Brand: POWERONE
Type: Solar On Grid String Inverter
Models: 10kW-SGTU-103, 12.5kW-SGTU-1253, 15kW-SGTU-153, 17kW-SGTU-173, 20kW-SGTU-203, POM SGTU 30kW, SGTU-333N, POM SGTU 50kW

DOCUMENT DETAILS

Following Document Explains Connections of TrackSo Logger with PowerOne Inverters for Following Type

1) 10kW-SGTU-103, 12.5kW-SGTU-1253, 15kW-SGTU-153, 17kW-SGTU-173, 20kW-SGTU-203, SGTU-333N
    a. Type A- with RS485 Output
    b. Type B- with RS232 Output

2) POM SGTU 30kW, POM SGTU 50kW, POM SGTU 60kW (RS485)

Note:

Before Proceeding further kindly identify the Inverter type you are connecting with the Datalogger and accordingly proceed with the instruction mentioned for that model

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For a Modbus-RTU-RS232 type Inverter you will require logger with RS232 Communication port.

For a Modbus-RTU-RS485 type inverter you will require logger with RS485 Communication port.

1-A - The communication terminals (RS485) are located at the bottom of the inverter. And there are two connection terminals on the configuration circuit board: +- terminal blocks.

Connection steps

- Please unscrew the RS485 terminal
- Please make the connections from the Terminal Block to TrackSo IoT Gateway
- Connect RS485 + to Pin 3 on TrackSo (RS485+)
- Connect RS485 - to Pin 4 on TrackSo (RS485-)

> Valid for 10kW-SGTU-103, 12.5kW-SGTU-1253, 15kW-SGTU-153, 17kW-SGTU-173, 20kW-SGTU-203, SGTU-333N
>
> With Modbus-RTU-RS485 Output

CONFIGURATION AT THE INVERTER END

SETTING THE BAUD RATE

The communication baud rate is to be set at 9600 bit/s

SETTING THE INVERTER ID

The inverter ID is used to identify the inverter in a RS485 connection. Set Id of the Inverter to **1**

In case of multiple inverters start assigning Continuous numbering starting with 1, 2, 3, 4 …. (Range: 1 to 247)

SETTING THE DATE & TIME

For a precise calculation of the statistics in the inverter itself and in a monitoring system, date and time have to be correct.

1-B - The communication terminals (RS232) are located at the bottom of the inverter.

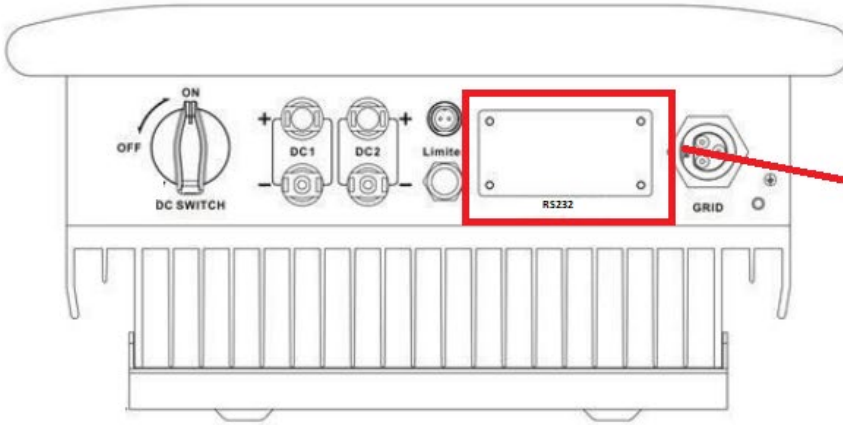| Valid for 10kW-SGTU-103, 12.5kW-SGTU-1253, 15kW-SGTU-153, 17kW-SGTU-173, 20kW-SGTU-203, SGTU-333N |
| :---: |
| With Modbus-RTU-RS232 Output |

*FigureI PT1-A – Powerone RS232 Output Communication Board*

Connection Steps:

1. This type of inverter requires a DB9 Male connector. [Link] (To be purchased seperately)
2. Plug in DB9 male connector in the Inverter
3. Please make the connections from the connector RS232 of PowerOne Inv RS232 Output to TrackSo IoT Gateway as mentioned in the Table – K*T2.*
4. Please provide 12V external supply to TrackSo IoT Gateway via 12V, 2A DC adaptor provided in the package.

PowerOne DB9 Pin No. & Assignment		TrackSo Pin No. & Assignment	
2	RX	3	RS485+
3	TX	4	RS485-

Table KT2 – PowerOne RS232 chip connections with TrackSo IoT Gateway
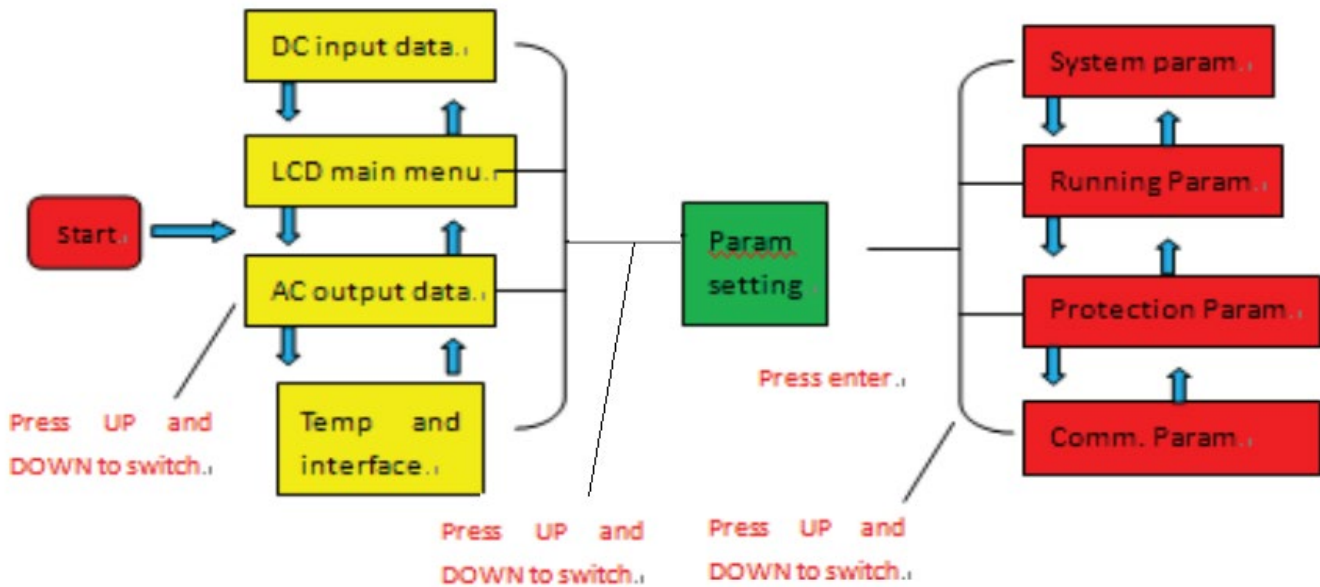

DB9 Serial port interface define
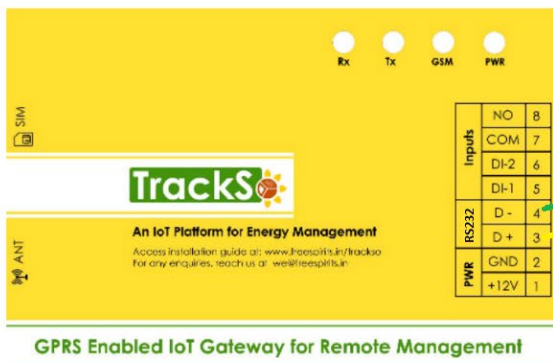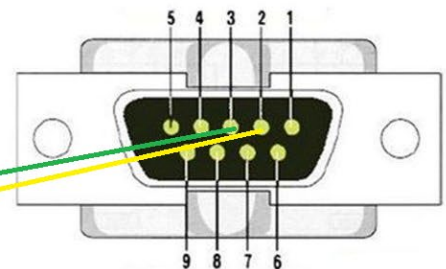
Inverter ID: 1, 2, 3, 4 ....(Set as perData Logger)

