SANDS

Signals & Systems India Private Limited (SANDS),

We manufacture specialized products using embedded technology for generation, transmission, distribution, and manufacturing segments for the last 30 Years. We've received several accolades and recognitions for our innovative products. We are CRISIL 1A rated, ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 certified by TUV-SUD company. We are globally trusted & renowned for our products & services.

TIME SYNCHRONIZATION PRODUCTS

GPS NTP TIME SERVER - SYNTIME

SYNTIME is a highly accurate GPS Network Time Protocol (NTP) time server that uses GPS, GLONASS, or NAVIC as the time reference. It features a sleek 1U height and is designed for 19-inch rack mounting, making it ideal for equipment used in the power and process industries. The device is compatible across different time zones and includes leap second correction and Daylight Saving Time (DST) settings. The server offers various interfaces, including IRIG-B, PFC-Pulse, NTP, and PTP. It is field-upgradeable, flexible, and supports various power supply requirements.

REDUNDANT MASTER CLOCK SYSTEM

It is a 1U / 2U rack-mountable redundant GPS Time Server designed to synchronize equipment in the power and process industries using GPS, GLONASS, or NAVIC signals, along with time protocols such as NTP and IRIG. It guarantees reliability through redundant power supplies and GPS receivers, achieving nanosecond accuracy without the need for external references. The server offers various interfaces, including IRIG-B, PFC-Pulse, NTP, and PTP. It is field-upgradeable, flexible, and supports various power supply requirements.

NTP TIME SERVER-DIN RAIL / RACK MOUNT

It is a compact and cost-effective time-server solution that can be mounted on a DIN rail. It is designed to provide accurate time for small to medium-sized computer networks, making it ideal for locations with limited space without compromising quality. The device features both NTP and IRIG-B interfaces.

GPS STAND-ALONE CLOCK

The large display includes an accurate quartz clock to synchronize with time signals, such as NTP and RS485. These displays can be mounted on walls or panels. The cabinets are available in MS and SS. The display can show either UTC or local time and date. It is available in 50mm, 100mm, 144mm, and 300mm.

GPS WIRELESS STAND-ALONE CLOCK

GPS Clock provides a simple and cost-effective solution for accurate and synchronized time/date displays, eliminating the need for expensive and disruptive installation procedures since it requires no wiring, significantly reducing installation times.

GPS BASED SLAVE DISPLAY

The large display features an accurate quartz clock to synchronize with time signals such as RS485, NTP, and IRIG-B from the master clock. It is designed for viewing the time and date from a distance. The display can be mounted on walls or panels. It is available in customizable materials, including MS and SS. The clock comes in various sizes: 50mm, 100mm, 144mm, and 300mm.

GPS BASED DAY DISPLAY

The large Day display features an accurate crystal clock to synchronize with time signals like RS485 and NTP/SNTP. It is suitable for viewing DAY from a distance. It is wall/Panel mountable with customizable cabinets like MS and SS.

IRIG-B TO NTP / SNTP CONVERTER

It is a compact and cost-effective DIN rail mountable protocol converter solution for upgrading the legacy GPS time server to cater to new-generation network equipment. It meets the required accuracy. It is a rugged and robust design suitable for a harsh industrial environment.

IRIG-B BOOSTER

IRIG B Booster is used to boost/multiply the IRIG-B AM and PWM/TTL signal received from the GPS unit. Its rugged and robust design makes it suitable for harsh environments. Voltage can be adjusted for IRIG-B AM outputs.

IRIG-B TTL TO RS485 CONVERTER

The IRIG-B TTL to IRIG-B RS485 Converter provides reliable time synchronization by connecting GPS time sources to relays far from the source. It allows the IRIG-B TTL signal from the time source to be transmitted over distances of up to 1200 meters as an RS485 signal without the need for boosters, ensuring precise synchronization in various applications.

20HZ INJECTION KIT

The Stator Earth Fault Protection system utilizes a sub-harmonic injection principle by injecting a 20Hz current into the generator star point. This system combines the 20Hz generator SGEN-1001 with the Band Pass Filter SBPF-1001. The injection is done via the load resistor of an earthing or neutral transformer. When an earth fault occurs, the 20Hz current flows through the fault resistance, allowing the protective relay to determine the fault resistance from the driving voltage and fault current.

20HZ INJECTION KIT MONITORING SYSTEM

The Display monitors the 20Hz and 50Hz current through the NGT transformer, aiding in detecting stator earth faults and recording current every minute in milliamps. In the event of an earth fault at the generator star point, the 20Hz voltage drives current through the fault resistance, measured by a clamp-on CT between the load resistor and NGT. This setup indicates whether the current values are below or above the set threshold.

