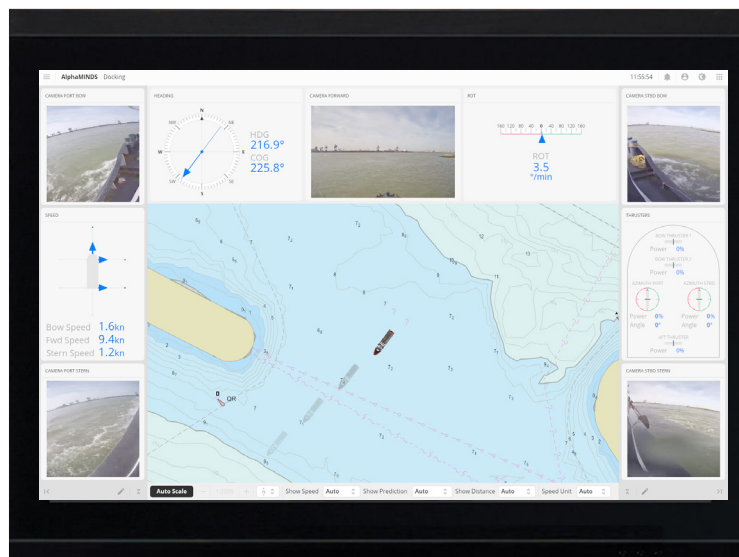


# AlphaMINDS Docking

Software suite

ALPHATRON  
Marine

- Path prediction based on speed, acceleration and turning speed
- Based on in-house developed automation and connecting platform Lynx
- Complete situation overview with optional IP cameras
- Available in hardware and software bundle



## Category

All vessel types



Yachting



Deepsea



Workboats



Fishing

# Features |

Our new Docking software is the second member of applications of our powerful all-in-one software suite AlphaMINDS (Multifunctional Information Navigation & Docking System). This Docking application can be used within the complete suite or as a standalone application. The Docking screen contains all information needed for safe navigation during the docking procedure of a vessel.



- Heading
- Rate-of-Turn
- Propulsion information
- Path prediction
- Vessel speed (transversal)
- Vessel position

# Docking technology |

The AlphaMINDS Docking application is capable to plot a scale model of the vessel itself at the exact position in a ENC chart with a calculated prediction of the path of the vessel including the distance from vessels' hull to the quay as reference into the current map. These measurements and the presentation can even be improved with more accurate results once an existing position measurement to the quay from a previous berthing is applied from memory of the computer. The officer on watch is now able to have a good overview of the vessel when it enters the harbour and starts docking procedures. When a vessel is equipped with this product, the captain or officer on watch has almost similar information as a local pilot and available in every situation.

# Based on Lynx |

The software of AlphaMINDS and thus the Docking, is based on our in-house developed automation and connecting platform Lynx, specific designed as maritime SCADA software for monitoring and controlling all kinds of equipment onboard a vessel. Integrated in Lynx is the OpenBridge design guideline that will give a better user experience with regards to design, styling and easy recognition of indicators, messages, alarms of the graphical user interface (GUI). Consistency across systems is an essential aspect for reducing human errors and this will contribute to an improvement of the quality of ship bridges, the work environment for seafarers and overall ship safety.



