Automation for a Changing World

Delta Hot Swappable Mid-range PLC AH 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 performance, and an abundant selection of extension modules, the AH Series PLC also provides exceptional system expandability and full redundant solution, greatly reducing the system cost for a broad range of applications.

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

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

» Redundant and hot-swapping functions keep the system running for improved maintainability

» Reliable operations of the supported modules in severe conditions
  * Operating condition: -20 ~ 60°C / 5 ~ 95% (Non-condensing)
  * Storage condition: -40 ~ 70°C / 5 ~ 95% (Non-condensing)

- Utilizes 32-bit processor
- Max. I/O points:
  DIO: Max. 4,352 points
  AIO: Max. 544 channels
  RIO: >100,000 points
- Program capacity: Max. 1 M steps (4 MB)
  Data register (D+L): 512 k words
- Excellent program execution speed: LD instruction execution speed: 0.02 μs
- CPU built-in with fully isolated RS-232 / 422 / 485, Mini-USB, Ethernet and SDHC card slot
- Abundant selection of DIO modules,AIO modules, temperature measurement modules, network modules, pulse-train modules and DMCNET / EtherCAT motion control modules

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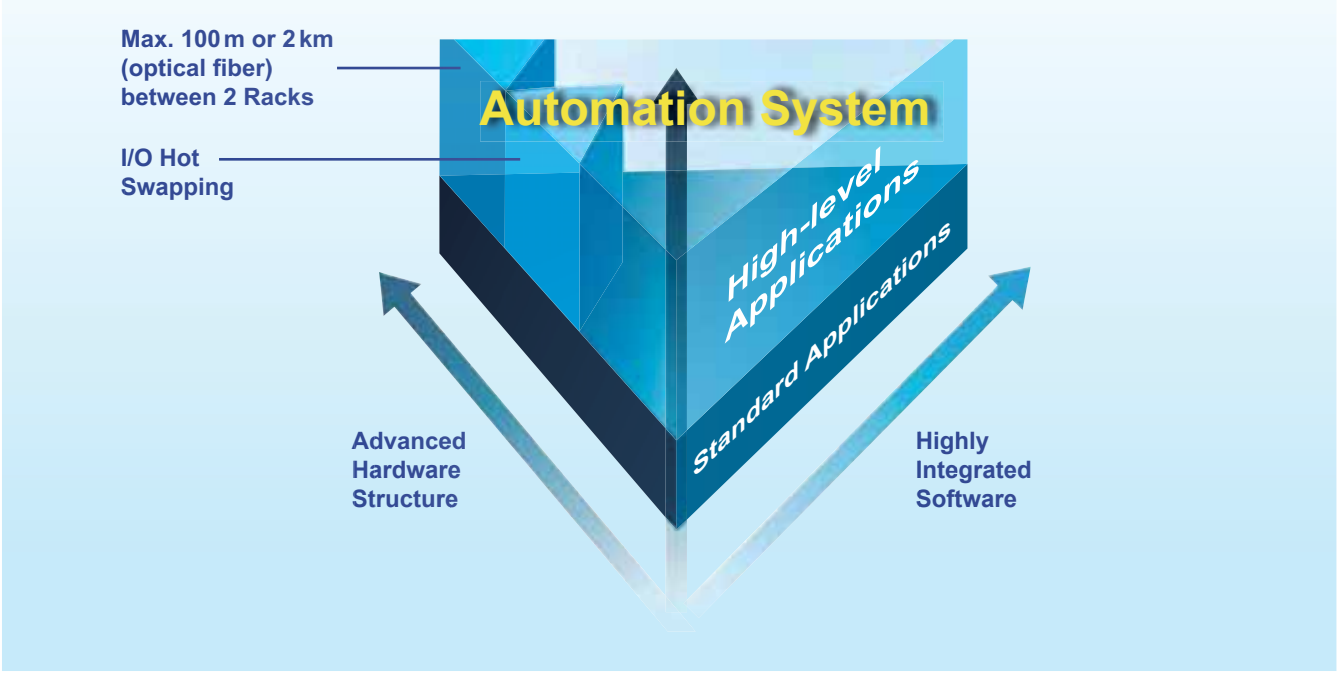
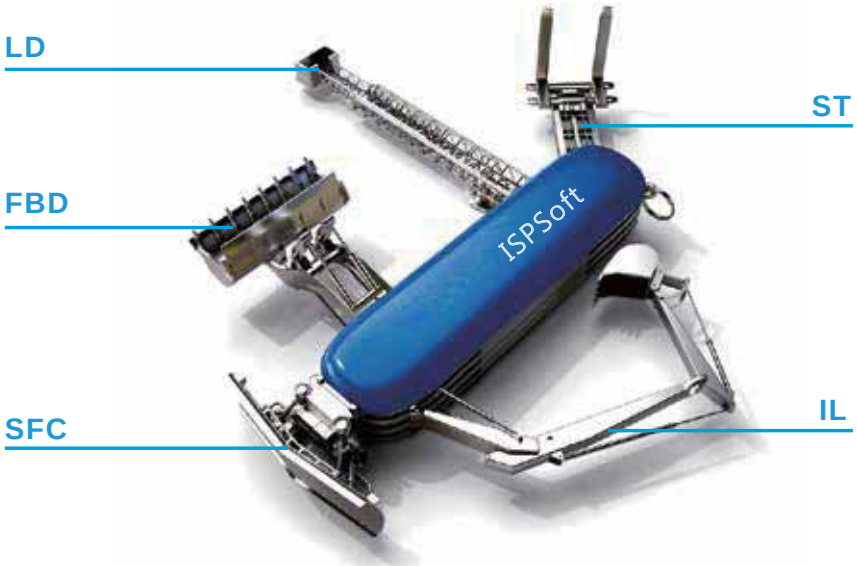
AH Series PLC – Automation System with Fully Integrated Hardware and Software Interfaces



Highly Integrated Software – Excellent Accessibility

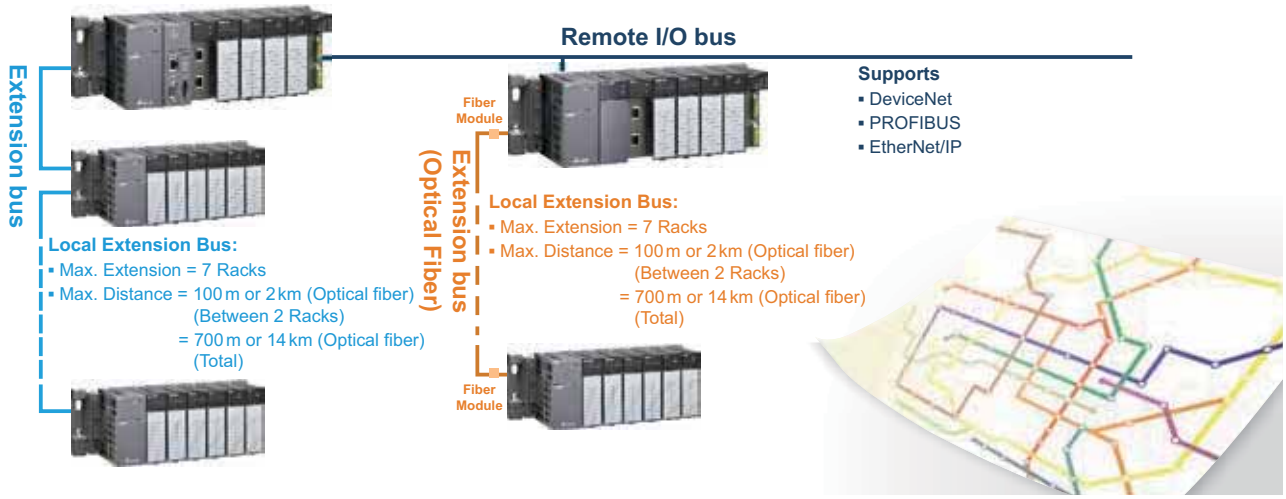
AH PLCs adopt the highly accessible programming software ISPSoft, integrating the main functions that include control process programming, hardware configuration, network configuration, and providing a graphical interface for these functions. In addition, users of ISPSoft can choose their most efficient 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 AH local extension rack can reach a maximum of 100 m or 2 km (optical fiber), greatly enhancing wiring flexibility. In addition, the AH 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



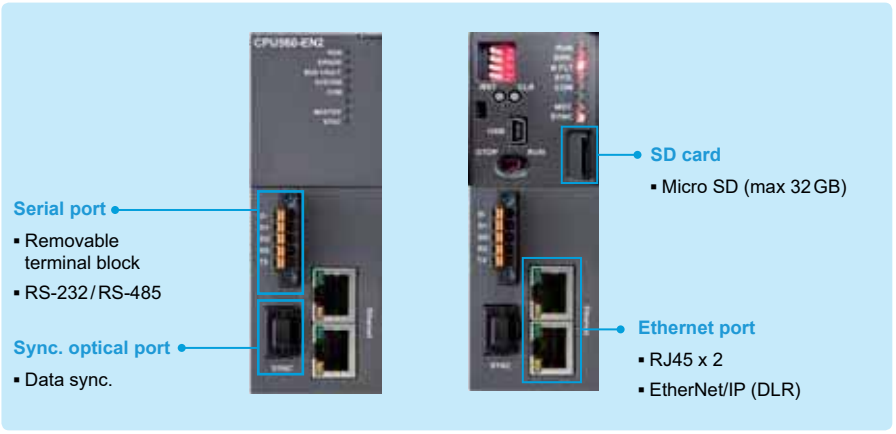
Improved Maintainability – Keeps the System Running

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.

Redundant CPU

The redundant CPU of the AH Series adopts a reliable redundancy structure, and integrates synchronous modules, Ethernet ports and serial communication interfaces for a more competitive control solution.

AHCPU560-EN2



Redundant Backplane

The redundant backplane of the AH Series provides redundant power supply and communciation interfaces for a complete control solution.

Redundant main backplane: AHBP04MR1-5A (4-slot), AHBP06MR1-5A (6-slot), AHBP08MR1-5A (8-slot)

Redundant expansion backplane: AHBP06ER1-5A (6-slot)

Redundant System

Full Redundancy Structure

Redundant CPU	Redundant main backplane	Redundant power	Redundant ext. ports	Ring topology

Modules

Main backplane	Expansion backplane	RTU rack
▪ Ethernet module - AH10EN-5A (V3) ▪ Serial module - AH10SCM-5A (V3)	▪ DIO ▪ AIO (includes temperature modules) ▪ Serial modules - AH10SCM-5A, AH15SCM-5A	▪ DIO ▪ AIO (include temperature modules)

Tasks

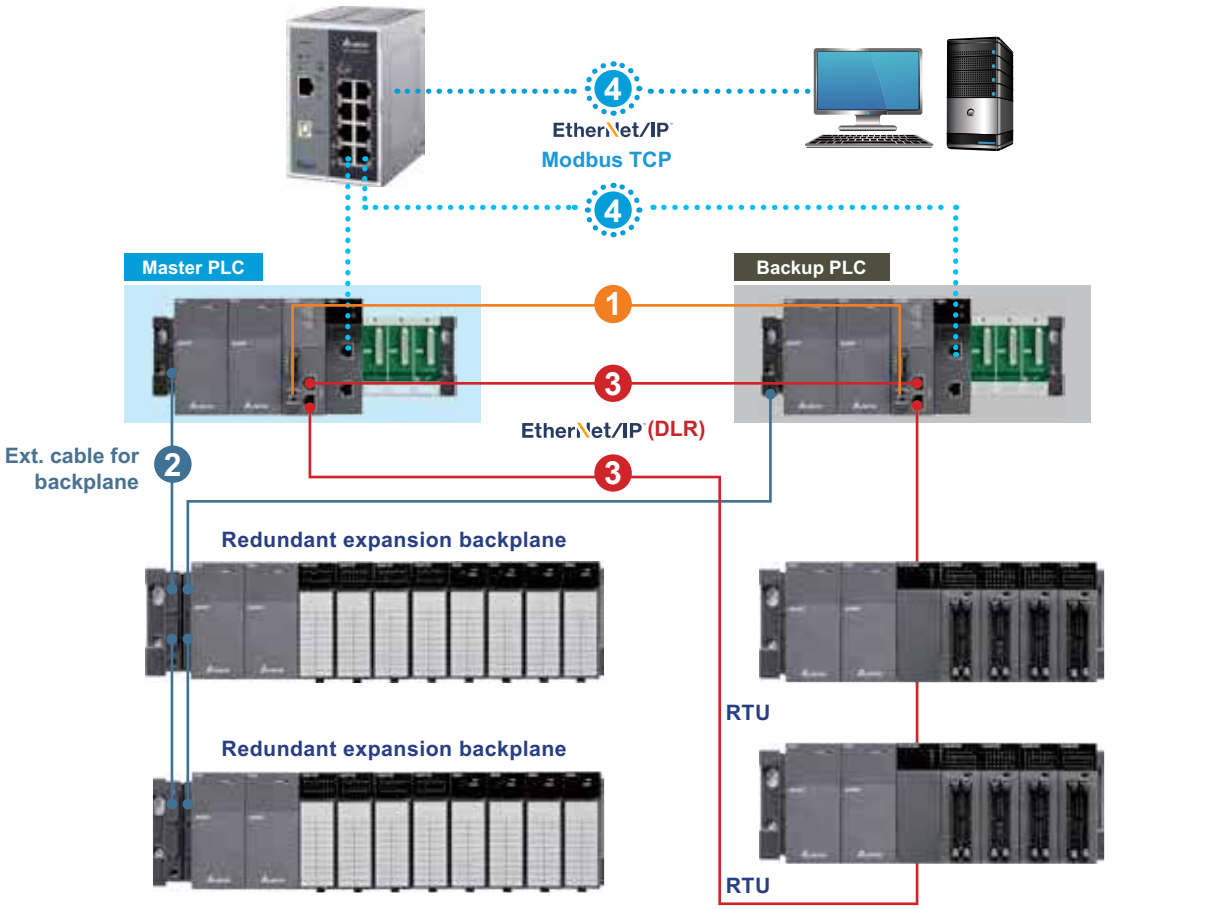
Cyclic	Timer interrupt

CPU built-in sync. module

CPU switch-over time: 20 ms

RTU nodes to support expansion backplanes

Standard backplanes available (under some conditions)



