IoT for Fisheries

www.bluetraker.com

BlueSenz

The Internet of Things

has arrived for fisheries monitoring solutions.

Whether a fishing vessel is 3 or 300 nautical miles from the shore, FMCs have no easy way of knowing whether their fishing fleets are actually fishing. Knowing precisely when, where and how your fleets are fishing helps Fisheries Monitoring Centres to manage their fishing stocks more sustainably.

Optimize your
fisheries with real-time
fishing activity data.

OVERVIEW

BlueSenz IoT for Fisheries is revolutionizing the way that FMCs manage their fish stocks and marine reserves. By receiving precise, accurate fishing effort data directly from the seas, FMCs can form a more accurate picture of how to sustainably manage their fisheries.

Fishing experts understand the importance of real-time accurate fishing effort data, so we created BlueSenz for Fisheries. BlueSenz is a collection of wireless sensor devices mounted directly to the fishing gear (winches and nets) allowing an FMC to track and monitor fishing activities of any of the vessels in their fleets (wherever they might be). BlueSenz transmits precise data back to the FMC granting them the ability to make more informed decisions and manage their marine resources more effectively. It removes any uncertainty about the fishing activities of your vessels, whether they are 3, 30 or even 300 miles from the shore!

All Fishing Gear Becomes Tagged and Certified

Fishing gear is tagged with zero-power RFID tags called WinchTag. These are readable using a mobile RFID reader, providing the FMCs with a national fleet 'fishing gear register'.

Accurate Winch Activation Data

BlueSenz sends an alerts when a winch is active. It counts the number of revolutionsand rotation direction.

Precise net Deployment and Haul Locations

FMCs are able to view when and where a net is deployed in the sea, allowing them to determine when a vessel is fishing.

Self-installable by Fishermen

Fishermen are able to attach the WinchSenz by themselves (no tools needed).

No Wires or Cables

Wireless communication minimizes interference with other fishing gear or fishermen on board.

Data & Device Security

Designed according to advance encryption standards, the sensors data are protected and cannot be spoofed or jammed.

BlueSenz System Building Blocks

WinchTag is a batteryless RFID metal bolt that can be attached to different types of fishing winches. WinchTag provide a way for FMCs (by reading them with a mobile RFID reader) to have a "fishing gear register" of their fleet.

WinchSenz is a sensor device that is locked directly onto the WinchTag which is mounted on the winch; it counts the number of revolutions that a reel or net drum makes (clockwise or anti - clockwise direction). This allows the FMC receiving the data to determine whether a fishing net is being deployed or hauled from the sea (i.e. the vessel is fishing) and it also measures the length of the net deployed.

NetSenz (Coming Soon) is designed for the identification of fishing nets and recording the time and location where the net is submerged (i.e. when the fishing activities are taking place).

WirelessGate is a Radio Frequency (RF) communication device. It collects data from the various sensors on-board the ship (e.g. WinchSenz, NetSenz) and then transfers this data via the BlueTraker VMS device to the database server on land.

Technical Specifications

WinchTag

Part dimensions	
WinchTag (L x W x H)	25 x 17 x 22,5mm
10 piece pack (Lx Wx H)	220 x 120 x 50mm
Weight	
WinchTag	28g
10 pack incl. package	440g
Environmental	
Operational temp. range	-20°C → +60°C
Storage temp. range	-25°C → +70°C
Humidity range	10% RH → 100% RH
Dust and Water Ingress	IP68

WirelessGate

Electrical	
Power supply voltage:	9VDC to 36VDC
Average power:	1W
Maximum current:	0,5A
Environmental	
Temperature – Operating:	-25°C → +60°C
Temperature – Storage:	-25°C → +70°C
Ingress Protection Level:	IP68, IP69K (tested, not certified)
RF - ISM	
Frequency:	868,3MHz
Max. Transmitting Power:	0,025W
Physical	
Product Weight:	925g
Dimensions (L x W x H):	198 x 198 x 67mm

