![Delta logo] **DELTA**
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Digitized Automation for a Changing World
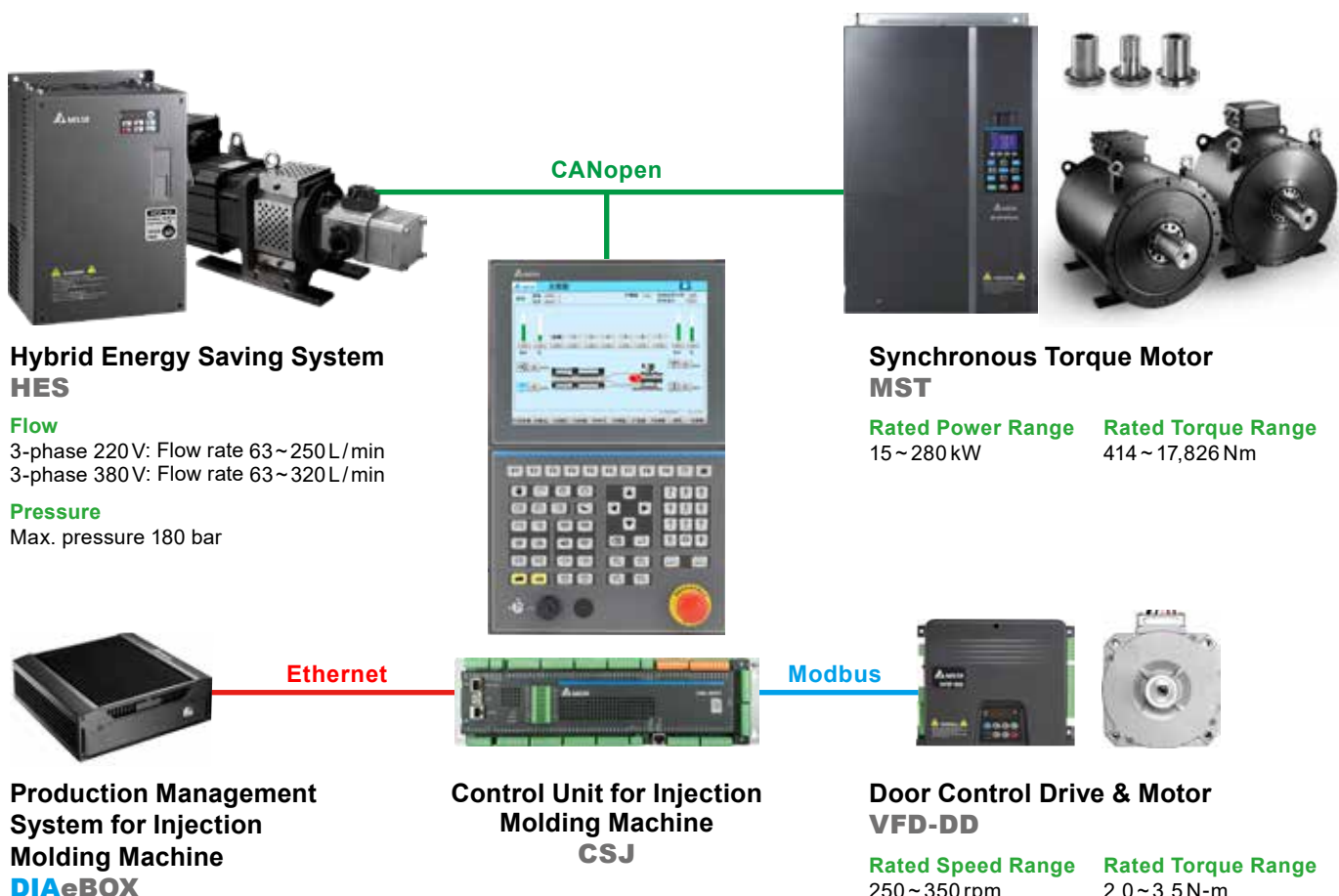
Delta Hybrid Injection Molding Solution CSJ Series

High Energy Efficiency, Precise Control and User-friendly Design

Delta Hybrid Injection Molding Solution

As injection molding technology is changing day by day, Delta has launched the Hybrid Injection Molding Solution, which integrates the Hybrid Energy Saving System HES Series, the Synchronous Torque Motor MST Series, the Door Control Drive and Motor VFD-DD Series, and the Control Unit for Injection Molding Machine CSJ Series. This highly integrated system is compatible with dedicated production monitoring and management software DIAeBOX for real-time production data collection and management.

Delta's Total Solution

- Achieves real-time operation data sharing and timely adjustment of the host controller and servo system by CANopen
- Dedicated operation interface for parameter setting, monitoring, control and real-time alarms for anomalies of the Hybrid Energy Saving System and the Synchronous Torque Motor
- Highly integrated, supports various communication interfaces to meet the high connectivity demands of equipment

CANopen

Hybrid Energy Saving System
HES

Flow
3-phase 220 V: Flow rate 63～250 L/min
3-phase 380 V: Flow rate 63～320 L/min

Pressure
Max. pressure 180 bar

Synchronous Torque Motor
MST

Rated Power Range	Rated Torque Range
15～280 kW	414～17,826 Nm

Ethernet

Modbus

Production Management System for Injection Molding Machine
DIAeBOX

Control Unit for Injection Molding Machine
CSJ

Door Control Drive & Motor
VFD-DD

Rated Speed Range	Rated Torque Range
250～350 rpm	2.0～3.5 N-m

# Control Unit for Injection Molding Machine CSJ

- Control Unit for Injection Molding Machine CSJ consists of a PLC (CDA-J), an HMI (DOP) and a keyboard

- 12" full-color display for operation via both keyboard and touchscreen

- Dedicated PLC programming for secondary development (IEC 31131-3 Standard) to keep critical technologies in-house
  - Includes function modules for injection molding machine
  - Customized control sequence can be achieved through programming

- Adopts Delta's superior drive technology, tuning capability, and monitoring interface to improve Overall Equipment Effectiveness (OEE)
  - Allows quick parameter setting of the Hybrid Energy Saving System without opening the electrical box
  - Actively switches the PID control according to the production process
  - Displays real-time operation status and component health diagnosis
  - Records system anomalies

- Supports CANopen and Modbus for connection to other equipment

- Compatible with dedicated production monitoring and management software DIAeBOX for centralized management and remote monitoring
  - Notification of maintenance and equipment lifetime prediction
  - Remote monitoring with communication software for timely debugging
  - Improves Overall Equipment Effectiveness (OEE)

- Supports VNC for remote monitoring and control

- Supports high-speed pulses for servo rotary tables

- Pluggable terminal blocks for wiring efficiency

- Integrated as an all-in-one injection molding machine solution with one-stop-shop service

Specifications

CSJ Model			CSJC6401DL 12K5901	CSJC8001DL 12K5901
PLC	**Model**		CDA-J6401	CDA-J8001
	PLC Software		ISPSoft supports IEC61131-3	
	PLC Program Capacity		128 K steps	
	Voltage Level		DC + 24 V	
	Digital	**Input**	32 (DC 24 V)	40 (DC 24 V)
		Output	32 (DC 24 V · 2A)	40 (DC 24 V · 2A)
	Analog	**Input**	4 (0～10 V)	
		Output	4 (-10 V～10 V & 0～10 V)	
	Relay Output		12 (including 7 channels for temperature control)	
	High-speed Pulse I/O		2 + 2	
	Channels		8-channel	
	Thermocouple		K, J, E type	
	Communication Interface		RS-485 × 1 Modbus RTU / ASCII; CANopen × 1	

HMI	**Model**	DOP-112WX
	OS	Linux
	Software	DOPSoft
	Voltage Level	DC + 24 V
	Display Type	12.1" TFT LCD
	Display Orientation	Landscape
	Resolution	1,024 × 768
	Touch Panel	Four-wire resistor
	Communication Interface	USB × 1 ; Ethernet × 1, supports OPC-UA (in development)
	Buzzer	Built-in
	RTC	Built-in
Keyboard	**Model**	KBI-J5901
	Function Keys	59 keys, on-screen keys available
	E-stop Switch	1
	Key Switch	1
	SD Card Extension	Max. 32 G

Dimensions

PLC (CDA-J Series)

*CDA-J8001

Detail A (Mounting Hole)
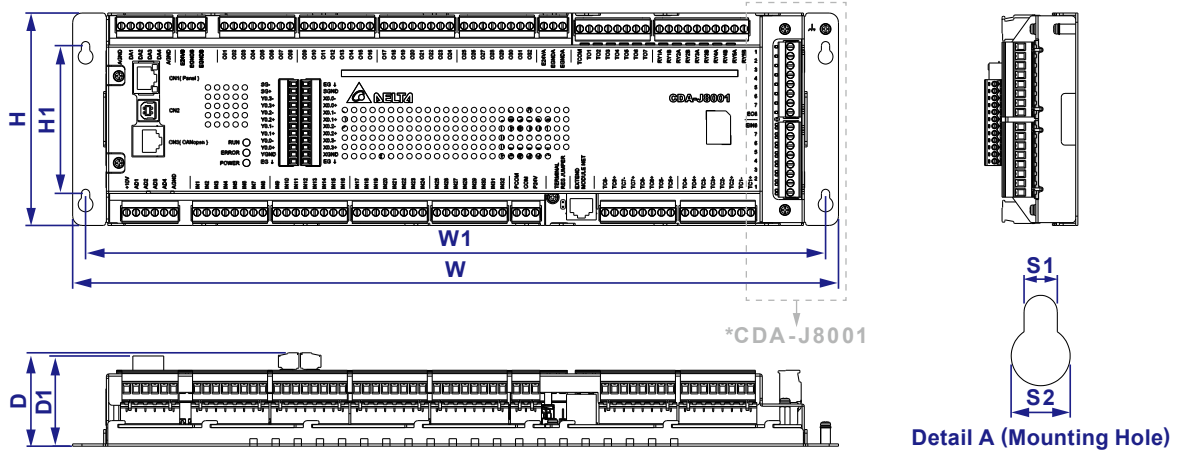
Unit: mm [inch]

W	W1	H	H1	D	D1	S1	S2
415.0 [16.33]	401.0 [15.78]	115.0 [4.52]	80.0 [3.14]	50.6 [1.99]	48.8 [1.92]	4.5 [0.17]	8.0 [0.31]

*This is the CDA-J8001 model. CDA-J6401 model has no terminal blocks within the frame.

HMI (DOP-112WX)
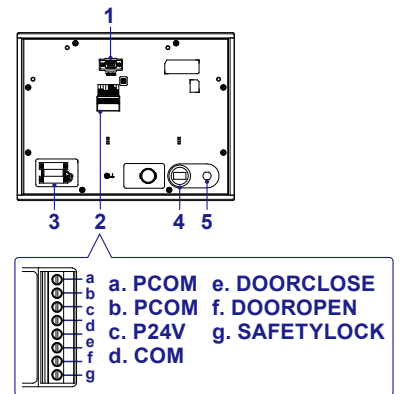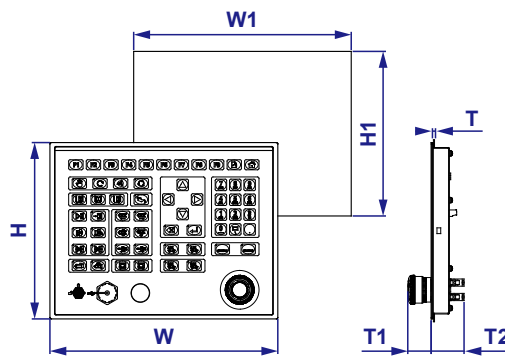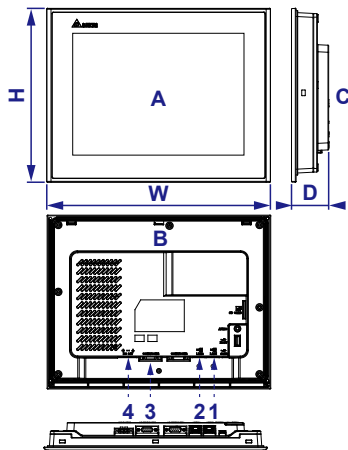
Unit: mm [inch]

W	H	D
317.4 [12.5]	246.4 [9.70]	52.7 [2.07]

A: Front   B: Back   C: Side

1. LAN 1 (1,000 M bps)   3. HMI terminal
2. Controller terminal   4. DC 24V

Keyboard (KBI-J5901)

a. PCOM   e. DOORCLOSE
b. PCOM   f. DOOROPEN
c. P24V   g. SAFETYLOCK
d. COM

Unit: mm [inch]

W	W1	H	H1	T	T1	T2
317.4 [12.5]	302.7 [11.9]	245.0 [9.65]	228.7 [9.01]	1.6~6.0 [0.06~0.24]	32.5 [1.3]	45.8 [1.8]

1. HMI communication port   2. Terminals   3. Safety switch   4. USB port   5. Key switch

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