

Oyster3

2G or LTE-M / NB-IoT

Next generation of our best-selling Oyster series - Ultra-rugged and robust GPS asset tracking device featuring 10+ years battery life



'Deploy Once' Battery Life

Over 10+ years battery life on user-replaceable 3 x AA Lithium or Lithium Thionyl Chloride (LTC) batteries for extreme temperature operation



Adaptive Tracking

Periodic or optional movement-based tracking - tracks assets throughout the day and/or when movement occurs, entering sleep mode when inactive to conserve power and data usage



Battery Life Alerts

"Battery Low" and "Battery Critical" alerts



Ultra-Rugged

Ultra-rugged and weatherproof IP68, IK07 Housing

Connectivity & Location

2G Version

Cellular Module	Thales Cinterion BGS12 850/900/1800/1900 MHz
GNSS Module	Sony CXD5612 (CXD5612GF-T2)
Constellation	Concurrent GPS, GLONASS, Galileo, QZSS
Tracking Sensitivity	-149 dBm cold start / -163 dBm hot start
*Location Accuracy	~1m 2D RMS, GPS, -130dBm
SIM Size & Access	Internal Nano 4FF SIM
GNSS Assistance	GNSS almanac and ephemeris data for greater sensitivity and position 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
Cell Tower Location	Cell tower location fallback for positioning when GPS can't get a fix

LTE-M / NB-IoT Version

Cellular Module	Nordic nRF9160 Modem operates on all major global LTE-M and NB-IoT bands (supports roaming across networks – roaming SIM required) 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
GNSS Module	Sony CXD5605
Constellation	Concurrent GPS, GLONASS, Galileo, QZSS
Tracking Sensitivity	-147 dBm cold start / -161 dBm hot start
*Location Accuracy	~1m 2D RMS, GPS, -130dBm
SIM Size & Access	Internal Nano 4FF SIM
GNSS Assistance	GNSS almanac and ephemeris data for greater sensitivity and position 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
Cell Tower Location	Cell tower location fallback for positioning when GPS can't get a fix

2G and LTE-M / NB-IoT Versions

The following technical specs are shared across both versions of the Oyster3 unless otherwise stated

Batteries

User-Replaceable Batteries	3 x AA. <i>Batteries not included.</i>
Supported Battery Types	2G *Lithium (LiFeS2) LTE-M/NB-IoT *Lithium (LiFeS2) *Lithium Thionyl Chloride (LTC) *Lithium or LTC recommended for best performance. Please dispose of Lithium batteries in a safe and responsible manner.
**Battery Life Estimates	2G Once Daily location updates – 10+ years Movement-Based location updates – 2.5 years Hourly location updates – 1 year LTE-M/NB-IoT Once Daily location updates – 10+ years Movement-Based location updates – 6 years Hourly location updates – 3.5 years

Power

Input Voltage	2G 3.8 V – 5.5 V DC LTE-M/NB-IoT 3.8 V – 16 V DC
Sleep Current	<10uA* *Average current in lowest power configuration
Safety	Reverse Polarity Protection (LTE-M/NB-IoT Only)

Mechanics / Design

Dimensions	108 x 86 x 30 mm (4.25 x 3.39 x 1.18")
Weight	173g
Housing	Non-branded housing for optional white-labeling
IP/IK Rating	Ultra-rugged and waterproof IP68 and IK07-rated housing ensures the Oyster3 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. Stainless steel screws provided.

Mechanics / Design continued

Operating Temperature	-30°C to +60°C For operation in extreme temperatures use *LTC Batteries (*LTE-M/NB-IoT Only)
Cellular Antenna	Internal
GPS Antenna	Internal
3-Axis Accelerometer	3-Axis Accelerometer to detect movement, high G-force events, and more
Diagnostic LED	Diagnostic LED indicates operation status
Flash Memory	Store weeks of records if device is out of cellular coverage. Storage capacity for over 4 weeks of continuous 2-minute logging.
On-Board Speed & 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 but may not always be precise

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 Monitoring	'Battery Low' and 'Battery Critical' alert levels
Geofence Alerts	The server can use device location to create geofences and alerts if an asset enters or leaves designated locations
Geofence Download to Device	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.
Impact Detection	Configure impact-detection alerts when G-forces are exceeded by a user-defined threshold
Intelligent Power Management	Early registration abort saves power when out of cellular coverage
Periodic or Movement-Based 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.
Preventative Maintenance	Set reminders based on distance traveled and run hours to reduce maintenance and repair costs
Run Hour Monitoring	Capture run hours based on movement to understand and optimize asset utilization
Sleep Mode	Stationary devices enter sleep mode until movement occurs to conserve battery life and optimize data usage
Theft Recovery	Switch to Recovery Mode in the case of theft or loss to activate real-time tracking for asset retrieval
Tip Detection & Rotation Counting	Axis angle reporting, tip detection and rotation counting

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

Manufacturer's Warranty	Two-year manufacturer's warranty
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Certifications

Please visit support.digitalmatter.com for a full list of compliance specifications and documentation for your region	LTE-M / NB-IoT - FCC, ISED, CE, UKCA, ACMA RCM, PTCRB, AT&T (in progress), Telstra, EMC, RoHS
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* Positioning accuracy specifications are provided by the GNSS supplier and reflect ideal conditions. Device configuration, installation, environmental conditions, augmentation services, and many other factors may lead to variations in positioning accuracy.

** 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. Estimated battery life calculators are available at support.digitalmatter.com.