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BROCHURE

TTM-Series

Dynamic Ratings

Distributed by AKRIBIS

DYNAMIC RATINGS

TTM 3-Phase Monitor

ConnectGrid™ Smart Infrastructure Solution

- Utility Grade Hardware
- Efficient Use of Resources
- Latest Communication Technology

RESPONSIVE

ASSET HEALTH SOLUTIONS

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Transformer Monitoring Made Easy

The Dynamic Ratings TTM is part of the ConnectGrid™ Smart Infrastructure Solution allowing for increased grid edge visibility for distribution systems. The TTM is a self-powered, three-phase power transformer monitor ideally suited for providing voltage and load profiling on distribution class transformers up to 69kV.

With secure integrated wireless communications utilizing cellular technologies, the TTM eliminates the need to manage a separate communication backhaul architecture or hang expensive and difficult to maintain pole mounted gateway enclosures. This makes the ConnectGrid™ TTM the fastest and easiest to maintain sensing solution for the distribution system.

Simple installation and zero commissioning time gives customers a very scalable solution to increase their visibility to grid edge assets. With the ability to monitor harmonics and push data immediately when network events occur, these monitors provide granular and accurate network data for fault investigation, outage detection and provide the dataset to enable distributed energy management (DERMS) and other advanced distribution management system (ADMS) applications.

Applications

- Improve grid edge asset management by preventing overloading blind spots on distribution system.
- Enable condition-based maintenance schedules based on transformer service levels.
- Improve system reliability by providing remote fault indication allowing for faster and more accurate deployment of line crews during an outage.
- Detect fallen conductors through loss of voltage, improving public safety and incident response time.
- Leverage GPS time-stamping for fault location estimation.
- Validate system planning with real-time field measurements for better system balancing.
- Integrate TTM data set to improve distributed energy management (DERMS) and other advanced distribution management system (ADMS) applications.
- Detect undocumented generation or back feeding for improved safety.

Utility Grade Hardware

Built on utility grade hardware, the TTM is provided in two form factors for internal and external mounting. Each is supplied as a kit with voltage cables and Rogowski Coil current transformers, pre-wired and ready for installation. The kiosk / ground mounted version has a small form factor and is designed to be installed inside an enclosure such as a padmount transformer cabinet or cable pillar. The Pole Mounted version is supplied in a weatherproof enclosure and with a bracket for mounting externally, such as on a pole mounted transformer.

Efficient Use of Resources

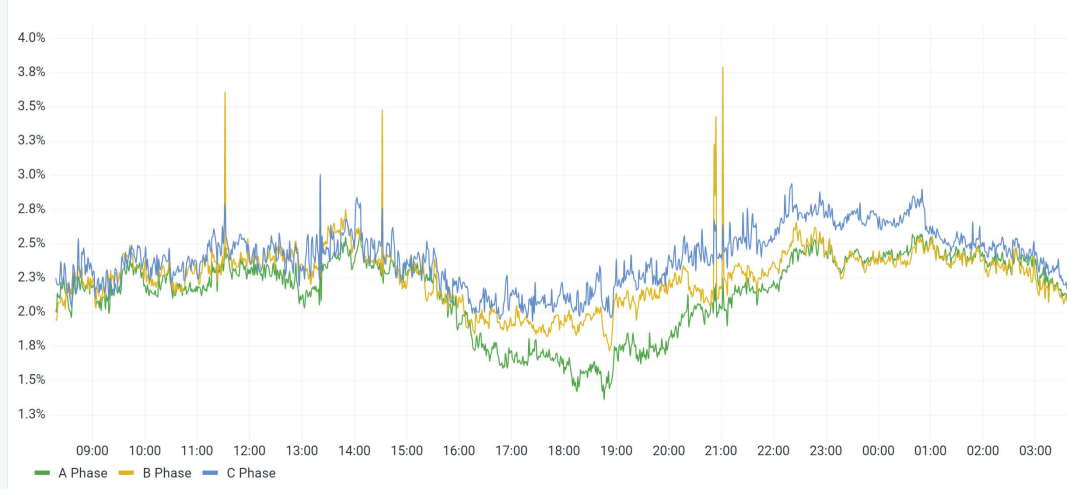
Increasing use of grid edge information allows for more efficient use of costly labor resources and improves the system planning. The ConnectGrid™ TTM provides information to asset managers to properly schedule routine maintenance for assets operating under significant stress and prevents outages due to undetected overloading. The super-capacitor backup allows a last-gasp of up to 5 minutes to notify operators of outages or events as they occur, minimizing outage times and improving system reliability.

