



Automation for a Changing World

# Delta Human Machine Interface DOP-100 Series



[www.deltaww.com](http://www.deltaww.com)

 **DELTA**  
Smarter. Greener. Together.

# Advanced Human Machine Interface for

The DOP-100 Series Human Machine Interfaces include a Basic HMI, Standard HMI and Advanced HMI for different applications. The HMIs adopt the latest Cortex-A8 / Dual Core high-speed processor and 65,536 color LCD screen with high brightness and contrast. In addition, they are equipped with the HMI programming software DOPSoft 4.0 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 elevates 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

# Future Industry

## Advanced HMI

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

## Basic HMI

Simple operating structure for harsh environments

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# Easy Model Selection

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

- B**  
Type  
1 COM port
- D**  
Type  
1 COM port + 1 Ethernet port
- C**  
Type  
2 COM ports
- E**  
Type  
2 COM ports + 1 Ethernet port
- I**  
Type  
3 COM ports + 1 Ethernet port
- W**  
Type  
More than 1 COM port + 1 Ethernet port + Narrow frame design + Multi-language
- M**  
Type  
2 COM ports + 2 Ethernet ports + Narrow frame design + Multi-language + Multi-media

## Type Definition

**DOP-107 W V**





**Advanced HMI**  
At least 1 COM Ports &  
1 Ethernet port included



Advanced Narrow Frame



Advanced Multimedia

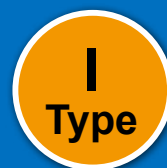
**Standard HMI**  
At least 2 COM Ports  
included



Standard General



Standard Ethernet  
(2COM)



Standard Ethernet  
(3COM)

**Basic HMI**  
1 COM Ports included



Basic



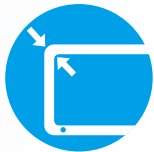
Basic Ethernet

# 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 better user experience



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



**Pressing times >10,000,000**  
Effective pressing times increased through strict endurance tests



**IP65 Rating**  
The front case protects the HMI from snow, rain, and dust



**Multilingual Input**  
16 different languages input for easy operation



**Diagnostics Function**  
Collects and solves issues remotely



**Power Isolation**  
Protects the HMI from accidental surge interference



**VNC Remote Monitoring**  
Remote control with mobile devices



**QRcode Scanning**  
Generates QRcodes with self-defined content 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



**DOPSoft 4.0**  
New software DOPSoft 4.0 offers more complete functions and a better interface



**Operating Temperature 0°C ~ 50°C**  
Compliant with industrial operating environments



**CE / UL Certified**  
Compliant with CE and UL standards



**Multimedia Functions**  
Captures image with an external camera or replays important recordings



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



**Communication Isolation**  
COM and Ethernet ports with built-in isolation circuits enhance communication stability



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



**Supports PDF and TXT Reader**  
PDF and TXT files supported



**User-Friendly**  
Intuitive operation interfaces for users

# Camera & Video Play

## Multi-Media Functions



### Analog Camera

Supports external camera via analog, 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

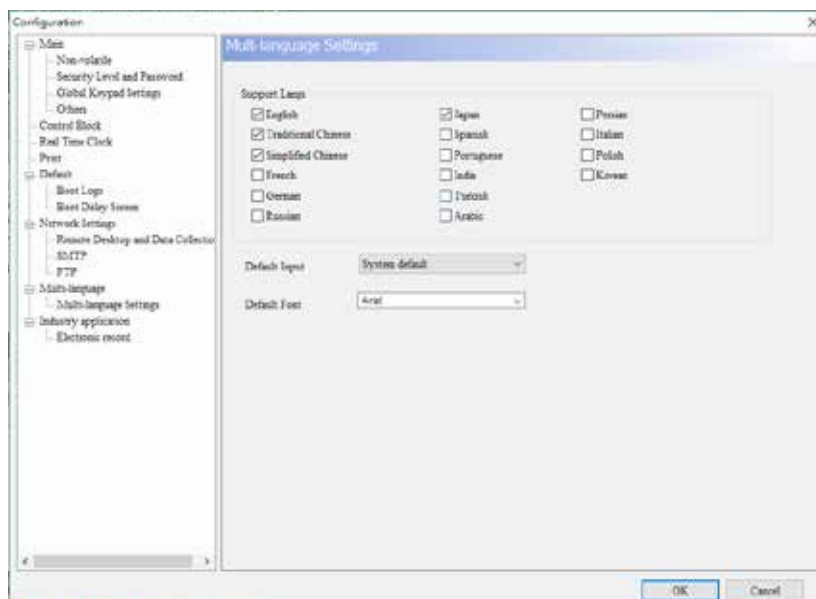
HMI performs specific actions when an event condition occurs  
Sets up event trigger conditions to capture images and archive as mpeg4 files





## Multi-Language Input for Localization

- ▶ The Advanced HMI supports multilingual inputs for:
  - Recipe Name (ENRCPG)
  - Recipe Group Name (ENRCPNO)
  - Recipe Content (Char)
  - User Name
- ▶ Supports 16 languages: English, Traditional Chinese, Simplified Chinese, French, German, Russian, Japanese, Korean, Spanish, Portuguese, Hindi, Turkish, Arabic, Persian, Italian and Polish



# Standard HMI

The Standard HMI is equipped with 2 COM 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



**DOPSoft 4.0**  
New software DOPSoft 4.0 offers more complete functions and a better interface



**Pressing times >10,000,000**  
Effective pressing times increased through strict endurance tests



**Operating Temperature 0°C ~ 50°C**  
Compliant with industrial operation environments



**IP65 Rating**  
The front case protects the HMI from snow, rain, and dust



**CE / UL Certified**  
Compliant with CE and UL standards



**Diagnostics Function**  
Collects and solves 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**  
COM and Ethernet ports 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 report



**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 features basic functions and easy installation for industrial applications. With an IP65 water-proof 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



**DOPSoft 4.0**  
New software DOPSoft 4.0 offers more complete functions and a better interface



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**VNC Remote Monitoring**  
Remote control with mobile devices



**Supports PDF and TXT Reader**  
PDF and TXT files supported



**Diagnostics Function**  
Collects and solves issues remotely

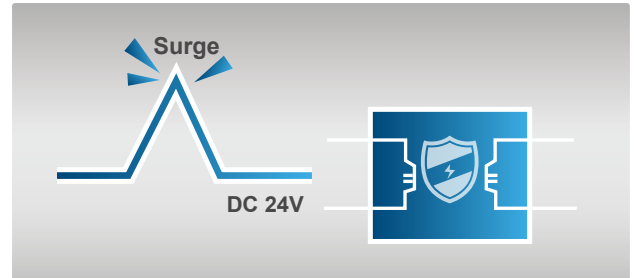


**User-Friendly**  
Intuitive operation interfaces for users

# Robust Hardware

## Power Isolation

- ▶ Complete series with built-in power isolation circuits provides the most complete protection against accidental external spikes



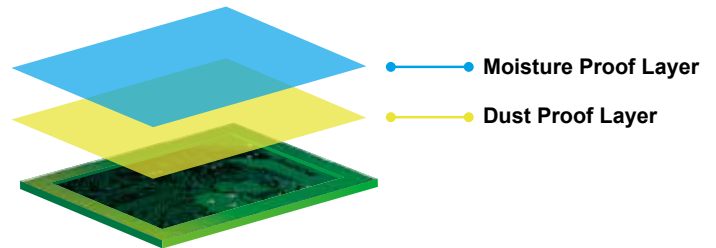
## Fully Isolated Communication Interface

- ▶ Complete series has built-in COM and Ethernet isolation circuits to protect against noise that can occur from the grounding of various devices such as PLCs, servo drives, inverters and others



