



# Online Data Sheet

## Encoder WDGA 58B CANopen galv. isolation

[www.wachendorff-automation.com/wdga58bcangalv](http://www.wachendorff-automation.com/wdga58bcangalv)

### 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 WDGA 58B absolute CANopen galv. isolation, magnetic, with EnDra®- Technology


**EnDra®**  
Technologie

**CANopen®**

- EnDra®: maintenance-free and environmentally friendly
- CANopen, Single-turn/Multi-turn
- Galvanic isolation
- Communication Profile according to CiA 301
- Device Profile for encoder CiA 406 V3.2 class C2
- Single-turn/Multi-turn (16 bit/43 bit)
- Forward-looking technology with 32 Bit processor
- 2-colour-LED as indicator for operating condition and error message appropriate CiA 303-3
- High shaft load up to 220 N radial, 120 N axial

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| Mechanical Data                       |                                                                                   |
|---------------------------------------|-----------------------------------------------------------------------------------|
| <b>Housing</b>                        |                                                                                   |
| Flange                                | clamping flange                                                                   |
| Flange material                       | aluminum                                                                          |
| Housing cap                           | steel case chrome-plated, magnetic shielding                                      |
| Housing                               | Ø 58 mm                                                                           |
| <b>Shaft(s)</b>                       |                                                                                   |
| Shaft material                        | stainless steel                                                                   |
| Starting torque                       | approx. 1 Ncm at ambient temperature, approx. 1.416 in-ozf at ambient temperature |
| <b>Shaft Ø 6 mm</b>                   |                                                                                   |
| Shaft                                 | Ø 6 mm                                                                            |
| Advice                                | Attention: No option AAO = full IP67 version                                      |
| Shaft length                          | L: 12 mm                                                                          |
| Max. Permissible shaft loading radial | 125 N                                                                             |
| Max. Permissible shaft loading axial  | 120 N                                                                             |
| <b>Shaft Ø 8 mm</b>                   |                                                                                   |
| Shaft                                 | Ø 8 mm                                                                            |
| Advice                                | Attention: No option AAO = full IP67 version                                      |
| Shaft length                          | L: 19 mm                                                                          |
| Max. Permissible shaft loading radial | 125 N                                                                             |
| Max. Permissible shaft loading axial  | 120 N                                                                             |
| <b>Shaft Ø 10 mm</b>                  |                                                                                   |
| Shaft                                 | Ø 10 mm                                                                           |
| Shaft length                          | L: 20 mm                                                                          |
| Max. Permissible shaft loading radial | 220 N                                                                             |
| Max. Permissible shaft loading axial  | 120 N                                                                             |
| <b>Shaft Ø 9.525 mm, Ø 3/8"</b>       |                                                                                   |
| Shaft                                 | Ø 9.525 mm, Ø 3/8"                                                                |
| Advice                                | Attention: No option AAO = full IP67 version                                      |
| Shaft length                          | L: 20 mm, L: 0.787 in                                                             |
| Max. Permissible shaft loading radial | 220 N, 22.434 kp                                                                  |
| Max. Permissible shaft loading axial  | 120 N, 12.237 kp                                                                  |
| <b>Bearings</b>                       |                                                                                   |
| Bearings type                         | 2 precision ball bearings                                                         |

|                      |                                                                                                                                                                   |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Nominal service life | 1 x 10 <sup>9</sup> revs. at 100 % rated shaft load<br>1 x 10 <sup>10</sup> revs. at 40 % rated shaft load<br>1 x 10 <sup>11</sup> revs. at 20 % rated shaft load |
| Max. operating speed | 8000 rpm                                                                                                                                                          |

| Electrical Data                  |                                  |
|----------------------------------|----------------------------------|
| Power supply/Current consumption | 10 VDC up to 32 VDC: typ. 100 mA |
| Power consumption                | max. 1 W                         |

| Sensor data                 |                                                      |
|-----------------------------|------------------------------------------------------|
| Single-turn technology      | innovative hall sensor technology                    |
| Single-turn resolution      | 65,536 steps/360° (16 bit)                           |
| Single-turn accuracy        | ± 0.0878° (≤ 12 bit)                                 |
| Single-turn repeat accuracy | ± 0.0878° (≤ 12 bit)                                 |
| Internal cycle time         | ≤ 600 µs                                             |
| Multi-turn technology       | patented EnDra® technology no battery and no gear.   |
| Multi-turn resolution       | up to 32 bit with high precision value up to 43 bit. |

| 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<br>DIN EN 61326-1 |
| Vibration: (DIN EN 60068-2-6) | 50 m/s <sup>2</sup> (10 Hz up to 2000 Hz)              |
| Shock: (DIN EN 60068-2-27)    | 5000 m/s <sup>2</sup> (6 ms)                           |
| Design:                       | according DIN VDE 0160                                 |
| Turn on time:                 | <1,5 s                                                 |

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

| Interface  |                                                                                                                                                      |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Interface: | <b>CAN</b>                                                                                                                                           |
| Protocol:  | CANopen <ul style="list-style-type: none"> <li>• Communication profil CiA 301</li> <li>• Device Profile for encoder CiA 406 V3.2 class C2</li> </ul> |

|                                      |                                                                                                                                                                                                                                                                                   |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Node number:                         | 1 up to 127 (default 127)                                                                                                                                                                                                                                                         |
| Baud rate:                           | 50 kBaud up to 1 MBaud with automatic bit rate detection.                                                                                                                                                                                                                         |
| Advice:                              | The standard settings as well as any customization in the software can be changed via LSS (CiA 305) and the SDO protocol, e. g. PDOs, Scaling, Heartbeat, Node-ID, Baud rate, etc.                                                                                                |
| Programmable CAN transmission modes: | <b>Synchronous mode:</b><br>when a synchronisation telegram (SYNC) is received from another bus node, PDOs are transmitted independently.<br><b>Asynchronous mode:</b><br>a PDO message is triggered by an internal event. (e.g. change of measured valued, internal timer, etc.) |

#### General Data

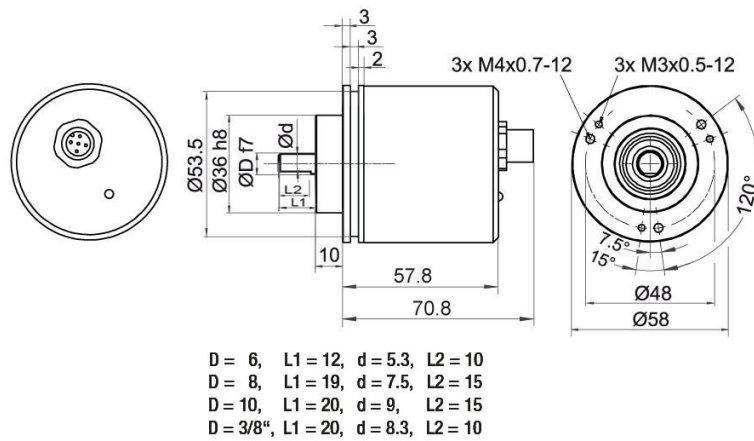
|                              |                                            |
|------------------------------|--------------------------------------------|
| Connections                  | cable or connector outlet                  |
| Protection rating (EN 60529) | Housing: IP65, IP67;<br>shaft sealed: IP65 |
| Operating temperature        | -40 °C up to +85 °C, -40 °F up to +176 °F  |
| Storage temperature          | -40 °C up to +100 °C, -40 °F up to +212 °F |

#### More Information

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

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

**WDGA 58B CANopen, galv. isolation, with M12x1, axial CB5, 5-pin**

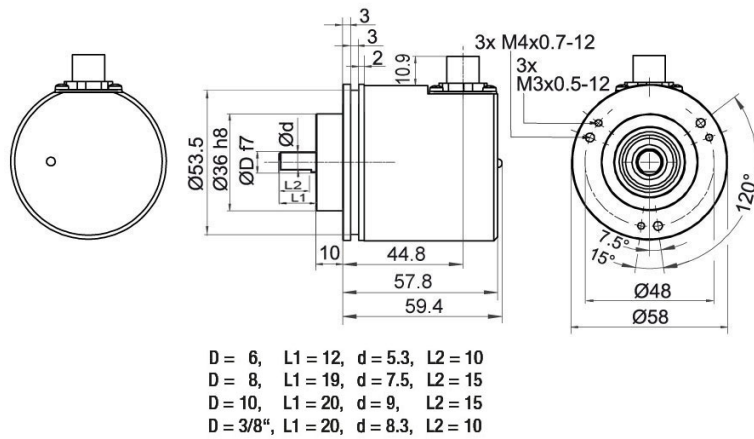


**Description**

**CB5** axial, 5-pin, shield connected to encoder housing

| Assignments          |                |
|----------------------|----------------|
|                      | <b>CB5</b><br> |
| <b>(+) Vcc</b>       | 2              |
| <b>GND</b>           | 3              |
| <b>CANHigh</b>       | 4              |
| <b>CANLow</b>        | 5              |
| <b>CANGND shield</b> | 1              |

**WDGA 58B CANopen, galv. isolation, M12x1, CC5, radial, 5-pin**



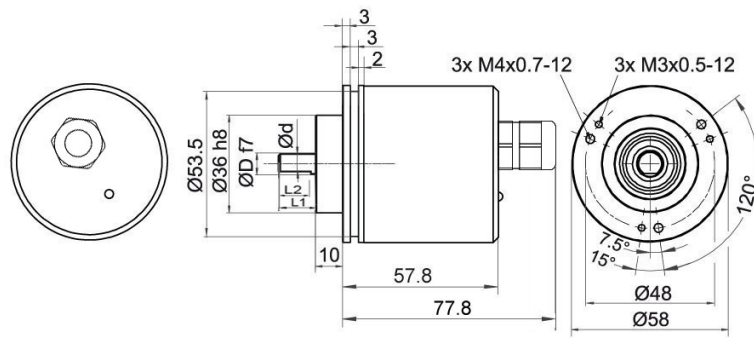
**Description**

**CC5** radial, 5-pin, shield connected to encoder housing

| Assignments   |                   |
|---------------|-------------------|
|               | <p><b>CC5</b></p> |
| (+) Vcc       | 2                 |
| GND           | 3                 |
| CANHigh       | 4                 |
| CANLow        | 5                 |
| CANGND shield | 1                 |



**WDGA 58B CANopen, galv. isolation, cable connection, L2 axial with 2 m cable**



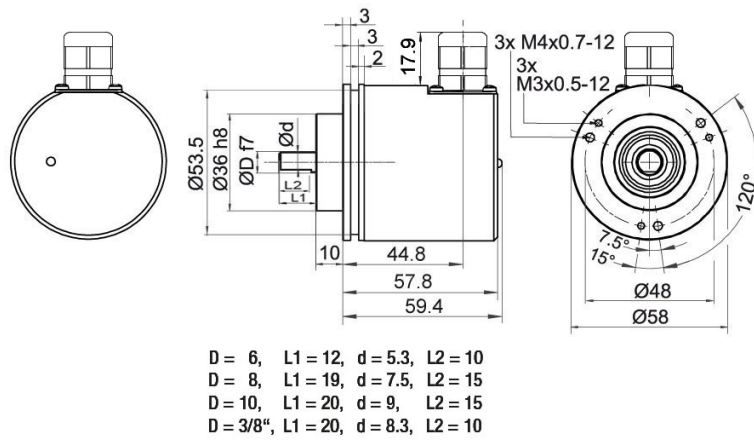
D = 6, L1 = 12, d = 5.3, L2 = 10  
D = 8, L1 = 19, d = 7.5, L2 = 15  
D = 10, L1 = 20, d = 9, L2 = 15  
D = 3/8", L1 = 20, d = 8.3, L2 = 10

**Description**

**L2** axial, shield connected to encoder housing

| Assignments          |           |
|----------------------|-----------|
|                      | <b>L2</b> |
| <b>(+) Vcc</b>       | BN        |
| <b>GND</b>           | WH        |
| <b>CANHigh</b>       | GN        |
| <b>CANLow</b>        | YE        |
| <b>CANGND shield</b> | shield    |

**WDGA 58B CANopen, galv. isolation, cable connection, L3 radial with 2 m cable**



**Description**

**L3** radial, shield connected to encoder housing

| Assignments          |           |
|----------------------|-----------|
|                      | <b>L3</b> |
| <b>(+) Vcc</b>       | BN        |
| <b>GND</b>           | WH        |
| <b>CANHigh</b>       | GN        |
| <b>CANLow</b>        | YE        |
| <b>CANGND shield</b> | shield    |

## Options

### Shafts sealed to IP67, only with shaft Ø 10 mm

### Order key

The encoder WDG 58B CANopen galv. isolation can be supplied in a full IP67 version.

**AAO**

Max. RPM: 3500 min<sup>-1</sup>

Permitted Shaft-Loading: axial 100 N; radial 110 N

Starting-torque: approx. 4 Ncm at ambient temperature

### 120 Ohm terminating resistor

### Order key

The encoder WDGA 58B CANopen galv. is also available with fixed 120 Ohm terminating resistor.

**AEO**

| Example Order No. | Type                                                                                           | Your encoder     |  |
|-------------------|------------------------------------------------------------------------------------------------|------------------|--|
| WDGA 58B          | WDGA 58B                                                                                       | WDGA 58B         |  |
|                   | <b>Shaft</b>                                                                                   | <b>Order key</b> |  |
| 06                | Ø 6 mm Attention: No option AAO = full IP67 version                                            | 06               |  |
|                   | Ø 8 mm Attention: No option AAO = full IP67 version                                            | 08               |  |
|                   | Ø 10 mm                                                                                        | 10               |  |
|                   | Ø 9.525 mm Ø 3/8" Attention: No option AAO = full IP67 version                                 | 4Z               |  |
|                   | <b>Single-turn Resolution</b>                                                                  | <b>Order key</b> |  |
| 12                | Single-turn resolution 1 bit up to 16 bit: (e. G. 12 bit)                                      | 12               |  |
|                   | <b>Multi-turn Resolution</b>                                                                   | <b>Order key</b> |  |
| 18                | Multi-turn resolution: (examples)<br>18 bit = 18<br>43 bit = 43<br>no Multiturn = 00           | 18               |  |
|                   | <b>Data protocol</b>                                                                           | <b>Order key</b> |  |
| CO                | CANopen (galv. isolation)                                                                      | CO               |  |
|                   | <b>Software</b>                                                                                | <b>Order key</b> |  |
| A                 | up to date release                                                                             | A                |  |
|                   | <b>Code</b>                                                                                    | <b>Order key</b> |  |
| B                 | binary                                                                                         | B                |  |
|                   | <b>Power supply</b>                                                                            | <b>Order key</b> |  |
| 0                 | 10 V up to 32 V (standard)                                                                     | 0                |  |
|                   | <b>Galvanic isolation</b>                                                                      | <b>Order key</b> |  |
| 1                 | yes                                                                                            | 1                |  |
|                   | <b>Electrical connections</b>                                                                  | <b>Order key</b> |  |
| CB5               | <b>Cable:</b>                                                                                  |                  |  |
|                   | axial, shield connected to encoder housing, with 2 m cable                                     | L2               |  |
|                   | radial, shield connected to encoder housing, with 2 m cable                                    | L3               |  |
|                   |                                                                                                |                  |  |
|                   | <b>Connector:</b>                                                                              |                  |  |
|                   | sensor-connector, M12x1, 5-pin, axial, shield connected to encoder housing                     | CB5              |  |
|                   | sensor-connector, M12x1, 5-pin, radial, shield connected to encoder housing                    | CC5              |  |
|                   | sensor-connector/female connector, 2x M12x1, 5-pin, axial, shield connected to encoder housing | DB5              |  |
|                   |                                                                                                |                  |  |
|                   | <b>Options</b>                                                                                 | <b>Order key</b> |  |
|                   | Without option                                                                                 | Empty            |  |
|                   | Shafts sealed to IP67, only with shaft Ø 10 mm                                                 | AAO              |  |
|                   | 120 Ohm terminating resistor                                                                   | AEO              |  |

|                   |          |    |    |    |    |   |   |   |   |     |  |
|-------------------|----------|----|----|----|----|---|---|---|---|-----|--|
| Example Order No. | WDGA 58B | 06 | 12 | 18 | CO | A | B | 0 | 1 | CB5 |  |
|-------------------|----------|----|----|----|----|---|---|---|---|-----|--|

|          |  |  |  |  |  |  |  |  |  |  |                   |
|----------|--|--|--|--|--|--|--|--|--|--|-------------------|
| WDGA 58B |  |  |  |  |  |  |  |  |  |  | Example Order No. |
|----------|--|--|--|--|--|--|--|--|--|--|-------------------|



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



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