

Encoder WDG absolute SSI



- Interface: synchronous serial SSI (RS 422)
 - Solid-/hollow shaft: 6 or 10 mm / 15 mm
 - 8,192 steps per revolution (13 bits)
 - Max. 4,096 revolutions (12 bits)
 - Preset input (optional)
 - Code: Gray, Interface: SSI
 - Temperature-insensitive IR opto-receiver ASIC with integrated signal conditioning
- www.wachendorff.de/absolutessi-engl

Specifications

Mechanical Data

Housing: Aluminium
 Maximum axial 40 N,
 Shaft-Loading: radial 110 N
 Drag torque: 3 Ncm
 Speed: max. 12000⁻¹
 (continuous operation)

Weight: Singleturn: approx. 200 g,
 Multiturn: approx. 300 g

Shaft (mm)

	Synchro(S)	Clamping(C)	Hollow(B)
Shaft ø	6	10	15
Length	10	20	-
Insertion depth min/max.	-	-	15/30
Permissible shaft-Loading	40N F _a 110N F _r	40N F _a 110N F _r	

Minimum service life in 10⁸ revolutions at
 F_a = 40N

F _r =	60N	80N	110N
Synchro(S)	822	347	133
Clamping(C)	247	104	40

Environmental Data

Shock resistance: 30 g (half-sine, 11 ms)
 (EN 60068-2-27)
 Permanent shock: 10 g (half-sine, 16 ms)
 (EN 60028-2-29)
 Vibration resistance: 10 g (10 Hz ... 2000 Hz)
 (EN 60068-2-6)
 Operating temperature: - 40 ... + 85 °C *
 Storage temperature: - 40 ... + 85 °C *
 * cable connection: - 30... +70°C (fixed layed)
 - 5... +70°C (flexible layed)
 Relative air humidity: 98 % non-condensing
 Protection rating (EN 60529): IP65,
 shaft sealed to: IP64

Electrical Data:

Resolution: 13 Bit (25 Bit Multiturn)
 Clock input: via optocoupler
 Data output: Line-Driver to RS 422
 Clock frequency: 100kHz - 2 MHz
 Step frequency LSB: 800 kHz
 Linearity: ±1/2 LSB (12 bit), ± 2 LSB (16 bit)
 Cycle time: <150 µs
 Turn-on time: < 1 s
 Supply voltage: 10-30 V DC (absolute limit values) *
 Power input: Version SL max. 1 W, Version S1 max. 1 W,
 Vers. S2 max. 1,5 W, Vers. S3 max. 1,5 W
 EMC: Emitted: EN 61000-6-4
 Immunity: EN 61000-6-2
 Service life electrical: > 10⁵ h
 * Supply voltage to EN 50 178 (SELV)

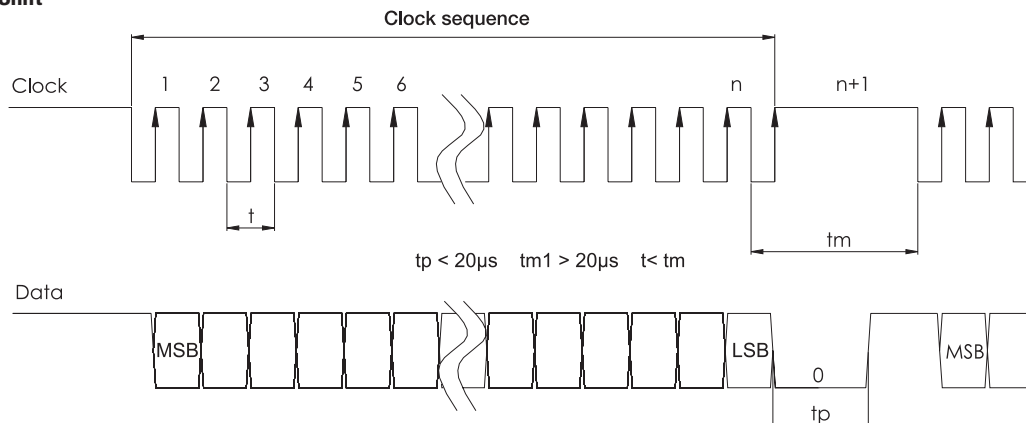
Interface Synchronous Serial Interface (SSI)

Driver: to RS 422 - standard up to 10 MBit/s
 Transmission: Transmission distances up to 1200 m
 Immunity: high degree of immunity thanks to
 symmetrical transmission
 Cables: extremely high immunity when using shielded
 twisted-pair cables

Preset function

(only Version S1)
 Preset value = 0 is set with the falling edge after 100 ms.
 The function should only be used when the shaft is at a standstill.

