Advanced Type 10.4 inch Color LCD Logic Panel

◼ Features

- Lesser restrictions on installing place and easier system configuration and use with PLC, HMI, I/O all-in-one design
- Horizontal/Vertical installation according to environment
- Various communication interface: RS232C, RS422, Ethernet, CAN
- Standard I/O: Input 32-point, Output 32-point
- Simultaneous monitoring of multiple addresses and channels
- Monitoring device of the connected controllers even without user screen data
- Multilingual table function: switching language of user screen by touching a button.
- Large capacity of memory:
  - widen range of UB, UW internal device
  - 64MB user screen memory
- Using user screen drawing program 'atDesigner'
  - More variety functions, objects and library image
  - Intuitive user interface
- Motion controller, high speed counter function included
- Equipped with 7 inch TFT LCD of 16,777,216 colors for realizing True color
- Possible to be touched by not only hand but also glove, pen tip or etc. with resistive type touch screen
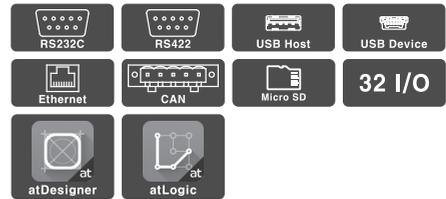
⚠ **Please read "Safety Considerations" in the instruction manual before using.**

CE   KC

RS232C	RS422	USB Host	USB Device
Ethernet	CAN	Micro SD	32 I/O
atDesigner	atLogic		

| SENSORS |
| **CONTROLLERS** |
| MOTION DEVICES |
| SOFTWARE |

◼ Manual

For the detail information and instructions, please refer to user manual and user manual for communication, and be sure to follow cautions written in the technical descriptions (catalog, website).
Visit our website (www.autonics.com) to download manuals.

● **atDesigner user manual**
  It describes how to design user screen and contains information about LP-A104 HMI function and how to use it.
● **atLogic user manual, atLogic programming manual**
  It contains 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.
● **LP-A Series user manual**
  It describes general information about installation and system of LP-A104.

| (J) Temperature Controllers |
| (K) SSRs |
| (L) Power Controllers |
| (M) Counters |
| (N) Timers |
| (O) Digital Panel Meters |
| (P) Indicators |
| (Q) Converters |
| (R) Digital Display Units |
| (S) Sensor Controllers |
| (T) Switching Mode Power Supplies |
| (U) Recorders |
| **(V) HMIs** |
| (W) Panel PC |
| (X) Field Network Devices |

◼ Ordering Information

Model	Item	Series	Screen size	Display unit	Color	Power supply	Interface	Number of I/O	I/O connector type
LP-A104-T9D8-C6R	Logic panel	A Series	10.4 inch	TFT Color LCD	16,777,216 color	24VDC⎓	RS232C, RS422, USB HOST, USB DEVICE, Ethernet, CAN, Micro SD	IN: 32-point OUT: 32-point	Ribbon cable connector
LP-A104-T9D8-C6T									Terminal block connector
LP-A104-T9D9-C6R							RS232C: 2, USB HOST, USB DEVICE, Ethernet, CAN, Micro SD	IN: 32-point OUT: 32-point	Ribbon cable connector
LP-A104-T9D9-C6T									Terminal block connector

LP-A104 Series

■ **Specifications**

◎ **General specifications**

Model	LP-A104-T9D8-C6R(T)		LP-A104-T9D9-C6R(T)
Power supply	24VDC⎓		
Allowable voltage range	90 to 110% of power supply		
Power consumption	Max. 8W		
Serial interface	Each of RS232C, RS422		Two ports of RS232C
USB interface	Each of USB HOST, USB Device (USB2.0)		
Ethernet interface	IEEE802.3(U), 10/100Base-TX		
CAN interface	CAN transceiver for 24V systems		
External storage	Micro SD up to 32GB (FAT16/32)		
Real-time controller	RTC embedded		
Battery life cycle	3 years at 25℃		
Insulated resistance	Over 100MΩ (at 500VDC megger)		
Ground	3rd grounding (max. 100Ω)		
Noise immunity	±0.5kV the square wave noise (pulse width: 1μs) by the noise simulator		
Withstanding voltage	500VAC 50/60Hz for 1 minute		
Vibration	Mechanical	0.75mm amplitude at frequency of 10 to 55Hz (for 1 minute) in each X, Y, Z direction for 1 hour	
	Malfunction	0.5mm amplitude at frequency of 10 to 55Hz (for 1 minute) in each X, Y, Z direction for 10 minutes	
Shock	Mechanical	300m/s² (approx. 30G) in each X, Y, Z direction for 3 times	
	Malfunction	100m/s² (approx. 10G) in each X, Y, Z direction for 3 times	
Environment	Ambient temp.	0 to 50℃, storage: -20 to 60℃	
	Ambient humi.	35 to 85%RH, storage: 35 to 85%RH	
Protection structure	IP65 (front panel, IEC standard)		
Accessory	Fixing bracket: 6, battery (included)		
Approval	CE ⓚ		
Weight[1]	Approx. 1.66kg (approx. 1.10kg)		

※1: The weight includes packaging. The weight in parenthesis is for unit only.
※Environment resistance is rated at no freezing or condensation.

