

MeterIQ

Advanced, Scalable Metering Intelligence Platform



MeterIQ is a purpose-built platform designed for high-density commercial, retail, and industrial environments, enabling intelligent energy metering, tenant-specific billing, anomaly detection, and infrastructure diagnostics. It supports automated data ingestion from third-party facility management systems (e.g., CRM, leasing, or tenancy management platforms), dynamically assigns energy meters to tenants based on contractual metadata and generates billing-ready data. With deployments across large mixed-use developments, MeterIQ delivers cross-domain integration, predictive alerting, and multi-layer validation of utility consumption data.

Bottlenecks Eliminated by Intelligent Automation

- ✔ Automated meter reassignment handles tenant turnover using unit ID and effective dates
- ✔ Flags contract mismatches between CRM data and actual meter assignments
- ✔ Detects chilled water loss and FCU inefficiencies from actuator faults or overrides
- ✔ Identifies RMS voltage imbalance across R-Y-B phases to prevent damage and overconsumption
- ✔ Alerts on low Delta T conditions causing chiller inefficiency
- ✔ Monitors for negative readings, abnormal spikes, and offline meters to prevent data loss and billing anomalies

Core System Functions

- ✔ Multi-layer meter hierarchy mapping (Main Distribution Board → Sub-meter → End-user)
- ✔ Tenant-specific energy profiling and runtime tracking (BTU, flow, FCU commands, valve status)
- ✔ Workflow-driven meter assignment with approval triggers to ensure data integrity
- ✔ Role-Based Access Control (RBAC) implemented per ISO/IEC 27001 security standards
- ✔ Event logging with non-repudiation via syslog and secure timestamps
- ✔ Local dashboard client providing live graphics and alarm analytics for operational visibility

Why Choose MeterIQ?

High-level value proposition, advanced features, and integrations



AI-Powered Fault Detection

AI-powered fault detection with anomaly scoring for electrical and thermal inconsistencies



Automated Meter Health Scoring

Automated meter health scoring and reassignment to maintain accurate consumption records



Compliance with Industry Standards

Compliance with industry standards including ISO 50001, ISO 52000, and ASHRAE 90.1 for energy management



Real-Time Consumption Dashboards

Real-time dashboards delivering consumption trends, alert summaries, and performance comparisons



Seamless RESTful API Integration

RESTful API integration enabling seamless data sync with CRM and lease management systems



Granular Billing Engine

Granular billing engine supporting tenant-level, time-of-use, and category-based allocations

Core Engines



Voltage Imbalance Detection Engine

Checks

- Calculate average voltage: $V_{avg} = (V_R + V_Y + V_B) / 3$
- Deviation threshold: $|V_x - V_{avg}| > 2\%$ for any phase
- Phase current check: $I_r \neq I_y \neq I_b$
- Duration condition: imbalance > 10 mins

✔ Problem Solved

Energy waste and equipment stress due to persistent voltage phase imbalance.



Low ΔT Monitoring Engine

Checks

- $\Delta T = \text{SupplyTemp} - \text{ReturnTemp}$
- Condition: $\Delta T < 3^\circ\text{C}$ for 30+ minutes
- Compare BTU Delivered vs Flow Rate
- Setpoint tracking SP_{actual} vs SP_{target}

✔ Problem Solved

Chiller plant performance degradation due to oversized flow or faulty valve logic.



Meter Intelligence Engine

Checks

- Identify faulty meters: negative, zero, or unstable data
- Detect meter dropout from trend gaps or outliers
- Track contract lifecycle changes (same unit, new tenant)
- Reassign meters with historical trace and audit lock

✔ Problem Solved

Reduces billing anomalies, data gaps, and manual mapping errors during meter replacement or tenant turnover.



Hierarchical Consumption Engine

Checks

- Match MDB total to SMDB aggregates
- Validate SMDB load equals downstream DB group
- Compare common area vs tenant usage per branch
- Flag deltas across MDB → SMDB → DB → Tenant paths

✔ Problem Solved

Reveals inconsistencies in metered layers, aiding in load reconciliation and detection of wiring or mapping errors.

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