



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

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 24 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 <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
Output circuit	TTL, RS422 compatible, inv. TTL HTL HTL, inv.

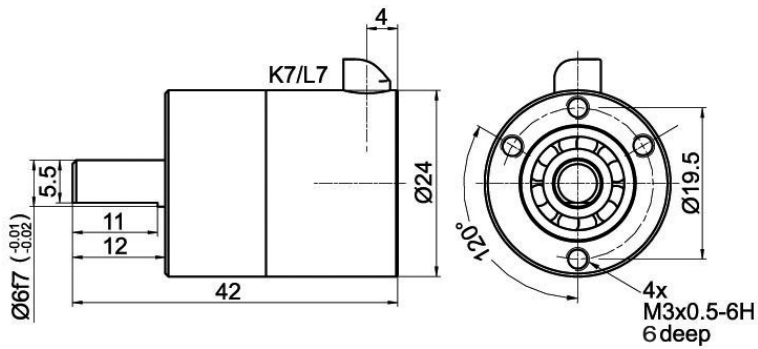
Pulse frequency	64 ppr: max. 20 kHz 1024 ppr: max. 200 kHz
Channels	AB ABN and inverted signals
Load	max. 30 mA / channel
Circuit protection	no

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

Environmental data	
<b>Environmental data:</b>	
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

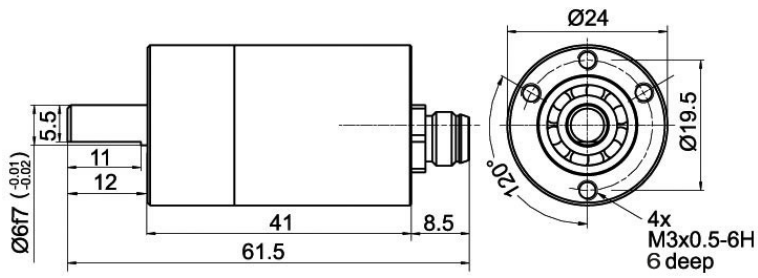
General Data	
Weight	approx. 50 g
Connections	cable or connector outlet
Protection rating (EN 60529)	IP65 all around with SK6, housing IP40 with K7, L7
Operating temperature	-20 °C up to +80 °C
Storage temperature	-20 °C up to +80 °C

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.**

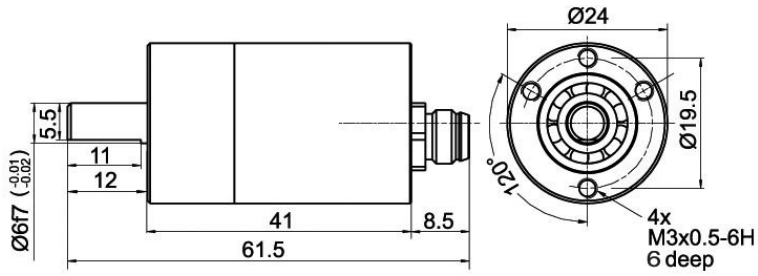
<b>K7</b>	radial, shield not connected (IP40)	•
<b>L7</b>	radial, shield connected to encoder housing (IP40)	•

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>Light reserve warning</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

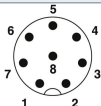
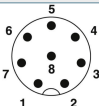
**Connector SK6, 6-pin**

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

-

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>Light reserve warning</b>	-
<b>A inv.</b>	-
<b>B inv.</b>	-
<b>N inv.</b>	-
<b>n. c.</b>	6
<b>Shield</b>	-

**Connector SK8, 8-pin**

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

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

## Options

### Low-friction bearings

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 and the protection class at the shaft input to IP50.

### Order key

**AAC**

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

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

### 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 24C 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 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.

With output circuit M30 and N30 max. 25 m. 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 24C	WDG 24C				WDG 24C
<b>Pulses per revolution PPR:</b>					
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				
<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>Light reserve warning</b>	<b>Order key</b>
	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
<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/>



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