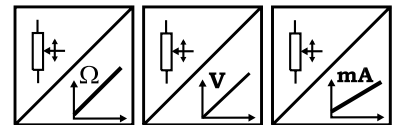


WS12EX Position Sensor with Analog output Dust explosion-proof



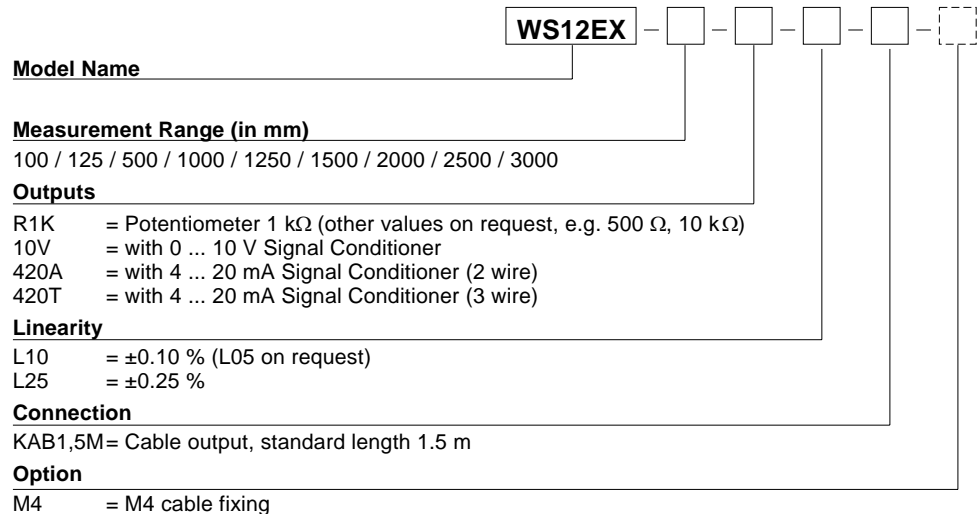
Sensor for Hostile Environments

- Protection Class IP67
- Measurement Range:
0 ... 100 mm to 0 ... 3000 mm
- With Analog Output
- Dust Ex proof, category 3, zone 22
- Ex II 3D EEx T80°C IP67



| Specifications | Outputs | Potentiometer: 1 k Ω Voltage: 0...10 V Current: 4...20 mA, 2 or 3 wire |
|--------------------------------|--|---|
| | Material | Aluminium and Stainless Steel. Cable: Stainless Steel |
| | Resolution | Essentially infinite |
| | Sensing Device | Precision Potentiometer |
| | Connection | Cable output |
| | Linearity | Up to ± 0.05 % Full Scale |
| | Weight (approx.) | ≤ 1500 mm: 1 kg; ≥ 2000 mm: 1.5 kg |
| | Operation temperature | -20 to +70 °C |
| | Conformity of standards | |
| | Explosion-proof | DIN EN 50281, category 3, zone 22 |
| Immunity to Interference (EMC) | DIN EN 61326 | |
| Protection Class | DIN EN 60529, IP67 | |
| Shock | DIN EN 60068-2-27, 50 g (10 ms) | |
| Vibration | DIN EN 60068-2-6, 20 g (20 Hz ... 2 kHz) | |

Order Code WS12EX Analog



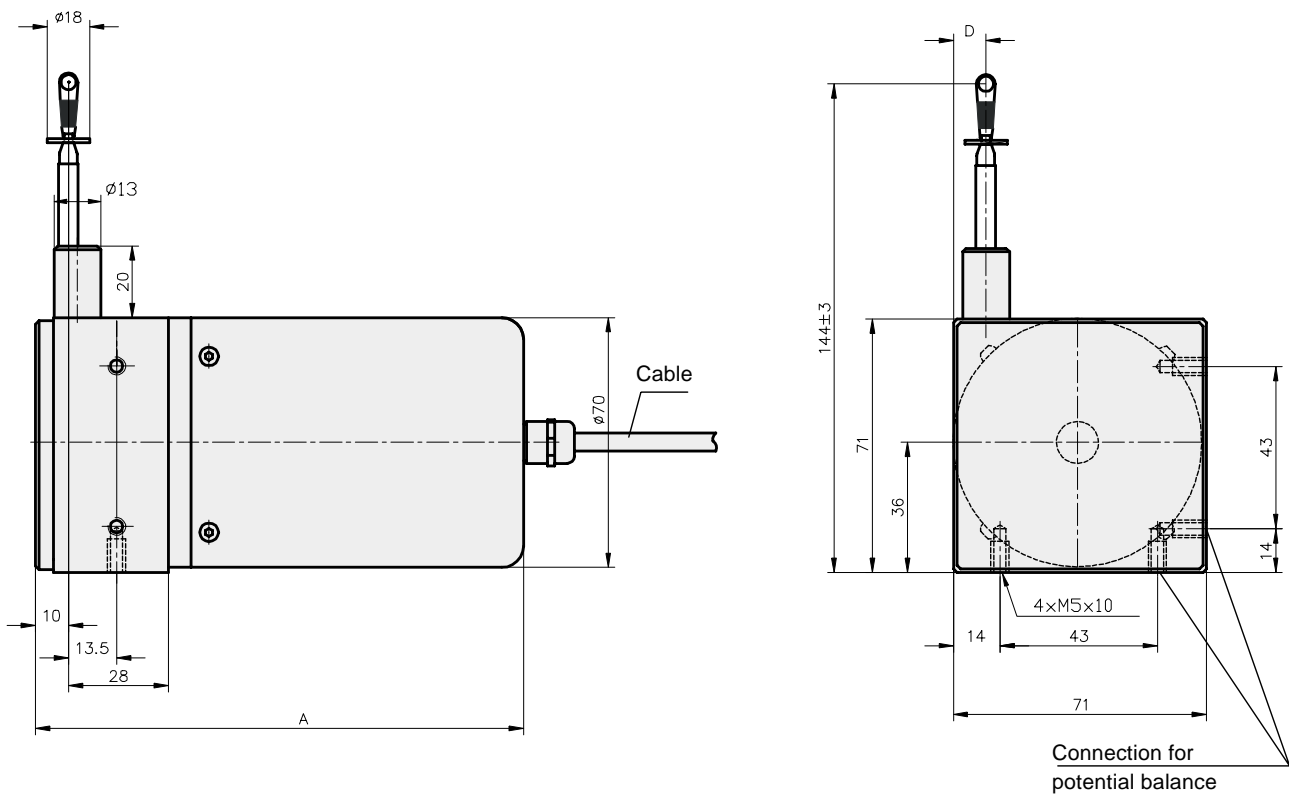
Order Example: WS12EX - 2500 - 420T - L10 - KAB1,5M

WS12EX Position Sensor with Analog output Dust explosion-proof



| Cable Forces typical at 20 °C | Range | Maximum Pull-out Force | Minimum Pull-in Force |
|----------------------------------|-------|------------------------|-----------------------|
| | [mm] | [N] | [N] |
| | 100 | 5.2 | 2.8 |
| | 125 | 4.6 | 2.5 |
| | 500 | 5.9 | 2.6 |
| | 1000 | 5.5 | 2.4 |
| | 1250 | 4.8 | 2.1 |
| | 1500 | 10.4 | 6.4 |
| | 2000 | 8.1 | 5.0 |
| | 2500 | 6.7 | 4.0 |
| | 3000 | 6.2 | 3.0 |

Outline drawing (100 ... 1500 mm)



