



Navis AP3000

HEADING CONTROL SYSTEM

Introduction

Navis Engineering is a recognized expert in ship automation systems and one of the few world experts in dynamic positioning technology. After more than 16 years of scupulous research and development we have elaborated a profound understanding of every customer's needs as well as of global market trends. To keep our systems as simple and user-friendly as possible, and, at the same time, to preserve a high level of quality and reliability – this is what our company stands for.

Navis AP3000 Heading Control System is a technologically advanced digital ship control unit intended to reduce the operator's workload, increase the vessel motion efficiency and improve the safety of operations. The system was specially designed as a flexible solution, which makes it possible to easily install it on a broad range of vessels, be it yachts and small boats or VLCC tankers.

Being a supplier of dynamic positioning systems, joystick pilots, and steering control systems, Navis ensures easy and prompt integration of the AP3000 into the existing Navis system onboard, should the autopilot be supplied as part of a package or later on.



Mark of Conformity



Navis AP3000 Heading Control System has a DNV type examination (MED-B 4076 Module B, MED-D 988 Module D "Wheelmark") for the compliance with IMO Res. A.342 (IX), IMO Res. MSC. 64(67) Annex 3, IMO Res. A694 (17).

The autopilot is also compliant with IMO Res. A.822 (19) and ISO 11674/16329 (2003) for High Speed Crafts, IEC 62065 Track Control System.

The AP3000 is also one of the few autopilots that has an officially approved configuration for ships with two independent rudders.

Operator station overview

The modular concept of the AP3000 control panel makes it possible to integrate it into any bridge console without any harm to the overall design.

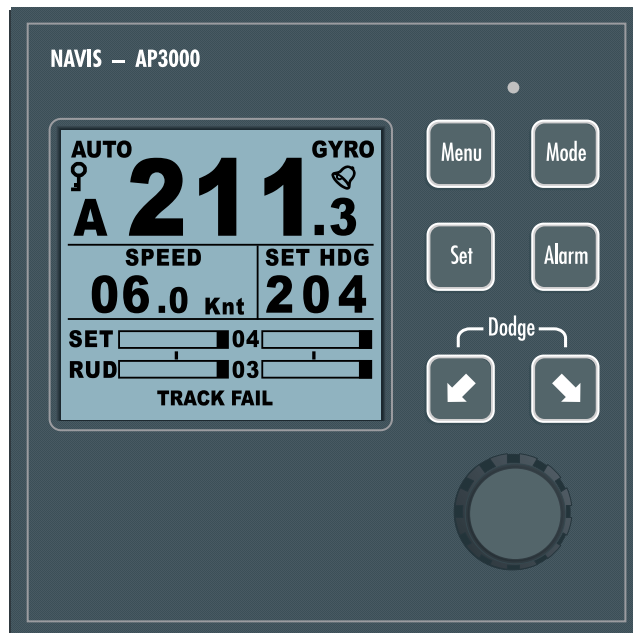
The reduced number of buttons ensures prompt and easy access to all the functions of the AP3000.

The **Menu** button is used for entering into to the Mode Menu and transfer control to another panel in case of network configuration

The **Mode** button is used to select the required control mode

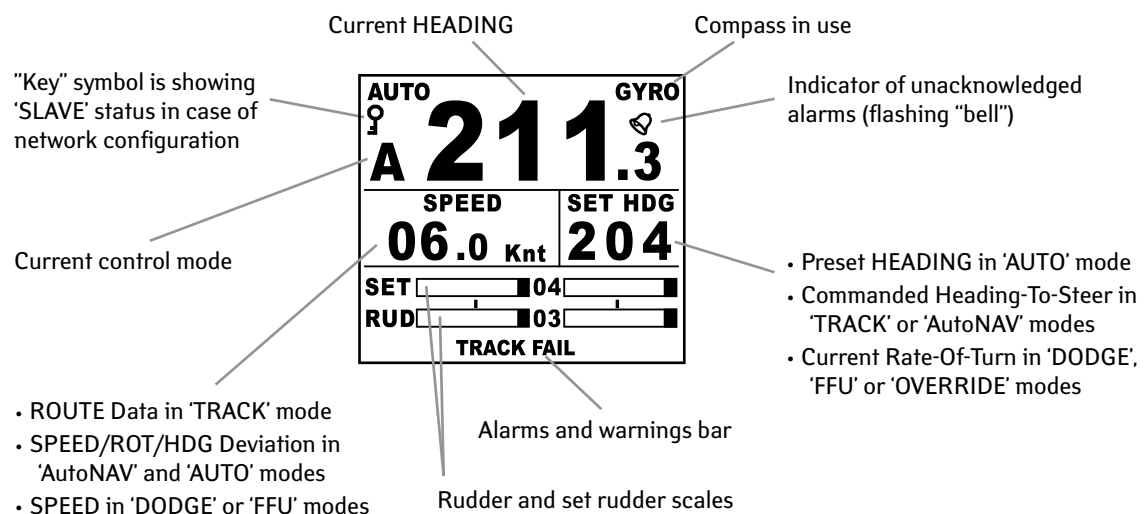
Arrow buttons are used to select variable parameters and to activate the "Dodge" mode

Knob is used to change parameters, assign the preset heading and select the rudder order



The AP3000 presents you with a useful set of information on its 3,5" high-resolution LCD display. A particular attention has been paid to offer simple and intuitive operation of the system. All the information such as alarms, the Heading set and the Heading steered, the commanded and the actual rudder angles, the Rate of Turn, Ship speed or position are clearly shown in easy-to-read pages.

DISPLAY LAYOUT



System overview

AUTOPILOT CONTROL MODES:

- “AUTO” control mode – Automatic Heading control
- “TRACK” control mode – AP3000 controls vessel motion on straight legs (ECDIS or ECS can be used as an external track controller in this mode, TCS Category A)
- “AutoNAV” control mode – AP3000 controls vessel motion on straight legs and turns by an external ECDIS (TCS Category C) or NAVIS “Survey System”
- “Dodge” control mode – Direct manual control of synchronized rudders, using the rotary knob on AP3000 control panel
- “Override” control mode - Direct manual FFU rudder control using external override devices (tiller, jog lever) (Optionally).
- “STBY” control mode - Standby mode. AP3000 is not operating for vessel control

SENSOR INTERFACES

- GPS
- Gyrocompass
- Log
- VDR
- Second gyro (including heading monitor)

AP3000 STEERING GEAR INTERFACES

- Solenoid valves, 24V DC (up to 3A load current)
- Proportional valves – 0...10 V, $\pm 10V$ or 4...20mA control signal
- Proportional rudder control (steering gears with follow-up steering control system) – 0...10 V, $\pm 10V$ or 4...20mA control signal



The Autopilot mode is used for heading control when underway moving ahead in the open sea.

AUTO

In the "AUTO" mode the ship heading is controlled automatically with minimum rudder activity by AP3000 Heading Control System.



TRACK

In the "TRACK" mode the Navis AP3000 automatically controls the ship's heading on straight legs between waypoints using NMEA messages from an external track controller, Category A (ECS/ECDIS/Chart Plotter). Supported NMEA messages: APB, BWC.



DODGE

In the "**DODGE**" mode the set rudder angle can be corrected manually using the rotary knob on AP3000 Control Panel.

OVERRIDE

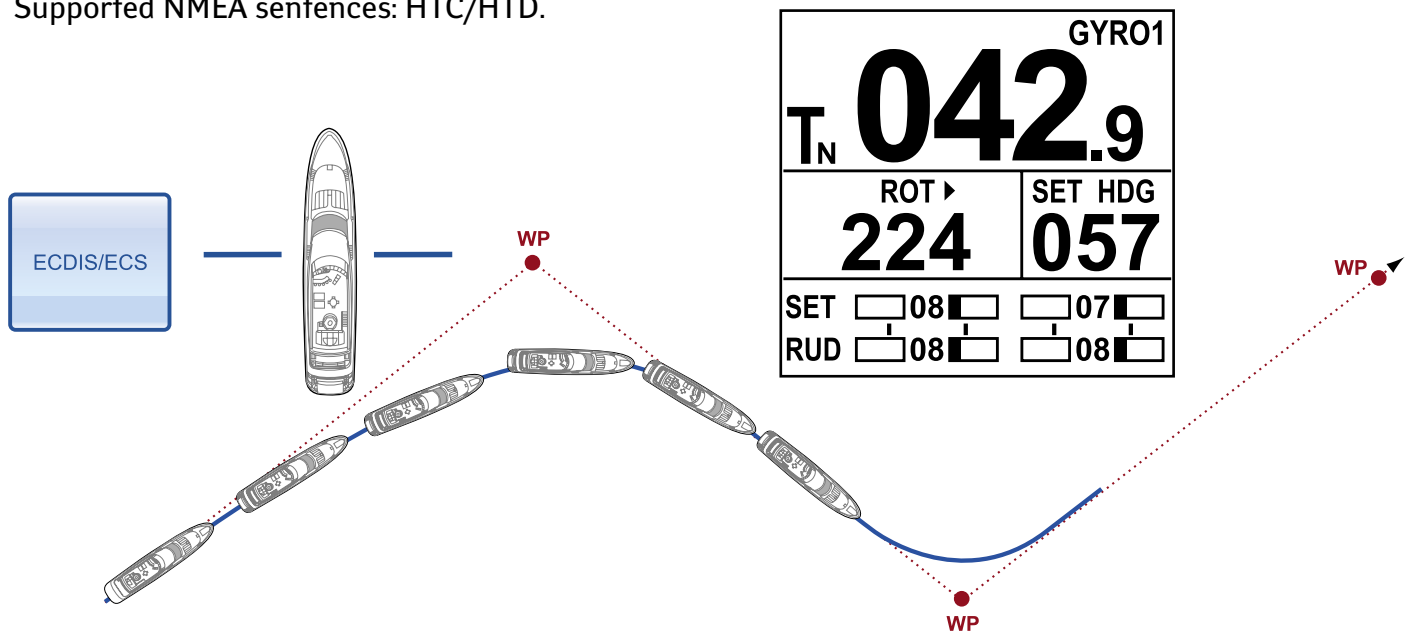
In the "OVERRIDE" control mode the heading can be corrected manually using an external override device (-es) like override tiller, jog lever, etc. (**Optionally**).

Control modes

AUTONAV

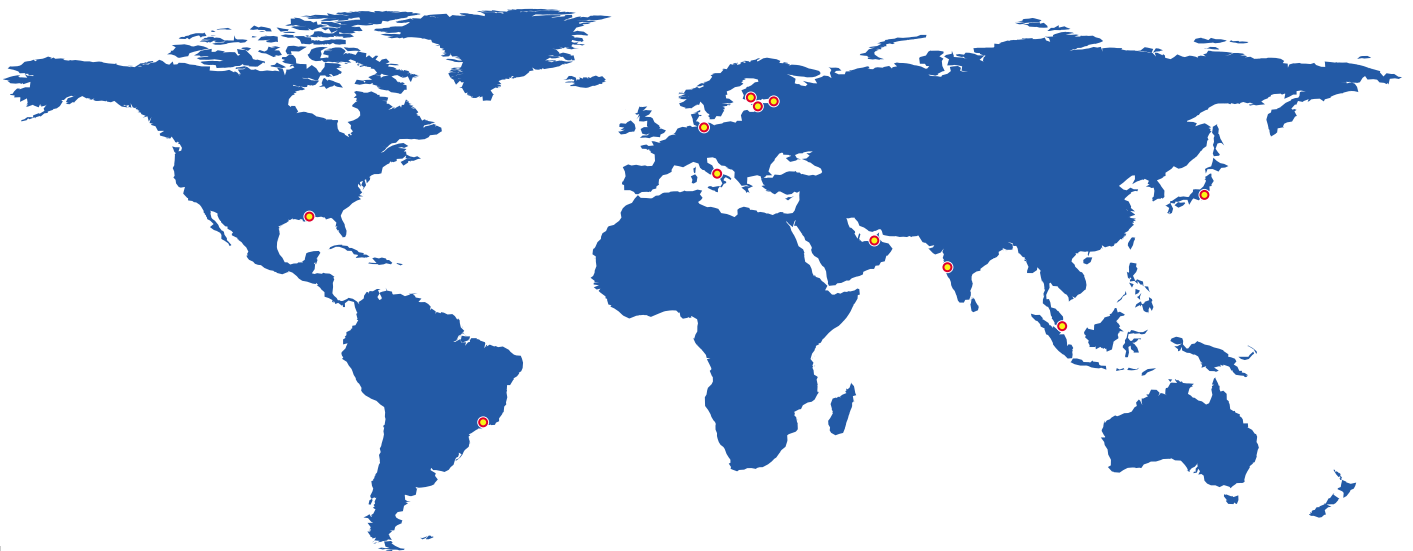
In the "AutoNAV" mode Heading-To-Steer and Rate-Of-Turn are set by an external vessel track control system, Category C (ECDIS).

Navis AP3000 controls vessel motion on straight legs and turns (Turn Radiuses between route legs). Supported NMEA sentences: HTC/HTD.



