



Automation for a Changing World

# Delta Compact Modular Mid-range PLC AS Series



[www.deltaww.com](http://www.deltaww.com)



# Flexible, Smart, Friendly - The Best Choice for a Controller of Automated Equipment

## AS Series

The AS Series Compact Modular Mid-range PLC is a high performance multi-purpose controller designed for all kinds of automated equipment. It features Delta's self-developed 32-bit SoC CPUs for enhanced execution speed (40k steps/ms) and supports up to 32 extension modules or up to 1,024 inputs/outputs. The AS series provides accurate positioning control for up to 8 axes via CANopen motion network and 6 axes via pulse control (200kHz). It is widely used in diverse automated equipment such as for electronics manufacturing, labeling, food packaging, and textile machines.

The AS Series Controller is equipped with CANopen and EtherNet/IP network communication for high-speed data transmission. The professional yet simple editing software ISPSoft delivers quick hardware and network configuration with built-in function blocks for different industries. It also provides multi-layer password protection for enhanced system security.

The AS Series adopts a rackless design and patented DIN rail clips for fast vertical module installation. The simple shape and dark gray exterior of the AS series help resist stains and dirt in harsh industrial environments.





## High Efficiency Computing

- Advanced CPU performance
- Optimized execution efficiency
- Optimized I/O update rate
- Permanent data backup, no battery required



## Accurate Axis Control

- Delta CANopen positioning control
- Simple control instructions
- High-speed pulse positioning control
- High-speed counter



## AS500 Motion Control Solution

- AS500 EtherCAT motion control system
- AS500 CANopen motion control system
- Higher scalability in DVP-MC & AS500
- Highly integrated CPU design



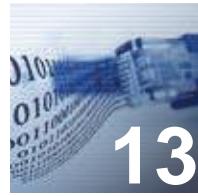
## AX-3 CODESYS Motion Control Solution

- AX-3 CODESYS EtherCAT motion control system
- Benefits of CoDeSys platform
- Highly integrated CPU design



## Simple Installation

- Easy installation process
- Convenient grounding protection
- Screwless installation procedure
- Loose-proof clip-type terminal block



## Industrial Network Solution

- EtherNet/IP solution
- Remote I/O solution
- Serial communication solution



## Programming & Diagnosis

- Modular programming structure
- Convenient editing environment
- Easy hardware configuration and parameter setting
- Complete setting tools
- Multiple password protection



## Models and Specifications

- Model name explanation
- CPU
- AS Series I/O modules
- High-density modules and accessories
- Dimensions
- Ordering information

# High Efficiency Computing

Delta's self-developed AS Series CPU provides 32-bit high-performance computing and a real-time operation system. As the core of a high-efficiency controller, it helps increase the productivity and adaptability of demanding equipment.



## Advanced CPU Performance

### ▪ High-speed execution up to 40k steps/ms

(Condition: 40% LD instruction/60% MOV instruction)

- Max. number of inputs/outputs: 1,024
- Program capacity: 128k steps
- Data registers: 60k words
- Max. extension ability: 32 modules

LD instruction      25 ns

MOV instruction      0.15 µs

Floating point operation instruction      1.6 µs

Trigonometric function instruction      3.5 µs

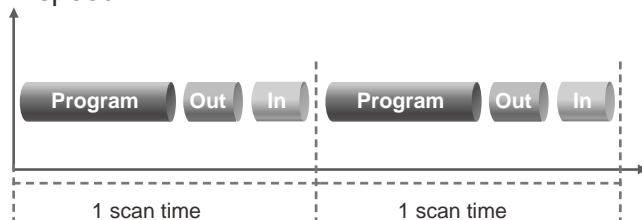


# Optimized Execution Efficiency

## ■ General Scanning Method

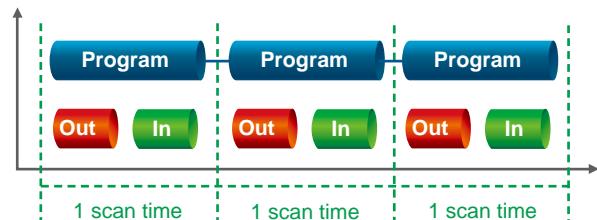
Standard simplex scanning which sequentially goes through instructions by fixed schedule operation (e.g. I/O update).

It significantly affects overall execution speed.



## ■ AS Series Scanning Method

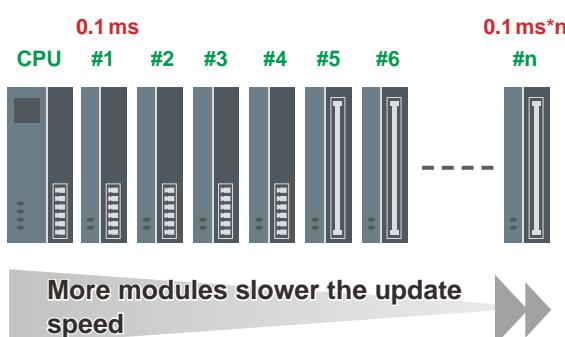
Fixed schedule operations will be automatically processed by the CPU background program when scanning starts. This significantly enhances execution speed.



# Optimized I/O updates

## ■ Common in the industry: PLC module bus update via serial communication

- General serial communication: the signal is sequentially sent from the 1<sup>st</sup> module to the last module. The more modules the longer I/O update time it takes.



## ■ AS Series: PLC module bus update via optimized CAN protocol

- CAN protocol : The signal is sent via optimized CAN bus protocol. The I/O update time is not significantly prolonged even with more modules.



Note: The real updating performance will be different for different extension modules.

# Permanent data backup, no battery required

## ■ Non-volatile memory material for data backup



	PLC power off
PLC programs	permanent backup
Latched area	permanent backup

## ■ Lithium button battery for Real Time Clock (RTC) function



	PLC power off
RTC	keeps accurate time

# Accurate Axis Control - Positioning Control Solution



## ■ Positioning control - Delta's CANopen control

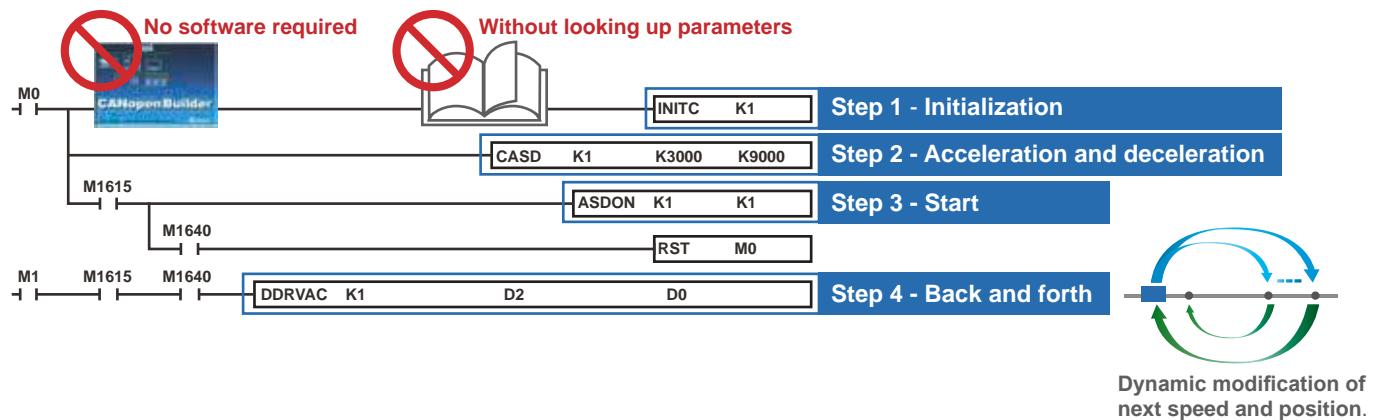
- AS200/300 supports up to 8 Delta servo drives and 8 AC motor drives (AS-FCOPM function card is needed for the AS300)
- Fast positioning configuration in one initialization instruction without building CANopen data exchange table
- Axis control by instructions provides easy maintenance and high PLC program readability



## ■ Simple control instructions for Delta drives

- |  |  |
|--|--|
| ▪ Initialization: INITC                    | ▪ Constant speed control: PLSVC            |
| ▪ Relative positioning: DRVIC (Servo only) | ▪ Absolute positioning: DRVAC (Servo only) |
| ▪ Read and write parameter: COPRW          | ▪ Start/ Stop: ASDON                       |
| ▪ Acceleration and deceleration: CASD      | ▪ Homing: ZRNC (Servo only)                |

### ASDA-A2 back and forth motion control in 4 steps

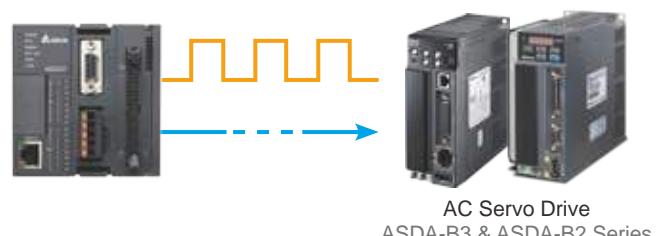




## ■ Positioning control - high-speed pulse

- AS332T-A/AS332P-A transistor CPU: 6 axes (or 12 channels) 200 kHz
- AS324MT-A differential CPU: 2 axes 4 MHz + 4 axes 200 kHz
- Supports positioning planning table for fast positioning planning and path simulation
- Choose any given 2 axes for linear and arc interpolation

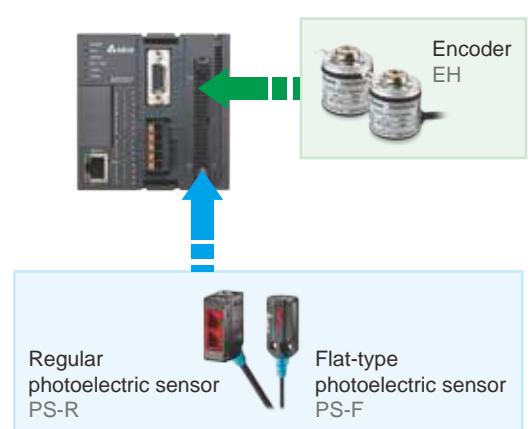
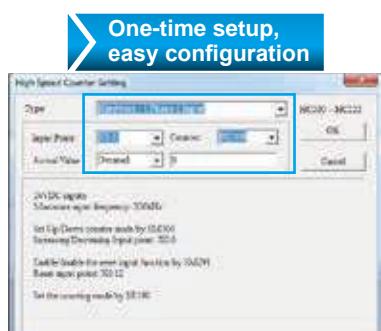
\* Note: Please refer to the product specification section (P.28)  
for more information on CPU models



## ■ High-speed counter

- Real-time high precision monitoring:  
AS332T-A/AS332P-A transistor CPU: 6 channels 200 kHz  
AS324MT-A differential CPU: 2 channels 4 MHz/4 channels 200 kHz
- Up to 16 external input interrupts
- High-speed counter setting tools

\* Note: Please refer to the product specification section (P.28)  
for more information on CPU models

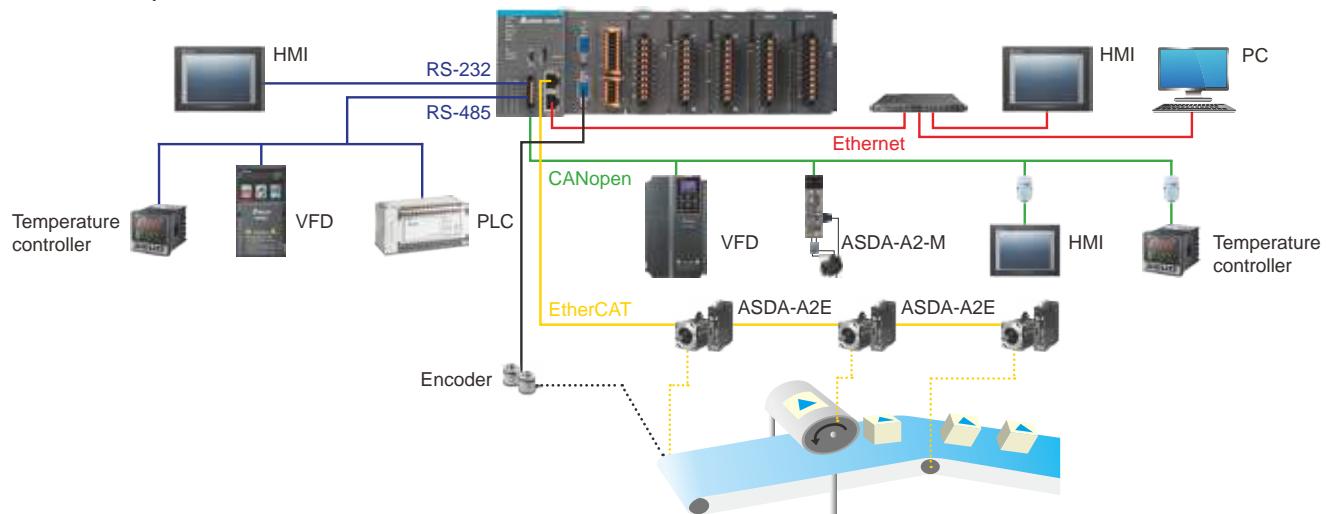


# AS500 Motion Control Solution



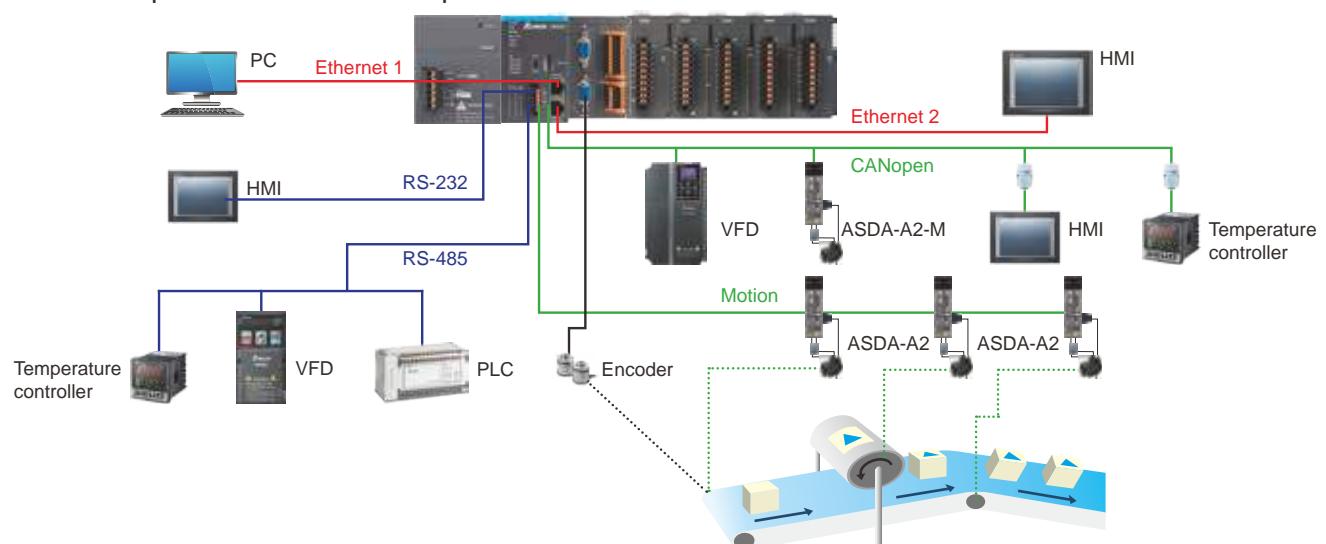
## ■ AS500 EtherCAT motion control system

- AS516E CPU supports up to 16 axes Delta EtherCAT servos (min. sync time: 1 ms / 16 axes)
- Supports AS power, DIO, AIO, temperature and load cell expansion modules (max. 32 modules)
- 1 GHz processor provides high operation performance
- Provides various motion commands: position, velocity, torque, multi-axis interpolation, E-gear, E-CAM, G-code, and more
- Built-in 16 DI & 8 DO, 2 incremental encoders, SSI absolute encoder, RS-232/485, Ethernet, CANopen DS301 and EtherCAT interfaces



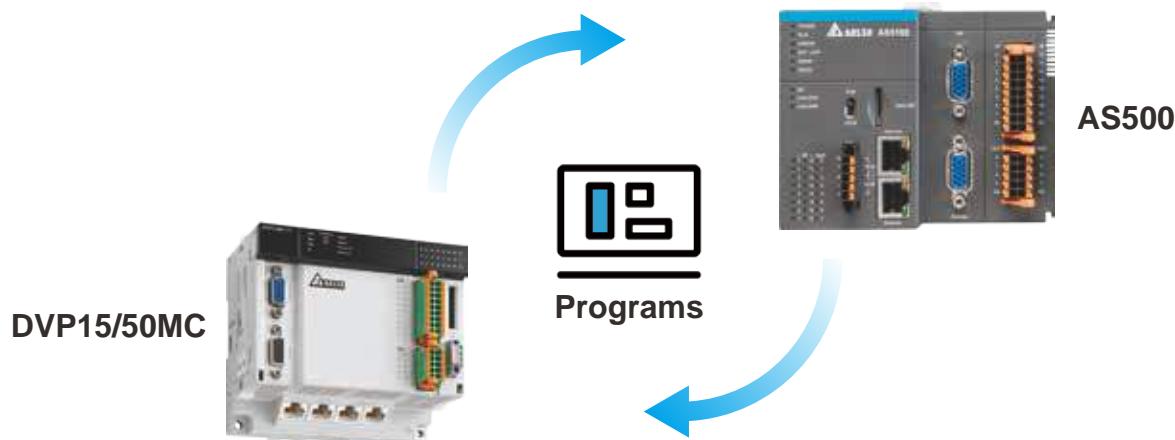
## ■ AS500 CANopen motion control system

