

Instruction Manual

Specification 622194

Inclination Sensor with CAN- oder CANopen-Interface

2E mechatronic GmbH&Co.KG
Maria-Merian-Str. 29
D-73230 Kirchheim/Teck

Phone +49/(0)7021/9301-0
Fax +49/(0)7021/9301-70
eMail info@2E-mechatronic.de
web www.2E-mechatronic.de

Contents

- Specification 622194 1
- Declaration of Conformity..... **Fehler! Textmarke nicht definiert.**
 - CE-Conformity 2
- General..... **Fehler! Textmarke nicht definiert.**
- Safety Instructions..... 2
- Technical Data 2
- Installation/Assembly..... 3
- Electrical Connector 4
- Operation **Fehler! Textmarke nicht definiert.**
 - NMT Manager 4
 - Pre-Operational..... 4
 - Operational..... 4
 - Stopped 4
 - Node-ID setting 5
 - Baud rate setting 5
- Operation and Communication..... 6
 - CANopen standard-functions..... 6
 - The process data object (PDO) 6
 - The service data object (SDO) 7
 - CANopen fault and safety functions..... 7
 - Error messages **Fehler! Textmarke nicht definiert.**
 - The heartbeat function..... 8
 - CANopen profile-specific functions..... 8
 - Direction of rotation and scaling..... 8
 - Zero point **Fehler! Textmarke nicht definiert.**
 - Additional Offset 9
- Object directory..... 10

| | |
|-------------------------------------|---|
| Standard network objects | 10 |
| Manufacturer-specific objects | 12 |
| Profile-specific objects | Fehler! Textmarke nicht definiert. |
| Service | 12 |

1 vom 04.02.2014

Declaration of Conformity

CE-Conformity

This product has been developed and manufactured in accordance with current European standards and guidelines.

Note: A Declaration of Conformity can be requested separately.

General

The inclination sensor 622194 is an instrument used to control the inclination angle of a reference axis.

The product should be examined for any possible damage that may have occurred during transportation. Should any damage have occurred, please contact the transportation company or „E mechatronic without delay.

Read the instruction carefully. Familiarize yourself with the device before assembling, installing and operating.

The following assembly and operation instruction have been carefully drafted, however, it is not possible to cover every conceivable eventuality. Therefore, if you have any queries regarding the product or its application we can be contacted at our internet address (www.2E-mechatronic.de) or one of our contact personnel for further information.

The Sensor should be operated and installed in accordance with the instructions given in order to guarantee that the device and the connected systems operate safely. The safety of operating personnel and equipment can only be guaranteed when the device is used for the purpose which it was intended for.

Furthermore the national regulations are to be followed. (e.g. VDE0100) Shielded cables should be used for connecting the device.

Safety Instructions

Responsibility for safe planning, assembly, operating and maintenance lies with the equipment user.

The installation and operation of all devices should only be carried out by qualified personnel. Changes or modifications which are not expressly approved in the operation manual and are made without permission could void the warranty and manufacturer's liability. Should a severe disturbance occur, the device should be taken out of operation immediately and protected against accidental reuse. If such an occurrence should happen the device should be sent to 2E mechatronic for repair.

Technical Data

For complete specifications please refer to the data sheet. (Included in delivery or at www.2E-mechatronic.de)

