

PHONTECH

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USER MANUAL

8300 MkII Sound Reception System



About this Document

Document Scope

This document describes the installation and operation of the 8300 MkII Sound Reception System.

Product	Item Number
P-8300 MkII Display Unit	4000019415
P-8301 MkII Microphone Unit	4000019416
Junction Box for Microphone Unit	4000019634
8300 MkII Sound Reception Kit	4000019470

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Type Approvals

The 8300 MkII Sound Reception System has been type approved by the MED, CCS, ABS, DNV and RMRS classification societies.



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Abbreviations	
CMOS	Complementary metal-oxide semi conductor
DDC	Display dimming control (sentence)
DHCP	Dynamic Host Configuration Protocol
EMC	Electromagnetic compatibility
ESD	Electrostatic discharge
GMDSS	Global Maritime Distress and Safety System
HBT	Heartbeat (sentence)
HTTP	Hypertext Transfer Protocol
Hz	Hertz (unit of frequency)
IC	Integrated circuit (system)
IEC	International Electrotechnical Commission
IMO	International Maritime Organization
IP	Internet protocol (address)
ISO	The International Organization for Standardization
kB/s	Kilobytes per second
kHz	Kilohertz
LED	Light-emitting diode
MED	Marine Equipment Directive
PCM	Pulse code modulation
PJTR	Zenitel proprietary sentence
RMA	Return Material Authorization number
RTCP	Real-time Transport Control Protocol
RTP	Real-time Transport Protocol
SFI	System function ID
SOLAS	Safety of Life at Sea
SPL	Sound Pressure Level
SRS	Sound Reception Signal (proprietary sentence)
TAG	Transport, Annotate and Group
UDP	User Datagram Protocol
VDC	Voltage Direct Current
VOL	Volume (proprietary sentence)

General

Zenitel develops and manufactures professional and state-of-the art products and communication systems for usage on land and at sea. Zenitel supplies products and services that comply with the latest applicable standards. The use of modern test instrumentation and detailed test procedures ensures that you are supplied with quality products.

Copies of all Phontech documentation can be downloaded from our website: www.phontech.net

All information contained within this manual has been verified and is correct. However, no responsibility is assumed by Zenitel for inaccuracy. Zenitel reserves the right to make changes to any product(s) or module(s) described herein to improve reliability, function or design, without further notice.

Standards

The 8300 MkII Sound Reception System has been verified, tested and meets the following product standards:

ISO 14859:2012	Ships and marine technology – Sound reception systems
IEC 60945:2002	Maritime navigation and radio communication equipment and systems – General requirements – Methods of testing and required test results.
IEC 61162:2010-1	Maritime navigation and radio communication equipment and systems – Digital interfaces – Part 1: Single talker and multiple listeners.
IEC 61162:2011-450	Maritime navigation and radio communication equipment and systems – Digital interfaces-Part 450: Multiple talkers and multiple listeners – Ethernet interconnection.
IEC 62288 Edition2:2014	Maritime navigation and radio communication equipment and systems – Presentation of navigation – related information on shipborne navigational displays – General requirements, methods of testing and required test results.

8300 MkII also fulfils the following requirements:

SOLAS Chapter V - Safety of navigation - Regulation 19	Carriage requirements for shipborne navigational systems and equipment.
IMO Res. A.694(17)	General requirements for shipborne radio equipment forming part of the Global Maritime Distress and Safety System (GMDSS) and for electronic navigational aids.
IMO Res. MSC.36(63)	Adoption of the international code of safety for high speed craft (1994).
IMO Res. MSC.86(70)	Adoption of new and amended performance standards for navigational equipment.
IMO Res. MSC.97(73)	Adoption of the international code of safety for high speed craft (2000).
IMO Res. MSC.191(79)	Performance standards for the presentation of navigation-related information on the shipborne navigational displays.

NOTE: This product is ship wheel-marked and type approved in accordance with Marine Equipment Directive (MED).

NOTE: All statements of conformity are available at: www.phontech.net

1 Product Description

The 8300 MkII Sound Reception System is designed to:

- Receive and detect foghorn sounds from other vessels and pinpoint the direction of the signal source.
- Detect signals with a fundamental frequency ranging from 70Hz to 820Hz.
- Have a frequency response of 70Hz to >2100Hz.

Detected horns are amplified and played through the speaker on the display unit and the direction of the signal source appears on the display, with an accuracy of +/- 10 degrees. The 8300 MkII has adaptive background noise canceling to filter out unwanted sounds though advanced digital signal processing. Multiple display units can share the same microphone unit through an Ethernet connection.

Part Numbers:

- 4000019415 - P-8300 MkII Main Unit
- 4000019416 - P-8301 MkII Microphone Unit
- 4000019634 - Junction Box for Microphone Unit (optional)



Figure 1: P-8300 MkII Display Unit



Figure 2: P-8301 MkII Microphone Unit

CAUTION:

This equipment contains CMOS integrated circuits. Observe precautions for handling electrostatic sensitive devices. Electrostatic discharge (ESD) may damage this equipment.

2 System Description

A Sound Reception System is an acoustical electronic navigational aid that enables an individual to hear sound signals from other ships like foghorns when standing inside a totally enclosed bridge space, in order to perform the lookout function as required according to the International Regulations for Preventing Collisions at Sea, 1972.

The system works by listening and detecting the direction of a foghorn. The 8300 MkII system is always listening for sounds on the outside of the ship and will only play back and display sounds once a horn has been detected. The vessel's own horn can be suppressed by closing a closing contact on the 8300 MkII system, which will disable detection for the duration it is held closed.



Figure 3: 8300 MkII Sound Reception System

3 Technical Specifications

3.1 Product Specification P-8300 MkII Display Unit

Supply Voltage:	Nominal 24VDC
Maximum Power Consumption:	8 W
System Power:	4 W
Dimensions (W/H/D):	144 mm / 144 mm / 124 mm
Weight:	0.85 kg
Temperature Operating:	-15 to + 55 °C
Temperature Storage:	-15 to + 55 °C
Humidity:	93% @ + 40 °C
Ingress Protection:	IP-22 (console mounted)
Compass Safe Distance:	> 2.2 m
Interfaces:	100 Mbit Ethernet, Mute closing contact, P-8301 MkII interface

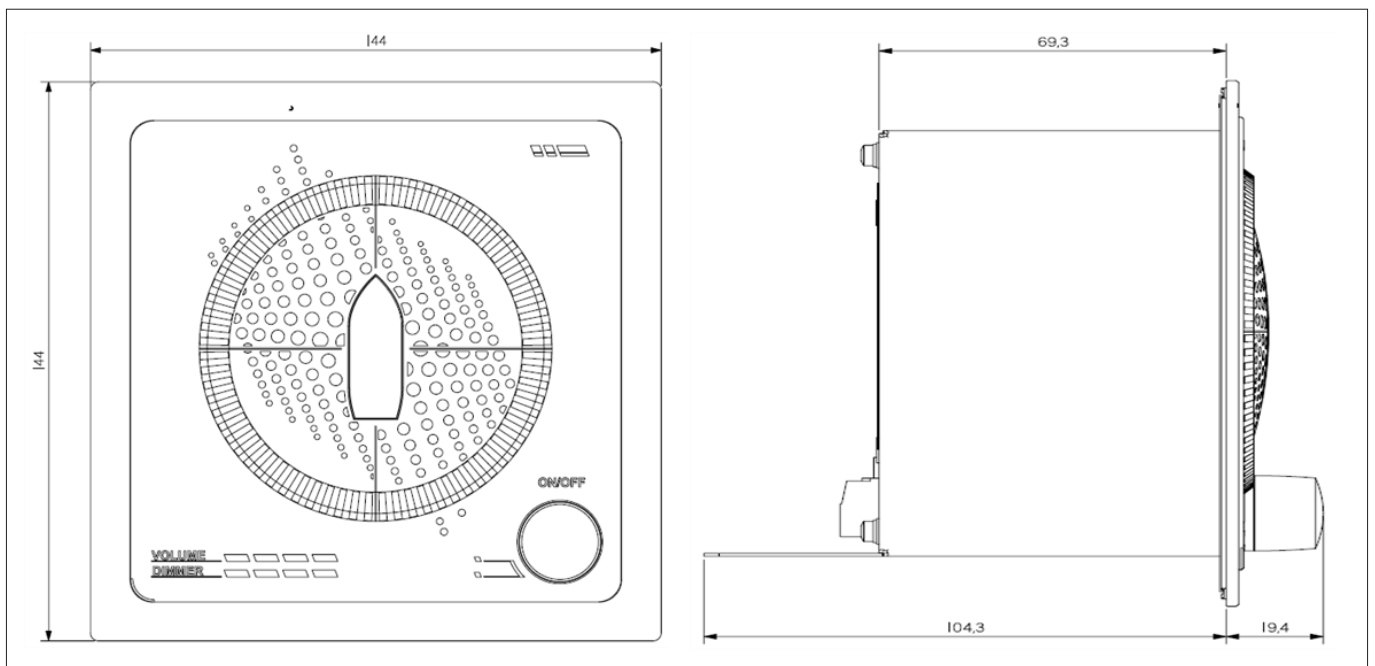


Figure 4: P-8300 MkII Display Unit - Dimensions (height/width/depth)

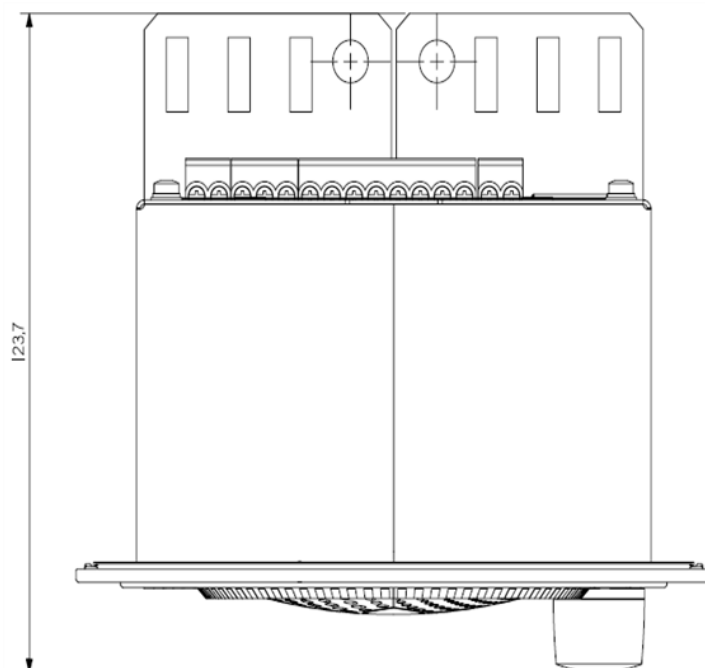


Figure 5: P-8300 MkII - dimensions top (depth/width)

