



# Online Data sheet

## Encoder WDGA 58E PROFIBUS-DP (cov)

[www.wachendorff-automation.com/wdga58epbb](http://www.wachendorff-automation.com/wdga58epbb)

### 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 PROFIBUS-DP magnetic, with EnDra®- Technology



**EnDra®**  
Technologie

**PROFI**  
**BUS**

**PIV** CERTIFIED  
PROFIBUS • PROFINET

- EnDra®: maintenance-free and environmentally friendly
- PROFIBUS-DP, Single-turn/Multi-turn
- Compact design with buscover
- Single-turn/Multi-turn (max. 14 bit/39 bit)
- Forward-looking technology with 32 Bit processor
- 2 colour-duo LED's as indicator for operating condition and bus status
- High shaft load up to 80 N radial, 50 N axial
- Device Profile switchable, Class 3, 4

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## Mechanical Data

### Housing

|                                |  |
|--------------------------------|--|
| Flange                         | hollow shaft (blind-bored)                   |
| Flange material                | aluminum                                     |
| Housing cap                    | steel case chrome-plated, magnetic shielding |
| Connection cover               | zinc-plated                                  |
| 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                                      |

### 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                                 | 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   |
| 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  |

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

|                             |  |
|-----------------------------|--|
| MTTF <sub>d</sub>           | 300 a  |
| Mission time (TM)           | 20 a   |
| Nominal 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. 100 mA (24 VDC) |
| Power consumption                | max. 2.5 W                                |

#### Sensor data

|                             |  |
|-----------------------------|--|
| Single-turn technology      | innovativ hall sensor technology                   |
| Single-turn resolution      | up to 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 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 bis 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                                  |

#### Duty information

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

#### Interface

|                 |                    |
|-----------------|--------------------|
| Interface:      | <b>PROFIBUS-DP</b> |
| Protocol:       | PROFIBUS-DPV2      |
| Device Profile: | Class 3, 4         |

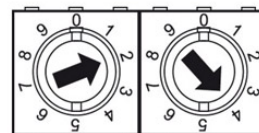
|                         |   |
|-------------------------|---|
| Line-Driver:            | galvanic isolated   |
| Baud rate:              | max. 12 Mbaud   |
| Function:               | Multiturn   |
| Nodeaddressing:         | by switches in buscover   |
| Code:                   | binary, CW default, programable   |
| Programmable Parameter: | steps per Revolution<br>counts of revolution<br>Preset<br>Scale<br>Counting direction |
| Diagnostics:            | Position and parameter errors<br>EnDra®-diagnosis                                     |
| Status encoder          | DUO-LED in bus cover  |
| Status Bus              | DUO-LED in bus cover  |

#### Termination resistors:



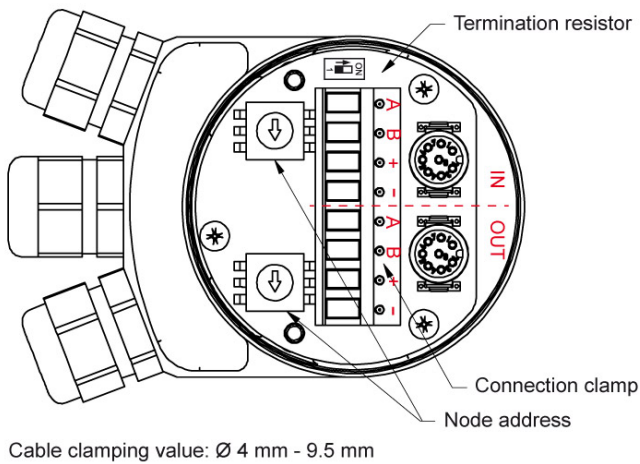
ON = last node  
OFF = node X

#### Node address:



By switches  
EG.: address 24

**View in bus cover:**



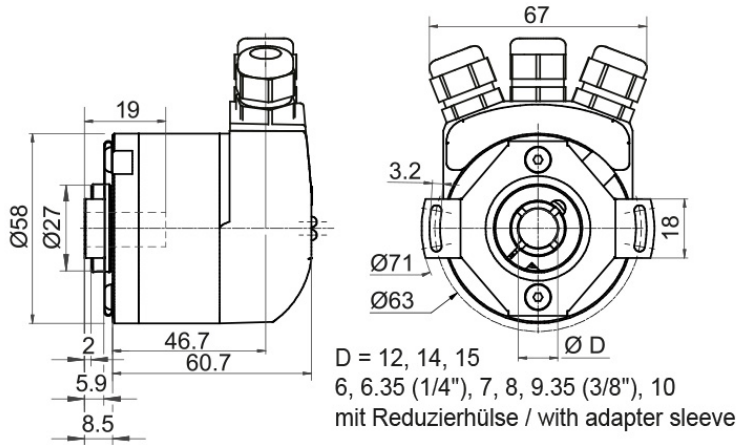
**General Data**

|                              |  |
|------------------------------|--|
| Weight                       | approx. 410 g, approx. 14.462 oz           |
| Connections                  | bus cover                                  |
| 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 PROFIBUS-DP, BP1, bus cover with 3x cable gland**



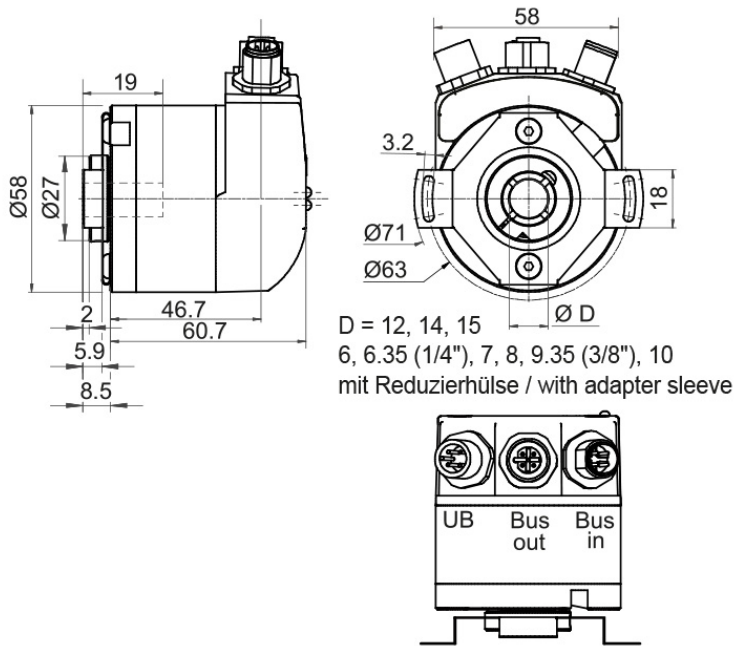
**Description**

**BP1** Bus cover with connection clamps (PG cable glands)

| Assignments    |   |
|----------------|---|
| BP1            |   |
|                |   |
| <b>A</b>       | 1 |
| <b>B</b>       | 2 |
| <b>(+) Vcc</b> | 3 |
| <b>GND</b>     | 4 |


| Assignments    |   |
|----------------|---|
| BP1            |   |
|                |   |
| <b>A</b>       | 5 |
| <b>B</b>       | 6 |
| <b>(+) Vcc</b> | 7 |
| <b>GND</b>     | 8 |


**WDGA 58E PROFIBUS-DP, BP2, bus cover with 3x M12x1**




**Description**

**BP2** Bus cover with 3x M12x1

| Assignments          |   |
|----------------------|---|
|                      | <b>BP2</b><br> |
| <b>connector (A)</b> | M12x1, 4-pin, A-coded   |
| <b>(+) Vcc</b>       | 1   |
| <b>n. c.</b>         | 2   |
| <b>GND</b>           | 3   |
| <b>n. c.</b>         | 4   |

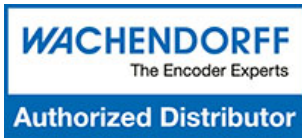
| Assignments                 |   |
|-----------------------------|---|
|                             | <b>BP2</b><br> |
| <b>Female connector (B)</b> | M12x1, 5-pin, B-coded   |
| <b>BUS</b>                  | OUT   |
| <b>n. c.</b>                | 1   |
| <b>A</b>                    | 2   |
| <b>n. c.</b>                | 3   |
| <b>B</b>                    | 4   |
| <b>n. c.</b>                | 5   |

| Assignments          |  |
|----------------------|--|
|                      | <b>BP2</b><br> |
| <b>connector (C)</b> | M12x1, 5-pin, B-coded  |
| <b>BUS</b>           | IN   |
| <b>n. c.</b>         | 1  |
| <b>A</b>             | 2  |
| <b>n. c.</b>         | 3  |
| <b>B</b>             | 4  |
| <b>n. c.</b>         | 5  |

| 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 up to 14 bit, e. g. 12 bit = 12 | 12               |  |
|                   | <b>Multi-turn Resolution</b>                             | <b>Order key</b> |  |
| 18                | Multi-turn up to 39 bit, e. G. 18 bit = 18               | 18               |  |
|                   | <b>Data protocol</b>                                     | <b>Order key</b> |  |
| DP                | PROFIBUS-DP (with bus cover)                             | DP               |  |
|                   | <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> |  |
| BP1               | <b>Connection cover:</b>                                 |                  |  |
|                   | Bus cover with connection clamps (PG cable glands)       | BP1              |  |
|                   | Bus cover with 3x M12x1                                  | BP2              |  |

|                          |          |    |    |    |    |   |   |   |   |     |
|--------------------------|----------|----|----|----|----|---|---|---|---|-----|
| <b>Example Order No.</b> | WDGA 58E | 12 | 12 | 18 | DP | A | B | 0 | 1 | BP1 |
|--------------------------|----------|----|----|----|----|---|---|---|---|-----|

|          |  |  |  |  |  |  |  |  |  |                          |
|----------|--|--|--|--|--|--|--|--|--|--------------------------|
| 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/contact-sales-en/>

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