## PCB Coating

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

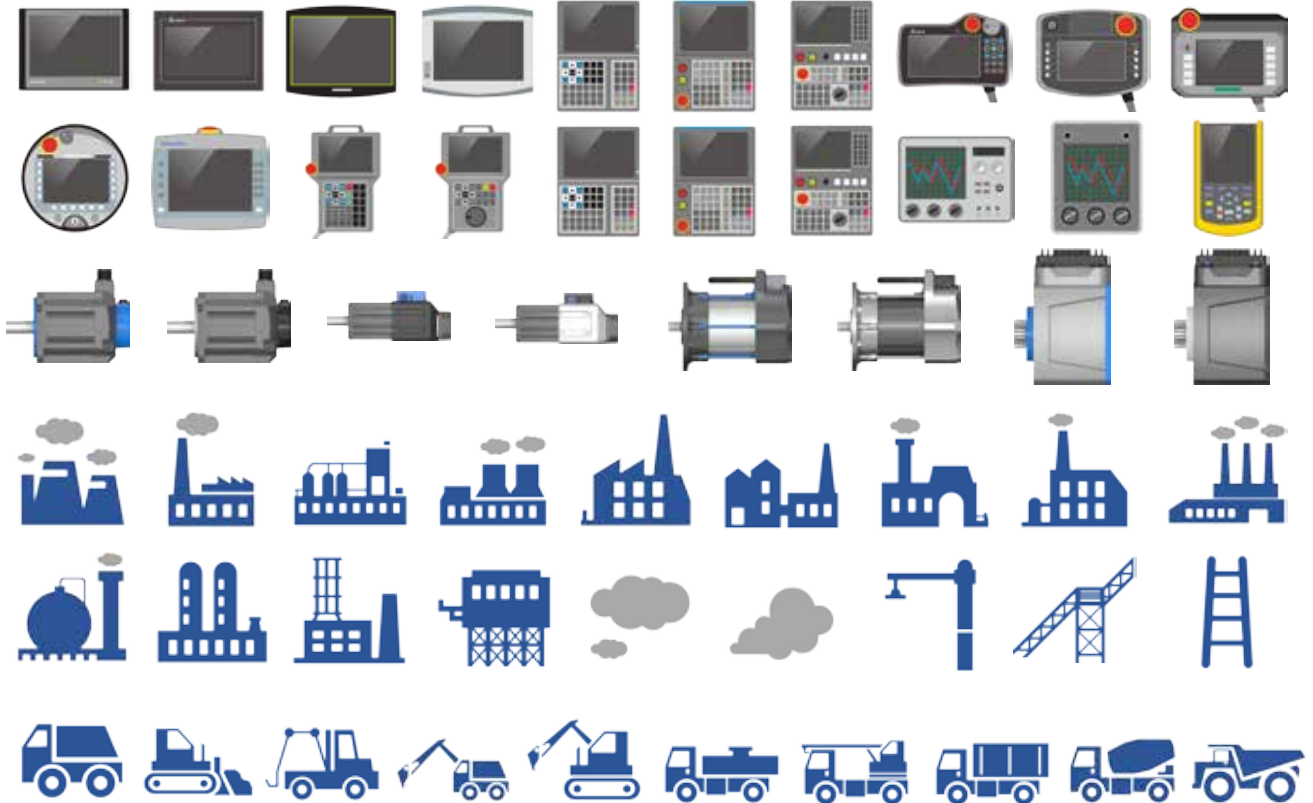


Model	Power Isolation	Communication Isolation
<b>Advanced HMI (Multimedia Type)</b>		
DOP-112/115 MX	Yes	Yes
<b>Advanced HMI</b>		
DOP-103WQ/107WV/110WS	Yes	Yes
DOP-112/115 WX	Yes	Yes
<b>Standard HMI (Ethernet Type)</b>		
DOP-107IV	Yes	Yes
DOP-108IG/110IG	Yes	Yes
DOP-110IS	Yes	Yes
DOP-107EV	Yes	Yes
DOP-107EG	Yes	Yes
<b>Standard HMI</b>		
DOP-105CQ	Yes	No
DOP-107CV	Yes	No
DOP-110CS	Yes	No
DOP-110CG	Yes	No
<b>Standard HMI (General Type)</b>		
DOP-107DV	No	No
<b>Basic HMI</b>		
DOP-103BQ	No	No
DOP-107BV	No	No

# Programming Software – DOPSoft 4.0

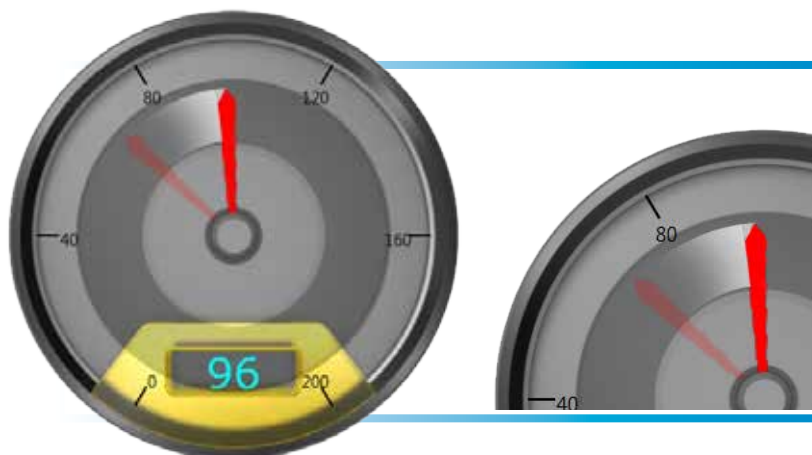
## Abundant Elements

- ▶ 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 - DOPSoft 4.0

## User-friendly Programming Interface

The screenshot shows the DOPSoft 4.0 interface with several callout boxes pointing to specific features:

- Bookmark Management:** A green box pointing to the 'Screen\_12' tab in the top right corner.
- Project Management Batch:** A green box pointing to the 'Project' tree view on the left side of the interface.
- Editing Area:** A green box pointing to the main workspace area displaying a 3D industrial scene with a 'DELTA 台達' logo and various components like 'Start', 'Turn Off', and 'Pie'.
- Output List:** A green box pointing to the 'Output' window at the bottom left, which shows a list of messages and errors.
- Edit Preview:** A green box pointing to the 'Screen Management' window at the bottom right, which shows a preview of the overall project structure.

Additional text on the left side of the image provides descriptions for these features:

- Bookmark Management:** Bookmark menu allows users to switch pages easily
- Project Management Batch:** Quickly switch items via the project branch feature
- Editing Area:** Provides real-time display of your edit
- Output List:** Automatically displays edit results of each screen. Users can review and resolve errors by clicking screens
- Edit Preview:** Quickly browses the overall project via edit preview

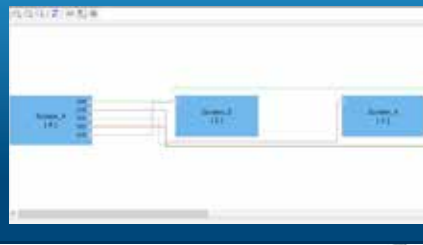


### Customized keyboard



Abundant accessories

### Process paradigms



### Field devices



### General Tool

Shortcut icons help enhance working efficiency

### Property

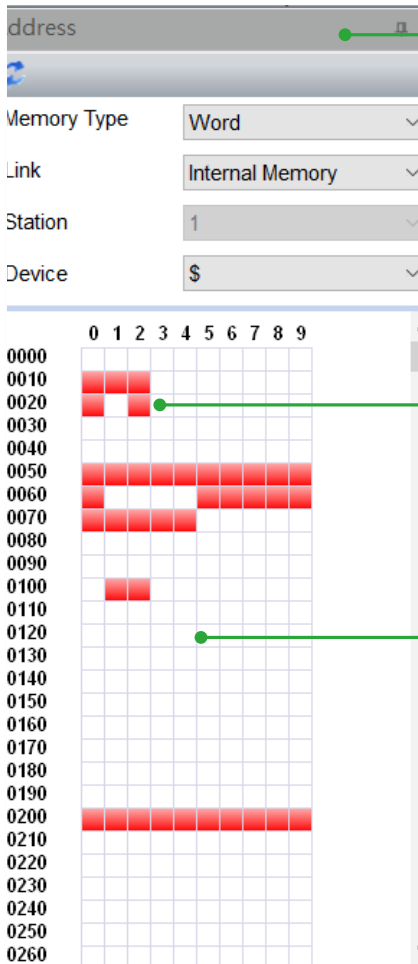
Provides easier property setup via group lists

### Property Quick Window

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

# Programming Software - DOPSoft 4.0

## Editing Windows



### Register View Window

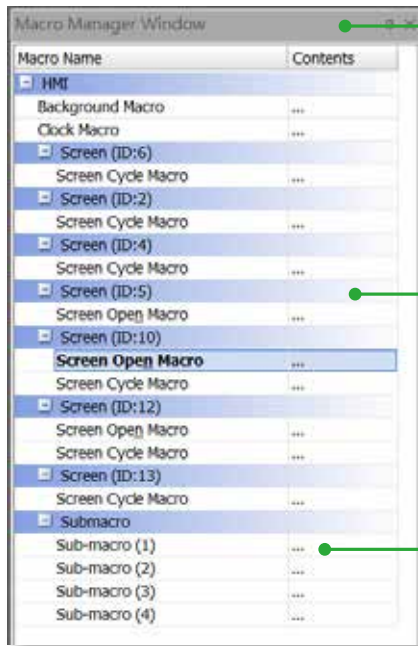
The color blocks of red and white allow users to view the memory register status



