

Technical Bulletin

© 2017 Southern Technologies Corporation (STC). All rights reserved.

Bulletin Number: TB-2017234-RH01

Date Published: 08 22 2017

Summary: Operation Guide for the Model 2600-180 & 2600-190 MRDI Transmit and Receiver.

Critical (Affects safe operation of system)

Informational

Distribution List: NA

Description

The MRDI transmitter and portable receiver units are wireless devices developed by Southern Technologies to assist with wheel sensor alignment for the 2600-020 AEI Controller or the MRDI system. When used with the AEI Controller, the top four LEDs indicators (TO5-TO8) represent sensors TO1-TO4.

The Transmitter Unit activates when plugged into the AEI Controller. The Receiver Unit indicates the current state of each connected wheel sensor and provides a means to remotely monitor status changes while making precise adjustments at trackside.

The maximum working distance between the transmitter and receiver is approximately 150 feet (45.72 meters) line of sight. The AEI Controller provides power to the Transmitter Unit. The Receiver operates from a 9-volt battery.

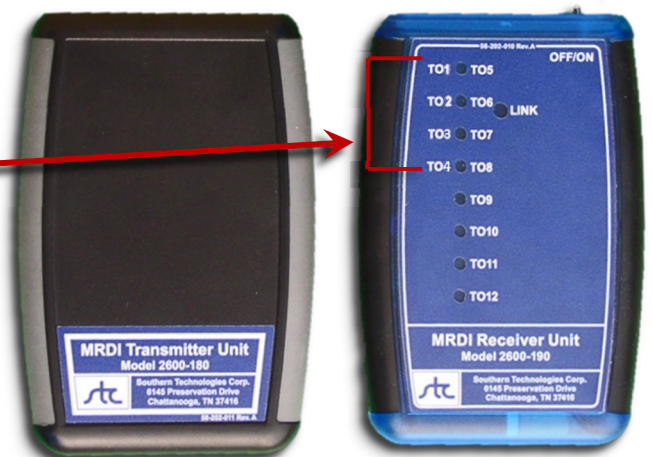


Figure 2 - MRDI Transmitter and Receiver Units

Directions for Use

1. Apply power to the transmitter and receiver units. As shown in Figure 2, connect the Transmitter Unit to the 2600-020 AEI Controller or MRDI using the supplied flat cable. Switch on the Receiver Unit soon after connecting the transmitter. The units will automatically pair with one another as indicated by the flashing red Link LED, which is located on the receiver. The Link LED blinks continuously when the units are in communications with each other, but will stop when out of range. *If the units do not pair, see the section on pairing later in this document.*

2. Relocate the transmitter outside of the building for additional range if necessary. Figure 4 represents a suggested location for the transmitter.

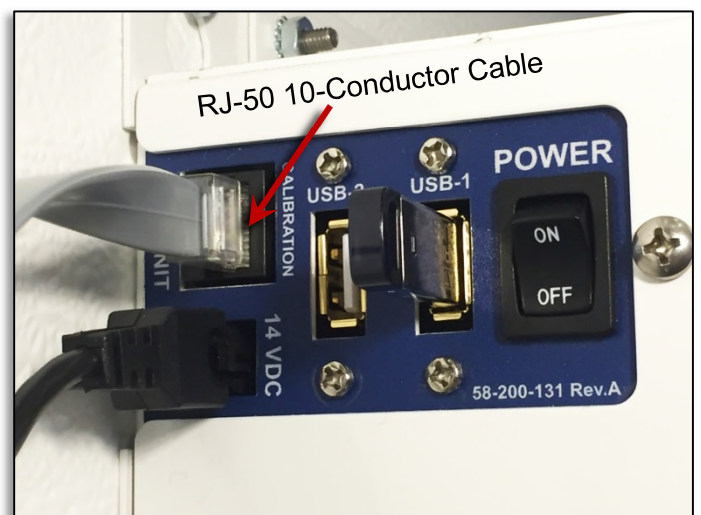


Figure 1 - Connecting the Transmitter to the 2600-020 AEI Controller

3. Locate and place the 2600-800 Wheel Sensor Gauge across the rails such that the large gauge plate is positioned directly over the Tiefenbach wheel sensor. Make sure the gauge is properly seated on the railhead as shown below in Figure 3.

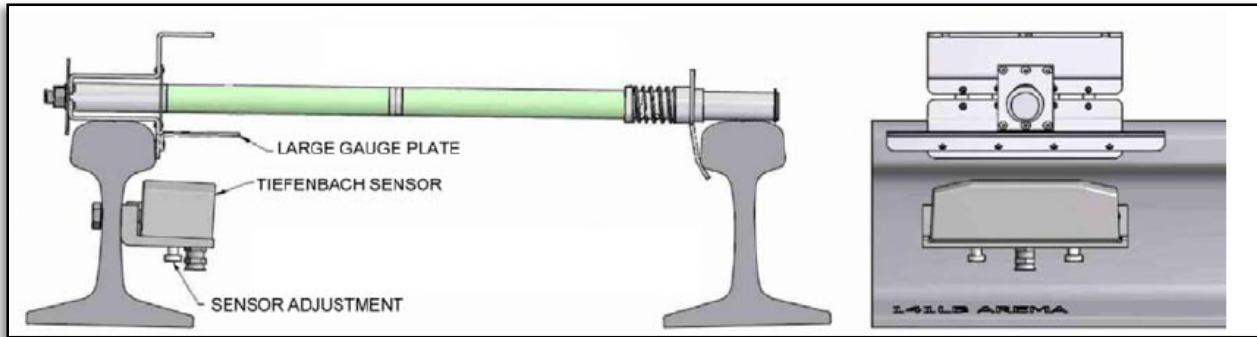


Figure 3 - 2600-800 Wheel Sensor Gauge Placement

4. At the bottom of the wheel sensor, unscrew the two knurled protective plastic nuts from the adjustment screws. Locate the brass adjustment tool that came packaged with your Tiefenbach wheel sensor. Screw on the adjustment tool and tighten without pushing the adjustment screw out of its adjustment protector. Push the adjustment tool upwards to unlock the protection mechanism.

CAUTION: Excessive force to the adjustment screw can cause damage to the sensor.

5. Calibration should begin with sensors in the inactive state (LED indicator located on the Receiver Unit, associated with wheel sensor, should be off). If necessary, deactivate the sensor by reducing sensitivity (turn the adjustment screw to left). Each element of the dual sensor should be set to the "activation threshold" with the target (large-gauge plate) in place.

Note: Be sure Link LED on the Receiver Unit is blinking the entire time while performing calibration.

6. Slowly turn the adjustment screw to the right until the sensor just activates as indicated by the associated LED on the Receiver Unit. Next, set the second wheel sensor to the "activation threshold" in a like manner.

7. Repeat procedure as necessary with each remaining wheel sensor connected to the AEI Controller.

The wheel sensors are now calibrated. Remove the adjustment tool, replace the knurled nut, and lightly tighten.



Figure 4 - Suggested Location for Transmitter

Transmitter/Receiver Pairing

Southern Technologies performs initial pairing and ships product as a paired set. A paired set should link with each other within a few seconds after being turned on. The following instructions provide guidance for initial pairing for replacement units or in the unlikely event that re-pairing is necessary.

1. Remove the two Phillips screws and the cover from each unit. Figure 5 shows the internal circuit boards of the receiver and transmitter.
2. With both units powered up, press and release both Pairing Pushbuttons simultaneously. The Link LED on the receiver should begin to blink rapidly after a few seconds when paired.
3. Carefully replace covers. Do not over tighten screws.

The units will automatically pair each time they are subsequently powered up.

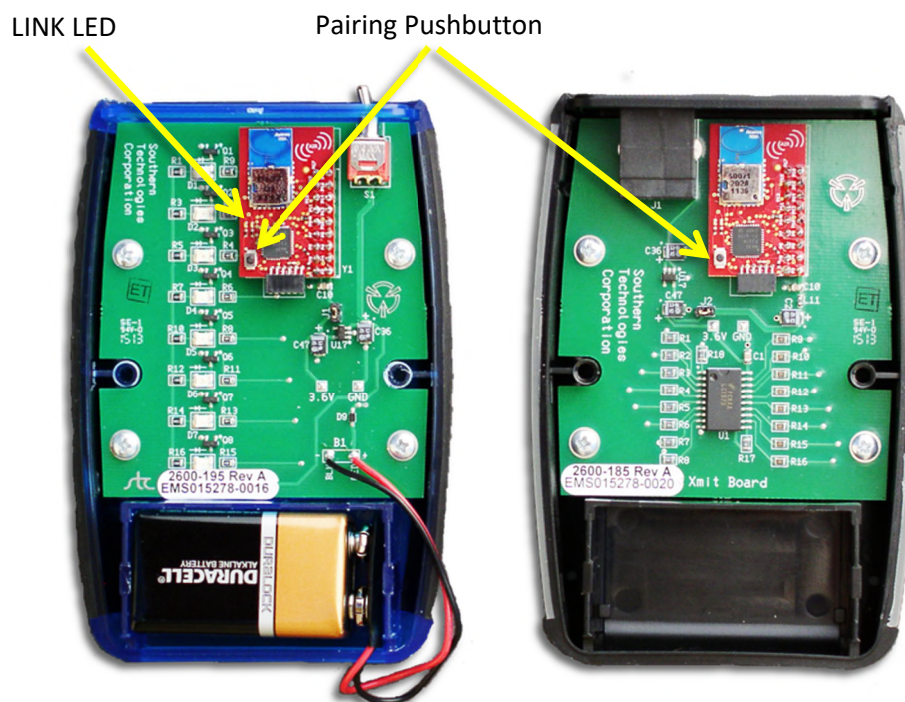


Figure 5 - Receiver and Transmitter without Cover

Transmitter Specifications

- Frequency range: 902-928 MHz
- FCC & Industry Canada compliant
- RF Power Output +10dBm (10mW)
- Operating temperature -40 to +85C

Receiver Specifications

- Frequency range: 902-928 MHz
- Sensitivity (-112 dBm at 1.2 kBaud, 915 MHz 1% packet error rate)
- FCC & Industry Canada compliant
- Operating temperature -40 to +85C