

BARRA

GPS

Cellular 4G/5G LTE-M (Cat-M1)/NB-IoT

Lowest-cost battery-powered indoor / outdoor asset tracker for LTE-M/NB-IoT networks



Size: 149 x 51 x 21 mm



High Precision GPS

Multiple GNSS constellations are utilized for highly accurate outdoor location tracking with Cell Tower Location fallback.



'Deploy Once' Battery Life

Powered by user-replaceable 2 x AA Alkaline or Lithium batteries for up to 10+ years of battery life with 'Battery Low' and 'Battery Critical' alerts.



Slim & Ultra-Rugged

Ultra-rugged and waterproof IP68 and IK07-rated housing ensures the Barra Core can withstand impact, fine dust, and brief submersion.



Magnetic Activation & Tamper Detection



Simplify and secure deployments with magnetic activation and tamper detection.



Wire-Free Installation

Compact and concealable. Multiple installation options for covertly and easily securing the device to assets with screws, bolts, cable ties, rivets, and more. Stainless steel screws supplied.



Flexible Configuration

Configure device parameters such as heartbeat rate, movement & accelerometer settings, and more to fit any tracking application.



Periodic or Movement-Based

Configure parameters to send updates based on set time intervals or when movement occurs. Adaptive tracking technology detects when the device is on the move and increases the update rate, providing detail when you need it while conserving battery when stationary.



On Board Location

Location processing workload on board the device for speed, heading and geo-fence determination on every location fix log.



Asset Utilization

Automatically capture asset run-hours based on movement to understand and optimize asset utilization.



Theft Recovery

Switch to Recovery Mode in the case of theft or loss to activate real-time tracking for asset retrieval.



Low Cost

Low hardware, installation, and operational costs to support large-scale deployments.

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sales@homeofiot.com.au

www.iotrack.com.au

Connectivity

Cellular Module	Nordic nRF9160 Modem operates on all major global LTE-M and NB-IoT bands. Supported 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 Nano 4FF SIM eSIM Ready (Minimum Order Quantities apply)

Location

GNSS Module	uBlox Max-M10
Environment	Outdoor
Constellations	Concurrent GPS, GLONASS, Galileo, BeiDou, QZSS
Cell Tower Location Scanning	Cell tower fallback for positioning when there is no GNSS signal
Location Accuracy	Horizontal ~1.5m Circular Error Probability (CEP) Results vary depending on real world conditions. Device configuration, installation, environmental conditions, augmentation services, and many other factors may lead to variations in positioning accuracy.
Low Noise Amplifier	GPS signals are filtered and boosted by a SAW filter and low-noise amplifier (LNA) allowing operation where other units fail
GNSS Assistance	GNSS almanac data for greater sensitivity and position accuracy

Power

Input Voltage	2.2 to 3.8 Vdc
Sleep Current	<10 μ A* *Average current in lowest power configuration

Batteries

User-Replaceable Batteries	2 x AA-cell (1.5V). Batteries not included in base price (available as an option)						
Supported Battery Types	Alkaline Lithium* (LiFeS ₂) – recommended for best performance *Please dispose of Lithium batteries in a safe and responsible manner						
Battery Life Estimates ** (using Energizer Lithium batteries)	<table> <tr> <td>Periodic location updates: Daily</td><td>8+ years</td></tr> <tr> <td>Periodic location updates: Hourly</td><td>2+ years</td></tr> <tr> <td>Movement-Based location updates¹</td><td>3+ years</td></tr> </table> <p>¹ Based on in-trip conditions of 2-min fix logs, 30-min batch uploads, 1 hr/day, 7 days/week.</p> <p>** Battery life estimates are influenced by several factors including temperature, installation and orientation of the device, the frequency of location updates, network coverage, sensor integrations, peripherals, accelerometer settings, and more</p>	Periodic location updates: Daily	8+ years	Periodic location updates: Hourly	2+ years	Movement-Based location updates ¹	3+ years
Periodic location updates: Daily	8+ years						
Periodic location updates: Hourly	2+ years						
Movement-Based location updates ¹	3+ years						

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Mechanics / Design

Dimensions	149 x 51 x 21 mm
Weight	90 g (including batteries)
Housing	Non-branded nylon glass
IP/IK Rating	Ultra-rugged and waterproof IP68 and IK06-rated housing ensures the Barra can withstand impact, fine dust, and brief submersion
Installation	Compact and concealable. Multiple installation options for covertly and easily securing the device to assets with screws, bolts, cable ties, rivets, and more.
Magnetic Switch	Magnetic switch enables quick activation and tamper detection
Operating Temperature	-30°C to +60°C (for operation in extreme temperatures use Lithium batteries)
GPS Antenna	Internal
Cellular Antenna	Internal
3-Axis Accelerometer	3-Axis Accelerometer to detect Movement and High G events
Diagnostic LED	Internal diagnostic LED signifies operation status
Flash Memory	Store weeks of records if device is out of cellular coverage. Storage capacity for over 2 weeks of 2-minute logging
Speed and Heading	Current speed and heading is reported with each position update
On-Board Temperature	The device reports internal temperature which provides an indication of ambient temperature

Smarts

Adaptive Tracking	Configure parameters to send updates based on set time intervals or when movement occurs. Adaptive tracking technology detects when the device is on the move and increases the update rate, providing detail when you need it while conserving battery when stationary.
Battery Life Monitoring	"Battery Low" and "Battery Critical" alert levels
Impact Detection	Configure impact-detection alerts when G-forces are exceeded by a user-defined threshold
Magnetic Activation	Magnetic switch can be used to activate the unit – meaning SIM cards and batteries can be pre-installed, simplifying deployment
Onboard Geofencing	Geofences can be downloaded directly to the device for enhanced location-based actions and alerts. Maximum of 500 Geofences with up to 100 points per geofence.
Rotation Counting	Keeps a count of the number of rotations of the device about the Z axis
Run Hour Monitoring	Capture run hours based on movement to understand and optimize asset utilisation
Sleep Mode	Stationary devices enter sleep mode until movement occurs to conserve battery life and optimize data usage
Tamper Detection	Magnetic switch provides an alert if the device is removed from your asset
Theft Recovery	Switch to Recovery Mode in the case of theft or loss to activate real-time tracking for asset retrieval
Tip Detection	Define a range of angles that constitutes a 'tipped' state and configure alerts

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Device Management

Flexible Configuration	Configure device parameters such as position update rate, movement, and accelerometer settings, and more to fit any tracking application
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
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Security

Data Security	Military-level AES-256 Encryption from device to Device Manager to protect the integrity and confidentiality of telematics data. Data forwarded to third-party systems is sent via HTTPS for end-to-end security.
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Warranty

Warranty	Two-year manufacturer's warranty <i>plus additional two-year half price replacement IOTrack warranty.</i> Exclusions apply
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Certifications

Regulatory	In progress
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New Product Introduction

PLEASE NOTE: The specifications set out in this draft data sheet are not final, are subject to change without notice and should not be relied on as anything other than an estimation of the device's anticipated specifications. A data sheet setting out the device's final specifications will be made available in due course. In the interim please contact us should you have any questions.



This device is designed, developed, and manufactured by Digital Matter.
For more details see manufacturer's website [Digital Matter](#) and device page [Barra GPS](#).

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