

Online Data Sheet

Encoder WDGA 58A SSI

www.wachendorff-automation.com/wdga58assi

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 SSI magnetic, with EnDra®-Technology



EnDra®
Technologie

SSI
Synchronous Serial Interface

- EnDra® multiturn technology: maintenance-free and environmentally friendly
- SSI, gray or binary
- Single-turn/Multi-turn (14 bit / 39 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

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Mechanical Data

Housing	
Flange	synchro flange
Flange material	aluminum
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: typ. 50 mA
Power consumption	max. 0.5 W
Power supply/Current consumption	4,75 VDC up to 5,5 VDC: typ. 80 mA

Power consumption	max. 0.44 W
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Sensor data

Single-turn technology	innovative hall sensor technology
Single-turn resolution	up to 16,384 steps/360° (14 bit)
Single-turn accuracy	< ±0.35°
Single-turn repeat accuracy	< ±0.20°
Internal cycle time	600 µs
Multi-turn technology	patented EnDra® technology no battery, no gear.
Multi-turn resolution	up to 39 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

Interface

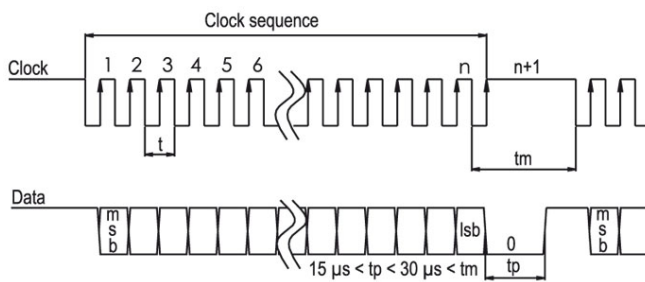
Interface:	SSI
Clock input:	via opto-coupler
Clock frequency:	100 kHz up to 500 kHz, up to 2 MHz on request
Data output:	RS485/RS422 compatible
Output code:	gray or binary
SSI output:	Angular-/position value
Parity bit:	optional (even/odd)
Error bit:	optional
Turn on time:	<1,5 s

Configuration inputs	DIR = GND -> cw DIR = +UB -> ccw
Positive direction of counting: (View on shaft)	

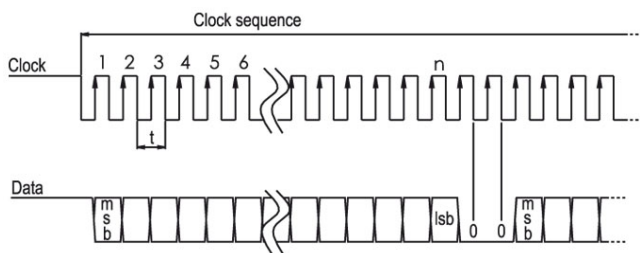
Set to zero:	Set: Preset = +UB for 2 s Deactivate: Preset = GND
At Start / while booting:	- red gleam (< 2.3 s)
Malfunction:	- constant red gleam (> 2.3 s)
Normal function:	- constant green gleam

No supply: - no gleam

Transmission protocol SSI Single transmission:



Transmission protocol SSI Multipath transmission:



General Data

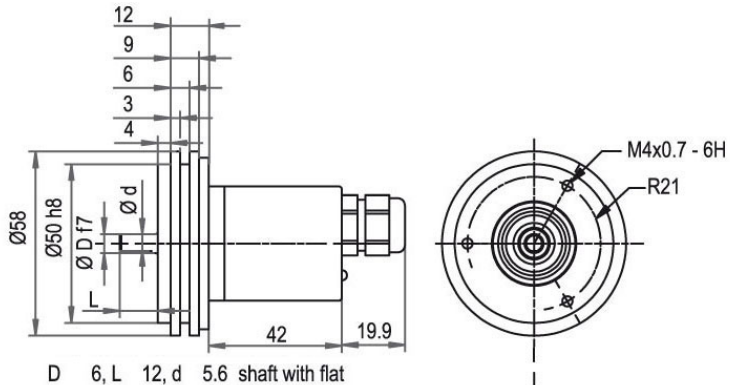
Weight	approx. 224 g
Connections	cable or connector outlet
Protection rating (EN 60529)	IP67, shaft sealed to IP65 (IP40 for K1)
Operating temperature	-40 °C up to +85 °C
Storage temperature	-40 °C up to +100 °C

More Information

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

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

Cable connection L2 with 2 m cable



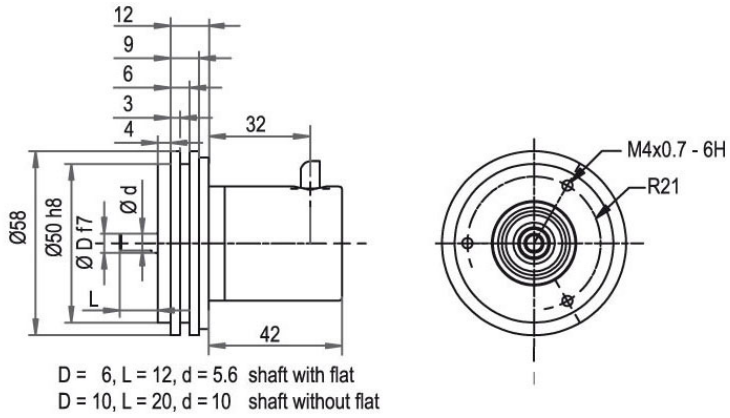
D = 6, L = 12, d = 5.6 shaft with flat
 D = 10, L = 20, d = 10 shaft without flat *
 *option full IP67 version: D=Ø 10 mm)
 D = 10, L = 20, d = 9 shaft with flat

Description

L2 axial, shield connected to encoder housing

Assignments	
	L2
GND	WH
(+) Vcc	BN
SSI CLK+	GN
SSI CLK-	YE
SSI DATA+	GY
SSI DATA-	PK
PRESET	BU
DIR	RD
Shield	housing

Cable connection, K1 with 2 m cable (IP40)

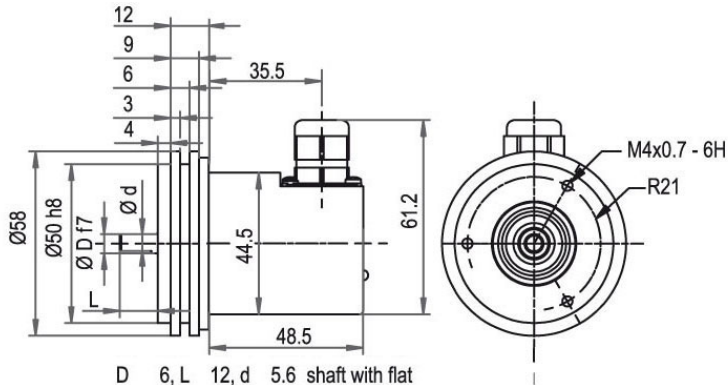


Description

K1 radial, shield not connected

Assignments	
	K1
GND	WH
(+) Vcc	BN
SSI CLK+	GN
SSI CLK-	YE
SSI DATA+	GY
SSI DATA-	PK
PRESET	BU
DIR	RD
Shield	housing n. c.

Cable connection, L3 with 2 m cable

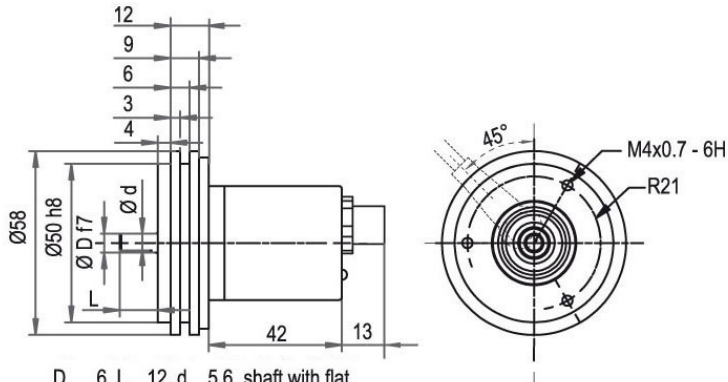


D 6, L 12, d 5.6 shaft with flat
 D = 10, L = 20, d = 10 shaft without flat *
 *option full IP67 version: D=Ø 10 mm)
 D = 10, L = 20, d = 9 shaft with flat

Description

L3 radial, shield connected to encoder housing

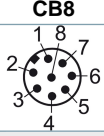
Assignments	
	L3
GND	WH
(+) Vcc	BN
SSI CLK+	GN
SSI CLK-	YE
SSI DATA+	GY
SSI DATA-	PK
PRESET	BU
DIR	RD
Shield	housing

Connector, M12x1, CB8, axial, 8-pin


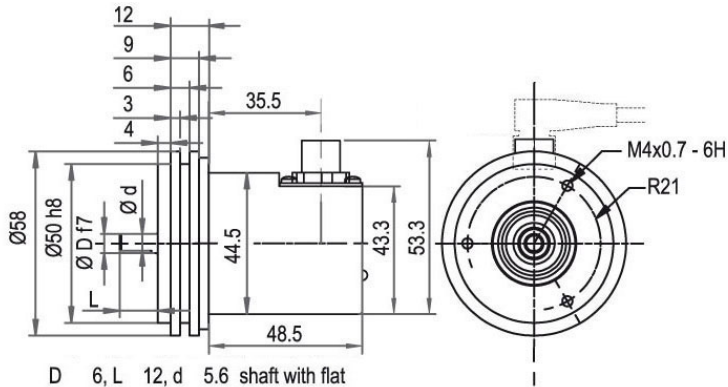
D = 6, L = 12, d = 5.6 shaft with flat
 D = 10, L = 20, d = 10 shaft without flat *
 *option full IP67 version: D=Ø 10 mm)
 D = 10, L = 20, d = 9 shaft with flat

Description

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

Assignments	
	
GND	1
(+) Vcc	2
SSI CLK+	3
SSI CLK-	4
SSI DATA+	5
SSI DATA-	6
PRESET	7
DIR	8
Shield	housing

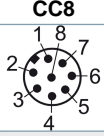
Connector, M12x1, CC8, radial, 8-pin



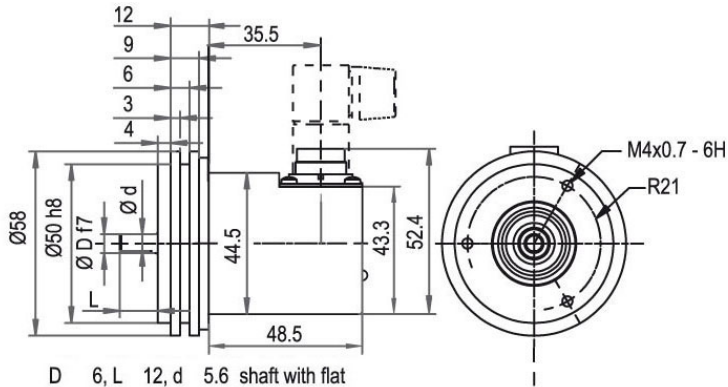
D 6, L 12, d 5.6 shaft with flat
 D = 10, L = 20, d = 10 shaft without flat *
 *option full IP67 version: D=Ø 10 mm)
 D = 10, L = 20, d = 9 shaft with flat

Description

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

Assignments	
	
GND	1
(+) Vcc	2
SSI CLK+	3
SSI CLK-	4
SSI DATA+	5
SSI DATA-	6
PRESET	7
DIR	8
Shield	housing


Connector, M16, CH8, 8-pin



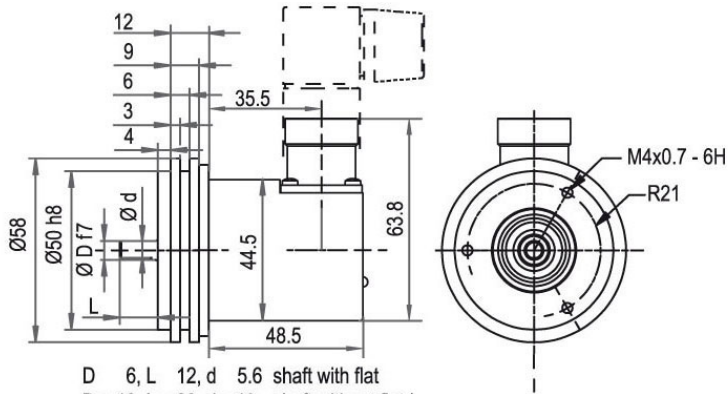
D 6, L 12, d 5.6 shaft with flat
 D = 10, L = 20, d = 10 shaft without flat *
 *option full IP67 version: D=Ø 10 mm)
 D = 10, L = 20, d = 9 shaft with flat

Description

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

Assignments	
	CH8
	
GND	2
(+) Vcc	1
SSI CLK+	6
SSI CLK-	5
SSI DATA+	4
SSI DATA-	3
PRESET	8
DIR	7
Shield	housing

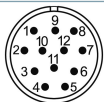
Connector, M23, C5, 12-pin



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

Description

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

Assignments	
C5	
	
GND	12
(+) Vcc	11
SSI CLK+	2
SSI CLK-	1
SSI DATA+	3
SSI 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 SSI 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	
	Single-turn Resolution	Order key	
12	Single-turn resolution 8 bit up to 14 bit: (e. G. 12 bit)	12	
	Multi-turn Resolution	Order key	
12	Multi-turn 1 bit up to 39 bit (e. G. 12 bit) No Multi-turn = 00	12	
	Data protocol	Order key	
SI	SSI	SI	
	Software	Order key	
A	up to date release	A	
	Code	Order key	
B	binary	B	
	gray	G	
	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	
1	yes	1	
	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, IP40	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	12	12	SI	A	B	0	1	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



Wachendorff Automation GmbH & Co. KG
Industriestrasse 7 • D-65366 Geisenheim

Phone: +49 67 22 / 99 65 25
Fax: +49 67 22 / 99 65 70
E-Mail: wdg@wachendorff.de
www.wachendorff-automation.de

