HyperRake OFDM TDMA Series

FODU Wi50 Full Outdoor Unit

Technical Description & Configuration Guide

Product code: HYP2050HBS23 & HYP1050HBS46

Hypercable Rural Broadband Radio sans licence HyperR@ke *- Design optimisé pour vidéo H264 -*

	Antenne Séparée		Antenne intégrée		
Nom de la gamme	HyperR@ke 5 GHz	FHF FDD 5 GHz	HyperR@ke 5 GHz	HyperR@ke 5 GHz	FHF FDD 5 GHz
Modèle	HYP2050HBS23	HYP205823	HYP105041	HYP1050HBS46	HYP1058HBS46
Aspect					
Gamme de Fréquences	Customisées: 4920~6060 MHz	57255770 MHz (Low band) 5805-5850 MHz (High band) T/R Duplex 80 MHz. Aussi en 2.3/2.5 GHz	Customisées: 4920~6060 MHz	Customisées: 4920~6060 MHz	57255770 MHz (Low band) 5805-5850 MHz (High band) T/R Duplex 80 MHz
Modulation	OFDMTDMA	Turbo OFDM	OFDMTDMA	OFDMTDMA	Turbo OFDM
Schéma Duplex	TDD	FDD	TDD	TDD	FDD
Network Architecture	PTP / PTMP	PTP seulement	PTP / PTMP (CPE)	PTP / PTMP (CPE)	PTP seulement
Canal BW	5/10/20/40 MHz	5/10/20/40 MHz	5/10/20/40 MHz	5/10/20/40 MHz	5/10/20/40 MHz
Puissance ou EIRP	23dBm	23 dBm	EIRP=41dBm	EIRP=46dBm	EIRP=46dBm
Antenne	36dBi Parabolique (toutes options)	36dBi Parabolique (toutes options)	18dBi Planar Intégrée	23dBi Planar Intégrée	23dBi Planar Intégrée
Portée LOS	>60Km	>80Km	30Km	40Km	>60Km
Data Rate	108 Mbps	108+108 Mbps(216Mbps agrégés)	108 Mbps	108 Mbps	108+108 Mbps (216Mbps agrégés)
Débit utile TCP	50Mbps	50+50Mbps (100Mbps agrégés)	50Mbps	50Mbps	50+50Mbps (100Mbps agrégés)
Latence typique par voie	20~30ms	<1ms	20~30ms	20~30ms	<1ms
Protocole propriétaire	Oui	Oui	Oui	Oui	Oui
Hyper ARQ (ARQ+FEC)	—	Oui	—	—	Oui
DC 48V (36~60V)	Option	Option	Option	Option	Option
Mode de Propagation	Non LOS & Near LOS	LOS	Non LOS & Near LOS	Non LOS & Near LOS	LOS

HyperRake
Wireless Outdoor

Quick Installation Guide

Version 2.1.0

APR. 2013

■ WARNINGS

In order to comply with international radio frequency (RF) exposure limits, dish antennas should be placed at a minimum of 8.7 inches (22 cm) from the bodies of all persons. Other antennas should be placed a minimum of 7.9 inches (20 cm) from the bodies of all persons.

Do not work on the system or connect or disconnect cables during periods of lightning activity.

This equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.

Ultimate disposal of this product should be handled according to all national laws and regulations.

Do not locate the antenna near overhead power lines or other electric light or power circuits, or where it can come into contact with such circuits. When installing the antenna, take extreme care not to come into contact with such circuits, as they may cause serious injury or death. For proper installation and grounding of the antenna, please refer to national and local code).

Only trained and qualified personnel should be allowed to install, replace, or service this equipment.

The outdoor radio and POE injector can be damaged by incorrect power application. Read and follow the installation instructions carefully before connecting the system to its power source.

Follow the guidelines in this installation guide to ensure correct operation and safe use of the radio.

■ PACKAGE CONTENTS

The package you have received should contain the following items:

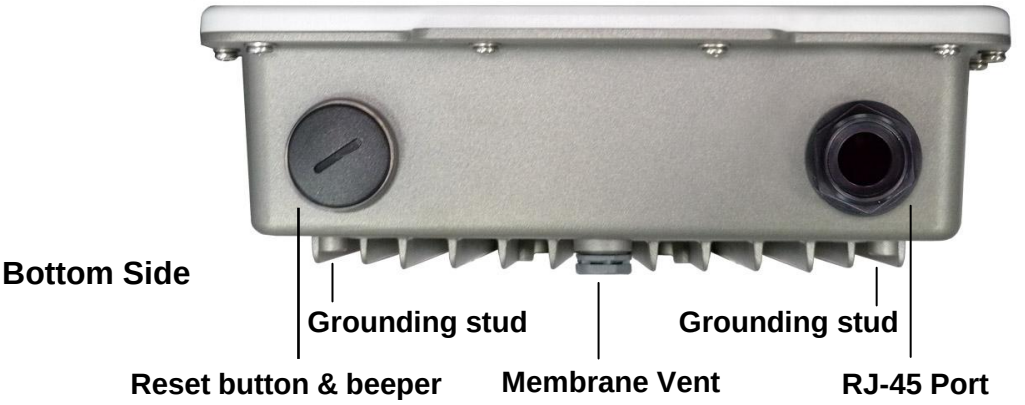
- Outdoor Subscriber ……..……..……..…x1
- PoE Injector. ……..……..x1
- AC Power Code ……..……x1
- Power adaptor……..……x1
- Mounting Kit ...……..……..……..……x1
- Product CD…….....…...……x1
- Quick Installation Guide……..…..……x1

