

Online Data Sheet

Encoder WDG 40E

www.wachendorff-automation.com/wdg40e

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 40E



- Robust hollow bore (blind) encoder with small dimensions
- Full connection protection with 10 VDC up to 30 VDC
- With light reserve warning
- Optional: -40 °C up to +80 °C

www.wachendorff-automation.com/wdg40e

Resolution	
Max. pulses per revolution PPR	up to 2500 PPR

Mechanical Data	
Housing	
Flange	hollow shaft (blind-bored)
Flange material	aluminium
Housing cap	aluminium, powder coated
- 1. Spring plate compensation	axial: ± 0.8 mm, radial: ± 0.2 mm
- Max. operating speed	12000 rpm up to max. protection rating +60 °C
Housing	$\varnothing$ 40 mm

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

Shaft	$\varnothing$ 6 mm
Shaft length	L: 15 mm
Insertion depth min.	17 mm
Insertion depth max.	20 mm
Max. Permissible shaft loading radial	100 N
Max. Permissible shaft loading axial	50 N

Bearings	
Bearings type	2 precision ball bearings
Nominal 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	200 a
Mission time (TM)	25 a
Nominal service life (L10h)	1.7 x 10 ¹⁰ revs. at 20 % rated shaft load and 12000 rpm
Diagnostic coverage (DC)	0 %

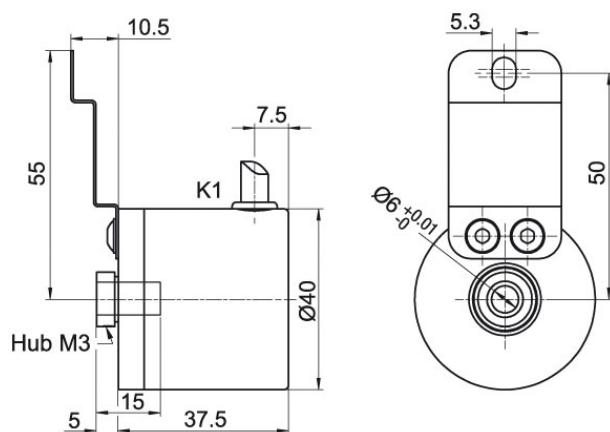
Electrical Data	
Power supply/Current consumption	4,75 VDC up to 5,5 VDC: max. 70 mA
Power supply/Current consumption	10 VDC up to 30 VDC: max. 70 mA
Output circuit	TTL, RS422 compatible, inv. HTL
Pulse frequency	TTL $\leq$ 2500 ppr: max. 200 kHz HTL $\leq$ 2500 ppr: max. 200 kHz
Channels	AB ABN and inverted signals
Load	max. 40 mA / channel
Circuit protection	circuit type H24 and R24 only

Accuracy	
Phase offset	90° $\pm$ max. 7.5 % of the pulse length
pulse-/pause-ratio	50 % $\pm$ max. 7 %

General Data	
Weight	approx. 100 g
Connections	cable or connector outlet
Protection rating (EN 60529)	IP67, shaft sealed to IP65 (IP50 for K1)
Operating temperature	-20 °C up to +80 °C
Storage temperature	-30 °C up to +80 °C

More Information	
General technical data http://www.wachendorff-automation.com/gtd	
Options http://www.wachendorff-automation.com/acc	

Cable connection K1 (IP50) with 2 m cable



Description

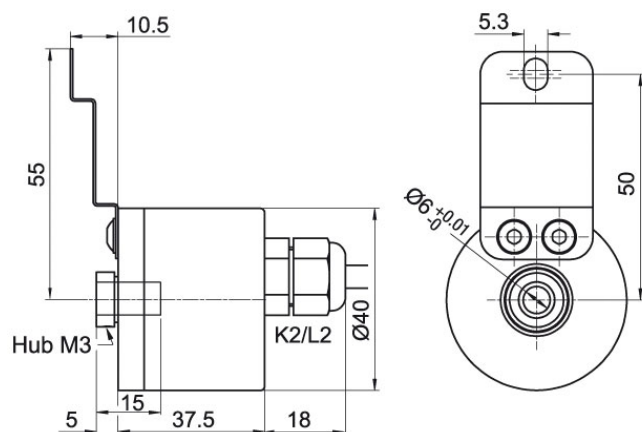
ABN inv. poss.

K1 radial, shield not connected (IP50)

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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 K2, L2 with 2 m cable



Description

ABN inv. poss.

K2 axial, shield not connected

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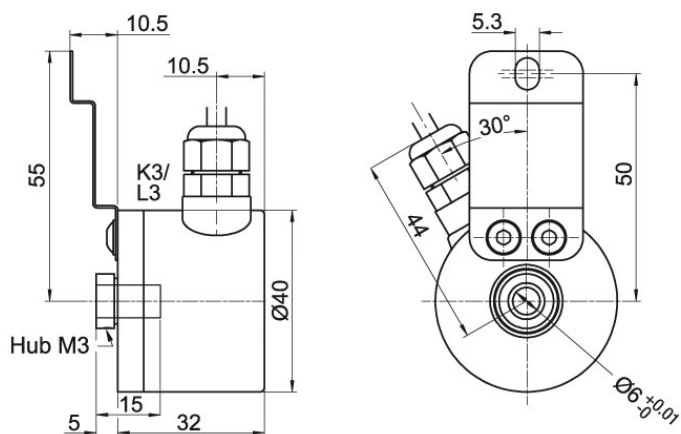
L2 axial, shield connected to encoder housing

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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

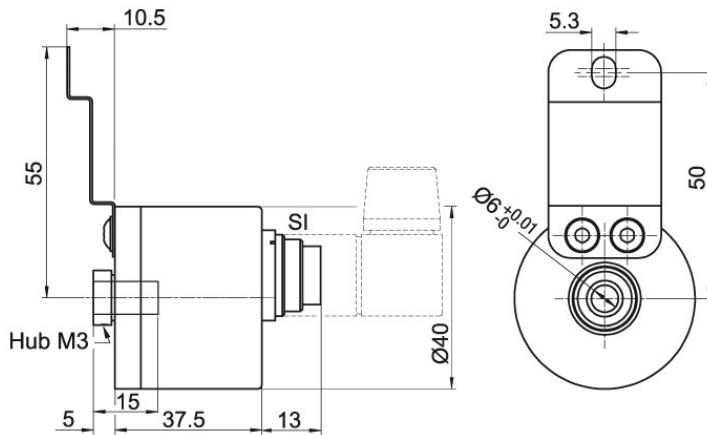
Cable connection K3, L3 with 2 m cable



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

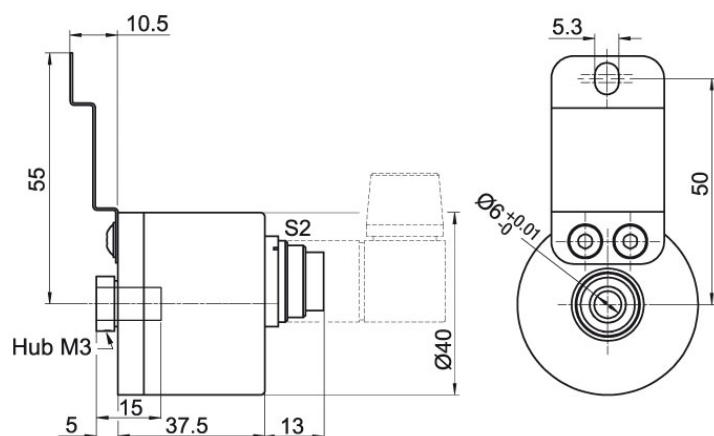
Connector (M16x0.75) SI, 5-, 6-, 8-, 12-pin



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 5-pin	SI6 6-pin	SI8 8-pin	SI8 8-pin	SI12 12-pin	SI12 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

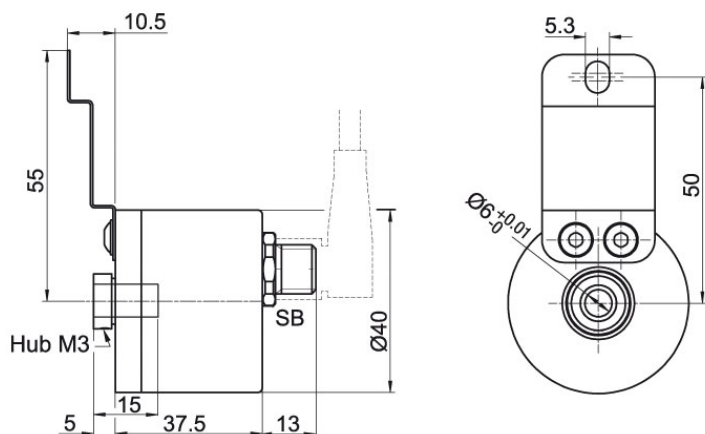
ABN inv. poss.

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

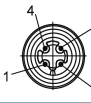
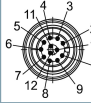
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Assignments	
	S2
	7-pin
Circuit	H05, H24
GND	1
(+) Vcc	2
A	3
B	4
N	5
Light reserve warning	-
A inv.	-
B inv.	-
N inv.	-
n. c.	6, 7
Shield	-

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 4-pin	SB5 5-pin	SB8 8-pin	SB8 8-pin	SB12 12-pin	SB12 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 temperature

The encoder WDG 40E 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 40E 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 40E	WDG 40E					WDG 40E
	Bore size					
06	06					
	Pulses per revolution PPR:					
1024	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					
K1	Description			ABN inv. poss.	Order key	
	Cable: length (2 m standard, WDG 58T: 1 m)					
	radial, shield not connected (IP50)			•	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		
	Without option			Empty		
	Low temperature			ACA		
	Cable length			XXX = Decimeter		

Example Order No. =	WDG 40E	06	1024	ABN	H24	K1		WDG 40E							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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