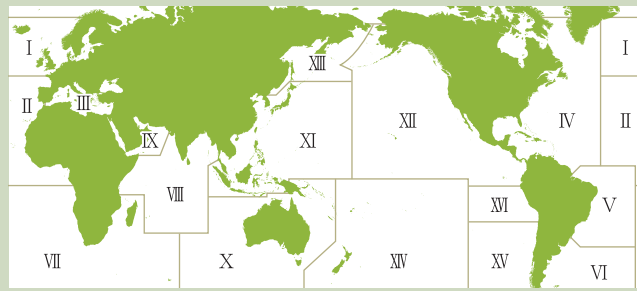## NAVTEX system operation

The world is divided into 16 areas (called Navareas) as shown at right. Each Navarea has multiple NAVTEX stations and each NAVTEX station has an identification code, from "A" to "Z."

The service range of a NAVTEX station is typically 200-400 nautical miles depending on the terrain and station transmit power. A NAVTEX station normally broadcasts every four hours.

There are two channels including international channel, 518 kHz, and local channels, 490 and 4209.5 kHz. International channels broadcast messages in English. On local channels, 490 kHz, is available in the UK, France, etc., using their own languages. 4209.5 kHz is allocated for NAVTEX broadcasts in tropical areas - not widely used at the moment.

SPECIFICATIONS

NAVTEX RECEIVER

Receiving Frequency	518 kHz and 490 or 4209.5 kHz
Mode of Reception	F1B
Sensitivity	2 µV e.m.f. (50 ohms), 4% error rate
Input Protection	Withstands 30 Vrms for 15 min or more (w/ preamp unit)
Spurious Emission	1 nW or less
Message Category	A : Navigation warning
	B : Meteorological warning
	C : Ice report
	D : Search and rescue information/ piracy and armed robbery
	E : Meteorological forecast
	F : Pilot message
	G : AIS
	H : Loran-C message
	I : reserved presently not used
	J : SATNAV message
	K : Other electronic navigational aid and system message
	L : Navigational warning (additional)
	M to Y: Reserved - presently not used
	V : Notice to Fishermen (US only)
	Z : QRU (no message on hand)

DISPLAY

Screen Size	5'' monochrome LCD, 76 x 100 mm
Resolution	240(H) x 320(V)
Display Modes	Message, List, NAV Data
ID Storage	200 x 2 channels
Message Storage	200 messages x 2 channels (100,000 characters x 2 channels)

PRINTER SECTION (for NX-700A)

Printing System	Line thermal head printing system
Printing Paper	Thermal paper (58 mm x 30 m)
Printing Width	48 mm
Character Format	24 x 12 dot
Dot Pitch	8 dots/mm
Number of Characters	32 characters/line
Print Speed	20 mm/sec.

ANTENNA UNIT

Antenna Type	NX-7H: H-field antenna with preamp
Output Impedance	50 ohms
Power Supply	+8 V to +9 V (thru co-ax cable)

INTERFACE

Input	IEC61162-1/-2 navigational data from INS, GPS GGA, GLL, RMC, ZDA, ACK, GNS, VHW, VTG, VBW, NRM, CRQ VHW, VTG, ZDA
Output	IEC61162-1/-2 message data for INS, PC NRX, ALR, NRM
Alarm	Normal close, contact closure signal(floating, max 80mA, 50V)
Printer	RS-232C(NX-700B only)

POWER SUPPLY

NX-700A:	12-24 VDC, 1.5-0.8 A
NX-700B:	12-24 VDC, 0.7-0.4 A

ENVIRONMENT(fully complied with IEC 60945 3rd/4th ed.)

Temperature
Antenna Unit:	-25°C to +70°C(-13°F to +158°F)
Receiver, Display Unit:	-15°C to +55°C(5°F to +131°F)

Waterproofing
Antenna Unit:	IP66
Receiver Unit:	IP20
Display Unit:	
NX-700A	IP20
NX-700B	IP25(front panel)

