



## Online Data sheet

### Encoder WDG 53V

[www.wachendorff-automation.com/wdg53v](http://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



Illustration similar



- 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](http://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
Nominale service life	1 x 10 <sup>9</sup> revs. at 100 % rated shaft load 1 x 10 <sup>10</sup> revs. at 40 % rated shaft load 1 x 10 <sup>11</sup> revs. at 20 % rated shaft load
Max. operating speed	6000 rpm

Machinery Directive: basic data safety integrity level	
MTTF <sub>d</sub>	200 a
Mission time (TM)	25 a
Nominale service life (L10h)	1 x 10 <sup>11</sup> 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
Operating principle	optical

Output circuit	TTL, RS422 compatible, inv. HTL
Pulse frequency	TTL 1500 ppr: max. 200 kHz HTL 1500 ppr: max. 200 kHz
Channels	AB ABN and inverted signals
Load	max. 40 mA / channel
Circuit protection	circuit type H24 and R24 only

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

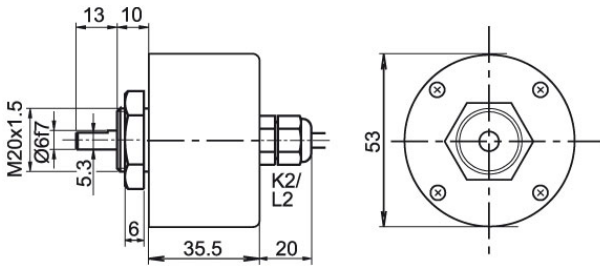
Environmental data	
ESD (DIN EN 61000-4-2):	8 kV
Burst (DIN EN 61000-4-4):	2 kV
includes EMC:	DIN EN 61000-6-2 DIN EN 61000-6-3
Vibration: (DIN EN 60068-2-6)	50 m/s <sup>2</sup> (10 Hz up to 2000 Hz)
Shock: (DIN EN 60068-2-27)	1000 m/s <sup>2</sup> (6 ms)
Electrical Safety:	according DIN VDE 0160

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

General Data	
Weight	approx. 470 g
Connections	cable outlet
Protection rating (EN 60529)	IP68
Operating temperature	-20 °C up to +80 °C
Storage temperature	-30 °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 K2, L2 with 2 m cable**



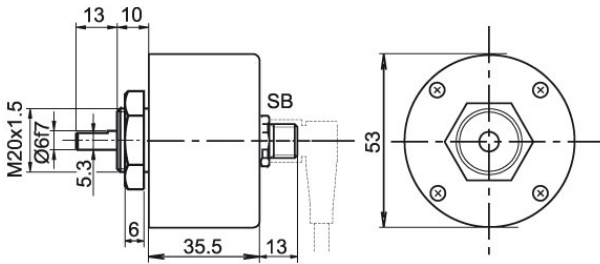
**Description**

**ABN inv. poss.**

<b>K2</b>	axial, shield not connected	•
<b>L2</b>	axial, shield connected to encoder housing	•

Assignments		
	<b>K2, L2</b>	<b>K2, L2</b>
<b>Circuit</b>	H05, H24	R05, R24
<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>	-	BK, (BU at ACA)
<b>N inv.</b>	-	VT
<b>Shield</b>	flex	flex

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



**Description**

**ABN inv. poss.**

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

<b>Assignments</b>			
	<b>SB4</b>	<b>SB5</b>	<b>SB8</b>
	<b>4-pin</b>	<b>5-pin</b>	<b>8-pin</b>
<b>Circuit</b>	H05, H24	H05, H24	R05, R24
<b>GND</b>	3	3	1
<b>(+) Vcc</b>	1	1	2
<b>A</b>	2	4	3
<b>B</b>	4	2	4
<b>N</b>	-	5	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 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 [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 53V	WDG 53V				WDG 53V
<b>Pulses per revolution PPR:</b>					
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				
<b>Channels:</b>					
ABN	AB, ABN				
<b>Output circuit</b>					
H24	<b>Resolution PPR</b>	<b>Power supply VDC</b>	<b>Output circuit</b>	-	<b>Order key</b>
	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	
<b>Electrical connections</b>					
K2	<b>Description</b>			<b>ABN inv. poss.</b>	<b>Order key</b>
	<b>Cable: length (2 m standard, WDG 58T: 1 m)</b>				
	axial, shield not connected			•	K2
	axial, shield connected to encoder housing			•	L2
	<b>Connector: (shield connected to encoder housing)</b>				
	sensor-connector, M12x1, 4-pin, axial			-	SB4
	sensor-connector, M12x1, 5-pin, axial			-	SB5
sensor-connector, M12x1, 8-pin, axial			•	SB8	
<b>Options</b>					
	<b>Description</b>			<b>Order key</b>	
	Low temperature			ACA	
	Without option			Empty	
	Cable length			XXX = Decimeter	

<b>Example Order No.=</b>	WDG 53V	1500	ABN	H24	K2		WDG 53V					<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

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

Phone: +49 67 22 / 99 65 25  
E-Mail: [wdg@wachendorff.de](mailto:wdg@wachendorff.de)  
[www.wachendorff-automation.de](http://www.wachendorff-automation.de)

