

FTS AXIOM DATALOGGER H2-G6-TLM



Technical Specifications

Hardware

- Display/touchscreen:**
- Graphical color touch screen display, 3.65" (diagonal), QVGA (320x240 pixels).
 - Display is transfective (readable in low light and outdoors in bright daylight)
 - Displays system status, configuration, stored data (graphical and tabular) and provides system configuration and troubleshooting diagnostics.
 - Displays voltage and current separately for battery and solar panel and battery temperature.
 - Supports troubleshooting, configuration and programming.

- CPU:**
- Two (2) CPUs total, both low-power RISC.
 - Main CPU is 200MHz 32-bit ARM.

- Memory/storage:**
- 64MB RAM
 - 256MB fixed physical, non-volatile flash memory for data and program storage.
 - Data is stored in a circular 10MB buffer (oldest data overwritten by newest when buffer full).
 - Based on NFDRS logging criteria, 7,575 days (about 20 years) of data can be stored.

Device ports:	<ul style="list-style-type: none"> • 2 waterproof USB 2.0 host ports, 1.5Mbps and 12 Mbps, support for flash memory and other USB-compliant devices. • 1 waterproof USB 2.0 12 Mbps device port with automatic PC detect. • Supports USB keyboard and mouse. • GOES RF output: N-type jack • GPS RF input: SMA jack
Sensor ports:	<ul style="list-style-type: none"> • Waterproof, color-coded, military-style connectors. • Dedicated ports (H2): <ul style="list-style-type: none"> – rain gauge (counter) • 4 Independent SDI-12 V1.3 ports able to communicate with a maximum of 62 digital sensors. • SDI ports each support up to 500mA and are electrically isolated.
Serial ports:	<ul style="list-style-type: none"> • 2 ports factory configured as internal GOES transmitter and one external, waterproof, military-style bayonet connector • Signal levels: RS232C • Signals: TXD, RXD, RTS, CTS, DCD, DTR, RI
Environmental sealing, size, weight:	<ul style="list-style-type: none"> • Waterproof to IP67, O-ring sealed, cast aluminum & stainless steel hardware, engineered resin bezel • Dimensions: 10" W x 8" H x 6" D • Weight: approx. 8 lbs.
Power supply:	<ul style="list-style-type: none"> • Internal, temperature compensated PWM charge regulator • Waterproof, military style bayonet connectors for solar panel and battery. • Sensing of battery voltage, battery current, battery temp, solar voltage and solar current. • 9.6VDC to 20VDC operating voltage.

Software

Station identification:	<ul style="list-style-type: none"> • The station's name, NESID and GOES data can be easily identified on the touchscreen display.
Programming:	<ul style="list-style-type: none"> • All programming done through intuitive graphical user interface (GUI) without writing code. • GUI accessed through integrated touchscreen. • Unlimited setup configurations are stored directly on the datalogger; different configurations can be selected or a new one created with the GUI.

Electronic service reports:

- All of the data recorded by field techs during a service call can be captured electronically in the Axiom and saved to a USB memory stick.
 - Data includes:
 - a list of sensor serial numbers before and after the service trip.
 - Audit log.
 - datalogger program version.
 - latitude, longitude, elevation.
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Datalogger Performance verification:

- Graph sensor data and diagnostic parameters.
 - Battery load tests; view voltage before and after (requires dummy load on battery).
 - View current sensor readings.
 - View historical data.
 - View GPS performance stats.
 - View forward and reflected power stats to check GOES antenna performance.
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One-touch current conditions:

- Users can customize the Current Conditions screen so that all sensors' real-time data are viewable with one button press, extremely handy when validating wind quadrants or simply validating each sensor as it is replaced.
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Data transfer via USB memory stick:

- Data, Programs and Firmware updates can be transferred to and from datalogger via a conventional USB memory stick.
 - Historical data download is fast: approximately 5 seconds for 1 year of data including logger and telemetry records.
 - Data downloaded in universal .CSV (comma-separated values) format; importable into Excel and many other software.
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GOES Transmitter

Manufacturer:

- FTS
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Supported baud rates:

- 100 bps
 - 300 bps
 - 1,200 bps
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Operating supply voltage:

- 10.8 VDC to 16 VDC
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Supply current (at 12VDC):	Idle: <3 Ma Transmitting: <2.6 A GPS ON: <50 mA
Output power:	GOES <ul style="list-style-type: none"> 300 bps: 14W max 1,200 bps: 14W max
EIRP:	40-45 dBm
Compatible antennas:	Power: 14W Max Polarization: Right hand circular Connector: N-Type Female
Frequency range:	GOES <ul style="list-style-type: none"> 401.701 MHz – 402.09850 MHz
Frequency stability:	<ul style="list-style-type: none"> Initial accuracy +/- 20Hz synchronized to GPS GPS Schedule: 1 fix at power up, 1 fix per day thereafter
Channel bandwidth	<ul style="list-style-type: none"> 100 bps: 3KHz 300 bps: 750 Hz 1,200 bps: 1.5 KHz
Time-keeping:	<ul style="list-style-type: none"> < 100 µsec initial accuracy, automatically synchronized to GPS < 10 ms per day drift without GPS 28 day operation without GPS signal (after initial GPS synchronization)
User Interaction	
User interface:	<ul style="list-style-type: none"> Always-present status indicator of GPS time, data received by transmitter, success of transmission. Number of satellites in view, average signal strength and other GPS status information available.
Forced transmissions:	<ul style="list-style-type: none"> User can select any channel and time to force a test GOES transmission.
Resolution, Accuracy and Stability	
GPS	<ul style="list-style-type: none"> Internal 12-channel GPS receiver. SMA connector for 3V active patch GPS antenna. Hourly time synchronization to UTC. Latitude, longitude, elevation to full GPS accuracy.

Environmental Protection

- Operational moisture range:**
 - 0-100% RH, condensing

- Operational temperature range:**
 - G6 and Datalogger operation: -40°C to +60°C
 - Storage: -55°C to +70°C

- Lightning protection:**
 - Three-stage protection circuit offers superior protection:
 - Stage 1:** transient earth clamp.
 - Stage 2:** series impedance.
 - Stage 3:** high speed shunt diode.

- UV resistance:**
 - Excellent, as minimal plastics are used. Cable housing and omnidirectional GOES antenna are UV stable.

- Electronics protection:**
 - Core electronics sealed from moisture and dust in waterproof housings, completely isolated from environment and user.
 - All non-telemetry data exchange (firmware upgrades, report downloads) performed through waterproof USB port.
 - Battery overcharge protection.

- IP code rating:**
 - IP67

Power Consumption

- Datalogger current:**
 - **Idle:** 7-8mA (no integrated GOES transmitter), 7-8mA (with integrated GOES transmitter)
 - **Active (collecting data):** 12mA (with integrated GOES transmitter)
 - **Touchscreen backlight on:** 60mA
 - **GOES transmit:** 2.6A.
 - **GPS on:** <50mA

- Power status:**
 - Datalogger measures and logs solar panel voltage, solar panel current, battery voltage, battery current and battery temperature.
 - Status indicators (always visible) allow techs to identify if the system is charging correctly or not.
 - This data is also part of the Current Conditions screen call and are captured in the electronic service report.