Color LCD Logic Panel

LP-A Series

INSTRUCTION MANUAL

DRW180695AD

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.

01. **Fail-safe device must be installed when using the unit with machinery that may cause serious injuryor 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 'Cautions during Power Wiring' and 'I/O Wiring' before wiring.**
    Failure to follow this instruction may result in fire.
06. **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.
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 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.

01. **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.
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 0.6 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.
- 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

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 6mm of external diameter.
- Tighten the terminal screw with 0.5 to 0.6 N·m torque.
- Ground resistance should be less than 100 Ω and ground it separately.

Product Components

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

Manual

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

- LP-A Series user manual
  It describes general information about installation and system of LP-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, how to program, and commands for LP Series.
- GP/LP user manual for communication
  It describes how to connect with external devices such as PLC.

Ordering Information

This is only for reference.
For selecting the specified model, follow the Autonics webstie.

LP - A ❶ - T 9 D ❷ - C ❸ ❹

❶ Screen size
070: 7.0 inch
104: 10.4 inch

❷ Interface

Series	❷	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			
	9	2	-	1	1			

❸ I/O configuration
5: 7.0 inch - input 16-point, output 16-point
6: 10.4 inch - input 32-point, output 32-point

❹ 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
Display area	154.4×93.44 mm	211.2×158.4 mm
Display color	16,777,216 color	
LCD view angle (top/bottom/left/right)	Within 50°/60°/65°/65° of each	Within 60°/70°/80°/70° of each
Backlight	White LED	
Luminance adjustment	Adjustable by software	
Touch	Resistive type (4-wire)	
Input	16-point	32-point
Insulation method	Photo coupler insulation	
Rated input voltage	24 VDC⎓	
Rated input current	X0 to X8: ≈ 10 mA, X9 to XF: ≈ 4 mA	X0 to X8: ≈ 10 mA, X9 to X1F: ≈ 4 mA
Voltage range	19.2-28.8 VDC⎓	
Input resistance	X0 to X8: 3.3 kΩ, X9 to XF: 5.6 kΩ	X0 to X8: 3.3 kΩ, X9 to X1F: 5.6 kΩ
Response time	0.5 ms	
Common method	16-point/1COM	16-point/1COM, 16-point/1COM
Applicable wire	Stranded wire 0.3 to 0.7 mm²	
Output	16-point	32-point
Power supply	24 VDC⎓	
Insulation method	Photo coupler insulation	
Rated load voltage	24 VDC⎓	
Load voltage range	19.2-28.8 VDC⎓	
Max. load current	0.1 A/1-point, 1.6 A/1COM	
Max. voltage falling when ON	≤ 0.2 VDC⎓	
Common method	16-point/1COM	16-point/1COM, 16-point/1COM
Applicable wire	Stranded wire 0.3 to 0.7 mm²	
Approval	CE	
Unit weight (package)	≈ 540 g (≈ 742 g)	≈ 1.10 kg (≈ 1.66 kg)

Command	Basic command: 28, application command: 236
Program capacity	8 K step
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 coltroller, high speed counter

Serial interface	RS232C, RS422
USB interface	USB Host, USB Device (USB2.0)
Ethernet interface	IEEE802.3(U), 10/100Base-T
CAN interface	24V CAN transceiver
External storage	Micro SD up to 32 GB (FAT16/32)
Real-time controller	RTC embedded
Battery life cycle	3 years at 25°C

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.

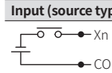
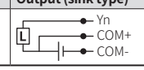
Language	Korean, English
Text	Bitmap and vector font
Memory for user screen	64 MB
Number of user screen	100 pages

Power supply	24 VDC⎓
Allowable voltage range	90 to 110% of power supply
Power consumption	7.0 inch : ≤ 7.2 W, 10.4 inch : ≤ 8.0 W
Insulated resistance	≥ 100 MΩ (500 VDC⎓ megger) (between all terminals and case)
Ground	3rd grounding (≤ 100 Ω)
Noise immunity	The square wave noise (pulse width: 1 μs) by the noise simulator ± 0.5 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)

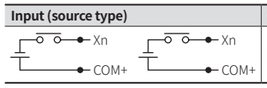
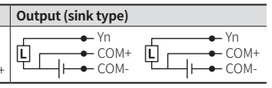
I/O Connection Diagram

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

■ 7.0 inch

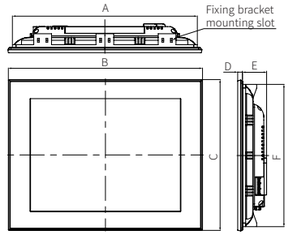
Input (source type)	Output (sink type)
	

■ 10.4 inch

Input (source type)	Output (sink type)
	

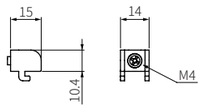
Dimensions

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

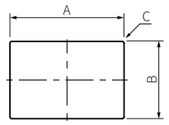


	A	B	C	D	E	F
7.0 inch	185	194	134	6.5	28.5	125
10.4 inch	260	273	212	7.2	34	200

- Fixing bracket

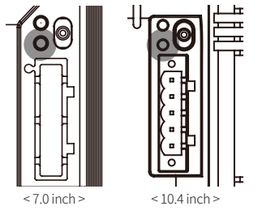


- Panel cut-out



	A	B	C
7.0 inch	186^{+1}_{0}	126^{+1}_{0}	≤ 4-R3
10.4 inch	260.5^{+1}_{0}	200.5^{+1}_{0}	≤ 4-R3

Program Status Indicator

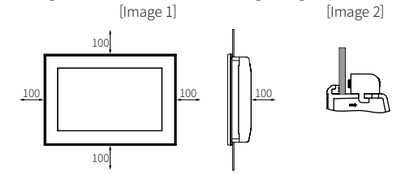


Indicator		Program status
Color	**Status**	
Green	ON	Run
Green	Flashing	Pause
Red	Flashing	Error
7.0 inch: orange 10.4 inch: red	ON	atLogic debugging

Installation

1. Set the product in panel. (panel thickness: ≤ 4mm)
   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]
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]



Software

Visit Autonics web site to download software.

- atDesigner
  atDesigner is for editing project file.
- atLogic
  atLogic is for writing and debugging program.
- Recommended computer specification

Item	Recommended spec for atDesigner	Recommended spec for atLogic
Operating system	Windows XP/Vista/7/8/10	Windows 7/8/10
CPU	Over Intel Core i5-2nd gen. 2500	Over Pentium Dual Core
Memory	Over 8 GB	Over 1 GB
Hard disk	Over 8 GB free space	Over 5 GB free space
Resolution	1920×1080	1280×1024

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

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