If any item on the above list is not included or damaged, please contact your local vendor for support.

■ MECHANICAL DESCRIPTION

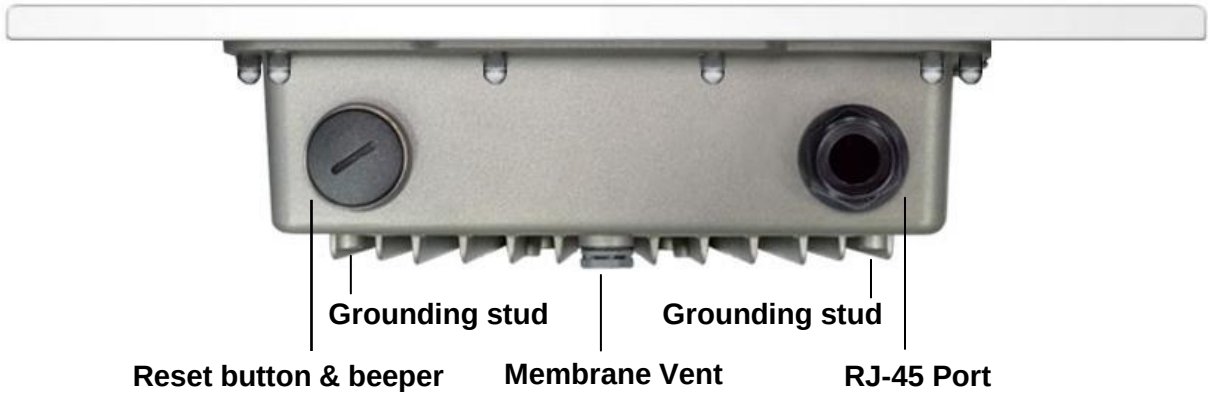
Please refer to the following table for the meaning of each feature.

ODU: (External antenna)



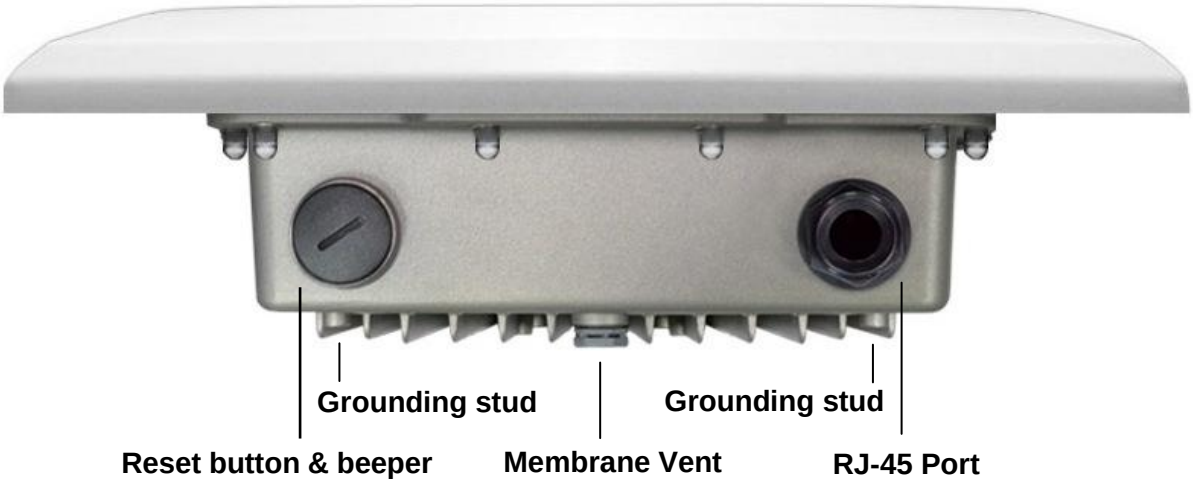
Outdoor Multi-function Radio Figure

ODU: (integrated with 4.9/5GHz panel antenna)



4.9 / 5GHz Outdoor Subscriber with integrated antenna

ODU : (integrated with 2.3/2.4GHz panel antenna)



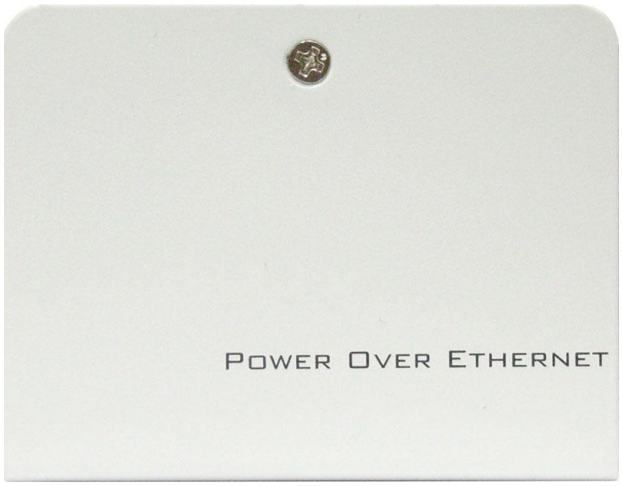
2.3 / 2.4GHz Outdoor Subscriber with integrated antenna

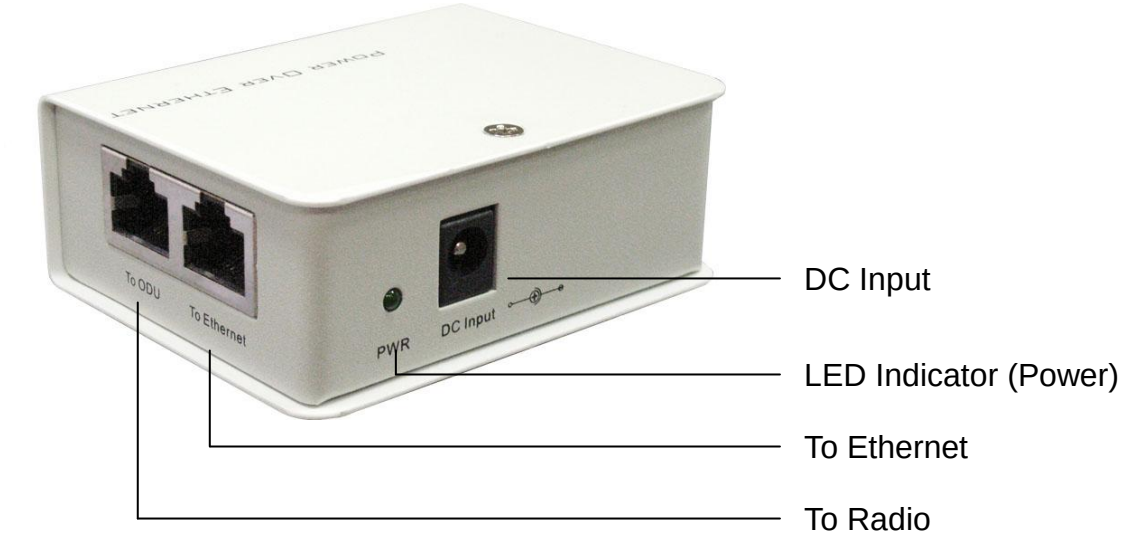
1	**RJ-45 Port**	Use the SFTP cat.5 cable with weatherproof connector to connect to the "To ODU" side of the POE injector.
2	**N- Jack Antenna Connector**	Here you can attach the proper antenna with the outdoor radio to wirelessly connect to the networks. In order to improve the RF signal radiation of your antenna, proper antenna installation is necessary.
3	**Grounding stud**	Connect to the ground conductor with the ground wire.
4	**Reset button**	Revolve the plastic cap by coin, you will see the reset button. Press it and hold the for 5~10 seconds, the radio will back to factory default settings.
5	**Beeper**	This function only works at PTP bridge and station adapter mode (or CPE mode) in the AP to CPE application, plug the headphone after remove the plastic cap, and check the signal level of the beeper for antenna alignment via headphone.
6	**Membrane Vent**	1. Moisture vapor permeable to help aid in condensation and fogging reduction in the ODU. 2. High airflow allows pressure equalization to prevent stress on enclosure seals

Note: screw the cap back well after you use the reset button or beeper.

This equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.

24VDC POE



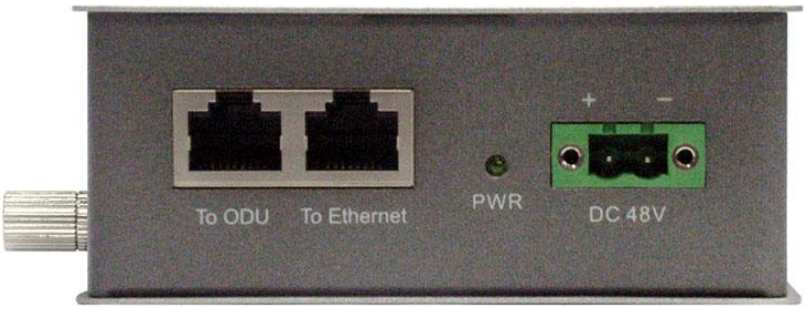


Power Over Ethernet Injector Figure

1	**To Ethernet**	This RJ-45 port is used to connect to the 10/100 Base T complied device such as switch, router or PC.
2	**To ODU**	This RJ-45 port is used to connect to the ODU.
3	**DC Input**	Connect to the Power adaptor for DC input.
4	**LED Indicator**	Power LED

Power Over Ethernet Injector is not waterproof unit, should not be exposed to the outdoor without any protection.

