CTB-10 & CTB-20
Command Talk-Back System

VINGTOR

INSTALLATION & USER MANUAL

A100K10865

Table of Contents

1. GENERAL

1.1 Purpose of this manual

This manual supplies an engineer with the information required to install and commissioning a CTB system and the end-user with all necessary instructions for operating the CTB system.
Refer to Service Manual for maintenance and repair.
The manual can also be used as a guideline for design and planning of the system.

1.2. Related documents

The following related documents are available:
Single line and connections drawing in Autocad format.
Declaration of conformity doc.no.DC CTB 20040601 SH

1.3. Publication log

Product / Ver.no.: CTB Ver.07

Title: CTB Installation & User Manual
Doc.no. / Rev. CTB_iu SH Rev.02.1
Author: S.E.Nilsen
Verified By:

Revision	Issued	Changes / Comments
00	2001.09.04	First issue, User & Technical Manual
01	2004.10.21	Second release, name changed to Installation & user manual
Draft II	2005.09.26	For approval
02	2006.06.12	Third release to meet requirement from Det Norske Veritas (DNV)
02.1	2006.12.20	Replaced drawing CTB_cc3 Rev.04 with CTB_cc3 Rev.05
A100K10865	2010.08.27	New front and back page. Doc.no.CTB_iu Rev.02.1 is replaced by this document no.

Zenitel Norway AS, August 2010

1.4. Requirements

The CTB system and its components have been tested according to following regulations:

- IEC 60533: Second edition, 1999; *«Electrical and electronic installation in ships – Electromagnetic compatibility»*.
- IEC 60945: Fourth edition, 2002; *«Maritime navigation and radio communication equipment and systems - General requirements - Methods of testing and required test results»*.
- IACS E10: Corr. 1 July 2003; *«Unified environmental test specification – Testing procedure for electric control and monitoring , safety and protection, on board computer based systems and peripherals, loading instruments, internal communication and other electrical equipment as considered appropriate»*.

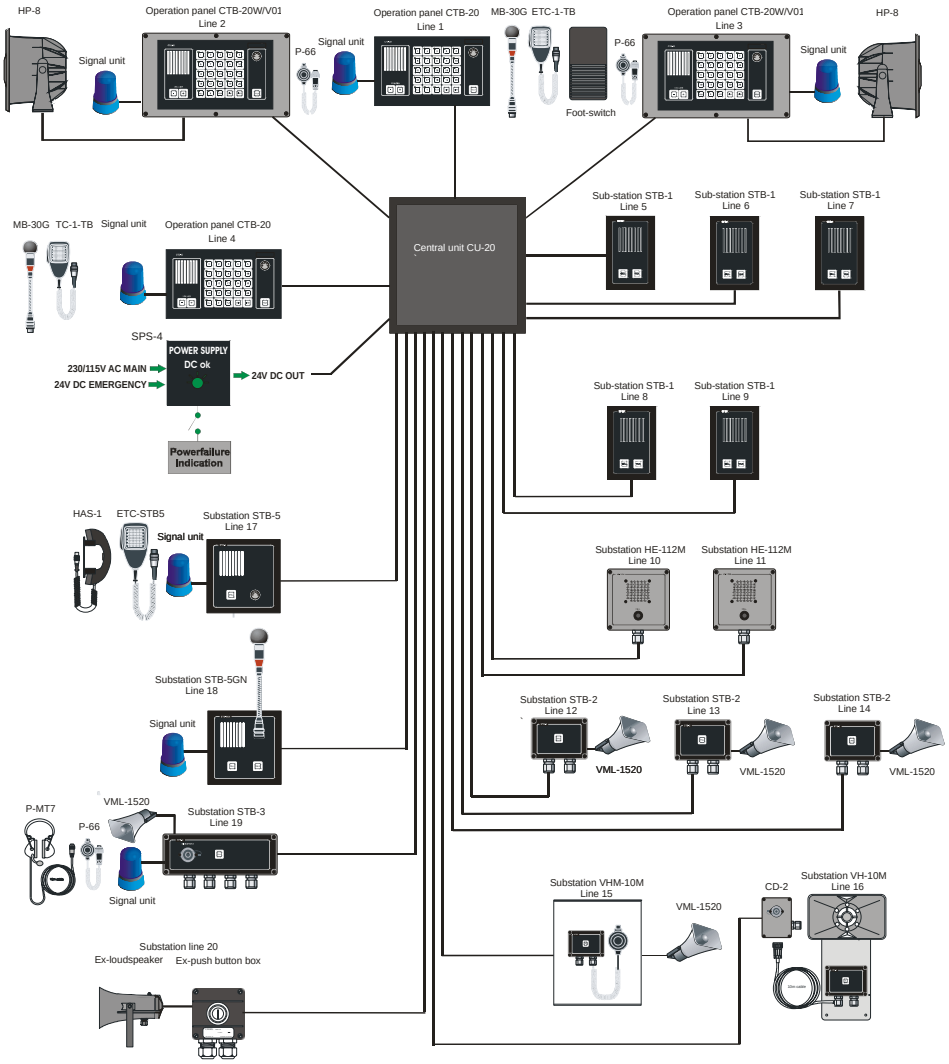
- Comply to DNV ship requirements - Main Class Cargo Ship Vessels for two way voice communication.
  Ref. B100 , 101, 102, 103 ,104
  Ref. Chapter 2.4.19, Chapter 3.2.4 and 3.2.6, Chapter 3.4, 3.8.1 and 3.13in this manual,

- Comply to DNV ship requirements C500 Nautical safety for two way voice communication, as a Talk Back System
  Ref. Chapter 2.4.13,and 2.4.19, Chapter 3.2.4 and 3.2.6, Chapter 3.4, 3.8.1 and 3.13in this manual
  and

1. SYSTEM OVERVIEW

2.1. Introduction

The Command Talk Back System CTB is specially designed for important communication for use in rough marine environment. Available in 10 and 20 line version.
The CTB system consist of a central unit CU-10 or CU-20 with up to 4 operation panels
for use on bridge console, bridge wings, engine control room etc. and a comprehensive range of substations and field equipment for use indoor, outdoor and noisy areas.
The system includes many facilities and can operate together with PA-system to increase functionality and fields of operation.



2.2. Features

- 10 or 20 line selection
- 4 Operation panels
- Gooseneck or handheld microphone.
- Parallel Communication.
- All call / Group Call facility
- Access to external PA system
- AUX / Alarm input
- Signal oscillator
- Dimmable panel background light
- Step volume control
- Output for extra signal device for all substation lines
- Output for external loudspeaker
- Input for external microphone.
- Dimension panels H:144 x W: 240 x 100
- Power 22 - 32 V DC
- Cover requirement for DNV rule C500 Nautical Safety

2.3. Optional Equipment

See chapter 6 for further details and datasheet

Central units and microphones.

CU-10	Central unit 10 line 24V DC
CU-20	Central unit 20 line 24V DC
CTB-10	Operation panel, 10 lines
CTB-20	Operation panel, 20 lines
CTB-10W / V01	Operation panel, 10 lines, weatherproof. Bulkhead mounting only. Including external loudspeaker HP-8.
CTB-20W / V01	Operation panel, 20 lines, weatherproof. Bulkhead mounting only. Including external loudspeaker HP-8.
HP-8	Horn loudspeaker, part of CTB-10W V01 and CTB-20W V01
VMT-603	All Call station WT, for wall mounting
MB-30G	Gooseneck Microphone with plug for CTB-10 & 20
ETC-1-TB	Hand microphone with curled cord and plug for CTB-10 & 20
P-66	Hand microphone with curled cord and plug, WP
P-66/10	Hand microphone with 10mtr. Cable and plug, WP

Substations and other equipment

STB-1	Substation indoor wall mounted with call and answer button.
STB-2	Call box WP wall mounted for use together with VML-1520.
STB-3	WP Combined call-plug box w/relay unit wall mount for headset, loudspeaker and extra signal device,
PMT-7	Portable headset w/10mtr. Cable and plug for STB-3
VML-1520	Horn loudspeaker 15W 20ohm IP-65
STB-5	Flush mounted substation w/relay, for mic. or handset
STB-5GN	Flush mounted substation w/relay, and gooseneck microphone
HAS-1	Handset for STB-5
ETC-STB5	Hand microphone with curled cord and plug for STB-5.
VH-10M	Portable deck loudspeaker with callbox and 10M cable and plug.
CD-2	Plugbox for VH-10M
VHM-10	Special deck unit with hand microphone mounted in cabinet.
HE-112M	Outdoor loudspeaker with call button WP IP-66
NEBB-42EX	Call box, Ex-approved

Bridgewing equipment, microphones

STB-6	Flush mounted substation for handmic.
STB-6GN	Flush mounted substation w/gooseneck mic.
SB-4	WP Plug box for portable microphone, headset and loudspeaker, wall mounted.
P-66	Hand microphone with curled cord and plug, WP
P-66/10	Hand microphone with 10mtr. Cable and plug, WP

Additional equipment

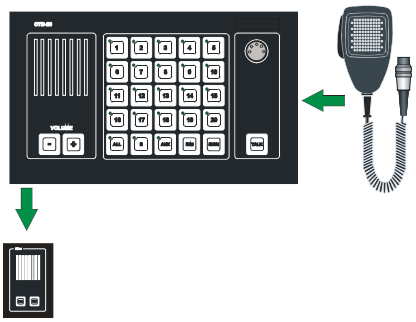
WBOKS	Wall mounted box for CTB-10/20
STBOKS5	Wall mounted box for STB-5 and STB-5GN
STBOKS	Wall mounted box for STB-6 ad STB-6GN
VML-1520	Horn loudspeaker 15W 20ohm IP-66
SPS-4	Power supply 115/230V AC 24V DC w/ automatic switchover relay.
BLK5-24	Flash beacon 24V AC/DC 5 Joule IP65
EHS-24	Rotary light 24V DC IP54
A-100	Electronic alarm horn 24V DC – IP55 – 100dB
U2410	Footswitch for hands free operation

2.4. Functions & User Facilities.

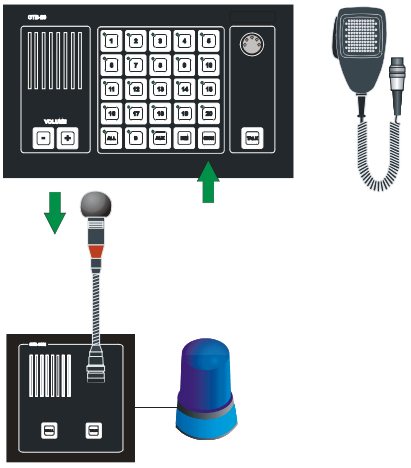
2.4.1 General

The CTB system consist of 1 central unit (CU-10 or CU-20), 1 to 4 operation panels and 1 to 20 substations.
On system with more than 1 operation panel, each panel take one substation line.
The system have one speech channel and operation from one operation panel will be indicated in other operation panels. The operation panels follows a priority hierarchy 1 to 4, that means operation panels with higher priority can override operation panels with lower priority.
Operation panel CTB-10 & CTB-10W_V01 with 10 line selection, CTB-20 & CTB-20W_V01 with 20 line selection. CTB-20 used in the presentation.

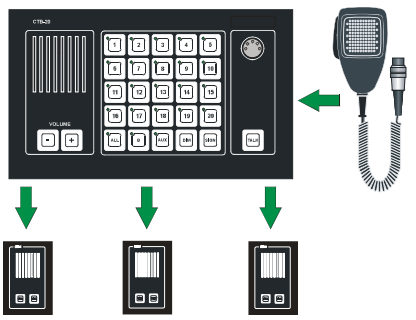
2.4.2 Line selection / Single call

	1 - 10 (20) substations or other operation panels can be selected from any operation panel by pressing respective line button. Indicated with steady green light in LED. (Light emitting diode)

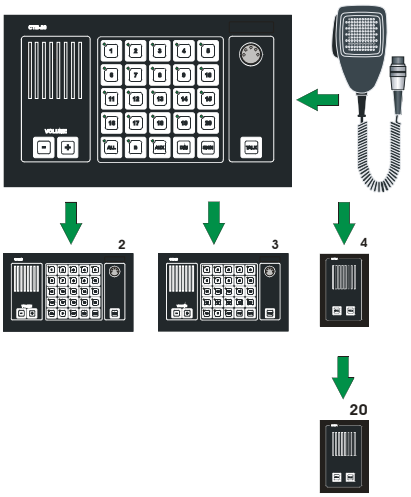
2.4.3 Signal and extra signal device for substations.

	A call signal can be given to selected station. The function will also activate an 24VDC max 50mA to substation with relay or direct connected external signal device

2.4.4 Group call

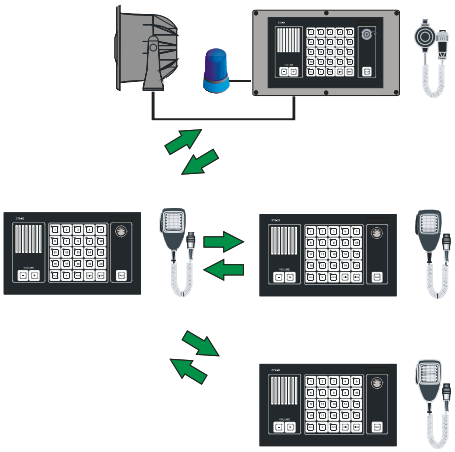
	Group of substations or other operation panels can be selected by pressing respective number of line buttons. Indicated with steady green LED.

2.4.5 All call



All call message can be distributed from any operation panel to all substations and other operation panels.
All call message will also activate external Public Address System if connection is set up.
Indicated with steady green LED in the «ALL» push button.

2.4.6 Calls from and between Operation panels.

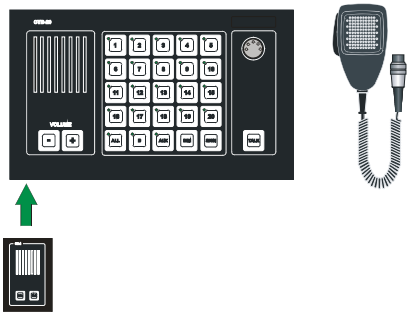


Up to 4 operation panels can be connected.
Calls can be made from any operation panel to substations.
And calls can be made from any operation panel to another by pressing respective line button.
In this stage the called operation panel act as a substation.
The system have one speech channel. Operation from one operation panel will be indicated in other operation panels.

