

# Installation guide FAMA OBD

## ADD-I-049-02

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### MODIFICATIONS

Version	Editor	Date	Chapter	Amendments by revision
00	Application Team	08/29/2022	-	00a / Document creation
		01/19/2023	General System Wiring	00b / AE and MM validation
		05/13/2023		00c/ Add FAMA OBD wiring
		05/16/2023	p42	00d/ Add parts 13 and 14 (Warnings)
		05/16/2023	All	00e / AE validation
01	Charlotte MASSON Aubin SENECHAL	05/16/2023 02/20/2024	All 13.1, 13.2	01/ CM approval 01a/ Add subsections for FCC RF exposure statements of inner modules
	Alexis LATHIERE	02/20/2024	13.1, 13.2	01b/ AL review
02	S��l��na RAVETTA	22/02/2024	13.1, 13.2	02/ SR approval



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## **Description**

This document describes how to install and program an OBD FAMA on a GSE.

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## 1 Composition of the installation kit

<p><b>FAMA OBD</b></p>			
<p>Main cable (22pts)</p>			
<p>HID reader</p>			
<p>Patch antenna Radio/GNSS</p>			
<p>Key contact (Shunt)</p>			
<p>Car relay (14 VDC)</p>			

Buzzer	
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Table 1: Installation Kit Composition

## 2 System wiring

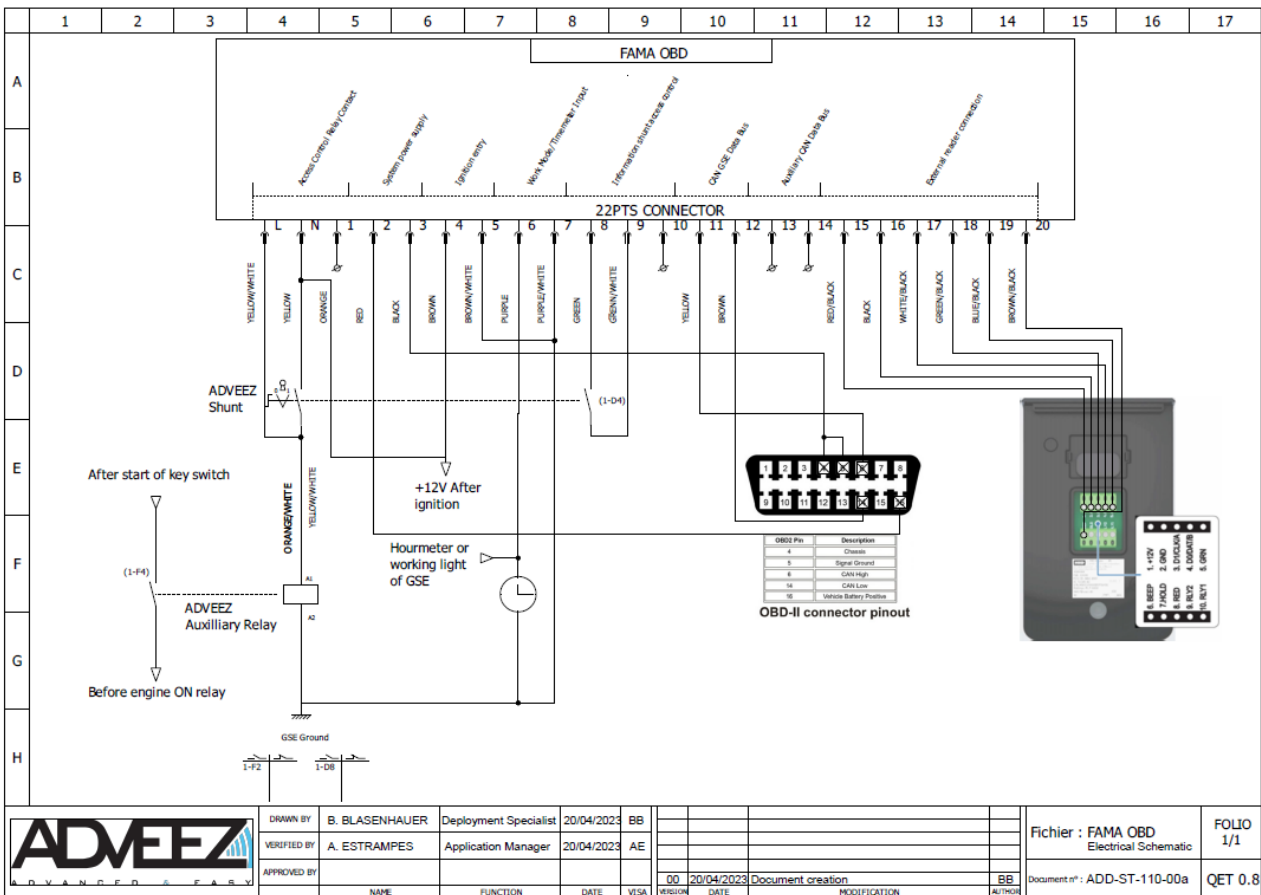


Figure 1: FAMA OBD wiring



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NAME		FUNCTION	DATE	VISA

Fichier : FAMA OBD	FOLIO
Electrical Schematic	1/1
Document n° : ADD-ST-110-00a	QET 0.8

## 2.1 Main cable

OUTPUT WIRING CHART					Designation	Connection	Specification
L	AWG22	CT	ORANGE	WHITE	Access Control relay contact	Start contact	Contact normally open and closed Vmax=300V 9-80 VDC
N	AWG22		ORANGE				
L	AWG22	BYPASS KEY	YELLOW	WHITE			
N	AWG22		YELLOW	WHITE			
1	AWG22	NC	WHITE			Normally closed	
2	AWG22	ALIM +	RED		System power	+ GSE battery	9-80V DC
3	AWG22	ALIM -	BLACK			- GSE battery	
4	AWG22	P +	BROWN		Contact entry	+ Ignition	9-80V DC
5	AWG22	P -	BROWN	WHITE		- Ignition	
6	AWG22	WORK +	PURPLE		Work mode input *	+ Work	9-80V DC
7	AWG22	WORK -	PURPLE	WHITE		-Work	
8	AWG22	SH -	GREEN	WHITE	Information shunt access control	Key contact (shunt)	Normally open contact
9	AWG22	SH +	GREEN				
10	AWG22	GND	BLACK			Common	
11	AWG22	GSECANH	YELLOW		GSE CAN Data Bus	CAN High / CAN Low GSE	CAN H
12	AWG22	GSECANL	BROWN				CAN L
13	AWG22	AUXBRANCH	GREY		Auxiliary CAN Data Bus	CAN High / CAN Low auxiliaire	CAN H
14	AWG22	TOCANL	BLUE				CAN L
15	AWG22	12V READER	RED	BLACK	External drive connection	+ Reader	
16	AWG22	GND	BLACK			- Reader	
17	AWG22	DATA0	WHITE *	BLACK		DATE0/CLK or DAT0	
18	AWG22	DATA1	GREEN *	BLACK		DATE1 / CLK or DAT1	
19	AWG22	IHM_CTRL_1	BLUE	BLACK		GRN or GLED	
20	AWG22	IHM_CTRL_2	BROWN	BLACK		BEEP	

Table 2: Main cable detail



22 PTS CONNECTOR	OBD CONNECTOR	
11	YELLOW	8
3	BLACK	4/5
12	BROWN	14
2	RED	16

Figure 2: OBD Socket Detail



\* ⚠ : FAMA provides a single entry to collect hour meter or GSE work information. In order to collect the two pieces of information, one of them will have to be retrieved either from the CAN bus or from the state of use (Use) for the timestamp and the other from the input provided by the FAMA.

\* ⚠ : To differentiate the two brown wires, the yellow and brown wires used for the CAN Data Bus are twisted. The twist is light; be extra careful when locating the wires to avoid any error.

\* ⚠ : The wiring of the Reader has changed, the wires of DATA1 and DATA0 are no longer the same (inversion of the colors of the wires DATA1 and DATA0 compared to the FAMA V4).

It will be necessary to be more vigilant when installing the FAMA OBD.

### 3 Cabling recommendations

Below are the different wiring techniques to guarantee a long-lasting and quality installation:




✓ ACCEPTED	✗ DO NOT ACCEPTED
<p>Soldering and insulation of the wire (heat shrink sheath or insulating adhesive tape):</p> 	<p>Twisted or non-insulated wire:</p> 
<p>Crimping connectors :</p> 	

Table 3: Wiring Recommendations

## 4 Wiring option access control

There are two solutions to wire access control according to the customer's choice:

- The first allows vehicles not to start until a valid badge is read. This option leads to a deterioration of the vehicle's original harness as it is necessary to cut the starter wire to prevent any unauthorized movement. When making the connection, a 14 VDC car relay is added in order to have a cut-off power corresponding to start-up behavior.
- In order to avoid damaging the original harness, a second solution is possible. This one, contrary to the previous one, does not prevent the vehicle from starting. For this option, a buzzer is triggered as soon as the vehicle starts and no valid badge is read. Similar to when a seatbelt interlock isn't detected while operating a car.

