

# Navigation and Comms

## Beat the BNWAS legislation

**BIMCO advises the fitting of a Bridge Navigational Watch Alarm System at a vessel's next drydocking**



New IMO regulations, implemented through the Maritime Safety Committee (MSC), will soon require the carriage of a Bridge Navigational Watch Alarm System (BNWAS) on most ocean going vessels. Under the terms of the amendments to SOLAS Chapter V, regulation 19, adopted with Resolution MSC.282(86), new cargo ships over 150gt and all new passenger ships of any size constructed after July 1 2011 will have to be equipped with a BNWAS.

Implementation will then be phased in, making BNWAS mandatory on existing tonnage over the following three years. All existing passenger ships and cargo vessels over 3000gt have to be equipped not later than the first special survey after July 1 2012 and all existing cargo ships over 500 gt by the first survey after 1 July 2013. The final category of vessels, cargo ships over 150gt, will have to comply by 1 July 2014.

BNWAS are designed to monitor bridge activity and detect any problems affecting officers on the bridge that could lead to an accident. The performance standards of MSC.128(75) state that the BNWAS should monitor the awareness of the Officer of the Watch (OOW) and automatically alert the master or another qualified OOW if for any reason the OOW becomes incapable of performing his or her duties. This should be achieved through

a series of indications and alarms. The BNWAS should also provide the OOW with a means of calling for assistance if required, and should be operational whenever the ship's heading or track control system is engaged, unless inhibited by the Master.

While there is still plenty of scope for vessel owners and operators who have not yet adopted BNWAS to do so, there is a growing element of urgency given the number of vessels that have to be retrofitted by July 2012. One leading maritime organisation, BIMCO, has advised its members to fit BNWAS at their vessel's next drydocking ahead of mandatory implementation and not wait for annual surveys within the compliance window.

According to BIMCO, "Owners should note that considerable work might be required for retrofitting this equipment, which could take the ship out of service. Consideration should therefore be given to carrying out the necessary modifications in dry dock, before the mandatory implementation date."

A number of specialist electronics companies have developed BNWAS and are supplying these to the market. A critical element of the Type Approval developed by Lloyd's Register states that, to achieve approval, systems should feature manual reset functionality. Not all of the systems



being made available offer this feature.

Indeed, the systems available vary in specification, affecting class approvals, capabilities and ease of installation, and owners and operators are advised to assess their particular requirements before investing carefully.

In 2010 a new performance standard was published. IEC 62616-1:2010 specifies new communication protocols and requires that the BNWAS must communicate with the Voyage Data Recorder (VDR), and it is now recommended that owners have proof that the system is certified to meet these standards. Suppliers should have a BNWAS with type approvals to cover the classification societies for all vessels in the fleet and should be able to display a track record of self approval under Marine Equipment Directive (MED) for the manufacturing of their safety systems.

A Danish study of several hundred BNWAS equipped vessel found that bridge staff were less stressed when a Passive Infra Red (PIR) system was installed. The alternative, a manual push button type system, can be time consuming and wearing for staff.

If the system can be installed by wiring all peripherals to a central control panel with a single cable this will save time and money, and if alarms and sensors use the same cable type this will make the installers' job easier. Assuming the system has been designed in a way that facilitates installation, there is no reason why the ship's electrician should not install the system within a reasonable time frame. However, some more complex PLC-based systems might be more problematic. Another factor that should be taken into account is the level of service support available in the event of problems with the system.

## Martek Marine

Navgard, from Martek Marine, is a BNWAS specifically designed to comply with the new SOLAS regulations, as set out in MSC 282 (86) and also meets the performance standards set out on MSC 128 (75) and IEC62616. Navgard comprises either a bulkhead- or console-mounted control panel with a built-in onboard PIR movement detector offering a 10m range. This system is modular and so can accommodate any bridge system and layout with additional PIRs as required, and/or manual resets inside the bridge and weatherproof versions for the bridge wings. Martek claims its control panel mounted PIR is unique to the market.

Navgard will be the first, and so far only, BNWAS to be fully type approved by all major classification societies. Currently the system has type approvals and or letters of authority from the Korean Register, Polish Register, NKK, ABS, RINA, Det Norske Veritas (DNV) Indian Register, Russian Register, Germanischer Lloyd (GL), Bureau Veritas (BV) and Lloyd's Register (LR) and the China Classification Society (CCS).

According to Steve Coulson, Martek Marine Marketing Director, "This means that if your fleet has ships of a different class, you have no need to worry about the risk of a classification society rejecting equipment that is approved by another society or incurring additional certification costs that can be more than the cost of the equipment itself."

Significantly, Martek claims to be the only manufacturer offering non-movement sensors (i.e., manual reset) as part of its package.

Navgard can be quickly installed without the need for special tools or expertise. It comes



complete with all cable, cable glands, screws and fixings, and can be installed 'straight out of the box' without the need to order other materials. A single cable type is used to connect all detectors, reset buttons and alarms to the Navgard control panel and each alarm/reset device is installed on a single cable loop. The control and alarm panel is fully self-contained with no need for any additional interface modules, saving the vessel owner valuable space.

Battery back-up comes as standard with Navgard, which incorporates an SD-card to log all alarm event data in real time, giving the operator a permanent record of bridge activity. Navgard also provides RS485 serial communications for connection to a VDR. The standard warranty for Navgard as a whole and individually against failure in the field is for 12 months from date of commissioning, or 18 months from the date of shipment from Martek, whichever is sooner.