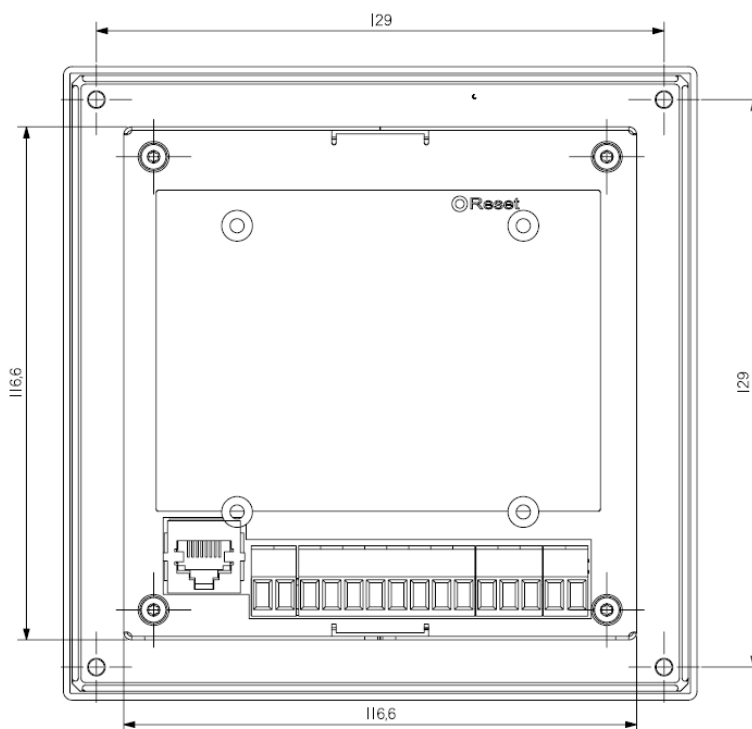


Figure 6: P-8300 MkII - dimensions

3.2 Product Specification P-8301 MkII Microphone Unit

Supply Voltage:	Powered by 8300 MkII/+5VDC
Dimensions (W/H/D):	317 mm / 338 mm / 317 mm
Weight:	3.95 kg
Temperature Operating:	-25 to + 55 °C
Temperature Storage:	-25 to + 70 °C
Humidity:	93% @ + 40 °C
Ingress Protection:	IP-56
Compass Safe Distance	> 0.3 m

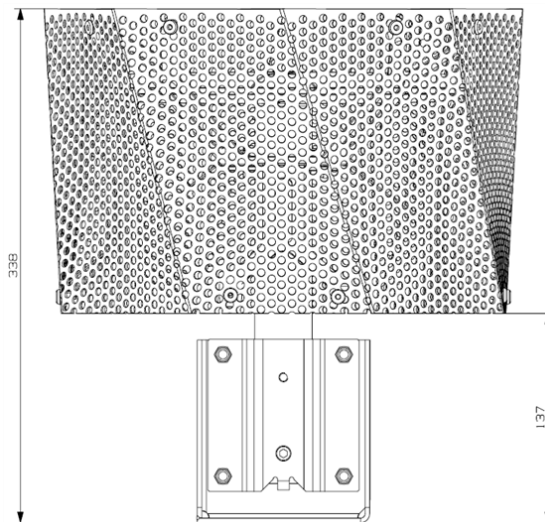


Figure 7: P-8301 MkII - dimensions (height)

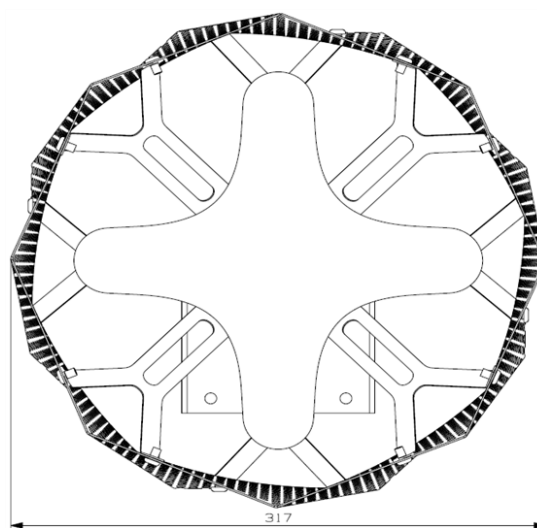


Figure 8: P-8301 MkII - dimensions (width)

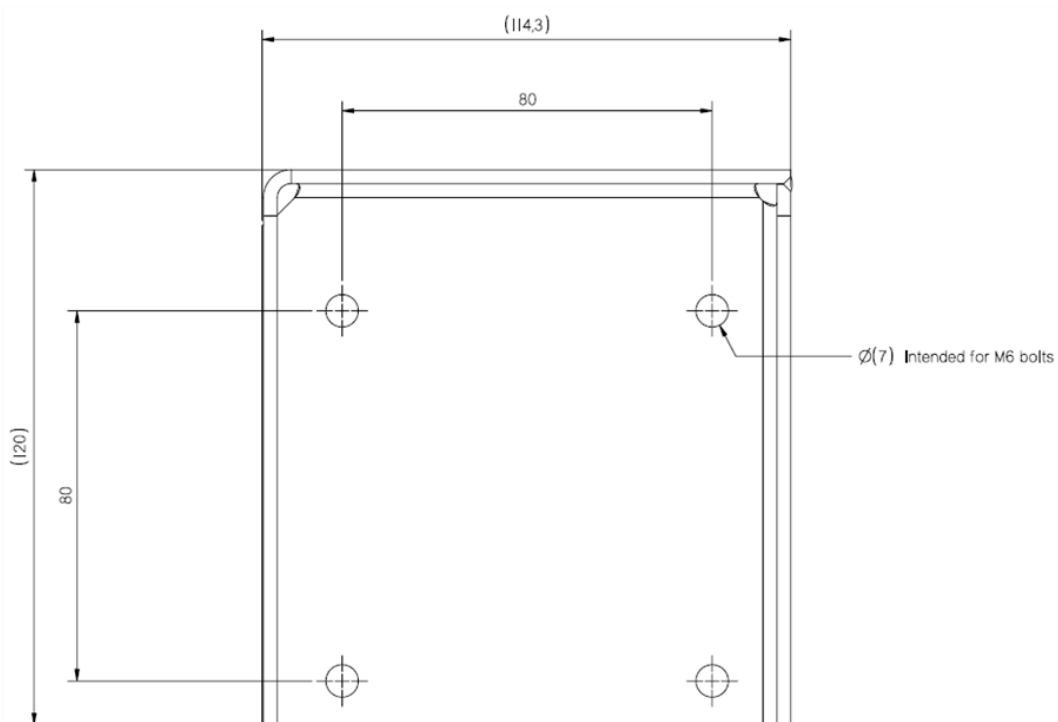


Figure 9: P-8301 MkII - Dimensions (Mounting Bracket)



Figure 10: P-8301 MkII - Mounting Bracket

3.3 Product Specification Junction Box

Dimensions (W/H/D):	120 mm / 78 mm / 104.5 mm
Weight:	0.35 kg
Ingress Protection:	IP-67
Temperature Operating:	-50 to + 90 °C

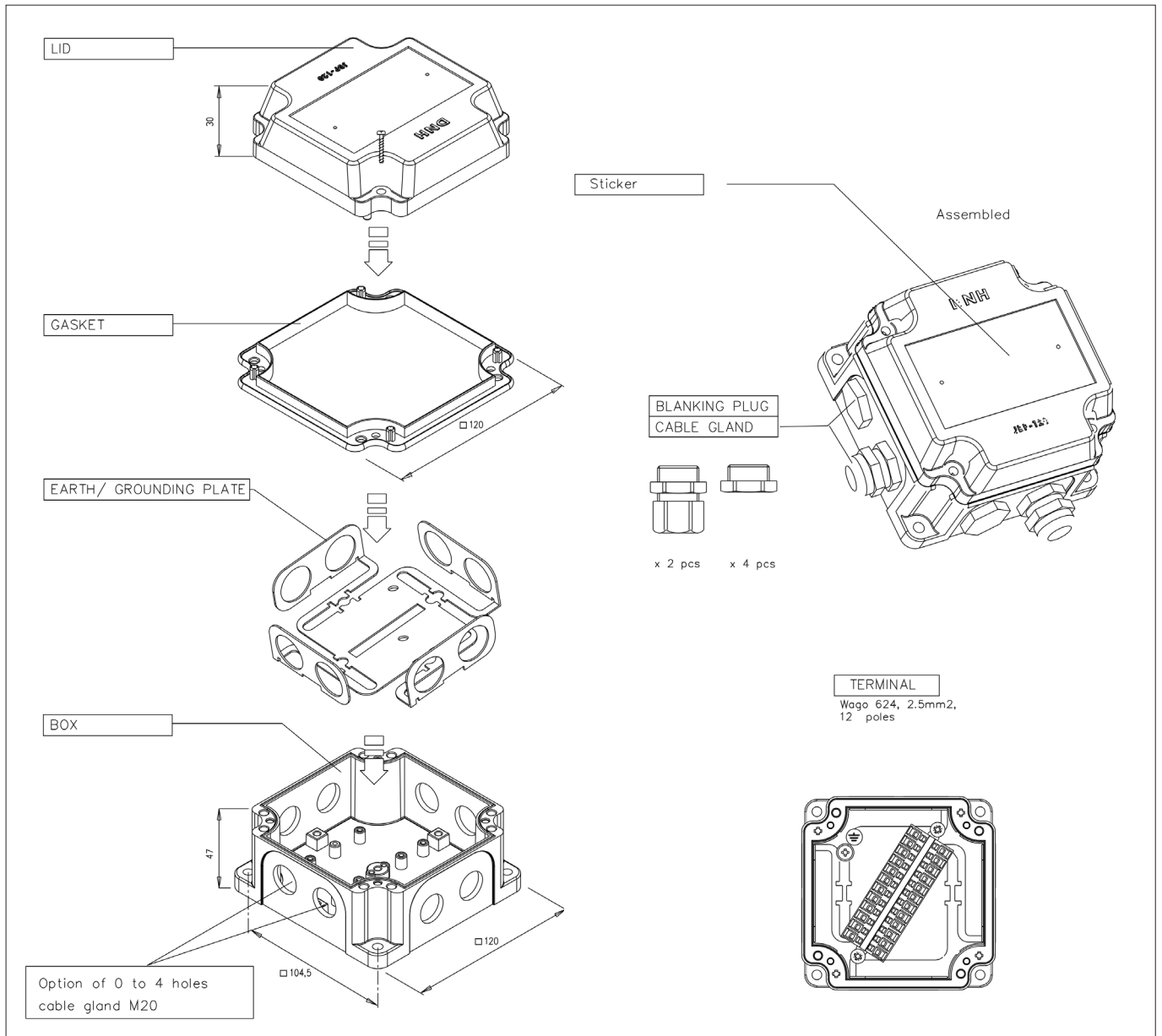


Figure 11: Junction Box - 12-way with screen (optional)

4 Installation

4.1 P-8301 MkII Microphone Unit

The microphone unit can be mounted with the attached mounting bracket by fastening the bracket to the ship or removing the bracket and attaching the steel tube by other means.

The mounting bracket can be mounted to a ship on the top or the side.

CAUTION:

The P-8301 MkII should be installed in an appropriate location, bearing the following in mind:

- Install the microphone unit in a location far away from noise and any mechanical vibration sources.
- The microphone unit should not be installed next to a sound reflective source or obstacle that may block sound from entering it in a straight line.

NOTE:

Zenitel recommends that you install the microphone unit in a typical lookout position.

