

# Sound Reception System

*An acoustical electronic navigational system (MSD-100)  
For totally enclosed bridge space.*



## - Sound Reception System (MSD-100)

This sound reception system is acoustic electronic navigational aids to enable the officer on the watch to hear outside sound signals at totally enclosed bridge in order to perform the look-out function as required in the International Regulations for Preventing Collisions at Sea, 1972 and SOLAS 2002(resolution A. 694(17)) revisions. Thus, this system receives the sound signals in all directions in the audio frequency 70Hz~820Hz and re-produces these incoming signals electrically inside wheel house.

The four microphones operate in pair depending of the approximate direction of the received sound signal by these combinations. The value for detection of sound signal is 75dBA.

The microphones operate in pair depending of the approximate direction of the received sound signal by these combinations among forward and after or port and starboard. The IEC60945 and ISO14859 test is in progress for MED by KR Register and DNV type approval certificate.



SRS Main Unit



Power Supply



Microphone

## - System Features

- 1. Easy to install and operate
- 2. Support up to Micro Electrical - Mechanical System
- 3. Loud speaker: Built-in wide band
- 4. Sound signal: Direction display of the sound source
- 5. Dimmer control function: adapted
- 6. Volume adjustment (one potentiometer for speaker inside the main unit)
- 7. Mute circuit for the ships own horn and talk-back system.
- 8. Mute delay function (appr. 3-sec).
- 9. Installed bypass filter
- 10. The power unit (MPS-030A): independently for private use.
- 11. Main AC & emergency (DC) power using simultaneously.
- 12. The electrets condenser microphone provides the proper reception required for audio frequency band.

## - Specifications of Main Unit (MSD-100)

- |                               |                           |
|-------------------------------|---------------------------|
| -1. Power & Consumption       | : DC24V/ Max. 30VA        |
| -2. Frequency Characteristics | : 70Hz - 820Hz            |
| -3. Distortion                | : Less than 3% (-30dBm)   |
| -4. Input Sensitivity         | : Less than -45dBm        |
| -5. S/N Ratio                 | : More than 50dB          |
| -6. AF Output                 | : Max. 3W                 |
| -7. Temperature/ IP Grade     | : -25°C ~ +55°C/ IP22     |
| -8. Humidity                  | : Less than 95%           |
| -9. Weight & Material         | : 2.15kg / Aluminum-Steel |
| -10. Color/ Mounting Type     | : Black/ Flush Mounting   |
| -11. Compass Safety Distance  | : More than 2m            |

## - Specifications of Microphone (M-100)

- |                                 |                         |
|---------------------------------|-------------------------|
| -1. Power Source & Consumption  | : 24VDC / Max. 1.5W     |
| -2. Microphone Type             | : MEMS Microphone       |
| -3. Input Sensitivity           | : -42±3dB/Pa (1 kHz)    |
| -4. Impedance & S/N Ratio       | : Less 200Ω / more 50dB |
| -5. Operating Temperature Range | : -25°C ~ +55°C         |
| -6. Operating Humidity          | : Less than 95%         |
| -7. IP Grade & Weight           | : IP 56 / 8.1kg         |
| -8. Housing & Color             | : ABS / SUS N-7(Gray)   |
| -9. Mounting Type               | : Self Stand Mounting   |
| -10. Compass Safety Distance    | : More than 2m          |
| -11. Recommended installation   | : Compass Deck          |

ISO 9001 & OHSAS 18001 Certified.

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## - Name of Model (MSD-100)

The system includes main unit, microphone and power supply unit.

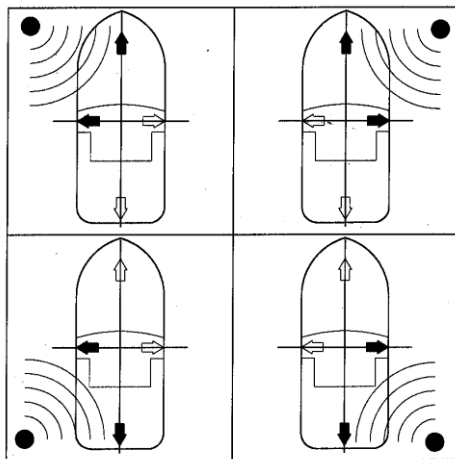
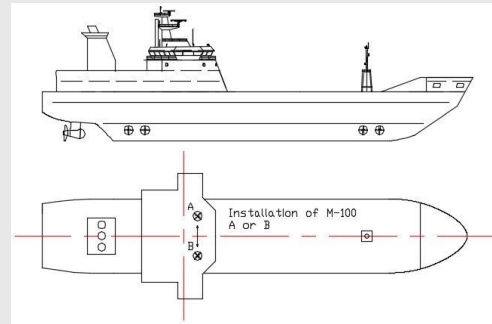
No	Model	Name	Position
1	MSD-100	Main Unit	Inside Wheel House
2	M-100	Water Tight Mic.	Wing/Bow/Stern
3	MPS-030A	Power Supply	Inside Wheel House

## - Functional Requirements

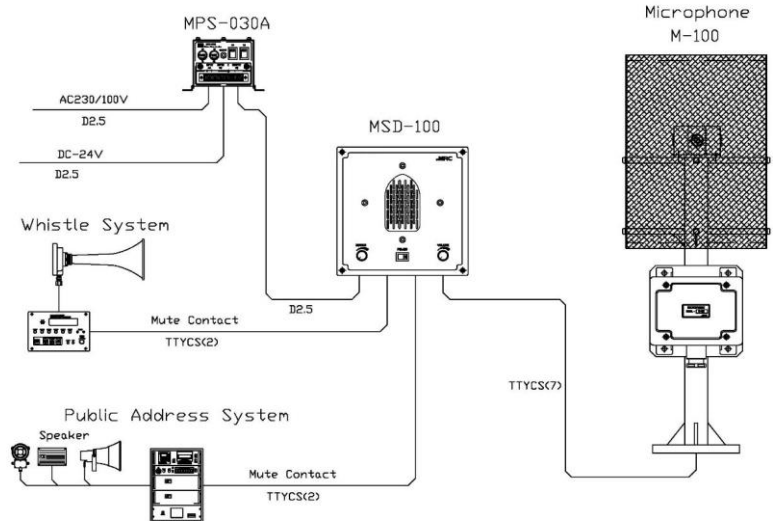
1. Audio band: 70 Hz - 820 Hz
2. Reproducing outside sound signals inside the bridge
3. Indicating the approximate direction of sound signals.
4. Suppressing unwanted background noise
5. Allowing reception of meaningful sounds.

## - Installation of MRD-100 system

1. The microphones should be installed in such a way that they are as far from noise sources, wind noise and mechanical vibrations.
2. The display should be installed so that it is visible at least from the conning position.



Direction Display of Sound Signal



Wiring Diagram of Sound Reception System (MSD-100)

## Agent of MRC

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