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# FleetBroadband

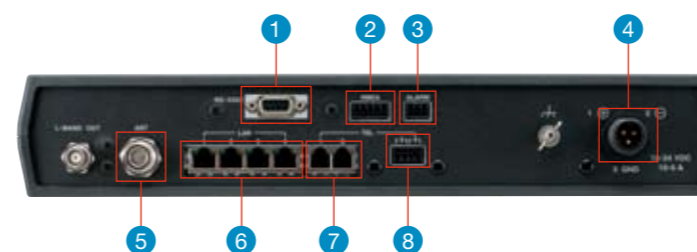


## Features of FELCOM250/FELCOM500

- ▶ 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 switching hub
- ▶ Wireless IP phones can be utilized (wireless LAN access points required)
- ▶ No dedicated software required for configuration setup (web server function incorporated)
- ▶ Simplified installation through a compact antenna unit with a diameter of around 60 cm, weighing around 20 kg (FELCOM500)
- ▶ 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 ISDN UDI/RDI (FELCOM500)
- 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 For Antenna Unit (Antenna cable length selectable 30m or 50m)

- 6 LAN RJ45 ports for IP handsets, PC/network equipment, telephone hub
- 7 Telephone RJ11 for telephones and facsimile
- 8 Telephone Phoenix 4pin for telephones and facsimile
- 9 USIM card slot

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

FELCOM250 and FELCOM500 are FURUNO's new Inmarsat FleetBroadband terminals, which delivers ship-to-shore/ship-to-ship broadband communication of up to 432 kbps together with voice communication all at the same time by utilising the latest generation Inmarsat I-4 satellites. FleetBroadband offers the data communication services with both shared bandwidth (Standard IP of up to 432 kbps) and dedicated data rate (Streaming IP of up to 256 kbps). On top of that, the users can make use of ISDN data service\* as well as FAX communication.

FELCOM250 and FELCOM500 will bring cost-effective broadband communication onboard the vessels for a variety of needs, for both operational and social purposes, including calling their friends and family back home while at sea.

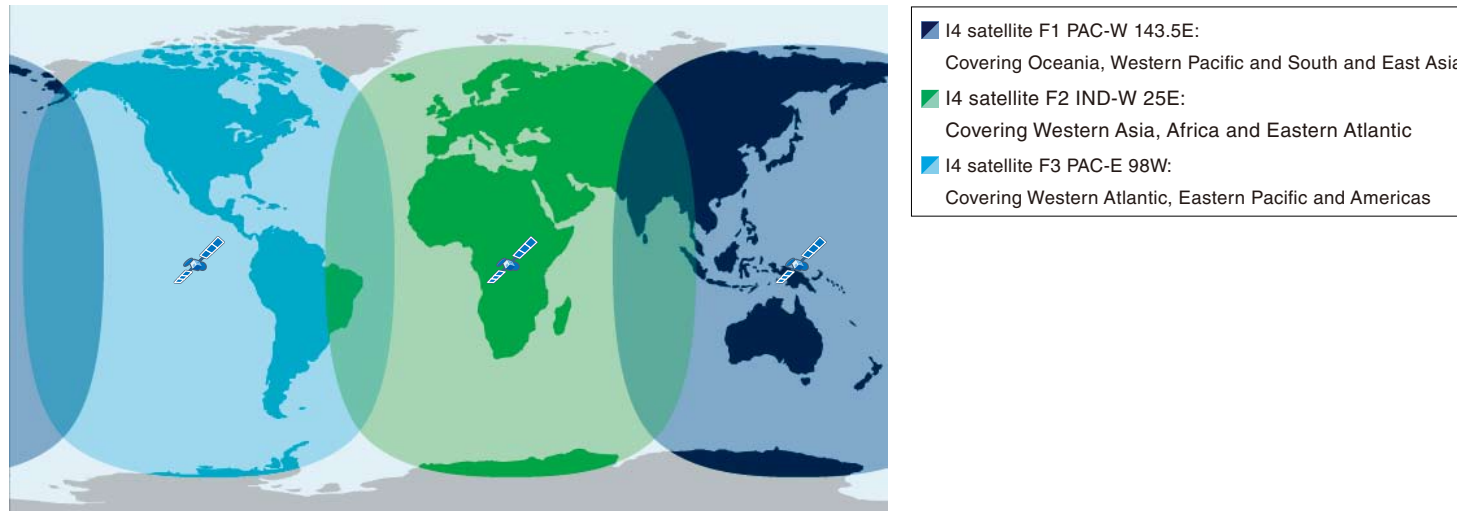
\*available only for FELCOM500

## Comparison between Inmarsat FleetBroadband and Fleet Services

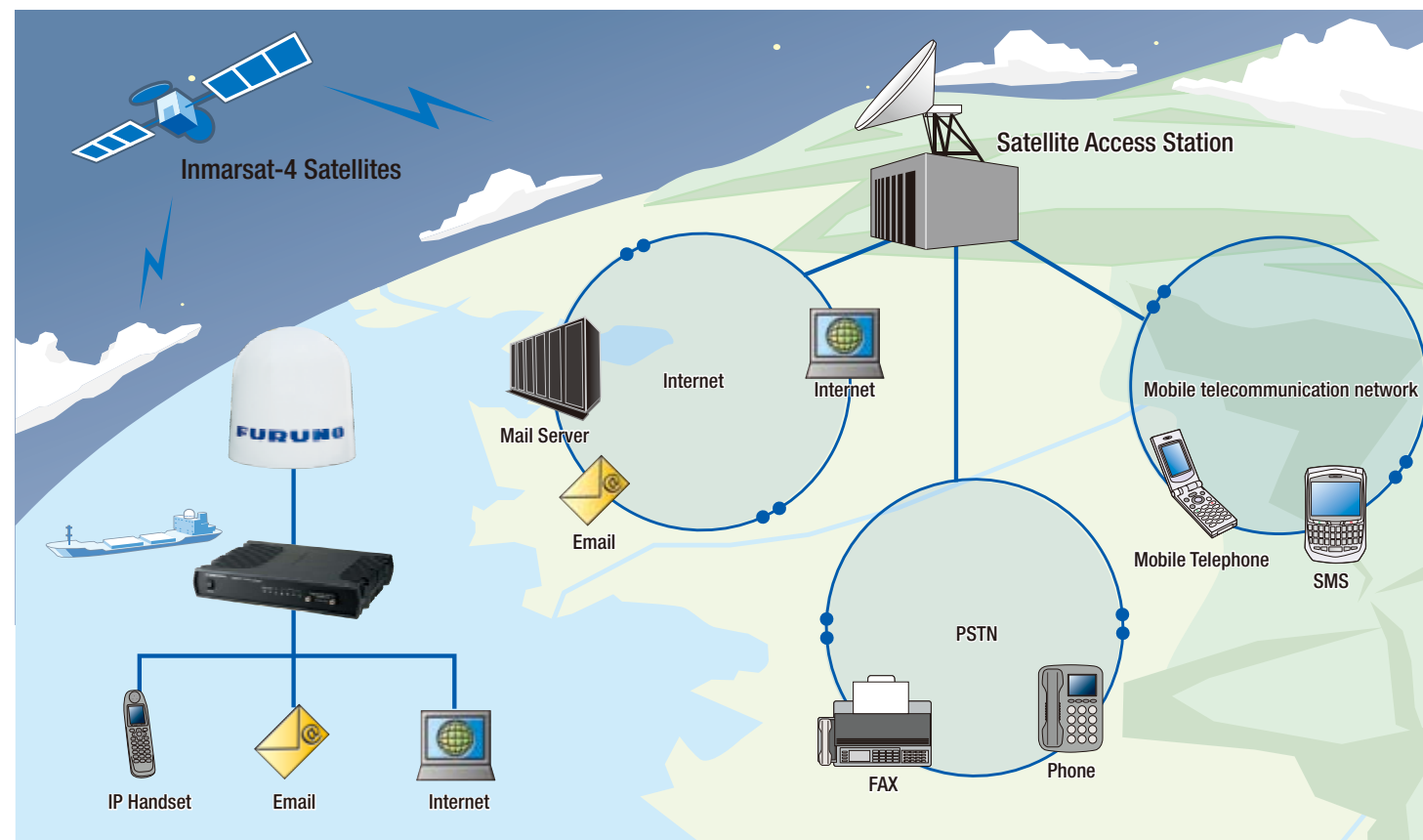
	FELCOM250	FELCOM500	FELCOM70
<b>Data Communication</b>			
Standard IP (Best effort delivery)	Up to 284 kbps	Up to 432 kbps	MPDS up to 64 kbps
Streaming IP (Guaranteed data rate)	8, 16, 32, 64, 128 kbps	8, 16, 32, 64, 128, 256 kbps	N/A
ISDN	N/A	64/56 kbps	64/56 kbps
<b>Voice</b>	4 kbps AMBE+2/3.1 kHz audio Simultaneously usable with packet data and IP services		4.8 kbps AMBE/3.1 kHz audio NOT simultaneously usable with data service
<b>FAX*</b>	Group 3 FAX via 3.1 kHz audio		9.6 kbps (Group 3), 64 kbps (Group 4)
<b>SMS</b>	Standard 3G (up to 160 characters)		N/A

\*minimum elevation angle of 20 degrees towards satellite is required for use of FAX application with FELCOM250.

## FleetBroadband coverage



## 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 (FELCOM500, 284 kbps for FELCOM250) (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, etc.

#### Streaming IP:

- Guaranteed streaming data rates on demand, rates selectable from 8, 16, 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., streaming video and audio, 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

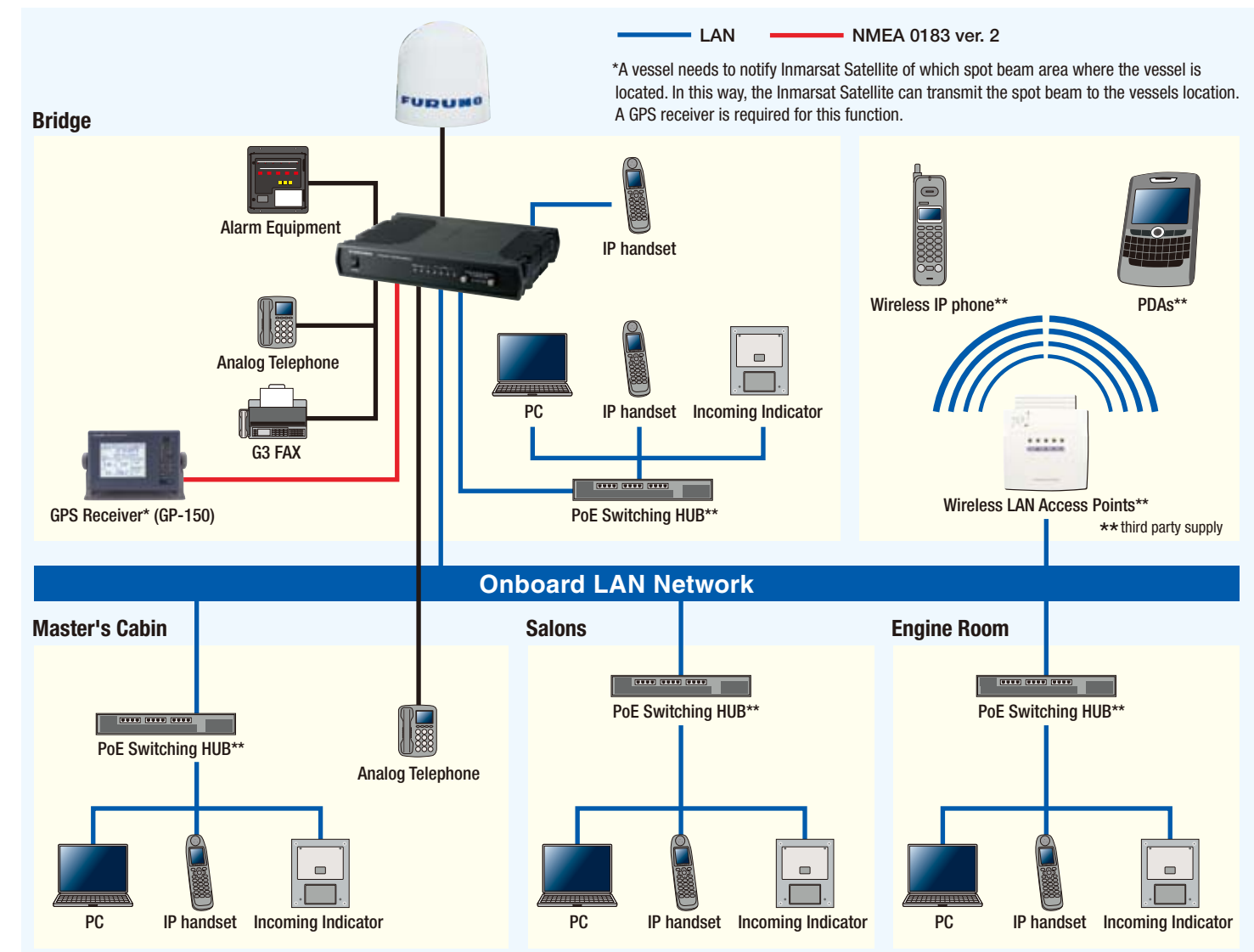
### High stability in communication links achieves constant network availability even under harsh environmental conditions

### Supports additional core voice and ISDN data capabilities for integration with legacy applications

- ISDN compatibility available on FELCOM500

### SMS (up to 160 characters)

## FleetBroadband System Configuration



With its simultaneous voice and data capability, FELCOM250 and FELCOM500 can support an extensive range of user applications. All tasks can be conducted all at the same time through a single terminal.

NB., Certain network devices must be arranged locally, in order for you to make use of some of the applications.



### 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.



### 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. A reliable high bandwidth connection is essential for enabling these functions, and FleetBroadband provides a perfect solution.



### 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.

## Specifications of INMARSAT FLEETBROADBAND FELCOM250/FELCOM500

Product Name Inmarsat FleetBroadband

Model	FELCOM250	FELCOM500
<b>Antenna Unit</b>	FB-1250	FB-1500

Transmitting Frequency	1626.5 - 1660.5 MHz
Receiving Frequency	1525.0 - 1559.0 MHz

Environment	
Temperature	operative temperature: -25°C - +55°C storage temperature: +70°C
Waterproofing	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

**Communication Unit** FB-2000

Interface	
Ethernet	RJ45 4 ports
2-wire analog telephone	RJ11 2 ports Phoenix 4 pin 2 ports
NMEA in/out	Phoenix 5 pin (NMEA0183 ver. 2) 1 port
Alarm output	Phoenix 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

Environment	
Operative temperature	-25°C - +55°C

### Communication Services

Voice	4 kbps circuit switched (AMBE+2 codec) ISDN 3.1 kHz Audio (Transparent)	
Data	ISDN UDI/RDI	N/A 56/64 kbps
	Standard IP (Best Effort Delivery)	284 kbps (RX), 225 kbps (TX) 432 kbps (RX), 372 kbps (TX)
	Streaming IP (Guaranteed Service Rate)	8, 16, 32, 64, 128 kbps 8, 16, 32, 64, 128, 256 kbps
SMS (Short Message Service)	Up to 160 characters	
FAX	G3 Fax through 3.1 kHz audio	

### POWER SUPPLY

Power Supply	10.8 - 31.2 VDC
FUSE	12 A (TX) at 12 VDC, 6 A (TX) at 24 VDC

### EQUIPMENT LIST

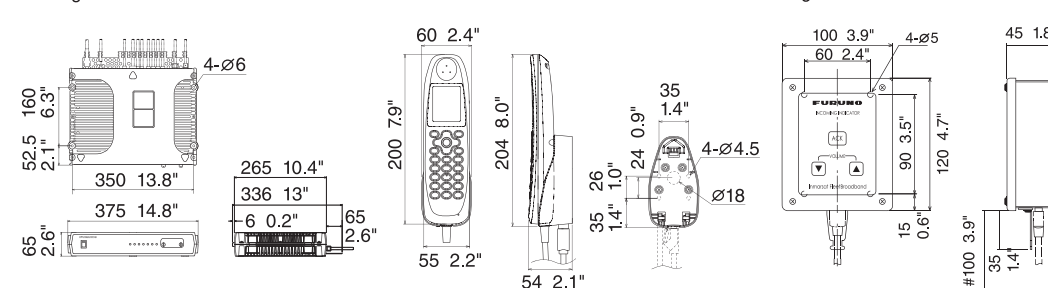
Model	FELCOM250	FELCOM500
<b>Standard</b>		
Above Deck Unit		
Antenna Unit	FB-1250	FB-1500
Below Deck Unit		
Communication Unit	FB-2000	
IP Handset	FB-8000	
<b>Option</b>		
Incoming Indicator	FB-3000	
Analog Telephone	FC755D1	
G3 FAX	FAX-2810/2820	
AC/DC Power Supply Unit	PR-240	

Antenna Unit	FB-1250	FB-1500
Communication Unit	FB-2000	
IP Handset	FB-8000	

Incoming Indicator	FB-3000
Analog Telephone	FC755D1
G3 FAX	FAX-2810/2820
AC/DC Power Supply Unit	PR-240

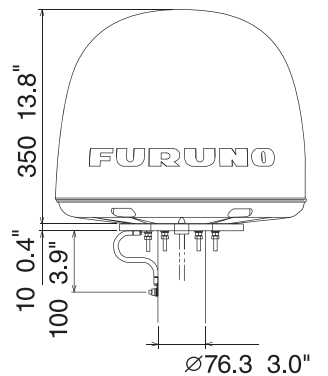
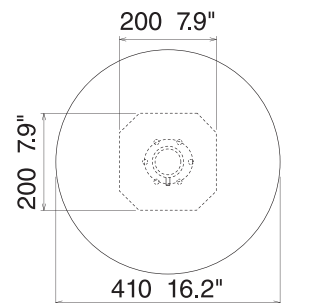
### Below Deck Unit FELCOM250/500

<b>Communication Unit</b> FB-2000	<b>IP Handset</b> FB-8000	<b>Incoming Indicator</b> FB-3000
4.1 kg 9 lb	0.38 kg 0.83 lb	0.37 kg 0.81 lb



### Above Deck Unit FELCOM250

**Antenna**  
FB-1250  
6.5 kg 14.3 lb



### FELCOM500

**Antenna**  
FB-1500 (with an attachment)  
21 kg 46.3 lb

