

MAGNO 22

SINGLE PHASE BS SMART ENERGY METER



**Powering the Future
with Precision and Control**

The **Magno 22** is a cutting-edge single-phase smart electricity meter designed to support both postpaid and prepaid systems. It offers a comprehensive set of features, including **power grid monitoring**, **load control**, **tamper detection**, and **vending functions**, making it an ideal solution for residential and commercial applications. The **Magno 22** enhances utility operations by providing real-time insights into energy usage, allowing for more effective energy management. It is equipped with advanced antitamper capabilities that protect against fraud and minimize line losses, which in turn boosts utility revenues and improves overall grid integrity.

Fully compliant with **STS/CTS** standards for prepaid metering and the **DLMS/COSEM** protocol for seamless integration, the **Magno 22** ensures reliable performance and compatibility with existing Advanced Metering Infrastructure (AMI) networks.



ELECTRICITY

SINGLE PHASE BS SMART ENERGY METER

■ Main Functionalities

Standards & Compliance

- IEC 31 ,21 ,11-62052
- IEC 24 ,23-62053
- IEC 1-31-62059
- IEC 1-32-62059
- EN23-62053
- EN3-50470

Measurement

- 4 quadrants
- Import/Export Absolute/Q1/Q2/Q3/Q4: Wh, varh and VAh
- Vrms, Irms
- Power factor, frequency
- V-I Phase angle
- Absolute value $|A_i| = | +A | + | -A |$ $A_e = | -A |$
- Neutral Current Measurement

Multi TOU Tariff

- Up to 8 tariff
- Up to 200 programmable special days Daily, Weekly, Monthly, Yearly & Special
- Up to 8 separate import and export registers
- Up to 12 seasons
- Up to 24 periods

Prepayment

- Configurable prepayment and post-payment mode
- Three levels for remaining credit alarm
- Emergency credit, friendly time and friendly days support
- Dual wallet
- Meter Keypad (Optional)

Load Control

- Remote control command support
- Over current control support
- Power limit support
- 1 poles internal relay (for 100A meter)
- 2 poles internal relay (for 80A meter)
- Disconnect/Reconnect by locally or remotely

Load Profile

- Up to 60 channels
- Support 3 independent surveys
- 24hrs daily survey
- Intervals programmable from 1 to 60 minutes
- Storage 8 channels (15 min) for a year

Communication Ports

- **WAN:** Plug and play module to support various communication technology
- **WAN:** G3-PLC, WiSUN, Cellular (GPRS, 3G, 4G/LTE, NB-IoT), or Ethernet
- RF or PLC module – For communication with CIU (Customer Interface Unit)
- Optical: Comply with IEC21-62056standard, DLMS(IEC21-62056 mode E)
- Additional: RS485 (2 wire), VTC interface

Input/Output Ports (Optional)

- Pulse Output
- Dual Resource Signal (Tariff change)
- Meter enclosure opening/tamper detection (Active input)

■ Additional Functionalities

Events

- Fraud detection log (Meter cover & terminal cover open detect with and without power, module cover open detect, current reverse, magnetic detect, neutral current mismatch etc.)
- Failure detection log (Memory error, relay error, battery low voltage, clock invalid etc.)
- Power quality event log (Under voltage / Over voltage(Sag/Swell), Over current/current imbalance, Power up/down, etc.)
- Security event log (Parameters change, clock adjust, etc.)
- Standard event log (Power up/on, time synchronization, etc.)

Anti Tamper

- More than 4 sealing positions
- Terminal cover, meter cover and module cover sealing
- Self-protection under Overload control, Abnormal voltage control, Arrearage control, Tamper control,
- Malfunction control, Fire disaster control etc.

Alarm

- Alarms with LED/Buzzer and LCD on CIU
- Alarm can be configurable

Tariff Expense (Optional)

- Up to 10 steps tariff
- Up to 5 steps Monthly service charge
- Up to 5 kinds subsidy
- Up to 3 kinds fixed charge
- Up to 5 kinds levies charge
- Up to 3 kinds VAT charge

Communication Protocol

- International open protocol
- IEC62056-21 E mode DLMS
- HDLC DLMS and TCP/IP DLMS, Support suite 0 and suite 1
- STS/CTS Token and SMS
- LLS support 3 level passwords for local and remote communication
- HLS support auth and encryption for local and remote communication

Billing Record

- Up to 13-month billing data
- Calculate monthly net consumption of energy
- Up to 31 days daily data
- Calculate daily net consumption of energy

Firmware Upgrade

- The firmware can be upgraded via local interface and WAN interface.
- Schedule activity image support

CIU unit

- The meter can communicate with the CIU via RF or PLC
- Parameters transfer
- Credit token, Key change token, clear balance token, clear tamper token set power limit token, test token etc.
- Fully complies with STS standard

■ Technical Specification

Rated Nominal Voltage

- 220V~240V, 110V~120V

Operating Voltage Range

- 50 %Un~120 % Un (When Un = 220V-240V)
- 80 %Un~120 % Un (When Un = 110V-120V)

Rated Current & Starting Current

- (100) 5A, (80) 5A and 0.4 % Ib

Rated Frequency

- 50Hz or 60Hz $\pm 5\%$

Pulse Constant (Configurable)

- 1000imp/kWh
- 1000imp/kvarh (Default)

Accuracy Class

- Cl 0.5s for Active
- Cl.1 for Reactive

Power Consumption

- Voltage circuit ≤ 2 W or 5VA, Current circuit ≤ 0.5 VA

Battery and Life

- Replaceable Lithium battery, life more than 15 years
- Supercap (Optional) – 5 yr lifetime with power off

Normal Operation Range

- -25°C to $+60^{\circ}\text{C}$, Humidity is up to 95 %

Limit Operation Range

- -40°C to $+70^{\circ}\text{C}$, Humidity is up to 95 %

EMC Performance

- 6kV > 4kV, Short circuit
- Current > 3kA, Electrostatic Discharge contact: 8kV & air: 15kV

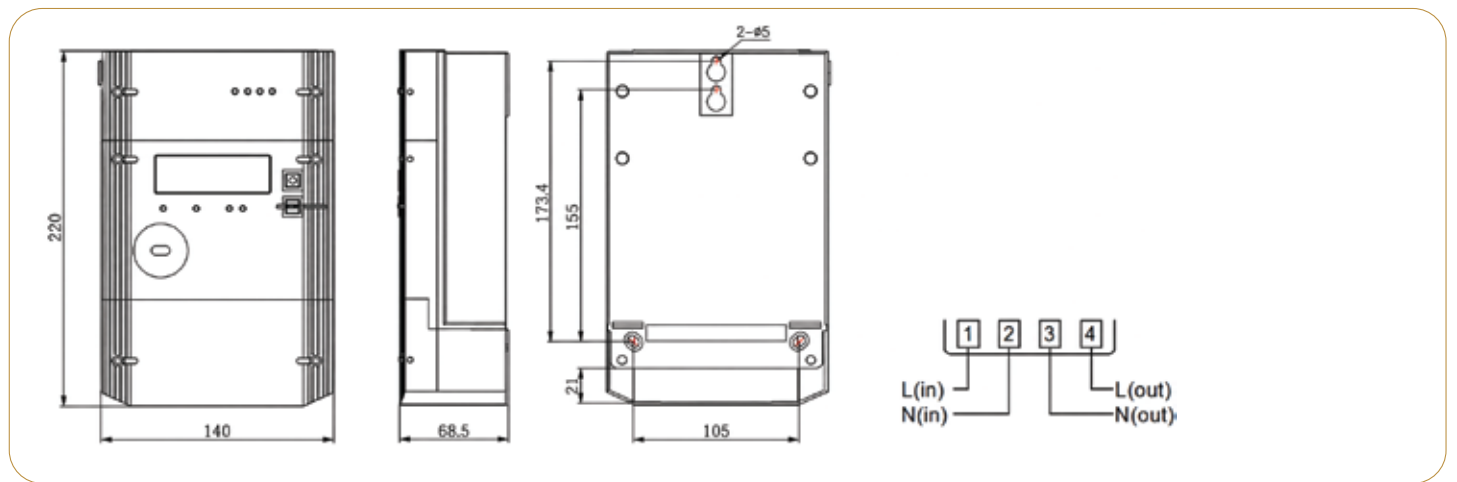
Protection Class

- IP54 compliant with IEC60529
- Insulation grade II

Housing Material

- Polycarbonate with non-conductive, high impact, smooth finish, durable, non-flammable, UV stabilized

■ Diagram



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