

1 ZÖLLNER Sound Signal Direction Detector SRD 414/1 Elephant Ears®

BSH/49/40 P/96 - Sound Signal Reception System -
design similar to drawing 01.414370-4

The signals received are indicated optically and acoustically in the vessel's wheel house.
This way it is possible to perceive a foreign signal even with the bridge closed and to
define its approximate direction.

Application:

On all vessels with closed navigation bridge as well as
on all vessels with high security standard (especially with reduced crew).

The ZÖLLNER Sound Signal Direction Detector places the watch-keeping officer in the position
to perceive sound signals of foreign vessels inside the navigation bridge and also to define their
approximate direction using an optic display. This especially clearly arranged display optically
shows the direction of the signal received. With just one look the watch-keeping officer is informed in
the same way as on a regular lookout (Colregs 1972, Annex III, Rule 5), or even better, as hearing
errors are excluded.

The four-quadrant direction display directly shows the mate the signals received e.g. "forward of the
beam". With this information the mate can react immediately in accordance with the Colregs 1972,
Annex III, Rule 19 (e).

Rules and Certificate:

Performance standards for sound reception systems according to:
SOLAS, Chapter V, Regulation 25 Nav. 41 WP 5
STCW 1978 IMO 1993 Regulation II/1 and Resolution 1.3 + 23b + 26
IACS Reg. 1992 - N1 Part B 1.5
ISO Standard 8468

The system consists of the following components:

1. 4 pcs. Signal Receiver SRD 2

resting on rubber-metal bearings
signal receivers (section microphones)
drawing SP 14045-4

installation on bord:

with greatest possible distance to sound emitters
(e.g. exhaust gas pipes or ventilation)

1.1 signal receiver I (section microphone I) - "ahead"

leading edge of the wheel house, beneath or above the wheel house window

1.2 signal receiver II (section microphone II) - "starboard"

within or beneath the starboard wing

1.3 signal receiver III (section microphone III) - "port"

installation as described for "starboard"

1.4 signal receiver IV (section microphone IV) - "stern"

installation on the stern of the vessel with perceiving direction
to astern, e.g. on poop deck or A-deck with greatest possible
distance to exhaust pipes, ventilation and propeller noise (water surface)

The signal receivers must be positioned before a rear wall of sufficient size to make sure that the
reverse sound is screened off.

2. 1 pc. Indoor Loudspeaker SRD06S
design similar to drawing SP 4999-4
installation on the bridge in viewing direction of the mate
(Please consult ZÖLLNER GMBH if in doubt concerning the installation.)
3. 1 pc. Direction Display SRD 414
design similar to drawing SP 14062-4
built-in panel, with 4 x 10 LED display
(with afterglow device)
dimensions: 192 mm wide, 144 mm high acc. to DIN 43700
installation in viewing direction of mate
4. 1 pc. Central Control Unit ZSE 414
design similar to drawing SP 4982-4
four-quadrant amplifier unit with

ZETFON amplifiers with bandpass filter
under special consideration of the limit frequencies stipulated in
the Colregs 1972, Annex III, and also based on practical trials on
board carried out by the BSH (Ministry of Transport, Department Sea)
in accordance with the IMO-MSC Guidelines (Resolution A.694/17)

final amplifier with automatic regulation SPR
for automatic sound level adjustment
and memory functions for the LED display (item 3)

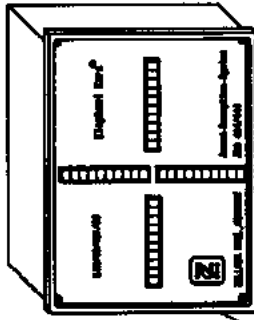
interruptor contact
for connection to the existing fog signal
and maneuver signal

two potential inputs
for main voltage 230 V AC and for connection to the
ZÖLLNER Signal Automaton

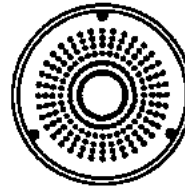
two potential inputs
for emergency release 24 V DC possibly available on
board (horn I/horn II)
5. 1 pc. Built-In Control
design similar to drawing SP 14046-4
with combined on/off switch
and volume control potentiometer for loudspeaker
dimensions: 96 x 72 mm acc. to DIN 43700
6. In case of cable lengths exceeding 100 m
between signal receiver and central control unit:
additional amplifier unit for each signal receiver
design similar to drawing SP 14138-4
The dimensions of this unit are 122 x 122 x 80 mm.
7. Screened cables are required for connection of described system.
These cables do not belong to the ZÖLLNER scope of supply.