### Uni-Safe Electronics

Copenhagen-based Uni-Safe Electronics has so far obtained DNV type approval for its BNWAS BW-800 system, which also complies with the IEC 62616:2010 performance standard. It has also been environmentally tested according to the specifications of LR, BV, RINA, ABS, DNV, GL, NKK, CCS and KR.

The BW-800 is delivered with a motion sensor as standard. Uni-Safe uses a dual motion sensor with infrared and microwave detection and cables to the motion sensors can be mounted in parallel on a single loop. However, no cables and screws are included. The system features a standard NMEA protocol complying to IEC 62616, allowing a serial communication interface to the VDR. The system

does not include real time alarm logging, with information being extracted instead from the VDR.

Movement sensors are used as a form of reset, with push button operation also available as required. If the officer on watch (OOV) needs assistance on the bridge, the BW-800 has an emergency call facility. If the reset unit is activated for more than two seconds, the back-up officer will be alerted immediately. Battery back-up is standard.

Commissioning of BW-800 is expected to take around one day, with the time required for the installation of cables varying according to the size of the vessel. The vessel's electrician should be able to do 90% of the installation while the vessel is sailing, says Uni Safe. However, commissioning work and interfacing with the autopilot, radar, ECDIS and VDR should be undertaken by a service technician after installation. Standard warranty terms are 24 months.

### SM-Electrics

SM-Electrics' le guardian BNWAS currently has type approval from GL, KR, the Russian Register and DNV. From January 2011 the company says it will fulfil the new IEC6261:2010 requirements. No special cabling is required, but this has to be ordered separately, and a motion sensor is not included as standard. However, SM-Electrics' WMS 222.2.0.0 sensor is available as an add-on. If a



## NAVIGATION AND SAFETY

### Check List

Feature	Martek	AMI UK	Seab	SM Electrics	Unisafe
Which classification societies is the system approved by?	KR, PRS, NK, ABS, DNV, IRS, LR, CCS, BV, GL, PR, CRS	(MCA APPROVED)	DNV	GL, KR, RR, DNV	DNV
Is the system type approved to IEC 6261:2010?	✓	✓	✓	✓	✓
Can the system be installed using a single cable type?	✓	✗	✗	✓	✓
Is the system supplied with all screws, cable glands and cables?	✓	✗	✗	✗	✗
Does the system include a local PIR as standard?	✓	✗	✗	✗	✗
Does the system include battery back-up?	✓	✓	✓	✗	✓
Does the system include a serial communication interface to VDR?	✓	✓	✓	✗	✓
Does the system include alarm logging in real time?	✓	✗	✗	✗	✗
What is the standard warranty period?	12 months	12 months	12 months	12 months	24 months

motion sensor is not ordered then push buttons are the means of reset. Battery back-up is also not standard with the guardian and a 1.3Ah battery buffered UPS unit can be ordered as an option. No communication interface with VDR is currently possible, but from January 2011 the system will provide an NMEA expansion module, with a NMEA protocol according to IEC61162-1. Alarm logging in real time is not provided.

The system is said to be easy to install, with a crew member undertaking installation with email guidance from SM-Electrics. The company estimates typically 3-5 days work for installation plus up to 6 hours for connecting work and commissioning. Standard warranty terms are two years.

### Seab Marine

Sweden's Seab Marine is marketing its Watch One BNWAS. This was originally designed to comply with the IEC 60945 standard and the company is currently upgrading the system to comply with more recent

IEC 62616:2010 guidelines. The system is currently approved only by DNV.

The cabling supplied depends on the layout of the bridge, but all screws, cables and glands are optional. Infra Red movement sensors can be supplied as an option, with a push button means of resetting incorporated as standard. The system has battery back-up as standard, but fed from the ship's 24v network. The Watch One system has a serial communications interface with VDR that conforms to IEC 61162.

The system is based on a 'plug in/plug out' principle. The company states that if problems arise the CPU card can be easily disconnected and sent back to Sweden. Consequently, Seab Marine has decided not to have a global service network in place.

Installation can be undertaken by any skilled electrician and a warranty of 12 months from commissioning is offered as standard. Seab estimates that two electricians will need 3-4 days to install and commission the system, based on an average bridge.

### AMI Marine (UK)

The KW 810 BNWAS, now part of the AMI range, has been developed in accordance with the IMO specification, conforms to MSC Resolution 128 (75) and is type approved to IEC 62616:2010. As yet the only organisation that AMI has approvals with is the UK's MCA.

The touch screen system consists of a main alert panel, a remote alert panel and a watch alert panel for second and third stage alerts.

Other outputs from BNWAS include a third stage active watch alarm for the general ship alarm and a fourth stage to activate the Ship Security Alert Distress System (SSAS). Two reset solutions are offered, either push button or motion sensor activation. The company says its minimum compliant system comprises a control panel, and MEU marshalling all cabling and signals; a movement sensor, remote alert and second and third stage alarms.

The system uses two types of cabling, 4-core for detectors and 12-core for the remainder, but the system is not supplied with all screws, cable glands and cables. Battery back-up is standard and AMI says the system does include a serial communication interface for a VDR. However alarm logging in real time is not a feature.

The company does not specify who can install the system without affecting warranties, but estimates that it would take 1-2 days to install and commission a KW 810 based on a average bridge. AMI has a Singapore office which can act as a service centre and provides a datasheet and manual through its website for account holders. The standard warranty is 12 months duration. ■