Red blocks indicate the used registers



White blocks indicate empty registers



### Macro Management Window

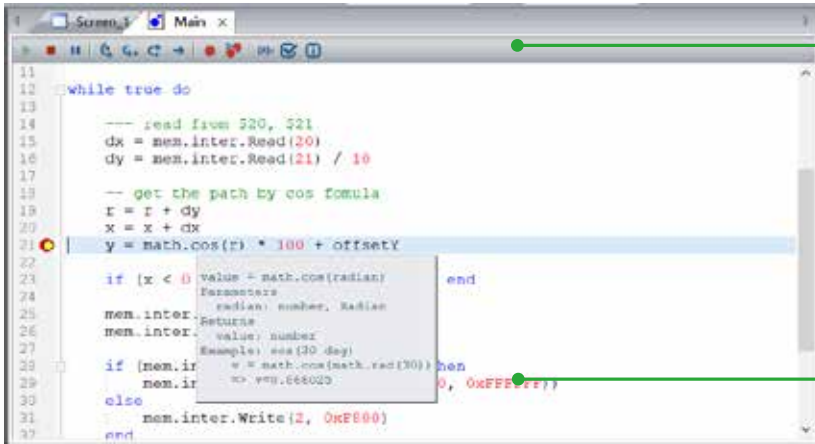
Users can view all types of macros in the project






Selected a macro via the list



Directly edit the macro after clicking



### Lua Tool Bar

-  Program Debugging
-  Stops program debug
-  Program break point

### Online Coding Tips

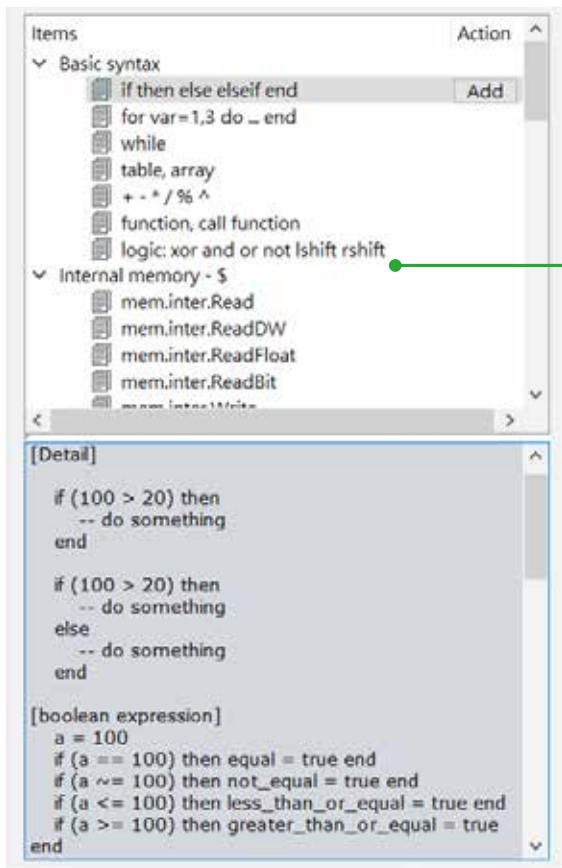
Lua editor displays tip windows of the codes when users move the mouse to selected codes

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
<b>y</b>	<b>3</b>	<b>Global</b>	<b>Number</b>	<b>DEC</b>
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 eliminate 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**  
 Able to monitor 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

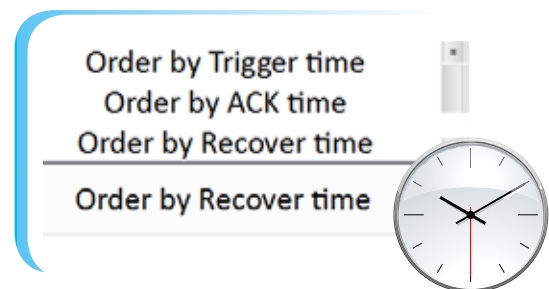
## Alarm Filtering

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 "Restore Time" and "Confirm Time"
2	Hide alarms with "Restore Time"
3	Hide alarms with "Restore Time" or "Confirm Time"
4	Hide alarms with "Confirm Time"

## Alarm Ordering

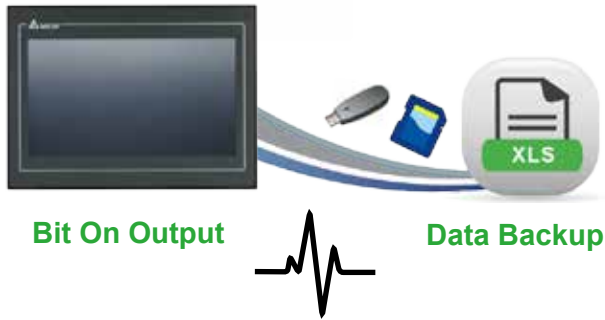
Able to display alarms in the order of Trigger Time / Confirm Time / Restore Time



# Data Management

## Historical Data

- ▶ Able to generate historical reports with user-defined file names and timestamps through Bit Control



Save As Mul

File Date  
None %m %d

File Time  
%H %M None

File Name DOP

Saving trigger \$175.0

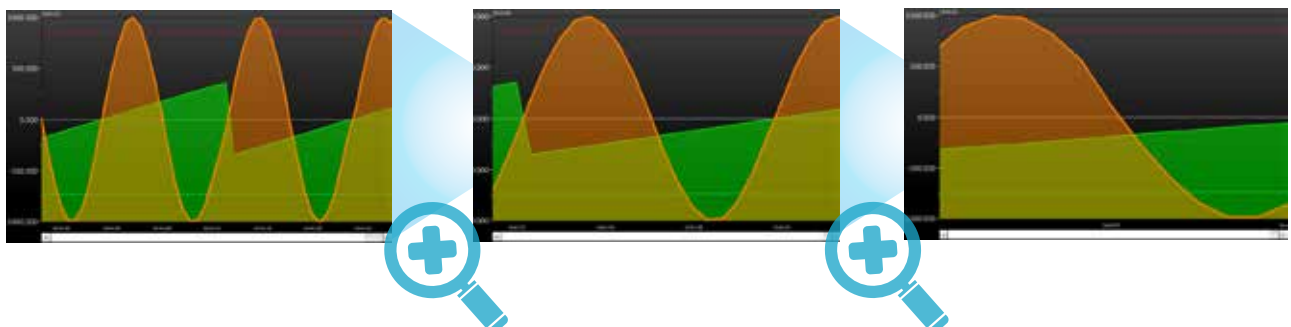
## Historical Data Review

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



## Zoom In / Out Display

- ▶ Zoom in / out function for convenient data viewing



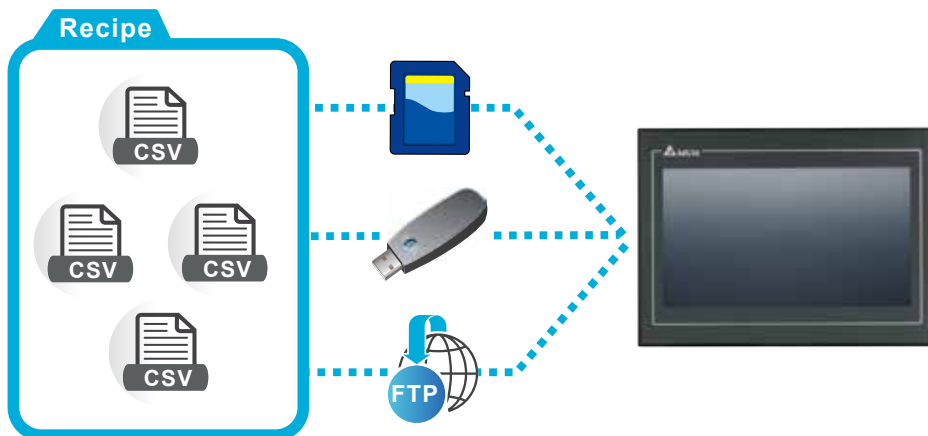
## Recipes

- ▶ Supports 2D and 3D recipe grouping, more flexible 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	
								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 (rows 1-3)  
Recipe Group 1 (rows 4-6)

- ▶ 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

- ▶ Saves 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 8 accounts (account name/password) for each level
- ▶ Different function and operation access for each authority level to enhance operation safety



## 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 improve efficiency

Time	Date	User	Level	Screen	Action	Address	Pre Value	Change Value	Descriptor
19:22:18	2016.12.02	MANAGER	7	Screen_6	Goto Scrn		6	1	換畫面_006
19:22:20	2016.12.02	MANAGER	7	Screen_1	Goto Scrn		1	10	換畫面_001
19:22:24	2016.12.02	MANAGER	7	Screen_10	Set Val	\$51.1	1	0	交替型_003
19:22:27	2016.12.02	MANAGER	7	Screen_10	Goto Scrn		10	1	換畫面_006
19:22:30	2016.12.02	MANAGER	7	Screen_1	Goto Scrn		1	7	換畫面_001
19:22:57	2016.12.02	MANAGER	7	Screen_7	Set Val	\$20	-730	-698	數值輸入_0
19:23:02	2016.12.02	MANAGER	7	Screen_7	Goto Scrn		7	1	換畫面_006
19:23:05	2016.12.02	MANAGER	7	Screen_1	Goto Scrn		1	6	換畫面_001
19:23:47	2016.12.02	MANAGER	7	Screen_6	Level Switch		7	4	密碼輸入_0
19:23:52	2016.12.02	OPERATOR	4	Screen_6	Goto Scrn		6	1	換畫面_006
19:23:55	2016.12.02	OPERATOR	4	Screen_1	Goto Scrn		1	3	換畫面_001
19:24:03	2016.12.02	OPERATOR	4	Screen_3	Set Val	ENRCP10	12ED	65AE	數值輸入_0
19:24:09	2016.12.02	OPERATOR	4	Screen_3	Set Val	ENRCP11	456.32	125.93	數值輸入_0
19:24:14	2016.12.02	OPERATOR	4	Screen_3	Set Val	ENRCP17	400	452	數值輸入_0
19:24:15	2016.12.02	OPERATOR	4	Screen_3	Goto Scrn		3	1	換畫面_006
19:24:17	2016.12.02	OPERATOR	4	Screen_1	Goto Scrn		1	6	換畫面_001

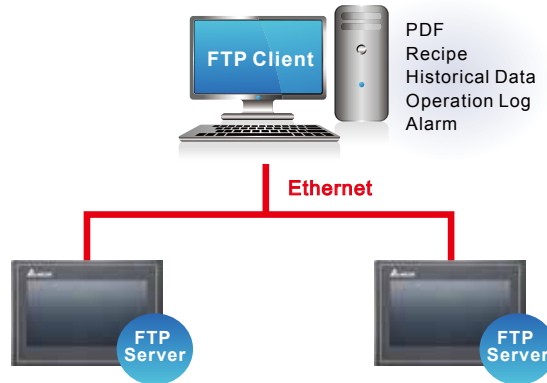
# Cloud Integration



Only With Ethernet

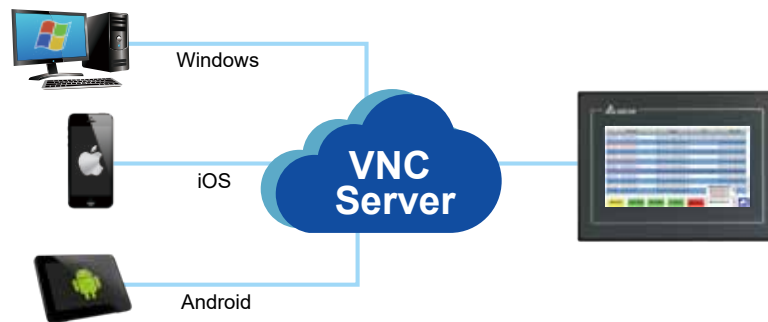
## FTP Server

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



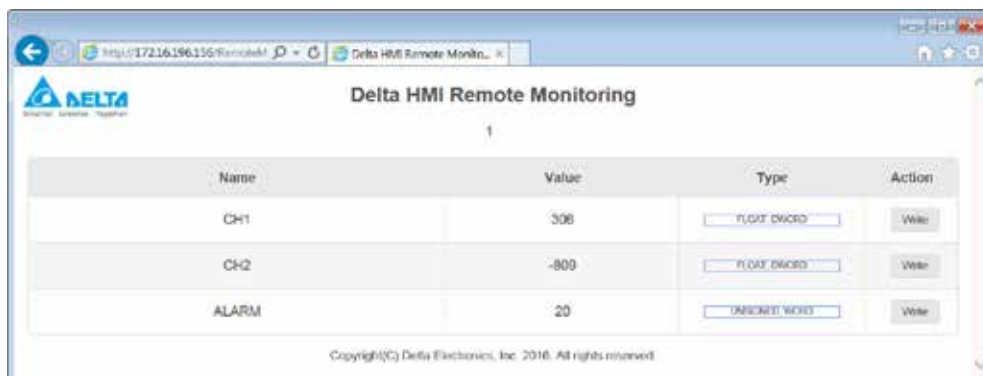
## VNC Server

- ▶ Built-in VNC server allows remote monitoring and operating of the DOP-100 Series via VNC Client APP (Windows, iOS, Android)
- ▶ Lock function: block remote operation during on-site operation to avoid unsynchronized commands. 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	65,536		
	Resolution (Pixels)	480 x 272	800 x 480	1024 x 600
	Back Light	LED Back Light		
	Back Light Brightness (cd/m <sup>2</sup> )	400	450	450
	Back Light Life (Hour) <sup>1</sup>	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 <sup>2</sup> , 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) / RS-485 <sup>2</sup>	RS-232 (supports hardware flow control)	
	COM2	RS-422 / RS-485 <sup>2</sup>	RS-232 (supports hardware flow control) / RS-485 <sup>2</sup>	
	COM3	N/A	RS-422 / RS-485 <sup>2</sup>	
RTC	Built-in			
Cooling	Natural air circulation			
Certification	CE / UL			
Waterproof	IP65 / NEMA4 / UL Type 4X (indoor use only)			
Operation Voltage <sup>3</sup>	DC +24V (-15% ~ 15%) <sup>2</sup>			
Voltage Endurance	A599V for 1 minute (between charging DC24 terminal and FG terminals)			
Power Consumption <sup>5</sup>	Max. 5.8W <sup>3</sup>	Max. 8.4W <sup>3</sup>	Max. 11W <sup>3</sup>	
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 5Hz ~ 8.3Hz = Continuous: 3.5mm, 8.3Hz ~ 150Hz = Continuous: 1.0g			
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 47.75	
Mounting dimension (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	24bit			
	Resolution (Pixels)	1024 x 768			
	Back Light	LED Back Light			
	Back Light Brightness (cd/m <sup>2</sup> )	500	450	500	450
	Back Light Life (Hour) <sup>1</sup>	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		Dual Core 1GHz			
Flash ROM (Bytes)		8GB			
RAM (Bytes)		DDR3 1000MHz 1GB			
Touch Panel		Four-wire resistor, over 10,000,000 pressing times			
Buzzer		Multi-Tone Frequency (2K ~ 4K Hz) / 85dB			
Ethernet Interface		2 Port, 100M bps x 2			
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) / RS485 <sup>2</sup>			
	COM2	RS-422 / RS485 <sup>2</sup>			
	COM3	RS-232 (supporting flow control) / RS-485 <sup>2</sup>			
	COM4	RS-422 / RS485			
RTC		Built-in			
Cooling		Natural air circulation			
Certification		CE / UL			
Waterproof		IP65 / NEMA4 / UL Type 4X (indoor use only)			
Operation Voltage <sup>3</sup>		DC +24V (-15% ~ 15%) <sup>2</sup>			
Voltage Endurance		A599V for 1 minute (between charging DC24 terminal and FG terminals)			
Power Consumption <sup>5</sup>		Max. 16.08W	Max. 21.12W	Max. 16.08W	Max. 21.12W
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 5Hz ~ 8.3Hz = Continuous: 3.5mm, 8.3Hz ~ 150Hz = Continuous: 1.0g			
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 dimension (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		2110g	3200g	2110g	3200g

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.

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.

8) 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>

# 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" TFT LCD	10.4" TFT LCD
	Color	65,536			
	Resolution (Pixels)	320 x 234	800 x 480	1024 x 600	800 x 600
	Back Light	LED Back Light			
	Back Light Brightness (cd/m <sup>2</sup> )	200	400	300	300
	Back Light Life (Hour) <sup>1</sup>	20000			
	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) / 80dB			
	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) <sup>2</sup>			
	COM2	RS-232 (supports hardware flow control) / RS-485 <sup>2</sup>			
	COM3	RS-422 / RS-485 <sup>2</sup>			
RTC	Built-in				
Cooling	Nature air circulation				
Certification	CE / UL (please equip shielding cables and linefilters with capacity of 300ohm/100MHz)				
Waterproof	IP65 / NEMA4 / UL Type 4X (indoor use only)				
Operation Voltage <sup>3</sup>	DC +24V (-15% ~ +15%)(please equip isolated-type power supplies) 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 <sup>5</sup>	Max. 6.86 W <sup>3</sup>	Max. 8.5 W <sup>3</sup>	Max. 10.4 W <sup>3</sup>	Max. 8W <sup>3</sup>	
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: 3.5mm, 8.3Hz ~ 150Hz = Continuous: 1.0g				
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	229 x 224 x 46.8	
Mounting dimension (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	670 g	970 g	1330g	1735 g	

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>

## Standard HMI

Model		Standard Ethernet Type (2 COM)	
		DOP-107EG	DOP-107EV
LCD Module	Display	7" TFT LCD	7" TFT LCD
	Color	65,536	
	Resolution (Pixels)	800 x 600	800 x 480
	Back Light	LED Back Light	
	Back Light Brightness (cd/m <sup>2</sup> )	450	400
	Back Light Life (Hour) <sup>1</sup>	20000	20000
	Display Area	141 X 105.75 mm	154.08 X 85.92 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	
Audio Output	Buzzer	Multi-Tone Frequency (2K ~ 4K Hz) / 80dB	
	AUX	Stereo output	N/A
Ethernet Interface		1 Port <sup>2</sup> , 10/100 Mbps auto-sensing	
USB		1 USB Slave Ver 2.0; 1 USB Host Ver 2.0	
SD		SDx 1	N/A
Serial COM Port	COM1	RS-232 (supports hardware flow control) <sup>2</sup>	
	COM2	RS-232 (supports hardware flow control) / RS-485 <sup>2</sup>	
	COM3	RS-422 / RS-485 <sup>2</sup>	
RTC		Built-in	
Cooling		Natural air circulation	
Certification		CE / UL (please equip Shielding cables and linefilters with capacity of 300ohm/100MHz)	
Waterproof		IP65 / NEMA4 / UL Type 4X (indoor use only)	
Operation Voltage <sup>3</sup>		DC +24V (-15% ~ +15%)(please equip isolated-type power supplies) 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 <sup>5</sup>		Max. 8.4 W <sup>3</sup>	Max. 8.76 W <sup>3</sup>
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 5Hz ~ 8.3Hz = Continuous: 3.5mm, 8.3Hz ~ 150Hz = Continuous: 1.0g	
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 51.5	215 x 161 x 61.2
Mounting dimension (W) x (H) mm		172.4 x 132.4	196.9 x 142.9
Weight		800g	970g

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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# Hardware Specifications

## Standard HMI

Model		Standard Ethernet Type (3 COM)			
		DOP-107IV	DOP-108IG	DOP-110IS	DOP-110IS
LCD Module	Display	7" TFT LCD	8" TFT LCD	10.1" TFT LCD	10.4" TFT LCD
	Color	65,536			
	Resolution (Pixels)	800 x 480	800 x 600	1024 x 600	800 x 600
	Back Light	LED Back Light			
	Back Light Brightness (cd/m <sup>2</sup> )	400	250	300	300
	Back Light Life (Hour) <sup>1</sup>	20000			
	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 Mbytes				
RAM (Bytes)	256 Mbytes				
Touch Panel	Four-wire resistor, over > 10,000,000 pressing times				
Audio Output	Buzzer	Multi-Tone Frequency (2K ~ 4K Hz) / 80dB			
	AUX	N/A	Stereo output		
Ethernet Interface	1 Port <sup>2</sup> , 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) <sup>2</sup>			
	COM2	RS-232 (supports hardware flow control) / RS-485 <sup>2</sup>			
	COM3	RS-232 (supports hardware flow control) / RS-422 / RS-485 <sup>2</sup>			
RTC	Built-in				
Cooling	Nature air circulation				
Certification	CE / UL (please equip shielding cables and linefilters with capacity of 300ohm/100MHz)				
Waterproof	IP65 / NEMA4 / UL Type 4X (indoor use only)				
Operation Voltage <sup>3</sup>	DC +24V (-15% ~ +15%)(please equip isolated-type power supplies) 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 <sup>5</sup>	Max. 12W <sup>3</sup>	Max. 9.88W <sup>3</sup>	Max. 9.6W <sup>3</sup>	Max. 9.6W <sup>3</sup>	
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: 3.5mm, 8.3Hz ~ 150Hz = Continuous: 1.0g				
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 dimension (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	970 g	1226 g	1130 g	1600 g	

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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## Basic HMI

Model		Basic Type		Basic Ethernet Type
		DOP-103BQ	DOP-107BV	DOP-107DV
LCD Module	Display	4.3" TFT LCD	7" TFT LCD	7" TFT LCD
	Color	65,536		
	Resolution (Pixels)	480 x 272	800 x 480	800 x 400
	Back Light	LED Back Light		
	Back Light Brightness (cd/m <sup>2</sup> )	400		
	Back Light Life (Hour) <sup>1</sup>	20000		
	Display Area	95.04 x 53.856 mm	154.08 x 85.92 mm	154.08 x 85.92 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		
Audio Output	Buzzer	Multi-Tone Frequency (2K ~ 4K Hz) / 80dB		
	AUX	N/A		
Ethernet Interface		N/A	N/A	1 Port, 10/100 Mbps auto-sensing <sup>2</sup>
USB		1 USB Slave Ver 2.0 / 1 USB Host Ver 2.0		
SD		N/A		
Serial COM Port	COM1	RS-232/RS-485 (supports hardware flow control) <sup>2</sup>		
	COM2	RS-422 / RS-485 <sup>2</sup>		
	COM3	N/A		
RTC		Built-in		
Cooling		Nature air circulation		
Certification		CE / UL (please equip shielding cables and linefilters with capacity of 300ohm/100MHz)		
Waterproof		IP65 / NEMA4 / UL Type 4X (indoor use only)		
Operation Voltage <sup>3</sup>		DC +24V (-15% ~ +15%)(please equip isolated-type power supplies) 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 <sup>5</sup>		Max. 5.67W <sup>3</sup>	Max. 8.6 W <sup>3</sup>	Max. 8.8W <sup>3</sup>
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: 3.5mm, 8.3Hz ~ 150Hz = Continuous: 1.0g		
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	215 x 161 x 35.5
Mounting dimension (W) x (H) mm		118.8 x 92.8	196 x 142.9	196 x 142.9
Weight		280g	700g	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

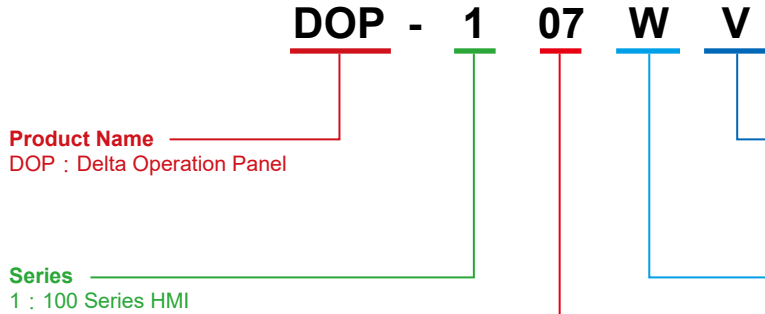
3) An isolated power supply is recommended.

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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# Model Description



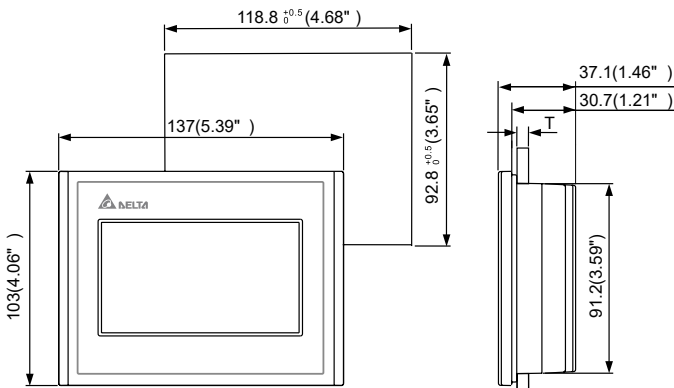
Display Size				
00 : Zero	03 : 4.3"	05 : 5.6"	7 : 7"	8 : 8"
10 : 10.1" / 10.4"	12 : 12"	15 : 15"		

Resolution	
G : SVGA TFT (800x)	Q : WQVGA TFT (480x)
S : WSVGA TFT (1024x)	V : WVGA TFT (800x)
X : XGA TFT (1024x)	Z : No Display (Zero)

Type
B : Basic Type
D : Basic Ethernet Type
C : Standard General Type
E : Standard Ethernet Type (2 COM)
I : Standard Ethernet Type (3 COM)
W : Advanced Narrow Frame Type
M : Advanced Multimedia Type

