



Online Data Sheet

Encoder WDG 53V

www.wachendorff-automation.com/wdg53v

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 53V (optical)



- Extremely rugged and economical encoder with short measurements
- Easy screw mounting
- Protection to IP68 all around
- Optional: -40 °C up to +85 °C

www.wachendorff-automation.com/wdg53v

Resolution

Pulses per revolution PPR up to 1500 PPR

Mechanical Data

Housing

Flange	screw flange
Starting torque nut	max. 10 Nm
Flange material	stainless steel, V2A
Housing cap	stainless steel, V2A
Housing	Ø 53 mm

Shaft(s)

Shaft material	stainless steel, V2A
Starting torque	approx. 1.2 Ncm at ambient temperature

Shaft	Ø 6 mm
Shaft length	L: 13 mm
Max. Permissible shaft loading radial	30 N
Max. Permissible shaft loading axial	45 N

Bearings

Bearings type	2 precision ball bearings
Nominal service life	1 x 10 ⁹ revs. at 100 % rated shaft load 1 x 10 ¹⁰ revs. at 40 % rated shaft load 1 x 10 ¹¹ revs. at 20 % rated shaft load
Max. operating speed	6000 rpm

Machinery Directive: basic data safety integrity level

MTTF _d	200 a
Mission time (TM)	25 a
Nominal service life (L10h)	1 x 10 ¹¹ revs. at 20 % rated shaft load and 6000 rpm
Diagnostic coverage (DC)	0 %

Electrical Data

Power supply/Current consumption	4,75 VDC up to 5,5 VDC: typ. 70 mA
Power supply/Current consumption	10 VDC up to 30 VDC: typ. 70 mA
Output circuit	TTL, RS422 compatible, inv. HTL

Pulse frequency	TTL 1500 ppr: max. 200 kHz HTL 1500 ppr: max. 200 kHz
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Channels	AB ABN and inverted signals
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Load	max. 40 mA / channel
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Circuit protection	circuit type H24 and R24 only
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Accuracy

Phase offset	90° ± max. 7.5 % of the period duration
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pulse-/pause-ratio	50 % ± max. 7 %
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Environmental data

Environmental data:

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

Weight	approx. 470 g
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Connections	cable outlet
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Protection rating (EN 60529)	IP68
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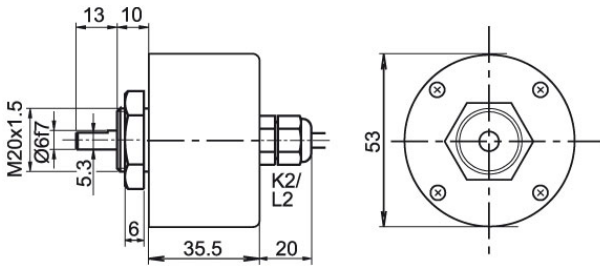
Operating temperature	-20 °C up to +80 °C
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Storage temperature	-30 °C up to +80 °C
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More Information

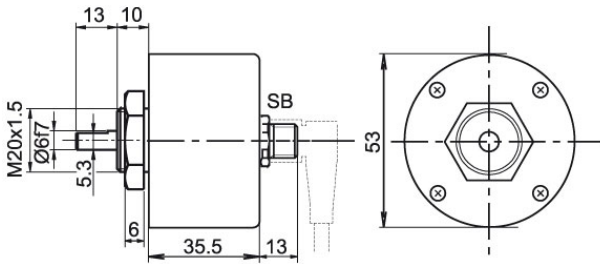
General technical data and safety instructions
<http://www.wachendorff-automation.com/gtd>

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

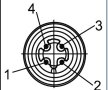
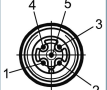


Cable connection K2, L2 with 2 m cable

Description
ABN inv. poss.

K2	axial, shield not connected	•
L2	axial, shield connected to encoder housing	•

Assignments		
	K2, L2	K2, L2
Circuit	H05, H24	R05, R24
GND	WH	WH
(+) Vcc	BN	BN
A	GN	GN
B	YE	YE
N	GY	GY
Light reserve warning	-	-
A inv.	-	RD
B inv.	-	BK, (BU at ACA)
N inv.	-	VT
Shield	flex	flex

Sensor-connector (M12x1) SB, 4-, 5-, 8-pin

Description
ABN inv. poss.

SB4	axial, 4-pin, Connector connected to encoder housing	-
SB5	axial, 5-pin, Connector connected to encoder housing	-
SB8	axial, 8-pin, Connector connected to encoder housing	•

Assignments				
	SB4	SB5	SB8	SB8
	4-pin	5-pin	8-pin	8-pin
				
Circuit	H05, H24	H05, H24	H05, H24	R05, R24
GND	3	3	1	1
(+) Vcc	1	1	2	2
A	2	4	3	3
B	4	2	4	4
N	-	5	5	5
Light reserve warning	-	-	-	-
A inv.	-	-	-	6
B inv.	-	-	-	7
N inv.	-	-	-	8
n. c.	-	-	6, 7, 8	-
Shield	-	-	-	-

Options

Low temperature

The encoder WDG 53V with the output circuit types H24, R24 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 53V 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 53V	WDG 53V				WDG 53V
Pulses per revolution PPR:					
1500	4, 9, 10, 20, 25, 28, 30, 40, 50, 60, 90, 100, 125, 128, 150, 160, 200, 235, 250, 314, 318, 360, 400, 500, 600, 635, 720, 900, 1000, 1024, 1080, 1200, 1250, 1500 Other PPRs on request				
Channels:					
ABN	AB, ABN				
Output circuit					
H24	Resolution PPR	Power supply VDC	Output circuit	Light reserve warning	Order key
	up to 2500	4.75 - 5.5	TTL	-	H05
		4.75 - 5.5	TTL, RS422 comp., inverted	-	R05
		10 - 30	HTL	-	H24
10 - 30		HTL inverted	-	R24	
Electrical connections					
K2	Description			ABN inv. poss.	Order key
	Cable: length (2 m standard, WDG 58T: 1 m)				
	axial, shield not connected			•	K2
	axial, shield connected to encoder housing			•	L2
	Connector: (shield connected to encoder housing)				
	sensor-connector, M12x1, 4-pin, axial			-	SB4
	sensor-connector, M12x1, 5-pin, axial			-	SB5
sensor-connector, M12x1, 8-pin, axial			•	SB8	
Options					
	Description			Order key	
	Low temperature			ACA	
	Without option			Empty	
	Cable length			XXX = Decimeter	

Example Order No.=	WDG 53V	1500	ABN	H24	K2		WDG 53V					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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