- AS524C CPU supports up to 24 axes Delta CANopen servos (min. sync time: 2 ms / 4 axes)
- Supports AS power, DIO, AIO, temperature and load cell expansion modules (max. 32 modules)
- 1 GHz processor provides high operation performance
- Provides various motion commands: position, velocity, torque, multi-axis interpolation, E-gear, E-CAM, G-code, and more
- Built-in 16 DI & 8 DO, 2 incremental encoders, SSI absolute encoder, RS-232/485, Ethernet (x2), CANopen DS301 and CANopen motion interfaces



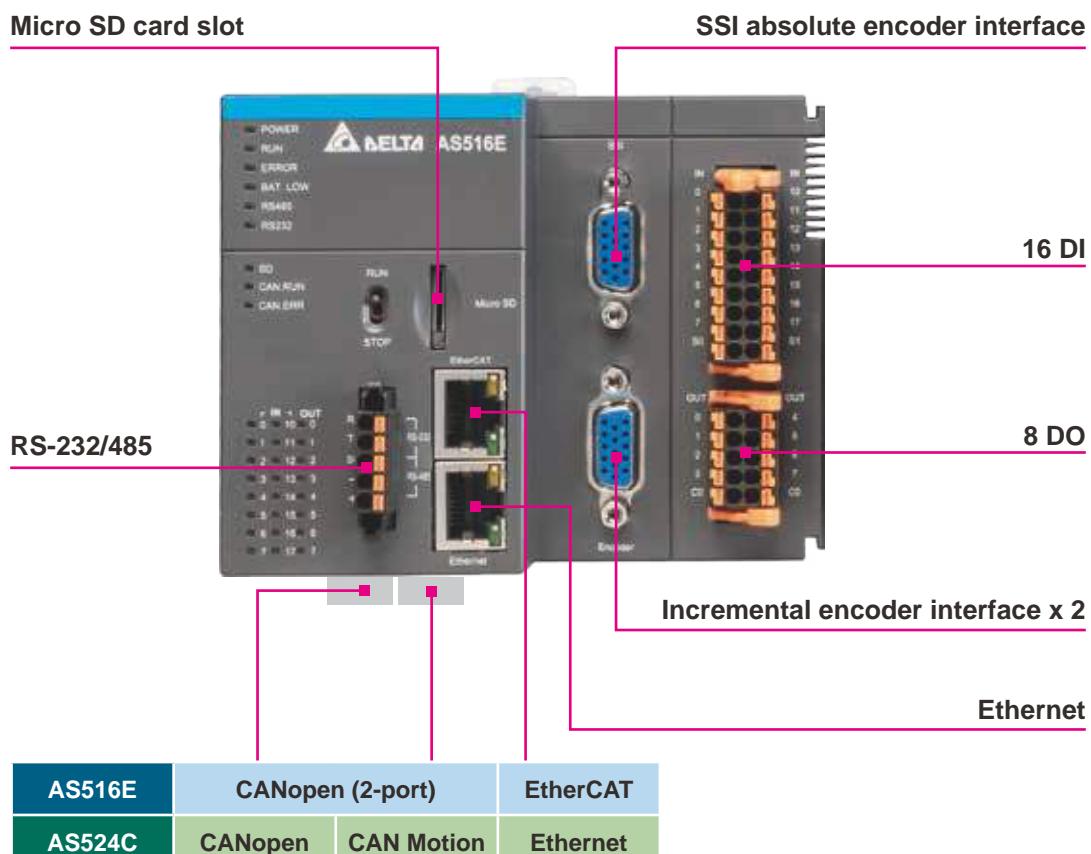
## ▪ Higher scalability in DVP-MC and AS500

AS500 motion CPUs are designed with the Delta DVP-MC motion platform, which allows users to scale up/down their systems to AS/DVP systems without rewriting all programs



## ▪ Highly integrated CPU design

The AS500 motion control CPUs feature various built-in I/O and communication protocols to satisfy customer needs for compact design and high performance

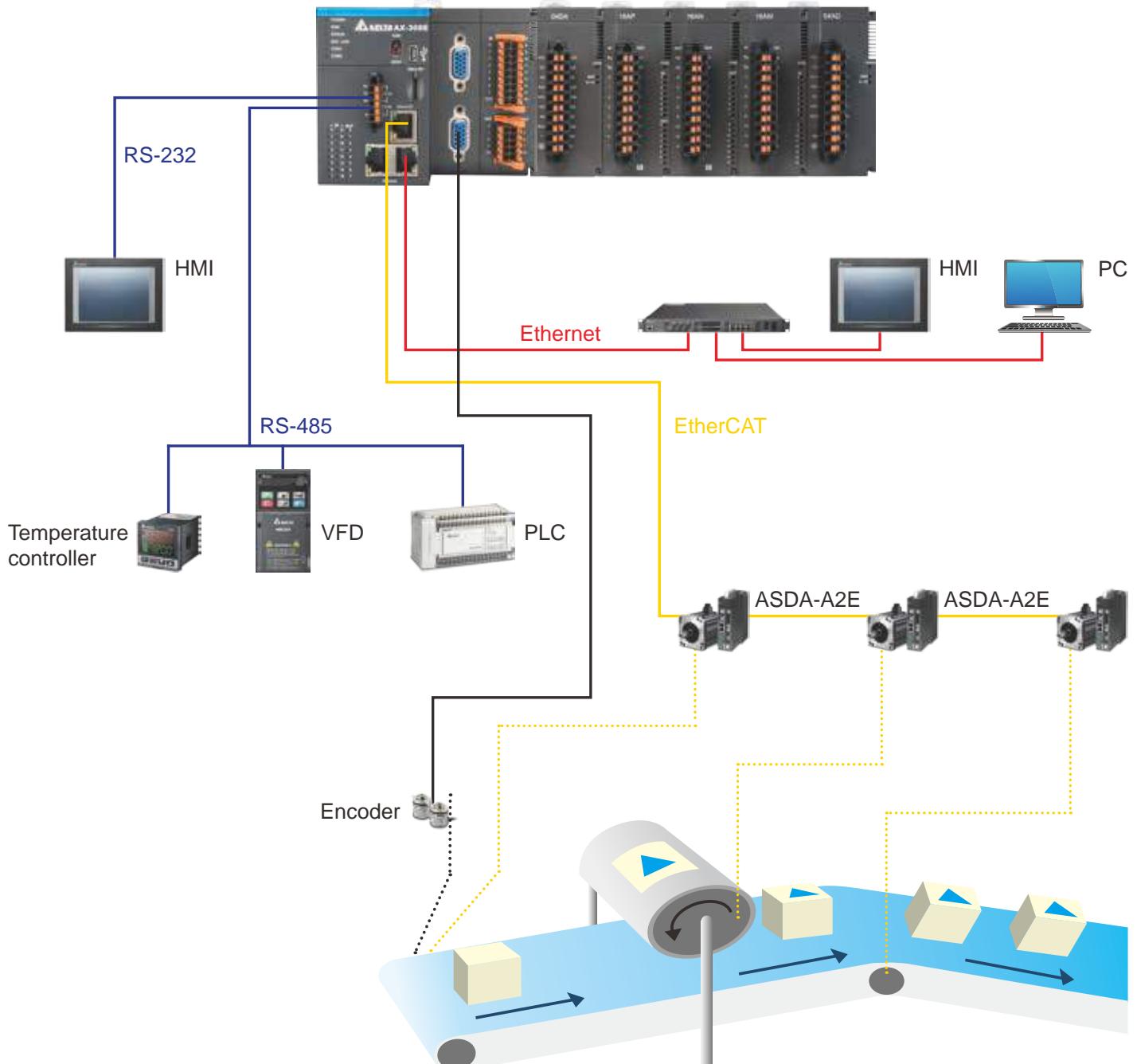


# AX-3 CODESYS Motion Control Solution



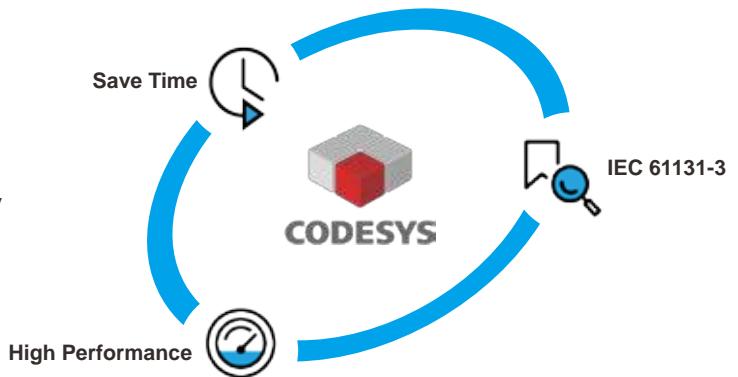
## ■ AX-3 CODESYS EtherCAT Motion Control System

- AX-308E CPU supports up to 8 axes EtherCAT servos (min. sync time: 2 ms/8 axes)
- Supports AS power, DIO, AIO and temperature expansion modules (max. 32 modules)
- High performance, min. command execution time: 5 ns
- Provides various motion commands: position, velocity, torque, multi-axis interpolation, E-gear, E-CAM, and more
- Built-in 16 DI & 8 DO, 2 incremental encoders, SSI absolute encoder, RS-232/485, Ethernet and EtherCAT interfaces



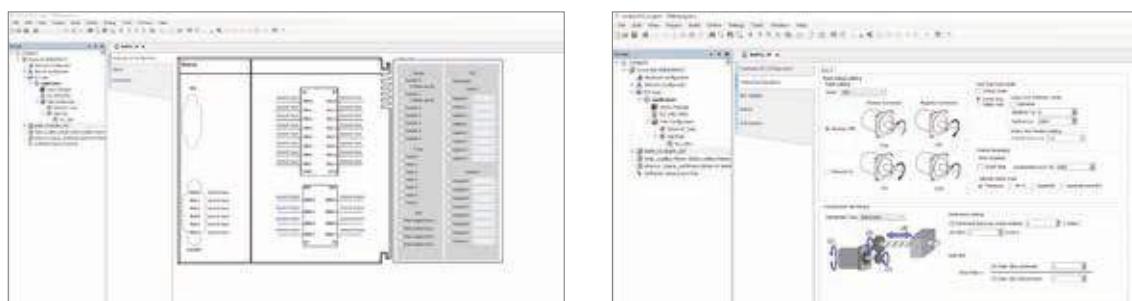
## ▪ Benefits of CODESYS platform

- IEC61131-3 standards
- High performance and stable operation system
- Enhances project development efficiency with a standardized programming and controller development platform for parameter setting, configuration and PLCOpen editing



## ▪ User-friendly programming software **New**

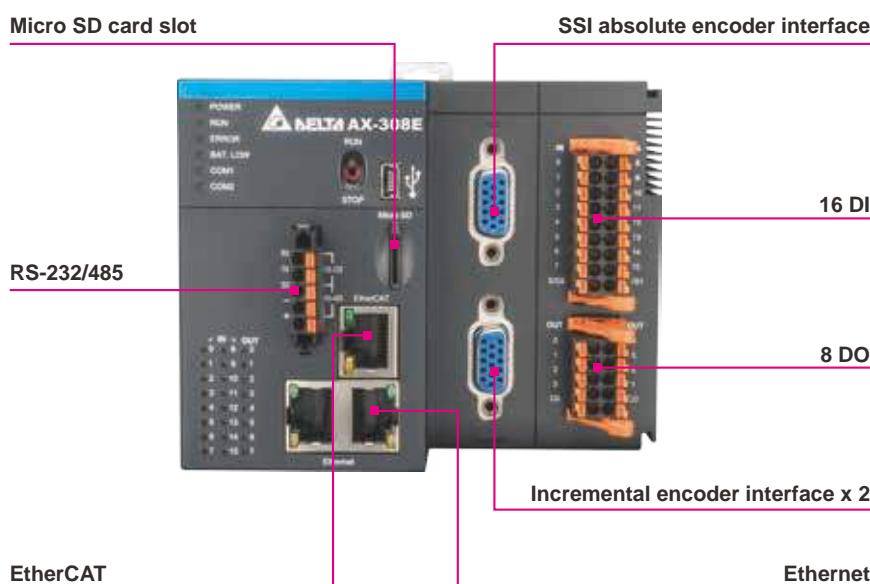
DIADesigner+ is a new programming software for Delta AX series CPUs; it provides an optimized user-friendly programming environment and reduces programming time and effort for users



The user interface of built-in IO and axis parameter configuration

## ▪ Highly integrated CPU design

The AX-3 motion control CPUs feature various built-in I/O and communication protocols to satisfy customer needs for compact design and high performance

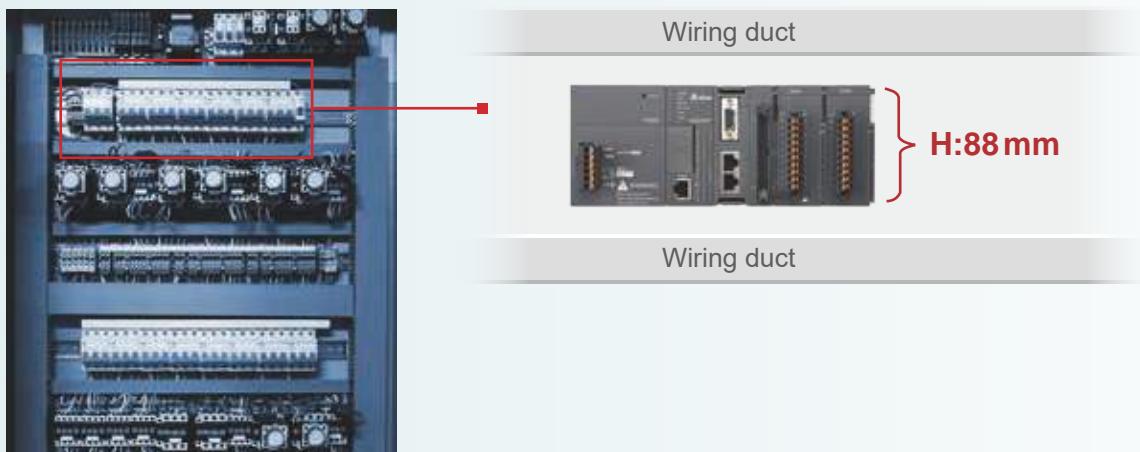


# Simple Installation



## ▪ Easy installation

- Space-saving design, suitable for installation in control panels



## ▪ Rackless DIN-rail installation

- Delta patented design

### ➤ Robust slot and clip interlocking design



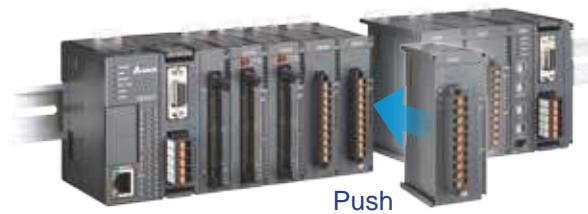
## ▪ Fast disassembly

- Release the clip ring to easily take out the module from the front without moving adjacent modules



## ▪ Simple installation process

- Press the clip rings and push the module to the desired position until you hear a "click" to finish installation



## ▪ Convenient grounding protection

- DIN-rail installation: CPU module and expansion modules can be installed directly on DIN-rail without a backplane
- Installation with screws: pull out the installation clip ring and directly install it on the panel
- Both methods are equipped with ground protection



## ▪ Screwless and time-saving installation

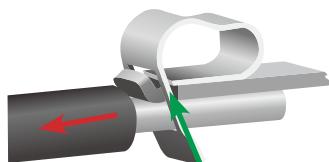


▪ Time-saving installation  
Complete I/O wiring in 1 second



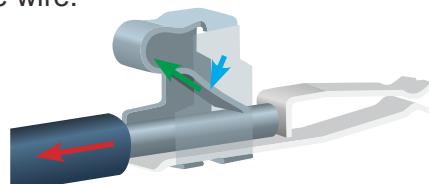
## ▪ Robust Loose-proof spring clamp terminal block

- In commonly used spring clamp terminal blocks, the clamping force is determined by the spring material, which decreases with the aging of the spring.



The green arrow is the clamping force, and the red arrow is the pull-out force.

- The AS Series adopts a full-covered spring clamp design that enhances the clamping force. When the wire is pulled-out (red arrow) and the spring moves up (green arrow), a downward force is generated (blue arrow) to clamp the wire.



# Industrial Network Solution

## EtherNet/IP Solution

The open industrial Ethernet communication protocol for real-time control and data collection

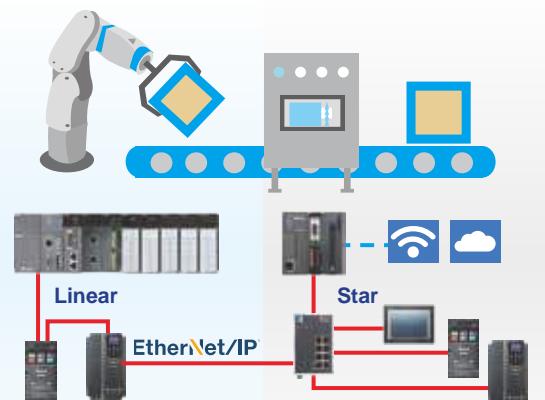
### EtherNet/IP

- Max. connectable slave stations: 32
- Max. data transmission: 500 bytes/connection
- Performance: slave station data update in 1 scan time



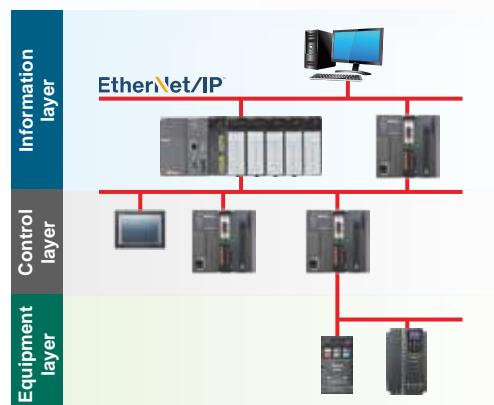
### ▪ Flexible network system configuration

- Supports star, linear network topology for fast expansion and management on production lines
- Compatible with IT network, no independent network or IT technician required
- Combines with Delta IES solution to construct IoT for more automation applications and industrial 4.0 upgrades



### ▪ One cable, one network

- Complete Delta EtherNet/IP solution connects different equipment via Ethernet cable to simplify system networking
- Replaces traditional 3-layer industrial network structure with seamless connection via 100 MB high-speed network
- Complete industrial network diagnosis to shorten debug time





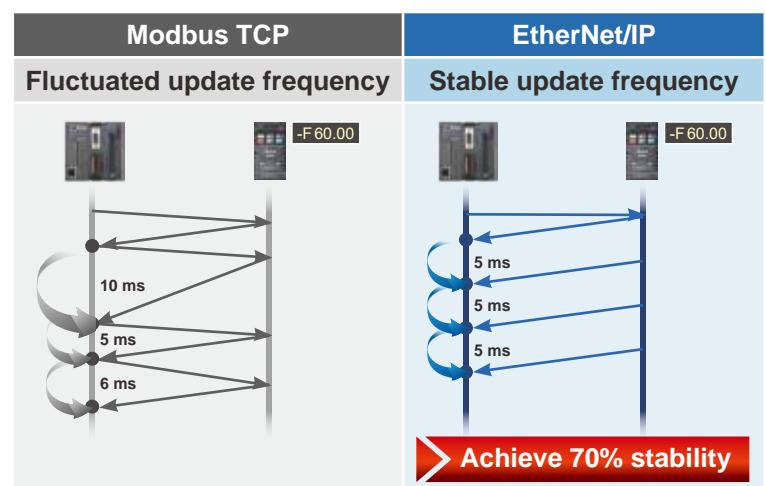
## ■ Software integration

- Consistent data exchange interface shortens learning time with fast system configuration
- Provides Delta's equipment parameter list for quick parameter matching without looking into a detailed manual
- EDS File provides quick connection with EtherNet/IP products of other brands



## ■ Accurate data update

- Provides real-time cyclic and acyclic data transmission and defines data priority between equipment
- Establishes multiple CIP links and defines different register priorities with one piece of equipment
- Executes data update based on user RPI. Updates all slave station data in one scan time
- Enhances stability by 70% compared to traditional Modbus TCP



# Ethernet/IP Software: EIP Builder

The screenshot shows the EIP Builder software interface with several windows:

- Network Mapping Window:** Shows a visualized network mapping of EtherNet/IP devices connected via a backbone.
- Parameter List Window:** Displays a table of parameters for Delta's products.
- Equipment Description Management Function Window:** Shows a list of equipment descriptions.
- Data Exchange Table Window:** A table showing data exchange via table blanks filling.
- Data Input/Output Corresponding Table Window:** A table showing preset data exchange on corresponding parameters.
- Data Exchange Diagnosis Window:** A table showing data exchange status and error codes.
- IP Management Function Window:** A table for configuring IP addresses.
- Visualized Product List Window:** A tree view of product categories.

**Visualized Network Mapping**

- Direct network planning

**Network Mapping Diagnosis**

- Real-time network status and device indicators display

**Parameter List**

- Built-in parameter list of Delta's products

**Data Exchange Table**

- Data exchange via table blanks filling. PLC programming is not required

**Data Input/Output Corresponding Table**

- Preset data exchange on corresponding parameters
- Connecting equipment editing on corresponding parameters

**Data Exchange Diagnosis**

- Data exchange status and error codes

**Visualized Product List**

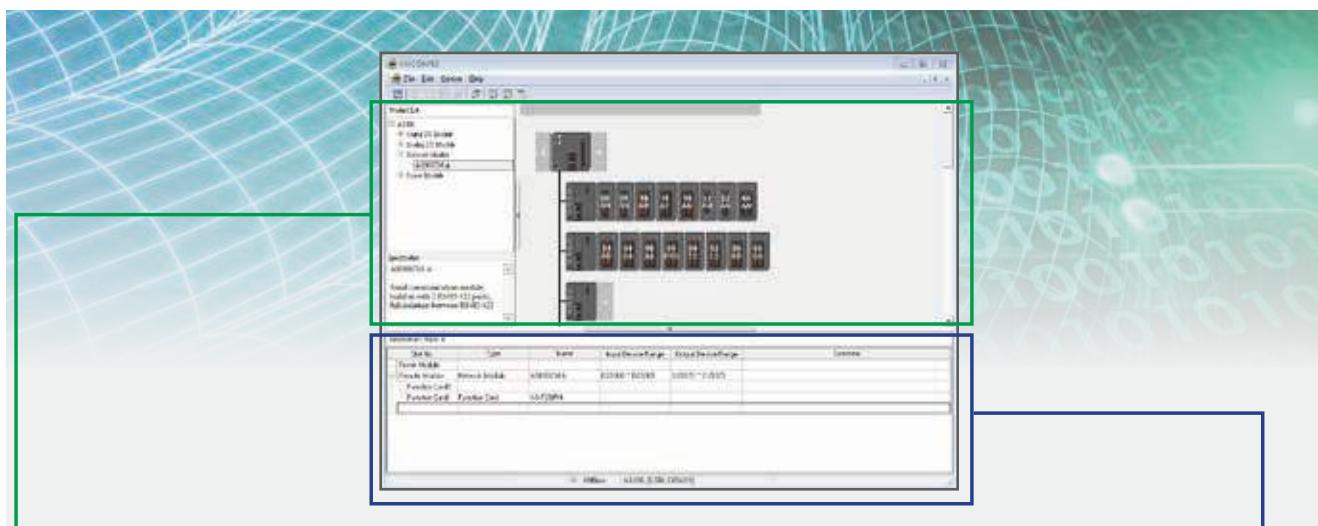
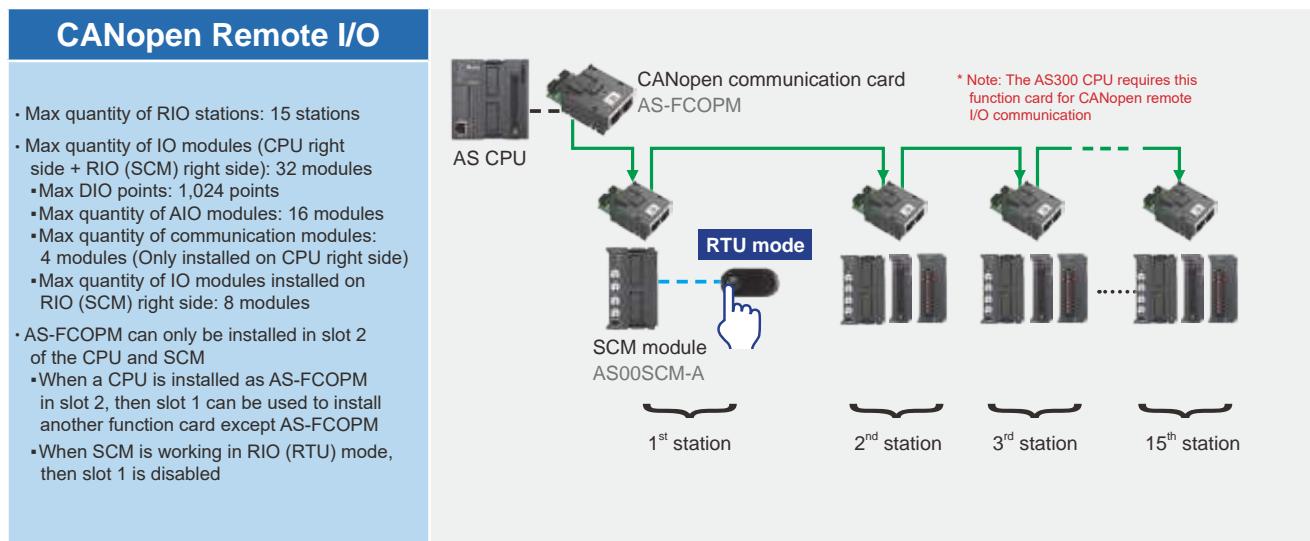
- Visualized equipment selection

**IP Management Function**

- Configure all IP address of all EtherNet/IP products

**Equipment Description Management Function**

# Remote I/O Solution



**Hardware Configuration**

- Hardware parameter complete planning

**I/O without Planning**

- Auto-mapping with I/O addresses in CPU (X, Y, and D)

Type	Name	Input Device Range	Output Device Range	Comment
DIO	Module 1	0x0000 - 0x0001	0x0000 - 0x0001	
DIO	Module 2	0x0002 - 0x0003	0x0002 - 0x0003	
DIO	Module 3	0x0004 - 0x0005	0x0004 - 0x0005	
DIO	Module 4	0x0006 - 0x0007	0x0006 - 0x0007	
DIO	Module 5	0x0008 - 0x0009	0x0008 - 0x0009	
DIO	Module 6	0x000A - 0x000B	0x000A - 0x000B	
DIO	Module 7	0x000C - 0x000D	0x000C - 0x000D	
DIO	Module 8	0x000E - 0x000F	0x000E - 0x000F	
DIO	Module 9	0x0010 - 0x0011	0x0010 - 0x0011	
DIO	Module 10	0x0012 - 0x0013	0x0012 - 0x0013	
DIO	Module 11	0x0014 - 0x0015	0x0014 - 0x0015	
DIO	Module 12	0x0016 - 0x0017	0x0016 - 0x0017	
DIO	Module 13	0x0018 - 0x0019	0x0018 - 0x0019	
DIO	Module 14	0x001A - 0x001B	0x001A - 0x001B	
DIO	Module 15	0x001C - 0x001D	0x001C - 0x001D	

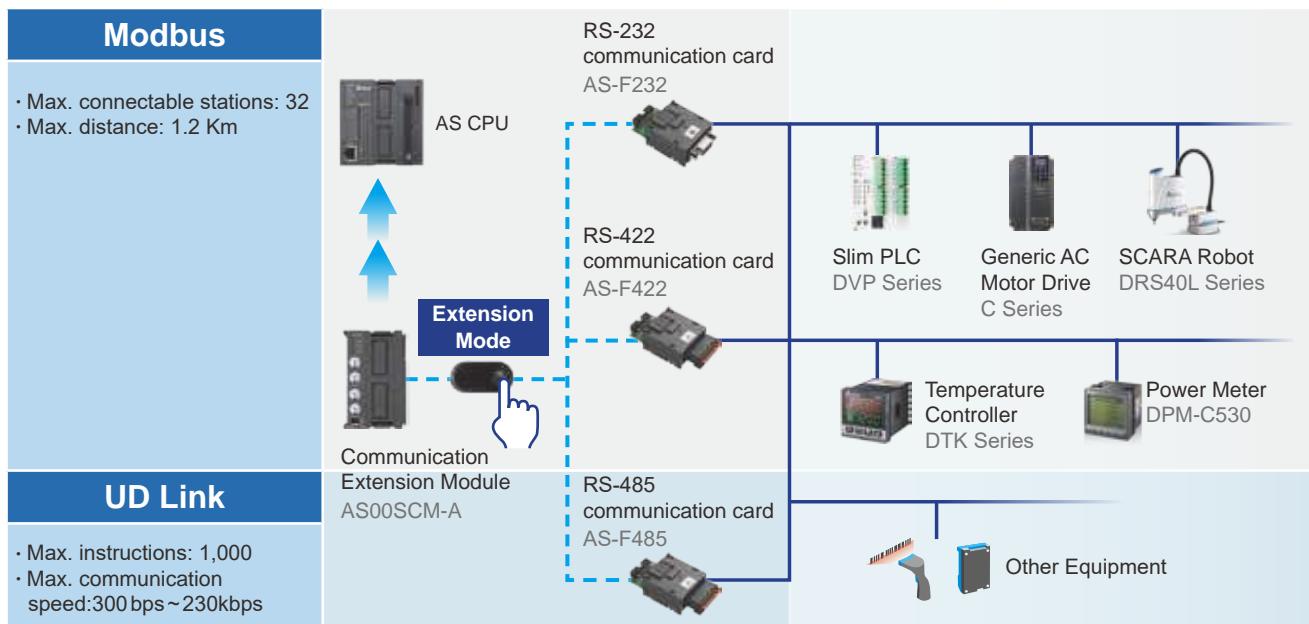
  

Type	Name	Input Device Range	Output Device Range	Comment
AIO	Module 1	0x0000 - 0x0001	0x0000 - 0x0001	
AIO	Module 2	0x0002 - 0x0003	0x0002 - 0x0003	
AIO	Module 3	0x0004 - 0x0005	0x0004 - 0x0005	
AIO	Module 4	0x0006 - 0x0007	0x0006 - 0x0007	
AIO	Module 5	0x0008 - 0x0009	0x0008 - 0x0009	
AIO	Module 6	0x000A - 0x000B	0x000A - 0x000B	
AIO	Module 7	0x000C - 0x000D	0x000C - 0x000D	
AIO	Module 8	0x000E - 0x000F	0x000E - 0x000F	
AIO	Module 9	0x0010 - 0x0011	0x0010 - 0x0011	
AIO	Module 10	0x0012 - 0x0013	0x0012 - 0x0013	
AIO	Module 11	0x0014 - 0x0015	0x0014 - 0x0015	
AIO	Module 12	0x0016 - 0x0017	0x0016 - 0x0017	
AIO	Module 13	0x0018 - 0x0019	0x0018 - 0x0019	
AIO	Module 14	0x001A - 0x001B	0x001A - 0x001B	
AIO	Module 15	0x001C - 0x001D	0x001C - 0x001D	

16

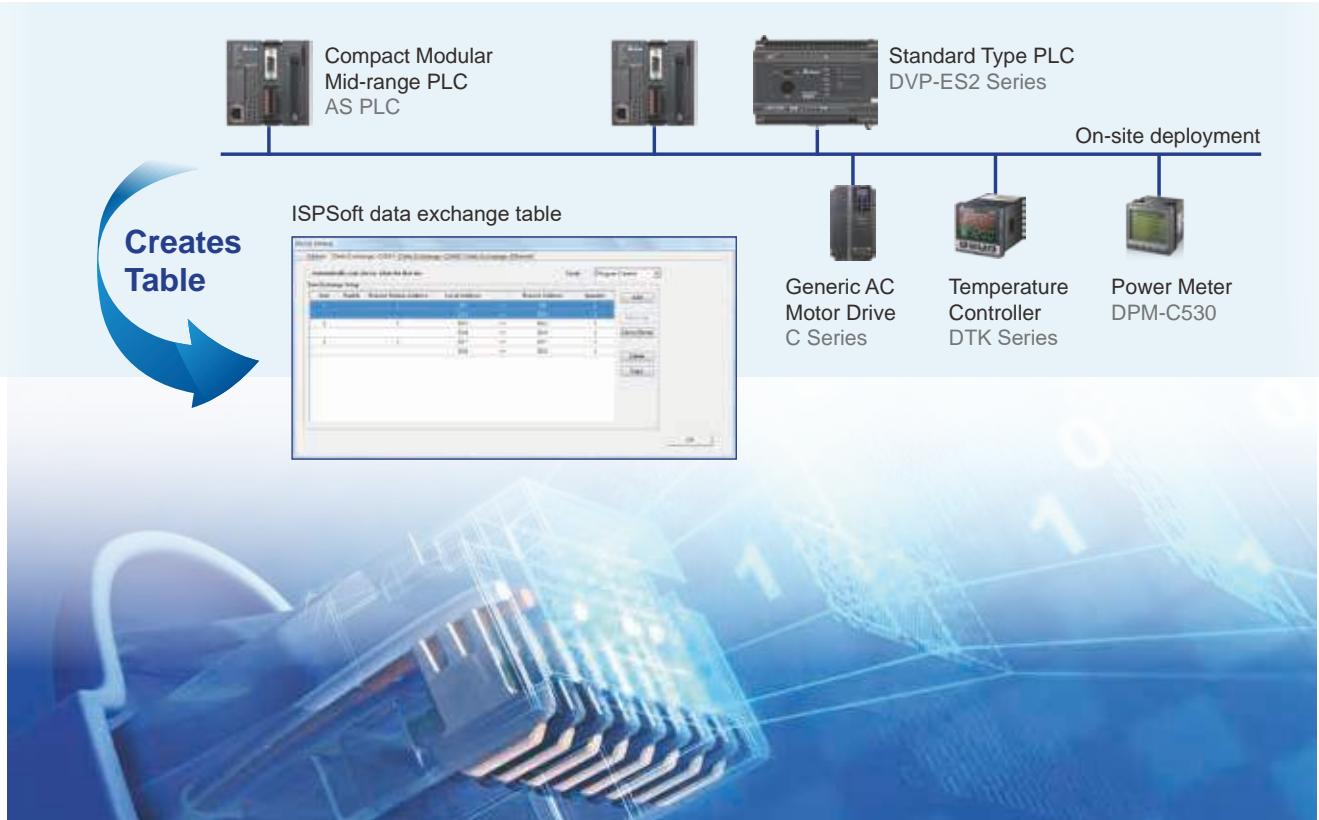
 DELTA

# Serial Communication Solution



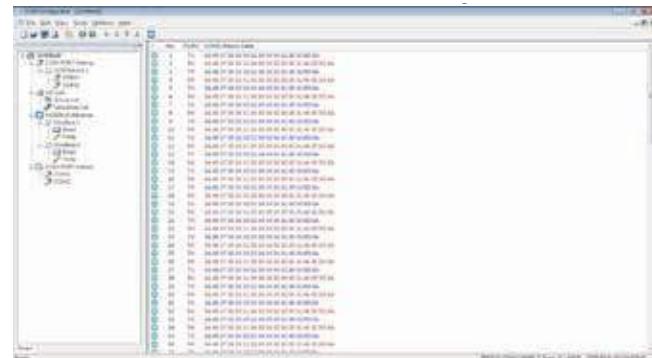
## ■ Modbus Mode

- Easy data exchange configuration



## ■ Real-time history log diagnosis

- AS00SCM stores 2k bytes history log; SCMSoft directly displays the log for real-time communication status monitoring with no additional monitoring software required