Priority:
The operation panels follows a priority hierarchy 1 to 4, that means operation panels with higher priority can override operation panels with lower priority.
Operation panel 1 have highest priority.
It is a standard setting. With dip-switches in the central unit the priority can be changed. (See chapter 3.5)

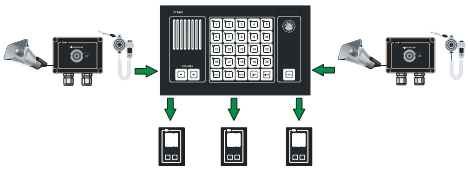
Type of panels:
CTB-10 Operation panel 10 line selection, indoor use.
CTB-10W/V01 Operation panel 10 line selection, WP.
CTB-20 Operation panel 20 line selection, indoor use.
CTB-20W/V01 Operation panel 20 line selection, WP.

2.4.7 Call from substations



Calls from a substation can be received in operation panels that is set receive calls.
Indicated with flashing green light in LED in respective line.

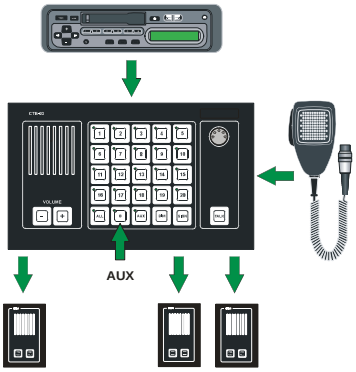
2.4.8 Parallel communication



Function with operation from parallel microphone / loudspeaker located on bridge wings, or other locations where parallel microphone / loudspeaker needed.

Note! Line selection have to be set up from the operation panel.

2.4.9 AUX function



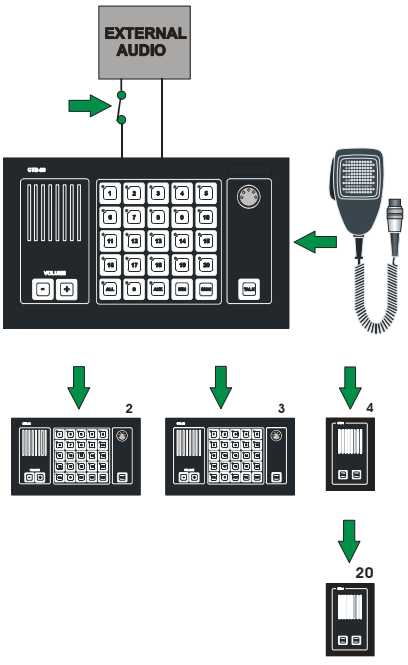
External entertainment, message or alarm can be distributed trough the CTB system by using push button switch “AUX” together with line selection switches.
0dB signal from the external system connected to the CTB system will be addressed to selected substations.

The TALK button on operation panels or PTT button on hand microphone will override the AUX to giving a all call message.

External system can be:

- VHF radio System
- Entertainment system.

2.4.10 Audio from external system



Alarm (or any audio) from external system can be distributed trough the CTB system.
An potentional free contact and 0dB signal from the external system activate the CTB and the message will be addressed to all substations and operation panels.

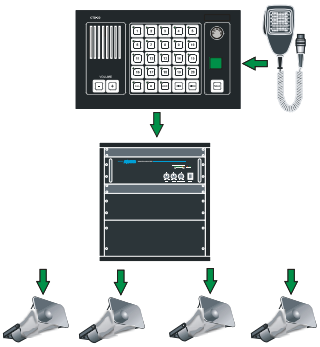
The talk button on the operation panel or PTT button on hand microphone will override the external audio.
Normal talk back functions can not be used in this mode.

External system can be:

- Alarm system.
- External Public Address System.

Note! Only the operator of the external system can switch of the external audio.

2.4.11 Public address operation of external system

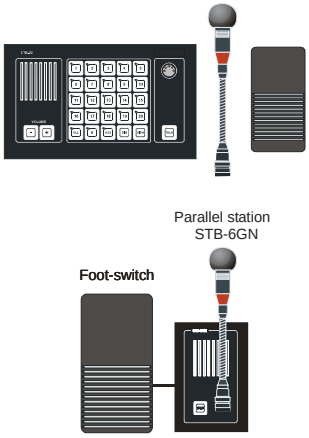


The four last line push buttons on the operation panels can be set to access external Public Address system. Up to 4 zones.

CTB-10 & CTB-10W_V01: Push button marked 7-8-9-10
CTB-20 & CTB-20W_V01: Push button marked 17-18-19-20

Note! Other operation panels with higher priority can override the PA-message.

2.4.12 Hands free operation

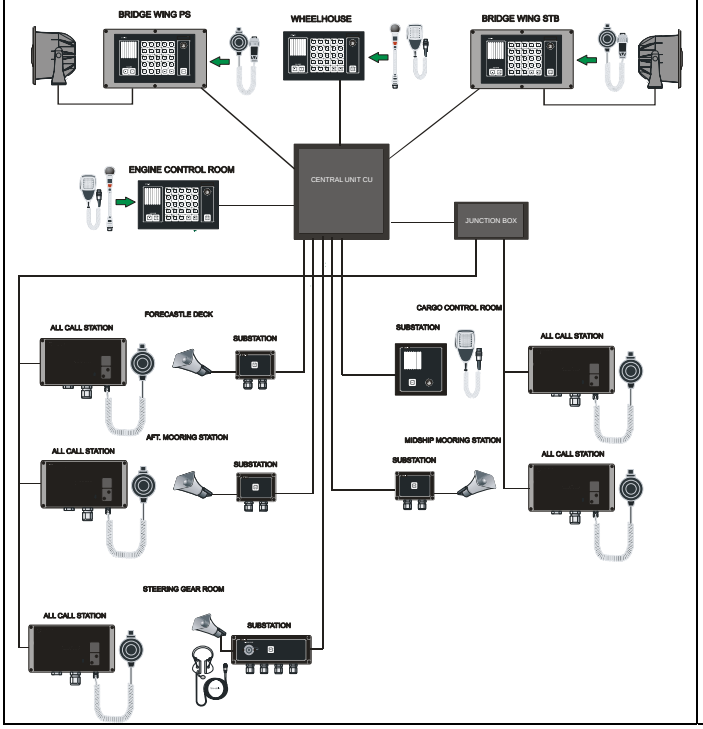


Hands free operation of operation panel or parallel station.

Option 1
Operation panel with gooseneck microphone MB-30G and footswitch U2410.

Option 2
Parallel station type STB-6GN with gooseneck microphone MB-30G and footswitch U2410.

2.4.13 Two-way voice communication, Nautical Safety



Configuration to meet requirement for hands free two-way voice communication according to DNV rules for C500 Nautical Safety.

Following locations has operation panels with all call:

- Bridge wings
- Wheelhouse
- Engine control room

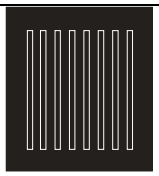
Following locations has substations and additional all call stations:

- Forecastle deck (fore mooring station)
- Aft mooring station
- Midship mooring station
- Steering gear room
- Cargo control room

2.4.14 Privacy function, substation STB-1

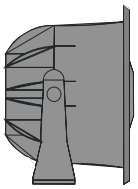
Substation STB-1 is designed for indoor use; cabins, mess room etc., and prepared with privacy function.
It means ; Listening is not possible in the central unit from STB-1.
After a call is set up from the central unit, the operator of STB-1 have to use TALK button for communicate with the central unit.
(STB-1 can also be set to normal talk back function, see pos.3.10)

2.4.15 Monitor loudspeaker.



The monitor loudspeaker is located in front of the operation panels CTB-10 & CTB-20. CTB-10W_V01 & CTB-20W_V01 with external loudspeaker only.
For distribution of audio; message or alarm signals.

2.4.16 External loudspeaker.



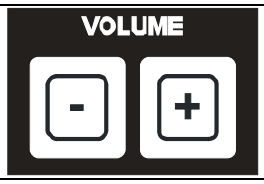
External loudspeaker for improved and higher sound level can be used. Connected in parallel with the monitor loudspeaker in CTB-10 and CTB-20. Located nearby the operation panel.

Note!
CTB-10W_V01 & CTB-20W_V01 operation panels only equipped with external loudspeaker.

2.4.17 Dimmer of call light.

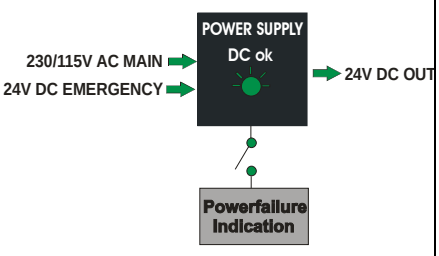
Intensity of the push button light can be adjusted by pressing **DIM** button.
Switch between two steps max.and 1/3. Default is set to max.
Dimmer can be set to on /off by dip-switch.

2.4.18 Volume adjustment



By pressing + or - buttons repeatedly, you can increase or decrease the listening volume in the central unit
This will also affect the volume for an external speaker connected to the panel.

2.4.19 Powersupply SPS-4 (Option)



The power supply SPS-4 is designed with power failure contact and automatic switch over relay.
It means indication and automatic switch over to 24V DC emergency power supply when mains supply or power module fails.

3. INSTALLATION AND CONFIGURATION PROCEDURES

3.1 General

For proper installation and operation of the CTB-system we recommend to read this section thoroughly together with installation drawings in **chapter 6**.
Make sure that all mounting and cabling are correct before switching on the system

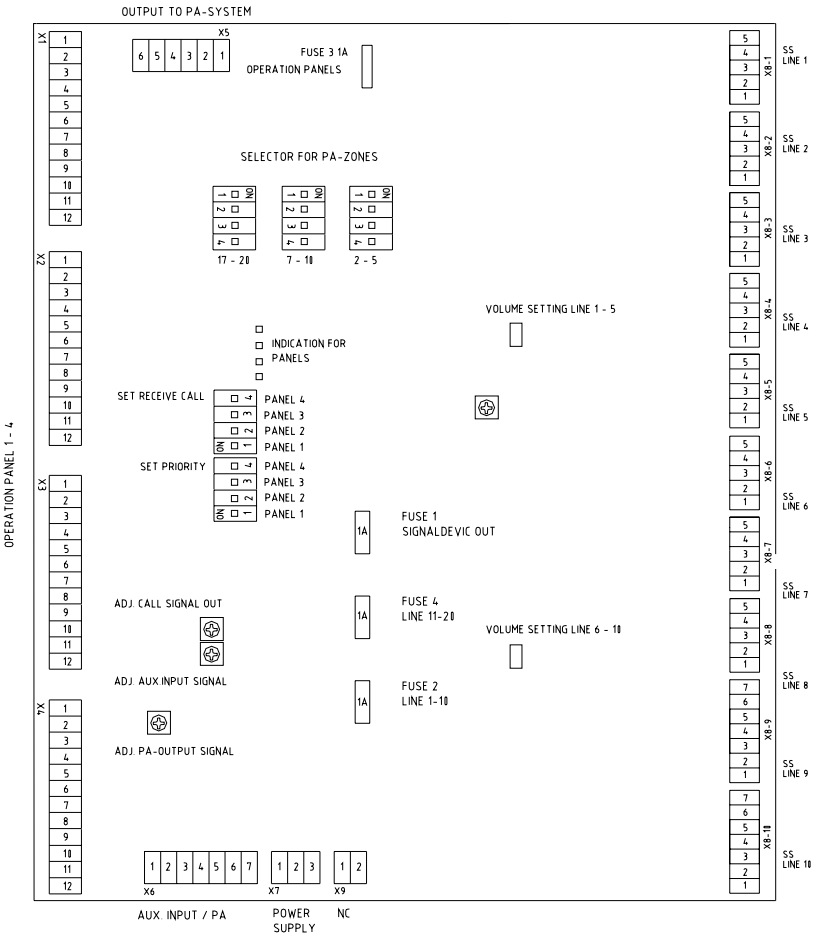
3.2 Mounting & Terminal configuration.

3.2.1 Central unit CU-10 & CU-20

The central unit is the basis of a system. It should be bulkhead mounted in a normal and ventilated indoor environment with a temperature of max. 55^0 C. See drawing CU_dd for mounting details.
Note ! Make sure that it is sufficient space for cables and maintenance.

It is equipped with pluggable screw terminals for cables max.2,5mm^2
See drawing CU-10_lo for terminal details.

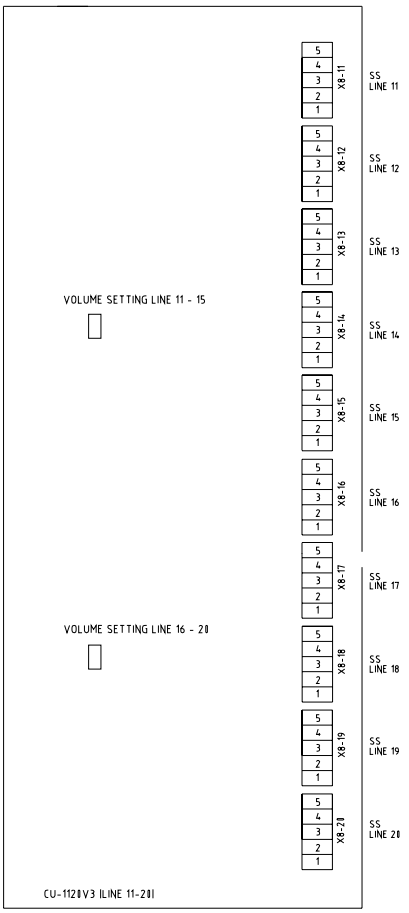
Main board CU-10 & 20



Terminal block X1-X4 Connection of operation panels.
Terminal block X5 Output to the PA-system.
Terminal block X6 AUX and PA input.
Terminal block X7 Power supply.

Terminal block X8 1-10 (main board) for substations 1-10
Terminal no.1 – 2 substation line.
Terminal no.3 – 4 24V DC to extra signal device.
Terminal no.5 is ground point for each substation screen.

Additional board CU-20.