### 4.1 Wiring diagram with automotive relay

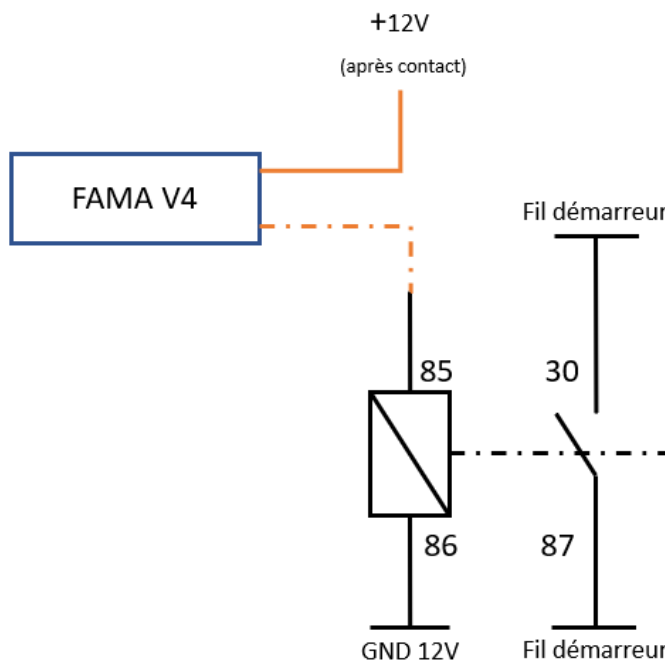


Figure 3: Wiring diagram with automotive relay

## 4.2 Wiring diagram with buzzer

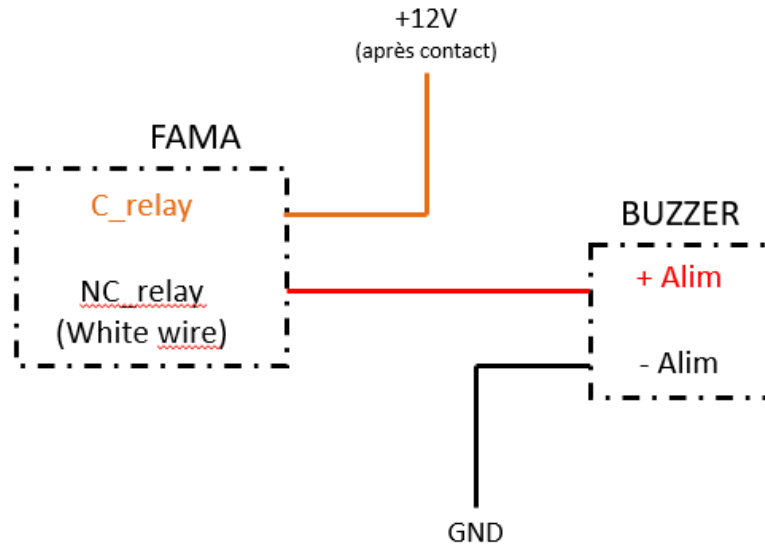


Figure 4: Buzzer wiring diagram

## 5 Exemple of FAMA OBD placement

Be careful, the box should never be placed with the connectors facing up. This is so excessive force on the connectors is avoided, as well as bending the cables, which can possibly cause degradation.

The placement of the box influences the configuration of the axis of the Scoring, the FAMA must be positioned in such a way that it respects an axis (x, y or z).

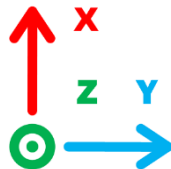


Figure 5: Axis Label

## 6 Antenna placement for FAMA OBD

In order to minimize the impact of the installation of the ADVEEZ system on the dashboard of the vehicle, a patch antenna is glued to it.



Figure 6: Example of patch antenna placement

## 7 Configuring and diagnosing Adveez equipment with LHC Mobile

After a device (FAMA) is installed on a GSE, it can be configured with LHC Mobile.

To configure/verify the settings, follow the steps below.

All functions and settings are listed in this chapter. Troubleshooting steps are also provided at the end of the document.

Before doing anything, you will need to download the LHC Mobile app available on the Android (Play Store) and Apple (App Store) platforms.

## 7.1 Add equipment

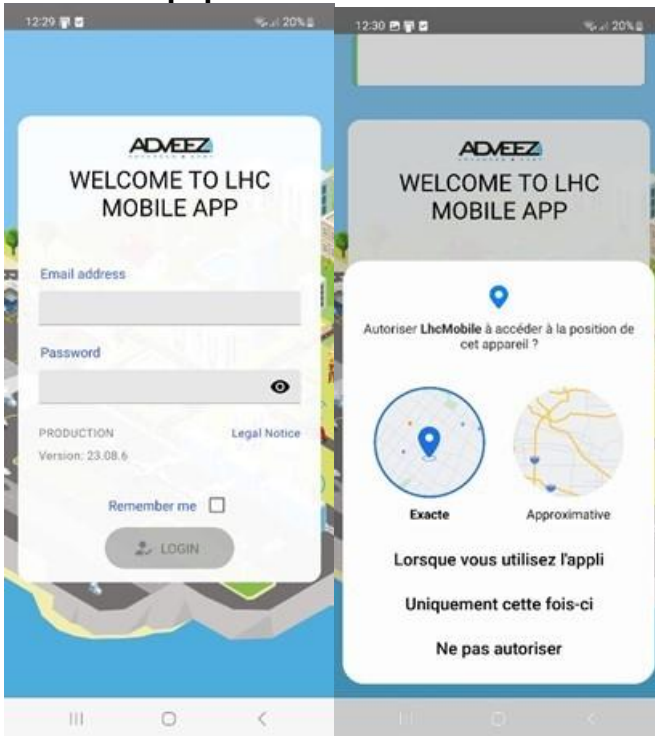


Figure 7: LHC Mobile authentication

1. Open the LHC Mobile app.
2. Log in with your email address and password (same as Localee).
3. Click on "Log in".
4. Allow LHC Mobile to access the mobile phone's position, Bluetooth and GNSS.

Once logged in, the home page is launched. The page shows all the FAMA detected nearby. Each FAMA has 3 pieces of information: the serial number (which identifies it), the BT ID (Bluetooth module identifier that differentiates between two FAMA for which the same identifier has been entered) and the RSSI (gives an indication of the distance of the FAMA from the mobile phone).

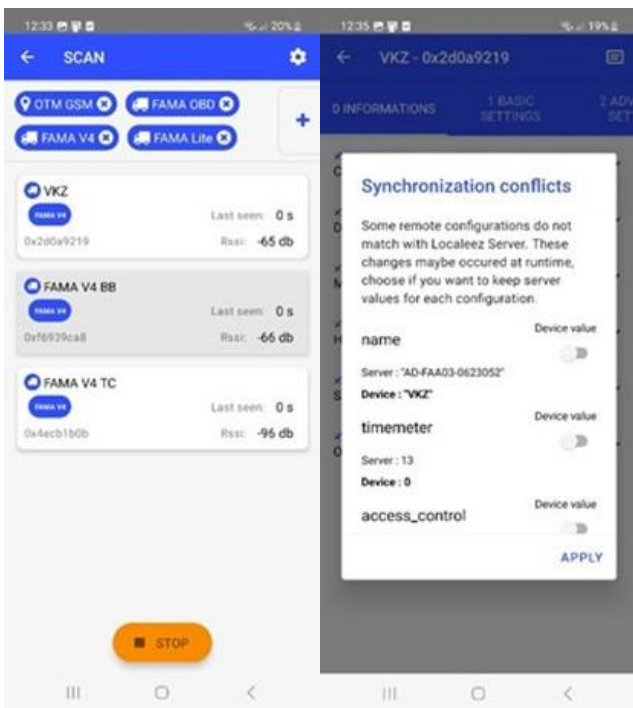
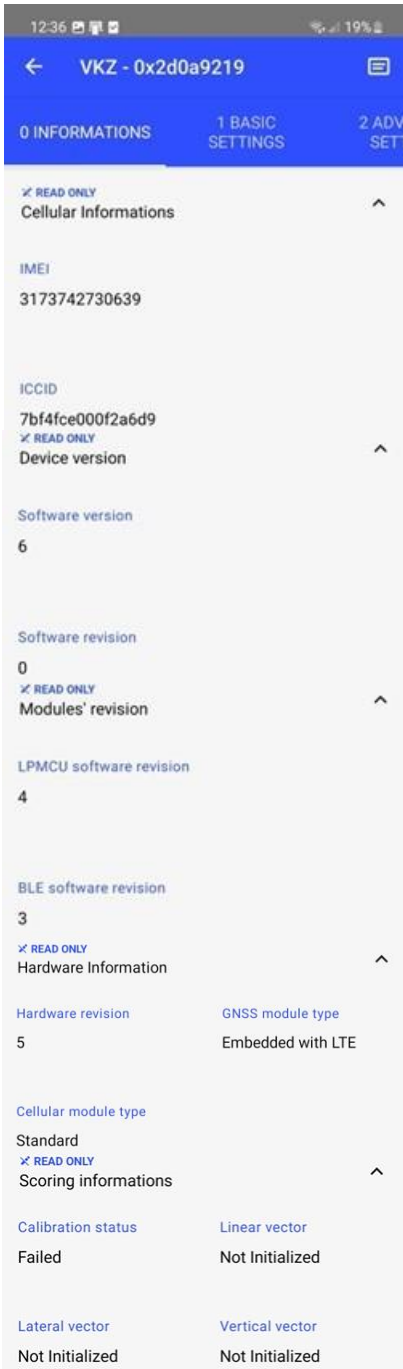


Figure 8: LHC Mobile software

5. The FAMA serial number or GSE ID should be displayed on this window. If the FAMA comes out of production (never registered), it will be identified by its serial number. For example, AD-XXXX-XXXX-XXX. This number also appears on the FAMA label.
6. The RSSI of the connection is given by the RF force in (db). Connection to FAMA will be impossible when the RSSI value is lower than (-80 db).

After selecting your FAMA, conflict synchronization is mandatory. A conflict is a configuration difference between the FAMA and the Localeez server.

## 7.2 INFORMATIONS



**Figure 9: INFORMATION 1/2**

### Cellular informations:

- IMEI: Gives the physical number of the FMDM module of FAMA.
- ICCID: Gives the physical number of the SIM card inserted into the GSM module of the FAMA.

### Device version:

- Software version: Gives the version of the software.
- Software revision: Gives the revision of the software.

### Module's revision:

- LMPCU Software revision: Gives the BLE module version.
- BLE software revision Gives the version of the BLE module.

### Hardware information:

- Hardware revision: Gives the software version.
- GNSS module type: Gives the type of GNSS module used.
- Cellular module type: Gives the type of GSM module used.

### Scoring informations:

- Calibration status : Allows you to know the status of the calibration and if it has failed.
- Linear, Vertical, Lateral vector: Allows you to know the configured axes.



Figure 10: INFORMATION 2/2

**Other:**

- Internal backup battery: Gives the charge level of the FAMA's internal battery (⚠ the true value is displayed only when the FAMA is not connected to an external power source).
- Cellular active connection: Allows you to know the status of the LTE connection.
- Date Time: Gives the date of the FAMA.

### 7.3 BASIC SETTINGS

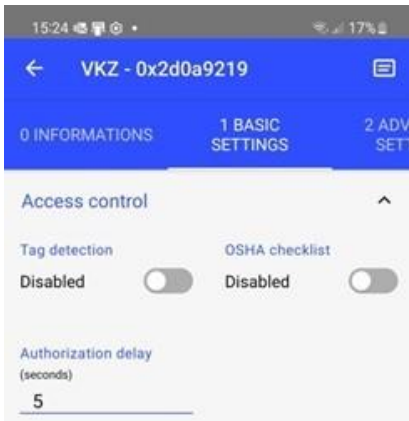


Figure 11: BASIC SETTINGS 1/2

**Access control:**

- Tag detection: Allows you to activate or deactivate access control for FAMA.
- OSHA checklist: Allows you to activate or deactivate the OSHA questionnaire for FAMA.
- Authorization delay (seconds): Allows you to change the delay (in seconds) of the release of the access control relay.