## ■ UD Link Mode (User-defined)

- Easy connection to end equipment via special communication protocols

### Traditional programming structure

Instruction receiving, accessing, editing, transmitting, sequence control



### Connection to end equipment via special communication protocols

- Edits the transmitting/receiving packets via SCMSoft; format exchange and checksum calculation via AS00SCM
- Packet content auto-combination for logic control in PLC, reducing PLC program complexity
- Max. 1,000 transmitting/receiving packets

No.	Packet No.	RX Packet Name
1	1	RX Packet1
2	2	RX Packet2
3	3	RX Packet3

No.	Packet No.	TX Packet Name
1	1	TX Packet1
2	2	TX Packet2
3	3	TX Packet3

Packet Segment Edit			
No.	Class	Format	Segment View
1	Message Constant	ASCII	"abcd"
2	Address Variable	Null	(R/D Register [4]), 4
3	Message Constant	ASCII	"efgh"

Command execution sequence planning

User-defined communication format editing

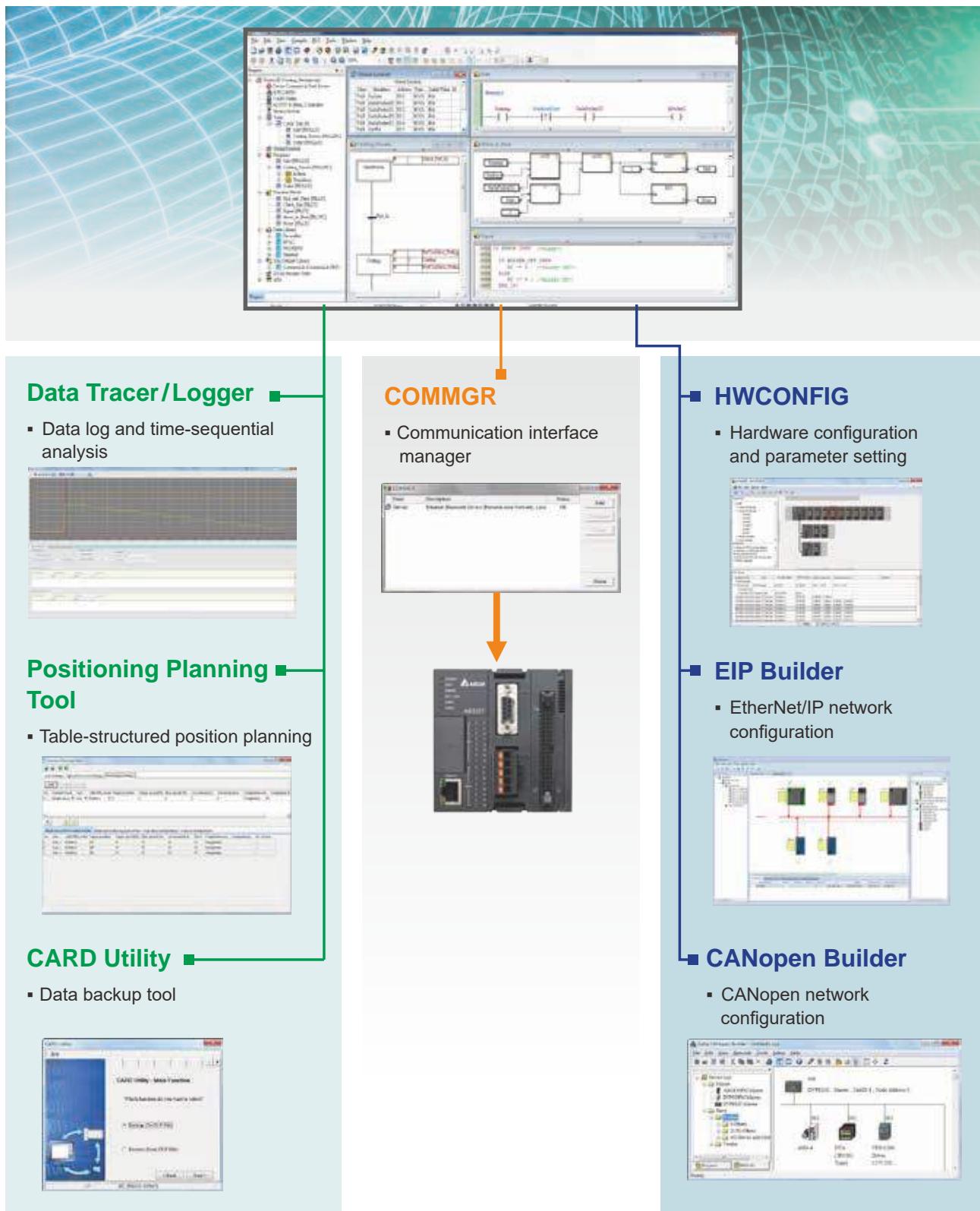
Command No.	Command Type	Send Packet	Recv Packet	Success	Fail	Retry	Repeat	Send Wait
1	Send & Receive	TX Packet1	RX Packet1	Goto : 1	Goto : 1	0	2	0
2	Send & Receive	TX Packet2	RX Packet2	Goto : 2	Goto : 1	0	3	0
3	Send & Receive	TX Packet21	RX Packet3	Goto : 3	Goto : 1	0	4	0
4	Send & Receive	TX Packet25	RX Packet4	Goto : 4	Goto : 1	0	5	0
5	Send & Receive	TX Packet28	RX Packet5	Goto : 5	Goto : 1	0	6	0

# Programming & Diagnosis



## ISPSoft IEC Programming Software

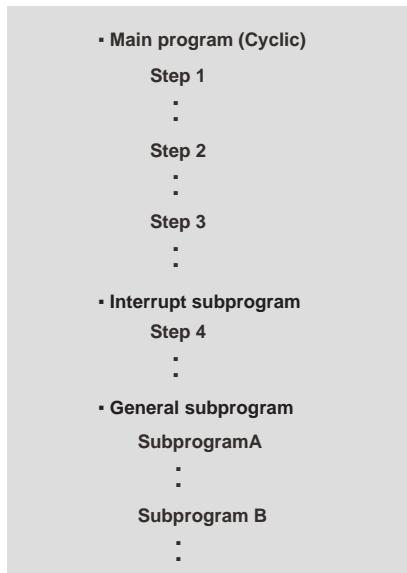
Easy operation greatly enhances efficiency



# Modular Program Structure

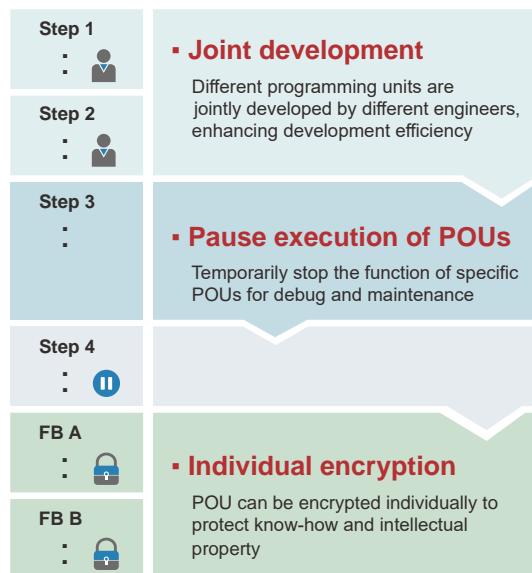
## ■ Traditional program structure

Errors are often found in large-scale programs under a traditional structure and are hard to be debug while increasing maintenance cost

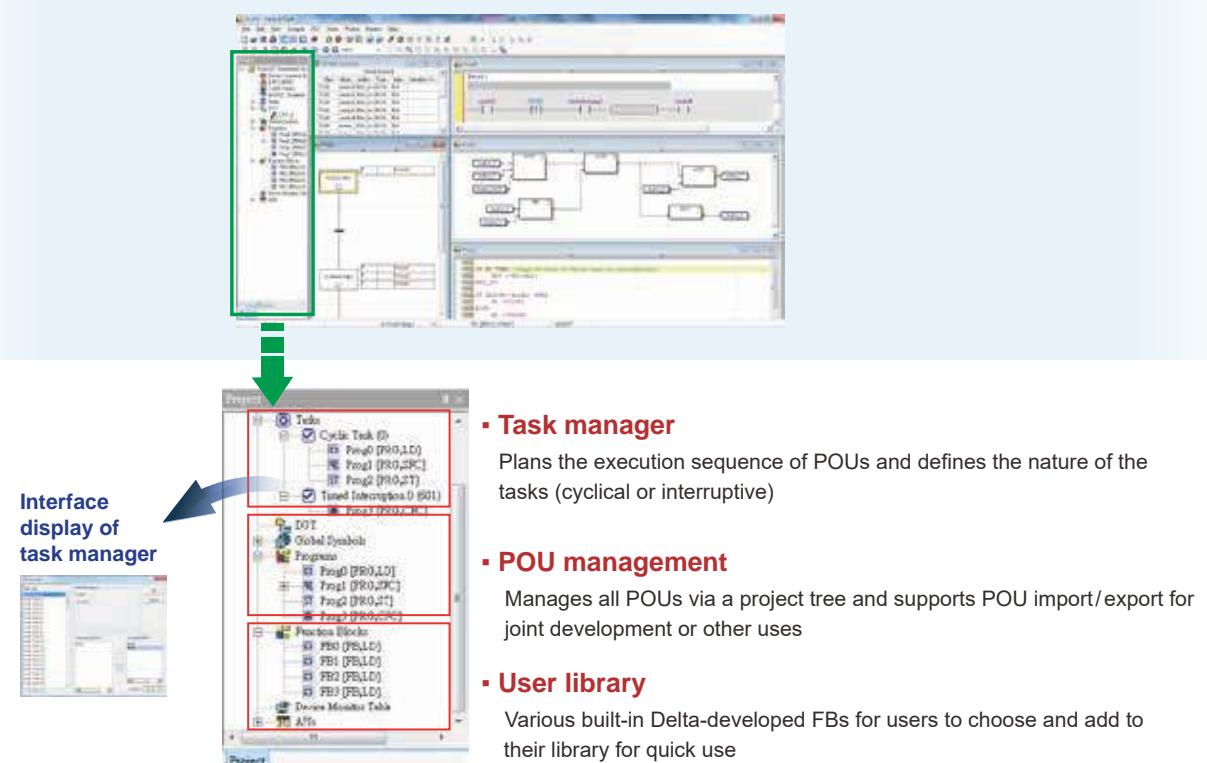


## ■ Modular program structure

Programming organization unit (POU) enables easy management in large-scale programs with high development efficiency



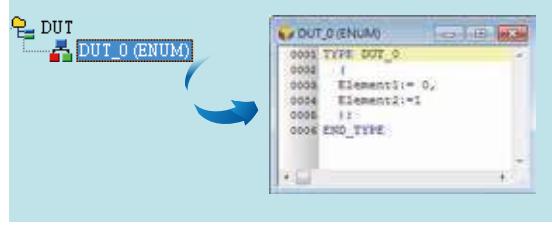
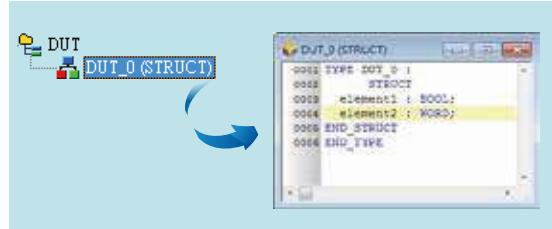
## ■ Modular Program Structure



# Convenient Programming

## ▪ User-defined data type

In addition to basic data types, users can define structures and enumerations for flexible programming



## ▪ On-line programming/update

Supports program editing in monitoring mode and program updates during equipment operation for convenient debugging and maintenance



## ▪ Debugging mode

Supports breakpoints, single step execution and other functions to enhance debugging efficiency



# Multiple Programming Languages

## ▪ Supports multiple programming languages in the same project

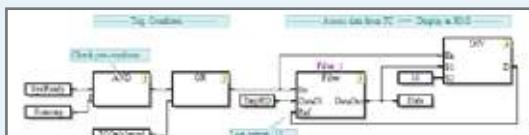
### ▪ Ladder Diagram (LD)

ISPSoft provides a programming interface with the widely used LD language for faster programming



### ▪ Continuous Function Chart (CFC)

CFC provides more advanced applications than FBD; it supports data feedback, direct display of data stream and execution sequence for motion control and sequence-centered application



Note: ISPSoft V3.01 supports CFC language

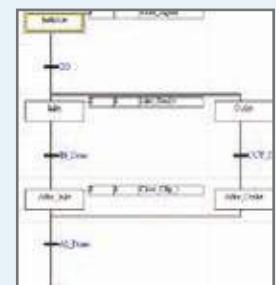
### ▪ Structured Text (ST)

Similar programming method to advanced programming language C or PASCAL, ST provides more convenient editing for complicated expression

```
IF (Condition1>0) THEN Data1:=1;
IF (Condition2>0) THEN Data2:=1;
IF (Condition3>0) THEN Data3:=1;
IF (Condition4>0) THEN Data4:=1;
END_IF;
```

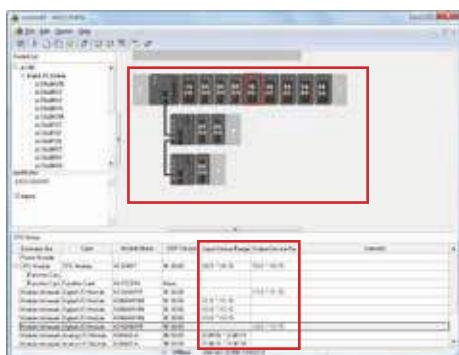
### ▪ Sequential Function Chart (SFC)

Direct and easy expression for the steps in flow charts, suitable for applications that require process control



# Easy Hardware Configuration and Parameter Setting

## HWCONFIG

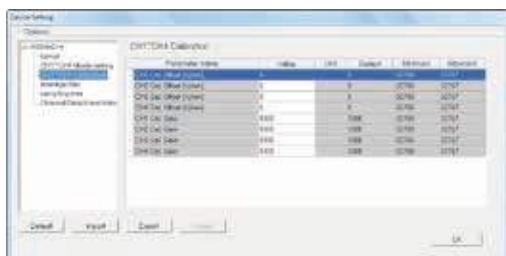


- **Graphic panel for module configuration**

Quick setup with automatic configuration imported by barcode scanning

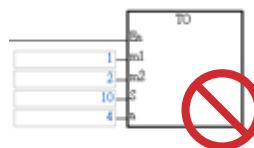
- **I/O listing**

Direct display for corresponding device addresses after configuration



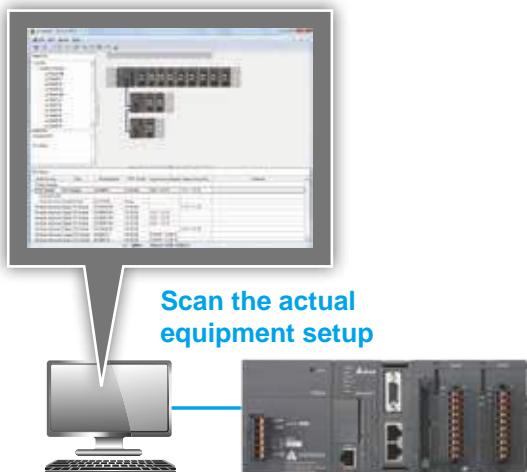
- **Parameter setting**

Fast parameter setting on controller and modules without manual reference or programming



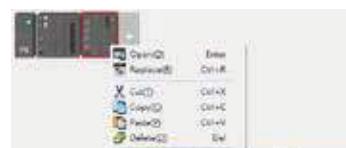
Note: Fill the table to configure module parameters quickly.  
From/To instruction is not required for module initialization.