1 Sync. optical fiber

2 Ext. cable for backplane

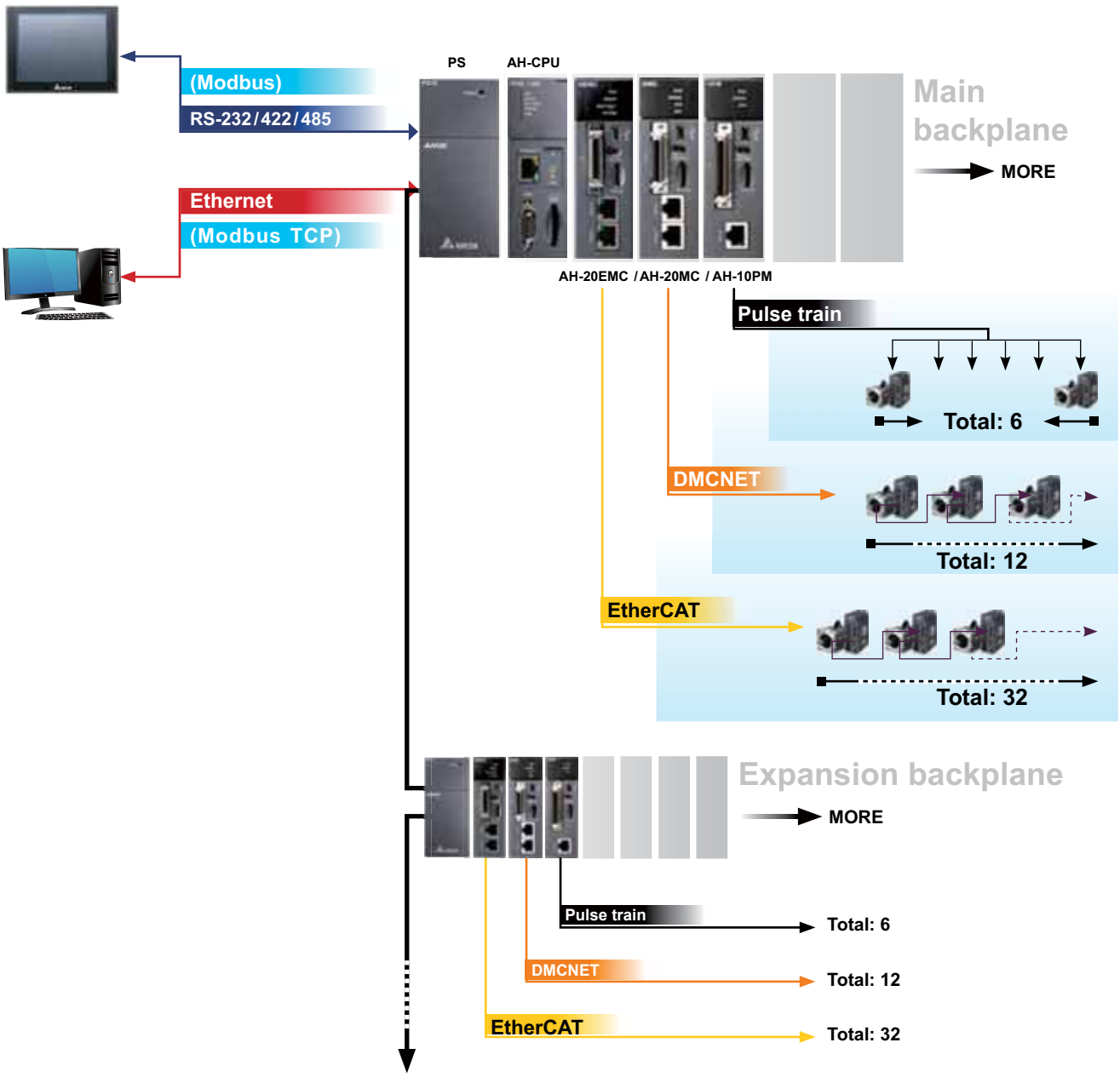
3 EtherNet/IP ring topology (DLR)

4 Star topology EtherNet/IP, Modbus TCP

Standard Motion Control System

- Provides EtherCAT, DMCNET and pulse train solutions for customers.
- Motion modules can independently take care of both the logic and motion control. Users can write and download the programs to the motion modules.
- All motion modules support the standard motion control system.
- All motion modules can be installed on the local backplanes.
- Motion control functions:
  - » Performance:
    -Pulse train module: Max. 1 MHz output
    -DMCNET module: Min. synchronization time at 12 axes is 1 ms
    -EtherCAT module: Min. synchronization time at 8 / 16 / 32 axes is 0.5 / 1 / 2 ms
  - » Supports UD / PD / AB / 4AB input modes
  - » Supports MPD inputs / E-Cam / G-code / 2 ~ 6 axes linear interpolation / 2 axes arc interpolation / 3 axes helical interpolation

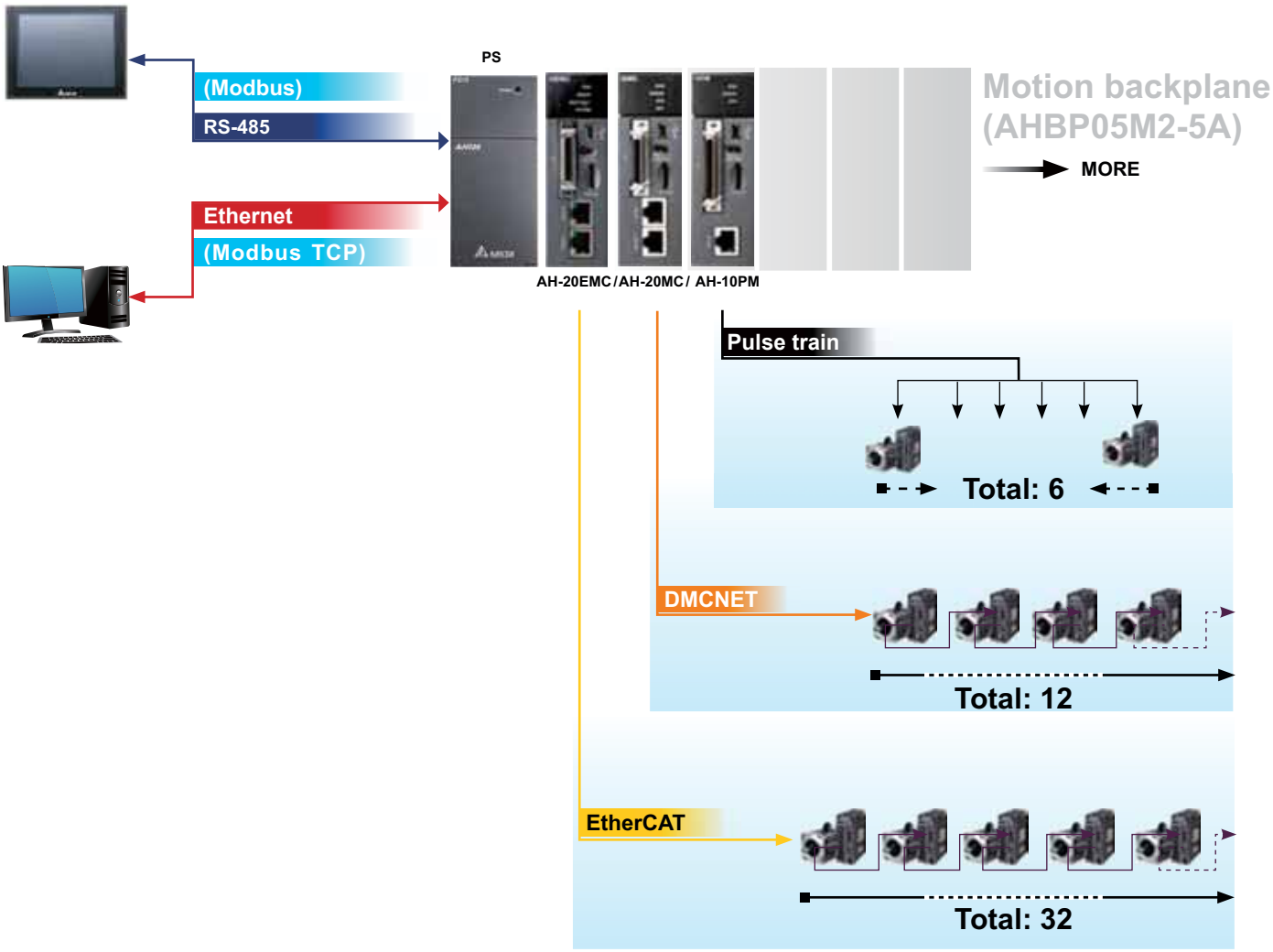
Note: The EtherCAT motion modules (AHxxEMC-5A) do not yet have support installed on the I/O slots.



Compact Motion Control System

- Provides EtherCAT, DMCNET and pulse train solutions for customers.
- AHxxEMC-5A motion controller can be installed on the CPU slot of the specific motion backplane and works as a CPU module.
- Compact motion control system does not support the expansion backplane.
- Motion modules can be installed on the I/O slot of the motion backplane.
- Motion control functions:
  - » Performance:
    - -Pulse train module: Max. 1 MHz output
    - -DMCNET module: Min. synchronization time at 12 axes is 1 ms
    - -EtherCAT module: Min. synchronization time at 8 / 16 / 32 axes is 0.5 / 1 / 2 ms
  - » Supports UD / PD / AB / 4AB input modes
  - » Supports MPD inputs / E-Cam / G-code / 2 ~ 6 axes linear interpolation / 2 axes arc interpolation / 3 axes helical interpolation

Note: The EtherCAT motion modules (AHxxEMC-5A) do not yet have support installed on the I/O slots.

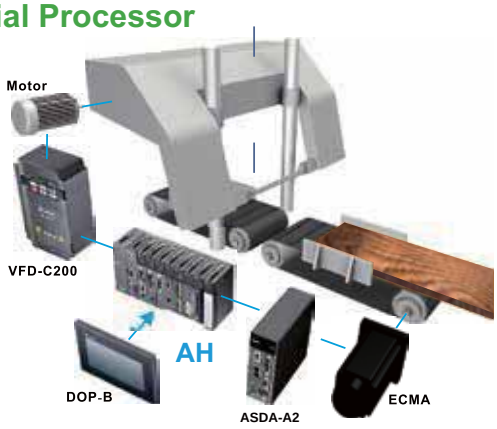


Applications

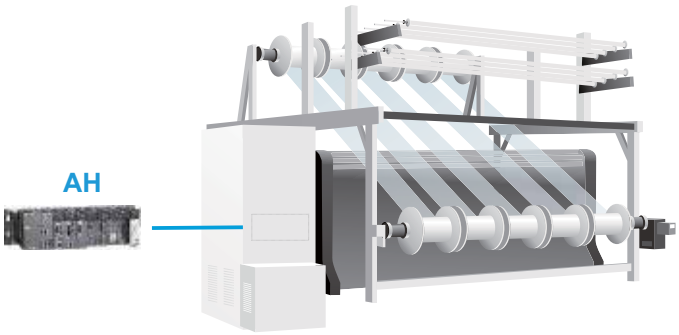
Large Scale Industrial Machines

The features of the AH 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 AH 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.

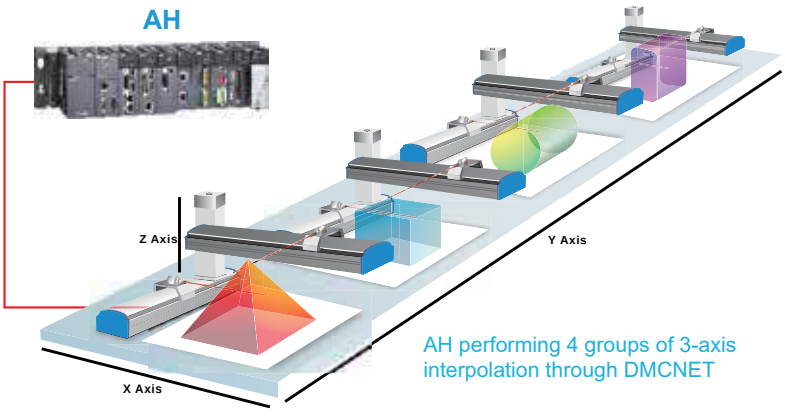
Building Material Processor



Warp Knitting Machine



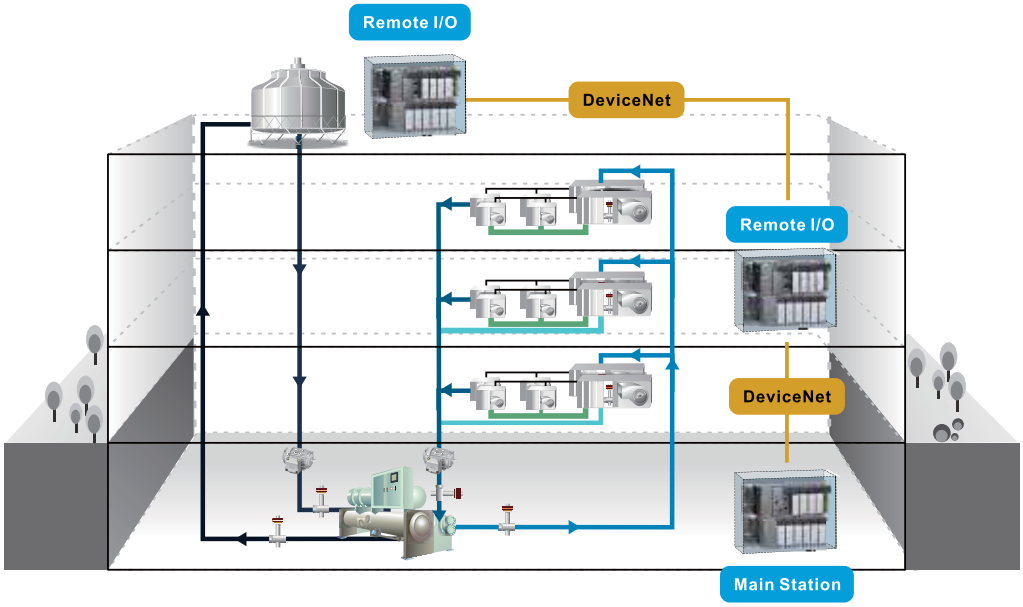
The AH also supports excellent motion control functions including 3-axis linear interpolation, 2-axis arc interpolation, and 3-axis helical interpolation. In addition, the AH is capable of controlling up to 12 axes or 4 groups of 3-axis interpolation synchronously through Delta's high speed motion control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



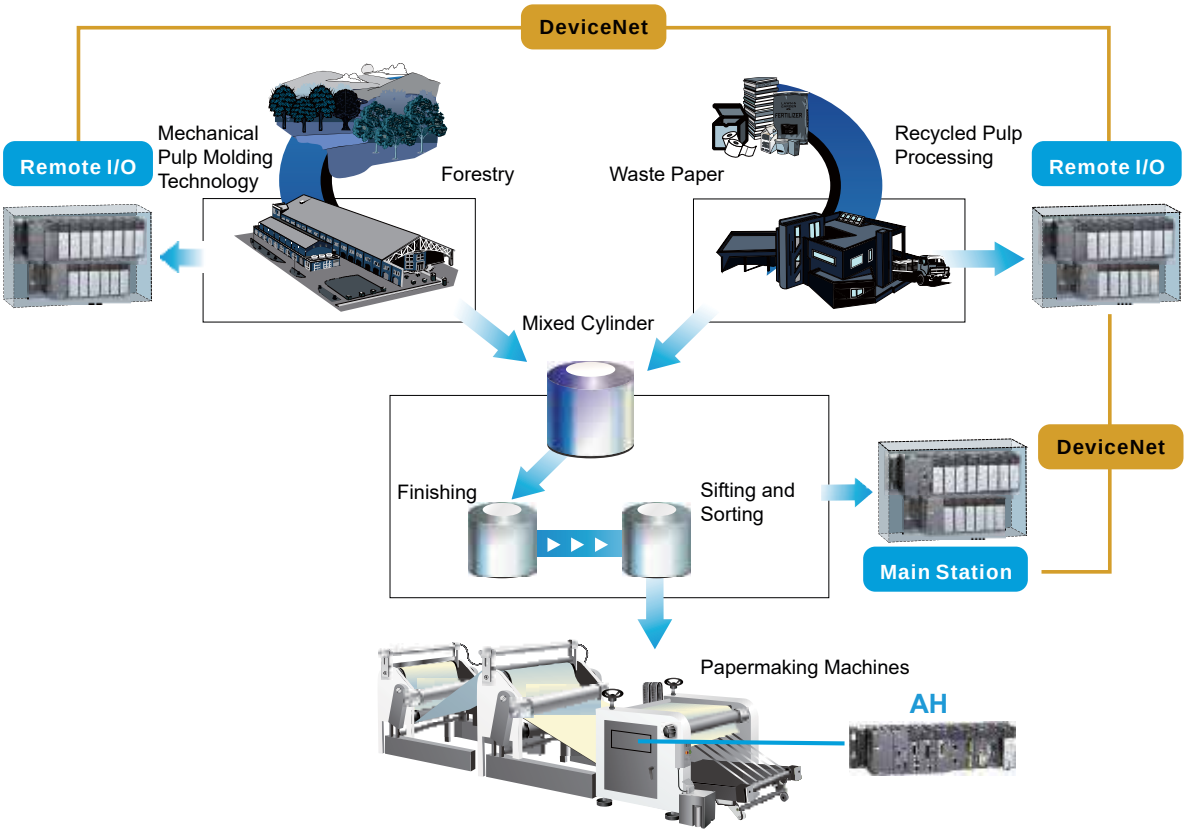
System Applications

The AH 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 the best solutions for all types of system integration requirements. Through the remote I/O expandability, you can build up the AH 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 AH can not only fulfill the application requirements of industrial machines or devices, but it can also provide total solutions for automation systems.

