OTODATA

Installation Guide

Tank Level Monitor
Hydrostatic Pressure

TM5240HP

Original instructions

Read this manual before using the equipment

Retain this manual for future use

GRA-0102-EN_004 IM_TM5240HP 2026-01-15

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Intended purpose

The purpose of this guide is to provide instructions and information for the safe installations of the Otodata Tank Level Monitor (Hydrostatic Pressure) TM5240HP.

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Contents

1 Safety information

This section provides an overview of all safety aspects for the protection of people as well as safe and uninterrupted operation. Other task related safety instructions are included in the specific sections.

1.1 Safety notices

The following safety notice formats are used in this guide. Safety notices are used at the start of sections or embedded in operating instructions.

Make sure you fully understand and comply with the notices in this guide.

DANGER

Risk of death!

Indicates a hazardous situation which, if not avoided, could result in death.

WARNING

Risk of serious injury or death!

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

Caution

Risk of serious injury or damage!

Indicates a hazardous situation which, if not avoided, could result in serious injury or damage to your equipment.

Notice

Indicates an important situation which, if not avoided, may seriously impair operations.

Information

Additional information relating to the current section.

1.2 Special safety instructions

To indicate specific hazards, this guide uses the following symbols.

Table 1 • Hazard symbols

Symbol	Meaning
	General warning
	Hazardous substance
	Electrostatic charging hazard
	Explosion hazard
	Crush or trapping hazard

1.3 Intended use

The Tank Level Monitor (Hydrostatic Pressure) TM5240HP (the monitor) is intended exclusively for use in accordance with the information and safety instructions provided in this guide. The monitor is to be used for measuring and recording the level of a substance in a tank.

Intended use includes compliance with all the information and safety instructions in this manual. Any use that deviates from, or goes beyond the intended use or ignores the safety instructions in this guide or the identification labels on the device, is considered misuse.

WARNING

Danger due to misuse!

Only operate the device if it is in an undamaged and orderly condition.

Observe all warning information on the identification labels on the device.

Never deviate from the prescribed maintenance intervals and procedures.

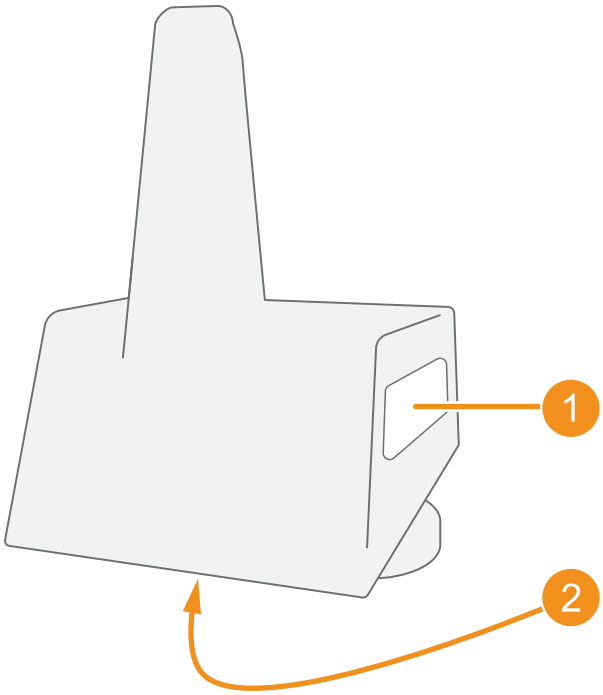
Never modify or attempt to modify the device.

Never allow untrained personnel to operate or service the device. Substitution of components may compromize the intrinsic safety of the device.

1.4 Identification labels

Identification labels on the communicator may contain warnings for potential hazards. These identification labels must not be defaced or removed.

Figure 1 • Identification label locations

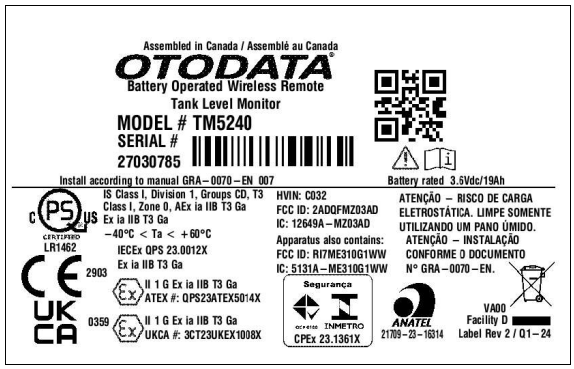


1	Identification label on the side of the communicator
2	Main identification label on the base of the communicator

The following are examples of identification labels.

Figure 2 • Identification label on communicator side

Figure 3 • Identification label on communicator base



1.5 PPE requirements

WARNING

Risk of serious injury or death!

When installing the monitor, you may come into contact with hazardous and flammable substances:

- Use personal protective equipment (PPE) such as protective gloves and safety glasses as required.
- Wear appropriate protective clothing and footwear.
- Do not eat, drink, or smoke when installing the monitor.
- Follow local guidelines and safety requirements.

1.6 Operating environment

Otodata recommends the monitor to be installed outside. This maximizes signal strength and therefore the performance of the communicator.

WARNING

Risk of serious injury or damage!

Potential electrostatic charging hazard. To clean the communicator, wipe only with a damp cloth. Do not pressure wash.

1.7 Residual risks

The section provides an overview of the residual risks to be aware of when installing the monitor.

1.7.1 Pinch points

WARNING

Risk of crushed or trapped hands!

You can mount the communicator directly on the tank using its built-in magnetic feet, or with a magnetic mounting bracket. Make sure you are aware of the pinch points between the communicator or bracket and the tank.

1.7.2 Battery

The battery inside the communicator cannot be changed because the communicator is a sealed unit.

Contact your local recycling facility that accepts electrical or electronic equipment or batteries to learn how to correctly dispose of the communicator.

1.8 Personnel

Installation and maintenance work must only be carried out by trained personnel. Other personnel are not authorized to carry out this work.

1.8.1 Installation personnel

For training, Otodata provides installation technicians with the following:

- Installation documentation and videos.
- Quality checks on all installations via photo submission of installations.
- Ongoing feedback for continuous improvement.

Installation technicians must do the following:

- Make sure they are familiar with the type of work required for installing Otodata products on tanks.
- Follow Otodata protocols for optimizing the performance of the monitor.

1.8.2 Maintenance personnel

Maintenance technicians must be trained before they can maintain the monitor.

Maintenance technicians must be familiar with the type of work required for the operation and maintenance of the monitor.

1.9 Liability disclaimer

The Otodata Customer (the Owner) assumes full responsibility and liability for any damage, loss, or injury caused to users (homeowners, personnel, and or any third party) of the Product (the monitor) arising from improper installation, usage, or maintenance of the Product.

Otodata disclaims all liability for any costs, damages, or consequences resulting from the Customer's failure to comply with these responsibilities. By using the Product, the Customer acknowledges and accepts these responsibilities.

Refer to the terms and conditions for a complete list of Owner (Customer) responsibilities.

1.9.1 Owner responsibilities

The owner of an Otodata tank level monitor is responsible for the following:

- Establishing a maintenance schedule to make sure the monitor operates correctly.
- Making sure the monitor is not altered in a way that may void the warranty.
- Asking the personnel responsible for filling the tank to inspect the installation integrity of the monitor.

► For more information, see *Maintenance* on page 49.

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2 Hardware description

To install the Tank Level Monitor (Hydrostatic Pressure) TM5240HP (the monitor), you must be familiar with the descriptions of the main parts.

2.1 Overview

The monitor is used for measuring and transmitting the level of a substance in a tank.

The monitor can be used to measure more than 100 substances. For the full list of substances, contact Otodata Customer Support and ask for the Tank Level Monitor (Hydrostatic Pressure) TM5240HP Sensor Compatibility Chart.

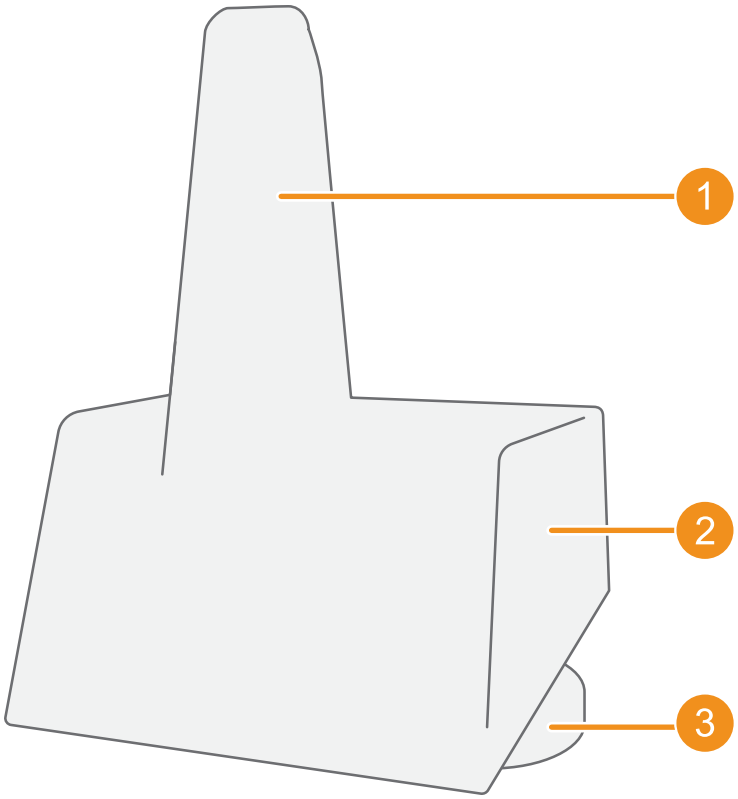
The monitor is made up of a remote sensor and a communicator. The sensor measures the level of the substance in a tank, and the communicator transmits the data to Otodata's Nee-Vo Portal.

This guide covers the following sensor models:

- In-tank sensor
- Inline sensor
- Single port sensor

2.2 Overview of the communicator

The communicator is used to send tank level data and other information about the monitor to the Nee-Vo Portal.



1	Antenna
2	Communicator body
3	Mounting magnets

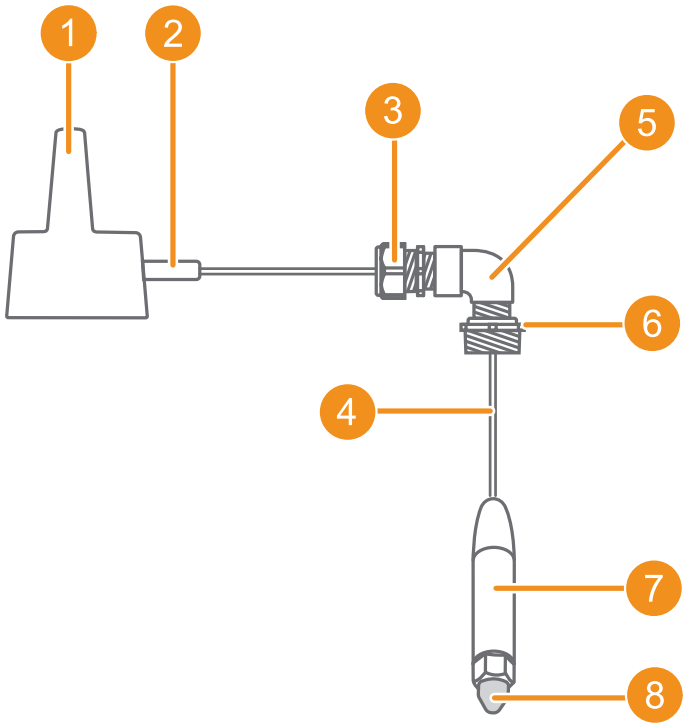
Table 2 • Data sent by the communicator

Data sent	Description
Tank level	The level of the in-tank substance calculated based on the pressure exerted by the substance in-tank The Nee-Vo Portal displays this value in bar
Temperature	The temperature of the in-tank substance in Celsius or Fahrenheit
Communicator battery	The battery charge measured in volts

2.3 Overview of the in-tank sensor

The in-tank sensor is the standard configuration that allows you to easily install the sensor inside a tank.

Figure 4 • In-tank sensor

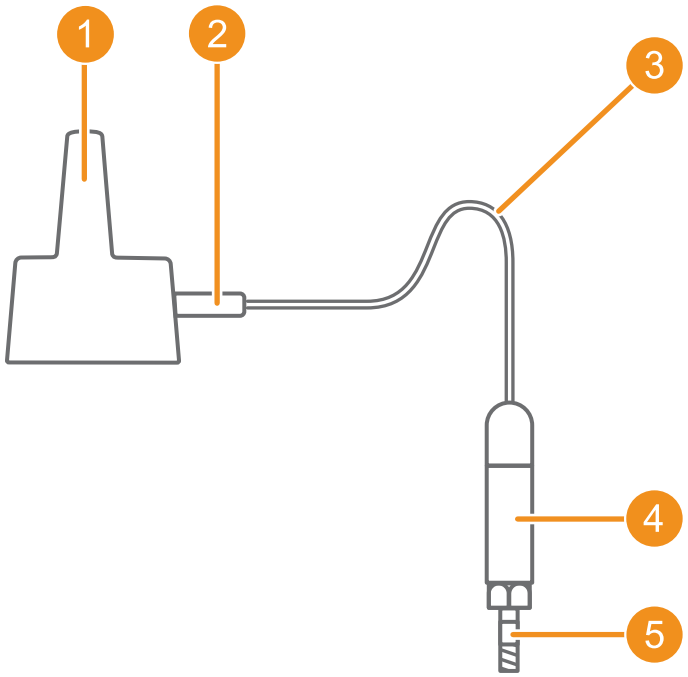


1	Communicator
2	M12 connector
3	Nylon 6/6 with TPE sealing cord grip 1″ NPT
4	Hytrel or Kynar jacketed cable
5	Polypropylene elbow 1″ NPT
6	Polypropylene reducer 2″ NPT
7	Druck sensor/transducer SS316L
8	Kynar (PVDF) depth cone

2.4 Overview of the inline sensor

The inline sensor configuration allows you to install the sensor when no port hole is available, or tank height is greater than 13 ft (3.96 m).

Figure 5 • Inline sensor

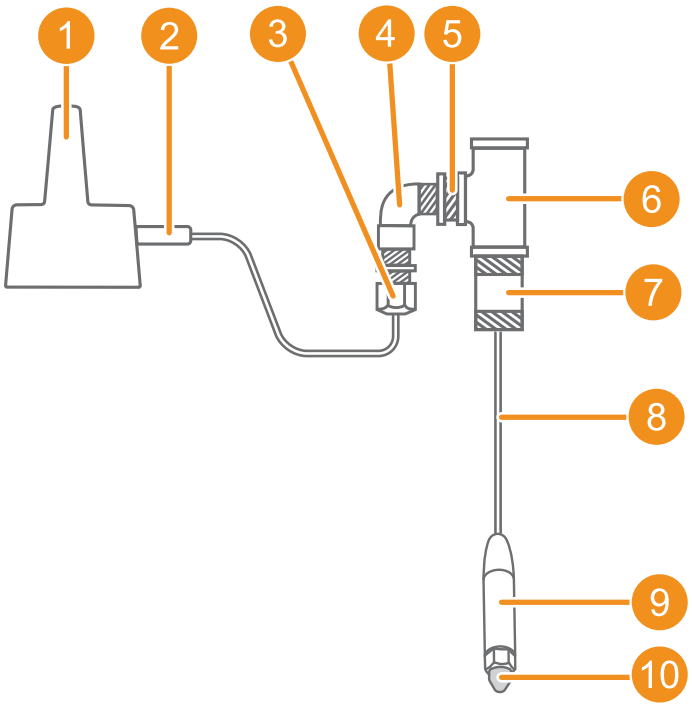


1	Communicator
2	M12 connector
3	Hytrel or Kynar jacketed cable
4	Druck sensor SS316L
5	BPST 1/4″ to NPT 1/4″ stainless steel nipple

2.5 Overview of the single port sensor

The single port sensor allows you to install the HP monitor when the tank has only one port hole. You can install the sensor while keeping the port hole accessible, for example, for refilling the tank.

Figure 6 • Single port sensor



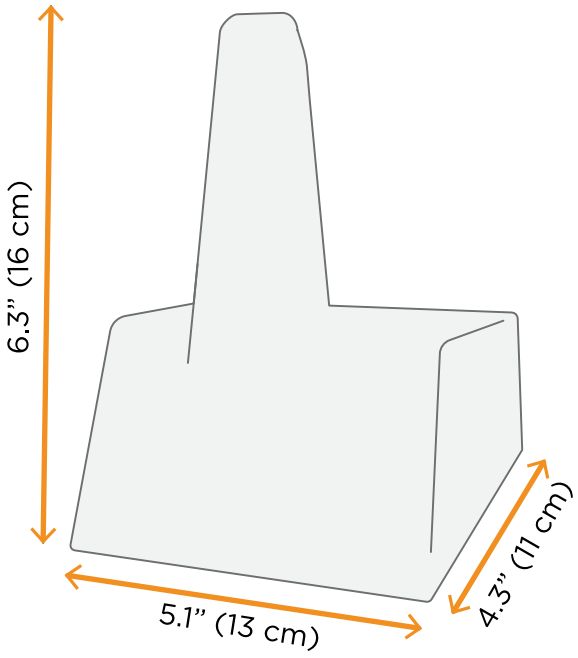
1	Communicator
2	M12 connector
3	Nylon 6/6 with TPE sealing cord grip 1″ NPT
4	Polypropylene elbow adapter 1″ NPT
5	Polypropylene reducer 2″ NPT
6	Galvanized tee 2″ NPT
7	Galvanized nipple 2″ NPT x 3″ L
8	Hytrel or Kynar jacketed cable
9	Druck sensor/transducer SS316L
10	Kynar (PVDF) depth cone

2.6 Connections

All sensor models connect to the communicator using an M12 connector.

2.7 Dimensions

Figure 7 • Dimensions of the communicator



2.8 Device identification

The identification labels are located on the side and on the base of the communicator.

► For more information, see *Identification labels* on page 8

The identification labels include the following information about the communicator:

- Model number
- Serial number
- Compliance markings

3 Before installation

This section explains what you need to do before installing the monitor.

