User Guide
(Indoor)
DelREMO-V2.0

www.deltaelectronicsindia.com

Smarter. Greener. Together.

About this guide

Purpose

This guide explains the method to install and configure the DelREMO-V2.0 system. This guide serves as a quick reference guide for engineers and technicians operating the system.

Intended reader

This guide is written for the trained engineers and technicians to facilitate installation and configuration of the DelREMO-V2.0 system.

Chapter organization

This guide is organized into the following chapters:

Chapter 1: Introducing handling and safety information describes the basic structure and functionality of the DelREMO-V2.0 system.

Chapter 2: Introducing DelREMO-V2.0 system gives a broad overview of the various components of the system and their specifications.

Chapter 3: System installation procedure describes how to install and assemble various components of the DelREMO-V2.0 system.

Chapter 4: System commissioning describes how to start and configure the DelREMO-V2.0 system.

Chapter 5: Introducing alarm system and troubleshooting explains various alarms and their indications with standard trouble shooting procedure.

Chapter 6: Maintenance describes the maintenance procedures to be adopted for the DelREMO-V2.0 SYSTEM.
.

Appendix gives additional information about the product.

Instructional icons

Before you start you should familiarize yourself with the instructional icons used in this guide.

WARNING	**A WARNING ICON INDICATES SITUATIONS WHICH CAN CAUSE SEVERE INJURY OR DEATH OR LOSS OF EQUIPMENT.**
CAUTION	**A CAUTION ICON INDICATES SITUATIONS WHICH CAN CAUSE DAMAGE TO EQUIPMENT AND PROPERTY.**
NOTE	**NOTE GIVES USAGE TIPS.**

Disclaimers

All information contained in this document is subject to change without prior notice and is provided without warranty of any kind. The document is not intended for production. All information contained in this document was obtained in specific environments, and is presented as an illustration. Delta does not hold any warranty or responsibility for the parts that are not supplied by Delta such as adapter & sensors. Damage caused by such external parts does not come under warranty.

THE INFORMATION CONTAINED IN THIS DOCUMENT IS PROVIDED ON AN “AS IS” BASIS.

In no event will Delta be liable for damages arising directly or indirectly from any use of the information contained in this document.
DelREMO-V2.0 system has certain operational limitations which are to be kept in mind before commissioning the system. DelREMO-V2.0 system is designed to gather data at solar site form sensors and solar inverter and transmit the same to Delta’s Remote Monitoring Server only. This equipment is not designed for applications where failure of system could cause loss of life or property.

Table of Contents

1 Handling and Safety Information

It should be ensured that trained technicians should only operate the DelREMO-V2.0 system. Operating personnel are advised to read the manual completely before attempting installation. Delta will not be responsible for any mishaps occurring due to the ignorance of the safety instructions**.**

1.1 General Safety Instructions

Following are the safety instructions for operating the DelREMO-V2.0 system: -

- Equipment racks may have sharp edges. Wearing gloves is recommended.
- Ensure that the system is connected to DC adapter before operating it.
- Ensure that all operations concerning the DelREMO-V2.0 system are carried out under trained supervision. Supervisors, who are capable of providing first aid in case of electric shock, need to be present at the site.

1.2 Specific Instructions

- Before operating the system, please ensure basic parameters like environmental conditions, AC input frequency and voltage, are as per the system specification.
- Ensure all the AC and DC inputs & outputs are connected to specified MCB's & Connectors.
- Ensure the temperature sensors are placed at appropriate location where temperature needs to be monitored.
- The area is freed of any flammable vapors or fluids. To avoid electrical hazard, the outer covers of all components including the rectifiers are to be tightly secured.

1.3 Additional Information

- Delta does not hold any liability for damages resulting from incorrect installation or poor maintenance of the system.
- Operation of the equipment beyond its intended purpose could show drastic results.
- Unauthorized modification of the equipment will void the warranty and it may cause incorrect operation.
- The user is responsible for ensuring that the personnel working with the equipment are provided with appropriate operational and safety training.
- The user is responsible for ensuring the restricted access of DelREMO-V2.0 system.
- If the power supply to the DelREMO-V2.0 system is not fitted with a disconnecting switch or equivalent device, the operator is responsible for fitting an appropriate disconnection switch conforming to the relevant regulations.

1.4 Contents of the consignment

Following table shows the contents of Consignment.

Table 1.1 Contents of the consignment

Sr. No	Product	Remark
1	Installation and quick start guide	1 PCE
2	DelREMO-V2.0 system	1 PCE

3	24 VDC, 1.5 Amp Adapter	1 PCE
4	Antenna	1 PCE
5	Installation Accessories	1 SET

1.5 Unpacking the consignment

The instructions given below are to be followed while unpacking the contents of the consignment. Not following these instructions may cause injury or damage to life and equipment.

1.5.1 Follow check list

- Check the received consignment according to the check list.
- Contact the transport authorities and Delta if any item is missing as per the list of contents.

1.5.2 Handling tips

DelREMO-V2.0 system is light weight equipment; need to be handled very carefully while installing else may damage internal components.

1.5.3 Preliminary inspection

- Before removing the system from the crate, it needs to be inspected for any damages.
- If any damage is noted, the transport authorities are contacted immediately
- After removing the system from the crate, the system is inspected for any dents or damages.
- If any damage is noted, the transport authorities are contacted immediately.

2 DelREMO-V2.0 System Overview

DelREMO-V2.0 is remote monitoring unit with several features aimed to gather data from solar sites. This unit is unique solution for fetching data over various sensors, solar inverter over solar sites.

For safety purpose of the equipments is provided with reverse polarity protection and surge protection on RS485 data line using IEC 6100-4-5 standards.

Heart of system is built around advanced 32 bit high end RISC controller which manages and controls different inverter modules to ensure optimal performance and unmatched efficiency. High end PLC based controller is able to monitor and manage all the sensors and solar inverters at site.

Key features of the system are the configurable no. of solar inverters (up to 60) over two RS485 lines which make it easy to be installed at small to large solar power plants. User friendly front LCD display with keys helps in local configuration. LED indication in front provides quick information about alarms and makes it easy for diagnosis in first attempt.

DelREMO-V2.0 has advance features from its predecessor like, USB host for data log downloading, FW up gradation, LCD interface for local configuration, 2 Channel RS485 lines for efficient inverter configuration, 4 nos. of 0 to 10 VDC analog inputs, 4 nos. of 4 to 20 mA analog inputs, 8 nos. of digital inputs & 2 nos. of digital outputs. The system can also control the actual power generation of solar inverters through the digital inputs, also user can customize the sensors locally using web-GUI.

2.1 System Description

DelREMO-V2.0 is designed with high end 32 bit RISC processor which collects data from different solar inverters and sensors, and sends them to remote server using high speed GPRS/GSM modem or LAN connectivity.

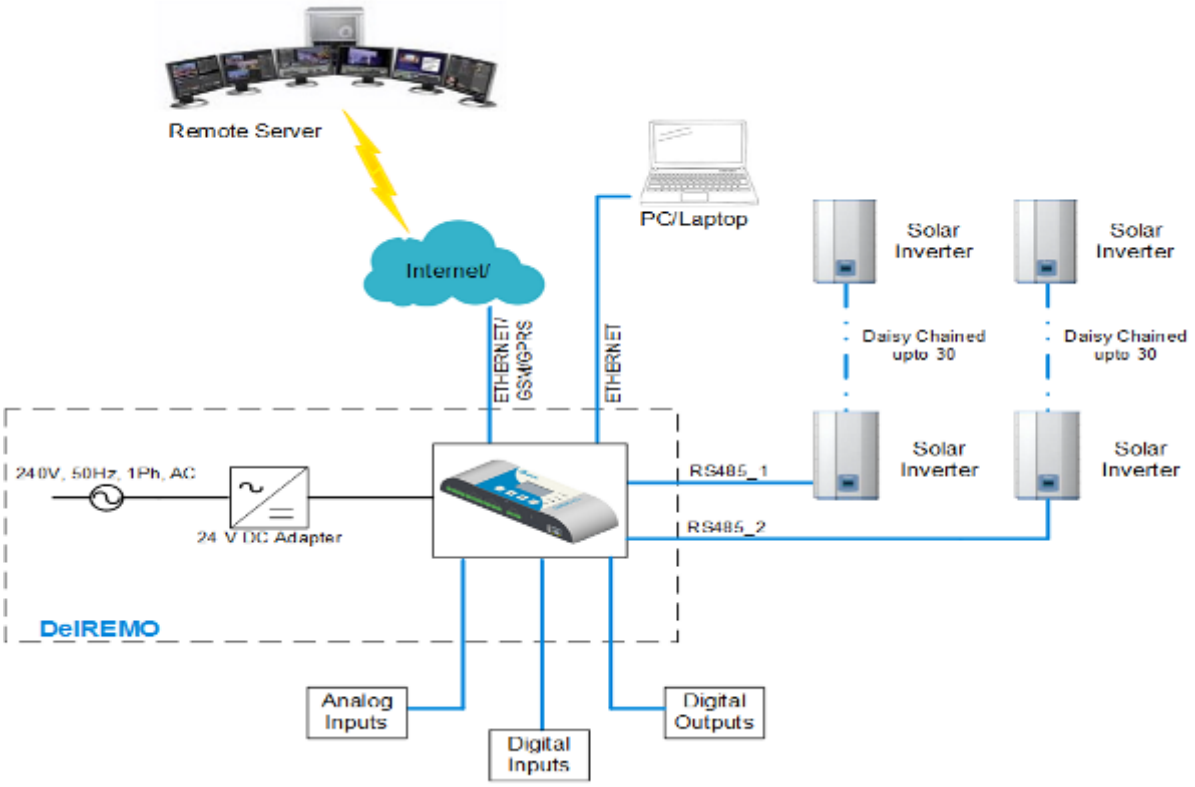


Fig 2.1 Architecture of DelREMO-V2.0 SYSTEM

Line block diagram describes how various devices like inverter, energy meter, sensors will be connected to DelREMO-V2.0 to make it functional in efficient way.

2.2 Introduction to different sections

Before starting with installation and commission let's get introduced to the important sections of DelREMO-V2.0 SYSTEM, showing in fig 2.2. Introduction to different sections will facilitate the installation procedure.

Fig 2.2 Isometric view of DelREMO-V2.0

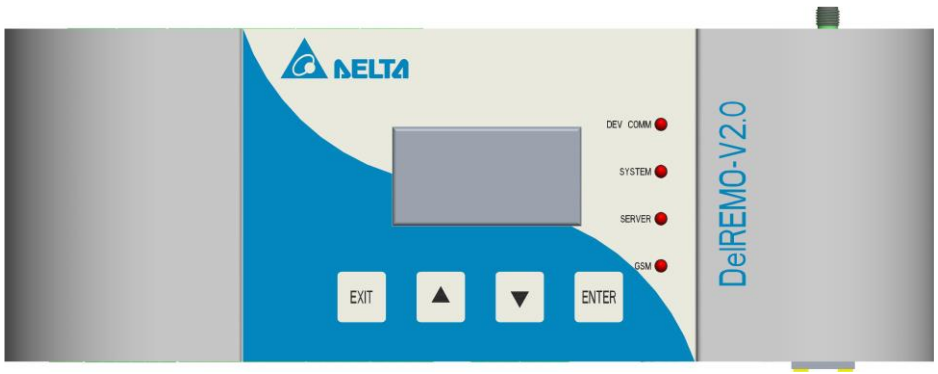


Fig 2.3 Front view of DelREMO-V2.0

**** Above image may differ from actual supplied system.**

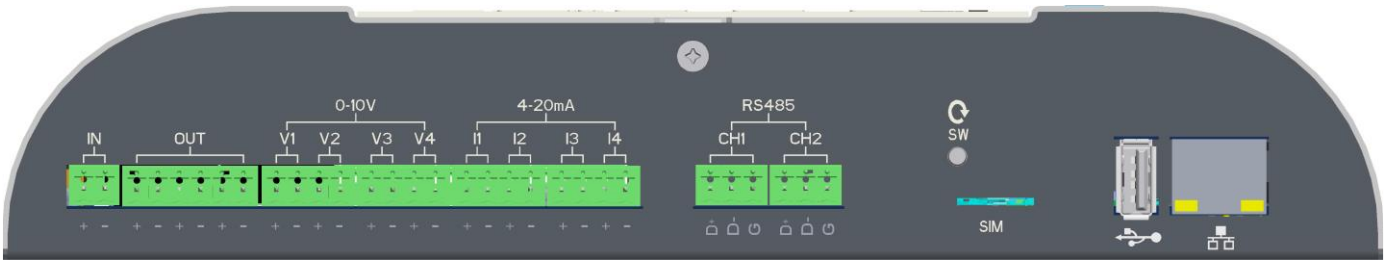


Fig 2.4 Bottom view of DelREMO-V2.0

Fig 2.5 Top view of DelREMO-V2.0

The DelREMO-V2.0 supports following features and interfaces:-

- 4 nos. of 0 to 10 VDC analog inputs for sensor integration like irradiance, pyranometer, temperature etc.
- 4 nos. of 4 to 20 mA DC analog inputs for sensor integration like, wind speed, humidity temperature etc.
- 8 nos. of potential free digital inputs for alarm input or inverter power management.
- 2 nos. of isolated RS485 communication ports maximum up to 62 devices.
- LCD interface for local configuration & data display.
- LED indication for device function & troubleshooting.
- USB host for FW up-gradation & data log download.
- Supports micro Dual SIM card (2G only).
- Isolated input Power supply.
- Increased data point support
- Send data to server using Ethernet, GSM/GPRS.
- XML configuration for faster customization
- Remote management through E management
- Built in RTC.
- Built in 32MB memory for local data storage & expandable up to 32GB by micor-sd card.

2.3 Technical Specifications

Table 2.1 Input DC supply

Input (DC Supply)	
Operating Range	18 ~ 24 VDC (24VDC nominal)
Ultimate capacity	20 Watt (Nominal)
Short Circuit Protection	Yes

Table 2.2 User interface

User Interface	
System Config.	Using LAN & Keypad
Time and Date	Real time date and Programmable
Event log	>200K
Local Monitoring	Thru Ethernet Port (Embedded Web server) & LCD

Table 2.3 General specification

General	
Op. Temp	0ºc to 60º c
Humidity	95% RH Non Condensing

3 Installation procedure

Installation procedure explains the standard procedures to be followed during the installation of the DelREMO-V2.0 system. Read the safety instructions and warnings carefully and completely before initiating the installation procedure.

During the installation procedure ensure that the standard steps are followed strictly. Create a check list involving the various steps of installation and follow them carefully for the complete and successful installation of the DelREMO-V2.0 system.

Ignorance of the procedure could lead to incomplete or wrong installation. Unfinished or wrong installation may cause loss to life and equipment.

3.1 Steps involved in installation

Installation procedure of DELREMO SYSTEM involves the following standard steps. Make sure that these steps are checked and followed throughout the installation procedure.

- Tools Required
- Preliminary Inspection
- System Mounting
- System Handling
- AC Adapter Connection
- Sensor Integration
- Solar Inverter Integration

Step 1:→ Tools and equipment required for installation:

Following tools and equipments are required for the installation of the DELREMO SYSTEM. Use of these tools facilitate proper installation and prevent any accidents causing situation. Technician attempting the installation must be provided with these tools and equipment.

