



Online Data Sheet

인크리멘탈 할로우 샤프트 로터리 엔코더 - Ø40mm

WDG 40E 시리즈

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

www.wachendorff-automation.com/wdg40e

IndustrieROBUST

Encoder WDG 40E



1. 중공축 (Built-in형) 증분형 소형 엔코더
2. IP67 보호 등급의 방수/방진 로터리 엔코더
- Shaft Sealing - IP65
3. 옵티컬(Optical) 방식으로 고정밀
-MAX 2500PPR
4. UL 및 CE 인증 제품

Resolution	
Max. pulses per revolution PPR	up to 2500 PPR

Mechanical Data	
Housing	
Flange	hollow shaft (blind-bored)
Flange material	aluminum
Housing cap	aluminum, 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	Ø 40 mm

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

Shaft	Ø 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 %

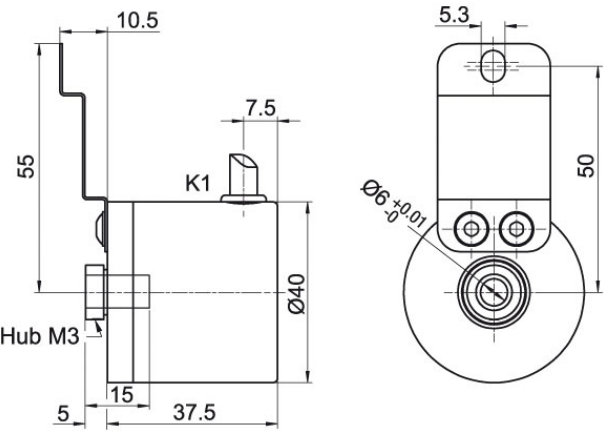
Electrical Data	
Power supply/Current consumption	4,75 VDC up to 5,5 VDC: typ. 70 mA
Power supply/Current consumption	10 VDC up to 30 VDC: typ. 70 mA
Output circuit	TTL, RS422 compatible, inv. HTL
Pulse frequency	TTL $\leq$ 2500 ppr: max. 200 kHz HTL $\leq$ 2500 ppr: max. 200 kHz
Channels	AB ABN and 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 (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 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

Technical drawing of the K2/L2 connector showing side and top views with dimensions.

Side View Dimensions:

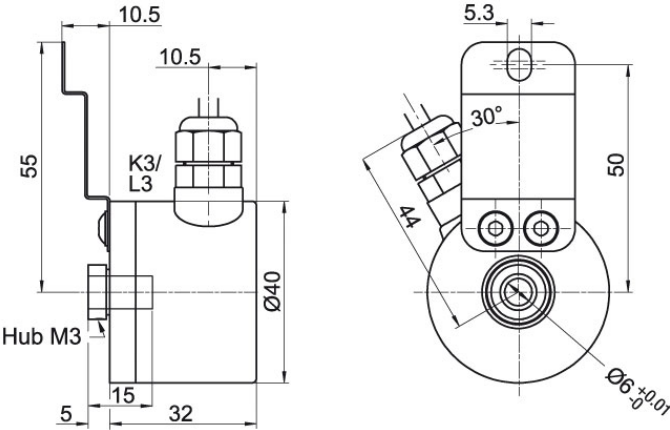
- Overall height: 55
- Top flange width: 10.5
- Hub M3 diameter: 5
- Hub M3 offset: 15
- Main body diameter: 37.5
- Bottom flange width: 18
- Bottom flange outer diameter: $\varnothing 40$
- Bottom flange thickness: 5

Top View Dimensions:

- Overall width: 50
- Top flange width: 5.3
- Top flange hole diameter: $\varnothing 6_{-0.01}^{+0.01}$
- Two side holes (for M3 hub): $\varnothing 6_{-0.01}^{+0.01}$

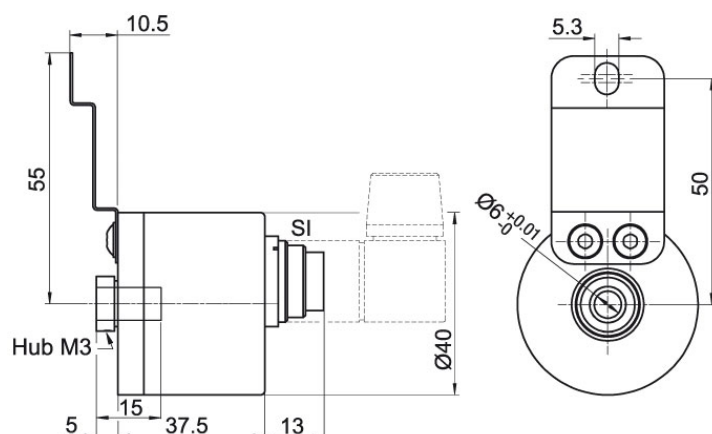
Description	ABN inv. poss.
K2 axial, shield not connected	•
L2 axial, shield connected to encoder housing	•

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	•

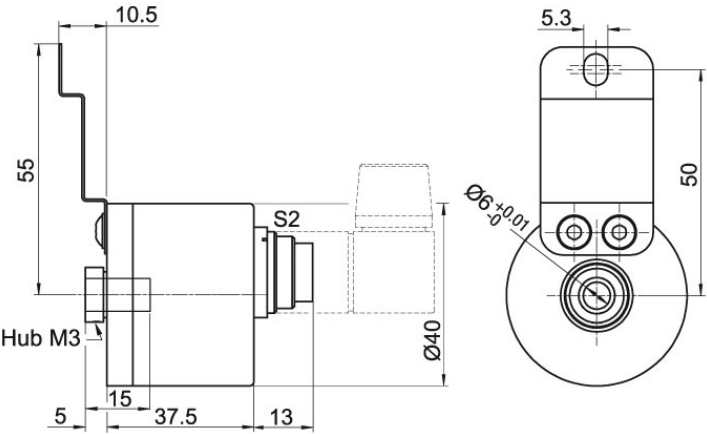
Assignments		
	K3, L3	K3, L3
Circuit	H05, H24	R05, R24
GND	WH	WH
(+) Vcc	BN	BN
A	GN	GN
B	YE	YE
N	GY	GY
Light reserve warning	-	-
A inv.	-	RD
B inv.	-	BK
N inv.	-	VT
Shield	flex	flex

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	•

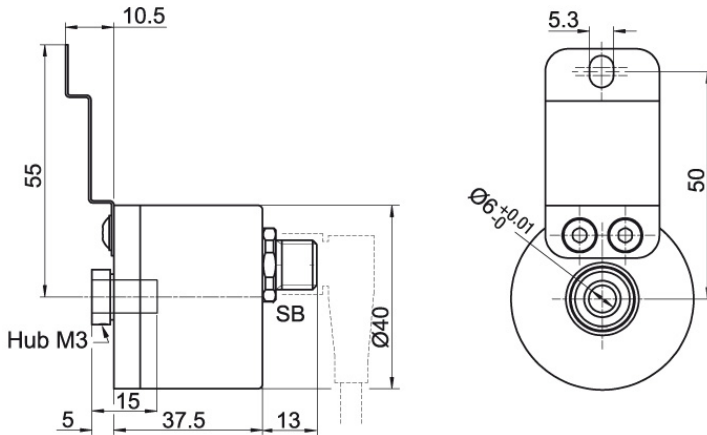
Assignments						
	SI5	SI6	SI8	SI8	SI12	SI12
	5-pin	6-pin	8-pin	8-pin	12-pin	12-pin
Circuit	H05, H24	H05, H24	H05, H24	R05, R24	H05, H24	R05, R24
GND	1	6	1	1	K, L	K, L
(+) Vcc	2	1	2	2	M, B	M, B
A	3	2	3	3	E	E
B	4	4	4	4	H	H
N	5	3	5	5	C	C
Light reserve warning	-	-	-	-	-	-
A inv.	-	-	-	6	-	F
B inv.	-	-	-	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	-

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 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 (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 temperature			ACA		
	Without option			Empty		
	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

CREKEN

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