

Encoder WDG 40A

www.wachendorff-automation.com/wdg40am

Wachendorff Automation

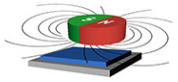
... systems and encoders

- 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

IndustrieROBUST

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	
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
Nominale 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
Nominale 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 (TTL at 5 VDC) HTL, inv. (TTL/RS422 comp. at 5 VDC)
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 % 129 ppr - 256 ppr: 50 % ± max. 9 % 257 ppr - 512 ppr: 50 % ± max. 13 % 513 ppr - 1024 ppr: 50 % ± max. 18 %

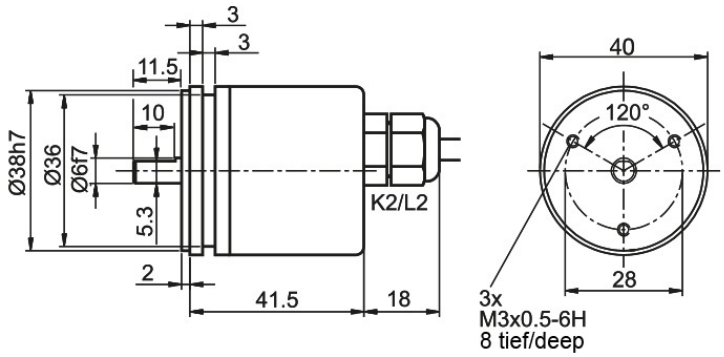
Environmental data	
ESD (DIN EN 61000-4-2):	8 kV
Burst (DIN EN 61000-4-4):	2 kV
includes EMC:	DIN EN 61000-6-2 DIN EN 61000-6-3
Vibration: (DIN EN 60068-2-6)	50 m/s^2 (10 Hz up to 2000 Hz)
Shock: (DIN EN 60068-2-27)	1000 m/s^2 (6 ms)
Design:	according DIN VDE 0160

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**

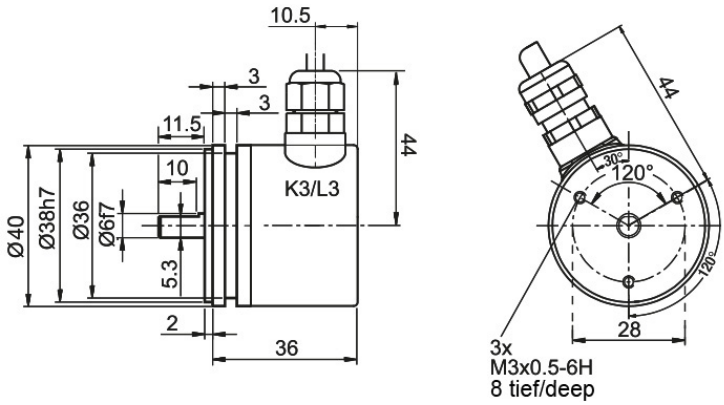
Cable connection K2, L2 with 2 m cable



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

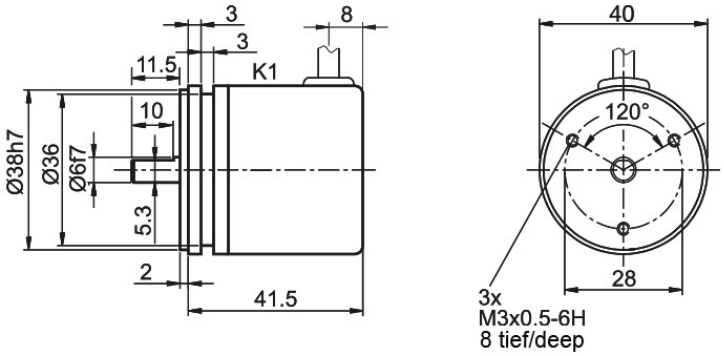
Cable connection K3, L3 with 2 m cabel



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

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

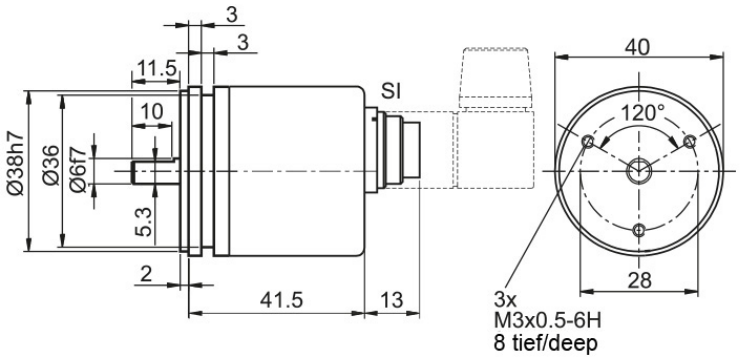
Cable K1 (IP40) with 2 m cable



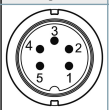
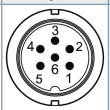
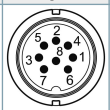
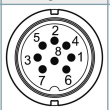
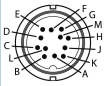
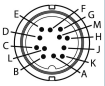
Description		ABN inv. poss.
K1	radial, shield not connected (IP40)	•

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

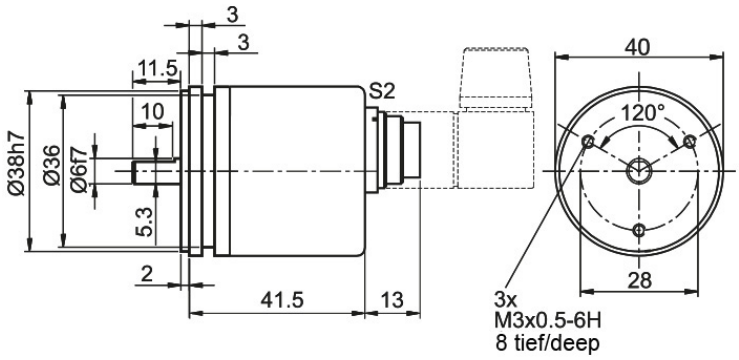
Connector (M16x0,75) SI, 5-, 6-, 8-, 12-pin



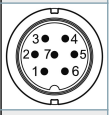
Description		ABN inv. poss.
SI5	axial, 5-pin, Connector connected to encoder housing	-
SI6	axial, 6-pin, Connector connected to encoder housing	-
SI8	axial, 8-pin, Connector connected to encoder housing	•
SI12	axial, 12-pin, Connector connected to encoder housing	•

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

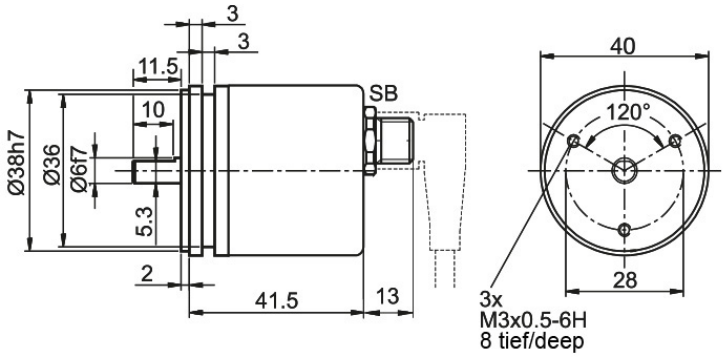
Connector (M16x0.75) S2, 7-pin



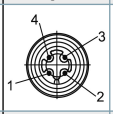
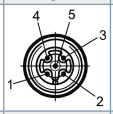
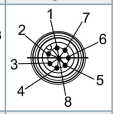
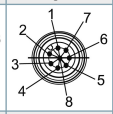
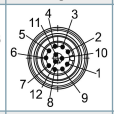
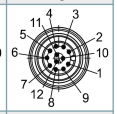
Description		ABN inv. poss.
S2	axial, 7-pin, Connector connected to encoder housing	-

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	**SB5**	**SB8**	**SB8**	**SB12**	**SB12**
	4-pin	**5-pin**	**8-pin**	**8-pin**	**12-pin**	**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	Order key
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.	**AAC**

IP67 all around	Order key
The encoder WDG 40A can be supplied in a full IP67 version. 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	**AAO**

Low temperature	Order key
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).	**ACA**

Cable length	Order key
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	**XXX = Decimeter**

Example Order No.	Type						Your encoder
WDG 40A	WDG 40A						WDG 40A
	Pulses per revolution PPR:						
1-1024	1-1024						1-1024
	Channels:						
AB	AB, ABN						
	Output circuit						
M35	**Resolution PPR**	**Power supply VDC**	**Output circuit**		**Light reserve warning**	**Order key**	
	up to 1024	5 - 30	HTL, inv. (TTL/RS422 comp. at 5 VDC)		-	M35	
		5 - 30	HTL (TTL at 5 VDC)		-	N35	
	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-friction bearings				AAC		
	IP67				AAO		
	Low temperature				ACA		
	Cable length				Cable lenght		
	Without option				Empty		

Example Order No.=	WDG 40A	1-1024	AB	M35	K1		WDG 40A	1-1024					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/

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