

Online Data Sheet

Encoder WDGA 58A RS485

www.wachendorff-automation.com/wdga58ars485

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 58A absolute RS485 magnetic, with EnDra® Technology



**EnDra®
Technologie**

RS485

- 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
- High shaft load up to 220 N radial, 120 N axial
- CRC checksum

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Mechanical Data

Housing	
Flange	synchro flange
Flange material	aluminium
Housing cap	steel case chrome-plated, magnetic shielding
Housing	Ø 58 mm
Cam mounting	pitch 65 mm

Shaft(s)	
Shaft material	stainless steel
Starting torque	approx. 1 Ncm at ambient temperature

Shaft	Ø 6 mm
Shaft length	L: 12 mm
Max. Permissible shaft loading radial	125 N
Max. Permissible shaft loading axial	120 N

Shaft	Ø 10 mm
Shaft length	L: 20 mm
Max. Permissible shaft loading radial	220 N
Max. Permissible shaft loading axial	120 N

Bearings	
Bearings type	2 precision ball bearings
Nominal service life	1 x 10 ⁹ revs. at 100 % rated shaft load 1 x 10 ¹⁰ revs. at 40 % rated shaft load 1 x 10 ¹¹ revs. at 20 % rated shaft load
Max. operating speed	8000 rpm

Machinery Directive: basic data safety integrity level

MTTF _d	1000 a
Mission time (TM)	20 a
Nominal service life (L10h)	1 x 10 ¹¹ revs. at 20 % rated shaft load and 8000 rpm
Diagnostic coverage (DC)	0 %

Electrical Data

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
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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.

Environmental data

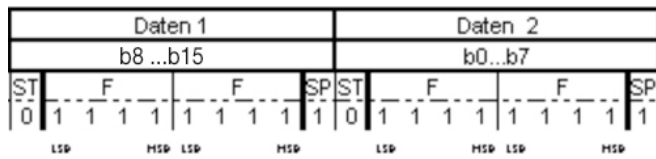
ESD (DIN EN 61000-4-2):	8 kV
Burst (DIN EN 61000-4-4):	2 kV
includes EMC:	DIN EN 61000-6-2 DIN EN 61000-6-3
Vibration: (DIN EN 60068-2-6)	50 m/s ² (10 Hz up to 2000 Hz)
Shock: (DIN EN 60068-2-27)	1000 m/s ² (6 ms)
Design:	according DIN VDE 0160
Turn on time:	<1,5 s

Interface

Interface:	RS485
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"> • CRC-CCITT 16 bit ($X^{16}+X^{12}+X^5+1$) • 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.

Protocol RS485



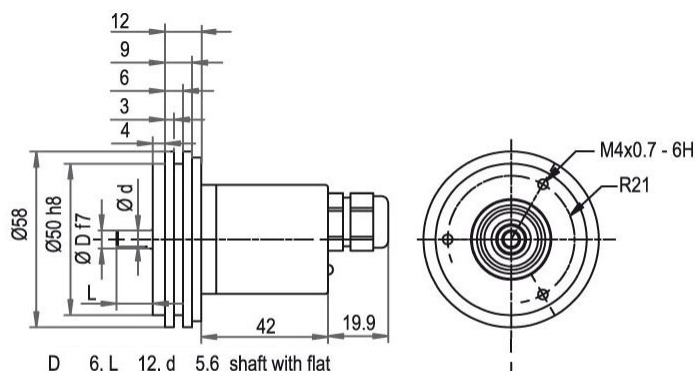
General Data

Weight	approx. 224 g
Connections	cable or connector outlet
Protection rating (EN 60529)	IP67, shaft sealed to IP65 (IP50 for K1)
Operating temperature	-40 °C up to +85 °C
Storage temperature	-40 °C up to +100 °C

More Information

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

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

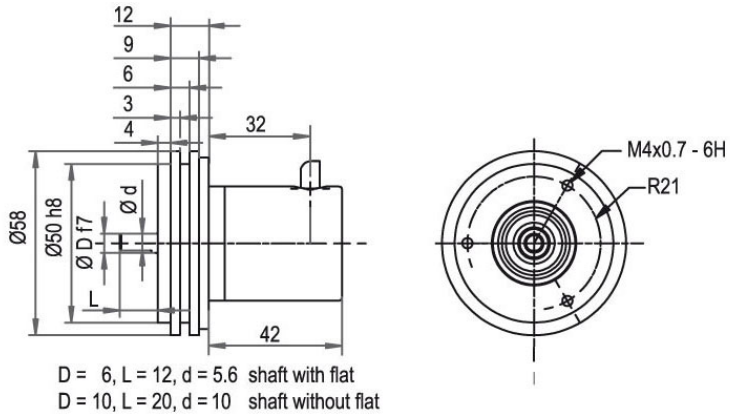
Cable connection L2 with 2 m cable


D = 6, L = 12, d = 5.6 shaft with flat
 D = 10, L = 20, d = 10 shaft without flat *
 *option full IP67 version: D=Ø 10 mm)
 D = 10, L = 20, d = 9 shaft with flat

Description

L2 axial, shield connected to encoder housing

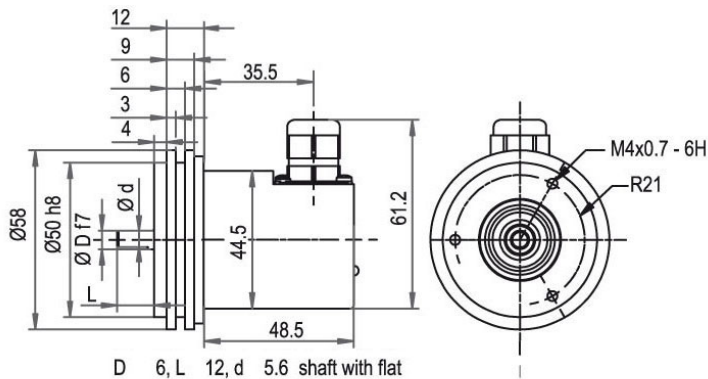
Assignments	
	L2
S- (GND)	WH
S+ (DCin)	BN
A (DATA+)	GY
B (DATA-)	PK
PRESET	BU
DIR	RD
Shield	housing

Cable connection, K1 with 2 m cable, IP40

Description

K1 radial, shield not connected

Assignments	
	K1
S- (GND)	WH
S+ (DCin)	BN
A (DATA+)	GY
B (DATA-)	PK
PRESET	BU
DIR	RD
Shield	housing n. c.

Cable connection L3 with 2 m cable



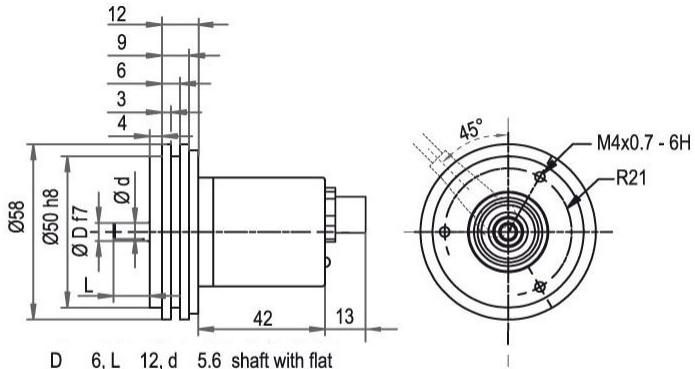
D 6, L 12, d 5.6 shaft with flat
 D = 10, L = 20, d = 10 shaft without flat *
 *option full IP67 version: D=Ø 10 mm)
 D = 10, L = 20, d = 9 shaft with flat

Description

L3 radial, shield connected to encoder housing

Assignments	
	L3
S- (GND)	WH
S+ (DCin)	BN
A (DATA+)	GY
B (DATA-)	PK
PRESET	BU
DIR	RD
Shield	housing

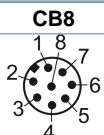
Connector, M12x1, CB8, axial, 8-pin



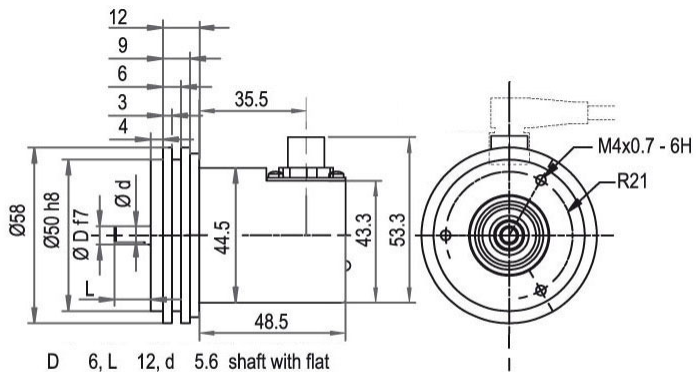
D = 6, L = 12, d = 5.6 shaft with flat
 D = 10, L = 20, d = 10 shaft without flat *
 *option full IP67 version: D=10 mm)
 D = 10, L = 20, d = 9 shaft with flat

Description

CB8 axial, 8-pin, shield connected to encoder housing

Assignments	
	
S- (GND)	1
S+ (DCin)	2
A (DATA+)	5
B (DATA-)	6
PRESET	7
DIR	8
Shield	housing

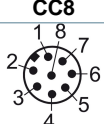
Steckerabgang, M12x1, CC8, radial, 8-polig



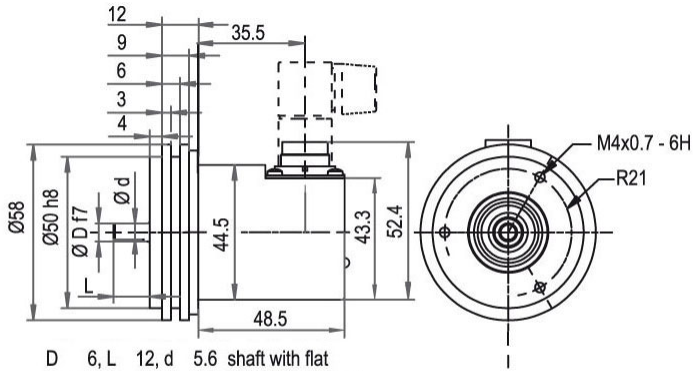
D = 6, L = 12, d = 5.6 shaft with flat
 D = 10, L = 20, d = 10 shaft without flat *
 *option full IP67 version: D=Ø 10 mm)
 D = 10, L = 20, d = 9 shaft with flat

Description

CC8 radial, 8-pin, shield connected to encoder housing

Assignments	
	
S- (GND)	1
S+ (DCin)	2
A (DATA+)	5
B (DATA-)	6
PRESET	7
DIR	8
Shield	housing

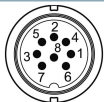
Connector, M16, CH8, radial, 8-pin



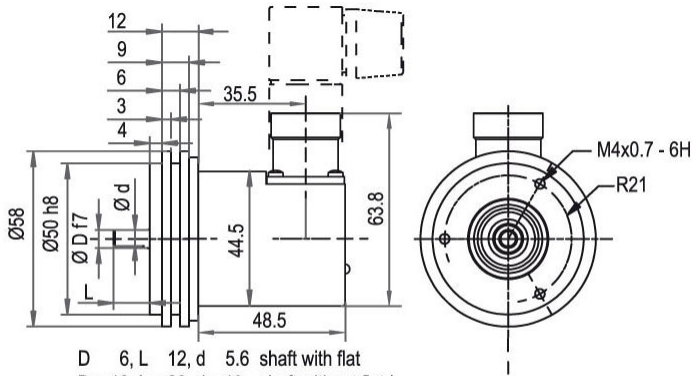
D = 6, L = 12, d = 5.6 shaft with flat
 D = 10, L = 20, d = 10 shaft without flat *
 *option full IP67 version: D= \varnothing 10 mm)
 D = 10, L = 20, d = 9 shaft with flat

Description

CH8 radial, 8-pin, shield connected to encoder housing

Assignments	
CH8	
	
S- (GND)	2
S+ (DCin)	1
A (DATA+)	4
B (DATA-)	3
PRESET	8
DIR	7
Shield	housing

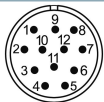
Connector, M23, C5, radial, 12-pin



D = 6, L = 12, d = 5.6 shaft with flat
 D = 10, L = 20, d = 10 shaft without flat *
 *option full IP67 version: D= \varnothing 10 mm
 D = 10, L = 20, d = 9 shaft with flat

Description

C5 radial, 12-pin, shield connected to encoder housing

Assignments	
	C5
	
S- (GND)	12
S+ (DCin)	11
A (DATA+)	3
B (DATA-)	4
PRESET	9
DIR	8
Shield	housing

Options

Shafts sealed to IP67 (shaft with flat: Ø 10 mm only)

Order key

The encoder WDG 58A RS485 can be supplied in a full IP67 version.

AAS

Max. RPM: 3500 min⁻¹

Permitted Shaft-Loading: axial 100 N; radial 110 N

Starting-torque: approx. 4 Ncm at ambient temperature

Example Order No.	Type	Your encoder	
WDGA 58A	WDGA 58A	WDGA 58A	
	Shaft	Order key	
10	∅ 6 mm	06	
	∅ 10 mm	10	
	Singleturn Resolution	Order key	
14	Singleturn resolution 8 Bit up to 14 Bit: (e. G. 14 Bit)	14	
	Multiturn Resolution	Order key	
18	Multiturn up to 24 Bit (e. G. 18 Bit) (Singleturn + Multiturn max. 32 Bit) No Multiturn: 00	18	
	Data protocol	Order key	
EI	RS485	EI	
	Software	Order key	
A	up to date release	A	
	Code	Order key	
B	binary	B	
	Power supply	Order key	
0	10 V up to 32 V (standard)	0	
	4.75 V up to 5.5 V	1	
	Galvanic isolation	Order key	
0	no	0	
	Electrical connections	Order key	
CB8	Cable:		
	axial, shield connected to encoder housing, with 2 m cable, IP67	L2	
	radial, shield not connected, with 2 m cable, IP50	K1	
	radial, shield connected to encoder housing, with 2 m cable, IP67	L3	
	Connector:		
	sensor-connector, M12x1, 8-pin, axial, IP67, shield connected to encoder housing	CB8	
	sensor-connector, M12x1, 8-pin, radial, IP67, shield connected to encoder housing	CC8	
	sensor-connector, M16x0.75, 8-pin, radial, IP67, shield connected to encoder housing	CH8	
connector, M23, 12-pin, radial, IP67, shield connected to encoder housing	C5		
	Options	Order key	
	Without option	Empty	
	Shafts sealed to IP67 (shaft with flat: ∅ 10 mm only)	AAS	

Example Order No.	WDGA 58A	10	14	18	EI	A	B	0	0	CB8	
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WDGA 58A											Example Order No.
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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



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