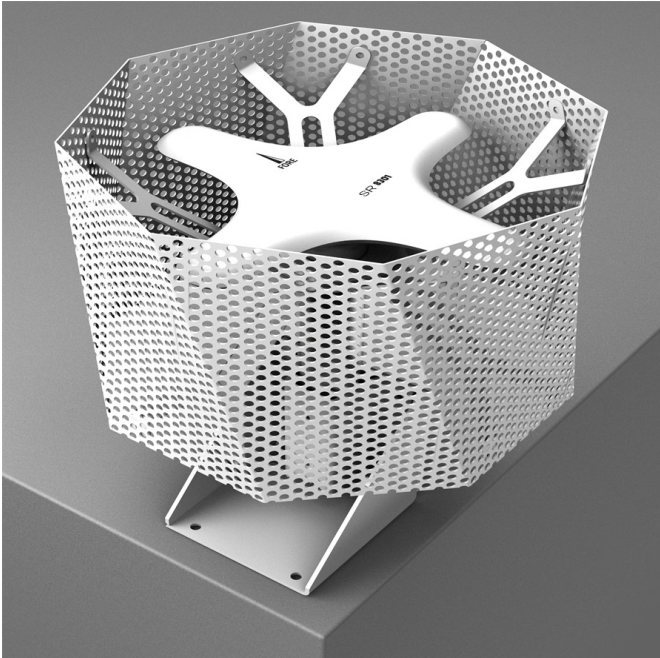


Figure 12: Mounting on the top

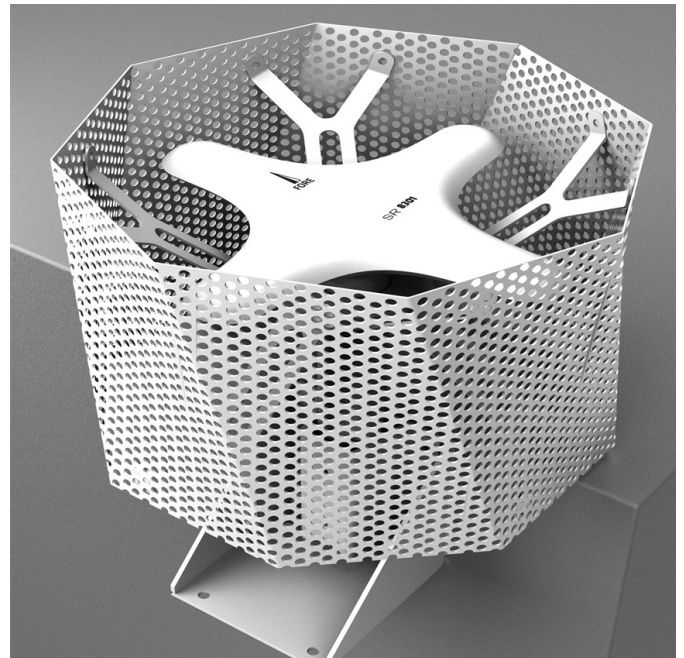


Figure 13: Mounting on the side

NOTE:

The fore direction of the microphone unit is marked with an arrow and should be pointing towards the bow of the ship when installed.

4.2 P-8300 MkII Display Unit

IMPORTANT:

Prior to fastening the unit to a console, connect both the power and microphone unit connectors.

To mount the P-8300 MkII Display Unit:

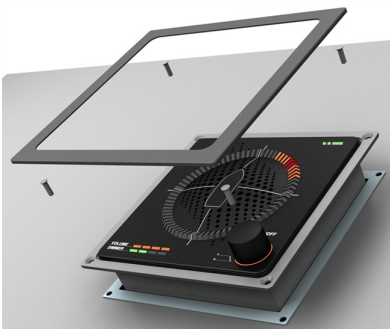
1. Find the appropriate location for mounting (bridge or similar structure).
2. Degrease the console.
3. Connect the power.
4. If applicable, attach the P-8301 MkII interface.
5. If applicable, plug in the Ethernet cable.
6. If applicable, attach the mute closing contact to the foghorn system.

(This contact suppresses detection when the contact is closed)

7. Insert the unit into the console. **(Remove the protective layer on the gasket prior to insertion)**
8. Fasten all four screws, one in each corner.
9. Secure the frame to the unit

CAUTION:

Overtightening the screws may cause damage to the plastic frame.



1: Put the 4 screws in place



2: Fasten the unit to the bridge console



3: Secure the frame in place

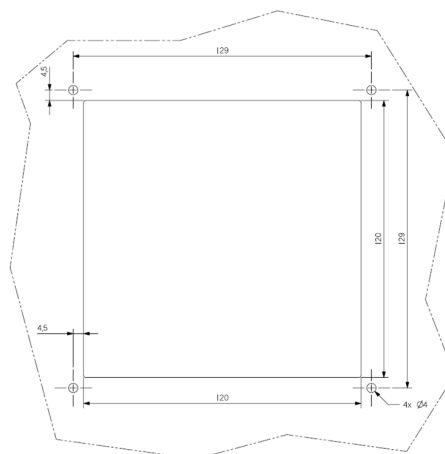


Figure 14: 8300 MkII dimensions
(screw hole positioning)

The display unit should be installed such that incoming sound signals can be heard at all positions inside the bridge and is visible from the conning position.

Advanced configuration options can be done using the web interface.

4.3 Electrical Connections

The cable from the P-8301 MkII microphone unit is a 3-meter cable with flying leads and must be wired to a junction box suited to the environment it is placed in. A cable from the junction box must be laid to the P-8300 MkII display unit. When connecting the microphone unit to the display unit, the cable must be terminated in the 11-pin microphone connector on the back of the display unit.

The cable must be shielded and contain at least 5 twisted pairs made of bare copper and have a lead core size of 0.25 mm² or larger when the cable length is up to 100 meters. If a longer stretch of cable is required (up to a maximum of 200 meters), use a lead core size of 0.5 mm² or larger.

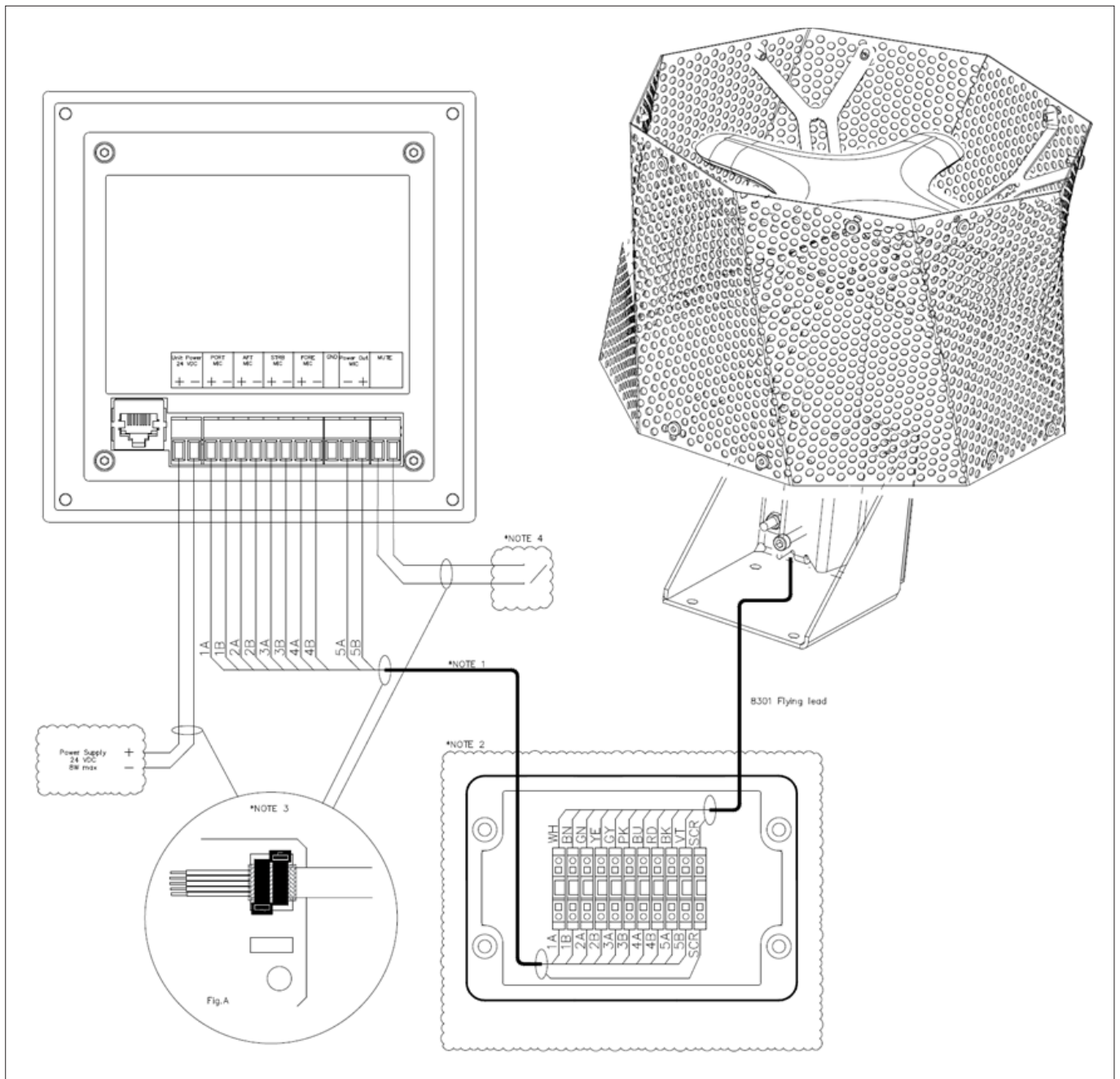


Figure 15: 8300 MkII system electrical connections

Designation	Colour	Function
WH	White	Port +
BN	Brown	Port -
GN	Green	Aft +
YE	Yellow	Aft -
GY	Grey	Strb +
PK	Pink	Strb -
BU	Blue	Fore +
RD	Red	Fore -
BK	Black	GND
VT	Violet	Vinn

NOTE:

Clarification of the notes in the above image:

1. Cabling is not supplied by Zenitel. The cable must be shielded with individual pairs and have a minimum 0.25 mm² core size.
2. A junction box is optional and can be supplied by Zenitel
3. To comply with EMC requirements, all cable shields must be safely connected to the chassis as shown.
4. The mute signal to the P-8300 MkII display unit.

A closing contact (normally open) will mute the sound reception system while closed. Generally, this input is used by the ship's foghorn system.

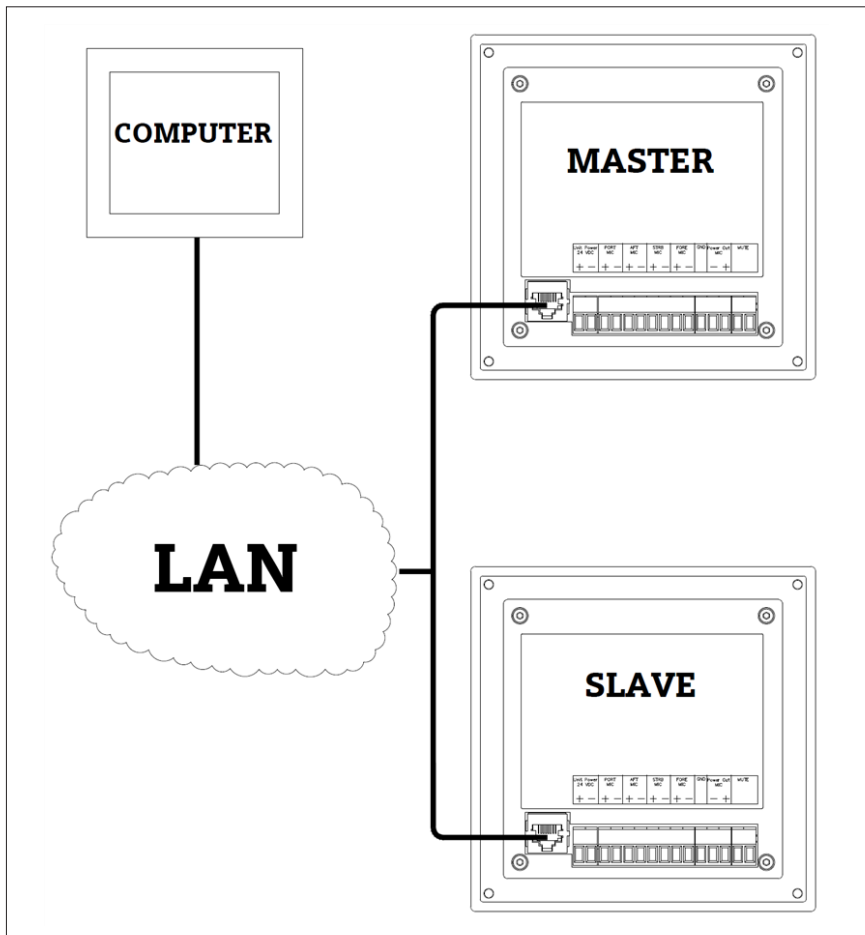


Figure 16: 8300 MkII Ethernet electrical connections

The setup for the master/slave web interface via a computer or connection to an IEC 61161-450 network is as shown above.