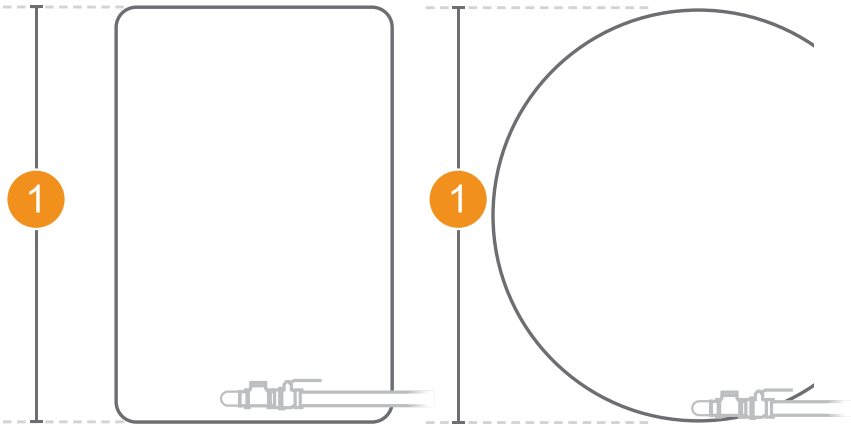
3.1 Checking tank compatibility

To make sure sensor readings are accurate, you must check the tank in which you are installing the HP monitor is compatible with the sensor model. For example, for tanks higher than 13 ft (3.96 m), you must use an inline sensor.

To check tank compatibility, do the following:

1. Measure the height of the tank (1).
2. Use the following tables to check tank height is compatible with the SKU of the HP monitor you are installing.

Figure 8 • Measuring tank height



3.1.1 In-tank model

Table 3 • Compatible tank heights for in-tank models

Tank height	Cable length	Communicator and sensor SKU	Sensor SKU
0 ft to 4 ft (0 m to 1.2 m)	6 ft (1.8 m)	TM5240HP-VA00-CNEE-PSxDRRB013	ACPSxDRRB013
3 ft to 6.5 ft (1 m to 2 m)	9 ft (2.7 m)	TM5240HP-VA00-CNEE-PSxDRRB020	ACPSxDRRB020
6.5 ft to 13 ft (2 m to 3.96 m)	15 ft (4.6 m)	TM5240HP-VA00-CNEE-PSxDRRB040	ACPSxDRRB040

3.1.2 Inline model

Table 4 • Compatible tank heights for inline models

Tank height	Cable length	Communicator and sensor SKU	Sensor SKU
0 ft to 4 ft (0 m to 1.2 m)	6 ft (1.8 m)	TM5240HP-VA00-CNEE-PSxDRLB013	ACPSxDRLB013
3 ft to 6.5 ft (1 m to 2 m)	6 ft (1.8 m)	TM5240HP-VA00-CNEE-PSxDRLB020	ACPSxDRLB020
6.5 ft to 13 ft (2 m to 3.96 m)	6 ft (1.8 m)	TM5240HP-VA00-CNEE-PSxDRLB040	ACPSxDRLB040
13 ft to 26 ft (3.96 m to 8 m)	6 ft (1.8 m)	TM5240HP-VA00-CNEE-PSxDRLB080	ACPSxDRLB080
26 ft to 32 ft (8 m to 10 m)	6 ft (1.8 m)	TM5240HP-VA00-CNEE-PSxDRLB100	ACPSxDRLB100
32 ft to 52 ft (10 m to 16 m)	6 ft (1.8 m)	TM5240HP-VA00-CNEE-PSxDRLB160	ACPSxDRLB160

3.1.3 Single port model

Table 5 • Compatible tank heights for single port models

Tank height	Cable length	Communicator and sensor SKU	Sensor SKU
0 ft to 4 ft (0 m to 1.2 m)	6 ft (1.8 m)	TM5240HP-VA00-CNEE-PSxDRSB013	ACPSxDRSB013
3 ft to 6.5 ft (1 m to 2 m)	9 ft (2.7 m)	TM5240HP-VA00-CNEE-PSxDRSB020	ACPSxDRSB020
6.5 ft to 13 ft (2 m to 3.96 m)	15 ft (4.6 m)	TM5240HP-VA00-CNEE-PSxDRSB040	ACPSxDRSB040

Information

SKUs can vary depending on region, sensor cable type, and branding. For example, the following values may differ:

- VA00: The regional code.
- CNEE: For transmitters branded with a customer's logo.
- x: Sensor cable material (H for Hytrel or K for Kynar).

3.2 Choosing the right port hole

The information in this section applies to the in-tank sensor, and the single port sensor.

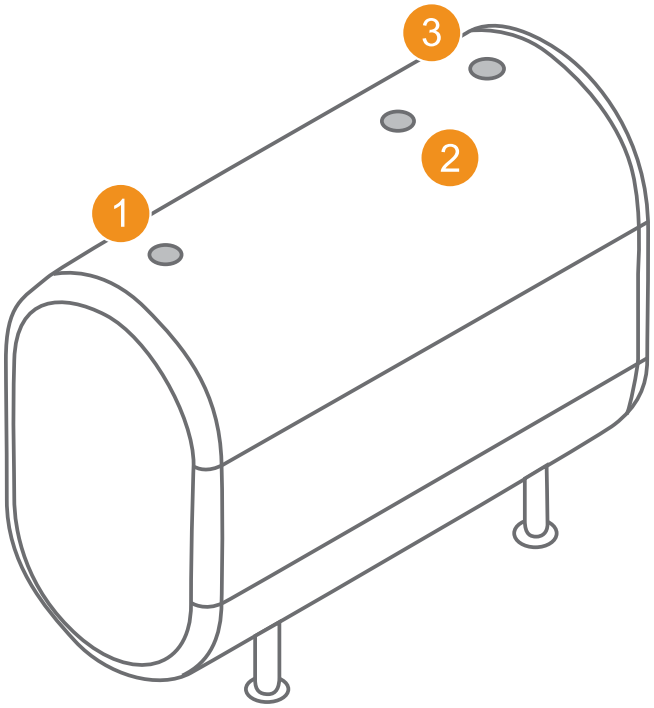
> **Information**
>
> If the tank has only one port hole, install the single port model or the inline model.

The HP monitor is designed to be permanently installed. To choose a suitable port hole for installation, the following must be true:

- The port hole is free of rust and dirt.
- The port hole allows you to position the communicator away from a wall.
- The port hole allows you to position the communicator away from the t-vent of the tank.
- For in-tank sensors, the port hole is not used for filling the tank.

In the following image, port holes 1, 2, and 3 are all suitable locations for installing the monitor.

Figure 9 • Selecting a port hole



3.3 Maximizing communicator performance

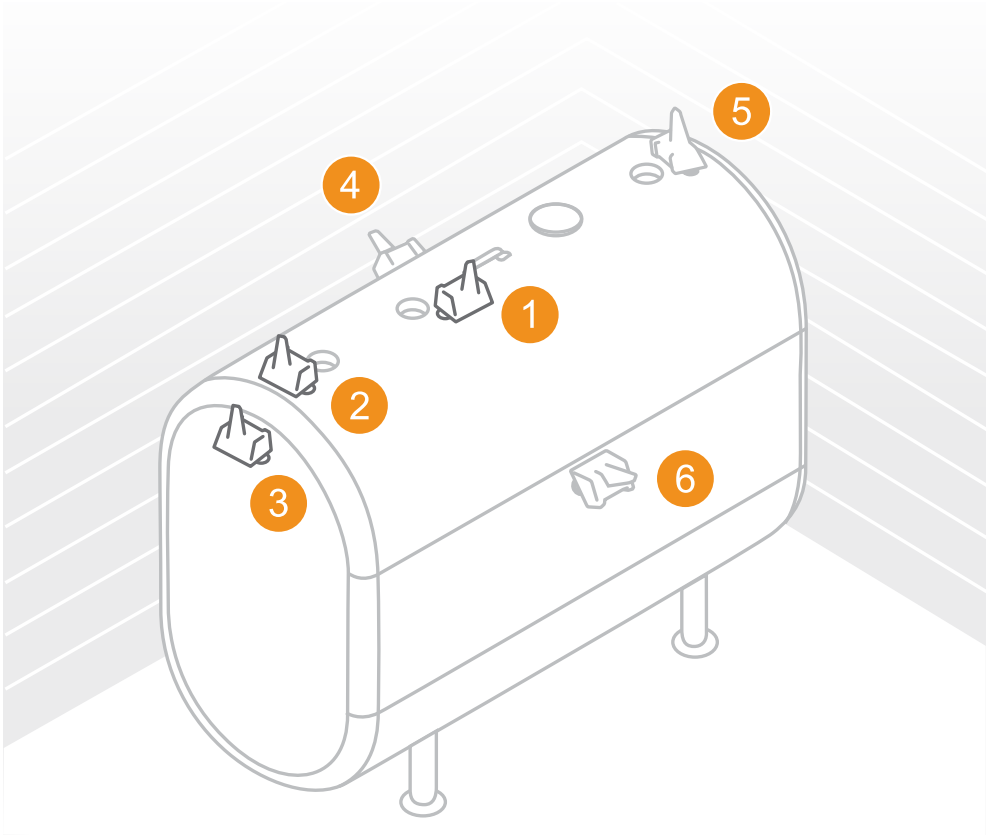
To maximize communicator performance, you must install the communicator in a suitable position.

Communicator performance is maximized when the following is true:

- The communicator is positioned away from any walls.
- The communicator is in a vertical position with the antenna pointing skywards.