Richtungsdisplay
Direction Display
SP 14062 -4

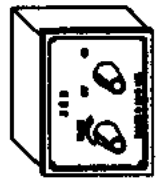


Lautsprecher
Loudspeaker
SP 4999 -4

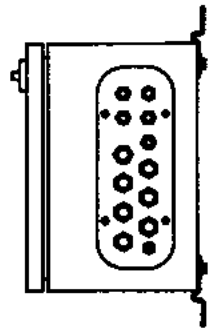


4Stck. Signal Aufnehmer
4 pcs. Signal Receiver
SP 14045 -4

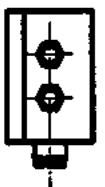
Bedienelement
Operating Unit
SP 14046 -4



Zentral-Steuer u. Verstärkereinheit
Central-Control a. Amplifier Unit
SP 4982 -4



* Vorverstärker
Pre-Amplifier
SP 14138 -4



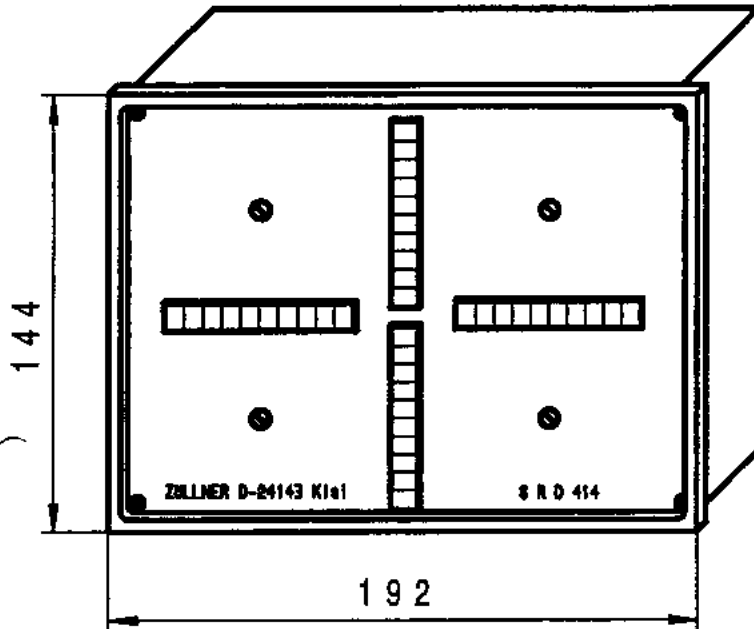
Kompassradius 3000mm
Compass radius 3000mm
Kompassradius 2000mm
Compass radius 2000mm

Änderung vorbehalten !
Subject to alteration !

* Erforderlich bei einem Abstand über 100m zwischen einem Signal-Aufnehmer und Zentral-Steuer u. Verstärkereinheit!
Required if distance of more than 100m between one Signal Receiver and Central-Control a. Amplifier Unit!



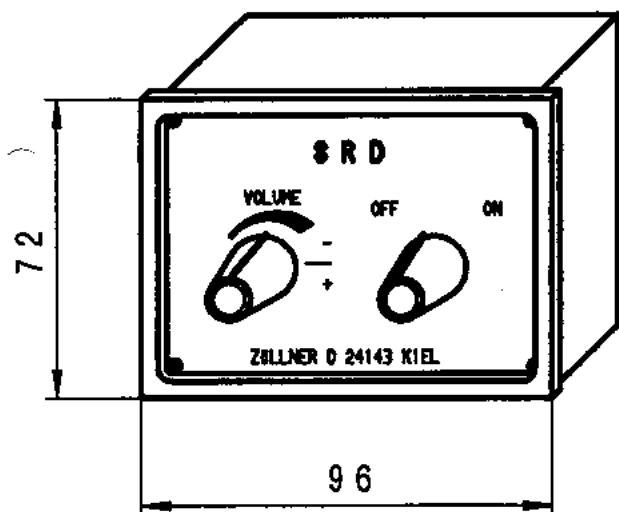
Richtungsdisplay
Direction Display
SP 14062 -4



