



CAPITAL POWER SYSTEMS LTD.

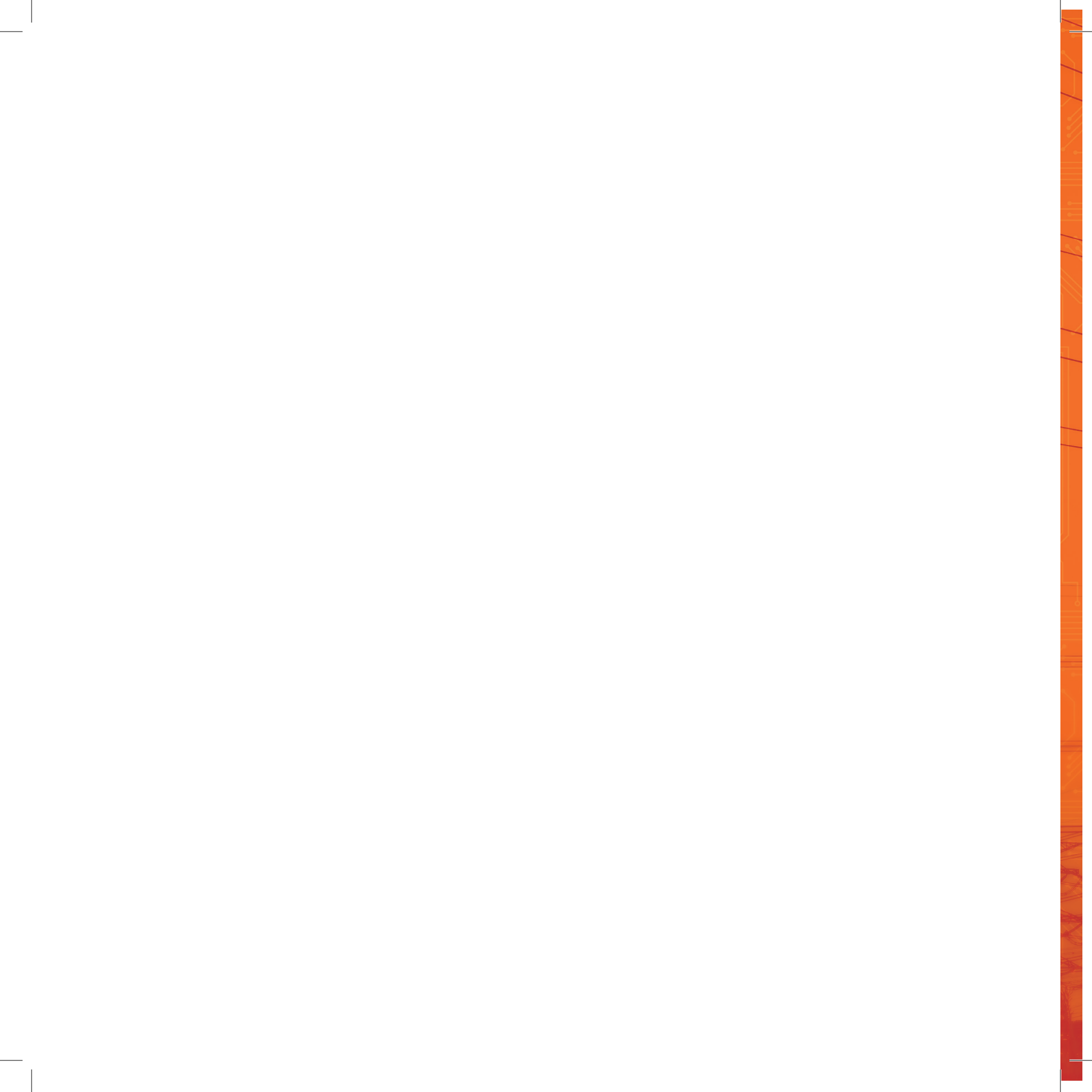
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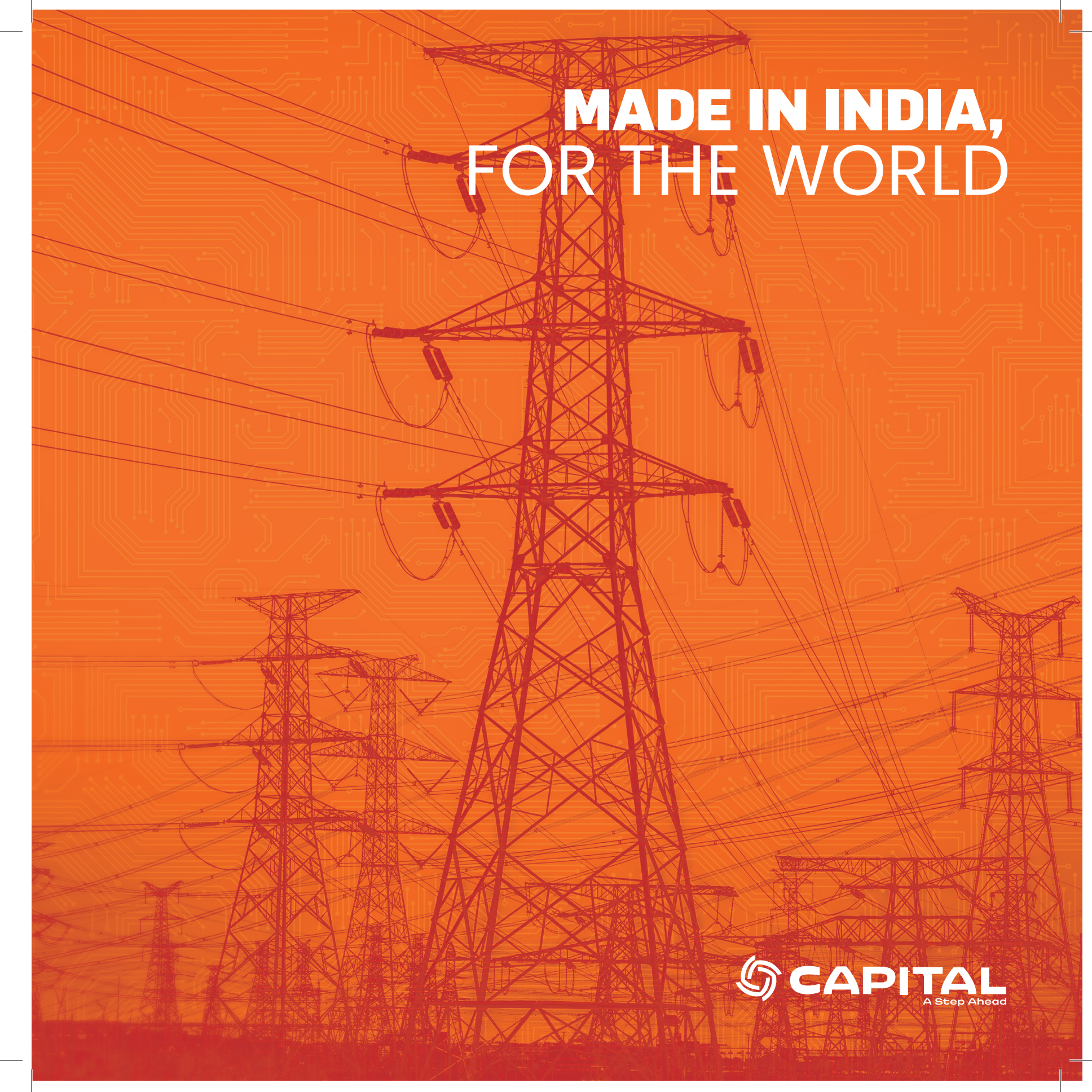
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Smart, safe and accurate.







**MADE IN INDIA,
FOR THE WORLD**

 **CAPITAL**
A Step Ahead



AS LEADERS IN MANUFACTURING INDUSTRY,

Capital has set the bar with its unwavering commitment to quality and exceptional client service. Through our extensive inventory of diverse and customizable products, our talented team goes above and beyond to make sure your needs are met, and expectations exceeded.

ABOUT CAPITAL

Capital Power Systems Limited, part of the Capital Group, has been a trusted name in energy metering since 1988 and now includes smart metering solutions for energy, gas, and water. Over the years, we've evolved into Capital 2.0, combining automation, backward compatibility, and the latest technological practices to provide innovative solutions for utilities and consumer empowerment.

We specialize in manufacturing SMART metering products and offering services such as meter OEM and support Automated Metering Infrastructure (AMI). Our focus on research and development helps us improve product quality, technology, and customer satisfaction.

We are proud to hold certifications such as BIS, ISO9001, ISO14001, ISO27001, ISO45001, S-Mark, NABL, CMMI Level 3, and DSIR-recognized R&D. Our communication modules for smart energy meters are MTCTE certified by TEC (Department of Telecommunications - DOT) for both cellular and RF technologies.

With a strong belief in the "MAKE IN INDIA" initiative, we invest in research, team training, and the latest equipment to create the best solutions. Our modern molding plant, in-house R&D, state-of-the-art machines, high-speed automated production lines, in-house tool room, and 360-degree reliability exercises ensure efficient and reliable products.

At Capital, we are dedicated to providing excellent customer service and continuing to innovate and grow with our clients' needs.

FACT SHEET

MODERN PLANTS

We have well established ultramodern plant for manufacturing smart energy and smart Gas meters.

AUTHENTIC DATA

Focus on providing reliable data through smart meters, ensuring it can be validated with accuracy through VEE.

TYPE TESTING

Products are type-tested at recognized centers like CPRI and ERDA, ensuring high-quality standards.

INDUSTRY LEADERSHIP

Play a leading role at IEEMA, in supporting industry growth and advancements.

IN-HOUSE LABORATORY

NABL Accredited Laboratory guarantees double assurance of product quality.

SAFETY STANDARDS

S-Mark for safety from STQC, Government of India, demonstrating our commitment to safe products.

CMMI LEVEL 3 CERTIFICATION

Product development process is certified at CMMI-Level 3, ensuring milestones are met with precision and efficiency.

ISO CERTIFICATIONS

ISO certified in Quality, Environment, Data Security, and Occupational Health, underscoring our dedication to continuous improvement.

LEARNING CENTER AND TRAININGS FOR CONTINUOUS

IMPROVEMENT

Harmonizing the skill of our all level people, the precision of advanced machinery, and the efficiency of robust systems to create smarter product in routine.

CERTIFICATIONS



FULLY INTEGRATED ELECTRICITY METER MANUFACTURING PLANT



01

ENVIRONMENTAL CONTROLLED
STORAGE WITH TRACEABILITY

03

SMT

02

INJECTION
MOLDING

04

AUTOMATIC
INSERTION LINES



05

SUB
ASSEMBLIES

07

AUTOMATIC ASSEMBLY
& TESTING

09

INHOUSE NABL LAB &
R&D CENTRE

06

WAVE
SOLDERING

08

PACKING
LINES

A Step Ahead

SMART METER

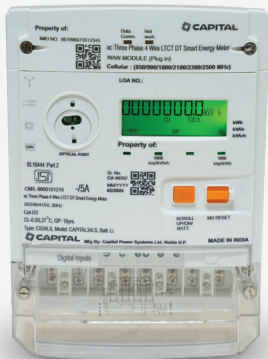
SINGLE PHASE METER



THREE PHASE METER



LTCT SMART METER



HTCT SMART METER



QUICK HIGHLIGHTS

- **Remote Meter Reading:** Data collection without manual intervention.
- **Real-time Data Monitoring:** Instant tracking of energy usage.
- **Two-way Communication:** Allows data transfer to and from the utility.
- **Automatic Fault Detection:** Identifies issues and outages automatically.
- **Time-of-Use (TOU) Pricing:** Tracks energy consumption based on time-of-day rates.
- **Prepaid Billing:** Consumers pay in advance for energy usage, Prepaid function at server/meter.
- **Load Profiling:** Monitors energy usage patterns over time.
- **Energy Consumption Alerts:** Notifies users of unusual consumption.
- **Remote Disconnect/Connect:** Allows utilities to remotely disconnect/reconnect meters.
- **Data Logging:** Records and stores usage data for analysis.
- **Wireless Communication:** Transfers data via RF or cellular networks.
- **High Accuracy:** Precise measurement of energy usage.
- **Tamper Detection:** Identifies meter tampering or unauthorized access.
- **Self-Diagnostics:** Continuously checks system health for potential issues.
- **Battery Backup:** Ensures functionality during power outages.
- **Security Encryption:** Protects data with secure transmission protocols IS:15959 and AES128.
- **Interactive Display:** Shows real-time consumption and billing information to users.
- **Demand Response:** Adjusts power usage during peak demand times.
- **Power Quality Monitoring:** Detects voltage fluctuations and power quality issues.
- **Automated Billing:** Eliminates manual meter reading for accurate billing.
- **Energy Efficiency Alerts:** Informs users of energy-saving opportunities.
- **Instantaneous Consumption Display:** Shows current energy usage in real-time.
- **Smart Grid Compatibility:** Integrates with smart grid systems for better energy management.
- **Remote Firmware Upgrades:** Enables software updates without physical access.
- **Overload Protection:** Shuts down or alerts in case of overloading.
- **Metering Data Storage:** Stores historical usage data for analysis and reporting.
- **Scalability:** Easily deployable across large areas.
- **Reduced Human Intervention:** Minimizes the need for manual monitoring or intervention.
- **Cost Transparency:** Provides consumers with detailed cost breakdowns.
- **Power Outage Notification:** Sends alerts when power interruptions occur (Last breath-1st gasp).
- **Environmental Impact Monitoring:** Tracks carbon emissions based on energy usage.
- **Dynamic Pricing:** Allows flexible pricing models based on energy consumption trends.
- **Consumer Portal Access:** Provides online access to meter data and billing history.
- **Low Power Consumption:** Uses minimal energy for operation.
- **Time-based Energy Savings:** Optimizes energy consumption based on user preferences.
- **Temperature Sensing:** Monitors temperature to detect irregular conditions.
- **Consumer Behavior Analytics:** Analyzes patterns to offer energy-saving suggestions.
- **Integration with Smart Home Systems:** Allows communication with smart home devices for better energy management.
- **Real-time Voltage Monitoring:** Tracks voltage levels and alerts when they go beyond safe limits.
- **Multi-phase Metering:** Measures energy usage in multi-phase electrical systems.
- **Power Factor Monitoring:** Measures the power factor to optimize energy efficiency.
- **Event Logging:** Records system events like power surges or faults for later review.
- **Peak Demand Control:** Helps manage and reduce peak energy consumption.
- **Remote Configuration:** Allows utility providers to configure settings remotely.
- **Instant Power Consumption Analysis:** Breaks down energy use by devices or times.
- **Load Control Features:** Enables control of connected devices during peak hours.
- **User Customization:** Allows consumers to set their preferences for energy usage.
- **Utility Integration:** Seamlessly connects with utility management systems for better coordination.
- **Energy Usage Forecasting:** Predicts future energy usage based on historical data.
- **Real-time Data Synchronization:** Updates data in real-time for accurate reporting and billing.
- **Utilization Category:** UC1/UC2

SINGLE PHASE SMART METER



SPECIALITY

- Can Measure Main or DG supply.
- Split Keypad Prepayment or Postpaid Meter
- Import/ Export Energy measure
- Billing Can be on Kwh or Kvah
- Low Credit warning, indication flashing at HES end
- Recall of last 50 tokens entered
- 6 months meter data (historic energy data)is available for tracking
- Programmable load profiles
- Internal relay for control
- Communication to server via DCU using RF, PLC (Optional)
- Special Feature to run into servant mode to limit power when not at home
- Can be connected to In- home display wireless(optional)
- Automatic deduction of maintenance charges as per prevailing charges at predefined time.

MAIN FEATURES

ENERGY MEASUREMENT

Active energy: Measure energy in two separate registers (AC mains & DG supply)

EASY TO USE AND ROBUST TO ALL CONSUMER

Enter the token into the meter with audible feedback keypad
Additional features can be applied on customer request Low credit warning, indication flashing

PROVEN HIGH RELIABLE TECHNOLOGY METER DESIGN

Last 50 tokens stored and can be recalled 6 months meter data (historic energy data) is available for tracking.

LOAD CONTROL

Dis/connection power locally by relay Reconnection: Top-up, emergency & friendly credit status Built-in circuit-breaker for Power dis/connection.

EXPERIENCED DESIGN FOR ANTI-TAMPER FUNCTIONS

Detecting current reverse
Detecting open Meter cover, Terminal Cover
Detecting and warning of magnetic interference
Detecting Load earthing
Detecting current cycle Bypass
Detecting Neutral Disturbance

COMMUNICATION INTERFACE

Optical local communication
RS485
PLC (optional)
RF (optional)

REMOTE COMMUNICATION WITH CIU

By RS-485 (wired)
or
By RF (wireless)

TECHNICAL SPECIFICATIONS

MEASURE

STANDARD

IS:13779, IS :15884 (connect/disconnect feature)

ACCURACY CLASS

Active: Class1.0

MEASURE PARAMETER

KWH; KW MD

OTHER FUNCTION

Measure AC Main Power and DG Supply
Can be configured to Prepaid or Post paid Function

ELECTRICAL SPECIFICATION

METER TYPE

1 Phase, 2Wire

RATING CURRENT/VOLTAGE

5(60)A, 240V

STARTING CURRENT

20mA

POWER CONSUMPTION

V Circuit < 2W/10VA, I circuit <0.5VA

POWER FACTOR

0 lag-unity-0 lead

VOLTAGE & FREQUENCY RANGE

240 v (-40% to +20%) at 50 Hz (5%)

SHORT OVER CURRENT

30Imax

SHORT OVER VOLTAGE

440V for 2 Hour

EXTERNAL MAGNETIC

Immune to external magnetic influence (if not) record at Imax

METER IMPULSE

3200 imp/kWh

ENVIRONMENT

TEMPERATURE

Operating temperature range: -10°C
+60°C;

Storage and transport temperature
range: -40°C +80°C

HUMIDITY

Relative Humidity: Up to 95% non-
condensing

INTERFACE

DISPLAY TYPE

Segment LCD

DISPLAY MODE

Auto scroll mode, Manual scroll
mode, Battery Mode

PUSH KEY

Two push button

LED

Two red led and one three color led

RELAY

TYPE

Two single relay for L & N phase

CONTROL

Relay (maximal continual current)
Remotely disconnect (connect) via RF
through DCU

Automatically disconnect (connect)
by load control, manually by push
button

Configurable separate Overload
disconnect for Mains and DG

RTC

Accuracy

7minutes / year

FEATURE

ENERGY PARAMETERS

Instantaneous value (voltage,
current, power factor) Maximal
demand

Cumulative energy

Configurable as per requirement

MD

Import active MD

Export active MD

TARIFF

Configurable - Season/week/day up
to 8 tariff (TOD/slab)

BILLING PARAMETERS

Daily energy profile data

Monthly billing data

Cumulative

Increment

Import/Export active MD

Default billing date

BILLING MODE

Automatic billing by internal RTC

Command billing via communication
ports

Push billing button

INSTANTANEOUS PARAMETERS

V,I,PF, Frequency

LOAD CURVE

Record snapshot;

Load profile status;

Period increase energy;

Cumulative energy.

PAYMENT

Credit or Prepayment alternatively;

Energy or Money Billing alternatively;

Monthly Fixed Charges;

Step Tariff(optional);

Pre-defined amount of Emergency
Credit;

Friendly Credit Hours;

One time charges on request

EVENT

RECORD REQUIRED

Standard Event Log (100 entries)

Disconnect Control Log(20 entries)

Power Quality Events Log (30 entries)

Fraud Detection Event Log(10
entries)

Common Events Log (100 entries)

ALARM

Low credit

Over load

Main or DG indication by LED

LED blinking alarm for main/DG
changeover

ANTI-TAMPER

DETECT TYPE

Cover removing detection

Power reverse;

Current unbalance;

Neutral disturbance;

Magnetic disturbance;

COMMUNICATION CATEGORY

COMMUNICATION PROTOCOL

DLMS/COSEM

OPTICAL

Standard equipped

RS485

Standard equipped

RF

Standard equipped

GSM/GPRS/PLC

Optional

BACK UP POWER

SUPERCAPACITOR

Optional

INTERCHANGEABLE EXTERNAL

Optional battery

INTERNAL BATTERY

lithium battery

SOFTWARE TOOL

HHU, BCS, CMRI, MOBILE APP

Optional

SETTING SOFTWARE

Smartset software, K-Pay

STRUCTURE & MECHANICAL REQUIREMENTS

IP PROTECT

IP51

DIMENSION (L X W X H)

225 x 132 x 75 (mm)

WEIGHT (KG)

0.8 kg

MATERIAL

Engineering plastic (Polycarbonate)

THREE PHASE SMART METER



SPECIALITY

- Can Measure Main or DG supply.
- Split Keypad Prepayment or Postpaid Meter
- Import/ Export Energy measure
- 20 Digit STS encryption
- Billing Can be on Kwh or Kvah
- Low Credit warning , indication flashing
- Recall of last 50 tokens entered
- 6 months meter data (historic energy data)is available for tracking
- Programmable load profiles
- Internal relay for control
- Communication to server via DCU using RF, PLC (Optional)
- Special Feature to run into servant mode to limit power when not at home
- Can be connected to In- home display wireless(optional)
- Automatic deduction of maintenance charges as per prevailing charges at predefined time

MAIN FEATURES

ENERGY MEASUREMENT

Active /Reactive energy: Measure energy in two separate registers (AC mains&DG supply)
Can be configured to Prepaid or Post paid meters

EASY TO USE AND ROBUST TO ALL CONSUMER

Secure data transfer with STS encryption technique and protocol
Enter the token into the meter with audible feedback keypad
Additional features can be applied on customer request
Low credit warning, indication flashing

PROVEN HIGH RELIABLE TECHNOLOGY METER DESIGN

Last 50 tokens stored and can be recalled
6 months meter data (historic energy data)is available for tracking.

LOAD CONTROL

Maximum current of 100A relay

Dis/connection power locally
Reconnection: Top-up, emergency & friendly credit status
Built-in circuit-breaker for Power dis/connection.

EXPERIENCED DESIGN FOR ANTI-TAMPER FUNCTIONS

Detecting current Reverse
Detecting open Meter cover or Terminal Cover
Detecting and warning of magnetic interference
Detecting missing potential
Detecting over voltage

COMMUNICATION INTERFACE

Optical local communication
RS485
PLC (optional)
RF (optional)

REMOTE COMMUNICATION WITH CIU by RS-485

TECHNICAL SPECIFICATIONS

MEASURE

STANDARD

IS:13779, IS:15884 (connect/disconnect feature, IS:16444)

ACCURACY CLASS

Active: class1.0
Reactive: class 2.0

MEASURE PARAMETER

KWH; KW MD, Kvarh, Kva

OTHER FUNCTION

Measure AC Main Power and DG supply

Configure to Prepaid and Post paid Function

ELECTRICAL SPECIFICATION

METER TYPE

3 Phase; 4 Wire system

RATING CURRENT/ VOLTAGE

10(60)A, 20-100A, 3x240v/ 415v

STARTING CURRENT

20mA

POWER CONSUMPTION

V Circuit < 2W/10VA,I circuit <0.5VA per phase

POWER FACTOR

0 lag-unity-0 lead

VOLTAGE & FREQUENCY RANGE

3x240v/ 415v (-40% to +20%)
at 50 Hz (5%)

SHORT OVER CURRENT

30Imax

SHORT OVER VOLTAGE

440V for 2 Hour (Phase to neutral)

EXTERNAL MAGNETIC

Immune to external magnetic influence
(if not) record at I_{max}

METER IMPULSE

1600 imp/kWh, 1600 imp/kvarh
800 imp/kWh, 800 imp/kvarh

ENVIRONMENT

TEMPERATURE

Operating temperature range: -10°C
+60°C;

Storage and transport temperature
range: -40°C +80°C

HUMIDITY

Relative Humidity: Up to 95% non-
condensing

INTERFACE

DISPLAY TYPE

Segment LCD

DISPLAY MODE

Auto scroll mode, Manual scroll
mode, Battery Mode

PUSH KEY

Two push button with seal provision

LED

Two red led and one three color led

RELAY

TYPE

Three Phase integrated relay for
Load control

CONTROL

Relay (maximal continual current)

Remotely disconnect (connect) via RF
through DCU

Automatically disconnect (connect)
by load control, manually by push
button

Configurable separate overload

RTC

ACCURACY

7minutes / year

FEATURE

ENERGY PARAMETERS

Instantaneous value (voltage,
current, power factor, quadrant)

Cumulative energy

Average demand

Maximal demand

Power quality (power off, over
voltage, under voltage)

MD

Import active and reactive MD

Export active and apparent MD

TARIFF

Configurable - Season/week/day up
to 8 tariff (TOD/slab)

BILLING PARAMETERS

Daily energy profile data

Monthly billing data

Cumulative

Increment

Import/Export active MD

Default billing date

BILLING MODE

Automatic billing by internal RTC

Command billing via communication
ports

Push billing button

INSTANTANEOUS PARAMETERS

V,I,PF, Frequency and temperature

LOAD CURVE

Record snapshot;

Load profile status;

Period increase energy;

Cumulative energy.

PAYMENT

Credit or Prepayment alternatively;

Energy or Money Billing alternatively;

Monthly fixed charges at HES end

Step Tariff (optional);

Pre-defined amount of emergency
credit;

Friendly credit hours;

One time charges on request

EVENT

RECORD REQUIRED

Standard Event Log (100 entries)

Disconnect Control Log (20 entries)

Power Quality Events Log (30 entries)

Fraud Detection Event Log (10
entries)

Common Events Log (100 entries)

ALARM

Low credit

ANTI-TAMPER

DETECT TYPE

T-Cover removing detection

Power reverse;

Current unbalance;

Neutral disturbance;

Magnetic disturbance;

COMMUNICATION CATEGORY

COMMUNICATION PROTOCOL

DLMS/COSEM

OPTICAL

Standard equipped

RS485

Standard equipped

RF

Standard equipped

GSM/GPRS/PLC

Optional

BACK UP POWER

SUPERCAPACITOR

Optional

INTERCHANGEABLE EXTERNAL

Optional battery

INTERNAL BATTERY

lithium battery

SOFTWARE TOOL

HHU

Optional

SETTING SOFTWARE

Smartset software, K-Pay

STRUCTURE & MECHANICAL REQUIREMENTS

IP PROTECT

IP51

DIMENSION (L X W X H)

232 × 163 × 75(mm)

WEIGHT (KG)

1.3 kg

MATERIAL

Engineering plastic (Polycarbonate).

THREE PHASE HTCT-PT AND DT SMART ENERGY METER CLASS0.2S



SPECIALITY

- Import/ Export Energy measure
- Billing Can be on Kwh or Kvah
- 6 months meter data (historic energy data) is available for tracking
- Programmable load profiles
- Communication to server via DCU using RF, PLC (Optional)
- DI-DO ports are provided for DT application (Not required for HT consumer metering)

MAIN FEATURES

ENERGY MEASUREMENT

Active, reactive and apparent Energy
Measure Energy in two separate registers (Import Export)

EASY TO USE AND ROBUST TO ALL CONSUMER

PROVEN HIGH RELIABLE TECHNOLOGY METER DESIGN

6 months meter data (historic energy data) is available for tracking

EXPERIENCED DESIGN FOR ANTI-TAMPER FUNCTIONS

Detecting current reverse
Detecting open meter cover, terminal cover
Detecting and warning of magnetic interference
Detecting current cycle bypass

COMMUNICATION INTERFACE

Optical Local Communication
RS485, Cellular/NBIOT

REMOTE COMMUNICATION WITH CIU

By RS- 485 (Wired), Cellular

TECHNICAL SPECIFICATIONS

MEASURE

STANDARD

IS:4697, IS16444 part 2, IS:15959 part3

ACCURACY CLASS

Active: Class 0.2s

MEASURE PARAMETER

KWH; KW MD, KVAH, KVA MD and others as per utility requirements.

ELECTRICAL SPECIFICATION

METER TYPE

3Phase, 4 wire, HTCT-PT type
Rating Current/ Voltage
-/5 amps(10amps), 3x63.5V

STARTING CURRENT

5milli amps

POWER CONSUMPTION

V circuit < 2W/10VA, I circuit <1VA

POWER FACTOR

0 lag-unity -0lead

VOLTAGE& FREQUENCY RANGE

240v (-40% to 20%) at 50HZ (5%)

SHORT OVER CURRENT

20Imax

SHORT OVER VOLTAGE

440V for 2 hour

EXTERNAL MAGNETIC

Immune to external magnetic influence (if not) record at Imax

METER IMPULSE

10000 imp/KWH

ENVIRONMENT

TEMPERATURE

Operating temperature range : -10°C
– 60°C

Storage and transport temperature
range -40C- +80C

INTERFACE

DISPLAY TYPE

Segment LCD

DISPLAY MODE

Auto Scroll mode, Manual Scroll
mode, Battery Mode

PUSH KEY

Two push button

LED

One pulse LED and other icon on
display

RELAY

TYPE

CS34HS

RTC

ACCURACY

7minutes/year

FEATURE

ENERGY PARAMETERS

Instantaneous value (voltage,
current , power factor) Maximal
demand

CUMULATIVE ENERGY

Configurable as per requirement

MD

Import active and apparent MD
Export active and apparent MD

TARIFF

Configurable – Season/ week/day
upto 8 tariff (TOD/ slab)

BILLING PARAMETERS

Daily energy profile data
Monthly billing data

CUMULATIVE

Increment

Import/ Export active and apparent
MD

Default billing date

BILLING MODE

Automatic billing by internal RTC

Command billing via communication
ports

PUSH BILLING BUTTON

Instantaneous Parameters

V,I,PF, frequency

LOAD CURVE

Record snapshot

LOAD PROFILE STATUS

Period increase energy

Cumulative Energy

EVENTS

RECORD REQUIRED

Standard Event Log (100 entries)

Power Quality Events Log (30
entries)

Fraud detection event (10 entries)

Common events log (100 entries)

Other events

ANTI- TAMPER

DETECT TYPE

Cover removing detection

Power reverse;

Current unbalance;

Neutral disturbance

Magnetic Disturbance

COMMUNICATION CATEGORY

COMMUNICATION PROTOCOL

DLMS/ COSEM

Optical

STANDARD EQUIPPED GSM/GPRS/
LPRF/NBIOT

Optional

BACKUP POWER

SUPERCAPACITOR

Optional

Interchangeable external

OPTIONAL BATTERY

Internal Battery

Lithium Battery

SOFTWARE TOOL

HHU

Optional

STRUCTURE & MECHANICAL REQUIREMENTS

IP PROTECT

IP51

DIMENSION (LXWXH)

232x163x75 mm

WEIGHT (KG)

1.1KG approx.

