TECHNICAL SPECIFICATIONS

F7 Data Logger

F7 is a rugged, high-performance data logger designed for remote environmental monitoring, with a focus on wildfire risk management applications. F7 combines durability, low power consumption, and ease of use into an integrated system with solar charging and satellite communication capabilities. Its robust design ensures reliable data collection even in harsh environments, making it an ideal choice for safety-critical applications.

Featuring a sealed IP67 enclosure, military-grade connectors, and comprehensive electrical protection, F7 offers uncompromised reliability in challenging field conditions. The color touchscreen display and intuitive user interface eliminate the need for external devices for deployment and maintenance.

The F7 includes four SDI-12 sensor ports and an auxiliary port for optional external cellular telemetry. It also offers integrated options for GOES and Iridium satellite telemetry, creating a robust platform for various weather station applications.

MECHANICAL SPECIFICATIONS

Dimensions	10 x 8 x 5.7 inches (25.5 x 20.3 x 14.4 cm)
Case Materials	• Corrosion resistant • Powder-coated aluminum body • Glass-reinforced, injection-molded polyamide bezel
Connectors	• Military-style circular connectors for sensors and power • Sealed, RF and telemetry connections • 1x USB-A host port
Weight	8.45 lbs (3.8 kg)

ENVIRONMENTAL SPECIFICATIONS

Operating Temp	-40°C to 60°C
Storage Temp	-55°C to 70°C
Operational Humidity	10–90% RH, condensing
Sealing	IP67, O-ring seals
Impact	Shipping drop ISTA-2
Vibration	TBD

ELECTRICAL SPECIFICATIONS

Power Input	• 12 V battery • 9.6 V to 24 V power
Solar Input	12 Vnominal, 20 W standard. >100 W, depending on site.
Battery Compatibility	12 Vnominal, VRSLA 7 Ah to >200 Ah, depending on site.
Charge Regulation	• Voltage and current controlled • Temperature compensated
Electrical Transient Protection	• **Sensor Inputs:** Gas discharge tube, series impedance, and TVS. • **Power:** TVS • **Antenna:** TVS Data I/O: Standard ESD

DATA I/O

USB Host	None
USB Device	1x USB 2.0 Type-A supports mass storage devices
USB OTG	n/a
Serial Port	RS-232/485

*Preliminary specifications – details may change prior to final release.

SENSOR PORTS

SDI-12	• 4 discrete ports • SDI-12 v1.3 compliant, v1.4 compatible • Switched power • 2 A combined switched power
Analog Ports	• Temp-hum sensor and fuel stick sensors compatible. • Switched power • 2 A combined supply current
Counter Input	Tipping bucket rain gauge input.

ELECTRONIC FEATURES AND USER INTERFACE

Display	• Transmissive color TFT IPS • 480×272 • 0.194 mm dot pitch • LED backlight • 750 nits • 1:1500 contrast
Touch Panel	Capacitive
Processor	Ultra-low-power ARM 32-bit Cortex-M4 with FPU, adaptive ART, DSP
Memory/Storage	• 640 kB (MCU) RAM • 2 MB (MCU). • 2 x 1 Mb banks of internal flash • 32 MB NOR Flash
OS	FreeRTOS

INTERNAL (SYSTEM) SENSORS

Battery	• Voltage • Current • Temperature
Solar Power	• Voltage • Current
Internal	Case temperature

EXTERNAL SENSORS

Temperature Humidity	THS-3
Fuel stick	FS-3
Rain Gauge	RG-T
Anemometer	SDI-WS-RMY
DigiTemp	SDI-DigiTemp
Solar Radiation	SDI-SR-PYR
Soil Moisture	S-HPII-CON
Barometric Pressure	SDI-BP-1
Generic SDI	User configurable

DATA COLLECTION AND LOGGING

Download Format	Downloaded as CSV
Logging Capacity	>5 years, depending on configuration
Internal Data Structure	Embedded database
Data Collection	Full-spectrum Data Store
Log Structure	Dynamic logging allows for post-hoc data log construction from Full-spectrum Data Store.

GOES SATELLITE TRANSMITTER (OPTIONAL)

Transmitter	AEM G6
Baud Rate	• User selectable, • 300 bps or 1200 bps
RF Power	• 6.3 Wmax at 300 bps • 6.34 Wmax at 1200 bps
Antenna	User selected as directional or omni-directional

IRIDIUM SBD (OPTIONAL)

Mode	Iridium Short-burst Data (SBD)
Data Connection	AEM Elements™ 360 compatible

CELL PHONE (EXTERNAL AUX COMM PORT)

AEM Cellular Modem	• LTE Cat-M1/NB2 • 4G • AT&T • Verizon • RED certifications

DATA PROCESSES

Statistical	• Min • Max • Average • Delta • Std Deviation
Wind	• Vector Average • Gust • Peak • Variation
Function	User-defined calculation
Other	• Weighted Average • Burst Average (TBD) • Stage (TBD)