NOTE:

The cable must be a minimum of Cat 5 S/UTP quality. Master/Slave can be connected directly together or via a LAN switch.

5 Operating Instructions

5.1 Operational Modes

The P-8300 MkII display unit has four different operational modes. The volume and lighting can be adjusted.

To switch between modes, do the following:

- Press and hold the control button for 5 seconds.

NOTE:

Continuing to hold the button will advance you into the next mode. The mode will change for every additional 5 seconds.

5.1.1 Normal Mode

When the display unit is first started, it will start in normal mode. When in this mode, the unit will idle until a horn signal is detected. Detected horns will play on the speaker and indicate the direction of the source of the signal.

The speaker will play the detected horn at a consistent level regardless of the level of the input. This level can be adjusted using the volume control. Differences in the level of the input can be perceived in the clarity of the signal compared to the background noise.

As a reference, the expected level for a whistle with a fundamental frequency of 120Hz, with a level of 143dB (SPL) within 1/3 octave at 1 meter, from 2 nautical miles should be around 65-70 dB(A) at the listening post. The second volume setting (two notches clockwise when muted) will result in a similar level in dB(A) produced by the display.

Within the first 3 seconds of detection, an 80-degree arch will light up in orange while the center of the arch is lit in red. After 3 seconds, only the red light remains active. Multiple indications can be active at once. The indication pointer will remain for a configurable amount of time (7 seconds by default) after the detection is finished. The indication pointer configuration time can be altered within the web interface.

The light behind the control button is off when the unit is in this mode.

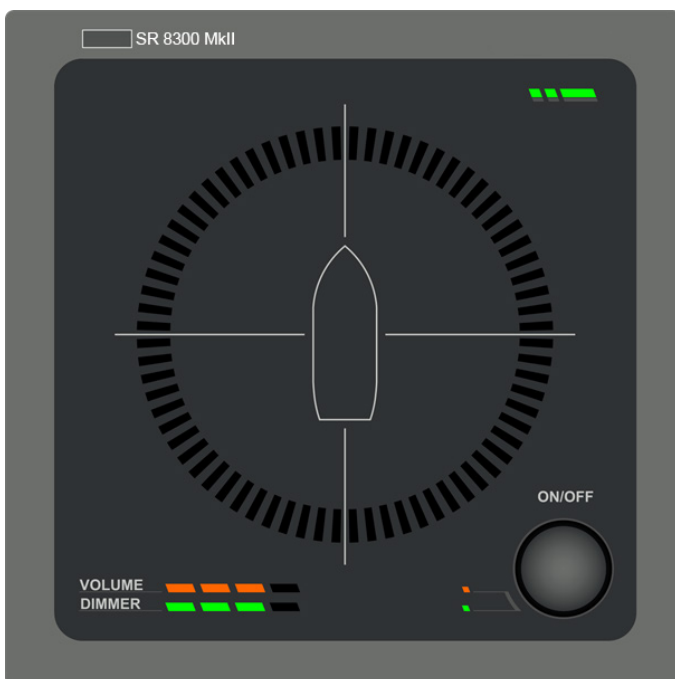


Figure 17: Normal mode, idle

5.1.2 Manual Listen Mode

In the manual mode, a user can listen to each of the four microphones individually. The sound from the active microphone plays through the speaker at all times in this mode.

To activate the manual listen mode, do the following:

1. In the normal mode, press and hold the control button for 5 seconds.

NOTE: When active, the light around the control button appears green.

2. Rotate the control button to select the microphone.

NOTE: Neither the volume nor dimmer row is lit orange when the microphone is selected.

When the device first enters the manual listen mode, it activates the Fore microphone. The indication ring displays the currently active microphone

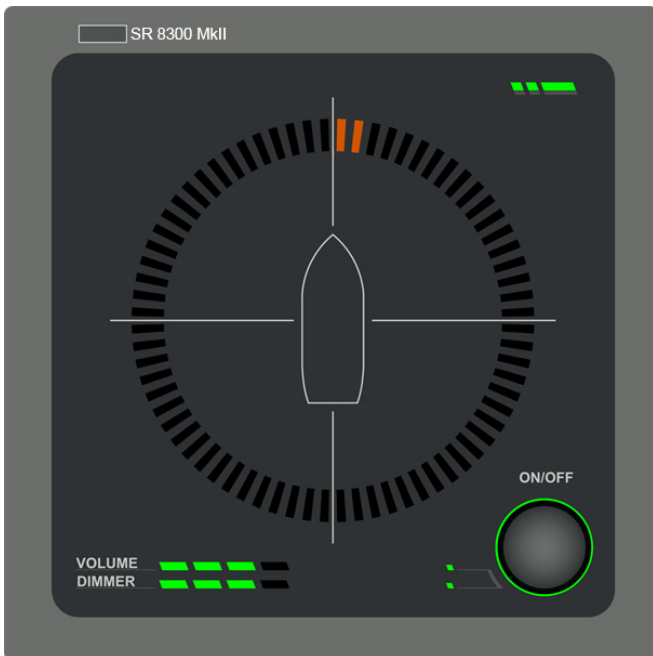


Figure 18: Selecting the Fore microphone

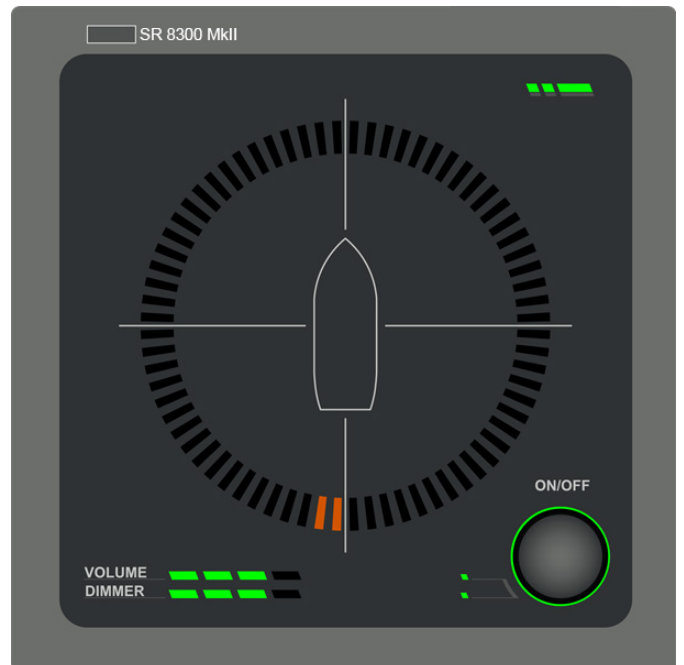


Figure 19: Selecting the Aft microphone

5.1.3 Calibration Detection Mode

Use the calibration detection mode to adjust the offset display. You would, for example, do this to adjust the offset of an incorrectly mounted P-8301 MkII microphone unit.

To enter the calibration detection mode, do the following:

1. Press and hold the control button for 10 seconds

NOTE: If the unit is in the manual listen mode, then you only need to press and hold the control button for 5 seconds. When the calibration mode is activated, the light behind the control rotary button switches to orange

2. Rotate the control button to calibrate the position, to add (right) or subtract (left) the offset for all detections

NOTE: The default is a zero degree offset and a single tick with the control button will adjust the offset by 10 degrees. The indication ring displays the current offset. A more precise offset can be set in the web interface.

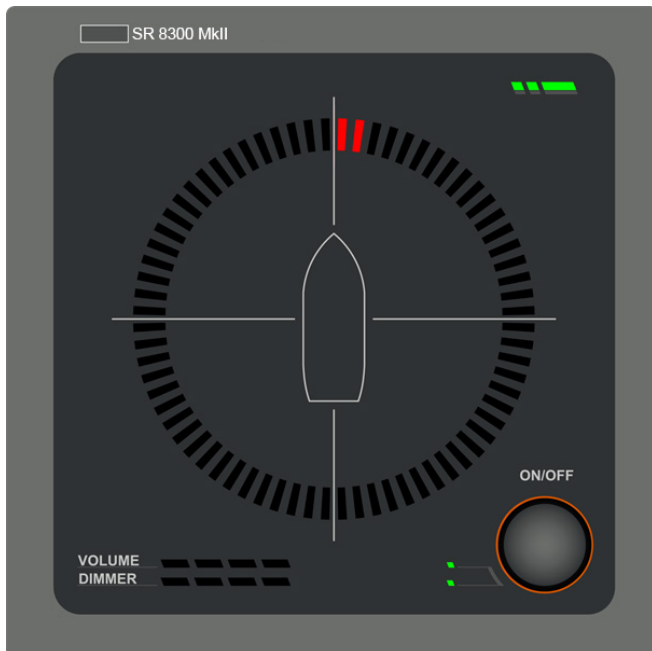


Figure 20: No offset (0 degree)

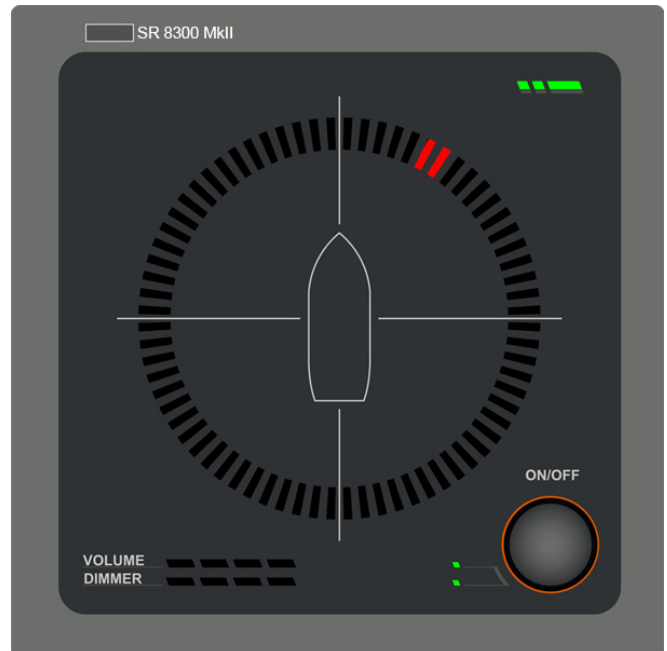


Figure 21: 30 degree offset

5.1.4 LED Test Mode

To enter the LED test mode, do the following:

1. Press and hold the control button for 15 seconds when in normal mode

NOTE:

If the manual listen mode is active, press and hold the control button for 10 seconds.

