선박보안경보시스템

박 기 옥*
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Ship Security Alert System

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1. 서 론

2001년 9월 11일 미국 뉴욕에서 발생한 항공기 테러사건으로 3,000여명의 인명손실과 막대한 재산상 피해가 발생하자, 국제해사기구(IMO)에서는 선박 및 항만시설에 대한 테러를 미연에 방지하기 위하여 국제선박 및 항만 시설 보안규칙(ISPS Code International Ship and Port Facility Security Code)을 제정하게 되었다. 이 규칙은 2002년 12월 12일 외교회의를 통해 SOLAS 협약을 개정하는 방식으로 채택되어 2004년 7월 1일부터 국제적으로 발효될 예정이다.

본 고에서는 이 규칙 중 선박이 해상보안의 위협을 당할 경우 가까운 연안국 등에 도움을 요청하기 위해 설치하여야 할 선박보안경보시스템(Ship Security Alert System)에 대해 소개하고자 한다.

2. ISPS Code의 제정 경위

① IMO 제 22차 총회(2001. 11월)에서 선박안전 위협 테러행위 방지대책 절차 검토에 관한 결의서 채택
② 전문가 회의(2002. 2~9월)를 통해 국제해상보안규칙(안) 마련
 - 기존 SOLAS 제5장 및 11-1장 개정
 - SOLAS 제 11-2장(해상보안 강화조치) 및 ISPS Code의 신설
③ IMO 외교회의(2002. 12. 12)에서 SOLAS 개정안 및 ISPS Code 채택

3. 해상보안 관련 SOLAS 협약의 주요 개정내용

① SOLAS 제V장 제19규칙중 AIS(Automatic Identification System) 탑재시기 개정
② 제 XI-1장의 개정
 ·선박식별번호(Ship Identification Number) 부착
 ·선박이력기록부(Continuous Synopsis Record) 신규 도입
③ 제 XI-2장(해상보안 특별조치) 신설
 ·선박보안경보시스템(Sip Security Alert System) 도입

4. 해상보안경보시스템

(1) 대상선박 및 적용 기준
다음의 모든 선박은 선박보안경보시스템을 구비하여야 한다.
 - 2004년 7월 1일 또는 그 이후에 건조된 선박

- 2004년 7월 1일 이전에 건조된 고속여객선을 포함한 여객선은 2004년 7월 1일 이후 도래하는 첫 S/R검사까지
- 2004년 7월 1일 이전에 건조된 총톤수 500톤 이상의 유조선, 케미칼,가스, 산적화물선, 고속화물선은 2004년 7월 1일 이후 도래하는 첫 S/R 검사까지
- 2004년 7월 1일 이전에 건조된 총톤수 500톤 이상의 기타 화물선 및 근해 이동 시추선은 2006년 7월 1일 이후 도래하는 첫 S/R 검사까지

(2) 보안경보시스템의 요건(Res. MSC.136(76))

- 선박의 안전이 위협을 받을 경우 경영진이 지정한 육 상의 관련 기관에게만 선박 대 육상 보안 경보를 발 송하여 선박의 신원 및 위치를 밝힐 뿐만 아니라 선박이 위협하에 있거나 위태롭게 되었음을 알리게 된다. 즉 본선 및 주위 선박에는 경보를 울리지 아니할 것.
- 보안경보는 정지시키거나 시스템을 리세트시킬 때까지 지속되어야 한다.
- 최소한 2개의 작동 포인트를 가질 것, 그중 하나는 선교에 설치할 것.
- 선박보안경보시스템은 선박의 무선설비를 사용하거나 전용의 통신시스템을 사용할 수 있다.
- 작동 포인트는 부주의한 조작으로부터 보호되어야 하 고 경보를 발신하기 위하여 뚜껑, 커버, 봉합 장치를 제거하거나 파괴할 필요가 없어야 한다.
- 발신된 경보에는 선박식별신호 및 현재의 위치가 포함되어야 한다.
- 보안경보시스템은 테스트가 가능하여야 한다.
- 선박의 주 전원으로 동력을 사용할 경우, 이에 추가하여 대체 전원으로부터 시스템을 작동할 수 있어야 한다.

