POSIWIRE®

Cable Extension Position Sensors

WS58C
Position Sensor

Datasheet

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© ASM Automation Sensorik Messtechnik GmbH
Am Bleichbach 18-24
85452 Moosinning
Germany

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Absolute encoder output

Sensor features

- **Measurement range up to 2500 mm**
- **Protection class IP50 (IP64 optional), depending on encoder**
- **Absolute encoder output**

Specifications

Output	**HSSI** = Absolute encoder with synchronous serial output (SSI) **HPROF** = Absolute encoder with Profibus interface **HINT** = Absolute encoder with Interbus interface **HDEV** = Absolute encoder with DeviceNet interface **HCAN** = Absolute encoder with CAN-interface **HCANOP** = Absolute encoder with CANopen interface
Resolution for 12 bit per revolution (4096 steps/ revolution)	0.04 mm (25 steps / mm)
Linearity	±0.05% f.s. (standard) ±0.01% f.s. (optional)
Sensing device	Absolute encoder
Housing material	Aluminium, stainless steel and plastic measuring cable: stainless steel
Protection class	IP50 (IP64 optional), depending on encoder
Connection	Depending on the type of encoder: connector or Bus cover
Temperature range	-20 ... +85 °C
Weight	0.6 kg max. (depending on encoder)
EMC	DIN EN 61326-1:2013

Cable forces typical at = 20 °C	**Measurement range [mm]**	**Maximum pull-out force [N]**	**Minimum pull-in force [N]**
	2500	4.0	1.6

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Order code

WS58C – [1] – [2] – [3] – [4]

1	**Measurement range (in mm)**

2500

2	**Output**

HSSI	= Absolute encoder with synchronous serial output (SSI)
HPROF	= Absolute encoder with Profibus interface
HINT	= Absolute encoder with Interbus interface
HDEV	= Absolute encoder with DeviceNet interface
HCAN	= Absolute encoder with CAN-interface
HCANOP	= Absolute encoder with CANopen interface

3	**Linearity (optional)**

L01	= ±0.01% f.s.

