



Online Data Sheet

Encoder WDG 30A

www.wachendorff-automation.com/wdg30a

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 30A (magnetic)



- very compact construction for use in harsh conditions
- permissible bearing loads similar to our "big encoders"
- up to IP67 all around
- Hall effect based signal generation

www.wachendorff-automation.com/wdg30a

Resolution	
Pulses per revolution PPR	1 PPR up to 128 PPR, 256 PPR, 512 PPR, 1024 PPR

Mechanical Data	
Housing	
Flange	synchro flange
Flange material	aluminum
Housing cap	aluminum
Housing	Ø 30 mm

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

Shaft	Ø 6 mm
Shaft length	L: 12 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	0.55 x 10 ⁹ revs. at 100 % rated shaft load 8.5 x 10 ¹⁰ revs. at 40 % rated shaft load 6.8 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)	6.8 x 10 ¹¹ 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. 40 mA
Power supply/Current consumption	5 VDC up to 30 VDC: typ. 40 mA
Output circuit	TTL, RS422 compatible, inv. TTL HTL HTL, inv.

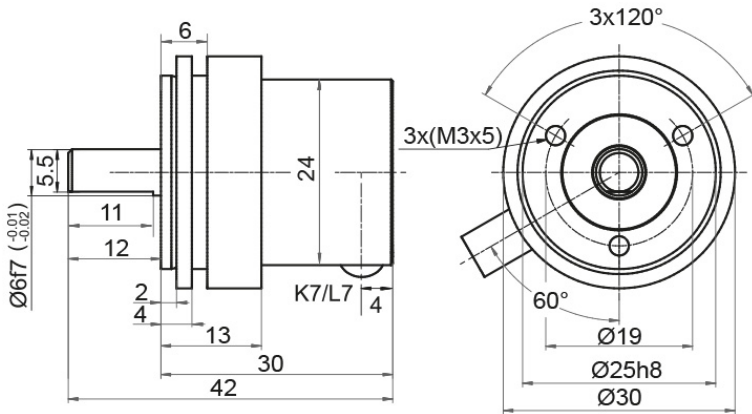
Pulse frequency	64 ppr: max. 20 kHz 1024 ppr: max. 200 kHz
Channels	AB ABN and inverted signals
Load	max. 30 mA / channel
Circuit protection	no

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	
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

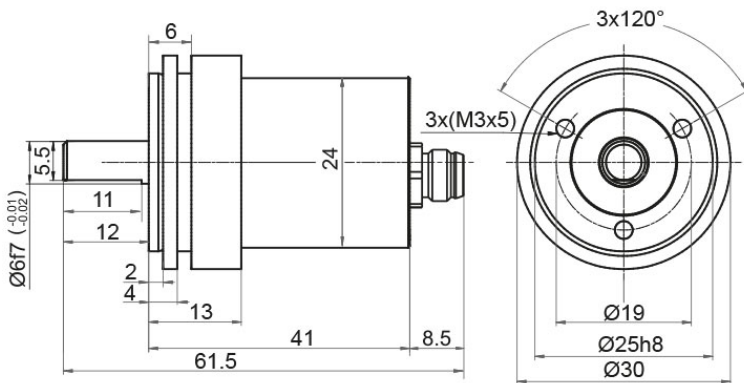
General Data	
Weight	approx. 50 g
Connections	cable or connector outlet
Protection rating (EN 60529)	IP65 all around with SK6, housing IP40 with K7, L7
Operating temperature	-20 °C up to +80 °C
Storage temperature	-20 °C up to +80 °C

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

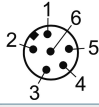
Cable connection K7, L7 (IP40) with 2 m cable


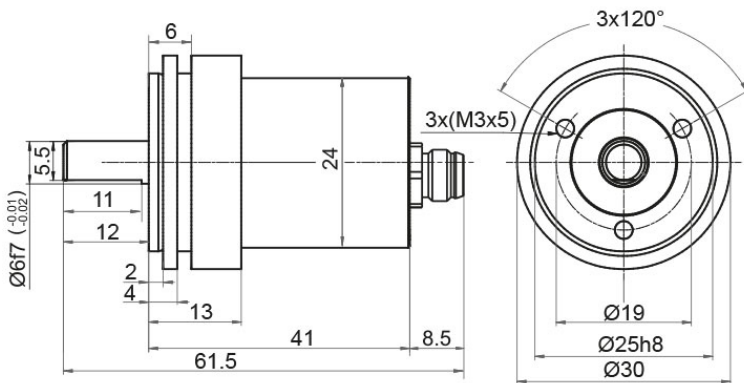
Description	ABN inv. poss.
K7 radial, shield not connected (IP40)	•
L7 radial, shield connected to encoder housing (IP40)	•

Assignments		
	K7, L7	K7, L7
Circuit	N05, N30	M05, M30
GND	WH	WH
(+) Vcc	BN	BN
A	GN	GN
B	YE	YE
N	GY	GY
Light reserve warning	-	-
A inv.	-	RD
B inv.	-	PK, (BK at ACA)
N inv.	-	BU, (VT at ACA)
Shield	flex	flex

Connector SK6, 6-pin

Description
ABN inv. poss.
SK6 axial, 6-pin, Connector connected to encoder housing

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Assignments	
	SK6
	6-pin
	
Circuit	N05, N30
GND	3
(+) Vcc	2
A	4
B	5
N	1
Light reserve warning	-
A inv.	-
B inv.	-
N inv.	-
n. c.	6
Shield	-

Connector SK8, 8-pin

Description
ABN inv. poss.
SK8 axial, 8-pin, Connector connected to encoder housing

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Assignments		
	SK8 8-pin	SK8 8-pin
Circuit	N05, N30	M05, M30
GND	1	1
(+) Vcc	2	2
A	3	3
B	4	4
N	5	5
Light reserve warning	-	-
A inv.	-	6
B inv.	-	7
N inv.	-	8
n. c.	6, 7, 8	-
Shield	-	-

Options

Low-friction bearings

The encoder WDG 30A 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 (with connector SK6/SK8 only)

The encoder WDG 30A with SK6/SK8 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

Order key

AAO

Low temperature

The encoder WDG 30A with the output circuit types M05, N05, M30, N30 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 30A can be supplied with more than 2 m cable. The maximum cable length depends on the supply voltage and the frequency; see Downloads: „General technical Data“.

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 30A	WDG 30A				WDG 30A
Pulses per revolution PPR:					
64	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				
Output circuit					
M30	Resolution PPR	Power supply VDC	Output circuit	Light reserve warning	Order key
	16, 32, 64	4.75 - 5.5	TTL, RS422 comp., inverted	-	M05
		4.75 - 5.5	TTL	-	N05
	1-128, 256, 512, 1024	5 - 30	HTL inverted	-	M30
		5 - 30	HTL	-	N30
Electrical connections					
K7	Description			ABN inv. poss.	Order key
	Cable: length (2 m standard, WDG 58T: 1 m)				
	radial, shield not connected (IP40)			•	K7
	radial, shield connected to encoder housing (IP40)			•	L7
	Connector: (shield connected to encoder housing)				
	connector, M8x1, 6-pin, axial			-	SK6
connector, M8x1, 8-pin, axial			•	SK8	
Options					
	Description			Order key	
	Low-friction bearings			AAC	
	IP67 all around (with connector SK6/SK8 only)			AAO	
	Low temperature			ACA	
	Without option			Empty	
	Cable length			XXX = Decimeter	

Example Order No.=	WDG 30A	64	ABN	M30	K7		WDG 30A					Your encoder
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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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