

MINS 2

Marine Inertial Navigation System



Marine Inertial Navigation System

The Raytheon Anschütz MINS 2 is a highly accurate inertial navigator for use on board of all kinds of naval vessels such as frigates, corvettes, missile fast patrol boats, offshore patrol vessels and submarines as a main or stand-by system.

MINS 2 is based on modern, state-of-the-art strap down ring laser gyro technology, featuring the well proven laser gyro GG 1320. MINS 2 has flexible interfaces to the log and/or GPS receiver and supplies the following own ship's data:

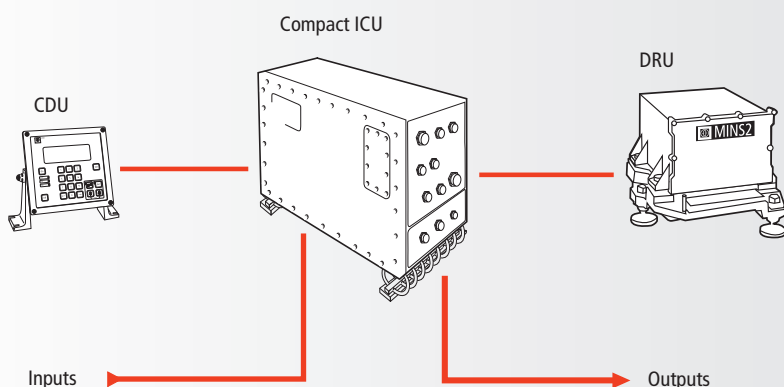
- Heading, roll, pitch angles
- Heading, roll, pitch angular rates
- Linear velocities
- Linear accelerations
- Position
- Heave, heave rate
- Status

The system is equally suited for both new built and retrofit solutions, since the Interface and Connection Unit (ICU) is free configurable.

MINS 2 is the next generation of the well proven MINS 1 with more than 120 MINS 2 systems in service.

BENEFITS AT A GLANCE

- High reliability
- Low life cycle costs
- Short settling times (less than 10 minutes at pier, less than 20 minutes at sea)
- Easy to operate and maintain
- High accuracies - high performance
- Customer specific interface configuration



- Various analogue and digital outputs available
- Third generation, low noise digital RLG
- Compatible with first generation system MINS 1
- Family concept with scalable accuracies



- CDU**
- Control and display unit
 - Command and control
 - Position input
 - System configuration



FEATURES

High speed serial output

Up to 2 HDLC broadcast outputs RS422 supplying configurable data

Update rate 1... 200 Hz:

- Heading, roll, pitch
- Heading, roll, pitch rates
- Status

Update rate 5 Hz:

- Position
- Velocities VX, VY, VZ, VN, VE
- Heave
- Log speed
- Status and accuracy figures

Network output

Up to 2 Ethernet outputs UDP (1... 200 Hz update rate) supplying configurable data: see high speed serial output

Status output

4 potential-free contacts for 24 V, max. 1 A

- “On”
- “Available”
- “Fault”
- “Simulation”

Analogue output (synchro)

90 V line-to-line, ref.-voltage 115 V/400 Hz

Up to 6 configurable outputs:

- Heading, roll, pitch
- Ratio: 1 x, 2 x, 4 x, 6 x, 10 x, 36 x

Course Bus* output

Asynchronous serial RS422 output

50 Hz update rate

Heading, roll, pitch, status

NMEA183 output

2 asynchronous serial RS422 outputs

Up to 10 Hz update rate

Position, heading, roll, pitch,

Velocities VX, VY, status

Inputs

Up to 2 GPS (serial data and 1 PPS)

Up to 2 Log speed (serial, synchro, DC)

Position via CDU

*pro Raytheon Anschütz proprietary bus



DRU

Dynamic reference unit, incorporating the inertial sensor assembly and the navigation processor.

ISA

Inertial sensor assembly is based on Honeywell strap down laser gyro technology featuring the well proven laser gyro GG 1320 and the accelerometer QA 2000.



Compact ICU

Interface and connection unit, a modular built interface to accommodate ship specific demands and applications such as log, GPS, ship's mains and others.

TECHNICAL DATA

Supply voltage & power consumption

- 18–32V DC
- 220 V DC
or 115/230 V AC, 50-400 Hz via UPS
- less than 100 W

Standard Accuracy*

- Heading < 4 arcmin sec(lat) RMS
- Roll < 1.7 arcmin RMS
- Pitch < 1.7 arcmin RMS
- Position < 60 m CEP50 (with SPS GPS)
< 1.5 NM / 8h TRMS with log aiding
< 3.0 NM / 8h TRMS in free inertial mode
- Angular rates < 2.7 arcmin/s RMS

* Higher accuracy are available, however export restrictions may apply

Environmental Conditions

Ship's motion: max. speed 70 kn (log aided)

- Roll/pitch angle +/- 85°
- Heading rate +/- 200 °/s
- Roll/pitch rate +/- 200 °/s

Temperature

- VG 95332
- Mil-Std-810
 - Operation -15°C to 55°C
 - Storage -40° C to 70°C

Shock

- BR 8470, Grade D
- BV 0430, class A

Vibration

- IEC 60945

Humidity

- VG 95332

EMC/EMI

- VG 95373

Type of enclosure

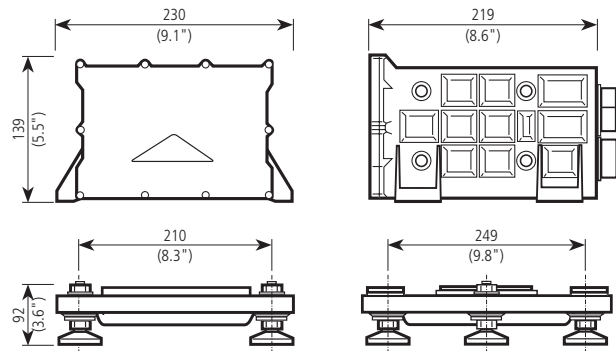
- IEC 60529
- IP 54

In accordance with

- IMO A.424(XI), A694(17), MSC.191(79), ISO 8728, IEC 60945, IEC 61162, IEC 62288

DRU

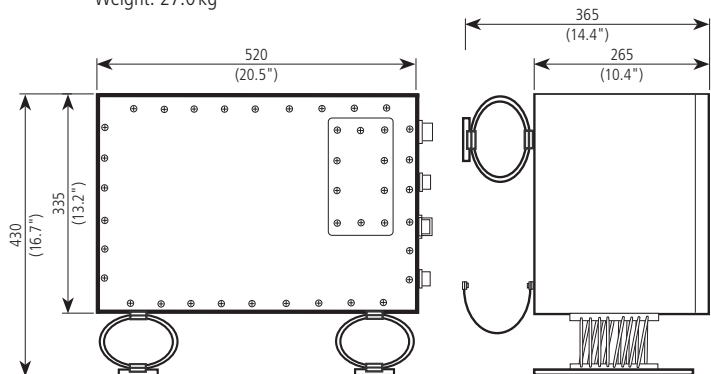
Weight: 6.0 kg



Mounting plate for surface vessel application

Compact ICU

Weight: 27.0 kg



CDU

Weight: 7.0 kg

