

Technology of Measurement...

defined

Electronic Energy Meters

Single Source & Dual Source



- Energy Meters
- Multifunction Meters

HPL offers wide Range of Multifunction Meters for Residential & Commercial applications



METERING

Electronic Energy Meter Single Source



Single Phase

MODEL:

Single Phase Electronic Energy Meter
Counter & LCD Type Display

Available in class 1 accuracy as per IS : 13779

Ratings Available

5-30A, 10-60A

Other Ratings are available on request

Special Features

- Instantaneous Start.
- Low power consumption less than 1 wt. saving of more than 30% over conventional meters.
- Meter records correct energy with same accuracy under reverse current connection.
- LCD/LED's indication for current reversal tampering and phase availability.
- Optional : Optical port / RS 232 communication for LCD Meter.
- AN ISO-9001 : 2008 Company.
- Meter with optical port are suitable for AMR application.

Design

- Asic based digital technology ensures superior & drift free long term performance and reliability.
- Tamper proof design.
- No frequent adjustments required.
- No mechanical wear & tear.
- Immune to effects of external magnetic field as per IS : 13779.



Three Phase

MODEL:
Three Phase Electronic Energy Meter
Counter & LCD Type Display
Available in class 1 accuracy as per IS : 13779

Ratings Available

5-20A, 10-60A, -/5A* CT Operated

**Available only in Counter type meter*

Accuracy

- Accuracy irrespective of mounting position.
- Accuracy maintained even under wide voltage fluctuation from -40% to +20% of V_{ref} .
- Accurate reading even under rapid current fluctuation.
- Accurate for balance as well as unbalance loads.

Anti Tamper Features

Anti Tamper Features

- Meter Records correct energy with same accuracy under reverse current connection.
- For Indication please refer the technical specification.
- Phase available indication provided.
- Meter works accurately under earth load condition.



Technical Specification of Electronic Energy Meter Single Phase & Three Phase

Type	Electronic Energy Meter Single Phase	Electronic Energy Meter Three Phase
Reference Voltage	240V	3 x 240V
Reference Frequency	50Hz	50Hz
Starting Current	0.4% of basic current for direct connected meters and 0.2% of basic current for CT operated meters	0.4% of basic current for direct connected meters and 0.2% of basic current for CT operated meters
Operating temp.	-10°C to 60°C	-10°C to 60°C
Enclosure	Polycarbonate	Polycarbonate
Overload Capacity	400% and 600% of basic current for direct reading	400% and 600% of basic current for direct reading
Power Consumption	Less than 1.0 watt	Less than 1.0 watt

Versions Available

Type	Electronic Energy Meter Single Phase	Electronic Energy Meter Three Phase
Rating Electromechanical Counter	Direct connected : 5/30A, 10/60A	Direct connected : 5/20A, 10/60A CT operated : -/5A Direct reading type meters are available on request
Rating LCD	Direct connected : 5/30A, 10/60A	Direct connected : 5/20A, 10/60A
Dimensions Counter	132mm x 168mm x 73mm	169mm x 200mm x 82mm
Dimensions LCD	112mm x 166mm x 68mm	247mm x 187mm x 98mm
Indications Counter	LED's provided on front window for following indications <ul style="list-style-type: none"> • Meter Calibration • Reverse indication • Earth tamper indication • Phase available indication 	LED's provided on front window for following indications <ul style="list-style-type: none"> • Meter Calibration • Reverse indication • Phase available indication
Indications LCD	LED's provided on front window for following indications <ul style="list-style-type: none"> • Meter Calibration LCD icons indication for the following : <ul style="list-style-type: none"> • Reverse indication • Earth tamper indication • Phase available Indication 	LED's provided on front window for following indications <ul style="list-style-type: none"> • Meter Calibration LCD icons indication for the following : <ul style="list-style-type: none"> • Reverse indication • Phase available indication

Special Features

- Made of UV stabilized transparent polycarbonate/Flame retardant high grade engineering plastic.
- Unique arrangement for pilfer proof interlocking with hinge type boxes.
- Suitable for indoor and outdoor applications.
- Complying to IS:14772 and tested at CIPET.
- Sealable optical port provision on the cover of the meter box.
- Sealable push buttons provided on the box cover.
- Latest state of the art Inhouse tool room to design meter boxes for special application.
- Large capacity in house moulding for quick and bulk supplies.

