



Broken or Slack Chain Detection Monitoring for Drag Chain Conveyors

The WDA is a non-contacting extended range magnetic proximity sensor, not affected by dust or material build up, used to detect moving ferrous material from 1 to 3 inches away. One of the more specialized uses for the WDA sensor is for slack/broken chain detection when installed using one of the three options shown below.

The WDA sensor can be installed using one of three options (pages 2 - 3). Either a hole can be cut in the conveyor housing for the sensor, or the mount can be installed on a stainless steel plate welded directly to the conveyor housing over the hole. Since stainless steel is non-ferrous, the sensor will not be affected as the sensing field can pass through the plate.

Once the proper placement has been identified, cut a 2-1/4 inch (57 mm) diameter hole in the drag conveyor housing for each sensor. If using stainless steel plate, the hole diameter may need to be larger.

The WDA sensor can be mounted using one of the following three methods -

1. Drill and tap the machine casing for 5/16 inch threaded bolts. Make sure that the bolts used to secure the sensor mounting bracket are short enough that they do not interfere with the operation of the machine.
2. Use threaded rivet nuts for 5/16 inch threads. The length of the rivet nut will depend on the thickness of the machine's casing. Make sure that the bolts used to secure the sensor mounting bracket are short enough that they do not interfere with the operation of the machine.
3. CD weld 5/16 inch threaded welding studs to the machine casing.

To drill the four 5/16 inch bolt holes for the sensor mounting bracket, use the supplied paper template from the sensor manual or use the bracket itself, by centering on the existing 2-1/4 inch (57 mm) hole.

NOTE

The sensor depth can be adjusted by loosening the adjustment bolt on the mounting bracket, sliding the sensor to the required depth and retightening the bolt. Final sensitivity adjustments should be made using the potentiometer sensing range adjustment screw.

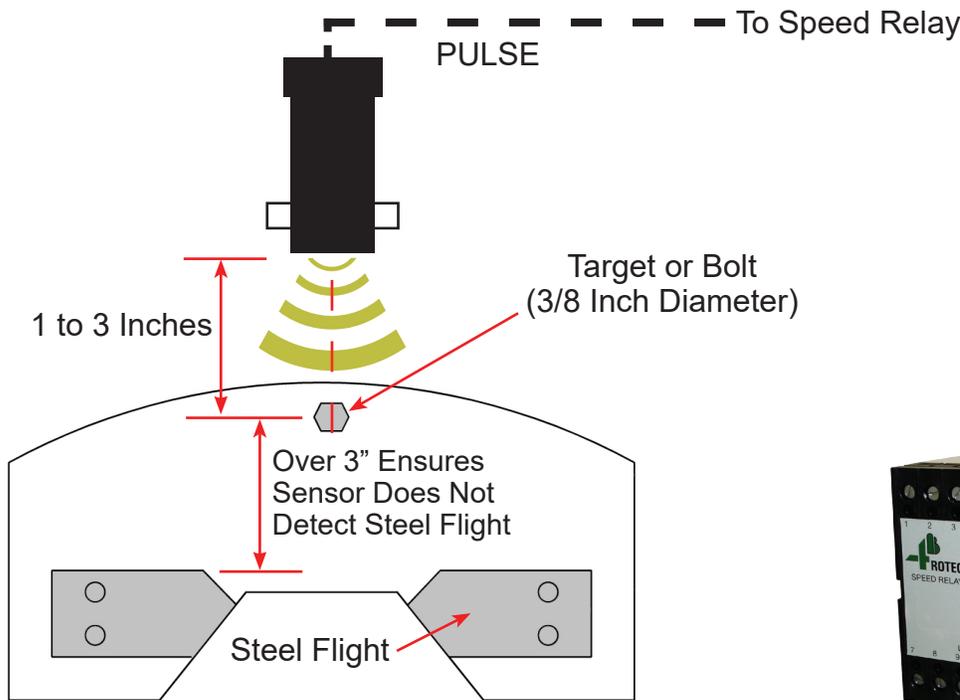
WARNING

Ensure that no ferrous steel, such as the machine's frame is within the target sensing field. This can interfere with the sensor detecting the intended target.



OPTION 1: SENSOR DETECTING TARGET ON PADDLE -

Under normal running conditions, the target bolt passes through the sensor's field and a pulse is sent to the speed relay. If the chain becomes slack, the target bolt will drop below the field and the pulses will stop, causing the relay contact to change state.