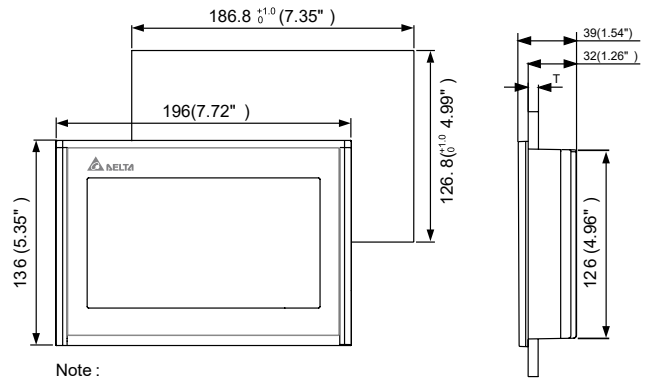
## Dimensions Unit: mm (inches)

### • DOP-103WQ



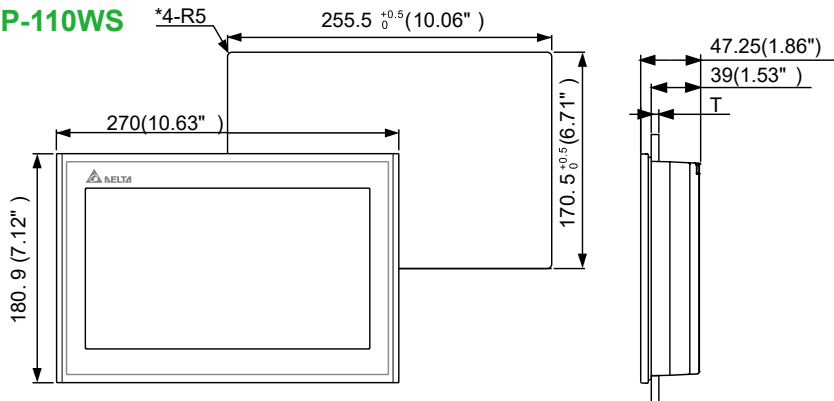
Note :  
T=1.6mm~3mm(0.063"~0.12")

### • DOP-107WV



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

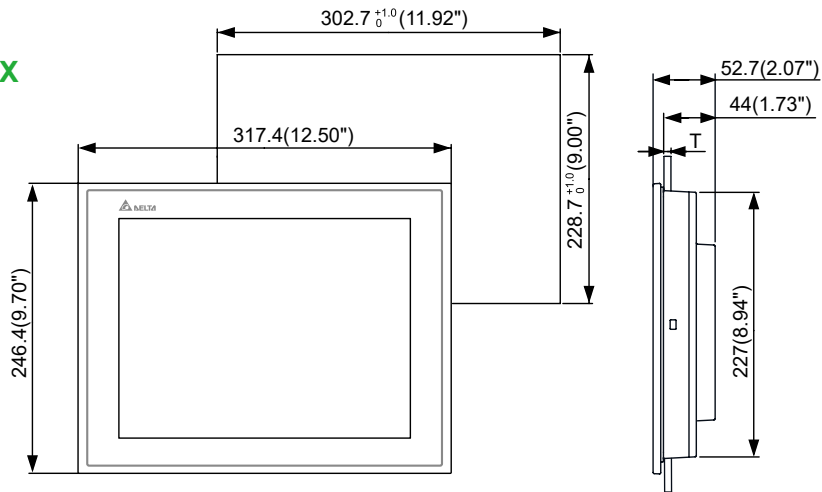
### • DOP-110WS



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

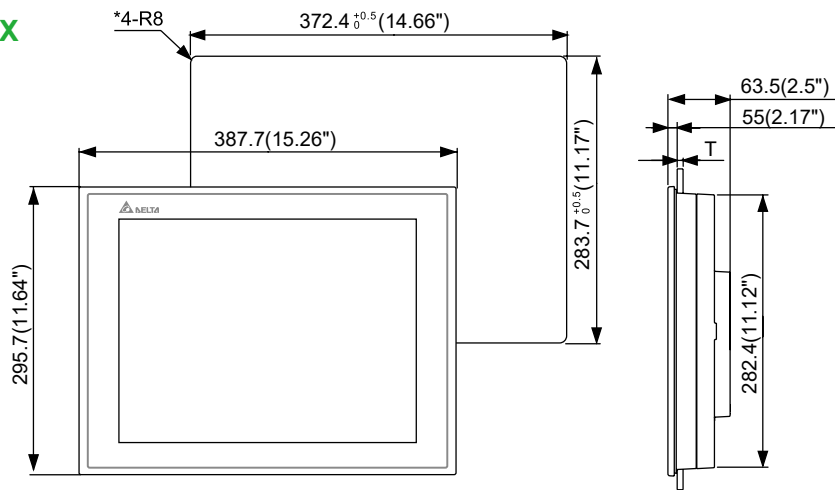
# Dimensions Unit: mm (inches)

## • DOP-112MX / DOP-112WX



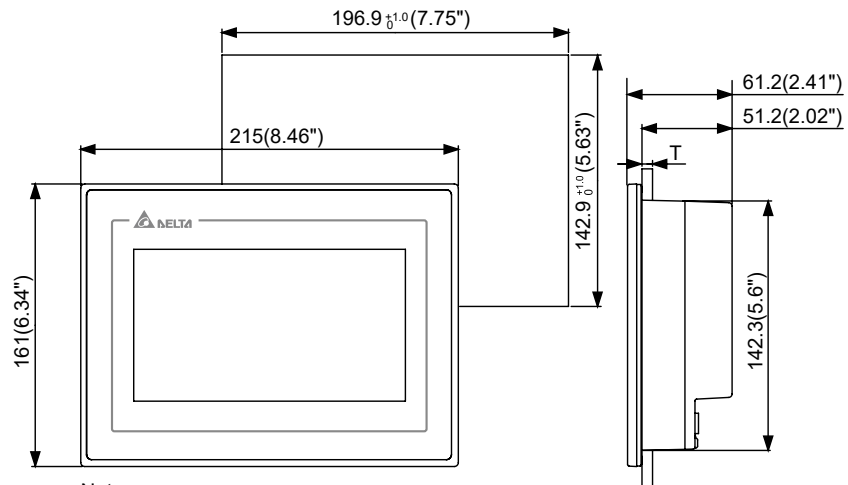
Note:  
T=1.6 mm ~ 6 mm(0.063" ~ 0.24")

## • DOP-115MX / DOP-115WX



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

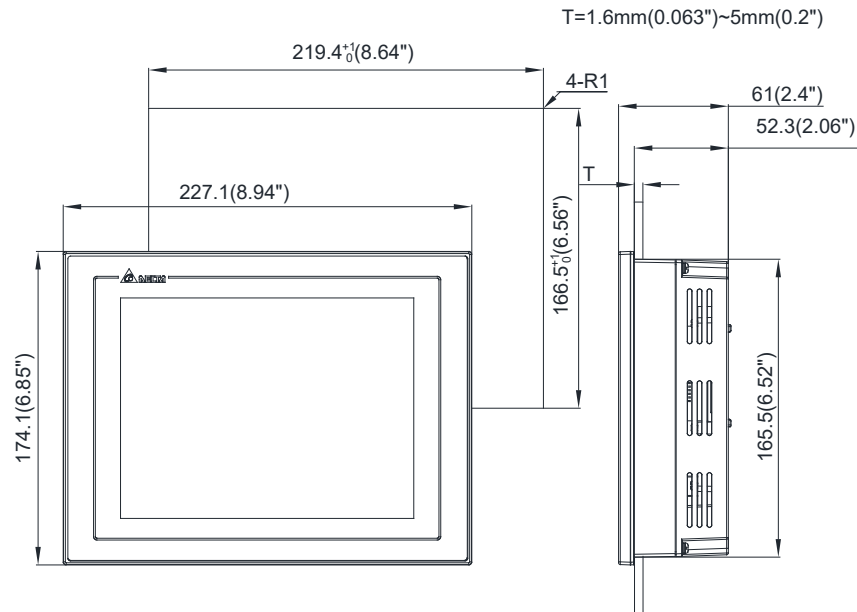
## • DOP-107IV



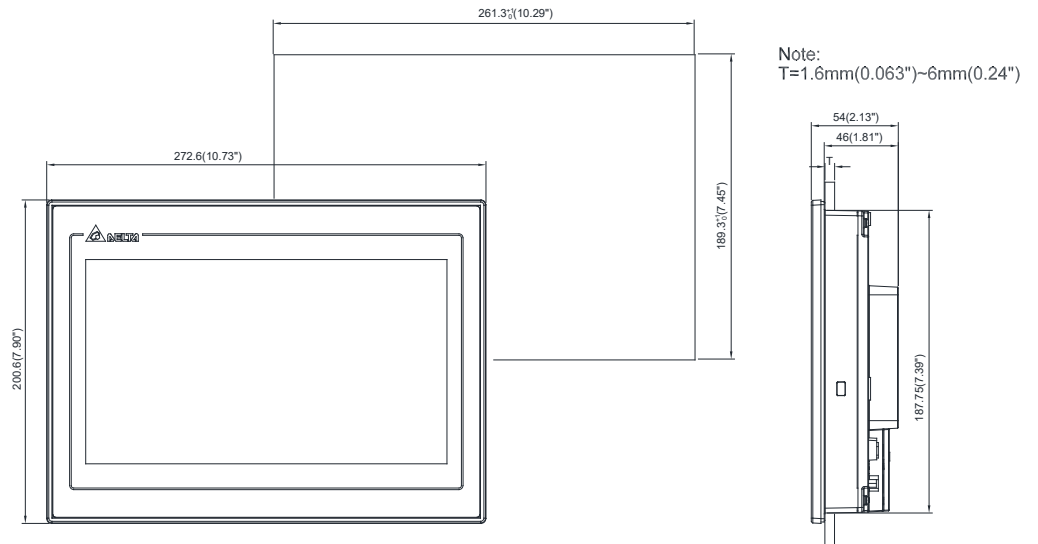
Note:  
T=1.6 mm ~ 6 mm(0.063" ~ 0.24")

