

# ILC 131 ETH - Controller

2700973

<https://www.phoenixcontact.com/us/products/2700973>



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The Inline controller offers the option of communicating via PROFINET and Modbus/TCP. Programming is carried out using PC Worx Express or PC Worx (IEC 61131-3).

## Product description

The ILC 131 ETH modular small-scale controller for the Inline I/O system is at the heart of Easy Automation. The ILC 1X1 series is characterized by its support for the Modbus/TCP and PROFINET Ethernet-based protocols. A new feature is the support for an optional SD card.

## Your advantages

- Memory extendable by up to 2 GB via plug-in SD card
- Free engineering with PC Worx Express (IEC 61131-3)
- Complete INTERBUS master (4096 I/O points)
- PROFINET-Device
- Modbus/TCP-Client
- Integrated FTP and HTML5 web server
- Numerous protocols supported such as: HTTP, FTP, SNTP, SNMP, SMTP, SQL, MySQL, etc.

## Commercial data

|                                      |                    |
|--------------------------------------|--------------------|
| Item number                          | 2700973            |
| Packing unit                         | 1 pc               |
| Minimum order quantity               | 1 pc               |
| Sales key                            | DR10               |
| Product key                          | DRAAAA             |
| Catalog page                         | Page 48 (C-6-2019) |
| GTIN                                 | 4046356665490      |
| Weight per piece (including packing) | 378 g              |
| Weight per piece (excluding packing) | 348.2 g            |
| Customs tariff number                | 85371091           |
| Country of origin                    | DE                 |

## Technical data

### Notes

#### Utilization restriction

|            |                                                               |
|------------|---------------------------------------------------------------|
| CCCex note | Use in potentially explosive areas is not permitted in China. |
|------------|---------------------------------------------------------------|

### Product properties

|                |                   |
|----------------|-------------------|
| Product type   | Controller        |
| Product family | Inline-Controller |
| Type           | modular           |

#### Display

|                     |    |
|---------------------|----|
| Diagnostics display | No |
|---------------------|----|

### System properties

|                        |                       |
|------------------------|-----------------------|
| Processor              | AlteraNios® II 64 MHz |
| Retentive data storage | 8 kByte (NVRAM)       |

#### IEC 61131 runtime system

|                         |           |
|-------------------------|-----------|
| Program memory          | 192 kByte |
| Data storage system     | 192 kByte |
| Number of control tasks | 8         |

#### INTERBUS-Master

|                                                   |                                       |
|---------------------------------------------------|---------------------------------------|
| Amount of process data                            | max. 4096 bit (INTERBUS)              |
| Number of supported devices                       | max. 63                               |
| Number of local bus devices that can be connected | max. 63 (observe current consumption) |
| Number of devices with parameter channel          | max. 8                                |

#### Modbus/TCP-Client

|                              |                                             |
|------------------------------|---------------------------------------------|
| Amount of process data       | max. 8192 bit (internal Modbus /TCP client) |
| Number of Modbus/TCP clients | max. 4 later than FW 4.42                   |

#### PROFINET

|                 |                                          |
|-----------------|------------------------------------------|
| Device function | PROFINET device                          |
| Specification   | 2.2                                      |
| Device ID       | 007D <sub>hex</sub> / 125 <sub>dez</sub> |
| Vendor ID       | 00B0 <sub>hex</sub> / 176 <sub>dez</sub> |

#### Function

|                       |    |
|-----------------------|----|
| Diagnostics display   | No |
| Controller redundancy | No |
| Safety function       | No |

#### Functionality

Instruction list (IL)

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|                                 |                              |
|---------------------------------|------------------------------|
| Programming languages supported | Symbolic flowchart (SFC)     |
|                                 | Ladder diagram (LD)          |
|                                 | Function block diagram (FBD) |
|                                 | Structured text (ST)         |

## System requirements

|                       |                               |
|-----------------------|-------------------------------|
| Engineering tool      | PC Worx                       |
|                       | PC Worx Express               |
| Configuration tool    | Config+ Version 1.01 or later |
| Diagnostics tool      | DIAG+                         |
| Runtime system        | eCLR                          |
| Application interface | OPC                           |

## Electrical properties

|                     |        |
|---------------------|--------|
| Transmission medium | Copper |
|---------------------|--------|

## Real-time clock

|                            |                                            |
|----------------------------|--------------------------------------------|
| Realtime clock             | Yes                                        |
| Description realtime clock | integrated (rechargeable battery buffered) |

## Potentials: 24 V supply $U_{ILC}$

|                      |                                                       |
|----------------------|-------------------------------------------------------|
| Supply voltage       | 24 V DC -15 % / +20 % (in accordance with EN 61131-2) |
| Supply voltage range | 19.2 V DC ... 30 V DC                                 |
| Current draw         | 80 mA (without connected I/O terminal blocks)         |

## Potentials: 7.5 V communications power $U_L$ (potential jumper)

|                |                    |
|----------------|--------------------|
| Supply voltage | 7.5 V DC $\pm 5$ % |
|----------------|--------------------|

## Potentials: 24 V analog supply $U_{ANA}$ (potential jumper)

|                      |                                                                    |
|----------------------|--------------------------------------------------------------------|
| Supply voltage       | 24 V DC -15 % / +20 %                                              |
| Supply voltage range | 19.2 V DC ... 30 V DC (including all tolerances, including ripple) |

## Potentials: 24 V main supply $U_M$

|                      |                                                                    |
|----------------------|--------------------------------------------------------------------|
| Supply voltage       | 24 V DC -15 % / +20 % (in accordance with EN 61131-2)              |
| Supply voltage range | 19.2 V DC ... 30 V DC (including all tolerances, including ripple) |
| Current draw         | max. 8 A DC                                                        |
|                      | 6 mA (without sensors)                                             |

## Potentials: 24 V segment supply $U_S$

|                      |                                                                    |
|----------------------|--------------------------------------------------------------------|
| Supply voltage       | 24 V DC -15 % / +20 % (in accordance with EN 61131-2)              |
| Supply voltage range | 19.2 V DC ... 30 V DC (including all tolerances, including ripple) |
| Current draw         | max. 8 A DC                                                        |
|                      | 10 mA (without actuators)                                          |

## Input data

### Digital:

|            |                |
|------------|----------------|
| Input name | Digital inputs |
|------------|----------------|

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|                                   |                                                                                                                                  |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Description of the input          | EN 61131-2 type 1 NPN/PNP                                                                                                        |
| Number of inputs                  | 8                                                                                                                                |
| Cable length                      | max. 30 m                                                                                                                        |
| Connection method                 | Inline potential distributor                                                                                                     |
| Connection technology             | 2-, 3-, 4-conductor                                                                                                              |
| Input voltage range               | -0.5 V ... 30 V                                                                                                                  |
| Input voltage range "0" signal    | -0.5 V ... 5 V                                                                                                                   |
| Input voltage range "1" signal    | 15 V ... 30 V                                                                                                                    |
| Nominal input current at $U_{IN}$ | typ. 7 mA<br>max. 15 mA                                                                                                          |
| Input filter time                 | typ. 5 ms (Signal change 0→ <br>typ. 5 ms ( ) |

## Output data

Digital:

|                                                    |                        |
|----------------------------------------------------|------------------------|
| Output name                                        | Digital outputs        |
| Connection method                                  | Spring-cage connection |
| Connection technology                              | 2-, 3-, 4-conductor    |
| Number of outputs                                  | 4                      |
| Maximum output current per channel                 | 500 mA                 |
| Maximum output current per module / terminal block | 2 A                    |
| Nominal load, lamp                                 | 12 W                   |
| Nominal load, ohmic                                | 12 W                   |

## Connection data

Inline connector

|                                   |                                              |
|-----------------------------------|----------------------------------------------|
| Connection method                 | Spring-cage connection                       |
| Conductor cross section, rigid    | 0.08 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> |
| Conductor cross section, flexible | 0.08 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> |
| Conductor cross section AWG       | 28 ... 16                                    |

## Interfaces

|            |     |
|------------|-----|
| Web server | yes |
|------------|-----|

## Ethernet

|                      |             |
|----------------------|-------------|
| Bus system           | RJ45        |
| Number of interfaces | 1           |
| Connection method    | RJ45 jack   |
| Transmission speed   | 10/100 Mbps |
| No. of channels      | 1           |

INTERBUS local bus (master)

|                      |                    |
|----------------------|--------------------|
| Number of interfaces | 1                  |
| Connection method    | Inline data jumper |

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|                    |                                       |
|--------------------|---------------------------------------|
| Transmission speed | 500 kBaud / 2 MBaud (can be switched) |
|--------------------|---------------------------------------|

## Parameterization/operation/diagnostics

|                      |                               |
|----------------------|-------------------------------|
| Bus system           | RS-232                        |
| Number of interfaces | 1                             |
| Connection method    | 6-pos. MINI DIN socket (PS/2) |
| Transmission speed   | max. 115.2 kbps               |
| Transmission physics | Copper                        |
| No. of channels      | 1                             |

## Dimensions

|        |          |
|--------|----------|
| Width  | 80 mm    |
| Height | 119.8 mm |
| Depth  | 71.5 mm  |

## Material specifications

|       |       |
|-------|-------|
| Color | green |
|-------|-------|

## Environmental and real-life conditions

### Ambient conditions

|                                                                                              |                                                                                                                                                                                    |
|----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Degree of protection                                                                         | IP20                                                                                                                                                                               |
| Ambient temperature (operation)                                                              | -25 °C ... 55 °C                                                                                                                                                                   |
| Ambient temperature (storage/transport)                                                      | -25 °C ... 85 °C                                                                                                                                                                   |
| Permissible humidity (operation)                                                             | 10 % ... 95 % (according to DIN EN 61131-2)                                                                                                                                        |
| Permissible humidity (storage/transport)                                                     | 10 % ... 95 % (according to DIN EN 61131-2)                                                                                                                                        |
| Shock                                                                                        | 25g, Criterion 1, according to IEC 60068-2-27                                                                                                                                      |
| Vibration (operation)                                                                        | 5g                                                                                                                                                                                 |
| Air pressure (operation)                                                                     | 70 kPa ... 106 kPa (up to 3000 m above sea level)                                                                                                                                  |
| Air pressure (storage/transport)                                                             | 70 kPa ... 106 kPa (up to 3000 m above sea level)                                                                                                                                  |
| Resistance to gases that may endanger the functions, in acc. with DIN 40046-36, DIN 40046-37 | Sulfur dioxide (SO <sub>2</sub> ) 10 ±0.3 ppm (test duration: 10 days), hydrogen sulfide (H <sub>2</sub> S) 1 ±0.3 ppm (test duration: 4 days), both at 25°C and with 75% humidity |

## EMC data

|                                 |                                                                                                                                                                                                          |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conformance with EMC directives | Immunity test in accordance with EN IEC 61000-6-2 Electrostatic discharge (ESD)IEC 61000-4-2 Criterion B, ±6 kV contact discharge, ±8 kV air discharge                                                   |
|                                 | Immunity test in accordance with EN IEC 61000-6-2 Electromagnetic fieldsIEC 61000-4-3 Criterion A, Field intensity: 10 V/m                                                                               |
|                                 | Immunity test in accordance with EN IEC 61000-6-2 Fast transients (burst)IEC 61000-4-4 Criterion A, all interfaces ±1 kVCriterion B, all interfaces ±2 kV                                                |
|                                 | Immunity test in accordance with EN IEC 61000-6-2 Transient overvoltage (surge)IEC 61000-4-5 Criterion B; DC supply lines: ±0.5 kV/±1.0 kV (symmetrical/asymmetrical), fieldbus cable shielding: ±1.0 kV |

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|                               |                                                                                                                      |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------|
|                               | Immunity test in accordance with EN IEC 61000-6-2 Conducted interferenceIEC 61000-4-6 Criterion A, Test voltage 10 V |
|                               | Noise emission test in accordance with EN IEC 61000-6-4 Class A                                                      |
| Electromagnetic compatibility | Conformance with EMC Directive 2014/30/EU                                                                            |

## Mounting

|               |                   |
|---------------|-------------------|
| Mounting type | DIN rail mounting |
|---------------|-------------------|

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## Approvals

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**EAC**

Approval ID: RU\*DE\*08.B.00529/19



**DNV GL**

Approval ID: TAA00002CU



**LR**

Approval ID: LR23398855TA

**BSH**

Approval ID: 858



**RINA**

Approval ID: ELE121121XG

**ABS**

Approval ID: 22-2226444-PDA



**cULus Listed**

Approval ID: FILE E 238705

**UAE-RoHS**

Approval ID: 22-04-13087



**cULus Listed**

Approval ID: FILE E 199827

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-11.0 | 27242207 |
| ECLASS-12.0 | 27242207 |
| ECLASS-13.0 | 27242207 |

### ETIM

|          |          |
|----------|----------|
| ETIM 9.0 | EC000236 |
|----------|----------|

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 32151700 |
|-------------|----------|

Environmental product compliance

|                                         |                                                                                                                                                                                                                                   |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EU RoHS                                 |                                                                                                                                                                                                                                   |
| Fulfills EU RoHS substance requirements | Yes                                                                                                                                                                                                                               |
| Exemption                               | 7(a), 7(c)-I                                                                                                                                                                                                                      |
| China RoHS                              |                                                                                                                                                                                                                                   |
| Environment friendly use period (EFUP)  | EFUP-50                                                                                                                                                                                                                           |
|                                         | An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required. |
| EU REACH SVHC                           |                                                                                                                                                                                                                                   |
| REACH candidate substance (CAS No.)     | Lead(CAS: 7439-92-1)                                                                                                                                                                                                              |
| SCIP                                    | 529ed154-954b-4cf2-bf74-44b52ca266d0                                                                                                                                                                                              |
| EF3.0 Climate Change                    |                                                                                                                                                                                                                                   |
| CO2e kg                                 | 40.6 kg CO2e                                                                                                                                                                                                                      |

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## Accessories

### COM CAB MINI DIN - Connecting cable

2400127

<https://www.phoenixcontact.com/us/products/2400127>

Connecting cable, for connecting the controller to a PC (RS-232) for PC WORX with flow control, 3 m in length



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### SD FLASH 512MB - Program / configuration memory

2988146

<https://www.phoenixcontact.com/us/products/2988146>

Program and configuration memory, plug-in, 512 Mbyte.



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## SD FLASH 512MB APPLIC A - Program / configuration memory

2701799

<https://www.phoenixcontact.com/us/products/2701799>



Program and configuration memory for extending the internal Flash memory, plug-in, 512 MB with license key for function block libraries. For licensed function blocks, please refer to the documentation.

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## SD FLASH 512MB PDPI BASIC - Memory

2701800

<https://www.phoenixcontact.com/us/products/2701800>



Program and configuration memory, plug-in, 512 MB with license key for licensing the PDPI - BASIC functional block for precise multi-channel controllers with self-optimization, e.g., for heating and cooling functions or hydraulic movements.

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## SD FLASH 512MB PDPI PRO - Memory

2701801

<https://www.phoenixcontact.com/us/products/2701801>



Program and configuration memory, plug-in, 512 MB with license key for licensing the PDPI - PRO functional block for precise multi-channel controllers with self-optimization, additional functions: e.g., for setpoint processing, for heating and cooling functions.

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## SD FLASH 2GB - Program / configuration memory

2988162

<https://www.phoenixcontact.com/us/products/2988162>



Program and configuration memory, for extending the internal flash memory, pluggable, 2 GB.

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<https://www.phoenixcontact.com/us/products/2700973>



## SD FLASH 2GB APPLIC A - Program / configuration memory

2701190

<https://www.phoenixcontact.com/us/products/2701190>



Program and configuration memory for extending the internal Flash memory, plug-in, 2 GB with license key for function block libraries. For licensed function blocks, please refer to the documentation.

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## AX OPC SERVER - Driver and interface software

2985945

<https://www.phoenixcontact.com/us/products/2985945>



AX OPC SERVER, communication interface for OPC-capable visualization with PC WORX-based controls.

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## IPASSIGN - Software

2701094

<https://www.phoenixcontact.com/us/products/2701094>



IPAssign is an easy to use tool for setting the IP address of devices which rely on BOOTP. No installation or administrative rights are required to use IPAssign.

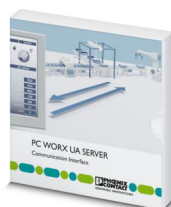
This product is free and only available from the "Downloads" tab.

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## PC WORX UA SERVER-PLC 10 - Driver and interface software

2402684

<https://www.phoenixcontact.com/us/products/2402684>



OPC UA server for communication with a maximum of 10 modular small-scale controllers (AXC 1xxx or ILC 1x1)

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<https://www.phoenixcontact.com/us/products/2700973>

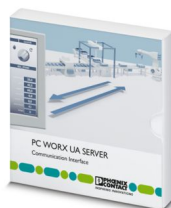


## PC WORX UA SERVER-PLC 40 - Driver and interface software

2402685

<https://www.phoenixcontact.com/us/products/2402685>

OPC UA server for communication with a maximum of 25 controllers



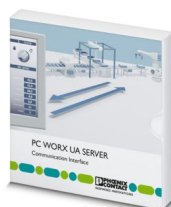
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## PC WORX UA SERVER-PLC 80 - Driver and interface software

2402686

<https://www.phoenixcontact.com/us/products/2402686>

OPC UA server for communication with a maximum of 200 controllers



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Phoenix Contact USA  
586 Fulling Mill Road  
Middletown, PA 17057, United States  
(+717) 944-1300  
[info@phoenixcon.com](mailto:info@phoenixcon.com)