**Overview**

SITRANS WS100 speed sensor is a compact, medium-resolution, pulley shaft-driven belt speed sensor with magnetic mounting. It is ideal for aggregate and mineral processing industries.

**Benefits**
- Small, light-weight
- Good resolution for accurate measurement, suitable for varying shaft speeds
- Long bearing life

**Application**

SITRANS WS100 speed sensor operates in conjunction with a conveyor belt scale, providing a signal to an integrator (Milltronics BW100 or BW500, or SIWAREX FTC module) which computes the rate of material being conveyed. It is lightweight at 1.22 kg (2.68 lb) and durable, for easy installation and prolonged bearing life.

The WS100 converts shaft rotation into a pulse train of 8 pulses per revolution. These pulses are typically fed into a Milltronics belt scale integrator. The integrator interprets the pulses and uses them in the calculation of belt speed, flow rate, and material totalization. In non-belt scale applications, the WS100 can be used to monitor rotational speed when directly connected to a PLC.

The WS100 IS (intrinsically safe) version contains an inductive proximity switch which transmits the pulses via a switch isolator for hazardous area locations.

**Design**

The input shaft on the SITRANS WS100 is coupled to the rotating shaft on a belt-driven pulley with a tapped hole, and is externally supported. The unit’s flexible arresting strap stops it from rotating with the shaft, without causing bearing stress, and can be fitted to any rigid member close to the sensor.

When mounting, ensure the unit and the pulley shaft are concentric to avoid stresses on the unit’s bearings.

For mounting using the magnetic connector, ensure the face of the rotating shaft on the belt driven pulley is flat, and has no burrs or damage that may prevent flush mounting of the magnetic connector. Attach the SITRANS WS100 speed sensor to the shaft; the magnetic connector will center itself as the belt driven pulley rotates.
Design (continued)

Mounting to a Tail Pulley

Mounting to a Bend or Snub Pulley

WS100 installation
## Technical specifications

### SITRANS WS100

#### Milltronics WW100

<table>
<thead>
<tr>
<th>Mode of operation</th>
<th>Proximity sensor provides pulse to integrator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical application</td>
<td>Aggregate belt conveyors</td>
</tr>
</tbody>
</table>
| Input | Shaft rotation 15 … 1500 rpm, bi-directional  
Shaft rotation 15 … 300 rpm, bi-directional with magnetic connector |
| Output | • 8 pulses per revolution  
• 0 … 200 Hz, 0 … 40 Hz with magnetic connection  
• WS100 standard: open collector sinking output, 25 mA  
• WS100 IS: load current, 0 … 15 mA  
• Integrator minimum usable frequency 2 Hz |
| Rated operating conditions |  
Standard: -40 … +110 °C (-40 … +230 °F)  
Intrinsically Safe: -25 … +100 °C (-14 … +212 °F)  
Degree of protection: IP67 |
| Enclosure | Polypropylene base and target enclosure with 304 (1.4301) stainless steel access cover  
304 (1.4301) stainless steel shaft, bearings and hardware |
| Power |  
Standard: 4.5 … 28 V DC, 16 mA  
Intrinsically Safe: 5 … 25 V DC from IS switch isolator |
| Cable |  
Standard: 3 m (10 ft), 3 conductor 22 AWG (0.324 mm²), PVC shielded cable  
300 m (1000 ft) maximum cable run  
Intrinsically Safe: 2 m (6.5 ft), 2 conductor 26 AWG (0.129 mm²), PVC covered cable  
300 m (1000 ft) maximum cable run to IS switch isolator  
300 m (1000 ft) maximum cable run from IS switch isolator and integrator |

#### Approvals

- **WS100**
  - WS100 IS (with suitable IS switch isolator or switch amplifier)\(^1\)
  - Proximity Switch Approval Ratings (Pepperl+Fuchs #NCN4-12GM35-N0)

- **Optional Switch Isolator** (required for WS100 IS)\(^3\)
  - Pepperl+Fuchs #KFA5-SOT2-Ex2 or #KFA6-SOT2-Ex2

1. EMC performance available upon request.
2. Approvals for RBSS IS are based on internally mounted NAMUR slotted proximity switch (Pepperl+Fuchs #N0.8-5GM-N) and use of suitable IS Switch Isolator (Amplifier). Please see RBSS Operating Instructions for more information.
3. Approval ratings for the proximity switch and IS switch isolator are the property of Pepperl+Fuchs. Copies of these approval certificates may be obtained at http://www.siemens.com/processautomation.
### Selection and Ordering data

**Order No.**

**SITRANS WS100 Speed Sensor**

A compact, medium-resolution, pulley shaft-driven belt speed sensor with magnetic mounting, ideal for aggregate and mineral processing industries.

<table>
<thead>
<tr>
<th>Model</th>
<th>8 PPR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fabrication</td>
<td>Polycarbonate construction with 304 stainless steel sensor cover</td>
</tr>
<tr>
<td>Mounting</td>
<td>M12X1.75 threaded shaft Magnetic connector</td>
</tr>
<tr>
<td>Approvals</td>
<td>Standard CE, C-TICK, CE, C-TICK, ATEX II 1G, EEx ia IIC T6, ATEX II 1D Ex iaD 20 T 108 °C, and CSA/FM</td>
</tr>
</tbody>
</table>

#### Further designs

Please add "-Z" to Order No. and specify Order code(s).

Stainless Steel tag [69 x 38 mm (2.7 x 1.5 inch)]: Measuring-point number / identification (max 16 characters), specify in plain text.

Manufacturer’s Test Certificate: According to EN 10204-2.2

**Order Code**

<table>
<thead>
<tr>
<th>Order Code</th>
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<tbody>
<tr>
<td>Y15</td>
</tr>
<tr>
<td>C11</td>
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</tbody>
</table>

**Operating Instructions**

**SITRANS WS100, English**

**SITRANS WS100, German**

Note: The Operating Instructions should be ordered as a separate item on the order.

This device is shipped with the Siemens Milltronics manual CD containing the complete Operating Instructions library.

**Spare Parts**

<table>
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<tr>
<th>Order No.</th>
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<tbody>
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<td>7MH7723-1GA</td>
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<tr>
<td>7MH7723-1AS</td>
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<tr>
<td>7MH7723-1GF</td>
</tr>
<tr>
<td>7MH7723-1EB</td>
</tr>
<tr>
<td>7MH7723-1EC</td>
</tr>
</tbody>
</table>

**Subject to export regulations AL: N, ECCN: EAR99.**
### Dimensional drawings

#### Dimensions

Polypropylene sealed housing for ferrous targets

M20 (¼” NPT) diameter hole for conduit adaptor (use flexible conduit)

Arrester strap

Magnetic shaft connector option

Magnetic connector

Stainless steel sensor cover

Cable

Arrester strap

Male shaft connector option

M12 x 1.75 male shaft connector

WS100 dimensions in mm (inch)