








C23S Series Signal Repeater

User Manual



PLEASE KEEP APPROPRIATELY AND CAREFULLY READ THIS USER MANUAL BEFORE INSTALLATION

 <p>The power supply voltage of the repeater should meet the standards of security requirements.</p>	 <p>Ensure of grounding, waterproof and lightning protection when installing the repeater.</p>
 <p>The repeater should be installed and initiated by professionals.</p>	 <p>The user had better not dismantle the repeater to maintain or replace the components by himself/herself.</p>
 <p>Keep the repeater away from heat source and do not install it in a confined space.</p>	

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Package Contents



C23S repeater, 1pc



5V2A power adapter, 1pc



Installation screws, 1bag



U-shape back holder

Product Description

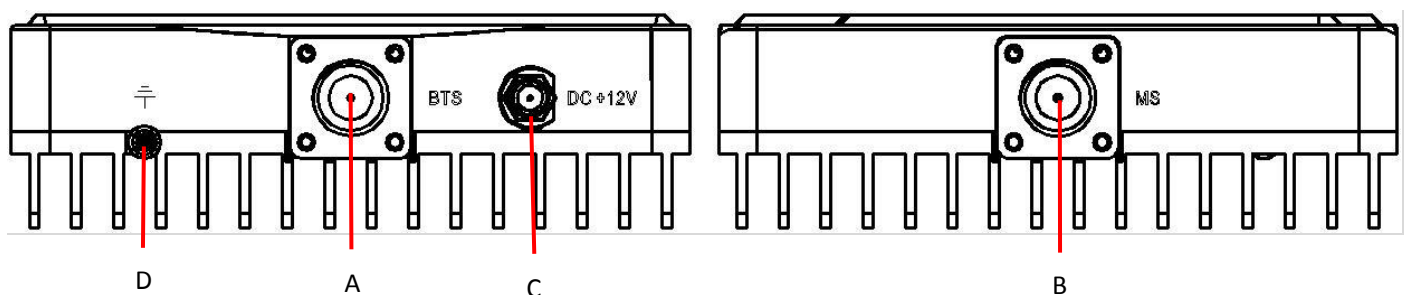
Amplitec C23S dual band series repeater adopts anti-interference, digital ALC, baseband synch and GPS synch technologies, supporting built-in or external antenna.

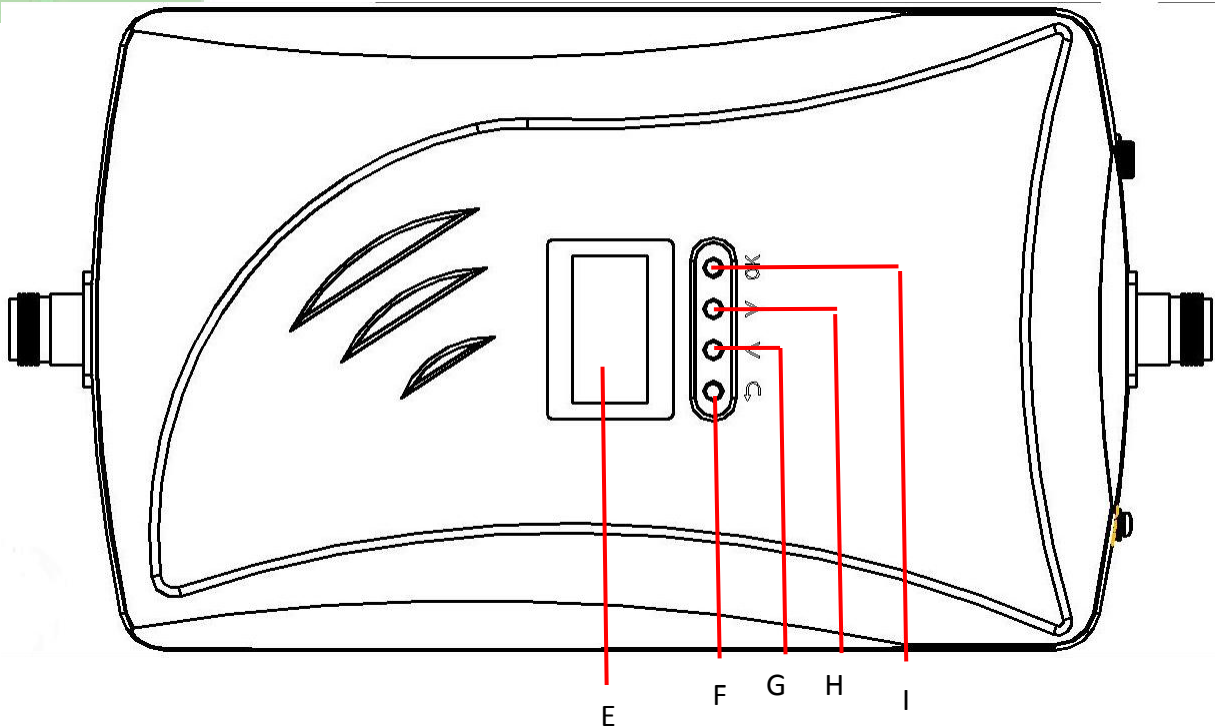
This model is equipped with LCD screen, to clearly display parameters and working status like the working frequency, gain, output power, ISO and ALC alarms. It is with compact size, elegant design, weight less than 1.1KG, which help to easy installation and maintenance.

