



# Online Data Sheet

## 엠펬루트 CAN 통신 마그네틱 로터리 엔코더

### WDGA 58A 시리즈

#### 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 CANopen**  
[www.wachendorff-automation.com/wdga58acan](http://www.wachendorff-automation.com/wdga58acan)

**Industrie ROBUST**

# Encoder WDGA 58A absolute CANopen magnetic, with EnDra®-Technology



**EnDra®**  
Technologie

**CANopen®**

1. **CAN open** 프로토콜 절대형 로터리 엔코더 - 산업표준 58mm  
- 통신 프로파일 CiA301  
- 디바이스 프로파일 CiA406 V3.2 class C2

2. **EnDra®** 기술을 활용한 멀티턴 분해능  
- 최대 39bit 대응  
- 위치 기억을 위한 배터리, 기어 불필요

3. 높은 축 강도의 견고한 엔코더  
- Radial 220N, Axial 120N

4. IP67의 보호 기능 - 방수/방진 로터리 엔코더  
- Shaft sealing - IP65 \*\*IP67선택 가능

| Mechanical Data                              |                                                     |
|----------------------------------------------|-----------------------------------------------------|
| <b>Housing</b>                               |                                                     |
| Flange                                       | synchro flange                                      |
| Flange material                              | aluminum                                            |
| Housing cap                                  | stainless steel                                     |
| Housing                                      | Ø 58 mm [Ø 2.283"]                                  |
| Cam mounting                                 | pitch 65 mm [2.4016 inches]                         |
| <b>Shaft(s)</b>                              |                                                     |
| Shaft material                               | stainless steel                                     |
| Starting torque                              | approx. 1 Ncm [1.416 in-ozf] at ambient temperature |
| <b>Shaft Ø 6 mm [Ø 0.236"]</b>               |                                                     |
| 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]                                   |
| <b>Shaft Ø 8 mm [Ø 0.315"]</b>               |                                                     |
| 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]                                   |
| <b>Shaft Ø 9.525 mm [Ø 3/8"] Order No: 4</b> |                                                     |
| 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]                                   |
| <b>Shaft Ø 10 mm [Ø 0.394"]</b>              |                                                     |
| 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]                                   |
| <b>Bearings</b>                              |                                                     |

|                      |                                                                                                                                                                   |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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>           | 1000 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 | 4,75 VDC up to 32 VDC: typ. 50 mA |
| Power consumption                | max. 0.5 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         | ≤ 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

|                               |                                                        |
|-------------------------------|--------------------------------------------------------|
| 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: (DIN EN 60068-2-6) | 300 m/s <sup>2</sup> (10 Hz up to 2000 Hz)             |
| Shock: (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

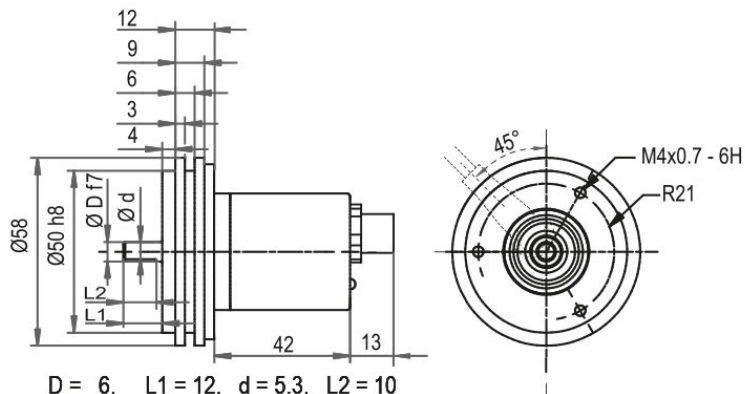
|                                      |                                                                                                                                                                                                                                                                                                |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Interface:</b>                    | <b>CAN</b>                                                                                                                                                                                                                                                                                     |
| Protocol:                            | CANopen <ul style="list-style-type: none"> <li>• Communication profil 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:                           | 10 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: | <p><b>Synchronous mode:</b><br/>when a synchronisation telegram (SYNC) is received from another bus node, PDOs are transmitted independently.</p> <p><b>Asynchronous mode:</b><br/>a PDO message is triggered by an internal event. (e.g. change of measured valued, internal timer, etc.)</p> |

#### General Data

|                              |                                                                      |
|------------------------------|----------------------------------------------------------------------|
| Weight                       | approx. 224 g [7.901 oz]                                             |
| Connections                  | cable or connector outlet                                            |
| Protection rating (EN 60529) | Housing: IP65, IP67;<br>shaft sealed: IP65;<br>cable outlet L1: IP40 |
| 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 | <a href="http://www.wachendorff-automation.com/gtd">http://www.wachendorff-automation.com/gtd</a> |
| Options                                        | <a href="http://www.wachendorff-automation.com/acc">http://www.wachendorff-automation.com/acc</a> |

**Connector, M12x1 CB5, 5-pin**


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:**

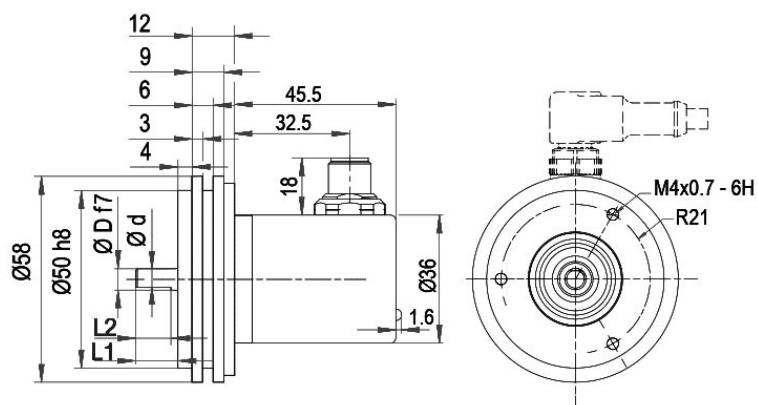
D = 6, L1 = 10, d = 5.3, L2 = 8

**Description**

**CB5** axial, 5-pin, shield connected to encoder housing

| Assignments   |                |
|---------------|----------------|
|               | <b>CB5</b><br> |
| (+) Vcc       | 2              |
| GND           | 3              |
| CANHigh       | 4              |
| CANLow        | 5              |
| CANGND shield | 1              |

## Connector, M12x1 CC5, 5-pin



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

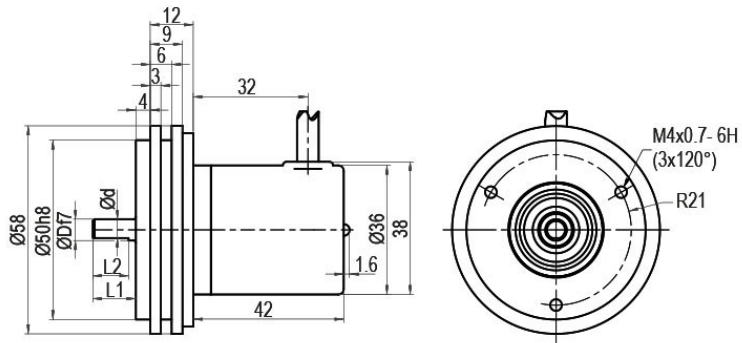
Option AIX:

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

## Description

CC5 radial, 5-pin, shield connected to encoder housing

| Assignments   |                   |
|---------------|-------------------|
|               | <p><b>CC5</b></p> |
| (+) Vcc       | 2                 |
| GND           | 3                 |
| CANHigh       | 4                 |
| CANLow        | 5                 |
| CANGND shield | 1                 |

**Cable connection, L1 radial with 2 m cable (IP40)**


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**

**L1** radial, shield connected to encoder housing (IP40)

| Assignments   |           |
|---------------|-----------|
|               | <b>L1</b> |
| (+) Vcc       | BN        |
| GND           | WH        |
| CANHigh       | GN        |
| CANLow        | YE        |
| CANGND shield | shield    |

Technical drawing of a mechanical part showing a side view and a top view.

**Side View Dimensions:**

- Overall height: 12, 9, 6, 3, 4
- Outer diameter:  $\varnothing 58$
- Inner diameter:  $\varnothing 50\ h8$
- Hole diameter:  $\varnothing d\ f7$
- Lengths:  $L1$ ,  $L2$
- Overall length: 42 + 19.9

**Top View Dimensions:**

- Thread: M4x0.7 - 6H
- Radius: R21

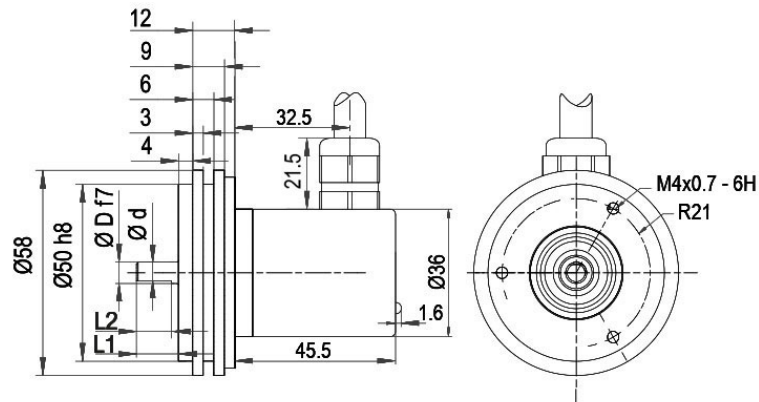
**Bottom View Dimensions:**

- Overall diameter:  $D = 6$
- Lengths:  $L1 = 12$ ,  $d = 5.3$ ,  $L2 = 10$

$$D = 6, \quad L1 = 10, \quad d = 5.3, \quad L2 = 8$$

**L2** axial, shield connected to encoder housing

| Assignments   |        |
|---------------|--------|
|               | L2     |
| (+) Vcc       | BN     |
| GND           | WH     |
| CANHigh       | GN     |
| CANLow        | YE     |
| CANGND shield | shield |

**Cable connection, L3 radial with 2 m cable**


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**

**L3** radial, shield connected to encoder housing

| Assignments   |           |
|---------------|-----------|
|               | <b>L3</b> |
| (+) Vcc       | BN        |
| GND           | WH        |
| CANHigh       | GN        |
| CANLow        | YE        |
| CANGND shield | shield    |

## Options

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

### Order key

The encoder WDG 58A CANopen can be supplied in a IP67 version.

**AAO**

(full IP67 only connection CB5, CC5, L2 or L3 version; not cable connection L1 = IP40).

Max. RPM: 3500 min<sup>-1</sup>

Permitted Shaft-Loading: axial 100 N; radial 110 N

Starting-torque: approx. 4 Ncm at ambient temperature

### 120 Ohm terminating resistor

### Order key

The encoder WDGA 58A CANopen is also available with fixed 120 Ohm terminating resistor.

**AEO**

### Shaft length 10 mm (Ø 6 mm)

### Order key

The encoder WDGA 58A CANopen 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 9.525 mm [Ø 3/8" Order No: Attention: No option AAO = full IP67 version            | 4Z               |
|                   | Ø 10 mm [Ø 0.394"                                                                    | 10               |
|                   | <b>Single-turn Resolution</b>                                                        | <b>Order key</b> |
| 12                | Single-turn resolution 1 bit up to 16 bit, recommended min. 6 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                                                                              | 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                 | 4.75 V up to 32 V (standard)                                                         | 0                |
|                   | <b>Galvanic isolation</b>                                                            | <b>Order key</b> |
| 0                 | no                                                                                   | 0                |
|                   | <b>Electrical connections</b>                                                        | <b>Order key</b> |
| CB5               | <b>Cable:</b>                                                                        |                  |
|                   | radial, shield connected to encoder housing (IP40), with 2 m cable                   | L1               |
|                   | axial, shield connected to encoder housing, with 2 m cable                           | L2               |
|                   | radial, shield connected to encoder housing, with 2 m cable                          | L3               |
|                   | <b>Connector:</b>                                                                    |                  |
|                   | sensor-connector, M12x1, 5-pin, axial, shield connected to encoder housing           | CB5              |
|                   | sensor-connector, M12x1, 5-pin, radial, shield connected to encoder housing          | CC5              |
|                   | <b>Options</b>                                                                       | <b>Order key</b> |
|                   | Without option                                                                       | Empty            |
|                   | Shafts sealed to IP67, only with Ø 10 mm shaft                                       | AAO              |
|                   | 120 Ohm terminating resistor                                                         | AEO              |
|                   | Shaft length 10 mm (Ø 6 mm)                                                          | AIX              |

|                   |          |    |    |    |    |   |   |   |   |     |  |
|-------------------|----------|----|----|----|----|---|---|---|---|-----|--|
| Example Order No. | WDGA 58A | 06 | 12 | 18 | CO | A | B | 0 | 0 | CB5 |  |
|-------------------|----------|----|----|----|----|---|---|---|---|-----|--|

|          |  |  |  |  |  |  |  |  |  |  |                   |
|----------|--|--|--|--|--|--|--|--|--|--|-------------------|
| WDGA 58A |  |  |  |  |  |  |  |  |  |  | Example Order No. |
|----------|--|--|--|--|--|--|--|--|--|--|-------------------|



For further information please contact our local distributor.  
Here you find a list of our distributors worldwide.  
[http://www.wachendorff-automation.com/distributors\\_worldwide.html](http://www.wachendorff-automation.com/distributors_worldwide.html)

# CREKEN

주식회사 크레켄

경기도 성남시 중원구 사기막골로 124  
SKn테크노파크 메가동 514호 우편번호:13207

Phone: 031) 608-3200 Fax: 031) 776-2320  
E-Mail: [sales@creken.co.kr](mailto:sales@creken.co.kr)  
[www.creken.co.kr](http://www.creken.co.kr)



Wachendorff Automation GmbH & Co. KG  
Industriestrasse 7 • D-65366 Geisenheim

Phone: +49 67 22 / 99 65 25  
Fax: +49 67 22 / 99 65 70  
E-Mail: [wdg@wachendorff.de](mailto:wdg@wachendorff.de)  
[www.wachendorff-automation.de](http://www.wachendorff-automation.de)

