

TP02G-AS1

Instruction Sheet

安 裝 說 明 安 裝 說 明

Text Panels

文本顯示器系列

文本显示器系列

TP-0143030-01

2022-09-06





Warning

ENGLISH

EN ⚡ *TP02G-AS1 is an OPEN-TYPE device. It should be installed in a control cabinet free of airborne dust, humidity, electric shock and vibration. To prevent non-maintenance staff from operating TP02G-AS1, or to prevent an accident from damaging TP02G-AS1, the control cabinet in which TP02G-AS1 is installed should be equipped with a safeguard. For example, the control cabinet in which TP02G-AS1 is installed can be unlocked with a special tool or key.*

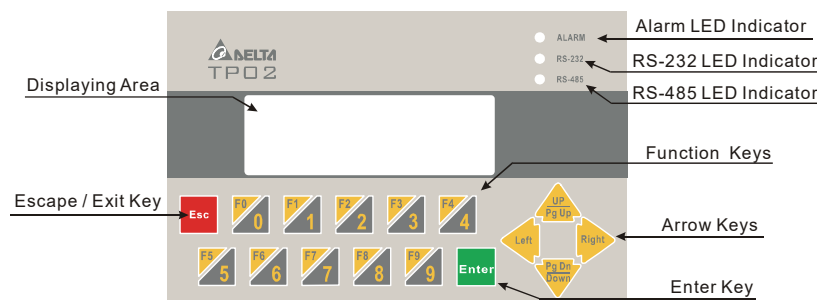
EN ⚡ *DO NOT connect AC power to any of I/O terminals, otherwise serious damage may occur. Please check all wiring again before TP02G-AS1 is powered up. After TP02G-AS1 is disconnected, Do NOT touch any terminals in a minute. Make sure that the ground terminal ⊕ on TP02G-AS1 is correctly grounded in order to prevent electromagnetic interference.*

FR ⚡ *TP02G-AS1 est un module OUVERT. Il doit être installé que dans une enceinte protectrice (boîtier, armoire, etc.) saine, dépourvue de poussière, d'humidité, de vibrations et hors d'atteinte des chocs électriques. La protection doit éviter que les personnes non habilitées à la maintenance puissent accéder à l'appareil (par exemple, une clé ou un outil doivent être nécessaire pour ouvrir a protection).*

FR ⚡ *Ne pas appliquer la tension secteur sur les bornes d'entrées/Sorties, ou l'appareil TP02G-AS1 pourra être endommagé. Merci de vérifier encore une fois le câblage avant la mise sous tension du TP02G-AS1. Lors de la déconnection de l'appareil, ne pas toucher les connecteurs dans la minute suivante. Vérifier que la terre est bien reliée au connecteur de terre ⊕ afin d'éviter toute interférence électromagnétique.*

1 Introduction

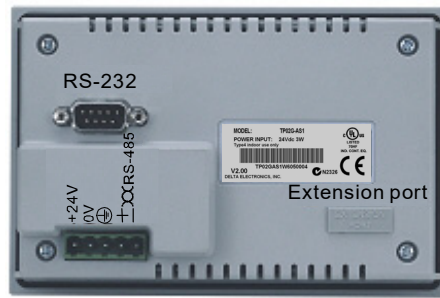
■ Product Outline



■ Panel Function Explanation

Panel component	Explanation
Alarm LED indicator (RED)	Status 1: When power is on, LED will blink slowly for three times. Status 2: When there is an abnormal situation, LED will blink quickly along with an alarm sound.
RS-232 LED indicator (yellow)	LED will blink when transmits program and communicates via RS-232.
RS-485 LED indicator (green)	LED will blink when communicates via RS-485.
Displaying area	Liquid Crystal Module display area. It is used to display current program status.
Escape/Exit key	It is used to cancel an incorrect input, or to exit a programming step.
Enter key	It is used to input a value or accept a programming command.
Arrow keys	UP/Pg Up: It is used to increase the value or move up one page. Pg Dn/DOWN: It is used to decrease the value or move down one page. Left: This key is left direction key and it can be used to select the position of the value. Right: This key is right direction key and it can be used to select the position of the value.
Function keys	F0/0: It is used as a constant 0, or the user can define it as function F0. F1/1: It is used as a constant 1, or the user can define it as function F1. F2/2: It is used as a constant 2, or the user can define it as function F2. F3/3: It is used as a constant 3, or the user can define it as function F3. F4/4: It is used as a constant 4, or the user can define it as function F4. F5/5: It is used as a constant 5, or the user can define it as function F5. F6/6: It is used as a constant 6, or the user can define it as function F6. F7/7: It is used as a constant 7, or the user can define it as function F7. F8/8: It is used as a constant 8, or the user can define it as function F8. F9/9: It is used as a constant 9, or the user can define it as function F9.

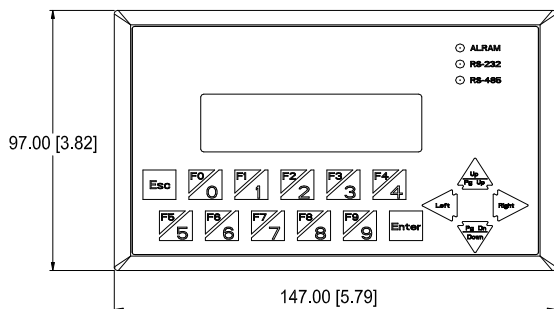
■ Back Panel



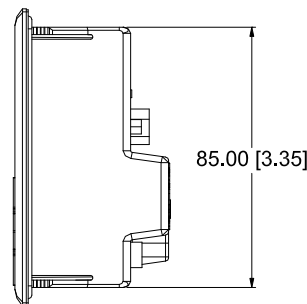
5 PIN terminal/Wire gauge: 12-24 AWG/Torque: 4.5 lb.-inch

■ Dimension

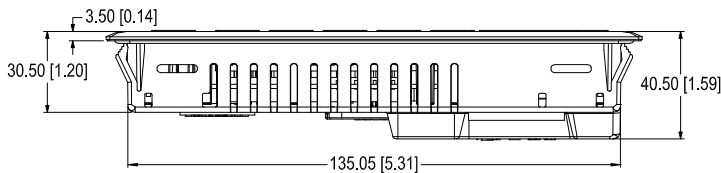
Front panel (unit: mm [inch])



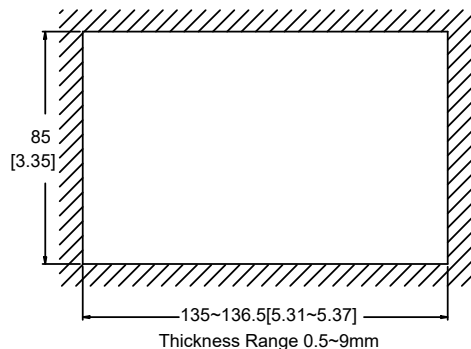
Right side diagram (unit: mm [inch])



Vertical view (unit: mm)



Mounting dimension (unit: mm [inch])



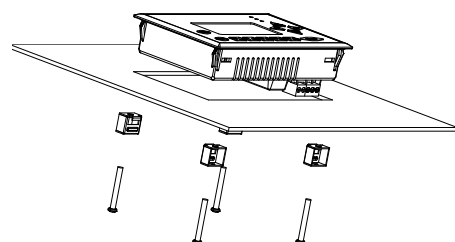
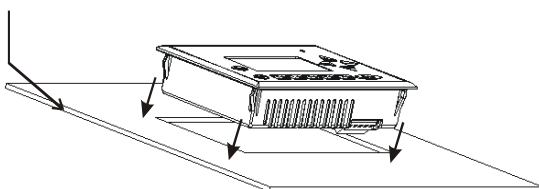
■ Installation

Please insert TP02 series to the opening hole of panel and tighten the screws. However, if a firm mounting TP02 series to the panel is needed, please use the mounting fixed support accessory which is packed together with TP02 series, then insert the fixed support in the back and tighten the screws.

⚠ If the fixed support is not installed well, Delta will not guarantee the waterproof function. The screw torque should be 4-5(kg-cm). DO NOT exceed this specification when tightening the screws; otherwise TP02 series may be damaged. Please leave sufficient space (more than 50mm) around the unit for heat dissipation.

Notes: Only the front panel is guaranteed by ingress protection rating. The control panel itself must comply with the testing conditions required by the applied ingress protection rating.

Thickness: 0.5~9.0mm



② Specifications

■ Function Specifications

Item		TP02G-AS1	
Display screen	Screen type	STN-LCD	
	Display color	Monochromatic	
	Backlight	The back-light automatic turn off time is 1 ~ 99 minutes (0 = DO NOT turn off) (The back-light life is about 50 thousand hours at 25°C)	
	Resolution	160 x 32 dots	5×8 dots, 25 characters×8 rows 8×8 dots, 16 characters×8 rows 8×12 dots, 16 characters×5 rows 8×16 dots, 16 characters×4 rows
	Display range	(W) x (H) = 72 x 22 (unit: mm)	
	Contrast adjustment	15 levels of adjustment	
	Language/font	ASCII: Alphanumeric (including European characters) Taiwan: (Big 5 codes) Traditional Chinese Fonts China: (GB2324-80 codes) Simplified Chinese Fonts	
	Font size	ASCII: 5 × 8, 8 × 8, 8 × 12, 8 × 16	
	Alarm LED indicator (RED)	1. Power on indication (blink for three times) 2. Communication error alarm 3. Special indication by user programming	
	RS-232 LED indicator (yellow)	It will blink when transmitting program and communicating by using RS-232.	
	RS-485 LED Indicator (green)	It will blink when communicating by using RS-485.	
Program memory		256KB flash memory	
RAM of system		32K Byte	
External interface	Serial communication port RS-232 (COM1)	Unsynchronized transmission method: RS-232 Data length: 7 or 8 bits, Stop bits: 1 or 2 bits Parity: none/odd/even, Transmission speed: 4,800 bps ~115,200 bps RS-232: 9 PIN D-SUB male	
	Extension communication port RS-485 (COM2)	Unsynchronized transmission method: RS-485 Data length: 7 or 8 bits, Stop bits: 1 or 2 bits Parity: None/Odd/Even, Transmission speed: 4,800 bps ~115,200 bps RS-485: 5 PIN removal terminal	
	Extension interface	1. Update firmware version 2. The slot for program copy card	
	5 PIN removal terminal	Include 24V DC input and RS-485 communication input	

■ Electrical Specifications

Specifications	TP02G-AS1
Communication interface	COM1: RS-232 COM2: RS-485
Waterproof class of front panel	IP66 / NEMA4X / UL Type4X (Indoor use only)
Operating temperature for hardware	0 ~ 50°C; 20 ~ 90%RH (non-condensing)
Storage temperature for hardware	-20 ~ 60°C

Specifications

TP02G-AS1

Vibration	5Hz ≤ f < 9Hz = Continuous: 1.75mm / Occasional: 3.5mm 9Hz ≤ f ≤ 150Hz = Continuous: 0.5g / Occasional: 1.0g
Shock	15g peak, 11ms duration, half-sine, three shocks in each direction per axis, on 3 mutually perpendicular axes (total of 18 shocks)
Radiated emission	CISPR11, Class A
Electrostatic discharge immunity	EN61000-4-2
Radiated immunity	EN61000-4-3
Electrical fast transient	EN61000-4-4
Altitude	0 ~ 2000 meters
Weight/dimensions	0.24kg; 147 × 97 × 35.5mm (Width(W) × Height(H) × Deep(D))
Cooling method	Natural air cooling

③ Password Function

- If the user forgot the password, the password can be cleared by using the following code: **8888**. This universal code will clear the password and all TP02 series internal programs. The TP02 series will be reset to the factory settings by using this code also. Please pay close attention when using it.
- The password can be the alphabet from A to Z or the number from 0 to 9. But it must use the function keys F0 ~ F9 to input the password characters. Please refer to the following table.
 - 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.

④ Hardware Operation

When the user wants to startup TP02 series, a 24V DC power is needed. After applying 24V DC power to TP02 series, it will enter into the startup display and then enter the user-designed program. Pressing Esc key and holding on for 5 seconds can return to system menu. There are five selections in the system menu and are described below.

Selections	Explanation
Download program	Use the connection cable (UC-PRG020-12A (2M)) to connect the TP02 serial communication port RS-232 to a PC. Then use the TPEditor/DIAScreen software to download an application program to TP02.
Upload program	Use the connection cable (UC-PRG020-12A (2M)) to connect the TP02 serial communication port RS-232 to a PC. Then use the TPEditor/DIAScreen software to upload an application program from TP02.
Copy program	Transfer a program between two TP02 units. 1: transmit programs; 2: receive programs. When transmit programs and data between two TP02 units. 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	There are 8 items that used to modify TP02 system settings: 1. Communication protocol: Setting the address of TP02, the control port of PLC, 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 minutes. 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 entering any system menu. The factory password is 1234.
7. Startup display: Used to select the TP02 startup display. User can select "user defined" to use the file that designed by TPEditor/ DIAScreen and download to TP02.
8. Comm. indicator: The user can determine if the RS-232 and RS-485 LEDs will blink or not during communication.

PLC connection

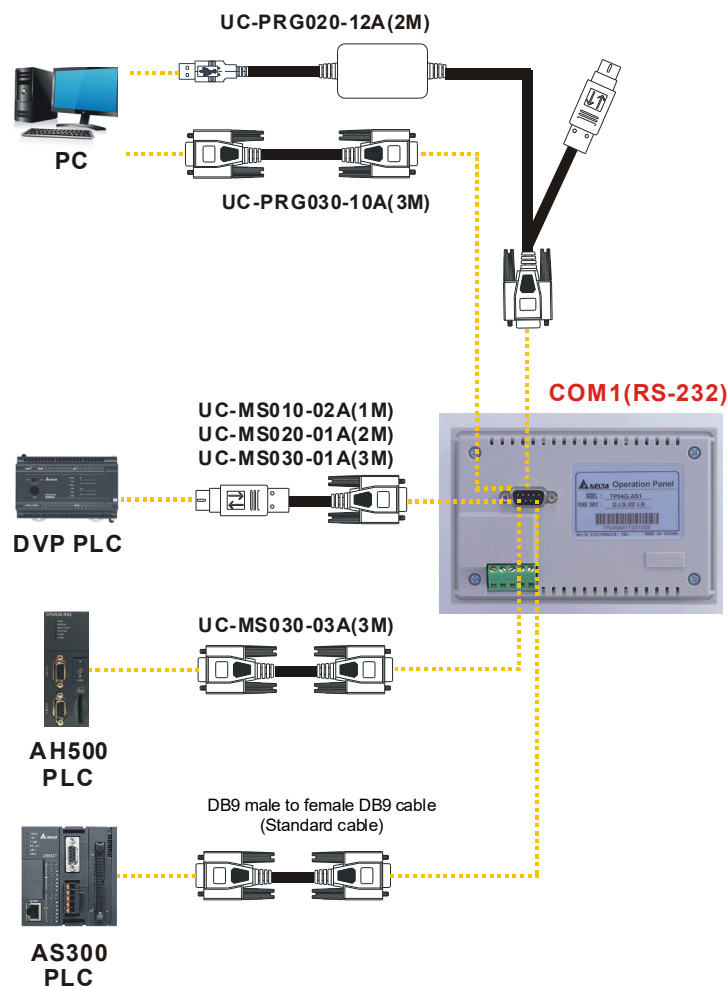
There are two methods to connect to PLC:

1. Using TP02 serial communication port (COM1) RS-232: set 8-pin DIP switch to RS-485 mode and connect the cable (UC-MS010-02A(1M)/UC-MS020-01A(2M)/UC-MS030-01A(3M)) to program communication I/O RS-232C of PLC.
2. Using extension communication port (COM2) RS-485: set 8-pin DIP switch to RS-485 mode and connect 5-pin removal terminal of extension communication port to RS-485 of PLC with twisted pair.

Execution

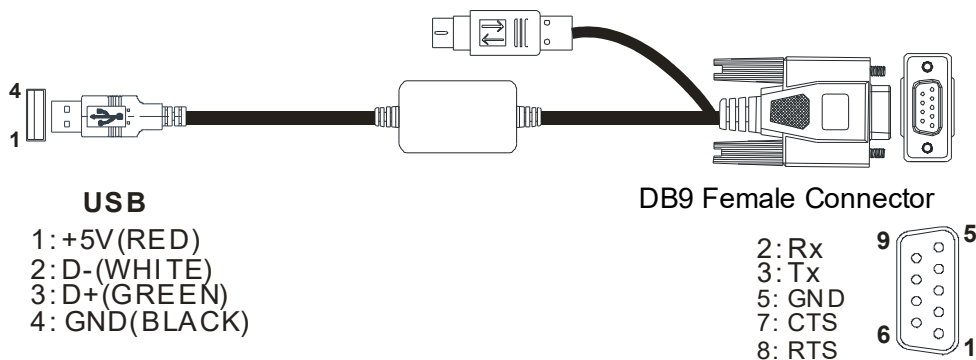
Execute the internal program that download from TPEditor/ DIAScreen or transmitted from other TP02 units. When program is in execution, the user can return to system menu by pressing Escape/Exit (Esc) key for 5 seconds.

⑤ Communication Connection

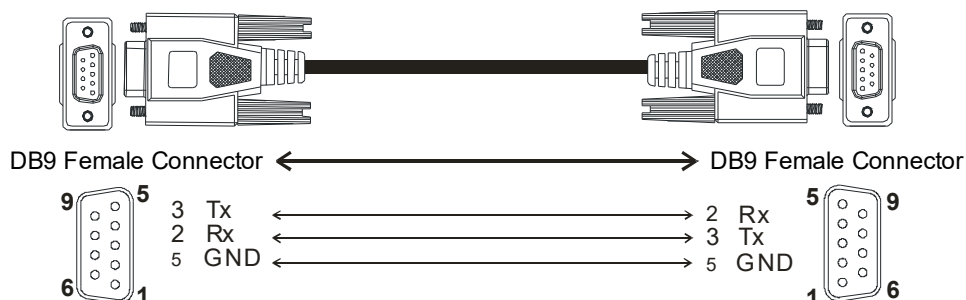


■ Connect a PC to TP02G via connection cable UC-PRG020-12A (2M) / UC-PRG030-10A(3M)

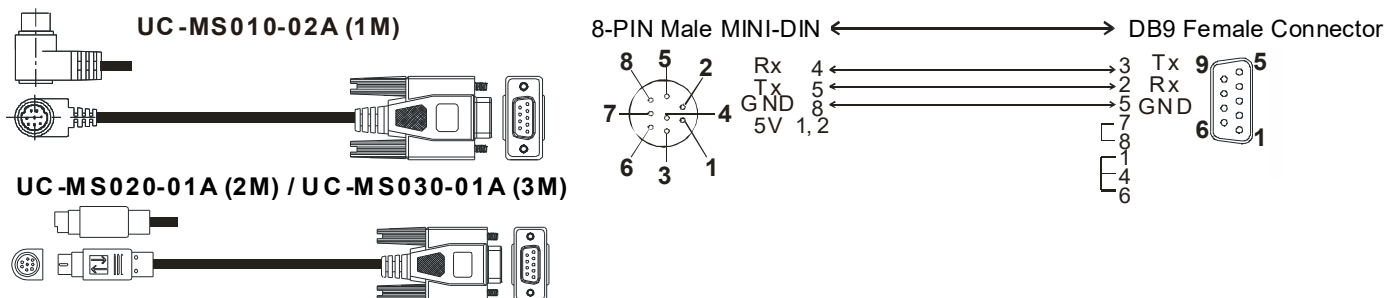
1. UC-PRG020-12A (2M)



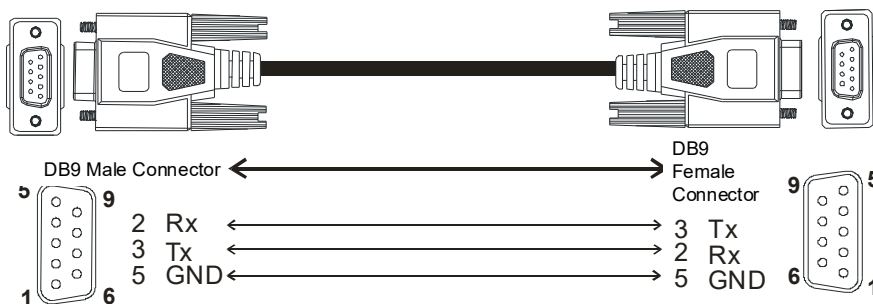
2. UC-PRG030-10A (3M)



■ Connect a DVP-PLC to TP02G via cable UC-MS010-02A(1M)/UC-MS020-01A(2M)/UC-MS030-01A(3M)



■ Connect a AH-PLC to TP02G via cable UC-MS030-03A(3M)



■ Connect a AS-PLC to TP02G via DB9 (MALE) to DB9 (FEMALE) standard cable

