



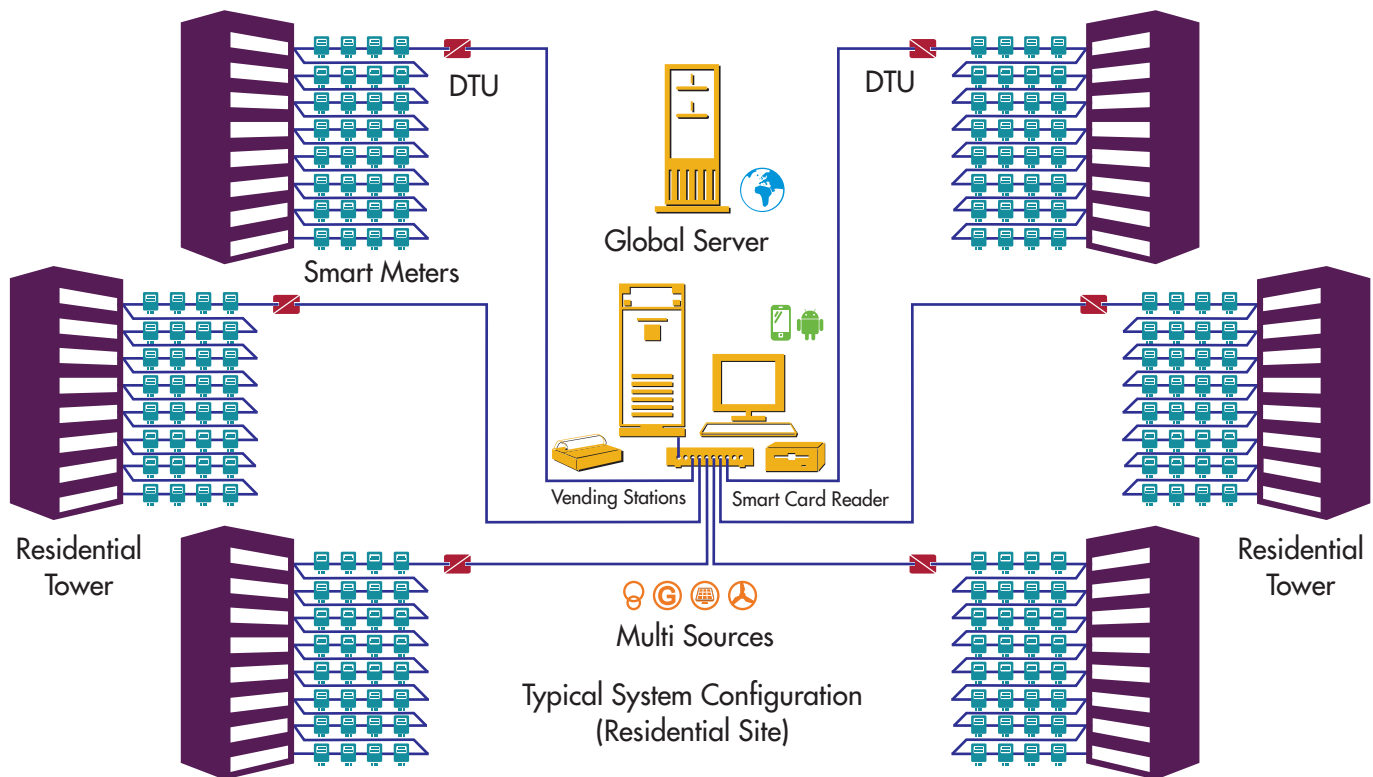


**Kruti Group**, A customer centric, innovative & value-driven organization, offers a wide range of electrical & automation solutions. We aim to create value by not only offering reliable & robust electrical system but also integrating them with state of art automation & IT technologies.

At Kruti, we provide solutions which are intuitive to optimize the utilization of energy & are capable to generate customized reports for the management information. As an innovative resource in the field of electrical engineering, designing, manufacturing, installation & testing followed by prompt services, we continuously work towards the development of innovative products & solutions to provide ease of maintenance & operations to our customers.

Half a decade ago, when we commissioned our first "Prepaid Metering System", we observed that only prepaid systems is unable to cater the needs of modern India.

Kruti, feels proud to introduce FIRST TIME IN INDIA, the SMART PREPAID electric metering solution. The advance product & the solution caters the consolidated needs and has been developed with the vast experience possess by our team. The MCU based product is developed in coordination with Texas Instruments, USA.



### What's Unique

- ❖ Four Sources (EB, DG, Solar & Wind) & four quadrant operation.
- ❖ Real time report analysis for a site.
- ❖ Smart Cards based system (with keypad & direct transfer feature also available)
- ❖ Web based Consumer portal.
- ❖ Mobile integration (Android & SMS)
- ❖ In Home Display (IHD)







## Features

- ❖ Rating available: Single Phase Two Wire 10-60A, Three Phase Four Wire 10-60A. & Three Phase for wire 20-80A
- ❖ Smart card / key pad / direct transfer of credit.
- ❖ Multi Source (maximum 4) fully programmable, four quadrant operation.
- ❖ Electricity Board, Diesel Generator, Solar Energy & Wind Power ready.
- ❖ Load can be disconnected in case the credit becomes Zero or the demand exceeds the defined load limit.
  - Latch relays are provided in single phase meter for re-connection / disconnection of load.
  - Three latch relays are provided in three phase meter for re-connection / disconnection of load.
- ❖ User friendly In Home Display (IHD) unit (wireless option available).
- ❖ Real time monitoring & reporting of energy units received / generated & energy units distributed (No more dark surprises).
- ❖ Partial load selection on various sources in three phase meter.
- ❖ Happy hours & Happy days fully programmable.
- ❖ Alarm in case of low credit / overload.
- ❖ LED for source detection, warning, alarm.
- ❖ Communication Protocol - Modbus RTU for BMS (Standard)
  - Zigbee (optional), RF sub giga (optional)
  - Industrial Ethernet (optional)
- ❖ Anti Temper Features
  - Best in class features with zero possibility for theft
  - Immunity to HF/HV - 35kV discharge
  - Immunity to external magnetic fields
  - cover open protection and logging
  - Other temper protection as per the Indian Standards

## System Components

- ❖ The system offered may be comprises of the following (as per use and needs)
  - Smart electric meter
  - In Home Display (IHD) unit (Wireless optional)
  - Data transfer unit (DTU)
  - Smart Card read write (SCRW)
  - Smart cards (customized printing for the property)
  - Data Switches (CAT 6)
  - DATA communication and cables as required.
  - Smart Gridsoft Manager.
- ❖ Infrastructure required by Utilities /Maintenance agencies -
  - Central server with high speed internet connection
  - UPS and printers
  - Server software and anti virus software
  - Payment gateway (for online transactions, if any)
  - Vending stations (in case of large installation)

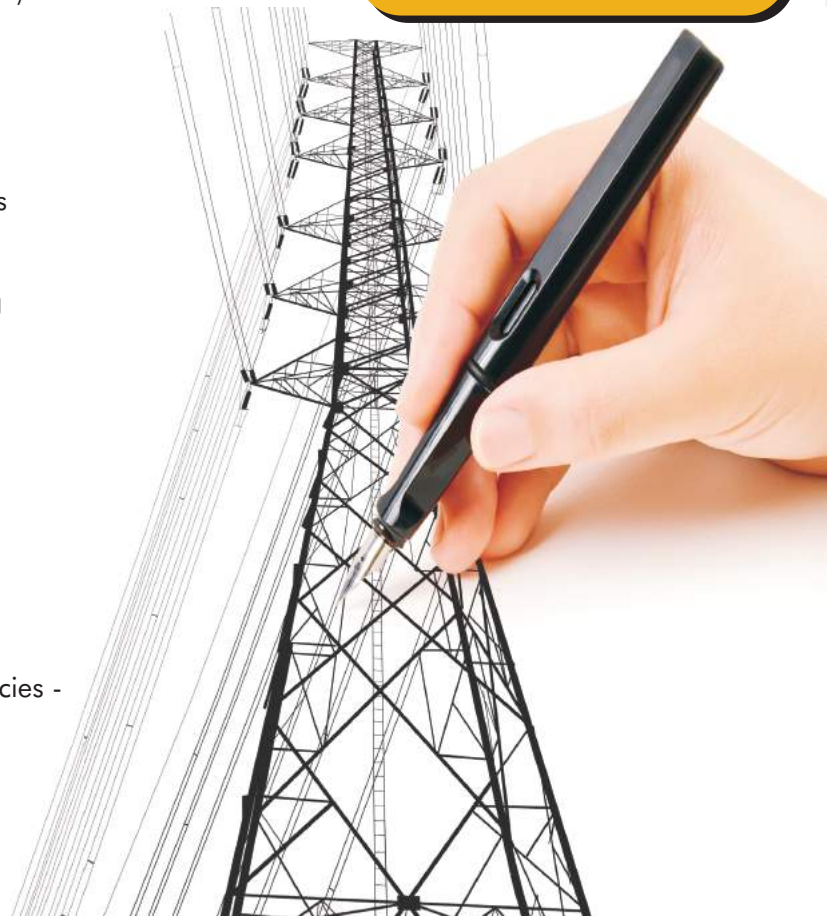
## ADVANTAGES

### Consumer

- Support in energy conservation.
- Pay as you use.
- No queue.
- No surprising bills.
- No dispute.

### Utilities/Distribution Agency

- Up Front payments.
- Lower over heads.
- Zero temper & fraud.
- Real time monitoring & reporting.
- Special message broadcast.
- Load / demand control.
- Automatic meter reading.
- Line loss identification.
- Solar energy utilisation.



| Technical details     |                      |   |
|-----------------------|----------------------|---|
| Function              |                      | Prepaid / Post paid   |
| Electrical Parameters | Connection type      | Direct connection (Whole current)   |
|                       | Wiring configuration | Single Phase (1P, 2W) & Three phase (3P & 4W; 3P & 3W)                              |
|                       | Input voltage        | 240V (PtoN); 415V (PtoP); -30% to +20% AC   |
|                       | Frequency            | 50 Hz $\pm$ 5% / 60 Hz $\pm$ 5%   |
|                       | Auxiliary Supply     | 80 to 325V AC   |
|                       | Source Input         | 4 source; 80 to 325V AC; (for EB, DG, Solar & Wind)                                 |
|                       | Current rating       | 10 - 60A / 20 - 80A (Three Phase only)  |
|                       | Accuracy             | CL: 1   |
| Operation             | Full four quadrant   |   |
| Communication         | Network              | Optically isolated RS 485 (Modbus RTU); Industrial Ethernet; Zigbee; RF Sub Giga Hz |
|                       | IHD                  | Optically isolated RS 485 (Modbus RTU); RF Sub Giga Hz                              |
| Ambient Temperature   | Working              | -25°C to 50°C   |
|                       | Storage              | -25°C to 70°C   |
| Compliance            | IEC                  | IEC62052-11, IEC62053-21, IEC62053-21, IEC62055-51                                  |
|                       | IS                   | IS 13977  |
|                       | Others               | EMI & EMC, RoHS, CE   |
| Measurement           | Electrical           | Active, Reactive, Apparent Energy, Voltage, Current, PF, Revenue                    |
|                       | Time                 | On time, Off time, Current time & date (RTC calibration)                            |
| Display & Dimensions  | Annunciation LED     | Alarm/Trip, Source 1, Source 2, Source 3, Impulse                                   |
|                       | Display Size meter   | 75 X 24 mm; White Backlit   |
|                       | Display Size IHD     | 75 X 24 mm; White Backlit   |
|                       | Meter                | 265 (H) X 170 (W) X 77 (D) mm   |
|                       | IHD                  |   |
| Recharge              |                      | Smart IC card, IHD keypad or direct (options)                                       |
| Settings              | Maximum Demand Cut   | Fully programmable on each source type  |
|                       | Tarrif               | Fully programmable on each source type  |
|                       | Happy Hours per day  | Fully programmable  |
|                       | Happy days per year  | Fully programmable ( Maximum 31)  |
|                       | Load management      | Full / Partial load; configurable with each source type                             |

| Catalogue Number        |                  |                        |                     |
|-------------------------|------------------|------------------------|---------------------|
| Three phase smart meter | SEM60TP01CL1S00* | Data Transmission Unit | DTUM1E1/DTUM4E1     |
| Single Phae Smart meter | SEM60SP01CL1S00* | Smart Card Read write  | SCRW01              |
| In Home Display         | IHDTPS00*        | Ethernet Switches      | ES04/ES08/ES16/ES32 |

\* For wireless option use S01 instead of S00

Note : Due to continuous development specifications and features are subjected to change without any prior notice.



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