

1. INTRODUCTION

The Hawk is a rugged and robust IoT datalogger for a wide range of sensor and condition monitoring applications. The Hawk’s flexible architecture caters for plug-in cards (I/O Cards) that define the 9 inputs/outputs, offering a variety of options for interfacing to sensors such as SDI-12, I²C, 1-Wire, iButton, 4-20mA, RS-485, RS-232, Analog Inputs, Digital Inputs, Pulse Counting, Digital Outputs, Switched Power, and more.

Connectivity – LTE-M and NB-IoT, IoT Satellite version also planned

- Plug-in I/O Interface
- GPS Location
- Powerful task management allows you to schedule tasks or run tasks based on sensor thresholds and events
- Large 3500mAh rechargeable LiPo battery pack to support full season deployments
- Multiple external power options including solar power – can also supply power to external sensors
- Supports optional external antenna for maximum range
- Ultra-rugged IP67 rated housing with GORE® vent



**Current rendering. Housing subject to change.*

2. PRELIMINARY SPECS

CONNECTIVITY	LTE-M / NB-IoT	
		Nordic nRF9160 Modem operates on all major global LTE-M and NB-IoT bands
		Supported LTE-M (Cat-M1) bands:
		Cat-M1: B1, B2, B3, B4, B5, B8, B12, B13, B14, B17, B18, B19, B20, B25, B26, B28, B66
		Cat-NB1/NB2: B1, B2, B3, B4, B5, B8, B12, B13, B17, B19, B20, B25, B26, B28, B66

	SIM Size & Access	Internal Micro 3FF SIM
LOCATION	Module	Nordic nRF9160 internal GPS
	Constellation	GPS
	Tracking Sensitivity	-155dBm
	Location Accuracy	~3m CEP, 50%, GPS, Open sky
	GNSS Assistance	GPS predicted ephemeris data for greater sensitivity and position accuracy
	Low Noise Amplifier	GPS signals are boosted by a low-noise amplifier (LNA) allowing operation in low signal
	Cell Tower Location	Optional cell tower positioning when there is no GPS signal
POWER	Rechargeable Battery	3500mAh LiPo rechargeable battery
	Input Voltage	6-28V DC (max)
	Self-Resetting Fuse	Built-in self-resetting fuse makes installation simple and safe
	Solar Power	Designed to optionally use an external 12V solar panel, 5W or higher
	Maximum Power Requirement	4W excluding external sensor power draw
	Sleep Current	TBD
MECHANICS / DESIGN	Dimensions	TBD
	Weight	TBD
	Housing	Ultra-Rugged Nylon Glass
	IP Rating	IP67 including GORE® vent
	Installation	Multiple installation options for securing the device with screws, bolts, cable ties, rivets, and more. Includes 2 cable glands to allow for waterproof cable entry to the housing.
	Operating Temperature	-20°C to +60°C (connected to external power) At < 0°C and > +40°C the internal backup battery will not be charged as a safety precaution due to the dangers associated with charging batteries at extreme temperatures.
	GPS Antenna	Internal
	Cellular Antenna	Internal or External
	3-Axis Accelerometer	3-Axis Accelerometer to detect tampering (planned)

	Diagnostic LEDs and Button	2 Diagnostic LEDs and Push Button for testing and operational status
	Flash Memory	Store months of records if device is out of cellular coverage.
	On-Board Temperature	<p>The device reports internal temperature and prevents the internal battery from charging in extreme temperatures.</p> <p>Internal temperature provides an indication of ambient temperature but may not always be precise.</p>
INTERFACES	Digital Inputs	<p>1 x Digital Inputs with configurable pull up/pull down</p> <p>0-48V DC input range</p> <p>On/Off thresholds: TBD</p> <p>Can be used for pulse counting (max 40Hz)</p>
	Plugin Board	The versatile and flexible Hawk architecture caters for plug-in cards that define the 9 inputs/outputs, offering limitless options for interfacing to sensors. See the current card list below or contact us to discuss your requirements.
SMARTS	Auto-APN	Auto-APN allows the device to analyze the SIM card and select the correct APN details from a list that is pre-loaded in the device's firmware
	Battery Life and Voltage Monitoring	LiPo battery and external voltage readings for "Battery Low" and "Power Loss" alerts
	Task Management	Powerful task management allows you to schedule tasks or run tasks based on sensor thresholds and events
DEVICE MANAGEMENT	Flexible Configuration	Configure sensor and position update rates
	Device Management Platform	Manage, monitor, configure, debug, update, and restart devices remotely from our cloud-based device management system
	Configuration App	Configurable with DM-Link provisioning tool
INTEGRATION	Third-Party Integration	TCP Direct or HTTPS Webhook

SECURITY	Data Security	Military-level AES-256 Encryption from device to OEM Server to protect the integrity and confidentiality of telematics data. Data forwarded to third-party systems is sent via HTTPS for end-to-end security.
WARRANTY	Manufacturer's Warranty	Two-year manufacturer's warranty. Exclusions apply.
CERTIFICATIONS		Pending

I/O CARD OPTIONS

The Hawk's sensor interfaces and protocol are managed by "I/O Cards" – a range of plug-in Input/Output cards standardized for common applications. See the current card list below or contact us to discuss your requirements.

AgTech1

Digital Inputs	1 x Digital Input with configurable pull up/pull down 0-48V DC input range On/Off thresholds: TBD Can be used for pulse counting
Digital Outputs	1 x switched ground
I²C	Yes
SDI-12	Yes
Switched Power Out	3V3 switched power for sensors
Switched Sensor Power	5V or 12V selectable power for sensors
1-Wire[®] or iButton[®]	Yes
4-20mA	1 x 4-20mA input

3. RESOURCES

- Introducing the Hawk IoT Datalogger – [Video](#), [Article](#)

4. FORWARD-LOOKING AND CAUTIONARY STATEMENTS

All new product statements contained herein that are not statements of historical fact, including statements that use the words “to become,” “will,” “designed to” or other similar words or expressions, that describe Digital Matter’s hardware, software or its management’s future plans, including hardware features, components, housing and stock availabilities, are “forward-looking statements.”

Such forward-looking statements involve known and unknown risks, uncertainties and other factors. Please use caution when making purchase decisions at this stage.

Preliminary