

# Authorised Distributors:-

# **Intech Automation, Chennai-600 032**

Ph:43534888 Mob:9940538888 Fax:43534889

E-mail: info@intechautomation.in Website: www.intechautomation.in

### ASIA

### Delta Electronics, Inc.

Taovuan1

31-1, Xingbang Road, Guishan Industrial Zone, Taoyuan County 33370, Taiwan, R.O.C. TEL: 886-3-362-6301 / FAX: 886-3-362-7267

### Delta Electronics (Jiang Su) Ltd.

Wujiang Plant3

1688 Jiangxing East Road, Wujiang Economy 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 Electronics (Japan), Inc.

Tokyo Office

Delta Shibadaimon Building, 2-1-14 Shibadaimon, Minato-Ku, Tokyo, 105-0012, Japan TEL: 81-3-5733-1111 / FAX: 81-3-5733-1211

# Delta Electronics (Korea), Inc.

Donghwa B/D 3F, 235-6, Nonhyun-dong, Kangnam-gu, Seoul 135-010, Korea TEL: 82-2-515-5303/5 / FAX: 82-2-515-5302

Delta Electronics (Singapore) Pte. Ltd. 8 Kaki Bukit Road 2, #04-18 Ruby Warehouse Complex, Singapore 417841 TEL: 65-6747-5155 / FAX: 65-6744-9228

### **AMERICA**

### **Delta Products Corporation (USA)**

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

### **EUROPE**

### Deltronics (The Netherlands) B.V.

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



Authorised Distributors:-Intech Automation, Chennai-600 032 Ph: +91 44 4353 8888 Mob: +91 99 4353 4888 Fax: 044 4353 7888 E-mail: info@intechautomation.in Website: www.intechautomation.in

**DELTA Human Machine Interface** 



www.delta.com.tw/industrialautomation

# Various dimensions, display size and performance for a wide range of industrial applications

**TP Series** P 100000 335 130000 335 Display max. 5 lines text OBBBBB TO Monochrome STN Display max. 4 lines text Monochrome STN Display max. 2 lines text

Performance



# **Dimensions**

10.4"Series

*AE* 10

65536 Colors TFT USB HOST Extension Interface SM Card

000000

**A10** 

| Series               | TP02 TP04              |                | TP05          | TP08          | Δ                   | .S                  |
|----------------------|------------------------|----------------|---------------|---------------|---------------------|---------------------|
| Display Size         | 72*22mm                | 3"(67*32mm)    | 3.8"(83*41mm) | 3.8"(83*41mm) | 3.8                 | 5.7                 |
| Resolution           | 160*32                 | 128*64         | 160*80        | 240*128       | 320*240             | 320*240             |
| Display Color        | Monochrome             | Monochrome     | Monochrome    | Monochrome    | 8 Shades of<br>Blue | 8 Shades of<br>Blue |
| Flash Memory         | 25                     | 256K 512K 512K |               |               | 1M                  | 1M                  |
| SRAM                 |                        | N.             | /A            |               | 128K                | 128K                |
| Function Key         | 16                     | 12             | 24            | 24            | 4+SYS               | 4+SYS               |
| USB HOST             | N/A                    | N/A            | N/A           | N/A           | YES                 | YES                 |
| SM Card              | N/A                    | N/A            | N/A           | N/A           | N/A                 | N/A                 |
| Extension Module     | N/A N/A                |                | N/A           | N/A           | N/A                 | N/A                 |
| Serial Communication | COM * 2 COM * 2        |                | COM * 2       | COM * 2       | COM * 3             | COM * 3             |
| Editing Software     | TPEditor Screen Editor |                |               |               |                     | en Editor           |

8 Shades of Blue STN USB HOST

|   | Α             |            |   | А            | E                |              |
|---|---------------|------------|---|--------------|------------------|--------------|
| 5.7   | 8             | 10.4       | 5.7   | 8            | 9.4              | 10.4         |
| 320*240   | 640*480       | 640*480    | 320*240   | 640*480      | 640*480          | 640*480      |
| 8 Shades of Blue<br>16 Shades of<br>Gray<br>256 Colors* | 65536 Colors  | 256 Colors | 8 Shades of Blue<br>16 Shades of<br>Gray<br>256 Colors* | 65536 Colors | 8 Shades of Blue | 65536 Colors |
| 3M  | 7M            | 7M         | 3M  | 7M           | 7M               | 7M           |
| 256K  | 512K          | 256K       | 512K  | 512K         | 512K             | 512K         |
| 4+SYS   | 6+SYS         | 7+SYS      | 4+SYS   | 6+SYS        | 11+SYS           | 7+SYS        |
| N/A   | YES           | N/A        | N/A   | YES          | YES              | YES          |
| YES   | N/A           | YES        | YES   | YES          | N/A              | YES          |
| N/A   | N/A           | N/A        | YES   | YES          | YES              | YES          |
| COM * 2   | COM * 3       | COM * 2    | COM * 3   | COM * 3      | COM * 3          | COM * 3      |
|   | Screen Editor |            |   |              |                  |              |

<sup>\*</sup>The maximum visual performance of the 256 colors models is 256 colors. However, in order to make the created elements to be displayed with more brilliant colors, the ScrEdit software (Screen Editor, the program editor of Delta HMI product) only provides 144 colors for user settings.

# **Human Machine Interface**



# **Features of HMI**

# DUP/1/P

# Extension Module

Offer various kinds of optional extension modules to extend the HMI functionality.

Extension Printer Module: Used to connect to printer

Extension DIO Module: Match the need for display, control and operation all-in-one application

Extension Ethernet Module:

Peripheral equipment can be connected by Ethernet Module. The ability to long-distance data transmission enables fast and

effective monitoring and controlling.



Printer

Module.



HMI can be connected to different kinds of inkjet printers

and dot matrix printers by using USB Host or Extension Printer





# Display

Full-color Display:

Offer many different displays for the user to produce colorful, bright and high-resolution images. Max. 65536 colors TFT LCD display is provided. Clear and realistic images and graphs can be easily created.



Rapid USB Download:

Efficiently reduce download time by using USB high-speed transmission interface.

USB flash drive for Copying Screen Data:

USB flash drive is used to copy the HMI screen data. It also provides password protection and can limit the frequency of copying the screen data. Using USB flash drive can protect screen data effectively and achieve easier maintenance of remote equipment.





### Fast Operation

PLC program can be upgraded and maintained via HMI. It provides fast operation with less wiring and less connections.



Serial Communication Interface:

Support up to three COM ports for serial communication. It can connect to multiple controllers in serial simultaneously. Besides Delta industrial automation products, Delta HMI product can also support more than twenty well-known brands of controllers and continue to increase.











Screen data, history records and recipes can be easily saved through \$M çard or U\$B flash drive.







# **HMI Software Editor - Screen Editor**



Easy-to-understand Toolbar:
Easily execute any editing operation by using the icons on Toolbar.

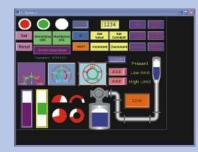
Element Toolbar: Various elements satisfy the needs of all applications.

### Recommend System Requirements of Screen Editor:

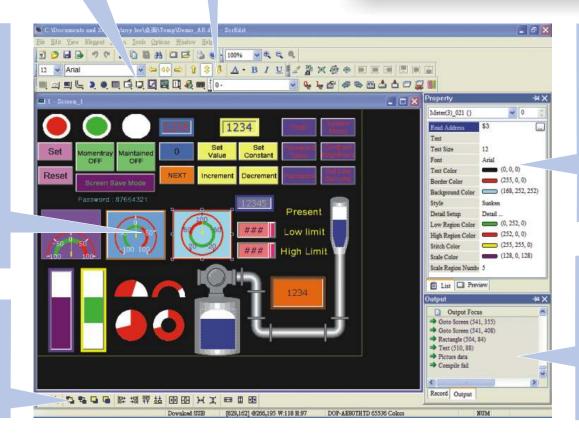
| Item      | System Requirement                                      |  |  |  |
|-----------|---|--|--|--|
| CPU       | Pentium III 500MH or higher                             |  |  |  |
| Memory    | 256 MB or more of available space is needed.            |  |  |  |
| Hard Disk | 400 MB or more of available space is needed.            |  |  |  |
| Display   | Display resolution of 800 x 600 or more is recommended. |  |  |  |
| Printer   | Printer that is compatible with Windows 2000/WindowsXP  |  |  |  |
| os        | Windows 2000/Windows XP                                 |  |  |  |

The user can download the Screen Editor, the program editor of Delta HMI product and the user manual via the following link: http://www.delta.com.tw/industrialautomation/.





Layout Toolbar:
It helps the user to align, position the element and also allows the user to make the element be the same size.



Property Table:
It provides element property settings for each element .

| The control of the c

Output Window:
All editing actions and output messages will be shown here when compile is finished.

Output \*\*X

Output From

Grant Start (\$4.55)

Grant Start (\$4.55)

Remark (\$4.55)

Remark (\$4.55)





# **Software Features**



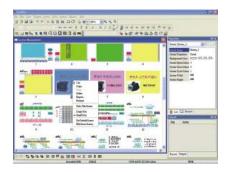
### **Multi-Language Interface**

3 viewable languages are provided: Traditional Chinese, Simplified Chinese and English. More languages support, such as Korean, Turkish, etc. will be available soon.