4	**Cable fixing**

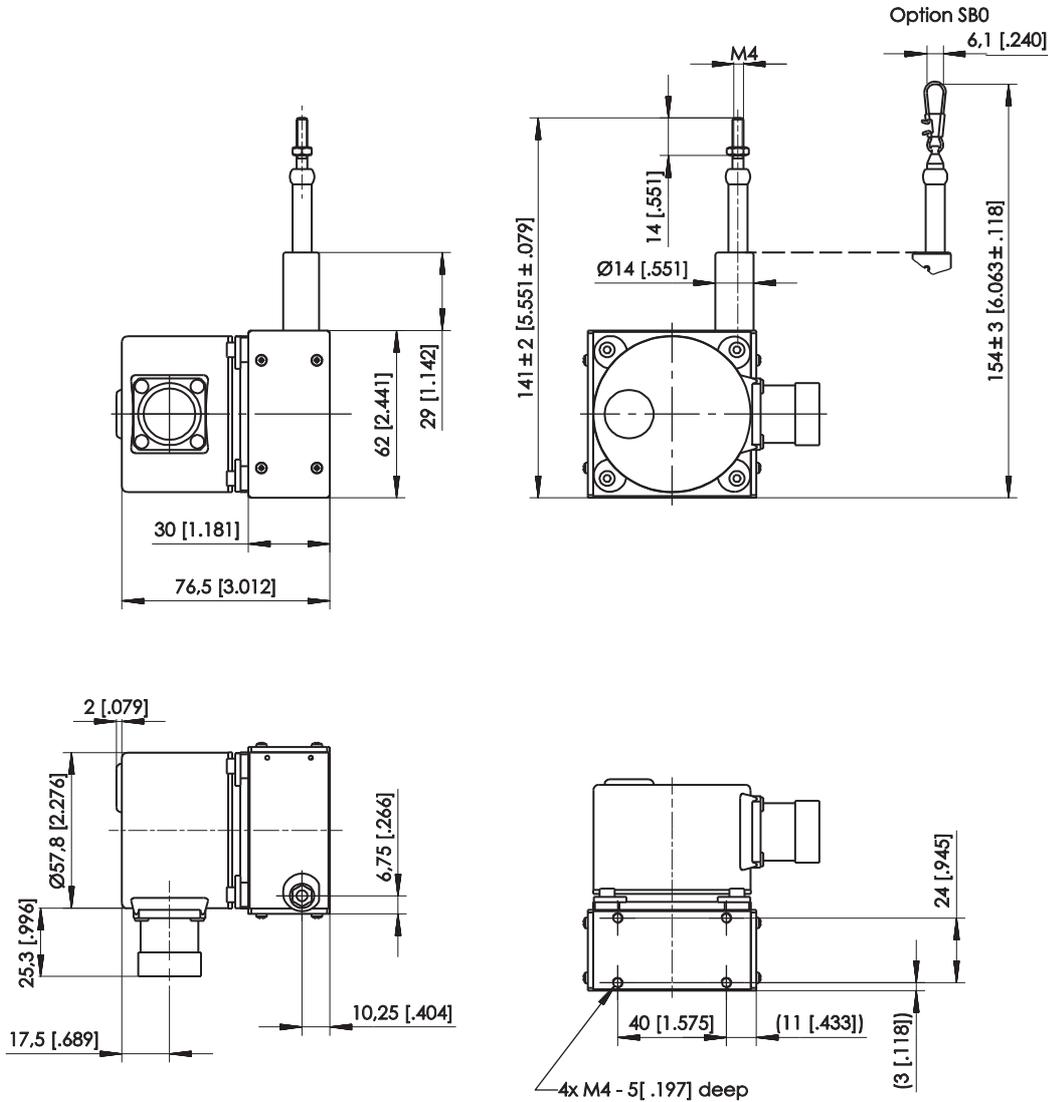|	
M4	= M4 cable fixing
SB0	= cable clip

Order example

WS58C – 2500 – HSSI – M4

Accessories:
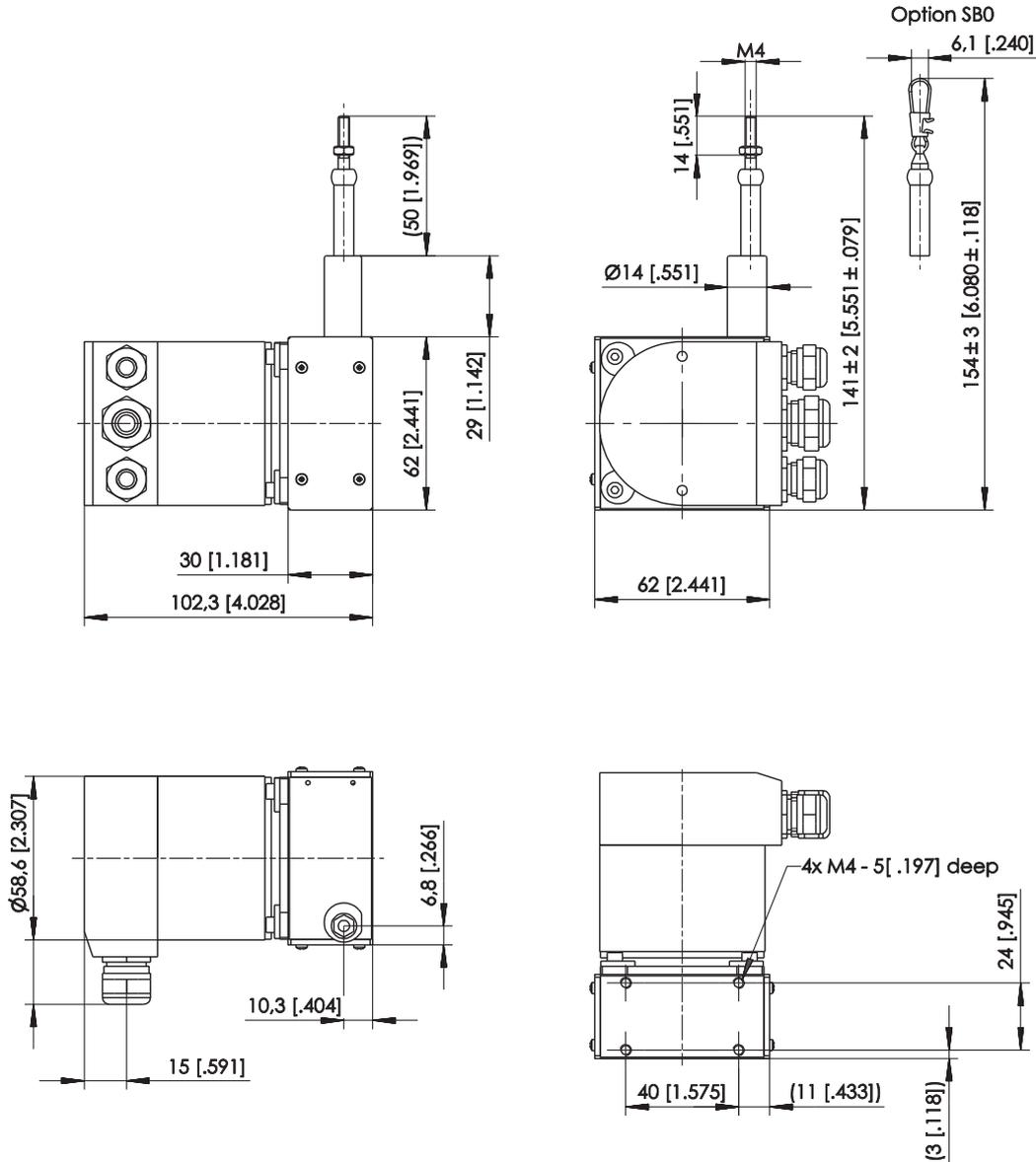**Mating connector CONN-CONIN-12F-G (see page 12)**

