Automation for a Changing World

Delta Compact Modular Mid-range PLC

AS Series

www.smartec-automacao.com.br

Smarter. Greener. Together.

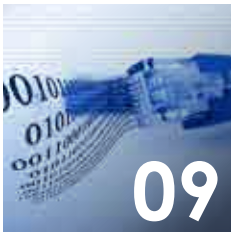
Flexible, Smart, Friendly - The Best Choice for a Controller of Automated Equipment

AS Series

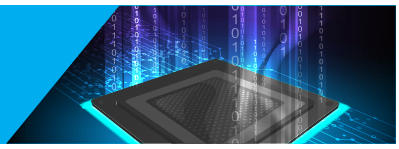
The AS Series Compact Modular Mid-range PLC is a high performance multi-purpose controller designed for all kinds of automated equipment. It features Delta's self-developed 32-bit SoC CPUs for enhanced execution speed (40k steps / ms) and supports up to 32 extension modules or up to 1,024 inputs / outputs.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



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

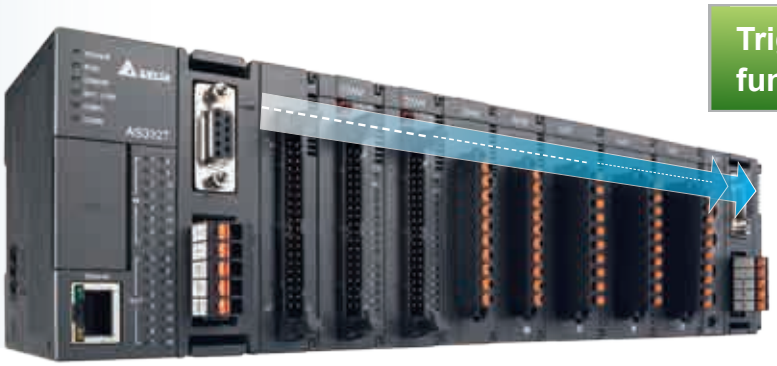
Advanced CPU Performance

■ 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

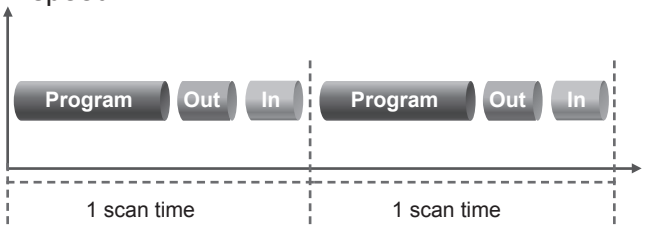


Optimized Execution Efficiency

■ General Scanning Method

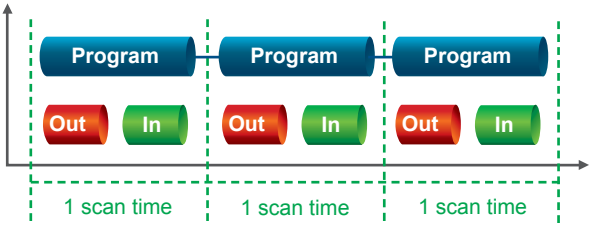
Standard simplex scanning which sequentially goes through instructions by fixed schedule operation (e.g. I/O update).

It significantly affects overall execution speed.



■ AS Series Scanning Method

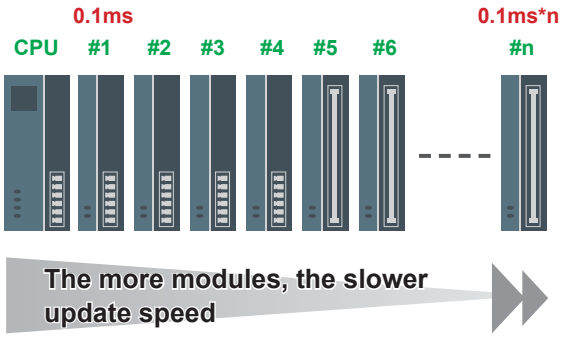
Fixed schedule operations will be automatically processed by CPU background program when scanning starts. It significantly enhances execution speed.



Optimized I/O updates

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

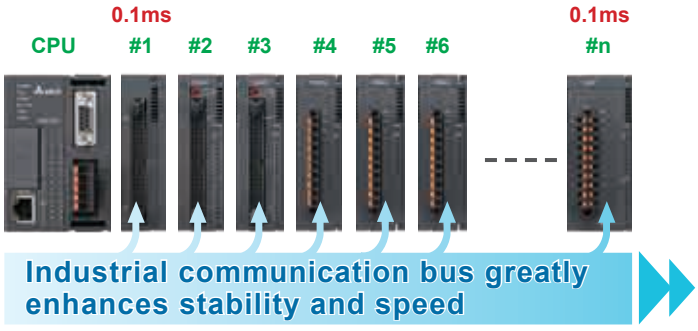
- General serial communication: the signal is sequentially sent from the 1st module to the last module. The more modules the longer I/O update time it takes.



■ AS Series: PLC module bus update via parallel communication

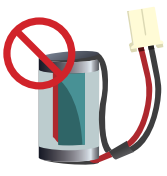
- Industrial communication: the signal is sent via parallel communication. The I/O update time is not significantly prolonged even with more modules.

Industrial communication bus greatly enhances stability and speed.



Permanent data backup, no battery required

■ Non-volatile memory material for data backup

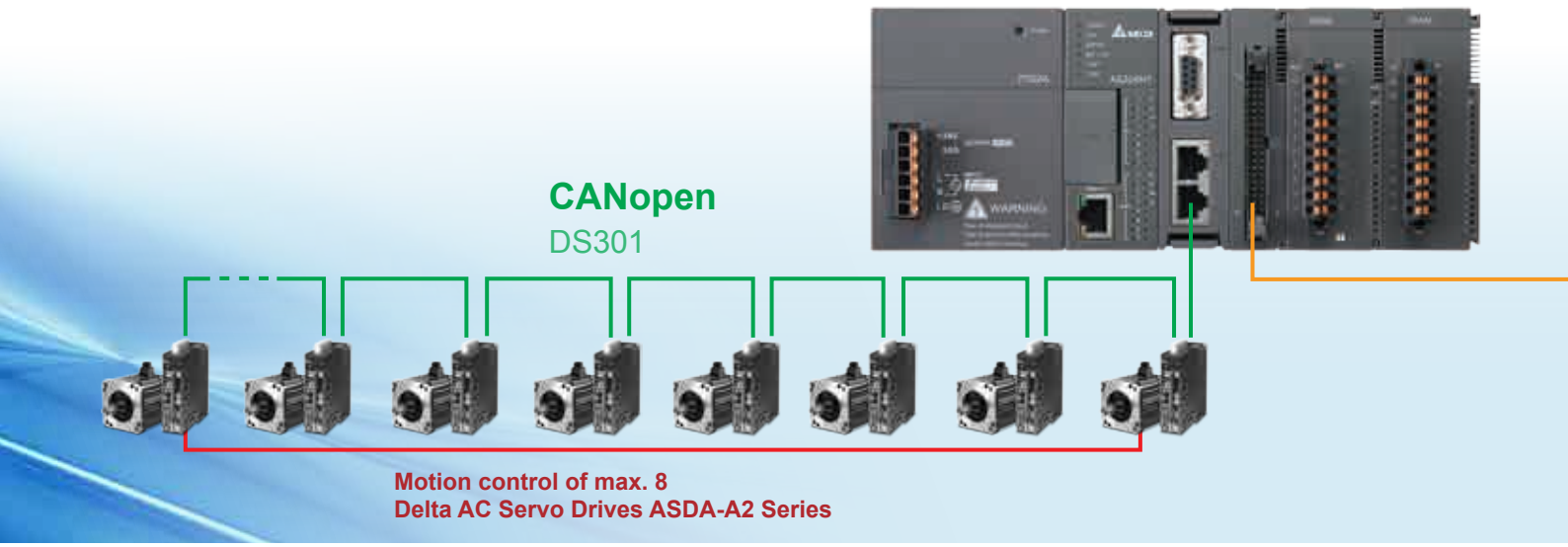


	PLC power off
PLC programs	permanent backup
Latched area	permanent backup

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

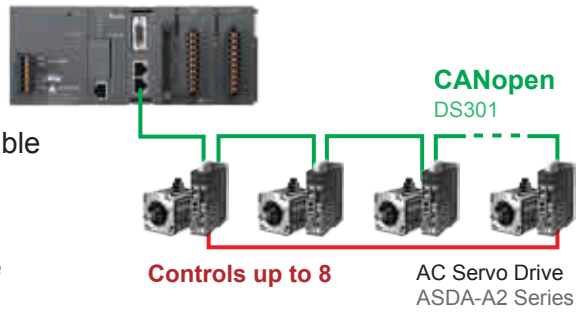
	PLC power off
RTC	keeps accurate time

Accurate Axis Control - Positioning Control Solution



■ Positioning control - Delta's CANopen Control

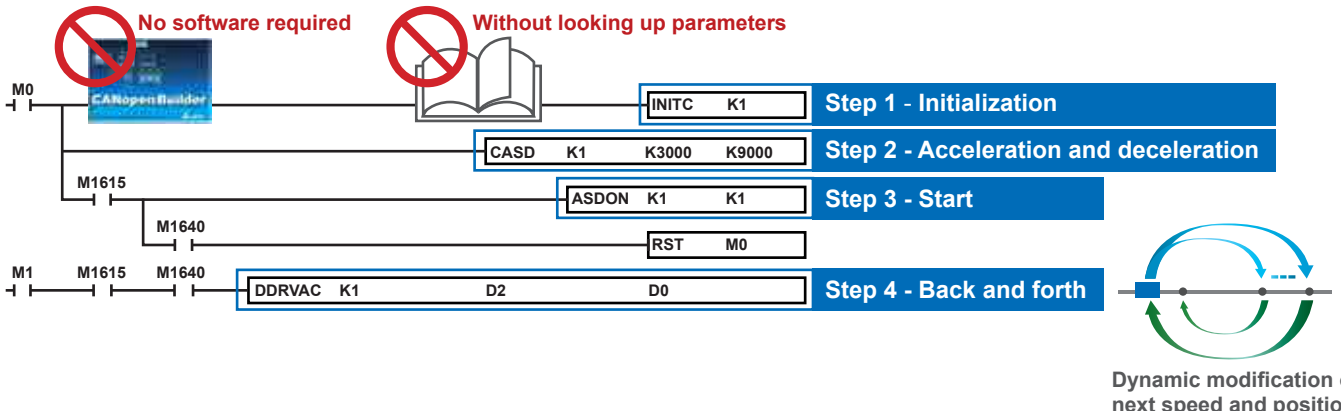
- Delivers up to 8-axis CANopen positioning control with AS-FCOPM communication card
- Fast positioning configuration in one initialization instruction without building CANopen data exchange table
- Batch download programmable servo drive parameters avoids risk of loss
- Axis control by instructions provides easy maintenance and high PLC program readability

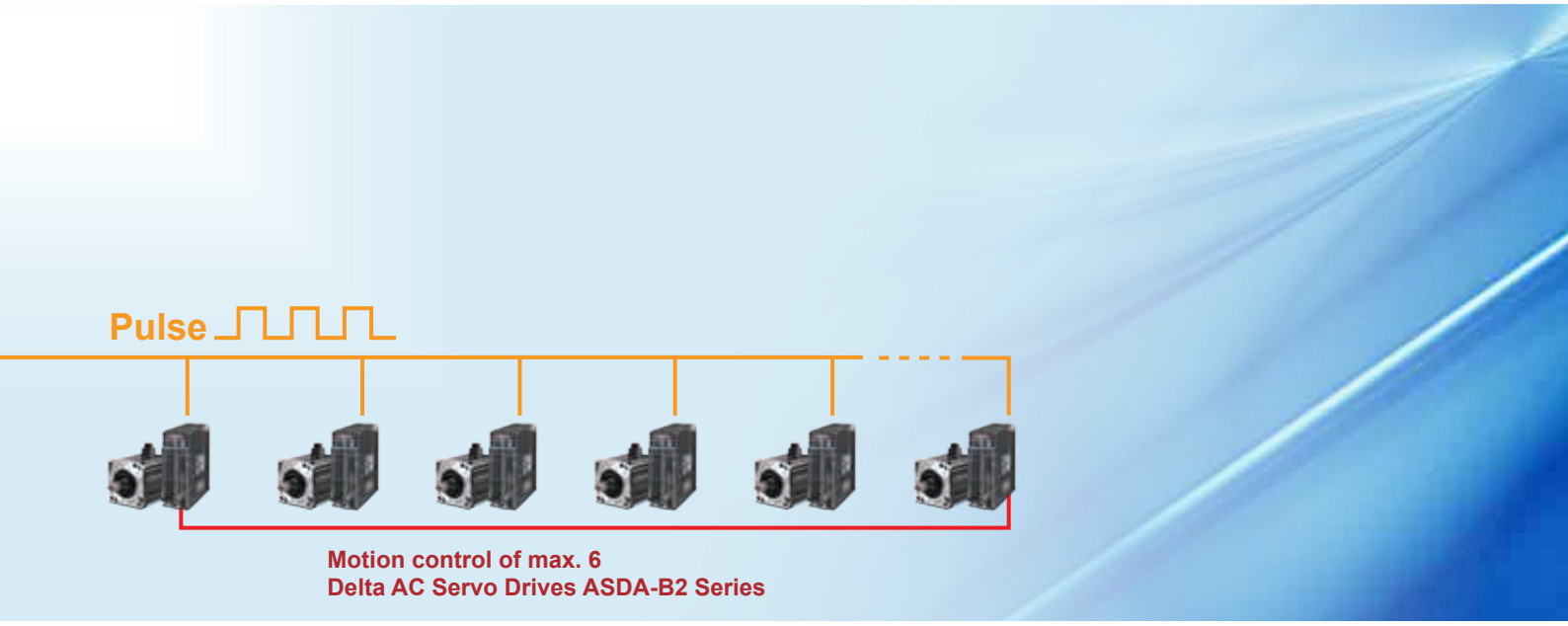


■ Simple control instructions for AC Servo Drive ASDA-A2 Series

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

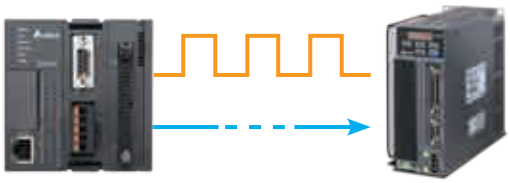
ASDA-A2 back and forth motion control in 4 steps





Positioning control - high-speed pulse

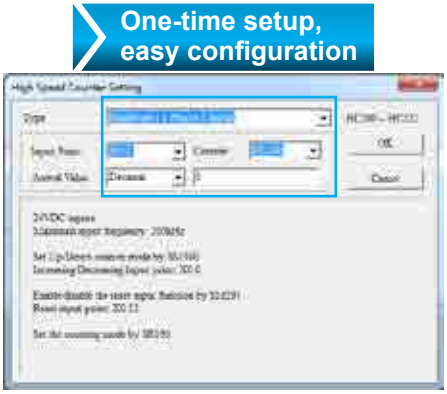
- AS332T-A / AS332P-A transistor CPU: 6 axes (or 12 channels) 200 kHz
- AS324MT-A differential CPU: 2 axes 4 MHz + 4 axes 200 kHz
- Supports positioning planning table for fast positioning planning and path simulation
- Choose any given 2 axes for linear and arc interpolation

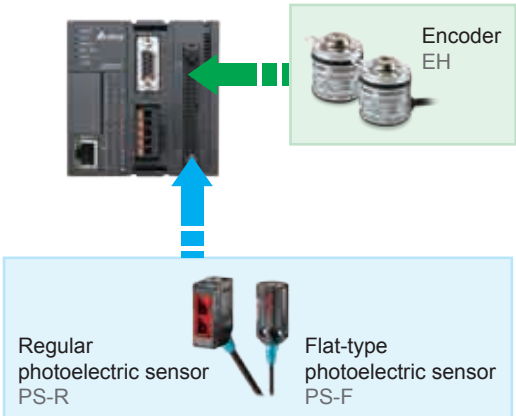


AC Servo Drive
ASDA-B2 Series

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

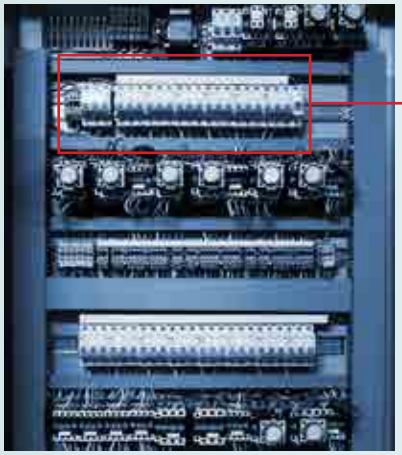


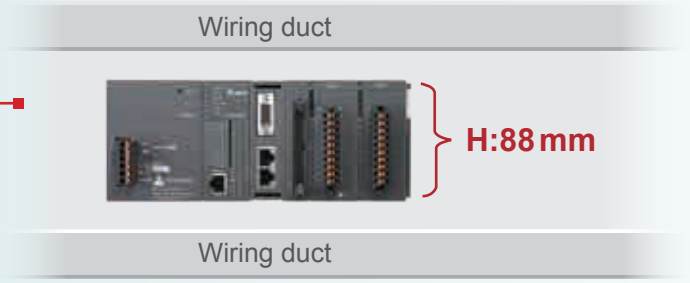


Simple Installation

Easy installation design

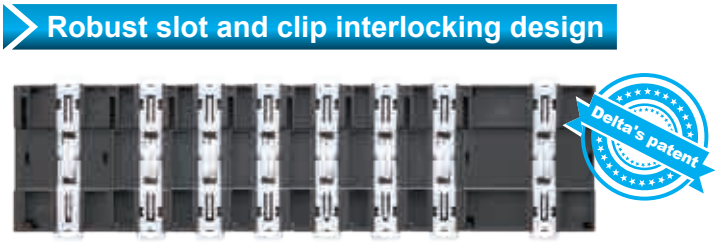
- Space-saving design suitable for installation in control panels





Rackless Din-rail installation

- Delta patented design



Fast disassembly

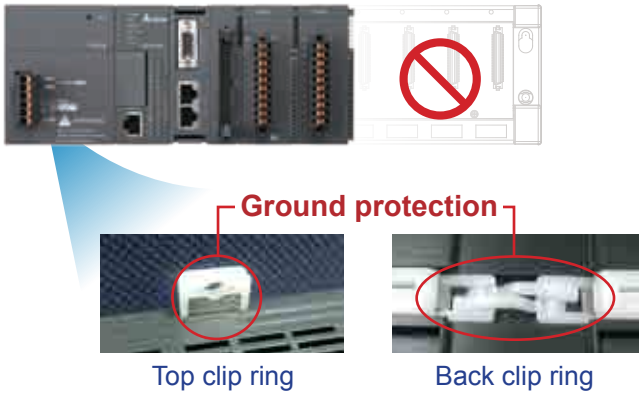
- Release the clip ring to easily take out the module from the front without moving adjacent modules

Simple installation process

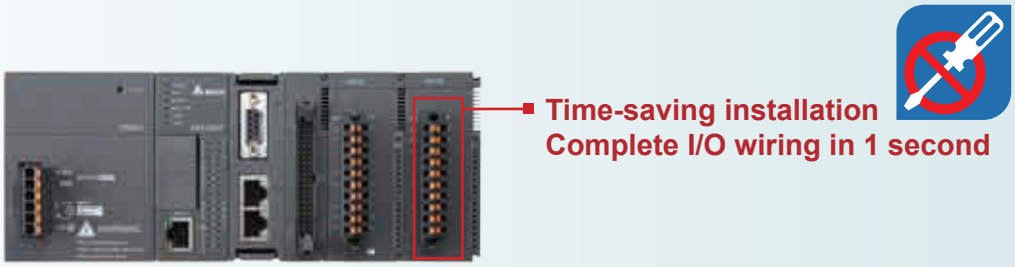
- Press the clip rings and push the module to the desired position until hearing a "click" to finish installation

Convenient grounding protection

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

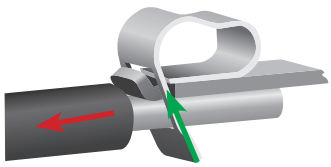


Screwless and time-saving installation



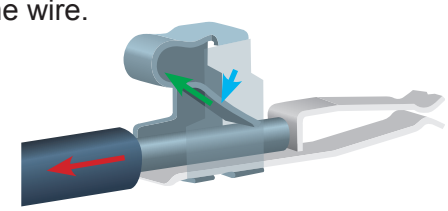
Robust Loose-proof spring clamp terminal block

- 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 the 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.



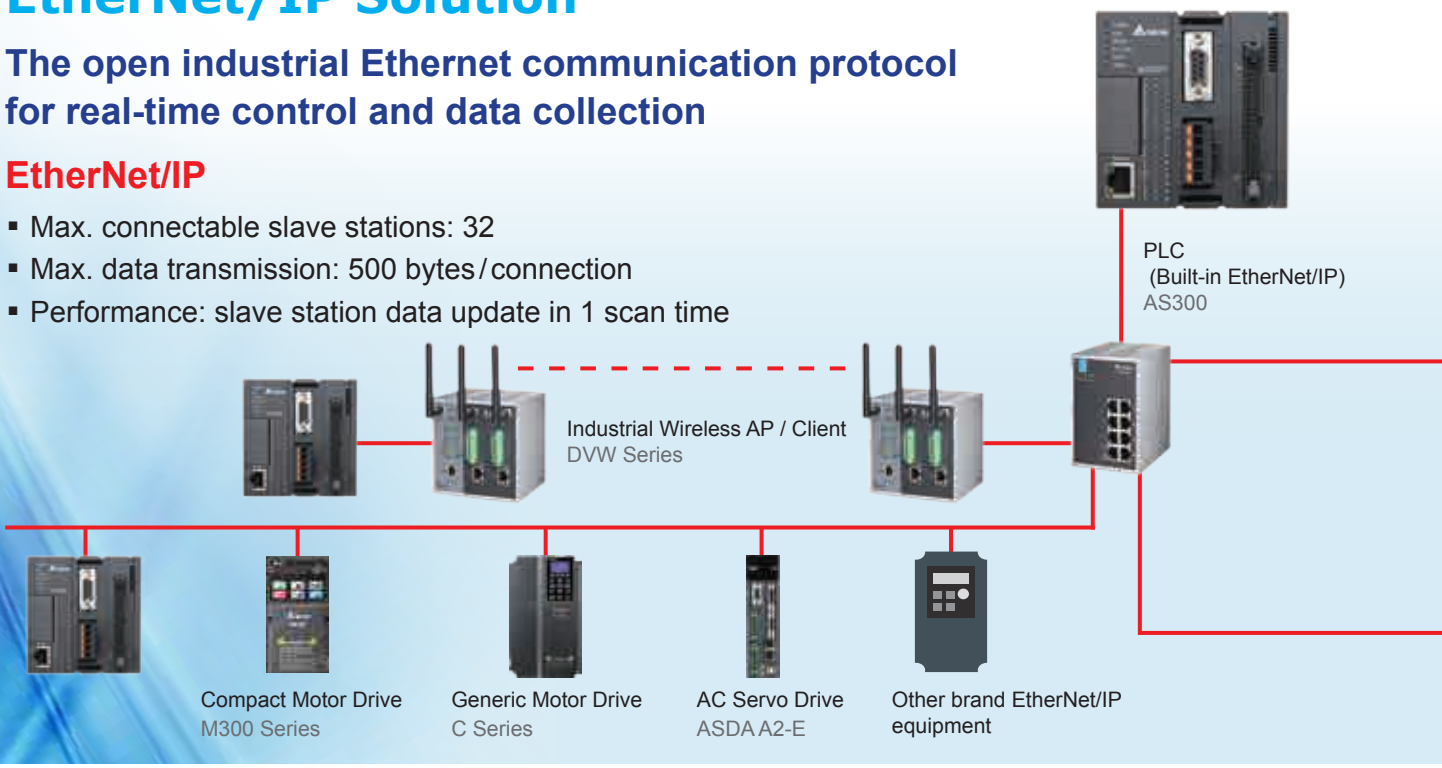
Industrial Network Solution

EtherNet/IP Solution

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

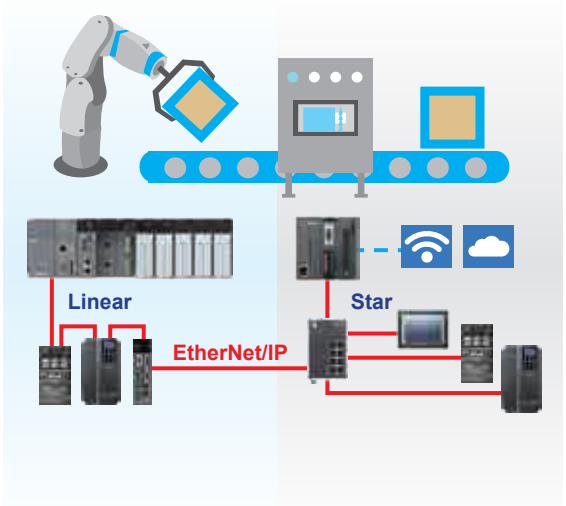
EtherNet/IP

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



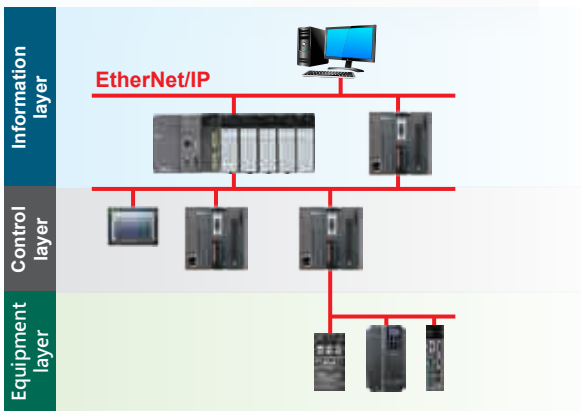
■ Flexible network system configuration

- 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



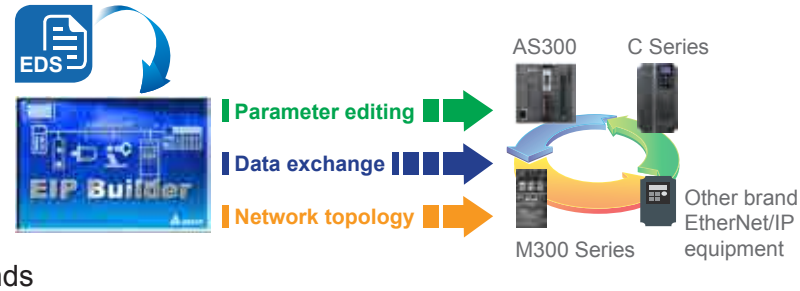
■ One cable, one network

- Complete Delta EtherNet/IP solution connects different equipment via Ethernet cable and simplify cable preparation
- Replaces traditional 3-layer industrial network structure with seamless connection via 100MB high-speed network
- Complete industrial network diagnosis for shortened debug time



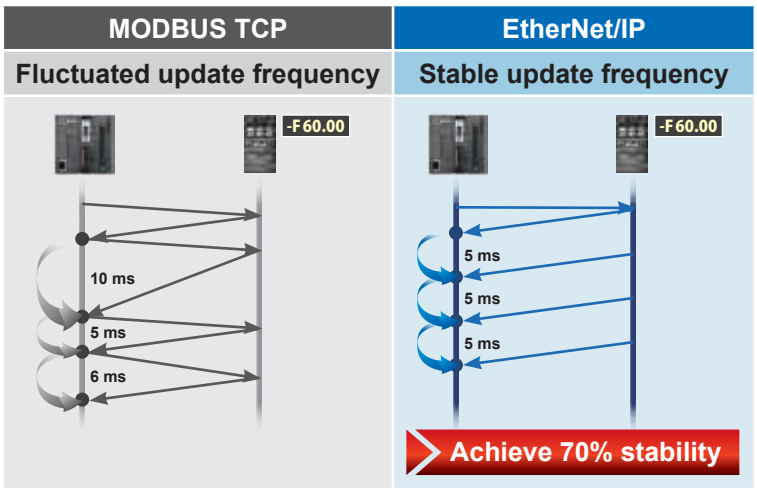
■ Software integration

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

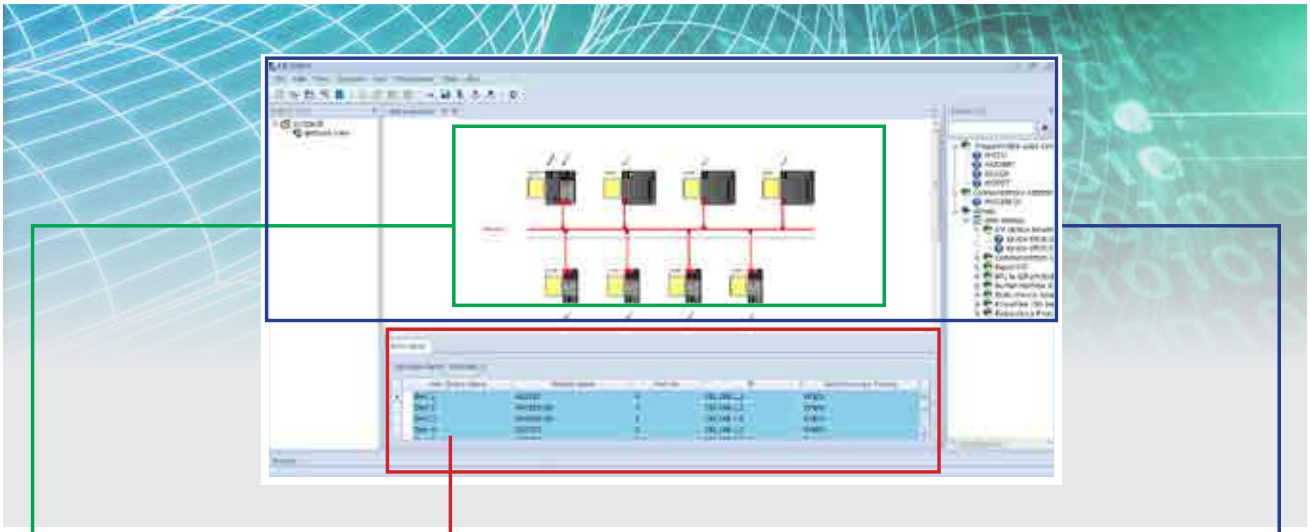


■ Accurate data update

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

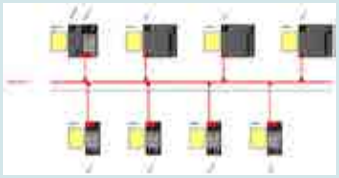


EtherNet/IP Software EIP Builder



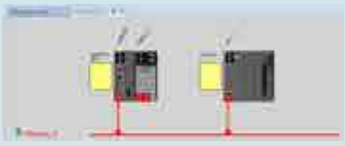
Visualized Network Mapping

- 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

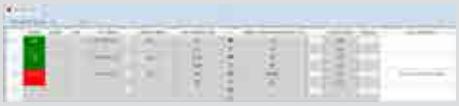
- Data exchange via table blanks filling. PLC programing is not required

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

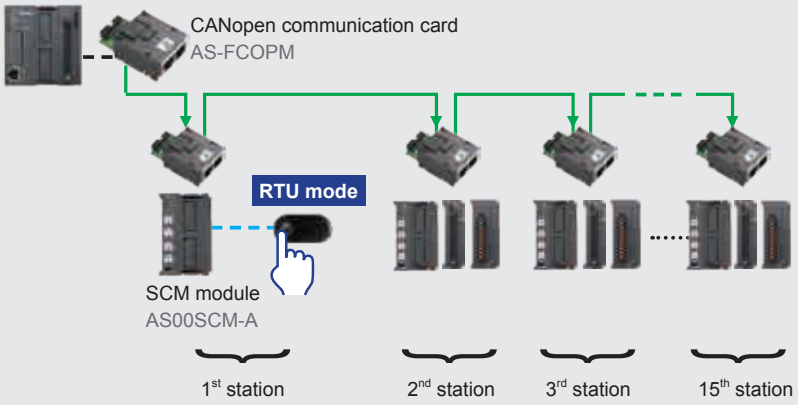
- Configure all IP address of all EtherNet/IP products

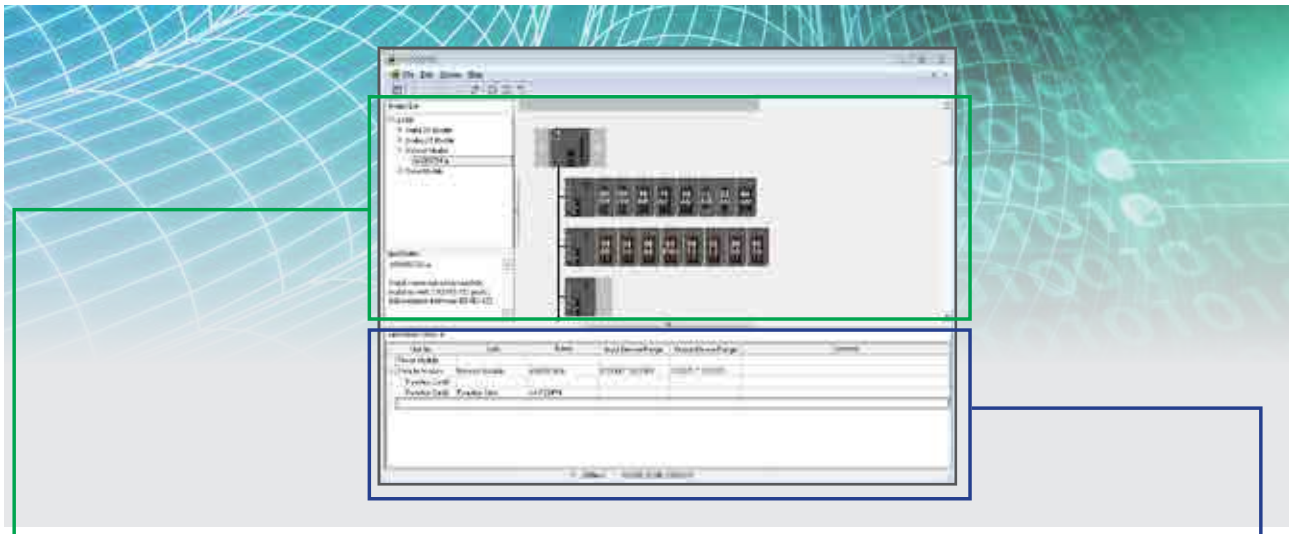
Equipment Description Management Function

Remote I/O Solution

CANopen Remote I/O

- Max quantity of RIO stations: 15 stations
- Max quantity of IO modules (CPU right side + RIO (SCM) right side): 32 modules
  - Max DIO points: 1,024 points
  - Max quantity of AIO modules: 16 modules
  - Max quantity of communication modules: 4 modules (Only installed on CPU right side)
  - Max quantity of IO modules installed on RIO (SCM) right side: 8 modules
- AS-FCOPM can only be installed in slot 2 of the CPU and SCM
  - When a CPU is installed as AS-FCOPM in slot 2, then slot 1 can be used to install another function card except AS-FCOPM
  - When SCM is working in RIO (RTU) mode, then slot 1 is disabled





