



Automation for a Changing World

## **Delta Human Machine Interface DOP-100 Series**



# 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

## Table of Contents

### Introduction 2

Model Selection  
Advanced HMI  
Standard HMI  
Basic HMI

### Robust Hardware 14

Power Isolation  
Fully Isolated Communication Interface  
PCB Coating

### Programming Software – DOPSoft 4.0 15

Abundant Elements  
Smooth Animation  
User-Friendly Programming Interface  
Editing Windows

### Advanced Alarm 20

Alarm Functions

### Data Management 22

Historical Data  
Historical Data Review  
Zoom In / Out Display  
Recipes  
PDF for Data Review

### User Authority Management 24

Account and Authorization Management  
Operation Log

### Cloud Integration 25

FTP Server  
VNC Server  
Web Monitoring

### Product Information 26

Hardware Specifications  
Model Description  
Dimensions

### Global Operations 34

# 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



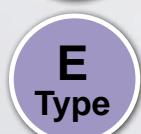
1 COM port



1 COM port + 1 Ethernet port



2 COM ports



2 COM ports + 1 Ethernet port



3 COM ports + 1 Ethernet port



More than 1 COM port + 1 Ethernet port + Narrow frame design + Multi-language



2 COM ports + 2 Ethernet ports + Narrow frame design + Multi-language + Multi-media

## Type Definition

DOP-107 W V





# 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



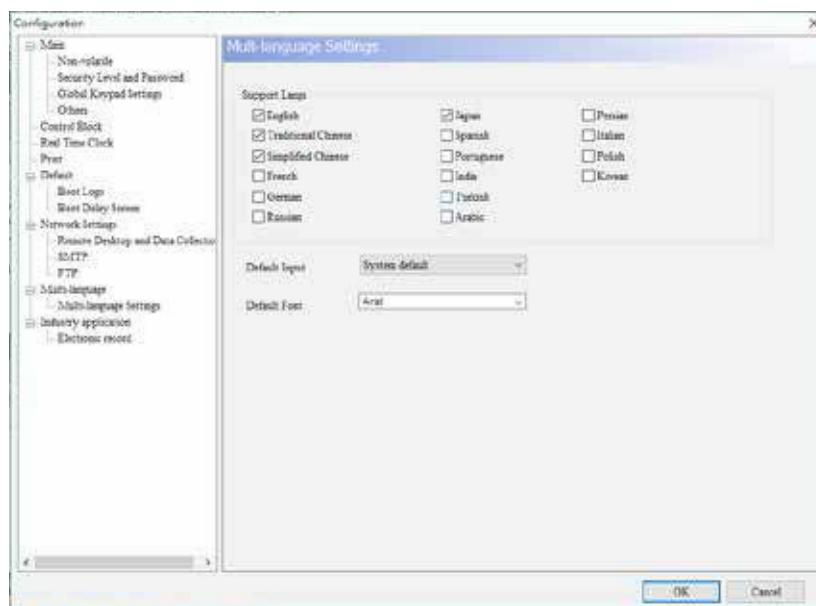
### Event Trigger

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



**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 operation environments



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



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

E Type I Type



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

E Type I Type



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

E Type I Type



**Supports GIF Graphic Elements**  
Easy setting to play vivid GIF elements



**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



**Diagnostics Function**  
Collects and solves issues remotely



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



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

E Type I Type



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



**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



**Pressing times >1,000,000**  
Effective pressing times increased through strict endurance tests



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

D  
Type  
Only



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

D  
Type  
Only



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



**Diagnostics Function**  
Collects and solves issues remotely

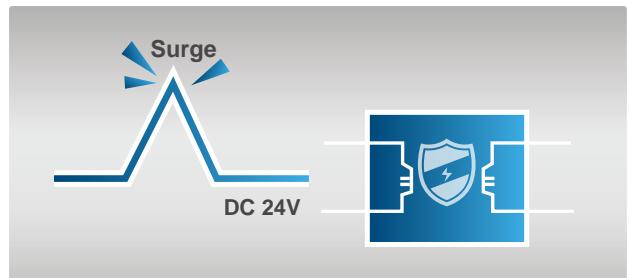


**User-Friendly**  
Intuitive operation interfaces for users

# Robust Hardware

## Power Isolation

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



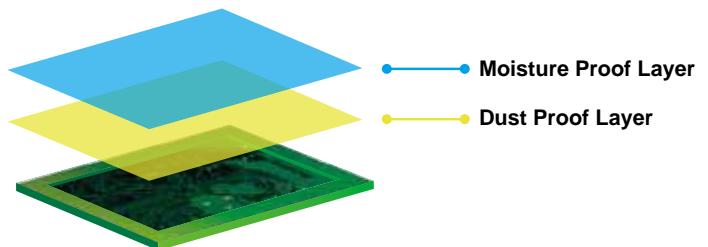
## Fully Isolated Communication Interface

- 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

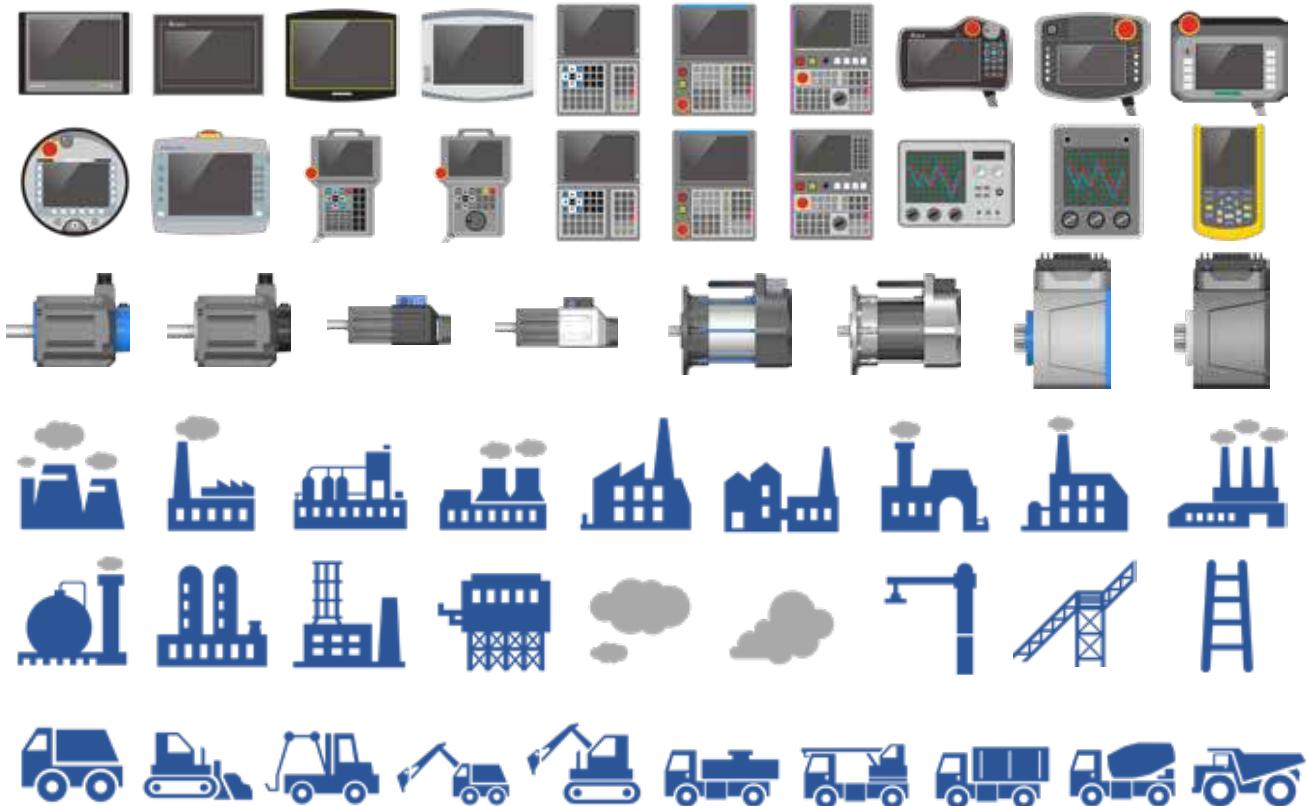


Model	Power Isolation	Communication Isolation
<b>Advanced HMI (Multimedia Type)</b>		
DOP-112/115 MX	Yes	Yes
<b>Advanced HMI</b>		
DOP-103WQ/107WV/110WS	Yes	Yes
DOP-112/115 WX	Yes	Yes
<b>Standard HMI (Ethernet Type)</b>		
DOP-107IV	Yes	Yes
DOP-108IG/110IG	Yes	Yes
DOP-110IS	Yes	Yes
DOP-107EV	Yes	Yes
DOP-107EG	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

