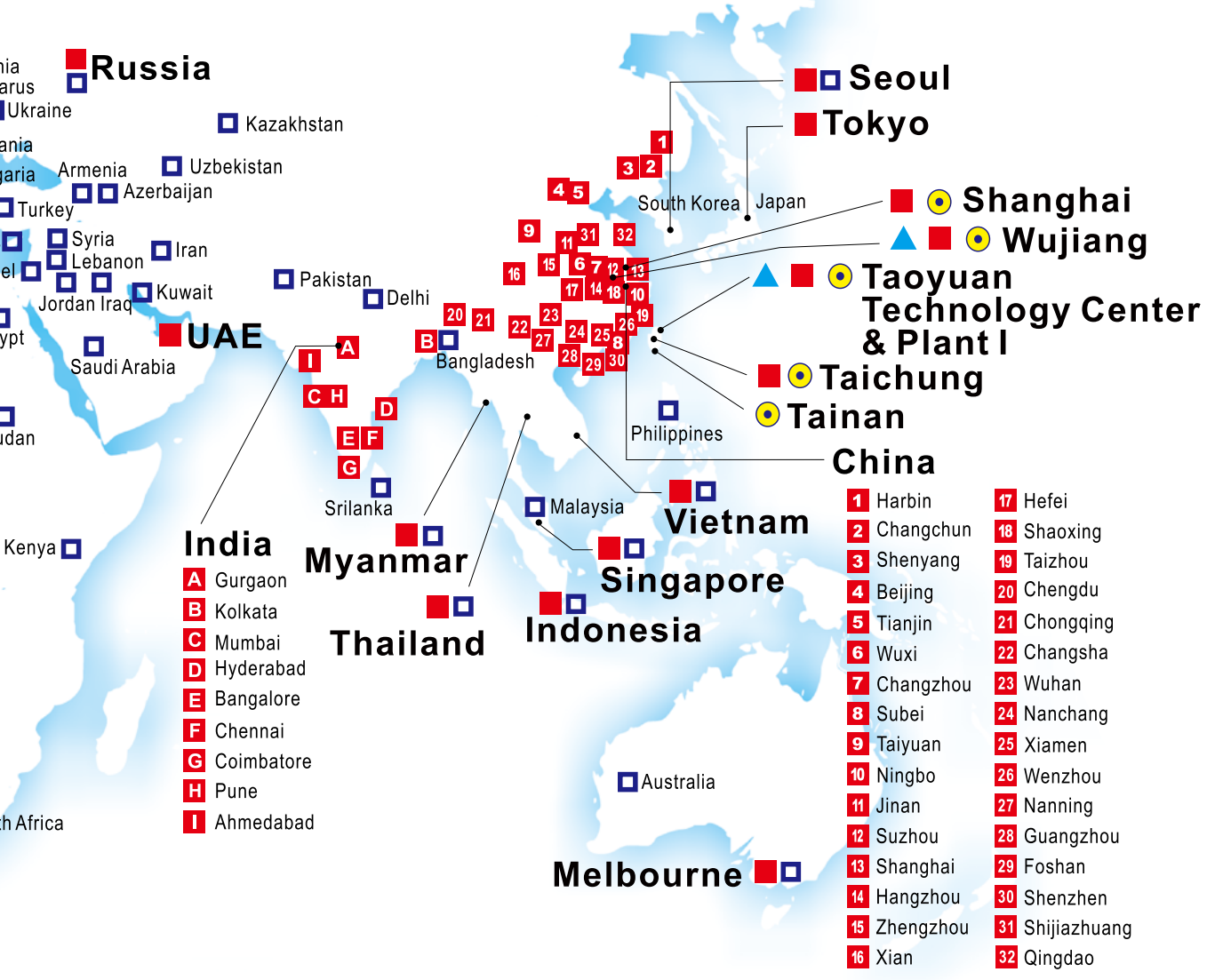

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