



Genus-Agrim™

(Three Phase Prepaid Meter)

Technical Specification

TECHNICAL SPECIFICATION FOR PRE-PAYMENT METERING SYSTEM



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Genus Power Infrastructure Ltd.



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1. Applicable Standard: Genus-Agrim prepaid meter purports to the accuracy requirements of class 1.0 as per relevant standards of IS 13779 and latest CBIP report no 88 and SABS 1524-1, NRS 009-4-2, STS standards.

2. Unique Features of Genus-Agrim™ Prepaid Meters:

a) **CIU:** -Customer Interface unit uses a high-resolution graphic display, which is user friendly and provides a host of information to the consumers.

3. General Technical Specification:

The rated parameters of the meters are as mentioned below.

Rated voltage (Vref)	240 V – Phase to Neutral The variation in voltage is + 20% and (-) 40%.
Rated current	10-100A
Reference condition	50 Hz \pm 5%, 27 \pm 2 °C
Mechanical Dimension	275 X 185 X 87 mm (H x W x D)
Weight	2000 grams

4. Type of Service and requirements of the meter:

4.1 The meter is suitable for Three-phase four wire system. Meter is STS compliant.

4.2 Meter measures electrical energy consumed and decrements the ‘available credit register’ in accordance with the energy consumption-KWh. The ‘available credit register’ is incremented as and when payment is made to the electricity supplier (Utility). Meter continuously calculates the balance credit against the consumption.

4.3 As the balance credit decreases beyond the pre-defined level, a switch (latching relay) is used to disconnect the supply to the load.

4.4 Meter accepts the encrypted token/vending code generated by the vending machine by means of keying in the code through keypad or direct transmission of encrypted code via a communication network viz. GSM/CDMA/GPRS/PSTN. Internationally recognized standard encryption method STS is used.

4.5 Customer interface unit (CIU) is used to view/access the display parameters if provided.



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5. Display and storage of measured values:

- 5.1 The meter is capable to measure KWh & MD in KW.
- 5.2 The display unit is Pin type built-in liquid crystal display (backlit type). The information is shown by an electronic display. The size of display is 10 mm X 6 mm.
- 5.3 Meter display and store MD in KW along with date and time. The MD integration period is 30 minutes. At the end of every 30 min. the MD resetting is automatic at the end of every month i.e. 2400 hours of last day of the month.
- 5.4 Meter's memory has the following details and meter will be read through HHU / CMRI / GSM modem.
 - Last six months MD (KW) with date and time.
 - Last six months Cumulative reading history of KWh.
 - Credit entered for last six months on monthly basis.
 - Events available
 - Vend code
 - Cumulative recharge Units

Parameters in auto scroll mode

- Credit left in kWh Units.
- LCD test
- Current date and time
- Cumulative kWh
- Relay status
- Tamper indication
- Communication status

6. Customer Interface Unit (CIU)

- 6.1 Meter is supplied with Customer Interface Unit (CIU) if required, with similar keys provided in the meter. CIU is communicating with the meter by means of RS-485. CIU have built-in alarm to alert during low credit period etc.
- 6.2 Powering up of CIU is by meter.
- 6.3 Display parameters of CIU can be synchronized with Meter display both in auto-scroll mode and keypad operation mode i.e. no different parameters is be viewed at given time in meter and CIU.
- 6.4 Status of latching relay, reverse tamper, magnet tamper are provided on CIU display using language independent icons.



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7. Output Device:

The meters have a suitable test output device for testing of meter. The blinking LED is provided. This device is suitable for use with sensing probe used with test benches or reference standards. The test output device have constant pulse rate i.e. pulse / kWh and its value (meter constant) is printed on the dial plate.

Bicolor LED for credit status: -Red means available amount is less than minimum alarm setting amount and otherwise it will be green (healthy zone).

8. Communication capabilities:

Optical port to read the meter data locally through CMRI and transfer to the main computer compatible for communicating with the AMR GSM/ CDMA / PLC modems/devices. Optical port is isolated (optically) from measurement circuit and there is not any impact on injection of any type of current & voltage signals.

9. Measurement of energy including harmonics:

The meter should measure total energy consisting of 50 Hz energy in kWh.

10. Tamper and fraud protection:

The meter records forward energy under any abnormal condition mentioned below

- Potential Missing: The meter is capable of recording occurrences of missing potential phase wise.
- CT Reversal: The meter is capable of detecting and recording occurrences and restoration of CT polarity reversal of one or more phases.
- External Magnetic Tamper detection: The meter has the capability of detecting and recording if an abnormal external magnetic field is induced so as to affect the functioning of the meter.
- Phase Sequence Reversal: The meter is capable of recording consumption correctly in case of Phase sequence reversal

11. Disconnection Switch:

Phase is disconnected through latching relay to disconnect the total load in case of zero credit level. The latching relay is closed only after meter credited with sufficient amount.



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12. Functional Requirements:

All the token transactions are as per the STS specifications.

For any kind of information or discussion please feel free to contact us at

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