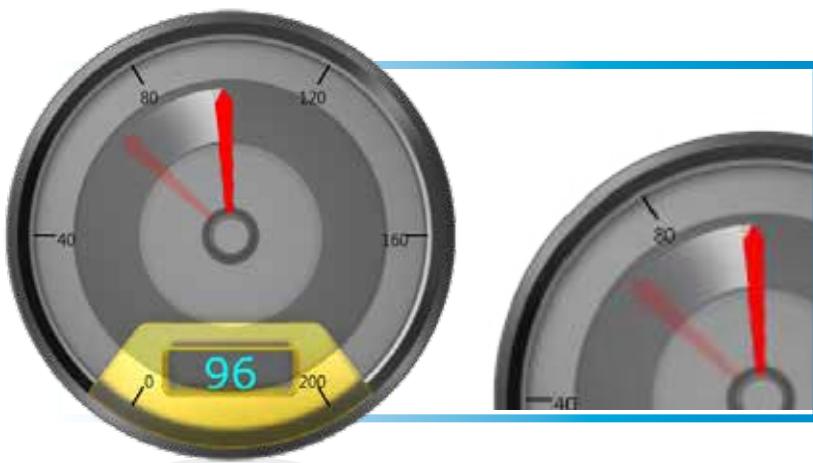
## Abundant Elements

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



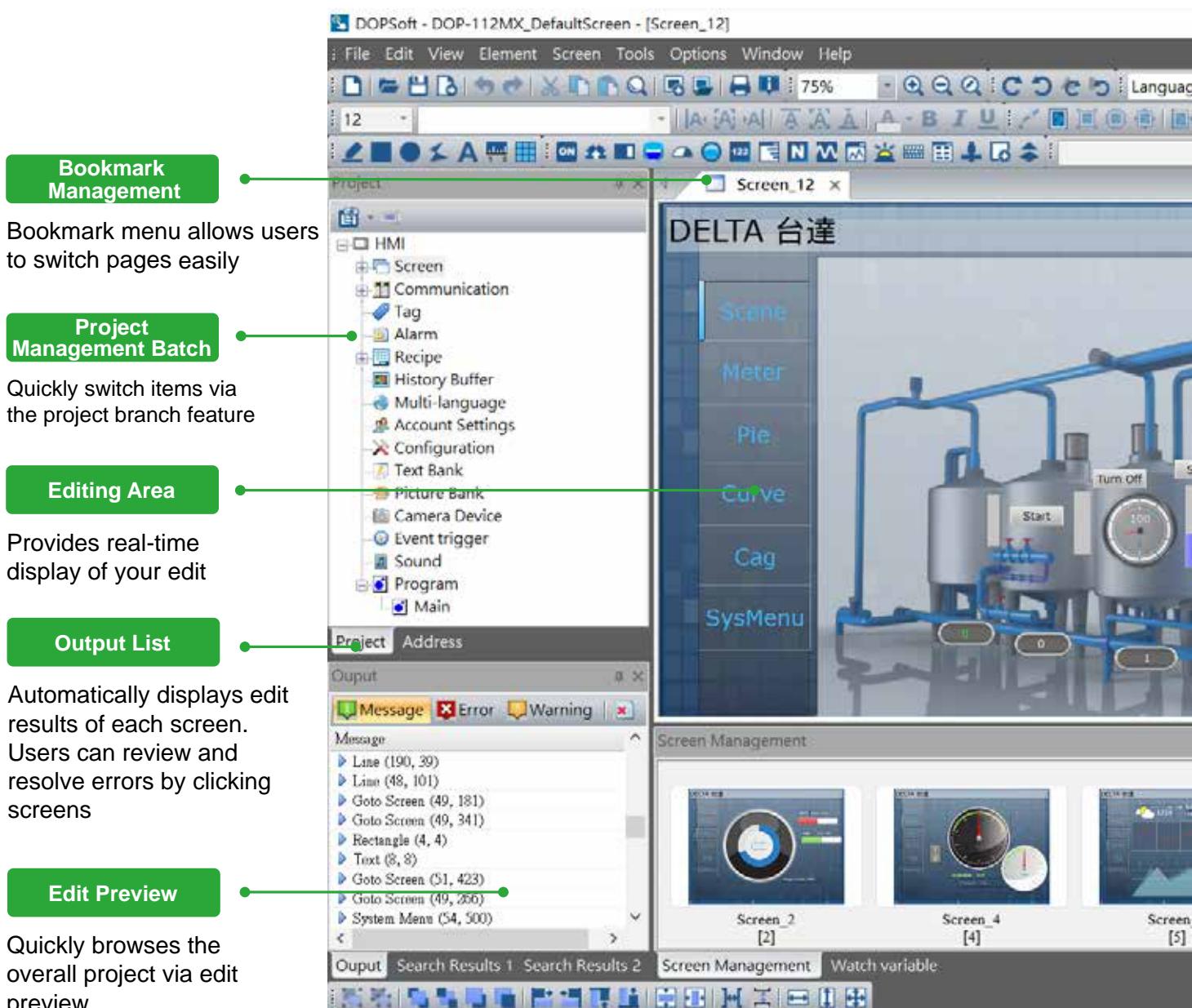
## Smooth Animation

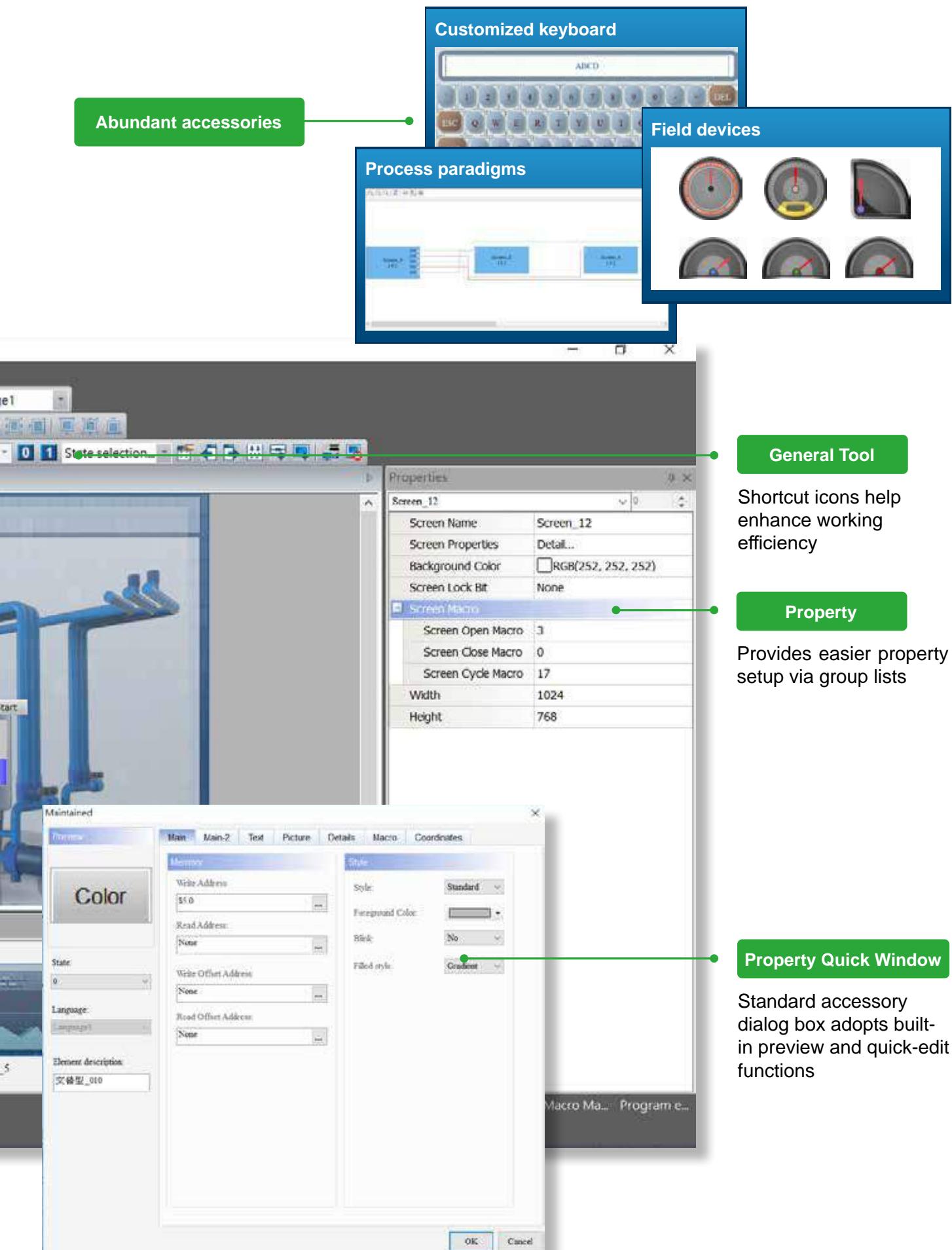
- ▶ New smooth animation technology for realistic dashboard display



# Programming Software - DOPSoft 4.0

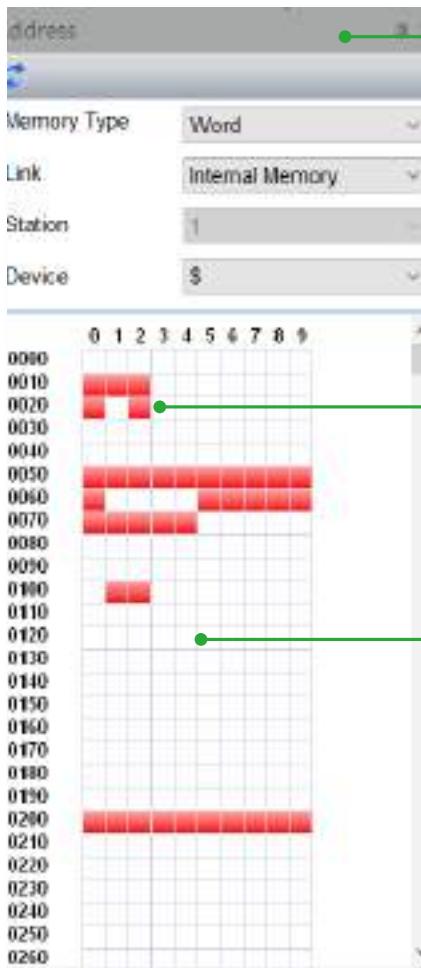
## User-friendly Programming Interface





# 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

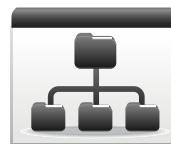


White blocks indicate empty registers



**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

A screenshot of a computer screen showing a Lua script in a code editor. The script contains several lines of Lua code, including variable assignments and conditional statements. A tooltip window is displayed over the line 'y = math.cos(r) \* 100 + offsety', providing information about the 'math.cos' function: 'Parameters: radian: number, Radian Returns: value: number Example: cos(30 deg)'.

