Specifications of FELCOM 250/FELCOM 500

Model	FELCOM 250	FELCOM 500
General		
Transmitting Frequency	1626.5 - 1660.5 MHz	
Receiving Frequency	1525.0 - 1559.0 MHz	
Interface		
Ethernet RJ45	4 ports	
2-wire analog RJ11	2 ports	
telephone Phoenix 4 pin	2 ports	
NMEA in/out Phoenix 5 pin (NMEA0183 ver. 2)	1 port	
Alarm output Pnoenix 3 pin Contact (Normal Close)	1 port	
USIM/SIM Plug in type	1 port	
RS-232 9 pin D-Sub female connector (EIA574)	1 port	
L-band output BNC	1 port	
Communication Services		
Voice	4 kbps circuit switched (AMBE+2 codec)	
	ISDN 3.1 kHz Audio (Transparent)	
Data ISDN UDI/RDI	N/A	64 kbps
Standard IP (Best Effort Delivery)	284 kbps (RX), 225 kbps (TX)	432 kbps (RX), 372 kbps (TX)
Streaming IP (Guaranteed Service Rate)	32, 64, 128 kbps	32, 64, 128, 256 kbps
SMS (Short Message Service)	Up to 160 characters	
Environment		
Temperature Antenna Unit (operative temperature)	−25℃ - +55℃	
(storage temperature)	+70℃	
Below Deck Unit (operative temperature)	−25℃ - +55℃	
Waterproofing Antenna Unit	IP56	
Ship's motion Roll	± 30°/8 sec	
Pitch	± 10°/6 sec	
Yaw	± 8°/50 sec	
Rate of Turn	± 6°/1 sec	
Ship's Speed	30 knot	
Power Supply		
Power Supply	10.8 - 31.2 VDC	
FUSE	12 A (TX) at 12 VDC, 6 A (TX) at 24 VDC	

EQUIPMENT LIST

Model	FELCOM 250	FELCOM 500
Standard		
Above Deck Unit		
Antenna Unit	FB-1250	FB-1500
Below Deck Unit		
Communication Unit	FB-2000	
IP Handset	FB-8000	
Option		
Incoming Indicator	FB-3000	
Analog Telephone	FC755D1	
G3 FAX	FAX-2810/2820	
AC/DC Power Supply Unit	PR-240	

FELCOM 250/500
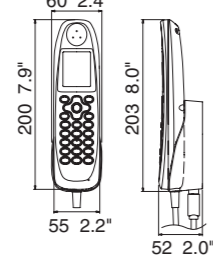
Communication Unit
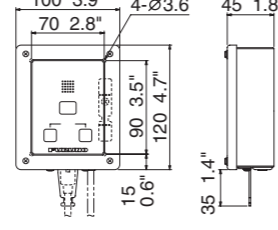FB-2000
4.1 kg 9 lb
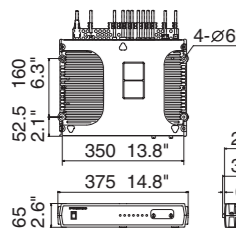
IP Handset
FB-8000
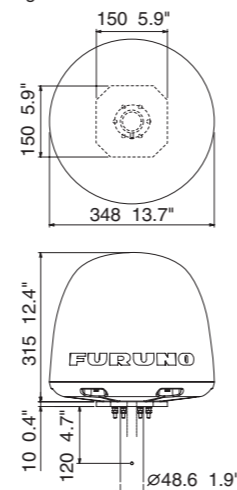0.38 kg 0.8 lb

Incoming Indicator
FB-3000
Weight: TBD

FELCOM 250
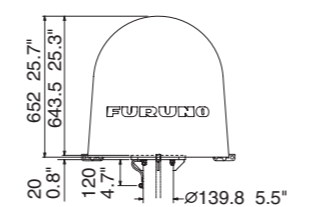**Antenna**
FB-1250 (tentative)
10 kg 22 lb

FELCOM 500
Antenna
FB-1500
18 kg 39.7 lb
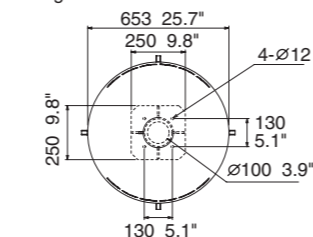
Antenna
FB-1500 (with an attachment)
21 kg 46.3 lb

