2018-10-25

5014104000- 1I00

DOP-110IG

High color · Wide screen · User-friendly

Delta Electronics, Inc.
No.18, Xinglong Rd., Taoyuan City 33068, Taiwan

Instruction Sheet

(1) General precautions

Thank you for purchasing this product. This DOP-110IG instruction sheet provides information for the DOP-110IG series HMI. Before using this product, please read through this instruction sheet carefully to ensure the correct use of the product. Please keep this sheet handy for quick reference whenever needed. Before finishing reading this sheet, please follow the instructions below:

- Install the product in an indoor location, which is free of vapor and corrosive and inflammable gas.
- Please refer to the wiring diagram when connecting the wires.
- Ensure this product is correctly grounded. The grounding method must comply with the national electrical standard guidelines (refer to NFPA 70: National Electrical Code, 2005 Ed.).
- Do not disassemble the HMI or change the wiring when power is on.
- Do not touch the power supply when power is on, or it may cause electric shock.
- When the HMI displays a low power notification and requires a battery change, please contact your local distributor or Delta Customer Service Center for the replacement. Do not change the batteries by yourself.
- This product can be used with other industrial automation equipment. Please read through this sheet carefully and install the product according to the instructions to avoid danger.
- Cleaning method: please use a dry cloth to clean the product.
- This product must be used at an altitude below 2,000 m (6561.68 ft).
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
- For repair and maintenance, please contact Delta Electronics, Inc. Address: No.18, Xinglong Rd., Taoyuan City, Taiwan. TEL: +886-3-3626301.

If you have any inquiry during operation, please contact our local distributors or Delta Customer Service Center. The instruction sheet may be revised without prior notice. Contact our distributors or download the latest version from the Delta website (http://www.deltaww.com.tw/ia).

(2) Communication port pin assignment

DOP-110IG COM1

COM Port	Pin	MODE1
		RS-232
	1	-
	2	RXD
	3	TXD
	4	-
	5	GND
	6	-
	7	RTS
	8	CTS
	9	-

DOP-110IG COM2

COM Port	Pin	MODE1	MODE2	MODE3
		RS-232	RS-422	RS-485
	1	-	TXD+	D+
	2	RXD	-	-
	3	TXD	-	-
	4	-	RXD+	-
	5	GND	GND	GND
	6	-	TXD-	D-
	7	RTS	-	-
	8	CTS	-	-
	9	-	RXD-	-

Note:
1. The mark "-" means connection is not required.
2. To use COM2 for flow control through RS-232 (RTS and CTS signals), COM3 port is not operable.

DOP-110IG COM3

COM Port	Pin	MODE1	MODE2	MODE3
		RS-232	RS-422	RS-485
	1	-	TXD+	D+
	2	RXD	-	-
	3	TXD	-	-
	4	-	RXD+	-
	5	GND	GND	GND
	6	-	TXD-	D-
	7	-	-	-
	8	-	-	-
	9	-	RXD-	-

Note: the mark "-" means connection is not required.

DOP-110IG Ethernet interface (LAN)

Ethernet interface	Pin	Contact
		Ethernet
	1	TX+
	2	TX-
	3	RX+
	4	-
	5	-
	6	RX-
	7	-
	8	-

Note: the mark "-" means connection is not required.

(3) Description of each part

DOP-110IG (front view)

A	Operation / display area
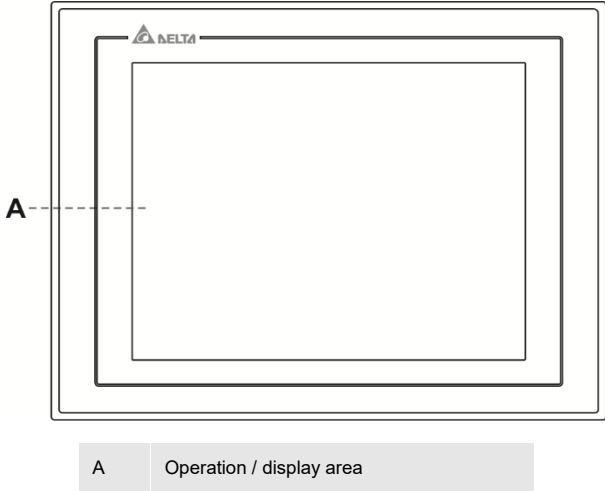
DOP-110IG (rear view)
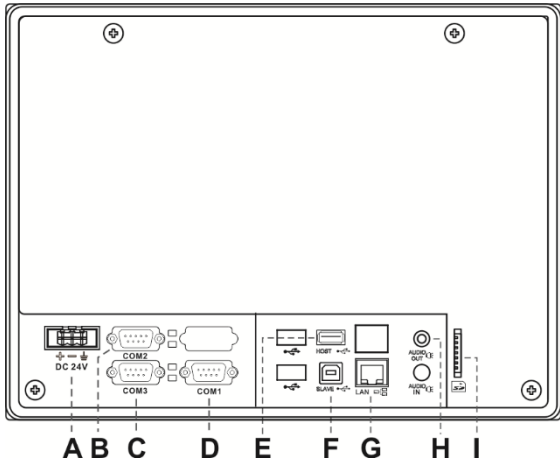
A	Power input connector	F	USB Slave
B	COM2 (supports communication indicator)	G	Ethernet (LAN)
C	COM3 (supports communication indicator)	H	Audio output interface
D	COM1	I	Memory card slot
E	USB Host	-	-