MATERIAL

Engineering Plastic(Polycarbonate)

THREE PHASE LTCT, CLASS0.5S SMART ENERGY METER



SPECIALITY

- Import/ Export Energy measure
- Billing Can be on Kwh or Kvah
- 6 months meter data (historic energy data) is available for tracking
- Programmable load profiles
- Communication to server via DCU using RF, PLC (Optional)
- DI ports are provided for DT application (Not required for LT consumer metering)

MAIN FEATURES

ENERGY MEASUREMENT

Active, reactive and apparent Energy
Measure Energy in two separate registers (Import Export)

EASY TO USE AND ROBUST TO ALL CONSUMER

PROVEN HIGH RELIABLE TECHNOLOGY METER DESIGN

6 months meter data (historic energy data) is available for tracking

EXPERIENCED DESIGN FOR ANTI-TAMPER FUNCTIONS

Detecting current reverse
Detecting open meter cover, terminal cover
Detecting and warning of magnetic interference
Detecting current cycle bypass

COMMUNICATION INTERFACE

Optical Local Communication
RS485, Cellular/NB-IoT
PLC (Optional)
RF (Optional)

REMOTE COMMUNICATION WITH CIU

By RS-485 (Wired), Cellular
Or
By RF (wireless)

TECHNICAL SPECIFICATIONS

MEASURE

STANDARD

IS:4697, IS:16444 part 2, IS:15959 part 3

ACCURACY CLASS

Active: Class 0.5s

MEASURE PARAMETER

KWH; KW MD, KVAH, KVA MD
and others as per utility requirements.

ELECTRICAL SPECIFICATION

METER TYPE

3Phase, 4 wire, LTCT type

RATING CURRENT/ VOLTAGE

-/5 amps, 3x240V

STARTING CURRENT

5-10A

POWER CONSUMPTION

V circuit < 2W/10VA, I circuit < 1VA

POWER FACTOR

0 lag-unity -0lead

VOLTAGE & FREQUENCY RANGE

240v (-40% to 20%) at 50HZ (5%)

SHORT OVER CURRENT

20Imax

SHORT OVER VOLTAGE

440V for 2 hour

EXTERNAL MAGNETIC

Immune to external magnetic influence
(if not) record at Imax

METER IMPULSE

10000 imp/KWH

ENVIRONMENT

TEMPERATURE

Operating temperature range : -10°C
- 60°C

Storage and transport temperature
range -40C- +80C

INTERFACE

DISPLAY TYPE

Segment LCD

DISPLAY MODE

Auto Scroll mode, Manual Scroll
mode, Battery Mode

PUSH KEY

Two push button

LED

One pulse LED and other icon on
display

RELAY

TYPE

CS34LS

RTC

ACCURACY

7minutes/year

FEATURE

ENERGY PARAMETERS

Instantaneous value (voltage,
current , power factor) Maximal
demand

CUMULATIVE ENERGY

Configurable as per requirement

MD

Import active and apparent MD
Export active and apparent MD

TARIFF

Configurable – Season/ week/day
upto 8 tariff (TOD/ slab)

BILLING PARAMETERS

Daily energy profile data
Monthly billing data

CUMULATIVE

Increment

Import/ Export active and apparent
MD

Default billing date

BILLING MODE

Automatic billing by internal RTC

Command billing via communication
ports

Push billing button

INSTANTANEOUS PARAMETERS

V,I,PF, frequency

Load Curve

Record snapshot

Load Profile status

Period increase energy

Cumulative Energy

EVENTS

RECORD REQUIRED

Standard Event Log (100 entries)

Power Quality Events Log (30
entries)

Fraud detection event (10 entries)

Common events log (100 entries)

Other events

ANTI- TAMPER

DETECT TYPE

Cover removing detection

Power reverse;

Current unbalance;

Neutral disturbance

Magnetic Disturbance

COMMUNICATION CATEGORY

COMMUNICATION PROTOCOL

DLMS/ COSEM

Optical

STANDARD EQUIPPED GSM/GPRS/
LPRF/NBIOT

Optional

BACKUP POWER

SUPERCAPACITOR

Optional

INTERCHANGEABLE EXTERNAL

Optional Battery

Internal Battery

Lithium Battery

SOFTWARE TOOL

HHU

Optional

STRUCTURE & MECHANICAL REQUIREMENTS

IP PROTECT

IP51

DIMENSION (LXWXH)

232x163x75 mm

WEIGHT (KG)

1.1KG approx.

MATERIAL

Engineering Plastic(Polycarbonate)

LTCT METER



SPECIALITY

- Import/ Export Energy measure
- Billing Can be on Kwh or Kvah
- 6 months meter data (historic energy data)is available for tracking
- Programmable load profiles
- Internal relay for control
- Communication to server via DCU using RF, PLC (Optional)
- Special Feature to run into servant mode to limit power when not at home
- Can be connected to In- home display wireless(optional)
- Automatic deduction of maintenance charges as per prevailing charges at predefined time

MAIN FEATURES

ENERGY MEASUREMENT

Active, reactive and apparent Energy
Measure Energy in two separate registers (Import Export)

EASY TO USE AND ROBUST TO ALL CONSUMER

Low credit warning , indication flashing through utility server

PROVEN HIGH RELIABLE TECHNOLOGY METER DESIGN

Last 50 tokens stored and can be recalled through utility server
6 months meter data (historic energy data)is available for tracking

LOAD CONTROL

Dis/connection Power locally as well as through utility server by relay
Reconnection: Top – Up , emergency & Friendly Credit status
Built-in circuit breaker for Power dis/connection

EXPERIENCED DESIGN FOR ANTI-TAMPER FUNCTIONS

Detecting current reverse
Detecting open meter cover, terminal cover
Detecting and warning of magnetic interference
Detecting load earthing
Detecting current cycle bypass
Detecting neutral disturbance

COMMUNICATION INTERFACE

Optical Local Communication
RS485, Cellular/NBIOT
PLC (Optional)
RF (Optional)

REMOTE COMMUNICATION WITH CIU

By RS- 485 (Wired), Cellular
Or
By RF (wireless)

TECHNICAL SPECIFICATIONS

MEASURE

STANDARD

IS:13779, IS16444, IS:15959 part2

ACCURACY CLASS

Active: Class 1.0

MEASURE PARAMETER

KWH; KW MD and others as per utility requirements.

OTHER FUNCTION

Can be configured to prepaid or postpaid function through utility server

ELECTRICAL SPECIFICATION

METER TYPE

3Phase, 4 wire

RATING CURRENT/ VOLTAGE

10-(60)A, 20-100 amps, 3x240V

STARTING CURRENT

20-40mA

POWER CONSUMPTION

V circuit < 2W/10VA, I circuit <1VA

POWER FACTOR

0 lag-unity -0lead

VOLTAGE& FREQUENCY RANGE

240v (-40% to 20%) at 50HZ (5%)

SHORT OVER CURRENT

30Imax

SHORT OVER VOLTAGE

440V for 2 hour

EXTERNAL MAGNETIC

Immune to external magnetic influence (if not) record at Imax

METER IMPULSE

1600 imp/KWH

ENVIRONMENT

TEMPERATURE

Operating temperature range:

-10°C – 60°C

Storage and transport temperature range -40°C- +80°C

INTERFACE

DISPLAY TYPE

Segment LCD

DISPLAY MODE

Auto Scroll mode, Manual Scroll mode, Battery Mode

PUSH KEY

Two push button

LED

One pulse LED and other icon on display

RELAY

TYPE

Three relays each for R,Y,B Phase

CONTROL

Relay (Maximal continual current)

Remotely disconnect via Cellular or (connect) via RF through DCU

Automatically disconnect (connect) by load control , manually by push button(as directed by utility)

Configurable separate overload disconnect through utility server

RTC

ACCURACY

7minutes/year

FEATURE

ENERGY PARAMETERS

Instantaneous value (voltage, current , power factor) Maximal demand

CUMULATIVE ENERGY

Configurable as per requirement

MD

Import active and apparent MD

Export active and apparent MD

TARIFF

Configurable – Season/ week/day upto 8 tariff (TOD/ slab)

