

Encoder WDG absolute Lift CANOPEN



Specifications

Mechanical Data

Housing:	Aluminium
Maximum Shaft-Loading:	axial 40 N, radial 110 N
Drag torque:	3 Ncm
Speed (continuous operation)	max. 12000 ⁻¹ Singleturn max. 6000 ⁻¹ Multiturn
Weight:	Singleturn: approx. 500 g, Multiturn: approx. 700 g

Shaft (mm)

	Synchro(S)	Clamping(C)	Hollow(B)
Shaft ø	6	10	15
Length	10	20	-
Insertion depth min/max.	-	-	15/30
Permissible shaft-Loading	40N F _a	40N F _a	110N F _r
Minimum service life in 10 ⁸ revolutions at F _a = 40N			
F _r =	60N	80N	110N
Synchro(S)	822	347	133
Clamping(C)	247	104	40

Environmental Data

Shock resistance: (EN 60068-2-27)	30 g (half-sine, 11 ms)
Permanent shock: (EN 60028-2-29)	10 g (half-sine, 16 ms)
Vibration resistance: (EN 60068-2-6)	10 g (10 Hz ... 2000 Hz)
Operating temperature:	- 40 ... + 85 °C *
Storage temperature:	- 40 ... + 85 °C *
* cable connection:	- 30... +70°C (unmoved) - 5... +70°C (moved)
Relative air humidity:	98 % non-condensing
Protection rating (EN 60529):	IP65,
Version connector hood:	IP65,
Version cable:	IP65,
shaft sealed to:	IP64

- Interface: LIFT CANOPEN V.01/CAN
 - Meets application profile Lift DSP417
 - Solid/hollow shaft: 6 or 10 mm / 15 mm
 - 8,192 steps per revolution (13 bits)
 - Max. 4,096 revolutions (12 bits)
 - Code: binary
 - Temperature-insensitive IR opto-receiver ASIC with integrated signal conditioning
- www.wachendorff.de/absoluteliftcanopen-engl

Electrical Data:

Resolution:	13 Bit (25 Bit Multiturn)
Baud rate:	max. 1 MBaud
Data output:	Line-driver to 485 galvanically isolated via optocoupler
Addressing:	Rotary switches in the field bus hood or SDO
Step frequency LSB:	800 kHz
Linearity:	±1/2 LSB (12 bit), ± 2 LSB (16 bit)
Power supply:	10-30 V DC (absolute limit values) *
Current consumption:	max. 2,5 W
EMC:	Emitted: EN 61000-6-4 Immunity: EN 61000-6-2
Service life, electrical:	> 10 ⁵ h

* Supply voltage to EN 50 178 (SELV)

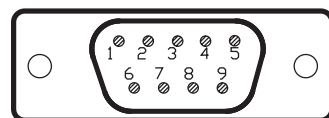
Interface, LIFT CANOPEN

Driver:	Transceiver to ISO11898, galvanically isolated by means of optocoupler
Programmable parameters	- Node number - Data rate

Version: angle encoder with SUB-D connectors / cable outlet

No connector hood is required with this version, making it ideal for low-cost requirements. The default settings for the angle encoder are: node number 32, baud rate 20 KBAud. In order to adapt the encoder to a particular application, the user can re-configure the sensor with the help of SDO telegrams. The baud rate can be set in the range from 20 KBAud up to 1MBAud and the node number within the limits of 0 to 89. Internally 1 is automatically added to the programmed address. On request, the node number and baud rate can be preconfigured at the factory to suit the customer's requirements. The configuration of the node number and of the baud rate can as an option also be carried out by means of LSS services.

Signal	9 pin Sub-D Pin No.	open cable
CAN Ground	3	green
24 V Power supply	9	white
0 V Power supply	6	brown
CAN High	7	yellow
CAN Low	2	pink



9-pin SUB-D connectors, connector inlet or mating connector solder side

Setting device configuration for connector/ cable outlet

With regard to the object entries used to configure the baud rate or the node number, please refer again to the manufacturer-specific object dictionary (3000h / 3001h).
 When delivered, the encoder is pre-configured as follows:

Node number 32, Daten rate 20 Kbaud.

