CAMPBELL SCIENTIFIC
WHEN MEASUREMENTS MATTER

TX325

Satellite Transmitter for GOES CS2/v2.0

New Standard for Reliability in GOES Transmitters

Smaller form factor, easy to use, and rugged

Overview

The TX325 is a GOES satellite data transmitter and is the successor to the TX321. In the Western Hemisphere, it is compatible for use with NOAA's GOES DCS with a coverage range including Canada, the United States of America, and Mexico—as well as most countries in Central America and many South American countries.

The TX325 is the telemetry backbone for many data collection platforms (DCP) that utilize GOES satellites. The satellite transmitter can be integrated with a number of Campbell Scientific data loggers and is an available communications option for many of our systems, serving a wide range of applications.

Benefits and Features

- NESDIS HDR V2 certified (certification number 12142012)
- ANATEL certified (certification number 07995-21-10644)
- Compatible with GOES DCS system
- Easy integration with Campbell Scientific data loggers
- Field tested and proven track record of reliability
- Embedded GPS receiver for stabilized internal time keeping and transmit frequency for long service intervals
- Low standby current consumption for battery-powered systems at remote DCP installation sites
- Quick assessment of radio health via monitoring of diagnostic data from the radio

Technical Description

The TX325 transmitter can transmit either self-timed or random GOES messages to the GOES West and GOES East satellites. In a typical configuration, the TX325 is connected to a data logger via an RS-232 serial connection. The data logger makes measurements, then formats those values to create a data packet which is then transferred to the TX325. The TX325 then buffers the message until its transmission window (or random transmission time), when it will then transmit the data at either 300 or 1200 bps.

Extremely accurate timing is obtained from the integrated GPS receiver (±100 µs), and the internal clock is capable of maintaining accurate time for a minimum of 20 days. If the TX325 finds itself without an accurate time, it suspends data transmissions until an accurate time is obtained.

Detailed diagnostic information about the radio is also available for the field technician and various diagnostic uses. These diagnostic parameters include the following:

- Latitude and longitude using the built-in GPS
- Current battery voltage
- Current temperature
- Battery voltage before last transmission
- Temperature before last transmission

- Battery voltage during last transmission
- Altitude of last GPS position
- Time of last GPS position
- Number of GPS fix misses
- Time of last missed GPS fix
- GPS receiver health and status
- Failsafe tripped indication
- Duration of last transmission
- Forward power of last transmission
- Reflect power on last transmission
- VSWR (voltage standing wave ratio) last transmission results
- Current transmission state

Cable Options

On the Ordering Information page of the website, ensure you order the correct cable option to meet your needs.

- To connect the TX325 to the CR6 or CR1000X RS-232/CPI port. select the -R option.
- To connect the TX325 to the COM (C, U) ports of a data logger, select the -C option.
- To connect the TX325 to the 9-pin RS-232 port of a data logger, select the -S option.

Specifications

Transmissions Supported	Timed (Scheduled) Random
Data Format	ASCII (SHEF) Pseudo Binary
Transmit RF Out Connector	Type N jack
Radio Module	OmniSat-3
Operating Temperature Range	-40° to +60°C
Storage Temperature Range	-55° to +75°C
Certifications	NOAA/NESDIS GOES High Data Rate Certification Standard V2 Certification #12142012
Case Dimensions	15.88 x 12.7 x 4.57 cm (6.25 x 5 x 1.8 in.) not including connectors
Maximum Dimensions	15.88 x 14.99 x 4.57 cm (6.25 x 5.9 x 1.8 in.) including connectors
Weight	0.77 kg (1.7 lb)

Supply Power

Supply Voltage Range	10.5 to 16 Vdc
Typical Current Drain	< 2.5 A when transmitting (typical 1.8 A at 12 Vdc) < 5 mA standby (typical 2.8 mA at 12 Vdc) < 50 mA during GPS acquisition (typical 25 mA at 12 Vdc)
Connector	2-pin screw terminal, 0.2 in. pitch
Power Protection	Up to 23.1 V (reverse polarity and overvoltage) Total system current is fused at 5 A with replaceable fuse

Satellite GOES

Baud Rates	300 and 1200 bps
Transmit Power (300 baud)	31 dBm maximum Maximum EIRP is 41 dBm (based on 11 dbm gain antenna and 1 dbm line loss) Typical EIRP is 37 to 41 dBm.
Transmit Power (1200 baud)	37 dBm maximum Maximum EIRP is 47 dBm (based on a 11 dbm gain antenna with 1 dbm line loss) Typical EIRP is 43 to 47 dBm.
Frequency Range	401.701 to 402.09925 MHz
Initial Frequency Stability	±20 Hz disciplined to GPS (GPS fix occurs after power up and once per day thereafter.)
Channel Bandwidth	300 Baud 0.75 KHz 1200 Baud 2.25 KHz

GPS Receiver

-NOTE-	*The TX325 can source up to 19 mA at 2.7 V for an external GPS antenna. Campbell Scientific recommends a maximum antenna Low-Noise Amplifier (LNA) of 1.5 dB.*
Maximum RF Input Gain	25 dB
Receiver Type	3.3 V active
Connector Type	SMA jack

Timekeeping

Initial Accuracy	±100 µs (synchronized to GPS)
Drift	±40 ms/day (without GPS)
GPS Schedule	1 fix at power up (updated at roughly an 11-hour rate)
Transmission Continuation without GPS Fix	6 days

Interface Connectors

RS-232	DB9, DB9 F, DCE, 3-wire RS-232
Satellite RF Transmit Out	Type N jack
GPS	SMA jack
Power	2-pin screw terminal, 0.2 in. pitch

For comprehensive details, visit: www.campbellsci.eu/tx325

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