

# Encoder WDGA 58S absolute RS485 magnetic, with EnDra®

**Salt mist IEC 60068-2-11  
High pressure / steam cleaning**



**EnDra®**  
Technologie

**RS485**

## Specifications:

### Mechanical Data

Housing:	steel case chrome-plated, magnetic shield
Shaft:	stainless steel
Flange:	Aluminium, anodized natur
Shaft:	Ø 10 mm, length 20 mm
- Material:	stainless steel
- Permitted load on shaft end:	max. 100 N radial max. 100 N axial
- Starting torque:	approx. 1 Ncm at ambient temperature
Bearings	
- Type:	2 precision ball bearings
- 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 min <sup>-1</sup>
Weight:	approx. 200 g

### Machinery Directive:

#### basic data safety integrity level

MTTF <sub>d</sub> :	1000 a
Mission time (T <sub>M</sub> ):	20 a
Normal service life (L <sub>10h</sub> ):	1 x 10 <sup>11</sup> revs. at 3600 min <sup>-1</sup> and 20 % rated shaft load
Diagnostic coverage (DC):	0 %

### Sensor data

Singleturn technology:	innovative hall sensor technology
Singleturn resolution:	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 and no gear
Multiturn resolution:	up to 262,144 revolutions (18 bit)

### Environmental data

Operating temperature:	-40 °C up to +80 °C
Storage temperature:	-40 °C up to +100 °C
Protection rating:	IP67 all around and IP69K
(EN 60529)	Resistance to salt mist (IEC 60068-2-11) after 672 hours

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

Shock:	1000 m/s <sup>2</sup> (6 ms)
(DIN EN 60068-2-27)	

- Resistance to salt mist (IEC 60068-2-11) succeeded
- Protection: IP67 + IP69k (high pressure / steam cleaning)
- EnDra®: maintenance-free and environmentally friendly
- RS485
- Single-/Multiturn (ST + MT max. 32 bit)
- Forward-looking technology with 32 Bit processor
- 2-colour-LED as indicator for operating condition

[www.wachendorff-automation.com/wdga58srs485](http://www.wachendorff-automation.com/wdga58srs485)

Design:	appropriate DIN VDE 0160
Turn on time:	<1.5 s

### Configuration inputs:

Positive direction of counting:	DIR = GND ⇔ cw DIR = +Ub ⇔ ccw
(View on shaft)	
Set to zero:	Preset = apply +Ub for 2 s

### Electrical Data:

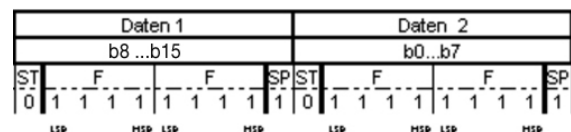
Supply voltage:	10 VDC up to 30 VDC; 4.75 VDC up to 5.5 VDC max. 80 mA
Power consumption:	max. 0.8 W

### Example RS485-Protocol: (other Protocol variants on request)

Baudrate:	selectable 500 bit/s up to 1 Mbit/s Standard: 9600 bit/s
Pollingcycle:	automatic sending selectable 1 ms up to 1000 ms Standard: 20 ms (Tolerances: +/- 2 ms)
Telegramdimension:	6 Byte Singlturn, 8 Byte Multiturn
Telegramcomposition:	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 :	<ul style="list-style-type: none"> <li>• Code: CRC-CCITT 16 bit (X<sup>16</sup>+X<sup>12</sup>+X<sup>5</sup>+1)</li> <li>• Startvalue 0x1021,</li> <li>• Start/Stopbits aren't included,</li> <li>• Präambel (0xABCD) is included,</li> <li>• Bitwise orientation: per CRC-Refresh there is used 1 Byte</li> </ul>

### Protocol-malfunction-behaviour:

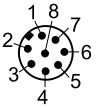
If encoder recognizes that it's impossible to send a right positionvalue (e.G.: Magnet-loss), there will be send out a telegram with maximum value user Data at normalcycletime and normal Baudrate:



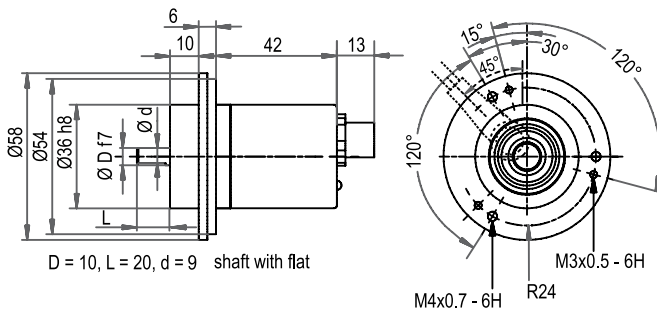
### LED-behaviour:

At Start / while booting:	- red gleam (< 2.3 s)
Malfunction:	- constant red gleam (> 2.3 s)
Normal function:	- constant green gleam
No supply:	- No gleam

**Electrical connections axial, M12x1**

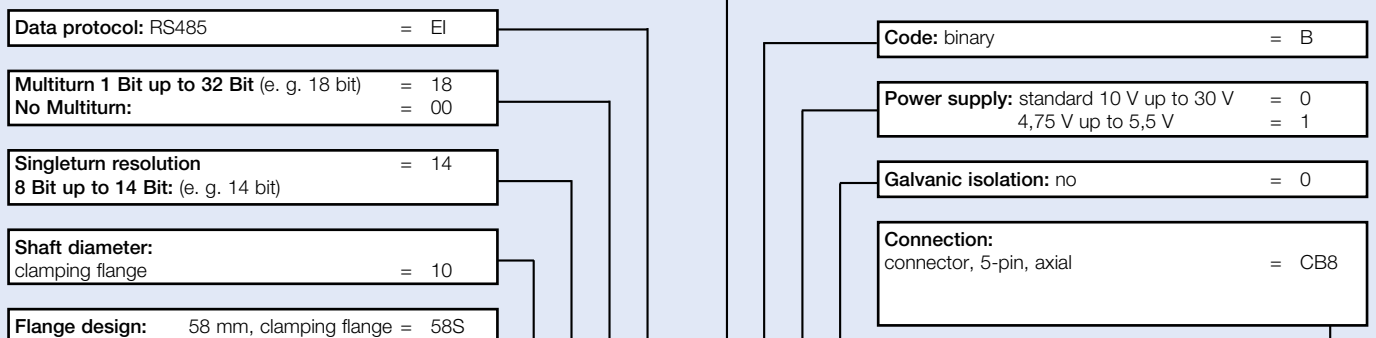
	
<b>Connector</b>	M12 x1
<b>Description</b>	CB8 axial, CC8 radial, 8-pin
<b>S- (GND)</b>	1
<b>S+ (DCin)</b>	2
<b>A (DATA+)</b>	5
<b>B (DATA-)</b>	6
<b>PRESET</b>	7
<b>DIR</b>	8
<b>Shield</b>	housing

**Connector, M12 x 1, 8-pol. CB8**



All dimensional specifications in mm.

**Ordering information:**



**Order-No.:**

Example	WDGA	58S	10	14	18	EI	A	B	0	0	CB8
Your encoder	WDGA	58S	10			EI	A	B		0	CB5