METERING PRODUCTS

DLMS METER READING APP

The DLMS meter reading application runs on Android mobile devices. It is an effective and efficient meter reading solution for DLMS meters (IEC-62056) & smart meters. This application supports reading and real-time viewing of field meter profiles, meter programming, and smart meter connect/disconnect. This is also a solution to address the last-mile connectivity issues, where the AMR and AMI networks failed due to network problems.

COMMON METER READING INSTRUMENT (CMRI)

The CMRI is a handheld computer for downloading data from electronic tri-vector meters. It supports various protocols, including IEC, ANSI, and PACT, and it is DLMS (IEC-62056) standard compliant. Additionally, the CMRI can be connected to a portable printer for spot billing applications.

LINUX HANDHELD COMPUTER - OPAL

OPAL is the Linux version of CMRI compatible with the DLMS smart meter & DLMS meter as per standard IS15959 part 1&2 / IS16444 part 1&2.

SMART POLYGLOT – WIRELESS PROBE

Smart Polyglot is designed to communicate with meters that use various protocols, including IEC-DLMS, ANSI, and PACT. It communicates through optical media but also interfaces with infrared (IR) and IrDA meters, making it the only device capable of communicating with any meter. The Smart Polyglot features a wireless Bluetooth interface for seamless connectivity with devices running DOS, Linux, Android, or Windows that support Bluetooth. This Bluetooth probe can detect commands from connected devices and automatically establish a connection for meter reading applications.

BLUETOOTH RS232 PROBE (METER TERMINAL-POWERED)

Smart Polyglot is designed to communicate with meters on RS232 protocol. It has a Bluetooth interface and enables seamless use with any DOS, Linux, Android, Windows or Microcontroller-based devices with Bluetooth support. This Smart Polyglot Bluetooth probe for meter reading can detect the commands from Bluetooth-connected devices and establish a connection automatically for meter reading applications.

USB OPTICAL PROBE (USB-POWERED)

USB Optical Probe for meter reading is designed to communicate with meters of all protocols – PACT, ANSI, and IEC. It is the only device that communicates with any type of meter. It has a USB interface and enables seamless use with any Linux, Android, or Windows-based devices with USB support.

RS232 OPTICAL PROBE (DEVICE-POWERED)

RS232 Optical Probe for meter reading is designed to communicate with meters of all protocols – PACT, ANSI, and IEC. It is the only device that communicates with any type of meter. It has an RS232 interface and enables seamless use with any DOS, Linux, Windows or any microcontroller-based devices with RS232 support.

4G INTELLIGENT AMR MODEM

This AMR Modem is an intelligent device that can be connected to any electronic energy meter compliant with DLMS – IEC 620156-21 standard using an optical/ RS232 port. The modem draws its power from the meter terminal block and connects to the communication port of the meter. Thus, this add-on energy meter reading system is non-intrusive and can be retrofitted easily to any meter. This system is compatible with a 4G network to push the power consumption-billing data, load survey data, and event data to a cloud-based server via Gateway GPRS networks/ Broadband networks.

AUTOMATIC METER READING MODEM (AMR-Wi-Fi)

This AMR Wi-Fi Modem is a compact meter reading device that can be connected to any electronic energy meter using an optical/RS232/RJ11 port compliant with DLMS IEC 62056-21 standard. The modem draws its power from the meter terminal block & connects to the communication port of the meter. Thus, this add-on energy meter reading system is non-intrusive & can be retrofitted easily to any meter. They use Wi-Fi communication technology and have built-in intelligence to talk to the DLMS meter. This system is compatible with a Wi-Fi network to push the power consumption-billing data, load survey data, and event data to a cloud-based server via Gateway GPRS networks/ Broadband networks.

DUAL-CHANNEL AMR

It is a combined Modem for remote reading via GPRS & local reading via Bluetooth through the mobile app without opening the enclosure/seals. Dual Channel AMR Modem is an innovative device that can be connected to any electronic energy meter using an optical/ RS232 port compliant with DLMS – IEC 62056-21 standard. AMR system is compatible with a 4G network to push the power consumption-billing data, load survey data, and event data to a cloud-based server, with fallback to 3G & 2G. The modem can be programmed to send any abnormal events instantly to any number. The modems have a 'store and forward' facility.

GATEWAY / DCU SOLUTIONS

The GATEWAY / DCU is an intelligent device with built-in RS232, RS485 and RF modules to acquire data from clusters of energy meters or MFM using inbuilt Modbus / DLMS Software. It has a GSM/GPRS module to transmit the data to the remote data acquisition server. DCU is based on an ARM Cortex-A5 processor having 512MB of DDR2 memory and expandable NAND Flash memory up to 2GB. Edge / Sensor data can be stored locally using the onboard SD card option. The cloud interface is LTE with 2G/3G fallback.

RF-NIC CARD

RF communication module for smart meters, compliant with IS 16444, supports 865 MHz mesh networking, 100m range, IEEE 802.15.4 standard, and AES encryption for secure, reliable data transmission.

