WACHENDORFF
The Encoder Experts

Online Data sheet

# Encoder WDGI 36A

**www.wachendorff-automation.com/wdgi36a**

**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

IndustrieROBUST

# Encoder WDGI 36A

*Illustration similar*

- Compact and robust
- All pulse numbers from 1 to 16,384 ppr available
- Robust construction for industrial use
- Protection to IP67, shaft sealed to IP65

**www.wachendorff-automation.com/wdgi36a**

| **Resolution** | |
|---|---|
| Pulses per revolution PPR | 1 PPR up to 16384 PPR |

| **Mechanical Data** | |
|---|---|
| Flange | servo flange |
| Flange material | aluminum |
| Housing material | stainless steel |
| Flange diameter | Ø 36 mm [Ø 1.417"] |
| Cam mounting | pitch 48 mm [1.89 inches]<br>(Accessory SP-3-00) |

| **Shaft(s)** | |
|---|---|
| Shaft material | stainless steel |
| Starting torque | approx. 0.3 Ncm [0.425 in-ozf] at ambient temperature |
| | |
| Shaft | Ø 6 mm [Ø 0.236"] |
| Shaft length | L: 11.5 mm [0.453"] |
| Max. Permissible shaft loading radial | 80 N [8.157 kp] |
| Max. Permissible shaft loading axial | 50 N [5.098 kp] |
| | |
| Shaft | Ø 6.35 mm [Ø 1/4"] Order No: 2Z |
| Shaft length | L: 11.5 mm [0.453"] |
| Max. Permissible shaft loading radial | 80 N [8.157 kp] |
| Max. Permissible shaft loading axial | 50 N [5.098 kp] |
| | |
| Shaft | Ø 8 mm [Ø 0.315"] |
| Shaft length | L: 18 mm [0.709"] |
| Max. Permissible shaft loading radial | 50 N [5.098 kp] |
| Max. Permissible shaft loading axial | 50 N [5.098 kp] |

| **Bearings** | |
|---|---|
| Bearings type | 2 precision ball bearings |
| Nominale service life | 1.4 x 10'8 revs. at 100 % rated shaft load<br>2 x 10'9 revs. at 40 % rated shaft load<br>1.7 x 10'10 revs. at 20 % rated shaft load |
| Max. operating speed | 12000 rpm |

| **Machinery Directive: basic data safety integrity level** | |
|---|---|
| $MTTF_d$ | 2200 a |
| Mission time (TM) | 25 a |
| Nominale service life (L10h) | 1.7 x 10'10 revs. at 20 % rated shaft load and 12000 rpm |
| Diagnostic coverage (DC) | 0 % |

| **Electrical Data** | |
|---|---|
| Power supply/Current consumption | 4.75 VDC up to 30 VDC: typ. 40 mA |
| Operating principle | magnetic |
| Output circuit | HTL (TTL at 5 VDC)<br>HTL, inv. (TTL/RS422 comp. at 5 VDC) |
| Pulse frequency | HTL up to 16384 ppr: max. 600 kHz<br>TTL up to 16384 ppr: max. 1 MHz |
| Channels | ABN<br>and inverted signals |
| Load | max. 40 mA / channel |
| Circuit protection | yes |

| **Accuracy** | |
|---|---|
| Phase offset | 90° ± max. 7.5 % of the period duration |
| pulse-/pause-ratio | 50 % ± max. 7 % |

| **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 |

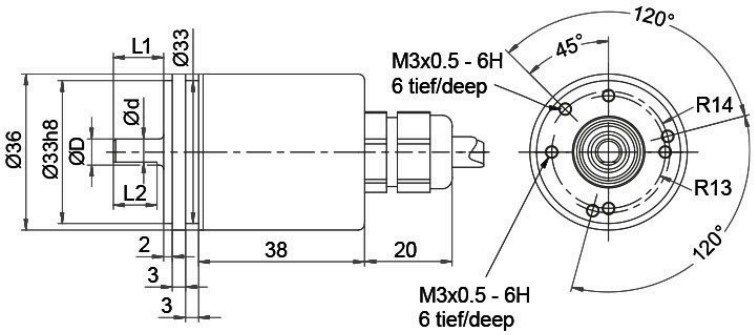
| **Duty information** | |
|---|---|
| Customs tariff number: | 90318020 |
| Country of origin: | Germany |