The 20 Kbaud data rate is selected at power-on, as DS-301 recommends that all CANopen devices should support this transmission speed.

Index	Subindex	Object	Name	Data length	Attr.	M/O
3000h		VAR	Node number	Unsigned 8	rw	
3001h		VAR	Data rate	Unsigned 8	rw	

Node number setting

The standard object dictionary is supplemented by the following parameters:

Index	Subindex	Object	Name	Data length	Attr.	M/O
3000h		VAR	Node number	Unsigned 8	rw	

VAR:	variable
rw:	read, write

One byte is used to set the node number, where the value 1 is added internally in the encoder to the specified node number.

Setting the node number 5:

Bit	7	6	5	4	3	2	1	0
Valency	-	64	32	16	8	4	2	1
Example	0	0	0	0	0	1	0	0

$1 \cdot 4 + 0 + 0 = 4$, from this follows:
 $4 + 1$ (internally added) = node number 5

WARNING:

Although the node number is confirmed by the device via an SDO telegram, this is not accepted until after a

- Store Parameters Command (Object 1010 hex) acc. to CANopen and NMT Reset Module or NMT Reset Communication
- Store Parameters Command (Object 2300 hex), manufacturer-specific command with automatic Reset Node.

The use of the CANopen Store Parameters command (Object 1010h) is strongly recommended in order to avoid a network crash. Using the Store command causes the value programmed via Object 3000h to be saved in the EEPROM, but not yet to be actively accepted. This affords the opportunity to carry out further settings. Sending the NMT Reset Node or Reset Communication activates the new value.

Description of the telegram structure:

Master to absolute encoder: Set-Parameter

Identifier	Command	Index	Subindex	Service/Process Data
SDO(tx)	Download	3000h		Byte 4 Byte 5 Byte 6 Byte 7
600hex+ node number hex	22	00 30	00	X 00 00 00

X: bits for setting the node number.

Absolute encoder to Master: Confirmation

Identifier	Command	Index	Subindex	Service/Process Data			
SDO(rx)	Download	3000h		Byte 4	Byte 5	Byte 6	Byte 7
500hex+ node number hex	60	00 30	00	00	00	00	00

Baud rate setting

The standard object dictionary is supplemented by the following parameters:

Index	Subindex	Object	Name	Data length	Attr.	M/O
3001h		VAR	Data rate	Unsigned 8	rw	

VAR:	variable
rw:	read, write

One byte is used to set the Data Rate, whereby in total 8 baud rates are supported.

Setting the baud rate:

Baud rate kBit/s	Bit						
	7	6	5	4	3	2	1
20	0	0	0	0	0	0	0
50	0	0	0	0	0	0	1
100	0	0	0	0	0	1	0
125	0	0	0	0	0	1	1
250	0	0	0	0	1	0	0
500	0	0	0	0	1	0	1
800	0	0	0	0	1	1	0
1000	0	0	0	0	1	1	1

Although the data rate is confirmed by the device via an SDO telegram, this is not accepted until after a

- Store Parameters Command (Object 2300 hex) with automatic Reset Node
- Store Parameters CANopen Command (Object 1010 hex) and NMT Reset Module or NMT Reset Communication

Description of the telegram structure:

Master to absolute encoder: Set-Parameter

Identifier	Kommando	Index	Subindex	Service/Prozessdaten			
SDO(tx)	Download	3001h		Byte 4	Byte 5	Byte 6	Byte 7
600hex+ node number hex	22	01 30	00	X	00	00	00

