BlueTraker customers get nothing less than state-of-the-art engineering, advanced technology, flawless user experience, and stellar customer care.

Welcome to the family.
Authorities need to choose an optimal VMS system which strikes the right balance between the investment and expected benefits while making sure they are future-proof. With advanced features, technology and references, BlueTraker VMS is THE PERFECT CHOICE.
ACTIVE TRANSPONDERS AND COUNTING

BlueTraker is a trusted partner and VMS provider to numerous governments and their respective Fisheries Authorities around the World. Our common goal is to eradicate illegal, unreported and unregulated commercial fishing.
**ADVANTAGES OF BLUETracker VMS**

VMS is a safeguard satellite technology that helps protect the sensitive marine environment and fragile fish population. It is a crucial tool in fighting illegal, unregulated and unreported fishing.

**HYBRID COMMUNICATION, GLOBAL COVERAGE**

BlueTracker VMS transponder is a hybrid device that uses GPRS and satellite communication channels thereby enabling the Fisheries Monitoring Centres (FMCs) to get the data in real-time. At any given time, they can monitor vessel/fleet data on position, bearing speed, time etc. The vital advantage of BlueTracker VMS transponder is that the Geozones are embedded on the device. This allows specific operational rules (e.g. reporting intervals, alerts).

**SCALABLE AND EXPANDABLE**

Combined with the data from the wireless IoT sensors, numerous new insights and patterns present themselves. Based on the crosschecks of the data provided, FMCs can quickly establish if a particular vessel is breaching the geofence, fishing over quota, using blacklisted gear, transshipping or using a prohibited technique (e.g., use of trawl nets and hydraulic dredges).

**SOCIAL + ECONOMIC BENEFITS = CREW WELFARE**

BlueTracker VMS provides a secure two-way communication system and emergency beacon for the fishing crew. Fishermen will benefit by increasing communication with markets, family members, vessel owners, and Coast Guard. It can increase revenues by allowing less burdensome regulations and more fishing time.
BlueTraker VMS is a robust, cost effective and intelligent turn-key solution for monitoring commercial fishing fleets. It is the only proven solution for true global satellite coverage and comes with a plethora of unique features. One of them is the ability to adapt to the needs of the end customer. In general, BlueTraker VMS operates in four key stages.

**HOW VMS WORKS**

1. **VESSEL DATA COLLECTION**
   BlueTraker VMS transponder collects vessel data using GPS/GLONASS satellite signal and sends it along with speed, heading and sensor data via the GSM/GPRS terrestrial network, or the satellite network at predefined intervals.

2. **COMMUNICATION CHANNELS**
   BlueTraker VMS technology is engineered as a hybrid solution. Switching between data delivery channels (satellite or GSM) is automatically applied, depending on the vessel’s position and location.

3. **DATA PROCESSING AND DELIVERY**
   Collected data is aggregated and processed at BlueTraker proprietary TDS communication Server. The process seamlessly enables reliable and near real-time data delivery to selected database, server or application.

4. **DATA REPORTING AND APPLICATION**
   On the front-end, national Fisheries Monitoring Centres can use any third party VMS monitoring software application to display and analyze the data. BlueTraker offers state-of-the-art SecondScreen Application for BlueTraker devices management and fast overview of the fleet.

**BENEFITS OF CHOOSING BlueTraker**

**LOW OPERATING COST**
BlueTraker VMS is an affordable, running-cost economical and low-maintenance system. For example, the embedded ‘authorized port’ function ensures that the devices only transmit positional messages every 2 hours.

**FUTURE-PROOF ENGINEERING**
Fully upgradable for the next generation of fisheries monitoring techniques. Can be upgraded with IoT fishing gear sensors. Firmware is updated over-the-air with no vessel boarding required. BlueTraker transponders only draw an average of 2W at 12V DC.

**UNMATCHED SECURITY FEATURES**
Several mechanical and electrical security measures protect data integrity and security from tampering or fraud. Hardwired security codes prevent swapping of modules. Sealed with laser marked wiring. Access to the software code can be disabled remotely to prevent against hacking/patching.
A full set of remote alert messages can be triggered upon detection of interference or other equipment malfunction. In such cases, BlueTraker integrated support protocols allow FMC or vessel crew to rectify them.

BlueTraker is one of the most straightforward terminals to mount and set-up. We provide easy to understand user manuals and a how-to videos for a quick and easy installation process. BlueTraker VMS transponder is enclosed in a double shell housing for unprecedented environmental protection and has no external parts or antennas.

BlueTraker’s unique double-shell housing protects the components against anything that the hostile marine environment can throw at it: extremes of temperature, wind-chill, humidity and salt.
BlueTraker VMS scalability

Every BlueTraker equipment setup for on-board installation, including the most basic, consists of three key components: the BlueTraker VMS transponder, the connection box for power supply and appropriate cable set. Optionally, we offer advanced connection boxes, a sea-grade touch terminal for communication, a range of precise remote sensors and monitoring software as well.
DESIGNED FOR UNPRECEDENTED ACCURACY, SAFETY, SCALABILITY, AND PERFORMANCE.

FULLY COMPLIANT WITH THE REGULATIONS COVERING VMS BASED SOLUTIONS. WE GAIN EXPERIENCE FROM THE FISHERIES INDUSTRY.
**True Global Coverage**

VMS can report its position, send alarms and transfer data from anywhere on Earth. This offers an unprecedented advantage to Fisheries Authorities tracking globally dispersed fishing fleets. BlueTraker takes full advantage of Iridium's 66 low earth orbit satellites - even in the A4 Sea Area!

Up to 100 geographical areas (polygons and associated rules) in the form of geofences can be remotely uploaded, edited, activated and deactivated for every BlueTraker VMS transponder. Precise geographical areas can be defined and specific operational rules can be put into effect.

**Embedded Geozones**

**All the Features That Make the Difference**

**Hybrid Communication**

BlueTraker VMS dramatically reduces cost by using two communication channels. Switching between channels depends on vessel location. Beyond the reach of a GPRS signal, tracking data is transferred via the satellite communication channel. In coastal waters it switches to a low cost mobile network automatically.

VMS intelligently sends navigation at predefined intervals. The sampling period is automatically adjusted. Within an authorized port, position broadcast is scheduled for every 2 hours. When the vessel is out of an authorized port, the device transmits its position every 10 minutes.

**Position Reporting**

**Embedded Geozones**

**All the Features That Make the Difference**

**eLogbook Compliance**

The worldwide e-Logbook initiative is gathering pace in helping to eradicate illegal, unregulated and unreported fishing. With built-in data-pass functionality for transferring reports, only approved Electronic Reporting Systems (ERS) can be integrated as authentication is required.

To prevent unauthorized data modification, a symmetric AES 256-bit key authentication method is used. In addition to encrypting data before transmitting it, BlueTraker VMS transponder also prevents sending unauthenticated external data (e.g. Catch reports) to FMC with the purpose of deceiving the authorities.

**Tamper Detection**

BlueTraker VMS is designed with a high level of mechanical, electrical and electromagnetic security features. In order to avoid any tampering or fraud, we have integrated tamper detection and antenna blockage detection. Unique serial number is laser engraved into the housing with security seals.

BlueTraker VMS can be upgraded with BlueSenz technology allowing FMCs to easily monitor the precise fishing effort of their fleets. BlueSenz is family of on-board sensors mounted directly to the fishing gear for accurate and precise assessment of the fishing effort for every vessel in the fleet.

**Remote Gear Monitoring**

**Embedded Geozones**

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**Remote Gear Monitoring**
A SEA OF POSSIBILITIES

ConBox 2018
A lot more than a wiring cabinet

ConBox 2018 is a wiring box (connecting BlueTraker VMS transponder, vessel power supply, and optionally other devices and sensors) purposely designed for fisheries monitoring applications. ConBox 2018 comes in two versions:

ConBox 2018 LED - provides a wide range of features, including alert triggering and fishing activity reporting, on-board VMS system and other system statuses, etc.

ConBox 2018 LCD - includes everything available in the LED version with the addition: LCD display with interactive user interface, texting with FMC, current geo-location information, and much more.

ConBox Sardine
Our basic connection cabinet is as simple as it gets. While power indicator is self-explanatory, alert button sends a message to FMC of a fishing crew in distress.

Octopus 10
A seaworthy eLogbook assistant for fisheries

Meet a touch screen terminal with pre-installed applications for fisheries, designed to be tough and rugged. An ideal companion for use at sea. Octopus 10 communicates with BlueTraker VMS for sending documents (catch reports) and exchange other data with the Fisheries Monitoring Centre.

FEATURES

• Ready to be used without additional interfacing, modifications and testing.
• Pre-installed HMI application for monitoring vessel data. Third-party applications compatible.
• eLogbook compliant with ERS requirements (catch, transhipment, landing report, etc.) - optional.
• OceanMail application for messaging anywhere on the planet from the vessel to FMC or vice versa - optional.
Intelligent Scalability

From the most basic to the most advanced BlueTraker setups, all on-board installations consist of three key components: the BlueTraker VMS transponder, the connection box for power supply and the appropriate cable set.

Optionally, every installation can be extended and upgraded with advanced connection boxes, a sea-grade HMI terminal for communication, a range of precise remote sensors and state-of-the-art monitoring software.

**3 BASIC SETUPS**

**INFINITE POSSIBILITIES**

Depending on the requirements of the respective fisheries authorities, BlueTraker VMS can be installed in numerous configurations.
BlueSenz is a range of devices and wireless sensors that communicate with each other and ensure that authorities receive accurate data about their fleet fishing activities. Combined with the data from the VMS transponder and wireless sensors, new insights and patterns present themselves. Based on the crosschecks, FMCs can quickly establish if a particular vessel is breaching the geofence, fishing over quota, implementing blacklisted gear, transshipping or using a fishing technique that is prohibited.

**HOW THEY WORK TOGETHER**

**GearSenz** is a wireless sensor device mounted on the winch; it counts the number of revolutions that a reel or net drum makes (clockwise or anti-clockwise direction), and it also measures the length of the net deployed.

**NetSenz** is a wireless sensor device that can be easily mounted on almost any type of fishing net (on the headline or footrope). It detects the positions and time of the start and end of the fishing session and also records the exact time-depth profile that the net passed.

**WirelessGateway** collects the data and sends it over BlueTraker VMS transponder to a cloud-based server for processing. Based on the results, authorities can better understand fishing activities and adapt national fisheries policy accordingly.
iVMS - A SOLUTION FOR
SMALL-SCALE ARTISANAL BOATS

Traditional VMS works well for large fleets, but it may not be the best fit for artisanal vessels. At BlueTraker we are aware how critical are small-scale fisheries to coastal economies. With this in mind, we created iVMS for monitoring inshore fishing activities. Designed for vessels below 12 meters, iVMS performs equally stellar compared to its full-scaled sibling with one crucial difference - it uses exclusively inexpensive GPRS mobile data instead of the satellite signal. It is our most affordable and economical tracking solution.

BlueTraker iVMS comes with the same range of functionalities and security features for the fishermen as well as for the authorities in helping them to better map traditional fishing grounds. With embedded SIM card with no additional roaming cost, iVMS uses longer reporting intervals to even further reduce the already affordable operational cost.

Contact sales@bluetraker.com for details.
MULTIPLE LAYERS OF SAFETY AND SECURITY

BlueTraker internal tamper alert sensor

Integrated design with no antenna cables

Tamper-evident security seals with serial numbers

Impossible to remove BlueTraker or UniMount without first disconnecting main cable set

Double shell housing

Laser engraved serial number

LED indicator displays current device status

Cable break detection

ALERT MESSAGES

BlueTraker alert messages are automatically transmitted upon the occurrence of certain events. Such events are for example: when the device switches to backup battery due to external power failure, when the power is restored, when the cover of transponder or ConBox is open, when the GPS signal is unavailable for 2 hours, when the unit is relocated, etc.
SecondScreen,
FLEET MANAGER’S CHIEF MATE

Your fleet’s every move

With a range of diagnostic and navigation controls, centralized device and fleet monitoring and geofence management, SecondScreen could easily be every Fleet Manager’s Chief Mate. Not only did we design it as an extension of your chosen mapping software, we also created an advanced interface that makes real-time tracking and monitoring a breeze. There is no extra software to install or maintain, simply log in with BlueTraker ID and start managing the fleet.

