



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  $\pm 0.25$  PPM ( $\pm 0.65$  seconds per month or  $\pm 0.02$  seconds per day maximum),  $\pm 0.1$  PPM typical. With GPS this is improved to  $\pm 0.1$  milliseconds at the GPS update time and drifts at the maximum rate of  $\pm 0.25$  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  $\pm 0.1$  Hz per second. These two features ensure very reliable communications all the time every time in all conditions. The Microcom UB8 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 and RS-232 interfaces provide a wide variety of expansion possibilities.

The data acquisition function in the GTX-1.0 has two 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 Bus and counter input.

Up to 64 total SDI-12 parameters can be sampled and captured. Up to 64 user-selected "internal sensors" are available for equation processing, counter capturing and other internal performance parameters. The equation processing in the GTX includes standard numeric operations as well as a full compliment 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.

 **Microcom Design, Inc.**  
10948 Beaver Dam Road  
Hunt Valley, MD, USA 21030  
Tel: (410) 771-1070  
Fax: (410) 771-0018  
Email: sales@microcomdesign.com

 **Microcom Design, Inc.**  
656-E Capital Circle, NE  
Tallahassee, FL, USA 32301  
Tel: (850) 325-1865  
Email: sales@microcomdesign.com

 **Microcom Canada**  
Omnimatrix  
3465 Rue Ashby  
Saint Laurent, QC H4R 2K3  
Tel: (514) 684-1004  
Fax: (514) 697-0400  
Email: roger@omnimatrix.com

 **Microcom Brazil**  
Simtech Representacoes LTDA  
Rua do Mercado 17/14 andar Centro  
Rio de Janeiro, Brazil CEP 20010-120  
Tel: 21 2506 5900  
Fax: 21 2240 1242  
E-mail: simtech@simtech.com.br

# GTX-1.0 Features and Specifications

## Key Features:

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

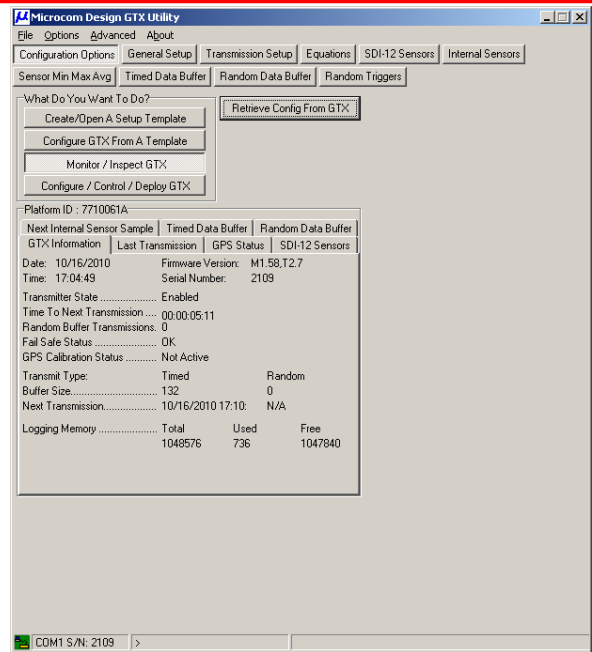
- Station or message format identifier
- Transmit sequence number
- Battery volts under transmission load.
- Forward RF Power
- Reflected RF Power
- Transmitter Temperature
- GPS position information

Set up may be from an intuitive Command Line terminal mode or from the Microcom GTX Utility. A Palmtop or PDA may be also used. Setups 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 options and accessories are available.



**GTX PC Utility - In Monitor/Inspect Mode**

## General Specifications:

|                         |  |
|-------------------------|--|
| <b>Vdc Power:</b>       | 12.5 nominal<br>10.6 to 14.4 volts (Certification)<br>9.0 to 18.0 volts (Operation)  |
| <b>Vdc Protection:</b>  | Reverse and OVP at 18 volts  |
| <b>Battery Current:</b> | 2.5 mA quiescent<br>3 Amps at 10 watts RF output power<br>30 mA during GPS use       |
| <b>Temperature:</b>     | -50°to +70°C (Operation)<br>-40°to +50°C (GOES/METEOSAT)<br>-40°to +60°C (ARGOS/SCD) |
| <b>Time Stability:</b>  | ±0.1 PPM typical<br>±0.25 PPM maximum  |
| <b>Humidity:</b>        | 0 to 99% RH non condensing   |
| <b>Size:</b>            | 6.6" W X 9" L X 1.5" H   |
| <b>Weight:</b>          | 2 Lbs  |

## Transmitter Specifications:

|                         |   |
|-------------------------|---|
| <b>Transmit Power:</b>  | 1 to 16 watts                               |
| <b>Modulation:</b>      | GOES 100, 300 & 1200bps<br>ARGOS/SCD 400bps |
| <b>Freq Stability:</b>  | <0.1 PPM                                    |
| <b>Freq Resolution:</b> | <10 Hz                                      |
| <b>Frequency Range:</b> | 401 to 405 MHz                              |
| <b>Phase Stability:</b> | <2 degrees                                  |
| <b>RF Power:</b>        | Measured to 0.1 dB                          |

## GTX-1.0 Notes:

Meets NOAA NESDIS specifications (Version 1.0B) for 100, 300, and 1200 BPS operation in Self-Timed 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.

Full range of Operational and Test Diagnostics:

- 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