+/- 48VDC POE (optional solution)



Power Over Ethernet Injector Figure

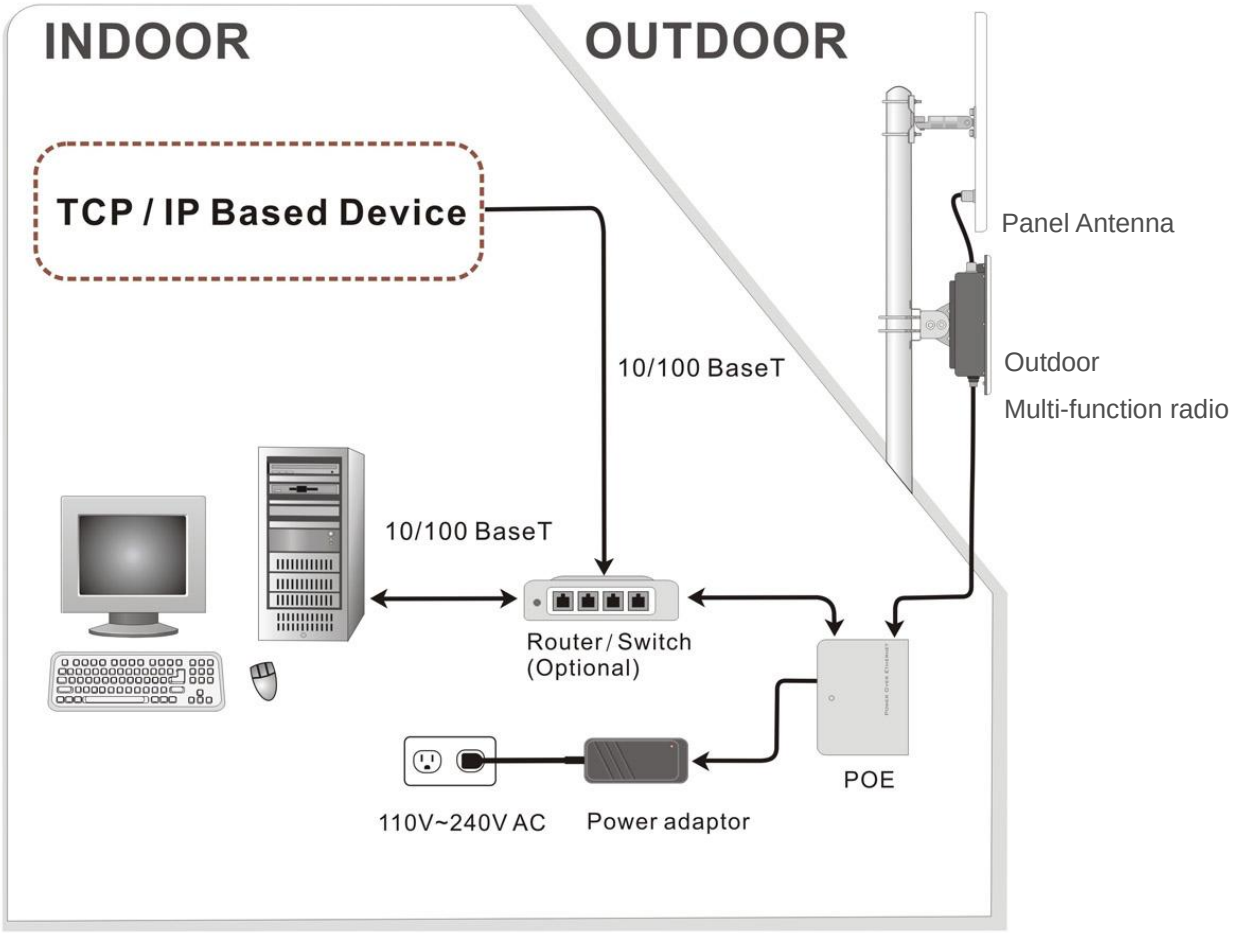
1	**To Ethernet**	This RJ-45 port is used to connect to the 10/100 Base T complied device such as switch, router or PC.
2	**To ODU**	This RJ-45 port is used to connect to the ODU.
3	**DC Input**	Connect to the Power adaptor for DC input.
4	**LED Indicator (PWR)**	Power LED
5	**Grounding stud**	Connect to the ground conductor with the ground wire.

