



Online Data Sheet

Encoder WDG 50B

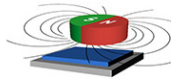
www.wachendorff-automation.com/wdg50bm

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 50B (magnetic)



- Economic encoder with mechanical carrying of loading
- Protection to IP67, shaft sealed to IP65
- Optional: -40 °C up to +85 °C

www.wachendorff-automation.com/wdg50bm

| Resolution | |
|--------------------------------|----------------|
| Max. pulses per revolution PPR | up to 1024 PPR |

| Mechanical Data | |
|-----------------|-------------------------|
| Housing | |
| Flange | clamping flange |
| Flange material | aluminum |
| Housing cap | aluminum, powder coated |
| Housing | Ø 50 mm |
| Cam mounting | pitch 61 mm |

| Shaft(s) | |
|---------------------------------------|--|
| Shaft material | stainless steel |
| Starting torque | approx. 0.3 Ncm at ambient temperature |
| | |
| Shaft | Ø 8 mm |
| Shaft length | L: 15 mm |
| Max. Permissible shaft loading radial | 120 N |
| Max. Permissible shaft loading axial | 70 N |

| Bearings | |
|----------------------|--|
| Bearings type | 2 precision ball bearings |
| Nominal service life | 2 x 10 ⁸ revs. at 100 % rated shaft load 3 x 10 ⁹ revs. at 40 % rated shaft load 2 x 10 ¹⁰ 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) | 2 x 10 ¹⁰ revs. at 20 % rated shaft load and 12000 rpm |
| Diagnostic coverage (DC) | 0 % |

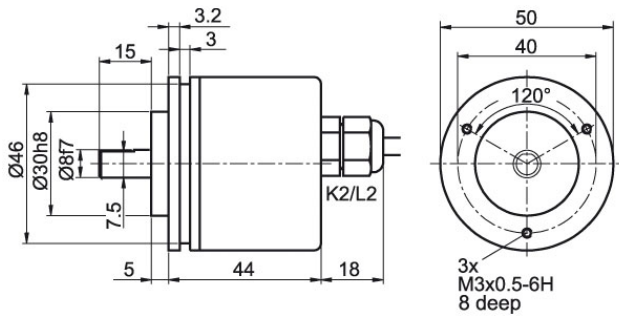
| Electrical Data | |
|----------------------------------|-----------------------------------|
| Power supply/Current consumption | 5 VDC up to 30 VDC: typ. 40 mA |
| Output circuit | HTL |
| Pulse frequency | 1024 ppr: max. 200 kHz |
| Channels | AB ABN and inverted signals |

| | |
|--------------------|----------------------|
| Load | max. 40 mA / channel |
| Circuit protection | no |

| Accuracy | |
|--------------------|--|
| Phase offset | 90° ± max. 25% of the period duration |
| pulse-/pause-ratio | at 1 ppr up to 128 ppr: 50 % ± max. 7 % at 256 ppr: 50 % ± max. 9 % at 512 ppr: 50 % ± max. 13 % at 1024 ppr: 50 % ± max. 18 % |

| General Data | |
|------------------------------|--|
| Weight | approx. 160 g |
| Connections | cable or connector outlet |
| Protection rating (EN 60529) | Housing: IP65, IP67; shaft sealed: IP65 |
| Operating temperature | -20 °C up to +80 °C |
| Storage temperature | -30 °C up to +80 °C |

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

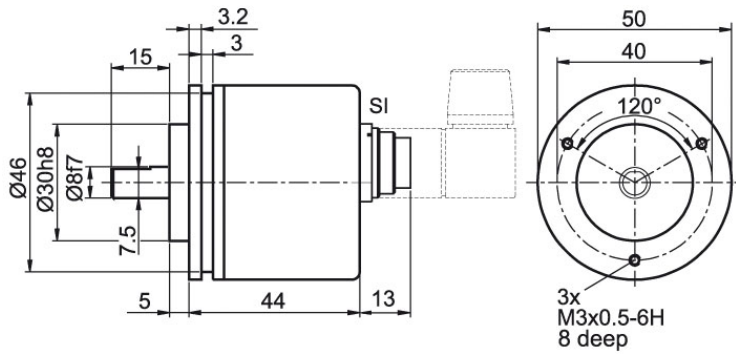
Cable connection K2, L2 with 2 m cable

Description
ABN inv. poss.
K2 axial, shield not connected

•







L2 axial, shield connected to encoder housing

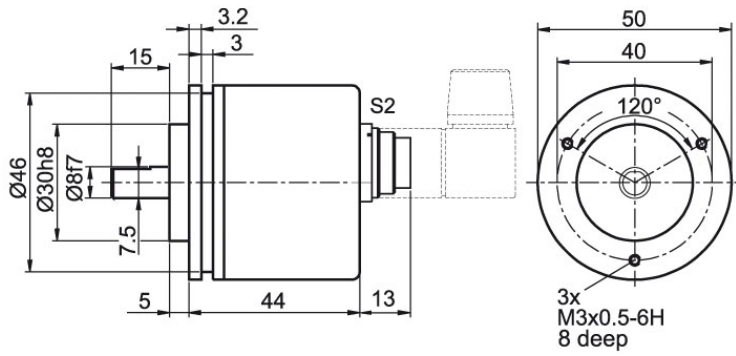
•

| Assignments | | |
|------------------------------|--------|-----------------|
| | K2, L2 | K2, L2 |
| Circuit | N35 | M35 |
| GND | WH | WH |
| (+) Vcc | BN | BN |
| A | GN | GN |
| B | YE | YE |
| N | GY | GY |
| Light reserve warning | - | - |
| A inv. | - | RD |
| B inv. | - | BK, (BU at ACA) |
| N inv. | - | VT |
| Shield | flex | flex |


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


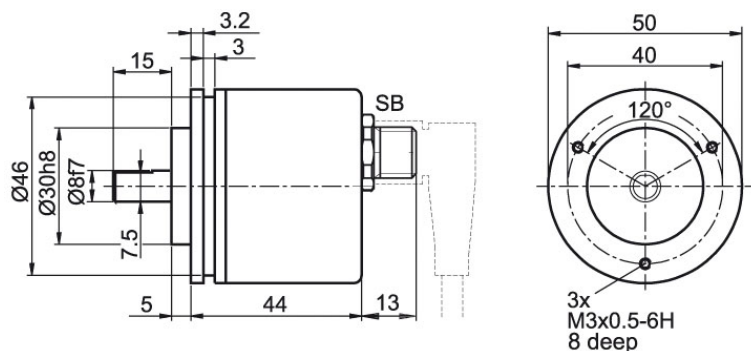
| Description | ABN inv. poss. |
|---|----------------|
| SI5 axial, 5-pin, Connector connected to encoder housing | - |
| SI6 axial, 6-pin, Connector connected to encoder housing | - |
| SI8 axial, 8-pin, Connector connected to encoder housing | • |
| SI12 axial, 12-pin, Connector connected to encoder housing | • |

| Assignments | | | | | | |
|------------------------------|---|---|---|---|---|---|
| | SI5 | SI6 | SI8 | SI8 | SI12 | SI12 |
| | 5-pin | 6-pin | 8-pin | 8-pin | 12-pin | 12-pin |
| |  |  |  |  |  |  |
| Circuit | N35 | N35 | N35 | M35 | N35 | M35 |
| 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

-

| Assignments | |
|------------------------------|--|
| | S2 |
| | 7-pin |
| |  |
| Circuit | N35 |
| 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 | N35 | N35 | N35 | M35 | N35 | M35 |
| 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-friction bearings

The encoder WDG 50B is also available as a particularly smooth-running low-friction encoder. The starting torque is thereby changed to 0.25 Ncm and the protection class at the shaft input to IP50.

Order key

AAC

Low temperature

The encoder WDG 50B with the output circuit types M35, N35 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 50B 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

| Example Order No. | Type | | | | Your encoder |
|-----------------------------------|---|-------------------------|-----------------------|------------------------------|------------------|
| WDG 50B | WDG 50B | | | | WDG 50B |
| Pulses per revolution PPR: | | | | | |
| 1024 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 256, 512, 1024 Other PPRs on request | | | | |
| Channels: | | | | | |
| ABN | AB, ABN bis 1024 I/U | | | | |
| Output circuit | | | | | |
| M35 | Resolution PPR | Power supply VDC | Output circuit | Light reserve warning | Order key |
| | up to 1024 | 5 - 30 5 - 30 | HTL inverted HTL | - - | M35 N35 |
| 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 |
| | 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 | |
| | Low-friction bearings | | | AAC | |
| | Low temperature | | | ACA | |
| | Without option | | | Empty | |
| Cable length | | | XXX = Decimeter | | |

| Example Order No.= | WDG 50B | 1024 | ABN | M35 | K2 | | WDG 50B | | | | | Your encoder |
|--------------------|---------|------|-----|-----|----|--|---------|--|--|--|--|--------------|
|--------------------|---------|------|-----|-----|----|--|---------|--|--|--|--|--------------|



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



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

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

