

Accurate and dependable

SITRANS WS300 speed sensor



Accurate belt speed detection

SITRANS WS300 is a high-resolution shaft-driven speed sensor suitable for low or varying shaft speeds. With hazardous dust approvals it is suitable for heavy industries such as mining, cement, or chemical processing. It can also handle the harsh environments of the food processing industry.

Design

Lightweight yet rugged, SITRANS WS300 is compact and easy to install. At only 1.22 kg (2.68 lbs), it is one of the lightest and most durable units ever developed for monitoring conveyor belt speed. With its rugged cast aluminum housing, it is suitable for outdoor installation, and its low weight prolongs bearing life.

Mode of operation

SITRANS WS300 speed sensor operates in conjunction with a conveyor belt scale, providing a signal to an integrator which computes the rate of material being conveyed. It is directly coupled to a rotating tail or bend pulley shaft to ensure accurate belt-travel readout, eliminating problems caused by belt slippage or material build-up.

SITRANS WS300 converts shaft rotation into a pulse train of 32, 256, 1000, or 2000 pulses per revolution using a high precision rotary optical encoder. The digital signal is transmitted as speed input to either a Milltronics BW100, BW500 integrator or SIWAREX FTC PLC module for calculation of belt speed, flow rate and totalized weight. Integrators offer programmable analog output. Milltronics BW500 connects the weighing measurements seamlessly into a control system through communication protocols such as PROFIBUS DP, Allen-Bradley Remote I/O and DeviceNet. Modbus is standard with the BW500.

This high resolution speed sensor provides a frequency signal proportional to the shaft speed, enabling low or varying shaft speeds to be read accurately. The quadrature type shaft encoder prevents erroneous speed signals due to vibration or shaft oscillation. SITRANS WS300 is easily mounted and is bidirectional for either clockwise or counter-clockwise belt travel.

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SITRANS WS300

With four different resolutions offered, SITRANS WS300 can accurately monitor low- to high-speed applications. SITRANS WS300 is directly coupled to a rotating tail or bend pulley shaft ensuring accurate belt travel readout, eliminating problems caused by belt slippage or material build-up. With sealed bearings, it offers protection against water and dust ingress. Whether installed in a mine monitoring belt speeds of 6 m/s (1181 FPM) or monitoring food processing conveyor speed at 0.05 m/s (10 FPM), SITRANS WS300 offers accurate and reliable measurement.

- Light and rugged design, IP65 rated
- Compact and economical – installs in hard to reach places, with little space required
- Can be used with up to 10 different integrators on one conveyor, lowering cost of ownership
- Corrosion-resistant components are durable and virtually maintenance free

SITRANS WS300	
Mode of operation	
Measuring principle	Pulse from shaft rotation using high precision rotary optical encoder
Typical applications	When a high resolution speed sensor is required
Input	
	Shaft rotation 0.5 to 2000 rpm, bidirectional
Output	
	<ul style="list-style-type: none"> • Unidirectional open collector sinking output • 10 to 30 V DC, 25 mA max. • 32, 256, 1000, or 2000 pulses per revolution • 2 to 2000 Hz
Rated operating conditions	
Ambient temperature	-40 to 55 °C (-40 to 131 °F)
Degree of protection	NEMA 4X, Type 4x, IP65
Design	
Enclosure	<ul style="list-style-type: none"> • Rated NEMA 4X, Type 4X, IP65 • Painted aluminum • Stainless steel, optional
Power supply	
	10 to 30 V DC, 60 mA max.
Cable	
Recommended	Standard: Three-wire shielded, 0.75 mm ² (18 AWG) Intrinsically Safe (IS): 2 wire shielded, 0.324 mm ² (22 AWG) Max. run 305 m (1000 ft) both versions
Approvals	
	<ul style="list-style-type: none"> • CSA/FM Class II, Div. 1, Groups E, F, G, and Class III • ATEX II 2D Ex tD A21 IP65 T70 °C , IECEx Ex tD A21IP65 T70 °C • CE, C-TICK • IS option

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