



Digitized Automation for a Changing World

Delta Human Machine Interface DOP-100 Series



www.deltaww.com



Advanced Human Machine Interface for

Delta's Human Machine Interface DOP-100 Series includes four categories for different applications: Basic, Standard, Advanced, and Handheld. The Basic, Standard, and Handheld HMI adopt the latest Cortex-A8 (800 MHz), while the 12"/15" Advanced HMI adopts the Dual Core Cortex-A7 1Ghz high-speed processor. The DOP-100 Series employs 16-bit or 24-bit color LCD screens with high brightness and contrast. In addition, the series is equipped with the HMI programming software DIAScreen and built-in Lua editor for easy programming as well as alarm / history log / user authority functions for highly efficient management.

With advanced communication capabilities and enhanced functions, the DOP-100 Series enhances machine efficiency to bring more value to our customers, and to achieve "Automation for a Changing World"!



Standard HMI

Features General and Ethernet Types for various applications

Advanced HMI

Features narrow frame design, supports various network communications, multilingual input and multimedia functions

Future Industry

Basic HMI

Simple operating structure for harsh environments



Handheld HMI

Customized for the teaching needs of various motion platforms such as robotic arms

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Easy Model Selection

The DOP-100 Series offers diverse models for different applications. Users can easily select a suitable HMI based on size or function

S Type	▶ Serial Communication Port x2 (D-sub x1)	
B Type	▶ Serial Communication Port x2 (D-sub x1)	
D Type	▶ Serial Communication Port x2 (D-sub x1)	▶ Ethernet port x1 (RJ45 x1)
C Type	▶ Serial Communication Port x3 (D-sub x2)	
P Type	▶ Serial Communication Port x3 (D-sub x2)	▶ Ethernet Port x1 (RJ45 x1)
E Type	▶ Serial Communication Port x3 (D-sub x2)	▶ Ethernet Port x1 (RJ45 x1)
I Type	▶ Serial Communication Port x3 (D-sub x3)	▶ Ethernet Port x1 (RJ45 x1)
H Type	▶ Serial Communication Port x1 (D-sub x1) or Ethernet Port x1 (RJ45 x1)	
W Type	▶ Serial Communication Port x2~4 (D-sub x1~2) ▶ Narrow frame design , Multi-language	▶ Ethernet Port x1~2 (RJ45 x1~2)
M Type	▶ Serial Communication Port x4 (D-sub x2) ▶ Narrow frame design , Multi-language, Multi-media	▶ Ethernet Port x2 (RJ45 x2)

Type Definition

DOP-107 W V



Advanced HMI

At least 2 Serial Communication Ports & 1 Ethernet Port included

Handheld HMI

1 Serial Communication Port (RS-422 / RS-485) or 1 Ethernet Port

Standard HMI

3 Serial Communication Ports included

Basic HMI

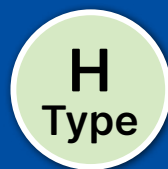
2 Serial Communication Ports included



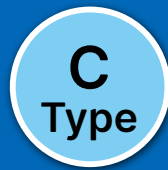
Advanced Narrow Frame



Advanced Multimedia



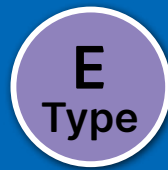
Handheld



Standard General



Standard Premium



Standard Ethernet (2COM)



Standard Ethernet (3COM)



Simple



Basic



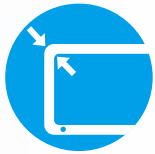
Basic Ethernet

Advanced HMI

The Advanced HMI adopts a wide screen and narrow frame design. It supports Ethernet communication & multilingual inputs. The Multimedia Type DOP-112 / 115 offers multimedia functions to meet different applications.



Features



Narrow Frame
Enlarged visual display for a better user experience



LUA Language
Simple and easy structural programming language to meet various demands



Pressing Times >10,000,000
Effective pressing times validated by strict endurance tests



IP65 Rating
Protects the HMI from rain and dust



Multilingual Input
16 different languages input for easy operation



Diagnostics Function
Collects and troubleshoots issues remotely



Power Isolation
Protects the HMI from accidental surge interference



VNC Remote Monitoring
Remote control with mobile devices



QRcode Scanning
Generates QRcodes for mobile device identification



Supports GIF Graphic Elements
Easy setting to play vivid GIF elements



Embedded Linux System
Open system for flexible and stable program development



DIAScreen
New software DIAScreen offers more functions and a better interface




Operating Temperature 0°C ~ 50°C
Applicable in various industrial operating environments



CE / UL Certified
Compliant with CE and UL standards



Multimedia Functions
Captures images with an external camera or replays important recordings 



Ethernet Communication
Connects to a master device or PLC with high-speed Ethernet communication



Communication Isolation
Serial Communication Ports and Ethernet Ports with built-in isolation circuits enhance communication stability



OPC UA
Supports M2M communication and data transmission among machines from various manufacturers for diverse industries



FTP/eMail Supported
Simple data transmission and real-time status update



Supports PDF and TXT Reader
PDF and TXT files supported

Camera & Video Play Multimedia Functions



Analog Camera

Supports external camera via analog signals, suitable for capturing fast and short-distanced images

Applications: Textiles | Pharmaceutical | Rubber & Plastics



IP Camera

Supports IP Camera via Ethernet, suitable for capturing remote and wide-range images

Applications: Packaging | Logistics | Mining | Power Generation | Oil & Gas



VGA Input

Displays images from external devices such as machine vision systems, PCs or notebooks



Video Play

Views mpeg4 files captured by analog or IP camera from internal storage or USB disk / SD card



Event Trigger

Responds to preset event trigger conditions to capture images and archive as mpeg4 files

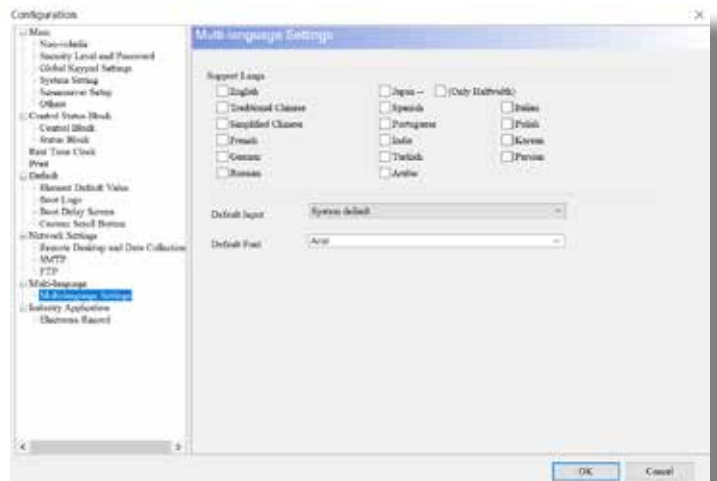


Multi-Language Input for Localization

▶ The Advanced HMI supports multilingual inputs for:

- Recipe Name (ENRCPG)
- Recipe Group Name (ENRCPNONAME)
- Recipe Content (Char)
- User Name

▶ Supports 16 languages: English, Traditional Chinese, Simplified Chinese, French, German, Russian, Japanese (Fullwidth or Halfwidth), Korean, Spanish, Portuguese, Hindi, Turkish, Arabic, Persian, Italian and Polish



Delta's HMI can implement M2M communication and data transmission for diverse industries by means of OPC UA. Communication among different manufacturers' machines is enabled through information modeling.

Standard HMI

The Standard HMI is equipped with Serial Communication Ports to meet most applications. It also offers Ethernet Types for fast and easy connection with other equipment.



Features



Embedded Linux System
Open system for flexible and stable program development



LUA Language
Simple and easy structural programming language to meet various demands



DIAScreen
New software DIAScreen offers more functions and a better interface



Pressing Times >10,000,000
Effective pressing Times validated by strict endurance tests



Operating Temperature 0°C ~ 50°C
Applicable in various industrial operation environments



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Protects the HMI from rain and dust



CE / UL Certified
Compliant with CE and UL standards



Diagnostics Function
Collects and troubleshoots issues remotely



Ethernet Communication
Connects to master device or PLC with high-speed Ethernet communication



Power Isolation
Protects the HMI from accidental surge interference



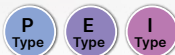
Communication Isolation
Serial Communication Ports and an Ethernet Port with built-in isolation circuits enhance communication stability



VNC Remote Monitoring
Remote control with mobile devices



FTP/eMail Supported
Simple data transmission and real-time status update



Supports PDF and TXT Reader
PDF and TXT files supported



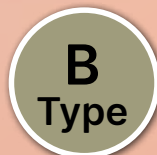
Supports GIF Graphic Elements
Easy setting to play vivid GIF elements



User-Friendly
Intuitive operation interfaces for users

Basic HMI

The Basic HMI is easy to install and offers basic functions for general industrial applications. With an IP65 rating, it is suitable for harsh environments.



Features



Embedded Linux System
Open system for flexible and stable program development



LUA Language
Simple and easy structural programming language to meet various demands



DIAScreen
New software DIAScreen offers more functions and a better interface



Pressing Times >10,000,000
Effective pressing times validated by strict endurance tests



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Applicable in various industrial operating environments



IP65 Rating
Protects the HMI from rain and dust



CE / UL Certified
Compliant with CE and UL standards



Diagnostics Function
Collects and troubleshoots issues remotely



Ethernet Communication
Connects to master device or PLC with high-speed Ethernet communication

D Type Only



FTP/eMail Supported
Simple data transmission and real-time status update

D Type Only



Communication Isolation
An Ethernet Port with built-in isolation circuits enhances communication stability

D Type Only



VNC Remote Monitoring
Remote control with mobile devices

D Type Only



Supports PDF and TXT Reader
PDF and TXT files supported



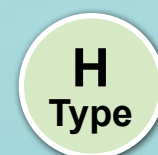
Supports GIF Graphic Elements
Easy setting to play vivid GIF elements



User-Friendly
Intuitive operation interfaces for users

Handheld HMI

The Handheld HMI adopts a lightweight handheld design and supports Serial Communication Port (RS-422 / RS-485) or Ethernet communication. Meet the teaching needs of various motion platforms such as robotic arms.



Features



Embedded Linux System

Open system for flexible and stable program development



LUA Language

Simple and easy structural programming language to meet various demands



DIAScreen

New software DIAScreen offers more complete functions and a better interface



Pressing Times >10,000,000

Effective pressing Times validated by strict endurance tests



Operating Temperature 0°C ~ 50°C

Applicable in various industrial operating environments



IP54 Rating

Protects the HMI from rain and dust



CE Certified

Compliant with CE standards



Diagnostics Function

Collects and troubleshoots issues remotely



Ethernet Communication

Connects to a master device or PLC with high-speed Ethernet communication



Power Isolation

Protects the HMI from accidental surge interference



Communication Isolation

Serial Communication Port / Ethernet Port with built-in isolation circuits enhance communication stability



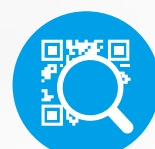
FTP/eMail Supported

Simple data transmission and real-time status update



Supports PDF and TXT Reader

PDF and TXT files supported



QRcode Scanning

Generates QRcodes for mobile device identification



User-Friendly

Intuitive operation interfaces for users



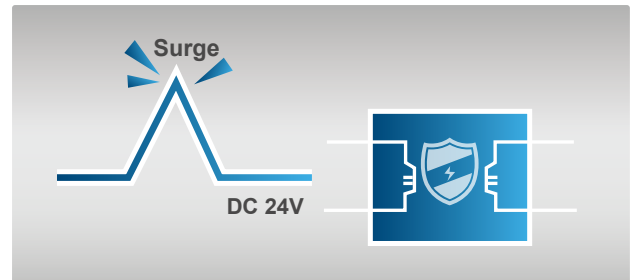
Supports GIF Graphic Elements

Easy setting to play vivid GIF elements

Robust Hardware

Power Isolation

- ▶ The HMI with built-in power isolation circuits provides protection against accidental external spikes



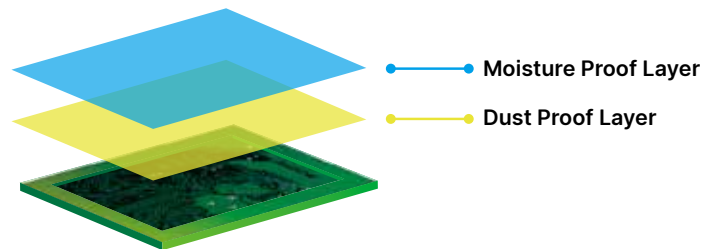
Isolated Communication Interface

- ▶ The HMI with built-in Serial Communication Port and Ethernet isolation circuits to protect against noise that can occur from the grounding of various devices such as PLCs, servo drives, motor drives and others



PCB Coating

- ▶ The DOP-100 series has PCB coating for enhanced durability and to protect against humidity and dust for applications in a range of environments

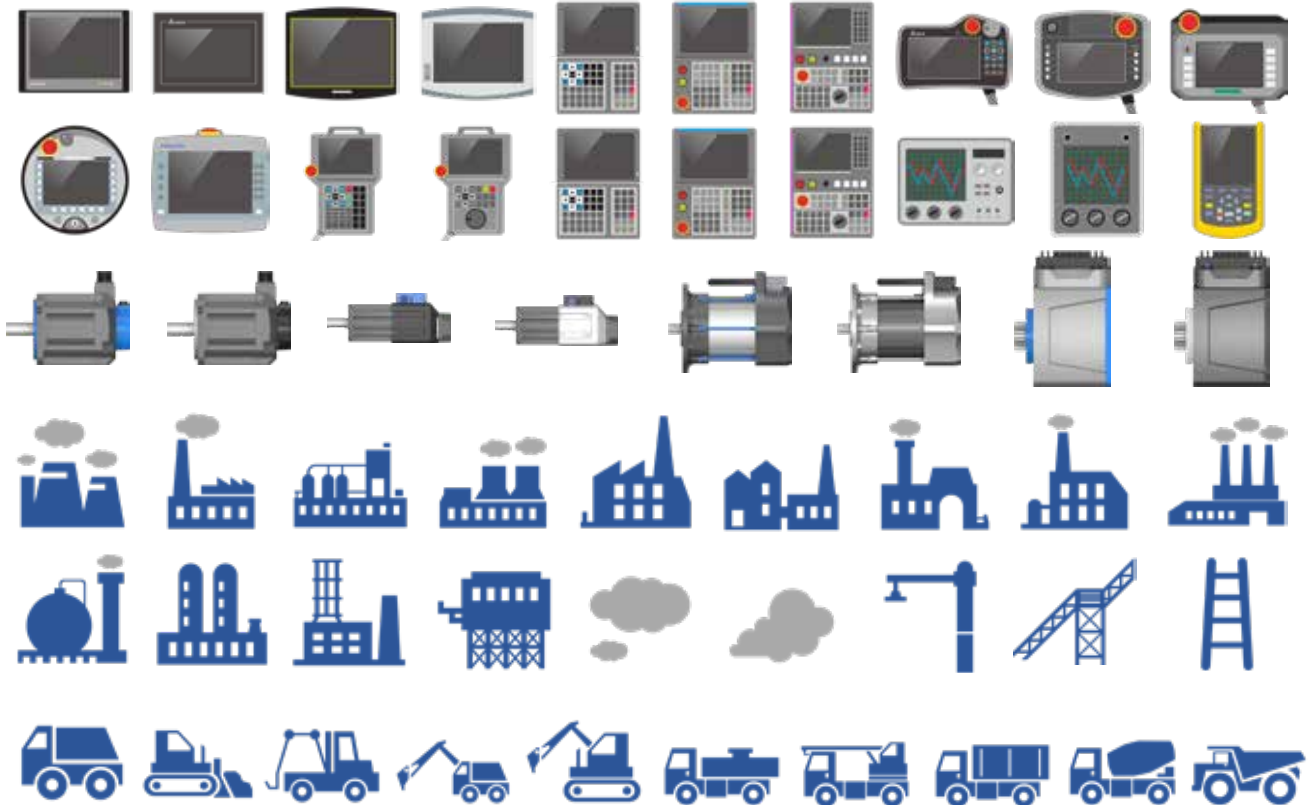


Model	Power Isolation	Serial Communication Port Isolation	Ethernet Isolation
Advanced HMI (Multimedia Type)			
DOP-112/115 MX	Yes	Yes	Yes
Advanced HMI			
DOP-103WQ/107WV/110WS	Yes	Yes	Yes
DOP-112/115 WX	Yes	Yes	Yes
Handheld HMI			
DOP-107H	Yes	Yes	Yes
Standard HMI (Ethernet Type)			
DOP-107IV	Yes	Yes	Yes
DOP-108IG/110IG	Yes	Yes	Yes
DOP-110IS	Yes	Yes	Yes
DOP-107EV	Yes	Yes	Yes
DOP-107EG	Yes	Yes	Yes
DOP-107PV	No	No	Yes
Standard HMI			
DOP-105CQ	Yes	No	No
DOP-107CV	Yes	No	No
DOP-110CS	Yes	No	No
DOP-110CG	Yes	No	No
Basic HMI (Ethernet Type)			
DOP-103DQ	Yes	Yes	Yes
DOP-107DV	No	No	Yes
Basic HMI			
DOP-103SQ	No	No	No
DOP-103BQ	No	No	No
DOP-107BV	No	No	No

Programming Software – DIAScreen

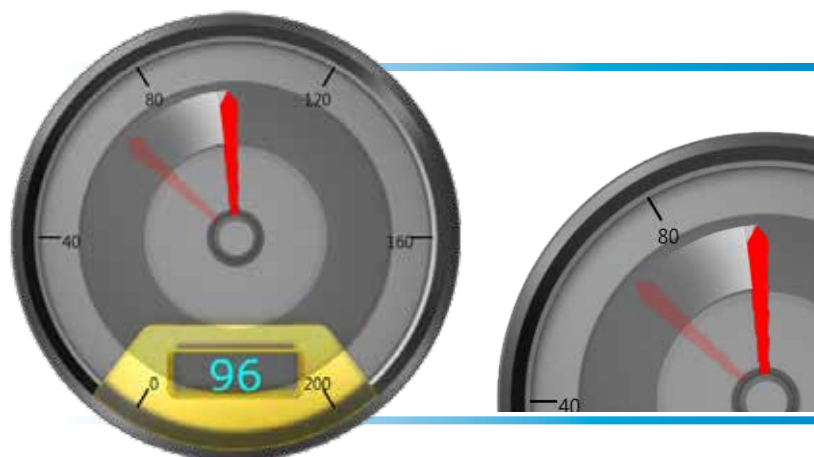
Abundant Elements

- ▶ Abundant built-in element graphics for vivid interface display for a variety of industrial applications



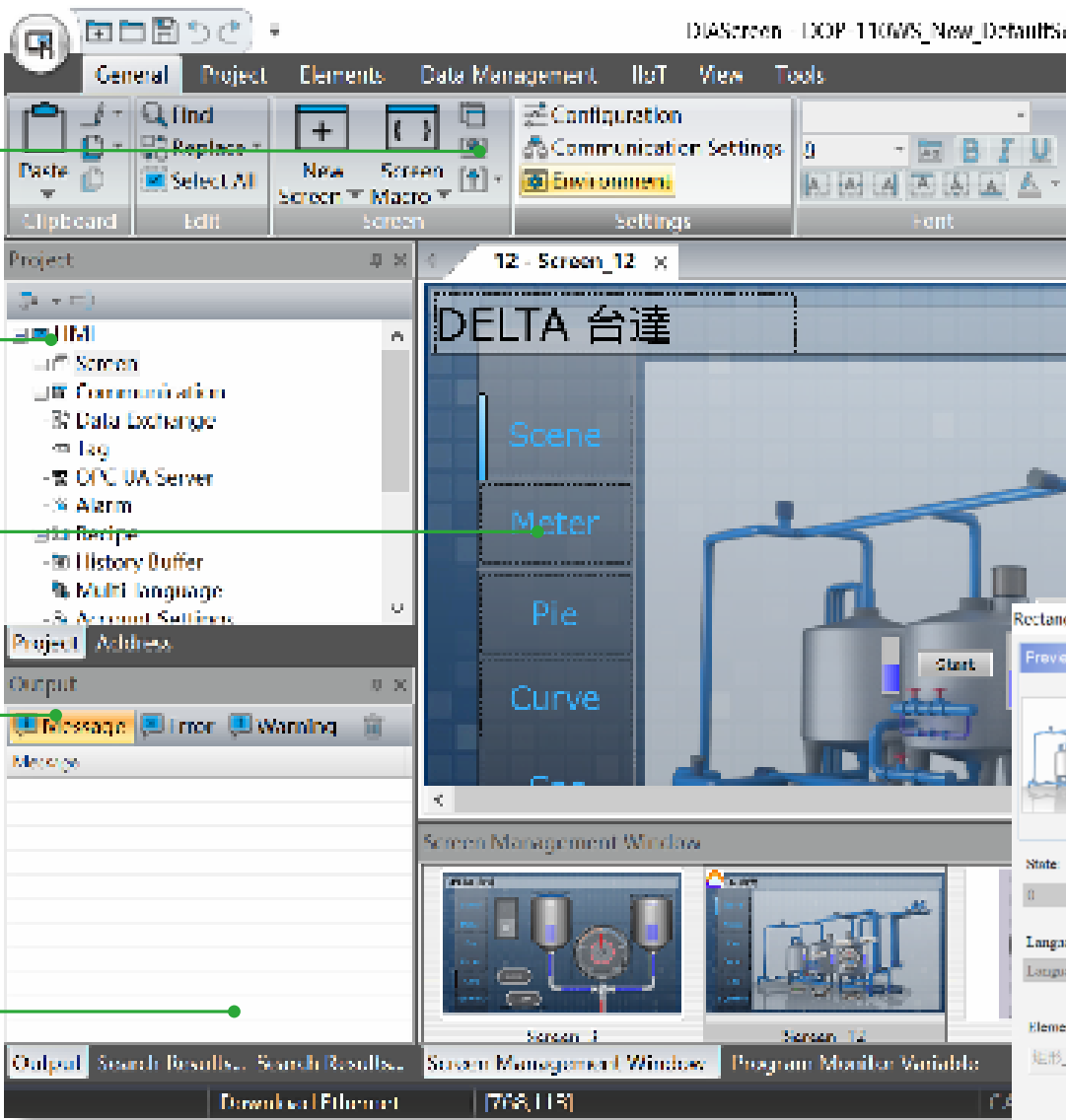
Smooth Animation

- ▶ New smooth animation technology for realistic dashboard display



Programming Software - DIAScreen

User-Friendly Programming Interface



The screenshot shows the DIAScreen software interface with several callout boxes pointing to specific features:

- Bookmark Management:** A green box pointing to the 'Bookmark' icon in the top toolbar.
- Bookmark menu allows users to switch pages easily:** A text box below the 'Bookmark Management' callout.
- Project Management Batch:** A green box pointing to the 'Project' menu in the top toolbar.
- Users can quickly switch items via the project branch feature:** A text box below the 'Project Management Batch' callout.
- Editing Area:** A green box pointing to the main workspace area where the screen is being edited.
- Provides real-time display of users' edits:** A text box below the 'Editing Area' callout.
- Output List:** A green box pointing to the 'Output' window at the bottom left.
- Automatically displays edit results of each screen. Users can review and troubleshoot by clicking screens:** A text box below the 'Output List' callout.
- Edit Preview:** A green box pointing to the 'Screen Management Window' at the bottom right.
- Users can quickly browse the overall project via edit preview:** A text box below the 'Edit Preview' callout.

Abundant Accessories

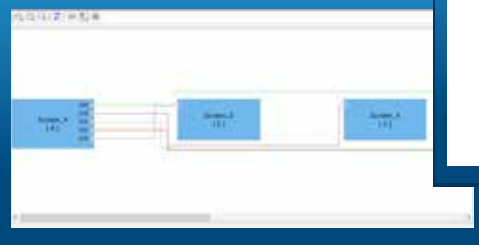
Customized keyboard



Field devices



Process paradigms



General Tool

Shortcut icons help enhance efficiency

Property

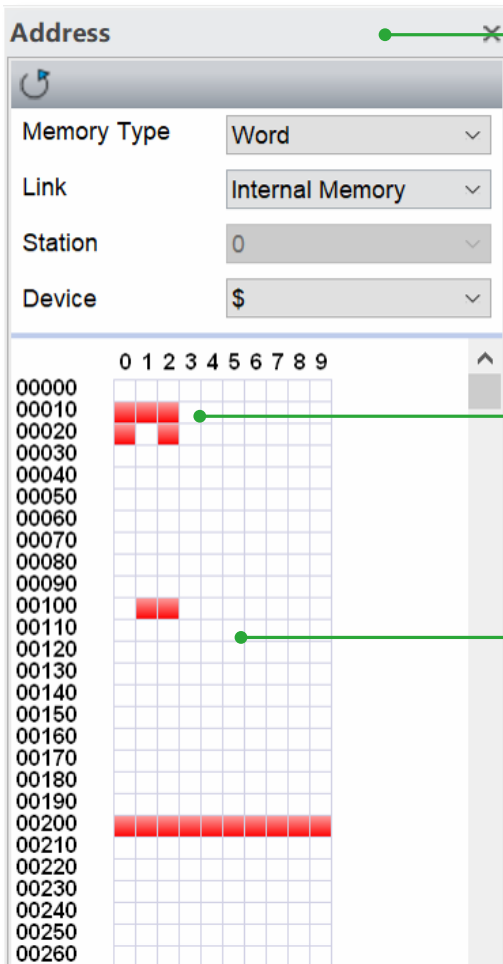
Provides easier property setup via group lists

Property Window

Standard accessory dialog box with built-in preview and quick-edit functions

Programming Software - DIAScreen

Editing Windows



Register View Window

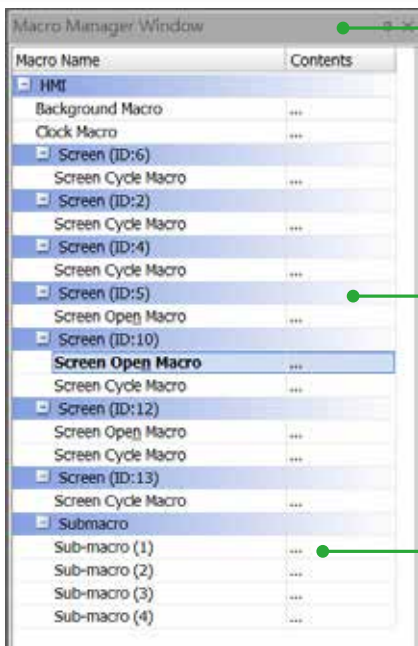
The color blocks of red and white allow users to view the memory register status



Red blocks indicate the used registers

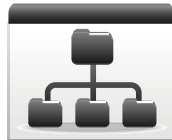


White blocks indicate empty registers



Macro Management Window

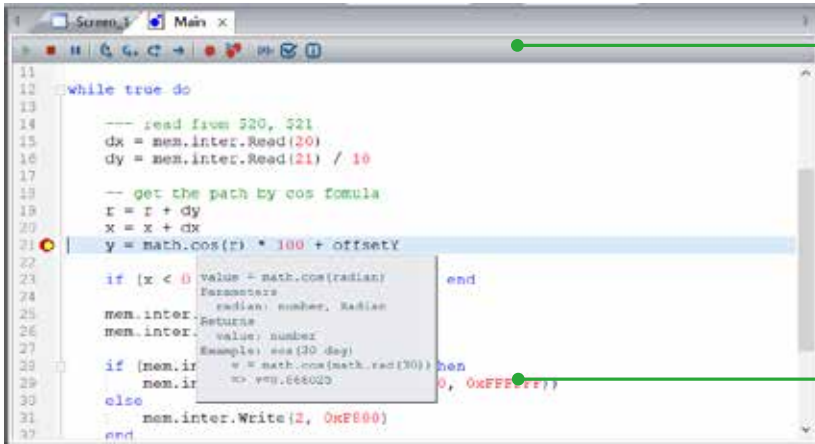
Users can view all types of macros in the project






Select a macro via the list



Directly edit the macro after clicking



Lua Tool Bar

-  Program debug
-  Stops program debug
-  Program break point

Online Coding Tips

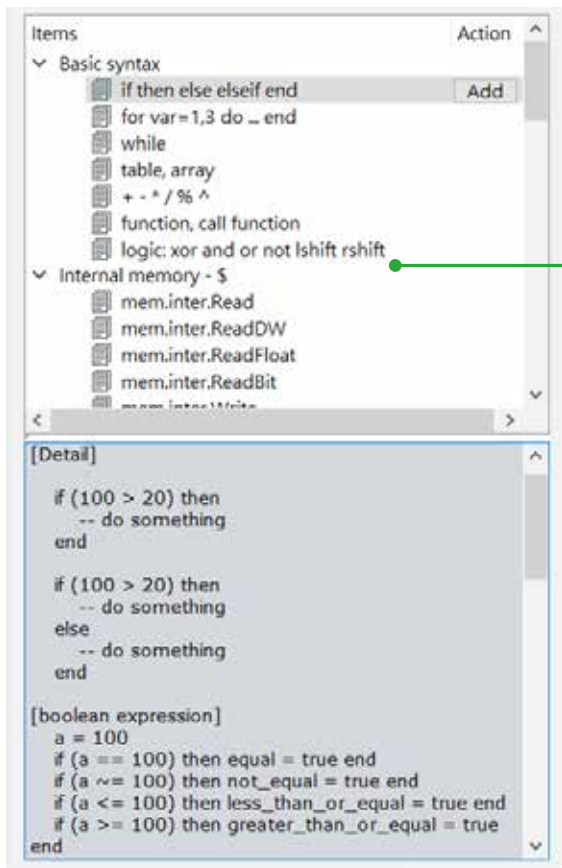
Lua editor displays tip windows of the codes when users move the mouse to the selected codes

Watch variable

Name	Value	Global / Local	Type	Format
dx	3	Global	Number	DEC
dy	0.1	Global	Number	DEC
r	0.1	Global	Number	DEC
x	3	Global	Number	DEC
y	0	Global	Number	DEC
name	nil	Local		DEC

Parameter Monitoring Window

Allows users to monitor parameter variation during program development



Programming Assistance Window

Provides online assistance as follows:

- Lua code templates
- Program usage and properties
- Program samples

Advanced Alarm

Strengthened alarm functions allow users to easily manage machine operations and quickly troubleshoot problems

- ▶ Alarm messages contain current register data for issue analysis

Detail			Properties
No.	Message Content	Category	
1*	Temp. too High , PV is %d1	1	
2*	Temp. too Low , PV is %d1	1	
3*	PV is %d1 , ALM Mail	2	
4		0	
5		0	

Message
Temp. too Low , PV is 12
Temp. too High , PV is 91
Temp. too Low , PV is 15
Temp. too Low , PV is 23

Alarm Sorting
 Alarm sorting via a "Sorting" function based on alarm attributes for quick information inquiries

Supports Compound Address Monitoring
 Monitors Word and Bit documents at the same time

Detail		Properties				
No.	Message Content	Category	Type	Address	Trigger Condition	Monitor Address
1*	Temp. too High , PV is %d1	1	Word	\$15	\$15 > 70	\$15
2*	Temp. too Low , PV is %d1	1	Word	\$15	\$15 < 30	\$15
3*	PV is %d1 , ALM Mail	2	Bit	\$198.4	On	\$15
4		0	Bit	None	On	None

Versatile Alarm Triggering Conditions
 Triggering conditions can be setup via a built-in function, no external editing programs required

Alarm Notification

Automatically sends out alarm notification emails to logged-in recipients when alarms occur and supports the Secure Sockets Layer (SSL) protocol to ensure safe data transmission



- Indicates the alarm trigger and recovery time, and provides alarm acknowledge time / date (Ack) to confirm and monitor troubleshooting progress