FURUNO

inmarsat

FleetBroadband

FELCOM 250 / 500

FURUNODEEPSEA.com

FURUNODEEPSEA.com

inmarsat

FleetBroadband
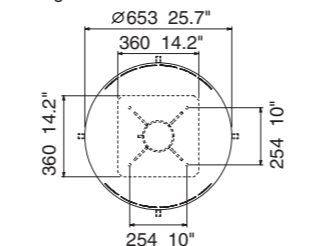
FleetBroadband brings ship-to-shore operational and social communications to the broadband IP era

FURUNO's Inmarsat FleetBroadband, FELCOM 250 and FELCOM 500 deliver faster, more cost-effective solution to maritime broadband data and voice communications on a global basis. Once installed, FleetBroadband will turn a ship into a broadband floating office where constant, simultaneous access to voice and multiple high-speed data services are available, transforming access to data at sea. Increasing levels of both operational and social communications can be conducted all at the same time through this new service. Navigators can obtain weather and chart updates* online in order to optimize their route planning and monitoring tasks, while all onboard can enjoy the benefit of the Internet, e-mail and VoIP calls to the head offices or their friends and family back home all via a single terminal.

FleetBroadband represents a quantum leap in terms of marine communication speeds. With its data capability of up to 432 kbps (FELCOM 500) – more than three times the maximum for Fleet 77 service – it will alter the way mariners and vessels communicate, just as on-shore broadband data communications paved the way for the broadband IP era.

* available in the future

Features of FELCOM 250/FELCOM 500

▶ **A wide variety of maritime broadband communication services available**
▶ **Simultaneous access to voice and high-speed data communications**
▶ **Global coverage provided through three Inmarsat-4 satellites (except for polar regions)**
▶ **IP handset and IP-PBX incorporated**
▶ **Multiple IP handsets can be incorporated into the network by using the Ethernet hub**
▶ **Wireless IP phones can be utilized (wireless LAN access points required)**
▶ **Integrated Web server**
▶ **Simplified installation through a compact antenna unit with a diameter of around 60 cm, weighing around 20 kg (FELCOM 500)**
▶ **Communication Unit supporting all major communication systems carrying ports to facilitate plug-and-play system integration**
▶ **Built-in NAT router facilitates smooth network integration to the Internet**
▶ **Incoming indicators available (optional supply)**

FB-2000 Communication Unit

▼ Back
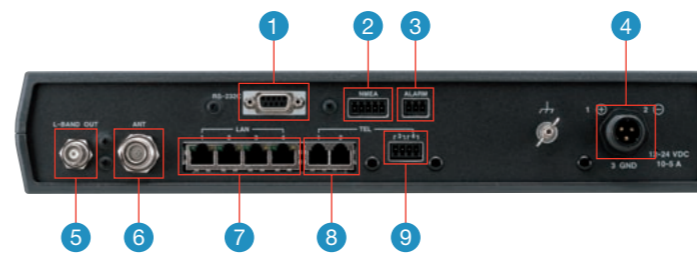
▼ Front

1. RS-232C 9pin D-Sub female connector for PC/Router
2. NMEA in/out Phoenix 5pin (NMEA 0183 Ver.2) for navigation equipment
3. Alarm output Phoenix 3pin for alarm equipment
4. For power supply
5. L-Band output BNC for ChartCo and others
6. For Antenna Unit (Antenna cable length selectable 30m or 50m)
7. LAN RJ45 ports for IP handsets, PC/network equipment, telephone hub
8. Telephone RJ11 for telephones and facsimile
9. Telephone Phoenix 4pin for telephones and facsimile
10. USIM/SIM card slot

Comparison between Inmarsat FleetBroadband and Fleet Services

	FELCOM 250	FELCOM 500	FELCOM 70
Data Communication			
Standard IP (Best effort delivery)	Up to 284 kbps	Up to 432 kbps	MPDS up to 64 kbps
Streaming IP (Guaranteed data rate)	32, 64, 128 kbps	32, 64, 128, 256 kbps	N/A
ISDN	N/A	64 kbps	64 kbps
Voice	4 kbps AMBE+2/3.1 kHz audio Simultaneously usable with packet data and IP services		4.8 kbps AMBE/3.1 kHz audio NOT simultaneously usable with data service
FAX	Group 3 FAX via 3.1 kHz audio		9.6 kbps (Group 3), 64 kbps (Group 4)
SMS	Standard 3G (up to 160 characters)		N/A

FleetBroadband coverage

I4 satellite F1 PAC-W 143.5E:
Covering Oceania, Western Pacific and South and East Asia

