



# Online Data sheet

## Encoder WDG 24C

[www.wachendorff-automation.com/wdg24c](http://www.wachendorff-automation.com/wdg24c)

### **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 24C



- 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/wdg24c](http://www.wachendorff-automation.com/wdg24c)

*Illustration similar*

Resolution	
Pulses per revolution PPR	up to 1024 PPR
Mechanical Data	
Flange	synchro flange
Flange material	aluminum
Housing material	aluminum
Flange diameter	Ø 24 mm [Ø 0.945"]
Shaft(s)	
Shaft material	stainless steel
Starting torque	approx. 0.2 Ncm [0.283 in-ozf] at ambient temperature
Shaft	Ø 6 mm [Ø 0.236"]
Shaft length	L: 12 mm [0.472"]
Max. Permissible shaft loading radial	80 N [8.157 kp]
Max. Permissible shaft loading axial	50 N [5.098 kp]
Bearings	
Bearings type	2 precision ball bearings
Nominal 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
Nominal 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 %

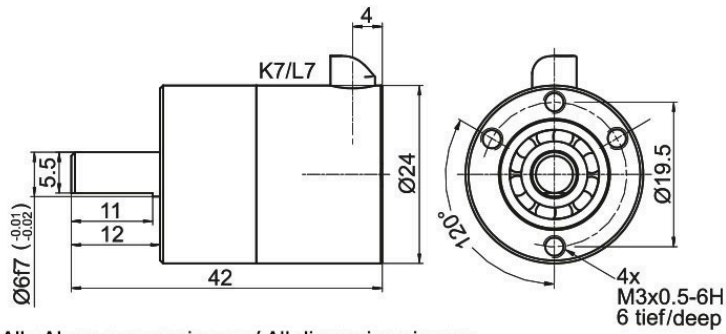
Environmental data	
ESD (DIN EN 61000-4-2):	8 kV
Burst (DIN EN 61000-4-4):	2 kV
includes EMC:	DIN EN 61000-6-2 DIN EN 61000-6-3
Vibration: (DIN EN 60068-2-6)	50 m/s <sup>2</sup> (10 Hz up to 2000 Hz)
Shock: (DIN EN 60068-2-27)	1000 m/s <sup>2</sup> (6 ms)
Electrical Safety:	according DIN VDE 0160

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

General Data	
Weight	approx. 50 g [1.764 oz]
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 [-4 °F up to +176 °F]
Storage temperature	-20 °C up to +80 °C [-4 °F up to +176 °F]

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**

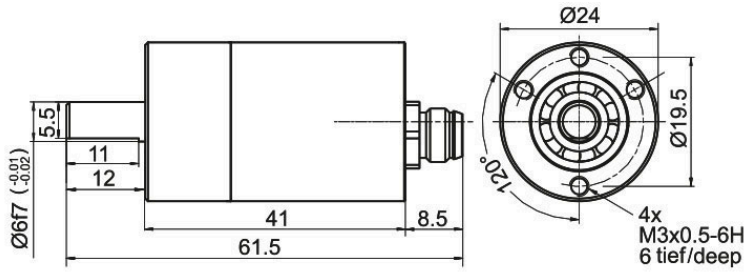


Alle Abmessungen in mm / All dimensions in mm

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



Alle Abmessungen in mm / All dimensions in mm

### Description

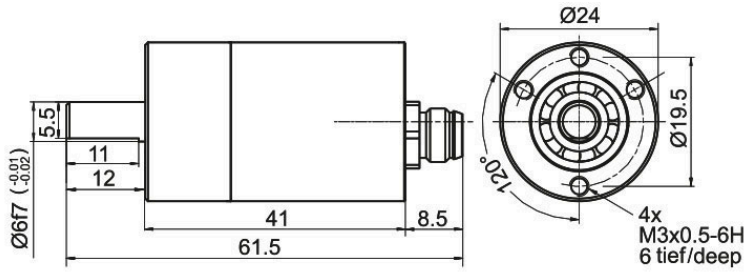
ABN inv. poss.

**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



Alle Abmessungen in mm / All dimensions in mm

### 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**

**Order key**

The encoder WDG 24C is also available as a particularly smooth-running low-friction encoder. The starting torque is thereby changed to 0.1 Ncm [0.141 in-ozf] and the protection class at the shaft input to IP50.

**AAC**

**IP67 all around (with connector SK6/SK8 only)**

**Order key**

The encoder WDG 24C can be supplied in a full IP67 version. Resistance to salt mist (IEC 60068-2-11) after 672 hours

**AAO**

Max. RPM: 3500 rpm

Permitted Shaft-Loading, axial: 30 N [3.059 kp], 3.059 kp

Permitted Shaft-Loading, radial: 45 N [4.589 kp], 4.589 kp

Max. PPR: 1024 ppr

Starting-torque: approx. 1.2 Ncm [1.699 in-ozf] at ambient temperature, approx. 1.699 in-ozf at ambient temperature

**Low temperature**

**Order key**

The encoder WDG 24C with the output circuit types M05, N05, M30, N30 is also available with the extended temperature range -40 °C up to +80 °C [-40 °F up to +176 °F] (measured at the flange).

**ACA**

**Cable length**

**Order key**

The encoder WDG 24C can be supplied with more than 2 m cable. The max. permissible cable length is 10 metres with the output circuit M05 and N05.

**XXX = Decimeter**

With output circuit M30 and N30 max. 25 m. The maximum cable length depends on the supply voltage and the frequency; see <https://www.wachendorff-automation.com/download-gtd-incremental-encoders/>

Please extend the standard order code with a three figure number, specifying the cable length in decimetres.

Example: 5 m cable = 050

Example Order No.	Type				Your encoder
WDG 24C	WDG 24C				WDG 24C
<b>Pulses per revolution PPR:</b>					
64	1-1024, 16, 32, 64 Other PPRs on request				
<b>Channels:</b>					
ABN	AB, ABN				
<b>Output circuit</b>					
M30	<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			AAO	
	Low temperature			ACA	
	Without option			Empty	
	Cable length			XXX = Decimeter	

<b>Example Order No.=</b>	WDG 24C	64	ABN	M30	K7		WDG 24C					<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-en/wachendorff-world-wide/>

# WACHENDORFF

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