8810 Remote Terminal Unit

Collect and transmit data from multiple storage tanks to a central system or host using a single tank gauge interface for inventory, alarm and control.

Highlights

- Easily expandable through the use of plug-in interface modules - reduces cost by integrating digital and serial data inputs and outputs

- Multiple host ports - adapts to your needs and redundancy requirements

- Supports multiple tank gauge protocols - connect your existing equipment at less cost

- Digital I/O connectivity - allows simple tank farm alarm integration

- Fully compatible with FuelsManager - tank inventory management made easy

- US, Canada, IECEE, and CE approvals

- Uses Ethernet-based OPC UA and Modbus TCP/IP communications

Intelligent Interface Module Architecture

Specific communications modules interface to a wide range of tank gauge equipment. Each 8810 RTU can accommodate up to 6 interface modules.

- Inputs are reported to host computer by scanned poll
- Built-in software function library
- Surge protection conforming to ANSI/IEEE standards
- Host communication via RS-232 and RS-485
- Industry standard protocols: Modbus and OPC UA
- I/O interfaces: DI, DO
- Quick-disconnect I/O terminations
- Modular construction for optimum expandability
- Non-volatile database
- Redundant power inputs
- 6 expansion slots
- 27+ channels (more for DIO)
- Supports up to 400 tanks
- Green Hills INTEGRITY RTOS with ARINC-653 partitioning
- NIST SP 800-53 & FIPS 140-2 compliant (future)

Applications

The 8810 RTU is a member of Varec's complete line of industrial control systems and products. The 8810 RTU is primarily designed for applications where a cost-effective control system is needed for remote collection of field data and control of equipment.

The 8810 RTU is ideally suited for Tank Farm, Terminal, Pipeline, and Refinery applications. It is an effective solution used in SCADA or stand-alone programmable control unit applications.

Host Communication

The 8810 RTU connects to most types of sensors or actuators on your site, and to PLCs and DCS computers. It combines with FuelsManager software to provide an extremely cost efficient and reliable tank inventory system. It also provides fully redundant host ports and is compatible with a variety of other host systems through the industry standard Modbus™ protocol.

Configuration and Programming

Remote programming can be accomplished from the host or locally using a PC with the web-based configuration program called Vertue. This tool simplifies configuration and diagnostics, allowing uploading of final equipment configurations. The 8810 can also be updated via USB flash drives with a preconfigured database that Vertue will automatically install.
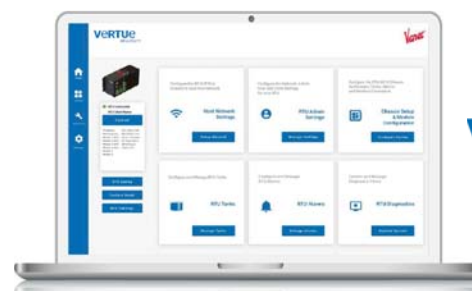
Software Functionality

Vertue, the 8810's configuration application, allows users or technicians to configure, diagnose, and troubleshoot the 8810.

Vertue provides options to configure:

- Which modules are installed within the RTU chassis
- Communication settings for individual modules and channels
- Specific parameters for individual points
- Bulk changes to parameters across multiple points
- Alarm tests
- Mapping of Modbus registers to RTU tags

Vertue will also support efficiency tools and diagnostic views to allow the user to quickly find points/tags, to visualize mismatches in configuration, and to quickly recognize abnormal conditions.

Vertue uses the OPC UA standard and supports both online and offline configurations.

Product Options

CPU

- 800 MHz quad-core CPU
- Green Hills INTEGRITY RTOS with ARINC-653 Partitioning
- NIST SP 800-53 & FIPS 140-2 Compliant (future)

Memory

- 1 x 32 GB USB flash drive
- 2 x 32 GB micro SD cards
- 2048 MB high-speed RAM

DC Power Requirements

- 18-60 VDC, 20 W max (CPU Module)

TCP/IP Communications

- 100 Mbps Ethernet interface using OPC UA over TCP/IP and Modbus over TCP

Serial Host/Slave Communications

- Selectable Data Rate, 1200 to 115200
- RS-232 or RS-485 communications
- RS-485 Maximum Cable Length (18 AWG), 4000 ft/1200 m
- RS-485 Maximum Multi-dropped Units, 32

Physical

- 8810 RTU Case: 15.50" W x 9.85" H x 6.00" D

Environmental

- Operating Temperature: -40°F to 176°F; -40°C to +80°C
- Storage Temperature: -40°F to 212°F; -40°C to 100°C
- Humidity: 0 to 95% RH non-condensing
- Ingress Protection: NEMA 1, IP30 (pending)

Discrete Inputs/Outputs

- Maximum Quantity: 48
- Isolation Voltage: Up to 4000 Vrms
- Maximum Current: 2.0 A
- Operating Voltage:
  - Output: Up to 250 VDC max
  - Input: Up to 200 VDC max

Intelligent Communications Interfaces

- Tank Gauge communications via expansion modules
- Automatically scans for level, temperature, and position
- Industry standard protocols: Modbus
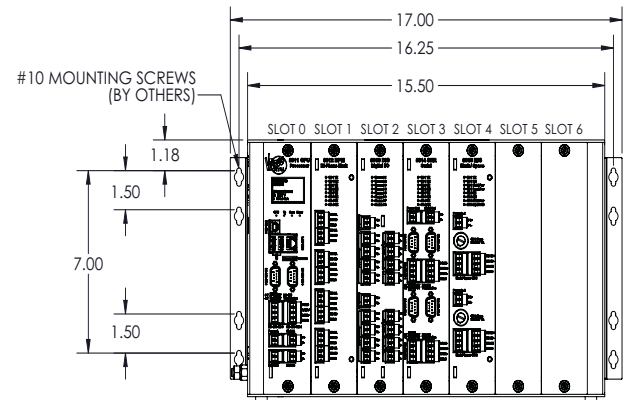- Tank gauge interfaces: Enraf and Mark/Space

Field Maintenance

Field maintenance of the 8810 RTU is simplified by several built-in features. The modular design of the computer control system, in conjunction with quick-disconnect connectors, allows for on-site replacement of questionable components. Firmware can be upgraded in the field by the use of a USB flash drive.
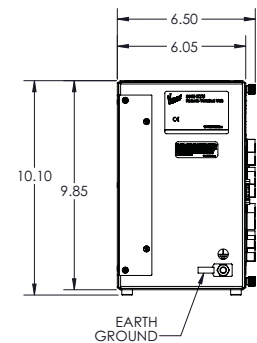
I/O Expansion

The 8810 RTU can interface to a variety of field devices and intelligent instrumentation via expansion modules. Many diverse products are available to serve a variety of needs. The available expansion modules are listed below:

- 8812 BPM: Bi-Phase Mark
- 8813 DIO: Digital I/O
- 8814 SER: Serial
- 8815 M/S: Mark/Space

8810 RTU front view with dimensions

8810 RTU side view with dimensions

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