

Encoder WDG 40E

www.wachendorff-automation.com/wdg40e

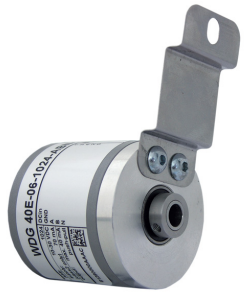
Wachendorff Automation

... 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

IndustrieROBUST

Encoder WDG 40E (optical)



- 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	
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
Nominale 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
Nominale 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 ≤ 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 period duration
pulse-/pause-ratio	50 % ± max. 7 %

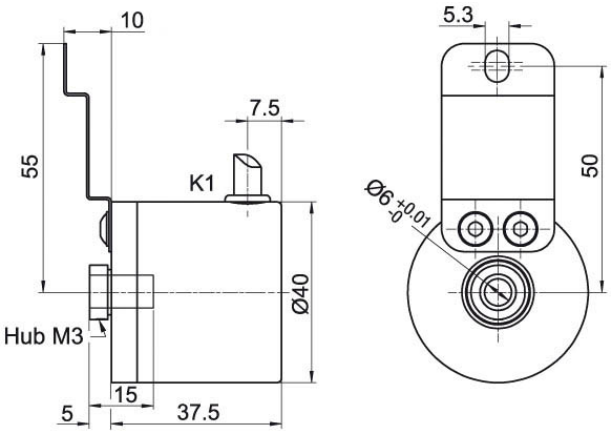
Environmental data	
ESD (DIN EN 61000-4-2):	8 kV
Burst (DIN EN 61000-4-4):	2 kV
includes EMC:	DIN EN 61000-6-2 DIN EN 61000-6-3
Vibration: (DIN EN 60068-2-6)	50 m/s^2 (10 Hz up to 2000 Hz)
Shock: (DIN EN 60068-2-27)	1000 m/s^2 (6 ms)
Design:	according DIN VDE 0160

Duty information	
Customs tariff number:	90318020
Country of origin:	Germany

General Data	
Weight	approx. 100 g
Connections	cable or connector outlet
Protection rating (EN 60529)	Housing: IP65, IP67; shaft sealed: IP65; cable outlet K1: IP40
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

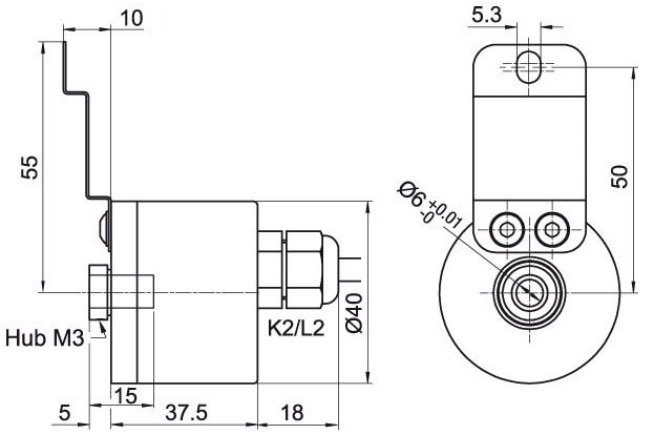
Cable connection K1 (IP40) with 2 m cable



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
B inv.	-	BK
N inv.	-	VT
Shield	flex	flex

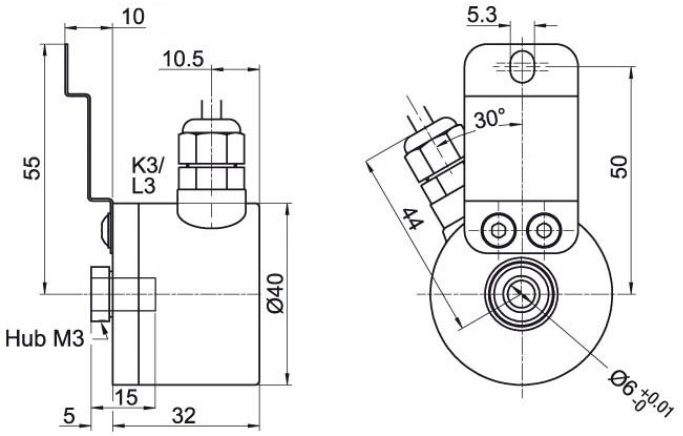
Cable connection K2, L2 with 2 m cable



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

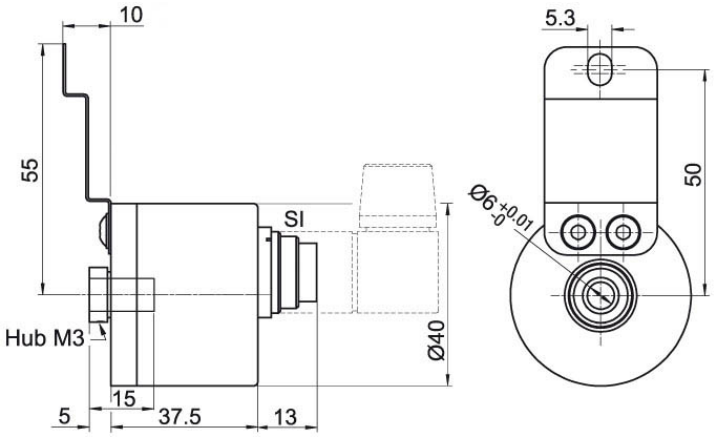
Cable connection K3, L3 with 2 m cable



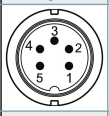
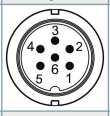
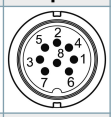
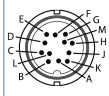
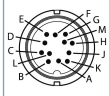
Description		ABN inv. poss.
K3	radial, shield not connected	•
L3	radial, shield connected to encoder housing	•

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

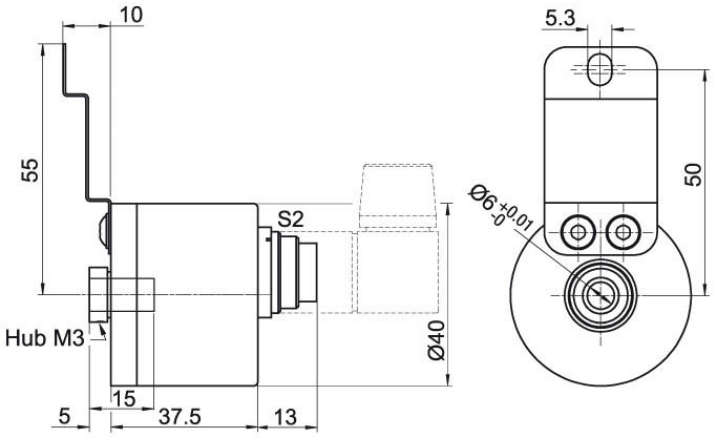
Connector (M16x0.75) SI, 5-, 6-, 8-, 12-pin



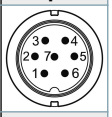
Description		ABN inv. poss.
SI5	axial, 5-pin, Connector connected to encoder housing	-
SI6	axial, 6-pin, Connector connected to encoder housing	-
SI8	axial, 8-pin, Connector connected to encoder housing	•
SI12	axial, 12-pin, Connector connected to encoder housing	•

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	-	-	-	-	-	-

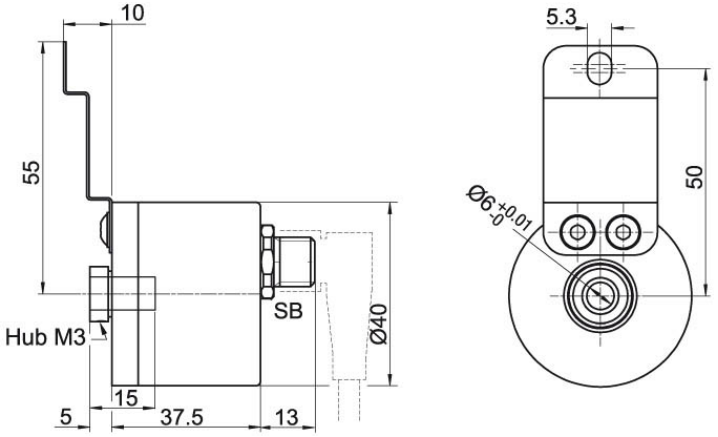
Connector (M16x0.75) S2, 7-pin



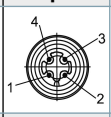
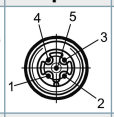
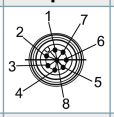
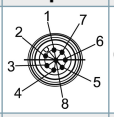
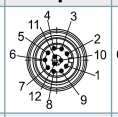
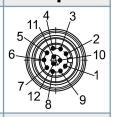
Description		ABN inv. poss.
S2	axial, 7-pin, Connector connected to encoder housing	-

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	Order key
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).	**ACA**

Cable length	Order key
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	**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, 20, 25, 28, 30, 36, 40, 50, 60, 90, 100, 125, 128, 150, 160, 200, 235, 250, 314, 318, 360, 400, 500, 600, 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



For further information please contact our local distributor.
Here you find a list of our distributors worldwide.
https://www.wachendorff-automation.com/contact-sales-en/

WACHENDORFF

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