



## Online Data sheet

### Encoder WDG N 58E

[www.wachendorff-automation.com/wdgn58e](http://www.wachendorff-automation.com/wdgn58e)

#### 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 WDG N 58E configurable via Smartphone (NFC)



Illustration similar



Wachendorff Apps WDG N

- Due to high quality electronics any number of pulses up to 16384 configurable via NFC
- HTL/TTL configurable via NFC
- Protection class IP67, at shaft input IP65
- High output frequency up to 1 MHz
- Reverse polarity protection and short-circuit protection at 4.75 VDC to 32 VDC

[www.wachendorff-automation.com/wdgn58e](http://www.wachendorff-automation.com/wdgn58e)

## Configurable via NFC

Resolution	
Pulses per revolution PPR	1 PPR up to 16384 PPR
Mechanical Data	
Flange	hollow shaft (blind-bored)
Flange material	aluminum
Housing material	Stainless steel, NFC cover: Thermoplastic polyamide
Torque supports	incl. 1 torque support WDGDS10001
- 1. Spring plate compensation	axial: ±0.8 mm [0.0315"], radial: ±0.2 mm [0.0079"]
- 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 [0.0197"], radial: ±1.5 mm [0.0591"], Max. operating speed: 3000 rpm
Flange diameter	Ø 58 mm [Ø 2.283"]
Shaft(s)	
Shaft material	stainless steel
Starting torque	approx. 1.6 Ncm [2.266 in-ozf] at ambient temperature
Fixing	permanently attached clamping ring
Shaft	Ø 6 mm [Ø 0.236"]
Advice	with adapter sleeve
Shaft length	L: 12 mm [0.472"]
Insertion depth min.	11 mm [0.433"]
Insertion depth max.	15 mm [0.591"]
Max. Permissible shaft loading radial	80 N [8.157 kp]
Max. Permissible shaft loading axial	50 N [5.098 kp]
Shaft	Ø 6.35 mm [Ø 1/4"] Order No: 2Z
Advice	with adapter sleeve
Shaft length	L: 12 mm [0.472"]
Insertion depth min.	11 mm [0.433"]
Insertion depth max.	15 mm [0.591"]
Max. Permissible shaft loading radial	80 N [8.157 kp]
Max. Permissible shaft loading axial	50 N [5.098 kp]
Shaft	Ø 7 mm [Ø 0.276"]
Advice	with adapter sleeve
Shaft length	L: 12 mm [0.472"]

Insertion depth min.	11 mm [0.433"]
Insertion depth max.	15 mm [0.591"]
Max. Permissible shaft loading radial	80 N [8.157 kp]
Max. Permissible shaft loading axial	50 N [5.098 kp]
Shaft	Ø 8 mm [Ø 0.315"]
Advice	with adapter sleeve
Shaft length	L: 12 mm [0.472"]
Insertion depth min.	11 mm [0.433"]
Insertion depth max.	15 mm [0.591"]
Max. Permissible shaft loading radial	80 N [8.157 kp]
Max. Permissible shaft loading axial	50 N [5.098 kp]
Shaft	Ø 9.525 mm [Ø 3/8"] Order No: 4Z
Advice	with adapter sleeve
Shaft length	L: 12 mm [0.472"]
Insertion depth min.	11 mm [0.433"]
Insertion depth max.	15 mm [0.591"]
Max. Permissible shaft loading radial	80 N [8.157 kp]
Max. Permissible shaft loading axial	50 N [5.098 kp]
Shaft	Ø 10 mm [Ø 0.394"]
Advice	with adapter sleeve
Shaft length	L: 12 mm [0.472"]
Insertion depth min.	11 mm [0.433"]
Insertion depth max.	15 mm [0.591"]
Max. Permissible shaft loading radial	80 N [8.157 kp]
Max. Permissible shaft loading axial	50 N [5.098 kp]
Shaft	Ø 12 mm [Ø 0.472"]
Shaft length	L: 12 mm [0.472"]
Insertion depth min.	11 mm [0.433"]
Insertion depth max.	15 mm [0.591"]
Max. Permissible shaft loading radial	80 N [8.157 kp]
Max. Permissible shaft loading axial	50 N [5.098 kp]
Shaft	Ø 12.7 mm [Ø 1/2"] Order No. 3Z
Advice	with adapter sleeve

Shaft length	L: 12 mm [0.472"]
Insertion depth min.	11 mm [0.433"]
Insertion depth max.	15 mm [0.591"]
Max. Permissible shaft loading radial	80 N [8.157 kp]
Max. Permissible shaft loading axial	50 N [5.098 kp]

Shaft	Ø 14 mm [Ø 0.551"]
Shaft length	L: 12 mm [0.472"]
Insertion depth min.	11 mm [0.433"]
Insertion depth max.	15 mm [0.591"]
Max. Permissible shaft loading radial	80 N [8.157 kp]
Max. Permissible shaft loading axial	50 N [5.098 kp]

Shaft	Ø 15 mm [Ø 0.591"]
Shaft length	L: 12 mm [0.472"]
Insertion depth min.	11 mm [0.433"]
Insertion depth max.	15 mm [0.591"]
Max. Permissible shaft loading radial	80 N [8.157 kp]
Max. Permissible shaft loading axial	50 N [5.098 kp]

#### 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	6000 rpm

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

MTTF <sub>d</sub>	1200 a
Mission time (TM)	25 a
Nominale 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. 80 mA
Operating principle	magnetic
Output circuit	HTL HTL, inv. TTL TTL, RS422 compatible, inv.
Pulse frequency	HTL up to 16384 ppr: max. 600 kHz TTL up to 16384 ppr: max. 1 MHz
Channels	BAS: ABN + inverted signals ADV: CH1, CH2, CH3, CH4; + inverted signals
Load	max. 40 mA / channel
Circuit protection	inverse-polarity and short-circuit protection
Nullimpuls setzen:	Setzen: SET = +UB für 2 s Deaktiviert: SET = GND

#### Accuracy

Phase offset	90° ± max. 8.5 % of the period duration
pulse-/pause-ratio	50 % ± max. 7 %

#### Configurable via NFC:

##### BASIC: (BAS)

Channels:	ABN and inverted
HTL / TTL	freely selectable
Pulses / revolution:	1 ppr up to 16384 ppr freely selectable

##### Advanced (ADV):

Channels:	4 channels configurable + inv. signals (ABN possible)
HTL / TTL:	freely selectable
Pulses / revolution:	1 ppr up to 16384 ppr freely selectable
Number of pulses for each channel:	individually selectable
Set zero pulse:	yes
Pulse width and position:	Width and position adjustable

#### Environmental data

##### Noise immunity:

ESD (DIN EN 61000-4-2):	8 kV
EMC: (DIN EN 61000-4-3):	10 V/m
Burst (DIN EN 61000-4-4):	2 kV
High frequency fields (DIN EN 61000-4-6):	10 V
Surge (DIN EN 61000-4-5):	2 kV
Radio interference:	According DIN EN 55011

##### NFC:

EMC:	According ETSI EN 301 489
RED:	According ETSI EN 300 330

##### Electrical safety:

	DIN EN 61010-1 (VDE 0411-1) / IEC 61010-1 / UL 61010-1 / CSA C22.0 No 61010-1-12
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Vibration: (DIN EN 60068-2-6)	300 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)

#### Duty information

Customs tariff number:	90318020
Country of origin:	Germany

#### General Data

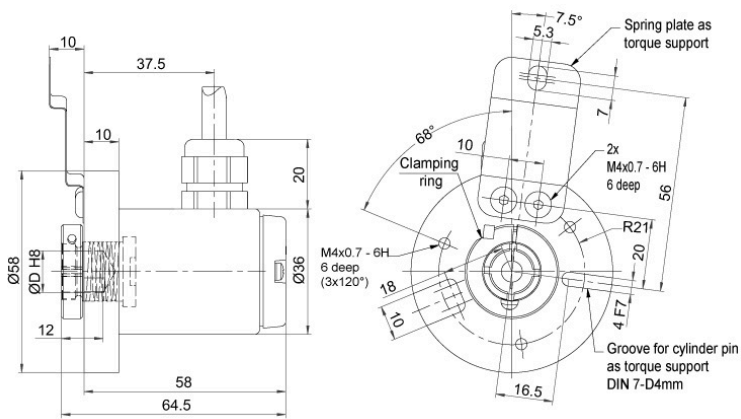
Weight	approx. 200 g [7.055 oz]
Connections	cable or connector outlet
Protection rating (EN 60529)	Housing: IP65, IP67; shaft sealed: IP65
Operating temperature	Connector: -40 °C up to +85 °C, Cable: -20 °C up to +80 °C. Connector: -40 °F up to +185 °F, Cable: -4 °F up to +176 °F.
Storage temperature	Connector: -40 °C up to +100 °C, Cable: -30 °C up to +80 °C Connector: -40 °F up to +212 °F, Cable: -22 °F up to +176 °F

#### More Information

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

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

**Cable connection L3 radial with 2 m cabel (BAS)**



**Description**

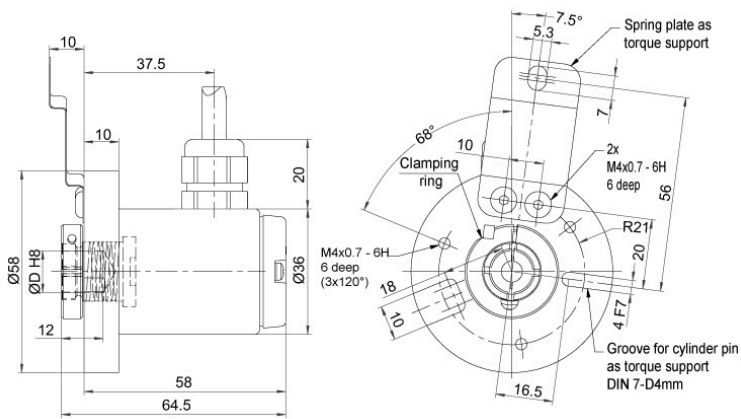
**ABN inv. poss.**

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

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Assignments	
	<b>L3</b>
<b>Circuit</b>	BAS
<b>GND</b>	WH
<b>(+) Vcc</b>	BN
<b>A</b>	GN
<b>B</b>	YE
<b>N</b>	GY
<b>A inv.</b>	RD
<b>B inv.</b>	BK
<b>N inv.</b>	VT
<b>Shield</b>	flex

**Cable connection L3 radial with 2 m cabel (ADV)**



**Description**

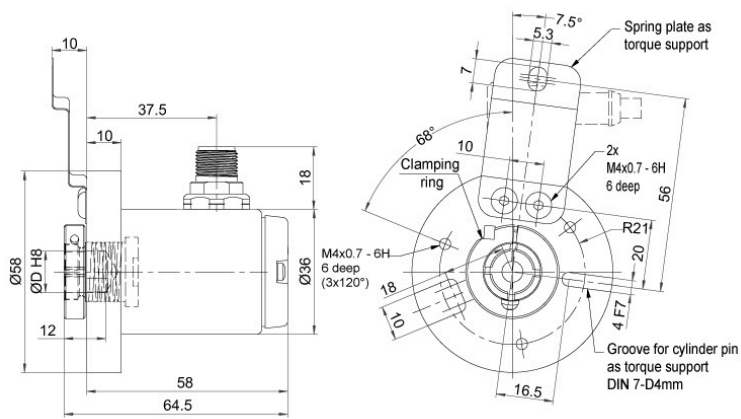
**ABN inv. poss.**

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

•

Assignments	
	<b>L3</b>
<b>Circuit</b>	ADV
<b>GND</b>	WH
<b>(+) Vcc</b>	BN
<b>CH1</b>	GN
<b>CH2</b>	YE
<b>CH3</b>	GY
<b>CH4</b>	GYPK
<b>SET</b>	PK
<b>CH1 inv.</b>	RD
<b>CH2 inv.</b>	BK
<b>CH3 inv.</b>	VT
<b>CH4 inv.</b>	RDBU
<b>Shield</b>	flex

## Sensor-connector (M12x1) SC radial, 8-pin (BAS)



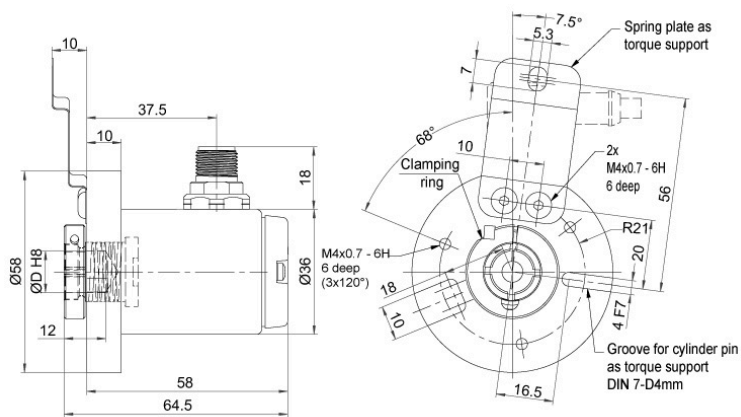
### Description

**SC8** radial, 8-pin, Connector connected to encoder housing

ABN inv. poss.

Assignments	
	<b>SC8</b>
	<b>8-pin</b>
<b>Circuit</b>	BAS
<b>GND</b>	1
<b>(+) Vcc</b>	2
<b>A</b>	3
<b>B</b>	4
<b>N</b>	5
<b>A inv.</b>	6
<b>B inv.</b>	7
<b>N inv.</b>	8

## Sensor-connector (M12x1) SC radial, 12-pin (ADV)



### Description

**SC12** radial, 12-pin, Connector connected to encoder housing

ABN inv. poss.

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Assignments	
	<b>SC12</b>
	<b>12-pin</b>
<b>Circuit</b>	ADV
<b>GND</b>	3
<b>(+) Vcc</b>	1
<b>CH1</b>	4
<b>CH2</b>	6
<b>CH3</b>	8
<b>CH4</b>	11
<b>SET</b>	5
<b>CH1 inv.</b>	9
<b>CH2 inv.</b>	7
<b>CH3 inv.</b>	10
<b>CH4 inv.</b>	12
<b>n. c.</b>	2

## Options

### Low-friction bearings

The encoder WDG 58E is also available as a particularly smooth-running low-friction encoder. The starting torque is thereby changed to approx. 0.6 Ncm [0.85 in-ozf] at ambient temperature and the protection class at the shaft input to IP50.

### Order key

**AAC**

### Cable length

The encoder WDG 58E can be supplied with more than 2 m cable. The maximum cable length depends on the supply voltage and the frequency; see <https://www.wachendorff-automation.com/download-gtd-incremental-encoders/>

Please extend the standard order code with a three figure number, specifying the cable length in decimetres.

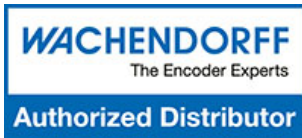
Example: 5 m cable = 050

### Order key

**XXX = Decimeter**

Example Order No.	Type					Your encoder
WDGN 58E	WDGN 58E					WDGN 58E
<b>Bore size</b>						
14	06; 2Z; 07; 08; 4Z; 10; 12; 3Z; 14; 15					
<b>Pulses per revolution PPR:</b>						
X	1-16384 configurable Other PPRs on request					
<b>Channels:</b>						
X	X (BAS=ABN, ADV= CH1,CH2,CH3,CH4)					
<b>Output circuit</b>						
BAS	<b>Resolution PPR</b>	<b>Power supply VDC</b>	<b>Output circuit</b>	-	<b>Order key</b>	
	configurable 1-16384	4.75 - 32 4.75 - 32	configurable HTL, TTL (A,B,N + inv.) configurable HTL, TTL; 4 channels+inv.	- -	BAS ADV	
<b>Electrical connections</b>						
L3	<b>Description</b>			<b>ABN inv. poss.</b>	<b>Order key</b>	
	<b>Cable: length (2 m standard, WDG 58T: 1 m)</b>					
	radial, shield connected to encoder housing			•	L3	
	<b>Connector: (shield connected to encoder housing)</b>					
sensor-connector, M12x1, 8-pin, radial			•	SC8		
sensor-connector, M12x1, 12-pin, radial			•	SC12		
<b>Options</b>						
<b>Description</b>			<b>Order key</b>			
Low-friction bearings			AAC			
Without option			Empty			
Cable length			XXX = Decimeter			

<b>Example Order No.=</b>	WDGN 58E	14	X	X	BAS	L3		WDGN 58E							<b>Your encoder</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/contact-en/wachendorff-world-wide/>

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