Axiom F7 Data Logger Firmware Release Notice
Firmware Version 1.3.59

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Introduction

Axiom F7 data logger is the successor to F6.

The same F7 firmware is used for all Axiom hardware variants, such as F7-GN-AX and F7-G6-IR-AX-AT-QD.

Firmware support may lag hardware availability.

This firmware notice will help AEM sales representatives and customers determine the suitability of each release for specific applications.

Firmware may be updated in the field by users with a USB flash drive. Brief update instructions and special actions are included in this document.

Overview of Release

Firmware release v1.3.**59** change summary:

- This release improves data storage reliability, lets configurations transfer between F7 hardware variants, and improves overall system stability.
- It also extends preliminary Iridium satellite modem support and cleans up AirTalk configuration handling.

Advisory

Important: This update must be installed on firmware version 1.3.43 or later.

Version 1.3.**43** included file system updates. If you have an early version (less than .43), contact support for other instructions.

If your data logger is running 1.3.43 or later, you can install 1.3.59 directly.

Update Instructions

Action Summary

☒ **Standard update (from v1.3.43 or later)**

☐ Mandatory update

Before Update

☐ Power reset required *before* update

☐ Save configuration *before* update

☐ Save datalog *before* update

☐ Factory reset required *before* update (Measurement data will be lost.)

After Update

☐ Power reset required *after* update

☐ Restore configuration *after* update

☐ Factory reset required *after* update

☐ Do not downgrade *after* update

See Action Details section for more information on the above summary.

Update Preparation

1. Download firmware file to a Windows PC.
2. Save the firmware file to the root directory of a USB flash drive.

Update Process

1. Insert the flash drive into the Axiom F7 USB port.
2. Save Configuration – Optional
    a. Navigate to Menu – Station > Setup tab
    b. Save Configuration to USB flash drive
3. Firmware Update
    a. Navigate to Menu - Service > Update screen
    b. Select the firmware file and then press "Use Selected File."
    c. Acknowledge the prompts to complete the process, which takes approximately 6 minutes.
4. Remove USB flash drive during.
5. Confirm Firmware Version
    a. Navigate to Station->About
    b. Confirm FW version 1.3.**59**

Appendix A – Firmware Release Details

The following sections identifies specific features or functions available in the firmware release. Further information may be included in the technical release notes or available from AEM support staff.

Y – Yes, the capability is supported

(P) – Partial implementation

Operations and Interface

Description	Support	Notes
Station Name and Site Information	Y	User editable through touch screen.
Load and Save Configuration w/ USB	Y	Fixed name for locally-saved files.
Sensor Configuration	(P)	Must be pre-configured by AEM.
Data Log Configuration	Y	Editable through touch screen.
Current Conditions, Home Carousel	(P)	Auto refresh. Only editable through AEM configuration file and firmware.
Current Conditions, Page	(P)	Auto refresh. Configurable through touch interface. Available data points restricted by AEM configuration.
Sensor Mapping	Y	
Dynamic Datapoint Naming		
Enable-disable Discrete Sensors		
Add-remove Sensors in GUI		
Edit Home Sensor Carousel		
Warning and Error Diagnostics		

Sensor Support

Axiom includes sensor templates for sensors that are specifically identified. Other SDI sensors may be used with the Generic SDI interface but may not have been individually tested for compatibility.

Sensor	Function	Support	Notes
AEM THS (Analog)	Temperature, Humidity	Y	
AEM FS-3 (Analog)	Fuel temperature, Fuel moisture	Y	
AEM RG-T	Rain, Tipping-bucket	Y	
AEM SDI-PYR-SR	Solar Radiation	Y	
AEM SDI-WS-RMY (Wind)	Wind speed, Wind direction	Y	
AEM SDI-BP	Barometric pressure		

Sensor	Function	Support	Notes
AEM SDI-THP	Temperature, Humidity, Barometric pressure		New Lambrecht sensor.
AEM SDI-AM	Analog interface expansion module		
S-HPII-CON Hydraprobe	Soil Moisture and Temperature	Y	Permittivity not yet implemented.
Keller PT	Depth, Temperature, Stage	Y	
LX80	Water level, Radar		
LX80-S	Snow level, Radar		
LX80-O	Oceanographic Water Level, Radar		
Gill Windsonic	Wind direction, Wind Speed	Y	
Generic Stage	Water level		
Generic PT	Water level, PT		Submersible pressure transducers only.
Generic SDI	Programmable SDI sensor		
AWP-225, -425	Precipitation	Y	V1.3.56
OTT Pluvio	Precipitation		
WS6, WS7	Integrated weather instrument		

Data Log

Description	Support	Notes
Capacity Status	Y	>10 for most applications
User-configurable Logs	Y	
Log Download	Y	
TX-aligned Data Log w/ G6 Telem data	Y	Updates to match G6 TX time changes.

Calculations and Processes

Description	Support	Notes
User Variable		
Function		
Statistical (Min, Max, Delta, Median, Avg, Std Deviation)	(P)	Min, Max, Avg are implemented through config file for specific devices.

Wind Avg, Peak, Variation	(P)	Avg and Peak are implemented through config file for specific devices.
Script (Python)		

Telemetry

Description	Support	Notes
G6 GOES Transmitter, Built-in	Y	User-configurable text and SHEF code messages.
Iridium SBD, Built-in		
AirTalk, Built-in RVT2		
AEM CTX-G1 Cell Modem		
GNSS-only, No GOES Transmitter	Y	Applies to F7-GN and F7-IR-GN only.

Service Tools

Description	Support	Notes
Site Visit Report	Y	Reports automatically saved to USB.
Rain Gauge Calibration	Y	Tipping bucket calibration check
Wind Sensor Calibration	Y	RM Young (SDI) functional check
Audit Log	Y	
Configuration Reset	Y	
Factory Reset	Y	
Trace Log	Y	
Update	Y	Firmware update to data logger and G6 transmitter via USB flash drive.
Set Date/Time		
Safe Reboot		
Password Setup		
Download Saved Visit Reports	Y	

Appendix B – Detailed Release Notes

The following notes include both prior internal and external release that may be useful for some users.

V1.3.59 – Release Candidate – Nov 10, 2026

- Preliminary Iridium network configuration settings, including network availability detection. Iridium is not yet available for field deployment.
- Datalog downloads: Improved stability during datalog downloads.
- Removed obsolete AirTalk vocabulary entries from stored configurations.
- The logger now recovers automatically when it fails to write data to internal storage.
- Configurations saved on one F7 hardware variant can now be restored on another.
- Fixed an issue that prevented AirTalk-equipped loggers from saving configuration files to USB or local storage.

V1.3.58 – NIFC Build – Nov 10, 2026 (Relative to v1.3.54)

- Enhanced datastore recovery with automatic database close/reopen mechanisms.
- Improved handling of queued measurements to minimize potential data loss.
- Validated database recovery under simulated eMMC contention across three test units.
- Datastore Recovery After Failed Writes: Fixed an issue where database writes could remain unsuccessful following an eMMC lock timeout.

V1.3.57 – NIFC build – Oct 29, 2026 (Relative to v1.3.54)

- System improvement – LC stack size increased to prevent stack overflow during datalog download operations

V1.3.56 – Release Candidate – Oct 27, 2026

- Initial Iridium modem support in preparation. (Not available for field deployment.)
- AWP status no longer disturbs accumulated precipitation measurements.
- Resolved intermittent “bad echo” SDI-12 errors and improved reliability.
- Fixed date and time selection for Trace log download.
- Improved the accuracy of battery temperature readings.

V1.3.54 – Release Candidate – Oct 20, 2026

- Added configuration of carousel items from the Current Conditions edit screen.
- Added support for unscheduled measurement objects.
- Improved AWP data handling of measurement readings.
- Adjusted Iridium, PROC, and LC task stack allocations to improve memory utilization and stability.
- Added datastore retry buffering to handle failed database writes.
- Integrated new database v8.9.5.

V1.3.52 – Release Candidate – Sep 11, 2026

- System Improvement – improved datalog download “All” to removed a hard coded start date
- System Improvement – moved unit conversion tables out of RAM

V1.3.51 – Internal QA Build

- System Improvement: rebuild ITTIA database to remove diagnostic code (final build).
- System Improvement: updated the Factory Reset default configuration to disable all optional sensors.

- Foundation code: added AirTalk queue/history screens
- Foundation code: improved the AWP sensor configuration workflow and reliability

V1.3.49 – Internal QA Build

- Feature – added DataPoint name service – allows customers to change sensor and datapoint names and have changes propagate through current conditions, sensors, processes, datalog and Goes Tx
- System Improvement – ITTIA database update to address journaling time
- System Improvement – Datalog download speed up (25x faster) to reduce annual data download from ~40 minutes to ~2.5 minutes
- Foundational code – added AWP sensor base code, AWP configuration screen
- System Improvement – added goes numerical formatting picker to list builder screen
- System Improvement – resource tuning of LC stack for Datalog DL
- System Improvement – UART bridge hardening
- Fixed an issue with GOES tx where it might not recover from valid to invalid and back to valid.
- Fixed an SDI-12 issue with communication issue caused by an invalid echo
- Fixed an issue that can cause the unit to reboot while viewing GOES transmission-log screen/progress bar update
- Fixed a USB initialization error that occurs in low power mode using MSI clock configuration.

V1.3.48 – Release Candidate – July 14, 2026

- Adds Antenna-pointing calculations to the GOES status screen.
- Delete all trace logs includes a protected service function to delete stored trace logs and recover space when the file system is full. A confirmation prompt helps prevent accidental deletion.
- File-system recovery events added to the Audit log including Trace recover during start-up.
- AirTalk support improvements, including phrase-count limits, parameter validation, message-playback timeout protection and better handling of systems without an AirTalk module installed.
- Prevent USB initialization from blocking logger operation such as sensor measurements, user processes and other logger functions.
- Improved USB startup during database recovery and prevents firmware updates and USB initialization from becoming stuck while the database is recovering.

v1.3.47 — QA Release Candidate — June 25, 2026

- Corrected an interrupt stack overrun condition that could result in intermittent screen display errors
- Added a protective pop-up during database journaling activity to block user input while a progress indicator is shown
- Improved screen artifacts and reliability

v1.3.46 — QA Release Candidate — June 25, 2026

- System Improvement — Firmware update process now blocks installation of versions prior to v1.3.43, preventing reversion to the legacy ITTIA database structure
- System Improvement — Journaling progress screen now includes a reminder to remove the USB drive during startup

v1.3.45 — QA Release Candidate — June 24, 2026

- System Improvement — Configuration restore now provides immediate on-screen confirmation once the user confirms the restore action

- System Improvement — SDI-12 save/unmap workflow now provides prompt feedback, eliminating repeated delayed status messages
- Resolved an issue where GOES Tx log parsing could stall when encountering a malformed or truncated log line

v1.3.44 — Customer Release Candidate — June 12, 2026

- System Improvement — Added a journaling progress bar during datastore startup
- System Improvement — Resolved an unbounded eMMC busy-loop condition that could contribute to unexpected station restarts
- Resolved an issue where editing the Current Conditions list could trigger a station restart
- Resolved an issue affecting accuracy of SDI-12 sensor search results
- Resolved an issue where downloading the trace log could trigger a station restart
- UART bridge now automatically recovers following a detected I2C error
- Resolved a display issue affecting the G6 Log tab when accessed via swipe navigation