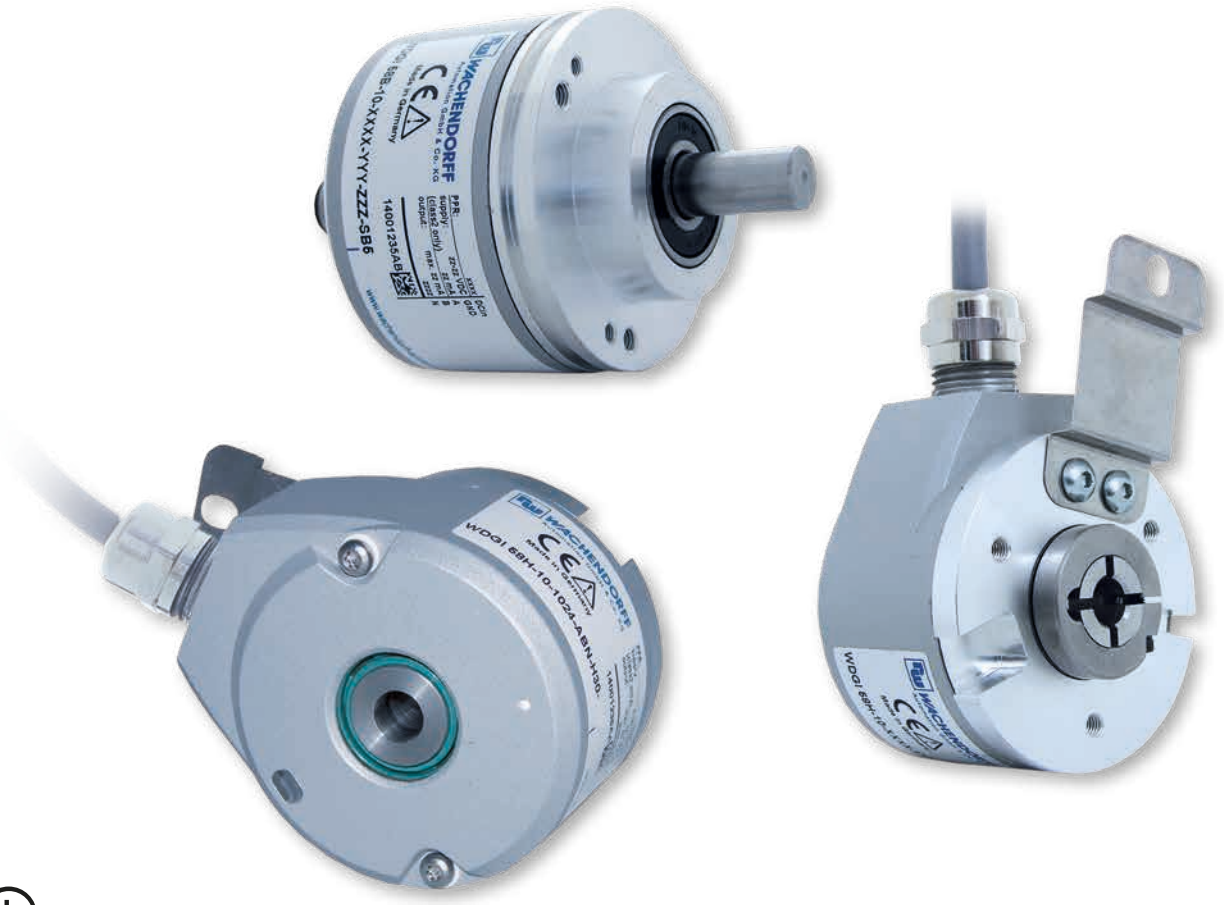
WACHENDORFF
The Encoder Experts

# Encoders WDGI optical
## the incremental industry standard

DEVELOPED AND
MADE IN GERMANY
5 YEARS WARRANTY

wachendorff-automation.com/encoders-inc

Die-cast aluminium housing, powder coated
Maximum bearing loads of up to 500 N, axial / radial
Self-adhesive membrane
High output frequency 600 kHz / 2 MHz
Extended operating temperature -40 °C to +85 °C



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Industrie ROBUST

# WDGI encoder
## ... the incremental industry standard

For more than 35 years, Wachendorff Automation has been developing systems and encoders for global use in a wide variety of applications in the fields of mechanical / plant engineering, lift construction, mobile machines and renewable energies.
The more than 1,250 customer variants we have implemented clearly demonstrate our high degree of flexibility and absolute customer focus. Since we attach such a great deal of importance to mechanical and electrical stability, we offer a five-year guarantee.

**WDG has become WDGI**
Wachendorff Automation has completely revised the incremental encoders of the WDG series, which are based on the 58 mm design size industry standard.
This can only mean one thing: WDG has become WDGI.

**Modern industrial design and further enhanced technical properties**
But it's the enhanced benefits for you as a user that really matter. In addition to a modern design, we have attached a great deal of importance to improving key technical properties.

