

# Online Data Sheet

## Encoder WDGA 58B CANopen

[www.wachendorff-automation.com/wdga58bcan](http://www.wachendorff-automation.com/wdga58bcan)

### 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 magnetic, with EnDra®-Technology


**EnDra®**  
Technologie

**CANopen®**

- EnDra®: maintenance-free and environmentally friendly
- CANopen, Single-turn/Multi-turn
- Communication Profile according to CiA 301
- Device Profile for encoder CiA 406 V3.2 class C2
- Single-turn/Multi-turn (14 bit/39 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

### Housing

|                 |                                              |
|-----------------|----------------------------------------------|
| Flange          | clamping flange                              |
| Flange material | aluminum                                     |
| Housing cap     | steel case chrome-plated, magnetic shielding |
| Housing         | Ø 58 mm                                      |
| Cam mounting    | pitch 69 mm                                  |

### Shaft(s)

|                 |                                      |
|-----------------|--------------------------------------|
| Shaft material  | stainless steel                      |
| Starting torque | approx. 1 Ncm at ambient temperature |

|                                       |                                              |
|---------------------------------------|----------------------------------------------|
| Shaft                                 | Ø 6 mm                                       |
| Advice                                | Attention: No option AAS = full IP67 version |
| Shaft length                          | L: 12 mm                                     |
| Max. Permissible shaft loading radial | 125 N                                        |
| Max. Permissible shaft loading axial  | 120 N                                        |

|                                       |          |
|---------------------------------------|----------|
| Shaft                                 | Ø 10 mm  |
| Shaft length                          | L: 20 mm |
| Max. Permissible shaft loading radial | 220 N    |
| Max. Permissible shaft loading axial  | 120 N    |

### Bearings

|                      |                                                                                                                                                                   |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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                                                                                                                                                          |

## Machinery Directive: basic data safety integrity level

|                             |                                                                  |
|-----------------------------|------------------------------------------------------------------|
| MTTF <sub>d</sub>           | 1000 a                                                           |
| Mission time (TM)           | 20 a                                                             |
| Nominal service life (L10h) | 1 x 10 <sup>11</sup> revs. at 20 % rated shaft load and 8000 rpm |
| Diagnostic coverage (DC)    | 0 %                                                              |

## Electrical Data

|                                  |                                 |
|----------------------------------|---------------------------------|
| Power supply/Current consumption | 10 VDC up to 32 VDC: typ. 50 mA |
| Power consumption                | max. 0.5 W                      |

## Sensor data

|                             |                                                                            |
|-----------------------------|----------------------------------------------------------------------------|
| Single-turn technology      | innovative hall sensor technology                                          |
| Single-turn resolution      | 16,384 steps/360° (14 bit)                                                 |
| Single-turn accuracy        | < ±0.35°                                                                   |
| Single-turn repeat accuracy | < ±0.20°                                                                   |
| Internal cycle time         | ≤ 600 µs                                                                   |
| Multi-turn technology       | patented EnDra® technology no battery and no gear.                         |
| Multi-turn resolution       | up to 262,144 revolutions (18 bit) with high precision value up to 39 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      |
| Vibration:<br>(DIN EN 60068-2-6) | 50 m/s <sup>2</sup> (10 Hz up to 2000 Hz) |
| Shock:<br>(DIN EN 60068-2-27)    | 1000 m/s <sup>2</sup> (6 ms)              |
| Design:                          | according DIN VDE 0160                    |
| Turn on time:                    | <1,5 s                                    |

## Interface

|                   |                                                                                                                                                                                    |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Interface:</b> | <b>CAN</b>                                                                                                                                                                         |
| Protocol:         | CANopen <ul style="list-style-type: none"> <li>• Communication profile 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:        | 10 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. |

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|                                      |                                                                                                                                                                                                                                                                                   |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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.) |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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#### General Data

|                              |                            |
|------------------------------|----------------------------|
| Weight                       | approx. 202 g              |
| Connections                  | connector outlet           |
| Protection rating (EN 60529) | IP67, shaft sealed to IP65 |
| Operating temperature        | -40 °C up to +85 °C        |
| Storage temperature          | -40 °C up to +100 °C       |

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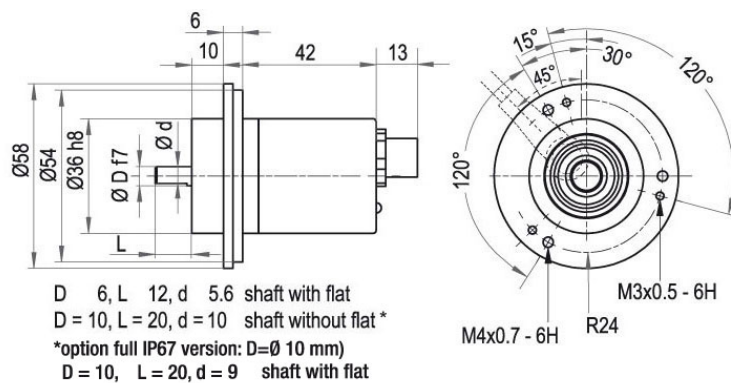
#### More Information

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

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

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## Connector, M12x1 CB5, 5-pin

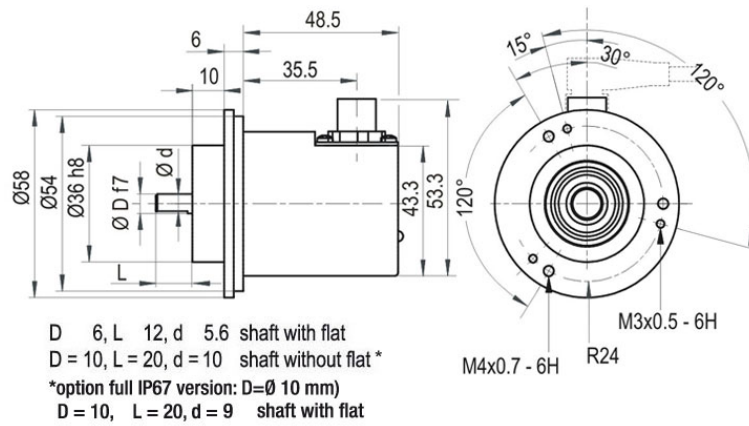


## Description

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

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

## Connector, M12x1 CC5, 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                 |

## Options

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

### Order key

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

**AAS**

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

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

Starting-torque: approx. 4 Ncm at ambient temperature

| 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 AAS = full IP67 version                                  | 06               |  |
|                   | Ø 10 mm                                                                              | 10               |  |
|                   | <b>Single-turn Resolution</b>                                                        | <b>Order key</b> |  |
| 12                | Single-turn resolution 1 bit up to 14 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>39 bit = 39<br>no Multiturn = 00 | 18               |  |
|                   | <b>Data protocol</b>                                                                 | <b>Order key</b> |  |
| CO                | CANopen                                                                              | 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> |  |
| 0                 | no                                                                                   | 0                |  |
|                   | <b>Electrical connections</b>                                                        | <b>Order key</b> |  |
| CB5               | <b>Connector:</b>                                                                    |                  |  |
|                   | sensor-connector, M12x1, 5-pin, axial, IP67, shield connected to encoder housing     | CB5              |  |
|                   | sensor-connector, M12x1, 5-pin, radial, IP67, shield connected to encoder housing    | CC5              |  |
|                   | <b>Options</b>                                                                       | <b>Order key</b> |  |
|                   | Without option                                                                       | Empty            |  |
|                   | Shafts sealed to IP67, only with 10 mm shaft with flat                               | AAS              |  |

|                          |          |    |    |    |    |   |   |   |   |     |  |
|--------------------------|----------|----|----|----|----|---|---|---|---|-----|--|
| <b>Example Order No.</b> | WDGA 58B | 06 | 12 | 18 | CO | A | B | 0 | 0 | CB5 |  |
|--------------------------|----------|----|----|----|----|---|---|---|---|-----|--|

|          |  |  |  |  |  |  |  |  |  |  |                          |
|----------|--|--|--|--|--|--|--|--|--|--|--------------------------|
| WDGA 58B |  |  |  |  |  |  |  |  |  |  | <b>Example Order No.</b> |
|----------|--|--|--|--|--|--|--|--|--|--|--------------------------|



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](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](mailto:wdg@wachendorff.de)  
[www.wachendorff-automation.de](http://www.wachendorff-automation.de)

