



OW7MP Manpack

Eutelsat OneWeb LEO User Terminal

Installation & Operation User Guide

Serial number of the product

--

This serial number will be required for all troubleshooting or service inquiries.



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Chapter 1. Precautions

Prior to installation, read this Installation and Operations Guide carefully including the safety warnings and information.

1.1 Warnings, Cautions, and Notes

WARNING, CAUTION, and NOTE statements are used throughout this manual to emphasize important and critical information. You must read these statements to help ensure safety and to prevent product damage. The statements are defined below.

	WARNING WARNING indicates a potentially hazardous situation that if not avoided, could result in death or serious injury.
	CAUTION CAUTION indicates a potentially hazardous situation that if not avoided, could result in minor or moderate injury or damage to equipment. It may also be used to alert users about unsafe practices.
	NOTE A NOTE statement is used to notify people of installation, operation, programming, or maintenance information that is important, but not hazard-related.

1.2 General Precautions

Before you use the Manpack, make sure that you have read and understood all safety requirements.

	THIS WAY UP Place the boxes/crates on the floor with the arrow pointing up.
	FRAGILE Since the package is fragile, handle it with care. Do not apply excessive pressure or shock. These may cause surface cracking or other damage.
	KEEP DRY - Always make sure the Manpack is stored on a dry floor. - Keep the Manpack in a dry place with sufficient ventilation. Do not store the Manpack wrapped in a tarp, tent, vinyl, and others.
	HANDLE WITH CARE - Handle the carton with care.
	STACKING HEIGHT - The number of boxes that can be safely stacked is three.
	USE NO HOOKS - Absolutely no hand hooks should be attached to pull the parcel.

- Review the general safety measures.
- Verify all requirements before beginning the actual installation to determine if the equipment and necessary items are available and functioning properly.
- Before you begin a site installation and intend to use AC power, check the appropriate electrical code requirements and other regulations governing this kind of installation within the country of use.
- Avoid installing Manpacks near high voltage overhead cables or similar.



CAUTION

Do not put heavy objects on the equipment to avoid crushing the equipment or reducing the heat dissipation efficiency.

WARNING

This product can expose you to chemicals including Ethylbenzene which are known to the State of California to cause cancer, birth defects, or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

Chapter 2. Certifications

This device complies with Part 15 of the FCC Rules [and with Industry Canada licence-exempt RSS standard(s)].

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.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) L'appareil ne doit pas produire de brouillage;
- (2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

WARNING

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

Radiofrequency radiation exposure Information:

This equipment complies with RED and FCC, IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 13 m between the radiator and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

A noise filter is installed on the external power cable.

ISED Statement

This device complies with Industry Canada license-exempt RSS standard(s).

Operation is subject to the following two conditions:

- (1) this device may not cause interference, and
- (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Note:

- 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.
- This RF hazard is calculated using the following calculation.

$$S_{ff} = \frac{P_t G}{4\pi R^2}$$

- S_{ff} : Power density (on axis) in W/m²
- P_t : Power fed to the antenna feed horn in W
- G : Power gain factor in the direction of interest relative to an isotropic radiator
- R : Distance to the point of interest in m

Chapter 3. Introduction

3.1 Introduction to OW7MP

The Manpack [OW7MP] is an ultra portable, fully integrated military grade solution, delivering uninterrupted dependable Eutelsat OneWeb LEO connectivity. Eutelsat's OneWeb LEO satellite constellation, connecting to a ground network of gateways and user terminals [UTs], delivers best-fit, reliable and interoperable solutions for governments and agencies around the world.

Developed for Defense and Government users, the Manpack is small and light enough to fit in a standard military rucksack and features fast network acquisition for quick operation even in the most demanding and high-pressure conflict regions. It guarantees reliable connectivity even in GNSS contested environments through R-GNSS support and is optimized for low power consumption to maximize mission duration for multiple hours of operation on external batteries. Built to battlefield-ready specifications, the Manpack is designed to IP67, MIL-STD-810H, and MIL-STD-461, ensuring exceptional durability for personnel on front lines and mission-critical operations.

3.2 OW7MP Features

- Active electronically scanned array.
- Size: 458 x 358 x 108 (mm)
- Operational Temperature: -30°C to +55°C
- Field-of-view: $\pm 55^\circ$ Elevation from zenith, 360° azimuth.
- G/T: 7 dB/K at boresight.
- EIRP: 36.6dBW
- Designed to MIL-STD-810H
- Throughput: The Manpack delivers exceptional performance with throughputs up to 57 x 10 Mbps.
- Form Factor: Weighing 9kg, this compact, fully integrated unit with no fans seamlessly fits into a standard military rucksack.
- SWaP: The optimized design enables low power consumption, delivering reliable performance for extended periods of time when powered by external batteries.
- Overt/Covert button: The status LEDs only illuminate when the dedicated button is pressed and held to ensure the user remains undetected while in hostile environments.
- Tx Mute: This feature allows the user to quickly stop signal transmission by disconnecting from the network, lowering the probability of detection in hostile environments.
- PSM: The Power Saving Mode feature extends battery life in emergency scenarios where it is required.
- COTP and COTM: The Manpack ensures reliable connectivity for for land fixed, comms on the pause (COTP), and comms on the move (COTM).
- Rucksack Compatibility: US MOLLE II and 40100 Series rucksacks; UK Virtus 90L rucksack

Chapter 4. Planning Installation

4.1 Installation Precautions

To ensure your own safety and effectively complete the installation, carefully review the safety measures from the ["1.2 General Precautions"](#) on page 8.

4.2 Selecting Installation Site

Before installing the OW7MP Manpack system, consider the best place to position the Manpack for both performance and safety.

4.2.1 Installation Location for Manpack (User Terminal)

The Manpack should be placed in an area with:

- A secure, robust surface in a stable deployment location
- Absence of Radio Frequency (RF) signal obstruction
- A stable and electromagnetically clear environment



NOTE

When the Manpack is transmitting, obstacles in the way of the beam path will decrease the satellite signal strength and interrupt the connection. The Manpack unit should have direct line-of-sight within $\pm 53^\circ$ from zenith (or above 37° of elevation from local horizon at all directions) without any obstacles in the beam path.

4.2.2 Minimizing Satellite Blockage

The ideal Manpack site should have a clear view of the horizon with 360° of clearance. For the Manpack to operate effectively, avoid blockages. Examples are listed below. To minimize the influence of obstacles, signal interference, or reflections, note the following guidelines:

- Avoid trees in the signal path. Seasonal changes, such as leaves or hanging icicles, can impact signal absorption.
- Make sure there are no obstacles within $\pm 53^\circ$ from zenith.

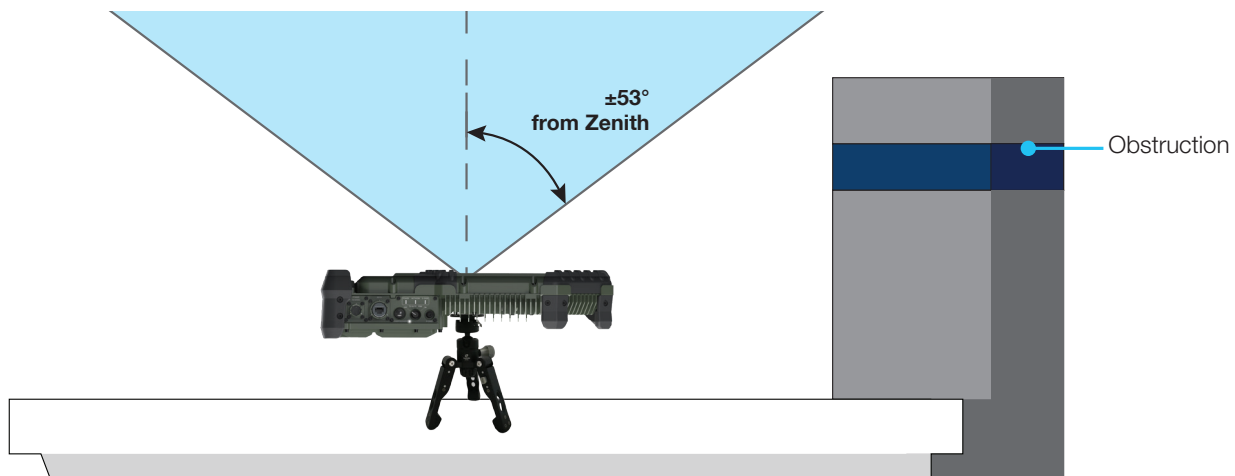


Figure 1: Minimizing Satellite Blockage (example)

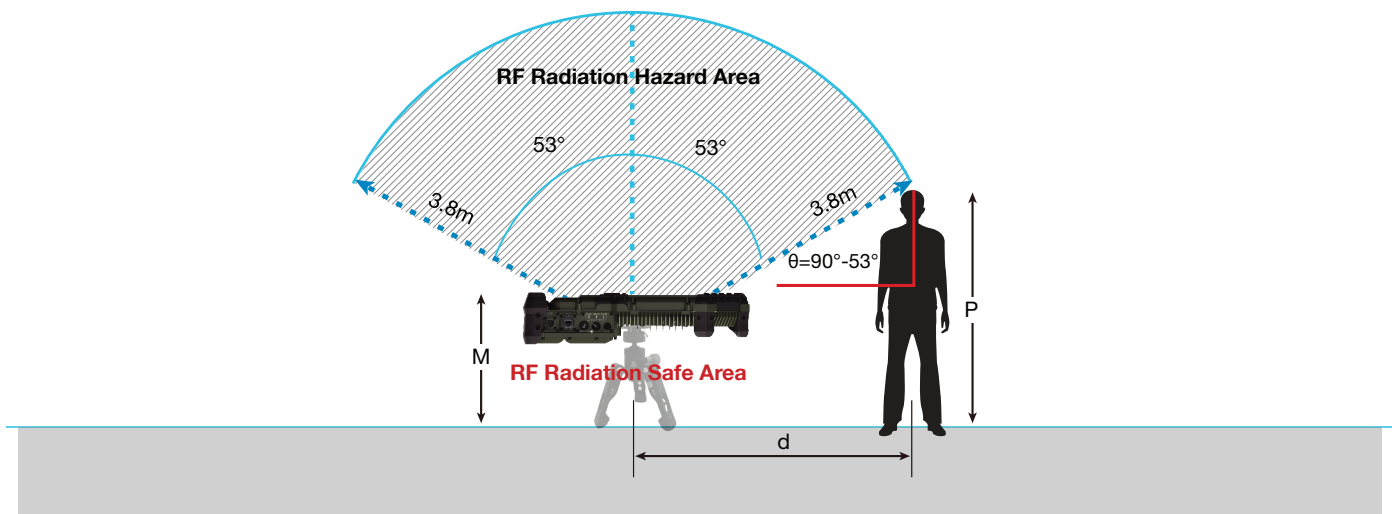
4.2.3 RF Hazard Precautions

The Federal Communications Commission (FCC) has adopted a safety standard for human exposure to RF energy which is below the Occupational Safety and Health Act (OSHA) limits. To comply with current FCC RF exposure limits, the User Terminal must be installed at or exceeding the minimum safe distance as guided by the ODU manufacturer or supplier.

WARNING



Keep everyone (operators, pedestrians, etc.) at a safe distance from the ODU. This includes proximity to windows and doors. Exposure to RF energy from the ODU may cause thermal injuries, including tissue damage due to increased heating and body temperature. Personnel must maintain a minimum distance of “d” (refer to the function below) and installers must place the ODU transmitter in a manner to maintain minimum spacing requirement. Failure to do so could result in exposure to RF energy transmitted from the ODU that could result in serious injury or death.



NOTE

- Near-Field: $S_{NF} < 1.8 \text{ mW/cm}^2$ which is less than 5 W/cm^2 for 6 minutes limit hence, safe for general public exposure.
- Transition-Field: $S_{Trans} < 0.9 \text{ mW/cm}^2$ which is less than 1 mW/cm^2 limit for 30 minutes hence, safe for General Population/Uncontrolled exposure.
- Far-Field: $S_{FF} < 0.3 \text{ mW/cm}^2$ which is less than 1 mW/cm^2 limit for 30 minutes hence, safe for General Population/Uncontrolled exposure
- RF Exposure for General population/Uncontrolled Exposure

$$d \cdot \tan\theta + M = P$$

$$d = \frac{P - M}{\tan\theta}$$

4.2.4 RF Hazard Sticker Placement

The blue RF sticker, included in OW7MP Manpack packaging, needs to be placed where it does not impact RF performance. The RF sticker must be placed on the UT assembly.

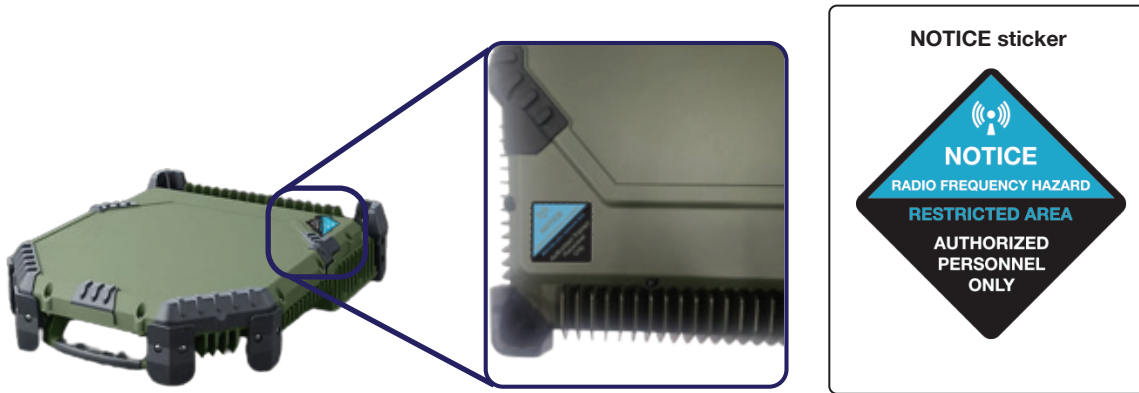


Figure 2: RF Hazard Sticker Placement (Example Only)

4.3 Manpack Package

4.3.1 Manpack

The Manpack features a fully integrated portable design, ruggedized by being designed to MIL-STD-810H, supporting fixed, COTP and COTM applications. With an IP67 certification, the Manpack is watertight and designed for outdoor installation in any environment or temporary submersion in water.