Figure 12: BASIC SETTINGS 2/2

**Other:**

- Name: Allows you to change the name of the FAMA. Usually, the name of the Fama is the ID of the GSE.
- Working mode latency (seconds): Allows you to add a timer (in seconds) before considering a working event as closed. When a working event is stopped, the timer starts. If a new working event occurs during this delay, the previous event is restarted.
- Timemeter: Used to give FAMA the number of hours of the GSE hourmeter.

## 7.4 ADVANCED SETTINGS

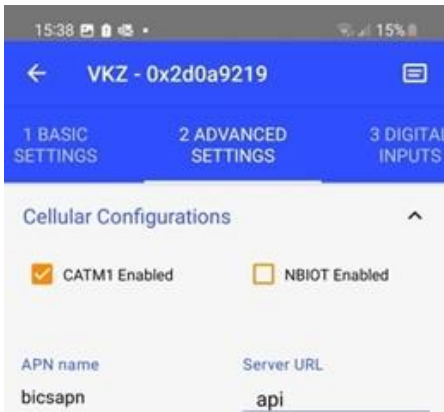
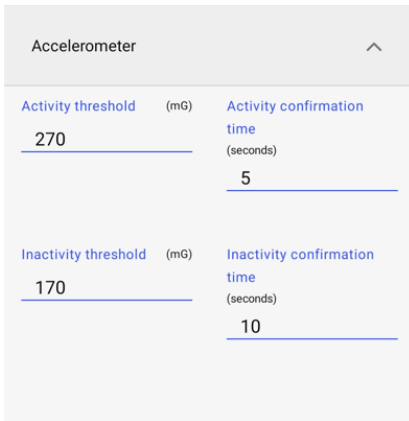


Figure 13: Cellular Configurations

**Cellular configurations:**

- CATM1 Enabled: Enables or disables this type of communication. (Do not change these settings unless requested by support).
- NBIOT Enabled: Enables or disables this type of communication. (Do not change these settings unless requested by support).
- APN name: Specifies the Name of the Access Point.
- Server URL: Allows you to modify the frame receiving server. (Do not change these settings unless requested by support).





**Figure 14: Accelerometer**

**Accelerometer:**

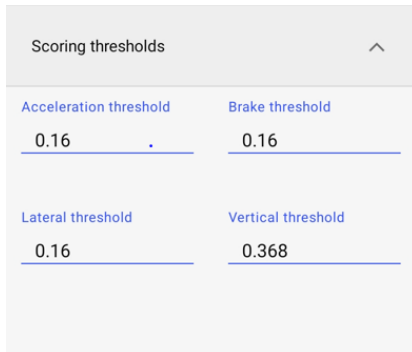
- Activity threshold (mG): Allows you to configure the acceleration threshold above which the FAMA is considered moving (Do not change these parameters unless requested by the media).
- Activity confirmation time ( seconds): Allows you to configure the minimum time during which the activity threshold must be crossed for the FAMA to be considered in motion (Do not change these parameters unless requested by the media).
- Inactivity threshold (mG): Allows you to configure the acceleration threshold below which the FAMA is considered stationary (Do not change these settings unless requested by the media).
- Inactivity confirmation time (seconds): Configure the minimum amount of time during which the inactivity threshold must be crossed for the FAMA to be considered still (Do not change these settings unless requested by the media).



**Figure 15: GNSS filters**

**GNSS filters:**

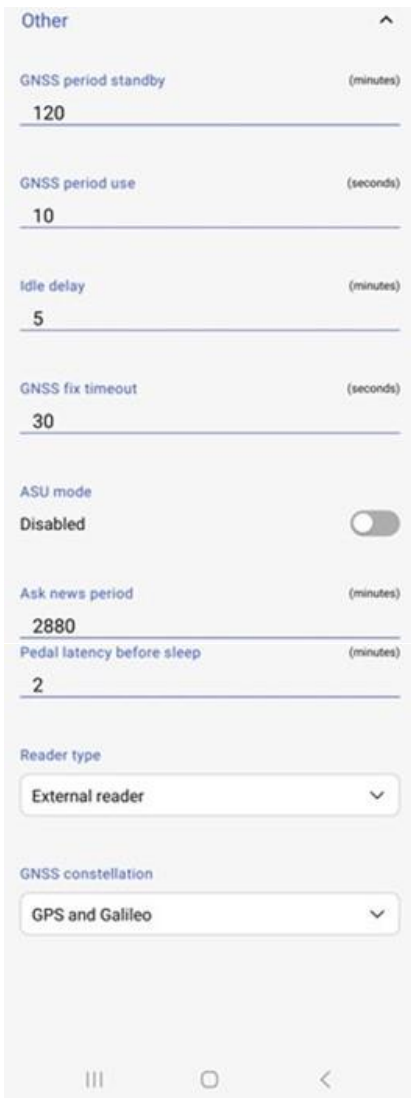
- HDOP: Maximum quality of horizontal positioning (Horizontal Dilution Of Precision) for taking into account GNSS data in the case of periodic treatments (geofence, monitoring, ...). This parameter complements PDOP (see below). Both parameters must be valid for the position to be taken into account.
- PDOP: Maximum 3D positioning quality (Position Dilution of Precision) for taking into account GNSS data in the case of periodic processing (geofence, monitoring, ...) . This parameter complements HDOP (see above). Both parameters must be valid for the position to be taken into account.
- Strict HDOP: Maximum quality of horizontal positioning (Horizontal Dilution Of Precision) for taking into account GNSS data in the case of punctual treatments (i.e. events). This parameter complements Strict PDOP (see below). Both parameters must be valid for the position to be taken into account.
- Strict PDOP: Quality of maximum 3D positioning (Position Dilution Of Precision) for taking into account GNS S data in the case of punctual treatments (i.e. events). This parameter complements Strict HDOP (see above). Both parameters must be valid for the position to be taken into account.



**Figure 16: Scoring thresholds**

**Scoring thresholds:**

- Acceleration threshold: Allows you to configure the acceleration threshold before the FAMA will not trigger an event. (Do not change these settings unless requested by our support).
- Brake threshold: Allows you to configure the sudden braking threshold before the FAMA will not trigger an event. (Do not change these settings unless requested by our support).
- Lateral threshold: Allows to configure the sharp turn threshold before the FAMA will not trigger an event. (Do not change these settings unless requested by our support).
- Vertical threshold: Allows to configure the abrupt jump threshold before the FAMA will not trigger an event. (Do not change these settings unless requested by our support).

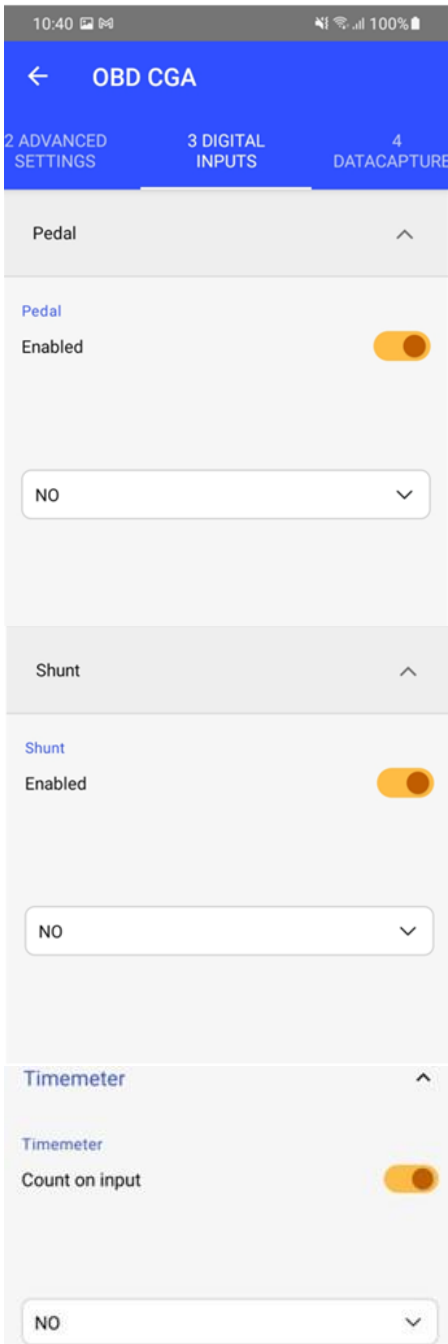


**Figure 17: Other**

**Other:**

- GNSS period standby (minutes): Allows to configure the period at which the FAMA will send its position when it is in standby.
- GNSS period use (seconds): Allows to configure the period at which the FAMA will send its position when it is "in use".
- Idle delay (seconds): Allows you to configure how long the FAMA sends the inactivity information: the vehicle is "in use" but the GNSS position has not changed since the defined period.
- GNSS fix timeout (seconds): Configure the maximum waiting time for GNSS to set before sending information to Localeez.
- ASU Mode: Allows you to set the FAMA in ASU mode. In this mode, the FAMA sends an alert if the vehicle moves while in use.
- Ask new period (minutes): Configure the period for requesting notifications by FAMA to Localeez.
- Period latency before sleep (minutes): Configure the period when the FAMA goes to sleep after the pedal is released or after turning off the ignition.
- Reader type: Permet de configurer le type de lecteur utilisé (Adveez 433Mhz (EU seulement), Adveez 908Mhz (US seulement) ou External Reader (HID)).
- GNSS constellation: Permet de choisir le système de positionnement par satellites (GPS only, GPS and GLONASS, GPS and BeiDou ou GPS and Galileo).

## 7.5 DIGITAL INPUTS



**Figure 18: DIGITAL INPUTS 1/2**

- Pedal: Allows you to activate or deactivate the Pedal input and change the type of contact. This can be changed to NO (Normally Open) or NC (Normally Closed).
  
- Shunt: Allows you to enable or disable the Shunt input and changes the contact type. This can be changed to Enable or Disable and NO (Normally Open) or NC (Normally Closed). This input is connected to a key contact that is used to bypass access control. Example of use: the maintenance service.
  
- Timemeter: Allows you to enable or disable the Timemeter input, changes the Timemeter input policy and contact type. This can be changed to "On CAN message", "On Use" or "On input" mode and to NO (Normally Open) or NC (Normally Closed). This entry is used to retrieve the timemeter activation information. If there is no timemeter, the use of the "On Use" mode allows to simulate this entry. The value then used will be the duration of GSE usage events (in use).

**⚠**: FAMA provides a single entry to collect hour meter or GSE work information. To collect both information, one of them will have to be retrieved through the CAN bus or "On use" for the timemeter.

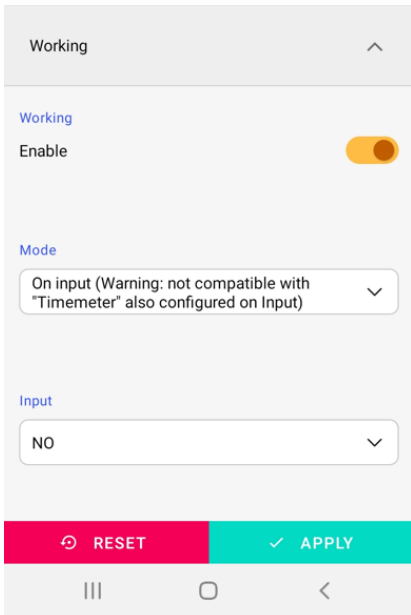


Figure 19: DIGITAL INPUTS 2/2

- Working: Allows you to enable or disable the Work entry, changes the policy of the Work entry and changes the contact type. This can be changed to "On CAN message" or "On input" mode and to NO (Normally Open) or NC (Normally Closed). In the case of a GSE performing a work operation, this entry is used to retrieve this information.

\* ⚠️: The configuration of the FAMA requires to modify the INPUTS in a precise order. The first necessary step is to disable the Working and finally press the "APPLY" button. As a result of this manipulation, the configuration can be done without error.

## 7.6 DATACAPTURE

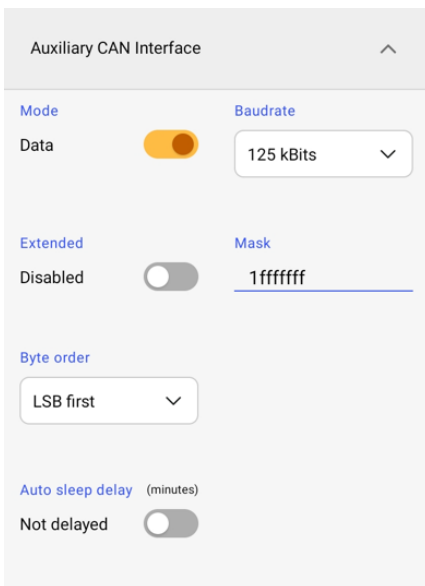


Figure 20: Auxiliary CAN Interface

### Auxiliary CAN Interface:

- Mode: Allows you to configure the auxiliary ADC mode in either Advееz or Data, this last parameter is used to retrieve the information from the GSE.

By enabling Data mode, the parameter fields are the same as the CAN configuration.

**NEW ENTRY**

Metric Type: energy\_level (dropdown) | Value Type: float (dropdown)

CAN ID: 128

Low Significant Byte index: 0 | Start Bit: 0

Data Length (bits): 8

Use pedal:  | Deactivate alarm:

All one filter:

Time to ignore (seconds): 0 | Periodic trigger: Select an item (dropdown)

Period (seconds): 0 | Trigger Type: Select an item (dropdown)

Trigger: 0 | Range min: 0

Range max: 0 | Second order coeff (a) (ax<sup>2</sup>+bx+c): 0

First Order Coeff (b) (ax<sup>2</sup>+bx+c): 0 | Constant Coeff (c) (ax<sup>2</sup>+bx+c): 0

Alarm latency (seconds): 0

**APPLY**

**New CAN Rule Configuration:**

- Metric type: Metric to be recorded. For example: energy\_level, timemeter, etc...
- Value type: float.
- CAN ID: Corresponds to the number of the CAN ID to be captured in relation to the vehicle and the CAN protocol.
- Low Significant Byte index: Index of the byte where the data is located.
- Start Bit: Start bit where the data is located.
- Data Length (bits): The bit length of the data.
- Use pedal: Disabled. If On, the value will only be captured if the vehicle is in use, working or pedal input is activated.
- Deactivate alarm: No alarm can be sent.
- All one filter: Allows you to reject the frame if it has only 1s.
- Time to ignore (seconds): Allows you to ignore the retrieved value for a chosen time.
- Periodic trigger (seconds): Will always send data after the specified time in the period.
- Period (seconds): The period in which the value was sent.
- Trigger type: Alarm sent to Locale when the value falls below the trigger (after being above it).
- Trigger: Threshold value for triggering (energy\_level 40%).
- Min range: Minimum value of the captured data. If the data is out of range, it will be ignored.
- Max range: Maximum value of the captured data. If the data is out of range, it will be ignored.
- Second order coeff (a); first order (b); constant (c) (ax<sup>2</sup>+bx+c): Coefficients to be applied to the data captured in the CAN frame in order to transform it into a physical value.
- Alarm latency (seconds): The time taken to validate the alarm.

**Figure 21: CAN Rule**

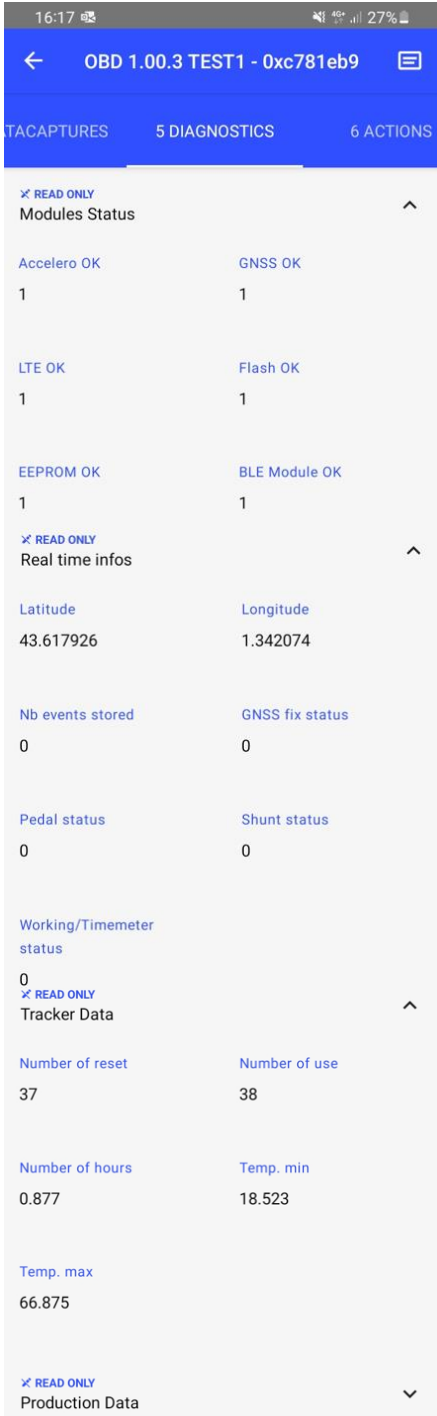


Figure 22: DIAGNOSTICS 1/2

## 7.7 DIAGNOSTICS

The "DIAGNOSTICS" part is used to check the proper functioning of the different parts of the FAMA.

### Modules Status:

Allows you to visually check the proper functioning of the modules present in the system.

### Real time info:

- Latitude and Longitude: Gives the GNSS position of the FAMA.
- GNSS fix status: Gives the status of the GNSS operation.

The "status" data is included in the "5 DIAGNOSTICS" section. It allows you to know visually if the input is activated and if it is in operation.

- 0: The input is enabled but not working.
- 1: The input is activated and is in operation.

### Tracker data:

Allows you to visually check the evolution of the FAMA since its first connection on a GSE.

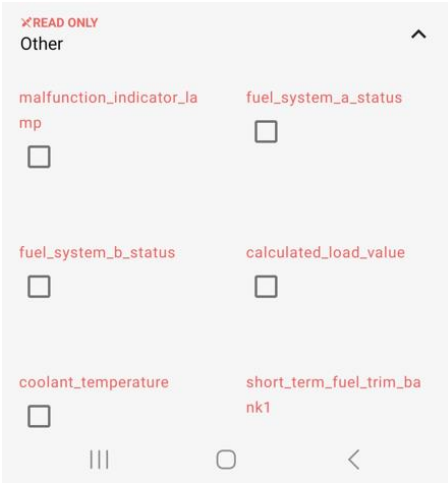


Figure 23: DIAGNOSTICS 2/2

**Production Data:**

You will find below, all the functionalities available through the CAN connected to the vehicle. You must check the ones you are interested in to have this information sent to Localeez.

**7.8 ACTIONS**

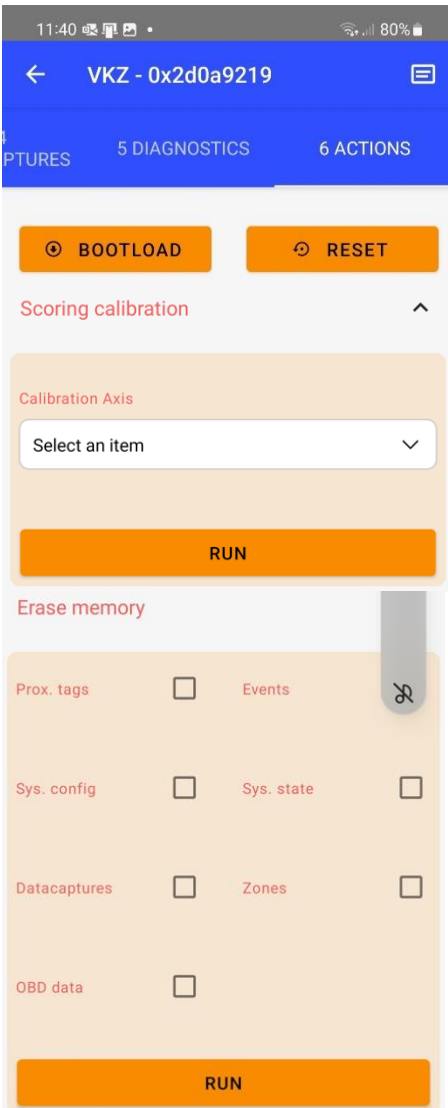


Figure 24: ACTIONS 1/2

- BOOTLOAD: Perform a firmware update.
- RESET: Perform a firmware reset.

**Scoring calibration:**

- Calibration Axis: Allows you to calibrate the vehicle's forward motion axis. Depending on the position of the box inside the vehicle, the axis corresponding to the forward movement must be modified.

**Erase memory:**

This module allows you to delete different configurations that are stored in the FAMA.

