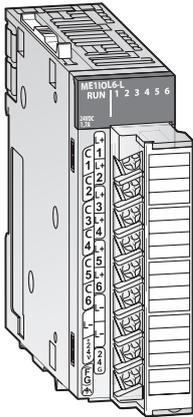


IO-Link Module



Master module for I/O Link

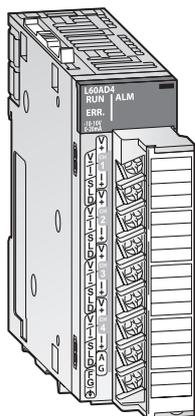
IO-Link is an extension of conventional digital inputs and outputs and allows the connection of intelligent sensors and actuators to a PLC. The 32-byte input and output data for each device are transmitted over standard cables, special bus cables or communication settings are not necessary.

- Master module for up to six IO-Link devices
- Each channel of the ME1IOL6-L can also be configured as a normal digital input or output.
- Masking of input data simplifies the data processing by the PLC CPU

- At a stop of the PLC CPU, the output states can either be deleted or retained.
- The parameterized device configuration is checked at the beginning of the IO-Link communication and deviations are detected.
- Storage of the parameters of the IO-Link devices allows the rapid exchange of the device

| Specifications | | ME1IOL6-L |
|----------------------------|------------------------------|--|
| No. of channels | | 6 |
| Channel configuration | | IO-Link, digital output, digital input, disabled |
| IO-Link | rated load voltage | 24 V DC |
| | rated output current | 15 mA |
| | sensor/actuator power supply | 200 mA |
| Digital input | common point | Positive |
| | rated load voltage | 24 V DC |
| | rated input current | 5 mA |
| Digital output | input filter | 200 μs |
| | rated load voltage | 24 V DC |
| | output type | Source |
| Rated output current | | In total max. 215 mA |
| Actuator supply | | In total max. 215 mA |
| Protective functions | | Overcurrent, overload, short circuit |
| I/O points | | 32 |
| Connection terminal | | 18-point removable terminal block with screws |
| Applicable cables | cable type | Unshielded cable |
| | max. length | 20 m |
| | cross-section | 0.3–0.75 mm ² |
| External power consumption | voltage | 24 V DC (+20 %, -15 %) |
| | current | Max. 1.7 A |
| Weight | kg | 0.18 |
| Dimensions (WxHxD) | mm | 28.5x90x117 |
| Order information | Art. no. | 245825 |

Analog input modules



Analog to digital conversion

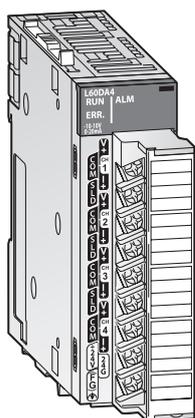
The analog input module converts analog process signals, for example pressure, flow or fill level, linearly into digital values, which are further processed by the MELSEC L series CPU.

- High-speed conversion of 20 μ s/channel
- High conversion accuracy of $\pm 0.1\%$
- High resolution of 1/20000
- Ensured stability with variable conversion speed
- Easy parameter setting

| Specifications | | | L60AD4 | L60AD4-2GH | |
|-------------------------------------|---------------|------------|-----------------------------------|-----------------------------------|-------------|
| Input points | | | 4 | 4 | |
| Analog input | voltage | V DC | -10–10 | -10–10 | |
| | current | mA DC | 0–20 | 0–20 | |
| Digital output | | | -20480–20479 (-32768–32767)* | -32000–32000 (-32768–32767)* | |
| Load resistance | voltage | M Ω | 1 | 1 | |
| | current | Ω | 250 | 250 | |
| Max. input | voltage | V | ± 15 | ± 15 | |
| | current | mA | 30 | 30 | |
| I/O characteristics (digital value) | voltage | | -20000–20000 | -32000–32000 | |
| | current | | 0–20000 | 0–32000 | |
| Max. resolution | voltage input | μ V | 200 | 125 | |
| | current input | nA | 800 | 500 | |
| Overall accuracy | | | $\pm 0.1\%$ | $\pm 0.05\%$ | |
| Conversion speed | | | 20 μ s/channel | 40 μ s/2 channels | |
| Number of occupied I/O points | | | 16 | 16 | |
| Connection terminal | | | 18-point removable terminal block | 18-point removable terminal block | |
| Internal current consumption | | | mA | 520 | 760 |
| Dimensions (WxHxD) | | | mm | 28.5x90x117 | 28.5x90x117 |
| Order information | | | Art. no. | 238091 | 263071 |

* Value in brackets when using the scaling function

Analog output modules



Digital to analog conversion

The analog output module converts digital values predetermined by the CPU into analog current or voltage signal.

