Encoder board TKN46-4096R1024C2CN25 with CANopen interface

SUPREME SENSORING
TWK

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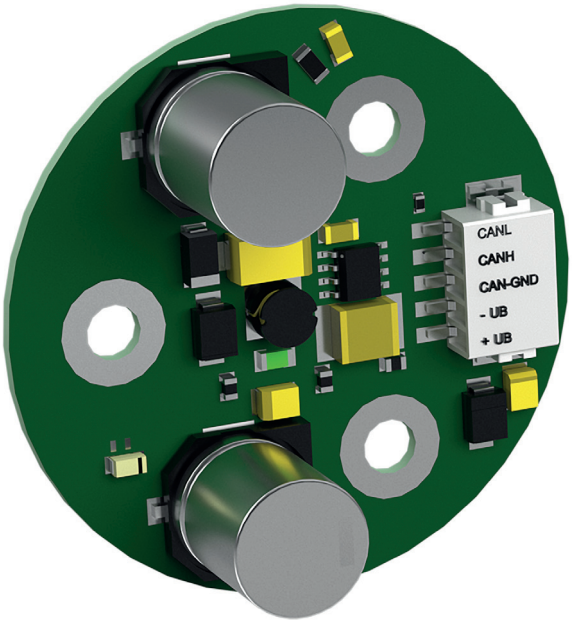

- **Contactless, wear-free sensor system according to the Hall principle**
- **CANopen interface according to CiA, Device Profile for Encoders DS 406**
- **Model TKN 46: construction set consisting of printed circuit board and magnet**
- **Resolution: 4096 steps/ 360° (12-bit)**
- **Measuring range: 1024 turns**
- **With speed signal**
- **Protection type: IP 00**
- **Operating temperature: - 40 °C to + 85 °C**

Design and function

Acquisition of the angle position via a Hall sensor and signal processing including generation of the output signal - Detection of turns via counter and non volatile memory - Output of position and speed, dimension: digits per 100 ms - Electrical connection via a spring-type terminal - A CAN controller at the output enables integration into the CANopen network - According to "CANopen Application Layer and Communication Profile, CiA Draft Standard 301, Version 4.1" and according to "Device Profile for Encoders CiA Draft Standard Proposal 406, Version 3.0" and "CANopen Layer Setting Services and Protocol (LSS), CiA DSP 305".

Note

The number of turns will be collected in a counter. In case of power loss the value is saved in non volatile memory. Without power supply a rotary motion of ≤ ±90° can be detected after power on.

CANopen Features

NMT Master:	No
NMT-Slave:	Yes
Maximum Boot up:	No
Minimum Boot up:	Yes
COB ID Distribution:	Default, SDO
Node ID distribution:	Via Index 2000 or LSS
No. of PDOs:	2 Tx
PDO modes:	Sync, async, cyclic, acyclic
Variable PDO mapping:	No
Emergency message:	Yes
Heartbeat:	No
Node guarding:	Yes
No. of SDOs:	1 Rx / 1 Tx
Device profile:	CiA DSP 406 version 3.0

The details of the revised profile are exhaustively described in the TXN 11551 user manual.

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Technical data

Output data

- Position: 4 Byte
- Speed: 2 Byte

Programmable parameters

- Code sense: cw / ccw
- Resolution: 1 to 4096 steps / turn
- Total measuring range: 1 to 4.194.304 steps
- Reference value: 0 to total measuring steps -1

Electrical data

- Sensor system: ASIC with Hall elements (12-bit resolution)
- EMC standards: EN 61 000-6-4 interference emission
EN 61 000-6-2 interference immunity
- Operating voltage range: + 9 VDC to + 30 VDC
- Operating current: 70 mA typ. / 100 mA max.
- Resolution: 4096 steps / 360° - (12 bit)
- Measuring range: 1024 turns
- Linearity: ≤ ± 0.5% of 360°
- Reproducibility: ≤ ± 0.05%
- Temperature drift: < ± 0.2% of one turn for the entire temperature range
- Output code: Binary
- Code path: CW/CCW
- Reference value: 0 to (total number of steps -1)
- Speed value: steps / 100 ms (gate time: 100 ms, 16 bit value)
- CAN interface: According to ISO/DIS 11898
- Address setting: Via SDO or LSS
- Terminating resistor: To be implemented separately
- Max. transmission length: 200 m*

Mechanical data

- Weight: Approx. 0.200 kg

Environmental data

- Operating temperature range - 40 °C to + 85 °C
- Storage temperature range: - 20 °C to + 60 °C (due to packaging)
- Resistance:
  - To shock: 500 m/s²; 11 ms
DIN EN 60068-2-27
  - To vibration: 10 Hz ... 2000 Hz; 100 m/s²
DIN EN 60068-2-6
- Protection type (DIN EN 60529): IP 00

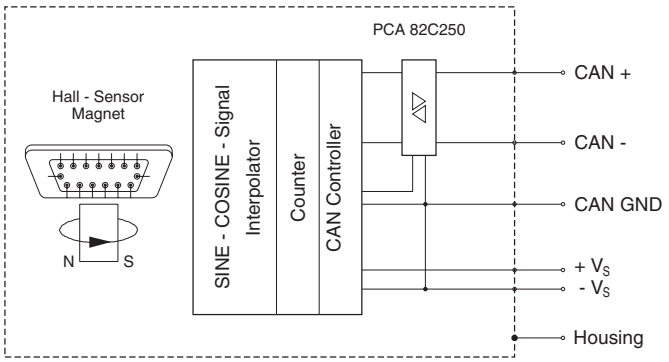
Electrical connection (2 versions)

- spring-type terminal, 5-pin, max. 0.5 mm²

* No galvanic separation between supply voltage and bus lines (also see CiA DS301).

Electrical connection

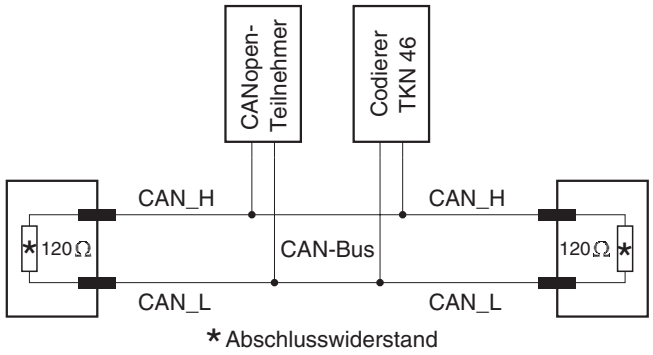
Principle circuit diagram



Connection

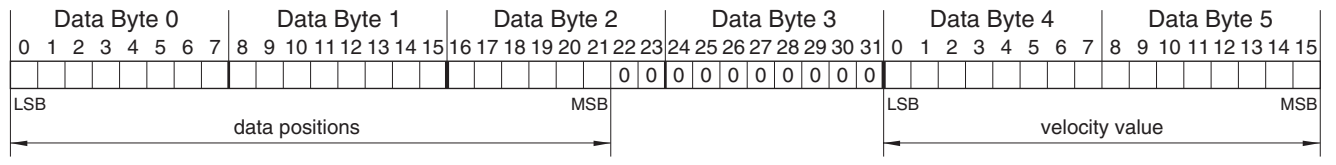
Pin number	Signal
1	+V_S (+24 VDC)
2	-V_S (0 VDC)
3	CAN GND
4	CAN +
5	CAN -

Bus activation according to ISO / DIS 11898

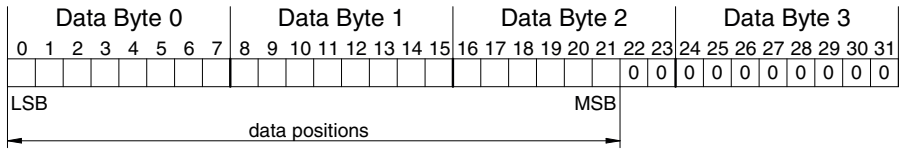


Data profiles PDO1 / PDO2

With speed signal



Without speed signal



Encoder board TKN46-4096R1024C2CN25

Order number

TKN	46	-	4096	R	1024	C2	C	N	25	
										Electrical and / or mechanical variants* Standard
									25	See pre-programming below
										Interface: N CANopen
										Electrical connection: C spring-type terminal
										Profile: C2 CANopen according to CiA, DS 406 revision 3.0
										Measuring range 1024 turns
										Output code: R Binary
										Resolution: 4096 Steps / revolution
										Design form: 46 ø 46 mm
										TKN Model TKN with CANopen interface

Scope of delivery (see drawing)

- Printed circuit board
- Magnet RM44

Pre-programming

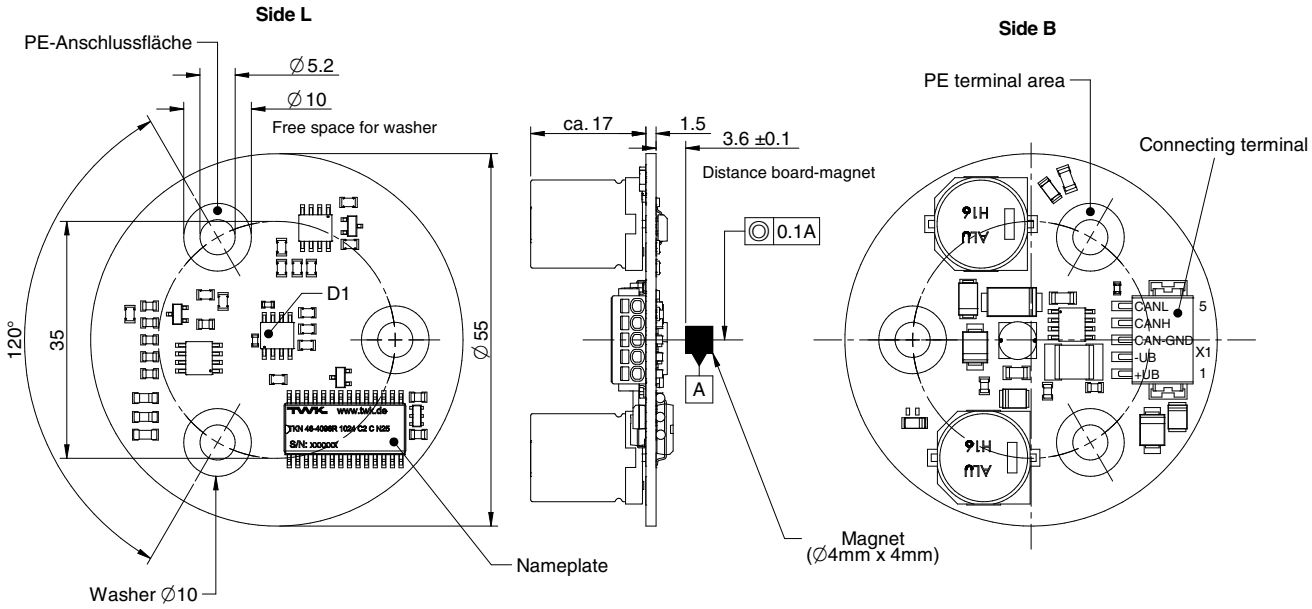
	Baudrate	Node-ID	Power supply	CANopen Objects
TKN46-4096R1024C2CN25	250 kBaud	18	9 ... 30 VDC	Node guarding, Cycle time = 100 ms, Transmission types: PDO1 = 253, PDO2 switched off

* The basic versions according to the data sheet bear the number 01. Deviations are identified with a variant number and are documented in the factory.

Installation drawing

Order number: TKN46-4096R1024C2CN25

Dimensions in mm



D1 = Sensor-IC
Component height side L: < 2.6mm