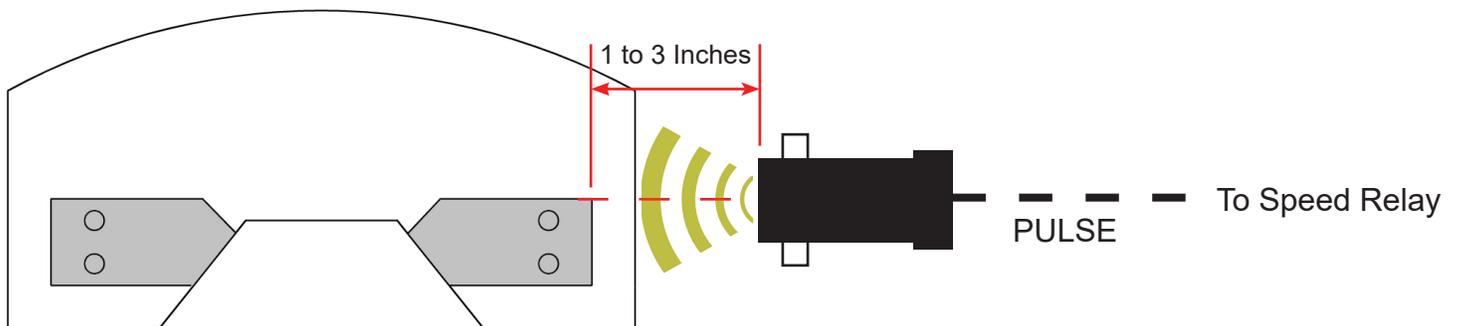
WDA3V34C



Speed Relay
(SR2V5-1)

OPTION 2: SENSOR DETECTING STEEL FLIGHT -

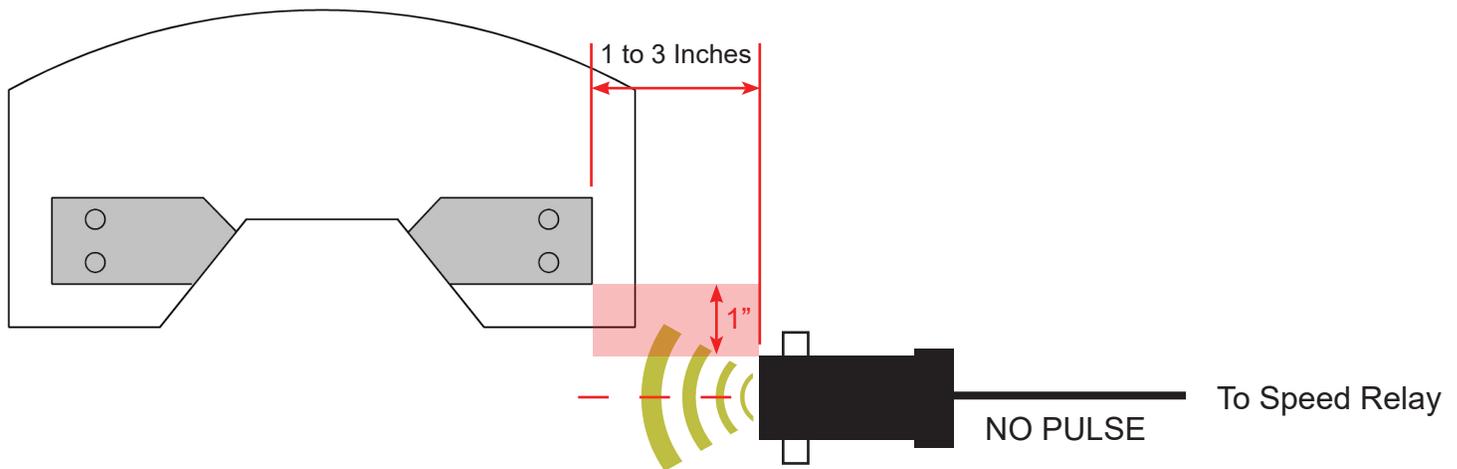
Under normal running conditions, the steel flight passes through the sensor's field and a pulse is sent to the speed relay. If the chain becomes slack, the steel flight will drop below the field and the pulses will stop, causing the relay contact to change state.





OPTION 3: SENSOR WAITING TO DETECT STEEL FLIGHT -

Under normal running conditions, the steel flight is out of the sensor's field, so no pulses are sent to the speed relay. If the chain becomes slack, the steel flight comes into the sensor's field and a pulse is sent to the speed relay, causing it to change state.



For any questions regarding the installation options described in this brief or product related inquiries, please contact 4B.