Robot

SCARA

DRS40L

SCARA Robot

Delta SCARA fulfills industry needs for processes such as insertion, screw locking, assembly, gluing, coating, soldering, load and unload, pick-and-place, stacking, packaging, and inspection for industries such as consumer electronics, electrical/electronics, rubber and plastic, packaging, metal fabrication and others.

When matched with control units and other peripheral devices such as servo systems, machine vision systems and linear modules, the SCARA becomes a highly integrated work station. It satisfies requirements for both single devices and workstation applications, and enables modularized production lines and multi-products production with consistently good quality. Delta SCARA is easily applied to production automation for higher flexibility in achieving smart and efficient production, and improving productivity, quality, and labor efficiency.

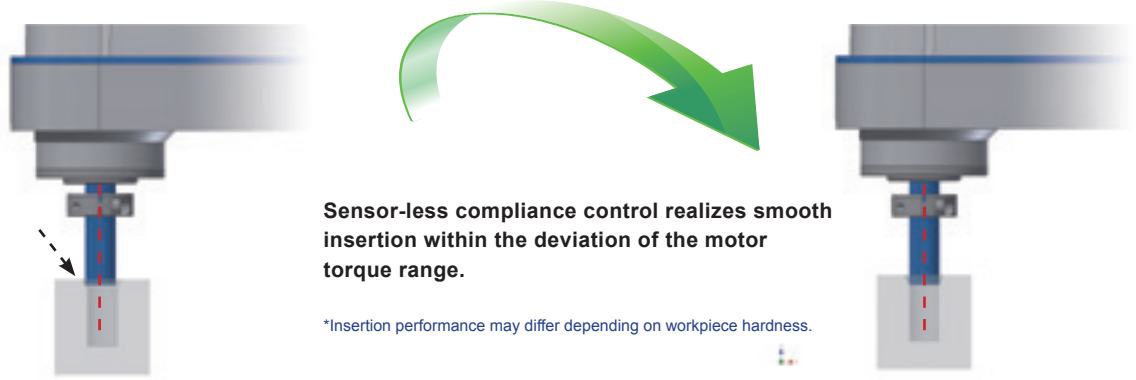
Excellent speed, linearity, verticality and repeatability

Motion Stroke (Back & Forth)
Z Axis: 25 mm
X / Y Axis: 300 mm

Payload (Kg)	Cycle Time (sec)
1	0.42
2	0.45
3	0.48

Arm Length: 400 mm
Max. Payload: 3 Kg
Repeatability: ±0.01 mm

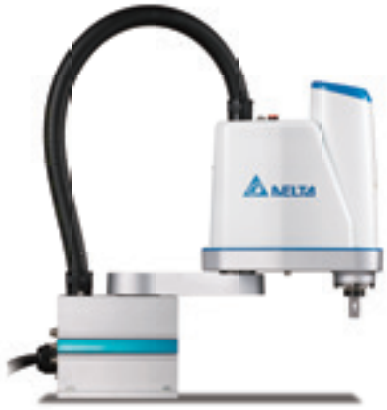
Compliance control functions without sensors to compensate for the deviation between workpieces and insertion holes.



Sensor-less compliance control realizes smooth insertion within the deviation of the motor torque range.

*Insertion performance may differ depending on workpiece hardness.

Simple and Easy-to-Operate with Versatile Control Approaches



Multiple Teaching Methods

PAD

Teaching Pendant

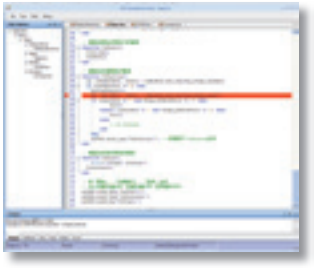
PC

User-friendly Robotic Integration Software

1. Offers built-in standard testing modules for quick I/O points and motor testing, saving system test time.
2. Provides a standard modular program designing process for easy robot motion programming, increasing maintainability and lowering maintenance cost.
3. Integrates customer's UI tools to ensure the uniqueness and completeness of individual robotics systems.

Simulation Module

Programming Module



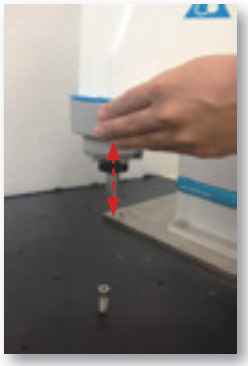
Built-in Testing Module

Customized UI Module

* UI = User Interface

Direct Teaching

Points are directly taught by hand and recorded by SCARA.



Model Name Explanation

SCARA Robot

DRS40L3SS1BN

DRS	40	L	3	S
Company / Product / Robot Type	**Arm Length**	**Level**	**Max. Payload**	**Z-Axis Stroke (Horizontal Stroke)**
D: DELTA R: Robot S: SCARA	40: 400 mm	L:Lite	3: 3 Kg	S: Standard 150mm
S	**1**	**B**	**N**	
R-Axis Reduction Ratio	**Generation**	**Controller Type**	**Teaching Pendant + Cable Length**	
S: Standard (1:16 Gear Ratio) O: Option (1:48 Gear Ratio)	1	Robot Controller with Servo Drive Integrated	Without Teaching Pendant	

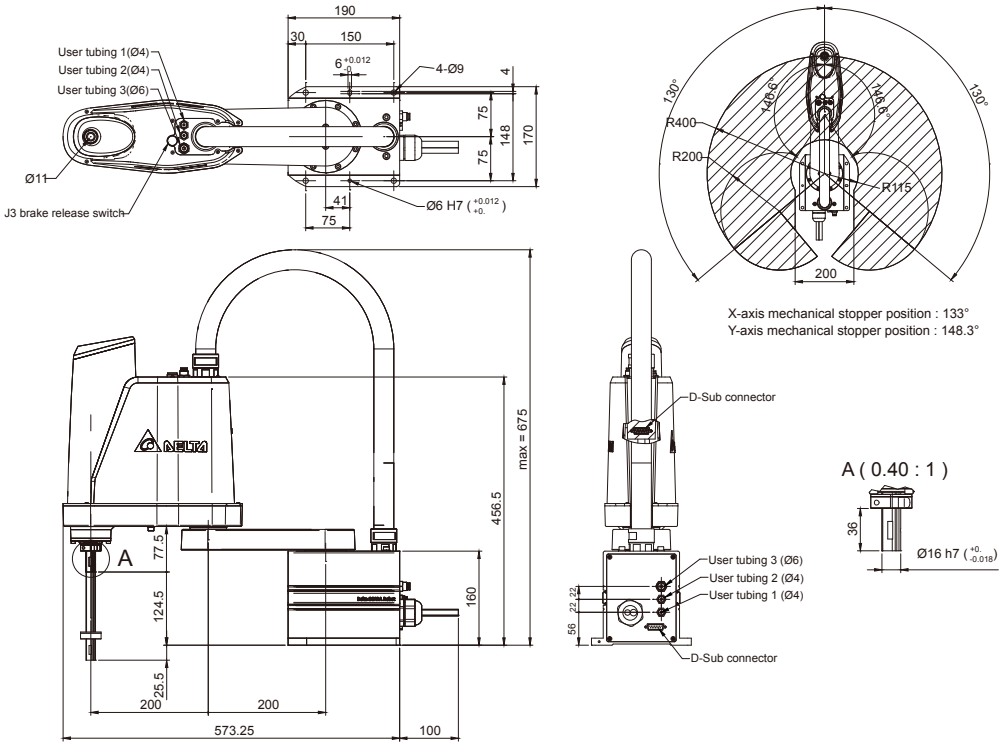
Specifications

Model		DRS40L
Number of Axes		4
Arm Length (X + Y)		400 mm
Rated / Max. Payload		1 Kg / 3 Kg
Maximum Speed	X-Y	4710 mm / sec
	Z	1250 mm / sec
	R	1875° / sec
Range of Motion	X (J1)	±130°
	Y (J2)	±146.6°
	Z	150 mm
	R	±360°
Standard Cycle Time*		0.42 sec
Repeatability	X/Y	±0.01 mm
	Z	±0.01 mm
	R	±0.01°
Motor Output Power	X	200 W
	Y	200 W
	Z	100 W
	R	100 W
Rated / Max. Push Force (Z-Axis)		100 / 250 N
Maximum Allowable Inertia Moment (R-Axis)		0.0091 / 0.075 Kg-m^2
User Wiring		15Pin D-Sub
User Tubing		ø4 mm x2, ø6 mm x1
Weight (Without Controller)		16 Kg

*When carrying a payload of 1Kg and reciprocating 25 mm in vertical and 300 mm in horizontal directions under an operating temperature of 25 ℃ and within a humidity of 45% ~ 90% RH (non-condensing).
**Actual cycle time may differ depending on operating conditions. Delta reserves the right to change specification information without prior notice.

Dimensions

Dimensions are in mm (in.)



Accessories

Dimensions are in mm (in.) Weight: 720 (g) (Without wire)

DOP-H

Note:

1) Dimensions are in millimeters (inches); Weights are in kilograms (g)
2) Dimensions and weights of the servo drive may be revised without prior notice.

Robot Solution

ASDA-MS

Robot Controller with Servo Drive Integrated

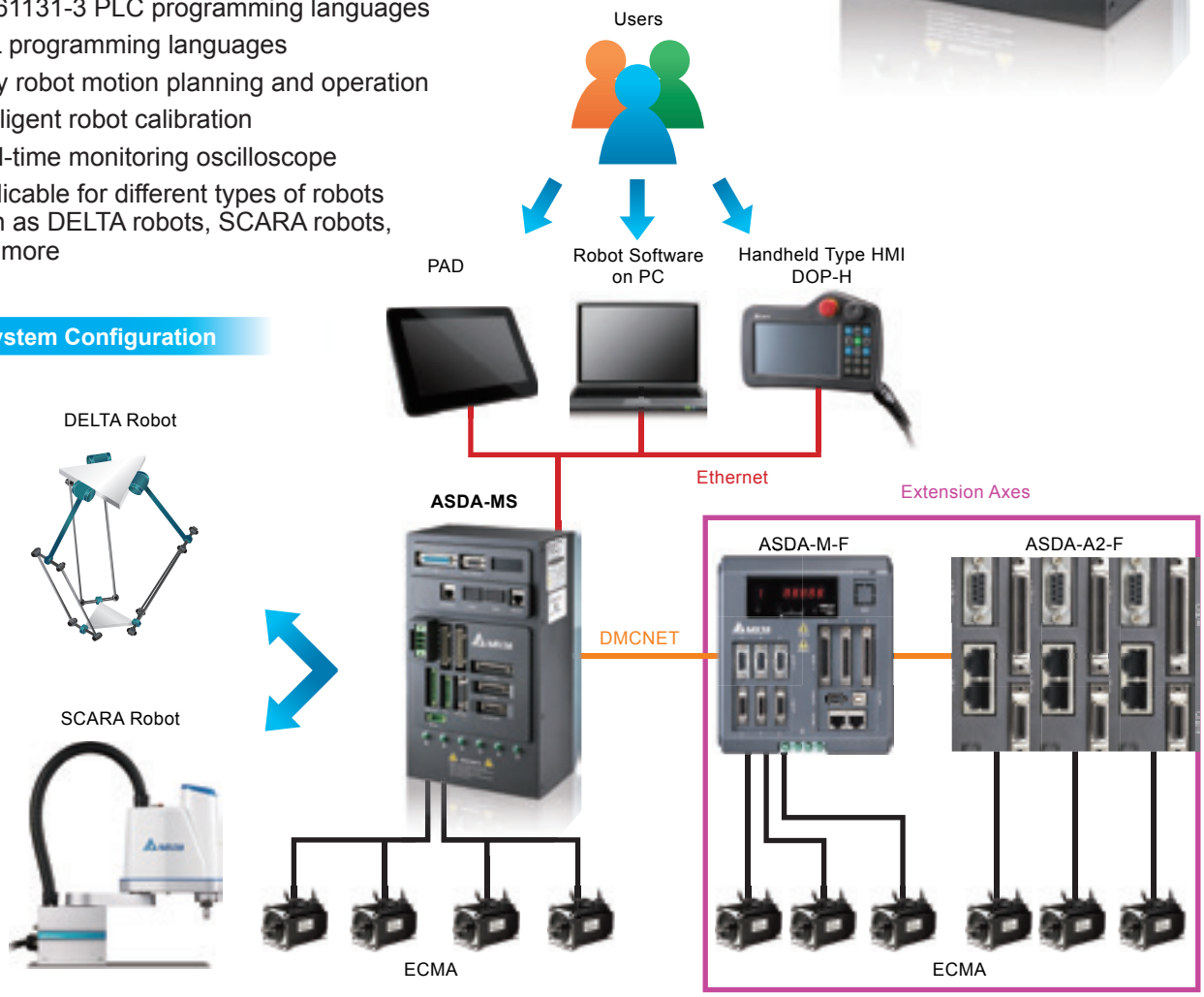
Complete Robot Solution

- Integrated servo drive and controller in one single unit for real time motion control with high flexibility and reliability
- Supports various communication protocols
- Built-in with diverse robot control modules
- Up to 10 axes motion control: 4-axis robot + 6 external axes
- Supports IEC 61131-3 standard for five kinds of programming languages and the PLCopen motion function block
- Offers DRL Languages for developing robot application programs
- Supports G-Code programming for path planning

User-Friendly Robot Software

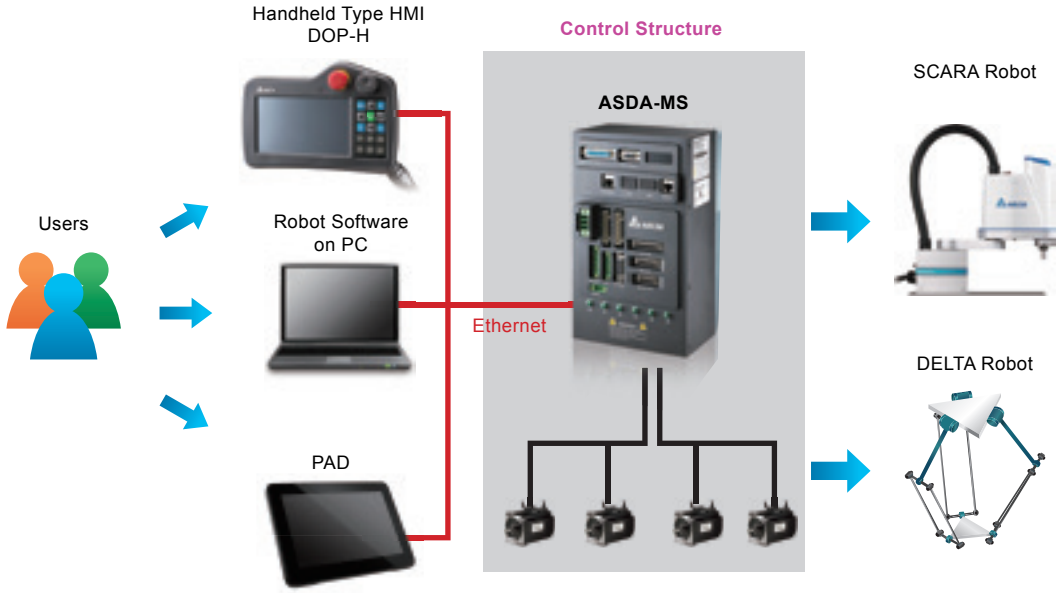
- IEC61131-3 PLC programming languages
- DRL programming languages
- Easy robot motion planning and operation
- Intelligent robot calibration
- Real-time monitoring oscilloscope
- Applicable for different types of robots such as DELTA robots, SCARA robots, and more

