



# Online Data Sheet

## Encoder WDG 50B

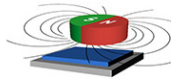
[www.wachendorff-automation.com/wdg50bm](http://www.wachendorff-automation.com/wdg50bm)

### 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 (magnetic)



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

[www.wachendorff-automation.com/wdg50bm](http://www.wachendorff-automation.com/wdg50bm)

Resolution	
Max. pulses per revolution PPR	up to 1024 PPR

Mechanical Data	
<b>Housing</b>	
Flange	clamping flange
Flange material	aluminum
Housing cap	aluminum, powder coated
Housing	Ø 50 mm
Cam mounting	pitch 61 mm

Shaft(s)	
Shaft material	stainless steel
Starting torque	approx. 0.3 Ncm at ambient temperature
Shaft	Ø 8 mm
Shaft length	L: 15 mm
Max. Permissible shaft loading radial	120 N
Max. Permissible shaft loading axial	70 N

Bearings	
Bearings type	2 precision ball bearings
Nominal service life	2 x 10 <sup>8</sup> revs. at 100 % rated shaft load 3 x 10 <sup>9</sup> revs. at 40 % rated shaft load 2 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>	200 a
Mission time (TM)	25 a
Nominal service life (L10h)	2 x 10 <sup>10</sup> revs. at 20 % rated shaft load and 12000 rpm
Diagnostic coverage (DC)	0 %

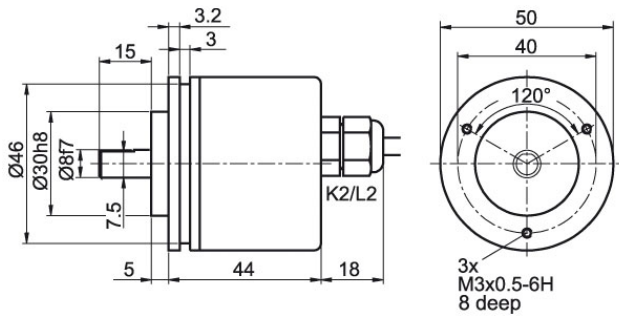
Electrical Data	
Power supply/Current consumption	5 VDC up to 30 VDC: typ. 40 mA
Output circuit	HTL
Pulse frequency	1024 ppr: max. 200 kHz
Channels	AB ABN and inverted signals

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 % at 256 ppr: 50 % ± max. 9 % at 512 ppr: 50 % ± max. 13 % at 1024 ppr: 50 % ± max. 18 %

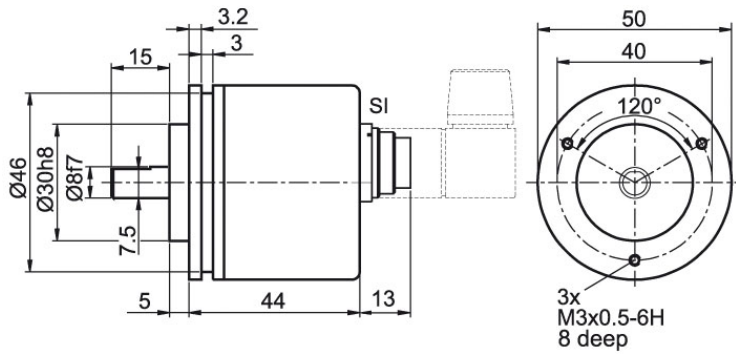
General Data	
Weight	approx. 160 g
Connections	cable or connector outlet
Protection rating (EN 60529)	Housing: IP65, IP67; shaft sealed: IP65
Operating temperature	-20 °C up to +80 °C
Storage temperature	-30 °C up to +80 °C

More Information	
General technical data and safety instructions <a href="http://www.wachendorff-automation.com/gtd">http://www.wachendorff-automation.com/gtd</a>	
Options <a href="http://www.wachendorff-automation.com/acc">http://www.wachendorff-automation.com/acc</a>	







**Cable connection K2, L2 with 2 m cable**

**Description**
**ABN inv. poss.**

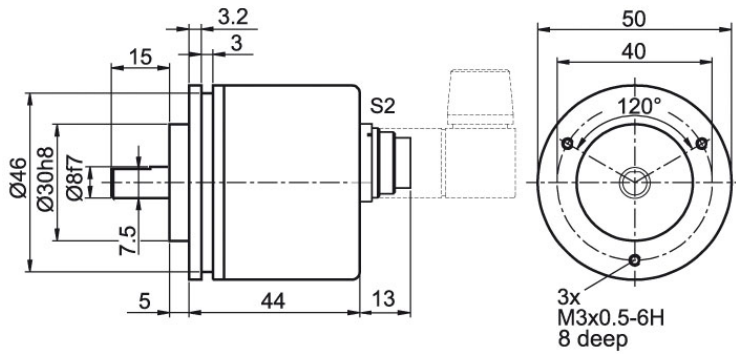
<b>K2</b>	axial, shield not connected	•
<b>L2</b>	axial, shield connected to encoder housing	•

Assignments		
	K2, L2	K2, 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>Light reserve warning</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 (M16x0.75) SI, 5-, 6-, 8-, 12-pin**


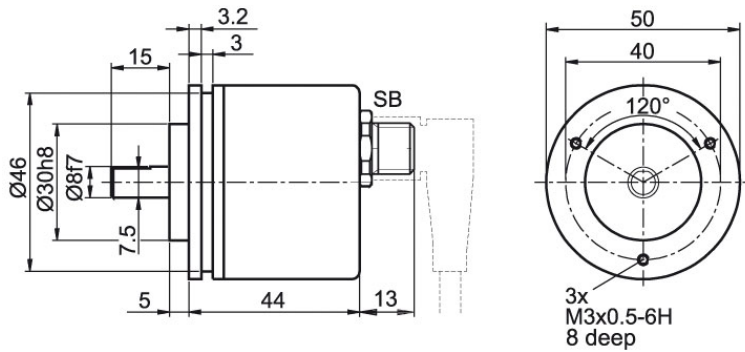
Description	ABN inv. poss.
<b>SI5</b> axial, 5-pin, Connector connected to encoder housing	-
<b>SI6</b> axial, 6-pin, Connector connected to encoder housing	-
<b>SI8</b> axial, 8-pin, Connector connected to encoder housing	•
<b>SI12</b> axial, 12-pin, Connector connected to encoder housing	•

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

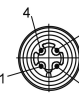




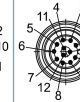
**Connector (M16x0.75) S2, 7-pin**

**Description**
**ABN inv. poss.**
**S2** axial, 7-pin, Connector connected to encoder housing

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Assignments	
	<b>S2</b>
	<b>7-pin</b>
	
<b>Circuit</b>	N35
<b>GND</b>	1
<b>(+) Vcc</b>	2
<b>A</b>	3
<b>B</b>	4
<b>N</b>	5
<b>Light reserve warning</b>	-
<b>A inv.</b>	-
<b>B inv.</b>	-
<b>N inv.</b>	-
<b>n. c.</b>	6, 7
<b>Shield</b>	-

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


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

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

## 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 0.25 Ncm 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 °C (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 [www.wachendorff-automation.com/atd](http://www.wachendorff-automation.com/atd)

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
<b>Pulses per revolution PPR:</b>					
1024	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 256, 512, 1024 Other PPRs on request				
<b>Channels:</b>					
ABN	AB, ABN bis 1024 I/U				
<b>Output circuit</b>					
M35	<b>Resolution PPR</b>	<b>Power supply VDC</b>	<b>Output circuit</b>	<b>Light reserve warning</b>	<b>Order key</b>
	up to 1024	5 - 30	HTL inverted	-	M35
		5 - 30	HTL	-	N35
<b>Electrical connections</b>					
K2	<b>Description</b>			<b>ABN inv. poss.</b>	<b>Order key</b>
	<b>Cable: length (2 m standard, WDG 58T: 1 m)</b>				
	axial, shield not connected			•	K2
	axial, shield connected to encoder housing			•	L2
	<b>Connector: (shield connected to encoder housing)</b>				
	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
<b>Options</b>					
	<b>Description</b>			<b>Order key</b>	
	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/>



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