

# NAVITRON SYSTEMS LTD

## NT991G MK2 GYRO/MAG AUTOPILOT

Fully Type Approved  
Notified Body 0191 / 05



ISO 11674 & IMO A342 (IX) as  
amended by MSC 64/67 Annex 3

Designed and developed by Navitron Systems Ltd for commercially operated ocean going vessels of all types from typically 1800 gross registered tonnes upwards, the Navitron NT991G MK2 Autopilot is fully type approved to latest IMO and ISO standards.



Model NT991G MK2

Dims 296mm x 175mm x 110mm (depth)

- **Dual Mag Inputs :** - Sensor Coil and/or NMEA.
- **Dual Gyro Inputs :** - 1:1 Synchro and/or NMEA.
- **Track Steer :** - Multi waypoint steering via Plotter/ECDIS data.
- **Programmable ROT :** - (Degrees/Min).
- **Built in RadioNav and Off Course Alarm.**
- **Automatic Stability :** - Compensates for Rudder speed variations.
- **Heading / VDR out :** - NMEA, Step by Step and Furuno Heading. \$HTD & \$RSA VDR

Available in various system configurations the NT991G MK2 can be supplied for immediate compatibility with most gyro compass and steering system types rendering it an extremely cost effective solution for new build and retrofit installations. Additionally, the NT991G MK2 Autopilot features automatic Waypoint Steering based on "Heading to Steer" serial data received from proprietary Track Plotters/ECDIS systems etc. (\$HTC, \$HSC, \$APB sentences).

Comprehensively intelligent, other standard features include Dual Mag and Gyro Heading Inputs, serial data outputs for Radar Stabilisation / Nav Computer / VDR use etc, fully Automatic Stability Compensation to accommodate Two Speed Rudder Systems and programmable Rate of Turn in degrees per minute.

Simple to operate via a traditional and clearly marked rotary Course Setter, the NT991G MK2 is immediately compatible with existing Navitron equipment including Watch Alarms, Heading Repeaters, Rudder Angle Indicators and Power Steer Controls.

- Full P.I.D Intelligence.
- Servo Drive Heading Repeater (Standby mode).
- AutoTrim (Automatic Permanent Helm).
- Digital Heading and ROT data display.
- Bargraph and digital Rudder Angle display.
- Operator variable control panel illumination.
- 11 - 40Vdc Power Supply compatible.
- Solid State Output stages ( 11 - 40 Vdc / 5A max.)
- Fully programmable installation parameters.



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# NT991G MK2

## Outline Specifications

All Navitron Autopilot systems are covered by comprehensive warranty terms and are supplied standard complete with Mag Heading Sensor Coil, Rudder Reference Unit and Control Unit incorporating 11 – 40Vdc 5A rated solid state switches for the control of solenoid hydraulic steering systems. Various optional equipment includes dual solenoid and dual channel analogue outputs (-10V to +10V) for independent dual rudder and analogue steering system control respectively.

### NT991G MK2 Autopilot Input/Output Specifications

#### Inputs: -

Supply Voltage Range	11-40Vdc
Power Consumption	2.5W (@24Vdc)
Illumination Max	8.1W (@24Vdc)

#### Mag Heading Input Ports

Navitron Heading Sensor Coil mounted above/below Existing Mag Compass	Coil type HSC1 or HSC2
Resolution	0.25°
NMEA 0183 Heading Sentence from Electronic Compass (Priority as shown)	XX HDM XX HDG XX HCC XX HDT
Resolution	0.1°

#### Gyro Heading Input Ports

Isolated 1:1 Synchro available in Gyro	400Hz Excitation from Autopilot
Resolution	0.25°
NMEA 0183 Heading Sentence from Gyro (Priority as shown)	XX HDT XX HDM XX HDG XX HCC
Resolution	0.1°

#### Track Data

XXHTC, XXHSC, XXAPB

#### Follow Up Rate (Minimum)

All Heading Input types      30° / Sec

#### Operator Controls

Yaw	Illumination
Rudder	Mode Switch
Counter Rudder	Off Course Alarm
Rudder Limit	Gyro/Mag Selector
Turn Rate	Auto Trim

Operating Temp Range      -20 to +60 °C

Compass Safe Distance      0.6m

#### Mechanical Data

Width	297mm
Height	176mm
Depth – behind bezel	110mm
Weight	3.3Kg

#### Outputs: -

#### NMEA 0183 (Isolated RS422)

Update Rate	Selectable @ 1Hz, 10Hz or 20Hz		
Heading Sentence types (Mag/Gyro v Update Rate)	Hz	Mag	Gyro
	1	HCHDM HCHDG APHDM APHDG	HEHDT AGHDT
	10	HCHDM (5Hz) HCHDG	HEHDT AGHDT (5 Hz)
	20	HCHDM	HEHDT
Resolution	0.1°		
Autopilot Status Data	1	APRSA APHTD	AGRSA AGHTD

#### Furuno Format

Update Rate	Selectable @ 5Hz or 40Hz
Resolution	Selectable @ 0.166° or 0.1°
Signal Amplitude	Selectable @ 5Vdc or 12Vdc

#### Step by Step

Steps per Degree	Selectable @ 3, 6, 12 or 24
Signal Amplitude	5Vdc

#### Navitron Serial Data

To Navitron Digital Repeaters Etc

#### Solenoid Switching

Polarity	Selectable Common +VE/-VE
Max Rating	5A @ 40Vdc

#### Panel Alarms

Power fail	Off Course
Steering System Fail	Rudder Limit
Heading Input Fail	Turn Rate Limit
Alarm Test facility	Remote Engaged