The following image shows examples of optimal and suboptimal communicator positions on a typical tank.

Figure 10 • Communicator positions



Communicator position	Effect on performance
1 Optimal: • Away from walls • Vertical orientation with antenna pointing skywards	• Maximizes signal strength which reduces battery drain • Reduces chance of signal interference

Communicator position		Effect on performance
2	Optimal: • Away from walls • Vertical orientation with antenna pointing skywards	• Maximizes signal strength which reduces battery drain • Reduces chance of signal interference
3	Optimal: • Away from walls • Vertical orientation with antenna pointing skywards	• Maximizes signal strength which reduces battery drain • Reduces chance of signal interference
4	Suboptimal: • Too close to wall • Horizontal orientation and antenna pointing away from sky	• Reduces signal strength which increase battery drain • Increases chance of signal interference
5	Suboptimal: • Too close to wall	• Reduces signal strength which increases battery drain • Increases chance of signal interference
6	Suboptimal: • Horizontal orientation and antenna pointing away from sky	• Reduces signal strength which increases battery drain • Increases chance of signal interference

4 Installation

This section describes the installation procedure for the monitor.

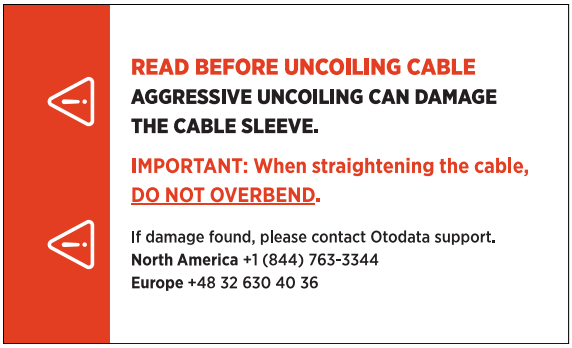
WARNING

Take care when installing the monitor in tanks that contain flammable substances.

Caution

Always carefully read all warning tags attached to the sensor cable before installing the monitor.

Figure 11 • Example of sensor cable warning tag



Caution

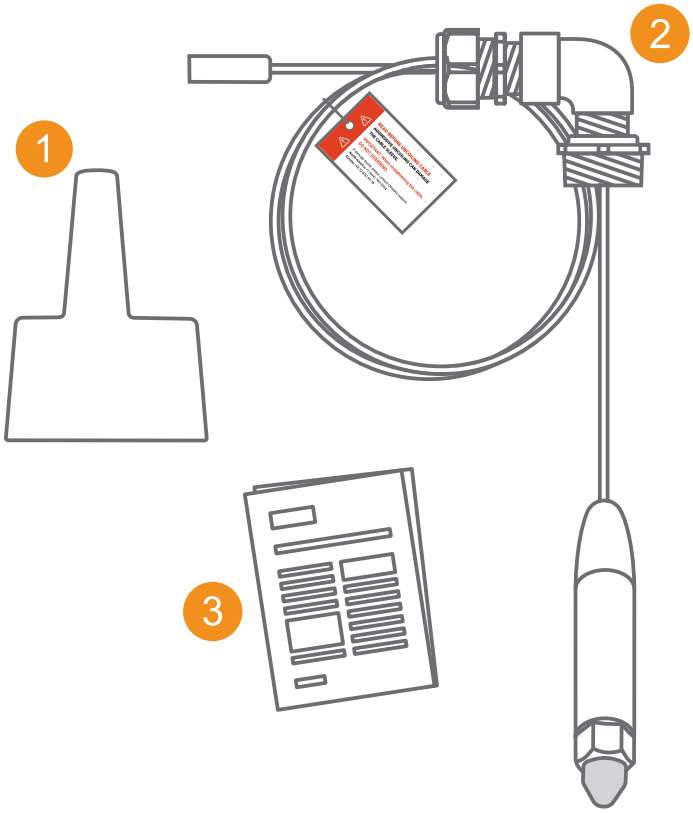
Always follow your local regulations and standards. Consult with certified personnel to make sure your installation is compliant.

4.1 Box contents

This section provides an overview of the components included in the box for each of the sensor models.

4.1.1 In-tank model

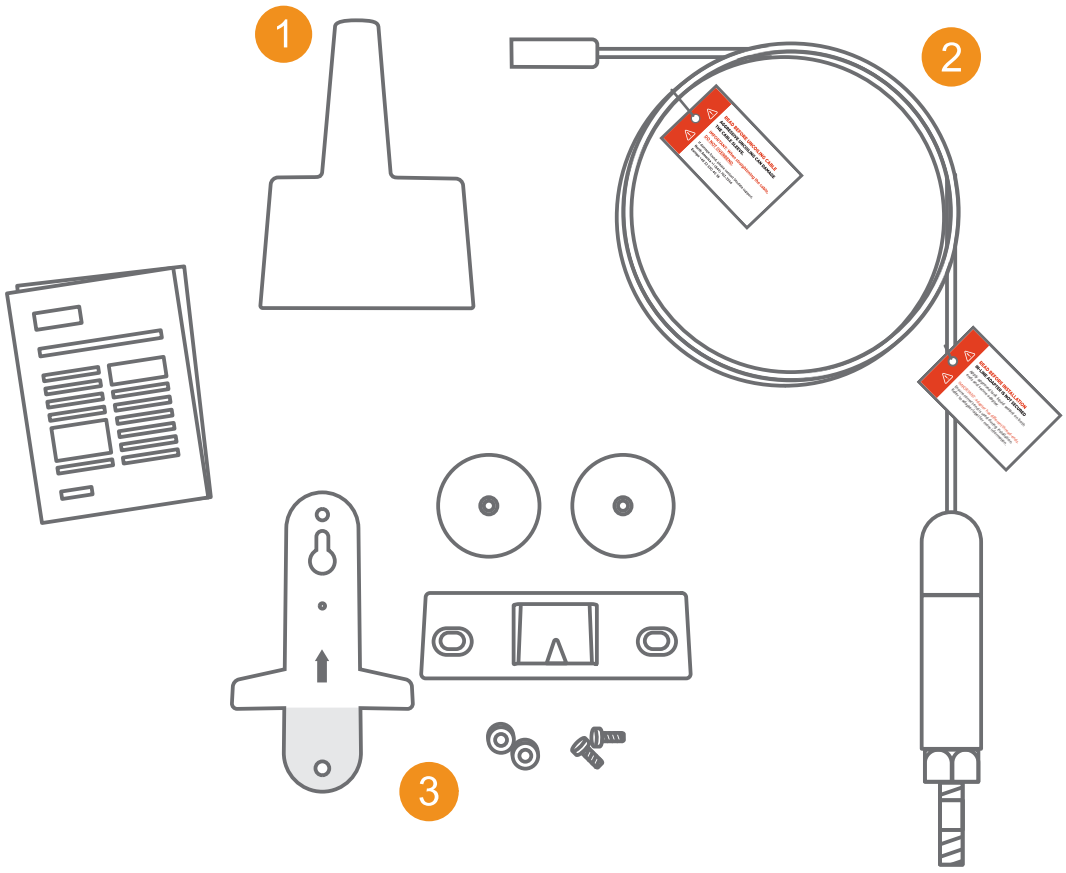
Figure 12 • Box contents for in-tank model



1	Communicator
2	Sensor, cable with warning tag, elbow, and connector
3	Safety and Specifications sheet

4.1.2 Inline model

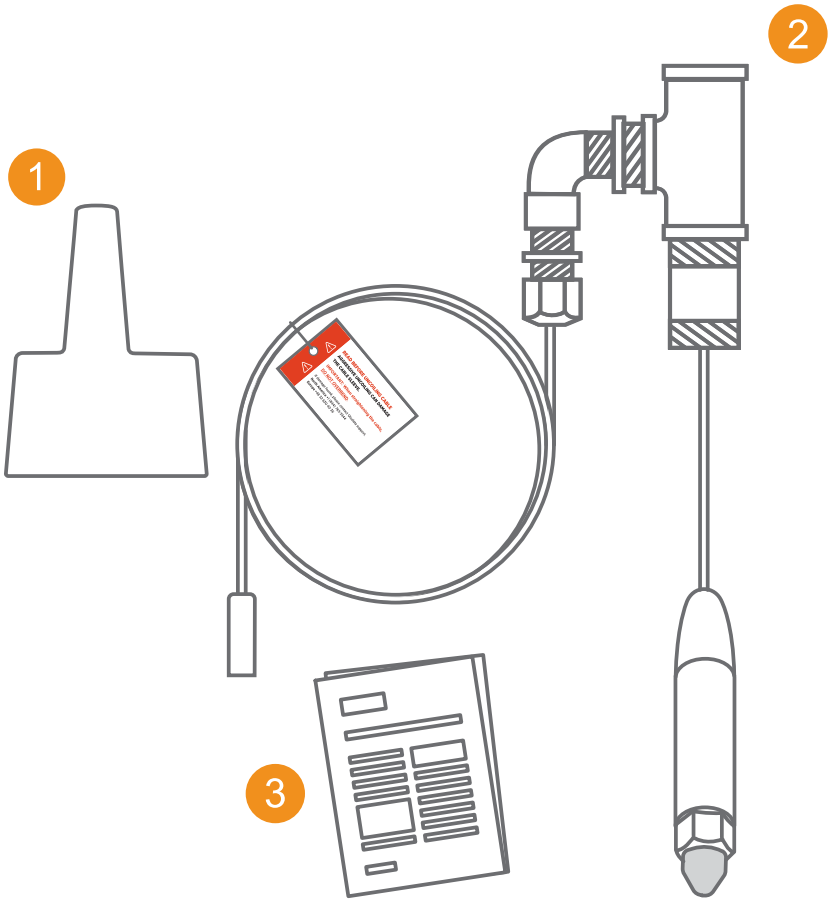
Figure 13 • Box contents for inline model



1	Communicator
2	Sensor, cable with warning tags, connector, and nipple
3	Bracket
4	Safety and Specifications sheet

4.1.3 Single port model

Figure 14 • Box contents for single port model



1	Communicator
2	Sensor, tee, cable with warning tag, and connector
3	Safety and Specifications sheet

4.2 Tools and equipment

Before you install the monitor, make sure you have the following tools and equipment:

- Approved sealant (tape or paste)
- 14″ pipe wrench
- Tape measure
- A way of recording all of the information relating to the installation. For example, this may include the following:
  - The serial number of the communicator
  - The dip level of the tank
  - The dimensions of the tank
  - The name of the substance in the tank
- If you are installing the monitor on a plastic tank, at least two tie wraps for mounting the communicator

4.3 Installing the sensor

This section describes the installation procedure for each of the three sensors.

