

NAVITRON SYSTEMS LTD

NT991G 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 vessel of all types from typically 1800 to 20,000 gross registered tonnes, the Navitron NT991G Autopilot is fully type approved to latest IMO and ISO Standards



- **Dual Mag Inputs:-**
Sensor Coil and/or NMEA.
- **Dual Gyro Inputs:-**
1:1 Synchro and/or NMEA.
- **Programmable ROT:-**
(Degress/Sec).
- **Built in Off Course Alarm.**
- **Automatic Stability:-**
Compensates for Rudder speed variations.
- **Heading / VDR Out:-**
NMEA, Step by Step and Furuno Heading.
\$HTD & \$RSA VDR

Model NT991G Dims 296mm x 175mm x 110mm (depth)

Available in various system configurations the NT991G 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. The NT991G Autopilot offers traditional Navitron performance and reliability reinforced by full type approvals to latest IMO and ISO standards.

Comprehensively intelligent, standard features of the NT991G Control Unit include a 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 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).
- Auto Trim (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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Osborn House, 25E Brockhampton Lane, Havant, Hampshire PO9 1JT
TEL: (UK) 023 9249 8740 FAX: (UK) 023 9249 8783
(INT) +44 23 9249 8740 (INT) +44 23 9249 8783
Email: sales@navitron.co.uk Web: www.navitron.co.uk

NT991G

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 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° |

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 Temperature 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 20 | HCHDM (5Hz) HCHDG | HEHDT AGHDT (5Hz) |
| 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 |