Hardware Configuration

- Hardware parameter complete planning

Visualized I/O Structure

- Direct I/O planning

I/O Product List

- Product description and specification

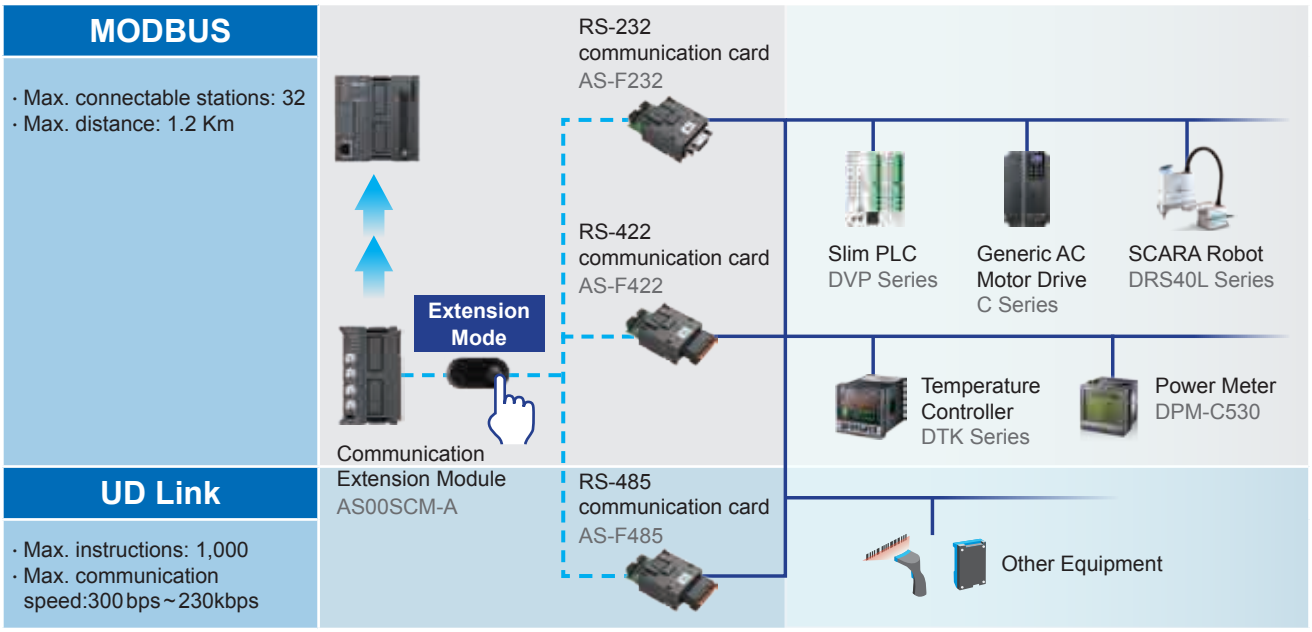
I/O Without Planning

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

DIO

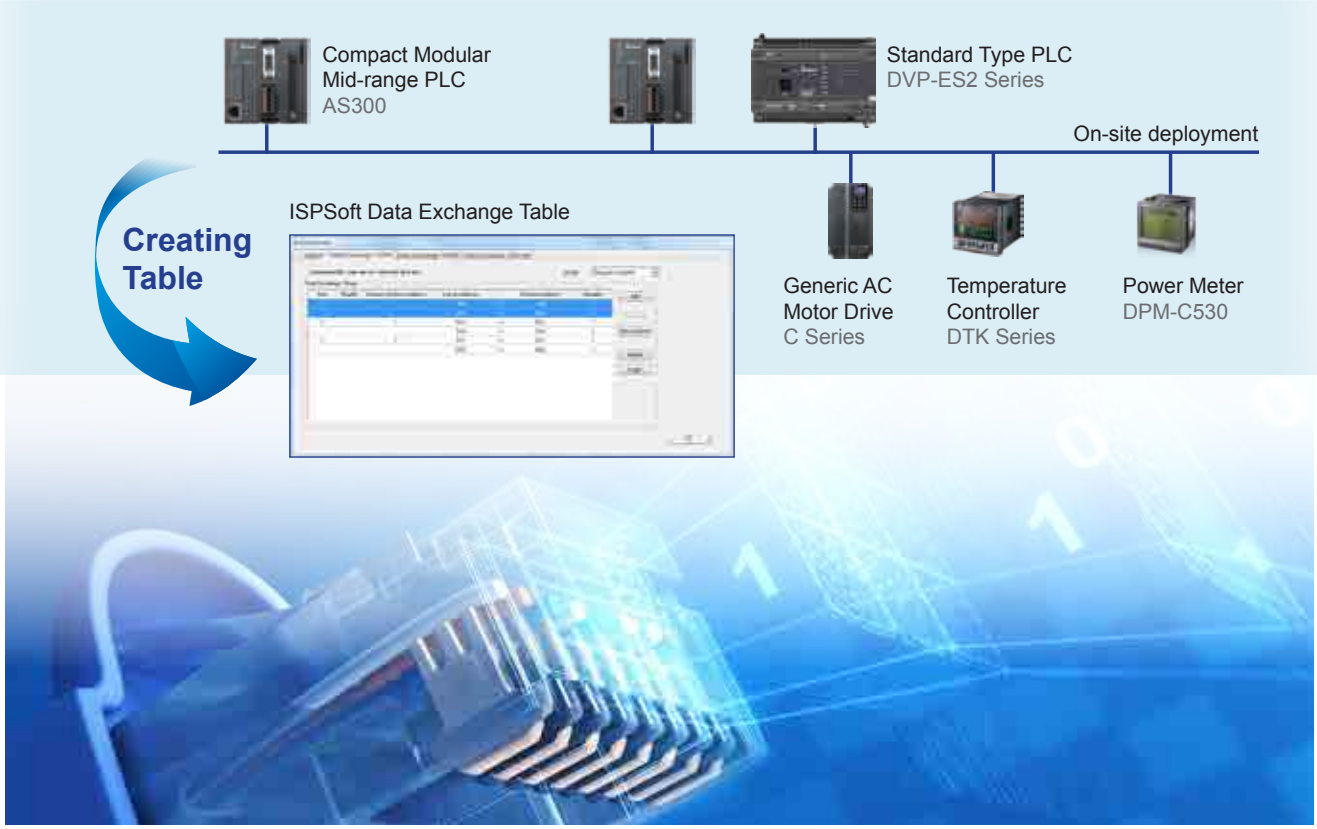
AIO

Serial Communication Solution



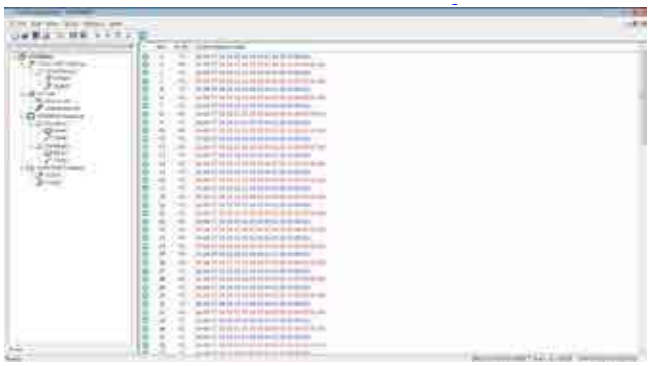
■ MODBUS Mode

▪ 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

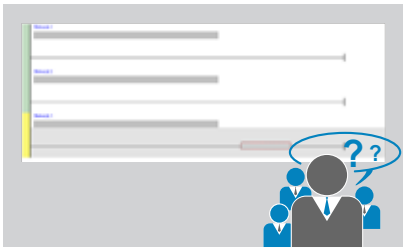


■ UD Link Mode (User-defined)

- Easy connection to end equipment of special communication protocols

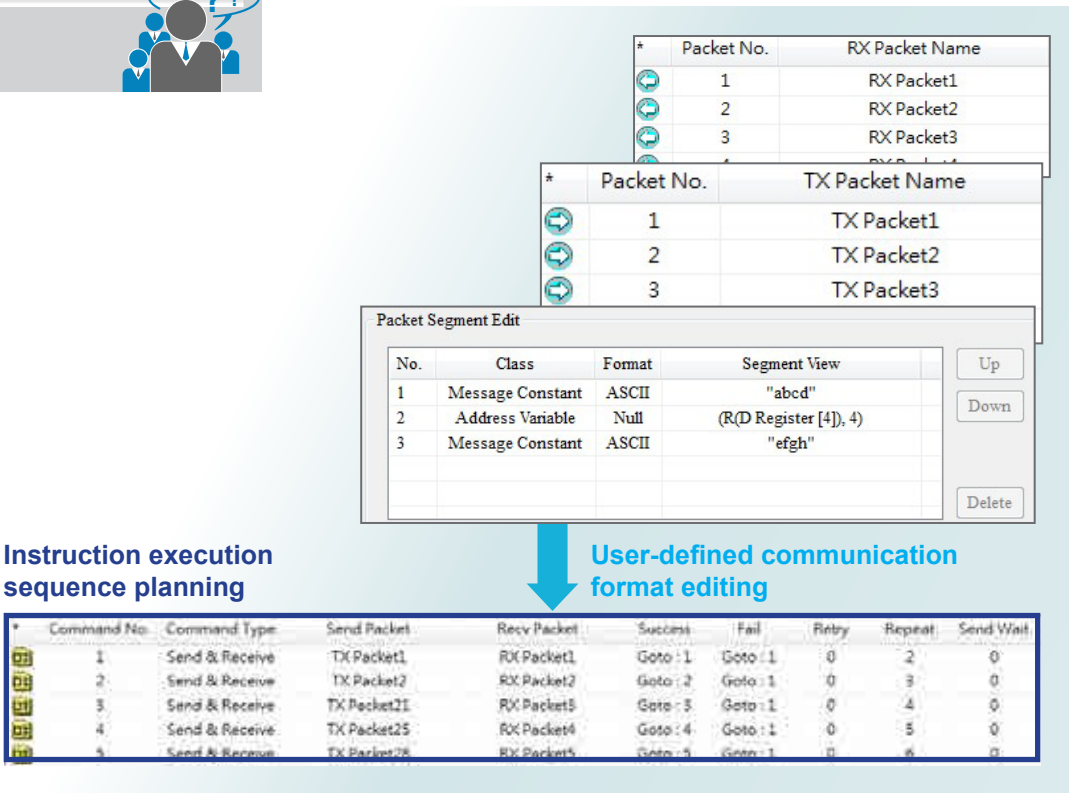
Traditional programming structure

Instruction receiving, accessing, editing, transmitting, sequence control



Connection to end equipment of special communication protocols

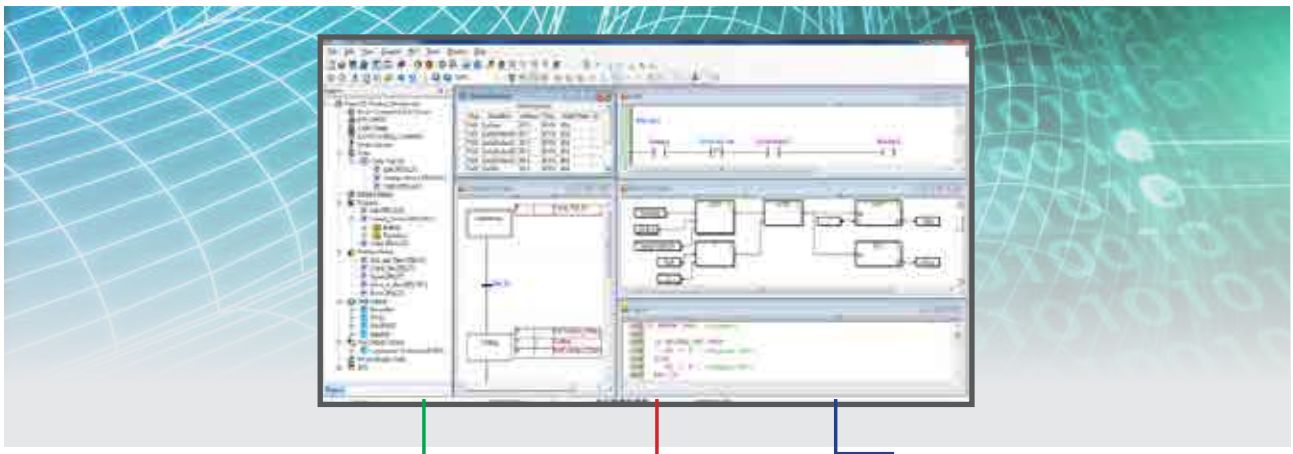
- Editing the transmitting/receiving packets via SCMSoft. Format exchange and checksum calculation via AS00SCM
- Packet content auto-combination for logic control in PLC, reducing PLC program complexity
- Max. 1,000 transmitting/receiving packets