Product Features

- Display shows all parameters clearly and the button function are more intuitively and faster
- Support dual band network for 2G 3G and 4G
- Low power consumption, low interference
- Digital ALC technology, could limit the output power to ensure stable coverage
- Anti-interference, auto isolation detection after start-up and auto self-oscillation elimination technologies can avoid self-oscillation, which cause interference to the base station
- Manual gain attenuation, with 1dB step to attenuate the gain among 1-31dB range

Connector Description





- A : Donor antenna port (N-female)
- B : Service antenna port(N-female)
- C : 12V DC power supply port
- D : Grounding screw
- E : Display screen
- F : Return button
- G : Upward button
- H : Downward button
- I : Select and confirm button

Operation and Display Description

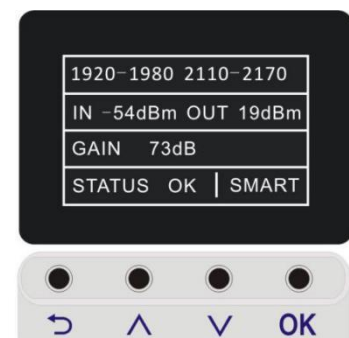
a. Functions on Control Panel:

Return button: Return to upper-level page

Up button: Go upward to select

Down button: Go downward to select

OK button: to select and confirm



b. Screen display

After power-on and starting running, the device will display working frequency on the main menu(The frequency below is just for reference. The actual working frequency of the device will be

customized as clients require.). It will scroll the working frequency, downlink input and output signal, gain and alarm on the screen. (As Figure 1)

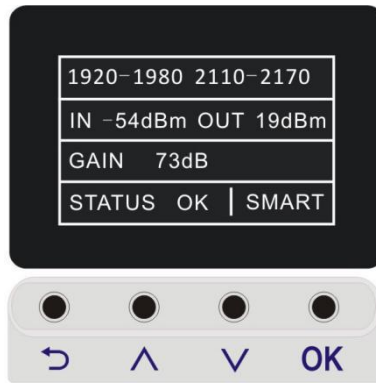


Figure 1

c. View the Working Frequency Bands

Press UP or DOWN button to move the cursor to the first line(as Figure 2). Then press OK button to check the working frequency(Figure 3). After that, press RETURN button to go to the home page.

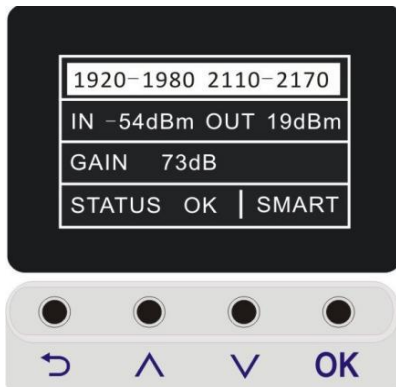


Figure 2

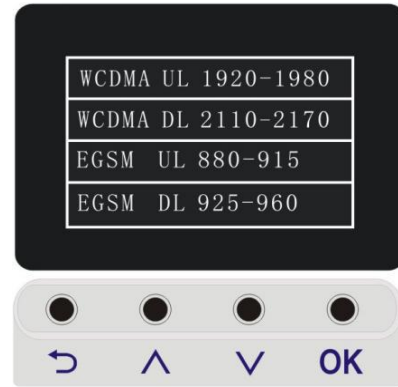


Figure 3

d. View the Output Power

Move the cursor the second line with the UP and Down button(as Figure 4), press OK button to check the real-time downlink input and output power(as Figure 5). After that, press RETURN button to go to the home page.

