Color LCD Graphic Panel

GP-A Series

PRODUCT MANUAL

For your safety, read and follow the considerations written in the instruction manual, other manuals and Autonics website.

The specifications, dimensions, etc. are subject to change without notice for product improvement. Some models may be discontinued without notice.

Features

- Equipped with TFT LCD for realizing True color
- Horizontal/Vertical installation according to environment
- Available to monitor device of the connected controllers even without user screen data
- Using user screen drawing program 'atDesigner'
  : More variety functions, objects and library image
  : Intuitive user interface
  : Multilingual table function: switching language of user screen by touching a button
- Various communication interface: RS232C, RS422, Ethernet, CAN

Safety Considerations

- Observe all 'Safety Considerations' for safe and proper operation to avoid hazards.
- ⚠ symbol indicates caution due to special circumstances in which hazards may occur.

⚠ Warning Failure to follow instructions may result in serious injury or death.

01. **Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.)**
    Failure to follow this instruction may result in personal injury, economic loss or fire.
02. **Do not use the unit in the place where flammable/explosive/corrosive gas, high humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.**
    Failure to follow this instruction may result in explosion or fire.
03. **Use the unit within the rated specifications.**
    Failure to follow this instruction may result in fire or shortening the life cycle of the product.
04. **Do not connect, repair, or inspect the unit while connected to a power source.**
    Failure to follow this instruction may result in fire.
05. **Check 'Power Wiring' and 'Serial Interface' before wiring.**
    Failure to follow this instruction may result in fire.
06. **In preparation for product damage, communication error, or malfunction, install external limit switch, emergency stop switch, or other protection circuit.**
    Failure to follow this instruction may result in personal injury, economic loss or fire.
07. **Since Lithium battery is embedded in the product, do not disassemble or burn the unit.**
    Failure to follow this instruction may result in fire.
08. **Do not disassemble or modify the unit.**
    Failure to follow this instruction may result in fire.
09. **Please contact us for battery replacement.**
    Using an unauthentic battery may result in fire or product damage.

⚠ Caution Failure to follow instructions may result in injury or product damage.

01. **Use dry cloth to clean the unit, and do not use water or organic solvent.**
    Failure to follow this instruction may result in electric shock or fire.
02. **When connecting the power input, use AWG 23 cable or over and tighten the terminal screw with a tightening torque of 0.5 to 0.8 N·m.**
    Failure to follow this instruction may result in fire or malfunction due to contact failure.
03. **Keep the product away from metal chip, dust, and wire residue which flow into the unit.**
    Failure to follow this instruction may result in fire or product damage.
04. **Do not touch the front LCD screen over 2 points at the same time.**
    Failure to follow this instruction may result in malfunction.
05. **Do not put any heavy object on the front screen.**
    Failure to follow this instruction may result in malfunction due to deformation of LCD and touch panel.

Cautions during Use

- Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents.
- Power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
- Install a power switch or circuit breaker in the easily accessible place for supplying or disconnecting the power.
- Operate the product after supplying power to the product, input/output equipment, and load. If operate product before supplying power, it may result in output error or malfunction.
- Use a USB cable within 2 m.
- Keep away from high voltage lines or power lines to prevent inductive noise. Do not use near the equipment which generates strong magnetic force or high frequency noise.
- Make a required space around the unit for radiation of heat, and do not block ventilation openings.
- Do not push the touch panel with a hard and sharp object or push the panel with excessive force. It may result in fire or malfunction.
- When skin is smeared with liquid crystal from the broken LCD, rinse with running water for over 15 minutes. If it gets into the eyes, rinse eyes with running water for over 15 minutes and contact a doctor.