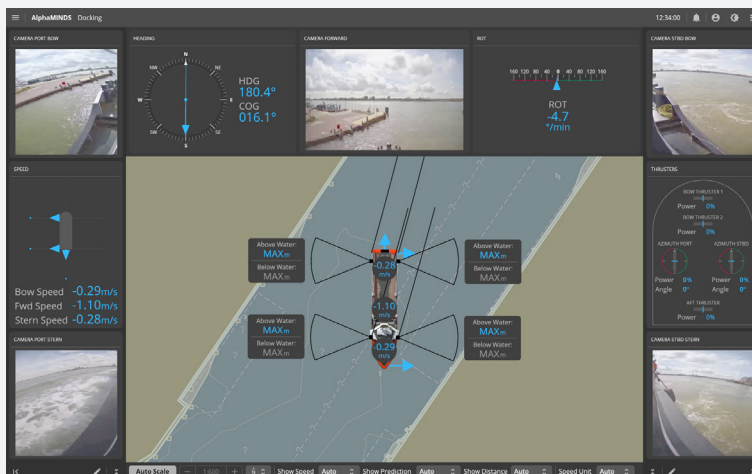
# Path prediction |

AlphaMINDS Docking is provided with a predictor of the vessels path. The predictor shows the predicted position ahead based on the current speed, acceleration and turning speed of the vessel and can plot ghost ships and curved lines into the chart. As soon as any of this data changes e.g., more thrust is applied during maneuvering, the prediction is immediately recalculated and modified on the chart in real time. The user will be able set this predictor in 10, 20, 30 and 60 seconds ahead.

# Lock approach |

Lock approach is a prediction tool that will help a captain approach a lock. This option shows two lines extended straight ahead from the ship. This can be used, for example, when approaching a lock to see if the ship is directly in front of it. Of course, it also works well when approaching the quay to see if the ship is straight or next to the quay when mooring.

# Complete overview |



A presentation on the map is very useful and gives a lot of extra information, together with the right information from ship systems is crucial for safety and support. AlphaMINDS takes this even further by offering the possibility to display video streams from IP cameras<sup>1</sup> in the surroundings of the vessel to create an even safer situation during the docking procedure. With AlphaMINDS Docking there are no more blind spots around the vessel.

<sup>1</sup>IP cameras are not part of the application, please consult our sales or support team for advice on the necessary equipment.

# Docking mode |

The Docking application is divided into screens with tabs available in day, dusk or night theme that give the user a complete overview of the most important information at the time it is most relevant. This information from ship-systems is presented in the following screen mode.

## Docking tab

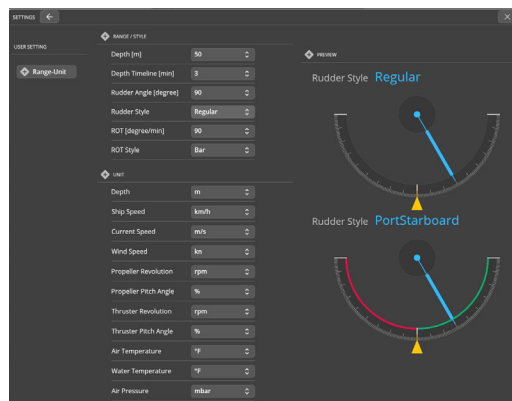
- Heading
- Rate of turn
- Speed
- Thrusters
- Video feeds
- ENC chart

- True heading (HDG)
- Course over ground (COG)
- Clearly displayed Rate of turn (ROT) indicator
- Bow, stern and forward and longitudinal speed displayed in cm/sec
- Bow, stern thrusters- Direction & Load or RPM
- Engine/ Propeller - RPM (and pitch)
- Rudder - Angle
- Azimuth thrusters - Direction & Load or RPM
- Bow – Forwards, port and star board
- Stern – Port and star board
- North up en head up
- Scale

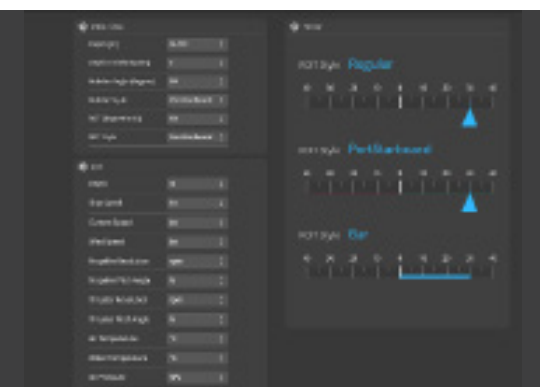
# Customization |

During the early design of our Lynx platform, a well-thought-out software architecture was developed. As a result, applications based on Lynx (such as Docking) can be built in a very flexible way.