Serial no.	Required Tools	Check
1	Screw driver set.	☐
2	Lugs	☐
3	Insulated Philips head screw driver-blade size 1/4	☐
4	Insulated slotted screw driver- blade size 1/8	☐
5	Insulated side cutters	☐
6	Insulating glovess	☐
7	Stripper, Cutter	☐
8	Wire crimper	☐

Step 2:→ Preliminary system inspection

Before starting with the installation of the system thoroughly inspect the system for any physical damage during carriage. Contact the carrier company if any physical damage is noticed. Follow the check list to inspect the system.

Serial no.	Systems for inspection	Check
1	Check the unit for any physical damage to the system.	☐
2	Check the internal components.	☐
3	Check for any damage to the LCD.	☐

Step 3:→ System Mounting

DelREMO-V2.0 is fully internally fitted and completely connected at the factory. System mounting and input/output connections along with necessary connections to various power sources and connections are made at the installation site. DelREMO-V2.0 is to be mounted on wall

- At first mark two holes on the wall where system has to be installed using the wall mount plate.
- Fix the wall mount plate to the wall as shown in image below.

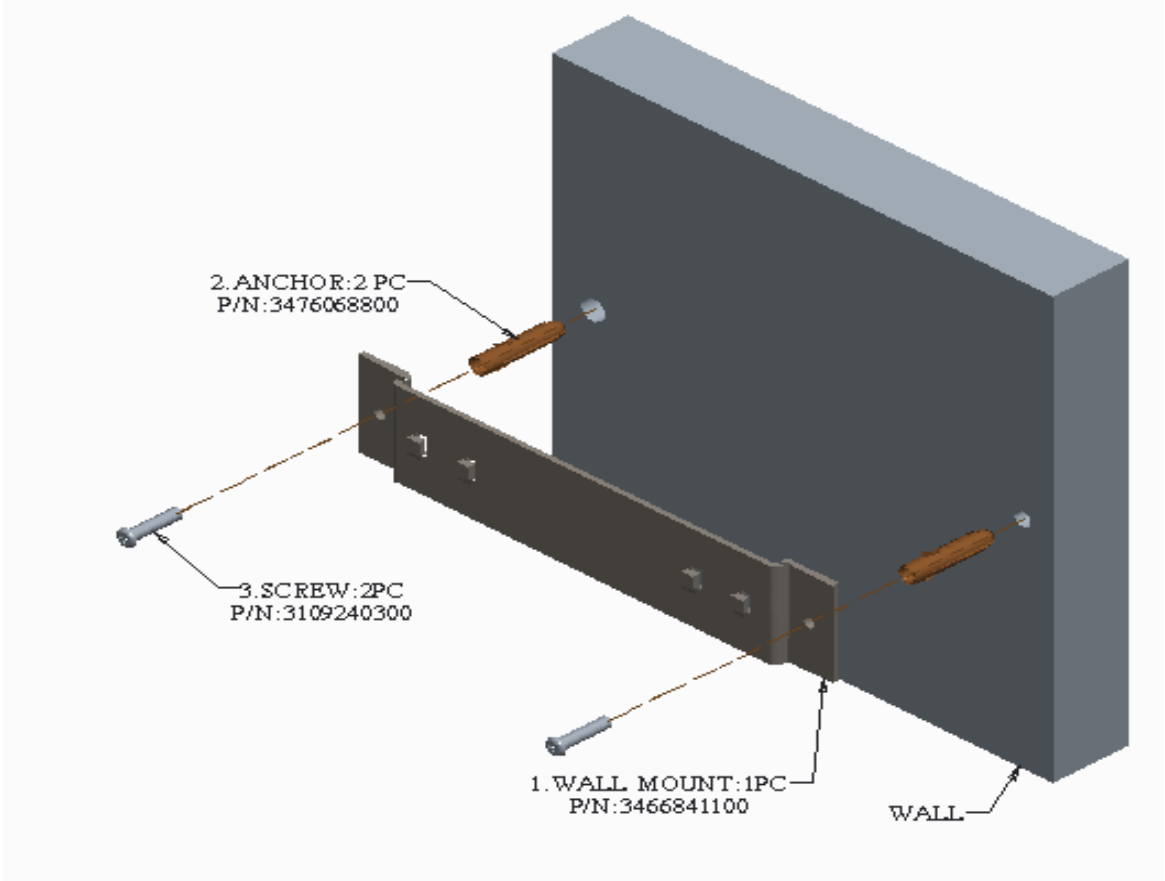


Fig 3.1 DelREMO-V2.0 Wall Mounting Plate

- Move the DelREMO-V2.0 downwards as shown below. Note that slot represented locks with hooks provided in wall.

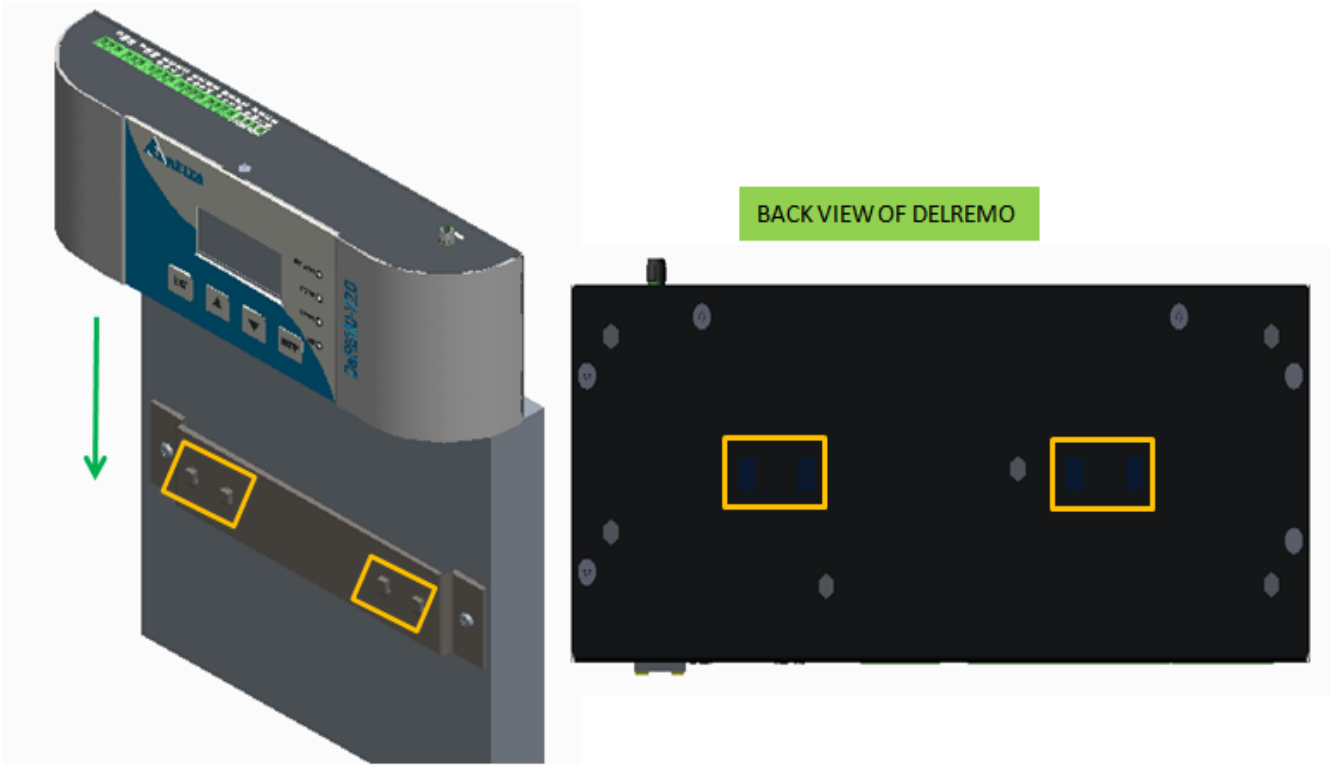


Fig 3.2 DelREMO-V2.0 Wall Mounting Arrangement

Step 4:→ System Handling

While opening and closing the top cover of DELREMO system, special attention is required towards LCD connector, as the top cover may damage LCD's harness while opening and closing.

Step 5:→ Adapter connections

WARNING	**While connecting the adapter output to DelREMO System polarity of the supply must be checked. The 24 VDC input to system must be connected to input terminal provided only.**

Step 6:→ Solar Inverter Modular interconnection procedure

Modular interconnection procedure involves interconnection to various modules of the system on RS 485 daisy chain to make it functional.

NOTE	**MAXIMUM 30 NUMBERS OF SOLAR INVERTER MODULES CAN BE CONNECTED OVER RS485 DAISY CHAIN OVER 1 PORT. USE PROVIDED RS485 TERMINAL BLOCK FOR CABLE TERMINATION AT DELREMO SYSTEM. THUS MAXIMUM 60 INVERTERS CAN BE CONNECTED OVER 2 RS485 PORTS.**

3.2 Basic interconnection steps

DelREMO-V2.0 involves the following basic interconnection steps. The following connection check list is done to avoid connection problems.

Serial no.	Steps for input connection	Check
1	Connect all the sensors output to DelREMO at their respective position & provide power from system is required.	☐
2	Connect inverters over RS485 port, ACEM.	☐
3	Connect Digital inputs if required.	☐
4	Connect 24 VDC Adapter to the unit.	☐

NOTE	**USE THE WIRING DIAGRAM, SUPPLIED WITH THE INSTALLATION DOCUMENT, TO ENSURE THAT ALL CABLES HAVE BEEN CONNECTED CORRECTLY.**

4 System Commissioning

DelREMO-V2.0 commissioning consists of starting up procedure and calibration of the system.

4.1 Steps involved in system commissioning

Following steps are involved in the commissioning procedure of the DelREMO-V2.0. Follow the stepwise procedure to avoid any mistakes in the commissioning procedure.

4.1.1 System start up precautions

DelREMO-V2.0 works with 24V DC voltage, extra care should be taken while operating the system. Read and follow precautions mentioned below carefully while starting up the commissioning of the system. Ignorance of the precautions can cause serious loss to life or equipment.

Serial no.	Steps for Startup precautions	Check
1	Check all wires again for any possible loose or wrong connections prior to commissioning.	☐
2	Check AC supply to adapter unit is switched to the “Off” position	☐
3	Check the frame ground is properly connected to a permanent earth ground connection	☐
4	Check all inverter modules are connecting in daisy chained array.	☐
5	Check SIM Card is inserted at SIM 1 slot (If GSM/GPRS data mode to be used)	☐
6	Check Antenna is connected to SMA connector provided on body. (If GSM/GPRS data mode to be used)	☐

NOTE	**ENSURE ALL TOOLS ARE PROPERLY INSULATED BEFORE USING THEM.**

4.1.2 Starting up procedure

Check all the wire connections for any damage or loose connections, before starting up procedure of DelREMO-V2.0. Follow the below step wise procedure strictly for startup procedure of DelREMO-V2.0. Step wise starting process will prevent probability of any mistake or missing any step.

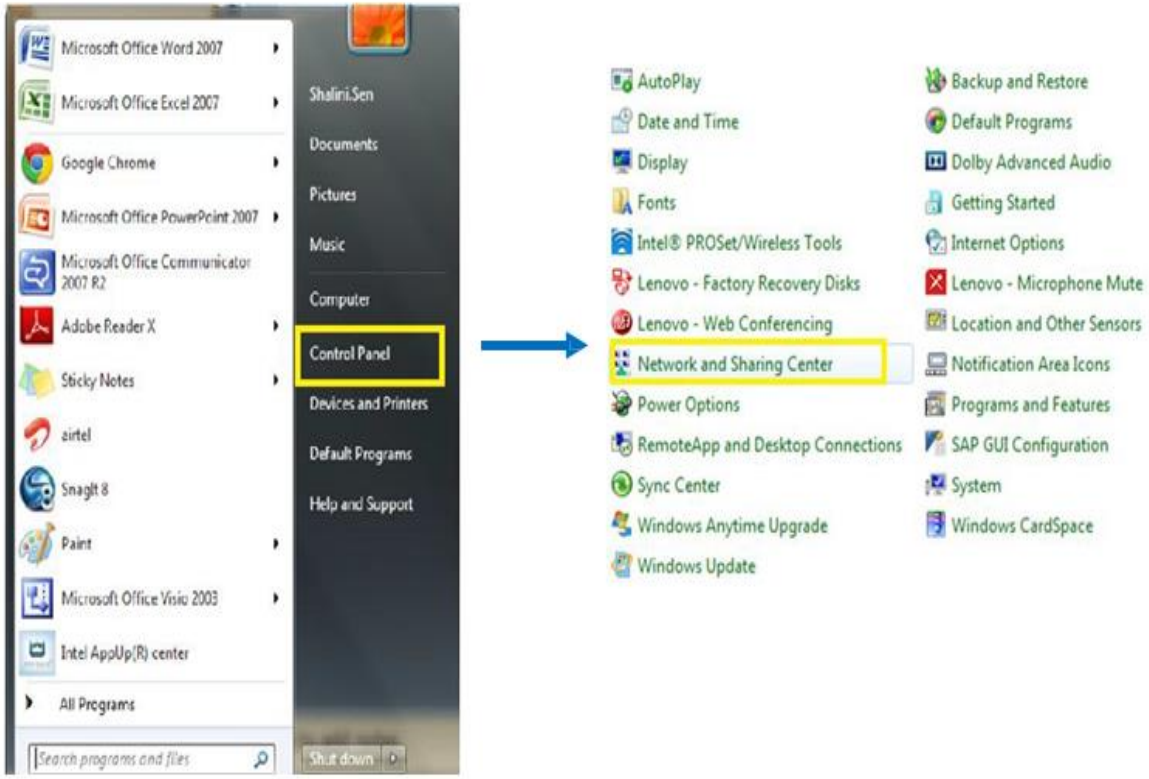
Serial no.	Starting up procedure	Check

1	Check input supply to adapter is switched ON.	☐
2	Check for output 24VDC voltage at the output of adapter.	☐
3	Check for LED operation of DelREMO-V2.0	☐

4.1.3 System Configuration

After DelREMO-V2.0 is powered ON, connect the DelREMO to Laptop/PC via Ethernet port provided at the bottom of unit using RJ45 cable. Following settings are to be done on Laptop/PC to access the DelREMO: -

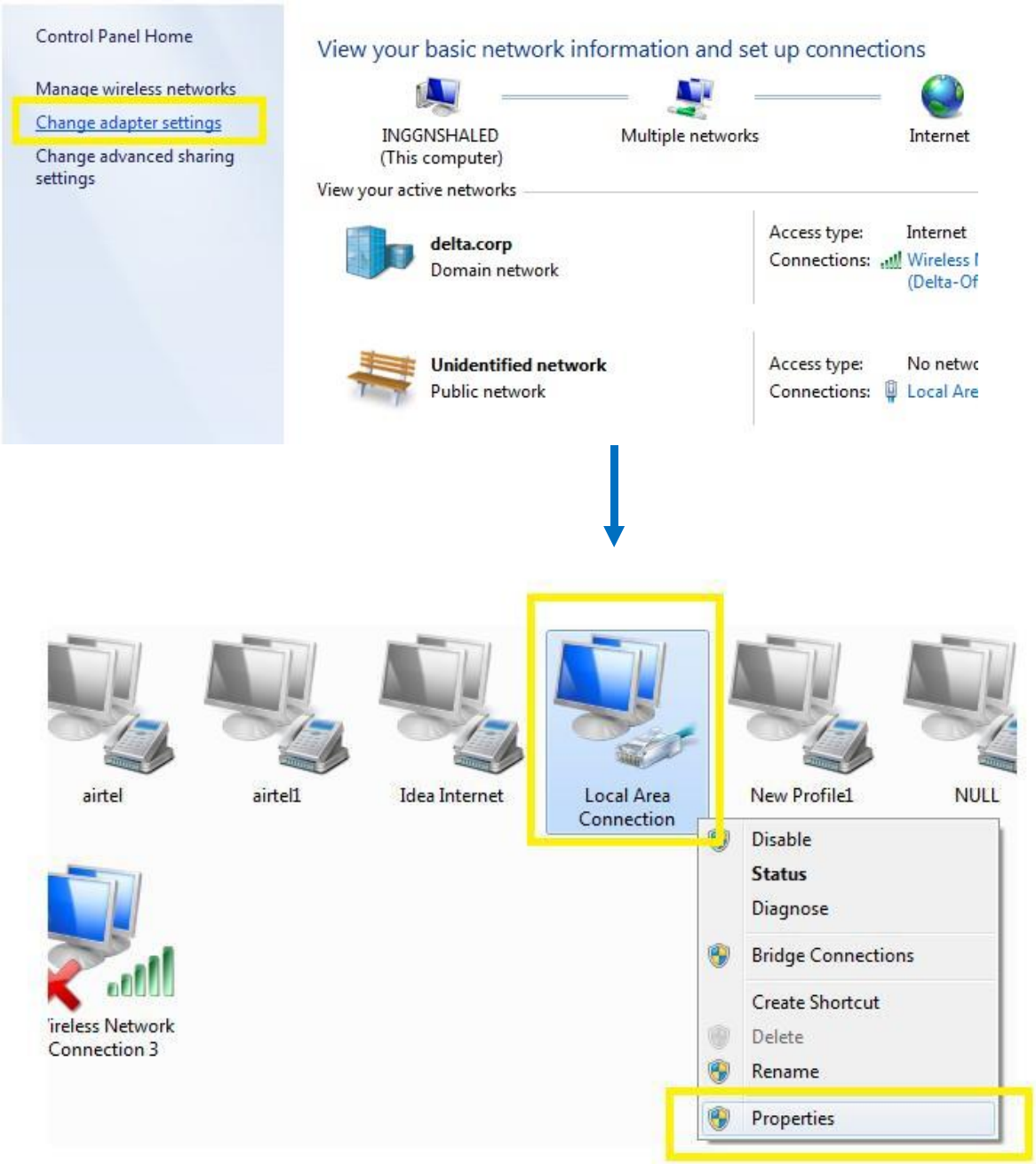
I. Click on ***Start TAB***, and then go to ***Control Panel*** TAB as Shown below.
II. After Clicking on Control Panel, window will appear as shown, click on ***Network and sharing Center***.

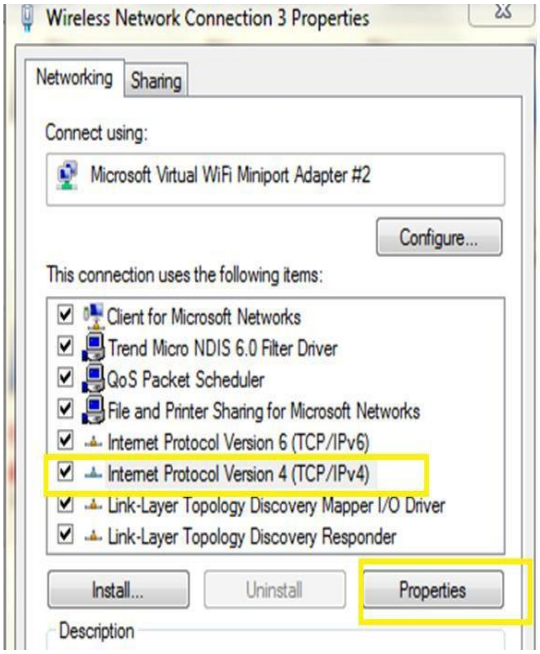


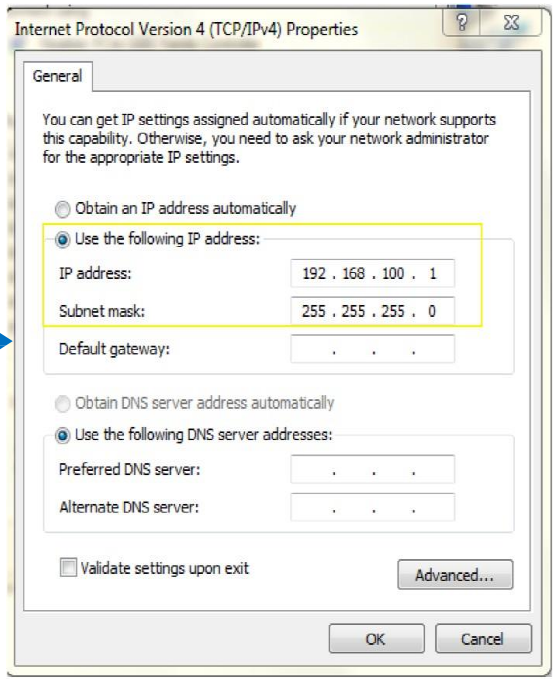
III. After Clicking on Network and sharing Center, window will appear as shown, click on Change ***adapter settings***.
IV. After clicking on change adapter settings, the window will appear as shown; right click on the icon "***Local area connection***" as shown below.
V. Now click on ***properties*** as highlighted.
VI. After clicking Properties window will appear as shown, select Internet Protocol Version 4 (TCP/IPv4), then clicks on properties (highlighted in yellow).
VII. After clicking on properties window will appear as below and select "***Use the following IP address***". Now do setting as provided in below snapshot, after doing setting click on ***OK*** Tab.

IP Address : 192.168.100.1

Subnet Mask : 255.255.255.0







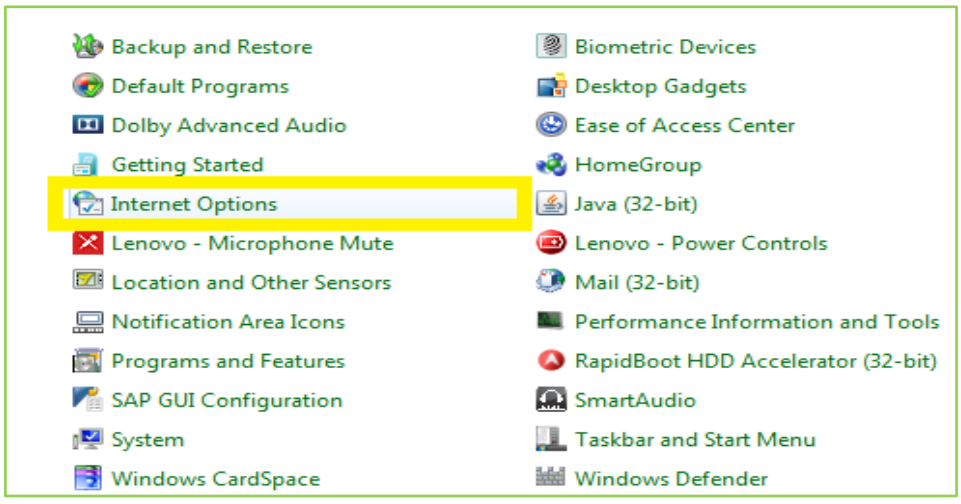
NOTE	**TURN OFF ALL PROXY SETTING & FIREWALL BEFORE PROCEEDING TO NEXT STEP.**

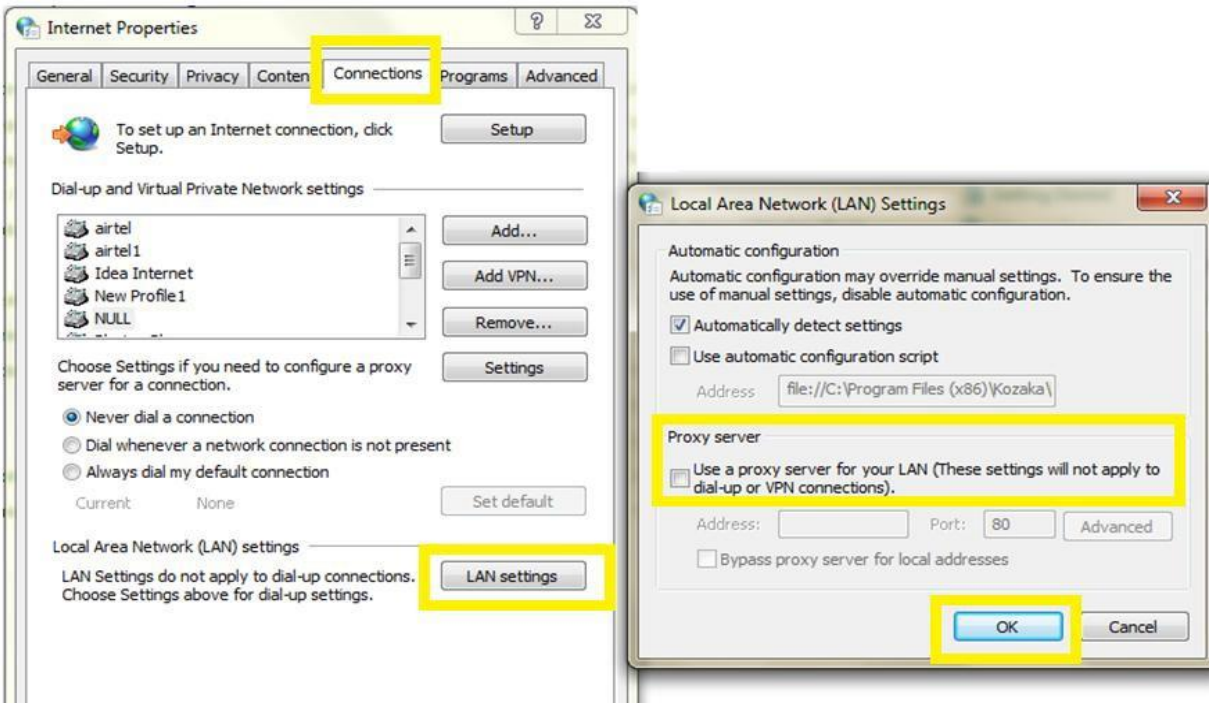
VIII. To turn off proxy settings go to ***(PATH: Control Panel>Internet Option)***

IX. At Internet Properties TAB click on Connections, then click on ***LAN Settings*** TAB.

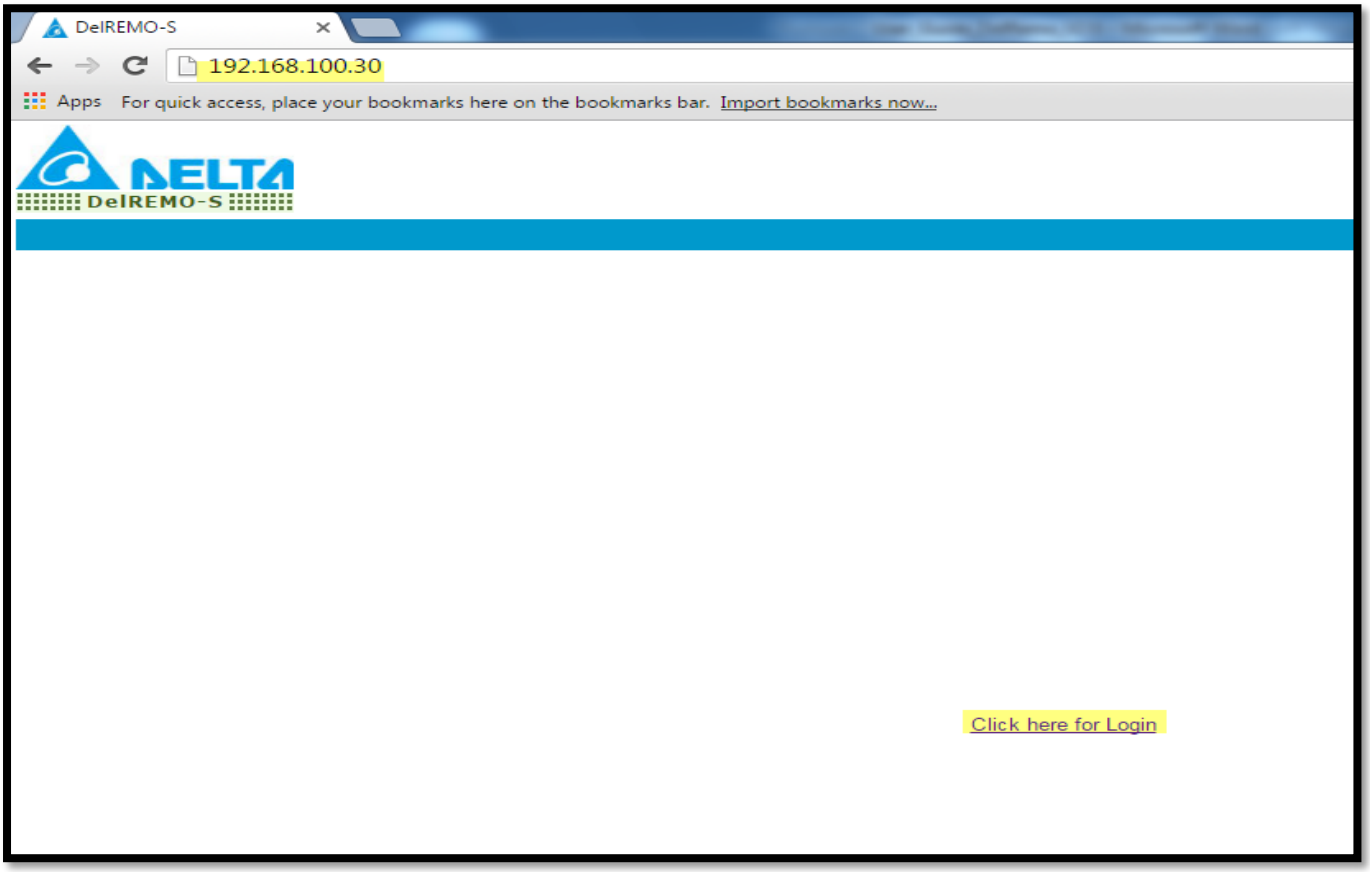
a. Un-tick Proxy server.

b. Click on OK. As shown in figure.