Latest Communication Technology

The ConnectGrid™ TTM has been designed to take advantage of the latest Low-Power Wide-Area Network (LPWAN) communication technologies. This includes the ability to take advantage of the latest cellular provider offerings including Cat M1 or NB IoT. LPWAN technologies offers decreased power usage, increased range and lower capital and operational costs than traditional communication technologies that are being phased out.

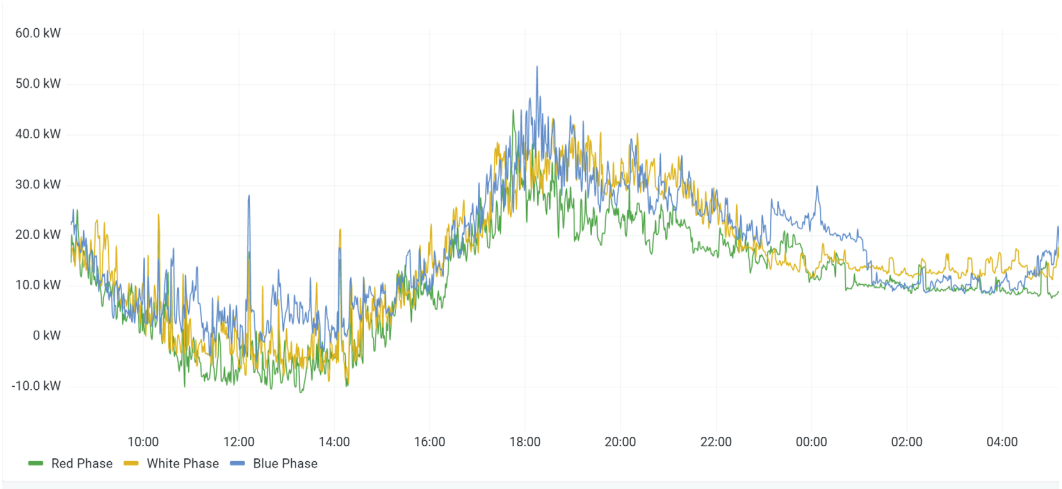
Real-Time Measurements

- Voltage (3 phases)
- Current (3 phases + neutral)
- Watts & VARs
- Harmonics (THD)
- Power Quality Characteristics
- Power Factor
- Voltage Sag and Swell Events
- Overcurrent Events
- Accurate Event Timestamps
- Temperature Input (e.g. transformer temperature)
- 2 x Digital Inputs (e.g. cabinet door opened or flood detection sensor)



Obtain continuous granular power quality data to identify potential non-compliant connections and understand the aggregate impact of distributed energy resources such as solar PV and EV chargers.

Gain real-time visibility of reverse power flow due to embedded generation and correlate this with network voltage and enable intelligent network management such as curtailment and demand management.



