



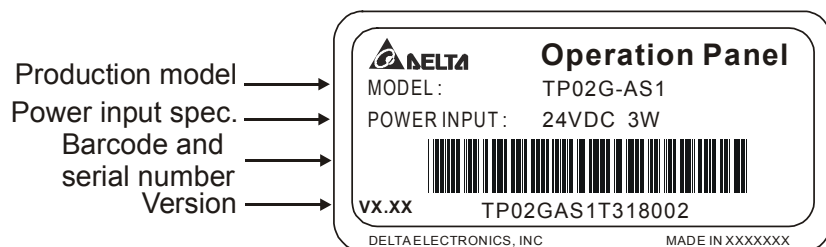
Operation Interface Panels Series

TP02G-AS1 Instruction Sheet

Warning

- ⚠ Always read this manual before using the TP02G.
- ⚠ DANGER! DC input power must be disconnected before any maintenance. Do not connect or disconnect wires and connectors while power is applied to the circuit. Maintenance must be performed by qualified technicians.
- ⚠ The display panel of the TP02G is waterproof. But please avoid grease, corrosive liquids and sharp objects from coming into contact with the TP02G.
- ⚠ DANGER! The TP02G requires 24VDC input power. The 24VDC input power should not be connected to the RS-485 communication port. The unit may be destroyed beyond repair if the input power is incorrectly applied. Please confirm the input power wiring is correct before applying power.
- ⚠ DANGER! An electrical charge will remain on the DC-link capacitors for 1 minute after power has been removed. This residual power may be hazardous and the TP02G should not be worked on until this charge has dissipated. To avoid personal injury, do not conduct any wiring or investigation on the TP02G until 1 minute after power has been removed.
- ⚠ CAUTION! Always ground the TP02G using the grounding terminal. This will not only act as a safety, but also help filter electrical noise. The grounding method must comply with the laws of the country where the unit is to be installed.
- ⚠ CAUTION! If you turn the fixed support which packaged with TP02G too tight, TP02G may be damaged.

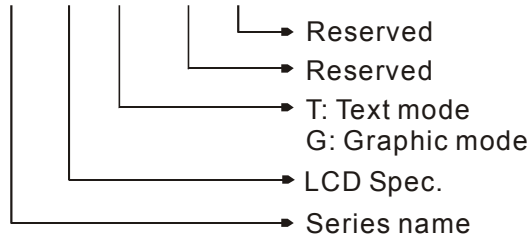
Nameplate



Note: The words of “MADE IN XXXXX” will be different due to the manufacturing location.

