

# MAGNO 33 CT/CTVT

For Commercial and Industrial Use

Three Phase CT/CTVT Smart Energy Meter



The **Magno 33 CT/CTVT** is a highly versatile three-phase smart meter designed specifically for commercial and industrial energy management, offering a flexible and scalable solution for your Advanced Metering Infrastructure (AMI) initiatives. This meter is engineered for large-scale applications where high accuracy, reliability, and real-time data are critical to efficient energy management. The **Magno 33 CT/CTVT** provides robust functionality, including enhanced energy measurement, power quality monitoring, load management, and automated reporting, ensuring that businesses can optimize energy consumption and improve operational efficiency. Furthermore, the **Magno 33 CT/CTVT** offers the flexibility to work seamlessly in both prepaid and postpaid billing systems, providing utilities with adaptable solutions to meet diverse customer needs.

Built with a focus on **exceptional accuracy**, the **Magno 33 CT/CTVT** integrates a high-grade measurement engine that delivers precise and reliable data, making it an invaluable tool for utilities.



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## Main Functionalities:

Standards & Compliance	<ul style="list-style-type: none"><li>IEC 62052-11, 21, 31</li><li>IEC 62053-23, 24</li><li>IEC 62059-31-1</li><li>IEC 62059-32-1</li></ul>	<ul style="list-style-type: none"><li>EN62053-23</li><li>EN50470-3</li></ul>
Measurement	<ul style="list-style-type: none"><li>3 elements 4 quadrants</li><li>Import/Export Absolute/Q1/Q2/Q3/Q4: Wh, varh and Vah</li><li>Power (per phase / total): W, var, VA</li><li>Vrms, Irms</li><li>Power factor, frequency</li><li>V-V and V-I phase angles</li><li>Voltage THD, Current THD</li><li>Harmonics up to 50th</li></ul>	
Multi TOU Tariff	<ul style="list-style-type: none"><li>Up to 8 tariff</li><li>Up to 200 programmable special days Daily, Weekly, Monthly, Yearly &amp; Special</li><li>Up to 32 separate import and export registers</li><li>Up to 12 seasons</li><li>Up to 100 Previous period plus Period totals</li></ul>	
Prepayment	<ul style="list-style-type: none"><li>Configurable prepayment and post-payment mode</li><li>Three levels for remaining credit alarm</li><li>Emergency credit, friendly time and friendly days support</li><li>Dual wallet</li></ul>	
Auxiliary Power	<ul style="list-style-type: none"><li>100 to 240 VAC / 140 to 340 VDC</li></ul>	
Load Profile	<ul style="list-style-type: none"><li>At least 50 channels</li><li>Support 3 independent surveys</li><li>24hrs daily survey</li><li>Intervals programmable from 1 to 60 minutes</li><li>Storage 8 channels (15 min) for a year</li></ul>	
Communication Ports	<ul style="list-style-type: none"><li>WAN: Plug and play module to support various communication technology</li><li>WAN: G3-PLC, WiSUN, LoRaWAN, Cellular (GPRS, 3G, 4G/LTE, NB-IoT), or Ethernet</li><li>RF or PLC module – For communication with CIU (Customer Interface Unit)</li><li>Optical: Comply with IEC 62056-21 standard, DLMS (IEC 62056-21 mode E)</li><li>Additional: 2x RS485 (with Power Supply), RS232 Port, VTC interface</li></ul>	
Input/Output Ports (Optional)	<ul style="list-style-type: none"><li>Pulse Output</li><li>Dual Resource Signal (Tariff change)</li><li>Meter enclosure opening/tamper detection (Active input)</li><li>External Relay output</li><li>Pulse Input</li></ul>	

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## Additional Functionalities:

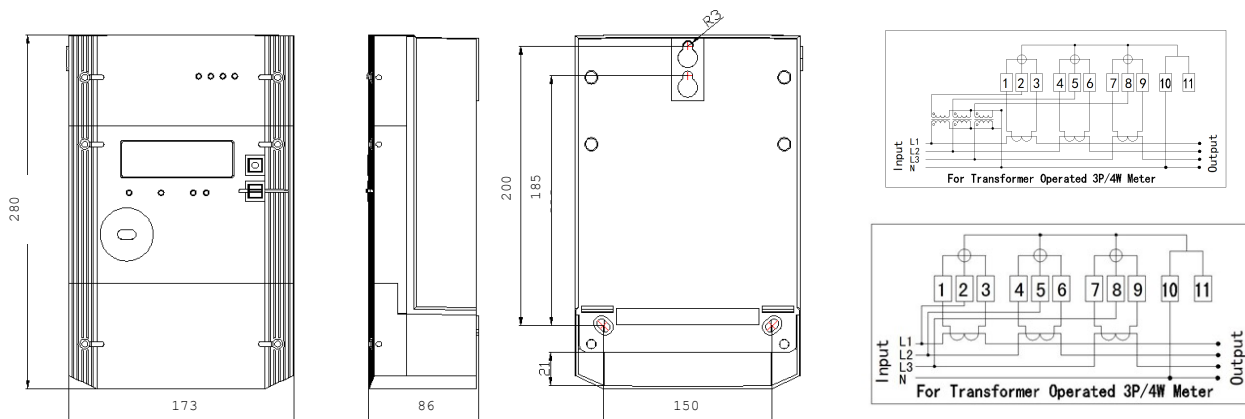
Event	<ul style="list-style-type: none"><li>▪ Fraud detection log (Meter cover &amp; terminal cover open detect with and without power, module cover open detect, current reverse, magnetic detect, neutral current mismatch etc.)</li><li>▪ Failure detection log (Memory error, relay error, battery low voltage, clock invalid etc.)</li><li>▪ Power quality event log (Under voltage / Over voltage(Sag/Swell), Over current/current imbalance, Power up/down, etc.)</li><li>▪ Security event log (Parameters change, clock adjust, etc.)</li><li>▪ Standard event log (Power up/on, time synchronization, etc.)</li></ul>
Anti Tamper	<ul style="list-style-type: none"><li>▪ More than 4 sealing positions</li><li>▪ Terminal cover, meter cover and module cover sealing</li><li>▪ Self-protection under Overload control, Abnormal voltage control, Arrearage control, Tamper control, Malfunction control, Fire disaster control etc.</li></ul>
Alarm	<ul style="list-style-type: none"><li>▪ Alarms with LED/Buzzer and LCD on CIU</li><li>▪ Alarm can be configurable</li></ul>
Tariff Expense (Optional)	<ul style="list-style-type: none"><li>▪ Up to 10 steps tariff</li><li>▪ Up to 5 steps Monthly service charge</li><li>▪ Up to 5 kinds subsidy</li><li>▪ Up to 3 kinds fixed charge</li><li>▪ Up to 5 kinds levies charge</li><li>▪ Up to 3 kinds VAT charge</li></ul>
Communication Protocol	<ul style="list-style-type: none"><li>▪ International open protocol</li><li>▪ IEC62056-21 E mode DLMS</li><li>▪ HDLC DLMS and TCP/IP DLMS, Support suite 0 and suite 1</li><li>▪ STS/CTS Token and SMS</li><li>▪ LLS support 3 level passwords for local and remote communication</li><li>▪ HLS support auth and encryption for local and remote communication</li><li>▪ IDIS Compliant</li></ul>
Billing Record	<ul style="list-style-type: none"><li>▪ Up to 13-month billing data</li><li>▪ Calculate monthly net consumption of energy</li><li>▪ Up to 31 days daily data</li><li>▪ Calculate daily net consumption of energy</li></ul>
Firmware Upgrade	<ul style="list-style-type: none"><li>▪ The firmware can be upgraded via local interface and WAN interface.</li><li>▪ Schedule activity image support</li></ul>
CIU unit	<ul style="list-style-type: none"><li>▪ The meter can communicate with the CIU via RF or PLC</li><li>▪ Parameters transfer</li><li>▪ Credit token, Key change token, clear balance token, clear tamper token, set power limit token, test token etc.</li><li>▪ Fully complies with STS standard</li></ul>

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## Technical Specification:

Rated Nominal Voltage	3x 57.7/100V~277/480V
Operating Voltage Range	80%Un~120%Un
Rated Current & Starting Current	5(20)A and 0.1% Ib
Rated Frequency	50Hz or 60Hz ±5%
Pulse Constant (Configurable)	1000imp/kWh 1000imp/kvarh (Default)
Accuracy Class	Cl.0.5s for Active kWh Cl.0.5s for Reactive kvarh
Power Consumption	Voltage circuit ≤2 W or 10VA, Current circuit ≤1 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°C, Humidity is up to 95%
Limit Operation Range	-40°C to +70°C Humidity is up to 95%
EMC Performance	Impulse voltage > 6KV, AC voltage > 4KV, Short circuit current > 3KA, Electrostatic Discharge contact: 8KV & air: 15KV
Protection Class	IP54 comply with IEC60529 Insulation grade II
Housing Material	Polycarbonate with non-conductive, high impact, smooth finish, durable, non-flammable, UV stabilized, UV resistant and high resistance to weathering

## Diagram:



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