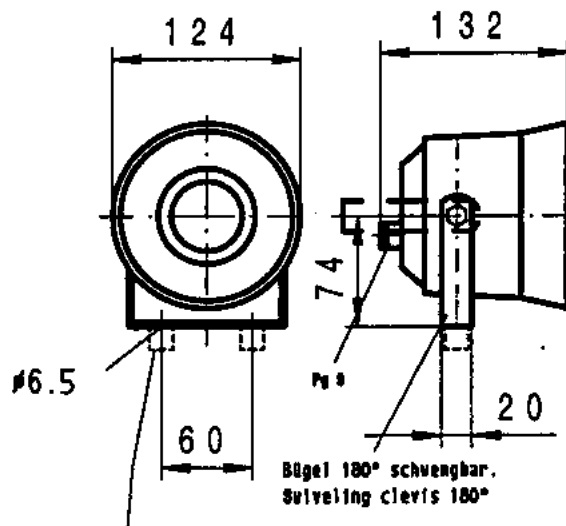
Einbauöffnung: 186x138mm
Hole for installation:
Einbautiefe: 110mm
Installation depth:

Bedieneinheit
Operating unit
SP 14046 -4

Signal Aufnehmer
Signal Receiver
SP 14045 -4



Einbauöffnung: 92x68mm
Hole for installation:
Einbautiefe: 110mm
Installation depth:

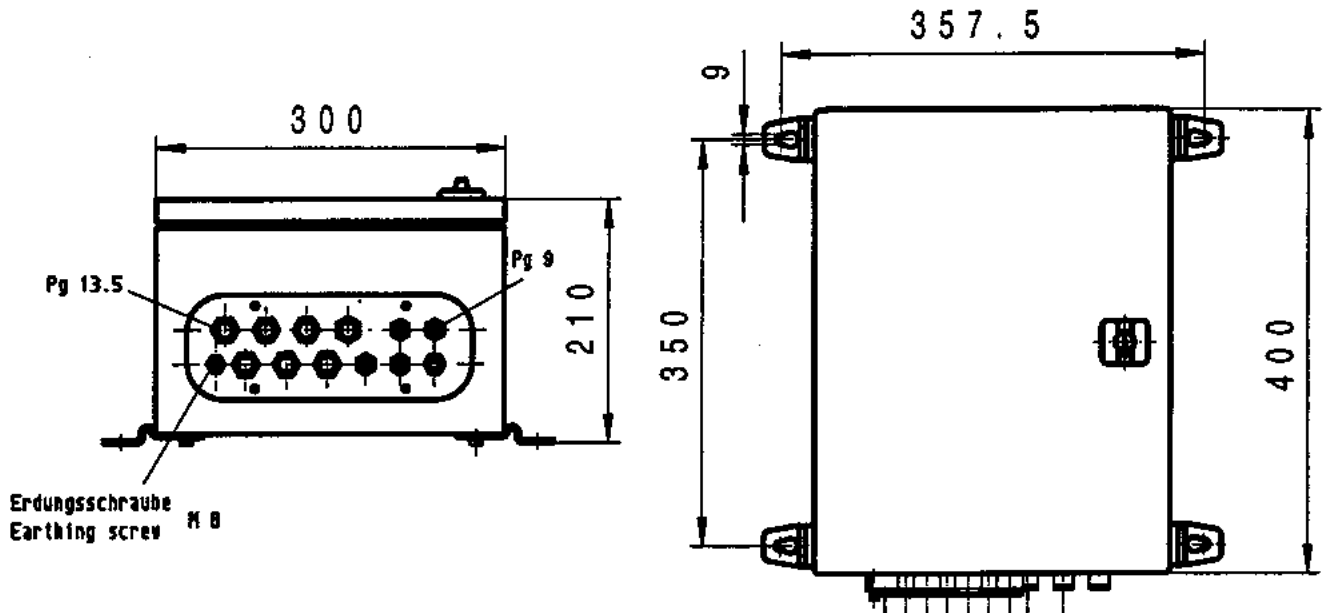


ACHTUNG: Um Körperschallübertragung zu verhindern darf der Signalempfänger nur über Schwingmetalle u. flex. Kabel mit dem Schiff verbunden sein.
Attention: To avoid structure-borne noise the signal receiver may only be connected with the vessel through rubber-metal connections and flexible cables!

Änderung vorbehalten!
Subject to alteration!

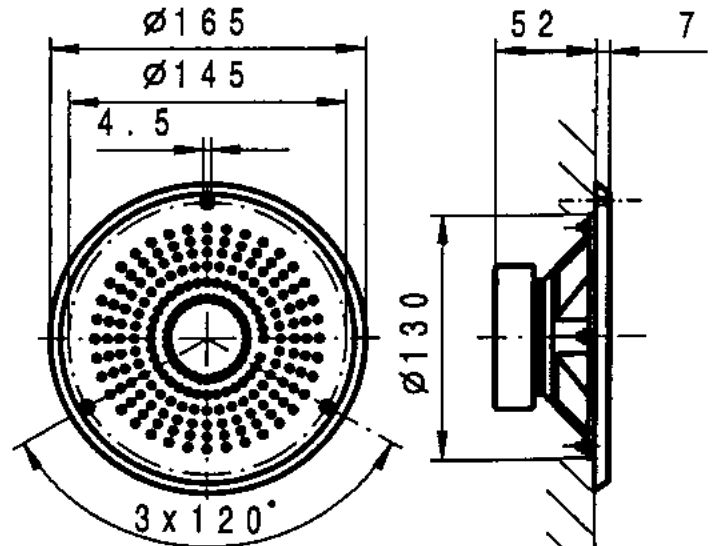
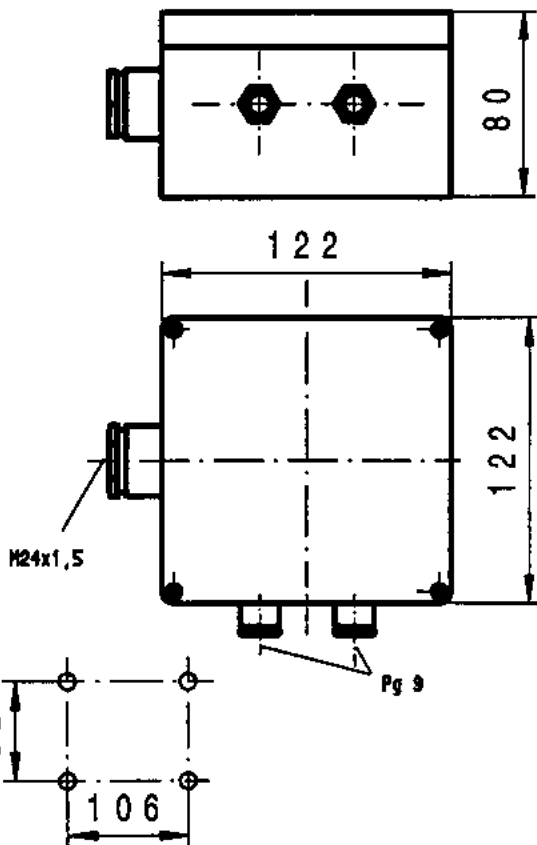


Zentral-Steuer u. Verstärkereinheit
Central-Control a. Amplifier Unit
SP 4982 -4



Vorverstärker
Pre-Amplifier
SP 14138 -4

Lautsprecher
Loudspeaker
SP 4999 -4



Belastbarkeit:
Loadable: 6 W
Impedanz:
Impedanz: 8 Ohm

Änderung vorbehalten!
Subject to alteration!