



# Online Data Sheet

## Encoder WDGA 58A CANopen

[www.wachendorff-automation.com/wdga58acan](http://www.wachendorff-automation.com/wdga58acan)

### 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

# Encoder WDGA 58A absolute CANopen magnetic, with EnDra®-Technology



**EnDra®**  
Technologie

**CANopen®**

- EnDra®: maintenance-free and environmentally friendly
- CANopen, Single-turn and 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	synchro flange
Flange material	aluminum
Housing cap	stainless steel
Housing	Ø 58 mm
Cam mounting	pitch 65 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 <sup>9</sup> revs. at 100 % rated shaft load 1 x 10 <sup>10</sup> revs. at 40 % rated shaft load 1 x 10 <sup>11</sup> revs. at 20 % rated shaft load
Max. operating speed	8000 rpm

## Machinery Directive: basic data safety integrity level

MTTF <sub>d</sub>	1000 a
Mission time (TM)	20 a
Nominale service life (L10h)	1 x 10 <sup>11</sup> 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	± 0.0878° (12 bit)
Single-turn repeat accuracy	± 0.0878° (12 bit)
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/s <sup>2</sup> (10 Hz up to 2000 Hz)
Shock: (DIN EN 60068-2-27)	5000 m/s <sup>2</sup> (6 ms)
Design:	according DIN VDE 0160
Turn on time:	<1,5 s

## Interface

Interface:	
Protocol:	CANopen <ul style="list-style-type: none"> <li>• Communication profil CiA 301</li> <li>• Device Profile for encoder CiA 406 V3.2 class C2</li> </ul>
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.

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Programmable CAN transmission modes:

**Synchronous 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.)

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#### General Data

Weight	approx. 224 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

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#### More Information

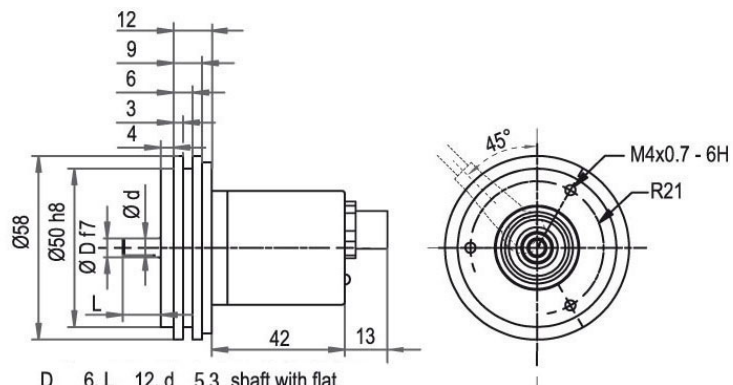
General technical data and safety instructions  
<http://www.wachendorff-automation.com/gtd>

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Options  
<http://www.wachendorff-automation.com/acc>

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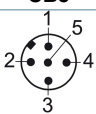
**Connector, M12x1 CB5, 5-pin**



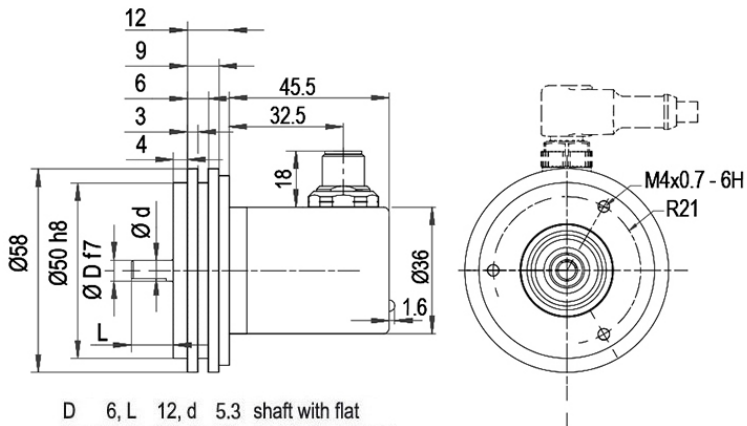
D = 6, L = 12, d = 5.3 shaft with flat  
 D = 10, L = 20, d = 10 shaft without flat \*  
 \*option full IP67 version: D=Ø 10 mm)  
 D = 10, L = 20, d = 9 shaft with flat  
 Option AIX:  
 D = 6, L = 10, d = 5.3 shaft with flat