Advanced Type 10.4 inch Color Logic Panel

◎ **Performance specifications**

● **Display performance**

LCD type	TFT Color LCD
Resolution	800×600 dot
Display area	211.2×158.4mm
Color	16,777,216 color
LCD view angle	Within each 60°/70°/70°/70°of top/bottom/left/right
Backlight	White LED
Luminance	Max. 350cd/m^2
Luminance adjustment	Adjustable by software

● **Graphic drawing performance**

Language[1]	Korean, English
Text	Bitmap ASCII and vector font
Graphic drawing memory	64MB
Number of user screen	100 pages
Touch switch	Analog touch (resistive type)

● **Interface type**

LP-A104-T9D8-C6R(T)	RS-232C, RS-422, USB HOST, USB DEVICE, Ethernet, CAN, Micro SD
LP-A104-T9D9-C6R(T)	RS-232C: 2, USB HOST, USB DEVICE, Ethernet, CAN, Micro SD

● **Input** ● **Output**

Input		Output	
Input point	32-point	Output point	32-point
Insulation method	Photo coupler insulation	Power supply	24VDC⎓
Rated input voltage	24VDC⎓	Insulation method	Photocoupler insulation
Input resistance	Contact X0 to X8: approx. 10mA Contact X9 to X1F: approx. 4mA	Rated load voltage	24VDC⎓
Voltage range	19.2 to 28.8VDC⎓	Allowable load voltage range	19.2 to 28.8VDC
Input resistance	Contact X0 to X8: 3.3kΩ Contact X9 to X1F: 5.6kΩ	Max. load current	0.1A/1 point, 1.6A/1COM
Response time	0.5ms	Max. voltage falling when ON	Max. 0.2VDC⎓
Common method	16-point/1 COM, 16-point/1 COM	Common method	16-point/1 COM, 16-point/1 COM
Acceptable wire	0.3 to 0.7mm^2	Acceptable wire	0.3 to 0.7mm^2

● **Control performance**

Command	Basic command: 28, application command: 236
Program capacity	8K step
Processing time	Average: approx. 1μs/basic command, application command
I/O control type	Batch processing
Computer control mode	Repeated-doubling method, interrupt processing
Device range	Refer to 'LP-A Series user manual'
Special function	Positioning function, high speed counter[2]

※1: Supported language can be added.
※2: Please refer to 'LP-A Series user manual' for more special function.

