Houston Radar SpeedLane™ Pro Quick Start Guide

Version 4.0 Date April 24, 2025

Please read SpeedLane™ User Manual for a complete description of the installation procedure and setup of this product. This quick start guide is not meant to replace the user manual.

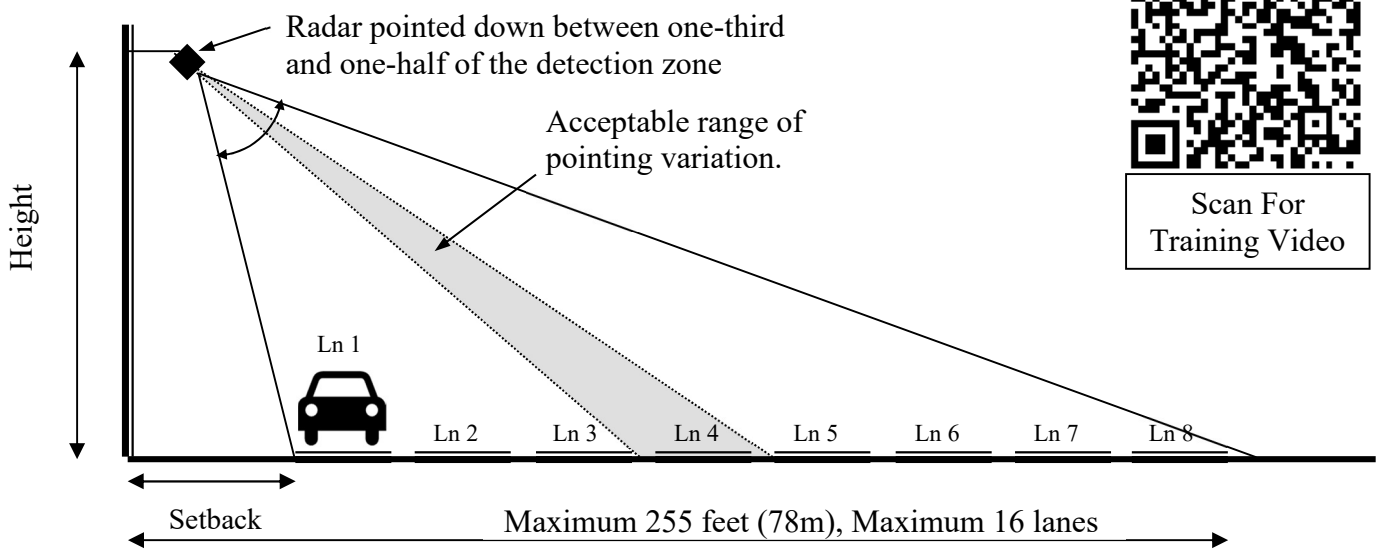
Scan the QR code on the right on your smart phone to download the complete user manual from our website or view a setup training video.

Scan For User Manual

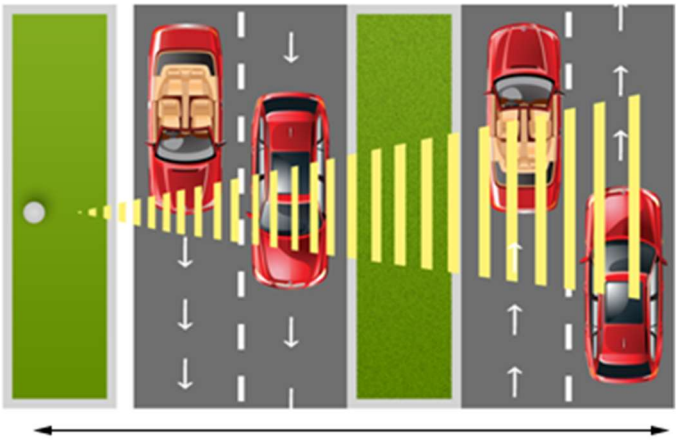
Scan For Training Video

STEP1: Select appropriate location and mounting height

Pick a mounting location where you are able to best satisfy the height and setback guidelines listed in Appendix B.



[Refer to height and setback tables in Appendix B]



Maximum 16 Lanes, 255 feet (78m)

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The SpeedLane Pro can support a maximum of 16 lanes, with each lane moving in any direction. The far edge of the farthest lane should be no more than 255 feet (78m) away.

Try to select a location with at least 20 feet (8m) setback if possible. However, the unit will work with as little as 6 feet (2m) setback. But in this case, you should not mount it higher than about 18 feet (6m).

STEP2: Prepare to install the SpeedLane™ Pro

- Ensure you have 0.75" (19 mm) (or narrower) wide steel banding straps to attach the SpeedLane to the pole.
- Locate the provided 3/16" Allen key to loosen the clamp brackets enough so that the tube can be easily rotated by hand. This will allow you to make pitch adjustments to align the up/down pointing of the radar as recommended in the mounting chart in Step 1 above. *The clamps are designed to tightly grip the tube without crushing it when tightened all the way down.*

- The SpeedLane has an onboard sighting video camera that will be used for alignment purposes. You must prepare to power up the SpeedLane during installation and connect to it from our PC based StatsAnalyzer software.
    - If you are planning to power the device via 12VDC, locate the **12 pin** M12 cable shown below and connect it to the connector on the right side of the radar (side away from camera window). ***Hand tighten*** completely.
- The device may be powered either by pin 1 (+) and pin 5 (ground) on the DB9 connector or via the provided DC jack connector. ***The striped (black/white) wire on the DC jack connector is (+). If you purchased a RS485 surge protector junction box, the SpeedLane M12 cable may be provided with loose wires. Refer to the wiring diagram in the box for wiring instructions.***

The SpeedLane can also be powered via the DB9 cable if it has a built in battery and the external power will be used to charge the battery.

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SpeedLane Pro RS232/RS485 Serial, VDC and 100Mbps Ethernet Cable.

- Locate a suitable +12VDC nominal (28VDC maximum) power source capable of supplying 2.5 Watts or more (or 0.21 Amps) to power the unit. The nominal power usage of the radar is only 0.9 Watts, but will rise to 2.1 Watts when the camera is in use.
- Install provided Houston Radar StatsAnalyzer software on a Windows laptop or PC. Plug in the DB9 connector to a PC serial port or a USB to RS232 adapter.
    - If you have purchased the Ethernet option, we recommend using it for communication with the radar. ***The camera can only be used in video mode over Ethernet. With a serial or Bluetooth connection, you can use camera to take snapshots.***
    - Alternatively, it may be more convenient to power the radar temporarily via the serial cable from a power source in the bucket truck, but connect to it wirelessly over Bluetooth from a computer on the ground. This will avoid having to use temporary wiring during the installation process. *The Bluetooth ID of the radar is printed on a label on the back of the mounting plate. A pairing key is not usually required, but if requested, enter 1234.*

      You MUST connect to the radar via Bluetooth or Ethernet to setup lanes if you have opted for half duplex RS485 interface on the main serial port.

STEP3: Power ON and verify proper connection while still on the ground

Power on the radar and ***wait about 45 seconds*** to allow it to finish booting.
Then start up the Houston Radar StatsAnalyzer (or the Houston Radar Configuration tool) software and click on *File->Connect to Radar…*

If you have decided to connect via a local serial port or Bluetooth, select "*Auto Detect Port"* or the port number for the serial port or Bluetooth connection and then click on "Connect".

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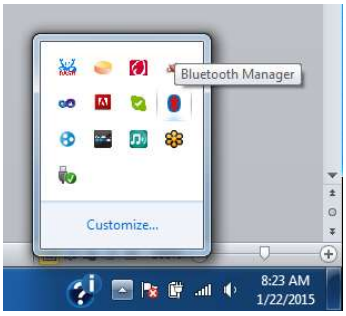
If you are connecting via Bluetooth, you must have already paired the computer to the SpeedLane's Bluetooth and had a COM port assigned ***before*** *starting the Houston Radar program. You can do this by* ***right*** *clicking on the* ***Bluetooth manager icon in your Windows status bar*** *and "Add New Connection". This procedure is required only once per computer/SpeedLane connection.*



If you have decided to connect using Ethernet, pull down the "*Connect To Radar On*" list and select the "*Local Network*" option. The SpeedLane and Stats Analyzer supports zero-conf/auto discovery so they will communicate when directly connected.