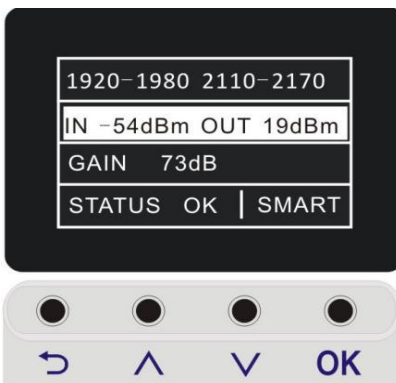


Figure 4

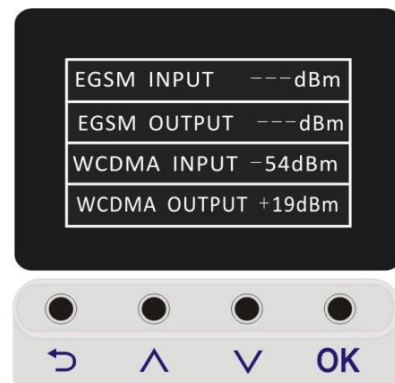


Figure 5

e. View the Gain

Move the cursor to the third line “GAIN” with UP or DOWN button (as Figure 6) from the home page, and press OK button to view the real-time gain (as Figure 7). Press the RETURN button back to the home page.

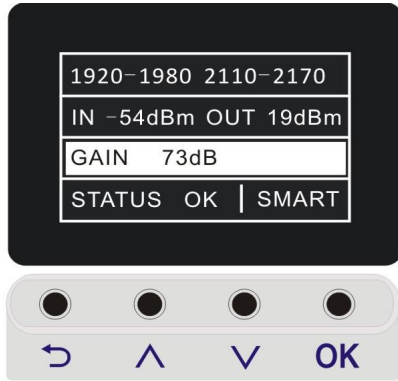


Figure 6

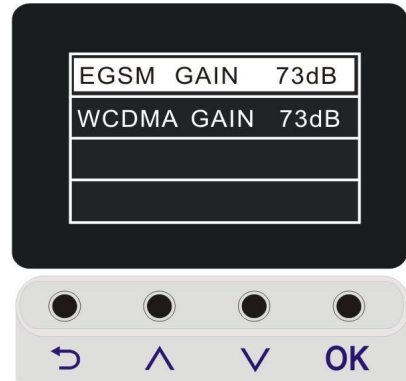


Figure 7

f. ATT Setting

The default is in Smart Mode, so it will automatically adjust the ATT and manual operation is not allowed; if you want to set ATT manually, please change it to Manual Mode by moving the cursor with UP or DOWN button to the forth line “STATUS”, then press OK (as Figure 8), then navigate the cursor to “MODE” (as Figure 9).

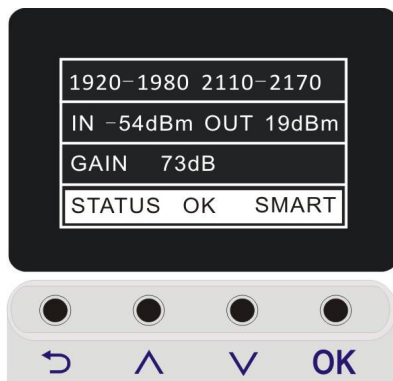


Figure 8

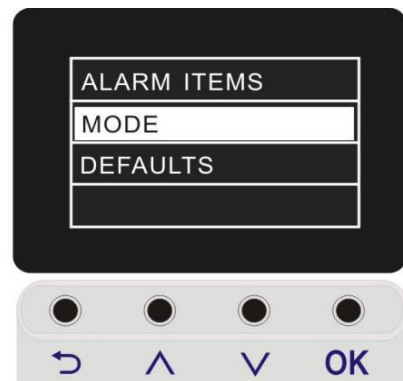


Figure 9

Press OK to enter, “SMART” is on the left side and “MANUAL” is on the right, select “MANUAL” with UP or DOWN button and press OK to confirm the setting (as Figure 10).

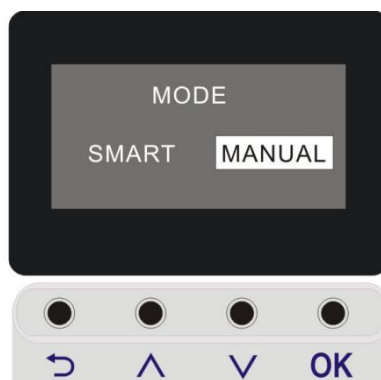


Figure 10

Then move the cursor to the third line “Gain ” with UP or DOWN button (as Figure 11), press OK to enter the ATT setting interface, then select one system, press OK button(as Figure 12).

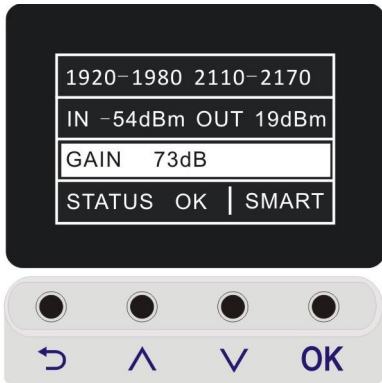


Figure 11

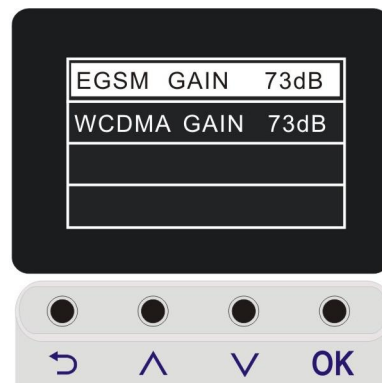


Figure 12

To increase or decrease the gain value, please press the UP or DOWN button (as Figure 13 and 14); Max. adjustment range is 31dB and the system’s uplink and downlink gain will be adjusted simultaneously. After adjustment, press the RETURN button back to the home page.



Figure 13

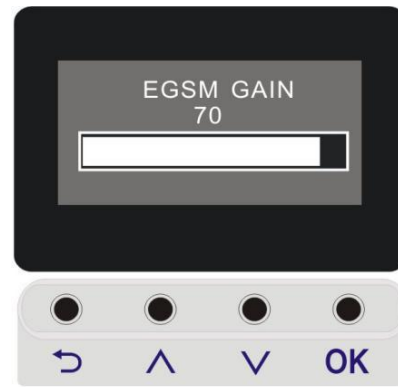


Figure 14

g. Alarm Check

Move the cursor to the forth line “STATUS” from home page, then press OK button to enter (as Figure 15), then navigate the cursor to “ALARM ITEMS” with UP or DOWN button (as Figure 16).

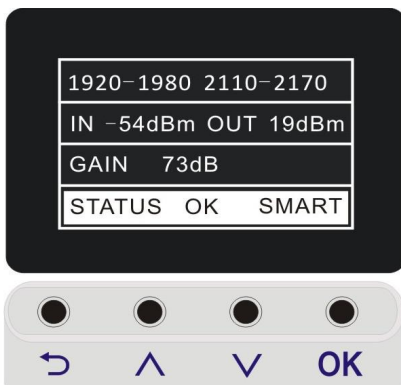


Figure 15

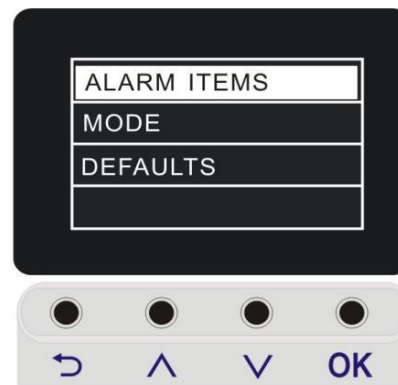


Figure 16

Then press OK to view, select AGC (as Figure17), press OK to view AGC alarm (as Figure18).

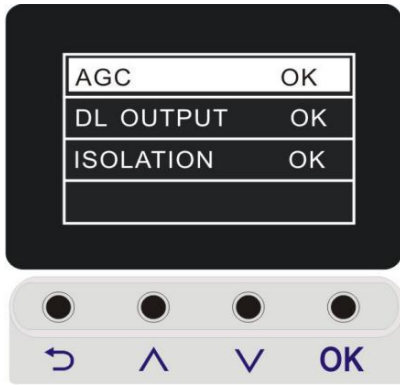


Figure 17



Figure 18

Select DL OUTPUT (as Figure 19), press OK button to view DL OUTPUT alarm (as Figure 20).

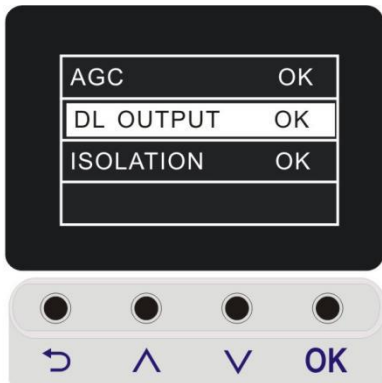


Figure 19



Figure 20

To remove alarm, if it is in smart mode, the device will make adjustment automatically after re-powering; if it is in manual mode, you should adjust the outdoor antenna and the gain manually, until the alarm is eliminated. If all is in OK status, that means it works normally. Press the RETURN button back to home page after adjustment.

h. Restore Factory Default

Move the cursor to the forth line “STATUS”with UP or DOWN button (as Figure 21), then press OK button to enter, then navigate the cursor to“DEFAULTS” (as Figure 22), press OK button to confirm restoring factory default; factory default is under Smart Mode.

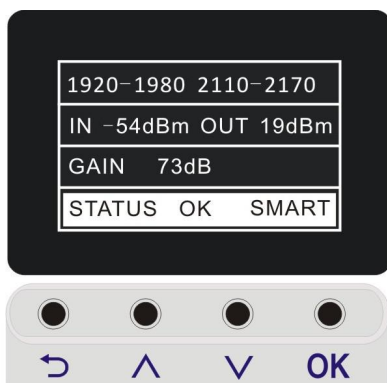


Figure 21

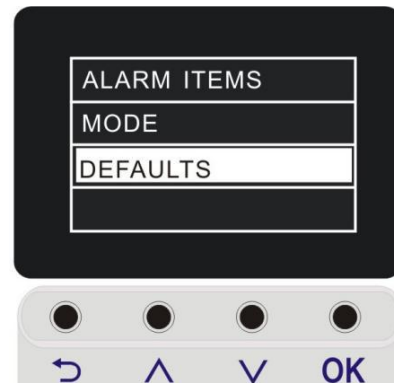


Figure 22

After factory default, it will detect isolation automatically. To view ISO, move the cursor to the forth line "STATUS", press OK button, and select "ISOLATION" (as Figure 23), then press OK button to view ISO (as Figure 24). After that, press the RETURN button back to home page.

