

# Online Data Sheet

## Encoder WDGA 58V RS485

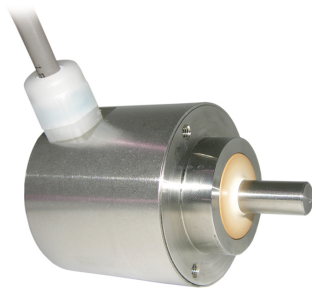
[www.wachendorff-automation.com/wdga58vrs485](http://www.wachendorff-automation.com/wdga58vrs485)

### 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 58V absolute RS485 magnetic, with EnDra® Technology



**EnDra®**  
Technologie

**RS485**

- Resistance to salt mist acc. to (IEC 60068-2-11)
- High protection rating IP67 all around and IP69K (high pressure / steam cleaning)
- EHEDG: Tested hygienic design
- Ecolab: Certificate on resistance to cleaning and disinfection agents
- Acid- and alkaline resistance
- Radial shaft sealing ring with no dead-room (PTFE)
- EnDra® technology: maintenance-free and environmentally friendly
- RS485
- Single-/Multiturn (ST + MT max. 32 bit)
- Forward-looking technology with 32 Bit processor

**Especially for food and beverage industry, acid- and alkaline resistance**

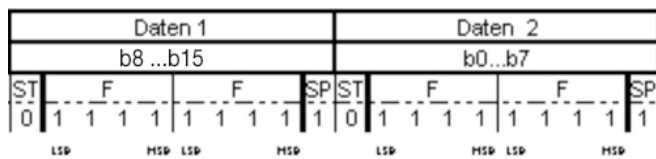
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Mechanical Data	
<b>Housing</b>	
Flange	clamping flange
Flange material	stainless steel, V4A
Housing cap	stainless steel, V4A
Housing	Ø 58 mm
<b>Shaft(s)</b>	
Shaft material	stainless steel
Starting torque	approx. 1 Ncm at ambient temperature
Shaft	Ø 10 mm
Shaft length	L: 18 mm
Max. Permissible shaft loading radial	100 N
Max. Permissible shaft loading axial	100 N
<b>Bearings</b>	
Bearings type	2 precision ball bearings
Nominal service life	1 x 10 <sup>9</sup> revs. at 100 % rated shaft load 1 x 10 <sup>10</sup> revs. at 40 % rated shaft load 1 x 10 <sup>11</sup> revs. at 20 % rated shaft load
Max. operating speed	3600 rpm
<b>Machinery Directive: basic data safety integrity level</b>	
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 3600 rpm
Diagnostic coverage (DC)	0 %
<b>Electrical Data</b>	
Power supply/Current consumption	10 VDC up to 32 VDC: max. 50 mA
Power consumption	max. 0.5 W
Power supply/Current consumption	4,75 VDC up to 5,5 VDC: max. 80 mA
Power consumption	max. 0.44 W

Sensor data	
Singleturn technology	innovative hall sensor technology
Singleturn resolution	up to 16,384 steps/360° (14 bit)
Singleturn accuracy	< ±0.35°
Singleturn repeat accuracy	< ±0.20°
Intern cycle time	600 µs
Multiturn technology	patented EnDra® technology no battery no gear.
Multiturn resolution	up to 24 bit.
<b>Environmental data</b>	
ESD (DIN EN 61000-4-2):	8 kV
Burst (DIN EN 61000-4-4):	2 kV
includes EMC:	DIN EN 61000-6-2 DIN EN 61000-6-3
Vibration: (DIN EN 60068-2-6)	50 m/s <sup>2</sup> (10 Hz up to 2000 Hz)
Shock: (DIN EN 60068-2-27)	1000 m/s <sup>2</sup> (6 ms)
Design:	according DIN VDE 0160
Turn on time:	<1,5 s
<b>Interface</b>	
<b>Interface:</b>	<b>RS485</b>
Positive direction of counting: (View on shaft)	DIR = GND -> cw DIR = +Ub -> ccw
Set to zero:	Preset = apply +Ub for 2 s
Baud rate:	available with 500 bit/s up to 1Mbit/s, standard: 9600 bit/s
Polling cycle:	automatic sending available with 1 ms up to 1000 ms Standard: 20 ms (Tolerances: +/- 2 ms)
Telegram length:	6 byte singleturn, 8 byte multiturn
Telegram composition:	2 Byte Präambel, 2 / 4 Byte user data, 2 Byte CRC
Bytecomposition:	Startbit (0) and Stopbit (1), Bytes are Big-Endian and LSB first, no Paritybit

CRC-Definition:	Code: <ul style="list-style-type: none"> <li>• CRC-CCITT 16 bit (<math>X^{16}+X^{12}+X^5+1</math>)</li> <li>• Startvalue 0x1021,</li> <li>• Start/Stopbits aren't included</li> <li>• Präambel (0xABCD) is included,</li> <li>• Byte-wise orientation: per CRC-Refresh there is used 1 Byte</li> </ul>
Protocol malfunction behaviour:	If encoder recognizes that it's impossible to send a right positionvalue (e.G.: Magnet-loss), there will be send out a telegram with maximum value user Data at normalcycletime and normal Baudrate.

#### Protocol RS485



#### General Data

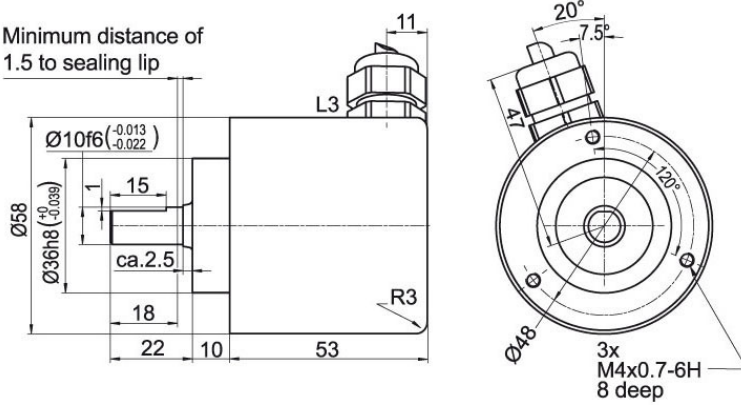
Weight	approx. 600 g
Connections	cable outlet (TPE)
Protection rating (EN 60529)	IP67 all around and IP69K. Resistance to salt mist (IEC 60068-2-11) after 672 hours.
Operating temperature	-20 °C up to +80 °C
Storage temperature	-20 °C up to +80 °C

#### More Information

General technical data  
<http://www.wachendorff-automation.com/gtd>

Options  
<http://www.wachendorff-automation.com/acc>

**Cable connection L3 with 2 m cabel**

 Minimum distance of  
 1.5 to sealing lip

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

Assignments	
<b>S- (GND)</b>	OG
<b>S+ (DCin)</b>	BN
<b>A (DATA+)</b>	GY
<b>B (DATA-)</b>	PK
<b>PRESET</b>	BU
<b>DIR</b>	RD
<b>Shield</b>	housing

Example Order No.	Type	Your encoder	
WDGA 58V	WDGA 58V	WDGA 58V	
<b>Shaft</b>		<b>Order key</b>	
10	Ø 10 mm	10	
<b>Singleturn Resolution</b>		<b>Order key</b>	
14	Singleturn resolution 8 Bit up to 14 Bit: (e. G. 14 Bit)	14	
<b>Multiturn Resolution</b>		<b>Order key</b>	
18	Multiturn up to 24 Bit (e. G. 18 Bit) (Singleturn + Multiturn max. 32 Bit) No Multiturn: 00	18	
<b>Data protocol</b>		<b>Order key</b>	
EI	RS485	EI	
<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	10 V up to 32 V (standard)	0	
	4.75 V up to 5.5 V	1	
<b>Galvanic isolation</b>		<b>Order key</b>	
0	no	0	
<b>Electrical connections</b>		<b>Order key</b>	
L3	<b>Cable:</b>		
	radial, shield connected to encoder housing	L3	

<b>Example Order No.</b>	WDGA 58V	10	14	18	EI	A	B	0	0	L3
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WDGA 58V											<b>Example Order No.</b>
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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)



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