4.3.1 Installing the in-tank sensor

The in-tank sensor is installed inside the tank using a port hole.

> **Information**
>
> To prevent contamination of the in-tank substance, make sure the port hole is free of rust and dirt.

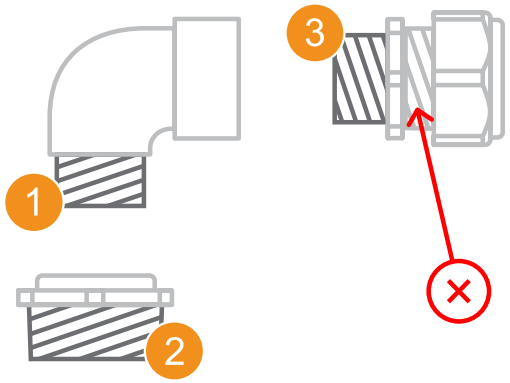
To install the in-tank sensor, follow these steps:

> **Caution**
>
> To prevent chafing, keep cables away from metal parts.

1. Read and then remove the warning tag attached to the sensor cable.
2. Apply an approved sealant to threads 1, 2, and 3.

   Do not apply sealant to the front nut of the cord grip, indicated with a cross.

   > **Notice**
   >
   > Only use a sealant approved for use with the in-tank substance.



3. Using a wrench, slowly tighten threads 1, 2, and 3 until they feel secure.

> **Caution**
>
> Do not overtighten the threads or you may damage the pipe fittings.

4. Disconnect the cable from the communicator by turning the holding nut on the M12 connector counterclockwise.

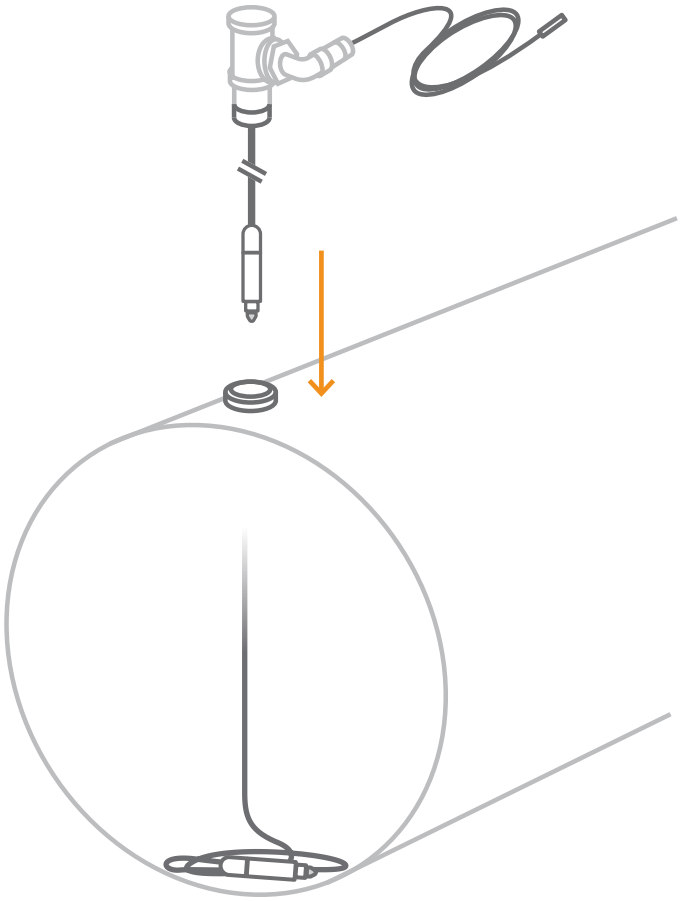
5. Insert the sensor into the tank by doing the following:
   a. On the elbow, loosen the cover nut.

      The cable can now be moved.
   b. Slowly push the cable through the elbow towards the sensor.

      > **Caution**
      >
      > When pulling the cable, do not pull on the sensor or the M12 connector.

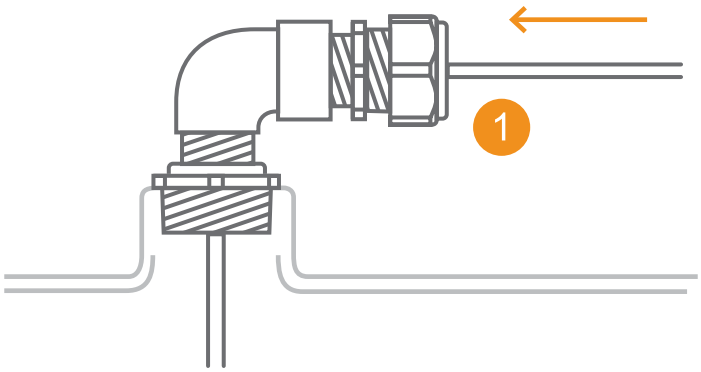
   c. Gently lower the sensor through the port hole until you feel it touch the bottom of the tank.
   d. Add an extra foot (0.3 m) of cable inside the tank so that the sensor is lying flat or horizontally at the bottom of the tank.

      This makes sure there is no space between the sensor and the bottom of the tank and that the cable is not under tension.



e. Make sure there is enough cable left between the cord grip and the connector to reach the monitor without placing the cable under tension.

f. Slide the cable through the reducer, elbow, and the cord grip until the reducer touches the bung of the port hole (1).



The sensor is now installed in the tank.

6. Adjust the length of the cable by doing the following:

a. Screw the reducer into the port hole and tighten with a wrench. On the final torque, make sure the cable is facing towards the communicator.

> **Caution**
>
> Do not overtighten the reducer or you may damage the fittings.

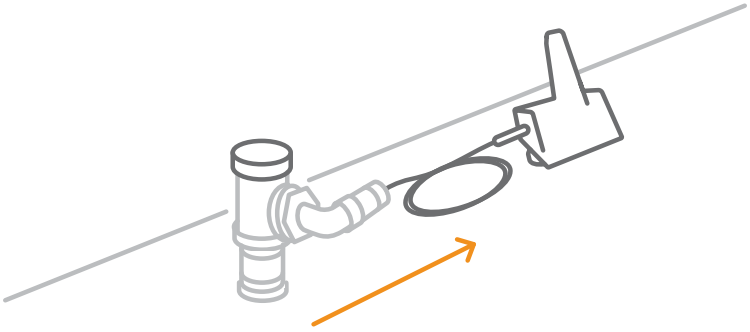
7. Secure the cable in place by tightening the cover nut at the elbow.

8. Connect the M12 connector to the communicator by lining up the M12 connector pins with the corresponding holes in the bulk head of the communicator.

   Refer to the alignment guide (plastic notch) in the M12 connector for easy fastening.

   You can now mount the communicator.

   ▶ For more information, see *Mounting the communicator* on page 42



4.3.2 Installing the inline sensor

The inline sensor is installed on the outside of the tank using the outlet pipe.

To install the inline sensor, locate an ideal place to thread the sensor to the outlet pipe.

Choose a location that meets the following conditions:

- You must be able to thread the sensor as close as possible to the tank.
- There are no valves between the tank and the sensor.
- If a shut-off valve needs to be installed between the tank and the sensor, the valve can remain fully open to make sure sensor readings are accurate.

4.3.2.1 Offset outlet pipes

If the outlet pipe is higher or lower than the bottom of the tank, it is offset.

To make sure sensor readings are accurate, after installation, you must measure the difference between the bottom of the tank and the bottom of the sensor. The measurement must not include the nipple adapter.

