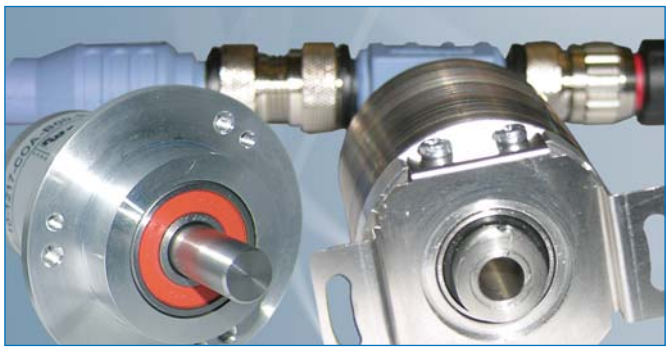
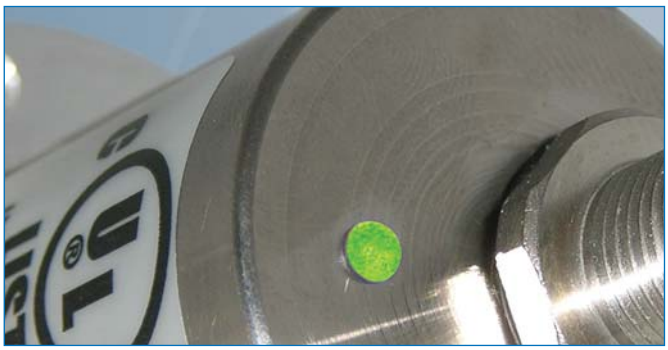
WACHENDORFF
Automation GmbH & Co. KG

Absolute encoder WDG, solid and hollow shaft
... magnetic, optical, autonomous





The singleturn and multiturn absolute rotary encoders, series WDGA, possess new, outstanding qualities thanks to their patented EnDra® technology:

- **Free of wear – no gears**
- **Environmentally friendly – no battery**
- **High energy efficiency – low power consumption**

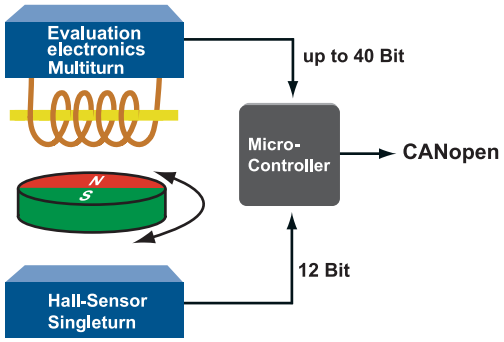
www.wachendorff-automation.com/wdga

With their high resolution of 12 Bit singleturn and 12 Bit + 18 Bit multiturn, they are ideal for those applications, where high measuring accuracy as well as mechanical ruggedness is important. The interface provides the evaluation electronics with the complete position value, consisting of the combination of the singleturn position with the corresponding multiturn position based on the number of revolutions. The resolution of the singleturn position is 12 Bit (4096 steps per revolution). The multiturn can handle up to 40 bits, depending on requirements.
In practice, in the CAN profile, 32 bits are processed. Higher resolutions are transmitted via High Precision Objects.

Despite its extremely high resolution, the maintenance-free encoder has need of neither gears nor back-up battery. This guarantees a long service-life for the mechanics as well as helping protect the environment.
With its exceptionally high shaft loads of up to 220 N radial and 120 N axial, it will work reliably and accurately for years to come.

Quick in operation: 100 % CANopen
The WDGA absolute encoders are equipped with a two-colour LED (red/green). Thanks to the differentiated change in colour and the varying blinking frequencies of the LED, important status signalling can be read off directly. The WDGA absolute encoders can thus be integrated quickly and easily into the existing CANbus topology.

Operating principle of the EnDra® technology for the multiturn:
The Wachendorff WDGA encoders do not require mechanical gears to detect the number of revolutions and the direction of rotation. Instead the revolutions are determined by means of an energy wire (EnDra)®: a permanent magnet accumulates in the wire so much energy that for a defined position the information "Revolution" and "Direction of Rotation" is transmitted to the evaluation electronics. An external energy feed, for example by means of a battery, is not required for this. The result is that this patented system is able to work fully autonomously.

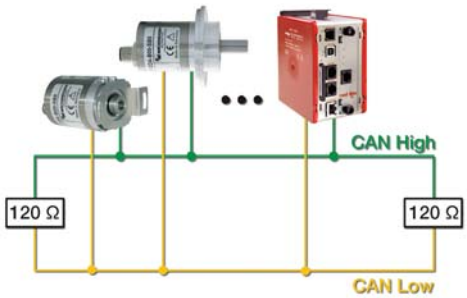


The following examples serve to make the enormous capabilities of the WDGA absolute encoders even clearer:

- Using a measuring wheel with a circumference of 500 mm it is possible to make an absolute measurement of the total circumference of the earth, approx. 40,076 km, with a resolution of around 120 µm.

- If you run our WDGA absolute encoder 24 hours a day, 7 days a week, at its max. speed of 12,000 rpm, it will only reach its final value after around 11 years.

And all of this absolutely autonomously.



Our programme offers you a wide selection of optical absolute encoders for use in the most varied environmental conditions. Benefit from the wide choice of options and select the absolute encoder most ideally suited to your task. Naturally, our application engineers are happy to assist you with this.

- **Up-to-the-minute interface technology PROFIBUS-DP, SSI, CANopen**
- **Programmable parameters**
- **Temperature-insensitive IR opto receiver ASIC with integrated signal conditioning**
- **Single and multiturn variants**
- **Functional safety in harsh environments**

www.wachendorff-automation.com/absolute

Absolute encoders assign a unique coded signal to each individual measuring step. Singleturn devices read out the current angular position within one revolution, whilst multiturn encoders also register in addition the number of revolutions. Wachendorff absolute encoders read out the position values via a variety of interfaces such as SSI, PROFIBUS-DP and CANopen.

The absolute encoders with PROFIBUS-DP support automatic start-up as well as monitoring and diagnostic functions. Absolute encoders measure angular positions as well as linear motion that can be converted into rotary motion by means of toothed belts, driving pinions or ball screws, etc.

Absolute encoders WDG					
					
Type	**WDGA**	**WDGM-SL**	**WDG-CA**	**WDG-SL**	**WDG-DP**
Sensor type	magnetic		optical		
Interface	CANopen /CAN	synchronous seriell (RS422)	CANopen/CAN	synchronous seriell (RS422)	PROFIBUS-DP
Shaft	Ø 6 mm, 10 mm		Ø 10 mm	Ø 6 mm, 10 mm	
Hollow bore (blind)	Ø 6 mm		-	Ø 15 mm	
Steps per revolution	4.096 (12 Bit)		8.192 (13 Bit)		
Max. revolution	262.144 (18 Bit)	4.096 (12 Bit)	4.096 (12 Bit)		
Max. shaft load Fr=radial / Fa=axial	Clamping: 220N/120N Synchro: 80N/50N Hollow bore (blind): 80N/50N	60N/40N (max. life cycle)	60N/40N (max. life cycle)		
Voltage supply	10 VDC up to 30 VDC				
Operating temperature	-40 °C up to +80 °C	-30 °C up to +70 °C	-40 °C up to +85 °C		
Protection class	IP67, shaft sealed to IP65	IP54 all round	IP65, shaft sealed to IP64		
Code	binary	gray, binary	binary	gray, binary	binary
Optional	-	-	-	preset	-
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