If the calibration detection mode is active, press and hold the control button for 5 seconds.

All LEDs on the display unit will light up when enabled, making any failed LEDs visible.

2. Hold the control button for another 5 seconds to return to normal operation.

NOTE: The LED test mode will automatically return to normal mode if the control button is not pressed or rotated for 30 seconds.

5.2 Network Operations

The 8300 MkII performs multiple network operations according to part 450 of the IEC 61162 standard. This includes inter-device communication and logging.

The transmission groups are mapped to the following multicast addresses and ports:

Transmission Group	Address Port Combination
MISC	239.192.0.1:60001
PROP	239.192.0.8:60008
USR1	239.192.0.9:60009
USR2	239.192.0.10:60010
USR3	239.192.0.11:60011
USR4	239.192.0.12:60012
USR5	239.192.0.13:60013
USR6	239.192.0.14:60014
USR7	239.192.0.15:60015
USR8	239.192.0.16:60016

NOTE:

These transmission groups are defined in part 450 of the IEC 61162 standard.

Multiple IEC 61162-450 sentences are sent and received by the P-8300 MkII display unit. Below is a list of the applicable sentences:

- PJTR sentences (SRS proprietary sentences and VOL proprietary sentences)
- HBT sentences
- DDC sentences

CAUTION:

For more information or clarification regarding the above sentences, please refer to IEC 61162-450.

5.2.1 PJTR Sentence

The PJTR sentence is a proprietary sentence that is used for communication between the master and slave P-8300 MkII display units.

The first parameter of this sentence is the sentence code for our proprietary sentences. The remaining parameters depend on the sentence code that is sent.

The 8300 MkII has the following three proprietary sentences:

- Sound Reception Signal (SRS)
- Volume (VOL)
- Heartbeat (HBT)

5.2.1.1 SRS Proprietary Sentence

When a sentence code of the PJTR sentence is sound reception signal (SRS), the sentence is a detection notification. This sentence is sent from the master unit to the configured transmission group such that the slave(s) can receive them.

The SRS sentence has three additional parameters:

Description	Type
Direction of the detection	An integer between 0 and 359 inclusive.
Score of the detection	Score with decimal point when required.
Base frequency of the detected signal	Frequency with decimal point when required.

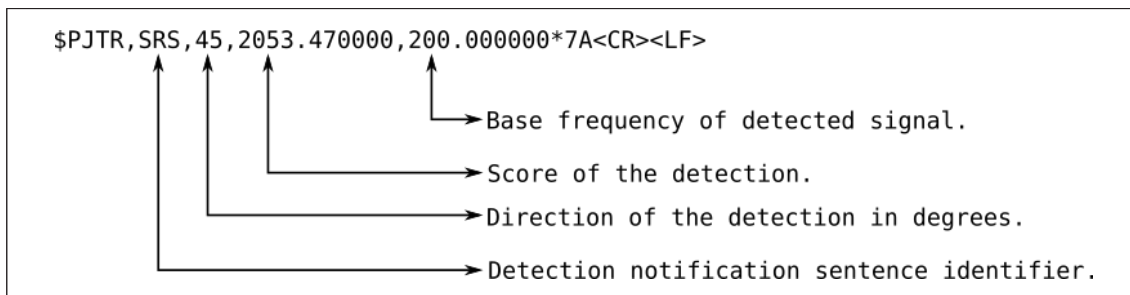


Figure 26: Example, SRS proprietary sentence

5.2.1.2 VOL Proprietary Sentence

When a sentence code of the PJTR sentence is volume (VOL), the sentence is a volume adjustment notification. This sentence is sent from both the master and the slave units when an individual adjusts the volume using the control button on the display unit. The sentence is sent on the configured transmission group. When a p-8300 MkII display unit receives a message, it automatically adjusts the volume to match the volume of the device that sent the sentence.

The VOL sentence has one additional parameter:

Description	Type
New volume setting	An integer between 0 and 99 inclusive.

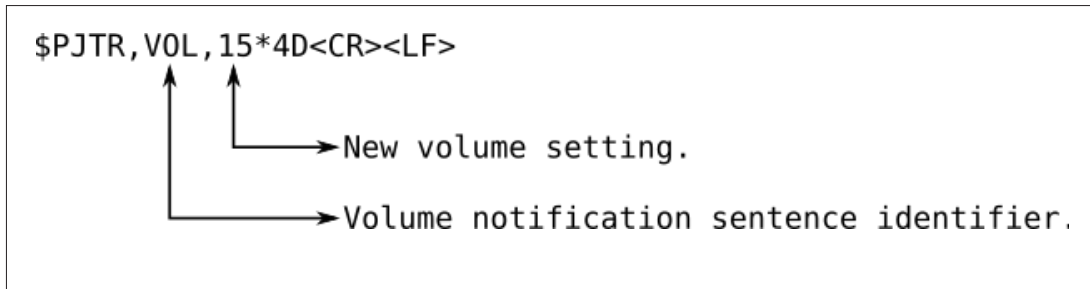


Figure 27: Example, VOL proprietary sentence

5.2.1.3 HBT Sentence

The P-8300 MkII sends a heartbeat (HBT) sentence once every 60 seconds. This sentence is sent to the MISC transmission group. It is equal to the standard HBT sentence, except that it is sent as a parameter to the PJTR sentence.

NOTE:

Refer to IEC 61162-1 standard for more information regarding heartbeat sentence.

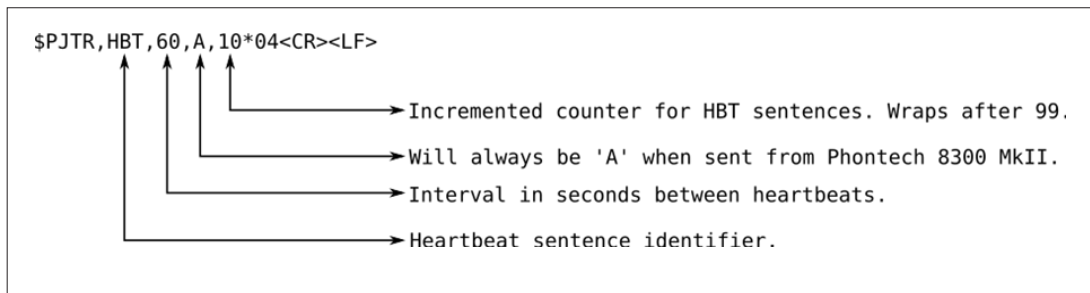


Figure 28: Example, HBT sentence

5.2.2 DDC Sentence

The P-8300 MkII display unit listens for all display dimming control (DDC) sentences. Sentences may come from other units on the network by default from the MISC channel.

When a DDC sentence is received, the display unit will adjust the brightness to the new level.

Two variants of the DDC messages are supported: one with and one without the sentence status parameter at the end of the sentence.

NOTE: Refer to IEC 61162-1 standard for more information regarding the two variants and the DDC sentence.

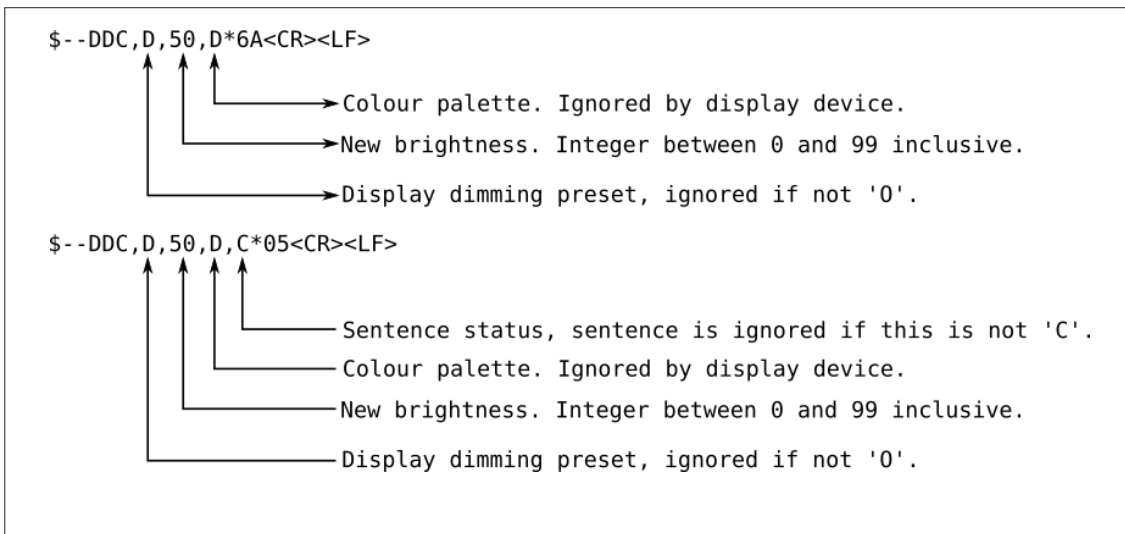


Figure 29: Example, DCC sentence

NOTE: The two dashes before the DDC message represents the sender and can be any two upper case characters from A-Z.

5.2.3 Maximum Data Rates

These are the maximum data rates as required by IEC 61162-450, section 4.3.2.

Description	Amount
Maximum received per second, intended for target.	50/sec
Maximum received per second, not intended for target-	2000/sec
Maximum received per second, not intended for target at 50% of the maximum load.	1000/sec

5.3 Syslog Messages

When syslog network logging is enabled, syslog messages are sent to the network address specified in the web interface. Refer to the network settings for more information.

The following table lists messages that are sent when there is a problem with the unit.

Message ID	Message Text	Additional Information
SURV_AUDIO_FAILURE	Surveillance failed for audio channels: <Mask>	<Mask> is replaced with a bitmask in hex of the channels that have failed audio surveillance. Available channels: <ul style="list-style-type: none">• 0x1 Fore• 0x2 Aft• 0x4 Starboard• 0x8 Port For example, 0xC indicates a failure of port and starboard microphones.
SURV_LED_FAIL	Bad health state of LED <LED id>	<LED id> is replaced with the ID of the LED that failed.
SURV_WDOG_NOT_FEEDING	Not feeding watchdog because all required tests have not been passed: <Mask>	Message informs that the unit will restart due to a failing watchdog test. <Mask> is replaced with a bitmask in hex that identifies the failing test. Tests include: <ul style="list-style-type: none">• 0x1 Audio surveillance test• 0x2 DSP surveillance test• 0x4 Display response surveillance test

5.4 Audio Packet Stream

A proprietary audio packet stream is sent together with all other network traffic.

This stream contains the audio data from a detected foghorn signal. The master unit sends the data to the multicast group at 239.192.0.65 on port 5004 and 5005. This audio packet stream is a RTP stream with RTP data on port 5004 and RTCP data on port 5005. The audio is sent as a single channel 24-bit signed PCM at a 24-kHz sampling rate. The RTP stream uses a packet size of 20 ms.

An audio stream is only sent when a foghorn is detected and stops when the detection ends.

The maximum bandwidth used by this stream is 96 kB/s, with approximately 50 packets per second.

5.5 Error Indicator

When an error is detected, the status LED on the P-8300 MkII display unit lights up orange.

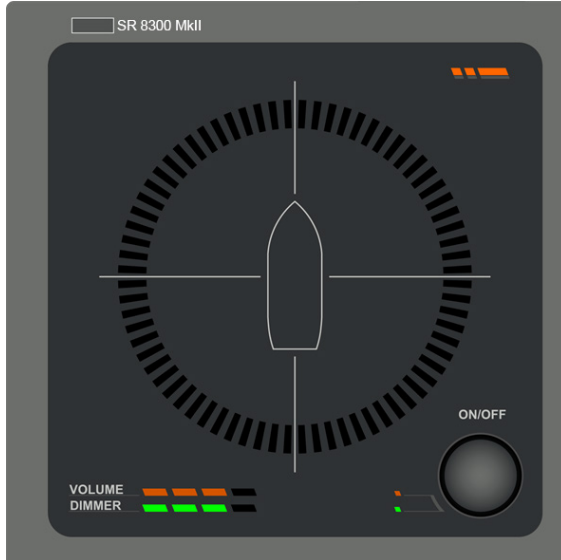


Figure 22: Indicating an error is detected

NOTE: For more information regarding potential failures or issues, refer to the section on Troubleshooting.

5.6 Detecting a Sound Signal

When the P-8300 MkII detects a sound signal and determines the direction of the signal, the direction will appear on the display unit.

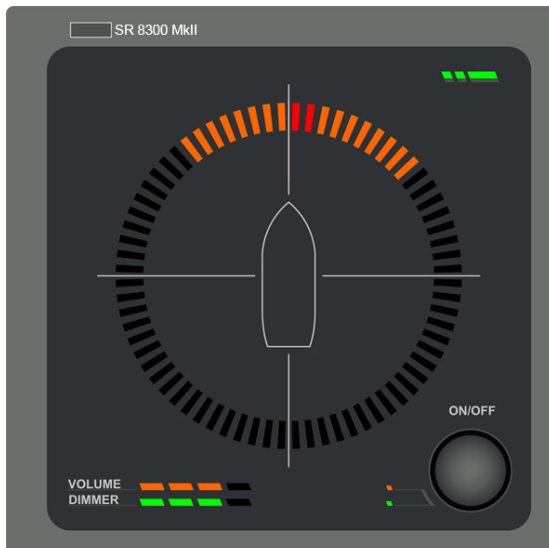


Figure 23: Sound signal, as it is detected

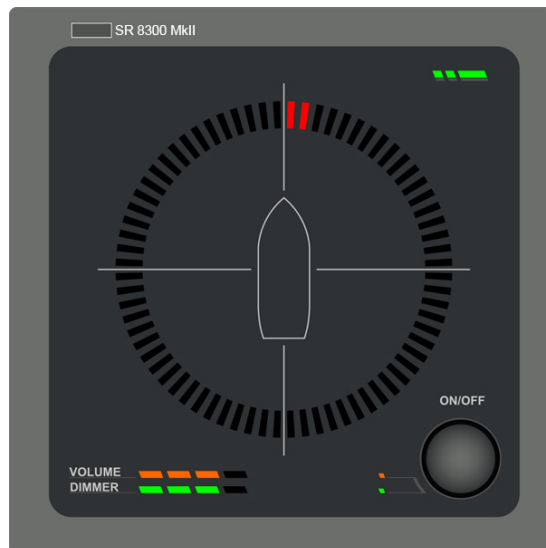


Figure 24: Sound signal, 3 seconds after detection

After 3 seconds, the orange LEDs disappear and the red LEDs remain. The red LED indicators remain by default for 7 seconds or the configured length of time.

NOTE: You can adjust the display timing (in seconds) in the web interface.

5.7 Detecting Multiple Sound Signals

The P-8300 MkII is able to detect multiple sound signals simultaneously.

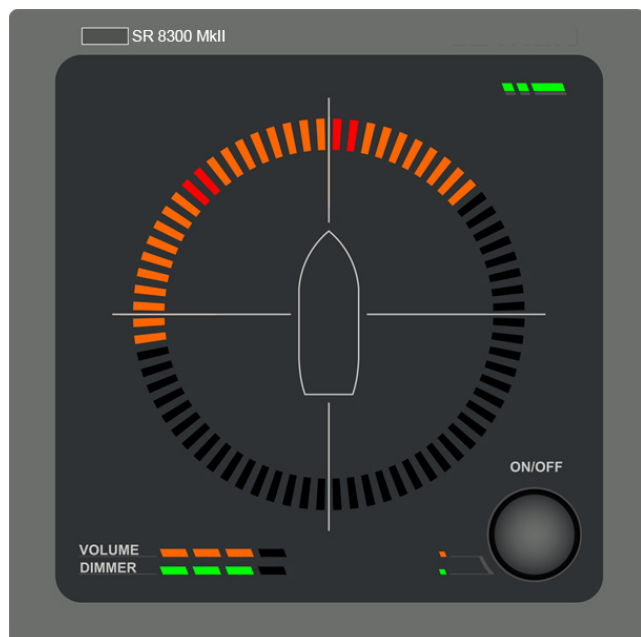


Figure 25: Detecting multiple sound signals, 0° and 310°

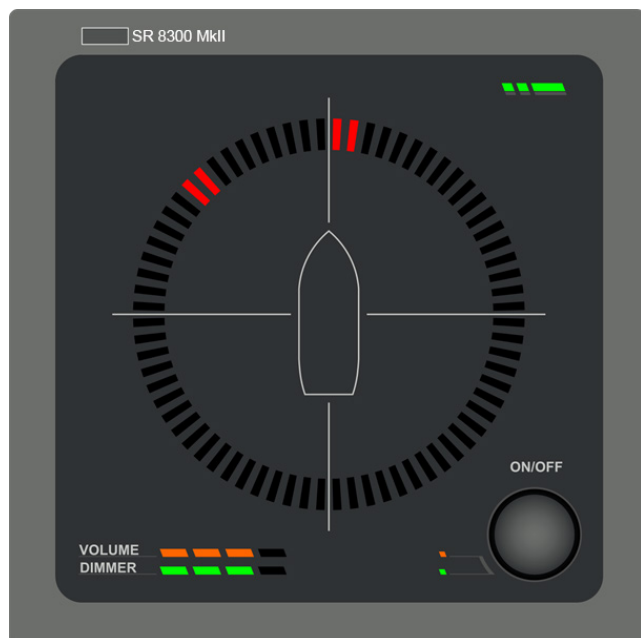


Figure 26: Detecting multiple sound signals 3 seconds after detection

5.8 Adjusting Volume and Lighting

Both the volume and display lighting LEDs of the P-8300 MkII display unit are adjustable.

NOTE: An orange LED displays the active state. This is also indicated by the lights on the left of the control button.

To adjust the volume, do the following:

1. Press and release the control button to select the volume adjust mode.
2. Rotate the knob clockwise to increase and counterclockwise to decrease the volume.

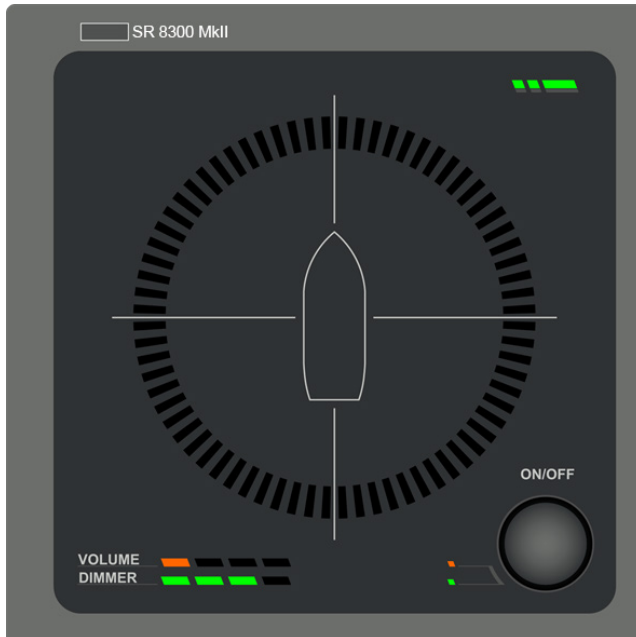


Figure 27: Volume adjust mode

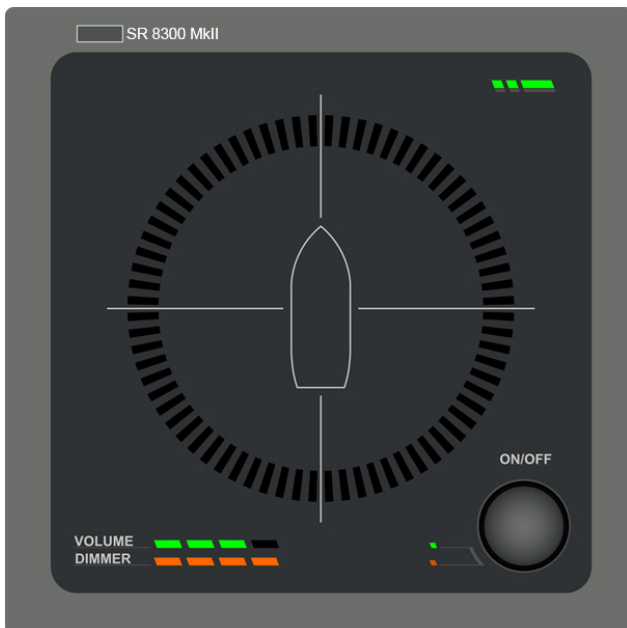


Figure 28: Dimming adjust mode

NOTE: The nominal viewing and listening distance is 0.8 m.

To adjust the LED light intensity:

- Press and release the control button to select the dimming adjust mode.
- Rotate the knob clockwise to increase and counterclockwise to decrease the LED intensity.

5.9 Web Interface

The P-8300 MkII display unit has a web interface for logging and configuring the unit, and also supplies information regarding the state of the unit.

The web interface can be accessed by entering the P-8300 MkII display unit IP address into any web browser. The **default IP address is: 172.31.0.100** with a netmask of 255.255.255.0. You will be prompted to enter your username and password the first time you access the web interface. The default username and password are: **admin/admin**.

You can navigate between pages by clicking or hovering with your mouse over the striped button. This button activates the navigation menu where you can access the pages. The active page is marked orange with a white arrow pointing to it.

NOTE:

Some changes require a reboot of the unit. If this is the case, the web interface will display a message indicating that a reboot is necessary. This is done in **Additional options** and is explained under **Maintenance**.

5.9.1 Home Screen

The home screen is the first page you see when you access the web interface on the P-8300 MkII display unit. This screen displays the status of the unit.

The following information appears in the **Status** section of the screen:

Status	Notification Colour	Text Description
Normal	Green	Everything operating as normal
Error detected	Red	A message describing the error

IMPORTANT:

If an error has been observed and attended to, then you can press the **Acknowledge messages** button to clear the status LED on the display.

