



## Online Data Sheet

### Encoder WDGA 58E CANopen galv. isolation

[www.wachendorff-automation.com/wdga58ecangalv](http://www.wachendorff-automation.com/wdga58ecangalv)

#### 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 58E 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

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## Mechanical Data

### Housing

|                                |                                              |
|--------------------------------|----------------------------------------------|
| Flange                         | hollow shaft (blind-bored)                   |
| Flange material                | aluminum                                     |
| Housing cap                    | steel case chrome-plated, magnetic shielding |
| Torque supports                | incl. 1 torque support WDGDS10019            |
| - 1. Spring plate compensation | axial: $\pm 1.2$ mm, radial: $\pm 0.2$ mm    |
| - Max. operating speed         | 6000 rpm up to max. protection rating +80 °C |
| Housing                        | $\varnothing$ 58 mm                          |

### Shaft(s)

|                 |                                                                                     |
|-----------------|-------------------------------------------------------------------------------------|
| Shaft material  | stainless steel                                                                     |
| Starting torque | approx. 1.6 Ncm at ambient temperature, approx. 2.226 in-ozf at ambient temperature |
| Fixing          | permanently attached clamping ring                                                  |

|                                       |                     |
|---------------------------------------|---------------------|
| Shaft                                 | $\varnothing$ 6 mm  |
| Advice                                | with adapter sleeve |
| Shaft length                          | L: 17 mm            |
| Insertion depth min.                  | 10 mm               |
| Insertion depth max.                  | 19 mm               |
| Max. Permissible shaft loading radial | 80 N                |
| Max. Permissible shaft loading axial  | 50 N                |

|                                       |                                           |
|---------------------------------------|-------------------------------------------|
| Shaft                                 | $\varnothing$ 6.35 mm, $\varnothing$ 1/4" |
| Advice                                | with adapter sleeve                       |
| Shaft length                          | L: 17 mm, L: 0.669 in                     |
| Insertion depth min.                  | 10 mm, 0.394 in                           |
| Insertion depth max.                  | 19 mm, 0.748 in                           |
| Max. Permissible shaft loading radial | 80 N, 8.158 kp                            |
| Max. Permissible shaft loading axial  | 50 N, 5.099 kp                            |

|                                       |                     |
|---------------------------------------|---------------------|
| Shaft                                 | $\varnothing$ 7 mm  |
| Advice                                | with adapter sleeve |
| Shaft length                          | L: 17 mm            |
| Insertion depth min.                  | 10 mm               |
| Insertion depth max.                  | 19 mm               |
| Max. Permissible shaft loading radial | 80 N                |
| Max. Permissible shaft loading axial  | 50 N                |

|                                       |                     |
|---------------------------------------|---------------------|
| Shaft                                 | $\varnothing$ 8 mm  |
| Advice                                | with adapter sleeve |
| Shaft length                          | L: 17 mm            |
| Insertion depth min.                  | 10 mm               |
| Insertion depth max.                  | 19 mm               |
| Max. Permissible shaft loading radial | 80 N                |
| Max. Permissible shaft loading axial  | 50 N                |

|                                       |                                            |
|---------------------------------------|--------------------------------------------|
| Shaft                                 | $\varnothing$ 9.525 mm, $\varnothing$ 3/8" |
| Advice                                | with adapter sleeve                        |
| Shaft length                          | L: 17 mm, L: 0.669 in                      |
| Insertion depth min.                  | 10 mm, 0.394 in                            |
| Insertion depth max.                  | 19 mm, 0.748 in                            |
| Max. Permissible shaft loading radial | 80 N, 8.158 kp                             |
| Max. Permissible shaft loading axial  | 50 N, 5.099 kp                             |

|                                       |                     |
|---------------------------------------|---------------------|
| Shaft                                 | $\varnothing$ 10 mm |
| Advice                                | with adapter sleeve |
| Shaft length                          | L: 17 mm            |
| Insertion depth min.                  | 10 mm               |
| Insertion depth max.                  | 19 mm               |
| Max. Permissible shaft loading radial | 80 N                |
| Max. Permissible shaft loading axial  | 50 N                |

|                                       |                     |
|---------------------------------------|---------------------|
| Shaft                                 | $\varnothing$ 12 mm |
| Shaft length                          | L: 17 mm            |
| Insertion depth min.                  | 10 mm               |
| Insertion depth max.                  | 19 mm               |
| Max. Permissible shaft loading radial | 80 N                |
| Max. Permissible shaft loading axial  | 50 N                |

|                                       |                     |
|---------------------------------------|---------------------|
| Shaft                                 | $\varnothing$ 14 mm |
| Shaft length                          | L: 17 mm            |
| Insertion depth min.                  | 10 mm               |
| Insertion depth max.                  | 19 mm               |
| Max. Permissible shaft loading radial | 80 N                |
| Max. Permissible shaft loading axial  | 50 N                |

|                                       |          |
|---------------------------------------|----------|
| Shaft                                 | Ø 15 mm  |
| Shaft length                          | L: 17 mm |
| Insertion depth min.                  | 10 mm    |
| Insertion depth max.                  | 19 mm    |
| Max. Permissible shaft loading radial | 80 N     |
| Max. Permissible shaft loading axial  | 50 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 | 6000 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

##### 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:<br>(DIN EN 60068-2-6) | 300 m/s <sup>2</sup> (10 Hz up to 2000 Hz)             |
| Shock:<br>(DIN EN 60068-2-27)    | 5000 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:        | 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 value, internal timer, etc.) |
|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### General Data

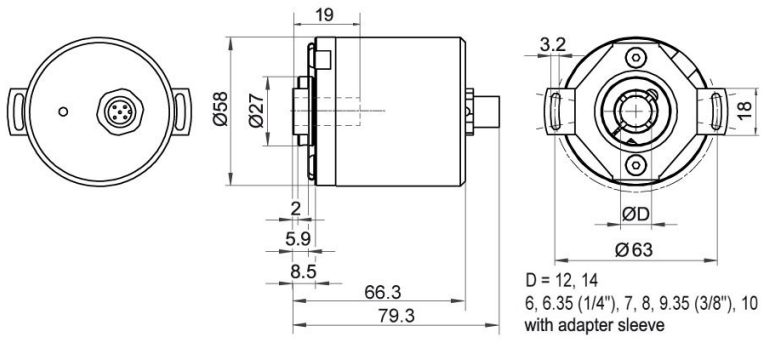
|                              |                                            |
|------------------------------|--------------------------------------------|
| Weight                       | approx. 410 g                              |
| Connections                  | connector outlet                           |
| 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 58E CANopen galv. isolation with M12x1, axial CB5, 5-pin**



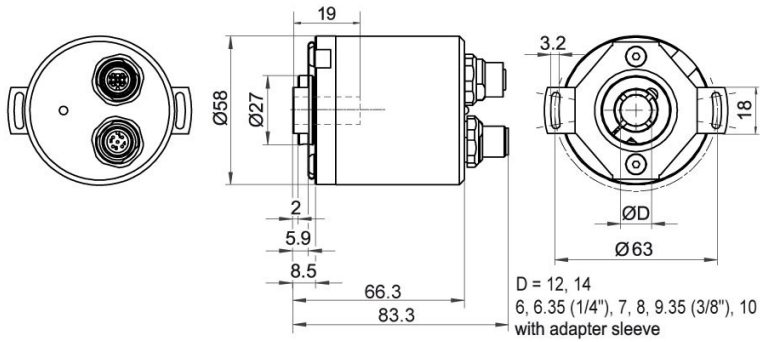
**Description**

**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                 |



**WDGA 58E CANopen galv. isolation with 2x M12x1, axial DB5, 5-pin**



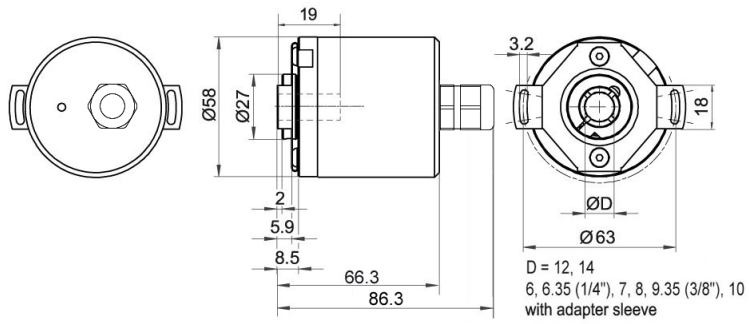
**Description**

**DB5** axial, 5-pin, shield connected to encoder housing

| Assignments             |                |
|-------------------------|----------------|
|                         | <b>DB5</b><br> |
| <b>Female connector</b> | M12x1, 5-pin   |
| <b>(+) Vcc</b>          | 2              |
| <b>GND</b>              | 3              |
| <b>CANHigh</b>          | 4              |
| <b>CANLow</b>           | 5              |
| <b>CANGND shield</b>    | 1              |

| Assignments          |                |
|----------------------|----------------|
|                      | <b>DB5</b><br> |
| <b>Connector</b>     | M12x1, 5-pin   |
| <b>(+) Vcc</b>       | 2              |
| <b>GND</b>           | 3              |
| <b>CANHigh</b>       | 4              |
| <b>CANLow</b>        | 5              |
| <b>CANGND shield</b> | 1              |

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

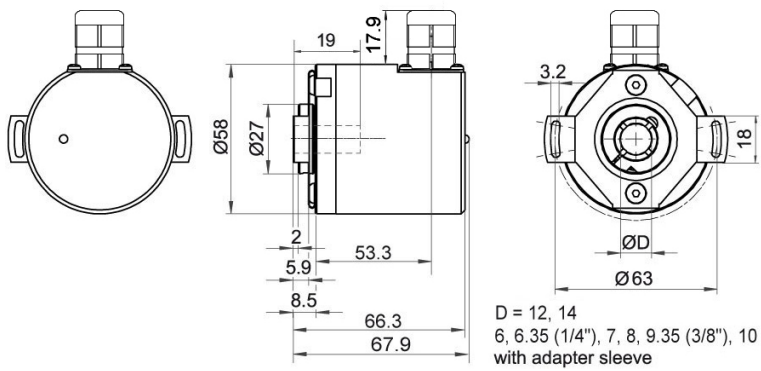


**Description**

**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 58E 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

### 120 Ohm terminating resistor

### Order key

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

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| Example Order No. | Type                                                                                                 | Your encoder     |  |
|-------------------|------------------------------------------------------------------------------------------------------|------------------|--|
| WDGA 58E          | WDGA 58E                                                                                             | WDGA 58E         |  |
|                   | <b>Shaft</b>                                                                                         | <b>Order key</b> |  |
| 12                | Ø 6 mm with adapter sleeve                                                                           | 06               |  |
|                   | Ø 6.35 mm Ø 1/4" with adapter sleeve                                                                 | 2Z               |  |
|                   | Ø 7 mm with adapter sleeve                                                                           | 07               |  |
|                   | Ø 8 mm with adapter sleeve                                                                           | 08               |  |
|                   | Ø 9.525 mm Ø 3/8" with adapter sleeve                                                                | 4Z               |  |
|                   | Ø 10 mm with adapter sleeve                                                                          | 10               |  |
|                   | Ø 12 mm                                                                                              | 12               |  |
|                   | Ø 14 mm                                                                                              | 14               |  |
|                   | Ø 15 mm                                                                                              | 15               |  |
|                   | <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, IP67                                     | L2               |  |
|                   | radial, shield connected to encoder housing, with 2 m cable, IP67                                    | L3               |  |
|                   |                                                                                                      |                  |  |
|                   | <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              |  |
|                   | sensor-connector/female connector, 2x M12x1, 5-pin, axial, IP67, shield connected to encoder housing | DB5              |  |
|                   |                                                                                                      |                  |  |
|                   | <b>Options</b>                                                                                       | <b>Order key</b> |  |
|                   | Without option                                                                                       | Empty            |  |
|                   | 120 Ohm terminating resistor                                                                         | AEO              |  |

|                          |          |    |    |    |    |   |   |   |   |     |  |
|--------------------------|----------|----|----|----|----|---|---|---|---|-----|--|
| <b>Example Order No.</b> | WDGA 58E | 12 | 12 | 18 | CO | A | B | 0 | 1 | CB5 |  |
|--------------------------|----------|----|----|----|----|---|---|---|---|-----|--|

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



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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