



# Online Data Sheet

## Encoder WDGA 58E EtherCAT (cov)

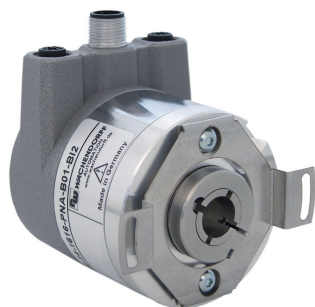
[www.wachendorff-automation.com/wdga58eeeb](http://www.wachendorff-automation.com/wdga58eeeb)

### 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 EtherCAT magnetic, with EnDra®- Technology



**EnDra®**  
Technologie

**EtherCAT®**  
Conformance tested

- EnDra®: maintenance-free and environmentally friendly
- EtherCAT, Single-turn/Multi-turn
- Compact design with buscover
- Single-turn/Multi-turn (max. 16 bit/43 bit)
- Forward-looking technology
- 2 colour-duo LED's as indicator for operating condition and bus status and 2 L/A LED's
- High shaft load up to 80 N radial, 50 N axial
- CoE, FoE, EoE

[www.wachendorff-automation.com/wdga58eech](http://www.wachendorff-automation.com/wdga58eech)

| Mechanical Data                       |   |
|---------------------------------------|---|
| <b>Housing</b>                        |   |
| Flange                                | hollow shaft (blind-bored)  |
| Flange material                       | aluminum  |
| Housing cap                           | steel case chrome-plated, magnetic shielding  |
| Connection cover                      | die cast aluminum, powder coated  |
| Torque supports                       | incl. 1 torque support WDGDS10019   |
| - 1. Spring plate compensation        | axial: ±1.2 mm, radial: ±0.2 mm   |
| - Max. operating speed                | 6000 rpm up to max. protection rating +80 °C  |
| Housing                               | Ø 58 mm   |
| <b>Shaft(s)</b>                       |   |
| 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                                 | Ø 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                                 | Ø 6.35 mm, Ø 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                                 | Ø 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                                 | Ø 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                                 | Ø 9.525 mm, Ø 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                                 | Ø 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                                 | Ø 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                                 | Ø 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   |
| Nomiale 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  |

#### Machinery Directive: basic data safety integrity level

|                             |  |
|-----------------------------|--|
| MTTF <sub>d</sub>           | 300 a  |
| Mission time (TM)           | 20 a   |
| Nomiale service life (L10h) | 1 x 10 <sup>11</sup> revs. at 20 % rated shaft load and 6000 rpm |
| Diagnostic coverage (DC)    | 0 %  |

#### Electrical Data

|                                  |                                  |
|----------------------------------|----------------------------------|
| Power supply/Current consumption | 10 VDC up to 32 VDC: typ. 125 mA |
| Power consumption                | typ. 3 W                         |

#### Sensor data

|                             |  |
|-----------------------------|--|
| Single-turn technology      | innovativ hall sensor technology                   |
| Single-turn resolution      | up to 65,536 steps/360° (16 bit)                   |
| Single-turn accuracy        | ± 0.0878° ( 12 bit)                                |
| Single-turn repeat accuracy | ± 0.0878° ( 12 bit)                                |
| Internal cycle time         | 50 µs  |
| Multi-turn technology       | patented EnDra® technology no battery and no gear. |
| Multi-turn resolution       | 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       |
| Vibration:<br>(DIN EN 60068-2-6) | 200 m/s <sup>2</sup> (10 Hz up to 1000 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>Industrial Ethernet</b> |
| Protocol:         | EtherCAT                   |
| Device Profile:   | CiA DS-406 V4.0.2, Class 3 |
| Data Transfer:    | 100BASE-TX                 |
| Cycle time:       | up to 50 µs                |

|                         |   |
|-------------------------|---|
| Function:               | Multiturn   |
| Code:                   | binary, CW default, programable   |
| Programmable Parameter: | steps per revolution<br>counts of revolution<br>preset<br>scale<br>counting direction<br>2x 8 cam switches<br>DC-Mode |
| Diagnostics: (LED)      | Traffic and connection management:<br>L/A1: Port 1 (IN)<br>L/A2: Port 2 (OUT)   |
| Status LED:             | STAT, MOD: status of encoder and bus  |

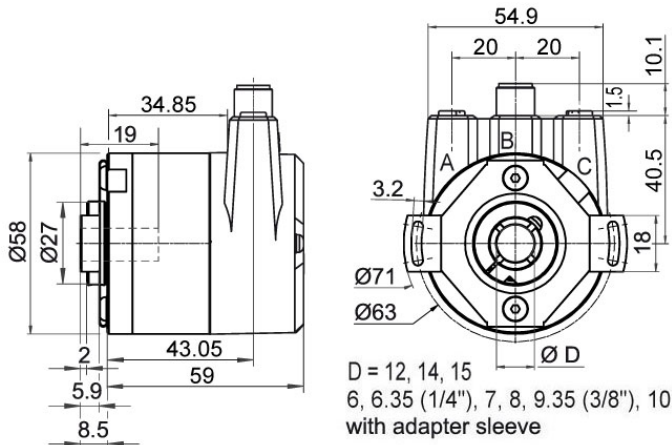
#### General Data

|                              |  |
|------------------------------|--|
| Weight                       | approx. 410 g, approx. 14.462 oz           |
| Connections                  | bus cover                                  |
| Protection rating (EN 60529) | IP65 all around                            |
| 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>

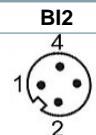
**WDGA 58E, EtherCAT, BI2, bus cover with 3x M12x1**




**Description**

**BI2** Bus cover with 3x M12x1

| Assignments                        |  |
|------------------------------------|--|
|                                    |  |
| <b>Female connector (Port1) IN</b> | M12x1, 4-pin, D-coded  |
| <b>Tx+</b>                         | 1  |
| <b>Rx+</b>                         | 2  |
| <b>Tx-</b>                         | 3  |
| <b>Rx-</b>                         | 4  |

| Assignments              |  |
|--------------------------|--|
|                          |  |
| <b>connector (Power)</b> | M12x1, 4-pin, A-coded  |
| <b>(+) Vcc</b>           | 1  |
| <b>n. c.</b>             | 2  |
| <b>GND</b>               | 3  |
| <b>n. c.</b>             | 4  |

| Assignments                         |  |
|-------------------------------------|--|
|                                     |  |
| <b>Female connector (Port2) OUT</b> | M12x1, 4-pin, D-coded  |
| <b>Tx+</b>                          | 1  |
| <b>Rx+</b>                          | 2  |
| <b>Tx-</b>                          | 3  |
| <b>Rx-</b>                          | 4  |

| 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> |
| 13                | Single-turn resolution 1 up to 16 bit, e. g. 12 bit = 12     | 12               |
|                   | <b>Multi-turn Resolution</b>                                 | <b>Order key</b> |
| 12                | Multi-turn 18 bit:<br>e. G. 18 bit = 18<br>e. G. 39 bit = 39 | 18               |
|                   | <b>Data protocol</b>   | <b>Order key</b> |
| EC                | EtherCAT (with bus cover)                                    | EC               |
|                   | <b>Software</b>  | <b>Order key</b> |
| U                 | up to date release   | U                |
|                   | <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> |
| BI2               | <b>Connection cover:</b>                                     |                  |
|                   | Bus cover with 3x M12x1                                      | BI2              |

|                          |          |    |    |    |    |   |   |   |   |     |
|--------------------------|----------|----|----|----|----|---|---|---|---|-----|
| <b>Example Order No.</b> | WDGA 58E | 12 | 13 | 12 | EC | U | B | 0 | 1 | BI2 |
|--------------------------|----------|----|----|----|----|---|---|---|---|-----|

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