WACHENDORFF
The Encoder Experts

Online Data sheet

# Encoder WDG 58S

**www.wachendorff-automation.com/wdg58s**

**Wachendorff Automation**

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- 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

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# Encoder WDG 58S
# Salt mist IEC 60068-2-11

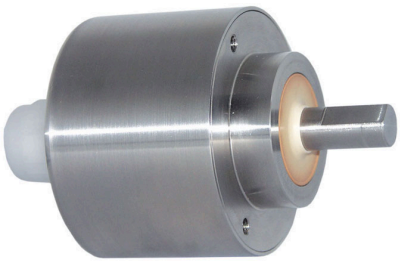


*Illustration similar*

- Resistence to salt mist (IEC 60068-2-11) succeeded
- Up to 25000 PPR by use of high grad electronics
- High protection rating IP67 all around and IP69K (high pressure / steam cleaning)
- Radial shaft sealing ring with no dead-room (PTFE)
- Full connection protection with 10 VDC up to 30 VDC
- Optional: -40 °C up to +80 °C [-40 °F up to +176 °F]

**www.wachendorff-automation.com/wdg58s**

| **Resolution** | |
|---|---|
| Pulses per revolution PPR | up to 25000 PPR |

| **Mechanical Data** | |
|---|---|
| Flange | clamping flange |
| Flange material | stainless steel, V4A |
| Housing material | stainless steel, V4A |
| Flange diameter | Ø 58 mm [Ø 2.283"] |

| **Shaft(s)** | |
|---|---|
| Shaft material | stainless steel, V4A |
| Starting torque | approx. 1 Ncm [1.416 in-ozf] at ambient temperature |
| Shaft | Ø 10 mm [Ø 0.394"] |
| Shaft length | L: 18 mm [0.709"] |
| Max. Permissible shaft loading radial | 100 N [10.197 kp] |
| Max. Permissible shaft loading axial | 100 N [10.197 kp] |

| **Bearings** | |
|---|---|
| Bearings type | 2 precision ball bearings |
| Nominale service life | 1 x 10'9 revs. at 100 % rated shaft load<br>1 x 10'10 revs. at 40 % rated shaft load<br>1 x 10'11 revs. at 20 % rated shaft load |
| Max. operating speed | 3600 rpm |

| **Machinery Directive: basic data safety integrity level** | |
|---|---|
| $MTTF_d$ | 200 a |
| Mission time (TM) | 25 a |
| Nominale service life (L10h) | 1 x 10'11 revs. at 20 % rated shaft load and 3600 rpm |
| Diagnostic coverage (DC) | 0 % |

| **Electrical Data** | |
|---|---|
| Power supply/Current consumption | 4,75 VDC up to 5,5 VDC: typ. 70 mA (100 mA only F05, P05) |
| Power supply/Current consumption | 5 VDC up to 30 VDC: typ. 70 mA |
| Power supply/Current consumption | 10 VDC up to 30 VDC: typ. 70 mA (100 mA only F24, P24, 645) |
| Operating principle | optical |
| Output circuit | TTL<br>TTL, RS422 compatible, inv.<br>HTL<br>HTL, inv.<br>1 Vpp sin/cos |
| Pulse frequency | TTL ≤ 5000 ppr: max. 200 kHz<br>HTL ≤ 5000 ppr: max. 200 kHz<br>TTL more than 1200 ppr: max. 2 MHz<br>HTL more than 1200 ppr: max. 600 kHz<br>1 Vpp sin/cos: max. 100 kHz |
| Channels | AB<br>ABN<br>and inverted signals |
| Load | max. 40 mA / channel<br>@ 1 Vpp sin/cos: min. 120 Ohm |
| Circuit protection | circuit type F24, H24, P24, R24 only |

| **Accuracy** | |
|---|---|
| Phase offset | 90° ± max. 7.5 % of the period duration |
| pulse-/pause-ratio | ≤5000 ppr: 50 % ± max. 7 %<br>Output circuits F24, P24, F05, P05, 645: 50 % ± max. 10 % |

| **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<br>DIN EN 61000-6-3 |
| Vibration:<br>(DIN EN 60068-2-6) | 50 $m/s^2$ (10 Hz up to 2000 Hz) |
| Shock:<br>(DIN EN 60068-2-27) | 1000 $m/s^2$ (6 ms) |
| Electrial Safety: | according DIN VDE 0160 |

