

# ZÖLLNER

SIGNAL SYSTEM TECHNOLOGIES



## Sound Reception Device SRD 414/2 Elephant Ears®



Subject to alteration! 09/02

## Sound Reception Device SRD

### SRD 414/2 Elephant Ears

BSH 6289/001/02

"Every vessel shall at all times maintain a proper look-out by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and of the risk of collision." (Source: International Regulations for Preventing Collisions at Sea 1972 (COLREG 1972), Part B, Section 1, Rule 5)

#### SOLAS Chapter V Resolution MSC.99(73)

#### Regulation 18 - Approval, surveys and performance standards of navigational systems and equipment and voyage data recorder

#### Description

Sound reception systems are acoustical electronic navigational aids to enable the officer on the watch to hear outside sound signals inside a totally enclosed bridge in order to perform the look-out function as required in the international Regulations for Preventing Collisions at Sea, 1972. They should, in addition to the general requirements contained in Resolution A694(17), comply with the following minimum functional requirements.

#### Functional requirements

Sound reception systems should be capable of receiving sound signals from all directions in the audio band 70 Hz to 820 Hz, reproducing incoming sound signals acoustically inside the bridge, indicating the approximate direction of incoming sound signals to determine at least whether the sound signal being detected is forward or abaft of the beam and from which side of the ship it is being detected and suppressing unwanted background noise and allowing reception of meaningful sounds.

#### Method of presentation

Incoming sound signals should be reproduced inside the bridge by means of at least one loudspeaker. The volume should be adjusted by means of one volume control only. The volume control should be capable of being set so that the sound pressure level of an incoming signal only is

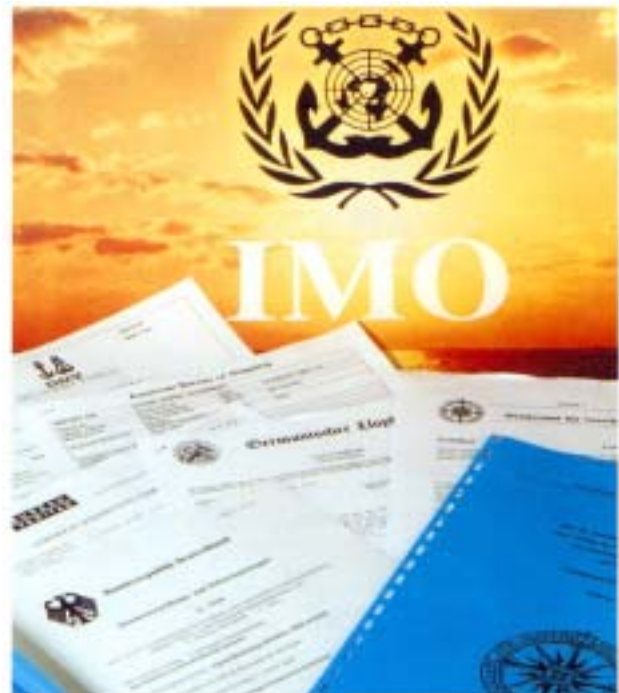
at least 10 dB(A) above the bridge noise level. There should be a display which gives a visual indication for at least 3s of the incoming signals and their approximate direction.

#### Installation

The microphones should be installed in such a way that they are as far from noise sources in the ship as is reasonably practicable and wind induced noise and mechanical vibrations are reasonably reduced. The display should be installed so that it is visible at least from the conning position. The loudspeaker(s) should be installed so that incoming sound signals are audible at all positions inside the bridge.

#### Regulation 19 - Carriage requirements for shipborne navigational systems and equipment

It is compulsory to fit all ships constructed on or after 1 July 2002 with navigational systems and equipment according to paragraphs 2.1. to 2.9. of Regulation 19. The modification relevant to sound signal systems is described in paragraph 2.1.8. that says all ships irrespective of size shall have when the ship's bridge is totally enclosed and unless the Administration determines otherwise, a sound reception system, or other means, to enable the officer in charge of the navigational watch to hear sound signals and determine their direction.



Regulations according to the International Maritime Organisation (IMO) and its suborganisation Maritime Safety Committee (MSC)

# THE SOLUTION

## SRD 414/2 Elephant Ears®

The SRD 414/2 Elephant Ears® represents a new dimension of sound reception systems and therefore is an innovation regarding navigational equipment on board of ships.

### General Features

- digital technology
- simple installation with only one microphone unit
- effective noise suppression securing reliable system performance
- accurate direction detection of incoming signals
- clear and visible direction indication
- easy to operate
- type approval according to test conditions as specified in IEC 60945 (Maritime Navigation and Radio Communication Equipment and Systems)
- BSH approval
- class approval
- comply to SOLAS Chapter V Resolution MSC.99(73) Regulation 18 and 19

### Components and technical data

The sound reception system SRD 414/2 Elephant Ears® consists of two main components:

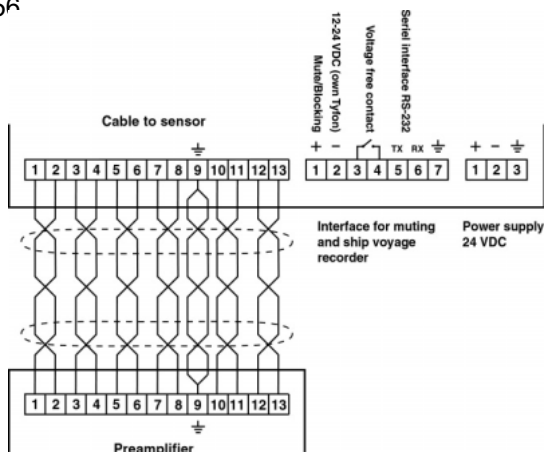
#### Master Control Panel

- for indication of the sound direction and for reproduction of an audible signal inside the bridge with 8 LED's, a volume control and dimmer for panel or console arrangement

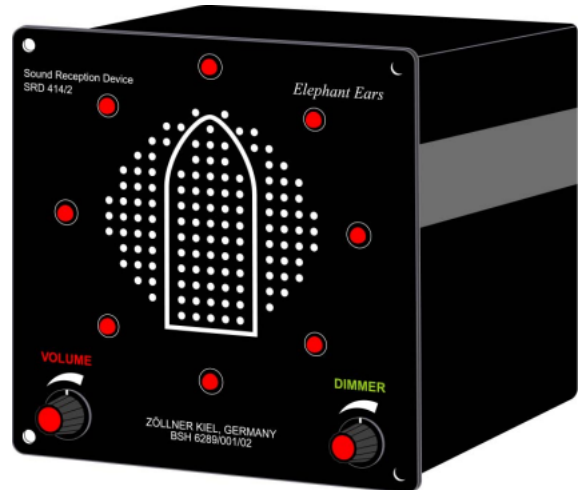
#### Microphone Sensor Unit

- for detecting sound signals located on top of the bridge superstructure with 4 microphones and a metal mesh cylinder on a rigid column

Power supply is required at 24 V DC, + 30% / - 10%. The SRD 414/2 Elephant Ears® receives and indicates sound signals within a frequency range of 70 - 820 Hz. The Microphone Sensor Unit of this sound reception system has the protection type IP 56



Installation Plan



Master Control Panel

### Voyage Data Recorder

- As laid down the revised SOLAS Chapter V Regulation 20, it is now obligatory for passenger and other ships of 3000 gross tonnage and upwards constructed on or after July, 1<sup>st</sup> 2002 to carry voyage data recorders to assist in accident investigations.
- The new sound reception system SRD 414/2 Elephant Ears® therefore provides an interface for the connection with VDR.



Microphone Sensor Unit



Cruise Liner >>Brilliance of the Seas<< with ZÖLLNER Signal Equipment:  
3 Zet-Horns – 1 Automaton – Electric Bell and Gong – Elephant Ears SRD 414