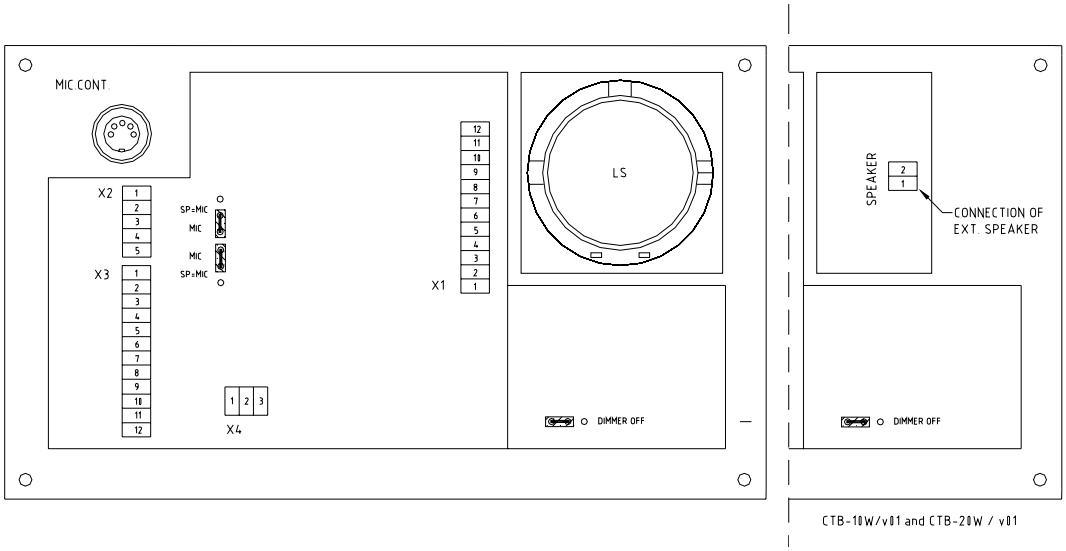


Terminal block X8 11-20
(additional board) for substations 11-20.
Terminal no.1 – 2 substation line.
Terminal no.3 – 4 24V DC to extra signal device.
Terminal no.5 is ground point for each substation screen.

3.2.2 Operation panel CTB-10 & 20

The operation panels indoor can be flush or bulkhead mounted in a normal and ventilated indoor environment with a temperature of 0 - 55^0 C. See drawing CTB-1020_dd1 for mounting details.
Note ! Make sure that it is sufficient space for cables and maintenance.

It is equipped with 2x cable gland PG-16 and plugable screw terminals for cables max.2,5mm^2
See drawing CTB-1020_lo for terminal and



Terminal block X1: For connection to the central unit.
Terminal block X2: Not in use
Terminal block X3 For connection to external loudspeaker, microphone and parallel microphone.
Terminal block X4 Potentional free contact for extra signal unit.
Terminal block SPEAKER 1-2 for external loudspeaker HP-8 (CTB-10W / V01, CTB-20W / V01)

3.2.3 CTB-10W / V01, CTB-20W / V01

This weather proof operation panels IP-66 is for bulkhead mounting only. Including
external loudspeaker HP-8 Ref. drawing CTB-1020W_dd for mounting details and datasheet for HP-8.
It is equipped with 2x cable gland PG-16 and plugable screw terminals for cables max.2,5mm^2
Ref. drawing CTB-1020_lo for lay out terminals drawing CTB-1020W_dd for mounting details and datasheet for HP-8.
Note ! Make sure that it is sufficient space for cables and maintenance.

3.2.4 Identification sign plate CTB-panels

A sign plate with directory / substation number for all substations has to be placed close to the CTB-panels.

3.2.5 Substations and other equipment.

Ref. datasheets for dimension, cut out and mounting.
Note ! Make sure that it is sufficient space for cables and maintenance.

3.2.6 Identification sign plate substation

A sign plate with each substation number has to be placed on or close to each substation.

3.3 Cable requirements

All signal cables have to be approved ship-cable of type twisted pair with outer braided copper screen.
See cable connection drawings in chapter 6 for further details.
The screens must be interconnected in junction boxes and grounded in the central unit only.
Terminal block X8 1-20 terminal no.5 is ground point for each substation screen
Terminal block X1,2,3,4 / no.11 is ground point for each operation panel.
Power cable has to be approved ship cable min. 3 x 1,5mm^2
Note! The central unit has to be connected to the vessels central ground.
Proper grounding is essential for reliable operation.

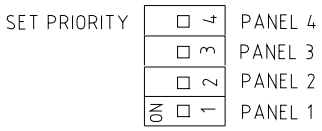
3.4 Power supply requirements

24VDC -10% + 33% (21,6 – 32VDC) Current consumption max. 4A
System power supply should be wired and fused independently from other systems.
1. 24V DC from ships 24V DC system.
2. 24V DC from power supply SPS-4 230V AC /.24V DC with automatic switch to 24V DC emergency power supply.

3.5 Set priority in CU-10, 20

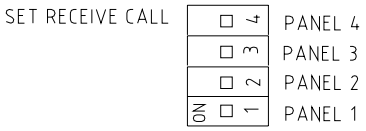
Ref. drawing CU-10_lo and CU-20_lo

DIP-switches in the central unit.

	Priority is set by 4 dip-switches, corresponding to each operation panel 1 to 4. If all 4 dip-switches is set to off, the priority follows a hierarchy 1 to 4 giving panel 1 highest priority. This is standard factory setting. What ever DIP-switch set to 1 will have highest priority, still following the hierarchy as explained above. Example: If DIP switch 4 is set to ON, priority will be 4-1-2-3. If both DIP switch 1 and 4 is set to ON, priority will be 1-4-2-3.

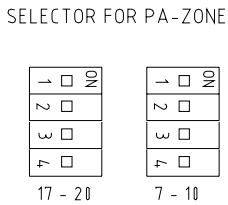
3.6 Set receive-call from substation.

Ref. drawing CU-10_lo and CU-20_lo

	Receive call from substation is set by 4 DIP-switches, corresponding to each operation panel 1 to 4. DIP-switch set to ON, permits the panels to receive a call from substations. DIP-switch 1 is set to ON for panel 1 is standard factory setting. Example: If both DIP switch 1 and 4 is set to ON, both panel 1 and 4 will receive a call.

3.7 Set public address zones SPA

Ref. drawing CU-10_lo and CU-20_l

	Four line push buttons on the operation panel can be set to access 1 up to 4 public address zones. PA is set by 4 DIP-switches corresponding to each push button. DIP-switch marked 7-10 for line 7 – 10 (CTB-10 & CTB-10W_V01) DIP-switch marked 17-20 for line 17 – 20 (CTB-20 & CTB-20W_V01) Standard factory setting is to OFF.

3.8 Volume and signal adjustment.

Ref. drawing CU-10_lo and CU-20_lo for location.

3.8.1 Substations

System volume for substations can be adjusted by separate trim potentional meter for each group of 5 lines.
Master volume line 1-5" "6-10" "11-15" "16-20"
Volume is factory adjusted and does not normally require any adjustment
If the installation on some locations requires another sound pressure level, this can be changed to satisfactory audibility and volume.

VOLUME SETTING LINE 1 - 5 	Volume adjustment for substation line 1 – 5 Trim potentiometer located on mainboard
VOLUME SETTING LINE 6 - 10 	Volume adjustment for substation line 6 – 10 Trim potentiometer located on mainboard
VOLUME SETTING LINE 11 - 15 	Volume adjustment for substation line 11 – 15 Trim potentiometer located on additional board CU-20.
VOLUME SETTING LINE 16 - 20 	Volume adjustment for substation line 16 – 20 Trim potentiometer located on additional board CU-20.

3.8.2 Auxiliary and Public address.

 ADJ. AUX.INPUT SIGNAL	Input signal for auxiliary can be adjusted by separate trim potentiometer marked "adj. aux.input signal". Required signal 0dB (0,775V)
 ADJ. PA-OUTPUT SIGNAL	Signal for Public address can be adjusted by separate trim potentiometer marked "adj. pa output signal". Signal is factory set to 0dB (0,775V) and does not normally require any adjustment.

3.8.3 Call signal

Signal is factory adjusted and does not normally require any adjustment.

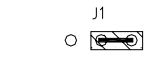
ADJ. CALL SIGNAL OUT 	Level of Call signal out all lines can be adjusted by trim potentiometer marked "adj. call signal out"

3.9 Dimmer on / off in Operation panel

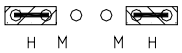
Ref. drawing CTB-1020_lo

	Dimmer can be set to on /off by dip-switch marked “dimmer off”

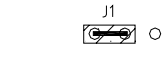
3.10 Substation STB-1

	Default setting is Privacy function, can be set to normal Talk Back Function. Talk Back Function; move the jumper J1 on PCB in STB-1

3.11 Substation STB-3

	Default setting is for headset, can be set for microphone. Microphone; move the two jumpers on PCB - STB-3in position M

3.12 Substation STB-5

	Default setting is for microphone or handset, loudspeaker can be set to both loudspeaker and microphone. (Re-entrant speaker) Re-entrant speaker; move the jumper J1 on PCB in STB-5.

3.13 Installation for C500 Nautical Safety

Installation has to follow strictly requirement given in following chapter and drawings:

- Chapter 2.4.13
- Chapter 3.2.4 and 3.2.6
- Drawing: Cable connection diagram CTB_cc6

4. USER INSTRUCTIONS

4.1 Operation from the operation panel.

Up to 4 operation panels can be connected. Calls can be made from any operation panel to substations.
And calls can be made from any operation panel to another by pressing respective line button.
In this stage the called operation panel act as a substation. Calls from one operation panel will be indicated in other operation panels. One operation panel is always decided to be a master station with highest priority and can override operation panels with lower priority.

Figure 1 Operation panel CTB-10

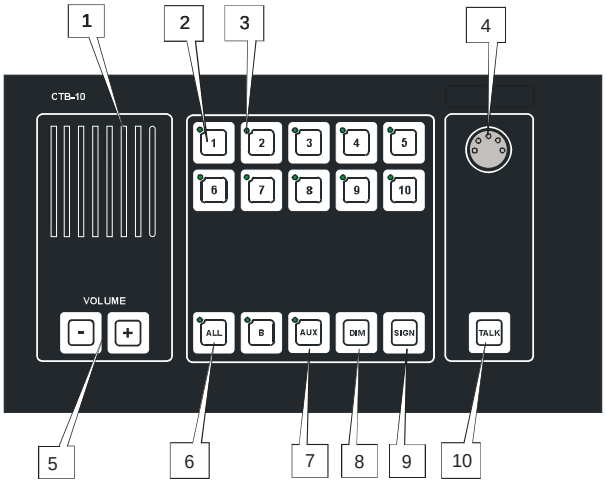


Figure 2 Operation panel CTB-20

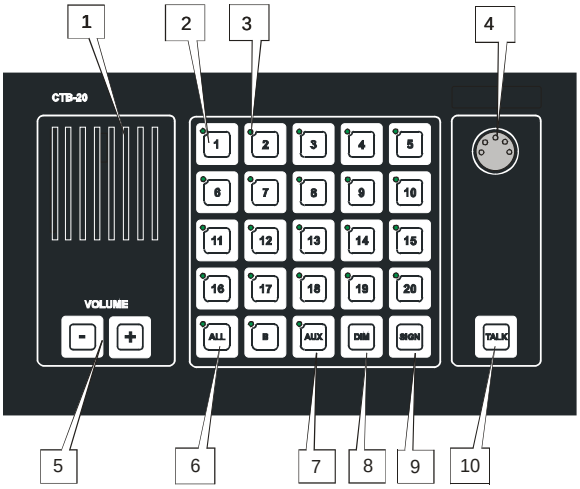


Figure 3 Operation panel CTB-10W_V01

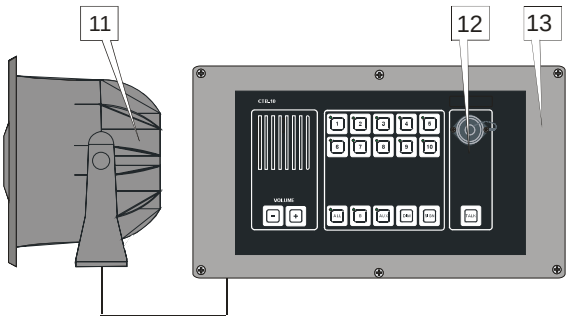


Figure 4 Operation panel CTB-20W_V01

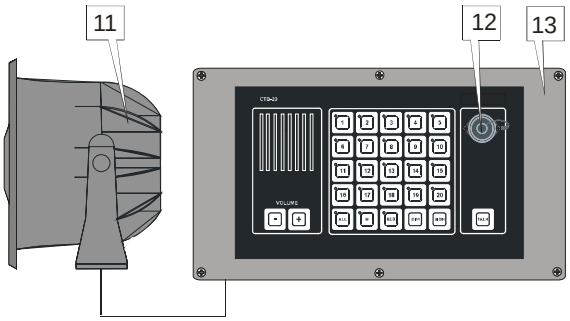


Figure 5
Gooseneck microphone MB-30G

Figure 6
Handheld Microphone with switch ETC-1-TB

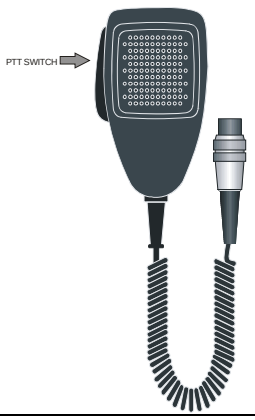


Figure 7
Handheld Microphone WP with switch P-66

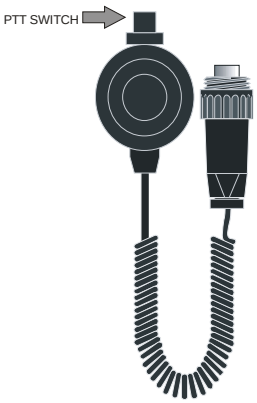


Figure 8
Footswitch U2410

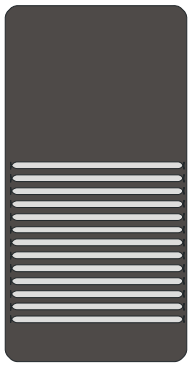


Figure 1 & 2 CTB-10 & CTB-20

1..... **Monitor loudspeaker** ..... For communication and alarm signals.
2..... **Line Push Buttons** ..... Line selection switch with indication light, 1 -10 for CTB-10
.... 1 – 20 for CTB-20
3..... **Green Indication light** ... (LED) for each line push button.
4. ..... **Microphone contact** ..... For Gooseneck or hand microphone.
5. ..... **VOLUME - +**: ..... Increase or decrease of volume in monitor loudspeaker loudspeaker)
6. ..... **ALL** ..... Push button switch with indication light (LED)
7..... AUX ..... Push button switch for activating external signal to selected stations.
8. ..... **DIM** ..... Push button switch for adjust intensity of call light in indication light (LED)
9. ..... **SIGN** ..... Push button switch for signal and activating of extra signal device substations.
10. .... **TALK** ..... PTT switch for gooseneck microphone MB-30G

Figure 3 & 4 CTB-10W_V01 & CTB-20W_V01

2-10 .. **Functions** ..... Same as for CTB-10 & CTB-20
11..... **External loudspeaker** .... For communication and alarm signals. Flush or wall mounting.
.... Monitorloudspeaker not installed.
12..... **Microphone contact** ..... For handheld microphone P-66
13..... **Cabinet** ..... WP cabinet, wall mounting only.

