BUCHER
automation

# JX4

# Fast and compact I/O system

# 40 %

Saves space in the control cabinet*

# 50 %

Saves time during installation*

# 2×

More I/O channels per module*

*(compared to predecessor JX3)




# JX4-I/O-System

More space in the control cabinet.
Fast time-to-market.
Efficient handling of I/O signals.

The modular, space-saving and maintenance-friendly I/O system in IP20 that supports machine manufacturers in shortening the time-to-market of their machines and speeding up the handling of I/O signals.

# Contents

# Our functions – your success


## High signal density in a very small space
The JX4-I/O system is a very compact and densely packed I/O system. With a module width of just 25.7 mm, each module has as many as 32 I/O points available. This ensures maximum space saving in the control cabinet.

## Slide-in-and-out mechanics. Quick and click.
The modules are mounted on a standard 35-mm DIN rail. Using the pull-out, the modules can be quickly mounted on the DIN rail and locked in place. Quick and click.


## Diverse range of I/O module variants
Extensive range of different modules offers you flexibility in choosing and engineering even the most diverse applications.



## Easy wiring with push-in male connectors
Quick connecting with the ergonomically shaped and removable push-in terminals in each module. Fast and easy wiring.


## Fast and open technology
Equipped with an EtherCAT® bus head, the modules are prepared for uninterrupted data exchange with maximum speed and extremely short cycle times. The ideal I/O system for automating complex applications. And all that plus the fastest EtherCAT® standard.

## Clear and precise diagnostics
Each module has status LEDs that make for easy diagnostics. One glance is enough to know that everything is OK. Each individual channel also has its own LED.


## No guesswork. Clear module designation

Each module has its own nameplate, making it quick and easy to identify. Thanks to color coding, module types can be distinguished even faster.

## Removable ergonomic connectors

The ergonomically shaped wiring terminals with push-in function can be easily removed and attached in installed state. That means that changes can be made to the wiring quickly and conveniently, even if the control cabinet is full.


## Fast module replacement. Easy-to-use pull-out

It may become necessary to replace a module. The entire module package does not have to be removed to do this. A single module can be removed from the complete package using the pull-out.



# Technical Data

## General technical data

| | |
|---|---|
| **Operating environment** | |
| Operating temperature | -20 °C ... +60 °C |
| Storage temperature | -40 °C ... +80 °C |
| Relative humidity | 95 %, non-condensing |
| Installation | DIN rail EN 50022 – 35 × 7.5 or EN 50022 – 35 × 15 |
| Elevation | ≤2000 m |
| Resistance to vibration | IEC 60068-2-6 sinusoidal vibration<br>5 Hz–8.4 Hz, 3.5 mm, 8.4 Hz ... 150 Hz, 1 g<br>X/Y/Z triaxial, 10 cycles/axial (100 min) |
| Shock resistance | IEC 60068-2-27 Mechanical shock<br>150 m/s², 11 ms, ±X/Y/Z direction<br>3× per direction |
| Degree of protection | IP20 |
| Overvoltage category | I |
| Contamination level | 2 |
| Access to PDO via SDO | Support |
| Diagnostic | Support |
| Warning | Support |
| Firmware update | Support |
| Protection against: Short circuit, reverse polarity and overvoltage | Support |
| **CE** | |
| EMC | EN 61131-2<br>EN IEC 61000-6-4<br>EN IEC 61000-6-2 |
| Low Voltage Directive | EN 61010-1:2010/A1<br>EN IEC 61010-2-201 |
| **Requirements for electromagnetic compatibility** | |
| Electrostatic discharge | Level 3, contact ±8 kV air ±8 kV, IEC 61000-4-2 |
| (Electrical) overvoltage<br>(interference immunity against surge voltage) | Level 3, 1 kV DM 2 kV CM, IEC 61000-4-5 |
| Electrical rapid pulse group<br>(rapid transient electrical disturbance values/burst) | Level 4, power cable ±4 kV, IEC 61000-4-4 |
| RoHS certification | Directive 2011/65/EU, Annex II |
| REACH | Regulation (EC) no. 1907/2006 |

# JX4-BN-EC


## Product features

- EtherCAT® module device profile
- Max. 32 JX4-I/O modules
- Status LEDs for EtherCAT®, voltage supply and system bus
- Firmware update via FoE

## Description

The EtherCAT® bus node JX4-BN-EC is a gateway between an EtherCAT® master and Bucher Automation JX4-I/O modules. The JX4-BN-EC is used to set up decentralized I/O stations. This module enables synchronous communication via EtherCAT® between the controller and decentralized JX4-I/O modules.

