



GTX-2.0

Satellite Transmitter & Data Logger for Worldwide Environmental Data Collection

The Microcom GTX-2.0 Satellite Transmitter and Data Collector is capable of operating on a variety of environmental satellite data collection systems in both Self Timed and Random operation modes. User selectable operation includes NOAA GOES (300 and 1200 bps), Meteosat/EUMETSAT (100 and 1200 bps), ARGOS/SCD (400 bps), and MTSAT/Himawari (100 and 300 bps), and INSAT (4800 bps) modes.

Transmit power is able to be set using software commands. The output required is determined by the satellite system used, data rate, and antenna. The Microcom UB8 GOES Antenna is recommended for use with the GTX-2.0. Other approved antennas in the range of 3 to 11 dB gain may be used with lower gain antennas having reduced Equivalent Isotropic Radiated Power (EIRP). For ARGOS & SCD applications the Synergetics 14A is recommended.

GPS time and frequency correction is included in every GTX-2.0. However, the GTX-2.0 can operate for extended periods without a GPS update, minimizing the overall current drain on the system's power supply. This important timing and frequency precision control allows the GTX to GPS update as infrequently as every 20 days. (the recommended update rate is every 10 days). At each GPS time synchronization the internal clock is set with a precision of better than ± 0.1 milliseconds. In between GPS updates, time keeping is better than ± 0.1 PPM, (± 0.01 seconds per day).

Frequency error is less than ± 125 Hz, in the worst case. GPS fixes at least every 20 days are required for frequency control due to TXCO aging. Short-term frequency and phase stability are better than ± 1 Hz per second. These two features always ensure extremely reliable communications in all conditions.

A number of options are available with the GTX 2.0, including an integral display and keypad, extended internal logging memory, and a USB memory stick option.

The data acquisition function in the GTX-2.0 has two modes. The first using the serial RS-232 input unit. This option can be used with third party data acquisition systems. The second functions as a full SDI-12 data recorder and counter input. A wide variety of analog and digital SDI-12 adapters are available from Microcom.

Up to 64 total SDI-12 sensor parameters can be sampled and recorded. A further 64 user-selected "internal sensors" are available for equation processing, counter capturing, and other internal parameters. The equation processing in the GTX includes standard numeric operations as well as a full complement of basic and transcendental functions. Also, a built-in Min, Max, and Average processor greatly simplifies the task of capturing summary information from sensors.

Up to 100 parameters with as many as 25 individual readings per parameter may be included in a Self-Timed Transmission. Random transmissions can have as many as 40 different parameters. Absolute values and rate of change over time may be used to trigger Random transmissions from one or more parameters.

Sensor data and system events may be logged in a non-volatile circular buffer for retrieval via the RS-232 port. Each parameter has its own discrete sampling and logging schedule. In the standard memory configuration, as many as 30,000 data points can be stored. Expanded memory options are available that increase the logging capacity to close to 250,000 entries.

Each log entry is individually time and date stamped. Flexible filtering options allow only the desired information to be quickly retrieved.

Key Features:

Additional internal information that may be added to the data acquisition parameters include:

- Station or message format identifier
- Transmit sequence number
- Battery volts under transmission load
- Forward and Reflected RF Power
- Transmitter Temperature
- GPS position information

Setup may be accomplished from an intuitive Command Line terminal mode or from the Microcom GTX Utility. A Palmtop or PDA may also be used for setup. Setups are easily replicable and downloadable from a PC or Palmtop.

Test messages with identification and GPS location can be easily field initiated.

Diagnostic commands can be sent to SDI-12 sensors while the GTX is in operation mode.

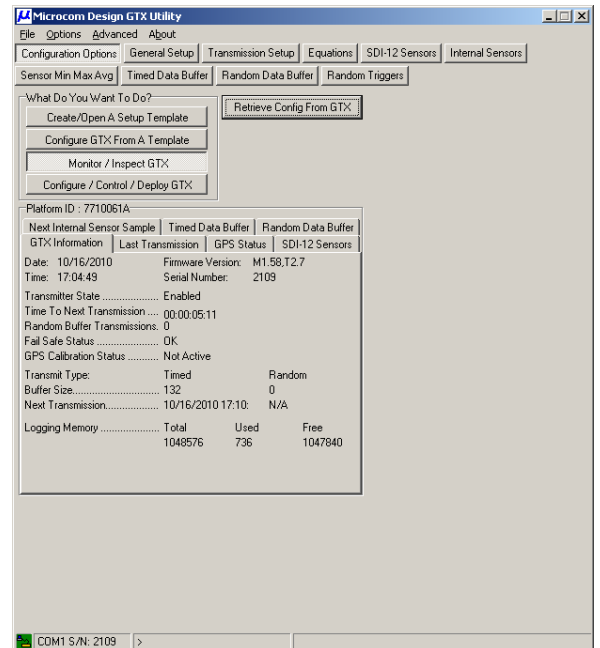
Various package, cable, and connector options and accessories are available.

General Specifications:

Vdc Power:	12.5 volts nominal 10.5 to 18.0 volts (Transmitter) 9.0 to 18.0 volts (Logger Operation)
Vdc Protection:	Reverse and OVP >18.0 volts
Battery Current:	1.3 mA quiescent 30 mA during GPS use 3 Amps max at 10 watts RF output power
Temperature:	-50° to +70° C (Logger Operation) -40° to +60° C (ARGOS/SCD) -40° to +50° C (GOES/EUMETSAT)
Time Stability:	±0.07 PPM typical ±0.10 PPM maximum
Humidity:	0 to 99% RH noncondensing
Size:	6.6" W X 9" L X 1.5" H
Weight:	2 Lbs

Transmitter Specifications:

RF Power:	1 - 5 watts (GOES/EUMETSAT HDR) 1 - 10 watts (other) Adjustable in 0.1 dB steps
Modulation:	100 BPS BPSK (International) 300 & 1200 BPS 8PSK (GOES) 1200 BPS OQPSK (EUMETSAT) 300 BPS BPSK (MTSAT/Himawari) 400 BPS BPSK (ARGOS/SCD) 4800 BPS BPSK (INSAT)
Freq Stability:	<0.25 PPM
Freq Resolution:	<10 Hz
Frequency Range:	401 to 403 MHz
Phase Stability:	<2 degrees



GTX PC Utility - In Monitor/Inspect Mode

GTX-2.0 Notes:

A full range of Operational and Test Diagnostics are available including:

- VSWR measurement to 0.05
- Independent field/bench test transmissions
- Battery voltage measurement during transmission
- Internal temperature measurement
- Include TX measurements as message header
- GPS satellite signal strength reporting
- System event/fault logging
- Configuration and status reports
- Step-by-step setup and configuration tutorial on our YouTube channel



GTX-2.0 with Optional Display/Keypad Interface