



## Naval Navigation

# Polaris FOG series

F I B E R - O P T I C G Y R O C O M P A S S

Including proprietary “Tightly Coupled” navigation algorithm it is specially designed for any type of surface vessel requesting high precision in attitude and position calculation.

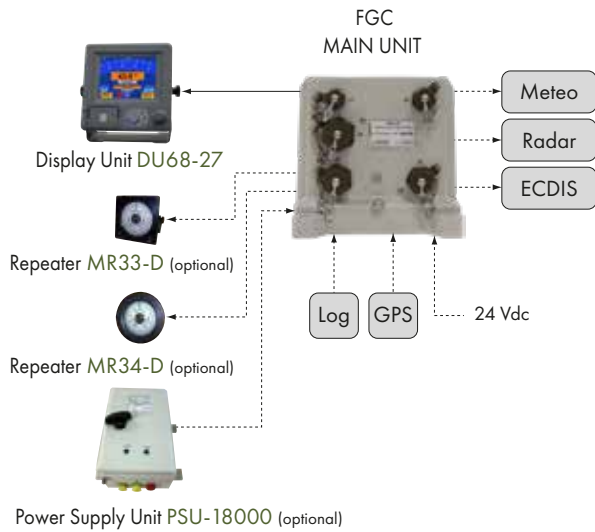
ITAR  
FREE

**INS / M**

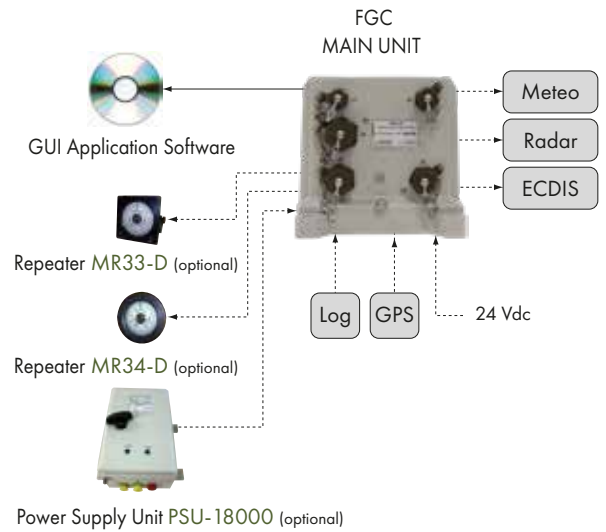
Inertial Navigation System / Maritime



### Configuration A



### Configuration B



## FOG-50/INS/M

Ideal for:

**Precise navigation for manned and unmanned surface and underwater vessels**



#### SUPPLY COMPOSITION

- FGC-50 Main Unit
- DU68-27 Display Unit
- Connection cable (10 m)
- User and Installation manual
- Certificate of conformance

#### SUPPLY COMPOSITION

- FGC-50 Main Unit
- GUI Application Software
- User and Installation manual
- Certificate of conformance

## FOG-100/INS/M

Ideal for:

**High precision AHRS and INS applications**



#### SUPPLY COMPOSITION

- FGC-100 Main Unit
- DU68-27 Display Unit
- Connection cable (10 m)
- User and Installation manual
- Certificate of conformance

#### SUPPLY COMPOSITION

- FGC-100 Main Unit
- GUI Application Software
- User and Installation manual
- Certificate of conformance

#### OPTIONS for FOG-.../INS/M series

- Self-aligning repeaters MR33-D or MR34-D
- Power Supply Unit PSU-18000
- 115/220 Vac, 50 Hz, 1 phase mains available through external unit
- Digital --> syncro available through external unit



## FOG-50/INS/M

## FOG-100/INS/M

### Performances

Heading accuracy	$\leq 0.4^\circ \text{ Sec (Lat) RMS}^*$	$\leq 0.2^\circ \text{ Sec (Lat) RMS}^*$
Roll / Pitch accuracy	$\leq 0.1^\circ \text{ RMS}$	$\leq 0.05^\circ \text{ RMS}$
Heave	5 cm or 5% whichever is greater	
Roll / Pitch range	$\pm 60^\circ$	
Settling time	$\leq 10 \text{ min (static)}$ $\leq 30 \text{ min (full accuracy, all conditions)}$	
Position accuracy INS	$\leq 3 \text{ m CEP (GPS signal available)}$ $\leq 3 \text{ NM/12h CEP (with LOG aiding)}$ $\leq 5 \text{ NM/12h CEP (full inertial)}$	$\leq 3 \text{ m CEP (GPS signal available)}$ $\leq 1.8 \text{ NM/12h CEP (with LOG aiding)}$ $\leq 3.5 \text{ NM/12h CEP (full inertial)}$
Velocity accuracy INS	$< 0.1 \text{ m/s (GPS)}$ $< 0.7 \text{ m/s (with SpeedLog)}$	$< 0.1 \text{ m/s (GPS)}$ $< 0.5 \text{ m/s (with SpeedLog)}$

Certified according to IMO A.424 (XI), A.821 (19), A.526 (13), A.694 (17), ISO 8728 (1997), ISO 16328 (2001), ISO 20672 (2001), IEC 60945 (2008), IEC 62288 (2008), IEC 61162 series.

\* Secant (Latitude) =  $1/\cosine(\text{Latitude})$

### Environmental conditions

Operating temperature	0 °C to + 55 °C
Storage temperature	-40°C ÷ 80°C
Damp heat	up to 95% at 40° C
Vibrations	Fully compliant with IEC-60945 (sweep 2 Hz - 13.2 Hz at $\pm 1 \text{ mm}$ , 13.2 Hz - 100 Hz at $7 \text{ m/s}^2$ and for 2 h on each resonance, otherwise 2 h at 30 Hz in all three axes)
Waterproof	in accordance with IP66 standard
Electromagnetic interference	Fully compliant with IEC-60945
MTBF	>150.000 hours

### Signal Outputs

Number of outputs	6 serial lines up to 100Hz (200Hz optional)
Ethernet LAN	N. 1 available
Data output AHRS	HDG, HDT, XDR, ROT, HEAVE
Data output INS	VTG, VNE, VHD, GGA, GLL, RMC, HDG, HDT, XDR, ROT, HEAVE
Output protocols (user defined)	IEC-61162, Binary
Baud rate (user defined)	from 4800 bps, up to 460800 bps
Output rate (user defined)	from 0.25 Hz up to 10 Hz

### Power Supply Fiber-Optic Gyrocompass

Supply	24 Vdc -10% +30%
Power consumption	Typical 12 W (24 V, 0.5 A)
Protection	Against over-voltage, low voltage and inversion of polarity

### Signal Inputs

Number of inputs	2 serial lines up to 100Hz (200Hz opt.)
Ethernet LAN	N. 1 available
Input protocols	NMEA 0183, IEC-61162
Baud rate (user defined)	up to 460800 bps
Input rate (user defined)	up to 10 Hz
NMEA sentences	Compatible LOG: VBW, VHW

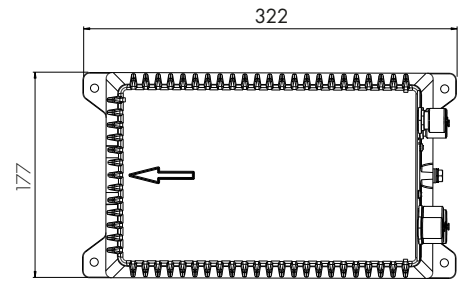
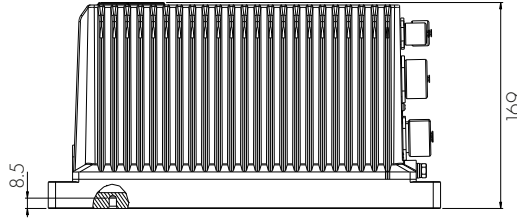
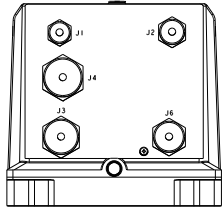
### Weight and dimensions

Weight	6.8 Kg
Dimensions (W x D x H)	322 x 177 x 167.5 mm

OUTLINE DRAWING

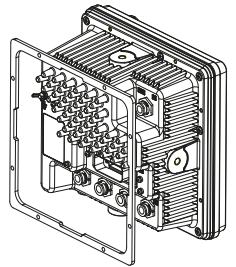
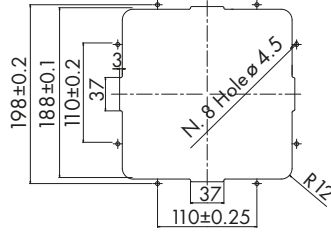
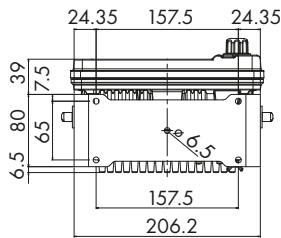
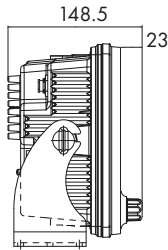
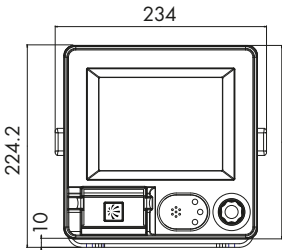
dimensions in mm.

FOG series



Weight: 6.8 Kg.

7" DISPLAY UNIT



Weight: 1.2 Kg

ACCESSORY EQUIPMENT



**PSU-100**  
Power Supply Unit



**MR33-D**  
Self-aligning steering repeater for console mounting with 360° and 10° compass cards.



**MR34-D**  
Self-aligning, watertight bearing repeater with 360° and 10° compass cards



**MR45**  
Bulkhead repeater stand with gimbals for MR34-D.



**MR43**  
Azimuth circle for MR34-D bearing repeater



**NT920DHR**  
Digital repeater



**MR-21**  
Repeater stand with gimbals for MR34-D.

This brochure should not be considered a contractual offer to sell. The specifications given herein may be changed by the manufacturer, GEM ELETTRONICA, without notice.

