Hawk

Cellular 4G/5G LTE-M / NB-IoT
IoT Satellite Version Coming Soon

Status: *New Product Introduction*

The Hawk is a robust plug-and-play IoT data logger and sensor hub designed to support an extensive range of sensor integrations.

The Hawk is available in multiple connectivity, power, and housing variations. PCB, I/O Card, and Housing sold separately, giving you the flexibility to purchase only what you need to build your remote monitoring solution.

Flexible I/O Card Architecture
Plug-in cards define the 9 inputs/outputs, offering limitless options for interfacing to sensors such as SDI-12, I²C, 1-Wire, iButton, 4-20mA, RS-232, RS-485, Analog Inputs, Digital Inputs, Pulse Counting, Digital Outputs, Switched Power, Bluetooth and more.

Multiple Power Options
Power the Hawk with a large 3,500 mAh internal rechargeable LiPo battery, external power (including solar), or 2 x D-Cell LTC batteries to support full season deployments.

Multiple Housing Options
Select from our ultra-rugged and waterproof IP68 and IK07-rated housing options, or build your own

Task Management
Powerful task management allows you to schedule tasks or run tasks based on sensor thresholds and events

GPS Location
On-board GPS for location plus optional *cell tower positioning (*planned)

External Antenna Support
Supports optional external antenna for maximum range

Remote Device Management
Over-the-air (OTA) remote device configuration, management, and firmware updates

Flexible Build
Hawk PCB, I/O Cards, and Housings are sold separately – giving you the flexibility to build what you need

HAWK PCB

Onboard Connectivity

The Hawk PCB is currently available with LTE-M/NB-IoT connectivity. IoT Satellite version planned.

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

Onboard Design and Mechanics

Operating Temperature	-30°C to +60°C LiPo Charger - At <-10°C and >+45°C the internal backup battery will not be charged as a safety precaution due to the dangers associated with charging batteries at extreme temperatures
Self-Resetting Fuse	Built-in self-resetting fuse makes installation simple and safe
GPS Antenna	Internal
Cellular Antenna	Internal. Supports optional external antenna for maximum range
LiPo Battery Charger	Onboard LiPo battery charger with selectable charge rate
3-Axis Accelerometer	3-Axis Accelerometer to detect tampering *(planned in future firmware release)*
Diagnostic LED 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	The device reports internal temperature and prevents the internal battery from charging in extreme temperatures. Internal temperature provides an indication of ambient temperature but may not always be precise. Use an external sensor for precise temperature monitoring.

Onboard Location

Module	Nordic nRF9160 internal GPS
Constellation	GPS
Location Accuracy *	~3m Circular Error Probability (CEP), 50%, GPS, Open sky *Results vary based on real world conditions. Device configuration, installation, environmental conditions, augmentation services, and many other factors may lead to variations in positioning accuracy.
GNSS Assistance	GPS predicted ephemeris data for greater sensitivity and position accuracy
Low Noise Amplifier	GPS signals are boosted by a unique low-noise amplifier (LNA) allowing operation in low signal

Onboard Interfaces

Digital Input	1 x Digital input with configurable pull up/pull down 0-40V DC input range On/Off thresholds: ON > 2V, Off < 1V Can be used for pulse counting (max 40MHz)
Plug-in 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. Flexible onboard output power to power your sensors. See the current card list below or contact us to discuss your requirements.

Onboard Smarts

Auto-APN	Auto-APN allows the device to analyse the SIM card and select the correct APN details from a list that is pre-loaded in the device's firmware
Voltage Monitoring	LiPo battery and external voltage readings for "Battery Low" and "Power Loss" alerts
On-Board Task Management	Powerful task management allows you to schedule tasks or run tasks based on sensor thresholds and events, even when out of cellular coverage

HAWK POWER OPTIONS

Rechargeable LiPo Battery (optional support for external power)

Powered by a large 3,500 mAh rechargeable LiPo battery to support full season deployments.
Optionally connect the Hawk to an external power source (6-28V) such as a solar panel or grid power.

Large Rechargeable Battery	3,500 mAh LiPo rechargeable battery
Input Voltage	6-28V DC (max) For continuous operation at high temperatures and high output load currents we recommend an input voltage of 12V or higher
Self-Resetting Fuse	Built-in self-resetting fuse makes installation simple and safe
Solar Power Support	Designed to optionally use a variety of solar panels

D-Cell Battery Pack

Powered by 2 x D Cell LTC batteries for a completely self-powered solution.

User-Replaceable Batteries	2 x D Cell (3.6V per cell). *Batteries not included (available as an option).*
Supported Battery Types	*Lithium Thionyl Chloride (LTC) **Please dispose of Lithium batteries in a safe and responsible manner*

HAWK HOUSING (common specifications)

Housing Materials	Non-branded Nylon Glass housing with stainless steel screws
IP/IK Rating	Ultra-rugged and waterproof IP68 and IK08-rated housing to ensure the Hawk can withstand impact, fine dust, and brief submersion
GORE® Vent	Allows for pressure equalization while protecting against water and dust ingress
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.

Hawk LiPo Housing (HawkLiPo)

Designed to accommodate the PCB, I/O Card, and pre-installed 3,500 mAh rechargeable LiPo battery.

Dimensions	180 x 119 x 39 mm
Weight	TBD

Hawk D-Cell Housing (Hawk2D)

Designed to accommodate the PCB, I/O Card, and 2 x D-Cell LTC batteries.

Dimensions	185 x 150 x 30 mm
Weight	TBD

CONTACT US FOR MORE INFORMATION OR PRICING
sales@homeofiot.com.au
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I/O CARD OPTIONS

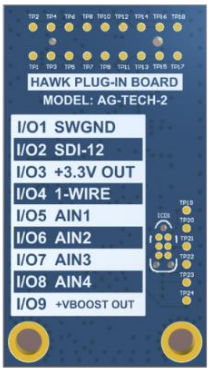
The Hawk's sensor interfaces and protocol are managed by 'I/O Cards' – a range of plug-in Input/Output cards standardized for common applications. See the current card list below or contact us to discuss your requirements.

AgTech1 Card

Digital Inputs	1 x Digital Input with configurable pull up/pull down 0-40V DC input range On/Off thresholds: On >2V, Off <1V Can be used for pulse counting (max 40Hz)
Digital Outputs	1 x Switched Ground
I^2C	Yes
SDI-12	Yes
Switched Power Out	3.3V 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

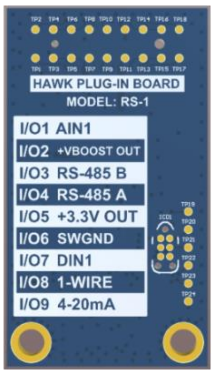
AgTech2 Card

Analogue Inputs	4 x Analogue Inputs (0-30V range)
Digital Outputs	1 x Switched Ground
SDI-12	Yes
Switched Power Out	3.3V switched power for sensors
Switched Sensor Power	5V or 12V selectable power for sensors
1-Wire® or iButton®	Yes



RS-1 Card

Analogue Inputs	1 x Analogue Inputs (0-30V range)
Digital Inputs	1 x Digital Input with configurable pull up/pull down 0-40V DC input range On/Off thresholds: On >2V, Off <1V Can be used for pulse counting (max 40Hz)
Digital Outputs	1 x Switched Ground
RS485	Yes
Switched Power Out	3.3V 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



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I/O CARD OPTIONS (cont.)

Serial Card

Analogue Input	1 x Analogue Input (0-30V range)
Digital Inputs	2 x Digital Input with configurable pull up/pull down 0-40V DC input range On/Off thresholds: On >2V, Off <1V Can be used for pulse counting (max 40Hz)
Digital Outputs	1 x Switched ground (1A current limit)
Switched Sensor Power	5V or 12V selectable power for sensors
RS232 TX	Yes
RS232 RX	Yes
TTL TX	Yes
TTL RX	Yes

Bluetooth+ Card

Analogue Inputs	1 x Analogue Input (0-30V range)
Digital Inputs	1 x Digital Input with configurable pull up/pull down 0-40V DC input range On/Off thresholds: On >2V, Off <1V Can be used for pulse counting (max 40Hz)
Digital Outputs	1 x Switched ground
Switched Power Out	3.3V switched power for sensors
Switched Sensor Power	5V or 12V selectable power for sensors
SDI-12	Yes
I^2C	Yes
4-20mA	Yes
Bluetooth Module	BGM240PA22VNA3

* Note: The Bluetooth+ Card has a Bluetooth module on the card, in addition to the above I/Os.

Digital Card

Analogue Inputs	2 x Analogue Input (0-30V range)
Digital Inputs	5 x Digital Input with configurable pull up/pull down 0-40V DC input range On/Off thresholds: On >2V, Off <1V Can be used for pulse counting (max 40Hz)
Digital Output	1 x Switched ground
Switched Sensor Power	5V or 12V selectable power for sensors

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 DMLink 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.

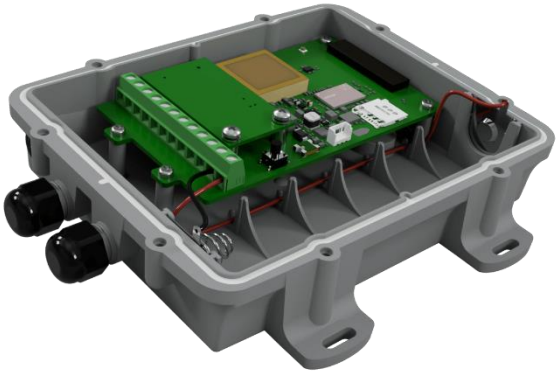
Warranty

Manufacturer's Warranty	Two-year manufacturer's warranty *plus additional two-year half price replacement IOTrack warranty.* Exclusions apply.

Certifications

Certifications	Certifications are not valid if using the Hawk without a Digital Matter housing or with an external antenna. Please visit Device Certifications for a full list of certifications.

This device is designed, developed, and manufactured by Digital Matter.
For more information, please visit the Digital Matter website at www.digitalmatter.com.



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