Message	Trigger	Ack	Recovery
Temp. too Low • PV is 12	15:07:12 02/03/2017		15:07:15 02/03/2017
Temp. too High • PV is 91	15:07:15 02/03/2017	15:07:56 02/03/2017	15:07:22 02/03/2017
Temp. too Low • PV is 15	15:07:22 02/03/2017		15:07:25 02/03/2017
Temp. too Low • PV is 23	15:07:28 02/03/2017	15:07:58 02/03/2017	15:07:34 02/03/2017

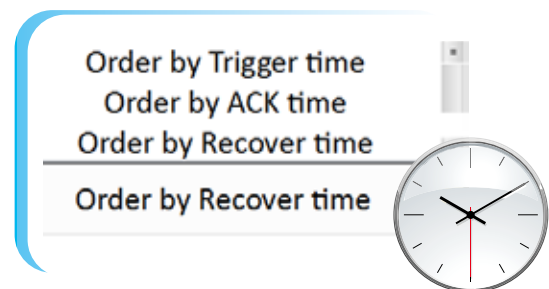
Alarm Filtering

Advanced address control filtering allows users to find specified alarm messages according to user needs

Action	
Address control filtering allows users to find specified alarms	
No.	Action
0	Preset state, shows all triggered alarms
1	Hide alarms with "Recover Time" and "Ack Time"
2	Hide alarms with "Recover Time"
3	Hide alarms with "Recover Time" or "Ack Time"
4	Hide alarms with "Ack Time"

Alarm Ordering

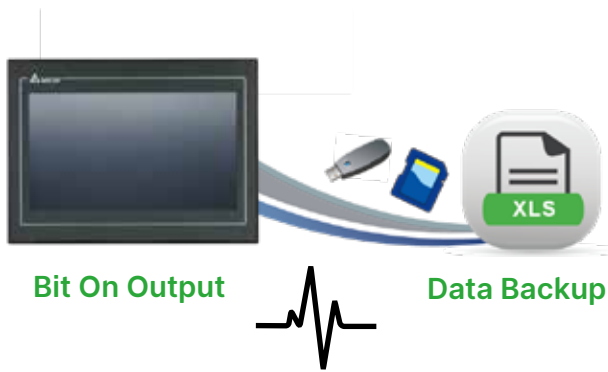
Displays alarms in the order of Trigger Time / Ack Time / Recover Time



Data Management

Historical Data

- ▶ Generates historical reports with user-defined file names and timestamps through Bit Control



The 'Save As Mul' dialog box contains the following fields and options:

- File Date:** Three dropdown menus with values 'None', '%m', and '%d'.
- File Time:** Three dropdown menus with values '%H', '%M', and 'None'.
- File Name:** A text input field containing 'DOP'.
- Saving trigger:** A text input field containing '\$175.0' and a small menu icon.

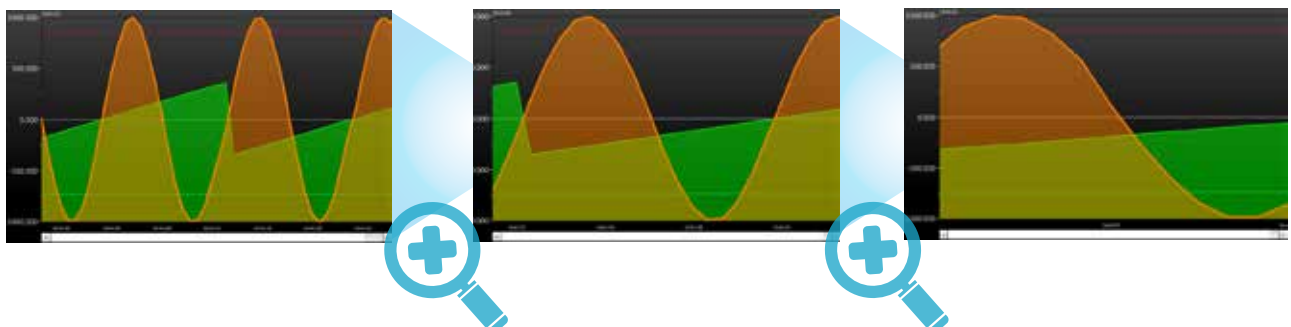
Historical Data Review

- ▶ Allows historical data review on backup in USB disk or SD cards



Zoom In / Out Display

- ▶ Zoom in / out function for convenient data viewing



Recipes

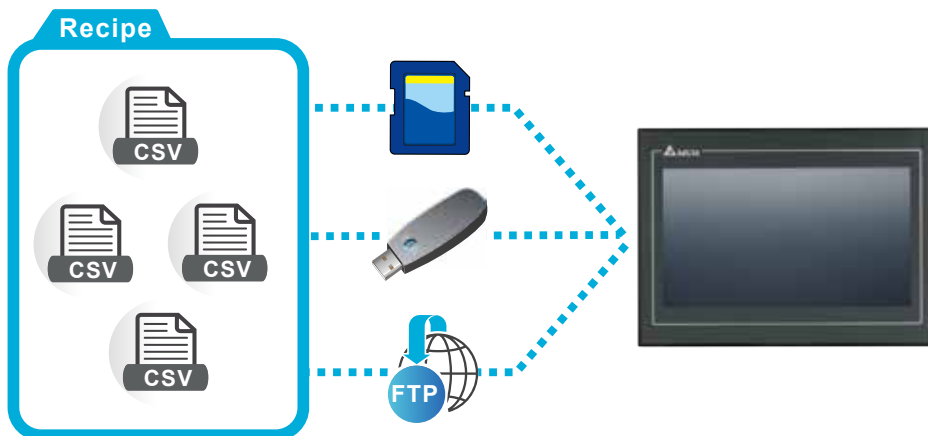
- ▶ Supports 2D and 3D recipe grouping, for more flexibility in building recipe database
- ▶ Various recipe formats, including text format (Unicode) which can also be used as formula notes

	D100	D101	D102	D103	D104	D105	D106	
	D100	D101	D102	D103	D104	D105	D106	50.7
Cake Recipe 1	Strawberry	300	0	0	221.56	533.1	150.7	63.9
Cake Recipe 2	Chocolate	0	300	0	387.98	490.8	163.9	79.8
Cake Recipe 3	Vanilla	0	0	300	120.14	505.3	279.8	
	Strawberry	Chocolate	Vanilla		Sugar	Flour	Milk	
	Char	Unsigned DEC			Floating			

Recipe Group 2 (points to D104-D106)

Recipe Group 1 (points to D100-D103)

- ▶ Recipes can be saved in CSV files for convenient editing on PCs
- ▶ Allows recipe update or backup through USB disks, SD cards or FTP



PDF for Data Review

- ▶ Users can save manuals or instruction PDF files in USB disks or SD cards for reference anytime



User Authority Management

Account and Authorization Management

- ▶ Supports 8 levels of authority and allows 20 accounts (account name/password) for each level to enhance operation safety
- ▶ Different function and operation access for each authority level to enhance operation safety
- ▶ Automatically logs out inactive users to ensure data security

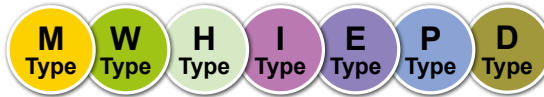


Operation Log

- ▶ Operation log for different user accounts to trace/analyze possible causes of malfunctions
- ▶ Provides comprehensive information for managers to analyze the operating habits of different users and enhance efficiency

Time	Date	User	Level	Screen Description	Action	Address	Pre Value	Change
13:02:08	09/29/2020		0	Screen_Maintained_0	Set Val	\$0.0	0	1
13:02:20	09/29/2020		0	Screen_Maintained_0	Login	\$10.0		11
13:02:20	09/29/2020	11	1	Screen_Maintained_0	Set Val	\$10.0	0	1
13:02:23	09/29/2020	11	1	Screen_Numeric Entry	Set Val	\$100	0	99
13:02:28	09/29/2020	11	1	Screen_Maintained_0	Set Val	\$10.0	1	0
13:02:31	09/29/2020	11	1	Screen_Maintained_0	Set Val	\$10.0	0	1
13:02:34	09/29/2020	11	1	Screen_Numeric Entry	Set Val	\$100	99	88
13:02:37	09/29/2020	11	1	Screen_Maintained_0	Set Val	\$0.0	0	1
13:03:04	09/29/2020	11	1	Screen_Numeric Entry	Set Val	\$100	88	55
13:03:09	09/29/2020	11	1	Screen_Numeric Entry	Set Val	\$100	55	33
13:03:10	09/29/2020	11	1	Screen_Maintained_0	Set Val	\$10.0	1	0
13:03:12	09/29/2020	11	1	Screen_Maintained_0	Set Val	\$10.0	0	1
13:03:16	09/29/2020	11	1	Screen_Numeric Entry	Set Val	\$100	33	123

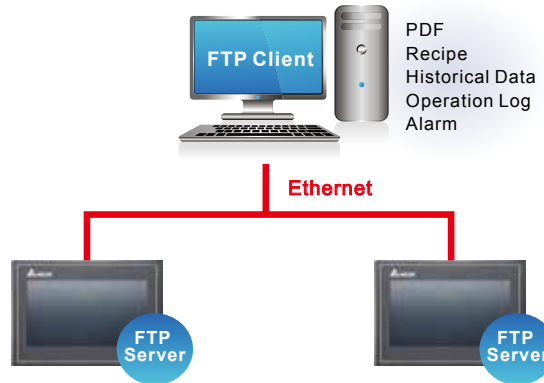
Network Functions



Only With Ethernet

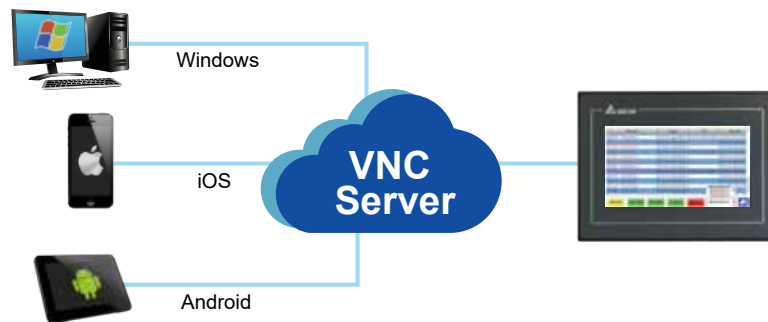
FTP Server

- ▶ Built-in FTP server to update recipes or PDF files, and backup historical data, operation log and alarms



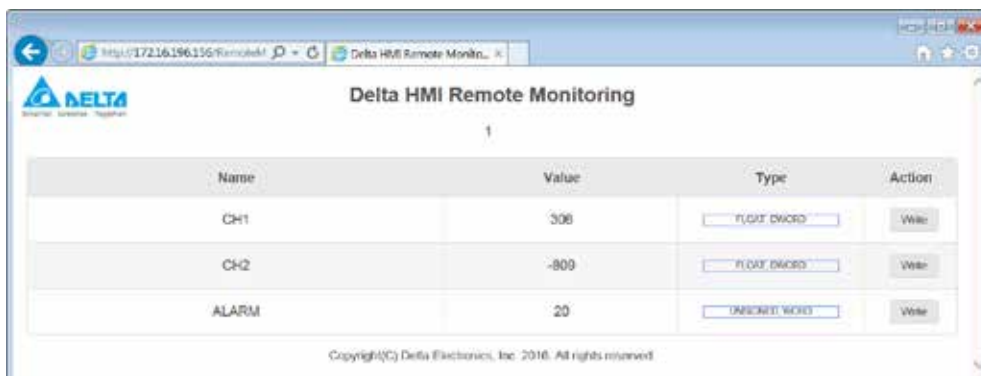
VNC Server

- ▶ Built-in VNC server allows remote monitoring and operating of the DOP-100 Series via VNC Client APP (Windows, iOS, Android)
- ▶ Lock function: blocks remote operation during on-site operation to avoid unsynchronized commands. The VNC server allows remote monitoring but not remote operation when the lock function is on



Web Monitoring

- ▶ Allows direct monitoring of register data via web page, and requires no additional software installation



Hardware Specifications

Advanced HMI

Model		Advanced Narrow Frame Type		
		DOP-103WQ	DOP-107WV	DOP-110WS
LCD Module	Display	4.3" TFT LCD	7" TFT LCD	10.1" TFT LCD
	Color	16-bit		
	Resolution (Pixels)	480 x 272	800 x 480	1,024 x 600
	Back Light	LED Back Light		
	Back Light Brightness (cd/m ²)	400	450	450
	Back Light Life (Hour) ¹¹	10,000	20,000	30,000
	Display Area	95.04 x 53.856 mm	154.08 x 85.92 mm	225.52 x 128.10 mm
MCU	ARM Cortex-A8 (800MHz)			
Flash ROM (Bytes)	256 MB			
RAM (Bytes)	512 MB			
Touch Panel	Four-wire resistor, over 10,000,000 pressing times			
Buzzer	Multi-Tone Frequency (2K ~ 4K Hz) / 80dB			
Ethernet Interface	1 Port ² , 10/100 Mbps auto-sensing			
USB	1 USB Slave Ver 2.0 / 1 USB Host Ver 2.0			
SD	N/A		SD x 1	
Serial COM Port	COM1	RS-232 (supports hardware flow control) / RS-485 ²	RS-232 (supports hardware flow control) ²	
	COM2 ²	RS-422 / RS-485 ²	RS-232 (supports hardware flow control) / RS-485 ²	
	COM3 ²	N/A	RS-422 / RS-485 ²	
RTC	Built-in			
Cooling	Natural air circulation			
Certification	CE/UL (please use shielding Ethernet cables and magnetic rings with filters of 300 ohm / 100 MHz)			
Waterproof	IP65 / NEMA4 / UL Type 4X (indoor use only)			
Operation Voltage ³	DC +24V (-15% ~ 15%) ² , supplied by Class 2 or SELV circuit (isolated from MAINS by double insulation)			
Voltage Endurance	AC500V for 1 minute (between charging DC24 terminal and FG terminals)			
Power Consumption ⁵	Max. 5.8W ³	Max. 8.4W ³	Max. 11W ³	
Backup Battery	3V lithium battery CR2032 × 1			
Backup Battery Life	Depends on the temperature used and the conditions of usage, usually about 3 years or more at 25° C			
Operating Temperature	0° C ~ 50° C			
Storage Temperature	-20° C ~ 60° C			
Ambient Humidity	10% ~ 90% RH (0 ~ 40° C), 10% ~ 55% RH (41 ~ 50° C), Pollution Degree 2			
Vibration	IEC 61131-2 compliant 5 Hz ~ 8.3Hz = Continuous: 3.5mm, 8.3Hz ~ 150Hz = Continuous: 1g			
Shock	IEC 60068-2-27 compliant 15g peak for 11ms duration, X, Y, Z, directions for 6 times			
Dimensions (W) x (H) x (D) mm	137 x 103 x 37.1	196 x 136 x 39	270 x 180.9 x 47.25	
Mounting Dimensions (W) x (H) mm	118.8 x 92.8	186.8 x 126.8	255 x 170.5	
Weight	280g	560g	1,100g	

1) The half-life of a backlight is defined as the original luminance being reduced by 50% when the maximum driving current is supplied to an HMI.

2) Built-in power isolation

3) An isolated power supply is recommended.

4) Some models are in the process of application for UL and KCC certification. For more information, please consult our distributors.

5) The value of the power consumption indicates the electrical power consumed by the HMI with no peripheral devices connected.