■ INSTALL THE OUTDOOR SUBSCRIBER

This section show you how to mount the Outdoor Subscriber, please read it carefully before you start to install the hardware. Be safe and step by step to finish the hardware installation.

External antenna

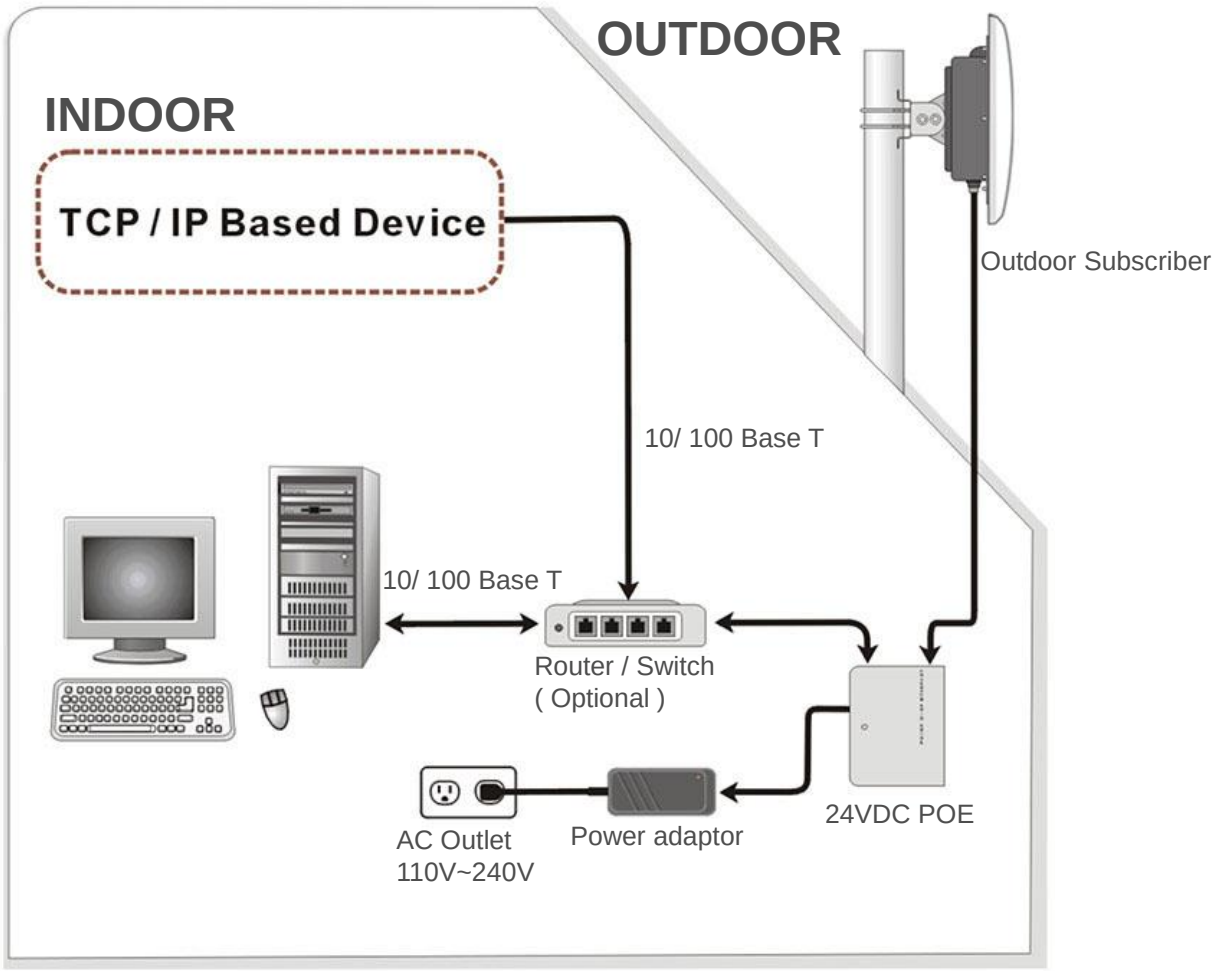
(With 24VDC POE)



Hardware Installation Figure

Integrated with 2.3/2.4GHz panel antenna

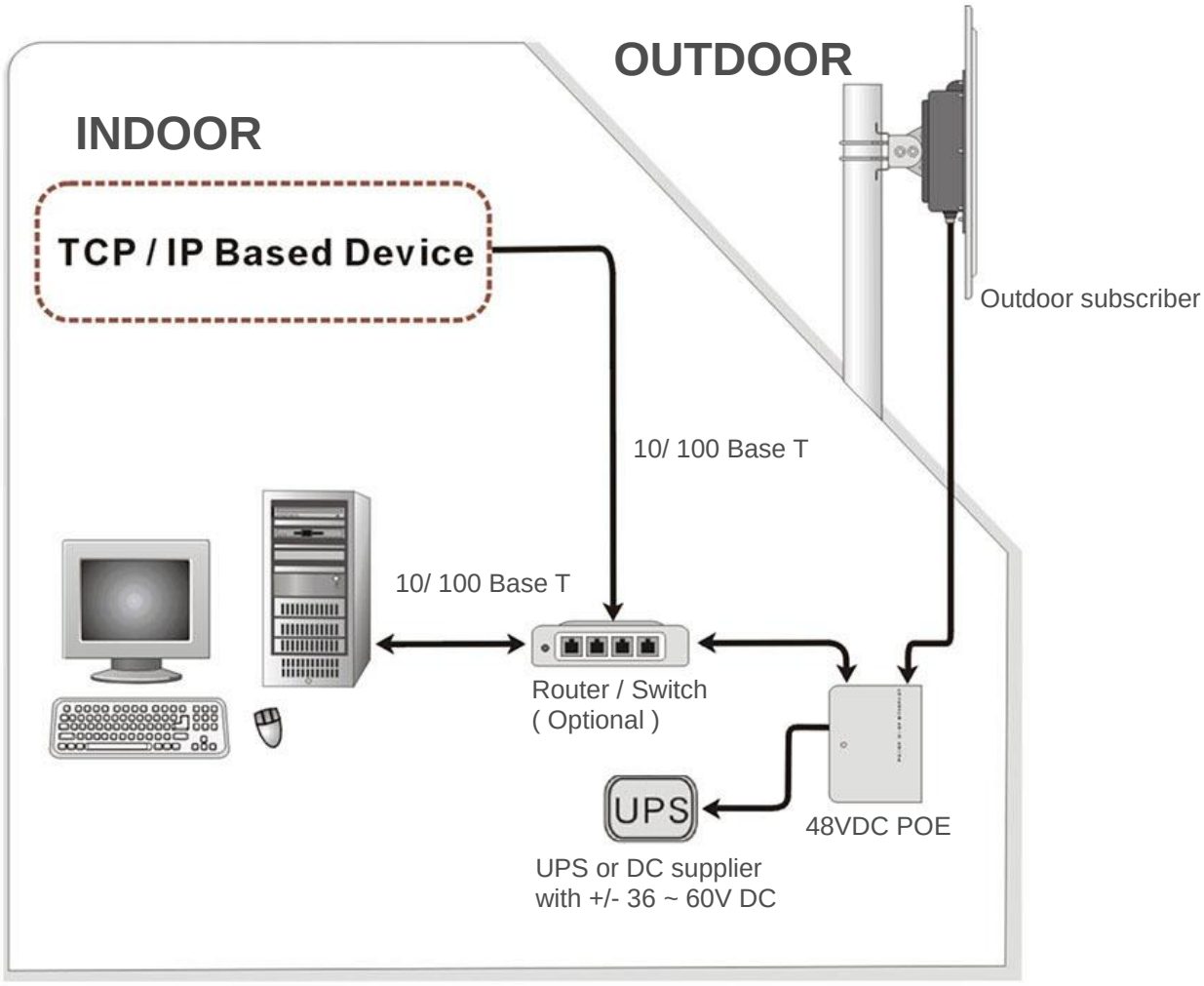
(With 24VDC POE)



Hardware Installation Figure

Integrated with 4.9/5GHz panel antenna

(with + / - 48VDC POE)



Hardware Installation Figure

The Outdoor Subscriber and power injector can be damaged by incorrect power application. Read and follow the installation instructions carefully before connecing the system to its power source.

1. Mounting the Outdoor Radio

There are two parts of the Mounting kit:

- Enclosure bracket — attached to the back of the outdoor radio.
- Pole bracket — mounted on the pole or tower with the U-bolts.

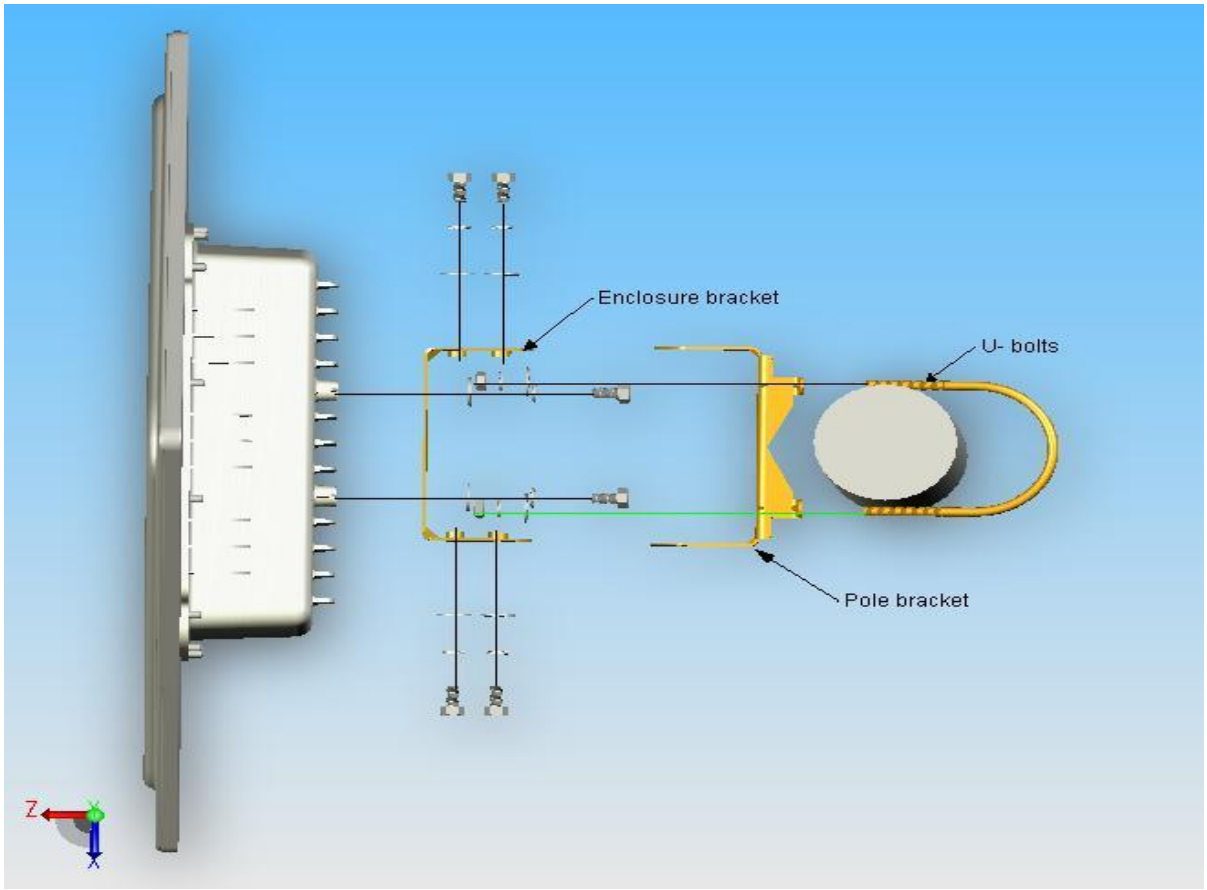
Follow the next steps to mount the Outdoor Subscriber on the pole.

i. Mount the enclosure bracket to the back of the outdoor radio.

ii. Mount the pole bracket to the pole with the U-bolts.

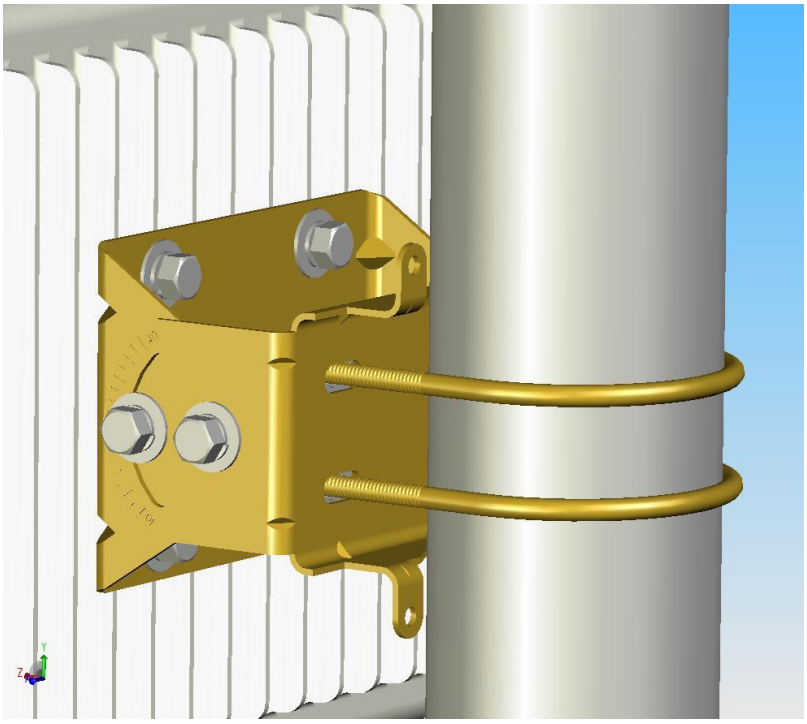
iii. Attach the radio with enclosure bracket to the pole bracket which was mounted on the pole with the supplied screws and U-bolts.

iv. Tighten the all the screws, U-bolts, washers and nuts with hand tools.



Mounting Explosion Assembly Figure

Only trained and qualified personnel should be allowed to install, replace, or service this equipment.



Mount the enclosure on the pole

This equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.

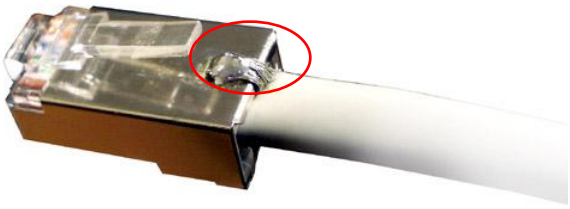
2. Connect the Ethernet Cable

The Outdoor Subscriber support 10/100M Ethernet connection. Attach your SFTP cat.5 Ethernet cable with waterproof connector to the RJ-45 connector on the ODU enclosure. Then connect the other end of the cable to the “To ODU” side on PoE injector.

Connect the SFTP cable to the Outdoor Multi-function Radio

Connect the SFTP cable to the Outdoor Subscriber

Welding the shielding parts of the SFTP cable and the RJ-45 connector well to ensure the performance of the system and avoid the moisture leak into the radio.



Weld the RJ-45 connector with the SFTP cable

Weld the SFTP cable as the above figure, make sure the welding parts NOT bigger than the figure, or it will affect the function of waterproof RJ-45 connector.

3. Attached the antenna

You can attach the proper antenna to the N-type connector on the Outdoor Radio.

To meet regulatory restrictions, the radio and the external antenna must be professionally installed.

4. Connect the ground stud

Connect the ground stud on the ODU enclosure with the ground wire.

This equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.

5. Connect the Power Cable

Connect the power adapter to the POE injector, and plug the other end of the electrical outlet (AC 110V~240V).

The polar of the circle connector is: 

6. Align the antenna by the earphone for your i-pod (Beeper)

This beeper function only works at point to point mode or station adapter mode (or CPE mode) in the AP to CPE application, plug the earphone adapter after remove the metal Vent and hear the signal level of the beeper for antenna alignment via earphone at CPE site.

You can hear different tempo of beeper in different signal strength，there are 5 signal levels totally, please refer to the following list.

Signal level	1(Min)	2	3	4	5(Max)
RSSI	-92~-88dBm	-87~-78dBm	-77~-63dBm	-62~-43dBm	-42~+10dBm
Tempo	1 beats/ 2sec	1 beats/sec	2 beats/sec	4 beats/sec	8 beats/sec

Beeper function in the plastic CAP for audible antenna alignment

Please screw the Membrane Vent well after finish the alignment for water-proof purpose.

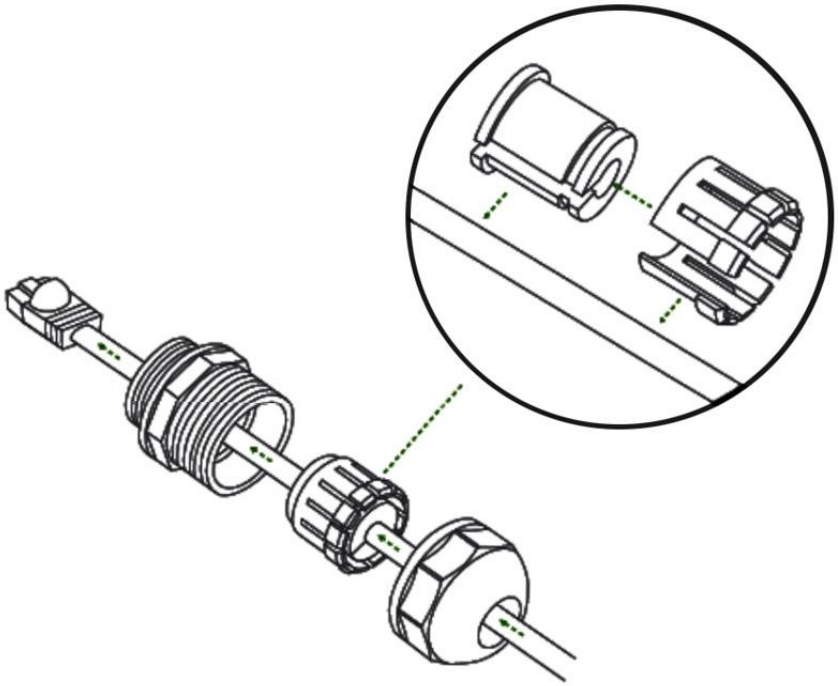
We cannot assume the responsibility for the damage from using with the other power adapter supplier.

You should read and follow the installation instructions carefully before connecting the system to its power source. The radio and power injector can be damaged by incorrect power application.

Wind the water-resistant adhesive tape around the RJ-45 and N-type connector on the outdoor radio as the last step of the hardware installtion procedures.

Appendix 1 — How to make the SFTP cable with waterproof connector between the radio and POE injector.

The waterproof connector was formed by 3 pieces components as the following exploded view:



Blow is the complete figure for reference: