DS-E-RTM-0113

Remote Telemetry Module™ (RTM II)

Remote Monitoring and Control

Description

The second generation Remote Telemetry Module™ (RTM II) system is a cost-effective communication solution for remote monitoring and control of Intelligent Electronic Devices (IEDs) that control electric distribution system assets such as reclosers, switches, capacitor banks, breakers, voltage regulators and meters. Building on the capabilities of the original product, the RTM II system enables remote firmware updates[1], includes a USB port, and communicates using GSM cellular networks or Sensus FlexNet™ private networks. The RTM II system communicates with any IED that supports DNP 3.0/IEEE 1815 or Modbus protocol.

Features

APPLICATIONS

The units are ideally suited for smart grid distribution automation applications such as reclosers, capacitor banks, distribution switches, faulted circuit indicators, voltage regulators, distributed generation, load control and distribution substations.

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

Sensus Distribution Automation (DA) provides the end-to-end communication link via secure, private connections to leading cellular carriers in North American so the product works 'out of the box' anywhere within the extensive North American coverage area. No license or local cellular account is required. FlexNet enabled models also work 'out of the box' on FlexNet systems.

The RTM II system continuously polls connected IEDs through a local serial connection. When a user defined change is detected, the RTM II system transmits an event report via the cellular or FlexNet network. This minimizes communication traffic while providing real-time information. Status of equipment is obtained via the utility's SCADA system using Sensus SCADA-Xchange™ application or through the Sensus PowerVista™ application with a standard PC browser.

FEATURES AND BENEFITS

- Monitors status of IEDs and reports only user configured data, events and alarms
- Designed specifically to communicate with IEDs from leading manufacturers such as Cooper Power Systems, ABB, Schweitzer Engineering Laboratories, S&C Electric Company, GE, T&B/Joslyn Hi-Voltage, ICMI and many others
- Communicates via standard RS-232 serial connection with IEDs. The RTM II system functions as the master, in the master-slave relationship, polling the IED for information.
- Up to 99 digital/analog points per IED
- Multi-Address (MA) model supports up to five DNP 3.0 device addresses:
  - Supports a different DNP point map/profile of up to 99 points for each IED

Supports intelligent reporting & control via:

- Unsolicited Report-by-Exception on user-defined analog or digital points
- Time scheduled reports on user-selected points and defined time intervals
- Updates are available on demand via SCADA or the PowerVista application

- Information is sent to the PowerVista application at the Sensus Data Center, and optionally to the utility SCADA system
- Secure two-way communications allow direct status queries and control of the IED
- Integration kits, including specific device point maps/profiles, are available for most popular IEDs to facilitate simple and easy installation
- DA Configurator creates unique configuration profiles for all SCADA points that are monitored and reported. Users can specify for SCADA point criteria such as:
  - Three reporting set points and a configurable trigger time per analog input
  - Binary input report-on-change with configurable trigger time
  - Time scheduled reports with configurable reporting interval from 1 minute up to 14 days

1 Available on cellular models only at this time.

sensus

FEATURES AND BENEFITS
Continued

POWERVISTA™ APPLICATIONS

The PowerVista application is a powerful and flexible suite of tools for managing communications and distribution system equipment.

- Access equipment status from any PC using a standard browser
- Each customer has a secure account that provides access to their equipment
- Data is secure and password protected
- No master software or local cellular account is required
- Manage equipment, communications and users
- Monitor and control field equipment
- Automated user notifications by email, text message or pager provide immediate information on events such as a recloser lockout or low voltage/outage conditions
- Device history logs all communications with equipment
- Request equipment status and analog values at any time
- Tools for communications diagnostics and data volume monitoring
- 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
- Hosted PowerVista applications are available at the Sensus DA data center or can be placed in a customer data center

SCADA INTERFACE

All Sensus DA devices can be monitored and controlled through an existing SCADA or DMS system via DNP3.0/IEEE 1815 protocol.

- PowerVista application and SCADA-Xchange operate simultaneously.

(See the SCADA-Xchange datasheet for more details.)

Specifications

Processor
- 32 bit microcontroller, 72 MHz
- 8 MG non-volatile Flash memory
- 232 MB RAM

Communications

Three Serial Ports
- USB 2.0 compliant, full speed, local configuration port; supports MS Windows based local configuration and test program
- RS232 SCADA communications port, DB-9 female or terminal block; supports DNP or Modbus, depending on model
- RS-232 pass-through for IED maintenance port connection, DB-9 female

Cellular Data Network
- Two-way communications– all commands are acknowledged
- Transmit power: 1 mW to 1.2 W
- Frequency: 850/1900 MHz
- 50 Ohm SMA antenna connector

FlexNet Network
- Two-way communications– all commands are acknowledged
- Transmit power: 2 W
- Frequency: 900 or 400 MHz band, Primary licensed
- 50 Ohm SMA antenna connector

Operating Power
- 10-29 VDC, 170mA at 12 VDC, with a maximum of 0.6A (< 0.5 sec.)

Environmental Data
- Operating temperature Range:
  -30° to +70°C (Cellular)
  -40° to +70°C (FlexNet)
- Humidity: 0% to 95% noncondensing
- Electrical Transient Immunity: ANSI/IEEE C37.90.1
- Surge Suppression: EN61000-4-4 & EN61000-4-5
- Radiated emissions: FCC Part 15 Class B, EN 55022

Enclosures
Standard enclosure features include:
- NEMA 1 rating
- Integrated mounting flanges
- Gray steel construction
- Dimensions: 5.6”H x 4”W x 1.7”D
- Optional NEMA 3R enclosure with 120VAC – 12VDC power supply; 11”H x 8.3”W x 3.3”D; 3 lbs.