(3) 선박보안경보시스템의 구성요소 및 작동 원리 : 제품 소개

⊕ SAILOR

September 19th 2003

Sales Introduction

Ship Security Alert System – SSAS

SAILOR H3000M SSA Mini-C

We are pleased to introduce the new SAILOR H3000M SSA Mini-C for Ship Security Alert System, which is required in the amendments (Dec. 2002) to SOLAS, chapter XI, Annex 6.

The SAILOR H3000M SSA Mini-C solution has been specifically developed to meet the requirements for Ship Security Alert Systems on board the vessels mentioned below. The solution has been specially designed to be cost effective, easy to install and reliable – all factors for which SAILOR is well-known.

The Market:

The above-mentioned regulation requires new equipment to be installed on specific types of vessels by July 1st 2004, and for others by July 1st 2006. Totally approx. 41,000 vessels must have this equipment installed during the next couple of years!

The following vessels are required to have this equipment installed:

Type of ships	Number of ships (2003)	End of implementation**
Passenger ships, including high-speed passenger crafts constructed before July 1st 2004	Approx.: 6,500*	No later than the first survey of the radio installation after July 1st 2004
Oil tankers, chemical tankers, gas carriers, bulk carriers and cargo high-speed crafts of 500 gross tonnage and upwards constructed before July 1st 2004	Approx.: 16,200*	No later than the first survey of the radio installation after July 1st 2004
Other cargo ships of 500 gross tonnage and upwards constructed before July 1st 2004	Approx.: 18,300*	No later than the first survey of the radio installation after July 1st 2006
Total market size	Approx.: 41,000*	

Ship status: Existing + Newbuildings
** *ISPS CODE 2003 Edition, International Ship & Port Facility Security Code and SOLAS Amendments 2002, IMO, ISBN 92-801-5149-5*

SAILOR H3000M SSA Mini-C Sales Introduction – Version 001
Date: 19.09.2003 – Approved by: HFY

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The SAILOR H3000M SSA Mini-C

The SAILOR H3000M SSA Mini-C is based on the Mini-C terminal and the Inmarsat-C service. This solution is very attractive to customers who wish to combine a cost effective solution with dedicated equipment of high reliability and global coverage.

The SAILOR H3000M SSA Mini-C system includes:

- One Mini-CTM Transceiver/Antenna
- One Mast Mounting Kit
- One CB3616B Connection Box
- 2 Alert Buttons with 70 metres cable
- One 20 metres Antenna Cable
- SSA Capsat Manager for shore use

Expected first shipment:	**November 2003**
Acceptance of orders:	**We will accept orders from now, but will not be able to confirm the deliveries until October 2003 at the earliest.**
Part no.:	**8030000003**
Type no.:	**H3000M SSA**
Description:	**SAILOR H3000M SSA Mini-C: Installation of a separate Mini-C dedicated for SSAS**

Please note that this is a dedicated Mini-C for SSAS operation. It is not the same version of the Mini-C which SAILOR offers for other applications - it has been programmed with special software.

The above-mentioned parts will also be available as separate accessories.

The solution will not require additional signing or subscription fees. Any alert will be handled in the same manner as a GMDSS distress message.
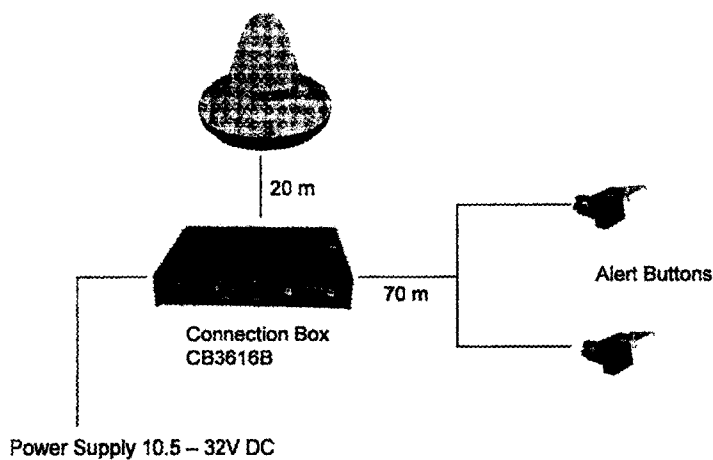
SAILOR H3000M SSA Mini-C Sales Introduction – Version 001
Date: 19.09.2003 - Approved by: HFY