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Advanced HMI

Model		Advanced Narrow Frame Type		Advanced Multimedia Type	
		DOP-112WX	DOP-115WX	DOP-112MX	DOP-115MX
LCD Module	Display	12" TFT LCD	15" TFT LCD	12" TFT LCD	15" TFT LCD
	Color	24-bit			
	Resolution (Pixels)	1,024 x 768			
	Back Light	LED Back Light			
	Back Light Brightness (cd/m ²)	500	450	500	450
	Back Light Life (Hour) ¹	50,000			
	Display Area	245.76 x 184.32 mm	304.1 x 228.1 mm	245.76 x 184.32 mm	304.1 x 228.1 mm
MCU		Cortex-A7, Dual Core 1GHz			
Flash ROM (Bytes)		8 GB			
RAM (Bytes)		DDR3 1,000 MHz 1GB			
Touch Panel		Four-wire resistor, over 10,000,000 pressing times			
Buzzer		Multi-Tone Frequency (2K ~ 4K Hz) / 85 dB			
Ethernet Interface		2 Ports ² , 10 / 100 Mbps Auto sensing			
USB		1 Mini USB Slave Ver 2.0/1 USB Host Ver 2.0			
SD		SD x 1			
Serial COM Port	COM1	RS-232 (supporting flow control) / RS-485 ²			
	COM2	RS-422 / RS-485 ²			
	COM3	RS-232 (supporting flow control) / RS-485 ²			
	COM4	RS-422/RS-485 ²			
RTC		Built-in			
Cooling		Natural air circulation			
Certification		CE/UL (please use shielding Ethernet cables and magnetic rings with filters of 300 ohm / 100 MHz)			
Waterproof		IP65 / NEMA4 / UL Type 4X (indoor use only)			
Operation Voltage ³		DC +24V (-15% ~ 15%) ² , supplied by Class 2 or SELV circuit (isolated from MAINS by double insulation)			
Voltage Endurance		AC500V for 1 minute (between charging DC24 terminal and FG terminals)			
Power Consumption ⁵		Max. 16.08 W	Max. 21.12 W	Max. 16.08 W	Max. 21.12 W
Backup Battery		3V lithium battery CR2032 × 1			
Backup Battery Life		Depends on the temperature used and the conditions of usage, usually about 3 years or more at 25°C			
Operation Temperature		0°C ~ 50°C			
Storage Temperature		-20°C ~ 60°C			
Ambient Humidity		10% ~ 90% RH (0 ~ 40°C), 10% ~ 55% RH (41 ~ 50°C), Pollution Degree 2			
Vibration		IEC 61131-2 compliant 5 Hz ~ 8.3 Hz = Continuous: 3.5 mm, 8.3 Hz ~ 150 Hz = Continuous: 1g			
Shock		IEC 60068-2-27 compliant 15g peak for 11ms duration, X, Y, Z, directions for 6 times			
Dimensions (W) x (H) x (D) mm		317.4 x 246.4 x 52.7	387.7 x 295.7 x 63.5	317.4 x 246.4 x 52.7	387.7 x 295.7 x 63.5
Mounting Dimensions (W) x (H) mm		302.7 x 228.7	372.4 x 283.7	302.7 x 228.7	372.4 x 283.7
Weight		2,110 g	3,200 g	2,110 g	3,200 g

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4) Built-in power isolation

5) An isolated power supply is recommended.

4) Some models are in the process of application for UL and KCC certification. For more information, please consult our distributors.

7) The value of the power consumption indicates the electrical power consumed by the HMI with no peripheral devices connected.

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Hardware Specifications

Standard HMI

Model		Standard General Type			
		DOP-105CQ	DOP-107CV	DOP-110CS	DOP-110CG
LCD Module	Display	5.6" TFT LCD	7" TFT LCD	10.1" TFT LCD	10.4" TFT LCD
	Color	16-bit			
	Resolution (Pixels)	320 x 234	800 x 480	1,024 x 600	800 x 600
	Back Light	LED Back Light			
	Back Light Brightness (cd/m ²)	200	400	300	300
	Back Light Life (Hour) ¹¹	20,000			
	Display Area	113.28 x 84.70 mm	154.08 x 85.92 mm	226 x 128.7 mm	211.2 x 158.4 mm
MCU	ARM Cortex-A8 (800MHz)				
Flash ROM (Bytes)	256 Mbytes				
RAM (Bytes)	256 Mbytes				
Touch Panel	Four-wire resistor, over > 10,000,000 pressing times		Four-wire resistor, over > 1,000,000 pressing times		
Audio Output	Buzzer	Multi-Tone Frequency (2K ~ 4K Hz) / 80 dB			
	AUX	N/A			
USB	1 USB Slave Ver 2.0 / 1 USB Host Ver 2.0				
SD	N/A				
Serial COM Port	COM1	RS-232 (supports hardware flow control)			
	COM2	RS-232 (supports hardware flow control) / RS-485			
	COM3	RS-422 / RS-485			
RTC	Built-in				
Cooling	Natural air circulation				
Certification	CE / UL (please equip shielding cables and line filters with capacity of 300 ohm / 100 MHz)				
Waterproof	IP65 / NEMA4 / UL Type 4X (indoor use only)(105CQ & 110CG non UL Type 4X)				
Operation Voltage ¹³	DC +24V (-15% ~ +15%) ¹² , supplied by Class 2 or SELV circuit (isolated from MAINS by double insulation)				
Voltage Endurance	AC500V for 1 minute (between charging DC24 terminal and FG terminals)				
Power Consumption ¹⁵	Max. 6.86 W ¹³	Max. 8.5W ¹³	Max. 10.4 W ¹³	Max. 8W ¹³	
Backup Battery	3V lithium battery CR2032 × 1				
Backup Battery Life	Depends on the temperature used and the conditions of usage, usually about 3 years or more at 25 °C				
Operation Temperature	0 °C ~ 50 °C				
Storage Temperature	-20 °C ~ 60 °C				
Ambient Humidity	10% ~ 90% RH (0 ~ 40 °C), 10% ~ 55% RH (41 ~ 50 °C), Pollution Degree 2				
Vibration	IEC 61131-2 compliant 5Hz ~ 8.3Hz = Continuous: 3.5 mm, 8.3Hz ~ 150Hz = Continuous: 1g				
Shock	IEC 60068-2-27 compliant 15g peak for 11ms duration, X, Y, Z, directions for 6 times				
Dimensions (W) x (H) x (D) mm	184 x 144 x 50	215 x 161 x 61.2	272 x 200 x 61	299 x 224 x 46.8	
Mounting Dimensions (W) x (H) mm	172.4 x 132.4	196.9 x 142.9	261.3 x 189.3	285.2 x 210.2	
Weight	670g	970g	1,330g	1,735g	

1) The half-life of a backlight is defined as the original luminance being reduced by 50% when the maximum driving current is supplied to an HMI.6

2) Built-in power isolation

3) An isolated power supply is recommended.

4) Some models are in the process of application for UL and KCC certification. For more information, please consult our distributors.

5) The value of the power consumption indicates the electrical power consumed by the HMI with no peripheral devices connected.

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Standard HMI

Model		Standard Premium	Standard Ethernet Type (2 COM)	
		DOP-107PV	DOP-107EG	DOP-107EV
LCD Module	Display	7" TFT LCD	7" TFT LCD	7" TFT LCD
	Color	24-bit	16-bit	
	Resolution (Pixels)	800 x 480	800 x 600	800 x 480
	Back Light	LED Back Light		
	Back Light Brightness (cd/m ²)	400	450	400
	Back Light Life (Hour) ¹	20,000		
	Display Area	154.08 x 85.92 mm	141 x 105.75 mm	154.08 x 85.92 mm
MCU		ARM Cortex-A8 (800 MHz)		
Flash ROM (Bytes)		256 MB		
RAM (Bytes)		256 MB		
Touch Panel		Four-wire resistor, over > 1,000,000 pressing times	Four-wire resistor, over > 10,000,000 pressing times	
Audio Output	Buzzer	Multi-Tone Frequency (2K ~ 4K Hz) / 80dB		
	AUX	N/A	Stereo output	N/A
Ethernet Interface		1 Port ² , 10/100 Mbps auto-sensing		
USB		1 USB Slave Ver 2.0; 1 USB Host Ver 2.0		
SD		N/A	SDx1	N/A
Serial COM Port	COM1	RS-232 (supports hardware flow control) ² (107PV non-isolated circuit)		
	COM2	RS-232 (supports hardware flow control) / RS-485 ² (107PV non-isolated circuit)		
	COM3	RS-422 / RS-485 ² (107PV non-isolated circuit)		
RTC		Built-in		
Cooling		Natural air circulation		
Certification		CE/UL (please use shielding Ethernet cables and magnetic rings with filters of 300 ohm / 100 MHz)		
Waterproof		IP65 / NEMA4 / UL Type 4X (indoor use only)		
Operation Voltage ³		DC +24V (-15% ~ +15%) ² (107PV non-isolated circuit) Supplied by Class 2 or SELV circuit (isolated from MAINS by double insulation)		
Voltage Endurance		AC500V for 1 minute (between charging DC24 terminal and FG terminals)		
Power Consumption ⁵		Max. 8.3W ³	Max. 8.4W ³	Max. 8.76W ³
Backup Battery		3V lithium battery CR2032 × 1		
Backup Battery Life		Depends on the temperature used and the conditions of usage, usually about 3 years or more at 25 °C		
Operating Temperature		0 °C ~ 50 °C		
Storage Temperature		-20 °C ~ 60 °C		
Ambient Humidity		10% ~ 90% RH (0 ~ 40 °C), 10% ~ 55% RH (41 ~ 50 °C), Pollution Degree 2		
Vibration		IEC 61131-2 compliant 5 Hz ~ 8.3 Hz = Continuous: 3.5 mm, 8.3 Hz ~ 150 Hz = Continuous: 1 g		
Shock		IEC 60068-2-27 compliant 15 g peak for 11 ms duration, X, Y, Z, directions for 6 times		
Dimensions (W) x (H) x (D) mm		196.6 x 136.6 x 38.8	184 x 144 x 51.5	215 x 161 x 61.2
Mounting Dimensions (W) x (H) mm		186.8 x 126.8	172.4 x 132.4	196.9 x 142.9
Weight		650 g	800 g	970 g

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2) Built-in power isolation

3) An isolated power supply is recommended.

4) Some models are in the process of application for UL and KCC certification. For more information, please consult our distributors.

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Hardware Specifications

Standard HMI

Model		Standard Ethernet Type (3 COM)			
		DOP-107IV	DOP-108IG	DOP-110IS	DOP-110IG
LCD Module	Display	7" TFT LCD	8" TFT LCD	10.1" TFT LCD	10.4" TFT LCD
	Color	16-bit			
	Resolution (Pixels)	800 x 480	800 x 600	1024 x 600	800 x 600
	Back Light	LED Back Light			
	Back Light Brightness (cd/m ²)	400	250	300	300
	Back Light Life (Hour) ¹	10,000	20,000	10,000	20,000
	Display Area	152.4 x 91.44 mm	162 x 121.5 mm	226 x 128.7 mm	211.2 x 158.4 mm
MCU		ARM Cortex-A8 (800MHz)			
Flash ROM (Bytes)		256 MB			
RAM (Bytes)		256 MB			
Touch Panel		Four-wire resistor, over > 10,000,000 pressing times			
Audio Output	Buzzer	Multi-Tone Frequency (2K ~ 4K Hz) / 80 dB			
	AUX	N/A	Stereo output		
Ethernet Interface		1 Port ² , 10/100 Mbps auto-sensing			
USB		1 USB Slave Ver 2.0 / 1 USB Host Ver 2.0			
SD		SD x 1			
Serial COM Port	COM1	RS-232 (supports hardware flow control) ²			
	COM2	RS-232 (supports hardware flow control) / RS-485 ²			
	COM3	RS-232 (supports hardware flow control) / RS-422 / RS-485 ²			
RTC		Built-in			
Cooling		Natural air circulation			
Certification		CE/UL (please use shielding Ethernet cables and magnetic rings with filters of 300 ohm / 100 MHz)			
Waterproof		IP65 / NEMA4 (indoor use only) (110IG with UL Type 4X)			
Operation Voltage ³		DC +24V (-15% ~ +15%) ² , supplied by Class 2 or SELV circuit (isolated from MAINS by double insulation)			
Voltage Endurance		A500V for 1 minute (between charging DC24 terminal and FG terminals)			
Power Consumption ⁵		Max. 12W ³	Max. 9.88W ³	Max. 9.6W ³	Max. 9.6W ³
Backup Battery		3V lithium battery CR2032 x 1			
Backup Battery Life		Depends on the temperature used and the conditions of usage, usually about 3 years or more at 25°C			
Operation Temperature		0°C ~ 50°C			
Storage Temperature		-20°C ~ 60°C			
Ambient Humidity		10% ~ 90% RH (0 ~ 40°C), 10% ~ 55% RH (41 ~ 50°C), Pollution Degree 2			
Vibration		IEC 61131-2 compliant 5 Hz ~ 8.3 Hz = Continuous: 3.5 mm, 8.3 Hz ~ 150 Hz = Continuous: 1g			
Shock		IEC 60068-2-27 compliant 15g peak for 11ms duration, X, Y, Z, directions for 6 times			
Dimensions (W) x (H) x (D) mm		215 x 161 x 61.2	227.1 x 174.1 x 61	272.6 x 200.6 x 54	299 x 224 x 46.8
Mounting Dimensions (W) x (H) mm		196.9 x 142.9	219.4 x 166.5	261.3 x 189.3	285.2 x 210.2
Weight		970g	1,226g	1,130g	1,600g

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2) Built-in power isolation

3) An isolated power supply is recommended.

4) Some models are in the process of application for UL and KCC certification. For more information, please consult our distributors.

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Basic HMI

Model		Simple Type	Basic Type	
		DOP-103SQ	DOP-103BQ	DOP-107BV
LCD Module	Display	4.3" TFT LCD	4.3" TFT LCD	7" TFT LCD
	Color	16-bit		
	Resolution (Pixels)	480 x 272	480 x 272	800 x 480
	Back Light	LED Back Light		
	IPS	Yes	N/A	N/A
	Back Light Brightness (cd/m ²)	400		
	Back Light Life (Hour) ¹	20,000		
	Display Area	95.04 x 53.856 mm	95.04 x 53.856 mm	154.08 x 85.92 mm
MCU	ARM Cortex-A8 (800MHz)			
Flash ROM (Bytes)	256 MB			
RAM (Bytes)	256 MB			
Touch Panel	Four-wire resistor, over > 10,000,000 pressing times			
Audio Output	Buzzer	Multi-Tone Frequency (2K ~ 4K Hz) / 80 dB		
	AUX	N/A		
Ethernet Interface	N/A			
USB	1 USB Slave Ver 2.0 / 1 USB Host Ver 2.0			
SD	N/A			
Serial COM Port	COM1	RS-232 (supports hardware flow control) / RS-485		
	COM2	RS-422 / RS-485		
	COM3	N/A		
RTC	Built-in			
Cooling	Natural air circulation			
Certification	CE / UL (please equip shielding cables and line filters with capacity of 300 ohm / 100 MHz)			
Waterproof	IP65 / NEMA4 / UL Type 4X (indoor use only)			
Operation Voltage ³	DC +24V (-15% ~ +15%) ² , supplied by Class 2 or SELV circuit (isolated from MAINS by double insulation)			
Voltage Endurance	AC500V for 1 minute (between charging DC24 terminal and FG terminals)			
Power Consumption ⁵	Max. 5.67W ³	Max. 5.67W ³	Max. 8.6W ³	
Backup Battery	3V lithium battery CR2032 × 1			
Backup Battery Life	Depends on the temperature used and the conditions of usage, usually about 3 years or more at 25 °C			
Operation Temperature	0 °C ~ 50 °C			
Storage Temperature	-20 °C ~ 60 °C			
Ambient Humidity	10% ~ 90% RH (0 ~ 40 °C), 10% ~ 55% RH (41 ~ 50 °C), Pollution Degree 2			
Vibration	IEC 61131-2 compliant 5Hz ~ 8.3Hz = Continuous: 3.5 mm, 8.3Hz ~ 150Hz = Continuous: 1g			
Shock	IEC 60068-2-27 compliant 15g peak for 11ms duration, X, Y, Z, directions for 6 times			
Dimensions (W) x (H) x (D) mm	137 x 103 x 37.1	137 x 103 x 37.1	215 x 161 x 35.5	
Mounting Dimensions (W) x (H) mm	118.8 x 92.8	118.8 x 92.8	196.9 x 142.9	
Weight	280g	280g	700g	

1) The half-life of a backlight is defined as the original luminance being reduced by 50% when the maximum driving current is supplied to an HMI.6

2) Built-in power isolation

3) An isolated power supply is recommended.

4) Some models are in the process of application for UL and KCC certification. For more information, please consult our distributors.

5) The value of the power consumption indicates the electrical power consumed by the HMI with no peripheral devices connected.

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Hardware Specifications

Basic HMI

Model		Basic Ethernet Type	
		DOP-103DQ	DOP-107DV
LCD Module	Display	4.3" TFT LCD	7" TFT LCD
	Color	16-bit	
	Resolution (Pixels)	480 x 272	800 x 480
	Back Light	LED Back Light	
	IPS	Yes	N/A
	Back Light Brightness (cd/m ²)	400	
	Back Light Life (Hour) ¹	10,000	20,000
	Display Area	95.04 x 53.856 mm	154.08 x 85.92 mm
MCU		ARM Cortex-A8 (800 MHz)	
Flash ROM (Bytes)		256 MB	
RAM (Bytes)		512 MB	256 MB
Touch Panel		Four-wire resistor, over > 10,000,000 pressing times	Four-wire resistor, over > 1,000,000 pressing times
Audio Output	Buzzer	Multi-Tone Frequency (2K ~ 4K Hz) / 80dB	
	AUX	N/A	
Ethernet Interface		1 Port ² , 10/100 Mbps auto-sensing	
USB		1 USB Slave Ver 2.0 / 1 USB Host Ver 2.0	
SD		N/A	
Serial COM Port	COM1	RS-232 (supports hardware flow control) ² /RS-485 ² (107DV non-isolated circuit)	
	COM2	RS-422/RS-485 ² (107DV non-isolated circuit)	
	COM3	N/A	
RTC		Built-in	
Cooling		Natural air circulation	
Certification		CE/UL (please use shielding Ethernet cables and magnetic rings with filters of 300 ohm / 100 MHz)	
Waterproof		IP65 / NEMA4 / UL Type 4X (indoor use only)	
Operation Voltage ³		DC +24V (-15% ~ +15%) ² (107DV non-isolated circuit), supplied by Class 2 or SELV circuit (isolated from MAINS by double insulation)	
Voltage Endurance		AC500V for 1 minute (between charging DC24 terminal and FG terminals)	
Power Consumption ⁵		Max. 5.8W ³	Max. 8.8W ³
Backup Battery		3V lithium battery CR2032 × 1	
Backup Battery Life		Depends on the temperature used and the conditions of usage, usually about 3 years or more at 25°C	
Operation Temperature		0°C ~ 50°C	
Storage Temperature		-20°C ~ 60°C	
Ambient Humidity		10% ~ 90% RH (0 ~ 40°C), 10% ~ 55% RH (41 ~ 50°C), Pollution Degree 2	
Vibration		IEC 61131-2 compliant 5Hz ~ 8.3Hz = Continuous: 3.5 mm, 8.3Hz ~ 150Hz = Continuous: 1g	
Shock		IEC 60068-2-27 compliant 15g peak for 11ms duration, X, Y, Z, directions for 6 times	
Dimensions (W) x (H) x (D) mm		137 x 103 x 37.1	215 x 161 x 35.5
Mounting Dimensions (W) x (H) mm		118.8 x 92.8	196.9 x 142.9
Weight		280g	700g

1) The half-life of a backlight is defined as the original luminance being reduced by 50% when the maximum driving current is supplied to an HMI.6

2) Built-in power isolation

3) An isolated power supply is recommended.

4) Some models are in the process of application for UL and KCC certification. For more information, please consult our distributors.

5) The value of the power consumption indicates the electrical power consumed by the HMI with no peripheral devices connected.

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Handheld HMI

Model		Handheld HMI			
		DOP-107HS4xx	DOP-107HE4xx	DOP-107HE4xxZM	DOP-107HE47xZD
LCD Module	Display	7" TFT LCD			
	Color	16-bit			
	Resolution (Pixels)	800 x 480			
	Back Light	LED Back Light			
	Back Light Brightness (cd/m ²)	400	450	450	
	Back Light Life (Hour) ¹	20,000			
	Display Area	154.08 x 85.92 mm			
MCU	ARM Cortex-A8 (800MHz)				
Flash ROM (Bytes)	256 MB				
RAM (Bytes)	256 MB				
Touch Panel	Four-wire resistor, over > 10,000,000 pressing times				
Buzzer	Multi-Tone Frequency (2K ~ 4KHz) / 80 dB				
Ethernet Interface	N/A	1 Port ² , 10/100 Mbps auto-sensing			
USB	1 USB Slave Ver 2.0				
SD	SD/SDHC				
Serial COM Port/Communication	RS-422 /RS-485	N/A			
Emergency Stopswitch	B contact x 2		A contact x 1/B contact x 1		
	Rated voltage: < DC 30V; Maximum rated current: 1A; Minimum allowable load: DC 5V / 1 mA Complies with IEC60947-5-1, EN60947-5-1, IEC60947-5-5, EN60947-5-5, UL 508, CSA C22.2 No.14, GB 14085.5				
3-Position Operation Switch	A contact x 1				
	Rated voltage: < DC 30V; Maximum rated current: 700 mA; Minimum allowable load: DC 3V / 5 mA Complies with EN/IEC60947-5-8, IEC60947-5-1, EN60947-5-1, JIS C8201-5-1, UL508, CSA C22.2 NO.14 Applicable standards for use with ISO12100-1 & -2/EN12100-1 & -2, IEC60204-1/EN60204-1, ISO11161/ prEN11161, ISO10218/EN775, ANSI/RIA R15.06, ANSI B11.19				
MPG	DOP-107HE42x, DOP-107HS42x, DOP-107HE42xZM do not support MPG Rated voltage: < DC 24V Resolution: 50(P/R) Output waveform: square wave; Output phase: A, B Phase difference between A and B: 90° ± 45° Maximum frequency response: 200 Hz				
Auxiliary Keyboard	15 Function Keys		21 Function Keys		
Cable Length	5 m (when end of model name = 5) 10 m (when end of model name = A)				
Calendar	Built-in				
Cooling Method	Natural cooling				
Certification	CE (please use shielding Ethernet cables and magnetic rings with filters of 300 ohm / 100 MHz)				
Protection Rating	IP54				
Operating Voltage ³	DC +24V (-15% ~ +15%) ² , supplied by SELV circuits (isolated from MAINS by double insulation)				
Voltage Endurance	AC500V for one minute (between DC24 and FG terminals)				
Power Consumption ⁵	4.896 W ³				
Backup Battery	3V lithium battery CR2450 × 1				
Backup Battery Life	About 5 years or more at 25 °C (77°F)(subject to operation temperature and condition)				
Operation Temperature	0 °C ~ 40 °C				
Storage Temperature	-10 °C ~ 60 °C				
Operating Environment	10% ~ 90% RH (0 ~ 40 °C), 10% ~ 55% RH (41 ~ 50 °C), Pollution Degree 2				
Vibration	IEC 61131-2 compliant 5Hz ~ 8.3Hz = Continuous: 3.5 mm, 8.3Hz ~ 150Hz = Continuous: 1g				
Shock	IEC 60068-2-27 compliant 15g peak for 11ms duration, X, Y, Z, directions for 6 times				
Dimensions (W) x (H) x (D) mm	257.4 x 170.3 x 71.8 (emergency stop switch and hook included)				
Weight	750 g (cable excluded)				

1) The half-life of a backlight is defined as the original luminance being reduced by 50% when the maximum driving current is supplied to an HMI.6

2) Built-in power isolation

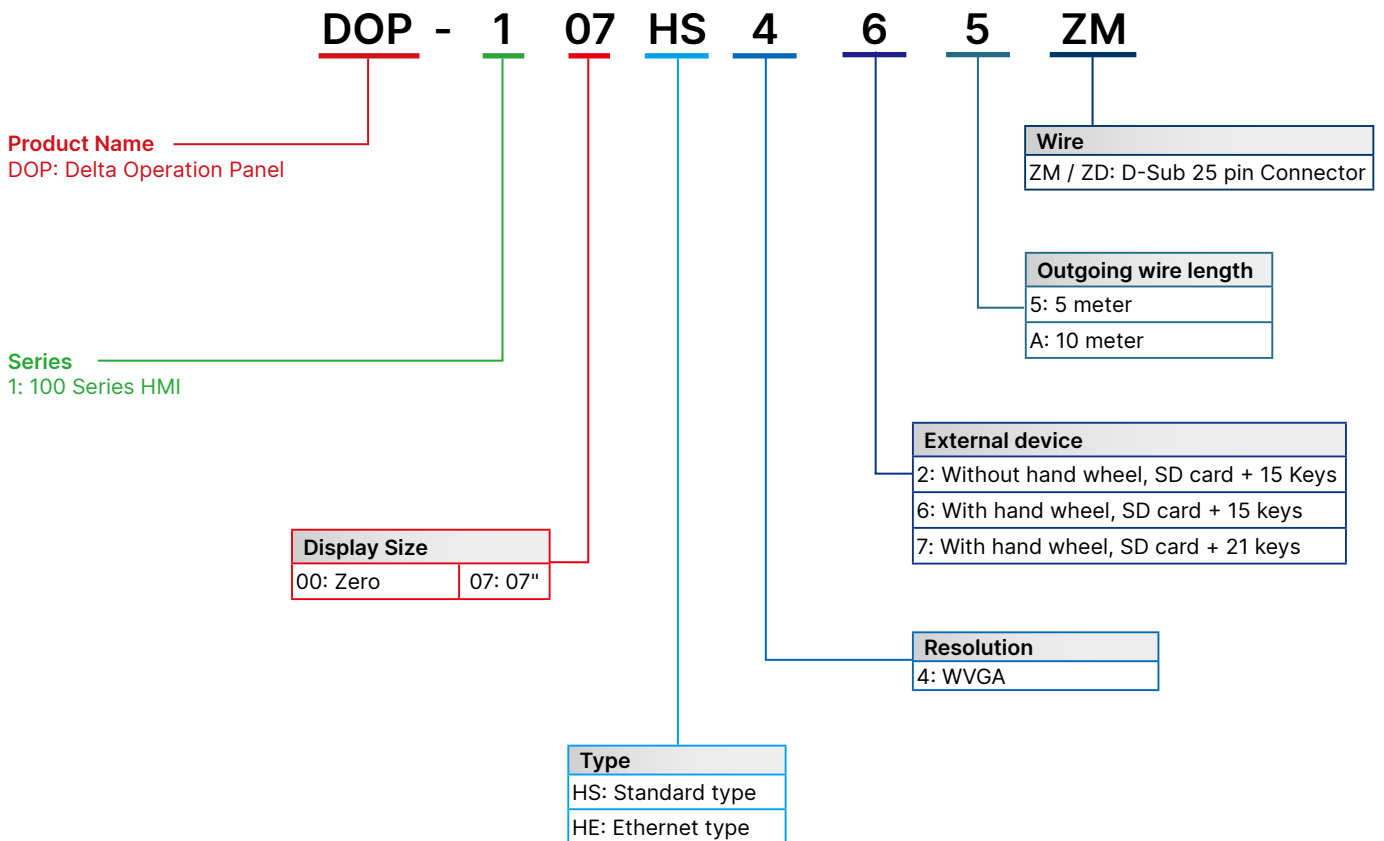
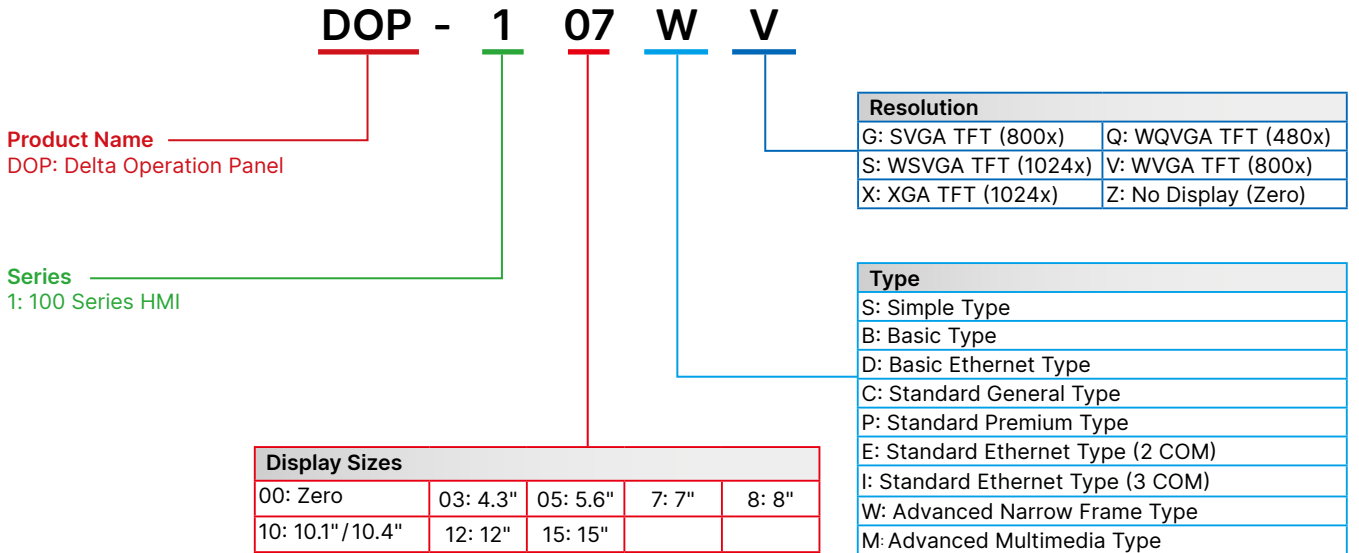
3) An isolated power supply is recommended.

4) Some models are in the process of application for UL and KCC certification. For more information, please consult our distributors.

5) The value of the power consumption indicates the electrical power consumed by the HMI with no peripheral devices connected.

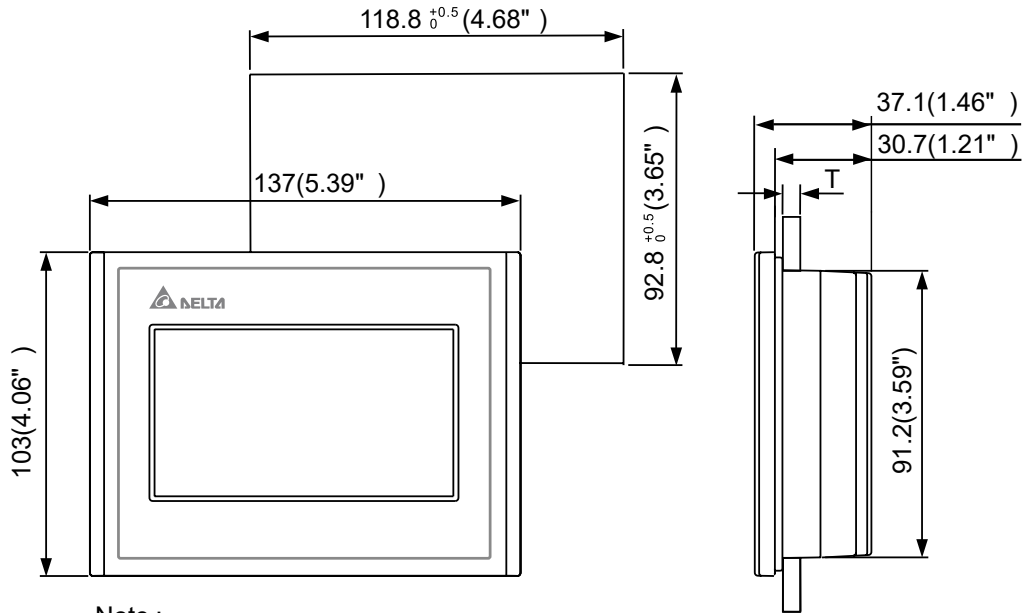
6) The content of this catalogue may be revised without prior notice. Please consult our distributors or download the most updated version at <http://www.deltaww.com>

Model Description



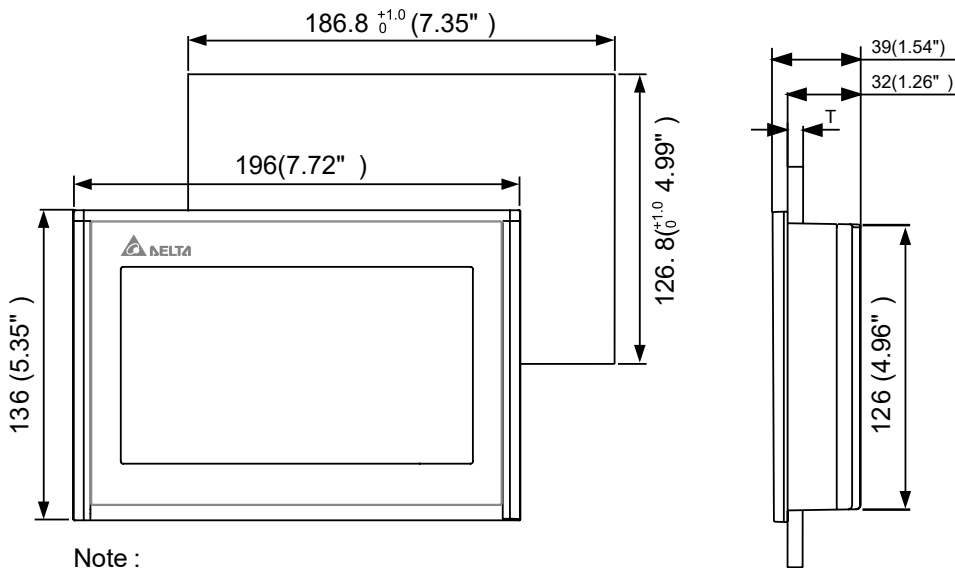
Dimensions Unit: mm (inches)

•DOP-103WQ



Note :
T=1.6mm~3mm(0.063"~0.12")

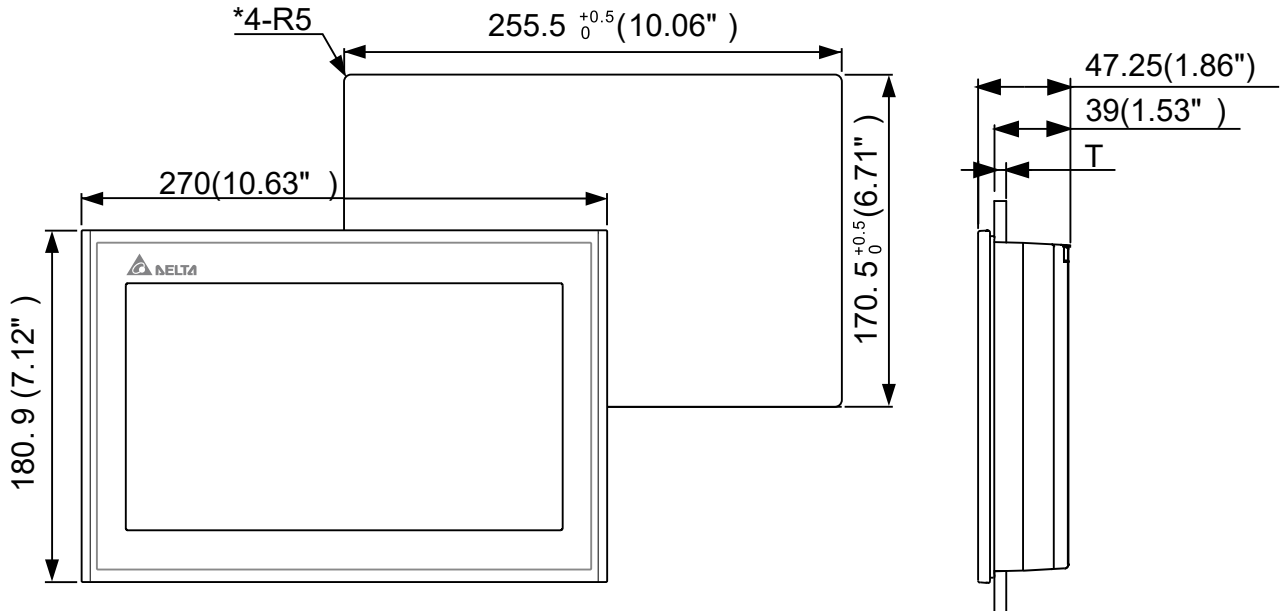
•DOP-107WV



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

Dimensions Unit: mm (inches)

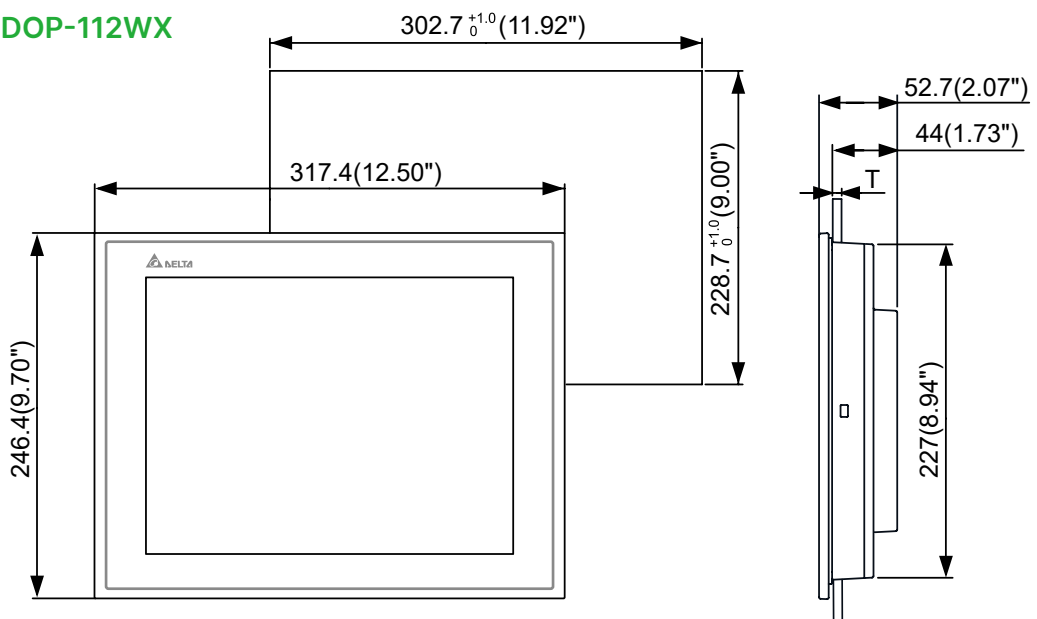
•DOP-110WS



Note :

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

•DOP-112MX / DOP-112WX

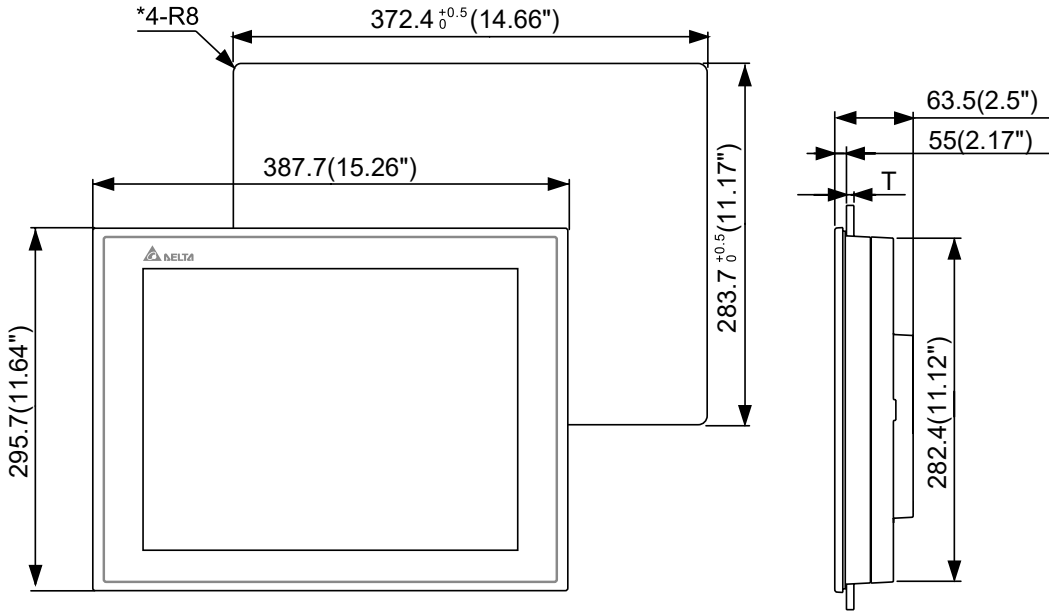


Note:

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

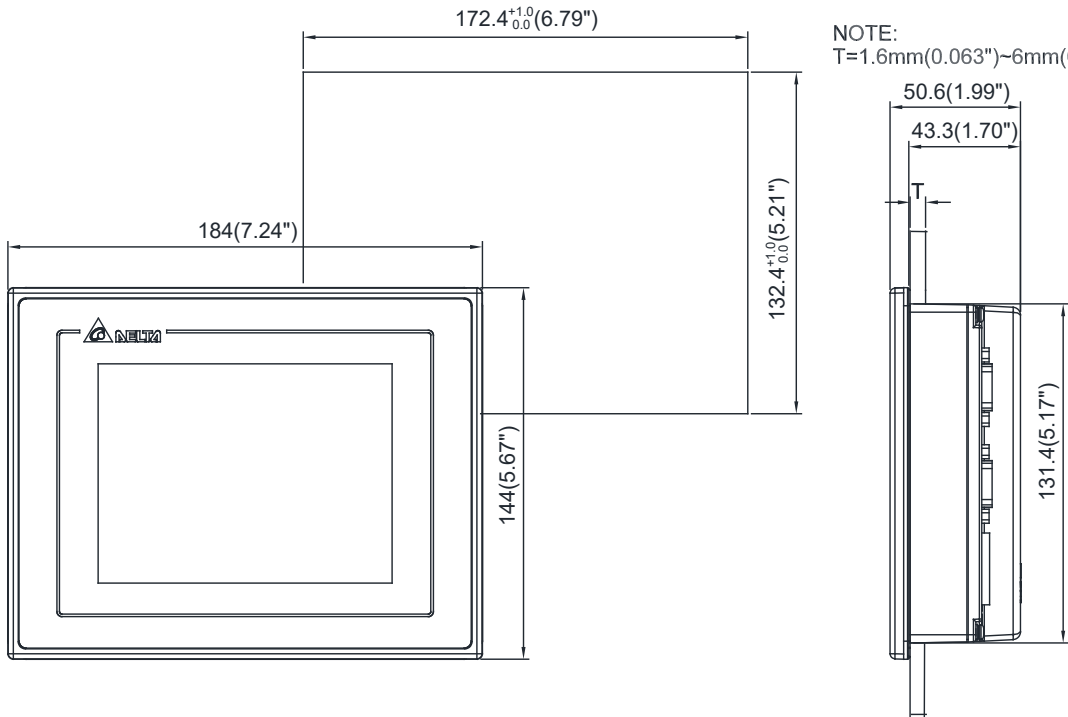
Dimensions Unit: mm (inches)

•DOP-115MX / DOP-115WX



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

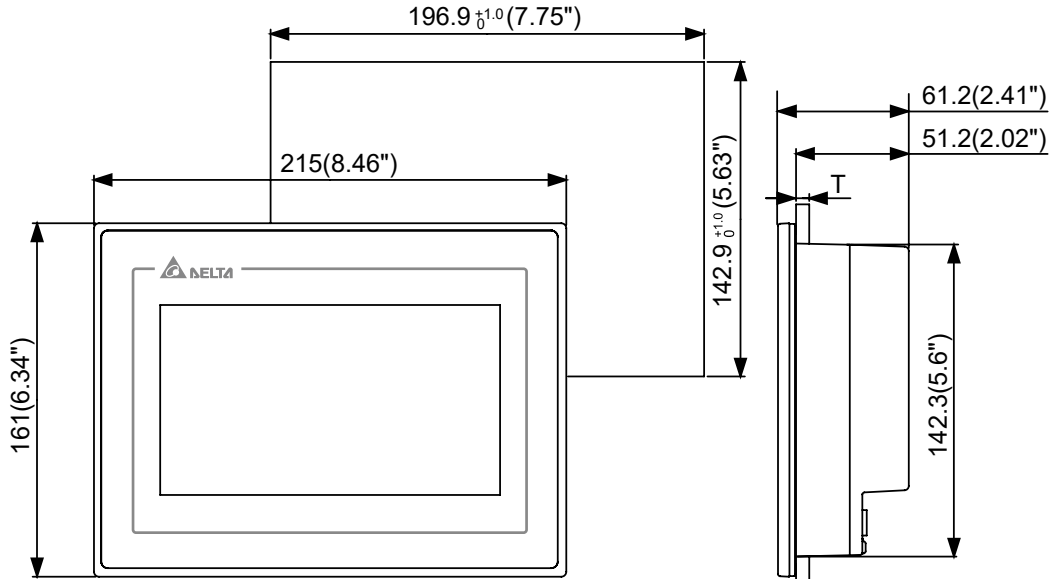
•DOP-105CQ



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

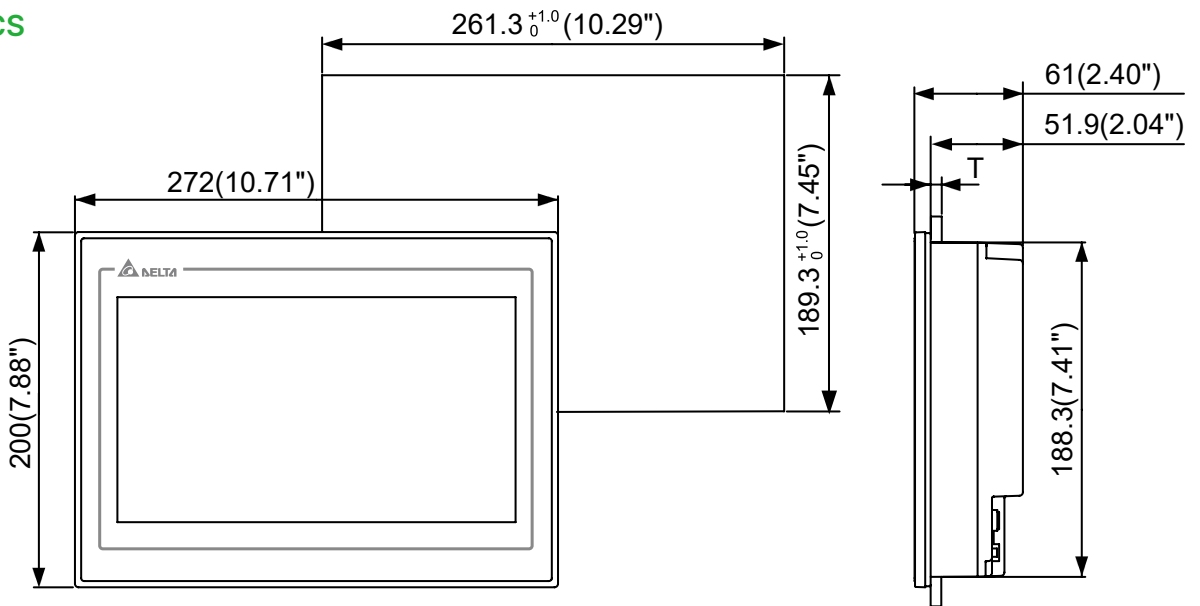
Dimensions Unit: mm (inches)

•DOP-107CV



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

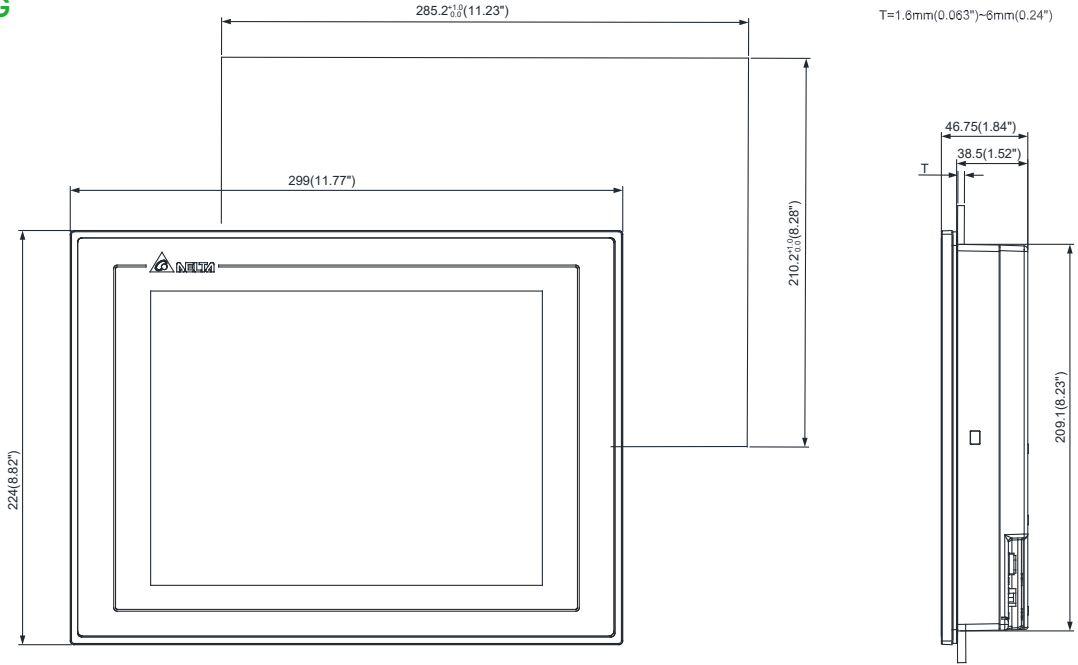
•DOP-110CS



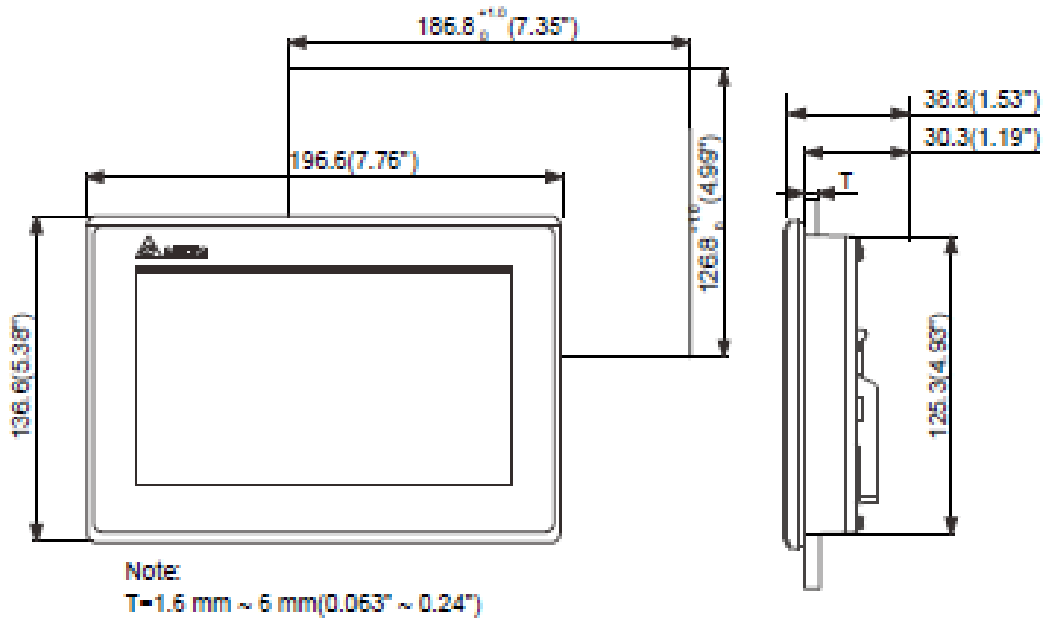
Note:
T=1.6 mm ~ 6 mm(0.063" ~ 0.24")

Dimensions Unit: mm (inches)

•DOP-110CG

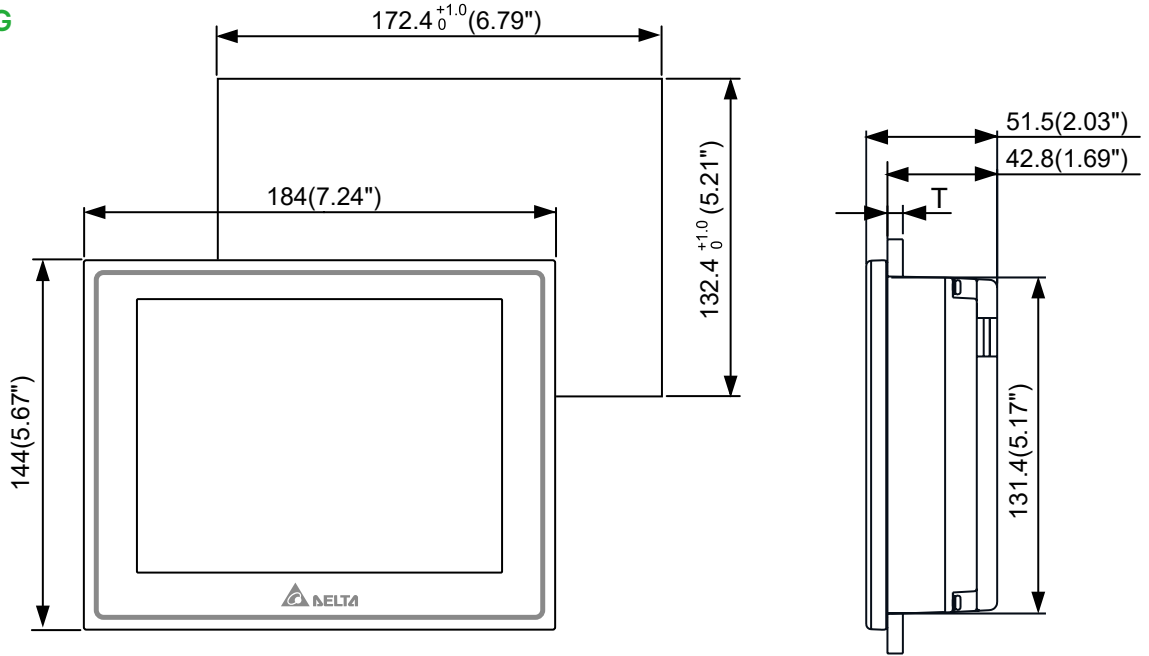


•DOP-107PV



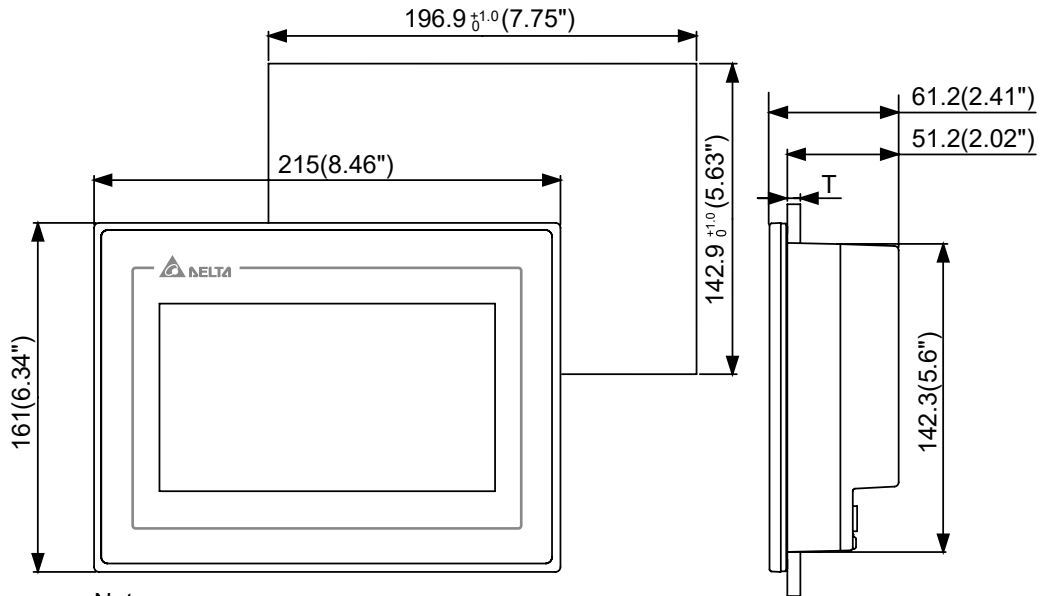
Dimensions Unit: mm (inches)

•DOP-107EG



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

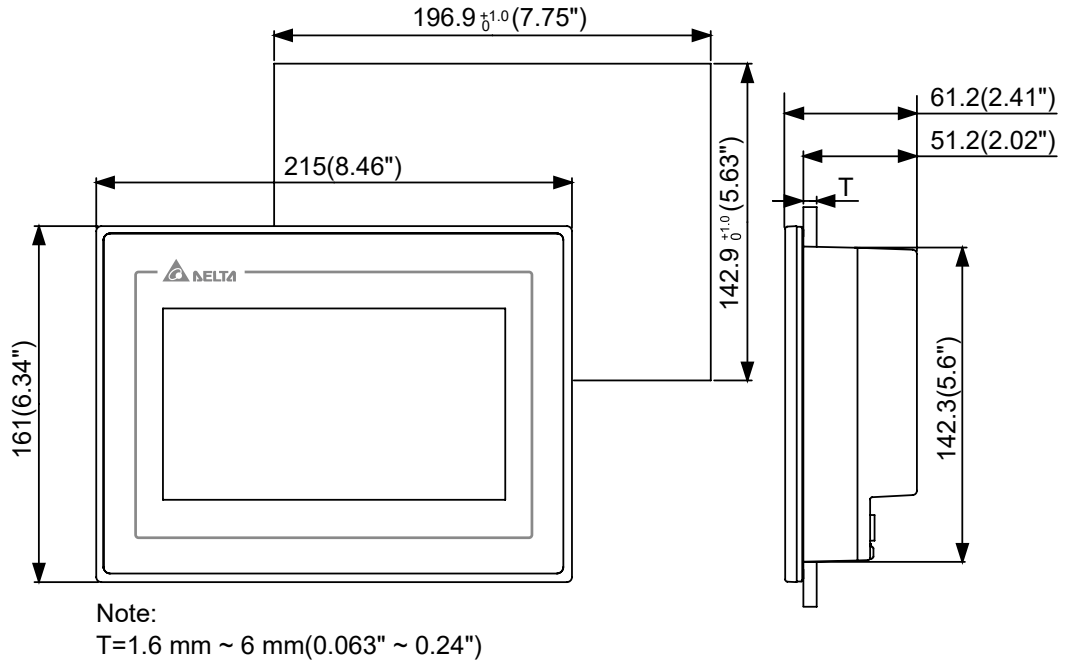
•DOP-107EV



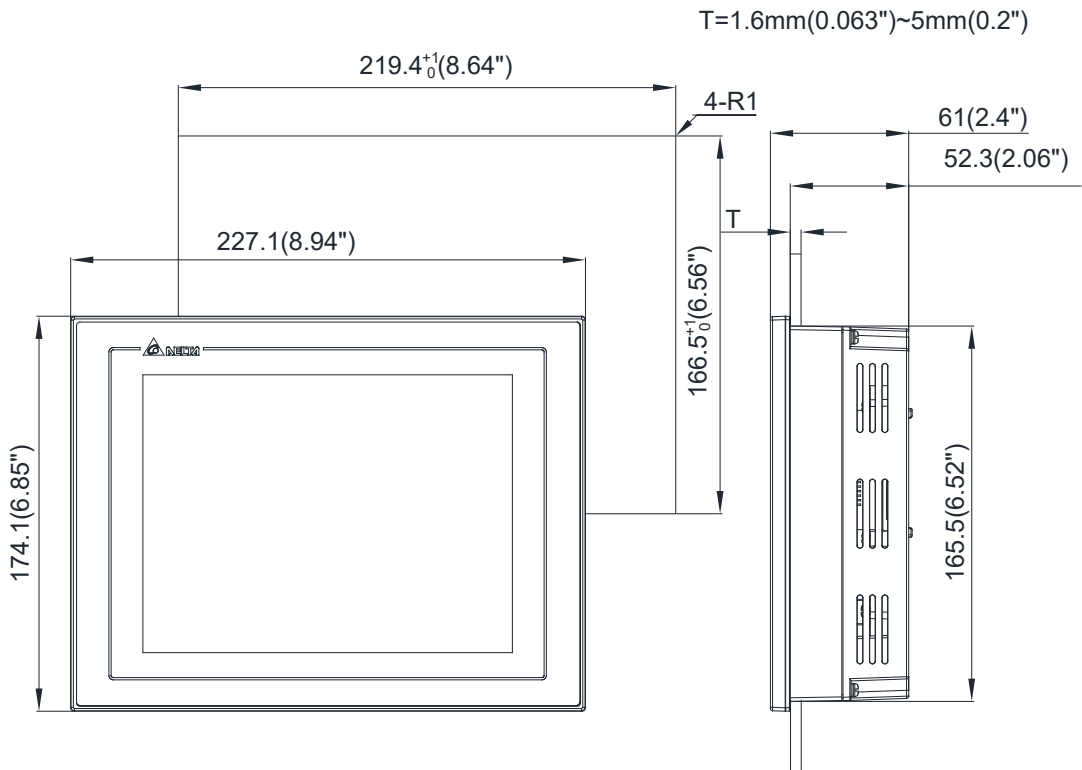
Note:
T=1.6 mm ~ 6 mm(0.063" ~ 0.24")

Dimensions Unit: mm (inches)

•DOP-107IV

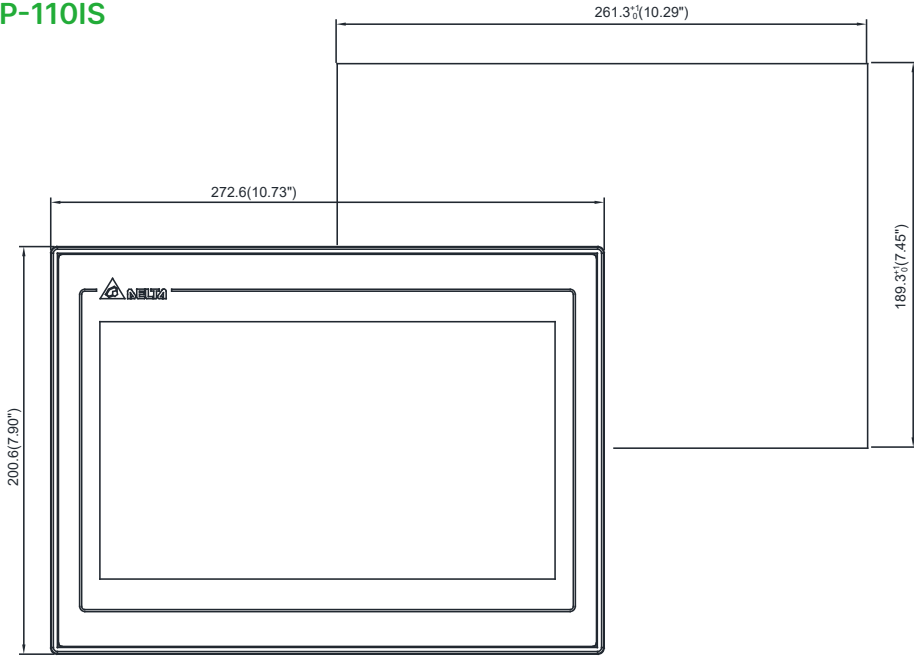


•DOP-108IG

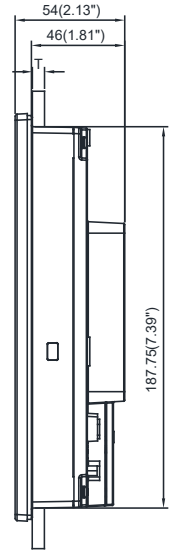


Dimensions Unit: mm (inches)

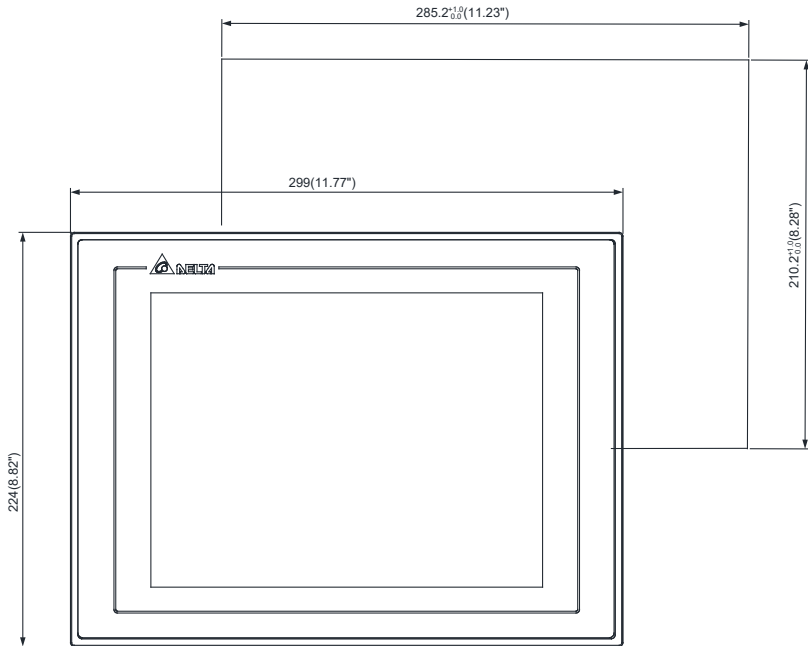
•DOP-110IS



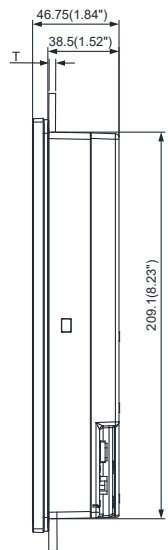
Note:
T=1.6mm(0.063")~6mm(0.24")



•DOP-110IG

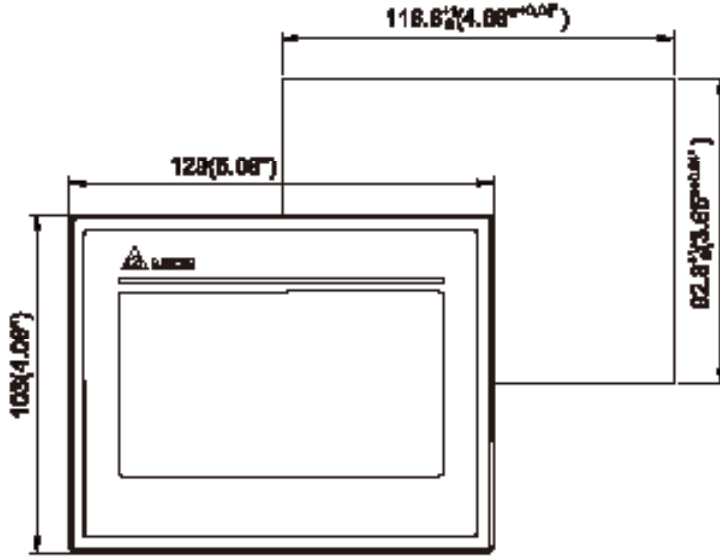


T=1.6mm(0.063")~6mm(0.24")

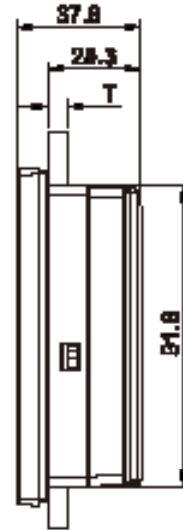


Dimensions Unit: mm (inches)

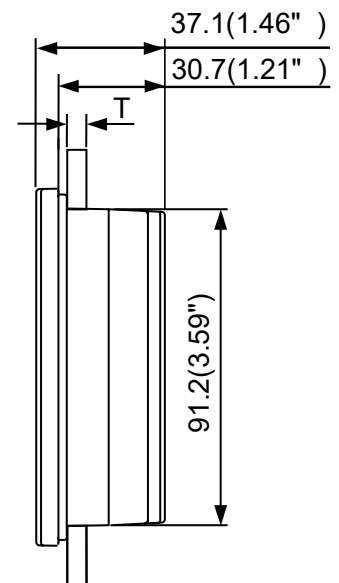
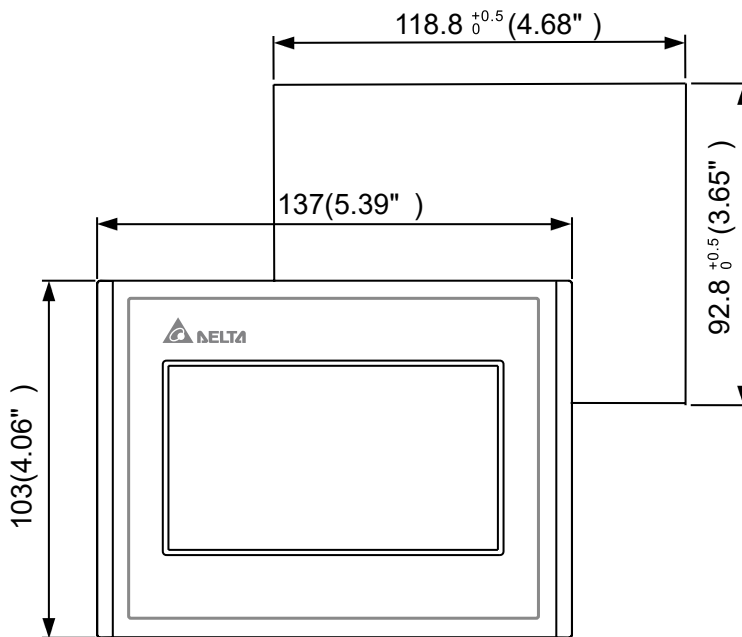
•DOP-103SQ



NOTE:
T=1.6mm(0.063")~3mm(0.12")



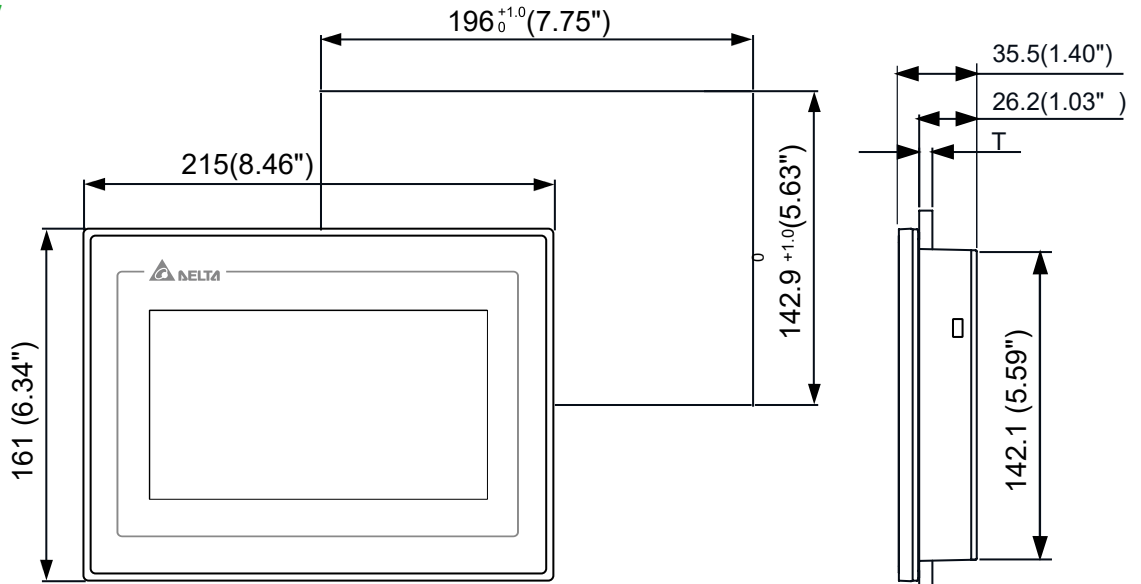
•DOP-103BQ



Note :
T=1.6mm~3mm(0.063"~0.12")

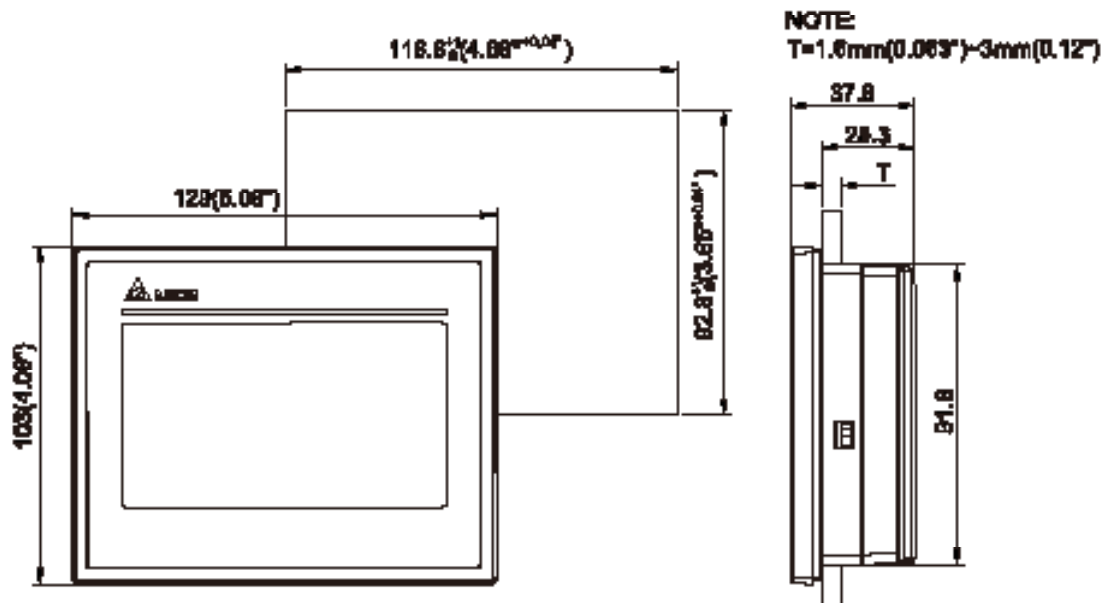
Dimensions Unit: mm (inches)

•DOP-107BV



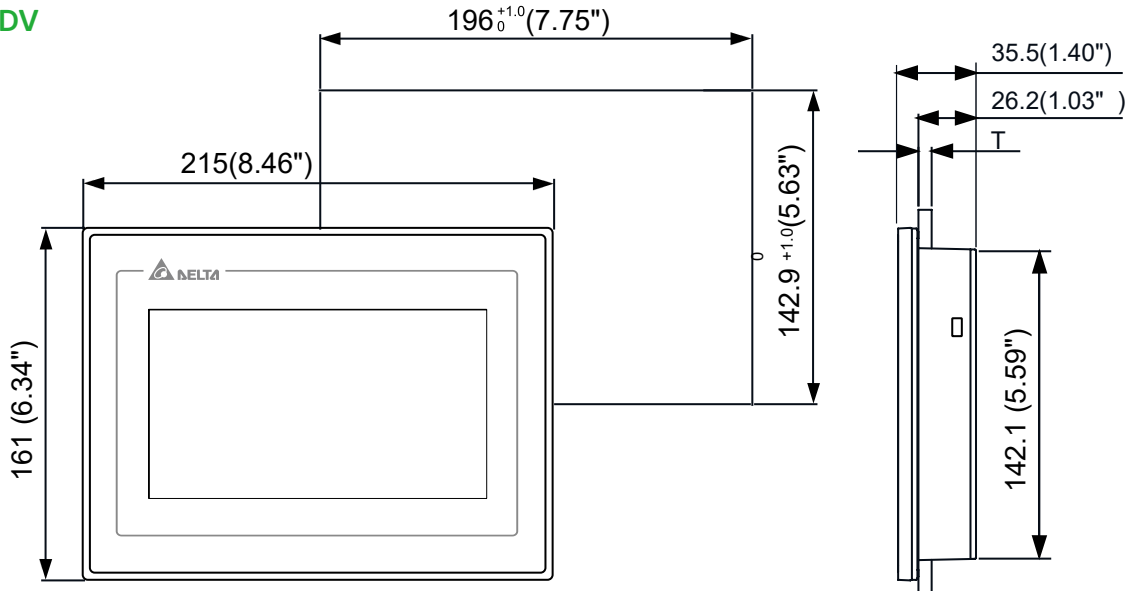
Note:
T=1.6 mm~6 mm(0.06"~0.24")

•DOP-103DQ



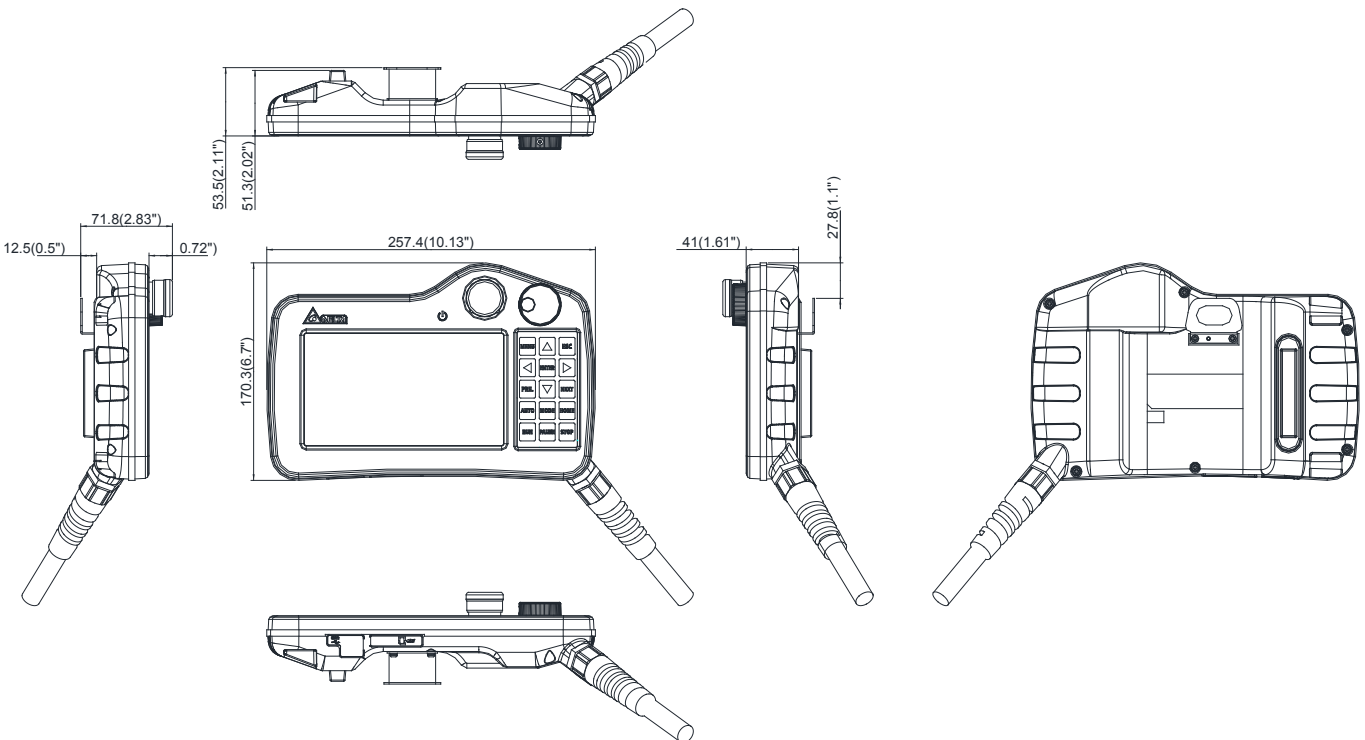
Dimensions Unit: mm (inches)

•DOP-107DV



Note:
T=1.6 mm~6 mm(0.06"~0.24")

•DOP-107HS4 / DOP-107HE4





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