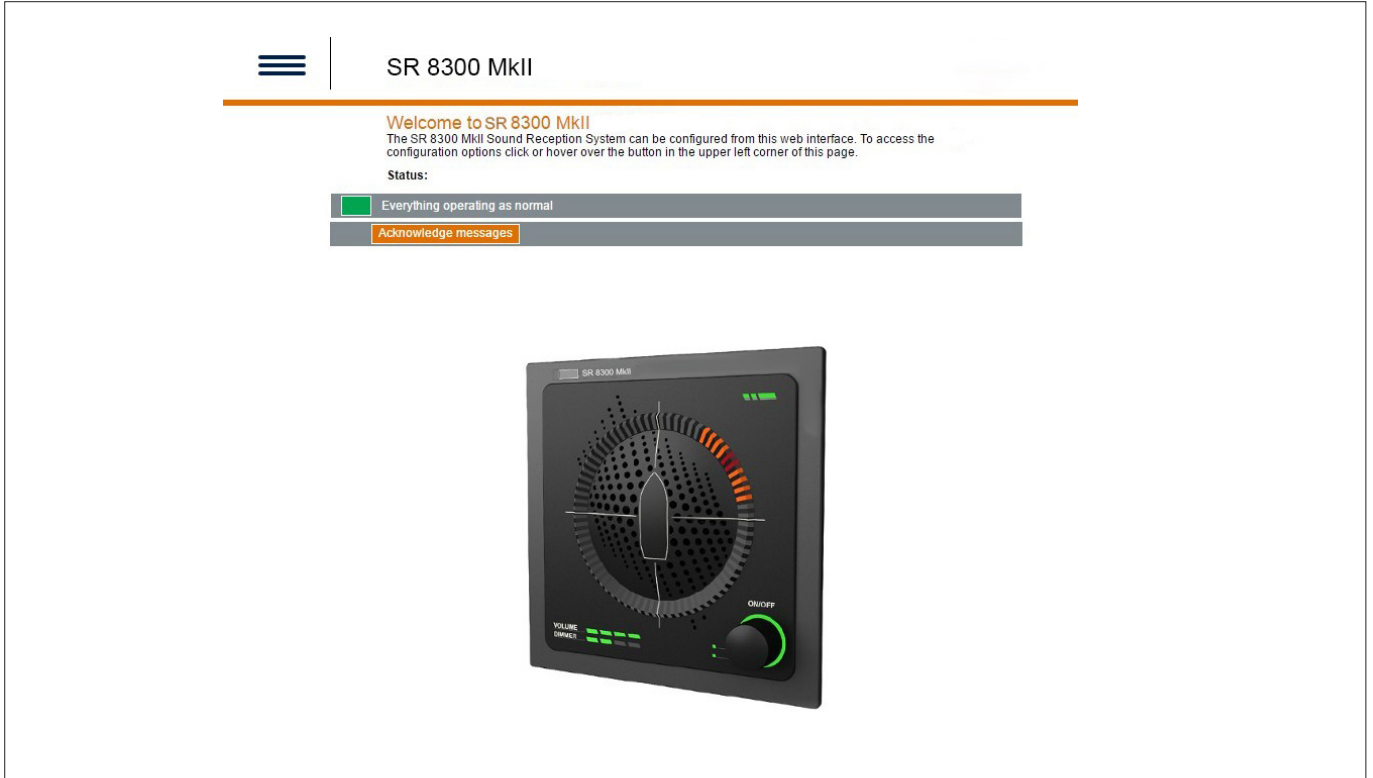


Figure 29: Home screen, status OK - acknowledge messages



Figure 30: Home screen, status Failed - Acknowledge messages

5.9.2 Network Settings

You can configure the following network settings:

Configurable network settings	Description
Network address of the unit (3 options)	<ol style="list-style-type: none">1. Static - this option allows you to configure any static network address along with the applicable netmask and gateway.2. DHCP - this option will request the DHCP server for an address either when you start the unit or when a network cable is plugged in.3. IEC 61162-450 compliant static address - this option restricts the address to an address within the range of: 172.16.0.0 - 172.31.255.255. In this mode, net mask is not configurable and forces the 255.255.255.0 configuration. The gateway is freely configurable with this option.
IEC 61162-450 settings	Configure the transmission group used for sending and receiving messages by selecting from the PROP or USR1-USR8 groups.
Syslog settings	You can enable the device logging over network through the syslog protocol. By enabling the syslog network logging the Phontech 8300 MkII display unit will send information and error messages over the Ethernet network. Syslog messages can either be sent to the IEC 61162-450 compliant address (239.192.0.254:514) or a user can configure a custom server address by changing the IP address and port fields in the syslog section. To change the messages that are logged, ensure you change the log level setting in the same section, the options range from Debug to Emergency priority. When this is set, all messages at the selected level or higher will be sent to the syslog server.

NOTE:

The default network address is an IEC 61162-450 compliant address of 172.31.0.100.

IMPORTANT:

Prior to using the P-8300 MkII display unit on a IEC 61162-450 network to send sentences to other units, an SFI address must be configured. The configuration value for the address must start with SR and be followed by 4 digits, for example SR9999.

To configure the network settings:

1. Select the address type.
2. Enter the applicable settings.
3. Enter the applicable IEC settings.
4. Select the Syslog network options.
5. Click the **Save settings** button.

SR 8300 MkII

Network settings
Configuration of the network settings can be made here.

Address type

Static DHCP IEC 61162-450 Compliant

Settings:

IP Address:

Subnet:

Gateway:

IEC 61162-450 NMEA settings:

SFI:

Trans. group:

Syslog network logging:

On Off

Custom IEC 61162-450 Compliant

IP address:

Port:

Log level:

Figure 31: Network settings - overall configuration

5.9.3 Audio Settings

The audio settings of the P-8300 MkII display unit allows a user to adjust the signal-to-noise ratio required prior to a foghorn being detected. The default value is 2.25, calibrated to handle a foghorn where the bulk of the energy lies between 700-2100 Hz from 0.5 nautical miles when a horn creates a 111 dB SPL sound level.

The signal-to-noise ratio configuration ranges from 2 to 6. The higher the values the stricter the P-8300 MkII display unit will be in detecting foghorns. Lower values will detect more foghorns, but are more susceptible to false detections.

To configure the signal-to-noise ratio:

1. Use the slider or manually type in a value.
2. Click the **Save settings** button.

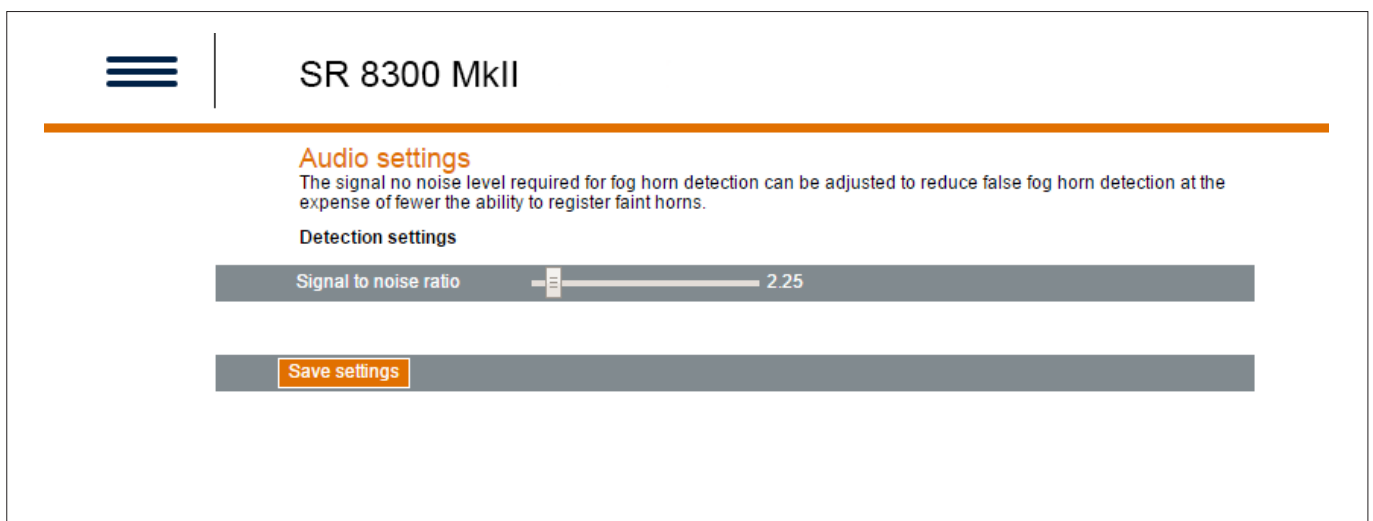


Figure 32: Audio settings - signal-to-noise ratio

5.9.4 System Log

The P-8300 MkII display unit has a logging feature that enables logging at several levels. The system log page displays a real-time log of the system, in addition to previously generated messages.

To view logs:

- Click the **Enable logging** button.

NOTE:

Log messages will appear in the window below.
As long as logging is enabled, messages will continue to come as they are generated on the unit.

To search or filter a log:

- Use the **Filter text** or **Filter level** settings.

NOTE:

This displays only log lines that contain a phrase or are as important as the given log level.

There are counters recording the number of IEC 61162-450 sentence errors received. There are six different types:

Error types:	Description:
Invalid UDP headers	Packets that have been received but are lacking the required IEC 61162-450 UDP header.
TAG format	Format or structural error in the TAG block
TAG checksum	Checksum errors in the TAG block.
TAG syntax	Syntax error in the TAG block, such as illegal characters or fields.
TAG framing	Framing errors in the TAG block, such as missing the beginning and/or ending characters.
Sentence syntax	Syntax errors in IEC 61162-450 sentences.

NOTE:

For more information regarding sentences and error types, refer to part 450 of the IEC 61162 standard.

To export the log:

- Click the **Export log** button

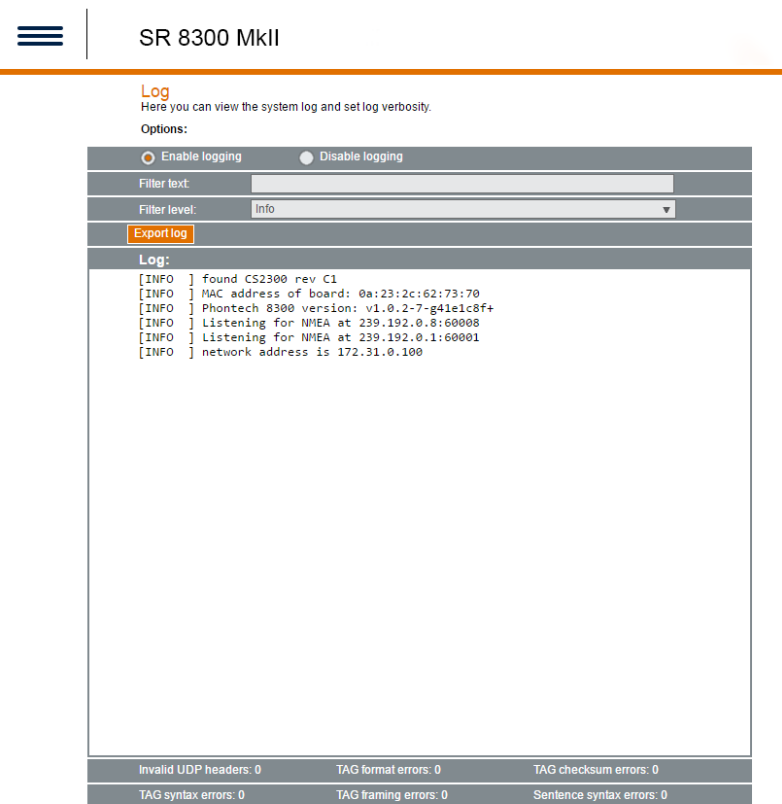


Figure 33: Event logging

5.9.5 Additional Options

The **Additional options** page contains configuration options that do not fall under any of the other categories.

