



**OMNTEC**  
Advanced Tank Monitoring & Leak Detection



1. Open the camera app
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3. Follow the instructions on the screen to view PDF file

# TLM-R

## INSTALLATION MANUAL



Radar Sensor

Revision 2609

Document No. 610003

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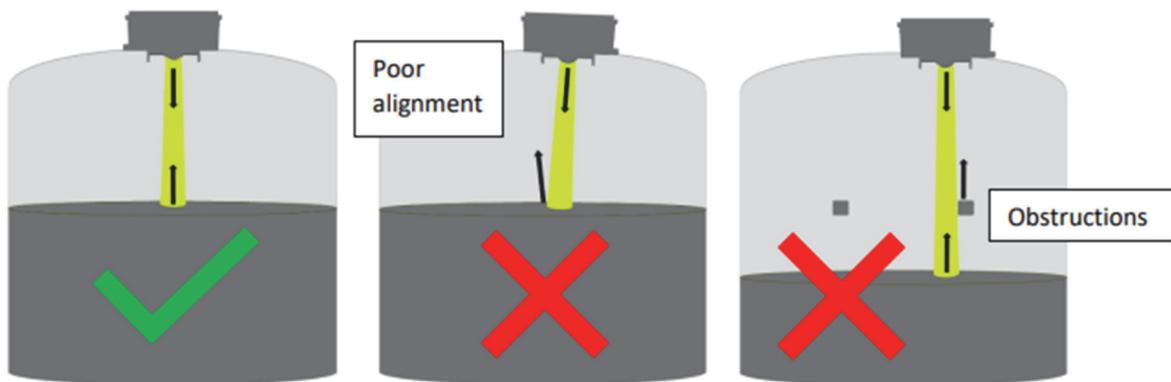
## DESCRIPTION

The sensor uses high frequency radar to measure the distance from the sensor to the product being monitored.

The sensor comes with a 2" NPT threaded fitting for invasive installation into an available 2" port on a tank. There is also an option for non-invasive mounting of the sensor to the roof of **some** plastic tanks (the radar must be capable of penetrating through the tank material) although this will affect range and potentially reliability.

## GENERAL GUIDELINES

Whether or not an invasive mounting is used, there are some general principles to keep in mind when installing the radar.



- Keep the sensor as vertical as possible. Tilting the sensor will decrease range and reliability.
- Keep the sensor as far away from internal obstructions, including weld seams on the sides of the tank, pump equipment, internal baffles, etc., as possible. Each of those potentially adds additional possible sources of false echoes.
- Keep the sensor away from areas where water may pool.
- Where possible, protect the sensor from being buried under snow. There is a cellular radio inside the sensor that communicates to the local cell towers, and if the unit is buried under significant amounts of snow, transmissions may not be possible until the snow is removed.

## PRE-INSTALLATION CHECKS

Prior to making installation of the sensor, it is strongly recommended that some basic information be gathered and provided to OMNTEC®'s technical team. Ideally, as much of this should be determined well in advance of the installation so OMNTEC can advise you of any possible problems prior to your arrival.

1. Tank size (dimensions), including external and internal tank sizes (if using a thick-walled tank)
2. Tank shape
3. Maximum depth
4. Wall material and thickness (if anticipating a non-invasive install).
5. Geographic location/address (required to check cellular coverage).
6. Any local obstructions (buildings, dense trees, hills, large metal structures) that may cause cellular reception issues.

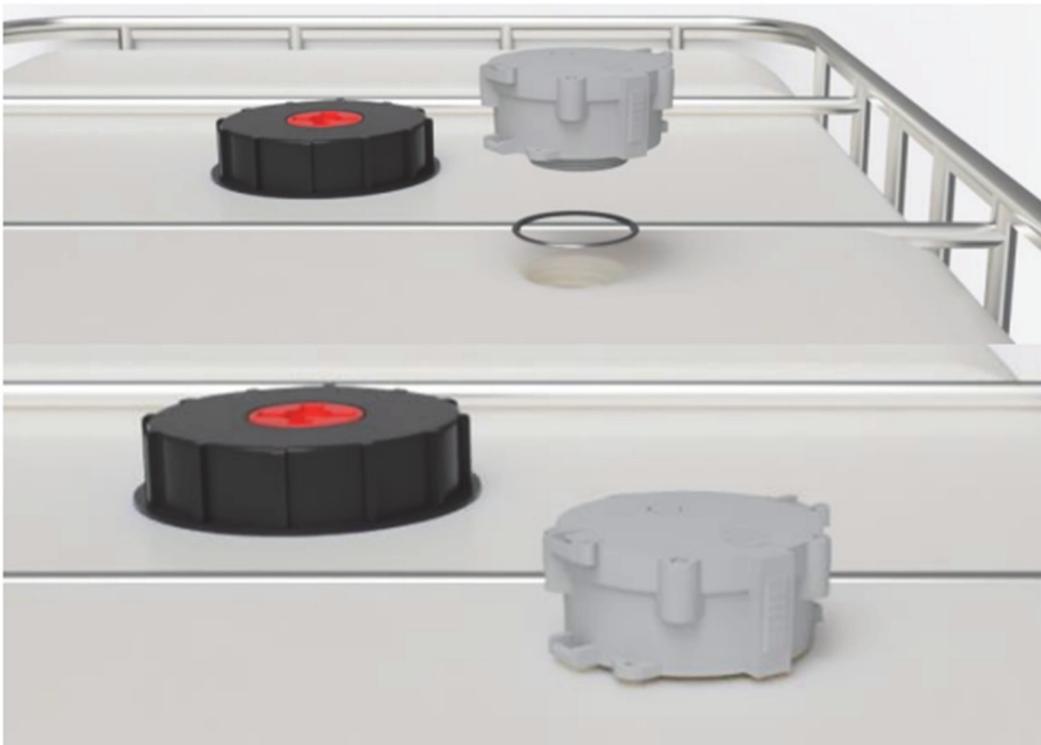
7. Depth of the fluid in the tank (needed at the time of installation). This will be used to calibrate the radar's offset, and to verify that the signal being selected is from the fluid, and not from internal obstructions or baffles.
8. Fluid type. The dielectric constant of the fluid will affect the maximum range of detection.
9. End customer name and contact point
10. Email address(es) of end users that should have access to the portal