Figure 3: Manpack

4.3.2 Packing List

The OW7MP Manpack is available in two variants that either exclude or include the Transit Case:

(1) Standard OW7MP (2) OW7MP with Transit Case

- Standard OW7MP (HS-OW7MF-GA / HS-OW7MF-DA)

Item	Q'ty	Size	Description
Manpack	1	458 x 358 x 108 mm	Manpack
Quick Start Guide (QSG)	1	-	Quick Start Guide
"Y" Power cable	1	1.5 m	To connect batteries to power the Manpack
Ethernet Cable (RJ45 to RJ45)	1	3 m	Data interface to the user terminal
Mini-Tripod	1	Folded Height: 155 mm (6.1 inches)	Mini-Tripod with quick disconnect feature
M8 Standoffs with Rubber Cap	4	-	Mounting points for vehicle applications
240W AC/DC PSA	1	410 x 210 x 100	AC/DC power supply for Manpack
Waterproof AC Cable US	1	1.5 m	Cable connecting to the PSA (US)
Waterproof AC Cable EU	1	1.5 m	Cable connecting to the PSA (EU)
RF Hazard Sticker	1	40 x 40 mm	Sticker indicating areas with RF exposure

- OW7MP with Transit Case (HS-OW7MF-GAT / HS-OW7MF-DAT)

Item	Q'ty	Size	Description
Transit Case	1	600 x 470 x 280 (mm)	Packed with all components of the Manpack standard package in a durable carrying case.
Manpack	1	458 x 358 x 108 mm	Manpack
Quick Start Guide (QSG)	1	-	Quick Start Guide
"Y" Power cable	1	1.5 m	To connect batteries to power the Manpack
Ethernet Cable (RJ45 to RJ45)	1	3 m	Data interface to the user terminal
Mini-Tripod	1	Folded Height: 155 mm (6.1 inches)	Mini-Tripod with quick disconnect feature
M8 Standoffs with Rubber Cap	4	-	Mounting points for vehicle applications
240W AC/DC PSA	1	410 x 210 x 100	AC/DC power supply for Manpack
Waterproof AC Cable US	1	1.5 m	Cable connecting to the PSA (US)
Waterproof AC Cable EU	1	1.5 m	Cable connecting to the PSA (EU)
RF Hazard Sticker	1	40 x 40 mm	Sticker indicating areas with RF exposure

- Accessory & Spare Parts

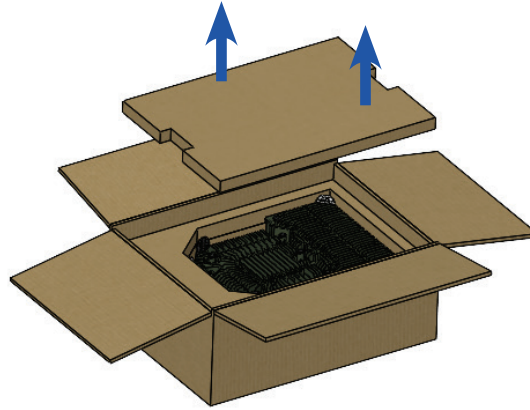
Part No.	Description	Size
OW-6401	Y Power Cable	1.5 m
OW-6402	Ethernet Cable	3.0 m
OW-6503	Mini-Tripod	200 x 155 x 100 (mm)
OW-6404	240W ACDC PSA	400 x 200 x 100 (mm)
OW-6505	Rugged Transit Case	600 x 470 x 280 (mm)
OW-6400	Maintenance Kit (Army Green)	685 x 685 x 650 (mm)
OW-6402	Maintenance Kit (Coyote Brown)	685 x 685 x 650 (mm)
OW-6601	Handle (Green)	120 x 60 (mm)
OW-6603	Handle (C.Brown)	120 x 60 (mm)
OW-6604	Bubble Level	20 x 8 (mm)
OW-6605	Dust Cap Set	460 x 390 x 180 (mm)
OW-6610	Rubber Bumper Set	460 x 390 x 180 (mm)
OW-6615	Standoffs	160 x 140 x 100 (mm)
OW-6031	Land Mobile Adapter	900 x 60 (mm)

4.4 Unpacking the Manpack

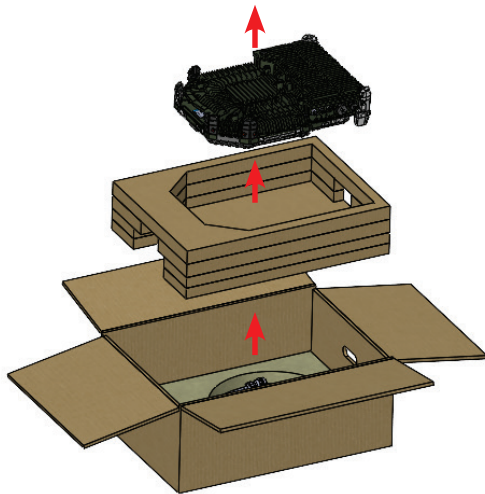
When unpacking the Manpack, follow the steps below.



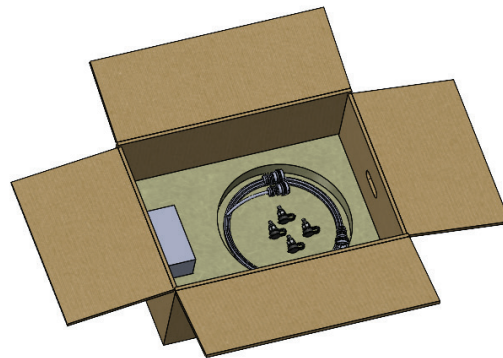
1. Place the package in a safe area.



2. Open the package and remove the protective packing.



3. Take out the Manpack and remove the protective packing.



4. Take out the items.

- Refer to the Included items "[4.3.2 Packing List](#)" on page 16



NOTE

Make sure all the parts under the bottom cover (Step 4) are removed before the packaging is discarded.

4.5 Product Overview

4.5.1 Manpack Dimensions

Unit: mm (inches)

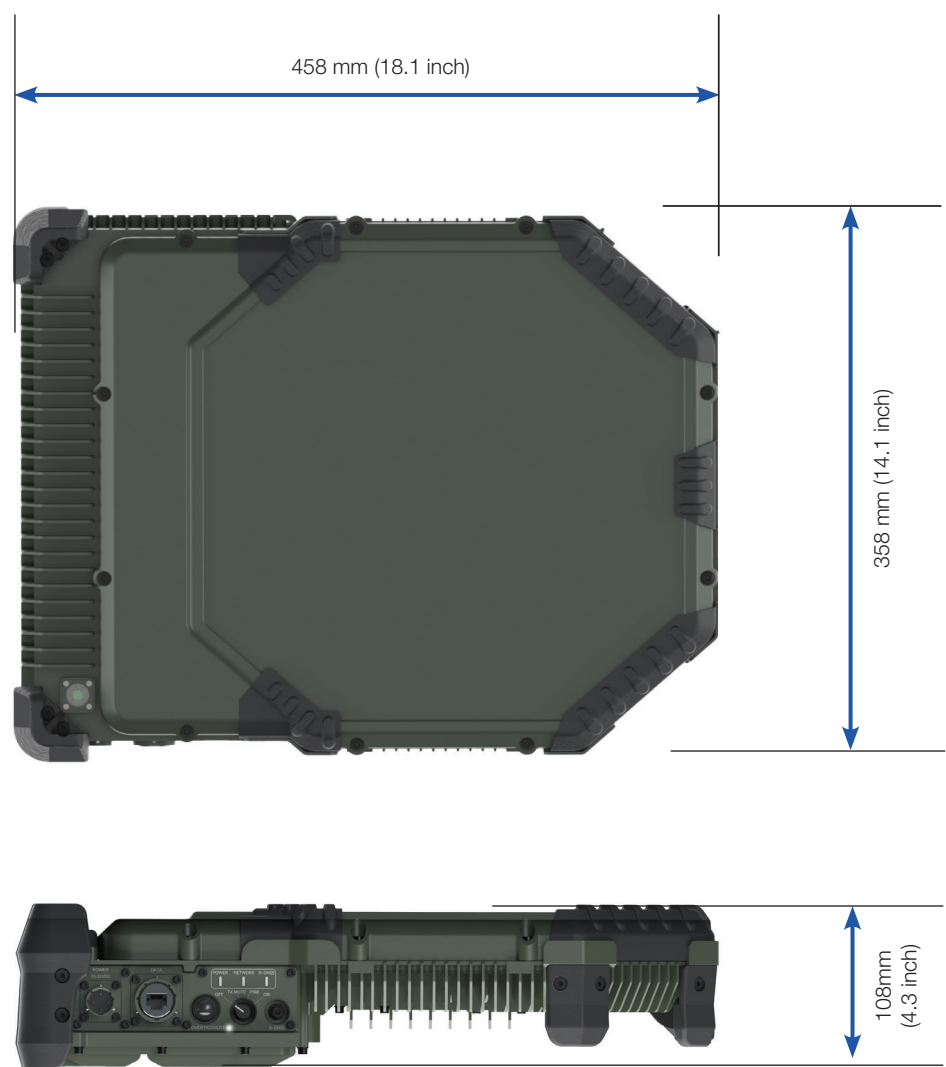
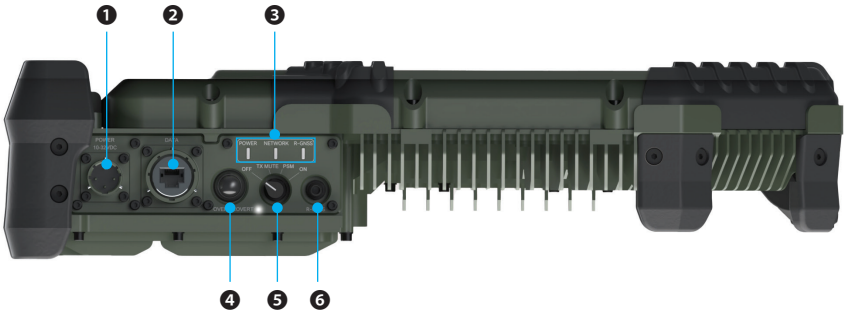


Figure 4: Manpack Dimension

4.5.2 Parts Identification

Front



No.	Part	Description
①	POWER	10-32 VDC input (Nominal 12V / 24V)
②	DATA	RJ45 GigE port, data interface of Manpack
③	Status LEDs	The Status LED changes depending on its status. Refer to "8.3 Verifying LED" on page 41 for the details.
④	OVERT/COVERT	The LEDs on the manpack are off by default, and only illuminate when the OVERT/COVERT button is pushed and held. The three LEDs will display status of the user terminal when the button is held, with behavior outlined in "8.1 LED Display" on page 40.
⑤	Selector switch	Turn the knob to select the operating mode. Refer to "8.2 Selecting Modes" on page 40 for the details.
⑥	R-GNSS	Connect the R-GNSS cable to input external GNSS via an SMA connection

Bottom

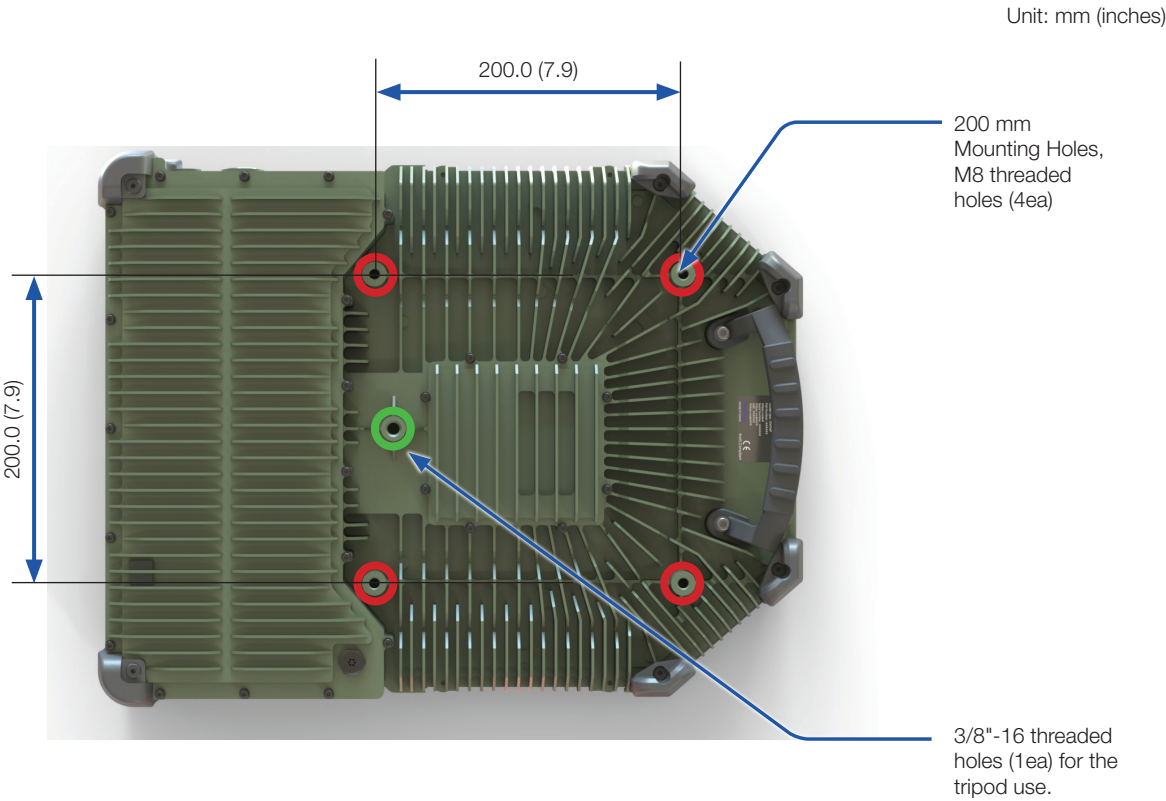


Figure 5: Bottom View of the Manpack

Chapter 5. Installing Mini-Tripod

The Mini-Tripod is the primary means of mounting the Manpack user terminal for operation and is included in the standard package. Other mounts are available and must be purchased as accessories.

5.1 Mini-Tripod Dimensions

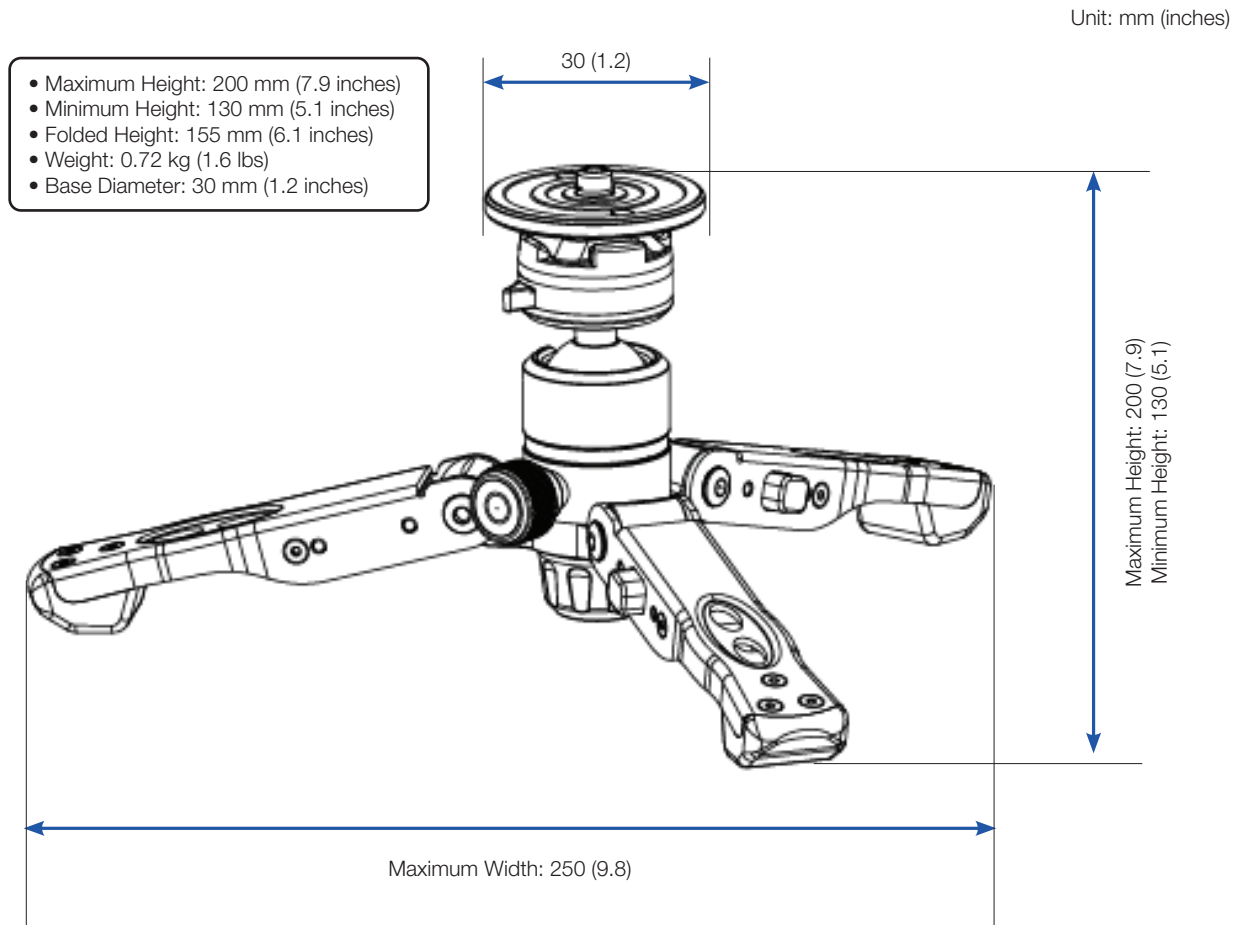
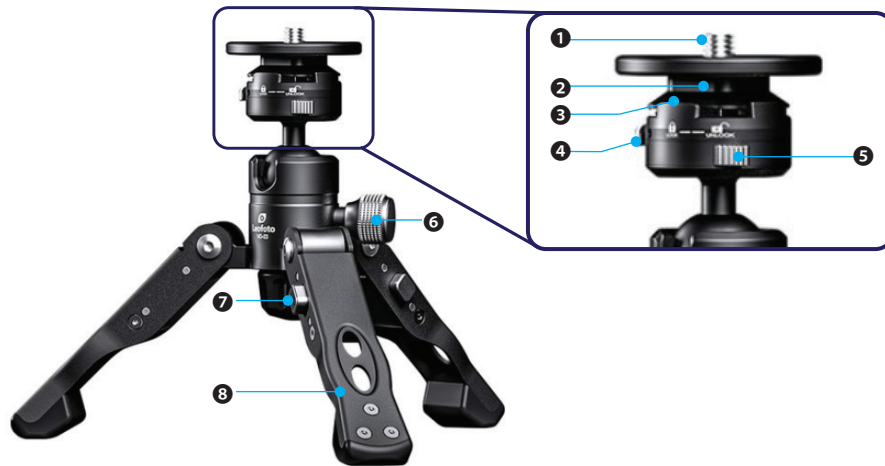


Figure 6: Mini-Tripod Dimensions

5.2 Parts Identification of the Mini-Tripod



No.	Part
①	3/8" Screw
②	Quick Release Head
③	Base
④	Base Change Button
⑤	Lock Lever
⑥	Main Lock Knob
⑦	Push (Leg Angle Adjustment Button)
⑧	Legs

5.3 Mounting Manpack Using Mini-Tripod

The Manpack comes with a Mini-Tripod.

Mount the Manpack OW7MP on the Mini-Tripod using one of two following methods: Directly or with quick release mechanism.

5.3.1 Deploying the Legs

1. Starting from the folded configuration illustrated below:

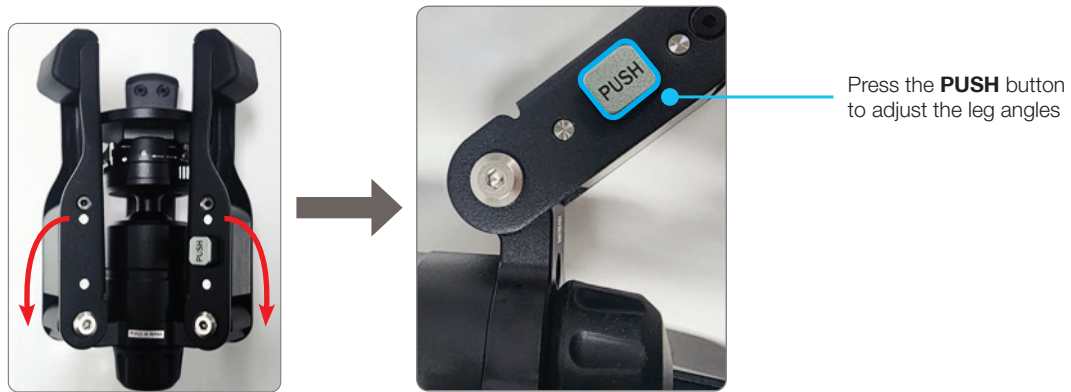


Figure 7: Adjusting the Leg Angles

- a. Rotate the three folded legs to the reverse direction.
- b. Press the **PUSH** button to adjust the leg angles.
- c. Adjust the leg angles. The Mini-Tripod can be adjusted to 3 levels. We recommend the 1st Level, the wider extension, for the most stable mounting. Refer to the images below:



Figure 8: Adjusting the Leg Angles

5.3.2 Mounting Tripod Directly

1. With the Manpack upside down, remove the dust cap for the mounting hole on the bottom of the Manpack.

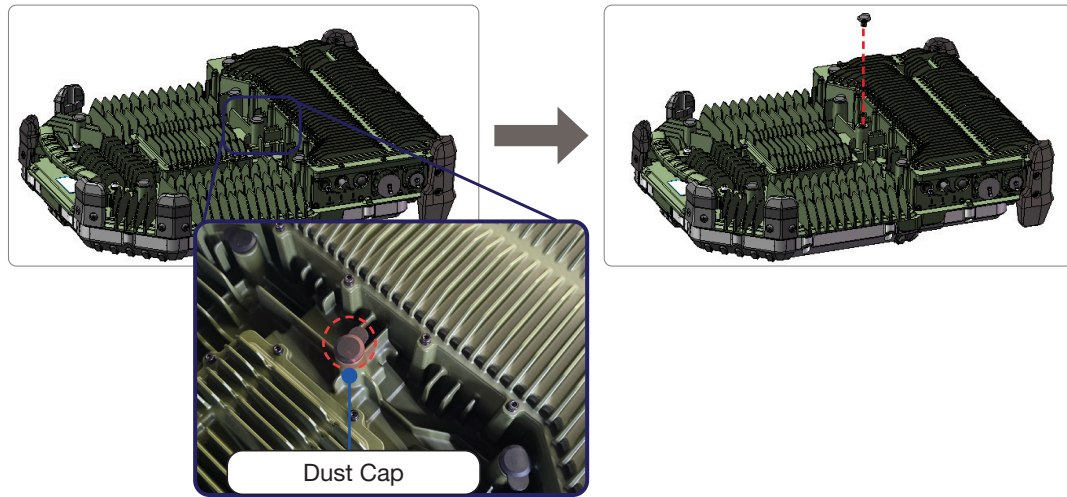


Figure 9: Removing the Dust Cap

2. Insert the 3/8" Screw of the Mini-Tripod into the mounting hole on the bottom of the Manpack.

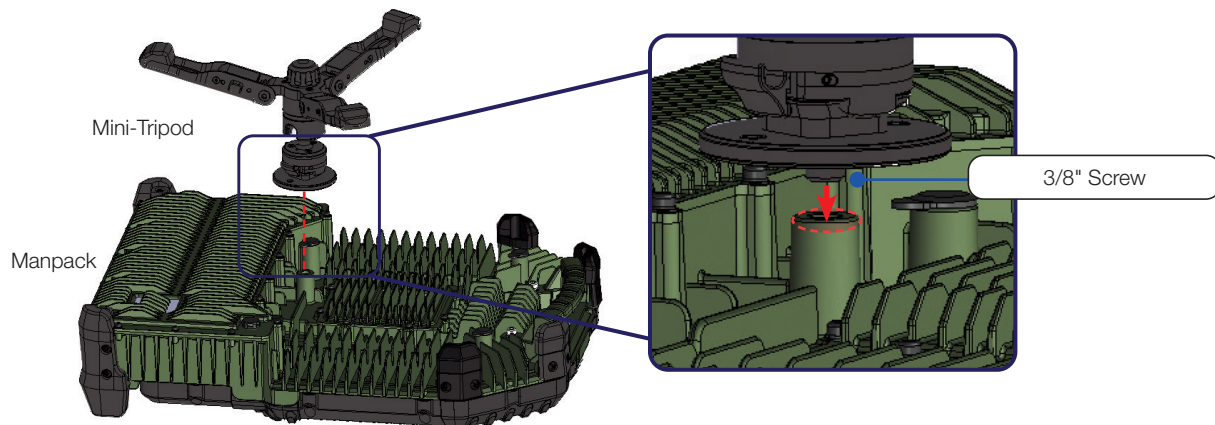


Figure 10: Inserting the 3/8" Screw of the Mini-Tripod

3. Turn the Mini-Tripod clockwise by hand to tighten the 3/8" Screw.
4. Turn the Manpack back to its original position.

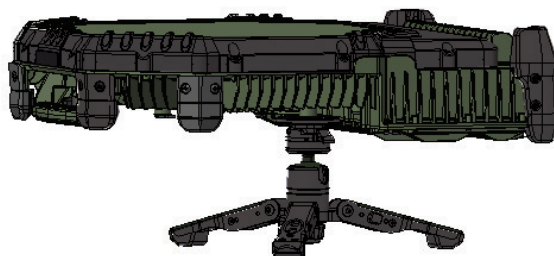


Figure 11: Manpack turned back over to original position

5.3.3 Using the Quick Release System

1. Detach the Quick Release System.
 - a. Turn the Lock Lever to the **UNLOCK** position.
 - b. Lower and hold the Base Change Button to detach the Quick Release System.

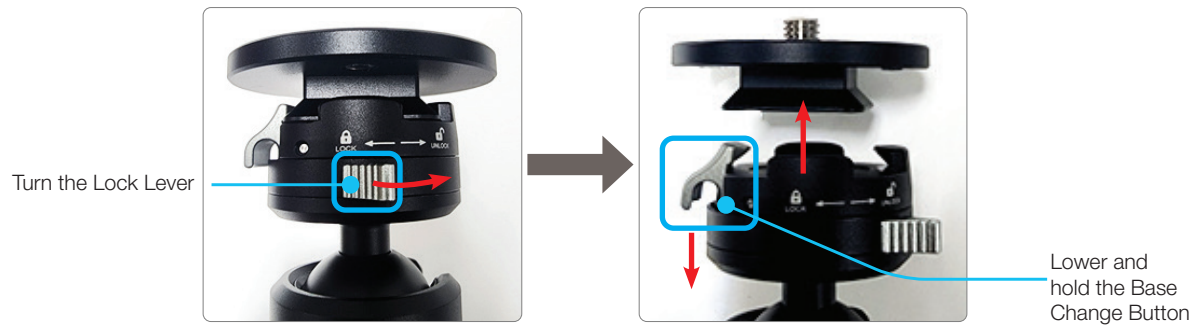


Figure 12: Detaching the Quick Release System

2. With the Manpack upside down, remove the dust cap for the mounting hole on the bottom of the Manpack.

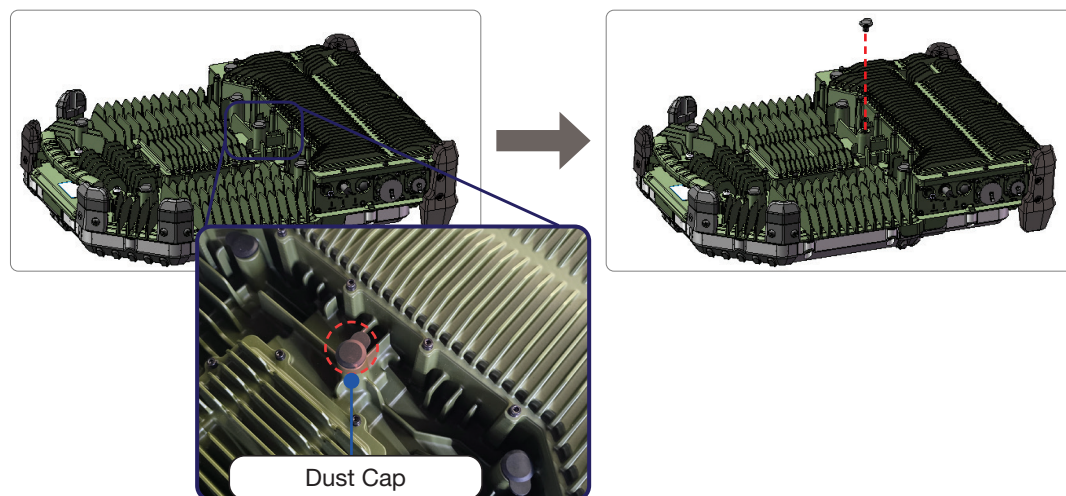


Figure 13: Removing the Dust Cap

3. Insert the 3/8" Screw of the Mini-Tripod into the mounting hole on the bottom of the Manpack.

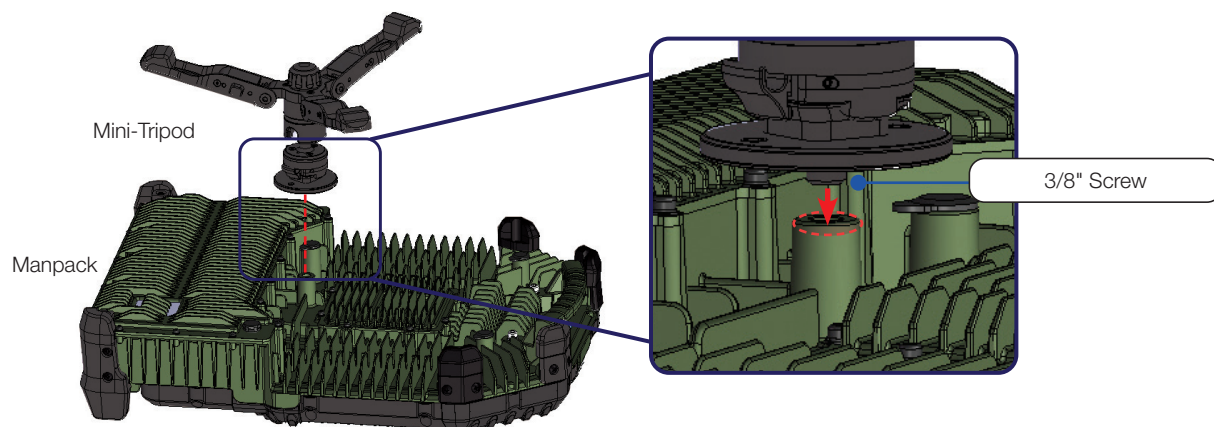


Figure 14: Inserting the 3/8" Screw of the Mini-Tripod

4. Turn the Quick Release System clockwise by hand to tighten the 3/8" Screw.
5. Lift the antenna above the Mini-Tripod, making sure the Quick Release System is aligned with the Base on the Mini-Tripod.

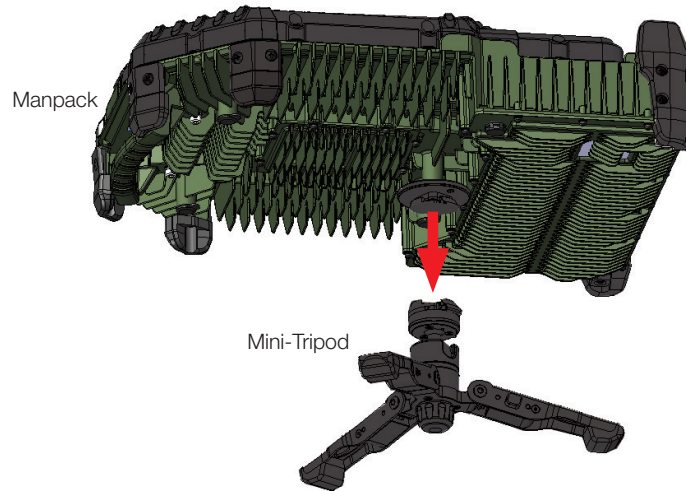


Figure 15: Lifting the antenna above the Mini-Tripod

6. Lower the antenna and hold the Base Change Button to fix the antenna position. Then release the button.
7. Turn the Lock Lever to the LOCK position.

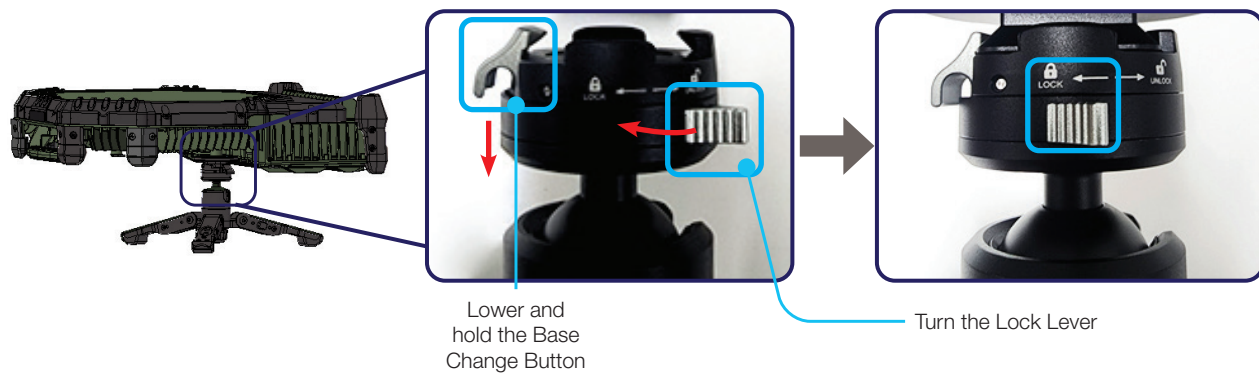
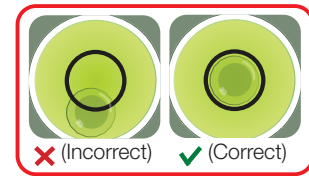


Figure 16: Mounting the Manpack above the Mini-Tripod

5.3.4 Levelling the Manpack

Check if the antenna is level by viewing the bubble level.

If the bubble is in the center, then it is level. If it is not, proceed to adjust the top by following these steps:



1. Loosen the Main Lock Knob on the Mini-Tripod by hand.

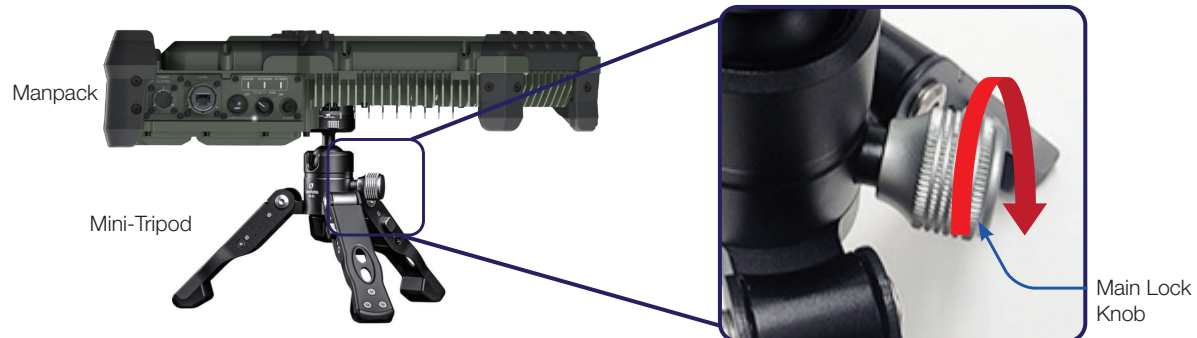


Figure 17: Loosen Bolts on the Mini-Tripod

2. Rotate the Manpack until it is parallel to the ground using the built-in leveling tool on top of the antenna. Verify that the bubble is aligned within the circle guide.

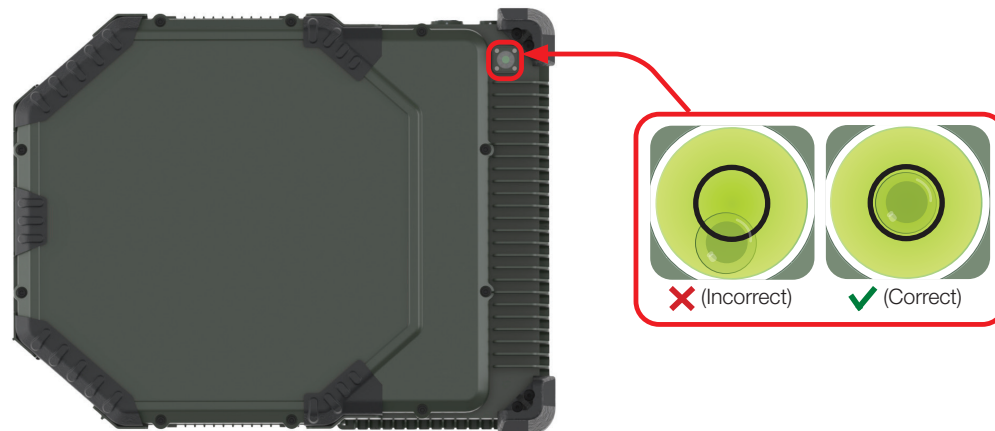


Figure 18: Using Leveling Tool

3. Tighten the Main Lock Knob on the Mini-Tripod by hand.



NOTE

During installation, ensure the Manpack is level within $\pm 2^\circ$ for pitch and $\pm 2^\circ$ roll.

Chapter 6. Installing Land Mobile Mount Adapter

The Manpack does not come standard with a Land Mobile Mount Adapter. This Land Mobile Mount Adapter kit must be used in conjunction with vehicle roof crossbars.

6.1 Dimensions

Unit: mm (inches)

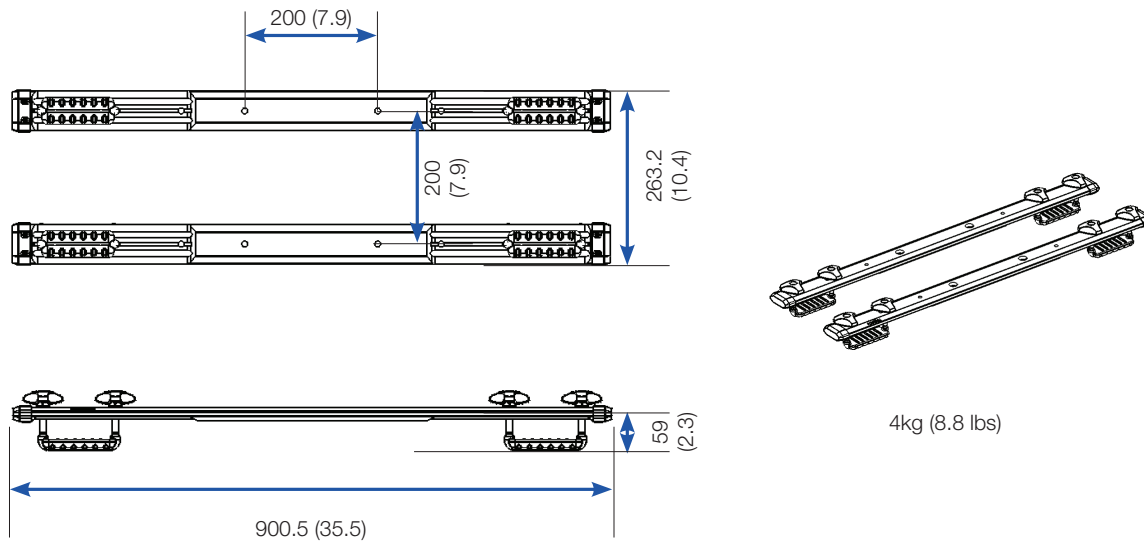


Figure 19: Land Mobile Mount Adapter Dimension

6.2 Mounting Manpack Using Land Mobile Mount Adapter (Optional)

6.2.1 Attaching the OW7MP Manpack to the Mount Adapter

Attach the mount adapter to the base on the Manpack using the provided hardware.

1. Gather the following components:
 - From the Manpack install kit :M8 Rubber Feet Plugs
 - From the land mobile mount adapter kit :M8x25L hex socket bolts (4 ea) for mounting the Manpack, Land mobile mount adapter
2. Turn the Manpack upside down.
3. Remove the dust caps (4 ea) from the 200 x 200 mm mounting holes on the Manpack.

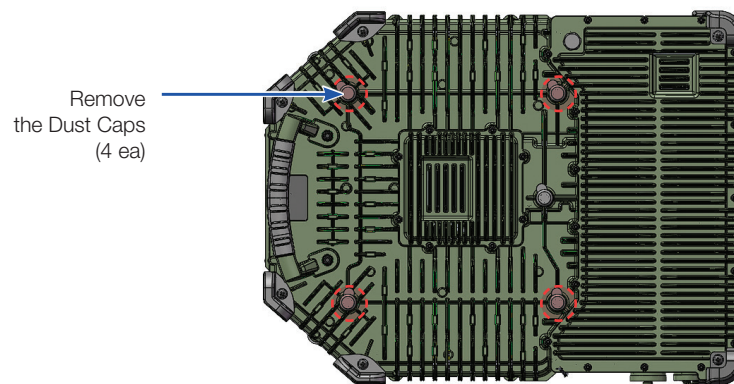


Figure 20: Removing the Dust Caps

4. Attach the M8 standoffs with rubber caps to the 200 x 200 mm mounting holes on the Manpack
 - a. Insert the standoffs with rubber caps into the 200 x 200 mm mounting holes on the Manpack.
 - b. Fully tighten the rubber feet plugs using an 18 mm wrench.

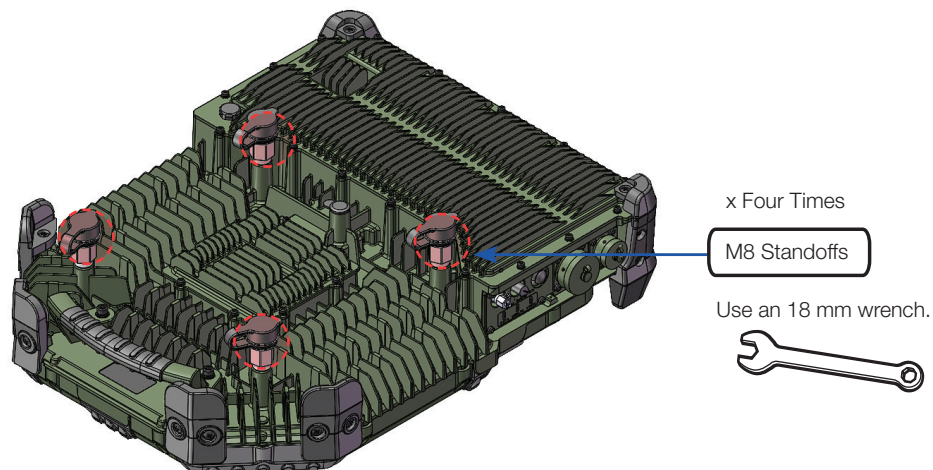


Figure 21: Attaching the M8 Rubber Foot Plugs

5. Open the rubber caps (4ea) of the rubber foot plugs.
6. Ensure the rubber foot plug holes on the Manpack and land mobile mount adapter are aligned as shown below.



NOTE

Ensure Mount adapters are in line with antenna as illustrated below. Attaching the adapters at a right angle to the configuration illustrated will lead to difficulty installing them onto the vehicle.

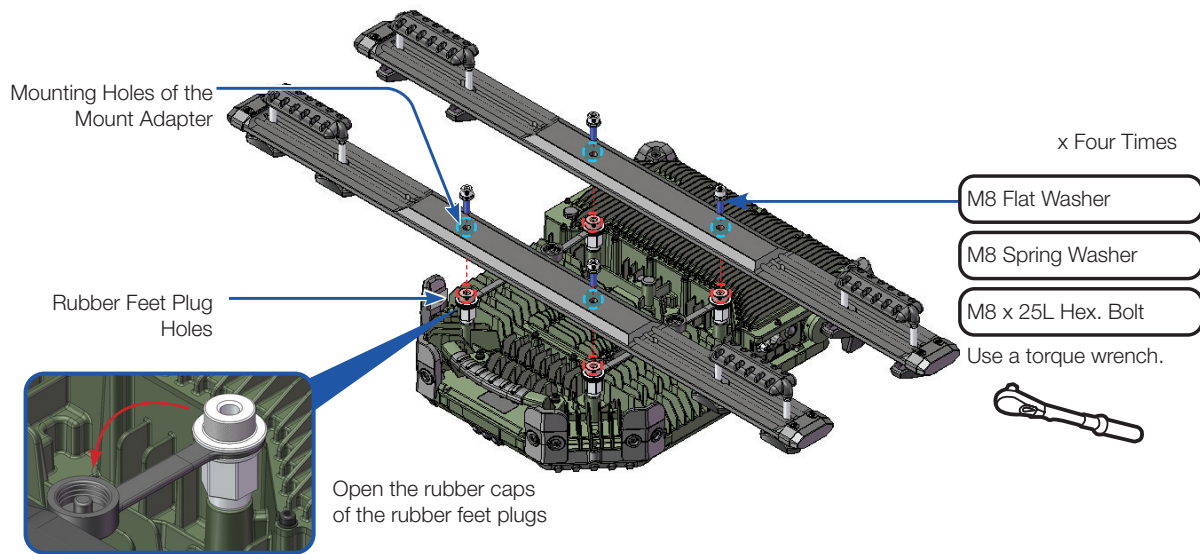


Figure 22: Mounting Land Mobility Mount Adapter

7. Insert the four M8x25L hex socket bolts and washers into the mounting holes of the Land Mobile Mount Adapter, then lightly tighten them.
8. After installing all 4 bolts, fully tighten the bolts using a torque wrench (Tightening Torque: 27 Nm (20 lb-ft.)).

6.2.2 Attaching to Vehicle Crossbars

6.2.2.1 Installing and Positioning the Crossbar

Ensure your vehicle has a crossbar system installed on the car.

Commercial crossbar requirements for land mobile mount installation:

- Distance between crossbars: 635 mm (25")
- Maximum crossbar thickness: 30 mm (1.2")
- Maximum crossbar width: 92 mm (3.6")



NOTE

If the crossbar thickness or width exceeds these specifications, a custom clamp kit may be required.

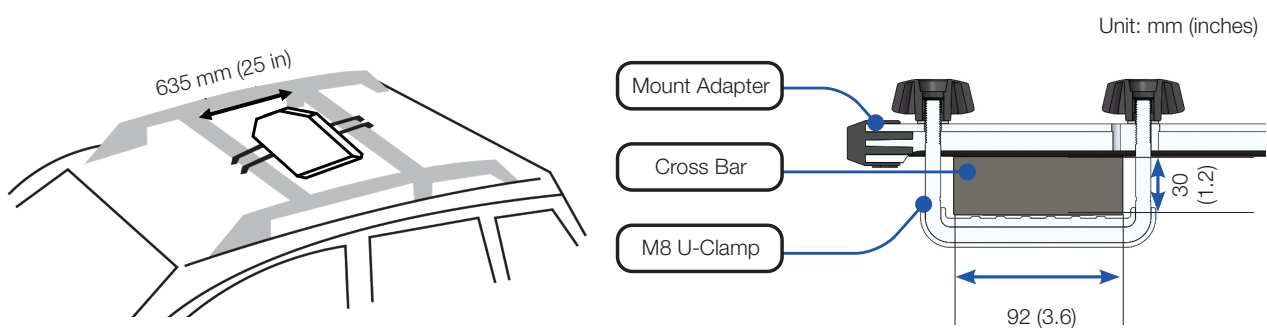


Figure 23: Conditions for crossbars suitable for land mobile mount installation

6.2.2.2 Attaching the Manpack to Crossbar

The land mobile mount adapter arms will run in line with the vehicle. Ensure there will be no interference from other items such as vehicle radio antennas or sunroofs. Look to your owner's manual for further details and instructions on this process.

1. Loosen all clamp knobs (8 ea) of the Land Mobile Mount Adapter by turning them counter clockwise in order to detach the following components: Flat washer (8set), M8 U-Clamp (4ea) with clamp knob.

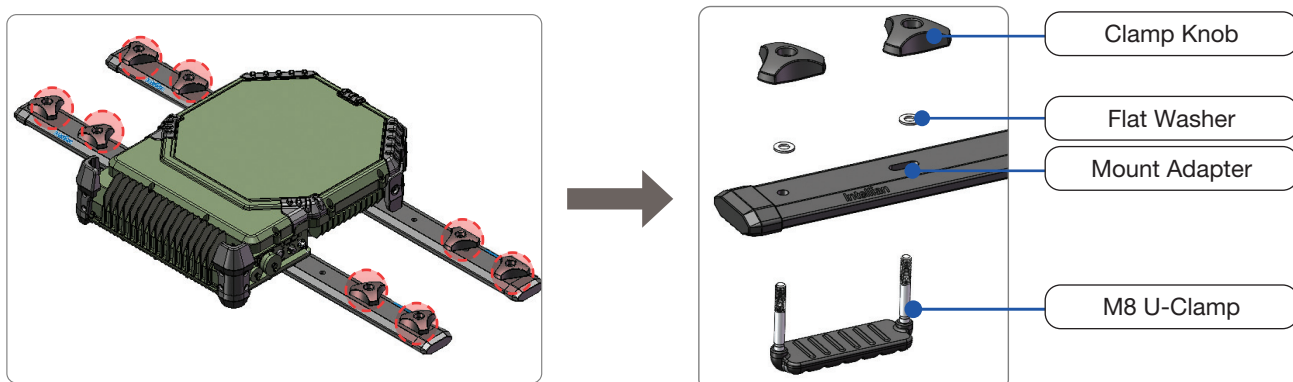


Figure 24: Loosening Clamp Knobs of the Mount Adapter

2. Place the antenna and mount adapter onto the vehicles cross bars, ensuring the POWER/DATA port faces the rear of the vehicle.
3. Place one M8 U-Clamp under the crossbar and insert it into the mount hole on the mount adapter. Align the Land Mobile Mount Adapter pieces with the vehicle.
4. Feed the lock washer and clamp knob in order on the M8 U-Clamp.

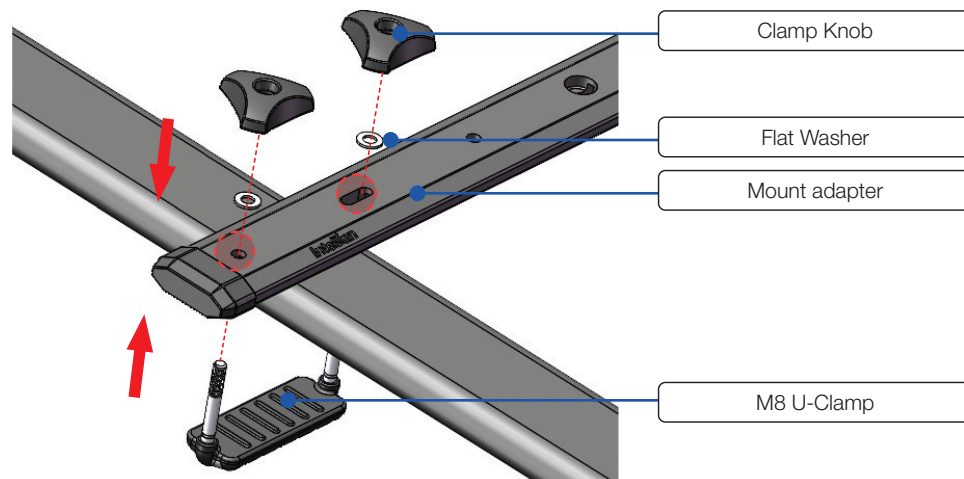
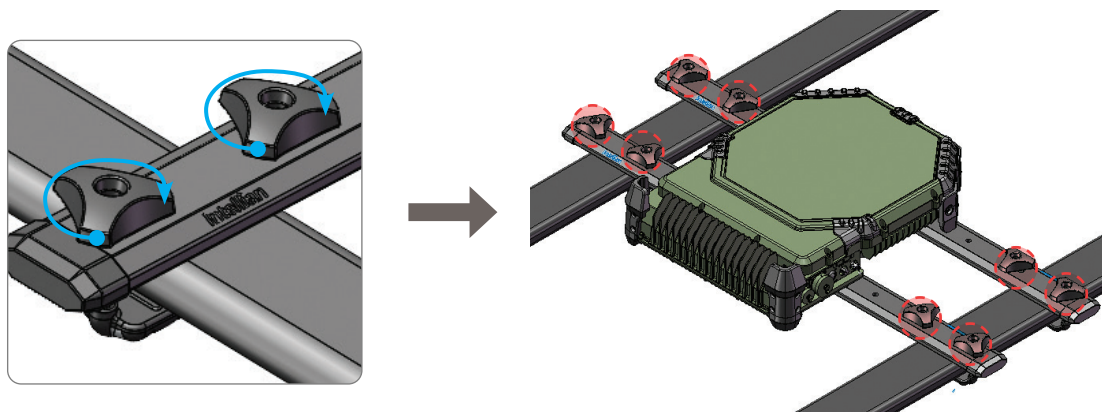


Figure 25: Assembling the M8 U-Clamp

5. Fully tighten the clamp knobs by rotating them clockwise to securely attach the Land Mobile Mount Adapter.
6. Repeat steps 2 through 4 for each Remaining U-clamp assembly.



7. Secure the power and data cables prevent movement while the vehicle is in motion.

Chapter 7. Connecting Power and Data



NOTE

Make sure of the following before installing system cables.

1. Only use approved cables and connectors.
2. All cables with connectors need to be fully secured and protected from physical damage.
3. Take care, not to accutely bend any cables during installation.

WARNING



- Keep the power turned off during cable installation. Turn on the power after you finish installing all the cables.
- Do not twist heat shrink tube section while the cable is connected.
- When connecting or disconnecting the cable, make sure to twist only the coupling nut.

7.1 Connecting Battery Y Power Cable

1. Retrieve the supplied Y power cable from the Installation Kit box.
2. Remove the cap from the **POWER** Connector located on the I/O panel of the Manpack.
3. Connect the 4-pin power connector of the Y power cable to the **POWER** Connector on the Manpack.
4. Turn the connector clockwise until a positive latch is achieved.

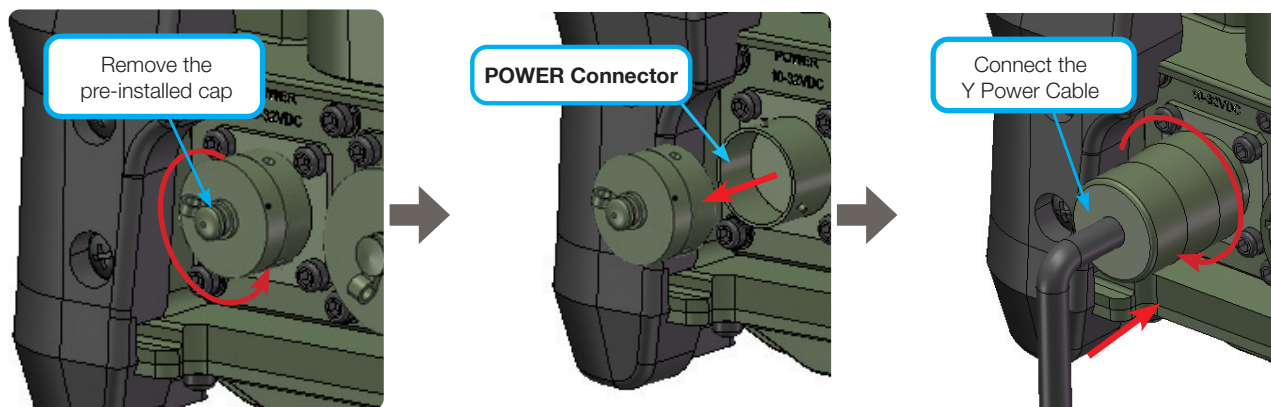


Figure 27: Connecting Power Cable

5. Connect one end of the Y cable to the battery, ensuring it is fully seated.
6. If a second battery is being used, connect the second lead of the Y cable to that battery so it is fully seated.
7. Turn the selector knob of the manpack to the desired position, and begin operation.



NOTE: Hot Swap

- To hot swap batteries, once one battery has been close to or fully depleted, simply disconnect the Y cable from the depleted battery, and reconnect it to the new charged battery. Only use approved cables and connectors.
- Ensure the other battery remains connected during this to maintain operation. No other steps, or powering off is required.

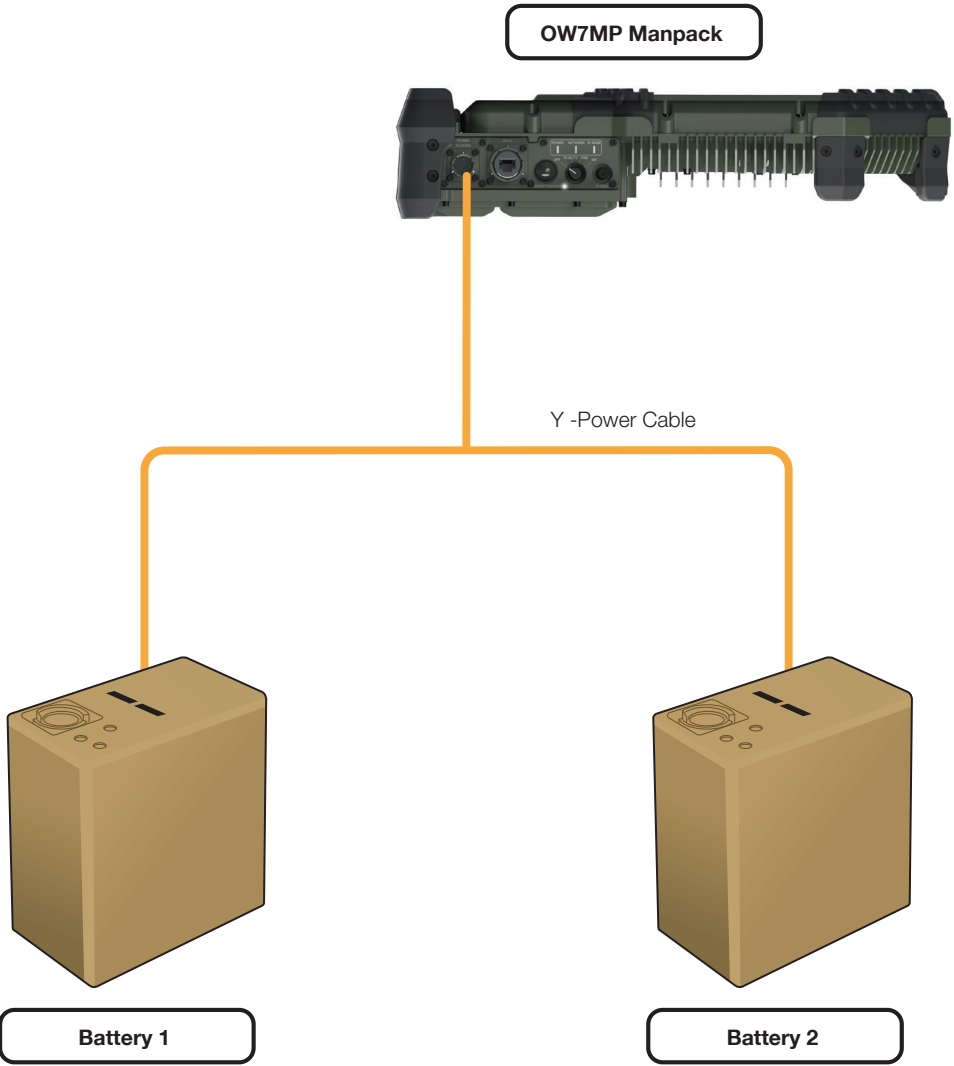


Figure 28: Connecting Battery Y Power Cable

7.1.1 Battery Requirements (Customer Supply)

The Intellian Manpack system is designed for robust and efficient power management in various operational environments. It utilizes the provided Y power cable for battery connection.

Supported Battery Types

The Manpack system exclusively supports the **BB-2590/U** rechargeable battery type. There are many different suppliers and varieties of the BB-2590. For the most optimal performance, please reference the specs below.

Important Note on Battery Compatibility:

The BA-5590/U non-rechargeable battery is NOT compatible and must not be used with the Manpack system. Due to its lithium sulfur dioxide construction, the BA-5590/U battery can only support currents under 3A and has a non-replaceable 3A fuse built in for overheating protection.

- Attempting to use the BA-5590/U battery will likely cause its internal fuse to blow, rendering the battery useless and potentially damaging the system.

Battery Capacity and Performance

For optimal operational performance, it is recommended that the capacity of each BB-2590/U battery be greater than 250 Wh. While lesser capacity batteries will not impact the system's performance, they will decrease the total operational time per battery before a hot swap is required.

Y Power Cable Design

The provided "Y" power cable is specifically wired to utilize the 24V option on the battery (instead of 12V). This design choice helps to lower the current draw, leading to more efficient system operation.

Environmental Considerations

The operational temperature range of the batteries should be carefully considered for your targeted deployment environment. The BB-2590/U battery, which complies with Manpack specifications, typically supports temperatures down to -30°C. Please note that some manufacturers' versions of these batteries may only have a -20°C operating temperature specification.

Battery compatibility with Manpack specifications

Item	Specification
Dimensions	L 1.4" (112 mm) x W 2.4" (61 mm) x H 5" (127 mm)
Weight	3.1 lbs (1.4 kg)
Nominal Voltage	28.8V, Two (2) x 14.4V/section
Capacity	8.7 Ah in 24V mode, 17.4 Ah in 12V mode
Discharge	10A Max Continuous/Section (minimum 2.95A/Section, 5.9A total at 24V needed for Manpack)
Operating Temperature	-30C to +55C
Connector	Floating type per U.S. Army DWG# SC-C-179495

7.2 Connecting Power Cable to AC Power Supply Adapter (PSA)

WARNING



- Keep the power turned off during cable installation. Turn on the power after you finish installing all the cables.
- Do not twist heat shrink tube section while the cable is connected.
- When connecting or disconnecting the cable, make sure to twist only the coupling nut.

NOTE



- The PSA is engineered with a dual-layer waterproof structure rated IP67 (IEC 60529). While the outer enclosure is designed for standard protection, the core electrical circuitry is permanently sealed with high-grade silicone sealing.
- In the event of moisture(or water) ingress into the outer casing during prolonged submersion, the product's electrical integrity and performance remain fully protected and unaffected.

1. Connect the Power Supply Adapter (PSA)'s cable to the Power connector on the Manpack.
 - a. Remove the cap from the **POWER** Connector located on the I/O panel of the Manpack.
 - b. Connect the 4-pin power connector of the cable to the **POWER** Connector on the Manpack.
 - c. Turn the connector clockwise until a positive latch is achieved.

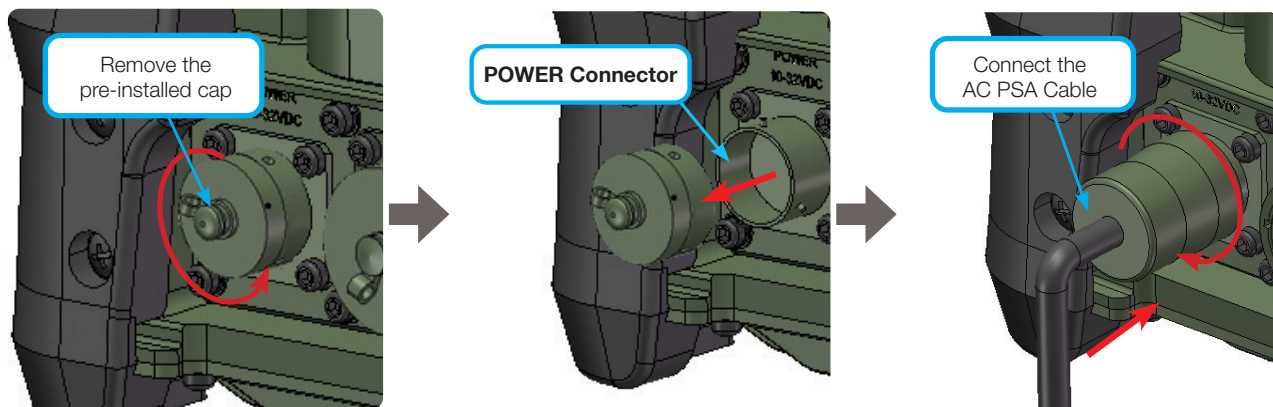


Figure 29: Connecting PSA Cable

2. Connect the relevant power outlet cable to the AC PSA. Both US (NEMA 5-15P) and EU (CEE 7/4) connectors are included standard in each box.
 - If the EU cable is needed, remove the water resistant PSA connector from the US cable, and attach it to the open leads of the EU cable.
3. Connect the PSA to the power source outlet.
4. Turn the Operating Mode selector switch of the OW7MP Manpack to the On position, and begin operation.

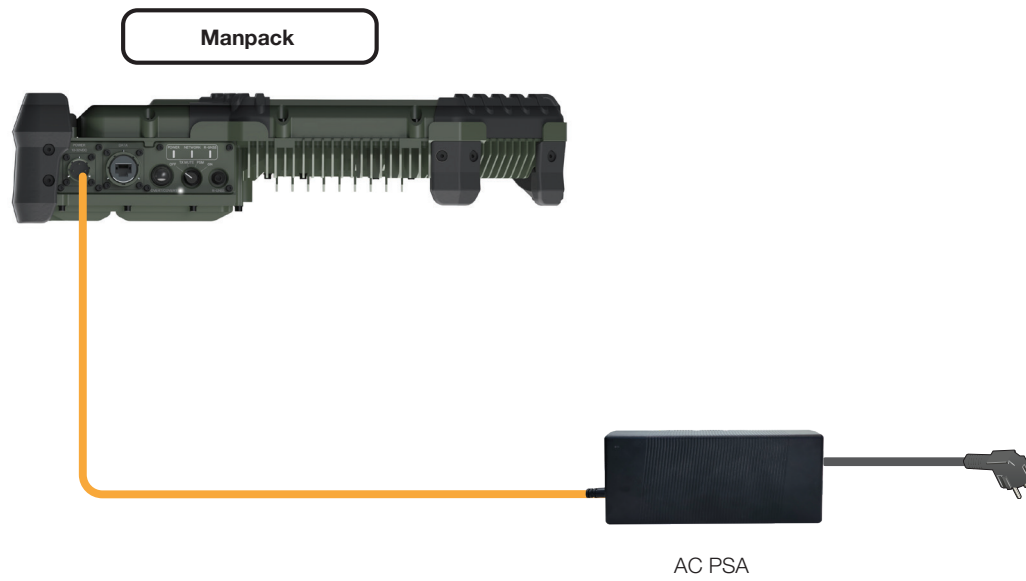


Figure 30: Connecting Power Cable to AC PSA

7.3 Connecting Ethernet Cable

WARNING



- Keep the power turned off during cable installation. Turn on the power after you finish installing all the cables.
- Do not twist heat shrink tube section while the cable is connected.
- When connecting or disconnecting the cable, make sure to twist only the coupling nut.

1. Retrieve the supplied Ethernet cable from the Installation Kit box.
2. Remove the cap from the **DATA** Connector located on the front of the Manpack.
3. Connect the RJ45 connector of the Ethernet cable to the **DATA** Connector on the Manpack.
4. Thread the barrel onto the RJ45 waterproof socket of the Manpack, and then screw-tighten the barrel.
5. Fully tighten the strain relief (tail cover).

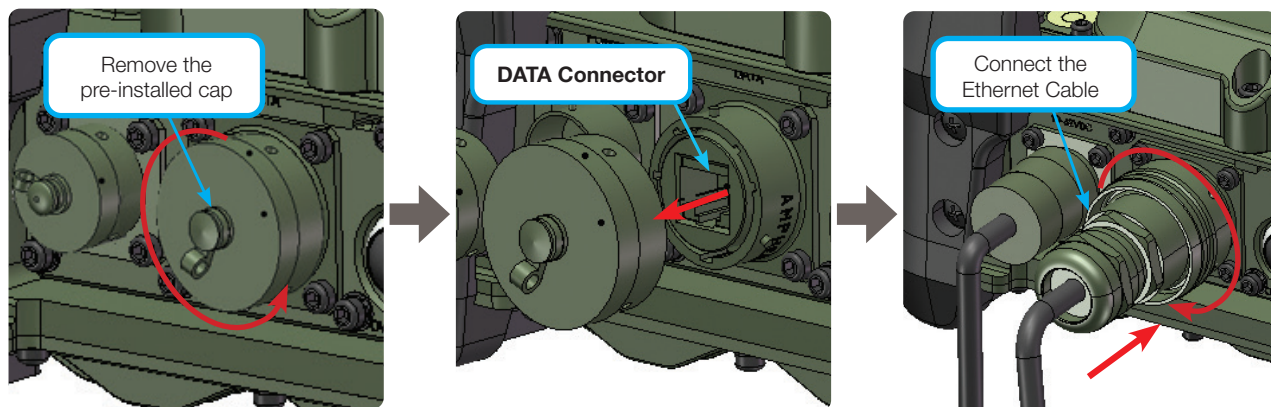


Figure 31: Connecting Ethernet Cable

NOTE



- To maintain the specified IP rating when using a user-supplied Ethernet cable, the cable must be fitted with an Amphenol RJF6MZN connector.
- To extend the Ethernet cable length, a water-resistance RJ45 barrel connector may be used with an additional cable. As an alternative, an Amphenol RJF6MZN connector can be used to achieve an IP-sealed RJ45 connection with a bayonet-style latch.

7.4 Connecting external GNSS (Optional)

Intellian's flat panel series offers the ability for an external GNSS input via an SMA connection. It is ideal for use in GNSS denied environments.

When an external GNSS is connected, the Manpack automatically switches to the R-GNSS mode and becomes operational.

If the R-GNSS is disconnected and the jumper cable is reconnected, a power cycle is required to revert the unit to using the internal GNSS.

1. Purchase of an external GNSS is required.



NOTE

At time of writing, AstraPNT is the only approved alternative PNT solution for use on the Eutelsat OneWeb network. Check the Eutelsat website for updated list of compatible PNT devices.

2. Remove the pre-installed cap from the SMA connector on the Manpack.
3. Connect the SMA connector of the external GNSS cable to the R-GNSS SMA port connector.

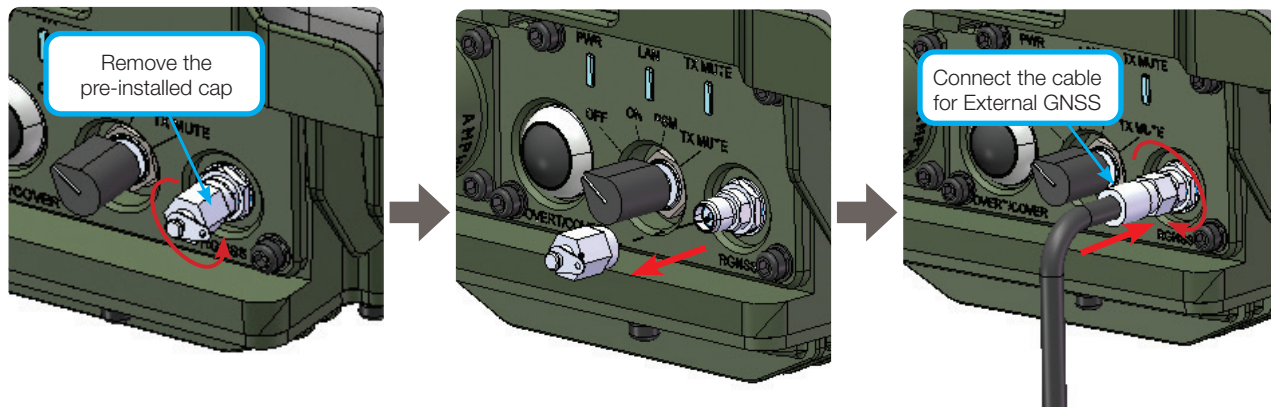


Figure 32: Connecting the SMA connector of the external GNSS cable to the GNSS connector



WARNING

The SMA connector must be DC-blocked externally. Customers must not apply any DC voltage to the RGNSS SMA port.

Chapter 8. Operating Manpack

8.1 LED Display



Figure 33: LED Display

The LEDs on the manpack are OFF by default, and only illuminate when the **OVERT/COVERT** button is pushed and held. The three LEDs together display status of the user terminal when this button is held down. The Manpack behavior is outlined in **@8.3 Verifying LED" on page 41.**

* Power LED is illuminated when power ON. Network and R-GNSS LEDs are illuminated during subsequent operation.

8.2 Selecting Modes

Select the desired mode of operation by rotating the selector knob.



Figure 34: Selecting Modes

Off

The Manpack will remain off, even if power is applied

TX Mute

The Tx Mute quickly disconnects the Manpack from the network, eliminating the risk of RF detection once selected.

The Eutelsat OneWeb system is not capable of operating in receive only, so when Tx Mute is selected, all traffic will be stopped.

(Please note that Tx Mute is for land fixed only. Use in COTP or COTM scenarios will result in increase acquisition time.)

PSM (Power Saving Mode)

The PSM feature extends battery life of the Manpack.

This will slightly decrease the overall performance of the user terminal by deactivating a portion of the antenna.

On

This allows the manpack to operate fully with the maximum performance.

8.3 Verifying LED

The LEDs change to indicate user terminal status. Refer to the table below for details.

8.3.1 Regular Use

(●: Off, ●: On, ◎: Blink)

PWR	NETWORK	R-GNSS		Description
		Internal GNSS	w/ R-GNSS	
●	●	●	●	Off
●	●	●	●	Boot Up Process (Tx Mute)
●	◎ (Slow Blink)	●	◎ (Slow Blink)	- TN Cal. complete (Tx Mute) - Boot Up Process (PSM, On)
●	●	●	●	Network acquired, Rx & Tx

8.3.2 Warning / Error States

(●: Off, ●: On, ◎: Blink)

PWR	NETWORK	R-GNSS		Description
		Internal GNSS	w/ R-GNSS	
◎ (Fast Blink)	●	●	●	Power Error
◎ (Slow Blink)	●	●	●	Power Warning
●	●	●	◎ (Fast Blink)	R-GNSS Error
●	◎ (Fast Blink)	●	●	General Error, See Local User Interface (LUI) for full details
●	◎ (Fast Blink)	◎ (Fast Blink)	◎ (Fast Blink)	Temperature Warning

Chapter 9. Using Local User Interface (LUI)

9.1 Accessing the Local User Interface (LUI)

With the embedded Local User Interface (LUI), the Manpack can be monitored, controlled, and diagnosed remotely through a web browser. To access the LUI, use the Chrome web browser and navigate to the URL 192.168.100.1 (Default).



NOTE

Intellian recommends using Chrome web browser when interfacing with the **LUI**

9.2 Connecting Ethernet Cable to Access the LUI

The network is automatically configured by DHCP with no additional PC IP configuration.

1. Connect a supplied Ethernet cable to the **DATA** port on the Manpack .

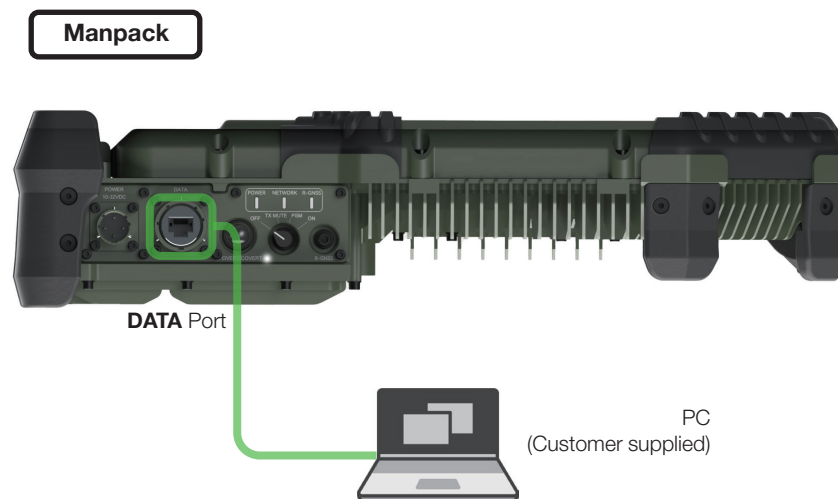


Figure 35: DATA Port Connection

2. Enter the IP address into your web browser's address bar to log in to the Local User Interface (LUI). Default IP is **192.168.100.1**.

9.3 LUI Webpage Layout

Once you log in, the following information and menus are displayed.

9.3.1 Navigation bar

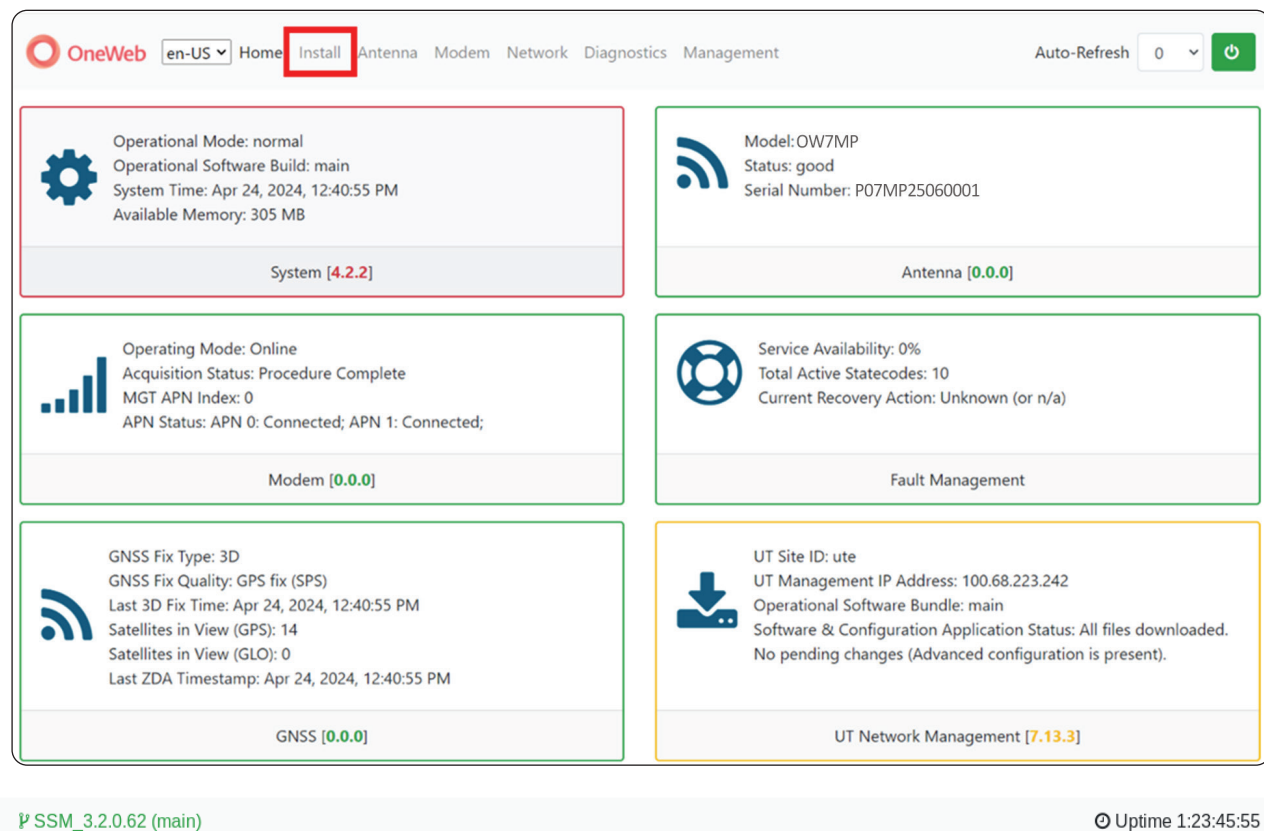
The navigation bar as shown below is the primary way being able to navigate the LUI. The navigation bar is persistent across all LUI pages.



No.	Item	Description
①	Logo	This is the banner that displays the branding logo. Clicking on this logo on any given page will return the LUI to the homepage.
②	Language Drop Down Menu	The language drop-down menu lists all supported languages. Picking a language from the drop-down menu will change all text to the specified language immediately.
③	Navigation Items	These are the navigation items on the navigation bar. Clicking on a section will take you to a different part of the LUI. The sections are as follow: • Home: The homepage of the LUI displays a high-level overview of most components via a card layout. • Install: Guides the user through the installation process. • Antenna: Displays Manpack Information such firmware version, configuration and status. • Modem: Displays Modem Information (IMSI, IMEI, Manufacturer, Software Version, etc.), Modem Status (Call Status, Operating mode, etc.), Eutelsat OneWeb Extension Statistics, and GNSS Statistics. • Network: Displays statistics for all the network interfaces on the SSM such as the CNX interface, MGT interface, and WAN interface. • Diagnostics: Contains most of the SSM related statistics and configuration. Displays information such as the Manpack Status, Sensor Information, Host Processor Logs, and Event Logs. • Management: Displays Manpack Network Management Information such as SDL Information and UCR Statistics.
④	Auto-Refresh	This is the auto-refresh dropdown. Choosing an interval other than 0 will, refresh the display, fetch the data again at the specified interval.
⑤	Reboot	This is the reboot button. Clicking this button will trigger an SSM reset. While the SSM is rebooting, the reboot button turns from green to red. Upon successful reboot, the LUI will automatically refresh the page and the reboot button will go back to being green.

9.3.2 Home Page

The home page consists of several cards that display a high-level overview of certain components such as the Manpack System, Manpack, or Manpack Network Management. Each card has a border that, depending on the status of the subsystem, changes color. If the subsystem has an issue present, the card is outlined in red. If the subsystem is behaving as normal, then the card is outlined in green. Clicking on a card will take you to the webpage where you can find more detailed information about the subsystem.



9.3.3 Footer

The footer, like the navigation bar, is persistent throughout all LUI pages. The footer contains two pieces of information.

Software Version Display:

- The current software version running on the Host Processor (SSM) is shown at the bottom left of the screen.
- The operational software mode follows the software version:
 - Factory Mode: Text color is red.
 - Main Mode: Text color is green.
- Clicking on the version text takes you to the Manpack Status section of the Diagnostics page.

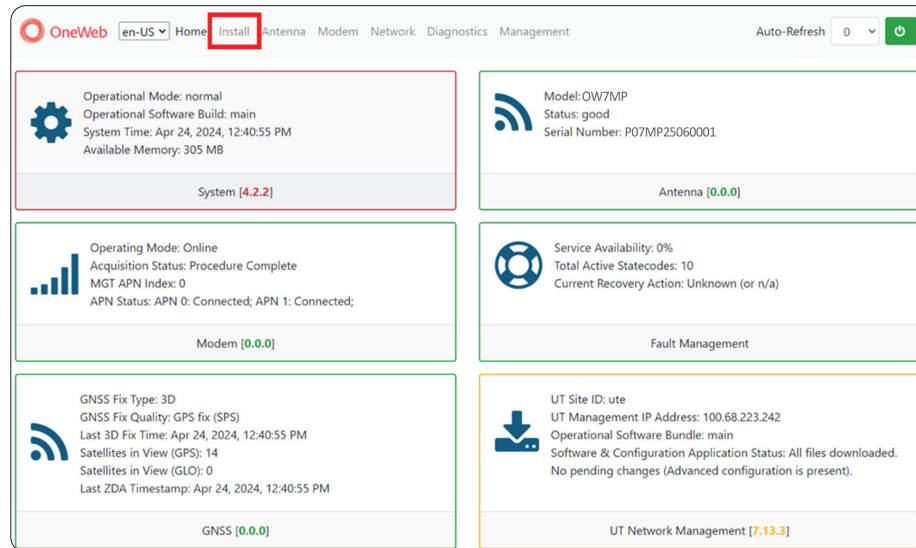
System Uptime Display:

- Shown on the right side of the screen.
- Displays the time elapsed since the last reboot.
- Format: days:hours:minutes:seconds.

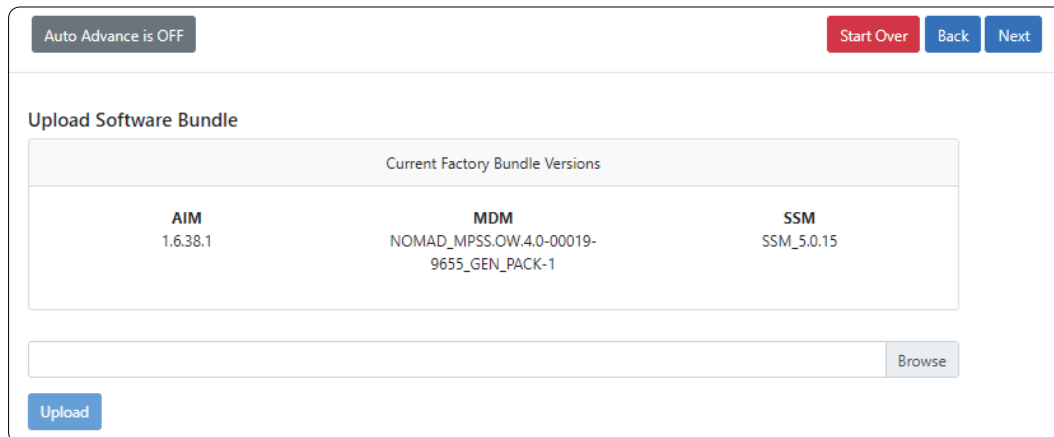
9.4 Software

9.4.1 Verify Software

Go to the Install page from the menu bar to verify the software version.



The Software Bundle page displays the current software versions running on each component.



9.4.2 Downloading the Ephemeris file

Ephemeris Data contains current information about the orbits of the satellites in the OneWeb constellation. The Manpack uses ephemeris data to determine the positions of the satellites in the sky at any given time. The file must have been downloaded within 30 days to be used. Once Manpack is commissioned this will be updated automatically.

Files over 30 days in age will result in delayed initial network acquisition.

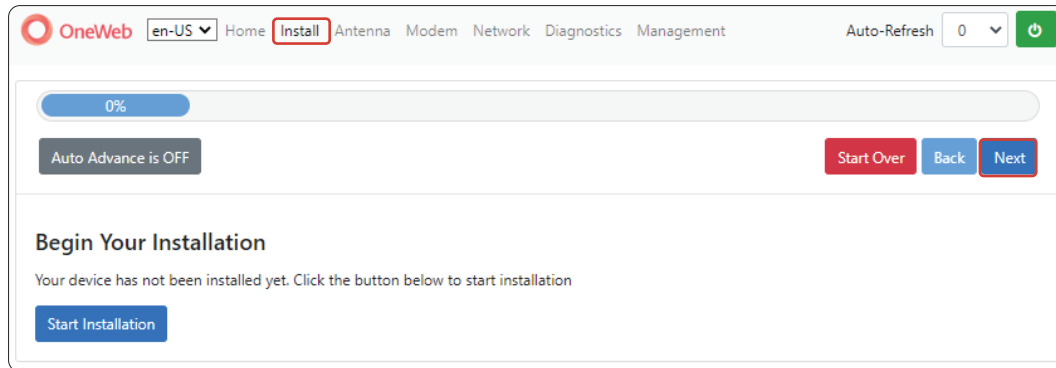
Downloading Ephemeris file

1. From a web browser, navigate to <https://ephemeris.oneweb.net/ltef/>
2. Select the **ltef.csv** file to download.

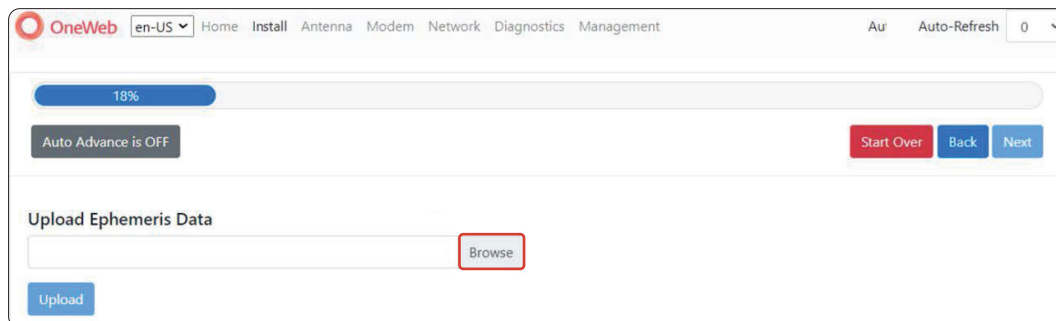


Upload Ephemeris file

1. Go to the LUI main page and select **Install** from the menu.
2. Select the **Next** button skip to the step where you can upload the Ephemeris Data.

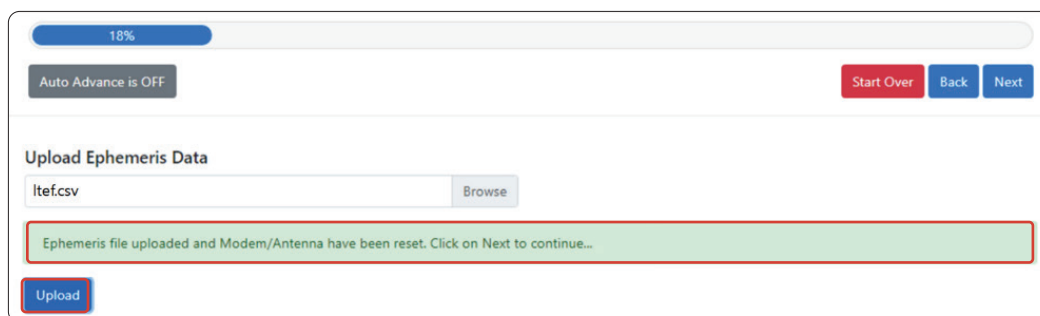


3. Select the **Browse** button on the Upload Ephemeris page.



4. Select the **ltef.csv** file and click **Open**.
5. Select the **Upload** button.

When the upload has completed, a message will display that it has been reset.



The Manpack is now ready to go OTA (Over The Air).

**NOTE**

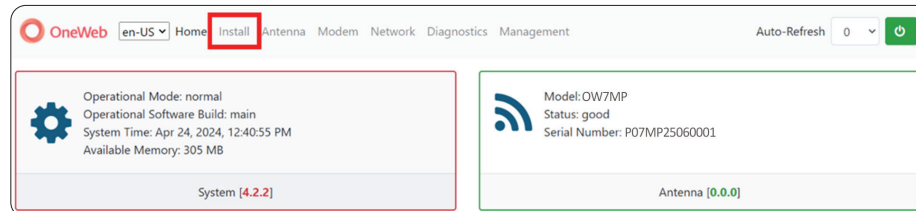
When using the LUI, check the "Current Position" section to monitor the Manpack's roll, pitch, and yaw. This section reflects the Manpack as a whole, while the "Navigation System" section refers to internal components. During installation, ensure the Manpack is level within $\pm 2^\circ$ for pitch and $\pm 2^\circ$ of -180° for roll, as these use different reference points. The yaw indicates the Manpack's pointing direction, which does not require adjustment due to automated true north alignment.

9.4.3 Updating the Software Bundle

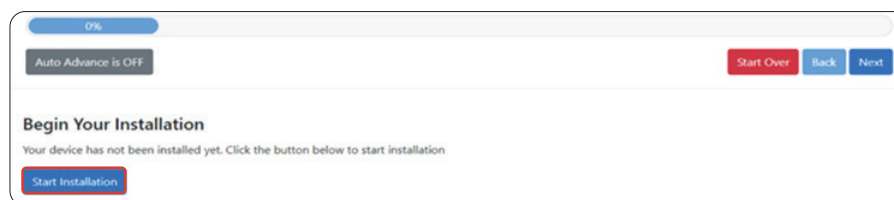
The software bundle on the user terminal may also be updated using the Local User Interface (LUI). This process is recommended for recovery purposes only. It can also be followed for new installations if desired.

OneWeb Manpack Software Update Procedure via LUI

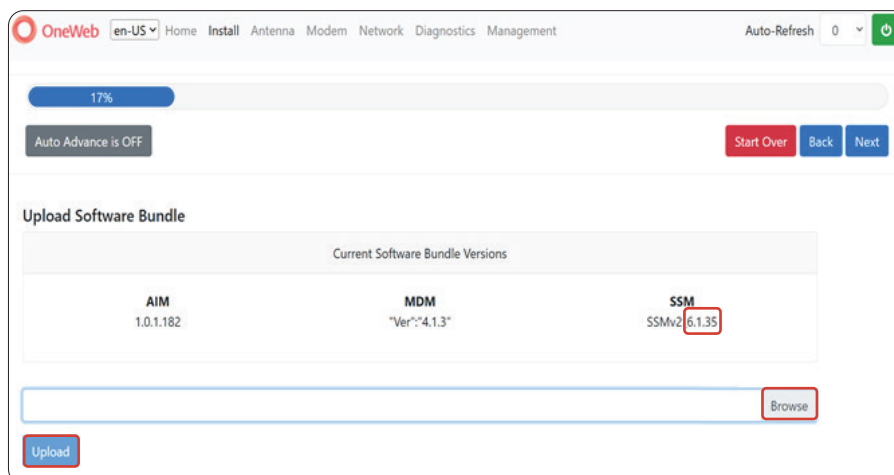
1. Go to the LUI main page (192.168.100.1) and select **Install** from the top menu.



2. Select the **Start Installation** button on the Begin Your Installation page.



3. Select the desired file using the **Browse** button and then select the **Upload** button on the Upload Software Bundle page.



4. Verify the New Software Bundle Versions, and to continue to the software installation, select **Yes**.

The screenshot shows a web interface titled "Upload Software Bundle". It contains two tables. The first table, "Current Software Bundle Versions", lists AIM 1.0.1.114 and SSM SSMv2_6.1.35. The second table, "New Software Bundle Versions", lists AIM 1.0.1.129 and SSM SSMv2_6.1.35. Below the tables is a confirmation message: "Are you sure you want to replace the existing software?". At the bottom are two buttons: "Yes" (red) and "No" (blue).

Current Software Bundle Versions	
AIM 1.0.1.114	SSM SSMv2_6.1.35

New Software Bundle Versions	
AIM 1.0.1.129	SSM SSMv2_6.1.35

Are you sure you want to replace the existing software?

5. The screen will display the progress of the update and application of new software.
6. Once the software has been updated, a "Software has been updated!" message will display. The system will automatically reboot. The page will automatically refresh, when complete.

The screenshot shows the same "Upload Software Bundle" interface, but now with a green message bar at the bottom that says "Software has been updated!". Below this bar is a red-bordered box containing a circular arrow icon and the text: "Preparing to reboot... Please do not power off or manually reboot the UT. This page will automatically refresh after reboot." The tables above show "Current Factory Bundle Versions" for AIM 0.8.2.34 and SSM SSM_5.0.45, and "New Software Bundle Versions" for AIM 0.8.3.16 and SSM SSM_5.0.49. The text "Update complete" is visible below the new versions.

Current Factory Bundle Versions	
AIM 0.8.2.34	SSM SSM_5.0.45

New Software Bundle Versions	
AIM 0.8.3.16 Update complete	SSM SSM_5.0.49

Software has been updated!

 Preparing to reboot... Please do not power off or manually reboot the UT. This page will automatically refresh after reboot.

Chapter 10. Specification

10.1 Technical Specification

10.1.1 Manpack Specification

Item	Specification
G/T	7 dB/K boresight
EIRP	36.6dBW
FoV	+/- 55° from Zenith, 360° Azimuth
Throughput	Up to 50Mbps / 10Mbps [Downlink / Uplink] * Performance subject to network configuration. Please consult your Eutelsat OneWeb contact for service offerings in your region.
Mode of Operations	Comms On The Pause (COTP), Comms On The Move (COTM)
Size	458 x 358 x 108 mm (incl. carrying handle)
Weight	9 kg
Power Consumption	125W max (100W in PSM)
Ingress Protection	IP67
Operating Temp	-30°C to +55°C
Interfaces	• Ethernet (Data) • Battery (Power) • SMA (external R-GNSS) • Operating Mode selector switch • 3x LEDs (w/ Overt Button) • Built in Bubble Level
Mounts	• Mini-Tripod (standard) • 200x200mm bolt-pattern

Chapter 11. Warranty

Subject to the terms and conditions set forth in this Intellian Standard Global Warranty, the Agreement and/or any other terms and conditions agreed upon by Distribution partners and Intellian, Intellian satellite Manpack products are warranted against defects in parts and workmanship for a period of one (1) year in respect of defects in parts and for a period of one (1) year in respect of the factory labor.

Warranty Time Period: Warranty periods commence from the date of shipment from an Intellian facility.

If installation occurs within six months of the date of shipment from an Intellian facility then Intellian will extend the duration of the warranty by the number of days between shipment and installation of the terminal. If installation occurs on or after six months of the date of shipment then the duration of the warranty will not be extended.

This Warranty shall be void for any Product which has been subjected to "**Intellian Standard Global Warranty**".

Warranty Claim Procedure: Information on Intellian's warranty policy and coverage can be found on the Intellian Partner Portal. Intellian's warranty policy aims to reimburse Distribution partners for a reasonable percentage of costs and time that would be incurred when repairing an Intellian system. Intellian's warranty policy does not cover any other costs including those incurred by Distribution partners to support End Users.

Intellian shall maintain and abide by an industry standard return material authorization (RMA) process to enable the managed return of defective products, warranty assessment, customer communication, and RMA status updates.

To submit a Warranty Claim with Intellian. Please follow the directions in "**Intellian Standard Global Warranty**".

Chapter 12. Appendix

12.1 FRU Field Replaceable Units



NOTE

While the Manpack is incredibly rugged, components preventing damage to the core user terminal are intentionally designed to be field replaceable if damaged during drops or falls.

12.1.1 Bumpers

Identify Bumpers and Positions. Refer to the figure for the correct positions of each bumper, as shown in the figure.

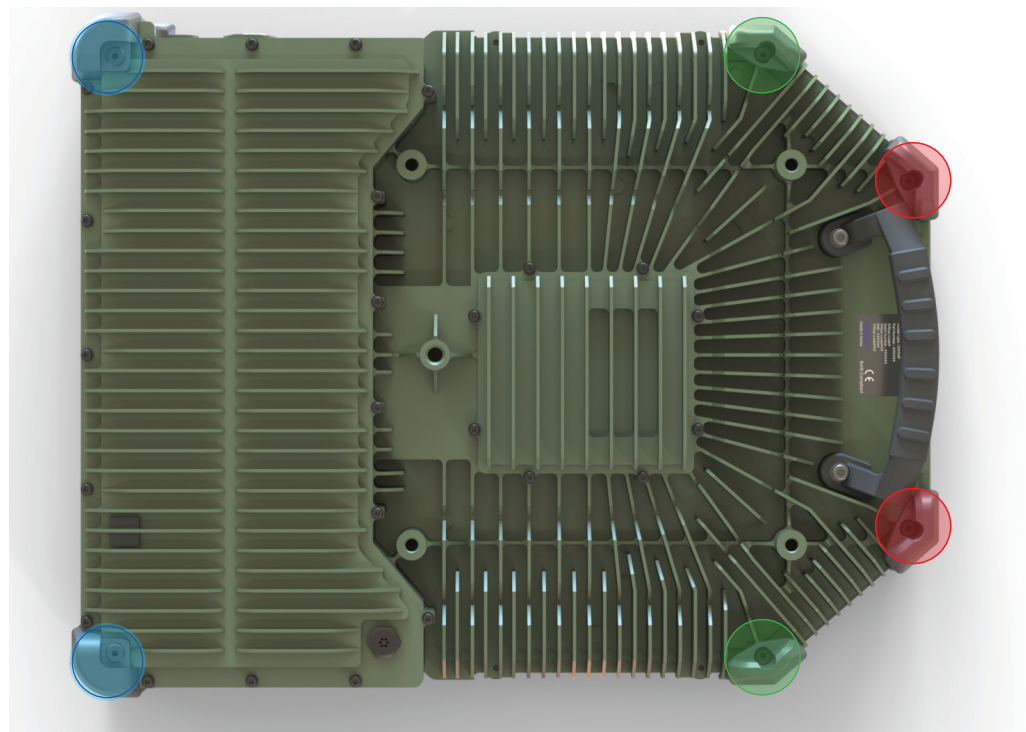
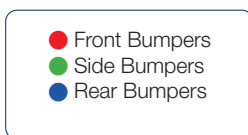


Figure 36: Positions of Bumpers

1. Gather the components relative to the component you are replacing.
2. Turn the Manpack upside down.
3. Remove a current damaged bumper from the Manpack.
4. Attach a new bumper in the desired position, replacing the damaged bumper, by referring to the next sentence and image.

- **Attach the Front Bumpers**

- Align each front bumper with the designated holes on the front of the Manpack, placing them at the positions marked in red.
- Insert the M4x8 screws (3 ea) into the Manpack.
- Fully tighten the screws using a Phillips screwdriver.
- Repeat for the remaining bumper.

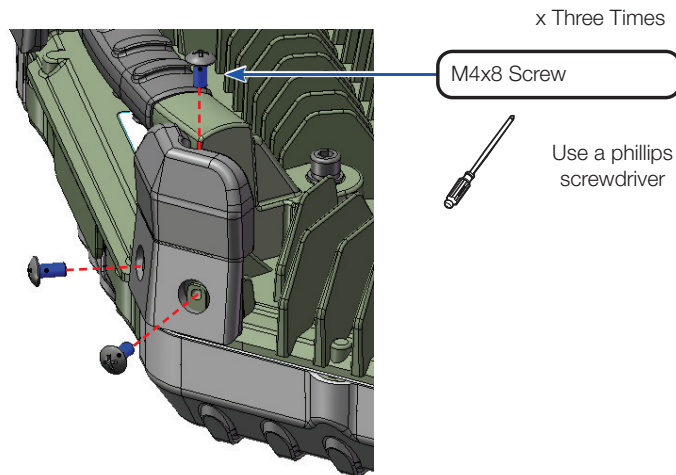


Figure 37: Attaching the Front Bumpers

- **Attach the Side Bumpers**

- Align each side bumper with the designated holes on the side of the Manpack, placing them at the positions marked in green.
- Insert the M4x8 screws (3 ea) into the Manpack.
- Fully tighten the screws using a Phillips screwdriver.
- Repeat for the remaining bumper.

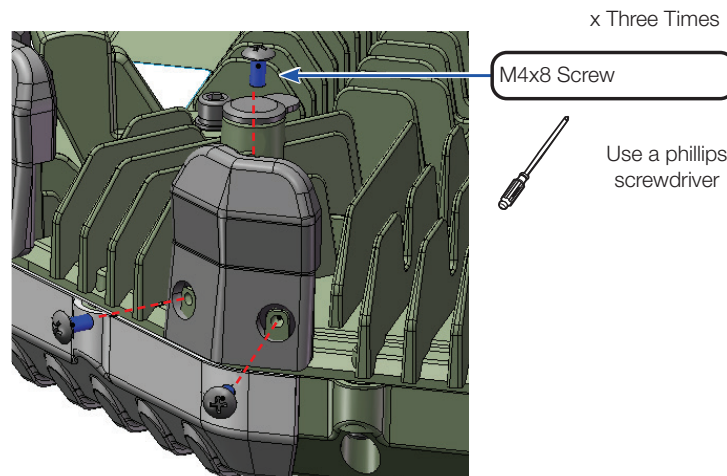


Figure 38: Attaching the Side Bumpers

- **Attach the Rear Bumpers**

- a. Turn the Manpack back to its original position.
- b. Align each rear bumper with the designated holes on the rear of the Manpack, placing them at the positions marked in blue.
- c. Insert the M4x8 screws (7 ea) into the Manpack.
- d. Fully tighten the screws using a Phillips screwdriver.
- e. Repeat for the remaining bumper.

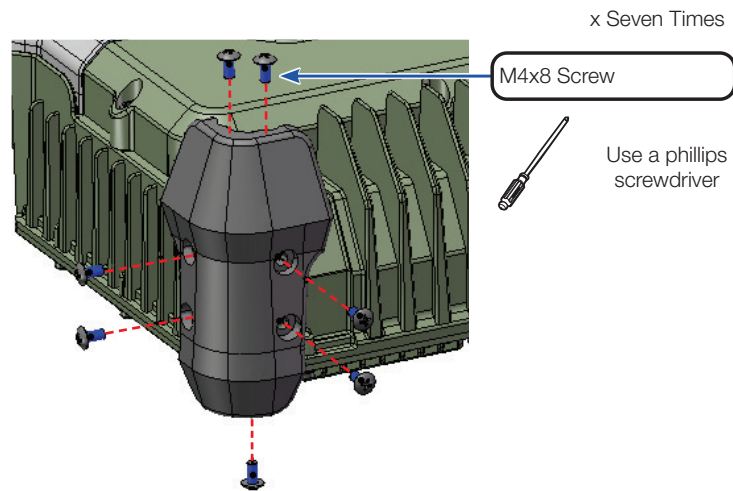


Figure 39: Attaching the Rear Bumpers

12.1.2 Handle

1. Gather the following components: Handle (1ea), Hex-s SF M5x8 screw (2 ea)
2. Align the holes of the handle with the designated holes on the bottom of the Manpack.
3. Insert the Hex-s SF M5x8 screw (2 ea) into the Manpack.
4. Fully tighten the screws using a hex wrench.

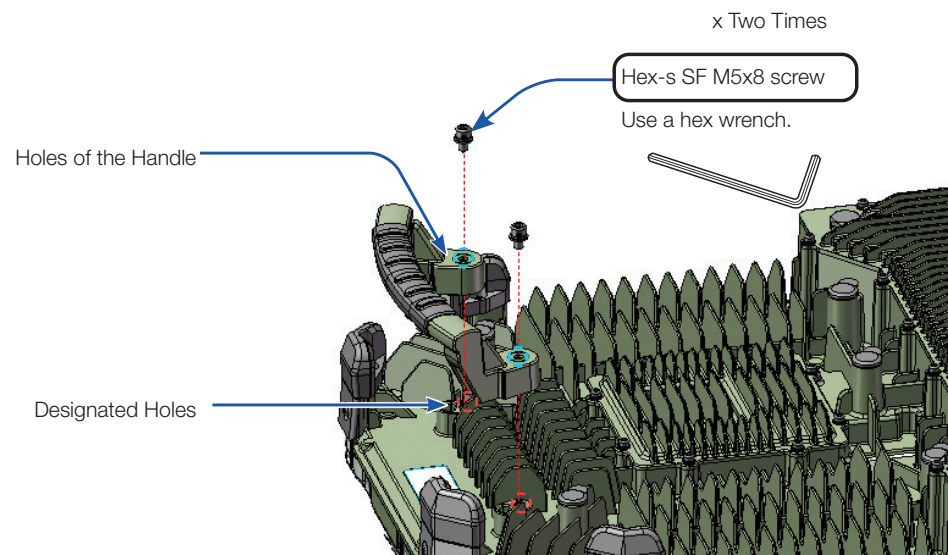


Figure 40: Installing the Handles on the Manpack

12.1.3 Connector Caps

1. Gather the following components: Power Connector Cap (1 ea), Ethernet Connector Cap(1ea), R-GNSS Connector Cap (1 ea)
2. Align the connector cap with the connector on the front of the Manpack.
3. Remove a damaged cap from the Manpack.
4. Attach a new cap in the desired position, replacing the damaged cap, by referring to the next sentence and image.
 - a. Use the connector cap by turning the bolt clockwise to close the connector.
 - b. Repeat steps for remain connector caps.

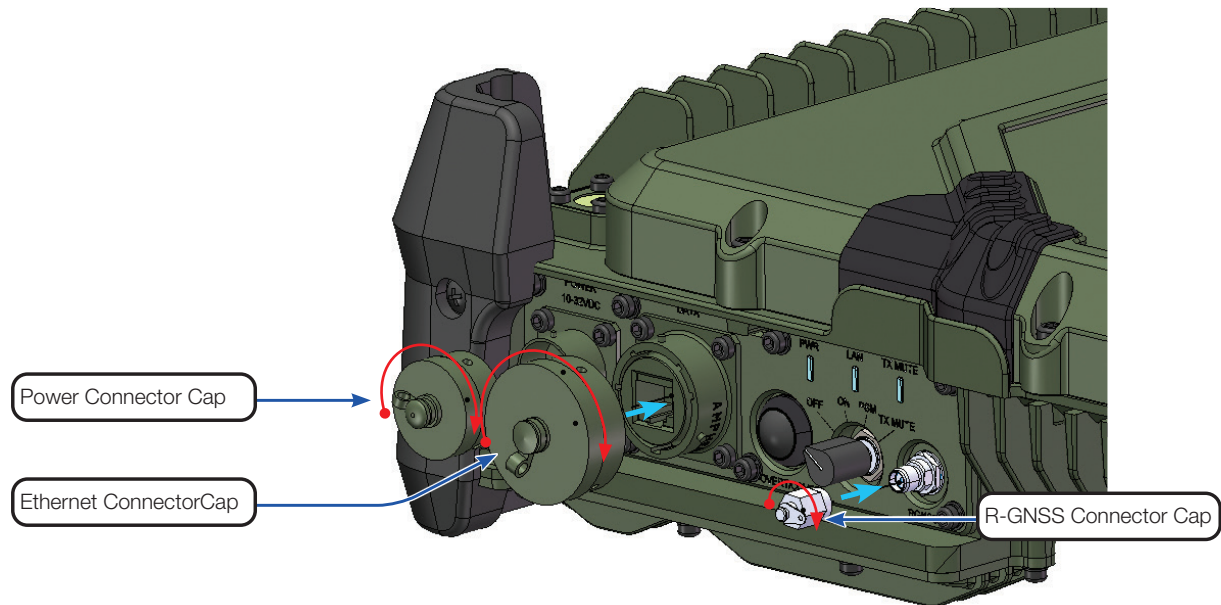


Figure 41: Installing the Connector Caps on the Connectors