



Clearwater
DYNAMICS

RAPTOR

ADVANCED VESSEL
LOCATION



Introducing Advanced Vessel Location Software (AVL)

AVL is a feature rich software pre-programmed onto the Clearwater Raptor, installed directly onto the vessel. AVL's functionality enables ship owners and operators to dramatically increase the vision and performance of individual vessels and fleets.

What is AVL?

AVL or Advanced Vessel Location Software monitors your vessel position and speed against predefined parameters. Whenever any of the parameters are exceeded or no longer valid you will be notified of the event, giving unrivaled marine domain awareness.

The following messages are included with AVL



AVL Benefits



AVL does not simply track your assets it monitors them and provides live tracking with 7.5 minute interval reports.



Instant notifications reduce the need for unnecessary ship to shore communication, reduces logistics cost and improves planning efficiencies by creating more accurate arrival data.



It provides an invaluable security tool when covertly installed.



AVL instantly reports deviations in speed and course, improving fuel management.

Raptor Hardware

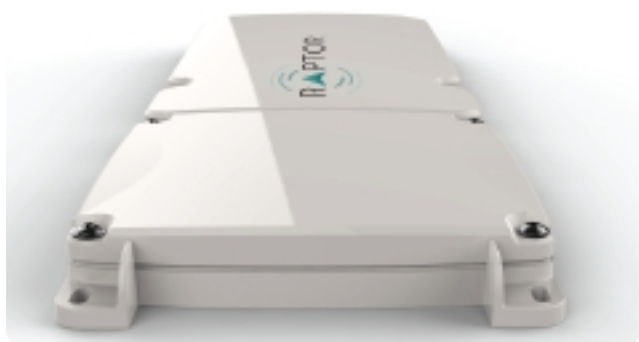
Raptor is the first low-profile satellite communications terminal with an integrated battery using the two-way Inmarsat IsatData Pro satellite network for remotely tracking vessels anywhere around the globe.

Fully customisable and environmentally sealed, Clearwater Raptor terminals are specifically designed to provide advanced tracking and unrivalled domain awareness.

Raptor can also be connected to third party sensors such as fuel and emission sensors as well as two-way touch screen communication devices.

Installed in covert locations Raptor works independently of standard Bridge equipment making it an excellent insurance approved risk mitigation product.

In emergency situations position reports can be transmitted every 15 seconds.



Battery side view



LED side view



Top elevation



Remote low elevation antenna
-20° to 90° field of view

Raptor Technical Specifications

SATELLITE COMMUNICATIONS

Satellite Service: Two-way, Global, IsatData Pro

From-Mobile Message: 6,400 bytes

To-Mobile Message: 10,000 bytes

Typical Latency: <15 sec, 100 bytes

Elevation Angle: +20° to +90° (Integrated)

Remote Antenna: -20° to +90° (Low elevation antenna)

Frequency: Rx: 1525.0 to 1559.0 MHz; **Tx:** 1626.5 to 1660.5 MHz

EIRP: 7.0 dBW

ELECTRICAL

Voltage: 9 to 32V;

Load Dump Protection: +150V; SAE J1455 (Sec. 4.13); Auto Switchover

Power Consumption: (Typical @12V DC, 22°C):

Average Receive: 8.3 mA;

Receive with GPS/GLONASS: 40 mA;

Transmit: 0.75 A; **Sleep:** 100 µA; **Power o:** 12 µA

Battery Cells: 12 AA Cells

Battery Chemistry: Rechargeable: NiMH; Non- rechargeable: LiFeS2

CHARGING

Current: 1.33 A (at 12V)