- **Module configuration method**



- **Smart module configuration**

Supports an advanced planning tool for a variety of network modules



# Complete Diagnosis Tools for Quick and Effective System Monitoring

## Data Logger/Tracer

### ▪ Real-time monitoring:

High-speed tracer for fast sampling within 1 scanning cycle

### ▪ Stable logging:

Long-time data logger savings of up to 32,768 data records, which can be transferred to SD card

### ▪ Precise data acquisition:

Supports a variety of sampling intervals and trigger modes

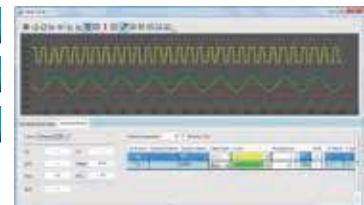
### ▪ Convenient comparison:

Multiple data logs in various data formats can be recorded at the same time for comparison

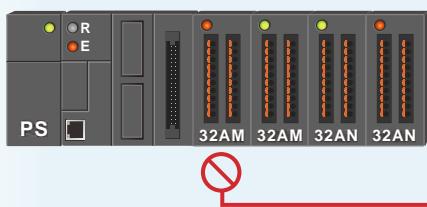
### ▪ Efficient data analysis:

Supports trend display, scaling, arrangement, merge and measurement

- Real-time
- Stable
- Precise



## Real-time Module Monitoring



### ▪ Visualized monitoring

Direct monitoring interface provides real-time status on modules via LED indicators

### ▪ Module comparison

Real-time inspection of actual module settings to ensure consistency

### ▪ Error logs

Immediate inquiry for error messages and logs of anomalies

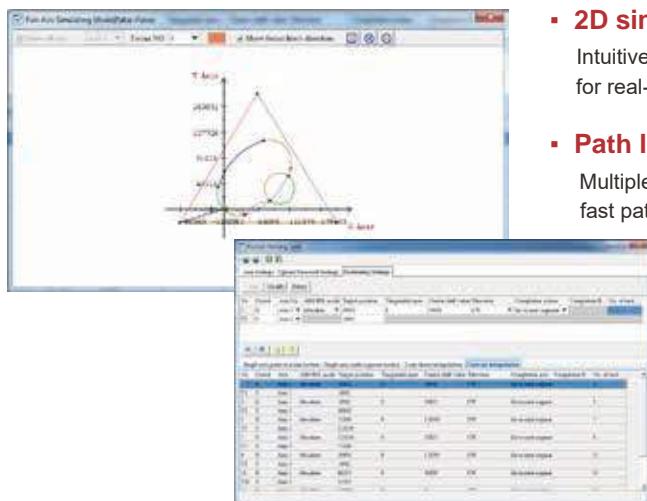
### ▪ Module information

Provides model name and version of current modules

Module Error Log					
Seq No.	Module No.	Module Name	Error Code	Current	
				Date & Time	Description
1	AN800-A	AN800-A	0x1111	2009-1-1 0:11:11	
2	AN800-B	AN800-B	0x2222	2009-1-1 0:11:11	

# Convenient Software Wizards for Effortless Planning

## Positioning planning table



### ▪ 2D simulation

Intuitive 2D track simulation without complicated calculation for real-time path planning

### ▪ Path list

Multiple combinations for positioning modes and tracks; fast path planning via table-structured planning

### ▪ Axis parameter setting

Intuitive configuration interface for easy axis parameter setting without manual reference

## ▪ High-speed counter setting tool

- Counter index will display corresponding contact point, device and counter specification under counting mode
- Fast planning without manual reference for enhanced development efficiency

### ➤ One-time setting



## ▪ Data backup tool - CARD Utility

Friendly guidance interface for easy data backup and restore on programs, parameters and devices



Various backup and restore methods for flexible management and operation

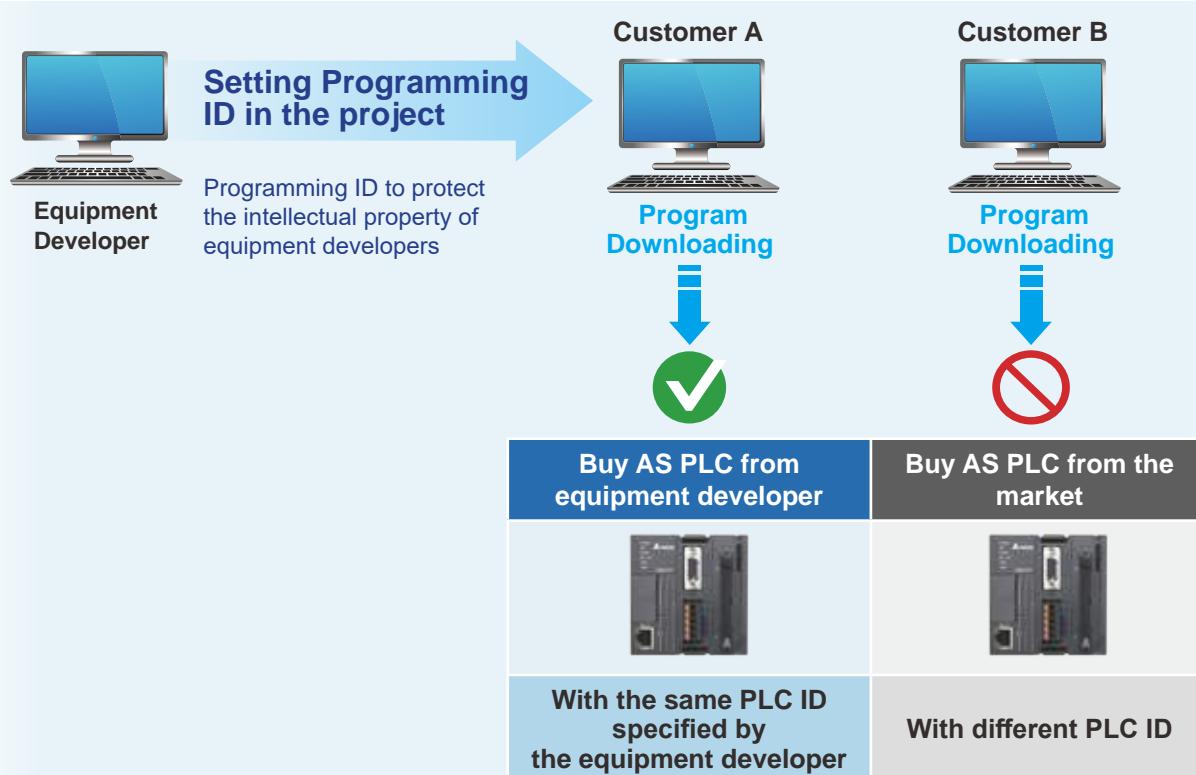
Data backup to PC

Data backup to SD card

# Multiple Security Protection for Programs and Data

## ▪ Security: provides 6 types of program protection for data safety

- 16-digit password protection on main program
- 16-digit password protection on FBs
- Access denial mechanism on error login
- Data upload protection function
- Verification between Project (Programming ID) and CPU (PLC ID)



- Prevents direct copy from IC



# Model Name Explanation

## CPUs

### AS332T-A

AS	3	32		T		-	A	
Series	Model	IO Pts. / Axis Qty.		Output Type / Motion Network			Type	
		3: 300 2: 200 5 : 500 (Motion)		【200/300 CPU】 00: None 18: 18 pts. 20: 20 pts. 24: 24 pts. 28: 28 pts. 32: 32 pts.		【200/300 CPU】 N: None T: NPN P: PNP R: Relay MT: NPN+Diff.	【500 CPU】 C: CANopen E: EtherCAT	
		【300/500 CPU】 A: HDC terminal B: EU terminal		【200 CPU】 A: Basic				

### AX-308EA0MA1T

AX-3	08	E	A0	MA1	T
Series	Axis Qty.	Motion Network	CPU Spec.	SYS Spec.	Output Type
CODESYS	08 : 8 axes	E : EtherCAT	A0 : Single core	MA1 : SoftMotion	T : NPN

## Digital I/O Modules

### AS08AM10N-A

AS	08	AM	1	0	N	-	A
Series	IO Pts.	Classification	Function			Output type	Type
	08: 8 Pts. 16: 16 Pts. 32: 32 Pts. 64: 64 Pts.	AM: Digital input AN: Digital output AP: Digital input/output	0: No input 1: DC input (24V)	0: No output 1: 0.5A transistor/2A relay output 2: 0.1A transistor output	N: No output T: NPN P: PNP R: Relay		A: Basic

## Analog I/O Modules

### AS04AD-A

AS	04	AD	-	A
Series	IO Channels	Classification		Type
	04: 4-channel 06: 6-channel 08: 8-channel	AD: Analog input DA: Analog output XA: Analog input/output		A: Voltage/Current B: Voltage C: Current

## Temperature & Load Cell Modules

### AS04RTD-A

AS	04	RTD	-	A
Series	IO Channels	Classification		Type
	02: 2-channel 04: 4-channel 06: 6-channel 08: 8-channel	RTD: Platinum resistance thermometer TC: Thermocouple LC: Load cell		A: Basic

## Function Cards

### AS-F232

<b>AS</b>	-	<b>F</b>	<b>232</b>	
<b>Series</b>		<b>Classification</b>	<b>Function</b>	
		F: Function card	232: RS-232 422: RS-422 485: RS-485 COPM: CANopen	2AD: 2-channel analog input 2DA: 2-channel analog output EN02: Ethernet PFN02: PROFINET OPC02 : OPC-UA

## Motion Control Modules

### AS02PU-A

<b>AS</b>	<b>02</b>	<b>PU</b>	-	<b>A</b>
<b>Series</b>	<b>IO Channels</b>	<b>Classification</b>		<b>Type</b>
	02: 2-channel 04: 4-channel	HC: High-speed counter PU: Pulse-train output		A: Basic

## Communication Modules

### AS00SCM-A

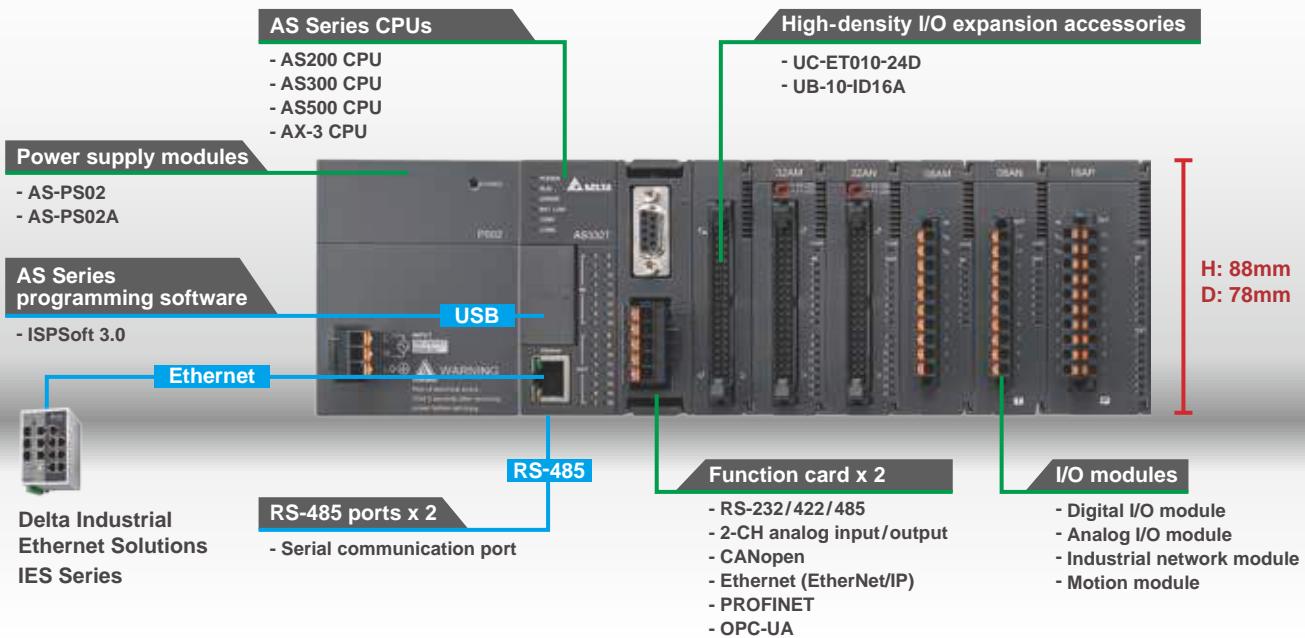
<b>AS</b>	<b>00</b>	<b>SCM</b>	-	<b>A</b>
<b>Series</b>	<b>Function</b>	<b>Classification</b>		<b>Function</b>
	00: Basement 01: Basic 04 : 4-CH	SCM: Serial DNET: DeviceNet SIL : IO-Link		A: Basic

## Power Supply Modules

### AS-PS02

<b>AS</b>	-	<b>PS</b>	<b>02</b>
<b>Series</b>		<b>Classification</b>	<b>Function</b>
		PS: Power supply	02: AC Input (100~240V) 02A: AC Input (100~240V) + DC Output (24V, 0.5A)

# Product Models and Specifications



## CPUs

### AS500 CPUs



AS500 Series CPU Standard Specifications			
Program capacity 20 MB	1 GHz CPU	Expansion modules: 32	
Model	Built-in I/O	Incremental Encoder	SSI Absolute Encoder
AS516E-B/AS524C-B	16DI/8DO	2 CHs	1 CH

### AS300 CPUs



AS300 Series CPU Standard Specifications (*1: Needs CANopen function card)				
Model	Built-in I/O	High-speed Output	High-speed Input	
AS332T-A, AS332P-A	16 DI/16 DO	6 axes 200 kHz pulse output	6 channels 200 kHz high-speed counters	
AS324MT-A (Differential)	12 DI/12 DO	2 axes + 4 axes 200 kHz pulse output	2 channels + 4 channels 200 kHz high-speed counters	
AS320T-B/AS320P-B	8 DI/12 DO	6 axes 200 kHz pulse output	4 channels 200 kHz high-speed counters	
AS300N-A	-	-	-	

## CPUs

### AS200 CPUs



AS200 Series CPU Standard Specifications			
Program capacity 64k steps	Basic instruction 25 ns	Real I/O capability: 1,024 pts   Expansion modules: 32	
Model	Built-in I/O	High-speed Output	High-speed Input
AS228T-A/AS228P-A/ AS228R-A	16 DI/12 DO	6 axes 200 kHz pulse output	4 channels 200 kHz high-speed counters
AS218TX-A/AS218PX-A/ AS218RX-A	8 DI/6 DO 2 AI/2 AO	3 axes 200 kHz pulse output	4 channels 200 kHz high-speed counters

### AX-3 CPU



AX-3 Series CPU Standard Specifications			
Program capacity 8 MB	Basic instruction 5 ns	Expansion modules: 32	
Model	Built-in I/O	Encoder	High-speed Input / Output
AX-308EA0MA1T	16 DI/8 DO	Incremental encoder: 2 CHs SSI absolute encoder: 1 CH	200 kHz pulse output: 4 axes 200 kHz high-speed counters: 5 CHs

## Power Supply Modules

Power Supply Modules Specifications			
AS-PS02	Input 100 V <sub>AC</sub> ~ 240 V <sub>AC</sub>	AS-PS02A	Input 100 V <sub>AC</sub> ~ 240 V <sub>AC</sub>
	24 V <sub>DC</sub> , 2A (for internal bus)		24 V <sub>DC</sub> , 1.5A (for internal bus) 24 V <sub>DC</sub> , 0.5A (for external I/O)

# Product Specifications

Model	AS332T-A AS332P-A	AS324MT-A	AS320T-B AS320P-B	AS300N-A	AS228T-A AS228P-A AS228R-A	AS218TX-A AS218PX-A AS218RX-A							
Programming Languages	Ladder Diagram (LD), Structured Text (ST), Continuous Function Chart (CFC), Sequential Function Chart (SFC)												
Instruction Processing Speed	LD Instruction	25 ns											
	MOV Instruction	0.15 µs											
	Elementary Arithmetic for Integer	0.92 µs ~ 1.02 µs											
	Elementary Arithmetic for Floating Point	1.69 ~ 1.85 µs											
Program Capacity	128k steps				64k steps								
Memory Capacity	Data (D)	64k words (including 30k user-defined, 30k software configuration and 4k special registers)											
	Extension (FR)	64k words (user parameter storage)											
Function Cards	The CPUs support up to 2 function cards					-							
Max. Extension Modules	32 modules (max. 16 analog modules/4 communication modules)												
Max. Number of Real Inputs/Outputs	1,024 points (input & output)												
CPU Built-in Inputs/Outputs	16 DI/16 DO	12 DI/12 DO	8 DI/12 DO	-	16 DI/12 DO	8 DI/ 6DO & 2 AI / 2AO							
CPU Built-in Differential Inputs/Outputs	-	4 inputs + 4 outputs	-										
Input/Output Devices	X	1,024 inputs (X0.0~X63.15)											
	Y	1,024 outputs (Y0.0~Y63.15)											
Bit Devices	M	8,192 bits (M0~M8191)											
	S	2,048 bits (S0~S2047)											
Timer	T	512 (T0~T511)											
16-bit Counter	C	512 (C0~C511)											
32-bit Counter	HC	256 (HC0~HC255)											
Pulse Output	Open collector: 6 axes, 200 kHz	Open collector: 4 axes, 200 kHz Differential: 2 axes, 4 MHz	Open collector: 6 axes, 200 kHz	-	Open collector: 6 axes, 200 kHz	Open collector: 3 axes, 200 kHz							
High-Speed Counter	General: 6 CHs, 200 kHz	General: 4 CHs, 200 kHz Differential: 2 CHs, 4 MHz	General: 4 CHs, 200 kHz	-	General: 4 CHs, 200 kHz	General: 4 CHs, 200 kHz							
DO Type	AS332T-A: NPN AS332P-A: PNP	Diff./NPN	AS320T-B: NPN AS320P-B: PNP	-	AS228T-A: NPN AS228P-A: PNP AS228R-A: Relay	AS218TX-A: NPN AS218PX-A: PNP AS218RX-A: Relay							
Built-in Communication Port	USB, Ethernet, RS-485 x 2				USB, Ethernet, RS-485 x2, CANopen								
Communication Protocol	Modbus, Modbus TCP, EtherNet/IP, CANopen (requires a CANopen function card)				Modbus, Modbus TCP, EtherNet/IP, CANopen								
Ethernet Connection Resource	Modbus (Client/Server): 32 / 32 EtherNet/IP (CIP): 32				Modbus (Client/Server): 16 / 16 EtherNet/IP (CIP): 16								
Data Backup (Without Battery)	Program	Flash ROM, rewritable up to 100,000 times											
	Latched Area	MRAM, no rewriting limit											
CANopen DS301	Connectable Slave Stations	Max. 64 points											
	CPDO Data Capacity (Host)	Max. 2,000 bytes (Read & Write)											
	PDO Data Capacity (Slave)	Max. 8 PDO (Read & Write); Max. 8 bytes for each PDO											
Real-time Clock (RTC)	General Lithium button battery (CR1620)												
Self-Diagnosis Function	CPU errors, built-in memory errors, and more												
Rated Input Current	AS-PS02/AS-PS02A	110 V <sub>AC</sub> ~ 240 V <sub>AC</sub> (±10%)											
	CPU	24 V <sub>DC</sub> (±10%)											
	Extension modules												

# Product Specifications

Model	AS516E-B	AS524C-B	AX-308E	
Programming Languages	Ladder Diagram (LD), Structured Text (ST)	Ladder Diagram (LD), Structured Text (ST)	Ladder Diagram (LD), Structured Text (ST), Continuous Function Chart (CFC), Sequential Function Chart (SFC), Function Block Diagram (FBD), Instruction List (IL)	
Instruction Processing Speed	<b>Boolean Operation</b>	0.05 µs	5 ns	
	<b>MOV Instruction</b>	0.11 µs	-	
	<b>Elementary Arithmetic for Integer</b>	0.24 µs	5 ns	
	<b>Elementary Arithmetic for Floating Point</b>	0.30 µs	33 ns	
Program Capacity	20MB	20MB	8 MB	
Data Capacity	20MB	20MB	16 MB	
Max. Extension Modules	32 modules (max. 16 analog modules)	32 modules (max. 16 analog modules)	32 modules (max. 16 analog modules)	
CPU Built-in Inputs/Outputs	16 DI/8 DO			
CPU Built-in Differential Inputs/Outputs	Incremental x2/SSI absolute x1			
I/O Devices	I (Input)	128 bytes	8,192 bytes	
	Q (Output)	128 bytes	8,192 bytes	
Memory Devices	M (Memory)	128k bytes	512k bytes	
Pulse Output	-	-	<b>Open collector:</b> 4 axes, 200 kHz	
High-Speed Counter	-	-	<b>General:</b> 5 CHs, 200 kHz	
DO Type	NPN	NPN	NPN	
Built-in Communication Ports	USB, Ethernet, RS232, RS485, EtherCAT, CANopen	USB, Ethernet x2, RS232, RS485, CAN Motion, CANopen	USB, Ethernet (Switch), RS232, RS485, EtherCAT	
Communication Protocols	Modbus, Modbus TCP, EtherNet/IP, EtherCAT, CANopen DS301	Modbus, Modbus TCP, EtherNet/IP, EtherCAT, CANopen DS301 & DS402	Modbus, Modbus TCP, EtherNet/IP, EtherCAT, OPC-UA (Server)	
Ethernet Connection Resource	Modbus TCP (Client/Server): 16/16 EtherNet/IP (CIP): 8	Modbus TCP (Client+Server): 32 EtherNet/IP (CIP): Input=64; Output=64	Modbus TCP (Client+Server): 32 EtherNet/IP (CIP): Input=64; Output=64	
Data Backup (Without Battery)	Program	Flash ROM, rewritable up to 100,000 times		
	Latched Area	MRAM, no rewriting limit		
EtherCAT/ CANopen	Connectable Slave Stations	EtherCAT: 16 axes (Delta servo only) CANopen DS301: 32	CAN Motion: 24 axes (Delta servo only) CANopen DS301: 32	EtherCAT: 8 axes + 64 nodes
	PDO Data Capacity (Host)	CANopen DS301: Max. 8 PDO (read & write)		-
	PDO Data Capacity (Slave)	CANopen DS301: Max. 8 PDO (read & write); Max. 8 bytes for each PDO		-
Real-time Clock (RTC)	General Lithium button battery (CR1620)			
Self-Diagnosis Function	CPU errors, built-in memory errors, and more			
Rated Input Current	AS-PS02/AS-PS02A	110 V <sub>AC</sub> ~ 240 V <sub>AC</sub> (±10%)		
	CPU			
	Extension Modules	24 V <sub>DC</sub> (±10%)		

# Electrical and Environmental Specifications

Item	Specifications
Internal Power Consumption	AS332T-A AS332P-A AS324MT-A AS320T-B AS320P-B
	150mA
	AS300N-A
	125mA
	AS228T-A AS228P-A
	141.7mA
	AS218TX-A AS218PX-A
	204.2mA
AS228R-A	179.2mA
AS218RX-A	220.8mA
AX-308E	458.3mA
Extension Modules	Digital relay output < 150mA, other modules < 80mA
Operating Temperature	-20~60°C (AX Series CPU: -20~55°C)
Storage Temperature	-40~80°C
Operating Humidity	5~95%, non-condensing
Storage Humidity	5~95%, non-condensing
Vibration	IEC 61131-2, IEC 60068-2-6 (TEST Fc); 5Hz ≤ f ≤ 8.4 Hz, constant amplitude 3.5 mm; 8.4Hz ≤ f ≤ 150Hz, constant acceleration 1g
Shock	IEC 61131-2, IEC 60068-2-27 (TEST Ea); 15g peak, 11ms duration, half-sine
Operating Environment	Non-corrosive gas
Installation	Inside of the control panel
Pollution Degree	2
Protection Rating	IP20

# Ethernet Specifications

Item		AS300 Series		AS200 Series	Note
<b>Protocols</b>		Modbus TCP, EtherNet/IP, SMTP, HTTP		Supports all protocols at the same time	
<b>Modbus TCP</b>	Connection (Server)	32	16		
	Connection (Client)	32	16		
	RTU-EN01 Connection	4	4		
<b>Socket</b>	TCP Connection	4	2		
	UDP Connection	4	2		
<b>SMTP</b>	E-mail Connection	4	2		
<b>EtherNet/IP</b>	Operation Mode		Scanner/Adapter		
	CIP_IO Connection	CIP Connection	32 (Client + Server)	16 (Client + Server)	Shared with IO connection
		TCP Connection	16 (Client + Server)	8 (Client + Server)	Shared with IO connection
		Requested Packet Interval (RPI)	5 ms ~ 1,000 ms		Default: 20 ms
		Max. Performance	3,000 pps		
		Max. Capacity per Connection	500 bytes		
	CIP_Explicit Message	Class 3 (Connected Type)	32 (Servers), shared with UCMM	16 (Servers), shared with UCMM	Shared with IO connection
		UCMM (Non-Connected Type)	32 (Clients + Servers), shared with Class 3	16 (Clients + Servers), shared with Class 3	Shared with IO connection
		Supported CIP Objects	Identity, Message Router, Assembly, Connection Manager, Port, TCP/IP interface, Ethernet link, Vendor specific		
	CIP_Produced TAG	Max. CIP Connections	32 (Servers)	16 (Servers)	Shared with IO connection
		Max. Capacity	400 bytes		
		Requested Packet Interval (RPI)	5 ms ~ 1000ms		
	CIP_Consumed TAG	Max. CIP Connections	32 (Clients + Servers)	16 (Clients + Servers)	Shared with IO connection
		Max. capacity	400 bytes		
		Requested Packet Interval (RPI)	5 ms ~ 1000 ms		
AS00SCM (RTU) + AS-FEN02 Connection Nodes		15	8	AS RTU Mode	

Please visit Delta's official website for selection

Item		AS500 Series	AX-3 Series	Note
<b>Protocol</b>		Modbus TCP, EtherNet/IP, Socket	Modbus TCP, EtherNet/IP, Socket, OPC-UA	Supports all protocols at the same time
<b>Modbus TCP</b>	Connection (Server)	16	32	
	Connection (Client)			
<b>Socket</b>	TCP Connection	8		
	UDP Connection			
<b>EtherNet/IP</b>	Operation Mode		Adapter	Scanner/Adapter
	CIP_IO Connection	CIP Connection	8	Input = 64; Output = 64
		TCP Connection	16	Shared with all servers
		Requested Packet Interval (RPI)	5 ms ~ 1,000 ms	20 ms ~ 1,000 ms
	CIP_Explicit Message	Max. Performance	3,000 pps	Default: 20 ms
		Max. Capacity per Connection	500 bytes	
		Class 3 (Connected Type)	8	Shared with all servers
	Supported CIP Objects	UCMM (Non-Connected Type)	16	Shared with all servers
		Identity, Message Router, Assembly, Connection Manager, Port, TCP/IP interface, Ethernet link, Vendor specific		

Please visit Delta's official website for selection

Item		AS500 Series	AX-3 Series
<b>OPC UA (Server)</b>	Default TCP Port	-	TCP: 4840 (configurable)
	CMax Sessions (Client)		5
	Max. Monitored Items		1,000
	Sampling Rate (ms)		100/300/500/1,000/2,500/5,000
	Max. Subscriptions		100
	Max. Published Variables		10,000
	Max. Value Attributes		10,000
	Max. Published Structure Definitions		100

# I/O Modules

## ■ Digital Input Modules

				Rated input voltage 5~24 V <sub>DC</sub>
<b>8 inputs</b> Easy wiring terminal block AS08AM10N-A	<b>16 inputs</b> Easy wiring terminal block AS16AM10N-A	<b>32 inputs</b> High-density MIL terminal block AS32AM10N-A	<b>64 inputs</b> High-density MIL terminal block AS64AM10N-A	Response time 1 ms
				Filter function 1~20 ms
				Screwless removable terminal block 8 / 16 inputs

## ■ Digital Output Modules

				NPN (Sink) or PNP (Source) module
<b>8 outputs</b> Easy wiring terminal block Transistor output NPN (Sink) AS08AN01T-A	<b>8 outputs</b> Easy wiring terminal block Relay output AS08AN01R-A	<b>8 outputs</b> Easy wiring terminal block Transistor output PNP (Source) AS08AN01P-A	<b>32 outputs</b> High-density MIL terminal block Transistor output NPN (Sink) AS32AN02T-A	Response time 1 ms (Transistor) 10 ms (Relay)
				Screwless removable terminal block 8 / 16 outputs

			
<b>16 outputs</b> Easy wiring terminal block Transistor output NPN (Sink) AS16AN01T-A	<b>16 outputs</b> Easy wiring terminal block Relay output AS16AN01R-A	<b>16 outputs</b> Easy wiring terminal block Transistor output PNP (Source) AS16AN01P-A	<b>64 outputs</b> High-density MIL terminal block Transistor output NPN (Sink) AS64AN02T-A

## ■ Digital I/O Modules



<b>16 inputs / outputs</b>	<b>16 inputs / outputs</b>	<b>16 inputs / outputs</b>	NPN (Sink) or PNP (Source) module
Easy wiring terminal block 8 inputs/8 transistor outputs NPN (Sink)	Easy wiring terminal block 8 inputs 8 relay outputs	Easy wiring terminal block 8 inputs/8 transistor outputs PNP (Source)	Rated input voltage 5~24 V <sub>DC</sub> Filter function 1~20 ms
AS16AP11T-A			Screwless removable terminal block
AS16AP11R-A			Response time 1 ms (Transistor) 10 ms (Relay)
AS16AP11P-A			

## ■ Analog I/O Modules



4 channels	8 channels	8 channels	4 channels	6 channels
Analog input	Analog input	Analog input	Analog output	Analog input/output
AS04AD-A	AS08AD-B	AS08AD-C	AS04DA-A	AS06XA-A
Conversion time 2ms/channel	50/60 Hz filter	A: Voltage and current B: Voltage C: Current		Resolution AI: 16-bit AO: 12-bit
Accuracy ±0.2%	4/6/8 CHs	Module monitoring/configuration		Differential inputs

## ■ Load Cell Module



<b>2 channels</b>	<b>Functions</b>	
	50/60Hz filter	High-speed dynamic measurement
AS02LC-A	2 channels of independent sampling	Accuracy 0.4% full range
<b>Software</b>		
Filter function		Multi-point calibration
Online monitoring/ configuration		

## ■ Pulse Unit Modules



<b>2 channels</b>	<b>4 channels</b>
Differential	Open Collector

AS02PU-A **New**    AS04PU-A **New**

## ■ High Speed Counter Module



Input: 200 kHz	200 kHz
Output: 200 kHz	Incremental / Absolute (SSI)
Open Collector/Diff.	Open Collector/Diff.
2/4 CHs	2 CHs
Support Motion APIs	Compare / Capture

200 kHz  
Incremental / Absolute (SSI)  
Open Collector/Diff.  
2 CHs  
Compare / Capture

AS02HC-A **New**

# I/O Modules

## ■ Temperature Measurement Modules

	
<b>4 channels</b>	<b>6 channels</b>
PT, NI temperature sensor	PT, NI temperature sensor
AS04RTD-A	AS06RTD-A

Conversion time 200ms/channel	Resolution 0.1°C/0.1°F	Wire breaking detection
Overall accuracy ±0.1%	50/60Hz filter	Module monitoring/configuration
Pt100/Ni100/Pt1000/Ni1000/JPt100/LG-Ni1000/Cu50/Cu100, resistor 0~300Ω, 0~3,000Ω		

	
<b>4 channels</b>	<b>8 channels</b>
TC temperature sensor	TC temperature sensor
AS04TC-A	AS08TC-A

Conversion time 200ms/channel	Resolution 0.1°C/0.1°F	Disconnection detection
Overall accuracy ±0.5%	50/60Hz filter	Module monitoring/configuration
J, K, R, S, T, E, N, B type thermocouple; ±100 mV		

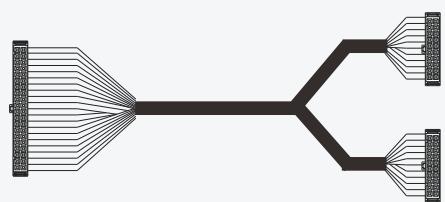
## ■ Communication Modules

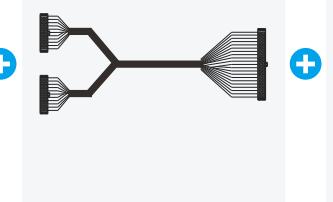
	<b>COM port</b>	RS-232C	RS-422	RS-485	CANopen
<b>2 COM ports</b>	<b>Function</b>	Selectable COM ports; supports standard Modbus protocols and user-defined protocols			
AS00SCM-A	<b>Software</b>	SCMSSoft	Data exchange table for quick setup		Real-time monitoring on communication status

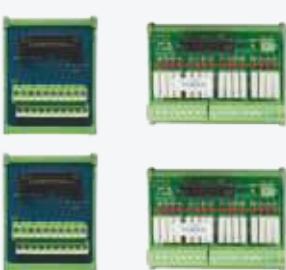
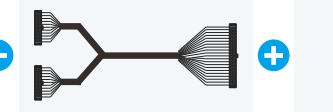
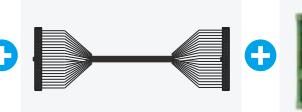
	
<b>DeviceNet</b>	<b>IO-Link</b>
AS01DNET-A	AS04SIL-A <b>New</b>

<b>COM port</b>	DeviceNet	IO-Link (4-CH)
<b>Function</b>	Master/Slave/RTU	Master
<b>Software</b>	DeviceNet Builder	HWCONFIG

## Accessory Selection for High-density Modules

Model Name		
AS332T-A AS332P-A AS324MT-A	UC-ET010-24D (1M) UC-ET020-24D (2M) UC-ET030-24D (3M)	UB-10-ID16A
		  

Model Name				
UB-10-ID16A	UC-ET010-24D (1M) UC-ET020-24D (2M) UC-ET030-24D (3M)	AS32AM10N-A	UC-ET010-24B (1M) UC-ET020-24B (2M) UC-ET030-24B (3M)	UB-10-ID32A
				

Model Name			
UB-10-ID16A or UB-10-OR16A (Relay)	UC-ET010-24D (1M) UC-ET020-24D (2M) UC-ET030-24D (3M)	AS32AN02T-A	UC-ET010-24B (1M) UC-ET020-24B (2M) UC-ET030-24B (3M)
			

## Accessory Selection for High-density Modules

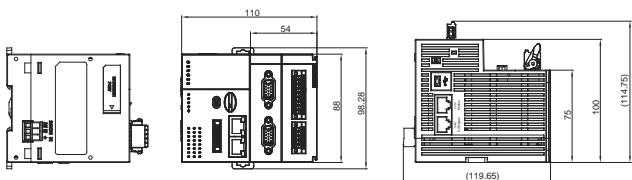
Model Name				
UB-10-ID16A	UC-ET010-24D (1M) UC-ET020-24D (2M) UC-ET030-24D (3M)	AS64AM10N-A	UC-ET010-24B (1M) UC-ET020-24B (2M) UC-ET030-24B (3M)	UB-10-ID32A
	+  +		+  +	

Model Name				
UB-10-ID16A or UB-10-OR16A (Relay)	UC-ET010-24D (1M) UC-ET020-24D (2M) UC-ET030-24D (3M)	AS64AN02T-A	UC-ET010-24B (1M) UC-ET020-24B (2M) UC-ET030-24B (3M)	UB-10-OT32A
 	+  +		+  +	

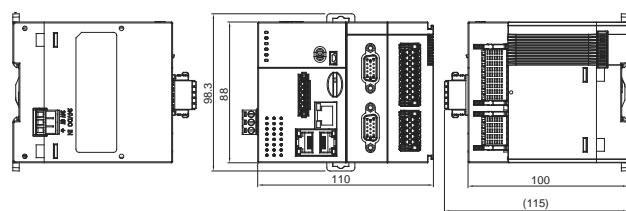
# Dimensions

## CPUs

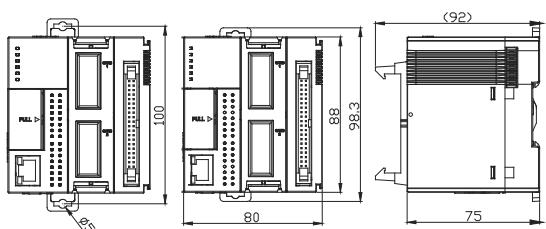
AS516E-B **New** / AS524C-B **New**



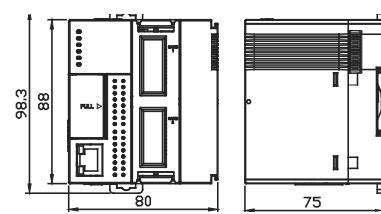
AX-308E **New**



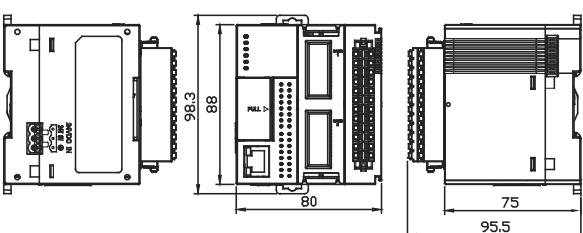
AS332T-A / AS332P-A / AS324MT-A



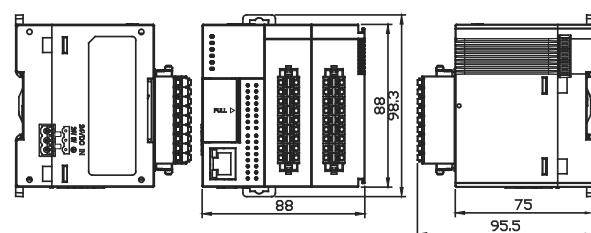
AS300N-A



AS320T-B / AS320P-B

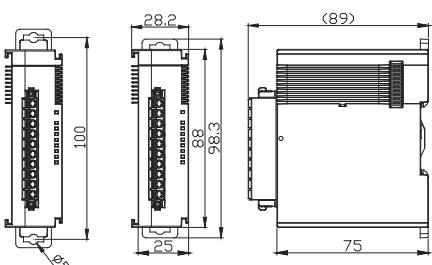


AS228T-A / AS228P-A / AS228R-A / AS218TX-A / AS218PX-A / AS218RX-A

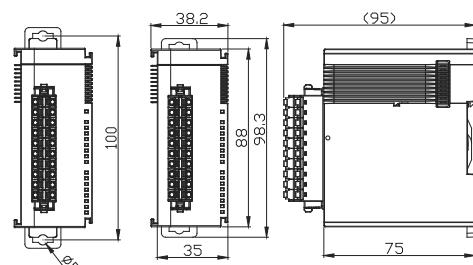


## Digital I/O Modules

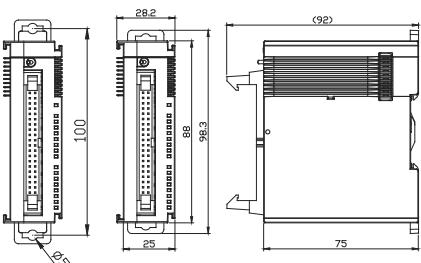
AS08AM10N-A / AS08AN01R-A / AS08AN01T-A / AS08AN01P-A



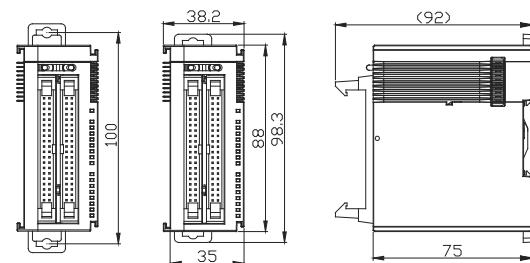
AS16AM10N-A / AS16AN01R-A / AS16AN01T-A / AS16AN01P-A / AS16AP11R-A / AS16AP11T-A / AS16AP11P-A



AS32AM10N-A / AS32AN02T-A



AS64AM10N-A / AS64AN02T-A

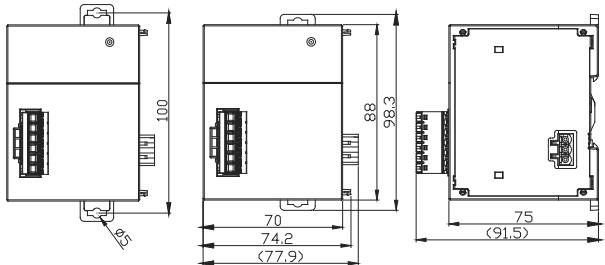


(Unit: mm)

# Dimensions

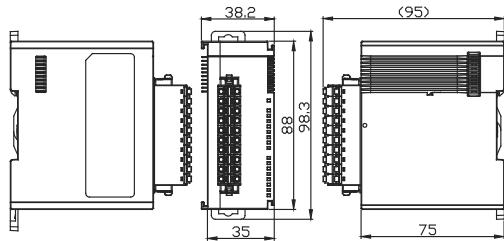
## Power Supply Modules

AS-PS02 / AS-PS02A



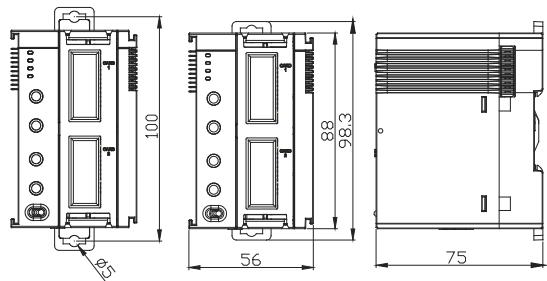
## Pulse Unit Modules

AS02PU-A **New** / AS04PU-A **New**

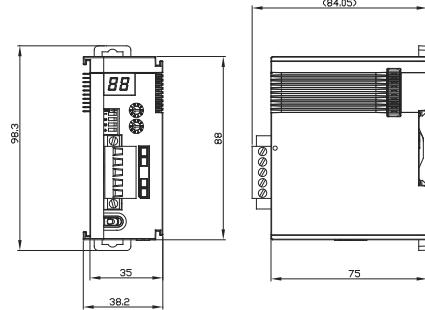


## Communication Modules

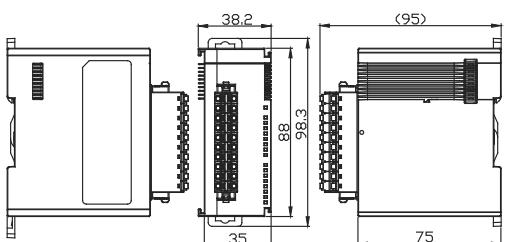
AS00SCM-A



AS01DNET-A

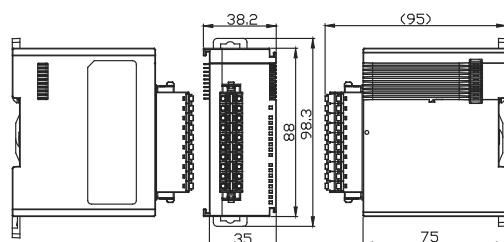


AS04SIL-A **New**



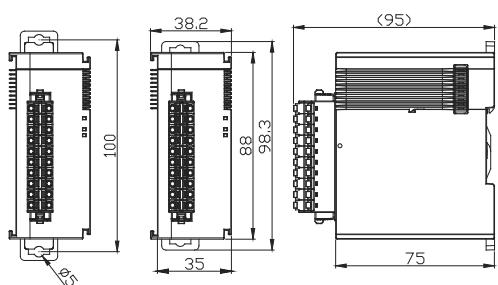
## High-speed Counter Module

AS02HC-A **New**



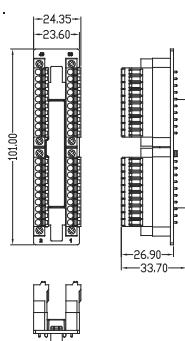
## Analog Modules

AS02LC-A / AS04AD-A / AS04DA-A / S04TC-A /  
AS04RTD-A / AS06XA-A / AS08AD-B /  
AS08AD-C / AS06RTD-A / AS08TC-A



## Connector Converter

UB-10-IO32D **New**

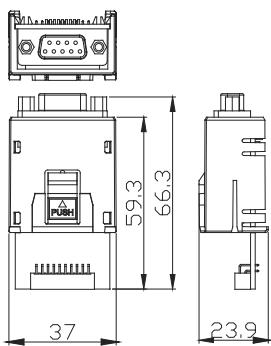


Note:  
Can NOT be installed on two consecutive high-density modules (interference)

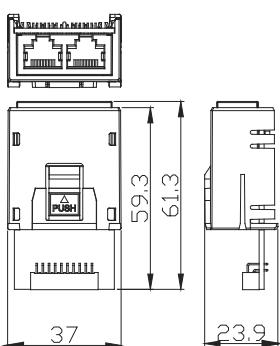
(Unit: mm)

## Function Cards

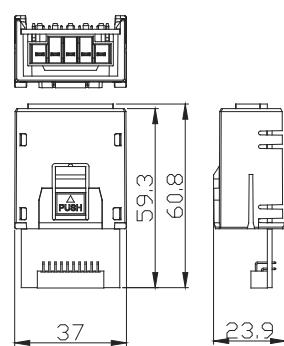
AS-F232



AS-FCOPM



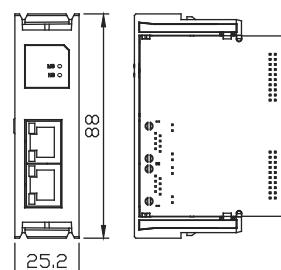
AS-F2AD / AS-F2DA /  
AS-F422 / AS-F485



AS-FEN02

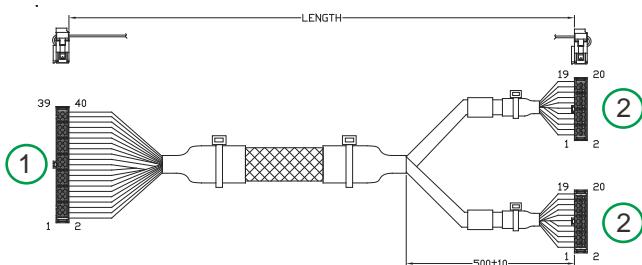
AS-FPFN02 **New**

AS-FOPC02 **New**

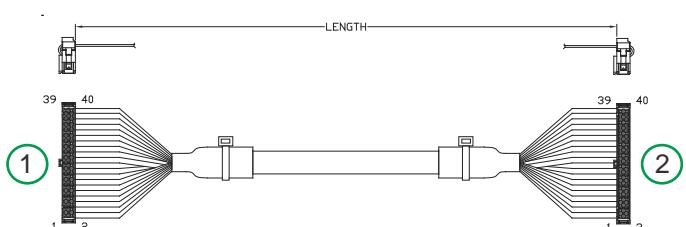


## Cable (MIL)

UC-ET010-24D (1 M) / UC-ET020-24D (2 M) /  
UC-ET030-24D (3 M)



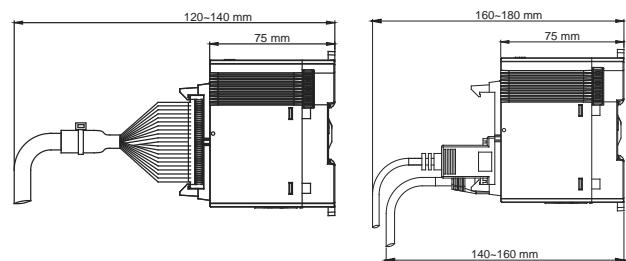
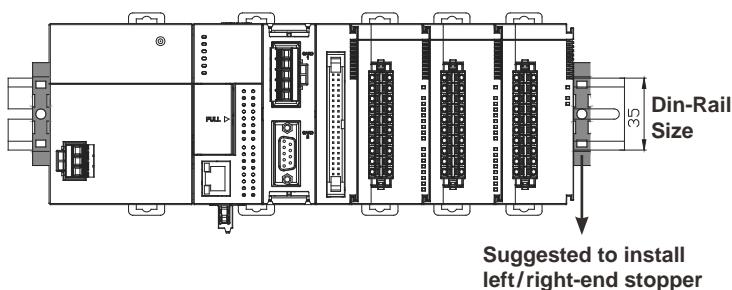
UC-ET010-24B (1 M) / UC-ET020-24B (2 M) /  
UC-ET030-24B (3 M)



Serial	Name	Description
(1)	40-pin terminal	Connects to modules
(2)	20-pin terminal	Connects to external terminal modules UB-10-ID16A or UB-10-OR16A or UB-10-OR16B

Serial	Name	Description
(1)	40-pin terminal	Connects to modules
(2)	40-pin terminal	Connects to external terminal modules UB-10-ID32A or UB-10-OT32A

## Installation Notes:

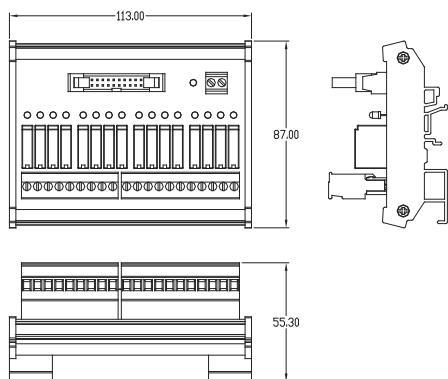


(Unit: mm)

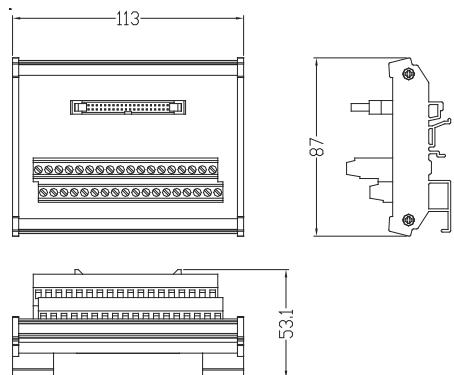
# Dimensions

## External Terminal Modules

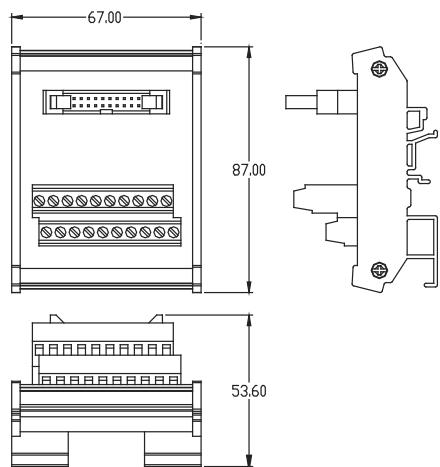
UB-10-OR16A / UB-10-OR16B



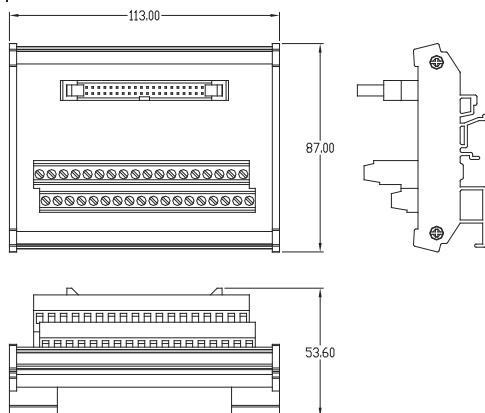
UB-10-OT32A



UB-10-ID16A

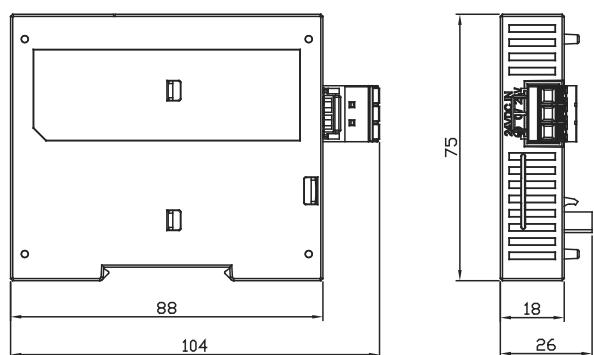


UB-10-ID32A



## Auxiliary Connected Power Module

AS-ATXB



(Unit: mm)

