

INSTALLATION INSTRUCTIONS

MODEL BSD BELT SPEED DETECTOR



Please read and save these instructions. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to strictly follow all instructions may result in DEATH or SERIOUS INJURY. Before servicing, shut down and physically lock-out the conveyor system. Disconnect power before servicing.



Conveyor Components Company

Division of Material Control, Inc. | Crowell, Michigan U.S.A.

MODEL BSD BELT SPEED DETECTOR

TOOLS NEEDED



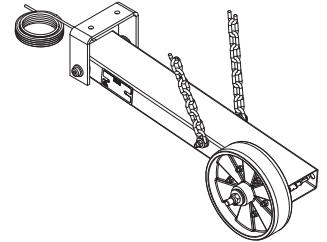
9/16" (15 mm) Wrench x 2



1/2" (13 mm) Wrench x 1
(x 2 required to attach optional safety chain kit)



3/16" Allen Wrench x 1



OPERATION

The BSD rides along the return side of the conveyor belt. The rotation of the wheel is used to encode the travel speed of the belt. This can be used independently to monitor the belt speed. When monitored by a PLC, the BSD can be used comparatively, in conjunction with a drive pulley mounted speed monitor, to indicate when belt slippage begins to occur.

INSTALLATION



WARNING! Failure to strictly follow all instructions may result in DEATH or SERIOUS INJURY. Before servicing, shut down and physically **LOCK-OUT** the conveyor system. Disconnect power before servicing.

Mount the BSD within the conveyor frame so that the wheel rides along the return side of the belt. The mounting bracket should be attached to a cross member, such as an idler frame. If no such member is available, a length of angle stock can be bolted or welded to the conveyor frame to create one. The mounting bracket can be bolted using the included mounting hardware, or welded to the cross member.

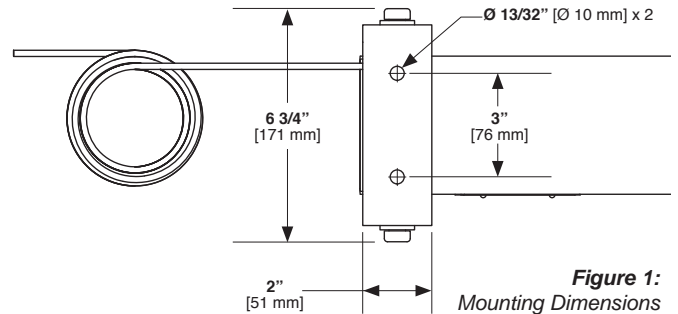
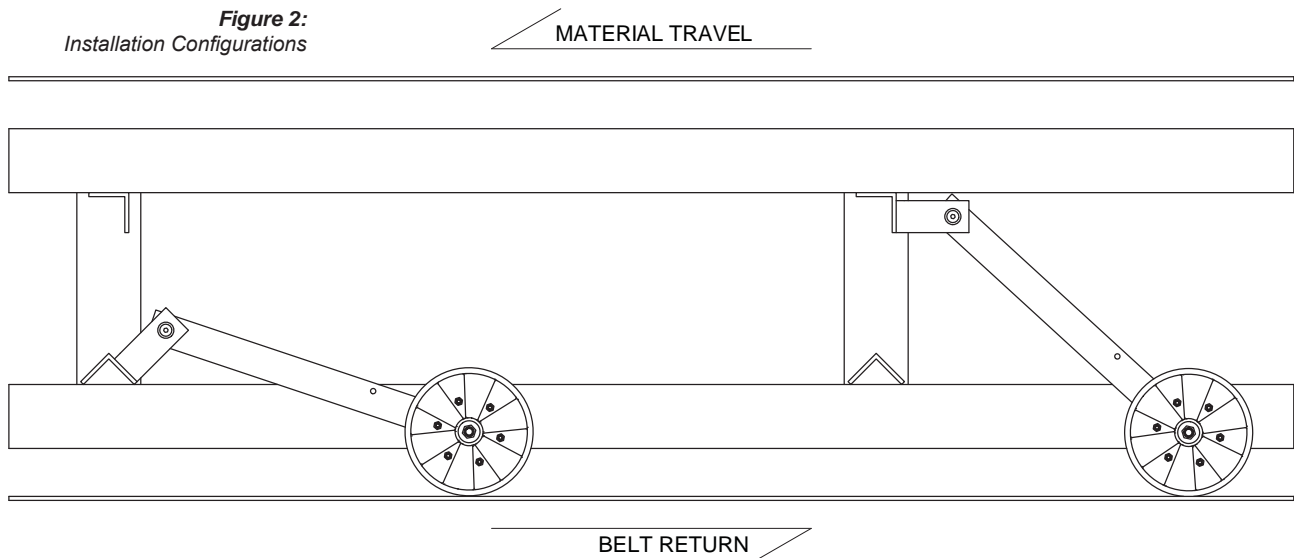


Figure 1:
Mounting Dimensions

Figure 2:
Installation Configurations



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SAFETY CABLE

Remove bolt and washers from the ends of the safety cables. Rejoin the cable ends so they each form a loop around the pivot axle, mounting bracket, and the attached cross member.

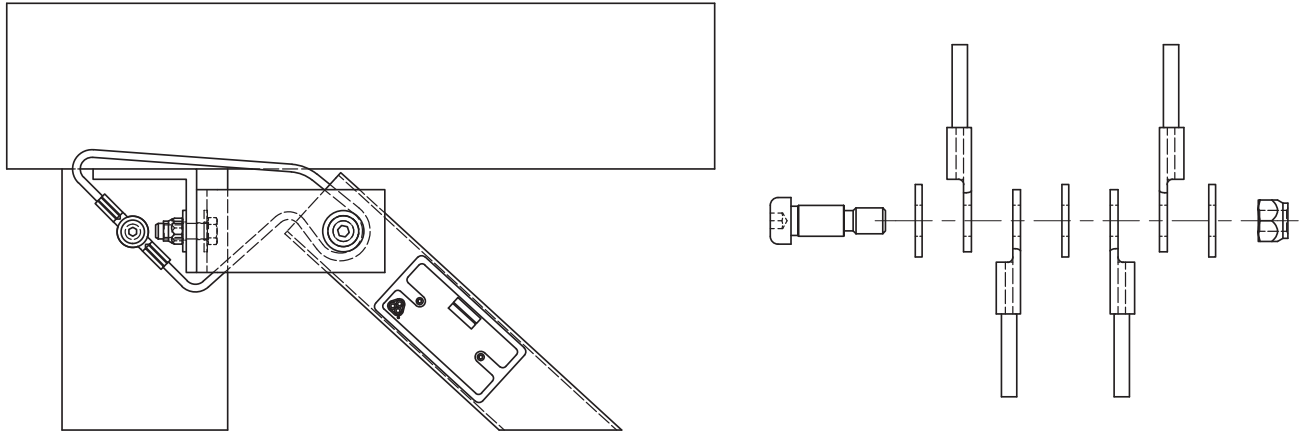


Figure 3: Safety Cable Installation

SAFETY CHAIN KIT (OPTIONAL)

If using safety chain kit (Part # 21310016) ensure that it is securely fastened through the pre-drilled bolt hole in BSD (see figures below). Attach the free ends of the chain to the conveyor frame.

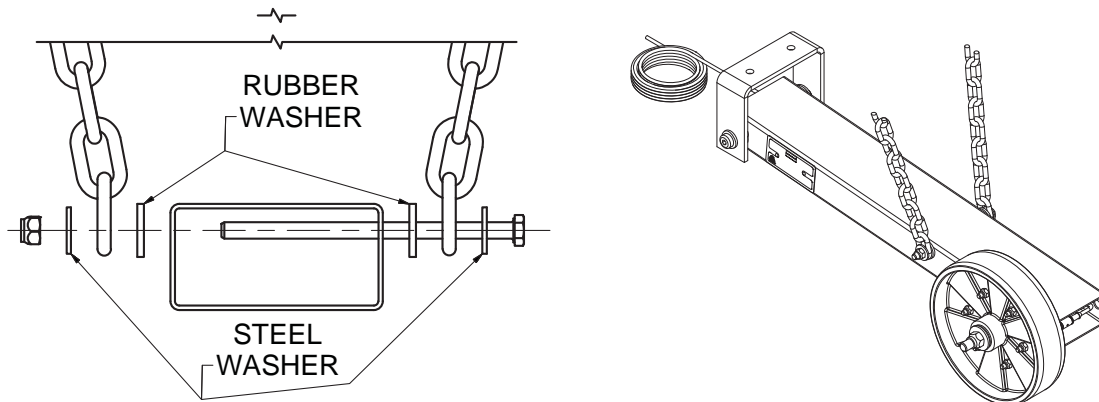


Figure 4: Safety Chain Kit Installation

WIRING

Reference the table below when wiring the BSD to a CCC manufactured Controller.

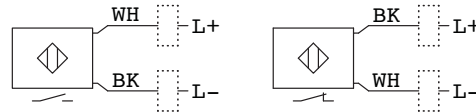
MODEL	CONTROLLER	SENSOR CONDUCTOR COLOR	CONTROLLER TERMINAL	SETTINGS/PROGRAMMING
BSD-2S	RMS Series Controller	White / Brown	P	Refer to Controller Instructions
		Black / Blue	N	
BSD-3S	MSD-800 Series	Brown	6	Refer to Controller Instructions PSCALE = '1Hz=_' conversion factor
		Black	12	
		Blue	11	
BSD-0S	User supplied 12mm [1/2"] inductive sensor and controller. Mount the sensor with the cable routed through the inside of the frame arm for protection.			

*An alternate sensor may be supplied when purchased with an RMS controller. Reference the electrical drawing (Figure 5) for use with other controllers.

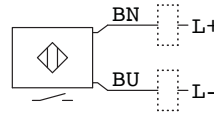
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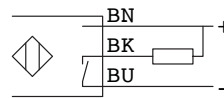
BSD-2S
 2-WIRE SENSOR
 10-55 VDC INPUT
 400mA OUTPUT



ALTERNATE SENSOR
 10-30 VDC INPUT
 <100mA OUTPUT



BSD-3S
 3-WIRE SENSOR
 10-30 VDC INPUT
 <200mA OUTPUT, NPN



BSD-0S
 USER SUPPLIED INDUCTIVE
 SENSOR

Figure 5: Electrical Characteristics

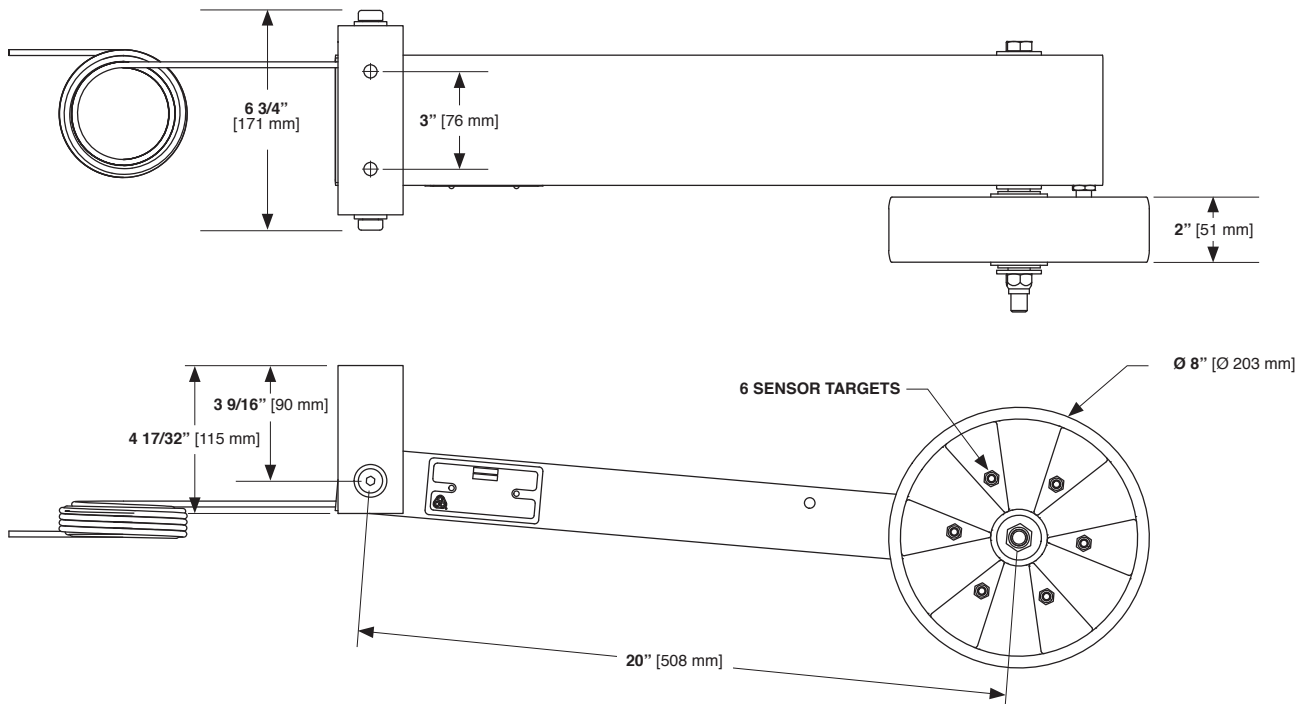


Figure 6: Dimensions



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SPECIFICATIONS

MODEL BSD BELT SPEED DETECTOR

Construction	Powder coated steel frame and reinforced nylon wheel		
Sensor	BSD-2S	2-wire inductive proximity sensor 10-55 VDC, 400mA, PNP/NPN	Alternate Sensor: 10-30 VDC, <100mA, NPN
	BSD-3S	3-wire inductive proximity sensor 10-36 VDC, <200mA output, NPN	
	BSD-0S	User supplied 12mm [1/2"] inductive sensor	
Controller	BSD-2S	RMS series controller or other user supplied Controller (PLC, DCS, direct outp, etc.).	
	BSD-3S	MSD-800 series controller with readout or other user supplied Controller (PLC, DCS, direct output, etc.).	
	BSD-0S	User supplied controller such as a PLC, DCS or other	
Max Belt Speed	20 mph, 1760 fpm [32.2 km/hr, 8.94m/s]		
Safety Restraint	Safety Cable (Included / Standard)	Two 2' [0.6m] lengths of vinyl coated aircraft cable (part #21310015)	
	Safety Chain Kit (optional)	Two 4' [1.2m] lengths of safety chain, with attachment hardware (part #21310016)	
Scaling Factor	1Hz =	0.3490 fps	1fps = 2.865 Hz
	1Hz =	20.944 fpm	1fpm = 0.0477 Hz
	1Hz =	0.2380 mph	1mph = 4.202 Hz
	1Hz =	0.1064 m/s	1m/s= 9.399 Hz
	1Hz =	0.3830 km/h	1km/h = 2.611 Hz



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