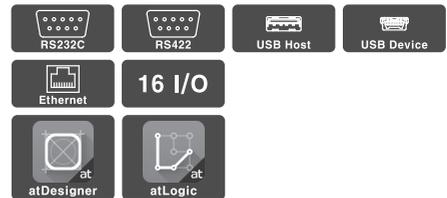


LP-A070 Series

Advanced Type 7 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
- Standard I/O: Input 16-point, Output 16-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.



■ 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-A070 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-A070.

■ Ordering Information

| Model | Item | Series | Screen size | Display unit | Color | Power supply | Interface | Number of I/O | I/O connector type |
|--------------------------|-------------|----------|-------------|---------------|------------------|--------------|---|-------------------------------|--------------------------|
| LP-A070-T9D6-C5R | Logic panel | A Series | 7 inch | TFT Color LCD | 16,777,216 color | 24VDC--- | RS232C, RS422, USB HOST, USB DEVICE, Ethernet | IN: 16-point OUT: 16-point | Ribbon cable connector |
| Terminal block connector | | | | | | | | | |
| LP-A070-T9D7-C5R | | | | | | | RS232C: 2, USB HOST, USB DEVICE, Ethernet | IN: 16-point OUT: 16-point | Ribbon cable connector |
| LP-A070-T9D7-C5T | | | | | | | | | Terminal block connector |

Advanced Type 7 inch Color Logic Panel

■ Specifications

◎ General specifications

| | | |
|-------------------------|--|--|
| Model | LP-A070-T9D6-C5R(T) | LP-A070-T9D7-C5R(T) |
| Power supply | 24VDC--- | |
| Allowable voltage range | 90 to 110% of power supply | |
| Power consumption | Max. 7.2W | |
| Serial interface | Each port of RS232C, RS422 | Two ports of RS232C |
| USB interface | Each of USB Host, USB Device (USB2.0) | |
| Ethernet interface | IEEE802.3(U), 10/100Base-T | |
| Real-time controller | RTC embedded | |
| Battery life cycle | 3 years at 25°C | |
| 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 min) in each X, Y, Z direction for 1 hour |
| | Malfunction | 0.5mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 10 min |
| Shock | Mechanical | 300m/s ² (approx. 30G) in each X,Y,Z direction for 3 times |
| | Malfunction | 100m/s ² (approx. 10G) in each X,Y,Z direction for 3 times |
| Environment | Ambient temperature | 0 to 50°C, storage: -20 to 60°C |
| | Ambient humidity | 35 to 85% RH, storage: 35 to 85%RH |
| Protection structure | IP65 (front panel, IEC standard) | |
| Accessory | Fixing bracket: 4, battery (included) | |
| Approval | CE  | |
| Weight ^{※1} | Approx. 742g (approx. 540g) | |

※1: The weight includes packaging. The weight in parenthesis is for unit only.

※Environment resistance is rated at no freezing or condensation.

| |
|-----------------------------------|
| 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-A070 Series

○ Performance specifications

● Display performance

| | |
|----------------------|--|
| LCD type | TFT Color LCD |
| Resolution | 800×480 dot |
| Display area | 152.4×94.44mm |
| Color | 16,777,216 color |
| LCD view angle | Within each 50°/60°/65°/65° of top/bottom/left/right |
| Backlight | White LED |
| Luminance | Max. 300cd/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-A070-T9D6-C5R(T) | RS232C, RS422, USB Host, USB Device, Ethernet |
| LP-A070-T9D7-C5R(T) | RS232C: 2, USB Host, USB Device, Ethernet |

● Input

| | |
|---------------------|---|
| Input point | 16-point |
| Insulation method | Photo coupler insulation |
| Rated input voltage | 24VDC ⁻⁻⁻ |
| Input resistance | Contact X0 to X8: approx. 10mA Contact X9 to XF: approx. 4mA |
| Voltage range | 19.2 to 28.8VDC ⁻⁻⁻ |
| Input resistance | Contact X0 to X8: 3.3kΩ Contact X9 to XF: 5.6kΩ |
| Response time | 0.5ms |
| Common method | 16-point/1 COM |
| Acceptable wire | 0.3 to 0.7mm ² |

● Output

| | |
|------------------------------|--------------------------------|
| Output point | 16-point |
| Power supply | 24VDC ⁻⁻⁻ |
| Insulation method | Photocoupler insulation |
| Rated load voltage | 24VDC ⁻⁻⁻ |
| Allowable load voltage range | 19.2 to 28.8VDC ⁻⁻⁻ |
| Max. load current | 0.1A/1 point, 1.6A/1COM |
| Max. voltage falling when ON | Max. 0.2VDC ⁻⁻⁻ |
| Common method | 16-point/1 COM |
| 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.

Advanced Type 7 inch Color Logic Panel

■ 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 | |

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

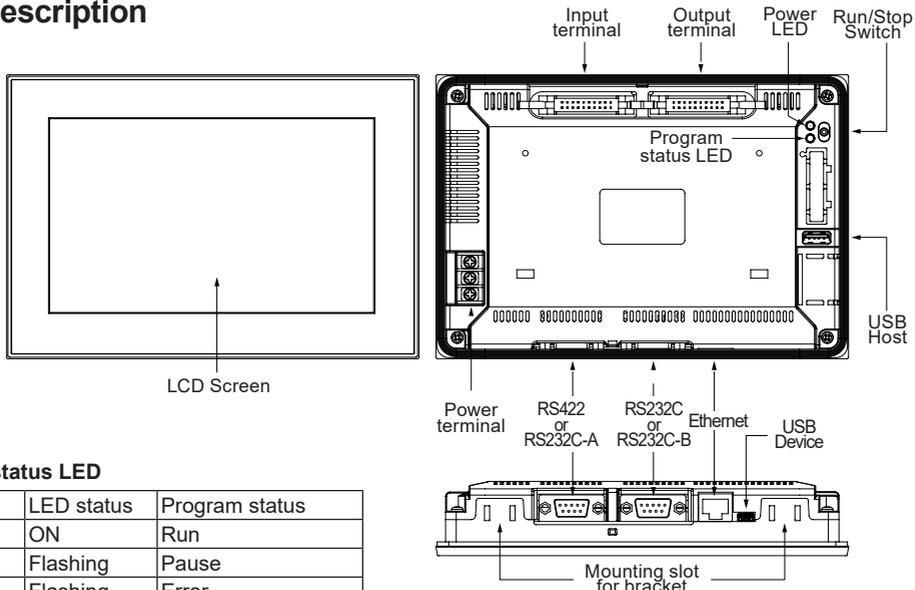
(V)
HMI's

(W)
Panel PC

(X)
Field Network
Devices

LP-A070 Series

Unit Description



Program status LED

| LED color | LED status | Program status |
|-----------|------------|-------------------|
| Green | ON | Run |
| Green | Flashing | Pause |
| Red | Flashing | Error |
| Orange | 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 | 1 | Non-Used | RS422 |
| | 2 | RXD | |
| | 3 | TXD | |
| | 4 | DTR | |
| | 5 | SG | |
| | 6 | DSR | |
| | 7 | Non-Used | |
| | 8 | Non-Used | |
| | 9 | Non-Used | |
| D-Sub 9-pin Male | 1 | TXD+ | D-Sub 9-pin Female |
| | 2 | RXD+ | |
| | 3 | Non-Used | |
| | 4 | Non-Used | |
| | 5 | SG | |
| | 6 | TXD- | |
| | 7 | RXD- | |
| | 8 | 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 | <ul style="list-style-type: none"> Transferring/Copying data between storage and LP-A070 Firmware upgrade Bar-code reader Printer | <ul style="list-style-type: none"> Uploading/Downloading a atDesigner project file Used as external storage by connecting to PC |

USB HOST can cover up to 32GB of external storage.

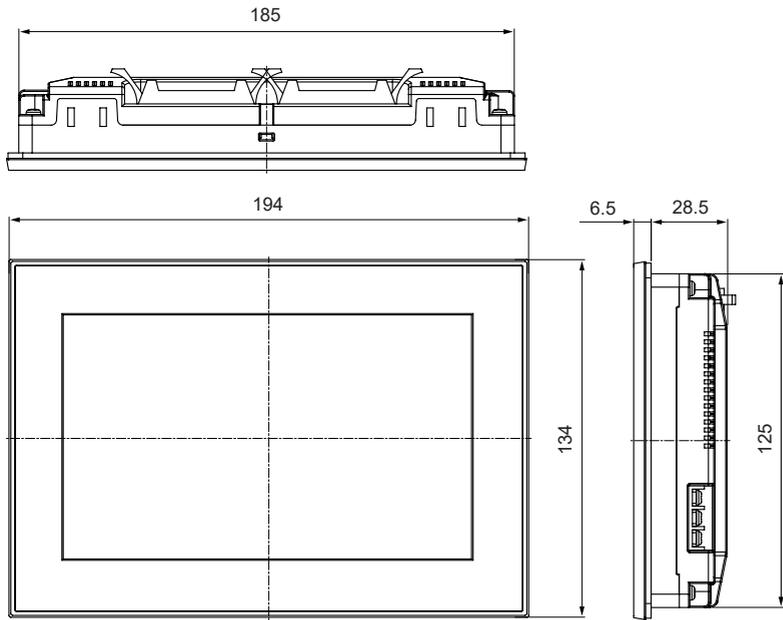
It supports only external storage of FAT16 and FAT32 file system.

