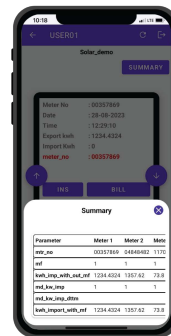




Solar Energy

Aggregator Solution

Solar Energy Visualization, Analysis and Reporting Solution



Mobile App

Parameter	Meter 1	Meter 2	Meter 3	Meter 4	Meter 5	Total
meter_id	00000001	00000002	00000003	00000004	00000005	00000000
meter_name	00000001	00000002	00000003	00000004	00000005	00000000
meter_type	00000001	00000002	00000003	00000004	00000005	00000000
meter_status	00000001	00000002	00000003	00000004	00000005	00000000
meter_location	00000001	00000002	00000003	00000004	00000005	00000000

Local Display




AMR Modem



Solar Energy Aggregator Solution

The SANDS Solar Aggregator represents a comprehensive solution aimed at simplifying the gathering and presentation of essential solar energy data. It effectively collects meter data from several photovoltaic (PV) sources within a specific geographical area, offering a holistic perspective on solar energy production. This aggregated data is easily accessible and can be viewed through a local nodal display or remotely via a user-friendly mobile application, enabling streamlined monitoring and management of solar energy resources.



Parameter	Meter 1	Meter 2	Meter 3	Meter 4	Meter 5	Total
meter_id	00157869	04848482	11701083	32166705	12345678	
mf	3	1	1	1	1	
kwh_imp_with_val_mf	1234.4324	1357.62	73.8	3.16	0	2689.0122999999996
mf_meter_imp	3	1	1	1	1	
mf_meter_imp_val	1234.4324	1357.62	73.8	3.16	0	2689.0122999999996

Architecture



AMR Modem for Solar Energy Aggregator Solution

AMR Modem: A dedicated AMR Modem collects real-time data from each solar PV system spread across a designated geographical area. It captures instantaneous parameters, billing details, load survey data, tamper occurrences, and transaction events and sends it to the cloud server via GPRS

Centralized Display: A central display unit retrieves data from the cloud and presents real-time data summaries from multiple solar PV systems. Users can easily monitor and analyze energy production patterns through this interface.

Mobile Application: A mobile app and web interface allow users to remotely access and monitor real-time data of their solar energy system.

Key Features of AMR Modem



Seamless Integration: Compliant with the IEC-62056-21 DLMS standard for seamless integration with electronic energy meters.



Data Variety: Capture a range of data types, including instantaneous parameters, billing information, load survey data, tamper data, and transaction events.



Configurability: Dynamically configure data push intervals based on your monitoring needs.



Storage: Internal storage maintains data continuity and functionality even without a GPRS network, by storing the data and sending it to the cloud once the network is restored.



Specification

Operating GSM band	Dual Band GSM 900/1800MHz
Power Output	(2W) @ 900 MHz , (1W) @ 1800 MHz
Power Supply Input	Range of 50 V AC P-P to 540V AC P-P, 50 Hz
Ambient Temperature	0 °C to 60 °C
Internet protocol Compatibility	IPv4 & IPv6
Humidity	95% RH (non-condensing)
Antenna	6dbi magnetic base antenna
interfaces	RS-232/RS485 or optical interface to energy meter
Baud rate	115,200 bauds
SIM Card	SIM Card Slot is provided on the motherboard and accessible by opening/sliding the dedicated SIM card slot cover.
GSM data features supported by Modem	TCP, UDP, HTTP, FTP
SIM interface	1.8V/3V Interface
Optical port connector cable	Supplied with power cable, antenna with co-axial cable of suitable length and RS 232 connecting cable.
Surge Withstand/ Capacity	6KV
Sealing arrangement of modem	Top and base cover are sealed to prevent tampering
Memory	4MB non-volatile Data memory (Expandable to 8MB)
RTC	Modem time could be synchronized with Server time

Power Supply	Inbuilt 3 Phase/Single Phase Power supply
Firmware Upgrade	Through POTA

Product Certifications

EMI & EMC	
Electro static discharge (ESD)	As per IEC61000-4-2
Electrical Fast Transient Burst immunity test	As per IEC61000-4-4
Data transmission	GPRS Class B Multi slot class 12 or class B Multi slot class 10 Packet channel support : PBCCH Coding Schemes: CS1 to CS4 compliant with SMG32 (Release 97)
Surge	As per IEC61000-4-5
Conducted Emission	As per CISPR 22
Radiated emission	As per CISPR 22
Radiated susceptibility	As per IEC61000-4-3