I4 satellite F2 IND-W 25E:
Covering Western Asia, Africa and Eastern Atlantic

I4 satellite F3 PAC-E 98W:
Covering Western Atlantic, Eastern Pacific and Americas
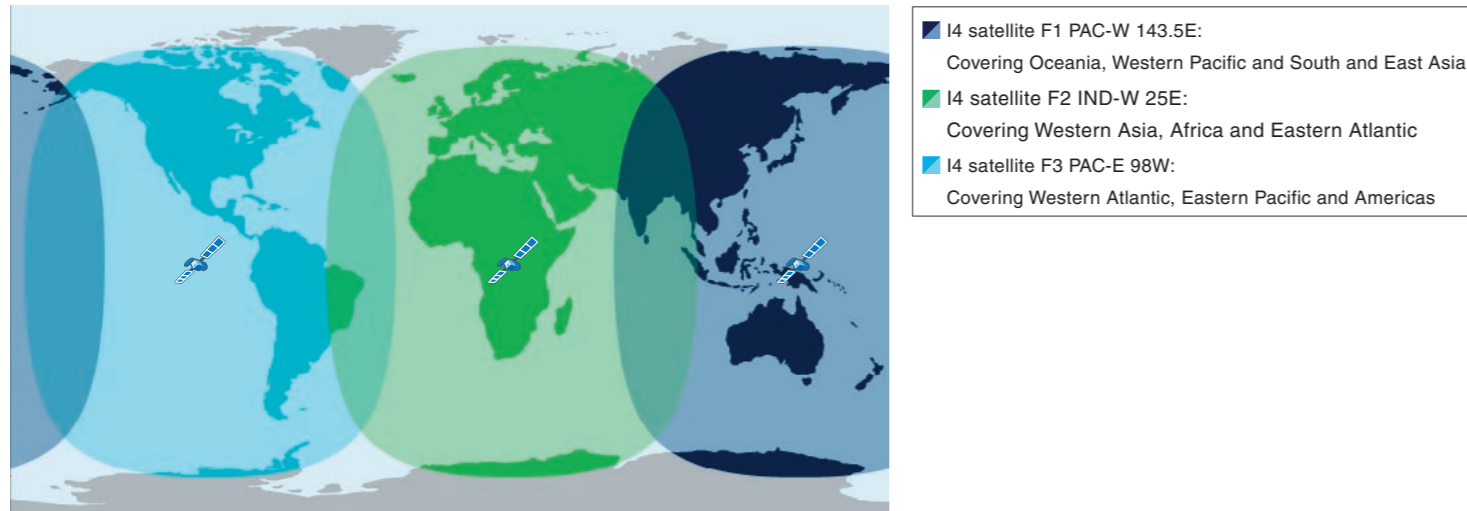
System Overview of FleetBroadband
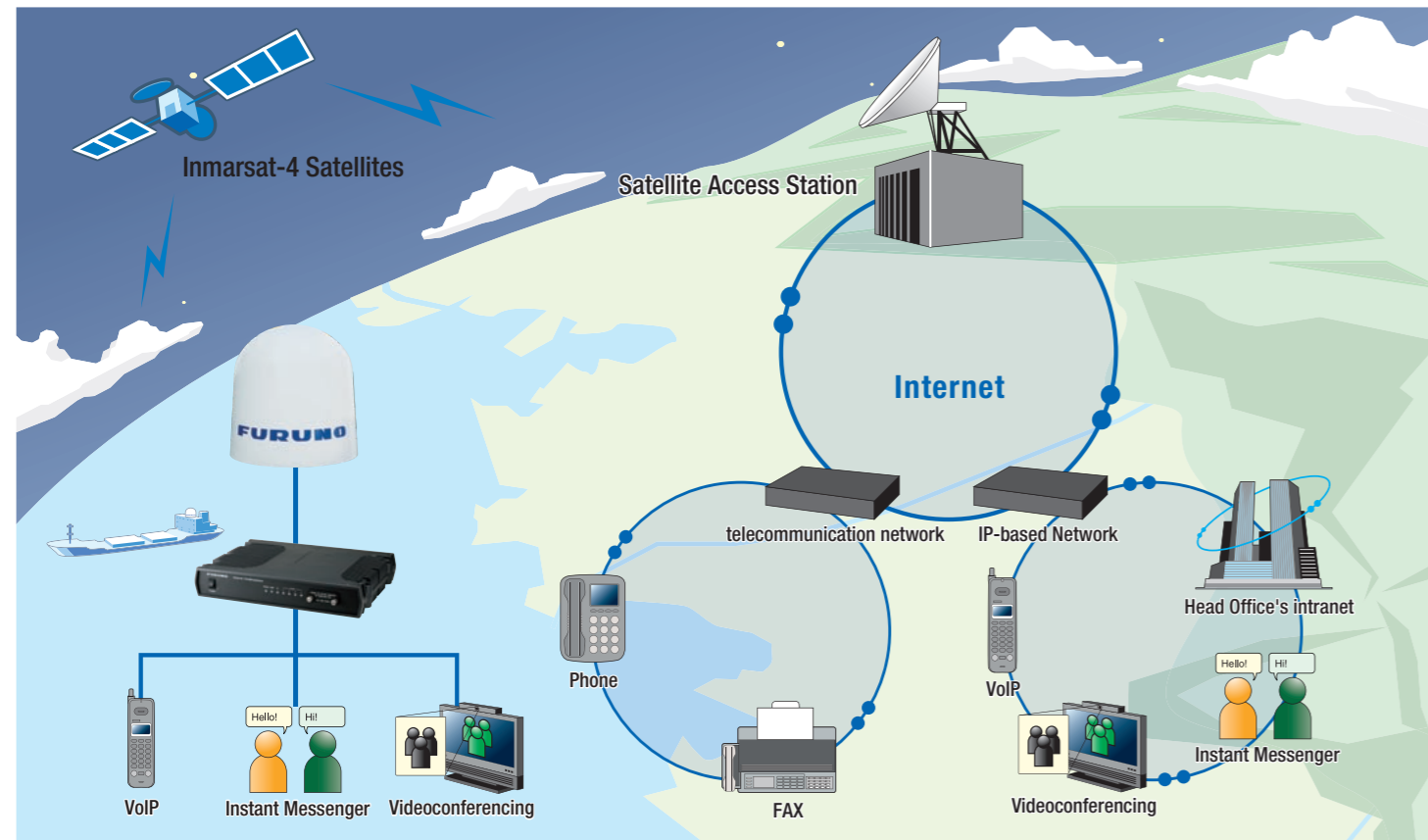
Features of Inmarsat FleetBroadband service applications

▶ **Selectable data rates for data communications according to needs:**

Standard IP:
- Service providing best effort delivery of 432 kbps (FELCOM 500, 284 kbps for FELCOM 250) (connected through shared connection pipe: less traffic—higher throughput, and more traffic—lower throughput)
- Data service charged for data sent and received
- Suitable for typical office applications such as e-mail, web browsing, FTP, VPN, etc.

Streaming IP:
- Guaranteed streaming data rates on demand, rates selectable from 32, 64, 128 or 256 kbps (no contention amongst those who are connected in the same network—guaranteed throughput at all times)
- Suitable for bandwidth-hungry large data transfer, i.e., real-time streaming video and audio, Voice over IP, etc.
- Service charged for the duration of the connection to the network
- These dedicated streaming channels can run independently while the standard IP service is running in the background, meaning that a host of applications can be running simultaneously

▶ **Crystal clear voice telephony**
- 4 kbps cost-effective, landline quality speech available
- Supports one circuit switched service at any one time
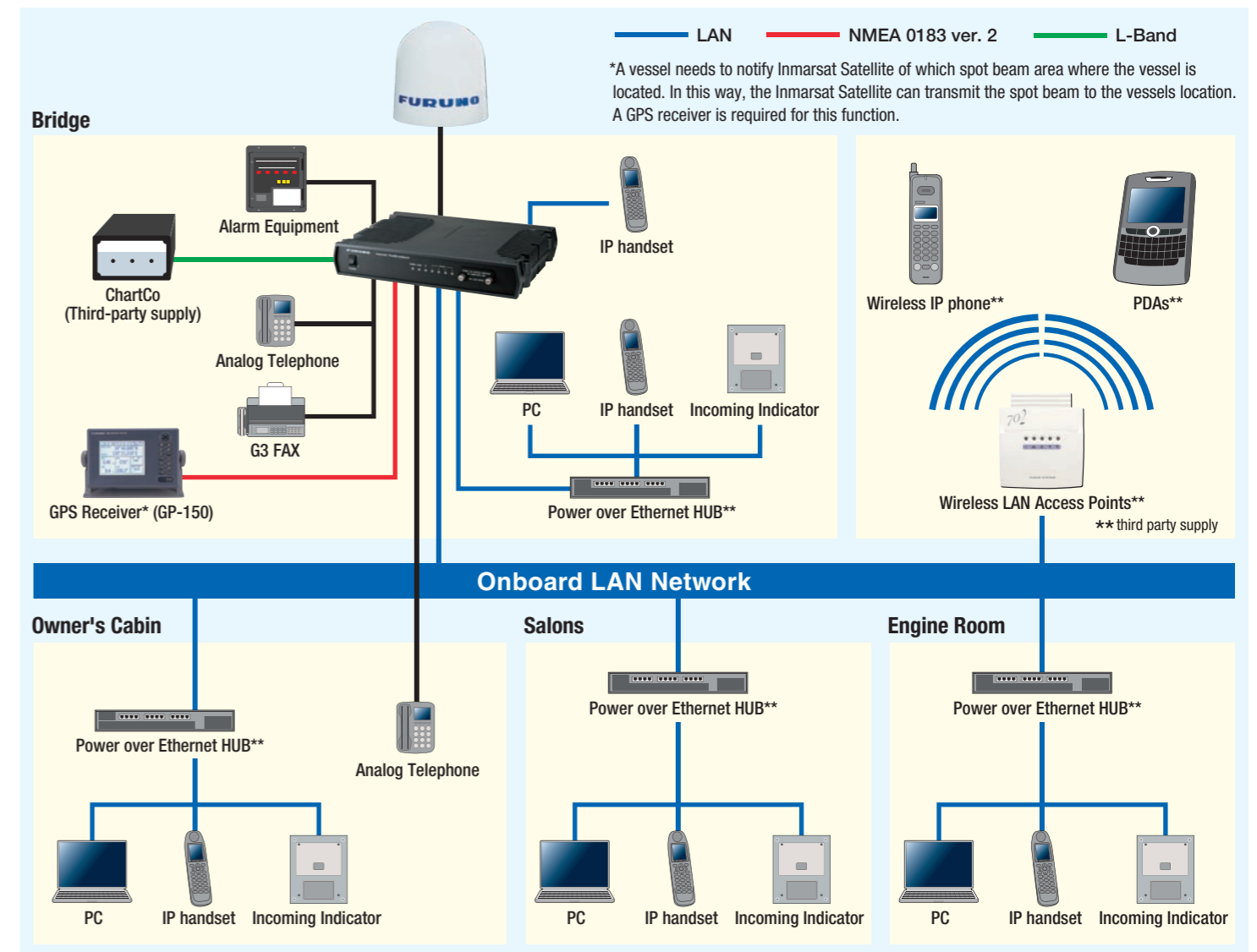- Simultaneous use together with data communications

▶ **High stability in communication links achieves constant network availability even under harsh environmental conditions**

▶ **Supports additional core voice and ISDN data capabilities for integration with legacy applications**
- ISDN compatibility available on FELCOM 500

▶ **SMS (up to 160 characters) and voice mail**

FleetBroadband System Configuration

*A vessel needs to notify Inmarsat Satellite of which spot beam area where the vessel is located. In this way, the Inmarsat Satellite can transmit the spot beam to the vessels location. A GPS receiver is required for this function.

User applications of FleetBroadband

With its simultaneous voice and data capability, FELCOM 250 and FELCOM 500 can support an extensive range of user applications. All tasks can be conducted all at the same time through a single terminal.

Social communication and increased welfare for crewmembers

Crewmembers are now able to send SMS or make private phone calls to their friends and families back home. They can also browse the web to read news from home, football results or any other news of their interests.

Real-time chart and weather information update for route optimization*

Navigators can now update chart as well as weather information in real-time by which the optimal, fuel-efficient routes can be plotted from port to port based upon the up-to-the-minute chart and weather information.

* available in the future

Educational possibility for crewmembers using distance learning

Using their off-duty time in a more productive manner has become very popular amongst navigators. FleetBroadband allows crewmembers to attend off-campus distance learning courses through IP applications to further enhance their skills and academic levels while off-duty.

Briefing with the head office, port authorities and others

Chief officers can conduct briefing with their head offices, port authorities and ship chandlers by using 4 kbps voice service, VoIP (Voice over Internet Protocol) and web mail for various occasions. Alternatively, they can make use of two-way live video streaming to facilitate videoconferencing if needed.

Troubleshooting in case of equipment failure

In case of failure of engine or other onboard equipment, chief engineers onboard can set up live, on-the-spot remote condition-review and troubleshooting sessions with service engineers from various manufacturers onshore by using two-way live video streaming. A reliable high bandwidth connection is essential for enabling these functions, and FleetBroadband provides a perfect solution.

"Always on" connectivity to the internet and the head office's network through secure VPN connection

Crewmembers can access to the company's intranet through secure VPN connection.