ΔELTA

IABU Headquarters
Delta Electronics, Inc.
Taoyuan Technology Center
No.18, Xinglong Rd., Taoyuan City,
Taoyuan County 33068, Taiwan
TEL: 886-3-362-6301 / FAX: 886-3-371-6301

Asia
Delta Electronics (Jiangsu) Ltd.
Wujiang Plant 3
1688 Jiangxing East Road,
Wujiang Economic Development Zone
Wujiang City, Jiang Su Province,
People's Republic of China (Post code: 215200)
TEL: 86-512-6340-3008 / FAX: 86-769-6340-7290

Delta Greentech (China) Co., Ltd.
238 Min-Xia Road, Pudong District,
ShangHai, P.R.C.
Post code : 201209
TEL: 86-21-58635678 / FAX: 86-21-58630003

Delta Electronics (Japan), Inc.
Tokyo Office
2-1-14 Minato-ku Shibadaimon,
Tokyo 105-0012, Japan
TEL: 81-3-5733-1111 / FAX: 81-3-5733-1211

Delta Electronics (Korea), Inc.
1511, Byucksan Digital Valley 6-cha, Gasan-dong,
Geumcheon-gu, Seoul, Korea, 153-704
TEL: 82-2-515-5303 / FAX: 82-2-515-5302

Delta Electronics Int'l (S) Pte Ltd
4 Kaki Bukit Ave 1, #05-05, 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

Americas
Delta Products Corporation (USA)
Raleigh Office
P.O. Box 12173,5101 Davis Drive,
Research Triangle Park, NC 27709, U.S.A.
TEL: 1-919-767-3800 / FAX: 1-919-767-8080

Delta Greentech (Brasil) S.A
Sao Paulo Office
Rua Itapeva, 26 - 3° andar Edificio Itapeva One-Bela Vista
01332-000-São Paulo-SP-Brazil
TEL: +55 11 3568-3855 / FAX: +55 11 3568-3865

Europe
Deltronics (The Netherlands) B.V.
Eindhoven Office
De Witbogt 15, 5652 AG Eindhoven, The Netherlands
TEL: 31-40-2592850 / FAX: 31-40-2592851

*We reserve the right to change the information in this catalogue without prior notice.

Automation for a Changing World

Delta Human Machine Interface DOP-*B* series

www.delta.com.tw/ia

ΔELTA

One Touch Gives You Limitless Possibilities with HMI

Meets Customer Needs. Satisfies a Variety of Applications. Provides Multiple Functions. Creates the Ultimate FA Equipment.

Energy Saving and Environmental Automation

All models are equipped with LED backlights which provide energy-efficient lighting that is made without mercury, reduces energy use and CO_2 emissions, and protects the environment.

High Quality and Full-Color Display

A full 65,536-color display is available on all models. With a whole new 2D drawing technique, the screen resolution is enhanced for more realistic images and for more colorful and vivid displays.

A Wide Range of Options

Three serial communication interfaces (RS-232/RS-485/RS-422), USB disk, Ethernet, audio output, SD card and more are supported for various applications.
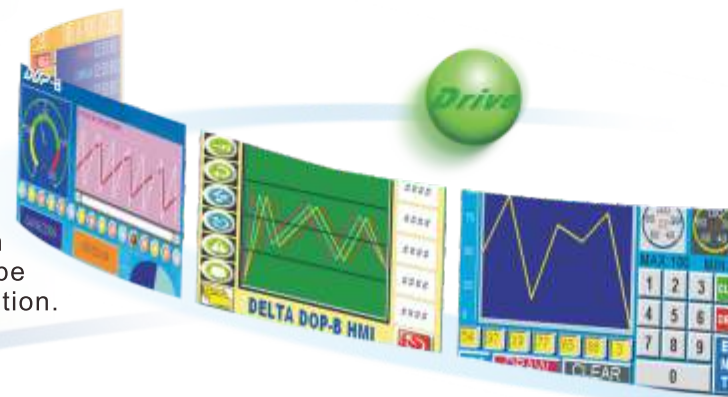
Powerful Controller Drivers Support

Not just Delta industrial automation products, but more than 30 brands, and over 100 models of PLCs or controllers can be connected for effortless communication and versatile operation.

Best Performance

Motion

Beautiful Display

Beneficial Features

Drive

Human Machine Interface

259 SPEED1
-364 SPEED2

1

2

Specifications

B04 Standard

Model Name	Display Size	Display Type	Resolution	ROM	Ethernet	USB Host	USB Client	Memory Card	Audio Output
DOP-B04S211	4.7	65536 Colors TFT	480x272	4 MB	N/A	N/A	v1.1 * 1	N/A	N/A

64K Color TFT

Serial Interface

B05 Standard

Model Name	Display Size	Display Type	Resolution	ROM	Ethernet	USB Host	USB Client	Memory Card	Audio Output
DOP-B05S100	5.6	65536 Colors TFT	320x234	4 MB	N/A	v1.1 * 1	v1.1 * 1	N/A	N/A
DOP-B05S101	5.6	65536 Colors TFT	320x234	8 MB	N/A	v1.1 * 1	v1.1 * 1	N/A	N/A

64K Color TFT

Serial Interface

USB

B07 High Resolution Widescreen

Model Name	Display Size	Display Type	Resolution	ROM	Ethernet	USB Host	USB Client	Memory Card	Audio Output
DOP-B07S211	7	65536 Colors TFT	800x480	128MB	N/A	v1.1 * 1	V2.0 * 1	N/A	N/A
DOP-B07S415	7	65536 Colors TFT	800x480	128MB	N/A	v1.1 * 1	V2.0 * 1	SD	N/A
DOP-B07E415	7	65536 Colors TFT	800x480	128MB	10/100 Base-T	v1.1 * 1	V2.0 * 1	SD	YES

Widescreen

64K Color TFT

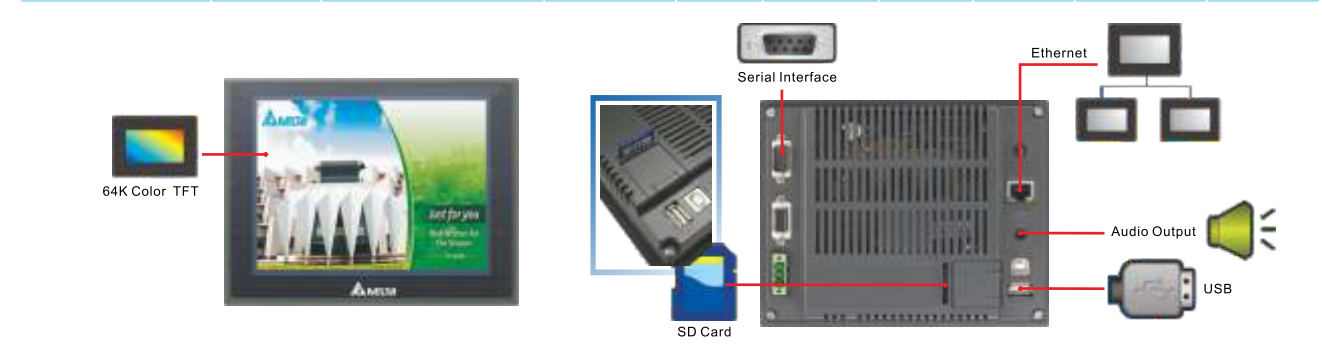Audio Output

USB

SD Card

Serial Interface
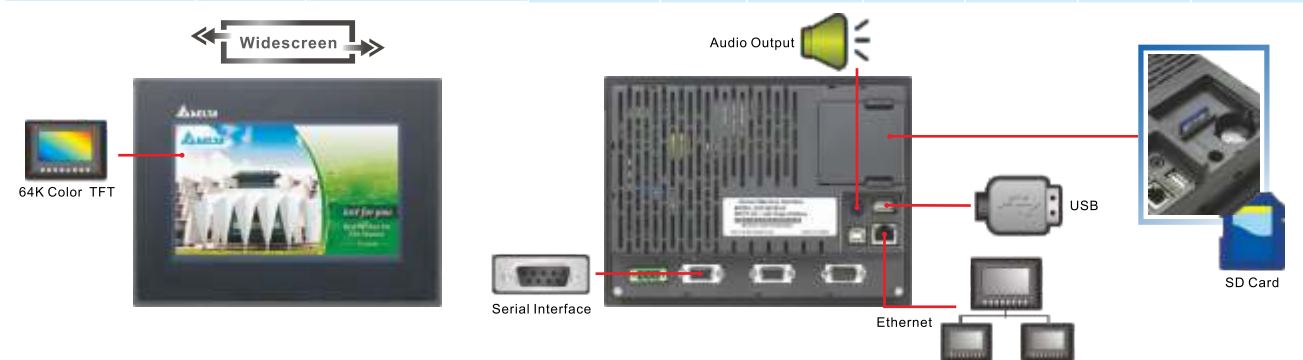
Ethernet

B07 High Resolution

Model Name	Display Size	Display Type	Resolution	ROM	Ethernet	USB Host	USB Client	Memory Card	Audio Output
DOP-B07S515	7	65536 Colors TFT	800x600	128MB	N/A	v1.1 * 1	V2.0 * 1	SD	N/A
DOP-B07E515	7	65536 Colors TFT	800x600	128MB	10/100 Base-T	v1.1 * 1	V2.0 * 1	SD	YES

64K Color TFT

Serial Interface

Ethernet

Audio Output

USB

SD Card

## B08 High Resolution

Model Name	Display Size	Display Type	Resolution	ROM	Ethernet	USB Host	USB Client	Memory Card	Audio Output
DOP-B08S515	8	65536 Colors TFT	800x600	128MB	N/A	v1.1 * 1	V2.0 * 1	SD	N/A
DOP-B08E515	8	65536 Colors TFT	800x600	128MB	10/100 Base-T	v1.1 * 1	V2.0 * 1	SD	YES

64K Color TFT

Audio Output

USB

SD Card

Serial Interface
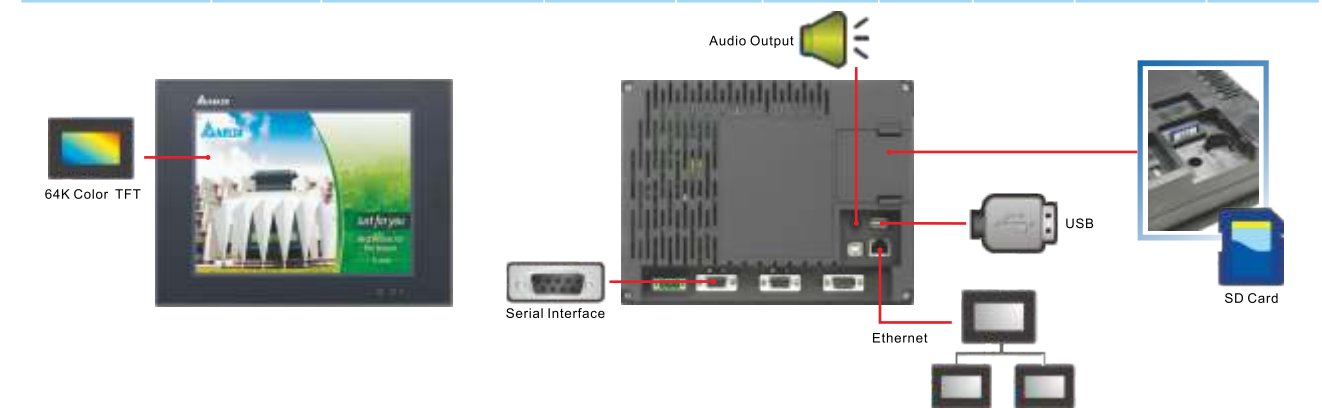
Ethernet

B10 High Resolution Widescreen

Model Name	Display Size	Display Type	Resolution	ROM	Ethernet	USB Host	USB Client	Memory Card	Audio Output
DOP-B10S615	10	65536 Colors TFT	1024x600	128MB	N/A	v1.1 * 1	V2.0 * 1	SD	N/A
DOP-B10E615	10	65536 Colors TFT	1024x600	128MB	10/100 Base-T	v1.1 * 1	V2.0 * 1	SD	YES

Widescreen

64K Color TFT

Serial Interface

USB

Ethernet

Audio Output

SD Card
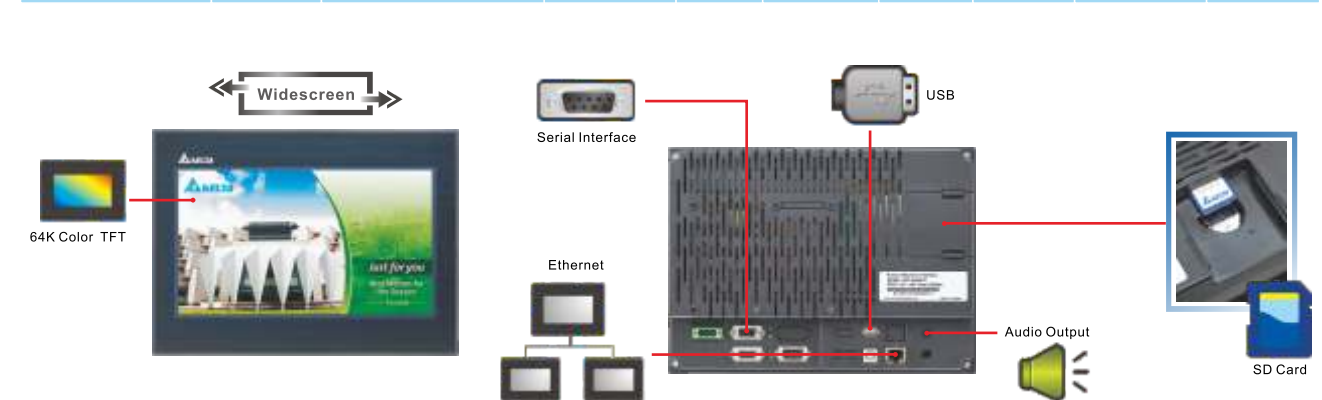
High Quality Display

65,536-color high quality TFT display offers more realistic and vivid images to capture and visualize system and manufacturing processes more quickly.

Audio Output Interface

Alarm!

● In case of errors, an alarm alerts users via an audio message in real time.

Supports built-in amplified speaker using 3.5mm stereo mini jack

▶ As the broadcast of alarms is triggered by the corresponding bit, the alarm messages can be played and output in different sound files by setting values of word registers.

M30=ON   D100=1   **Overcurrent!**

M30=ON   D100=3   **Overload!**

D100	Sound Files	Audio Messages
1	A.wav	Overcurrent
2	B.wav	Overvoltage
3	C.wav	Overload

Supports Various Peripherals via USB Hub

Slave (USB-type B)

⚠ Compatible with Windows Vista / Windows 7

Screen data can be transferred rapidly via USB connection.

Up to 480Mbps high-speed data transfer via USB v2.0

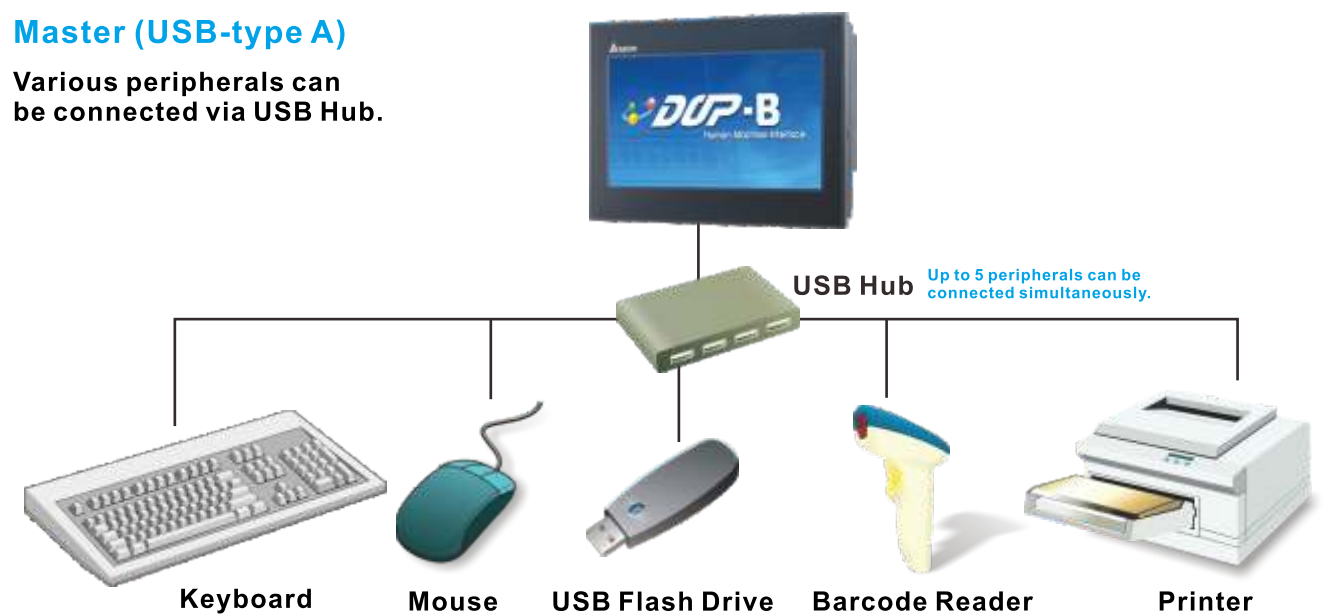PLC Programming Software: WPLSoft

USB   RS-223

*Supports Delta DVP series PLC only.

Using bypass function, enable monitoring functions and modify PLC programs directly via USB connection.

Master (USB-type A)

Various peripherals can be connected via USB Hub.

USB Hub Up to 5 peripherals can be connected simultaneously.

Keyboard   **Mouse**   **USB Flash Drive**   **Barcode Reader**   **Printer**

Supports printers compatible with PictBridge.

ΔELTA

SD Card / USB Disk Versatile Storage Interface

- Exploiting the convenience of SD card and USB disk, screen data transfer and collection can be quickly performed and the storage capacities of HMI can be easily increased. No need to worry about data capacity of excessive history and recipe data.

- SD card and USB disk are in FAT32 format, fully compatible with Microsoft Windows and allow filenames that exceed eight characters in length.

Recipe   USB disk   SD Card

The recipe data can be saved in CSV format and easily edited on an external PC in Excel to effectively save PLC memory.

History   Alarm   USB disk   SD Card

History and alarm information can also be saved in CSV format and stored to the SD card / USB disk.

- Multiple project screen data can be saved in SD card / USB disk simultaneously and transferred to HMI. No need to connect to PC.

- The data saved in SD card / USB disk can be encrypted and the number of copies can be limited to protect the programs from unauthorized use.

Project A   Project B   Project C   USB disk   SD Card

- PLC ladder diagrams can be transferred and backup via SD card / USB disk even in a location where an external PC is not available.

- SD card / USB disk are capable of storing several PLC ladder diagrams.

PLC Ladder Diagrams   USB disk   SD Card

Support Delta DVP series PLC only.

Multilingual Display

Up to 16 languages are available. No need to redesign the screen data! A benefit for marketing the equipment to manufacturers and end users around the world.

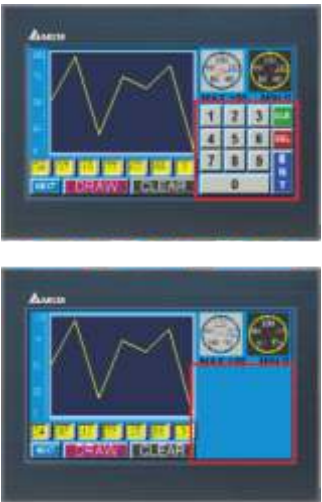Multilingual editing on a PC in Excel

Password Settings

Provide 8 levels of passwords to set user security to prevent improper use. Only the security level that is equal to or higher than the current setting can use the element.
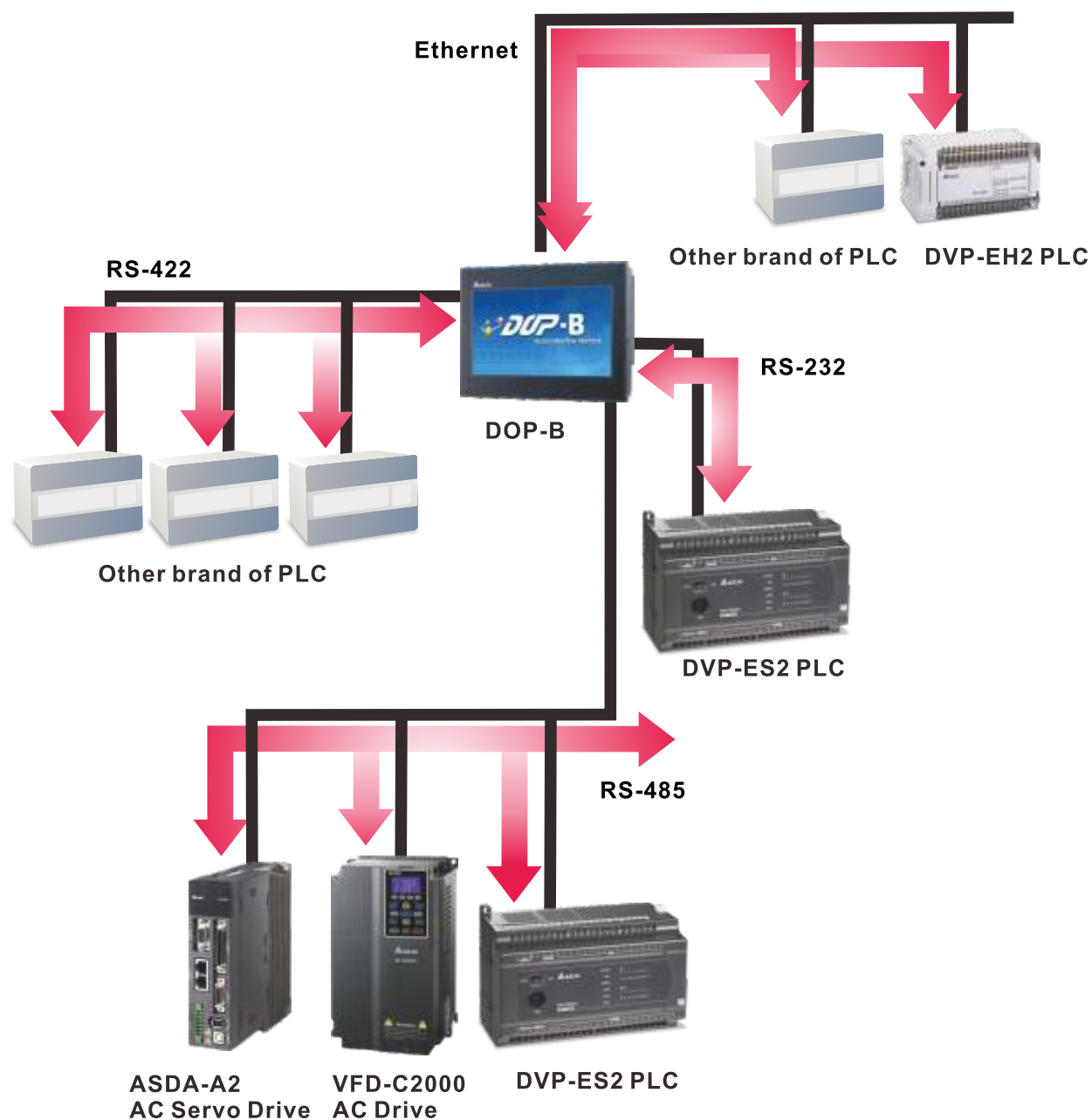
Element Invisible Function

The element on the screen can be hidden by triggering the corresponding bit.
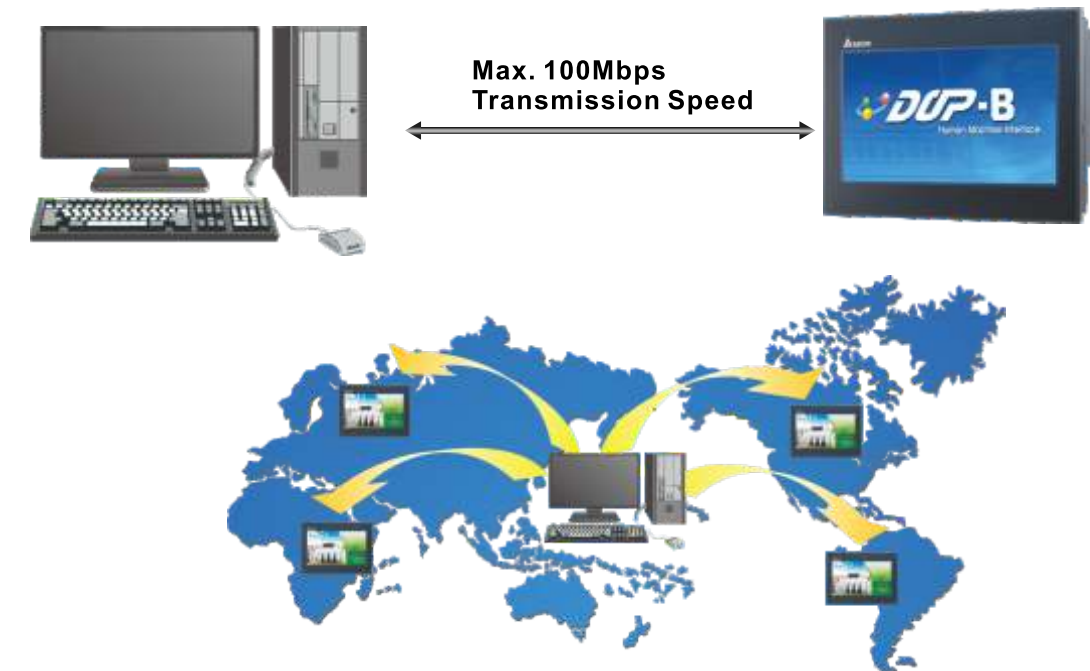
Provides Diverse Communication Interfaces

Easy to communicate with more than 30 brands of PLCs/Controllers

All DOP-B series models support RS-232/485/422 communication interfaces and over 20 different PLC/Controller drivers. With the aid of an Ethernet interface, it is possible to use four communication interfaces at the same time, easily connecting to various industrial automation devices for a complete communication network link managed by Delta's new DOP-B series.

Ethernet

RS-422

Other brand of PLC   **DVP-EH2 PLC**

DOP-B

RS-232

Other brand of PLC

DVP-ES2 PLC

RS-485

ASDA-A2 AC Servo Drive   **VFD-C2000 AC Drive**   **DVP-ES2 PLC**

Ethernet Ubiquitous High Speed Communication

## Ethernet Upload and Download

Max. 100Mbps Transmission Speed

Easy to maintain and upgrade programs no matter where you are in the world.

Best Solution for Network Monitoring

Using an Ethernet connection can easily establish an N:N communication link and create the desired communication network according to different application requirements.

The DOP-B series HMI can use the IFD9506 Ethernet communication module, which is able to switch Ethernet and RS-485 interfaces quickly, to connect Delta's AC servo drive, AC motor drive, temperature controller and other industrial automation products via the Ethernet and control the entire network for a complete and ultimate network monitoring solution.
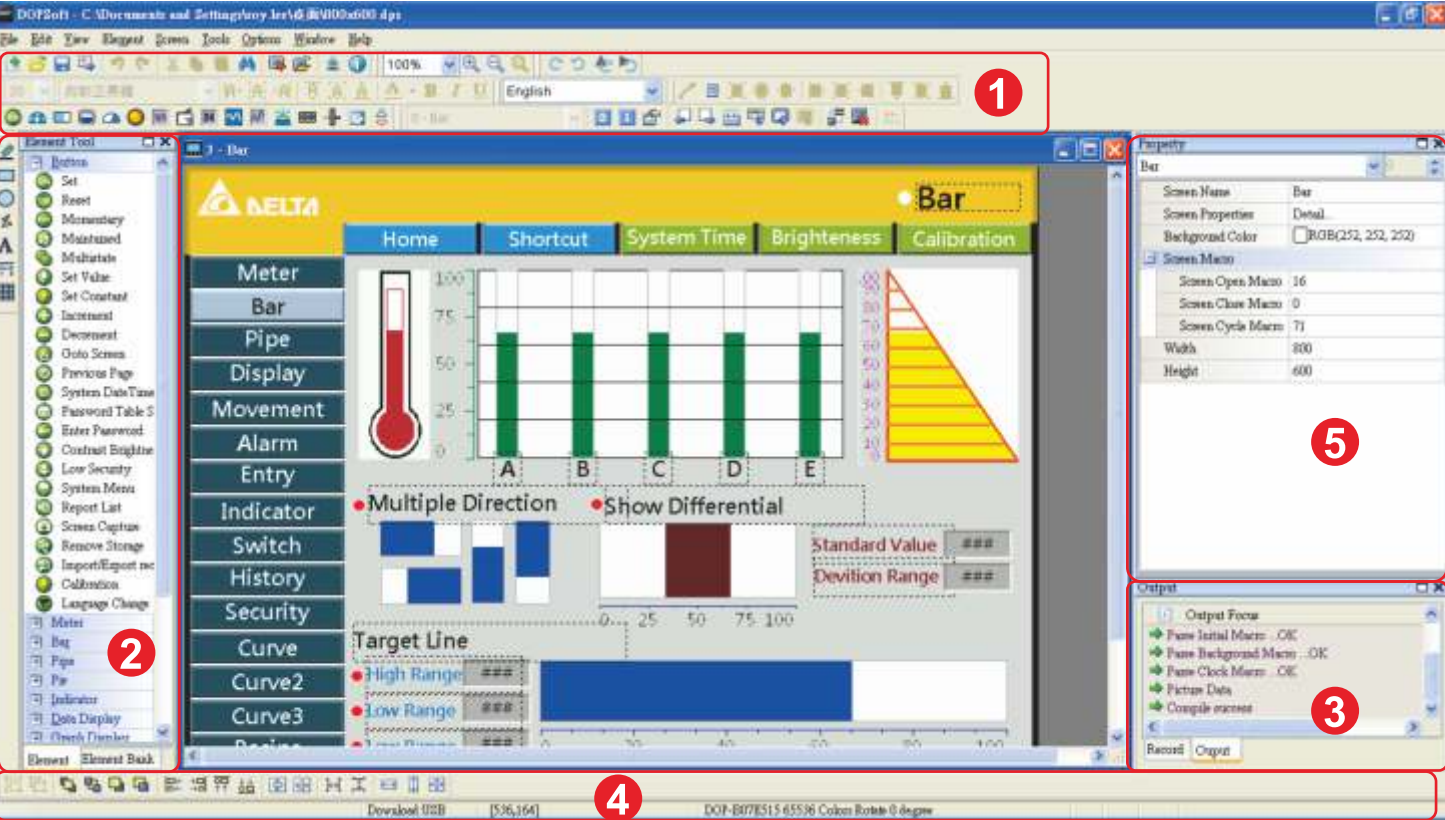
Ethernet

IFD9506 Ethernet Communication Module/RS-485 Converter

DVP-SV PLC

RS485

ASDA-A2 AC Servo Drive   **DTB Temperature Controller**   **VFD-E AC Drive**
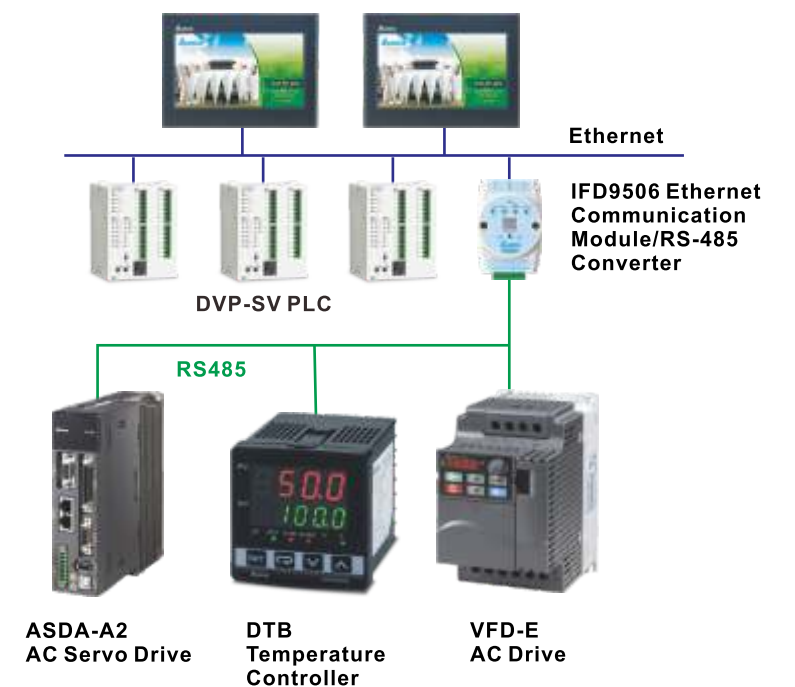
DOPSoft

The all new and upgraded configuration software provides complete functions and a user-friendly operator interface. Make editing easier than ever with a whole new level of design.

① Toolbar

Actions such as edit, save, upload and compile can be executed easily just by clicking the attractive and easy-to-see icons on the toolbar.

② Element Tool Window

The Element Tool window provides a wide variety of element icons for selection. Use the mouse to select the desired element icon and drag it onto the work place to create a new element.

③ Output Window

The Output Window displays all the editing actions and output messages when the compile function is enabled. Once an error occurs, the error messages are displayed in Output Window as well.

④ Layout Toolbar

The Layout Toolbar offers Bring to Front, Send to Bottom, Align, Across/Down Space Evenly, Make Same Size and other functions for the benefit of creating intricate and beautiful elements.

⑤ Property Table

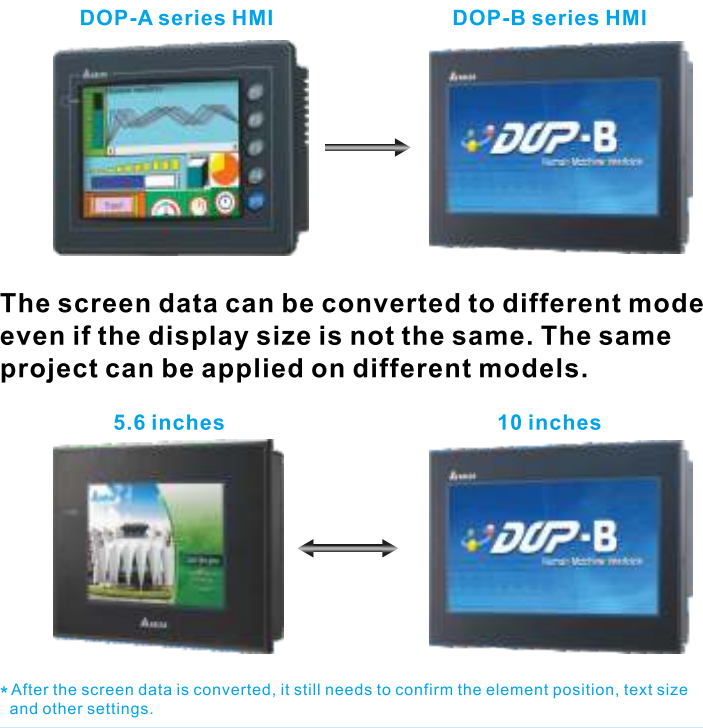The Property Table displays the element property settings for each element.

Convenient Screen Data Conversion

Compatible with the existing DOPSoft for the DOP-A series HMI, the project file created by DOPSoft can be opened by DOPSoft.
It's easy to upgrade and convert projects from DOP-A series HMI to DOP-B series HMI.

DOP-A series HMI → DOP-B series HMI

The screen data can be converted to different models even if the display size is not the same. The same project can be applied on different models.

5.6 inches ↔ 10 inches

*After the screen data is converted, it still needs to confirm the element position, text size and other settings.

Picture Bank

Newly designed picture bank offers more colorful and attractive elements.

Minimum System Requirements of DOPSoft

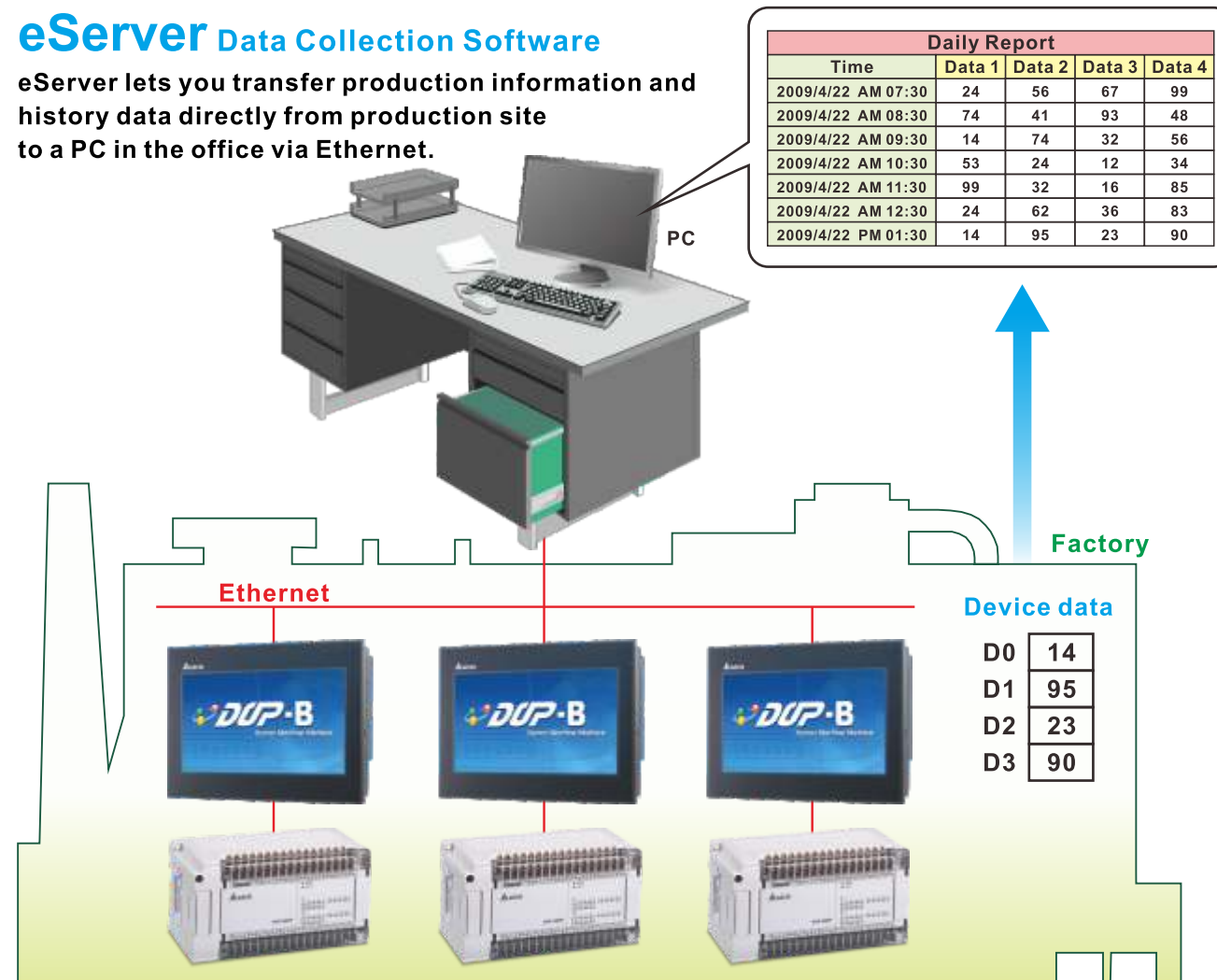| Hardware / Software	System Requirements
CPU	Pentium4 1.6GHz or greater is recommended
Memory	2G MB and above is recommended
Hard Disk	Capacity: 400MB and above
Monitor	Supports resolution: 800 x 600 or higher full-color display.
Printer	Printer compatible with Windows 2000 Windows XP / Windows Vista / Windows 7
Operating System	Windows 2000 / Windows XP Windows Vista / Windows 7

*Users can download the DOPSoft configuration software and the user manual at Delta's website via the following link: http://www.delta.com.tw/industrialautomation/.

Solution for Constructing a Network between Office and Production Site via Ethernet

eServer Data Collection Software

eServer lets you transfer production information and history data directly from production site to a PC in the office via Ethernet.

PC

Daily Report				
Time	Data 1	Data 2	Data 3	Data 4
2009/4/22 AM 07:30	24	56	67	99
2009/4/22 AM 08:30	74	41	93	48
2009/4/22 AM 09:30	14	74	32	56
2009/4/22 AM 10:30	53	24	12	34
2009/4/22 AM 11:30	99	32	16	85
2009/4/22 AM 12:30	24	62	36	83
2009/4/22 PM 01:30	14	95	23	90

Factory

Ethernet

Device data

D0	14
D1	95
D2	23
D3	90

1) Excel Sampling Data

- Collected data can be saved in user-defined Excel files according to purpose and to easily create production reports.
- If the formulas in the Excel file are set in advance, the production data, i.e. defective rate, average working hours and capacity utilization rate, and more can be calculated simultaneously while production data is recorded.
- Production data can be saved in daily reports, weekly reports and monthly reports, and more automatically under different settings.

2) Database Sampling Data

- Users can access any database via ODBC interface.

3) Recipe Data Transfer

- Users can transfer and backup the recipe data via eServer easily.

eRemote Remote Control Software

eRemote lets you view and check the same screen shown on the HMI at the production site, and control the manufacturing process via Ethernet. No matter where you are, remote control is easily accomplished.

PC

Factory

Ethernet
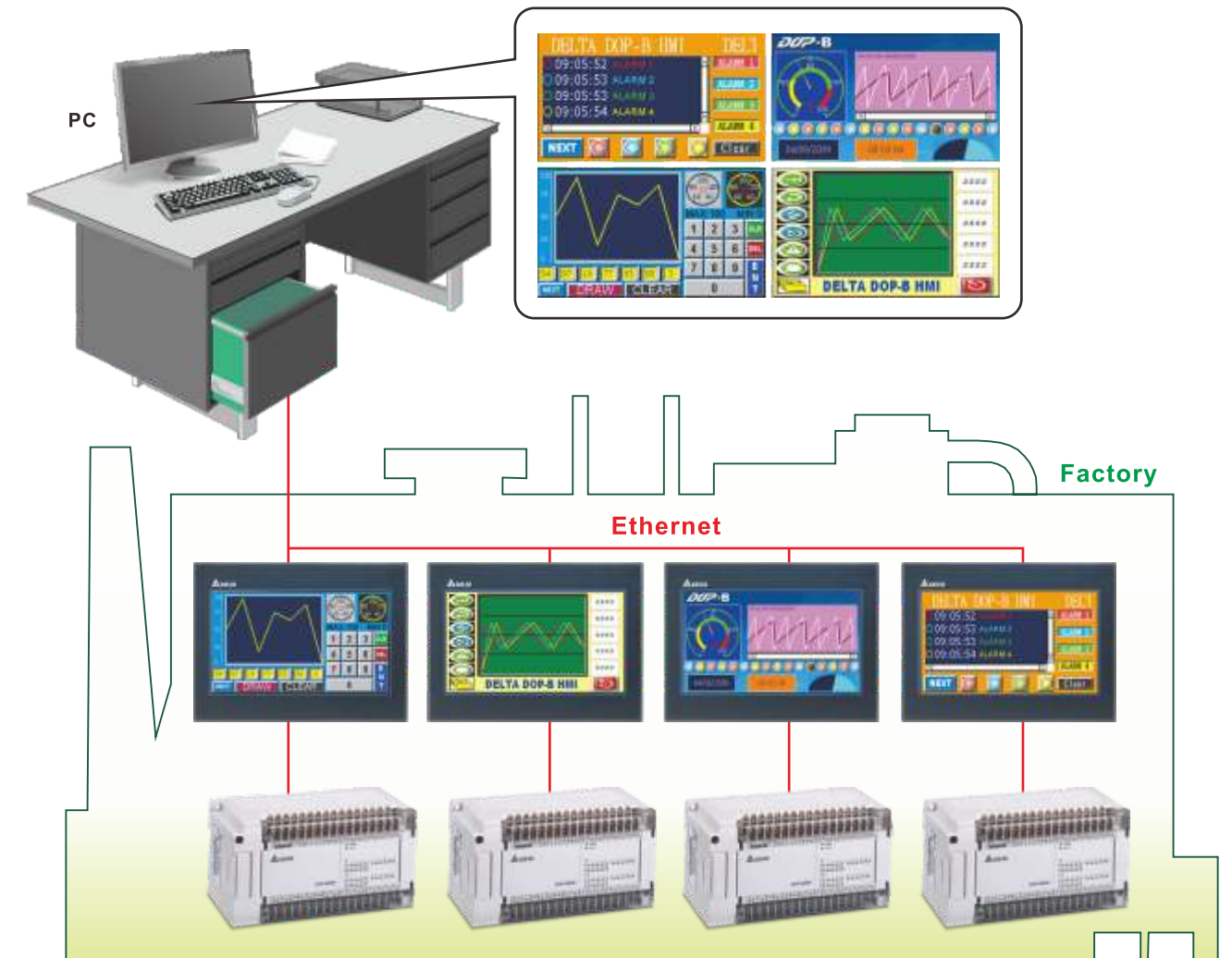
Minimum System Requirements for eServer / eRemote

Hardware / Software	System Requirements
CPU	Pentium 4,1.6GHz or greater is recommended
Memory	2G MB and above is recommended
Hard Disk	Capacity: 50MB and above
Monitor	Supports resolution: 1024 x 768 or higher full-color display.
Printer	Printer compatible with Windows 2000 / Windows XP Windows Vista / Windows 7
Operating System	Windows 2000 / Windows XP / Windows Vista / Windows 7

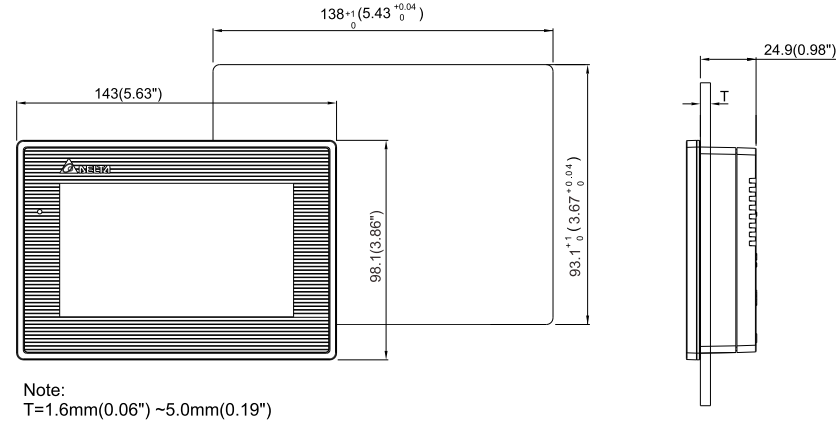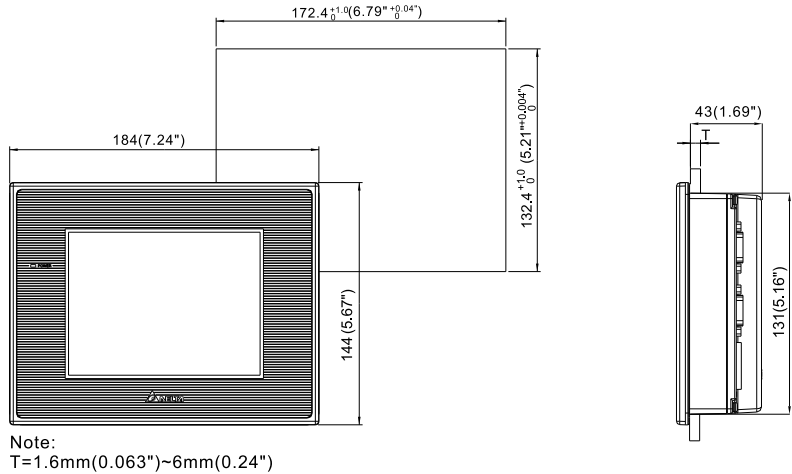* Users can download the eServer / eRemote software and the user manual at Delta's website via the following link: http://www.delta.com.tw/industrialautomation/.

Dimensions

Units: mm (inches)

● **DOP-B04S211**

Note:
T=1.6mm(0.06") ~5.0mm(0.19")

● **DOP-B05S100**
● **DOP-B05S101**

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

Optional Accessories

Model Name	Description
DOP-CA232DP	DOP-CA232DP: RS-232 Communication Cable for DVP Series PLC (Female Socket)
DVPACAB2A30	DVPACAB2A30: RS-232 Communication Cable for DVP Series PLC (Male Socket)
DOP-CAUSBAB	DOP-CAUSBAB: USB Communication Cable

● **DOP-B07S411 / B07S(E)415**

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

● **DOP-B07S(E)515**

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

● **DOP-B08S(E)515**

Note:
T=1.6mm(0.06") ~5.0mm(0.19")

● **DOP-B10S(E)615**

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

Ordering Information

DOP - B 07 S 4 15

[Version Code]

[Resolution] 1 : QVGA   2 : WQVGA   4 : WVGA
              5 : SVGA   6 : WXGA

[Type] S: Standard Type / E: Ethernet Type

[Display Size] 04 : 4.7 inches / 05 : 5.6 inches / 07 : 7 inches
                  08 : 8 inches / 10 : 10.1 inches

[Series] B: B Series HMI

[Production Name] DOP: Delta Operation Panel

DELTA
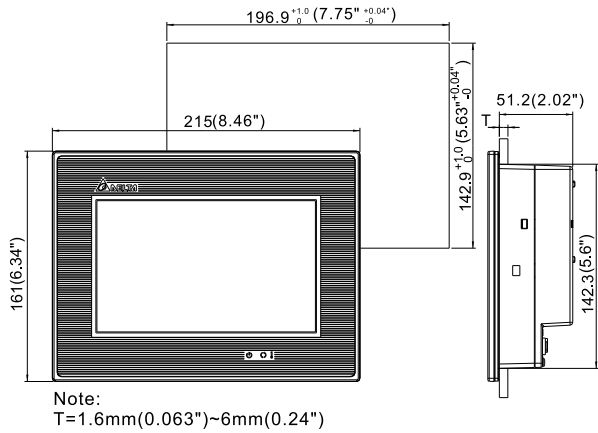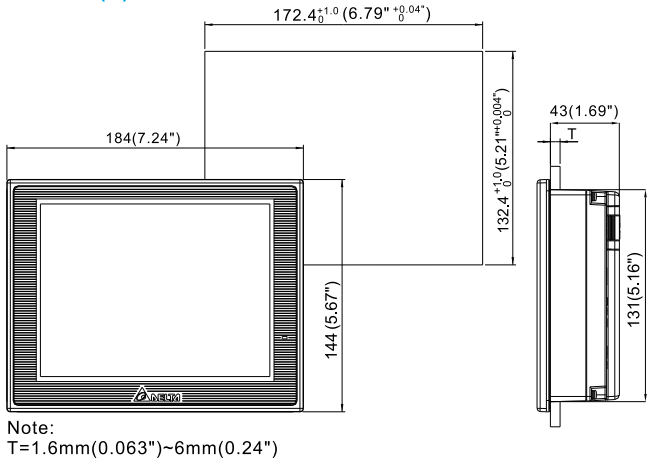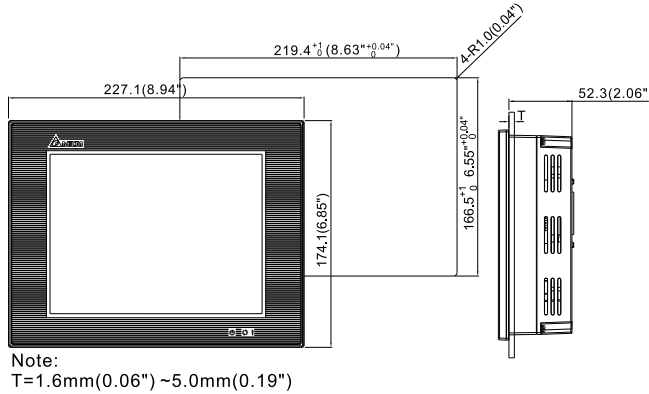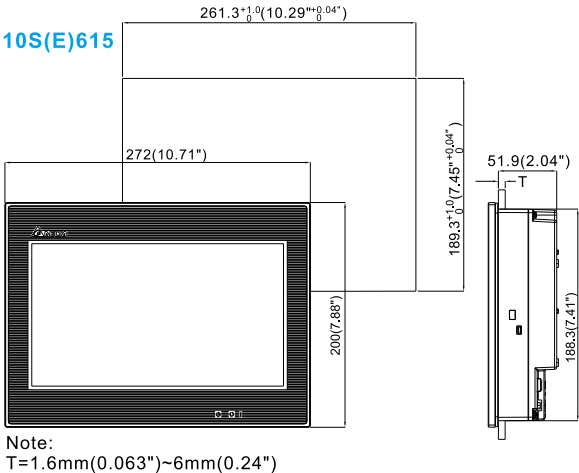
Specifications

MODEL		DOP-B04S211	DOP-B05S100	DOP-B05S101	DOP-B07S411	DOP-B07S415	DOP-B07E415
LCD MODULE	Display Type	4.7" TFT LCD (65536 colors)	5.6" TFT LCD (65536 colors)	5.6" TFT LCD (65536 colors)	7" Widescreen TFT LCD	7" Widescreen TFT LCD	7" Widescreen TFT LCD
	Resolution	480 x 272 pixels	480 x 234 pixels	480 x 234 pixels	800 x 480 pixels	800 x 480 pixels	800 x 480 pixels
	Backlight	LED Back Light (less than 20,000 hours half-life at 25°C) [Note 1]					
	Display Size	113.68 x 58.75mm	113.28 x 84.70mm	113.28 x 84.70mm	154.08 x 85.92mm	152.4 x 91.44mm	152.4 x 91.44mm
Operating System		Delta Real Time OS					
MCU		32-bit RISC Micro-controller					
NOR Flash ROM		Flash ROM 4 MB (OS System: 2MB / User Application: 2MB)	Flash ROM 4 MB (OS System: 2MB / User Application: 2MB)	Flash ROM 8 MB (OS System: 2MB / User Application: 6MB)	Flash ROM 128 MB (OS System: 30MB / Backup: 16MB / User Application: 82MB)		
SDRAM		8Mbytes	8Mbytes	16Mbytes	64Mbytes		
Backup Memory (Bytes)		32Kbytes	128Kbytes	128Kbytes	16Mbytes		
Sound Effect Output	Buzzer	Multi-Tone Frequency (2K ~ 4K Hz)/85dB					
	AUX	N/A	N/A	N/A	N/A	N/A	Stereo output
Ethernet Interface		N/A	N/A	N/A	N/A	N/A	IEEE 802.3/ IEEE 802.3u 10/100 Mbps Auto-sensing (has built-in isolated power circuit [Note 3])
Memory Card		N/A	N/A	N/A	N/A	SD card (support SDHC)	SD card (support SDHC)
USB		1 USB Client Ver 1.1	1 USB Host [Note2] Ver 1.1 / 1 USB Client Ver 1.1	1 USB Host [Note2] Ver 1.1 / 1 USB Client Ver 1.1	1 USB Host [Note2] Ver 1.1 / 1 USB Client Ver 2.0		
Serial COM Port	COM1	RS-232 (Supports hardware flow control) / RS-422 /RS-485	RS-232 (supports hardware flow control)				
	COM2	N/A	RS-232 / RS-485	RS-232 / RS-485	RS-232 / RS-485	RS-232 / RS-422 RS-485	RS-232 / RS-422 RS-485 (has built-in isolated power circuit [Note 3])
	COM3	N/A	RS-422 / RS-485	RS-422 / RS-485	RS-422 / RS-485	RS-232 / RS-422 RS-485	RS-232 / RS-422 RS-485 (has built-in isolated power circuit [Note 3])
Function Key		N/A					
Perpetual Calendar (RTC)		Built-in					
Cooling Method		Natural air circulation					
Safety Approval		CE / UL [Note 4] / KCC [Note 4]					
Waterproof Degree		IP65 / NEMA4					
Operation Voltage [Note 5]		DC +24V(-10% ~ +15%) (please use isolated power supply)					DC +24V (-10% ~ +15%) (has built-in isolated power circuit [Note 3])
Voltage Endurance		AC500V for 1 minute (between charging DC24 terminal and FG terminals)					
Power Consumption [Note 5]		2.64W	3.0W	3.0W	4W	5W	7.5W
Backup Battery		3V lithium battery CR2032 x 1					
Backup Battery Life		It depends on the temperature used and the conditions of usage, about 3 years or more at 25°C					
Operation Temp		0°C ~ 50°C					
Storage Temp		-20°C ~ +60°C					
Ambient Humidity		10% ~ 90% RH [0 ~ 40°C]，10% ~ 55% RH [41 ~ 50°C]，Pollution Degree 2					
Vibration Resistance		IEC 61131-2 Compliant 5Hz≦f<9Hz = Continuous: 1.75mm / Occasional: 3.5mm 9Hz≦f≦150Hz = Continuous: 0.5g / Occasional: 1.0g X, Y, Z directions for 10 times					
Dimensions (W) x (H) x (D) mm		143 x 98.1 x 31.2	184 x 144 x 50	184 x 144 x 50	215 x 161 x 50	215 x 161 x 50	215 x 161 x 50
Panel Cutout (W) x (H) mm		138 x 93.1	172.4 x 132.4	172.4 x 132.4	196.9 x 142.9	196.9 x 142.9	196.9 x 142.9
Weight		Approx. 295g	Approx. 670g	Approx. 670g	Approx. 820g	Approx. 970g	Approx. 970g