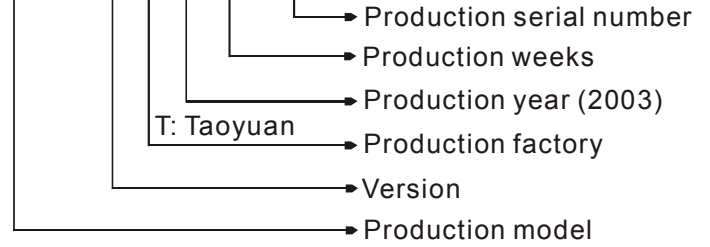
Model Explanation

TP 02 G - AS 1

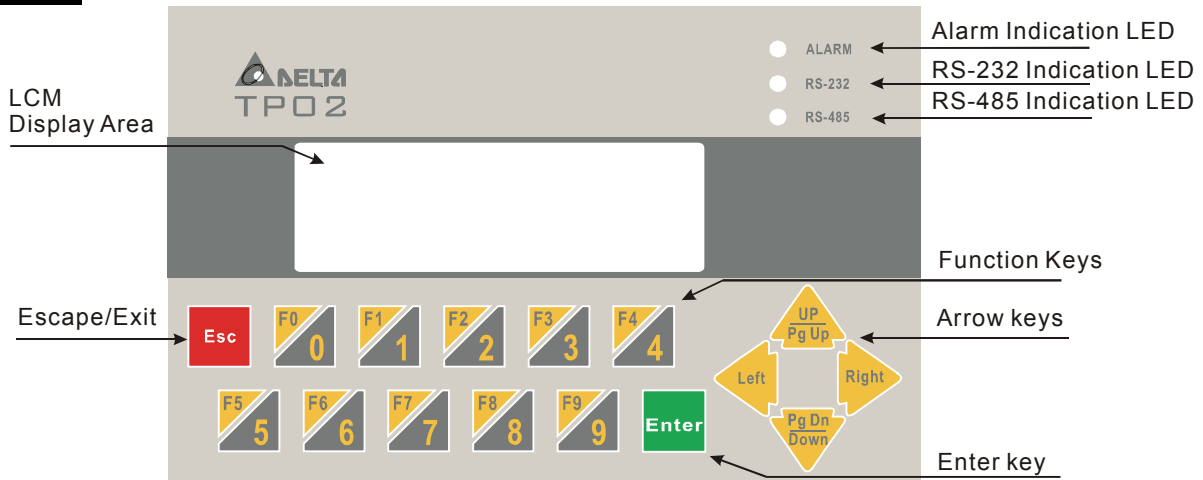


Serial Number Explanation

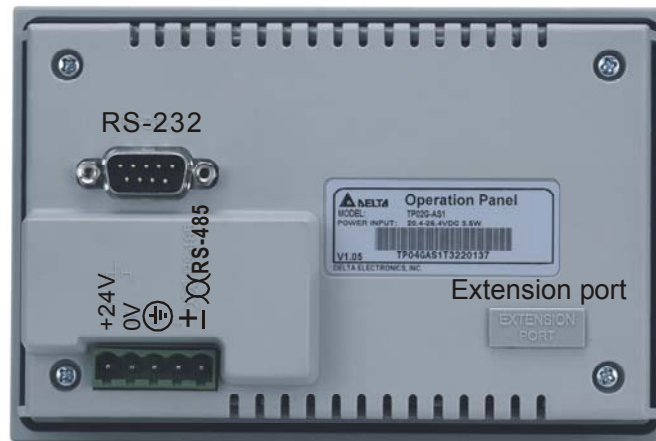
TP02GAS 1 T 3 18 002



Outline

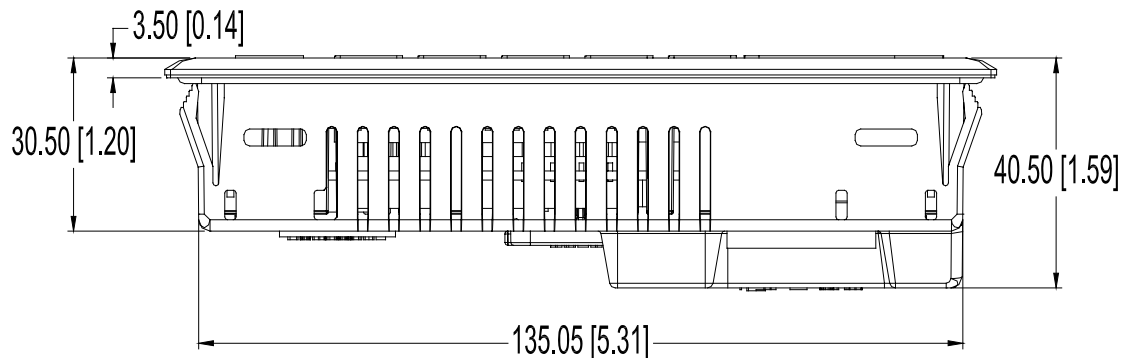


Back Panel

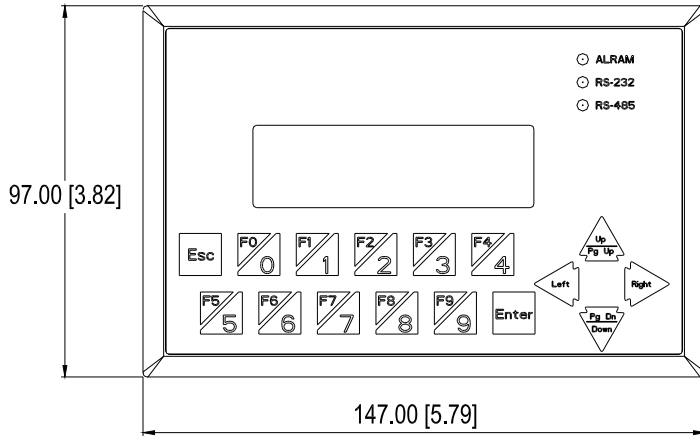


Dimensions

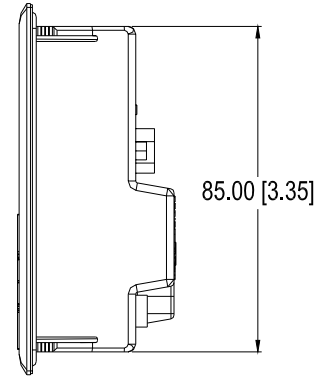
Vertical View (Unit: mm)



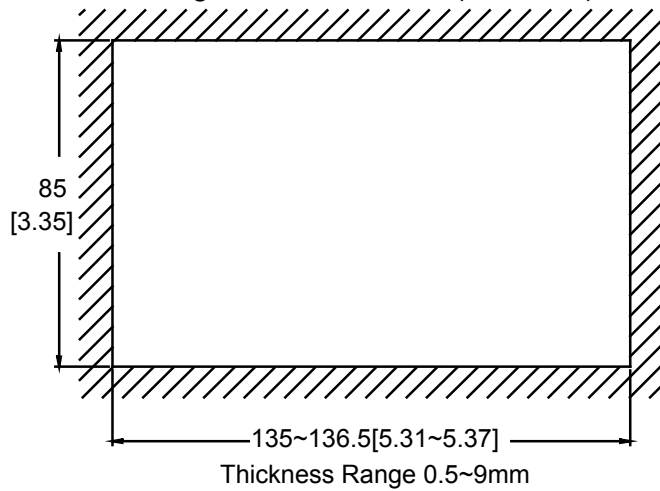
Front Panel (Unit: mm)



Right Side Diagram (Unit: mm)