SINGLE PHASE PORTABLE REFERENCE STANDARD METER (WIRELESS) (ONLY CLAMP)

The Smart Single-Phase Portable Reference Standard (SPRS) is a compact meter test equipment designed to test single-phase energy meters. It uses clamp-on mode and supports both static and electro-mechanical meters. The SPRS can measure voltage, current, energy, phase angle, and more for the meter under test (MUT). The base unit and wireless display communicate via Bluetooth for easy and safe operation. Additionally, it can be connected to a PC for analysis and can store 2000 test results.
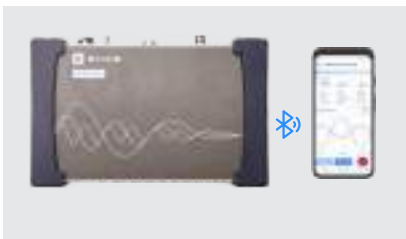
SINGLE PHASE PORTABLE REFERENCE STANDARD METER (WIRELESS)

The Single-Phase Portable Reference Standard (SPRS) is a portable meter testing equipment used to test single-phase energy meters (MUT). It uses both direct & clamp on mode and supports static & electro-mechanical types of meters. It can measure voltage, current, energy, phase angle, and more of the meter under test. The base unit and the wireless display communicate via Bluetooth, providing ease and safety for the user. Additionally, it can be connected to a PC for analysis and can store 2000 test results.

SINGLE PHASE PORTABLE REFERENCE STANDARD METER

The Single-Phase Portable Reference Standard (SPRS) is a portable meter testing equipment used to test single-phase energy meters, also known as the meter under test (MUT). It uses both direct & clamp on mode and supports static & electro-mechanical types of meters. It measures voltage, current, energy, phase angle, and more for the meter under test. It features a 5-inch inbuilt graphical colour display with a touch interface for user convenience. Additionally, it can be connected to a PC for further analysis. The SPRS has a storage capacity for up to 2000 test results.

THREE PHASE PORTABLE REFERENCE STANDARD METER (WIRELESS)

The Three-phase Reference Standard Meter (TPRS) is a portable device. It is used for testing three-phase and single-phase energy meters, known as the meter under test (MUT). The TPRS supports static and electro-mechanical types of meters and can also calculate voltage, current, energy, power factor, and more for the meter under test. The base unit's metrology part and the wireless display communicate via Bluetooth, ensuring easy and safe operation. Additionally, it can be connected to a PC for data analysis and can store up to 25000 test results.

THREE PHASE PORTABLE REFERENCE STANDARD METER

The Three-phase Reference Standard Meter (TPRS) is a portable device. It is used for testing three-phase and single-phase energy meters, also known as the meter under test (MUT). The TPRS can be used with both static and electro-mechanical types of meters, and it measures voltage, current, energy, power factor, and more for the meter under test. It features a 7-inch inbuilt colour display with a touch interface and can be connected to a PC for data analysis. Additionally, it can store up to 25000 test results.

HIGH VOLTAGE ONLINE (LIVE WIRE) TESTING SOLUTION

High Voltage Online (Live Wire) Testing Solution provides the ratio error of the CT/PT kit without shutting down the industries for testing. The HV Live wire screening method is easy and time-efficient. Besides the waveform & harmonics analysis, CT saturation error or any other error can be identified easily.

INDUSTRIAL PRODUCTS

ENERGY MANAGEMENT SYSTEM

Our Smart Energy Management System focuses on improving energy utilization to enhance efficiency and achieve energy savings. Our solutions encourage behavioural changes that increase user awareness. Additionally, our real-time energy dashboard lets you make immediate changes in your consumption pattern, and acts as a real-time energy audit tool.

ARGUS VIBRATION SENSOR

ARGUS Tri-axial wireless vibration sensor enables easy condition monitoring of rotary machines and detects faults well before equipment failure. The super-compact, IP67-rated vibration sensor provides reliable data for continuous monitoring and remote diagnostics. This Tri-axial sensor communicates with Android devices in both wired and wireless modes. The dedicated ARGUS ACE app enables Multichannel Data Acquisition for simultaneous monitoring of various nodes.
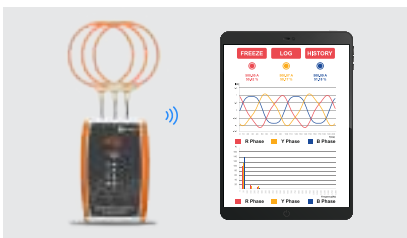
CURRENT QUALITY ANALYZER-3SIQ / ROGOWSKI COIL / FLEXIBLE PROBE

3SIQ enables current quality analysis using wireless technology and thus allows operators to work from a safe distance. This Industry 4.0 & ISO 50001 condition-based monitoring solution seamlessly combines the flexibility of using any smartphone or tablet to provide powerful analytics and insights towards predictive maintenance, making the maintenance engineers' lives safer and smarter.

