

ILC 191 ME/AN - Controller



2700074

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Inline controller with integrated pulse/direction/PWM interface, RS-485/RS-422, analog inputs (0 ... 10 V), and analog outputs (0 ... 10 V), with programming options according to IEC 61131-3

Product description

The ILC 191 ME/AN is a reliable compact controller for the Inline I/O system. The controller uses directly alignable Inline I/O modules and also is notable for supporting a number of Ethernet-based protocols such as Modbus/TCP or PROFINET.

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.
- Integrated analog I/Os
- Integrated RS-485/RS-422 interface

Commercial data

| | |
|--------------------------------------|---------------|
| Item number | 2700074 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | DR10 |
| Product key | DRAAAA |
| GTIN | 4046356479097 |
| Weight per piece (including packing) | 624.3 g |
| Weight per piece (excluding packing) | 450 g |
| Customs tariff number | 85371091 |
| Country of origin | DE |

Technical data

Product properties

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

Display

| | |
|---------------------|----|
| Diagnostics display | no |
|---------------------|----|

System properties

| | |
|------------------------|------------------|
| Retentive data storage | 48 kByte (NVRAM) |
|------------------------|------------------|

IEC 61131 runtime system

| | |
|-------------------------|---------|
| Program memory | 1 Mbyte |
| Data storage system | 1 Mbyte |
| Number of control tasks | 8 |

INTERBUS-Master

| | |
|-------------------------------------------------------------|----------------------------------------------|
| Amount of process data | max. 4096 bit (INTERBUS) |
| Amount of process data (INTERBUS input/output data max.) | max. 4096 bit (INTERBUS) |
| Amount of process data (Modbus/TCP client) | max. 32768 bit (internal Modbus /TCP client) |
| Number of supported devices | max. 128 |
| Number of local bus devices that can be connected | max. 63 (observe current consumption) |
| Number of devices with parameter channel | max. 24 |
| Number of supported branch terminals with remote bus branch | max. 3 |

Modbus/TCP-Client

| | |
|------------------------------|----------------------------------------------|
| Amount of process data | max. 32768 bit (internal Modbus /TCP client) |
| Number of Modbus/TCP clients | max. 16 later than FW 4.42 |

PROFINET

| | |
|-----------------|------------------------------------------|
| Device function | PROFINET device |
| Specification | 2.2 |
| Device ID | 0096 _{hex} / 150 _{dez} |
| Vendor ID | 00B0 _{hex} / 176 _{dez} |

Function

| | |
|---------------------|----|
| Diagnostics display | no |
| Redundancy function | no |
| Safety function | no |

Functionality

| | |
|---------------------------------|--------------------------|
| Programming languages supported | Instruction list (IL) |
| | Symbolic flowchart (SFC) |
| | Ladder diagram (LD) |

| | |
|--|------------------------------|
| | Function block diagram (FBD) |
| | Structured text (ST) |

System requirements

| | |
|-----------------------|-------------------------------|
| 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 | 8.5 s/day 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 |

Potentials: 7.5 V communications power U_L (potential jumper)

| | |
|----------------|----------------------------------|
| Supply voltage | 7.5 V DC \pm 5 % |
| Power supply | max. 0.8 A DC (observe derating) |

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) |
| Power supply | 0.5 A DC (observe derating) |

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) |
| Power supply | max. 8 A DC (sum of U_M + U_S) |
| 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) |
| Power supply | max. 8 A (sum of U_M + U_S) |
| Current draw | max. 8 A DC 10 mA (without actuators) |

Input data

Analog:

| | |
|------------------|---------------|
| Input name | Analog inputs |
| Number of inputs | 2 |

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| | |
|-------------------------------------------|------------------------------------------|
| Connection method | Inline potential distributor |
| Connection technology | 2-conductor |
| Note regarding the connection technology | Inline potential distributor |
| Voltage input signal | 0 V DC ... 10 V DC (Resolution: 11 bits) |
| Input resistance of voltage input | typ. 324 k Ω |
| A/D converter resolution | 11 bit |
| Limit frequency (3 dB) | 100 Hz |
| Common mode voltage range signal - ground | 0 V ... 10 V |

Digital:

| | |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Input name | Digital inputs |
| 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 max. 15 mA |
| Input filter time | typ. 5 ms (Signal change 0 \rightarrow  typ. 5 ms (Signal change 1 \rightarrow  |
| Typical response time | min. 3 ms |

Output data

Analog:

| | |
|---------------------------------|------------------------------|
| Output name | Analog outputs |
| Connection method | Inline potential distributor |
| Connection technology | 2-conductor |
| Number of outputs | 2 |
| D/A conversion time | 10 ms |
| D/A converter resolution | 11 bit |
| Voltage output signal | 0 V DC ... 10 V DC |
| Load/output load voltage output | > 1 k Ω |

Digital:

| | |
|----------------------------------------------------|------------------------|
| Output name | Digital outputs |
| Connection method | Spring-cage connection |
| Connection technology | 2-, 3-, 4-conductor |
| Number of outputs | 4 |
| Output voltage | 24 V DC |
| Maximum output current per channel | 500 mA |
| Maximum output current per module / terminal block | 2 A |

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| | |
|---------------------|------|
| Nominal load, lamp | 12 W |
| Nominal load, ohmic | 12 W |

Pulse direction

| | |
|-----------------------------------|-------------------------------------------------------------|
| Output name | Pulse directional output for 5 V signals |
| Number of pulse direction outputs | 2 (can be used as an alternative to pulse width modulation) |
| Output voltage | 5 V \pm 5 % |
| Limit frequency | 150 kHz |

Connection data

Inline connector

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

Interfaces

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

Ethernet

| | |
|----------------------|-------------|
| Bus system | RJ45 |
| Number of interfaces | 2 |
| Connection method | RJ45 jack |
| Transmission speed | 10/100 Mbps |
| No. of channels | 2 |

INTERBUS local bus (master)

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

RS-422/-485

| | |
|----------------------|--------------------------------------------------|
| Bus system | RS-485/-422 |
| Number of interfaces | 1 |
| Connection method | 4-pos. for full duplex 2-pos. for half duplex |

Dimensions

| | |
|--------|----------|
| Width | 164 mm |
| Height | 136.8 mm |
| Depth | 71.5 mm |

Material specifications

| | |
|-------|------------------|
| Color | green (RAL 6021) |
|-------|------------------|

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 ₂) 10 ±0.3 ppm (test duration: 10 days), hydrogen sulfide (H ₂ S) 1 ±0.3 ppm (test duration: 4 days), both at 25°C and with 75% humidity |

EMC data

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

Mounting

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

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Classifications

ECLASS

ECLASS-13.0

27242207

ETIM

ETIM 9.0

EC000236

UNSPSC

UNSPSC 21.0

32151700

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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 | d01afe61-c3f2-42da-a1bf-42a72d12504f |

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