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The Encoder Experts

IndustrieROBUST

Online Data sheet

Encoder WDGA 36E CANopen
www.wachendorff-automation.com/wdga36e-can

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

IndustrieROBUST

Encoder WDGA 36E absolute CANopen, with EnDra®-Technology

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/wdga36e-can

Illustration similar

Mechanical Data	
Flange	hollow shaft (blind-bored)
Flange material	aluminum
Housing material	stainless steel
- 1. Spring plate compensation	axial: ±1.2 mm [0.0472"], radial: ±0.4 mm [0.0157"]
Flange diameter	Ø 36 mm [Ø 1.417"]

Shaft(s)	
Starting torque	approx. 1.6 Ncm [2.266 in-ozf] at ambient temperature

Shaft	Ø 7 mm [Ø 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	Ø 8 mm [Ø 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	Ø 9.525 mm [Ø 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	Ø 10 mm [Ø 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	Ø 12 mm [Ø 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	Ø 12.7 mm [Ø 1/2"] Order No. 3Z
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	Ø 14 mm [Ø 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	Ø 15 mm [Ø 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 10'9 revs. at 100 % rated shaft load 1 x 10'10 revs. at 40 % rated shaft load 1 x 10'11 revs. at 20 % rated shaft load
Max. operating speed	6000 rpm

Machinery Directive: basic data safety integrity level	
MTTF$_d$	1000 a
Mission time (TM)	20 a
Nominale service life (L10h)	1 x 10'11 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
Operating principle	magnetic

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/s² (10 Hz up to 2000 Hz)
Shock: (DIN EN 60068-2-27)	5000 m/s² (6 ms)
Electrial Safety:	According DIN VDE 0160
Turn on time:	<1,5 s

Duty information

Customs tariff number:	90318020
Country of origin:	Germany

Interface

|	
Interface:	**CAN**
Protocol:	CANopen • Communication profil CiA 301 • Device Profile for encoder CiA 406 V3.2 class C2
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:	**Sychronous mode:** when a synchronisation telegram (SYNC) is received from another bus node, PDOs are transmitted independently. **Asynchronous mode:** a PDO message is triggered by an internal event. (e.g. change of measured valued, internal timer, etc.)

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

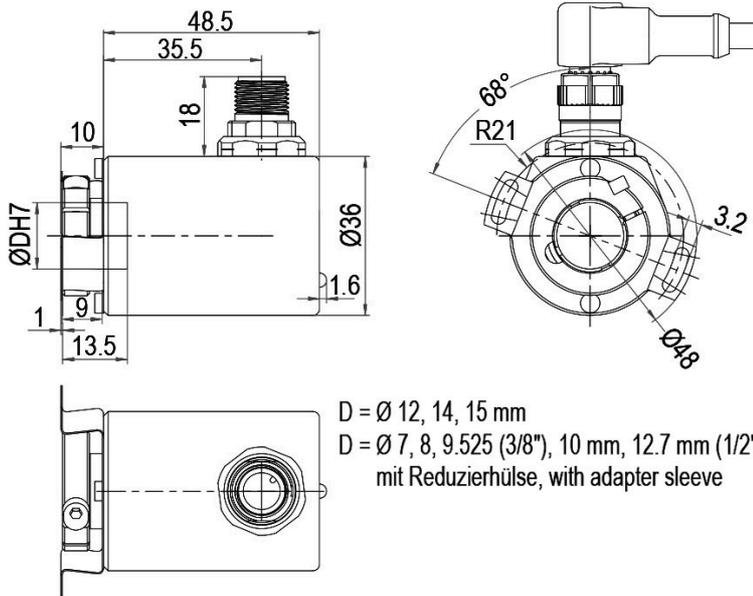**Connector, M12x1 CB5 axial, 5-pin**
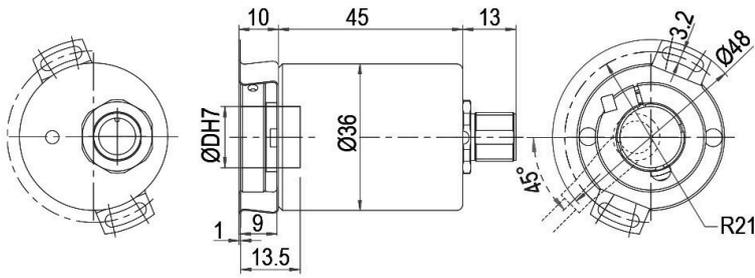
D = Ø 12, 14, 15 mm
D = Ø 7, 8, 9.525 (3/8"), 10 mm, 12.7 mm (1/2")
    mit Reduzierhülse, with adapter sleeve

Description

CB5   axial, 5-pin, shield connected to encoder housing

Assignments	
	CB5
(+) Vcc	2
GND	3
CANHigh	4
CANLow	5
CANGND shield	1

D = Ø 12, 14, 15 mm
D = Ø 7, 8, 9.525 (3/8"), 10 mm, 12.7 mm (1/2")
mit Reduzierhülse, with adapter sleeve

Description

CC5   radial, 5-pin, shield connected to encoder housing

Assignments	
	CC5
(+) Vcc	2
GND	3
CANHigh	4
CANLow	5
CANGND shield	1

Cable connection, L1 radial with 2 m cable (IP40)
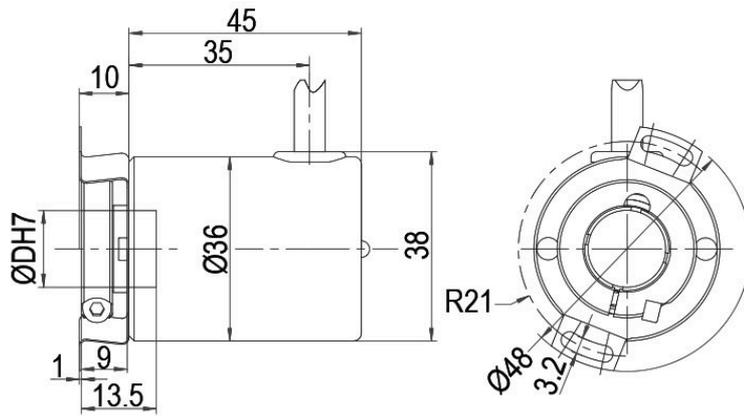
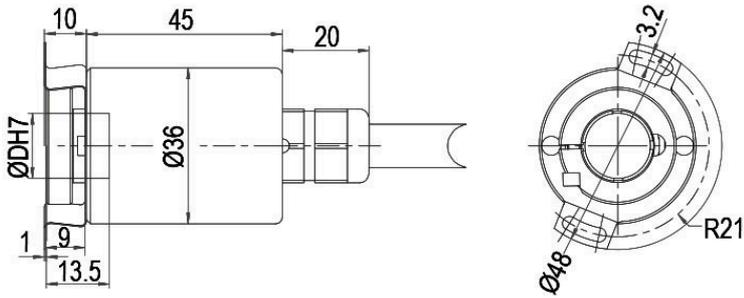D = Ø 12, 14, 15 mm
D = Ø 7, 8, 9.525 (3/8"), 10 mm, 12.7 mm (1/2")
mit Reduzierhülse, with adapter sleeve

Description

| L1 | radial, shield connected to encoder housing (IP40) |

Assignments	
	L1
(+) Vcc	BN
GND	WH
CANHigh	GN
CANLow	YE
CANGND shield	shield

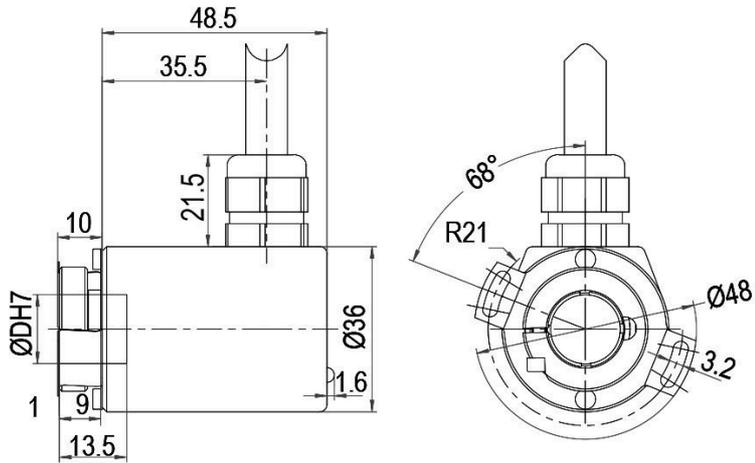**Cable connection, L2 axial with 2 m cable**

D = Ø 12, 14, 15 mm
D = Ø 7, 8, 9.525 (3/8"), 10 mm, 12.7 mm (1/2")
mit Reduzierhülse, with adapter sleeve

Description

L2   axial, shield connected to encoder housing

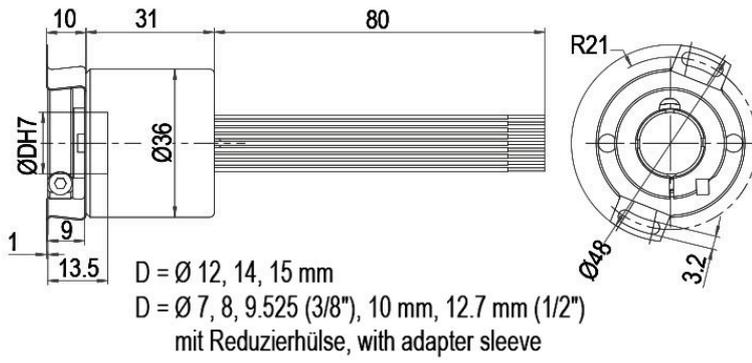| Assignments	
	L2
(+) Vcc	BN
GND	WH
CANHigh	GN
CANLow	YE
CANGND shield	shield

Cable connection, L3 radial with 2 m cable

D = Ø 12, 14, 15 mm
D = Ø 7, 8, 9.525 (3/8"), 10 mm, 12.7 mm (1/2")
    mit Reduzierhülse, with adapter sleeve

Description

L3   radial, shield connected to encoder housing

Assignments	
	L3
(+) Vcc	BN
GND	WH
CANHigh	GN
CANLow	YE
CANGND shield	shield

Cable connection, K6 (IP20)

D = Ø 12, 14, 15 mm
D = Ø 7, 8, 9.525 (3/8"), 10 mm, 12.7 mm (1/2")
mit Reduzierhülse, with adapter sleeve

Description

K6   axial, shield not connected

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

Options

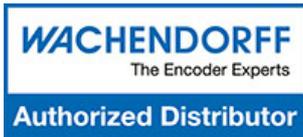| Low-friction bearings	Order key
The encoder WDGA 36E CANopen is also available as a particularly smooth-running low-friction encoder. The starting torque is thereby changed to 0.25 Ncm [0.354 in-ozf] and the protection class at the shaft input to IP50.	**AAC**

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

Example Order No.	Type		Your encoder
WDGA 36E	WDGA 36E		WDGA 36E

		Shaft	Order key	
08		Ø 7 mm [Ø 0.276"] with adapter sleeve	07	
		Ø 8 mm [Ø 0.315"] with adapter sleeve	08	
		Ø 9.525 mm [Ø 3/8"] Order No: 4Z with adapter sleeve	4Z	
		Ø 10 mm [Ø 0.394"] with adapter sleeve	10	
		Ø 12 mm [Ø 0.472"]	12	
		Ø 12.7 mm [Ø 1/2"] Order No. 3Z with adapter sleeve	3Z	
		Ø 14 mm [Ø 0.551"]	14	
		Ø 15 mm [Ø 0.591"]	15	

	Single-turn Resolution	Order key	
12	Single-turn resolution 1 bit up to 16 bit, recommended min. 6 bit (e. G. 12 bit)	12	

	Multi-turn Resolution	Order key	
18	Multi-turn resolution: (examples) 18 bit = 18 43 bit = 43 no Multiturn = 00	18	

	Data protocol	Order key	
CO	CANopen	CO	CO

	Software	Order key	
A	up to date release	A	A

	Code	Order key	
B	binary	B	B

	Power supply	Order key	
0	4.75 V up to 32 V (standard)	0	0

	Galvanic isolation	Order key	
0	no	0	0

	Electrical connections	Order key	
	Cable:		
	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	
CB5			
	Connector:		
	sensor-connector, M12x1, 5-pin, axial, shield connected to encoder housing	CB5	
	sensor-connector, M12x1, 5-pin, radial, shield connected to encoder housing	CC5	

	Options	Order key	
	Low-friction bearings	AAC	
	120 Ohm terminating resistor	AEO	
	Without option	Empty	

Example Order No.	WDGA 36E	08	12	18	CO	A	B	0	0	CB5		
	WDGA 36E				CO	A	B	0	0			**Your encoder**

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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