Figure 15 • Upward offset

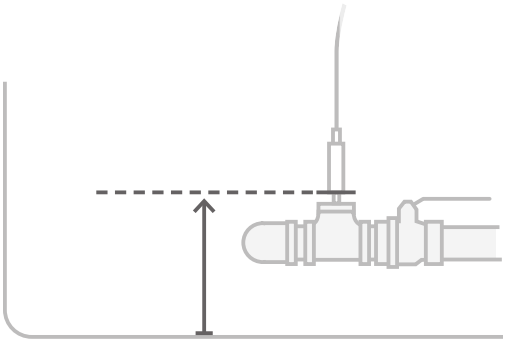
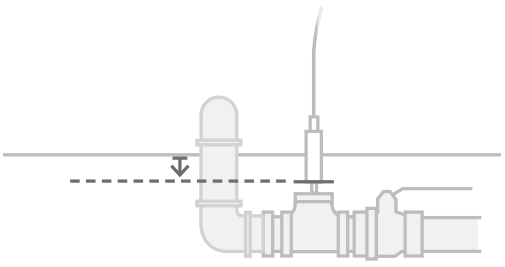


Figure 16 • Downward offset



Notice

To achieve optimal reading accuracy for offset outlet pipes, you must do one of the following:

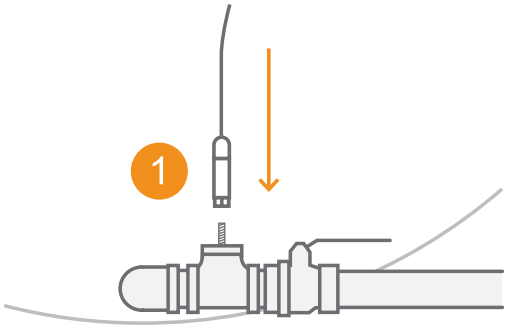
- In Otodata's Nee-Vo Portal, update the tank format to include the upward or downward offset measurement.
- Contact Otodata Customer Support with the upward or downward offset measurement. Otodata will make the necessary adjustments to make sure readings are precise.

To install the inline sensor, follow these steps:

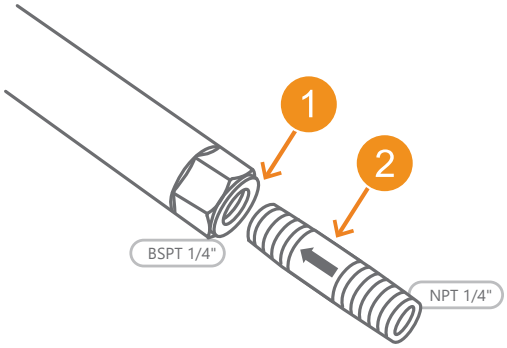
1. Read and then remove the warning tags attached to the sensor cable.
2. Unscrew the nipple from the sensor.
3. Apply an approved sealant to both of the threaded sides of the nipple.
4. Screw the NPT threaded side of the nipple into the outlet pipe until it is secure (1).

Caution

Do not overtighten the threads or you may damage the nipple or the pipe fittings.



5. Screw the female BSPT thread of the sensor (1) on to the male BSPT thread (2) of the nipple until it is secure.



> **Caution**
>
> Do not overtighten the thread or you may damage the sensor.

6. Connect the M12 connector to the communicator.
7. If your outlet pipe is offset, calculate the offset value by measuring the difference between the outlet pipe and the bottom of the tank.
   - ▶ For more information, see *Offset outlet pipes* on page 35
8. Do one of the following:
   a. In Otodata's Nee-Vo Portal, update the tank format to include the upward or downward offset measurement.
   b. Contact Otodata Customer Support with the upward or downward offset measurement. Otodata will make the necessary adjustments to make sure readings are precise.

   You can now mount the communicator.
   - ▶ For more information, see *Mounting the communicator for an inline sensor* on page 43

4.3.3 Installing the single port sensor

The single port sensor is installed inside the tank, and when the tank has a single port hole. The galvanized tee allows you to keep the port hole accessible, for example, for refilling the tank.

> **Information**
>
> To prevent contamination of the in-tank substance, make sure the port hole is free of rust and dirt.

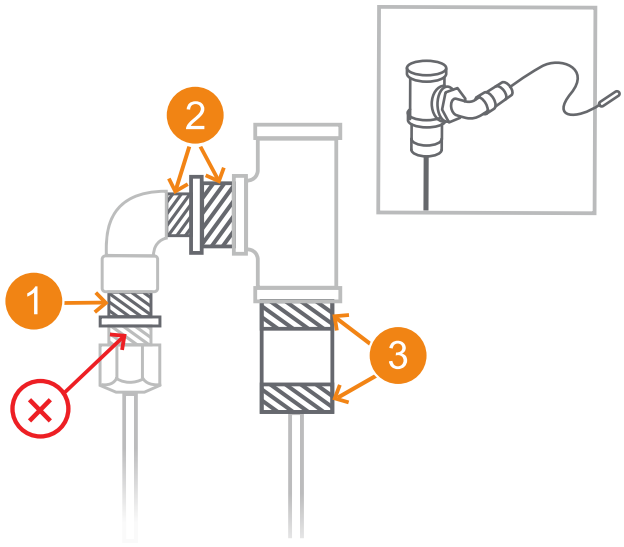
To install the single port sensor, follow these steps:

> **Caution**
>
> To prevent chafing, keep cables away from metal parts.

1. Read and then remove the warning tag attached to the sensor cable.
2. Apply an approved sealant to threads 1, 2, and 3.

   Do not apply sealant to the front nut of the cord grip, indicated with a cross.

   > **Notice**
   >
   > Only use a sealant approved for use with the in-tank substance.



3. Using a wrench, tighten threads 1, 2, and 3 until they feel secure.

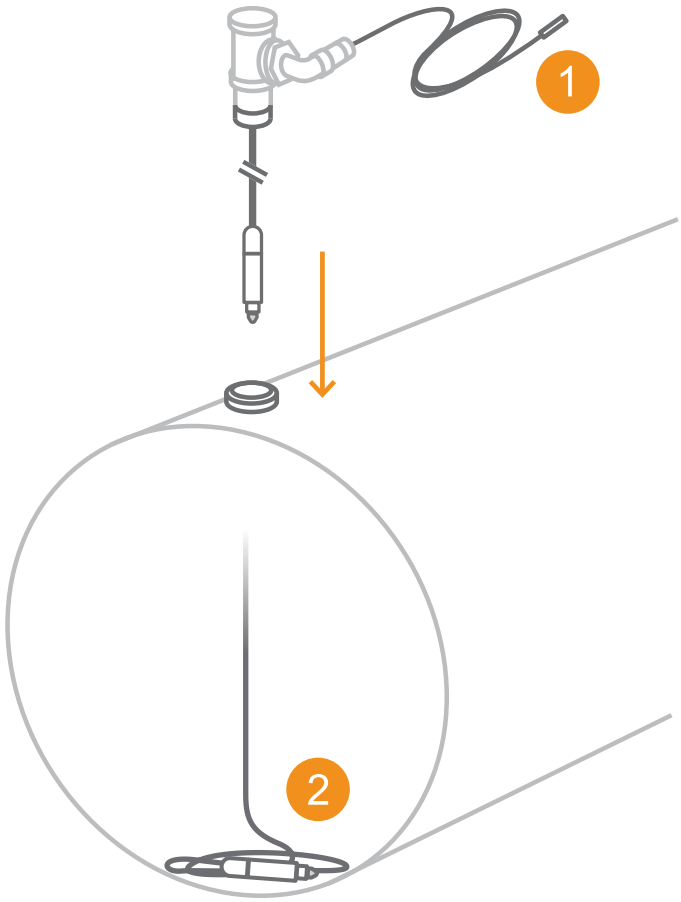
> **Caution**
>
> Make sure the elbow is inclined at a 45-degree angle to prevent leakages or substance accumulation when filling the tank.
>
> Do not overtighten the threads as you may damage the nipple or the pipe fittings.

4. Disconnect the cable from the communicator by turning the front holding nut on the M12 connector counterclockwise.

5. Insert the sensor into the tank by doing the following:
   a. On the elbow, loosen the cover nut.

      The cable can now be moved.
   b. Slowly push the cable through the elbow towards the sensor.
   c. Gently lower the sensor through the port hole until you feel it touch the bottom of the tank.
   d. Add an extra foot (0.3 m) of cable inside the tank so that the sensor is lying flat or horizontally at the bottom of the tank 2.

      This makes sure there is no space between the sensor and the bottom of the tank and that the cable is not under tension.
   e. Make sure there is enough cable left between the cord grip and the connector to reach the monitor without placing the cable under tension.
   f. To prevent damaging the cable, neatly bundle excess cable between the cord grip and the M12 connector 1.

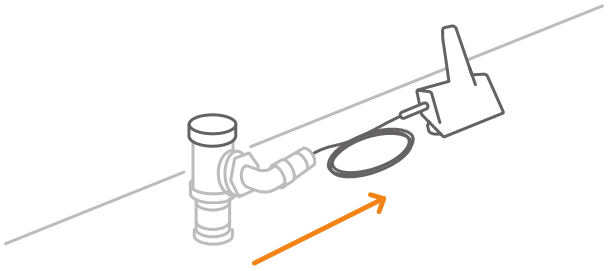


g. Using a wrench, screw the galvanized tee into the port hole until it feels fully tightened.

   As you finish tightening the nipple, make sure the cable from the cord grip is facing toward the communicator.

   > **WARNING**
   >
   > You must seal the opening of the tee with a cover or plug, or install a refill device.

h. Connect the M12 connector to the communicator.



   You can now mount the communicator.

   ▶ For more information, see *Mounting the communicator* on page 42

4.4 Mounting the communicator

The communicator can be mounted directly on the top of a metal tank using the magnetic feet attached to the communicator base. No other fixings are required.