X: 3 bits for setting the baud rate, remaining Bits = 0

Absolute encoder to Master: Confirmation

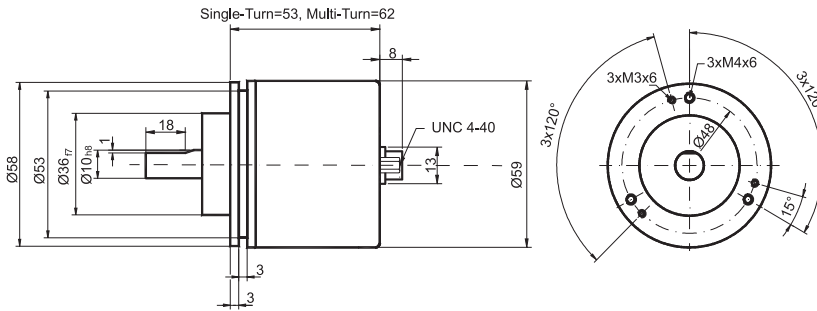
Identifier	Command	Index	Subindex	Service/Process Data			
SDO(rx)	Download	3001h		Byte 4	Byte 5	Byte 6	Byte 7
500hex+ node number hex	60	01 30	00	00	00	00	00

WARNING:

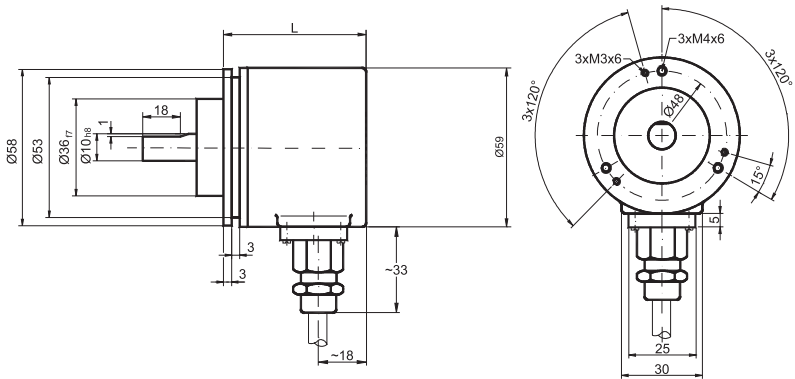
Activating the new baud rate may lead to the network crashing. For this reason only a point-to-point connection should be used between the encoder and the controller. Only after configuration should the encoder be integrated into an existing network.

Cable connection

Clamping flange (C10) Sub-D



Clamping flange (C10) cable outlet (cable diameter = 8 mm)



Length of housing

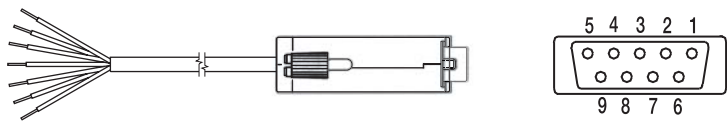
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Singleturn	axial	53
	radial	53
Multiturn	axial	62
	radial	62

All dimensional specifications in mm.

Cable assembly with SUB-D female connector

Cable length: **Order No.:**
 with 15 m cable **Standard**
 KD-09-20-15-S

SUB-D female connector, 9-pin, IP20, straight



Suitable accessories can be found on our website:
www.wachendorff.de/liftcanopen-engl or request the
 data sheets on accessories for shaft encoders.
 Please contact us for further options.

Ordering information

Resolutions [Bit]	Flange	Code	Electrical interface	Option	Electrical connection	Order No.:
0	Clamping flange	Binary	Lift CanOpen	none	cable outlet radial 2 m	WDG-C8B1B-0013-C100-CRW
12	Clamping flange	Binary	Lift CanOpen	none	cable outlet radial 2 m	WDG-C8B1B-1213-C100-CRW
0	Clamping flange	Binary	Lift CanOpen	none	9-pin Sub-D axial	WDG-C8B1B-0013-C100-PA9
12	Clamping flange	Binary	Lift CanOpen	none	9-pin Sub-D axial	WDG-C8B1B-1213-C100-PA9