



# Online Data sheet

## Encoder WDGA 36E CANopen

[www.wachendorff-automation.com/wdga36ecan](http://www.wachendorff-automation.com/wdga36ecan)

### 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 36E absolute CANopen, with EnDra®-Technology



Illustration similar

**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

[www.wachendorff-automation.com/wdga36ecan](http://www.wachendorff-automation.com/wdga36ecan)

## Mechanical Data

Flange	hollow shaft (blind-bored)
Flange material	aluminum
Housing material	stainless steel
- 1. Spring plate compensation	axial: ±0.2 mm [0.0079"], radial: ±0.1 mm [0.0039"]
Flange diameter	Ø 36 mm [Ø 1.417"]

## Shaft(s)

Starting torque	approx. 0.3 Ncm [0.425 in-ozf] at ambient temperature
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Shaft	Ø 6 mm [Ø 0.236"]
Insertion depth min.	8 mm [0.315"]
Insertion depth max.	17 mm [0.669"]
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
Insertion depth min.	8 mm [0.315"]
Insertion depth max.	17 mm [0.669"]
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
Nominal service life	1.4 x 10 <sup>8</sup> revs. at 100 % rated shaft load 2 x 10 <sup>9</sup> revs. at 40 % rated shaft load 1.7 x 10 <sup>10</sup> revs. at 20 % rated shaft load
Max. operating speed	12000 rpm

## Machinery Directive: basic data safety integrity level

MTTF <sub>d</sub>	1000 a
Mission time (TM)	20 a
Nominal service life (L10h)	1.7 x 10 <sup>10</sup> revs. at 20 % rated shaft load and 12000 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

Operating principle	magnetic
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## 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

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)
Electrical Safety:	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>CAN</b>
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.

Programmable CAN transmission modes:	<p><b>Synchronous mode:</b> when a synchronisation telegram (SYNC) is received from another bus node, PDOs are transmitted independently.</p> <p><b>Asynchronous mode:</b> a PDO message is triggered by an internal event. (e.g. change of measured valued, internal timer, etc.)</p>
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#### General Data

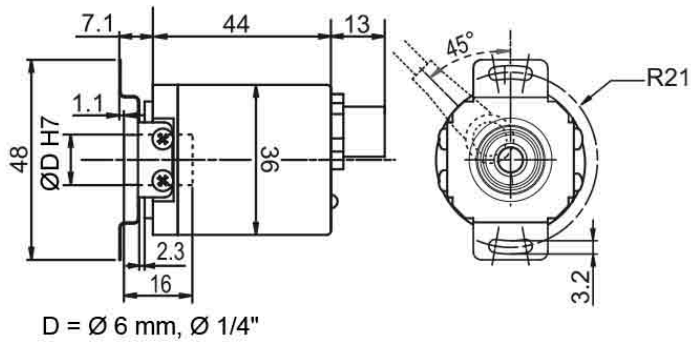
Weight	approx. 110 g [3.88 oz]
Connections	cable or connector outlet
Protection rating (EN 60529)	Housing: IP65, IP67; shaft sealed: IP65; cable outlet L1: IP40, K6: IP20
Operating temperature	-40 °C up to +85 °C [-40 °F up to 185 °F]
Storage temperature	-40 °C up to +100 °C [-40 °F up to 212 °F]

#### More Information

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

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

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



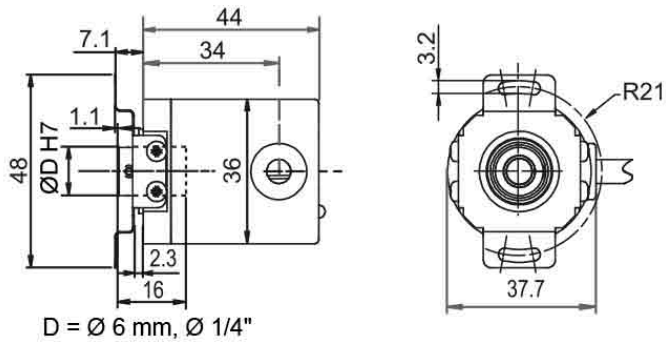
**Description**

**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



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

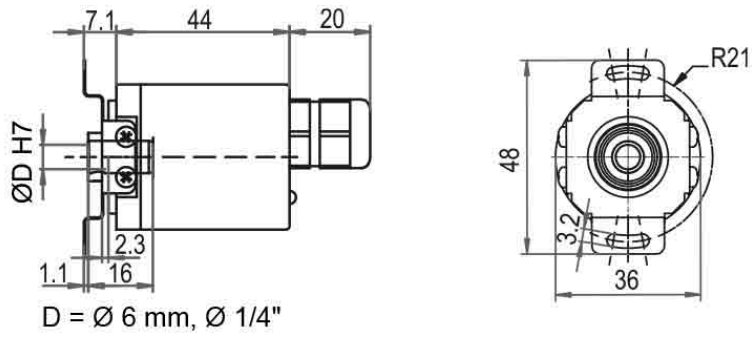


**Description**

**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**

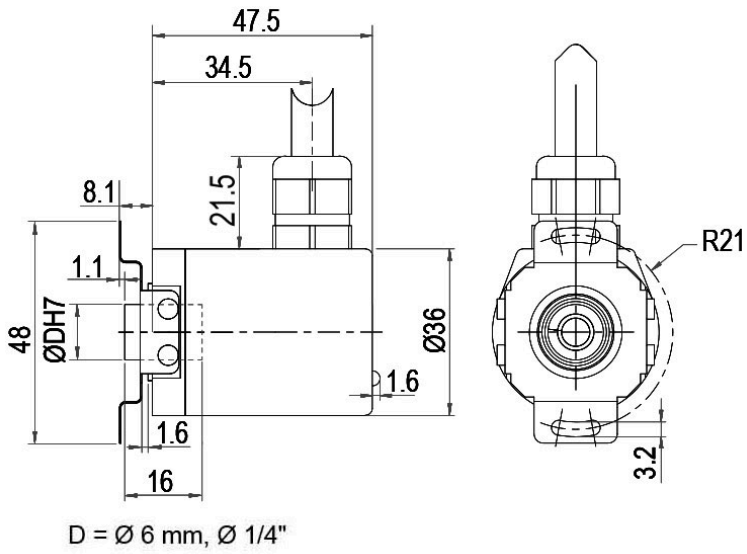


**Description**

**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**

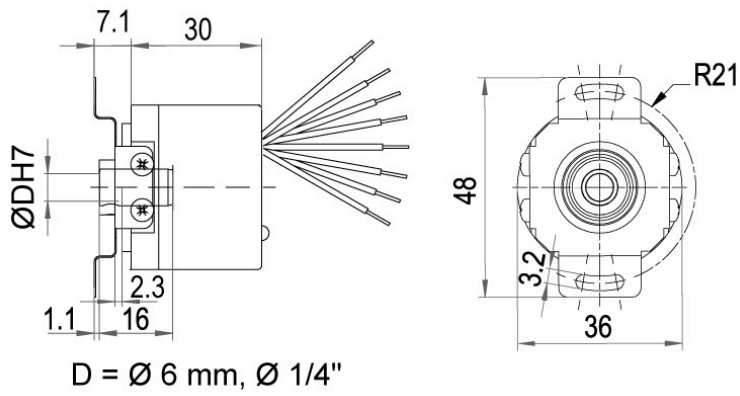


**Description**

**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

**Cable connection, K6 (IP20)**



**Description**

**K6** axial, shield not connected

Assignments	
	<b>K6</b>
<b>(+) Vcc</b>	BN
<b>GND</b>	WH
<b>CANHigh</b>	GN
<b>CANLow</b>	YE
<b>CANGND</b>	GY
<b>shield</b>	

**Options****Low-friction bearings**

The encoder WDGA 36E CANopen 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****120 Ohm terminating resistor**

The encoder WDGA 36E CANopen is also available with fixed 120 Ohm terminating resistor.

**Order key****AEO**

Example Order No.	Type	Your encoder
WDGA 36E	WDGA 36E	WDGA 36E
	<b>Shaft</b>	<b>Order key</b>
06	Ø 6 mm [Ø 0.236"]	06
	Ø 6.35 mm [Ø 1/4"] Order No: 2Z	2Z
	<b>Single-turn Resolution</b>	<b>Order key</b>
12	Single-turn resolution 1 bit up to 16 bit, recommended min. 6 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	L2
	radial, shield connected to encoder housing, with 2 m cable	L3
	axial, shield not connected, IP20, with 8 cm loose wires	K6
	<b>Connector:</b>	
	sensor-connector, M12x1, 5-pin, axial, shield connected to encoder housing	CB5
	sensor-connector, M12x1, 5-pin, radial, shield connected to encoder housing	CC5
	<b>Options</b>	<b>Order key</b>
	Without option	Empty
	Low-friction bearings	AAC
	120 Ohm terminating resistor	AEO

Example Order No.	WDGA 36E	06	12	18	CO	A	B	0	0	CB5	
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WDGA 36E											Example Order No.
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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/>

# WACHENDORFF

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