EQUIPMENT LIST

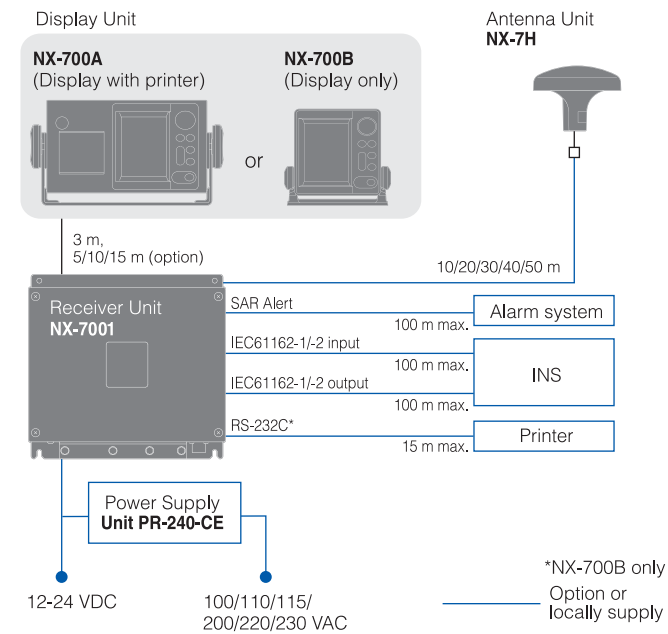## Standard
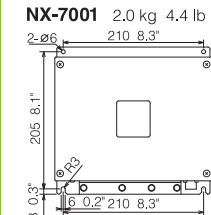|		
1.	Receiver Unit NX-7001	1 unit
2.	Antenna Unit NX-7H	1 unit
3.	Display Unit with Bracket (Specify when ordering) NX-700A: Display with Printer, NX-700B: Display only	1 unit
4.	Installation Materials and Spare Parts	1 set

Option
1. Antenna Mounting Base
   Pipe mount: CP20-01111
   Deck mount: 13-QA330
   Handrail mount 13-RC5160
   Offset bracket: 13-QA310
2. Cable for Antenna
   3D2V,10/20/30/40/50 m;
   RG10U, 30/40/50 m
3. Cable for Display Unit
   D-Sub 25P to D-Sub 25P, 5/10/15 m
4. Flush Mount Kit for Display Unit
   for NX-700A: OP08-19
   for NX-700B: OP08-20
5. Power Supply Unit PR-240-CE
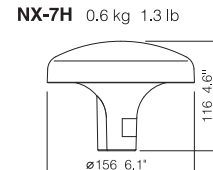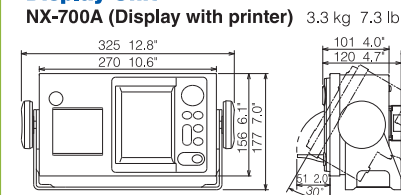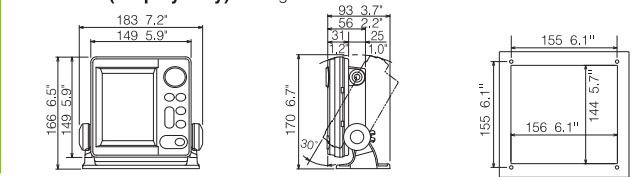6. Thermal Paper for NX-700A

INTERCONNECTION DIAGRAM

Display Unit
NX-700A (Display with printer)
NX-700B (Display only)
or

Antenna Unit NX-7H

3 m, 5/10/15 m (option)

10/20/30/40/50 m

Receiver Unit NX-7001

SAR Alert — Alarm system — 100 m max.
IEC61162-1/-2 input — 100 m max.
IEC61162-1/-2 output — INS — 100 m max.
RS-232C* — Printer — 15 m max.

Power Supply Unit PR-240-CE

12-24 VDC   100/110/115/ 200/220/230 VAC

*NX-700B only
Option or locally supply

Receiver Unit
NX-7001 2.0 kg 4.4 lb

Display Unit
NX-700A (Display with printer) 3.3 kg 7.3 lb

NX-700B (Display only) 0.7 kg 1.5 lb

Antenna Unit
NX-7H 0.6 kg 1.3 lb

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SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