PLEASE SCHEDULE YOUR INSTALL WITH OMNTEC'S RADAR SUPPORT TEAM SO THEY CAN ENSURE YOUR INSTALLATION GOES AS SMOOTHLY AS POSSIBLE.

**Please call Ryan Jorgenson @ 407-252-3542, or Jose Conde @ 631-981-2001 X170 for support and to schedule your install, preferably at least a business day in advance.**

## INVASIVE INSTALLATION (DIRECT INSTALL IN 2" PORT)

The 2" threaded fitting can be directly inserted into an available tank opening. Care should be taken to make sure that the radar is placed as close to the roof of the tank as possible. Risers, T-Fittings and other piping that raises the sensor vertically above the roof should be avoided as much as feasible as they can cause false reflection noise and reduce the effective range of the sensor.



Apply the supplied gasket around the 2" fitting, then hand tighten the unit into the opening, **being careful not to cross-thread the unit into the tank.**

DO NOT OVERLY TIGHTEN THE UNIT INTO PLACE. The unit is constructed of a type of plastic (KYNAR) and cross-threading or overly tightening the unit can damage the threads and make removal difficult.

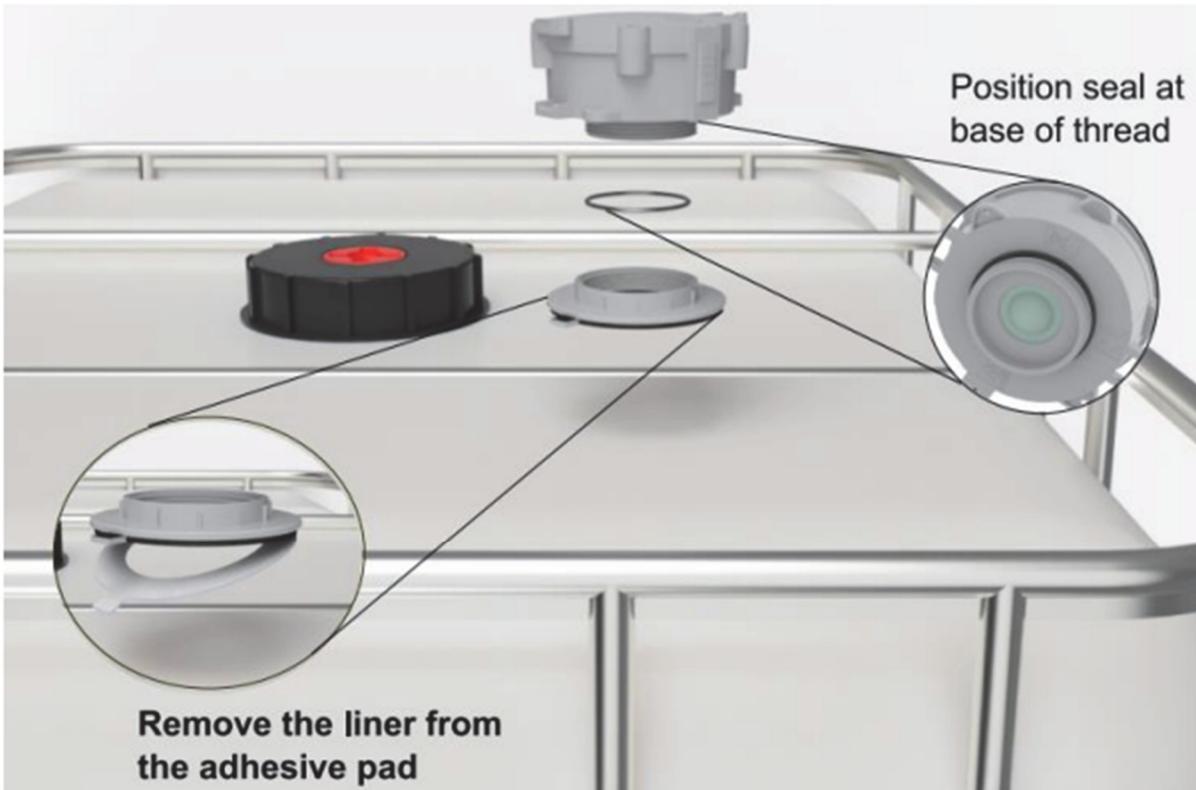
The rubber gasket forms the weather seal with the tank and pipe dope or equivalent is not required.

## NON-INVASIVE INSTALLATION

For some non-metallic tanks, non-invasive (through the roof) mounting may be possible. Maximum wall thickness must be kept below 10mm.

**NOTE: It is suggested that you test fit the unit in place and ensure you are able to detect the fluid through the tank wall, PRIOR to permanently affixing the adapter.**

In this case, select a flat area on the roof of the tank where the interior of the tank underneath is believed to be free of obstructions in the line of sight of the radar.



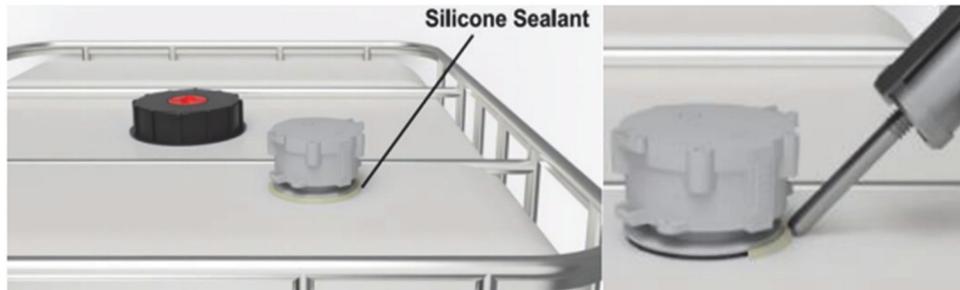
Ensure that the area where the sensor is to be installed is clean, dry, free of dirt and grease, and as level as possible. The area should also be selected to be free of possible water pooling.

**IT IS IMPORTANT THAT WATER AND ANY OTHER SUBSTANCES ARE PREVENTED FROM GETTING INTO THE AREA ENCLOSED BY THE ADAPTER, AS THEY MAY AFFECT THE RADAR READINGS.**

Install the bulkhead adapter by removing the liner from the adhesive pad, then pressing the adapter firmly down onto the roof of the tank.

Install the rubber gasket around the threads of the radar unit, then screw it firmly into the adapter, hand tight.

It is recommended to apply silicone sealant ONLY to the side of the adapter where water may lodge or run against the unit, to add additional sealing. This would be typically on the side of the prevailing wind, or the uphill side of any tilt to the tank roof. **Note: this should NOT be added completely around the circumference of the unit.**



Other means can be used to fasten the unit to the top of the tank, and silicone can be used to create a level surface if necessary. Consult the factory if you expect to require special mounting procedures.

## MEASUREMENT AND CALIBRATION

It is critically important that an accurate fluid level be obtained and provided to the OMNTEC team as you are doing this installation. This is the ONLY way to confirm that the radar is accurately detecting and selecting the correct echo coming back, and NOT being confused by an internal obstruction.

### MAXIMUM TANK DEPTH (INCHES)

Used to set maximum range for the radar. This should be the distance from where the radar is mounted to the bottom of the interior tank

### DEPTH OF FLUID CURRENTLY IN TANK (INCHES)

Used to determine if the radar is measuring the correct distance, and to calibrate the offset.

### SERIAL NUMBER OF THE DEVICE

This is printed on the side of the radar unit, **BELOW** the barcode.



## SENSOR ACTIVATION

(At this point, you should be in contact with OMNTEC's radar technical team to assist you in this installation).

**Please call Ryan Jorgenson @ 407-252-3542, or Jose Conde @ 631-981-2001 X170 for support at this step if you have not already contacted them before this.**

A magnet is supplied with the device to activate the unit and force it to upload a reading. Hold the magnet over the hotspot for approximately 6 seconds. The unit should begin beeping regularly approximately once per second if the magnet is placed

correctly, and should continue beeping AFTER you remove the magnet from the hotspot. This will cause the unit to take a reading and upload it to the cloud. You will need to confirm with OMNTEC that the reading was received correctly, and they may instruct you to retry the connection a few times.

**The magnet should be retained for future use by the end customer or the installer, since it can be used to force immediate communications instead of waiting for the next scheduled check in. In a pinch, any reasonably strong magnet can be used.**

## OPERATING NOTES

The unit has an operating temperature range of -25C to +50C, and from 10 to 100% Humidity.

The casing carries an IP68 rating, and the sensor is rated for Class 1, Div 1, Group C & D T4.