www.industrytechstore.com

Digitized Automation for a Changing World

Delta Human Machine Interface
DOP-100 Series

www.deltaww.com

Advanced Human Machine Interface for

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

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

Standard HMI

Features General and Ethernet Types for various applications

Advanced HMI

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

Future Industry

Basic HMI

Simple operating structure for harsh environments

Handheld HMI

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

Table of Contents

Introduction 2

Robust Hardware 16

Programming Software – DIAScreen 17

Advanced Alarm 22

Data Management 24

User Authority Management 26

Network Functions 27

Product Information 28

Easy Model Selection

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

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

Type Definition

DOP-107 W V

W Type

ITS

Advanced HMI

At least 2 Serial Communication Ports & 1 Ethernet Port included

Handheld HMI

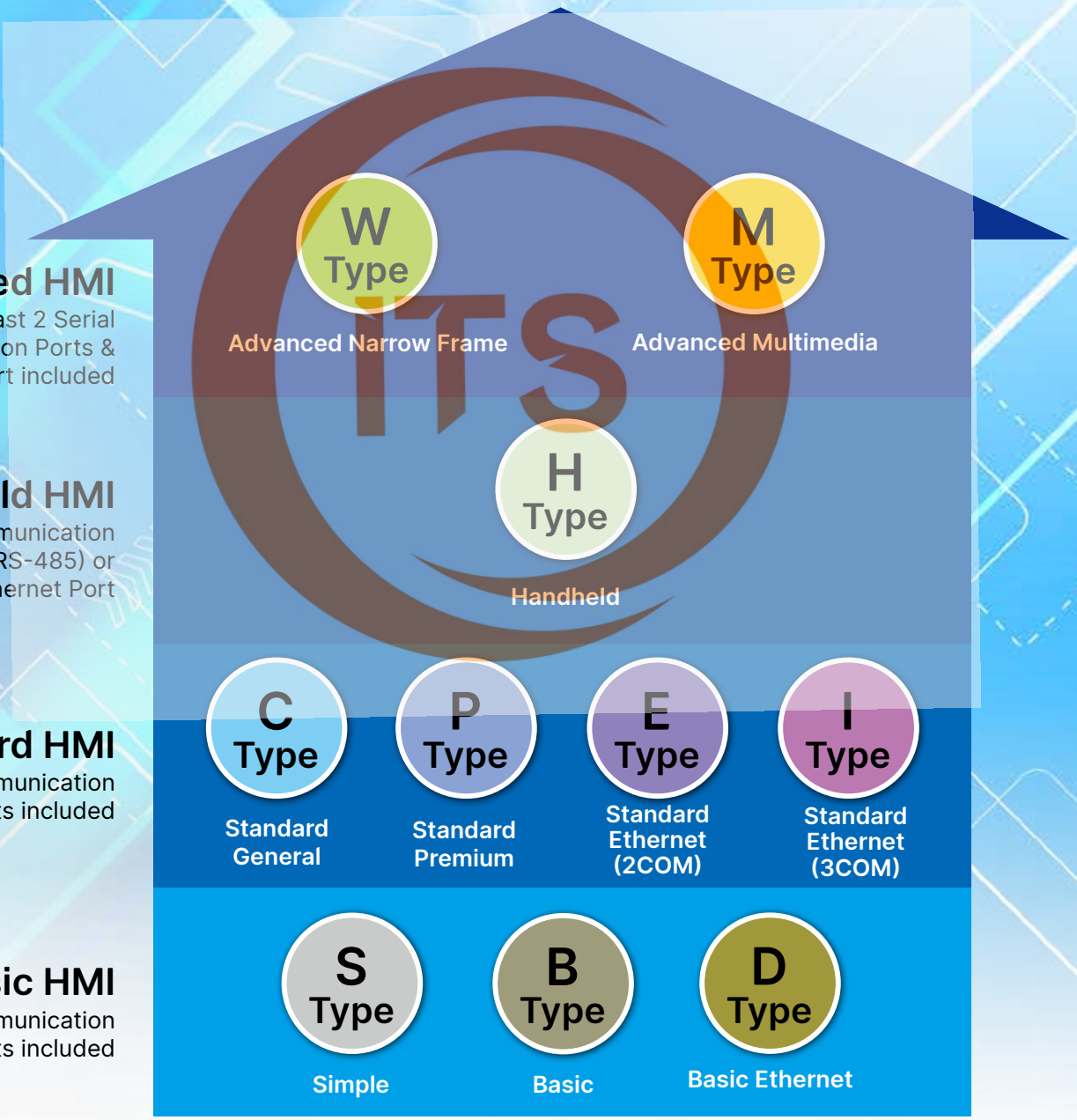
1 Serial Communication Port (RS-422 / RS-485) or 1 Ethernet Port

Standard HMI

3 Serial Communication Ports included

Basic HMI

2 Serial Communication Ports included



Advanced 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.

M Type W Type

Features

Narrow Frame
Enlarged visual display for a better user experience

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

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

IP65 Rating
Protects the HMI from rain and dust

Multilingual Input
16 different languages input for easy operation

Diagnostics Function
Collects and troubleshoots issues remotely

Power Isolation
Protects the HMI from accidental surge interference

VNC Remote Monitoring
Remote control with mobile devices

QRcode Scanning
Generates QRcodes for mobile device identification

Supports GIF Graphic Elements
Easy setting to play vivid GIF elements

Embedded Linux System
Open system for flexible and stable program development

DIAScreen
New software DIAScreen offers more functions and a better interface

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

CE / UL Certified
Compliant with CE and UL standards

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

M Type Only

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

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

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

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

Supports PDF and TXT Reader
PDF and TXT files supported

Camera & Video Play
Multimedia Functions

Analog Camera

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

Applications: Textiles | Pharmaceutical | Rubber & Plastics

IP Camera

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

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

VGA Input

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

Video Play

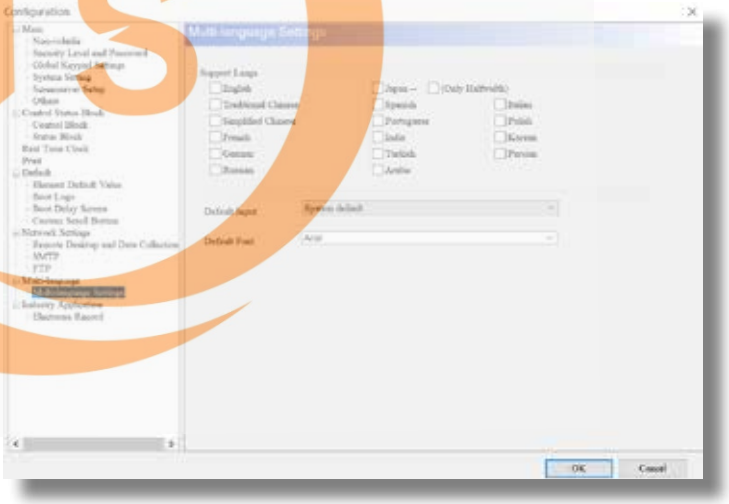
Views mpeg4 files captured by analog or IP camera from internal storage or USB disk / SD card

Event Trigger

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

Multi-Language Input for Localization

- The Advanced HMI supports multilingual inputs for:
  - Recipe Name (ENRCPG)
  - Recipe Group Name (ENRCPNONAME)
  - Recipe Content (Char)
  - User Name



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

OPC UA

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

Standard HMI

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

C Type P Type E Type I Type

Features

Embedded Linux System
Open system for flexible and stable program development

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

DIAScreen
New software DIAScreen offers more functions and a better interface

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

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

IP65 Rating
Protects the HMI from rain and dust

CE / UL Certified
Compliant with CE and UL standards

Diagnostics Function
Collects and troubleshoots issues remotely

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

P Type E Type I Type

Power Isolation
Protects the HMI from accidental surge interference

C Type E Type I Type

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

E Type I Type

VNC Remote Monitoring
Remote control with mobile devices

P Type E Type I Type

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

P Type E Type I Type

Supports PDF and TXT Reader
PDF and TXT files supported

Supports GIF Graphic Elements
Easy setting to play vivid GIF elements

User-Friendly
Intuitive operation interfaces for users

Basic HMI

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

S Type B Type D Type

Features

Embedded Linux System
Open system for flexible and stable program development

DIAScreen
New software DIAScreen offers more functions and a better interface

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

CE / UL Certified
Compliant with CE and UL standards

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

D Type Only

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

D Type Only

Supports PDF and TXT Reader
PDF and TXT files supported

User-Friendly
Intuitive operation interfaces for users

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

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

IP65 Rating
Protects the HMI from rain and dust

Diagnostics Function
Collects and troubleshoots issues remotely

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

D Type Only

VNC Remote Monitoring
Remote control with mobile devices

D Type Only

Supports GIF Graphic Elements
Easy setting to play vivid GIF elements

Handheld HMI

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

H Type

Features

Embedded Linux System
Open system for flexible and stable program development

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

DIAScreen
New software DIAScreen offers more complete functions and a better interface

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

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

IP54 Rating
Protects the HMI from rain and dust

CE Certified
Compliant with CE standards

Diagnostics Function
Collects and troubleshoots issues remotely

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

Power Isolation
Protects the HMI from accidental surge interference

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

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

Supports PDF and TXT Reader
PDF and TXT files supported

QRcode Scanning
Generates QRcodes for mobile device identification

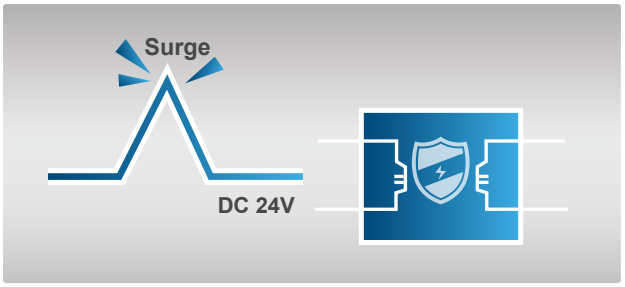
User-Friendly
Intuitive operation interfaces for users

Supports GIF Graphic Elements
Easy setting to play vivid GIF elements

Robust Hardware

Power Isolation

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

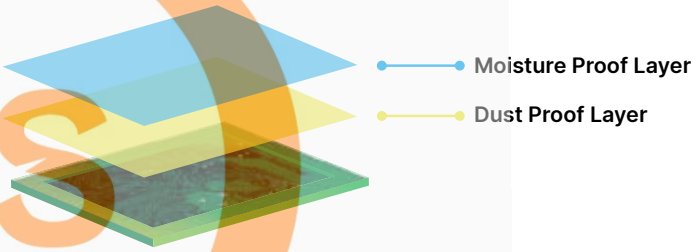


Isolated Communication Interface

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

PCB Coating

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



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

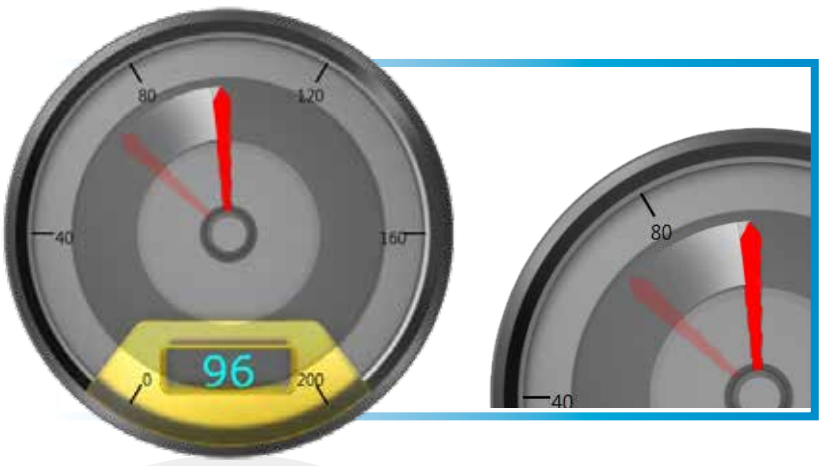
Programming Software – DIAScreen

Abundant Elements

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

Smooth Animation

- New smooth animation technology for realistic dashboard display



Programming Software - DIAScreen

User-Friendly Programming Interface

Bookmark Management

Bookmark menu allows users to switch pages easily

Project Management Batch

Users can quickly switch items via the project branch feature

Editing Area

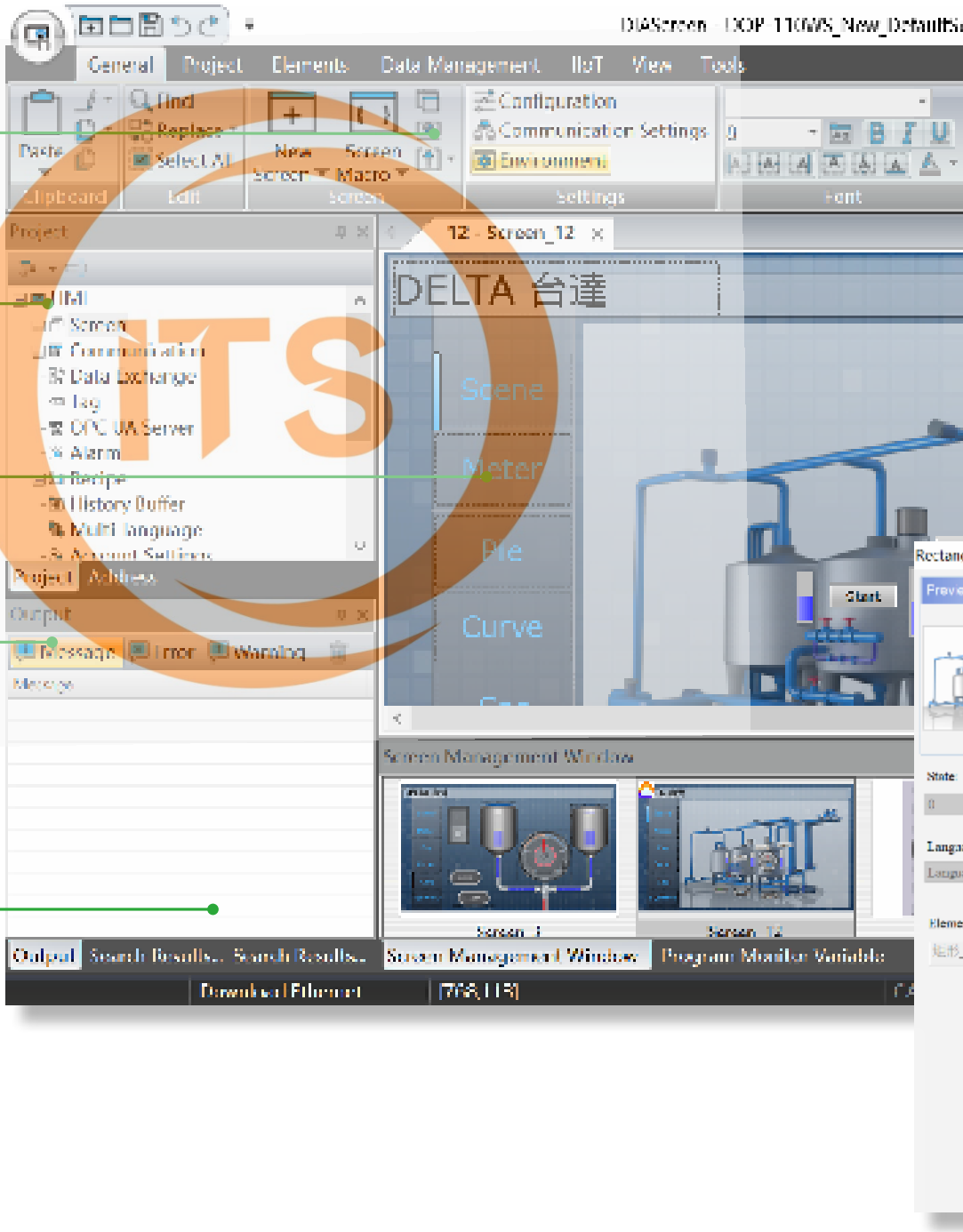
Provides real-time display of users' edits