Mounting Panel Dimension (Unit: mm)

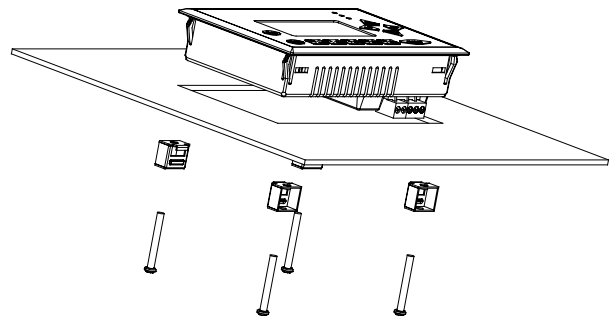
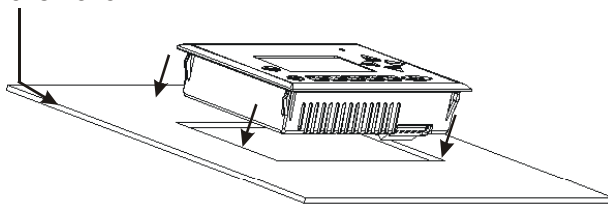


Installation Method

Mounting TP02G into the opening is done by carefully fitting the unit into the opening and pressing firmly on all four corners. You could fix it by using the fixed support packaged with TP02G. You should infix the fixed support in the back cover and turn the screw in to fix.

⚠ If you turn the screw exceeds torque: 4-5(kg-cm), TP02G may be damaged.

Thickness:
0.5~9.0mm



Panel Function Explanation

Panel Component	Explanation
Alarm Indication LED	Status 1: When power is on, the LED will flash slowly. Status 2: When there is an abnormal situation, the LED will flash quickly along with an alarm sound.
RS-232 Indication LED (Yellow)	It will be flashing when transmitting program and communicating by using RS-232.
RS-485 Indication LED (Green)	It will be flashing when communicating by using RS-485.
Esc (Escape/Exit)	Used to cancel an incorrect input, or to Exit a programming step.
Arrow Keys	UP/Pg Up: Used to increase the value or move up one page. Pg Dn/DOWN: Used to decrease the value or move down one page. Left: Left direction key. (move cursor to left) Right: Right direction key. (move cursor to right)
Enter key	Used to input a value or accept a programming command.
Function Keys	F0/0: It is used to be constant 0 and user can define the function of F0. F1/1: It is used to be constant 1 and user can define the function of F1. F2/2: It is used to be constant 2 and user can define the function of F2. F3/3: It is used to be constant 3 and user can define the function of F3. F4/4: It is used to be constant 4 and user can define the function of F4. F5/5: It is used to be constant 5 and user can define the function of F5. F6/6: It is used to be constant 6 and user can define the function of F6. F7/7: It is used to be constant 7 and user can define the function of F7. F8/8: It is used to be constant 8 and user can define the function of F8. F9/9: It is used to be constant 9 and user can define the function of F9.

Electrical Specification

ITEM	MODEL	TP02G-AS1
Function Key / Digital Key		F0/0~F9/9, ESC, ENTER and ARROW keys
External Input Power		24V (3W Max.)
Memory Capacity		256K Byte
CPU		Hitachi MAX002
RAM of System		32K Byte
Communication Interface		Com1: RS-232 and Com2: RS-485
Waterproof Class of Front Panel		IP65/NEMA4
Temperature for Hardware		0~50°C, relative humidity 20-90% RH (non-condensing)
Storage Temperature of Hardware		-20~60 °C
Vibration		0.5mm displacement, 10-55Hz, X, Y, Z three directions and two hours for each direction
Impact		10G, 11ms, from X, Y, Z three directions and three times for each direction
RF Radiation Test		CISPR22, Class A
Static Electricity Discharge test		EN61000-4-2/1995
RF Radiation test		EN61000-4-3/1995
High Frequency Transient test		EN61000-4-4/1995
Weight / Dimension		0.24kg / 147×97×35.5mm (Weight(W)×Height(H)×Deep(D))
Cooling Method		Natural air-cooling

Functional Specification

ITEM	MODEL	TP02G-AS1
Display Screen	Screen	STN-LCD
	Color	Monochromatic
	Back-light	The back-light automatic turn off time is 1~99 minutes (0 = do not to turn off) (back-light life is about 50 thousand hours at 25°C)
	Resolution	160X32 dots
	Display Range	72 mm (W) X 22 mm (H)
	Contrast Adjustment	15-step contrast adjustment
	Language Font	ASCII: characters (including European Fonts) Taiwan: (BIG 5 code) traditional Chinese character font China: (GB2324-80 code) simplified Chinese character font
	Font Size (ASCII)	5 X 8, 8 X 8, 8 X 12, 8 X 16
	ALARM Indication LED	1. Power on indication (Flash three times) 2. Flash for communication error or other alarm 3. Special Indication by user programming
	RS-232 Indication LED (Yellow)	It will be flashing when transmitting program and communicating by using RS-232.
RS-485 Indication LED (Green)	It will be flashing when communicating by using RS-485.	
Program Memory		256KB flash memory
External Interface	Serial Communication (COM1)	Asynchronized transmission method: RS-232 Data length: 7 or 8 bits Stop bits: 1or 2 bits Parity: None/Odd/Even Transmission speed: 4800bps~115200bps
	Extension Communication port (COM2)	Asynchronized transmission method: RS-485 Data length: 7 or 8 bits Stop bits: 1 or 2 bits Parity: None/Odd/Even Transmission speed: 4800bps~115200bps
	Extension Slot	The slot for program copy card
5-pin terminal		There are DC 24V input and RS-485 input

The Function of Program Copy Card

The function of program copy card that TP02G provides to copy user program, system function and passwords is different from the copy program. It is used to copy the whole HMI environment settings and application programs to another HMI rapidly. It can save much time and manpower. The operation is in the following. **Definition: program copy card →PCC, TP Series →TP**

Function Step	Copy HMI program to PCC TP→PCC	Copy program in PCC to HMI PCC→TP
1	Turn the switch on the PCC to RD	Turn the switch on the PCC to WR
2	Insert the PCC into the extension slot of TP	Insert the PCC into the extension slot of TP
3	Input the power to TP	Input the power to TP
4	It will display “remove PCC” on the screen and power on again	It will display “remove PCC” on the screen and power on again

HMI Display Message

Copy HMI program to PCC (TP→PCC)	Copy PCC program to HMI (PCC→TP)
If the model type of TP does not correspond with the model type of program of PCC, TP will display “TP series and PCC is different Press Enter to Confirm TP series→PCC Press Esc to Exit”.	If there is no program in PCC, TP will display “The PCC is Empty PCC→TP series is illegal”.
TP will display “TP →PCC series Please wait !” during transmission.	TP will display “PCC→TP series Please wait !” during transmission.

Password Functions

- If the password is forgotten, the password may be cleared using the following code: **8888**. This universal code will clear the password and all internal programs of TP02. The TP02 will be re-set to the factory settings.
- Users may use 0~9 and A~Z as characters for the password. Users must use the function keys F0~F9 to input the password characters.
 - F0: scrolls in a loop as follows 0 → A → B → C → D → E → F → 0
 - F1: scrolls in a loop as follows 1 → G → H → I → J → K → 1
 - F2: scrolls in a loop as follows 2 → L → M → N → O → P → 2
 - F3: scrolls in a loop as follows 3 → Q → R → S → T → U → V → 3
 - F4: scrolls in a loop as follows 4 → W → X → Y → Z → 4
 - F5: it just can be used to be constant 5.
 - F6: it just can be used to be constant 6.
 - F7: it just can be used to be constant 7.
 - F8: it just can be used to be constant 8.
 - F9: it just can be used to be constant 9.

Hardware Operation

The steps to Startup the TP02G:

- Connect power wires,
- Apply 24V DC power,
- Enter into the startup display,
- Enter the user-designed program
- Press ESC key and hold on for 5 seconds, you could return to system menu.

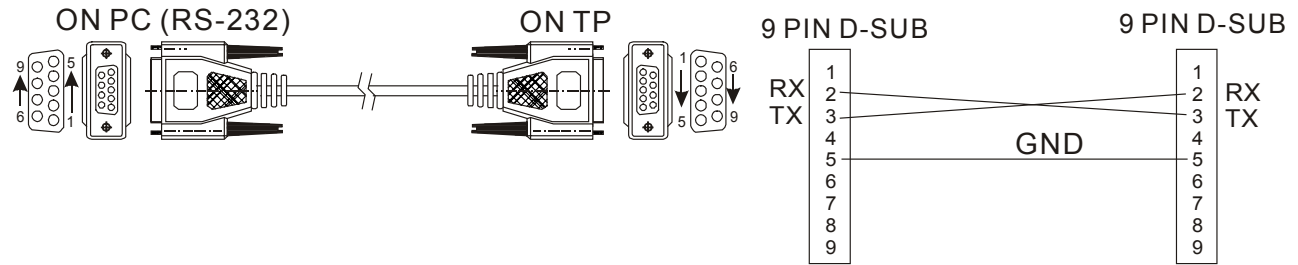
There are five selections in the system menu and are described below.

Download Program	Use the connection cable (DVPACAB530) to connect the serial communication port RS-232 of TP02 to a PC. Then use the TPEdit software to download an application program to the TP02.
Upload Program	Use the connection cable (DVPACAB530) to connect the serial communication port RS-232 of TP02 to a PC. Then use the TPEdit software to upload an application program from the TP02.
Copy Program	Transfer a program between two TP02 units. 1: transmit programs 2: receive programs When transmitting programs and data between two TP02 unit. Set one TP02 to "Receive Program" mode and the other TP02 to "Transmit Program" mode. Please use twisted pair wires to connect the two units via the RS-485 ports.
TP02 Settings	Used to modify the TP02 system settings. There are 8 items that may be modified. 1. Communication protocol: Set the address of TP02, and the communication string for either RS-232 or RS-485. 2. Contrast: Adjust the contrast of LCM display screen. 3. Back-light: adjust the automatic turn off time of LCM. Setting range is 00~99 seconds. If set to 00, the LCM Back-light will not turn off. 4. Buzzer: Used to set the buzzer sound, normal mode or quiet mode. 5. Language Setting: Used to set the displayed language. English, Traditional Chinese, simplified Chinese or user defined language. 6. Password setting: Used to set, enable, and disable the password function. If the password function is enabled, it will require the user to input a password before the system menu may be accessed. The factory password is 1234 . 7. Startup display: Used to select the TP02 startup display.
Execute	Execute the internal program. When entering execution program, you can return to system menu by pressing Escape/Exit (Esc) key for 5 minutes.
PLC Connection	There are two methods to connect to PLC: 1. Use the connection cable (DVPACAB215 or DVPACAB230) to connect program communication I/O RS-232C of PLC to serial communication port (COM1) RS-232 of TP02. 2. Use twisted cable to connect RS-485 of PLC to extension communication port (COM2) RS-485.

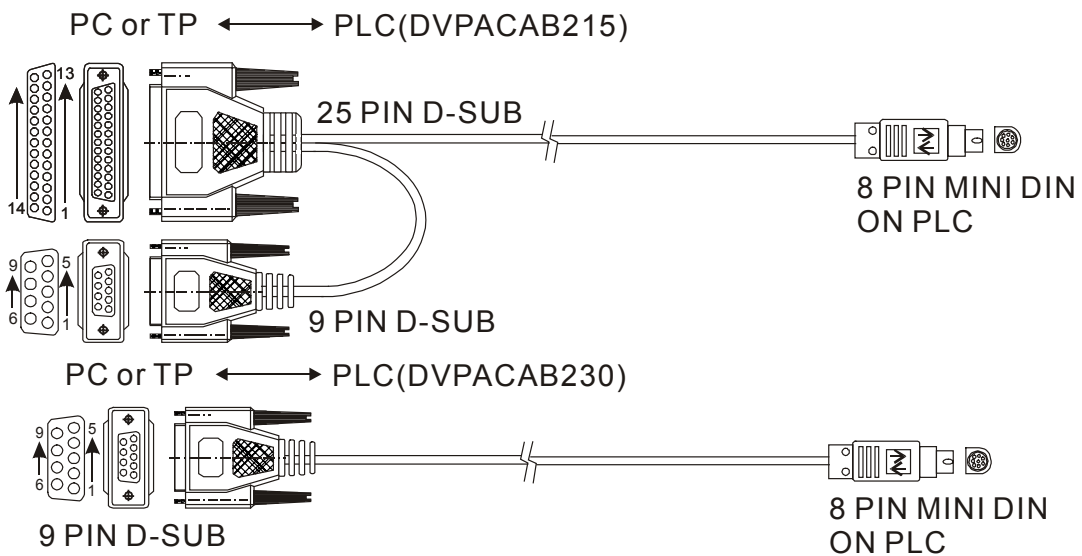
Communication Connection Wiring Diagram

- TP may connect to a PC using connection cable DVPACAB530

PC ↔ TP



- TP may connect to the DVP-PLC using cable DVPACAB215 (1.5 m) or DVPACAB230 (3.0 m without 25 pin D-SUB).



PC or TP end