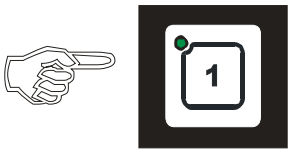
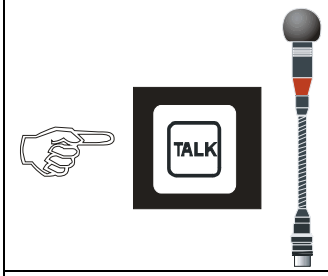
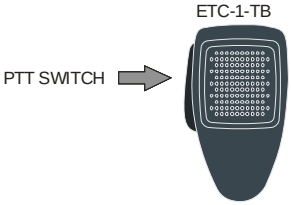
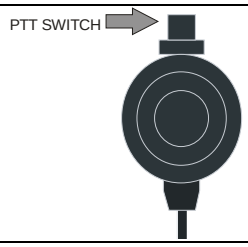
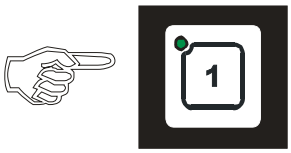
Figure 5 ..... Gooseneck microphone MB-30G for CTB-10 & CTB-20.
Figure 6 ..... Handheld microphones ETC-1-TB for CTB-10 & CTB-20.
Figure 7 ..... Handheld microphones P-66 for CTB-10W_V01 & CTB-20W_V01
Figure 8 ..... Footswitch U2410 for handsfree operation of microphone MB-30G

PTT switch = Push To Talk switch LED = Light emitting diode.

4.1.1 Make a call to an substation.

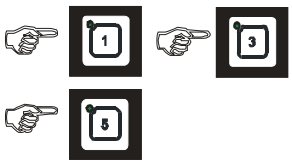
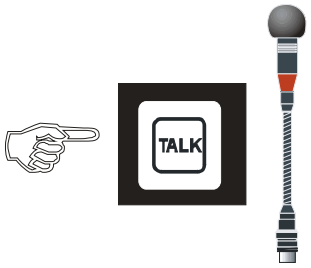
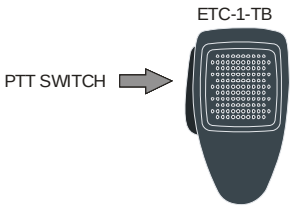
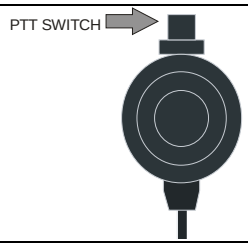
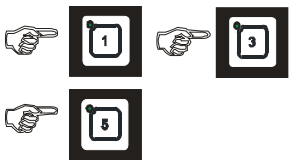
You can select the substation by pressing desired line push button.
Steady green LED will indicate activated selection.
If desired, the signal button **SIGN** may be pressed to give a tone signal to selected station. Talk from the operationpanel is performed every time **TALK** button is pressed. The operationpanel unit will be in listening mode as soon as a station is selected. When communication is finished, press again the selected station button to switch off. The LED will be switch off to indicate that selected line is turned of.

Operationpanel : CTB-10,CTB-20, CTB-10W_V01 or CTB-20W_V01

	• Press the **LINE** button, the call is set up. Indicated by steady green LED
	• Press the **SIGN** button A tone signal will be given to selected station as long as the **SIGN** button is kept pressed. This will also activate extra signal devices, if connected (Se pos.4.1.5)
	<u>Operation panel with gooseneck microphone MB-30G</u> • Press the **TALK** button. Speak clearly into the microphone. When the **TALK** button is released the operation panel will be in listening mode, and you will hear the communication from the selected station.
	<u>Operation panel with hand microphone ETC-1-TB</u> • Press the **PTT SWITCH**.. Speak clearly into the microphone. When the **PTT SWITCH** button is released the operation panel will be in listening mode, and you will hear the communication from the selected station.
	<u>Operation panel with hand microphone P-66</u> • Press the **PTT SWITCH**.. Speak clearly into the microphone. When the **PTT SWITCH** button is released the operation panel will be in listening mode, and you will hear the communication from the selected station.
	• Press the **LINE** button once more to end the call. The LED will be switch off.

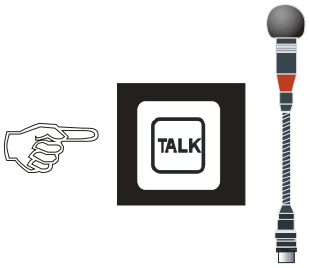
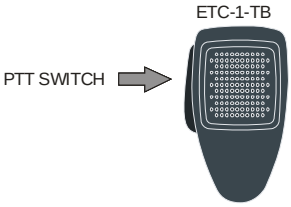
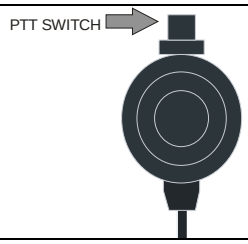
4.1.2 Make a call to group of substations.

You can select group of substations by pressing respective line buttons from one of the four Operationpanels. Only the operationpanels can switch off and end the call

	• Press the required **LINE** buttons, the call is set up. Indicated by steady green LED in selected buttons.
	• Press the **SIGN** button A tone signal will be given to selected station as long as the **SIGN** button is kept pressed. This will also activate extra signal devices, if connected (Se pos.4.1.5)
	<u>Operation panel with gooseneck microphone MB-30G</u> • Press the **TALK** button. Speak clearly into the microphone. When the **TALK** button is released the operation panel will be in listening mode, and you will hear the communication from the selected stations.
	<u>Operation panel with hand microphone ETC-1-TB</u> • Press the **PTT SWITCH**. Speak clearly into the microphone. When the **PTT SWITCH** button is released the operation panel will be in listening mode, and you will hear the communication from the selected station.
	<u>Operation panel with hand microphone P-66</u> • Press the **PTT SWITCH**.. Speak clearly into the microphone. When the **PTT SWITCH** button is released the operation panel will be in listening mode, and you will hear the communication from the selected stations.
	• Press all the **LINE** buttons once more to end the call. The LED will be switch off.

4.1.3 All Call

The message and signal from the operation panel will be given to all substations, as a one-way message.
It will be indicated by steady green **LED** in the **ALL** button only. Talk back from substations is closed in this mode.

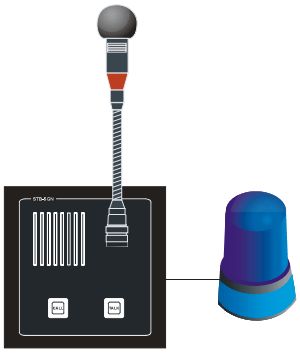
	• Press the **ALL** button, the call is set up. Indicated by steady green LED in the **ALL** button.
	• Press the **SIGN** button A tone signal will be given to selected station as long as the **SIGN** button is kept pressed. This will also activate extra signal devices, if connected (Se pos.4.1.5)
	<u>Operationpanel with gooseneck microphone MB-30G</u> • Press the **TALK** button. Speak clearly into the microphone.
	<u>Operationpanel with hand microphone ETC-1-TB</u> • Press the **PTT SWITCH**. Speak clearly into the microphone.
	<u>Operation panel with hand microphone P-66</u> • Press the **PTT SWITCH**.. Speak clearly into the microphone.
	• Press the **ALL** button once more to end the call. The LED will be switch off.

4.1.4 Handsfree operation.

	<u>Operation panel with gooseneck microphone MB-30G and footswitch</u> • Press the **FOOTSWITCH** button . Speak clearly into the microphone. When the **TALK** button is released the operation panel will be in listening mode, and you will hear the communication from the selected station.

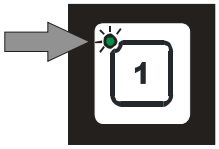
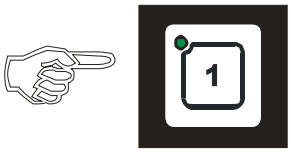
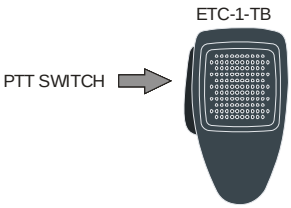
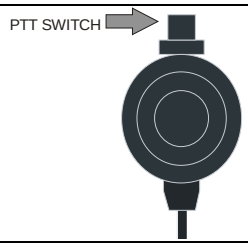
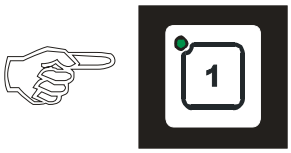
4.1.5 Give signal to substations with extra signal device.

Substation STB-3, STB-5 and STB-5GN is equipped with relay for activating of extra signal device.
Extra signal device can be flashing beacon, rotary light, alarm horn and bells.

Operationpanel		Substation
	• Press the **SIGN** button A tone signal will be given to selected station as long as the **SIGN** button is kept pressed: ***Indication 1*** ***A tone signal in the substations monitor loudspeaker*** ***STB-5 and STB-5GN. or in horn-loudspeaker for STB-3*** This will also activate extra signal for substations equipped with these devices: ***Indication 2*** ***Signal in flashing beacon, rotary light, alarm horn or bells.*** ***(STB-5GN w/ Rotary light in illustration)***	

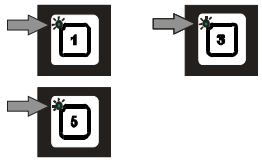
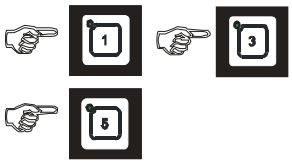
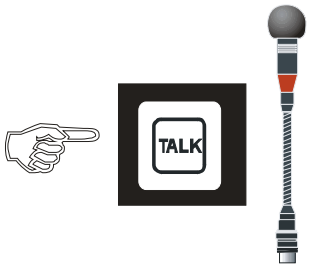
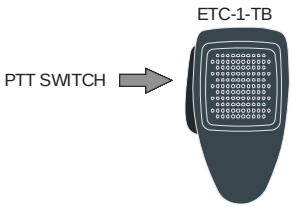
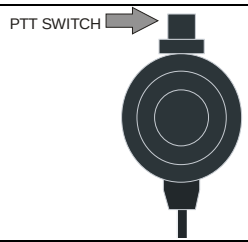
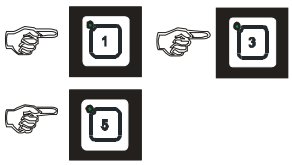
4.1.6 Receive a call from an substation.

A call are indicated with flashing green **LED** in the push button and a beep tone in the monitor loudspeaker or extern loudspeaker. Will also activate extra signal unit if installed. Only the operation panel can switch off and end the call.

	• A call is indicated with flashing green **LED** in for respective line button, and signal in the monitor loudspeaker. (and in extra signal unit if installed.)
	• Press the **LINE** button, the call is set up. Indicated by steady green LED
	<u>Operation panel with gooseneck microphone MB-30G</u> • Press the **TALK** button. Speak clearly into the microphone. When the **TALK** button is released the operation panel will be in listening mode, and you will hear the communication from the selected station.
	<u>Operation panel with hand microphone ETC-1-TB</u> • Press the **PTT SWITCH**. Speak clearly into the microphone. When the **PTT SWITCH** button is released the operation panel will be in listening mode, and you will hear the communication from the selected station.
	<u>Operation panel with hand microphone P-66</u> • Press the **PTT SWITCH**.. Speak clearly into the microphone. When the **PTT SWITCH** button is released the operation panel will be in listening mode, and you will hear the communication from the selected station.
	• Press **LINE** button once more to end the call. The LED will be switch off.

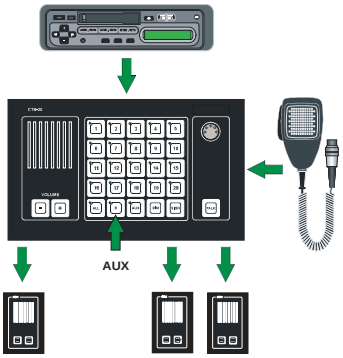
4.1.7 Receive a call from two or more substations.

Calls can be received from two or more substations at same time. The operation panel that is set to receive calls can select between calls from substations.
Calls are indicated with flashing green **LED** in the push buttons and a beep tone in the monitor loudspeaker Will also activate extra signal unit if installed. (Only for the first incoming call.)
.

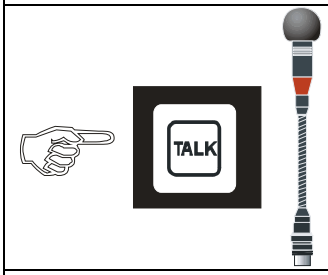
	• Calls are indicated with flashing green **LED** for respective line button, and signal in monitor loudspeaker. (And in extra signal unit if installed, Note! only for the first call)
	• Press the **LINE** button, the call is set up. Indicated by steady green LED The the operation panel can select between substation lines and cancel calls by pressing the respective LINE button once more.
	<u>Operation panel with gooseneck microphone MB-30G</u> • Press the **TALK** button. Speak clearly into the microphone. When the **TALK** button is released the operation panel will be in listening mode, and you will hear the communication from the selected station.
	<u>Operation panel with hand microphone ETC-1-TB</u> • Press the **PTT SWITCH**. Speak clearly into the microphone. When the **PTT SWITCH** button is released the operation panel will be in listening mode, and you will hear the communication from the selected station.
	<u>Operation panel with hand microphone P-66</u> • Press the **PTT SWITCH**.. Speak clearly into the microphone. When the **PTT SWITCH** button is released the operation panel will be in listening mode, and you will hear the communication from the selected station.
	• Press the selected **LINE** buttons once more to end the call. The LED`s will be switch off.

4.1.8 AUX function

An external signal connected to the **AUX** input of the system, will be transferred to any selected station or group of stations if the **AUX** button is selected. (Example: Entertainment and VHF signal.)
Talk button in any operation panel will override this function.

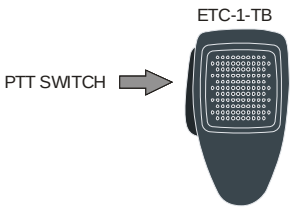
<table>
<tr><td> 
</td><td>

- Press desired line push buttons
- Press the **AUX** button,
  The **AUX** transferring is set up. Indicated by steady green light.

</td></tr>
<tr><td> 
</td><td>

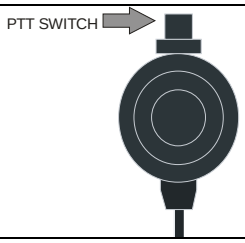
<u>To override this function with gooseneck microphone</u>

- Press the **TALK** button on the operation panel.
  Speak clearly into the microphone. When the **TALK** button is released the system will be in AUX mode again.

