

TC032 MicroRTU™ (TC032) Datasheet

Capacitor Bank Monitor and Control

The TC032 Telemetric MicroRTU is a cost effective solution for monitoring and controlling fixed or switched capacitor banks. The TC032 includes an integrated two-way radio module for communications with several network options. Models are available that communicate using GSM cellular networks or Sensus FlexNet® private radio networks.

The Telemetric TC032 MicroRTU with the GSM cellular module transmits data using General Packet Radio Service (GPRS) technology over the AT&T cellular data network. The units can be installed anywhere AT&T GPRS service is available, including their roaming partners. No license or local cellular account is required.

Models with FlexNet radios communicate using packet data over Sensus FlexNet private networks. The units can be installed on any FlexNet system using RNI software version 2.0.1 or higher.

FlexNet models incorporate all of the standard FlexNet system security features. Cellular models use standard cellular authentication and encryption which is augmented with additional security features at Telemetric.

Units can be monitored and controlled from central Volt/Var applications or utility SCADA systems through Telemetric's SCADA Xchange™. Engineers, planners and field technicians can simultaneously check status using Telemetric's PowerVista™ applications.

The TC032 is available in the following models:

Model	Radio
TC032-GSM-MTL	GSM
TC032-FLX-MTL	FlexNet

Benefits

- Ideally suited for central control of switched capacitor banks.
- Includes local voltage and temperature switching strategies.
- SCADA override of local strategies capability.
- 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.
- Neutral current alarm retry capability.
- Easily accessible local/remote switch disables remote operation; 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.



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- 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 Telemetric's PowerVista application 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.

Communication is initiated in three ways:

- Automatic report upon status change
- Time-scheduled reports from once every minute to once every 1000 hours in 1 minute increments
- User requests reports through Telemetric PowerVista applications or utility SCADA system

Remote Control and User Notification

PowerVista applications can be used to configure rule-based actions and user notifications that are performed based on the TC032 reports. Examples include:

- Notify a designated person of the reported event
- Send pre-determined control commands back to the TC032, or to a different MicroRTU
- Notify a customer by e-mail, pager or text messaging with data from the TC032.

PowerVista™ Hosted Application

- Each customer has a secure account that provides access to their equipment
- Data is secure and password protected
- Server authentication using 128-bit encryption key validated by VeriSign Trust Certificate
- E-mail, text messages and pager notifications are included at no extra cost

SCADA Interface

With Telemetric's SCADA-Xchange™, a SCADA system can communicate with the TC032 using DNP3. This allows the SCADA system to monitor the TC032 line voltage, neutral current, and capacitor bank switch position, and to send control commands to open or close the capacitor bank. See the SCADA-Xchange datasheet for more details.

Specifications

Point Count

- 0 Digital inputs
- 3 Analog inputs
 - Voltage
 - Temperature
 - Neutral current
- 2 Digital outputs
- 1 Battery monitor

Digital I/O

Digital 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

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Communications

Local Serial Port

- USB 2.0 compliant, full speed
- Supports a Windows based local configuration and test program - included

Cellular Data Network

- Two-way communications– all commands are acknowledged
- Transmit power: 1mW to 1.2W
- Dual-band, supporting GSM/GPRS 850/1900MHz
- End-user license/local cellular account not required
- Phantom omni-directional antenna

FlexNet Network

- Two-way – all commands are acknowledged
- Transmit power: 2 W
- Frequency: 900 MHz band, Primary licensed
- Phantom omni-direction antenna

Operating Power

- 100 – 135 VAC, 60 Hz

Environmental Data

- Operating Temperature Range: -30° to +70°C
- Electrical Transient Immunity per ANSI/IEEE C37.90.1-2002

Enclosure

The standard enclosure features include:

- Fiberglass reinforced polyester, NEMA 3R rating
- Hinged door with padlocking hasps
- One conduit compatible cable entry hole on the box bottom
- Dimensions: 10.5”H x 8.5”W x 8.5”D
- Weight: 13 lbs

Additional Product Configurations

- 4.5 AH battery backup option – only required for outage reporting
- Metal enclosure
- 4-jaw socket mounting
- A variety of antenna options

See device drawings on back page.



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