SENSORS

CONTROLLERS

MOTION DEVICES

SOFTWARE

(J)
Temperature
Controllers

(K)
SSRs

(L)
Power
Controllers

(M)
Counters

(N)
Timers

(O)
Digital
Panel Meters

(P)
Indicators

(Q)
Converters

(R)
Digital
Display Units

(S)
Sensor
Controllers

(T)
Switching
Mode Power
Supplies

(U)
Recorders

(V)
HMIs

(W)
Panel PC

(X)
Field Network
Devices

LP-A104 Series

◼ Function

◎ Drawing function

Function		Description
Figure		Line/Multi line/Rectangle/Round rectangle/Polygon/Circle/Fan/Chord/Arc/ Rectangle scale/Circle scale/Semicircle scale/Image/Text
Object	Lamp	Displaying the value of the designated device in bit/word/multi lamp
	Switch	Switching the status of the designated device or object with bit/word/change screen/special/multi switch
	Numeric input/display	Displaying the value of the designated device/Inputting the value to the designated device in number (DEC, HEX, OCT, BIN, REAL)
	Text input/display	Displaying the value of the designated device/Inputting the value to the designated device in text (ASCII/Unicode)
	Call window	Calling a window screen according to the conditions on the value of the designated device
	Message	Displaying a message according to the conditions on the value of the designated device
	Graph	Displaying the value of the designated device in bar/pie/panel meter/statistic/RealTime trend/Logging trend/ RealTime distribution/Logging distribution graph
	Clock	Displaying time or date of the time
	Recipe Editor	Editing recipe (project)
	Logging table	Displaying the logging data (project) in a table
	System logging table	Displaying the system logging data (project) in a table
	Alarm explorer	Displaying the alarm group of alarm history (project) in a table
	Alarm list	Displaying the data of alarm history (project) in a table.
	Data list viewer/editor	Displaying/Editing the value of consecutive word device in a table
	Option list	Displaying the data of the designated device/Inputting data to the designated device in a combo box
	Move coord.	Displaying the object/Moving coordinate of the object according to the value of the designated device
Project	Link device	Reading/Writing the data between LP and controller (PLC) as long as setting according to the status of bit/ cycle condition
	Flow alarm	Displaying alarm in the flowing text at the set position, when meeting the alarming condition
	Alarm history	Saving data of alarming time, device, and information, when the value of the designated alarm-observing device meets the set condition
	Scheduler	Executing a function (bit on/off/reversal, work value changing, script) according to the set condition (device/ cycle)
	Recipe	Reading the value of the multiple devices/Writing the value to the multiple devices at once
	Logging	Saving the value of the designated device, when meeting the condition (device/cycle)
	System Logging	Saving system operation information of LP in a log file
	Script	Writing Lua script by user

◎ Logic function

|		
Project		Creating/Managing individual or multiple project. changing PLC type, printing, print setting
Edit		Managing ladder/mnemonic editor, inserting/deleting line, managing rung, searching rung comment, search, replace, find step
Tool		Ladder tool: arrow, delete, vertical line, horizontal line, normally open contact, normally closed contact, rising input contact, falling input contact, output instruction, rising output contact, falling output contact, set, reset, application instruction, not instruction, register user defined function, user defined function
		Program optimization, program checking, program checking options
View		Ladder/Mnemonic, device/variable name, device name & comment, decimal/hexadecimal view, signed/unsigned view, device/UW view, used devices, zoom in/out, font settings, color settings, toolbar
Online		Connecting, disconnecting, download, upload, change mode, start monitoring, stop monitoring, read information, change password, verify, change present value, system device, delete, firmware download, communication options
Debug		Run, stop run, trace, insert/remove break point, stop debugging, debug-step, debug-line, debug-scan, debug-1 scan, step in, step out, debug-bit, debug-word, forced I/O settings
Window		Cascade, horizontal tile, vertical tile, arrange icon, external program connection
Help		Program information
Workspace	Program	Ladder/Mnemonic program editor
	Parameter	Common: output while debugging, operating condition for extended module, device latch range settings, default filter value, time driven operation, time interrupt, timer range settings
		Extension: input filter, external interrupt
		Motion: common setting, operation setting, pattern setting
		High speed counter
	Variable/ Comment	Managing and setting Variable/Comment by bit/word device
	Monitoring	Monitoring and registering device to monitor by bit/word device

Advanced Type 10.4 inch Color Logic Panel

▣ Unit Description

LCD Screen

Output terminal, Input terminal, Power LED, Micro SD, Run/Stop switch, CAN, Program status LED, USB Host, Power terminal block, RS422 or RS232C-A, RS232C or RS232C-B, Ethernet, USB Device, Mounting slot for fixing bracket
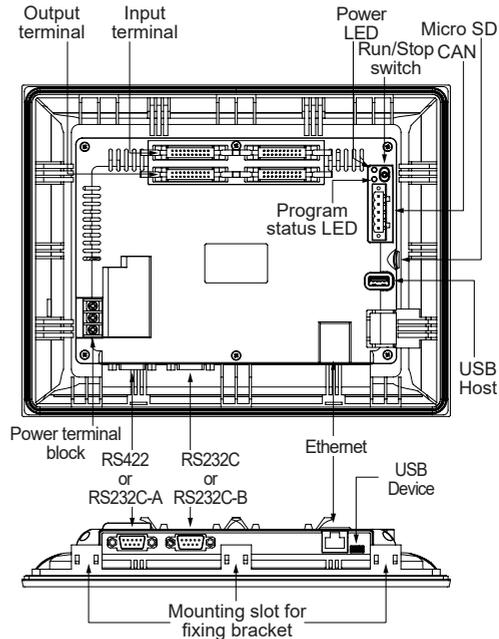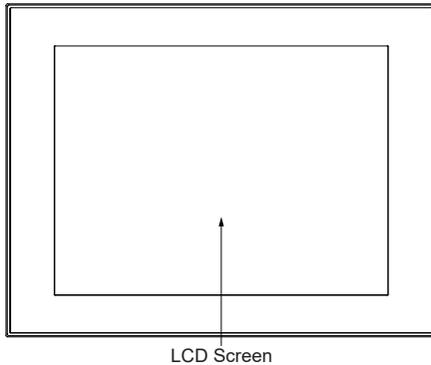
● Program status LED

LED color	LED status	Program status
Green	ON	Run
Green	Flashing	Pause
Red	Flashing	Error
Red	ON	atLogic debugging

● Serial port (RS232C/RS422)

All devices connectable to the product including PC, PLC, serial printer, barcode reader, and dedicated connectors can be connected in to both RS232C and RS422 ports.