Model	Radio	Frequency	Protocol
DNP-RTM II-FLX9	FlexNet	900 MHz	DNP
DNP-RTM II-FLX4	FlexNet	400 MHz	DNP
MOD-RTM II-FLX9	FlexNet	900 MHz	Modbus
MOD-RTM II-FLX4	FlexNet	400 MHz	Modbus
DNP-RTM II-MA-FLX9	FlexNet	900 MHz	DNP
DNP-RTM II-MA-FLX4	FlexNet	400 MHz	DNP
MOD-RTMII-MA-FLX9	FlexNet	900 MHz	Modbus
MOD-RTMII-MA-FLX4	FlexNet	400 MHz	Modbus
DNP-RTMII-GSM	GSM/GPRS	850/1900MHz	DNP
MOD-RTMII-GSM	GSM/GPRS	850/1900MHz	Modbus
DNP-RTMII-MA-GSM	GSM/GPRS	850/1900MHz	DNP
MOD-RTMII-MA-GSM	GSM/GPRS	850/1900MHz	Modbus

Models

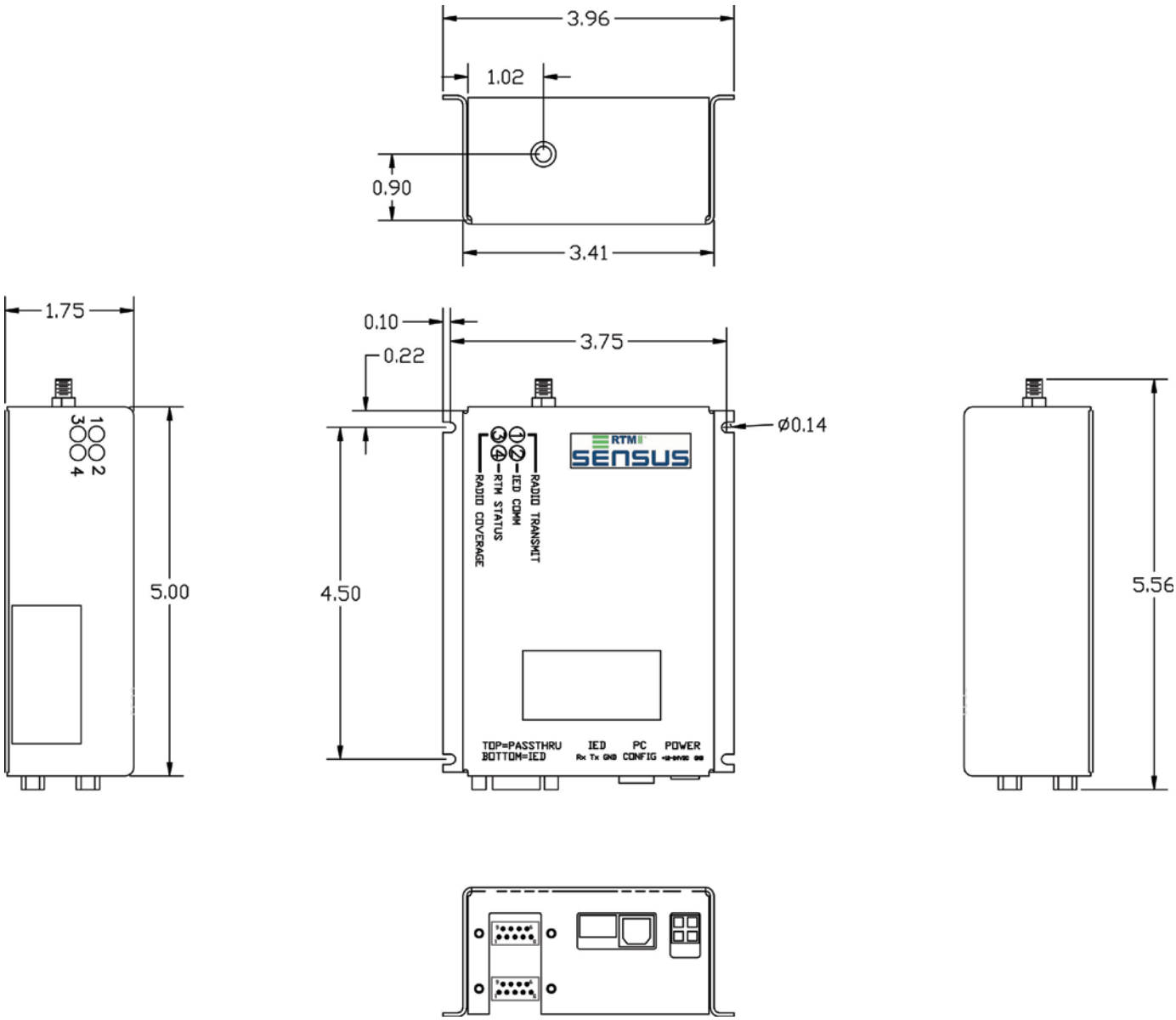
- Models with GSM/GPRS radios communicate using General Packet Radio Service (GPRS) over the AT&T GSM cellular data network. The units can be installed anywhere AT&T GPRS service is available, including their roaming partners.
- Models with FlexNet radios communicate using packet data over Sensus FlexNet private networks. The units can be installed on any FlexNet system using RNI software version 2.1 or higher.

See device drawing on next page.

SENSUS

Remote Telemetry Module™ (RTM II)

Remote Monitoring and Control



For more information, visit us at www.sensus.com

10147 W. Emerald Street, Suite 100
Boise, ID 83704
T: (208) 658-1292
F: (208) 323-5575