

Online Data Sheet

Encoder WDG 40S

www.wachendorff-automation.com/wdg40s

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 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

Resolution

Max. pulses per revolution up to 2500 PPR
PPR

Mechanical Data

Housing

| | |
|---------------------|--------------------------------|
| Flange | screw flange |
| Starting torque nut | max. 10 Nm |
| Flange material | aluminium, incl. nut M20 x 1.5 |
| Housing cap | aluminium, powder coated |
| Housing | Ø 40 mm |

Shaft(s)

| | |
|-----------------|--|
| Shaft material | stainless steel |
| Starting torque | approx. 0.2 Ncm at ambient temperature |

| | |
|---------------------------------------|----------|
| Shaft | Ø 6 mm |
| Shaft length | L: 13 mm |
| Max. Permissible shaft loading radial | 80 N |
| Max. Permissible shaft loading axial | 50 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 | 12000 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 12000 rpm |
| Diagnostic coverage (DC) | 0 % |

Electrical Data

| | |
|----------------------------------|------------------------------------|
| Power supply/Current consumption | 4,75 VDC up to 5,5 VDC: max. 70 mA |
| Power supply/Current consumption | 10 VDC up to 30 VDC: max. 70 mA |

| | |
|--------------------|--|
| Output circuit | TTL TTL, RS422 compatible, inv. HTL HTL, inv. |
| Pulse frequency | TTL 2500 ppr: max. 200 kHz HTL 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 % |

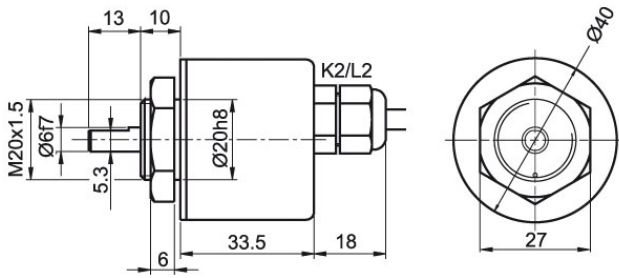
General Data

| | |
|------------------------------|--|
| Weight | approx. 90 g |
| Connections | cable or connector outlet |
| Protection rating (EN 60529) | IP67, shaft sealed to IP65 (IP50 for K1) |
| Operating temperature | -20 °C up to +80 °C |
| Storage temperature | -30 °C up to +80 °C |

More Information

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

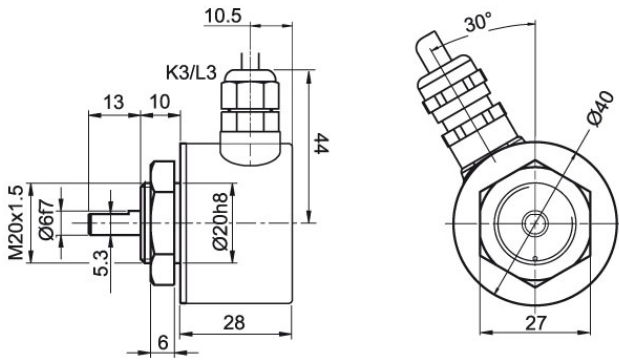
Options
<http://www.wachendorff-automation.com/acc>

Cabel connection K2, L2 with 2 m cable

Description
ABN inv. poss.

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

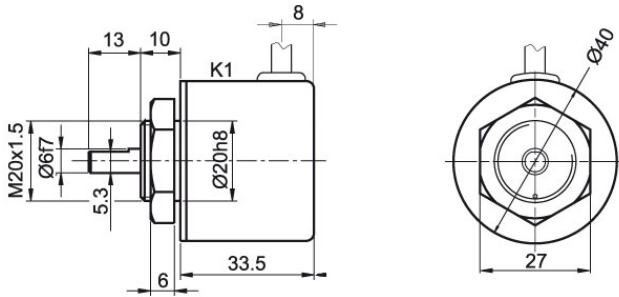
Assignments

| | 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 |
| N inv. | - | VT |
| Shield | flex | flex |

Cable connection K3, L3 with 2 m cable

Description
ABN inv. poss.

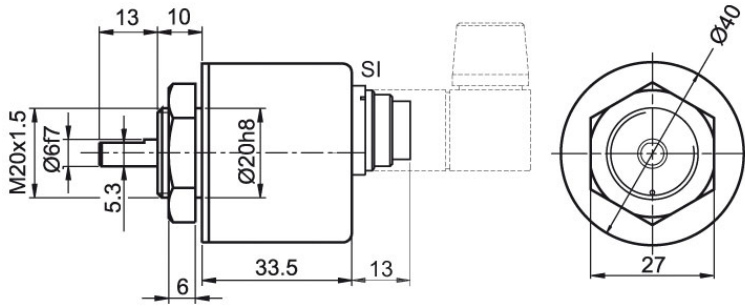
| | | |
|-----------|---|---|
| K3 | radial, shield not connected | • |
| L3 | radial, shield connected to encoder housing | • |

| Assignments | | |
|------------------------------|---------------|---------------|
| | K3, L3 | K3, L3 |
| 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 |
| N inv. | - | VT |
| Shield | flex | flex |

Cable connection K1 (IP50) with 2 m cable

Description
ABN inv. poss.
K1 radial, shield not connected (IP50)

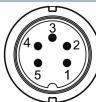
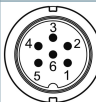
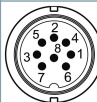
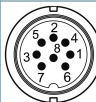
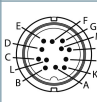
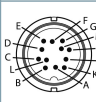
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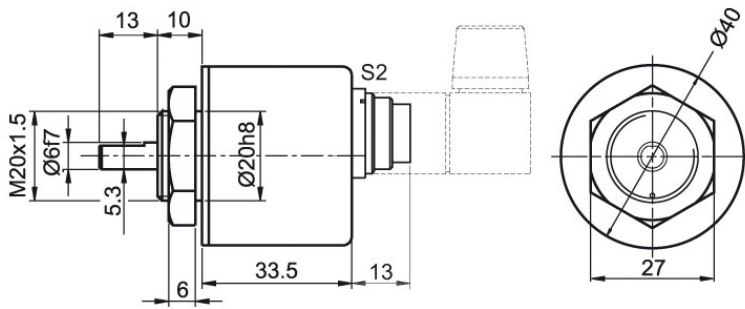
| Assignments | | |
|------------------------------|----------|----------|
| | K1 | K1 |
| Circuit | H05, H24 | R05, R24 |
| GND | WH | WH |
| (+) Vcc | BN | BN |
| A | GN | GN |
| B | YE | YE |
| N | GY | GY |
| Light reserve warning | - | - |
| A inv. | - | RD |
| N inv. | - | VT |
| B inv. | - | BK |
| Shield | flex | flex |

Connector (M16x0.75) SI, 5-, 6-, 8-, 12-pin

Description
ABN inv. poss.


| | | |
|-------------|---|---|
| SI5 | axial, 5-pin, Connector connected to encoder housing | - |
| SI6 | axial, 6-pin, Connector connected to encoder housing | - |
| SI8 | axial, 8-pin, Connector connected to encoder housing | • |
| SI12 | axial, 12-pin, Connector connected to encoder housing | • |

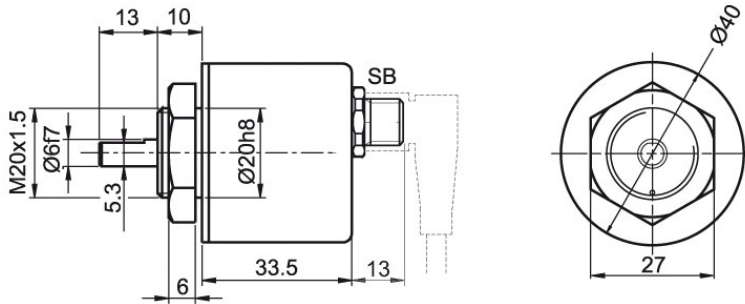
Assignments

| | SI5 | SI6 | SI8 | SI8 | SI12 | SI12 |
|------------------------------|---|---|---|---|---|---|
| | 5-pin | 6-pin | 8-pin | 8-pin | 12-pin | 12-pin |
| |  |  |  |  |  |  |
| Circuit | H05, H24 | H05, H24 | H05, H24 | R05, R24 | H05, H24 | R05, R24 |
| GND | 1 | 6 | 1 | 1 | K, L | K, L |
| (+) Vcc | 2 | 1 | 2 | 2 | M, B | M, B |
| A | 3 | 2 | 3 | 3 | E | E |
| B | 4 | 4 | 4 | 4 | H | H |
| N | 5 | 3 | 5 | 5 | C | C |
| Light reserve warning | - | - | - | - | - | - |
| A inv. | - | - | - | 6 | - | F |
| B inv. | - | - | - | 7 | - | A |
| N inv. | - | - | - | 8 | - | D |
| n. c. | - | 5 | 6, 7, 8 | - | A, D, F, G, J | G, J |
| Shield | - | - | - | - | - | - |

Connector (M16x0.75) S2, 7-pin

Description
ABN inv. poss.
S2 axial, 7-pin, Connector connected to encoder housing