System Configuration



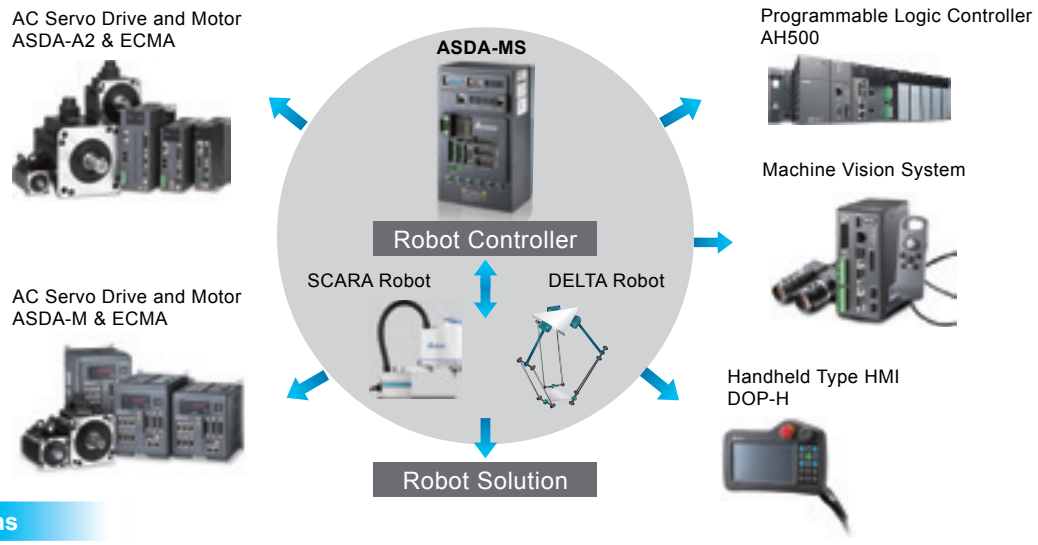
All-in-One Robot Controller

- The MS Series integrates motion controller, robot controller and four servo drives in one single unit to speed up data exchange efficiency of communication, enhance system control performance and dynamically compensate non-linear terms that affect robot motion during robot moving processes. This integration into one unit satisfies high speed and high precision requirements of robot or motion control applications.
- The MS Series also provides a variety of useful tools to help users quickly implement their required functions for their applications and easily control different types of robots which include 4-axis SCARA robots, DELTA robots and others with high flexibility and reliability.



Comprehensive Development Platform

- Provides a comprehensive development platform for customers to design their specific applications, which can support value-added secondary development and customization work.
- Satisfies the requirements for both single robots and workstation applications in conjunction with Delta's industrial automation products and related robot peripheral devices.



Applications

Industry: Electrical/electronics, rubber and plastics, packaging, and metal fabrication

Applications: Insertion, screw locking, assembly, gluing, coating, soldering, load and unload, pick-and-place, stacking, packaging, and inspection

Product Line-up

Power Range	Controller	Servo Motors	
750 W	ASD-MS-0721-F	ECMA-C △ 0401 □ S (S=8 mm)	ECMA-C △ 0907 □ S (S=16 mm)
		ECMA-C △ 0602 □ S (S=14 mm)	ECMA-E △ 1305 □ S (S=22 mm)
		ECMA-C △ 0604 □ S (S=14 mm)	ECMA-G △ 1303 □ S (S=22 mm)
		ECMA-C △ 0804 □ 7 (7=14 mm)	ECMA-G △ 1306 □ S (S=22 mm)
		ECMA-C △ 0807 □ S (S=19 mm)	
1.5 kW	ASD-MS-1523-F	ECMA-C △ 0807 □ S (S=19 mm)	ECMA-E △ 1310 □ S (S=22 mm)
		ECMA-C △ 0907 □ S (S=16 mm)	ECMA-E △ 1315 □ S (S=22 mm)
		ECMA-C △ 0910 □ S (S=16 mm)	ECMA-G △ 1309 □ S (S=22 mm)
		ECMA-C △ 1010 □ S (S=22 mm)	

Note:
1) The boxes (□) in the model names represent encoder type. (□ =1: Incremental encoder, 20-bit; □ =2: Incremental encoder, 17-bit)
2) The boxes (□) in the model names represent shaft end/brake or the number of oil seals.

Model Name Explanation

ASDA-MS Series Controller

ASD-MS-0721-F

ASD	MS	0721	F
Product Name	**Series**	**Rated Output Power, Input Voltage and Phase**	**Communication**
		0721 : 750 W ; 220 V 1-phase / 3-phase 1523 : 1.5 kW ; 220 V 3-phase	DMCNET

ECMA Series Servo Motors

ECMA-C10602ES

ECM	A	C	1
Product Name	**Driving Type**	**Series** **Rated Voltage / Rated Speed**	**Encoder Type**
ECM : Electrical Commutation	A : AC Servo Motor	C : 220 V / 3000 r/min E : 220 V / 2000 r/min G : 220 V / 1000 r/min	1 : Incremental encoder, 20-bit 2 : Incremental encoder, 17-bit A : Absolute encoder

06	02	E	S
Motor Frame Size	**Rated Output Power**		
04: 40 mm 06: 60 mm 08: 80 mm 09: 86 mm 10: 100 mm 13: 130 mm 18: 180 mm	01: 100 W 02: 200 W 03: 300 W 04: 400 W 05: 500 W 06: 600 W 07: 750 W 09: 900 W 10: 1 kW		S: Standard Shaft Diameter H: Specific Shaft Diameter / High Inertia Model

Shaft Type and Oil Seal	W/O Brake W/O Oil Seal	With Brake W/O Oil Seal	W/O Brake With Oil Seal	With Brake With Oil Seal
Round Shaft (with screw hole)	-	-	C	D
Keyway	E	F	-	-
Keyway (with screw hole)	P	Q	R	S

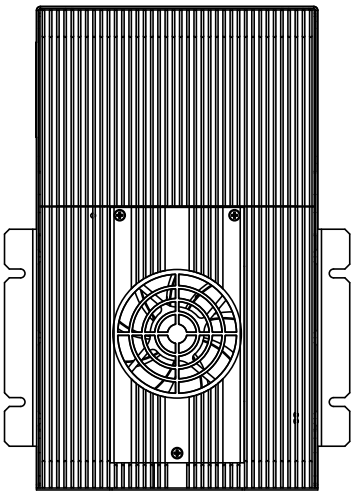
Specifications

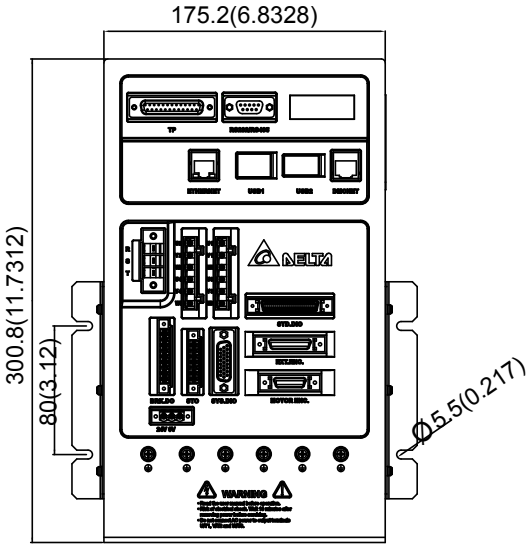
ASDA-MS Series		750 W (for 4 axes of control)	1.5 kW (for 4 axes of control)
		07	15
Power Supply	Phase / Voltage	Three-phase / Single-phase 220 V_{AC}	3-phase 220 V_{AC}
	Permissible Voltage Range	1-phase / 3-phase 200 ~ 230 V_{AC}, -15% ~ 10%	3-phase 200 ~ 230 V_{AC}, -15% ~ 10%
	Control of Main Circuit	24 V_{DC}, -10%~10%	
	Input Current (3PH) (Units: Arms)	12.4	24.8
	Input Current (1PH) (Units: Arms)	23.8	44.5
	Continuous Output Current (Units: Arms)	5.1 (for each axis)	8.3 (for each axis)
Dimensions (W) × (H) × (D) mm / Weight		175 mm × 300 mm × 159 mm / 5.6 Kg	
Cooling System		Fan Cooling	
Encoder Resolution / Feedback Resolution		20-bit (1280000 p/rev)	
Control of Main Circuit		SVPWM (Space Vector Pulse Width Modulation) Control	
Tuning Modes		Auto / Manual	
Regenerative Resistor		Built-in	
Robot Control	Programming Languages	IEC61131-3 PLC Language, Delta Robot Language	
	Motion Control Mode	PTP (Point to Point) Motion, Linear Interpolation, Circular interpolation	
	Memory Capacity	20M bytes for User Program and Data Memory 16K bytes for PLC SV/DV Variables (Not Retained) 60K bytes for PLC DH Variables (Retained) 1K Points for Global Use Maximum 32K Points for Every User Program	
Input / Output	Standard I/O	User I/O: Input: 24, Output: 12 System I/O: Input: 8, Output: 8	
	Brake Output	Output: 4	
Communication Interfaces	Ethernet	1 Channel	
	RS-232 / RS-485	1 Port (One port can switch two communication function)	
	DMCNET	1 Channel	
	USB Host	1 Port	
Environment	Installation Site	Indoor location (free from direct sunlight), no corrosive liquid and gas (far away from oil mist, flammable gas, dust)	
	Altitude	Altitude 1000m or lower above sea level	
	Atmospheric Pressure	86 kPa ~ 106 kPa	
	Operating Temperature	0 °C ~ 55 °C (If operating temperature is above 45 °C, forced cooling will be required)	
	Storage Temperature	-20 °C ~ 65 °C (-4 °F to 149 °F)	
	Humidity	0 ~ 90% RH (non-condensing)	
	Vibration	9.80665 m/s^2 (1 G) less than 20 Hz, 5.88 m/s^2 (0.6G) 20 to 50 Hz	
	IP Rating	IP20	
	Power System	TN System*1	
	Approvals	IEC/EN 61800-5-1, UL 508C, C-tick	