Output List

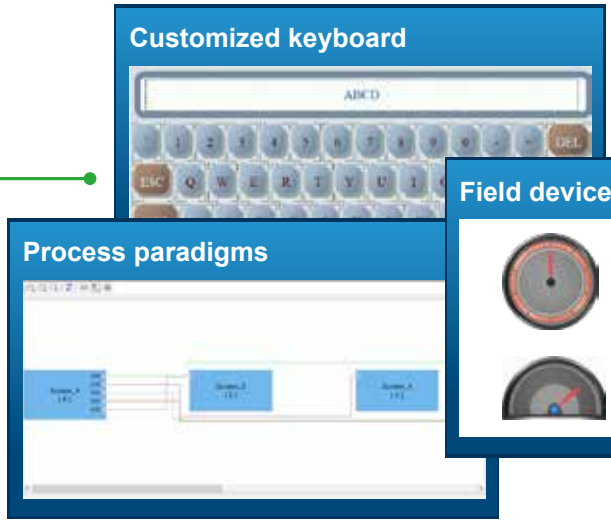
Automatically displays edit results of each screen. Users can review and troubleshoot by clicking screens

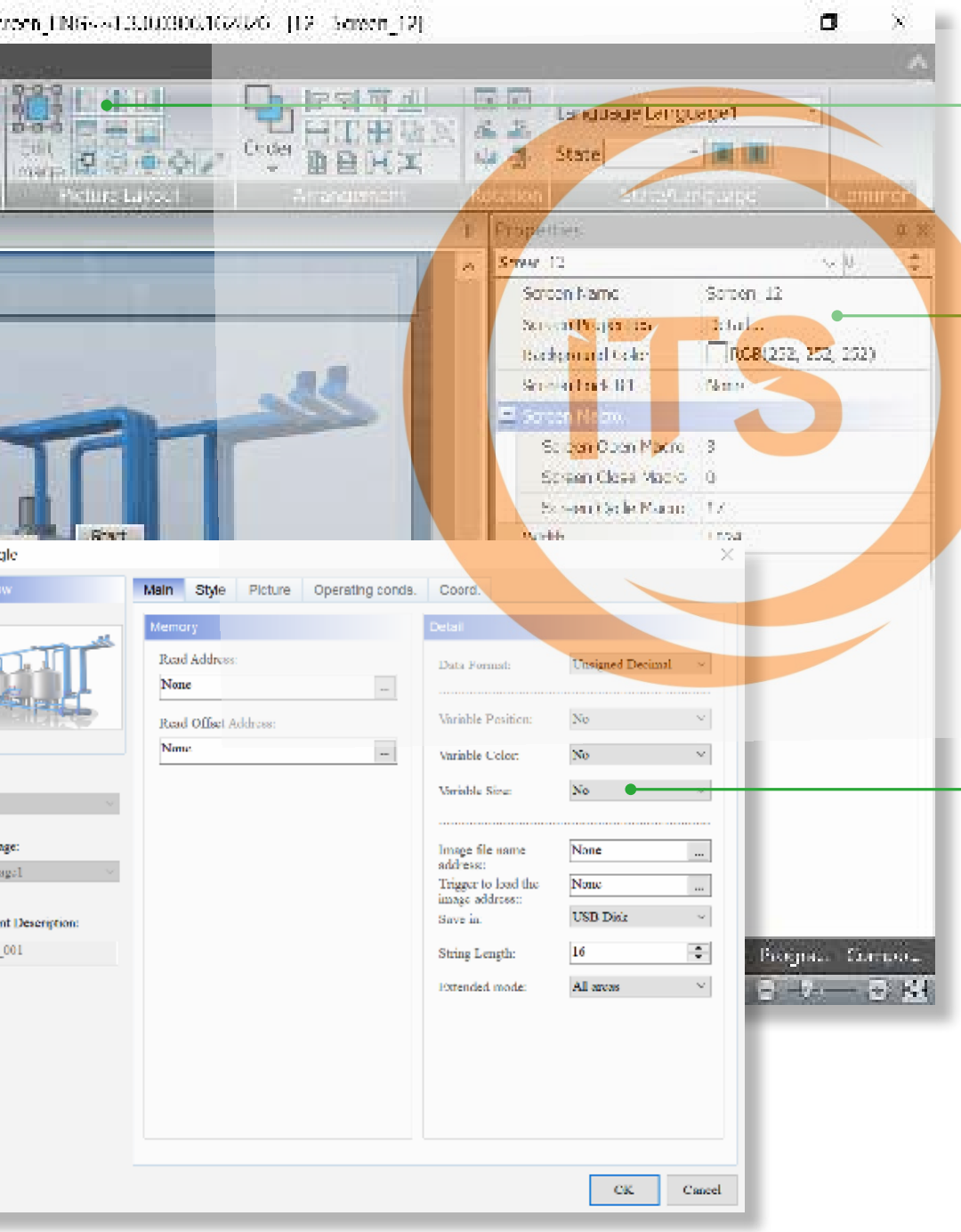
Edit Preview

Users can quickly browse the overall project via edit preview



Abundant Accessories





General Tool

Shortcut icons **help** enhance **efficiency**

Property

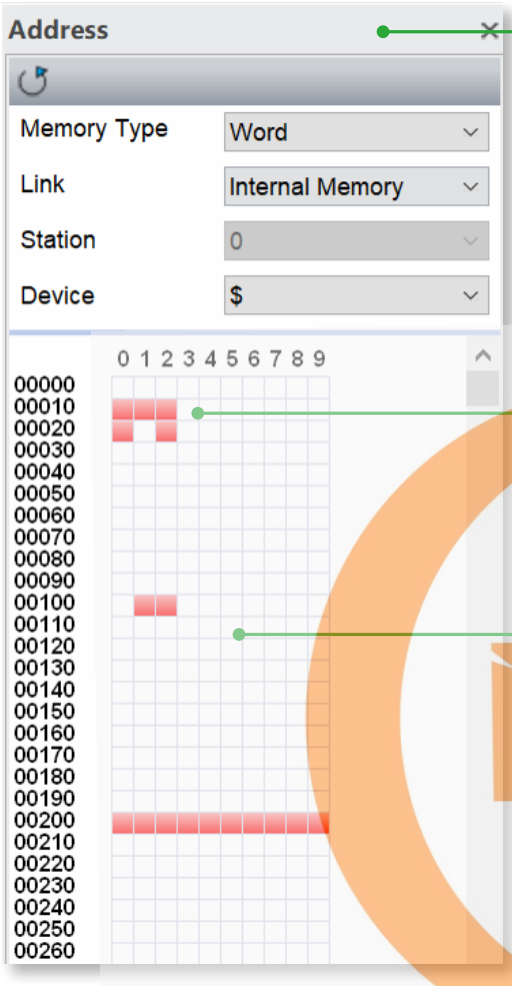
Provides easier property setup **via** group lists

Property Window

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

Programming Software - DIAScreen

Editing Windows

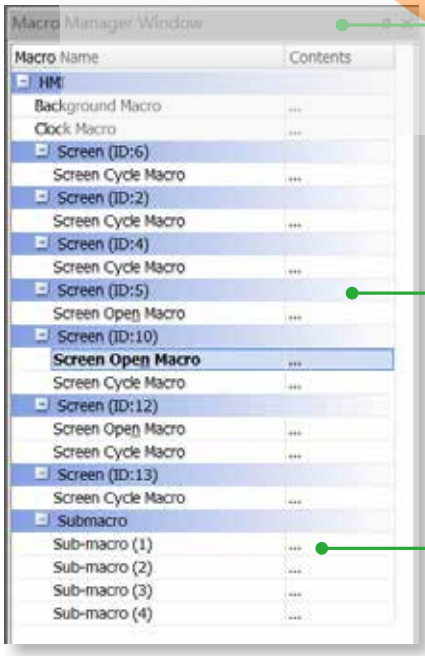


Register View Window

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

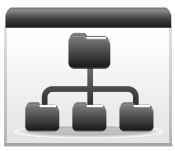
Red blocks indicate the used registers

White blocks indicate empty registers



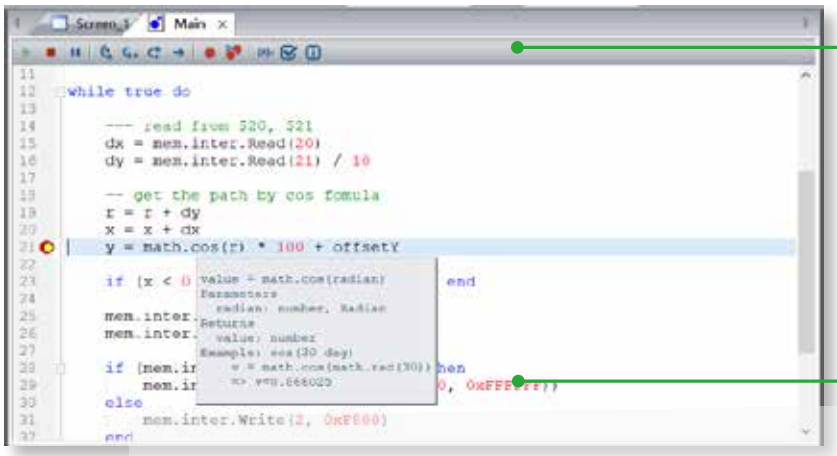
Macro Management Window

Users can view all types of macros in the project



Select a macro via the list

Directly edit the macro after clicking



Lua Tool Bar

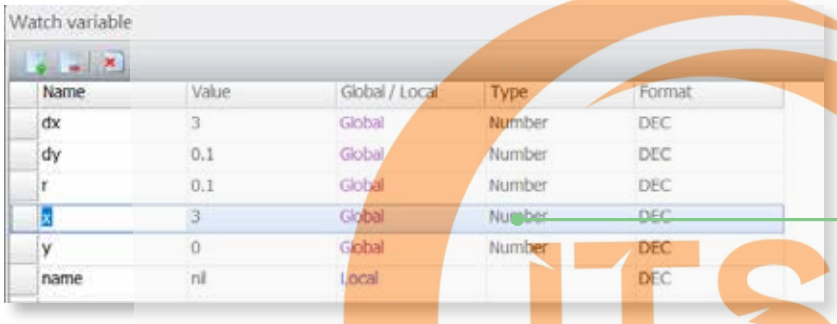
Program debug

Stops program debug

Program break point

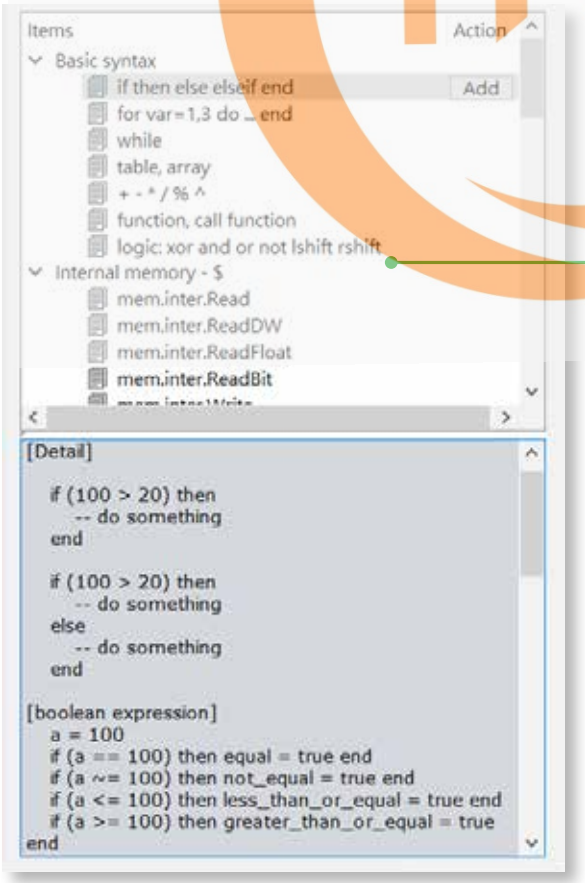
Online Coding Tips

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



Parameter Monitoring Window

Allows users to monitor parameter variation during program development



Programming Assistance Window

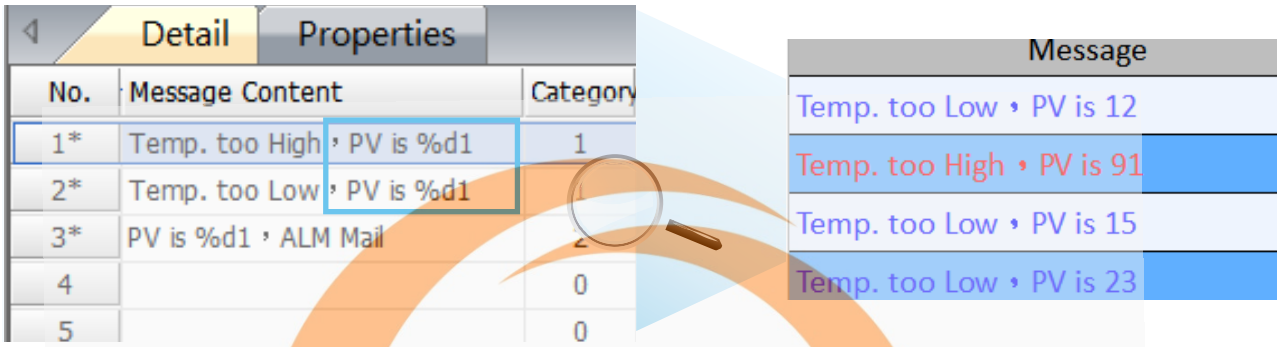
Provides online assistance as follows:

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

Advanced Alarm

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

- Alarm messages contain current register data for issue analysis

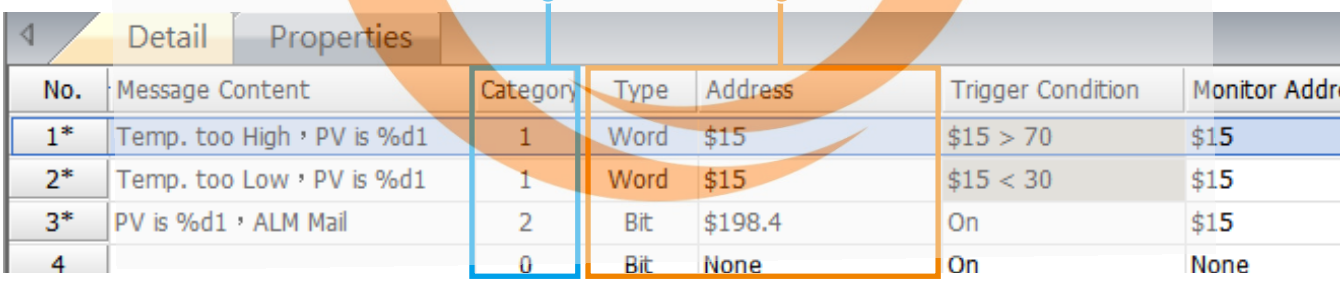


Alarm Sorting

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

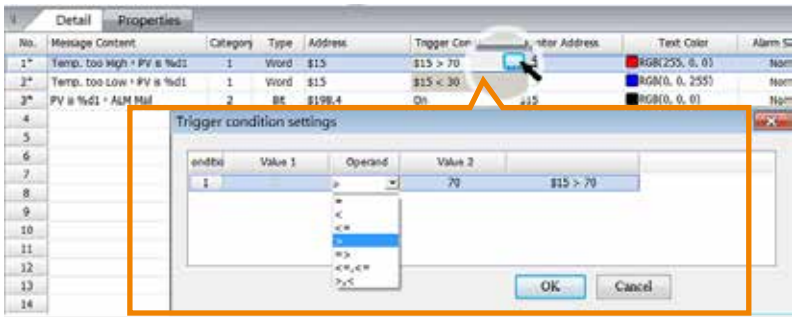
Supports Compound Address Monitoring

Monitors Word and Bit documents at the same time



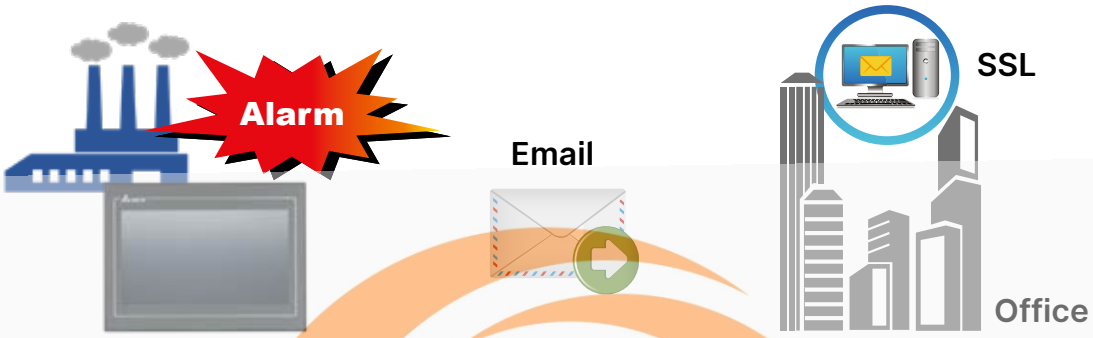
Versatile Alarm Triggering Conditions

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



Alarm Notification

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



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

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

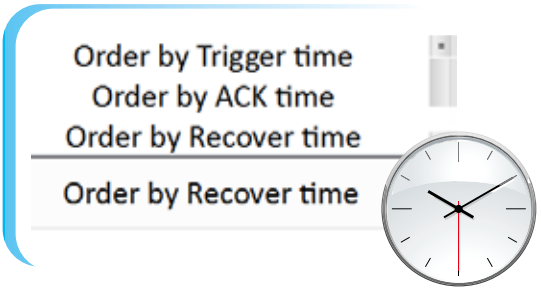
Alarm Filtering

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

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

Alarm Ordering

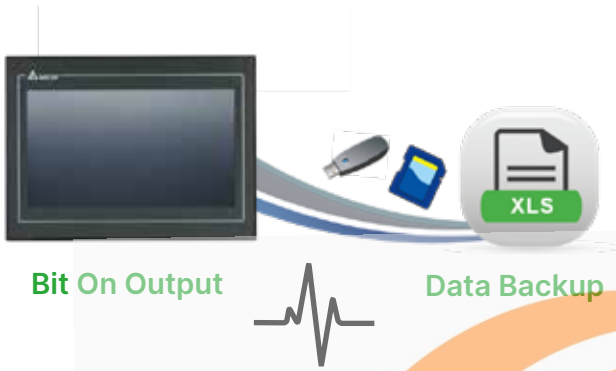
Displays alarms in the order of Trigger Time / Ack Time / Recover Time

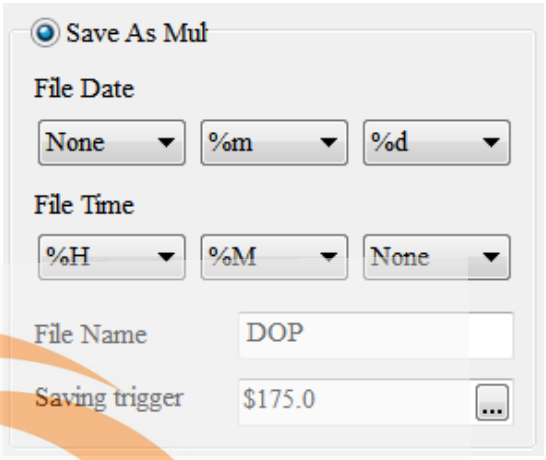


Data Management

Historical Data

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



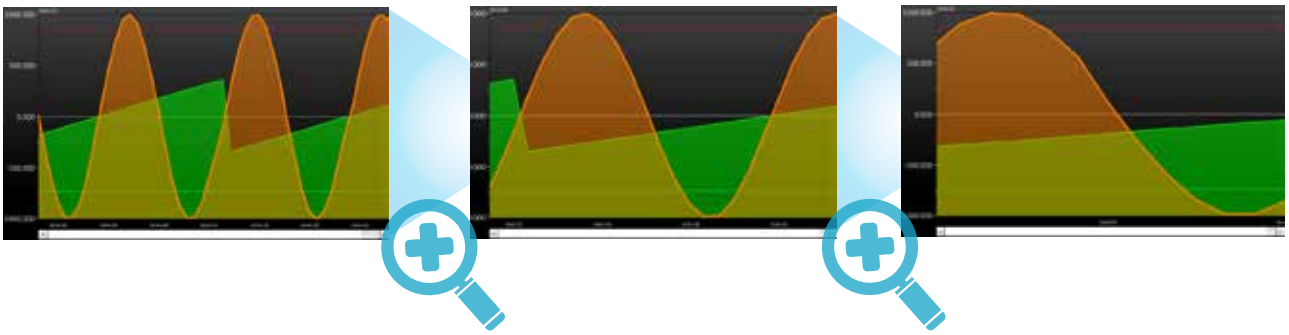


Historical Data Review

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

Zoom In / Out Display

- Zoom in / out function for convenient data viewing



Recipes

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

	D100	D101	D102	D103	D104	D105	D106
Cake Recipe 1	Strawberry	300	0	0	221.56	533.1	150.7
Cake Recipe 2	Chocolate	0	300	0	387.98	490.8	163.9
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

Recipe Group 1

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

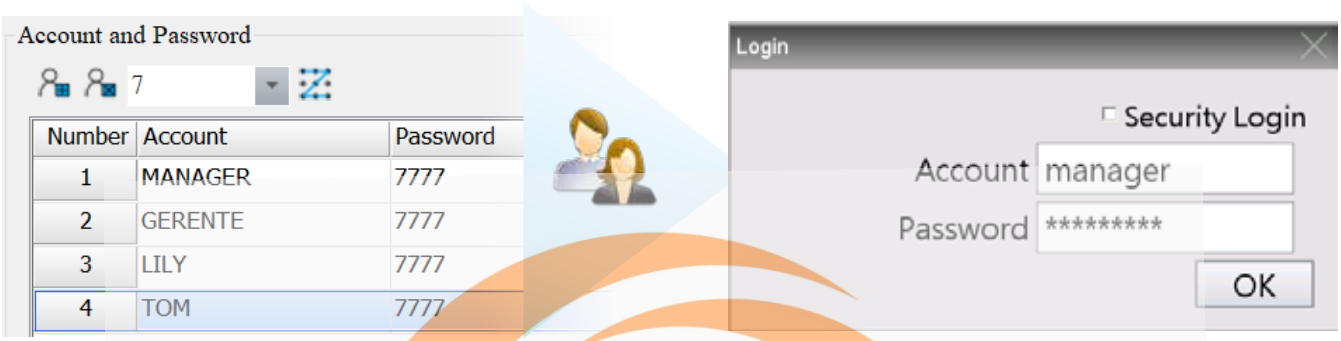
PDF for Data Review

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

User Authority Management

Account and Authorization Management

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



Operation Log

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

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

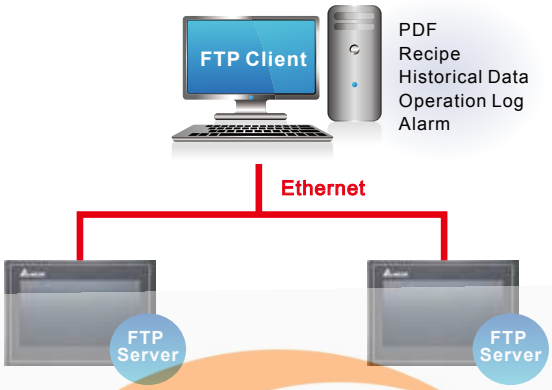
Network Functions

M Type W Type H Type I Type E Type P Type D Type

Only With Ethernet

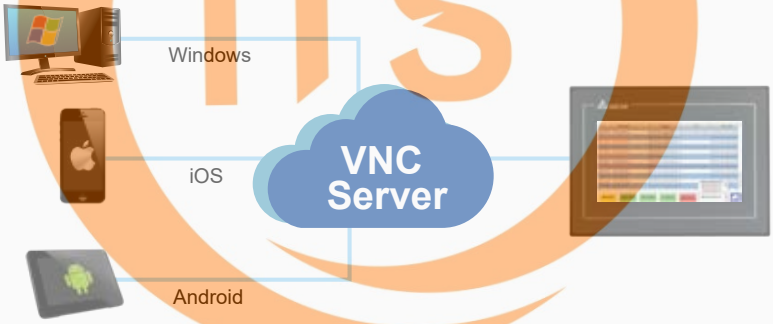
FTP Server

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



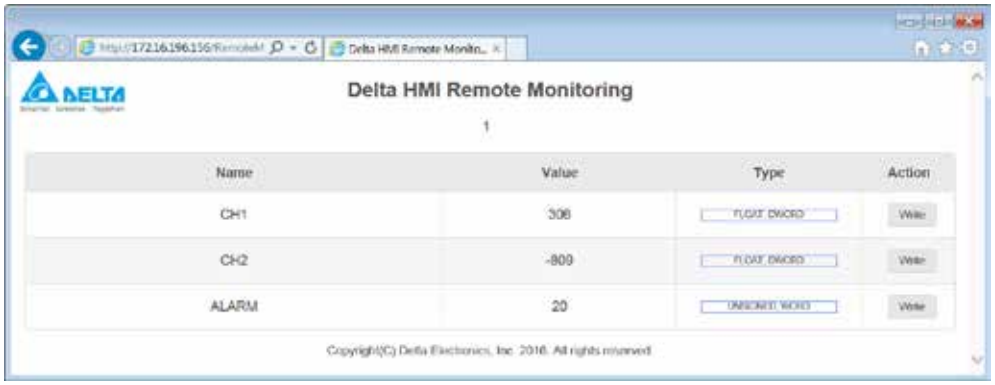
VNC Server

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



Web Monitoring

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



Hardware Specifications

Advanced HMI

Model		Advanced Narrow Frame Type		
		DOP-103WQ	DOP-107WV	DOP-110WS
LCD Module	Display	4.3" TFT LCD	7" TFT LCD	10.1" TFT LCD
	Color	16-bit		
	Resolution (Pixels)	480 x 272	800 x 480	1,024 x 600
	Back Light	LED Back Light		
	Back Light Brightness (cd/m^2)	400	450	450
	Back Light Life (Hour)[*1]	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 (800 MHz)		
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) / 80 dB		
Ethernet Interface		1 Port[*2], 10/100 Mbps auto-sensing		
USB		1 USB Slave Ver 2.0 / 1 USB Host Ver 2.0		
SD		N/A		SD x 1
Serial COM Port	COM1	RS-232 (supports hardware flow control) / RS-485[*2]	RS-232 (supports hardware flow control)[*2]	
	COM2[*2]	RS-422 / RS-485[*2]	RS-232 (supports hardware flow control) / RS-485[*2]	
	COM3[*2]	N/A	RS-422 / RS-485[*2]	
RTC		Built-in		
Cooling		Natural air circulation		
Certification		CE / UL (please use shielding Ethernet cables and magnetic rings with filters of 300 ohm / 100 MHz)		
Waterproof		IP65 / NEMA4 / UL Type 4X (indoor use only)		
Operation Voltage[*3]		DC +24V (-15% ~ 15%)[*2], supplied by Class 2 or SELV circuit (isolated from MAINS by double insulation)		
Voltage Endurance		AC500V for 1 minute (between charging DC24 terminal and FG terminals)		
Power Consumption[*5]		Max. 5.8 W[*3]	Max. 8.4 W[*3]	Max. 11 W[*3]
Backup Battery		3V lithium battery CR2032 × 1		
Backup Battery Life		Depends on the temperature used and the conditions of usage, usually about 3 years or more at 25° C		
Operating Temperature		0°C ~ 50°C		
Storage Temperature		-20°C ~ 60°C		
Ambient Humidity		10% ~ 90% RH (0 ~ 40°C), 10% ~ 55% RH (41 ~ 50°C), Pollution Degree 2		
Vibration		IEC 61131-2 compliant 5 Hz ~ 8.3 Hz = Continuous: 3.5 mm, 8.3 Hz ~ 150 Hz = Continuous: 1 g		
Shock		IEC 60068-2-27 compliant 15 g peak for 11 ms duration, X, Y, Z, directions for 6 times		
Dimensions (W) x (H) x (D) mm		137 x 103 x 37.1	196 x 136 x 39	270 x 180.9 x 47.25
Mounting Dimensions (W) x (H) mm		118.8 x 92.8	186.8 x 126.8	255 x 170.5
Weight		280 g	560 g	1,100 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.
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	24-bit			
	Resolution (Pixels)	1,024 x 768			
	Back Light	LED Back Light			
	Back Light Brightness (cd/m^2)	500	450	500	450
	Back Light Life (Hour)[*1]	50,000			
	Display Area	245.76 x 184.32 mm	304.1 x 228.1 mm	245.76 x 184.32 mm	304.1 x 228.1 mm
MCU		Cortex-A7, Dual Core 1 GHz			
Flash ROM (Bytes)		8 GB			
RAM (Bytes)		DDR3 1,000 MHz 1 GB			
Touch Panel		Four-wire resistor, over 10,000,000 pressing times			
Buzzer		Multi-Tone Frequency (2K ~ 4K Hz) / 85 dB			
Ethernet Interface		2 Ports[*2], 10 / 100 Mbps Auto sensing			
USB		1 Mini USB Slave Ver 2.0 / 1 USB Host Ver 2.0			
SD		SD x 1			
Serial COM Port	COM1	RS-232 (supporting flow control) / RS-485[*2]			
	COM2	RS-422 / RS-485[*2]			
	COM3	RS-232 (supporting flow control) / RS-485[*2]			
	COM4	RS-422 / RS-485[*2]			
RTC		Built-in			
Cooling		Natural air circulation			
Certification		CE / UL (please use shielding Ethernet cables and magnetic rings with filters of 300 ohm / 100 MHz)			
Waterproof		IP65 / NEMA4 / UL Type 4X (indoor use only)			
Operation Voltage[*3]		DC +24V (-15% ~ 15%)[*2], supplied by Class 2 or SELV circuit (isolated from MAINS by double insulation)			
Voltage Endurance		AC500 V for 1 minute (between charging DC24 terminal and FG terminals)			
Power Consumption[*5]		Max. 16.08 W	Max. 21.12 W	Max. 16.08 W	Max. 21.12 W
Backup Battery		3V lithium battery CR2032 × 1			
Backup Battery Life		Depends on the temperature used and the conditions of usage, usually about 3 years or more at 25°C			
Operation Temperature		0°C ~ 50°C			
Storage Temperature		-20°C ~ 60°C			
Ambient Humidity		10% ~ 90% RH (0 ~ 40°C), 10% ~ 55% RH (41 ~ 50°C), Pollution Degree 2			
Viberation		IEC 61131-2 compliant 5 Hz ~ 8.3 Hz = Continuous: 3.5 mm, 8.3 Hz ~ 150 Hz = Continuous: 1 g			
Shock		IEC 60068-2-27 compliant 15 g peak for 11 ms duration, X, Y, Z, directions for 6 times			
Dimensions (W) x (H) x (D) mm		317.4 x 246.4 x 52.7	387.7 x 295.7 x 63.5	317.4 x 246.4 x 52.7	387.7 x 295.7 x 63.5
Mounting Dimensions (W) x (H) mm		302.7 x 228.7	372.4 x 283.7	302.7 x 228.7	372.4 x 283.7
Weight		2,110 g	3,200 g	2,110 g	3,200 g

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	10.1" TFT LCD	10.4" TFT LCD
	Color	16-bit			
	Resolution (Pixels)	320 x 234	800 x 480	1,024 x 600	800 x 600
	Back Light	LED Back Light			
	Back Light Brightness (cd/m^2)	200	400	300	300
	Back Light Life (Hour)[*1]	20,000			
	Display Area	113.28 x 84.70 mm	154.08 x 85.92 mm	226 x 128.7 mm	211.2 x 158.4 mm
MCU		ARM Cortex-A8 (800 MHz)			
Flash ROM (Bytes)		256 Mbytes			
RAM (Bytes)		256 Mbytes			
Touch Panel		Four-wire resistor, over > 10,000,000 pressing times		Four-wire resistor, over > 1,000,000 pressing times	
Audio Output	Buzzer	Multi-Tone Frequency (2K ~ 4K Hz) / 80 dB			
	AUX	N/A			
USB		1 USB Slave Ver 2.0 / 1 USB Host Ver 2.0			
SD		N/A			
Serial COM Port	COM1	RS-232 (supports hardware flow control)			
	COM2	RS-232 (supports hardware flow control) / RS-485			
	COM3	RS-422 / RS-485			
RTC		Built-in			
Cooling		Natural air circulation			
Certification		CE / UL (please equip shielding cables and line filters with capacity of 300 ohm / 100 MHz)			
Waterproof		IP65 / NEMA4 / UL Type 4X (indoor use only)(105CQ &110CG non UL Type 4X)			
Operation Voltage[*3]		DC +24V (-15% ~ +15%)[*2], supplied by Class 2 or SELV circuit (isolated from MAINS by double insulation)			
Voltage Endurance		AC500 V for 1 minute (between charging DC24 terminal and FG terminals)			
Power Consumption[*5]		Max. 6.86 W[*3]	Max. 8.5 W[*3]	Max. 10.4 W[*3]	Max. 8 W[*3]
Backup Battery		3V lithium battery CR2032 × 1			
Backup Battery Life		Depends on the temperature used and the conditions of usage, usually about 3 years or more at 25°C			
Operation Temperature		0°C ~ 50°C			
Storage Temperature		-20°C ~ 60°C			
Ambient Humidity		10% ~ 90% RH (0 ~ 40°C), 10% ~ 55% RH (41 ~ 50°C), Pollution Degree 2			
Vibration		IEC 61131-2 compliant 5 Hz ~ 8.3 Hz = Continuous: 3.5 mm, 8.3 Hz ~ 150 Hz = Continuous: 1 g			
Shock		IEC 60068-2-27 compliant 15 g peak for 11 ms duration, X, Y, Z, directions for 6 times			
Dimensions (W) x (H) x (D) mm		184 x 144 x 50	215 x 161 x 61.2	272 x 200 x 61	299 x 224 x 46.8
Mounting Dimensions (W) x (H) mm		172.4 x 132.4	196.9 x 142.9	261.3 x 189.3	285.2 x 210.2
Weight		670 g	970 g	1,330 g	1,735 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 Premium	Standard Ethernet Type (2 COM)	
		DOP-107PV	DOP-107EG	DOP-107EV
LCD Module	Display	7" TFT LCD	7" TFT LCD	7" TFT LCD
	Color	24-bit	16-bit	
	Resolution (Pixels)	800 x 480	800 x 600	800 x 480
	Back Light	LED Back Light		
	Back Light Brightness (cd/m^2)	400	450	400
	Back Light Life (Hour)[*1]	20,000		
	Display Area	154.08 x 85.92 mm	141 x 105.75 mm	154.08 x 85.92 mm
MCU		ARM Cortex-A8 (800 MHz)		
Flash ROM (Bytes)		256 MB		
RAM (Bytes)		256 MB		
Touch Panel		Four-wire resistor, over > 1,000,000 pressing times	Four-wire resistor, over > 10,000,000 pressing times	
Audio Output	Buzzer	Multi-Tone Frequency (2K ~ 4K Hz) / 80dB		
	AUX	N/A	Stereo output	N/A
Ethernet Interface		1 Port[*2], 10/100 Mbps auto-sensing		
USB		1 USB Slave Ver 2.0; 1 USB Host Ver 2.0		
SD		N/A	SD x1	N/A
Serial COM Port	COM1	RS-232 (supports hardware flow control)[*2] (107PV non-isolated circuit)		
	COM2	RS-232 (supports hardware flow control) / RS-485[*2] (107PV non-isolated circuit)		
	COM3	RS-422 / RS-485[*2] (107PV non-isolated circuit)		
RTC		Built-in		
Cooling		Natural air circulation		
Certification		CE/UL (please use shielding Ethernet cables and magnetic rings with filters of 300 ohm / 100 MHz)		
Waterproof		IP65 / NEMA4 / UL Type 4X (indoor use only)		
Operation Voltage[*3]		DC +24V (-15% ~ +15%)[*2] (107PV non-isolated circuit) Supplied by Class 2 or SELV circuit (isolated from MAINS by double insulation)		
Voltage Endurance		AC500 V for 1 minute (between charging DC24 terminal and FG terminals)		
Power Consumption[*5]		Max. 8.3 W[*3]	Max. 8.4 W[*3]	Max. 8.76 W[*3]
Backup Battery		3V lithium battery CR2032 × 1		
Backup Battery Life		Depends on the temperature used and the conditions of usage, usually about 3 years or more at 25°C		
Operating Temperature		0°C ~ 50°C		
Storage Temperature		-20°C ~ 60°C		
Ambient Humidity		10% ~ 90% RH (0 ~ 40°C), 10% ~ 55% RH (41 ~ 50°C), Pollution Degree 2		
Vibration		IEC 61131-2 compliant 5 Hz ~ 8.3 Hz = Continuous: 3.5 mm, 8.3 Hz ~ 150 Hz = Continuous: 1 g		
Shock		IEC 60068-2-27 compliant 15 g peak for 11 ms duration, X, Y, Z, directions for 6 times		
Dimensions (W) x (H) x (D) mm		196.6 x 136.6 x 38.8	184 x 144 x 51.5	215 x 161 x 61.2
Mounting Dimensions (W) x (H) mm		186.8 x 126.8	172.4 x 132.4	196.9 x 142.9
Weight		650 g	800 g	970 g

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

Basic HMI

Model		Simple Type	Basic Type	
		DOP-103SQ	DOP-103BQ	DOP-107BV
LCD Module	Display	4.3" TFT LCD	4.3" TFT LCD	7" TFT LCD
	Color	16-bit		
	Resolution (Pixels)	480 x 272	480 x 272	800 x 480
	Back Light	LED Back Light		
	IPS	Yes	N/A	N/A
	Back Light Brightness (cd/m^2)	400		
	Back Light Life (Hour)[*1]	20,000		
	Display Area	95.04 x 53.856 mm	95.04 x 53.856 mm	154.08 x 85.92 mm
MCU		ARM Cortex-A8 (800 MHz)		
Flash ROM (Bytes)		256 MB		
RAM (Bytes)		256 MB		
Touch Panel		Four-wire resistor, over > 10,000,000 pressing times		
Audio Output	Buzzer	Multi-Tone Frequency (2K ~ 4K Hz) / 80 dB		
	AUX	N/A		
Ethernet Interface		N/A		
USB		1 USB Slave Ver 2.0 / 1 USB Host Ver 2.0		
SD		N/A		
Serial COM Port	COM1	RS-232 (supports hardware flow control) / RS-485		
	COM2	RS-422 / RS-485		
	COM3	N/A		
RTC		Built-in		
Cooling		Natural air circulation		
Certification		CE / UL (please equip shielding cables and line filters with capacity of 300 ohm / 100 MHz)		
Waterproof		IP65 / NEMA4 / UL Type 4X (indoor use only)		
Operation Voltage[*3]		DC +24V (-15% ~ +15%)[*2], supplied by Class 2 or SELV circuit (isolated from MAINS by double insulation)		
Voltage Endurance		AC500V for 1 minute (between charging DC24 terminal and FG terminals)		
Power Consumption[*5]		Max. 5.67 W[*3]	Max. 5.67W[*3]	Max. 8.6 W[*3]
Backup Battery		3V lithium battery CR2032 × 1		
Backup Battery Life		Depends on the temperature used and the conditions of usage, usually about 3 years or more at 25°C		
Operation Temperature		0°C ~ 50°C		
Storage Temperature		-20°C ~ 60°C		
Ambient Humidity		10% ~ 90% RH (0 ~ 40°C), 10% ~ 55% RH (41 ~ 50°C), Pollution Degree 2		
Vibration		IEC 61131-2 compliant 5 Hz ~ 8.3 Hz = Continuous: 3.5 mm, 8.3 Hz ~ 150 Hz = Continuous: 1 g		
Shock		IEC 60068-2-27 compliant 15 g peak for 11 ms duration, X, Y, Z, directions for 6 times		
Dimensions (W) x (H) x (D) mm		129 x 103 x 37.8	137 x 103 x 37.1	215 x 161 x 35.5
Mounting Dimensions (W) x (H) mm		118.8 x 92.8	118.8 x 92.8	196.9 x 142.9
Weight		280 g	280 g	700 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

Hardware Specifications

Basic HMI

Model		Basic Ethernet Type	
		DOP-103DQ	DOP-107DV
LCD Module	Display	4.3" TFT LCD	7" TFT LCD
	Color	16-bit	
	Resolution (Pixels)	480 x 272	800 x 480
	Back Light	LED Back Light	
	IPS	Yes	N/A
	Back Light Brightness (cd/m^2)	400	
	Back Light Life (Hour)*1	10,000	20,000
	Display Area	95.04 x 53.856 mm	154.08 x 85.92 mm
MCU		ARM Cortex-A8 (800 MHz)	
Flash ROM (Bytes)		256 MB	
RAM (Bytes)		512 MB	256 MB
Touch Panel		Four-wire resistor, over > 10,000,000 pressing times	Four-wire resistor, over > 1,000,000 pressing times
Audio Output	Buzzer	Multi-Tone Frequency (2K ~ 4K Hz) / 80dB	
	AUX	N/A	
Ethernet Interface		1 Port*2, 10/100 Mbps auto-sensing	
USB		1 USB Slave Ver 2.0 / 1 USB Host Ver 2.0	
SD		N/A	
Serial COM Port	COM1	RS-232 (supports hardware flow control)*2/RS-485*2 (107DV non-isolated circuit)	
	COM2	RS-422/RS-485*2 (107DV non-isolated circuit)	
	COM3	N/A	
RTC		Built-in	
Cooling		Natural air circulation	
Certification		CE/UL (please use shielding Ethernet cables and magnetic rings with filters of 300 ohm / 100 MHz)	
Waterproof		IP65 / NEMA4 / UL Type 4X (indoor use only)	
Operation Voltage*3		DC +24V (-15% ~ +15%) *2 (107DV non-isolated circuit), supplied by Class 2 or SELV circuit (isolated from MAINS by double insulation)	
Voltage Endurance		AC500V for 1 minute (between charging DC24 terminal and FG terminals)	
Power Consumption*5		Max. 5.8 W*3	Max. 8.8W*3
Backup Battery		3V lithium battery CR2032 × 1	
Backup Battery Life		Depends on the temperature used and the conditions of usage, usually about 3 years or more at 25°C	
Operation Temperature		0°C ~ 50°C	
Storage Temperature		-20°C ~ 60°C	
Ambient Humidity		10% ~ 90% RH (0 ~ 40°C), 10% ~ 55% RH (41 ~ 50°C), Pollution Degree 2	
Vibration		IEC 61131-2 compliant 5 Hz ~ 8.3 Hz = Continuous: 3.5 mm, 8.3 Hz ~ 150 Hz = Continuous: 1 g	
Shock		IEC 60068-2-27 compliant 15 g peak for 11ms duration, X, Y, Z, directions for 6 times	
Dimensions (W) x (H) x (D) mm		129 x 103 x 37.8	215 x 161 x 35.5
Mounting Dimensions (W) x (H) mm		118.8 x 92.8	196.9 x 142.9
Weight		280 g	700 g

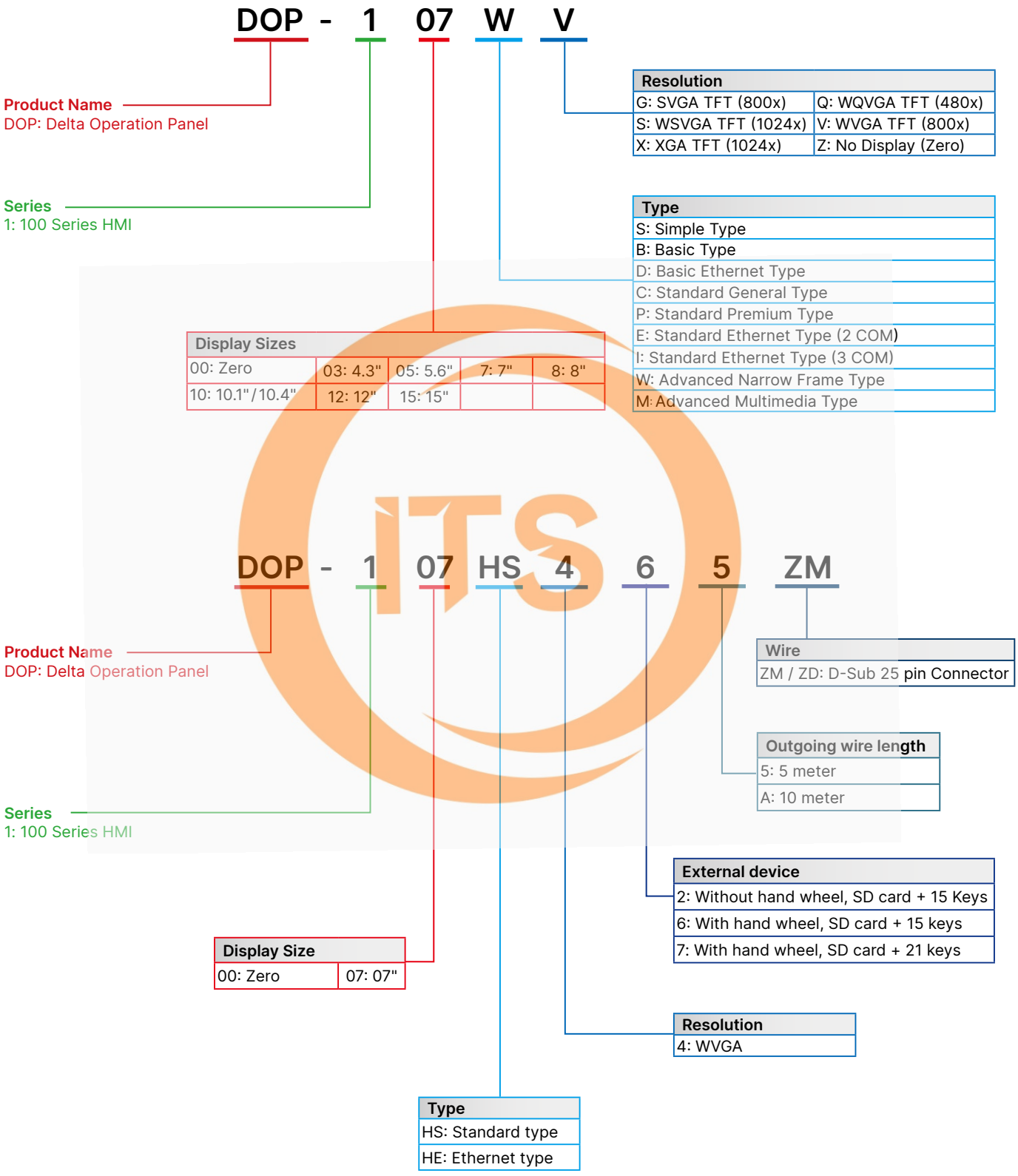
1) The half-life of a backlight is defined as the original luminance being reduced by 50% when the maximum driving current is supplied to an HMI.6
2) Built-in power isolation
3) An isolated power supply is recommended.
4) Some models are in the process of application for UL and KCC certification. For 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

Handheld HMI

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

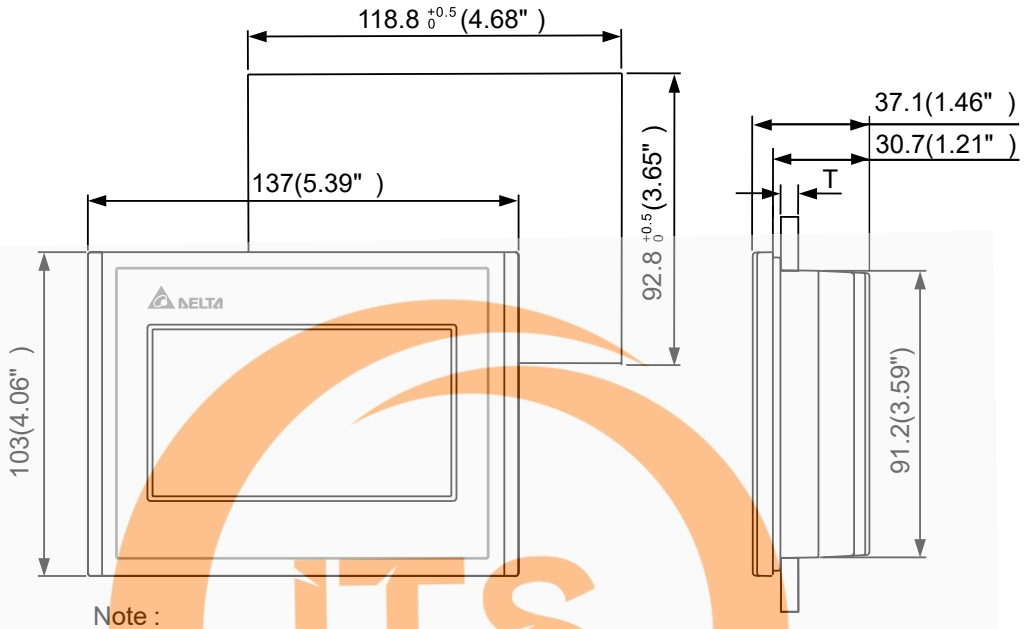
1) The half-life of a backlight is defined as the original luminance being reduced by 50% when the maximum driving current is supplied to an HMI.6
2) Built-in power isolation
3) An isolated power supply is recommended.
4) Some models are in the process of application for UL and KCC certification. For more information, please consult our distributors.
5) The value of the power consumption indicates the electrical power consumed by the HMI with no peripheral devices connected.
6) The content of this catalogue may be revised without prior notice. Please consult our distributors or download the most updated version at http://www.deltaww.com

Model Description



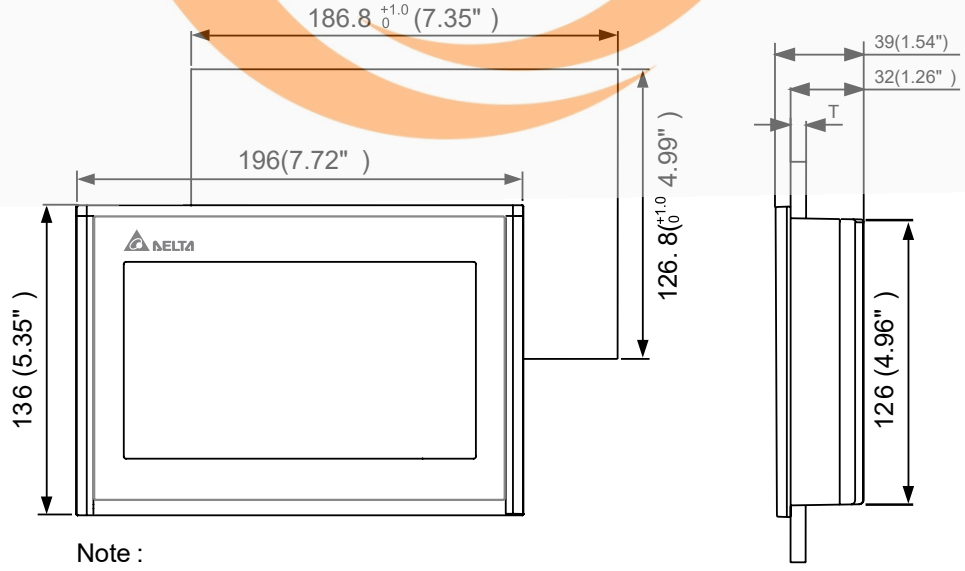
Dimensions Unit: mm (inches)

•DOP-103WQ



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

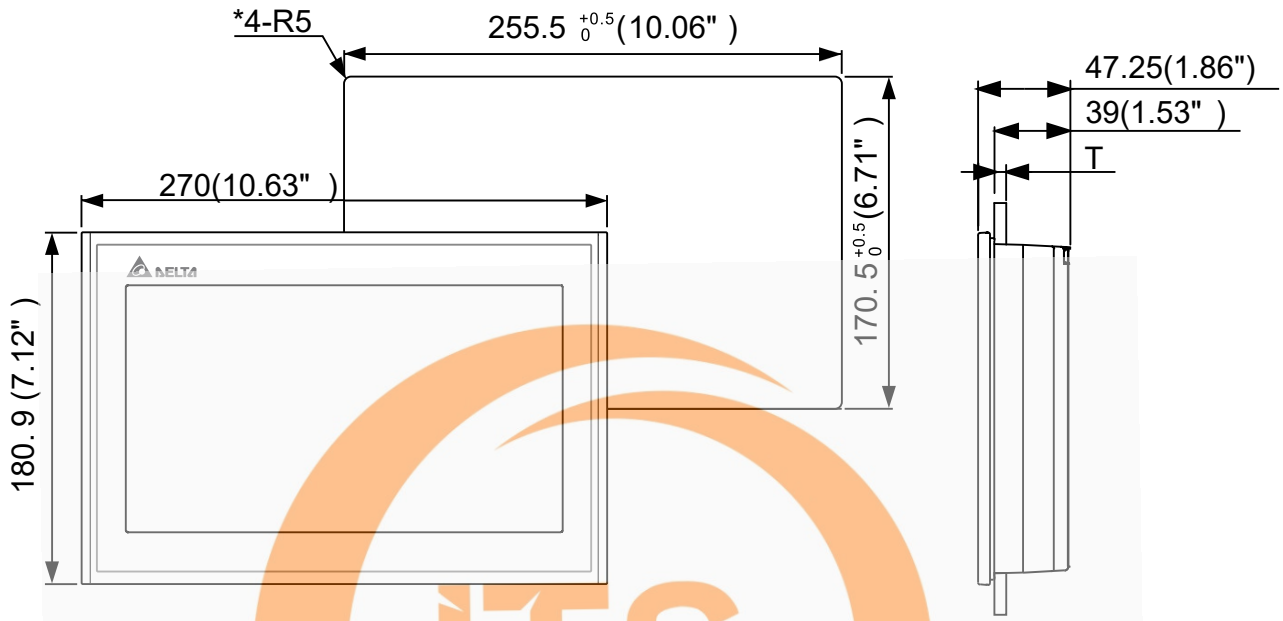
•DOP-107WV



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

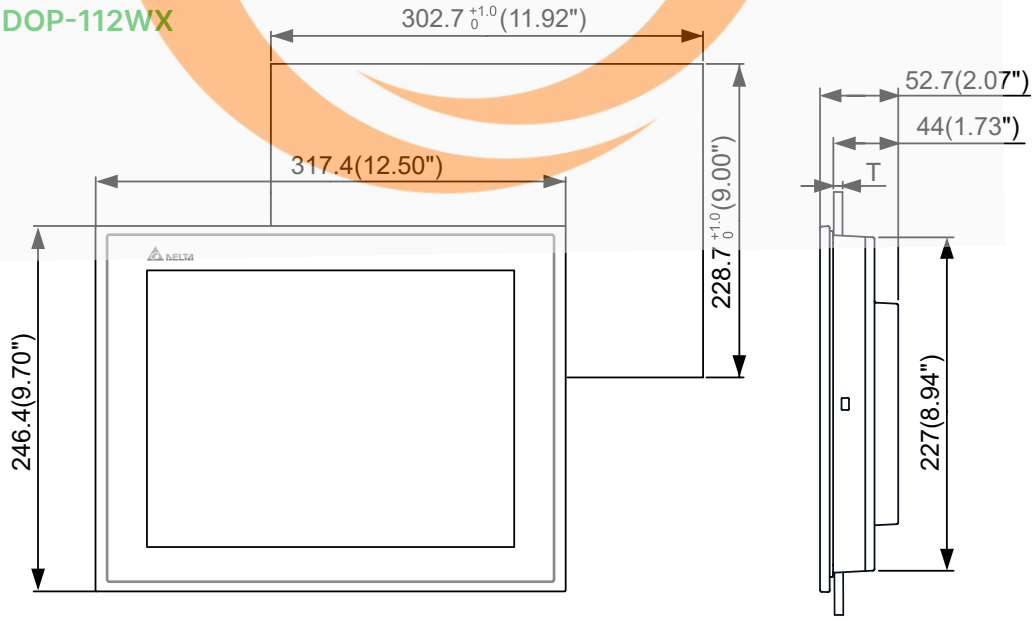
Dimensions Unit: mm (inches)

•DOP-110WS



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

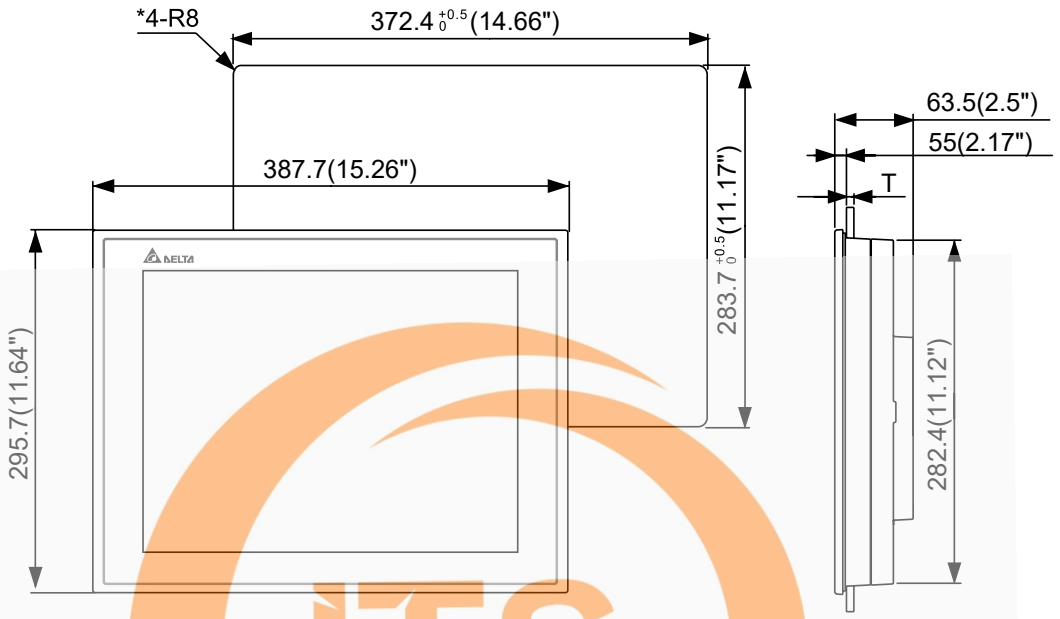
•DOP-112MX / DOP-112WX



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

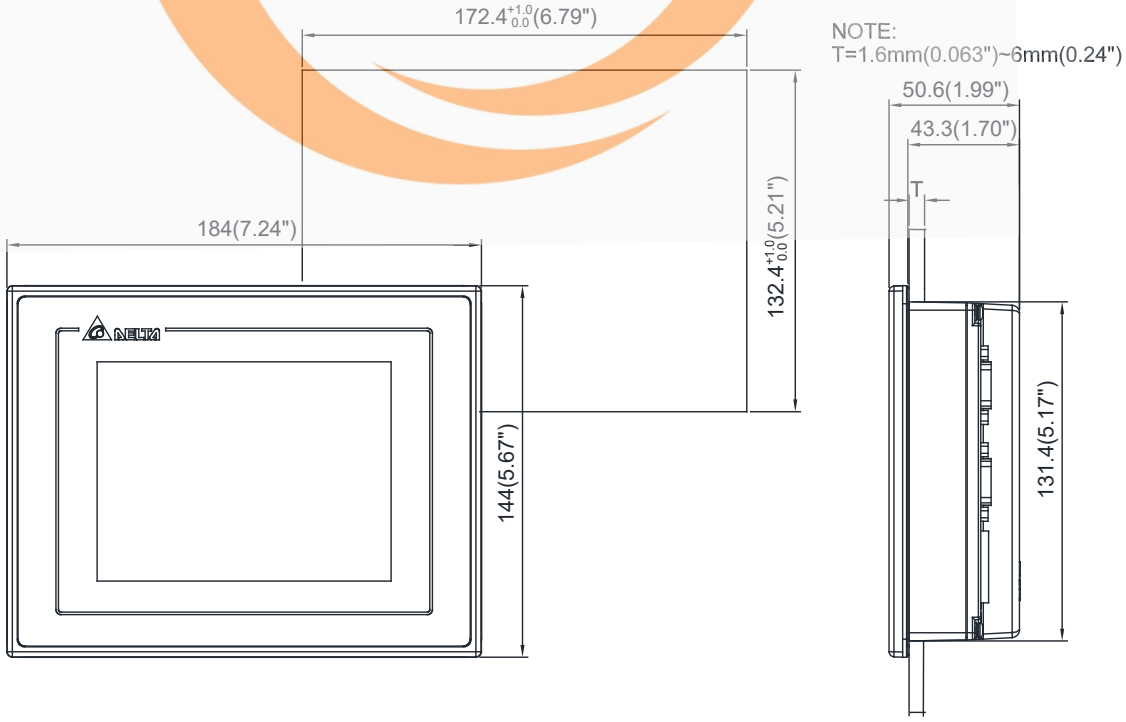
Dimensions Unit: mm (inches)

•DOP-115MX / DOP-115WX



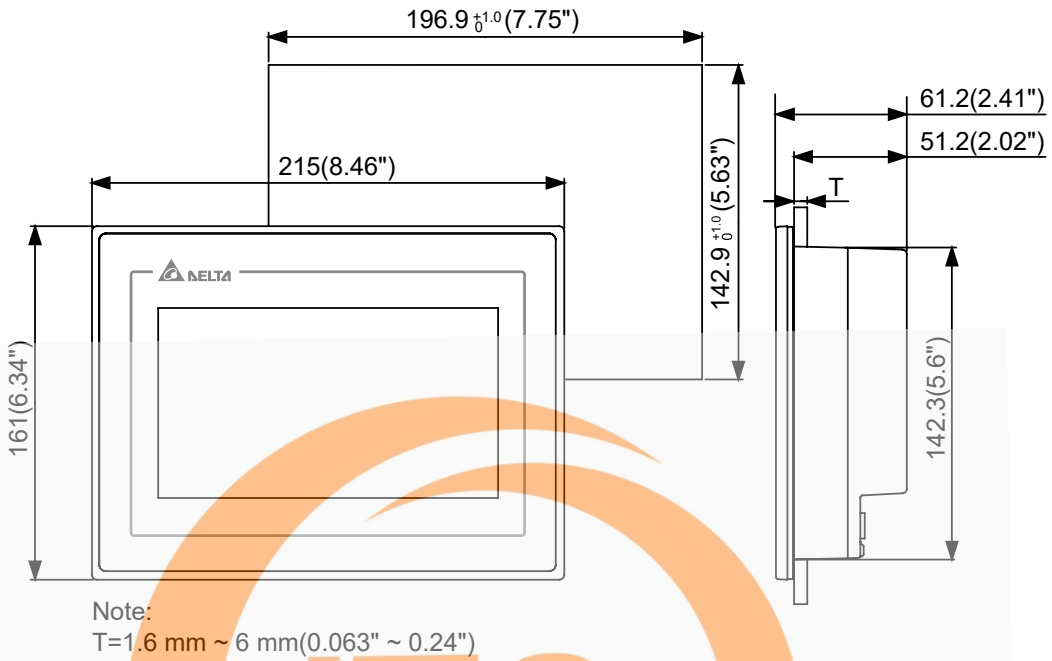
Note:
T=1.6 mm ~ 6 mm(0.063" ~ 0.24")

•DOP-105CQ



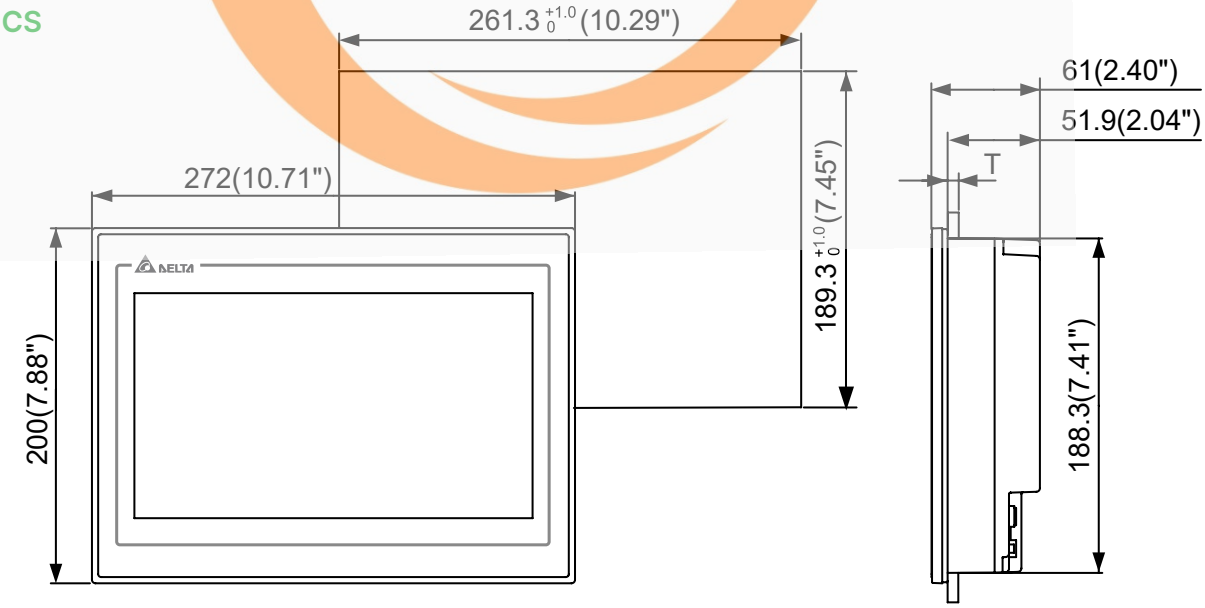
Dimensions Unit: mm (inches)

•DOP-107CV



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

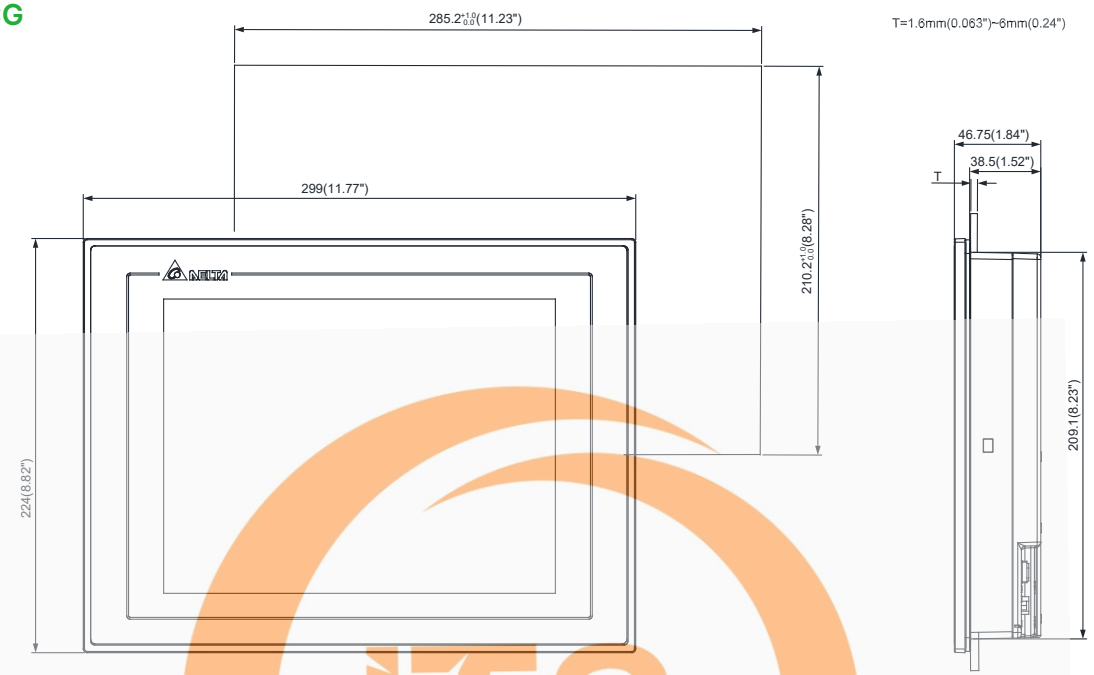
•DOP-110CS



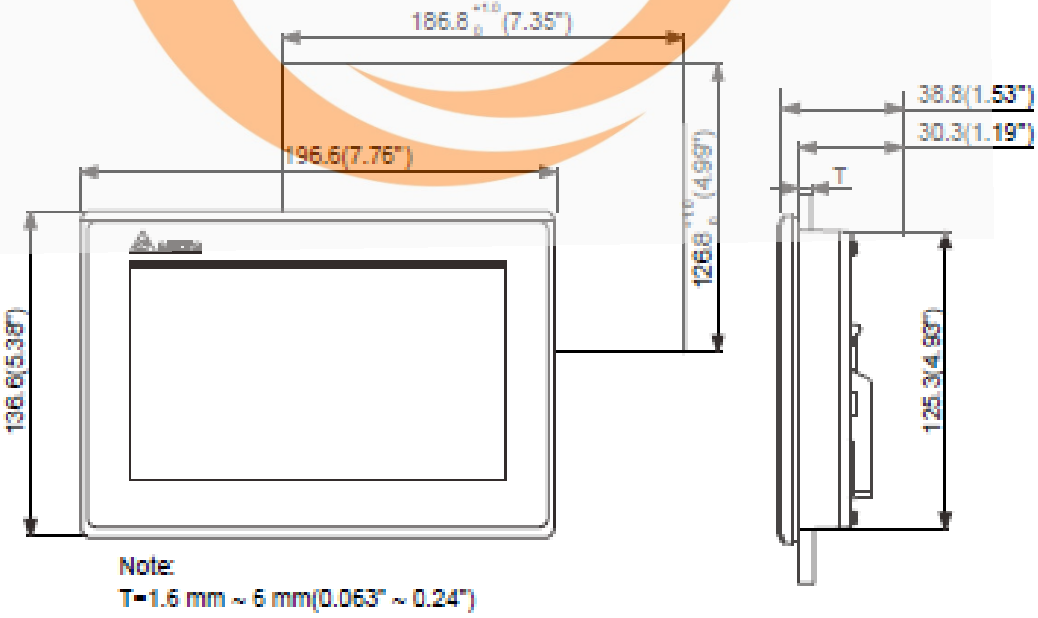
Note:
T=1.6 mm ~ 6 mm(0.063" ~ 0.24")

Dimensions Unit: mm (inches)

•DOP-110CG



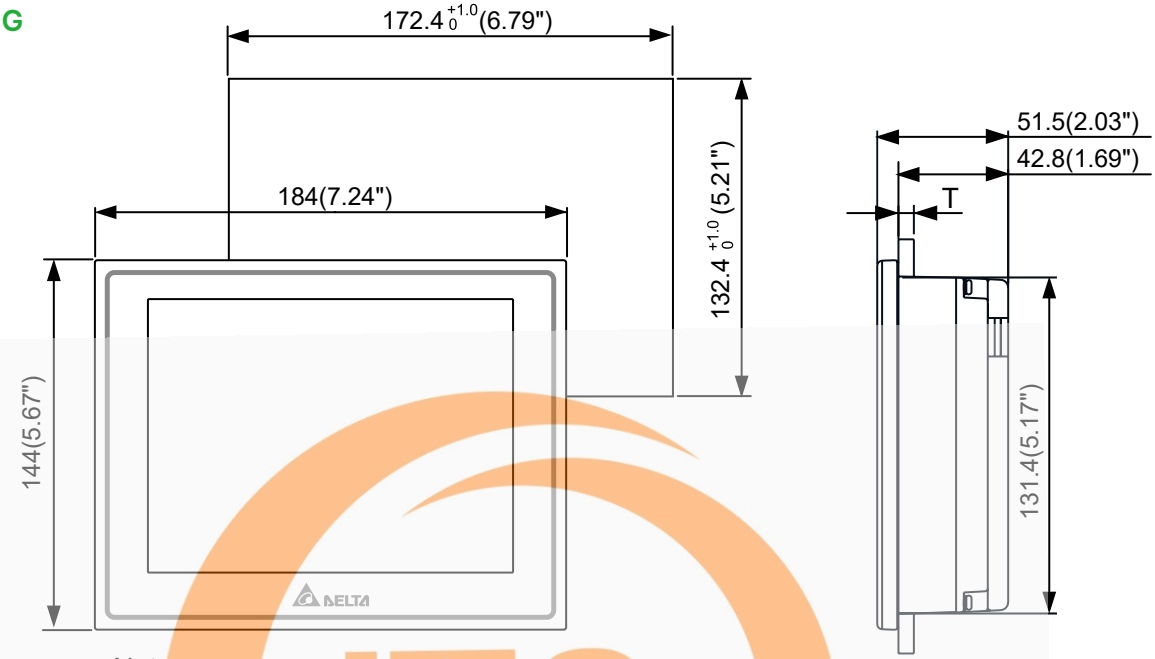
•DOP-107PV



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

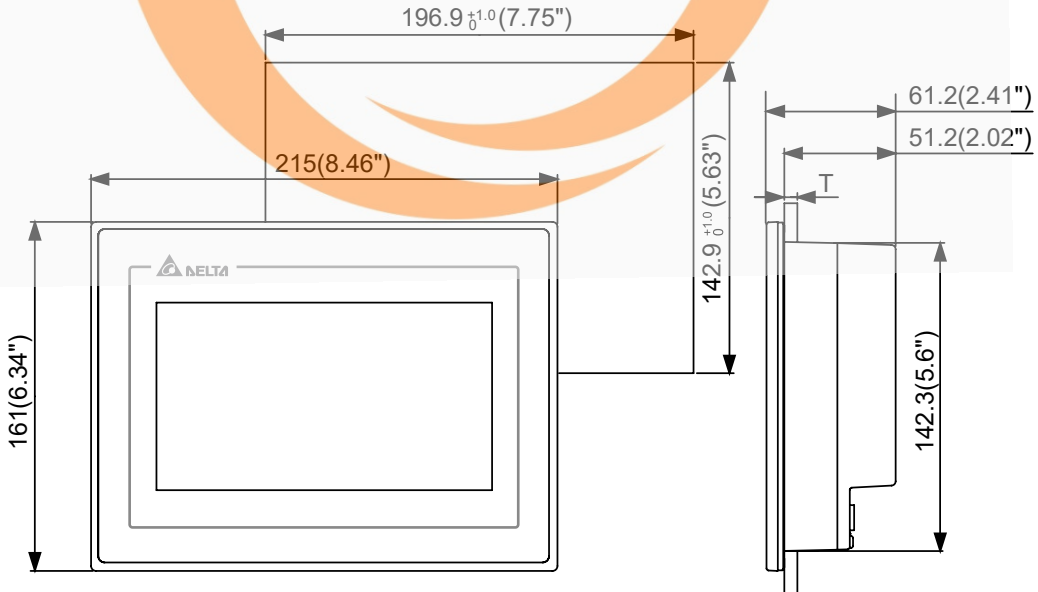
Dimensions Unit: mm (inches)

•DOP-107EG



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

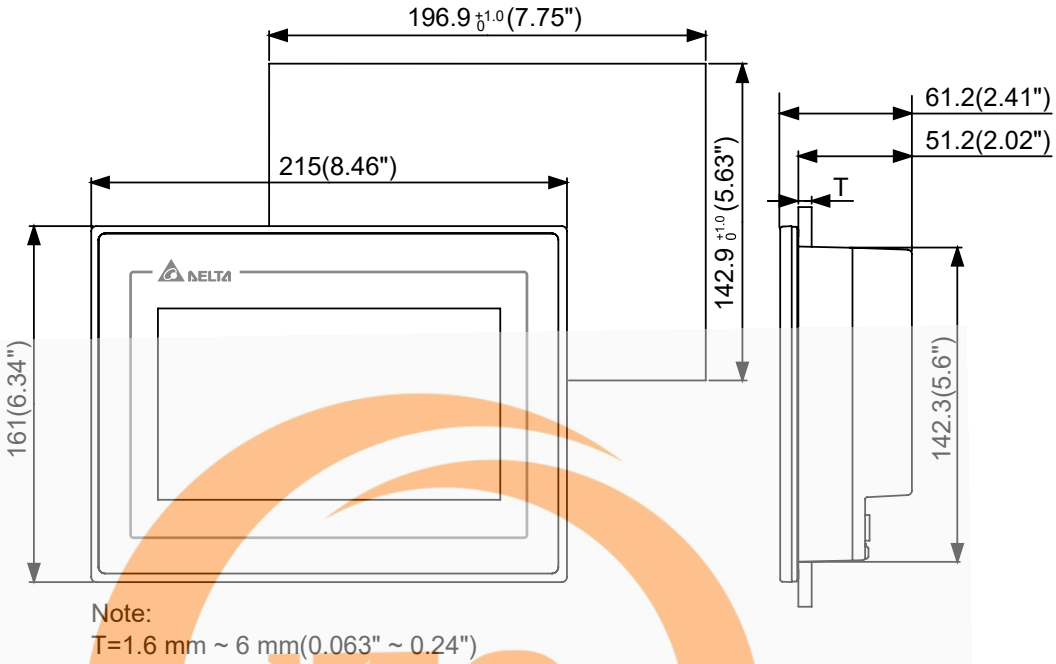
•DOP-107EV



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

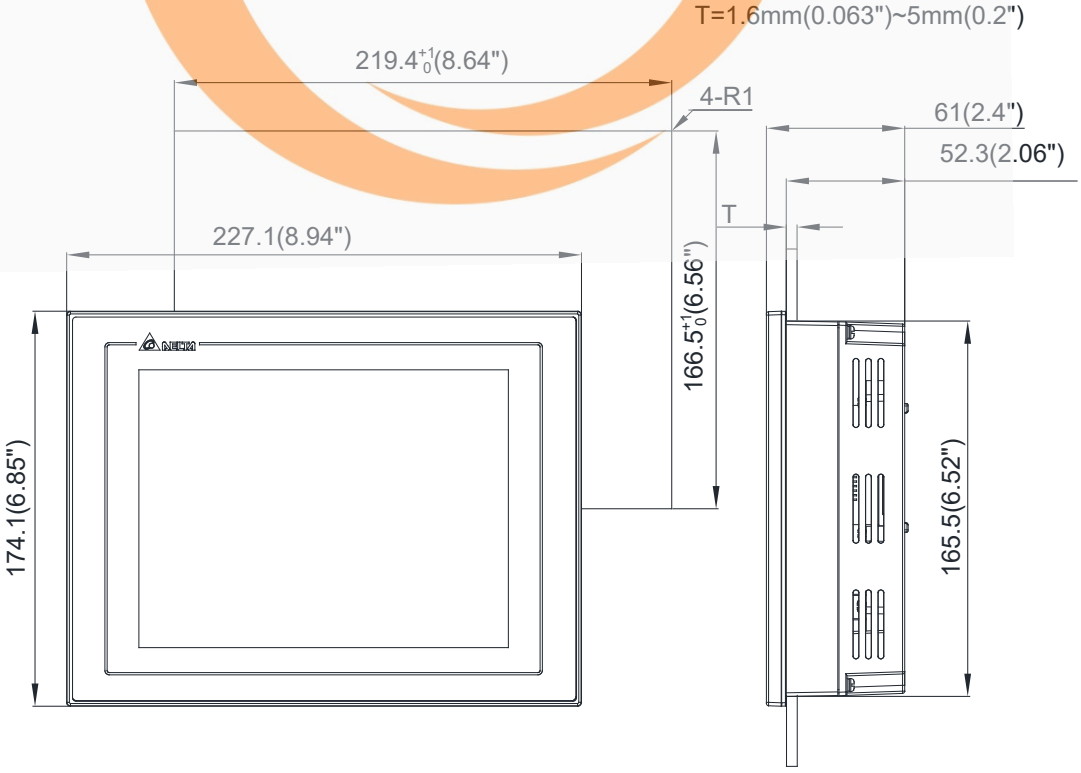
Dimensions Unit: mm (inches)

•DOP-107IV



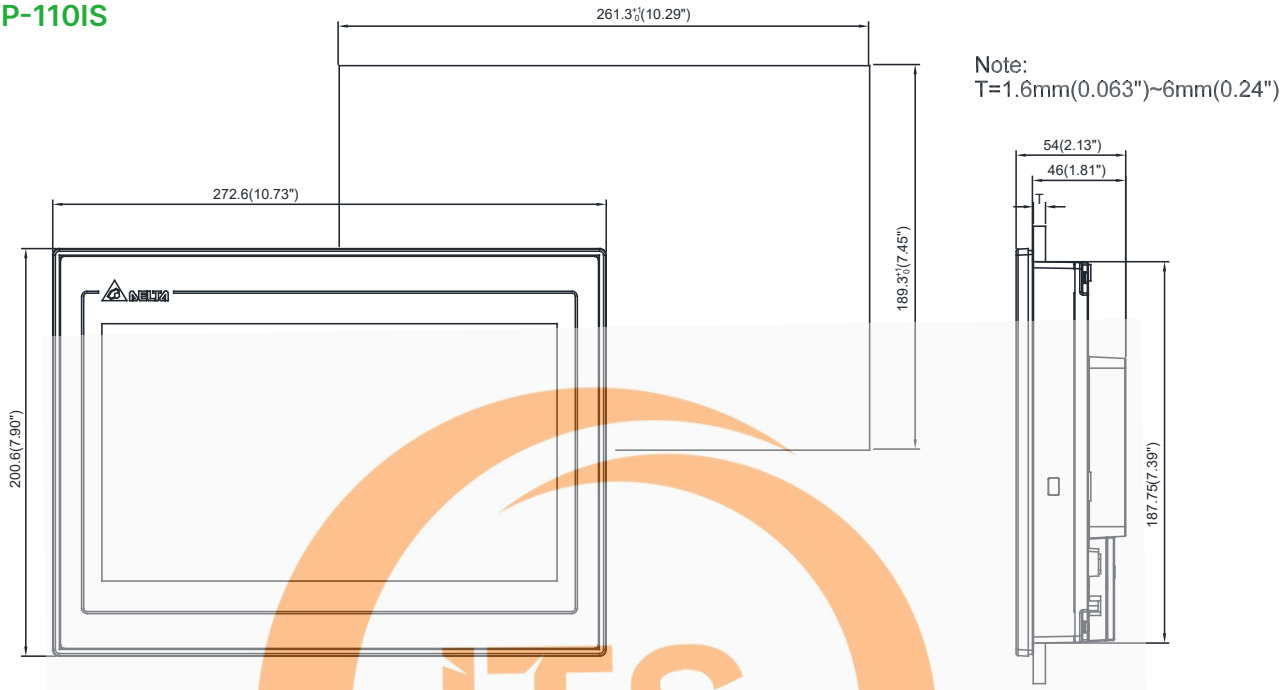
Note:
T=1.6 mm ~ 6 mm(0.063" ~ 0.24")

•DOP-108IG

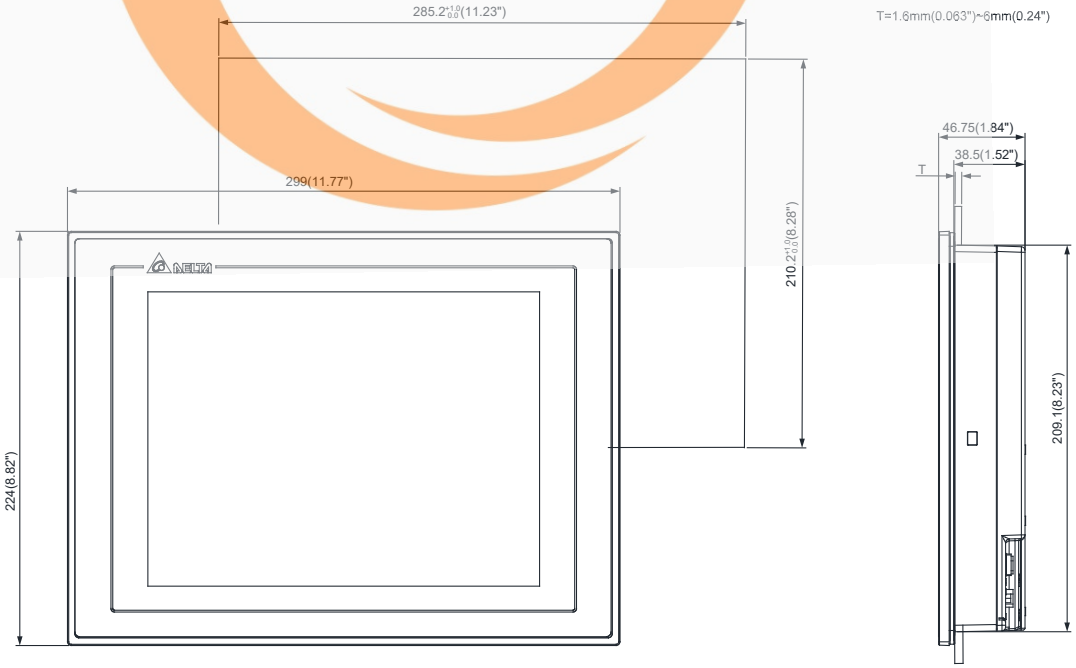


Dimensions Unit: mm (inches)

•DOP-110IS

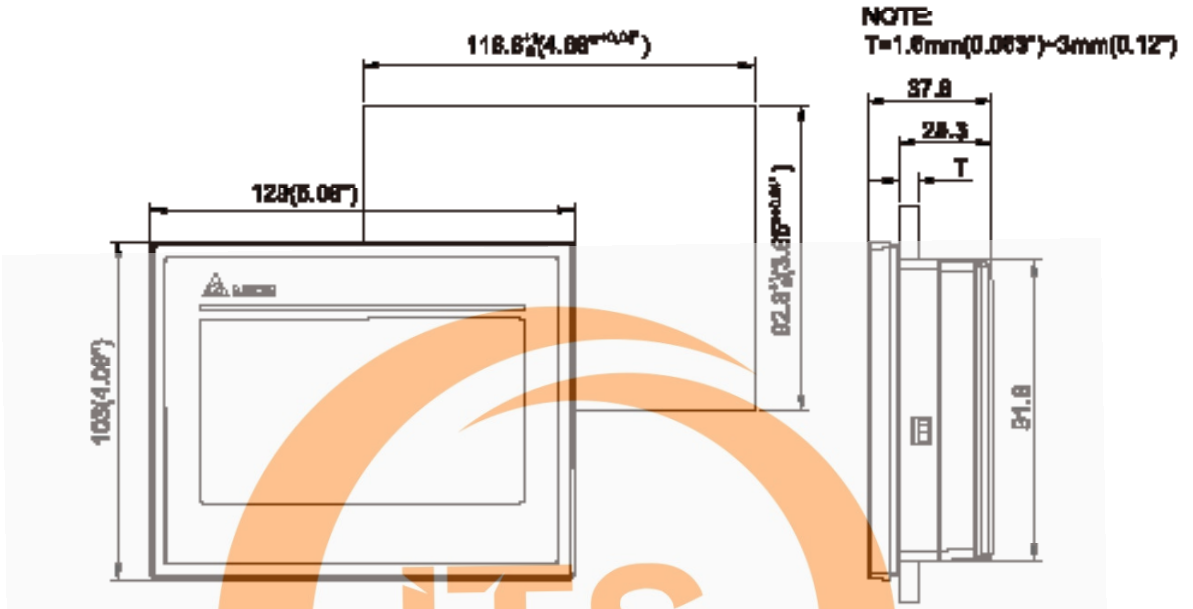


•DOP-110IG

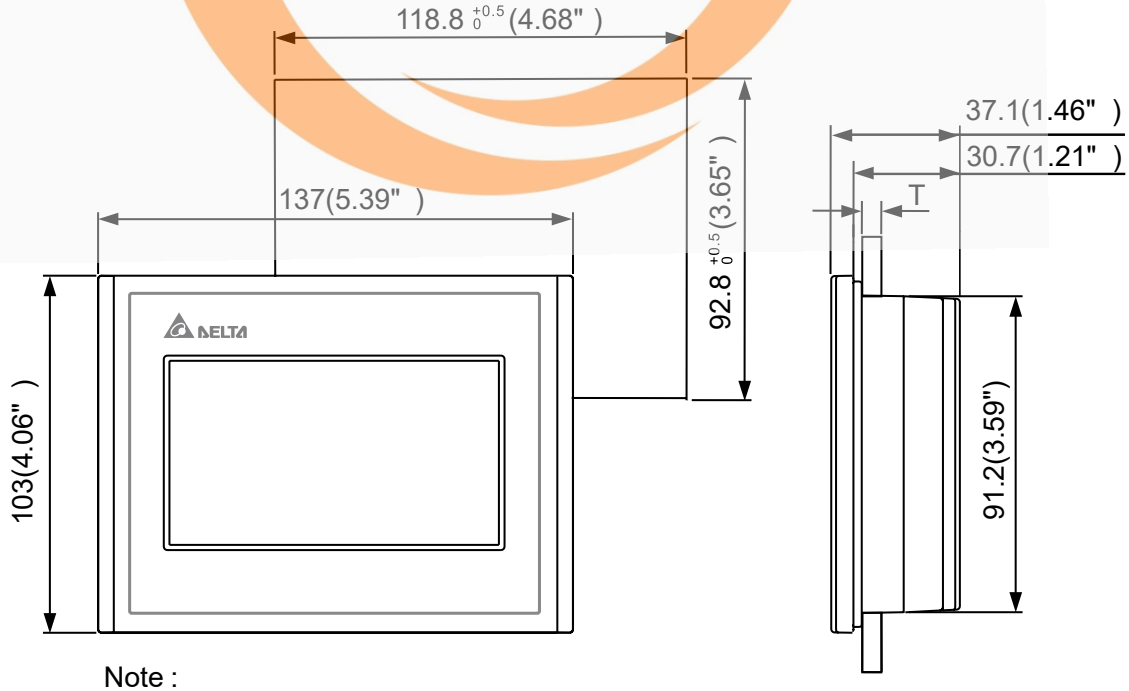


Dimensions Unit: mm (inches)

•DOP-103SQ



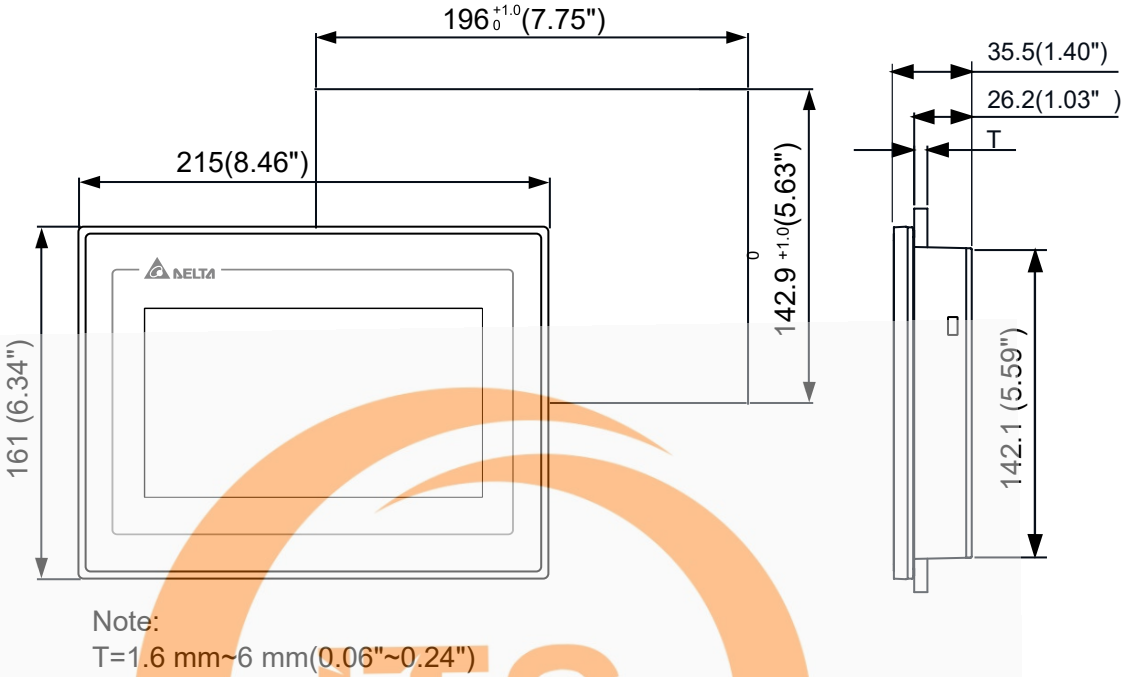
•DOP-103BQ



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

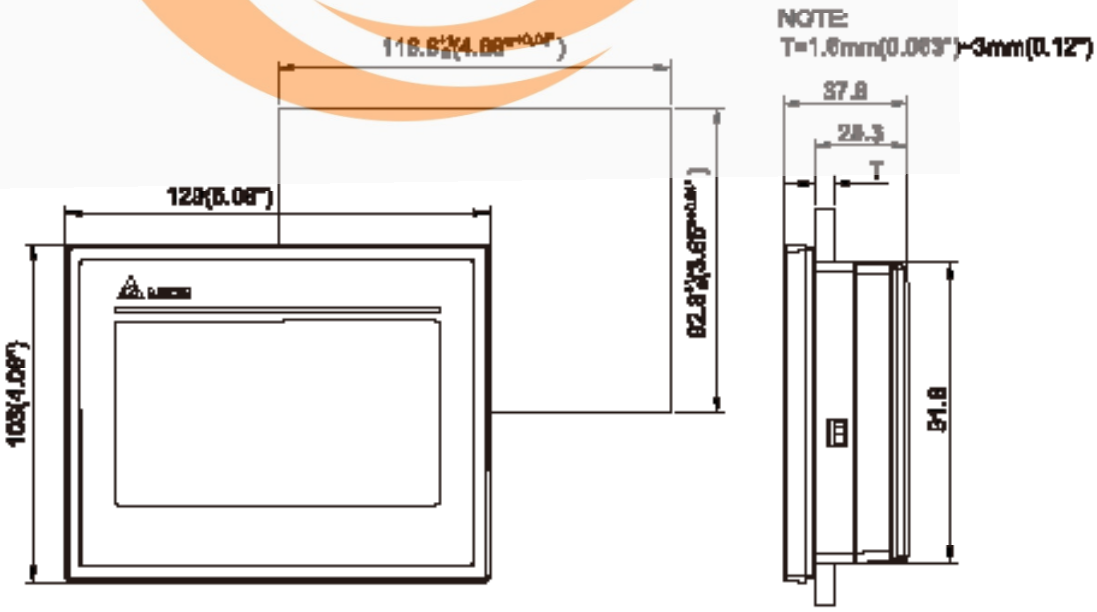
Dimensions Unit: mm (inches)

•DOP-107BV



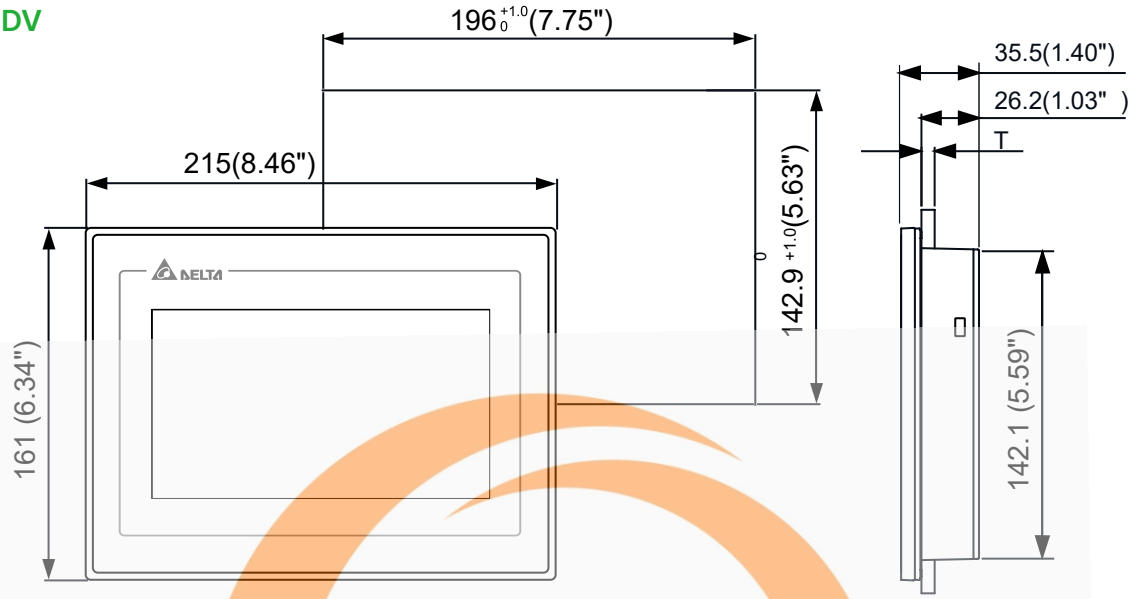
Note:
T=1.6 mm~6 mm(0.06"~0.24")

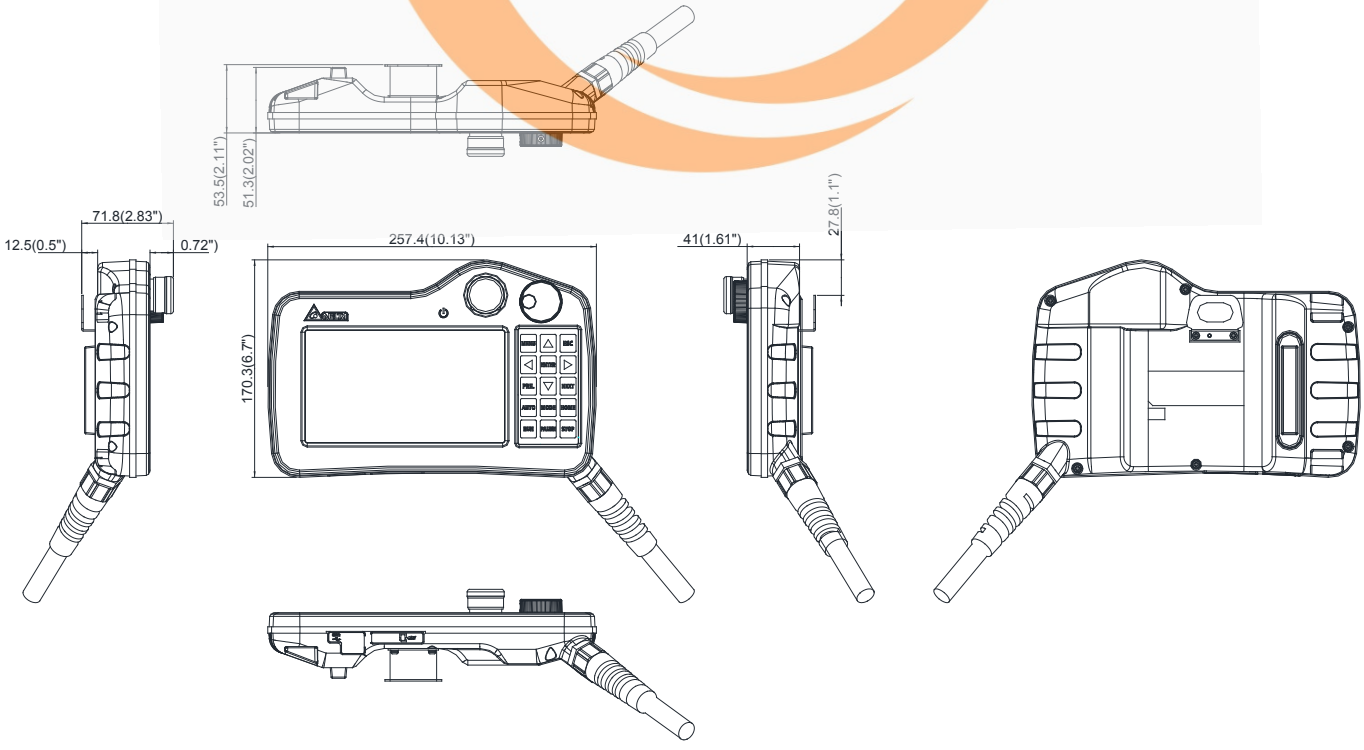
•DOP-103DQ



Dimensions Unit: mm (inches)

•DOP-107DV



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

•DOP-107HS4 / DOP-107HE4