COMMISSION
Twentieth Regular Session
4-8 December 2023
Rarotonga, Cook Islands (Hybrid)

Letter to WCPFC re: VMS-100Si

WCPFC20-2023-DP11_Rev01[1]
21 November 2023

Philippines

[1] Updated VMS-100Si product sheet: the change is in the picture displayed on pages 3 and 4 (21 November 2023)

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BAGONG PILIPINAS

Tagapagtaguyod ng Malinis at Masaganang Karagatan

October 27, 2023

MS. RHEA-MOSS CHRISTIAN
Executive Director
Western and Central Pacific Fisheries Commission
Kaselehlie Street, P.O. Box 2356
Kolonia, Pohnpei State, 96941
Federated States of Micronesia

Dear **EXECUTIVE DIRECTOR:**

This refers to the recently conducted 19th Technical and Compliance Committee of the Western and Central Pacific Fisheries Commission wherein the Philippines have proposed under agenda 8.8a. Trial of VMS-100Si under delegation paper WCPFC-TCC10-2023-DP02.

Relative to the discussion of the said agenda, some of the members have inquiries and technical questions pertaining to the result of the VMS-100Si trial. With this, we would like to endorse to your office the dissemination of the updated product data sheet of the device as attached herewith in this letter to all members in preparation of the Regular Session this December.

Thank you very much for your utmost cooperation.

Very truly yours,

ATTY. DEMOSTHENES R. ESCOTO
Director

SRT Marine System Solutions Ltd

VMS-100Si System Overview

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Table of Contents

Table of Figures

1. Introduction

VMS-100Si is a rugged, secure, compliant professional monitoring satellite transceiver (MTU) that enables reliable monitoring of fishing vessels of any size or type globally. It accurately transmits a vessel's position, date/time, heading, and speed. Reporting frequency is configurable, ranging from positions every hour down to near real-time.

VMS-100Si communicates securely using the Iridium satellite network ensuring 100% global coverage. The transceiver includes electronic and physical anti-tamper, an internal backup battery power system that can provide 72 hrs. of continuous, autonomous operation, and a range of electronic catch and vessel status reporting options.

VMS-100Si is a fully integrated, weatherproof and secure device which also includes passive and electronic anti-tamper, SOS and customizable vessel alerts, and connectivity for electronic catch reporting devices.

Figure 1 - VMS-100Si

2. System overview

The VMS-100Si connects to the GeoVS MDA system using the Iridium Satellite network.

Mobile device terminals running CONNECT-FISH and other ERS apps communicate wirelessly with the VMS-100Si to allow the fishermen to enter catch report and other vessel status data that is then sent over the Iridium network to the GeoVS system.

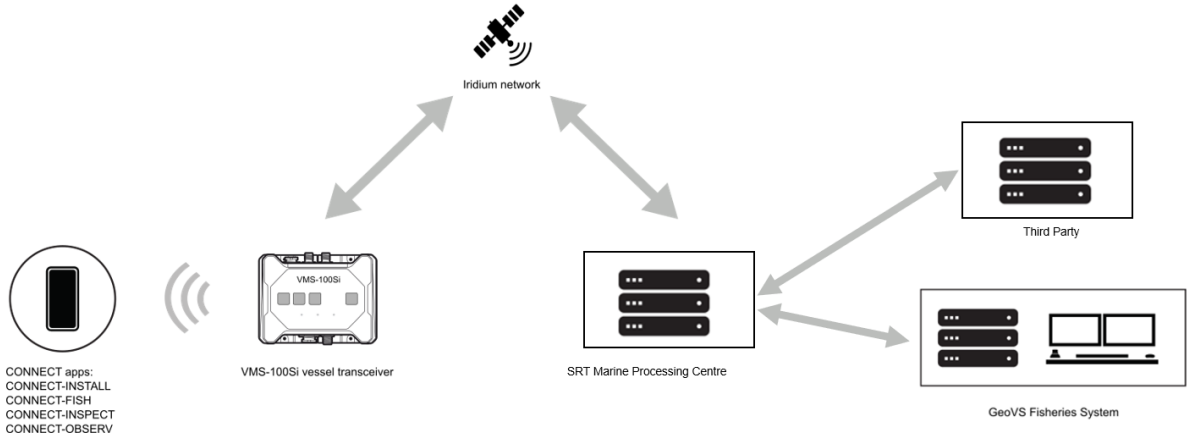


Figure 2 - Wider VMS system

The VMS-100Si has a wide variety of configuration options including reporting intervals, alerts, Fisheries model, ERS connectivity and physical user interface. The Transceiver is configured using a PC based tool with secure access to the device data.

The VMS-100Si autonomously transmits the vessel's Unique Identification Number – the Serial number, vessel latitude and longitude, and any other information required and the time of the position fix as determined by the GNSS module. Transmissions by default are made hourly but by configuration, any reporting interval can be programmed from every 15 seconds to every 4 hours.

VMS-100Si data integrity is paramount. The device is tamperproof both physically and electronically. Once deployed, the configuration and data the device contains is locked and cannot be changed or accessed by the fishermen.

The SRT Marine processing centre system can be configured to forward the data received from VMS-100Si devices to multiple independent.

2.1 General schematic

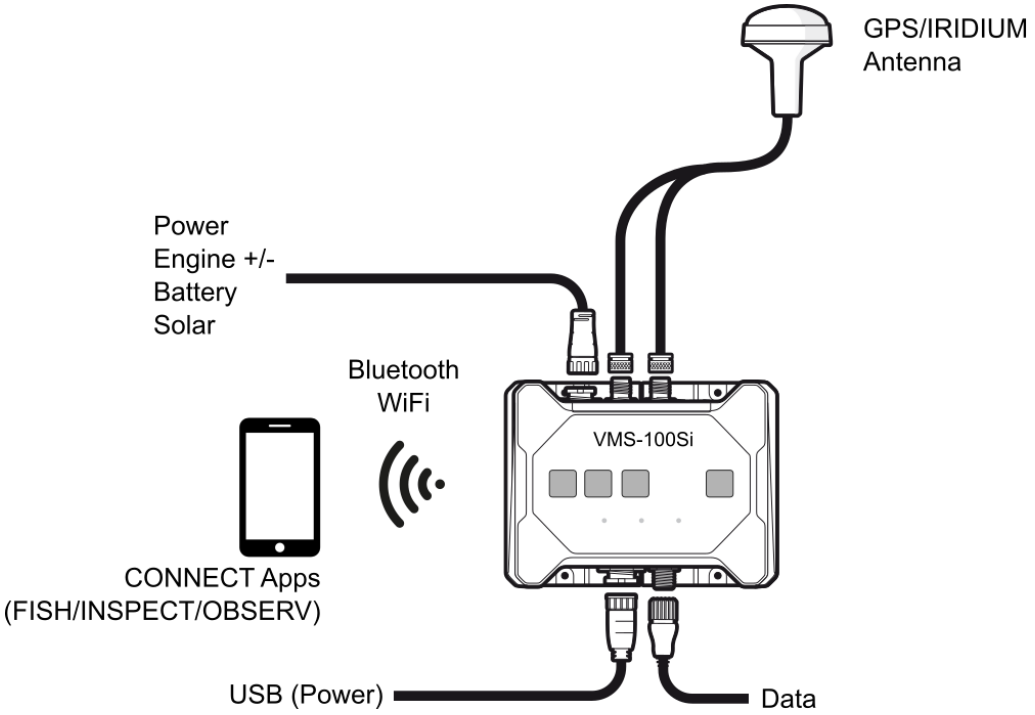


Figure 3 - Vessel system

2.2 Power supply/backup

VMS-100Si is powered from the vessel power supply (12-24 V). In the absence of external power, its internal batteries will maintain fully operational communication for a period of up to 72 hours.

