



# Online Data sheet

## Encoder WDGA 58A PROFINET-IO (cov)

[www.wachendorff-automation.com/wdga58apnb](http://www.wachendorff-automation.com/wdga58apnb)

### **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 58A absolute PROFINET-IO, with bus cover and with EnDra® - Technology



Illustration similar

**EnDra®**  
Technologie

**PROFI**  
**NET**

**PIV** CERTIFIED  
PROFIBUS • PROFINET

- EnDra®: maintenance-free and environmentally friendly
- PROFINET-IO, Single-/Multiturn
- Compact design with bus cover
- 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 220 N [22.433 kp] radial, 120 N [12.236 kp] axial
- Device Profile switchable, Class 3, 4

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## Mechanical Data

|                    |                                                 |
|--------------------|-------------------------------------------------|
| Flange             | synchro flange                                  |
| Flange material    | aluminum                                        |
| Housing material   | die cast aluminum, powder coated                |
| Intermediate piece | Chrome-plated steel housing, magnetic shielding |
| Flange diameter    | Ø 58 mm [Ø 2.283"]                              |

## Shaft(s)

|                 |                                                     |
|-----------------|-----------------------------------------------------|
| Shaft material  | stainless steel                                     |
| Starting torque | approx. 1 Ncm [1.416 in-ozf] at ambient temperature |

|                                       |                                              |
|---------------------------------------|----------------------------------------------|
| Shaft                                 | Ø 6 mm [Ø 0.236"]                            |
| Advice                                | Attention: No option AAO = full IP67 version |
| Shaft length                          | L: 12 mm [0.472"]                            |
| Max. Permissible shaft loading radial | 125 N [12.746 kp]                            |
| Max. Permissible shaft loading axial  | 120 N [12.236 kp]                            |

|                                       |                                              |
|---------------------------------------|----------------------------------------------|
| Shaft                                 | Ø 8 mm [Ø 0.315"]                            |
| Advice                                | Attention: No option AAO = full IP67 version |
| Shaft length                          | L: 19 mm [0.748"]                            |
| Max. Permissible shaft loading radial | 125 N [12.746 kp]                            |
| Max. Permissible shaft loading axial  | 120 N [12.236 kp]                            |

|                                       |                    |
|---------------------------------------|--------------------|
| Shaft                                 | Ø 10 mm [Ø 0.394"] |
| Shaft length                          | L: 20 mm [0.787"]  |
| Max. Permissible shaft loading radial | 220 N [22.433 kp]  |
| Max. Permissible shaft loading axial  | 120 N [12.236 kp]  |

|                                       |                                              |
|---------------------------------------|----------------------------------------------|
| Shaft                                 | Ø 9.525 mm [Ø 3/8"] Order No: 4Z             |
| Advice                                | Attention: No option AAO = full IP67 version |
| Shaft length                          | L: 20 mm [0.787"]                            |
| Max. Permissible shaft loading radial | 220 N [22.433 kp]                            |
| Max. Permissible shaft loading axial  | 120 N [12.236 kp]                            |

## 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>           | 300 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. 125 mA |
| Power consumption                | typ. 3 W                         |
| Operating principle              | magnetic                         |

## 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                                             |

## Integrated web server:

|              |                                              |
|--------------|----------------------------------------------|
| Configurable | IP address<br>Subnet mask<br>Gateway address |
| Readable     | Encoder parameters                           |
| Update       | Firmware                                     |

## 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) |
| Electrical Safety:            | according DIN VDE 0160       |
| Turn on time:                 | <1,5 s                       |

#### Duty information

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

#### Interface

|                         |                                                                                                                     |
|-------------------------|---------------------------------------------------------------------------------------------------------------------|
| <b>Interface:</b>       | <b>Industrial Ethernet</b>                                                                                          |
| Protocol:               | PROFINET-IO (CC-C)                                                                                                  |
| Device Profile:         | V4.2, Class 3, 4                                                                                                    |
| Data Transfer:          | 100BASE-TX                                                                                                          |
| Cycle time:             | 250 µs, applicable for up to 125 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>MRPD<br>MRP<br>LLDP<br>IRT |
| Diagnostics: (LED)      | Traffic and connection management:<br>L/A1: Port 1<br>L/A2: Port 2                                                  |
| Status LED:             | STAT, MOD: status of encoder and bus                                                                                |

#### General Data

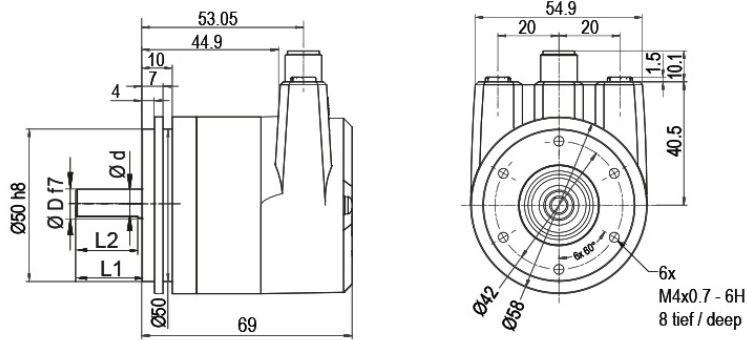
|                              |                                               |
|------------------------------|-----------------------------------------------|
| Weight                       | approx. 700 g [24.691 oz]                     |
| Connections                  | bus cover                                     |
| Protection rating (EN 60529) | Housing: IP65, IP67;<br>shaft sealed: IP65    |
| Operating temperature        | -40 °C up to +85 °C<br>[-40 °F up to 185 °F]  |
| Storage temperature          | -40 °C up to +100 °C<br>[-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 58A PROFINET-IO, BI2, bus cover with 3x M12x1**



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

**Option AIX:**

D = 6, L1 = 10, d = 5.3, L2 = 8

**Description**

**BI2** Bus cover with 3x M12x1

| Assignments                     |                       |
|---------------------------------|-----------------------|
|                                 | <b>BI2</b>            |
|                                 |                       |
| <b>Female connector (Port1)</b> | M12x1, 4-pin, D-coded |
| <b>Tx+</b>                      | 1                     |
| <b>Rx+</b>                      | 2                     |
| <b>Tx-</b>                      | 3                     |
| <b>Rx-</b>                      | 4                     |

| Assignments              |                       |
|--------------------------|-----------------------|
|                          | <b>BI2</b>            |
|                          |                       |
| <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>BI2</b>            |
|                                 |                       |
| <b>Female connector (Port2)</b> | M12x1, 4-pin, D-coded |
| <b>Tx+</b>                      | 1                     |
| <b>Rx+</b>                      | 2                     |
| <b>Tx-</b>                      | 3                     |
| <b>Rx-</b>                      | 4                     |

## Options

### Low-friction bearings

### Order key

The encoder WDGA 58A PROFINET-IO (cov) is also available as a particularly smooth-running low-friction encoder. The starting torque is thereby changed to  $\leq 0.5 \text{ Ncm}$  [0.708 in-ozf] and the protection class at the shaft input to IP50.

**AAC**

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

### Order key

The encoder WDGA 58A PROFINET-IO (cov) can be supplied in a full IP67 version.  
Max. RPM: 3500 min<sup>-1</sup>  
Permitted Shaft-Loading: axial 100 N; radial 110 N  
Starting-torque: approx. 4 Ncm at ambient temperature

**AAO**

### Shaft length 10 mm (Ø 6 mm)

### Order key

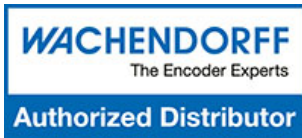
The encoder WDGA 58A PROFINET-IO shaft: Ø 6 mm is also available with a shortened shaft L = 10 mm.

**AIX**

| Example Order No. | Type                                                                          | Your encoder     |     |
|-------------------|-------------------------------------------------------------------------------|------------------|-----|
| WDGA 58A          | WDGA 58A                                                                      | WDGA 58A         |     |
|                   | <b>Shaft</b>                                                                  | <b>Order key</b> |     |
| 06                | Ø 6 mm [Ø 0.236"] Attention: No option AAO = full IP67 version                | 06               |     |
|                   | Ø 8 mm [Ø 0.315"] Attention: No option AAO = full IP67 version                | 08               |     |
|                   | Ø 10 mm [Ø 0.394"]                                                            | 10               |     |
|                   | Ø 9.525 mm [Ø 3/8"] Order No: 4Z Attention: No option AAO = full IP67 version | 4Z               |     |
|                   | <b>Single-turn Resolution</b>                                                 | <b>Order key</b> |     |
| 16                | Single-turn 1 up to 16 bit, e. g. 12 bit = 12                                 | 16               |     |
|                   | <b>Multi-turn Resolution</b>                                                  | <b>Order key</b> |     |
| 43                | Multi-turn 0 up to 43 bit, e. G. 43 bit = 43                                  | 43               |     |
|                   | <b>Data protocol</b>                                                          | <b>Order key</b> |     |
| PN                | PROFINET-IO (with bus cover)                                                  | PN               | PN  |
|                   | <b>Software</b>                                                               | <b>Order key</b> |     |
| W                 | up to date release                                                            | W                | W   |
|                   | <b>Code</b>                                                                   | <b>Order key</b> |     |
| B                 | binary                                                                        | B                | B   |
|                   | <b>Power supply</b>                                                           | <b>Order key</b> |     |
| 0                 | 10 V up to 32 V (standard)                                                    | 0                | 0   |
|                   | <b>Galvanic isolation</b>                                                     | <b>Order key</b> |     |
| 1                 | yes                                                                           | 1                | 1   |
|                   | <b>Electrical connections</b>                                                 | <b>Order key</b> |     |
| BI2               | <b>Connection cover:</b>                                                      |                  | BI2 |
|                   | Bus cover with 3x M12x1                                                       | BI2              |     |
|                   |                                                                               |                  |     |
|                   | <b>Options</b>                                                                | <b>Order key</b> |     |
|                   | Low-friction bearings                                                         | AAC              |     |
|                   | Shafts sealed to IP67, only with shaft Ø 10 mm                                | AAO              |     |
|                   | Shaft length 10 mm (Ø 6 mm)                                                   | AIX              |     |
|                   | Without option                                                                | Empty            |     |

|                   |          |    |    |    |    |   |   |   |   |     |  |
|-------------------|----------|----|----|----|----|---|---|---|---|-----|--|
| Example Order No. | WDGA 58A | 06 | 16 | 43 | PN | W | B | 0 | 1 | BI2 |  |
|-------------------|----------|----|----|----|----|---|---|---|---|-----|--|

|          |  |  |  |    |   |   |   |   |     |  |              |
|----------|--|--|--|----|---|---|---|---|-----|--|--------------|
| WDGA 58A |  |  |  | PN | W | B | 0 | 1 | BI2 |  | Your encoder |
|----------|--|--|--|----|---|---|---|---|-----|--|--------------|



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

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