WACHENDORFF
The Encoder Experts

Online Data sheet

HM 2602

# Encoder WDGA 58E IO-Link

**www.wachendorff-automation.com/wdga58e-io-link**

**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 IO-Link, with EnDra®-Technology

*Illustration similar*

EnDra® Technologie

IO-Link

- EnDra®: maintenance-free and environmentally friendly
- IO-Link, Single-turn and Multi-turn
- Device Profile for encoder Smart Sensor Profile (SSP)
- Single-turn/Multi-turn (16 bit / 43 bit)
- Forward-looking technology with 32 Bit processor
- Monitoring the power supply
- Cam switches for position and velocity with hysterese

**www.wachendorff-automation.com/wdga58e-io-link**

| **Mechanical Data** | |
|---|---|
| Flange | hollow shaft (blind-bored) |
| Flange material | aluminum |
| Housing material | Aluminum die cast, powder coated; Integrated magnetic shielding |
| Torque supports | incl. 1 torque support WDGDS10001 |
| - 1. Spring plate compensation | axial: ±0.8 mm [0.0315"], radial: ±0.2 mm [0.0079"] |
| - Max. operating speed | 6000 rpm up to max. protection rating +60 °C |
| - 2. Cylinder pin 4 mm | needs accessories WDGDS10005 |
| - Compensation | axial: ±0.5 mm [0.0197"], radial: ±1.5 mm [0.0591"], Max. operating speed: 3000 rpm |
| Flange diameter | Ø 58 mm [Ø 2.283"] |

| **Shaft(s)** | |
|---|---|
| Shaft material | stainless steel |
| Starting torque | approx. 1.6 Ncm [2.266 in-ozf] at ambient temperature |
| Fixing | permanently attached clambing ring |
| | |
| Shaft | Ø 6 mm [Ø 0.236"] |
| Advice | with adapter sleeve |
| Shaft length | L: 12 mm [0.472"] |
| Insertion depth min. | 11 mm [0.433"] |
| Insertion depth max. | 15 mm [0.591"] |
| Max. Permissible shaft loading radial | 80 N [8.157 kp] |
| Max. Permissible shaft loading axial | 50 N [5.098 kp] |
| | |
| Shaft | Ø 6.35 mm [Ø 1/4"] Order No: 2Z |
| Advice | with adapter sleeve |
| Shaft length | L: 12 mm [0.472"] |
| Insertion depth min. | 11 mm [0.433"] |
| Insertion depth max. | 15 mm [0.591"] |
| Max. Permissible shaft loading radial | 80 N [8.157 kp] |
| Max. Permissible shaft loading axial | 50 N [5.098 kp] |
| | |
| Shaft | Ø 7 mm [Ø 0.276"] |
| Advice | with adapter sleeve |
| Shaft length | L: 12 mm [0.472"] |
| Insertion depth min. | 11 mm [0.433"] |
| Insertion depth max. | 15 mm [0.591"] |
| Max. Permissible shaft loading radial | 80 N [8.157 kp] |
| Max. Permissible shaft loading axial | 50 N [5.098 kp] |
| | |
| Shaft | Ø 8 mm [Ø 0.315"] |
| Advice | with adapter sleeve |
| Shaft length | L: 12 mm [0.472"] |
| Insertion depth min. | 11 mm [0.433"] |
| Insertion depth max. | 15 mm [0.591"] |
| Max. Permissible shaft loading radial | 80 N [8.157 kp] |
| Max. Permissible shaft loading axial | 50 N [5.098 kp] |
| | |
| Shaft | Ø 9.525 mm [Ø 3/8"] Order No: 4Z |
| Advice | with adapter sleeve |
| Shaft length | L: 12 mm [0.472"] |
| Insertion depth min. | 11 mm [0.433"] |
| Insertion depth max. | 15 mm [0.591"] |
| Max. Permissible shaft loading radial | 80 N [8.157 kp] |
| Max. Permissible shaft loading axial | 50 N [5.098 kp] |
| | |
| Shaft | Ø 10 mm [Ø 0.394"] |
| Advice | with adapter sleeve |
| Shaft length | L: 12 mm [0.472"] |
| Insertion depth min. | 11 mm [0.433"] |
| Insertion depth max. | 15 mm [0.591"] |
| Max. Permissible shaft loading radial | 80 N [8.157 kp] |
| Max. Permissible shaft loading axial | 50 N [5.098 kp] |
| | |
| Shaft | Ø 12 mm [Ø 0.472"] |
| Shaft length | L: 12 mm [0.472"] |
| Insertion depth min. | 11 mm [0.433"] |
| Insertion depth max. | 15 mm [0.591"] |
| Max. Permissible shaft loading radial | 80 N [8.157 kp] |
| Max. Permissible shaft loading axial | 50 N [5.098 kp] |
| | |
| Shaft | Ø 14 mm [Ø 0.551"] |
| Shaft length | L: 12 mm [0.472"] |
| Insertion depth min. | 11 mm [0.433"] |
| Insertion depth max. | 15 mm [0.591"] |

| | |
|---|---|
| Max. Permissible shaft loading radial | 80 N [8.157 kp] |
| Max. Permissible shaft loading axial | 50 N [5.098 kp] |

| | |
|---|---|
| Shaft | Ø 15 mm [Ø 0.591"] |
| Shaft length | L: 12 mm [0.472"] |
| Insertion depth min. | 11 mm [0.433"] |
| Insertion depth max. | 15 mm [0.591"] |
| Max. Permissible shaft loading radial | 80 N [8.157 kp] |
| Max. Permissible shaft loading axial | 50 N [5.098 kp] |

| **Bearings** | |
|---|---|
| Bearings type | 2 precision ball bearings |
| Nominale service life | 1 x 10'9 revs. at 100 % rated shaft load<br>1 x 10'10 revs. at 40 % rated shaft load<br>1 x 10'11 revs. at 20 % rated shaft load |
| Max. operating speed | 6000 rpm |

| **Machinery Directive: basic data safety integrity level** | |
|---|---|
| $MTTF_d$ | 1300 a |
| Mission time (TM) | 20 a |
| Nominale service life (L10h) | 1 x 10'11 revs. at 20 % rated shaft load and 6000 rpm |
| Diagnostic coverage (DC) | 0 % |

| **Electrical Data** | |
|---|---|
| Power supply/Current consumption | 18 VDC up to 30 VDC: typ. 30 mA |
| Power consumption | max. 0.6 W |
| Operating principle | magnetic |

| **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 | 250 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** | |
|---|---|
| ESD (DIN EN 61000-4-2): | 4 kV |
| Burst (DIN EN 61000-4-4): | 2 kV |
| includes EMC: | DIN EN 61000-6-2<br>DIN EN 61326-2-3<br>DIN EN 61131-9 |
| Vibration:<br>(DIN EN 60068-2-6) | 300 $m/s^2$ (10 Hz up to 2000 Hz) |
| Shock:<br>(DIN EN 60068-2-27) | 5000 $m/s^2$ (6 ms) |
| Electrial Safety: | DIN EN 61010-1 (VDE 0411-1) / IEC 61010-1 / UL 61010-1 / CSA C22.0 No 61010-1-12 |
| Turn on time: | <1 s |

| **Duty information** | |
|---|---|
| Customs tariff number: | 90318020 |
| Country of origin: | Germany |

| **Interface** | |
|---|---|
| **Interface:** | **IO-Link Version: V1.1.4** |
| Smart Sensor Profile (SSP): | • 2.8 Adjustable Switching Sensor, multi channel<br>• 4.2.1 Measuring and Switching Sensor, high resolution, 1 channel<br>• 4.2.2 Measuring and Switching Sensor, high resolution, 2 channel |
| Baud rate: | COM 3<br>230.4 kBit/s |
| Advice: | The standard settings and customer-specific adjustments in the parameterisation can be set using ISDUs, e.g. scaling, direction of rotation, etc. |

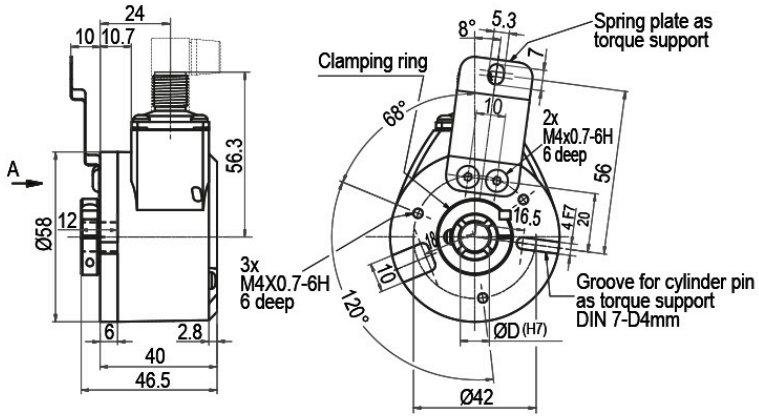
| **General Data** | |
|---|---|
| Weight | approx. 220 g [7.76 oz] |
| Connections | connector radial |
| Protection rating (EN 60529) | Housing: IP65, IP67;<br>shaft sealed: IP65 |
| Operating temperature | -40 °C up to +85 °C<br>[-40 °F up to 185 °F] |
| Storage temperature | -40 °C up to +100 °C<br>[-40 °F up to 212 °F] |

**More Information**

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

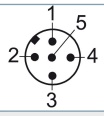
Options
**http://www.wachendorff-automation.com/acc**

## Connector, M12x1 IC5, 5-pin




### Description

**IC5** radial, 5-pin, shield connected to encoder housing

| Assignments | |
|---|---|
| | **IC5** |
| |  |
| **L+** | 1 |
| **L-** | 3 |
| **C/Q** | 4 |
| **I** | 2 |
| **n. c.** | 5 |

## Options

| Low-friction bearings | Order key |
| --- | --- |
| The encoder WDGA 58E IO-Link is also available as a particularly smooth-running low-friction encoder. The starting torque is thereby changed to approx. ≤ 0.6 Ncm [0.85 in-ozf] at ambient temperature and the protection class at the shaft input to IP50. | **AAC** |

| Example Order No. | Type | | Your encoder |
|---|---|---|---|
| WDGA 58E | WDGA 58E | | WDGA 58E |
| | | | |
| | **Shaft** | **Order key** | |
| 06 | Ø 6 mm [Ø 0.236"] with adapter sleeve | 06 | |
| | Ø 6.35 mm [Ø 1/4"] Order No: 2Z with adapter sleeve | 2Z | |
| | Ø 7 mm [Ø 0.276"] with adapter sleeve | 07 | |
| | Ø 8 mm [Ø 0.315"] with adapter sleeve | 08 | |
| | Ø 9.525 mm [Ø 3/8"] Order No: 4Z with adapter sleeve | 4Z | |
| | Ø 10 mm [Ø 0.394"] with adapter sleeve | 10 | |
| | Ø 12 mm [Ø 0.472"] | 12 | |
| | Ø 14 mm [Ø 0.551"] | 14 | |
| | Ø 15 mm [Ø 0.591"] | 15 | |
| | | | |
| | **Single-turn Resolution** | **Order key** | |
| 16 | Single-turn resolution 1 bit up to 16 bit: (e. G. 6 bit) | 16 | |
| | | | |
| | **Multi-turn Resolution** | **Order key** | |
| 43 | Multi-turn resolution: (examples)<br>6 bit = 6<br>43 bit = 43 | 16 | |
| | | | |
| | **Data protocol** | **Order key** | |
| IL | IO-Link | IL | |
| | | | |
| | **Software** | **Order key** | |
| A | up to date release | A | |
| | | | |
| | **Code** | **Order key** | |
| B | binary | B | |
| | | | |
| | **Power supply** | **Order key** | |
| 3 | 18 V up to 30 V (standard) | 3 | |
| | | | |
| | **Galvanic isolation** | **Order key** | |
| 0 | no | 0 | |
| | | | |
| | **Electrical connections** | **Order key** | |
| | **Connector:** | | |
| IC5 | sensor-connector, M12x1, 5-pin, radial, shield connected to encoder housing | IC5 | |
| | | | |
| | | | |
| | **Options** | **Order key** | |
| | Without option | Empty | |
| | Low-friction bearings | AAC | |

| Example Order No. | WDGA 58E | 06 | 16 | 43 | IL | A | B | 3 | 0 | IC5 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | WDGA 58E | | | | | | | | | | | Example Order No. |