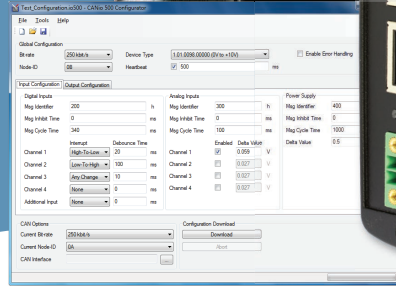# IXXAT®

# IO Modules

## For CAN, CANopen and EtherCAT

With the CANio 250/500 and the EtherCAT I/O, IXXAT offers three modules enabling the quick and easy connection of analog and digital input and output signals to CAN, CANopen and EtherCAT systems – whether in experimental setups, test benches or vehicles.

*CANio configuration tool*

## Industries

## Highlights

✓ Support for digital and analog IOs on one platform

✓ Universal use due to robust design and wide power supply range

✓ Easy configuration and versatile configuration options

✓ Adaptation to specific requirements via CANio ADK

✓ Plug-in version available for direct integration into customer hardware

## Universal use

An important feature of IXXAT's IO Modules are the inputs and outputs for digital and analog signals on one device, which can be flexibly configured. The devices are delivered in a rugged aluminum housing with a wide voltage and temperature range allowing for easy integration into existing applications in the industrial and automotive area.

A special focus of the CANio 250/500 is the device operability within CANopen and also standard CAN systems. For this reason, the CANio 250/500 was designed as a self-starting CANopen slave, with all important parameters stored as default values on the device. This enables the devices to operate directly after start-up without further settings in accordance with basic CAN operation.

## Easy configuration

The individual configuration of the CANio 250/500 for different applications can be done either by loading configuration data via a CANopen master or by sending configuration messages in a pure CAN network or offline via the free CANio configuration tool. Configurations that have been created with the CANio configuration tool can be saved as a project and on customer request pre-installed on ordered devices before delivery.

The configuration of the EtherCAT IO module is performed by using an EtherCAT master with a XML configuration file (ESI file).

## Application Development Kit (ADK)

The Application Development Kit enables creation of custom device applications with customer-specific functionality.
Therefore, the CANio ADK contains all drivers required for communication via the CAN bus and for triggering the various inputs and outputs, which allows development of custom applications even without specific hardware know-how.

The drivers are delivered as a binary library together with a comprehensive C-source demo application. The demo application demonstrates the usage of the various functions and can be very easily extended according to individual requirements.

As development platform an evaluation kit of the CANio 250/500 is included in the scope of supply. Together with a development environment, available for free, and a hardware debugging solution, custom applications can be created and uploaded easily. On completion of the test and verification phase, the application can be loaded to standard CANio 250/500 devices. This is carried out via the CAN bus with the aid of the CANio configuration tool and the bootloader installed on the devices.

We will also be pleased to develop adapted software solutions for customers based on the IO Modules. The custom software is delivered with documentation that allows further modification by the user.

| Product | CANio Application Development Kit (ADK) |
|---|---|
| Description | Package for the easy development of customized applications on the CANio 500 and CANio 250 |
| Content of delivery | CANio evaluation kit; I/O drivers, boot loader, demo program and manual. Development environment and debugger are not included. |
| Order number | CANio500 ADK: *1.03.0098.00000*; CANio250 ADK: *1.03.0099.00000* |

# IXXAT®

| TECHNICAL SPECIFICATIONS | | | | |
|---|---|---|---|---|
| **Product** | **CANio 250** | **CANio 250 Plug-In** | **CANio 500** | **ETCio 100** |
| CAN protocols | CAN, CANopen | CAN, CANopen | CAN, CANopen | - |
| CAN bus interface | ISO 11898-2 | ISO 11898-2 | ISO 11898-2 | - |
| Galv. CAN isolation | yes (500 V DC) | - | yes (500 V DC) | - |
| IE interface | - | - | - | EtherCAT |
| Digital inputs | Up to 16 x + clamp 15 (5 V CMOS compatible) | - | 4 x + clamp 15 (between 0-34 V, threshold at 50 %) | 6 x (between 0-34 V, threshold at 2.5 V) |
| Digital outputs | Up to 16 x, max. 30 mA, 5 V CMOS signal levels | - | 4 x, max. 1 A, output voltage free selectable, up to 32 V | 4 x, max. 2 A, output voltage free selectable up to 32 V |
| Analog inputs | - | - | 4 x, 12 bit resolution +/- 5 V, or 0-10 V, or +/- 100 mA | 2 x, 12 bit resolution 0-10 V |
| Analog outputs | - | - | 4 x, 12 bit resolution +/- 5 V, or +/- 10 V, or 0-5 V, or 0-10 V, switchable via software | 2 x, 12 bit resolution 0-10 V, 20 mA (optional 16 bit resolution) |
| GPIO's | - | 25 x, free configurable as analog input, digital in-/ output or SPI, 3V3 CMOS | - | - |
| Further interfaces | - 2 user prog. LEDs - Measurem. power supply | - 2 user programmable LEDs | - 2 user programmable LEDs - Measurement of power supply | - 4 LEDs |
| Temp. range (operation) | -40 °C to +70 °C | -40 °C to +70 °C | -40 °C to +70 °C | -40 °C to +70 °C |
| Power supply | 6-32 V | 6-32 V or 3V3 | 6-32 V | 6-32 V |
| Types of plugs | CAN: D-SUB-9 I/O: D-SUB-9 | Socket board with 2.54 mm contact spacing | CAN: D-SUB-9 I/O: D-SUB-HD15 | 16 pin plug for the digital/analog signals; Phoenix-Contact RM 3,81 |
| Protection class | IP42 | - | IP42 | IP42 |
| Dimensions | 75 x 82 x 32 mm | 77 x 59 mm | 120 x 82 x 32 mm | 120 x 82 x 32 mm |
| Order number | 1.01.0099.00000 | 1.01.0099.00001 | With 0 to 10 V analog inputs 1.01.0098.00000 / With -5 bis +5 V analog inputs 1.01.0098.00001 / With +/- 100 mA analog inputs 1.01.0098.00002 | Aluminum case 1.01.0250.20001 / Board level version 1.01.0250.21001 |

## Customer specific solutions

Based on our years of experience, we also work for our customers to develop solutions that, in terms of interfaces, construction, and protocols supported, are adapted optimally to customer requirements:

- Specific form factor, housing
- Analog in-/outputs, digital in-/outputs
- CAN, CANopen, SAE J1939, DeviceNet
- Real-time Ethernet (e.g. EtherCAT)
- ...
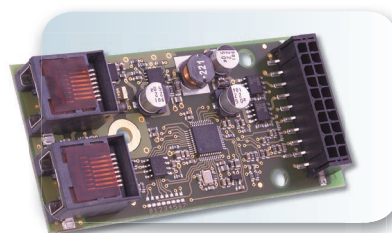
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