</td></tr>
<tr><td> 
</td><td>

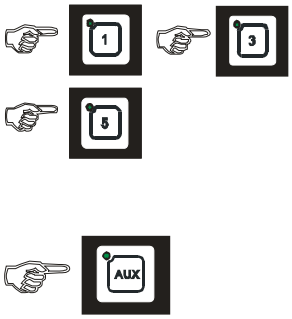
<u>To override this function with hand microphone ETC-1-TB</u>

- Press the **PTT SWITCH** on hand microphone.
  Speak clearly into the microphone. When the **TALK** button is released the system will be in AUX mode again.

</td></tr>
<tr><td> 
</td><td>

<u>To override this function with hand microphone P-66</u>

- Press the **PTT SWITCH**..
  Speak clearly into the microphone. When the **PTT SWITCH** button is released the operation panel will be in AUX mode again.

</td></tr>
<tr><td> 
</td><td>

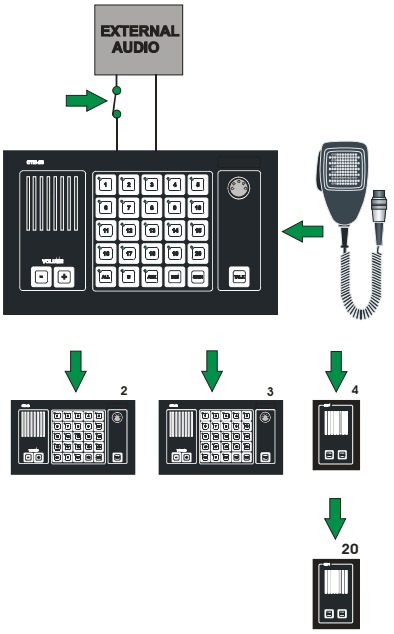
<u>To end the function</u>

- Press line buttons and **AUX** button once more to end the transferring.

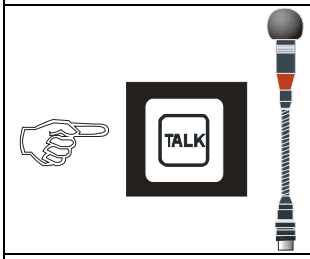
</td></tr>
</table>

4.1.9 Audio from external audio to All

Alarm (or any audio) from external system can be distributed trough the CTB system.
An potentional free contact and 0dB signal from the external system activate the CTB and the message will be addressed to all substations and operation panels.
The talk button on the operation panel or PTT button on hand microphone will override the external audio.
Normal talk back functions can not be used in this mode.

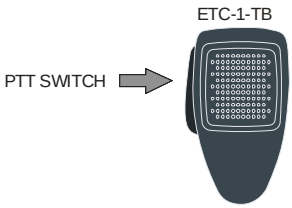
<table>
<tr>
<td> 
</td>
<td>

- Switch on the external audio,
  The audio transferring is set up. Indicated by steady green light in all line push buttons.

</td>
</tr>
<tr>
<td> 
</td>
<td>

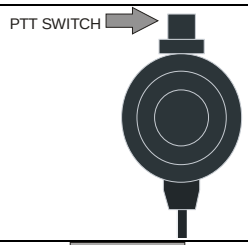
<u>To override this function with gooseneck microphone</u>

- Press the **TALK** button on the operation panel.
  Speak clearly into the microphone. When the **TALK** button is released the system will be in “audio to all” mode again.

</td>
</tr>
<tr>
<td> 
</td>
<td>

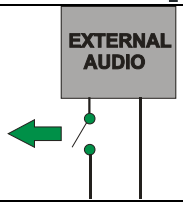
<u>To override this function with ETB-10A and hand microphone ETC-1-TB</u>

- Press the **PTT SWITCH** on hand microphone.
  Speak clearly into the microphone. When the **TALK** button is released the system will be in “audio to all” mode again.

</td>
</tr>
<tr>
<td> 
</td>
<td>

<u>Operationpanel with hand microphone P-66</u>

- Press the **PTT SWITCH**..
  Speak clearly into the microphone. When the **PTT SWITCH** button is released the operation panel will be in “audio to all” mode again.

</td>
</tr>
<tr>
<td> 
</td>
<td>

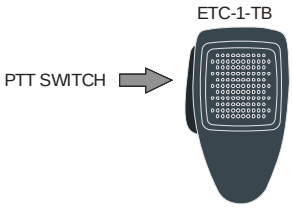
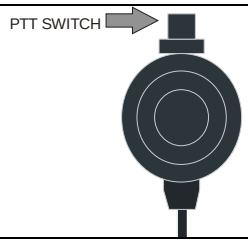
<u>To end the function</u>

- Switch off the external audio.

</td>
</tr>
</table>

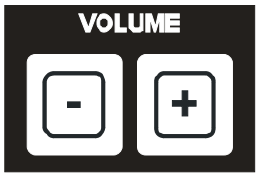
4.1.10 Public Address Operation of external system

The four last line push buttons on the operation panels can be set to access 1 to 4 public address zones on a external Public Address System.
CTB-10 & CTB-10W_V01: Push button marked 7-8-9-10
CTB-20 & CTB-20W_V01: Push button marked 17-18-19-20
ALL button will access all substations and external Public Address System.

CTB-10 & CTB-10W_V01  CTB-20 & CTB-20W_V01  	• Press desired **LINE** button (s), the Public Address call is set up. Indicated by steady green LED. Single or group of zones
 	• Press the **ALL** button, the call is set up. Indicated by steady green LED in the **ALL** button.
 	<u>Operation panel with gooseneck microphone MB-30G</u> • Press the **TALK** button. Speak clearly into the microphone for giving the message.
 	<u>Operation panel with hand microphone ETC-1-TB</u> • Press the **PTT SWITCH**.. Speak clearly into the microphone for giving the message.
 	<u>Operation panel with hand microphone P-66</u> • Press the **PTT SWITCH**.. Speak clearly into the microphone for giving the message. •
CTB-10 & CTB-10W_V01  CTB-20 & CTB-20W_V01   	<u>To end the function</u> • Press **line** button (s) or **ALL** once more to end the Public Address Operation

4.1.11 Volume

By pressing + or - buttons repeatedly, you can increase or decrease the listening volume in the ETB.
This will also affect the volume for a parallel speaker connected to the ETB

	• Press the + buttons repeatedly for increase volume • Press the - buttons repeatedly for decrease volume

4.1.12 Dimming of call light.

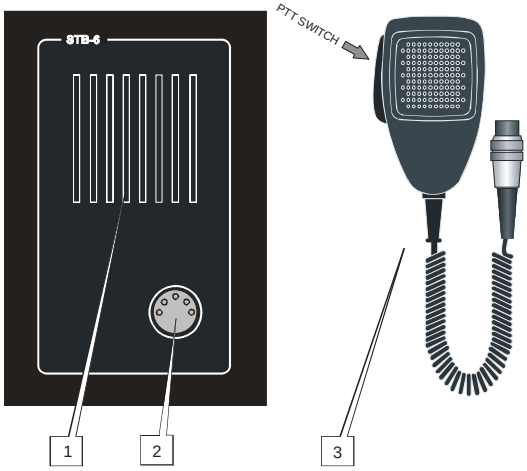
Intensity of light in push buttons can be adjusted by pressing **DIM** button.
Switch between two steps max.and 1/3. Default is set to max.
Dimmer can be set to on /off by dip-switch marked “dimmer off” (See chapter 3.10)

	• Press **DIM** button once for 1/3 intensity. • Press **DIM** button once more back to max. intensity.

4.2 Parallel communication

Function with operation from parallel microphone / loudspeaker located on bridge wings,
or other locations near the operation panel, where parallel microphone / loudspeaker needed.
Two parallel stations can be connected. Communication is set up by the operationpanel.
Bridge wing unit will be in operation mode as soon as a station is selected on the operationpanel.

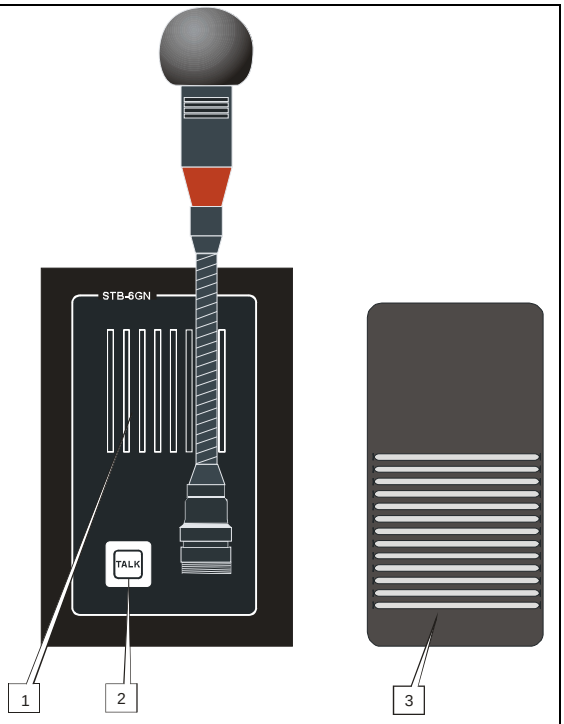
Figure 9 Parallel station STB-6



1. **Loudspeaker** (Parallel to the central unit)
2. **Contact** For microphone
3. **Microphone** ETC-1-TB with PTT switch

PTT switch = Push to talk button switch

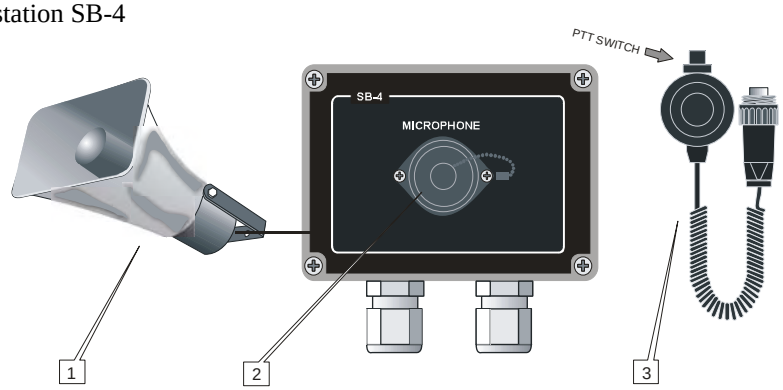
Figure 10 Parallel station STB-6GN



1. **Loudspeaker** (Parallel to the central unit)
2. **TALK** PTT switch for microphone (Parallel to the central unit)
3. **Footswitch** (Parallel to PTT switch)

PTT switch = Push to talk button switch

Figure 10 Parallel station SB-4

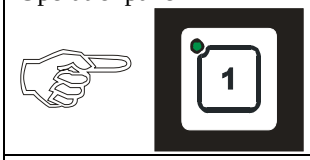
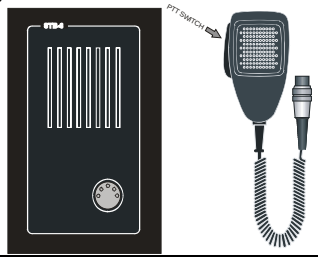
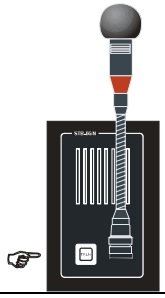
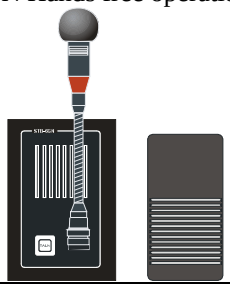
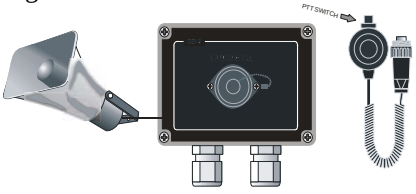
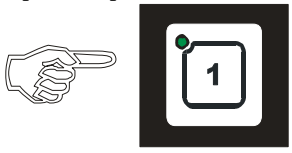


1. **Loudspeaker** (Parallel to the central unit)
2. **Contact** For microphone
3. **Microphone** Microphone P-66 with push to talk switch (parallel to microphone on the central unit

PTT switch = Push to talk button switch

4.2.1 Operation

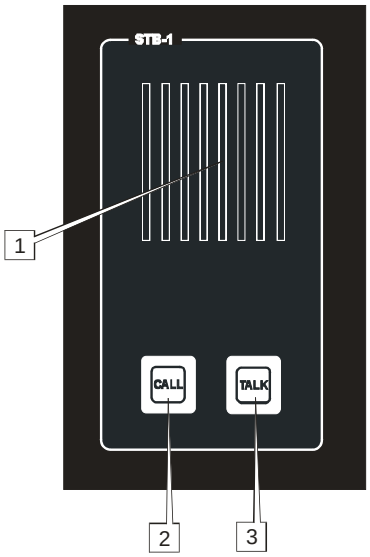
Note! Line selection and signal have to be set up from the central unit.

Operationpanel 	• Press the desired **LINE** button, the call is set up. Indicated by steady green LED
Operationpanel 	• Press the **SIGN** button. A tone signal will be given to selected station as long as the **SIGN** button is kept pressed. This will also activate extra signal to substations equipped with these devices.
Figure 7 Parallel station STB-6 	• Press **PTT SWITCH** on hand microphone ETC-1-TB Speak clearly into the microphone. When **PTT SWITCH** button is released the parallel equipment will be in listening mode, and you will hear the communication from the selected station in the monitor loudspeaker.
Figure 8 Parallel station STB-6GN 	• Press **TALK** on the STB-6GN Speak clearly into the microphone. When **TALK** button is released the parallel equipment will be in listening mode, and you will hear the communication from the selected station in the monitor loudspeaker.
STB-6GN Hands free operation 	• Press the **FOOTSWITCH** button . Speak clearly into the microphone. When the **TALK** button is released the parallel equipment will be in listening mode, and you will hear the communication from the selected station.
Figure 9 Parallel station SB-4 	SB-4 Plug box P-66 microphone. VML-1520 loudspeaker • Press **PTT SWITCH** on hand microphone P-66 Speak clearly into the microphone. When **PTT SWITCH** button is released the parallel equipment will be in listening mode, and you will hear the communication from the selected station.
Operationpanel 	• Press the desired **LINE** button on the operationpanel once more to end the call. The LED will be switch off.

4.3 Operation from substations.

Calls can be made from substations to the operation panels by pressing the CALL push button. A call is indicated by a flashing green LED and a signal in the operation panel. The operation panel confirm the call by pressing respective line button. The communication is set up. Only the operation panel can switch off and end the call.

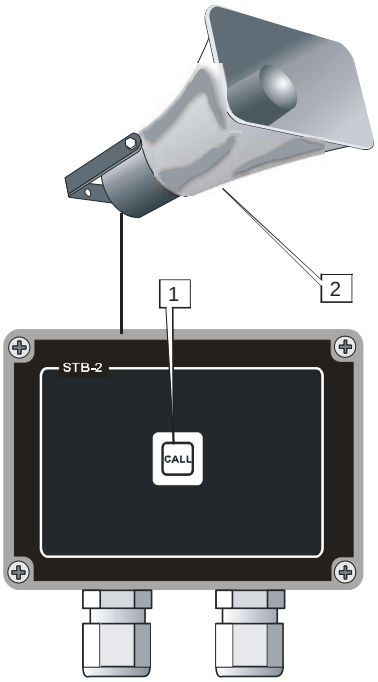
Figure 11 Substation STB-1



1. Re-entrant **Loudspeaker**
   For communication from the central unit.
   Microphone for communication to the central unit.
2. **CALL**
   Push button switch for call to central unit.
3. **TALK**
   PTT switch for talk to the central unit

PTT switch = Push to talk button switch

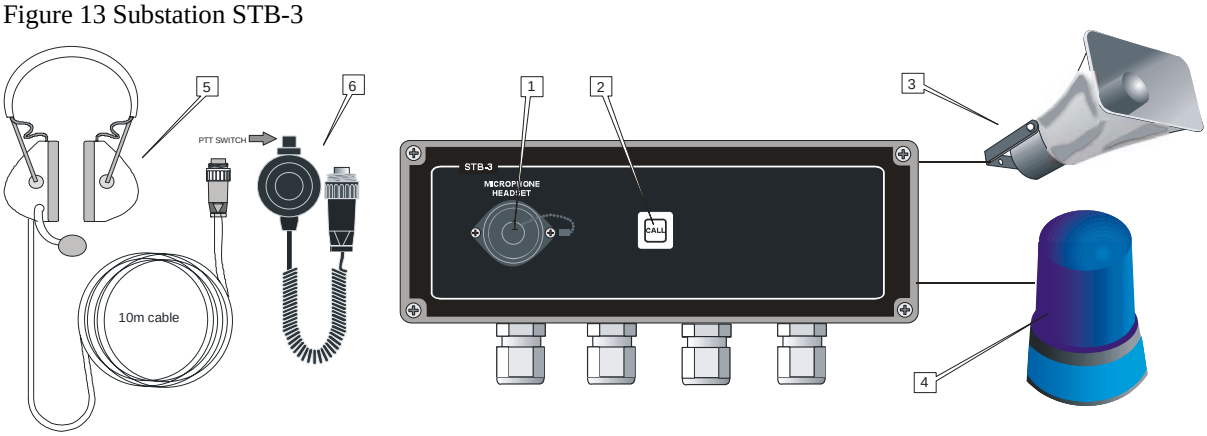
Figure 12 Substation STB-2



1. **CALL**
   Push button switch for call to central unit.

2. **Re-entrant Loudspeaker**
   For communication from the central unit.
   Microphone for communication to the central unit.

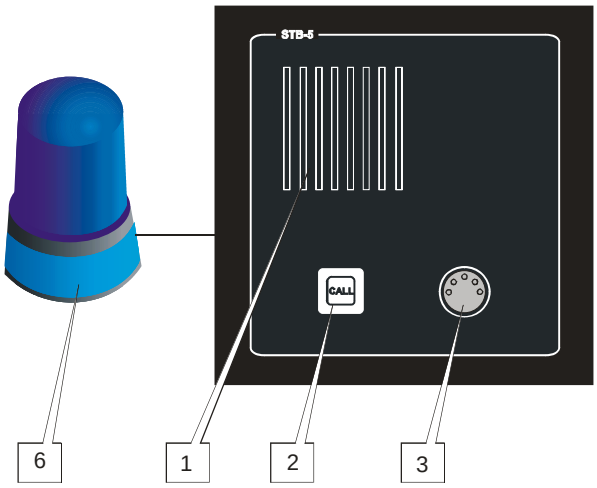
Figure 13 Substation STB-3

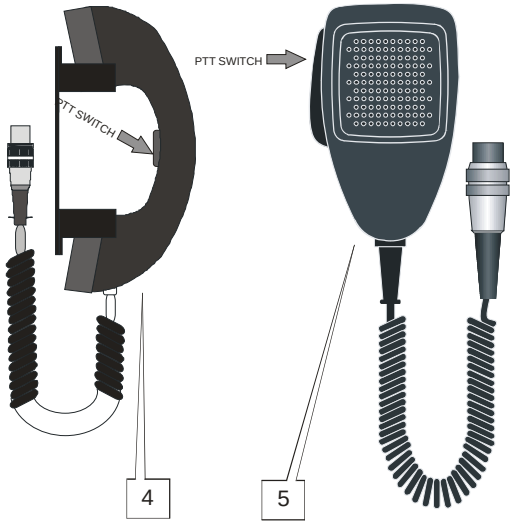


1. **Contact** For headset or Microphone.
2. **Call** Push button switch for call to central unit.
3. **Loudspeaker** For communication from the central unit.
4. **Signal device** Activated from the central unit.
5. **Headset** P-MT7 with boom microphone
6. **Microphone** P-66 with PTT switch

PTT switch = Push to talk button

Figure 14 Substation STB-5

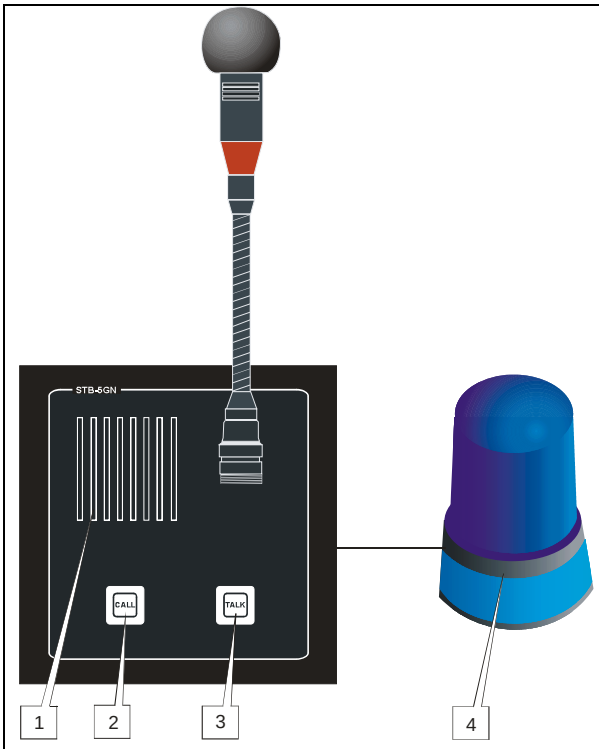




1. **Loudspeaker** For communication from the central unit.
2. **Call** Push button switch for call to central unit.
3. C**ontact** For handset HAS-1 or handheld microphone ETC-STB5
4. **Handset** HAS-1 with push to talk switch (PTT)
5. **Microphone** ETC-STB5 with push to talk switch (PTT)
6. **Signal device** Activated from the central unit.

PTT switch = Push to talk button switch

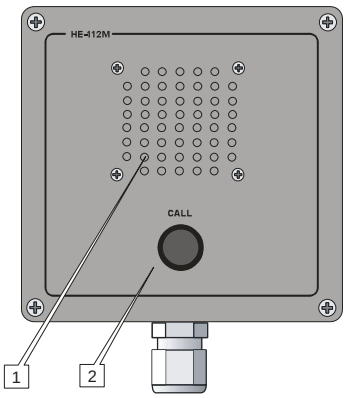
Figure 15 Substation STB-5GN



1. **Loudspeaker** For communication from the central unit.
2. **CALL** Push button switch for call to central unit.
3. **TALK** PTT switchfor talk to the central unit.
4. **Signal device** Activated from the central unit.

PTT switch = Push to talk button switch

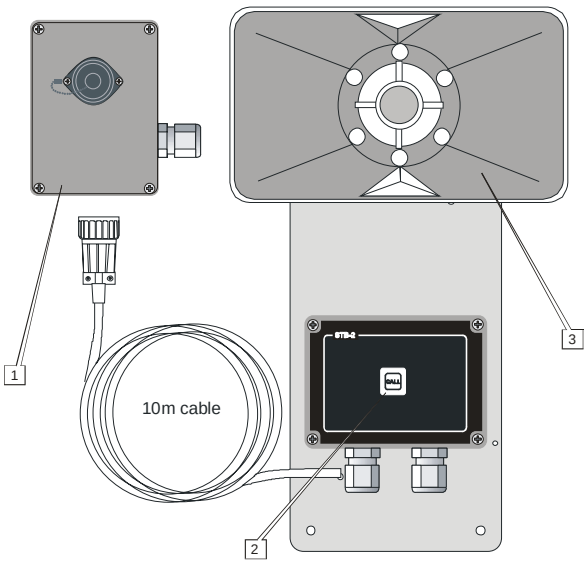
Figure 16 Substation HE-112M



1. **Re-entrant Loudspeaker**
   For communication from the central unit.
   Microphone for communication to the central unit.

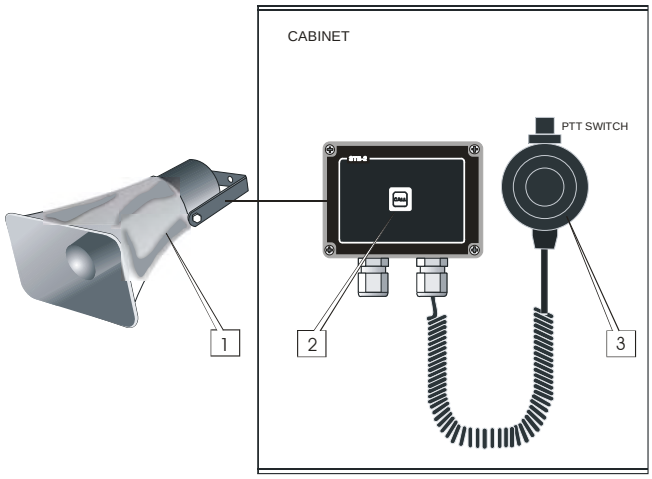
2. **CALL**
   Push button switch for call to central unit.

Figure 17 Substation VH-10M



1. **Plugbox**
   CD-2 for VH-10M
2. **CALL**
   Push button switch for call to the central unit
3. **Re-entrant Loudspeaker**
   For communication from the central unit
   Microphone for communication to the central unit.

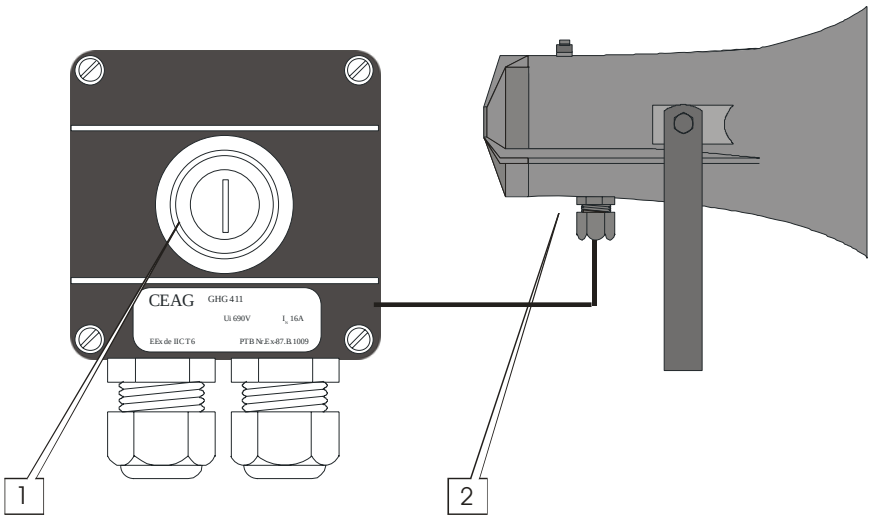
Figure 18 Substation VHM-10



1. **Loudspeaker** For communication from the central unit
2. **CALL** Push button switch for call to the central unit
3. **Microphone** P-66 fixed connected with PTT switch

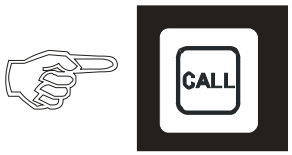
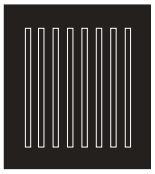
PTT switch = Push to talk button switch

Figure 19 Substation NEBB-42EX / EX Loudspeaker

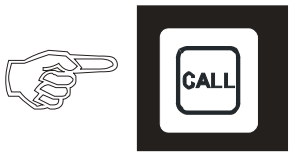
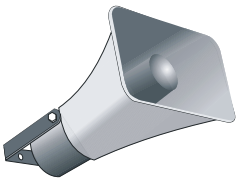


1. Push to call switch
2. Re-entrant Loudspeaker EX.

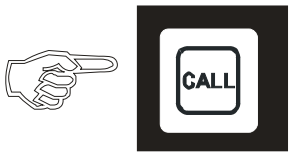
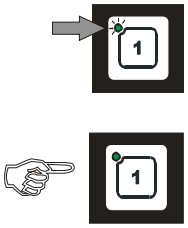
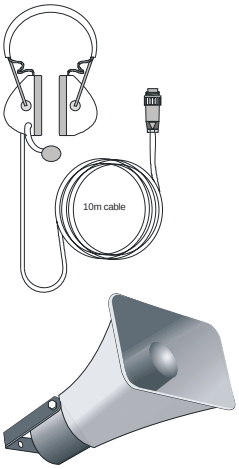
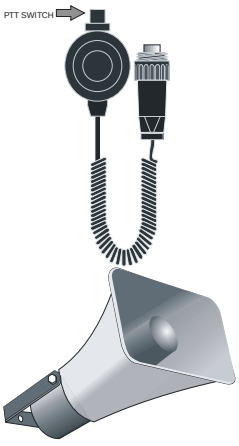
4.3.1 Operation from STB-1

Substation		Operationpanel
	• Press the **CALL** button. • ***Indicated with flashing green LED and a signal in the operation panels speaker for selected line.*** • ***Operator of the operation panel press respective LINE button, the call is set up. Indicated by steady green light,***	
  Loudspeaker	• Press **TALK** button . • Speak clearly into the re-entrant loudspeaker. When **TALK** button is released the STB-1 will be in listening mode, and you will hear the communication from the operation panel. • ***Operator of the operation panel end the call by pressing the LINE button once more .***	

