



Online Data sheet

Encoder WDG 50B

www.wachendorff-automation.com/wdg50bm

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 50B



Illustration similar



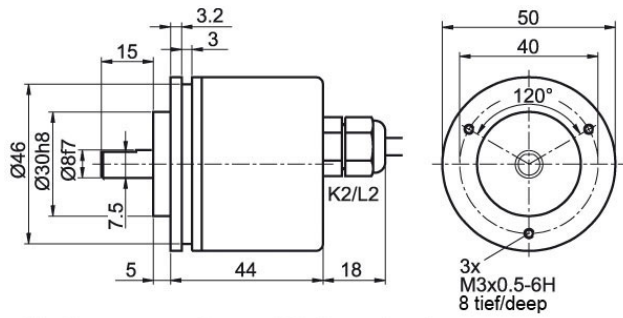
- Economic encoder with mechanical carrying of loading
- Protection to IP67, shaft sealed to IP65
- Optional: -40 °C up to +85 °C [-40 °F up to +176 °F]

www.wachendorff-automation.com/wdg50bm

Resolution	
Pulses per revolution PPR	up to 1024 PPR
Mechanical Data	
Flange	clamping flange
Flange material	aluminum
Housing material	aluminum, powder coated
Flange diameter	Ø 50 mm [Ø 1.969"]
Cam mounting	pitch 61 mm [2.401 inches] (Accessory SP-3-00)
Shaft(s)	
Shaft material	stainless steel
Starting torque	approx. 0.3 Ncm [0.425 in-ozf] at ambient temperature
Shaft	Ø 8 mm [Ø 0.315"]
Shaft length	L: 15 mm [0.591"]
Max. Permissible shaft loading radial	120 N [12.236 kp]
Max. Permissible shaft loading axial	70 N [7.138 kp]
Bearings	
Bearings type	2 precision ball bearings
Nomiale service life	2 x 10 ⁸ revs. at 100 % rated shaft load 3 x 10 ⁹ revs. at 40 % rated shaft load 2 x 10 ¹⁰ revs. at 20 % rated shaft load
Max. operating speed	12000 rpm
Machinery Directive: basic data safety integrity level	
MTTF _d	200 a
Mission time (TM)	25 a
Nomiale service life (L10h)	2 x 10 ¹⁰ revs. at 20 % rated shaft load and 12000 rpm
Diagnostic coverage (DC)	0 %
Electrical Data	
Power supply/Current consumption	5 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	≤ 1024 ppr: max. 200 kHz
Channels	AB ABN and inverted signals

Load	max. 40 mA / channel
Circuit protection	no
Accuracy	
Phase offset	90° ± max. 25% of the period duration
pulse-/pause-ratio	at 1 ppr up to 128 ppr: 50 % ± max. 7 % 129 ppr - 256 ppr: 50 % ± max. 9 % 257 ppr - 512 ppr: 50 % ± max. 13 % 513 ppr - 1024 ppr: 50 % ± max. 18 %
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)
Electrical Safety:	according DIN VDE 0160
Duty information	
Customs tariff number:	90318020
Country of origin:	Germany
General Data	
Weight	approx. 160 g [5.644 oz]
Connections	cable or connector outlet
Protection rating (EN 60529)	Housing: IP65, IP67; shaft sealed: IP65
Operating temperature	-20 °C up to +80 °C [-4 °F up to +176 °F]
Storage temperature	-30 °C up to +80 °C [-22 °F up to 176 °F]
More Information	
General technical data and safety instructions http://www.wachendorff-automation.com/gtd	
Options http://www.wachendorff-automation.com/acc	

Cable connection K2, L2 with 2 m cable

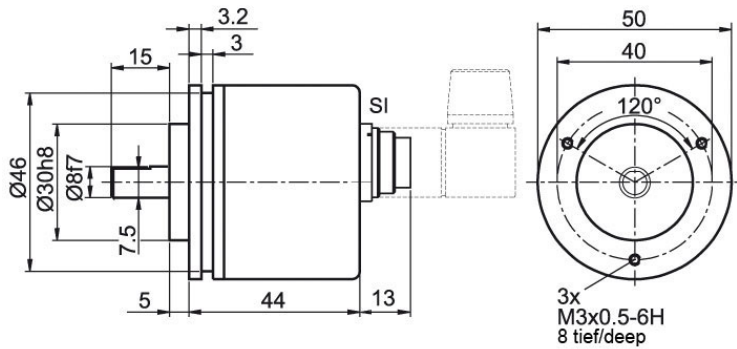


Alle Abmessungen in mm / All dimensions in mm

Description	ABN inv. poss.
K2 axial, shield not connected	•
L2 axial, shield connected to encoder housing	•

Assignments		
	K2, L2	K2, 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 (M16x0.75) SI, 5-, 6-, 8-, 12-pin

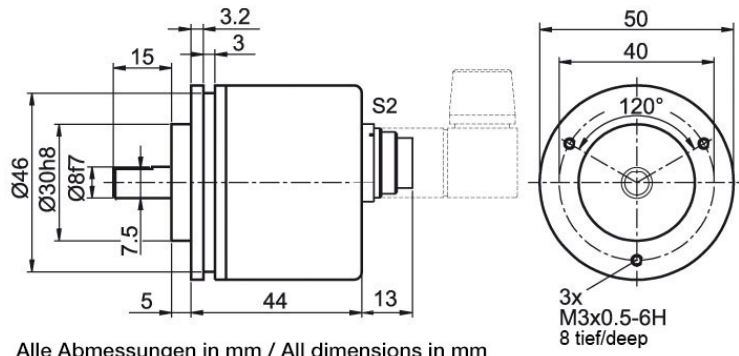


Alle Abmessungen in mm / All dimensions in mm

Description	ABN inv. poss.
SI5 axial, 5-pin, Connector connected to encoder housing	-
SI6 axial, 6-pin, Connector connected to encoder housing	-
SI8 axial, 8-pin, Connector connected to encoder housing	•
SI12 axial, 12-pin, Connector connected to encoder housing	•

Assignments				
	SI5	SI6	SI8	SI12
	5-pin	6-pin	8-pin	12-pin
Circuit	N35	N35	M35	M35
GND	1	6	1	K, L
(+) Vcc	2	1	2	M, B
A	3	2	3	E
B	4	4	4	H
N	5	3	5	C
-	-	-	-	-
A inv.	-	-	6	F
B inv.	-	-	7	A
N inv.	-	-	8	D
n. c.	-	5	-	G, J
Shield	-	-	-	-

Connector (M16x0.75) S2, 7-pin



Description

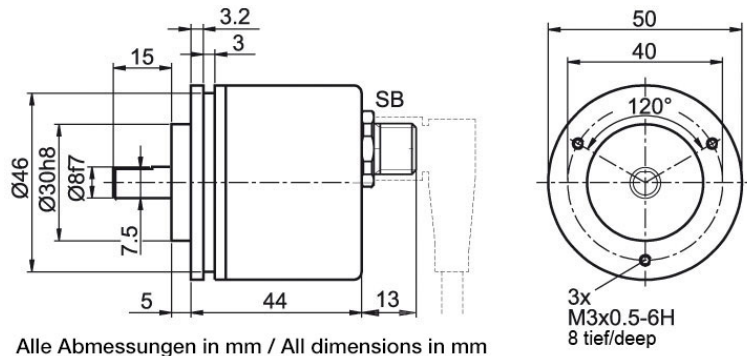
ABN inv. poss.

S2 axial, 7-pin, Connector connected to encoder housing

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Assignments	
	S2
	7-pin
Circuit	N35
GND	1
(+) Vcc	2
A	3
B	4
N	5
-	-
A inv.	-
B inv.	-
N inv.	-
n. c.	6, 7
Shield	-

Sensor-connector (M12x1) SB, 4-, 5-, 8-, 12-pin



Description	ABN inv. poss.
SB4 axial, 4-pin, Connector connected to encoder housing	-
SB5 axial, 5-pin, Connector connected to encoder housing	-
SB8 axial, 8-pin, Connector connected to encoder housing	•
SB12 axial, 12-pin, Connector connected to encoder housing	•

Assignments				
	SB4 4-pin	SB5 5-pin	SB8 8-pin	SB12 12-pin
Circuit	N35	N35	M35	M35
GND	3	3	1	3
(+) Vcc	1	1	2	1
A	2	4	3	4
B	4	2	4	6
N	-	5	5	8
-	-	-	-	-
A inv.	-	-	6	9
B inv.	-	-	7	7
N inv.	-	-	8	10
n. c.	-	-	-	2, 5, 11, 12
Shield	-	-	-	-

Options

Low-friction bearings

The encoder WDG 50B is also available as a particularly smooth-running low-friction encoder. The starting torque is thereby changed to $\leq 0.25 \text{ Ncm}$ [0.354 in-ozf] and the protection class at the shaft input to IP50.

Order key

AAC

Low temperature

The encoder WDG 50B with the output circuit types M35, N35 is also available with the extended temperature range -40°C up to $+80^\circ\text{C}$ [-40°F up to $+176^\circ\text{F}$] (measured at the flange).

Order key

ACA

Cable length

The encoder WDG 50B 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.

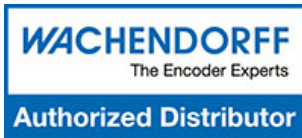
Example: 5 m cable = 050

Order key

XXX = Decimeter

Example Order No.	Type					Your encoder
WDG 50B	WDG 50B					WDG 50B
Pulses per revolution PPR:						
1024	1-1024 Other PPRs on request					
Channels:						
ABN	AB, ABN bis 1024 I/U					
Output circuit						
M35	Resolution PPR	Power supply VDC	Output circuit	-	Order key	
	up to 1024	5 - 30	HTL, inv. (TTL/RS422 comp. at 5 VDC)	-	M35	
		5 - 30	HTL (TTL at 5 VDC)	-	N35	
Electrical connections						
K2	Description			ABN inv. poss.	Order key	
	Cable: length (2 m standard, WDG 58T: 1 m)					
	axial, shield not connected			•	K2	
	axial, shield connected to encoder housing			•	L2	
	Connector: (shield connected to encoder housing)					
	connector, M16x0.75, 5-pin, axial			-	SI5	
	connector, M16x0.75, 6-pin, axial			-	SI6	
	connector, M16x0.75, 8-pin, axial			•	SI8	
	connector, M16x0.75, 12-pin, axial			•	SI12	
	connector, M16x0.75, 7-pin, axial			-	S2	
	sensor-connector, M12x1, 4-pin, axial			-	SB4	
	sensor-connector, M12x1, 5-pin, axial			-	SB5	
	sensor-connector, M12x1, 8-pin, axial			•	SB8	
	sensor-connector, M12x1, 12-pin, axial			•	SB12	
Options						
	Description			Order key		
	Low-friction bearings			AAC		
	Low temperature			ACA		
	Without option			Empty		
	Cable length			XXX = Decimeter		

Example Order No.=	WDG 50B	1024	ABN	M35	K2		WDG 50B						Your encoder
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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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