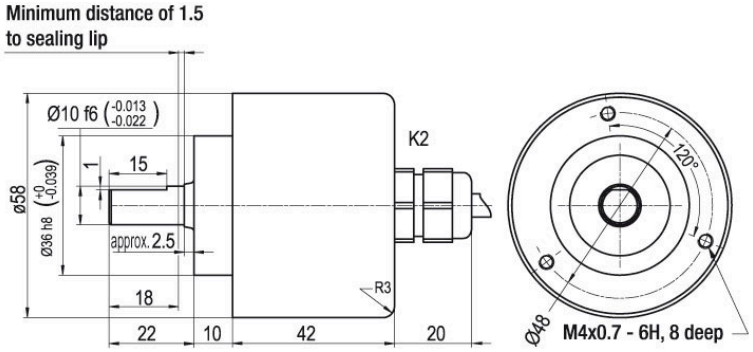
| **Duty information** | |
|---|---|
| Customs tariff number: | 90318020 |
| Country of origin: | Germany |

| **General Data** | |
|---|---|
| Weight | approx. 600 g [21.164 oz] |
| Connections | cable outlet (TPE) |
| Protection rating (EN 60529) | IP67+IP69K all around. Resistance to salt mist (IEC 60068-2-11) after 672 hours. |
| Operating temperature | -20 °C up to +80 °C<br>[ -4 °F up to +176 °F]<br>1 Vpp: -10 °C up to +70 °C<br>[+14 °F up to +158 °F] |

| | |
|---|---|
| Storage temperature | -20 °C up to +80 °C<br>[ -4 °F up to +176 °F] |

| **More Information** |
|---|
| General technical data and safety instructions<br>**http://www.wachendorff-automation.com/gtd** |
| Options<br>**http://www.wachendorff-automation.com/acc** |

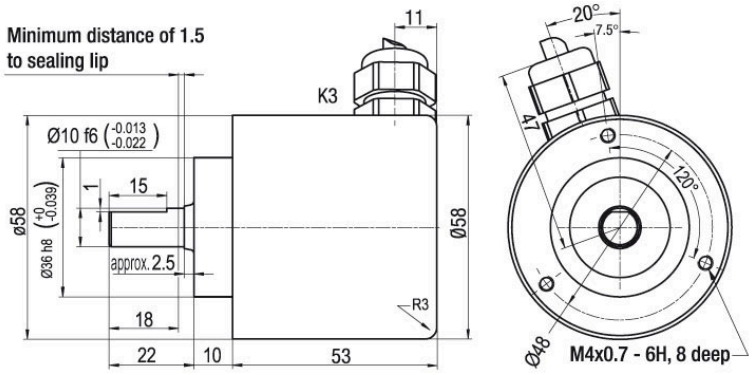
## Cable connection K2, L2 with 2 m cable




| Description | | ABN inv. poss. |
|---|---|---|
| **K2** | axial, shield not connected | • |
| **L2** | axial, shield connected to encoder housing | • |

| Assignments | | | |
|---|---|---|---|
| | **K2, L2** | **K2, L2** | **L2** |
| **Circuit** | F05, H05, F24, H24, H30 | P05, R05, P24, R24, 645, R30 | SIN |
| **GND** | WH | WH | WH |
| **(+) Vcc** | BN | BN | BN |
| **A** | GN | GN | GN |
| **B** | YE | YE | GY |
| **N** | GY | GY | - |
| **-** | - | - | - |
| **A inv.** | - | RD | YE |
| **B inv.** | - | BU | PK |
| **N inv.** | - | VT | - |
| **Shield** | flex | flex | flex |