Baud Rate: 9600 (Default) (Values: 9600, 19200, 38400)

Data Bits: 8 , Stop Bit: 1 , Parity: None

With Modbus-RTU-RS232 Output

CONFIGURATION AT THE INVERTER END

Following is the Inverter interface which we will be accessing to completed inverter settings

SETTING THE BAUD RATE

The communication baud rate is to be set at 9600 bit/s

Menu >> Setup >> Comm Param > Baud Rate

SETTING THE INVERTER ID

The inverter ID is used to identify the inverter in a RS232 connection

Set a different inverter ID as per datalogger in the inverter. Otherwise, the inverter cannot be correctly identified.
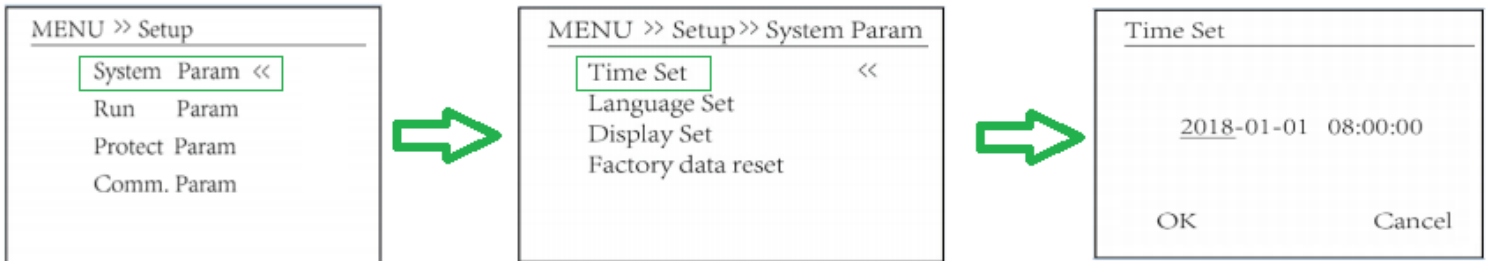
Menu >> Setup >> Comm Param > Address

SETTING THE DATE & TIME

For a precise calculation of the statistics in the inverter itself and in a monitoring system, date and time have to be correct.

Menu >> Setup >> System Param >Time Set

The above details are mentioned in the Installation & Operation Manual for PowerOne Inverters.

The communication terminals (RS485) are located at the bottom of the inverter. And there are two connection terminals on the configuration circuit board: ++ - - terminal blocks.
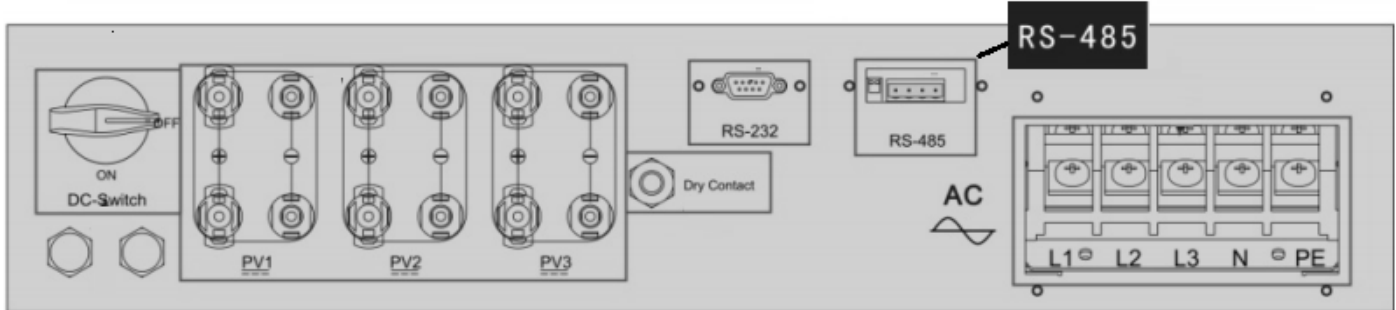

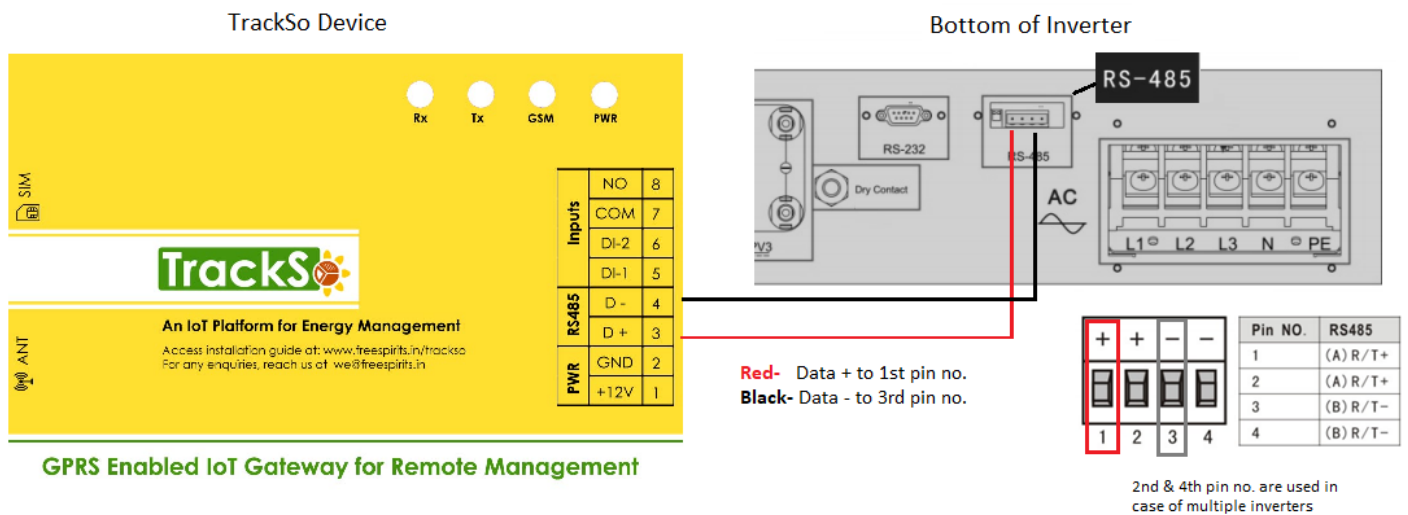*Figure P2:A– PowerOne Sring Inverter communicatio port & Connections*

Connection steps

- Please unscrew the RS485 terminal as shown in A part of *Figure K1*.
- Please make the connections from the Terminal Block to TrackSo IoT Gateway as mentioned in Table – P2T1.

PowerOne Pin No.	PowerOne Assignment	TrackSo Pin No.	TrackSo Assignment
1	R/T+	3	D+
2	R/T+	RS485 Out	
3	R/T-	4	D-
4	R/T-	RS485 Out	

Table PT2 – PowerOne RS485 connections with TrackSo IoT Gateway

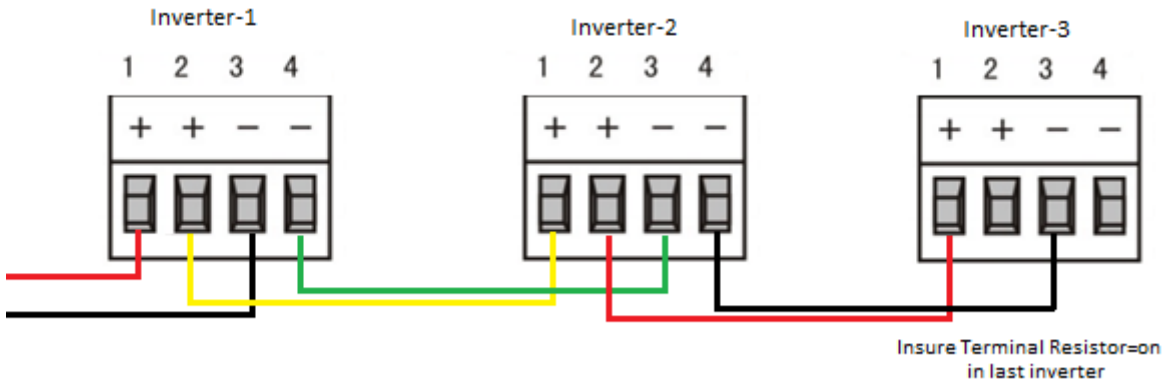RS485 Out- Used in case of Multiple Inverter Connection (Daisy chain).

TrackSo Device

Bottom of Inverter

Red- Data + to 1st pin no.
Black- Data - to 3rd pin no.

Pin NO.	RS485
1	(A) R/T+
2	(A) R/T+
3	(B) R/T–
4	(B) R/T–

2nd & 4th pin no. are used in case of multiple inverters

Multiple Inverters

Inverter-1   Inverter-2   Inverter-3

Insure Terminal Resistor=on in last inverter

Pin 2 & 4 of Inv-1 is connected to Pin 1 & 3 of next inverter in Daisy Chain.

When two or more inverters are in parallel communication, 2P DIP switch beside RS485 of the last one should be "ON". Or else, it may cause communication interruption. That 2P DIP switch is on, means connecting a 120Ω communication terminal resistance between the R/T + and R/T -)

DEFAULT CONFIGURATION IN TRACKSO IOT GATEWAY

Inverter ID: **1, 2, 3, 4 ….** Continuous numbering starting with 1, **(Range:** 1 to 247)
Baud Rate: **9600 (Default) (Values:** 9600, 19200, 38400)
Data Bits: 8 , Stop Bit: 1 , Parity: None

CONFIGURATION AT THE INVERTER END

Press Enter on LCD panel and get into settings menu, After entering into the setup interface, the system will prompt to input password, the default password is "00000"

```
-----User-----
→1:Setting
 2:Inquiry
 3:Statistics
```

```
-----Password-----
Input:    XXXXX
```
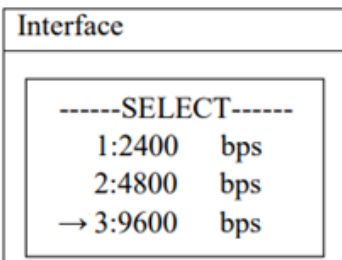
Default - 00000

SETTING THE BAUD RATE

If you connect multiple inverters via RS485, set the same baud rate on each inverter.

Option 6 under Settings Menu- 485 Baudrate

← Set the Inverter baud rate to 9600

```
Interface

------SELECT------
 1:2400    bps
 2:4800    bps
→3:9600    bps
```

Press UP/DOWN button to move corresponding options. And confirm selected option and return back the setup interface by pressing ENTER button, press ESC button to cancel choice and return back setup interface.

SETTING THE INVERTER ID

The inverter ID is used to identify the inverter in a RS485 connection

> Valid for POM SGTU 30kW, POM SGTU 50kW, POM SGTU 60kW
>
> With Modbus-RTU-RS485 Output

- Set a different inverter ID for each inverter in the PV plant. Otherwise, the inverters cannot be correctly identified.
- On the last inverter in the RS485 connection, switch on the RS485 termination resistor

Option 5 under Settings Menu- 485 address

← Set correct Inverter Ids

Interface

-----485 address-----
Input: 1

Press UP/DOWN to increase or decrease the input figure, confirm input and return back setup interface by pressing ENTER button, press ESC button to cancel input and return back setup interface;

the input numerical value is between 1 and 32.

SET DATE & TIME OF INVERTER

For a precise calculation of the statistics in the inverter itself and in a monitoring system, date and time have to be

Option 10 under Settings Menu- Date/Time

← Set the Correct Date & Time

Interface

-----Date/time-----
Date: 2000-01-01
Time: 02:43:03
Week: 6

Press UP/DOWN to increase or decrease the input figure; press ENTER button to move the cursor backwards, confirm input and return back setup interface ; and move the cursor frontward and return back setup interface by pressing ESC button.

SET COMMUNICATION PROTOCOL

← Set correct Protocol

Option 7 under Settings Menu- 485 Protocol

Interface

------SELECT------
1:**POWERONE**
→2:MODBUS

Press UP/DOWN button to move corresponding options. And confirm selected option and return back the setup interface by pressing ENTER button, press ESC button to cancel choice and return back setup interface

NOTE: The above details are extracted from Manual for mentioned in the Operating Manual of POM SGTU 30kW, POM SGTU 50kW

1. Insure correct connections as detailed in the installation guide.
2. Insert the SIM card.

Push Yellow Nob

Pull the SIM Tray

Place the SIM card In tray Inside

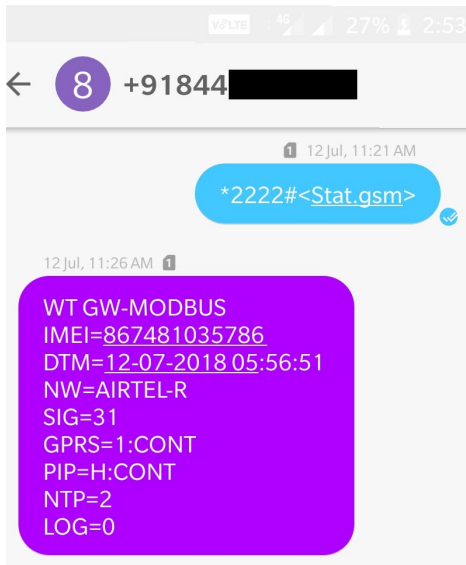Place the SIM Tray in SLOT and Push the Tray

3. Switch on the power to the TrackSo device. (Minimum 12V/1A input is required)
4. Power LED (Red) of TrackSo IoT gateway glows and stays ON.

   NOTE: TrackSo IoT Gateway will only be able to send data if the GPRS network is available at the installed location.

LED	NAME	DESCRIPTION	
GREEN	POWER	Light when Power on the device	
RED	GSM	**LED Status**	**Connection State**
		Flashing (ON for 100ms and OFF for 100ms)	SIM Card not found
		Flashing (ON for 500ms and OFF for 500ms)	Searching for GSM Network
		Flashing (ON for 0.1s and OFF for 2.9s) Once at every 3sec	GSM Network Registered
		Flashing twice at every 3sec	GPRS IP Connected
		Flashing 5times	GPRS IP Sending data
		LED OFF	GSM Fault
GREEN	COM TX	Blink on data transmission in RS485 port	
YELLOW	COM RX	Blink on data reception in RS485 port	

5. To check the exact network status send the following message to mobile number of the device
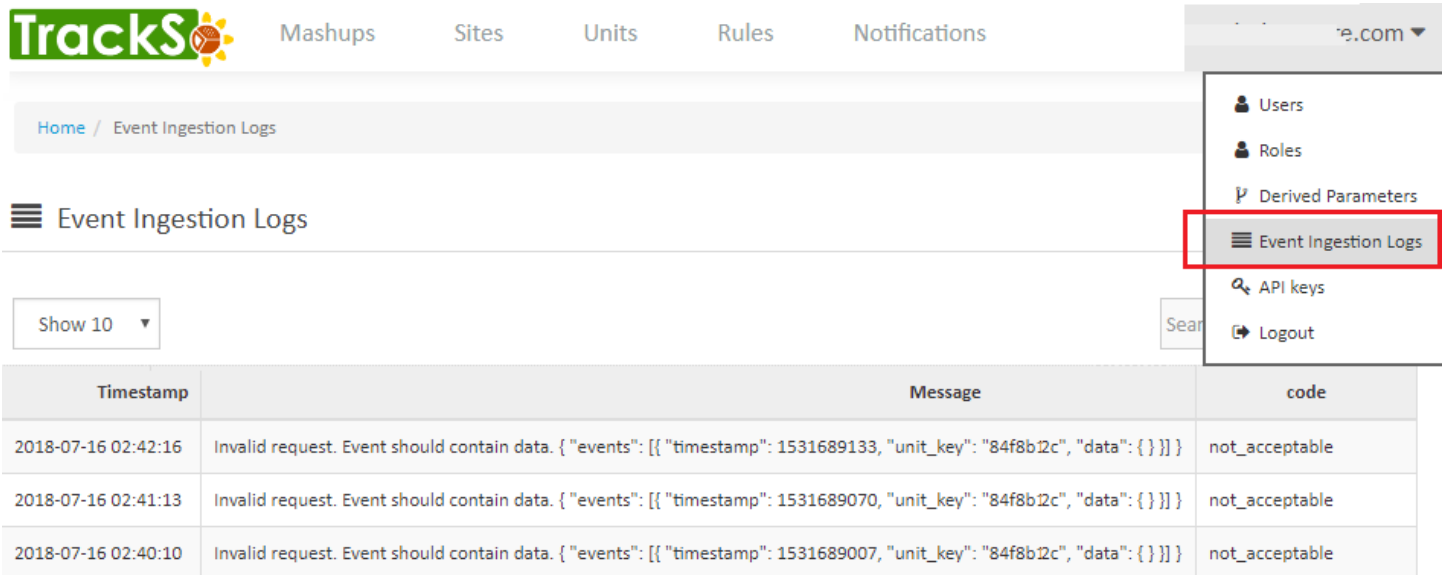

SMS Command= *2222#<Stat.gsm>	
IMEI	IMEI No. of the data logger (Device Key)
NW	Network
SIGN	Signal Strength out of 31
GPRS	CONT- connected , NC- not connected
PIP	Connected to TrackSo Server or not CONT- connected, NC- not connected
LOG	no. of data points stored in devices incase of no interet

6. If the GSM light starts flashing 5 times then Login to www.trackso.in with your Username/Password.
7. Click on 'Units' from the menu bar. You will be able to view your installed unit in the table as shown below.
8. Check if the **Status** becomes Receiveing for the relevant Unit.

9. If the state remains ==Not receiveing== for more than 10 minutes, click on your email ID at the top right of the screen and click on 'Event Ingestion Logs' in the dropdown.

Timestamp	Message	code
2018-07-16 02:42:16	Invalid request. Event should contain data. { "events": [{ "timestamp": 1531689133, "unit_key": "84f8b12c", "data": { } }] }	not_acceptable
2018-07-16 02:41:13	Invalid request. Event should contain data. { "events": [{ "timestamp": 1531689070, "unit_key": "84f8b12c", "data": { } }] }	not_acceptable
2018-07-16 02:40:10	Invalid request. Event should contain data. { "events": [{ "timestamp": 1531689007, "unit_key": "84f8b12c", "data": { } }] }	not_acceptable

10. Check if there is some log generated at the time of installation of the TrackSo IoT Gateway device.
    a. If **NO,** please restart the device and try the same flow again.
    b. If **YES,** email us at we@freespirits.in to consult the same.