

## Encoder WDG 53S



**Suitable for use  
in saltwater**

- Extremely rugged and economical encoder with short measurements
- Easy screw mounting
- Protection to IP68 all around
- Optional: -40 °C up to +80 °C

[www.wachendorff-automation.com/wdg53s](http://www.wachendorff-automation.com/wdg53s)

**Available PPR** up to 1500 PPR

### Mechanical Data

- Screw flange: Aluminium anodised (blue) incl. nut M20 x 1.5
- Cap: Aluminium anodised (blue)

- Shaft Ø 6 mm
- Material: stainless steel
  - Permitted load on shaft end: max. 20 N radial, max. 10 N axial
  - Starting torque: approx. 1.2 Ncm at ambient temperature

- Bearings
- Type: 2 precision ball bearings
  - 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
- Weight: approx. 215 g
- Connections: cable or connector
- Starting torque nut: max. 10 Nm

Protection rating: IP68, connector IP67 (EN 60529)

Operating temperature: -20 °C up to +80 °C  
Storage temperature: -30 °C up to +80 °C

### Machinery Directive: basic data safety integrity level

- MTTF<sub>d</sub>: 200 a
- Mission time (T<sub>M</sub>): 25 a
- Nominale service life (L<sub>10h</sub>): 1 x 10<sup>11</sup> revs. at 6000 rpm and 20 % rated shaft load
- Diagnostic coverage (DC): 0 %

### Electrical Data

- Power supply/ Open circuit current consumption: 4.75 VDC up to 5.5 VDC: max. 70 mA, 10 VDC up to 30 VDC: max. 70 mA

Output circuit: TTL, RS422 compatible, HTL

Pulse frequency: TTL up to 1500 PPR: max. 200 kHz, HTL up to 1500 PPR: max. 200 kHz

Channels: AB, ABN and inverted signals

Load: max. 40 mA/channel

Circuit protection: circuit type H24 and R24 only

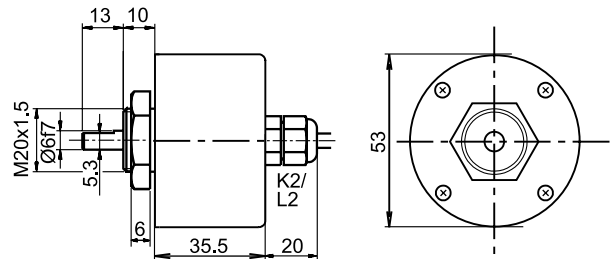
Accuracy: Phase offset: 90° ± max. 7.5 % of the pulse length, pulse-/pause-ratio: 50 % ± max. 7 %

**Further technical information on:**

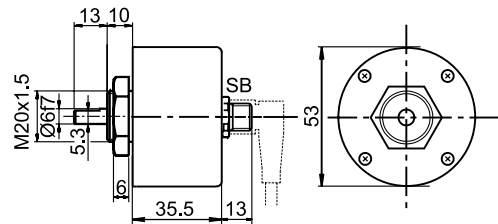
[www.wachendorff-automation.com/gtd](http://www.wachendorff-automation.com/gtd)

**Matching accessories on:** [www.wachendorff-automation.com/acs](http://www.wachendorff-automation.com/acs)

### Cable connection K2, L2 with 2 m cable



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



All dimensional specifications in mm.

**Options:**

**Low-temperature:**

The encoder WDG 53S with the output switch 10 VDC up to 30 VDC is also available with the extended temperature range -40 °C up to +80 °C (measured at the flange). When ordering please add the suffix code - ACA.

**Cable length:**

The encoder WDG 53S can be supplied with more than 2 m cable. The maximum cable length depends on the supply voltage and the frequency; see „General Technical Data“:



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

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

Example: 3 m cable = 030

**Ordering information:**

Please see our general technical data at: [www.wachendorff-automation.com/gtd](http://www.wachendorff-automation.com/gtd)

Output circuit:				
Resolution PPR	Power supply VDC	Output circuit	Light reserve warning	Order Key
up to 2500	4.75 - 5.5	 TTL	-	H05
		TTL, RS422 comp., inverted	-	R05
	10 - 30	 HTL	-	H24
		HTL inverted	-	R24

**Channels:** AB, ABN

**Pulses per revolution PPR:**  
 4, 9, 10, 15, 20, 25, 28, 30, 40, 50, 60, 90, 100, 120, 125, 128, 150, 160, 180, 200, 235, 250, 300, 314, 318, 360, 400, 500, 600, 625, 635, 720, 900, 1000, 1024, 1080, 1200, 1250, 1500.  
 Other PPRs on request

Electrical connections:			ABN inv.
Order key	Outgoing	Description	
<b>Cable:</b> (Length 2 m standard)			
K2	axial	shield not connected	•
L2		shield connected to encoder housing	•
<b>Connector:</b>			
SB4	axial	4-pin, M12-sensor-connector	-
SB5	axial	5-pin, M12-sensor-connector	-
SB8	axial	8-pin, M12-sensor-connector	•

**Options:**  
 Empty = Without option  
 ACA = Low-temperature -40 °C up to +80 °C  
 In decimetres = Cable length

**Order No.:**

Example	<input type="text" value="WDG 53S"/>	<input type="text" value="1500"/>	<input type="text" value="ABN"/>	<input type="text" value="H24"/>	<input type="text" value="K2"/>	<input type="text"/>
Your encoder	<input type="text" value="WDG 53S"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>