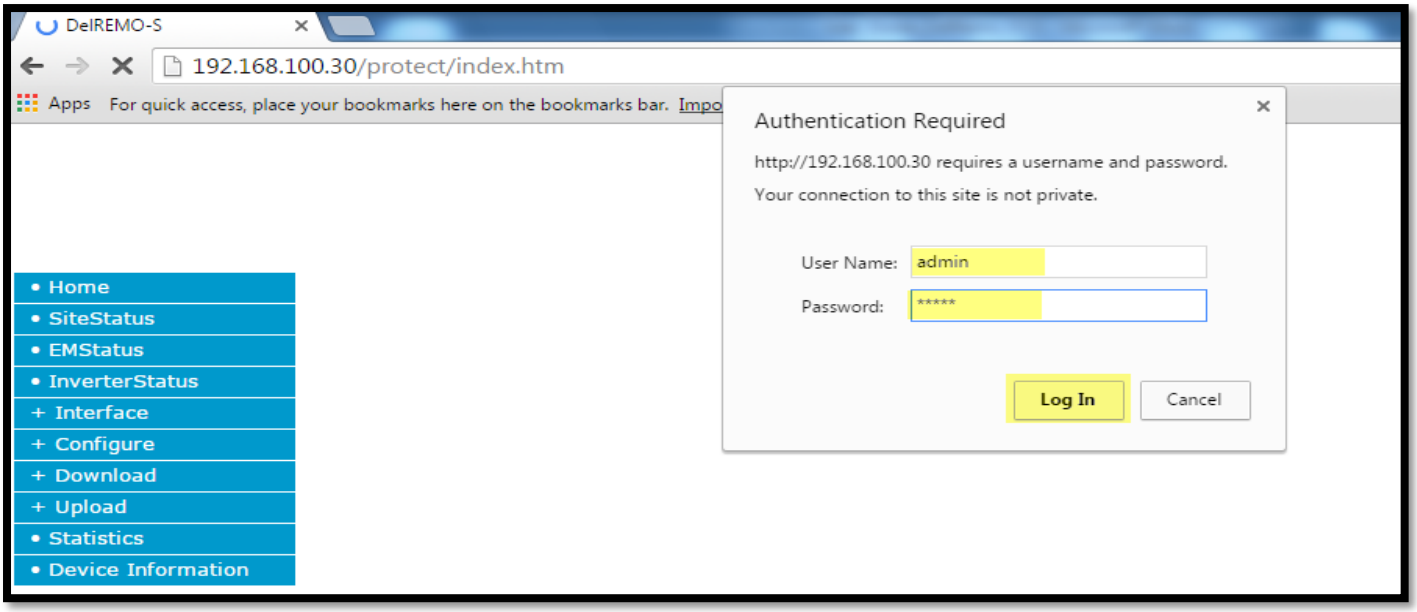
X. Now open Google Chrome browser on your laptop.
XI. In Address Bar type the following IP address **192.168.100.30** and press Enter Key.



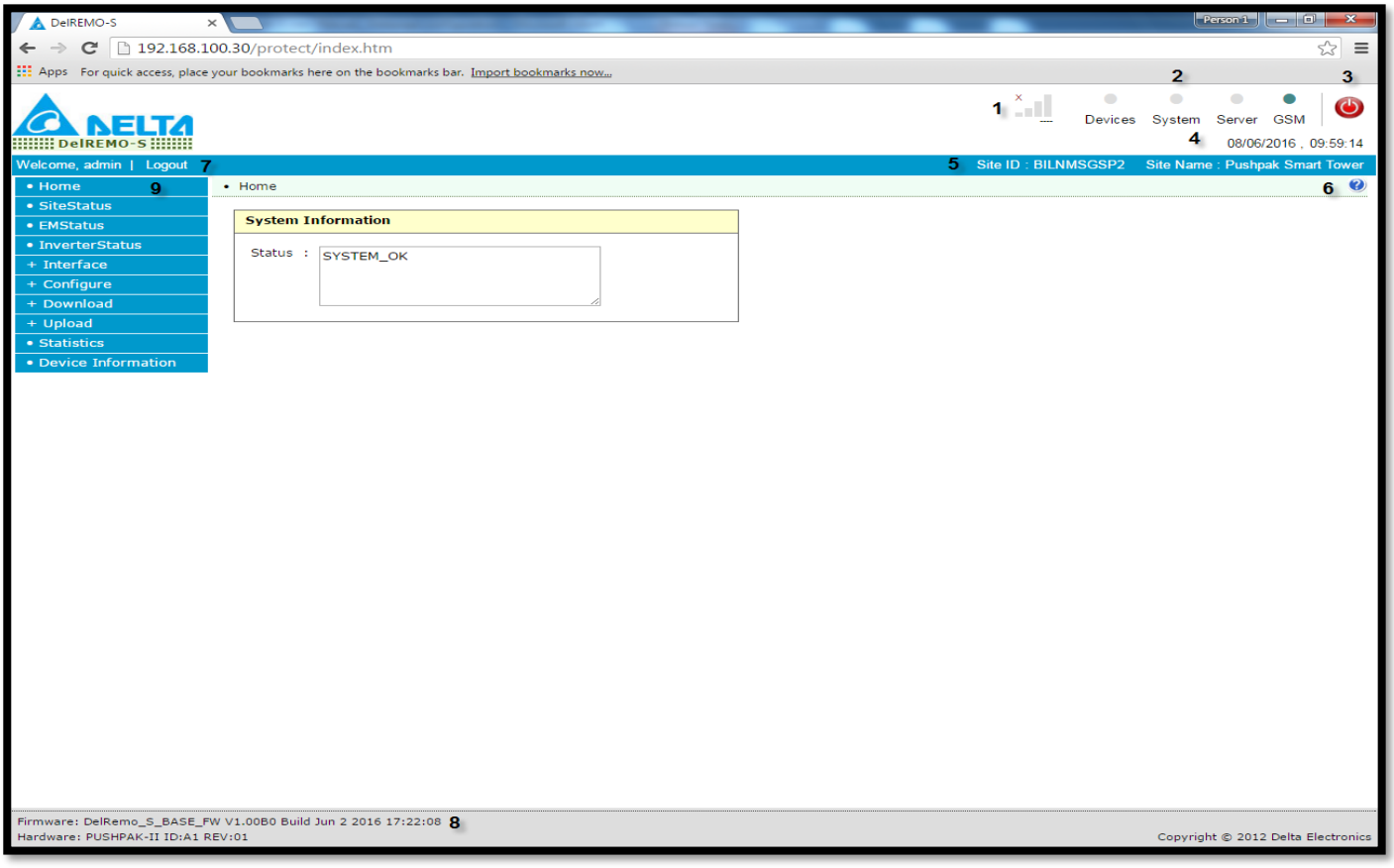
XII. After clicking on “Click here for Login” Tab, a pop up window will appear, enter user name and password as captioned below

Fill **User Name** → admin to logged in.

Password → delta



XIII. After Log in, Window will appear as below

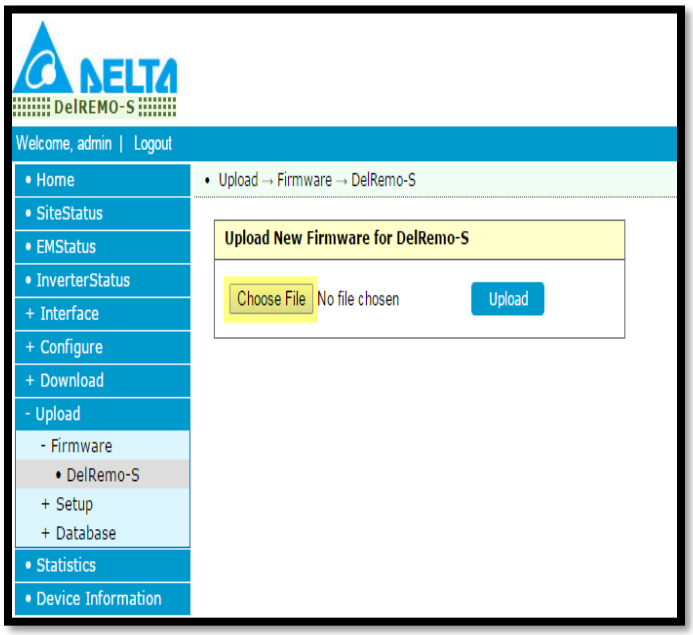


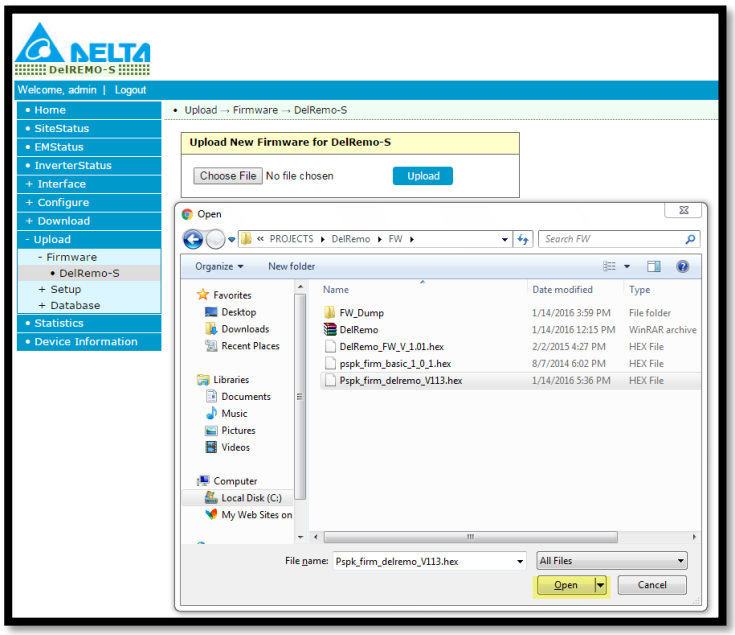
1. **Signal Strength**
2. **LED indications**
3. **Reset Tab**
4. **Date & Time**
5. **Site ID, site Name**
6. **Help Tab**
7. **Logout Tab**
8. **Firmware Version**
9. **Menu tab**

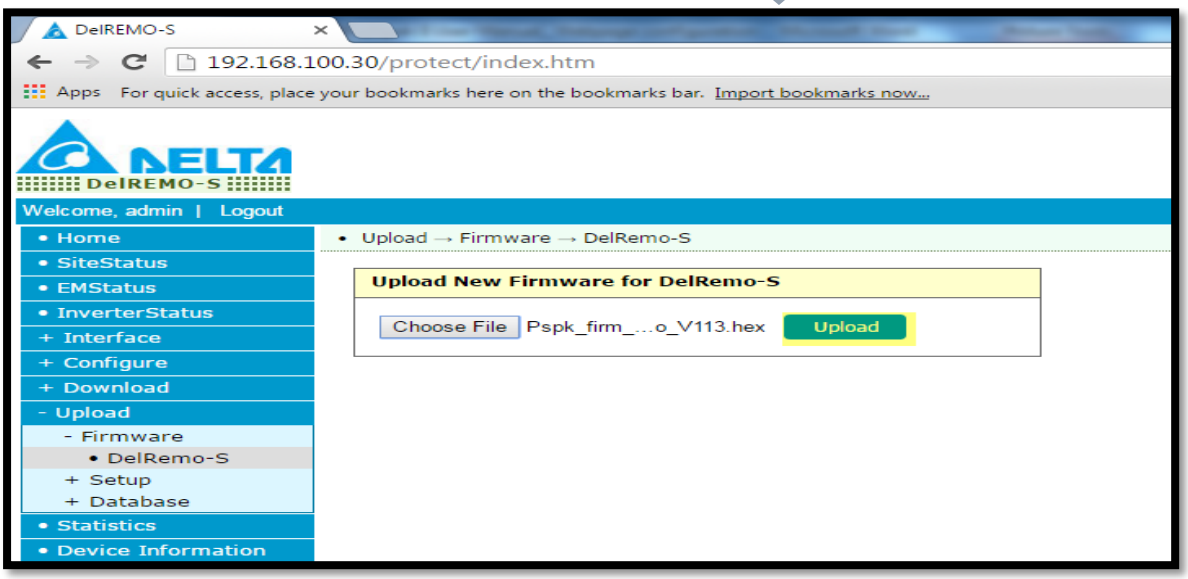
XIV. Upload firmware file by following

Path - **Upload>Firmware>DelRemo.**

- Click on Choose File Tab to select Firmware version, as shown.
- Choose the desired firmware file to be uploaded and then click on open tab as shown
- After selecting Firmware file click on upload tab as shown below

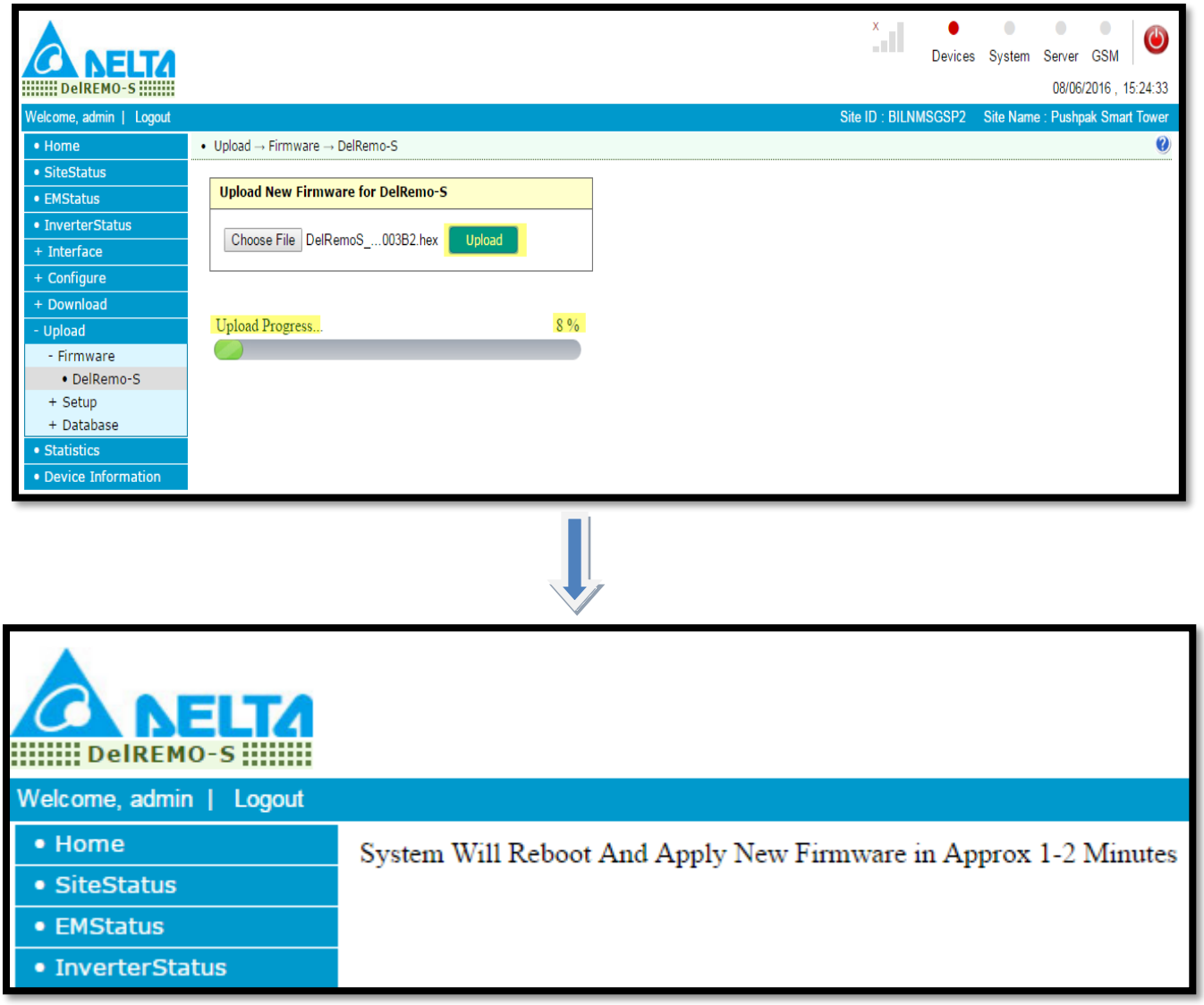






Smarter. Greener. Together.

XV. After successful transfer of Firmware a message will appear as shown below.



XVI. To Set/Verify Modem Setting go to

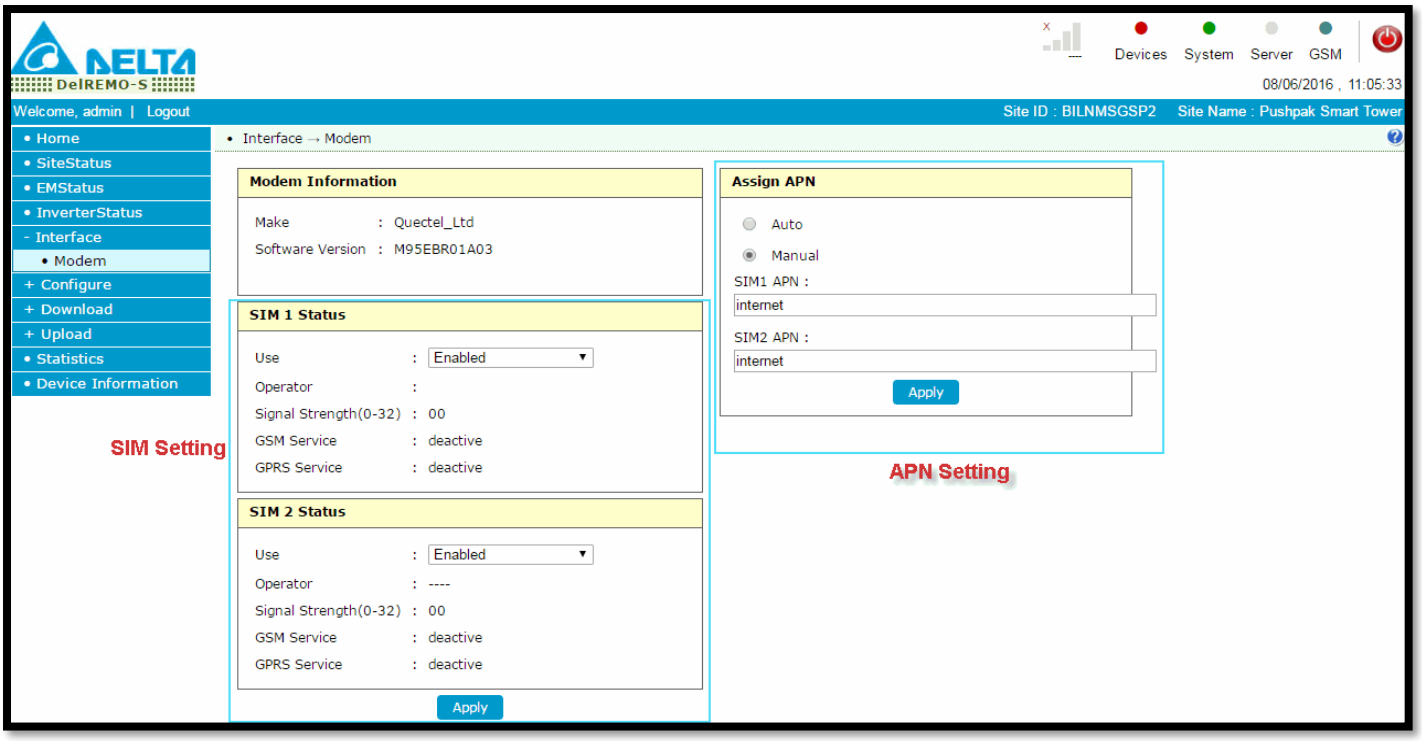
Interface>Modem and do settings as mentioned below. User can Enable/Disable desired SIM.

SIM 1 Status	**ENABLE**
SIM 2 Status	**DISABLE**

APN: Manual

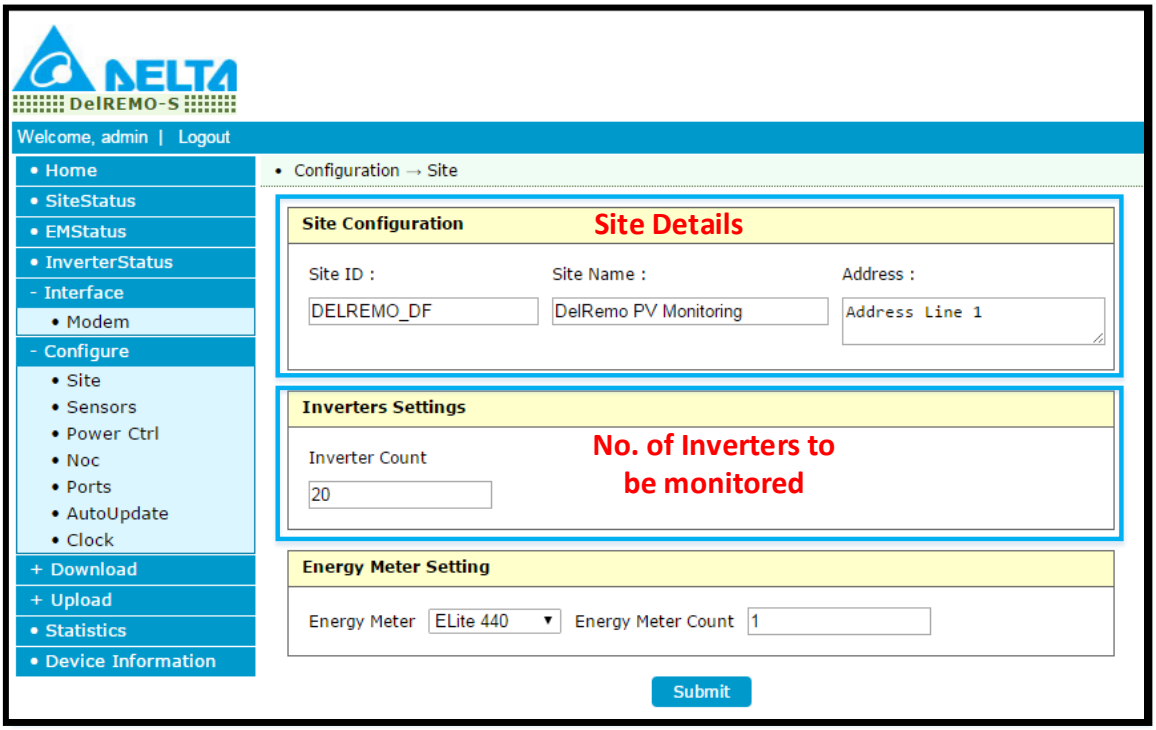
Internet	IDEA SIM
airtelgprs.com	AIRTEL SIM
www	VODAFONE SIM
Infratelnoc.com	AIRTEL (BIL) SIM

Then click on Apply Tab.



XVII. Follow below path to enter Site Configuration

- **Configure>Site** and populate Site ID, Site Name along with address associated.
- Provide the count of inverter available at site which is going to be monitored at Inverter Settings.
- Do select energy meters Model if available at site otherwise keep this setting as **"Disable".** Also put no. of energy meters available at site.

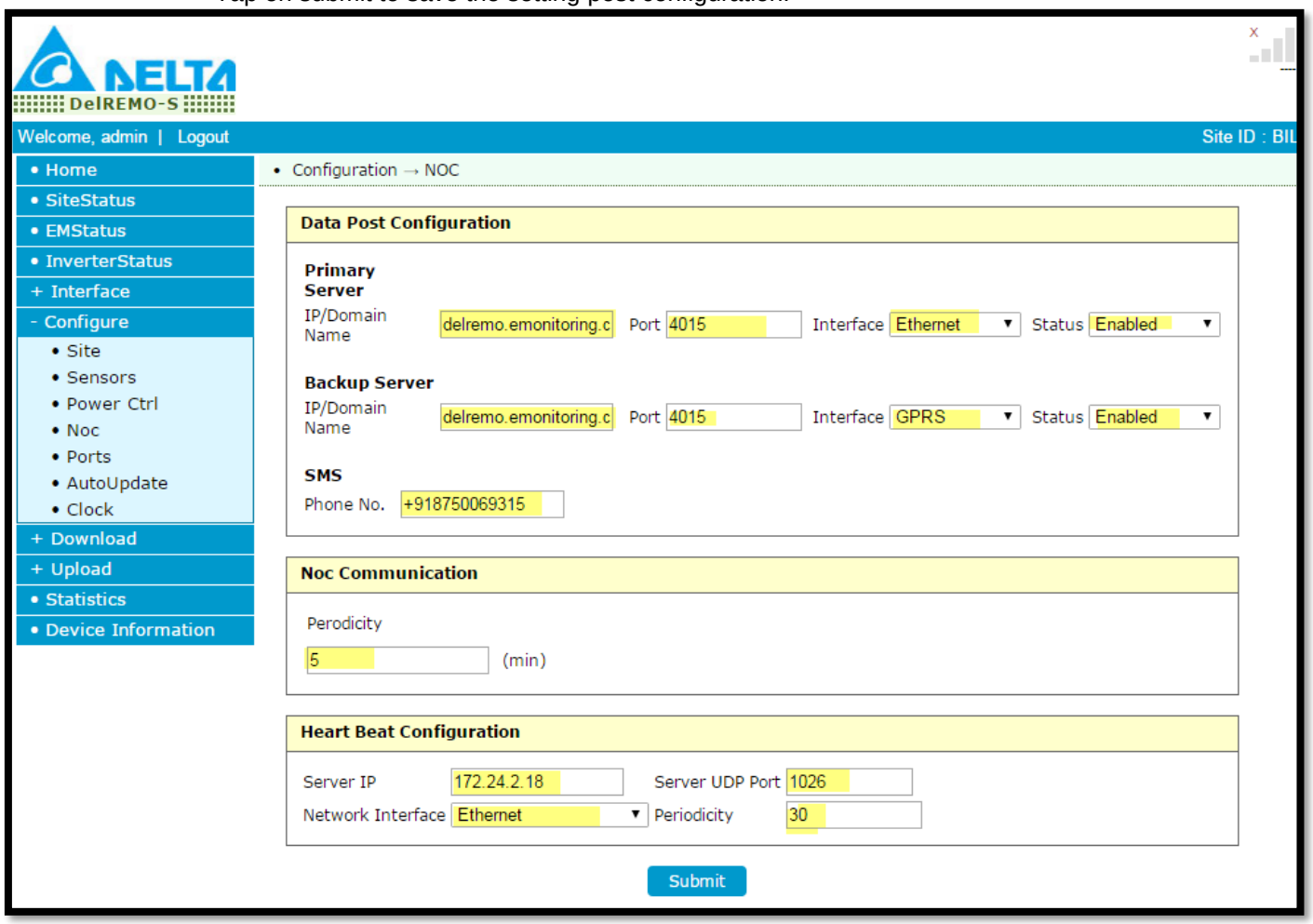


NOTE	**FIELD PERSON MUST VERIFY THESE SETTINGS TO CUSTOMER BEFORE SAVING AND MAKE A NOTE.**

XVIII. Follow below path to enter Server configuration page and populate below setting
Configure>NOC

- **IP/Domain Name** : DelREMO.emonitoring.co.in
- **Port** : 4015
- **Interface** : Ethernet (Primary Server), GPRS (Backup Server)
  SMS No. : +918750069315
- **Periodicity** : 5
- **Server IP** : 172.24.2.18
- **Server UDP Port** : 1026

Tap on submit to save the setting post configuration.

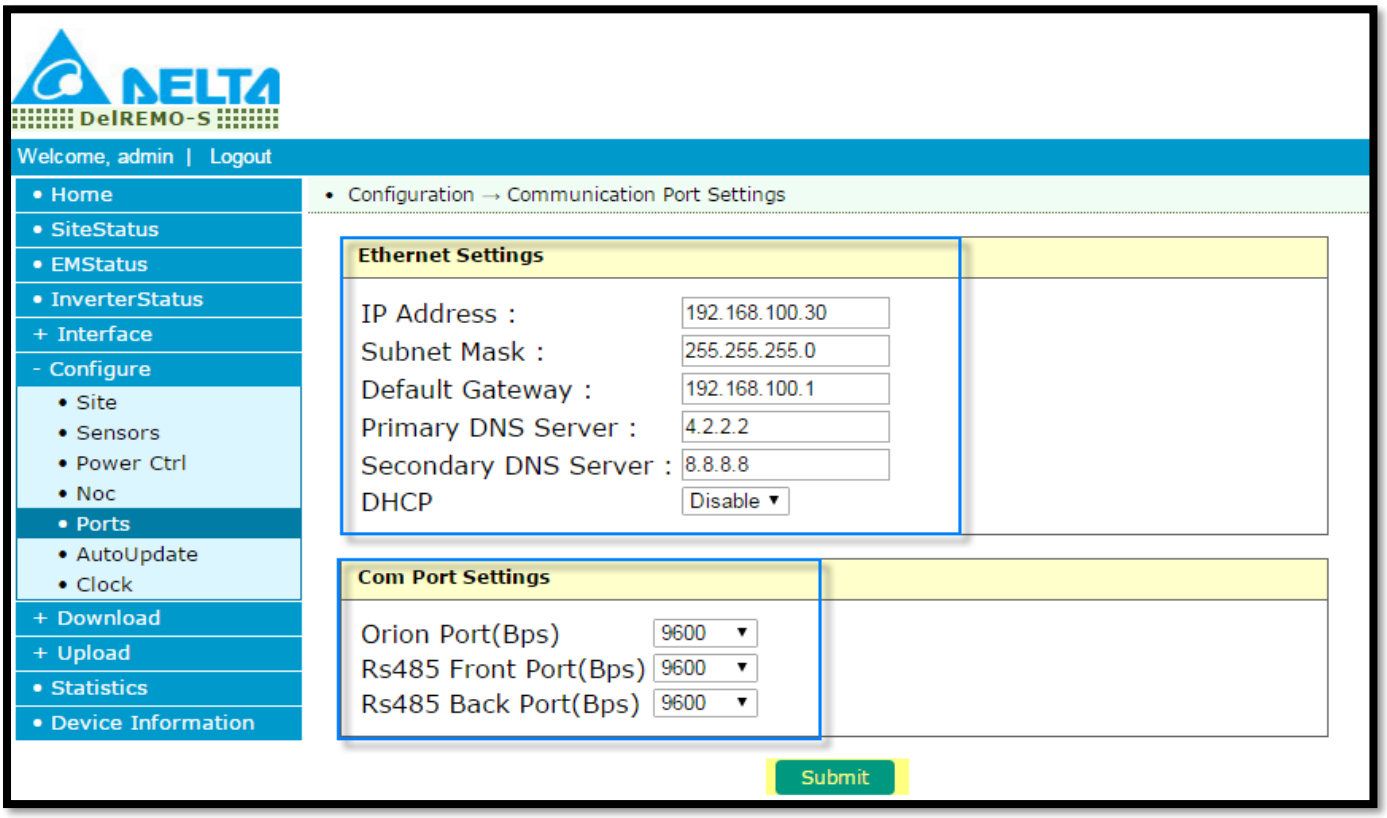


NOTE

ABOVE MENTIONED DETAILS ARE FOR DELTA NOC ONLY. THE DETAILS MAY VARY ACCORDING TO CUSTOMER, FILL IN CORRECT CUSTOMER DETAILS BEFORE SAVING.

