



# Online Data Sheet

## Encoder WDGA 58B SSI

[www.wachendorff-automation.com/wdga58bssi](http://www.wachendorff-automation.com/wdga58bssi)

### 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 58B absolute SSI magnetic, with EnDra®-Technology



**EnDra®**  
Technologie

**SSI**  
Synchronous Serial Interface

- EnDra® multiturn technology: maintenance-free and environmentally friendly
- SSI, gray or binary
- Single-turn/Multi-turn (16 bit / 43 bit)
- Forward-looking technology with 32 bit processor
- 2-colour-LED as indicator for operating condition
- High shaft load up to 220 N radial, 120 N axial

[www.wachendorff-automation.com/wdga58bssi](http://www.wachendorff-automation.com/wdga58bssi)

Mechanical Data	
<b>Housing</b>	
Flange	clamping flange
Flange material	aluminum
Housing cap	steel case chrome-plated, magnetic shielding
Housing	Ø 58 mm
Cam mounting	pitch 69 mm
<b>Shaft(s)</b>	
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
<b>Bearings</b>	
Bearings type	2 precision ball bearings
Nominal 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
<b>Machinery Directive: basic data safety integrity level</b>	
MTTF <sub>d</sub>	1000 a
Mission time (TM)	20 a
Nominal service life (L10h)	1 x 10 <sup>11</sup> revs. at 20 % rated shaft load and 8000 rpm
Diagnostic coverage (DC)	0 %
<b>Electrical Data</b>	
Power supply/Current consumption	10 VDC up to 32 VDC: typ. 50 mA
Power consumption	max. 0.5 W

Power supply/Current consumption	4,75 VDC up to 5,5 VDC: typ. 80 mA
Power consumption	max. 0.44 W

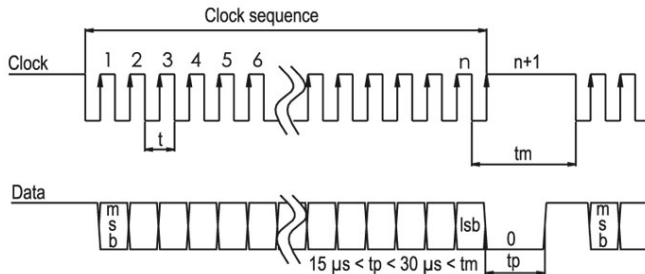
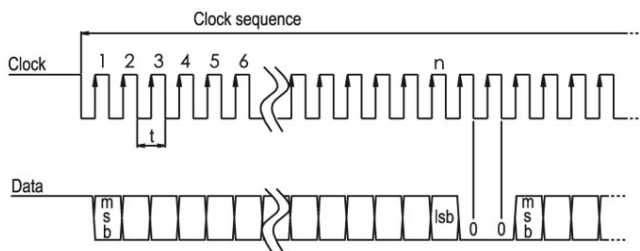
Sensor data	
Single-turn technology	innovative hall sensor technology
Single-turn resolution	up to 65,536 steps/360° (16 bit)
Single-turn accuracy	< ±0.35°
Single-turn repeat accuracy	< ±0.20°
Internal cycle time	600 µs
Multi-turn technology	patented EnDra® technology no battery, no gear.
Multi-turn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

Environmental data	
<b>Environmental data:</b>	
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
Vibration: (DIN EN 60068-2-6)	50 m/s <sup>2</sup> (10 Hz up to 2000 Hz)
Shock: (DIN EN 60068-2-27)	1000 m/s <sup>2</sup> (6 ms)
Design:	according DIN VDE 0160
Turn on time:	<1,5 s

Interface	
<b>Interface:</b>	
<b>Interface:</b>	<b>SSI</b>
Clock input:	via opto-coupler
Clock frequency:	100 kHz up to 500 kHz, up to 2 MHz on request
Data output:	RS485/RS422 compatible
Output code:	gray or binary
SSI output:	Angular-/position value
Parity bit:	optional (even/odd)
Error bit:	optional
Turn on time:	<1,5 s
<b>Configuration inputs</b>	DIR = GND -> cw Positive direction of counting: (View on shaft)
Set to zero:	Set: Preset = +UB for 2 s Deactivate: Preset = GND

**LED-behaviour:**

At Start / while booting:	- red gleam (< 2.3 s)
Malfunction:	- constant red gleam (> 2.3 s)
Normal function:	- constant green gleam
No supply:	- no gleam

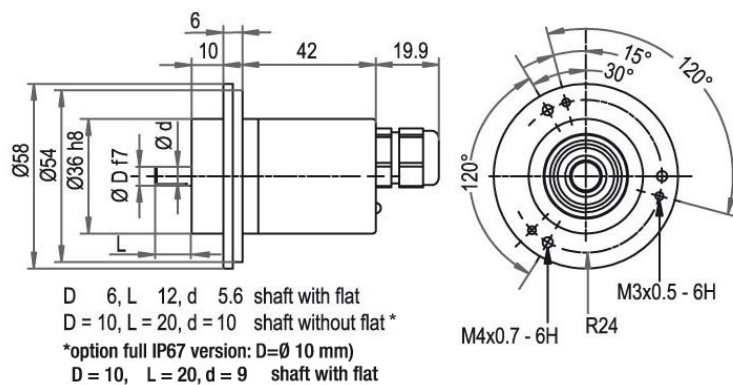
**Transmission protocol SSI Single transmission:**

**Transmission protocol SSI Multipath transmission:**

**General Data**

Weight	approx. 202 g
Connections	cable or connector outlet
Protection rating (EN 60529)	Housing: IP65, IP67; shaft sealed: IP65; cable outlet K1: IP40, K6: IP20
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>

## Cable connection, L2 with 2 m cable

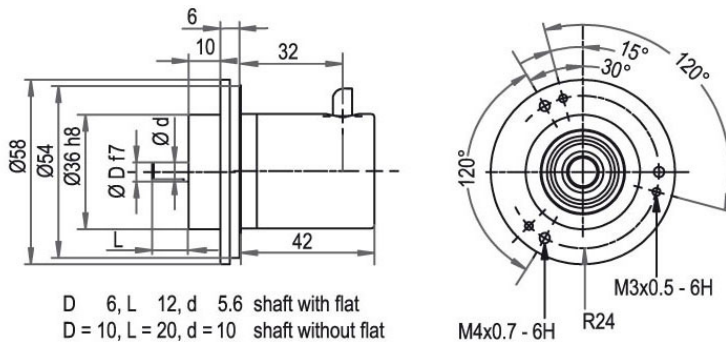


### Description

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

Assignments	
	<b>L2</b>
<b>GND</b>	WH
<b>(+) Vcc</b>	BN
<b>SSI CLK+</b>	GN
<b>SSI CLK-</b>	YE
<b>SSI DATA+</b>	GY
<b>SSI DATA-</b>	PK
<b>PRESET</b>	BU
<b>DIR</b>	RD
<b>Shield</b>	housing

**Cable connection, K1 with 2 m cable (IP40)**

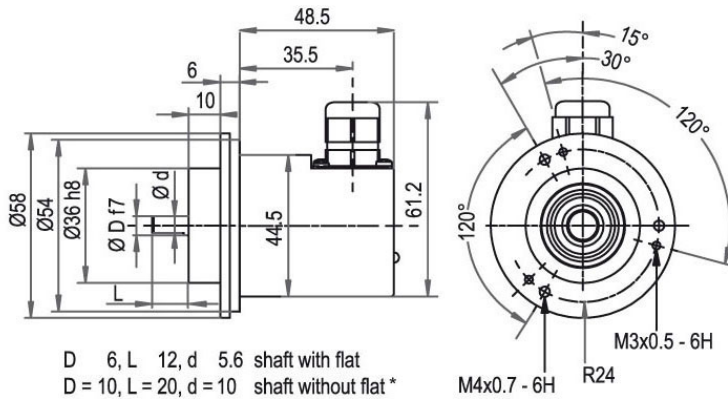


**Description**

**K1** radial, shield not connected

Assignments	
	<b>K1</b>
<b>GND</b>	WH
<b>(+) Vcc</b>	BN
<b>SSI CLK+</b>	GN
<b>SSI CLK-</b>	YE
<b>SSI DATA+</b>	GY
<b>SSI DATA-</b>	PK
<b>PRESET</b>	BU
<b>DIR</b>	RD
<b>Shield</b>	housing n. c.

**Cable connection, L3 with 2 m cable**



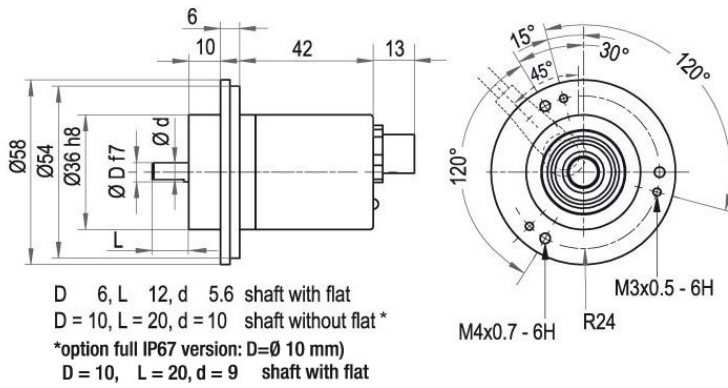
D 6, L 12, d 5.6 shaft with flat  
 D = 10, L = 20, d = 10 shaft without flat \*  
 \*option full IP67 version: D=Ø 10 mm)  
 D = 10, L = 20, d = 9 shaft with flat

**Description**

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

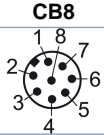
Assignments	
	<b>L3</b>
<b>GND</b>	WH
<b>(+) Vcc</b>	BN
<b>SSI CLK+</b>	GN
<b>SSI CLK-</b>	YE
<b>SSI DATA+</b>	GY
<b>SSI DATA-</b>	PK
<b>PRESET</b>	BU
<b>DIR</b>	RD
<b>Shield</b>	housing

**Connector, M12x1, CB8, axial, 8-pin**

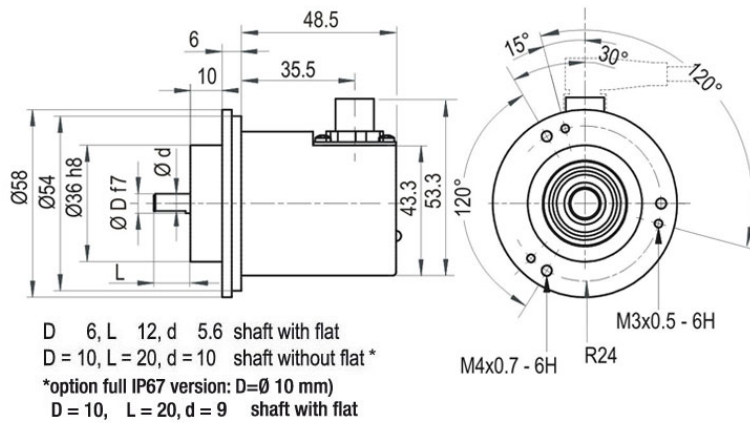


**Description**

**CB8** axial, 8-pin, shield connected to encoder housing

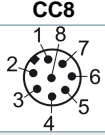
Assignments	
	
<b>GND</b>	1
<b>(+) Vcc</b>	2
<b>SSI CLK+</b>	3
<b>SSI CLK-</b>	4
<b>SSI DATA+</b>	5
<b>SSI DATA-</b>	6
<b>PRESET</b>	7
<b>DIR</b>	8
<b>Shield</b>	housing

**Connector, M12x1, CC8, radial, 8-pin**



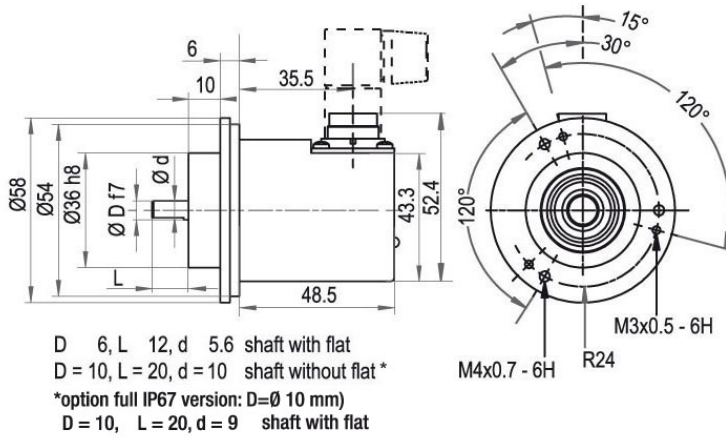
**Description**

**CC8** radial, 8-pin, shield connected to encoder housing

Assignments	
	
<b>GND</b>	1
<b>(+) Vcc</b>	2
<b>SSI CLK+</b>	3
<b>SSI CLK-</b>	4
<b>SSI DATA+</b>	5
<b>SSI DATA-</b>	6
<b>PRESET</b>	7
<b>DIR</b>	8
<b>Shield</b>	housing

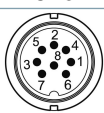


**Connector, M16, CH8, 8-pin**

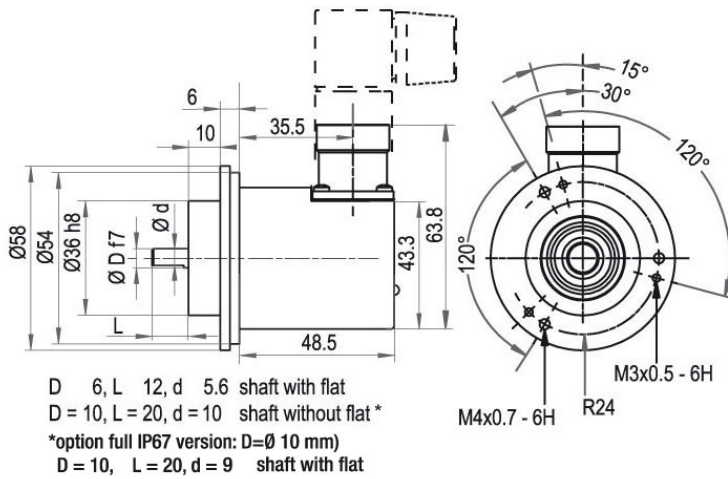


**Description**

**CH8** radial, 8-pin, shield connected to encoder housing

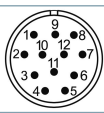
Assignments	
	<b>CH8</b>
	
<b>GND</b>	2
<b>(+) Vcc</b>	1
<b>SSI CLK+</b>	6
<b>SSI CLK-</b>	5
<b>SSI DATA+</b>	4
<b>SSI DATA-</b>	3
<b>PRESET</b>	8
<b>DIR</b>	7
<b>Shield</b>	housing

**Connector, M23, C5,12-pin**



**Description**

**C5** radial, 12-pin, shield connected to encoder housing

Assignments	
	<b>C5</b> 
<b>GND</b>	12
<b>(+) Vcc</b>	11
<b>SSI CLK+</b>	2
<b>SSI CLK-</b>	1
<b>SSI DATA+</b>	3
<b>SSI DATA-</b>	4
<b>PRESET</b>	9
<b>DIR</b>	8
<b>Shield</b>	housing

## Options

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

### Order key

The encoder WDG 58B SSI 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

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Example Order No.	Type	Your encoder	
WDGA 58B	WDGA 58B	WDGA 58B	
	<b>Shaft</b>	<b>Order key</b>	
10	∅ 6 mm Attention: No option AAS = full IP67 version	06	
	∅ 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>	
12	Multi-turn up to 43 bit (e. G. 12 bit) No Multi-turn = 00	12	
	<b>Data protocol</b>	<b>Order key</b>	
SI	SSI	SI	
	<b>Software</b>	<b>Order key</b>	
A	up to date release	A	
	<b>Code</b>	<b>Order key</b>	
B	binary	B	
	gray	G	
	<b>Power supply</b>	<b>Order key</b>	
0	10 V up to 32 V (standard)	0	
	4.75 V up to 5.5 V	1	
	<b>Galvanic isolation</b>	<b>Order key</b>	
1	yes	1	
	<b>Electrical connections</b>	<b>Order key</b>	
CB8	<b>Cable:</b>		
	axial, shield connected to encoder housing, with 2 m cable, IP67	L2	
	radial, shield not connected, with 2 m cable, IP40	K1	
	radial, shield connected to encoder housing, with 2 m cable, IP67	L3	
	<b>Connector:</b>		
	sensor-connector, M12x1, 8-pin, axial, IP67, shield connected to encoder housing	CB8	
	sensor-connector, M12x1, 8-pin, radial, IP67, shield connected to encoder housing	CC8	
	sensor-connector, M16x0.75, 8-pin, radial, IP67, shield connected to encoder housing	CH8	
connector, M23, 12-pin, radial, IP67, shield connected to encoder housing	C5		
	<b>Options</b>	<b>Order key</b>	
	Without option	Empty	
	Shafts sealed to IP67, only with 10 mm shaft with flat	AAS	

<b>Example Order No.</b>	WDGA 58B	10	12	12	SI	A	B	0	1	CB8	
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WDGA 58B											<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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