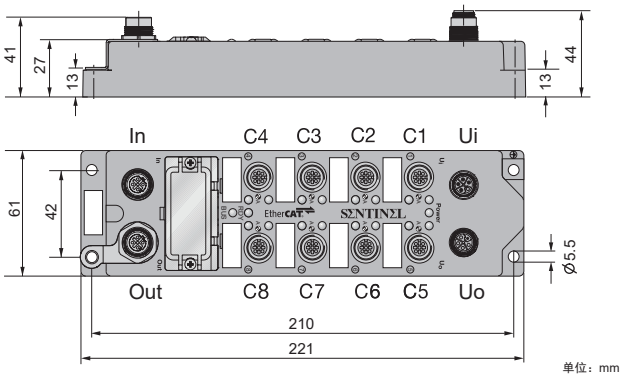
# Compact I/O Module for EtherCAT

## 8 IO-Link Master Channels

## ELCT-8IOL-L001

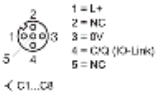



- EtherCAT remote I/O module
- Integrated Ethernet Switch
- Support 100Base-TX
- 2XM12,D-code,Ethernet Fieldbus connection
- 8 IO-Link Master Channels
- IO-Link Protocol 1.1
- IO-Link master port class A
- M12 ports for IO-Link master,A-code
- Impact and vibration resistance
- Fully potted module electronics
- Copper-plated nickel connector
- Protection class IP67

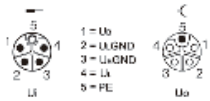
| Model | ELCT-8IOL-L001 |
|---|---|
| Supply voltage | 24VDC ± 10% |
| Operating current | < 200mA |
| Supply current | >8A |
| IO-LINK port parameters | |
| Number of ports | 8(C1...C8) |
| Connectivity inputs | M12 A-coded,5-pin female |
| Common IO | Not supported,Pin 2 needs to be empty |
| Current supply per port | Maximum 2A<br>C1...C4 Total current max 4A<br>C5...C8 Total current max 4A |
| IO-LINK port parameters | |
| SIO model | Not supported (Pin 4 cannot be used as a standard I/O) |
| IO-Link Pin definition | Pin 4 in IOL mode |
| IO-Link Port type | Class A |
| IO-Link specification | Version 1.1 |
| Frame type | Supports all specified frame types |
| Support Device | Maximum 32Bytes Input / 32Bytes Output |
| Transmission rate | 4.8kbps(COM1) / 38.4kbps(COM2) / 230.4kbps(COM3) |
| EtherCAT | |
| Number of communication interface | 2 |
| Transmission standed | 100Base-TX |
| Auto-negotiation | YES |
| Auto-MDVMDIX | YES |
| Maximum transmission rate | 100Mbit/s |
| Autoscan | The EtherCAT scanning function can automatically scan the IO-link Device connected to the port |
| interface | M12,D-coded,Femal |
| Operating temperature | -20...+55℃ |

Bus Connector M12


IO-LINK Port Connector M12



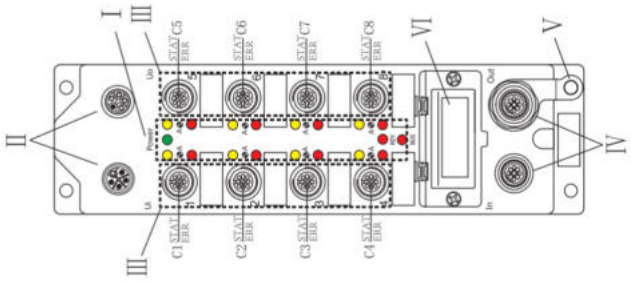

Power Supply Connector L-coded



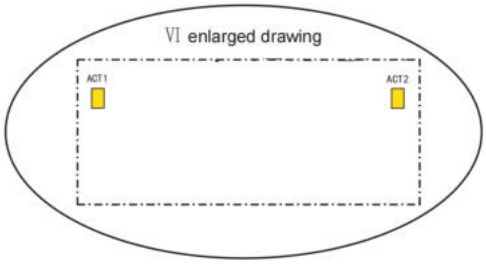

Note: Ui is the module power supply, and UL is the load power supply

Note: UL is not used inside the module, so it is unnecessary to connect it.

Ui to Uo is directly connected




<table>
<tr><th></th><th></th><th>Description</th></tr>
<tr><td>I</td><td>Module LEDS</td><td>
<table>
<tr><th>LED name</th><th>Detailed introduction</th></tr>
<tr><td>POWER</td><td>Green LED lights:<br>ON: The module power supply (Ub) is normal<br>OFF: The module power supply is disconnected</td></tr>
<tr><td>BUS</td><td>Green LED lights:<br>OFF: The module is in the “INIT” state<br>Fast flash: The module is in the “Pre-operational” state<br>Slow flash: The module is in the “Safe-operational” state<br>ON: The module is in the “OP” state</td></tr>
<tr><td>RDY</td><td>Red LED lights:<br>Flash: IO-Link is not ready<br>OFF: IO-Link is ready<br>ON: There is an error in the IO-Link port, which is inconsistent with the configuration</td></tr>
<tr><td>STAT</td><td>Yellow LED lights: The IO-Link communication status of the port (C1-C8)<br>ON: The IO-Link communication is normal<br>OFF: The IO-Link communication is not established</td></tr>
<tr><td>ERR</td><td>Red LED light: Working state of the port<br>ON: The port is working abnormally; please check the IO-Link cable and parameter setting of IO-Link in configuration<br>OFF: no error in this port. IO-Link communication is normal OR this port is closed or deactivated in EtherCAT configuration</td></tr>
</table>
</td></tr>
<tr><td>II</td><td>Power supply</td><td>Ui (left): power supply input, L-code, 5-pin, male<br>Uo (right): power supply output, L-code, 5-pin, female</td></tr>
<tr><td>III</td><td>IO-Link PORT</td><td>
<ul>
<li>M12 A-code – 5-pin; Pin 4 is IO-Link; Pin 2 is empty, no external signals can be connected.</li>
<li>C* in the figure represents the “th port”; the STAT represents the communication status indicator lamp; the ERR represents the working status indicator lamp.</li>
<li>For example, C1 STATE/RR represents that the port is PORT 1. The LED above the right of the port is STAT and the LED below is ERR.</li>
<li>Totally there are 8 IO-Link ports. Every port is independent lamp for STAT & ERR.</li>
</ul>
External power supply is required for Class B Device.<br><br>Note : Please close the port in the EtherCAT configuration when not used; try not to let the module have a red light.
</td></tr>
<tr><td>IV</td><td>Bus</td><td>In (left): EtherCAT Bus in, M12, D-Code, 5-pin, female<br>Out (right): EtherCAT Bus out, M12, D-Code, 5-pin, female</td></tr>
<tr><td>V</td><td>PE</td><td>Ground connection</td></tr>
<tr><td>VI</td><td>Network status LEDS</td><td>
<table>
<tr><td>ACT1</td><td>Bus in, Green LED lights:<br>ON: Physical connections have been established<br>OFF: No connection<br>Flash: This port has data exchange</td></tr>
<tr><td>ACT2</td><td>Bus out, Green LED lights:<br>ON: Physical connections have been established<br>OFF: No connection<br>Flash: This port has data exchange</td></tr>
</table>
</td></tr>
</table>




## IO-Link Device Status

| Name | Data type | Description |
|---|---|---|
| 8 Port IO-Link Current Status | USINT | Status of 8 IO-Link ports 0 : Communication is interrupted 1 : Normal communication<br>Bit0 : PORT1 current state Bit4 : PORT5 current state<br>Bit1 : PORT2 current state Bit5 : PORT6 current state<br>Bit2 : PORT3 current state Bit6 : PORT7 current state<br>Bit3 : PORT4 current state Bit7 : PORT8 current state |
| 8 Port IO-Link Error Status | USINT | Error Status of 8 IO-Link ports 0 : There is no error 1 : Error occurred<br>Bit0 : PORT1 Error status Bit4 : PORT5 Error status<br>Bit1 : PORT2 Error status Bit5 : PORT6 Error status<br>Bit2 : PORT3 Error status Bit6 : PORT7 Error status<br>Bit3 : PORT4 Error status Bit7 : PORT8 Error status |
| Error Times_Port1<br>Error Times_Port2<br>Error Times_Port3<br>Error Times_Port4<br>Error Times_Port5<br>Error Times_Port6<br>Error Times_Port7<br>Error Times_Port8 | USINT | Number of port errors.<br><br>Starting from module power-on, accumulate the number of times the IO-LINK device is cut off.<br><br>The module is powered on again, and the number of errors is cleared. |

## Automatic scanning function

After the module is powered on, it automatically detects and establishes communication with the IO-Link Device connected to the 8 ports.If the EtherCAT does not communicate properly at this time, you will scan the EtherCAT module and the IO-Link Device for each port.You can also manually make changes to the Slots in the EtherCAT module.

Note： If EtherCAT has normal communication with EtherCAT Master, the module will connect to eight IO-Link ports following the Slots parameter in the configuration.If you want to scan the 8-port connected Device, first remove the configuration of the EtherCAT module, disconnect it from the EtherCAT Master, and then repower on the EtherCAT module before performing automatic scanning.