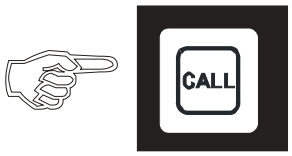
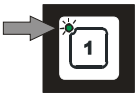
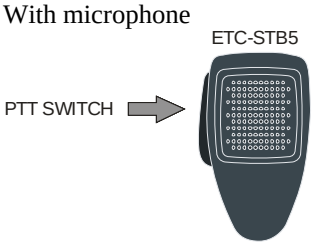
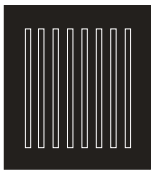
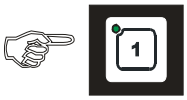
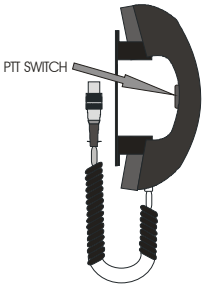
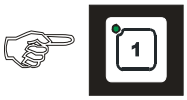
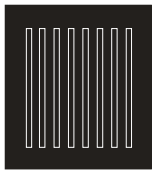
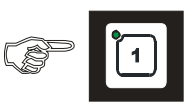
4.3.2 Operation from STB-2

Substation		Operationpanel
	• Press the **CALL** button. • ***Indicated with flashing green LED and a signal in the operation panels monitor loud speaker for selected line.*** • ***Operator of the operation panel press respective LINE button, the call is set up. Indicated by steady green light in the operation panel***	
	• Speak clearly into the re-entrant loudspeaker for communication to the operation panel, and receive communication in the same loudspeaker. • ***Operator of the operation panel end the call by pressing the LINE button once more .***	

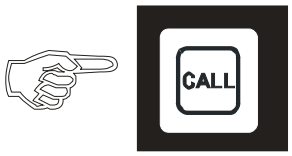
4.3.3 Operation from STB-3

Substation		Operationpanel
	• Press the **CALL** button. • ***Indicated with flashing green LED and a signal in the operation panels speaker for selected line.*** • ***Operator of the operation panel press respective LINE button, the call is set up. Indicated by steady green light.***	
With headset P-MT7 	• Speak clearly into the Boom microphone on the headset • Receive communication from the operation panel in the headphones. (And in the loudspeaker if installed) • ***Operator of the operation panel end the call by pressing the LINE button once more .***	
With microphone P-66 	• Press the **PTT SWITCH** on the microphone. Speak clearly into the microphone. When **PTT SWITCH** button is released the microphone will be in listening mode, and you will hear the communication from the operation panel in the loudspeaker • ***Operator of the operation panel end the call by pressing the LINE button once more .***	

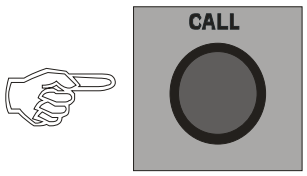
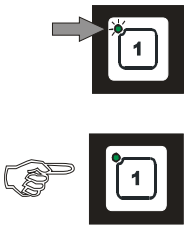
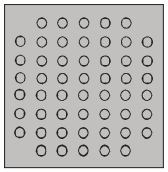
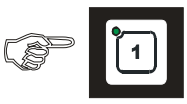
4.3.4 Operation from STB-5

Substation		Operationpanel
	• Press the **CALL** button . • ***Indicated with flashing green LED and a signal in the operation panels monitor loud speaker for selected line.*** • ***Operator of the operation panel press respective LINE button, the call is set up. Indicated by steady green light,***	 
With microphone   Loudspeaker	• Press the **PTT SWITCH** on the microphone and speak clearly into the microphone. • When **PTT SWITCH** is released the STB-5 will be in listening mode, and you will hear the communication from the operation panel in the monitor loudspeaker. • ***Operator of the operation panel end the call by pressing the LINE button once more .***	
With handset HAS-1 	• Press the **PTT SWITCH** on the handset and speak clearly into the microphone. • When **PTT SWITCH** is released the STB-5 will be in listening mode, and you will hear the communication from the operation panel in the handsets loudspeaker • ***Operator of the operation panel end the call by pressing the LINE button once more .***	
With monitorspeaker only  Loudspeaker	• Speak clearly into the Monitor loudspeaker for communication to the operation panel, and receive communication from the in the same loudspeaker. • ***Operator of the operation panel end the call by pressing the LINE button once more .***	

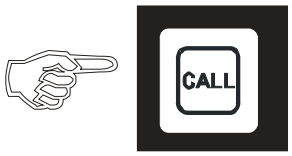
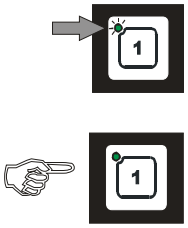
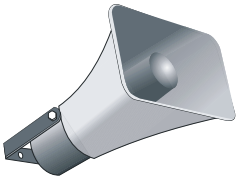
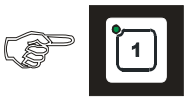
4.3.5 Operation from STB-5GN

Substation		Operationpanel
	• Press the **CALL** button. • ***Indicated with flashing green LED and a signal in the operation panels speaker for selected line.*** • ***Operator of the operation panel press respective LINE button, the call is set up. Indicated by steady green light,***	
  Loudspeaker	• Press **TALK** button on the STB-5GN Speak clearly into the microphone. When **TALK** button is released the STB-5GN will be in listening mode, and you will hear the communication from the selected station in the monitor loudspeaker. • ***Operator of the operation panel end the call by pressing the LINE button once more .***	

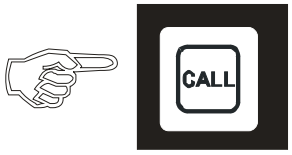
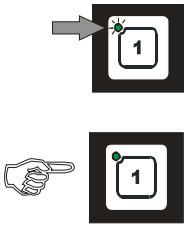
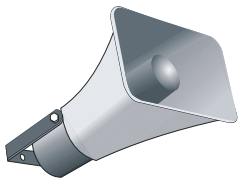
4.3.6 Operation from HE-112M

Substation		Operationpanel
	• Press **CALL** button. • ***Indicated with flashing green LED and a signal in the operation panels speaker for selected line.*** • ***Operator of the operation panel press respective LINE button, the call is set up. Indicated by steady green light.***	
 Loudspeaker	• Speak clearly into the Re-entrant loudspeaker for communication to the operation panel, and receive communication in the same loudspeaker. • ***Operator of the operation panel end the call by pressing the LINE button once more .***	

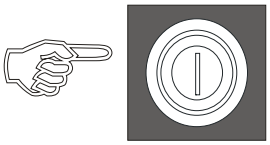
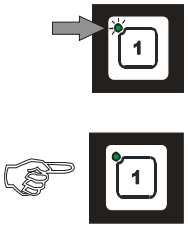
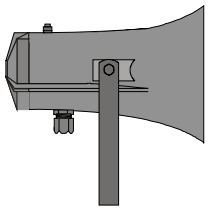
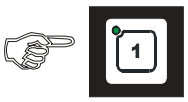
4.3.7 Operation from VH-10M

Substation		Operationpanel
	• Press **CALL** button. • ***Indicated with flashing green LED and a signal in the operation panels speaker for selected line.*** • ***Operator of the operation panel press respective LINE button, the call is set up. Indicated by steady green light in the operation panel.***	
	• Speak clearly into the Re-entrant loudspeaker for communication to the operation panel, and receive communication in the same loudspeaker. • ***Operator of the operation panel end the call by pressing the LINE button once more .***	

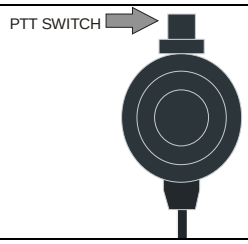
4.3.8 Operation from VHM-10

Substation		Operationpanel
	• Press the **CALL** button. • ***Indicated with flashing green LED and a signal in the operation panels speaker for selected line.*** • ***Operator of the operation panel press respective LINE button, the call is set up. Indicated by steady green light***,	
 	• Press the **PTT SWITCH**.on the microphone. Speak clearly into the microphone. When **PTT SWITCH** is released the **VHM-10** will be in listening mode, and you will hear the communication from the operation panel in the loudspeaker. • ***Operator of the operation panel end the call by pressing the LINE button once more .***	

4.3.9 Operation from NEBB-42EX / EX Loudspeaker

Substation		Operationpanel
	• Press the **CALL** button. • ***Indicated with flashing green LED and a signal in the operation panels speaker for selected line.*** • ***Operator of the operation panel press respective LINE button, the call is set up. Indicated by steady green light in the central unit***	
	• Speak clearly into the re-entrant EX loudspeaker for communication to the operation panel, and receive communication from the central unit in the same loudspeaker. • ***Operator of the operation panel end the call by pressing the LINE button once more .***	

4.3.10 Operation from All call station VMT-603

	• Press the **PTT SWITCH**.. Speak clearly into the microphone to give message. • When the **PTT SWITCH** button is released the system will be in normal talk back mode again.

5. COMMISSIONING

5.1 General

The CTB and CU- units and all sub equipments have been fully tested in our workshop before delivery. To ensure that everything is correct after installation and configuration of the system, do the following procedure before the system is ready for use.

Ref. is made to Chapter 3 Installation and configuration procedures and installation drawings.

5.2 Mechanical Inspection

- All equipment is well fastened in console or wall according to pos. 3.2
- All cable and cable glands are well tight and fastened according to pos. 3.2

5.3 Cable Inspection

All cables are connected according to chapter pos.3.3 and dwg.no. CTB_sl, CTB_cc01, CTB_cc02, CTB_cc03, CTB_cc04, CTB_cc05 and CTB_cc06

- It is used signal cables 0,5mm^2 approved ship-cable of type twisted pair with outer braided copper screen.The screens are interconnected in junction boxes and grounded in the central unit only (CU-10,20)
  Common ground points:
  Terminal block X8-1-20 /no. 5 is ground point for each substation,
  Terminal block X1,2,3,4 / no.11 is ground point for each operation panel.
- Power cable are min. 0,75mm^2 and is connected to terminal block X7, + to terminal 1, - to terminal 2. The screen is grounded on terminal 3.
- It is used cable 0,75mm^2 for power to signal units.
- Polarity for extra signal device is connected in according to dwg.CTB_cc04 and CTB_cc05

5.4 Check Configurations

Ref. Chapter 3 Installation and configuration procedures

- It`s used power supply according to 3.4
- Priority is set according to pos. 3.5
- Receive call from substation is set according to pos. 3.6
- Public address zones is set according to pos. 3.7
- Volume and signal adjustment is set according to pos. 3.8
- Dimmer is set according to pos. 3.10
- Substation is set according to 3.11, 3.12 and 3.13

5.5 C500 Nautical Safety

For complying to DNV ship requirements-following is carried out:

- Configuration and connection are according to chapter 2.4.13 and cable connection drawing CTB_cc6
- Sound pressure level is set to satisfactory audibility and volume, ref. chapter 3.8.1
- A sign plate with directory / substation number for all substations has been placed close to the CTB pan
- A sign plate with each substation number has been placed on or close to each substation.

5.6 Starting up the system.

The system has no On/Off switch for main power. Power switching is done from external equipment
The system is always powered and ready for use and it's only indicated when using the system.
Following procedure has to be completed before end use. Do the test procedure for all equipments in the installation. **Test functions according to User Instructions in Chapter 4.**

Basic functions CTB, operation from all CTB-operation panels have to be done.

Pos.	Operation Requirement	Tested, ok
1	Commissioning according to chapter 5.2, 5,3, 5.4 and 5.5 is done.	☐
2	Power on. 24V DC measured on terminal X7 no.1-2 in central unit	☐
3	Make a call to each substation Ref. 4.1.1	☐
4	Make a call to group of substations Ref. 4.1.2	☐
5	All Call Ref. 4.1.3	☐
6	Give signal to substations with extra signal device. 4.1.5	☐
7	Receive a Call from an substation Ref. 4.1.6	☐
8	Receive a Call from two or more substations. Ref. 4.1.7	☐
9	Volume control of internal loudspeaker Ref. 4.1.11	☐
10	Dimmer for light in Line button Ref. 4.1.12	☐

Additional functions if installed

Pos.	Operation Requirement	Tested, ok
11	Make a call with footswitch, hands free. Ref. 4.1.4	☐
12	AUX function Ref. 4.1.8	☐
13	Audio from external system Ref. 4.1.9	☐
14	Public Address operation of external system Ref. 4.1.10	☐
15	Operation from all call station VMT-603 Ref. 4.3.10	☐

Parallel communication / Bridge wing Ref. 4.2.1, if installed

Pos.	Operation Requirement	Tested, ok
16	Operation with STB-6	☐
17	Operation with STB-6GN	☐
18	Operation with STB-6GN hands free	☐
19	Operation with SB-4	☐
20	Call to two or more substations from parallel station	☐

Power supply SPS-4, If installed

Pos.	Operation Requirement	Tested, ok
21	Operating by 230V AC or 115v AC mains power supply. 24V DC on terminal 3 -4 Green light marked "DC ok"	☐
22	Operating with 24V DC emergency power supply. 1. Disconnect 230V AC or 115V AC mains power supply and check if the auto switch relay switch to emergency 24V DC. 24V DC on terminal 3 -4 Check if power failure contact marked NC 6-7 is activated. 2. Disconnect cables to + and – on the power supply module, and check if the auto switch relay switch to emergency 24V DC. On terminal 3 -4 Check if power failure contact marked NC 6-7 is activated.	☐ ☐

Substations

Pos.	Operation Requirement	Tested, ok
23	Operation from STB-1 Ref. 4.3.1	☐
24	Operation from STB-2 Ref. 4.3.2	☐
25	Operation from STB-3 Ref. 4.3.3	☐
26	Operation from STB-5 Ref. 4.3.4	☐
27	Operation from STB-5GN Ref. 4.3.5	☐
28	Operation from HE-112M Ref. 4.3.6	☐
29	Operation from VH-10M Ref. 4.3.7	☐
30	Operation from VHM-10 Ref. 4.3.8	☐
31	Operation from NEBB-42EX / EX Loudspeaker Ref. 4.3.9	☐

Volume control

Pos.	Operation Requirement	Tested, ok
32	Adjust sound pressure level, to convenient level if necessary Master volume line 1-5, 6-10, 11-15, 16-20 **Ref. chapter 3.8 and dwg.CU-10:lo and CU-20_lo**	☐

5.7 Trouble shooting.

Most faults can be related to following problems

Important! Use this trouble shooting together with chapter 3 Installation and Configuration Procedure

Problems when operating from operation panels.