# Dimensions Unit: mm (inches)

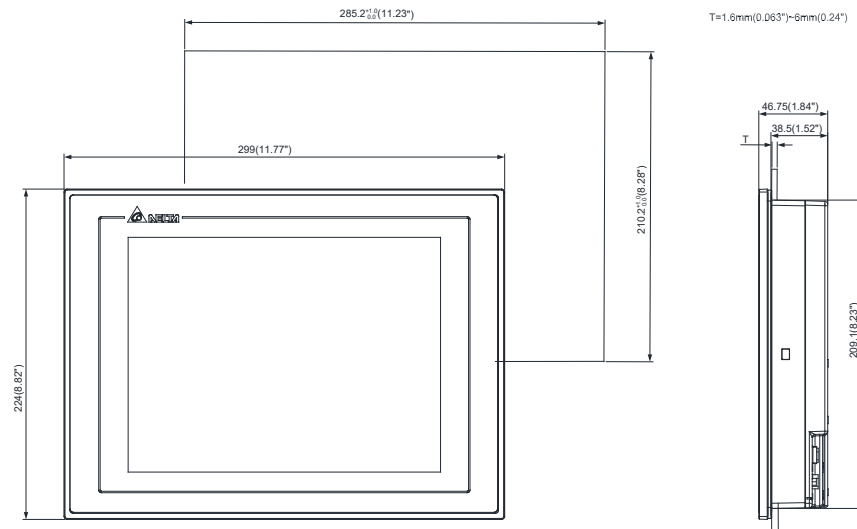
## • DOP-108IG



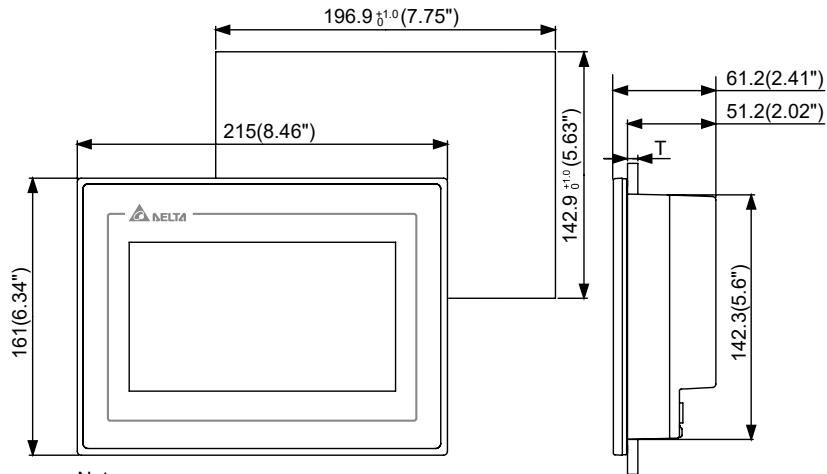
## • DOP-110IS



## • DOP-110IG

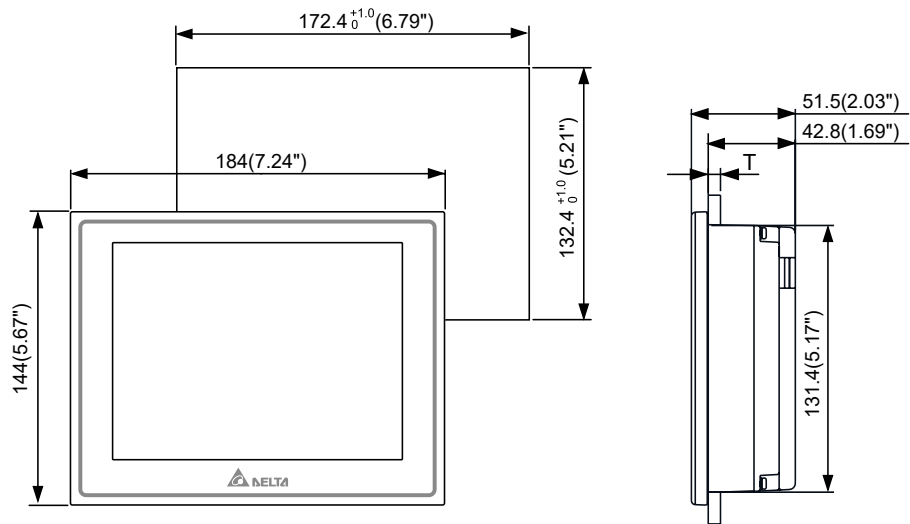


• DOP-107EV



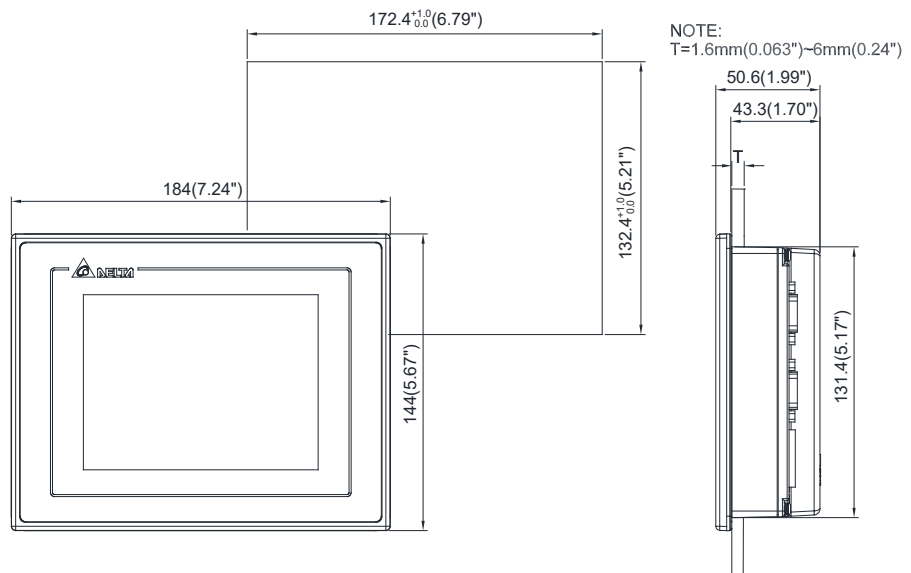
Note:  
T=1.6 mm ~ 6 mm(0.063" ~ 0.24")

• DOP-107EG



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

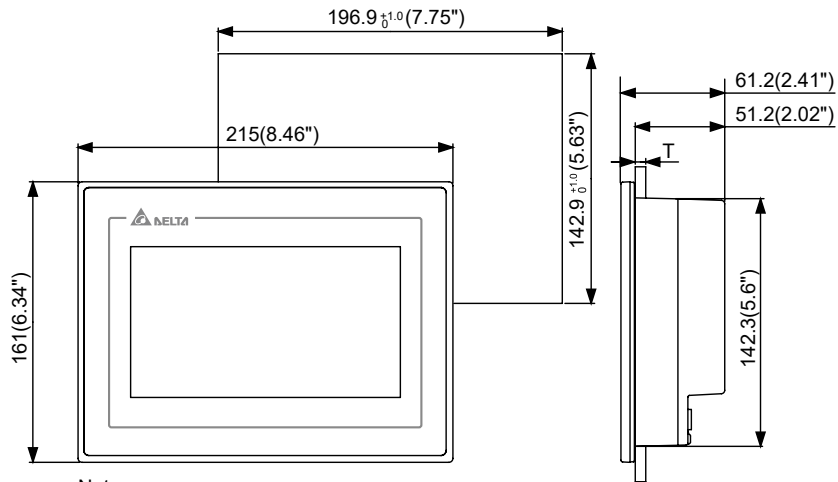
• DOP-105CQ





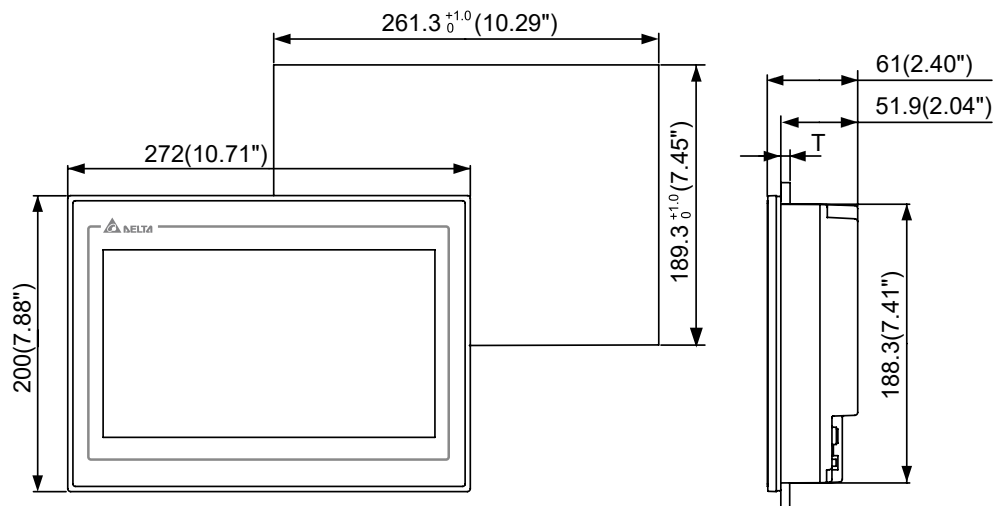
# Dimensions Unit: mm (inches)

## • DOP-107CV



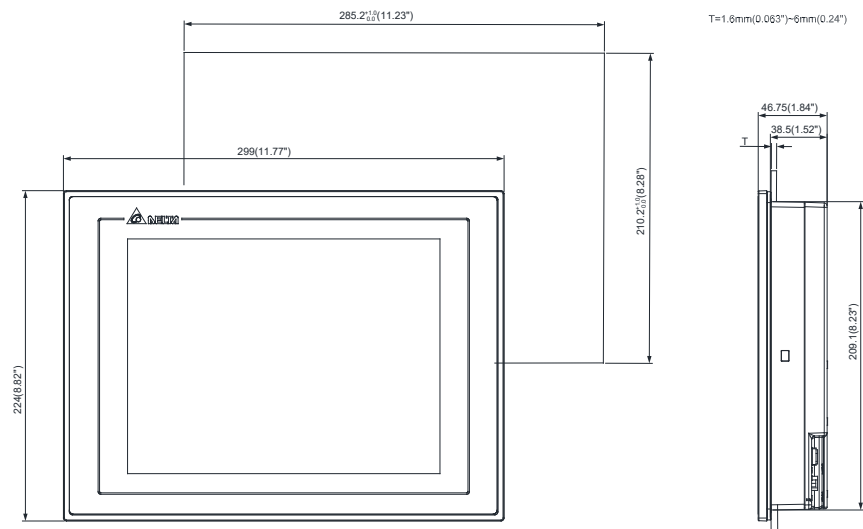
Note:  
T=1.6 mm ~ 6 mm(0.063" ~ 0.24")

## • DOP-110CS



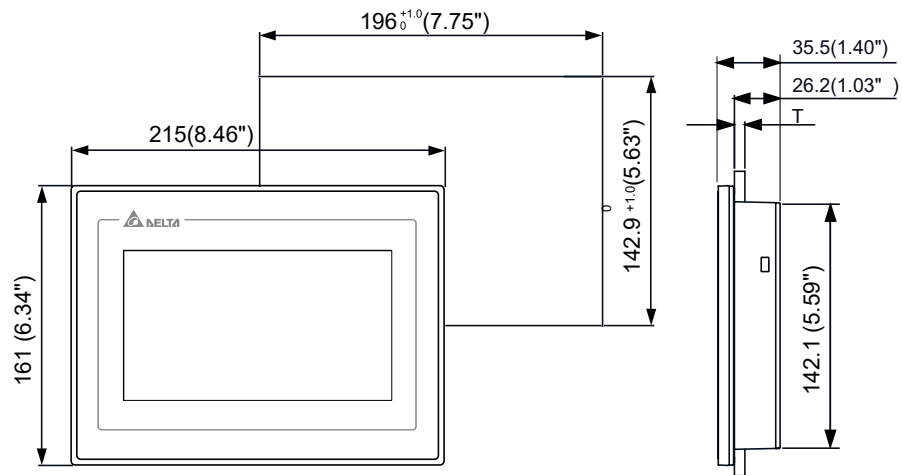
Note:  
T=1.6 mm ~ 6 mm(0.063" ~ 0.24")

## • DOP-110CG



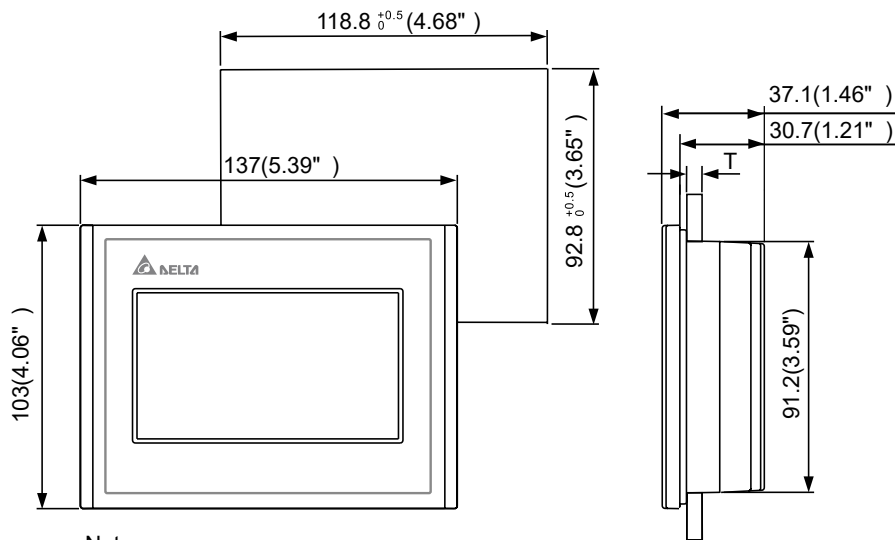
T=1.6mm(0.063")~6mm(0.24")

• DOP-107DV



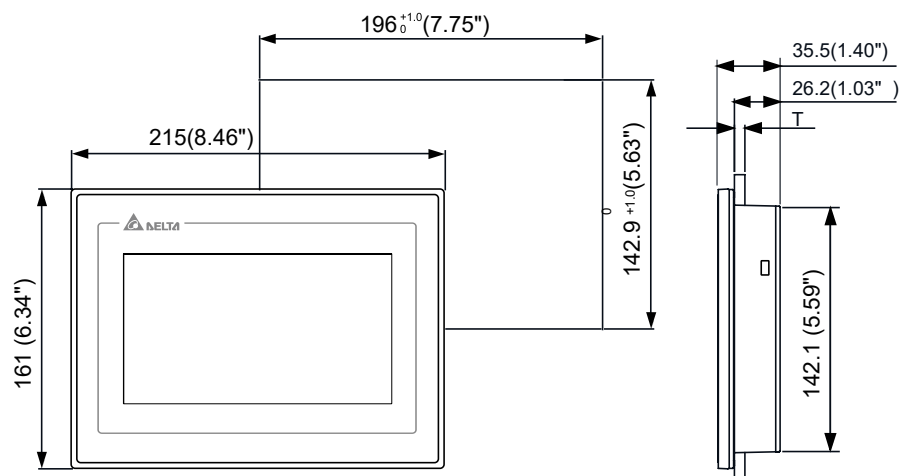
Note:  
T=1.6 mm~6 mm(0.06"~0.24")

• DOP-103BQ



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

• DOP-107BV



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

# Global Operations

## ASIA (Taiwan)



Taoyuan Technology Center (Green Building)



Taoyuan Plant 1



Tainan Plant (Diamond-rated Green Building)

## ASIA (China)



Wujiang Plant 3



Delta Electronics



**ASIA (Japan)**



Tokyo Office



**ASIA (India)**



Rudrapur Plant  
(Green Building)

**EUROPE**



Amsterdam, Netherlands

**AMERICA**



Research Triangle Park

▲ Factories 8    ■ Branch Offices 117    ● R&D Centers 13    ■ Distributors 915





Smarter. Greener. Together.

## Industrial Automation Headquarters

### Delta Electronics, Inc.

Taoyuan Technology Center  
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