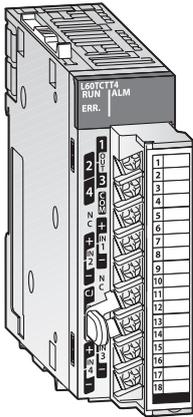
- Easy parameter setting
- Integrated scaling function

- High-speed conversion of 20 μ s/channel
- High conversion accuracy of $\pm 0.1\%$
- High resolution of 1/20000

| Specifications | | | L60DA4 | |
|-------------------------------|---------------|------------|-----------------------------------|--------------|
| Output points | | | 4 | |
| Digital input | | | -20480–20479 (-32768–32767)* | |
| Analog output | voltage | V DC | -10–10 | |
| | current | mA DC | 0–20 | |
| Load resistance | voltage | M Ω | 0.001–1 | |
| | current | Ω | 0–600 | |
| I/O characteristics | | | digital value | -20000–20000 |
| Max. resolution | voltage input | μ V | 200 | |
| | current input | nA | 700 | |
| Overall accuracy | | | $\pm 0.1\%$ | |
| Conversion speed | | | 20 μ s/channel | |
| Number of occupied I/O points | | | 16 | |
| Connection terminal | | | 18-point removable terminal block | |
| Internal current consumption | | | mA | 160 |
| Dimensions (WxHxD) | | | mm | 28.5x90x117 |
| Order information | | | Art. no. | 238092 |

* Value in brackets when using the scaling function

Temperature control modules



Temperature control modules with PID algorithm

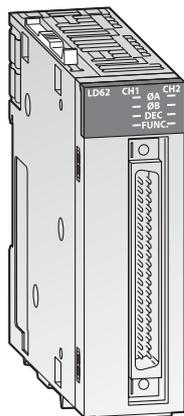
These modules apply the independent control of temperatures. This relieves the CPU of the PLC.

- 4 channels for temperature detection and 4 separate loops of temperature adjustment per module
- Modules for thermocouples and for Pt100 resistance thermometers are available
- Auto tuning function for optimum temperature adjustment control (PID control)

- The modules or single channels of a module can also be used for temperature detection.
- Temperature control can continue even when the PLC program is stopped
- Heating current monitoring at modules L60TCT4BW and L60TCRT4BW to detect a defective or disconnected heater.
- The modules can be used for heating and cooling applications.

| Specifications | | L60TCT4 | L60TCRT4 | L60TCT4BW | L60TCRT4BW |
|-------------------------------------|---------------------------|--|--|--|--|
| Control output | type | Transistor | Transistor | Transistor | Transistor |
| Inputs | | 4 channels per module | 4 channels per module | 4 channels per module | 4 channels per module |
| Supported temperature sensors | | Thermocouple | Pt100 resistance thermometer | Thermocouple | Pt100 resistance thermometer |
| Sampling cycle | | 250 ms/4 channels | 250 ms/4 channels | 250 ms/4 channels | 250 ms/4 channels |
| Control output cycle | s | 0.5–100 | 0.5–100 | 0.5–100 | 0.5–100 |
| Input filter | | 1–100 s (0 s: input filter OFF) | | | |
| Temperature control method | | PID ON/OFF impulse or 2-position control | | | |
| PID constant range | PID constant setting | Setting with automatic tuning possible | | | |
| | proportional band P | 0.0–1000 % (0 %: 2-position control) | | | |
| | integral time I | 1–3600 s (set 0 for P control and PD control) | | | |
| | differential time D | 1–3600 s (set 0 for P control and PI control) | | | |
| Target value setting range | | Within the temperature range set in the thermocouples/resistance thermometers used | | | |
| Dead band setting range | | 0.1–10.0 % | 0.1–10.0 % | 0.1–10.0 % | 0.1–10.0 % |
| Transistor output | output signal (sink) | ON/OFF pulse | ON/OFF pulse | ON/OFF pulse | ON/OFF pulse |
| | rated load voltage | 10–30 V DC | 10–30 V DC | 10–30 V DC | 10–30 V DC |
| | max. load current | 0.1 A/1 point, 0.4 A/common | 0.1 A/1 point, 0.4 A/common | 0.1 A/1 point, 0.4 A/common | 0.1 A/1 point, 0.4 A/common |
| | max. rush current | 400 mA for 10 ms | 400 mA for 10 ms | 400 mA for 10 ms | 400 mA for 10 ms |
| | max. voltage drop when ON | 0.1 V DC (TYP) 0.1 A 2.5 V DC (MAX) 0.1 A | 0.1 V DC (TYP) 0.1 A 2.5 V DC (MAX) 0.1 A | 0.1 V DC (TYP) 0.1 A 2.5 V DC (MAX) 0.1 A | 0.1 V DC (TYP) 0.1 A 2.5 V DC (MAX) 0.1 A |
| | response time | OFF R ON: <2 ms ON R OFF: <2 ms | OFF R ON: <2 ms ON R OFF: <2 ms | OFF R ON: <2 ms ON R OFF: <2 ms | OFF R ON: <2 ms ON R OFF: <2 ms |
| Insulation method | | Transformer between input channels and the power supply and between the inputs | | | |
| I/O points | | 16 | 16 | 16 | 16 |
| Connection terminals | | All modules are fitted with a terminal block with 18 screw terminals. | | | |
| Applicable wire size | mm ² | 0.3–0.75 | 0.3–0.75 | 0.3–0.75 | 0.3–0.75 |
| Internal power consumption (5 V DC) | mA | 300 | 310 | 330 | 350 |
| Weight | kg | 0.18 | 0.18 | 0.33 | 0.33 |
| Dimensions (WxHxD) | mm | 28.5x90x117 | 28.5x90x117 | 57x90x117 | 57x90x117 |
| Order information | Art. no. | 246347 | 246348 | 246349 | 246350 |

