

Miro-F Class A Zone Substation Monitor and Logger

The **Miro-F TxM 304** is a Class A Power Quality monitor and logger designed specifically for Zone Substation monitoring. It offers comprehensive and reliable LV side transformer monitoring and includes measurements of three phase voltages, four currents (three phases and neutral), via potential and current transformers located in the switchyard, and two temperatures. The TxM 304 can be equipped with integrated remote cellular (3G/4G) communications or Ethernet and is therefore ideal for network wide asset management.



Figure 1: Miro-F TxM 304 - Zone Substation Monitor and Logger; Dimensions: (180 x 180 x 60) mm



Figure 2: Miro-F TxM 304 Ports

The TxM 304 incorporates terminal strips for voltage and current inputs to accept either 1A or 5A and incorporates four magnetic feet for quick and easy flush panel-mount installation.

Large scale network monitoring solutions utilising multiple Miro-F instruments can be implemented (as shown in figure 3); providing network engineers with information for planning, operations, maintenance and network modelling.

Scalable asset management systems

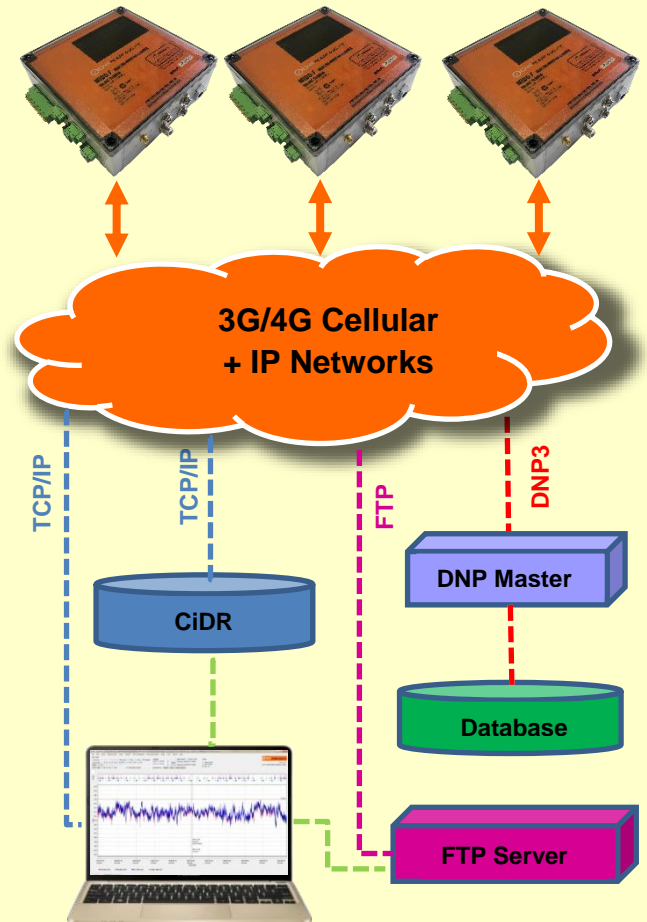


Figure 3: Miro-F - Scalable asset management systems. Remote connections to the Miro-F can be manual or automatic

Automatic DNP3: Data points polled periodically by a DNP master, stored in third party database, viewed by third party viewer for interrogation and analysis.

Automatic FTP uploads: Full PQ data including event captures pushed periodically to FTP server, to be viewed by proprietary Citrus software or converted to PQDIF format for use with third party analysis tools.

CiDR (Citrus Data Retrieval): CiDR is a service for automatically collecting data from the Miro loggers. It allows users to schedule downloads of Miro files;

Get more Work from your Power

Upgrade firmware; Synchronise the time; and Automatically convert Miro data files into PQDIF format.

Manual TCP/IP: Connect using CITRUS TCP/IP via a 3G/4G or Ethernet communications module which provides a transparent connection and allows configuration, download of logged data and firmware updates.

The above systems can be deployed anywhere within cellular coverage and can support multiple Miro-F instruments. Secure communication can be established using SSH (Secure Shell) for TCP/IP and FTPES (File Transfer Protocol Explicit Security) for FTP.

Key hardware features

- Certified to IEC61000-4-30, Class A
- AC and DC (voltage only) and AC current measurements.
- Surface and ambient temperature probes.
- The Miro-F TxM 304 can be incorporated with relay outputs to initiate appropriate action (under development).
- Powered from Phase A to Neutral or via DC power adaptor.
- Starts logging on power up.
- Concurrent logging at multiple log intervals: 10/12 cycles, 150/180 cycles, 10s, 10m, 2h, and user configurable.
- Gapless logging: User can download data, clear log memory and configure the device with no interruption to logging.
- Internal backup battery: 5-minute back up time as standard, with option to extend upon request.
- GPS and external antenna for precision time synchronisation.
- Choice of remote communications via Cellular (3G/4G) or Ethernet. All peripherals are integrated within the enclosure other than an external antenna.
- Integrated WiFi options for Android and iOS mobile applications.
- Logged memory: 8GB
- Graphical colour display
 - Voltage and current waveforms
 - Phasor diagrams.
 - Measurements.
 - Status information.
 - User defined screen.

Key software (CITRUS) features

- The CITRUS platform is a powerful, easy to use and intuitive analysis software that supports all CHKPQ products. It provides tools for: device management; data analysis; and reporting.
- Configurations
 - Pre-defined configurations for easy setup.
 - Create and store different configuration files for quick retrieval.
- Online monitor, with event trigger option (ideal for motor starts).
- View multiple log file data on the same graph to compare PQ measurements with GPS synced time stamps.
- Event type filter to view only desired events.
- Analysis and Compliance reporting
 - Voltage and Harmonic compliance profiles
 - 24-hour scatter plot.
 - Voltage and Harmonic compliance graphs.
- Multi-parameter capture
 - Allows users to record a 2-minute (30-second pre-trigger and 90-second post-trigger) capture of RMS Voltage and Current; Power (Real, Reactive & Apparent); Power Factor & Frequency at cycle-by-cycle intervals when events are captured.

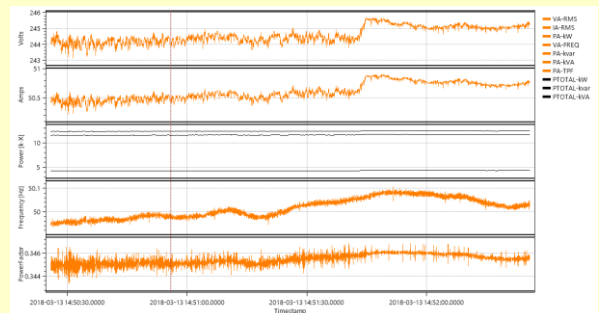


Figure 4: Multi-parameter capture

- Real-time Alarms and Notifications
 - Alarms can be generated upon user set thresholds e.g. over/under voltage; underfrequency and THD being exceeded.
 - Real-time notifications can be sent via SMS, Email, or direct IP to a designated server.
- Views
 - Ability to edit an active view: Text and arrow annotation and title options available.
 - Generate a PDF, CSV file, or table.
 - Split or combine voltage and current graphs.
 - Multiple measurements on a single graph.
 - Horizontal and vertical cursors for accurate measurements.
- PQDIF export - PQView compatible.
- Automatic FTP uploads