

TC012 MicroRTU™ Capacitor Bank Monitor and Control

The Telemetric TC012 MicroRTU is a cost effective solution for monitoring and controlling fixed or switched capacitor banks. The device includes an integrated cellular radio that communicates over the AT&T/Cingular GSM and roaming partners cellular networks providing excellent coverage throughout North America. The units transmit data using General Packet Radio Service (GPRS) technology on GSM networks.

The TC012 control with a cellular radio that has the capability of operating on the GSM cellular systems is Model: **TC012-GSM-MTL**.

Data is available to utility SCADA systems through Telemetric's SCADA-Xchange™ or from the Telemetric's PowerVista™ hosted applications.

Feature Summary

- Provides capacitor bank control through two 30 Amp relays. After a switching operation, the acknowledgement report includes the AC line voltage, open/close status, and the capacitor bank neutral current.
- Capacitor bank neutral current is measured with a 0-100A current sensor. A neutral current of zero indicates that the installation is switched out of service. Normal neutral current (a nominal value above zero) when the bank is closed indicates the bank is switched in service and the installation is operating as expected. A neutral current that is higher than average but below a predefined limit indicates the presence of high harmonic current or resonant conditions, which may indicate a potential problem. A higher, pre-defined level of current indicates a blown fuse or other serious problem.
- Easily accessible local/remote switch disables remote operation; and the position of the switch is reported when changed.
- Local control delay gives operators time to move a safe distance from the equipment before the capacitor bank is switched.
- Pending operation indication warns operators of any pending bank switching operations.
- An Amphenol connector allows easy neutral current sensor installation.
- The AC Line Voltage Monitor reports under and over voltage conditions, as well as momentary and continuing power outages.
- Includes the Telemetric PowerVista hosted applications to provide monitoring, control, and configuration options. The PowerVista applications can be used in parallel with SCADA-Xchange.
- All setpoints and operating parameters are user programmable.
- Communications are initiated for three reasons:
 1. Event or changes trigger reports.
 2. Time-scheduled reports can be scheduled from once every hour to once every 240 hours (10 days).
 3. User requests a report or issues a command through the Intelligent Web Server or SCADA system.



Remote Control and User Notification

The PowerVista applications can be used to configure rule-based actions and user notifications that are performed based on the TC012 reports. Examples include:

- Notify a designated person of the reported event
- Send pre-determined control commands back to the TC012, or to a different MicroRTU
- Notify a customer by e-mail, pager or text messaging with data from the TC012.

SCADA Interface

With Telemetric's SCADA-Xchange, a SCADA system can communicate with the TC012 using DNP3. This allows the SCADA system to monitor the TC012's line voltage, neutral current, and capacitor bank switch position, and to send control commands to open or close the capacitor bank. This is described in more detail in the SCADA-Xchange datasheet.

Specifications

Point Count

- 1 Analog input
- 2 Digital outputs
- 1 AC voltage monitor
- 1 Battery monitor

Digital I/O

Outputs

- Two Form "A" mechanical relays, 30-Amp, 240 VAC inductive / 20-Amp, 30 VDC
- Momentary operation
- Local/remote switch enables/disables remote control

Analog Input

- 12-bit A/D conversion
- 0 – 10 VAC, true RMS
- Three set points and trigger times
- 120 VAC control power monitor is standard
 - Over and under voltage monitoring
 - Outage reporting
 - Configurable over/under voltage thresholds and trigger times

Cellular Data Network

- Two-way communications– all commands are acknowledged
- Transmit power: 0.3 to 1.2W
- Dual-band, supporting GSM/GPRS 850/1900MHz
- End-user license/local cellular account not required
- 50 ohm SMA antenna connector
- Omni, ½ Wave, 2.5dB antenna included

Local Serial Port

- RS-232, 9600 bps
- Supports a Windows based local configuration and test program - included

Operating Power

- 100 – 135 VAC, 60 Hz
- 12, 24 and 48VDC optional
- 4.5 AH battery backup included – only required for outage reporting

Environmental Data

- Operating Temperature Range: -40° to +70°C

Electrical Transient Immunity

- ANSI/IEEE C37.90.1-2002

Enclosures

The standard enclosure features include:

- Gray steel, NEMA 3R rating
- Hinged door with padlocking hasp
- Three conduit compatible cable entry holes on the box bottom
- Dimensions: 10.5" x 8.5" x 4.5"
- Weight: 17 lbs

Additional configurations are available including:

- Additional input/output configurations
- Non-metallic enclosures
- 4-jaw socket mounting
- A variety of antenna options