| **General Data** | |
|---|---|
| Weight | approx. 130 g [4.586 oz] |
| Connections | cable or connector outlet |
| Protection rating (EN 60529) | Housing: IP65, IP67;<br>shaft sealed: IP65;<br>cable outlet K1: IP40 |

| | |
|---|---|
| Operating temperature | Connector: -40 °C up to +85 °C,<br>Cable: -20 °C up to +80 °C (Option ACA: -40 °C up to +85 °C).<br>Connector: -40 °F up to +185 °F,<br>Cable: -4 °F up to +176 °F, Option ACA: -40 °F up to +185 F° |
| Storage temperature | Connector: -40 °C up to +85 °C,<br>Cable: -30 °C up to +80 °C (Option ACA: -40 °C up to +85 °C)<br>Connector: -40 °F up to +185 °F,<br>cable: -22 °F up to +176 °F, (Option ACA: -40 °F up to +185 °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 L2 axial with 2 m cable



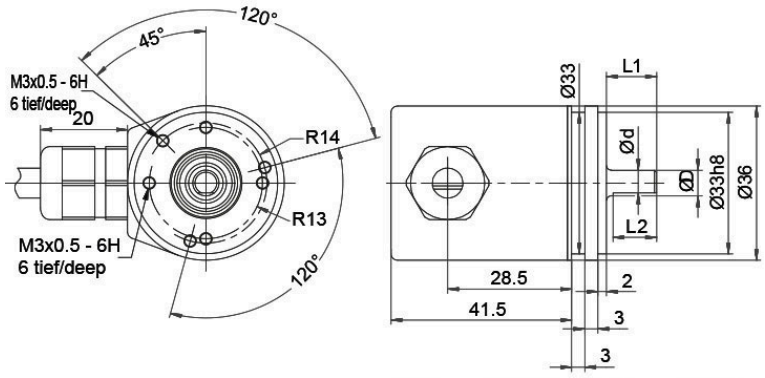

| | | | |
|---|---|---|---|
| D = 6 f7 | L1 = 11.5 | d = 5.3 | L2 = 10 |
| D = 6.35 (1/4") f7 | L1 = 11.5 | d = 5.3 | L2 = 10 |
| D = 8 f7 | L1 = 18 | d = 7 | L2 = 14 |

Alle Abmessungen in mm / All dimensions in mm

| Description | | ABN inv. poss. |
|---|---|---|
| **L2** | axial, shield connected to encoder housing | • |

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

## Cable connection L3 radial with 2 m cabel



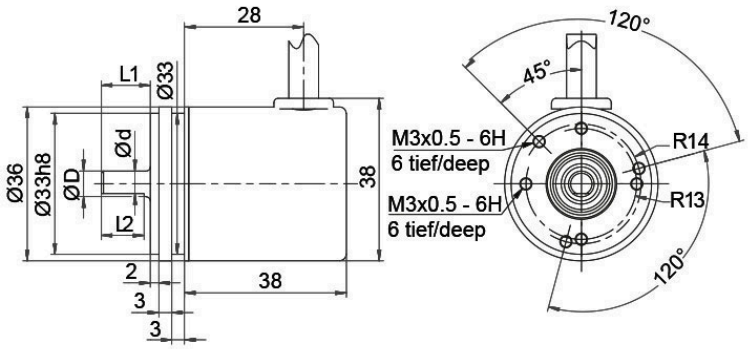

| | | | |
|---|---|---|---|
| D = 6 f7 | L1 = 11.5 | d = 5.3 | L2 = 10 |
| D = 6.35 (1/4") f7 | L1 = 11.5 | d = 5.3 | L2 = 10 |
| D = 8 f7 | L1 = 18 | d = 7 | L2 = 14 |

Alle Abmessungen in mm / All dimensions in mm

| Description | | ABN inv. poss. |
|---|---|---|
| **L3** | radial, shield connected to encoder housing | • |

| Assignments | | |
|---|---|---|
| | **L3** | **L3** |
| **Circuit** | N35 | M35 |
| **GND** | WH | WH |
| **(+) Vcc** | BN | BN |
| **A** | GN | GN |
| **B** | YE | YE |
| **N** | GY | GY |
| **-** | - | - |
| **A inv.** | - | RD |
| **B inv.** | - | BK, (BU at ACA) |
| **N inv.** | - | VT |
| **Shield** | flex | flex |

## Cable K1 (IP40) radial with 2 m cable



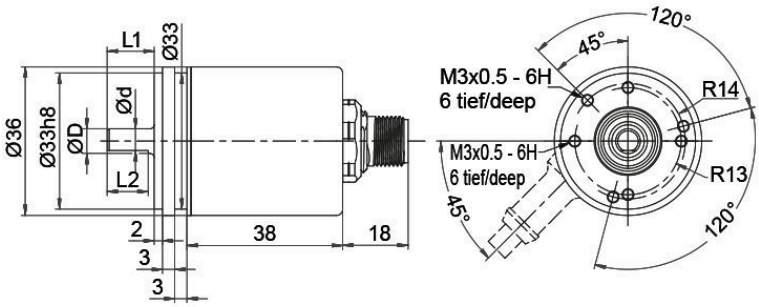

| | | | |
|---|---|---|---|
| D = 6 f7 | L1 = 11.5 | d = 5.3 | L2 = 10 |
| D = 6.35 (1/4") f7 | L1 = 11.5 | d = 5.3 | L2 = 10 |
| D = 8 f7 | L1 = 18 | d = 7 | L2 = 14 |

Alle Abmessungen in mm / All dimensions in mm

| Description | | ABN inv. poss. |
|---|---|---|
| **K1** | radial, shield not connected (IP40) | • |

| Assignments | | |
|---|---|---|
| | **K1** | **K1** |
| **Circuit** | N35 | M35 |
| **GND** | WH | WH |
| **(+) Vcc** | BN | BN |
| **A** | GN | GN |
| **B** | YE | YE |
| **N** | GY | GY |
| **-** | - | - |
| **A inv.** | - | RD |
| **B inv.** | - | BK |
| **N inv.** | - | VT |
| **Shield** | flex | flex |

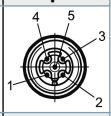
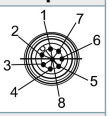
## Sensor connector (M12x1) SB axial, 5-, 8-pin



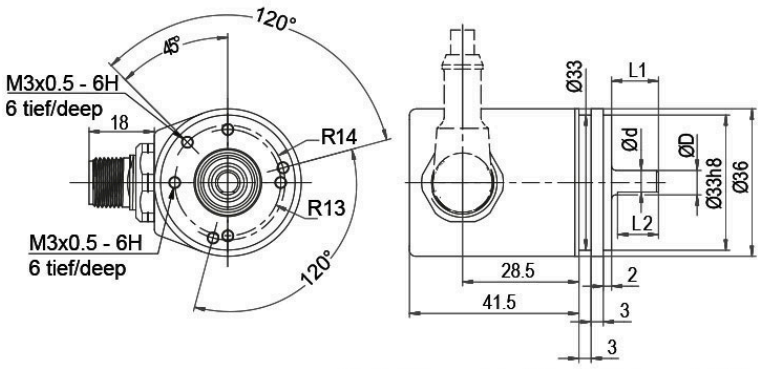

| | | | |
|---|---|---|---|
| D = 6 f7 | L1 = 11.5 | d = 5.3 | L2 = 10 |
| D = 6.35 (1/4") f7 | L1 = 11.5 | d = 5.3 | L2 = 10 |
| D = 8 f7 | L1 = 18 | d = 7 | L2 = 14 |

Alle Abmessungen in mm / All dimensions in mm

| Description | | ABN inv. poss. |
|---|---|---|
| **SB5** | axial, 5-pin, Connector connected to encoder housing | - |
| **SB8** | axial, 8-pin, Connector connected to encoder housing | • |

| Assignments | | |
|---|---|---|
| | **SB5** | **SB8** |
| | **5-pin** | **8-pin** |
| |  |  |
| **Circuit** | N35 | M35 |
| **GND** | 3 | 1 |
| **(+) Vcc** | 1 | 2 |
| **A** | 4 | 3 |
| **B** | 2 | 4 |
| **N** | 5 | 5 |
| **-** | - | - |
| **A inv.** | - | 6 |
| **B inv.** | - | 7 |
| **N inv.** | - | 8 |
| **n. c.** | - | - |
| **Shield** | - | - |

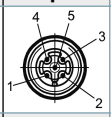
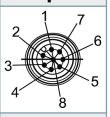
## Sensor-connector (M12x1) SC radial, 5-, 8-pin




| | | |
|---|---|---|
| D = 6 f7 | L1 = 11.5 | d = 5.3 |
| D = 6.35 (1/4") f7 | L1 = 11.5 | d = 5.3 |
| D = 8 f7 | L1 = 18 | d = 7 |

Alle Abmessungen in mm / All dimensions in mm

| Description | | ABN inv. poss. |
|---|---|---|
| **SC5** | radial, 5-pin, Connector connected to encoder housing | - |
| **SC8** | radial, 8-pin, Connector connected to encoder housing | • |

| Assignments | | |
|---|---|---|
| | **SC5** | **SC8** |
| | **5-pin** | **8-pin** |
| |  |  |
| **Circuit** | N35 | M35 |
| **GND** | 3 | 1 |
| **(+) Vcc** | 1 | 2 |
| **A** | 4 | 3 |
| **B** | 2 | 4 |
| **N** | 5 | 5 |
| **-** | - | - |
| **A inv.** | - | 6 |
| **B inv.** | - | 7 |
| **N inv.** | - | 8 |
| **n. c.** | - | - |
| **Shield** | - | - |

## Options

| Low-friction bearings | Order key |
|---|---|
| The encoder WDGI 36A is also available as a particularly smooth-running low-friction encoder. The starting torque is thereby changed to ≤ 0.25 Ncm [0.354 in-ozf] and the protection class at the shaft input to IP50. | **AAC** |

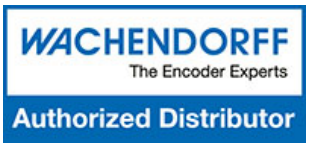
| Low temperature | Order key |
|---|---|
| The encoder WDGI 36A with the output circuit types N35, M35 is also available with the extended temperature range -40 °C up to +85 °C [-40 °F up to +185 °F] (measured at the flange). | **ACA** |

| Pressure equalising membrane | Order key |
|---|---|
| The WDGI 36A shaft encoder is also optionally available with a pressure equalising membrane. This prevents water from penetrating into the encoder housing in the case of high air humidity.<br>The IP67 protection level, temperature range and salt spray resistance are maintained. Resistant to chemicals and solvents in accordance with DIN EN ISO 2812-1. | **ACR** |

| Cable length | Order key |
|---|---|
| The encoder WDGI 36A 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 |
|---|---|---|---|---|---|---|
| WDGI 36A | WDGI 36A | | | | | WDGI 36A |
| | | | | | | |
| | **Shaft** | | | | | |
| 06 | 06; 2Z; 08 | | | | | |
| | | | | | | |
| | **Pulses per revolution PPR:** | | | | | |
| 1-16384 | 1-16384 | | | | | 1-16384 |
| | | | | | | |
| | **Channels:** | | | | | |
| ABN | ABN | | | | | ABN |
| | | | | | | |
| | **Output circuit** | | | | | |
| N35 | **Resolution PPR** | **Power supply VDC** | **Output circuit** | **-** | **Order key** | |
| | 1-16384 | 4.75 - 30 | HTL (TTL at 5 VDC) | - | N35 | |
| | | 4.75 - 30 | HTL, inv. (TTL/RS422 comp. at 5 VDC) | - | M35 | |
| | | | | | | |
| | **Electrical connections** | | | | | |
| K1 | **Description** | | | **ABN inv. poss.** | **Order key** | |
| | **Cable: length (2 m standard, WDG 58T: 1 m)** | | | | | |
| | radial, shield not connected (IP40) | | | • | K1 | |
| | axial, shield connected to encoder housing | | | • | L2 | |
| | radial, shield connected to encoder housing | | | • | L3 | |
| | **Connector: (shield connected to encoder housing)** | | | | | |
| | sensor-connector, M12x1, 5-pin, axial | | | - | SB5 | |
| | sensor-connector, M12x1, 5-pin, radial | | | - | SC5 | |
| | sensor-connector, M12x1, 8-pin, axial | | | • | SB8 | |
| | sensor-connector, M12x1, 8-pin, radial | | | • | SC8 | |
| | | | | | | |
| | **Options** | | | | | |
| | **Description** | | | **Order key** | | |
| | Low-friction bearings | | | AAC | | |
| | Low temperature | | | ACA | | |
| | Pressure equalising membrane | | | ACR | | |
| | Cable length | | | Cable lenght | | |
| | Without option | | | Empty | | |

| Example Order No.= | WDGI 36A | 06 | 1-16384 | ABN | N35 | K1 | | WDGI 36A | | 1-16384 | ABN | | | | 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/

WACHENDORFF

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

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