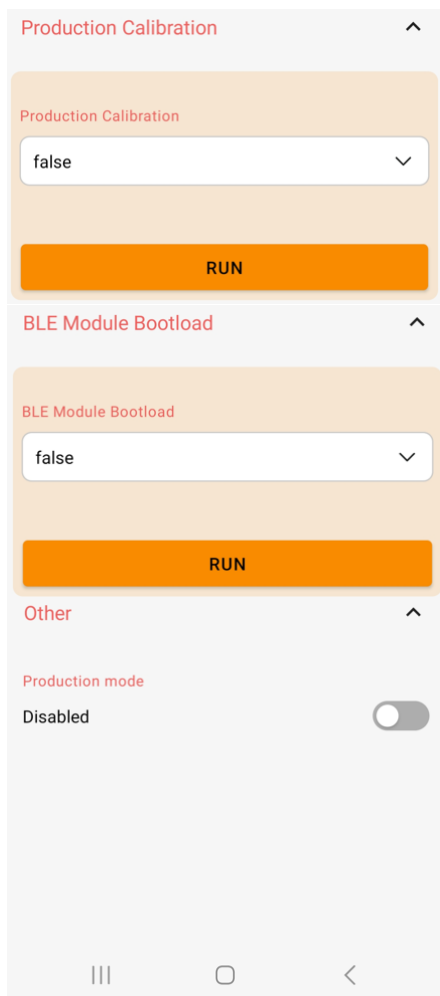


Figure 25: ACTIONS 2/2

#### Production Calibration:

Allows you to make a production calibration.

#### BLE Module Bootload:

Allows you to make a BLE Module update.

#### Other:

Production mode: Allows you to enable the production mode.

## 8 Configuring and diagnosing Adveez equipment with LHC GSM

After installing equipment (FAMA) on a GSE, it can be configured with LHC GSM.

To configure/verify settings, follow the steps below.

All functions and settings are listed in this chapter, troubleshooting steps are also provided at the end of the document.

### 8.1 Add equipment



1. Go to your web browser and type in the search bar: <https://localeez.adveez.com>
2. Log in with your email address and password.
3. Click on "Log in".

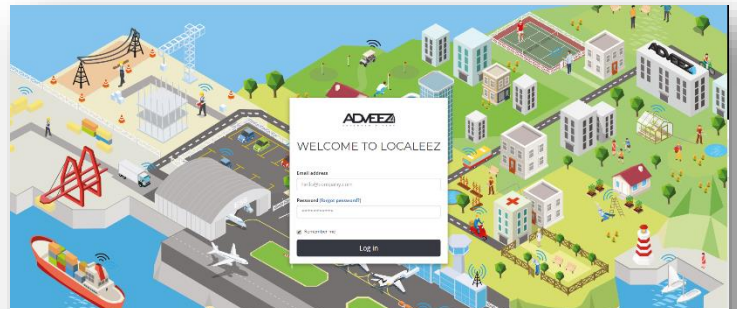


Figure 26: Localeez

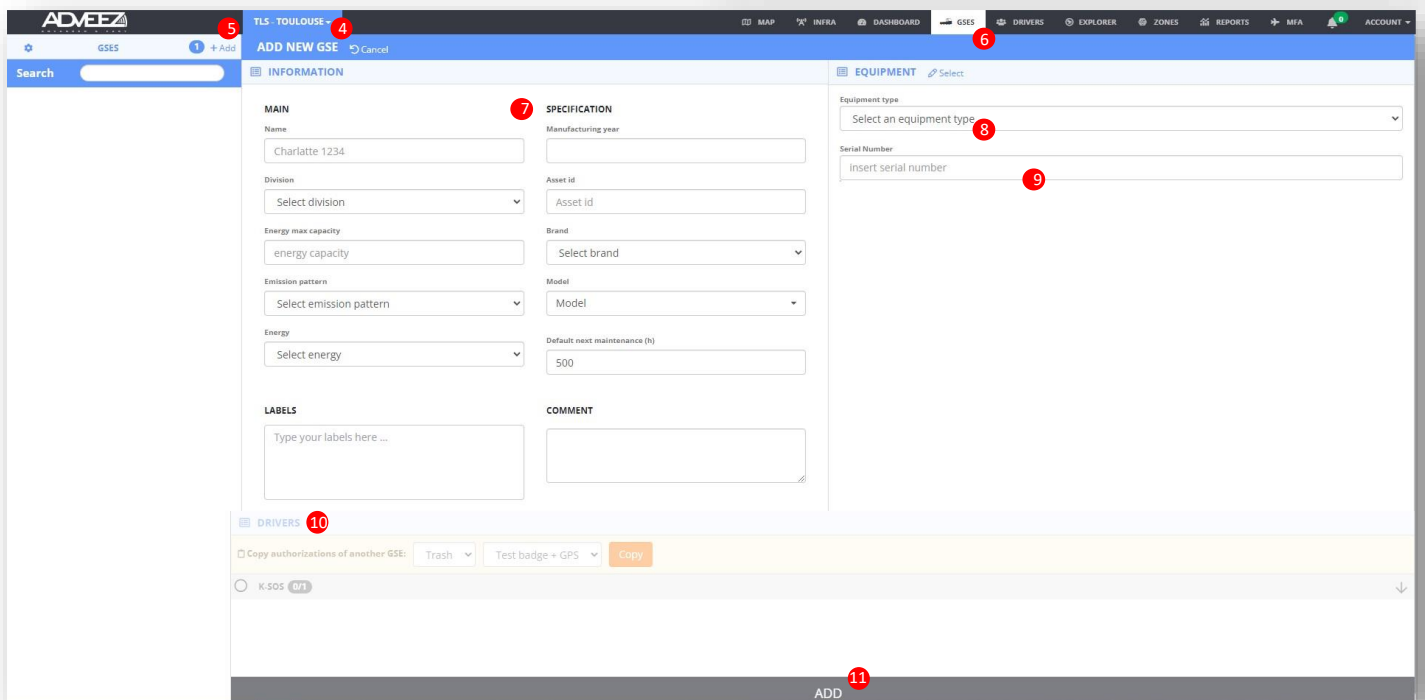


Figure 27: Localeez "Add GSE"

4. Select the installation site.
5. Click on the "GSES" tab.
6. Click on the "+ Add" button.
7. Enter the GSE information (name, division, make & model, energy, ...).
8. Select FAMA OBD in "EQUIPMENT".
9. Enter the FAMA serial number (label affixed to the cover of the FAMA (e.g. 0xABCD1234))
10. Add users in the "DRIVERS" section.
11. Click on "ADD".

In order to check the communication, perform an action on the GSE/FAMA (shunt, pass a badge on the player, movement, ...) and check that you receive the event associated with your action.

After performing these steps, a "Configure" button is available, click on it, a new window appears.

**INFORMATION**

FAMA Lite ( full)

610048133 (0x245c9885)

Firmware revision: 1.12 [Bootload](#)

**CONFIGURATION**

Refresh

Access control

Tag detection  Disabled

OSHA checklist  Disabled

Authorization delay (seconds)

GNSS period use (seconds)

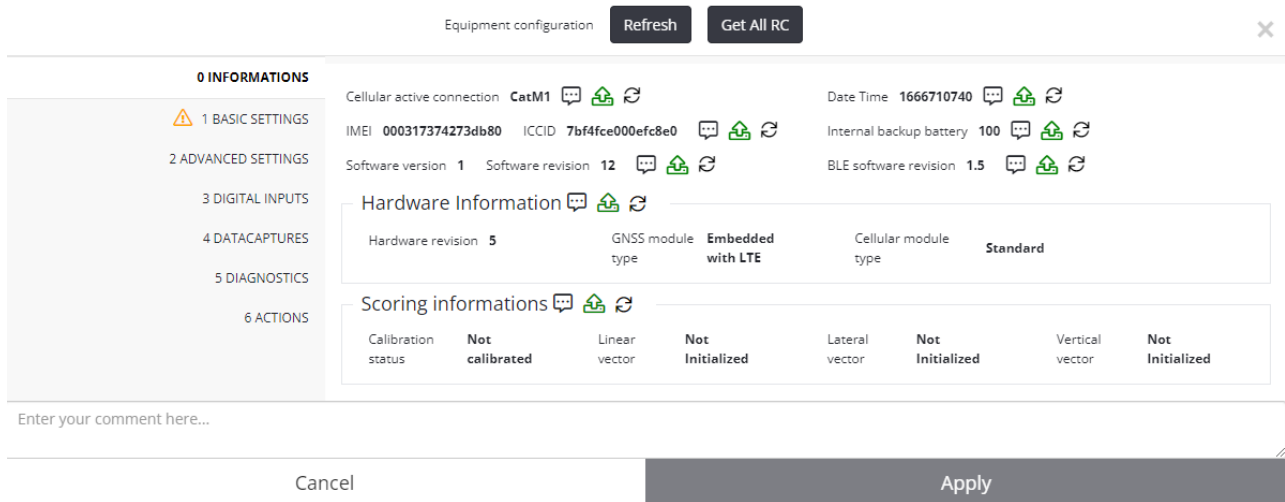
Timemeter (hours)

Mileage (km)

**Figure 28: Configure**

The following steps detail all the settings.