High-speed counter modules



Fast signal counting

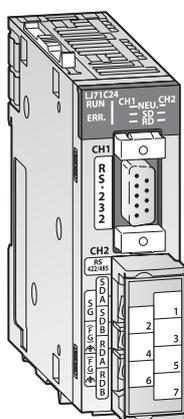
The counter modules detect high-frequency signals, which cannot be handled by normal input modules.

- Periodic pulse counter function
- High-speed pulse measurement of up to 500 k pulses/s (LD62D)
- Linear and latch counter

- Ring counter function for counting up to a predefined value with automatic resetting to the start value
- Coincidence output function
- Easy configuration of the modules with GX Works2

| Specifications | LD62 | LD62D |
|-------------------------------|--|---|
| Counter inputs (channels) | 2 | 2 |
| Count input signal | 1-phase input (multiple of 1/2), CW/CCW, 2-phase input (multiple of 1/2/4) | EIA standard RS422A differential type line driver |
| phase | 5/12/24 V DC (2–5 mA) | |
| signal level | | |
| Max. counting frequency | kHz 200 | 500 |
| Counting range | 32 bits + sign (binary), -2147483648—+2147483647 | 32 bits + sign (binary), -2147483648—+2147483647 |
| Max. counting speed | kHz 200, 100 or 10 | 500, 200, 100 or 10 |
| Counting functions | UP/DOWN preset counter and ring counter | |
| Connection terminal | 40-pin connector | 40-pin connector |
| Number of occupied I/O points | 16 | 16 |
| Internal current consumption | mA 310 | 360 |
| Dimensions (WxHxD) | mm 28.5x90x95 | 28.5x90x95 |
| Order information | Art. no. 238097 | 238098 |

Interface modules



Data exchange with peripheral devices

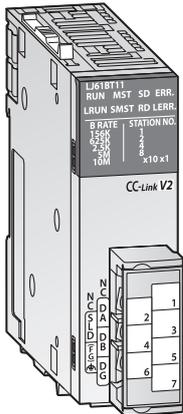
These modules enable communication with peripheral devices via a standard serial interface.

The LJ71C24 provides one RS232 and one RS422/485 interface and the LJ71C24-R2 provides two RS232 interfaces.

- Maximum transmission speed of 230.4 kbps
- Quick connection using pre-defined protocols included in GX Works2
- Easy to define custom protocols
- Enhanced debugging and support functions

| Specifications | LJ71C24 | LJ71C24-R2 |
|--|---|------------------------------------|
| Interface type | channel 1 RS232-compliance (D-Sub 9P female) | RS232-compliance (D-Sub 9P female) |
| | channel 2 RS422/485-compliance (2-piece terminal block) | RS232-compliance (D-Sub 9P female) |
| Communications mode | Full duplex/half duplex | |
| Synchronisation | Start-stop synchronization method | |
| Data transfer | rate bps 50–230400 (channel 1 only) 115200 (channel 1+2 simultaneously) | |
| distance | m RS232: 15; RS422/485: 1200 | 15 |
| Max. no of stations in a multidrop network | No restrictions/64 | No restrictions/64 |
| Data format | 1 start bit, 7 or 8 data bits, 1 or 0 parity bits, 1 or 2 stop bits | |
| 1 or 2 stop bits | RS232 enabled, RS422/485 disabled | |
| Error detection | Parity check, checksum | |
| DTR/DSR and RS/CD control | RS232 enabled, RS422/485 disabled | |
| CD signal control | RS232 enabled, RS422/485 disabled | |
| X ON/X OFF (DC1/DC3), DC2/DC4 | RS232 enabled, RS422/485 enabled | |
| Number of occupied I/O points | 32 | 32 |
| Internal current consumption | mA 390 | 260 |
| Dimensions (WxHxD) | mm 28.5x90x95 | 28.5x90x95 |
| Order information | Art. no. 238093 | 238094 |

CC-Link/CC-Link IE Field modules



The gateway to CC-Link

CC-Link network enables the controlling and monitoring of decentralized I/O modules at the machine. The CC-Link master/slave module LJ61BT11 makes the MELSEC L series fully compatible with CC-Link.

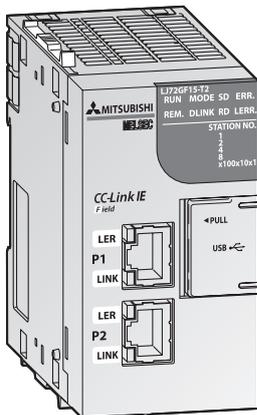
With a large selection of CC-Link open network compatible devices, constructing a control system is easy.

Even applications requiring vast amounts of data transmissions can be satisfied because CC-Link Version 2 is supported.

- Can be used as Master or Local station
- A huge selection of device types using CC-Link can be connected.
- With the transmission speed auto-tracking function local stations do not require transmission speed setting
- Up to 8192 addressable remote I/O points
- Maximum transmission speed of 10 Mbps
- Standby master station function

| Specifications | | LJ61BT11 |
|--------------------------------|---------------------------|---|
| Module type | | Master/Slave |
| Max. no. of connected stations | | 64 |
| Max. overall cable distance | m | 1200 (without repeater) |
| No. of occupied stations | | 1–4 stations |
| Max. number of link points | per system per station | 2048 (8192)* 32 |
| Transmission speed | | 156 kbps/625 kbps/2.5 Mbps/5 Mbps/10 Mbps |
| Transmission path | | Bus (RS485) |
| Number of occupied I/O points | | 32 |
| Internal current consumption | mA | 460 |
| Dimensions (WxHxD) | mm | 25.5x90x118 |
| Order information | Art. no. | 238099 |

* Link points in remote net ver. 2 mode or remote net additional mode



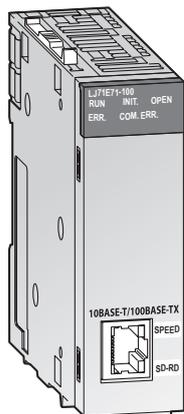
CC-Link IE field network head module

MELSEC L series I/O and intelligent function modules can be connected to the remote I/O head module without a dedicated CPU. There are many benefits to using intelligent device stations including reduced CPU and wiring costs, great flexibility in selecting I/O and intelligent function modules, and compact unit size.

- Intelligent device station
- Up to 2048 addressable remote I/O points
- Maximum transmission speed of 1 GB/s
- RAS functions (Reliability, Availability, Serviceability) for system monitor, remote RESET and self diagnostics
- A huge selection of CC-Link compatible devices can be connected.

| Specifications | | LJ72GF15-T2 |
|----------------------------------|----------------------------|--|
| Module type | | Intelligent device station |
| Max. no. of connected stations | | 120 |
| Max. overall cable distance | m | 12000 (with 120 slave stations connected) |
| Max. station to station distance | m | 100 |
| Max. number of link points | per network per station | 16384 2048 |
| Transmission speed | | 1 Gbps |
| Transmission path | | Star, line, mixed star and line, ring topology |
| Number of occupied I/O points | | — |
| Internal current consumption | mA | 1000 |
| Dimensions (WxHxD) | mm | 50x90x95 |
| Order information | Art. no. | 238100 |

Ethernet modul



In addition to the build-in Ethernet port of the CPU module the L71E71-100 offers a solution for a second Ethernet network to collect or change PLC data, monitor CPU module operation, control status and transfer any data by TCP/IP or UDP/IP communication. The Web function allows to monitor and control the PLC via a web browser.

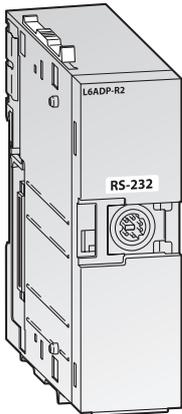
The Ethernet module has also the capability of sending and receiving of e-mails to and from a connected device in a remote location via the Internet. E-mails can be sent/received through the CPU module by special instructions. The CPU module can receive/send up to 6K-word data from/to a personal computer or other E71 modules as an e-mail attachment or can send up to 960-word data to a personal computer or portable terminal as the main text of an e-mail.

The other possibility is E-mail sending using the programmable controller CPU monitoring function. Notification conditions (CPU module status or device values) that have been set using parameters are regularly monitored. When the conditions are met, up to 960-word data can be sent as the main text of an e-mail or as attachment.

- Web function
- Communications via MC protocol, fixed buffer and random access buffer
- Up to 960 data words per query are available
- Sending and receiving data via e mail
- Up to 16 communications lines can be opened for concurrent data communications
- Prevention of unauthorized access through a remote password

| Specifications | L71E71-100 | |
|---------------------------------------|-------------------------|-----------------|
| Communication mode | Full-duplex/half-duplex | |
| No. of simultaneous open connections | 16 | |
| Fixed buffer communication | 1 k words x 16 | |
| Random access buffer | 6 k words x 1 | |
| E-mail | attachement | 6 k words x 1 |
| | main text | 960 k words x 1 |
| Communication with mail server | SMTP, POP3 | |
| Connector | RJ45 | |
| Transmission speed | 100 Mbps, 10 Mbps | |
| Max. segment length | m 100 | |
| Cable | CAT 5 or higher | |
| Internal current consumption (5 V DC) | A 0.6 | |
| Number of occupied I/O points | 32 | |
| Dimensions (WxHxD) | mm 28.5x95x90 | |
| Order information | Art. no. 263072 | |

Serial communications adapters



RS232 interface adapter

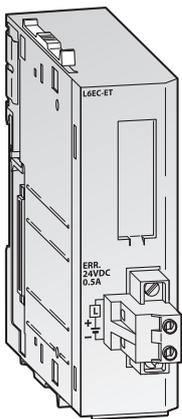
The L6ADP-R2 provides a RS232 interface for serial communication with the MELSEC L series PLC.

| Specifications | | L6ADP-R2 |
|-------------------------------|----------|--|
| Application | | Serial connection, e.g. GT10 Terminals |
| Power supply | | MELSEC L series Backplane |
| Max. transfer rate | kbit/s | 115.2 |
| Number of occupied I/O points | | — |
| Internal current consumption | mA | 20 |
| Dimensions (WxHxD) | mm | 28.5x90x95 |
| Order information | Art. no. | 238059 |

4

Modular PLCs

End cover



END cover with error terminal

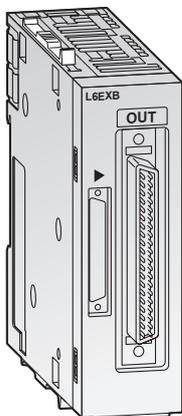
This end cover can be used instead of the standard end cover which comes with the CPU in the basic equipment.

The optional L6EC-ET end cover has a single relay output for error notification.

| Specifications | | L6EC-ET | L6EC |
|--------------------------|----------|-------------------------------------|--------------------|
| Application | | Error notification via relay output | Standard end cover |
| Output | | Screw terminal | — |
| Max. switching load | A | 0.5 (24 V DC) | — |
| Dimensions (WxHxD) | mm | 28.5x90x112.5 | 13x90x95 |
| Order information | Art. no. | 238062 | 249151 |

Note: MELSEC L series CPU modules are supplied with a standard End Cover L6EC.

Branch/extension module



Extension for MELSEC L series PLC

With a L6EXB branch module, which is connected to the CPU, and with up to two (L02CPU, L02CP-P) or up to three extension modules (L26CPU-BT, L26CUPBT), a MELSEC L series PLC can be extended to max. 30/40 modules.

| Specifications | | L6EXB [Branch module] | L6EXE [Extension module] |
|-------------------------------------|----------|-----------------------|--------------------------|
| Internal power consumption (5 V DC) | A | 0.08 | 0.08 |
| Weight | kg | 0.12 | 0.13 |
| Dimensions (WxHxD) | mm | 28.5x90x95 | 28.5x90x95 |
| Order information | Art. no. | 247227 | 247226 |