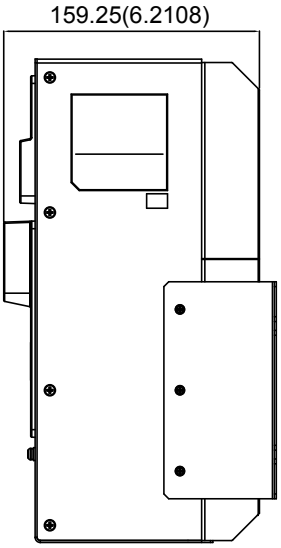
*1. TN system: A power distribution system having one point directly earthed, the exposed conductive parts of the installation being connected to that point by a protective earth conductor.

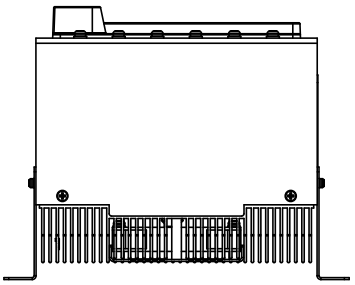
Dimension

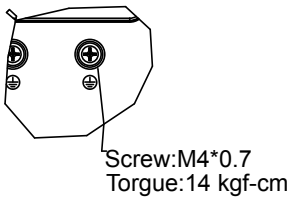
Units: mm (inch) Weight: 5.6 (kg)









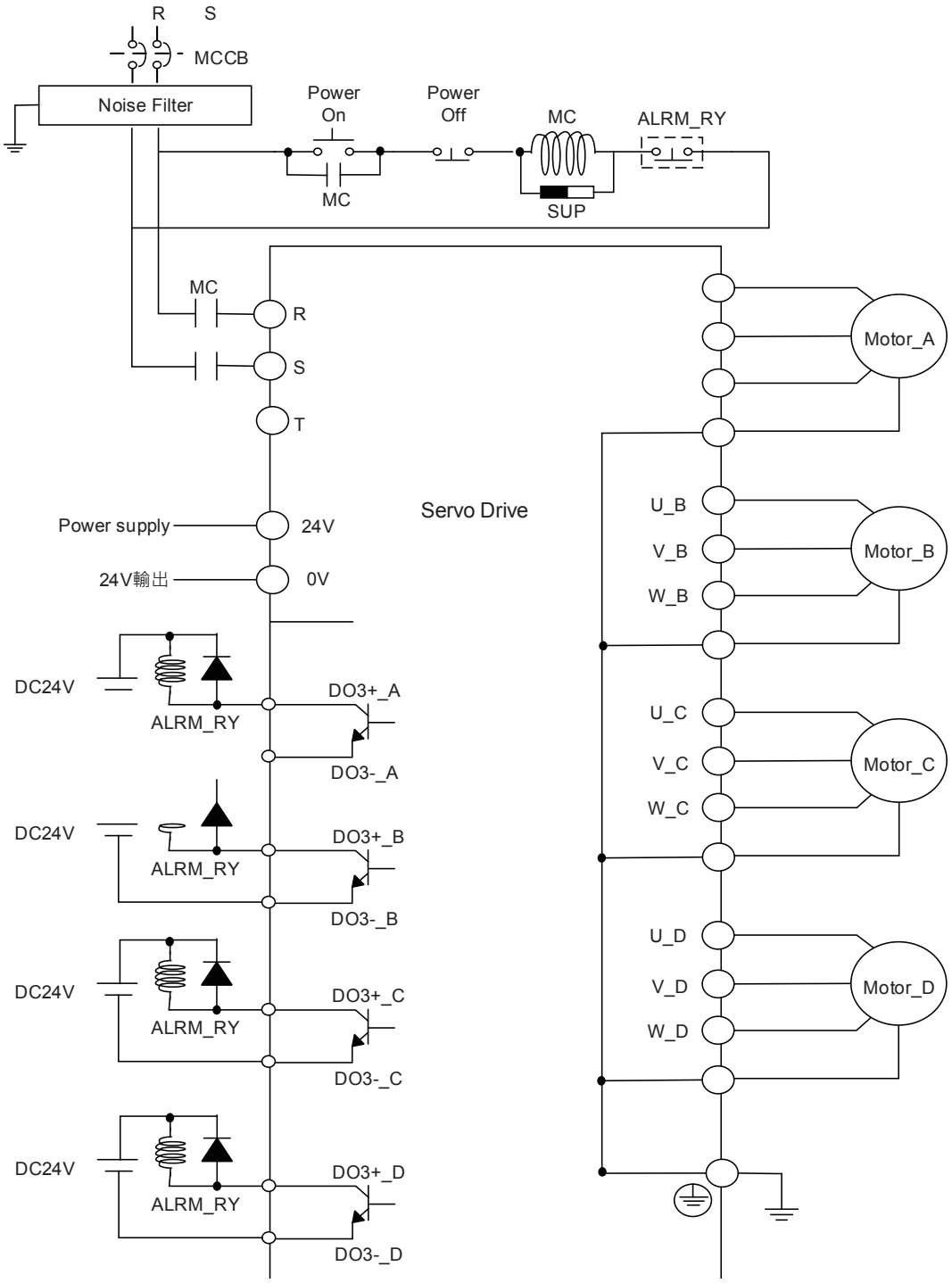


Note:

1) Dimensions are in millimeters (inches); Weights are in kilograms (kg) and (pounds (lbs)).
2) Dimensions and weights of the servo drive may be revised without prior notice.

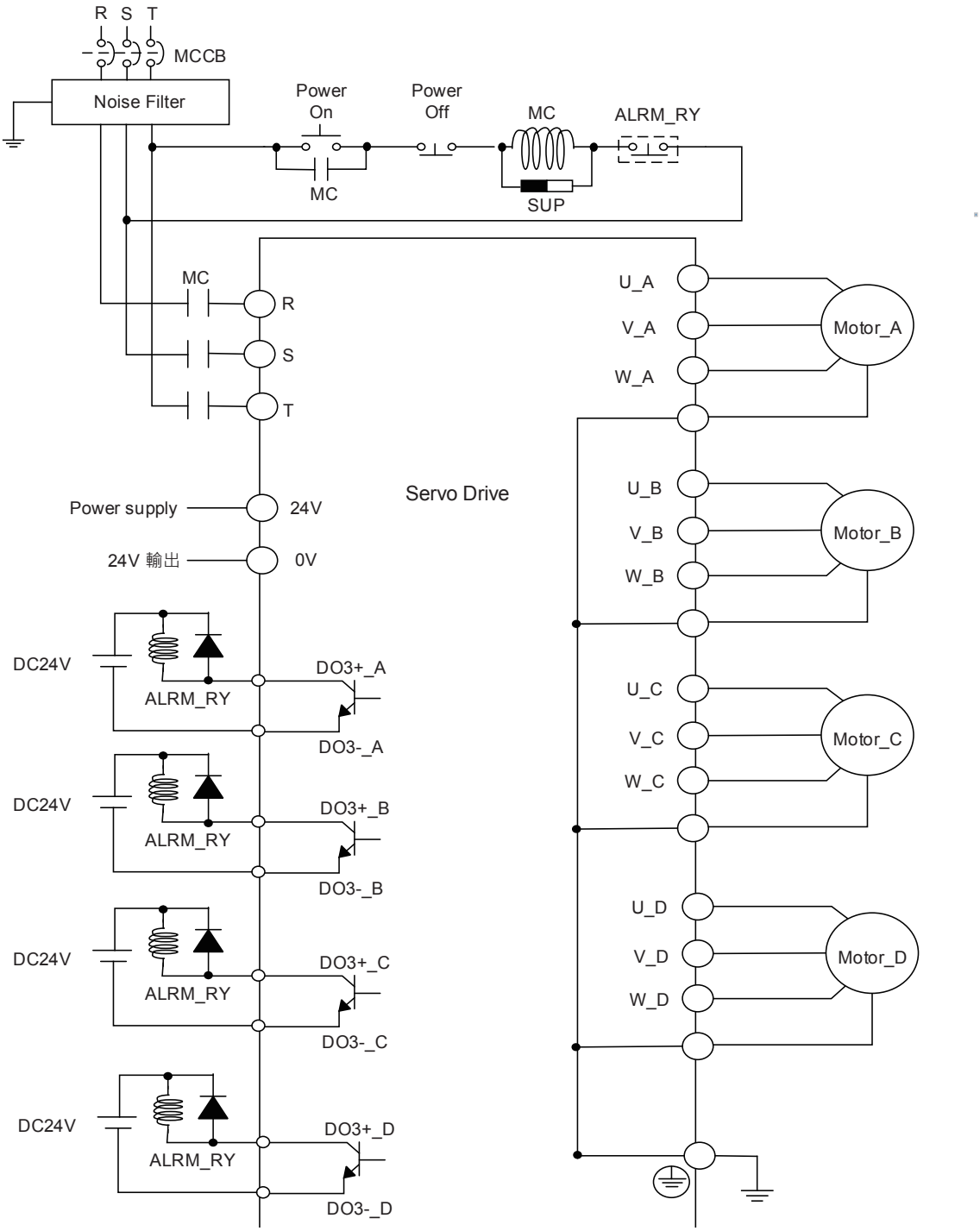
Wiring

- Single-phase connection diagram (suitable for 750W)



Wiring

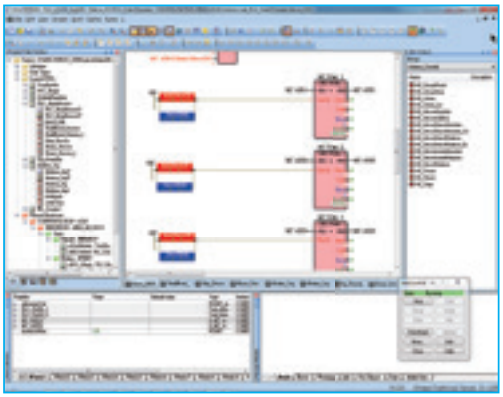
- Three-phase connection diagram (suitable for all Series)



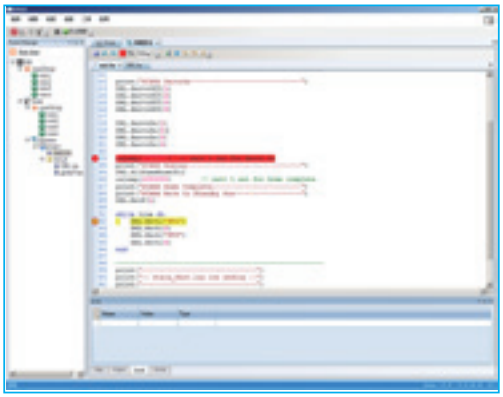
DRAS Software (Delta Robot Automation Studio)

The DRAS provides a variety of user-friendly tools and helpful functions to make robot and motion control more intuitive and simple. The DRAS also supports the IEC 61131-3 standard for five kinds of programming languages, and the PLCopen motion function block and DRL languages for developing customized robot application programs to ensure the uniqueness and completeness of individual systems.

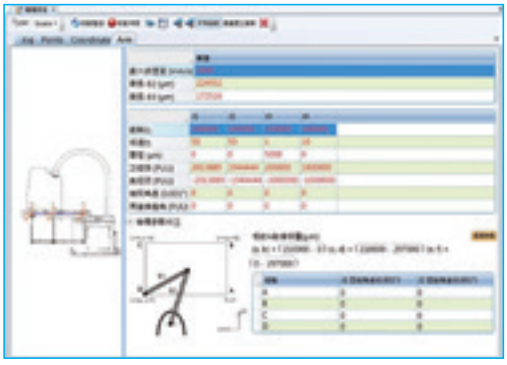
IEC 61131-3 PLC Programming



DRL Programming

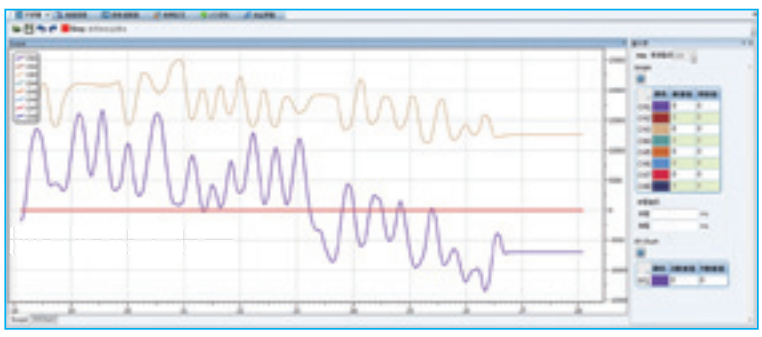


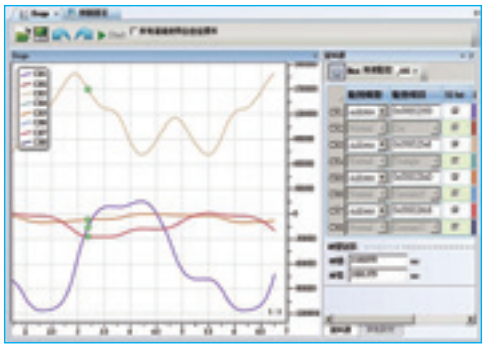
Intelligent Robot Calibration



Easy and Simple Robot Teaching

Real-time Monitoring Oscilloscope





Accessories

Quick Connectors

- Used for 750W to 1.5kW Robot Controller with Servo Drive Integrated .
- One operating lever is provided for wire to terminal block insertion.

Power Cable

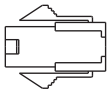
- 3m and 5m standard cables are available.
- Customized service is offered to meet the needs of customers.
- Two types are selectable: with brake and without brake.

Encoder Cables

- 3m and 5m standard cables are available.
- Customized service is offered to meet the needs of customers.

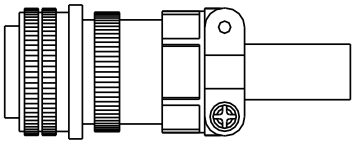
● Power Connector

ASDBCAPW0000



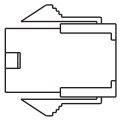
Title	Part No.	Manufacturer
Housing	C4201H00-2*2PA	JOWLE
Terminal	C4201TOP-2	JOWLE

ASD-CAPW1000



3106A-20-18S

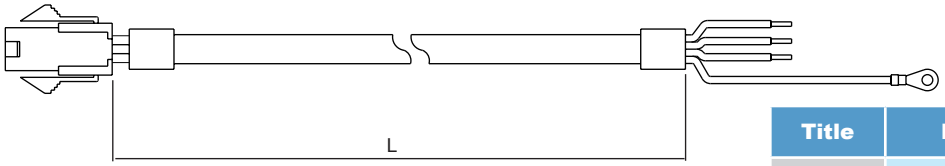
ASDBCAPW0000



Title	Part No.	Manufacturer
Housing	C4201H00-2*3PA	JOWLE
Terminal	C4201TOP-2	JOWLE

● Power Cables

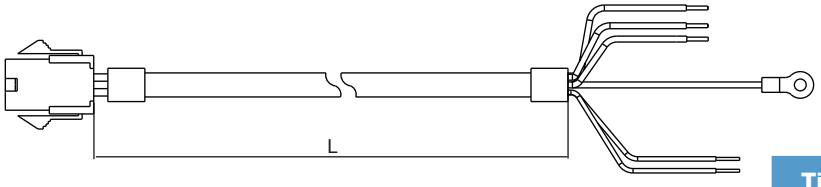
ASD-ABPW0003, ASD-ABPW0005



Title	Part No.	Manufacturer
Housing	C4201H00-2*2PA	JOWLE
Terminal	C4201TOP-2	JOWLE

Item	Part No.	L	
		mm	inch
1	ASD-ABPW0003	3000 ± 100	118 ± 4
2	ASD-ABPW0005	5000 ± 100	197 ± 4

ASD-ABPW0103, ASD-ABPW0105



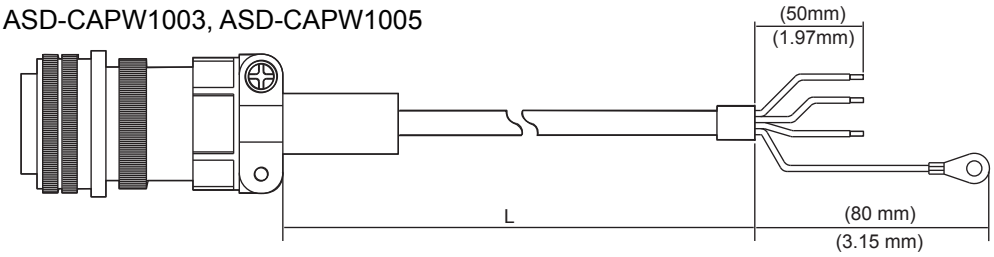
Title	Part No.	Manufacturer
Housing	C4201H00-2*3PA	JOWLE
Terminal	C4201TOP-2	JOWLE

Item	Part No.	L	
		mm	inch
1	ASD-ABPW0103	3000 ± 100	118 ± 4
2	ASD-ABPW0105	5000 ± 100	197 ± 4

Accessories

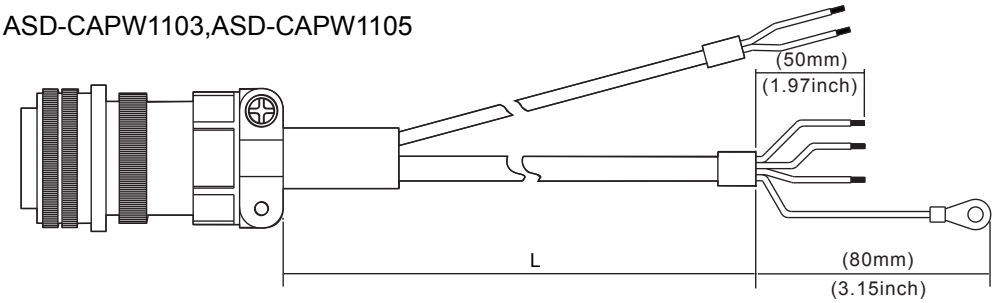
● Power Cables

ASD-CAPW1003, ASD-CAPW1005



Item	Part No.	Straight	L	
			mm	inch
1	ASD-CAPW1003	3106A-20-18S	3000 ± 100	118 ± 4
2	ASD-CAPW1005	3106A-20-18S	5000 ± 100	197 ± 4

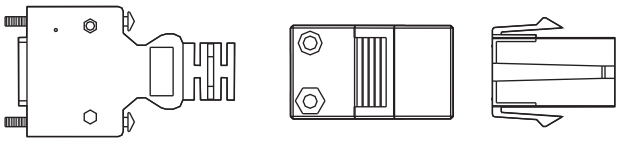
ASD-CAPW1103,ASD-CAPW1105



Item	Part No.	Straight	L	
			mm	inch
1	ASD-CAPW1103	3106A-20-18S	3000 ± 100	118 ± 4
2	ASD-CAPW1105	3106A-20-18S	5000 ± 100	197 ± 4

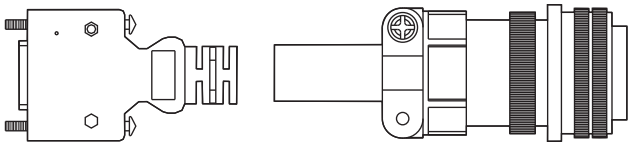
● Encoder Connectors

AASD-ABEN0000



Title		Part No.	Manufacturer
MOTOR SIDE	Housing	AMP(1-172161-9)	AMP
	Terminal	AMP(170359-3)	AMP
	CLAMP	DELTA(34703237XX)	DELTA
DRIVE SIDE	PLUG	3M 10120-3000PE	3M
	SHELL	3M 10320-52A0-008	3M

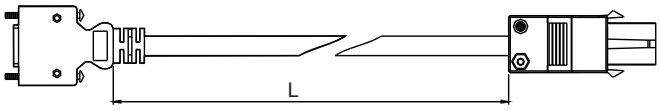
ASD-CAPW1103,ASD-CAPW1105



Title		Part No.	Manufacturer
MOTOR SIDE		3106A-20-29S	------
DRIVE SIDE	PLUG	3M 10120-3000PE	3M
	SHELL	3M 10320-52A0-008	3M

● Encoder Connectors

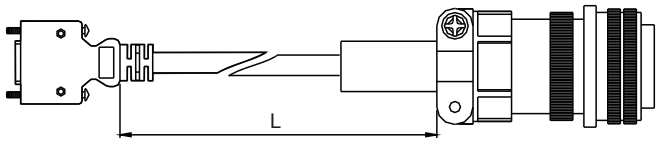
ASD-ABEN0003, ASD-ABEN0005



Title		Part No.	Manufacturer
MOTOR SIDE	Housing	AMP(1-172161-9)	AMP
	Terminal	AMP(170359-3)	AMP
	CLAMP	DELTA(34703237XX)	DELTA
DRIVE SIDE	PLUG	3M 10120-3000PE	3M
	SHELL	3M 10320-52A0-008	3M

Item	Part No.	L	
		mm	inch
1	ASD-ABEN0003	3000 ± 100	118 ± 4
2	ASD-ABEN0005	5000 ± 100	197 ± 4

ASD-CAEN1003, ASD-CAEN1005

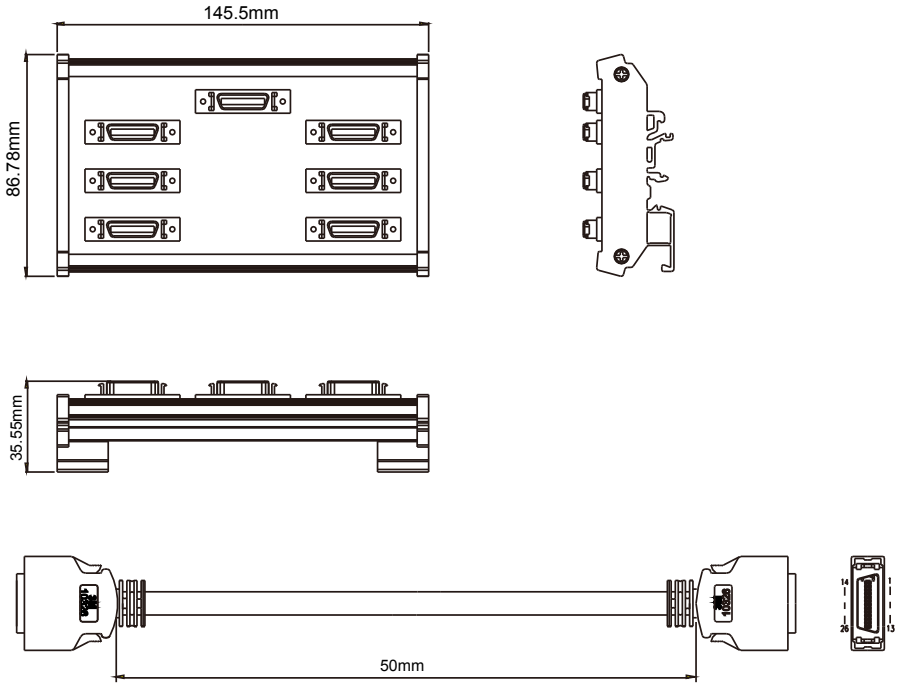


Title		Part No.	Manufacturer
MOTOR SIDE		3106A-20-29S	------
DRIVE SIDE	PLUG	3M 10120-3000PE	3M
	SHELL	3M 10320-52A0-008	3M

Item	Part No.	Straight	L	
			mm	inch
1	ASD-CAEN1003	3106A-20-29S	3000 ± 100	118 ± 4
2	ASD-CAEN1005	3106A-20-29S	5000 ± 100	197 ± 4

● Encoder Signal Adaptor

ASD-PBSC2626



Control

Table of Contents

Programmable Automation Controller

MH1 / MP1

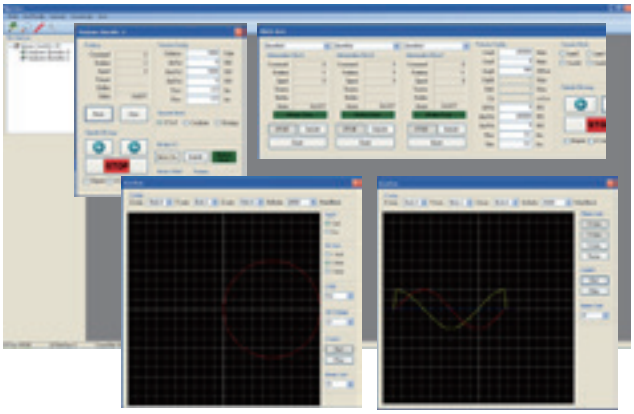
Programmable Automation Controller

MH1 / MP1 Series

Motion Control Host PC
MH1

Motion Control Panel PAC
MP1

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



Motion

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

Software

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

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

Specifications & Ordering Information

MH1 Series

Model Name		MH1-S30D	MH1-A12D	MH1-A12E	MH1-C50D	MH1-C50E	MH1-C70D	MH1-C70E
Processor System	Processor	VIA Nano X2 Dual Core 1.2 GHz	Intel Atom E3845 Quad Core 1.91 GHz		Intel Core i5-3610ME Dual Core 2.7 GHz		Intel Core i7-3612QE Quad Core 2.1 GHz	
	System Chipset	VIA VX900	x		Intel QM77			
	MRAM	128KB						
	BIOS	AMI BIOS						
	System Memory	1 × DDR3-1066 Max. up to 8 GB	DDR3L-1333 4 GB, supports ECC		2 × DDR3-1600 Max. up to 16 GB, supports ECC			
Display Interface	CRT	2048 × 1536 / 75 Hz	2560 × 1600 / 60 Hz		2048 × 1536 / 75Hz			
I/O Interface	Ethernet	2 × IEEE 802.3 / 802.3u / 802.3ab 1Gbps						
	DMCNET	√	√	x	√	x	√	x
	EtherCAT	x	x	√	x	√	x	√
	USB	4 × USB 2.0						
	Serial Port	1 × RS-232 (Hardware auto flow control)						
	Digital Input	x	1-CH isolated, 24 V_{DC} Sink (5 mA / CH)	x	1-CH isolated, 24 V_{DC} Sink (5 mA / CH)	x	1-CH isolated, 24 V_{DC} Sink (5 mA / CH)	x
	Digital Output	x	1-CH isolated, 24 V_{DC} Sink (10 mA / CH)	x	1-CH isolated, 24 V_{DC} Sink (10 mA / CH)	x	1-CH isolated, 24 V_{DC} Sink (10 mA / CH)	x
	Encoder Input	x	4-CH isolated, QEP±	x	4-CH isolated, QEP±	x	4-CH isolated, QEP±	x
	Compare Output	x	2-CH isolated, CMP±	x	2-CH isolated, CMP±	x	2-CH isolated, CMP±	x
	Expansion	[2 × PCI slot] [2 × PCIe slot] × 1	2 × PCI slot 2 × PCIe slot × 1		[2 × PCI slot] × 1 [2 × PCIe slot] × 1 [1 × PCIe slot] x4 + [1 × PCIe slot] × 1			
Storage	CFast card	1 × CFast Cat (optional)						
	Micro-SD card	1 × Micro-SD card (optional)	x	x	x	x	x	x
	eMMC	x	1 × eMMC (optional)		x	x	x	x
	Solid State Disk	1 × 2.5" SATA SSD (optional)						
Power Requirements	Input Voltage	12 ~ 30 V_{DC} ±10%						
	Input Type	ATX						
Certification	Safety	CE						
Dimensions (W × H × D)		127 × 175 × 250 mm (5"x6.89"x9.85")						
Operation Temperature		0 °C ~ 50 °C						
Weight		4.7 Kg						
Software Support		Windows 7.0, Windows XP/7 Embedded, RTX	Windows 7.0, Windows 7 Embedded, RTX		Windows 7.0, Windows XP/7 Embedded, RTX			

Specifications & Ordering Information

MP1 Series

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

Model Name Explanation

MH1-S30D-A11D0

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

MP1-A10D-1011D0

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

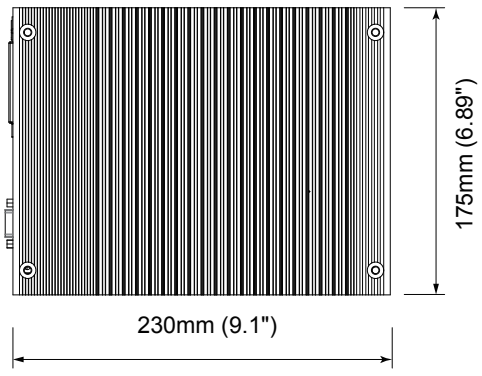
Dimensions

Dimensions are in mm (in.)

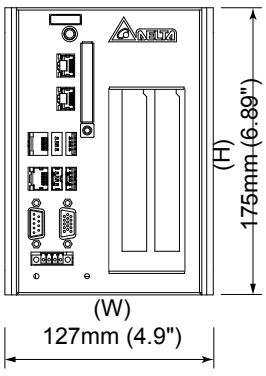
MH1 Series

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

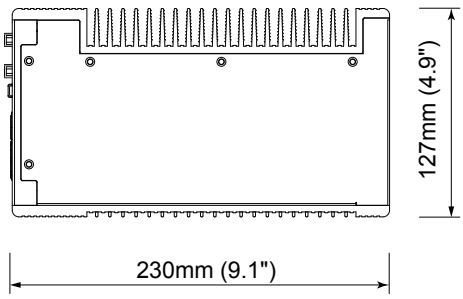
Lateral View



Front View

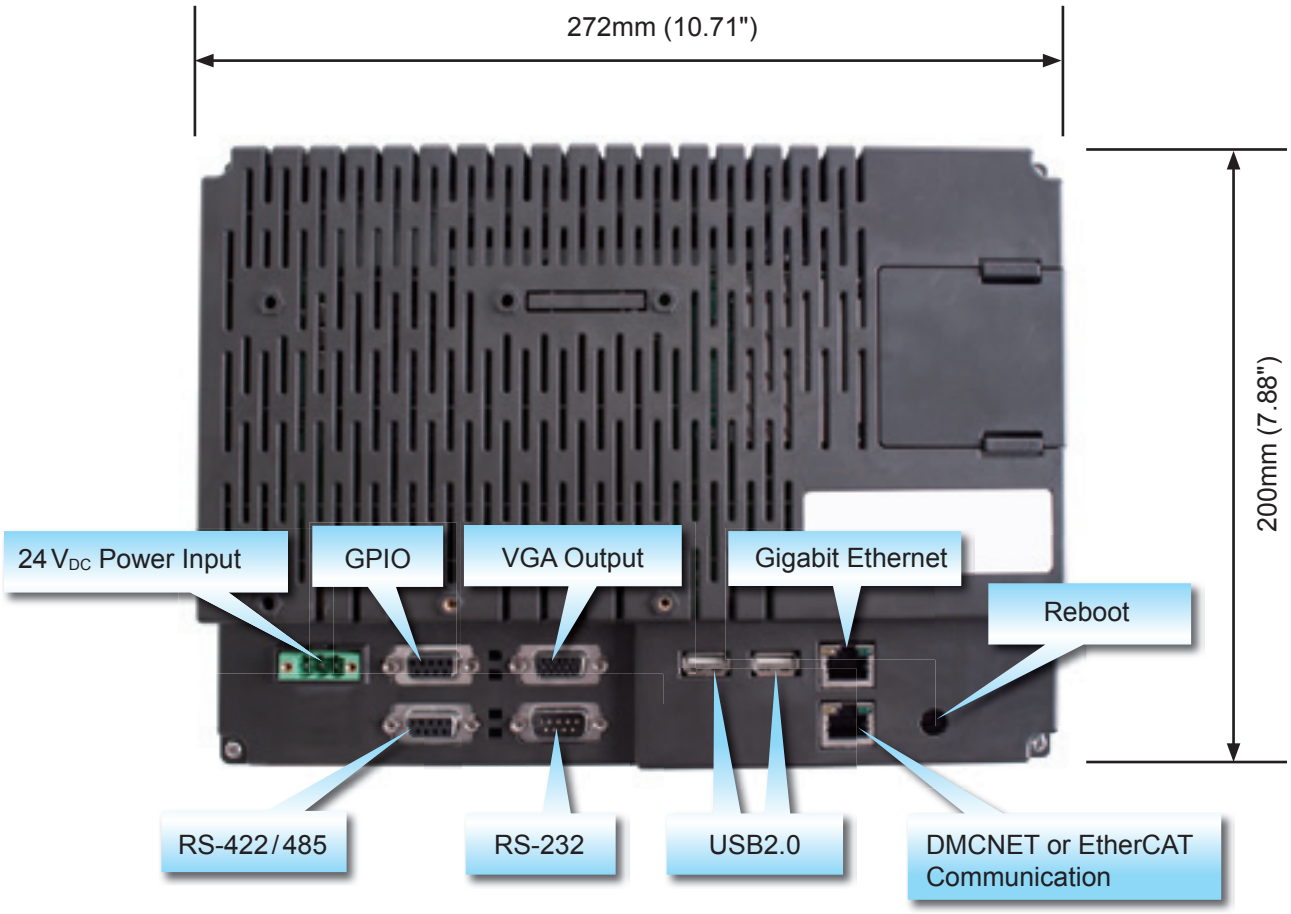


Rear View



Dimensions Dimensions are in mm (in.)

MP1 Series

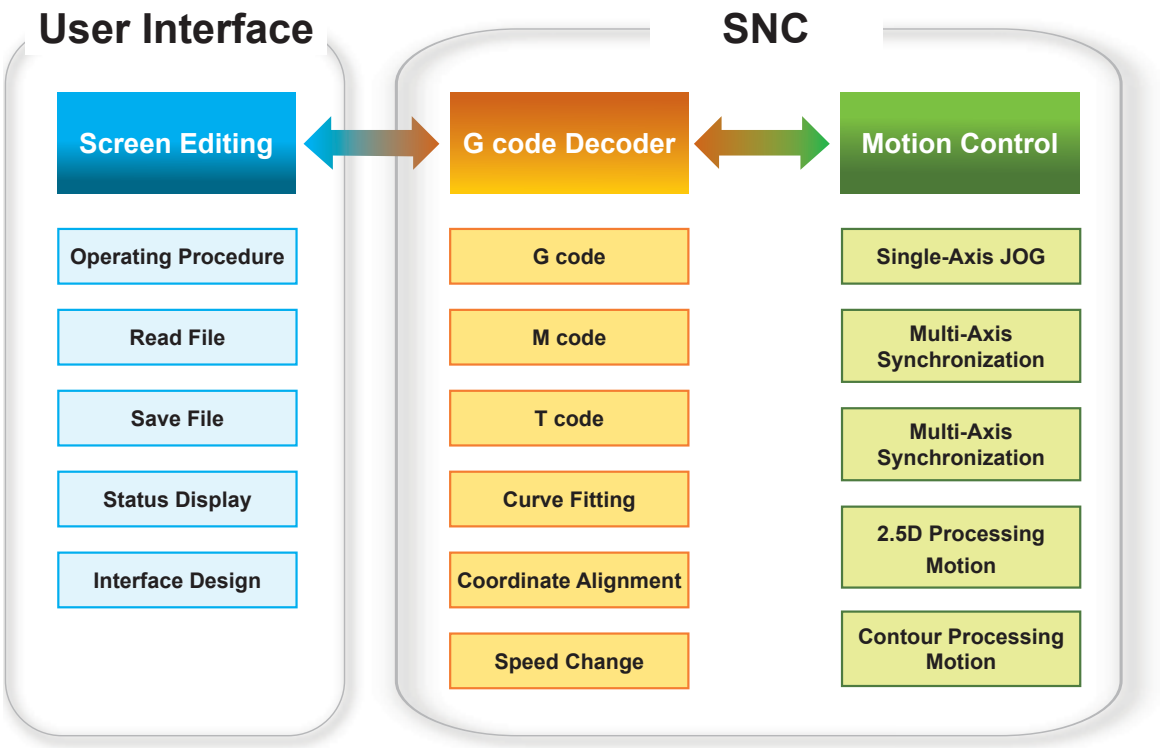


Accessories

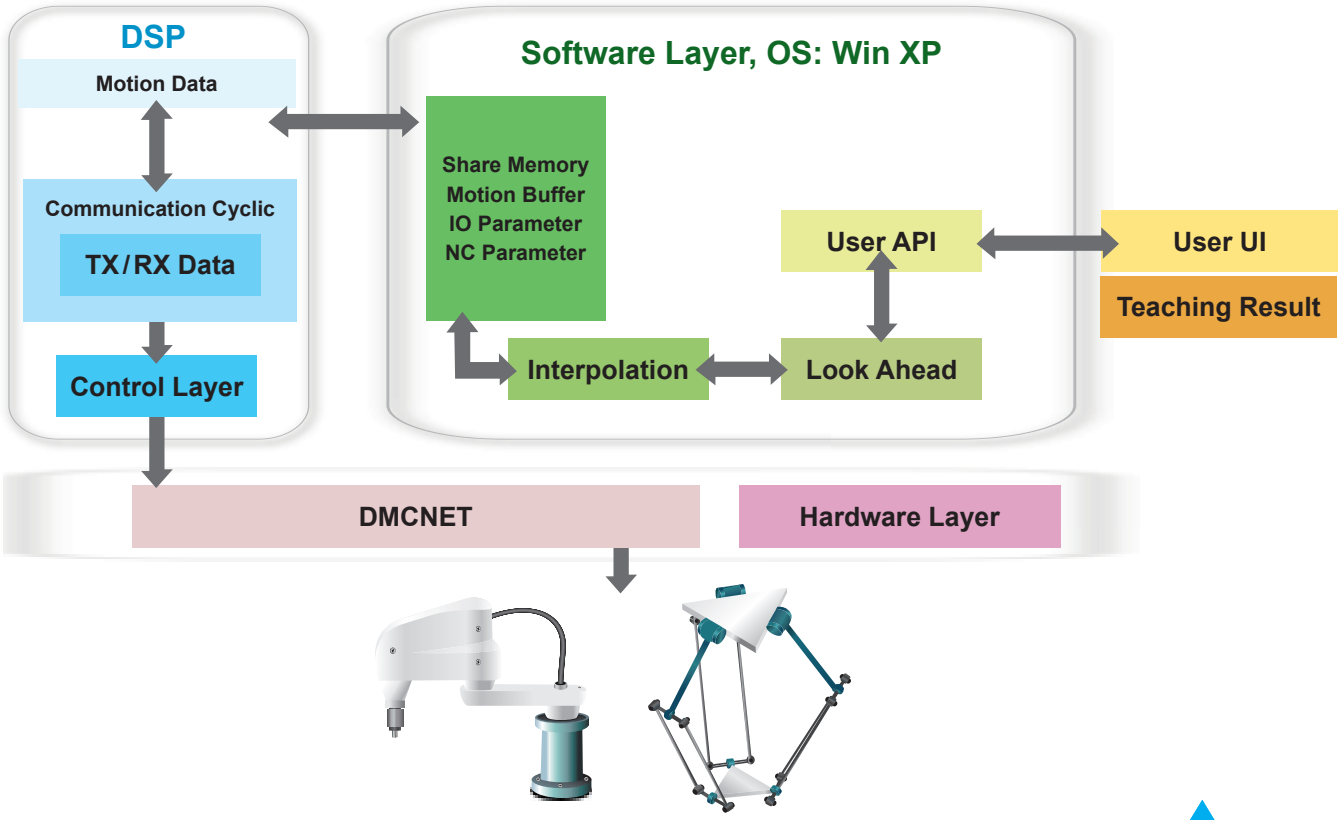
Delta Part Number	IPC-CFAMB016I1	**Delta Part Number**	SAS-0WEMXPE
Descriptions	CFAST MLC SATA III 16GB INNODISK	**Descriptions**	SW OS WINDOWS XP EMBEDDED
Delta Part Number	IPC-CFASA016I0	**Delta Part Number**	SAS-0RTXX86
Descriptions	CFAST SLC SATA II 16GB TRANSCEND	**Descriptions**	SW OS RTX RTOS 32-BIT
Delta Part Number	IPC-SSDMB064I1	**Delta Part Number**	SAS-1COMECM
Descriptions	SSD 2.5" MLC SATA III 64GB INNODISK	**Descriptions**	SW COMM ETHERCAT MASTER EC-MASTER
Delta Part Number	IPC-SSDMB128I1		
Descriptions	SSD 2.5" MLC SATA III 128GB INNODISK		

Software

Soft Numeric Control (SNC)



Soft Robot Control (SRC)



Programmable Logic Controller
AH500

High Performance Mid-range PLC

High performance and capacity

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

TAIWAN EXCELLENCE 2013

Highly integrated system

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

Enhanced expansion flexibility

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