If you are mounting the communicator on the side of a metal tank, you need to use an additional magnetic bracket (SKU ACCMMK-NV4).

If you are mounting the communicator on a plastic tank or other types of non-magnetic tanks, use tie wraps to attach the communicator to the tank, or the tank cage.

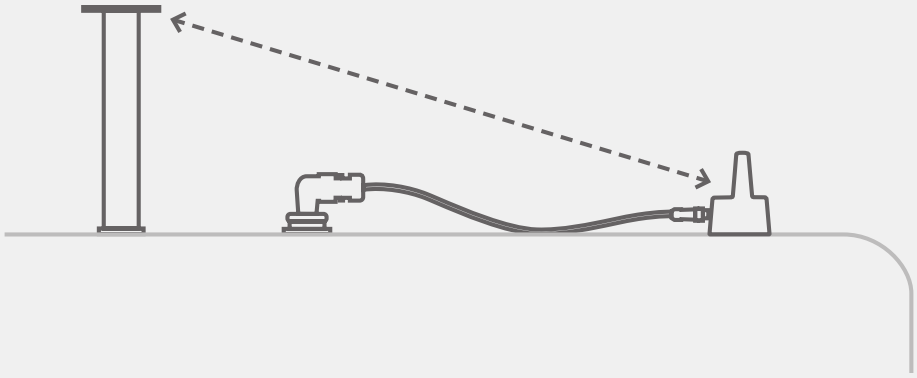
Notice

Before you mount the communicator, make sure you read the instructions for maximizing the performance of the communicator.

► For more information, see *Maximizing communicator performance* on page 23

Information

Otodata recommends you position the communicator away from the t-vent.



To mount the communicator, follow these steps:

1. Select the optimal location for the communicator.
2. Note down the relevant information from identification label on the base of the communicator.

   You will need to enter this information when you are updating client information in Otodata's Nee-Vo Portal.

3. Do one of the following:
   a. If you are mounting the communicator on the top of a metal tank, use the mounting magnets to secure the communicator to the tank.
   b. If you are mounting the communicator on the side of a metal tank, follow the instructions for the SKU ACCMMK-NV4 magnetic bracket.
      ▶ For more information, see *Installing the mounting bracket for metal tanks* on page 45
   c. If you are mounting the communicator on a plastic or non-magnetic tank, thread the tie wraps through the hooks on the back of the communicator and fasten the tie wraps to the tank.

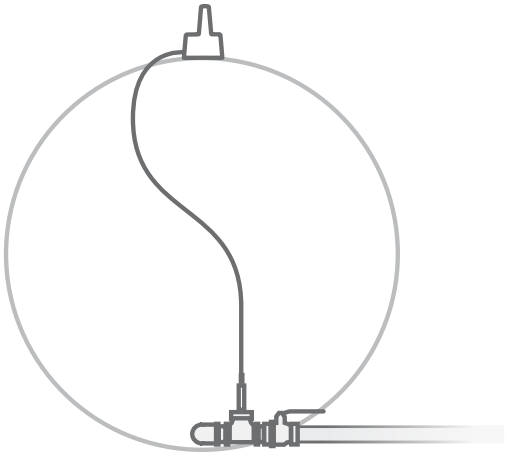
4.4.1 Mounting the communicator for an inline sensor

To mount the communicator for an inline sensor, follow these steps:

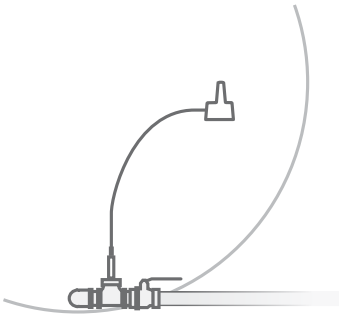
1. Select the optimal location for the communicator.
2. Note down the relevant information from identification label on the base of the communicator.

   You will need to enter this information when you are updating client information in Otodata's Nee-Vo Portal.

3. Mount the communicator using one of the following methods:
   a. If the cable is long enough, mount the communicator on the top of the tank, using the mounting magnets.



   b. If the cable is not long enough, mount the communicator on the side of the tank by doing one of the following:
      - If the tank is metal, follow the instructions for the SKU ACCMMK-NV4 magnetic bracket.
        ► For more information, see *Installing the mounting bracket for metal tanks* on page 45
      - If you are mounting the communicator on a plastic tank, thread tie wraps through the hooks on the back of the communicator and fasten the tie wraps to the tank.



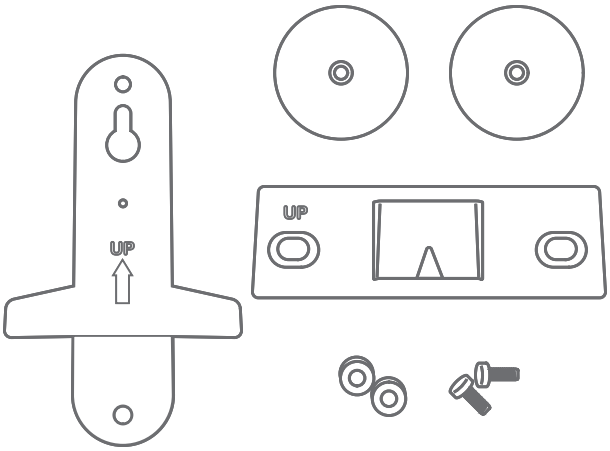
4.4.2 Installing the mounting bracket for metal tanks

Install the ACCMMK-NV4 bracket if you want to mount the communicator on the side of a metal tank.

Before you start, check you have the following components:

- 1 x vertical bar
- 1 x horizontal bar
- 2 x magnets
- 2 x rubber spacers
- 2 x screws

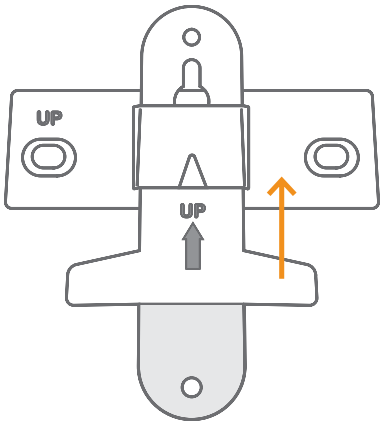
Figure 17 • Mounting bracket components



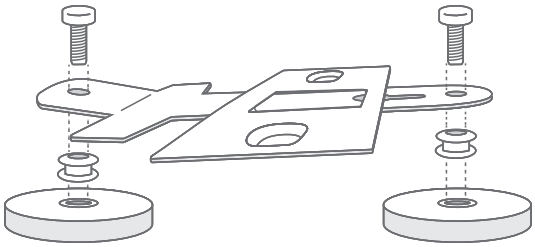
To install the bracket, follow these steps:

1. Gently insert the vertical bar through the center slot of the horizontal.

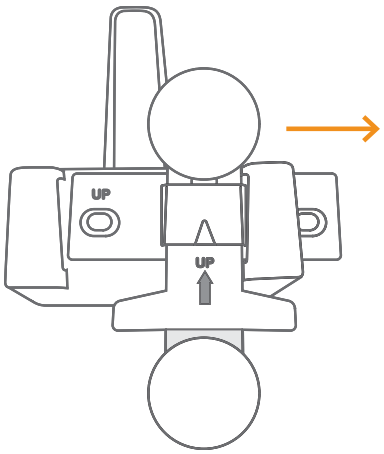
   Make sure **UP** is visible on both bars.



2. Turn the bracket over.
3. Attach the magnets to the vertical bar using the rubber spacers and screws.

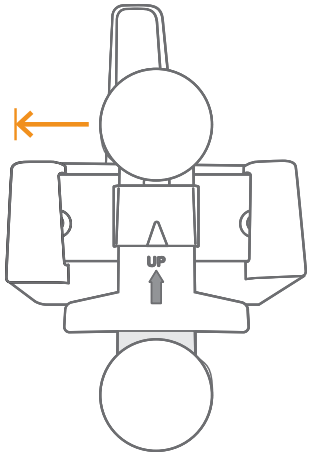


4. Slide the horizontal bar of the bracket all of the way into the right-side handle on the back of monitor.

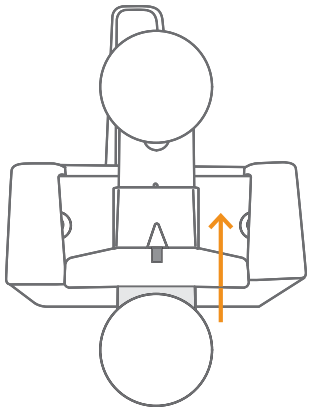


5. Push the horizontal bar of the bracket through the left-side handle.

   Make sure the horizontal bracket is correctly centered between both handles.



6. Push the vertical bar of the bracket upward until it locks into place.



   The bracket is installed.

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5 Maintenance

The monitor requires minimum maintenance. During fill operations, Otodata recommends the following are checked:

- The are no signs of physical damage to any part of the monitor
- The cable to the M12 connector is secure and undamaged
- The communicator is in an upright position

5.1 Cleaning the sensor

Cleaning the sensor makes sure the HP monitor readings are accurate.

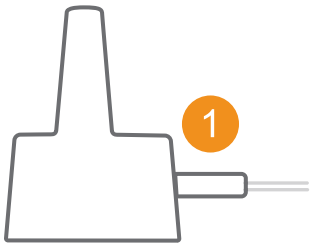
To clean an in-tank sensor or single port sensor, follow these steps:

Caution

Do not disconnect or loosen any of the parts securing the cable, for example, the cord grip.

This can adjust the length of the cable inside the tank and effect reading accuracy.

1. Disconnect the cable from the communicator by turning the front holding nut on the M12 connector (1) counterclockwise.

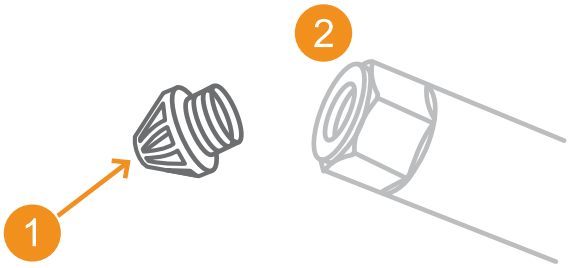


2. Unscrew the reducer or galvanized nipple connecting the sensor to the port hole of the tank.
3. Carefully pull the sensor up through the port hole and out of the tank.

4. To clean the sensor, on a clean flat surface, use a cleaner to rinse off the outside of the sensor.

> **Notice**
>
> Make sure the cleaner is suitable for the sensor and the contents of the tank. The cleaner must not adversely affect the sensor or its components.

5. Remove the depth cone 1 from the sensor shaft 2 by turning it counterclockwise.



6. Using the cleaner, thoroughly rinse the inside of the depth cone to remove any dirt, grease, or debris. Check the small slots in the depth cone are clean.

> **Caution**
>
> Do not touch the threading on the inside of the sensor or you may damage it.

7. Towel or air dry the depth cone and the sensor shaft.
8. Reinstall the depth cone by screwing it clockwise into the sensor shaft.
9. Reinstall the sensor by slowly lowering it through the port hole until you feel it touch the bottom of the tank.
10. Add an extra foot (0.3 m) of cable inside the tank so that the sensor is lying flat or horizontally at the bottom of the tank.

    This makes sure there is no space between the sensor and the bottom of the tank and that the cable is not under tension.
11. If required, reapply an approved sealant to the thread of the reducer or galvanized nipple.

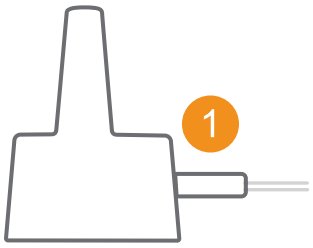
12. Screw the reducer or galvanized nipple into the port hole and tighten with a wrench. On the final torque, make sure the cable is facing towards the communicator.

> **Caution**
>
> Do not overtighten the threads or you may damage the reducer or nipple, or the pipe fittings.

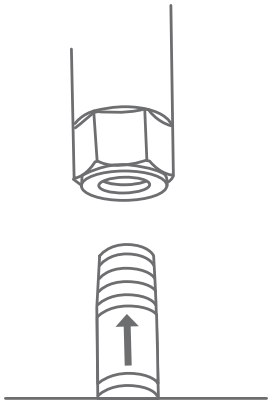
13. Reconnect the M12 connector to the communicator.

To clean an inline sensor, follow these steps:

1. Disconnect the cable from the communicator by turning the front holding nut on the M12 connector (1) counterclockwise.



2. To remove the sensor, do one of the following:
   a. If there is a shut-off valve between the tank and the sensor, close the shut-off valve.
   b. If there is no shut-off valve between the tank and the sensor, empty the tank.
3. Unscrew the sensor from the nipple attached to the outlet pipe.



4. On a clean flat surface, use a substance cleaner to rinse off the outside of the sensor.

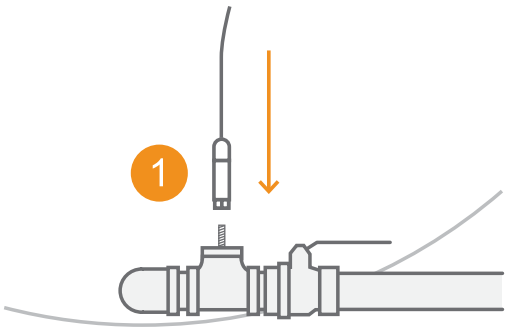
> **Notice**
>
> Make sure the cleaner is suitable for the sensor and the contents of the tank. The cleaner must not adversely affect the sensor and its components.

5. Using a small brush, gently clean the inside of the nipple.

> **Caution**
>
> Do not touch the inside of the sensor shaft or you may damage it. Make sure you do not introduce any foreign materials or substances into tank during this process.

6. Towel or air dry the sensor shaft.
7. Reinstall the sensor shaft by screwing it clockwise into the stainless steel nipple (1).

> **Caution**
>
> Do not overtighten the thread or you may damage the sensor or nipple.



8. Reconnect the M12 connector to the communicator.

6 Troubleshooting

The following table provides troubleshooting information for the monitor.

Table 6 • Troubleshooting table

Problem	Solution
The monitor is not reading the tank level correctly	• Check the tank size is compatible with the sensor. ► For more information, see *Checking tank compatibility* on page 19 • Check the M12 connector pins are correctly aligned with the corresponding holes in the bulk head of the communicator. • For inline sensors with an offset outlet pipe, check the offset value added to Otodata's Nee-Vo Portal is correct. ► For more information, see *Offset outlet pipes* on page 35 • For in-tank sensors and single port sensors, check the sensor is correctly installed in the tank. ► For more information, see *Installing the in-tank sensor* on page 30 ► For more information, see *Installing the single port sensor* on page 38
The communicator is not sending monitor readings	1. Check the communicator is in a vertical position with the antenna pointing skywards. 2. Check the communicator is positioned away from any walls. 3. Check that there is adequate cellular coverage in the area where the communicator is installed.

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7 Specifications

The specifications provide the limits of the HP monitor. Make sure you are aware of these specifications.

7.1 Device specifications

Table 7 • Device specifications

Specification	Value
Dimensions (H x W x D)	6.3″ (16 cm) x 5.1″ (13 cm) x 4.3″ (11 cm)
Applications	Measures the level of gasoline, chemicals, or other in-tank substances Contact Otodata Customer Support for a list of substances that are compatible with the Hydrostatic Pressure Tank Level Monitor TM5240HP sensor
Characteristics	MEAS TE pressure cell, Volume measurement accuracy ±5% (under optimal setup and installation conditions) Survives harsh environments Suitable for tank heights up to 52 ft (16 m) Hytrel or Kynar cable lengths up to 15 ft (4.6 m)
Input	Hydrostatic pressure transducer with differential to atmospheric pressure
Reporting	Typically records and reports the in-tank level when it detects a level change exceeding +20% or dropping by more than 5% of the sensor's full measurement range Tank level data is sent to the Nee-Vo Portal every 8 hours. Each transmission includes one reading per hour, covering the previous 8 hours Low battery High draw of in-tank substance Excessive draw of in-tank substance Fill detection Temperature of in-tank substance
Data interface outputs	API Email to supplier and/or consumer Raw data Online dashboard Client mobile app

Specification	Value
Automated testing outputs	Network status Sensor cable status Battery status
Radio technologies	CAT-M1 NB-IoT Dual SIM Bluetooth
Option	GPS (mobile tank)

7.2 Environmental specifications

Table 8 • Environmental specifications

Specification	Value
Operating temperature	-40 °F (-40 °C) to 140 °F (60 °C)
Storage temperature	-40 °F (-40 °C) to 140 °F (60 °C)
Relative humidity range	0% to 100%
Enclosure rating	IP68
Sensor rating	IP68

7.3 Certification specifications

Table 9 • Certification specifications

Specification	Value
Hazardous location classification	Monitor is third-party QPS Evaluation Services Inc. certified for use in hazardous locations Class I, Div 1, Groups CD, T3 Ex ia IIB T3 Ga Class I, Zone 0, AEx ia IIB T3 Ga
IECEx Classification	Ex ia IIB T3 Ga
ATEX and UKEX Classification	II 1 G Ex ia IIB T3 Ga
FCC Notice	FCC ID: 2ADQFMZ03AD, IC ID : 12649A-MZ03AD
Associated Apparatus Entity Parameters	Uo [V] = 3.9V, Io [mA] = 335mA, Po [mW] = 119mW, Co [µF] = 425uF, Lo [µH] = 10.17uH

8 Regulatory

The following table provides information about the regulations to which the monitor conforms.

Table 10 • Standards table with symbols

Standard	Symbol
The Conformité Européene (CE) mark	
UK Conformity Assessed	
National Telecommunications Agency (ANATEL)	
Waste Electrical and Electronic Equipment (WEEE)	
National Institute of Metrology, Quality and Technology (INMETRO)	
QPS Safety Certification Mark	

Information

Mounting fittings, for example, the polypropylene elbow, are not part of the certification for the HP monitor.

8.1 Federal Communications Commission (FCC)

This device complies with part 15 of the FCC Rules. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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. This device is compliant with Industry Canada's RSS standards for license-exempt radio apparatuses.

Authorized use depends on the following two conditions: (1) the device must not create radio interference, and (2) the device user must accept all radio interference, even if this interference could potentially impair its functioning.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

To comply with FCC RF exposure compliance recommendations, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons.