

## AT211 Installation Guide

### Generic Installation Recommendations:

- Devices should be configured for SIM and platform, details entered on the platform and tested to confirm configuration BEFORE being sent for installation
- Before starting, check the vehicle:
  - Make note of any fault warning lights or codes displayed on the vehicle dashboard
  - Measure the parasitic battery drain current (ignition off)
- Devices and antennas should be securely mounted, so they cannot work loose
- If double-sided tape is being used to mount devices and/or antennas, surfaces should be flat and cleaned / de-greased with IPA before mounting
- Antennas and/or devices should not be mounted in close proximity to loudspeakers
- All connections should be soldered, using a gas-powered or battery-powered soldering iron
- Mains-powered or vehicle-powered soldering irons should never be used
- IDC crimps and any other form of insulated crimp connector should not be used
- Device permanent power should be taken directly from the battery or main battery feed, to avoid problems with current drain being detected by the vehicle ECU
- Ignition sense feed should be taken from an auxiliary or accessory circuit which goes live only when the vehicle ignition is on. For example, the auxiliary power socket or cigarette lighter socket is often a good choice
- Where the immobiliser feature is used, the relay should be fitted in the starter motor solenoid circuit, to prevent starting of the vehicle, NEVER in any manner that can prevent running mid-journey
- Immobiliser relays should be installed using the NORMALLY CLOSED contacts, to ensure that any failure in the device, wiring or configuration does not prevent starting of the vehicle (fail-safe mode)
- Full diagnostics should be completed before replacing panels and leaving the vehicle

### Recommended Tools and Consumables:

- Butane gas or battery-powered soldering iron
- Cables ties (various widths and lengths)
- Double-sided foam adhesive tape (e.g. TESA 62936)
- Self-amalgamating insulating tape, fabric type (e.g. TESA 51608)
- IPA degreasing wipes, or IPA solvent and paper towels
- Craft knife
- Heat-shrink sleeve (various diameters)
- Side cutters (fine/sharp)
- Spare ATO fuses, 1A
- Volt meter
- Clamp meter

## AT211 Installation Procedure

### 1. Check that the back-up battery is fitted and plugged-in:

- a. Each AT211 is supplied with a 450mAh back-up battery, which should be fixed to the PCB and connected as shown below:



- b. Do not attempt to remove the battery from the cover, once it has been stuck down, as prising or bending could lead to explosion/fire and smoke.

### 2. Slide the SIM into the holder:

- a. Note that the AT211 will power-up when the SIM is inserted

### 3. Note the LED status Indicators:



Mobile network communication status (BLUE)

GNSS fix status (GREEN)

GNSS Status (green):	Constant ON Double Flash @ 1Hz Slow Flash @ 0.2Hz	Searching for initial fix GPS 3D navigation Lost GPS navigation
COMM Status (blue):	200 ms ON / 1800 ms OFF 1800 ms ON / 200 ms OFF Constant OFF	ON / SEARCHING registered on network Modem OFF

During normal operation the LEDs should appear as below:

GNSS	double flash once per second
GSM	stays ON and blinks OFF every 2 seconds

#### 4. Fit the DB9 Cable

- a. Connect the sealed DB9 cable and tighten the jack-screws finger tight, until the seal is compressed against the enclosure end panel

#### 5. Hook up the electrical connections

- a. Connect the BLACK wire to GND and the RED wire to a PERMANENT +12V/+24V vehicle power source via a 3A fuse. Connect the ignition sense input (Digital 1) to an ignition switched 12/24V signal (i.e. something that only goes live when the vehicle ignition is ON) via a 3A fuse

i. RED	+12 / +24V	1A FUSED
ii. BLACK	GROUND	1A FUSED
iii. WHITE	IGNITION	1A FUSED

- b. We recommend that all connections should be soldered to ensure reliable terminations. Crimps and IDC type terminations can be unreliable if used with the wrong tooling and/or wires sizes.
- c. All unused wires should be insulated to avoid undesired behaviour.

#### 6. Connect the iButton Probe (if required)

- a. Fit the IB001 iButton probe in the desired position on the vehicle dashboard (requires drilling a hole) and then connect to the matching connector on the CB213 standard cable (accessories are not supported using the basic 3-way cable).



- b. Please refer to the Driver ID Application Note for more information regarding the use and configuration of iButton options and recommended iButton accessories.