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Unique Selling Points:

- Easy installation
- Completely independent system
- Cost effective
- No subscription or signing fees
- SSA Capsat Magager
    o Monitor own vessels on a PC when an alert is sent
- Inmarsat global coverage
- Reliable and well-know system

Other Features:

The system is a covert alert system that is not intended to be used for any other purposes. However, the solution presented here is capable of allowing the Mini-C to be used for other services, e.g. tracking. Before the system can be used for this, Inmarsat and other relevant authorities will have to approve this.

The SAILOR H3000M SSA Mini-C system

20 m

70 m

Alert Buttons

Connection Box
CB3616B

Power Supply 10.5 – 32V DC

SAILOR H3000M SSA Mini-C Sales Introduction – Version 001
Date: 19.09.2003 - Approved by: HFY

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The SSA Capsat Manager:

This is a software programme for installation on PCs. The programme will display the position of the vessel from which an alert has been received. This requires an agreement with the LES (see below).

How the System works in general:

When the Alert Button is activated, the system will transmit an alert, including the MES ID, position and heading. The alert is transmitted to the Land-Earth-Station (LES). The LES will then forward the message to the agreed recipient, which typically will be the Research and Rescue Center in the vessel's country of registration. The LES may forward the message to one additional recipient. The LES can send the message in the same manner as normal Inmarsat-C messages, i.e. E-mail, X.25, Telex etc.

If the recipient has installed the SSA Capsat Manager on a PC, a window with the message will automatically open on the PC when an alert is received.

Installation:

The SAILOR H3000M SSA Mini-C system is easy to install.

The Mini-C is connected to the CB3616B Connection Box. If further distance is needed, the CB3616B can be connected to another CB3616B box using an RS-232 cable of up to 20 metres. Please note that the CB3616B must be installed indoor.

SAILOR H3000M SSA Mini-C Sales Introduction – Version 001
Date: 19.09.2003 - Approved by: HFY
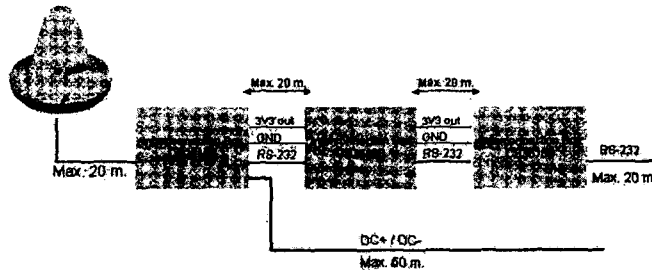
⊕ SAILOR

The two alert buttons are connected to the CB3616B through the 70 metres cable. Power is connected to the CB3616B, and we recommend the use of the SAILOR N163S Power Supply, which fulfils the power requirements of the system. The SAILOR N163S may be connected to the DC power plug provided in the CB3616B, but it is strongly recommended that the power connection cable is terminated directly inside the CB3616B.

The SAILOR H3000M SSA Mini-C requires a 10.5 – 32V DC power input which may be supplied from the ship's main power. A back-up power source will typically be required to fulfil the requirements for the installation. This may be taken from the communication system back-up power.

Type Approval:

The approval process has been initiated. The solution is in compliance with Inmarsat-CN137bis Covert/Security Alert requirements.

In addition to the traditional type approval (RTTE and Inmarsat), the SSAS solution requires that the relevant classification society for the vessel, or the national authority, approves the SSAS installation as part of the Ship Security Plan. These include, but are not restricted to, Lloyd's, DNV, ABS, Germanischer Lloyd's, NK, CCS etc.

We expect to receive the approval from Lloyd's in October, and relevant type approval reports will be available for use in connection with your local approval process, if needed.

We would appreciate that you inform us if any of the international approvals (e.g. Lloyd's DNV etc.) will be accepted for your national approval or if any additional material is required in order to obtain the appropriate approval.

Service Training:

The new solution will be included in our service training programmes in the future.

Warranty:

The new SSAS solution will be included in our extended warranty programme.

Further Progress:

We do appreciate that you may require further technical details about the solution – and such information will be provided to you as soon as possible. However, we do find it important to provide you with the above provisional details rather than waiting until everything is ready. In this way you will be able to initiate communication with your customers concerning this solution. The solution and the system that handle this service are being implemented at the moment. During this process modifications may be made to the system, however no major changes are expected. We will do our utmost to keep you updated with information if any changes occur.

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We expect that this new system from SAILOR will enable you to provide your customers with a competitive solution that meets the requirements. We look forward to increasing our mutual business by providing this solution to the market.

You will shortly receive the following material from SAILOR about the solution:
- Press Release
- PowerPoint Presentation
- Price List
- Further Technical Specifications about the system

Additionally you will soon receive information about other solutions from SAILOR, among those will be an Add-On solution to the GMDSS Inmarsat-C.

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General Technical Specifications for the SAILOR H3000M Mini-C:

Technical specifications (Specifications subject to change without notice.): Meets or exceeds current and proposed Inmarsat specifications for Mini-C Land Mobile Earth Station and Mini-C Ship Earth Station.

Compliant to: FCC title 47, part 25, section 25.216	Message Storage Capacity: 175 kB SRAM	Wind: Relative wind up to 200km/hr (124 mph)
Internal Antenna: Inmarsat-C/GPS omni directional antenna. RHC polarized. G/T – 23.7 dB/K & EPIRB 7 dBW at 5 degrees elevation. Coverage + 90 degrees to –15 degrees	Internal GPS: 12-Channels. 1 sec. update rate. 15m RMS accuracy	Velocity: Max. velocity up to 140 km/hr (87 mpr.)
Operating Frequencies: Receive 1525.0 – 1545.0 MHz Transmit 1626.5 – 1646.5 MHz GPS: 1575.42 MHz	Power Supply requirements: 10.5 - 32V DC floating	Vibration Operational: Random 5-20 Hz 0.005 g2/Hz, 20-150 Hz–3dB/oct. (0.5g rms)
Channel Spacing: 2.5 / 5 kHz	Power Output: 3.3V DC/100 mA, output for terminal equipment	Shock: Survival half sine 20g/11ms
Modulation: 600 and 1200 symbols/s. BPSK	Sleep Mode: Power supply 12V DC, timer and event programmable modes, reporting interval vs typical total power consumption: 15 minutes / 288 mW 30 minutes / 148 mW 1 hour / 78 mW 2 hours / 43 mW 5 hours / 25 mW 10 hours / 16 mW 24 hours / 11 mW	Mounting Options: Standard 1.5" tube, or 3 bolts on flat surface with 30mm (1/2") hole for cable
Data Rate: Tx300 and 600bit/s, Rx 600bit/s	Ambient Temperature: -35 C to 55 C operating -40 C to 80 C storage	Dimensions: Ø: 163mm, H: 146.2mm (Ø: 6.4", H: 5.8")
Terminal Interface: RS-232 w. hardware flowcontrol. 4800-115000 Baud. VT-100 mode	Solar Radiation: Maximum flux density: 1200W/m2	Weight: 1.1 Kg (2.4 lb)
I/O Port: 6 user configurable 3.3 V I/O´s (5 V tolerant). Each open collector output sinks 25 mA	Rain: 100mm/hour, droplet size 0.5 to 4.5mm	

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Preliminary Sales Introduction

Ship Security Alert System – SSAS
SAILOR Iridium SSAS Box

SAILOR is pleased to announce the decision to develop the new SAILOR Ship Security Alert System for Iridium, which is required in the amendments (Dec. 2002) to SOLAS, Chapter XI, Annex 6.

The SAILOR SSAS solution will be specifically developed to meet the requirements for Ship Security Alert Systems on board the vessels defined below. The solution will be specially designed to be cost effective, easy to install, user-friendly and reliable – all factors for which SAILOR is well-known.

This preliminary sales introduction is without some technical details, ordering information etc. These will follow as soon as possible. It is, however, important for us to make sure that our distributors are informed of matters like this as early as possible. Therefore we have decided to make this preliminary sales introduction now - even though some details and information are missing. We will provide you with further information as soon as possible.

The Market

The above-mentioned regulation requires new equipment to be installed on specific types of vessels by July 1st 2004 - and for others by July 1st 2006. Totally approx. 41,000 vessels must have this equipment installed during the next couple of years!

The following vessels are required to have this equipment installed:

Type of ships	Number of ships (2003)	End of implementation**
Passenger ships, including high-speed passenger crafts constructed before July 1st 2004	Approx.: 6,500*	No later than the first survey of the radio installation after July 1st 2004
Oil tankers, chemical tankers, gas carriers, bulk carriers and cargo high-speed crafts of 500 gross tonnage and upwards constructed before July 1st 2004	Approx.: 16,200*	No later than the first survey of the radio installation after July 1st 2004
Other cargo ships of 500 gross tonnage and upwards constructed before July 1st 2004	Approx.: 18,300*	No later than the first survey of the radio installation after July 1st 2006
Total market size	Approx.: 41,000*	

Ship status: Existing + Newbuildings
** *ISPS CODE 2003 Edition, International Ship & Port Facility Security Code and SOLAS Amendments 2002, IMO, ISBN 92-801-5149-5*

⑤ SAILOR

The SAILOR SSAS Solution

The SAILOR SSAS solution is based on a dedicated SSAS box connected to the SAILOR SC4000 Iridium System. The box generates an SMS including the necessary SSAS information and forwards it to a predefined destination.

This solution is very attractive to customers who wish to combine a cost effective solution with dedicated equipment of high reliability and global coverage.
The SAILOR SSAS solution includes:

- One SSAS dedicated box
- Installation software
- Connection cable to the SAILOR SC4000 Terminal
- Two Alert Buttons with 70 metres cable (two are mandatory – two extra as option)
- Back-up battery

Expected first shipment:	1st quarter 2004
Acceptance of orders:	We will accept orders from now, but will not be able to confirm the deliveries until November 2003 at the earliest.
Part no.:	To be determined
Type name/no.:	To be determined
Description:	SAILOR SSAS solution: Installation of a separate SSAS box connected to a SAILOR SC4000 Iridium Terminal

Attention

As the SAILOR SSAS solution requires hardware changes of the SAILOR SC4000 Iridium Terminal, the SAILOR SSAS solution can only be connected to Iridium Terminals delivered from 1st quarter 2004 at the latest.

This means that Iridium equipment already installed today cannot be connected to the new SSAS box.

In our R&D department, the date of introduction for the SAILOR SC4000 Terminals including this hardware change has been specified to be "as early as possible". Further information on this will follow.

The solution will not require additional signing or subscription fees besides the normal Iridium subscription.

SAILOR Iridium SSAS Box Sales Introduction – Version 001
Date: 25.09.2003 - Approved by: NPA

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What about SSAS Connection to Old Iridium Units?

As Iridium Terminals already installed today cannot be connected to the new SSAS
solution, we are looking into the possibility of launching an exchange programme. In this
way it will also be possible for existing Iridium users to benefit from the new SSAS solution.
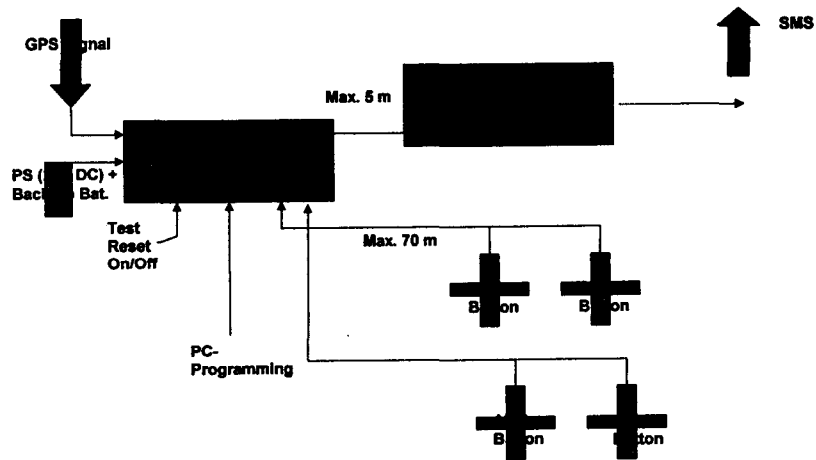Further information on this will follow.

Unique Selling Points

- Easy installation
- Cost effective
- No extra subscription or signing fees apart from Iridium
- Iridium global coverage
- Reliable and well-know system

Other Features

The required Iridium Terminal offers of course the well-known Iridium features such as
Voice and Data. The new PC-based SMS functionality will also be an option.

The SAILOR SSAS Solution

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You will shortly receive the following material from SAILOR about the solution:

- **Press Release**
- **PowerPoint Presentation**
- **Price List**
- **Further Technical Specifications about the system**

PurpleFinder
GUARD

DSAS Ship Security Alert System

The **DSAS Ship Security Alert System** is part of the PurpleFinder® Guard suite of products, and fully compliant with **SOLAS Regulation XI-2/6** adopted by the Conference of Contracting Governments to the SOLAS Convention, 1974 (7-13 December 2002). Regulation XI-2/6 requires ships to be provided with a ship security alert system. The intent of the ship security alert system is to send a covert signal from a ship which will not be obvious to anyone on the ship who is not aware of the alert mechanism. It is of use therefore in circumstances where a ship wishes to inform a person ashore of a problem with a minimum number of persons onboard aware of the action. The procedures for the security alert are agreed with the ship's Administration and ideally should be individual to the ship.

SOLAS Regulation XI-2/6 Ship Security Alert System
Regulation XI-2/6 applies to the following types of ships on international voyages:

- passenger ships, including high-speed passenger craft;
- cargo ships, including high-speed craft, of 500 gross tonnage and upwards;
- mobile offshore drilling units.

All ships in the above general category shall be provided with a ship security alert system, as follows:

- ships constructed on or after 1 July 2004
- oil tankers, chemical tankers, gas carriers, bulk carriers and cargo high speed craft, of 500 gross tonnage and upwards constructed before 1 July 2004, not later than the first survey of radio installation after 1 July 2004; and
- other cargo ships of 500 gross tonnage and upwards and mobile offshore drilling units constructed before 1 July 2004, not later than the first survey of radio installation after 1 July 2006.

The ship security alert system, when activated shall initiate and transmit a ship-to-shore security alert to a competent authority designated by the Administration – which may include the Company – identifying the ship, its location and indicating the ship is under threat or it has been compromised.

When an Administration receives notification of a ship security alert – from the Company – that Administration shall immediately notify the State(s) in the vicinity of which the ship is presently operating. Similarly, when an IMO Contracting Government receives notification of a ship security alert from a ship which is not entitled to fly its flag, that Contracting Government shall immediately notify the relevant Administration and, if appropriate, the State(s) in the vicinity of which the ship is presently operating.

The ship security alert system requires two activation points, one of which should be on the bridge, and employ measures to avoid inadvertent operation and the generation of false alerts. When powered by the ships main source of electrical power, it should, in addition, be possible to operate the system from an alternative source of power.