BILLING PARAMETERS

Daily energy profile data

Monthly billing data

CUMULATIVE

Increment

Import/ Export active and apparent MD

Default billing date

BILLING MODE

Automatic billing by internal RTC

Command billing via communication ports

Push billing button

INSTANTANEOUS PARAMETERS

V,I,PF, frequency

LOAD CURVE

Record snapshot

Load Profile status

Period increase energy

Cumulative Energy

PAYMENT THROUGH UTILITY SERVER(CONFIGURABLE)

Credit or Prepayment alternatively

Energy or money billing alternatively

Monthly fixed charges

Step tariff (optional)

Pre-defined amount of emergency credit

Friendly Credit hours

One time charges on request

EVENT

RECORD REQUIRED

Standard Event Log (100 entries)

Disconnect Connect log (20 entries)

Power Quality Events Log (30 entries)

Fraud detection event (10 entries)

Common events log (100 entries)

ALARM

Low Credit

Over Load

ANTI- TAMPER

DETECT TYPE

Cover removing detection

Power reverse;

Current unbalance;

Neutral disturbance

Magnetic Disturbance

COMMUNICATION CATEGORY

COMMUNICATION PROTOCOL

DLMS/ COSEM

Optical

Standard Equipped

GSM/GPRS/LPRF/NBIOT

Optional

BACKUP POWER

SUPERCAPACITOR

Optional

INTERCHANGEABLE EXTERNAL

Optional Battery

Internal Battery

Lithium Battery

SOFTWARE TOOL

HHU

Optional

SETTING SOFTWARE

Smart set Software, K-Pay

STRUCTURE & MECHANICAL REQUIREMENTS

IP PROTECT

IP51

DIMENSION (LXWXH)

263x169x87 mm

WEIGHT (KG)

1.3KG approx.

MATERIAL

Engineering Plastic(Polycarbonate)

DUAL PHASE SMART METER (SINGLE & THREE PHASE)

Three Phase
Smart Meter



Single Phase
Smart Meter



SPECIALITY

- Can Measure Main or DG supply.
- Split Keypad Prepayment or Postpaid Meter
- Import/ Export Energy measure
- 20 Digit STS encryption
- Billing Can be on Kwh or Kvah
- Low Credit warning , indication flashing On HES end
- Recall of last 50 tokens entered
- 6 months meter data (historic energy data)is available for tracking
- Programmable load profiles
- Internal relay for control
- Communication to server via DCU using RF, PLC (Optional)
- Special Feature to run into servant mode to limit power when not at home
- Can be connected to In- home display wireless(optional)
- Automatic deduction of maintenance charges as per prevailing charges at predefined time.

MAIN FEATURES

ENERGY MEASUREMENT

Active Energy: Measure Energy in two separate registers (AC mains & DG supply)

EASY TO USE AND ROBUST TO ALL CONSUMER

Secure data transfer protocol Enter the token into the meter with audible feedback keypad Additional Features can be applied on customer request Low credit warning ,indication flashing on HES end

PROVEN HIGH RELIABLE TECHNOLOGY METER DESIGN

Last 50 tokens stored and can be recalled 6 months meter data (historic energy data)is available for tracking

LOAD CONTROL

Dis/connection Power locally by relay Reconnection: Top-Up, emergency & Friendly Credit status

EXPERIENCED DESIGN FOR ANTI-TAMPER FUNCTIONS

Detecting current reverse
Detecting open meter cover
Detecting and warning of magnetic interference
Detecting load earthing
Detecting current cycle bypass
Detecting neutral disturbance

COMMUNICATION INTERFACE

Optical local communication
RS485
PLC (Optional)
RF (Optional)

REMOTE COMMUNICATION WITH CIU

By RS-485-9 (wired)
or
By RF (wireless)

TECHNICAL SPECIFICATIONS

MEASURE

STANDARD

IS:13779, IS:15884(Connect/ Disconnect Feature),IS16444

ACCURACY CLASS

Active: Class 1.0

MEASURE PARAMETER

KWH; KW MD

OTHER FUNCTION

Measure AC Main Power and DG supply
Can be configured to prepaid or postpaid function

ELECTRICAL SPECIFICATION

METER TYPE

For Single Phase - 1Phase, 2 wire; For Three Phase - 3Phase, 4 wire

RATING CURRENT/ VOLTAGE

For Single Phase - 5/10-(60)A, 240V;
For Three Phase - 10-(60)A and 100amp on request, 3X240V

STARTING CURRENT

10-20mA

POWER CONSUMPTION

V circuit < 2W/10VA, I circuit <0.5VA

POWER FACTOR

0 lag-unity -0lead

VOLTAGE& FREQUENCY RANGE

For Single Phase - 240v (-40% to 20%) at 50HZ (5%); For Three Phase - 3x240v (-40% to 20%) at 50HZ (5%)

SHORT OVER CURRENT

30I_{max}

SHORT OVER VOLTAGE

440V for 48 hour

EXTERNAL MAGNETIC

Immune to external magnetic influence (if not) record at I_{max}

METER IMPULSE

For Single Phase - 3200 imp/KWH ;
for Three phase - 1600 imp/KWh and
800imp/KWh for 20-100 meter

ENVIRONMENT

TEMPERATURE

Operating temperature range : -10°C
- 60°C

Storage and transport temperature
range -40C- +80C

INTERFACE

DISPLAY TYPE

Segment LCD

DISPLAY MODE

Auto Scroll mode, Manual Scroll
mode, Battery Mode

PUSH KEY

Two push button

LED

One pulse LED and other icon on
display

RELAY

TYPE

For Single Phase- Two Single relay
for L & N Phase ; For Three Phase -
Three relay used in R,Y,B phase

CONTROL

Relay (Maximal continual current)
Remotely disconnect (connect) via
RF through DCU

Automatically disconnect (connect)
by load control , manually by push
button

Configurable separate overload
disconnect for Mains and DG

RTC

Accuracy
7minutes/year

FEATURE

ENERGY PARAMETERS

Instantaneous value (voltage,
current , power factor) Maximal
demand

Cumulative energy

Configurable as per requirement

MD

Import active MD

Export active MD

TARIFF

Configurable – Season/ week/day
upto 8 tariff (TOD/ slab)

BILLING PARAMETERS

Daily energy profile data

Monthly billing data

Cumulative

Increment

Import/ Export active MD

Default billing date

BILLING MODE

Automatic billing by internal RTC

Command billing via communication
ports

Push billing button

INSTANTANEOUS PARAMETERS

V,I,PF, frequency

LOAD CURVE

Record snapshot

Load Profile status

Period increase energy

Cumulative Energy

PAYMENT

Credit or Prepayment alternatively

Energy or money billing alternatively

Monthly fixed charges

Step tariff (optional)

Pre-defined amount of emergency
credit

Friendly Credit hours

One time charges on request

EVENT

RECORD REQUIRED

Standard Event Log (100 entries)

Disconnect Connect log (20 entries)

Power Quality Events Log (30
entries)

Fraud detection event (10 entries)

Common events log (100 entries)

ALARM

Low Credit

Over Load

Main or DG indication by LED

LED Blinking alarm for main/ DG
Changeover

ANTI- TAMPER

DETECT TYPE

Cover removing detection

Power reverse;

Current unbalance;

Neutral disturbance

Magnetic Disturbance

COMMUNICATION CATEGORY

COMMUNICATION PROTOCOL

DLMS/ COSEM

OPTICAL

Standard Equipped

GSM/GPRS/LPRF/NBIOT

Optional

BACKUP POWER

SUPERCAPACITOR

Optional

Interchangeable external

OPTIONAL BATTERY

Internal Battery

Lithium Battery

SOFTWARE TOOL

HHU

Optional

SETTING SOFTWARE

Smart set Software, K-Pay

STRUCTURE & MECHANICAL REQUIREMENTS

IP PROTECT

IP51

DIMENSION (LXWXH)

For Single Phase 225x132x75 mm ;
For Three Phase - 263x169x87 mm

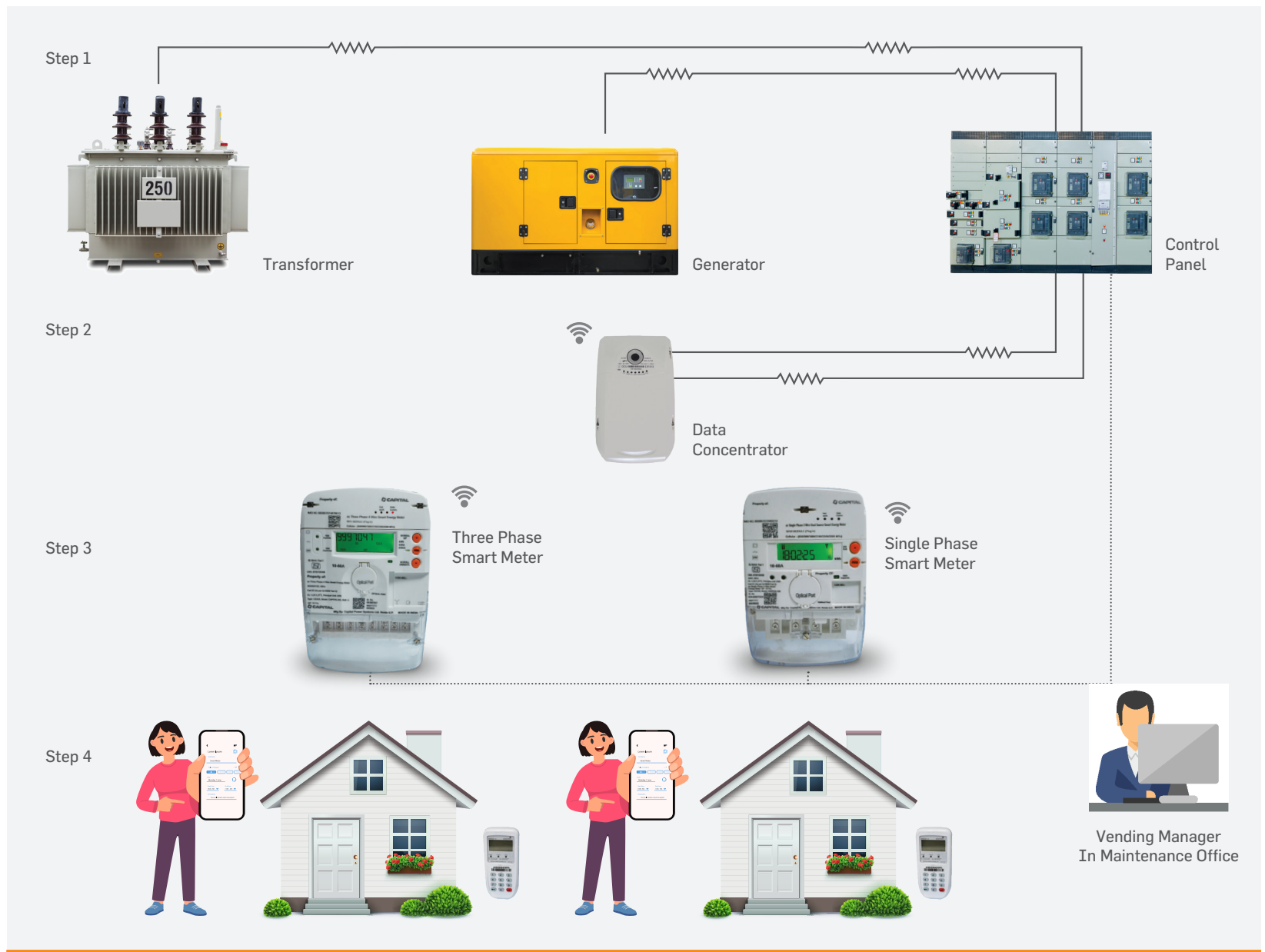
WEIGHT (KG)

For Single Phase 0.8KG approx.; For
Three Phase 1.3KG approx.

MATERIAL

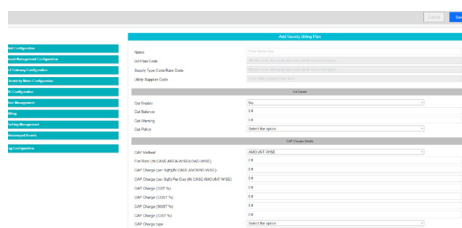
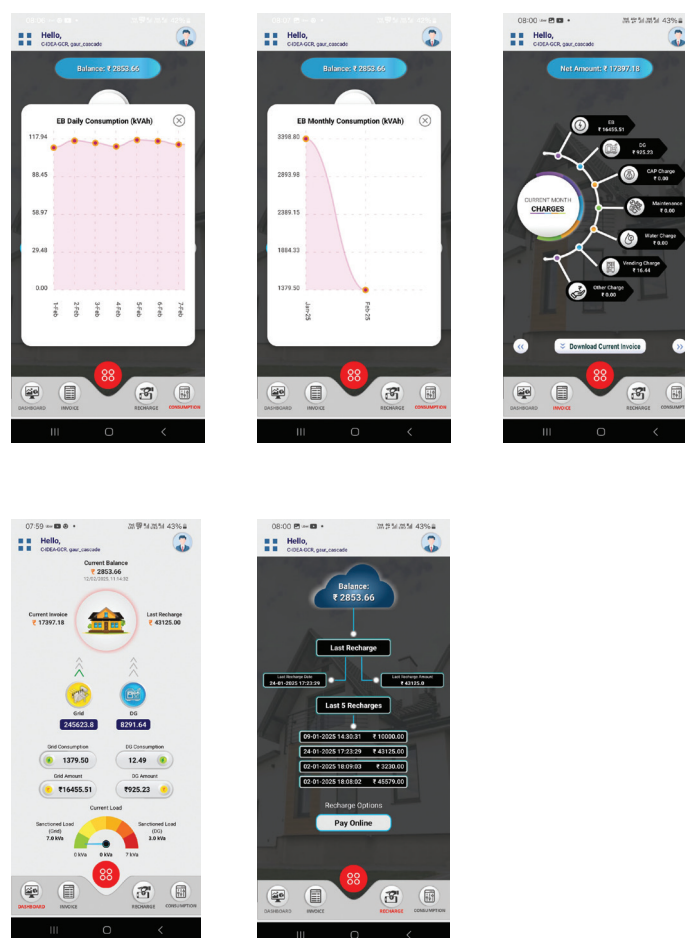
Engineering Plastic(Polycarbonate)

ARCHITECTURE OF DUAL SOURCE SMART METERS





Device	UnHealthy	Healthy	Unstate	Total
IoT Gateways:	0	1	0	1
Lora Gateways:	1	1	0	2
Meters:	0	125	0	125
Discovered Meters:	0	0	0	0
DGs:	0	1	0	1



DATA CONCENTRATOR



SPECIALITY

- Connected to meters using RF hopping technology
- Detect and change meter tariff from Mains (utility) to private (DG Set) or vice versa
- With plug-and-play interchangeable WAN/LAN communication module
- Save operation time and cost. Reduce manual mistakes by Automatically Meter Discovery and Topology management
- Wide range of power supply:86V-265V is flexible for various grid
- IP51 dustproof and waterproof
- Beautiful appearance, stylish streamlined main body
- Standard size and light weight is convenient for transportation and installation

MAIN FEATURES

ENERGY MEASUREMENT

Most Advanced solution with ARM9 Processor, CPU Frequency 180 MHz, RAM 64M bytes, flash 64Mbytes (256Mbytes optional)

EMBEDDED LINUX

Support Application software , firmware software and operating system configuration upgrade
Communication interfaces and auxiliaries

WAN

1 port, supports one of GSM/ GPRS/ PSTN/ CDMA, 3G/ WiFi / Wi- Max network connection , modular design, can be changeable
Supports plug and play. Default interface is GPRS, DLMS/ COSEM with TCP/ UDP profile.
1 ethernet RJ45 Port

LAN

1 port for LAN communication, supports plug & play of PLC/ RF communication Module . PLC module could be:
Default is S- FSK PLC module, DLMS/ COSEM with S-FSK PLC profile is supported.
PRIME PLC module for PRIME PLC meters
1 RS-485 port withstanding 380VAC/5min when connecting error , each port for 32 slave nodes.

LOCAL

1 RS-232 port for debugging , upto 115200bps, PPPis supported .

1 infrared port for local communication, upto 9600bps , IEC 62056-21 E mode, DLMS/ COSEM with HDLC profile.
1 USB 2.0 full speed (12 Mbps) host port.

OTHER AUXILLARIES

One USB2.0 full speed (12MBPS) device port.
2 Channels 10bit A/D conversion inputs , 2 channels digital switch inputs.
1 channel relay switch output and 1 channel digital output with OC character.
Auxiliary power supply: 12vdc, 100mA.
Support upto 1200 meters and consumption data management.
Advanced meter discovery: new meters can be discovered automatically, save installation and commissioning cost.
Advanced and automatically topology management and optimization , save the maintenance cost and reduce manual mistakes.
Automatic meter consumption and events / alarms data collection, Store as configurable schedule.
High Accurate Real time clock with Daylight saving time management , meter clock management and synchronization.
Concentrator self-diagnostic and statistical, including parameters loss detection, parameter update.
Clock deviation correct of energy meter, meter parameters update , meter reading failures etc.
Procedures management with priorities : High priority procedure runs first.
Web Server Supported for the more Convenience

TECHNICAL SPECIFICATIONS

MEASURE

STANDARD

IEC 62056-21/46/53/61/62, IEC 61334-5-1,IEC 61334-4-32,EN 50065

VOLTAGE

Rated Voltage; 85 265Vac
Voltage with Standard; 440V 6 hours
Frequency
50/60Hz

POWER CONSUMPTION

Active 10W, Apparent 10VA(Static)
Apparent 10VA (Static)
Reliability
Data Retention
>10 Years

STRUCTURE & MECHANICAL REQUIREMENTS

Dimension (LxWxH)
310x175x86 (mm)

Weight (Kg)

1.7 KG
Enclosure material
PC+ABS

ENVIRONMENTAL

Operating Temperature
-30'C to 70'C
Storage Temperature
-40'C to 85'C

CUSTOMER INTERFACE UNIT (CIU)



SPECIALITY

- Audible Keypad
- LED Blink to show power is mains or DG
- Alarm on overload , Low credit
- Load threshold limit can be configured
- Large LCD screen to view token and consumption KWh and MD History
- Connected to meters using RS -485 or via RF (optional)

MAIN FEATURES

DISPLAY METER PARAMETER(OPTIONAL)

Instant Voltage
Instant current
Instant Power
History energy and cost
Meter Date & Time

INDICATOR AND ALARM FUNCTION (CAN DESIGN AS CLIENT DEMAND)

Meter Tamper indicator
Meter Relay indicator
Communication link indicator between meter and CIU
Balance Credit energy indicator
Over load alarm with buzzer
Low credit alarm with Buzzer

INPUT FUNCTION (CAN DESIGN AS CLIENT DEMAND)

Input Token
Short Code Check

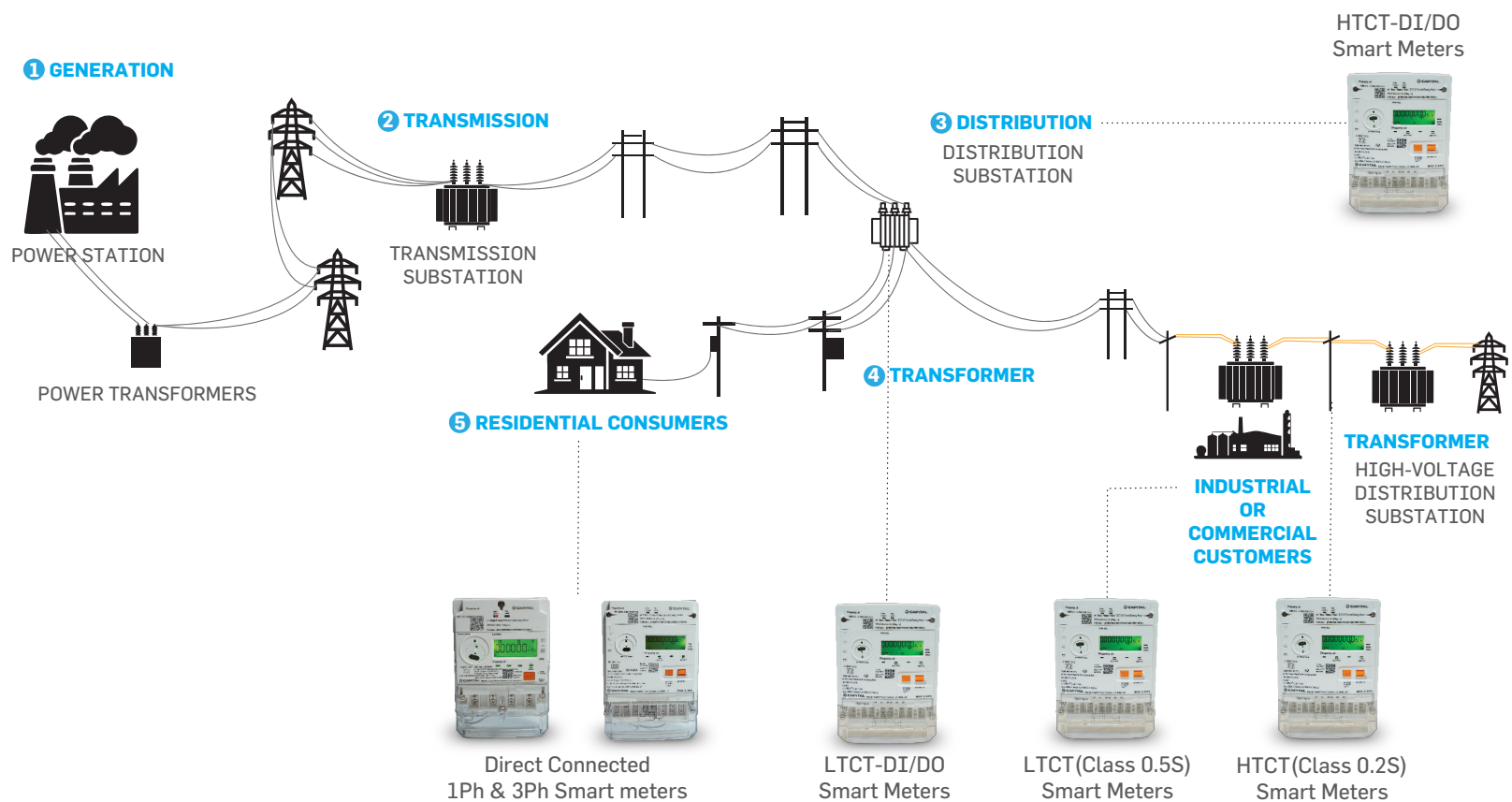
COMMUNICATION WITH METER

RS485
RF (Optional)

POWER SOURCE

If connected by RS-485, source power from meter
If connected via RF, power source through adapter

AMISP SMART METERS FULL PACKAGE (1PH, 3PH, LTCT, HT-CT/PT SMART METERS)





NET METER

Capital Smart net energy meters measure the energy a consumer consumes from the grid and the energy it generates, such as from solar panels or other renewable sources. Compliances of CEA net energy meter specification Capital smart net energy meters track both incoming and outgoing energy, (import & export) allowing users to monitor how much energy is being used and how much is being sent back to the grid.

NET METERS ARCHITECTURE DESIGN

