



# Quick start guide

Freemile 60

**VER 1.0**

FW 1.12.0 rev 54419

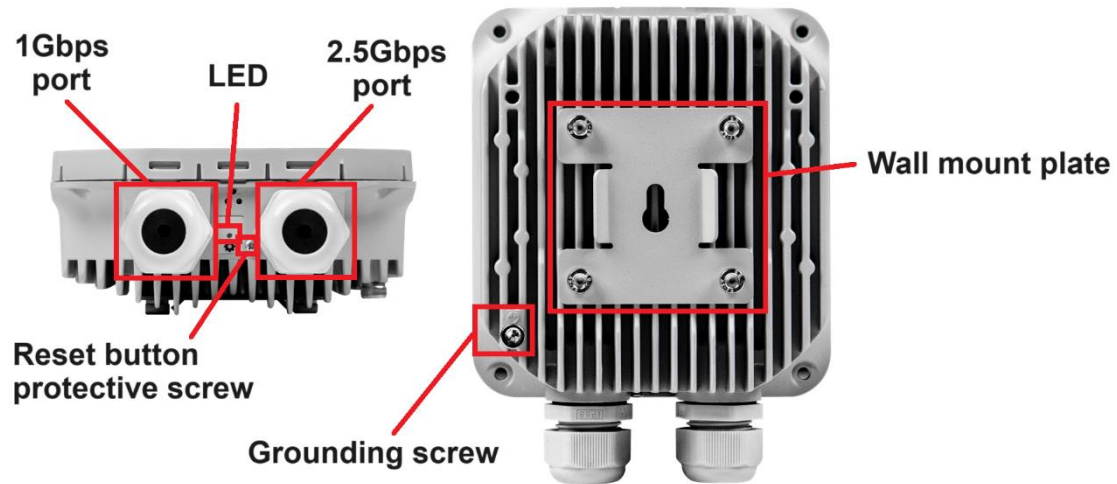
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# 1. Overview

This documents briefly describes Freemile 60 series IP FODU (Full Outdoor) system installation, setting up the link and basic configuration.

## 2. Freemile 60 FODU interfaces and LED indications



**Figure 1:** Freemile 60 FODU interfaces

- **1 Gbps port** – 1 Gbps Ethernet traffic port (RJ-45) supporting PoE output. It has implemented LED indication. The LED light will turn on and blink when a link is established, and the PoE out light will turn on when PoE output is enabled in software
- **2.5 Gbps port** – 2.5 Gbps Ethernet traffic port (RJ-45) supporting PoE input. It has implemented LED indication. The LED light will turn on when a link is established, and the power light will turn on once the device is supplied with power
- **LED** – Indicates about the status and alarms of the device. Status/alarm LED indications are following:

LED state	Description
OFF	The device is currently operating in AP (Access Point) mode, the device is powered off, or the radio modem is not detected
Blinking slowly	The device is in Station or PTP mode and is currently scanning
Blinking with medium speed	The device is in Station or PTP mode and is connected with a low signal
Blinking with fast blink speed	Case 1: If the unit is just booting up, the device is flashing the internal modem firmware Case 2: If the unit is fully booted, then the device is in Station or PTP mode and connected to an AP with a medium signal strength
Solid ON	The device is in Station or PTP mode and connected to an AP with excellent signal strength

- **Reset button protective screw** – By removing the screw the reset button will become available for resetting the device to factory defaults. In order to reset the device, use a paperclip, or something similar to press the rest button. Press and hold the reset button for 20 seconds or more. This will not have any affect if the reset button is disabled in software
- **Grounding screw** – Grounding screw for equipment grounding. The equipment grounding can be done by connecting it to the grounding point of the tower. The recommended minimum grounding cable wire cross-section must be 2.5 mm<sup>2</sup>

- **Wall mount plate** – The plate for mounting the device on a wall. It can be removed to substitute with pole mount bracket

### 3. Freemile 60 FODU installation

#### 3.1 Package content

Item	Quantity
Freemile 60 base model	1
48V .5A PoE injector and power cable	1

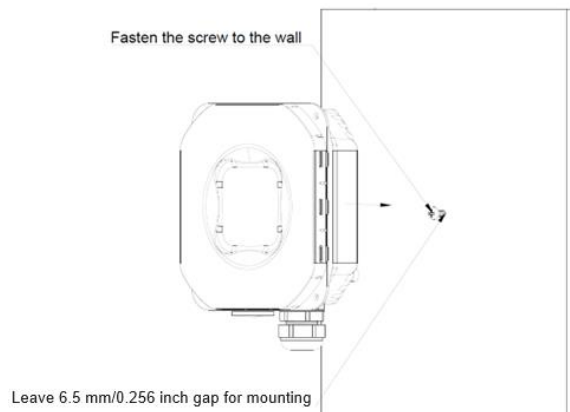
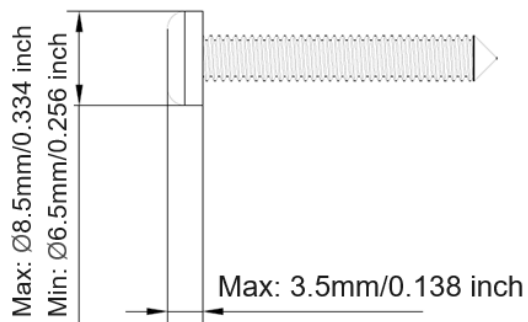


Antenna kits (and corresponding mounts), if ordered, are shipped separately

#### 3.2 Freemile 60 FODU installation on a wall

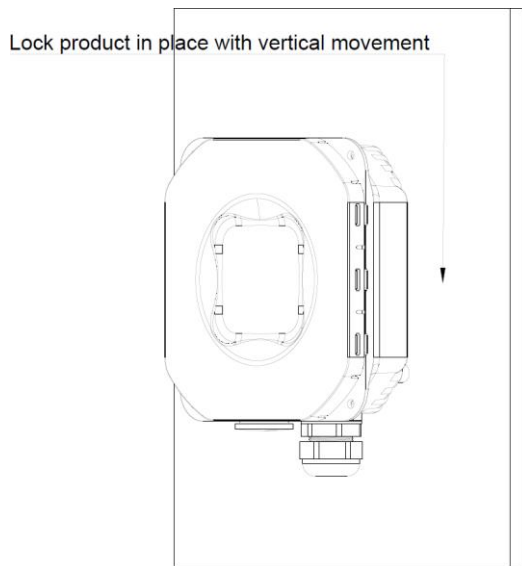
The Freemile 60 radio can be installed on the wall using single screw (not included in the package). The wall mounting instructions are as follows

**Tools required:** screwdriver (depending on a used screw)



**1** The dimensions of the screw which can be used to install the Freemile 60 radio on a wall

**2** Fasten the screw into the wall leaving about 6.5mm/0.256 inch gap for radio mounting

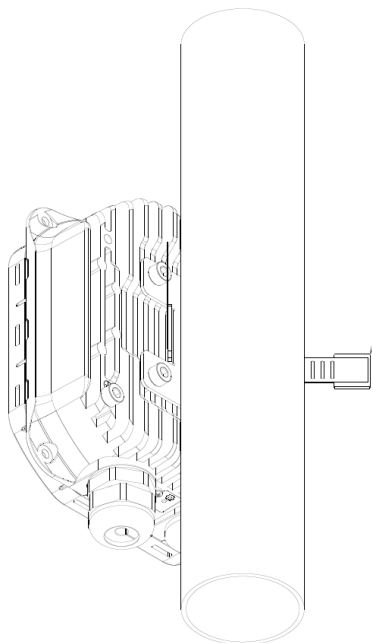


- 3** With vertical movement mount the radio onto the screw. Adjust the screw gap if the radio is too loose. The ports/interfaces must be faced downwards

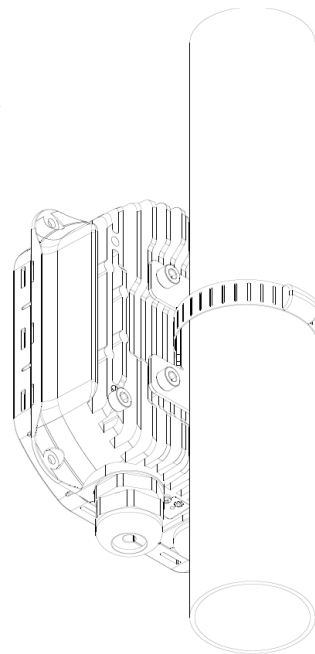
### 3.3 Freemile 60 FODU installation on a pole

The Freemile 60 radio can be installed on a pole using steel cable tie (not included in the package). The pole mounting instructions are as follows:

**Tools required:** Steel cable tie: width: up to 20 mm/0.79 inch; length: depending on the pole diameter



- 1** Place a steel cable tie into the radio mount and around the pole



- 2** Tighten the tie around the pole



It is recommended to protect the installed radio from direct sunlight.

### 3.4 Freemile 60 attaching to 100mm antenna kit



100mm antenna kit can be ordered separately if required

100mm antenna kit contains following parts:

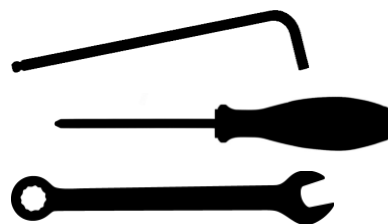
Item	Quantity
Radom	1
Screws for radome connection	4
Mounting bracket	1



**Tools required:** Size 4 Allen wrench (not supplied)

Size 2 Philips screwdriver (not supplied)

10mm (0.394") wrench (not supplied)



1. Attach the radom to the radio with 4 screws included in the antenna kit package. Use size 2 Philips screwdriver
2. Remove the existing mounting bracket from the radio with size 4 Allen wrench
3. Using the same screws attach the mounting bracket from the antenna kit package to the radio
4. Use 10 mm (0.394") wrench to attach and tighten the radio mounting bracket to the pole. The recommended pole diameter size is 40mm..50mm (1.575 inch..1.969 inch)

## 4. Powering Freemile 60 FODU

Use supplied Power over Ethernet (PoE) injector with an appropriate power supply (38...57VDC, at least 30W for single Freemile 60 unit). The input power to the Freemile 60 should be 48VDC, and a minimum of 0.5A (24W) is recommended. The Freemile 60 FODU does support active PoE (802.3at, etc).

PoE injector is included in Freemile 60 radio package. The PoE injector has built-in AC/DC converter supporting 100-240V AC input and 48 V DC output. It has LED indicating about connected AC input (solid green).

The Ethernet cable from the PoE injector "POE" port must be connected to the 2.5 Gbps RJ-45 port on Freemile 60 radio unit (refer to Freemile 60 interfaces and LED indications section). The total length of Ethernet cables from CPE to PoE injector (LAN port) and from Freemile 60 to PoE injector (POE port) combined should not exceed 100m. It is recommended to use outdoor-rated STP/FTP Ethernet cable Cat6 or better.

The Freemile 60 unit has the ability to send passive PoE out of the 1 Gbps port to power another device using the input power provided to the Freemile 60 unit. This option can be set in web GUI in Network→ETH1 settings→Enable PoE Out option. The output voltage is the same as the input voltage and supports maximum 0.5A current (24W total).



When using the 'PoE out' feature on the Freemile 60 unit, make sure that there is adequate power supply unit (at least 60 W) used to power both Freemile 60 units. The supplied PoE injector may not be adequate to power both devices and may result in unstable operation



Passive PoE out on the 1Gbps port can damage non-PoE devices. Do not connect non-PoE devices to the 1Gbps port when PoE out is enabled

## 5. Setting up the link

### 5.1 Accessing web GUI of the unit

Default settings:

Fallback IP address	192.168.1.1
Web GUI login: user/password	root/admin
SSID	freemile
Passphrase	passphrase
DHCP mode	DHCP Client
Mode	Station mode

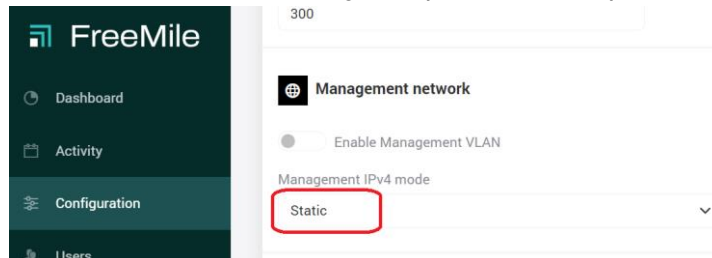
Accessing the unit:

1. Establish Ethernet connection between the unit and PC/laptop. Open any web browser and enter default IP address of the Freemile 60 FODU. Use *https://* prefix for secure connection.
2. In the login screen enter default username and password. It is recommended to change the default user credentials after logging in for the first time

## 5.2 Configuring network settings

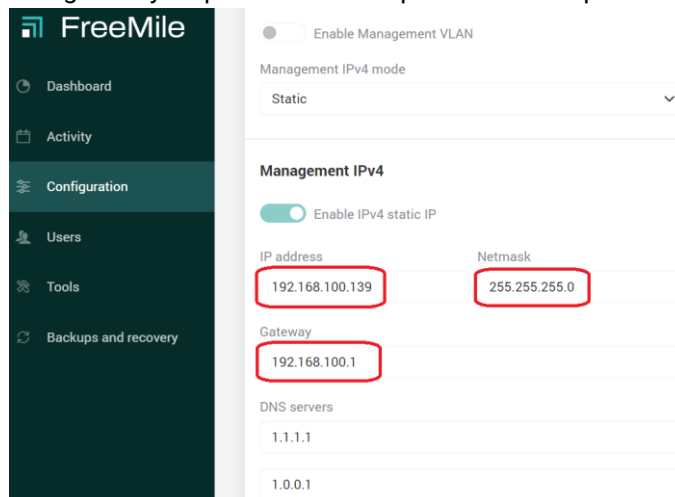
For both Access Point (Point-to-point master) and Station (Point-to-point slave) units set the following network settings:

1. In the 'Configuration→Network→Management network' section choose Management IPv4 mode "Static" or "DHCP" according to requirements and press **Save** button:



The screenshot shows the 'Management network' configuration page in the FreeMile interface. The 'Management IPv4 mode' dropdown menu is set to 'Static' and is highlighted with a red box. A 'Save' button is visible in the top right corner.

2. In section 'Configuration→Network→Management IPv4' specify the management IP address/netmask/gateway as per customer requirements and press **Save** button:

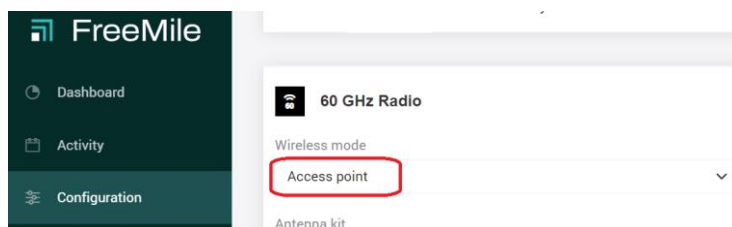


The screenshot shows the 'Management IPv4' configuration page in the FreeMile interface. The 'IP address' field is set to '192.168.100.139', the 'Netmask' field is set to '255.255.255.0', and the 'Gateway' field is set to '192.168.100.1'. All three fields are highlighted with red boxes. A 'Save' button is visible in the top right corner.

## 5.3 Configuring Access point or Point-to-point master unit

For Access point (point-to-multipoint) or Point-to-point master unit settings are following:

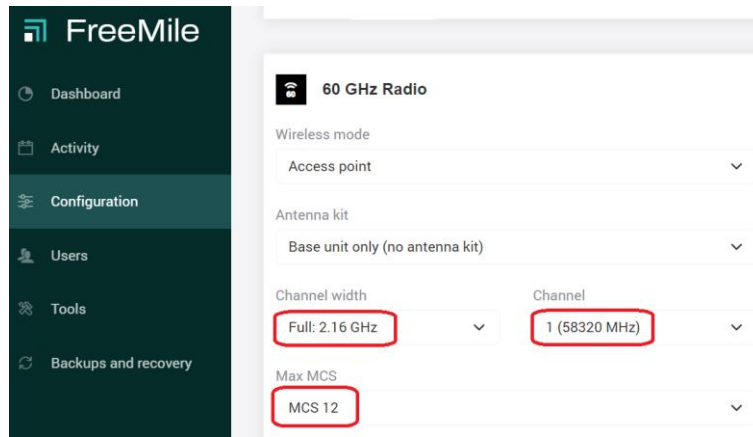
1. In 'Configuration→Wireless→60 GHz Radio' section choose Wireless mode as 'Access point' or 'Point-to-point master' and press **Save** button:



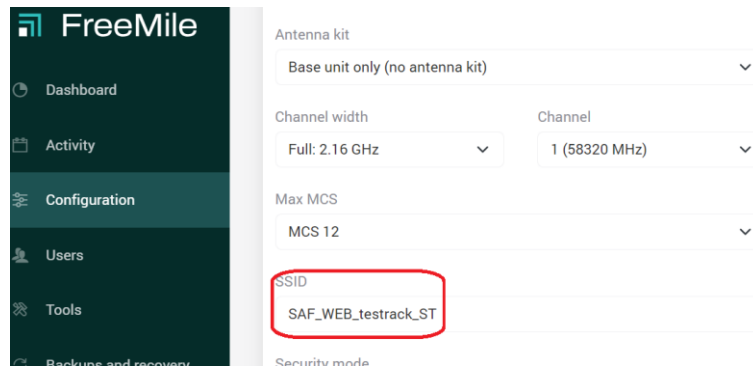
The screenshot shows the '60 GHz Radio' configuration page in the FreeMile interface. The 'Wireless mode' dropdown menu is set to 'Access point' and is highlighted with a red box. A 'Save' button is visible in the top right corner.

2. In the same section specify required Channel width, frequency channel and Max MCS (Modulation Coding Scheme) and press **Save** button:






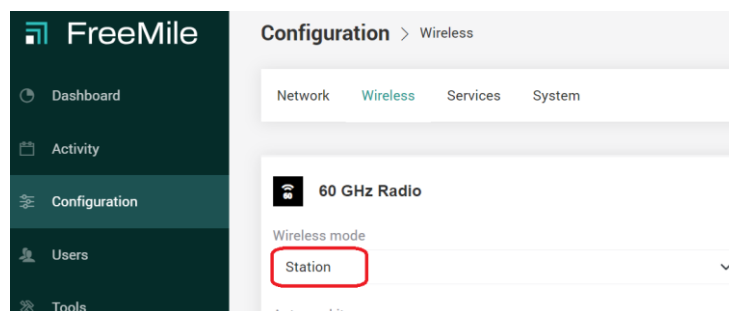
3. Use default or your own SSID. It can be set in 'Configuration→Wireless→60GHz Radio' section:




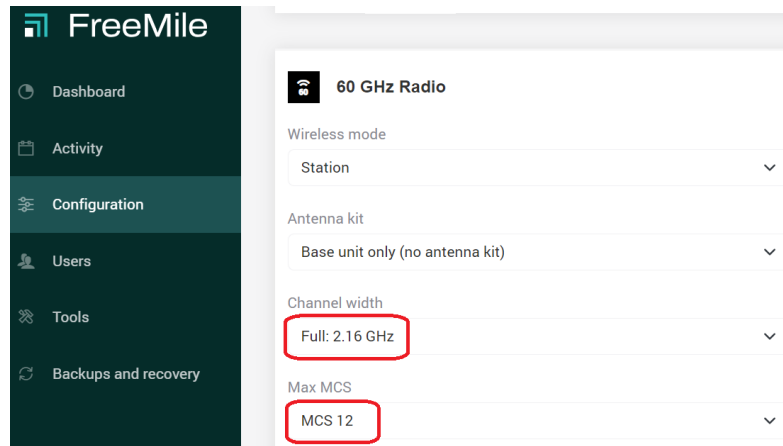
## 5.4 Configuring Station or Point-to-point slave unit

For Station (point-to-multipoint) or Point-to-point slave unit settings are following:

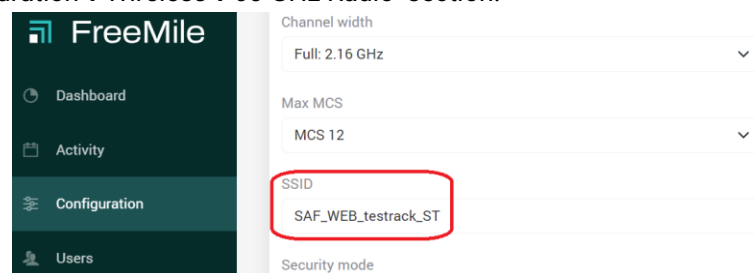
1. In 'Configuration→Wireless→60 GHz Radio' section leave Wireless mode 'Station' as per defaults or choose 'Point-to-point slave' mode and press  button:



2. In the same section specify required Channel width and Max MCS (Modulation Coding Scheme) and press  button. Those settings must be the same as on Access point or Point-to-point master device:



- Use the same SSID as it is for Access point or Point-to-point master unit. It can be set in 'Configuration→Wireless→60 GHz Radio' section:



- For point-to-multipoint mode, in case if there are several Freemile 60 Access point units available in range, and the Station device must be connected to one of them/specific one, use scanning functionality which can be found in 'Tools→Site survey scan' section to find all the Freemile 60 Access point and to choose the required one:

