

INSTALLATION INSTRUCTIONS

MODEL BSDC 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. | Crosswell, Michigan U.S.A.

MODEL BSDC BELT SPEED DETECTOR

TOOLS NEEDED



9/16" (15 mm) Wrench x 2



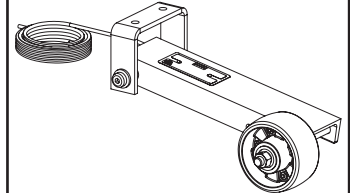
1/2" (13 mm) Wrench x 1
(x 2 required to attach optional safety chain kit)



3/4" (19 mm) Wrench x 2
(x 2 required to attach optional safety chain kit)



3/16" Hex Wrench x 1



OPERATION

The BSDC 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 to monitor the belt speed independent of the head or tail pulleys. When monitored by a PLC, the BSDC 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 BSDC 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.

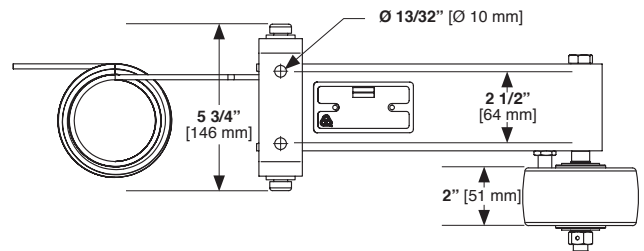
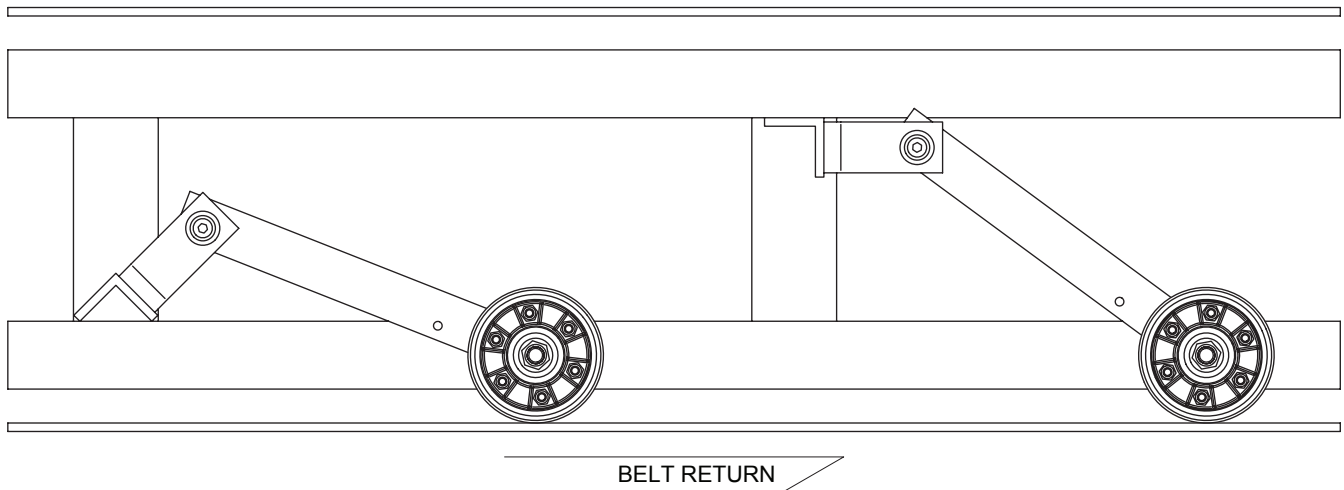


Figure 2:
Installation Configurations

MATERIAL TRAVEL



INSTALLATION INSTRUCTIONS

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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.

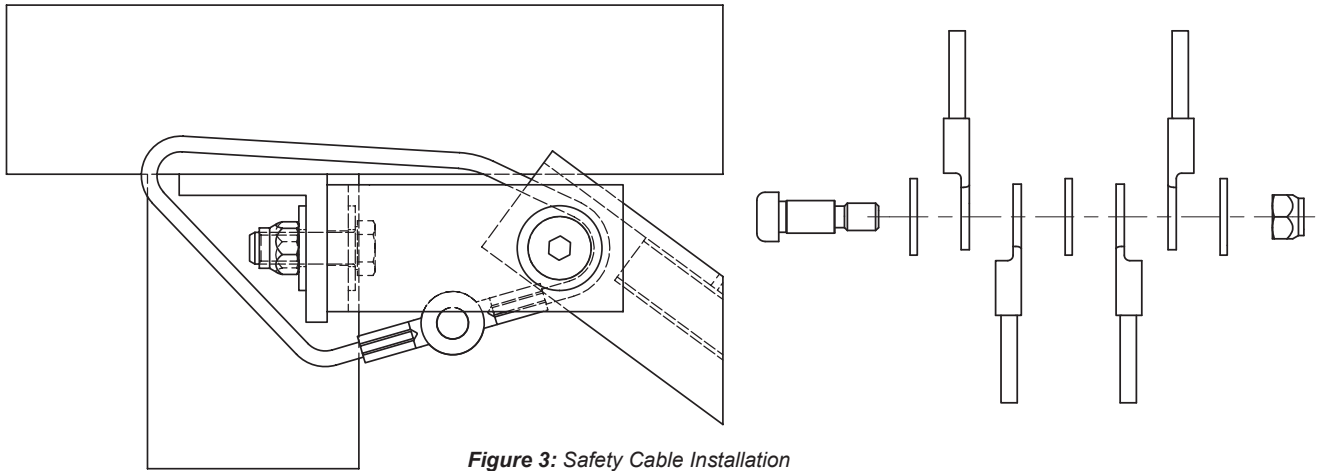


Figure 3: Safety Cable Installation

SAFETY CHAIN KIT (OPTIONAL)

If using the safety chain kit (Part# 21310111), attach the chain using the included hardware (Figure 4). Secure the free ends of the chain to the conveyor frame.

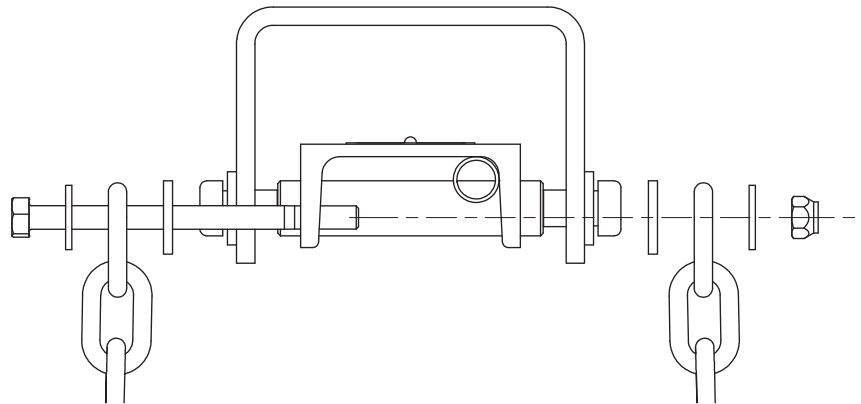


Figure 4: Safety Chain Kit Installation

WIRING

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

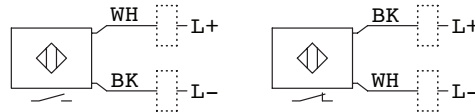
| MODEL | CONTROLLER | SENSOR CONDUCTOR COLOR | CONTROLLER TERMINAL | SETTINGS/PROGRAMMING |
|---------|--|------------------------|---------------------|--|
| BSDC-2S | RMS Series Controller | White / Brown | P | Refer to Controller Instructions |
| | | Black / Blue | N | |
| BSDC-3S | MSD-800 Series | Brown | 6 | Refer to Controller Instructions PSCALE = '1Hz=_' conversion factor |
| | | Black | 12 | |
| | | Blue | 11 | |
| BSDC-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.

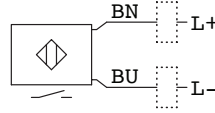
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MODEL BSDC BELT SPEED DETECTOR

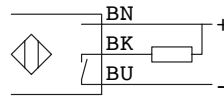
BSDC-2S
 2-WIRE SENSOR
 10-55 VDC INPUT
 400mA OUTPUT



ALTERNATE SENSOR
 10-30 VDC INPUT
 <100mA OUTPUT



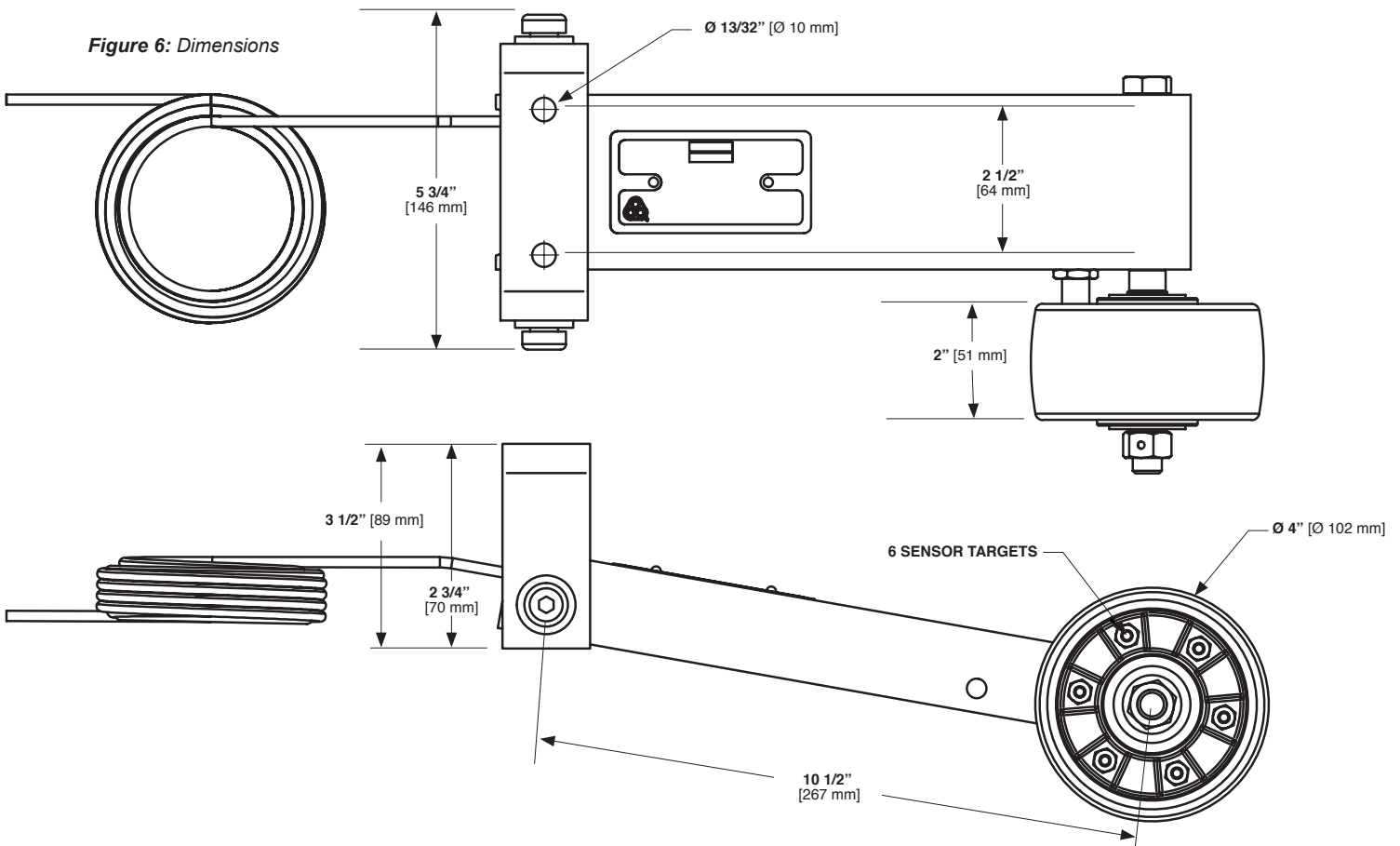
BSDC-3S
 3-WIRE SENSOR
 10-30 VDC INPUT
 <200mA OUTPUT, NPN



BSDC-0S
 USER SUPPLIED INDUCTIVE
 SENSOR

Figure 5: Electrical Characteristics

Figure 6: Dimensions



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SPECIFICATIONS

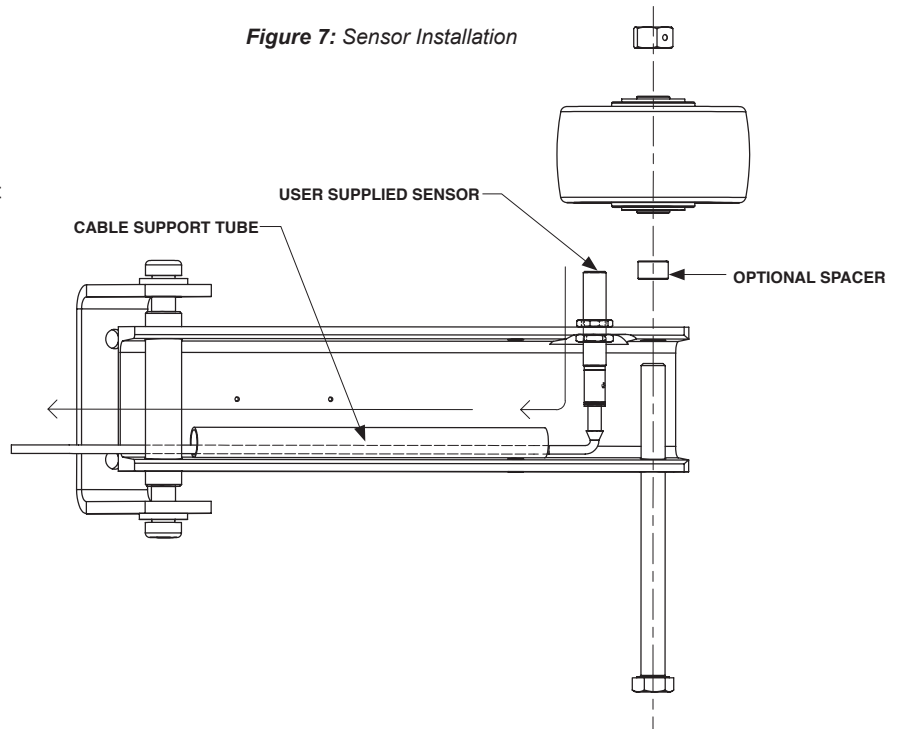
MODEL BSDC BELT SPEED DETECTOR

| | | | |
|-------------------------|--|---|---|
| Construction | Powder coated steel frame and reinforced nylon wheel | | |
| Sensor | BSDC-2S | 2-wire inductive proximity sensor 10-55 VDC, 400mA, PNP/NPN | Alternate Sensor: 10-30 VDC, <100mA, NPN |
| | BSDC-3S | 3-wire inductive proximity sensor 10-36 VDC, <200mA output, NPN | |
| | BSDC-0S | User supplied 12mm [1/2"] inductive sensor | |
| Controller | BSDC-2S | RMS series controller or other user supplied Controller (PLC, DCS, direct outp, etc.). | |
| | BSDC-3S | MSD-800 series controller with readout or other user supplied Controller (PLC, DCS, direct output, etc.). | |
| | BSDC-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 15" [38 cm] lengths of vinyl coated aircraft cable (part #21310110) | |
| | Safety Chain Kit (optional) | Two 4' [1.2m] lengths of safety chain, with attachment hardware (part #21310111) | |
| Scaling Factor | 1Hz = | 0.17453 fps | 1fps = 5.72958 Hz |
| | 1Hz = | 10.47198 fpm | 1fpm = 0.09549 Hz |
| | 1Hz = | 0.11900 mph | 1mph = 8.40338 Hz |
| | 1Hz = | 0.05320 m/s | 1m/s = 18.79779 Hz |
| | 1Hz = | 0.19151 km/h | 1km/h = 5.22161 Hz |

SENSOR INSTALLATION (BSDC-0S)

1. Insert and secure the sensor in the location shown in figure #. Longer sensors may have to be inserted cable-side first.
2. Feed the sensor cable through the cable support tube on the underside of BSDC.
3. Assemble the target wheel as shown with the heads of the targets facing the sensor. An optional spacer is included for use with long sensors. Check the fit and orientation before securing the locknut: the locknut cannot be reused.
4. Adjust the sensor position as needed to produce a clear and distinct signal from each of the targets.

Figure 7: Sensor Installation



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