To adjust any of these options:

1. Select the applicable option.
2. Enter the applicable information.
3. Click the **Save settings** button.

Options:	Description:
Detection direction: Fore	This is the default setting. If Fore is selected, horns detected to the fore of the microphone unit will be displayed at the fore of the display unit.
Detection direction: Aft	If Aft is selected, all horns detected will be offset by 180° in the display unit. Horns detected to the fore of the microphone unit, will be displayed at the aft of the display unit.
Master	This is the default setting. The master unit must be connected to the microphone unit. The master unit will transmit all detected signals to any slave units over Ethernet.
Slave	The slave unit can not be connected to the microphone unit, but will receive detections and sound from the master unit over Ethernet. There may be multiple slave units in an installation.
Alignment offset	Use this setting to add an offset to all detections in case the microphone unit has not been mounted accurately in the fore direction.
Pointer hold	Use this setting to adjust the length of time a detection is displayed after the detection has ended. The default value is 7 seconds.

IMPORTANT:

When working with a master or slave setup, all units must be:

- Connected to the same network.
- Configured with different IP addresses.
- Use the same transmission group.

NOTE:

You can view more information about the options by clicking on the (?) question mark buttons next to the individual options.

The Additional options page also offers the possibility to do the following maintenance:

- Firmware updates
- Restore the unit to the factory defaults
- Reboot the system

To complete any of the additional maintenance options:

- To complete a Firmware update, click **Update firmware**
- To restore the factory defaults, click **Factory reset**
- To reboot the system, click **Reboot**

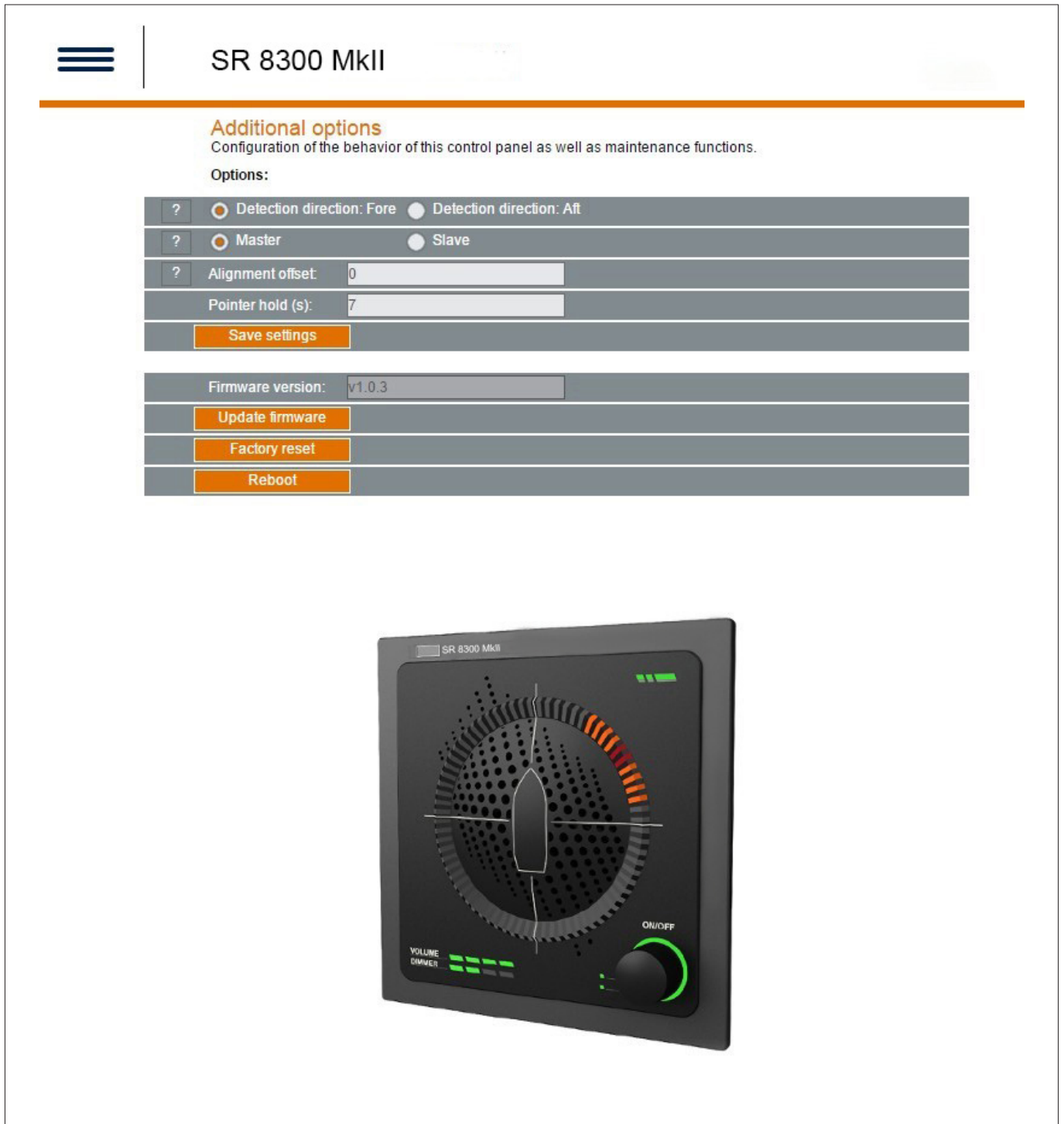


Figure 34: Additional options, including maintenance (update firmware, reset and reboot)

6 Testing

Testing should be done as required.

6.1 Calibration and Testing

Testing of the operational functionality of the 8300 MkII is done using a foghorn.

NOTE:

The 8300 MkII automatically and continuously tests both the display and microphone unit. In the event of an error, the error will be displayed by the LEDs in the web interface or in the syslog server (if configured).

Foghorn activity should be in 3-second bursts with at least 10 seconds between each burst.

NOTE:

If the microphone unit is not correctly mounted, the display unit can compensate for this by adding an offset to the detections.

Check the calibration mode or additional options.

7 Maintenance

All maintenance options for the 8300 MkII are completed in the **Additional options** page of the web interface. The maintenance options are as follows:

- Upgrade or view the current firmware version.
- Perform a factory reset.

To perform a firmware upgrade:

1. Click the **Update firmware** button.
2. Select the firmware upgrade package in the dialog box

NOTE:

When the firmware upgrade is complete, the unit will automatically restart

To perform a factory reset:

1. Click the **Factory reset** button.
2. Click **Yes** in the dialog box.

NOTE:

All configuration options will be reset to the factory default, including the network IP address setting. The default network IP address (172.31.0.100) must be entered manually in a web browser to regain access to the web interface.

If the original default address was not changed, the web interface will refresh automatically.

When the reset is complete, the unit will automatically restart.

To perform a reboot:

- Click the **Reboot** button.

9 Troubleshooting

If the P-8300 MkII display unit detects a problem, the front status LED will switch from green to orange.

To get an indication of what may be wrong, do one of the following:

- Check the syslog server if syslog network logging is enabled
- Check the web interface of the unit

Below are tips for solving the following potential failures or issues:

- Microphone surveillance failure
- LED surveillance failure
- Foghorn detection failure
- Display unit boot failure

9.1 Microphone Surveillance Failure

If the signal coming from one or more of the microphones on the P-8301 MkII microphone unit is malfunctioning, do the following:

1. Check the cabling

NOTE:

The power leads should be connected to the display unit, on the left side of the Mute connection. A description of all the connectors is displayed on the back of the unit.

If the web interface indicates that all microphones are down, then the problem might lie within the power cable going to the microphone unit.

2. Check the individual microphone cabling

NOTE:

Do this when only one microphone has failed.

After checking the cabling, restart or acknowledge the error message in the web interface.

3. Inspect the unit for physical obstruction of the failing microphone.

NOTE:

If you do not find any visible obstruction on the microphone, the unit should be considered damaged. In this case, contact Zenitel for support.

Internal parts of the microphone unit are not serviceable.

9.2 LED Surveillance Failure

If a LED failure is indicated, do the following:

- **Start the LED test mode**

NOTE:

This should indicate which LED is failing.

If any of the red indicator LEDs have stopped working, a foghorn detection might not be visible to the user; in this event contact Zenitel for support.

Refer to the additional information under the LED test mode.

9.3 Foghorn Detection Failure

If the unit fails to detect a foghorn, do the following:

1. Check to see if there are any microphone surveillance failure messages in the web interface.

NOTE:

Refer to the additional information under Microphone Surveillance Failure.

2. Adjust the signal to noise ratio setting in the web interface.

NOTE:

Refer to the additional information under Audio Settings.

3. Do a factory reset.

NOTE:

Refer to the additional information under Maintenance.

9.4 Display Unit Boot Failure

If the P-8300 MkII display unit fails to start when power is connected, do the following:

- Press and hold the reset button at the back of the display unit for 10 seconds.

NOTE:

Power must be connected to the unit to recover the firmware.

CAUTION:

If the firmware starts the unit properly, do a firmware upgrade to ensure the primary firmware is not corrupt. After upgrade, the unit will restart with the primary firmware loaded. The recovery firmware can always be accessed by performing this step again.

Refer to the additional information under Additional Options.

Warranty

When purchasing a new 8300 MkII, the warranty period is valid for 2 years from the date the product is shipped from Zenitel. If you have a 8300 MkII and are unclear about your warranty period contact Zenitel.

All Zenitel products are warranted against factory defects in materials and/or workmanship during the warranty period, unless otherwise stated in writing. Please refer to the terms and conditions of your sales agreement for additional information.

During this warranty period Zenitel will repair or when necessary replace a product to a sum that does not exceed the net invoice value of the defective equipment.

Zenitel reserves the right to decide whether a defective product falls within the terms and conditions of the warranty.

The warranty is only valid as long as the equipment has been handled properly in accordance with Zenitel instructions, manuals and specifications, including required service and maintenance, in particular service or maintenance that must be carried out by an authorized Zenitel agent or distributor. A warranty will be considered void in the instance that any equipment has been accidentally damaged, misused, tampered with and/or is dysfunctional as a result of services or modifications performed by an unauthorized person or in an unauthorized facility.

IMPORTANT:

Zenitel is not liable for consequential or special damages and cannot be held responsible for any damages caused due to incorrect usage of the equipment, breach of procedures, or the failure of any specific component or other part of the equipment.

For product support contact: cs@zenitel.com

Warranty Claims

Warranty claims can be submitted during the warranty period, all claims will be appropriately handled according to the warranty agreement specified for this product and in accordance with the terms and conditions of your sales agreement.

Prior to returning your product for product claims you must submit a warranty claim in writing to claims@zenitel.com.

Service

All services such as installation, maintenance or replacement must be done by an authorized Zenitel service agent.

CAUTION:

Improper maintenance may destroy the functionality and/or performance of this product.

NOTE:

Zenitel does not accept any responsibility for the dismantling or reassembling of a 8300 MkII that occurs externally from a Zenitel authorized facility and/or is handled by someone other than an authorized, trained and certified person.

Spare Parts

Keep the original packaging. If the 8300 MkII needs to be shipped for servicing, it is required to be shipped within the same packaging as when the product was first received.

Part Number	Part Name
4000019415	P-8300 MkII display unit
4000019416	P-8301 MkII microphone unit
4000019634	Junction Box (optional)

IMPORTANT:

Ensure that all spare parts being fitted to the 8300 MkII are original spare parts manufactured or approved by Zenitel. Any use of counterfeit spare parts will deviate from the product type approval certificates.

Recycling & Disposal

The 8300 MkII is not to be disposed as normal waste and must be handled in accordance with the applicable waste disposal regulations in the country where the equipment is used.

Support/Contact

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