Even with the standard out-of-the-box Conning software, the user will have possibilities to set and customize some preferences like units, but also the range scales of presented data.



Tailor-made GUI with widgets (add-ons) can be designed to your needs, delivered, and implemented in a reasonable amount of time with the possibility to expand later if necessary.



## Units

- Ship speed - cm/s, kn, km/h
- Propeller revolution - rpm, min-1
- Propeller pitch angle - %, °
- Thruster revolution - rpm, min-1
- Thruster pitch angle - %, °

## Range - Scale

- Rudder - angle
- Rate-of-Turn - scale
- Engine - scale
- Thruster - scale

# GNSS receiver

When it comes to berthing a vessel, measurement of low speed, precise heading and Rate of Turn is of most importance to the officer on watch or the pilot and for this reason a standard GNSS receiver is not enough. We developed a new GNSS receiver to be used as part of a fixed installation of the navigation equipment.

The new GNSS receiver is a modular system in terms of the number of antennas. Depending on the number of these active antennas, the GNSS receiver will provide data on, precise positioning, accurate heading, roll and pitch, but it will also bring redundancy to the owner. To get even better results, the customer can install these antennas on the vessel with preferably the greatest possible distance between them for the best possible result.



## 1 receiver

- Accurate positioning
- 8 Hz. NMEA and Light Weight Ethernet



## 2 receivers

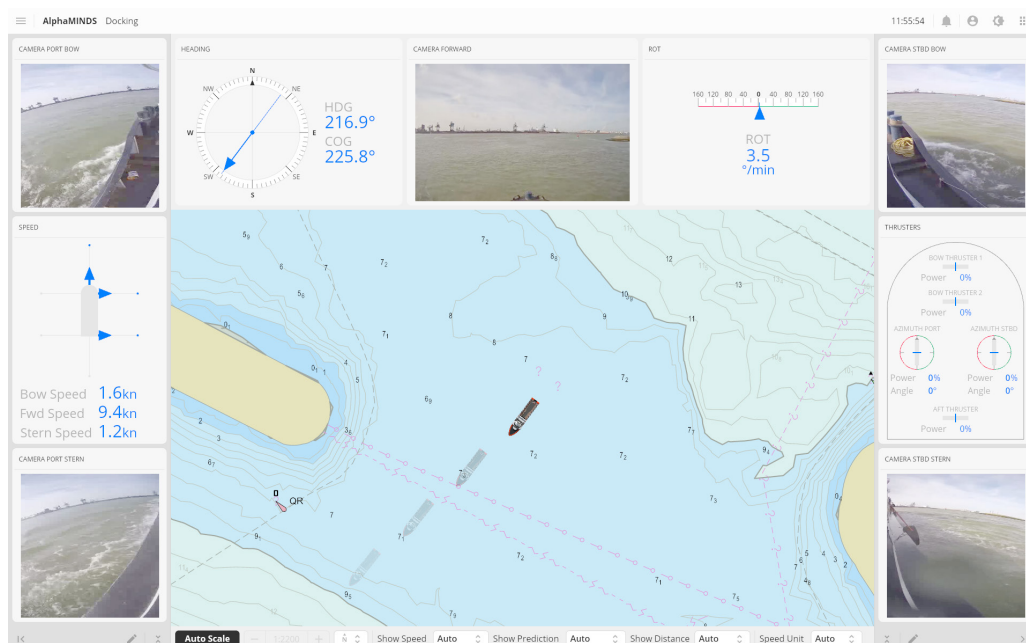
- Accurate positioning
- Accurate heading
- 8 Hz. NMEA and Light Weight Ethernet



## 3 receivers

- Accurate positioning
- Accurate heading
- Redundancy
- Roll, Pitch
- 8 Hz. NMEA and Light Weight Ethernet

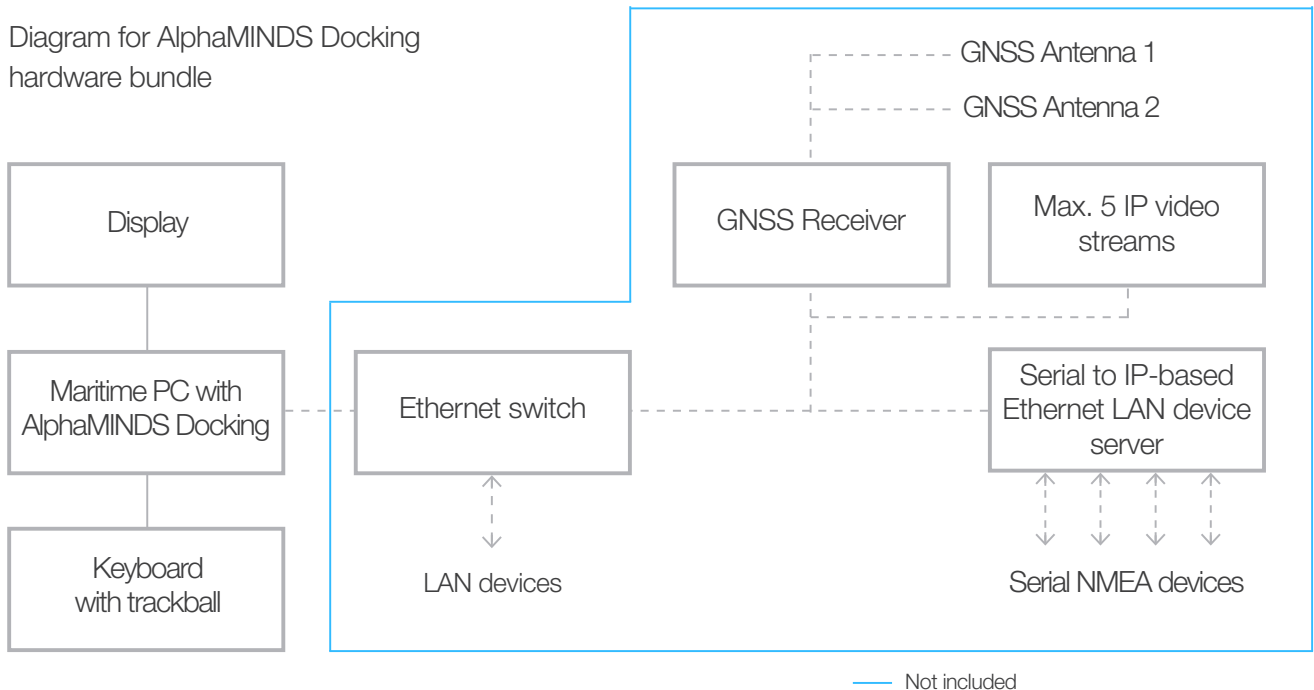
The GNSS receiver will broadcast on a frequency of 8 Hz. and will provide position data much faster and will give a better result on current position data. It is obvious that NMEA serial data interfaces (IEC 61162-1/-2) are available, but for the future proofing, a Lightweight Ethernet interface (IEC 61162-450) are also present.



# System overview

We offer AlphaMINDS Docking as a hardware and software bundle, a complete solution that provides what you need. This bundle consists of an IEC90645 certified marine computer with pre-installed AlphaMINDS Docking software, a secured dongle for running the application and our new GNNS receiver with that will provide data on, precise positioning, accurate heading. All data must be delivered to the computer via a LAN interface (consult our sales or support team for advice on the necessary peripherals if this is not available). Once the computer and the GNNS receiver is connected to the ship's network, the Docking software will present the ship's data.

Diagram for AlphaMINDS Docking hardware bundle



If you wish to add the Docking software to an existing AlphaMINDS installation or install it on an existing computer, we can also supply separate Docking software. Obviously, you will also need to add the secured dongle and the GNNS receiver if you want to use this software as a stand-alone application.