**Extended temperature range:**
The operating temperature range of the WDGI standard encoder with connector outlet has been expanded to temperatures of between -40 °C and +85 °C. This extended temperature range can be implemented as an option for encoders with cable outlet, thereby widening the possible range of applications without shortening the encoder's service life.

**Maximum pulse frequencies: 600 kHz to 2 MHz**
The WDGI encoders offer the option of working at pulse rates from 1,200 ppr with pulse frequencies of up to 600 kHz (TTL) or 2 MHz (HTL). Consequently, high pulse rates can be deployed at high speeds, considerably increasing the machine's measurement accuracy at high throughput rates.

**Maximum bearing loads: 500 N**
The WDGI58D heavy-duty variant offers an up to 25 % higher potential bearing load than its predecessor model as standard. This translates into 500 N in both an axial and a radial load direction. The encoder therefore also has sufficient reserves even when faced with extreme shaft loads, which is decisive for a long service life. A long tool life and low maintenance costs are guaranteed.

**New option: self-adhesive membrane**
This membrane guarantees that the encoder is highly reliable, even when temperatures change quickly – during use in mobile work machines or generally in high air humidity, for example. In spite of the membrane, the encoders retain their high protection class of up to IP67 and are still resistant to harsh environmental conditions.

**Choice of materials and processing with a view to environmental compatibility**
The newly designed encoder cover is made of die-cast aluminium. So, unlike the die-cast zinc cover which is commonly used on the market, the housing's eco-friendly powder coating can be maintained. Customers can therefore choose the colour they'd like with a clear conscience.

**Evidence of our experience down to the smallest of details**
A special feature derived from customer requests is the eyelet integrated in the housing cover, to which a labelling strip can be attached (e.g. to identify the system / location).

**A summary of the key properties:**
- Robust standard industrial encoder
- Die-cast aluminium housing with particularly eco-friendly powder coating
- Up to 25,000 pulses thanks to high-quality electronics
- Protection class of IP67; shaft sealet to IP65
- Immunity to interference
- Extremely high bearing load: up to 500 N in axial / radial direction
- Maximum mechanical and electrical safety
- Full connection protection at 10 VDC up to 30 VDC
- High output frequency of up to 600 kHz / 2 MHz
- Operating temperature with connector outlet: -40 °C to +85 °C
- Optional: pressure compensation membrane

| | Incremental shaft encoders | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | |
| **Type** | **WDGI 58A** | **WDGI 58B** | **WDGI 58C** | **WDGI 58D** | **WDGI 58K** | **WDGI 63B** |
| **Flange** | Synchro flange | Clamping flange | Synchro flange | Clamping flange | | |
| **Resolution** | up to 25.000 PPR | | | | | |
| **Housing material** | Die-cast aluminium, powder-coated | | | | | |
| **Dimensions housing** | Ø 58 mm, L 42 mm | | | | | Ø 63.5 mm, 2.5“, L 45 mm, 1.772“ |
| **Shaft material** | Stainless steel | | | | | |
| **Shaft dimensions** | Ø 6 mm, L 12 mm | Ø 10 mm, L 20 mm | | Ø 12 mm, L 25 mm | Ø 6 mm, L 20 mm | Ø 9.525 mm, 3/8“, L 22.3 mm, 0.878“ |
| **Operating speed** | max. 10.000 $min^{-1}$ | max. 8,000 $min^{-1}$ | | | | |
| **Permissible shaft loading** | max. 125 N radial, max. 70 N axial | max. 220 N radial, max. 120 N axial | max. 200 N radial, max. 120 N axial | max. 500 N radial, max. 500 N axial | max. 80 N radial, max. 50 N axial | max. 220 N radial, max. 120 N axial |
| **Output circuit** | TTL, RS422 compatible, HTL, 1 Vpp sin/cos | | | | | |
| **Output channels** | AB, ABN and inverted signals | | | | | |
| **Output frequency** | up to 2 MHz | | | | | |
| **Operating voltage** | 4,75 VDC up to 5,5 VDC<br>10 VDC up to 30 VDC<br>5 VDC up to 30 VDC | | | | | |
| **Operating temperature** | Connector outlet: -40 °C to +85 °C<br>Cable outlet: -20 °C to +80 °C (optional: -40 °C to +85 °C) 1 Vpp: -10 °C to +70 °C | | | | | |
| **Protection class** | IP67; shaft sealed to IP65 | IP67; shaft sealed to IP65 (optional: IP67 all around) | IP67; shaft sealed to IP65 | | IP67; shaft sealed to IP65 (optional: IP67 all around) | |
| wachendorff-automation.com | **/wdgi58a** | **/wdgi58b** | **/wdgi58c** | **/wdgi58d** | **/wdgi58k** | **/wdgi63b** |

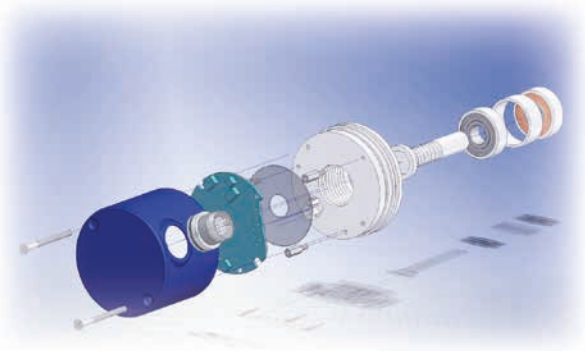
| | Incremental shaft encoders | | | | Incr. hollow shaft encoders | |
|---|---|---|---|---|---|---|
| | | | | | | |
| **Type** | **WDGI 63Q** | **WDGI 67Q** | **WDGI 70B** | **WDGI 115M/T** | **WDGI 58E** | **WDGI 58H** |
| **Resolution** | Square flange | | Clamping flange | Tacho flange | Hollow bore (blind) | Thru-Bore |
| **Auflösung** | up to 25.000 PPR | | | | | |
| **Housing material** | Die-cast aluminium, powder-coated | | | | | |
| **Dimensions housing** | ☐ 63.5 mm, 2.5“, L 45 mm, 1.772“ | ☐ 67.3 mm, 2.65“, L 45 mm, 1.772“ | Ø 70 mm, L 47 mm | Ø 115 mm, L 49 mm | Ø 58 mm, L 40 mm | |
| **Shaft material** | Stainless steel | | | | | |
| **Shaft dimensions** | Ø 9.525 mm, 3/8“, L 22.3 mm, 0.878“ | | Ø 12 mm, L 26 mm | M: Ø 11 mm, L 33 mm<br>T: Ø 10 mm, L 25 mm | Ø 8, 10, 12, 15 mm | Ø 8, 10, 12, 14 mm und 1/2“ (12.7 mm) |
| **Operating speed** | max. 8,000 $min^{-1}$ | | | | | |
| **Permissible shaft loading** | max. 220 N radial, max. 120 N axial | | max. 200 N radial, max. 150 N axial | max. 200 N radial, max. 120 N axial | max. 80 N radial, max. 60 N axial | |
| **Output circuit** | TTL, RS422 compatible, HTL, 1 Vpp sin/cos | | | | | |
| **Output channels** | AB, ABN and inverted signals | | | | | |
| **Output frequency** | up to 2 MHz | | | | | |
| **Operating voltage** | 4,75 VDC up to 5,5 VDC<br>10 VDC up to 30 VDC<br>5 VDC up to 30 VDC | | | | | |
| **Operating temperature** | Connector outlet: -40 °C to +85 °C<br>Cable outlet: -20 °C to +80 °C (optional: -40 °C to +85 °C) 1 Vpp: -10 °C to +70 °C | | | | | |
| **Protection class** | IP67; shaft sealed to IP65 (optional: IP67 all around) | | | | IP67; shaft sealed to IP65 | IP65 |
| wachendorff-automation.com | **/wdgi63q** | **/wdgi67q** | **/wdgi70b** | **/wdgi115m /wdgi115t** | **/wdgi58e** | **/wdgi58h** |

# Always the ideal solution – with the modular design principle

**Know-how in the application**
- The variety of applications, adapted design and extensive construction type tests
- High protection class of up to IP67 + IP69K

**Perfect communication**
- square-wave or sine/cosine
- PROFIBUS
- PROFINET / EtherCAT / EtherNet/IP
- Universal IE
- CANopen / CANopen LIFT / SAE J1939
- SSI / RS485

**Wear-free and intelligent**
- Contactless; optical or magnetic
- Highly integrated electronics



**Durable and reliable**
- Wide temperature range: -40 °C to +85 °C
- Vibration- and shock-proof
- High bearing loads of up to 500 N

**Designed for harsh everyday use**
- 400 standards and guidelines
- 100 construction type tests, incl. HALT
- More than 35 years of experience
- 25 company standards
- One solution for your application

**Individual, yet a series product**
- Multitude of connector / cable variants as standard: M12, M16, etc.
- Easily adapted to your application
- Mechanics, logistics and assembly
- Certified pursuant to ISO 9001

## Shaping innovation together

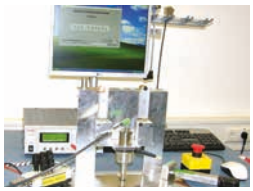
- Many years of competent application advice
- Sustainable and systematic: ISO-certified
- „Made in Germany“; five-year guarantee

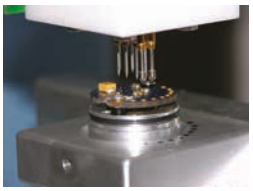
Together with the Wachendorff Group, Wachendorff Automation develops and manufactures robust rotary encoders and systems for use in industrial and automotive applications.

Extensive construction type tests performed at the same time as the development process demonstrably guarantee reliable and durable use in many branches of industry and mean that mobile work machines can be put to use in the harshest of environmental conditions.

The software-controlled production process ensures that each individual device is fully traceable.
There are more than 1,250 series solutions in use around the world.

Our Product Management and R&D teams look forward to working with you!





**Any Questions?** Just call us at +49 (0) 67 22 / 99 65 414, send us an E-Mail to sales-wa@wachendorff.de or call your local distributor: **www.wachendorff-automation.com/distri**

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2024

Your distributor: