



USER MANUAL

INFOAIR PLATFORM

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HISTORY		
Revision	Description	Date
0	preliminary	Feb 10 th 2023
1	Update	Apr 4 th 2023

Glossary

- Tracker-gps FMC125 4G Advanced 4G LTE Cat1 tracker with flexible inputs;



InfoAir System Architecture

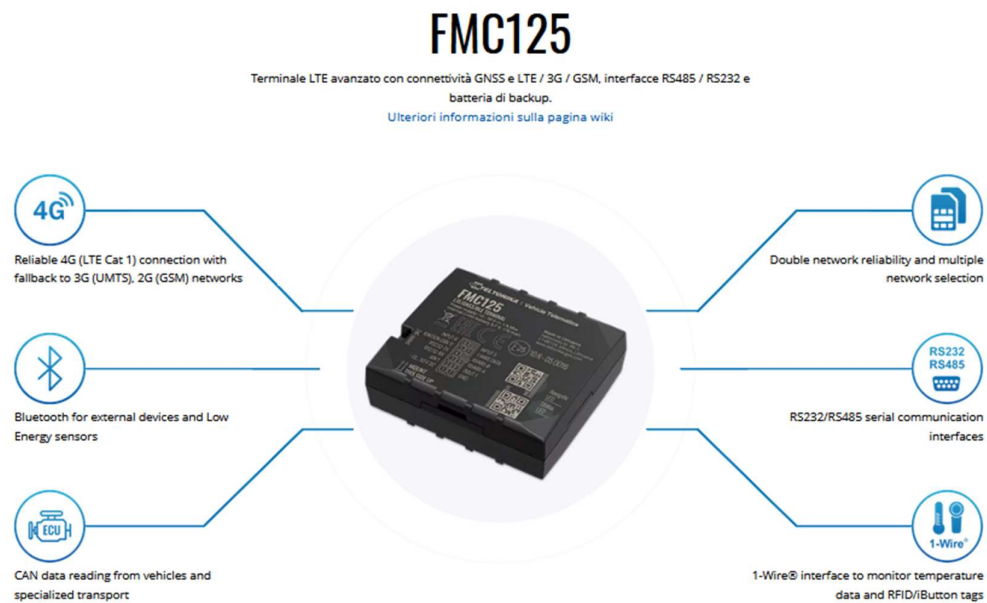
The architecture of the InfoAir system is based on three components:

- 1) ***The electronic board*** - It manages all the components of the heater such as burner, fan, control keyboard, ntc probe, remote thermostat and determines its operating logic. This prerogative allows it the ability to make available to the InfoAir system, all the parameters that determine its operation of the heater.

The electronic board is the only settling element that makes up the InfoAir architecture, in the sense that it can function independently and does not necessarily need the other two components that extend its potential but are not binding.
- 2) ***Tracker-gps*** - Interfaces with the electronic board of the InfoAir system and provides data transfer to and from the computer platform. Independently it provides heater location and fuel level indication. A bluetooth sensor can be associated with the tracker-gps for reading the air temperature of a ambiente, which enables it to perform the function of a wireless remote thermostat.
- 3) ***Computer Platform*** - The data collected by the electronic card and sent by the tracker-gps to the reference server are processed and displayed on a specific computer platform that has the specific task of making them understandable to operators. The InfoAir platform can also send specific commands to the electronic board to set parameters, activate functions or inhibit its operation.

Tracker-gps FMC125 di Teltonika

The device chosen as the tracker-gps is Teltonika's FMC125, a state-of-the-art device whose main functions are given below



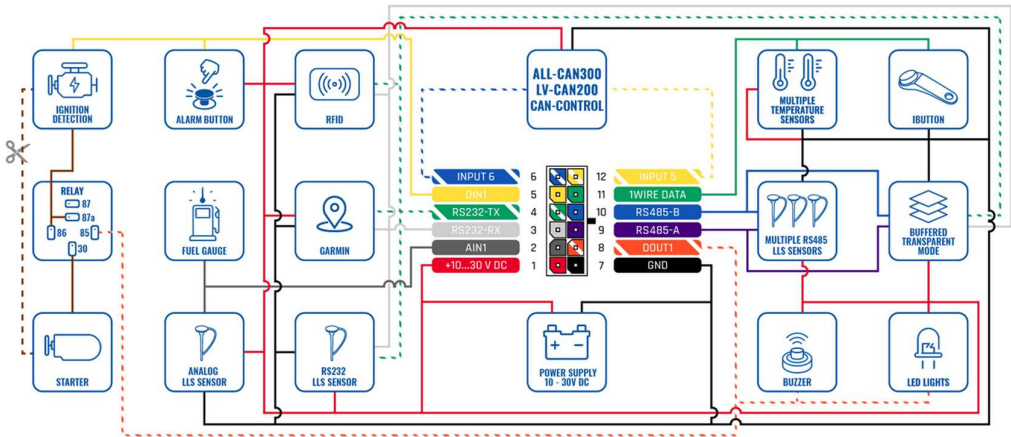
The tracker-gps connects to the circuit board via a special 6-pin polarized connector; the connection cable is supplied with the device. The tracker-gps does not need to be configured or programmed, to start using it simply connect it to the electronic board of the InfoAir system.

2x6 socket pinout

PIN NUMBER	PIN NAME	DESCRIPTION
1	VCC (10-30)V DC (+)	Power supply (+10-30 V DC).
2	AIN 1/DIN 2	Analog input, channel 1. Input range: 0-30 V DC / Digital input, channel 2.
3	RS232-RX	Input for data reception through RS-232.
4	RS232-TX	Output for data transmission through RS-232.
5	DIN 1	Digital input, channel 1.
6	INPUT 6	TX EXT (LVCAN - TX).
7	GND (-)	Ground.
8	DOUT 1	Digital output, channel 1. Open collector output. Max. 0.5 A DC.
9	RS485-A	Signal wire A for RS-485.
10	RS485-B	Signal wire B for RS-485.
11	1WIRE DATA	Data for 1-Wire devices.
12	INPUT 5	RX EXT (LVCAN - RX).



FMC125 WIRING SCHEME



Caratteristiche tecniche del Tracker-gps

Module

Name	FMC125-MBIB0: MeiG SLM320-E with Teltonika TM2500 FMC125-MCIB0: MeiG SLM320-LA with Teltonika TM2500
Technology	LTE(Cat1)/2G(GSM/GPRS)/GNSS/BLUETOOTH

GNSS

GNSS	GPS, GLONASS, GALILEO, BEIDOU, SBAS, QZSS, DGPS, AGPS
Receiver	33 channel
Tracking sensitivity	-165 dBm
Accuracy	< 2.5 m CEP
Hot start	< 1 s
Warm	< 25 s
Cold start	< 35 s

Cellular

Technology	LTE Cat 1, GSM
4G LTE Cat 1 bands	FMC125-MBIB0: LTE FDD: B1/B3/B7/B8/B20/B28 LTE-TDD:B38/B40/B41 FMC125-MCIB0: LTE FDD: B1/B2/B3/B4/B5/B7/B8/B20/B28 LTE-TDD:B40
Data transfer	LTE: LTE FDD: Max 10Mbps (DL)/Max 5Mbps (UL) LTE TDD: Max 8Mbps (DL)/Max 2Mbps (UL) GSM: GPRS: Max 85.6Kbps (DL)/Max 85.6Kbps (UL)
Data support	SMS (text/data)

Power

Input voltage range	10–30 V DC with overvoltage and reverse polarity protection
Internal Back-up battery	170 mAh Li-Ion battery, 3.7 V (0.63 Wh)
Internal fuse	3A, 125V
Power consumption	At 12V < 4 mA (Ultra Deep Sleep) At 12V < 6 mA (Deep Sleep) At 12V < 12 mA (Online Deep Sleep) At 12V < 19 mA (GPS Sleep) At 12V < 36 mA (nominal with no load) At 12V < 1A Max. (with full Load / Peak)

Bluetooth

Specification	4.0 + LE
Supported peripherals	Temperature and Humidity sensor, Inateck Barcode Scanner, Universal BLE sensors support

Physical specification

Dimensions	65 x 56,6 x 20,6 mm (L x W x H)
Weight	62 g

Operating environment

Operating temperature (without battery)	-20 °C to +85 °C
Storage temperature (without battery)	-20 °C to +85 °C
Operating temperature (with battery)	Operating temperature (with battery) -20 °C to +40 °C
Storage temperature (with battery)	Storage temperature (with battery) -20 °C to +45 °C
Operating humidity	5% to 95% non-condensing
Ingress Protection Rating	IP41
Battery charge temperature	0 °C to +45 °C
Battery discharge temperature	-20 °C to +60 °C
Battery storage Temperature	-20 °C to +45 °C for 1 month / -20 °C to +35 °C for 6 months

Interface

Digital Inputs	2
Digital Outputs	1
Analog Inputs	1
CAN Adapter Inputs	1
1-Wire	1
RS232	1
RS485	1
GNSS antenna	Internal High Gain
Cellular antenna	Internal GSM High Gain
USB	2.0 Micro-USB
LED indication	2 status LED lights
SIM	2x SIM Card (Dual-SIM)
Memory	128MB internal flash memory

Features

Sensors	Accelerometer
Scenarios	Green Driving, Over Speeding detection, GNSS Fuel Counter, DOUT Control Via Call, Excessive Idling detection, Immobilizer, iButton Read Notification, Unplug detection, Towing detection, Crash detection, Auto Geofence, Manual Geofence, Trip, Jamming
Sleep modes	GPS Sleep, Online Deep Sleep, Deep Sleep, Ultra Deep Sleep
Configuration and firmware	FOTA WEB, FOTA, Teltonika Configurator (USB, Bluetooth), FMBT mobile application
Update	(Configuration)

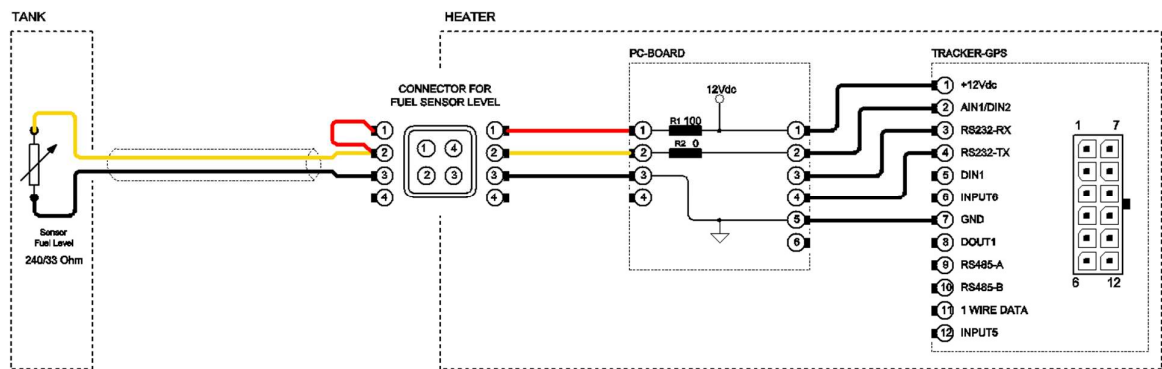
SMS	Configuration, Events, DOUT control, Debug
GPRS commands	Configuration, DOUT control, Debug
Time Synchronization	GNSS, NITZ, NTP
Fuel monitoring	LLS (Analog), Digital LLS (RS232, RS485), LV-CAN200, ALL-CAN300, CAN-CONTROL, OBDII dongle
Ignition detection	Digital Input 1, Accelerometer, External Power Voltage, Engine RPM (CAN Adapters, OBDII Dongle)
RS232 Modes	Log Mode, NMEA, LLS, LCD, RFID HID/MF7, Garmin FMI, TCP ASCII/Binary, Satellite Backup (Iridium Edge)
RS485 Modes	Log Mode, NMEA, LLS, TCP ASCII/Binary
Certification & approvals	
Regulatory	CE/RED, E-Mark, EAC, RoHS, REACH, CITC, RCM

