



# Online Data Sheet

## Encoder WDGA 58E SSI

[www.wachendorff-automation.com/wdga58essi](http://www.wachendorff-automation.com/wdga58essi)

### 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 58E 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 (max. 16 bit/43 bit)
- Forward-looking technology with 32 bit processor

[www.wachendorff-automation.com/wdga58essi](http://www.wachendorff-automation.com/wdga58essi)

Mechanical Data	
<b>Housing</b>	
Flange	hollow shaft (blind-bored)
Flange material	aluminum
Housing cap	Aluminum die cast, powder coated; Integrated magnetic shielding
Torque supports	incl. 1 torque support WDGDS10001
- 1. Spring plate compensation	axial: ±0.8 mm, radial: ±0.2 mm
- Max. operating speed	6000 rpm up to max. protection rating +60 °C
- 2. Cylinder pin 4 mm	needs accessories WDGDS10005
- Compensation	axial: ±0.5 mm, radial: ±1.5 mm, Max. operating speed: 3000 rpm
Housing	Ø 58 mm
<b>Shaft(s)</b>	
Shaft material	stainless steel
Starting torque	approx. 1.6 Ncm at ambient temperature
Fixing	permanently attached clamping ring
Shaft	Ø 6 mm
Advice	with adapter sleeve
Shaft length	L: 12 mm
Insertion depth min.	11 mm
Insertion depth max.	15 mm
Max. Permissible shaft loading radial	80 N
Max. Permissible shaft loading axial	50 N
Shaft	Ø 6.35 mm
Advice	with adapter sleeve
Shaft length	L: 12 mm
Insertion depth min.	11 mm
Insertion depth max.	15 mm
Max. Permissible shaft loading radial	80 N
Max. Permissible shaft loading axial	50 N
Shaft	Ø 7 mm
Advice	with adapter sleeve
Shaft length	L: 12 mm
Insertion depth min.	11 mm
Insertion depth max.	15 mm
Max. Permissible shaft loading radial	80 N

Max. Permissible shaft loading axial	50 N
Shaft	Ø 8 mm
Advice	with adapter sleeve
Shaft length	L: 12 mm
Insertion depth min.	11 mm
Insertion depth max.	15 mm
Max. Permissible shaft loading radial	80 N
Max. Permissible shaft loading axial	50 N
Shaft	Ø 9.525 mm
Advice	with adapter sleeve
Shaft length	L: 12 mm
Insertion depth min.	11 mm
Insertion depth max.	15 mm
Max. Permissible shaft loading radial	80 N
Max. Permissible shaft loading axial	50 N
Shaft	Ø 10 mm
Advice	with adapter sleeve
Shaft length	L: 12 mm
Insertion depth min.	11 mm
Insertion depth max.	15 mm
Max. Permissible shaft loading radial	80 N
Max. Permissible shaft loading axial	50 N
Shaft	Ø 12 mm
Shaft length	L: 12 mm
Insertion depth min.	11 mm
Insertion depth max.	15 mm
Max. Permissible shaft loading radial	80 N
Max. Permissible shaft loading axial	50 N
Shaft	Ø 14 mm
Shaft length	L: 12 mm
Insertion depth min.	11 mm
Insertion depth max.	15 mm
Max. Permissible shaft loading radial	80 N

Max. Permissible shaft loading axial	50 N
Shaft	Ø 15 mm
Shaft length	L: 12 mm
Insertion depth min.	11 mm
Insertion depth max.	15 mm
Max. Permissible shaft loading radial	80 N
Max. Permissible shaft loading axial	50 N

#### Bearings

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	6000 rpm

#### Machinery Directive: basic data safety integrity level

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 6000 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
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	± 0.0878° ( 12 bit)
Single-turn repeat accuracy	± 0.0878° ( 12 bit)
Internal cycle time	600 µs
Multi-turn technology	patented EnDra® technology no battery, no gear.
Multi-turn resolution	up to 43 bit.

#### 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

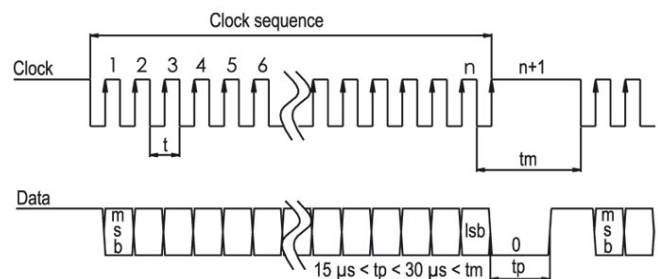
#### Duty information

Customs tariff number:	90318020
Country of origin:	Germany

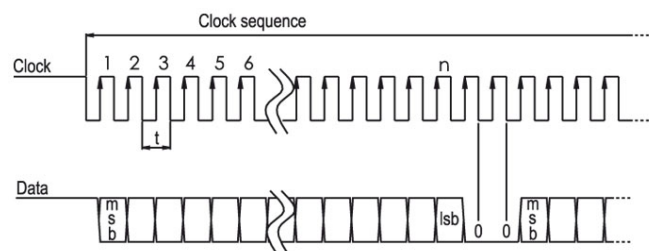
#### Interface

<b>Interface:</b>	<b>SSI</b>
Clock input:	via opto-coupler; I > 1.6 mA; U > 2.2 V
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 DIR = +UB -> ccw
Positive direction of counting: (View on shaft)	
Set to zero:	Set: Preset = +UB for 2 s Deactivate: Preset = GND

#### Transmission protocol SSI Single transmission:



#### Transmission protocol SSI Multipath transmission:



#### General Data

Weight	approx. 220 g
Connections	cable or connector, radial
Protection rating (EN 60529)	Housing: IP65, IP67; shaft sealed: IP65; cable outlet K1: IP40, K6: IP20
Operating temperature	-40 °C up to +85 °C

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Storage temperature      -40 °C up to +100 °C

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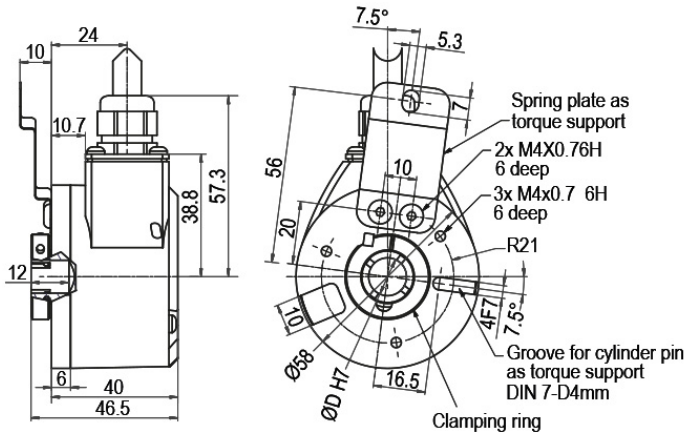
**More Information**

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

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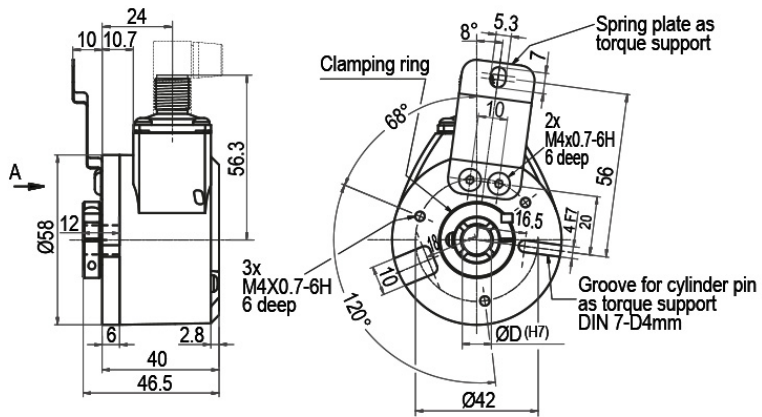
Options  
<http://www.wachendorff-automation.com/acc>

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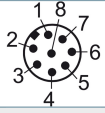
**Cable connection, L3 radial, with 2 m cable**

**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, CC8, radial, 8-pin**

**Description**

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

Assignments	
	<b>CC8</b> 
<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



Example Order No.	Type	Your encoder	
WDGA 58E	WDGA 58E	WDGA 58E	
	<b>Shaft</b>	<b>Order key</b>	
06	Ø 6 mm with adapter sleeve	06	
	Ø 6.35 mm with adapter sleeve	2Z	
	Ø 7 mm with adapter sleeve	07	
	Ø 8 mm with adapter sleeve	08	
	Ø 9.525 mm with adapter sleeve	4Z	
	Ø 10 mm with adapter sleeve	10	
	Ø 12 mm	12	
	Ø 14 mm	14	
	Ø 15 mm	15	
	<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	SI
	<b>Software</b>	<b>Order key</b>	
A	up to date release	A	A
	<b>Code</b>	<b>Order key</b>	
B	binary	B	
	gray	G	
	<b>Power supply</b>	<b>Order key</b>	
0	4.75 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	1
	<b>Electrical connections</b>	<b>Order key</b>	
L3	<b>Cable:</b> radial, shield connected to encoder housing, with 2 m cable	L3	
	<b>Connector:</b> sensor-connector, M12x1, 8-pin, radial, shield connected to encoder housing	CC8	
	connector, M23, 12-pin, radial, shield connected to encoder housing	C5	

Example Order No.	WDGA 58E	06	12	12	SI	A	B	0	1	L3
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WDGA 58E				SI	A				1		Your encoder
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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/contact-sales-en/>



Wachendorff Automation GmbH & Co. KG  
Industriestrasse 7 • 65366 Geisenheim  
Germany

Phone: +49 67 22 / 99 65 25  
E-Mail: [wdg@wachendorff.de](mailto:wdg@wachendorff.de)  
[www.wachendorff-automation.de](http://www.wachendorff-automation.de)

