



Compact RTU for remote applications

The RG3 Remote Telemetry Unit is our most compact RTU. The unit operates on 12 Volts DC and draws as little as 25 milliamps in full operation making it ideal for remote solar applications where utility power is not available. Using a 5 Watt UHF or VHF Radio, the RG3 can transmit and receive data for miles without repeaters or direct line of sight.

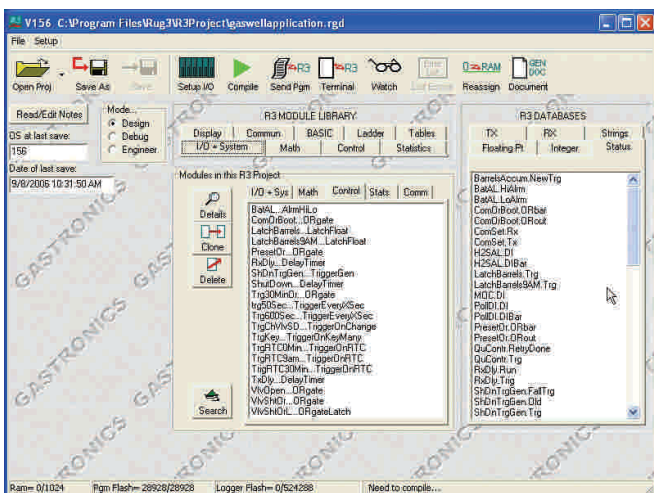
I/O configurations include 6 Analog Inputs, 8 Digital Inputs, 4 Relay Outputs, Optional 2 Analog Outputs and a selectable 12 or 24 VDC loop supply. A Backlit scrollable 2 x 16 character LCD display shows measured values, setpoints, totals, etc. Analog Inputs are individually selectable between 4-20mA or 0-5VDC.

A programmable keypad allows the operator to custom design easy to use functions into the RG3, which can be used to toggle displays, adjust setpoints, activate I/O and much more.

- Programmable Keypad and LCD display
- Designed and Manufactured in USA

Custom software program for any application

Programming Software is provided at no additional charge. Gastronics provides free systems programming support.



- Low power use, ideal for solar applications
- 5 watt UHF/VHF radio power
- Reliable and secure - 16 bit CRC integrity

- Interchangeable antenna connector
- Weatherproof, powder coated aluminum case



6 AI, 8 DI, 4 DO, 12/24VDC Loop Supply, Optional 2 AO, Optional 5 Watt UHF Radio, 12 VDC Operation

- 3/4" Female Pipe Thread conduit connectors

Features and Benefits

- Multiple I/O configurations
 - 6 Analog Inputs , 8 Digital Inputs
 - 4 Relay Outputs , 2 Optional Analog Outputs
- Ideal for Solar Applications
 - Low Power Consumption, operates on 12 VDC
- Reliable in Worst Case Scenario - System proven in 8 mile application, torrential downpour & lightning
- Up to 254 Units on a Single Frequency
- Custom software program to meet every application
- Compatible with existing Gastronics RTU's

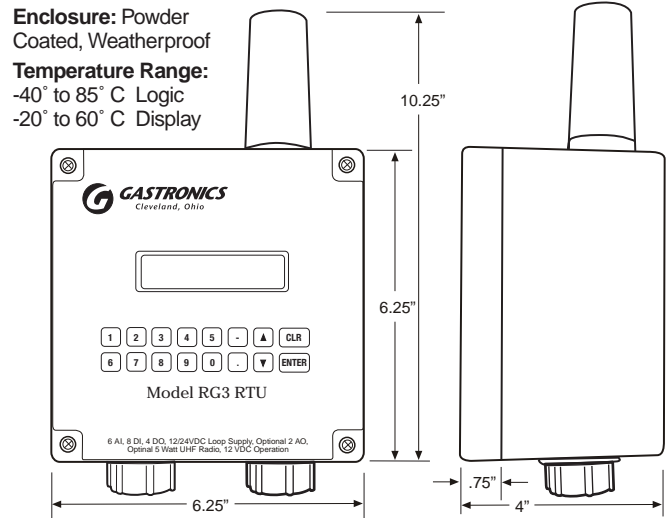
Radio Specifications

Frequency VHF: 136-156MHz UHF: 400- 420MHz
Range : 154-174MHz 450- 470MHz

- Narrowband (12.5kHz) or Wideband (25kHz) Modes (TX Deviation PC Selectable on both Narrow or Wide)
- Supports 8 Programmable Channels
- Low Standby Current (<20mA) @ 13.8VDC
- Selectable Power Settings 5W/2W VHF/UHF
- Low TX Current (<1.2A @ 5W @ 13.8VDC)
- Dual TX & RX Audio Paths
- TX/RX Bandwidth: 20MHz VHF/UHF
- Fast TX & RX Attack Times
- Closed Loop RF Power Control
- FCC Certified

Logic/ I/O Terminal Specifications

- **Microprocessor:** 16-bit MSP430, 8MHz, 16 bit data bus, 16 bit address bus.
- **Memory:** 2 Kbytes battery backed low power static RAM, 60 Kbytes Program FLASH, 512 Kbytes Logging FLASH, Lithium coin cell battery backup of RAM & realtime clock & calendar minimum 2 years.
- **Display:** 2 line X 16 character backlit LCD, sunlight readable, backlight switchable by software.
- **Keyboard:** 16 key sealed tactile membrane with interrupt scanning.
- **Realtime Clock / Calendar:** Battery backed 0.005% crystal accuracy.
- **Operation Security:** Watchdog Timer resets unit 0.5 seconds after interrupt fail, Telemetry Watchdog resets rcv buffer if no character received within 1 sec. Brownout Detector halts process if logic voltage falls below 2.7V, restarts when voltage rises to 3V.
- **Autobooting:** Auto startup on power up.- I/O Surge Protection: All I/O is optically isolated, meets IEEE surge protection requirements.
- **Analog Inputs:** 6 channels, 12-bit resolution, successive approx, optically isolated, 4-20mA or 0-5V. Factory calibrated
- **Analog Outputs:** 2 channel optional, 4-20mA, 12-bit resolution, optically isolated. Factory calibrated.
- **Digital Inputs:** Status; 8 channel, dry contact compatible, self powered, Pulse Counting; all DI count 128 PPS, Pulse Duration Detecting; all can convert pulses to analog with 4ms resolution.
- **Digital Outputs 4 Channel:** 10 Amp Relays Pulse Duration Outputs, relays can generate pulse width modulated or one shot signals with 4ms resolution.
- **Anemometer Input:** AI#6 connected to a clipping amp, counted to derive windspeed.
- **Reference Output:** 4VDC reference available to power potentiometers, shares pin with DI#8.
- **Instrument Power:** 24V switchable to battery voltage and can be switched on/off by software. Diode isolated.



- **Serial Ports:** One programmable/gen purpose port plus one RS232/modem port.
- **Modem:** Bell 103 standard/ALERT standard radio interface; 4-wire audio, adjustable gain transformer isolated, optically isolated key line. Low tones mode for splinter chan. Phone line interface; 4-wire audio adjustable gain, transformer isolated. Transmit power; 0-4Vp-p, software adjustable in 256 steps.
- **Communications:** ASCII-standard, R9 Protocol; Modbus RTU- Slave; Background CRC gen/decode, variable length messages, user defined message lengths. Can combine status, integer, float, in any message. Alert protocol, Peer to peer, Store and Forward repeating; Address range -1-254
- **Power Interface:** 12VDC +/-20%, diode isolated. <3 ma normal operation (relays, loop supply, and backlight off) to 440 ma. Max- Loop Supply: Built in switchable regulated 24V +/-5%, 120mA.
- **I/O Connections:** All I/O uses removable rising cage screw headers in banks of up to 10 each.
- **Software:** Storage; operating systems and all user configuration and programming stored in nonvolatile flash memory. Flash loader stored in flash protected boot block. Security; parameter voting and memory integrity test on boot up, CRC gen/detect on serial ports. Program loading CRC protected. Scanning; Built in software scans all I/O, ports, timers, realtime clock.
- **Programming:** Modules applications use precompiled modules resident in flash memory where programmer interconnects modules and sets properties using supplied Win95/98/NT/XP program.
- **Ladder Logic:** is built in to the configuration program to handle misc controls.
- **Data Logging:** Logs floating point, integer and status samples with time tags to onboard flash eeprom. 128K samples and time tags. Can dump logs to serial ports as comma delimited ASCII.
- **Variables:** Supports 16 bit integer, 32 bit floating point, boolean, strings.- Error Messages: Configuration program handles all setup errors. Run time software is self protecting. No run time errors.



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Represented by: