

## PLCs with CANopen IO Modules

- **The high-performance PLC series from Sontheim Industrie Elektronik GmbH: the eControl family.**

The modular and powerful product family of PLC controllers with integrated HMI interfaces includes the eControl nano and eControl micro versions. The models are equipped with 3.5" to 7" TFT displays for intuitive and convenient handling.

The second generation of eControl micro is equipped with an OPC UA server and IO-Link, enabling IoT applications independent of manufacturer, platform and fieldbus.

On the part of the software, programming with Codesys V3.5, the development framework Qt or other variants are available. Various libraries, such as for a graphical user interface (GUI) or control libraries for a stepper motor, are integrated for easy handling for the customer.

Numerous high-performance and standardized interfaces ensure a wide range of applications. These ranges from Ethernet, WLAN, USB, Bluetooth, stepper motor or temperature sensor interfaces to digital and analog IOs. CAN, CANopen and EtherCAT are supported as fieldbuses. The CAN interface is defined according to CiA 301 and CiA 401 with a maximum transfer rate of 1 Mbit/s. It is also specified via CANopen.

Depending on the version, a RAM of up to 1 GB and a CPU up to Quad Core (1.2 GHz) can be selected.

### Perfect match - Master module with modular extension for advanced signal processing

The master module is a CAN interface module with integrated IO's and provides a serial interface for further expansion IO modules. The module has a  $\mu$ -controller and controls the entire IO system.

The following extensions are available:

- 8DI/8DO
- 2x motor full-bridge (10A)
- 2PT100/1000
- 2AI/2AO
- Relay module

### Further CANopen IO modules

Our IO modules by Sontheim provide different kinds of inputs and outputs to the user. There are various layouts of the IO modules, offering up to 32 digital inputs and 40 outputs. In addition, the Multi IO also incorporates analog inputs and outputs and 24-bit encoders. The modules have a very short signal delay of less than 400  $\mu$ s at their inputs and less than 100  $\mu$ s at their outputs. All of our IO modules are CANopen certified according to CiA 301 and CiA 401. This opens a wide range of applications all over the world.

#### *The flexible EC-DIO32*

Depending on the users requirements, it is possible to configure the IOs as digital in-/output or analog input. In addition to that the device offers several diagnostic functions like level measurement and revertive monitoring. Further on, the EC-DIO32 provides a CAN network (CANopen) and an EtherCAT interface.

### Maximum industrial usability

All devices are designed for a maximum of industrial usability and handling comfort. Bit-rate and node ID can be set directly on the module with three hex switches. All interfaces are available at the front panel. There are also safety features implemented regarding signal processing and current supply. Finally, we use clamps that minimize the risk of wiring problems via color coding and LEDs. This makes our CANopen IO modules an optimal choice for industrial applications.

### Features of the IO modules

- User and service friendly – the logical state for each input and output is shown with a LED directly at the clamp connectors.
- The CAN interface of the IO module provides one male and one female connector, so you can connect up to 256 devices in a row.
- Signal delay less than 100  $\mu$ s
- Operating temperature from 0 °C to 60 °C
- Output current 1 A shortcut proof
- Build in a massive aluminum case with IP20
- Dimensions (w x h x l) 121 mm x 120 mm x 20 mm
- State LED to indicate the operating mode and input output state

### Available modules

- **DI32:** 32 digital inputs
- **DO32:** 32 digital outputs
- **DIO32:** 16 digital inputs, 16 digital outputs
- **DI40:** 40 digital inputs
- **DIO40:** 32 digital inputs, 8 digital outputs
- **DIO72:** 32 digital inputs, 40 digital outputs
- **Multi-IO:** 16 digital inputs, 16 digital outputs, 8 analog inputs, 8 analog outputs, 4 encoder inputs, 1 CAN interface
- **Multi-IO AI16:** 16 digital inputs, 16 digital outputs, 16 analog inputs, 4 encoder inputs, 1 CAN interface
- **AI16:** 16 analog inputs
- **AIO16-L: 8 digital inputs, 8 digital outputs**
- **EC-DIO32:** 32 interfaces that can be configured as digital in-/output or analog input
- **DIO32-L:** 16 digital inputs, 16 digital outputs
- **AIO16-L:** 8 digital inputs, 8 digital outputs

## Contact

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## Features

<b>NMT</b>	NMT slave
<b>Error control</b>	Node guarding Heartbeat consumer: 1 message
<b>Boot-up</b>	No
<b>Node ID range</b>	From 1 to 127
<b>Node ID</b>	Hardware switch (local interface) Proprietary
<b>CANopen bit-rates</b>	10 kbit/s 20 kbit/s 50 kbit/s 125 kbit/s 250 kbit/s 500 kbit/s 800 kbit/s 1 000 kbit/s
<b>Type of bit-rate adjustment</b>	Hardware switch (local interface) Software switch
<b>RPDOs</b>	16
<b>TPDOs</b>	16
<b>PDO modes</b>	Event-triggered Synchronous (acyclic) Synchronous (cyclic) coupled to sync counter start
<b>PDO linking</b>	Yes
<b>PDO mapping</b>	Static
<b>SDO server</b>	32
<b>SDO client</b>	16
<b>Emergency producer</b>	Yes
<b>Emergency consumer</b>	1 message
<b>Sync producer</b>	No
<b>Sync counter</b>	No

<b>Time stamp</b>	No
<b>Additional functions</b>	None
<b>CANopen version</b>	CiA 301 V 3.0
<b>Frameworks</b>	None
<b>Device profiles</b> CiA 401: CANopen device profile for generic I/O modules	
<b>Certified</b>	No
<b>Availability</b>	In stock