### Lua Tool Bar

- Program Debugging
- Stops program debug
- Program break point

A screenshot of a 'Watch variable' window. It is a table with columns: Name, Value, Global / Local, Type, and Format. The table contains the following data:

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

### Online Coding Tips

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

### Parameter Monitoring Window

Allows users to monitor parameter variation during program development

A screenshot of the 'Programming Assistance Window'. The left pane shows a tree view of items under 'Items': 'Basic syntax' (with 'if then else elseif end', 'for var=1,3 do ... end', 'while', 'table, array', '+ - \* / % ^', 'function, call function', 'logic: xor and or not lshift rshift') and 'Internal memory - \$' (with 'mem.inter.Read', 'mem.inter.ReadDW', 'mem.inter.ReadFloat', 'mem.inter.ReadBit', 'mem.inter.Write'). The right pane shows a 'Detail' section with code examples:

```

[Detail]
if (100 > 20) then
    -- do something
end

if (100 > 20) then
    -- do something
else
    -- do something
end

[boolean expression]
a = 100
if (a == 100) then equal = true end
if (a ~= 100) then not_equal = true end
if (a <= 100) then less_than_or_equal = true end
if (a >= 100) then greater_than_or_equal = true end

```

### Programming Assistance Window

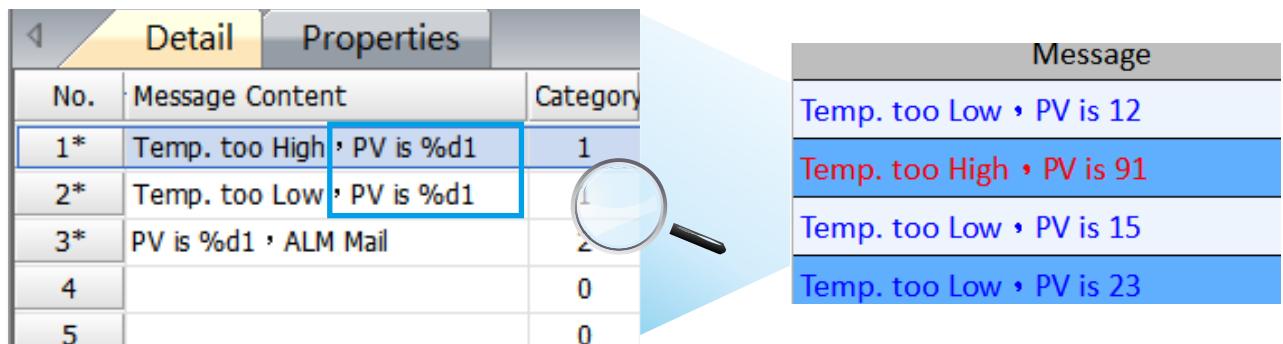
Provides online assistance as follows:

- 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



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	0
4		0
5		0

Message

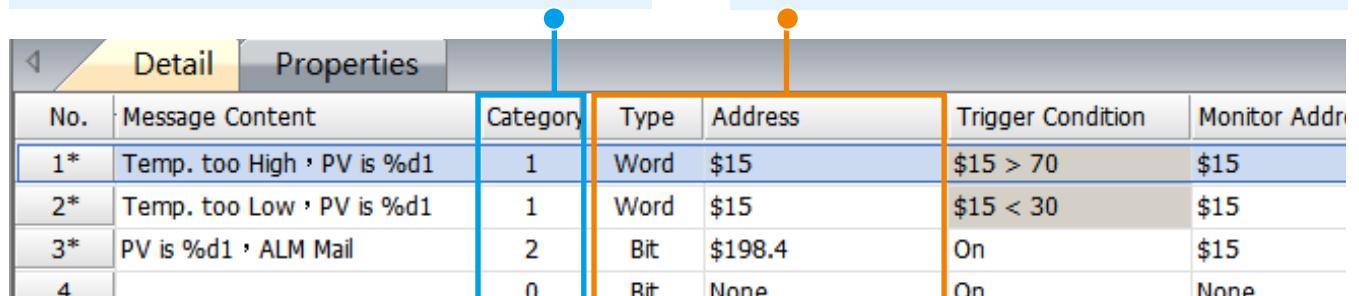
- Temp. too Low , PV is 12
- Temp. too High , PV is 91
- Temp. too Low , PV is 15
- Temp. too Low , PV is 23

### Alarm Sorting

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

### Supports Compound Address Monitoring

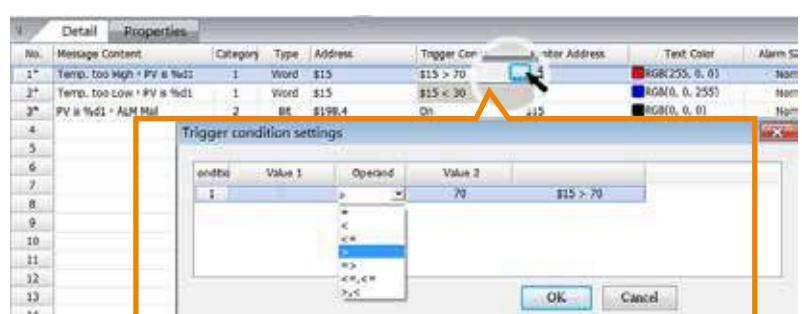
Able to monitor Word and Bit documents at the same time



No.	Message Content	Category	Type	Address	Trigger Condition	Monitor Addr
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	
<b>Address control filtering allows users to find specified alarms</b>	
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

Order by Trigger time

Order by ACK time

Order by Recover time

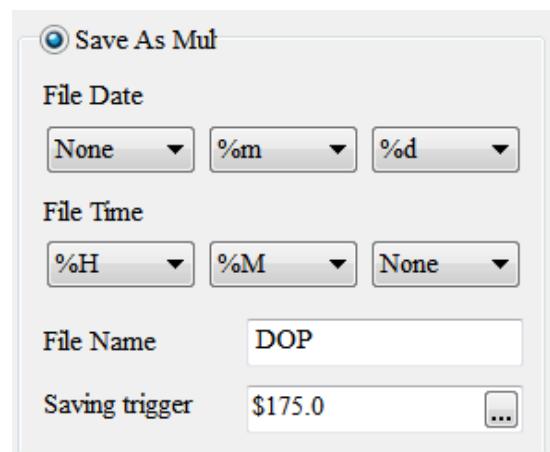
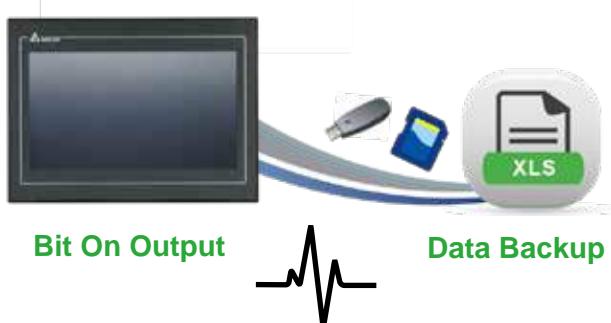
Order by Recover time



