



TX321

GOES and Meteosat Satellite Data Transmitter



Overview

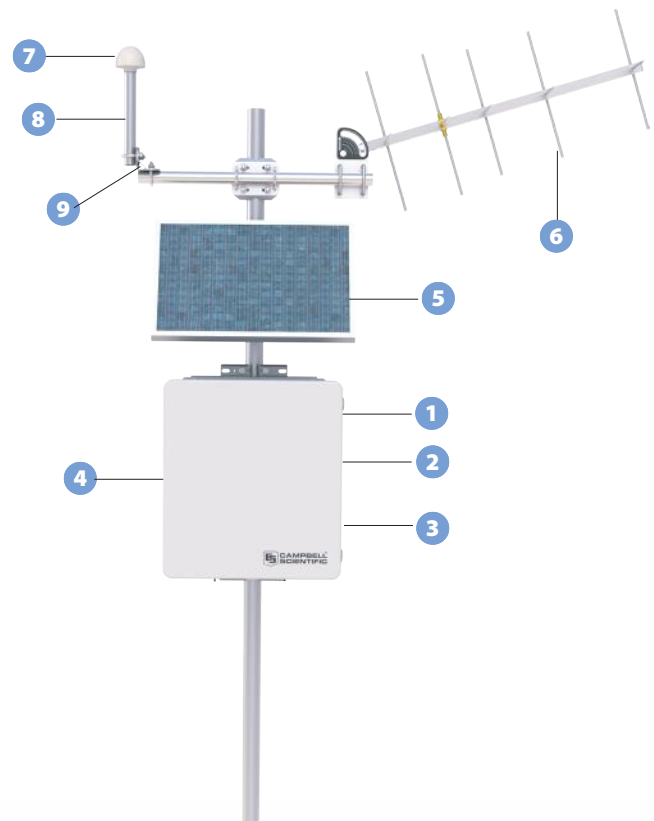
The TX321 is a GOES^a and Meteosat^b satellite data transmitter that provides an easy and reliable way for Campbell Scientific data collection platforms (DCP) to transmit data over geostationary satellite. It is typically used by government agencies and sponsored research organizations that transmit environmental data.

Benefits and Features

- › Configuration and diagnostics easily performed by datalogger or computer
- › Drop in replacement for Campbell Scientific TX320, TX312, and SAT HDR GOES
- › GOES HDR Version 2, Meteosat SRD, and International DCS operation
- › Low power consumption when idle (< 5 mA @ 12 V)
- › Very stable clock allowing 28 days of operation between GPS fixes

Standard DCP Equipment

- 1 TX321 satellite transmitter^c
- 2 Datalogger (CR300, CR6, CR800, CR850, CR1000, CR3000, CR295X, CR5000)
- 3 CH150 or CH200 regulator and BP12 12 Ah or BP24 24 Ah battery
- 4 Environmental enclosure
- 5 SP10 or SP20 (shown) solar panel
- 6 25316 Yagi antenna, mounting hardware, and COAXNTN-L RG8 antenna cable
- 7 17992 GPS 28 dBi antenna (shown) and 18017-L cable or 31182 GPS 27 dBi antenna
- 8 7623 0.75-inch IPS aluminum pipe (17992 GPS antenna only)
- 9 GPS antenna mount (CM220 right angle mount shown)^c



^aSee <http://noaasis.noaa.gov/DCS/> for information about the GOES authorization procedure.

^bSee www.eumetsat.int for information about the Meteosat authorization procedure.

^cSee www.campbellsci.com/order/tx321 for TX321 options, additional GPS antenna mounts, and optional surge protection kits.



Specifications

Supply Power

- › Supply Voltage: 10.8 to 16 Vdc
- › Typical Current Draw @12 Vdc
 - Idle: < 5 mA
 - During GPS Fix: < 100 mA
 - Transmit: <2.6 A
- › Connector: Removable 2 pin screw terminal, 5 mm pitch

Satellite General

- › Supports timed and random transmissions
- › Supports ASCII and pseudo-binary message transmission
- › Transmit RF out connector: Type N jack
- › G6 OEM radio module

Satellite GOES

- › NOAA/NESDIS GOES High Data Rate Certification Standards version 2
- › Baud Rates: 300 and 1200 bps
- › Transmit Power^d
 - Settings default for use with 11 dBi YAGI antenna
 - 300 bps default: 31.5 dBm
 - 1200 bps default: 37.5 dBm
 - Maximum: 38 dBm
- › Frequency Range: 401.701 to 402.0985 MHz
- › Initial Frequency Stability: ± 20 Hz disciplined to GPS; GPS fix occurs after power up and once per day thereafter
- › Channel bandwidth
 - 300 bps: 3 kHz
 - 1200 bps: 1.5 kHz NOAA/NESDIS GOES High Data Rate Certification Standards version 2

Satellite Meteosat

- › EUMETSAT Meteosat SRD
- › Baud Rates: 100 bps
- › Transmit Power^e
 - Default configuration for use with 11 dBi YAGI antenna
 - 100 bps default: 37.5 dBm
 - Maximum: 41.5 dBm
- › Frequency Range: 402.0355 to 402.4345 MHz
- › Initial Frequency Stability: ± 20 Hz disciplined to GPS; GPS fix occurs after power up and once per day thereafter
- › Channel bandwidth: 3 kHz (100 bps)

GPS Receiver

- › Type: 3.3 V active
- › Connector: SMA jack

Timekeeping

- › Initial Accuracy: ± 100 μ s synchronised to GPS
- › Drift: ± 10 ms/day without GPS
- › GPS Schedule: 1 fix at power up, 1 fix per day afterwards
- › Transmission Continuation without GPS Fix: 28 days

Interface Connectors

- › USB: micro B, USB device
- › RS-232: DB9 F, DCE, 3 wire RS-232
- › CS I/O: DB9 M, SDC 4
- › Satellite RF transmit out: Type N jack
- › GPS: SMA jack
- › Power: Removable 2 pin

Temperature Range

- › Operating: -40° to 60°C
- › Storage: -55° to 70°C

Transmitter Size

- › Case Dimensions: 18.5 x 12.7 x 3.8 cm (7.3 x 5.0 x 1.5 in)
- › Dimensions including connectors: 20.96 x 13.34 x 4.06 cm (8.25 x 5.25 x 1.6 in)
- › Weight: 0.77 kg (1.7 lb)

Interface Command Protocols

- › Binary Command Protocol
 - Available on CS I/O when connected
 - Available on RS-232 if CS I/O is not connected
- › ASCII Command Protocol (available on all ports)

25316 Transmit Antenna

- › Gain: 11 dBi
- › Type: Right hand circular polarization Yagi
- › Connector: Type N female
- › Wind Load: ~100 knots
- › EU Declaration of Conformity:
https://s.campbellsci.com/documents/us/compliance/eudoc_25316.pdf

17992 GPS Antenna

- › Type: 3.3 V active dome, pipe mount
- › Gain: 28 dBi
- › Connector: TNC jack

31182 GPS Antenna

- › Type: 3.3 V active patch, magnetic mount
- › Gain: 27 dBi
- › Connector: SMA plug

^dWhen transmitting to GOES-13 or later, transmit EIRP shall be 37 to 41 dBm for 300 bps and 43 to 47 dBm for 1200 bps.

^eMeteosat SRD transmit EIRP should be 43.25 to 52 dBm.

