Liberty 500

Three-phase smart pre-payment energy meter

The Liberty 500 smart meter is a part of Secure's established and proven Liberty online smart metering platform. It is a new generation, three-phase, smart pre-payment electricity meter, equipped with a bi-directional cellular (NB-IoT) communication that allows it to interact with the head end system (HES) for data collection and configuration with adequate security.

It covers the state of the art smart functionality, coupled with revenue protection capabilities, making it the ideal solution for smart metering applications.

A built-in connect-disconnect switch and intelligent firmware platform in the Liberty 500 can deliver smart metering use cases of an energy supplier.

It provides account balance and consumption information in monetary terms, without any dependency on the WAN communication network, which helps consumers to monitor and budget their energy consumption.

Application

- Residential metering
- Small and medium scale industries
- Commercial metering

Benefits

- Periodic remote data availability for utility reconciliation and monitoring
- Improved revenue collection efficiency and elimination of billing errors through smart pre-payment functionality
- On-demand data collection to serve critical use cases like vigilance
- No site visits to disconnect / reconnect consumer load point
- Enables efficient field operations to quickly restore faults by providing reliable, timely node-specific power interruption information
- Reduced cost of ownership
  - eliminates the cost of manual reading
  - designed to serve long life in the field
- A common metering asset for forwarded or import-export mode monitoring
- Same asset extension as permanent connection from temporary connection mode
- Peak and off-peak management

Features

- Reliable, bi-directional NB-IoT (with fall-back to GPRS) communication unit
- Connect-disconnect switch with performance equivalent to UC1 or better
- Secure data delivery to head end system (HES)
- Supports pre-pay and credit modes
- Pre-pay functionalities – friendly credit hours and days, emergency credit, arrear recovery, etc.
- Intuitive, legible and user-friendly display
- Capacitive touch keypad for ease of display navigation
- Extensive revenue protection measures
- Logging of tamper events and information alerts to the backend system
- Quality of supply (QoS) monitoring
- Remote firmware upgrade
- BLE support to interact with Secure's consumer mobile app

Consumer benefits (smart pre-pay)

- Effective energy budgeting through balance and energy consumption information in monetary terms
- Balance and energy consumption information available without any dependency on WAN communication and HES
- Convenient options to recharge and top up (mobile app)

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Technical specifications

Electrical

Connection type	3-phase 4-wire, direct connected
Rated voltage & variation	240 V L-N, +/- 30% of Vref
Current range	10-100 A
Accuracy	Class 1.0
Frequency	50 Hz, ± 5%
Metrology LED	Two LED for active and reactive energy
Switch category	UC1 or better
Burden	
Voltage circuit	As per IS 16444
Current circuit	As per IS 16444

Compliance

Standards	IS 16444, IS 15959

Mechanical

Dimensions W x H x	182 mm X 250 mm X 97 mm ±5 mm
D Weight	1.85 kg (approximately)

Enclosure material

Meter case, terminal	Engineering Plastic
block Sealing	Break to open enclosure, Additional sealing provision on meter body, ETBC and communication module

Environmental

Ingress protection	IP 54
Insulation class	Protective class
Operating	-10 °C to +60 °C
temperature Storage	-25 °C to +70 °C 95%,
temperature Humidity	non-condensing

Features

Energy channels Tariff rate	Supports forwarded or Import-export mode
registers Maximum demand	Up to 8 rate registers, for configured energy channels
Load survey	For configured energy channels
Events & Transactions	As per IS 16444 (Provision for additional parameters configuration) As per IS 16444
Operating modes	Pre-pay or Credit mode

Communication unit/module

Communication interface SIM Card	NBIoT, fall-back to GPRS
	NBIoT enabled Nano SIM card
Standard Reference Supported frequency (Module)	3GPP release 13
	850, 900, 1800, 2100 MHz (NBIoT)
	900, 1800 MHz (GPRS)
Power Class	NBIoT: Class 5 (+20dBm ± 2dBm) for all bands
SIM card accessibility	Within sealable communication module
Communication options	Optical port for local communication
	Communication module with NBIoT / GPRS for remote communication Optional Built-in BLE for wireless local communication
Communication status Antenna	Indication on LCD
	Internal antenna, optional high gain extended antenna