



Automation for a Changing World

Delta Controller with Human Machine Interface HMC Series



www.deltaww.com

 **DELTA**
Smarter. Greener. Together.

High Quality Display, Precise Control: The Optimum Combination of Display and Controller

Standard Type

HMC08



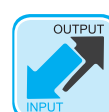
Manual Pulse Generator
(MPG)



64K Colors TFT



DMCNET



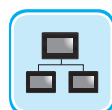
Digital I/O



USB Disk



DMCNET



Ethernet



SD Card



Audio Output

Handheld Type

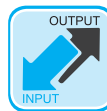
HMC07



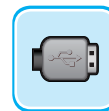
64K Colors TFT



DMCNET



Digital I/O



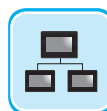
USB Disk



Emergency Stop



DMCNET



Ethernet



SD Card

New



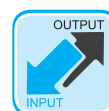
Manual Pulse Generator
(MPG)



64K Colors TFT



DMCNET



Digital I/O



Emergency Stop



Compact Design



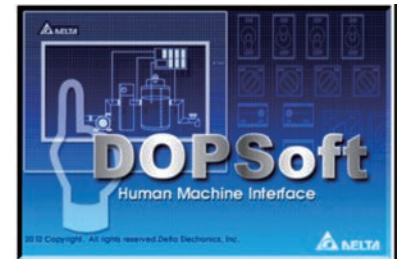
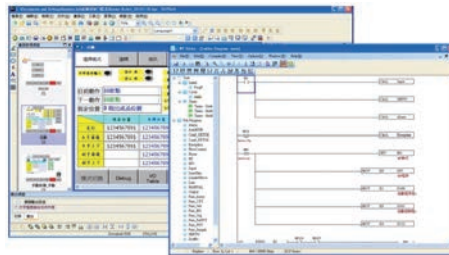
DMCNET



SD Card

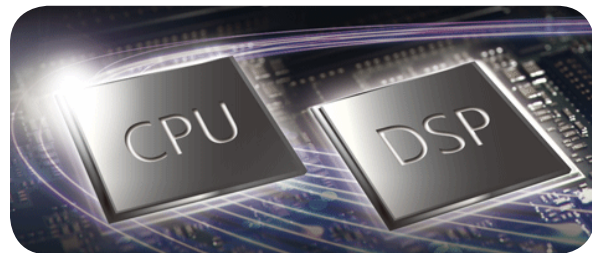


DOPSoft for HMI Screen Editing and PLC Programming



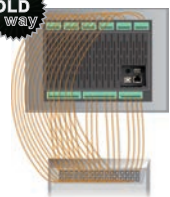
Powerful Dual Processors

Equipped with two high-speed CPUs: one for HMI operation, and the other as a Digital Signal Processor (DSP). The DSP serves as a motion processor for sequence control, which guarantees execution efficiency and system performance. The DSP supports up to four major PLC programs simultaneously.



Direct Remote I/O Connection

OLD way



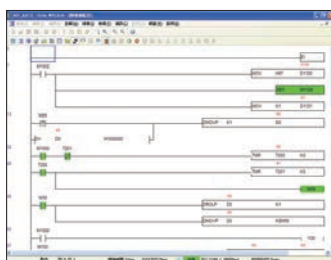
I/O points placed in the rear of the panel, result in complicated wiring and connection

NEW way



Direct remote I/O connection provides simple and effortless wiring. Only one communication cable is needed to complete the I/O connection.

Quick PLC Ladder Monitoring



PLC ladder programs and registers can be monitored and changed in real time on a PC to greatly reduce the verification and debug time via Ethernet.

Ethernet



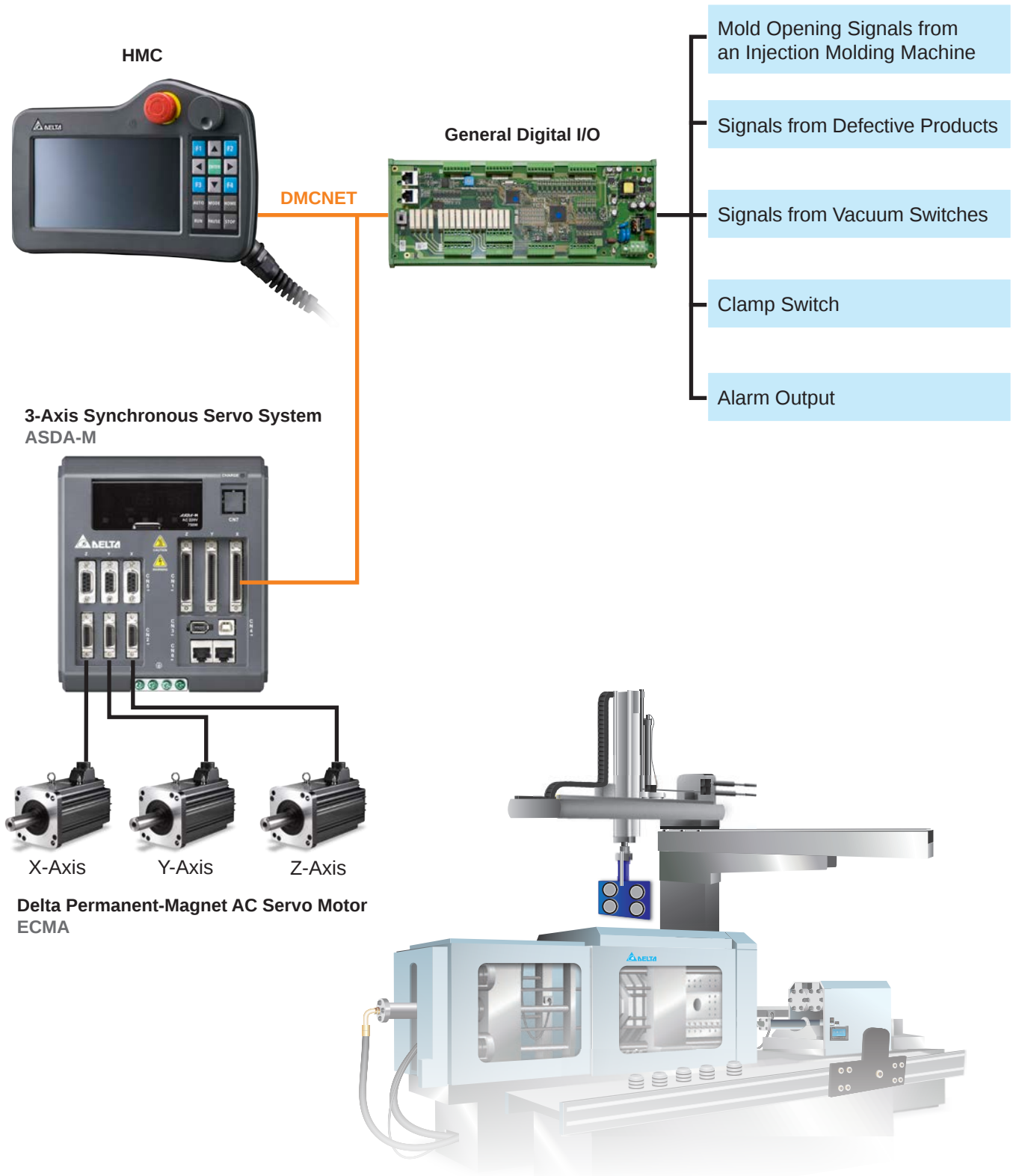
Built-in PLC ladder monitor devices allow users to display programs in real time and confirm machine operations without using a PC.

Built-in Motion Commands

Direct servo parameter setup and quick motion command editing, no additional communication commands are required.

