astra telematics

AT300 Installation Guide

Astra Telematics 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 with 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)
- We recommend keeping notes of the installed astra device location for each installation and consider also taking a photo for verification of appropriate device location and mounting.
- Full diagnostics should be completed before replacing panels and leaving the vehicle (see last page)

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

AT300 Installation Procedure

1. **Check that the back-up battery is fitted and plugged-in:**
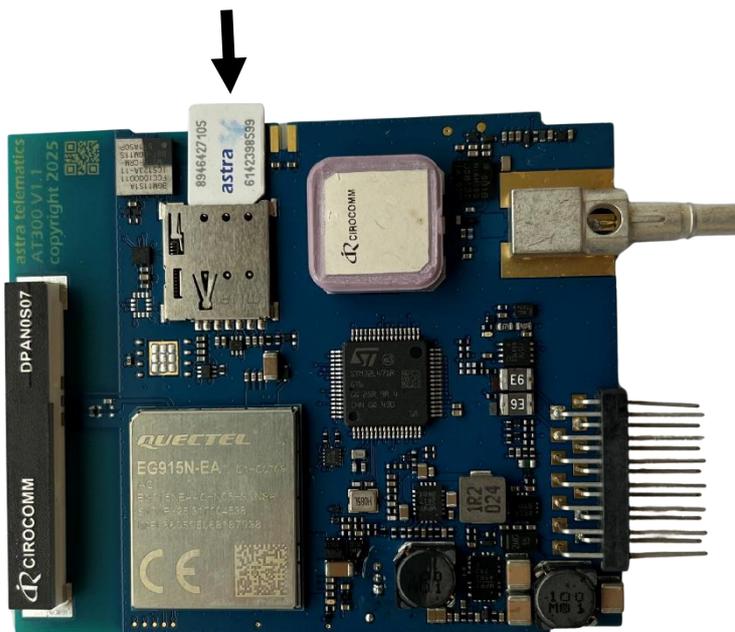
   Each AT300 is supplied with a 900mAh back-up battery, which should be fixed to the PCB and connected as shown below:

   Do not attempt to remove the battery from the board, once it has been stuck down, as prising or bending could lead to fire and toxic smoke.

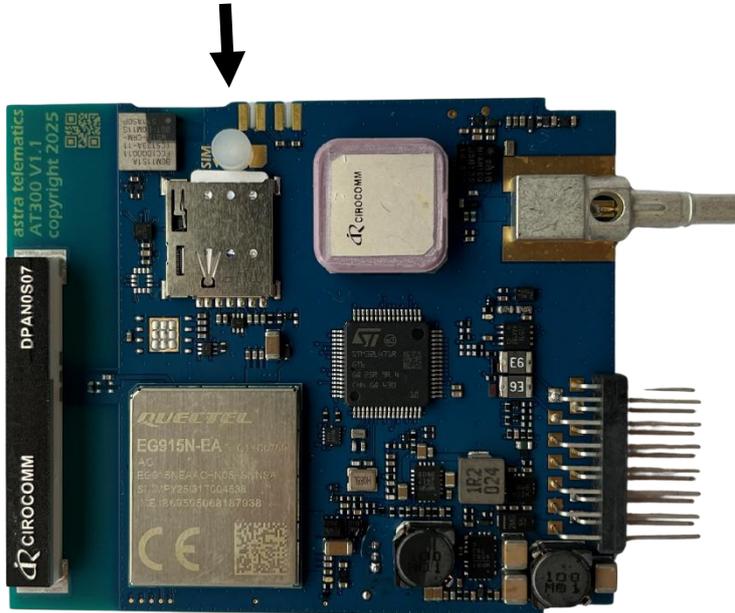2. **Insert the nano SIM (4FF format) into the holder:**

   Insert the SIM (note orientation) until it clicks into position

   Note that the AT300 powers up when the SIM is fitted

3. For high shock & vibration applications, a retainer peg can be used to secure the SIM into position:

A suitable part is PST-2-01 from Essentra Components (also available from Astra Telematics)

4. Check GNSS and LTE status LEDs

Place the AT300 somewhere with clear view of the sky in correct orientation for a minute or two, and then check the status LEDs as below:

GNSS Fix Status

GSM / LTE Comms Status
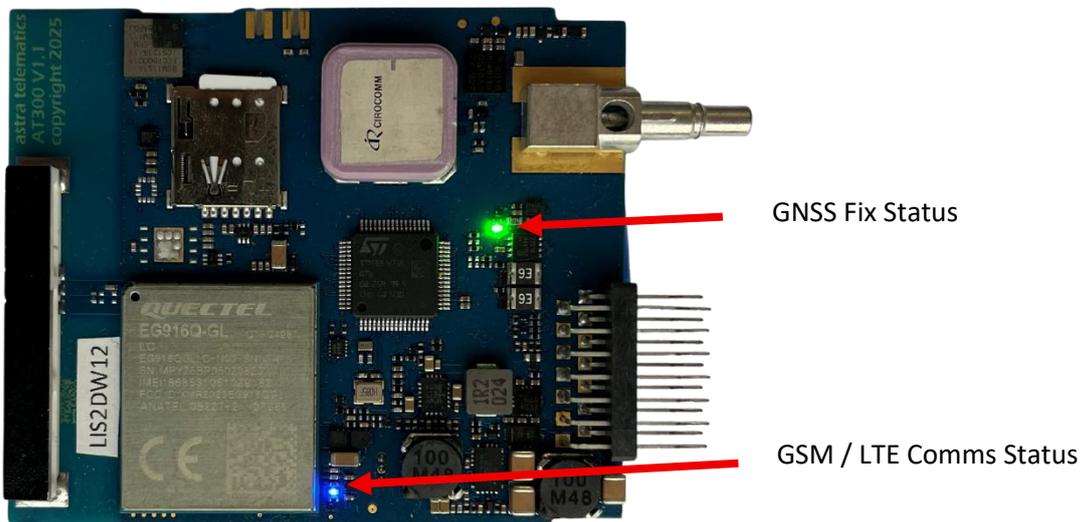
During normal operation the LEDs should appear as below:

GNSS	double flash once per second
LTE	ON for 1.8s and OFF for 0.2s
NOTE:	GNSS Rapid Flash indicates test mode – please contact astra support

5. After normal GNSS and GSM / LTE status are confirmed, slide the AT300 into the enclosure

Note orientation – GNSS antenna on top

Press the end-panel firmly until it clicks into place:

6. Fit the CB303 plug & play cable

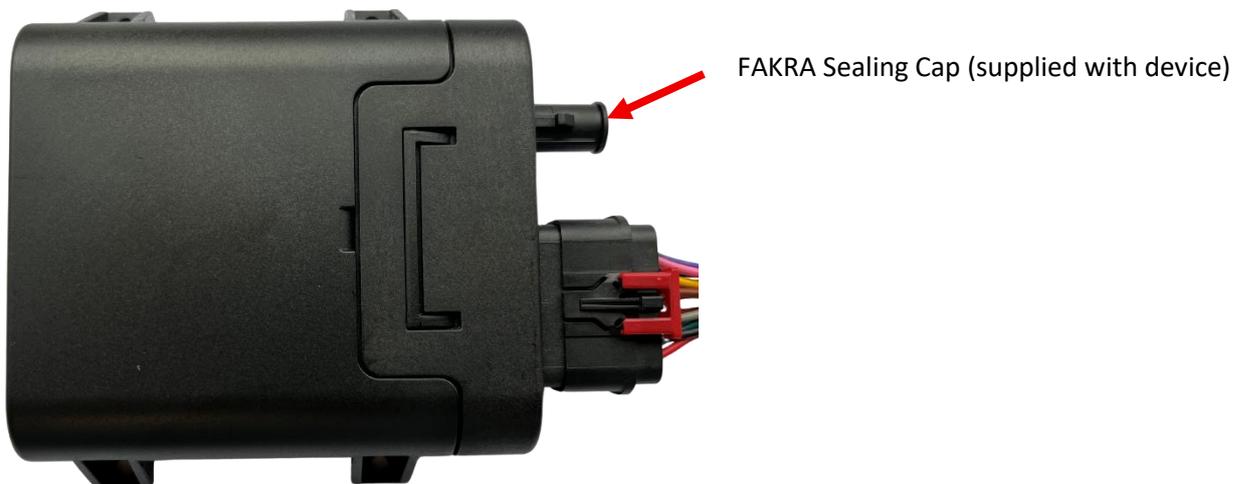Push cable until it clicks into place

7. If the external GNSS antenna is being used:

Connect the GNSS antenna using Astra Telematics PN AE300, with sealed FAKRA connector

8. If the external GNSS antenna is NOT being used:

Ensure that the sealing cap is fitted to the GNSS FAKRA connector of the AT300 device, to avoid water ingress.

FAKRA Sealing Cap (supplied with device)

9. Hook up the power and ignition electrical connections

Connect the RED and BLACK wires to a PERMANENT +12V/+24V vehicle power source. 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)

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

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.

All unused wires should be left insulated to avoid undesired behaviour.

10. Fit the IB001 iButton Probe (optional)

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 CB303

11. Fit the CC001 CAN-click adapter (optional)

Fit the CC001 contactless CAN-click adapter to the CANH and CANL wires and then connect the other end to the matching connector on the CB303

12. Fit the CB242 OBD adapter cable (optional)

Our CB242 OBD cable provides 2 options for J1962 CANH and CANL termination:

Pins 6 and 14   as per the J1962 standard (if unsure, we suggest you try this one)
Pins 1 and 9   as implemented by some vehicle manufacturers

Plug the CB242 OBD cable into the vehicle OBD socket and then connect the other end (marked "CAN 1&9" or "CAN 6&14") to the matching connector on the CB303 cable

13. Fit the BZ001 buzzer (optional)

Plug the BZ001 external buzzer into the matching connector on the CB303 cable

14. Mount the AT300 in the vehicle / machine

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

NOTE: Correct SKY SIDE orientation of the device is achieved when the mounting feet are facing down

SKY SIDE FACING UP

There must be no conductive objects between the AT300 and the windscreen (i.e. nothing metallic, foil or carbon based)

Secure the AT300 to a flat surface with double sided foam adhesive tape, being sure to degrease the vehicle side with an alcohol wipe. If practical, the AT300 can be screwed in place using M4 fasteners.

Make a note the device orientation with respect to the vehicle (e.g. 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 AT300 User Guide and the Driver Behaviour Application Note for more details.

15. Check Status and Commission Device

Before replacing panels and leaving the vehicle, we STRONGLY recommend that you confirm normal operation and good communication, using either method below:

Call the service provider to check that the device is online, confirming external power, GNSS, LTE communications, CANBus and driver ID status.

OR

Send $TEST to the device by SMS and confirm the response.

- Confirm device IMEI is as expected
- Confirm power connection and availability (should be near 100%)
- Confirm GNSS status and availability (should be near 100%)
- Confirm LTE communication status and availability (should be near 100%)
- Confirm all other status checks are "OK"
- Confirm correct reporting of IGNITION state
- Confirm presence of CAN data (if fitted)
- Confirm correct operation of immobiliser (if fitted)

Any exceptions to the above should be addressed before leaving the vehicle

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:AT300
7.0.78.0
357322042745742
O2 UK
PWR:12.5V (100%)
BAT:100% (NC)
GNSS:OK (95%)
GPRS:OK (98%)
APN:OK
SKT:OK
ACK:OK
IGN:OK (OFF)
CAN:OK
IMOB:OFF
```

We recommend keeping records of device installation location and verification of appropriate mounting, orientation and location by photo.

16. Troubleshooting

If you have any problems, questions or if you suspect a product failure / malfunction, please contact Astra Telematics technical support:

support@astratelematics.com
+44 161 826 8800