SOLAR AGGREGATOR SYSTEM

Solar Aggregator System is a reliable solution for comprehensive solar energy production insights. It seamlessly integrates with Solar PV systems, offering real-time data aggregation and remote monitoring. With customizable data push intervals and compliance with DLMS standards, it ensures efficient energy tracking. Gain instant visibility, historical tracking, and DISCOM compliance with our Solar Aggregator System. Get automated reporting, alerts on deviations, and seamless offline data push for uninterrupted functionality.

MEGAWATT LARGE DISPLAY

Megawatts Large Display Indicator is designed to measure and display Megawatts accurately, with an accuracy of 1%. It accepts inputs 4-20mA and data received from other equipment. The large display ensures clear visibility of the Megawatt reading even from a distance. Equipped with high-brightness red-coloured 7-segment displays, this indicator is commonly utilized in power plants, substations, manufacturing units, and field environments to provide direct Megawatt measurements

KILOVOLT LARGE DISPLAY

Kilovolt Large Display Indicators are specialized devices tailored to measure and exhibit kilovolt readings sourced from inputs like 4-20mA and data received from other equipment. With an exceptional accuracy of 1%, these indicators deliver precise kilovolt measurements. Equipped with high-brightness red 7-segment displays, they ensure clear visibility of kilovolt readings, even over long distances. Widely deployed across power plants, substations, manufacturing units, and field environments, these indicators play a role in furnishing direct and reliable kilovolt measurements.

FREQUENCY LARGE DISPLAY

Frequency large display indicator measures and displays frequency from the input supply 110 VAC/230 VAC, 4-20mA, and data received from other equipment. It achieves a high accuracy of 1% in measuring Frequency. The large display ensures clear visibility of the frequency reading from long distances. Equipped with high-brightness red-coloured 7-segment displays, these indicators are commonly employed in power plants, substations, and grid substations to provide direct frequency measurements of various devices.
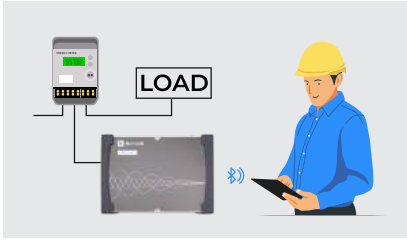
SERVICES

DATA ANALYTICS SERVICES & SOLUTIONS

We are recognized as a premier service provider in the Data Analytics and Fraud Management field for the power industry. Our comprehensive CRUX tool seamlessly integrates data from various open protocols, including DLMS and proprietary protocol meters, ensuring efficient data conversion into a standardized format. By applying advanced algorithms to historical and current month data, the tool effectively identifies Loss of Revenue (LOR) instances and supports efforts in revenue protection.

METER READING SERVICES & SOLUTIONS

The meter reading and bill generation service incorporates a cloud-based billing solution that facilitates the electronic reading of all types of meters, including DLMS and non-DLMS variants. This approach effectively eliminates errors associated with manual readings. All relevant reports are accessible online for utility engineers, and DLMS meters can be interfaced with via a mobile application, enabling direct data transmission to the server.

METER TESTING SERVICES & SOLUTIONS

Meter testing services and solutions involve a comprehensive approach that includes inspection and testing of single-phase and three-phase metering systems. This process is critical for identifying instances of consumer misuse and for detecting defects or significant inaccuracies in the meters. Additionally, harmonic measurements are utilized as reliable indicators of current transformer (CT) saturation. Testing CTs and meters simultaneously is a strategic practice that enhances efficiency by reducing operational time. Furthermore, a primary objective of these services is to ensure the accuracy of energy registration.

National Accreditation Board for Testing and Calibration Laboratories

CERTIFICATE OF ACCREDITATION

SIGNALS AND SYSTEMS (INDIA) PRIVATE LIMITED

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2017

"General Requirements for the Competence of Testing & Calibration Laboratories"

for its facilities at

15/D-19, 3RD MAIN ROAD, OMR, SIPCOT IT PARK, SIRUSERI, CHENNAI, TAMIL NADU, INDIA

in the field of

TESTING

Certificate Number:	TC-8575
Issue Date:	12/07/2024
Valid Until:	11/07/2026

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL.
(To see the scope of accreditation of thislaboratory, you may also visit NABL website www.nabl-india.org)

Name of Legal Entity: Signals and Systems (India) Private Limited

Signed for and on behalf of NABL

N. Venkateswaran
Chief Executive Officer

NABL ACCREDITED FOR ENERGY METER TESTING & CALIBRATION LAB

SIGNALS & SYSTEMS (INDIA) PRIVATE LIMITED

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