# Data Management

## Historical Data

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



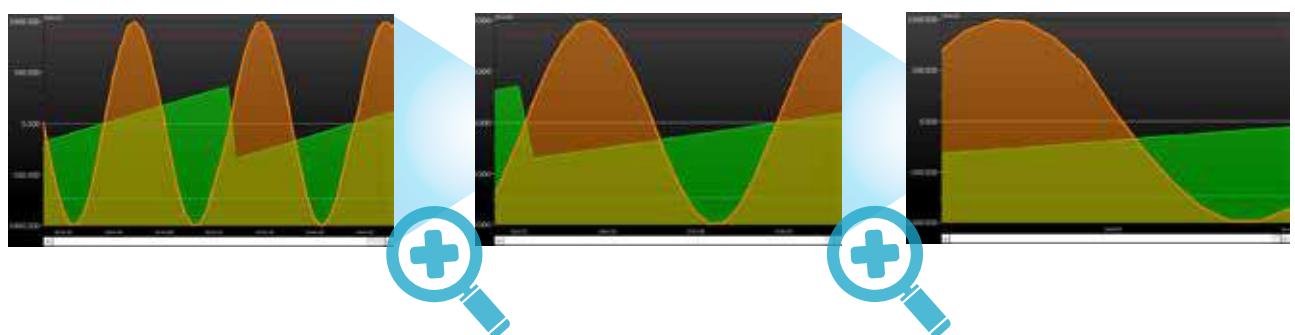
## Historical Data Review

- ▶ 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

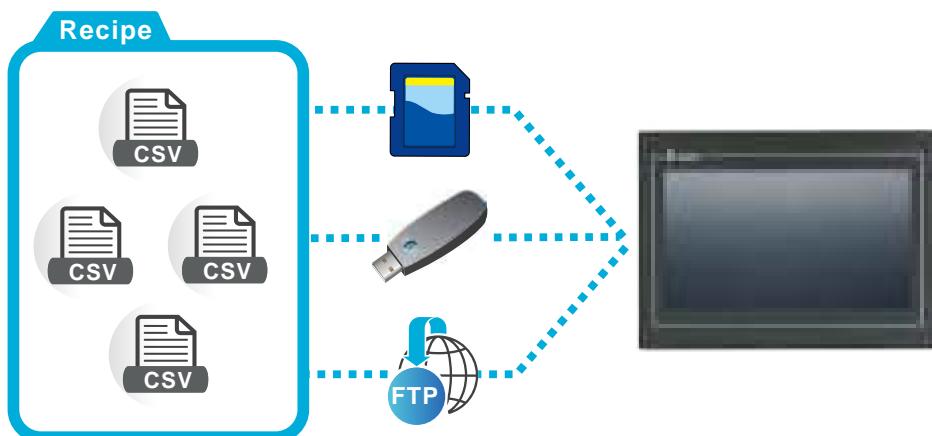
- ▶ Supports 2D and 3D recipe grouping, more flexible in building recipe database
- ▶ Various recipe formats, including text format (Unicode) which can also be used as formula notes

	D100	D101	D102	D103	D104	D105	D106	
	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	
	Char	Strawberry	Chocolate	Vanilla	Sugar	Flour	Milk	
		Unsigned DEC			Floating			

Recipe Group 1

Recipe Group 2

- ▶ 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	Description
19:22:18	2016.12.02	MANAGER /	Screen_6	Goto Scrn	6	1			換画面_006
19:22:20	2016.12.02	MANAGER 7	Screen_1	Goto Scrn	1	10			換画面_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			換画面_006
19:22:30	2016.12.02	MANAGER 7	Screen_1	Goto Scrn	1	7			換画面_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			換画面_006
19:23:05	2016.12.02	MANAGER 7	Screen_1	Goto Scrn	1	6			換画面_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			換画面_006
19:23:55	2016.12.02	OPERATOR 4	Screen_1	Goto Scrn	1	3			換画面_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			換画面_006
19:24:17	2016.12.02	OPERATOR 4	Screen_1	Goto Scrn	1	6			換画面_001

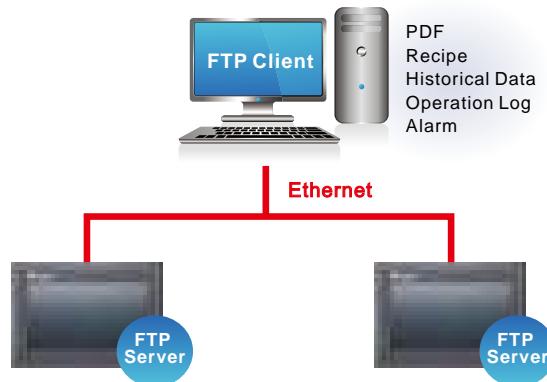
## Cloud Integration



Only With Ethernet

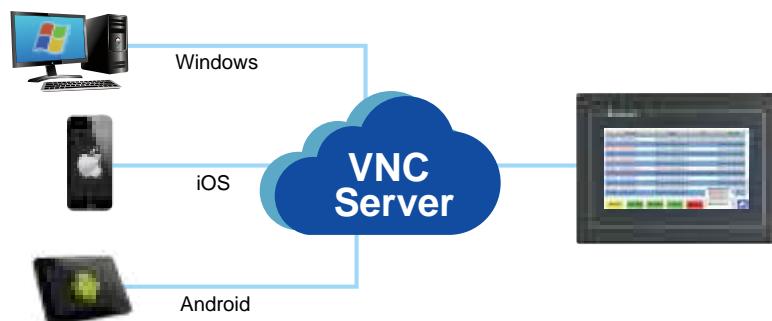
### FTP Server

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



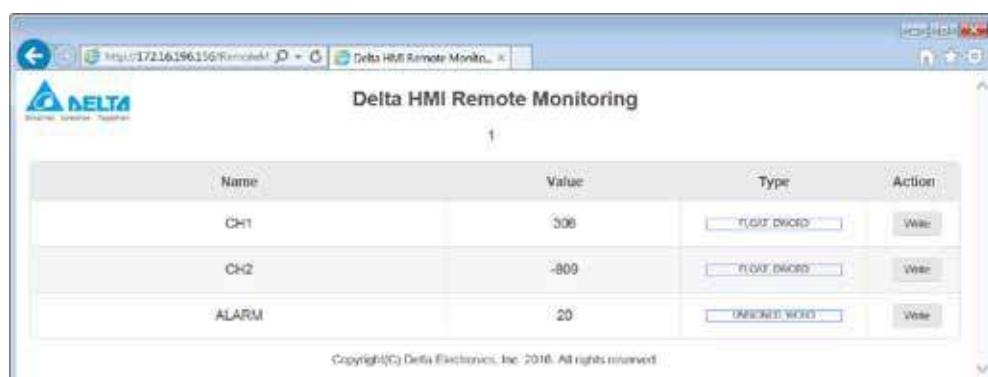
### VNC Server

- 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>4</sup>		Max. 5.8W <sup>3</sup>	Max. 8.4W <sup>3</sup>	Max. 11 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		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.

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>

## 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>4)</sup>		Max. 16.08W	Max. 21.12W	Max. 16.08W	Max. 21.12W
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		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>4</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		670g	970g	1330g	1735g

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.

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		SD x1	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>4</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.

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>

# 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>4</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		970g	1226g	1130g	1600g			

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.

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>

## 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>4)</sup>		Max. 5.67W <sup>3)</sup>	Max. 8.6W <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.<sup>6</sup>

2) Built-in power isolation

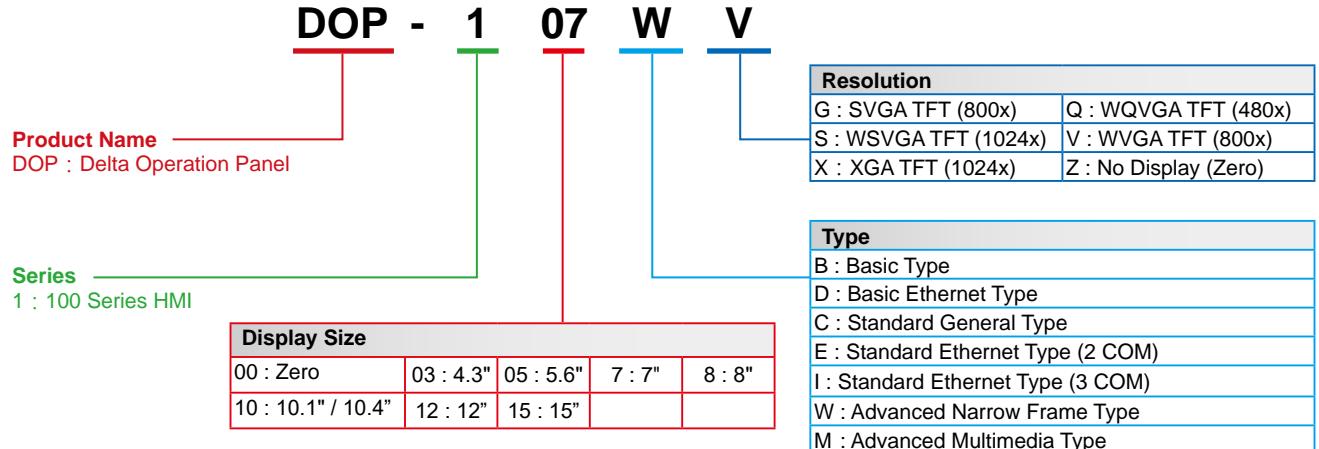
3) An isolated power supply is recommended.

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.