(4) Mounting dimensions

DOP-110IG

Note:
T=1.6mm~6mm(0.063"~0.24")

Unit: mm (inches)
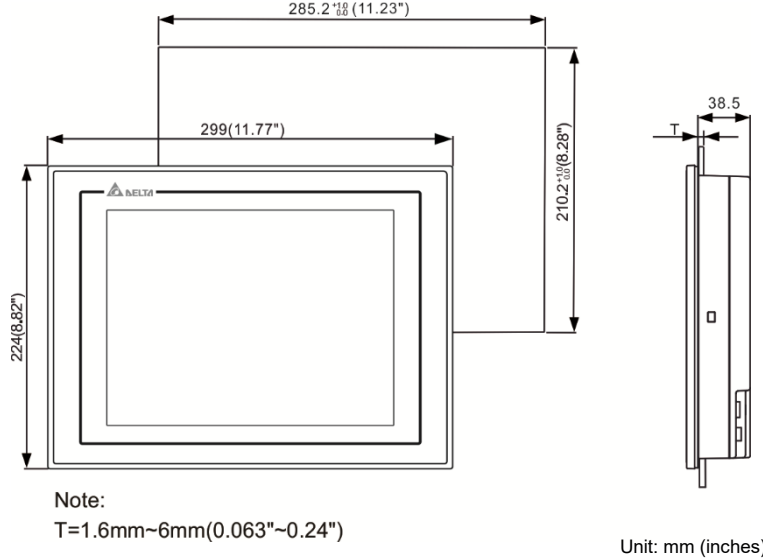
(5) Installation and wiring

Precautions:

- Mount the HMI according to the illustration below. Incorrect installation direction may result in malfunction.
- To ensure the HMI is well ventilated, make sure there is sufficient space between the HMI and the adjacent objects or walls.
- This product should be installed in a case or on a platform which conforms to enclosure Type 4X standard (for indoor use only).
- The maximum panel thickness for mounting must be no greater than 5 mm (0.2 inches).
- Please use copper wires.

Installation diagram:

Step 1:
Put the waterproof gasket onto the HMI and then insert the HMI into the panel cutout.

Step 2:
Place the fasteners into the slots and tighten the screws until reaching the panel cutouts.
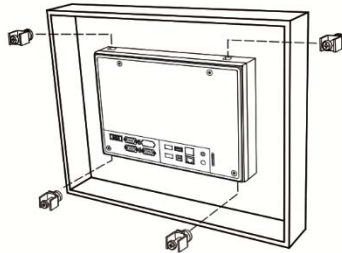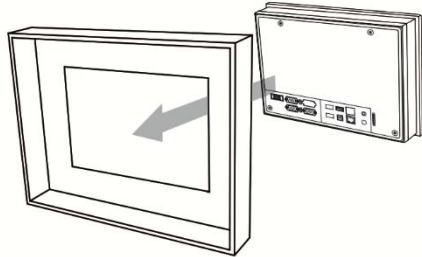
Step 3:
Tighten the screws with the torque between 0.5 N-M and 0.7 N-M to avoid damage to the plastic case.
DOP-110IG torque: 6.17 lb-inch (0.7 N-M)