Fuel Level Sensor

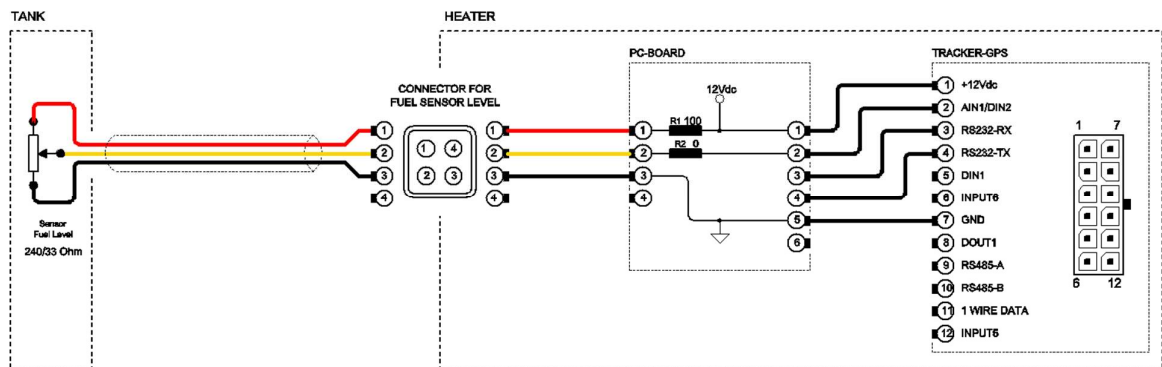
The InfoAir platform is prepared for reading level sensors whose variable resistance is between 240 and 33 ohms with both two and three pins.

The length of the sensor should be chosen in relation to the size of the external fuel tank and is at the customer's discretion. To have a correct match between what the platform displays and the actual data, the length of the sensor and the depth of the tank must coincide.

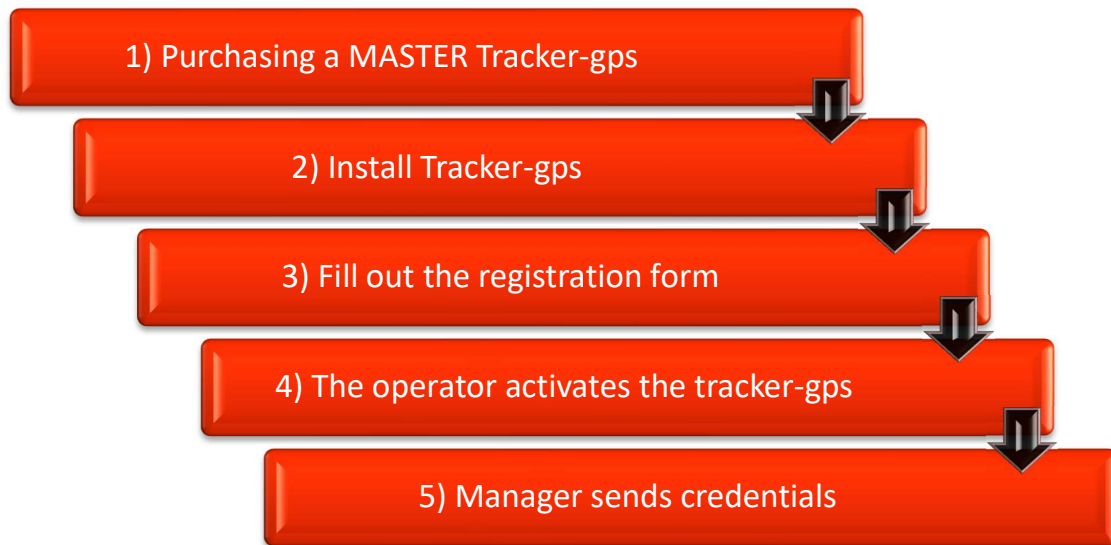
240-33 ohm two-terminal level sensor;



240-33 ohm three-terminal level sensor;



How to Access InfoAir Service



1)	BUY A TRACKER-GPS MASTER	The tracker-gps must be purchased from the MASTER sales network. A third-party tracker-gps cannot be used.
2)	TRACKER-GPS INSTALLATION	With the tracker-gps comes complete with a cable for connection to the heater control board and an instruction sheet. Assembly is quick and electrical connections secure by adopting a specific polarized connector.
3)	REGISTRATION FORM	On the Dantherm Group website under the MASTER section, a link to the registration form is available. By filling in all fields correctly and agreeing to the terms of service provision, the customer signs the supply contract.
4)	THE MANAGER ACTIVATES THE TRACKER-GPS	Following subscription to the InfoAir service, the platform operator will register the tracker-gps on the platform and configure it.
5)	MANAGER SENDS CREDENTIALS	Following the subscription to the InfoAir service, the platform operator will send the credentials for access to the InfoAir service. If the customer already has an InfoAir account, the activation procedure ends with step 4.