Programming and Diagnosis Functions

ISPSoft IEC Programming Software

Easy operation greatly enhances efficiency



Data Tracer / Logger

- Data log and time-sequential analysis

Positioning Planning Tool

- Table-structured position planning

CARD Utility

- Data backup tool

COMMGR

- Communication interface manager

HWCONFIG

- Hardware configuration and parameter setting

EIP Builder

- EtherNet/IP network configuration

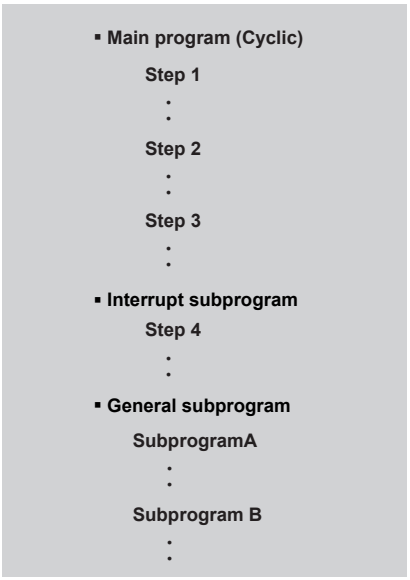
CANopen Builder

- CANopen network configuration

Modular Program Structure

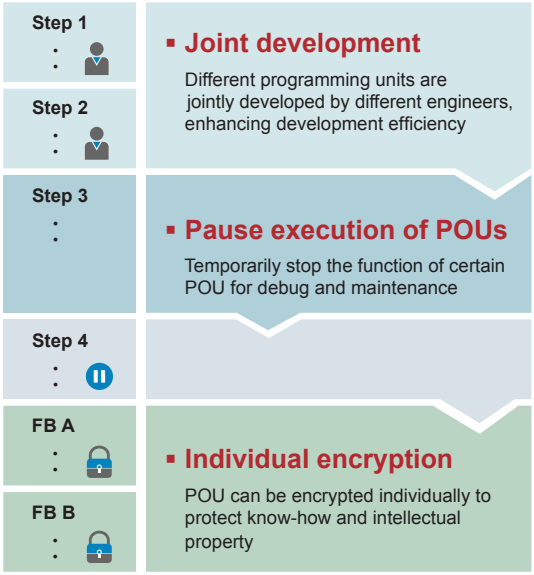
■ Traditional program structure

Errors are often found in large-scale programs under a traditional structure. It's hard to debug with increased maintenance cost.

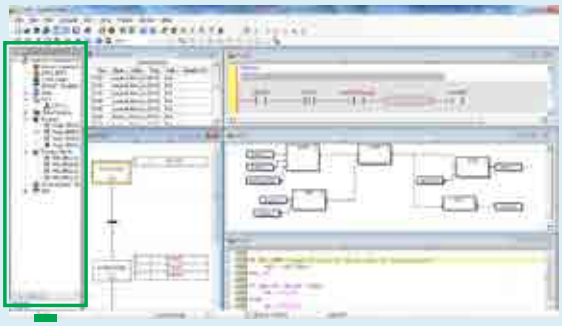


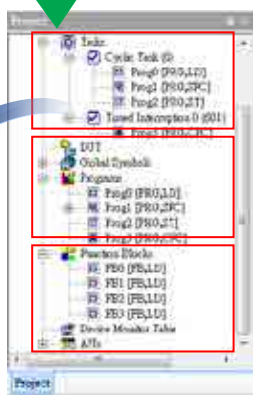
■ Modular program structure

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



■ Modular Program Structure





Display panel of task manager

▪ **Task manager**

Plan the execution sequence of POUs and define the nature of the tasks (cyclical or interruptive)

▪ **POU management**

Manage all POUs via project tree and support POU import/export for joint development or other uses

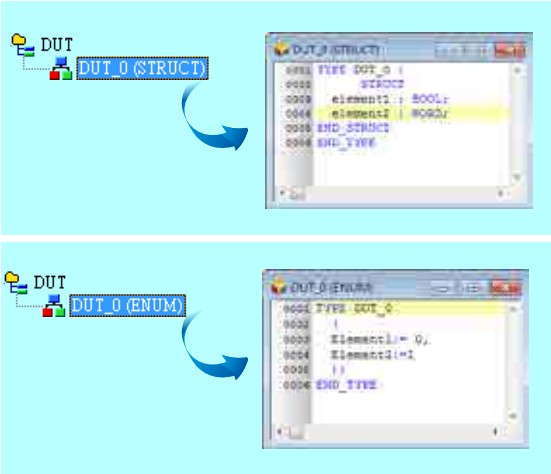
▪ **User library**

Built-in variety of Delta developed FBs. Users can add frequently used FBs to the library for future use.

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

Various Programming Languages

■ Support multiple programming languages in the same project

▪ Ladder Diagram (LD)

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

▪ Structured Text (ST)

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

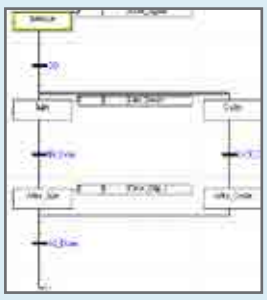
▪ Continuous Function Chart (CFC)

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

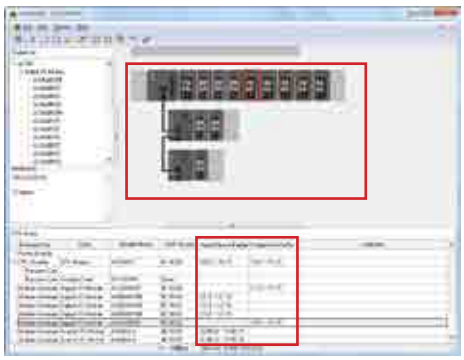
▪ Sequential Function Chart (SFC)

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



Easy Hardware Configuration and Parameter Setting

HWCONFIG



▪ Graphic panel for module configuration

Easy configuration based on connecting equipment scanning for quick setup

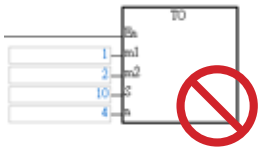
▪ I/O listing

Direct display for corresponding device addresses after configuration

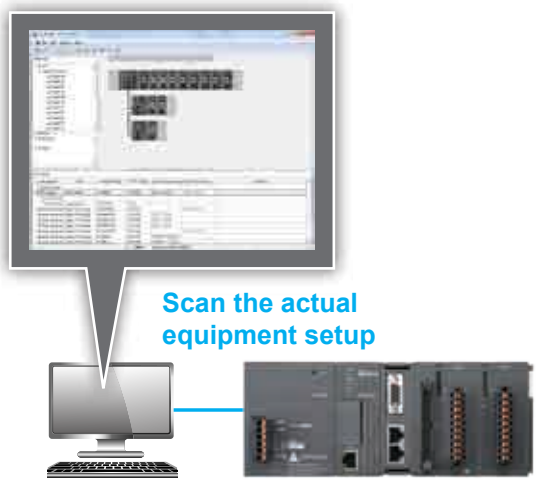
Note: Fill the table to configure module parameters quickly.
From/To instruction is not required for module initialization.

▪ Parameter setting

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

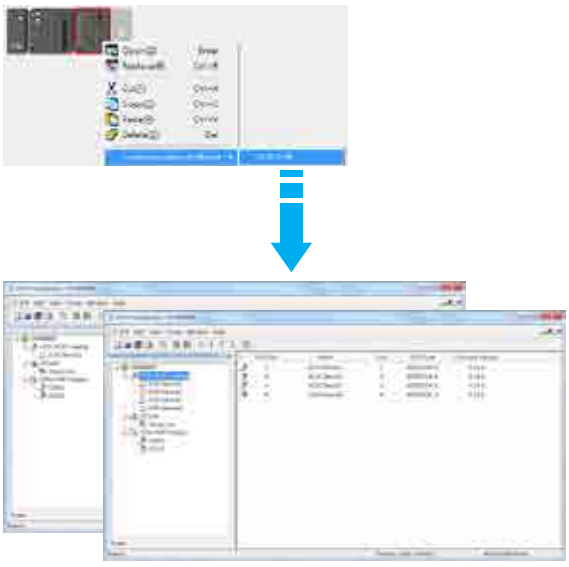


▪ Module configuration method



▪ Smart module configuration

Supports an advanced planning tool for a variety of network modules



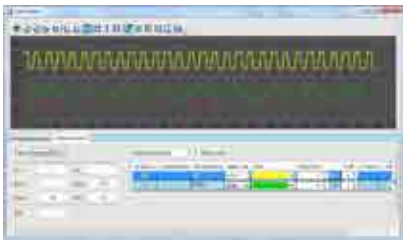
Complete Diagnosis Tools for Quick and Effective System Monitoring

Data Logger / Tracer

Real-time

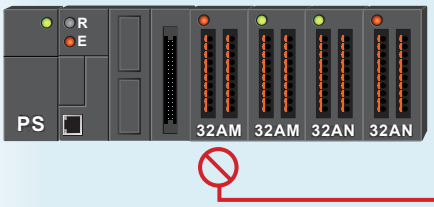
Stable

Precise



- **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 capture:**
  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
- **Efficient data analysis:**
  Supports trend display, scaling, arrangement, merge and measurement

Real-time Module Monitoring

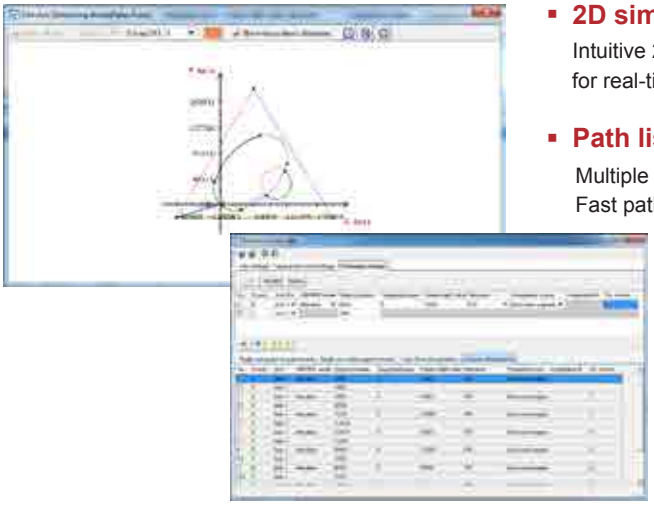


- **Visualized monitoring**
  Direct monitoring interface provides real-time status on modules via LED indicators
- **Module comparison**
  Real-time inspection of actual module settings to ensure consistency

- **Error logs**
  Immediate inquiry for error messages and logs of abnormal modules
- **Module information**
  Provides model name and version of current modules

Convenient Software Wizards for Effortless Planning

Position 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 once the counting mode is chosen. 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

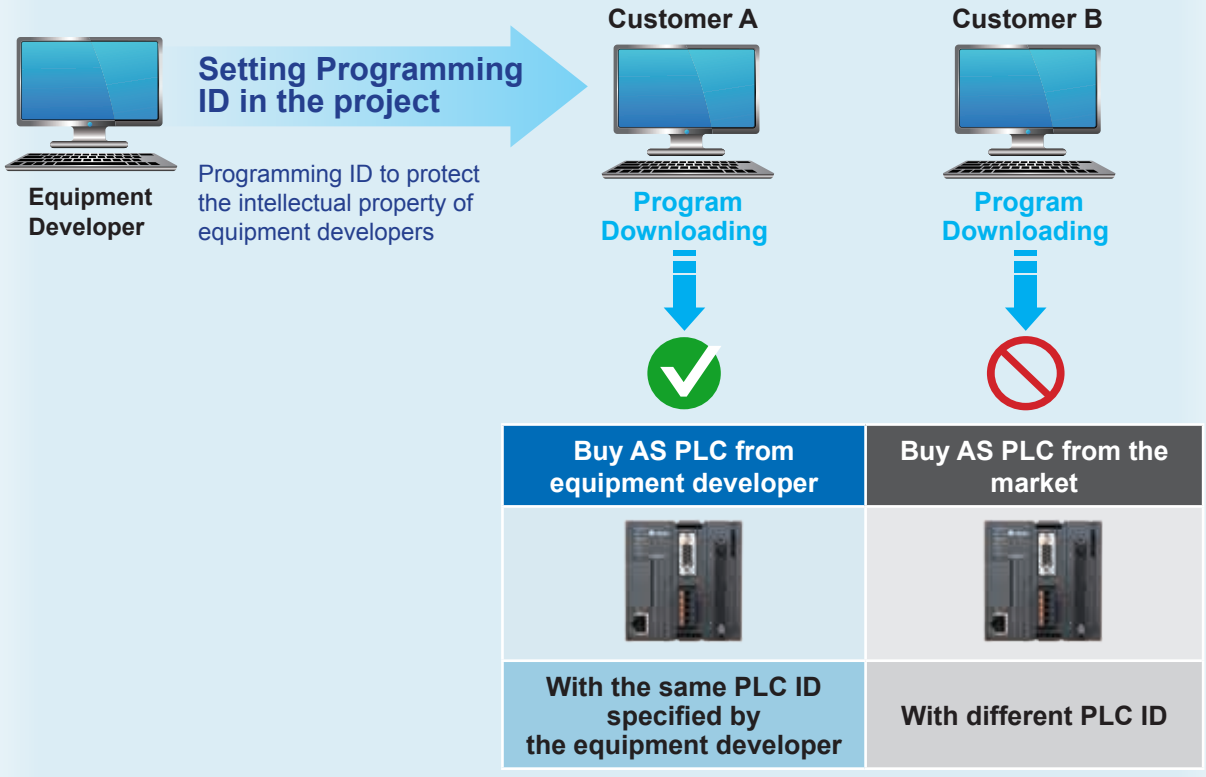
Data backup to PC

32GB Data backup to SD card

Multiple Security Protection for Programs and Data

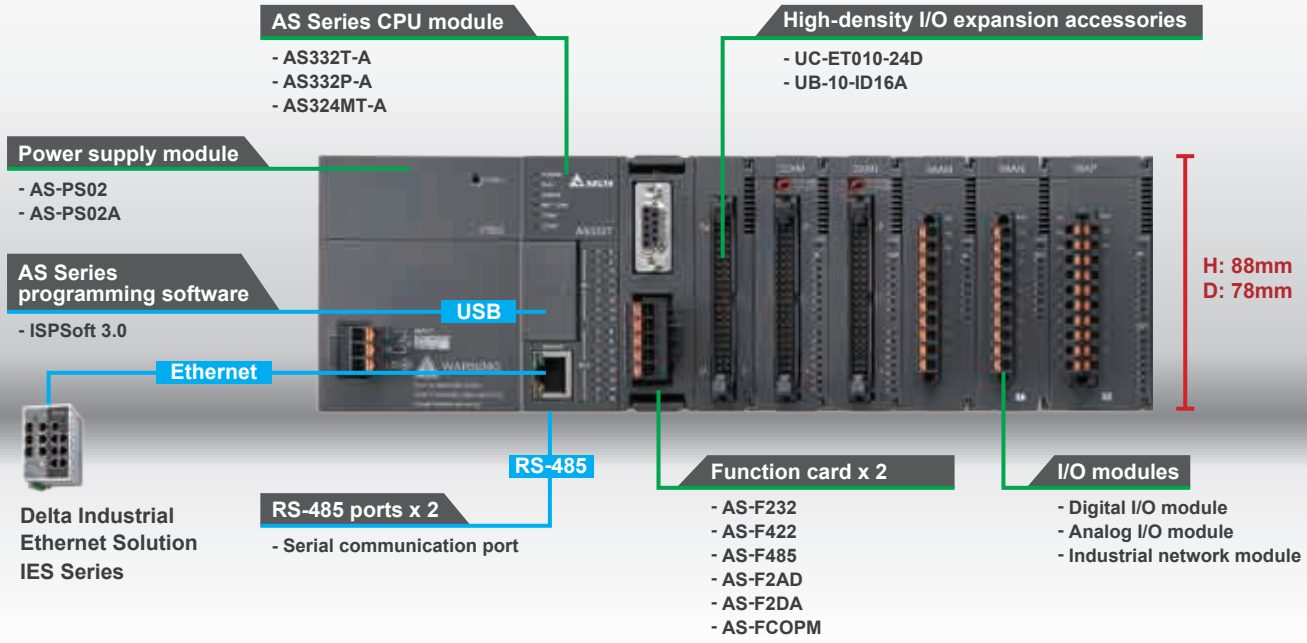
■ Security: provides 6 types of program protection for data safety

- 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 (Programmimg ID) and CPU (PLC ID)



- Prevention of direct copy from IC

Product Models and Specifications



CPU Module

AS332T-A (NPN output)
AS332P-A (PNP output)
AS324MT-A (Differential-type)

Specifications				
	Program capacity 128k steps	Basic instruction 25 ns	I/O capability: 1,024 Expansion modules: 32	
	USB / RS-485 x 2 / EtherNet/IP	Micro SD Card	Function card x 2	CANopen remote I/O
Built-in I/O	16DO / 16DI 12DO *1 / 12DI *2	6 axes 200 kHz pulse output *1	6 channels 200 kHz high-speed counters *2	CANopen DS301 point-to-point positioning control

*1: AS324MT-A (differential type): 12DO (2 axes 4 MHz + 4 axes 200 kHz output)
*2: AS324MT-A (differential type): 12DI (2 channels 4 MHz + 4 channels 200 kHz input)

Power Supply AS-PS02	
	Input 100 VAC ~ 240 VAC
	24 VDC · 2A (for internal bus)

Power Supply AS-PS02A	
	Input 100 VAC ~ 240 VAC
	24 VDC · 1.5A (for internal bus) 24 VDC · 0.5A (for external I/O)

Product Specifications

Model		AS332T-A	AS332P-A	AS324MT-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		
Memory Capacity	Data (D)	64k words (30k user-defined, 30k software configuration and 4k special registers)		
	Extension (FR)	64k words (user parameter storage)		
Function Card No.		CPU supports 2 function cards		
Max. Extension Modules		32 (max. 16 analog modules / 4 communication modules)		
Max. Number of Inputs/Outputs		1,024 (input & output)		
CPU Built-in Inputs/Outputs		32		24
CPU Built-in Differential Inputs/Outputs		-		4 Input + 4 Output
Inputs/Outputs	X	1,024 inputs (X0.0 ~ X63.15)		
	Y	1,024 outputs (Y0.0 ~ Y63.15)		
Bit Devices	M	8,192 Bit (M0 ~ M8191)		
	S	2,048 Bit (S0 ~ S2047)		
Timer	T	512 (T0 ~ T511)		
16 bit Counter	C	512 (C0 ~ C511)		
32 bit Counter	HC	256 (HC0 ~ HC255)		
Pulse Output		NPN/PNP: 6 axes at 200 kHz		Differential type: 2 axes at 4 MHz 4 axes at 200 kHz, 2 channels at 4 MHz 4 channels at 200 kHz NPN/PNP: 4 axes 200 kHz
High-Speed Counter		6 channels at 200 kHz		Differential type: 2 channels 4 MHz General: 4 channels 200 kHz
Data Backup (Without Battery)	Program	Flash ROM, 100,000 times rewritable		
	Latched Area	MRAM, no rewriting limit		
CANopen DS301	Connectable Salve Stations	Max. 64		
	PDO Data Capacity (Host)	Max. 2000 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 error, built-in memory error and more		
Rated Input Current	AS-PS02/ AS-PS02A	110 V_{AC} ~ 240 V_{AC} (±10%)		
	CPU	24 V_{DC} (±10%)		
	Extension modules			

Electrical and Environmental Specifications

Items		Specifications
Internal Power Consumption	CPU	150 mA
	Extension Module	Digital relay output <150 mA, Other modules < 80 mA
Operating Temperature		-20 ~ 60 °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); 5 Hz ≦ f ≦ 8.4 Hz, constant amplitude 3.5 mm; 8.4 Hz ≦ f ≦ 150 Hz, constant acceleration 1g
Shock		IEC 61131-2, IEC 60068-2-27 (TEST Ea); 15g peak, 11 ms duration, half-sine
Operating Environment		Non-corrosive gas
Installation		Inside of the control panel
Pollution Degree		2
Protection Rating		IP20
Altitude		< 2,000 m

Ethernet Specifications

Items			AS324MT-A / AS332T-A / AS332P-A	Note
Protocols			MODBUS TCP、EherNet/IP	Support the protocols at the same time
MODBUS TCP	Equipment Type		Client / Server	
	Server / Client		32 / 32	
	RTU Mapping		4 sets	
Socket	TCP / UDP Links		4 TCP / 4 UDP	
EtherNet/IP	Equipment Type		Scanner / Adapter	
	CIP_IO Connection	CIP	32 (Client+Server)	
		TCP	16 (Client+Server)	
		Requested Packet Interval (RPI)	5 ms ~ 1000 ms	Preset: 20 ms
		Max. Performance	3000 pps	
		Max. Capacity / Connection	500 bytes	
	CIP_Explicit Message	Class 3 (Connected Type)	32 (Servers), shared with UCMM	Shared with I/O Connection
		UCMM (Non-Connected Type)	32 (Clients + Servers) · shared with Class 3	Shared with I/O Connection

AS Series PLC Selection Tool

Please go to Delta's official website:

http://www.deltaww.com/services/DownloadCenter2.aspx?secID=8&pid=2&tid=0&CID=06&itemID=060301&typeID=1&downloadID=,&title=--%20Select%20Product%20Series%20--&dataType=1;&check=1&hl=en-US

AS Series I/O Modules

■ Digital I/O Modules (Input)

8 inputs
Faster wiring terminal block
AS08AM10N-A

16 inputs
Faster wiring terminal block
AS16AM10N-A

32 inputs
High-density MIL terminal block
AS32AM10N-A

64 inputs
High-density MIL terminal block
AS64AM10N-A

Rated input voltage
5~24 V_{DC}

Response time
1 ms

Filter function
1~20 ms

Screwless removable terminal block
8 /16 inputs

■ Digital I/O Modules (Output)

8 outputs
Faster wiring terminal block Transistor output NPN (Sink)
AS08AN01T-A

8 outputs
Faster wiring terminal block Relay output
AS08AN01R-A

8 outputs
Faster wiring terminal block Transistor output PNP (Source)
AS08AN01P-A

32 outputs
High-density MIL terminal block Transistor output NPN (Sink)
AS32AN02T-A

NPN (Sink)
or PNP (Source)
module

Response time
1 ms (Transistor)
10 ms (Relay)

Screwless removable terminal block
8 /16 outputs

16 outputs
Faster wiring terminal block Transistor output NPN (Sink)
AS16AN01T-A

16 outputs
Faster wiring terminal block Relay output
AS16AN01R-A

16 outputs
Faster wiring terminal block Transistor output PNP (Source)
AS16AN01P-A

64 outputs
High-density MIL terminal block Transistor output NPN (Sink)
AS64AN02T-A

■ Digital I/O Modules (Mixed)

16 inputs / outputs
Faster wiring terminal block 8 inputs / 8 transistor outputs NPN (Sink)
AS16AP11T-A

16 inputs / outputs
Faster wiring terminal block 8 inputs 8 relay outputs
AS16AP11R-A

16 inputs / outputs
Faster wiring terminal block 8 inputs / 8 transistor outputs PNP (Source)
AS16AP11P-A

NPN (Sink) or PNP (Source) module	
Rated input voltage 5~24 V_{DC}	Filter function 1~20 ms
Screwless removable terminal block	
Response time 1 ms (Transistor) 10 ms (Relay)	

■ Analog I/O Modules

4 channels
Analog inputs
AS04AD-A

4 channels
Analog outputs
AS04DA-A

6 channels
Analog inputs / outputs
AS06XA-A

Conversion time 2 ms / channel	50/60 Hz filter
Accuracy ±0.2%	4/6 CH
Voltage and current control	Differential inputs
Module monitoring / configuration	Resolution AI: 16 bit AO: 12 bit

■ Load Cell Module

2 channels
AS02LC-A

Functions	50 / 60 Hz filter	High-speed dynamic measurement	2 channels of independent sampling	
	Accuracy 0.4% full range	2 CH	Connectable to 4-wire / 6-wire load cell sensor	
Software	LCSoft	Filter function	Multiple-point calibration	Online monitoring / configuration

AS Series I/O Modules

■ Temperature Measurement Modules

4 channels

PT, NI temperature sensor

AS04RTD-A

Conversion time 200 ms / channel		Resolution 0.1° C / 0.1° F	Wire breaking detection
Accuracy ±0.1%	50/60 Hz filter	Module monitoring / configuration	4 CH
Pt100 / Ni100 / Pt1000 / Ni1000 / JPt100 / LG-Ni1000 / Cu50 / Cu100, resistor 0 ~ 300 Ω, 0 ~ 3,000 Ω			

4 channels

TC temperature sensor

AS04TC-A

Conversion time 200 ms / channel		Resolution 0.1° C / 0.1° F	Disconnection detection
Accuracy ±0.1%	50/60 Hz filter	Module monitoring / configuration	4 CH
J, K, R, S, T, E, N, B type thermocouple; ±100 mV			

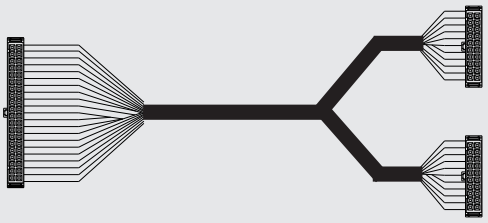
■ Communication Modules

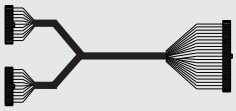
2 COM ports

AS00SCM-A

COM port	RS-232C	RS-422	RS-485	CANopen
Function	Selectable COM ports; supporting standard MODBUS protocol and user-defined protocol			Delta communication protocol
Software	SCMSoft	Data exchange table for quick setup		Real-time monitoring on communication status

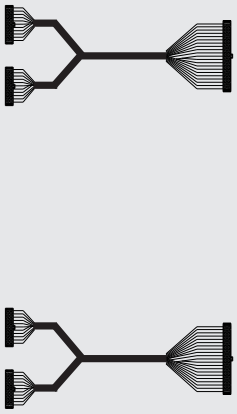
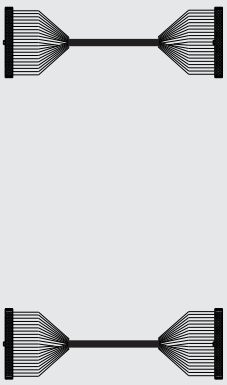
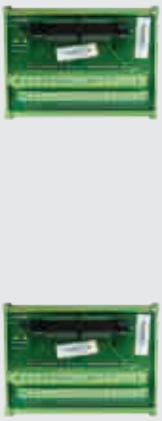
Accessory Selection for High-density Modules

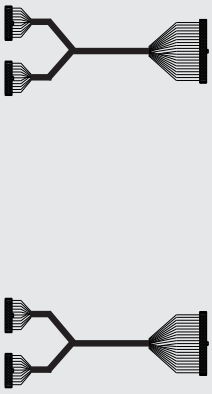
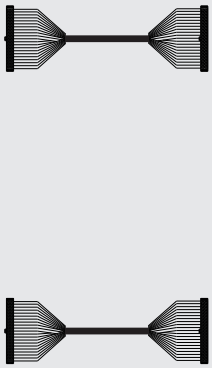
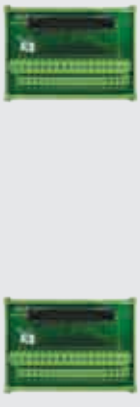
Model Name		
AS332T-A AS332P-A AS324MT-A	UC-ET010-24D (1M) UC-ET020-24D (2M) UC-ET030-24D (3M)	UB-10-ID16A
		

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)	UB-10-OT32A
				

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
				

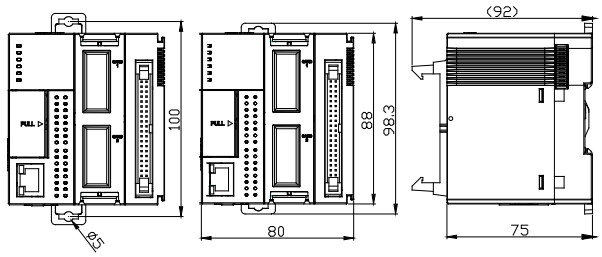
Model Name				
UB-10-ID16A or UB-10-OR16A (Relay)	UC-ET010-24D (1M) UC-ET020-24D (2M) UC-ET030-24D (3M)	AS64AN02T-A	UC-ET010-24B (1M) UC-ET020-24B (2M) UC-ET030-24B (3M)	UB-10-OT32A
				

Dimensions

CPU Modules

Dimensions are in mm

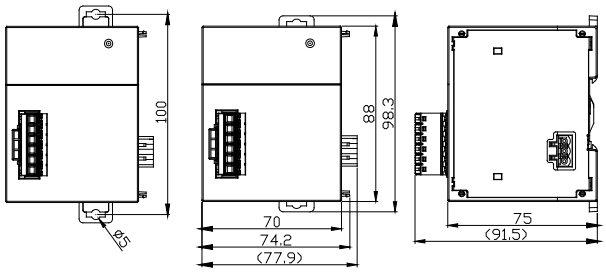
AS332T-A, AS332P-A, AS324MT-A



Power Supply Modules

Dimensions are in mm

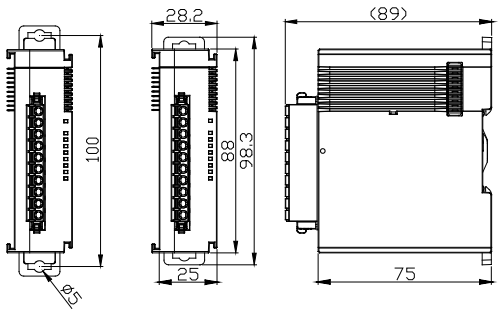
AS-PS02, AS-PS02A



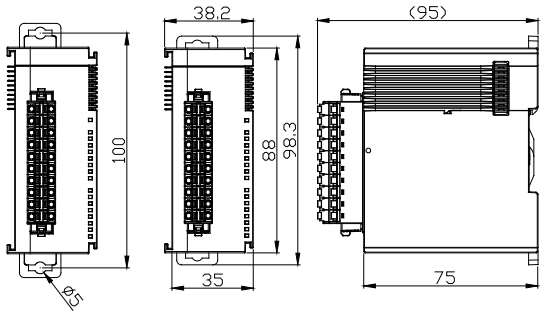
Digital I/O Modules

Dimensions are in mm

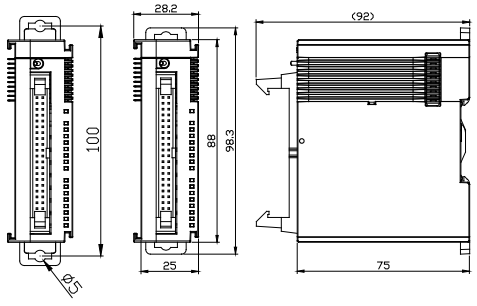
AS08AM10N-A, AS08AN01R-A, AS08AN01T-A, AS08AN01P-A



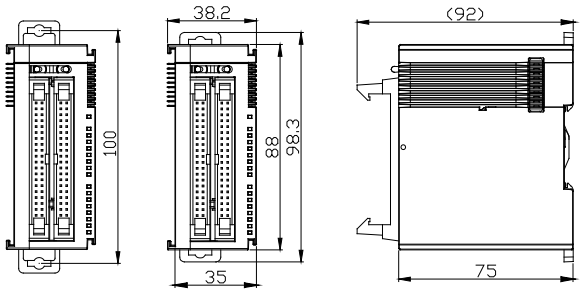
AS16AM10N-A, AS16AN01R-A, AS16AN01T-A, AS16AN01P-A, AS16AP11R-A, AS16AP11T-A, AS16AP11P-A



AS32AM10N-A, AS32AN02T-A



AS64AM10N-A, AS64AN02T-A

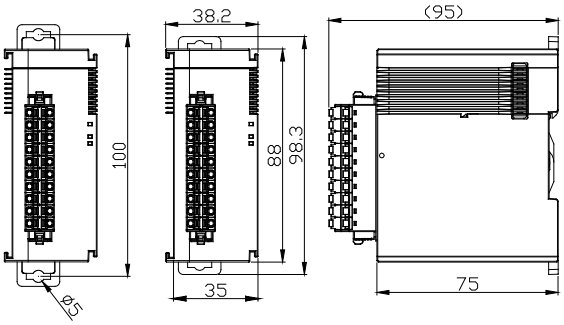


Dimensions

Analog Modules

Dimensions are in mm

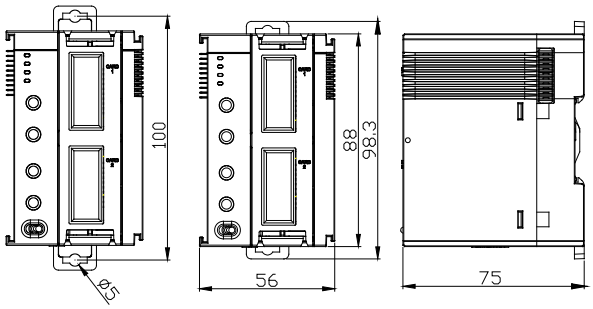
AS02LC-A, AS04AD-A, AS04DA-A, AS04TC-A, AS04RTD-A, AS06XA-A



Communication Modules

Dimensions are in mm

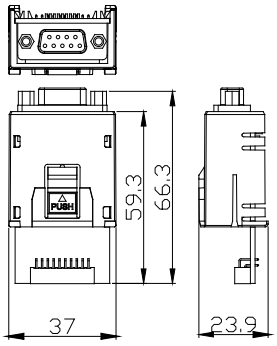
AS00SCM-A



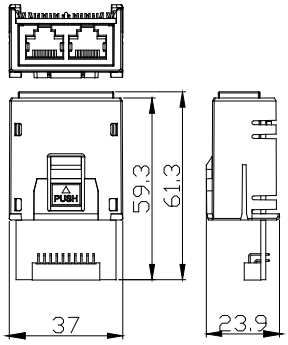
Function Cards

Dimensions are in mm

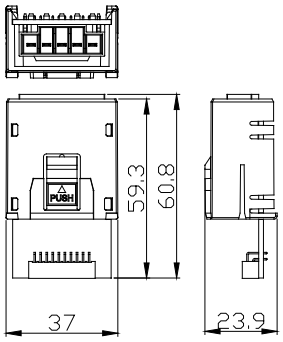
AS-F232



AS-FCOPM

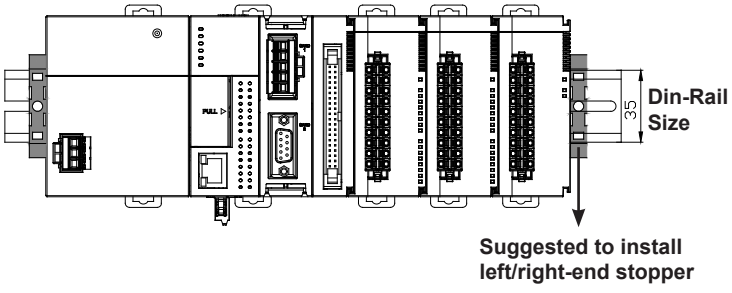


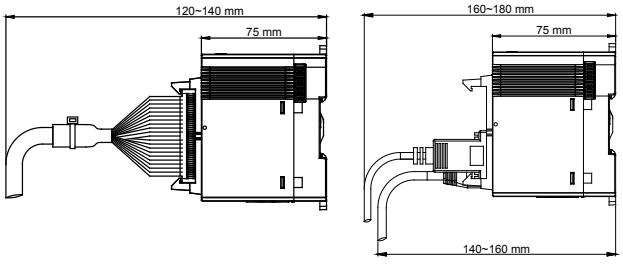
AS-F2AD, AS-F2DA, AS-F422, AS-F485



Installation Notes

Dimensions are in mm

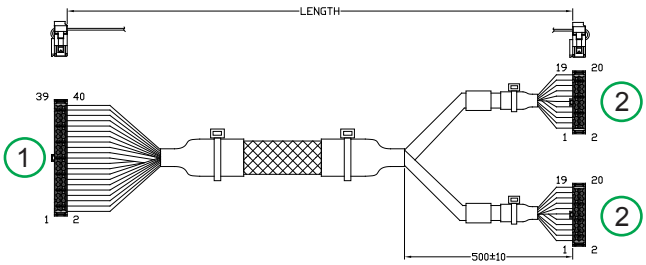




Cable (MIL)

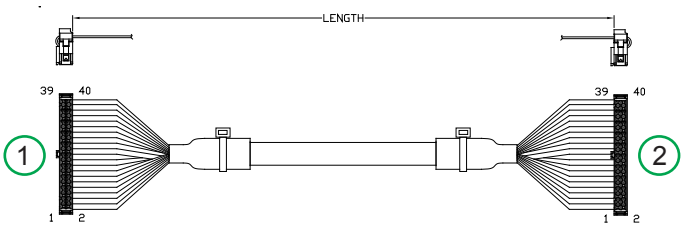
Dimensions are in mm

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



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

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

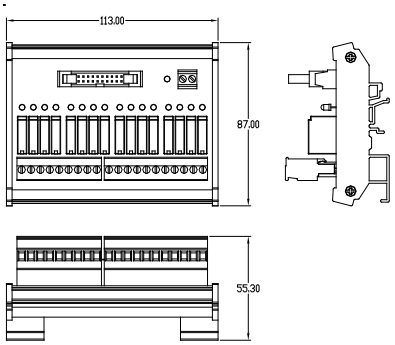


Serial	Name	Description
1	40-pin terminal	Connect to modules
2	40-pin terminal	Connect to external terminal modules UB-10-ID32A or UB-10-OT32A

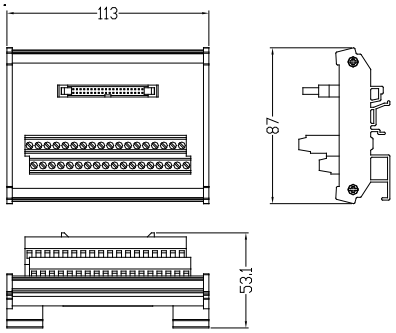
External Terminal Modules

Dimensions are in mm

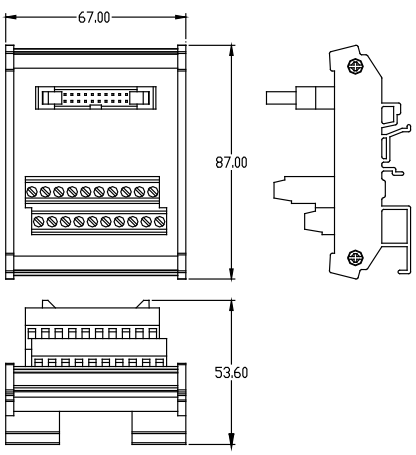
UB-10-OR16A, UB-10-OR16B



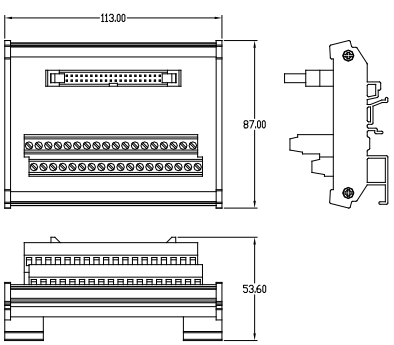
UB-10-OT32A



UB-10-ID16A



UB-10-ID32A



Ordering Information

■ CPU Module

Name	Model	Program Capacity	Data Register	Instruction Speed / Performance		Built-in Communication	Memory Card
CPU	AS332T-A	128k steps	60k words	LD: 25 ns MOV: 0.15 µs	40k steps / 1 ms (LD 40%, MOV 60%)	USB, RS-485*2, Ethernet	Micro SD Max. 32GB
	AS332P-A						
	AS324MT-A						

Name	Model	I/O Type / Terminal Block Type	Built-in I/O	Axes Controlled	Max. inputs & outputs / Extension Module (Max. Extension Racks)	Certification
CPU	AS332T-A	NPN (Sink) / MIL connector	32 (16 in / 16 out)	Built-in 6 axes (or 12 channels) 200 kHz	1,024 inputs & outputs / 32 modules (Max. 15 extension racks)	CE/UL
	AS332P-A	PNP (Source) / MIL connector				
	AS324MT-A	Differential / MIL connector	24 (12 in / 12 out)	Built-in 2 axes 4 MHz / 4 axes 200 kHz		

■ 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 module, 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 SCM communication modules
CANopen Builder [V5]	Free	CANopen configuration software/ motion control programming software	AS Series, AH Series, DVP Series built-in CANopen 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 Module

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

Communication Module

Name	Model	Communication Card Installation	Max. Module on CPU rack	Power Consumption (Internal)	Specifications	Certification
Communication Extension Module	AS00SCM-A	2	4	0.6 W	• Serial communication: RS-232 / RS-422 / RS-485 • Provide CANopen communication interface for extension racks	CE/UL

Digital I/O Module

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

Name	Model	I/O	Signals	Terminal Block Type	Power Consumption (Internal)	Specifications	Certification
Output Module	AS08AN01R-A	8	240 V_{AC} 24 V_{DC}	Removable terminal block	1.7 W	Relay	CE/UL
	AS16AN01R-A	16			3.4 W	Relay	
	AS08AN01T-A	8	5 ~ 30 V_{DC} 0.5 A		0.72 W	Transistor NPN (Sink)	
	AS08AN01P-A	8			1.4 W	Transistor PNP (Source)	
	AS16AN01T-A	16			1.4 W	Transistor NPN (Sink)	
	AS16AN01P-A	16			1.4 W	Transistor PNP (Source)	
	AS32AN02T-A	32	5 ~ 30 V_{DC} 0.1 A	MIL	0.72 W	Transistor NPN (Sink)	
	AS64AN02T-A	64			1.44 W	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 in / 8 out)	24 V_{DC} 5 mA	240 V_{AC} 24 V_{DC} 2A	Removable terminal block	1.9 W	Relay	CE/UL
	AS16AP11T-A	16 (8 in / 8 out)		5 ~ 30 V_{DC} 0.5 A		0.7 W	Transistor NPN (Sink)	
	AS16AP11P-A	16 (8 in / 8 out)				0.7 W	Transistor PNP (Source)	

Ordering Information

■ Analog I/O Module

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	• Hardware resolution: 16-bit • Single channel on/off setting to enhance overall conversion efficiency • Conversion time: 2ms / channel • Wire break detection at 1~5V, 4~20mA modes	CE/UL
Analog Output Module	AS04DA-A	4	0~10V -10~10V 4~20mA 0~20mA		1.2W / 3W	• Hardware resolution: 12-bit • Single channel on/off setting • Conversion time : 250μs / channel	
Analog Input / Output Module	AS06XA-A	Input: 4 Output: 2	• Input: 1~5V 0~5V -5~5V 0~10V -10~10V 4~20mA 0~20mA -20~20mA • Output: 0~10V -10~10V 4~20mA 0~20mA		1.2W / 2.5W	• Input resolution: 16-bit • Output resolution: 12-bit • Single channel on/off setting to enhance overall conversion efficiency • Conversion time: 2ms / channel • Wire break detection at 1~5V, 4~20mA modes	

Temperature Measurement Module

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 Impendence 0~300 Ω 0~3,000 Ω	Removable terminal block	2 W / 1 W	• Resolution 0.1° C / 0.1° F • Conversion time: 200 ms / channel • Accuracy ±0.1% • Wire break detection • Module monitoring, setting	CE/UL
Thermocouple Temperature Measurement Module	AS04TC-A	4	J, K, R, S, T, E, N, B -100 ~ +100 mV				

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	0.75 W / 3 W	• Resolution: 24-bit for hardware (ADC), 32-bit for data output • 4-wire / 6-wire load cell sensor • Selectable signal input ranges • LCSoft software configuration • High-speed dynamic measurement • 50 / 60 Hz active filtering	CE/UL

Ordering Information

■ 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	• CANopen port, support DS301, AS Series remote control or Delta servo motor control • Built-in switchable terminal resistor (120 Ω)	
Analog I/O Card	AS-F2AD	2	2-channel analog input 0 ~ 10 V (12-bit resolution), 4 ~ 20 mA (11-bit resolution), conversion time: 3 ms / channel	
	AS-F2DA	2	2-channel analog Output 0 ~ 10 V, 4 ~ 20 mA (12-bit resolution), conversion time: 2 ms / channel	

■ Accessories

Name	Model	Descriptions	Specifications		Applicable Module
			Length	Connector / Terminal Block Type	
PLC programming cable	UC-PRG015-01A	Communication cable for PLC to PC	1.5 m	PLC (mini USB)	AS332T, AS332P, AS324MT
	UC-PRG030-01A		3 m	PLC (mini USB)	AS332T, AS332P, AS324MT
	UC-PRG030-20A	Communication cable for PLC / HMI (RJ45) to PC	3 m	PLC / HMI (RJ45)	AS332T, AS332P, AS324MT
Industrial network cable	UC-CMC003-01A	CANopen communication cable	0.3 m	---	AS-FCOPM
	UC-CMC005-01A		0.5 m		
	UC-CMC010-01A		1 m		
	UC-CMC015-01A		1.5 m		
	UC-CMC020-01A		2 m		
	UC-CMC030-01A		3 m		
	UC-CMC050-01A		5 m		
	UC-CMC100-01A		10 m		
	UC-CMC200-01A		20 m		

■ 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
External terminal module	UB-10-ID16A	External terminal module of digital input/output module	--	16 inputs or outputs (MIL connector, 20Pin)	AS332T, AS332P, AS324MT, AS32AM, AS64AM, AS32AN, AS64AN
	UB-10-ID32A			32 inputs (MIL connector, 40Pin)	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

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