Powerful, versatile and efficient even in the smallest of spaces.

The integration of intelligent sensors and actuators, combined with shorter development times, is increasing the demand for high-performance I/O systems in automation.

The I/O system 3000 combines a consistently flexible system design with a compact construction, reduced wiring effort and simple error diagnostics. Whether in the control cabinet or as a decentralized solution, the I/O system 3000 fits seamlessly into the Lenze automation system.

You benefit from precise control of input and output modules, power and technology modules, communication modules and safety I/Os. Touch probe inputs and distributed clocks, as required for synchronized movements in clocked production processes, are also supported.

Highlights

- Modular structure for flexible system design
- Space-saving due to 11.5 mm slim modules with up to 32 connections
- Decentralized IP67 modules with digital inputs and outputs
- Modules for IO-Link, CANopen, stepper motor, and safety I/Os
- Simple diagnostics and status detection

Lenze

Product information

I/O system 3000

IO-Link communication module

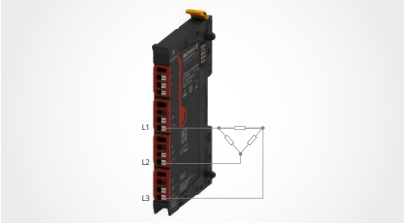
- Exchange of cyclical process data, parameters, diagnostic data, identification data
- International standard IEC 61131-9: Interface for communicating with small sensors and actuators via a point-to-point connection (SDCI)
- Saving the parameters on the master so that they can be easily exchanged

Safety modules

- Safe I/O modules for Fail-Safe-over-EtherCat (FSoE)
- Setup of decentralized safety solutions with safe actuators and sensors
- Currently the smallest possible safety I/O solution on the market
- Detection of up to four single-channel control signals and control of up to four actuators (0.5 A)
- Two inputs and two outputs can be parameterized with positive or negative switching

Stepper motor technology module

- Solution for efficient and flexible automation of stepper motor applications.
- Adjustable operating parameters and wide-range supply from 12 ... 50 V DC enable flexible use in various application scenarios
- Six integrated, parameterizable encoder inputs and digital inputs
- Two digital outputs (0.5 A)



3-phase measurement power module

- Detection of the power of single-phase or 3-phase consumers
- Currents up to 5 A can be detected directly with the module
- The measuring range can be extended by using a current transformer
- Due to the measurement in the external conductor, currents can be measured in star or delta connection without additional external components

Decentralized IP67 modules

- Protection against oil, water, coolant, and dust
- Space-saving (no additional housing required).
- Tried and tested M12 and 7/8" connectors for the direct connection of sensors and actuators
- Can be used in process machines (CNC machines, milling machines)

Rapid diagnostics

- Clear labeling and diagnostic concept
- Brightly lit LEDs are easy to see even in poorly lit control cabinets
- Each channel is clearly assigned an LED and a labeling field

Uniform color code

- Black: Standard I/Os
- Gray: System supply
- Red: Voltage >24 V DC possible
- Yellow: Safety connections
- Orange: Mechanical unlocking

Compact design

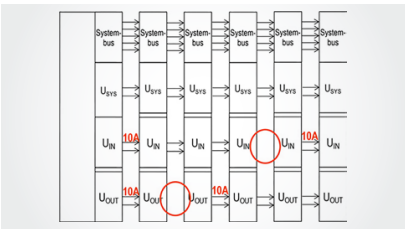
- Highest connection density on the market and smallest system structure
- 8 freely configurable plugs in 4-wire technology
- Simple bushing to decentralized control cabinets
- IDC fast connection technology without stripping
- Easy installation

Simple connection

- Circuit diagram and connection diagram printed directly on the module
- On the side: detailed presentation, easy to access
- Ideal for prewiring in the control cabinet

Permanent wiring

- 4-part concept:
  - Base module
  - Electronic module
  - Connection frame
  - Connector
- Electronic modules can be replaced during maintenance without touching the wiring
- Reference designation remains on the connection frame



Scalable supply concept

- The main supply is a fixed component of the bus coupler and supplies both electronics and the I/O level
- Optional additional I/O supply if more than 10 A output current is required
- Optional additional I/O and electronic power supply for extremely large station structures
- Each new I/O supply forms a separate potential area

Product information

I/O system 3000

System overview

w510-C	Power modules
-PF-001	Supply (input current path)
-PF-002	Supply (output current path)
-MT-001	3-phase measurement (motor)
-AX-001	Potential distribution functional earth
-AX-002	Potential distribution GND (input current path)
-AX-003	Potential distribution GND (output current path)
-AX-004	Potential distribution 24 V DC (input current path)
-AX-005	Potential distribution 24 V DC (output current path)
w540-C	**Analog inputs and outputs**
-1E-001	2 analog inputs, 16 bits
-1E-002	2 analog inputs, 16 bits, diagnostics
-1E-003	2 analog inputs, 24 bits, strain gauge
-2E-001	4 analog inputs, 16 bits, HART
-2E-002	4 analog inputs, 16 bits, HART, galv. isolation
-2E-003	4 analog inputs, 12 bits
-2E-004	4 analog inputs, 16 bits
-2E-005	4 analog inputs, 16 bits, diagnostics
-2E-006	4 analog inputs, 16 bits, diagnostics, high density connectors
-2E-007	4 analog inputs, 16 bits, high density connectors
-2E-008	4 analog inputs, 16 bits, differential input, diagnostics
-2E-009	4 analog inputs, 32 bits, differential input, diagnostics
-2E-010	4 analog inputs, 16 bits, galv. isolation, diagnostics
-3E-001	8 analog inputs, 16 bits, current, diagnostics, high density connectors
-3E-002	8 analog inputs, 16 bits, current, high density connectors
-3E-003	8 analog inputs, 16 bits, current, PLC connection
-2E-011	4 analog inputs, 16 bits, potentiometer input
-2E-012	4 analog inputs, 16 bits, resistance thermometer
-2E-013	4 analog inputs, 16 bits, resistance thermometer, high precision
-2E-014	4 analog inputs, 16 bits, temperature compensation
-3E-004	8 analog inputs, 16 bits, resistance thermometer, 2-wire sensor connection
-1A-001	2 analog outputs, 16 bits
-1A-002	2 analog outputs, 16 bits, diagnostics
-1A-003	2 analog outputs, 16 bits, galv. isolation, diagnostics
-2A-001	4 analog outputs, 16 bits
-2A-002	4 analog outputs, 16 bits, diagnostics
-2A-003	4 analog outputs, 16 bits, maritime approval, diagnostics
-2A-004	4 analog outputs, 16 bits, maritime approval
w560-C	**Digital inputs and outputs**
-1E-001	2 digital inputs, time stamp input, pos. switching
-2E-001	4 digital inputs, 230 V AC, 2-wire sensor connection
-2E-002	4 digital inputs, neg. switching
-2E-003	4 digital inputs, pos. switching
-2E-004	4 digital inputs, pos. switching, 3-wire sensor connection
-2E-005	4 digital inputs, time stamp input, pos. switching
-3E-001	8 digital inputs, 2-wire sensor connection, galv. isolation
-3E-002	8 digital inputs, neg. switching, 3-wire sensor connection
-3E-003	8 digital inputs, pos. switching, 2-wire sensor connection
-3E-004	8 digital inputs, pos. switching, 3-wire sensor connection
-3E-005	8 digital inputs, pos. switching, 3-wire sensor connection, high density connectors
-4E-001	16 digital inputs, neg. switching
-4E-002	16 digital inputs, neg. switching, PLC connection
-4E-003	16 digital inputs, pos. switching
-4E-004	16 digital inputs, pos. switching, PLC connection
-3B-001	8 digital inputs/outputs (configurable), pos. switching, 3-wire sensor connection, diagnostics
-2A-001	4 digital outputs, galv. isolation, 4 A
-2A-002	4 digital outputs, neg. switching
-2A-003	4 digital outputs, neg. switching, 2 A
-2A-004	4 digital outputs, pos. switching
-2A-005	4 digital outputs, pos. switching, 2 A
-2A-006	4 digital outputs, pos./neg. switching, 2 A
-3A-001	8 digital outputs, neg. switching
-3A-002	8 digital outputs, pos. switching
-3A-003	8 digital outputs, pos. switching, 2-wire sensor connection, high density connectors
-4A-001	16 digital outputs, neg. switching
-4A-002	16 digital outputs, neg. switching, PLC connection
-4A-003	16 digital outputs, pos. switching
-4A-004	16 digital outputs, pos. switching, PLC connection
-2A-007	4 digital outputs, relay changeover contact, 255 V
-2A-008	4 digital outputs, solid-state relay, 255 V
w560-P	**Decentralized IP67 modules**
-4E-001	16 digital inputs, 7/8" connectors
-4E-002	16 digital inputs, M12 connectors
-4B-001	16 digital inputs/outputs (configurable), 7/8" connectors
-4B-002	16 digital inputs/outputs (configurable), M12 connectors
-4A-001	16 digital outputs 7/8" connectors
-4A-002	16 digital outputs, M12 connectors
-4B-003	8+8 digital inputs/outputs, 7/8" connectors
-4B-004	8+8 digital inputs/outputs, M12 connectors
w570-C	**Technology modules**
-CT-001	1 digital counter, pulse, 100 kHz, 1 digital output
-CT-002	1 digital counter, pulse, 500 kHz
-CT-003	2 digital counters, pulse, 100 kHz
-CT-004	2 digital counters, frequency, 100 kHz
-PW-001	Pulse width modulation, pos./neg. switching, 0.5 A
-PW-002	Pulse width modulation, pos./neg. switching, 2 A
-PW-003	Pulse width modulation, pos. switching, 2.5 A
-SM-001	Stepper motor, 50 W, 6 digital inputs, 2 digital outputs
w580-C	**Communication modules**
-NT-001	CANopen
-NT-002	RS 232/485/422
-NT-003	SSI interface
-NT-004	IO-Link (master/device)
w580-C	**Bus coupler**
-FB-001	EtherCAT
-FB-002	EtherCAT, Economy
w590-C	**Safety modules**
-2B-001	4 safe inputs, 4 safe outputs, pos./neg. switching, FSoE
-3E-001	8 safe inputs, pos./neg. switching, FSoE
-PF-001	Safe supply, 1 safe input, 1 safe output (24 V safe)
-PF-002	Safe supply, 2 safe inputs, 1 safe output (24 V safe), switch-off delay
-PF-003	Safe supply, 2 safe inputs, 1 safe output (24 V safe)