# Convenient Screen Management

Use HMI screen management function can easily manage the designed screen.



# **Multi-Screen Editing**

Screen Editor allows the user to edit several projects at the same time. The user can work on different screens and copy the images or data from one project to another.



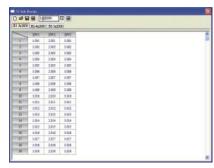
# Flexible Recipe Function. 32-bit recipe is supported.

Simple recipe editing function can save parameter values to HMI and command the controller to change the parameters. This is convenient for different production process change.

Support 32-bit floating point format for high-precision production process.

The recipes can be saved to SM Card or USB flash drive. Besides, CSV file data is allowed and can also be edited.





### **Picture Bank**

The user can use this option to import various pictures (\*.bmp, \*.gif, \*.jpg, \*.ico) to enrich the screen selection and make the Picture Bank more plentiful.

The picture can be converted to different color according to different types of models.



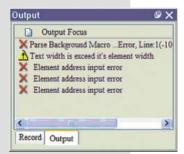


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# **Software Features**

# **Easy Debugging**



Once an error occurs when compile is finished, the error message will display in Output Window. Then, the user can know where the error occurs and proceed debugging immediately

The user also can perform debugging without HMI. To save the design time, the on-line / off-line simulation function can be easily executed by using just PC software.





# **Multilingual Display**

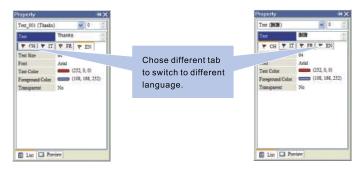




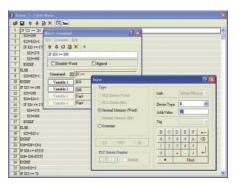
Max. 8 user-defined languages can be displayed on HMI screen by simple software editing. It is easy for the user to switch the desired language and let your equipment keep track with the international standard.







# **Macro Editing Function**



Powerful macro commands provide four fundamental operations of arithmetic, condition judgments, data move and the operation of floating points. Using macro editing function can reduce the PLC program editing efficiently. Easy-to-learn interface provides good flexibility in use and lets the user have more selection for program editing.

Communication macro commands are also provided and the user can transmit and receive data through COM port to control the special equipment.

# **User Security Level**

Provide 8 security levels with password protection for the authorization control for different elements.



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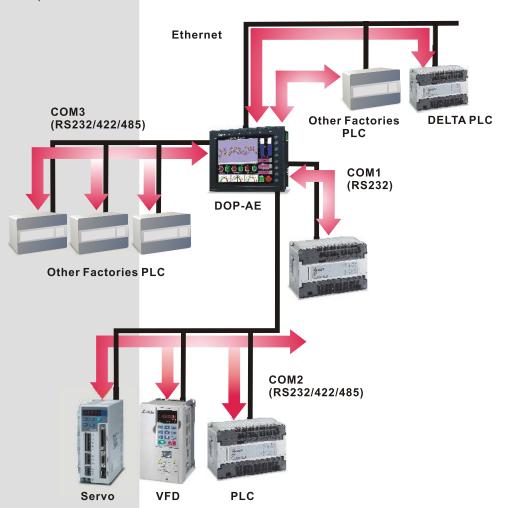


# **Other Features**



# Four kinds of controllers can be connected simultaneously (DOP-AE series only)

DOP-AE series supports up 3 to COM ports for serial communication. In addition to COM ports, if the user also connect extension Ethernet module, then DOP-AE series can connect to four kinds of external controllers at the same time. An ultimate central control system for factory control is completed.



# **Optional Extension Module**

AE series HMI product can connect to various kinds of optional extension modules to extend the HMI functionality through the extension interface located on rear cover.

### Extension DIO Module:

Extension DIO Module working with built-in SPL editing interface of Screen Editor can complete HMI to be an all-in-one, cost-effective controller with excellent control performance for display, control and operation.





### **Extension Printer Module:**

When USB Host is connected to USB flash drive, the user can use this module and connect to a printer.



### **Extension Ethernet Module:**

Using Extension Ethernet Module can connect peripheral equipment and create the network of HMI and peripheral equipment. The transmission distance will be no longer limited. It supports Modbus communication on TCP/IP and will increase other compatible communication protocol for Ethernet soon.





# **TP Feature**

# **TPEditor**

# DOP/1P

# **Backlight ON/OFF Control via Software**

Backlight ON/OFF control via software
Auto Screen change function:
The ON/OFF status of backlight and auto
screen function can be controlled via parameter
settings of TPEditor Software.

