

GYROCOMPASS

CMZ50 Series



SAFE NAVIGATION

Yokogawa Denshikiki Co., Ltd.

Bulletin 80B 10M07E
1st Edition

Multifunctional and Compact

High Accuracy

Inside the gyrosphere -- the heart of the gyrocompass -- are two gyro rotors coupled for mutual cancellation of errors due to vessel pitch and roll, ensuring high accuracy of compass north.

External Heading Input

A magnetic compass heading signal (or other heading input) can drive navigational equipment, including the repeater compasses.

Longer Life

Bearing load, the ultimate determinant of service life, has been slashed by an approximately 75% reduction in rotor mass of our products.



Lower Power Consumption

Power consumption is significantly cut by the reduced gyrosphere size and mass, along with optimization of internal circuitry.

The entire system is easily driven from batteries on board the ship. Approximately 4 A is drawn upon startup.

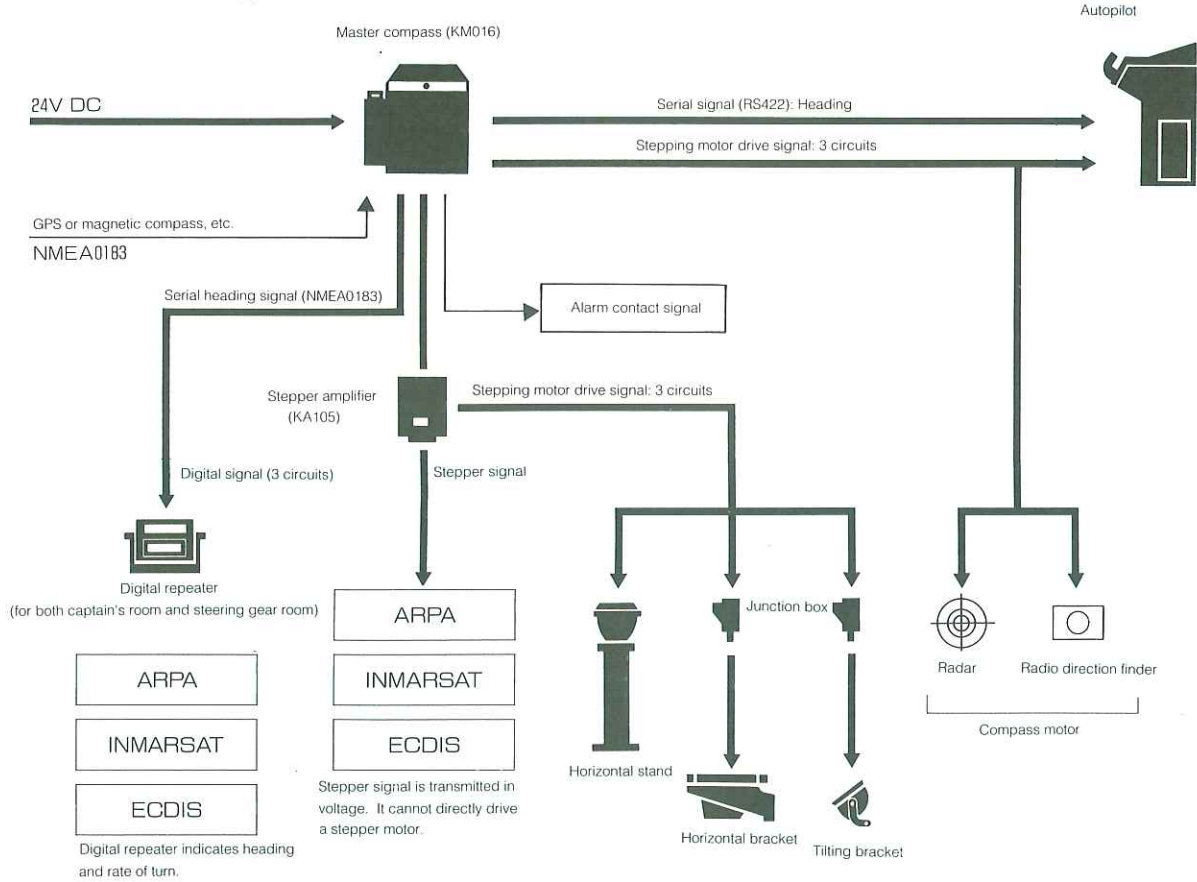
Easier Operation

To start the CMZ50, just turn on the power switch. The external heading signal can be selected using heading selection switch.