EXTERNAL INTERFACES

Inputs/Outputs: 3 x Analog or Digital In/Out • Serial: 1 x RS-232

GPS/GLONASS

Acquisition Time: Hot: 1s; Cold: 29s/30s

Accuracy: 2.5m/4.0m CEP-Horizontal

Sensitivity (Tracking): -162 dBm/-158 dBm

CERTIFICATION

Regulatory: CE (R&TTE, RoHS 2), FCC, IC, and Inmarsat Type Approval
Others: IP67

PROGRAMMING

Upgradable over the air by Clearwater

User Data Memory: 3.5 MB

Geofencing: 128 Polygons

Data Logger: 50,000 Position Reports

ENVIRONMENTAL

Operating Temperature: -40°C to +85°C

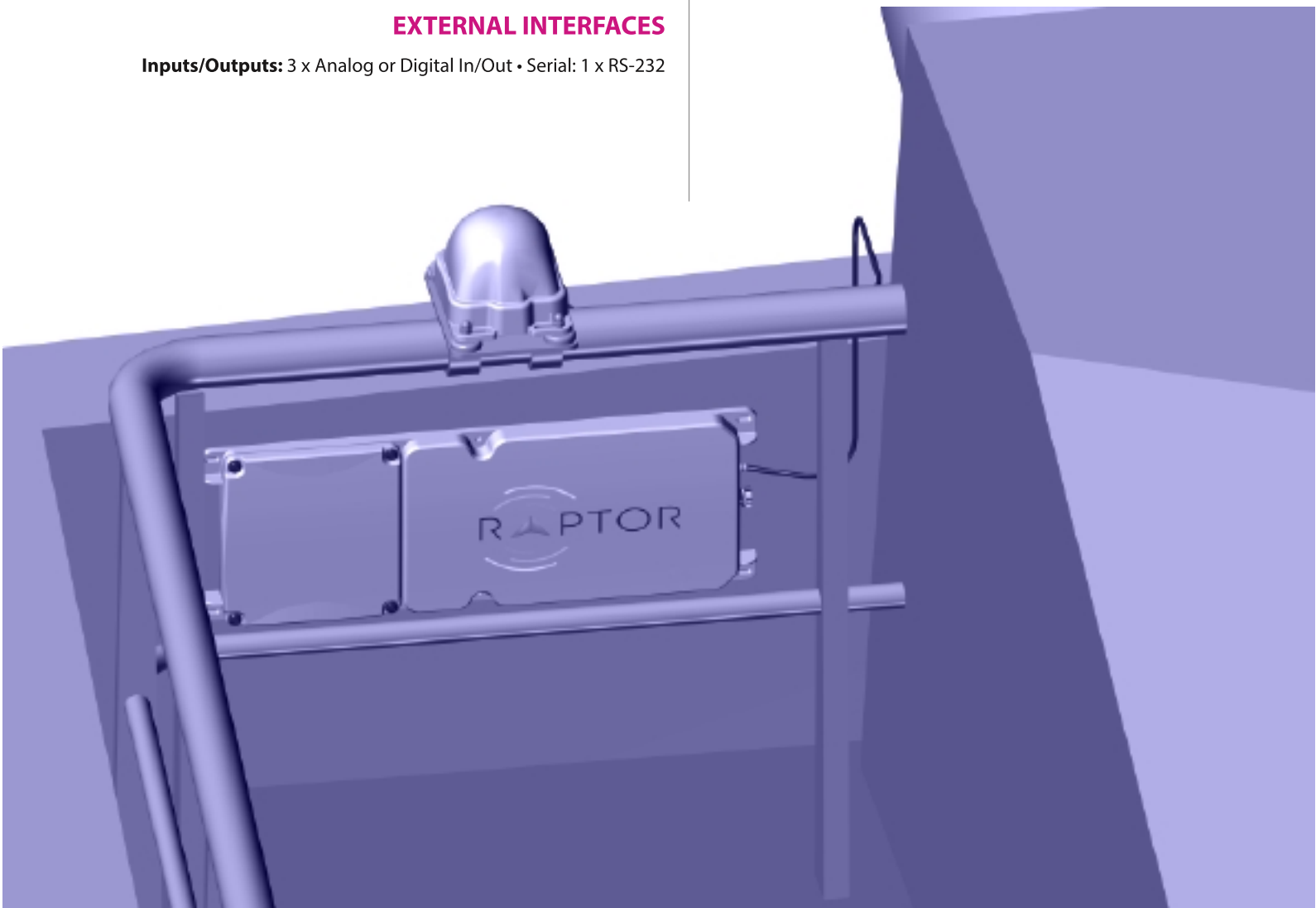
-40°C to +60°C (Non-rechargeable)

-10°C to +50°C (Rechargeable)

Dust & Water Ingress: IP67

Vibration: SAE J1455 (Sec 4.9.4.2 g 6-8)

Shock: MIL-STD-810G (Sec 516.6)





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