## Cable connection K3, L3 with 2 m cable




| Description | | ABN inv. poss. |
|---|---|---|
| **K3** | radial, shield not connected | • |
| **L3** | radial, shield connected to encoder housing | • |

| Assignments | | | |
|---|---|---|---|
| | **K3, L3** | **K3, L3** | **L3** |
| **Circuit** | F05, H05, F24, H24, H30 | P05, R05, P24, R24, 645, R30 | SIN |
| **GND** | WH | WH | WH |
| **(+) Vcc** | BN | BN | BN |
| **A** | GN | GN | GN |
| **B** | YE | YE | GY |
| **N** | GY | GY | - |
| **-** | - | - | - |
| **A inv.** | - | RD | YE |
| **B inv.** | - | BU | PK |
| **N inv.** | - | VT | - |
| **Shield** | flex | flex | flex |

## Options

| Low temperature | Order key |
|---|---|
| The encoder WDG 58S with the output circuit types F24, H24, P24, R24, F05, P05, 245, 645 is also available with the extended temperature range -40 °C up to +80 °C [-40 °F up to +176 °F] (measured at the flange). | **ACA** |

| Cable length | Order key |
|---|---|
| The encoder WDG 58S can be supplied with more than 2 m cable. The maximum cable length depends on the supply voltage and the frequency; see https://www.wachendorff-automation.com/download-gtd-incremental-encoders/<br>Please extend the standard order code with a three figure number, specifying the cable length in decimetres.<br>Example: 5 m cable = 050 | **XXX = Decimeter** |

| Example Order No. | Type | Your encoder |
|---|---|---|
| WDG 58S | WDG 58S | WDG 58S |

| | Pulses per revolution PPR: | |
|---|---|---|
| 8000 | 8000, 2, 5, 10240, 10, 16384, 20480, 15, 20, 25, 8192, 30, 36, 40, 48, 50, 60, 64, 72, 90, 100, 120, 125, 128, 150, 160, 180, 200, 216, 240, 250, 254, 256, 300, 314, 320, 360, 400, 500, 512, 571, 600, 720, 750, 768, 800, 900, 1000, 1024, 1200, 1250, 1270, 1440, 1500, 1800, 2000, 2048, 2400, 2500, 2880, 3000, 3600, 4000, 4096, 4685, 5000, 5760, 6000, 7200, 7500, 10000, 12000, 12500, 15000, 20000, 25000 | |

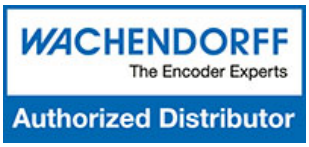
| | Channels: | |
|---|---|---|
| AB | AB, ABN | |

| | Output circuit | | | | | |
|---|---|---|---|---|---|---|
| H30 | Resolution PPR | Power supply VDC | Output circuit | - | Order key | |
| | up to 2500 | 5 - 30 | HTL (TTL at 5 VDC) | - | H30 | |
| | | 5 - 30 | HTL, inv. (TTL/RS422 comp. at 5 VDC) | - | R30 | |
| | up to 5000 | 4.75 - 5.5 | TTL | - | H05 | |
| | | 4.75 - 5.5 | TTL, RS422 comp., inverted | - | R05 | |
| | | 10 - 30 | HTL | - | H24 | |
| | | 10 - 30 | HTL inverted | - | R24 | |
| | (higher frequency) 1200 up to 25000 | 4.75 - 5.5 | TTL | - | F05 | |
| | | 4.75 - 5.5 | TTL, RS422 comp., inverted | - | P05 | |
| | | 10 - 30 | HTL | - | F24 | |
| | | 10 - 30 | HTL inverted | - | P24 | |
| | | 10 - 30 | TTL, RS422 comp., inverted | - | 645 | |
| | 1024, 2048 | 4.75 - 5.5 | 1 Vpp sin/cos | - | SIN | |

| | 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 |
| | radial, shield not connected | | • | K3 |
| | radial, shield connected to encoder housing | | • | L3 |

| | Options | | |
|---|---|---|---|
| | Description | Order key | |
| | Low temperature | ACA | |
| | Cable length | Cable lenght | |
| | Without option | Empty | |

| Example Order No.= | WDG 58S | 8000 | AB | H30 | K2 | | WDG 58S | | | | | | Your encoder |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|




For further information please contact our local distributor.
Here you find a list of our distributors worldwide.
https://www.wachendorff-automation.com/contact-en/wachendorff-world-wide/

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