

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 lbs) 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.

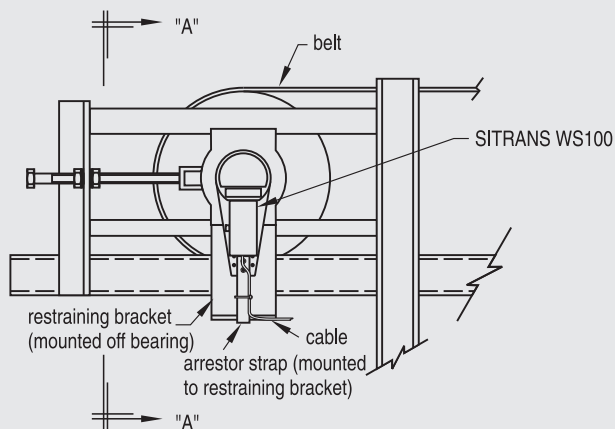
Design

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.

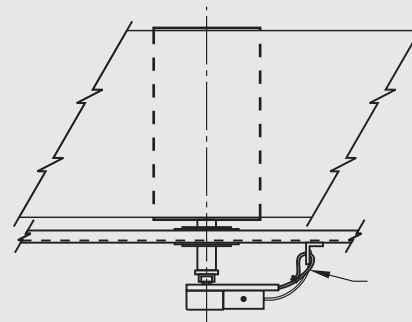
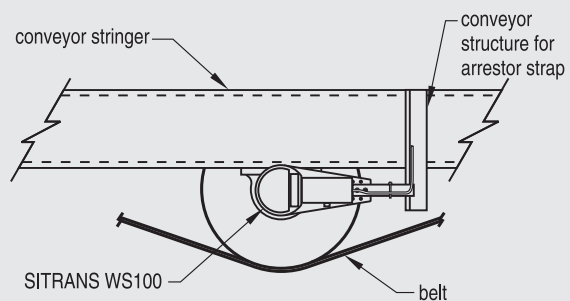
For mounting using the magnetic connector, ensure the face of the rotating shaft on the belt driven pulley is flat, and has no burrs or damage that may prevent flush mounting of the magnetic connector. Attach the SITRANS WS100 speed sensor to the shaft; the magnetic connector will center itself as the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

Mounting to a Tail Pulley



VIEW "A" - "A"

Mounting to a Bend or Snub Pulley



Belt Scales Speed Sensors

SITRANS WS100

Technical specifications

Mode of operation	
Measuring principle	Proximity sensor provides pulse to integrator
Typical application	Aggregate belt conveyors
Input	shaft rotation 15 to 1500 rpm, bi-directional shaft rotation 15 to 300 rpm, bi-directional with magnetic connector
Output	<ul style="list-style-type: none"> • 8 pulses per revolution • 0 to 200 Hz, 0 to 40 Hz with magnetic connection • WS100 standard: open collector sinking output, 25 mA • WS100 IS: load current, 0 to 15 mA • Integrator minimum usable frequency 2 Hz
Rated operating conditions	
Standard	-40 to +110 °C (-40 to +230 °F)
Intrinsically Safe	-25 to +100 °C (-14 to +212 °F)
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 to 28 V DC, 16 mA
Intrinsically Safe	5 to 25 V DC from IS Switch Isolator
Cable	
Standard	<ul style="list-style-type: none"> • 3 m (10 ft), 3 conductor 22 AWG (0.324 mm²), PVC shielded cable • 300 m (1000 ft) maximum cable run
Intrinsically Safe	<ul style="list-style-type: none"> • 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
Certificates and approvals	
Standard	<ul style="list-style-type: none"> • CE, C-TICK
Intrinsically Safe	<ul style="list-style-type: none"> • CE, ATEX and CSA approved, Pepperl + Fuchs Proximity Switch and IS Switch Isolator

Selection and Ordering data

SITRANS WS100 C) **7MH7176-** Order No.

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

Model

8 PPR

Fabrication

Polycarbonate construction with 304 stainless steel sensor cover

Mounting

M12X1.75 threaded shaft
Magnetic connector

Approvals

Standard CE, C-TICK
CE, C-TICK, ATEX II 2 G, Eex ia IIC and CSA/FM Class 1, Div. 1, Groups A, B, C and D, Class II Div. 1, Groups E, F and G¹⁾

Switch Isolator

Not required
115 V AC (required with IS option 1)
230 V AC (required with IS option 1)

Instruction manual

SITRANS WS100, English C) **7ML1998-5LU01**
SITRANS WS100, German C) **7ML1998-5LU31**

Note: The instruction manual should be ordered as a separate item on the order.

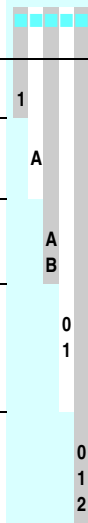
This device is shipped with the Siemens Milltronics manual CD containing the complete instruction manual library.

Spare Parts

Switch, Standard Magnetic Pickup C) **7MH7723-1GA**
Switch, inductive, NJO.8-5GM-N for Approvals option 1 C) **7MH7723-1AS**
WS100 Magnetic Connector C) **7MH7723-1GA**
P & F Switch Isolator, 115 V AC, required for Approvals option 1 **7MH7723-1EB**
P & F Switch Isolator, 230 V AC, required for Approvals option 1 **7MH7723-1EC**

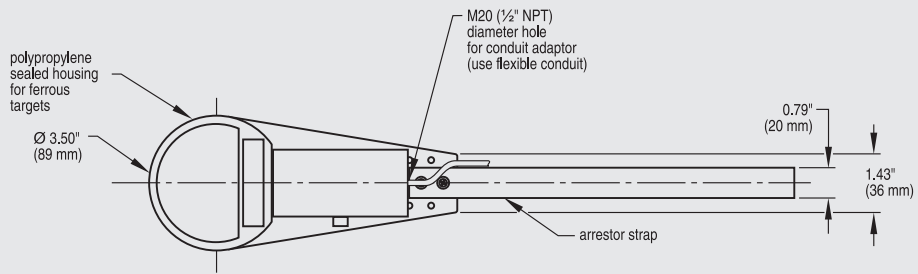
¹⁾ Approvals option 1 requires use of Switch Isolator to interface with the belt-scale integrator.

C) Subject to export regulations AL: N, ECCN: EAR99

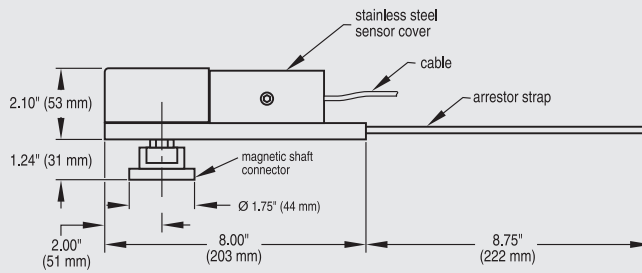


Dimensional drawings

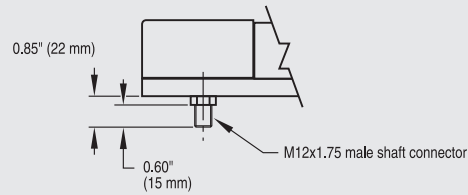
Dimensions



Magnetic shaft connector option



Male shaft connector option



WS100 dimensions