WinchSenz

Part dimensions	
WinchSenz (D x H)	142 x 15mm
Package (L x W x H)	250 x 150 x 55mm
Weight	
WinchSenz	210g
WinchSenz incl. package	321g
Environmental	
Operational temp. range	-20°C → +60°C
Storage temp. range	-25°C → +70°C
Humidity range	10% RH → 100% RH
Dust and Water Ingress	IP66
RF Parameters	
RF-ISM	Frequency: 868,3MHz Max. Transmitt. Power: 0,025W
RF-RFID	Frequency: 13.56MHz Max. Transmitt. Power: 0,025W

Why choose BlueSenz?

1 — **2** — **3**

Better Fishing Gear Visibility

Fishing gear is tagged with zero-power RFID tags. These are readable using a mobile RFID reader, providing the FMCs with a national fleet 'fishing gear register'. WSN sends an alerts when a winch is active. It counts the number of revolutions and rotation direction.

Latest Technology

Wireless communication minimizes interference with other fishing gear or fishermen on board. Sensors operate for up to 5 years[1] without external power. Designed according to advance encryption standards, the sensors data are protected and cannot be spoofed or jammed.

Ease out Work for FMC

Fishermen are able to attach the wireless sensors by themselves (no tools needed). FMCs can now demand almost immediate accountability from their captains if fishermen engage in illegal or improper fishing activities on the sea.
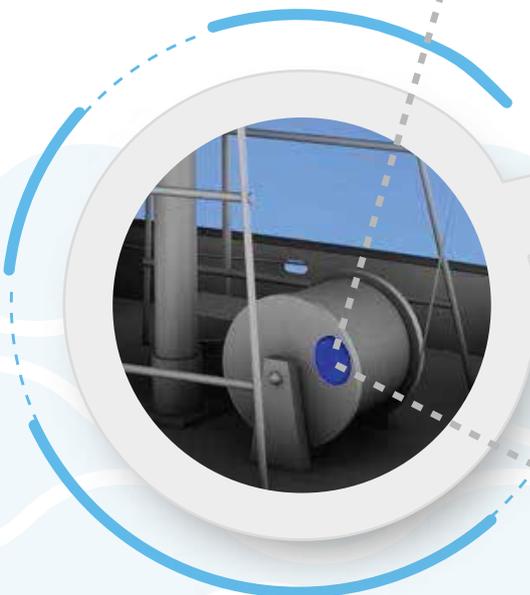
[1] WinchSenz 1 (One year lifespan) | WinchSenz 3 (Three year lifespan) Available Q2 2016 | WinchSenz 5 (Five year lifespan) Available Q4 2017

BlueSenz WirelessGate

The WirelessGate device provides signal coverage on the vessel and nearby sea for communication with the sensors to detect any fishing gear in use. It then transmits the data collected from the sensor devices to the BlueTraker VMS terminal.
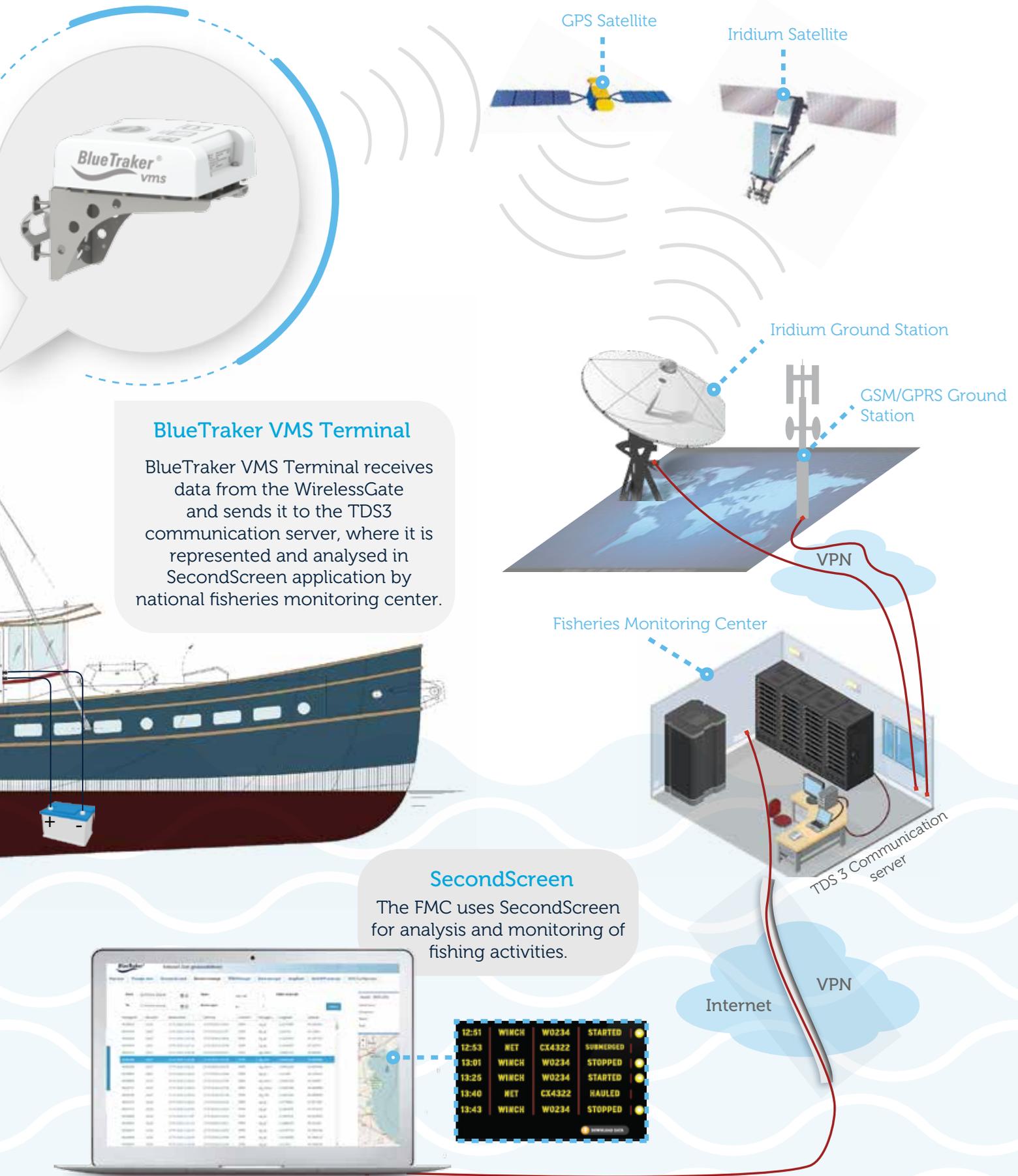
WinchSenz [2] is installed on the side of the flange of the winch, so any winch activity is closely monitored e.g. net is deployed into the sea or hauled from the sea.

WinchTag is installed on the side flange of the winch.

GPS Satellite

Iridium Satellite

Iridium Ground Station

GSM/GPRS Ground Station

BlueTraker VMS Terminal

BlueTraker VMS Terminal receives data from the WirelessGate and sends it to the TDS3 communication server, where it is represented and analysed in SecondScreen application by national fisheries monitoring center.

VPN

Fisheries Monitoring Center

TDS 3 Communication server

SecondScreen

The FMC uses SecondScreen for analysis and monitoring of fishing activities.

Internet

VPN

12:51	WINCH	W0234	STARTED
12:53	NET	CX4322	SUBMERGED
13:01	WINCH	W0234	STOPPED
13:25	WINCH	W0234	STARTED
13:40	NET	CX4322	HAULED
13:43	WINCH	W0234	STOPPED

[2] WinchTag can only be mounted on to certain types of winches. Contact sales@bluetraker.com for current list.

Digitizing the World's Fishing Activity

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BlueSenz

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