



Online Data Sheet

Encoder WDG 40A

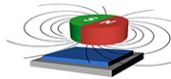
www.wachendorff-automation.com/wdg40am

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 40A (magnetic)



- Robust and economical encoder with small dimensions
- Protection to IP67, shaft sealed to IP65
- Optional:
Protection to IP67 all around
-40 °C up to +80 °C

www.wachendorff-automation.com/wdg40am

Resolution	
Max. pulses per revolution PPR	up to 1024 PPR

Mechanical Data	
Housing	
Flange	Servo 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: 11.5 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 %

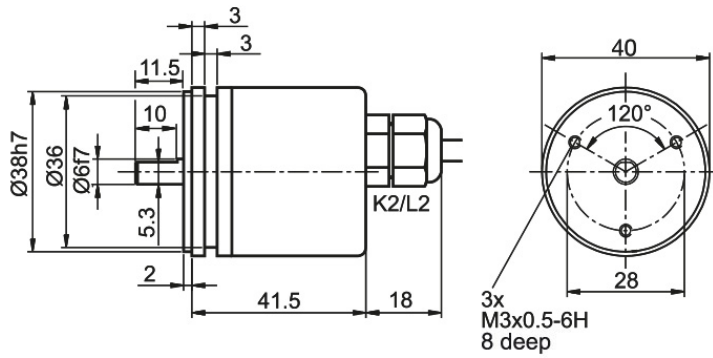
Electrical Data	
Power supply/Current consumption	5 VDC up to 30 VDC: typ. 40 mA
Output circuit	HTL HTL, inv.
Pulse frequency	1024 ppr: max. 200 kHz

Channels	AB ABN and inverted signals
Load	max. 40 mA / channel
Circuit protection	no

Accuracy	
Phase offset	90° ± max. 25% of the period duration
pulse-/pause-ratio	at 1 ppr up to 128 ppr: 50 % ± max. 7 % at 256 ppr: 50 % ± max. 9 % at 512 ppr: 50 % ± max. 13 % at 1024 ppr: 50 % ± max. 18 %

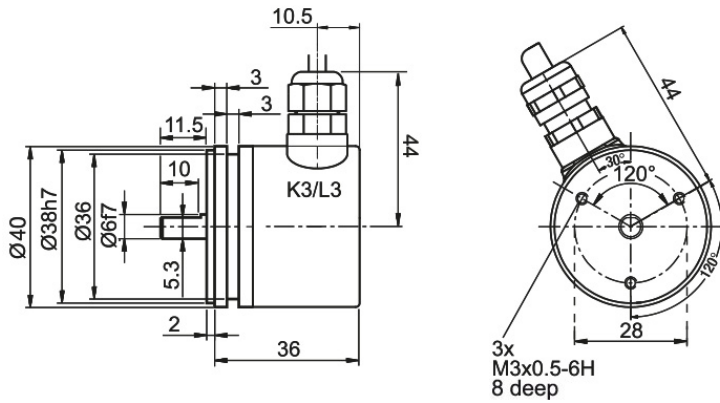
General Data	
Weight	approx. 100 g
Connections	cable or connector outlet
Protection rating (EN 60529)	Housing: IP65, IP67; shaft sealed: IP65; (IP40 for K1)
Operating temperature	-20 °C up to +80 °C
Storage temperature	-30 °C up to +80 °C

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	N35	M35
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

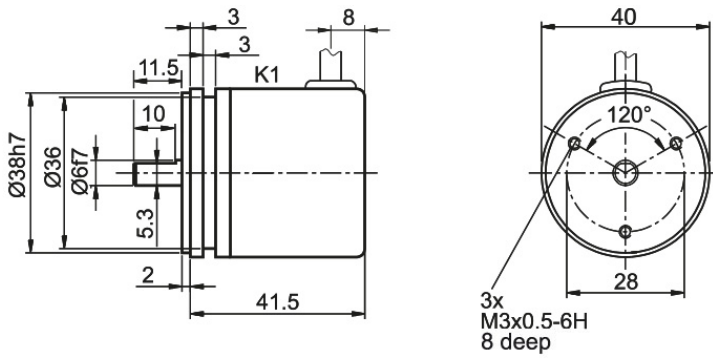
Cable connection K3, L3 with 2 m cabel

Description

K3	radial, shield not connected
L3	radial, shield connected to encoder housing

ABN inv. poss.

-
-

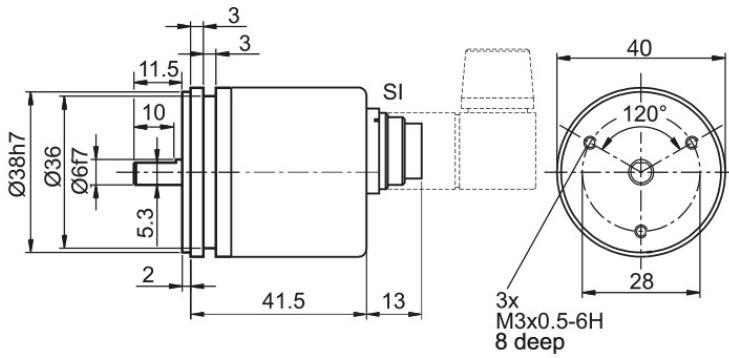
Assignments		
	K3, L3	K3, L3
Circuit	N35	M35
GND	WH	WH
(+) Vcc	BN	BN
A	GN	GN
B	YE	YE
N	GY	GY
Light reserve warning	-	-
A inv.	-	RD
B inv.	-	BK
N inv.	-	VT
Shield	flex	flex

Cable K1 (IP40) with 2 m cable

Description
ABN inv. poss.
K1 radial, shield not connected (IP40)

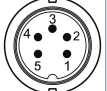
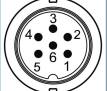
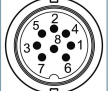
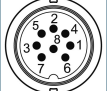
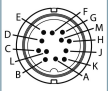
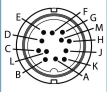
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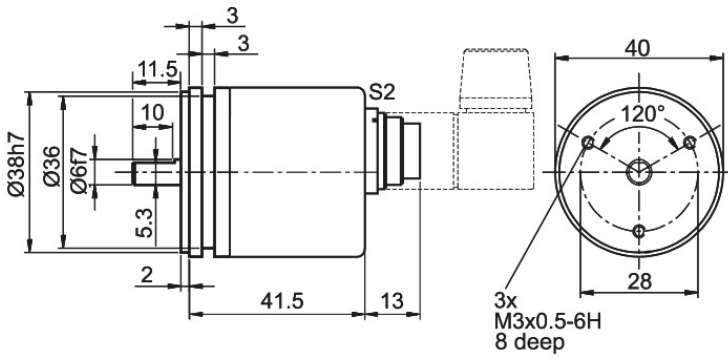
Assignments		
	K1	K1
Circuit	N35	M35
GND	WH	WH
(+) Vcc	BN	BN
A	GN	GN
B	YE	YE
N	GY	GY
Light reserve warning	-	-
A inv.	-	RD
N inv.	-	VT
B inv.	-	BK
Shield	flex	flex

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

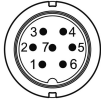


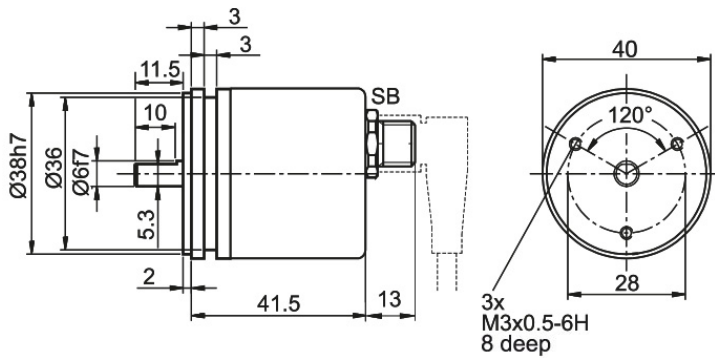
Description	ABN inv. poss.
SI5 axial, 5-pin, Connector connected to encoder housing	-
SI6 axial, 6-pin, Connector connected to encoder housing	-
SI8 axial, 8-pin, Connector connected to encoder housing	•
SI12 axial, 12-pin, Connector connected to encoder housing	•

Assignments						
	SI5	SI6	SI8	SI8	SI12	SI12
	5-pin	6-pin	8-pin	8-pin	12-pin	12-pin
						
Circuit	N35	N35	N35	M35	N35	M35
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

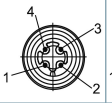
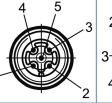
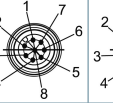
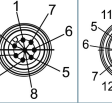
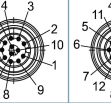
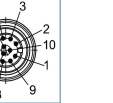
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Assignments	
	S2
	7-pin
	
Circuit	N35
GND	1
(+) Vcc	2
A	3
B	4
N	5
Light reserve warning	-
A inv.	-
B inv.	-
N inv.	-
n. c.	6, 7
Shield	-

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	N35	N35	N35	M35	N35	M35
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 40A 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

IP67 all around

The encoder WDG 40A can be supplied in a full IP67 version.

Order key

AAO

Max. RPM: 3500 rpm

Permitted Shaft-Loading, axial: 30 N

Permitted Shaft-Loading, radial: 45 N

Max. PPR: 1024 ppr

Starting-torque: approx. 1.2 Ncm at ambient temperature

Low temperature

The encoder WDG 40A with the output circuit types M35, N35 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 40A 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 40A	WDG 40A					WDG 40A
Pulses per revolution PPR:						
1024	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 256, 512, 1024 Other PPRs on request					
Channels:						
ABN	AB, ABN bis 1024 I/U					
Output circuit						
M35	Resolution PPR	Power supply VDC	Output circuit	Light reserve warning	Order key	
	up to 1024	5 - 30	HTL inverted	-	M35	
		5 - 30	HTL	-	N35	
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		
	IP67			AAO		
	Low temperature			ACA		
	Without option			Empty		
	Cable length			XXX = Decimeter		

Example Order No.=	WDG 40A	1024	ABN	M35	K2		WDG 40A					Your encoder



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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