



# Online Data sheet

## Encoder WDGI 36E

[www.wachendorff-automation.com/wdgi36e-k](http://www.wachendorff-automation.com/wdgi36e-k)

### **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 WDGI 36E



Illustration similar



- Compact and robust
- All pulse numbers from 1 to 16,384 ppr available
- Robust construction for industrial use
- Protection to IP67, shaft sealed to IP65

[www.wachendorff-automation.com/wdgi36e-k](http://www.wachendorff-automation.com/wdgi36e-k)

Resolution	
Pulses per revolution PPR	1 PPR up to 16384 PPR
Mechanical Data	
Housing	
Flange	hollow shaft (blind-bored)
Flange material	aluminum
Housing cap	stainless steel
- 1. Spring plate compensation	axial: $\pm 1.2$ mm [0.0472"], radial: $\pm 0.4$ mm [0.0157"]
Housing	$\varnothing 36$ mm [ $\varnothing 1.417$ "]
Shaft(s)	
Shaft material	stainless steel
Starting torque	approx. 0.3 Ncm [0.425 in-ozf] at ambient temperature
Shaft	$\varnothing 7$ mm [ $\varnothing 0.276$ "]
Advice	with adapter sleeve
Insertion depth min.	10 mm [0.394"]
Insertion depth max.	14.5 mm [0.571"]
Max. Permissible shaft loading radial	80 N [8.157 kp]
Max. Permissible shaft loading axial	50 N [5.098 kp]
Shaft	$\varnothing 8$ mm [ $\varnothing 0.315$ "]
Advice	with adapter sleeve
Insertion depth min.	10 mm [0.394"]
Insertion depth max.	14.5 mm [0.571"]
Max. Permissible shaft loading radial	80 N [8.157 kp]
Max. Permissible shaft loading axial	50 N [5.098 kp]
Shaft	$\varnothing 9.525$ mm [ $\varnothing 3/8$ "] Order No: 4Z
Advice	with adapter sleeve
Insertion depth min.	10 mm [0.394"]
Insertion depth max.	14.5 mm [0.571"]
Max. Permissible shaft loading radial	80 N [8.157 kp]
Max. Permissible shaft loading axial	50 N [5.098 kp]
Shaft	$\varnothing 10$ mm [ $\varnothing 0.394$ "]
Advice	with adapter sleeve
Insertion depth min.	10 mm [0.394"]
Insertion depth max.	14.5 mm [0.571"]

Max. Permissible shaft loading radial	80 N [8.157 kp]
Max. Permissible shaft loading axial	50 N [5.098 kp]
Shaft	$\varnothing 12$ mm [ $\varnothing 0.472$ "]
Insertion depth min.	10 mm [0.394"]
Insertion depth max.	14.5 mm [0.571"]
Max. Permissible shaft loading radial	80 N [8.157 kp]
Max. Permissible shaft loading axial	50 N [5.098 kp]
Shaft	$\varnothing 14$ mm [ $\varnothing 0.551$ "]
Insertion depth min.	10 mm [0.394"]
Insertion depth max.	14.5 mm [0.571"]
Max. Permissible shaft loading radial	80 N [8.157 kp]
Max. Permissible shaft loading axial	50 N [5.098 kp]
Shaft	$\varnothing 15$ mm [ $\varnothing 0.591$ "]
Insertion depth min.	10 mm [0.394"]
Insertion depth max.	14.5 mm [0.571"]
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>	2200 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 5,5 VDC: typ. 40 mA
Operating principle	magnetic

Output circuit	HTL (TTL at 5 VDC) HTL, inv. (TTL/RS422 comp. at 5 VDC)
Pulse frequency	HTL up to 16384 ppr: max. 600 kHz TTL up to 16384 ppr: max. 1 MHz
Channels	ABN and inverted signals
Load	max. 40 mA / channel
Circuit protection	inverse-polarity and short-circuit protection

#### Accuracy

Phase offset	90° ± max. 7.5 % of the period duration
pulse-/pause-ratio	50 % ± max. 7 %

#### 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
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)
Electrical Safety:	according DIN VDE 0160

#### Duty information

Customs tariff number:	90318020
Country of origin:	Germany

#### General Data

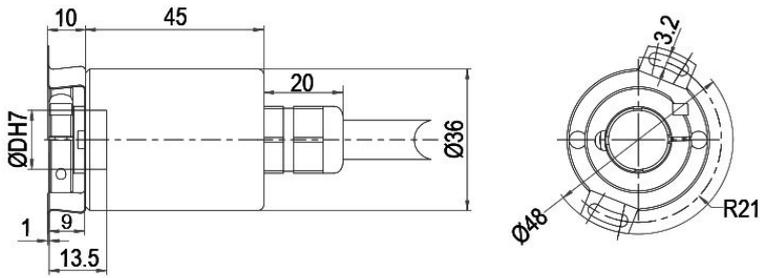
Weight	approx. 165 g [5.82 oz]
Connections	cable or connector outlet
Protection rating (EN 60529)	Housing: IP65, IP67; shaft sealed: IP65; cable outlet K1: IP40
Operating temperature	Connector: -40 °C up to +85 °C, Cable: -20 °C up to +80 °C (Option ACA: -40 °C up to +85 °C). Connector: -40 °F up to +185 °F, Cable: -4 °F up to +176 °F, Option ACA: -40 °F up to +185 °F
Storage temperature	Connector: -40 °C up to +85 °C, Cable: -30 °C up to +80 °C (Option ACA: -40 °C up to +85 °C) Connector: -40 °F up to +185 °F, cable: -22 °F up to +176 °F, (Option ACA: -40 °F up to +185 °F)

#### More Information

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

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

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



D = Ø 8, 10, 12, 14, 15 mm  
(Ø 8, 10, mm mit Reduzierhülse / with adapter sleeve)

**Description**

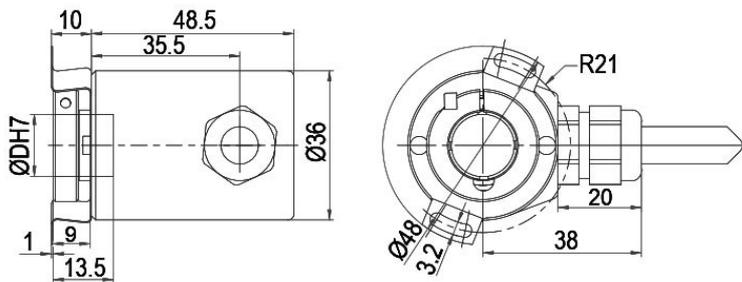
**ABN inv. poss.**

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

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Assignments		
	L2	L2
<b>Circuit</b>	N35	M35
<b>GND</b>	WH	WH
<b>(+) Vcc</b>	BN	BN
<b>A</b>	GN	GN
<b>B</b>	YE	YE
<b>N</b>	GY	GY
<b>-</b>	-	-
<b>A inv.</b>	-	RD
<b>B inv.</b>	-	BK, (BU at ACA)
<b>N inv.</b>	-	VT
<b>Shield</b>	flex	flex

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



D = Ø 8, 10, 12, 14, 15 mm

(Ø 8, 10, mm mit Reduzierhülse / with adapter sleeve)

**Description**

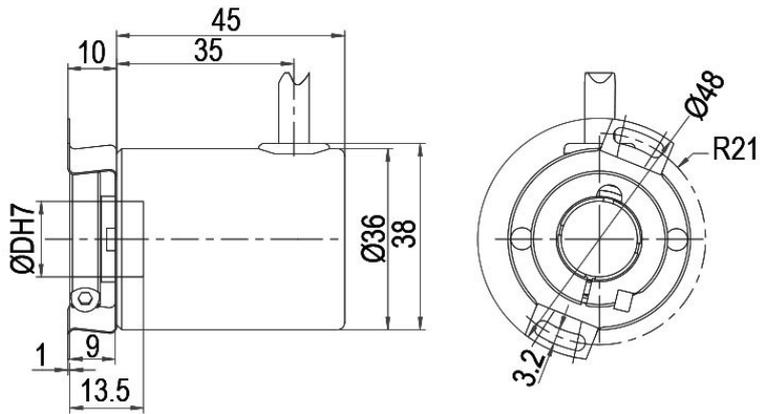
**ABN inv. poss.**

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

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Assignments		
	L3	L3
<b>Circuit</b>	N35	M35
<b>GND</b>	WH	WH
<b>(+) Vcc</b>	BN	BN
<b>A</b>	GN	GN
<b>B</b>	YE	YE
<b>N</b>	GY	GY
<b>-</b>	-	-
<b>A inv.</b>	-	RD
<b>B inv.</b>	-	BK, (BU at ACA)
<b>N inv.</b>	-	VT
<b>Shield</b>	flex	flex

**Cable K1 (IP40) radial with 2 m cable**



D = Ø 8, 10, 12, 14, 15 mm

(Ø 8, 10, mm mit Reduzierhülse / with adapter sleeve)

**Description**

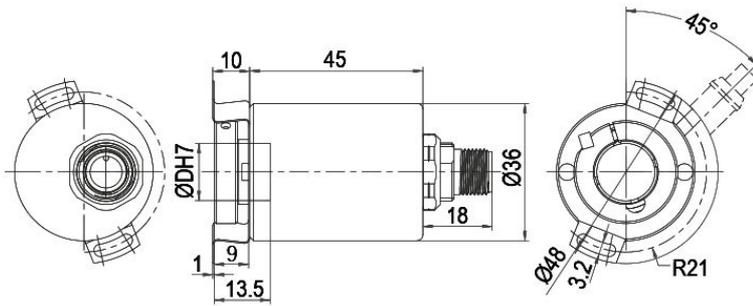
**ABN inv. poss.**

**K1** radial, shield not connected (IP40)

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Assignments		
	<b>K1</b>	<b>K1</b>
<b>Circuit</b>	N35	M35
<b>GND</b>	WH	WH
<b>(+) Vcc</b>	BN	BN
<b>A</b>	GN	GN
<b>B</b>	YE	YE
<b>N</b>	GY	GY
<b>-</b>	-	-
<b>A inv.</b>	-	RD
<b>B inv.</b>	-	BK
<b>N inv.</b>	-	VT
<b>Shield</b>	flex	flex

**Sensor connector (M12x1) SB axial, 5-, 8-pin**



D = Ø 8, 10, 12, 14, 15 mm  
(Ø 8, 10, mm mit Reduzierhülse / with adapter sleeve)

**Description**

**ABN inv. poss.**

**SB5** axial, 5-pin, Connector connected to encoder housing

-

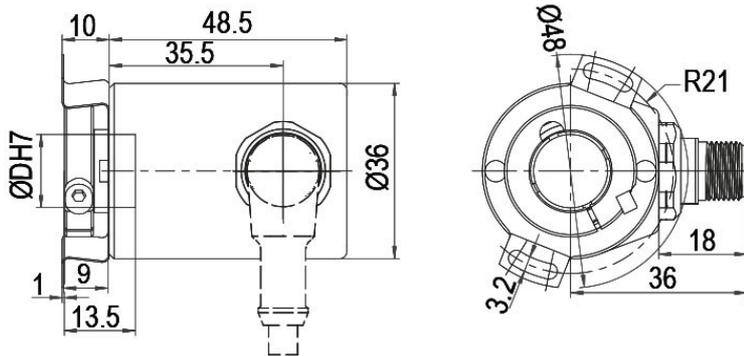
**SB8** axial, 8-pin, Connector connected to encoder housing

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**Assignments**

	<b>SB5</b>	<b>SB8</b>
	<b>5-pin</b>	<b>8-pin</b>
<b>Circuit</b>	N35	M35
<b>GND</b>	3	1
<b>(+) Vcc</b>	1	2
<b>A</b>	4	3
<b>B</b>	2	4
<b>N</b>	5	5
<b>-</b>	-	-
<b>A inv.</b>	-	6
<b>B inv.</b>	-	7
<b>N inv.</b>	-	8
<b>n. c.</b>	-	-
<b>Shield</b>	-	-

## Sensor-connector (M12x1) SC radial, 5-, 8-pin



D = Ø 8, 10, 12, 14, 15 mm

(Ø 8, 10, mm mit Reduzierhülse / with adapter sleeve)

### Description

**SC5** radial, 5-pin, Connector connected to encoder housing  
**SC8** radial, 8-pin, Connector connected to encoder housing

ABN inv. poss.

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Assignments		
	SC5	SC8
	5-pin	8-pin
<b>Circuit</b>	N35	M35
<b>GND</b>	3	1
<b>(+) Vcc</b>	1	2
<b>A</b>	4	3
<b>B</b>	2	4
<b>N</b>	5	5
<b>-</b>	-	-
<b>A inv.</b>	-	6
<b>B inv.</b>	-	7
<b>N inv.</b>	-	8
<b>n. c.</b>	-	-
<b>Shield</b>	-	-

## Options

### Low-friction bearings

The encoder WDG1 36E is also available as a particularly smooth-running low-friction encoder. The starting torque is thereby changed to 0.25 Ncm [0.354 in-ozf] and the protection class at the shaft input to IP50.

### Order key

**AAC**

### Low temperature

The encoder WDG1 36E with the output circuit types N35, M35 is also available with the extended temperature range (measured at the flange).

### Order key

**ACA**

### Pressure equalising membrane

The WDG1 36E shaft encoder is also optionally available with a pressure equalising membrane. This prevents water from penetrating into the encoder housing in the case of high air humidity.

The IP67 protection level, temperature range and salt spray resistance are maintained. Resistant to chemicals and solvents in accordance with DIN EN ISO 2812-1.

### Order key

**ACR**

### Cable length

The encoder WDG1 36E 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.

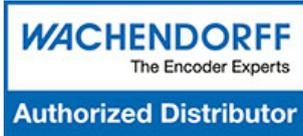
Example: 5 m cable = 050

### Order key

**XXX = Decimeter**

Example Order No.	Type					Your encoder
WDGI 36E	WDGI 36E					WDGI 36E
	<b>Bore size</b>					
12	07; 08; 4Z; 10; 12; 14; 15					
	<b>Pulses per revolution PPR:</b>					
16384	1-16384 Other PPRs on request					
	<b>Channels:</b>					
ABN	ABN					
	<b>Output circuit</b>					
M35	<b>Resolution PPR</b>	<b>Power supply VDC</b>	<b>Output circuit</b>	-	<b>Order key</b>	
	1-16384	4.75 - 30	HTL (TTL at 5 VDC)	-	N35	
		4.75 - 30	HTL, inv. (TTL/RS422 comp. at 5 VDC)	-	M35	
	<b>Electrical connections</b>					
L2	<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 not connected (IP40)			•	K1	
	axial, shield connected to encoder housing			•	L2	
	radial, shield connected to encoder housing			•	L3	
	<b>Connector: (shield connected to encoder housing)</b>					
	sensor-connector, M12x1, 5-pin, axial			-	SB5	
	sensor-connector, M12x1, 5-pin, radial			-	SC5	
	sensor-connector, M12x1, 8-pin, axial			•	SB8	
sensor-connector, M12x1, 8-pin, radial			•	SC8		
	<b>Options</b>					
	<b>Description</b>			<b>Order key</b>		
	Low-friction bearings			AAC		
	Low temperature			ACA		
	Pressure equalising membrane			ACR		
	Without option			Empty		
	Cable length			XXX = Decimeter		

<b>Example Order No.=</b>	WDGI 36E	12	16384	ABN	M35	L2		WDGI 36E							<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-sales-en/>

# WACHENDORFF

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)

