

CANopen IO-X6 – Fact sheet

Overview

The CANopen IO-X6 is a very compact and cost effective CANopen IO module featuring a High density of industrial proven IO's.

The module includes a CPU-core including the pre-programmed firmware for CANopen communication and peripherals for the industrial inputs and outputs. Extensive diagnostic routines are implemented to ensure a most reliable and safe operation.

All inputs and outputs as well as configuration parameters are accessible via the CANopen protocol.

The CANopen IO-X6 is a CANopen slave device according CANopen device profile **CiA 404 DS V1.2** and CANopen communication profile **CiA 301 DS V4.02**.

Two LED indicate the device state according to **CiA 303-3 DR V1.0**.



IO configuration:

- 8 channels analog output
each configurable as 0..10V or 4..20mA
output
Resolution 10bit (optional 12-bit)
Short-circuit monitoring
Open-load monitoring (for current mode)

CANopen features:

- Communication profile CiA 301 DS V4.02
- Device profile CiA 404 DS V1.2
- State indicator profile CiA 303-3 DR V1.0
- Layer Setting Service (LSS)
CiA 305 DS V1.1
- 2 RPDO
- Dynamic PDO-Linking and -Mapping
- SDO-Server
- Life guarding, Node guarding, Heartbeat
Producer
- 5 Heartbeat Consumers
- Emergency Producer
- Minimum Boot-up capability (Slave)
- Minimum NMT boot-up master (Manufacturer
extension)

Communication and device configuration:

- Galvanic decoupled CAN-bus driver supports
up to 110 CAN-nodes on one bus
- Jumper for CAN-bus termination 120Ω
- Hex-encoding switches for setting node-ID
and baud rate
- CAN-bus baud rate: 10kBit/s to 1Mbit/s
- High-quality connectors included in scope of
delivery:
Power-Supply: 2-pin plug connector
CAN-bus: 5-pin plug connector
I/O: single 24-pin plug connector, lockable
- Non-volatile memory for storage of
configuration data
- Internal monitoring and diagnostics of:
onboard temperature,
power supply,
memory and other controller internals
- Emergency Messages sent out in case of
failure

Power Supply, Environmental Conditions:

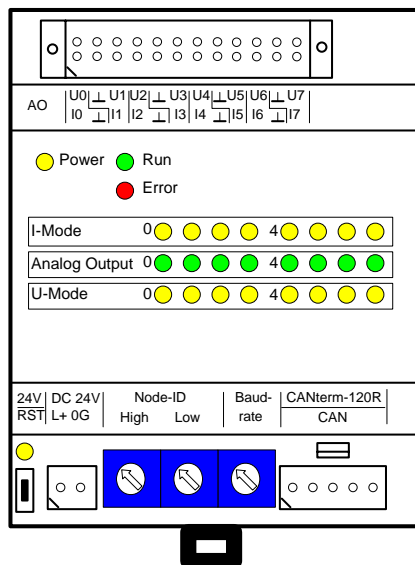
- Operating voltage: 24V ±20%
- Current consumption: <70mA
- Operating temperature: -20°C to +70°C
- Storage temperature: -20°C to +90°C
- Dimensions (LxWxH in mm): 95x70x58
- Installation method: DIN-rail mounting
- Enclosure protection class: IP20
- Weight: ca. 130g

Delivery contents / order number

Assembled and tested module,
Manual and corresponding EDS-file

Order number:
3001005 CANopen IO-X6,
standard version

Device pinout



Connector pinout:

Pin	Name	Description
Power Connector		
1*	L+	+24VDC ±20%
2	0G	Ground 0
CAN Connector		
1*		CAN ground
2		CAN low
3		n.c.
4		CAN high
5		+24VDC (optional used)
IO Connector		
1*	I0	ch 0 current output
2	U0	ch 0 voltage output
3	GND	ch 0 Ground
5	I1	ch 1 current output
6	U1	ch 1 voltage output
4	GND	ch 1 Ground
7	I2	ch 2 current output
8	U2	ch 2 voltage output
9	GND	ch 2 Ground
11	I3	ch 3 current output
12	U3	ch 3 voltage output
10	GND	ch 3 Ground
13	I4	ch 4 current output
14	U4	ch 4 voltage output
15	GND	ch 4 Ground
17	I5	ch 5 current output
18	U5	ch 5 voltage output
16	GND	ch 5 Ground
19	I6	ch 6 current output
20	U6	ch 6 voltage output
21	GND	ch 6 Ground
23	I7	ch 7 current output
24	U7	ch 7 voltage output
22	GND	ch 7 Ground

* in picture pin 1 is marked with slash

Hex-encoding Switches:

Node ID:

Allows for configuration of node ID from 0x1 ... 0x7F (1..127 dec). When node-ID is set to value 0xFF, the device is reset to factory settings after power-on or reset. The node-ID is also configurable via LSS.

Baud rate:

Selectable via Hex-switch:
 0 = 1 Mbit/s
 1 = 800 kbit/s
 2 = 500 kbit/s
 3 = 250 kbit/s
 4 = 125 kbit/s
 5 = 100 kbit/s
 6 = 50 kbit/s
 7 = 20 kbit/s
 8 = 10 kbit/s

The baud rate is also configurable via LSS.

PDO Mapping

In standard configuration (factory settings) the analog outputs AO0..7 are mapped to the following PDO's.

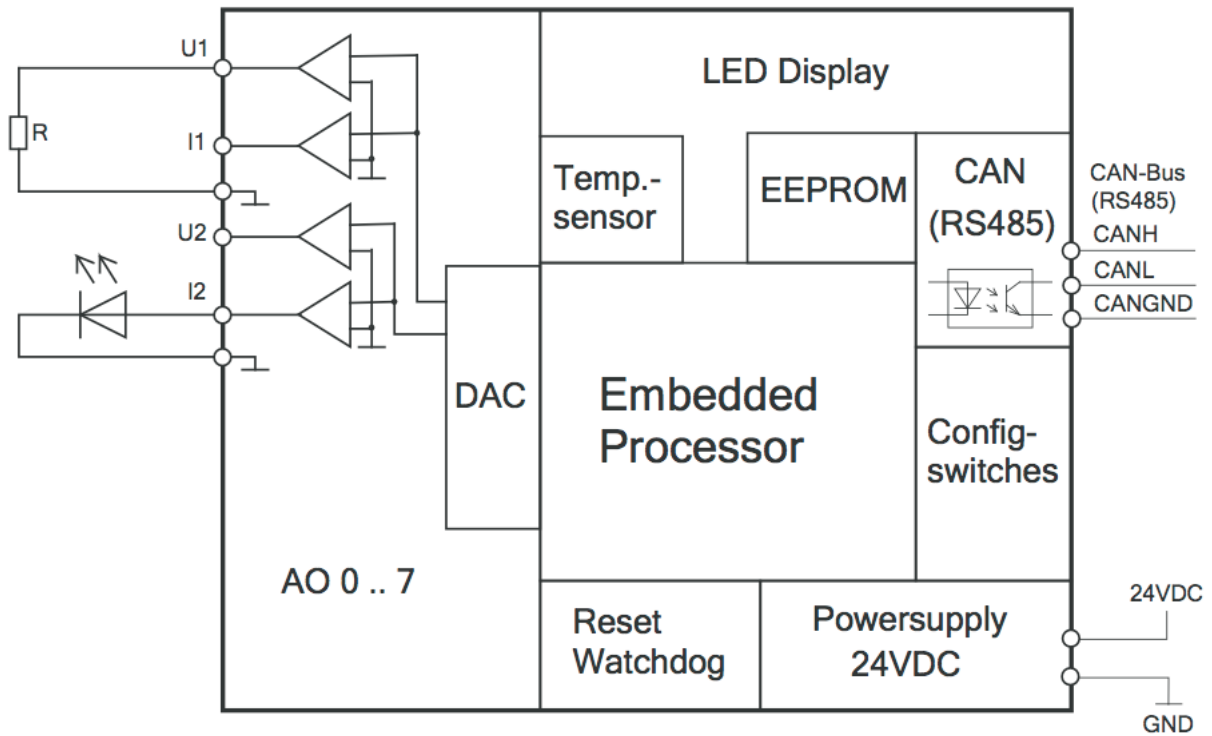
	ID	Length	BYTE 0	BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5	BYTE 6	BYTE 7
1. RPDO	200H +Node ID	8	AO0 7300H/1		AO1 7300H/2		AO2 7300H/3		AO3 7300H/4	
1. TPDO	300H +Node ID	8		AO4 7300H/5		AO5 7300H/6		AO6 7300H/7		AO7 7300H/8

The PDO-mapping and linking can be changed dynamically by use of a standard CANopen configuration tool. The configuration can be saved to non-volatile memory and thus is available after restart.

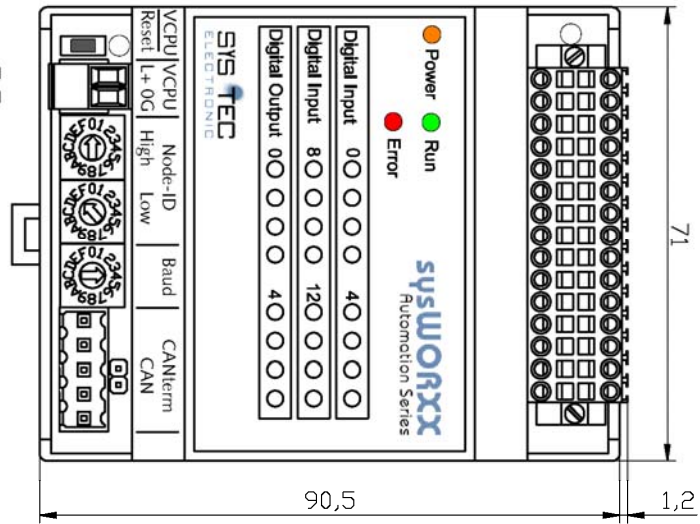
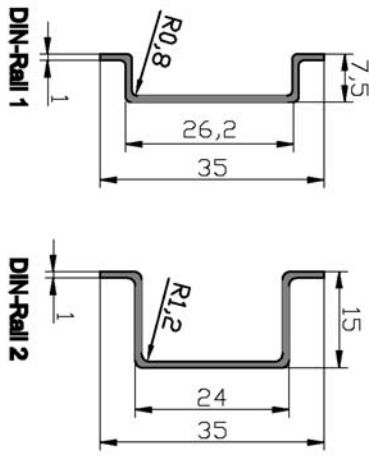
Object Dictionary

Index	Object	Name	Data type	Object is mappable	Object gets saved via 1010H	Object gets Restored via 1011H
1000H	Var	Device type	Unsigned32	-	-	-
1001H	Var	Error register	Unsigned8	-	-	-
1003H	Array	Pre-defined error field	Unsigned32	-	-	-
1005H	Var	COB-ID SYNC message	Unsigned32	-	x	x
1007H	Var	Synchronous window length	Unsigned32	-	x	x
1008H	Var	Manufacturer device name	String	-	-	-
1009H	Var	Manufacturer hardware version	String	-	-	-
100AH	Var	Manufacturer software version	String	-	-	-
100CH	Var	Guard Time	Unsigned16	-	x	x
100DH	Var	Life Time Factor	Unsigned8	-	x	x
1010H	Array	Store parameters	Unsigned32	-	-	-
1011H	Array	Restore default parameters	Unsigned32	-	-	-
1014H	Var	COB-ID EMCY	Unsigned32	-	x	x
1016H	Array	Consumer Heartbeat Time	Unsigned32	-	x	x
1017H	Var	Producer Heartbeat Time	Unsigned16	-	x	x
1018H	Record	Identity object	Identity	-	-	-
1029H	Array	Error behavior object	Unsigned8	-	x	x
1200H	Record	1st SDO Server Parameter	SDO Parameter	-	-	-
1400H	Record	RPDO1 Communication parameter	PDOComPar	-	x	x
1401H	Record	RPDO2 Communication parameter	PDOComPar	-	x	x
1600H	Record	RPDO1 Mapping parameter	PDOMapPar	-	x	x
1601H	Record	RPDO2 Mapping parameter	PDOMapPar	-	x	x
1F51H	Var	ProgramControl	Unsigned8	-	-	-
2000H	Var	NMT Boot Configuration	Unsigned8	-	-	-
2001H	Array	Channel Calibration	Integer16	-	-	-
2002H	Var	Power Fail Configuration	Unsigned8	-	x	x
2400H	Array	for production only	Real32	-	x	x
2500H	Record	RPDO2 Mapping parameter		-	-	-
6301H	Array	AO Physical unit PV	Unsigned32	-	x	x
6302H	Array	AO Decimal digits PV	Unsigned8	-	x	x
6310H	Array	AO Output Type	Unsigned16	-	x	x
6340H	Array	AO Fault mode	Unsigned8	-	x	x
7300H	Array	AO Output PV	Integer16	x	-	-
7341H	Array	AO Fault FV	Integer16	-	x	x

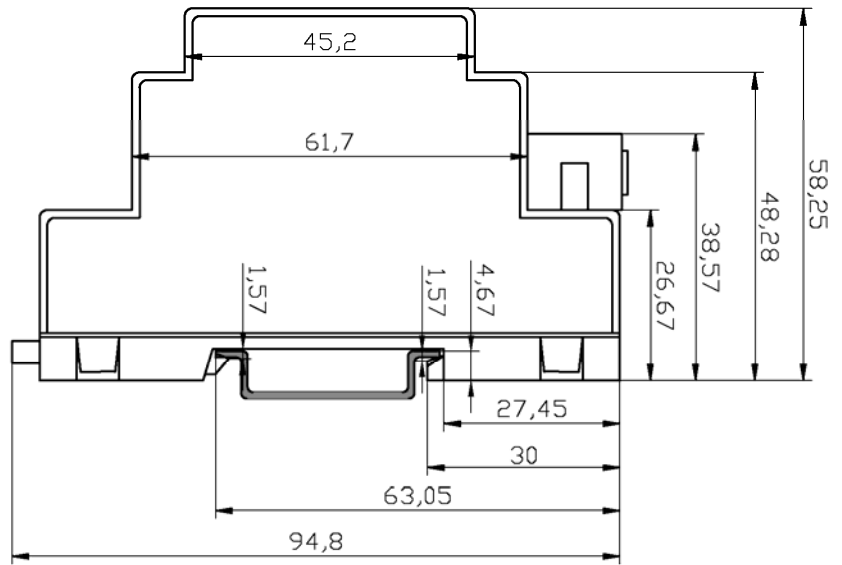
IO circuitry



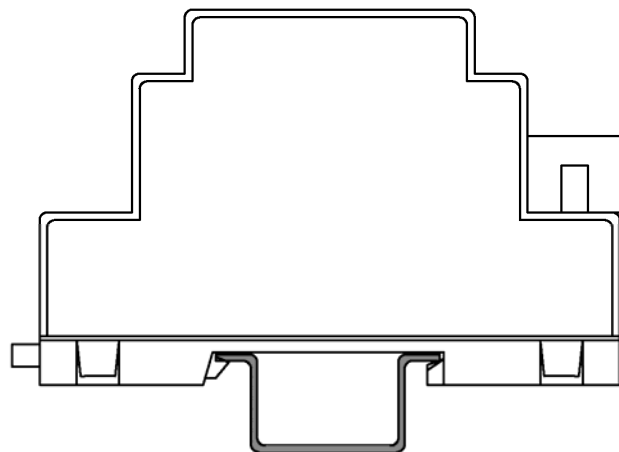
Device dimensions



With DIN-Rail 1



With DIN-Rail 2



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