



SANDS



AUTOMATIC METER READING SOLUTIONS

SANDS make of AMR Modem SAM-1101 is an intelligent device that can be connected to any make of electronic energy meter, which is compliant to DLMS – IEC 620156-21 standard by means of optical/RS232 port. The meters can be located in either consumer premises or distribution transformers. The modem draws its power from the meter terminal block and connects to the communication port of the meter. Thus this add-on modem is non-intrusive and can be retrofitted easily to any meter.

The automatic meter reading equipment can push the following data from the meter at pre-defined periodicity – hourly / daily / weekly / monthly, based on the requirements, and the same can be configured dynamically.

Typical profiles are:

- ◇ Instantaneous parameters, at the time of reading
- ◇ Billing data, present & last 12 months' histories
- ◇ Load survey, 30 days/ complete no. of days stored
- ◇ Tamper data, Settings/Configuration data
- ◇ Transaction events

FEATURES

- ◇ Compatible with any make of DLMS meters; can detect and read all the profiles
- ◇ The modem has a built-in DLMS Client stack, by which the modem can read and Push the data to any designated server, in a secure manner.
- ◇ The modem can interface with the meters either through an optical port or RS-232 or RS-485 communication medium, as available in the meter.
- ◇ The modem draws its power from the meter terminals and does not require any separate power source. In order to keep the VA burden on the metering circuit low (if used for HT applications), and to add redundancy, the modem has a built-in three-phase SMPS, capable of operating in the voltage range of 90 V to 312 AC – phase to neutral at 50 Hz.
- ◇ In the event of phase failures, the meter reading unit is capable of operating even in a single-phase voltage. The average power consumption of the modem is less than 15 Watts during data transmission periods and less than 2 Watts during idle periods. The modem is rugged and can withstand surges up to 6kV.
- ◇ The modem is capable of initiating the data transfer within 5 minutes of establishing a connection with the network.
- ◇ The modem is provided with a sealable SIM cardholder, to prevent unauthorized access
- ◇ The intelligent modem provides meter data read, store, and forward (transfer) functions. It can also check and transmit the network signal strength, to help the management to assess the performance of the service provider in that area.
- ◇ The automatic meter reading unit can be controlled and firmware upgraded remotely with a secure password.
- ◇ The modem can operate reliably in the temperature range of -25°C to +60°C, and can be stored at -40°C to +80°C
- ◇ Modem shall support meter RTC correction through high level password (HLS) via secure On-Demand request from server. Before RTC correction modem shall automatically read all profile data and push the data to server for data backup.



VARIOUS GPRS FEATURES SUPPORTED BY THE MODEM

- ◇ MultiSlot Class 12 or Multi Slot Class 10
- ◇ Mobile Station Class B
- ◇ Modulating and Coding Schemes: MCS 1 to 9
- ◇ Packet Channel Support: PBCCH
- Dual Band GSM/GPRS 900/1800 MHz
- ◇ GPRS between modem and data centre should be more than 40kbps

THE MODEM MEETS THE FOLLOWING EMI/EMC SPECIFICATIONS

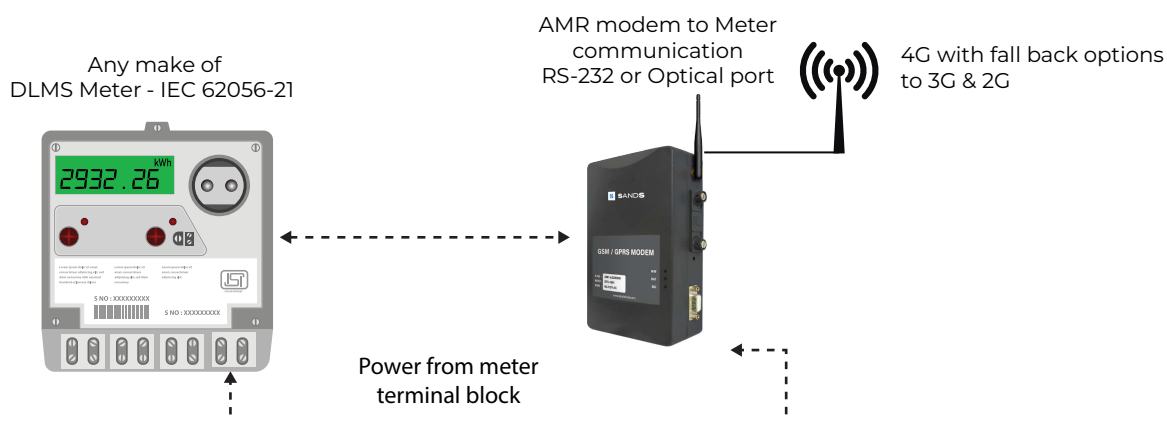
- ◇ Electrostatic Discharge IEC61000-4-2
- ◇ Fast Transient Burst IEC61000-4-4
- ◇ Surges Immunity IEC61000-4-5
- ◇ Conducted emission as per CISPR 22
- ◇ Radiated emissions as per CISPR 22
- ◇ Radiated susceptibility as per IEC61000-4-3

REMOTE OPERATIONS AND FUNCTIONS

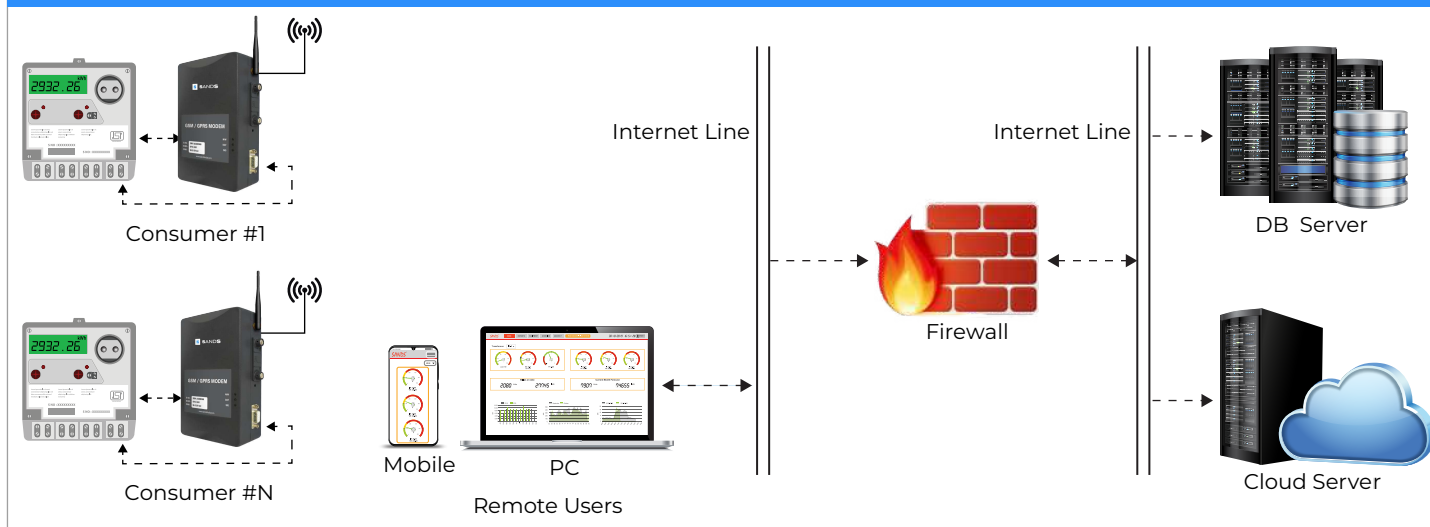
The modem has a special Program Over the Air (POTA) feature to facilitate the programming of the modem remotely from the server, using security channels and procedures. The automatic meter reading system also provides the following remote / auto operations and functions:

- ◇ Remote Start/ Stop and Restart feature
- ◇ Auto recover feature in case modem / network hanging
- ◇ Comprehensive self-diagnosis feature with log file with all at a periodicity and link check for communication
- ◇ On demand SMS request for Instantaneous Parameters
- ◇ Real time outages and alarms as alerts can be sent to the server
- ◇ Automatic pushing of meter data at configured regular intervals

AMR MODEM



SYSTEM ARCHITECTURE



Product development is continuous process - Specification subject to change
Automatic Meter Reading Modem. 26/02/23

Signals & Systems India Pvt.Ltd

ISO 9001:2015; ISO 14001:2015; ISO 45001:2018 & ISO 27001:2013 Certified Company.

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