Port	Pin		Port	Pin	
RS232C **RS232C-A** **RS232C-B** D-Sub 9-pin Male	1	Non-Used	**RS422** D-Sub 9-pin Female	1	TXD+
	2	RXD		2	RXD+
	3	TXD		3	Non-Used
	4	DTR		4	Non-Used
	5	SG		5	SG
	6	DSR		6	TXD-
	7	Non-Used		7	RXD-
	8	Non-Used		8	Non-Used
	9	Non-Used		9	Non-Used
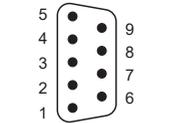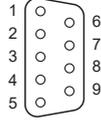
● Ethernet port

For connecting LAN cable and hub, use direct cable, and for connecting PC directly, use cross cable.

● USB

Type	USB Host	USB Device
Function	· Transferring/Copying data between storage and LP-A104 · Firmware upgrade · Bar-code reader · Printer	· Uploading/Downloading a atDesigner project file · Used as external storage by connecting to PC

USB HOST can cover up to 32GB of external storage.
It supports only external storage of FAT16 and FAT32 file system.

● CAN port

No.	Color	Use	Arrangement
1	Black	24VDC(-)	■ V-
2	Blue	CAN_L	■ CAN_L
3	None	SHIELD	SHIELD
4	White	CAN_H	■ CAN_H
5	Red	24VDC(+)	■ V+

● Micro SD

Micro SD can cover up to 32GB of external storage.
It supports only external storage of FAT16 and FAT32 file system.

※For detailed information about each interface, please refer to 'LP-A Series user manual' and 'GP/LP Communication manual'.

LP-A104 Series

▣ Dimension

260

273

7.2 34

212

200

● Panel cut out

260.5$^{+1.1}_{0}$

Max. 4-R3

200.5$^{+1.0}_{0}$
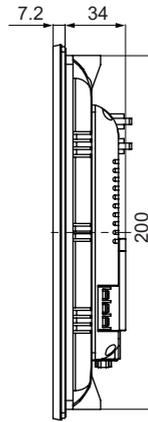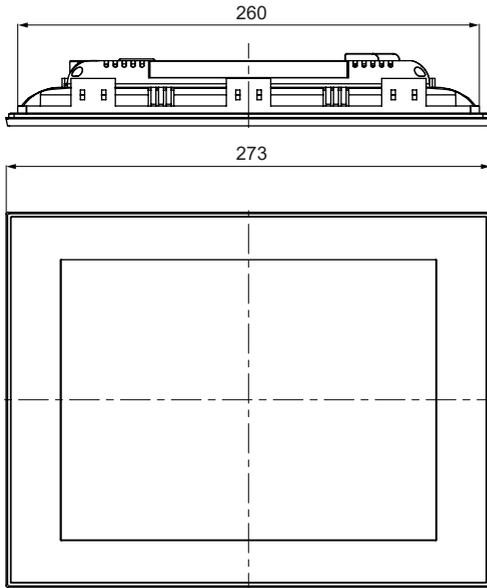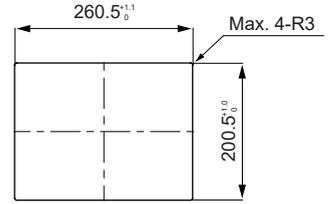
※Panel thickness : max. 4mm

● Fixing bracket

15 M4

14

10.4
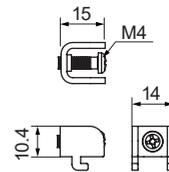
▣ Input/Output Wiring

※Check the number of pin on the rear case before wiring.

◎ LP-A104-T9D8(7)-C6R

● Input wiring (source type)
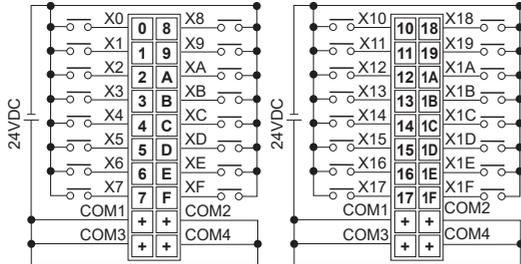
● Output wiring (sync type)
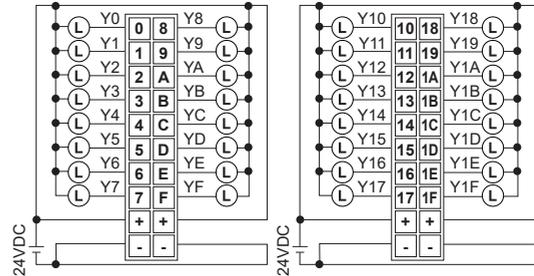
◎ LP-A104-T9D8(7)-C6T

● Input wiring (source type)
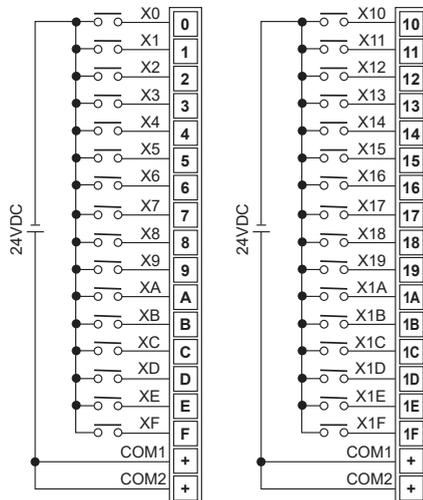
● Output wiring (sync type)

Autonics
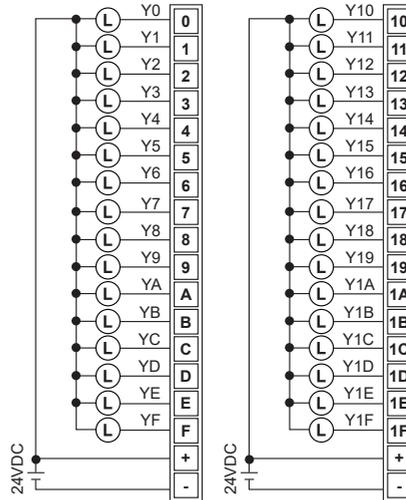
Advanced Type 10.4 inch Color Logic Panel

▣ Installation

1. Set LP-A104 in panel.
2. Set fixing brackets in 6 slots (3 slots is in upper side, 3 slots is in lower side).
3. Tighten fixing bracket with M4 Screw driver and tightening torque is 0.3 to 0.5N·m.

M4 Screw driver
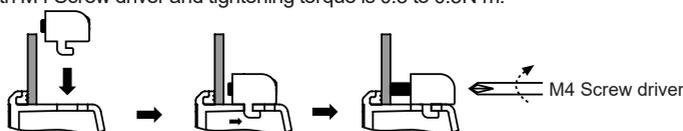
※When installing LP-A104 on panel, make 100mm of space from upper, lower, right, left side of the product on the panel and back side of panel. It is for preventing effect of electromagnetic waves and heat from other controllers.

(unit: mm)

100

100

100

100

100
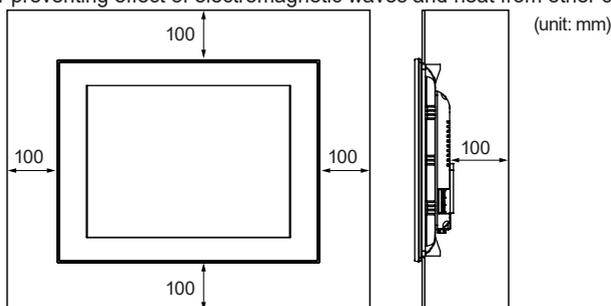
▣ Power Wiring

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

+ - F.G

24VDC
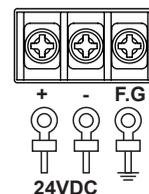
▣ Cable (sold separately)

Communication cables connectable into external devices such as PLC are sold separately.
Please refer to 'GP/LP user manual for communication' for communication cable.

▣ Battery Replacement

Please contact our service center to replace battery.
It may cause an explosion or a fire when using improper battery.

▣ Cautions during Use

1. Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents.
2. 24VDC power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
3. Install a power switch or circuit breaker in the easily accessible place for supplying or disconnecting the power.
4. 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.
5. 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.
6. Make a required space around the unit for radiation of heat, and do not block ventilation openings.
7. 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.
8. 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.
9. This unit may be used in the following environments.
   ①Indoors (in the environment condition rated in 'Specifications')
   ②Altitude max. 2,000m
   ③Pollution degree 2
   ④Installation category II