Image Sensing System RTMS Echo Radar Sensor User Guide

ImageSensing systems

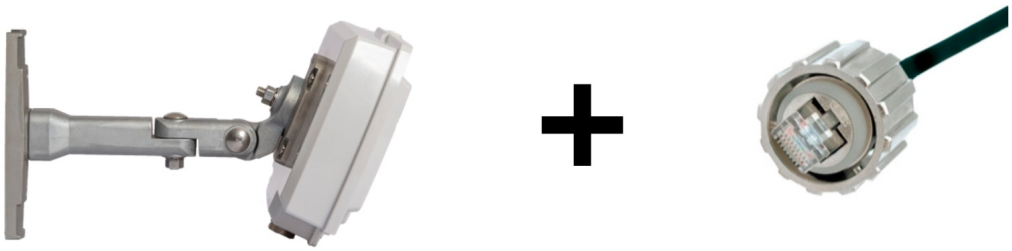
RTMS Echo Radar Sensor
User Guide

Scan to access Echo Online Help or by visiting **imagesensingsystems.com/echo-help**

http://imagesensingsystems.com/echo-help/

Contents

What's in the Box



- RTMS Echo
- Mounting bracket
- 50 ft (15.24 m) cable

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)

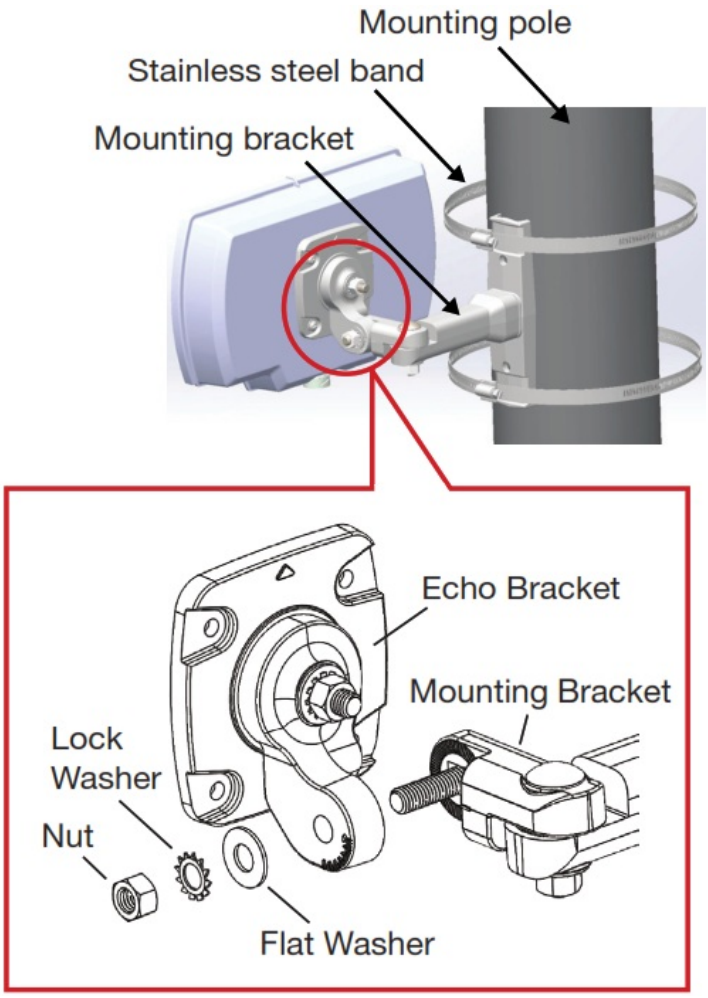
Mounting Height and Tilt Recommendations

Closest Zone(ft/m)	Recommended Mounting Height (ft/m)	Recommended Tilt (degrees)	M
0 / 0	15 / 4.6	-27	1
5 / 1.5	15 – 22 / 4.6 – 6.7	-19 to -21	1
10 / 3.1	15 – 26 / 4.6 – 7.9	-16 to -20	1
15 / 4.6	15 – 28 / 4.6 – 8.5	-12 to -17	1
20 / 6.1	20 – 31 / 6.1 – 9.4	-12 to -16	1
25 / 7.6	23 – 34 / 7.0 – 10.4	-11 to -15	1
30 / 9.1	26 – 35 / 7.9 – 10.7	-11 to -13	2
35 / 10.7	28 – 35 / 8.5 – 10.7	-10 to -12	2
40 / 12.2	31 – 35 / 9.4 – 10.7	-10 to -11	2
45 / 13.7	33 – 35 / 10.1 – 10.7	-10	2
50 / 15.2	35 / 10.7	-10	2
55 / 16.8	35 / 10.7	-9	2
60 / 18.3	35 / 10.7	-8	2

