

# **R2210-048L O-RAN RADIO UNIT**

## **INSTALLATION GUIDE**



## Limitation of Liability

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## Purpose

The purpose of this document is to guide users in how to set up and configure WNC's R2210-048L RU.

## Safety Warning/FCC Warning

The R2210-048L RU should be operated from a minimum safe distance of 20 cm (7.87 inch).

## Radio Interference

The R2210-048L RU generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause interference to radio communications. There is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment on and off, the technician is

encouraged to try to correct the interference by performing one or more of the following:

- Re-orientate or relocate the RU
- Increase separation between the RU and/or end devices
- Connect the equipment to a circuit different to what the power source is connected to.

## RF Exposure Warning

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be operated in conjunction with any other antenna or transmitter.

## General Warning

- Only qualified/licensed personnel should install, replace, or service the RU. Failure to comply with this recommendation may void the product warranty and may expose the end user or the service provider to legal and financial liabilities.
- This RU may not be sold via retail channels, by mail order, or to the general public. It can only be sold to telecom operators.

## Important Safety Instructions

- Carefully read and follow these instructions during installation and operation.
- Failure to follow the instructions may result in physical injury and/or product failure.
- Static sensitive components inside – do not remove the lid or base: No user serviceable parts inside.
- Position the power cord to avoid possible damage; do not overload power circuits.
- Do not place the product near a direct heat source; avoid placing objects on the terminal.
- For cleaning, use a damp cloth. Do not use liquid or aerosol cleaners. Before cleaning, power off the product.
- The RU should not be located too close to power lines or other electrical power circuits, where it can come into contact with such power lines or circuits.

- The radio transceiver must be properly grounded to protect against power surges and accumulated static electricity. It is the user's responsibility to install this device in accordance with the local electrical codes.
- The product must comply with the applicable Safety Standards and regulatory requirements of the country in which it is installed. Consult appropriate regulatory agencies and inspection authorities to ensure compliance when necessary.

## Service information

Refer all repairs to qualified service personnel. Do not modify any part of the device, as this will void the warranty.

Disconnect the power to this product and return it for service if the following conditions apply:

1. The terminal does not function after following the operating instructions outlined in this manual.
2. The product has been dropped or the housing is damaged.

## FCC Statement

### Federal Communication Commission Interference Statement

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 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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. 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.

## Manufacturer

Wistron NeWeb Corporation

Address: 20 Park Ave. II, Hsinchu Science Park Hsinchu 300, Taiwan

Hereby, Wistron NeWeb Corp. declares that the radio equipment type 5G NR O-RU N48 (Model: R2210-048L) is in compliance with FCC

- FCC Part 15B
- FCC Part 96
- FCC MPE
- CBRS SAS

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# 1. Introduction

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WNC's R2210-048L radio unit (RU) is designed to provide 5G-NR Sub-6 GHz indoor coverage and optimal 5G network access at throughput speeds of over 1Gbps to satisfy the demands of enterprise, industrial, and commercial venues. The R2210-048L flexible vRAN solution reduces costs and increases connection speeds via split 7-2x fronthaul network implementation. The RU can be mounted on walls, poles or ceilings and utilizes internal 4T4R antennas to boost coverage and throughput.

This guide provides information and steps for installing the R2210-048L RU and its cables. The document is intended for installation personnel only.

## 1.1 Package Contents

- R2210-048L RU
- DC 12V adaptor
- 42~57V DC 60W PoE (optional)



## 1.2 Product Overview

The R2210-048L RU is an indoor product with an operating temperature of between 0 ~ 40 °C.

Dimensions: 223mm x 296mm x 62mm





### 1.3 Product Labels

The following labels will be affixed to the bottom cover of the RU.



- Unit label: The unit label shows the different product models of the RU. R2210-048L stands for N48 O-RU (3.55-3.7GHz)



- Serial number label: Each product SKU has its own serial number for product traceability.
- MAC label: Each unit will be programmed with 1 MAC address.

### 1.4 LED Lights (Reserved)

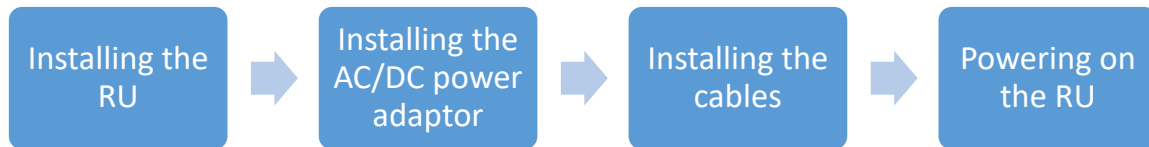
Reserved for the LED indicators. It provides 3 Green LEDs and 3 Red Orange LEDs on STATUS panel. Allow to show the product status in operation. It can be defined by telecom operators.



