WACHENDORFF
Automation GmbH & Co. KG

Online Data Sheet

# Encoder WDGA 58B CANopen
www.wachendorff-automation.com/wdga58bcan

Wachendorff Automation

... systems and encoders

- Complete systems
- Industrial rugged encoders to suit your application
- Standard range and customer versions
- Maximum permissible loads
- 48-hour express production
- Made in Germany
- Worldwide distributor network

Industrie ROBUST

Encoder WDGA 58B absolute CANopen magnetic, with EnDra®-Technology
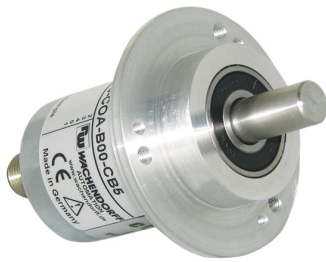
EnDra® Technologie

CANopen

- EnDra®: maintenance-free and environmentally friendly
- CANopen, Single-turn/Multi-turn
- Communication Profile according to CiA 301
- Device Profile for encoder CiA 406 V3.2 class C2
- Single-turn/Multi-turn (16 bit/43 bit)
- Forward-looking technology with 32 Bit processor
- 2-colour-LED as indicator for operating condition and error message appropriate CiA 303-3
- High shaft load up to 220 N radial, 120 N axial

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Mechanical Data	
Housing	
Flange	clamping flange
Flange material	aluminum
Housing cap	steel case chrome-plated, magnetic shielding
Housing	Ø 58 mm
Cam mounting	pitch 69 mm
Shaft(s)	
Shaft material	stainless steel
Starting torque	approx. 1 Ncm at ambient temperature
Shaft	Ø 6 mm
Advice	Attention: No option AAS = full IP67 version
Shaft length	L: 12 mm
Max. Permissible shaft loading radial	125 N
Max. Permissible shaft loading axial	120 N
Shaft	Ø 10 mm
Shaft length	L: 20 mm
Max. Permissible shaft loading radial	220 N
Max. Permissible shaft loading axial	120 N
Bearings	
Bearings type	2 precision ball bearings
Nominale service life	1 x 10'9 revs. at 100 % rated shaft load 1 x 10'10 revs. at 40 % rated shaft load 1 x 10'11 revs. at 20 % rated shaft load
Max. operating speed	8000 rpm

Machinery Directive: basic data safety integrity level	
$MTTF_d$	1000 a
Mission time (TM)	20 a
Nominale service life (L10h)	1 x 10'11 revs. at 20 % rated shaft load and 8000 rpm
Diagnostic coverage (DC)	0 %

Electrical Data	
Power supply/Current consumption	4,75 VDC up to 32 VDC: typ. 50 mA
Power consumption	max. 0.5 W

Sensor data	
Single-turn technology	innovative hall sensor technology
Single-turn resolution	65,536 steps/360° (16 bit)
Single-turn accuracy	< ±0.35°
Single-turn repeat accuracy	< ±0.20°
Internal cycle time	600 µs
Multi-turn technology	patented EnDra® technology no battery and no gear.
Multi-turn resolution	up to 32 bit with high precision value up to 43 bit.

Environmental data	
Environmental data:	
ESD (DIN EN 61000-4-2):	8 kV
Burst (DIN EN 61000-4-4):	2 kV
includes EMC:	DIN EN 61000-6-2 DIN EN 61000-6-3 DIN EN 61326-1
Vibration: (DIN EN 60068-2-6)	300 m/s² (10 Hz up to 2000 Hz)
Shock: (DIN EN 60068-2-27)	5000 m/s² (6 ms)
Design:	according DIN VDE 0160
Turn on time:	<1,5 s

Interface	
Interface:	**CAN**
Protocol:	CANopen • Communication profil CiA 301 • Device Profile for encoder CiA 406 V3.2 class C2
Node number:	1 up to 127 (default 127)
Baud rate:	10 kBaud up to 1 MBaud with automatic bit rate detection.
Advice:	The standard settings as well as any customization in the software can be changed via LSS (CiA 305) and the SDO protocol, e. g. PDOs, Scaling, Heartbeat, Node-ID, Baud rate, etc.

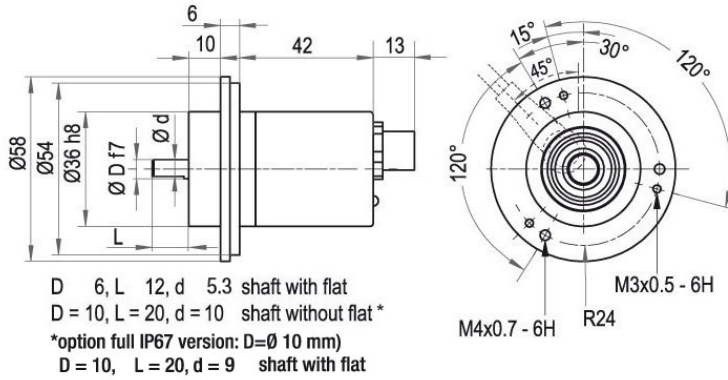| Programmable CAN transmission modes: | **Sychronous mode:** when a synchronisation telegram (SYNC) is received from another bus node, PDOs are transmitted independently. **Asynchronous mode:** a PDO message is triggered by an internal event. (e.g. change of measured valued, internal timer, etc.) |

General Data	
Weight	approx. 202 g
Connections	connector outlet
Protection rating (EN 60529)	Housing: IP65, IP67; shaft sealed: IP65; cable outlet L1: IP40
Operating temperature	-40 °C up to +85 °C
Storage temperature	-40 °C up to +100 °C

More Information

General technical data and safety instructions
http://www.wachendorff-automation.com/gtd

Options
http://www.wachendorff-automation.com/acc
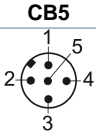
Connector, M12x1 CB5, 5-pin

D   6, L   12, d   5.3 shaft with flat
D = 10, L = 20, d = 10   shaft without flat *
*option full IP67 version: D=Ø 10 mm)
  D = 10,   L = 20, d = 9   shaft with flat

M3x0.5 - 6H
M4x0.7 - 6H
R24

Description

CB5   axial, 5-pin, shield connected to encoder housing
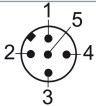
Assignments	
	CB5
(+) Vcc	2
GND	3
CANHigh	4
CANLow	5
CANGND shield	1

D   6, L   12, d   5.3 shaft with flat
D = 10, L = 20, d = 10   shaft without flat *
*option full IP67 version: D=Ø 10 mm)
D = 10,   L = 20, d = 9   shaft with flat

M3x0.5 - 6H
M4x0.7 - 6H   R24

Description

CC5   radial, 5-pin, shield connected to encoder housing

Assignments	
	CC5
(+) Vcc	2
GND	3
CANHigh	4
CANLow	5
CANGND shield	1

Cable connection, L1 radial with 2 m cable (IP40)

D 6, L 12, d 5.3 shaft with flat
D = 10, L = 20, d = 10 shaft without flat

M3x0.5 - 6H
M4x0.7 - 6H
R24
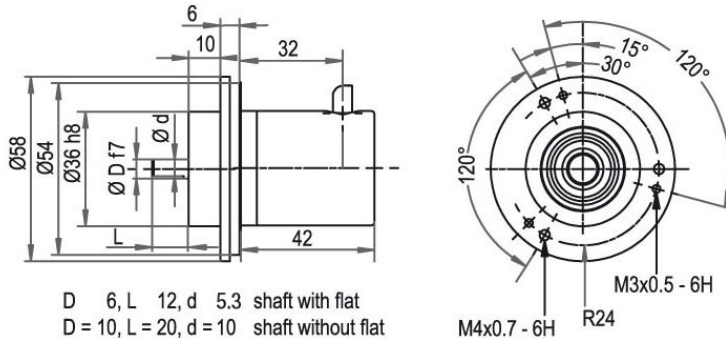
Description

L1   radial, shield connected to encoder housing (IP40)

Assignments	
	L1
(+) Vcc	BN
GND	WH
CANHigh	GN
CANLow	YE
CANGND shield	shield

Cable connection, L2 axial with 2 m cable

D   6, L   12, d   5.3 shaft with flat
D = 10, L = 20, d = 10   shaft without flat *
*option full IP67 version: D=Ø 10 mm)
D = 10,   L = 20, d = 9   shaft with flat

M3x0.5 - 6H
M4x0.7 - 6H   R24
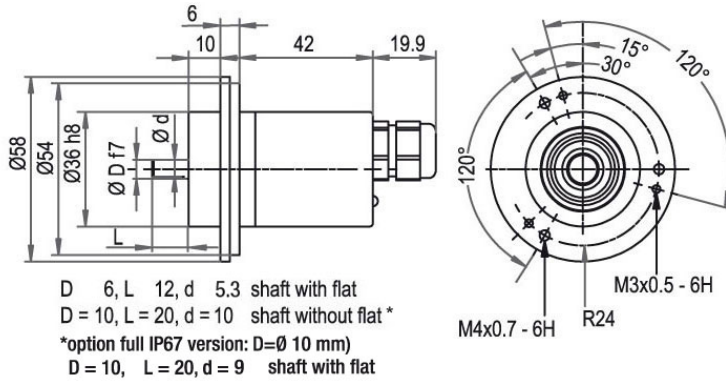
Description

L2   axial, shield connected to encoder housing

Assignments	
	L2
(+) Vcc	BN
GND	WH
CANHigh	GN
CANLow	YE
CANGND shield	shield

Cable connection, L3 radial with 2 m cable
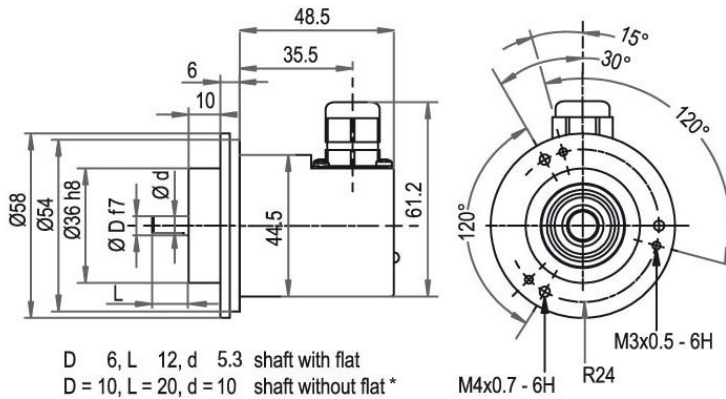
D   6, L   12, d   5.3 shaft with flat
D = 10, L = 20, d = 10   shaft without flat *
*option full IP67 version: D=Ø 10 mm)
D = 10,   L = 20, d = 9   shaft with flat

M3x0.5 - 6H
M4x0.7 - 6H
R24

Description

L3   radial, shield connected to encoder housing

Assignments	
	L3
(+) Vcc	BN
GND	WH
CANHigh	GN
CANLow	YE
CANGND shield	shield

Options

Shafts sealed to IP67, only with 10 mm shaft with flat	Order key
The encoder WDG 58B CANopen can be supplied in a full IP67 version.	**AAS**

Max. RPM: 3500 min'-1
Permitted Shaft-Loading: axial 100 N; radial 110 N
Starting-torque: approx. 4 Ncm at ambient temperature

120 Ohm terminating resistor	Order key
The encoder WDGA 58B CANopen is also available with fixed 120 Ohm terminating resistor.	**AEO**

Shafts sealed to IP67, only with 10 mm shaft with flat

Example Order No.	Type		Your encoder
WDGA 58B	WDGA 58B		WDGA 58B

	Shaft		**Order key**	
06	Ø 6 mm Attention: No option AAS = full IP67 version		06	
	Ø 10 mm		10	

	Single-turn Resolution		**Order key**	
12	Single-turn resolution 1 bit up to 16 bit: (e. G. 12 bit)		12	

	Multi-turn Resolution		**Order key**	
18	Multi-turn resolution: (examples) 18 bit = 18 43 bit = 43 no Multiturn = 00		18	

	Data protocol		**Order key**	
CO	CANopen		CO	

	Software		**Order key**	
A	up to date release		A	

	Code		**Order key**	
B	binary		B	

	Power supply		**Order key**	
0	4.75 V up to 32 V (standard)		0	

	Galvanic isolation		**Order key**	
0	no		0	

	Electrical connections		**Order key**	
	Cable:			
	radial, shield connected to encoder housing (IP40), with 2 m cable		L1	
	axial, shield connected to encoder housing, with 2 m cable, IP67		L2	
	radial, shield connected to encoder housing, with 2 m cable, IP67		L3	
CB5				
	Connector:			
	sensor-connector, M12x1, 5-pin, axial, IP67, shield connected to encoder housing		CB5	
	sensor-connector, M12x1, 5-pin, radial, IP67, shield connected to encoder housing		CC5	

	Options		**Order key**	
	Without option		Empty	
	Shafts sealed to IP67, only with 10 mm shaft with flat		AAS	
	120 Ohm terminating resistor		AEO	

Example Order No.	WDGA 58B	06	12	18	CO	A	B	0	0	CB5	
	WDGA 58B										Example Order No.

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