HVAC

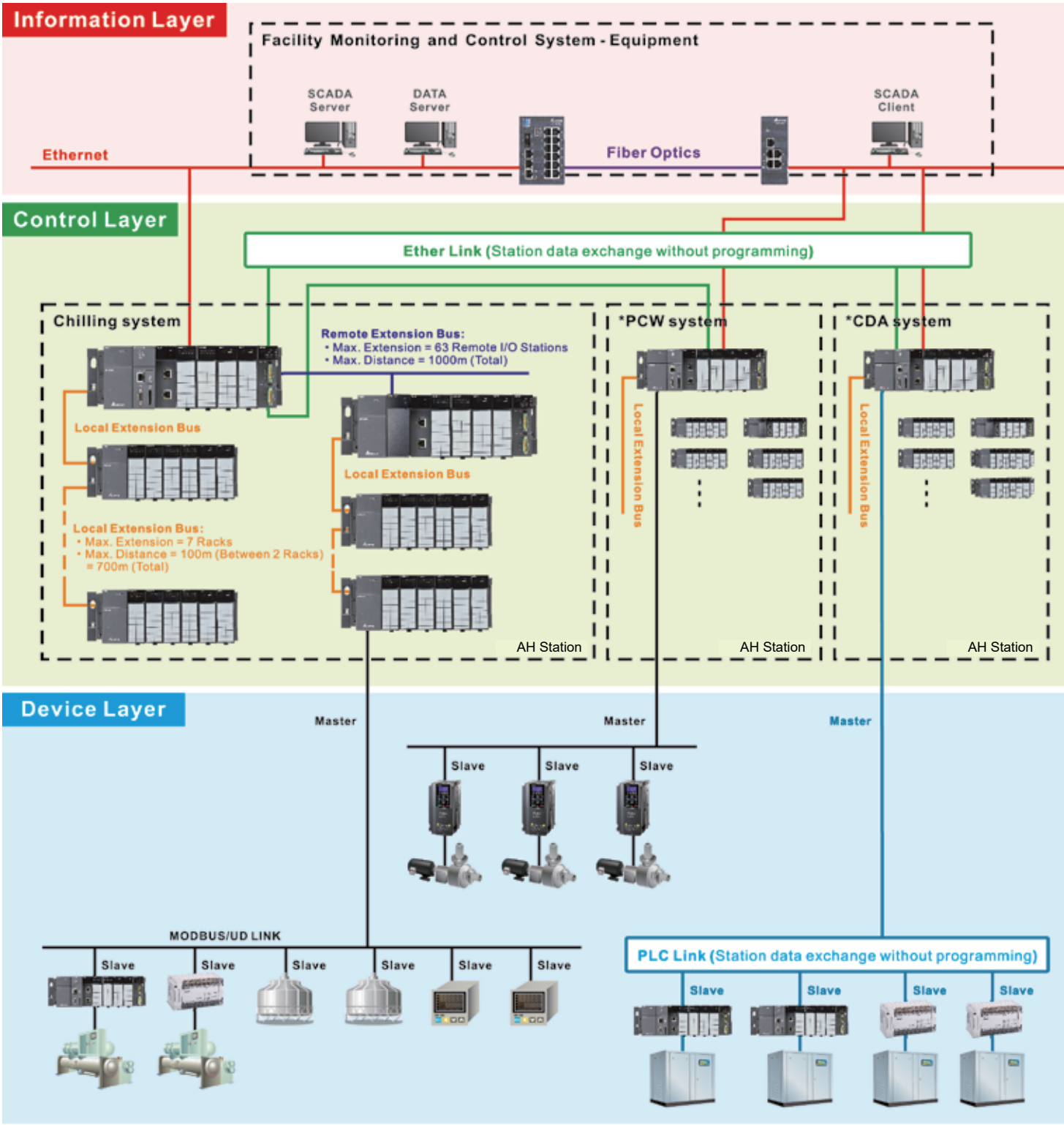


Papermaking Industries



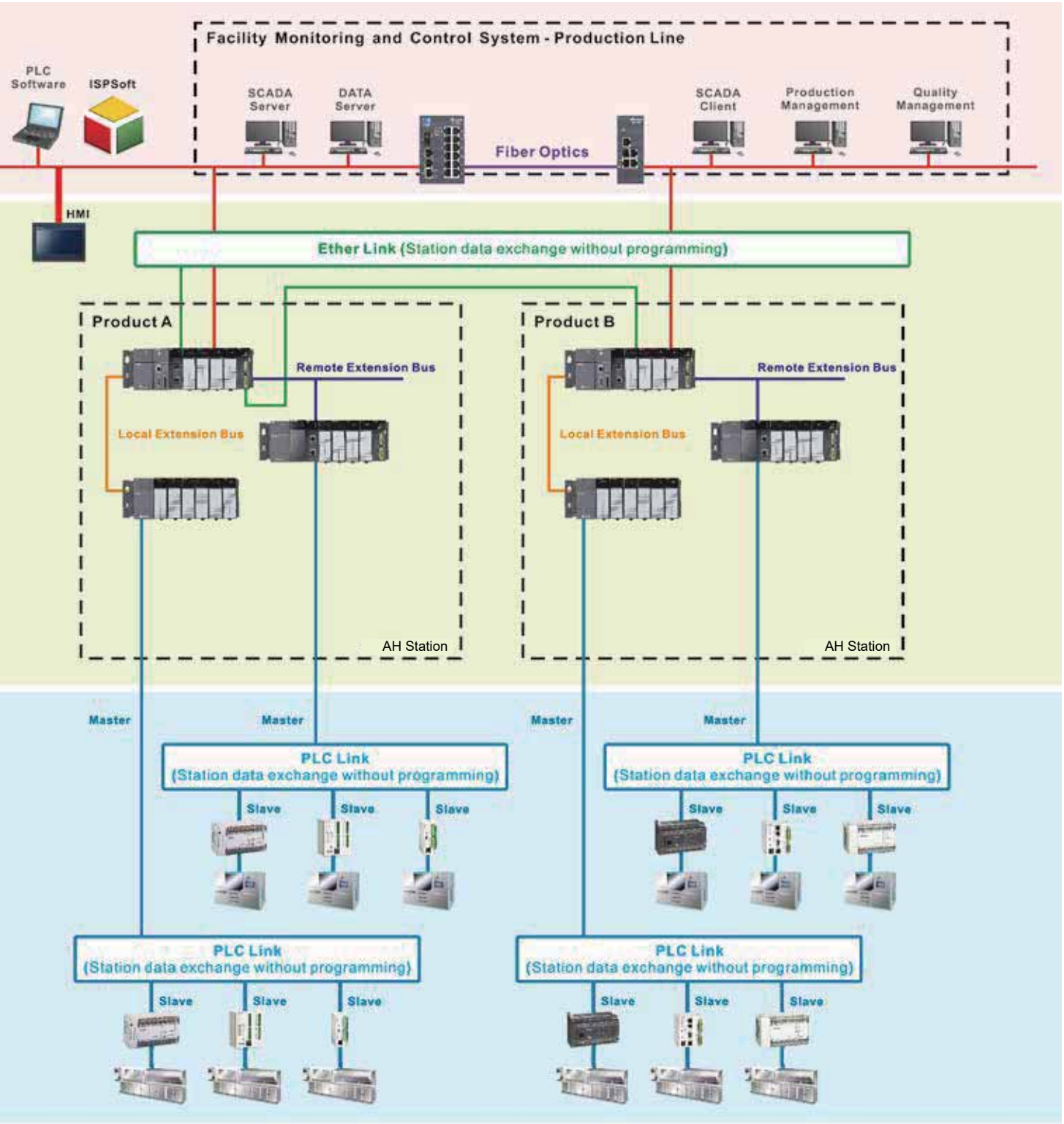
AH System Structure –
Facility Monitoring and Control System

The system configuration of the AH is well demonstrated by the Facility Monitoring and Control System (FMCS).
The AH 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 AH 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

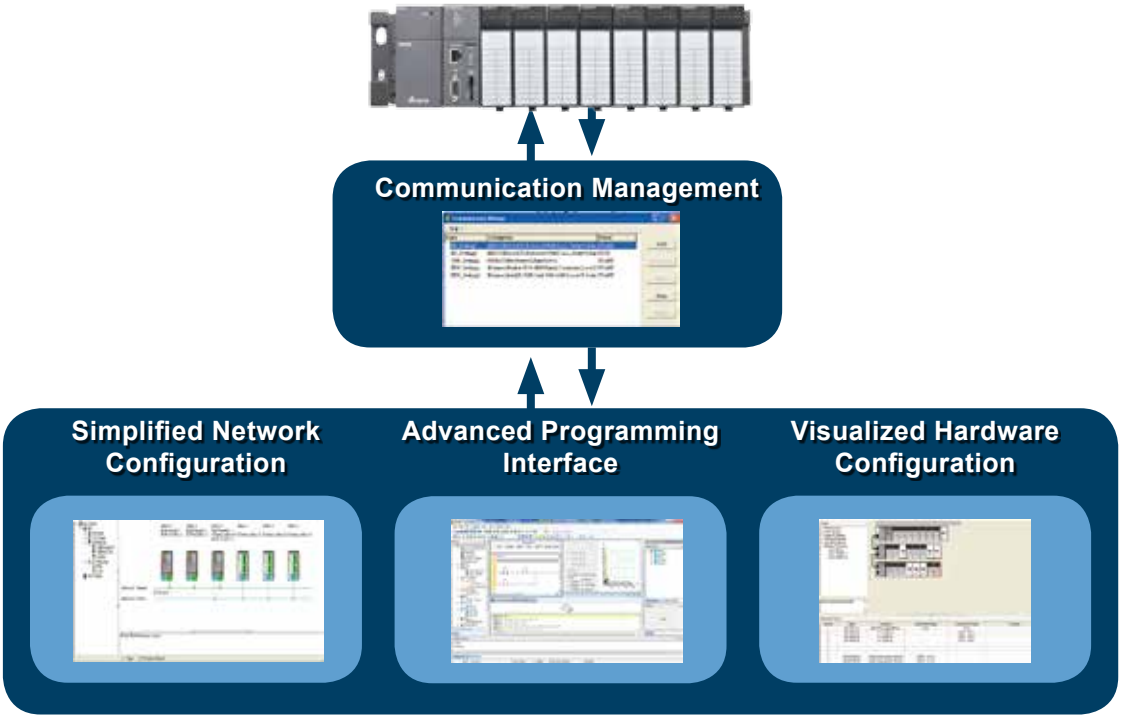
In addition to AH PLCs, Delta's industrial automation solution includes human machine interfaces (HMI),
DVS series industrial Ethernet switches, DVP series PLCs, AC motor drives, AC servo drives and temperature controllers.
You can find the best solution for your industry from our product lines across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



ISPSoft V3.0
Highly Accessible Programming Software

Fully Integrated Interface

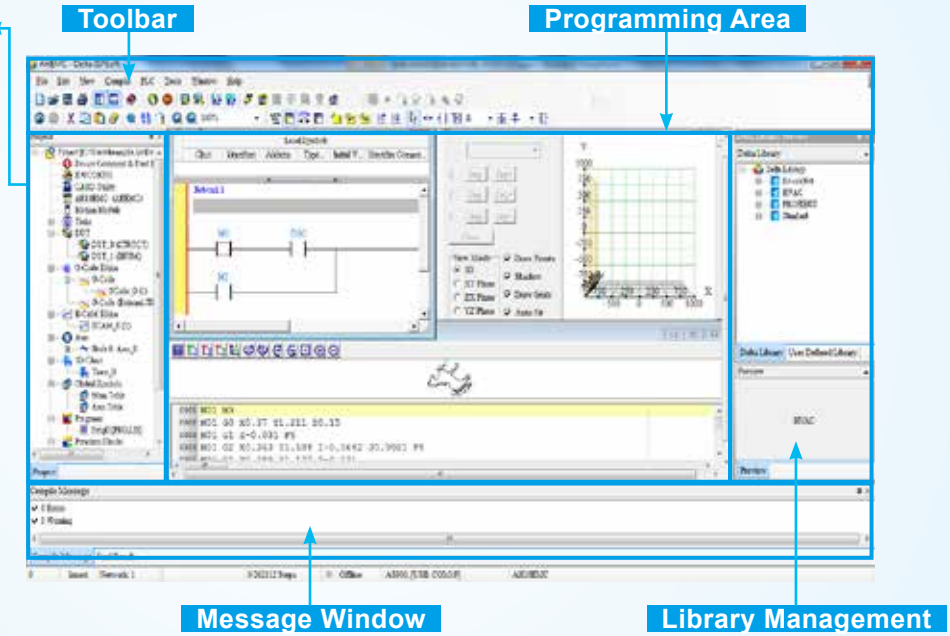
Advanced Programming Interface + Visualized Hardware Configuration + Simplified Network Configuration + Data Tracer & Logger + Motion programming



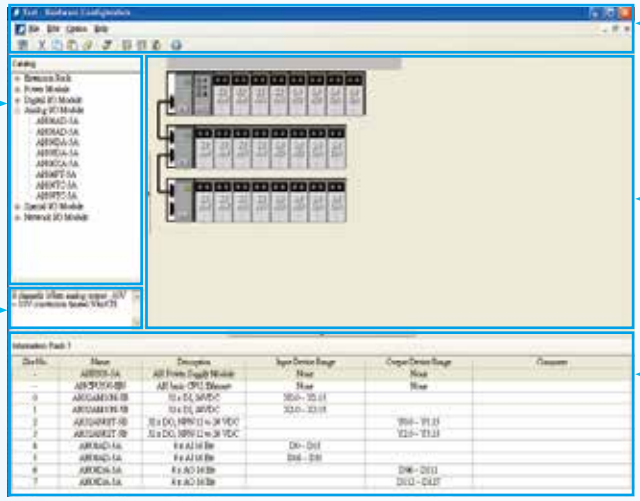
Advanced Programming Interface

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

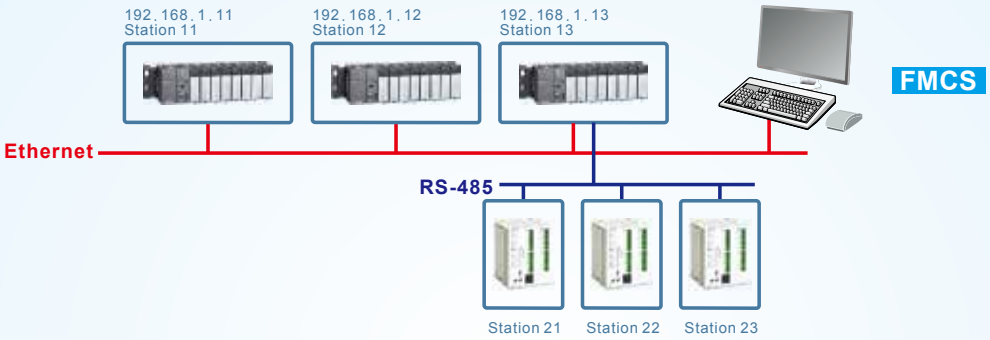
Hardware Configuration Area

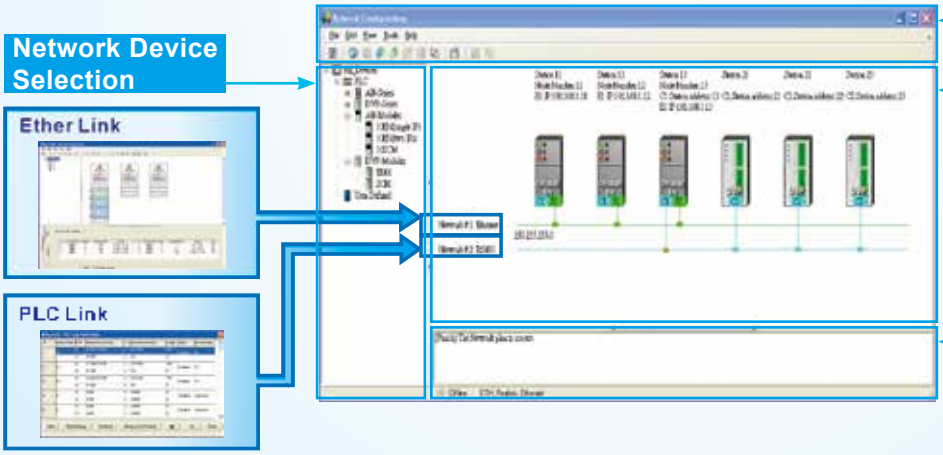
- Operations of Cut / Copy / Paste / Delete are available for modules and racks
- Parameters of each module can be directly configured

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

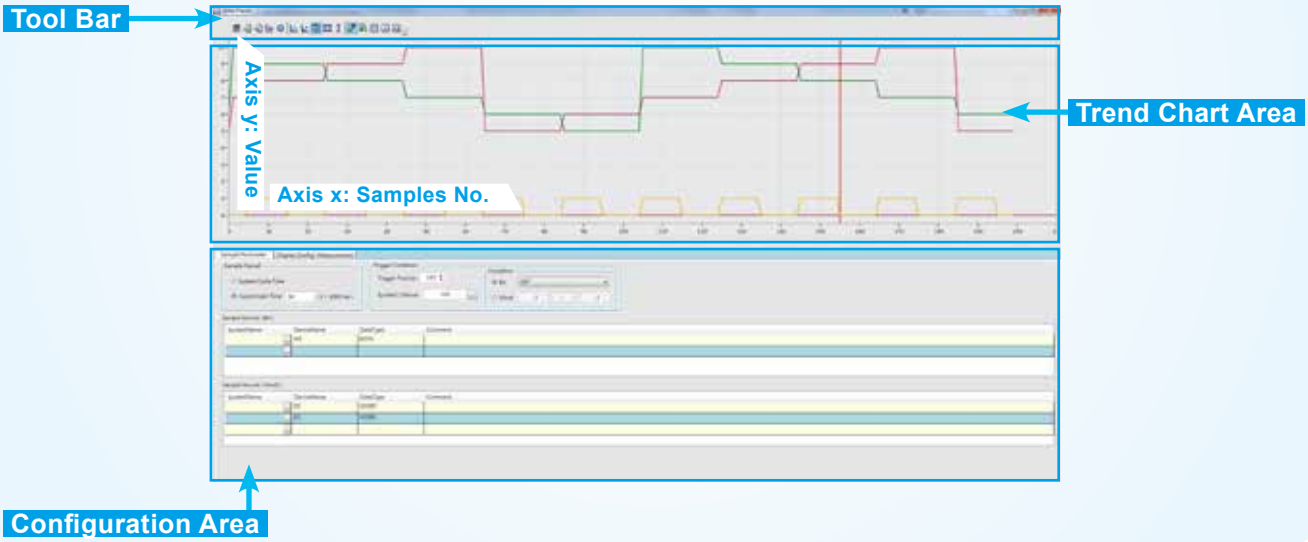
Data Tracer & Logger

Data Tracer

Provides high speed data log ability and the interval could be 1 CPU scan. Users can easily analyze the program logic with this function.

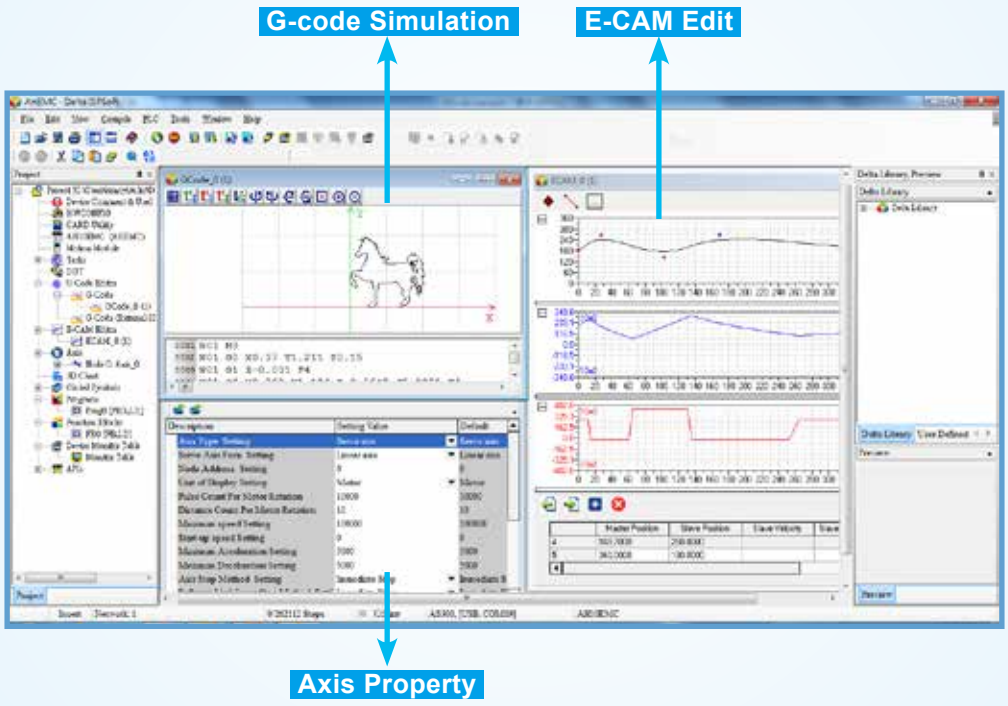
Data Logger

Provides big data log ability and adjustable intervals. Users can log critical system data and then analyze the system operation status.



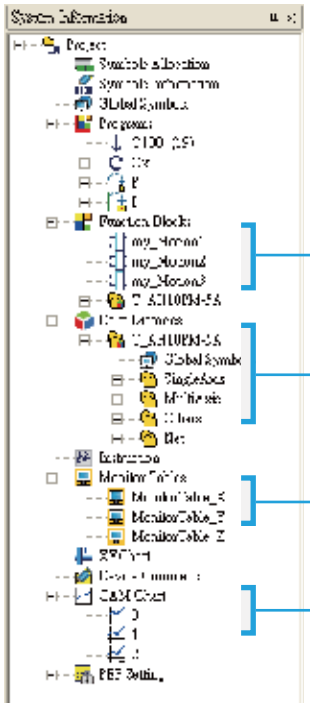
Integrated Motion Programming

ISPSoft V3 integrates the logic and motion program editors into one software



PMSoft V2.0

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



Variable Declaration

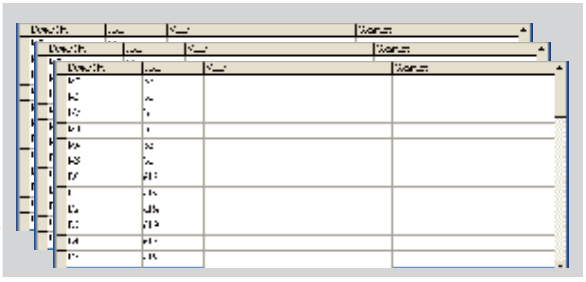
Separate from the program.
The corresponding physical I/O point of the variable is defined only after the program is compiled. Users do not need to modify the program.

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

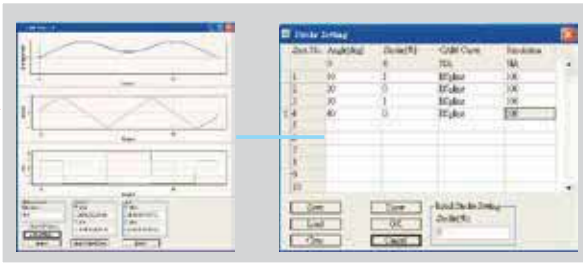


Convenient Monitor Table Management

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

Electronic Cam

Electronic cam editing



CFC Editor

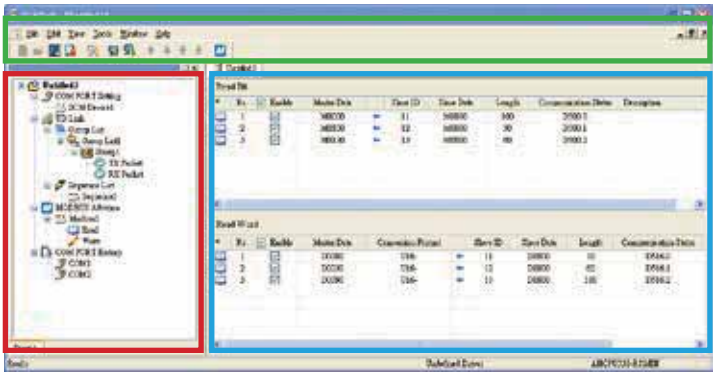
Supports CFC programming language

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



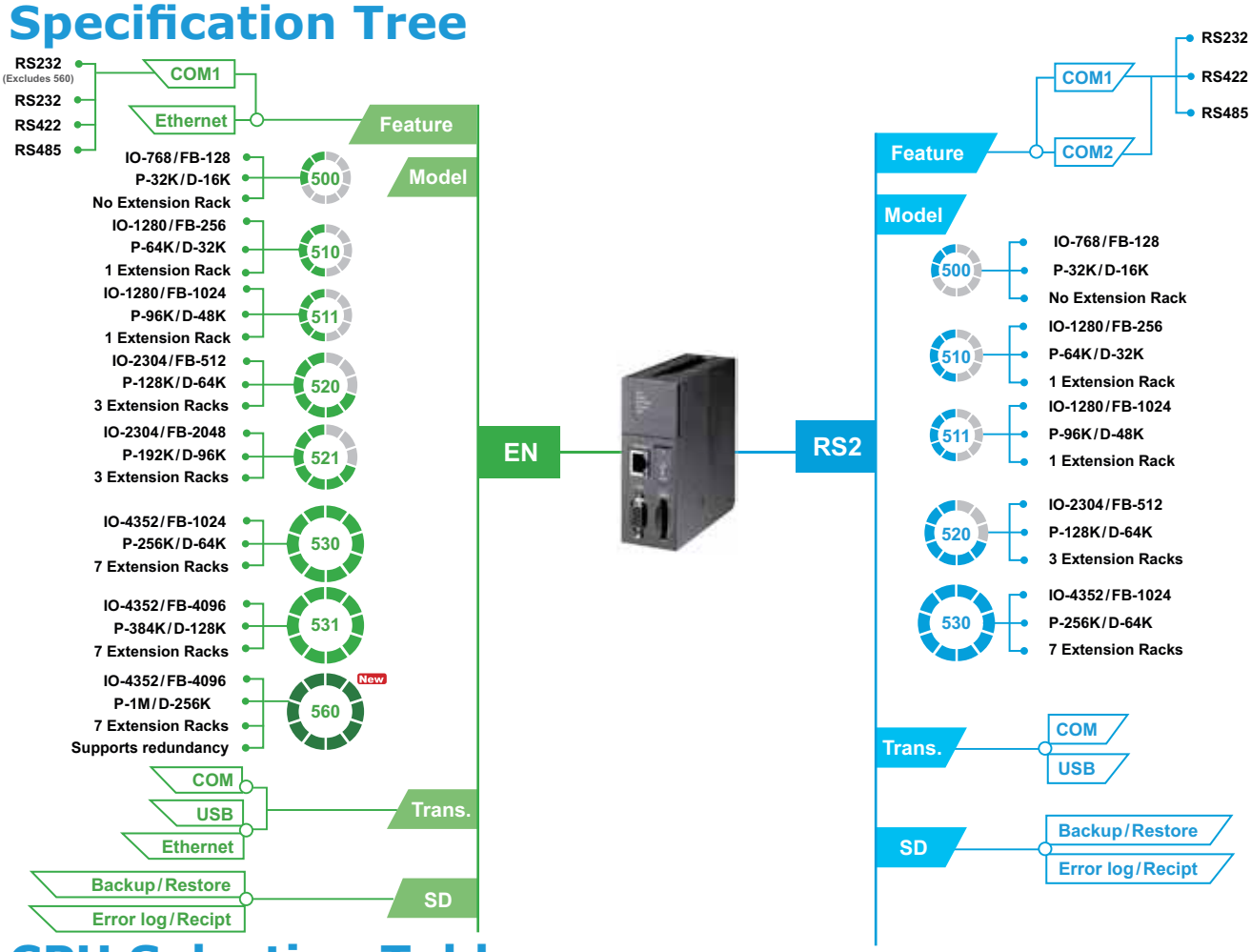
Toolbar

- Upload / Download setup files
- Supports wizards

Editing Area

- Data exchange setup
- Status display

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	AH511-RS2	AH511-EN	AH521-EN	AH531-EN	New AH560-EN2
Local I/O points	< 768	☐	•				•								
	< 1280	☐		•				•			•	•			
	< 2304	☐			•				•				•		
	< 4352	☐				•				•				•	•
Program capacity	< 32k steps	☐	•				•								
	< 64k steps	☐		•				•							
	< 96k steps	☐									•	•			
	< 128k steps	☐			•				•						
	< 192k steps	☐											•		
	< 256k steps	☐				•				•					
	< 384k steps	☐												•	
	< 1M 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	☐	•	•	•	•	•	•	•	•	•	•	•	•	•
Protocol supported	Modbus	☐	•	•	•	•	•	•	•	•	•	•	•	•	•
	Modbus TCP	☐					•	•	•	•		•	•	•	•
	EtherNet/IP	☐										•	•	•	•
SD card	V 1.0	☐	•	•	•	•	•	•	•	•					
	V 2.0 (SDHC)	☐									•	•	•	•	•
Redundancy	CPU	☐													•

Model Name

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 6: Redundant CPU			RS2: 2 COM ports EN: 1 COM & 1 Ethernet ports EN2: 1 COM & 2 Ethernet ports

AH Power Supply Module

AHPS05-5A

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

AH RTU Module

AHRTU-DNET-5A

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

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 XA: 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 (24V) 3: AC input (120~240V)	0: No output 1: 0.5A transistor/TRIAC output or 2A relay output 2: 0.1A 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

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**
	10: Basic 15: Advanced	EN: Ethernet SCM: Serial communication DNET: DeviceNet	PFBM: PROFIBUS master PFBS: PROFIBUS slave COPM: CANopen		

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: Advanced type (PM) 20: DMCNET 08E: EtherCAT (8-axis) 10E: EtherCAT (16-axis) 20E: EtherCAT (32-axis)	HC: High speed counter PM: Motion controller (Pulse train) MC: Motion controller (Network)		

AH Backplane

AHBP04M1-5A

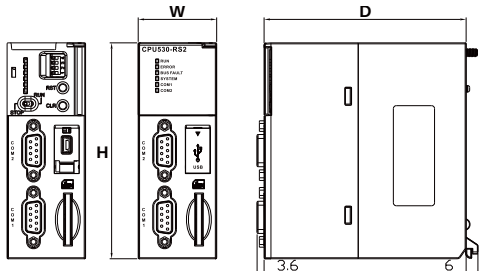
AH	BP	04	M1	-	5A
Series	**Classification**	**Function**	**Function**		**Type**
	Backplane	03: 3-slot 04: 4-slot 05: 5-slot 06: 6-slot 07: 7-slot 08: 8-slot 12: 12-slot	M1: Main backplane M2: Main backplane for motion E1: Expansion backplane MR1: Redundant main backplane ER1: Redundant expansion backplane		

Dimensions

Dimensions are in mm

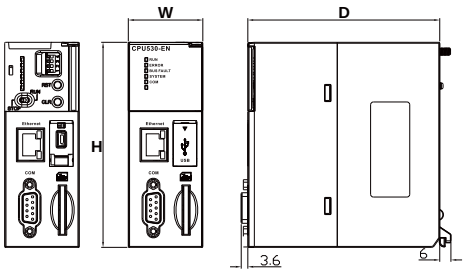
CPU Modules

Model Name	H	W	D
AHCPU500-RS2	110	40	103
AHCPU501-RS2 New	110	40	103
AHCPU510-RS2	110	40	103
AHCPU511-RS2	110	40	103
AHCPU520-RS2	110	40	103
AHCPU521-RS2 New	110	40	103
AHCPU530-RS2	110	40	103
AHCPU531-RS2 New	110	40	103



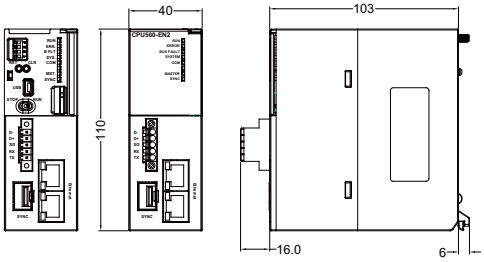
CPU Modules

Model Name	H	W	D
AHCPU500-EN	110	40	103
AHCPU501-EN New	110	40	103
AHCPU510-EN	110	40	103
AHCPU511-EN	110	40	103
AHCPU520-EN	110	40	103
AHCPU521-EN	110	40	103
AHCPU530-EN	110	40	103
AHCPU531-EN	110	40	103



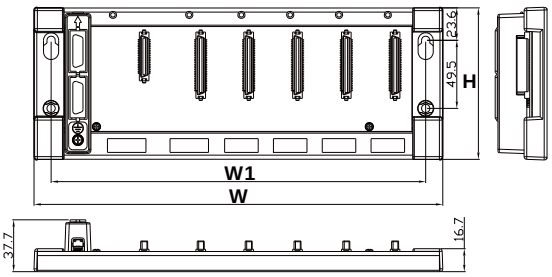
CPU Modules

Model Name	H	W	D
AHCPU560-EN2 New	110	40	103



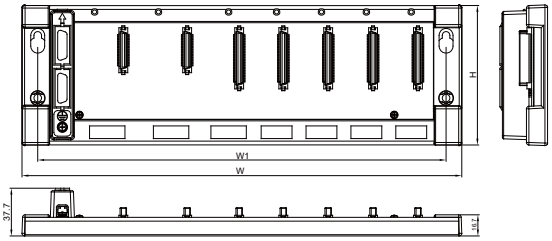
Backplanes

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
AHBP03M2-5A	110	257	232.4
AHBP05M2-5A	110	328	303
AHBP07M2-5A	110	399	374
AHBP06E1-5A	110	328	303
AHBP08E1-5A	110	399	374



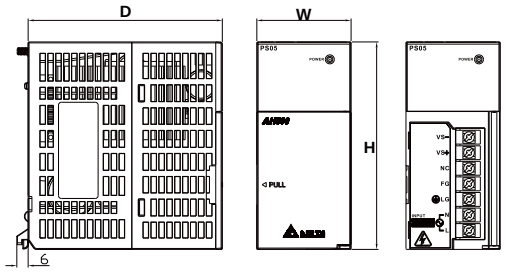
Backplanes

Model Name	H	W	W1
AHBP04MR1-5A New	110	348	323
AHBP06MR1-5A New	110	419	394
AHBP08MR1-5A New	110	490	465
AHBP06ER1-5A New	110	398	373
AHBP08ER1-5A New	110	469	444



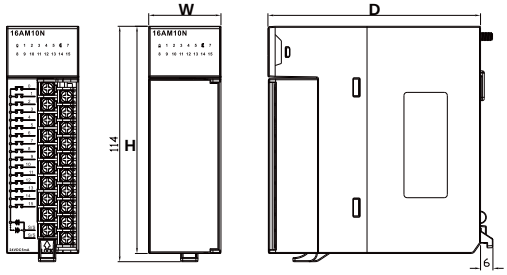
Power Supply Modules

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



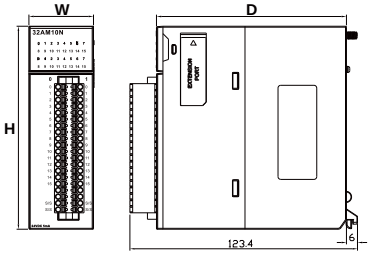
16-point Digital I/O Modules

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



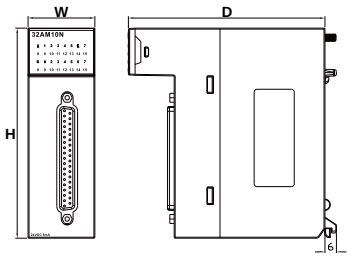
32-point Digital I/O Modules

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



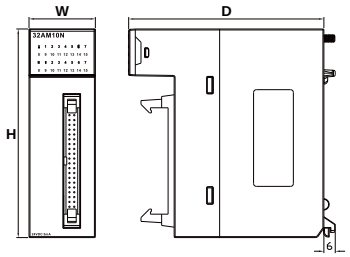
32-point Digital I/O Modules

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



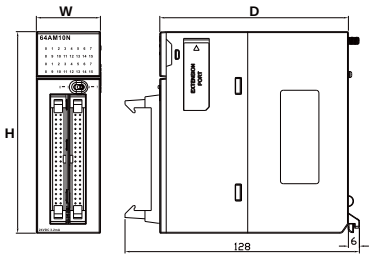
32-point Digital I/O Modules

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

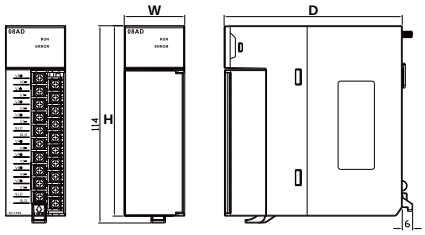
Model Name	H	W	D
AH64AM10N-5C	110	35	103
AH64AN02T-5C	110	35	103
AH64AN02P-5C	110	35	103



Dimensions Dimensions are in mm

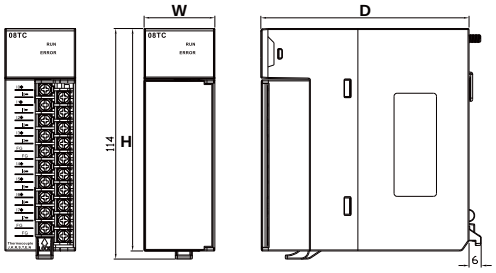
Analog I/O Modules

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



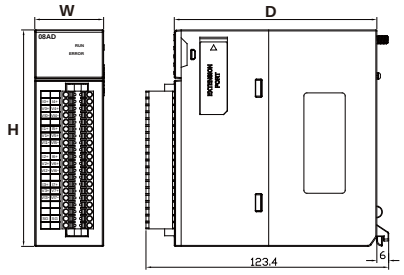
Temperature Measurement Modules

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



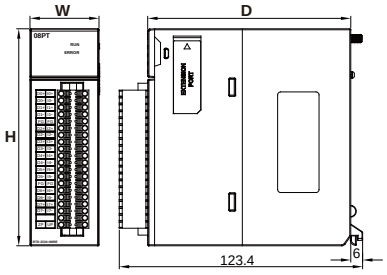
Analog I/O Modules

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



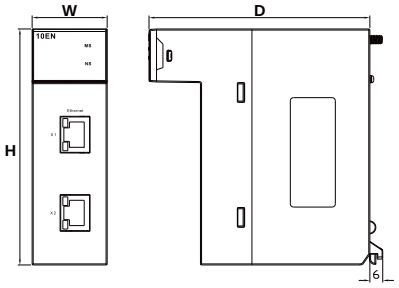
Temperature Measurement Module

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



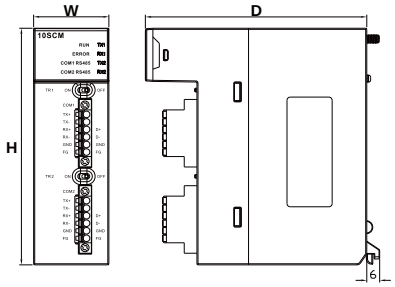
Network Module

Model Name	H	W	D
AH10EN-5A	110	35	103
AH15EN-5A	110	35	103



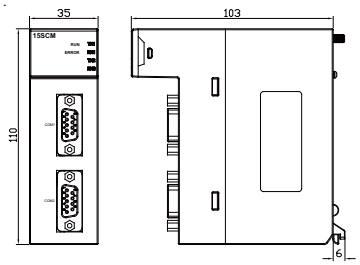
Network Module

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



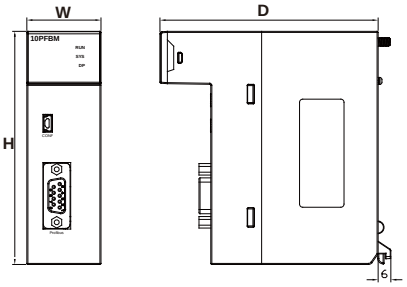
Network Module

Model Name	H	W	D
AH15SCM-5A	110	35	103



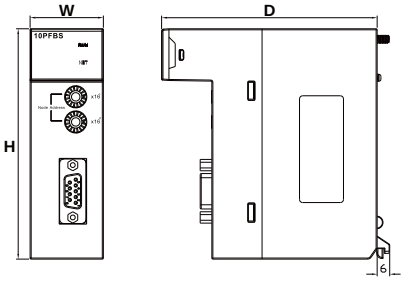
Network Module

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



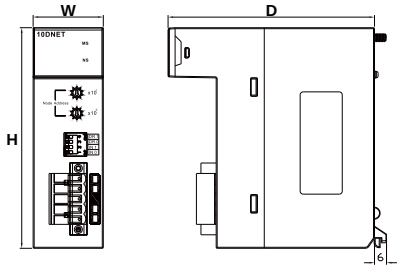
Network Module

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



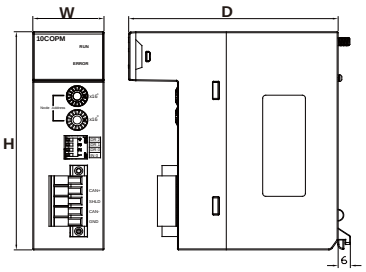
Network Module

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



Network Module

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

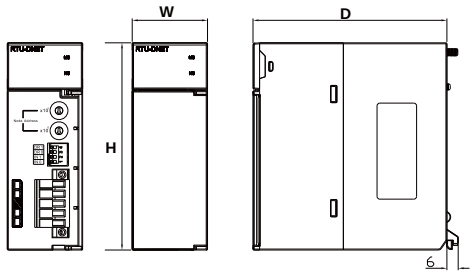


Dimensions

Dimensions are in mm

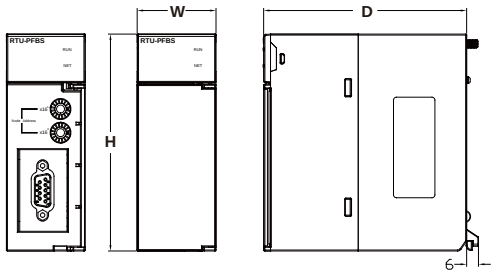
RTU Module

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



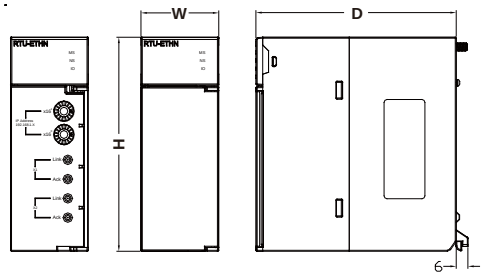
RTU Module

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



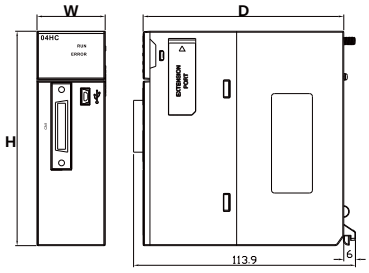
RTU Module

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



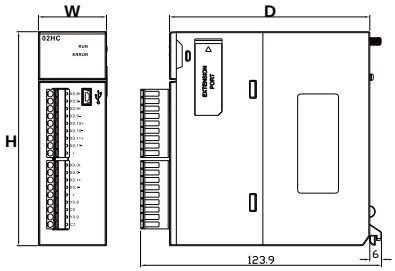
Motion Control Module

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



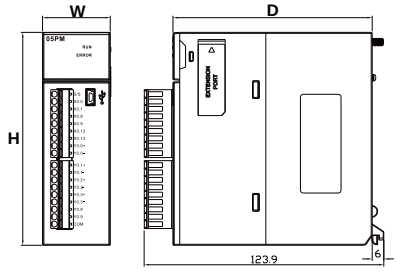
Motion Control Module

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



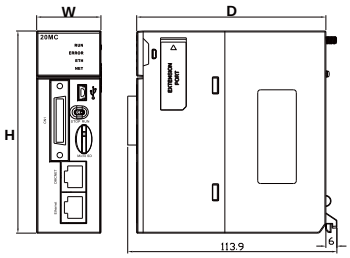
Motion Control Module

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



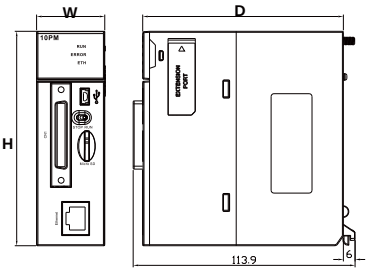
Motion Control Module

Model Name	H	W	D
AH20MC-5A	110	35	103
AH08EMC-5A	110	35	103
AH10EMC-5A	110	35	103
AH20EMC-5A	110	35	103



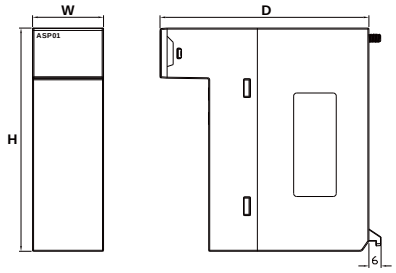
Motion Control Modules

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



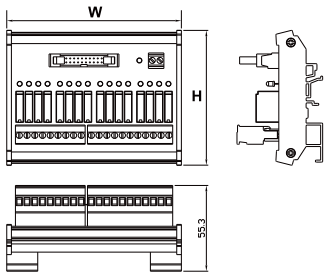
Dummy Module

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



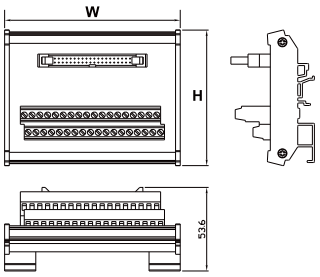
External Terminal Modules

Model Name	H	W
UB-10-OR16A	87	113
UB-10-OR16B	87	113



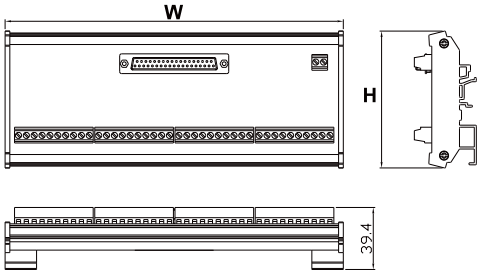
External Terminal Modules

Model Name	H	W
UB-10-ID32A	87	113
UB-10-OT32A	87	113



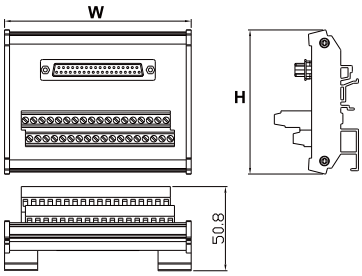
External Terminal Modules

Model Name	H	W
UB-10-OR32A	87	215
UB-10-OR32B	87	215



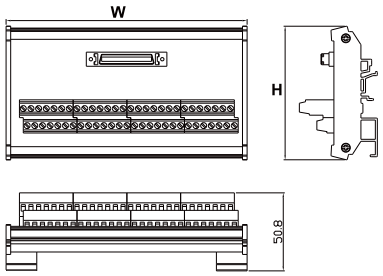
External Terminal Modules

Model Name	H	W
UB-10-ID32B	87	113
UB-10-OT32B	87	113



External Terminal Modules

Model Name	H	W
UB-10-IO16C	87	125
UB-10-IO22C	87	125
UB-10-IO24C	87	157
UB-10-IO34C	87	157

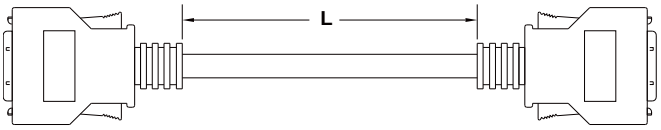


Dimensions

Dimensions are in m

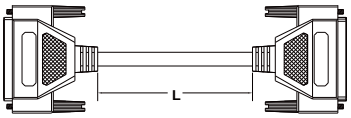
Cables (HDC)

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	UC-ET010-13B	1.0
AHACABC0-5A	30.0	UC-ET010-15B	1.0