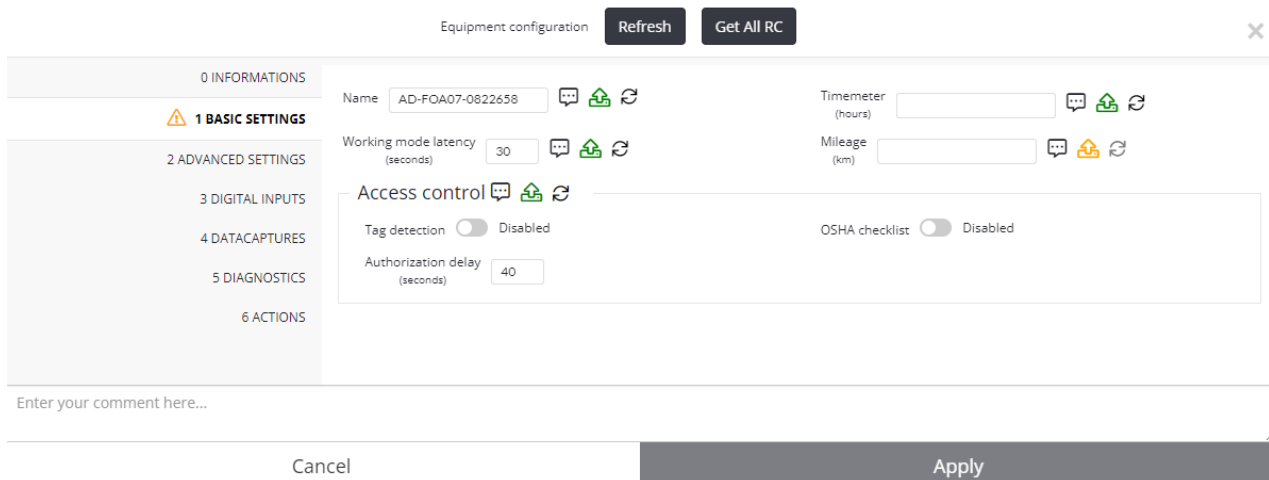
## 8.2 INFORMATION



**Figure 29: INFORMATION**

- Cellular active connection: Allows you to know the status of the LTE connection.
- Date Time: Gives the date of the FAMA.
- IMEI: Gives the physical number of the FMDM module of FAMA.
- ICCID: Gives the physical number of the SIM card inserted into the GSM module of the FAMA.
- Internal backup battery: Gives the charge level of the FAMA's internal battery (the true value is displayed only when the FAMA is not plugged into an external power source).
- BLE Software Revision: Gives the BLE module version.
- Version and Software Revision: Gives the version of the software.
- Hardware Revision: Gives the FAMA version of the electronic board.
- GNSS Module Type: Gives the type of GNSS module used.
- Cellular module type: Gives the type of GSM module used.
- Calibration status: Allows you to know the status of the calibration.
- Linear, lateral, vertical vector: Allows you to know the configured axes.

### 8.3 BASICS SETTINGS



**Figure 30: BASICS SETTINGS**

- Name: Allows you to change the name of the FAMA. Usually, the name of the Fama is the ID of the GSE.
- Timemeter (hours): Used to give FAMA the number of hours of the GSE hour meter.  
 ⚠: The FAMA provides an input to collect hour meter information from the vehicle. This value increments from the moment a voltage is applied as a mechanical timestamp of a GSE. In this case, the FAMA may have a time lag depending on the vehicles and timestamps of different brands of the computer. We therefore recommend using the value provided by FAMA to have homogeneity on the vehicle fleet.
- Mileage (km): Used to give FAMA the number of kilometers of the GSE.  
 ⚠: FAMA does not provide input to collect vehicle mileage information. This value can be simulated or retrieved as CAN information. If simulated, it increments using FAMA's GNSS.
- Working mode latency (seconds): Allows you to add a timer (in seconds) before considering a working event closed. When a working event is stopped, the timer starts. If a new working event occurs during this delay, the previous event is restarted.
- Tag detection: Enables or disables access control for FAMA
- OSHA checklist: Enables or disables the OSHA questionnaire for FAMA
- Authorization delay (seconds): Allows you to change the timeout (in seconds) of the release of the access control relay.

## 8.4 ADVANCED SETTINGS

Equipment configuration
Refresh
Get All RC
✕

0 INFORMATIONS

1 BASIC SETTINGS

**2 ADVANCED SETTINGS**

3 DIGITAL INPUTS

4 DATACAPTURES

5 DIAGNOSTICS

6 ACTIONS

Idle delay (minutes)

GNSS period use (seconds)

GNSS period standby (seconds)

Pedal latency before sleep (minutes)

**Accelerometer**

Activity threshold (mG)

Inactivity threshold (mG)

**Cellular Configurations**

CATM1 Enabled

APN name **bicsapn**

**GNSS filters**

HDOP

Strict HDOP

**Scoring thresholds**

Acceleration threshold

Lateral threshold

Ask news period (minutes)

GNSS Constellation **Gps and Galileo**

GNSS fix timeout (seconds)

ASU mode  Disabled

Activity confirmation time (seconds)

Inactivity confirmation time (seconds)

NBIOT Enabled

Server URL

PDOP

Strict PDOP

Brake threshold

Vertical threshold

**Figure 31: ADVANCED SETTINGS**

- Idle delay (minutes): Allows you to configure how long the FAMA sends the inactivity information: the vehicle is "in use" but the GNSS position has not changed since the defined period.
- Ask news period (minutes): Configure the period for requesting notifications by FAMA to Locale.
- GNSS period use (seconds): Allows you to configure the period when the FAMA will send its position when it is "in use".
- GNSS period standby (seconds): Allows you to configure the period when the FAMA will send its position when it is in standby.
- GNSS fix timeout (seconds): Configure the maximum waiting time for GNSS to set before sending information to Localeez.
- Pedal latency before sleep (minutes): Allows you to configure the period when the FAMA goes to sleep after the pedal is released or after turning off the ignition.
- ASU Mode: Allows you to set the FAMA in ASU mode. In this mode, the FAMA sends an alert if the vehicle moves while in use.

### Accelerometer

- Activity threshold (mG): Allows you to configure the acceleration threshold above which the FAMA is considered moving (Do not change these settings unless requested by the media).
- Activity confirmation time (seconds): Configure the minimum amount of time that the activity threshold must be crossed for the FAMA to be considered in motion (Do not change these settings unless requested by the media).

- 
- Inactivity threshold (mG): Configure the acceleration threshold below which the FAMA is considered stationary (Do not change these settings unless requested by the media).
  - Inactivity confirmation time (seconds): Configure the minimum amount of time the inactivity threshold must be crossed for the FAMA to be considered stationary (Do not change these settings unless requested by the media).

### Configurations du GSM

- CATM1 Enabled: Enables or disables this type of communication. (Do not change these settings unless requested by support).
- NBIOT Enabled: Enables or disables this type of communication. (Do not change these settings unless requested by support).
- APN Name: Specifies the Name of the Access Point.
- Server URL: Allows you to modify the server receiving frames. (Do not change these settings unless requested by support).

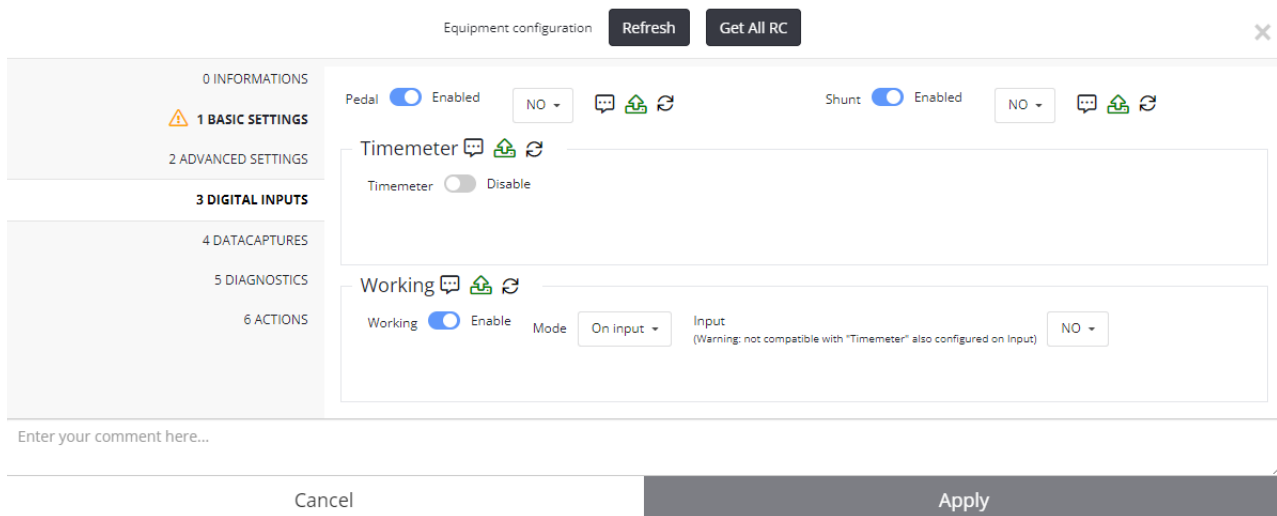
### GNSS filters

- HDOP: Maximum quality of horizontal positioning (Horizontal Dilution Of Precision) for considering GPS data in the case of periodic treatments (geofence, monitoring, ...). This parameter complements PDOP (see below). Both parameters must be valid for the position to be considered.
- PDOP: Maximum 3D positioning quality (Position Dilution of Precision) for considering GNSS data in the case of periodic processing (geofence, monitoring, ...). This parameter complements HDOP (see above). Both parameters must be valid for the position to be considered.
- 
- Strict HDOP: Maximum Horizontal Dilution Of Precision quality for taking into account GPS data in the case of punctual treatments (i.e. events). This parameter complements PDOP (see below). Both parameters must be valid for the position to be considered.
- Strict PDOP: Maximum 3D positioning quality (Position Dilution Of Precision) for taking into account GNSS data in the case of punctual processing (i.e. events). This parameter complements HDOP Strict (see above). Both parameters must be valid for the position to be considered.

### Scoring thresholds

- Acceleration threshold: Allows you to configure the acceleration threshold before which the FAMA will not trigger an event. (Do not change these settings unless requested by support).
- Brake Threshold: Configures the hard braking threshold before which the FAMA will not trigger an event. (Do not change these settings unless requested by support).
- Lateral threshold: Configure the sharp turn threshold before which the FAMA will not trigger an event. (Do not change these settings unless requested by support).
- Vertical threshold: Configure the abrupt jump threshold before which the FAMA will not trigger an event. (Do not change these settings unless requested by support).

## 8.5 DIGITAL INPUTS

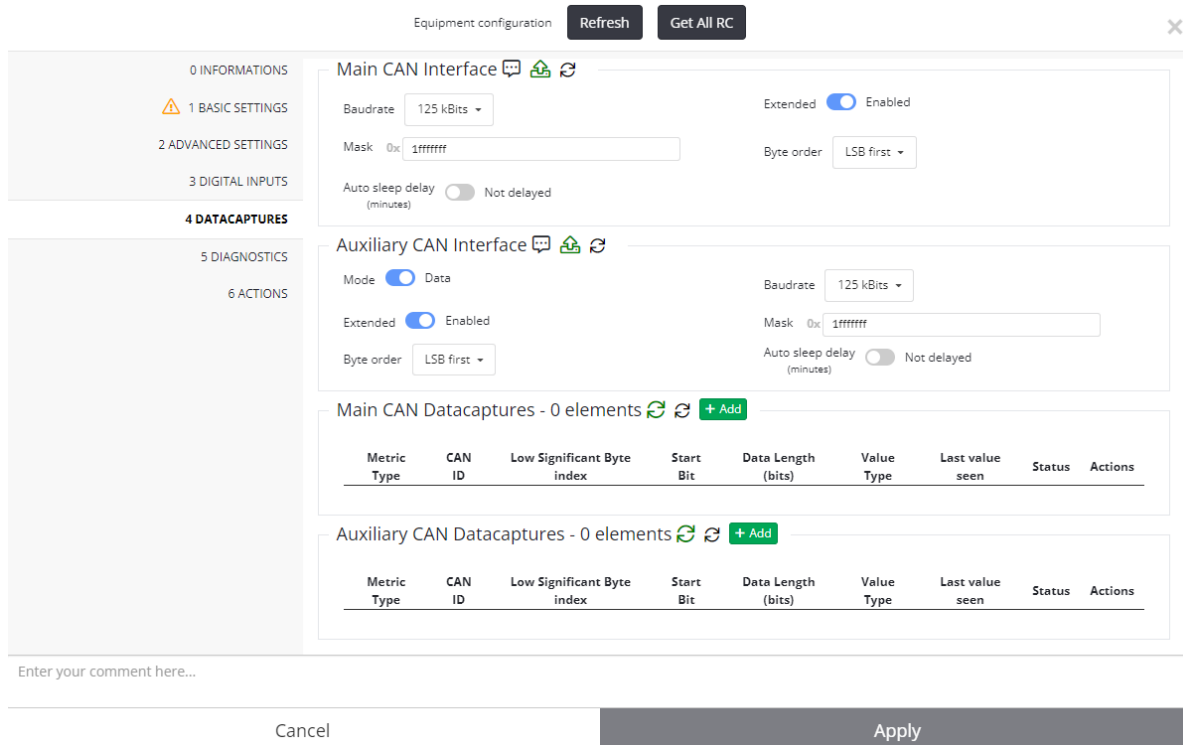


**Figure 32: DIGITAL INPUTS**

- Pedal: Enables or disables the Pedal input and changes the contact type. This can be changed to NO (Normally Open) or NC (Normally Closed). If access control is enabled, this makes it possible to initiate a badge detection and activate the relay of access control if the badge is authorized. Otherwise, the relay activates and the vehicle switches to "in use".
- Timemeter: Enable or disable the Timemeter entry and change the Timemeter input policy and contact type. This can be changed to "On CAN message", "On Use" or "On input" mode and to NO (Normally Open) or NC (Normally Closed). This entry is used to retrieve the timestamp activation information. If there is no timestamp, the use of the "On Use" mode allows to simulate this entry. The value then used will be the duration of GSE usage events (in use).
 

**⚠**: FAMA provides a single entry to collect hour meter or GSE work information. To collect the two pieces of information, one of them will have to be retrieved either thanks to the CAN bus or thanks to the state of use (Use) for the timestamp and the other thanks to the input provided by the FAMA.
- Working: Enable or disable the Work entry and change the policy of the Work entry and change the contact type. This can be changed to "On CAN message" or "On input" mode and to NO (Normally Open) or NC (Normally Closed). In the case of a GSE performing a work operation, this entry is used to retrieve this information.
- Shunt: Enables or disables the short circuit input and changes the contact type. This can be changed to On or Off and NO (Normally Open) or NC (Normally Closed). This input is connected to a key contact that is used to bypass access control. Example of use: the maintenance service.

## 8.6 DATACAPTURE



**Figure 33: DATACAPTURES**

The "DATACAPTURE" part allows you to retrieve information in Can bus (J1939).

- Baudrate: Configuration of the bit rate in serial links (corresponds to the number of bits transmitted per second).
- Extended: Use or not of the extended configuration of the ADC (e.g. J1939).
- Mask: Mask configuration applied to the CAN ID.
- Byte order: The order in which bytes are received for multibyte values. LSB: the first byte received corresponds to the low-weight byte; MSB: The first byte received corresponds to the high weight byte.
- Auto sleep delay (minutes): Allows you to disable (or not) the FAMA to sleep after receiving the last message on the bus. Standby may be delayed by 1 to 254 seconds maximum.

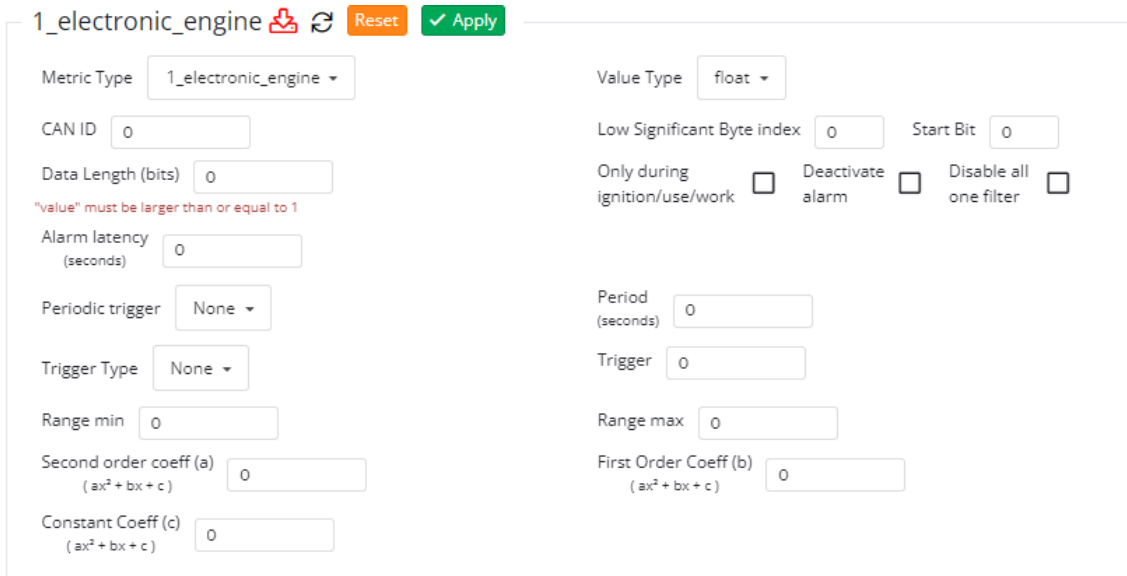
Auxiliary CAN configuration

- Mode: Allows you to configure the auxiliary ADC mode in either Adviez or Data, this last parameter is used to retrieve the information from the GSE. By enabling Data mode, the parameter fields are the same as the CAN configuration.

**Newrule:**



**Configuring a CAN Rule**



**Figure 34: CAN**

- Metric type: The metric to be recorded. For example: energy level, timemeter ... Some metrics are displayed directly on the Locale interface. Example: energy level, battery voltage...
- Value type: Floating (comma value) or raw (simple value).
- CAN ID: Corresponds to the number of the CAN ID to be captured in relation to the vehicle and the CAN protocol.
- Low Significant byte: Index de the byte where the data is located.
- Start bit: Start bit where the data is located.
- Data size (bits): Length in bit of the data.
- Pedal: The value will only be captured if the vehicle is in use, working or pedal input is activated.
- Disable alarm: No alarm notification is sent.
- Filter if all to 1: Allows you to reject the frame if it has only 1s.
- Period type: Will always send data after the specified time in the period.
- Period (seconds): The period in which the value is sent.
- Trigger type: Alarm sent to Locale when the value crosses the trigger.
- Trigger value: Threshold value for trigger
- Min value: Minimum value of the captured data. If the data is out of range, it will be ignored.
- Max value: Maximum value of the captured data. If the data is out of range, it will be ignored.
- Second-order Coeff (a); first order (b); constant (c) (ax<sup>2</sup>+bx+c): Coefficients to be applied to the data captured in the CAN frame to transform it into a physical value.
- Alarm delay (seconds): The time limit for validating the alarm.

**Example of data capture for the energy level in CAN:**

energy\_level 
Reset
Apply

Metric Type energy\_level

CAN ID 16388352

Data Length (bits) 8

Alarm latency (seconds) 60

Periodic trigger Always

Trigger Type Falling

Range min 0

Second order coeff (a)  
( $ax^2 + bx + c$ ) 0

Constant Coeff (c)  
( $ax^2 + bx + c$ ) 0

Value Type float

Low Significant Byte index 7 Start Bit 0

Only during ignition/use/work  Deactivate alarm  Disable all one filter

Period (seconds) 60

Trigger 40

Range max 127

First Order Coeff (b)  
( $ax^2 + bx + c$ ) 1

**Figure 35: CAN Rule**

- Metric type: Energy\_level to record the vehicle's energy level.
- Value type: Floating.
- CAN ID: 16388352 is the CAN ID recorded for this vehicle.
- Low Significant Byte index: The data to capture is at byte 7 of the CAN frame.
- Start bit: The data to be captured starts at bit 0 of the first byte.
- Data Length (bits): The length of the data to be captured is 8 bits.
- Only during ignition/use/work: Activated: the value will be captured only if the vehicle is in use, working or pedal input is activated.
- Alarm latency (seconds): Alarm validation time: 60
- Periodic trigger: Will always send data after the specified time in the period.
- Period (seconds): 60
- Trigger type: Alarm sent to Locale when the value falls below the trigger value (after being above it).
- Trigger: 40 which corresponds to the triggering of an alarm when the battery will be below 40%.
- Min value: 0
- Max value: 127
- Second-order Coeff (a); first order (b); constant (c) ( $ax^2+bx+c$ ): a:0; b:1; c:0

## 8.7 DIAGNOSTICS

Equipment configuration Refresh Get All RC ✕

- 0 INFORMATIONS
- 1 BASIC SETTINGS
- 2 ADVANCED SETTINGS
- 3 DIGITAL INPUTS
- 4 DATACAPTURES
- 5 DIAGNOSTICS**
- 6 ACTIONS

**Modules Status** 🗨️ 📶 🔄

Accelero OK	1	GNSS OK	1	LTE OK	1	Flash OK	1
EEPROM OK	1	BLE Module OK	1				

**Real time infos** 🗨️ 📶 🔄

Latitude	43.617	Longitude	1.342	Nb events stored	5	GNSS fix status	0
Pedal status	0	Shunt status	0	Working/Timemeter status	0		

Production mode  Disabled 🗨️ 📶 🔄

**Tracker Data** 🗨️ 📶 🔄

Number of reset	35	Number of use	4	Number of hours	2	Temp. min	24.97	Temp. max	65.586
-----------------	----	---------------	---	-----------------	---	-----------	-------	-----------	--------

**Production Data** 🗨️ 📶 🔄

Calibration status	Done
--------------------	------

Enter your comment here...

Cancel Apply

Figure 36: DIAGNOSTICS

The "DIAGNOSTICS" part is used to check the proper functioning of the different parts of the FAMA.

## 9 Quick Installation Guide

### 9.1 Connection

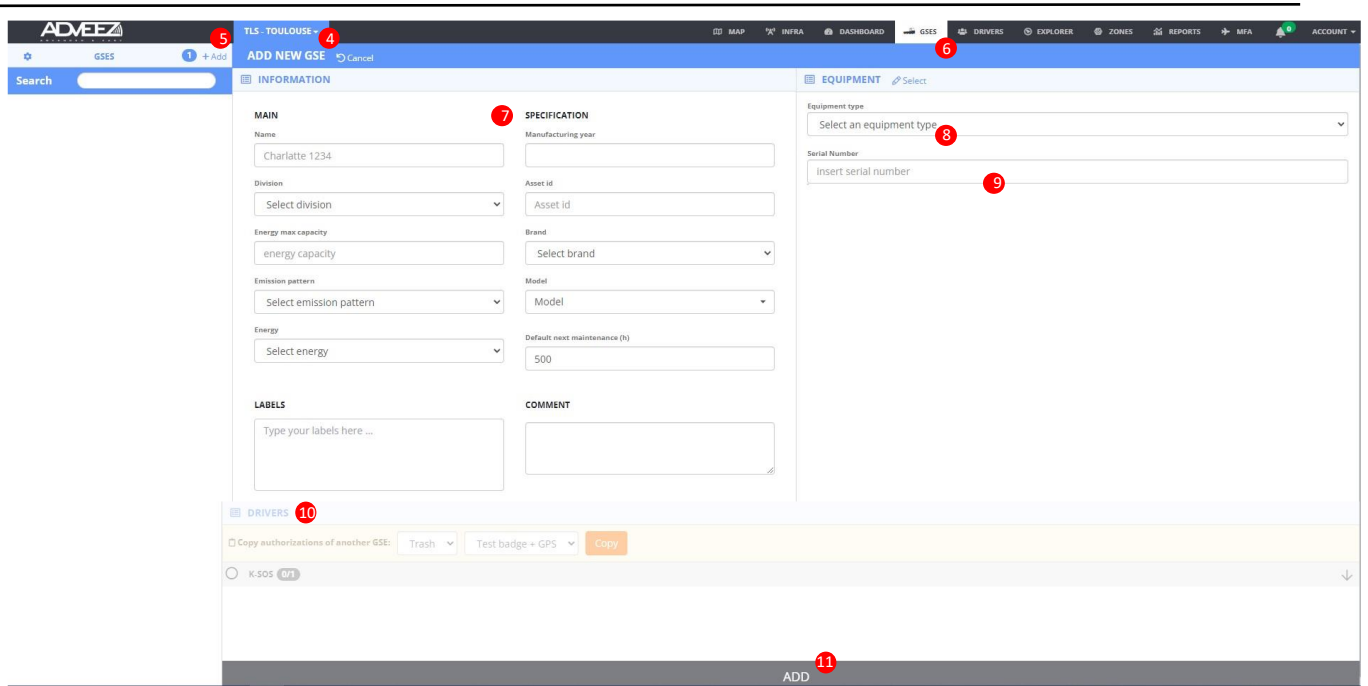


### 9.2 Configuration

1. Go to your web browser and type in the search bar: <https://localeez.adveez.com>
2. Log in with your email address and password Locale.
3. Click on "Log in".



Figure 37: Localeez



**Figure 38: Localeez "ADD GSE"**

4. Select the installation site.
5. Click on the "GSES" tab.
6. Click on the "+Add" button.
7. Enter the GSE information (name, division, make & model, energy, ...).
8. Select FAMA OBD in "EQUIPMENT".
9. Enter the FAMA serial number.
10. Add users in the "DRIVERS" section.
11. Click on "ADD".
12. Perform an action on the FAMA (shunt, movement, pass a badge on the reader, ...).
13. Check the escalation of the associated event.
14. Click on "Configure" in the "EQUIPMENT" section.
15. Click on the "1 BASIC SETTINGS" tab
16. Match the name of FAMA with the GSE.
17. Perform an action on the FAMA.

The FAMA is now installed and configured on Localeez (access control).

---

## 10 Contact

### Technical support

Phone: +33(0)5 81 76 16 85

Email: [support@adveez.com](mailto:support@adveez.com)

Website: [www.adveez.com](http://www.adveez.com)

Helpdesk: [helpdesk.adveez.com](http://helpdesk.adveez.com)

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## 11 Diagnostic

*This chapter allows you to perform a diagnosis on the FAMA OBD system according to several types of possible failures.*

### 11.1 FAMA does not turn on

- 1- Check voltage between +bat and -bat
- 2- Start the vehicle.
- 3- Check if you see the vehicle with LHC Mobile
- 4- Put a main cable just with power + and power supply - without the other wires
- 5- Set a voltage between 9V and 80V
- 6- If the FAMA turns on check the wiring on the vehicle
- 7- If the FAMA does not turn on, contact ADVEEZ Support

### 11.2 GNSS/GSM problem

- 1- Check GNSS and GSM antenna cable
- 2- Physically check the antenna
- 3- Check GNSS status on Localeez
- 4- Contact ADVEEZ Support

### 11.3 The vehicle can start without a badge (access control enabled)

- 1- Check if the bypass contact is not enabled
- 2- Check the connections on the vehicle at the starter
- 3- Remove the two contact wires from ADVEEZ access control (orange wires)
- 4- Without resetting the original beam try to start
  - a. If the vehicle starts, then a wiring change has been made to the vehicle, the vehicle should not start if the connections have not been restarted since the starter wires are cut.
  - b. Contact your maintenance department
- 5- If the vehicle does not start, check that there is no continuity between the two orange wires
- 6- Disconnect the main cable from the FAMA and reconnect the two orange cables to the starter contacts
  - a. If the vehicle starts, then the shunt cable or main cable is damaged
- 7- If the vehicle does not start, connect the main FAMA cable and retest
- 8- Contact ADVEEZ Support

### 11.4 The vehicle does not start

- 1- Shunter the vehicle
  - a. If the vehicle still does not start, reconnect the starter wires
  - b. If the vehicle still does not start, check the bypass wires and contact maintenance
- 2- If the vehicle starts, check the status of the Pedal on Locale.
- 3- Pass the badge
  - a. If not detected, check the drive wiring
  - b. If the wiring is good, check that a color change occurs on the drive and a beep sounds. Contact ADVEEZ support if this is not the case
  - c. Check that your badge is associated with this vehicle.
- 4- Check that the relay closes between the two orange wires
- 5- Test again if the problem persists contact ADVEEZ support

---

## 11.5 Event issue on Localeez

- 1- Check the operation of the vehicle with the FAMA
- 2- Checking GNSS/GSM ([Chapter 2](#))
- 3- Check date on Localeez
- 4- Check the FAMA version
- 5- Check if events are in the memory of FAMA
- 6- Contact ADVEEZ Support

## 11.6 Problem on Mifare reader

- 1- Check that the reader is turned off when there is no contact
- 2- Check that the reader lights up when the ignition is present (check on LHC Mobile that the Pedal input is active in "DIAGNOSTICS")
  - a. Otherwise check the wiring
  - b. Check that the connector is connected to the FAMA
  - c. Check the voltage on the wires of the reader
  - d. Change HID reader
- 3- Pass a badge
  - a. If nothing happens check the wiring on the reader
  - b. Check that the connector is connected to the FAMA
  - c. Check the voltage on the wires of the reader
  - d. Change HID reader
- 4- If the LEDs flash 5 times and a buzzer sounds, check on Localeez that the badge is accredited on this vehicle.
- 5- If the LEDs only flash once, check the wiring
- 6- Contact Adveez Support

## 11.7 Problem on an input (pedal, working, ...)

- 1- Check that the input is working properly on the vehicle
- 2- Check the voltage at the terminals of the desired input (e.g. between pedal + and pedal -)
- 3- Check on LHC Mobile that the input is activated in the "DIAGNOSTICS" section
- 4- Check that the entrance is not damaged by putting another entrance in its place
- 5- Contact ADVEEZ Support



---

## 12 Battery information

Caution: Risk of explosion if the battery is replaced with an incorrect battery type. Dispose of used batteries according to the instructions.



This symbol indicates that caution should be exercised where the symbol is placed and that the current situation requires the operator to be aware or to take action to avoid undesirable consequences.



Instructions must be read before use



The used product cannot be disposed of in a traditional garbage can. It must be routed to a specific collection point.



---

## 13 Warning to users in the United States

### Federal Communication Commission Interference Statement 47 CFR Section 15.105(b)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device FAMA OBD 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.

### NO UNAUTHORIZED MODIFICATIONS

47 CFR Section 15.21

**CAUTION:** This equipment may not be modified, altered, or changed in any way without signed written permission from ADVEEZ. Unauthorized modification may void the equipment authorization from the FCC and will void the ADVEEZ warranty.

This device complies with FCC RF radiation exposure limits set forth for general population (uncontrolled exposure). This device must be installed to provide a separation distance of at least 20cm from all persons and must not be collocated or operating in conjunction with any other antenna or transmitter.

#### 13.1 Inner LTE/GNSS module RF exposure

This equipment must be installed and operated in accordance with provided instructions<sup>1</sup> and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be collocated or operating in conjunction with any other antenna or transmitter. End-users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

#### 13.2 Inner BLE module RF exposure

The product complies with the US portable RF exposure limit set forth for an uncontrolled environment and are safe for intended operation as described in this manual<sup>2</sup>. The further RF exposure reduction can be achieved if the product can be kept as far as possible from the user body or set the device to lower output power if such function is available. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

## 14 Warning to users in the Canada

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

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<sup>1</sup> User manual provided for FCC certification: <https://fcc.report/FCC-ID/2AJYU-SIM7000G/4050993>

<sup>2</sup> User manual provided for FCC certification: <https://fcc.report/FCC-ID/SQGBL651/3980161>

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Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

This device complies with Industry Canada RF radiation exposure limits set forth for general population (uncontrolled exposure). This device must be installed to provide a separation distance of at least 20cm from all persons and must not be collocated or operating in conjunction with any other antenna or transmitter.

This device has been designed to operate with the antenna(s) listed below, and having a maximum gain of 2.5dBi (LTE). Antennas not included in this list or having a gain greater than 2.5dBi (LTE) are strictly prohibited for use with this device. The required antenna impedance is 50 ohms.

List of acceptable antenna(s):

- *JCB046L (GPS+LTE Combination Antenna)*
- *JCB305L (GPS+LTE Combination Antenna)*