

Color LCD Logic Panel

LP-A Series

INSTRUCTION MANUAL

TCD210070AC

Autonics

Thank you for choosing our Autonics product.

Read and understand the instruction manual and manual thoroughly before using the product.

For your safety, read and follow the below safety considerations before using.

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

Keep this instruction manual in a place where you can find easily.

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

Follow Autonics website for the latest information.

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.

- 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.
- 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.
- Use the unit within the rated specifications.**
Failure to follow this instruction may result in fire or shortening the life cycle of the product.
- Do not connect, repair, or inspect the unit while connected to a power source.**
Failure to follow this instruction may result in fire.
- Check 'Cautions during Power Wiring' and 'I/O Wiring' before wiring.**
Failure to follow this instruction may result in fire.
- In preparation for product damage, communication error, or malfunction, install external emergency stop circuit, forward/reverse interlock circuit, limit switch, emergency stop switch, or other protection circuit.**
Failure to follow this instruction may result in personal injury, economic loss or fire.
- Since Lithium battery is embedded in the product, do not disassemble or burn the unit.**
Failure to follow this instruction may result in fire.
- Do not disassemble or modify the unit.**
Failure to follow this instruction may result in fire.
- Please contact to 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.

- Use a dry cloth to clean the unit, and do not use water or organic solvent.**
Failure to follow this instruction may result in fire.
- 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.
- 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.
- Do not touch the front LCD screen over 2 points at the same time.**
Failure to follow this instruction may result in malfunction.
- 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.
- 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. 2,000m
 - Pollution degree 2
 - Installation category II

Product Components

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

Ordering Information

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

LP - A ① - T 9 D ② - C ③ ④

① Screen size

070: 7.0 inch
104: 10.4 inch

② Interface

Series	②	RS232C	RS422	CAN	Micro SD	USB HOST	USB Device	Ethernet
LP-A070	6	1	1	-	-	1	1	1
	7	2	-	-	-			
LP-A104	8	1	1	1	1	1	1	1
	9	2	-	1	1			

③ I/O configuration

5: 7.0 inch - input 16-point, output 16-point
6: 10.4 inch - input 32-point, output 32-point

④ I/O connector type

R: Ribbon cable connector
T: Terminal block connector

Specifications

	LP-A070-T9D□-C5□	LP-A104-T9D□-C6□
Screen size	7.0 inch	10.4 inch
LCD type	TFT Color LCD	
Resolution	800×480 pixel	800×600 pixel
Pixel pitch (W×H)	0.19 × 0.19 mm	0.26 × 0.26 mm
Display area	154.4×93.44 mm	211.2×158.4 mm
Display color	16,777,216 colors	
LCD view angle (top/bottom/left/right)	Within 50°/60°/65°/65° of each	Within 60°/70°/80°/70° of each
Backlight	White LED	
Backlight life cycle	≥ 50,000 hours ^(a)	
Luminance adjustment	Adjustable by software	
Touch	Analog resistive film method	
Touch panel resolution	800 × 480 cell	800 × 600 cell
Touch panel life cycle	≥ 1 million times	
Sound	Magnetic buzzer (≥ 85 dB)	
Input	16-point	32-point
Insulation method	Photo coupler insulation	
Rated input voltage	24VDC≒	
Max. allowable voltage	28.8VDC≒ (using the ambient temperature below 45°C)	
Input format	Source input	
Rated input current	X0 to X8: ≈ 10 mA X9 to XF: ≈ 4 mA	X0 to X8: ≈ 10 mA × 2 X9 to X1F: ≈ 4 mA × 2
Voltage range	19.2-28.8VDC≒	
Input resistance	X0 to X8: 3.3 kΩ X9 to XF: 5.6 kΩ	X0 to X8: 3.3 kΩ × 2 X9 to X1F: 5.6 kΩ × 2
Response time	0.5 ms	
Number of commons	2-point	
Common method	16-point/1COM	16-point/1COM, 16-point/1COM
Applicable wire	Stranded wire 0.3 to 0.7 mm ²	
Output	16-point	32-point
Output terminals	Terminal block or ribbon cable	
Power supply	24VDC≒	
Insulation method	Photocoupler isolation	
Rated load voltage	24VDC≒	
Load voltage range	19.2-28.8VDC≒	
Output format	Sink output	
Max. load current	0.1 A/1-point, 1.6 A/1COM	
Min. load current	1 mA	
Max. voltage falling when ON	≤ 0.2VDC≒	
Output delay time	0.5 ms	
Leakage current when OFF	≤ 0.1 mA	
Clamp voltage	45 V	
Output type	Transistor output	
Number of commons	2-point	
Common method	16-point/1COM	16-point/1COM, 16-point/1COM
External connection	16-pin connector (shared with input)	16-pin connector × 2 (shared with input)
Applicable wire	Stranded wire 0.3 to 0.7 mm ²	
Approval	CE RoHS FRE	
Unit weight (package)	≈ 540 g (≈ 742 g)	≈ 1.10 kg (≈ 1.66 kg)

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

Command	Basic command: 28, application command: 236
Program capacity	8 K step
Program area	64 MB
Processing speed	Average: approx. 1μs/basic command, application command
I/O control method	Batch processing
Computer control method	Repeated-doubling method, interrupt processing
Device range	Refer to 'LP-A Series user manual'
Special function	Positioning function, motion controller, high speed counter

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	5VDC≒ ±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. 32 GB (FAT16/32)
Printer	PCL3 GUI protocol (USB Host)
Processor	ATMELARM 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. Please refer to 'Ordering Information' for the supportive interface per model and 'LP-A Series user manual' and 'GP/LP user manual for communication' for the detailed information about each interface.

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	LP-A070	LP-A104
	English / Numbers	6 × 8	133 × 60	133 × 75
		8 × 8	100 × 60	100 × 75
	Korean / Chinese characters	16 × 16	50 × 30	50 × 37

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

Power consumption		LP-A070	LP-A104
	Power consumption	≤ 7.2 W	≤ 8 W
	Excluding external supply power	≤ 6 W	≤ 7 W
	Backlight OFF (standby mode)	≤ 4.5 W	≤ 5 W
	Backlight ON (based on 20% brightness)	≤ 5 W	≤ 5.5 W

Inrush current	≤ 20 A
Insulated resistance	Between all terminals and case: ≥ 100 MΩ (500VDC≒ 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	500VAC~ 50/60Hz 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/s ² (approx. 15 G) in each X, Y, Z direction for 3 times
Shock (malfunction)	100 m/s ² (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

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.

■ atLogic

atLogic is for create, edit, and debug programs for LP series logic panels.

■ Firmware

Please refer to 'LP-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.

■ LP-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.

■ atLogic user manual, atLogic programming manual

It describes how to install and use atLogic, program, and commands for LP Series.

■ GP/LP user manual for communication

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

Cautions during Power 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.

I/O Connection Diagram

For the detailed information about pin number and others, please refer to 'LP-A user manual'.

■ 7.0 inch

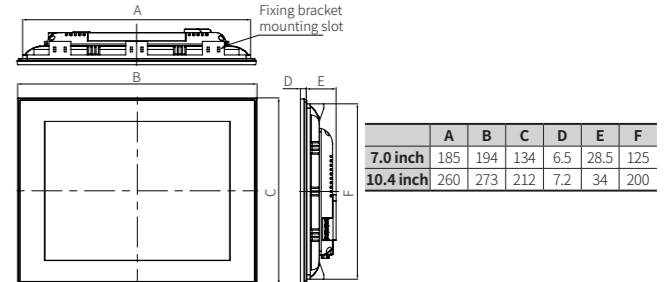
Input (source type)	Output (sink type)

■ 10.4 inch

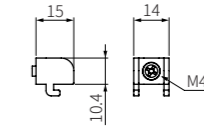
Input (source type)	Output (sink type)

Dimensions

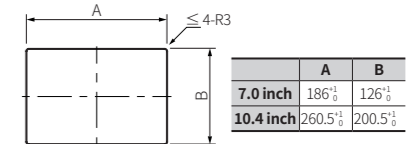
- Unit: mm, For the detailed drawings, follow the Autonics website.



- Fixing bracket



- Panel cut-out



Program Status Indicator

Indicator	Status	Program status
Green	ON	Run
Green	Flashing	Pause
Red	Flashing	Error
7.0 inch: orange	ON	atLogic debugging
10.4 inch: red		

Installation

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