Meter Box for Single Phase & Three Phase Meters



Meter Cupboard with Hinge type locking arrangement moulded in Transparent Engineering Plastic



Three Phase LT - CT TRIVECTOR METER

Ratings Available

-7.5A* CT Operated

* Direct Reading Meters available on request

Salient Features

- Accuracy Class 0.5 as per IS 14697 : 99.
- Suitable for DT Metering.
- Optical communication port.
- Logging and display of tamper data.
- TOD, Load survey, tamper information downloadable to CMRI through optical port.
- Display in absence of power supply.
- Suitable for AMR.

Other Features

- Power ON / OFF events
- Programmable TOD time zones
- Data downloading through optical port / hard wired RS232 port
- 60 Days load survey with 30 minutes integration period for the following parameters :
 - a. Active Energy (kWh)
 - b. Apparent Energy (kVAh)
 - c. Reactive Energy lag (kVArh)
 - d. Average Voltage Per Phase
 - e. Average Current Per Phase



Energy Register

- Active / Apparent Energy
- Reactive Energy (Lag kVArh)
- Reactive Energy (Lead kVArh)

Display Parameters

Measures & Displays the following parameters :

- Cumulative Energy kWh
- TOD zone wise Cumulative kWh
- Current month kVA MD
- TOD zone wise previous month billing kVA MD
- Cumulative kVAh Reading
- Average Power Factor
- Total Number of Tamper Counts
- Phase wise instantaneous Phase to Neutral Voltage
- Instantaneous Line Current
- Total Instantaneous Power (kW / kVAr / kVA)
- Instantaneous Power Factor
- TOD Zone wise Cumulative kVAh Reading
- Cumulative R kVAh Lag
- Cumulative R kVAh Lead
- High resolution kWh
- Numbers of MD Reset
- Cumulative Export Active Energy kWh

Anti-Tamper Features

Meter is capable of detecting & recording the following tamper events. Tamper event shall be recorded with following snapshots of occurrence & restoration, tamper type, date, time, Instantaneous voltage, current, PF, cumulative kWh & kVAh. Meter records 280 tamper events on FIFO basis for following tampers available with communication.

- | | |
|--------------------------|------------------------|
| A. Missing potential | B. Current reversal |
| C. Current circuit short | D. CT Bypass |
| E. Magnetic Tamper | F. Potential imbalance |
| G. Current Unbalance | |

Communication Parameters

Following parameters can be obtained through optical port / RS 232 port

- Load Survey for last 60 days.
- Last 6 months billing data.
- Instantaneous parameters at the time of meter reading.
- TOD / Tamper Data

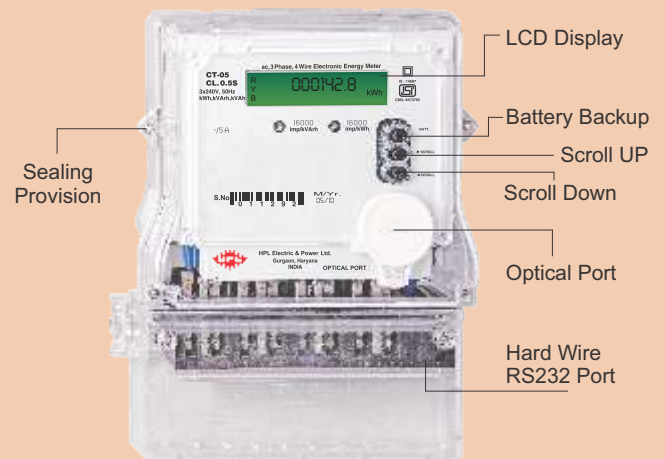
Maximum Demand and MD Integration period

The demand is monitored during each demand interval set with 30mins integration and the maximum of these demand is stored as maximum demand along with date and time.

Technical Specifications

Type	ac, 3 Phase 4 Wire
Reference Voltage	3 x 240 V
Current Rating	-/5A CT Operated
Reference Frequency	50 Hz, $\pm 5\%$
Starting Current	0.1% of basic current
Display	Backlit LCD display Large digit size 10mm x 5 mm
Enclosure	Engineering plastic
Class	CL 0.5
Application Standard	IS 14697 : 99
Dimensions	247mm x 187mm x 98mm

Meter Details



Maximum Demand Reset

Maximum demand shall reset automatically at the last day of the month at 24:00hrs. whenever MD is reset, MD reset count is increased.





