

Encoder WDGA 36E absolute RS485 magnetic, with EnDra® - Technology



EnDra®
Technology

RS485

Specifications:

Mechanical Data

Housing:	steel case chrome-plated, magnetic shielding
Flange type:	hollow bore (blind)
Flange material:	Aluminium
Shaft material:	stainless steel
Shaft Ø:	6 mm
Insertion depth min./max.:	8 mm/17 mm
Permissible shaft loading:	80 N radial 50 N axial
Starting torque: (at ambient temperature)	< 0.3 Ncm
Bearings type:	2 precision ball bearings
Service life:	1.4 x 10 ⁸ revs. at 100 % rated shaft load 2.0 x 10 ⁹ revs. at 40 % rated shaft load 1.7 x 10 ¹⁰ revs. at 20 % rated shaft load
Operating speed max.:	12,000 min ⁻¹
Weight:	110 g
Connection:	connector

Machinery Directive: basic data safety integrity level

MTTF _d :	1000 a
Mission time (T _M):	20 a
Normal service life (L _{10h}):	1.7 x 10 ¹⁰ revs. at 12,000 min ⁻¹ and 20 % rated shaft load
Diagnostic coverage (DC):	0 %

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 based EnDra® technology no battery and no gear
Multiturn resolution:	up to 32 bit

Ambient data

Operating temperature:	- 40 °C up to + 80 °C
Storage temperature:	- 40 °C up to + 100 °C
Protection class (EN 60529):	IP67, shaft sealed IP65 cable outlet K1: IP40

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 DIN EN 61000-6-3

- EnDra® multiturn technology:
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
- CRC checksum

www.wachendorff-automation.com/wdga36ers485

Vibration: 50 m/s² (10 Hz up to 2000 Hz)
(DIN EN 60068-2-6)

Shock: 1000 m/s² (6 ms)
(DIN EN 60068-2-27)
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

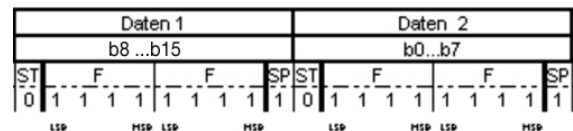
Telegramcomposition: 2 Byte Präambel, 2/4 Byte user data,
2 Byte CRC

Bytecomposition: Startbit (0) and Stopbit (1),
Bytes are Big-Endian and LSB-first,
no Paritybit

CRC-Definition :
• Code: CRC-CCITT 16 bit (X¹⁶+X¹²+X⁵+1)
• Startvalue 0x1021,
• Start/Stopbits aren't included,
• Präambel (0xABCD) is included,
• Byte-wise orientation: per CRC-Refresh
there is used 1 Byte

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:



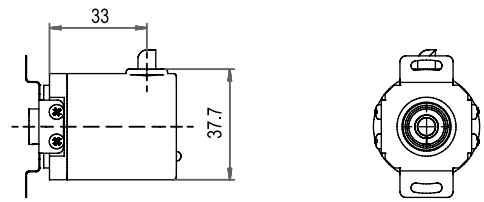
LED-behaviour:

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

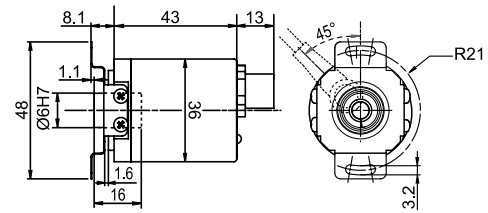
Connection configuration for encoder WDGA RS485:

Connector/ cable	M12 x1	cable outlet
Description	CB8 axial, 8-pin	K1, radial L2, axial
S- (GND)	1	wh
S+ (DCin)	2	bn
A (DATA+)	5	gy
B (DATA-)	6	pk
PRESET	7	bu
DIR	8	rd
Shield	housing	housing K1 n. c.

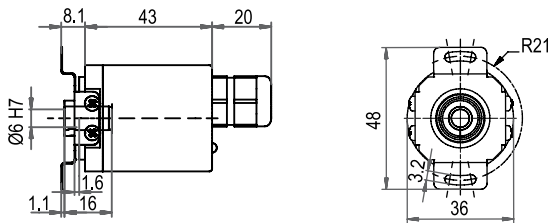
Cable outlet, L1:



Connector, M12 x 1, 8-pin, CB8:

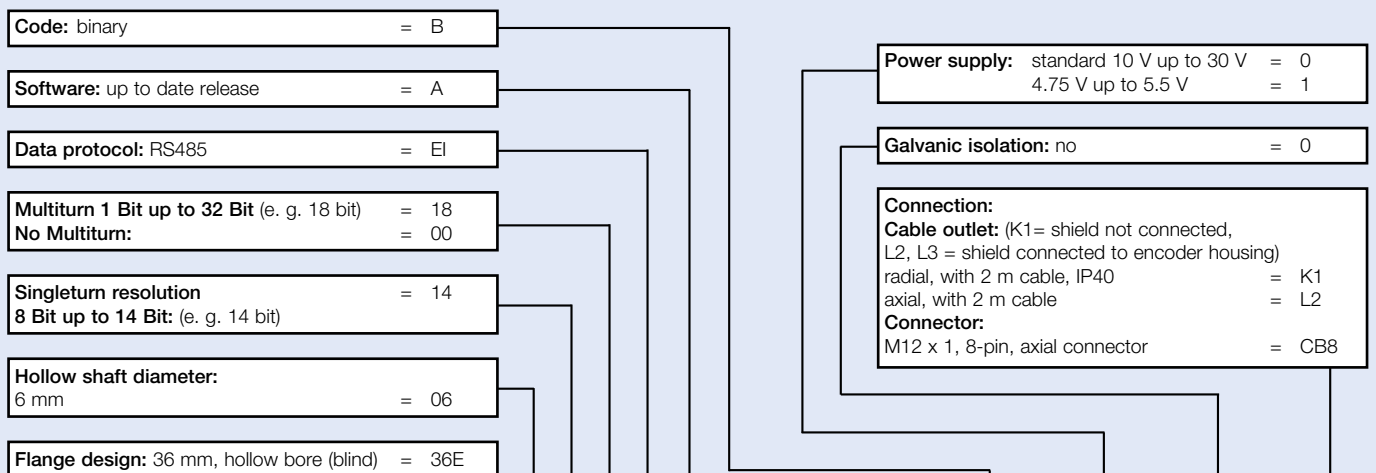


Cable outlet, L2:



All dimensional specifications in mm.

Ordering information:



Order-No.:

Example	WDGA	36E	06	14	18	EI	A	B	0	0	CB8
Your encoder	WDGA	36E	06			EI	A	B		0	