

1 Whats in the Box



RTMS Echo 50 ft (15.24m) cable
Mounting bracket

Other Required Equipment

- Stainless steel banding and/or stainless steel bolts used to mount the sensor to a pole
- Junction boxes
- 12-24 VDC power supply, etc.
- Hand-held tally counter (recommended)

2 Mounting Height and Tilt Recommendations

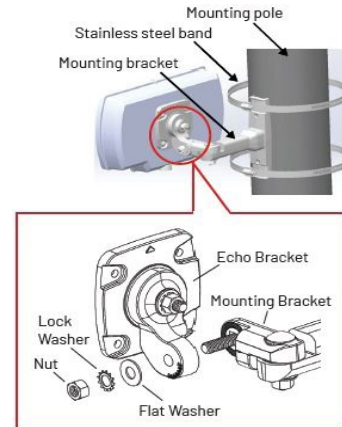
Closest Zone (ft / m)	Recommended Mounting Height (ft / m)	Recommended Tilt (degrees)	Maximum Recommended Detection Distance* (ft / m)
0 / 0	Contact ISS for recommendations based on site geometry.		
5 / 1.5			
10 / 3.1	15 - 26 / 4.6 - 7.9	-16 to -20	120 - 140 / 36.6 - 42.7
15 / 4.6	15 - 28 / 4.6 - 8.5	-12 to -17	150 - 160 / 45.7 - 48.8
20 / 6.1	20 - 31 / 6.1 - 9.4	-12 to -16	180 - 190 / 54.9 - 57.9
25 / 7.6	23 - 34 / 7.0 - 10.4	-11 to -15	210 - 220 / 64 - 67.1
30 / 9.1	26 - 35 / 7.9 - 10.7	-11 to -13	240 - 250 / 73.2 - 76.2
35 / 10.7	28 - 35 / 8.5 - 10.7	-10 to -12	250 / 76.2
40 / 12.2	31 - 35 / 9.4 - 10.7	-10 to -11	250 / 76.2
45 / 13.7	33 - 35 / 10.1 - 10.7	-10	250 / 76.2
50 / 15.2	35 / 10.7	-10	250 / 76.2
55 / 16.8	35 / 10.7	-9	250 / 76.2
60 / 18.3	35 / 10.7	-8	250 / 76.2

*Contact ISS Support for recommendations if outside these boundaries.

3 Mount the RTMS Echo

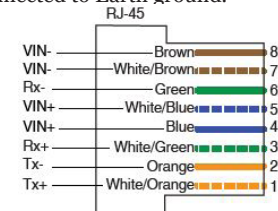
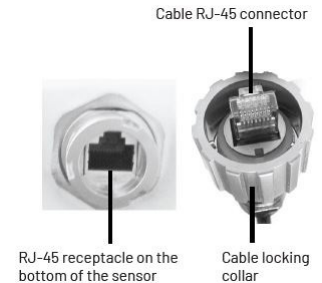
NOTE: Always follow local wiring codes and local standards that apply to the location in which the RTMS Echo is being installed.

1. Attach the bracket to the roadside pole (or another specified location) using stainless steel banding or bolts.
2. Secure the RTMS Echo to the mounting bracket using the washer, lock washer and nut. Make sure that the cable connector is on the bottom of the unit when it is mounted.
3. Adjust the RTMS Echo to be perpendicular to the travel lanes and level with the road. This is the roll and can be fine tuned in section 5.
4. Tilt the RTMS Echo so that the sensor is aimed at the farthest monitored zone. The tilt recommended in section 2 can be fine tuned in section 5.
5. Hand tighten the nuts for the moment. Final tightening will be done after the aiming process (section 5).



CAUTION: Make sure the mains are turned off prior to connecting the wires.

6. Undo the protective cap on the sensor's connector.
7. Insert the RJ-45 connector from the cable to the RJ-45 receptacle on the bottom of the sensor.
8. Tighten the cable's locking collar by turning it a quarter turn to the right.
9. Connect the other end of the cable to 12-24VDC power and communications in the breakout box according to the pinouts shown below. In addition, the silver (non-colored) wire must be connected to Earth ground.



NOTE: Surge suppression is recommended and filtering may be required (see the help system for details).

4 Connect to the Echo Web App

Ehco Web App

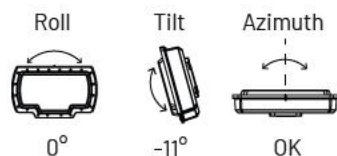
NOTE: If connecting through Wi-Fi, the wireless network for Echo is “echo-xxxx” (xxxx is the device ID) and the password is “echo123456”.

1. Start a web browser on the device (i.e., computer, tablet, phone) used to configure the Echo sensor.
2. In the URL field enter:
 - For Wi-Fi connections: **10.99.50.1**
 - For Ethernet connections: **192.168.0.10**
3. Enter the login credentials. Defaults are: **admin/rtmsecho**

5 Aim the Sensor

Sensor

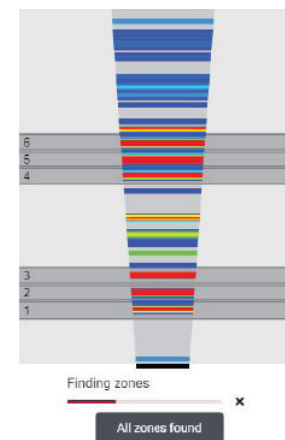
1. Select the **Aim** tab.
2. Rotate the sensor left or right to align the sensor perpendicular to the road. This is the roll setting, which is normally 0; however, it should be adjusted to the road angle if the road is not level.
3. Move the sensor forward and back to adjust the tilt according to the table in Section 2.
4. Swivel the sensor left or right to adjust the azimuth until it shows **OK**. After each azimuth adjustment, wait for about 20 vehicles to pass the sensor.
5. Once the roll and tilt are set, tighten the nuts securing the sensor.



6 Defect Zones

Defect Zones

1. Select the **Zones** tab.
2. Click **Auto Detect Zones**. There will be about one and a half minutes of prep time before detection begins. As objects are detected, the detection heat map appears in the radar beam image. Zones will appear when the system has determined that the detected objects are vehicles instead of stationary objects (i.e., barriers, etc.). The full process including prep time, takes approximately 8 and a half minutes; however, if all zones in the detection area appear, you can click **All zones found** to stop the process.



3. Click on a zone to display the zone controls.
4. If desired, enter a name for the zone (25 characters maximum).
5. Verify that the selection under **Traffic direction** is correct for the direction of traffic in the zone.



6. Repeat steps 3-5 for the other zones.
7. When complete, click **Save changes**.



7 Verify Vehicle Counts

Vehicle Counts

1. Select the **Calibrate** tab.
2. Select the checkbox for each zone for which counts will be verified. If more than one zone is selected, there should be one person with a hand-held counter monitoring each zone.
3. Click **Start** and immediately begin counting vehicles as the cross the RTMS Echo beam. Keep track of the count for each zone. When at least 50 vehicles for each selected zone have been counted, click **Stop** and enter the count for each zone in the Manual count column.

Vehicle counts		Speed calibration		Length calibration	
Zone	Sensor Count	Manual Count	Diff	% Diff	
<input checked="" type="checkbox"/> Zone 6	61	61	0	-	
<input checked="" type="checkbox"/> Zone 5	62	61	1	2	
<input checked="" type="checkbox"/> Zone 4	55	55	0	-	
<input checked="" type="checkbox"/> Zone 3	61	61	0	-	
<input checked="" type="checkbox"/> Zone 2	55	55	0	-	
<input checked="" type="checkbox"/> Zone 1	62	62	0	-	

NOTE: If any of the percentages are over 5 percent (plus or minus) corrections should be made before continuing (see the Troubleshooting section in the User Guide or Online Help).

8 Configure Sensor Settings

Configure Settings

1. Select the **Settings** tab.
2. In the **Local area network** section, click **Change**.
 - Enter the IP address, Subnet mask and Gateway to be used for the sensor.
 - Click **Save changes**.
3. In the Date and time section, click **Change**.
 - To set date/time automatically: Check the **Automatically set via GPS** check box.
 - To set date/time manually: In the **Clock** section, enter the date/time by typing it in, or click the calendar icon and select the date/time.
 - Use the drop-down to select the time zone in which the sensor is installed.
 - Confirm the system date/time is correct.
 - Click **Save changes**.
4. Return to the main **Settings** page and make any additional changes necessary.