InfoAir platform registration form

After filling out the online registration form in its entirety and accepting the terms of service provision, the InfoAir platform operator will:

- 1) Enter the new user;
- 2) Send login credentials for the new user;
- 3) Associate user, tracker-gps (IMEI) and heater (Model and serial number);

**infoAir**
CLIMATE SOLUTIONS

**MASTER**
CLIMATE SOLUTIONS

MASTER INFOAIR

Modulo d'ordine e attivazione per il servizio MASTER INFOAIR per l'interconnessione dei vostri sistemi Dantherm.

Compilando il presente modulo si richiede l'attivazione dei sistemi INFOAIR e dei servizi ad essi connessi.

* Ragione Sociale

* Partita IVA

* Indirizzo completo della sede legale per l'instestazione del contratto

* Persona di riferimento ed eventuale contatto telefonico

* email per gestione contratto

* Elenco codici IMEI dei kit INFOAIR, numero di serie della macchina e modello

* email per segnalazione eventi

Tutti i dati ricevuti saranno trattati in forma telematica e cartacea al solo fine della gestione del Contratto che sarà stipulato in seguito. Non saranno comunicati se non a soggetti necessari per l'espletamento delle funzioni (a titolo esemplificativo ma non esaustivo studi di amministrazione e contabilità). Il conferimento dei dati è facoltativo, tuttavia, in difetto, non sarà possibile procedere all'esecuzione del Contratto. Le Parti potranno richiedere al Responsabile del trattamento dei dati pro-tempore della controparte, l'accesso, la modifica e la cancellazione dei dati od opporsi al loro utilizzo, a norma dell'art. 13 del Regolamento europeo 679/2016.

Ciascuna Parte, nel rapporto con la propria clientela nonché limitatamente ai trattamenti dalla medesima effettuati, si farà carico degli adempimenti richiesti dal Regolamento europeo 679/2016 e s.m.i., manlevando e tenendo indenne l'altra Parte da eventuale responsabilità, danno, reclamo, e/o azione vantata da terzi, incluso costi e/o spese anche legali.

☐ Accetto ☐ Non accetto

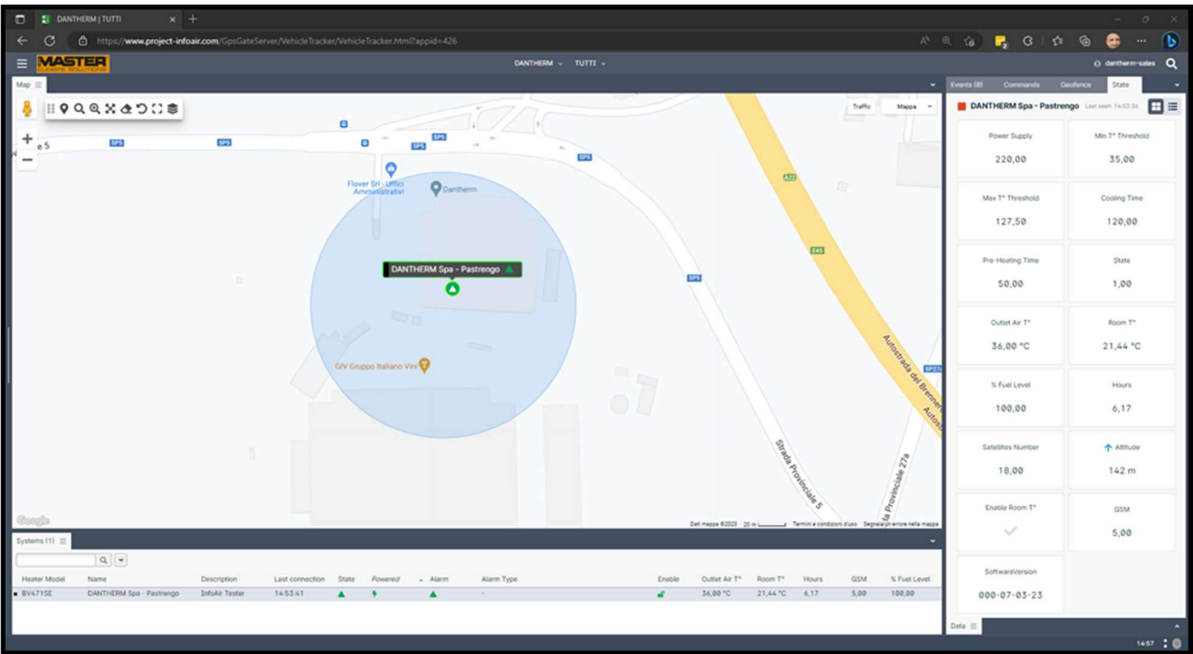
Selezionando "accetta", il cliente accetta di essere contattato per perfezionare il contratto e per ricevere eventuali ulteriori informazioni necessarie per la stipula dello stesso.

☐ Accetto ☐ Non accetto

* Data

InfoAir Platform

The InfoAir system's computer platform collects the data made available by the electronic board that operates the heater, transmitted by the tracker-gps, and makes it usable by the operator.



The platform allows you to:

1) Read the identification data of the heater:

- Heater Model;
- Name;
- Serial Numbers;

Heater Model	Name	Description
■ BV471SE	DANTHERM Spa - Pastrengo	InfoAir Tester

2) Read/modify heater operating parameters

This function allows you to remotely check the heater operating parameters and change them if necessary to better suit the needs of the application or provide assistance to a customer.

