

 **WS58C**

Displacement sensor with
measurement length up to
2,500 mm



- Protection class up to IP64
- Aluminum housing
- With optical encoder

Product versions



Absolute encoder output



WS58C - Cable Extension Position Sensor
Version with absolute encoder output

Specifications

| | | Order options |
|--|--|--|
| Measurement range | 2500 mm | 1 2500 |
| Output for 12 bit per revolution (4096 steps / revolution) | 0.04 mm (25 steps / mm) | |
| Output | Absolute encoder with synchronous serial output (SSI) Absolute encoder with Profibus interface Absolute encoder with Interbus interface Absolute encoder with DeviceNet interface Absolute encoder with CAN-interface Absolute encoder with CANopen interface | 2 HSSI HPROF HINT HDEV HCAN HCANOP |
| Linearity | ±0.05% f.s. (standard) ±0.01% f.s. (optional) | 3 L01 |
| Sensing device | Absolute encoder | |
| Material | Aluminum measuring cable: stainless steel | |
| Protection class | IP50 (IP64 optional), depending on encoder | |
| Cable fixing | M4 cable fixing Cable clip | 4 M4 SB0 |
| Connection | Depending on the type of encoder: connector or Bus cover | |
| Temperature range | -20 ... +85 °C | |
| Weight | | |
| EMC | DIN EN 61326-1:2013 | |

Order code

| | | | | | | | | |
|-------|---|----------|---|----------|---|----------|---|----------|
| WS58C | - | 1 | - | 2 | - | 3 | - | 4 |
|-------|---|----------|---|----------|---|----------|---|----------|

Order example: WS58C – 2500 – HSSI – M4

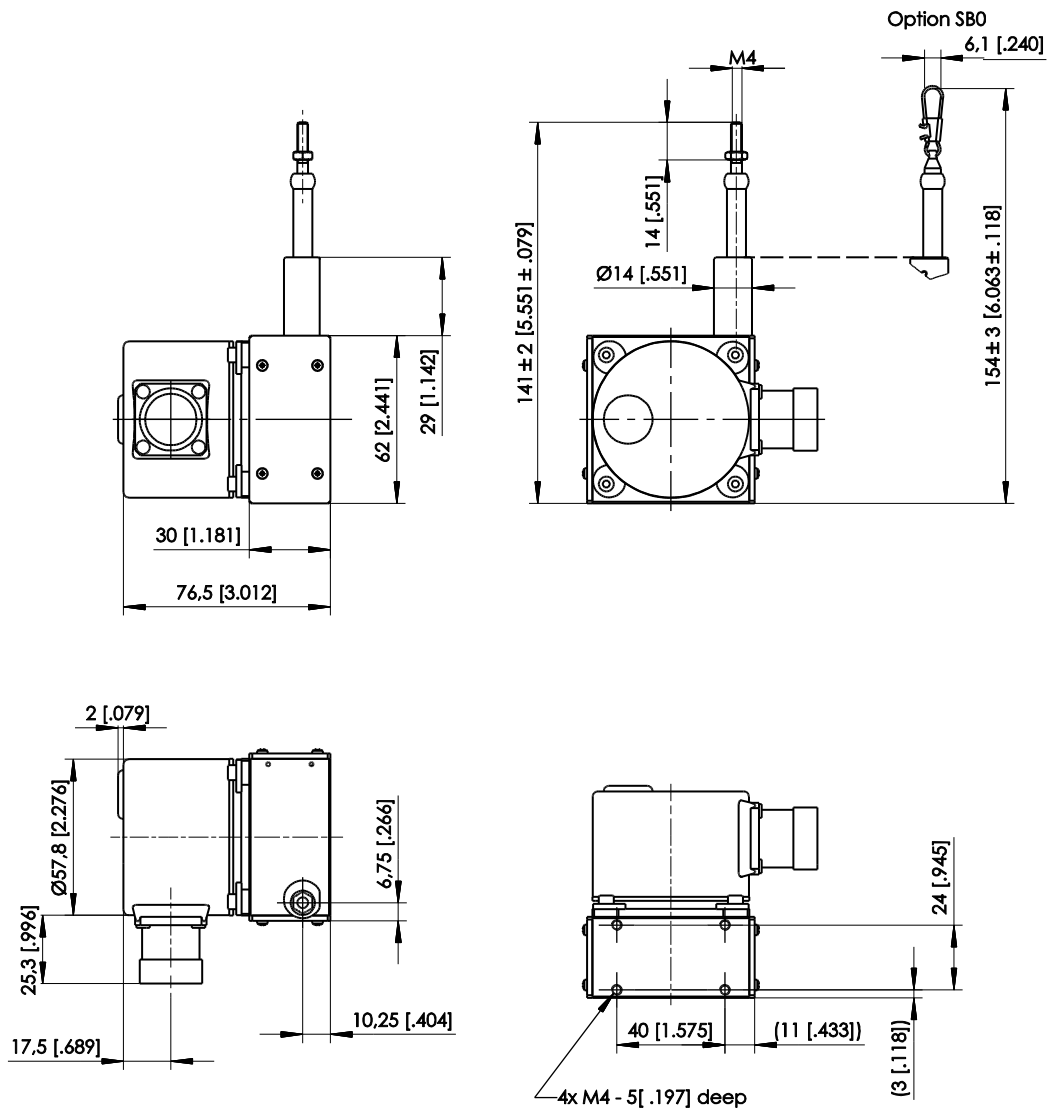
Accessories:

Mating connector CONN-CONIN-12F-G (see page 9)

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

Dimensions

Measurement range 2500 mm, absolute encoder output HSSI

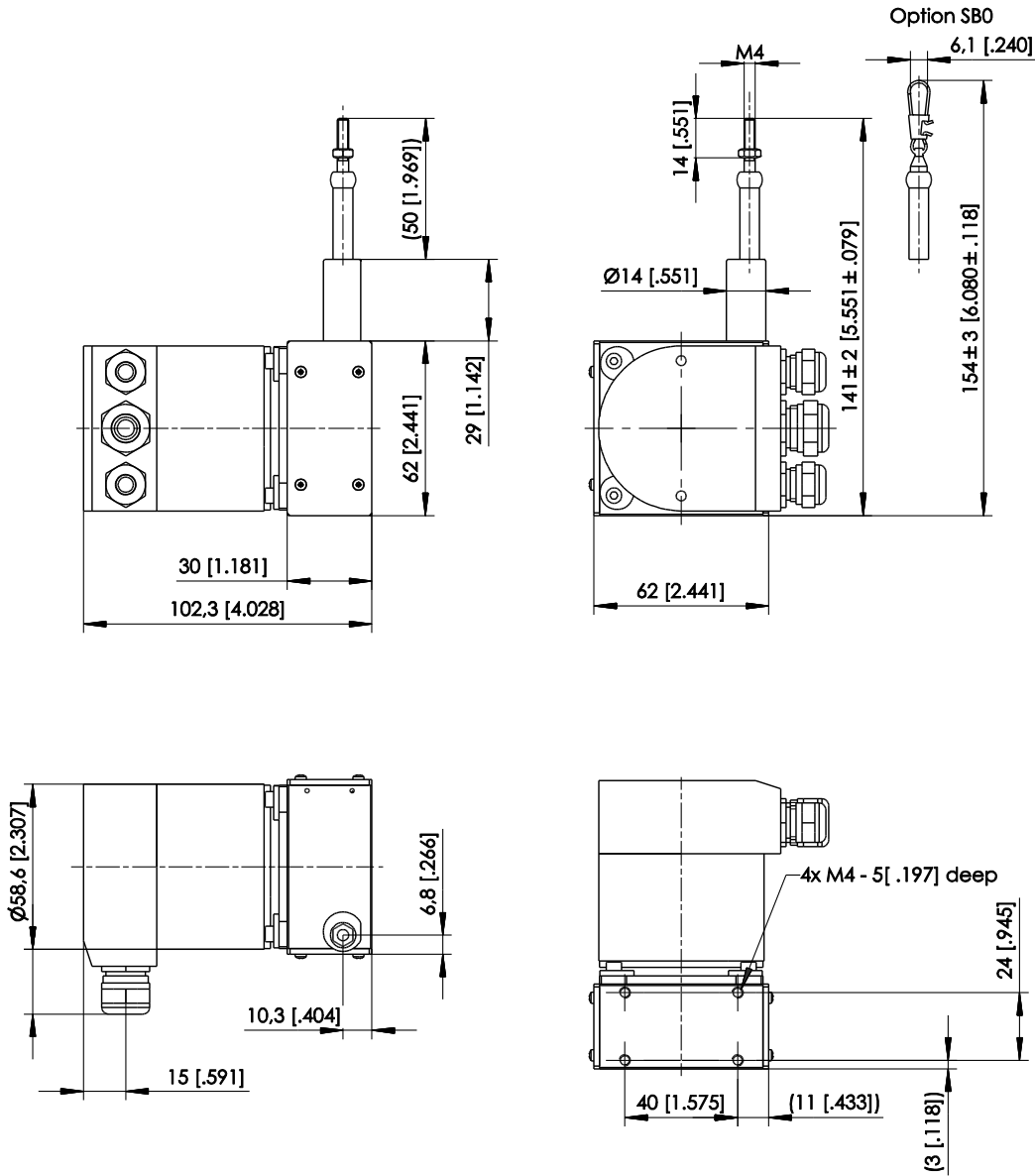


Dimensions in mm [inch]

Dimensions informative only.


For guaranteed dimensions consult factory.

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

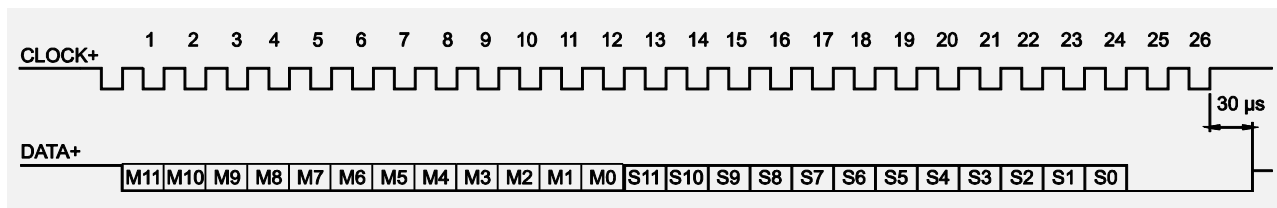


Dimensions in mm [inch]
Dimensions informative only.
For guaranteed dimensions consult factory.

Output specifications Absolute encoder output

| | | |
|--|-----------------------|---------------------------------------|
| HSSI 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 |

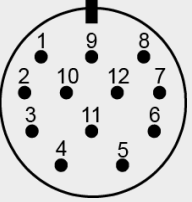
Data format




(Mx = Multiturn bits, Sx = Singleturn bits)

Transmission rate


| Cable length | Baud rate | Note: |
|--------------|-----------|--|
| < 50 m | < 400 kHz | Extension of the cable length will reduce the maximum transmission rate. |
| < 100 m | < 300 kHz | |
| < 200 m | < 200 kHz | |
| < 400 m | < 100 kHz | |

| Signal wiring | Signal | Connector pin no. | Cable color |
|--|---------------------------|-------------------|-------------|
| CONN-CONIN-12F-G  View to the 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 |

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

| | | |
|---|------------------------------|---|
| HPROF Profibus  | Interface | RS485 |
| | Excitation voltage | 10 ... 30 V DC |
| | Excitation current | 250 mA |
| | 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 | Output signals | 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 |

| | | |
|---|--------------------------|---|
| HDEV DeviceNet  | Interface | CAN highspeed according to ISO/DIS 11898 CAN specification 2.0 A (11 bit identifier) |
| | Excitation voltage | 10 ... 30 V DC |
| | Excitation current | 250 mA |
| | 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 ... 165 Ω (3 ... 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 | Output signals | 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 |

| | | |
|---|------------------------------|---|
| HCAN / HCANOP CANopen / CAN Layer 2  | Interface | CAN highspeed according to ISO/DIS 11898 |
| | Excitation voltage | 10 ... 30 V DC |
| | Excitation current | 250 mA |
| | 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 | Output signals | 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 |

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

Order code:

CONN-CONIN-12F-G

Cable diameter
max. 6 ... 8 mm

