

New CANopen Interface for RFC-4800 series



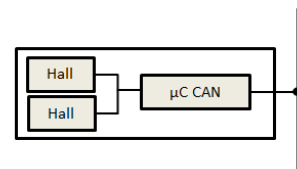
1 Why CANopen?

The fieldbus CANopen is commonly used in mobile applications as a reliable, robust and standardized option for data transfer. It was therefore implemented as an interface into the rotary sensor series RFC-4800 and offers in addition to the known fieldbus functionalities (immunity to interference, less cabling, diagnostics, etc.) additional benefits such as cam function, change of counting direction or setting of offset and work areas.

2 Technical Features

- The CANopen interface according to CiA DS-301 V4.2.0 with device profile DS-406 V3.2 is offered with a position and a speed signal for one or two channel versions.

- The 2-channel version uses a redundant Hall chip and one CAN controller, i.e. the redundancy refers to the generation of the angle information. Channel 1 and channel 2 are separated from each by subindices within one node ID.

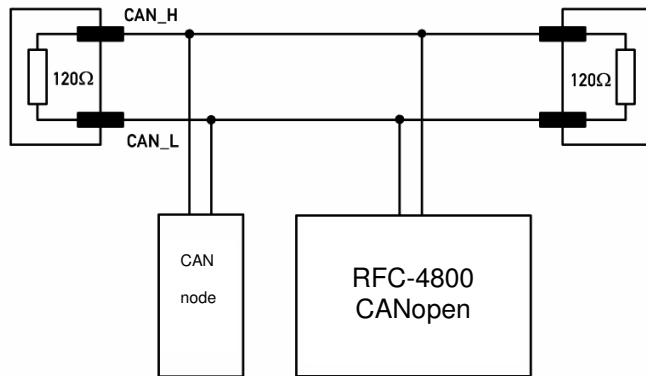


- Resolution position 14 bit
Resolution speed 0,022 °/ms
- The baud rate (50 ... 1.000 kBaud) and the node ID (127 = 0x7F) are pre-set at the factory and can be changed by the customer via Layer Setting Service (LSS) or Service Data Objects (SDO).
- Two TPDOs (Transmit Process Data Objects) can be programmed by the customer each through 5 mappings with max. 8 bytes.
Parameters: position, velocity, cams, work areas, chip temperature.

Mappable objects		
Index/Subindex	Entry	Byte
0x6020/1	Position value ch. 1	4
0x6020/2	Position value ch. 2	4
0x6030/1	Speed value ch. 1	2
0x6030/2	Speed value ch. 2	2
0x6300/1	Cam state ch. 1	1
0x6300/2	Cam state ch. 2	1
0x6400/1	Work area ch. 1	1
0x6400/2	Work area ch. 2	1
0x2002	Chip temperature	1
0x6503	Alarms	2
0x6505	Warnings	2

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- The proposed network topology of the CAN bus is the linear structure. The individual participants are switched on the continuous bus line via the shortest possible stub. A $120\ \Omega$ resistor is located at both ends of the bus line for so-called bus termination. These resistors prevent reflections on the line, which could seriously interfere the communication. Models with internal bus termination are also available (code 65_ and 66_).



- EMC: the interface is designed and qualified for the strong requirements in mobile applications (ISO pulses, high interference fields in accordance with ISO 11452).

2.1 Electrical connection

- Cable outlet code 202:
shielded cable, 4x 0,5 mm²
(see NT-News 04/2015) with length 1 m
- Connector outlet code 511:
M12x1 connector, 5-pole, at cable with length 0,15 m, shielded
- A solution with two separate electrical outlets for CAN IN/OUT is not possible in the current housing design. Alternatively we offer a 8-pole cable with 4 additional wires for supply and CAN OUT (code 432, length 1 m). Optionally we offer however a T-connector (see 3. Accessories).

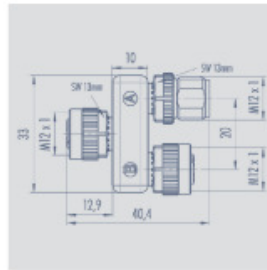


The pin assignment (see data sheet) is according CAN-Standard (CiA 303).

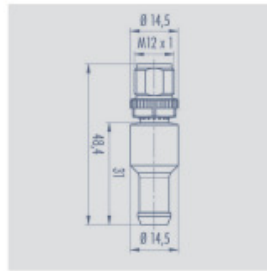
2.2 Mechanical features

The electrical properties (EMC) were achieved without the previous shielding cage. The mechanical code was therefore changed to a new code WITHOUT shielding cage: code 4851 version with elongated holes and code 4852 version with round holes.

3 Accessories Connector System M12

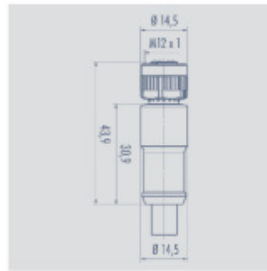


Anschlussbelegung			Zweifachverteiler M12x1, 5-polig, A-codiert, IP68, 1:1 Verdrahtung, Dose - Stecker - Dose, CAN-Bus
Buchsensteckplatz M12 Female insert M12			
	1x Stiftsteckplatz M12 1x Buchsensteckplatz M12 1x male insert M12 1x female insert M12		
			Steckergehäuse PUR
			Temperaturbereich -25 °C... +85 °C
			Art. Bez. EEM 33-45, Art.Nr. 056145
			

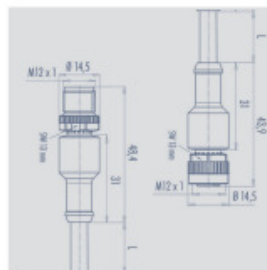


Anschlussbelegung			Abschlussstecker M12x1, 5-polig, A-codiert, IP67, 120 Ω Widerstand, CAN-Bus
1 = n. c. 2 = n. c. 3 = n. c. 4 =  Widerstand 5 =  120 Ω	Steckergehäuse PUR		
Temperaturbereich -25 °C... +85 °C		Art. Bez. EEM 33-47, Art.Nr. 056147	

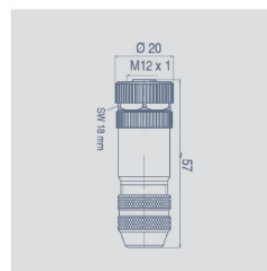




Anschlussbelegung			M12x1 Kupplungsdose 5-polig, gerade, A-codiert, mit angespritztem Kabel, IP67, geschirmt, Ende offen, CAN-Bus
1 = Schirm 2 = rot (0,34 mm²) 3 = schwarz (0,34 mm²) 4 = weiß (0,25 mm²) 5 = blau (0,25 mm²)			
Steckergehäuse		PUR	
Kabelmantel		PUR Ø = max. 7,2 mm, -25 °C...+85 °C (bewegt)	
Einzeltitzen		PP 2x 0,25 mm² + 2 x 0,34 mm²	
Länge		Art. Bez. Art.Nr.	
2 m		EEM 33-41 056141	
5 m		EEM 33-42 056142	
10 m		EEM 33-43 056143	



Anschlussbelegung		M12x1 Kupplungsdose /-stecker, 5-polig, gerade, A-codiert, mit angespritztem Kabel, IP68, geschirmt, CAN-Bus
		
Steckergehäuse PUR		
Kabelmantel PUR; Ø 7,2 mm -25 °C... +85 °C (fest)		
Länge		
Art. Bez.		Art.Nr.
5 m		EEM 33-44 056144



Anschlussbelegung		M12x1 Kupplungsdose 5-polig, gerade, mit Überwurfmutter, Schraubklemmenan- schluss, IP67, schirmbar
	Steckergehäuse Metall -40 °C... +85 °C	
	Für Kabeldurch- messer 6...8 mm, max. 0,75 mm²	
	Art.Nr. 005645, EEM 33-73	

4 Target markets

Use in mobile machinery for non safety-related applications.

5 Prices

See price list 2015.

6 Availability

Samples: as of now

Start series production: 2015-08-01

7 Marketing

7.1 Promotion samples

Samples can be ordered once for 10+ price (max. 3 pcs per representative, 1 delivery lot). Please send us your order until 2015-08-01.

7.2 Online available Information

The data sheet, manual (two-piece; part 1 basic information and part 2 CAN-open specific information) and EDS-file (each for one und two channel versions) are available as usual on our website.

The data sheet of RFC-4800 series was redesigned. All previous data sheets for each interface were combined now in one single data sheet for RFC-4800. This includes now all accessories which are available for this series.

The drawing (PDF) will be updated later in the context of the cable change-over.

8 Attachments

Data sheet RFC-4800 version 06/2015