



**HUAPTec**

*We Improve Your Mobile Signal*

# User's Manual

F25K/F20K/F17K/F13K-5S

MADE IN HUAPTec

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## How it works

Hiboost F25K/F20K/F17K/F13K-5S is designed to help mobile users amplify weak signals of 2G,3G and 4G They are bi-directional amplifiers.

The donor antenna receives the signals from the cell tower, amplifies it, and transmits to the signal booster. Then the indoor antenna will receive the signal and retransmit it to your mobile device.

The signals produced by your phone are also amplified by the indoor antenna via the booster and donor antenna.

## Package contents



F25K/F20K/F17K/F13K-5S booster

Wide Band Yagi antenna

Indoor panel antenna



RF cables

Power supply 12V/3A

We will provide all accessories needed for the signal booster. For more information please visit [www.huaptec.com](http://www.huaptec.com)

### Optional antenna kits



Omni ceiling antenna

Outdoor ceiling mount dome antenna

Whip antenna

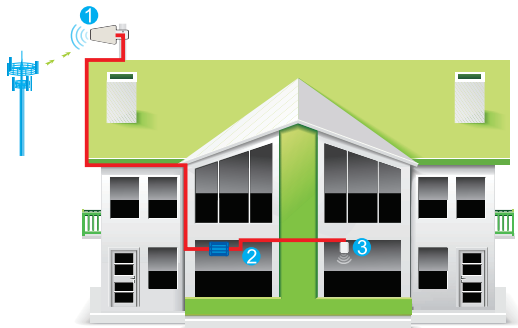
## Installing your hardware

### Before you install

- Make sure you have sufficient cable length between proposed donor/server antenna location and booster connector.
- Make sure the position you install the booster is near to one existing electrical outlet, and well ventilated, away from excessive heat, moisture, and direct sunlight.

### Installation overview

- Install your donor antenna on the roof where there is the strongest signal.
- Mount your signal booster, connect the cables to the signal booster from the outdoor antenna and indoor antenna at the designated ports, and connect the booster to the AC supply (make sure all the cables are connected).
- Install the indoor antenna where you want to improve the signal.



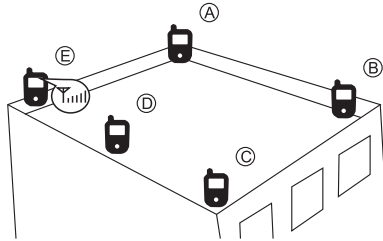
1. Wide Band Yagi antenna

2. Booster

3. Indoor Panel Antenna

### Find the area with the strongest signal

The booster's main function is to improve weak RF signals of an area. The signal strength from the outdoor antenna directly affects the efficiency of indoor coverage.



### Installing Outdoor Antenna

- Select a proper place to install the outdoor antenna.

Normally the roof of the building is a good choice. As shown from the above graph, you need test the signals from A to E, and select a place with best signal for installation.

- Select direction of outdoor antenna.

The outdoor antenna should point to the tower for better signals.

- Installation of outdoor antenna

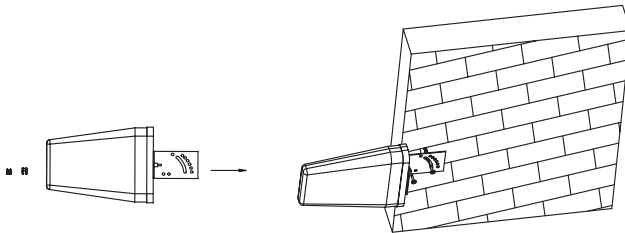
In most cases, Wide Band Yagi antenna is the best choice. You can also choose outdoor panel antenna or YAGI antenna as other options.

There are 2 types of installation: wall mount or pole mount. Wall mounts are recommended for your convenience.

Step1: Unscrew antenna from L-mounting bracket on antenna base with wrench.

Step2: Mount vertical plate of the L-bracket on the wall with supplied screws.

Step3: Screw antenna back onto horizontal plate.



#### Notes:

- wrap waterproof tape around the connectors between outdoor antenna and feeder lines to avoid water or other kinds of damage.

### **Installing Indoor Antenna**

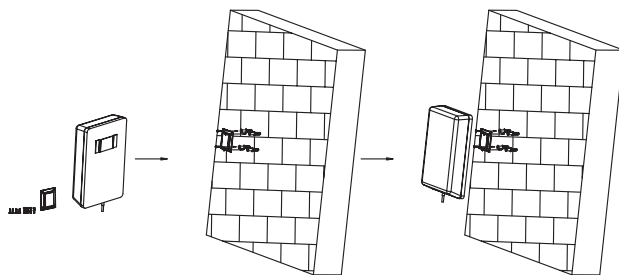
In most cases, Indoor panel antenna is the best choice. You can also choose omni-directional antenna as another option.

Step1: Select a place on a wall projecting the area where you want reception.