**ZÖLLNER**  
SIGNAL SYSTEM TECHNOLOGIES

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Einbauöffnung: 138 x 138mm

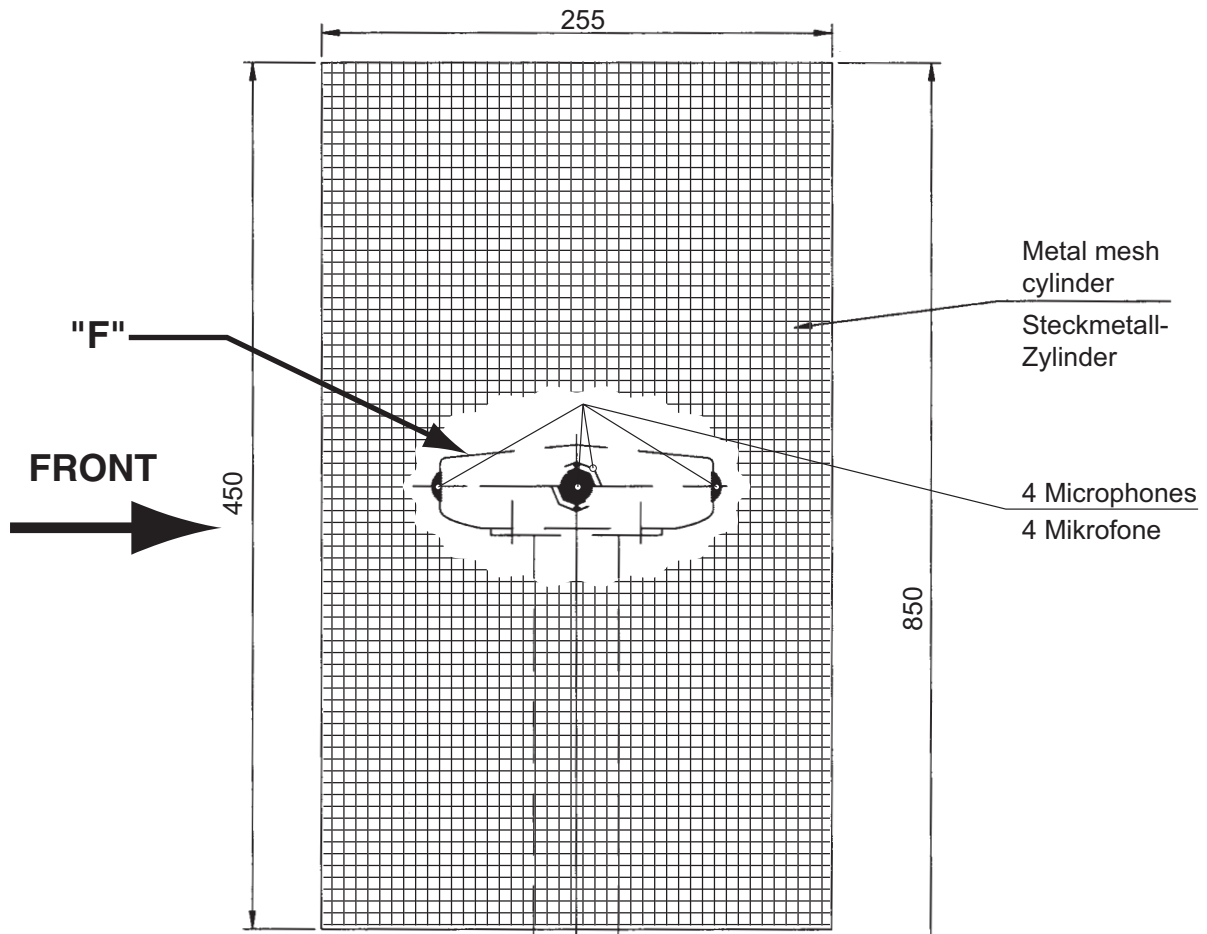
Einbautiefe: ca. 160mm

Hole for Installation: 138 x 138mm

Plug in depth: ca. 160mm

Schutzart: IP 21  
Gewicht: 1,6 kg  
protection type: IP 21  
weight: 1,6 kg

Änderung vorbehalten! Subject to alteration!



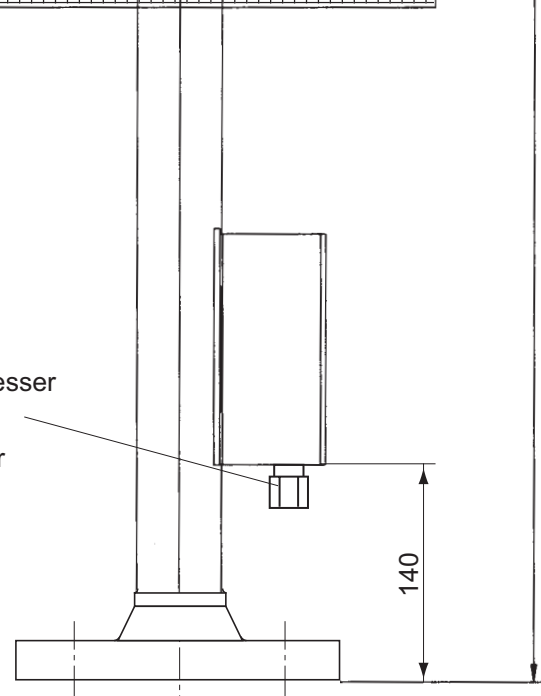
Metal mesh cylinder  
Steckmetall-Zylinder

4 Microphones  
4 Mikrofone

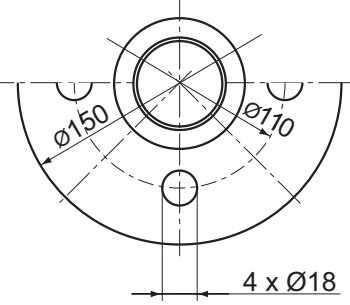
NOTE:  
Fixing of mast to foundation to follow "F" orientation marks on unit

Anmerkung: Mikrofoneinheit muß entsprechend der Richtungsmarkierung "F" angebracht werden

Kabeldurchmesser max. 15 mm  
cable diameter appr. 15 mm



Buttom flange holes to be mounted as on drawing  
Flanschlöcher müssen entsprechend der Zeichnung angebracht werden.



Schutzart: IP 56  
Gewicht: 7,2 kg  
protection type: IP 56  
weight: 7,2 kg

Änderung vorbehalten! Subject to alteration!