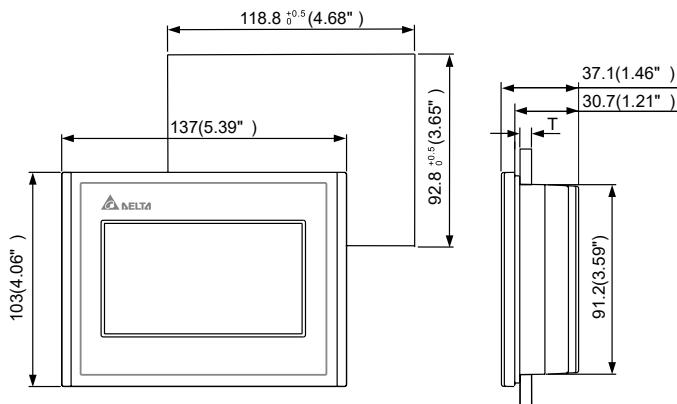
6) The content of this catalogue may be revised without prior notice. Please consult our distributors or download the most updated version at <http://www.deltaww.com>

# Model Description

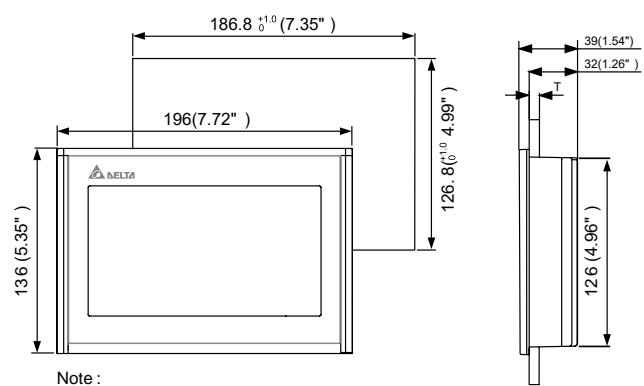


## Dimensions Unit: mm (inches)

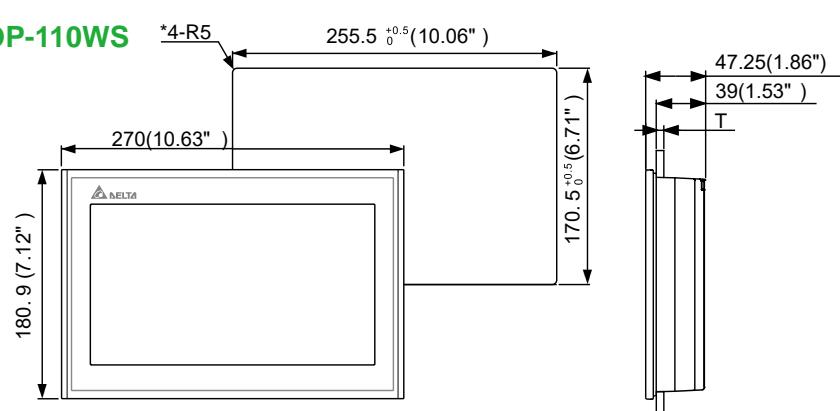
### •DOP-103WQ



### •DOP-107WV



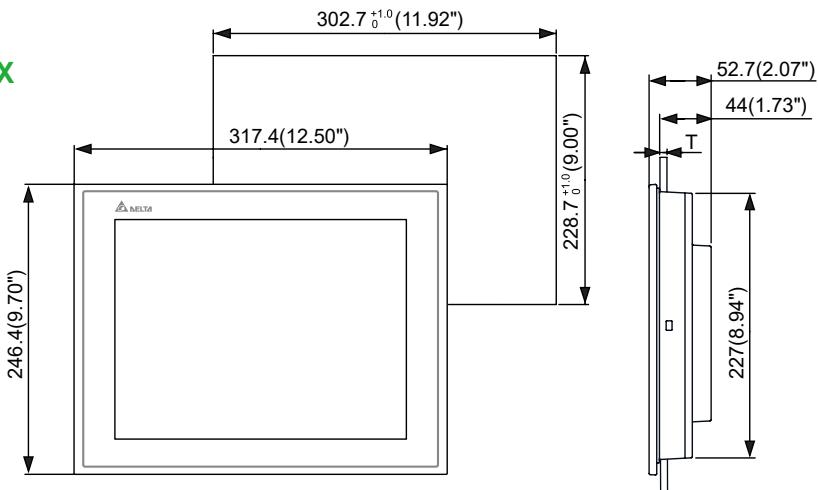
### •DOP-110WS



## Dimensions

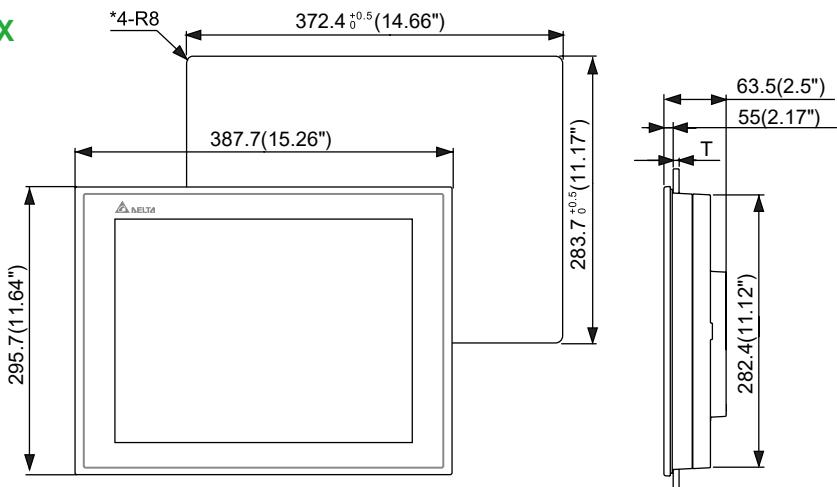
Unit: mm (inches)

### •DOP-112MX / DOP-112WX



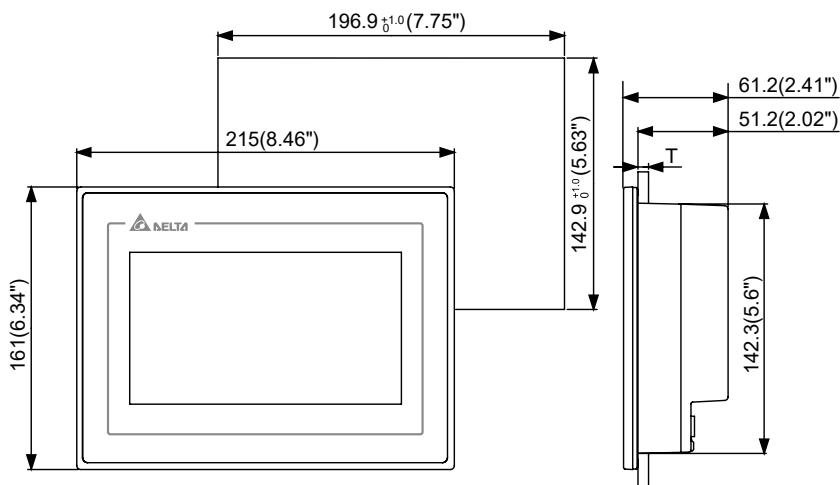
Note:  
 $T=1.6 \text{ mm} \sim 6 \text{ mm} (0.063 \text{ inches} \sim 0.24 \text{ inches})$

### •DOP-115MX / DOP-115WX



Note:  
 $T=1.6 \text{ mm} \sim 6 \text{ mm} (0.063 \text{ inches} \sim 0.24 \text{ inches})$

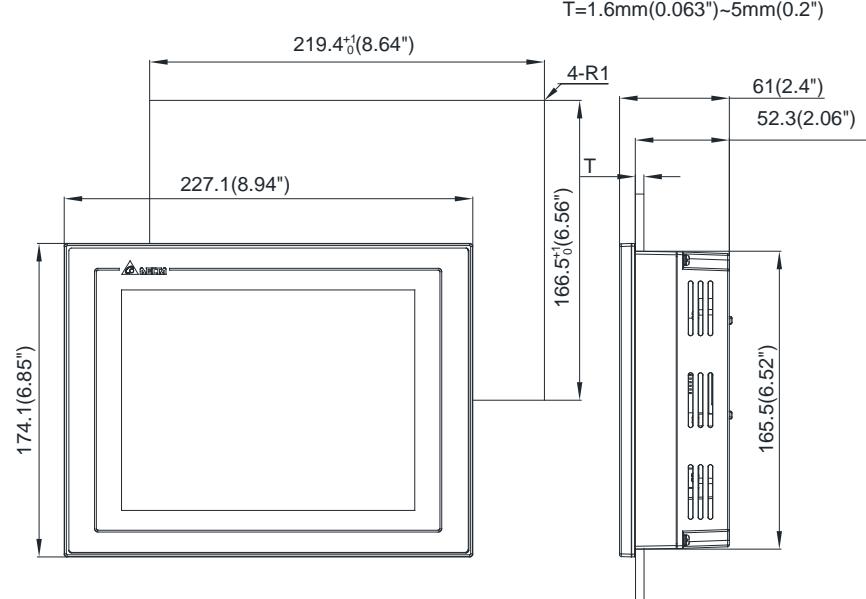
### •DOP-107IV



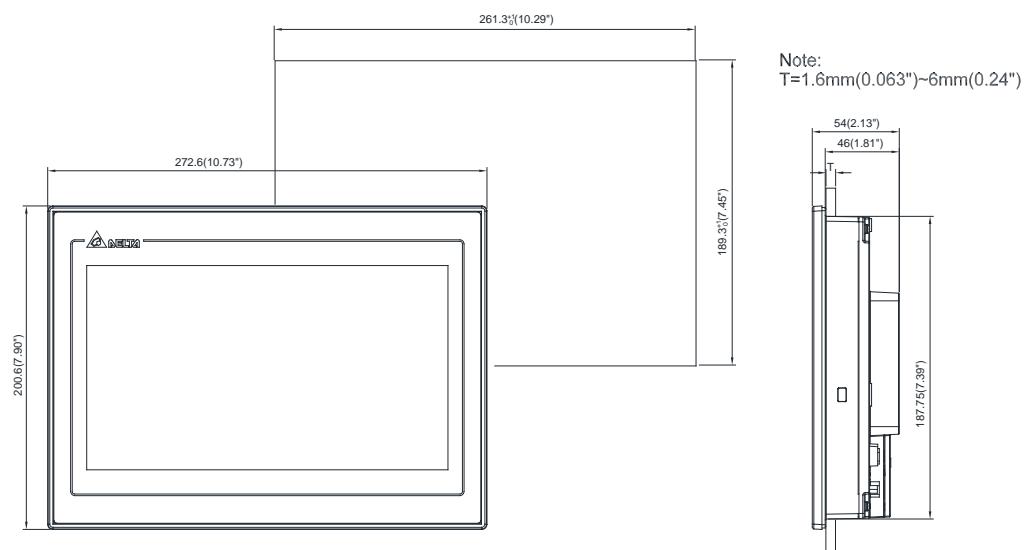
Note:  
 $T=1.6 \text{ mm} \sim 6 \text{ mm} (0.063 \text{ inches} \sim 0.24 \text{ inches})$