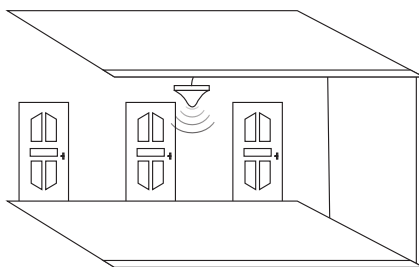
Normally, to provide an overall coverage, you will need to choose a corner.

Step2: Mount the bracket on the wall after drilling the screw to the wall.

Step3: Put the panel antenna on the bracket.



When you choose Indoor ceiling omni antenna or whip antenna, the best place to install it is the center of your house as the graph shows.



### **Installing the signal booster**

Step1: Select a location close to a power outlet on a wall.

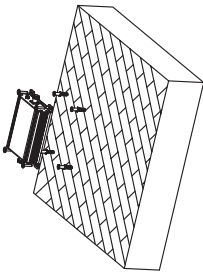
Step2: Mount the booster with the screws included as shown in the figure.

Step3: Connect the outdoor antenna cables to booster connector marked "outdoor". Tighten the connection with hand or wrench.

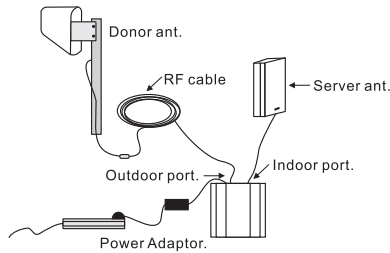
Step4: Connect the indoor antenna cables to booster connector marked "indoor". Tighten the connection with hand or wrench.

Step5: Connect the AC power cord to the signal booster, then connect the plug to the electrical outlet.

Step6: Power on the booster.



Booster installation



Connection from cable to Booster

### Booster Commissioning

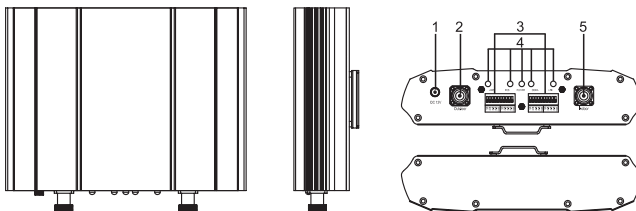
After powering on the booster, it will adjust automatically for good performance with **intelligent automatic gain control** function that doesn't need extra manual operation.

- If the power LED and the alarm LED are green which means the booster works properly. In this case, you can check the coverage, if it is good, the commissioning is finished. If not, you can adjust outdoor antenna location to get better signal strength, then move the indoor antenna to face directly the weak signal area.
- If the alarm LED is quick flashing green or quick flashing red, which means output power is over rated or self-oscillation happens, you can adjust the antenna to enhance the isolation which normally can be fulfilled by adding the distance or barrier between the outdoor antenna and indoor antenna. you need to adjust until the alarm LED turns green or slow flashing green which means the booster works properly.

If the alarm LED is still quick flashing green or quick flashing red, the MGC function can provide a help which is shown below.

### The booster's port description

The following image shows the key components of the booster. There are 4 parts, first part is connectors to the outdoor antenna and indoor antenna. Second part is power indicators, which will show the power status. Third part is alarm LED for each band. 4 LEDs to support AWS,PCS,CDMA,LTE separately. The forth part is DIP switch for MGC function. The following table and graph show the details.



- |                   |                        |                                 |
|-------------------|------------------------|---------------------------------|
| 1.Power connector | 2.Outdoor antenna port | 3.Gain attenuation DIP switches |
| 4.LEDs indicator  | 5.Indoor antenna port  |                                 |

## LEDs indication

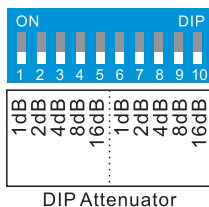
Status and definition of POWER indicators:

Status	Definition
Green	Normal
Off	DC power problem

Status and definition of ALARM indicators (only works for downlink signals):

Status	Alarm
	It is working in linearity.
Green	Warning: Input signals may be not enough, so please check on coverage effect, do not do anything if it is good, otherwise please increase input power level.
Slow Flashing Green	Working properly. (Full output power)
	Not working properly. (A little stronger input signals or slight self oscillation have occurred)
Quick Flashing Green	Solution: Please adjust antennas or slowly add the attenuation by MGC till find the "edge point" (I.E. the Alarm LED shall stay at green color, with intention of turning Slow Flashing Green), stop immediately when the LED color changes which can provide the best coverage.
Quick Flashing Red	There are strong input signals or severe self oscillation, Please check the troubleshooting to get solutions.

## Manual gain control (MGC)



DIP Attenuator

The DIP switches used for manually adjust their respective band gain attenuation When it is necessary.

Switches 1-5 control one band's attenuation. And 6-10 represent another band.

The DIP Switches have default 'OFF' status; please push relevant switches to "ON" position if certain attenuation value needs to be achieved.