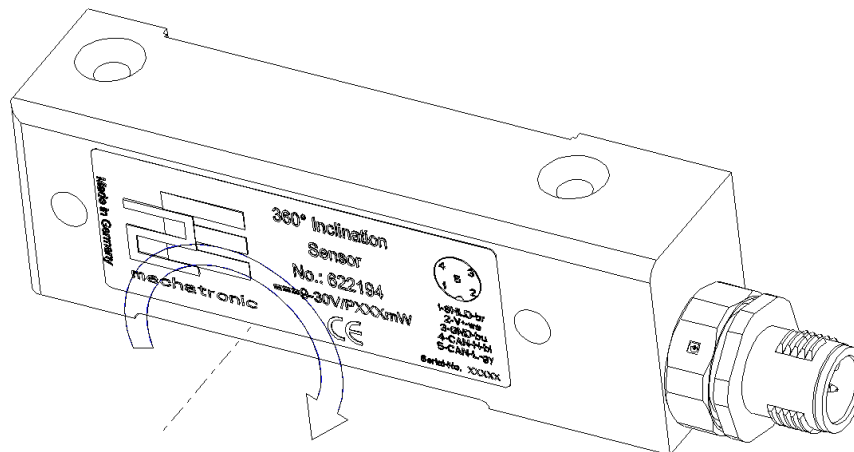
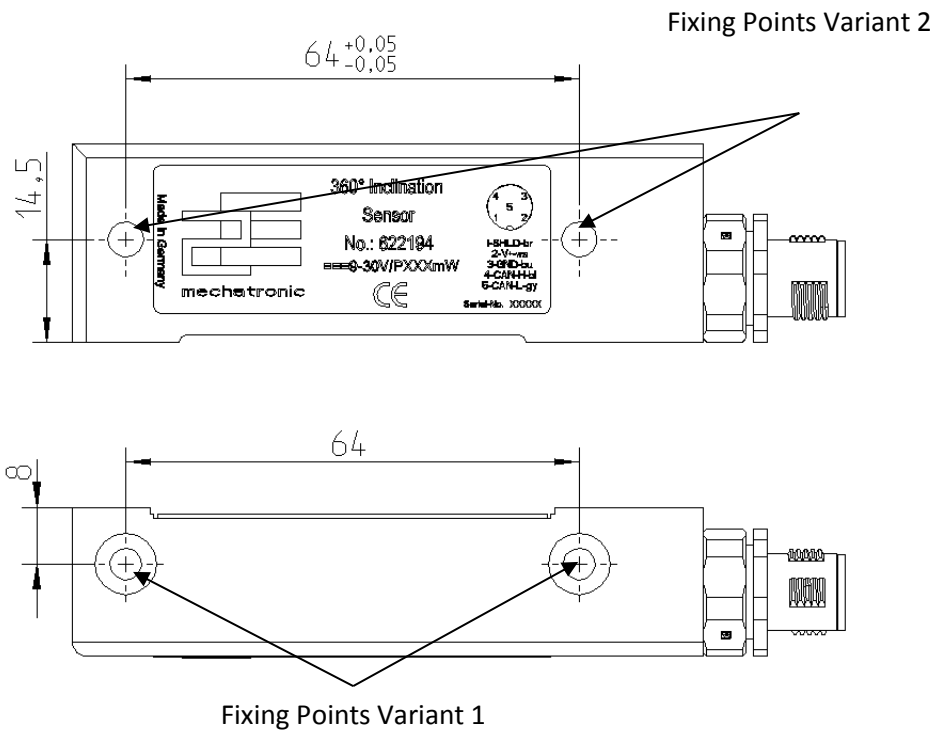
This is a Protection Class IP67 device.

Installation/Assembly

The Sensor can be mounted on the target unit in 2 ways, both perpendicular and parallel to the axis rotation.

Variation 1 (Perpendicular to axis): First, ensure that the surface is clean. Then, mount the Sensor using 2 flat head screws (max. $\varnothing 4.5$ mm thread diameter) to the target unit.

Variation 2 (Parallel to axis) mount the sensor using 2 elements (e.g. head shoulder screws or pin) fitting an inner diameter of $\varnothing 5H7$.

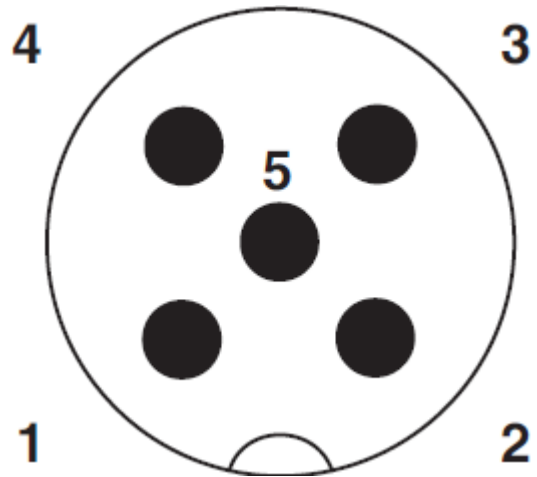


Electrical Connector

Sensor-/Actor-Panel Connector 5 pol. M12x1 with SPEEDCON-Connection, A-coded

Standard: M12-Connectors IEC 61076-2-101

Voltage requirements: 9 – 32 V DC
 Power Consumption at 9V DC: 20mA
 Power Consumption at 32V DC: 9mA



Description of all input and output ports / terminals

| Variant | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 |
|----------------------------|------------------|--------|---------|-------|-------|
| color | - | White | Blue | Black | Grey |
| 622194 kNS Standard CAN | not connected | CAN_V+ | CAN_GND | CAN-H | CAN-L |

Operation

NMT Manager

Die CANopen standard CiA301 specifies three possible states for the sensor node.