XIX. Follow below Path to enter DelREMO Ethernet configuration setting.

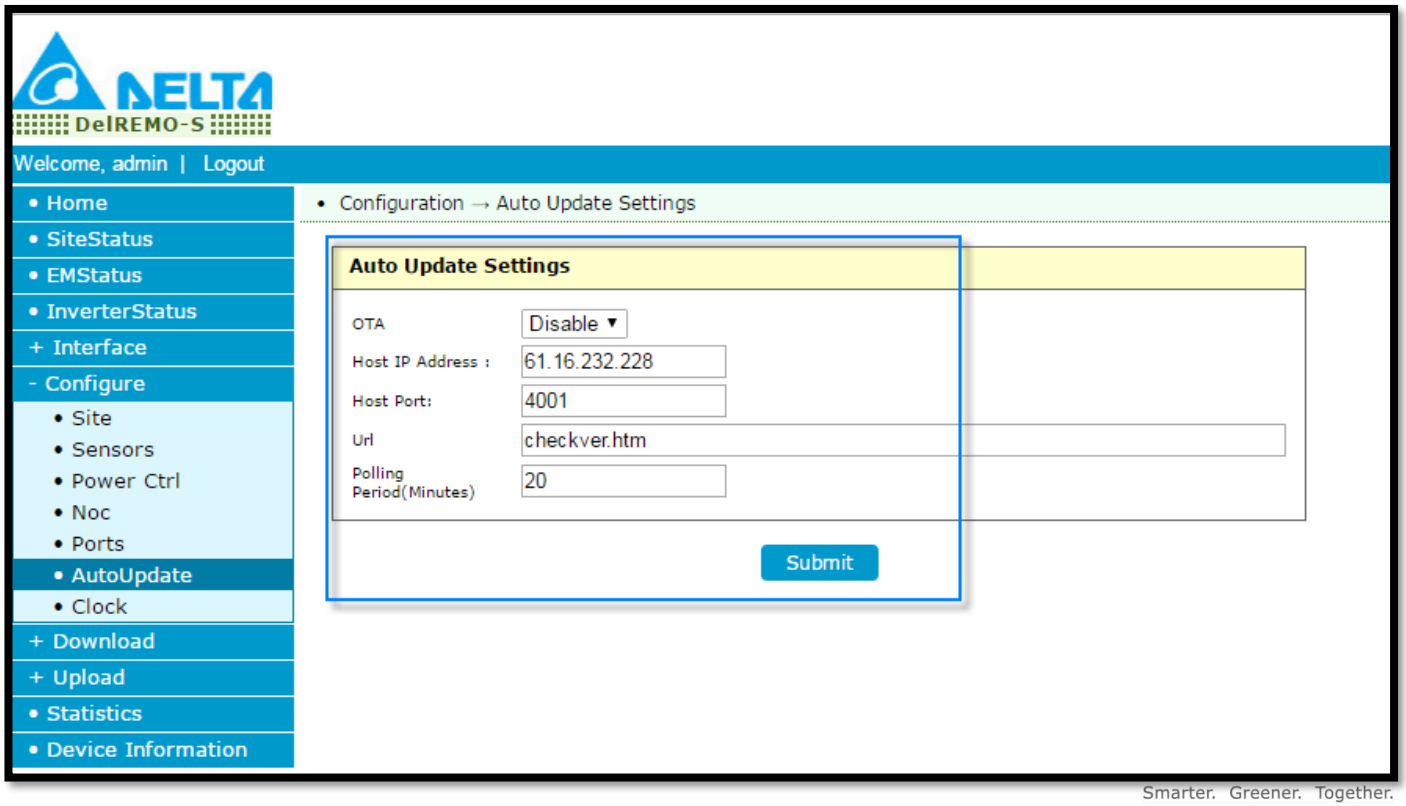
Configure> Ethernet and submit thereafter to save the setting.



XX. Follow Below path to enter “Auto Update setting”.

Configuration> Auto update Settings

Do setting as prescribed in below snap.



XXI. Use below path to reach clock configuration setting.

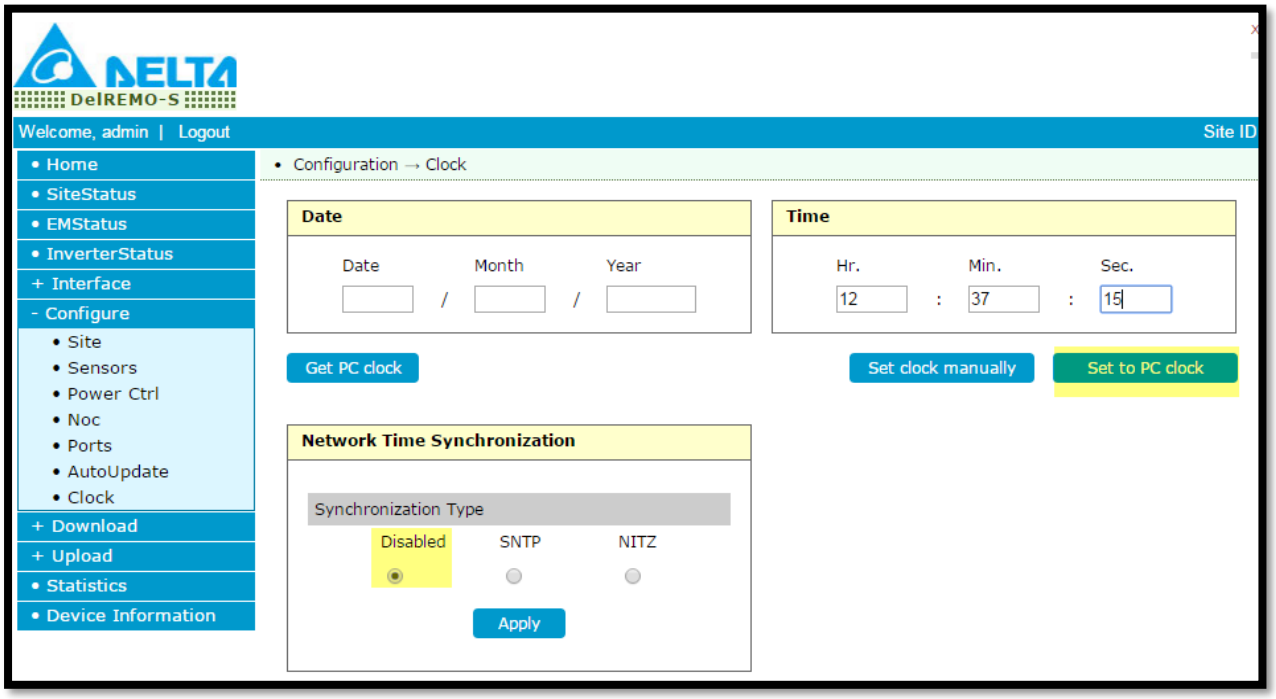
Configure>Clock

There are 3 methods to set clock for DelREMO device

1) SNTP: Customer can use this method if wants to synchronize DelREMO on their NTP server.

2) NITZ: Network Identity and Time zone is a mechanism often used to update system clock automatically using GSM network.

3) Set to PC clock: One can set DelREMO clock with his system clock after being set synchronization type as disable as emphasize below

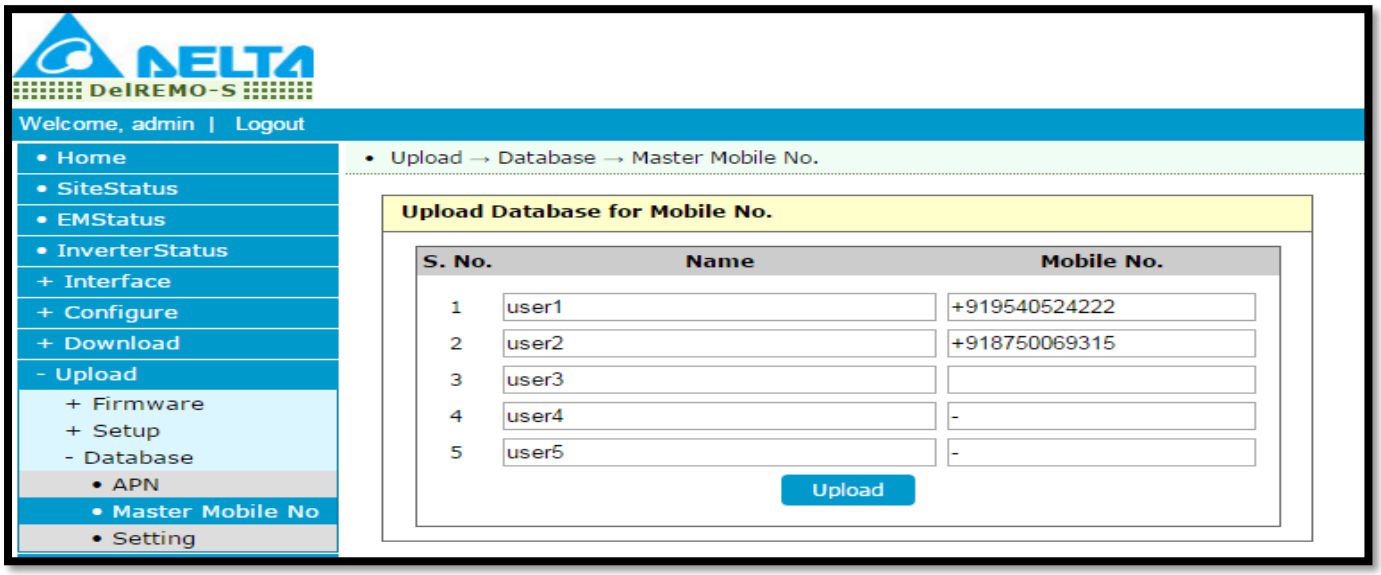


XXII. Set Master Mobile No. Following below path
Upload>Database>Master Mobile No.

Set Master Mobile No. as:-

- user1:- +919540524222
- user2:- +918527000445
- user3:- +91XXXXXXXXXX
- user4:- +91XXXXXXXXXX
- user5:- +91XXXXXXXXXX

From user3 to user5, mobile no. of Site Technician, CI, ZOM etc. can be configured as per customer requirement.
After Filling all detail click on Upload TAB.



NOTE

USER1 AND USER2 NO. SHOULD BE SAME AS ABOVE.

XXIII. Follow below path to enter sensor configuration setting

Configure>Sensor

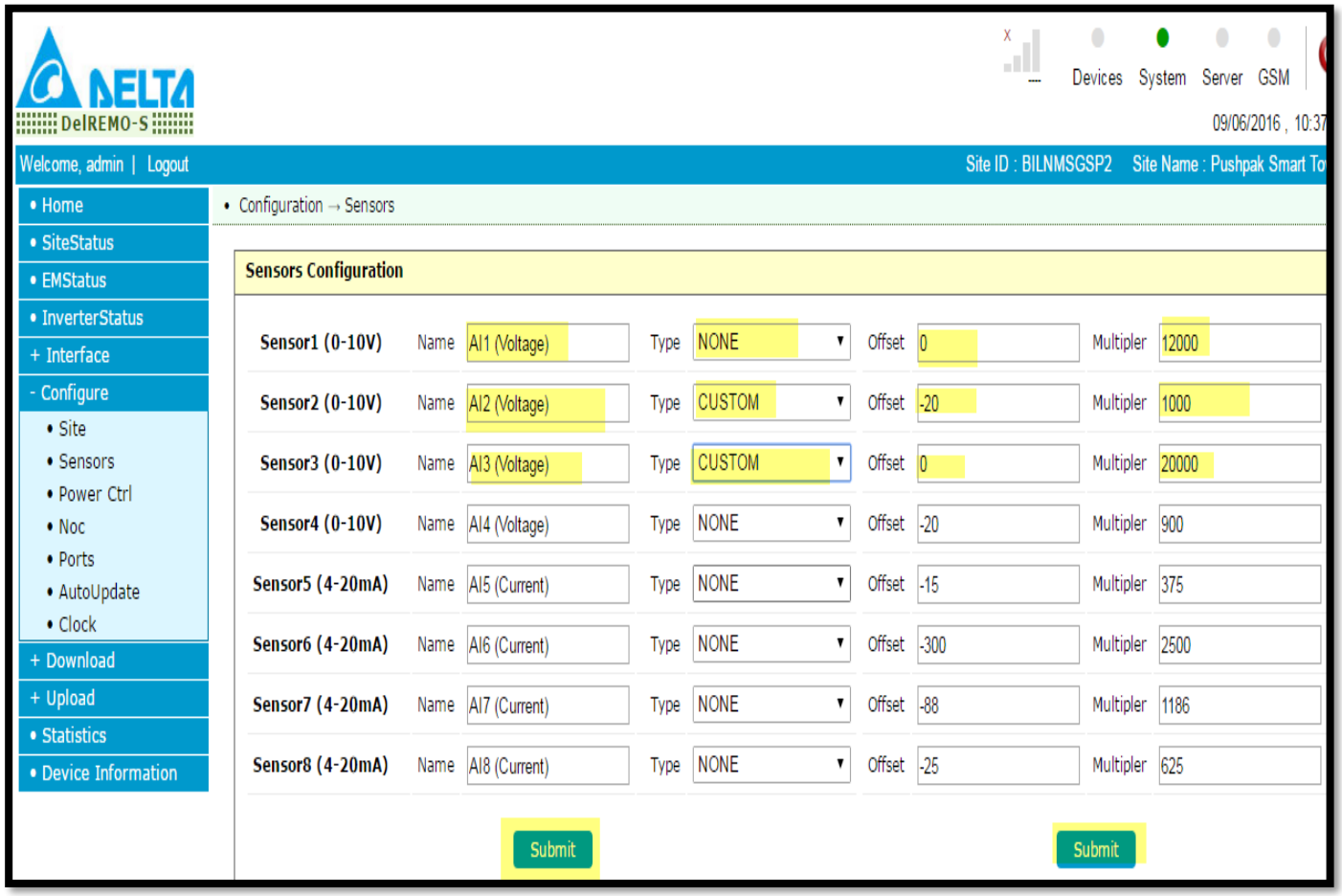
There are 4 attributes being used to manipulate sensor values as per customer requirement and these are as follows:

Name: This is used name sensor depends upon their type and the nature of reading it provided.

Type: This field enables/disabled the effect of offset and multiplier into the original value supplied by sensor.

"None" should be set under type if sensor customization does not required however if want so then turn type into "custom" mode to activate offset and multiplier to get appropriate value at the output.

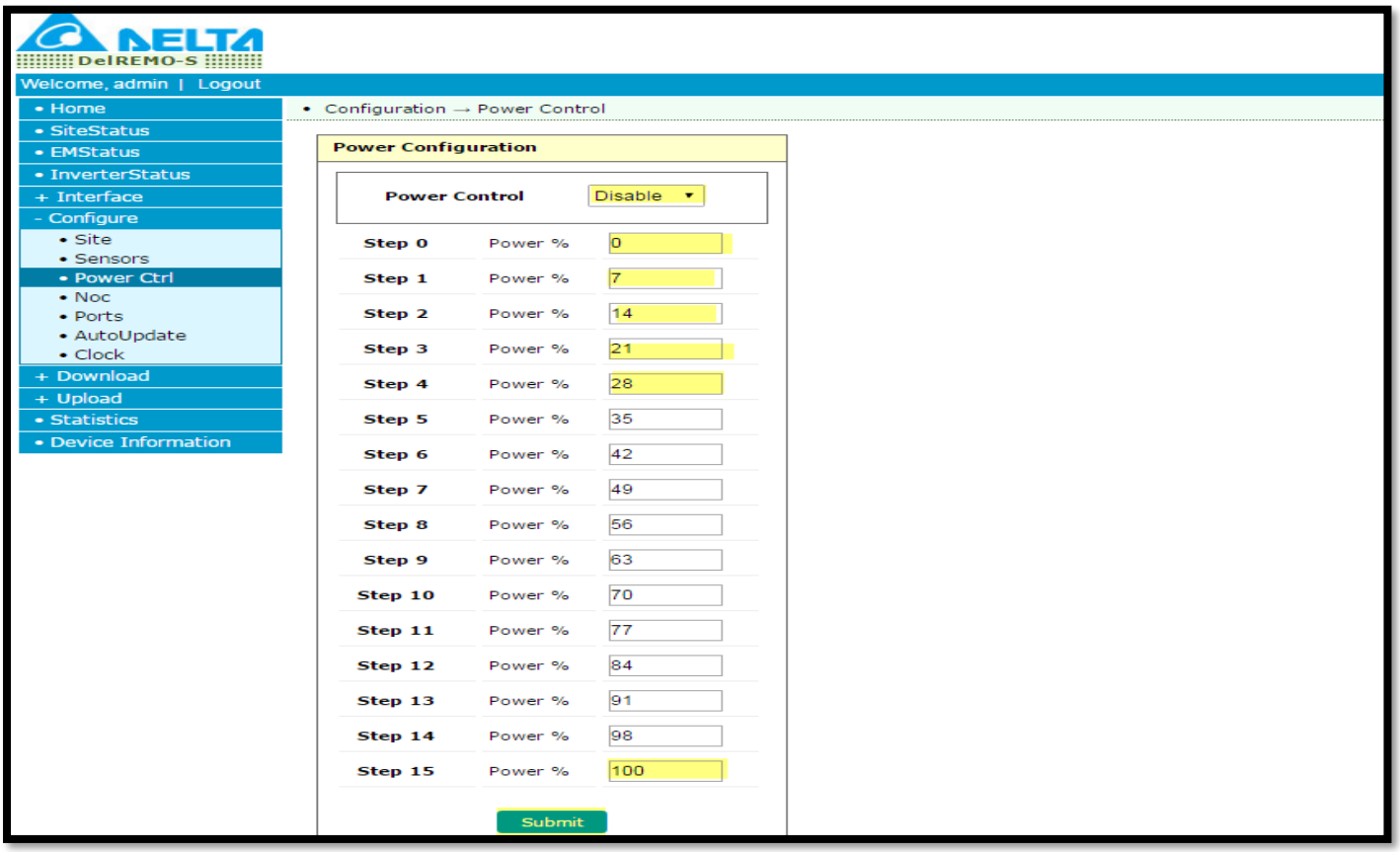
Offset/Multiplier: These are the two elements being used to calibrate sensor reading, can be varied according to sensor deployed.



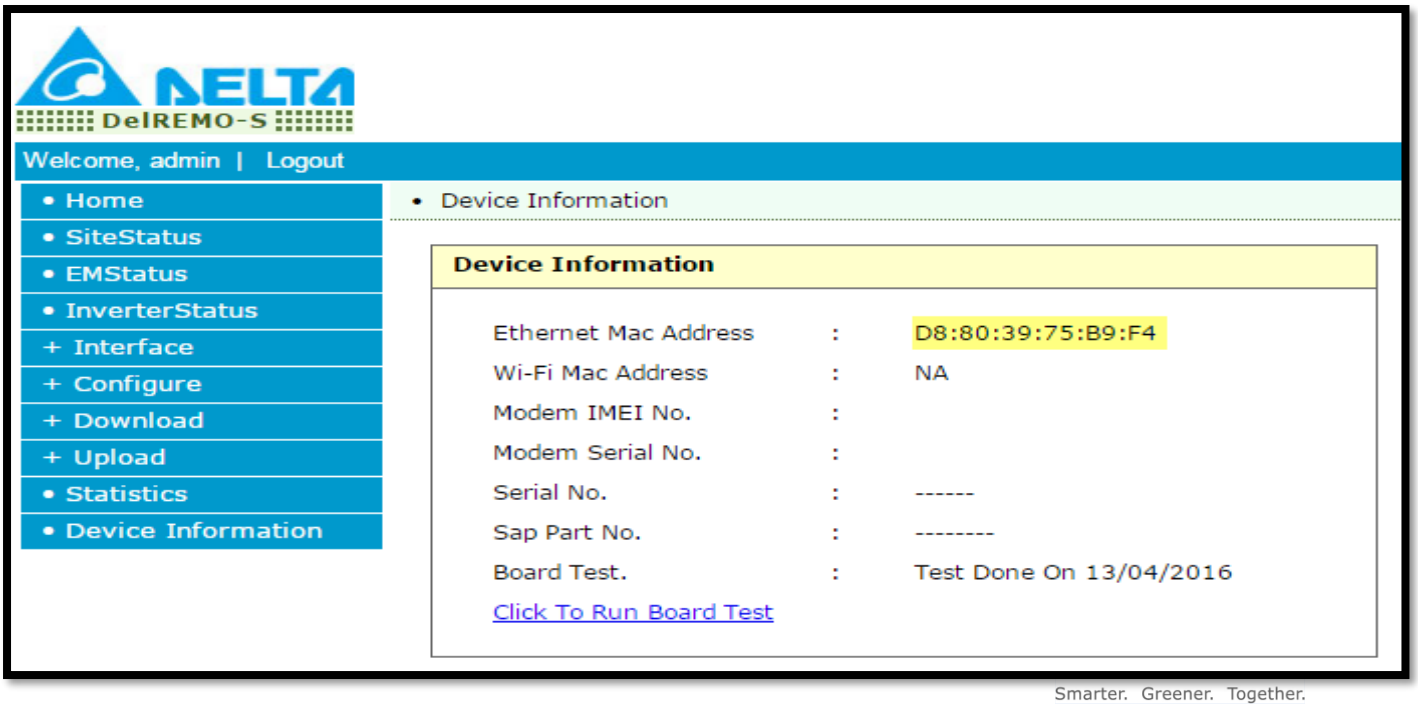
XXIV. Power generation can be regulated at any point of time in steps depending upon the load requirement.

On getting input from string Box, it reduces the potency of Inverter to generate power in steps (Can be customized) whenever it found the generated power is exceeding the power required at load to avoid unwanted power loss.

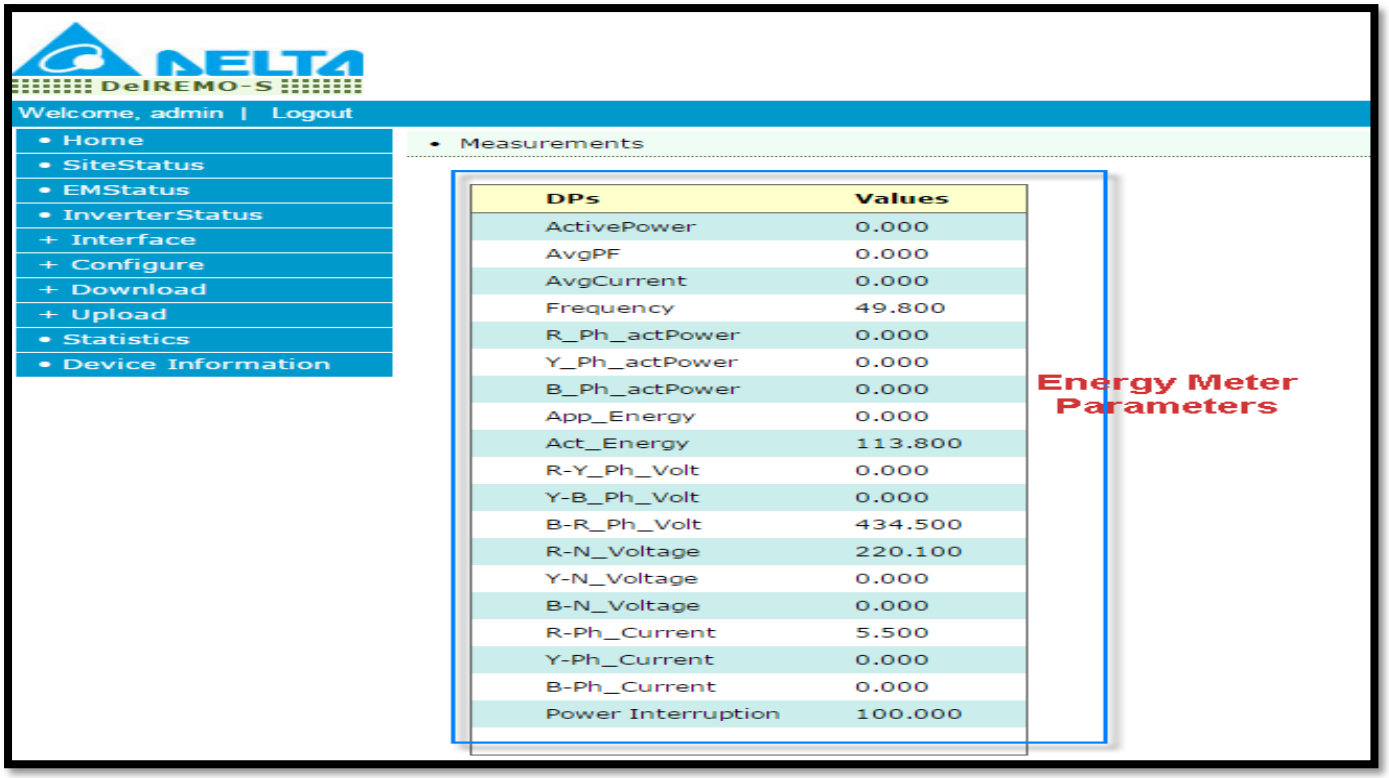
This feature is optional to any requirement but can be instrumental to improve system's efficiency and life in long run.



XXV. One can find MAC address of DelREMO under Device Information Tab in the menu stand last in a column.

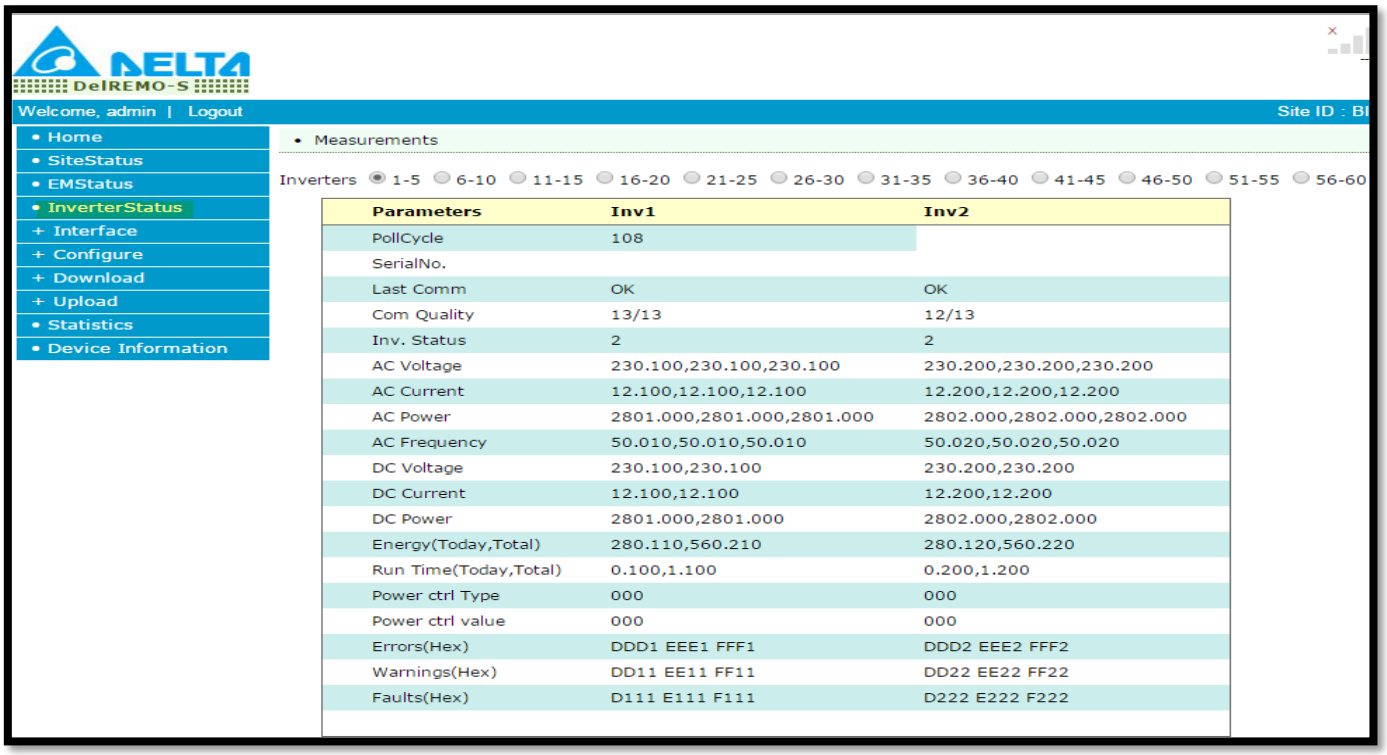


XXVI. One can learn energy meter parameters through tapping on EM Status.



DPs	Values
ActivePower	0.000
AvgPF	0.000
AvgCurrent	0.000
Frequency	49.800
R_Ph_actPower	0.000
Y_Ph_actPower	0.000
B_Ph_actPower	0.000
App_Energy	0.000
Act_Energy	113.800
R-Y_Ph_Volt	0.000
Y-B_Ph_Volt	0.000
B-R_Ph_Volt	434.500
R-N_Voltage	220.100
Y-N_Voltage	0.000
B-N_Voltage	0.000
R-Ph_Current	5.500
Y-Ph_Current	0.000
B-Ph_Current	0.000
Power Interruption	100.000

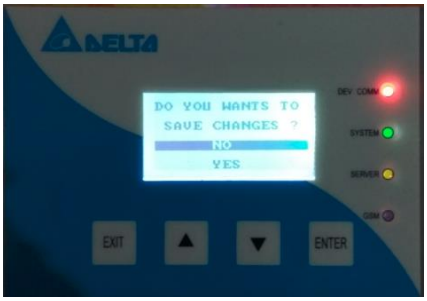
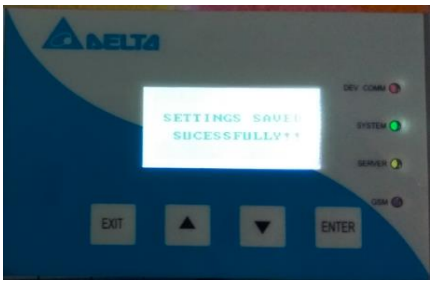
XXVII. Tap on Inverter status to learn various parameters coming from Inverter configured with DeIREMO.

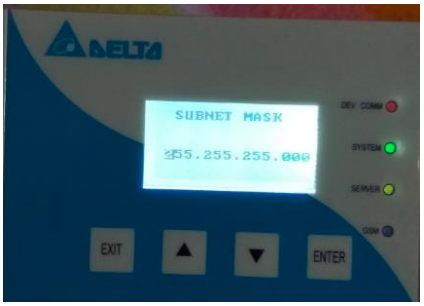


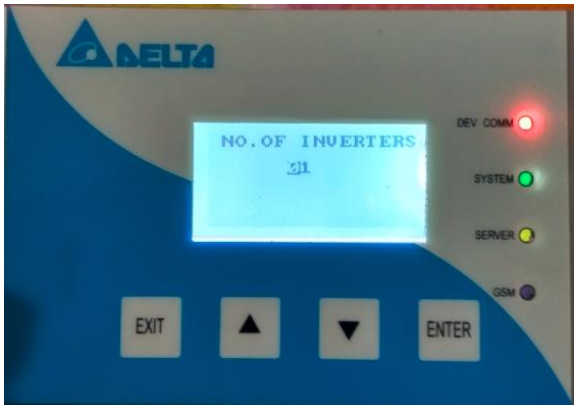
Parameters	Inv1	Inv2
PollCycle	108	
SerialNo.		
Last Comm	OK	OK
Com Quality	13/13	12/13
Inv. Status	2	2
AC Voltage	230.100,230.100,230.100	230.200,230.200,230.200
AC Current	12.100,12.100,12.100	12.200,12.200,12.200
AC Power	2801.000,2801.000,2801.000	2802.000,2802.000,2802.000
AC Frequency	50.010,50.010,50.010	50.020,50.020,50.020
DC Voltage	230.100,230.100	230.200,230.200
DC Current	12.100,12.100	12.200,12.200
DC Power	2801.000,2801.000	2802.000,2802.000
Energy(Today,Total)	280.110,560.210	280.120,560.220
Run Time(Today,Total)	0.100,1.100	0.200,1.200
Power ctrl Type	000	000
Power ctrl value	000	000
Errors(Hex)	DDD1 EEE1 FFF1	DDD2 EEE2 FFF2
Warnings(Hex)	DD11 EE11 FF11	DD22 EE22 FF22
Faults(Hex)	D111 E111 F111	D222 E222 F222

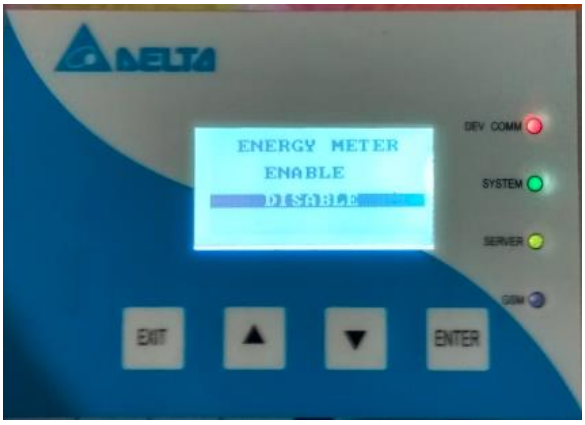
4.1.4 Settings Through LCD

Step	Process	Image
1	Press ENTER key	
2	After pressing ENTER key, a menu will appear having 3 option: **GSM CONFIG** **ETH CONFIG** **SITE CONFIG**	
3	Select GSM CONFIG using UP & Down Key & Press ENTER key. After pressing Enter key, two options will come. **SIM 1** **SIM 2**	
4	Select SIM 1 & press ENTER Key, further two options will come. **ENABLE** **DISABLE** Select **ENABLE** to enable the SIM1 slot OR Select **DISABLE** to disable the SIM 1 slot. Selection can be made using UP & DOWN Key. After desired selection press **ENTER** Key.	

5	After pressing ENTER key, it will ask for confirmation for save changes. Select **YES** to Save. After selecting **YES**, press **ENTER** Key.	
6	After pressing **ENTER** KEY, confirmation message will appear as **"SETTING SAVED SUCCESSFULLY"**	
7	Now go to **ETH CONIG** in main Menu. Select **ETH CONFIG** & press **ENTER** Key. Following Options will come **MODE** **IP ADDRESS** **SUBNET MASK** **GATEWAY** **PRIMARY DNS** **SECONDARY DNS**	
8	**MODE Configuration** In **MODE** you can **ENABLE** or **DISABLE.** For making **ENABLE or DISABLE** select preferred choice then press ENTER KEY. Afterwards follow step 5 & 6.	

9	**IP address configuration:** Follow below path by pressing **ENTER** **ETH CONFIG→IPADDRESS** By pressing **UP** or **DOWN** key you can change the desired digit. For moving to the other digit press **ENTER** key. Follow step 5 & 6 to save changes.	
10	**SUBNET MASK Configuration:** Follow below path by pressing **ENTER** **ETH CONFIG→SUBNET MASK** By pressing **UP** or **DOWN** key you can change the desired digit. For moving to the other digit press **ENTER** key. Follow step 5 & 6 to save changes.	
11	**GATEWAY CONFIGURATION:** Follow below path by pressing **ENTER** **ETH CONFIG→GATEWAY** By pressing **UP** or **DOWN** key you can change the desired digit. For moving to the other digit press **ENTER** key. Follow step 5 & 6 to save changes	

12	**PRIMARY DNS CONFIGURATION:** Follow below path by pressing **ENTER** **ETH CONFIG→PRIMARY DNS** By pressing **UP** or **DOWN** key you can change the desired digit. For moving to the other digit press **ENTER** key. Follow step 5 & 6 to save changes	
13	**SECONDARY DNS CONFIGURATION:** Follow below path by pressing **ENTER** **ETH CONFIG→SECONDARY DNS** By pressing **UP** or **DOWN** key you can change the desired digit. For moving to the other digit press **ENTER** key. Follow step 5 & 6 to save changes	
14	**SITE CONFIGURATION:** **Number of Inverters** Follow below path by pressing **ENTER** **MENU→SITE CONFIG→No. OF INVERTERS** By pressing **UP** or **DOWN** key you can change the desired digit. For moving to the other digit press **ENTER** key. Follow step 5 & 6 to save changes	

15	**SITE CONFIGURATION:** **ENERGY METER** Follow below path by pressing **ENTER** **MENU→SITE CONFIG→ENERGY METER** By pressing **UP** or **DOWN** key you can change select **ENABLE** or **DISABLE** option. For moving to the other digit press **ENTER** key. Follow step 5 & 6 to save changes	

4.1.5 Basic functional verification

After commissioning of DELREMO SYSTEM let's move to basic functional verification. Proceed as follows:

NOTE	**THIS ENSURES THE COMMISSIONING OF THE SYSTEM. IF FACING ANY TROUBLE DURING COMMISSIONING REFER TROUBLESHOOTING TABLE.**

Serial no.	Basic functional verification	Check
1	Check the inverter communication on DelREMO webpage	☐
2	Check sensors are powered up and verify their output on DelREMO webpage	☐
3	Check the SIM Card registration or and connectivity of DelREMO to NOC. In case of Ethernet verify the internet is active on provided network w/o any proxy.	☐

4.1.6 Check points before leaving the site

Check following points carefully before leaving the site.

Serial no.	Steps for Start up Precautions	Check

1	Check all LED's are functioning accordingly.	☐
2	No tools should be left inside the system.	☐
3	Check equipments top cover is properly closed before leaving the site.	☐
4	Check system is communicating with remote server & verify site data.	☐

4.1.7 System calibration procedure

The system is pre-calibrated by Delta Power Solutions. Calibration is not needed unless some changes have been made to the System hardware or the interfacing sensors is different from measurements made with calibrated test equipment during maintenance. Thus system calibration is

NOTE	**PARAMETERS ARE NOT ALLOWED TO CALIBRATE ONSITE, IF REQUIRED PLEASE CONTACT CUSTOMER CARE.**

4.1.8 Conforming the Configuration

All the parameter values come pre-set from the factory and should not be changed without valid reason. Only configuration that is recommended on site is setting no. of inverters and APN.

Check the configuration logging in Pushpak II locally. The web user interface is protected against unauthorized access by username and password.

Step 1. Login to the PUSHPAK II using Google Chrome browser using ***IP Address 192.168.100.30***.
Step 2. Go to ***Configure>Site*** to set NOC Configuration and inverters numbers.

NOTE	**SITE ID, SITE NAME, SITE ADDRESS ARE NOT IMPORTANT THAT CAN BE LEFT DEFAULT.**

Step 3. Go to ***Configure>NOC*** to set server configurations.
Step 4. Go to ***Configure>PORTS*** for Ethernet Port settings.

NOTE	**DO NOT CHANGE RS485 PORT SETTINGS DEFAULT BAUDE RATE IS 9600.**

Step 5. Go to ***Configure>Clock*** to set Date & Clock.

Step 6. Go to ***Interface>Modem*** for SIM setting.

NOTE	**IT IS RECOMMENDED TO ENABLE ONLY SINGLE THAT HAS BEEN IN USE AND TO DISABLE OTHER. ENTER APN OF ENABLED SIM USING MANUAL MODE.**

Step 7. Go to ***Upload>Database>APN*** for entering APN for automatic selection.
Step 8. Go to **Upload>Database>Master Mobile No.** for entering mobile no. of user who has read/write access of the system.

4.2 Modes of operation

DelREMO-V2.0 can send data to remote server thru following modes: -

4.2.1 Mains Mode

This mode confirms that a main AC is available to 24 VDC adapter, adapter is generating 24VDC nominal output to DelREMO-V2.0 SYSTEM as the device works on 24VDC.

5 Introducing alarm system and Troubleshooting

After successful commissioning of the DelREMO-V2.0 SYSTEM let us get introduced to the general faults and problems which operator can encounter during operation of DelREMO-V2.0 SYSTEM. There are no operator serviceable parts inside the DelREMO-V2.0 SYSTEM and operator is recommended to contact customer care services for all service related problems. Troubleshooting section provides help for general operation related problems.

5.1 System Alarms

DelREMO-V2.0 SYSTEM is a fully automatic system and it has self-diagnostic mechanism. DelREMO-V2.0 SYSTEM is provided with general protections for internal components and assembly. General protections are provided by means of system alarms. System alerts for error causing situations through alarms. These faults will be transmitted to Network Operation Centre (NOC) or can be viewed PUSHPAK II webpage.

5.2 Troubleshooting

The troubleshooting chart is for preliminary diagnosis purposes only. Kindly contact customer support department before replacement of faulty parts or for more information during troubleshooting.

This section covers faults which may possibly occur during operation. Before any troubleshooting, check parameter settings and relative values.

5.2.1 Standard procedure

Troubleshooting is always initiated by any alarm. Alarms may be monitored remotely or locally.
Use the following procedure to identify and solve problems in System.

.

- Check the operation of all LEDs in the system.
- Check the DelREMO-V2.0 web interface home page for active alarms/status of system.
- Handle the problem according to the event type or alarm-specific instructions.

5.2.2 System status indications

DelREMO-V2.0 provides system status indicators through both the LED and web user interfaces.

The LEDs on the front panel of the DelREMO-V2.0 are used to give an initial indication of the severity or type of fault. The normal assignments of the LEDs are shown in table.

Table 5.1 System status indications

LED COLUR	LED DESCRIPTION	NORMAL WORKING
RED	South Bound Devices	Stable
GREEN	System	Blinking at 1Hz.
YELLOW	Server	Stable
BLUE	GSM	Stable

5.2.3 Troubleshooting

WARNING	**BEFORE ATTENDING THE TROUBLESHOOTING TABLE ENSURE ALL CONTROL, SENSORS, COMMUNICATION AND POWER CABLING ARE AS PER WIRING DIAGRAM.**

Table 5.2 Trouble shooting

Problem	Possible Cause	Solution
System is not Powering up	1. Mains not in range 2. Adapter not providing output.	1. Check for Mains I/P supply to adapter. 2. If adapter faulty replace the adapter
Not showing Sensors data	1. Loose cable/ connector 2. Sensor faulty.	1. Check 12VDC voltage at I/P of sensor. 2. Check cable / connector, replace sensor module / cable if faulty.
Not Showing Inverter data	1. Loose cable/ connector. 2. Baud rate setting mismatch	1. Check communication cable connections. 2. Check for baud rate settings.
GSM not stable	1. Invalid SIM Card. 2. Invalid SIM Setting.	1. Check valid SIM card is inserted and valid SIM is enabled. 2. Ensure for valid APN and SIM setting.
Server not Reachable.	1. Invalid NOC setting. 2. Remote host server not responding	1. Check NOC server settings. 2. Reset device & wait for remote server to respond,

NOTE	**INTERNAL FAILURES CAN BE REPAIRED IN DELTA POWER SOLUTIONS FACTORY ONLY. FOR REPLACEMENT INSTRUCTIONS, SEE SYSTEM MAINTENANCE INSTRUCTIONS.**

5.2.4 Unresolved problems

If an alarm or specific problem cannot be resolved, please contact your nearest Delta office or Delta representative for further assistance. Please have the system type and serial number ready before contacting Delta. Contact details are discussed in the customer care support.

6 Maintenance

DelREMO-V2.0 SYSTEM is a fully automatic system and does not require frequent maintenance. There are no customer serviceable parts inside the system, but some of the parts and sections require attention and periodic look after. Maintenance includes cleaning of system parts which comes in direct contact of dust.

6.1 General periodic maintenance

Special maintenance is not necessary for this system, unless the system is being operated in a severely harsh environment (dusty environment).

Check the following instructions for periodic maintenance.

- Do not use organic cleanser or volatile solvent or corrosion damage may occur
- If necessary, use a gentle cleanser or a lightly dampened lint free cloth to remove any dirt or smudges.
- Use soft cloth to clean equipment.

CAUTION	**DO NOT USE SPRAY CLEANSER TO CLEAN THE EQUIPMENT. USING A SPRAY CLEANSER DIRECTLY ON THE EQUIPMENT CAN RESULT IN SERIOUS EQUIPMENT DAMAGE.**

6.2 Do's and Don'ts

Do's

- Do make sure equipment is in proper working order and operating in a safe manner
- Attention and commitment to routine maintenance goes a long way to ensuring operator safety
- It is recommended to use electrical insulated hand gloves to avoid risk of shock.
- Ensure all cables and connectors are properly tightened, as loose contact may produce false data and garbage value.
- Do make sure power supply is turned off while performing maintenance work

Dont's

- Do not allow unskilled person to operate these equipments.
- Do not touch the DC output when equipment is running.
- Do not remove cover from the module.
- Do not use spray cleanser to clean the equipment. Using a spray cleanser directly on the equipment can result in serious equipment damage.

6.3 Customer care support

Contact customer care helpline numbers for any query and service related issues.

Customer care helpline
+91-7676254716

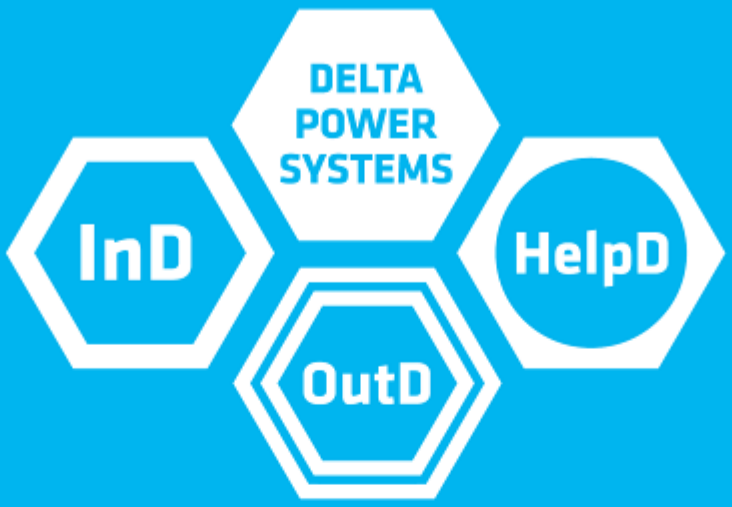
Copyright © 2010-2011 Delta

Trademarks

DELTA is a Trademark. Its name mentioned in this manual should not be understood as advertising for the product or their manufacturers.
The authors reserve the rights to make any changes to this product and to revise the information about the products contained in this guide without an obligation to notify any persons about such revisions or changes.
All features, specifications, model numbers are subject to change without notice.
Projection images are simulated.

Revision History

Revision	Serial No.	Description	Date
0		DelREMO-V2.0	01-February-2017



Our InD, OutD and HelpD series are designed to complement each other. InD stands for indoor power systems, while OutD solutions are created for demanding outdoor use. HelpD is our global support team; its task is to make everything easy for you. The full range of Delta Power Systems keeps you powered and allows you to concentrate on what is most important for you - your business.

Recycle paper
Save earth

DELTA
Smarter. Greener. Together.