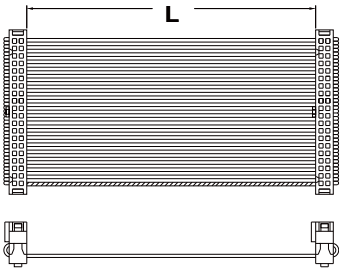
Cable (DB37)

Model Name	L
UC-ET010-33B	1.0



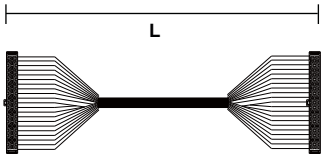
Cable (MIL)

Model Name	L
UC-ET010-24A	1.0



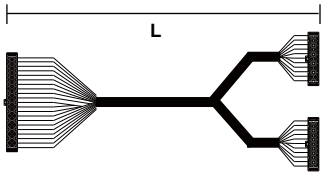
Cable (MIL)

Model Name	L
UC-ET010-24B	1.0
UC-ET020-24B	2.0
UC-ET030-24B	3.0



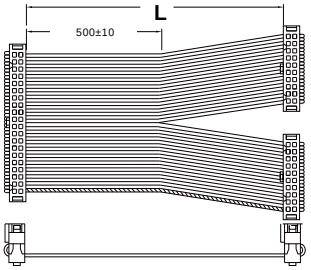
Cable (MIL)

Model Name	L
UC-ET010-24D	1.0
UC-ET020-24D	2.0
UC-ET030-24D	3.0



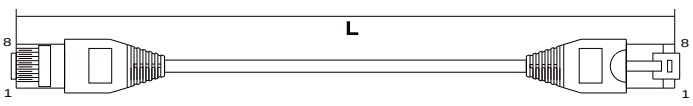
Cable (MIL)

Model Name	L
UC-ET010-24C	1.0



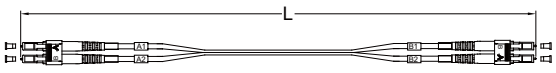
Cables (RJ45)

Model Name	L	Model Name	L
UC-CMC003-01A	0.3	UC-CMC030-01A	3.0
UC-CMC005-01A	0.5	UC-CMC050-01A	5.0
UC-CMC010-01A	1.0	UC-CMC100-01A	10.0
UC-CMC015-01A	1.5	UC-CMC200-01A	20.0
UC-CMC020-01A	2.0		
UC-EMC003-02A	0.3	UC-EMC050-02A	5.0
UC-EMC005-02A	0.5	UC-EMC100-02A	10.0
UC-EMC010-02A	1.0	UC-EMC200-02A	20.0
UC-EMC020-02A	2.0		



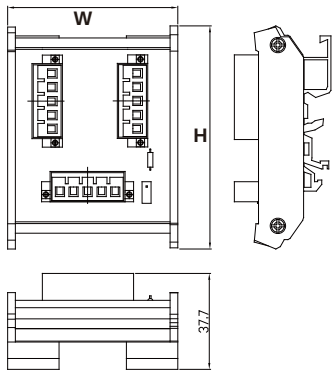
Cables (Fiber Optic)

Model Name	L
UC-FB010-01A New	1.0
UC-FB030-01A New	3.0
UC-FB010-02A New	1.0
UC-FB030-02A New	3.0



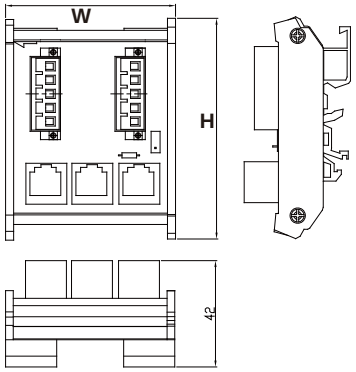
CANopen Distribution Box

Model Name	H	W
TAP-CN01	87	66.5



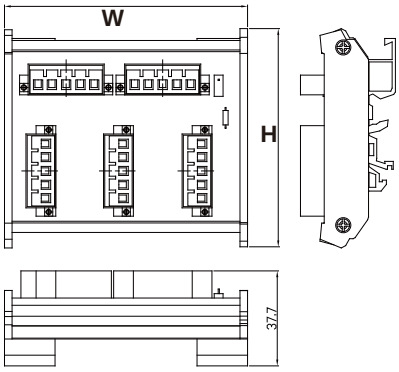
CANopen Distribution Box

Model Name	H	W
TAP-CN03	87	66.5



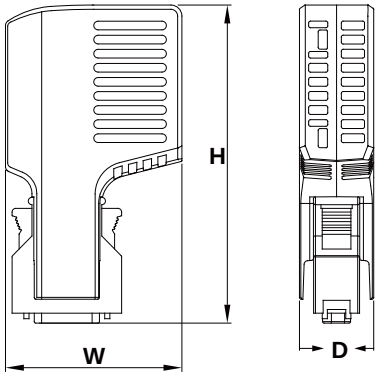
CANopen Distribution Box

Model Name	H	W
TAP-CN02	87	96.5



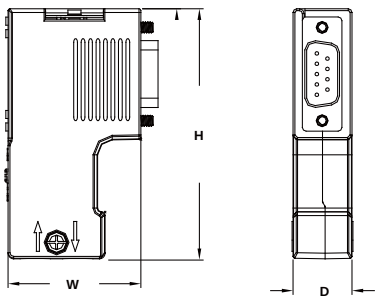
Fiber Optics Modules for Backplanes

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



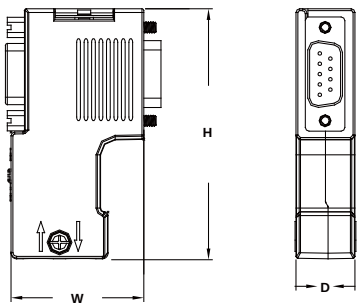
PROFIBUS Connector

Model Name	H	W	D
UN-03PF-01A	67	35.6	15.8



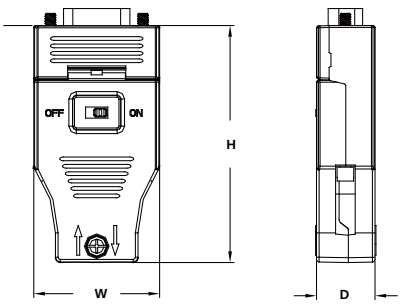
PROFIBUS Connector

Model Name	H	W	D
UN-03PF-02A	67	35.6	15.8

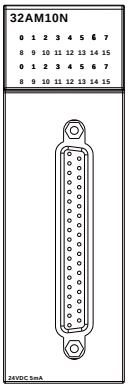
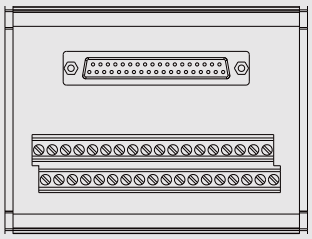


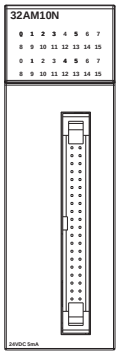
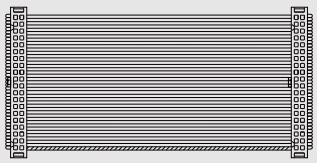
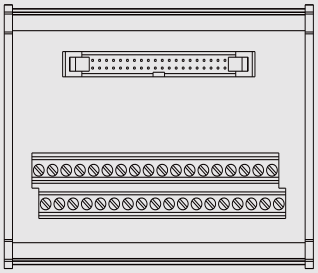
PROFIBUS Connector

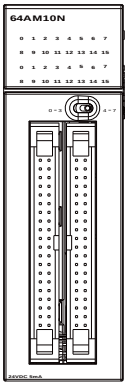
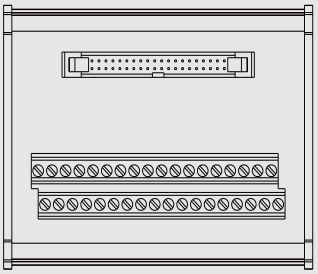
Model Name	H	W	D
UN-03PF-03A	64	35.6	15.8



Accessory Selection for High-density Modules

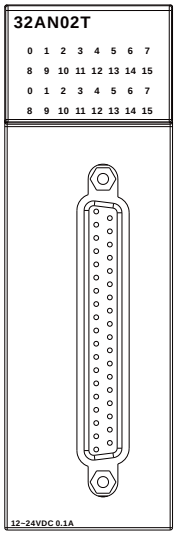
Model Name		
AH32AM10N-5B	UC-ET010-33B	UB-10-ID32B
		

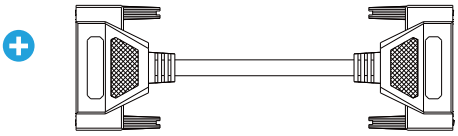
Model Name		
AH32AM10N-5C	UC-ET010-24A	UB-10-ID32A
	 UC-ET010-24B / UC-ET020-24B / UC-ET030-24B 	

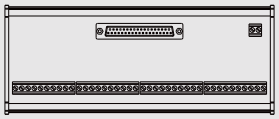
Model Name		
AH64AM10N-5C	UC-ET010-24A	UB-10-ID32A
	 UC-ET010-24B / UC-ET020-24B / UC-ET030-24B 	 x2

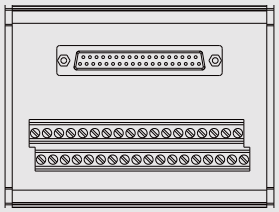
Accessory Selection for High-density Modules

Model Name		
AH32AN02T-5B	UC-ET010-33B	1 UB-10-OR32A (for relay output)
		OR
		2 UB-10-OT32B (for transistor output)

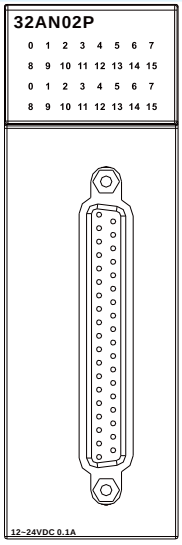


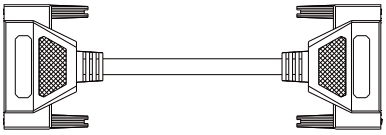


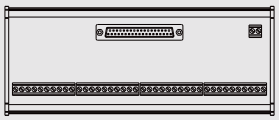


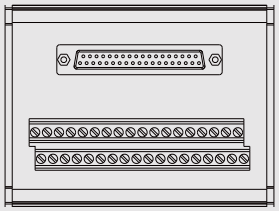


Model Name		
AH32AN02P-5B	UC-ET010-33B	1 UB-10-OR32B (for relay output)
		OR
		2 UB-10-OT32B (for transistor output)



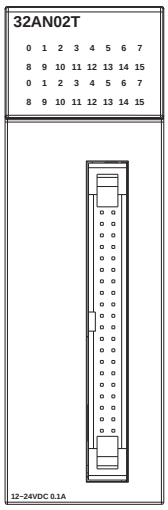


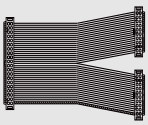


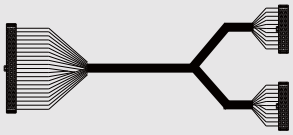


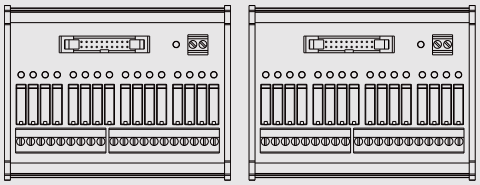
Accessory Selection for High-density Modules

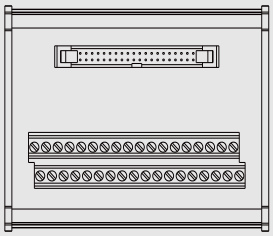
Model Name			
AH32AN02T-5C	A-1	UC-ET010-24C	UB-10-OR16A (for relay output)
	A-2	UC-ET010-24D / UC-ET020-24D / UC-ET030-24D	
	OR		
	B-1	UC-ET010-24A	UB-10-OT32A (for transistor output)
	B-2	UC-ET010-24B / UC-ET020-24B / UC-ET030-24B	



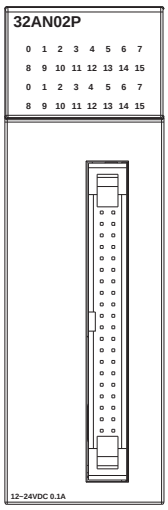


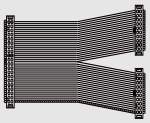


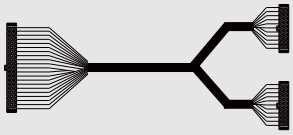


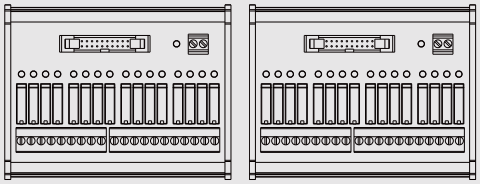


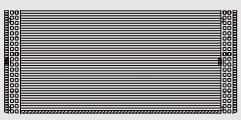
Model Name			
AH32AN02P-5C	A-1	UC-ET010-24C	UB-10-OR16B (for relay output)
	A-2	UC-ET010-24D / UC-ET020-24D / UC-ET030-24D	
	OR		
	B-1	UC-ET010-24A	UB-10-OT32A (for transistor output)
	B-2	UC-ET010-24B / UC-ET020-24B / UC-ET030-24B	

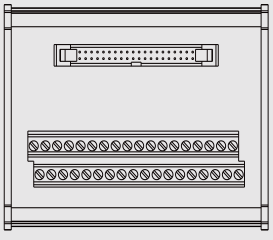






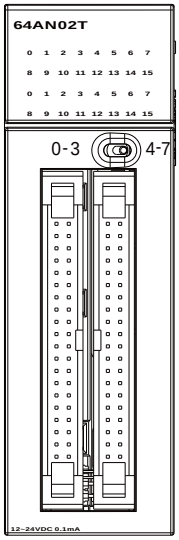




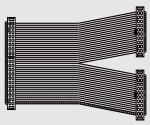


Model Name

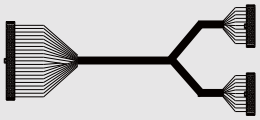
AH64AN02T-5C



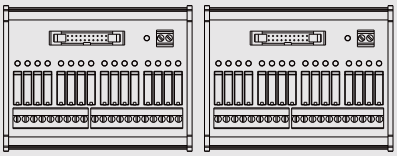
A-1 UC-ET010-24C



A-2 UC-ET010-24D / UC-ET020-24D / UC-ET030-24D



UB-10-OR16A (for relay output)



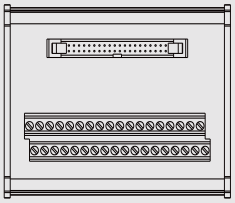
x2

OR

B-1 UC-ET010-24A

B-2 UC-ET010-24B / UC-ET020-24B / UC-ET030-24B

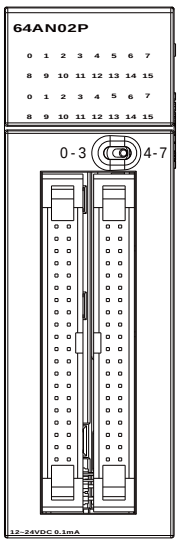
UB-10-OT32A (for transistor output)



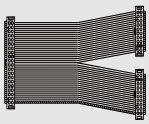
x2

Model Name

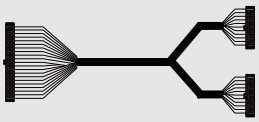
H64AN02P-5C



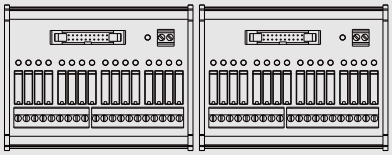
A-1 UC-ET010-24C



A-2 UC-ET010-24D / UC-ET020-24D / UC-ET030-24D



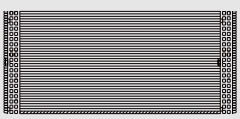
UB-10-OR16B (for relay output)



x2

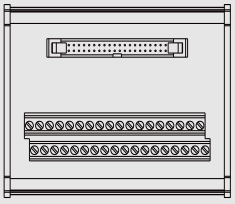
OR

B-1 UC-ET010-24A



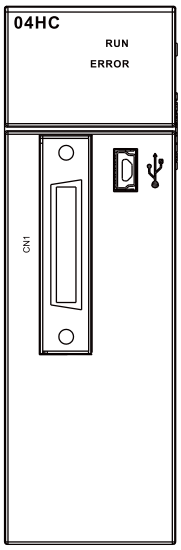
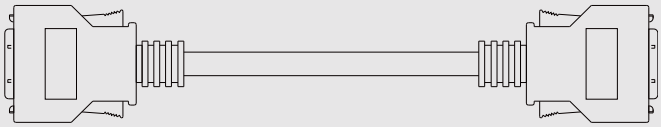
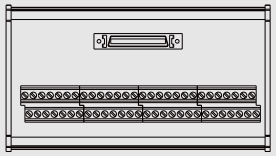
B-2 UC-ET010-24B / UC-ET020-24B / UC-ET030-24B

UB-10-OT32A (for transistor output)



x2

Accessory Selection for High-density Modules

Model Name		
AH04HC-5A	UC-ET010-13B	UB-10-IO16C
		

Model Name		
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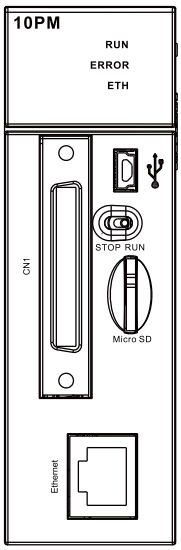
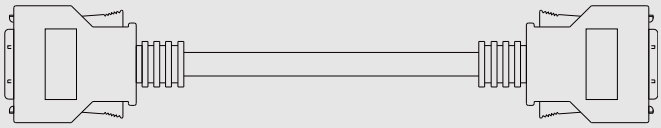
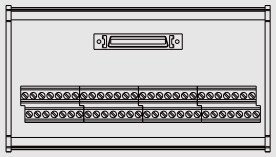
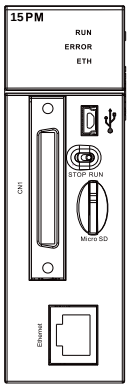
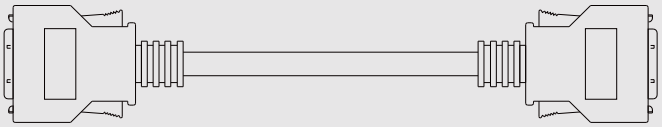
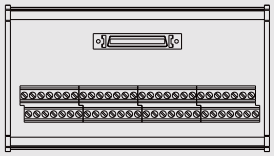
		

Model Name		
AH15PM-5A	UC-ET010-15B	UB-10-IO34C
		

Model Name		
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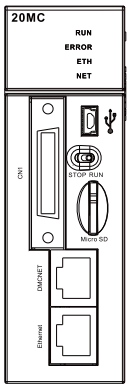
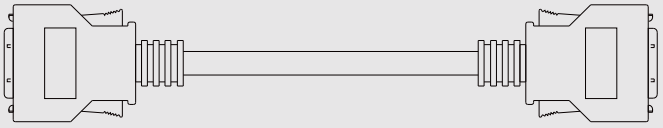
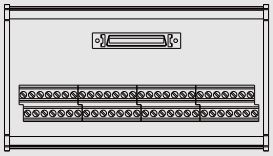
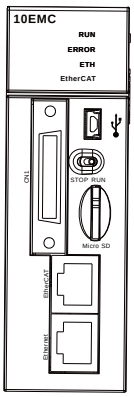
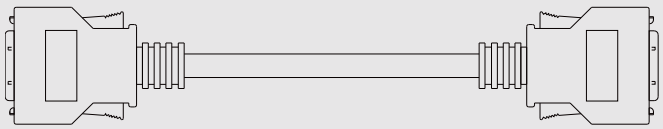
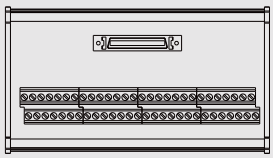
		

Model Name		
AH08EMC-5A AH10EMC-5A AH20EMC-5A	UC-ET010-13B	UB-10-IO22C
		

Ordering Information

CPU Modules

Model	Local I/O points	Program capacity	Data register D/L/B (note)	Function blocks	Extension backplane	LD execution **speed (μs)**	Power consumption (Internal)	**Specifications**	**Certificates**
AHCPU 500-RS2	768	32k steps (128 KB)	16k/16k/512k words	128	0	0.1	2w	▪ Built-in RS-232/422/485 multi-modes communication port x 2 (RS-232: 115.2 kbps/ RS-422/485: 921.6 kbps) ▪ Built-in SD card slot (supports max. 2 GB for AHCPU5_0 or 32 GB for AHCPU5_1) ▪ Built-in Mini-USB programming port ▪ System diagnosis/ 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) ▪ CPU RAM/ROM capacity AHCPU5_0: 32 MB/8 MB AHCPU5_1: 128 MB/128 MB ▪ CPU clock AHCPU5_0: 133 MHz AHCPU5_1: 800 MHz	CE cULus
New **AHCPU 501-RS2**	768	48k steps (196 KB)	24k/24k/512K words	512	0	0.02	2.9w		
AHCPU 510-RS2	1280	64k steps (256 KB)	32k/32k/1024k words	256	1	0.1	2w		
AHCPU 511-RS2	1280	96k steps (384 KB)	48k/48k/1024k words	1024	1	0.02	2.9w		
AHCPU 520-RS2	2304	128k steps (512 KB)	64k/64k/2048k words	512	3	0.1	2w		
New **AHCPU 521-RS2**	2304	192k steps (768 KB)	96k/96k/2048k words	2048	3	0.02	2.9w		
AHCPU 530-RS2	4352	256k steps (1 MB)	64k/64k/4096k words	1024	7	0.1	2w		
New **AHCPU 531-RS2**	4352	384k steps (1.5 MB)	128k/128k/4096k words	4096	7	0.02	2.9w		

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

CPU Modules

Model	Local I/O points	Program capacity	Data register D/L/B (note)	Function blocks	Extension backplane	LD execution **speed (μs)**	Power consumption (Internal)	**Specifications**	**Certificates**
AHCPU 500-EN	768	32k steps (128 KB)	16k/16k/512k words	128	0	0.1	2 w	▪ Built-in RS-232/422/485 multi-modes communication port x1 (RS-232:115.2 kbps/ RS-422/485: 921.6 kbps) ▪ Built-in Ethernet communication port (100 Mbps) ▪ Built-in SD card slot (supports max. 2 GB for AHCPU5_0 or 32 GB for AHCPU5_1) ▪ Built-in Mini-USB programming port ▪ System diagnose/ status light/online editing and debug functions ▪ PLC Link automatic data exchange function ▪ Modbus RTU/ASCII, Modbus TCP ▪ EtherNet/IP (AHCPU5_1 only) - Scanner & Adapter mode - Supports I/O connection & explicit message - Connections: TCP=32~128; CIP=64~256 - RPI: 1~1,000ms - 250 words/connection ▪ 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 ▪ CPU RAM/ROM capacity AHCPU5_0: 32 MB/8 MB AHCPU5_1: 128 MB/128 MB ▪ CPU clock AHCPU5_0: 133 MHz AHCPU5_1: 800 MHz	CE cULus
New **AHCPU 501-EN**	768	48k steps (196 KB)	24k/24k/512K words	512	0	0.02	2.9 w		
AHCPU 510-EN	1280	64k steps (256 KB)	32k/32k/1024k words	256	1	0.1	2 w		
AHCPU 511-EN	1280	96k steps (384 KB)	48k/48k/1024k words	1024	1	0.02	2.9 w		
AHCPU 520-EN	2304	128k steps (512 KB)	64k/64k/2048k words	512	3	0.1	2 w		
AHCPU 521-EN	2304	192k steps (768 KB)	96k/96k/2048k words	2048	3	0.02	2.9 w		
AHCPU 530-EN	4352	256k steps (1MB)	64k/64k/4096k words	1024	7	0.1	2 w		
AHCPU 531-EN	4352	384k steps (1.5 MB)	128k/128k/4096k words	4096	7	0.02	2.9 w		

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

Ordering Information

Redundant CPU Modules

Model	Local I/O points	Program capacity	Data register D/L/B (note)	Function blocks	Extension backplane	LD execution **speed (μs)**	Power consumption (Internal)	**Specifications**	**Certificates**
New **AHCPU 560-EN2**	4352	1M steps (4 MB)	256 k / 256 k / 4096 k words	4096	7	0.02	4.5 w	▪ Built-in RS-232 / 485 multi-modes communication port x1 (RS-232:115.2 kbps / RS-485: 921.6 kbps) ▪ Built-in Ethernet communication port (100 Mbps) ▪ Built-in SD card slot (supports max. 32 GB) ▪ Built-in Mini-USB programming port ▪ System diagnosis / status light / online editing and debug functions ▪ PLC Link automatic data exchange function ▪ Modbus RTU / ASCII, Modbus TCP ▪ EtherNet/IP - Scanner & Adapter mode - Supports I/O connection & explicit message - Connections: TCP = 128; CIP = 256 - RPI: 1 ~ 1,000 ms - 250 words / connection ▪ LD / SFC / FBD / IL / ST languages ▪ 256 interrupts (Time d / IO / External / Low voltage / Communication) ▪ Redundant mode only supports timed interrupt ▪ 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 ▪ Supports redundant system - CPU switch-over time: 20 ms - Built-in sync. function and no specific sync. module required (needs fiber optic module) ▪ CPU RAM/ROM capacity: 256 MB / 128 MB ▪ CPU clock: 1 GHz	CE c UL us

Power Supply Modules

Model	Power input	Output	Specifications	Certificates
AHPS05-5A	100~240 V_{AC} 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	24 V_{DC}	36W		

Main Backplanes

Model	Slot	Power consumption (Internal)	Specifications	Certificates
AHBP04M1-5A	4	0.01 w	▪ Supports CPU modules ▪ Supports remote I/O communication modules (RTU) ▪ Built-in communication port for extension backplanes ▪ Slot spaces are not occupied by Power/CPU/RTU modules ▪ Supports redundant power (AHBPxxMR1-5A only)	CE cULus
AHBP06M1-5A	6	0.01 w		
AHBP08M1-5A	8	0.01 w		
AHBP12M1-5A	12	0.01 w		
New **AHBP04MR1-5A**	4	0.2 w		
New **AHBP06MR1-5A**	6	0.2 w		
New **AHBP08MR1-5A**	8	0.2 w		
AHBP03M2-5A	3	1.41 w	▪ Supports AHxxEMC-5A installed on CPU slot only (Do not support CPU/RTU modules) ▪ Built-in serial communication port ▪ Slot spaces are not occupied by Power/CPU	
AHBP05M2-5A	5	1.41 w		
AHBP07M2-5A	7	1.41w		

Extension Backplanes

Model	Slot	Power consumption (Internal)	Specifications	Certificates
AHBP06E1-5A	6	1.41 w	▪ For main backplane extension ▪ Built-in communication port for extension backplanes ▪ Slot spaces are not occupied by power modules ▪ Supports redundant ext. ports (AHBPxxER1-5A only) ▪ Supports redundant power (AHBPxxER1-5A only)	CE cULus
AHBP08E1-5A	8	1.41 w		
New **AHBP06ER1-5A**	6	1 w		
New **AHBP08ER1-5A**	8	1 w		

Ordering Information

Digital I/O Modules (Input)

Model	Points	Signals	Terminal block type	Power consumption (Internal/ External)	Accessories (optional)	Specifications	Certificates
AH16AM10N-5A	16	24 V_{DC} 5 mA	JIS removable terminal block	0.1 w/1.9 w	-	▪ PNP/NPN mixed mode design ▪ Supports hot-swapping function ▪ Individual LED status indicator	CE cULus
AH16AM30N-5A	16	120~240 V_{AC} 4.5~9 mA	JIS removable terminal block	0.1 w/-	-		
AH32AM10N-5A	32	24 V_{DC} 5 mA	EU removable terminal block	0.2 w/3.8 w	-		
AH32AM10N-5B	32	24 V_{DC} 5 mA	DB37	0.2 w/3.8 w	UC-ET010-33B UB-10-ID32B		
AH32AM10N-5C	32	24 V_{DC} 5 mA	MIL	0.2 w/3.8 w	UC-ET010-24A UC-ET010-24B UC-ET020-24B UC-ET030-24B UB-10-ID32A		
AH64AM10N-5C	64	24 V_{DC} 3.2 mA	MIL	0.2 w/4.9 w		▪ PNP/NPN mixed mode design ▪ Supports hot-swapping function ▪ Individual LED status indicator (32 points)	
AH16AR10N-5A	16	24 V_{DC} 5 mA	JIS removable terminal block	0.5 w/1.9 w	-	▪ 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 ▪ Provides user-defined option for signal time-delay setting (Unit: 0.1ms)	

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_{DC} 5 mA	Relay 240 V_{AC}/ 24 V_{DC} 2A	JIS removable terminal block	1.1 w/-	▪ 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	24 V_{DC} 5 mA	NPN (Sink) 12~24 V_{DC} 0.5A	JIS removable terminal block	0.2 w/0.2 w		
AH16AP11P-5A	8	8	24 V_{DC} 5 mA	PNP (Source) 12~24 V_{DC} 0.5A	JIS removable terminal block	0.2 w/0.2 w		

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_{AC}/24 V_{DC} 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) 12~24 V_{DC} 0.5A	JIS removable terminal block	0.2w/0.4w	-			
AH16AN01P-5A	16	PNP (Source) 12~24 V_{DC} 0.5A	JIS removable terminal block	0.2w/0.4w	-			
AH16AN01S-5A	16	TRIAC 120/240 V_{AC} 0.5A	JIS removable terminal block	0.6w/-	-			
AH32AN02T-5A	32	NPN (Sink) 12~24 V_{DC} 0.1A	EU removable terminal block	0.4w/0.8w	-			
AH32AN02P-5A	32	PNP (Source) 12~24 V_{DC} 0.1A	EU removable terminal block	0.4w/0.8w	-			
AH32AN02T-5B	32	NPN (Sink) 12~24 V_{DC} 0.1A	DB37	0.4w/0.8w	UC-ET010-33B UB-10-OR32A UB-10-OT32B			
AH32AN02P-5B	32	PNP (Source) 12~24 V_{DC} 0.1A	DB37	0.4w/0.8w	UC-ET010-33B UB-10-OR32B UB-10-OT32B			
AH32AN02T-5C	32	NPN (Sink) 12~24 V_{DC} 0.1A	MIL	0.4w/0.8w	UC-ET010-24A UC-ET010-24B UC-ET020-24B UC-ET030-24B UC-ET010-24C	UC-ET010-24D UC-ET020-24D UC-ET030-24D UB-10-OR16A UB-10-OT32A		
AH32AN02P-5C	32	PNP (Source) 12~24 V_{DC} 0.1A	MIL	0.4w/0.8w	UC-ET010-24A UC-ET010-24B UC-ET020-24B UC-ET030-24B UC-ET010-24C	UC-ET010-24D UC-ET020-24D UC-ET030-24D UB-10-OR16B UB-10-OT32A		
AH64AN02T-5C	64	NPN (Sink) 12~24 V_{DC} 0.1A	MIL	0.6w/1.5w	UC-ET010-24A UC-ET010-24B UC-ET020-24B UC-ET030-24B UC-ET010-24C	UC-ET010-24D UC-ET020-24D UC-ET030-24D UB-10-OR16A UB-10-OT32A	▪ Supports hot-swapping function ▪ Individual LED status indicator (32 points) ▪ Supports keep-last-value function when CPU shuts down	
AH64AN02P-5C	64	PNP (Source) 12~24 V_{DC} 0.1A	MIL	0.6w/1.5w	UC-ET010-24A UC-ET010-24B UC-ET020-24B UC-ET030-24B UC-ET010-24C	UC-ET010-24D UC-ET020-24D UC-ET030-24D UB-10-OR16B UB-10-OT32A		