Dynamic Ratings ConnectGrid™ Smart Infrastructure Solution Benefits

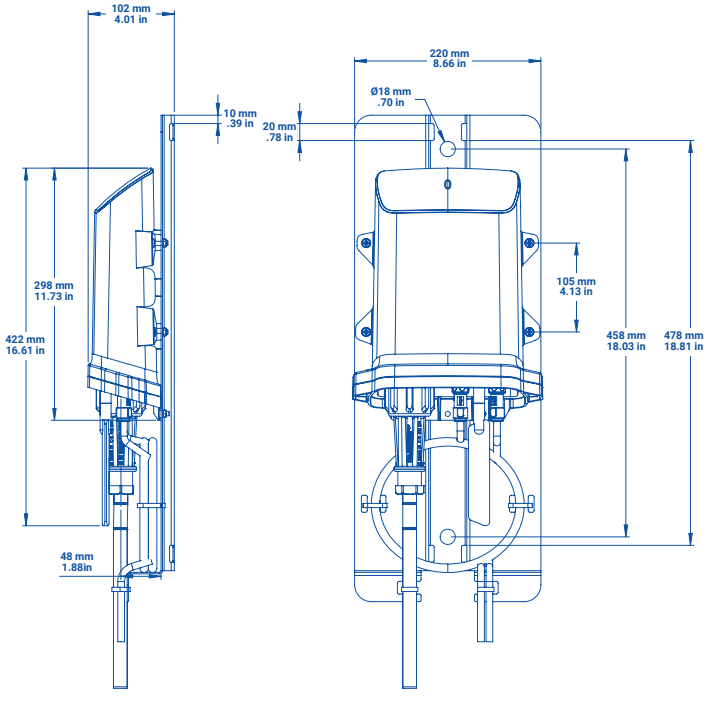
The TTM 3-Phase Monitor is part of our suite of IoT based sensors for distributed monitoring applications that embodies key design elements to ensure success:

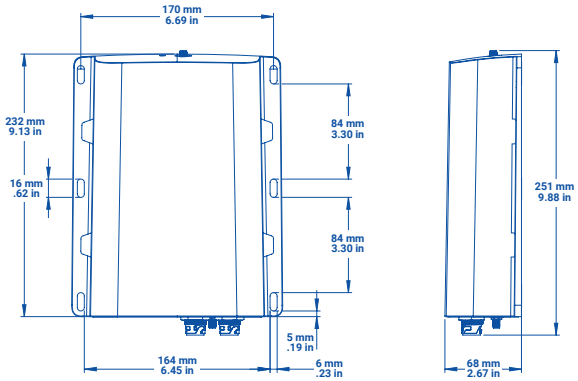
- Driven by data security, privacy and reliability for a long operational life
- Support device management and remote over the air firmware updates for a large fleet
- Uses an enterprise architecture that can be hosted on or off premises
- Seamless integration with back-end systems such as analytics and SCADA (e.g. DNP3)
- Premium LIFESTREAM® support to ensure deployment success
- Mobile Application with Bluetooth connectivity for onsite commissioning and data download

Product Specifications

Temperature Range:	-20°C to 80°C (-4°F to 176°F)
Ingress Protection:	Kiosk Mount: IP44 Pole Mount: IP67 / NEMA-4
Dimensions:	Indoor-rated: 186mm x 251mm x 68mm (7.3in x 9.8in x 2.6in) Outdoor-rated: TTM only: 220mm x 298mm x 87mm (8.6in x 11.7in x 3.4in) TTM with Assembly: 220mm x 575mm x 102mm (8.6in x 22.6in x 4.0in)
Last Gasp:	5 minutes via super-capacitor backup
Communications:	Cellular: LTE Cat M1 / Cat NB1 (NB-IoT)
Voltage Input:	24 - 250 VAC (Phase to Neutral) System is powered by measured voltage
Current Input:	Rogowski coil (standard input) Optional CT input (2.5A nominal)
Current Range:	Up to 100kA
Measurement Period:	Configurable Sample Rate (default 128 samples/cycle) Configurable Measurement Period (default 5 minutes) Configurable Transmission Period (default 5 minutes) Events are transmitted immediately
Power Quality Measurement:	IEC61000-4-30 Class S

Pole Mount TTM (Outdoor Rated)





Kiosk TTM (Indoor Rated)

DYNAMIC RATINGS

An ISO 9001, ISO 14001, ISO 27001, ISO 45001 Certified Company.

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