State	Powered	Alarm	Alarm Type	Enable	Outlet Air T°	Room T°	Hours	GSM	% Fuel Level
▲	⚡	▲	-	🟢	15,00 °C	21,44 °C	6,50	5,00	45,00

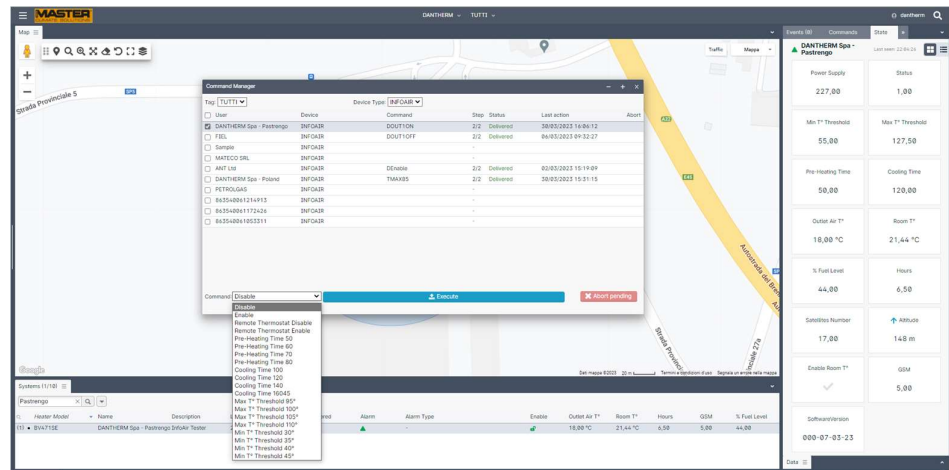
Available parameters are:

- Power supply;
- State;
- Min T° Threshold;
- Max T° Threshold;
- Pre-Heating Time;
- Cooling Time;
- Outlet Air T°;
- Room T°;
- % Fuel Level;
- Hours;
- Altitude;

Events (0)	Commands	Geofence	State
<div> Last seen: 09:30:43 </div>			
Power Supply	Status		
220,00	1,00		
Min T° Threshold	Max T° Threshold		
55,00	127,50		
Pre-Heating Time	Cooling Time		
50,00	120,00		
Outlet Air T°	Enabled		
15,00 °C	✓		
% Fuel Level	Hours		
44,00	6,50		
Room T°	Enable Room T°		
21,44 °C	✓		
Altitude	Satellites Number		
113 m	22,00		
GSM	SoftwareVersion		
5,00	000-07-03-23		

The editable parameters are:

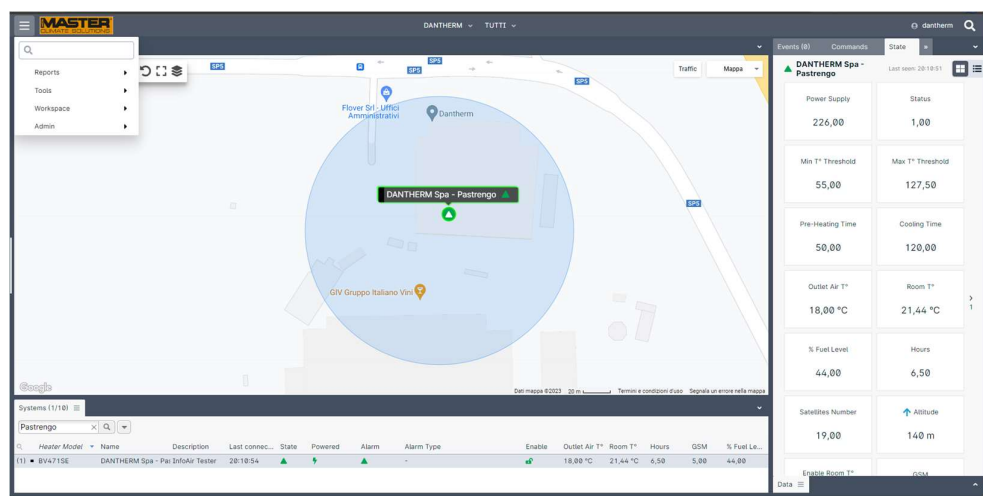
- Min T° Threshold;
- Max T° Threshold;
- Pre-Heating Time;
- Cooling Time;



3) Geo-Locate the heater:

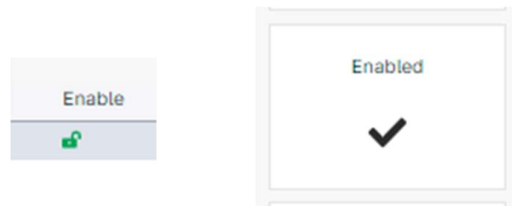
This function allows the location of the heater to be known very precisely and track its movements over time.

By associating the location of the heater with a perimeter that defines a working area for it, the platform will send a notification if this limit is exceeded for the heater.



4) Enable/Disable functions such as:**- Enable Heater;**

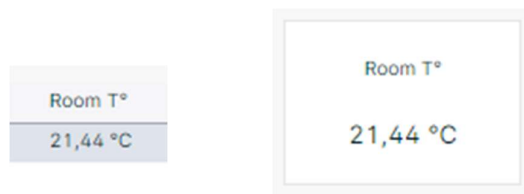
This function allows you to disable/re-enable the heater connected to the tracker-gps, remotely, via the platform. When disabled, the heater will go into a safe state (if it's running, it will turn off the burner and perform cooling before turning off the fan) after which it ignores all commands consequently operation is inhibited. Since this is a state of the control board, removing the tracker-gps does not restore the heater's functionality.



If a heater is disabled, dedicated graphics are initiated on the displays of the 6 digits of the heater.

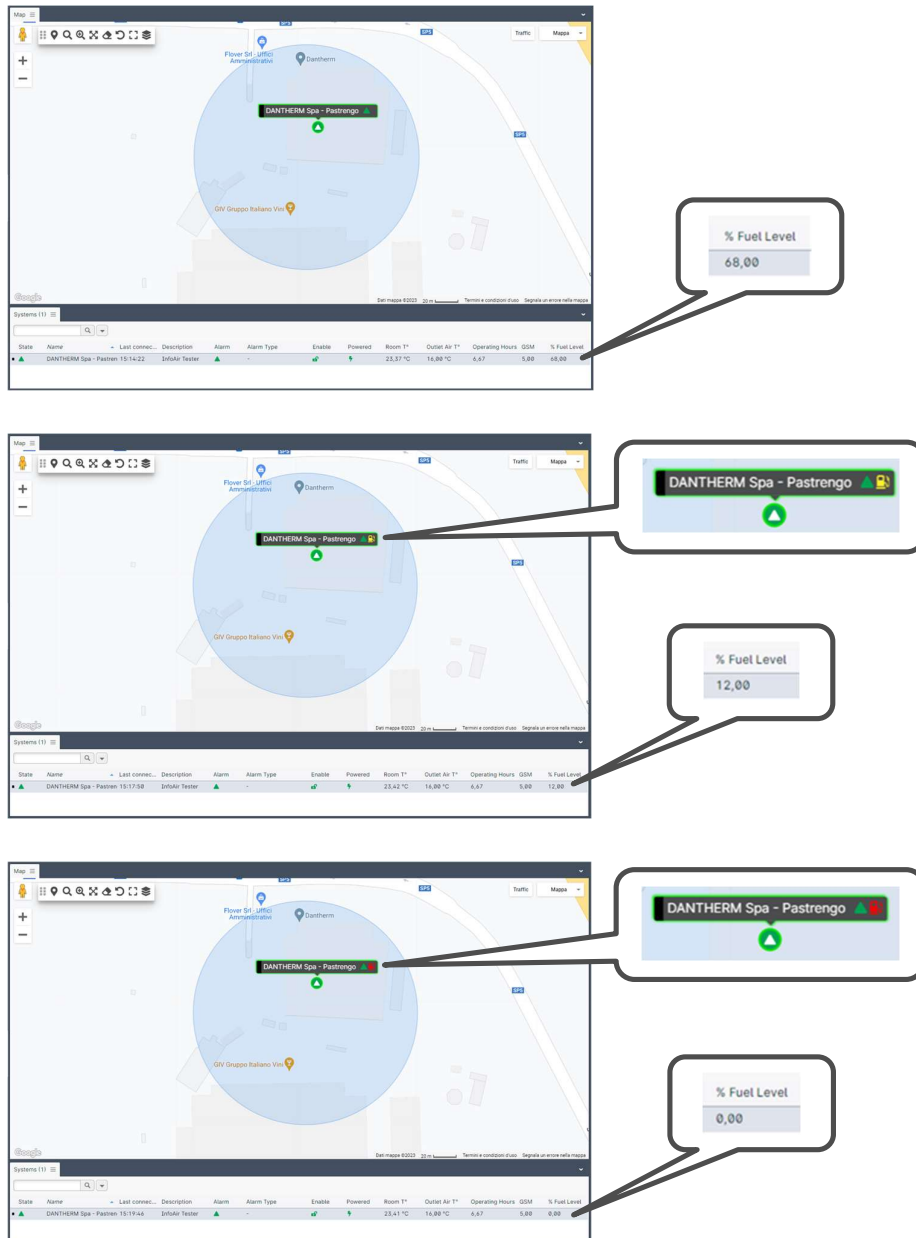
- Enable Room T°

This function enables/disables the remote thermostat function via the bluetooth sensor. When enabled, the tracker-gps checks whether the temperature provided by the bluetooth sensor is above the reference threshold set by the user on the InfoAir platform, and when this occurs it turns off the heater. Similarly, if the temperature provided by the bluetooth sensor falls below the set threshold, it restarts the heater. (Parametro soglia - Carmine)



5) Display the fuel level in %

By connecting an external level sensor to the appropriate connector on the heater, the fuel level can be remotely monitored. The platform will constantly display a percentage referring to the contents of the tank to this is flanked by an icon depicting the gasoline pump in yellow color when the level drops below 20 percent which turns red when the level drops below 10 percent, a condition with which an e-mail notification is associated.



6) Accounting for actual hours of operation

The platform records hours of operation on a daily basis. Having this data available makes it very easy to generate reports that attest to the hours of operation over a given time period. The reports can be downloaded, printed or emailed.

Operating hours

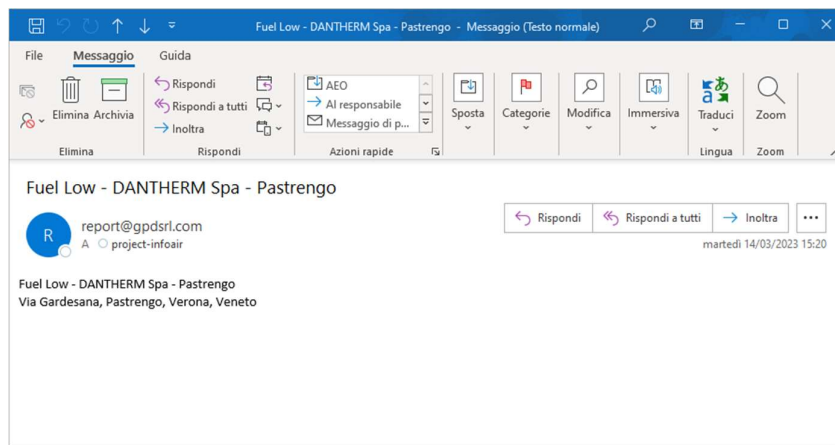
Events, grouped by event rule.

Period Start: 01/03/2023
Period End: 31/03/2023
Total Events: 9
Total Systems: 1
Total Duration: 0:18:38

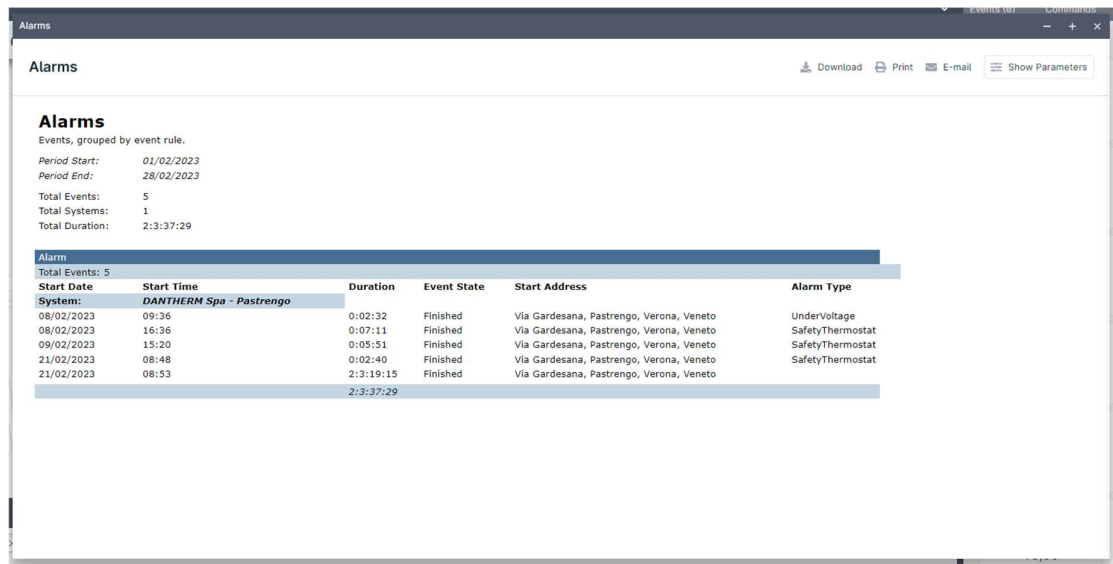
Start Date	Start Time	Duration	Event State	Start Address
01/03/2023	17:20	0:02:44	Finished	Via Gardesana, Pastrengo, Verona, Veneto
07/03/2023	17:24	0:01:28	Finished	Via Gardesana, Pastrengo, Verona, Veneto
10/03/2023	17:09	0:01:20	Finished	Via Gardesana, Pastrengo, Verona, Veneto
10/03/2023	17:43	0:01:49	Finished	Via Gardesana, Pastrengo, Verona, Veneto
10/03/2023	17:46	0:03:20	Finished	Via Gardesana, Pastrengo, Verona, Veneto
10/03/2023	17:53	0:04:21	Finished	Via Gardesana, Pastrengo, Verona, Veneto
31/03/2023	14:04	0:01:05	Finished	Via Gardesana, Pastrengo, Verona, Veneto
31/03/2023	15:46	0:00:22	Finished	Via Gardesana, Pastrengo, Verona, Veneto
31/03/2023	15:48	0:00:08	Finished	Via Gardesana, Pastrengo, Verona, Veneto
		0:18:38		

7) Notification of an alarm status

The platform displays via a dedicated icon that changes its color from green (normal situation) to red the presence of an alarm. Each alarm is associated with a description that identifies it and is followed by a notification to the user.



It is also possible to create a report for alarms that states whether or not they were triggered in a given time period. Reports can be downloaded, printed or emailed.



Alarms

Events, grouped by event rule.

Period Start: 01/02/2023
Period End: 28/02/2023

Total Events: 5
Total Systems: 1
Total Duration: 2:37:29

Start Date	Start Time	Duration	Event State	Start Address	Alarm Type
System: DANTHERM Spa - Pastrengo					
08/02/2023	09:36	0:02:32	Finished	Via Gardesana, Pastrengo, Verona, Veneto	UnderVoltage
08/02/2023	16:36	0:07:11	Finished	Via Gardesana, Pastrengo, Verona, Veneto	SafetyThermostat
09/02/2023	15:20	0:05:51	Finished	Via Gardesana, Pastrengo, Verona, Veneto	SafetyThermostat
21/02/2023	08:48	0:02:40	Finished	Via Gardesana, Pastrengo, Verona, Veneto	SafetyThermostat
21/02/2023	08:53	2:31:15	Finished	Via Gardesana, Pastrengo, Verona, Veneto	
		2:37:29			

8) Pair a bluetooth sensor

The tracker-gps can be paired with an ELA bluetooth sensor for temperature measurement. Pairing the bluetooth sensor with the tracker-gps can be done at the time of purchase or at a later time. The InfoAir platform shows the temperature detected by the sensor even when the "Enable Room T°" function that turns it into a remote thermostat is not active, this allows the sensor to be used also as a simple temperature monitor.



9) Manages the firmware installed on the electronic board that controls the heater

The parameter

- Software Version;

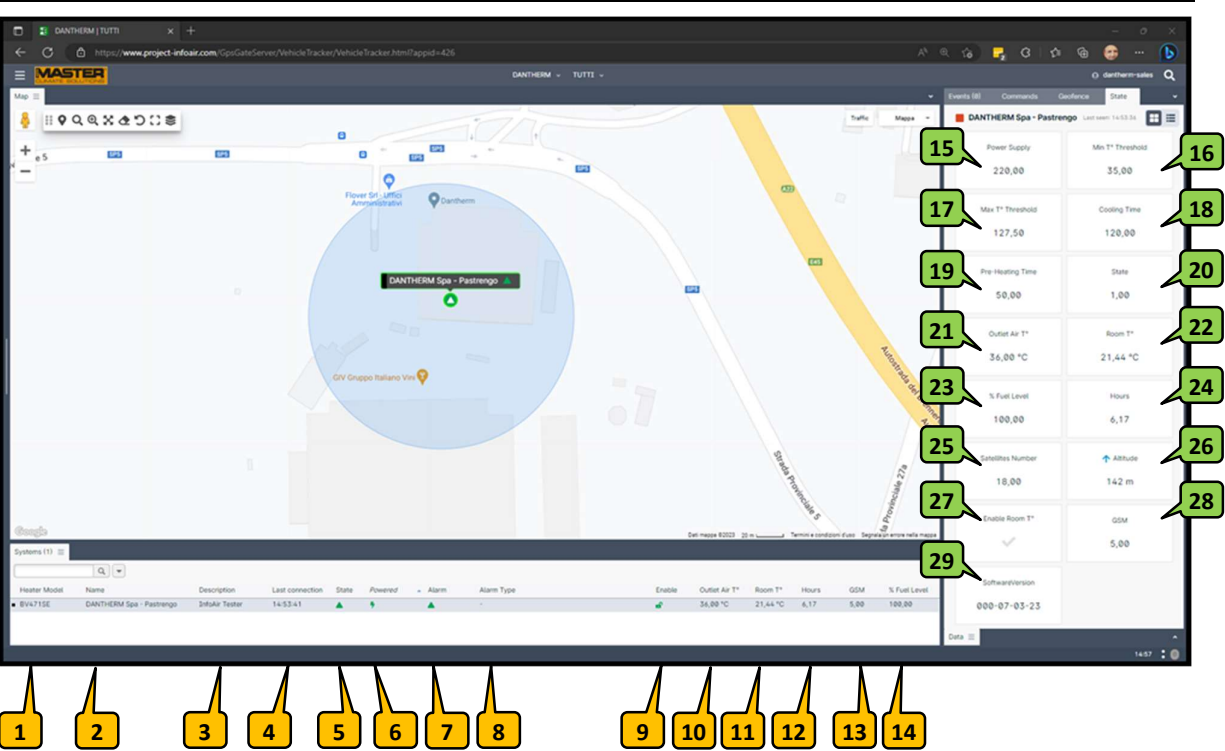
shows which firmware release is installed on the electronic board that manages the heater. This lets you know if the firmware is up-to-date or an update is needed.

The function

- Software Update (working progress);

allows the firmware of the heater to be updated, thus simplifying assistance to customers in case of need.

Description Platform InfoAir



Systems			
Point	Item	Description	Range
1	Heater Model	Shows the model of the heater that mounts the tracker-gps	
2	Name	Reference to identify the heater	
3	Description	Description to identify the heater	
4	Last Connection	Time of the last connection of the tracker-gps	
5	State	Icon State	1-109
6	Powered	Show if the heater is powered	
7	Alarm	Icon alarm	
8	Alarm Type	Description of alarm	
9	Enable	Show if the heater is enabled or not	
10	Outlet Air T°	Show the temperature measured by the ntc sensor of the heater	
11	Room T°	Show the temperature measured by the bluetooth sensor	
12	Hours	Show heater operating hours	
13	GSM	Show the quality of the gsm connection	
14	% Fuel Level	Show the fuel level in percentage	0-100 %

State			
Point	Item	Description	Range
15	Power Supply	Show the voltage with which the heater is powered	180-250 Vac
16	Min T° Threshold	Shows the temperature, reached which, cooling ends	30-35-40-45 °C
17	Max T° Threshold	T° at which the burner is turned off to limit the maximum air outlet temperature	95-100-105-110 °C
18	Cooling Time	T° at which the fan is turned off to limit the minimum air outlet temperature	100-120-140-160 sec
19	Pre-Heating Time	Shows the time, after which, the fan is turned on	50-60-70-80 sec
20	State	Shows what the heater is doing	1 up to 109
21	Outlet Air T°	Show the temperature measured by the ntc sensor of the heater	
22	Room T°	Show the air temperature measured by Bluetooth sensor	
23	% Fuel Level	Show the fuel level in percentage	0-100 %
24	Hours	Show heater operating hours	
25	Satellites Numbers	Show the quality of the satellite connection	
26	Altitude	Show the altitude at which the heater is located.	
27	Enable Room T°	Shows whether remote thermostat via Bluetooth is enabled	
28	Gsm	Show the quality of the gsm connection	
29	Software Version	Shows the firmware version installed on the heater control board	

Hardware and Software Accessories

In order to upgrade the firmware and read/change the parameters of an InfoAir board, it is necessary to have:

- 1) A USB-RS232 converter;
- 2) An appropriate cable to connect to the board;
- 3) ModBusHost software.

4260.339 Modulo USOPTLA		USB to RS232 Converter
4260.340 Cavo USOPTLA – Microfit 6 poli InfoAir		Cavo per il collegamento del modulo USOPTLA al Molex microfit della scheda InfoAir

Dantherm S.p.A.
Via Gardesana 11
37010 Pastrengo (VR)
Italy
t.: +39 045 6770533
e.: info.it@danthermgroup.com



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