



# Online Data sheet

## Encoder WDG 30A

[www.wachendorff-automation.com/wdg30a](http://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



- 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](http://www.wachendorff-automation.com/wdg30a)

Resolution	
Pulses per revolution PPR	up to 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
Nominale service life	0.55 x 10 <sup>9</sup> revs. at 100 % rated shaft load 8.5 x 10 <sup>10</sup> revs. at 40 % rated shaft load 6.8 x 10 <sup>11</sup> revs. at 20 % rated shaft load
Max. operating speed	12000 rpm
Machinery Directive: basic data safety integrity level	
MTTF <sub>d</sub>	200 a
Mission time (TM)	25 a
Nominale service life (L10h)	6.8 x 10 <sup>11</sup> 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
Operating principle	magnetic
Output circuit	TTL, RS422 compatible, inv. TTL HTL (TTL at 5 VDC) HTL, inv. (TTL/RS422 comp. at 5 VDC)

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 %

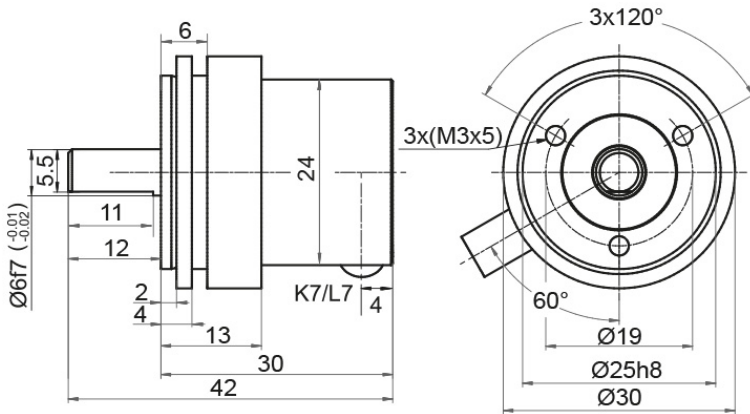
Environmental data	
ESD (DIN EN 61000-4-2):	8 kV
Burst (DIN EN 61000-4-4):	2 kV
includes EMC:	DIN EN 61000-6-2 DIN EN 61000-6-3
Vibration: (DIN EN 60068-2-6)	50 m/s <sup>2</sup> (10 Hz up to 2000 Hz)
Shock: (DIN EN 60068-2-27)	1000 m/s <sup>2</sup> (6 ms)
Design:	according DIN VDE 0160

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

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 <a href="http://www.wachendorff-automation.com/gtd">http://www.wachendorff-automation.com/gtd</a>	
Options <a href="http://www.wachendorff-automation.com/acc">http://www.wachendorff-automation.com/acc</a>	

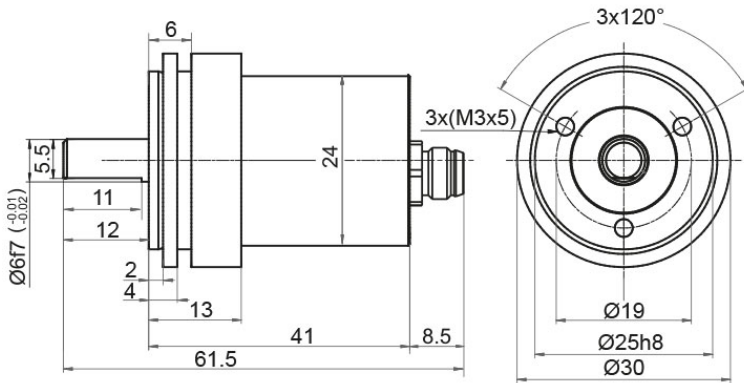
**Cable connection K7, L7 (IP40) with 2 m cable**



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

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

**Connector (M8x1) SK6, 6-pin**



**Description**

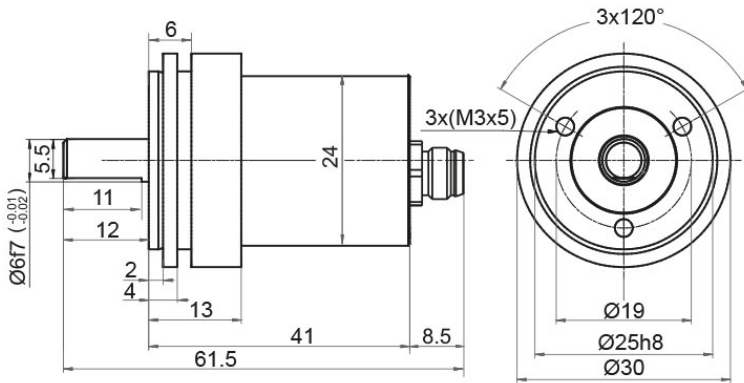
**ABN inv. poss.**

**SK6** axial, 6-pin, Connector connected to encoder housing

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Assignments	
	<b>SK6</b>
	<b>6-pin</b>
<b>Circuit</b>	N05, N30
<b>GND</b>	3
<b>(+) Vcc</b>	2
<b>A</b>	4
<b>B</b>	5
<b>N</b>	1
<b>-</b>	-
<b>A inv.</b>	-
<b>B inv.</b>	-
<b>N inv.</b>	-
<b>n. c.</b>	6
<b>Shield</b>	-

**Connector (M8x1) SK8, 8-pin**



**Description**

**ABN inv. poss.**

**SK8** axial, 8-pin, Connector connected to encoder housing

•

Assignments	
	<b>SK8</b>
	<b>8-pin</b>
<b>Circuit</b>	M05, M30
<b>GND</b>	1
<b>(+) Vcc</b>	2
<b>A</b>	3
<b>B</b>	4
<b>N</b>	5
<b>-</b>	-
<b>A inv.</b>	6
<b>B inv.</b>	7
<b>N inv.</b>	8
<b>n. c.</b>	-
<b>Shield</b>	-

## 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

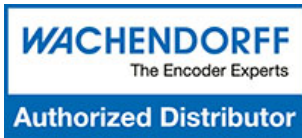
The encoder WDG 30A can be supplied with more than 2 m cable. The maximum cable length depends on the supply voltage and the frequency; see [www.wachendorff-automation.com/atd](http://www.wachendorff-automation.com/atd)  
Please extend the standard order code with a three figure number, specifying the cable length in decimetres.  
Example: 5 m cable = 050

### Order key

**XXX = Decimeter**

Example Order No.	Type					Your encoder
WDG 30A	WDG 30A					WDG 30A
<b>Pulses per revolution PPR:</b>						
64	64, 16, 32, 1-1024					
<b>Channels:</b>						
AB	AB, ABN					
<b>Output circuit</b>						
M05	<b>Resolution PPR</b>	<b>Power supply VDC</b>	<b>Output circuit</b>	-	<b>Order key</b>	
	16, 32, 64	4.75 - 5.5	TTL, RS422 comp., inverted	-	M05	
		4.75 - 5.5	TTL	-	N05	
	1-1024	5 - 30	HTL, inv. (TTL/RS422 comp. at 5 VDC)	-	M30	
5 - 30		HTL (TTL at 5 VDC)	-	N30		
<b>Electrical connections</b>						
K7	<b>Description</b>			<b>ABN inv. poss.</b>	<b>Order key</b>	
	<b>Cable: length (2 m standard, WDG 58T: 1 m)</b>					
	radial, shield not connected (IP40)			•	K7	
	radial, shield connected to encoder housing (IP40)			•	L7	
	<b>Connector: (shield connected to encoder housing)</b>					
	connector, M8x1, 6-pin, axial			-	SK6	
connector, M8x1, 8-pin, axial			•	SK8		
<b>Options</b>						
	<b>Description</b>			<b>Order key</b>		
	Low-friction bearings			AAC		
	IP67 all around (with connector SK6/SK8 only)			AAO		
	Low temperature			ACA		
	Cable length			Cable length		
Without option			Empty			

<b>Example Order No.=</b>	WDG 30A	64	AB	M05	K7		WDG 30A					<b>Your encoder</b>
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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/contact-sales-en/>

# WACHENDORFF

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