4G Antenna Enhancement Kit Technical Brief - AU/NZ

Introduction

In rural or regional areas, unstable 4G networks may cause connection dropouts and commissioning failures for the FranklinWH System. To improve signal strength and ensure reliable communications, we recommend using a 4G LTE antenna with 50-ohm RF coaxial cables for optimal impedance matching and minimal signal loss.

In locations with no mobile network coverage, alternative communications methods, such as Ethernet or Wifi, should be considered for system connectivity.

aGate 4G Band Information for Australia and New Zealand

Technology	Compatible Bands	Frequency Range (Downlink/Uplink)
LTE-FDD	B1	1920-1980 MHz/2110-2170 MHz
	B2	1850-1910 MHz/1930-1990 MHz
	B3	1710-1785 MHz/1805-1880 MHz
	B4	1710-1755 MHz/2110-2155 MHz
	B5	824-849 MHz/869-894 MHz
	B7	2500-2570 MHz/2620-2690 MHz
	B8	880-915 MHz/925-960 MHz
	B28	703-748 MHz/758-803 MHz
LTE-TDD	B40	2300-2400 MHz

Recommended Antenna Kits

Two antenna kit options are recommended to accommodate different installation and procurement requirements.

Product Models	Gain	Impedance	Frequency Range	Connector Type
Bingfu 4G LTE Outdoor Wall Mount Antenna	5 dBi	50 ohm	698-960 MHz, 1710-2170 MHz, 2300-2700 MHz	SMA male
Bingfu 4G LTE MIMO Magnetic Base Antenna	6 dBi	50 ohm	698-960 MHz, 1710-2170 MHz, 2300-2700 MHz	SMA male

Safety Preparations

DANGER

Please make sure that the FranklinWH System is powered off before maintenance. High voltage exists during the normal operation of the equipment, which may cause electric shock, serious personal injury, death, or property loss.

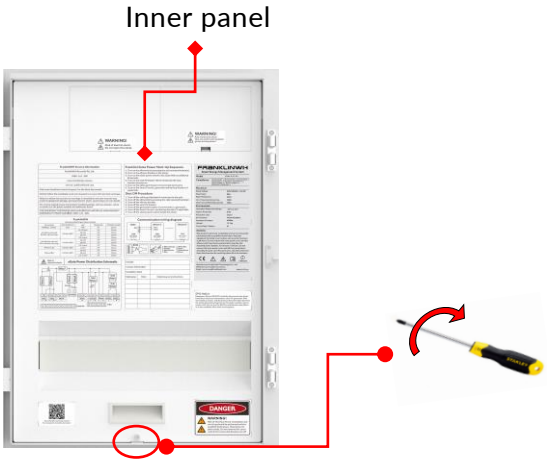
- Before operations, turn off all breakers and de-energize the aGate and aPower.
- Use a multimeter to verify 0 V at all terminals before proceeding.
- Wear appropriate PPE for personal safety.

Installation Procedure

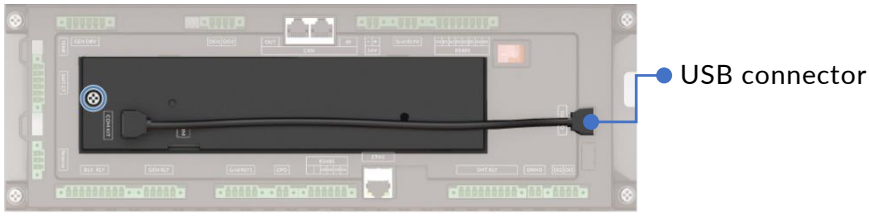
Remove the Factory-Installed 4G Antenna

Step 1. Open the aGate door and lift upwards to remove it.

Step 2. Use a Phillips screwdriver to loosen the screw and remove the inner panel.



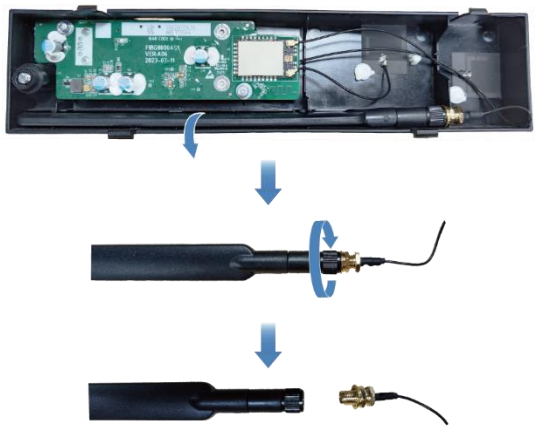
Step 3. Use a Phillips screwdriver to remove the M5 captive screw. Unplug the USB connector from the **Com Kit** port.



Step 4. Gently press the tabs and pull the 4G module assembly upwards to remove it from the EMS.

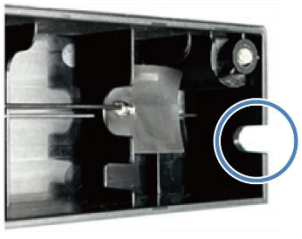
Step 5. Flip the 4G module assembly over with the 4G antenna facing up. Then, remove the 4G antenna. Use pliers to unscrew the plug connector to detach it.

***Note**: Avoid pulling the antenna cable with excessive force to prevent damage.*



Step 6. Use diagonal pliers to cut an opening on the side of the 4G module assembly cover for routing the new antenna cable.

***Note**: Be careful not to apply excessive force, as it may break the cover.*

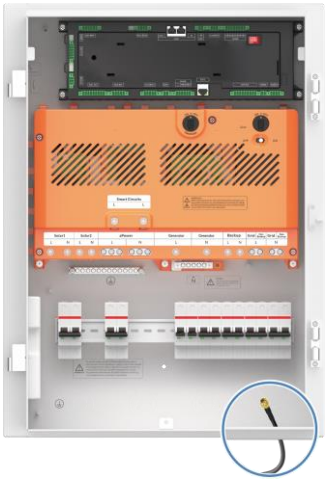


Prerequisites for New Antenna Installation

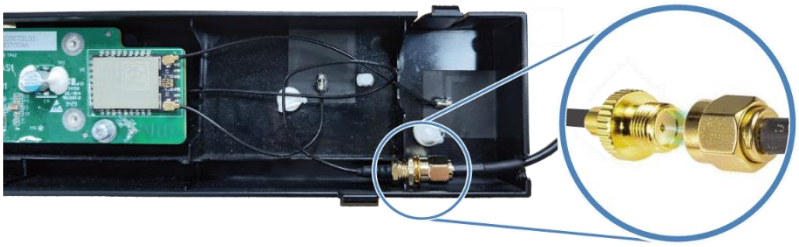
Drill a suitably sized cable access hole at the bottom of the aGate. Then install an appropriate conduit in the prepared hole. Do not drill holes on the sides or top of the aGate.

Install the 4G Enhancement Antenna Kit

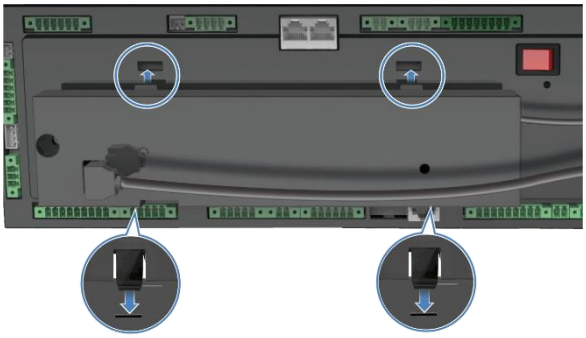
Step 1. Feed the antenna cable through the conduit and into the cable entry point. Neatly route it along the chassis.



Step 2. Screw the enhancement antenna's SMA male connector to the TS9 adapter. Securely snap the connector joint into the slot on the 4G module assembly. Then, route the antenna cable outward through the opening.



Step 3. Reinstall the 4G module assembly by aligning the two small tabs with the slots and inserting them until fully engaged. Then, press the 4G module cover until the two tabs on the other side click into place.



Step 4. Reconnect the USB connector and tighten the screw to secure the 4G module assembly.

Step 5. Apply waterproof sealant around the cable entry point to form a watertight seal and prevent moisture ingress.

Step 6. Complete the antenna kit installation by following its instructions.

Step 7. Reinstall the aGate inner panel and aGate door.