



Microcom Design, Inc.

Model GTX-1.0 Satellite Transmitter & Data Collector for GOES, GMS, ARGOS, SCD & METEOSAT

P/N: DL-101



The Microcom Model **GTX-1.0 Satellite Transmitter** and Data Collector is certified for 100, 300, and 1200 BPS operation on GOES DCS for Self Timed and Random operating modes. (Certificate #0704-013) Operation on GMS is Self Timed. On METEOSAT it is Self Timed on the International channels. User selectable GOES, SCD, or ARGOS operation.

GPS functionality is optional for the 100 and 300 BPS operation and required for 1200 BPS operation. Without GPS, time keeping is to ± 0.25 PPM (± 0.65 seconds per month or ± 0.02 seconds per day maximum), ± 0.1 PPM typical. With GPS this is improved to ± 0.1 milliseconds at the GPS update time and drifts at the maximum rate of ± 0.25 PPM until the next GPS update when it is resynchronized. An important aspect of the precision control of timing and frequency in the GTX is that GPS updates are needed very infrequently. At 300 BPS this may be once a month and at 1200 BPS, once per week. GPS updates are scheduled AFTER transmissions NOT before. Time and date may be entered manually. NO time and date or GPS synchronization is EVER needed for Random transmissions.

Frequency error is less than 100 Hz worst case with or without GPS. No GPS fixes are ever required for frequency control and are only required for subsecond self timed window synchronization and oscillator aging correction. Short term frequency and phase stability are less than ± 0.1 Hz per second. These two features ensure very reliable communications all the time every time in all

conditions. The Microcom **UB-8 GOES** Antenna is recommended for use with the GTX-1.0. Other antennas in the range of 3 to 11 dB gain may be used. A 3 db antenna will have a reduced EIRP. For ARGOS & SCD applications the *Synergetics 14A is recommended.

The SDI-12, RS-232, and CAN Bus interfaces provide a wide variety of expansion possibilities.

The data acquisition function in the **GTX-1.0** has three options. The first is with the basic serial RS232 input unit. This option is used with third party data acquisition systems. The second incorporates SDI-12 and one counter port. The **GTX-1.0** functions as a full data acquisition unit with the SDI-12, and counter input. Up to 20 total parameters are available for message transmissions, with 10 defined as SDI-12 parameters, 1 as a counter and up to 9 user-selected internal performance parameters. Parameters may be defined as applicable for Self Timed Transmissions and/or Random transmissions. Absolute values and rate of change over time may be used to trigger Random transmissions from one or more parameters. The third option is to connect to CAN compatible data acquisition and control systems.

Parameters and transmission events may be logged in a non-volatile circular buffer for retrieval via the RS-232 port. Each parameter has its own discrete scanning and logging schedule. Over 20,000 data points can be stored. Each log entry is individually time and date stamped. Flexible filtering options allow only the desired information to be quickly retrieved.

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GTX-1.0 Specifications & GUI

Key Features:

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

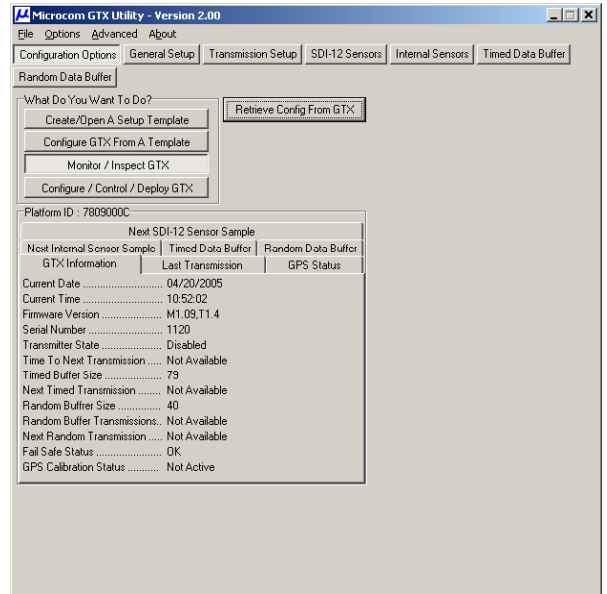
- Station or message format identifier
- Transmit sequence number
- Battery volts under transmission load.
- Forward RF Power
- Reflected RF Power
- Transmitter Temperature
- GPS position information

Set up may be from an intuitive Command Line terminal mode or from the Microcom Laptop GUI. A Palmtop or PDA may be also used. Set ups are easily replicated and downloaded from a PC or Palmtop.

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

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

Various package, cable, and connector accessories are available.



Laptop GUI - In GTX Monitor Mode

Specifications

General:

Vdc Power: 10.6 to 14.4 volts, 12.5 nominal

Vdc Protection: Reverse and OVP at 18 volts

Battery Current: 2.5 mA quiescent
3 Amps at 10 watts RF output power
30 mA during GPS use

Operational: -40° to +70°C
0 to 99% RH non condensing

GOES Certification: -40° to +50°C

ARGOS/SCD Certification: -40° to +60°C

Size: 6.6" W X 9" L X 1.5" H

Weight: 2 Lbs

Transmitter:

TX Power: 1 to 16 watts

Modulation Data Rate: GOES 100, 300 & 1200bps
ARGOS/SCD 400 bps

Frequency Control: <0.1 PPM with no GPS

Frequency Resolution: 19 Hz

Time Control w/o GPS: ±0.1 PPM Typ, ±0.25 PPM Max

Frequency Range: 401 to 405 MHz

Phase Stability: <2 degrees

RF Power: Measured to 0.1 dB

GTX-1.0 Transmitter:

GOES, GMS, ARGOS, SCD and METEOSAT Meets NOAA NESDIS specifications (ver 1.0B) for 100, 300, and 1200 BPS operation in Selftimed and Random operating modes.

Transmit power factory set for the Maximum EIRP with the operating antenna gain per NESDIS requirements.

ARGOS/SCD class A operation certified.

Diagnostics: Full range for Test and Operation includes

- VSWR measurement to 0.05
- Independent field/bench test transmissions
- Special test transmission for frequency check
- User definable test message header
- Internal transmitter temperature measurement
- Configuration and status reports
- Battery voltage measurement during transmission