2.3 GNSS/Iridium antenna

GNSS and Iridium Modems are integrated within the device's secure enclosure to maintain data integrity. The GNSS modem can use any combination of GPS, Galileo, Glonass or Beidou – by configuration and will make use of SBAS, if available and RAIM. External ports for connection of GNSS & Iridium antennas are provided. This facilitates convenient location on the vessel for optimum reliability.

An Iridium approved combined GNSS / Iridium antenna is provided with the transceiver.

Loss of connectivity or positioning data by disconnection of the Iridium or GNSS antennas are logged as soon as possible following reconnection.

2.4 Bluetooth / Wi-Fi connection

VMS-100Si has built in wireless communications for secure messaging between mobile ERS terminals running the CONNECT software and the transceiver.

2.5 USB port

A USB port is provided that can be only used to power and recharge a mobile ERS terminal.

2.6 Data port

The Data port on the VMS-100Si is for NMEA0183 / N2K messaging with other systems & sensors on the vessel. For this application, the port is disabled.

3. VMS features

3.1 Vessel data recorder

The Vessel data recorder will record 3 months' worth of vessel data, which can be downloaded using an SRT tool from the transceiver.

Data that is recorded includes:

- Own position, course and speed are logged every 60 seconds.
- ERS messages are logged as they are received from the mobile ERS terminal.

Access to the log remotely using the provided SRT tool is only possible once authorization by the GeoVS MDA system has been granted.

3.2 Fishing status

VMS-100Si offers different fishing status events dependent on the use case. From the Smallest Small scale fishing (SSF1) to Large scale fishing (HSF), VMS-100Si is configurable and flexible to support any size of fishing operation.:

		User Context			
	Required Features	SSF1	SSF2	MSF	HSF
V/E	2.1 Operational State	✓	✓	✓	✓
V	2.2.1 Geofence - Protected Area Alarm	✓	✓	✓	✓
E	2.3.4 Catch Landing		✓	✓	✓
E	2.3.5 Landing Declaration		✓	✓	✓
V	2.2.1 Geofence - Automated Enter/Leave Port			✓	✓
E	2.3.1 Fishing Set			✓	✓
E	2.3.2 Fish-Cargo Spreadsheet			✓	✓
E	2.3.3 Fishing Logbook			✓	✓
E	2.3.6 VMS Messages			✓	✓
E	2.3.7 Activity Summary			✓	✓
E	2.3.8 Pre-Departure Notice			✓	✓
E	2.3.9 Prior-Notice of Return			✓	✓
E	2.3.10 Tranship Request				✓
E	2.3.11 Transhipment Declaration				✓
E	2.3.12 Bunkering/Crewchange Declaration				✓

Figure 4 - ERS Fishing states

The rate of transmission of status reports and position reports over the Iridium network can be easily configured over the air with a simple command send via Iridium.

When configuration is completed, in one of the models above, and deployed, the mode of ERS reporting is locked to the selected model.

All ERS messages are communicated over the Iridium network to the GeoVS MDA System in real time.

3.3 Catch reporting

Subject to the ERS reporting model selected, catch reports can be transmitted that include the position, time / date, landing port, Species and weight of fish caught:

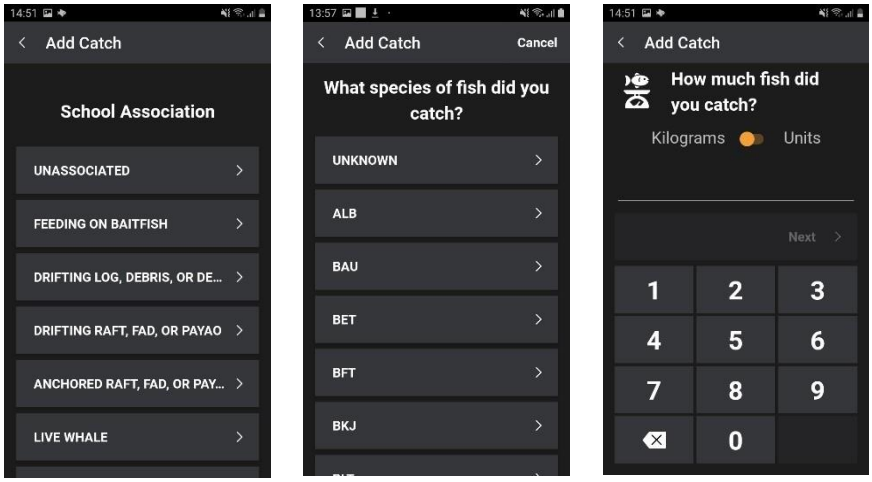


Figure 5 - ERS CONNECT FISH CATCH REPORTING

Once a catch report has been recorded and transmitted by the VMS-100Si, back at port, the landing declaration can be recorded and stored in the GeoVS MDA System.

3.4 Alerts

The VMS-100Si additionally transmits alert conditions to the fisheries control centre using the Iridium network. The list of alert messages that can be transmitted, by default, subject to configuration include:

3.4.1 Power Alert

The VMS-100Si can identify if the MTU is running on its internal battery or using the onboard power. Two types of alert message are sent:

- “Power off” flag message is sent when the VMS-100Si is disconnected from the onboard power.
- “Power on” flag message is sent when onboard power is recovered.

The alert message includes the location with latitude and longitude, the speed and course and the timestamp.

3.4.2 Geofence Alert

The VMS-100Si can identify when a vessel breaches a geofence. Two types of alert message are sent:

- Geofence “breach-in” alert when the vessel enters the geofenced area.
- Geofence “breach-out” alert when the vessel lives the geofenced area.

The alert message includes the Geofence unique identification number, the location with latitude and longitude, the speed and course and the timestamp.

3.4.3 Tamper Alert

When the device is removed from its mounting on the vessel a tamper alert is generated. The alert message includes the location with latitude and longitude, the speed and course and the timestamp.

3.4.4 GPS/Iridium Antenna Alert

When the GNSS module fails to acquire the GPS signal or the number of satellite visible is not enough to determine the position or the connection to the antenna is lost, then the VMS-100Si will generate an alert.

The alert message includes the error type, location with latitude and longitude, the speed and course and the timestamp.

3.5 CONNECT App

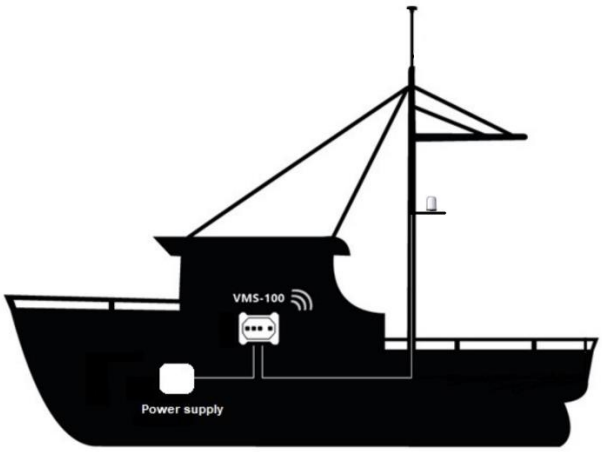
The VMS-100Si can be connected to a suite of CONNECT Apps developed by SRT Marine:

- CONNECT-FISH: catch reporting tool compliant with all WCPFC fishing report activities (catch reporting, transhipment request…)
- CONNECT-OBSERV: Observer tablet compliant with all WCPFC logbook requirements and reporting in real time observer safety status.
- CONNECT-INSPECT: Inspector app to audit the VMS-100Si and retrieve internal logs in real time.
- CONNECT-INSTALL: an App tool designed to facilitate installation and deployment of the VMS-100Si MTU.

4. Installation requirements

VMS-100Si installation can be exclusively carried out by trained and certified installers using the CONNECT-INSTALL App.

Typically, the VMS-100Si is installed below decks environment, or behind a bulkhead and connected to the vessel's power supply (12-24 V).



The GNSS/Iridium antenna is mounted on the mast, just above head height to maximise performance.

The Antenna is fitted with a 10 m cable, but additional lengths can be accommodated with an extension cable.