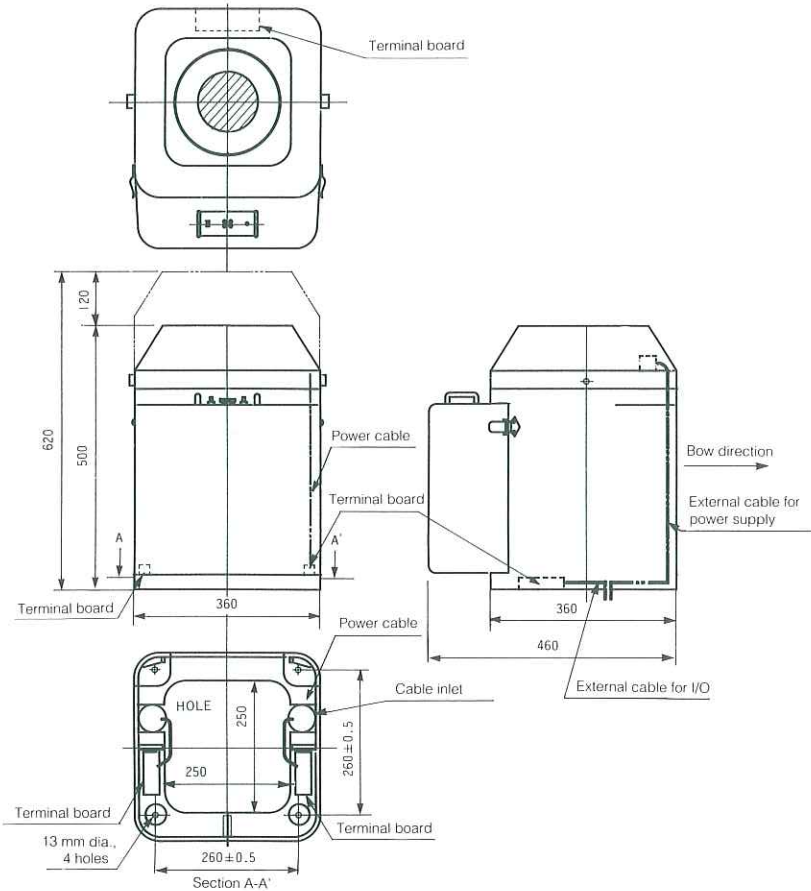
All gyrocompass functions are integrated in a single-unit instrument.

System Configuration

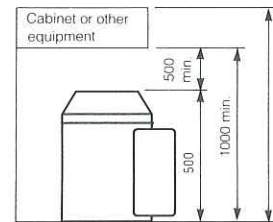


External Dimensions

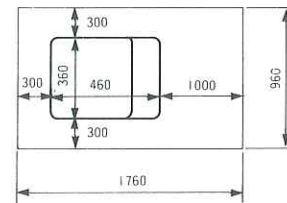
Unit: mm



Allow an area of up to 1 m around the installation to facilitate inspection and cleaning of the inner master compass.



Allow an area of at least 1.6 m² as shown below and at least 1.5 m above for the compartment used to store the gyrocompass. Do not place other equipment in the same compartment area.



Specifications

Power Supply

Main power supply : 24 V DC +30% to -15% (20 to 30 V)
Power consumption: Approx. 4.1 A + 0.6 A x (number of repeater compasses) at starting up
Approx. 2.1 A + 0.6 A x (number of repeater compasses) in steady state

AC power supply(optional)

: 100/110/220 V AC $\pm 10\%$, 50/60 Hz $\pm 5\%$
Power consumption: Approx. 100 V A + 15 V A x (number of repeater compasses) at starting up
Approx. 50 V A + 15 V A x (number of repeater compasses) in steady state

Input Signals

Heading signal: NMEA-0183 (for backing up the gyro)

Buzzer stop: Contact signal

Output Signals

Repeater compass drive signal (stepping motor)
Number of outputs: 3 circuits (Up to six signals can be connected if a stepper amplifier KA105 is installed.)
Devices to be connected: Repeater compass; device containing the compass motor (radar, radio direction finder, etc.)

Stepper voltage heading signal: (3-bit gray code)
Number of outputs: 1 circuit (open collector)
Up to three circuits (35 V DC, 1A max.) can be connected if a stepper amplifier KA105 is installed.
Devices to be connected: ARPA, radar, INMARSAT, NNSS

Digital heading/rate-of-turn signal (NMEA0183 specifications): 3 circuits
Devices to be connected: Autopilot, digital repeater

Alarm signal (contact signal)
System error : 1 transfer contact (closes when error occurs)
Contact capacity: 24 V DC 0.5 A max.

Settling Time and Accuracy

Settling time: Up to 6 hours (Operational accuracy condition is reached after approximately 2 hours.)

Accuracy: Within ± 0.5 deg x $1/\cos \theta$ in settled state (θ : Latitude of that location)

Maximum follow-up speed: 12 deg/s

Environmental Specifications (Normal Operating Conditions)

Allowable roll and pitch: ± 45 deg (rolling) and ± 35 deg (pitching)

Allowable vibration: 5 to 8 Hz, amplitude 1.5 mm p-p or less,
8 to 25 Hz, amplitude 0.35 mm p-p or less,
25 to 50 Hz, amplitude 0.1 mm p-p or less

Ambient operating temperature: -10°C to $+50^{\circ}\text{C}$

Standard

Conforming to JIS F9602 class B

YOKOGAWA



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