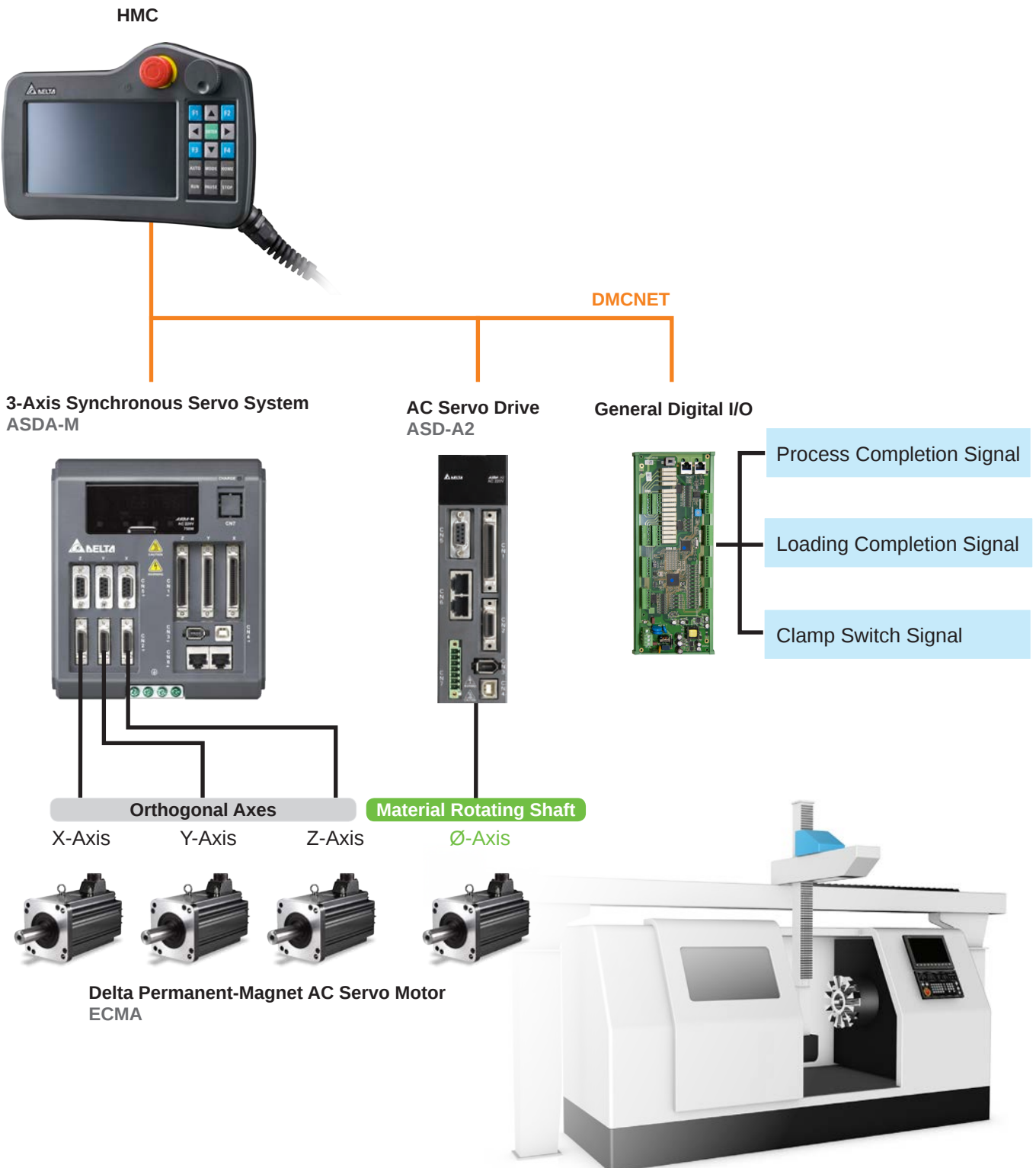
Field Applications

Control of a Pick-and-Place Robot for an Injection Molding Machine



New

Control of a Material Loading/Unloading Robot for Machine Tools



New

Application Cases for Quick Implementation

- ▶ System parameter settings: including gear ratio, acceleration / deceleration time and speed

Servo Setting | 1 | DEMO | 2015/10/19 14:31:36

	Gear ratio (Mol.)	Gear ratio (Den.)	S-curve (ms)	Acc. time (ms)	Dec. time (ms)	Homing acc./dec. (mm/s)	Max. speed (mm/s)	RPM	Dir.
X1 axis	128	1	125	10	10	600	333.333	2000	C.W
Y1 axis	128	1	50	10	10	400	333.333	2000	C.W
Z1 axis	128	1	240	10	10	400	333.333	2000	C.C.W

X1 axis: 0.000 Y1 axis: 0.000 Z1 axis: 0.000

Operate Manual Teach I/O System Alarm Main

Motion Setting | 1 | DEMO | 2015/10/19 14:28:56

	Homing Offset (mm)	Homing Mode	Homing High-speed (mm/s)	Homing Low-speed (mm/s)	AutoRun speed (mm/s)	Jog speed	Torque protection (%)
X1 axis	0.000	35	50.000	50.000	131.522	100.000	1.0
Y1 axis	0.000	35	50.000	50.000	150.000	100.000	10.0
Z1 axis	0.000	35	50.000	50.000	150.000	100.000	20.0

X1 axis: -0.001 Y1 axis: 0.000 Z1 axis: 0.000

Operate Manual Teach I/O System Alarm Main

- ▶ Intuitive teaching interface

TEACH | Motion Setting | 1 | DEMO | 2015/10/19 14:33:59

(Main Sys.) Instructions

- Goto T.P. ,speed50% , P1
- Goto T.P. ,speed50% , P2
- Output[Y1]ON
- Goto T.P. ,speed50% , P1 ,delay1.0 Sec

Speed: 50 % Delay before: 0.0 Sec Teach Point: 1

Cut / Delete Copy Insert Change Clear All Paste Add Save

X1 axis: 0.000 Y1 axis: 0.001 Z1 axis: 0.001

Operate Manual Teach I/O System Alarm Main

- ▶ Positioning setting

Main system Teach Point coordinate

Comment	P	#X1 axis	#Y1 axis	#Z1 axis
Pos. 1	1	100.000	0.000	0.000
Pos. 2	2	0.000	100.000	0.000
Pos. 3	3	0.000	0.000	0.000
Pos. 4	4	0.000	0.000	0.000
Pos. 5	5	0.000	0.000	0.000
Pos. 6	6	0.000	0.000	0.000
Pos. 7	7	0.000	0.000	0.000
Pos. 8	8	0.000	0.000	0.000

Select T. Point: 1 Write to Point Read from Point

X1 axis: 0.000 Y1 axis: 100.000 Z1 axis: 0.000

Manual

- ▶ Operation program management

PROGRAM MANAGE | 1 | DEMO | 2015/10/19 14:33:17

No.	Program name	Modified time
1	DEMO	2015/10/19 10:58:46
2		
3	JJ	2015/10/19 9:28:2
4		
5		
6		
7	3D	2015/10/19 9:28:26
8	EDIT-TEST-2	2015/10/19 9:29:3
9	EDIT-TEST	2015/10/19 9:29:34
10	LD-UL-A	2015/10/19 11:0:15

Select Program: 1 Edit selected program Show All Edit Template

X1 axis: -0.001 Y1 axis: 0.001 Z1 axis: 0.001

Operate Manual Teach I/O System Alarm Main

- ▶ Operation information

AUTO Running Setting | 1 | DEMO | 2015/10/19 15:17:15

(Main Sys.) Instructions

- Goto T.P. ,speed50% , P1
- Goto T.P. ,speed50% , P2
- Output[Y1]ON
- Goto T.P. ,speed50% , P1 ,delay1.0 Sec