The booster will work on its MAX. gain mode, in some cases, we don't need so big value. MGC function will help to provide a loss. For example, in the above image, 1 represent 1dB and 3 represent 4 dB, if you press both 1 and 3 button, you can get a loss of 1 dB plus 4 dB which is 5 dB loss. The principle is same for the four bands.



## Troubleshooting

Problem	Resolution
The signal booster has no power.	Check that the booster switch is turned on. Check that the AC outlet is working.
The booster's power is on but the phone is not connected into the network and still can not communicate.	Try to fasten the connections between the different parts of the system. Change the direction of donor antenna or its installation position. Use barriers (like buildings) to block signals of other operators.
Good downlink signal with poor communication quality	Check whether there's interference. Consult the operator whether the signal source base station works well.
The power is on but it has a signal fluctuation or a flash signal.	Firstly check whether the alarm LED is Quick Flashing Green. The Quick Flashing Green shows the insufficient isolation. Secondly adjust the antennas' directions or locations or enlarge the distance between them. Thirdly reduce the booster's gain by ATT DIP if the above methods don't work.

## FCC RF Exposure Statement

**WARNING.** This is **NOT** a **CONSUMER** device. It is designed for installation by **FCC LICENSEES** and **QUALIFIED INSTALLERS**. You **MUST** have an **FCC LICENSE** or express consent of an FCC Licensee to operate this device. Unauthorized use may result in significant forfeiture penalties, including penalties in excess of \$100,000 for each continuing violation.

## Notice

The Manufacturer's rated output power of this equipment is for single carrier operation. For situations when multiple carrier signals are present, the rating would have to be reduced by 3.5dB, especially where the output signal is re-radiated and can cause interference to adjacent band users. This power reduction is to be by means of input power or gain reduction and not by an attenuator at the output of the device.

La puissance de sortie nominale indiquée par le fabricant pour cet appareil concerne son fonctionnement avec porteuse unique. Pour des appareils avec porteuses multiples, on doit réduire la valeur nominale de 3,5 dB, surtout si le signal de sortie est retransmis et qu'il peut causer du brouillage aux utilisateurs de bandes adjacentes. Une telle réduction doit porter sur la puissance d'entrée ou sur le gain, et ne doit pas se faire au moyen d'un atténuateur raccordé à la sortie du dispositif.

## Specifications

UL Frequency Range(MHz)	704-716 / 776-787 / 824-849 / 1850-1910 / 1710-1755
DL Frequency Range(MHz)	734-746 / 746-757 / 869-894 / 1930-1990 / 2110-2155
Supported Standards	CDMA,WCDMA,GSM,EDGE,HSPA+,EVDO,LTE And all cellular standards
Bandwidth	Wide band
F13K-5S Max. Gain	68dB(UL)/70dB(DL)
F17K-5S Max. Gain	68dB(UL)/68dB(DL)
F20K-5S Max. Gain	68dB(UL)/70dB(DL)
F25K-5S Max. Gain	71dB(UL)/72dB(DL)
F13K-5S Nominal passband gain	62~68dB/63~68dB/62~68dB/50~68dB/64~68dB(UL) 59~68dB/58~68dB/58~70dB/49~70dB/60~70dB(DL)
F17K-5S Nominal passband gain	62~68dB/63~68dB/62~68dB/50~68dB/64~68dB(UL) 60~68dB/58~68dB/57~68dB/48~68dB/60~68dB(DL)
F20K-5S Nominal passband gain	62~68dB/63~68dB/62~68dB/50~68dB/64~68dB(UL) 67~70dB/65~70dB/67~70dB/57~70dB/67~70dB(DL)
F25K-5S Nominal passband gain	62~68dB/63~68dB/62~68dB/50~68dB/64~71dB(UL) 67~72dB/65~72dB/67~72dB/57~72dB/67~72dB(DL)
F13K-5S Max .Output Power	24 dBm(UL)/18dBm(DL)
F17K-5S Max .Output Power	24 dBm(UL)/17 dBm(DL)
F20K-5S Max .Output Power	24 dBm(UL)/20dBm(DL)
F25K-5S Max .Output Power	24dBm(UL)/ 24dBm(DL)
MGC (Step attenuation)	31dB/1dB step
Automatic Gain Control	≥31dB
Indicator	Power LED and ALC LED
I/O Port	N-Female
Impedence	50ohm
Environment Conditions	IP40
Dimensions	8.6*6.5*2inch /218*165*50mm
Weight	≤5.5Lbs. / 2.5Kg
Power Supply	Input AC100~240V,output DC12V / 3A

The maximum indoor gain is 9.5dBi;

The maximum outdoor gain is 9.5dBi.

**FCC Caution:**

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

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment .This equipment should be installed and operated with minimum distance 30cm between the radiator& your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

**Notice:**

When this device operating in the 1710-1755 MHz band,the maximum antenna should be fixed height of 10 meters above ground. To meet FCC EIRP limit, the of antenna used with this amplifier must be offset by cable loss.