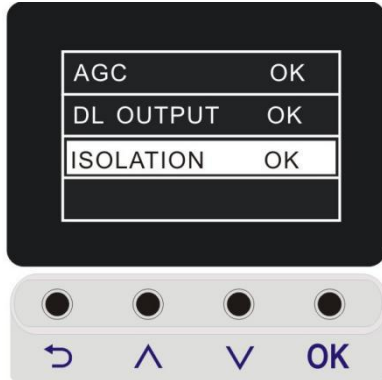


Figure 23

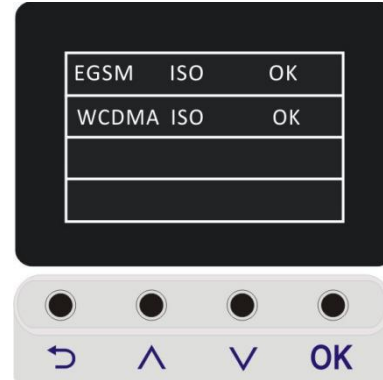


Figure 24

Technical Specification

Items		Uplink	Downlink
Frequency	Band 8	880 ~ 915 MHz	925 ~ 960 MHz
	Band 1	1920 ~ 1980 MHz	2110 ~ 2170 MHz
Output Power	Band 8	23±2dBm	23±2dBm
	Band 1	23±2dBm	23±2dBm
Gain	Band 8	73±2dB	73±2dB
	Band 1	73±2dB	73±2dB
Ripple in Band	Band 8	≤15dB	≤15dB
	Band 1	≤10dB	≤10dB
VSWR	Band 8	≤2	≤2
	Band 1	≤2	≤2
ATT step of 1dB (Band 8)	1 ~ 10dB	Δ ≤1dB	Δ ≤1dB
	10 ~ 20dB	Δ ≤1.5dB	Δ ≤1.5dB
	20 ~ 25dB	Δ ≤2dB	Δ ≤2dB
ATT step of 1dB (Band 1)	1 ~ 10dB	Δ ≤1dB	Δ ≤1dB
	10 ~ 20dB	Δ ≤1.5dB	Δ ≤1.5dB
	20 ~ 25dB	Δ ≤2dB	Δ ≤2dB
ALC Active 10dB		Δ ≤2dB	Δ ≤2dB
Intermodulation Products	Band 8(CW)	≤ -36dBc	≤ -36dBc
	Band 1(CW)	≤ -36dBc	≤ -36dBc
Spurious Emission	9KHz~1GHz	≤ -36dBm	≤ -36dBm
	1GHz~12.75GHz	≤ -30dBm	≤ -30dBm
Noise Figure	Band 8	≤8dB	≤8dB
	Band 1	≤8dB	≤8dB
Time Delay	Band 8	≤0.5μs	≤0.5μs
	Band 1	≤0.5μs	≤0.5μs
Power Supply		DC: +12V/2A	
Power Consumption		<20W	

Installation Guides

Installation Requirements

- 1) With Stable and independent power supply.
- 2) The repeater should be installed in the space without corrosive gas, smokes and leaky liquids.
- 3) The repeater should be installed on the wall that is ventilated, waterproof, lightning-proof and without sunshine.
- 4) The height of the installation site should be safe and easy for cabling, maintaining, dissipating heat.

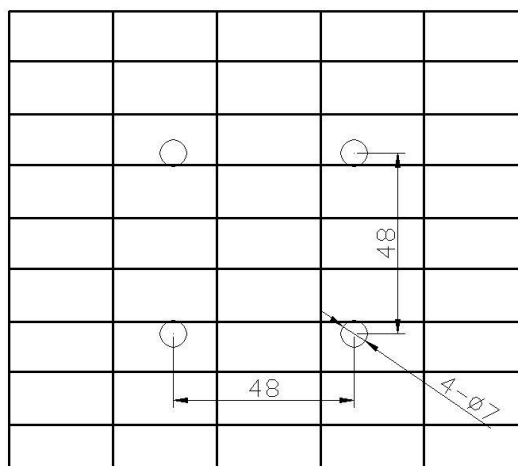
Installation tools

No.	Items	Q'ty	Remarks
1	Impact drill	1	Drill holes on wall, self-provided
2	Wrench	1	Reinforce the interface connection, self-provided
3	U-shape holder, expansion pipe and screws	4	Fix the device, included in the package
4	Mobile phone for testing	1	Test installation effectiveness, self-provided
5	Multimeter	1	Test voltage and wiring connection, self-provided
6	Screwdriver	1	Tighten or fasten the device, self-provided
7	Waterproof tape	A few	Prevent liquid from leaking into the feeder interface, self-provided

Installation Steps

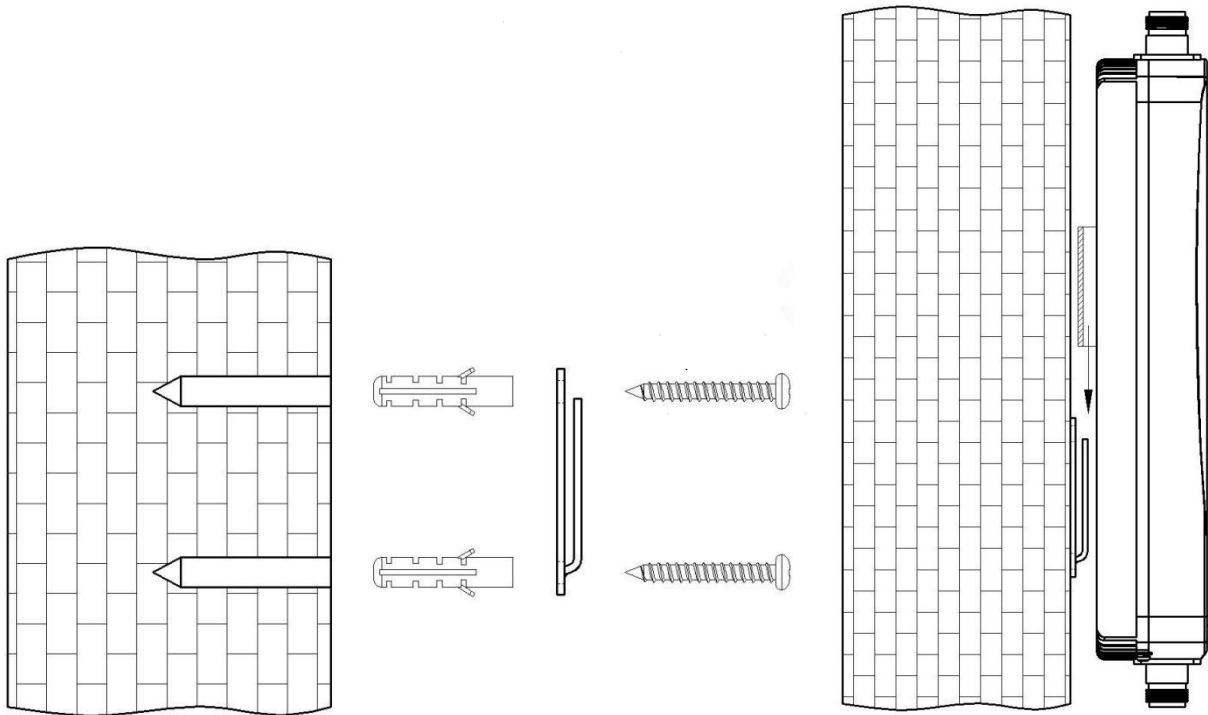
This repeater should be installed on a hard, firm and flat surface, its installation steps are as follows:

- 1) Select a proper installation site according to the size and installation requirements of the repeater.
- 2) Estimate and mark the sites of U-shaped back holder installation holes. Drill holes with the impact drill. Sizes of the holes are 7mm. The expected sites are as follow: (unit: mm)



3) Put the expansion plug(size: 8mm) into the 4 drilled holes.

4) As shown in the figure, align the fixing holes of the U-shaped back holder with corresponding holes on the wall. Then drive 4 pcs of M6*40 screws into the expand plugs with screwdriver. Finally, hang the repeater firmly on the U-shaped back holder.



Antenna Connection

Choose suitable outdoor and indoor antennas according to the characteristic of the coverage area. Installation and connection of the antennas should follow the requirements as following:

- 1) The outdoor antenna should be installed at the place with the strongest signal and aiming towards BTS.
- 2) The length of the cable, which connects the outdoor antenna and the repeater, should be less than 20 meters.
- 3) Wrap the waterproof tape around the connection part of the outdoor antenna and outdoor cable, keeping it away from water oxidation and corrosion.
- 4) The height difference between the indoor and outdoor antennas should be over 5m, and the transmit direction of indoor antenna should not aim at the outdoor antenna.
- 5) It will be better if there is a wall between outdoor and indoor antennas.
- 6) Outdoor antenna should connect to BTS port of the repeater, while indoor antenna to the MS port.

Starting

- 1) If possible, please wire up the grounding screw of the repeater to the ground wire of the power line.
- 2) Make sure the feeder cables between repeater and antennas are firmly connected.
- 3) Connect the DC plug of the 5V/2A power adapter to the DC+5V port of the repeater. Then put AC plug connecting to the nearby 220V power outlet.
- 4) Check if the repeater can work normally or not, by checking the operation parameters on the screen, according to the guides of the previous “Operation and Display Description” part.
- 5) Test the signal intensity and call quality with a mobile phone in the coverage area.

Maintenance

Operation and maintenance

- **Power supply**

Please make sure the voltage and frequency of AC power is in conformity with that of the repeater.

- **Component replacement**

Please do not maintain or replace the components by yourself, in case you may get an electric shock. Only authorized personnel can maintain or replace the components.

- **Waterproof and moisture-proof**

Please don't turn on the equipment in a humid environment.

Notes

Power-off is recommended in the following situations:

- Power supply is abnormal.
- Liquid flows into the device.
- Working conditions are abnormal such as overheating, strange smell or foreign matters
- Performance is decreased
- Too close to the fire

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