Speed: 50 % High Speed Low Speed

Running Information

Planned cycles: 0

Remainder: 0

Cycle time: 0.00 Sec

Zero Return Run Pause Stop CycleStop Magni. 1 Hand Wheel

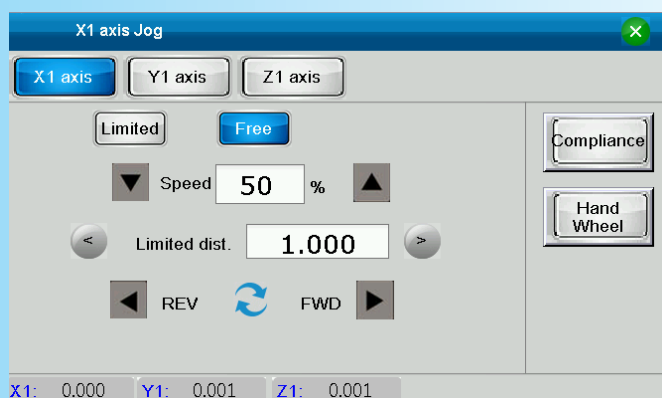
X1 axis: 59.825 Y1 axis: 0.000 Z1 axis: 0.000

Operate Manual Teach I/O System Alarm Main

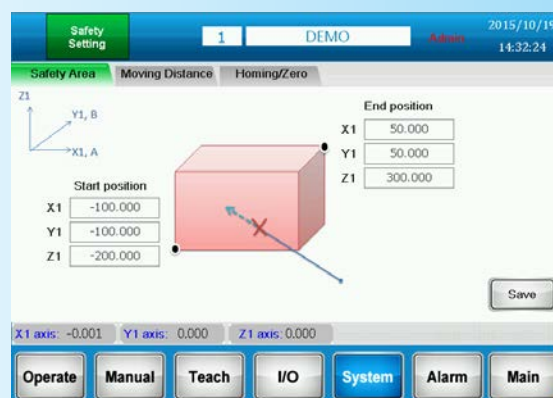
► Abundant operating instructions



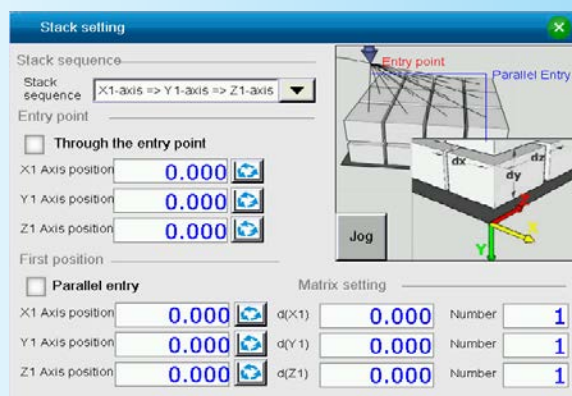
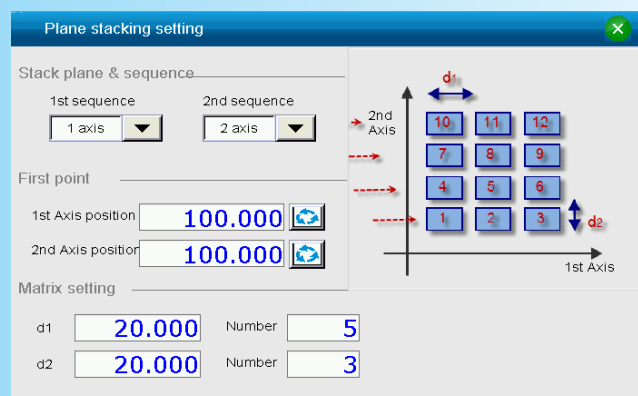
► Jog function



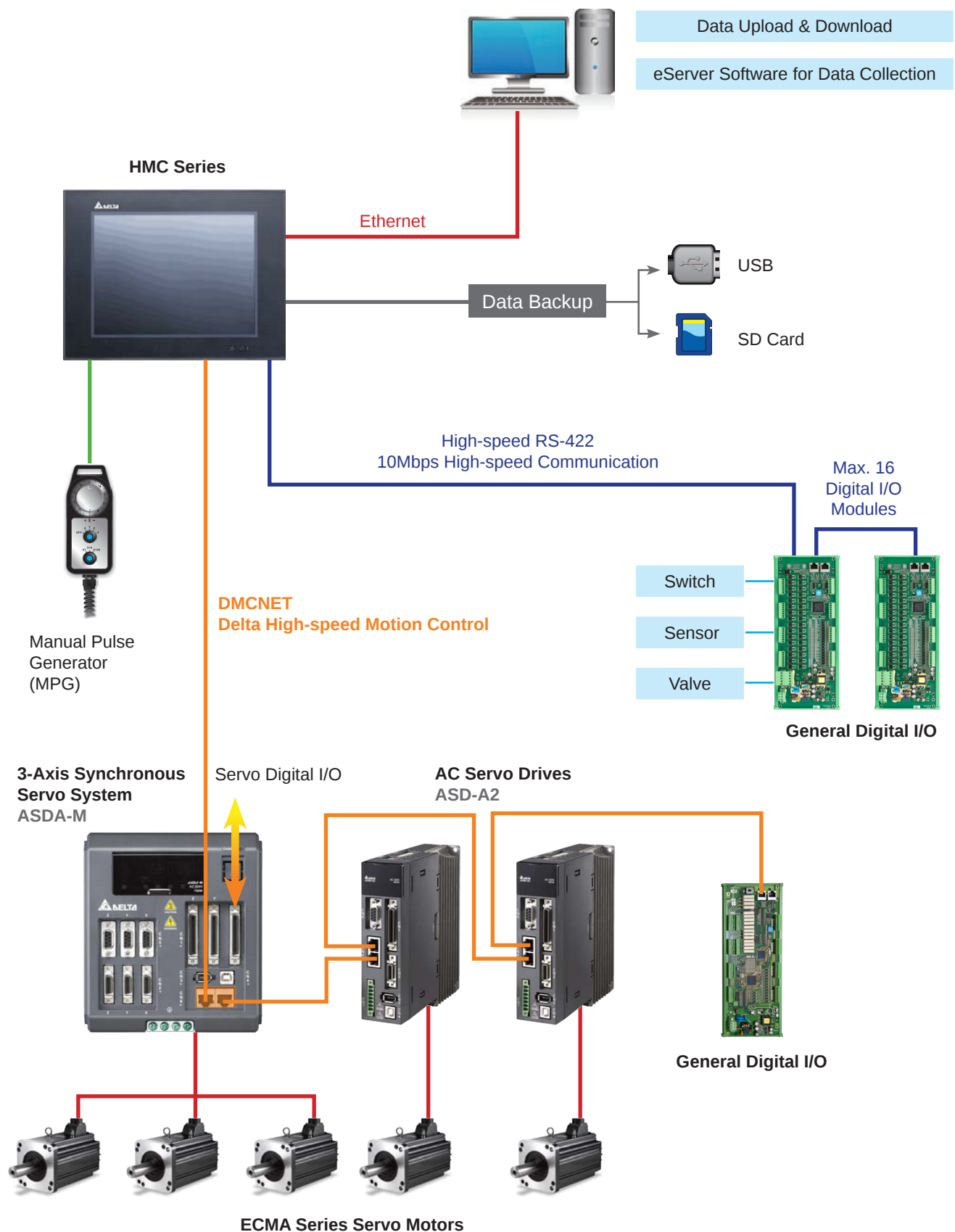
► Security zone setting



► Various stacking instructions



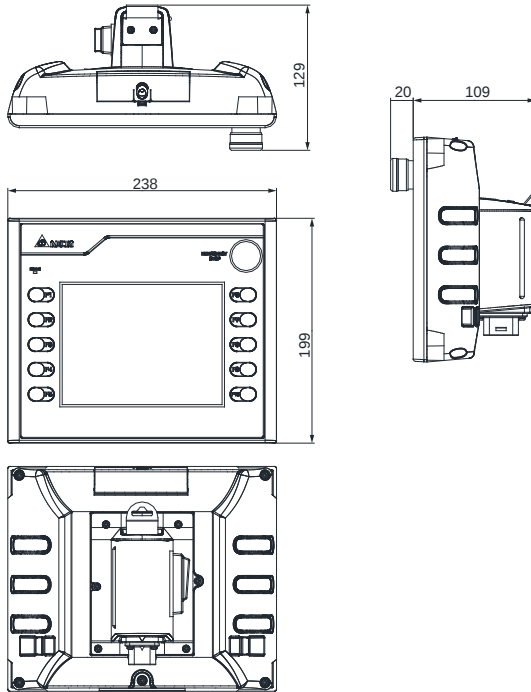
Complete Total Solution





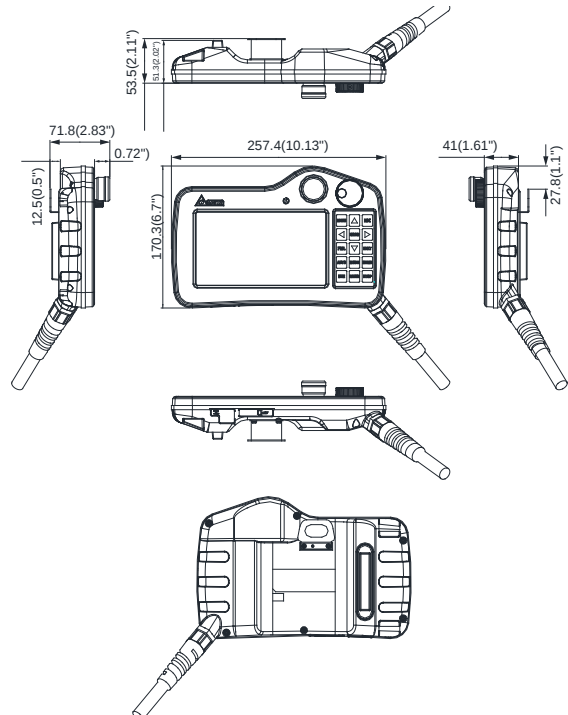
Dimensions Dimensions are in mm (in.)

Model Name HMC07-N5xx Series

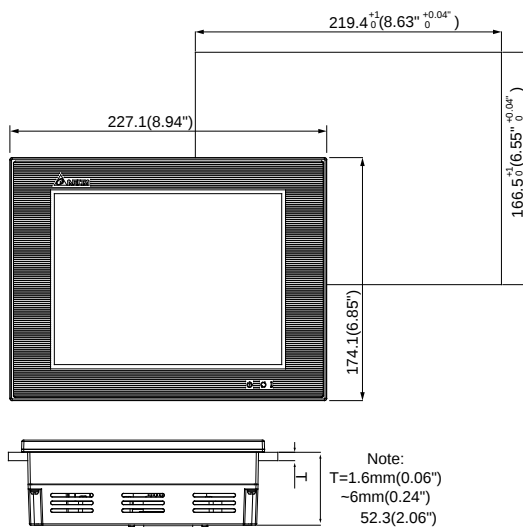


New

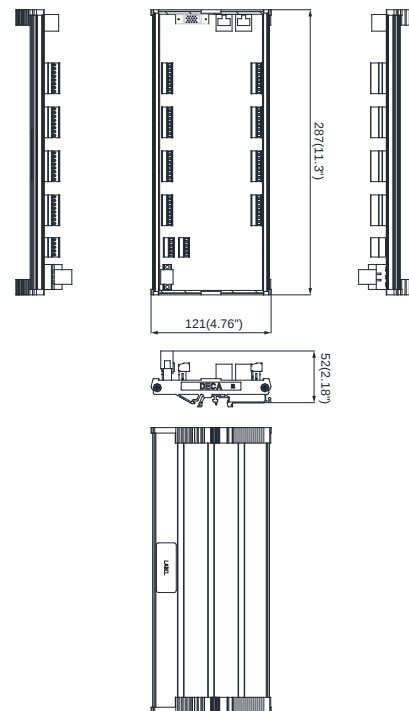
Model Name HMC07-N4xx Series



Model Name HMC08-N5xx Series



Model Name Remote I/O Module



Specifications

MODEL		New HMC07-N411H5C5	New HMC07-N411H5CA	HMC07-N510H52	HMC07-N511H52	HMC08-N500S52
LCD Module	Display Type	7" TFT LCD		7"TFT LCD		8 TFT LCD
	Colors	65536				
	Resolution (pixels)	800 x 480		800 x 600		
	Backlight	LED Backlight				
	Backlight Luminance (cd / m2)	450		200		250
	Backlight Lift (Hr) ^(Note 1)	20,000				
Axes of Control		Max.12 Axes	Max.12 Axes	Max.4 Axes	Max.12 Axes	Max.12 Axes
CPU	HMI	400 MHz				
	Controller	32-bits DSP				
Flash ROM (Bytes)		128 MB				
RAM (Bytes)		64 MB				
Backup Memory (Bytes)		1 MB				
Buzzer		Multi-Tone Frequency (2K~4kHz) /80 dB				
Sound Effect Output		N/A		N/A		Stereo output
USB		1 USB Client Ver 2.0		1 USB Host ^(Note 4) Ver 1.1/ 1 USB Client Ver 2.0		
SD		SD card (support SDHC)				
Serial COM Port	COM1	RS-485 ^(Note 2)		RS-232/RS-422/RS-485 ^(Note 2)		RS-232
	COM2	N/A		N/A		RS-232/RS-422/RS-485 ^(Note 2)
	COM3	N/A		N/A		RS-232/RS-422/RS-485 ^(Note 2)
Ethernet		N/A		1 Port		
Motion Control BUS		DMCNET				
Function Key		15		10		N/A
Cable Length		5m	10m	N/A (Operational)		N/A
Emergency Stop Switch		• B-contact (normally closed): 2 • Rated voltage: 24V_{DC} • Maximum rated current: 500 mA • Minimum allowable load: 5V_{DC} /1 mA • IEC60947-5-1, EN60947-5-1, IEC60947-5-5, EN60947-5-5, UL 508, CSA C22.2 No.14, GB 14085.5		• A-contact (normally open): 1 • B-contact (normally closed): 1 • Rated voltage: 30V_{DC} • Maximum rated current: 500 mA • Minimum allowable load: 5V_{DC} /1mA • IEC60947-5-1, EN60947-5-1, IEC60947-5-5, EN60947-5-5, UL 508, CSA C22.2 No.14		N/A
3-Position Operation Switch		Only for internal register, no output signal		• A-contact (normally open): 1 • Rate voltage: 30V_{DC} • Maximum rated current: 500mA • Minimum allowable load: 3V_{DC} /5mA • EN/IEC60497-5-8, IEC60947-5-1, EN60947-5-1, JIS C8201-5-1, UL508, CSA C22.2 NO,14, ISO12100-1、-2/EN12100-1、-2, IEC60204-1/EN60204-1, ISO11161/prEN11161, ISO10218/EN775, ANSI/RIA R15.06, ANSI B11.19		N/A
Manual Pulse Generator (MPG)		Resolution: 50(P/R) Only for internal register, no output signal		N/A		N/A
Perpetual Calendar		Built-in				
Cooling Method		Only for internal register, no output signal				
Safety Approval		CE		CE/UL		CE/UL
Protection Rating		IP55		IP65		IP65
Voltage Endurance ^(Note3)		+24V _{DC} (-15%~+15%) ^(Note3)				
Waterproof Degree		24V _{DC} terminal and FG terminal: 500V _{AC} / min				

MODEL	New HMC07-N411H5C5	New HMC07-N411H5CA	HMC07-N510H52	HMC07-N511H52	HMC08-N500S52
Power Consumption ^(Note 5)	6W		8W		11W
Backup Battery	3V lithium CR2450 × 1		3V lithium CR2032 × 1		
Backup Battery Life	3 years or more at 25°C, may vary due to temperature and usage condition				
Operation Temperature	0°C~40°C		0°C~50°C		
Storage Temperature	-20°C~+60°C, 10%~90% RH				
Operation Environment	10%~90% RH【0~40°C】, 10%~55% RH【41~50°C】, Pollution Degree 2				
Vibration	IEC61131-2 compliant 5Hz~8.3Hz 3.5mm, 8.3Hz~150Hz 1G				
Shock	IEC60068-2-27 compliant 11ms, 15G Peak, X, Y, Z direction for 6 times				
Dimensions (W x H x D mm)	257.4x170.3x71.8 (Emergency stop button and hook included)		237.9x199x129 (Emergency stop button and hook included)		227.1x174.1x61
Panel Cutout (W x H x D mm)	N/A		N/A		219.4x166.5
Weight	750g (wire excluded)		Approx.1500g		Approx.1314g

Note:

- 1) The half-life of the backlight is defined as the original luminance being reduced by 50% when the maximum driving current is supplied to the HMI.
- 2) The isolated power circuit can withstand a 1500V for 1 minute.
- 3) Adopting isolated power supplies is suggested.
- 4) USB host port provides up to 5V/500mA of power.
- 5) Some models are in the process of applying for UL and KCC certification. For more information, please consult our distributors.
- 6) The value of the power consumption indicates the electrical power consumed by HMI with no peripheral devices connected. To ensure normal operation, it is recommended using a power supply with a capacity 1.5~2 times the value of the power consumption.
- 7) The content of this catalogue may be revised without prior notice. Please consult our distributors or download the most updated version at <http://www.deltaww.com/>.

Electrical Specifications of Remote I/O Modules

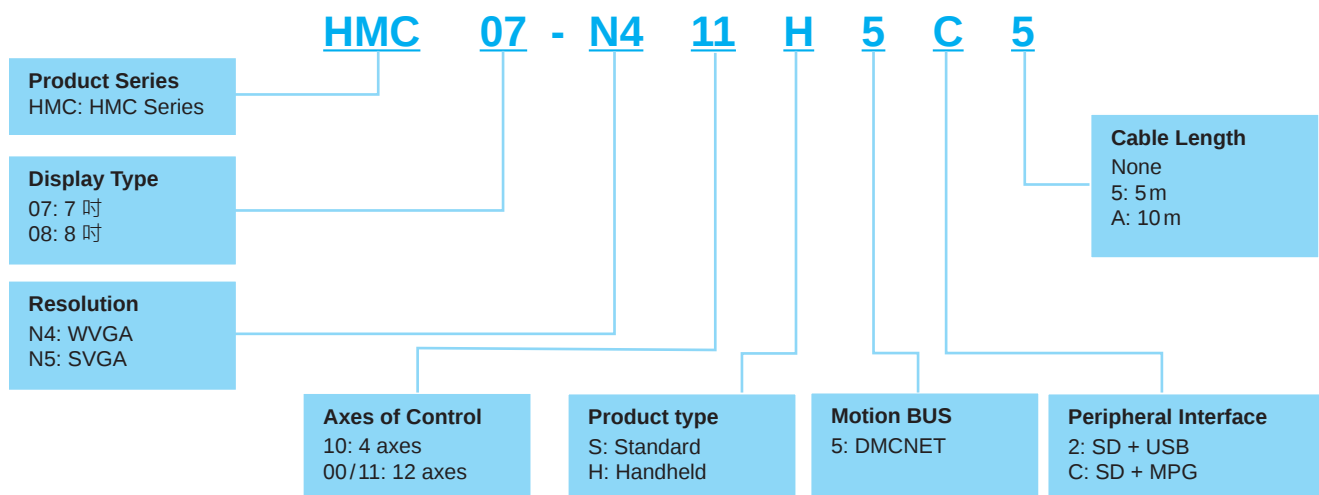
Items/Model Name	Power Supply	Input Unit		Output Unit		
		Points	Type	Points		Type
HM-RIO3232T12	24 V _{DC}	32	NPN (Sink)	32		Transistor
Input Point Electrical Specifications				Output Point Electrical Specifications		
Input Impedance		4.7 KΩ		Max. Switching Frequency		500 kHz
Max. Switching Frequency		100 kHz		Maximum Loading		500 kHz 2A/1 Point
Active Level	Off → On	> 16.5 V _{DC}		Response Time (Relay)	On → Off	Approx. 3 μs
	On → Off	< 5 V _{DC}			On → Off	
Response Time	Off → On	< 3 μs		-		
	On → Off	< 40 μs		-		

Items/Model Name	Power Supply	Input Unit		Output Unit		
		Points	Type	Points		Type
HMC-RIO3232RT5	24 V _{DC}	32	NPN (Sink)/ PNP (Source)	16 Relay/16 TR		Relay/Transistor
Input Point Electrical Specifications				Output Point Electrical Specifications		
Input Impedance		4.7 KΩ		Max. Switching Frequency		1 Hz (Relay) 8 kHz (TR)
Max. Switching Frequency		10 kHz		Maximum Loading		300 mA/1 Point (TR) 2A/1 Point (Relay)
Active Level	Off → On	> 16.5 V _{DC}		Response Time (Relay)	Off → On	10 ms
	On → Off	< 5 V _{DC}			On → Off	
-				Response Time (TR)	Off → On	12 μs
					On → Off	115 μs

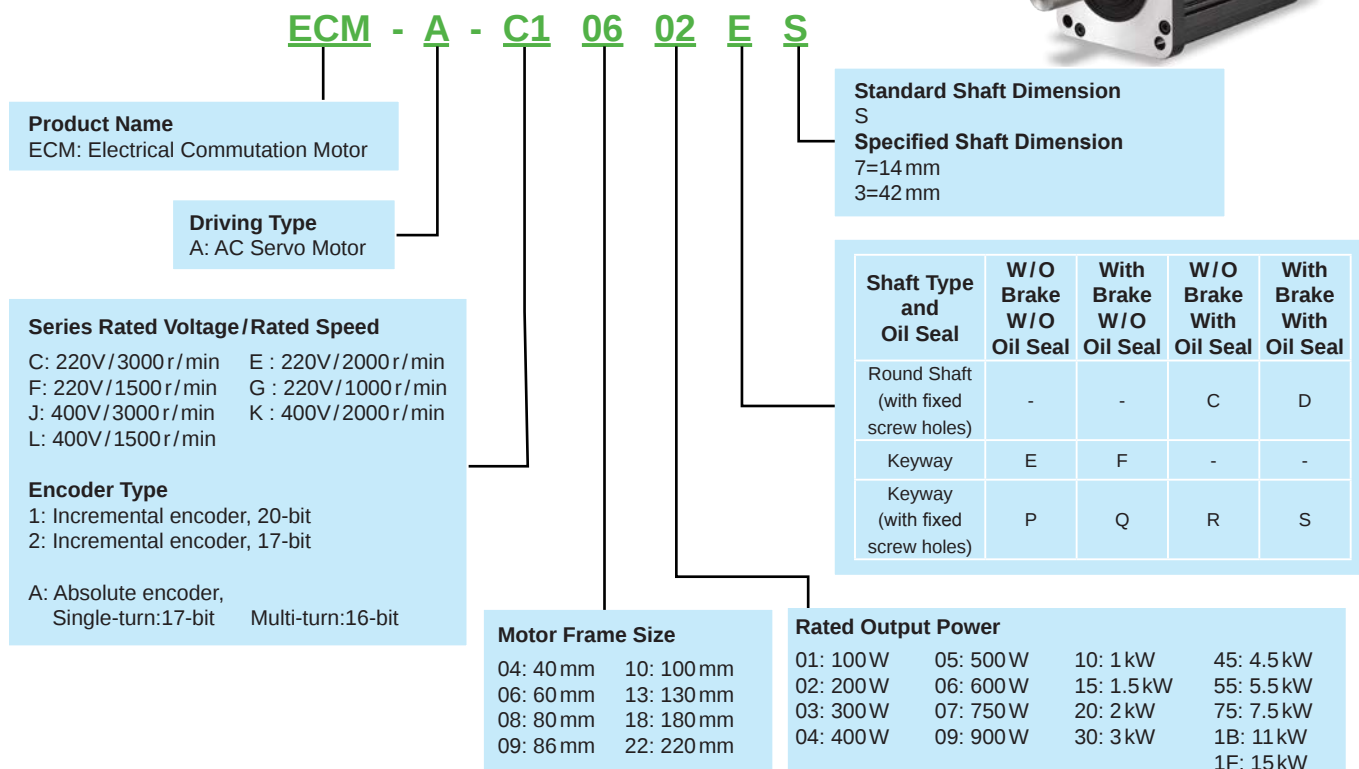
Model Introduction

New

HMC07 Series



Servo Motors ECMA Series



Servo Drives ASDA-M Series



ASD - M - 07 21 - F

Product Name: AC Servo Drive

Series: M

F: DMCNET

Input Voltage and Phase
21: 220V 1-phase
23: 220V 3-phase

Rated Output Power
07: 750W
15: 1.5kW

Servo Drives ASDA-A2 Series



ASD - A2 - 04 21 - F

Product Name: AC Servo Drive

Series: A2

F: DMCNET

Input Voltage and Phase
21: 220V 1-phase/3-phase
23: 220V 3-phase
43: 400V 3-phase

Rated Output Power
01: 100W 20: 2.0 kW
02: 200W 30: 3.0 kW
04: 400W 45: 4.5 kW
07: 750W 55: 5.5 kW
10: 1.0kW 75: 7.5 kW
15: 1.5kW 1B: 11kW
 1F: 15kW

Optional Accessories

Model Name	Descriptions
HMC-CA3205C0	Handheld types HMC07-N5xx Series connection cable (5 m, 32-pin)
HMC-CA3210C0	Handheld types HMC07-N5xx Series connection cable (10 m, 32-pin)
HMC-CA1205C0	Handheld types HMC07-N5xx Series connection cable (5 m, 12-pin)
HMC-CA1210C0	Handheld types HMC07-N5xx Series connection cable (10 m, 32-pin)
NC-CAB-DMC003	DMCNET/Remote I/O connection cable (0.3 m)
NC-CAB-DMC015	DMCNET/Remote I/O connection cable (1.5 m)
NC-CAB-DMC050	DMCNET/Remote I/O connection cable (5 m)
NC-CAB-DMC100	DMCNET/Remote I/O connection cable (10 m)

Global Operations

ASIA (Taiwan)



Taoyuan Technology Center (Green Building)



Taoyuan Plant 1



Taoyuan Plant (Diamond-rated Green Building)

ASIA (China)



Wujiang Plant 3



Delta Electronics

Sales Channels of Delta Industrial Automation are Located Worldwide in 74 Countries



ASIA (Japan)



Tokyo Office

ASIA (India)



Rudrapur Plant
(Green Building)

EUROPE



Amsterdam, Netherlands

AMERICA



Research Triangle Park

▲ Factories 4 ■ Branch Offices 71 ● R&D Centers 5 ■ Distributors 711

ies





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