1) The half-life of backlight is defined as original luminance being reduced by 50% when the maximum driving current is supplied to HMI.
2) USB Host port can provide up to 5V/ 500mA of power.
3) The isolated power circuit can withstand a 1500V voltage peak for 1 minute.
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 HMI with no peripheral devices connected. To ensure normal operation, it is recommended using a power supply with a capacity 1.5 ~2 times the value of the power consumption.
6) Users can download the Screen Editor V2.00, the program editor of Delta HMI product and the user manual via the following link: http://www.delta.com.tw/industrialautomation/.
7) The content of this catalogue may be revised without prior notice. Please consult our distributors or download the most updated version at http://www.delta.com.tw/industrialautomation/.

MODEL		DOP-B07S515	DOP-B07E515	DOP-B08S515	DOP-B08E515	DOP-B10S615	DOP-B10E615
LCD MODULE	Display Type	7" TFT LCD (65536 colors)	7" TFT LCD (65536 colors)	8" TFT LCD (65536 colors)	8" TFT LCD (65536 colors)	10" Widescreen TFT LCD	10" Widescreen TFT LCD
	Resolution	800 x 600 pixels	800 x 600 pixels	800 x 600 pixels	800 x 600 pixels	1024 x 600 pixels	1024 x 600 pixels
	Backlight	LED Back Light (less than 10,000 hours half-life at 25°C) [Note 1]					
	Display Size	141 x 105.75mm	141 x 105.75mm	162 x 121.5mm	162 x 121.5mm	226 x 128.7mm	226 x 128.7mm
Operating System		Delta Real Time OS					
MCU		32-bit RISC Micro-controller					
NOR Flash ROM		Flash ROM 128MB (OS System: 30MB / Backup: 16MB / User Application: 82MB)	Flash ROM 128MB (OS System: 30MB / Backup: 16MB / User Application: 82MB)	Flash ROM 128MB (OS System: 30MB / Backup: 16MB / User Application: 82MB)	Flash ROM 128MB (OS System: 30MB / Backup: 16MB / User Application: 82MB)	Flash ROM 128 MB (OS System: 30MB / Backup: 16MB / User Application: 82MB)	Flash ROM 128 MB (OS System: 30MB / Backup: 16MB / User Application: 82MB)
SDRAM		64Mbytes					
Backup Memory (Bytes)		16Mbytes					
Sound Effect Output	Buzzer	Multi-Tone Frequency (2K ~ 4K Hz)/85dB					
	AUX	N/A	Stereo output	N/A	Stereo output	N/A	Stereo output
Ethernet Interface		N/A	IEEE 802.3/ IEEE 802.3u 10/100 Mbps Auto-sensing (has built-in isolated power circuit [Note 3])	N/A	IEEE 802.3/ IEEE 802.3u 10/100 Mbps Auto-sensing (has built-in isolated power circuit [Note 3])	N/A	IEEE 802.3/ IEEE 802.3u 10/100 Mbps Auto-sensing (has built-in isolated power circuit [Note 3])
Memory Card		SD card (support SDHC)					
USB		1 USB Host [Note2] Ver 1.1 / 1 USB Client Ver 2.0					
Serial COM Port	COM1	RS-232 (supports hardware flow control)					
	COM2	RS-232 / RS-422 RS-485	RS-232 / RS-422 RS-485 (has built-in isolated power circuit [Note 3])	RS-232 / RS-422 RS-485	RS-232 / RS-422 RS-485 (has built-in isolated power circuit [Note 3])	RS-232 / RS-422 / RS-485 (has built-in isolated power circuit [Note 3])	RS-232 / RS-422 / RS-485 (has built-in isolated power circuit [Note 3])
	COM3	RS-232 / RS-422 RS-485	RS-232 / RS-422 RS-485 (has built-in isolated power circuit [Note 3])	RS-232 / RS-422 RS-485	RS-232 / RS-422 RS-485 (has built-in isolated power circuit [Note 3])	RS-232 / RS-422 / RS-485 (has built-in isolated power circuit [Note 3])	RS-232 / RS-422 / RS-485 (has built-in isolated power circuit [Note 3])
Function Key		N/A					
Perpetual Calendar (RTC)		Built-in					
Cooling Method		Natural air circulation					
Safety Approval		CE / UL [Note 4] / KCC [Note 4]					
Waterproof Degree		IP65 / NEMA4					
Operation Voltage [Note 5]		DC +24V (-10% ~ +15%) (please use isolated power supply)	DC +24V (-10% ~ +15%) (has built-in isolated power circuit [Note 3])	DC +24V (-10% ~ +15%) (please use isolated power supply)	DC +24V (-10% ~ +15%) (has built-in isolated power circuit [Note 3])	DC +24V (-10% ~ +15%) (has built-in isolated power circuit [Note 3])	DC +24V (-10% ~ +15%) (has built-in isolated power circuit [Note 3])
Voltage Endurance		AC500V for 1 minute (between charging DC24 terminal and FG terminals)					
Power Consumption [Note 5]		7.68W	7.68W	5.2W	7.8W	12W	12W
Backup Battery		3V lithium battery CR2032 x 1					
Backup Battery Life		It depends on the temperature used and the conditions of usage, about 3 years or more at 25°C					
Operation Temp		0°C ~ 50°C					
Storage Temp		-20°C ~ +60°C					
Ambient Humidity		10% ~ 90% RH [0 ~ 40°C]，10% ~ 55% RH [41 ~ 50°C]，Pollution Degree 2					
Vibration Resistance		IEC 61131-2 Compliant 5Hz≦f<9Hz = Continuous: 1.75mm / Occasional: 3.5mm 9Hz≦f≦150Hz = Continuous: 0.5g / Occasional: 1.0g X, Y, Z directions for 10 times					
Dimensions (W) x (H) x (D) mm		184 x 144 x 50	184 x 144 x 50	227.1 x 174.1 x 61	227.1 x 174.1 x 61	272 x 200 x 61	272 x 200 x 61
Panel Cutout (W) x (H) mm		172.4 x 132.4	172.4 x 132.4	219.4 x 166.5	219.4 x 166.5	261.3 x 189.3	261.3 x 189.3
Weight		Approx. 800g	Approx. 800g	Approx. 1226g	Approx. 1228g	Approx. 1520g	Approx. 1520g

1) The half-life of backlight is defined as original luminance being reduced by 50% when the maximum driving current is supplied to HMI.
2) USB Host port can provide up to 5V/ 500mA of power.
3) The isolated power circuit can withstand a 1500V voltage peak for 1 minute.
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 HMI with no peripheral devices connected. To ensure normal operation, it is recommended using a power supply with a capacity 1.5 ~2 times the value of the power consumption.
6) Users can download the Screen Editor V2.00, the program editor of Delta HMI product and the user manual via the following link: http://www.delta.com.tw/industrialautomation/.
7) The content of this catalogue may be revised without prior notice. Please consult our distributors or download the most updated version at http://www.delta.com.tw/industrialautomation/.