



Smart Metering Solutions for Electricity Distribution Companies and Utilities



Unique Technology: a world-leading developer and producer of **Smart Metering** systems based on sophisticated technology of **Power Line Communication (PLC)**

- 20 years of experience in AMR/AMM
- Approximately 400,000 units installed worldwide
- Tenders awarded for additional 1,000,000 units



Wide Product Variety to Meet all your Metering Needs

- For large commercial customers
 - Bulk meters with GSM communication
- For residential customers
 - Post and pre-payment metering solutions
- Other products
 - Sub-station and pillar monitoring system
 - Reference meters to detect electricity theft



Metering for Large Commercial Customers:

Bulk Meters with GSM Communication

- Three-phase bulk watt hour meter with GSM communication
- Measures active and reactive energy
- Load curve with energy reading every 15 minutes
- Available in three models:
 - Direct Connection 3x100A shunt,
 - Direct Connection 3x80A with relay
 - CT connection 3x5-20A



Residential Metering:

Complete end-to-end smart metering solution

- Available in DIN rail and wall mounted versions
- **Single phase** meters (80A, relay, optional separate display) and **three phase** meters (Direct Connection 3x100A shunt, Direct Connection 3x80A with relay, CT connection 3x5-20A).
- Operates in **post-payment** and **pre-payment** modes
- Energy measurements every 15 minutes
- Optional **control software** available



Advantages I:

Theft Prevention and Revenue Recovery

- Comprehensive theft prevention system includes:
 - Tamper detection
 - Bypass detection
 - Physical separation between meter and display (meter isolation prevents tampering)
 - Energy balance for each sub-station (transformer) compares energy supplied to energy billed
 - Remote disconnection or power limitation when customer fails to pay



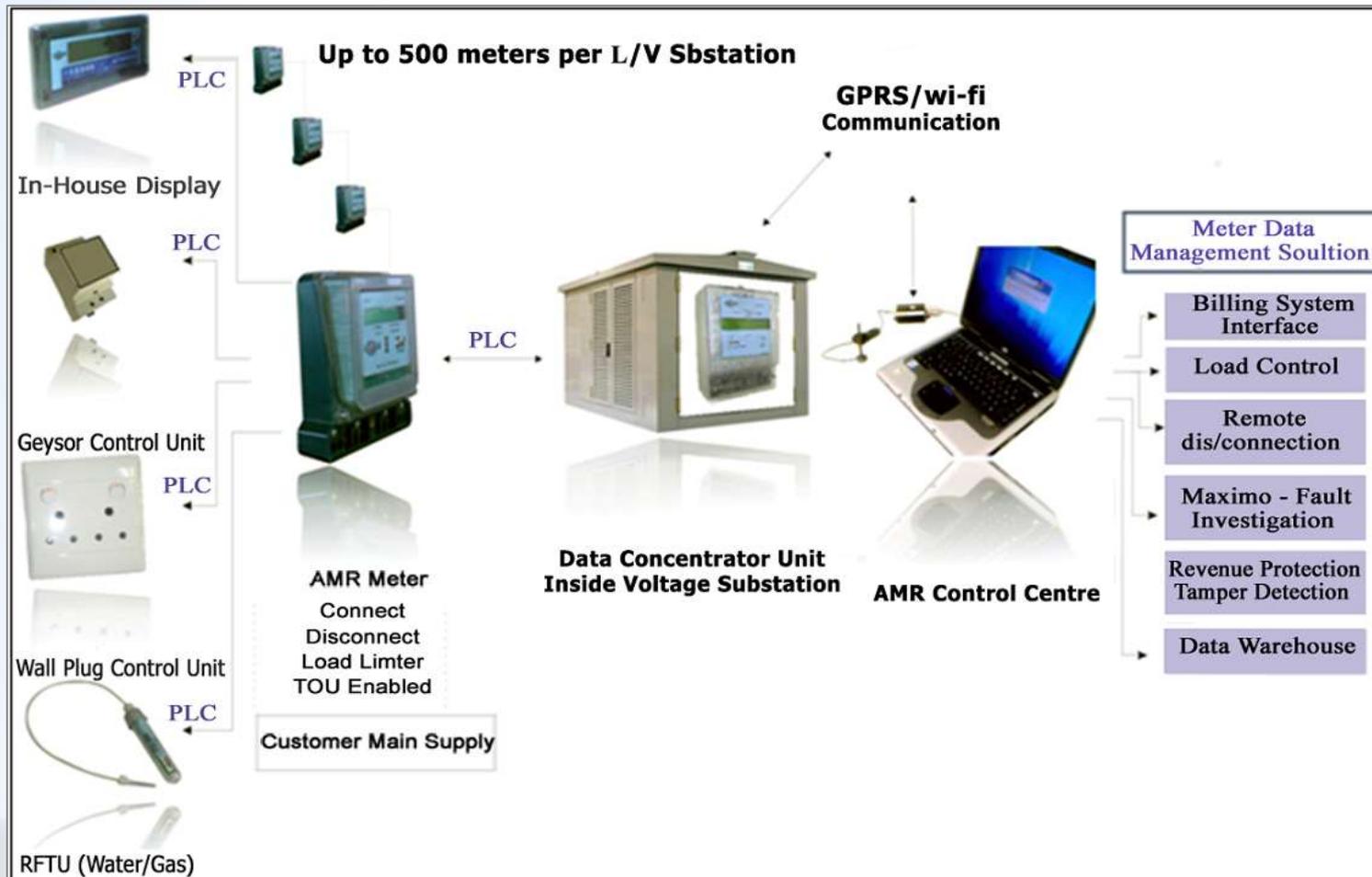
Advantages 2:

- **Minimizes Technical Losses**
 - Today's high energy costs require utilities to find creative ways to conserve power. Unique's Smart Meters help electric companies minimize technical losses.
- **Demand Side Management**
 - Manage peak demand with limited power resources, by remotely disconnecting specific customers (residential or commercial) and/or loads in the customer's home.

Advantages 3:

- **Cost Transparency**
 - Optional internet portal informs the customer of the exact consumption and price charged at any given moment
- **Operational Cost Reduction**
 - Remote and automated disconnection, reconnection and meter reading

Unique's Residential Smart Meter System





How does Unique's Smart Meter System Work?

- Meters are installed either in or outside the customer's residence.
- Meters communicate to concentrator situated on the low voltage side of the transformer, using low voltage power lines for two-way communication.
- Concentrator controls up to 500 meters.
- Concentrator communicates to control center using cellular or other wireless communication.



Unique Smart Meters

Additional Features

- System enables remote reading, remote fraud and bypass detection, remote re-programming, remote connection and disconnection.
- Control center integrates with billing, vending, grid control and other distribution company systems.
- Meters can receive readings from water and gas meters via Radio Frequency.
- Remote control of loads in the customer's residence through an Appliance Control Device (ACD) that communicates via PLC



What Make's Unique Meter a Smart Meter?

- Two way communication
- Remote disconnection/reconnection and power limitation
- Credit or prepayment meter, remotely interchangeable
- Variable tariff based on Time of Use (TOU)
- Anti-tamper and anti-bypass
- Optional separation between meter and display unit
- Remote meter reading and programming
- Two way messaging between customer and distribution company
- Two-directional meter operates even if installed incorrectly
- Measures energy import and export



Post-payment Software

- In post-payment mode, monthly bills are automatically generated and sent to customers/tenants.
- Account information is available via an internet portal, allowing customers to view and compare their monthly, weekly and daily consumption.
- Customers can compare the lower costs of standard power grid vs. higher costs of an alternative generator.



Pre-payment Software

- In pre-payment mode, customers/tenants purchase electricity (online or at vending stations). Unique software automatically and remotely credits their meter for their purchase.
- Unique software automatically generates a receipt for the electricity purchased and sends it to the customer/tenant.
- Customers can view their accounts on the internet portal, to see their purchased electricity and compare periodic monthly, weekly and daily consumption.



Additional Products

Sub-station and distribution pillar monitoring system allows for immediate detection and location of electricity disturbances:

- Three-phase rail meters measure voltage and energy fed through each distribution bus-bar
- Meter readings transmitted over power lines (PLC) to concentrator on low voltage side of transformer
- Concentrator also acts as a three phase meter, measuring energy output from transformer for comparison to sum of distribution bus-bar readings.



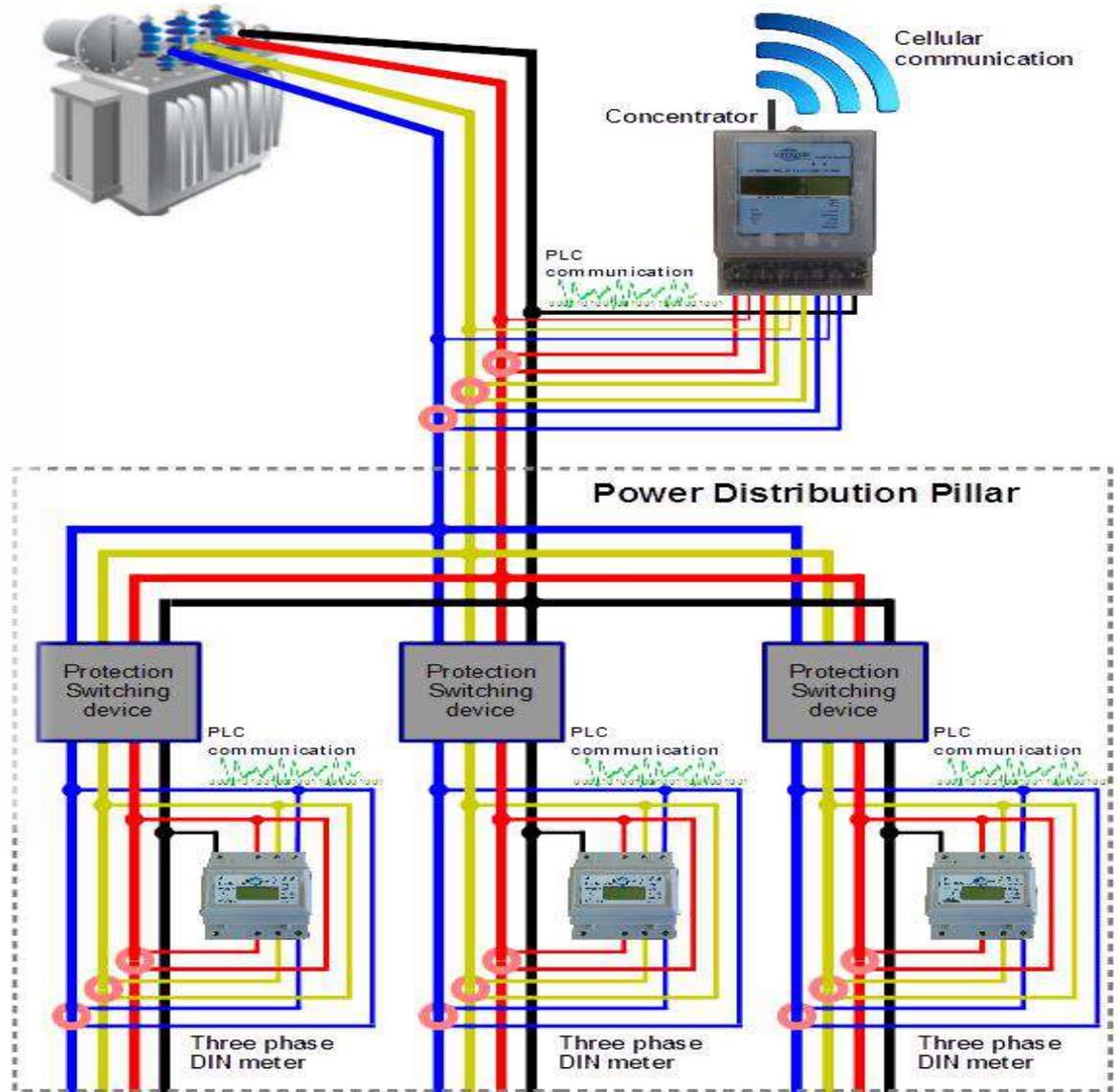
Additional Products

Sub-station and distribution pillar monitoring system (2)

- Energy consumption sampled every 15 minutes to create load curve
- Meter data transmitted to concentrator via power network. Concentrator data transmitted to center via cellular network.
- Utility defined alerts immediately reported to center
- Power interruption detected and reported within five minutes
- Before general power failure, concentrator generates a “last gasp” short text message (SMS) including the last data measurement, for use by maintenance crews to determine cause of failure.

Sub-station and distribution pillar monitoring system

Operations chart



Additional Products

Reference Meter for Theft Detection





Reference Meters

Detect electricity theft

- Theft detection through alternative energy measurement
- Portable three-phase meters with Current Transformers (CT) are mounted on power lines to measure energy supplied to consumer.
- Readings transmitted through GSM communication and compared to readings of installed meter. Unique software detects discrepancies between the readings, which may indicate theft.



Case Study of Theft Detection

Immediate Return on Investment

- In 2012, Israel Electric Corporation purchased 100 Unique reference meters.
- In its very first use, the meter was connected to a residential customer who owned several houses attached to a single meter.
- Significant energy theft was detected, leading to an out of court settlement.
- IEC was reimbursed for the estimated price of the stolen electricity, amounting to twice the price of the entire system.
- A second use of the system in a different customer's residence achieved similar results. The offending customer agreed to pay a sum equaling the total price of the entire system.



Uniquely Enlightening the World



World Wide Deployment of Unique's Smart Meter Solution

- South Africa
- Israel
- Sweden
- Kenya
- Uganda
- Nigeria
- Chile
- Italy

Penetration to New Markets:

- Peru
- Bulgaria
- Finland, Norway, Denmark
- Paraguay

South Africa



- In South Africa, Unique has been awarded tenders for 300,000 units, valued at over \$30 million US dollars.
- Unique was chosen as the vendor for Eskom, one of the world's five largest utilities, with 12.5 million customers.
- Unique Smart Meters are approved by SABS (South African Bureau of Standards)
- Unique is currently involved in four ongoing installation projects
- Areas of activity in South Africa
 - Distribution companies
 - Cooperative housing
 - Shopping malls
 - Large commercial and industrial customers



Sweden

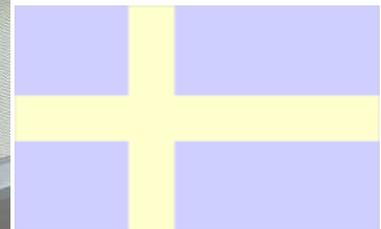


Cooperative Housing:

- Unique has provided the single largest energy management project for coop housing in Sweden and is a leading player in the market.

Marinas and Camping Sites

- Unique has teamed up with a manufacturer of the poles and is the leading player in this field.





Israel

- Kibbutz cooperative communities: Unique controls 90% of the market with over 60 installations and 15,000 installed units.
- Servicing Israel Electric Corporation (IEC) in three ongoing AMR projects
- Servicing large commercial and industrial customers