## In the box

- AlphaMINDS Docking bundle

Consist of:

- Standard Docking software
- Lynx Software license - Secured dongle
- Computer Intel i7-9700E, 8-Core 2.60GHz, 8GBRAM, 240GBSSD WIN10
- Keyboard with backlit & 25mm trackerball

## Optional

- AlphaMINDS - Docking software
- Lynx Software license - Secured dongle
- High accuracy GNNS receiver with two GNSS Dome Antennas, 1.5557-1.606GHz, 26dB

# Specifications |

## AlphaMINDS Docking bundle

This bundle consists of an IEC90645 certified marine computer with pre-installed AlphaMINDS Docking software, a secured dongle for running the application, GNSS receiver with two antennas, without peripherals.

| AlphaMINDS Docking bundle |                                                                                                                                                                                                                                        |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Software                  | AlphaMINDS Docking                                                                                                                                                                                                                     |
|                           | Lynx Software license - Secured USB dongle                                                                                                                                                                                             |
| Hardware                  |                                                                                                                                                                                                                                        |
| GNSS receiver             | 1 pc. Main unit and 2 pcs. GNSS Dome Antenna, 1.5557-1.606GHz, 26dB                                                                                                                                                                    |
| Computer                  | Marine grade and fanless computer with multi power: 100-240VAC 50/60Hz + 24VDC                                                                                                                                                         |
| Operating System          | Pre-installed Windows 10 - 64Bit IoT version with latest updates or better                                                                                                                                                             |
| Processor (CPU)           | Intel® i7-9700E, 8-Core or faster                                                                                                                                                                                                      |
| Memory                    | 8 GB                                                                                                                                                                                                                                   |
| Storage                   | 240 GB SSD                                                                                                                                                                                                                             |
| Graphics card             | Compatible with DirectX 12 or later with WDDM 2.0 driver, OpenGL 3.5 or better                                                                                                                                                         |
| Certification             | IEC 60945 4th (EN 60945:2002), IACS E10 EN61162, EU RO MR - Mutual Recognition, DNV GL - Det Norske Veritas, ABS - American Bureau of Shipping, CCS - China Classification Society, BV - Bureau Veritas, ClassNK - Nippon Kaiji Kyokai |

## AlphaMINDS Docking software

Docking software to be used as part of an existing AlphaMINDS installation or as a stand-alone application.

| Recommended Requirements Computer <sup>1</sup> |                                                                           |
|------------------------------------------------|---------------------------------------------------------------------------|
| Operating System                               | Windows 10 - 64Bit versions with latest updates or better                 |
| Processor (CPU)                                | 64-bit architecture, 8-Core or more                                       |
| System Memory                                  | 8 GB or higher                                                            |
| Storage                                        | 16 GB free disc space                                                     |
| Graphics card                                  | Compatible with OpenGL 3.5 or better                                      |
| Certification                                  | IEC 60945                                                                 |
| Minimum Requirements Display                   |                                                                           |
| Display aspect ratio                           | 1920x1200 pixel 16:10 (@ standard Conning, other aspect ratio's possible) |

<sup>1</sup>Specifications are based on the minimum requirements of the application

## GNSS receiver

High accuracy GNSS receiver to be used as part of AlphaMINDS Docking system or as a stand-alone unit.

| GNSS receiver                  |                                                                                                                                             |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Hardware                       | 1 pc. Main unit                                                                                                                             |
|                                | 2 pcs. GNSS Dome Antenna, 1.5557-1.606GHz, 26dB                                                                                             |
|                                | MRU sensor (optional)                                                                                                                       |
| Horizontal position resolution | <ul style="list-style-type: none"><li>• 1.5m (Standard reception)</li><li>• 1.0m (SBAS supported)</li><li>• 0.01m (RTK supported)</li></ul> |
| Interfaces                     | <ul style="list-style-type: none"><li>• IEC-61162-1 (Serial NMEA)</li><li>• IEC-61162-450 (NMEA over Ethernet)</li></ul>                    |
| Certification                  | IEC 60945                                                                                                                                   |



ALPHATRON  
Marine



[www.jrc-world.com](http://www.jrc-world.com)

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