## 2. Installing the R2210-048L RU

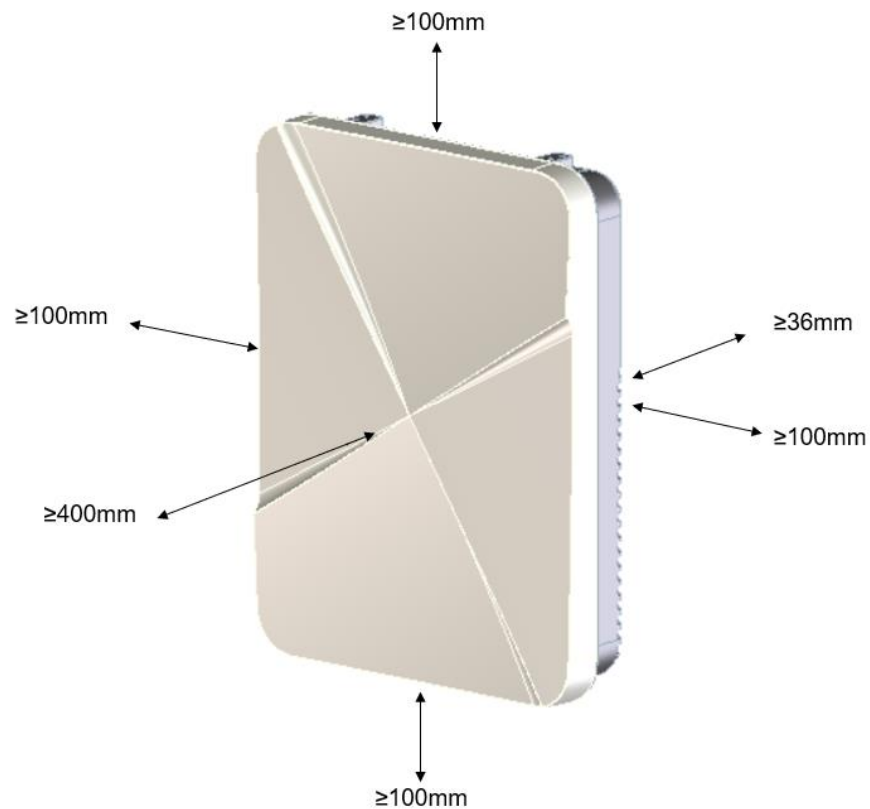
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This chapter covers the step-by-step installation procedures for assembling and installing the R2210-048L RU.



### 2.1 Installing the RU

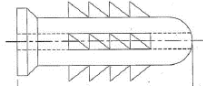
The RU can be installed on a wall or on the ceiling. The following section describes installation in different scenarios as well as the suggested space requirements.



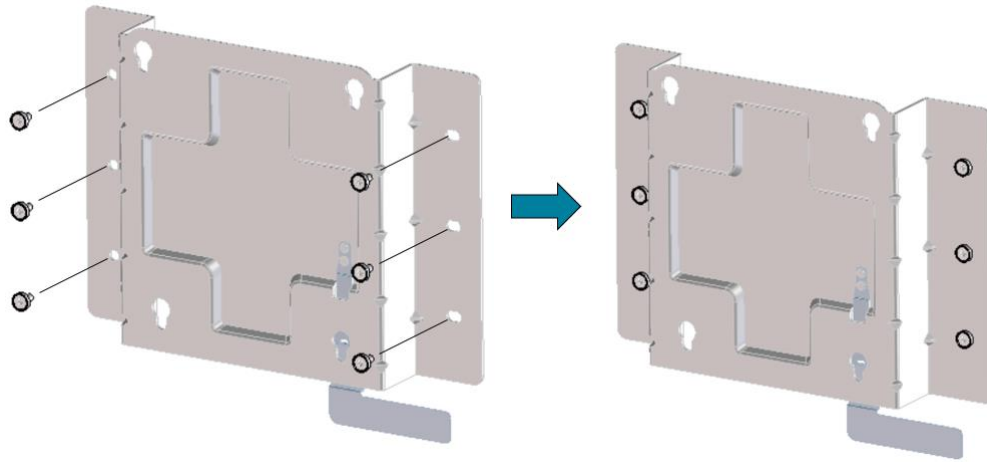
### 2.1.1 Wall Mount

Refer to the steps below to mount the RU to a wall.

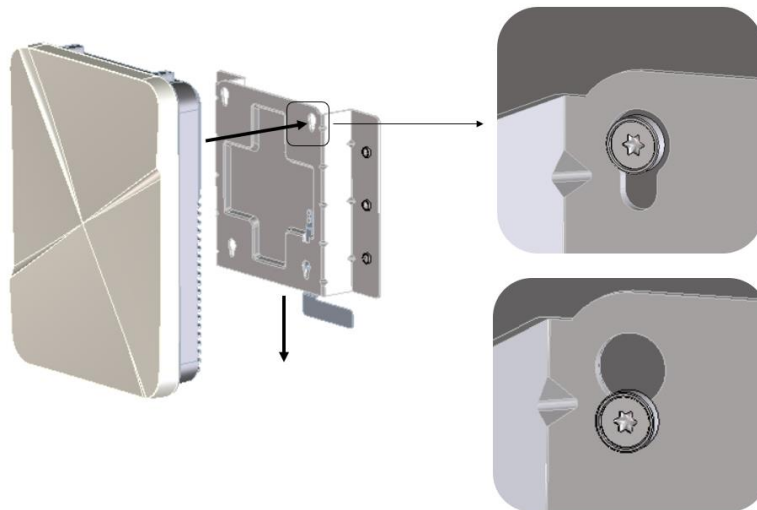
1. Use a power tool to drill four holes, then insert the wall anchors into the holes.  
(Screw size: M3 screw min 20mm)



2. Apply the four wall mounting screws into the wall anchors and fix the bracket.



3. At the bottom of the RU, place the four feet into the corresponding positions on the bracket and push down to slide it into the bracket.

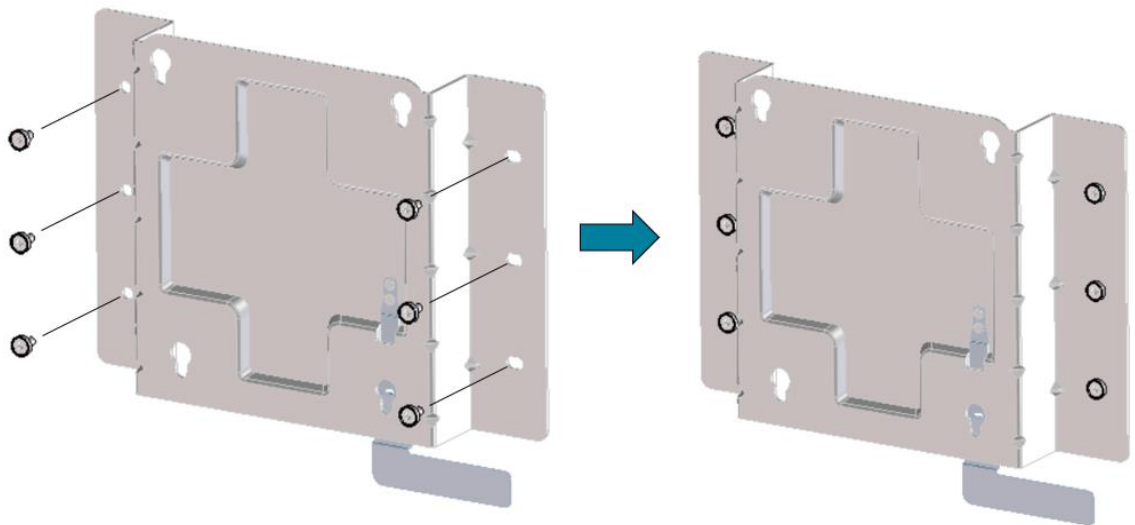


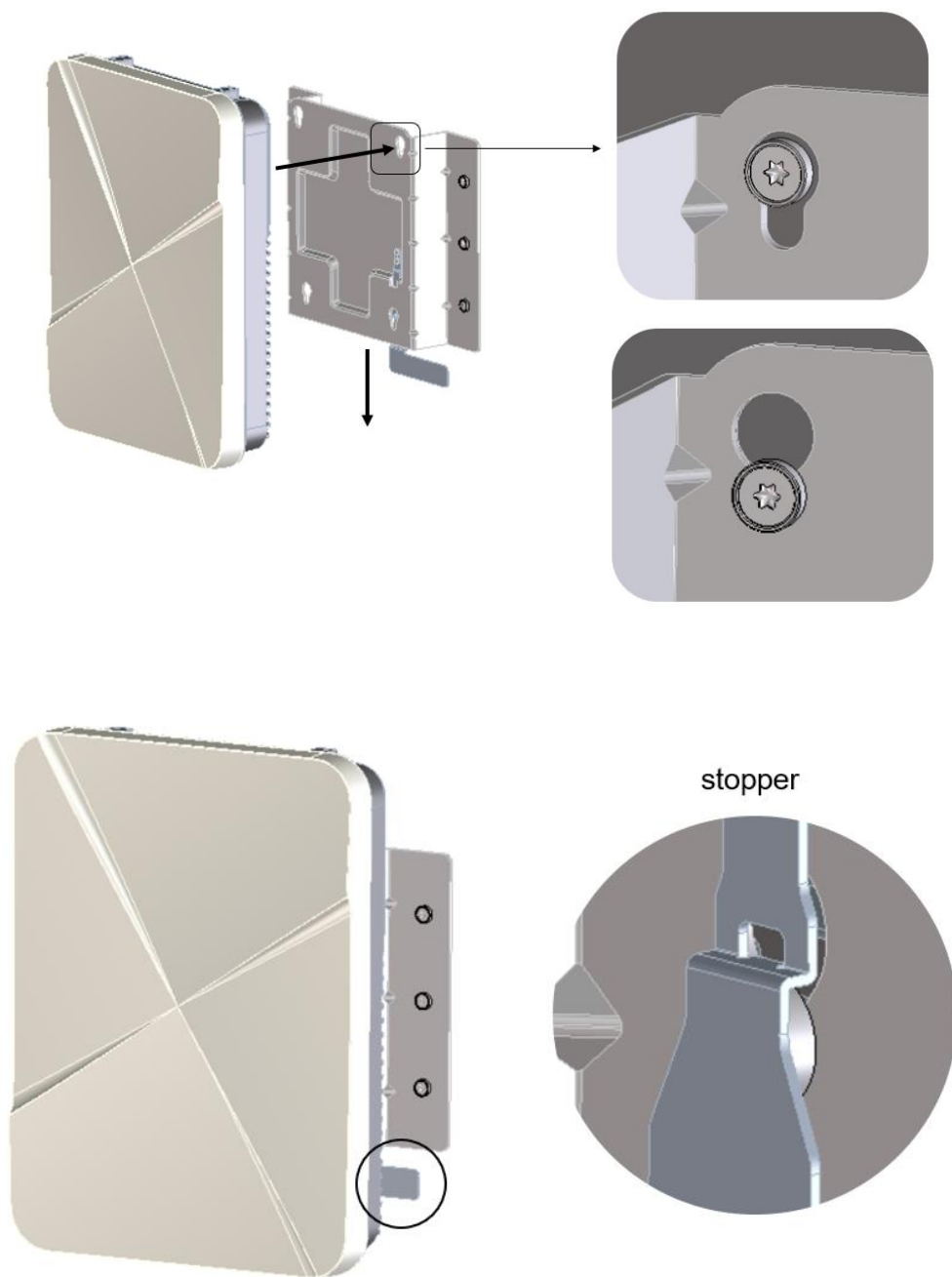
4. Slide down the RU so the stopper on the bracket can fix it.



### 2.1.2 Ceiling Mount

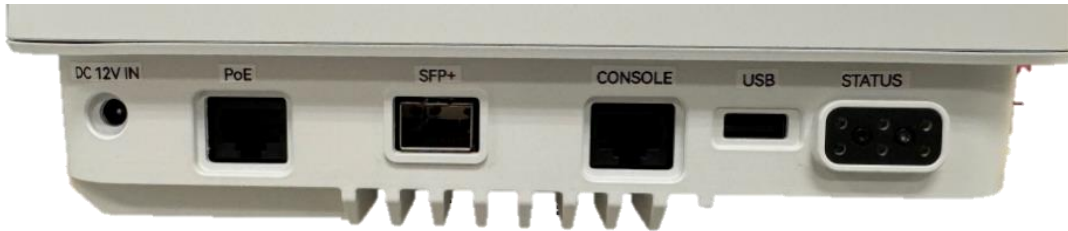
1. Adjust the position of the ceiling.





## 2.2 Description of I/O ports

The I/O ports are showed as below.



1. **DC 12V IN:** The 12V/6.25A DC power adaptor input.
2. **PoE:** Connected to the PoE port by a PSE device. It is an alternative power supply input via a PSE. The RU can be powered via a PSE or a DC adaptor. If choose the PSE. Please make sure your PSE device can support 802.3bt, as the RU's full loading power consumption will exceed 802.3at specifications. This port only for power supply input, the ethernet function is not supported. (**Note:** This product is connected only to PoE networks without routing to the outside plant.)
3. **SFP+:** The fronthaul interface. Support SFP+ 10Gbps bandwidth. It can be inserted an SFP+ 10Gbps optical transceiver or a DAC cable for data transmission.
4. **CONSOLE:** Only for debug purpose.
5. **USB:** Only for debug purpose.
6. **STATUS:** Reserved for the LED indicators. It provides 3 Green LEDs and 3 Red Orange LEDs on STATUS panel. Allow to show the product status in operation. It can be defined by telecom operators.

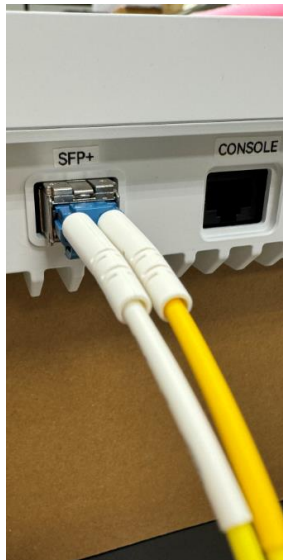
## 2.3 Installing the cables

Follow the steps below to install the cables.

1. Insert the SFP+ transceiver module in the "SFP+" port as shown in the figure below.



2. Insert the SFP+ fiber cable (LC type fiber) as shown in the figure below.



3. Insert the power cable into the DC connector port as shown in the figure below.



4. (Optional) The PoE port is an alternative power supply input via a PSE. It only for power supply input, the ethernet function is not supported.



### Powering on the RU

The RU can be powered via a PSE or a DC adaptor. If choose the PSE. Please make sure your PSE device can support 802.3bt, as the RU's full loading power consumption will exceed 802.3at specifications.

The steps below describe ways of powering on the RU.



1. RU power source:

Scenario	RU power source
Connected a DC power adaptor to the DC 12 input port.	The RU needs to be powered up by a DC power adaptor.
Connected to the PoE port by a PSE device. (Optional)	RU can be powered by the PSE.
Both PSE and DC adaptor are connected.	RU will use the DC adaptor as the priority.

### 3. Recommended Transceiver List

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The table below is a list of transceivers that are recommended to be used with the RU.

Vendor	Description	Vendor P/N
Eoptolink	Ethernet SFP+ LR Optics	EOLP-1396-10
Optech	SFP+ 10Gbps SR 850nm Cisco compatible	SFP-10G-SR-C
Jumbo-Sun	SFP+ 10Gbps SR 850nm Intel compatible	SFP+-SR(I)-I
ZYXEL	SFP+ 10Gbps LR 1310nm 10km	SFP10G-LR-E

## 4. Technical Specifications

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<b>Model Name</b>	R2210-048L
<b>BB IC + NPU</b>	Metanoia MT2812 + NXP LS1046A
<b>RF IC</b>	Metanoia MT3812
<b>5G NR</b>	<ul style="list-style-type: none"><li>■ 5G NR TDD 4T4R</li><li>■ Supported bands: n48 (3.55GHz ~3.7GHz)</li><li>■ 20 MHz bandwidth, 30KHz SCS</li></ul>
<b>Fronthaul</b>	O-RAN Split option 7.2X
<b>EIRP(Max.)</b>	32.3dBm
<b>Max Bandwidth OBW</b>	20MHz
<b>Antenna</b>	Embedded
<b>Data interface</b>	10Gbps SFP+
<b>Synchronization</b>	PTPv2 w/ G.8275.1
<b>Holdover</b>	1.5 $\mu$ s over half hours
<b>M-plane</b>	O-RAN compliant Netconf protocol and Yang model
<b>Power Supply</b>	DC 12V/6.25A or IEEE802.3bt(60W) PoE(optional)
<b>Dimensions</b>	223mm x 296mm x 62mm
<b>Weight</b>	2.1Kgs
<b>Indoor IP Rating</b>	IP30
<b>Operating Temperature</b>	0 °C to 40 °C
<b>Installation</b>	Ceiling/Wall mount



[www.wnc.com.tw](http://www.wnc.com.tw)

### ***Wistron NeWeb Corporation***

20 Park Ave. II, Hsinchu Science Park Hsinchu 300, Taiwan

Tel: +886 3 666 7799 Fax: +886 3 666 7711