LTE (4G) ADU and MMS proxy Set-up guide

This Setup guide consists of 2 steps, the first one being the MMS proxy set-up as the LTE-ADU will not work without the MMS Proxy, and the second being the LTE ADU.
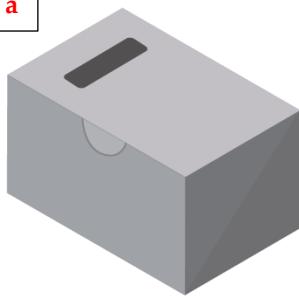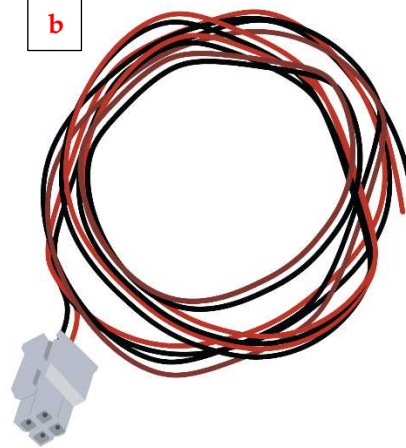
1. MMS Proxy

Included parts:
1 x Power supply (a)
1 x Power cable (b)

The MMS Proxy can route traffic over the internet as well as VDES to increase coverage and availability of services.

Installing the MMS Proxy

1. ## Mount the MMS Proxy in the appropriate installation cabinet.

The location may vary depending on the ship type and size.

Use all available mounting holes to avoid vibrations.

2. ## Connect MMS Proxy to the general purpose (24V) powerline

Connect the MMS Proxy with the provided power supply cable to the DC power bus. The MMS Proxy supports supply voltages between 10V - 30V DC.

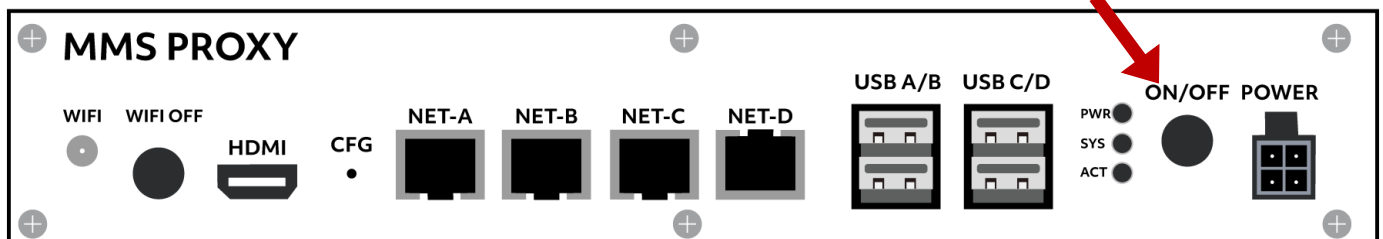It is recommended to fuse the cable with a 2A fuse.
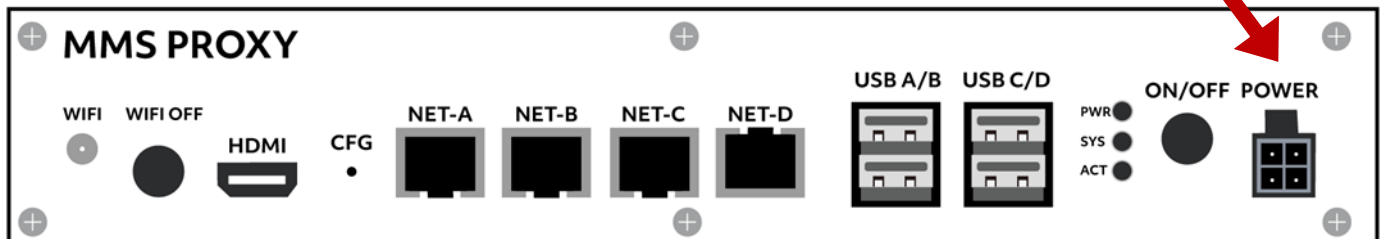
3. ## Connect the VDES-capable transceiver to MMS Proxy NET-C Port

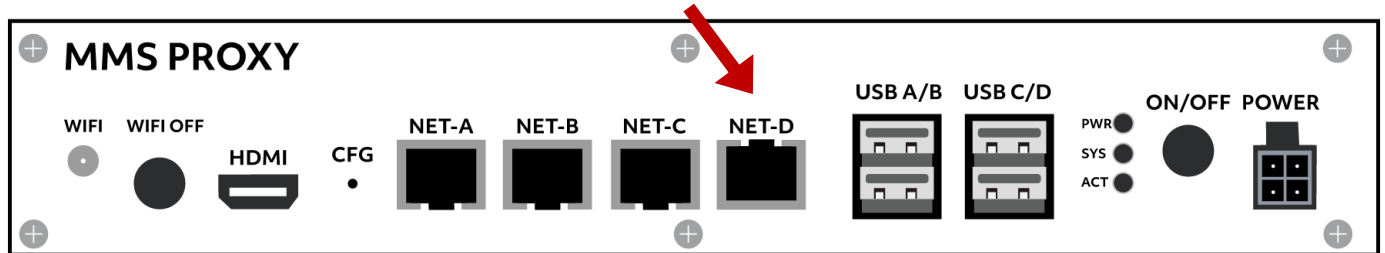We recommend using a Saab R6 Supreme AIS/VDES transceiver together with the MMS Proxy.
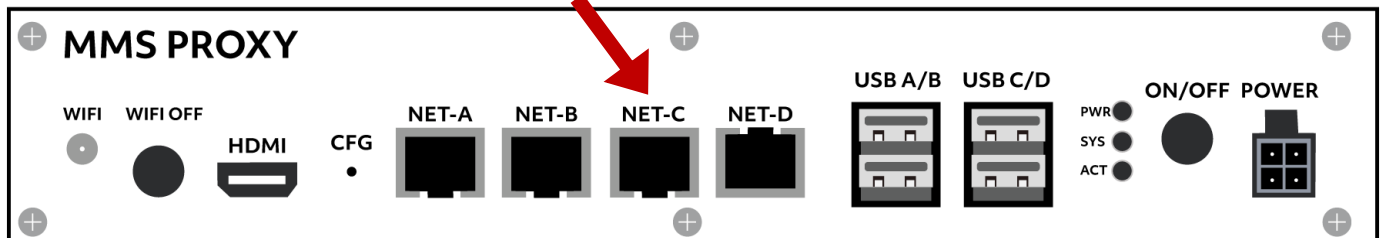
4. ## Press the ON/OFF button

Make sure the MMS Proxy is properly turned ON. Check the Boot stages in the MMSP Configuration manual.

5. Connect the CAT 6E Ethernet Cable to NET-D port and lead it up to the desired location of the LTE ADU

2. LTE (4G) Above Deck Unit (ADU) Set-up guide

The LTE Above Deck Unit (LTEU) is an LTE modem in a protective casing, fit for the harsh maritime environment, that can be fitted on the railing of a vessel. Fasteners are included that can be used to securely mount the unit and only a single CAT6E is needed to connect it to the MMS Proxy since the cable carries both power and data thereby easing installation. The CAT6E cable must be connected to the NET-D port on the MMS Proxy to work. None of the other ports will work with the LTEU.

The unit has a lever in each corner of the box that fixes the lid to the casing thereby sealing and protecting the unit. Recognizing that water will condense on the inside of the box, due to fluctuating temperatures, the box has a flexible tube attached at the bottom that allows any water to escape the enclosure. The tube has a large diameter to prevent clotting but should nonetheless be inspected once a year to verify that the tube is not blocked.

Underneath each of the levers, there are mounting holes that fit an M4 stainless steel screw that can be inserted as a precaution.

Included parts:
1 drainage hose tube, 2 metal mast mounts, 2 metal tightening clamps, and 2 plastic cable holders.
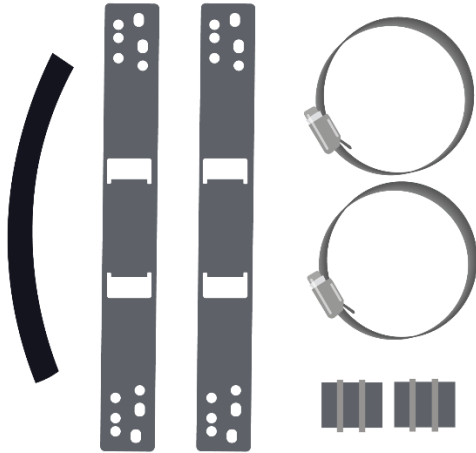
Installing the LTE ADU

1. Mount the LTE ADU on the ship deck.

The location may vary depending on the ship type and size. Use the provided mast mount and tightening clamps to mount the LTE ADU to the desired location. The unit should be mounted with the hose facing down.

Good places for the ADU:

- High up on the ship on the outer reeling
- Where you have the ship's VHF antennas
- With good visibility to all sides of the ship

Bad places for the ADU (do **not** place the ADU):

- In the inside of the ship
- Under metal roofs
- Close to metal plates or walls

2. Open the lid of the LTE ADU.

A. Open the 4 clamps in the corners of the LTE ADU with the help of a large screwdriver.
B. Take the lid off.
C. Now the lid is off, you can access the LTE ADU.
D. When closing the lid close each clamp until it clicks so it is shut completely. Picture D. shows the fully closed status of the LTE ADU. It must be closed completely after setting up.
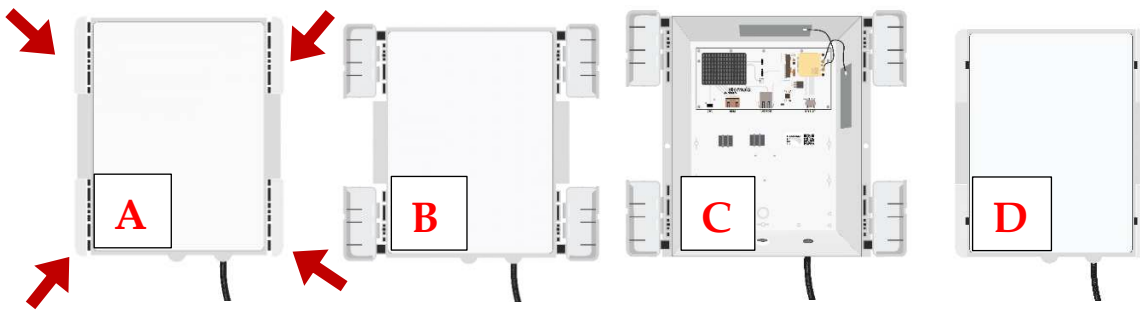
3. Connect the LTE ADU NET port to the MMS Proxy NET-D port with a CAT 6E Ethernet Cable

Use the hole indicated with a circle (A) for the Ethernet cable and plug it into the NET PORT (D). Use a proper maritime grade ethernet cable dependent on the environment the cable passes through.

Use the other hole indicated with (B) for connecting the drainage hose. Turn the hole tightener around the drainage hose until it is secured.

Use the plastic cable holders (C) for the connected cables, so they stay in place.
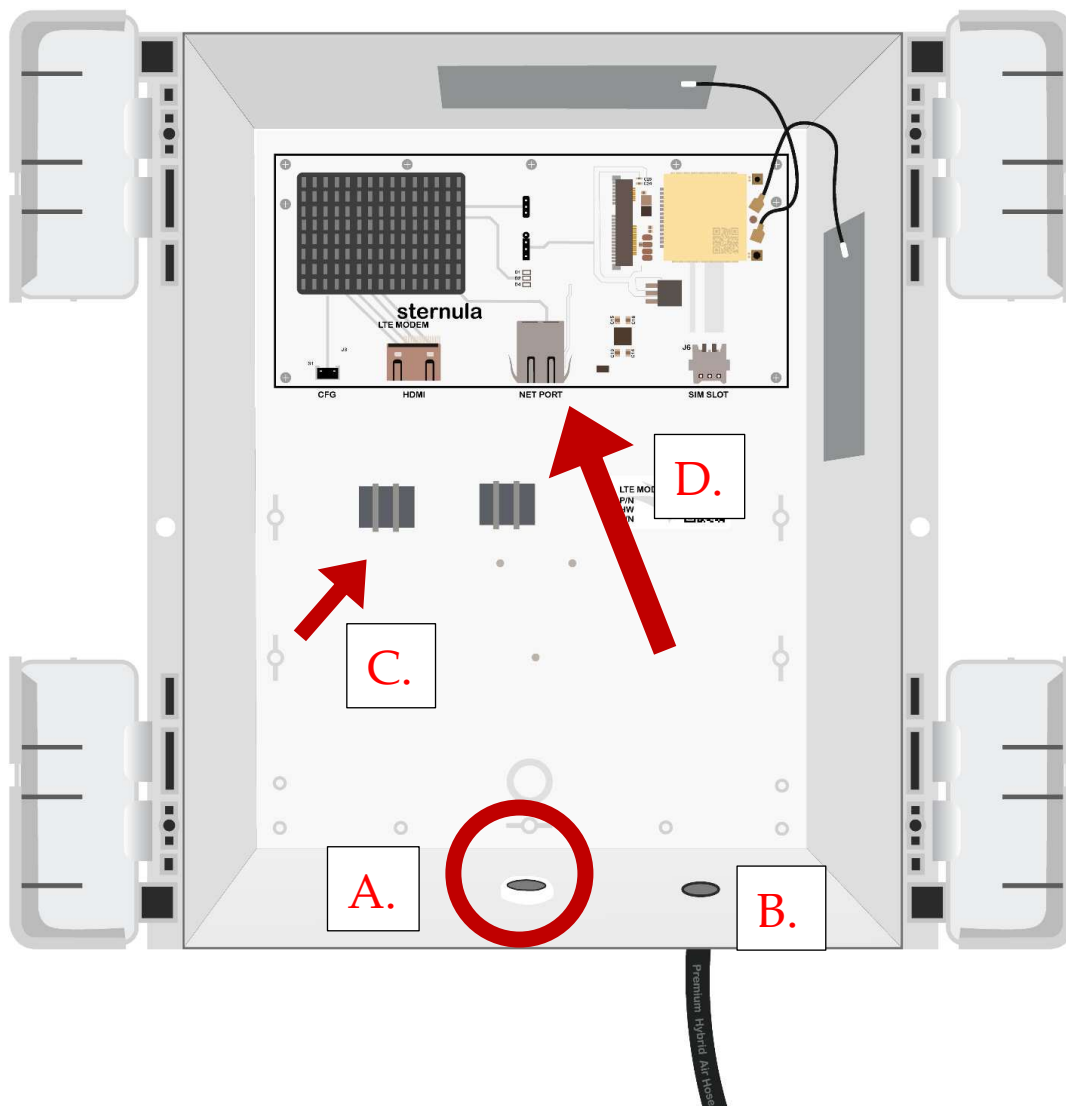
4. Insert the SIM card into the sim slot

Insert the SIM card into a mobile phone or tablet to test if it works and if the PIN is disabled.
Then mount the SIM card into the SIM SLOT of the LTE MODEM circuit board inside the ADU.
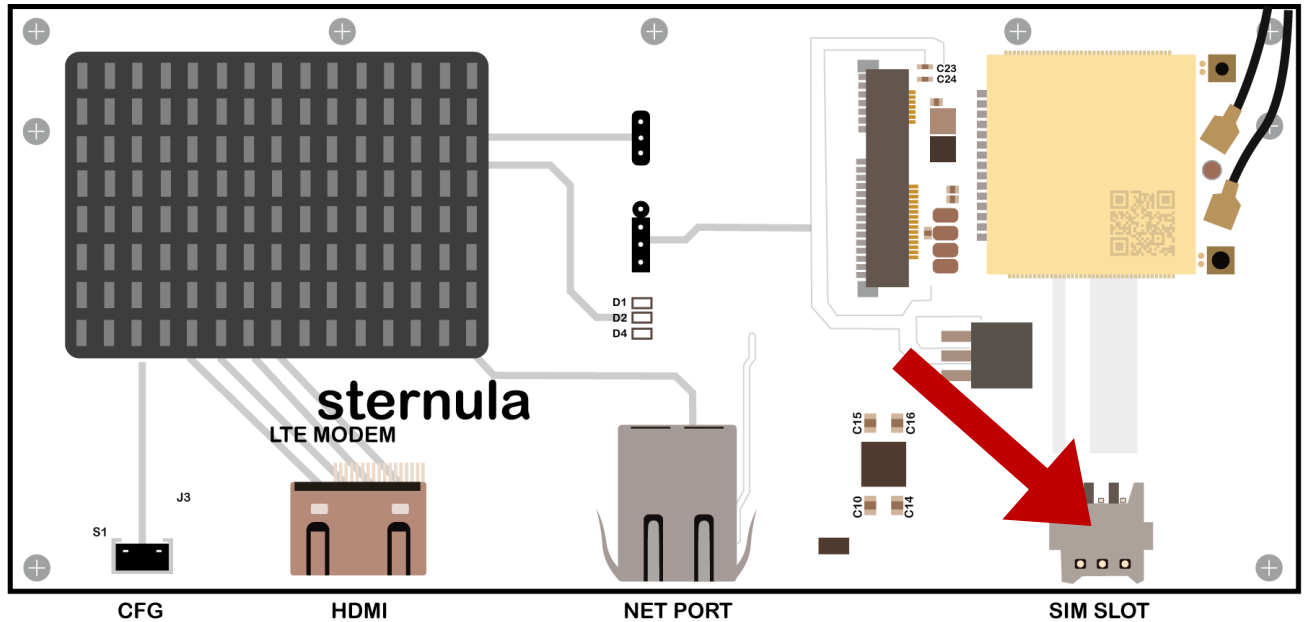
5. Power up the LTE ADU

When the ADU NET cable is plugged into the MMS Proxy port NET-D, and the MMS Proxy is switched on, the ADU is also provided with power through the Ethernet cable.

Before proceeding to the next step, ensure that the ADU is supplied with power by checking that:

a) The MMS Proxy power supply is on
b) The MMS proxy is switched on
c) The MMS proxy LED indicators (or the LTE LED indicators) indicate proper operation according to the boot stages.

LTE Above Deck Unit configuration

Circuit Board
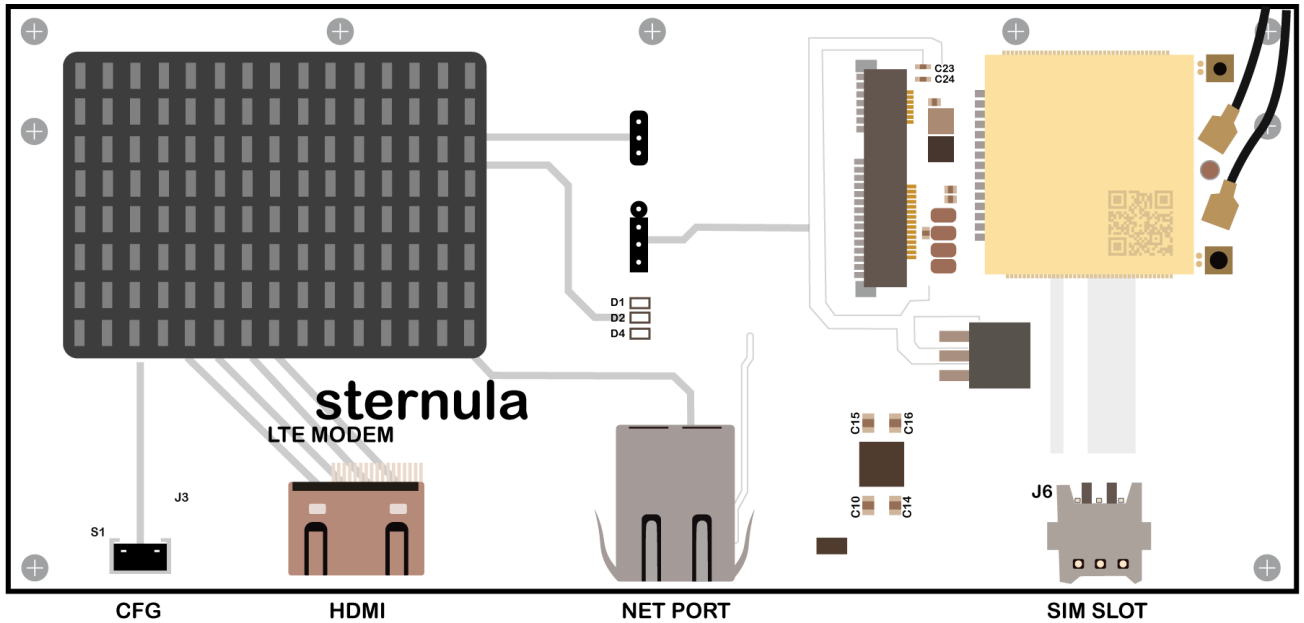
CFG button

HDMI port

Net port

SIM slot

D1 Led (PWR led)

D2 Led (SYS led)

D4 Led (ACT led)

SIM card

To access the SIM card slot of the unit, the lid must be opened. The SIM card can be inserted in the SIM Slot of the Circuit Board. The unit only supports SIM cards without a sim lock/PIN code.

Boot stages

The current stage of the boot process can be observed by opening the lid of the unit. These are indicated by the Circuit Board D1, D2, D4 Led's.

A. Slow flashing of the D4 (ACT LED)

During this stage it is possible to start the rescue image instead of the default image. The rescue image can be used to install or reset firmware if the device does not start properly.

B. Rapid flashing of the D2 (SYS LED)

At this point the firmware is in its boot process. This is the same behaviour for both the rescue and default firmware. When the SYS LED turns off, the MMS Proxy has booted and is ready for use.

Interface Configuration

The unit has a web interface that is used to configure the device. The device must finish its boot process before it can be accessed. Please refer to "Boot stages" on how to tell if the device has booted. The configuration interface can be accessed with a computer, phone or other device that has Wi-Fi connectivity.

The device can start a Wi-Fi access point and make the configuration interface accessible by:

1. Open the lid and press the small CFG button in the lower left corner of the Circuit Board. Wait for the D2 led (SYS led) to start flashing slowly. The access point has a timeout of 1 minute and if nobody connects to the access point, it will shut itself down.
2. Connect to the Wi-Fi access point "LTEU <random word with number and characters>" on your computer, phone or similar and enter the password "0123456789".
3. Open a web browser on your device and go to http://20.20.0.1
4. The access point stops as soon as your device disconnects, and the SYS LED turns off to indicate this

Firmware upgrade

The firmware can be up- or downgraded in the configuration interface by:

1. Click on "Firmware"
2. Expand "Upload firmware"
3. Click on "Select file" and find the firmware you want to install. Click on the firmware and click on "Open"
4. A popup will appear showing the progress of the upload. When the pop-up closes, the device will restart to finish the update

Recommended firmware

Sternula publishes new recommended firmware when they become available. The device can be set to always install the newest recommended firmware when it is released:

1. Click on "Firmware"
2. Open "Recommended firmware"
3. Enable "Install automatically". It can take 2-3 minutes for the device to install the firmware. A slow internet connection will extend this further so please be patient. The install process will go through the stages "Downloading", "Installing", and "Installation done" which is written in the field with the current firmware version.

Rescue firmware

The rescue firmware can be used to recover from a faulty firmware or to reset firmware settings to factory values. The rescue firmware can be started by pressing the CFG button on the Circuit Board during the "Slow flashing of the ACT LED" boot stage. Do not press the CFG button until the slow flashing sequence starts.

Reinstall firmware

Follow the instructions in the section "Firmware upgrade"

Reset settings to factory values

1. In the left side menu of the configuration interface, go to "Firmware"
2. Click on "Reset firmware settings"

Note that this procedure resets the settings on the default firmware. The rescue image does not save settings, so if the device is restarted into the rescue firmware, the settings are back at their default values.

Reset device to factory default

1. In the left side menu of the configuration interface, go to "Firmware"
2. Click on "Reset device to factory default"