

Online Data Sheet

Encoder WDG 40K

www.wachendorff-automation.com/wdg40k

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

www.wachendorff-automation.com/wdg40k

Resolution

Max. pulses per revolution up to 2500 PPR
PPR

Mechanical Data

Housing

Flange	Pilot flange
Flange material	aluminum
Housing cap	aluminum, powder coated
Housing	Ø 40 mm
Cam mounting	pitch 51 mm

Shaft(s)

Shaft material	stainless steel
Starting torque	approx. 0.2 Ncm at ambient temperature

Shaft	Ø 6 mm
Shaft length	L: 12 mm
Max. Permissible shaft loading radial	80 N
Max. Permissible shaft loading axial	50 N

Bearings

Bearings type	2 precision ball bearings
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
Max. operating speed	12000 rpm

Machinery Directive: basic data safety integrity level

MTTF _d	200 a
Mission time (TM)	25 a
Nominal service life (L10h)	1 x 10 ¹¹ revs. at 20 % rated shaft load and 12000 rpm
Diagnostic coverage (DC)	0 %

Electrical Data

Power supply/Current consumption	4,75 VDC up to 5,5 VDC: typ. 70 mA
Power supply/Current consumption	10 VDC up to 30 VDC: typ. 70 mA

Output circuit	TTL TTL, RS422 compatible, inv. HTL HTL, inv.
Pulse frequency	TTL ≤ 2500 ppr: max. 200 kHz HTL ≤ 2500 ppr: max. 200 kHz
Channels	AB ABN and inverted signals
Load	max. 40 mA / channel
Circuit protection	circuit type H24 and R24 only

Accuracy

Phase offset	90° ± max. 7.5 % of the pulse length
pulse-/pause-ratio	50 % ± max. 7 %

General Data

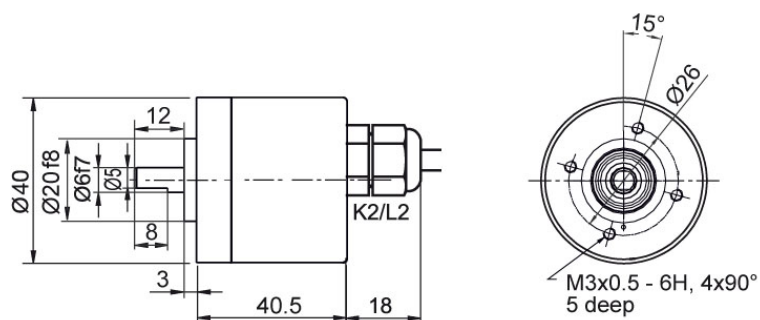
Weight	approx. 100 g
Connections	cable or connector outlet
Protection rating (EN 60529)	IP67, shaft sealed to IP65 (IP40 for K1)
Operating temperature	-20 °C up to +80 °C
Storage temperature	-30 °C up to +80 °C

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



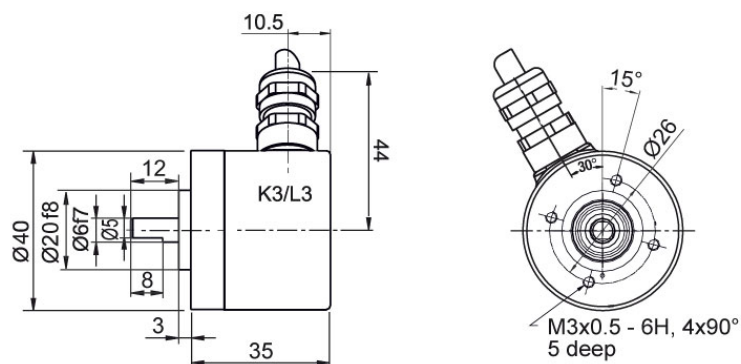
Description

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
Light reserve warning	-	-
A inv.	-	RD
B inv.	-	BK
N inv.	-	VT
Shield	flex	flex

Cable connection K3, L3 with 2 m cable



Description

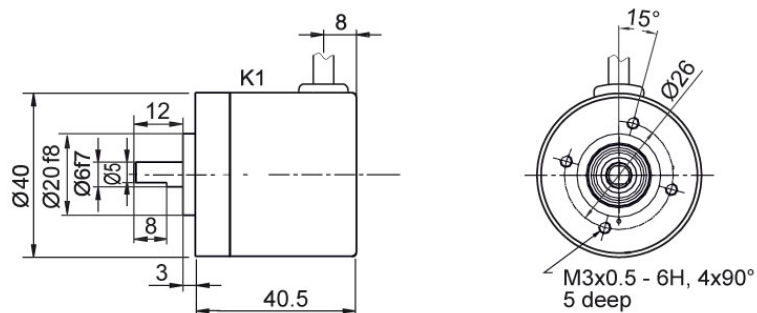
ABN inv. poss.

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
Light reserve warning	-	-
A inv.	-	RD
B inv.	-	BK
N inv.	-	VT
Shield	flex	flex

Cable K1 (IP40) with 2 m cable



Description

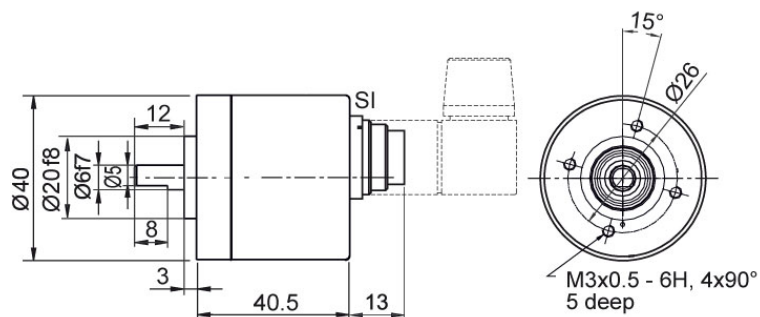
ABN inv. poss.

K1 radial, shield not connected (IP40)

•

Assignments		
	K1	K1
Circuit	H05, H24	R05, R24
GND	WH	WH
(+) Vcc	BN	BN
A	GN	GN
B	YE	YE
N	GY	GY
Light reserve warning	-	-
A inv.	-	RD
N inv.	-	VT
B inv.	-	BK
Shield	flex	flex

Cable connection (M16x0.75) SI, 5-, 6-, 8-, 12-pin



Description

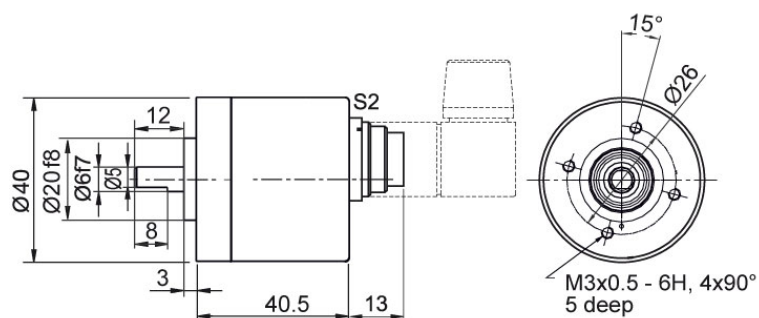
ABN inv. poss.

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	SI8	SI12	SI12
	5-pin	6-pin	8-pin	8-pin	12-pin	12-pin
Circuit	H05, H24	H05, H24	H05, H24	R05, R24	H05, H24	R05, R24
GND	1	6	1	1	K, L	K, L
(+) Vcc	2	1	2	2	M, B	M, B
A	3	2	3	3	E	E
B	4	4	4	4	H	H
N	5	3	5	5	C	C
Light reserve warning	-	-	-	-	-	-
A inv.	-	-	-	6	-	F
B inv.	-	-	-	7	-	A
N inv.	-	-	-	8	-	D
n. c.	-	5	6, 7, 8	-	A, D, F, G, J	G, J
Shield	-	-	-	-	-	-

Connector (M16x0.75) S2, 7-pin



Description

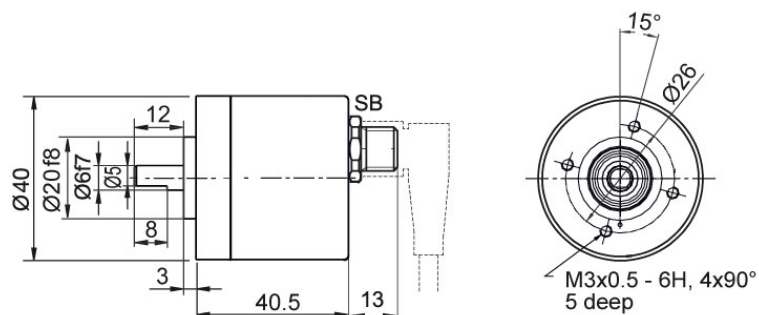
ABN inv. poss.

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

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Assignments	
	S2
	7-pin
	
Circuit	H05, H24
GND	1
(+) Vcc	2
A	3
B	4
N	5
Light reserve warning	-
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	SB5	SB8	SB8	SB12	SB12
	4-pin	5-pin	8-pin	8-pin	12-pin	12-pin
Circuit	H05, H24	H05, H24	H05, H24	R05, R24	H05, H24	R05, R24
GND	3	3	1	1	3	3
(+) Vcc	1	1	2	2	1	1
A	2	4	3	3	4	4
B	4	2	4	4	6	6
N	-	5	5	5	8	8
Light reserve warning	-	-	-	-	-	-
A inv.	-	-	-	6	-	9
B inv.	-	-	-	7	-	7
N inv.	-	-	-	8	-	10
n. c.	-	-	6, 7, 8	-	2, 5, 7, 9, 10, 11, 12	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 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 (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 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 40K	WDG 40K					WDG 40K
	Pulses per revolution PPR:					
2048	4, 9, 10, 15, 20, 25, 28, 30, 36, 40, 50, 60, 90, 100, 120, 125, 128, 150, 160, 180, 200, 235, 250, 300, 314, 318, 360, 400, 500, 600, 625, 635, 720, 900, 1000, 1024, 1080, 1200, 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	Light reserve warning	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)					
	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 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.
http://www.wachendorff-automation.com/distributors_worldwide.html



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