# Ordering Information

## ■ CPUs

Name	Model	Instruction Speed/Performance	Memory / CPU Clock	Max. Inputs & Outputs/Extension Module (Max. Extension Racks)			Memory Card	Certification		
CPU	AS200	LD: 25 ns MOV: 0.15 µs	RAM: 2 MB ROM: 4 MB CPU clock: 400 MHz	Right-side + remote expansion: 1,024 pts/32 modules (Max. 15 racks)			Micro SD Max. 32 GB	CE/UL		
	AS300	40k steps/1ms (LD 40%, MOV 60%)								
	AS500 <b>New</b>	Boolean: 0.05 µs Integer: 0.24 µs Float: 0.30 µs	RAM: 20 MB ROM: 20 MB CPU clock: 1 GHz	Right-side expansion: 1,024 pts/32 modules						
	AX-3 <b>New</b>	Boolean: 5 ns Integer: 5 ns Float: 33 ns	RAM: 128 MB ROM: 4 GB CPU clock: 800 MHz	Right-side expansion: 1,024 pts/32 modules						
Name	Model	Program Capacity	Built-in I/O	DO Type	Terminal Block	High-speed Counter	Pulse-train Output	Built-in Communication	Function Card Slot	
CPU	AS332T-A	128k steps	16 DI/16 DO	NPN	MIL	6 CHs, 200 kHz (12 CHs, 200 kHz)	6 Axes, 200 kHz (12 CHs, 200 kHz)	USB RS-485*2 Ethernet	2	
	AS332P-A			PNP		2 CHs, 4 MHz (Diff.) 4 CHs, 200 kHz	2 Axes, 4 MHz (Diff.) 4 Axes, 200 kHz			
	AS324MT-A		12 DI/12 DO	Diff./NPN						
	AS320T-B		8 DI/12 DO	NPN	EU	4 CHs, 200 kHz	6 Axes, 200 kHz (12 CHs, 200 kHz)	USB RS-485*2 Ethernet	2	
	AS320P-B			PNP		4 CHs, 200 kHz	-			
	AS300N-A		-	-	-	-	-			
	AS228T-A	64k steps	16 DI/12 DO	NPN	EU	4 CHs, 200 kHz	6 Axes, 200 kHz (12 CHs, 200 kHz)	USB RS-485*2 Ethernet CANopen	2	
	AS228P-A			PNP			-			
	AS228R-A			Relay			3 Axes, 200 kHz (6 CHs, 200 kHz)			
	AS218TX-A		8 DI/6 DO 2 AI/2 AO <sup>(1)</sup>	NPN			USB RS-485*2 Ethernet CANopen			
	AS218PX-A			PNP						
	AS218RX-A			Relay						-
Motion CPU	<b>New</b> AS516E-B <sup>(2)</sup> (EtherCAT, 16 axes)	20MB	16 DI/8 DO	NPN	EU	-	-	USB RS-232 RS-485 Ethernet CANopen EtherCAT	2	
	<b>New</b> AS524C-B <sup>(2)</sup> (CANopen, 24 axes)							USB RS-232 RS-485 Ethernet*2 CANopen CAN Motion		
	<b>New</b> AX-308E <sup>(2)</sup> (EtherCAT, 8 axes)	8MB				5 CHs, 200 kHz	4 Axes, 200 kHz	USB RS-232 RS-485 Ethernet EtherCAT		

Note:

\*1: The specifications of the built-in AIO are the same as AS-F2AD/AS-F2DA function cards

\*2: Please contact our distributors for release date

## ■ Software

Product Name	License	Descriptions	Supported Device
ISPSOFT [V3]	Free	PLC programming software	AS Series, AH Series, DVP Series
COMMGR [V1]	Free	Communication management software	AS Series, AH Series, DVP Series
DCISoft [V1]	Free	Ethernet configuration software	AH series Ethernet/serial communication modules, AS series SCM modules, DVP series built-in Ethernet PLCs, DVP series Ethernet/serial communication modules, IFD series Ethernet modules
	Free	SCM serial communication module planning software	AS Series / AH Series / DVP Series built-in CANopen communication modules
CANopen Builder [V5]	Free	CANopen configuration software/motion control programming software	AS Series / AH Series / DVP Series built-in Ethernet communication modules
EIP Builder [V1]	Free	EtherNet/IP configuration software	AS Series / AH Series / DVP Series built-in Ethernet communication modules
Delta OPC [V2] (HASP-20-OPC01)	Hardware License (USB)	Delta OPC Server	AS Series / AH Series

## ■ Power Supply Modules

Name	Model	Input	Output	Certification
Power Supply Module	AS-PS02	100~240 V <sub>AC</sub>	24 V <sub>DC</sub> , 2A (for modules on the rack)	CE/UL
	AS-PS02A		24 V <sub>DC</sub> , 1.5A (for modules on the rack) 24 V <sub>DC</sub> , 0.5A (for external I/O)	

# Ordering Information

## ■ Communication Modules

Name	Model	Communication Card Installation	Power Consumption (Internal)	Specifications	Certification
Communication Extension Module	AS00SCM-A	2	0.6W	<ul style="list-style-type: none"> <li>Serial communication: RS-232/RS-422/RS-485</li> <li>Provides CANopen communication interface for extension racks</li> </ul>	CE/UL
DeviceNet Communication Module	AS01DNET-A	-	0.8W	<ul style="list-style-type: none"> <li>DeviceNet protocol</li> <li>Master/Slave modes</li> <li>RTU function</li> </ul>	
IO-Link Module	AS04SIL-A <sup>(*)</sup> <small>New</small>		1.0W	<ul style="list-style-type: none"> <li>4 channels</li> <li>4.8/38.4/230.4 kbps</li> <li>Max. process data size: 32 bytes (channel) / 128 bytes (module)</li> </ul>	

\*1: Please contact our distributors for release date

## ■ Digital I/O Modules

Name	Model	I/O	Signals	Terminal Block Type	Power Consumption (Internal)	Certification
Input Module	AS08AM10N-A	8	24 V <sub>DC</sub> 5 mA	Removable terminal block	0.72W	CE/UL
	AS16AM10N-A	16			0.72W	
	AS32AM10N-A	32		MIL	0.48W	
	AS64AM10N-A	64			0.72W	

Name	Model	I/O	Signals	Terminal Block Type	Power Consumption (Internal)	Specifications	Certification
Output Module	AS08AN01R-A	8	240 V <sub>AC</sub> 24 V <sub>DC</sub>	Removable terminal block	1.7W	Relay	CE/UL
	AS16AN01R-A	16			3.4W	Relay	
	AS08AN01T-A	8			0.72W	Transistor NPN (Sink)	
	AS08AN01P-A	8			1.4W	Transistor PNP (Source)	
	AS16AN01T-A	16	5~30 V <sub>DC</sub> 0.5A	MIL	1.4W	Transistor NPN (Sink)	
	AS16AN01P-A	16			1.4W	Transistor PNP (Source)	
	AS32AN02T-A	32			0.72W	Transistor NPN (Sink)	
	AS64AN02T-A	64			1.44W	Transistor NPN (Sink)	

Name	Model	I/O	Signals		Terminal Block Type	Power Consumption (Internal)	Specifications	Certification
			Input	Output				
Input/ Output Module	AS16AP11R-A	16 (8 inputs/8 outputs)	240 V <sub>AC</sub> 24 V <sub>DC</sub> 2A	24 V <sub>DC</sub> 5 mA	Removable terminal block	1.9W	Relay	CE/UL
	AS16AP11T-A	16 (8 inputs/8 outputs)				0.7W	Transistor NPN (Sink)	
	AS16AP11P-A	16 (8 inputs/8 outputs)				0.7W	Transistor PNP (Source)	

## ■ Analog I/O Modules

Name	Model	Channel	Mode	Terminal Block Type	Power Consumption (Internal)	Specifications	Certification
Analog Input Module	AS04AD-A	4	1~5V 0~5V -5~5V 0~10V -10~10V 4~20mA 0~20mA -20~20mA	Removable terminal block	1.2W/2.5W	<ul style="list-style-type: none"> <li>• Hardware resolution: 16-bit</li> <li>• Single channel on/off setting to enhance overall conversion efficiency</li> <li>• Conversion time: 2ms/channel</li> <li>• Disconnection detection mode: 1 ~ 5 V/4 ~ 20 mA</li> </ul>	CE/UL
	AS08AD-B	8	1~5V 0~5V -5~5V 0~10V -10~10V				
	AS08AD-C		4~20mA 0~20mA -20~20mA				
Analog Output Module	AS04DA-A	4	0~10V -10~10V 4~20mA 0~20mA	Removable terminal block	1.2W/3W	<ul style="list-style-type: none"> <li>• Hardware resolution: 12-bit</li> <li>• Single channel on/off setting</li> <li>• Conversion time: 250 µs/channel</li> </ul>	CE/UL
Analog Input/Output Module	AS06XA-A	Input: 4 Output: 2	<ul style="list-style-type: none"> <li>• Input: 1~5V 0~5V -5~5V 0~10V -10~10V 4~20mA 0~20mA -20~20mA</li> <li>• Output: 0~10V -10~10V 4~20mA 0~20mA</li> </ul>	Removable terminal block	1.2W/2.5W	<ul style="list-style-type: none"> <li>• Input resolution: 16-bit</li> <li>• Output resolution: 12-bit</li> <li>• Single channel on/off setting to enhance overall conversion efficiency</li> <li>• Conversion time: 2ms/channel</li> <li>• Disconnection detection mode: 1 ~ 5 V/4 ~ 20 mA</li> </ul>	

# Ordering Information

## ■ Temperature Measurement Modules

Name	Model	Channel	Mode	Terminal Block Type	Power Consumption (Internal)	Specifications	Certification
RTD Temperature Measurement Module	AS04RTD-A	4	Pt100 Ni100 Pt1000 Ni1000 JPt100  LG-Ni1000 Cu50 Cu100  Input impedance 0~300Ω 0~3,000Ω	Removable terminal block	2W/1W	<ul style="list-style-type: none"> <li>• Resolution: 0.1°C/0.1°F</li> <li>• Conversion time: 200 ms/channel</li> <li>• Overall accuracy: RTD: ± 0.1% TC: ± 0.5%</li> <li>• Disconnection detection mode</li> <li>• Module monitoring/ setting/ planning software</li> </ul>	CE/UL
	AS06RTD-A	6					
Thermocouple Temperature Measurement Module	AS04TC-A	4	J,K,R,S, T,E,N,B -100~+100 mV	Removable terminal block	2W/1W	<ul style="list-style-type: none"> <li>• Resolution: 0.1°C/0.1°F</li> <li>• Conversion time: 200 ms/channel</li> <li>• Overall accuracy: RTD: ± 0.1% TC: ± 0.5%</li> <li>• Disconnection detection mode</li> <li>• Module monitoring/ setting/ planning software</li> </ul>	CE/UL
	AS08TC-A	8					

## ■ Load Cell Module

Name	Model	Channel	Mode	Terminal Block Type	Power Consumption (Internal)	Specifications	Certification
Load Cell Module	AS02LC-A	2	0~1 0~2 0~4 0~6 0~20 0~40 0~80 mV/V	Removable terminal block	0.75W/3W	<ul style="list-style-type: none"> <li>• Resolution: 24-bit for hardware (ADC), 32-bit for data output</li> <li>• 4-wire / 6-wire load cell sensor</li> <li>• Selectable signal input ranges</li> <li>• LCSoft software configuration</li> <li>• High-speed dynamic measurement</li> <li>• 50/60 Hz active filtering</li> </ul>	CE/UL

## ■ Motion Modules

Name	Model	Channel	Power Consumption (Internal)	Specifications	Certification
Pulse Unit Module	New AS02PU-A <sup>(*)</sup>	2	1.5W	<ul style="list-style-type: none"> <li>Differential</li> <li>• 200 kHz</li> <li>• Motion APIs</li> </ul>	CE/UL
	New AS04PU-A <sup>(*)</sup>	4		<ul style="list-style-type: none"> <li>• Open collector</li> <li>• 200 kHz</li> <li>• Motion APIs</li> </ul>	
High-speed Counter Module	New AS02HC-A <sup>(*)</sup>	2		<ul style="list-style-type: none"> <li>• Open collector / Differential</li> <li>• 200 kHz</li> <li>• Incremental / absolute (SSI)</li> </ul>	

Note 1: Please contact our distributors for release date

## ■ Function Cards

Name	Model	Channel	Specifications	Certification
Communication Card	AS-F232	1	Serial COM, RS-232 interface, slave/host mode	CE
	AS-F422	1	Serial COM, RS-422 interface, slave/host mode	
	AS-F485	1	Serial COM, RS-485 interface, slave/host mode	
	AS-FCOPM	1	<ul style="list-style-type: none"> <li>• CANopen port, supports DS301, AS Series remote control or Delta servo motor control</li> <li>• Built-in switchable terminal resistor (120 Ω)</li> </ul>	
	AS-FEN02	1	Ethernet port, RJ45 x2 (Switch function), supports EtherNet/IP (Adapter mode)/Modbus TCP	
	New AS-FPFN02 <sup>(*)</sup>	1	PROFINET port, RJ45 x2 (Switch function), supports PROFINET (Slave mode)	
	New AS-FOPC02 <sup>(*)</sup>	1	Ethernet port, RJ45 x2 (Switch function), supports OPC-UA (Server mode)/Modbus TCP	
Analog I/O Card	AS-F2AD	2	2-channel analog input 0~10V (12-bit resolution), 4~20mA (11-bit resolution), conversion time: 3ms/channel	
	AS-F2DA	2	2-channel analog Output 0~10V, 4~20mA (12-bit resolution), conversion time: 2 ms/channel	

Note 1: Please contact our distributors for release date

# Ordering Information

## ■ Accessories

Name	Model	Descriptions	Specifications		Applicable Module
			Length	Connector/ Terminal Block Type	
I/O Cable	UC-ET010-24B	I/O cable for connecting I/O modules and external terminal modules	1 m	I/O extension cable (MIL connector IDC40 to IDC40) (Shielded)	AS32AM/AS64AM/ AS32AN/AS64AN
	UC-ET010-24D		1 m	I/O extension cable (MIL connector IDC40 to IDC20 x 2) (Shielded)	AS332T/AS332P/ AS324MT/AS32AM/ AS64AM/AS32AN/ AS64AN
	UC-ET020-24B		2 m	I/O extension cable (MIL connector IDC40 to IDC40) (Shielded)	AS32AM/AS64AM/ AS32AN/AS64AN
	UC-ET020-24D		2 m	I/O extension cable (MIL connector IDC40 to IDC20 x 2) (Shielded)	AS332T/AS332P/ AS324MT/AS32AM/ AS64AM/AS32AN/ AS64AN
	UC-ET030-24B		3 m	I/O extension cable (MIL connector IDC40 to IDC40) (Shielded)	AS32AM/AS64AM/ AS32AN/AS64AN
	UC-ET030-24D		3 m	I/O extension cable (MIL connector IDC40 to IDC20 x 2) (Shielded)	AS332T/AS332P/ AS324MT/AS32AM/ AS64AM/AS32AN/ AS64AN
Cables	UC-DN01Z-01A <sup>(*)</sup>	CANopen/ DeviceNet cables	305.0 m	Thick/Trunk cable	AS200 CPU AS01DNET-A TAP-CN01
	UC-DN01Z-02A <sup>(*)</sup>		305.0 m	Thin/Drop cable	TAP-CN02 TAP-CN03
	UC-CMC003-01A	CANopen/ DeviceNet/ DMCNET cables	0.3m	RJ45	AS-FCOPM TAP-CN03
	UC-CMC005-01A		0.5m	RJ45	
	UC-CMC010-01A		1.0m	RJ45	
	UC-CMC015-01A		1.5m	RJ45	
	UC-CMC020-01A		2.0m	RJ45	
	UC-CMC030-01A		3.0m	RJ45	
	UC-CMC050-01A		5.0m	RJ45	
	UC-CMC100-01A		10.0m	RJ45	
	UC-CMC200-01A		20.0m	RJ45	

**Note:**

- Ordering unit: meter
- Not available in Taiwan

## ■ Accessories

Name	Model	Descriptions	Specifications		Applicable Module
			Length	Connector/ Terminal Block Type	
External terminal module	UB-10-ID16A	External terminal modules for digital modules	--	16 inputs or outputs (MIL connector, 20 Pins)	AS332T/AS332P/ AS324MT/AS32AM/ 64AM/AS32AN/ AS64AN
	UB-10-ID32A			32 inputs (MIL connector, 40 Pins)	AS32AM/AS64AM
	UB-10-OT32A			32 transistor outputs (MIL connector, for NPN output)	AS32AN/AS64AN
	UB-10-OR16A			16 relay outputs (MIL connector, for NPN output)	AS332T/AS32AN02T/ AS64AN02T
	UB-10-OR16B			16 relay outputs (MIL connector, for PNP output)	AS332P
	UB-10-IO32D			Connector converter (MIL → Spring) (Can NOT be installed on two consecutive high-density modules)	AS332T/AS332P/ AS324MT/AS32AM/ AS32AN
Terminal resistors	TAP-TR01	CANopen/DeviceNet terminal resistors (RJ45)			
Distribution box	TAP-CP01	CANopen/DeviceNet distribution box	--	Power distribution box	
	TAP-CN01		--	1 for 2	
	TAP-CN02		--	1 for 4	
	TAP-CN03		--	1 for 4 (RJ45)	
Auxiliary connected power module	AS-ATXB	Moves the CPU power connector from left side to the bottom			
PLC programming cable	UC-PRG015-01A	Communication cable: PLC to PC	1.5m	PLC (mini USB)	All AS series CPUs
	UC-PRG030-01A		3m	PLC (mini USB)	
	UC-PRG030-20A	Communication cable: PLC/HMI (RJ45) to PC	3m	PLC/HMI (RJ45)	

## ■ Starter Kit

Name	Model	Specifications
Delta PLC starter kit	UT-AS332-C	AS332T-A CPU, a power module and accessories



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