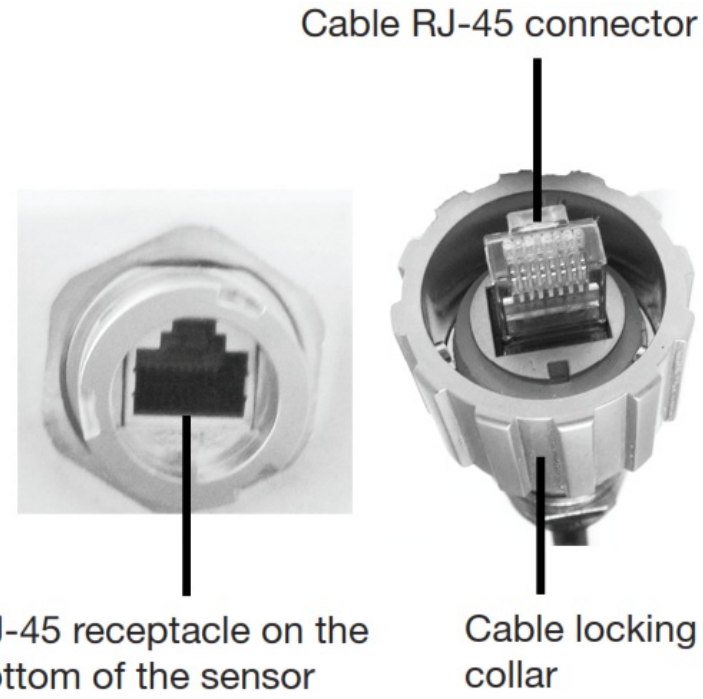
* Contact ISS Support for recommendations if outside these boundaries.

Mount the RTMS Echo

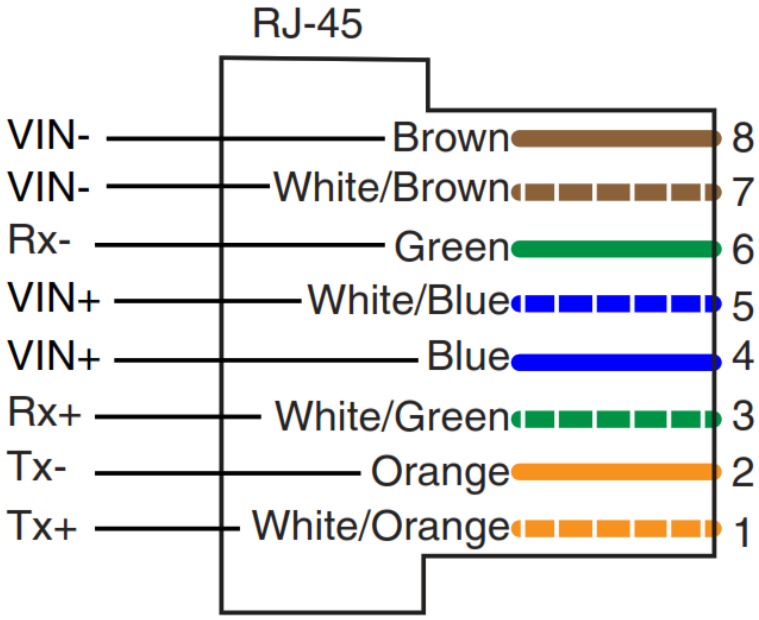
NOTE: Always follow local wiring codes and local standards that apply to the location in which the RTMS Echo is being installed.



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 role 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 tightens 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's ground.



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

Connect to the Echo Web App

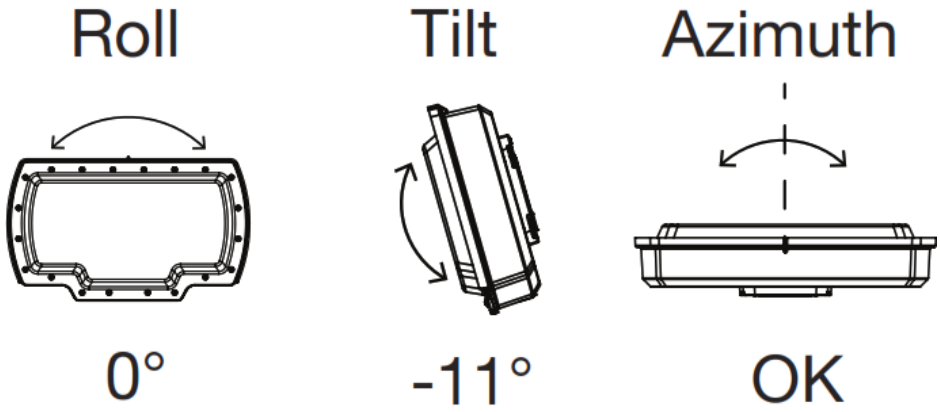
NOTE: If connecting through Wi-Fi, the wireless network for Echo is "echo-XXXX" (XXXX is the device ID) and the password is "echo123456".