CE KC EAC

- When changing the battery, contact Autonics service center to change it. Using unauthentic battery may result in fire or product damage.
- This unit may be used in the following environments.
  - Indoors (in the environment condition rated in 'Specifications')
  - Altitude max. 2,000 m
  - Pollution degree 2
  - Installation category II

Cautions during Wiring

- Do not apply power before power line connection.
- Check power polarity.
- For power supply, use the wire of which cross section is at least 0.75 mm² and use the wire of which cross section is at least 1.25 mm² for grounding.
- Use ring crimp terminal with at least 3 mm of internal diameter and less than 6 mm of external diameter.
- Tighten the terminal screw with 0.5 to 0.8 N·m torque.
- Ground resistance should be less than 100 Ω and ground it separately.

Product Components

- Graphic panel + built in battery
- Sold separately: communication cable
- 4.6 / 5.7 / 7.0 inch: 4 fixing brackets
- 10.4 inch: 6 fixing brackets, CAN connector

Software

Visit Autonics web site to download software and manuals.

■ atDesigner

atDesigner is a dedicated screen editor software used to create, edit, and monitor the screen data of LP/GP-A devices. All data arrangement, layout, shapes, properties can be edited using atDesigner. The screen data, project admin account, security level, language, and script can all.

■ Firmware

Please refer to 'GP-A Series user manual' for firmware upgrade.

Manuals

For the detailed information and instructions, please refer to the manuals, and be sure to follow cautions written in the technical descriptions.
Visit Autonics website to download manuals.

■ GP-A Series user manual

It describes general information about installation and system of GP-A Series.

■ atDesigner user manual

It describes how to design user screen and how to use HMI function.

■ GP/LP user manual for communication

It describes how to connect with external devices such as PLC.

Ordering Information

This is only for reference, the actual product does not support all combinations.
For selecting the specified model, follow the Autonics website.

GP - A ❶ - T ❷ D ❸

❶ Screen size

046: 4.6 inch
057: 5.7 inch
070: 7.0 inch
104: 10.4 inch

❷ Display color

8: 262,144 color
9: 16,777,216 color

❸ Interface

Model	❸	RS232C	RS422	CAN	Micro SD	USB Host	USB Device	Ethernet
GP-A 046/057/070	6	1	1	-	-	1	1	1
	7	2	-	-	-			
GP-A104	8	1	1	1	1			
	9	2	-	1	1			

Specifications

Model	GP-A046	GP-A057	GP-A070	GP-A104
Screen size	4.6 inch	5.7 inch	7.0 inch	10.4 inch
LCD type	TFT Color LCD			
Resolution	800×320 pixel	640×480 pixel	800×480 pixel	800×600 pixel
Pixel pitch (W×H)	0.13 × 0.13 mm	0.18 × 0.18 mm	0.19 × 0.19 mm	0.26 × 0.26 mm
Display area	108×43.2 mm	115.2×86.4 mm	154.4×93.44 mm	211.2×158.4 mm
Display color	16,777,216 colors	262,144 colors	16,777,216 colors	16,777,216 colors
LCD view angle (top/bottom/left/right)	Within 75°/70° /80°/80° of each	Within 70°/70° /80°/80° of each	Within 50°/60° /65°/65° of each	Within 60°/70° /80°/70° of each
Backlight	White LED			
Backlight life cycle	≥ 50,000 hours 01)			
Luminance adjustment	Adjustable by software			
Touch	Analog resistive film method			
Touch panel resolution	800 × 320 cell	640 × 480 cell	800 × 480 cell	800 × 600 cell
Touch panel life cycle	≥ 1 million times			
Sound	Magnetic buzzer (≥ 85 dB)			
Approval	CE KC EAC			
Unit weight (packaged)	≈ 272 g (≈ 382 g)	≈ 489 g (≈ 644 g)	≈ 520 g (≈ 706 g)	≈ 1.07 kg (≈ 1.62 kg)

01) Based on 25 °C, time until brightness reaches 50% when continuously ON

Serial interface	RS232C, RS422 (Half Duplex)
USB interface	Host: USB 2.0 (Type A) × 1 , Device: USB 2.0 (mini-B) × 1
USB HOST power supply	5 VDC⎓ ±5%
USB HOST output current	500 mA
USB comm. distance	Host: < 2 m , Device: < 2 m
Ethernet interface	Ethernet: IEEE802.3(U), 10/100Base-T, connector: RJ45
CAN interface	24V CAN transceiver
External storage	Micro SD max. 32GB (FAT16/32)
Printer	PCL3 GUI protocol (USB Host)
Processor	ATMEL ARM Cortex-A5 Single core (536 MHz)
RAM	DDR2 133 MHz 256 MB
Flash	256 MB
Backup memory	SRAM 1MB (lithium battery(1/2 AA))
Backup type	Logging/alarm, non-volatile device
Battery life cycle	5 years at 25°C
Clock	RTC embedded

Supportive interface can be different up to model. For the detailed information, refer to 'Ordering Information'.

Memory for user screen	64MB
Number of user screen	100 pages
System menu language	Korean, English
Font	Bitmap font: 8 × 8, 8 × 16, 16 × 16, 32 × 32 pixel Vector font: 5 to 625 pixel
Font magnification	Bitmap fonts: 1 to 8 times width / height

Number of display characters (character × line)

Characters	Pixel	GP-A046	GP-A057	GP-A070	GP-A104
English / Numbers	6 × 8	133 × 40	106 × 60	133 × 60	133 × 75
	8 × 8	100 × 40	80 × 60	100 × 60	100 × 75
Korean / Chinese characters	16 × 16	50 × 20	40 × 30	50 × 30	50 × 37

Power supply	24 VDC⎓
Allowable voltage range	90 to 110% of power supply
Allowable momentary outage time	≤ 10 ms

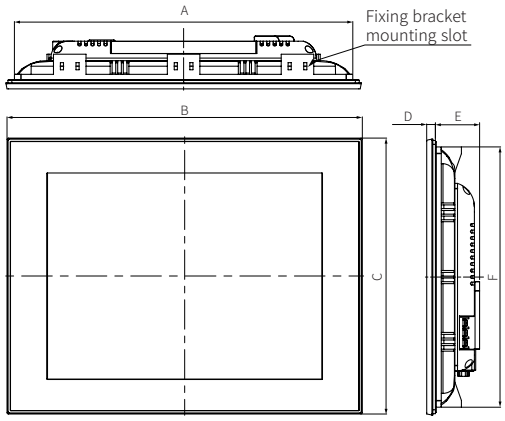
Power consumption

	GP-A046	GP-A057/070	GP-A104
Power consumption	≤ 4.8 W	≤ 7.2 W	≤ 8 W
Excluding external supply power	≤ 4 W	≤ 6 W	≤ 7 W
Backlight OFF (standby mode)	≤ 3.3 W	≤ 4.5 W	≤ 5 W
Backlight ON (based on 20% brightness)	≤ 3.5 W	≤ 5 W	≤ 5.5 W

Inrush current	≤ 20 A
Insulated resistance	Between all terminals and case: ≥ 100 MΩ (500 VDC⎓ megger)
Surge voltage	± 500 V
Ground	3rd grounding (≤ 100 Ω)
Cooling method	Natural air cooling
Noise immunity	The square wave noise (pulse width: 1μs) by the noise simulator ± 0.5 kV
Static discharge endurance	Contact discharge ± 5 kV
Dielectric strength	500 VAC~ 50/60 Hz for 1 minute (between all terminals and case)
Vibration	0.75 double amplitude at frequency of 10 to 55 Hz in each X, Y, Z direction for 1 hour
Vibration (malfunction)	0.5 double amplitude at frequency of 10 to 55 Hz in each X, Y, Z direction for 10 minutes
Shock	147 m/s² (approx. 15 G) in each X, Y, Z direction for 3 times
Shock (malfunction)	100 m/s² (approx. 10 G) in each X, Y, Z direction for 3 times
Ambient temperature	0 to 50°C, storage: -20 to 60°C (a non freezing or condensation environment)
Ambient humidity	35 to 85%RH, storage : 35 to 85%RH (a non freezing or condensation environment)
Protection structure	IP65 (front panel, IEC standard)
Material	Case: ABS flame retardant

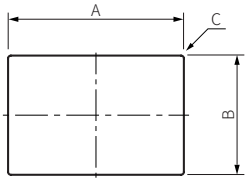
Dimensions

• Unit: mm, For the detailed dimensions of the product, follow the Autonics web site.



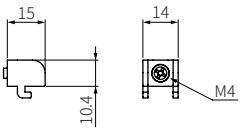
	A	B	C	D	E	F
4.6 inch	135	143.5	75.5	6.5	36	67
5.7 inch	160	168.5	128.5	6.5	36	120
7.0 inch	185	194	134	6.5	28.5	125
10.4 inch	260	273	212	7.2	34	200

• Panel cut-out



	A	B	C
4.6 inch	$135.5^{+1.1}_{0}$	$67.5^{+1.1}_{0}$	≤ 4-R3
5.7 inch	$160.5^{+1.0}_{0}$	$120.5^{+1.0}_{0}$	≤ 4-R3
7.0 inch	$186^{+1.1}_{0}$	$126^{+1.0}_{0}$	≤ 4-R3
10.4 inch	$260.5^{+1.1}_{0}$	$200.5^{+1.0}_{0}$	≤ 4-R3

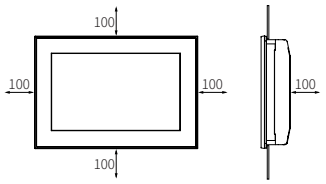
• Fixing bracket



Installation

1. Set the product in panel. (panel thickness: ≤ 4mm)
   When installing GP-A104 on panel, make 100mm of space from upper, lower, right, left side of the product on the panel and back side of panel. It is for preventing effect of electromagnetic waves and heat from other controllers. [Image 1]
2. Set fixing brackets in the fixing bracket mounting slots. [Image 2]
3. Tighten the fixing bracket with M4 Screw driver and tightening torque is 0.5 to 0.6N·m.

[Image 1]



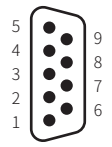
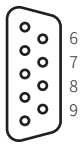
[Image 2]

(unit: mm)

Interface

Interface is different up to the model.
For the detailed information about each interface, refer to the GP-A Series user manual and GP/LP user manual for communication.

■ Serial port (RS232C/RS422)

RS232C		**RS422**	
Port	Pin function	Port	Pin function
	1 N/A 2 RXD 3 TXD 4 DTR 5 SG 6 DSR 7 N/A 8 N/A 9 N/A		1 TXD+ 2 RXD+ 3 N/A 4 N/A 5 SG 6 TXD- 7 RXD- 8 N/A 9 N/A
D-sub 9 Pin Male		D-sub 9 Pin Female	

■ USB port

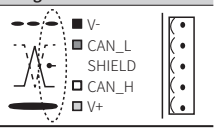
Type	**Port**	**Function**
USB Host		• Coping data between storage and GP • Firmware upgrade • Connecting external device (bar-code reader, printer, etc.) • External memory: max. 32GB (supported file system: FAT16, FAT32)
USB Device		• atDesigner project upload/download

Use a USB cable within 2 m.

■ Ethernet port

It is available to upload/download project file by connecting PC and atDesigner, and monitor PLC which supports Ethernet communication protocol.

■ CAN port

Number	**Color**	**Function**	**Configuration**
1	Black	24VDC⎓(-)	
2	Blue	CAN_L	
3	None	SHIELD	
4	White	CAN_H	
5	Red	24VDC⎓(+)	

■ Micro SD

External memory: max. 32GB (supported file system: FAT16, FAT32)

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