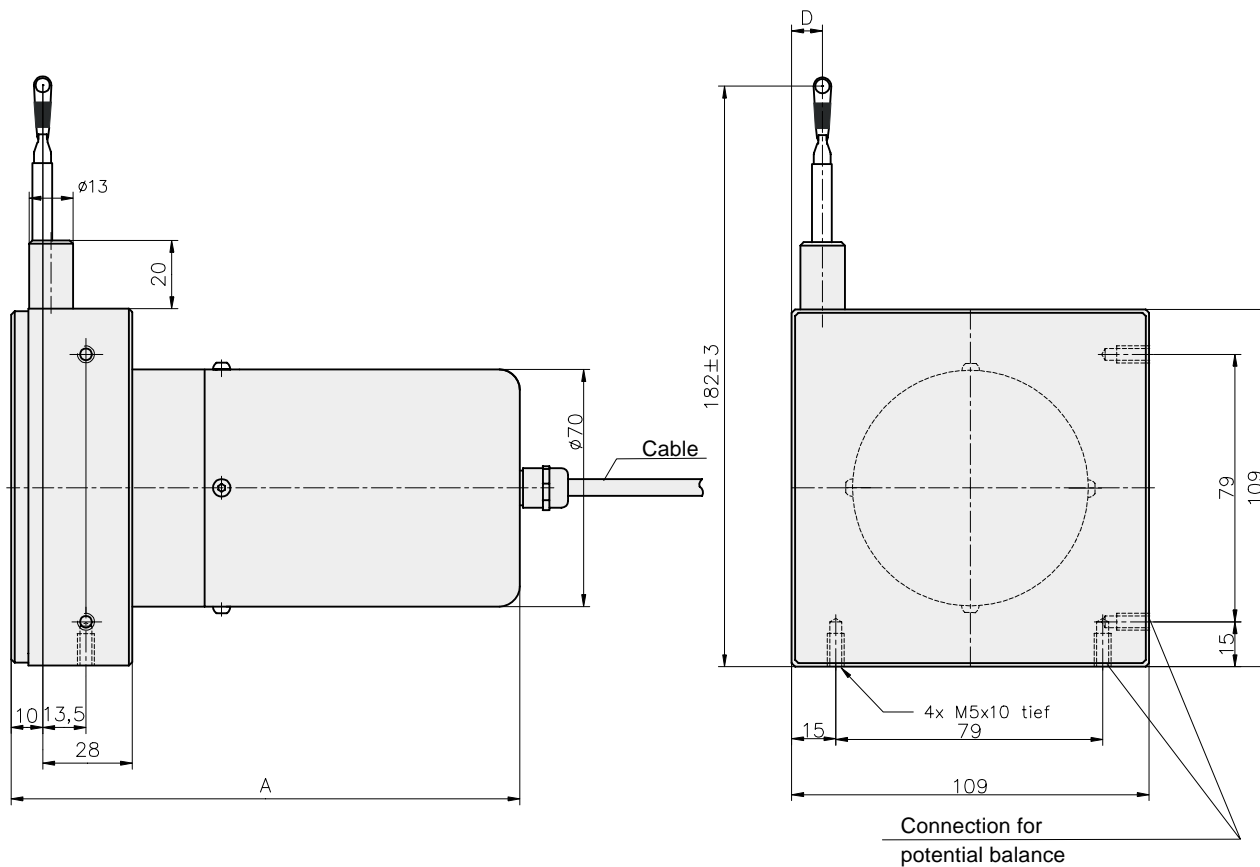
For guaranteed dimensions consult factory

| Dimensions (mm) | Range | A | D |
|-----------------|----------------|-----|------|
| | 100; 500; 1000 | 137 | 18.5 |
| | 125; 1250 | 137 | 15 |
| | 1500 | 152 | 11 |

WS12EX Position Sensor with Analog output Dust explosion-proof



Outline drawing
(100 ... 1500 mm)



For guaranteed dimensions consult factory

| Dimensions (mm) | Range | A | D |
|-----------------|-------|-----|------|
| | 2000 | 152 | 22 |
| | 2500 | 152 | 13.5 |
| | 3000 | 152 | 9.5 |

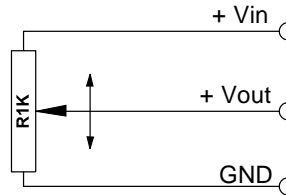
WS Position Sensors

Output Specifications R1K and 10V

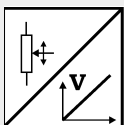


| | | |
|--|-----------------------------------|---|
| Voltage divider R1K Potentiometer  | Excitation Voltage | 32 VDC max. at 1 kΩ (Input Power 1 W max.) |
| | Potentiometer Impedance | 1 kΩ ±10% |
| | Thermal coefficient | ±0.0025% / K Full Scale |
| | Sensitivity | Depends on measurement range, individual sensitivity of sensor specified on label |
| | Voltage Divider Utilization Range | Approx. 3% ... 97% of Full Range |
| | Operating Temperature | -20 ... +85 °C |

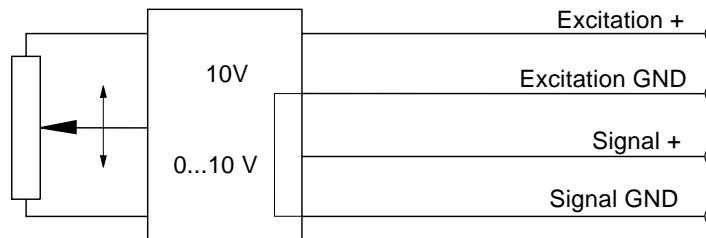
Signal diagram



Note: The potentiometer must be connected as a voltage divider. The input impedance of the following processing circuit should be 10 MΩ min.

| | | |
|---|--------------------------------|---|
| Signal conditioner 10V Voltage output  | Excitation Voltage | +18 ... +27 V DC non stabilized |
| | Excitation Current | 20 mA max. |
| | Output Voltage | 0 ... +10 V DC |
| | Output Current | 2 mA max. |
| | Output Load | > 5 kΩ |
| | Stability (Temperature) | ±0.005% / K Full Scale |
| | Protection | Reverse Polarity, Permanent Short Circuit |
| | Output Noise | 0,5 mVRMS |
| | Operating Temperature | -20 ... +85 °C |
| | Immunity to interference (EMC) | According to EN 61326: 1998 |

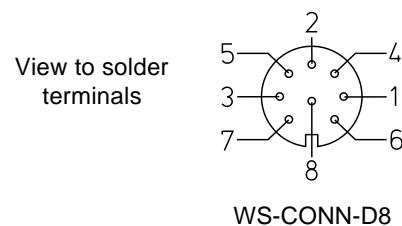
Signal diagram



| Signal Wiring | Output Signals | Connector | WS-CONN-D8 |
|---------------|----------------|----------------|------------|
| | R1K | 10V | |
| | + Vin | Excitation + | 1 |
| | GND | Excitation GND | 2 |
| | + Vout | Signal + | 3 |
| | | Signal GND | 4 |
| | | | 5 |
| | | | 6 |
| | | | 7 |
| | | | 8 |

Connection

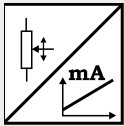
Mating Connector



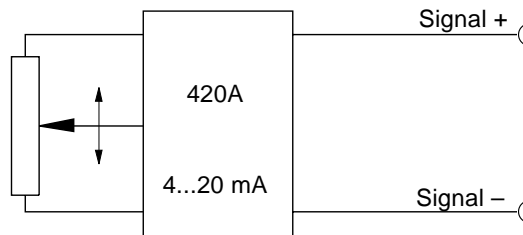
WS Position Sensors

Output Specifications 420A and 420T



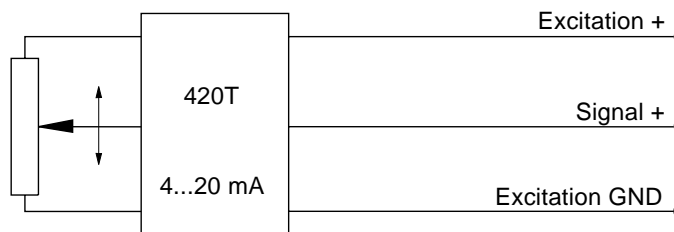
| | | |
|--|--------------------------------|---|
| Signal conditioner 420A Current output (2 wire)  | Excitation Voltage | +12 ... 27 VDC non stabilized, measured at the sensor terminals |
| | Excitation Current | 35 mA max. |
| | Output Current | 4 ... 20 mA equivalent to 0 ... 100% Range |
| | Stability(Temperature) | ±0.01% / K Full Scale |
| | Protection | Reverse Polarity, Permanent Short Circuit |
| | Output Noise | 0.5 mV _{RMS} |
| | Operating Temperature | -20 ... +85 °C |
| | Immunity to Interference (EMC) | According to EN 61326: 1998 |

Signal Diagram



| | | |
|--|-----------------------------|--|
| Signal Conditioner 420T Current output (3 wire)  | Excitation Voltage | +18...+27 V DC non stabilized |
| | Excitation Current | 40 mA max. |
| | Load Resistor | 350 Ω max. |
| | Output Current | 4 ... 20 mA equivalent to 0 ... 100% Range |
| | Stability (Temperature) | ±0.005% / K Full Scale |
| | Protection | Reverse Polarity, Permanent Short Circuit |
| | Output Noise | 0.5 mV _{RMS} |
| | Operating Temperature | -20 ... +85 °C |
| Immunity to Interference | According to EN 61326: 1998 | |

Signal diagram

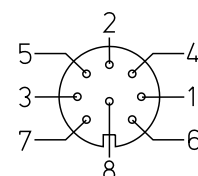


| Signal Wiring | Output Signals | | Connector |
|---------------|----------------|----------------|-----------|
| | 420A | 420T | |
| Signal + | Excitation + | Signal + | 1 |
| Signal - | Excitation GND | Excitation GND | 2 |
| | | Signal + | 3 |
| | | | 4 |
| | | | 5 |
| | | | 6 |
| | | | 7 |
| | | | 8 |

Connection

Mating Connector

View to solder terminals



WS-CONN-D8