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

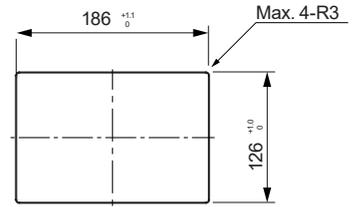
Advanced Type 7 inch Color Logic Panel

Dimension

(unit: mm)

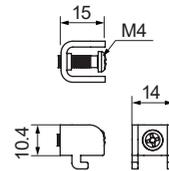


Panel cut out



※Panel thickness : max. 4mm

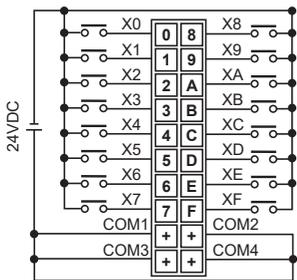
Fixing bracket



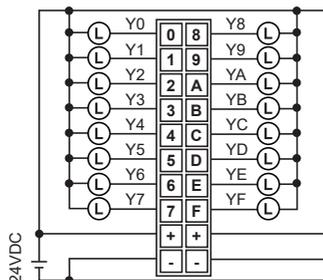
Input/Output Wiring

LP-A070-T9D6(7)-C5R

Input wiring (source type)

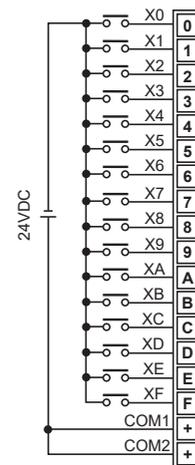


Output wiring (sync type)

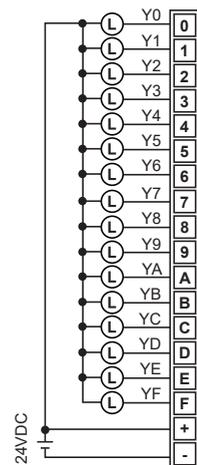


LP-A070-T9D6(7)-C5T

Input wiring (source type)



Output wiring (sync type)



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

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

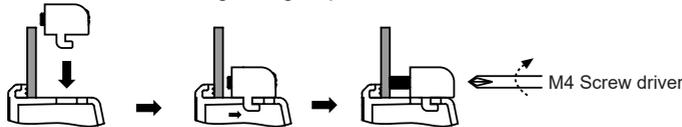
(W) Panel PC

(X) Field Network Devices

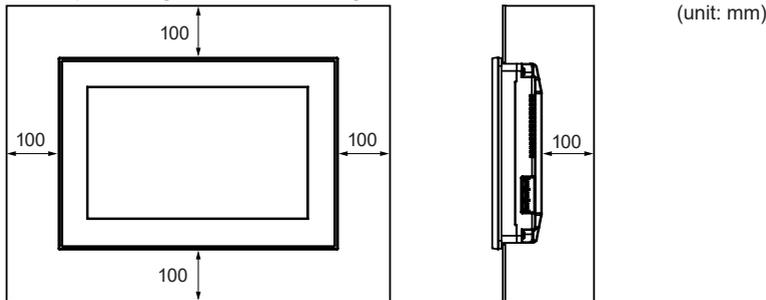
LP-A070 Series

■ Installation

1. Set LP-A070 in panel.
2. Set fixing brackets in 4 slots (2 slots is in upper side, 2 slots is in lower side).
3. Tighten fixing bracket with M4 Screw driver and tightening torque is 0.3 to 0.5N·m.

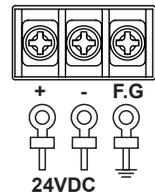


※When installing LP-A070 on panel, make 100mm of space from upper, lower, right, left side of the product on the panel and back side of panel. It is for preventing effect of electromagnetic waves and heat from other controllers.



■ Power Wiring

- For power supply, use the wire of which cross section is at least 0.75mm^2 and use the wire of which cross section is at least 1.25mm^2 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.



■ 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