



## BlueTraker® VMS Light technical specification

Physical	
Outer dimensions:	198 mm (width) x 198 mm (length) x 67 mm (height)
Weight:	1,140 g (including one back-up battery)
Housing:	Double shell housing, light colour outer shell, resistant to UV solar radiation.

Environmental	
Operating temperature:	-25°C to +75°C; Arctic kit option: -55°C to +75°C
Storage temperature:	-40°C to +85°C
Humidity:	10% to 100% Relative Humidity including condensing
Dust & water ingress:	IP68 to a depth of 5 m/IP69K
Vibration:	IEC 60945:2002, 5 Hz – 13.2 Hz sweep sine, displacement 0.001 m, sweep rate 0.5 oct/min; 13.2 Hz – 100 Hz sweep sine, acceleration amplitude 7 ms <sup>-2</sup> , sweep rate 0.5 oct/min
Shock (survival):	Multiple drops from a height of 1.0 m on all sides of the device

Electrical	
Input Voltage Range:	9V DC to 36V DC (max. supply cable length: 50 m)
Nominal Supply Voltage:	24V DC or 12V DC
Power Consumption (Typical @ 12 VDC):	Satellite transmit mode: 2.4W, tracking mode (GPS on): 0.9W, sleep: 0.2W
Input Protection:	Resettable fuses, 8kV ESD protection, power Line disconnect above 35V, load dump protection (ISO 76 37 Tes pulse 5a)
Special:	Smart power source discharge protection, power-line disconnect under 10.8V DC input voltage at back-up battery charging
Back-up Battery:	LiPoly 4.2V/4200 mAh (optionally LiPoly 4.2V/8400 mAh)
Autonomy with back-up battery:	up to 48 hours @ 1 hour reporting intervals

Satellite data communication	
Network:	Iridium
Satellites:	Low earth orbit, total globe coverage, 66 satellites, mesh network
Frequency:	1616 MHz to 1626.5 MHz
Average radiated power:	< 1W
Antenna:	Integrated, low-profile, low elevation optimised, high gain, custom designed antenna

GPS positioning receiver	
Channels:	65
Acquisition:	Cold start 29 s, hot start < 1 s, sensitivity -161 dBm @ tracking
Accuracy:	2.5 m CEP
Antenna:	Ceramic patch, large footprint antenna

**BlueTraker®**  
VMS Light

**vms**  
Vessel Monitoring System  
satellite terminal for fishing vessels below 15 m in length

## Certificates & standards compliance

**IEC60950-1:2001**  
Information technology equipment – Safety compliance

**IEC60945**  
Maritime navigation and communication equipment and systems compliance

**ETSI EN 301 843-1; ETSI EN301 489-1; ETSI EN301 489-7; ETSI EN301 489-20**  
Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services compliance

**ETSI EN301 441**  
Satellite Earth Stations and Systems (SES) – Harmonized EN for Mobile Earth Stations (MESs) compliance

**CE ; R&TTE**  
CE Radio and eCommunications terminal equipment directive compliance

**IP68 and IP69K**  
Highest water and dust protection grade standards

**All RF modules FCC certified R&TTE certified and compliant**

**eiia**  
WIRELESS DATA SOLUTIONS

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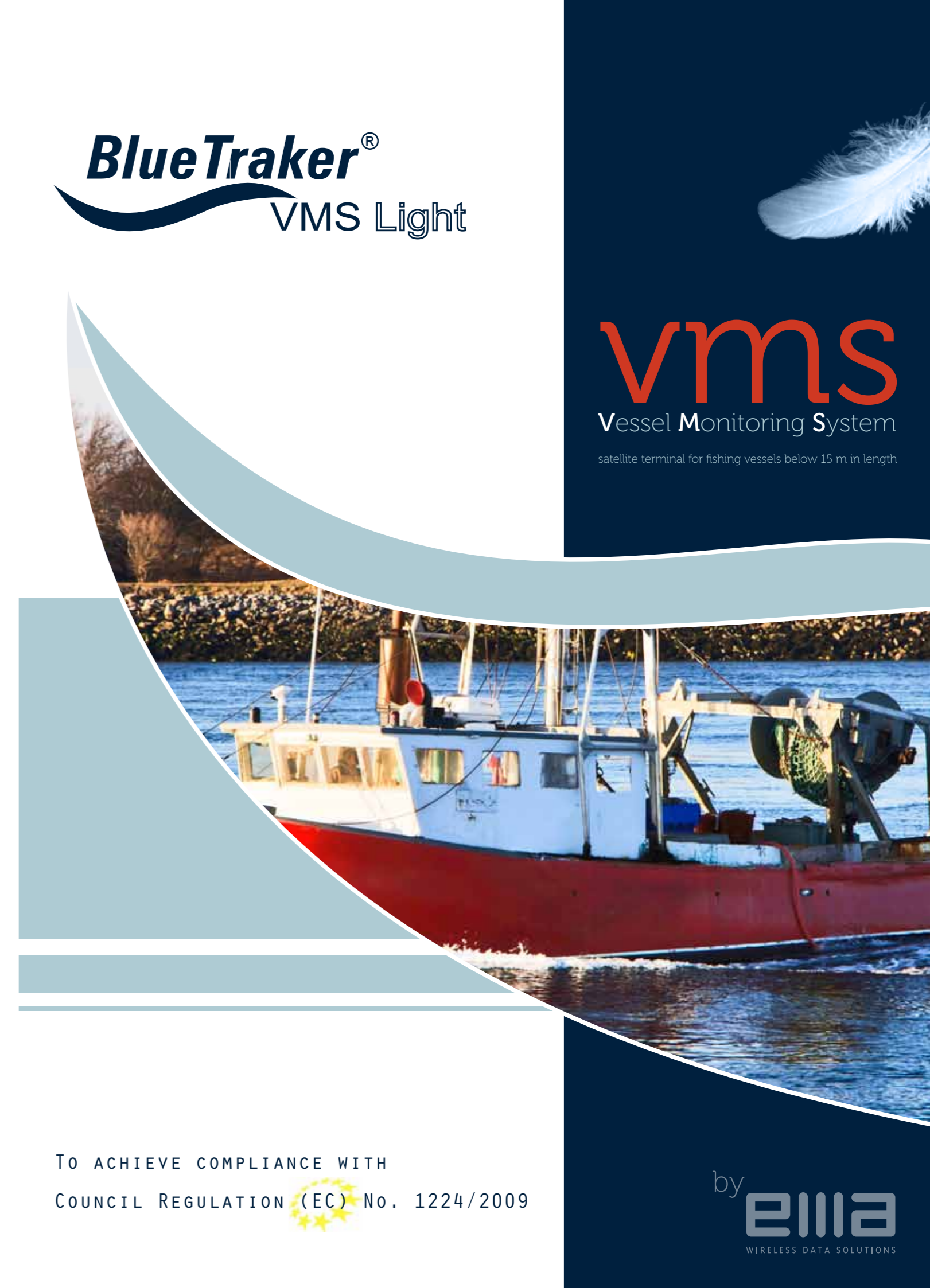
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ISO9001:2008  
Quality management system certificate



TO ACHIEVE COMPLIANCE WITH  
COUNCIL REGULATION (EC) No. 1224/2009

by **eiia**  
WIRELESS DATA SOLUTIONS



## Introduction

### a) Safety of fishermen at sea

The Vessel Monitoring System (VMS) has greatly increased the potential efficiency of tracking, monitoring, control and surveillance of fishing vessels and their activities. Using the VMS, fishing regulatory organisations and institutions are able to enforce national and international fishing regulations and improve the safety of fishermen at sea.

### b) International certified solution

EMA's BlueTraker® VMS is a part of the Vessel Monitoring System (VMS) for fishery authorities and coastguards. It has been thoroughly tested, and has been in operation for years in several countries. The system was developed to comply with diverse regulations on data exchange, such as EU, NEAFC, NAFO and SEAFOOD regulations, as well as bilateral agreements commonly made between countries. A particular emphasis was put into technical standards compliance (IEC 60945, IMO Resolutions etc.) as well as to security issues to avoid any tempering and fraud.

### c) EMA's response to the EC regulation

According to the EU directive 1224/2009, from 1 January 2012, fishing vessels of 12m length overall or more shall be equipped with a satellite terminal, allowing Member States to automatically locate and identify those vessels.

**Almost all VMS solutions are unformed and suitable only for fishing vessels exceeding 15 m in length. These solutions commonly involve high overhead costs, which owners of smaller fishing vessels cannot afford.**

For us at EMA it is clear: fishing vessels less than 15m in length need an affordable satellite communication solution. To enable fishermen to meet VMS requirements at a low cost, we have developed the BlueTraker® VMS Light terminal.



## BlueTraker® VMS Light satellite terminal

EMA's new mobile VMS terminal BlueTraker® VMS Light is designed especially for fishing vessels less than 15m in length. It offers all that is required: data reporting, bidirectional communication and polling. Plus: low investment and maintenance cost.

The BlueTraker® VMS Light terminal offers bidirectional communication to and from Fisheries Monitoring Centres. VMS data is transferred via a satellite communication channel in predefined time intervals, but also allows the monitoring authority to poll (demand) vessel information outside the regular reporting interval. Reporting Interval Change (RIC) and Standby Commands are also available as a standard.

### BlueTraker® VMS Light is an intelligent dedicated satellite terminal offering:

- investment and operating cost that fits fishing vessels less than 15m in length. The BlueTraker® VMS Light installation set includes a 10m power cable and mounting accessories
- compliance with EU VMS requirements currently in force
- a wide range of communication protocols, compatible with Iridium satellite network, Inmarsat-C protocol, NAF and proprietary BlueTraker® protocols
- simple plug & play installation: just connect to the vessel's power supply



## Key features and benefits

### Features

#### Communication

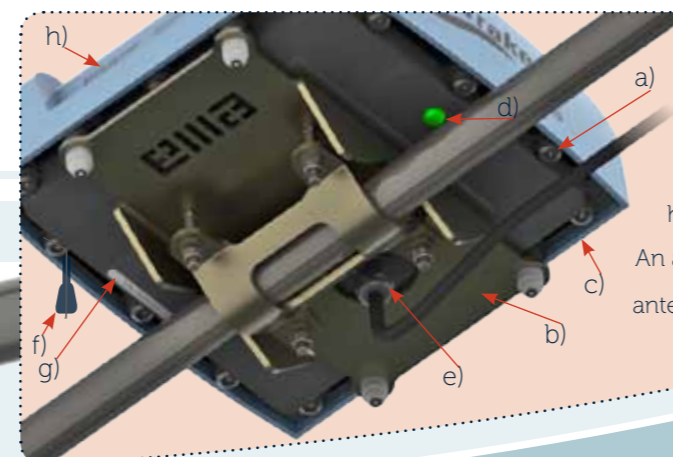
- bidirectional communication to and from Fisheries Monitoring Centres (FMCs)
- includes Poll, RIC and Standby commands
- satellite communication through the Iridium satellite network, complete "Pole-to-Pole" coverage
- data delivery compatible with Iridium, Inmarsat-C, NAF and proprietary BlueTraker® protocols

#### Security and safety

- elevated level of security with all antennas, communication modules and a back-up battery embedded in a double shell housing, appropriate for outdoor mounting
- antennas cannot be disconnected
- tamper alert sensor for unauthorised opening of the device
- compliance with the highest security standards and requirements (maritime electronic equipment standard EN 60945, Commission Regulation (EC) No. 2244/2003)
- highest security of VMS data:
  - BlueTraker® VMS Light terminal encrypts all data it transmits
  - Secure Socket Layer (SSL) and HTTPS security and authentication protocols are used for communication between satellite land earth stations and FMCs
  - in the event of a power outage, the back-up battery powers the terminal for many hours; a position report, together with a power loss alert, is sent out.

#### Design and operation

- robust, weather resistant double shell housing
- mechanically and electrically fully integrated design containing all modules and both SAT and GPS antenna
- exceptional autonomous operation of up to 48 hours, with embedded back-up battery
- compatible with any third party VMS software



An all integrated design with no antenna cables.

### Benefits

BlueTraker® VMS Light offers a wide array of advantages and benefits, unique to the market:

- fully compliant with Council Regulation (EC) Nos. 2371/2002 and 1224/2009
- exceptional savings in investment and communication costs for fishing vessels less than 15m in length
- no need for external antennas, resulting in lower installation cost and improved security
- reliable and cost-efficient operation through a robust and maintenance-free device
- world-wide coverage with fixed airtime costs for data delivery
- enables integration with the existing FMC infrastructure regardless of the communication channel
- simple, one-cable installation: just connect the device to the power source
- operates for up to 2 days on the embedded battery in the event of a power failure
- easy mounting with a RailMount or UniMount mounting kit:

#### RailMount

mounting on a vertical or horizontal tube/rail (1/2" to 3")



#### UniMount

mounting on a vertical or horizontal tube/rail (1/2" to 3") flush installation or wall installation

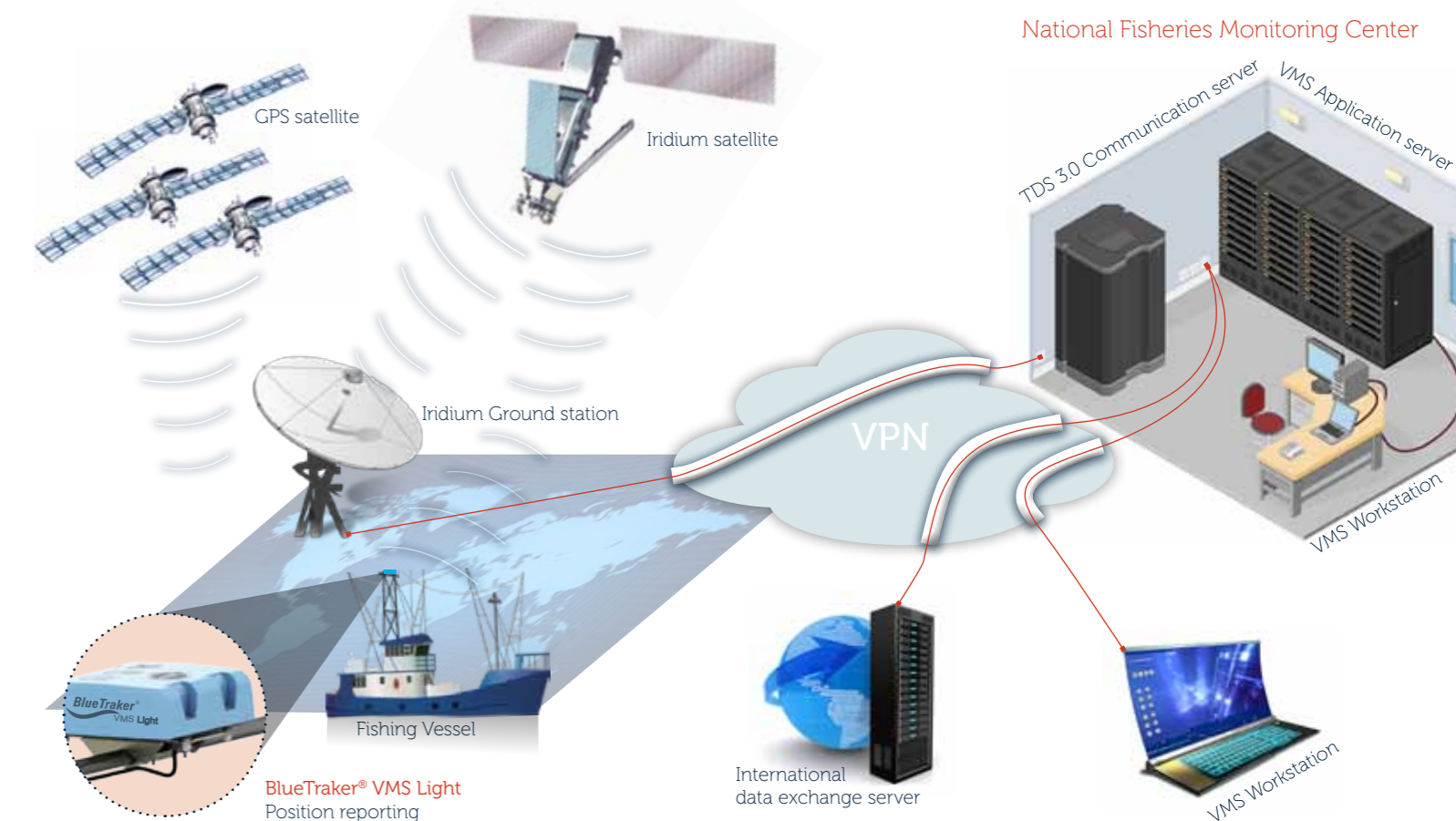


- no hidden costs: the selected mounting kit and a 10m cable (longer cables available at cost) are included in the set

## Security and safety features

- Stainless steel security screws
- Strong stainless steel RailMount
- Double shell housing, an utmost environmental protection
- Status LED indicators on the housing, easy visual operation check
- Cable connects through a cable gland, compact environmental protection
- Security seal with the serial number
- Laser engraved unique product serial number
- Laser engraved technical declaration

## BlueTraker® VMS Light System Overview



## The BlueTraker® VMS system interconnects three key elements:

### BlueTraker® VMS Light

The onboard BlueTraker® VMS Light satellite terminal measures the fishing vessel's positions using GPS satellite signals and sends them together with the speed and bearing to the Telematic Data Server (TDS).

### Telematic Data Server

The Telematic Data Server (TDS) processes VMS data received, and delivers them in the correct format to the VMS monitoring software. The TDS's communication interface is able to deliver the data in various formats, e.g. Iridium, Inmarsat-C, NAF and the proprietary BlueTraker® format. This way, data can be visualized on all GIS (Geographic Information Systems) platforms.

### Fisheries Monitoring Center

All tracking information from monitored vessels is displayed in the FMC's control centre, ready for fleet management decisions to be taken. The BlueTraker® VMS Light terminals offer bidirectional communication with the FMC and allow the monitoring authority to poll for vessel information.

