



Online Data sheet

Encoder WDG 40K

www.wachendorff-automation.com/wdg40k

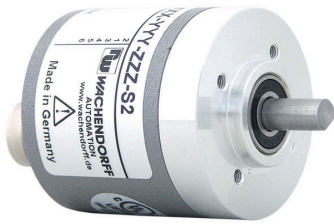
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Wachendorff Automation

... 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 40K



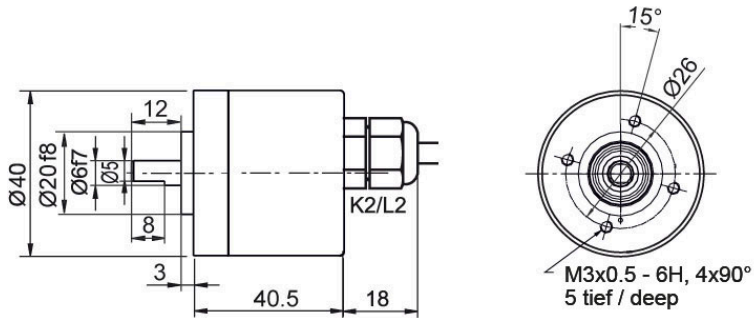
- Robust and economical encoder with small dimensions
- Protection to IP67, shaft sealed to IP65
- Optional: -40 °C up to +80 °C [-40 °F up to +176 °F]

www.wachendorff-automation.com/wdg40k

Illustration similar

Resolution		Channels	
Pulses per revolution PPR	up to 2500 PPR	AB	ABN and inverted signals
Mechanical Data		Load	max. 40 mA / channel
Flange	round flange	Circuit protection	circuit type H24 and R24 only
Flange material	aluminum	Accuracy	
Housing material	aluminum, powder coated	Phase offset	90° ± max. 7.5 % of the period duration
Flange diameter	Ø 40 mm [Ø 1.575"]	pulse-/pause-ratio	50 % ± max. 7 %
Cam mounting	pitch 51 mm [2.0078 inches]	Environmental data	
Shaft(s)		ESD (DIN EN 61000-4-2):	8 kV
Shaft material	stainless steel	Burst (DIN EN 61000-4-4):	2 kV
Starting torque	approx. 0.2 Ncm [0.283 in-ozf] at ambient temperature	includes EMC:	DIN EN 61000-6-2 DIN EN 61000-6-3
Shaft	Ø 6 mm [Ø 0.236"]	Vibration: (DIN EN 60068-2-6)	50 m/s ² (10 Hz up to 2000 Hz)
Shaft length	L: 12 mm [0.472"]	Shock: (DIN EN 60068-2-27)	1000 m/s ² (6 ms)
Max. Permissible shaft loading radial	80 N [8.157 kp]	Electrical Safety:	according DIN VDE 0160
Max. Permissible shaft loading axial	50 N [5.098 kp]	Duty information	
Bearings		Customs tariff number:	90318020
Bearings type	2 precision ball bearings	Country of origin:	Germany
Nominal 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	General Data	
Max. operating speed	12000 rpm	Weight	approx. 100 g [3.527 oz]
Machinery Directive: basic data safety integrity level		Connections	cable or connector outlet
MTTF _d	200 a	Protection rating (EN 60529)	Housing: IP65, IP67; shaft sealed: IP65; cable outlet K1: IP40
Mission time (TM)	25 a	Operating temperature	-20 °C up to +80 °C [-4 °F up to +176 °F]
Nominal service life (L10h)	1 x 10 ¹¹ revs. at 20 % rated shaft load and 12000 rpm	Storage temperature	-30 °C up to +80 °C [-22 °F up to 176 °F]
Diagnostic coverage (DC)	0 %	More Information	
Electrical Data		General technical data and safety instructions http://www.wachendorff-automation.com/gtd	
Power supply/Current consumption	4,75 VDC up to 5,5 VDC: typ. 70 mA	Options http://www.wachendorff-automation.com/acc	
Power supply/Current consumption	10 VDC up to 30 VDC: typ. 70 mA		
Operating principle	optical		
Output circuit	TTL TTL, RS422 compatible, inv. HTL HTL, inv.		
Pulse frequency	TTL 2500 ppr: max. 200 kHz HTL 2500 ppr: max. 200 kHz		

Cable connection K2, L2 with 2 m cable



Alle Abmessungen in mm / All dimensions in mm

Description

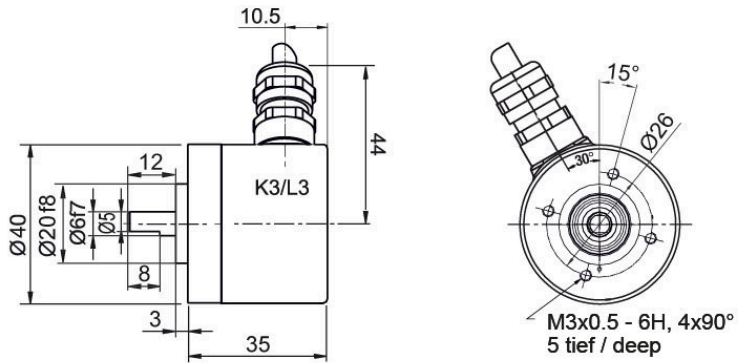
Description	ABN inv. poss.
K2 axial, shield not connected	•
L2 axial, shield connected to encoder housing	•

Assignments

	K2, L2	K2, L2
Circuit	H05, H24	R05, R24
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

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Cable connection K3, L3 with 2 m cable



Alle Abmessungen in mm / All dimensions in mm

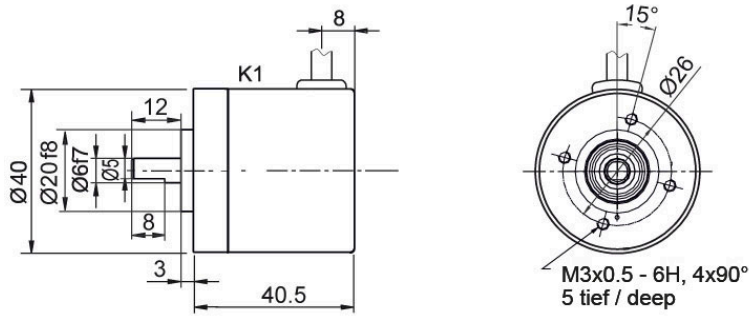
Description

		ABN inv. poss.
K3	radial, shield not connected	•
L3	radial, shield connected to encoder housing	•

Assignments		
	K3, L3	K3, L3
Circuit	H05, H24	R05, R24
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

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Cable K1 (IP40) with 2 m cable



Alle Abmessungen in mm / All dimensions in mm

Description

K1 radial, shield not connected (IP40)

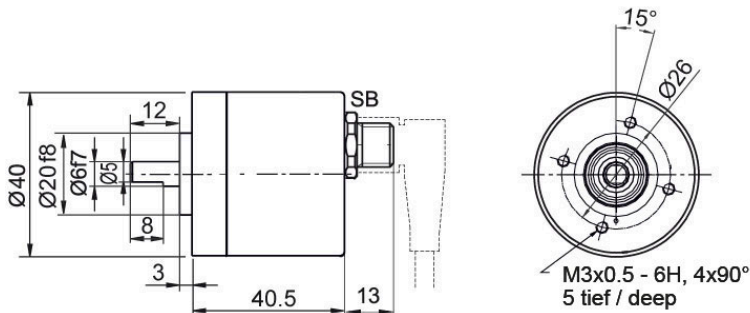
ABN inv. poss.

•

Assignments		
	K1	K1
Circuit	H05, H24	R05, R24
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

Discontinued product

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



Alle Abmessungen in mm / All dimensions in mm

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	SB5	SB8	SB12
	4-pin	5-pin	8-pin	12-pin
Circuit	H05, H24	H05, H24	R05, R24	R05, R24
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 40K is also available as a particularly smooth-running low-friction encoder. The starting torque is thereby changed to 0.1 Ncm [0.141 in-ozf] and the protection class at the shaft input to IP50.

Order key**AAC****Low temperature**

The encoder WDG 40K with the output circuit types H24, R24 is also available with the extended temperature range -40 °C up to +80 °C [-40 °F up to +176 °F] (measured at the flange).

Order key**ACA****Cable length**

The encoder WDG 40K 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.

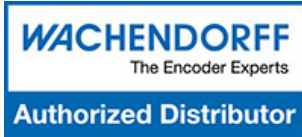
Example: 5 m cable = 050

Order key**XXX = Decimeter**

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Example Order No.	Type				Your encoder
WDG 40K	WDG 40K				WDG 40K
Pulses per revolution PPR:					
2048	4, 10, 20, 25, 28, 30, 36, 40, 50, 60, 90, 100, 128, 150, 200, 250, 314, 360, 400, 500, 600, 720, 1000, 1024, 1080, 1250, 1500, 1800, 2000, 2048, 2500 Other PPRs on request				
Channels:					
ABN	AB, ABN bis 2048 I/U				
Output circuit					
H24	Resolution PPR	Power supply VDC	Output circuit	-	Order key
	up to 2500	4.75 - 5.5	TTL	-	H05
		4.75 - 5.5	TTL, RS422 comp., inverted	-	R05
		10 - 30	HTL	-	H24
10 - 30		HTL inverted	-	R24	
Electrical connections					
K2	Description			ABN inv. poss.	Order key
	Cable: length (2 m standard, WDG 58T: 1 m)				
	radial, shield not connected (IP40)			•	K1
	axial, shield not connected			•	K2
	axial, shield connected to encoder housing			•	L2
	radial, shield not connected			•	K3
	radial, shield connected to encoder housing			•	L3
	Connector: (shield connected to encoder housing)				
	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 40K	2048	ABN	H24	K2		WDG 40K					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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