



CanalPilot

Total situational awareness, at your fingertips.

Navicom Dynamics' Precision Navigation system, the **CanalPilot**, is the ultimate tool for total situational awareness to ensure safe navigation of vessels through the Panama Canal.

Receive accurate and real-time vessel dynamics information on any number of screens to equip the vessels' navigational crew and key personnel and synchronise operations and communication.

CanalPilot is user-friendly and becomes a familiar secondary source of reliable and accurate information which is independent of the ships' navigational systems.

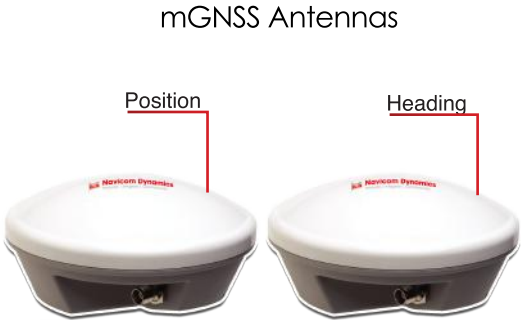
Facilitate critical decision making during ship-handling and improve safety of crucial manoeuvres with the **CanalPilot**. Easily add-on shore based data from a server to enhance the information modules to include weather, tides, DUKC and other critical data to support navigation.

It acts as a fall back navigational system that can optionally include battery back-up to provide a totally independent navigational tool in case all else fails.



Navicom Dynamics
Innovate | Integrate | Communicate

A completely independent mGNSS enabled dual antenna system.



Performance Features & Usability

Independent of vessel	The system is entirely independent of the vessel. It is a secondary source of vital vessel information that supports critical decision-making during manoeuvres.
Critical information source/data points	Get accurate Position, Heading, Rate-of-turn, COG, SOG and other useful data to create a stable image of the vessel on the chart display software with optional future vessel path predictions.
Situational awareness	Increased situational awareness of the vessel and it's surroundings made available on as many displays as required (to equip entire crew).
Portability	Information available on portable displays (tablets/iPads), allows the crew to easily walk around the bridge wing or any location that has been set up.
Extendibility	Add-on any number of screens to interface with CanalPilot to provide the same accurate & real-time information to additional crew members for a synchronised operation. Add-on shore based data points from a server to the software appear as integrated information to the user (with the original data points from the PPU)
Premium Quality	High quality sensors with advanced technology to form state-of-the-art systems that are accurate, reliable and user-friendly.
User-oriented, feature-rich software	A number of useful features to improve training, usability, safety and for personal enhancement.

CanalPilot - Product Specifications

Physical Specifications

Dimensions & Weight	186 x 81 x 250mm (WxHxD) 3.5 kg
Power requirements	90-240 VAC 1A / 24 VDC 1A
Battery back-up	> 6 hours of operation
Indicators	Diff lock, Diff RX, Heading, GNSS, Power, WiFi, AIS, UHF, Battery

External Interfaces

GNSS Antennas x2	TNC Jack
UHF Antenna	N Jack
VHF Antenna	SO239 Jack (mates to PL259)
Wi-Fi Antenna	RP-SMA Jack
USB (device only)	USB Type B
Mains power	3-pin IEC C14 Inlet
DC power	2-pin Terminal Block w Screw Lock

Technical Specifications

GNSS

Position Source (Frequencies)	L1C/A, L2C, L1OF, L2OF, E1, E1B/C, E5b, B1I, B2I
Tracked Systems	GPS, QZSS, Galileo, GLONASS, BeiDou
Correction Source	RTCMv3 (NTRIP/UHF), SBAS
Position Accuracy	RTK: 0.01m +/- 1ppm CEP, SBAS: 1m
Heading	HDG Accuracy: < 0.02° (10m baseline)
Rate of Turn	ROT Accuracy: < 0.1°/min

RTK/DGNSS Corrections

Network DGNSS Corrections	NTRIP (via Wifi/Bluetooth)
UHF Corrections	Using RTCMv3 over UHF connection

IMU (Inertial measurement unit)

IMU Gyro Bias Instability	< 1°/hr (0.4-0.7°/hr typ.)
IMU Angular Random Walk	≤ 0.08°/√hr

UHF Radio - Pre-tuned to 454.325 MHz using TrimTalk 450S to receive RTCMv3 DGNSS corrections

Frequency Range	410 – 480 MHz
Occupied Bandwidth	6.25, 12.5, 25 kHz
Modulation Type/Protocol	GMSK, Trimtalk 450S (+ others on request)
Receiver Sensitivity	< -115dBm

AIS Receiver

Dual Frequency	161.975 & 162.025 MHz
Receiver Sensitivity	< -107dBm at 20% packet error rate

Wi-Fi

Access Point	IEEE 802.11 a/b/g/n
Number of Clients	10
Security	WPA2
Output Power	18 EIRP [dBm]
Receiver Sensitivity	< -82dBm

Bluetooth

Qualification/Profile	v4.2, SPP
Number Clients	7
Output Power	14 EIRP [dBm]
Receiver Sensitivity	< -70dBm

Data / Connectivity

Data Output (NMEA/AIS)	GGA, VTG, HDT, ROT, GSA, GSV, VDM
Data Protocol	NMEA-0183 (compatible with Trelleborg SafePilot)
Connectivity	Wi-Fi, Bluetooth, Ethernet (optional)

Environmental Specifications

Operating Temperature	-20°C to +74°C (-4°F to +165°F)
Storage Temperature	-40°C to +85°C (-40°F to +185°F)
Humidity	95% (non-condensing)
RoHs	CanalPilot meets the directive for Restriction of Hazardous substances

Get real-time vessel information on portable displays and meeting the requirements set by the Panama Canal Authority for the most critical ship-handling needs:

Real time vessel information on display with ECS



Docking



Navigation



**Route
Planning**



**Path
Prediction**



**Situational
Awareness**

Fully independent systems are used by many industries and customers world-wide. Some of these are:

- Australian Defence Force , Australia
- New Zealand Defence Force,
New Zealand - Royal Navy, United Kingdom
- Royal Australian Navy, Australia
- Gladstone Ports Corporation, Australia
- Sabine Pilots, Texas, USA
- Maranhão Pilots, Sao Luis, Brazil
- Port of Dover, United Kingdom

Navicom's Fixed & Portable systems are used by many industries and customers world-wide. Some of these are:

- FSO Liberdade, Conoco Philips, Australia
- FPSO Pyrenees, BHP Billiton, Australia
- FPSO OKHA, Woodside Energy, Australia
- Mundra SPM, HMPL, India
- Mangalore SPM, MRPL, India
- FPSO Peregrino, Statoil, Brazil
- FPSO John Agyekum Kufuor, Konsberg Eni & Yinson, Ghana
- FPSO Sanha LPG, Chevron, Angola

The Royal Navy



HarbourPilot Lightweight on HMS Queen Elizabeth

Cargo Vessels



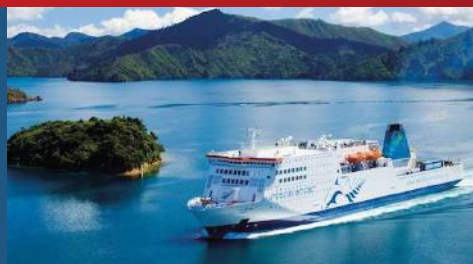
Ships pilots receive accurate data on portable displays

Offshore Oil and Gas operations



A fixed installation on the server rack on Banyu Urip FPSO

Commercial Vessels



HarbourPilot Fixed for the Interislander Ferry Services

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