**Description**

**CB5** axial, 5-pin, shield connected to encoder housing

Assignments	
	<b>CB5</b> 
<b>(+) Vcc</b>	2
<b>GND</b>	3
<b>CANHigh</b>	4
<b>CANLow</b>	5
<b>CANGND shield</b>	1

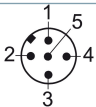
**Connector, M12x1 CC5, 5-pin**

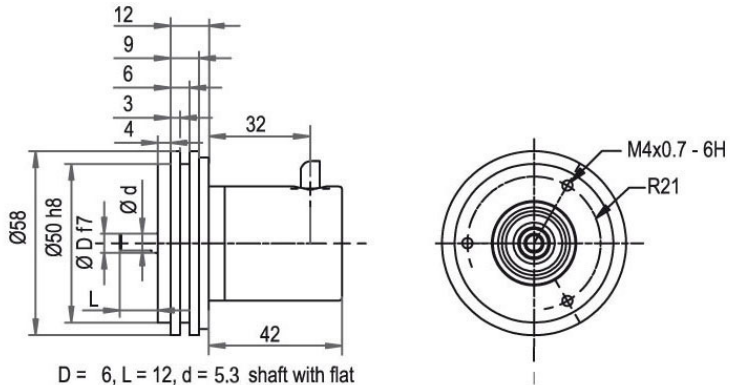


D = 6, L = 12, d = 5.3 shaft with flat  
 D = 10, L = 20, d = 10 shaft without flat \*  
 \*option full IP67 version: D=Ø 10 mm)  
 D = 10, L = 20, d = 9 shaft with flat  
 Option AIX:  
 D = 6, L = 10, d = 5.3 shaft with flat

**Description**

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

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

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


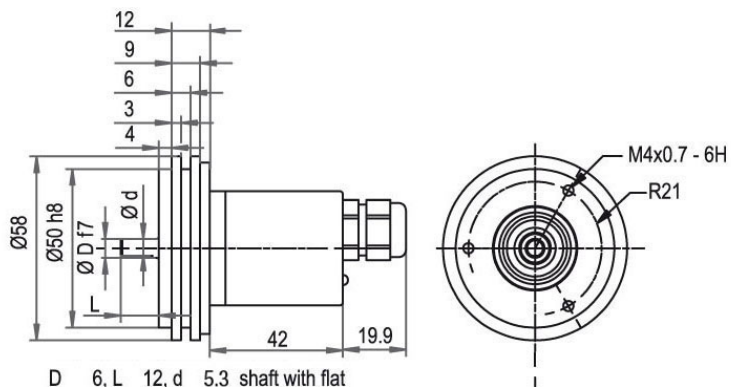
D = 6, L = 12, d = 5.3 shaft with flat  
 D = 10, L = 20, d = 10 shaft without flat  
 Option AIX:  
 D = 6, L = 10, d = 5.3 shaft with flat

**Description**

**L1** radial, shield connected to encoder housing (IP40)

Assignments	
	<b>L1</b>
<b>(+) Vcc</b>	BN
<b>GND</b>	WH
<b>CANHigh</b>	GN
<b>CANLow</b>	YE
<b>CANGND shield</b>	shield

**Cable connection, L2 axial with 2 m cable**

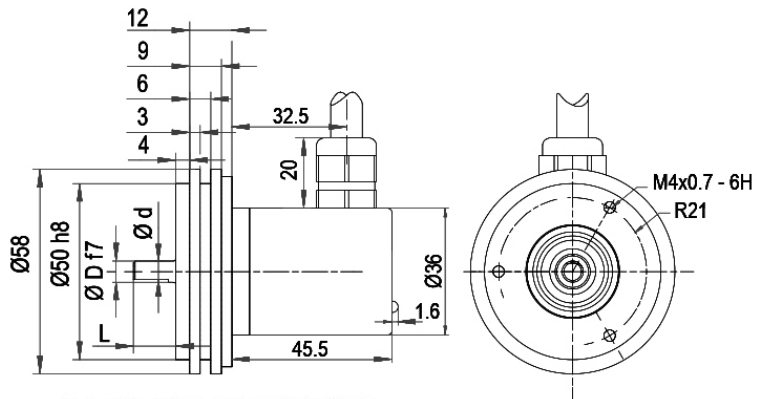


D = 6, L = 12, d = 5.3 shaft with flat  
 D = 10, L = 20, d = 10 shaft without flat \*  
 \*option full IP67 version: D=Ø 10 mm)  
 D = 10, L = 20, d = 9 shaft with flat  
 Option AIX:  
 D = 6, L = 10, d = 5.3 shaft with flat

**Description**

**L2** axial, shield connected to encoder housing

Assignments	
	<b>L2</b>
<b>(+) Vcc</b>	BN
<b>GND</b>	WH
<b>CANHigh</b>	GN
<b>CANLow</b>	YE
<b>CANGND shield</b>	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  
 Option AIX:  
 D = 6, L = 10, d = 5.3 shaft with flat

**Description**

**L3** radial, shield connected to encoder housing

Assignments	
	<b>L3</b>
<b>(+) Vcc</b>	BN
<b>GND</b>	WH
<b>CANHigh</b>	GN
<b>CANLow</b>	YE
<b>CANGND shield</b>	shield



## Options

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

### Order key

The encoder WDG 58A CANopen can be supplied in a full IP67 version.

**AAS**

Max. RPM: 3500 min<sup>-1</sup>

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 58A CANopen is also available with fixed 120 Ohm terminating resistor.

**AEO**

### Shaft length 10 mm (Ø 6 mm)

### Order key

The encoder WDGA 58A CANopen shaft: Ø 6 mm is also available with a shortened shaft L = 10 mm.

**AIX**

Example Order No.	Type	Your encoder
WDGA 58A	WDGA 58A	WDGA 58A
	<b>Shaft</b>	<b>Order key</b>
06	Ø 6 mm Attention: No option AAS = full IP67 version	06
	Ø 10 mm	10
	<b>Single-turn Resolution</b>	<b>Order key</b>
12	Single-turn resolution 1 bit up to 16 bit: (e. G. 12 bit)	12
	<b>Multi-turn Resolution</b>	<b>Order key</b>
18	Multi-turn resolution: (examples) 18 bit = 18 43 bit = 43 no Multiturn = 00	18
	<b>Data protocol</b>	<b>Order key</b>
CO	CANopen	CO
	<b>Software</b>	<b>Order key</b>
A	up to date release	A
	<b>Code</b>	<b>Order key</b>
B	binary	B
	<b>Power supply</b>	<b>Order key</b>
0	4.75 V up to 32 V (standard)	0
	<b>Galvanic isolation</b>	<b>Order key</b>
0	no	0
	<b>Electrical connections</b>	<b>Order key</b>
CB5	<b>Cable:</b>	
	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
	<b>Connector:</b>	
	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
	<b>Options</b>	<b>Order key</b>
	Without option	Empty
	Shafts sealed to IP67, only with 10 mm shaft with flat	AAS
	120 Ohm terminating resistor	AEO
	Shaft length 10 mm (Ø 6 mm)	AIX

<b>Example Order No.</b>	WDGA 58A	06	12	18	CO	A	B	0	0	CB5	
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WDGA 58A											<b>Example Order No.</b>
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For further information please contact our local distributor.  
Here you find a list of our distributors worldwide.  
<https://www.wachendorff-automation.com/>



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