Three Phase Dual Source **STATIC ENERGY METER**

Mains / Generator Selection Through
240V AC / 24V DC (Different Model)

Ratings Available

10-60A, -/5A CT Operated

Salient Features

- One meter records Active Energy of two source.
- Optical port communication & RS485 MODBUS communication.
- Mains / Generator selection through 240V AC / 24V DC (Different Model)
- Indication for current reversal tampering and phase availability on the LCD itself.
- Indication on display to indicate the source in use .
- Load survey & Tamper logging available.
- Ratings available : 10-60A, -/5A CT Operated.



Display Parameters

Measures & Displays the following parameters :

- Mains / DG / Total Cumulative Energy kWh
- Real Date & Time
- Mains / DG maximum demand in kW
- Last billing Cumulative Energy for mains / DG / Total
- Last billing maximum demand in kW for mains / DG
- High resolution for kWh
- Missing potential Tamper with phase identification
- Current polarity reversal Tamper with phase identification
- Current Bypass Tamper
- Neutral Disturbance present Tamper
- Frequency Tamper
- Total Tamper count
- Last Tamper Occurrence
- Slave Address

Anti-Tamper Features

Display :

- Present source of supply indication
- Phase available indication
- CT Reversal indication for respective phase
- Abnormal frequency indication
- Present Tamper Occurrence & Restoration
- Last Tamper Occurrence & Restoration

Communication:

- 280 Tamper events on FIFO basis for the following Tampers
 - Missing potential
 - Current Reversal
 - Magnetic Tamper
 - Potential imbalance
 - Current imbalance
- The above Tampers will be recorded with snapshots of
 - Tamper type with Date & Time of Occurrence & Restoration
 - Voltage
 - Current
 - PF
 - kWh

Other Features

- Sealable optical communication port for data downloading using CMRI
- Separate sealable RS485 communication port -for networking applications and AMR applications
- 8 TOD Zone timings

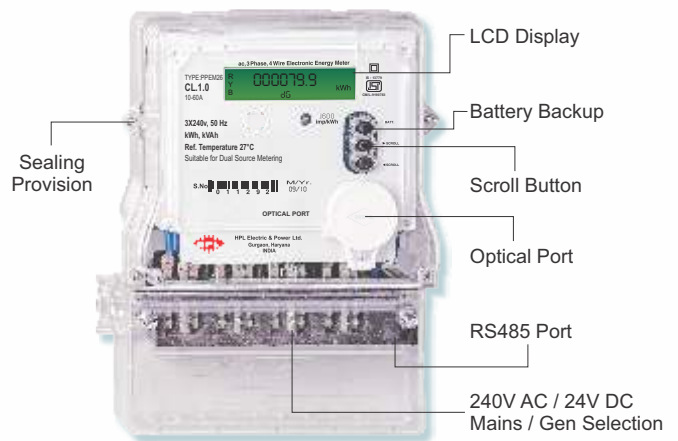
Technical Specifications

Type	ac, 3 Phase 4 Wire
Reference Voltage	3 x 240 V
Current Rating	10-60A, -/5A CT Operated
Reference Frequency	50 Hz, $\pm 5\%$
Starting Current	0.2% of basic current
Display	Backlit LCD display Large digit size 10mm x 5 mm
Enclosure	Engineering plastic
Power consumption	Less than 1.0 watt. per phase
Mains / Generator Selection	240V, 50Hz AC, or 24V DC
Accuracy	CL 1.0 as per IS:13779:99
Dimensions	247mm x 187mm x 98mm

Communication Parameters

- 30 minutes load survey for 60 days for mains / DG / Total kWh
- Load profile for 60 days for mains / DG / Total kWh, mains / DG ON hours
- 20 events on DG power ON / OFF provided on FIFO basis
- Anti-Tamper Features
- Billing parameters like kWh, MD kW with date and time for Total, Mains & Generator
- Phase Wise instantaneous Voltage, Current & Power Factor
- Frequency
- Mains Power On Hours & DG Power On Hours
- Total Power On Hours / Total Tamper Counts

Meter Details



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