



ESENZ LOGGER AND POWER LIMITER INSTALLATION GUIDE

This manual will guide you on the installation of the Esenz data loggers, Power limiters, Splitters and MODBUS repeaters.

(DO NOT CONNECT ESENZ DIRECTLY AT YOUR OWN, PLEASE GIVE US A CALL, WE WILL GUIDE YOU FOR THE SAME)

Esenz Team shall provide only remote (Off Site) support for the installation. With a dedicated team with vast experience in solar sites data logger configuration with over 2500+ sites having multiple inverters/MFM/WMS being configured, we assure a quick and trouble free installation, with major chunk of configuration being handled by our team itself.

NO tickets to be raised, no prior bookings required, reach us directly on the contact numbers given at the end of the document for installation.

Wiring knowledge required from the Technician.

The Installation is meant to be carried out by Skilled personnel's with basic knowledge of electrical connections and safety, below are the skill sets the technician should know about

- A fair idea about the connections and how to do the MODBUS communication and how to do daisy chain connection and basic usage of Laptop and Mobile (Bluetooth and WIFI functionality with WhatsApp)
- For Zero Export/DG Sync, technician should have knowledge about the installing of multi-function meter with CT's/PT's.
- Inverter/MFM meter/WMS product details and support might be required during installation; these details have to be fetched by the Customer side/Installers from respective vendors/manufacturers of the product.

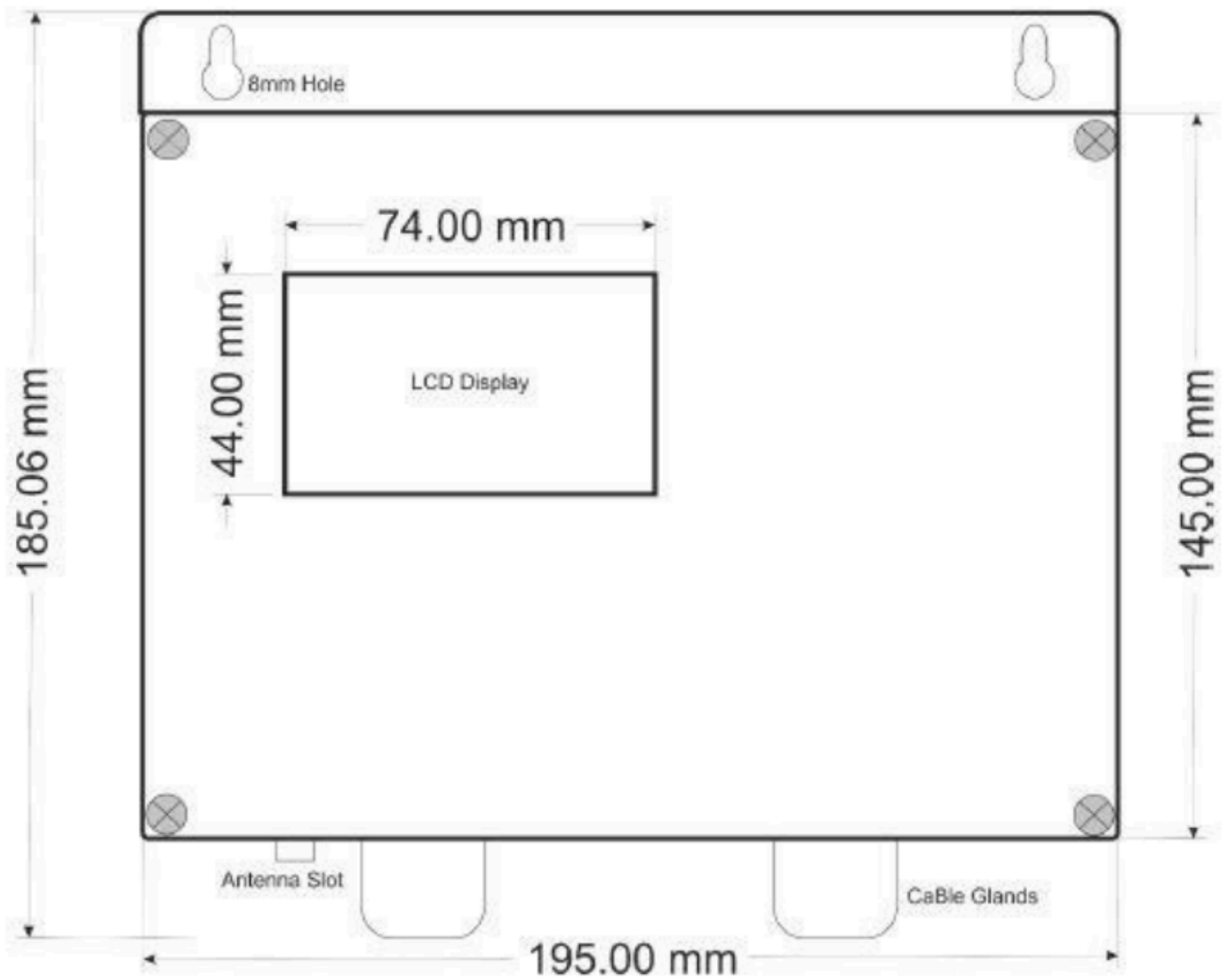
NOTE: The Installation of Meters, RPR, CT and other non logger devices is not under scope of Esenz Innovations Pvt Ltd (Referred to EIPL from now on in this Document)

Mounting the esenz device

Esenz device's comes in IP65 boxes. It is still advised and safe practice to mount the device has to be mounted on wall in a clean and dry place and avoid any direct Contact with rainwater / Dust/ sunshine for Long life of the device. In case of SIM/WIFI enabled devices, place the esenz device / Antenna at the place, where good network connectivity is available.

Note: In case of DG sync /ZED Sites, it's advised to keep the esenz controller near the Inverters, rather than the MFMs.

esenz Unit Dimensions



Reference Images- Mounting Completed

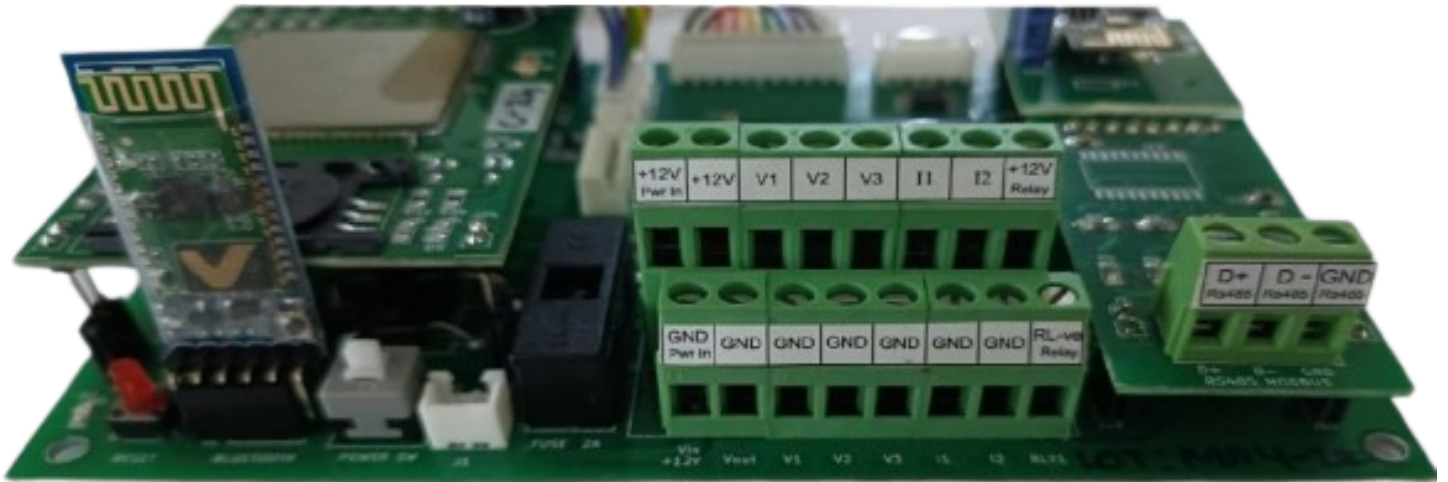
Directly Mounted on wall



Mounted in additional IP65 Casing.



Esenz Connection Terminals



Esenz main Board

+12 V Pwr In: Input to the esenz device (From the SMPS given)

+ 12 V: Output voltage for sensors 12Volts V1 Analog

Input Ports –

Voltage Input 0-5 Volts (Milli or Micro volts Not Supported)

V2, V3: Analog Input Ports – Voltage Input 0-12 Volts (Milli or Micro volts Not Supported)

I1, I2: Analog Input Ports - Current Input 4-20 milliamps

12V relay - 12 Volts relay output

RS485 Board

D+ RS485: RS485 Data + Port

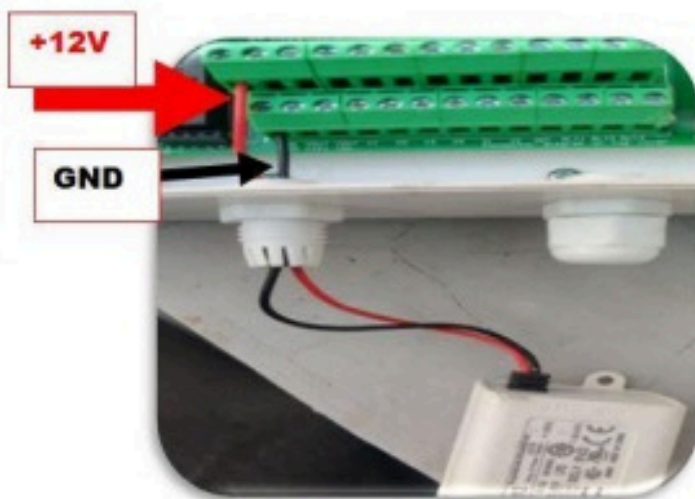
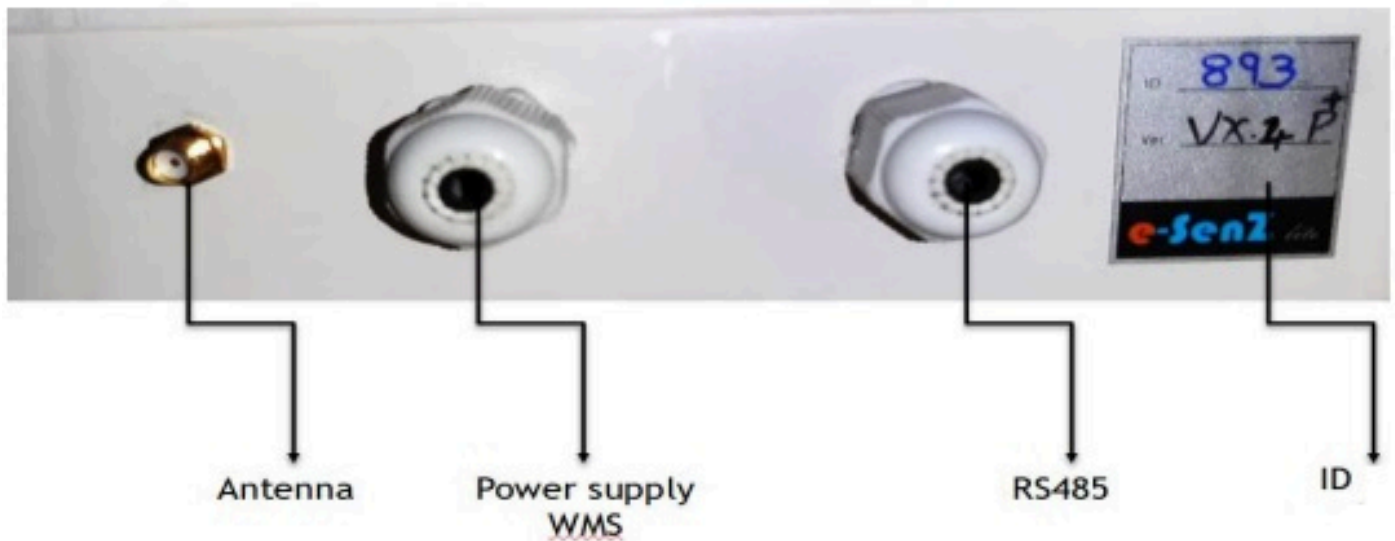
D- RS485: RS485 Data – Port

GND RS485: Ground connection for RS485

Power Supply to power up Esenz

Esenz comes with a 230V AC to 12V DC power supply (From Meanwell Company, one of the most reputed Power supply providers). 12V DC power supply is used to power the device. The power source for the e-SenZ (220 V AC - 12 VDC) is an open ended wire. To connect to the nearest power source or outlet, you will need additional cables (1 sq mm for Phase and Neutral) and Carry a TWO PIN connector to plug in the SMPS to the Power supply socket, two core cables.

Note: It is advised to use a POWER SPD/SURGE SHIELD along with the Power supply to protect the device from electrical surges (In case of rural or remote with high Voltage /Current fluctuation kindly Use SPD compulsorily)



Internet Connectivity to esenz Device

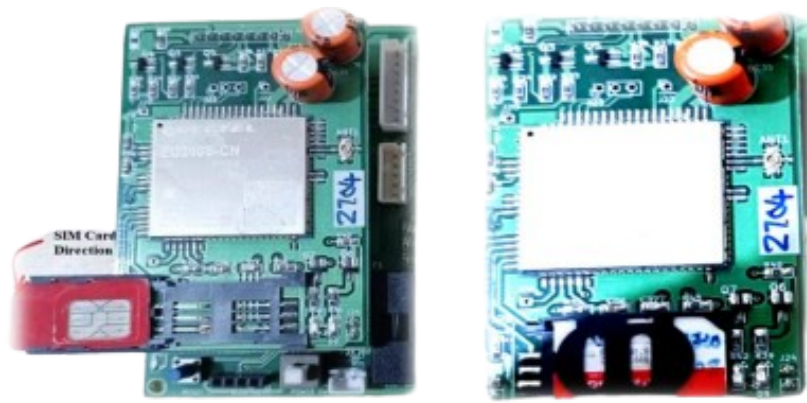
The Esenz can be connected via 4G SIM card (With active internet) or with WIFI. (Ethernet or LAN facility is not available, IN case of LAN , Kindly Use a Router to provide WIFI to device)

Note: Position the 3mtr wired antenna in a place where there is strong network signal.