SERVICE AND SUPPORT

Wherever you are on the globe, NAVIS offers you a comprehensive package of technical support 24/7 x 365 days a year. The combination of extensive built-in diagnostics, hot-line support, a network of service agents with Navis certified field service engineers, and the NAVIS Service Center with Senior Engineers ready to fly to your vessel within 24 hours, no matter where it is located, ensures a timely response to



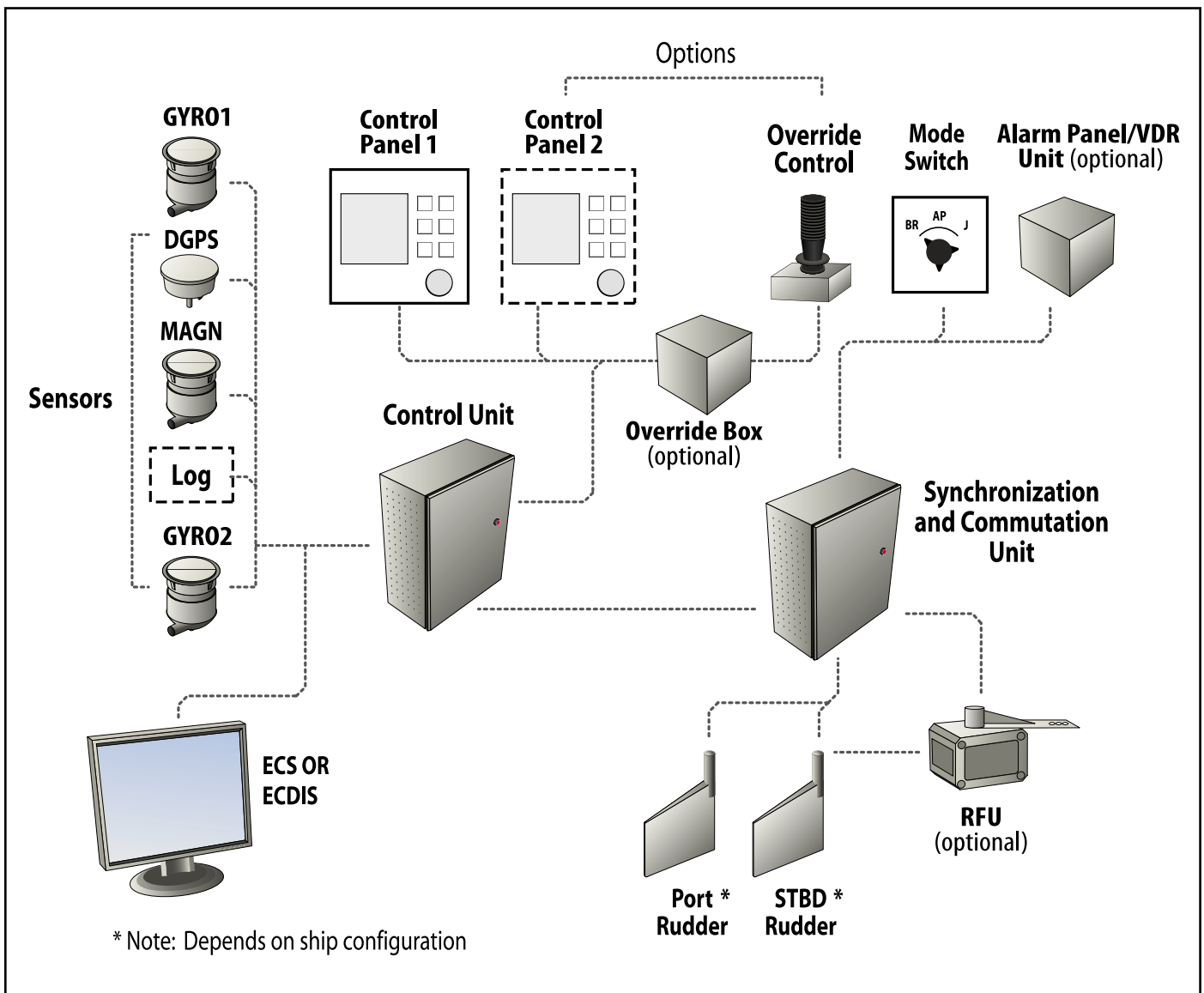
System configuration

NAVIS AP3000 DELIVERY SET

- AP3000 Control Panel
- Control Unit
- Synchronization and Commutation Unit
- Documentation Set
- Spare Parts Set

NAVIS AP3000 OPTIONS

- Mode Switch Selector
- Rudder Feedback Unit
- FFU Override control unit (including PCB, case and tiller)
- VDR/Central Alarm Panel interface(including PCB, case)
- Rudder Angle and Order indicators





Navis Group

Navis Engineering OY - Headoffice

Tuupakantie 3 A
FI-01740, Vantaa, Finland
Tel: +358 9 250 9011
Fax: +358 9 250 9012
e-mail: headoffice@navisincontrol.com
sales@navisincontrol.com

Navis Ltd – R&D Center

Obvodny channel emb., 14
Saint-Petersburg, 192019
Russian Federation
Tel: +7 812 567 37 63
Fax: +7 812 567 28 58
e-mail: products@navisincontrol.com