Single Shift



COMPLEMENT-Input		Angle encoder count direction, rotating clockwise (view from shaft end)
Function	Signal level	
Direction of rotation	0 (input open* or to GND)	adding
	1 (input to + U _b or 4,5 V)	subtracting

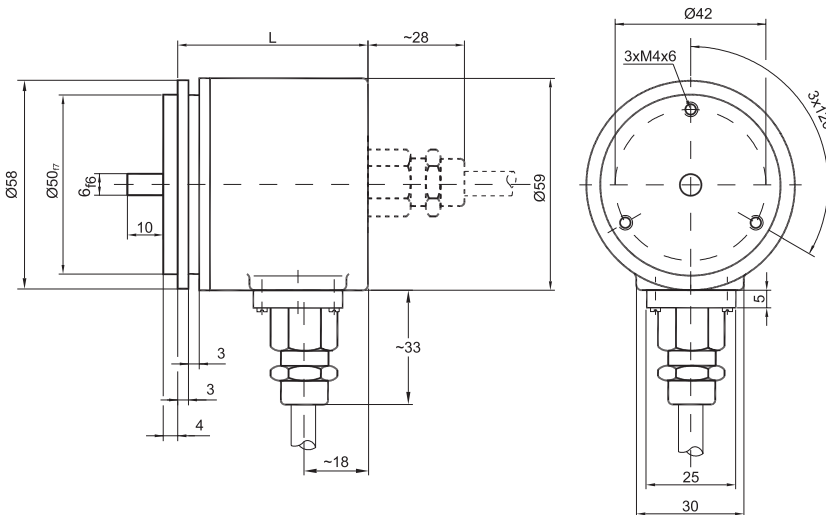
Preset-input (optional) S1		Output position value
Function	Signal level	
Preset value	0 (input open* or to GND)	Accepted with falling edge (min. 100 ms)
(Preset value = 0)	1 (input to + U _b or 4,5 V)	

* no wire connected to mating connector

Cable connection

Synchro flange (S)

Cable outlet (cable diameter = 8 mm)



Dimensional drawing WDG absolute synchro flange with CAW: axial; CRW: radial.
 All dimensional specifications in mm.

Cable connection, 2 m with shield

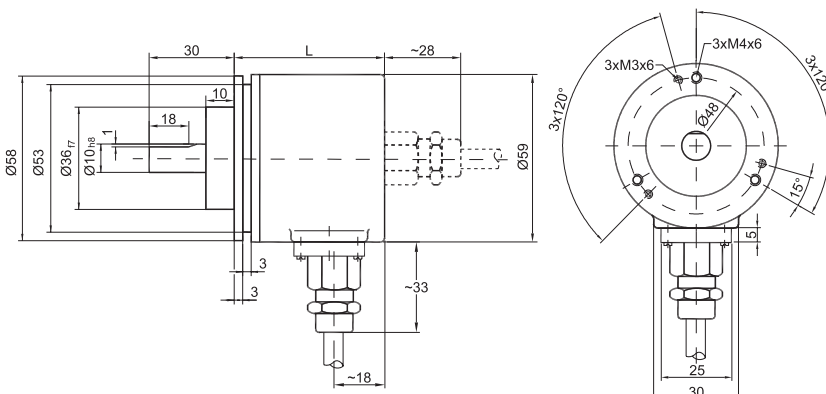
Version	SL	S1
Clock - (Takt -)	yellow	yellow
Clock + (Takt +)	green	green
Data +	grey	grey
Data -	pink	pink
Complement	red	red
+ U _b = 10-30 V	brown	brown
GND	white	white
Preset	-	black

Length of housing

		L
Singleturn	axial	42
	radial	53
Multiturn	axial	62
	radial	54

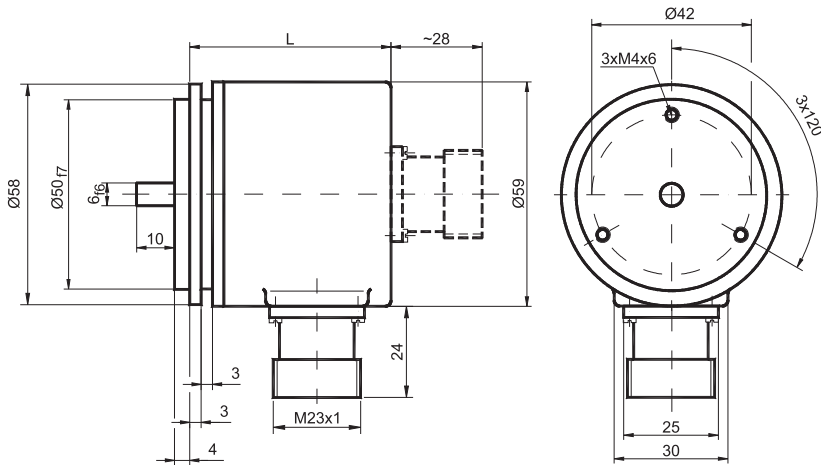
Clamping flange (C10)

Cable outlet (cable diameter = 8 mm)



Dimensional drawing WDG absolute clamping flange with CAW: axial; CRW: radial.
 All dimensional specifications in mm.

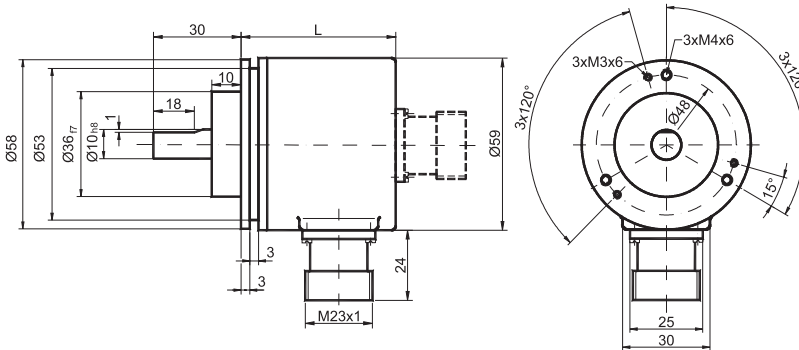
Connector:
Synchro flange (S)

 Connector, 12-pin, circular connector (suitable for cables: \varnothing 6-9 mm)

Pin assignment

Version	Pin-Nr.	
	SL	S1
Clock - (Takt -)	1	1
Clock + (Takt +)	2	2
Data +	3	3
Data -	4	4
Complement	8	8
+ U _b = 10-30 V	11	11
GND	12	12
Preset	-	9

 Dimensional drawing WDG absolute synchro flange with PAL: axial, PRL: radial.
 All dimensional specifications in mm.

Clamping flange (C10)

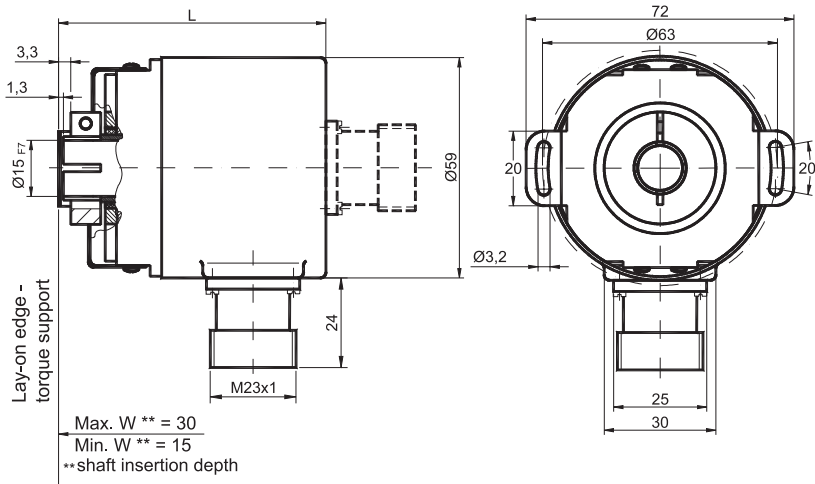
 Connector, 12-pin, circular connector (suitable for cables: \varnothing 6-9 mm)

Length of housing

		L
Singleturn	axial	42
	radial	53
Multiturn	axial	62
	radial	54

 Dimensional drawing WDG absolute clamping flange with PAL: axial, PRL: radial.
 All dimensional specifications in mm.

End hollow shaft (B)

Can also be supplied with cable outlet. See drawings for solid-shaft version.

 Connector, 12-pin, circular connector (suitable for cables: \varnothing 6-9 mm)

Length of housing

		L
Singleturn	axial	42
	radial	53
Multiturn	axial	62
	radial	54

 Dimensional drawing WDG absolute End hollow shaft with PAL: axial, PRL: radial.
 All dimensional specifications in mm.

Mounting instructions for hollow shaft (B)

The clamping ring must only be tightened on the hollow shaft, if the shaft of the drive element is inserted in the hollow shaft.

The diameter of the hollow shaft can be adapted to suit 12 mm, 10 mm or 8 mm by means of a reducing adapter, (which is simply pushed into the hollow shaft). Thinner shafts are not recommended because of the mechanical loads.

Permissible shaft movements of the drive element are listed in the following table:

	Axial	Radial
static	\pm 0,3 mm	\pm 0,5 mm
dynamic	\pm 0,1 mm	\pm 0,2 mm

Accessories

Description		Order-No.
Clamping claw for S6 und C10	3 pcs. per encoder	SP300
Adapter sleeve for hollow shaft	15 mm -> 12 mm, ± 0,3 mm	RR12
Adapter sleeve for hollow shaft	15 mm -> 10 mm, ± 0,3 mm	RR10
Adapter sleeve for hollow shaft	15 mm -> 8 mm, ± 0,3 mm	RR08

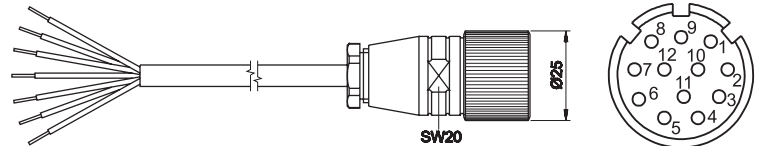
Suitable accessories can be found on our website: www.wachendorff.de/absolutessi-engl or request the data sheets on accessories for shaft encoders. Please contact us for further options.

Cable assembly with female cable connector

Cable length: **Order No.:**
 Standard

with 15 m cable KD-12-67-15-SSI

Female cable connector 12 pin, IP67, straight, with cable assembly


Ordering information

Revolutions [Bit]	Flange	Code	Electrical interface	Option	Electrical connection	Order No.:
0	Clamping flange	Gray	SSI	none	connector radial	WDG-SL00G-0013-C100-PRL
12	Clamping flange	Gray	SSI	none	connector radial	WDG-SL00G-1213-C100-PRL
0	Synchro flange	Gray	SSI	none	connector radial	WDG-SL00G-0013-S060-PRL
12	Synchro flange	Gray	SSI	none	connector radial	WDG-SL00G-1213-S060-PRL
0	hollow shaft 15 mm	Gray	SSI	none	connector radial	WDG-SL00G-0013-B150-PRL
12	hollow shaft 15 mm	Gray	SSI	none	connector radial	WDG-SL00G-1213-B150-PRL
0	Clamping flange	Gray	SSI	none	connector axial	WDG-SL00G-0013-C100-PAL
12	Clamping flange	Gray	SSI	none	connector axial	WDG-SL00G-1213-C100-PAL
0	Synchro flange	Gray	SSI	none	connector axial	WDG-SL00G-0013-S060-PAL
12	Synchro flange	Gray	SSI	none	connector axial	WDG-SL00G-1213-S060-PAL
0	hollow shaft 15 mm	Gray	SSI	none	connector axial	WDG-SL00G-0013-B150-PAL
12	hollow shaft 15 mm	Gray	SSI	none	connector axial	WDG-SL00G-1213-B150-PAL
0	Clamping flange	Gray	SSI	none	cable outlet radial 2m	WDG-SL00G-0013-C100-CRW
12	Clamping flange	Gray	SSI	none	cable outlet radial 2m	WDG-SL00G-1213-C100-CRW
0	Synchro flange	Gray	SSI	none	cable outlet radial 2m	WDG-SL00G-0013-S060-CRW
12	Synchro flange	Gray	SSI	none	cable outlet radial 2m	WDG-SL00G-1213-S060-CRW
0	hollow shaft 15 mm	Gray	SSI	none	cable outlet radial 2m	WDG-SL00G-0013-B150-CRW
12	hollow shaft 15 mm	Gray	SSI	none	cable outlet radial 2m	WDG-SL00G-1213-B150-CRW
0	Clamping flange	Gray	SSI	none	cable outlet axial 2m	WDG-SL00G-0013-C100-CAW
12	Clamping flange	Gray	SSI	none	cable outlet axial 2m	WDG-SL00G-1213-C100-CAW
0	Synchro flange	Gray	SSI	none	cable outlet axial 2m	WDG-SL00G-0013-S060-CAW
12	Synchro flange	Gray	SSI	none	cable outlet axial 2m	WDG-SL00G-1213-S060-CAW
0	hollow shaft 15 mm	Gray	SSI	none	cable outlet axial 2m	WDG-SL00G-0013-B150-CAW
12	hollow shaft 15 mm	Gray	SSI	none	cable outlet axial 2m	WDG-SL00G-1213-B150-CAW
0	Clamping flange	Gray	SSI	Preset	connector radial	WDG-S100G-0013-C100-PRL
12	Clamping flange	Gray	SSI	Preset	connector radial	WDG-S100G-1213-C100-PRL
0	Synchro flange	Gray	SSI	Preset	connector radial	WDG-S100G-0013-S060-PRL
12	Synchro flange	Gray	SSI	Preset	connector radial	WDG-S100G-1213-S060-PRL
0	hollow shaft 15 mm	Gray	SSI	Preset	connector radial	WDG-S100G-0013-B150-PRL
12	hollow shaft 15 mm	Gray	SSI	Preset	connector radial	WDG-S100G-1213-B150-PRL