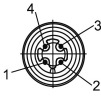
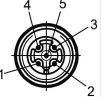
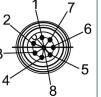
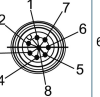
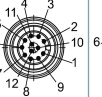
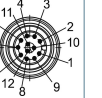
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| Assignments | |
|------------------------------|--|
| | S2 |
| | 7-pin |
| |  |
| Circuit | H05, H24 |
| GND | 1 |
| (+) Vcc | 2 |
| A | 3 |
| B | 4 |
| N | 5 |
| Light reserve warning | - |
| A inv. | - |
| B inv. | - |
| N inv. | - |
| n. c. | 6, 7 |
| Shield | - |

Sensor-connector (M12x1) SB, 4-, 5-, 8-, 12-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 | • |
| SB12 | axial, 12-pin, Connector connected to encoder housing | • |

Assignments

| | SB4 | SB5 | SB8 | SB8 | SB12 | SB12 |
|------------------------------|---|---|---|---|---|---|
| | 4-pin | 5-pin | 8-pin | 8-pin | 12-pin | 12-pin |
| |  |  |  |  |  |  |
| Circuit | H05, H24 | H05, H24 | H05, H24 | R05, R24 | H05, H24 | R05, R24 |
| GND | 3 | 3 | 1 | 1 | 3 | 3 |
| (+) Vcc | 1 | 1 | 2 | 2 | 1 | 1 |
| A | 2 | 4 | 3 | 3 | 4 | 4 |
| B | 4 | 2 | 4 | 4 | 6 | 6 |
| N | - | 5 | 5 | 5 | 8 | 8 |
| Light reserve warning | - | - | - | - | - | - |
| A inv. | - | - | - | 6 | - | 9 |
| B inv. | - | - | - | 7 | - | 7 |
| N inv. | - | - | - | 8 | - | 10 |
| n. c. | - | - | 6, 7, 8 | - | 2, 5, 7, 9, 10, 11, 12 | 2, 5, 11, 12 |
| Shield | - | - | - | - | - | - |

Options

Low temperature

The encoder WDG 40S 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

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.

Order key

AAC

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 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

IP67 all around

The encoder WDG 40S can be supplied in a full IP67 version.

Order key

AAO

Max. RPM: 3500 rpm

Permitted Shaft-Loading, axial: 30 N

Permitted Shaft-Loading, radial: 45 N

Max. PPR: 1500 ppr

Starting-torque: approx. 1.2 Ncm at ambient temperature

| Example Order No. | Type | | | | Your encoder |
|--|--|-------------------------|----------------------------|------------------------------|------------------|
| WDG 40S | WDG 40S | | | | WDG 40S |
| Pulses per revolution PPR: | | | | | |
| 2048 | 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 | | | | |
| Channels: | | | | | |
| ABN | AB, ABN bis 2048 I/U | | | | |
| 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) | | | | |
| | radial, shield not connected (IP50) | | | • | K1 |
| | axial, shield not connected | | | • | K2 |
| | axial, shield connected to encoder housing | | | • | L2 |
| | radial, shield not connected | | | • | K3 |
| | radial, shield connected to encoder housing | | | • | L3 |
| | Connector: (shield connected to encoder housing) | | | | |
| | connector, M16x0.75, 5-pin, axial | | | - | SI5 |
| | connector, M16x0.75, 6-pin, axial | | | - | SI6 |
| | connector, M16x0.75, 8-pin, axial | | | • | SI8 |
| | connector, M16x0.75, 12-pin, axial | | | • | SI12 |
| | connector, M16x0.75, 7-pin, axial | | | - | S2 |
| | sensor-connector, M12x1, 4-pin, axial | | | - | SB4 |
| | sensor-connector, M12x1, 5-pin, axial | | | - | SB5 |
| sensor-connector, M12x1, 8-pin, axial | | | • | SB8 | |
| sensor-connector, M12x1, 12-pin, axial | | | • | SB12 | |
| Options | | | | | |
| | Description | | | Order key | |
| | Without option | | | Empty | |
| | Low temperature | | | ACA | |
| | Low-friction bearings | | | AAC | |
| | IP67 | | | AAO | |
| | Cable length | | | XXX = Decimeter | |

| | | | | | | | | | | | | |
|---------------------------|---------|------|-----|-----|----|--|---------|--|--|--|--|---------------------|
| Example Order No.= | WDG 40S | 2048 | ABN | H24 | K2 | | WDG 40S | | | | | Your encoder |
|---------------------------|---------|------|-----|-----|----|--|---------|--|--|--|--|---------------------|



For further information please contact our local distributor.
Here you find a list of our distributors worldwide.
http://www.wachendorff-automation.com/distributors_worldwide.html



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

Phone: +49 67 22 / 99 65 25
Fax: +49 67 22 / 99 65 70
E-Mail: wdg@wachendorff.de
www.wachendorff-automation.de