Mechanical	
Protection rating	IP 55

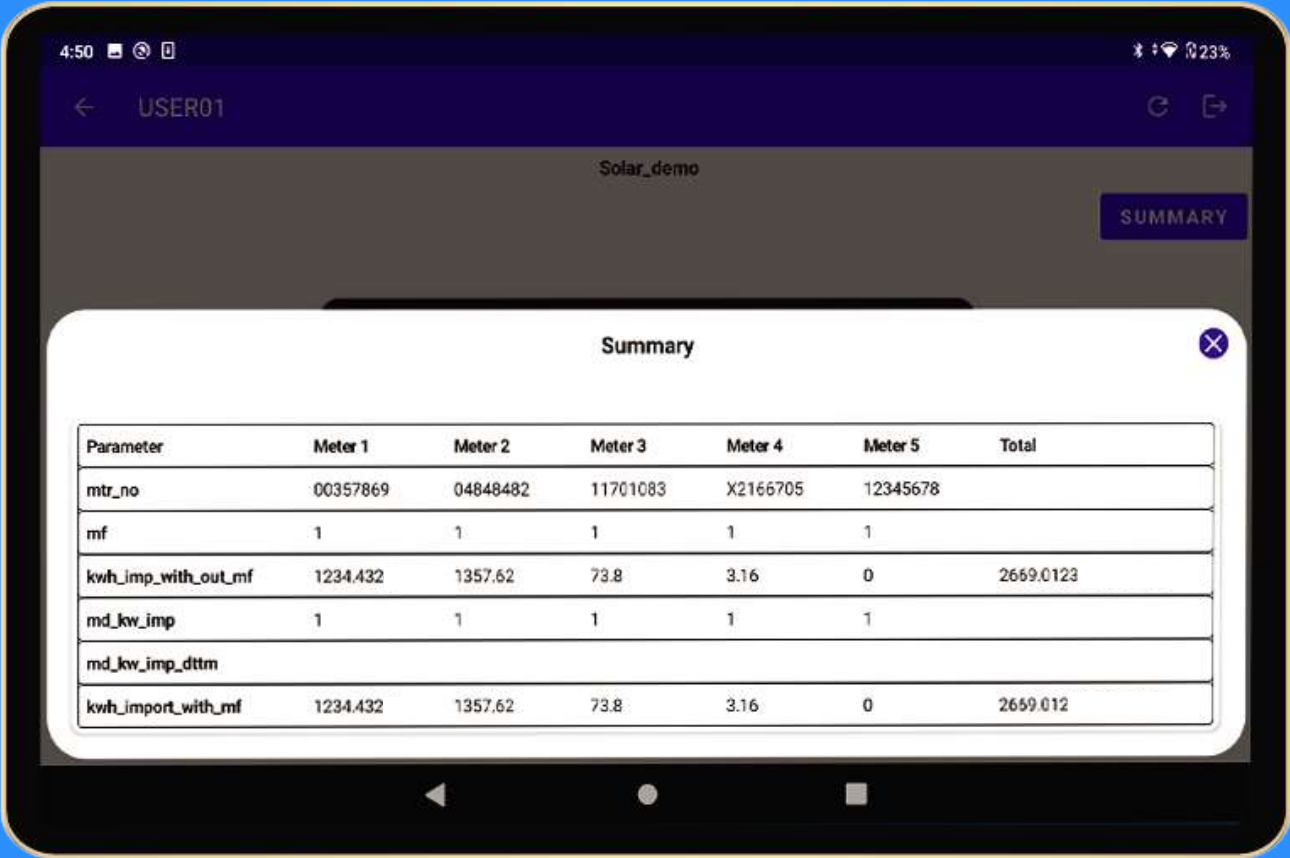
Environmental

Operating temperature	-10°C to +60°C
Storage temperature	-10°C to +70°C
Relative Humidity	Upto 95% Non condensing

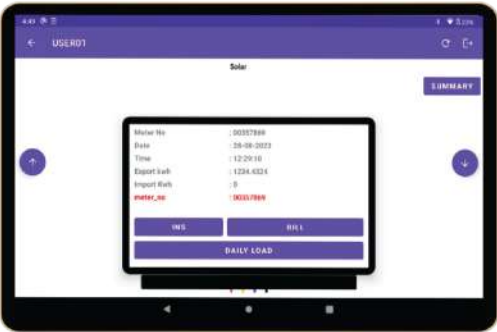
Benefits of the Implementing Solar Aggregator System

- Real-time Insights:** Gain instant visibility into the power generated by your solar panels in kilowatt-hours (kWh).
 - Customized Dashboard:** Enjoy a user-friendly interface with a tailored dashboard for intuitive and efficient monitoring.
 - Alerts on Deviation:** Receive timely alerts in case of deviations, allowing for prompt corrective actions.
 - Offline Data Push:** Even without a General Packet Radio Service (GPRS) network, SANDS ensures seamless data continuity and functionality.
- Historical Tracking:** Record and analyze the total power generated over specific periods, aiding in performance evaluation.
 - Automatic Reporting:** Simplify record-keeping with automated reports, ensuring you stay informed without manual effort.
 - DISCOM Compliance:** Align with the guidelines prescribed by the Distribution Companies (DISCOM), ensuring regulatory adherence.

Local Display



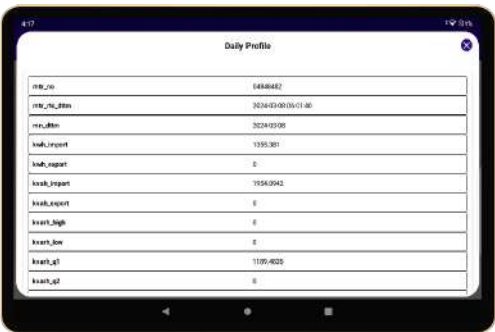
Summary



Home Screen



Bill Profile

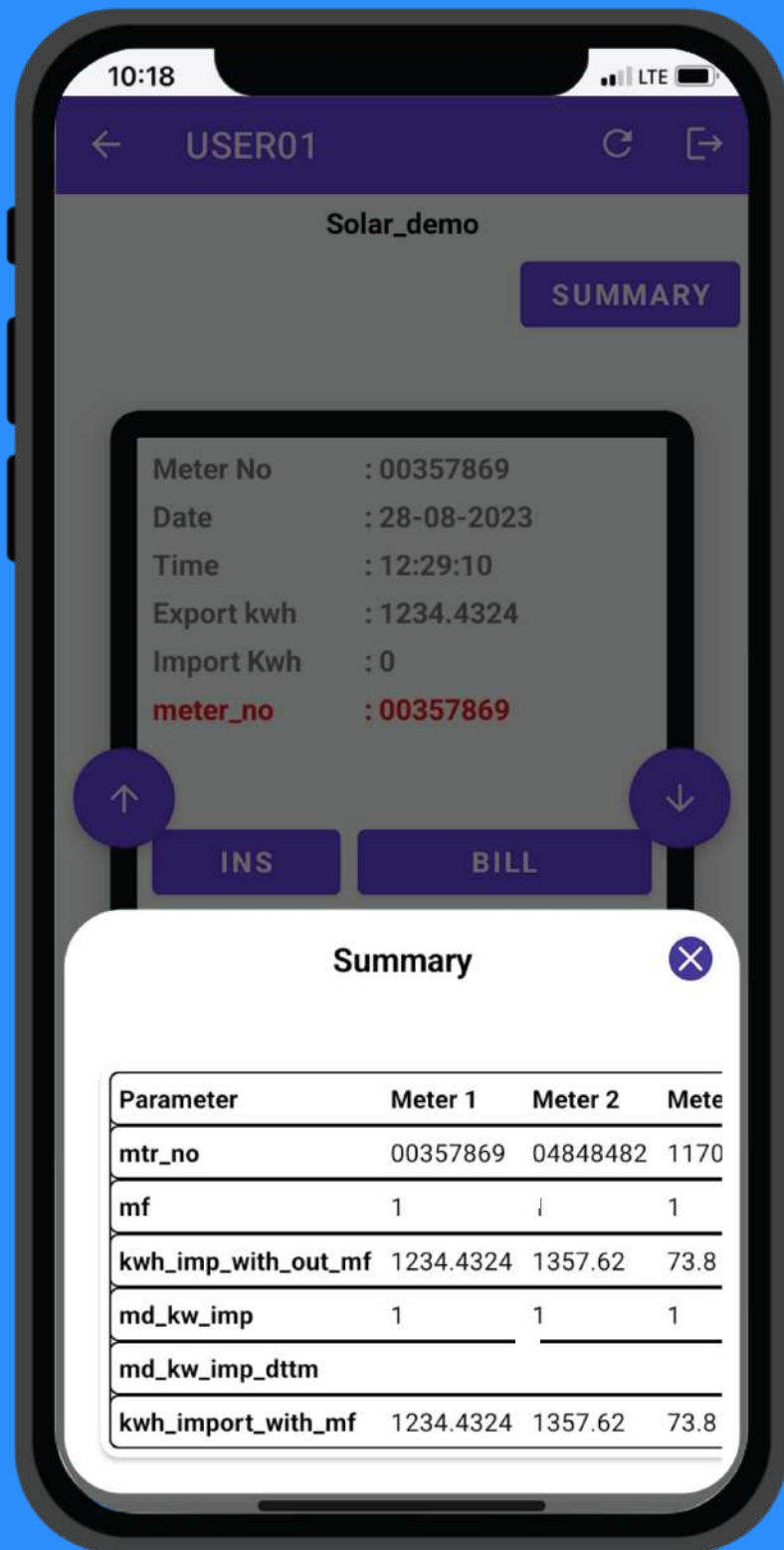


Daily Profile



Instantaneous Profile

Mobile Application



Summary



Home Screen



Bill Profile



Instantaneous Profile



Daily Profile

Prices are subject to actual requirements, contact sales for pricing

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