Once the radar is found:

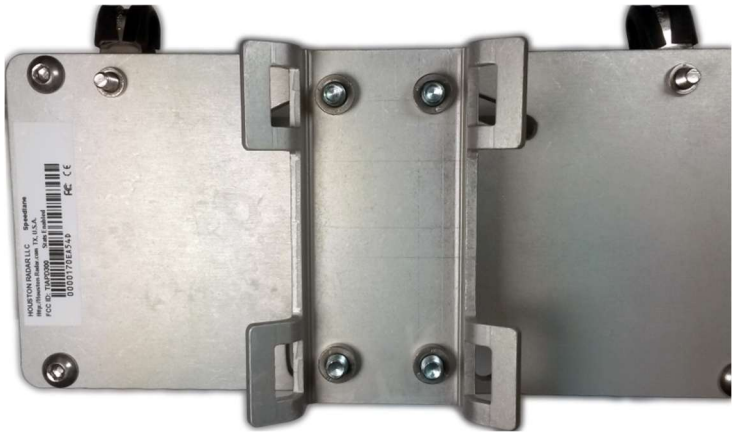
1. Check the **clock** and ensure it is correct. It is set to US Central Time from the factory. **Make sure your PC clock is accurate** and then click the "Sync Radar Clock to Computer" button to set the radar clock
2. Click "**Save Changes**" button. Reconnect if prompted.

You are now ready to strap the SpeedLane to the pole and complete setup. At this point power down the radar and proceed to the next step.

Step 4: Adjustments and setup of SpeedLane™ on the pole

The SpeedLane has an onboard sighting camera and electronic level sensor for measuring level and tilt that will be used for alignment purposes. These will make the setup process significantly easier and ensure properly alignment of the radar.

If you are mounting the SpeedLane to a pole, attach the pole mounting bracket to the mounting plate of the radar as shown below:



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If you are mounting the SpeedLane to a square pole, purchase and attach the optional KIT-SLP-0007 square pole mounting bracket to the radar's mounting plate, as shown below. This bracket allows horizontal adjustment to compensate for a square pole not being parallel with the road.

The SpeedLane mounting plate is designed to provide level adjustment to compensate for a sideways leaning pole. If this is required, loosen the bolts on the smiley plate slightly before strapping to the pole to allow level adjustment while viewing the video/snapshots from the onboard camera and gyroscope level readings in the wizard. After adjusting, tighten all bolts completely.

Follow the steps below to get the SpeedLane aligned so that the view of the road looks correct and traffic is reliably detected. ***A little extra effort at this stage to properly align the radar will pay off in terms of trouble free performance of the radar***.

1. Loosely strap SpeedLane to pole at the appropriate height per installation tables
2. Connect the cables and **power on** the radar. Secure the service loops of the cables via strain relief clamps provided on the bracket. **Do not rely on the connectors to support the entire weight of the cable.**
3. Connect to the radar and click on the "**Installation Wizard**" tab. Follow the prompts on the screen. *We highly recommend watching the installation training video in advance which shows all the steps of wiring the SpeedLane and using the Installation Wizard.*

   Here are a few points to keep in mind during the lane setup:
   - ✓ Ensure you get at least 3 or more filled signal strength bars on most targets for proper detection.
   - ✓ Define one lane for each lane on the road. Do not attempt to define one lane for multiple lanes on the road.
   - ✓ Do not leave a gap between defined lanes if there is no gap on the road. Typically you would only have gap between the lanes if there is a median, shoulder or some other part of the road with no traffic.
   - ✓ Do not try to overlap lanes (the software will prevent you from doing this).
   - ✓ Setup the lane direction to match the direction of travel on the road.
   - ✓ Click "Finish" on the last page of the Installation Wizard.

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Step 5: Setup your external router/modem/Tetryon Server connection if required

If you wish to retrieve data remotely, refer to Appendix C for more details on the setup.

We are here to help and can guide you remotely to ensure a proper alignment. We highly recommend that you setup a telephone appointment with us and plan to temporarily bring a cellular data modem with an Ethernet port to the site. We will then connect remotely via the Internet and view the SpeedLane camera and radar detections to ensure a proper setup. This method can be invaluable to ensure that the device is setup correctly. There is no additional charge for this support.

Questions? Call us at 1-888-602-3111 and select "Tech Support" option or email us at support@houston-radar.com

We are also happy to review the photo from the SpeedLane camera to ensure the device is aimed correctly. Feel free to email us a photograph.

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Appendix A

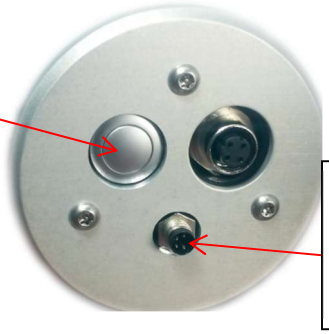
On-board battery Option for Solar Power, UPS or Portable Applications

If you have purchased a SpeedLane Pro with the Uninterruptable Power Supply (UPS) built-in battery option or a solar power package, the device has an on-board high performance LiFePO4 rechargeable battery and a high performance maximum power point technology (MPPT) charger.

In this configuration, the SpeedLane Pro will charge from the external 12VDC power on the 12 pin M12 connector as described in the quick start guide as well from the 4 pin M8 connector described below.

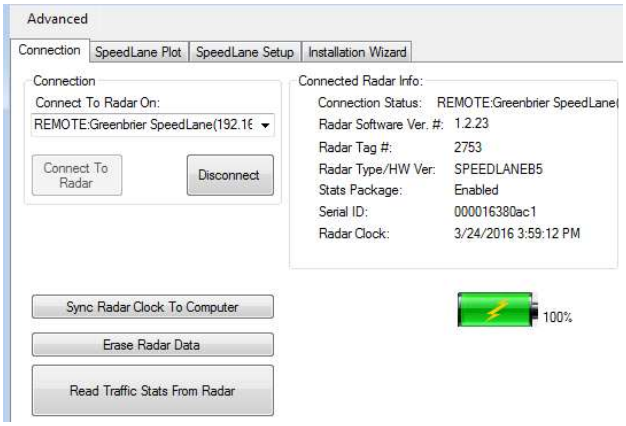
The unit has an additional IP67 rated 4 pin M8 connector as shown below. Only 2 pins of this connector are utilized for connection to an external solar panel or external DC charger. The other two pins should not be connected as they may be utilized for other features in the future.

On/Off Switch Toggle Switch.
Recessed= ON
Flush (as shown)=OFF



IP67 Rated M8 Connector for 12V nominal solar panel or provided external +24VDC charger.

Two sets of M8 cables are provided. One has bare leads on it, marked + and – for connection to an external 12V (nominal) solar panel. The other is for charging via external 24VDC power. Real time battery charge level and charging status is available when you connect via the Houston Radar Stats Analyzer. Click on the icon for a real time charge/discharge history plot.



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Appendix B Recommended Installation Tables

SpeedLane Installation Table (in feet)			
Offset from 1st lane	Recommended Height (ft)	Minimum Height (ft)	Maximum Height (ft)
7’	17’	8’	19’
8’	17’	8’	20’
9’	17’	8’	21’
10’	17’	9’	22’
11’	17’	9’	23’
12’	17’	10’	24’
13’	17’	11’	25’
14’	18’	11’	26’
15’	20’	12’	26’
16’	20’	12’	27’
17’	21’	13’	28’
18’	22’	14’	29’
19’	22’	14’	30’
20’	23’	15’	30’
21’	23’	15’	31’
22’	23’	16’	31’
23’	25’	16’	32’
24’	25’	16’	33’
25’	26’	17’	33’
26’	26’	17’	34’
27’	27’	18’	35’
28’	27’	18’	35’
29’	27’	18’	36’
30’	29’	19’	37’
31’	29’	19’	37’
32’	29’	19’	38’
33’	30’	19’	39’
34’	30’	19’	39’
35’	30’	20’	40’
36’	30’	20’	41’
37’	30’	20’	41’
38’	31’	21’	42’
39’	31’	21’	43’
40’	33’	22’	43’
41’	33’	22’	44’
42’	34’	22’	44’
43’	34’	22’	45’
44’	35’	23’	46’
45’	35’	23’	46’

SpeedLane Installation Table (in meters)			
Offset from 1st lane	Recommended Height (m)	Minimum Height (m)	Maximum Height (m)
2m	5m	2m	6m
2m	5m	2m	6m
3m	5m	2m	6m
3m	5m	3m	7m
3m	5m	3m	7m
4m	5m	3m	7m
4m	5m	3m	8m
4m	5m	3m	8m
5m	6m	4m	8m
5m	6m	4m	8m
5m	6m	4m	9m
5m	7m	4m	9m
6m	7m	4m	9m
6m	7m	5m	9m
6m	7m	5m	9m
7m	7m	5m	9m
7m	8m	5m	10m
7m	8m	5m	10m
8m	8m	5m	10m
8m	8m	5m	10m
8m	8m	5m	11m
9m	8m	5m	11m
9m	8m	5m	11m
9m	9m	6m	11m
9m	9m	6m	11m
10m	9m	6m	12m
10m	9m	6m	12m
10m	9m	6m	12m
11m	9m	6m	12m
11m	9m	6m	12m
11m	9m	6m	12m
12m	9m	6m	13m
12m	9m	6m	13m
12m	10m	7m	13m
12m	10m	7m	13m
13m	10m	7m	13m
13m	10m	7m	14m
13m	11m	7m	14m
14m	11m	7m	14m

Recommended Mounting

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Appendix C

Retrieving Data Remotely from the SpeedLane

There are two ways to access the SpeedLane Pro data remotely:

1. Call directly in to the radar via the Stats Analyzer software
2. Setup the SpeedLane Pro to call out to our Tetryon™ cloud server and access the data on the server via a browser from any computer connected to the Internet

Both options can be used with either your own external modem or the optional built-in 4G modem.

1. **Call in to the SpeedLane from your Windows computer**

External Modem with Ethernet to SpeedLane

When using external modem, you need to forward incoming network connections to allow the remote computer to connect into the SpeedLane. You also require a static IP address in the modem so you can connect to it directly.

If the SpeedLane is connected via **Ethernet** to the router/modem:

1.1. Assign an unused private static IP address to the SpeedLane via the *SpeedLane Setup->Ethernet tab*.

1.2. On the external modem, select any available external port number you wish to use (e.g. 5000). In the external **modem configuration** forward all TCP/IP traffic for this external port number to the SpeedLane IP address at port 5125.

1.3. If you wish to use the video streaming feature, you also need to forward all TCP/IP traffic for external port 8080 to the SpeedLane IP address at port 8080.

External Modem with Serial to SpeedLane

If the SpeedLane is connected via serial port to the external modem:

1.4. On the external modem, select any available external port number you wish to use (e.g. 5000). In the external **modem configuration** forward all TCP/IP traffic for this external port number to the <u>local serial port on the external modem</u> connected to the SpeedLane.

1.5. Ensure you do not have any "terminal editing" settings enabled on this serial port and you are using it in "raw" mode without any character translation.

1.6. Setup the modem serial port with the following parameters: 115200 baud, 8bits, 1 stop, no parity and no handshaking. The DB9 port on the radar cable is wired as a <u>DCD</u> so it will require a <u>null modem/crossover</u> to connect to your modem.

What options are installed in the SpeedLane? Check the label on the back.

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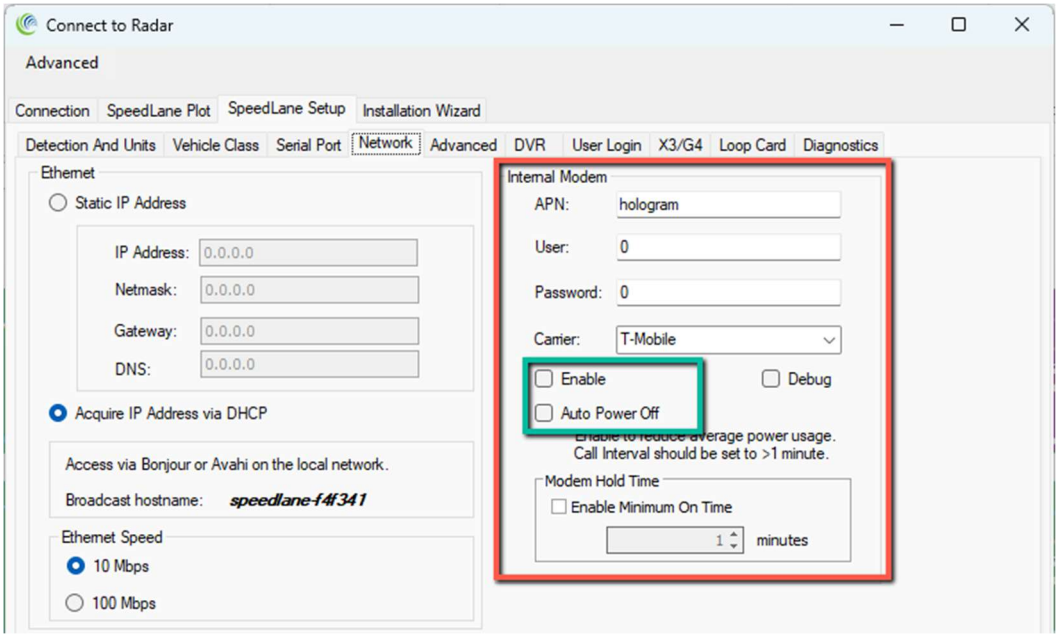
Setup Internal Modem

1.7. When using internal modem you must setup the "APN" and enable the modem in the SpeedLane Setup->Network tab.

1.8. Do not enable "Auto Power off" as you will not be able to call the SpeedLane.



Setup Stats Analyzer Remote Radar Connection

1.9. On the remote host computer, setup a "Remote Radar Connection" in the Houston Radar Stats Analyzer program via "*File-Setup Remote Radar Connections…"*. Use the ***external*** well known public IP address or hostname of the modem and:

1.9.1. For the external modem, the external port number you selected in the steps above (5000 in example above) or

1.9.2. For the internal modem, port 5125.

1.10. Ensure you can make a connection from the remote computer to the SpeedLane and can view video if you have connected via Ethernet or internal modem (watch out for data usage when using a limited data plan!)

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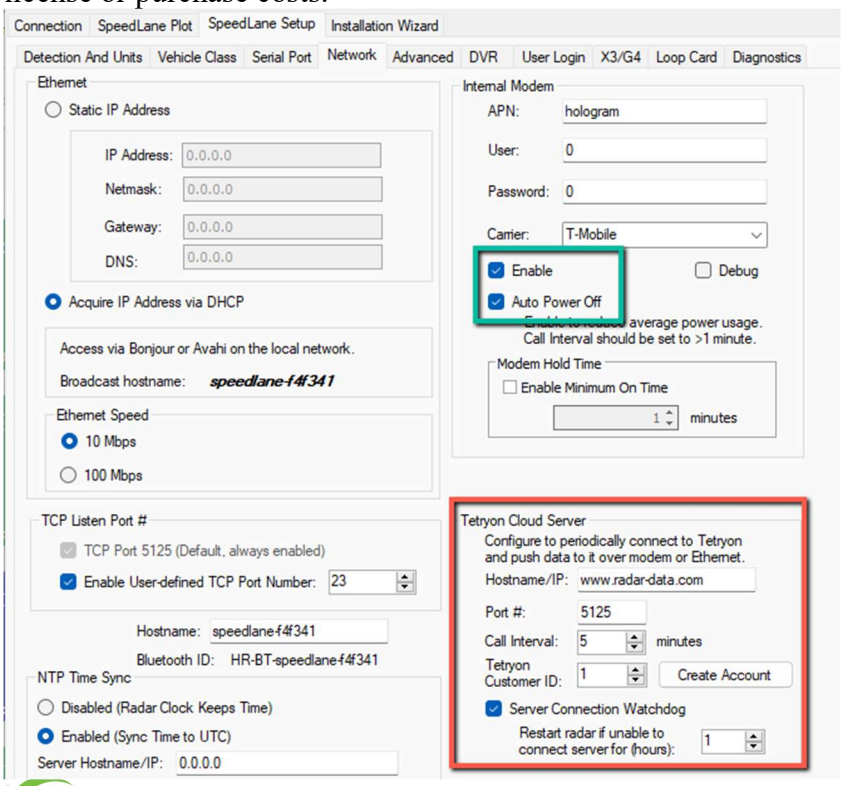
2. **Call out to our Tetryon server in the cloud**
   This option does not require a static IP address as the SpeedLane initiates an outgoing connection. Additionally you can opt to automatically power down the internal modem and save considerable power.
   You must use either the optional internal modem or be connected to the external modem via Ethernet as the SpeedLane will initiate a TCP/IP connection to the server.

   2.1. Configure your Tetryon server address in the SpeedLane Setup->Network tab
   If you would like to use our demo server:
   - 2.1.1. Use www.radar-data.com as the Hostname/IP address
   - 2.1.2. Request a customer ID at http://www.radar-data.com/newaccount . Once you receive the customer ID, program it in the customer ID field.
     You only need one customer ID per company and not one per radar.
   - 2.1.3. Set port # 5125 and select your call interval.

Select a call interval 5+ minutes if you wish to auto power down the modem to save power. Call intervals of 15+ minutes with auto power off result in very modest modem duty cycles and add practically zero additional power to the basic 0.85 Watts of the radar and make the modem "free" from a power standpoint.

Once your account is activated, you will receive an email with further details on how to access the data online. Ask us how you can host the Tetryon server yourself without any license or purchase costs.



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This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. The device must be located 20 cm or more from persons. The device must not be co-located with other transmitters.

This device is certified to be used in Canada under “RSS 310”.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Any modification or use other than specified in this manual will strictly void the certification to operate the device.

The product does not contain user-serviceable parts. Do not attempt to open or repair it. Doing so will void the warranty.

Specifications may change without notice.

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