



Online Data Sheet

Encoder WDG 24C

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

Resolution

Pulses per revolution PPR up to 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 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 (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 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

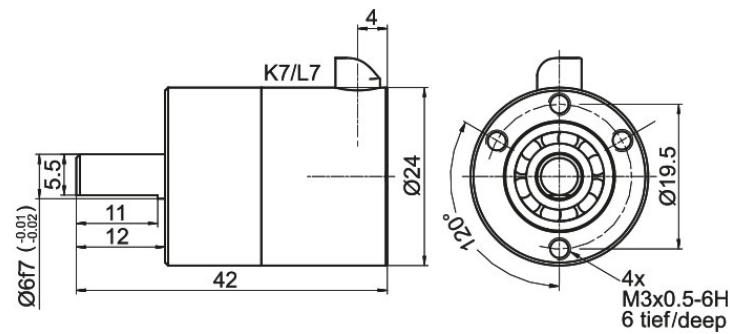
Weight	approx. 50 g
Connections	cable or connector outlet
Protection rating (EN 60529)	IP65 all around with SK6, housing IP40 with K7, L7
Operating temperature	-20 °C up to +80 °C
Storage temperature	-20 °C up to +80 °C

More Information

General technical data and safety instructions
<http://www.wachendorff-automation.com/gtd>

Options
<http://www.wachendorff-automation.com/acc>

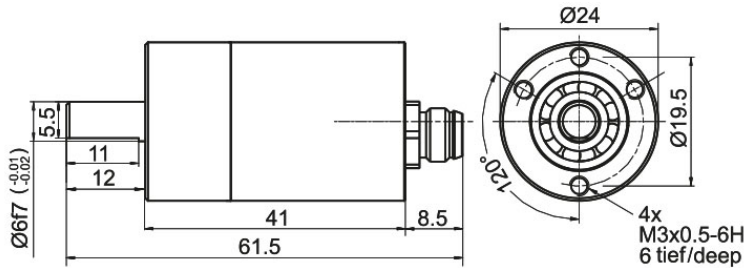
Cable connection K7, L7 (IP40) with 2 m cable



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

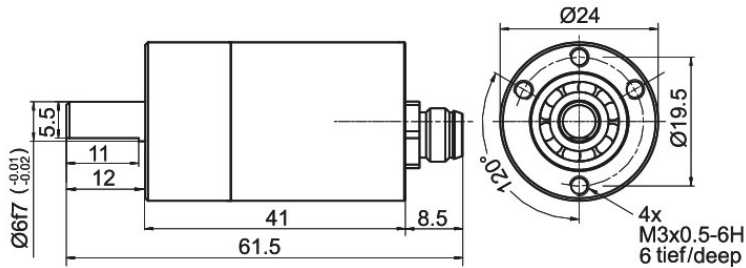
Connector SK6, 6-pin



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

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	•

Assignments		
	SK8	SK8
	8-pin	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 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 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 24C	WDG 24C					WDG 24C
	Pulses per revolution PPR:					
64	64, 16, 32, 1-1024					
	Channels:					
AB	AB, ABN					
	Output circuit					
M05	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	
	1-1024	5 - 30	HTL, inv. (TTL/RS422 comp. at 5 VDC)	-	M30	
		5 - 30	HTL (TTL at 5 VDC)	-	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			AAO		
	Low temperature			ACA		
	Cable length			Cable lenght		
	Without option			Empty		

Example Order No.=	WDG 24C	64	AB	M05	K7		WDG 24C						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/contact-sales-en/>



Wachendorff Automation GmbH & Co. KG
Industriestrasse 7 • 65366 Geisenheim
Germany

Phone: +49 67 22 / 99 65 25
E-Mail: wdg@wachendorff.de
www.wachendorff-automation.de