Everything in one application

Voyage data replay, fishermen subaccounts, vessel register, eLogBook, alerting - all in one place. Vessels using BlueSenz technology see precise GPS coordinates with exact fishing locations and time spent. When VMS is paired with the optional Octopus 10 terminal, FMCs can directly communicate with fishermen allowing reception of information directly from the seas.

Synchronized activities

SecondScreen is loaded with a variety of tools and functionalities. Map view offers fleet’s activities and current diagnostic status. Message view comes handy when communication history is needed while geozones management gives FMCs everything they need: either to easily add, remove or edit geozones or to synchronise them to individual vessels, groups or the entire fleet.

- Advanced reporting and in-depth analytics
- Real-time geofence management and communication
- Device management with map, message and command view
- Customizable functionalities, configuration and global access
- Direct access to eLogbook
- Fast, simple and efficient communication with messaging
- Sensor data messages when used with BlueSenz technology
BlueTraker is a trusted partner and turn-key service provider for numerous national fisheries authorities around the world. Our products and solutions are applicable to a broad range of industries, appropriate for service providers, end customers and system integrators. BlueTraker VMS global footprint along with a list of our VMS reference countries is growing stronger day by day.

**References**

BlueTraker VMS
GLOBAL FOOTPRINT

- **IEC 60529/IP68** - Water and dust ingress protection; European product safety CE mark
- **IEC 60945** - Maritime electronic navigation and communication equipment and systems
- **MIL-STD-810G** - Operating temperature test
- **ISO 7367-2:2004** - Electrical transients along supply lines
- **ISO 16750-2** - Environmental conditions and testing for electrical and electronic equipment - part two; electrical loads - load dump
- **ICE 60068-2-1** - Low temperature functional test
- **Iridium ICE certified**
- **Germanischer Lloyd** Type Approved
- **Russian Maritime Register of Shipping** Type Approved
- **US Coast Guard** Certified
- **DNV GL** Type Approved
- **VTU** Type Approved

BlueTraker is a trusted partner and turn-key service provider for numerous national fisheries authorities around the world.
AN INTELLIGENT FUTURE AHEAD

ADVANCED TELEMATICS PLATFORMS HAVE ALREADY REVOLUTIONIZED HOW FISHERIES MONITORING CENTRES TRACK INDIVIDUAL VESSELS AND FleETS. THEY PROVIDE REAL-TIME DATA INSIGHTS FOR REGULATORS THAT SUPPORT PROACTIVE - RATHER THAN REACTIVE - DECISION-MAKING IN THEIR PRIMARY MISSION: FIGHTING ILLEGAL, UNREPORTED AND UNREGULATED FISHING.

THE NEXT GENERATION OF VESSEL TRACKING AND MONITORING

LEARNING OF VESSEL PATTERNS WILL ADD A NEW LAYER OF VALUABLE DATA FOR TARGETING BROAD SUSTAINABILITY OBJECTIVES

Within a few years, upgrades to telematic artificial intelligence will lead to a better understanding of data and put it to new uses. Put differently, with the help of learning through matching patterns, a future generation of AI-driven telematics will push tracking and monitoring efficiency even further.

Based on historical performance and predictive calculations on top of other metrics, regulators will get a more in-depth insight into the vessel’s behavior and recognizable patterns. Tailored operational parameters, intelligent catch reporting, expanded tracking of vessel behavior patterns, predicting the probability of rogue operators, partnering with third party service providers (weather, radar, and satellite imaging) to monitor and learn behaviors within the sea environment and enhanced location capabilities (more “context-aware” systems improve locations down to the centimeter).

Industries that have implemented an advanced telematics platform are already realizing benefits from today’s artificial intelligence systems and will gain a competitive edge which could prove crucial.
## Physical

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>External dimensions</strong></td>
<td>198 mm (width) x 198 mm (length) x 67 mm (height)</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>1.140 g (including one back-up battery)</td>
</tr>
<tr>
<td><strong>Housing</strong></td>
<td>Double shell housing, light colour outer shell, resistant to UV solar radiation</td>
</tr>
</tbody>
</table>

## Environmental

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operating temperature</strong></td>
<td>-40°C to +60°C (Arctic version)</td>
</tr>
<tr>
<td></td>
<td>-25°C to +60°C (Standard version)</td>
</tr>
<tr>
<td><strong>Storage temperature</strong></td>
<td>-25°C to +70°C</td>
</tr>
<tr>
<td><strong>Humidity</strong></td>
<td>From 10% to 100% Relative Humidity including condensation</td>
</tr>
<tr>
<td><strong>Dust and water ingress</strong></td>
<td>IP68 protection class (depth 6 m, duration 30 min.)</td>
</tr>
<tr>
<td><strong>Vibration</strong></td>
<td>IEC 60945:2002, 5 Hz - 13.2 Hz sweep sine, displacement 0.001 m, sweep rate 0.5 oct/min, 13.2 - 100 Hz sweep sine, acceleration amplitude 7 m/s², sweep rate 0.5 oct/min</td>
</tr>
</tbody>
</table>

## Electrical

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Input Voltage Range</strong></td>
<td>9 V DC to 36 V DC (max. supply cable length: 50 m)</td>
</tr>
<tr>
<td><strong>Nominal Supply Voltage</strong></td>
<td>24 V DC or 12 V DC</td>
</tr>
<tr>
<td><strong>Energy Consumption (Average)</strong></td>
<td>2 W @ 12 V DC</td>
</tr>
<tr>
<td><strong>Input Protection</strong></td>
<td>Resettable fuses, Level 4 ESD protection according to ISO 61000-4-2, Overvoltage protection above 36 V DC, Load Dump protection according to ISO 7637-2:2004(E) (pulse 5a), ISO16750-2:2002 (load dump)</td>
</tr>
<tr>
<td><strong>Backup battery</strong></td>
<td>Li-Ion rechargeable battery / 5300 mAh</td>
</tr>
<tr>
<td><strong>Autonomy with backup battery</strong></td>
<td>More than 72 hours with 10 min reporting interval at +23°C</td>
</tr>
</tbody>
</table>

## Satellite data communication

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Network</strong></td>
<td>Iridium, Low Earth Orbit (LEO)</td>
</tr>
<tr>
<td><strong>Satellites</strong></td>
<td>Low earth orbit, total globe coverage, 66 satellites, mesh network</td>
</tr>
<tr>
<td><strong>Frequency</strong></td>
<td>1616 MHz to 1.626.5 MHz</td>
</tr>
<tr>
<td><strong>Average radiated power</strong></td>
<td>&lt; 1 W</td>
</tr>
<tr>
<td><strong>Antenna</strong></td>
<td>Integrated, low profile, low elevation, optimised, high gain, custom designed antenna</td>
</tr>
</tbody>
</table>

## GSM/GPRS channel (For Firmware Upgrades and Servicing)

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Supported bands</strong></td>
<td>Quad Band 850/900/1800/1900 MHz</td>
</tr>
<tr>
<td><strong>SIM card</strong></td>
<td>Global SIM, supplied with the transponder</td>
</tr>
<tr>
<td><strong>Data features GPRS</strong></td>
<td>Embedded TCP/IP and UDP/IP protocol stack, Embedded FTP, SSL - Secure Encrypted Connection</td>
</tr>
<tr>
<td><strong>Antenna GSM</strong></td>
<td>Integrated, omnidirectional</td>
</tr>
</tbody>
</table>

## Interface

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wired</strong></td>
<td>USB (ConBox with USB interface must be selected)</td>
</tr>
<tr>
<td><strong>Wireless</strong></td>
<td>WiFi, Bluetooth (optional items)</td>
</tr>
</tbody>
</table>

## GPS/GLONASS positioning receiver

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<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Channels</strong></td>
<td>33 tracking, 99 acquisition</td>
</tr>
<tr>
<td><strong>Acquisition</strong></td>
<td>Cold start 28 s, Hot start &lt; 1 s, sensitivity -167 dBm @ tracking</td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
<td>5 m CEP</td>
</tr>
<tr>
<td><strong>Antenna</strong></td>
<td>Integrated patch antenna</td>
</tr>
</tbody>
</table>
ARCTIC

We are the world’s first and only certified manufacturer of tracking terminals for A4 sea area where harsh polar conditions prevail.

For details visit: bluetraker.com/solutions/arctic-solutions