## Dimensions Unit: mm (inches)

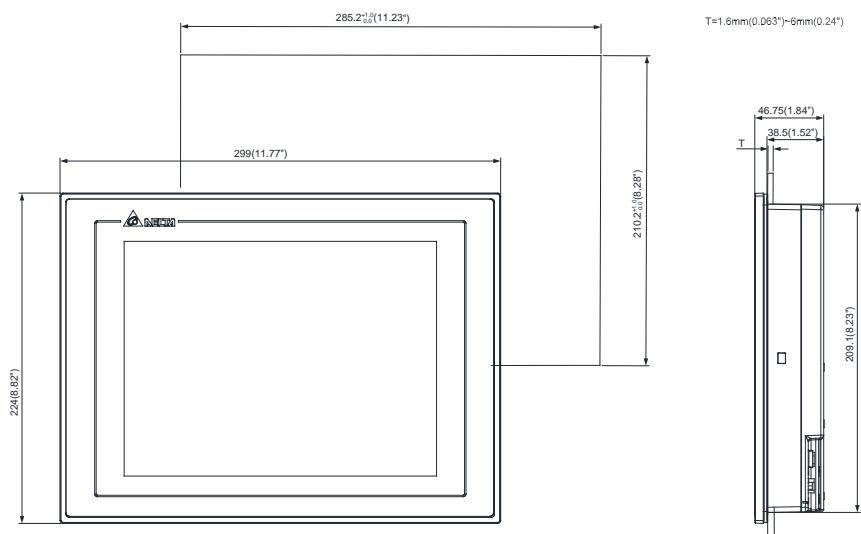
### •DOP-108IG



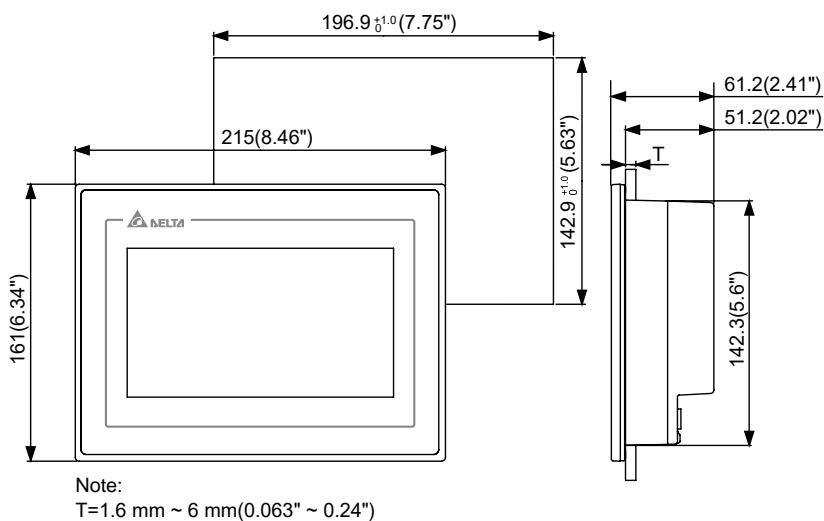
### •DOP-110IS



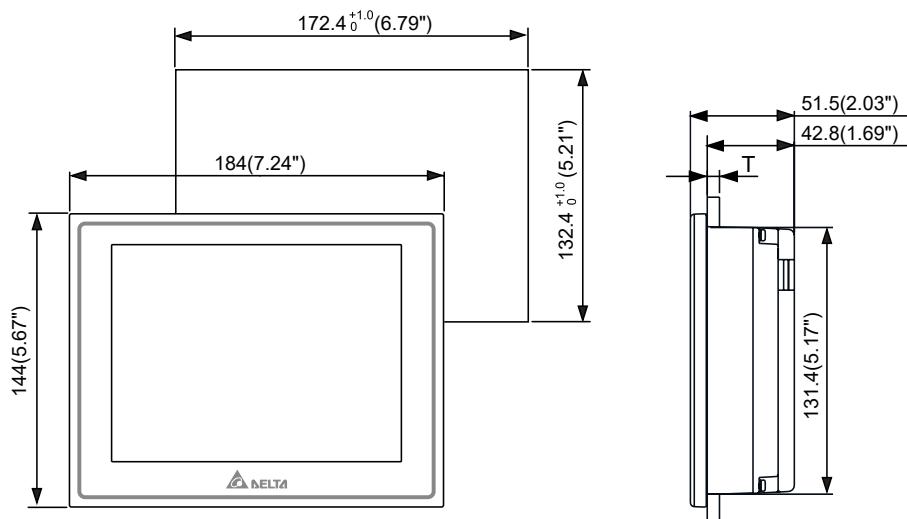
### •DOP-110IG



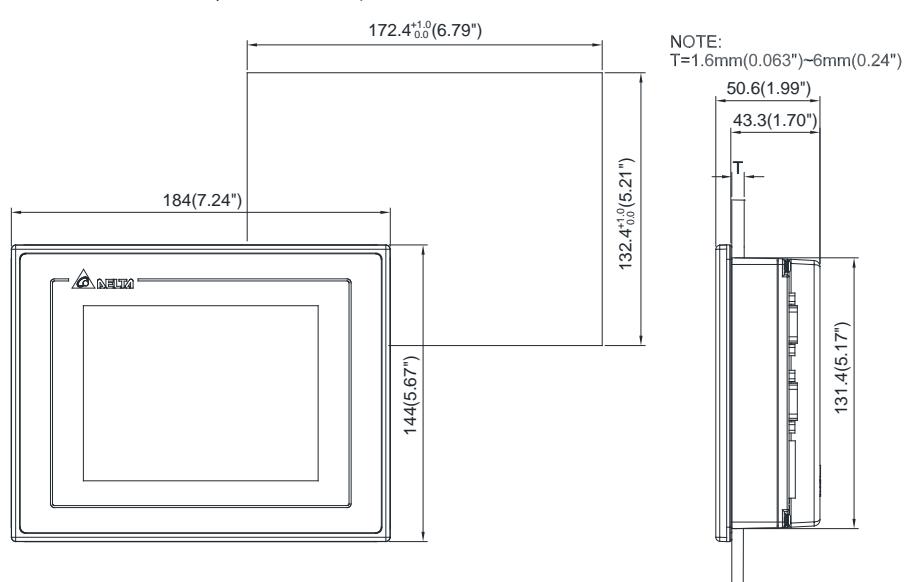
•DOP-107EV



•DOP-107EG

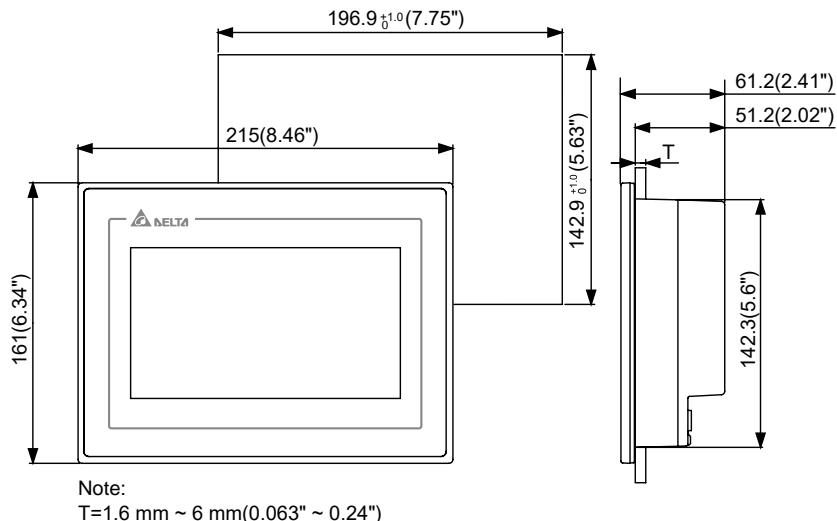


•DOP-105CQ

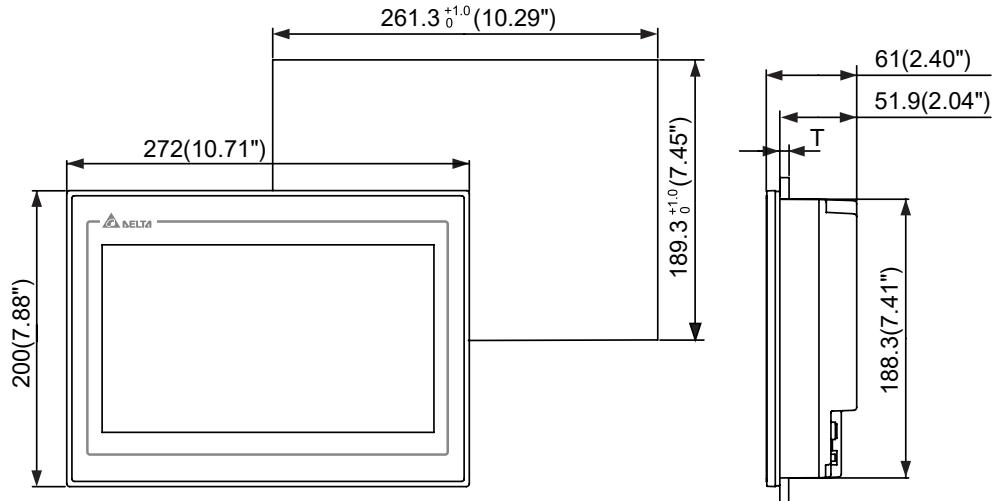


## Dimensions Unit: mm (inches)

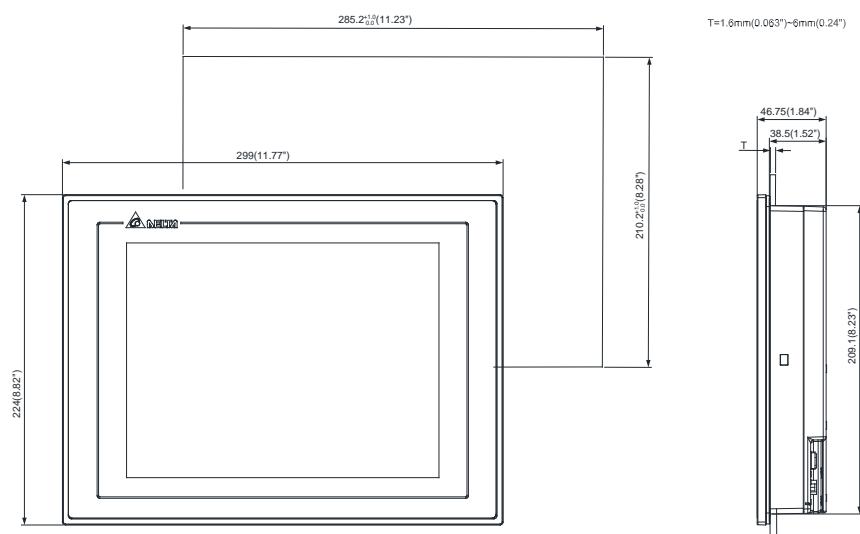
### •DOP-107CV



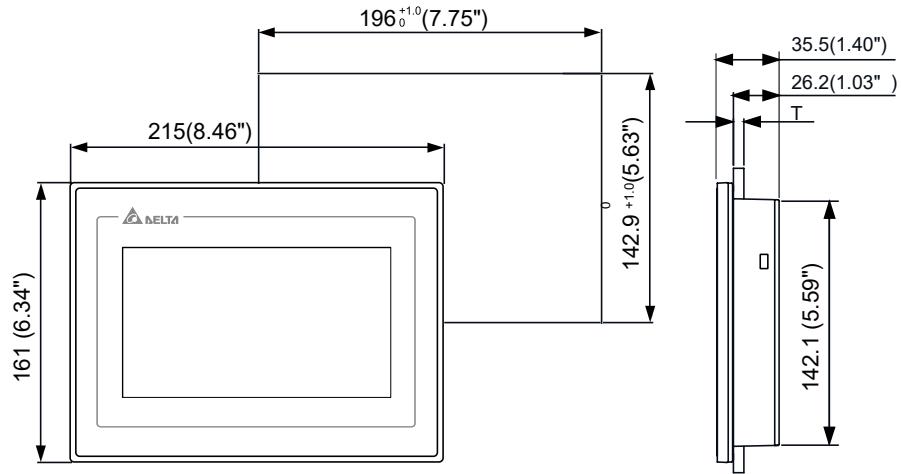
### •DOP-110CS



### •DOP-110CG

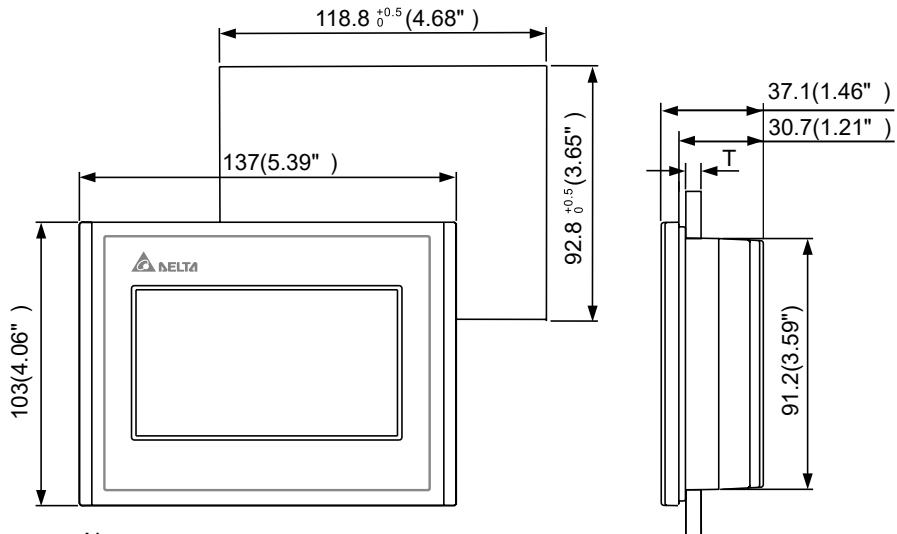


•DOP-107DV



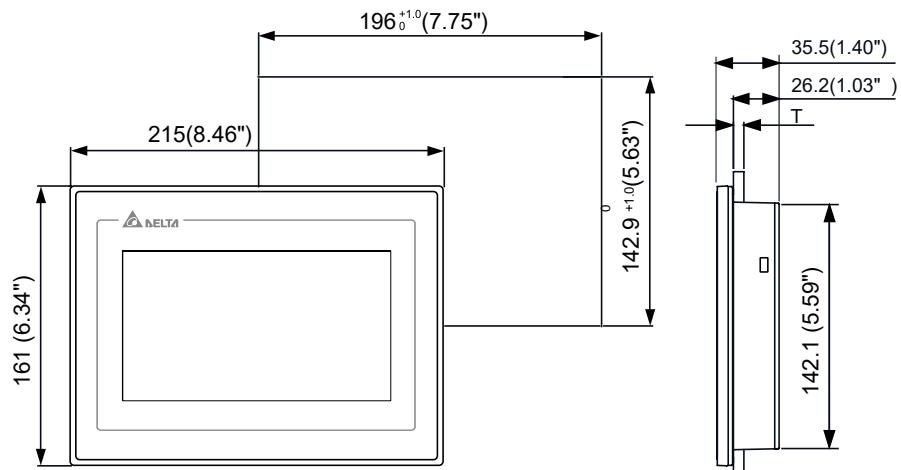
Note:  
T=1.6 mm~6 mm(0.06"~0.24")

•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)**

A photograph of the University of Alberta's Faculty of Nursing building. The building is a modern brick structure with large glass windows and doors. It has multiple levels and a flat roof. There are trees and a parking lot in front of the building.

Taoyuan Plant 1

The image shows the exterior of a modern, multi-story building, likely the main administrative or academic building of NIT Raipur. The building features a white facade with large windows and a distinctive architectural design where several sections of the roof are tilted at different angles, creating a dynamic, tent-like appearance. The sky is clear and blue with a few wispy clouds.

## **Tainan Plant (Diamond-rated Green Building)**

ASIA (China)



Wujiang Plant 3



Shanghai Office



### ASIA (Japan)



Tokyo Office

### ASIA (India)



Rudrapur Plant  
(Green Building)

### EUROPE



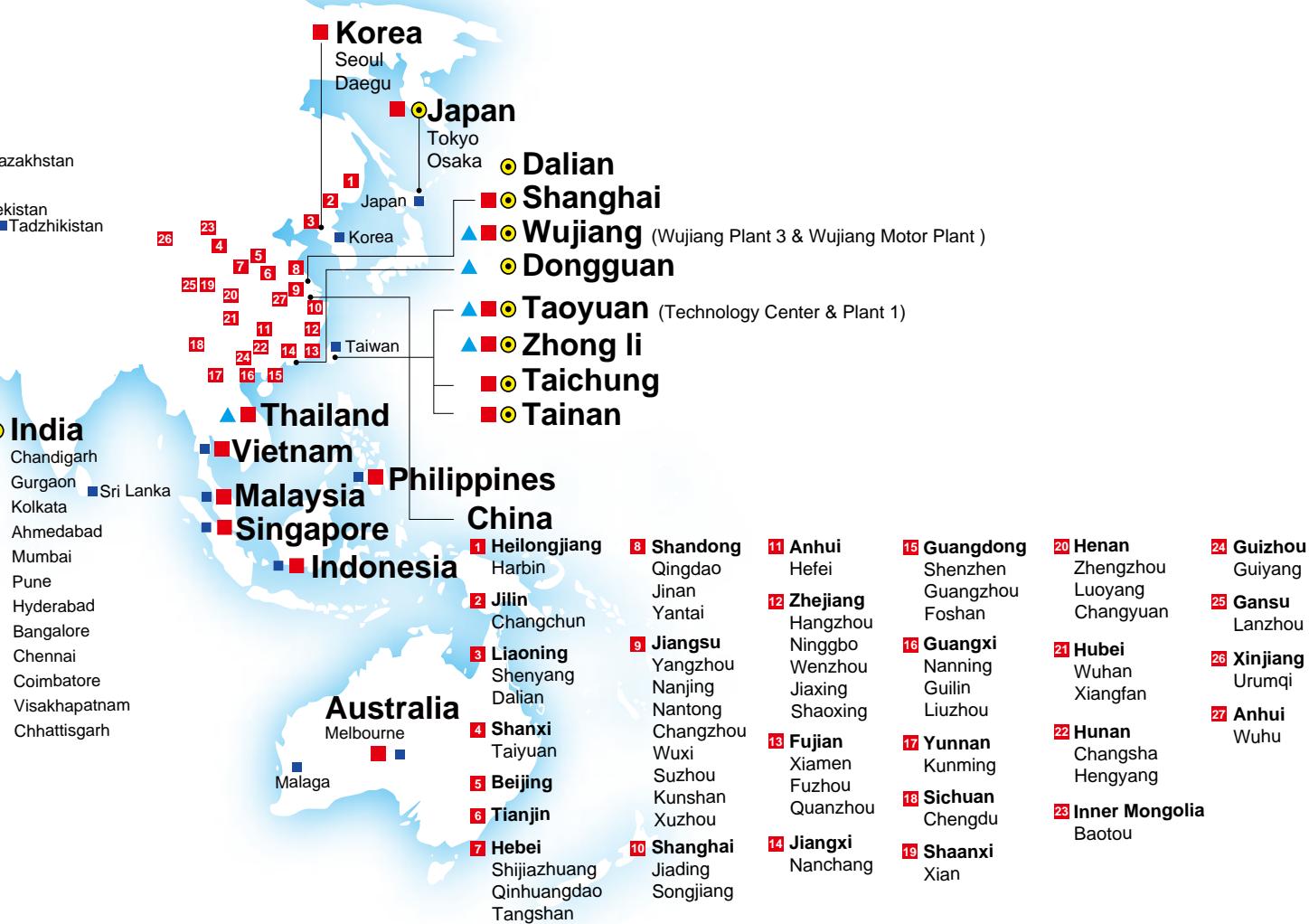
Amsterdam, the Netherlands

### AMERICA



Research Triangle Park, U.S.A.

▲ 6 Factories ■ 117 Branch Offices ○ 13 R&D Centers □ 915 Distributors





Smarter. Greener. Together.

## Industrial Automation Headquarters

### **Delta Electronics, Inc.**

Taoyuan Technology Center  
No.18, Xinglong Rd., Taoyuan District,  
Taoyuan City 33068, Taiwan  
TEL: 886-3-362-6301 / FAX: 886-3-371-6301

### **Asia**

#### **Delta Electronics (Shanghai) Co., Ltd.**

No.182 Minyu Rd., Pudong Shanghai, P.R.C.  
Post code : 201209  
TEL: 86-21-6872-3988 / FAX: 86-21-6872-3996  
Customer Service: 400-820-9595

#### **Delta Electronics (Japan), Inc.**

Tokyo Office  
Industrial Automation Sales Department  
2-14 Shibadaimon, Minato-ku  
Tokyo, Japan 105-0012  
TEL: 81-3-5733-1155 / FAX: 81-3-5733-1255

#### **Delta Electronics (Korea), Inc.**

Seoul Office  
1511, 219, Gasan Digital 1-Ro., Geumcheon-gu,  
Seoul, 08501 South Korea  
TEL: 82-2-515-5305 / FAX: 82-2-515-5302

#### **Delta Energy Systems (Singapore) Pte Ltd.**

4 Kaki Bukit Avenue 1, #05-04, Singapore 417939  
TEL: 65-6747-5155 / FAX: 65-6744-9228

#### **Delta Electronics (India) Pvt. Ltd.**

Plot No.43, Sector 35, HSIIDC Gurgaon,  
PIN 122001, Haryana, India  
TEL: 91-124-4874900 / FAX : 91-124-4874945

#### **Delta Electronics (Thailand) PCL.**

909 Soi 9, Moo 4, Bangpoo Industrial Estate (E.P.Z),  
Pattana 1 Rd., T.Phraaksa, A.Muang,  
Samutprakarn 10280, Thailand  
TEL: 66-2709-2800 / FAX : 662-709-2827

#### **Delta Electronics (Australia) Pty Ltd.**

Unit 20-21/45 Normanby Rd., Notting Hill Vic 3168, Australia  
TEL: 61-3-9543-3720

### **Americas**

#### **Delta Electronics (Americas) Ltd.**

Raleigh Office  
P.O. Box 12173, 5101 Davis Drive,  
Research Triangle Park, NC 27709, U.S.A.  
TEL: 1-919-767-3813 / FAX: 1-919-767-3969

#### **Delta Greentech (Brasil) S/A**

São Paulo Office  
Rua Itapeva, 26 – 3° Andar - Bela Vista  
CEP: 01332-000 – São Paulo – SP - Brasil  
TEL: 55-11-3530-8643 / 55-11-3530-8640

#### **Delta Electronics International Mexico S.A. de C.V.**

Mexico Office  
Gustavo Baz No. 309 Edificio E PB 103  
Colonia La Loma, CP 54060  
Tlalnepantla, Estado de México  
TEL: 52-55-3603-9200

### **EMEA**

#### **Headquarters: Delta Electronics (Netherlands) B.V.**

Sales: Sales.IA.EMEA@deltaww.com  
Marketing: Marketing.IA.EMEA@deltaww.com  
Technical Support: iatechnicalsupport@deltaww.com  
Customer Support: Customer-Support@deltaww.com  
Service: Service.IA.emea@deltaww.com  
TEL: +31(0)40 800 3900

#### **BENELUX: Delta Electronics (Netherlands) B.V.**

De Witbogt 20, 5652 AG Eindhoven, The Netherlands  
Mail: Sales.IA.Benelux@deltaww.com  
TEL: +31(0)40 800 3900

#### **DACH: Delta Electronics (Netherlands) B.V.**

Coesterweg 45, D-59494 Soest, Germany  
Mail: Sales.IA.DACH@deltaww.com  
TEL: +49(0)2921 987 0

#### **France: Delta Electronics (France) S.A.**

ZI du bois Challand 2, 15 rue des Pyrénées,  
Lisses, 91090 Evry Cedex, France  
Mail: Sales.IA.FR@deltaww.com  
TEL: +33(0)1 69 77 82 60

#### **Iberia: Delta Electronics Solutions (Spain) S.L.U**

Ctra. De Villaverde a Vallecas, 265 1º Dcha Ed.  
Hormigueras – P.I. de Vallecas 28031 Madrid  
TEL: +34(0)91 223 74 20

Carrer Llacuna 166, 08018 Barcelona, Spain

Mail: Sales.IA.Iberia@deltaww.com

#### **Italy: Delta Electronics (Italy) S.r.l.**

Via Meda 2-22060 Novedrate(CO)  
Piazza Grazioli 18 00186 Roma Italy  
Mail: Sales.IA.Italy@deltaww.com  
TEL: +39 039 8900365

#### **Russia: Delta Energy System LLC**

Vereyskaya Plaza II, office 112 Vereyskaya str.  
17 121357 Moscow Russia  
Mail: Sales.IA.RU@deltaww.com  
TEL: +7 495 644 3240

#### **Turkey: Delta Greentech Elektronik San. Ltd. Sti. (Turkey)**

Serifali Mah. Hendem Cad. Kule Sok. No:16-A  
34775 Ümraniye – İstanbul  
Mail: Sales.IA.Turkey@deltaww.com  
TEL: + 90 216 499 9910

#### **GCC: Delta Energy Systems AG (Dubai BR)**

P.O. Box 185668, Gate 7, 3rd Floor, Hamarain Centre  
Dubai, United Arab Emirates  
Mail: Sales.IA.MEA@deltaww.com  
TEL: +971(0)4 2690148

#### **Egypt + North Africa: Delta Electronics**

Unit 318, 3rd Floor, Trivium Business Complex, North 90 street,  
New Cairo, Cairo, Egypt  
Mail: Sales.IA.MEA@deltaww.com