Dual-channel NAVTEX Receiver

Message display with printer
NX-700A

Message display unit
NX-700B

Approved

FURUNODEEPSEA.com

(Display screen examples)

```
518                          ERROR RATE= 0.0%
VD32 SAR         APR 11 04:31        146/150
ZCZC VD32
100330 UTC APR 05
KOREA NAVTEX//TAEAN C.G.
SOURCE//ROUTINE : COMMUNICATION
INTERRUPTION/
COMMUNICATION WITH F/V BUYEONG(26
 TON, TAEAN REGISTRY, 10 CREW)
HAS BEEN INTERRUPTING SINCE LAST
CONTACT WITH HER AT 020900 UTC
APR. IN 36-47N, 125-18E, WEST
COAST. ALL VESSELS ARE REQUESTED
TO MAKE A SEARCH FOR THE VESSEL
AND REPORT ANY INFORMATION TO
TAEAN C. G.(TEL:+82-41-675-0112,
K.C.G TELEX K24920).

      DISTANCE     484.8nm

[◄]NEW   [►]OLD
[MENU]MENU
[LIST]LIST MENU
```

```
518
ALL MESSAGES
                          153 MESSAGES
153 HA58 APR 11 14:58          NEW
152 JB83 APR 11 13:56          NEW
151 VA05 APR 11 04:33
150 VA04 APR 11 04:32
149 VD32 APR 11 04:31      SAR
148 KB80 APR 11 02:42
147 JA86 APR 11 02:34
146 JB67 APR 11 02:31
145 IA44 APR 11 02:28
144 IA31 APR 11 02:27
143 HA30 APR 11 02:19
142 HA02 APR 11 02:18
```

```
518
HD44 SAR         APR 11 02:11
ZCZC HD44
101710 UTC APR 05
OVERBOARD NO. 99
ONE CREW
FROM KO
BOAT 20
183TON
IN APPROX POSITION
33-31-40N
```

```
518            ERROR RATE= 0.0%
HD44 SAR         APR 11 02:11
ZCZC HD44
101710 UTC APR 05
OVERBOARD NO. 99
ONE CREW OVERBOARD FROM KOREA FISH
```
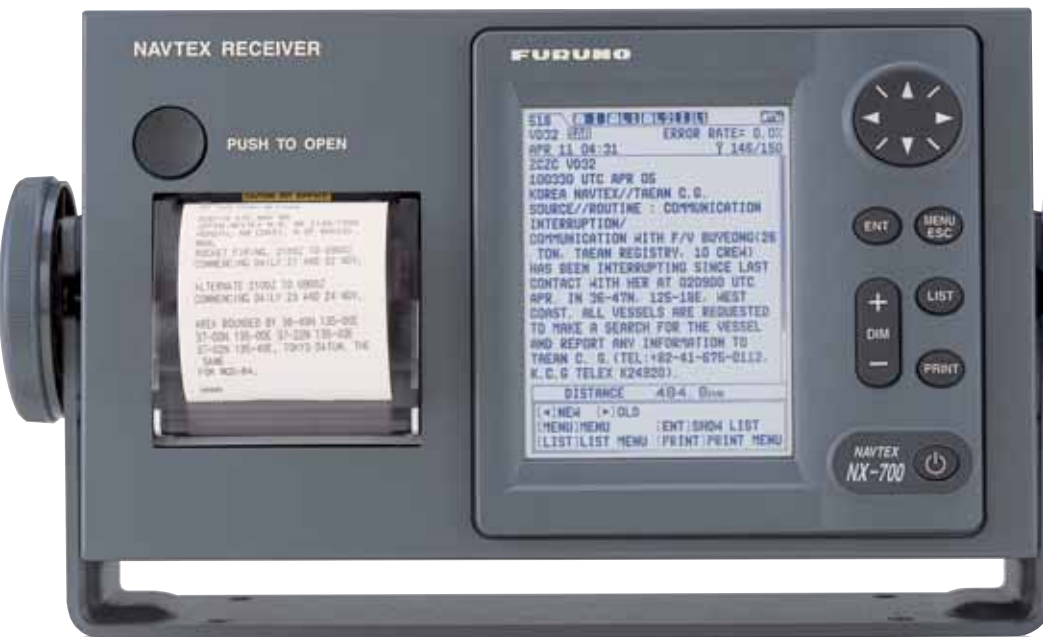
NAVTEX
Dual-channel NAVTEX Receiver

Enhances the navigation efficiency and safety by watching NAVTEX messages broadcasted on both international and local channels

FURUNO NX-700 is a dual-channel NAVTEX receiver for SOLAS ships complying with the new NAVTEX performance standard MSC.148(77).

The NX-700 can receive two channels simultaneously. One is set for 518 kHz to receive international NAVTEX messages and another is selectable from 490 or 4209.5 kHz for domestic or local NAVTEX messages. These messages include a variety of safety information such as Navigational Warnings, Meteorological Warnings, Search and Rescue (SAR) information and other information for ships sailing within the reach of each service station's coverage. The broadcast station can be selected automatically according to own ship position when the NX-700 is connected with GPS or EPFS.

Every incoming message is stored in non-volatile memory and is displayed on the clear 5" silver bright LCD. Three different font sizes are available and one of them can be selected on menu.

The NX-700A consists of a receiver, display with printer and antenna units. The NX-700B has a low profile, stylish display without a printer, receiver and antenna units. The compact umbrella type antenna requires no grounding because it is H-field antenna. In addition, the antenna incorporates a high-performance preamp within the compact body, which gives reliable and uninterrupted reception without an extra whip antenna.

NX-700B (Display only)
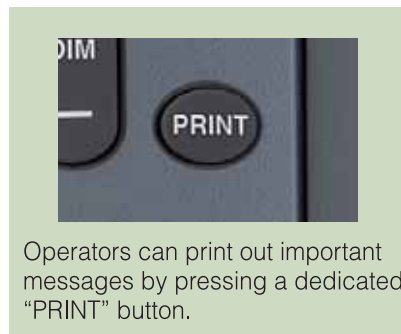
NX-700A (Display with printer)

Antenna Unit

Receiver Unit
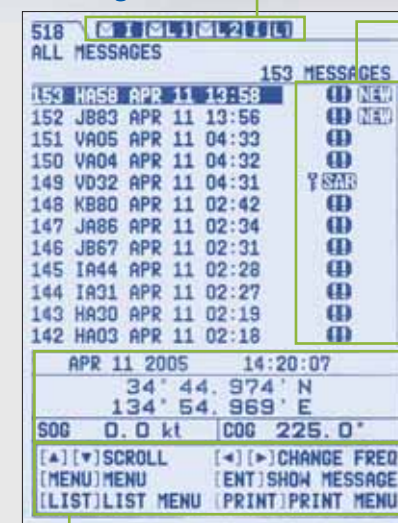
Dual-channel NAVTEX Receiver
NX-700A/B

- ▶ **Fully meets new IMO resolution MSC.148(77), IEC 61097-6 Ed.2**
  - Dual channel reception, 518 kHz and either 490 or 4209.5 kHz, simultaneously
  - Incorporates a printing device(NX-700A) or a dedicated display device with printer output(NX-700B)
  - 200 message of average length 500 characters can be stored in non-volatile memory
- ▶ **Incorporates a preamp within a lightweight, compact antenna for reliable, uninterrupted reception**
- ▶ **Display messages on a clear 5" silver bright LCD**
- ▶ **Low power consumption**
- ▶ **NAV data display acts as NMEA repeater for GPS or instruments**

Operators can print out important messages by pressing a dedicated "PRINT" button.

Message inbox

Guide for key controls

Message display

Distance window
Shows distance from own ship to a position of event, which is mentioned in message. This enables swift understanding of whether the position is nearby own ship or not.

Status icons
Message icons

All received messages with a selected channel information are sorted by order of time in the message inbox. Operators can easily know the status of each message from the message ID and icons. When receiving SAR information, NX-700 notifies of the incoming messages by audible alarm. For quick viewing, operators can pick up messages they are interested in and display them by using the sort function.

NavData window
Essential navigational data is clearly displayed at the bottom of display when connected with a positioning equipment.

▶ Message format

┌──Message ID──┐
ZCZC b1 b2 b3 b4

Start code (sync)

Serial number
"00":Emergency message
"01"-"99":Normal message

Type of message
"A"-"Z" (See the list below.)

Station ID
"A"-"Z"

main message

NNNN

Main message

Termination code

▶ Icons
Status icon

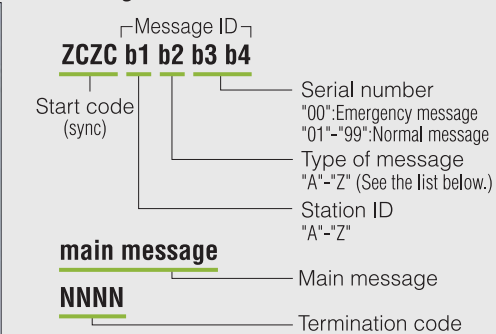| Icon	Description
✉I	Shows that an International frequency (518 kHz) message has not been read.
✉L1 ✉L2	Shows that a Local frequency message has not been read. L1: 490 kHz, L2: 4209.5 kHz
I L1 L2	Displayed while the NAVTEX is receiving a message. I: International frequency (518 kHz), L1 : 490 kHz, L2: 4209.5 kHz
⊡	Displayed when the battery voltage is low.
⊡x	Print error (no paper, not connected to the printer, etc.)
⊡	While printing.

Message icon

Icon	Description
NEW	Displayed when message has not been read yet.
SAR	Displayed when message type D (SAR) is received.
⊞	Displayed when message type A, B or L (Warning) is received.
⚑	Protected message

▶ Fonts

Small	Medium	Large
(38 characters x 19 lines)	(32 characters x 16 lines)	(19 characters x 9 lines)

Three font sizes are available for convenience of the operation.

▶ Type of message (category)

A	Navigational warning	I	reserved presently not used
B	Meteorological warning	J	SATNAV message
C	Ice report	K	Other electronic navigational aid system message
D	Search and rescue information/ piracy and armed robbery	L	Navigational warning (additional)
E	Meteorological forecast	M to U	Reserve-presently not used
F	Pilot message	V	Notice to Fishermen (U, S, only)
G	AIS	W to Y	Reserve-presently not used
H	LORAN-C message	Z	QRU (no message on hand)