Step 4:
For heat dissipation, please keep a minimum clearance of 60 mm (2.36 inches) and 45 mm (1.77 inches) respectively on the rear and bottom of the HMI.
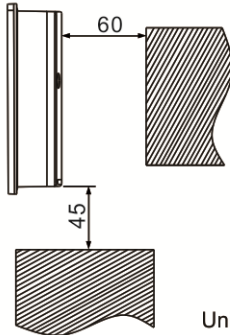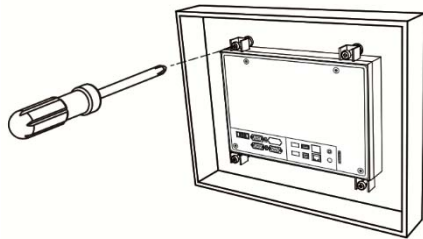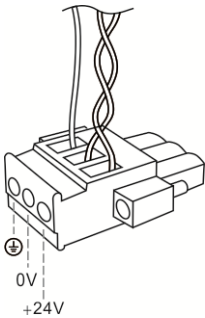

Unit: mm

Wiring:

Type	Wire gauge (AWG)	Stripped length	Torque
Solid	24 - 12	7 - 8 mm (0.28 - 0.31 inches)	5 kg-cm (4.3 lb-in)
Stranded	24 - 12	7 - 8 mm (0.28 - 0.31 inches)	5 kg-cm (4.3 lb-in)

⚠️ **WARNING** Please refer to the following diagram when wiring the power connector. The temperature rating of the cable must be greater than 75°C (167°F).

0V
+24V

Model	DOP-110IG
Vibration resistance	Conforms to IEC61131-2: continuous vibration 5 Hz - 8.3 Hz with amplitude 3.5 mm; 8.3 Hz - 150 Hz with amplitude 1G
Shock resistance	Conforms to IEC60068-2-27: 11 ms, 15 G Peak, in X, Y, Z directions each for 6 times
Dimensions (W) x (H) x (D) mm	299 x 224 x 46.8
Mounting dimensions (W) x (H) mm	285.2 x 210.2
Weight	Approx.1600 g

Note:
1. The half-life of the backlight is defined as the maximum luminance being reduced by 50% when the maximum drive current is supplied to the HMI. The life of LED backlight shown here is estimated at the room temperature of 25°C (77°F) with ambient humidity.
2. The withstand voltage of the isolated power circuit is 1500 V peak for 1 minute.
3. The HMI power consumption is the power consumed when the HMI is not connecting with other peripheral devices. To ensure normal operation of the HMI, the recommended capacity of the power supply is 1.5 to 2 times of the specified power consumption.
4. Isolated power supply is recommended.
5. For the programming software DOPSoft of DOP-100 series and its user manual, you can download them at http://www.delta.com.tw/ia.
6. DOP-100 series can be used with other industrial automation equipment. Please read through this sheet carefully and install the product according to the instructions to avoid danger.

(6) Hardware specifications

Model		DOP-110IG
Display	Panel type	10.4" TFT LCD (65536 colors)
	Resolution	800 x 600 pixels
	Backlight	LED backlight (half-life under room temperature 25°C > 10,000 hours) [1]
	Display range	211.2 x 158.4 mm
	Brightness	300 cd / m² (Typ.)
CPU		ARM Cortex-A8 (800 MHz)
Flash ROM		256 Mbytes
RAM		256 Mbytes
Touchscreen		4-wire resistive touchscreen > 10,000,000 operated
Audio output	Buzzer	Multi-Tone Frequency (2 - 4 kHz) / 80 dB
	AUX	Stereo output
Network interface		1-port 10/100 Mbps auto-detection (with built-in isolated power circuit) [2]
USB		1 USB Slave Ver 2.0; 1 USB Host Ver 2.0
SD		SD card (supports SDHC)
Serial communication port	COM1	RS-232 (supports hardware flow control) [2]
	COM2	RS-232 / RS-422 / RS-485 [2]
	COM3	RS-232 / RS-422 / RS-485 [2]
Auxiliary function key		N/A
Calendar		Built-in
Cooling method		Natural cooling
Approvals		CE / UL (please use shielding network cable and magnetic ring with the filter of 300 ohm / 100 MHz)
Panel waterproof level		IP65 / NEMA4
Operation voltage[2]		DC +24V (-15% to +15%) (please use an isolated power supply) Supplied by Class 2 or SELV circuit (isolated from MAINS by double insulation)
Leakage current		500 V_{AC} for 1 minute (between DC24V terminal and FG terminal)
Power consumption[3]		9.6 W (Max.) [3]
Backup battery		3V lithium battery CR2032 x 1
Backup battery life		About 3 years or more at 25°C (77°F) (subject to operation temperature and condition)
Operation temperature		0°C to 50°C (32°F to 122°F)
Storage temperature		-20°C to +60°C (-4°F to 140°F)
Operating environment		10% to 90% RH [0°C to 40°C (32°F to 104°F)]; 10% to 55% RH [41°C to 50°C (105.8°F to 122°F)]; pollution degree: 2