5 Lines Display for TP05
160 x 80 pixels

8 Lines Display for TP08
240 x 128 pixels



Function Keys (User-defined): F1-F5 New functions are: Recipe Write/Read, Screen Scroll function

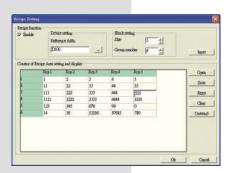
# Extension Port for Program Copy Card (TP-PCC01): TP series provides optional Program Copy Card (TP-PCC01) to copy user program. The user can easily read and write data and program from TP series without using TP Editor Software rapidly.



RS-232/422/485 Two serial COM ports for flexible and wide applications

# **Product Performance**

Feature 1. Screen Scroll Function
This function can divide screen into 2 parts
and the user can use function key to scroll the
screen



Feature 2. Recipe function / User interface Provide the same recipe function as HMI to enhance application performance of TP series.

Feature 3. Large Displaying Screen Offer the best viewing experience and operation environment. Max. 8 lines of text can be displayed.

Feature 4. New Macro Command Support new macro commands in common use, such as process control, arithmetic operation, bit settings and data move, etc. macro commands.

# **Software Editor--TPEditor**

TPEditor provides Windows fonts for editing and page program self-debug. It has numerous functions, including button, numeric input / display, meter, lamp, messages display with both text and graphs and it supports multiple brands' controllers.



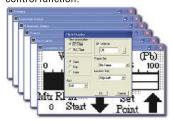
# **Page Change Control**

Page can be set as invisible. The user can change page by different conditional controls.



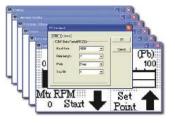
# **Real Time Clock**

It's built-in real time clock (Not for TP02G). It can transfer time data to the PLC that doesn't have real time clock function to have time control function.



# Communication

COM1 and COM2 can be used for the same communication protocol with different format controllers to construct single or multiple-drop link.



### Page Management

It is convenient for the user to preview page quickly and execute add, delete and insert functions for page.



# **User Security Level**

It provides 5 security levels with password protection and 10 sets of user passwords for flexible handling.





# **TPEditor**

# **Property Table Setting**

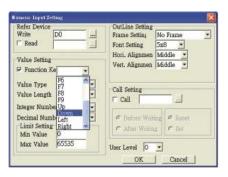
For better and faster settings, a detachable property table is provided for the user to view and edit in TP more efficiently. The user can choose traditional method of editing the programs and objects or use property table to work in TP.

| □Basic Info      | {Left,Top,Width,H |
|------------------|-------------------|
| Write Device Ado | D0                |
| HMI Port         | COM1              |
| Unit Addr        | 1                 |
| Read Setting     | No                |
| Call Setting     | No                |
| Function Key Set | No                |
| User Level       | 0                 |
| Frame Setting    | No Frame          |
| Font Setting     | 5x8               |
| Hori, Alignment  | Middle            |
| Vert. Alignment  | Middle            |
| Value Type       | Unsigned          |
| Value Length     | 16 Bits           |
| Integer Number   | 5                 |
| Decimal Number   | 0                 |
| Max Value        | 65535             |
| Min Value        | 0                 |

# **Operator Keys**

Numeric & Other Function Keys (User-defined) Numeric Keys: 0-9, decimal point, +/-Movement Keys: Up and Down Other Function Keys: Backspace, Shift, Clear (CLR), Enter (ENT) Including F1-F5, total 23 convenient user-defined function keys provided for operation.

System-defined Keys: ESC. It is not user-defined function key.



# System Power On Macro

TPEditor has simple Marco command editing function. When TP series power on, after a predefined time interval, Marco command will be executed automatically. This is very convenient for initial state setup.



# **HMI Specifications**

|                  |   | AS38BSTD(-W)   | AS57BSTD  | A(E)57BSTD(-W)                    | A(E)57GSTD(-W)                       | A(E)57CSTD(-W                        |  |  |
|------------------|---|--|---|-----------------------------------|--------------------------------------|--------------------------------------|--|--|
|                  | MODEL   |  |   |                                   |                                      | Santa Co                             |  |  |
| щ                | Display Type  | 3.8" STN LCD<br>(8 Shades of Blue)   | 5.7"STN LCD<br>(8 Shades of Blue)                                 | 5.7"STN LCD<br>(8 Shades of Blue) | 5.7" FSTN LCD<br>(16 Shades of Gray) | 5.7" STN LCD<br>(256 colors) (Note 2 |  |  |
| Indo             | Resolution  | 320 x 240 pixels   | 320 x 240 pixels  | 320 x 240 pixels                  | 320 x 240 pixels                     | 320 x 240 pixels                     |  |  |
| LCD MODULE       | Back Light  | LED Back Light (about 10 thousand hours at 25°C)                                   | CCF   | L Back Light (about 5             | 0 thousand hours at 2                | 25°C)                                |  |  |
| _                | Display Size  | 3.8 (76.8 x 57.6mm)  |   | 5.7 (115.17                       | x 86.37mm)                           |                                      |  |  |
| Ope              | ration System   |  | Windows Ba  | se Real Time OS                   |                                      |                                      |  |  |
|                  | MCU   |  |   | ontroller / 206.4MHz              |                                      |                                      |  |  |
| NO               | R Flash ROM   | NOR Flash ROM 2 Mbytes<br>(System: 1MB / User: 1MB)                                | NOR Flash ROM 2<br>Mbytes (System:<br>1MB / User: 1MB)            | NOR Flash ROM                     | I 4 Mbytes (System: 1                | MB / User: 3MB)                      |  |  |
|                  | SDRAM   | 4 Mbytes   | 16 Mbytes   |                                   | 16Mbytes                             |                                      |  |  |
| Backup           | o Memory (Bytes)  | 128K   | 128K  | A: 256K<br>AE: 512K               | A : 256K<br>AE : 512K                | A : 256K<br>AE : 512K                |  |  |
| ory              | SM Card   |  |   | <b>~</b>                          | <b>/</b>                             | <b>~</b>                             |  |  |
| EXT.<br>Memory   | USB Host<br>(Ver 1.1)   | ~  | ~   |                                   |                                      |                                      |  |  |
| Exte             | nsion Interface   |  |   | ✓ (AE)                            | ✓ (AE)                               | ✓ (AE)                               |  |  |
|                  | 3 for Download<br>USB Client]   | 1 USB Client Ver 1.1   |   |                                   |                                      |                                      |  |  |
|                  | or Data Storage /<br>nter [USB Host]  | ~  | ~   |                                   |                                      |                                      |  |  |
| -<br>Port        | COM1  | RS-232   | RS-232  | RS-232                            | RS-232                               | RS-232                               |  |  |
| a<br>A P         | COM2  | RS-422/485   | RS-422/485  | RS-422/485                        | RS-422/485                           | RS-422/485                           |  |  |
| Serial<br>COM F  | СОМЗ  | RS-232   | RS-422/485  | RS-232/422/485(AE)                | RS-232/422/485(AE)                   | RS-232/422/485(/                     |  |  |
| F                | unction Key   |  | User define   | d key x 4 + System k              | ey (SYS) x 1                         |                                      |  |  |
|                  | eration Voltage   | DC   | DC +24V (-10% ~ +15%) (Please use isolated power supply) (Mote 3) |                                   |                                      |                                      |  |  |
| Ва               | ckup Battery  |  | 3V lithium batter   | y CR2032 x 1 / batter             | y life: 5 years                      |                                      |  |  |
| Pernetu          | Buzzer<br>ıal Calendar (RTC)  |  |   | 85dB<br>Built-in                  |                                      |                                      |  |  |
|                  | ooling Method   |  |   | Cooling Method                    |                                      |                                      |  |  |
| (Waterpi         | Safety Approval  proof for front panel)  IP65 / NEMA4 / CE, UL <sup>(Naise 1)</sup> |  |   |                                   |                                      |                                      |  |  |
|                  | erating Temp.<br>torage Temp.   |  | 0°C to 50°C   |                                   |                                      |                                      |  |  |
| Ambient Humidity |   |  | -20°C to +60°C<br>10% ~ 90% RH [0~40°C] · 10% ~ 55% RH [41~50°C]  |                                   |                                      |                                      |  |  |
| Vibra            | ation Resistance  | IEC61131-2 compliant When vibration is NOT continuous: 5Hz-9Hz 3 5mm, 9Hz-150Hz 1G |   |                                   |                                      |                                      |  |  |
| (W)              | Dimensions<br>x (H) x (D) mm  | 140.8 x 104.8 x 44.8   | 184.1 x 144.1 x 47  |                                   |                                      |                                      |  |  |
|                  | anel Cutout<br>V) x (H) mm  | 118.8 x 92.8   | 172.4 x 132.4   |                                   |                                      |                                      |  |  |
|                  | Weight  | Approx. 310g   | Approx. 760g  |                                   |                                      |                                      |  |  |
|                  |   |  |   |                                   |                                      |                                      |  |  |

- 1) Only DOP-AE94BSTD is not UL recognized. The application is in progress.
  2) The maximum visual performance of the 256 colors models is 256 colors. However, in order to make the created elements to be displayed with more brilliant colors, the ScrEdit software (Screen Editor, the program editor of Delta Hill product) only provides 144 colors for user settings.
  3) The user clease use isolated power supply except DOP-AE80THTD, DOP-AE94BSTD, DOP-AE10THTD these models.
  4) The user can download the Screen Editor, the program editor of Delta Mill product and the user manual via the following link: http://www.delta.com.tw/industrialautomation/.



# **HMI Specifications**

|   | MODEL                            |   | A80THTD1/AE80THTD                                 | AE94BSTD   | A10TCTD/AE10THTD  |  |  |  |  |
|---|----------------------------------|---|---|--|---|--|--|--|--|
|   | ш Display Type                   |   | 8" TFT LCD (65536 colors)                         | 9.4" STN LCD(8 Shades of Blue)   | 10.4" TFT LCD<br>(A: 256 colors(Note 2) AE: 65536 colors) |  |  |  |  |
|   | Resolution                       |   | 640 x 480 pixels                                  | 640 x 480 pixels   | 640 x 480 pixels  |  |  |  |  |
|   | LCD MODULE                       | Back Light                              | CCFL Back Light (about 50 thousand hours at 25°C) | CCFL Back Light (about 30 thousand hours at 25°C)  | CCFL Back Light (about 30 thousand hours at 25°C)         |  |  |  |  |
|   |                                  | Display Size                            | 8 (162.2 x 121.7mm)                               | 9.4 (192.0 x 144.0mm)  | 10.4 (211.2 x 158.4mm)                                    |  |  |  |  |
|   | Ор                               | eration System                          |   | Windows Base Real Time OS  |   |  |  |  |  |
|   |                                  | MCU                                     | 32  | bit RISC Micro-controller / 206.4MH  | z   |  |  |  |  |
|   | NO                               | OR Flash ROM                            | NOR Flas  | sh ROM 8 Mbytes (System: 1MB / Use   | er: 7MB)  |  |  |  |  |
|   |                                  | SDRAM                                   | 32 Mbytes   | 16 Mbytes  | 32 Mbytes   |  |  |  |  |
|   | Backu                            | ıp Memory (Bytes)                       | 512K  | 512K   | A:256K<br>AE:512K   |  |  |  |  |
|   | ≥                                | SM Card                                 | ✓ (AE)  |  | ~   |  |  |  |  |
|   | SM Card  USB Host  (Ver 1.1)     |   | ~   | ~  | ✓ (AE)  |  |  |  |  |
|   | Extension Interface              |   | ✓ (AE)  | <b>✓</b>   | ✓ (AE)  |  |  |  |  |
|   | USB for Download<br>[USB Client] |   | 1 USB Client Ver 1.1                              |  |   |  |  |  |  |
|   |                                  | for Data Storage /<br>inter [USB Host]  | ~   | ~  | ✓ (AE)  |  |  |  |  |
|   | ۲                                | COM1                                    | RS-232  | RS-232   | RS-232  |  |  |  |  |
|   | = G                              | COM2                                    | RS-232/422/485                                    | RS-232/422/485   | RS-232/422/485  |  |  |  |  |
|   | Serial<br>COM Port               | СОМЗ                                    | RS-232/422/485                                    | RS-232/422/485   | RS-232/422/485  |  |  |  |  |
|   | 1                                | Function Key                            | User defined key x 6 +<br>System key (SYS) x 1    |  |   |  |  |  |  |
|   |                                  | eration Voltage                         | DC +24V (-10%                                     | DC +24V (-10% ~ +15%) (Please use isolated power supply) (Note 3)  |   |  |  |  |  |
|   | В                                | ackup Battery<br>Buzzer                 | 3V lithiu   | um battery CR2032 x 1 / battery life: 5  | years   |  |  |  |  |
|   | Parnati                          | ual Calendar (RTC)                      | 85dB<br>Built-in                                  |  |   |  |  |  |  |
|   |                                  | ooling Method                           |   | Cooling Method   |   |  |  |  |  |
| ( | Sa<br>Waterp                     | afety Approval<br>roof for front panel) | IP65 / NEMA4 / CE, UL (Note 1)                    |  |   |  |  |  |  |
|   |                                  | perating Temp.                          |   | 0°C to 50°C  |   |  |  |  |  |
|   |                                  | torage Temp.<br>bient Humidity          | 400/ 000  | -20°C to +60°C   | 4 50003   |  |  |  |  |
|   |                                  | ration Resistance                       | When vibration i                                  | 6 RH [0~40°C] · 10% ~ 55% RH [4<br>IEC61131-2 compliant<br>is NOT continuous: 5Hz-9Hz 3.5mm,<br>is continuous: 5Hz-9Hz 1.75mm, 9H<br>X, Y, Z directions for 10 times | 9Hz-150Hz 1G  |  |  |  |  |
|   |                                  | Dimensions<br>) x (H) x (D) mm          | 243.1 x 178.1 x 52.4                              | 297.1 x 222.1 x 50.9   | 297.1 x 222.1 x 51.1                                      |  |  |  |  |
|   |                                  | Panel Cutout<br>(W) x (H) mm            | 231.4 x 166.4                                     | 285.2 x 210.2  | 285.2 x 210.2   |  |  |  |  |
|   |                                  | Woight                                  | Annroy 1140a                                      | Approx 1700a   | Approx 1735a  |  |  |  |  |

# TP Specifications

| МС  | DDEL              | TP02G-AS1  | TP04G-AS2       | TP05G-BS2          | TP08G-BS2 |  |  |
|---|-------------------|--|-----------------|--------------------|-----------|--|--|
|   | Display Type      | STNLCD   |                 |                    |           |  |  |
|   | Display Color     |  | Monochrome      |                    |           |  |  |
| LCD<br>MODULE                                   | Resolution        | 160 x 32   | 128 x 64        | 160 x 80           | 240 x 128 |  |  |
| MODULE  | Back Light        |  | about 50 thou   | sand hours at 25°C |           |  |  |
|   | Display Size      | 72 x 22mm  | 3"(67*32mm)     | 3.8" (83           | *41mm)    |  |  |
| МС  | CU                | Hitach   | ni 3064         | STR7               | 10RZ      |  |  |
| Flash N   | Memory            | 256K   | ( Byte          | 512K               | Byte      |  |  |
| Program Do                                      | wnload Port       |  | COM1(           | RS232)             |           |  |  |
| Serial COM                                      | COM1              | RS232  |                 | RS232/422          |           |  |  |
| Port  | COM2              | RS485  |                 |                    |           |  |  |
| Extensio  | on Interface      | Program Copy Card  |                 |                    |           |  |  |
| Perpetual C                                     | alendar (RTC)     | N/A  |                 | Built-in           |           |  |  |
| Function Key                                    | System Key        | 6  | 7               |                    | 12        |  |  |
| runction key                                    | Function Key      | 10   | 10 5            |                    | 12        |  |  |
| Operati   | on Voltage        | DC +24V (-10% ~+20%)   |                 |                    |           |  |  |
| Backu   | p Battery         | 3V lithium battery CR2032 x 1 / battery life: 5 years  |                 |                    |           |  |  |
| Ві  | uzzer             | 85dB   |                 |                    |           |  |  |
| Coolin  | g Method          | Natural air circulation  |                 |                    |           |  |  |
| Operat  | ting Temp.        | 0°C to 50°C  |                 |                    |           |  |  |
| Stora   | ge Temp.          | -20°C to +60°C   |                 |                    |           |  |  |
| Ambien  | nt Humidity       | 10%~90% RH [0~40°C]  |                 |                    |           |  |  |
| Vibration                                       | n Resistance      | IEC61131-2 compliant  When vibration is NOT continuous: 5Hz-9Hz 3.5mm, 9Hz-150Hz 1G  When vibration is continuous: 5Hz-9Hz 1.75mm, 9Hz-150Hz 0.5G  X, Y, Z directions for 10 times |                 |                    |           |  |  |
| Dimensions (                                    | W) x (H) x (D) mm |  | 147 x 97 x 35.5 | 210 x 1            | 22 x 45   |  |  |
| Panel Cuto                                      | ut (W) x (H) mm   |  | 136 x 85        | 196 x 108          |           |  |  |
| W   | /eight            |  | 240g 430g       |                    |           |  |  |
| Safety Approval<br>(Waterproof for front panel) |                   |  | IP65/N          | IEMA4 & CE, UL     |           |  |  |

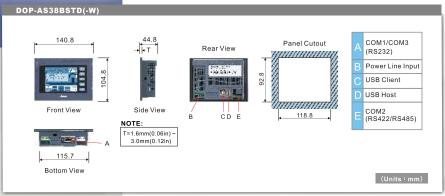
<sup>1)</sup> Only DOP-AE94BSTD is not UL recognized. The application is in progress.
2) The maximum visual performance of the 256 colors models is 256 colors. However, in order to make the created elements to be displayed with more brilliant colors, the ScrEdit software (Screen Editor, the program editor of Delta HMI) modul; only provides 14d colors for user settings.
3) The user picase use sociated power supply except DOP-AE69HTD, DOP-AE94BSTD, DOP-AE10THTD (bees models.
4) The user cran download the Screen Editor, the program editor of Delta HMI product and the user manual via the following link: http://www.delta.com.tw/industrialautomation/.

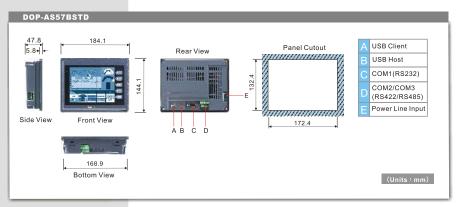
# **Human Machine Interface**

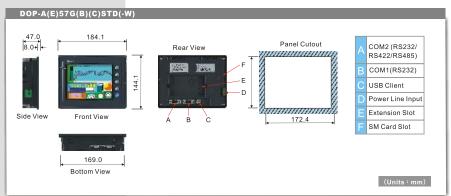


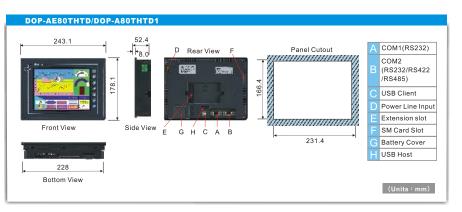
# **Dimensions**

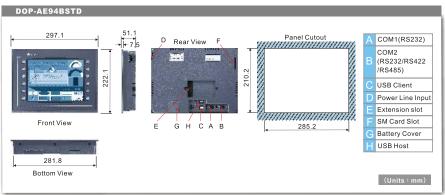


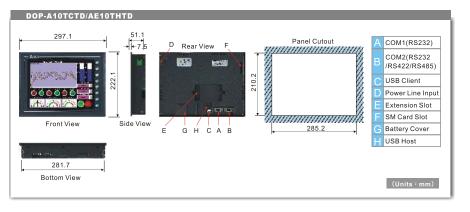








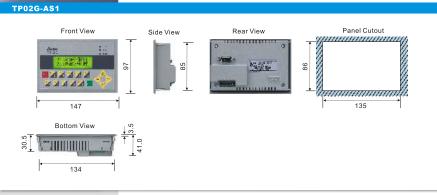


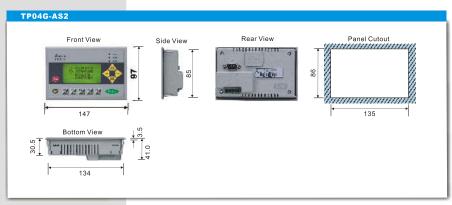


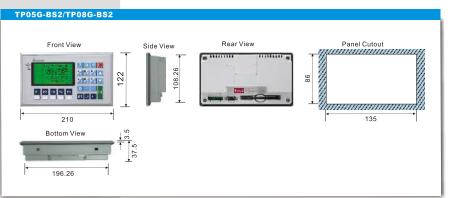


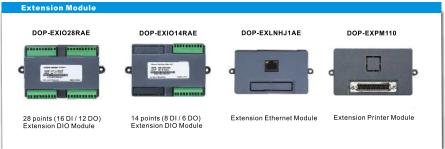
# **Dimensions**











# **Ordering Information**

| DOP | - A | 80  | TH  | Т   | D   | 1   | -W  |
|-----|-----|-----|-----|-----|-----|-----|-----|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |

| (1)Product Name   | DOP: Delta Operation Panel  |  |  |
|---|---|--|--|
| (2)Series   | AS: Delta AS series HMI<br>A: Delta AS series HMI<br>AE: Delta AE series HMI  |  |  |
| (3)Display Size   | 38: 3.8 inches<br>57: 5.7 inches<br>80: 8 inches<br>94: 9.4 inches<br>10: 10.4 inches   |  |  |
| (4)Display Type   | BS: 8 Shades of Blue, STN monochrome LCD GS: 16 Shades of Gray, FSTN monochrome LCD CS: 256 colors, STN color LCD TC: 256 colors, TFT color LCD TH: 65536 colors, TFT color LCD |  |  |
| (5)Control Interface  | T: Touch Panel  |  |  |
| (6)Rated Voltage  | D: DC+24V   |  |  |
| (7)Version Identification Code  |   |  |  |
| (8)Case Color   | None: Gray<br>W: White (Note 1)   |  |  |
| Note 1: Only the following models are provided with white case : A(E)57BSTD, A(E)57CSTD, A(E)57GSTD, AS38BSTD |   |  |  |

| TP  | 02  | G - | AS  | 1   |
|-----|-----|-----|-----|-----|
| (1) | (2) | (3) | (4) | (5) |

| (1) Product Name        | TP: Terminal Panel   |
|-------------------------|--|
| (2) Display Line Number | 02: 2 lines displaying model<br>04: 4 lines displaying model<br>05: 5 lines displaying model<br>08: 8 lines displaying model |
| (3) Display Type        | G: Graphic mode  |
| (4) Version             | A: Without numeric keypad<br>B: With numeric keypad  |
| (5) COM Port            | 1 : COM1 is for RS232<br>2 : COM1 can be either RS232 or RS422   |



Authorised Distributors:-

Intech Automation

S-2, Thiru. Vi. Ka. Industrial Estate, Guindy, Chennai-600 032 Ph: +91 44 4353 8888 Mob: +91 99 4353 8888 Fax: 044 4353 7888 E-mail: info@intechautomation.in Website: www.intechautomation.in