TECHNICAL SPECIFICATIONS

H3 Data Logger

H3 is a rugged, high-performance data logger specifically optimized for hydrology applications. Combining durability, low power consumption, and ease of use, H3 integrates solar charging and satellite communication capabilities. Its robust design makes it an ideal choice for critical water resource and watershed monitoring applications.

With a sealed IP67-rated enclosure, military-grade connectors, and comprehensive electrical protection, H3 delivers uncompromised reliability in demanding wet environments. The color touchscreen display and intuitive user interface streamline deployment and maintenance activities, eliminating dependence on external devices and reducing time spent in the field.

H3 is equipped with a rain gauge input and four SDI-12 sensor ports, making it compatible with a wide range of hydrology sensors, such as those for monitoring rainfall, water level, and stream flow. It offers integrated GOES and Iridium satellite telemetry options, as well as an external auxiliary port for connecting an AEM cellular modem. This flexibility ensures reliable data transmission in both remote and accessible locations.

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	Max w/ all options - 9.25 lbs (4.2 kg) Min - 8.45 lbs (3.8 kg)

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 saves all measurements to the database.
Log Structure	Dynamic logging allows for post-hoc data log construction from Full-spectrum Data Store.

ELECTRICAL SPECIFICATIONS

Power Input	• 12 V battery • 9.6 VDC to 16 VDC
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 Device	1x USB 2.0 Type-A supports mass storage devices
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
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) Firmware images • 8 GB eMMC Flash • 32 MB Flash
OS	FreeRTOS

INTERNAL (SYSTEM) SENSORS

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

EXTERNAL SENSORS

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
Pressure Transducer	SDI-PT-SS-KEL

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
Random Vibration	MIL-STD 810G, Meth. 514.6, Cat. 4, Proc. I, Fig. 514.6C-3
Mechanical Shock – Functional	MIL-STD 810G, Meth. 516.6, Proc. I, Sec. 4.6.2.3
Transit Drop	MIL-STD 810G, Meth. 516.6, Proc. IV, Sec. 4.6.5.3
Bench Handling	MIL-STD 810G, Meth. 516.6, Proc. VI, Sec. 4.6.7.3

GOES SATELLITE TRANSMITTER (OPTIONAL)

Transmitter	AEM G6
Baud Rate	300 bps or 1200 bps
RF Power	• 6.3 Wmax at 300 bps • 6.34 Wmax at 1200 bps
Antenna	• Directional or omnidirectional • 50 Ohm, EON2 compatible

IRIDIUM SBD (OPTIONAL)

Mode	Iridium Short-burst Data
Data Connection	AEM Elements® 360

CELL PHONE (EXTERNAL AUX COMM PORT)

AEM Cellular Modem	• 4G, Global LTE Cat-M1/NB2 • AT&T, Verizon, RED Cert.

DATA PROCESSES

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