

sinbad

engineering corp

Shenandoah Track Sprint Wireless Timing System Installation

August 19, 2020

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Shenandoah Circuit, Summit Point

B T-Link	Antenna Type	Omni
	Location	Near start / finish line
	Height	Put Omni antenna on short pole near finish line
	Direction	N/A
Z T-Link	Antenna Type	Omni
	Location	At timing station
	Height	Put Omni antenna on short pole near timing station
	Direction	N/A
A T-Link	Antenna Type	Omni
	Location	Near start / finish line
	Height	No elevation necessary, omni antenna attached to A T-Link unit, no extender cable necessary
	Direction	N/A

Cable Runs

B T-Link to Finish Sensor	None Needed. The B T-Link unit is located within 25 feet of the start/finish line
A T-Link to Start Sensor	None Needed. The B T-Link unit is located within 25 feet of the timing station
Z T-Link to Timing Station	None Needed. The A T-Link unit is located within 25 feet of the start/finish line

Signal Strength at Previous Events

? 90 - 100 % ?

A T-Link to Sensor Cabling

For Shenandoah, since the A T-Link unit is within 25 feet of the start line, all that is needed to connect them to the sensor is the Race America Sensor cable.

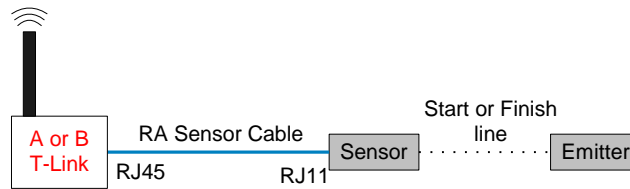


Figure 1: Basic Connection Wiring Diagram

B T-Link to Sensor Cabling (See NOTE 8/20/20)

For Shenandoah, since the B T-Link unit is within 25 feet of the finish line, all that is needed to connect them to the sensor is the Race America Sensor cable.

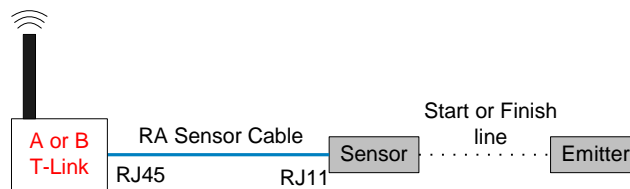


Figure 2: Basic Connection Wiring Diagram

Z T-Link to Timing Computer Cabling

For Shenandoah, the Z T-Link unit is within 25 feet of the Timing Computer, and all that is needed is the Race America Timing Computer cable.

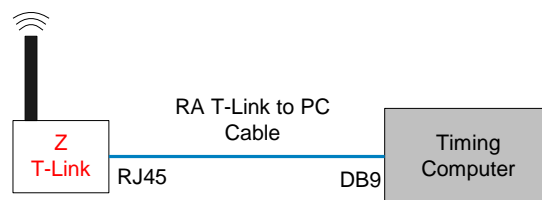


Figure 3: Basic Connection Wiring Diagram

NOTE 8/20/20:

At previous events, we ran a 300-foot cable from the B unit to the finish line so that the B unit was line of sight with the start line. I am recommending we try putting the B unit at the finish line with an elevated antenna using one of the collapsible poles. Also elevate the Z unit's antenna using the other pole. 10 feet or so should do it (just need to get antenna high enough to clear the ground between the finish and the timing station).

If this does not work, here is what we did originally for the B T-Link to Sensor connection:

B T-Link to Sensor Cabling

For Shenandoah, if the B T-Link is placed in line of sight of the timing station, it will be more than 50 feet from the finish line. Since the shortest cable that will work is one of the 300' cable reels, we need to use the "long distance" method, with special "Sensor Cat5e Coupler" boxes on each end to reduce the 8 wires to 4. This effectively doubles up each wire, which provides better signal quality for long distance sensor cable runs.

Note that the "Sensor Cat5e Coupler" boxes can be distinguished from the regular in-line coupler boxes, because one connector the standard Conec RJ45 connector (to match the connector on the Cat5e cable), but the other is an Assman RJ45 connector.

To use a long Cat 5e cable, you will need the Race America Sensor Cable, a white RJ45 Inline Coupler, 2 "To Sensor OR to RA Sensor Cable" cables (Assman RJ45 connector one end, RJ11 on other end, straight thru), 2 "Sensor Cat 5e Coupler" boxes and Cat 5e cable for the necessary distance.

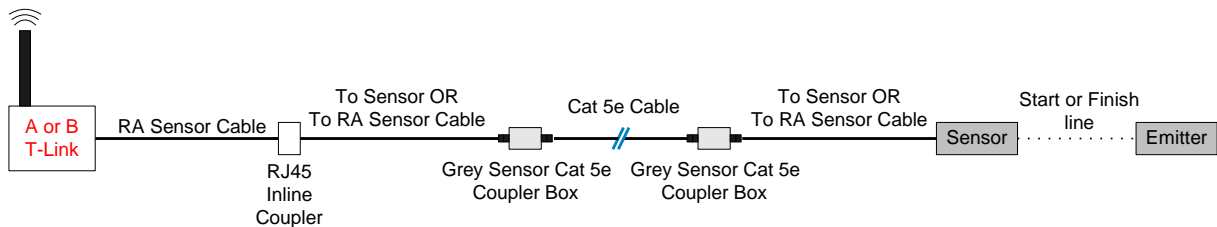


Figure 4: Sensor Long Distance Connection Wiring Diagram

NOTE: When connecting the RA Sensor Cable, plug the RJ45 (8 pin) connector into the T-Link unit, and the RJ11 (6 pin) connector into the RJ45 inline coupler.