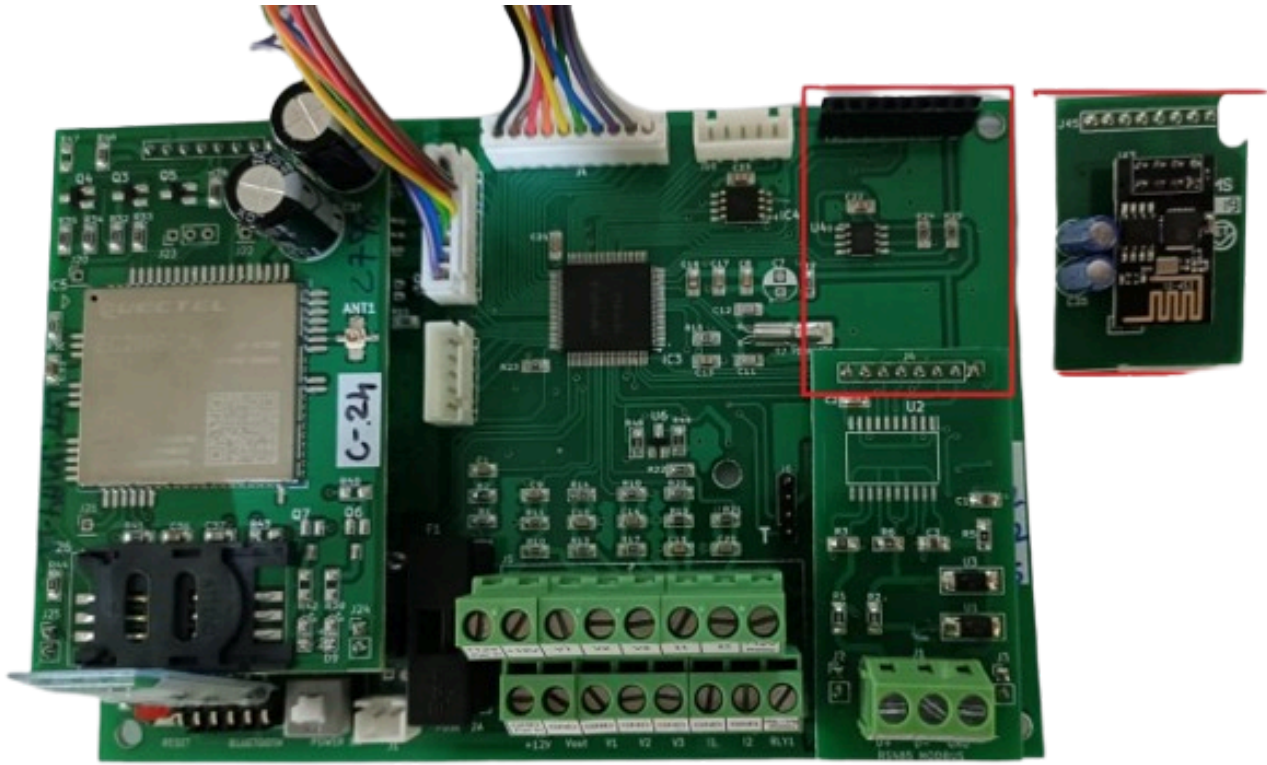
Connecting with SIM card

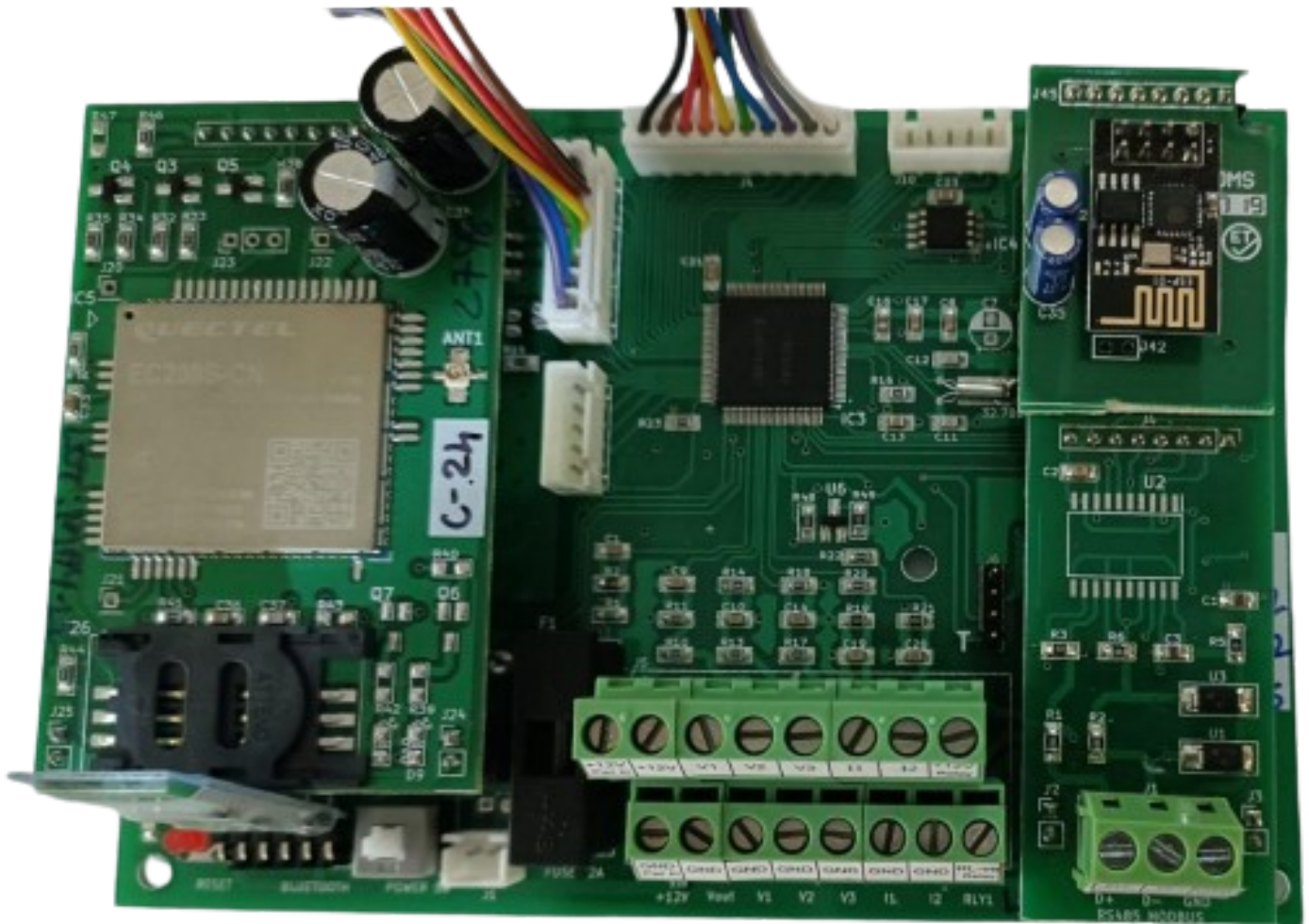
Remove the screw from the RMS top cover, then place the SIM card in the SIM Tray. Be Gentle while Pulling the LID of the Tray and press it gently after the SIM is inserted.

(Any 4G SIM with Active Internet can be used)



Connecting with WiFi





Bluetooth Module to connect the Esenz with Your Mobile or Laptop For connecting the Wi-Fi

Please download the below App from the Google Play store (For Android Only)

<https://play.google.com/store/apps/details?id=com.yantramicrosystems.testbluetooth>

Steps after Downloading

- Select Pair device in the mobile phone's Bluetooth settings after turning on the Bluetooth.
- choose the Esenz Bluetooth. To link Esenz Bluetooth and enter the Password 1234.
- Open the App, Select the setting options and Select device as esenz from the drop down.
- Set WiFi credentials , Set WIFI USER name and Password

MODBUS RS485 / WMS / Power supply Wiring Specs

RS485 shielded and armoured cable (0.5 Sq Mm) is advised for the Installation. However in case the distance is less than 50 Metres Normal two core cable or CAT 5/6 cable (0.5 Sq-mm) will suffice.

Normal Two core cable can be used to provide power supply to the esenz device (230V AC -12V DC SMPS is provided)

Place the RS485 cable in separate conduit and away from high voltage lines, Earthing lines and avoid joining the communication cables and sharp bends in cables, use Single cable with no or minimum

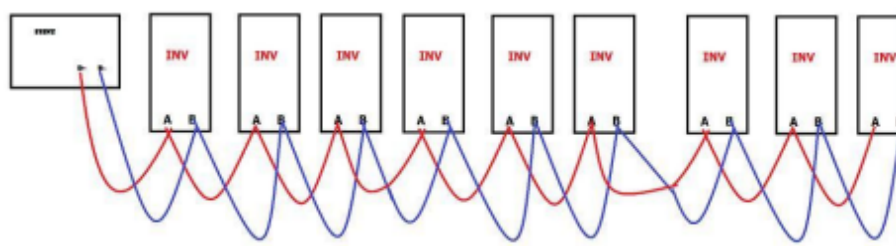
joints to avoid data transmission issues. In some cases RS485 repeater Might be required in case of Long distance wiring or with sites with electrical Noise interference

All the MODBUS communication points will have to be connected to a single RS85 port in esenz.

Note:

- It is advised to use a Communication SPD for the communication line for the longer life of the esenz Device
- All The Inverters, MFM, Meters should have RS485 port with MODBUS RTU Protocol.
Bidirectional MFM with RS485 is Compulsory (Meters should show Energy Value in KWH, Power and current Import / Export Registers should be given by MFM and Power +/- ve have to provided in order for the ZED to work)

Serial Connection Communication (RS485) Settings

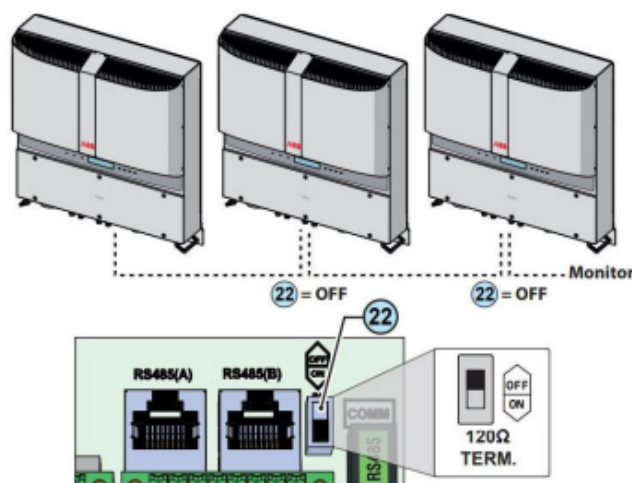


RED WIRE - DATA + (RS485)

BLUE WIRE - DATA - (RS485)

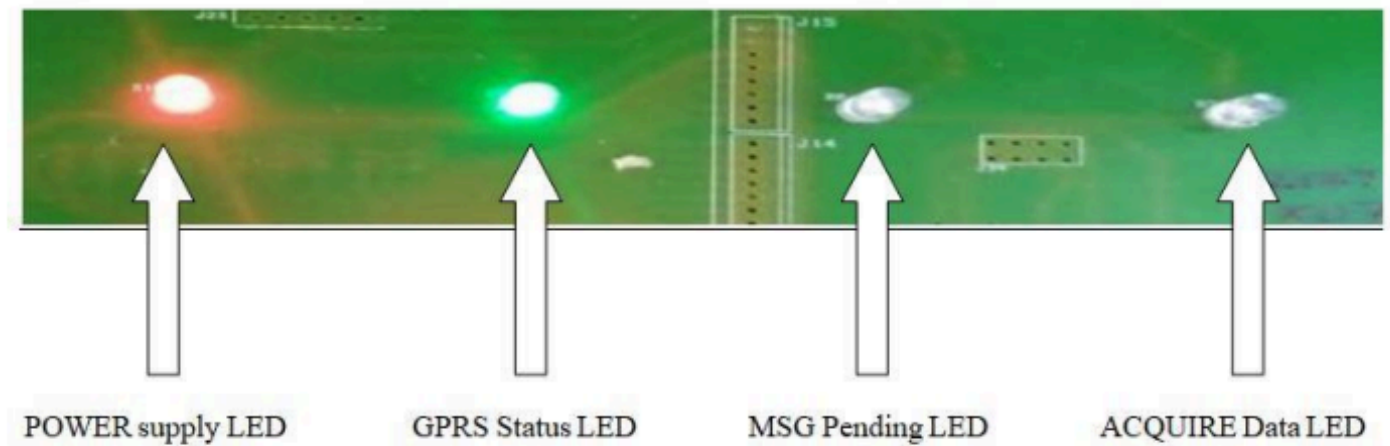
An RS485 communication line is located on the inverter and is used to link numerous inverters together ("daisychain") or to connect the inverter to the e-Senz monitoring device. The line can also be used to save configurations for the specific advanced configuration programme.

Connect all the units of the RS485 chain in accordance with the "daisychain" arrangement ("in-out") observing the correspondence between signals, and deactivate the termination resistance of the communication line. Please turn OFF the 120Ω Switch.



Set a different RS485 address on each inverter of the chain. No inverter should have “Auto” as its address. An address can be chosen freely from out of 2 to 20. The address on the inverter is set through the display and the pushbutton panel , While using a RS485 connection, if one or more inverters are added later to the system, you must remember to return to OFF position the switch of the termination resistance.

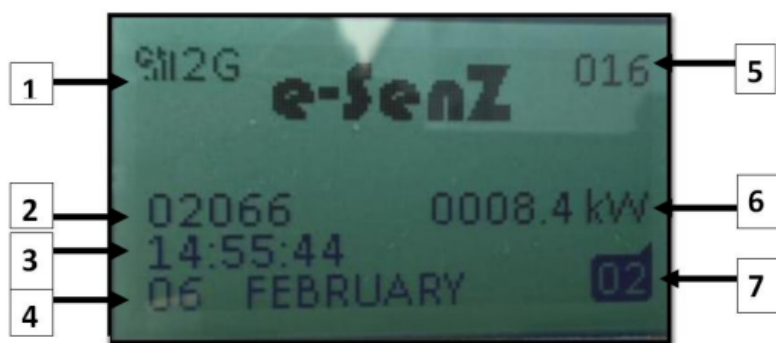
LED Indication's in esenz Lite Model Datalogger



LED status

- PWR supply will **blink** 3 times is sim not detected
 - MSG pending will **blink** fast when modem is being reset
 - GPRS **blinking** patter
- OFF - modem communication error
- 2 **blinks** - sim not detected
- 3 **blinks** - not connected to network
- 4 **blinks** - connected to network but unable to start bearger (no internet or very low signal strength)
- 5 **blinks** - unable to connect to server (our server issue or no internet)

LCD Indication's in esenz Power Limiter & Datalogger



1. Type of the Network and its Status If it is Displaying WF then it is in Wifi Mode
2. Esenz ID
3. Time
4. Date
5. Number of data packet scanned by the Esenz

6. Inverters total Power
7. Number of data need to transmit from esenz to Server

How to change SIM mode to WIFI mode?

In order to switch the esenz mode from SIM to WiFi, please press the RESET button three times. If you click the RESET button three times, Esenz will switch from Wifi to SIM mode if it enters that mode again.

Items required to be carried at the Site for Installation of esenz Products.



Laptop with good Internet Connectivity for team viewer



Multimeter



SIM card with internet/Wifi router



2PIN Plug with 2core Cable to power Esenz



Crimping tool



CAT5/6 or RS485 cable to connect MODBUS devices

And other Generic equipments Like USB-RS485 converter, wire cutter , Allen key Set, Screw driver Set, Cutting pliers , Tester, Insulation tape, hammer, Gloves, rubber boots, Wall screws with plastic plugs etc

SCOPE OR WORK

Scope of Work for Esenz

- Supply of Esenz Items with standard accessories mentioned in quote/PI.
- Assigning a dedicated SPOC and Providing Online Remote support by Video/Audio call over phone and by connecting to Laptop, To Guide RS485 Wiring, checking for Setups done in inverter/MFM or other devices being connected
- Setting up of standard parameters Configuring the settings on server for esenz device communication (Support Team shall be available from MON- SAT (10AM to 7PM Only) - Sundays and any Govt Holiday shall be non-working day

- Online guidance and troubleshooting and improvisation in case of nonfunctioning at the time of installation
- Provide details on the Dashboard usage and brief demo about portal
- NO ON-SITE Support is included in the provided quote or document, unless and until being mentioned separately in the quote. Onsite support shall be provided on extra cost, which shall be shared depending on the site conditions and one number local technician, accommodation and transportation of esenz service engineer will be under client's scope, Prior Intimation of 5 working days is required for Onsite Support (Provided the availability of esenz Service Engineer

Scope of Work for Customer/Buyer

- Communication Looping: - All Inverters, Meter, CT & sensors cabling & laying of RS485 and power Cable laying, conduiting and Chaining, installation of poles for wireless and WMS, Civil work, if any
- 230 V AC, Power Supply arrangement to esenz and master and slave devices
- Providing SIM card/WIFI internet to the esenz device
- Installation and commissioning of Inverters, Meter, Sensors and other devices being connected to esenz device and PT/ CT installation to MFM. Inverter, MFM, or other connected device communication settings have to be done by the site engineer from customer's side.
- It is the sole responsibility of the customer to provide the MODBUS data in the MODSCAN for all the devices connected to esenz like inverter, MFM, sensors, etc. If the data is not received on the MODSCAN in laptop, then esenz is not responsible and customer should contact the OEMs of the connected devices to get the data on MODSCAN Screen.
- Assigning an electrical engineer who must carry a Laptop, RS485 to USB converter, install team viewer or Any desk in laptop and also have Proper internet connection at site to provide uninterrupted online support
- Properly check and confirm the functionality of Zero export, DG sync and monitoring once installation is Completed by esenz team
- Getting all necessary permission for Installation and commissioning permission of esenz Device at the site

ASSUMPTIONS, EXCLUSIONS AND IMPORTANT NOTES

- RPR/RPD should be installed at the Sites with Zero export and DG sync functionality for additional safety backup. Plant should be charged electrically before onsite or online support including termination of communication cables and devices like Inverters, MFM, DG etc. are all in running condition and have datasheets and Modbus Mappings of the same. All Devices being connected to esenz should compulsorily have MODBUS RTU protocol and working SR485 PORT, IN case of TCP/IP protocol, a converter TCP-485 converter is available.
- Any change or Customization in esenz Portal or dashboard for Individual requirement will not be provided , nor will any changes to the UI will be done .However we are open to the feedbacks to include any new functionality or design, which shall be beneficial and generic to all our customers, still esenz shall have the final say whether to incorporate the same or not .
- Reinstallation of existing devices from one site to another site will be done on a chargeable basis and the data of earlier installations will be lost in the process.
- Device once Installed will not be returned back nor exchanged

- Prices may vary depending on the Site Conditions, Site capacity, Number of Inverters, Number of DGs, NO of parameters being Monitored and any special circumstances
- Any kind of ONSITE support required will have to be informed at least 7 days in advance and the cost of the same will be shared separately
- After portal expiry, data will be stored on the backup drive for 3 months & after that, it will automatically be deleted from the database & server, post which esenz shall not be held responsible for data loss or be asked to provide the historical data for the same
- Once portal subscription is expired access will automatically disable & any loss due to this will be the sole responsibility of the user/client/plant owner.
- Monitoring and controlling the solar plant will be provided only for the sun hours' duration, (24-hour data won't be available by default, if required 24-hour data, then it will be provided on additional chargeable basis which shall be increased in the portal charges.
- Controller response time will depend on the inverter, distance, cable, number of Inverters, etc., and hence we are not responsible for any loss or malfunctioning due to response time. Sudden variation and fluctuations in load always hamper controlling and leads to small power export or malfunctioning. So, any such incidents or loss due to this are not dependent on us, and we shall not be held responsible for this or for loss in generation due to curtailment and nor for a small amount of power fed back, which may happen due to response time of inverters.
- esenz uses Server services from the dominant Global market leaders who guarantee maximum runtime and the security of the server, however minor downtimes will have to be borne by customer due to unforeseen circumstances and updates.
- Material is sent by DTDC courier, The material shall be booked to the delivery address provided in the PO, but the doorstep delivery shall not be guaranteed in the cases of remote location or where the courier service is not available , in such cases the material shall be delivered to the nearest Courier HUB , from where the same shall be collected by the customers team. Any request for an urgent delivery will not be entertained. IN case of wrong address or the material is not collected by customer the material will be sent back to esenz HO and redelivery charges on actual will be applicable
- ESENZ is not liable for the loss in generation due to curtailment or a small amount of power fed back. Which may happen due to inverter response time, unavailability of load during curtailment, Sudden variation and fluctuations in load or any changes in the setting in the devices at site done once the site is live with power limiting

Esenz Remote support time for Installation

Working Hours - MON to SAT 10AM – 7PM (Please do installation, when there is ample sunlight, to see the Generation Data)

All Sundays and Central Govt Holidays are Non Working Days. For Installations

Please Call – 9986495977, 9738367426

Mail – techteam@esenzinnovations.com / Sales@esenzinnovations.com

NOTE : If any Shut Down is required at the site for D sync or Zero export Insatllation, Kindly arrange for theh same on Monday - saturday ony, No Remote suppport shall be provided on the **SUNDAY,s or On Govt Holidays.**