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**

Aim the Sensor

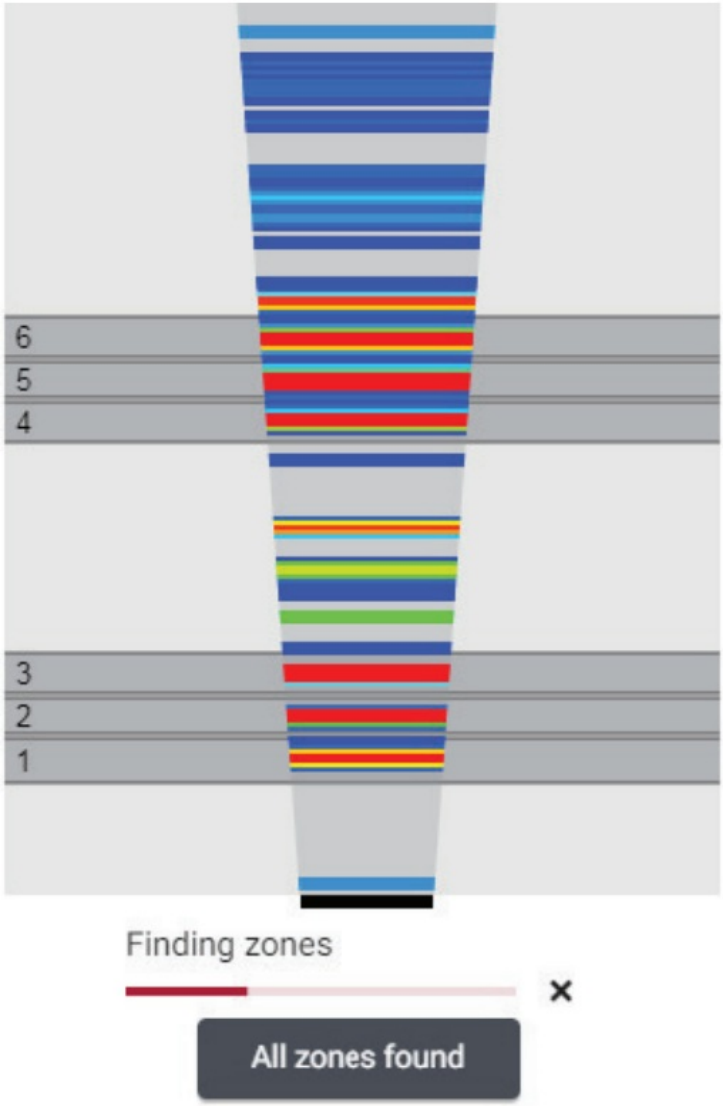
1. Select the **Aim** tab.
2. Rotate the sensor left or right to align the sensor perpendicular to the road. This is the roll setting, which is normally 0; however, it should be adjusted to the road angle if the road is not level.
3. Move the sensor forward and back to adjust the tilt according to the table in Section 2.



4. Swivel the sensor left or right to adjust the azimuth until it shows **OK.**
5. Once the roll and tilt are set, tighten the nuts securing the sensor.

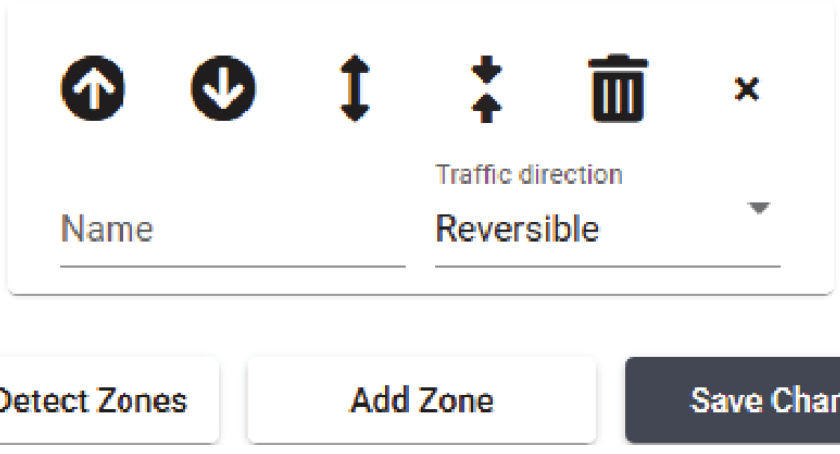
Detect Zones

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**.



Verify 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 they 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
✓	Zone 6	61	61	0	–
✓	Zone 5	62	61	1	2
✓	Zone 4	55	55	0	–
✓	Zone 3	61	61	0	–
✓	Zone 2	55	55	0	–
✓	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).

Configure Sensor Settings

1. Select the **Settings** tab.
2. In the **Local area network** section, click **Change.**
3. Enter the IP address, Subnet Mask, and Gateway to be used for the sensor.
4. Click **Save Changes**.
5. In the **Date and time** section, click **Change.**
6. Select the time zone in which the sensor is installed.
7. Click **Save changes.**
8. Return to the main **Settings** page and make any additional changes necessary.

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Email: service@imagesensing.com

Documents / Resources

	Image Sensing System RTMS Echo Radar Sensor [pdf] User Guide RTMS Echo, Radar Sensor, RTMS Echo Radar Sensor, RTMS Echo Radar, Radar

References

- RTMS Echo Online Help
- Image Sensing Systems - Precision decisions.