

## Encoder WDG 40S



- Robust and economical encoder with small dimensions
- Easy screw mounting
- Protection to IP67, shaft sealed to IP65
- Optional: Protection to IP67 all around  
-40 °C up to +80 °C

[www.wachendorff-automation.com/wdg40s](http://www.wachendorff-automation.com/wdg40s)

**Available PPR** up to 2500 PPR

### Mechanical Data

#### Housing

- Screw flange: Aluminium incl. nut M20 x 1.5
- Cap: Aluminium, powder coated

#### Shaft

- Ø 6 mm
- Material: stainless steel
- Permitted load on shaft end: max. 80 N radial  
max. 50 N axial
- Starting torque: approx. 0.2 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: 12000 rpm

Weight: approx. 90 g

Connections: cable or connector

Starting torque nut: max. 10 Nm

Protection rating: IP67, shaft sealed to IP65  
(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

Nominal service life (L<sub>10h</sub>): 1 x 10<sup>11</sup> revs. at 12000 rpm and 20 % rated shaft load

Diagnostic coverage (DC): 0 %

### Electrical Data

Power supply/ 4.75 VDC up to 5.5 VDC: max. 70 mA

Open circuit current consumption: 10 VDC up to 30 VDC: max. 70 mA

Output circuit: TTL, RS422 compatible  
HTL

Pulse frequency: TTL up to 2500 PPR: max. 200 kHz  
HTL up to 2500 PPR: max. 200 kHz

Channels: AB, ABN and inverted signals

Load: max. 40 mA/channel

Circuit protection: circuit type H24 and R24 only

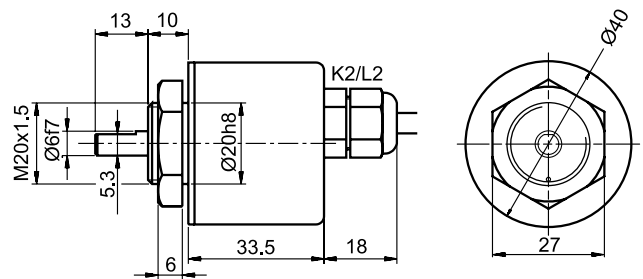
Accuracy: Phase offset: 90° ± max. 7.5 %  
of the pulse length  
pulse-/pause-ratio: 50 % ± max. 7 %

### Further technical information on:

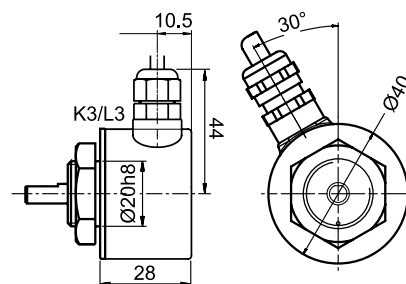
[www.wachendorff-automation.com/gtd](http://www.wachendorff-automation.com/gtd)

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

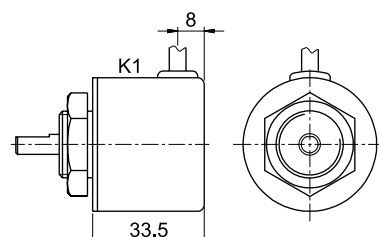
### Cable connection K2, L2 with 2 m cable



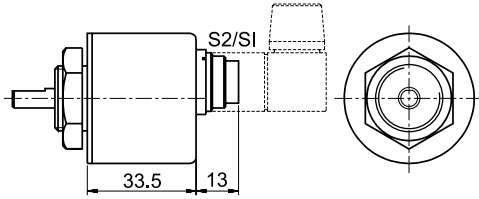
### Cable connection K3, L3 with 2 m cable



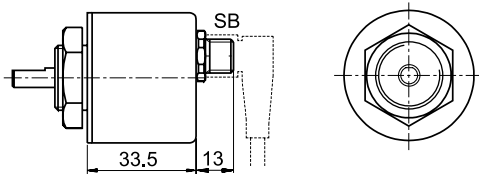
### Cable connection K1 with 2 m cable



**Connector (M16x0.75) SI, 5-, 6-, 8-, 12-pin and S2, 7-pin**



**Sensor-connector (M12x1) SB, 4-, 5-, 8-, 12-pin**



All dimensional specifications in mm.

**Options:**

**Low-temperature:**

The encoder WDG 40S 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.

**Low-friction bearings:**

The encoder WDG 40S 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. When ordering please add the suffix code - AAC.

**Shafts sealed to IP67:**

The encoder WDG 40S can be supplied in a full IP67 version. When ordering please add the suffix code - AAO.

Max. RPM	Permitted Shaft-Loading axial radial	Max. PPR	Starting-torque
3500 rpm	30 N 45 N	1500 PPR	approx. 1.2 Ncm

Amended specifications for shaft sealed to IP67.

**Cable length:**

The encoder WDG 40S 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 (up to 2048 PPR)

**Pulses per revolution PPR:**  
4, 9, 10, 15, 20, 25, 28, 30, 36, 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, 1800, 2000, 2048, 2500.  
Other PPRs on request

Electrical connections:			ABN inv.
Order key	Outgoing	Description	
<b>Cable:</b> (Length 2 m standard)			
K1	radial	shield not connected (IP50)	●
K2	axial	shield not connected	●
L2		shield connected to encoder housing	●
K3	radial	shield not connected	●
L3		shield connected to encoder housing	●
<b>Connector:</b>			
SI5	axial	5-pin, connector	-
SI6	axial	6-pin, connector	-
SI8	axial	8-pin, connector	●
SI12	axial	12-pin, connector	●
S2	axial	7-pin, connector	-
SB4	axial	4-pin, M12-sensor-connector	-
SB5	axial	5-pin, M12-sensor-connector	-
SB8	axial	8-pin, M12-sensor-connector	●
SB12	axial	12-pin, M12-sensor-connector	●

**Options:**  
 Empty = Without option  
 ACA = Low-temperature -40 °C up to +80 °C  
 AAC = Low-friction bearings  
 AAO = Shaft sealed to IP67  
 In decimetres = Cable length

**Order No.:**

Example	WDG 40S	2500	ABN	H24	K2	
Your encoder	WDG 40S					