



Online Data sheet

Encoder WDG N 58A

www.wachendorff-automation.com/wdgn58a

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 58A configurable via Smartphone (NFC)



Illustration similar



Wachendorff Apps WDG 58A

- Due to high quality electronics any number of pulses up to 16384 configurable via NFC
- HTL/TTL configurable via NFC
- Protection class IP67, at shaft input IP65
- High output frequency up to 1 MHz
- Reverse polarity protection and short-circuit protection at 4.75 VDC to 32 VDC

www.wachendorff-automation.com/wdgn58a

Configurable via NFC

| Resolution | |
|---------------------------------------|---|
| Pulses per revolution PPR | 1 PPR up to 16384 PPR |
| Mechanical Data | |
| Flange | synchro flange |
| Flange material | aluminum |
| Housing material | Stainless steel, NFC cover: Thermoplastic polyamide |
| Flange diameter | Ø 58 mm [Ø 2.283"] |
| Shaft(s) | |
| Shaft material | stainless steel |
| Starting torque | approx. 1 Ncm [1.416 in-ozf] at ambient temperature |
| Shaft | Ø 6 mm [Ø 0.236"] |
| Advice | Attention: No option AAO = full IP67 version |
| Shaft length | L: 12 mm [0.472"] |
| Max. Permissible shaft loading radial | 125 N [12.746 kp] |
| Max. Permissible shaft loading axial | 120 N [12.236 kp] |
| Shaft | Ø 8 mm [Ø 0.315"] |
| Shaft length | L: 19 mm [0.748"] |
| Max. Permissible shaft loading radial | 125 N [12.746 kp] |
| Max. Permissible shaft loading axial | 120 N [12.236 kp] |
| Shaft | Ø 9.525 mm [Ø 3/8"] Order No: 4Z |
| Shaft length | L: 20 mm [0.787"] |
| Max. Permissible shaft loading radial | 220 N [22.433 kp] |
| Max. Permissible shaft loading axial | 120 N [12.236 kp] |
| Shaft | Ø 10 mm [Ø 0.394"] |
| Shaft length | L: 20 mm [0.787"] |
| Max. Permissible shaft loading radial | 220 N [22.433 kp] |
| Max. Permissible shaft loading axial | 120 N [12.236 kp] |
| Bearings | |
| Bearings type | 2 precision ball bearings |

| | |
|-----------------------|---|
| Nominale 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 | 8000 rpm |

| Machinery Directive: basic data safety integrity level | |
|--|--|
| MTTF _d | 1200 a |
| Mission time (TM) | 25 a |
| Nominale service life (L10h) | 1 x 10 ¹¹ revs. at 20 % rated shaft load and 8000 rpm |
| Diagnostic coverage (DC) | 0 % |

| Electrical Data | |
|----------------------------------|--|
| Power supply/Current consumption | 4,75 VDC up to 32 VDC: typ. 80 mA |
| Operating principle | magnetic |
| Output circuit | HTL HTL, inv. TTL TTL, RS422 compatible, inv. |
| Pulse frequency | HTL up to 16384 ppr: max. 600 kHz TTL up to 16384 ppr: max. 1 MHz |
| Channels | BAS: ABN + inverted signals ADV: CH1, CH2, CH3, CH4; + inverted signals |
| Load | max. 40 mA / channel |
| Circuit protection | inverse-polarity and short-circuit protection |
| Nullimpuls setzen: | Setzen: SET = +UB für 2 s Deaktiviert: SET = GND |

| Accuracy | |
|--------------------|---|
| Phase offset | 90° ± max. 8.5 % of the period duration |
| pulse-/pause-ratio | 50 % ± max. 7 % |

| Configurable via NFC: | |
|-----------------------|---|
| BASIC: (BAS) | |
| Channels: | ABN and inverted |
| HTL / TTL | freely selectable |
| Pulses / revolution: | 1 ppr up to 16384 ppr freely selectable |
| Advanced (ADV): | |
| Channels: | 4 channels configurable + inv. signals (ABN possible) |

| | |
|------------------------------------|---|
| HTL / TTL: | freely selectable |
| Pulses / revolution: | 1 ppr up to 16384 ppr freely selectable |
| Number of pulses for each channel: | individually selectable |
| Set zero pulse: | yes |
| Pulse width and position: | Width and position adjustable |

Environmental data

Noise immunity:

| | |
|--|------------------------|
| ESD (DIN EN 61000-4-2): | 8 kV |
| EMC: (DIN EN 61000-4-3): | 10 V/m |
| Burst (DIN EN 61000-4-4): | 2 kV |
| High frequency fields (DIN EN 61000-4-6): | 10 V |
| Surge (DIN EN 61000-4-5): | 2 kV |
| Radio interference: | According DIN EN 55011 |

NFC:

| | |
|------|---------------------------|
| EMC: | According ETSI EN 301 489 |
| RED: | According ETSI EN 300 330 |

| | |
|---------------------------|--|
| Electrical safety: | DIN EN 61010-1 (VDE 0411-1) / IEC 61010-1 / UL 61010-1 / CSA C22.0 No 61010-1-12 |
|---------------------------|--|

| | |
|----------------------------------|--|
| Vibration: (DIN EN 60068-2-6) | 300 m/s ² (10 Hz up to 2000 Hz) |
| Shock: (DIN EN 60068-2-27) | 1000 m/s ² (6 ms) |

Duty information

| | |
|------------------------|----------|
| Customs tariff number: | 90318020 |
| Country of origin: | Germany |

General Data

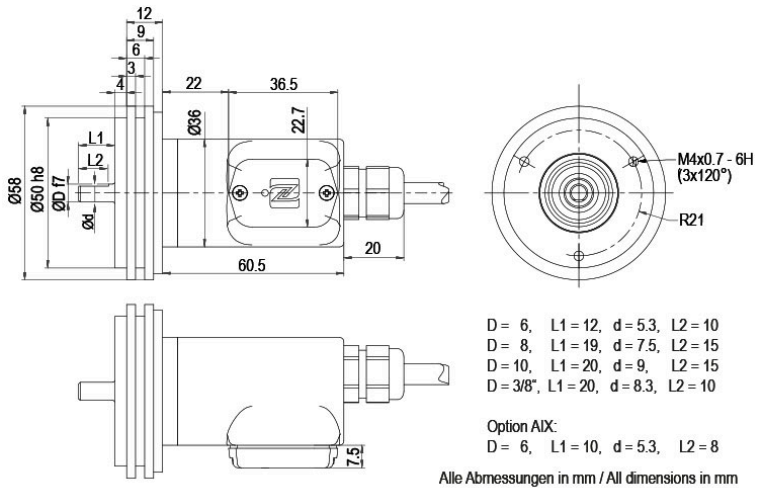
| | |
|------------------------------|---|
| Weight | approx. 240 g [8.466 oz] |
| Connections | cable or connector outlet |
| Protection rating (EN 60529) | Housing: IP65, IP67; shaft sealed: IP65; cable outlet K1: IP40 |
| Operating temperature | Connector: -40 °C up to +85 °C, Cable: -20 °C up to +80 °C. Connector: -40 °F up to +185 °F, Cable: -4 °F up to +176 °F. |
| Storage temperature | Connector: -40 °C up to +100 °C, Cable: -30 °C up to +80 °C Connector: -40 °F up to +212 °F, Cable: -22 °F up to +176 °F |

More Information

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

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

Cable connection L2 axial with 2 m cable (BAS)



Description

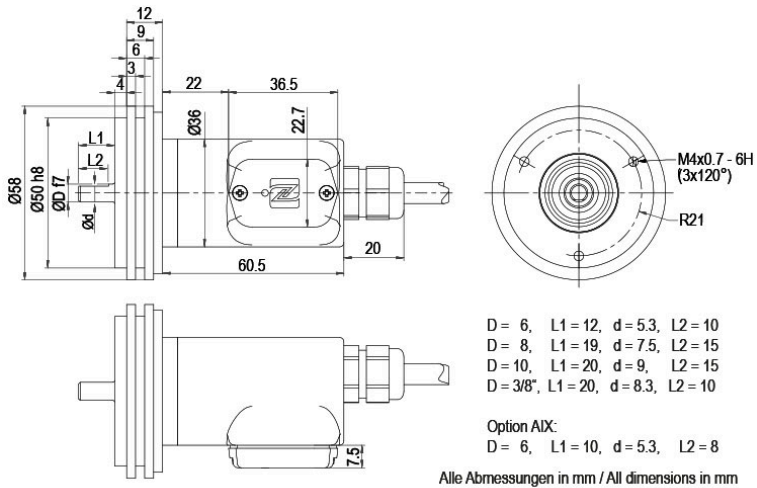
ABN inv. poss.

L2 axial, shield connected to encoder housing

•

| Assignments | |
|----------------|-----------|
| | L2 |
| Circuit | BAS |
| GND | WH |
| (+) Vcc | BN |
| A | GN |
| B | YE |
| N | GY |
| A inv. | RD |
| B inv. | BK |
| N inv. | VT |
| Shield | flex |

Cable connection L2 axial with 2 m cable (ADV)



Description

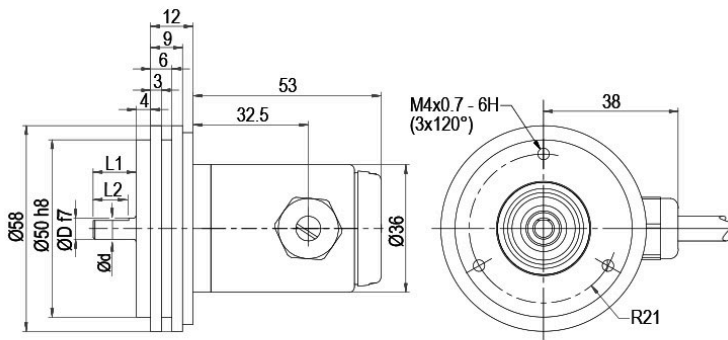
ABN inv. poss.

L2 axial, shield connected to encoder housing

•

| Assignments | |
|-------------|-----------|
| | L2 |
| Circuit | ADV |
| GND | WH |
| (+) Vcc | BN |
| CH1 | GN |
| CH2 | YE |
| CH3 | GY |
| CH4 | GYPK |
| SET | PK |
| CH1 inv. | RD |
| CH2 inv. | BK |
| CH3 inv. | VT |
| CH4 inv. | RDBU |
| Shield | flex |

Cable connection L3 radial with 2 m cabel (BAS)



D = 6, L1 = 12, d = 5.3, L2 = 10
 D = 8, L1 = 19, d = 7.5, L2 = 15
 D = 10, L1 = 20, d = 9, L2 = 15
 D = 3/8", L1 = 20, d = 8.3, L2 = 10

Option AIX:

D = 6, L1 = 10, d = 5.3, L2 = 8

Alle Abmessungen in mm / All dimensions in mm

Description

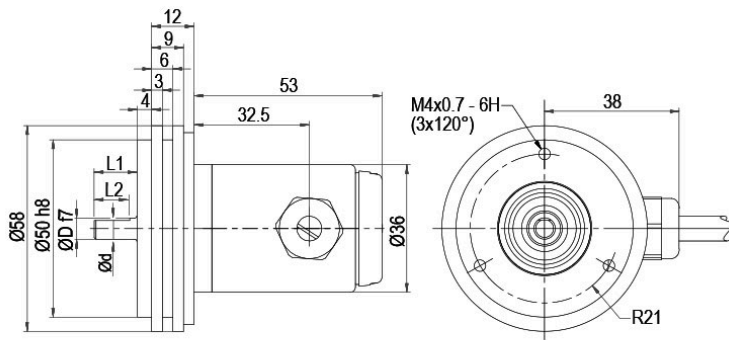
ABN inv. poss.

L3 radial, shield connected to encoder housing

•

| Assignments | |
|----------------|-----------|
| | L3 |
| Circuit | BAS |
| GND | WH |
| (+) Vcc | BN |
| A | GN |
| B | YE |
| N | GY |
| A inv. | RD |
| B inv. | BK |
| N inv. | VT |
| Shield | flex |

Cable connection L3 radial with 2 m cabel (ADV)



D = 6, L1 = 12, d = 5.3, L2 = 10
 D = 8, L1 = 19, d = 7.5, L2 = 15
 D = 10, L1 = 20, d = 9, L2 = 15
 D = 3/8", L1 = 20, d = 8.3, L2 = 10

Option AIX:

D = 6, L1 = 10, d = 5.3, L2 = 8

Alle Abmessungen in mm / All dimensions in mm

Description

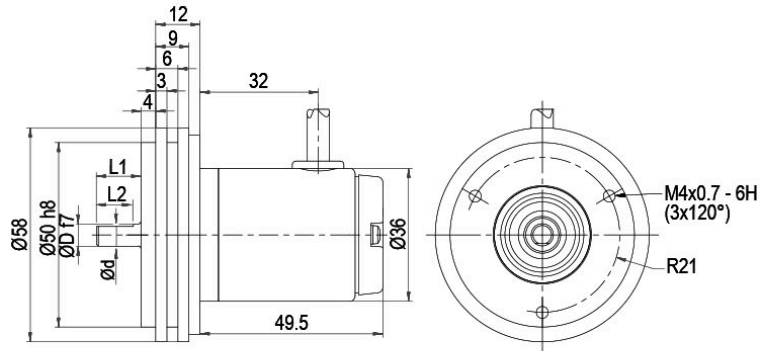
ABN inv. poss.

L3 radial, shield connected to encoder housing

•

| Assignments | |
|-----------------|-----------|
| | L3 |
| Circuit | ADV |
| GND | WH |
| (+) Vcc | BN |
| CH1 | GN |
| CH2 | YE |
| CH3 | GY |
| CH4 | GYPK |
| SET | PK |
| CH1 inv. | RD |
| CH2 inv. | BK |
| CH3 inv. | VT |
| CH4 inv. | RDBU |
| Shield | flex |

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



D = 6, L1 = 12, d = 5.3, L2 = 10
 D = 8, L1 = 19, d = 7.5, L2 = 15
 D = 10, L1 = 20, d = 9, L2 = 15
 D = 3/8", L1 = 20, d = 8.3, L2 = 10

Option AIX:

D = 6, L1 = 10, d = 5.3, L2 = 8

Alle Abmessungen in mm / All dimensions in mm

Description

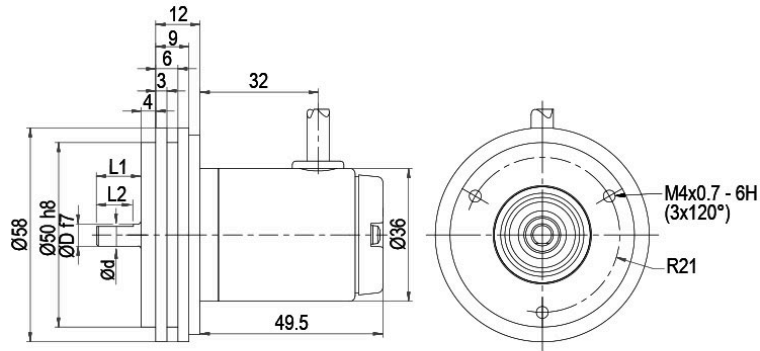
ABN inv. poss.

K1 radial, shield not connected (IP40)

•

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

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



D = 6, L1 = 12, d = 5.3, L2 = 10
 D = 8, L1 = 19, d = 7.5, L2 = 15
 D = 10, L1 = 20, d = 9, L2 = 15
 D = 3/8", L1 = 20, d = 8.3, L2 = 10

Option AIX:

D = 6, L1 = 10, d = 5.3, L2 = 8

Alle Abmessungen in mm / All dimensions in mm

Description

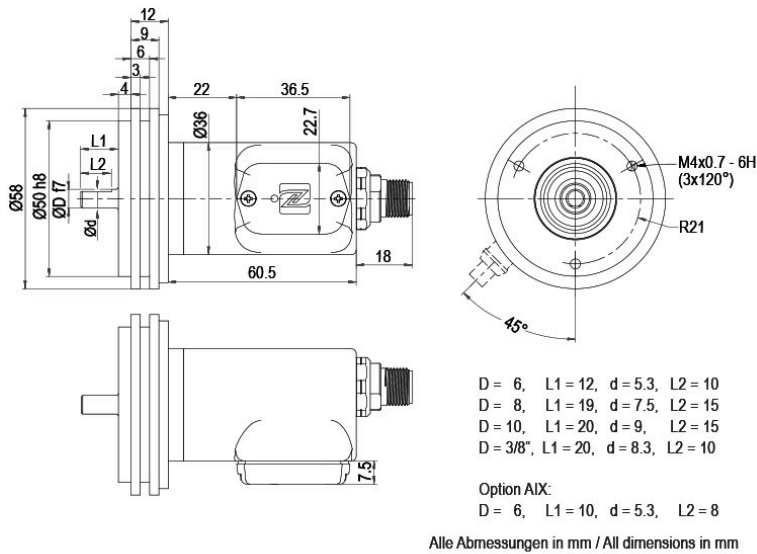
ABN inv. poss.

K1 radial, shield not connected (IP40)

•

| Assignments | |
|-----------------|-----------|
| | K1 |
| Circuit | ADV |
| GND | WH |
| (+) Vcc | BN |
| CH1 | GN |
| CH2 | YE |
| CH3 | GY |
| CH4 | GYPK |
| SET | PK |
| CH1 inv. | RD |
| CH2 inv. | BK |
| CH3 inv. | VT |
| CH4 inv. | RDBU |
| Shield | flex |

Sensor connector (M12x1) SB axial, 8-pin (BAS)

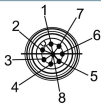


Description

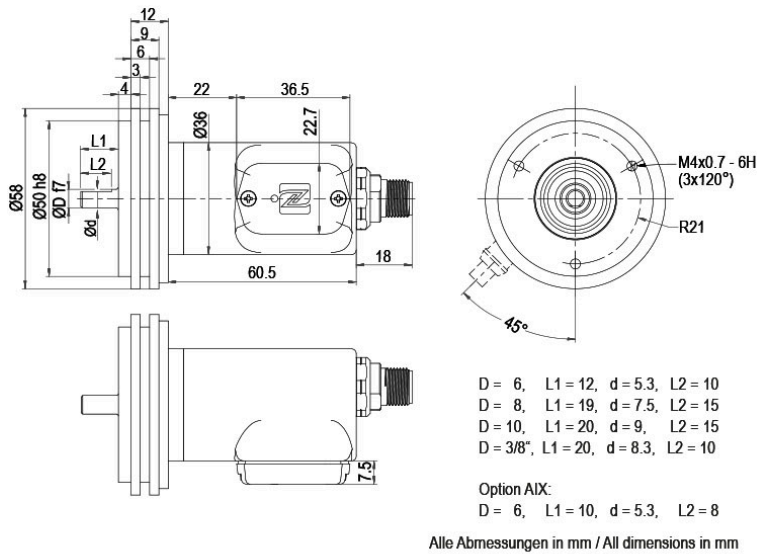
ABN inv. poss.

SB8 axial, 8-pin, Connector connected to encoder housing

•

| Assignments | |
|----------------|---|
| | SB8 |
| | 8-pin |
| |  |
| Circuit | BAS |
| GND | 1 |
| (+) Vcc | 2 |
| A | 3 |
| B | 4 |
| N | 5 |
| A inv. | 6 |
| B inv. | 7 |
| N inv. | 8 |

Sensor connector (M12x1) SB axial, 12-pin (ADV)



Description

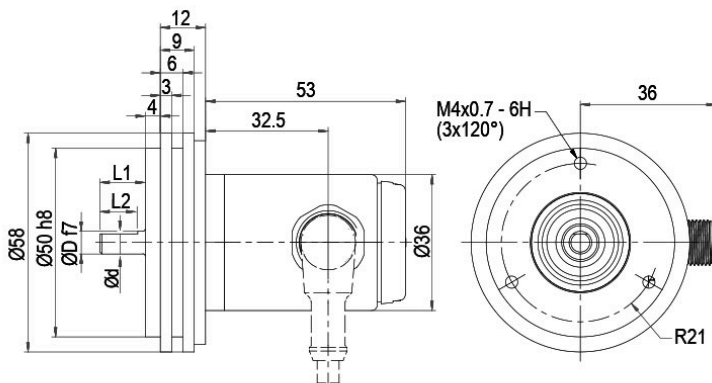
ABN inv. poss.

SB12 axial, 12-pin, Connector connected to encoder housing

•

| Assignments | |
|-------------|-----|
| SB12 | |
| 12-pin | |
| | |
| Circuit | ADV |
| GND | 3 |
| (+) Vcc | 1 |
| CH1 | 4 |
| CH2 | 6 |
| CH3 | 8 |
| CH4 | 11 |
| SET | 5 |
| CH1 inv. | 9 |
| CH2 inv. | 7 |
| CH3 inv. | 10 |
| CH4 inv. | 12 |
| n. c. | 2 |

Sensor-connector (M12x1) SC radial, 8-pin (BAS)



- D = 6, L1 = 12, d = 5.3, L2 = 10
- D = 8, L1 = 19, d = 7.5, L2 = 15
- D = 10, L1 = 20, d = 9, L2 = 15
- D = 3/8", L1 = 20, d = 8.3, L2 = 10

Option AIX:

- D = 6, L1 = 10, d = 5.3, L2 = 8

Alle Abmessungen in mm / All dimensions in mm

Description

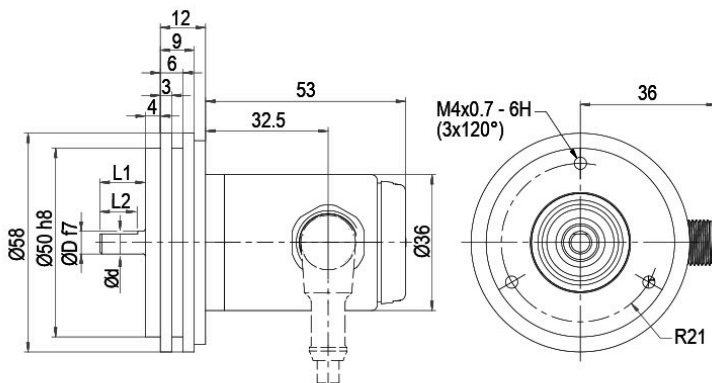
ABN inv. poss.

SC8 radial, 8-pin, Connector connected to encoder housing

•

| Assignments | |
|----------------|--------------|
| | SC8 |
| | 8-pin |
| | |
| Circuit | BAS |
| GND | 1 |
| (+) Vcc | 2 |
| A | 3 |
| B | 4 |
| N | 5 |
| A inv. | 6 |
| B inv. | 7 |
| N inv. | 8 |

Sensor-connector (M12x1) SC radial, 12-pin (ADV)



D = 6, L1 = 12, d = 5.3, L2 = 10
 D = 8, L1 = 19, d = 7.5, L2 = 15
 D = 10, L1 = 20, d = 9, L2 = 15
 D = 3/8", L1 = 20, d = 8.3, L2 = 10

Option AIX:

D = 6, L1 = 10, d = 5.3, L2 = 8

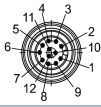
Alle Abmessungen in mm / All dimensions in mm

Description

ABN inv. poss.

SC12 radial, 12-pin, Connector connected to encoder housing

•

| Assignments | |
|-----------------|---|
| | SC12 |
| | 12-pin |
| |  |
| Circuit | ADV |
| GND | 3 |
| (+) Vcc | 1 |
| CH1 | 4 |
| CH2 | 6 |
| CH3 | 8 |
| CH4 | 11 |
| SET | 5 |
| CH1 inv. | 9 |
| CH2 inv. | 7 |
| CH3 inv. | 10 |
| CH4 inv. | 12 |
| n. c. | 2 |

Options

Low-friction bearings

The encoder WDG N 58A is also available as a particularly smooth-running low-friction encoder. The starting torque is thereby changed to 0.5 Ncm [0.708 in-ozf] and the protection class at the shaft input to IP50.

Order key

AAC

Shafts sealed to IP67, only with 10 mm [0.394"] shaft

The encoder WDG N 58A can be supplied in a IP67 version.
(full IP67 only connection SB, SC, L2 or L3 version; not cable connection L1 = IP40).
Max. RPM: 3500 min⁻¹
Permitted Shaft-Loading: axial 100 N [10.197 kp]; radial 110 N [11.216 kp]
Starting-torque: approx. 4 Ncm [5.664 in-ozf] at ambient temperature

Order key

AAO

Shaft length 10 mm [0.394"] (Ø 6 mm [0.236"])

The encoder WDG N 58A shaft: Ø 6 mm [0.236"] is also available with a shortened shaft L = 10 mm [0.394"].

Order key

AIX

Cable length

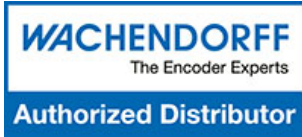
The encoder WDG N 58A can be supplied with more than 2 m cable. The maximum cable length depends on the supply voltage and the frequency; see <https://www.wachendorff-automation.com/download-gtd-incremental-encoders/>
Please extend the standard order code with a three figure number, specifying the cable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

Order key

XXX = Decimeter

| Example Order No. | Type | | | | | Your encoder |
|---|---|-------------------------|--|-----------------------|------------------|--------------|
| WDGN 58A | WDGN 58A | | | | | WDGN 58A |
| Shaft | | | | | | |
| 06 | 06; 08; 4Z; 10 | | | | | |
| Pulses per revolution PPR: | | | | | | |
| X | 1-16384 configurable Other PPRs on request | | | | | |
| Channels: | | | | | | |
| X | X (BAS=ABN, ADV= CH1,CH2,CH3,CH4) | | | | | |
| Output circuit | | | | | | |
| BAS | Resolution PPR | Power supply VDC | Output circuit | - | Order key | |
| | configurable 1-16384 | 4.75 - 32 4.75 - 32 | configurable HTL, TTL (A,B,N + inv.) configurable HTL, TTL; 4 channels+inv. | - - | BAS ADV | |
| Electrical connections | | | | | | |
| L2 | 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, 8-pin, axial | | | • | SB8 | |
| | sensor-connector, M12x1, 8-pin, radial | | | • | SC8 | |
| | sensor-connector, M12x1, 12-pin, axial | | | • | SB12 | |
| sensor-connector, M12x1, 12-pin, radial | | | • | SC12 | | |
| Options | | | | | | |
| Description | | | Order key | | | |
| Low-friction bearings | | | AAC | | | |
| Shafts sealed to IP67, only with 10 mm [0.394"] shaft | | | AAO | | | |
| Shaft length 10 mm [0.394"] (Ø 6 mm [0.236"]) | | | AIX | | | |
| Without option | | | Empty | | | |
| Cable length | | | XXX = Decimeter | | | |

| | | | | | | | | | | | | | | |
|---------------------------|----------|----|---|---|-----|----|--|----------|--|--|--|--|--|---------------------|
| Example Order No.= | WDGN 58A | 06 | X | X | BAS | L2 | | WDGN 58A | | | | | | Your encoder |
|---------------------------|----------|----|---|---|-----|----|--|----------|--|--|--|--|--|---------------------|



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

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