

mmW gNB(BSC7261A249D)

Quick Guide

INTRODUCTION

The Baicells mmW is an advanced outdoor millimeter wave integrated base station (gNB), which is designed and developed based on Qualcomm 5G SoC solution. This 49dBm EIRP gNB is low power consumption, subminiature and easy to maintenance.

This product helps operators to enhance the coverage performance of 5G networks effectively, improve the capacity of 5G networks and eliminate the blind district, meanwhile it also can help to reduce the system power consumption.

HIGHLIGHTS

NOTE: Features can vary based on model or region.

- Standard NR Band n261
- 5G-NR TDD (3GPP R16 compliant)
- GUI-based local and remote Web management
- Supports up to 4x100MHz bandwidth
- Peak data rate: DL:2Gbps@4CC*,
UL:140Mbps@2CC (DDDSU)*
- Supports 600 RRC connected Ues*
- Supports PDU session setting
- Supports cell setting
- Supports Stand Alone (SA) mode: FR2 only, NRDC*
- Supports Non Stand Alone (NSA) mode: ENDC*
- Supports SCTP control (IKE SCTP)
- All In One (AIO) small cell form factor for quick and easy installation
- Highly secured with equipment certification against potential intrusion risk
- Supports TR-069 network management interface
- Lower power consumption, which reduces OPEX, can be powered easily by Baicells compact indoor smart UPS

TECHNOLOGY

Standard	5G NR TDD (3GPP R16 compliant)
TDD UL/DL Configuration	5ms periodicity ($\mu=1$): DDDSU
Frequency Band	n261 (27.5GHz ~ 28.35GHz)
Channel Bandwidth	100MHz x 4CC
Multiplexing	DL:2, UL:1
Security	Radio: SNOW 3G/AES-128 Backhaul: IPsec (X.509 AES-128, AES-256, SHA-128, SHA-256)

INTERFACE

Ethernet Interface	1 optical (10G SFP+) and 1 RJ-45 Ethernet interface (1 GE)
Power Supply	-40VDC to -57VDC, nominal -48VDC
Protocols Used	IPv4/v6, UDP, TCP, ICMP, NTP, SSH, IPsec, TR-069, HTTP/HTTPS, DHCP
Network Management	IPv4/v6, HTTP/HTTPS, TR-069, SSH, Embedded 5GC*
VLAN/VxLAN*	802.IQ/VxLAN
LED Indicators	4 x status LED PWR/ACT/RUN/ALM
Antenna	8x8 dual-polarized antenna elements, built-in with Maximum +/-60 degrees
GPS Antenna	External GPS antenna, N-Type connector

FCC COMPLIANCE

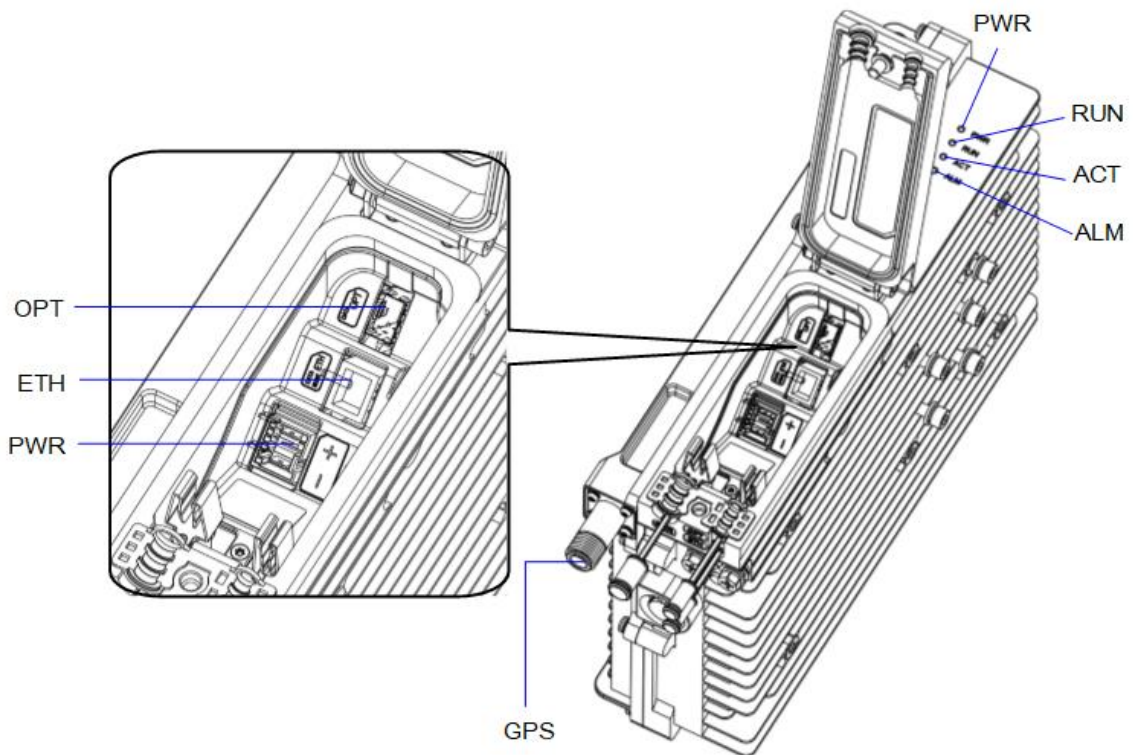
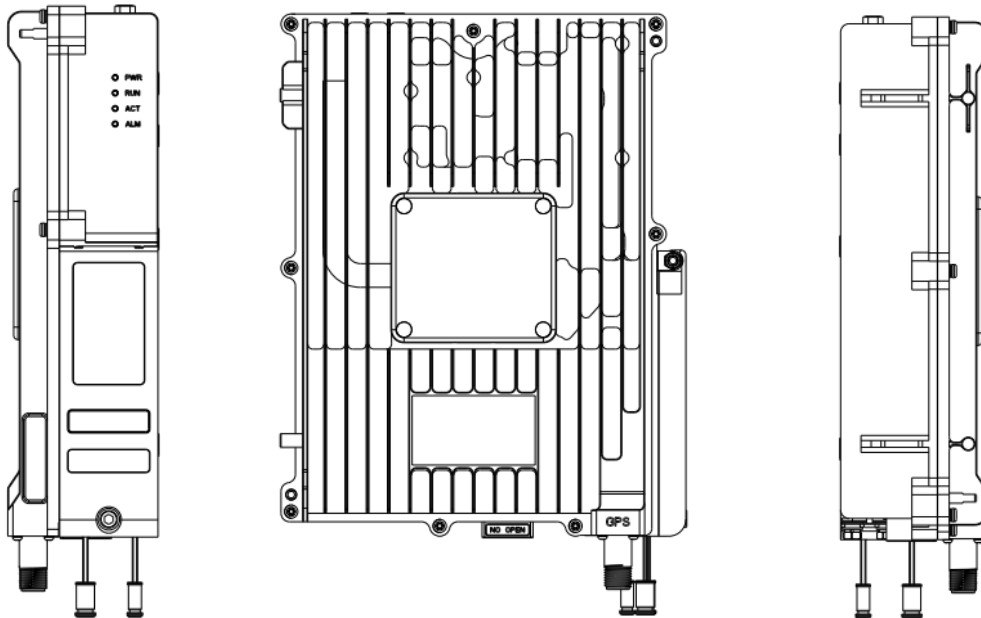
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Warning

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 100cm between the radiator & your body.

1. Appearance



Interface Description

Interface	Description
PWR	Power interface, connect to -48VDC power supply
ETH	RJ-45 interface, used for debug or data backhaul.
OPT	Optical interface (SFP+), connect to external transmission network, used for data backhaul.
GPS	External GPS antenna, N-female connector.

Interface Indicators

Identity	Color	Status	Description
PWR	Green	Steady ON	(Reserved)
RUN	Green	Steady ON	The power supply is normal.
		Fast flash: 0.125s on, 0.125s off	The device is starting up.
		Slow flash: 1s on, 1s off	The device is operating normally.
		OFF	No power supply or device fault.
ACT	Green	Steady ON	The cell is active.
		Slow flash: 1s on, 1s off	The cell is deactivated.
ALM	Red	Steady ON	The device is fault.
		OFF	No alarm.

2. Installation











2.1 Installation Material

In addition to industry standard tools, you will need the materials described in Table 2-1 during the installation.

Table 2-1 Support Materials

Item	Description
DC cord	The diameter of DC power cable must be AWG14 or greater (such as AWG13) with two cores.
Ethernet cable	Outdoor CAT6, shorter than 100 meters (~109 yards)
Optical fiber	Optical fiber (armor) It is suggested that the diameter of the cable is 7 ± 1 mm.
Ground cable	The diameter of grounding cable must be 10mm^2 or greater.

2.2 Installation Tool

				
Leveling instrument	Marker pen	Knife	Vise	Wrench
				
Percussion drill	hammer	Cross screw driver	Cable vice	Tape measure

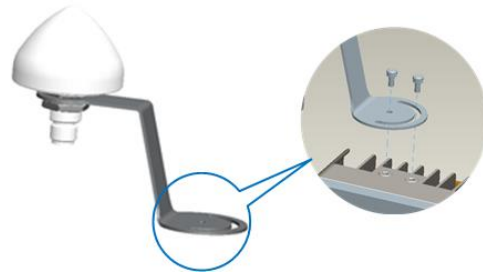
NOTE: Other accessories have been packed in the packing box.

2.3 Install GPS Antenna

Read the following GPS antenna installation requirements before installing it on the base station.

- No major blocking from buildings in the vicinity. Make sure the space atop is at least 45 degrees unblocked by any buildings.
- Avoid installing the GPS antenna in the vicinity of any other transmitting and receiving devices, to avoid interference.
- The GPS antenna should be installed within 45 degrees to the lightning rod.

The GPS antenna system is assembled in manufacturing before packing. The only installation step is to fix the GPS mounting bracket on the base station with the M4*14 screws.



NOTE: The base station may adopt different models of GPS antenna, so the GPS antenna may not be the same as above figure. But the installation steps that fix it on the base station is the same.

2.4 Weatherproofing

To protect the connection points from weather and climate, clean each connection point before installing cold shrink tubes, per the following figure.

1. Insert the cable into the cold shrink tube.

2. Tighten the connector.
3. Push the cold shrink tube to the top joint, and pull out the strip.
4. Ensure the cold shrink tube is tightly fitted with the connection.

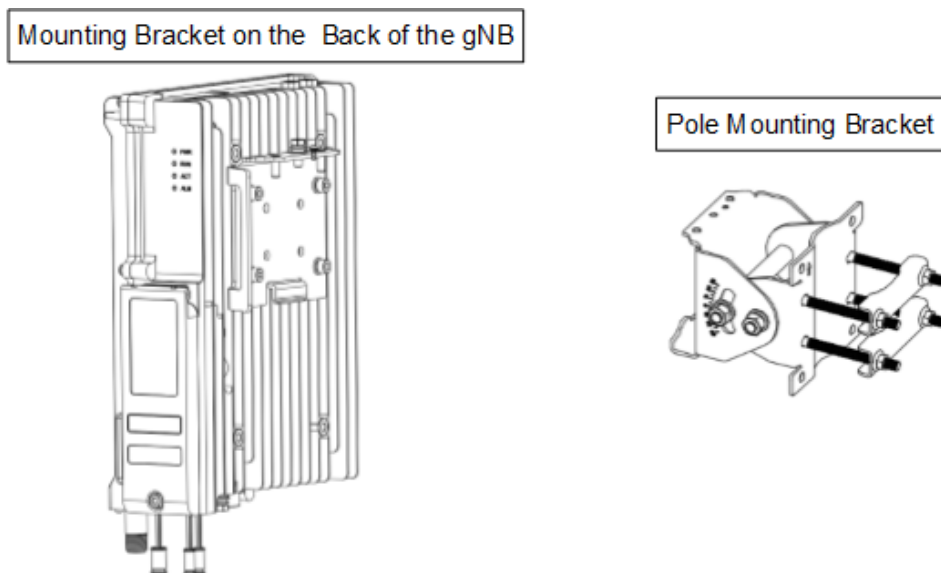


2.5 Pole Mounting

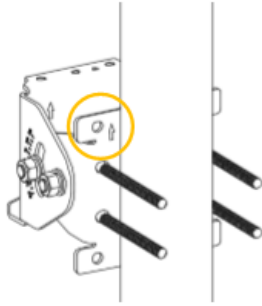
Check to ensure the diameter of the pole is in the range of 1.6 inches to 2.8 inches (40mm to 70 mm). The position of the gNB on the pole should be at least 47 inches (120 cm) in height.

The brackets have been pre-assembled in manufacturing before packing. It includes two parts, one is pre-assembled on the back of device. The other is for pole mounting or wall mounting, as shown in Figure 2-1.

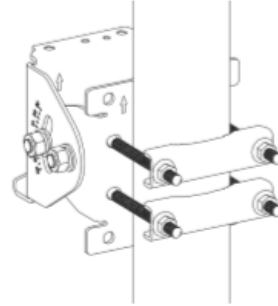
Figure 2-1 Pre-assembled Device



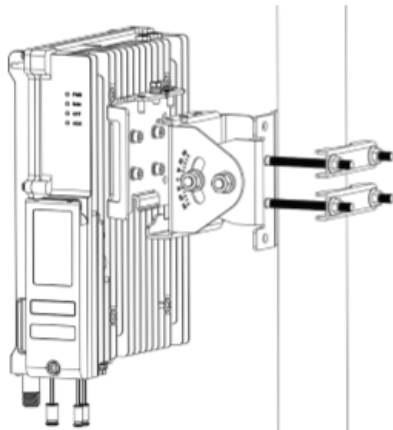
Following will introduce how to fix the pre-assembled gNB on a pole.



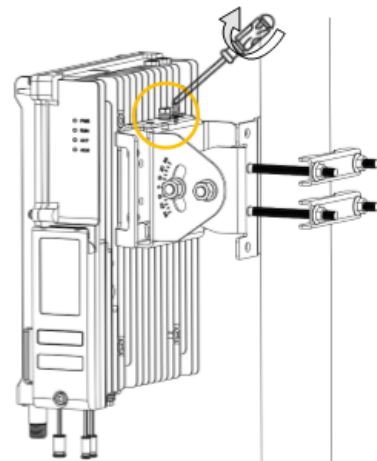
- 1** Put the pole bracket against the pole.
NOTE: the arrow must be upward.



- 2** Assemble two omega clamps back and fasten four nuts on the back of the bracket.



- 3** Hung the gNB (with bracket) on the pole bracket. Ensure the hook on the gNB bracket is stuck in the slot.



- 4** Fasten the screw on the top of the bracket using a cross screwdriver.

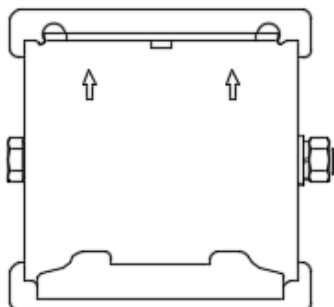
After mounting, adjust the gNB to a proper angle by adjusting the adjustable bracket.

2.6 Wall Mounting

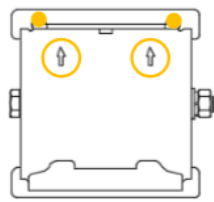
NOTE: The wall must bear at least 4 times the weight of the gNB.

Take apart assembly bracket first, only remains the wall bracket, as shown in Figure 2-2.

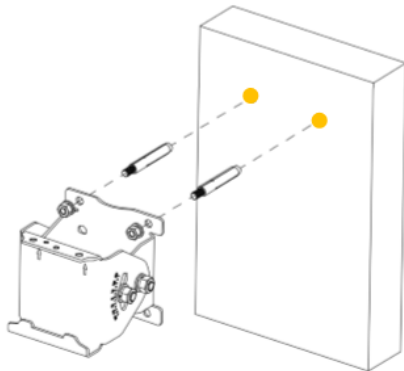
Figure 2-2 Wall Bracket



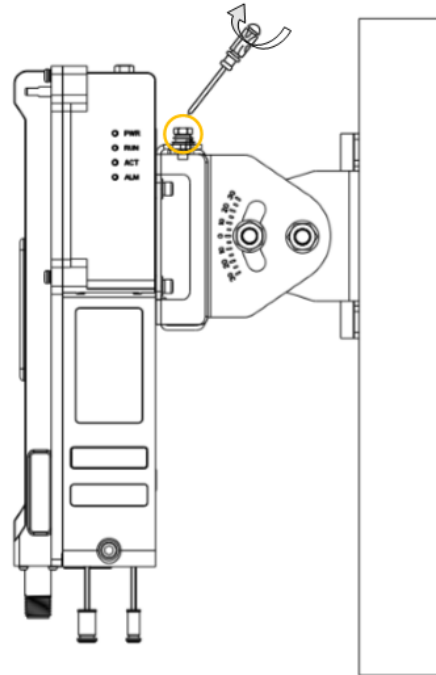
Following steps introduce how to fix the pre-assembled gNB on a wall.



- 1 Fit the installation bracket on the wall and mark drilling locations with a marker pen.
NOTE: the arrow must be upward.

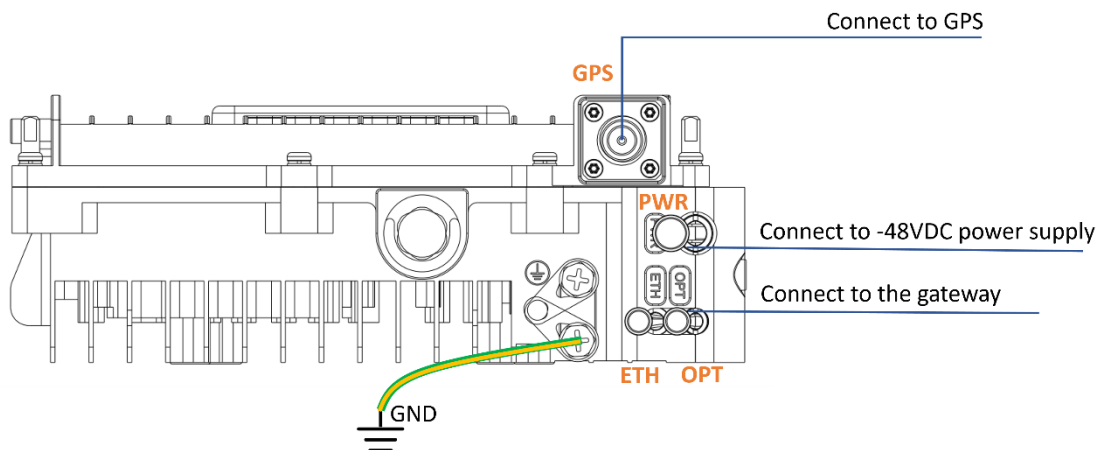


- 2 Drill two holes at the marked locations and install expansion bolts. And then hang the wall bracket on expansion bolts, and fasten with flat washers, spring washers and nuts.



- 3 From top to bottom, clip the gNB into the hook on the bracket and tighten the pin on the top of the bracket.

2.7 Connect Cables



2.8 Power ON

Power on the gNB, and wait a few minutes while the gNB boots up. Per the previous indicator description in “1 Appearance”, check that the LED indicators are lighting as expected.