- Pre-Operational
- Operational
- Stopped

The node can be set to any of these states required. When activated, a sensor always starts in operational state and issues a startup message.

Example of a startup message:

| 701h | 00h | xxh | xxh | xxh | xxh | xxh | xxh | xxh |
|--------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| CAN-ID | Status | ungenutzt | | | | | | |
| | Daten- byte 1 | Daten- byte 2 | Daten- byte 3 | Daten- byte 4 | Daten- byte 5 | Daten- byte 6 | Daten- byte 7 | Daten- byte 8 |

CAN ID: 701h, status message of node with Node-ID 1

Status: 00h, Sensor started

Pre-Operational

PDO messages (process data) cannot be sent in pre-operational state, which is why it is used to parameterize the sensor or indicate a standby state.

Operational

Operational state is used to perform all communication services as well as replace process data during operation.

Stopped

In stopped state, only NMT messages (network management) can be issued. Redundant or defective sensors can be isolated from the bus almost completely in this state.

The master or network manager can issue NMT messages to prompt the sensor to change from one state to another. Other NMT functions include two reset commands for resetting the entire sensor or bus communication only.

Example of a NMT message sent by the master:

| | | | | | | | | |
|--------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 000h | 80h | 01h | xxh | xxh | xxh | Xxh | xxh | xxh |
| CAN-ID | Command | Node | Not used | | | | | |
| | Data byte 1 | Data byte 2 | Data byte 3 | Data byte 4 | Data byte 5 | Data byte 6 | Data byte 7 | Data byte 8 |

CAN ID: 000h, NMT-message from the master

Command: 80h, switch to pre-operational state

Command: 02h, switch to stopped state

Command: 01h, switch to operational state

Command: 82h, reset communication

Command: 81h, reset sensor

Node: 01h - 7Fh, to activate nodes 1...127 individually

Node: 00h, to activate all nodes in the network simultaneously

Node-ID setting

Inclination sensors by 2E mechatronic are supplied with node ID 1. To change the node ID, write the new node ID to object 2020h sub index 1 "Node ID".

If a "Reset Sensor" command is issued via an NMT message or the power supply is interrupted, the sensor operates with the new node ID. Node-ID values between 1 and 127 can be sent in hexadecimal format (01h ... 7Fh). Invalid values are not adopted. In this case, the current setting is retained.

Example of modifying node ID from 1 to 15:

| | | | | | | | | |
|--------|-------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 601h | 22h | 20h | 20h | 01h | 0Fh | Xxh | xxh | xxh |
| CAN-ID | Command | Object index | | Sub index | New ID | Not used | | |
| | Data byte 1 | Data byte 2 | Data byte 3 | Data-byte 4 | Data byte 5 | Data byte 6 | Data byte 7 | Data byte 8 |

CAN ID: 601h, SDO1 channel of node 1

Command: 22h, write object, up to 7 byte of usable data

Object index: 2020h, note: low byte first, then high byte!

Subindex: 01h, Node-ID

New ID: 0Fh, only values between 01h ... 7Fh (1 ... 127) permitted

Baud rate setting

Inclination sensors by 2E mechatronic are supplied with baud rate of 250 kbit/s. To change the baud rate, write the new baud rate to object 2020h Sub-Index 2 "Bit Time".

If a "Reset Sensor" command is issued via an NMT message or the power supply is interrupted, the sensor operates at the new baud rate. The inclination sensor supports the baud rates 10 kbit/s, 20 kbit/s, 50 kbit/s, 100 kbit/s, 125 kbit/s, 250 kbit/s, 500 kbit/s and 1 Mbit/s. Invalid values are not adopted. In this case, the current setting is retained.

Example of modifying the baud rate from 250kBit/s to 500kBit/s:

| | | | | | | | | |
|--------|-------------|--------------|-------------|-------------|---------------|-------------|-------------|-------------|
| 601h | 22h | 20h | 20h | 02h | 04h | xxh | xxh | xxh |
| CAN-ID | Command | Object index | | Sub index | New baud rate | Not used | | |
| | Data byte 1 | Data byte 2 | Data byte 3 | Data byte 4 | Data byte 5 | Data byte 6 | Data byte 7 | Data byte 8 |

CAN ID: 601h, SDO1 channel of node

Command: 22h, write object, up to 7 Byte usable data

Object index: 2020h, note: low byte first, then high byte!

Subindex: 02h

new baud rate: 00h for 1MBit/s

new baud rate: 02h for 500 kbit/s

new baud rate: 03h for 250 kbit/s

new baud rate: 04h for 125 kbit/s

new baud rate: 05h for 100 kbit/s

new baud rate: 06h for 50 kbit/s

new baud rate: 07h for 20 kbit/s

new baud rate: 08h for 10 kbit/s

Operation and communication

Inclination sensors from 2E mechatronic use the CANopen profile for CiA410 inclination sensors

CANopen standard functions

The process data object (PDO)

A maximum of 8 bytes useable data can be sent in each message using the process data object (PDO). This feature is only available in operational state and can be activated in different modes that were set using objects 1800h "Transmit PDO 1 Parameter". The PDO message can be sent automatically with each new value or each nth SYNC message. The CAN identifier for this feature, which is defined as 180h + node ID by default, can also be modified.

Example of a PDO1-message:

| | | | | | | | | |
|--------|----------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 185h | 25h | 05h | xxh | xxh | xxh | Xxh | xxh | xxh |
| CAN-ID | Angle in X direction | | Not used | | | | | |
| | Data byte 1 | Data byte 2 | Data byte 3 | Data byte 4 | Data byte 5 | Data byte 6 | Data byte 7 | Data byte 8 |

CAN ID: 185h, PDO1 channel for node 5

Angle in X direction: 0525h, corresponds to 131.7°, note: low byte first, then high byte!

Example of modifying the transfer method for the PDO1 message:

| | | | | | | | | |
|--------|-------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 601h | 22h | 00h | 18h | 02h | FDh | xxh | xxh | xxh |
| CAN-ID | Command | Object index | | Sub index | New value | Not used | | |
| | Data byte 1 | Data byte 2 | Data byte 3 | Data byte 4 | Data byte 5 | Data byte 6 | Data byte 7 | Data byte 8 |

CAN ID: 601h, SDO1 channel of node 1

Command: 22h, write object, up to 7 bytes usable data

Object index: 1800h, note: low byte first, then high byte!

Subindex: 02h, transfer method

new value: 01h... F0h, send for each 1. ... 240th. SYNC-message

new value: FFh, send after each calculation

The service data object (SDO)

Inclination sensors by 2E mechatronic are supplied with service data channel 1 as required by CiA301. The channel is preset permanently to CAN IDs 580h+ node ID for sending and 600h+ node ID for receiving. A maximum of four bytes of usable data can be transmitted in a single message. Larger quantities of data are divided among several messages.

Example of writing an object with max. 4 bytes of data:

| | | | | | | | | |
|--------|-------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 601h | 2Bh | xxh | xxh | xxh | xxh | xxh | xxh | xxh |
| CAN-ID | Command | Object index | | Subindex | Usable data | | | |
| | Data byte 1 | Data byte 2 | Data byte 3 | Data byte 4 | Data byte 5 | Data byte 6 | Data byte 7 | Data byte 8 |

CAN ID: 601h, SDO1 channel of node 1

Command: 2Fh, write object, 1 byte of usable data

Command: 2Bh, write object, 2 bytes of usable data

Command: 27h, write object, 3 bytes of usable data

Command: 23h, write object, 4 bytes of usable data

Example of reading an object with max. 4 bytes of data:

| | | | | | | | | |
|--------|-------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 601h | 40h | xxh | xxh | xxh | xxh | xxh | xxh | xxh |
| CAN-ID | Command | Object index | | Sub index | Not used | | | |
| | Data byte 1 | Data byte 2 | Data byte 3 | Data byte 4 | Data byte 5 | Data byte 6 | Data byte 7 | Data byte 8 |

CAN ID: 601h, SDO1 channel for node 1

Command: 40h, read object, 1 ... 4 bytes of usable data

CANopen fault and safety functions

The inclination sensor includes the safety function heartbeat along with standard emergency messages. With the heartbeat function, the sensor sends status messages automatically at definable intervals. Other nodes or the master can identify a node error immediately by detecting that status messages are missing. The heartbeat function can also be used in networks without masters.

Error messages

Error messages are sent via the CAN identifier 080h+ node number as standard. This setting can be modified using object 1014h "COB-ID Emergency" in the object directory of the sensor.

Example of an error message sent by the inclination sensor:

| | | | | | | | | |
|--------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 081h | 01h | FFh | 11h | xxh | xxh | xxh | xxh | xxh |
| CAN-ID | Error code | | Error field | Not used | | | | |
| | Data byte 1 | Data byte 2 | Data byte 3 | Data byte 4 | Data byte 5 | Data byte 6 | Data byte 7 | Data byte 8 |

CAN ID: 081h, error message of node with node number 1

Error code: FF01h, error code „Longitudinal sensor is defect“

Error field: 11h, corresponds with the error code stored in the object 1001h

Tabelle der unterstützten Fehlercodes:

| Error code | Meaning |
|------------|-------------------------------|
| FF01h | Longitudinal sensor is defect |

The heartbeat function

The interval after which status messages are sent, can be preset via the object 1017h "Producer Heartbeat Time". The function is deactivated if the entry is 0. Every other 32-bit value determines the heartbeat interval in milliseconds.

Example of a heartbeat message:

| | | | | | | | | |
|--------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 709h | 04h | xxh | xxh | xxh | xxh | xxh | xxh | xxh |
| CAN-ID | Status | Not used | | | | | | |
| | Data byte 1 | Data byte 2 | Data byte 3 | Data byte 4 | Data byte 5 | Data byte 6 | Data byte 7 | Data byte 8 |

CAN ID: 709h, status message of node with der node-ID 9

Status: 7Fh, sensor in "Pre-Operational" state

Status: 04h, sensor in "Stopped" state

Status: 05h, sensor in "Operational" state

Status: 00h, sensor in "Boot-Up" state

Example of changing the „Producer Heartbeat Time“:

| | | | | | | | | |
|--------|-------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 601h | 22h | 17h | 10h | 00h | xxh | xxh | xxh | xxh |
| CAN-ID | Command | Object index | | Subindex | New value | | | |
| | Data byte 1 | Data byte 2 | Data byte 3 | Data byte 4 | Data byte 5 | Data byte 6 | Data byte 7 | Data byte 8 |

CAN ID: 601h, SDO1 channel of node number 1

Command: 22h, write object, up to 7 bytes usable data

Object index: 1017h, note: low byte first, then high byte!

Subindex: 00h

new value: new heartbeat interval in milliseconds

CANopen profile specific functions

Inclination sensors by 2E mechatronic use the CANopen profile for CiA410 for inclination sensors. In addition to the defined object directory tree from address 6000h, this profile offers alternative methods of specifying the zero point, direction of rotation and offset. The inclination angle is stored in the respective object 6010h as a 16-bit value with two decimal points and sent via PDO message

Sequence of calculation steps, if used:

Change in direction of rotation through 360-x

Zero point shift by adding the offset [6013]

Addition of extra offset [6014]

Direction of rotation and scaling

The relevant direction of rotation and scaling are controlled via bits in object 6011h "Operating mode X" for the X value. Bit 0 represents the direction of rotation and bit 1 the activation of scaling functions such as zero point and additional offset.

Example pf modifying the direction of rotation and scaling

| | | | | | | | | |
|--------|-------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 601h | 22h | 11h | 60h | 00h | 02h | xxh | xxh | xxh |
| CAN-ID | Command | Object index | | Subindex | New value | Not used | | |
| | Data byte 1 | Data byte 2 | Data byte 3 | Data byte 4 | Data byte 5 | Data byte 6 | Data byte 7 | Data byte 8 |

CAN ID: 601h, SDO1 channel of node 1

Command: 22h, write object, up to 7 bytes of usable data

Object index: 6011h, operating mode X, note: low byte before high byte

Subindex: 00h, operating mode X

new value: 00h, original direction of rotation and scale deactivated
 new value: 01h, reverse direction of rotation and scaling deactivated
 new value: 02h, original direction of rotation and scale activated
 new value: 03h, reverse direction of rotation and scaling activated

Zero point

To set the zero point, the sensor must be turned to the required position and the zero value written to the object 6012h "Zero point X". The sensor calculates the required zero point offset and transfers this value to object. If bit 1 for activating the scaling is set in object 6011h, the offset is added to the respective angle. This process can also be performed using target values that deviate from zero and fall within the range 0...359.99°.

Example of modifying the zero point:

| | | | | | | | | |
|--------|-------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 601h | 22h | 12h | 60h | 00h | 00h | 00h | xxh | xxh |
| CAN-ID | Command | Object index | | Subindex | New value | | Not used | |
| | Data byte 1 | Data byte 2 | Data byte 3 | Data byte 4 | Data byte 5 | Data byte 6 | Data byte 7 | Data byte 8 |

CAN ID: 601h, SDO1 channel of node 1
 Command: 22h, write object, up to 7 bytes of usable data
 Object index: 6012h, zero point X, note: low byte before high byte
 Subindex: 00h, operating mode X
 New target value: 00h, target angle in current position 0...359.99°

Additional offset

Another feature is that an additional offset from object 6014h "Additional offset X" can be added to the angle value.

A prerequisite is the activation of scaling in object 6011h. The applicable value range here is -359.99° ... 359.99°.

Example of modifying an additional offset:

| | | | | | | | | |
|--------|-------------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 601h | 22h | 14h | 60h | 00h | 38h | FFh | xxh | xxh |
| CAN-ID | Command | Object index | | Subindex | New value | | Not used | |
| | Data byte 1 | Data byte 2 | Data byte 3 | Data byte 4 | Data byte 5 | Data byte 6 | Data byte 7 | Data byte 8 |

CAN ID: 601h, SDO1 channel of 1
 Command: 22h, write object, up to 7 bytes of usable data
 Object index: 6014h, additional offset X, note: low byte before high byte!
 Subindex: 00h
 new target value: FF38h, corresponds to -20.0°, valid range -359.99°...359.99°

Object directory

Standard network objects

| Index | Sub-Index | Parameter | Data type | Access | Default | Description |
|-------|-----------|--------------------------------------|-------------|--------|-----------|-----------------|
| 1000 | 00h | device type | unsigned 32 | rw | | |
| 1001 | 00h | error register | unsigned 8 | ro | | |
| 1005 | 00h | COB-ID SYNC message | unsigned 32 | rw | | |
| 1008 | 00h | Manufacturer device name | string | rw | | |
| 1009 | 00h | Manufacturer hardware version | string | rw | | |
| 100A | 00h | Manufacturer software version | string | rw | | |
| 1010 | | Store parameters | | | | |
| | 00h | Highest sub-index supported | unsigned 8 | ro | 4 | |
| | 01h | save all parameters | unsigned 32 | rw | | |
| | 02h | save communication parameters | unsigned 32 | rw | | |
| | 03h | save application parameters | unsigned 32 | rw | | |
| | 04h | save manufacturer defined parameters | unsigned 32 | rw | | |
| 1014 | 00h | COB-ID emergency message | unsigned32 | rw | | |
| 1017 | 00h | Producer heartbeat time | unsigned16 | rw | | |
| 1018 | | Identity object | | | | |
| | 00h | Highest sub-index supported | unsigned 8 | ro | 4 | |
| | 01h | Vendor-ID | unsigned32 | rw | 0000007Ch | |
| | 02h | Product code | unsigned32 | rw | 622194 | |
| | 03h | Revision number | unsigned32 | rw | 1 | |
| | 04h | Serial number | unsigned32 | rw | 1 | |
| 1200 | | SDO server parameter | | | | |
| | 00h | Highest sub-index supported | | const | 2 | |
| | 01h | COB-ID client -> server (rx) | | const | 601h | 600h + node ID. |
| | 02h | COB-ID server -> client (tx) | | ro | 581h | 580h + node ID |
| 1800 | | TPDO 1 communication parameter | | | | |
| | 00h | highest sub-index supported | | const | 5 | |
| | 01h | COB-ID used by TPDO | unsigned32 | rw | | |
| | 02h | transmission type | unsigned32 | rw | | |
| | 03h | inhibit time | unsigned32 | rw | | |
| | 04h | reserved | unsigned 8 | rw | | |
| | 05h | event timer | unsigned32 | rw | | |
| 1801 | | TPDO 2 communication parameter | | | | |
| | 00h | highest sub-index supported | | const | 5 | |
| | 01h | COB-ID used by TPDO | unsigned32 | rw | | |
| | 02h | transmission type | unsigned32 | rw | | |
| | 03h | inhibit time | unsigned32 | rw | | |
| | 04h | reserved | unsigned 8 | rw | | |
| | 05h | event timer | unsigned32 | rw | | |

| | | | | | | |
|-----------|-----|---|------------|-------|-------------------|--|
| 1802 | | TPDO 3 communication parameter | | | | |
| | 00h | highest sub-index supported | | const | 5 | |
| | 01h | COB-ID used by TPDO | unsigned32 | rw | | |
| | 02h | transmission type | unsigned32 | rw | | |
| | 03h | inhibit time | unsigned32 | rw | | |
| | 04h | reserved | unsigned 8 | rw | | |
| | 05h | event timer | unsigned32 | rw | | |
| 1803 | | TPDO 4 communication parameter | | | | |
| | 00h | highest sub-index supported | | const | 5 | |
| | 01h | COB-ID used by TPDO | unsigned32 | rw | | |
| | 02h | transmission type | unsigned32 | rw | | |
| | 03h | inhibit time | unsigned32 | rw | | |
| | 04h | reserved | unsigned 8 | rw | | |
| | 05h | event timer | unsigned32 | rw | | |
| 1A00 | | TPDO 1 mapping parameter | | | | |
| | 00h | number of mapped application objects in TPDO | unsigned 8 | const | 1 | |
| | 01h | 1st application object | unsigned32 | const | 60100010h | |
| 1A01 | | TPDO 2 mapping parameter | | | | |
| | 00h | number of mapped application objects in TPDO | unsigned 8 | const | 1 | |
| | 01h | 1st application object | unsigned32 | const | 60100010h | |
| 1A02 | | TPDO 3 mapping parameter | | | | |
| | 00h | number of mapped application objects in TPDO | unsigned 8 | const | 3 | |
| | 01h | 1st application object | unsigned32 | const | 20050110 | |
| | 02h | 2nd application object | unsigned32 | const | 20000118 | |
| | 03h | 3rd application object | unsigned32 | const | 20000218 | |
| 1A03 | | TPDO 4 mapping parameter | | | | |
| | 00h | number of mapped application objects in TPDO | unsigned 8 | const | 3 | |
| | 01h | 1st application object | unsigned32 | const | 20050210 | |
| | 02h | 2nd application object | unsigned32 | const | 20050310 | |
| | 03h | 3rd application object | unsigned32 | const | 20010118 | |
| (CiA 302) | | CANopen manager functionality (specification partly released) | | | | |
| 1F80 | 00h | NMT Startup behaviour | unsigned32 | rw | 0Ch (operational) | 00h (pre-operational) 0Ch (operational) |

Manufacturer specific objects

| Index | Sub-Index | Parameter | Data type | Access | Default | Description |
|-------|-----------|-----------------------------|-----------|--------|---------|--|
| 2020 | | Node-ID und Bit Time | | | | |
| | 00h | highest sub-index supported | unsigned8 | const | 2 | |
| | 01h | Node-ID | unsigned8 | r/w | 1 | |
| | 02h | Bit Time | unsigned8 | r/w | 3 | 0: 1MBit/s 2: 800 kBit/s 2: 500 kBit/s 3: 250 kBit/s 4: 125 kBit/s 5: 100 kBit/s 6: 50 kBit/s 7: 20kBit/s 8: 10 kBit/s |

Profile specific objects

| Index | Sub-Index | Parameter | Data type | Access | Default | Description |
|-------|-----------|----------------------------------|-------------|--------|---------|---|
| 6000 | | Resolution | unsigned 16 | r/w | 10 | Multiple of 0,001° |
| 6010 | | Slope long16 | int 16 | ro | - | |
| 6011 | | Slope long16 operating parameter | unsigned 8 | r/w | 00h | Bit0: direction of rotation reversal Bit1: activate zero point shift |
| 6012 | | Slope long16 preset value | int 16 | r/w | 00h | Target value for current position |
| 6013 | | Slope long16 offset | int 16 | r/w | 00h | Offset for zero point shift |
| 6014 | | Differential Slope long16 offset | int 16 | r/w | 00h | additional Offsetwert |

Service

The Sensor is maintenance free.

Please contact the following if required:

2E mechatronic GmbH&Co.KG
Maria-Merian-Str. 29
D-73230 Kirchheim/Teck

Tel. +49/(0)7021/9301-0
Fax. +49/(0)7021/9301-70
eMail info@2E-mechatronic.de
www.2E-mechatronic.de