## EtherCAT® interface

| | |
|---|---|
| Protocol | EtherCAT® |
| Data transfer | Ethernet/EtherCAT® CAT5 cable |
| Bit rate | 100 MBit/s |
| Minimum cycle time | 250 µs |
| Transmission distance | ≤100 m (station to station) |
| Bus interface | 2× RJ45 |
| Maximum number of modules in series | 32 |
| Volume of input process data and output process data | 1024 bytes (1) |

Comment (1): The total length of the upload stream and download stream must not exceed 1024 bytes.

## Mechanical data

| | |
|---|---|
| Dimensions (H × W × D) | 106.4 × 43 × 61 mm |
| Weight | 155 g |

## Power supply

| | |
|---|---|
| Input voltage | SELV input DC 24 V (18 V ... 36 V) |
| Input current | Max: 600 mA (DC 24 V) |
| Backplane supply current | Max: 2 A |
| Backplane supply voltage | DC 5 V |
| Backplane bus | System bus |

## Ordering information

| Article no. | Designation | Description |
|---|---|---|
| 10002675 | JX4-BN-EC | EtherCAT® bus head for JX4 modules |



# JX4-DI16


## Product features

- 16 digital inputs
- Adjustable input filter
- Push-in terminals
- Electrical isolation
- LEDs for monitoring supply voltage and communication

## Description

The input expansion module JX4-DI16 is used to connect digital sensors.

## Technical Data

| | JX4-DI16 |
|---|---|
| Channels | 16 |
| Type | Type1/type3 PNP |
| Nominal input current | 5 mA/channel |
| Max. switching threshold OFF | 5 V (max. 0.9 mA) |
| Min. switching threshold ON | 11 V (min. 2.1 mA) |
| Input delay | <50 µs |
| Input filter | No filter, 0.1 ms, 0.2 ms, 0.5 ms, 1 ms, 2 ms, 3 ms (factory setting), 4 ms ... 18 ms, 19 ms, 20 ms |
| Maximum input frequency | 150 Hz (filter time: 3 ms) |
| Input impedance | 5.4 KΩ |
| Electrical isolation | Optocoupler isolation |
| Insulation resistance | 500 V |
| Logic voltage of the system bus | DC 5 V (-15 % ... +10 %) |
| Current consumption of logic voltage | 68 mA |
| Energy consumption | 0.34 W |
| Dimensions (H × W × D) | 106.4 × 25.7 × 72.3 mm |
| Weight | 90 g |

## Ordering information

| Article no. | Designation | Description |
|---|---|---|
| 10002678 | JX4-DI16 | JX4 module with 16 dig. inputs |

# JX4-DI32

## Product features
- 32 digital inputs
- Adjustable input filter
- Push-in terminals
- Electrical isolation
- LEDs for monitoring supply voltage and communication

## Description
The input expansion module JX4-DI32 is used to connect digital sensors.

## Technical Data

| | JX4-DI32 |
|---|---|
| Channels | 32 |
| Type | Type1/type3 PNP |
| Nominal input current | 5 mA/channel |
| Max. switching threshold OFF | 5 V (max. 0.9 mA) |
| Min. switching threshold ON | 11 V (min. 2.1 mA) |
| Input delay | <50 µs |
| Input filter | No filter, 0.1 ms, 0.2 ms, 0.5 ms, 1 ms, 2 ms, 3 ms (factory setting), 4 ms ... 18 ms, 19 ms, 20 ms |
| Maximum input frequency | 150 Hz (filter time: 3 ms) |
| Input impedance | 5.4 KΩ |
| Electrical isolation | Optocoupler isolation |
| Insulation resistance | 500 V |
| Logic voltage of the system bus | DC 5 V (-15 % ... +10 %) |
| Current consumption of logic voltage | 85 mA |
| Energy consumption | 0.425 W |
| Dimensions (H × W × D) | 106.4 × 25.7 × 72.3 mm |
| Weight | 110 g |

## Ordering information

| Article no. | Designation | Description |
|---|---|---|
| 10002676 | JX4-DI32 | JX4 module with 32 dig. inputs |



# JX4-DI16DO16

## Product features
- 16 digital inputs and 16 digital outputs
- Adjustable input filter
- Possible load types: resistive, inductive. Lamp load
- Overload-proof and short-circuit-proof outputs and reverse polarity protection
- Push-in terminals
- Electrical isolation
- LEDs for monitoring supply voltage and communication

## Description
The input and output expansion module JX4-DI16DO16 is used to connect digital sensors and actuators.

## Technical Data

| | JX4-DI16DO16 |
|---|---|
| **Digital input** | |
| Channels | 16 |
| Type | Type1/type3 PNP |
| Nominal input current | 5 mA/channel |
| Max. switching threshold OFF | 5 V (max. 0.9 mA) |
| Min. switching threshold ON | 11 V (min. 2.1 mA) |
| Input delay | <50 µs |
| Input filter | No filter, 0.1 ms, 0.2 ms, 0.5 ms, 1 ms, 2 ms, 3 ms (factory setting), 4 ms ... 18 ms, 19 ms, 20 ms |
| Maximum input frequency | 150 Hz (filter time: 3 ms) |
| Input impedance | 5.4 KΩ |
| **Digital output** | |
| Channels | 16 |
| Type | PNP |
| Load current per output | Max. 0.5 A |
| Output load type | Resistance load, inductive load, lighting load |
| Voltage drop on the output | <1 V |
| Leakage current | <10 µA |
| Switching time | <150 µs |
| Electrical isolation | Optocoupler isolation |
| Module protection | Reverse polarity protection |
| Insulation resistance | 500 V |
| Logic voltage of the system bus | DC 5 V (-15 % ... +10 %) |
| Current consumption of logic voltage | 90 mA |
| Energy consumption | 0.45 W |
| Dimensions (H × W × D) | 106.4 × 25.7 × 72.3 mm |
| Weight | 110 g |

## Ordering information

| Article no. | Designation | Description |
|---|---|---|
| 10002680 | JX4-DI16DO16 | JX4 module with 16 dig. inputs and 16 dig. outputs |

# JX4-DO16

## Product features

- 16 digital outputs
- Possible load types: resistive, inductive. Lamp load
- Overload-proof and short-circuit-proof outputs and reverse polarity protection
- Push-in terminals
- Electrical isolation
- LEDs for monitoring supply voltage and communication

## Description

The output expansion module JX4-DO16 is used to connect digital actuators.

## Technical Data

| | JX4-DO16 |
|---|---|
| Channels | 16 |
| Type | PNP |
| Load current per output | Max. 0.5 A |
| Output load type | Resistance load, inductive load, lighting load |
| Voltage drop on the output | <1 V |
| Switching time | <150 µs |
| Leakage current | <10 µA |
| Protective circuit | Short-circuit protection, overload protection |
| Module protection | Reverse polarity protection |
| Electrical isolation | Optocoupler isolation |
| Insulation resistance | 500 V |
| Logic voltage of the system bus | DC 5 V (-15 % ... +10 %) |
| Current consumption of logic voltage | 79 mA |
| Energy consumption | 0.395 W |
| Dimensions (H × W × D) | 106.4 × 25.7 × 72.3 mm |
| Weight | 90 g |

## Ordering information

| Article no. | Designation | Description |
|---|---|---|
| 10002679 | JX4-DO16 | JX4 module with 16 dig. inputs |



# JX4-DO32

## Product features

- 32 digital outputs
- Possible load types: resistive, inductive. Lamp load
- Overload-proof and short-circuit-proof outputs and reverse polarity protection
- Push-in terminals
- Electrical isolation
- LEDs for monitoring supply voltage and communication

## Description

The output expansion module JX4-DO32 is used to connect digital actuators.

## Technical Data

| | JX4-DO32 |
|---|---|
| Channels | 32 |
| Type | PNP |
| Load current per output | Max. 0.5 A |
| Output load type | Resistance load, inductive load, lighting load |
| Voltage drop on the output | <1 V |
| Switching time | <150 µs |
| Leakage current | <10 µA |
| Protective circuit | Short-circuit protection, overload protection |
| Module protection | Reverse polarity protection |
| Electrical isolation | Optocoupler isolation |
| Insulation resistance | 500 V |
| Logic voltage of the system bus | DC 5 V (-15 % ... +10 %) |
| Current consumption of logic voltage | 98 mA |
| Energy consumption | 0.49 W |
| Dimensions (H × W × D) | 106.4 × 25.7 × 72.3 mm |
| Weight | 110 g |

## Ordering information

| Article no. | Designation | Description |
|---|---|---|
| 10002677 | JX4-DO32 | JX4 module with 32 dig. outputs |

bucherautomation.com

**Bucher Automation AG**
Thomas-Alva-Edison-Ring 10
71672 Marbach am Neckar, Germany
T +49 7141 2550 0
info@bucherautomation.com



Last updated 10/2024