Dimensions

Measurement range 2500 mm, absolute encoder output HSSI

Dimensions in mm [inch]
Dimensions informative only.
For guaranteed dimensions consult factory.

Measurement range 2500 mm, absolute encoder output HPROF / HINT / HDEV / HCAN / HCANOP

Option SB0

M4

6,1 [.240]

(50 [1.969])

14 [.551]

29 [1.142]

62 [2.441]

Ø14 [.551]

141 ± 2 [5.551 ± .079]

154 ± 3 [6.080 ± .118]

30 [1.181]

102,3 [4.028]

62 [2.441]

Ø58,6 [2.307]

6,8 [.266]

4x M4 - 5 [.197] deep

24 [.945]

10,3 [.404]

15 [.591]

40 [1.575]

(11 [.433])

(3 [.118])

Dimensions in mm [inch]
Dimensions informative only.
For guaranteed dimensions consult factory.

Output specifications

Absolute encoder outputs

Signal conditioner HSSI

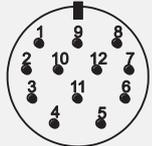| Absolute encoder synchronous serial		
	Excitation voltage	10 … 30 V DC
	Excitation current	100 mA
	Interface	Standard-SSI
	Lines / drivers	Clock and data / RS422
	Code	Gray
	Resolution	12 + 12 bit
	3 dB cutoff frequency	500 kHz
	Control input	$\overline{\text{DIRECTION}}$
	Preset key	Zero adjustment with optical response
	Alarm output	Alarm bit (SSI option), warning bit
	Status LED	Green = OK, red = alarm
	Connection	12 pin male socket

Data format (Mx = Multiturn bits, Sx = Singleturn bits)

Resolution	Clock											
	T1	T2	T3	…	T12	T13	…	T21	T22	T23	T24	T25	T26
	Data bits											
24 Bit	M11	M10	M09	…	M0	S11	…	S3	S2	S1	S0	0

Transmission rate

Cable length	Baud rate
< 50 m	< 400 kHz
< 100 m	< 300 kHz
< 200 m	< 200 kHz
< 400 m	< 100 kHz

Note:
Extension of the cable length will reduce the maximum transmission rate.

Signal wiring

Signal	Connector pin no.	Cable color	View to sensor connector
Excitation +	8	white	
Excitation GND	1	brown	
CLOCK	3	yellow	
$\overline{\text{CLOCK}}$	11	green	
DATA	2	pink	
$\overline{\text{DATA}}$	10	grey	
Direction*	5	blue	
0 V Signal output	12	black	CONN-CONIN-12F

* unconnected or Excitation +   = cw increasing code, 0 V   = cw decreasing code

Interface HPROF

Absolute encoder Profibus		
	Excitation voltage	10 ... 30 V DC
	Excitation current	250 mA
	Interface	RS485
	Protocol	Profibus DP with encoder profile C2
	Resolution	12 (10 ... 14) + 12 bit
	Output code	Binary
	Baud rate	Automatically selected between 9,6 kBaud and 12 MBaud
	Programmability	Resolution, preset, direction
	Integrated special functions	Velocity, acceleration, operating time
	Bus terminating resistor	Selectable via DIP switch
	Connection	Bus cover with T manifold
	EMC	Din EN 61326: Class A

Signal wiring

Signal	Cable terminal no. (bus cover)
U_b in	1
0 V in	2
U_B out	3
0 V out	4
B in	5
A in	6
B out	7
A out	8

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Interface HDEV

Absolute encoder DeviceNet	Excitation voltage	10 ... 30 V DC
	Excitation current	250 mA
	Interface	CAN highspeed according to ISO/DIS 11898 CAN specification 2.0 A (11 bit identifier)
	Protocol	DeviceNet according rev. 2.0, programmable encoder
	Resolution	12 (10 ... 14) + 12 bit
	Output code	Binary
	MAC-ID	Selectable via DIP switch
	Date refresh	Every 5 ms
	Baud rate	Selectable via DIP switch: 125 kBaud, 250 kBaud, 500 kBaud
	Programmability	Resolution, preset, direction
	Bus terminating resistor	Selectable via DIP switch
	Connection	Bus cover with T manifold
	EMC	DIN EN 61326-1:2013

Recommended transmission

Characteristic impedance	$135 \ldots 165\ \Omega$ ($3 \ldots 20$ MHz)
Operating capacity	< 30 pF
Loop resistance	< 110 Ω/km
Wire diameter	> 0.63 mm
Wire width	> 0.34 mm^2

Transmission rate

Segment length	Kbit/s
500 m	125
250 m	250
100 m	500

Signal wiring

Signal	Cable terminal no. (bus cover)
U_b in	1
0 V in	2
CAN-L	4
CAN-H	6
Drain	3
Drain	5
CAN-H	7
CAN-L	8

Interface HCAN / HCANOP

Absolute encoder CANopen / CAN Layer 2		
	Excitation voltage	10 ... 30 V DC
	Excitation current	250 mA
	Interface	CAN highspeed according to ISO/DIS 11898
	Protocol	CANopen according DS301 with encoder profile DSP406, programmable encoder according class C2
	Resolution	12 (10 ... 14) + 12 bit
	Output code	Binary
	Data refresh	Every millisecond (selectable), on request
	Baud rate	Selectable 10 up to 1000 kbit/s
	Base identifier	Selectable via DIP switch
	Programmability	CANopen: direction, resolution, preset, offset CAN L2: direction, limit values
	Integrated special functions	CANopen: velocity, acceleration, rotary axis, limit values CAN L2: direction, limit values
	Connection	Bus cover with T manifold
	EMC	DIN EN 61326-1:2013

Signal wiring

Signal	Cable terminal no. (bus cover)
U_b in	1
0 V in	2
CAN in – (dominant L)	4
CAN in + (dominant H)	6
CAN GND in	3
CAN GND out	5
CAN out + (dominant H)	7
CAN out – (dominant L)	8
0 V out	9
U_b out	10

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Accessories

Plug-in connector CONIN, 12 pin (straight coupling)

Order code:

CONN-CONIN-12F-G

Cable diameter
max. 6 … 8 mm

⌀26

50