## 7. Fit the external GNSS antenna (if required)

- a. The AT211 has an internal GNSS antenna, so an external antenna is not required in most cases, but if the device is mounted in a location with poor GNSS visibility, an external antenna can be used. If this is required, remove the cover from the GNSS antenna connector (adjacent to the DB9) and plug in the AE005 GNSS active patch antenna.
- b. To maintain the IP67 sealing, it is necessary to seal the GNSS antenna connector (after it has been connected) by covering with silicone sealant or similar.
- c. If the external GNSS antenna is not used, please leave the sealing cover in place.

## 8. Verify that the status LEDs are indicating normal behaviour (see 3 above)

## 9. Slide the AT211 assembly into the enclosure

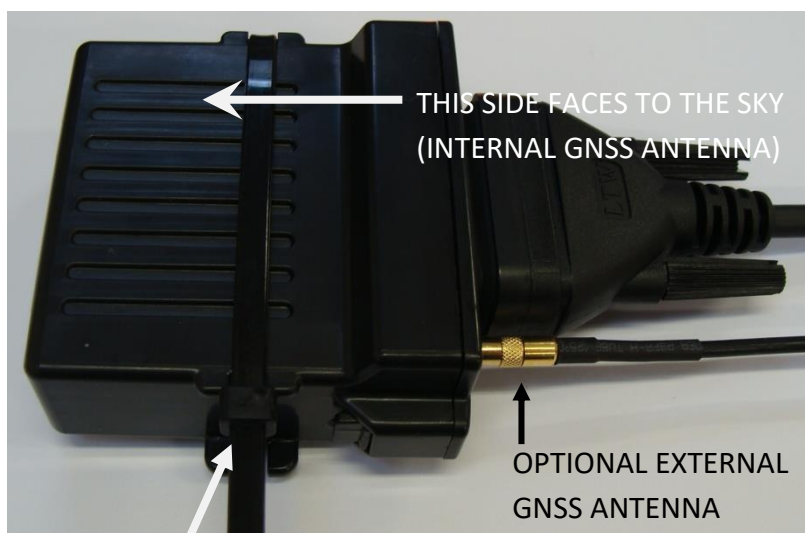
- a. Note that the GNSS antenna faces the top of the enclosure (with the slots)



- b. Ensure that the PCB is aligned with the guide slots inside the enclosure and carefully push in until the clips snap together

## 10. Mount the AT211 under the vehicle dashboard

- a. Choose a position towards the top of the dashboard and as far forwards as possible to give the optimum view of the sky through the vehicle windscreen
- b. There must be no conductive objects between the AT211 and the windscreen (i.e. nothing metallic, foil or carbon based)
- c. Secure the AT211 to a flat surface with double sided foam adhesive tape, being sure to degrease the vehicle side with an alcohol wipe. If practical, the AT211 can be screwed in place using the two mounting lugs or secured with a tie wrap.
- d. Make a note the device orientation with respect to the vehicle (e.g. DB9 connector facing rear of vehicle) as this may be required later to set ORTN parameter for correct interpretation of accelerometer data for driver behaviour. Refer to the AT211 User Guide and the Driver Behaviour Application Note for more details.



TIE WRAP MOUNTING (max width 5mm)

## 11. Check Status and Commission Device

- a. Before replacing panels and leaving the vehicle, we STRONGLY recommend that you confirm normal operation and good communication, using either method below:
  - i. Calling the service provider to check that the device is online, confirming external power, GNSS, GPRS and driver ID status.
  - ii. Send \$TEST to the device by SMS and confirm the response.
    1. Confirm device IMEI is as expected
    2. Confirm power connection and availability (should be near 100%)
    3. Confirm GNSS (GPS) status and availability (should be near 100%)
    4. Confirm GSM status and availability (should be near 100%)
    5. Confirm all other status checks are "OK"
    6. Confirm correct reporting of IGNITION state
    7. Confirm correct operation of immobiliser (if fitted)
  - iii. Any exceptions to the above should be addressed before leaving the vehicle
  - iv. Please refer to the OTA Device Test application note for further details and examples of \$TEST command responses and advice on interpretation / handling of errors.

Example \$TEST command response:

```
TEST:AT211
7.0.52.0
357322042745742
02 UK
PWR:12.5V (100%)
BAT:100% (NC)
GPS:OK (95%)
GPRS:OK (98%)
APN:OK
SKT:OK
ACK:OK
IGN:OK (OFF)
IMOB:OFF
```