WACHENDORFF
The Encoder Experts

Online Data sheet

Encoder WDGI 36E

www.wachendorff-automation.com/wdgi36e

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 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

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
- 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)	
Shaft material	stainless steel
Starting torque	approx. 0.3 Ncm [0.425 in-ozf] at ambient temperature
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
Nominale service life	1.4 x 10'8 revs. at 100 % rated shaft load 2 x 10'9 revs. at 40 % rated shaft load 1.7 x 10'10 revs. at 20 % rated shaft load
Max. operating speed	12000 rpm

Machinery Directive: basic data safety integrity level	
$MTTF_d$	2200 a
Mission time (TM)	25 a
Nominale service life (L10h)	1.7 x 10'10 revs. at 20 % rated shaft load and 12000 rpm
Diagnostic coverage (DC)	0 %

Electrical Data	
Power supply/Current consumption	4.75 VDC up to 30 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	yes

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^2 (10 Hz up to 2000 Hz)
Shock: (DIN EN 60068-2-27)	1000 m/s^2 (6 ms)
Electrial Safety:	according DIN VDE 0160

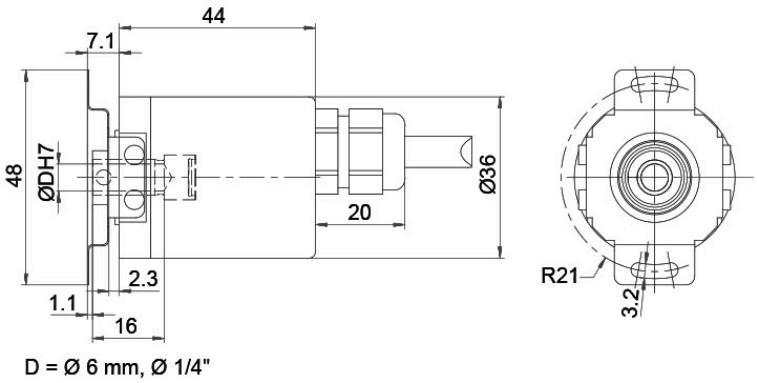
Duty information	
Customs tariff number:	90318020
Country of origin:	Germany

General Data	
Weight	approx. 130 g [4.586 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**

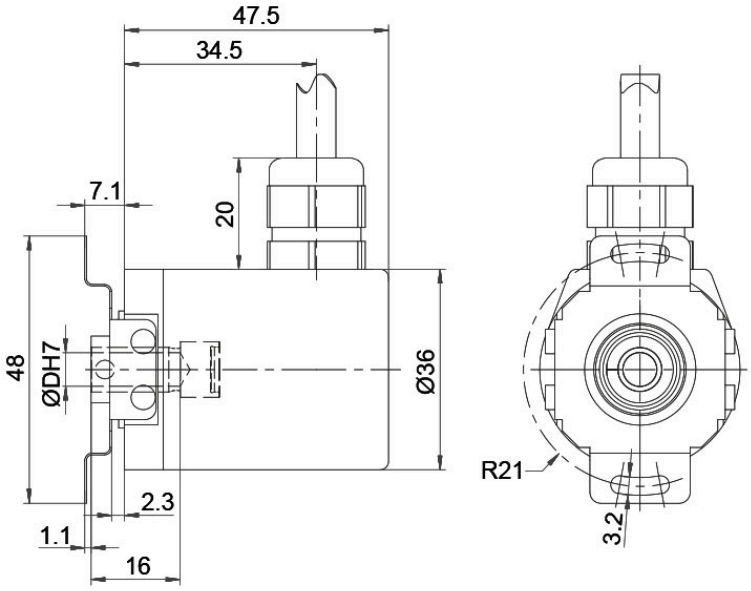
Cable connection L2 axial with 2 m cable



Description		ABN inv. poss.
L2	axial, shield connected to encoder housing	•

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

Cable connection L3 radial with 2 m cabel

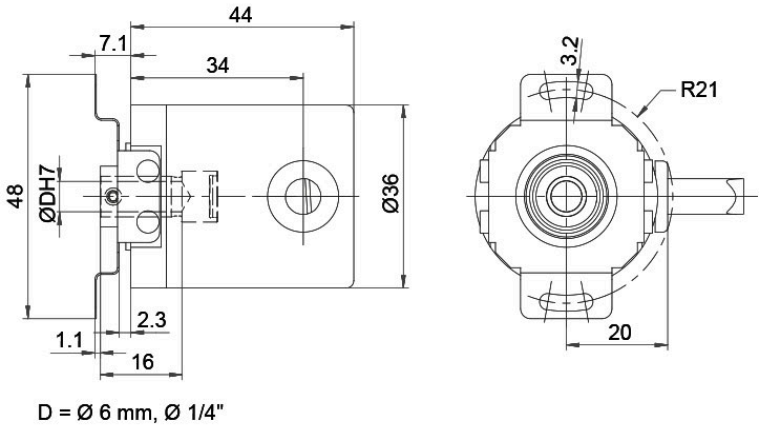


D = Ø 6 mm, Ø 1/4"

Description		ABN inv. poss.
L3	radial, shield connected to encoder housing	•

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

Cable K1 (IP40) radial with 2 m cable

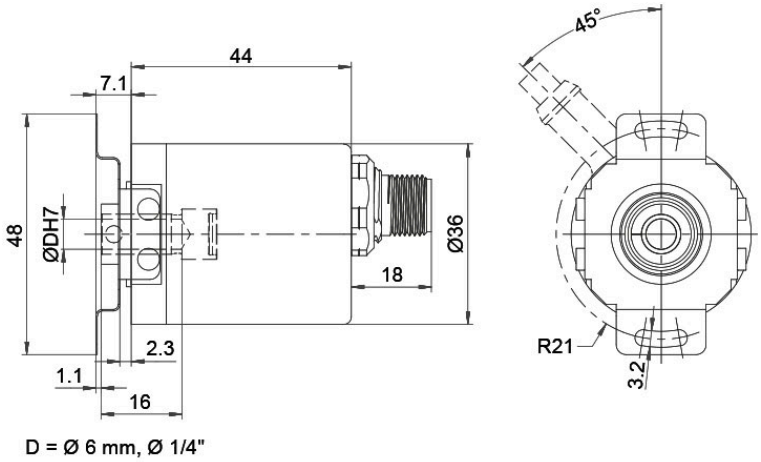


D = Ø 6 mm, Ø 1/4"

Description		ABN inv. poss.
K1	radial, shield not connected (IP40)	•

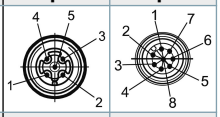
Assignments		
	K1	**K1**
Circuit	N35	M35
GND	WH	WH
(+) Vcc	BN	BN
A	GN	GN
B	YE	YE
N	GY	GY
-	-	-
A inv.	-	RD
B inv.	-	BK
N inv.	-	VT
Shield	flex	flex

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

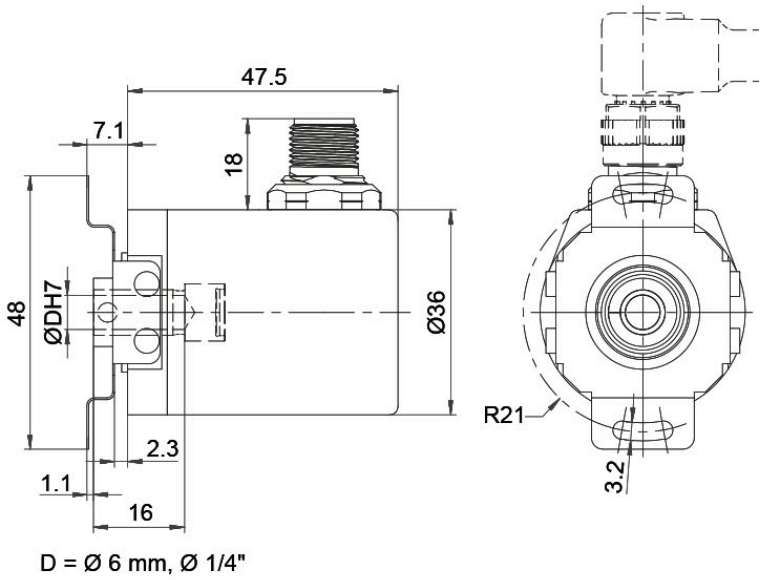


D = Ø 6 mm, Ø 1/4"

Description		ABN inv. poss.
SB5	axial, 5-pin, Connector connected to encoder housing	-
SB8	axial, 8-pin, Connector connected to encoder housing	•

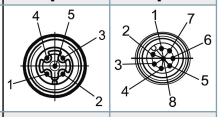
Assignments		
	SB5	**SB8**
	5-pin	**8-pin**
		
Circuit	N35	M35
GND	3	1
(+) Vcc	1	2
A	4	3
B	2	4
N	5	5
-	-	-
A inv.	-	6
B inv.	-	7
N inv.	-	8
n. c.	-	-
Shield	-	-

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



D = Ø 6 mm, Ø 1/4"

Description		ABN inv. poss.
SC5	radial, 5-pin, Connector connected to encoder housing	-
SC8	radial, 8-pin, Connector connected to encoder housing	•
SC12	radial, 12-pin, Connector connected to encoder housing	•

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

Options

Low-friction bearings	Order key
The encoder WDGI 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.	**AAC**

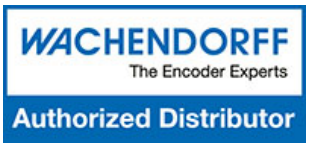
Low temperature	Order key
The encoder WDGI 36E with the output circuit types M35, N35 is also available with the extended temperature range -40 °C up to +85 °C [-40 °F up to +185 °F] (measured at the flange).	**ACA**

Pressure equalising membrane	Order key
The WDGI 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.	**ACR**

Cable length	Order key
The encoder WDGI 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	**XXX = Decimeter**

Example Order No.	Type						Your encoder
WDGI 36E	WDGI 36E						WDGI 36E
	Bore size						
06	06; 2Z						
	Pulses per revolution PPR:						
16384	1-16384 Other PPRs on request						
	Channels:						
ABN	ABN						
	Output circuit						
M35	**Resolution PPR**	**Power supply VDC**	**Output circuit**		**-**	**Order key**	
	1-16384	4.75 - 30	HTL (TTL at 5 VDC)		-	N35	
		4.75 - 30	HTL, inv. (TTL/RS422 comp. at 5 VDC)		-	M35	
	Electrical connections						
L2	**Description**				**ABN inv. poss.**	**Order key**	
	Cable: length (2 m standard, WDG 58T: 1 m)						
	radial, shield not connected (IP40)				•	K1	
	axial, shield connected to encoder housing				•	L2	
	radial, shield connected to encoder housing				•	L3	
	Connector: (shield connected to encoder housing)						
	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	
	Options						
	Description				**Order key**		
	Low-friction bearings				AAC		
	Low temperature				ACA		
	Pressure equalising membrane				ACR		
	Without option				Empty		
	Cable length				XXX = Decimeter		

Example Order No.=	WDGI 36E	06	16384	ABN	M35	L2		WDGI 36E							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/

WACHENDORFF

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

Phone: +49 67 22 / 99 65 25
E-Mail: wdg@wachendorff.de
www.wachendorff-automation.de