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 ▪ Diagnosis function ▪ Module status LED indicator ▪ Supports interrupt function	CE cULus
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 ▪ Diagnosis function ▪ Module status LED indicator ▪ Supports interrupt function ▪ Supports keep-last-value function when CPU shuts down	CE cULus
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 ▪ Diagnosis 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: 150 ms/channel 3-wire: 300 ms/channel	JIS removable terminal block	2w/-	▪ Effective resolution: 16-bit ▪ Accuracy: ±0.6% (Full Scale) ▪ Supports hot-swapping function ▪ Signal isolated design ▪ Diagnosis 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, ±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		

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 1 Mbps ▪ Supports AH 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 ▪ Diagnosis function ▪ Module status LED indicator	CE cULus
AHRTU-PFBS-5A	1.9w/-	▪ PROFIBUS-DP remote I/O module ▪ Max. speed: 12 Mbps ▪ Supports AH digital I/O modules, analog I/O modules, temperature measurement modules ▪ Installs on main backplane	▪ Supports 7 extension backplanes ▪ Diagnosis function ▪ Module status LED indicator ▪ Configurable I/O capacity: 122 words for input/122 words for output	
AHRTU-ETHN-5A	2.2w/-	▪ EtherNet/IP remote I/O module ▪ Supports I/O connection & explicit message ▪ Connections: TCP=48 ; CIP=96 ▪ RPI: 1~1,000ms ▪ PPS: 10,000 ▪ 250 words/connection ▪ Supports AH digital I/O modules, analog I/O modules, temperature measurement modules	▪ Installed on main backplane ▪ Supports 7 extension backplanes ▪ Diagnosis function ▪ Module status LED indicator ▪ 2 Ethernet ports (switch function) ▪ Configurable I/O capacity: 234 words IN ; 234 words OUT	

Ordering Information

Network Modules

Model	Power consumption (Internal/ External)	Specifications			Certificates
AH10EN-5A	1.6w/-	▪ Ethernet communication module (Master/Slave) ▪ 100Mbps communication port×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 ▪ EtherNet/IP - Scanner & Adapter mode - Supports I/O connection & explicit message - Connections: TCP=64 ; CIP=64 - RPI: 1~1,000ms - PPS: 6,400 - 250 words/connection	▪ Supports hot-swapping function ▪ Diagnosis function ▪ Module status LED indicator	CE cULus
AH15EN-5A	1.6w/-	▪ Ethernet communication module (Master/Slave) ▪ 100Mbps communication port×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 IEC60870		
AH10SCM-5A	1.2w/-	▪ Serial communication module (Master/Slave) ▪ Full isolation design in power & signal circuits ▪ Built-in RS-422/RS-485 with communication port×2 (multiple modes, 460.8Kbps) ▪ 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		
AH15SCM-5A	1w/-	▪ Serial communication module (Master/Slave) ▪ Full isolation design in power & signal circuits ▪ Built-in RS-232 with communication port×2 (multiple modes, 460.8Kbps) ▪ Supports PLC Link function			
AH10DNET-5A	0.9w/0.72w	▪ DeviceNet communication module (Master/Slave) ▪ Supports max. speed of 1Mbps ▪ Switchable between master and slave modes	▪ Connects up to 63 slave stations in master mode ▪ RIO capacity in master mode: 490 words IN/OUT		
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 ▪ Max. speed: 12Mbps	▪ Configurable I/O capacity: 100 words for input/100 words for output		
AH10COPM-5A	1w/-	▪ CANopen module (Master/Slave) ▪ Max. speed: 1Mbps ▪ Connects up to 100 slaves in master mode			

Motion Control Modules

Model	Channels / Axes	Terminal block type	Power consumption (Internal)	Accessories (optional)	Specifications		Certificates
AH02HC-5A	2	EU removable terminal block	2.4 w	-	▪ High speed counter	▪ 200 kHz input ▪ UD / PD / AB / 4AB modes ▪ Supports interrupt function ▪ Supports hot-swapping function ▪ Diagnosis function ▪ Module status LED indicator	
AH04HC-5A	4	HDC	2.4 w	UC-ET010-13B UB-10-IO16C	▪ High speed counter		
AH05PM-5A	2	EU removable terminal block	2.7 w	-	▪ Pulse train motion control module ▪ Supports 1MHz output ▪ Supports 2-axis linear interpolation, 2-axis arc interpolation	▪ CPU execution speed: LD instruction @ 0.13 µs ▪ 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 ▪ Diagnosis function ▪ Module status LED indicator	
AH10PM-5A	6	HDC	2.7 w	UC-ET010-15B UB-10-IO24C	▪ Pulse train motion control module ▪ Supports 1MHz output (4 axes) 200 kHz 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		
AH15PM-5A	4	HDC	2.7 w	UC-ET010-15B UB-10-IO34C	▪ 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 (LSP / LSN) input		CE cULus
AH20MC-5A	12	HDC	3 w	UC-ET010-13B UB-10-IO16C	▪ DMCNET communication motion control module (10 Mbps) ▪ Min. synchronization time at 12 axes is 1ms ▪ Supports 2 ~ 6-axis linear interpolation, 2-axis arc interpolation and 3-axis helical interpolation ▪ Built in Ethernet communication port ▪ Supports Micro SD card		
AH08EMC-5A	8	HDC	3.3 w	UC-ET010-13B UB-10-IO22C	▪ EtherCAT communication motion control (100 Mbps) ▪ Min. synchronization time at 8 / 16 / 32 axes is 0.5 / 1 / 2 ms ▪ Supports 2 ~ 6-axis linear interpolation, 2-axis arc interpolation and 3-axis helical interpolation ▪ Built in Ethernet communication port ▪ Supports Micro SD card ▪ Supports EtherNet/IP - Adapter mode - Supports I/O connection & explicit message - Connections: TCP = 16 ; CIP = 32 - RPI: 2 ~ 1,000 ms - PPS: 3,200 - 250 words / connection ▪ CPU execution speed: LD instruction @ 0.08 µs	▪ Program capacity: 256k steps ▪ Data register: D=64k words / L=64k words ▪ Supports UD / PD / AB / 4AB input modes ▪ Built-in Mini USB programming communication port ▪ Supports G-code ▪ Supports hot-swapping function ▪ Diagnosis function ▪ Module status LED indicator ▪ Supports installation on CPU slot of motion backplane and working as CPU (Note) ▪ Max. quantity of FB instance is 4096	
AH10EMC-5A	16						
AH20EMC-5A	32						

Note: Supports DIO(except interrupt module), AIO, MC, PM, HC, COPM and SCM modules in the first stage.

Ordering Information

Software

Software	Model	License	Descriptions	Compatible Products
ISPSoft [V3]	-	Free	PLC programming software	AH series , DVP series PLCs
COMMGR [V1]	-	Free	Communication management software	AH series , DVP series PLCs
PMSoft [V2]	-	Free	Motion control programming software	AH series , DVP series motion controllers
DCISoft [V1]	-	Free	Ethernet configuration software	AH 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	AH series DeviceNet modules, DVP series DeviceNet modules, CMC series DeviceNet cards for Delta motor drives
CANopen Builder [V2]	-	Free	CANopen configuration software	AH series CANopen modules, DVP series built-in CANopen PLCs, DVP series CANopen modules, DVP10MC motion controller
SYCON.net [V1]	-	Free	PROFIBUS DP configuration software	AH series PROFIBUS DP modules
Delta OPC [V1]	HASP-20-OPC01	Hardware license (USB)	Delta OPC server	AH series PLCs
ECAT Builder [V1]	-	Free	EtherCAT configuration software	AH series , DVP series PLCs
EIP Builder [V1]	-	Free	EtherNet/IP configuration software	AH series , DVP series PLCs

Accessories

Products	Descriptions	Models	Specifications	Applicable Modules	Certificates
Cables	Extension cable for connecting extension backplane	AHACAB06-5A	0.6 m	AHBP04M1-5A AHBP06M1-5A AHBP08M1-5A AHBP12M1-5A AHBP06E1-5A AHBP08E1-5A AHBP04MR1-5A AHBP06MR1-5A AHBP08MR1-5A AHBP06ER1-5A AHBP08ER1-5A	c UL us
		AHACAB10-5A	1.0 m		
		AHACAB15-5A	1.5 m		
		AHACAB30-5A	3.0 m		
		AHACAB50-5A	5.0 m		
		AHACABA0-5A	10.0 m		
		AHACABA5-5A	15.0 m		
		AHACABB0-5A	20.0 m		
		AHACABC0-5A	30.0 m		
		AHACABD0-5A	40.0 m		
		AHACABE0-5A	50.0 m		
		AHACABF0-5A	60.0 m		
		AHACABG0-5A	70.0 m		
		AHACABH0-5A	80.0 m		
		AHACABJ0-5A	90.0 m		
		AHACABK0-5A	100.0 m		
	I/O extension cable for connecting external terminal modules	UC-ET010-24A	1.0 m / MIL	AH32AM10N-5C AH32AN02T-5C AH32AN02P-5C AH64AM10N-5C AH64AN02T-5C AH64AN02P-5C	
		UC-ET010-24B	1.0 m / MIL (Shielded)		
		UC-ET020-24B	2.0 m / MIL (Shielded)		
		UC-ET030-24B	3.0 m / MIL (Shielded)		
		UC-ET010-24C	1.0 m / MIL	AH32AN02T-5C AH32AN02P-5C AH64AN02T-5C AH64AN02P-5C	
		UC-ET010-24D	1.0 m / MIL (Shielded)		
		UC-ET020-24D	2.0 m / MIL (Shielded)		
		UC-ET030-24D	3.0 m / MIL (Shielded)		
		UC-ET010-33B	1.0 m / DB37	AH32AM10N-5B AH32AN02T-5B AH32AN02P-5B	
		UC-ET010-13B	1.0 m / HDC	AH04HC-5A AH20MC-5A AH08EMC-5A AH10EMC-5A AH20EMC-5A	
		UC-ET010-15B	1.0 m / HDC	AH10PM-5A AH15PM-5A	
	CANopen / DeviceNet cables	UC-DN01Z-01A	305.0 m (Thick / Trunk Cable)	AH10COPM-5A AH10DNET-5A AHRTU-DNET-5A TAP-CN01 TAP-CN02 TAP-CN03	
		UC-DN01Z-02A	305.0 m (Thin / Drop Cable)		
	CANopen / DeviceNet / DMCNET cables	UC-CMC003-01A	0.3 m / RJ45	AH20MC-5A TAP-CN03	
		UC-CMC005-01A	0.5 m / RJ45		
		UC-CMC010-01A	1.0 m / RJ45		
		UC-CMC015-01A	1.5 m / RJ45		
		UC-CMC020-01A	2.0 m / RJ45		
		UC-CMC030-01A	3.0 m / RJ45		
		UC-CMC050-01A	5.0 m / RJ45		
		UC-CMC100-01A	10.0 m / RJ45		
		UC-CMC200-01A	20.0 m / RJ45		

Ordering Information

Accessories

Products	Descriptions	Models	Specifications	Applicable Modules	Certificates
Cables	EtherCAT cables	UC-EMC003-02A	0.3 m / RJ45	AH08EMC-5A AH10EMC-5A AH20EMC-5A	CE
		UC-EMC005-02A	0.5 m / RJ45		
		UC-EMC010-02A	1.0 m / RJ45		
		UC-EMC020-02A	2.0 m / RJ45		
		UC-EMC050-02A	5.0 m / RJ45		
		UC-EMC100-02A	10.0 m / RJ45		
		UC-EMC200-02A	20.0 m / RJ45		
	PROFIBUS cables	UC-PF01Z-01A	305.0 m	AH10PFBM-5A AH10PFBS-5A AHRTU-PFBS-5A	
	Fiber optic cables New	UC-FB010-01A	1.0m / single-mode / LC connector	AHCPU560-EN2	
		UC-FB030-01A	3.0m / single-mode / LC connector		
		UC-FB010-02A	1.0m / multi-mode / LC connector		
		UC-FB030-02A	3.0m / multi-mode / LC connector		
External terminal modules	For digital input modules	UB-10-ID32A	MIL	AH32AM10N-5C AH64AM10N-5C	
		UB-10-ID32B	DB37	AH32AM10N-5B	
	For digital output modules	UB-10-OR16A	16 points relay output (240 V_{AC} / 24 V_{DC}, 2A) MIL	AH32AN02T-5C AH64AN02T-5C	
		UB-10-OR16B	16 points relay output (240 V_{AC} / 24 V_{DC}, 2A) MIL	AH32AN02P-5C AH64AN02P-5C	
		UB-10-OR32A	32 points relay output (240 V_{AC} / 24 V_{DC}, 2A) DB37	AH32AN02T-5B	
		UB-10-OR32B	32 points relay output (240 V_{AC} / 24 V_{DC}, 2A) DB37	AH32AN02P-5B	
		UB-10-OT32A	Transistor output MIL	AH32AN02T-5C AH32AN02P-5C AH64AN02T-5C AH64AN02P-5C	
		UB-10-OT32B	Transistor output DB37	AH32AN02T-5B AH32AN02P-5B	
	For motion control modules	UB-10-IO16C	HDC	AH04HC-5A AH20MC-5A	
		UB-10-IO22C	HDC	AH08EMC-5A AH10EMC-5A AH20EMC-5A	
		UB-10-IO24C	HDC	AH10PM-5A	
		UB-10-IO34C	HDC	AH15PM-5A	
Connectors	PROFIBUS connectors	UN-03PF-01A	90° connector		
		UN-03PF-02A	90° connector with programming port		
		UN-03PF-03A	180° connector		
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			

Accessories

Products	Descriptions	Models	Specifications	Applicable Modules		Certificates
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: 2 km	AHBP04M1-5A AHBP06M1-5A AHBP08M1-5A AHBP12M1-5A AHBP06E1-5A AHBP08E1-5A	AHBP04MR1-5A AHBP06MR1-5A AHBP08MR1-5A AHBP06ER1-5A AHBP08ER1-5A	CE cULus
	Used for backplane extension via fiber optics (installs at the backplane's upper extension port)	AHAADP02EF-5A		AHBP06E1-5A AHBP08E1-5A	AHBP06ER1-5A AHBP08ER1-5A	
FE SFP Fiber Transceiver	Used for redundant CPU	LCP-155A4HDRJ LCP-155A4HDRTJ	▪ Connector: LC ▪ Fiber optics: Multi-mode ▪ Max. cable length: 5km ▪ Operation temperature: …DRJ: -5~70°C …DRTJ: -40~85°C	AHCPU560-EN2		
		LCP-155B4JDRJ LCP-155B4JDRTJ	▪ Connector: LC ▪ Fiber optics: Single-mode ▪ Max. cable length: 30 km ▪ Operation temperature: …DRJ: -5~70°C …DRTJ: -40~85°C			
		LCP-155B4MDRJ LCP-155B4MDRTJ	▪ Connector: LC ▪ Fiber optics: Single-mode ▪ Max. cable length: 60 km ▪ Operation temperature: …DRJ: -5~70°C …DRTJ: -40~85°C			
Memory card	SD card: 1 GB	FMC-SD001G	▪ Capacity: 1 GB ▪ Overwrite: 10,000 times	▪ Speed (Read/Write) : Max. 18/15 MB/s ▪ Operation temperature: -40~85°C		

Specification Information

General Modules

Item	Specifications
Operating Conditions	▪ Temperature: -20~60°C ▪ Relative Humidity: 5~95% (Non-Condensing) ▪ IP Rating: IP20
Storage Conditions	▪ Temperature: -40~70°C ▪ Relative Humidity: 5~95% (Non-Condensing)
Certificates	CE cULus

Ethernet Connection Information

Connection type	AHCPU500/510/520/530-EN	AHCPU501/511/521/531-EN AHCPU560-EN2	AH08/10/20EMC-5A	AH10EN-5A	AHRTU-ETHN-5A
Modbus (Server)	32	48/64/96/160/160 (Note)	32	128	---
Modbus (Client)	16/32/64/128	16/32/64/128/128	128	64	---
EtherNet/IP (TCP)	-	16/32/64/128/128	16	64	48
EtherNet/IP (CIP)	-	32/64/128/256/256	32	64	96

Note: Firmware version is v2.02 and higher.

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