Pos.	Failure event	Description / Indication	Recommended Action
1	The whole system is shut down. No light indication in CTB-panels.	No voltage measured on terminal block X7 no.1-2 in the CU-unit	1.Check 24V DC mains power supply or power supply SPS-4
		Correct voltage 24 – 32VDC measured on terminal block X7 no.1-2 in the CU-unit	2. Check fuse marked F3 1AT (Ref. dwg CU-10_lo)
2	SPS-4 power supply failure	Indication from failure contact X2 No.5-6(NO)or. X2 No.6-7 (NC) No light in “DC ok” Two possibilities 1. 230V AC or 115V AC failed and have been switched to 24V DC Emergency. 2.The power supply module has failed.	1. Check main power supply 2. Check fuse 5.0AT , terminal marked 3 2.1 If not success, the power module have to be repaired./ replaced.
3	Operation from CTB-panels failed **1.**	No audio message received in any substation no. 1-10 or 11-20.	Check fuse marked “fuse 2”1.0AT for line 1-10 and “fuse 4”1.0AT for line 11-20
3.1	Operation from CTB-panels failed **2**	One or more operation panels failed. One or more Indication light is active , one for each operation panel marked “indication for panels” on central unit.ref.dwg.CU-10_lo	Check all connection for actual panel(s) The panel operate correct when light is turned off. Try to replace the position, if current panels then work correct the fault must be in the central unit. The main board have to be replaced or repaired.
4	Priority do not fulfil requirement for actual operation panel		Check if DIP switches in the central unit marked “set priority” is set according to chapter 3.5
5	Receive call from substation do not fulfil requirement for actual station.		Check if DIP switches in the central unit marked “set receive call” is set according to chapter 3.6
6	Public address operation does not fulfil the requirement for operation of SPA public address system.		Check if DIP switches in the central unit marked “selector for PA-zones” is set according to chapter 3.7
7	Level for signal from auxiliary does not fulfil the requirement.		Adjust trim potentiometer in the central unit marked “adj. aux. input signal” to satisfactorily level.see chapter 3.8.2
7.1	Level for output PA-Signal does not fulfil the requirement.		Adjust trim potentiometer in the central unit marked “adj. PA-output signal” to satisfactorily level. See chapter 3.8.2

7.2	Level for call signal out to all lines does not fulfil the requirement.		Adjust trim potentiometer in the central unit marked “adj. call signal out” to satisfactorily level. See chapter 3.8.3
8	General operating problems occurred when operating several stations.	Instability.	Check cable and termination blocks in the CU unit for respective stations. And especially cable and termination blocks in junction boxes, if used.
9	One substation can not be operated	No contact between CTB panel and substation	Check cable and terminal block in the CU unit for current extension. Check cable and terminal block in the substation or plugbox. Move this terminal block to a another ext. number. If operating is ok, current substation have to be repaired.
10	Operation problem from an substation.	Continuous rapping tone (pip..pip) in the CTB units.	Change polarity in substation terminal no1-2
11	No signal in substation when using the sign push button on the CTB- unit.	No audio 1Khz tone in the substation	Disconnect the substation. 1. If 7V AC is measured on terminal X8 1-2 in the CU unit, this unit is ok. 2. If no voltage measured, the CU unit have to be repaired 3. Connect the substation. If no voltage measured on terminal X8 1-2 in substation, fault must be in cable or the substation have top be repaired.
12	No signal in additional signal device when using the sign push button.	Signal in substation, but no signal in the additional signal device.	Disconnect the substation. 1. If no voltage measured on terminal X8 3-4 in the CU unit, check fuse F3 1A. 2. If fuse F3 is ok. Check automatic fuse by waiting 2-3 sec. If 24V DC is measured, the load is to high Max. 50mA.
13	Feedback problems	In one CTB unit	Move substation or parallel equipment to another position.
14	Problems with system generated noise **1**	Occurred both in central unit and substations if it used ships own 24V DC	Disconnect ships 24V DC and connect a separate power supply (SPS-4) or a DC 24V / 24V DC converter.
14.1	Problems with system generated noise **2**	Occurred both in CTB units and substation, (substations)	1. Check all cable connections, especially the screens. Important that connections is done according to requirements in chapter3.4 and dwg. CTB_cc1, CTB _cc2 and CTB _cc3, CTB_cc4, CTB_cc5 and CTB_cc6 2. If still problems, try with an capacitor 1uF between terminal no.1-2 block X8-10 (20) If still problems, it will require service from Zenitel.

Problems when operating from substation or parallel station connected to an operation panel

Pos.	Failure event	Description / Indication	Recommended Action
15	Operation from an substation can not be done	No flashing green LED and a signal in the CTB monitor loudspeaker for the selected line.	1. Check cable and terminal block in the substation or plug box. 2. Move this terminal block to a another ext. number. If still problems, the substation have to be repaired If operating is ok, the CU unit have to be repaired
16	Problems with high background sound	Nearby the substation	Replace current substation with substation with headset or with external loudspeaker STB-2 Or adjust Master volume line 1-5 6-10, 11-15 or 16-20. (Ref. Document dwg.CU-10_lo and CU-20_lo)
17	Operation from an parallel station can not be done	Normal operation from the CTB unit.	1. Check cable and connections between the parallel station and the central unit. 2. Check microphones If still problems, the parallel station have to be repaired

Problems when operating from All call stations. Ref DNV C500 Nautical Safety

Pos.	Failure event	Description / Indication	Recommended Action
18	Operation from one all call station can not be done.	No audio in all other operation panels or substations.	1. Check connection between the unit and the junction box. 2. If 24V DC voltage is measured in the all call station, the unit have to be repaired. Ref. dwg. CTB-cc6
19 20	Operation from <u>all</u> all call station can not be done.	No audio in all other operation panels or substations.	1. Check connection between the junction box and the central unit, and specially the terminal block connected to X6. Ref. dwg. CTB-cc6 If still problems, the central unit have to be repaired.
	Sound pressure level does not fulfil the requirement.		Adjust trim potentiometer in the central unit marked “adj. aux. input signal” to satisfactorily level.see chapter 3.8.2

Note! If recommended actions above do not succeed, further action has to be done in cooperation or by Zenitel.

6. INSTALLATION DRAWINGS AND DATASHEET

6.1 Installation drawings

Item	Description	Doc.no
System drawing	Single line diagram	CTB-_sl
System drawing	System block diagram	CTB_bd
System drawing	Lay out terminals CTB-10, 20, CTB-10,20 W/01	CTB-1020_lo
System drawing	Lay out terminals CU-10	CU-10_lo
System drawing	Lay out terminals CU-20	CU-20_lo
System drawing	Connection substations, options	CTB-cc1
System drawing	Connection CU- / CTB with options	CTB-cc2
System drawing	Connection power, PA, alarm & Auxiliary	CTB-cc3
System drawing	Connection CU- substations, line 1-10	CTB-cc4
System drawing	Connection CU- substations, line 11-20	CTB-cc5
System drawing	Connection Nautical Safety	CTB-cc6
Wiring diagram	Powersupply SPS-4	SPS-4Ver.2.0_ddwd

Outline drawings

CU-10 & CU-20	Central units	CU_dd
CTB-10, 20	Operator panel 10,20 lines	CTB-1020_dd1
WBOKS	Wall mounted box for CTB-10 and 20	WBOKS_dd
CTB-10,20 W V01	WP Operator panel 10,20 lines	CTB-1020W_dd
HP-8	Horn loudspeaker, part of CTB-10W V01 and CTB-20W V01	HP-8_dd

6.2 Datasheets

Central units, Operator panels and microphones.

Item	Description	Doc.no
CU-10	Central unit, 10 lines	CU-10_ds
CU-20	Central unit, 20 lines	CU-20_ds
CTB-10	Operator panel, 10 lines	CTB-10_ds
CTB-20	Operator panel, 20 lines	CTB-20_ds
CTB-10W V01	WP Operator panel, 10 lines	CTB-10W V01_ds
CTB-20W V01	WP Operator panel, 20 lines	CTB-20W V01_ds
HP-8	Horn loudspeaker, part of CTB-10W V01 and CTB-20W V01	HP-8_ds
VMT-603	All Call station WT, for wall mounting	VMT-603_ds
MB-30G	Gooseneck Microphone with plug for CTB-10/20	MB-30G_ds
ETC-1-TB	Hand microphone with curled cord and plug for CTB-10/20	ETC-1-TB_ds
P-66	Hand microphone with curled cord and plug, WP	P-66_ds
P-66/10	Hand microphone with 10mtr. Cable and plug, WP	P-66/10_ds

Substations and other equipment

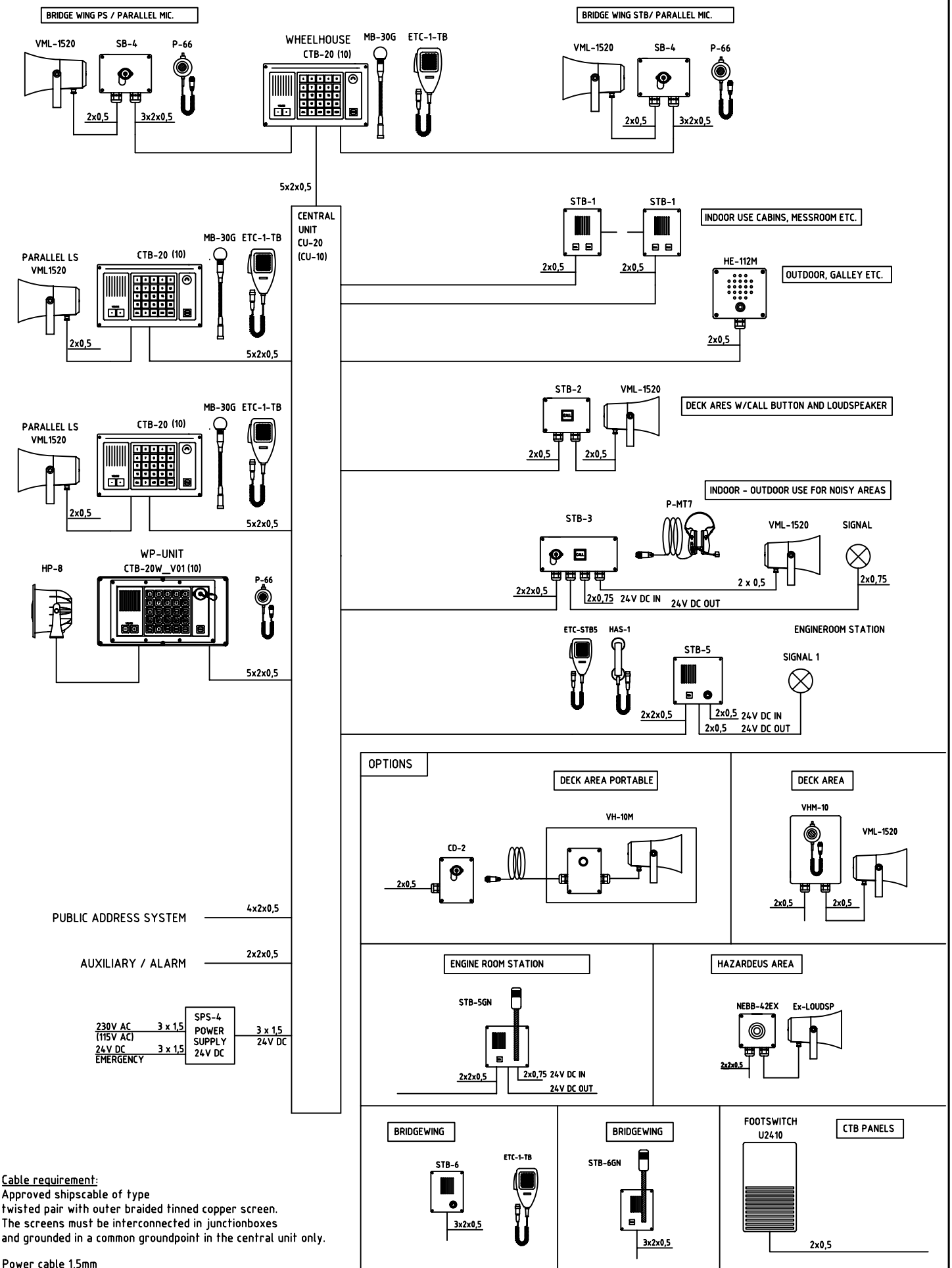
STB-1	Substation indoor wall mounted with call and answer button.	STB-1_ds
STB-2	Call box WP wall mounted for use together with VML-1520.	STB-2_ds
STB-3	WP Combined call-plug box w/relay unit signal device,	STB-3_ds
PMT-7	Portable headset w/10mtr. Cable and plug for STB-3	PMT-7_ds
STB-5	Flush mounted substation w/relay, for mic. or handset	STB-5_ds
STB-5GN	Flush mounted substation w/relay, and gooseneck microphone	STB-5GN_ds
HAS-1	Handset for STB-5	HAS-1_ds
ETC-STB5	Hand microphone with curled cord and plug for STB-5	ETC-STB5_ds
VH-10M	Portable deck loudspeaker with callbox and 10M cable and plug.	VH-10M_ds
CD-2	Plugbox for VH-10M	CD-2_ds
VHM-10	Special deck unit with hand microphone mounted in cabinet.	VHM-10_ds
HE-112M	Outdoor loudspeaker with call button WP IP-66	HE-112M_ds
NEBB-42EX	Call box, Ex-approved	NEBB-42EX_ds

Parallel equipment.

STB-6	Flush mounted substation for handmic.	STB-6_ds
STB-6GN	Flush mounted substation w/gooseneck mic.	STB-6GN_ds
SB-4	WP Plug box for portable microphone, headset and loudspeaker	SB-4_ds

Additional equipment

WBOKS	Wall mounted box for CTB-10 and 20	WBOKS_ds
STBOKS5	Wall mounted box for STB-5 and STB-5GN	STBOKS5_ds
STBOKS	Wall mounted box for STB-6 and STB-6GN	STBOKS_ds
VML-1520	Horn loudspeaker 15W 20ohm IP-65	VML-1520_ds
SPS-4	Power supply 115/230V AC 24V DC 4A w/ aut. switchover relay.	SPS-4_ds
SPS-6	Power supply 115/230V AC 24V DC 6A w/ aut. switchover relay.	SPS-6_ds
BLK5	Flash beacon 24V AC/DC 5 Joule IP65	BLK5-24_ds
EHS-24	Rotary light 24V DC IP54	EHS-24_ds
A-100	Electronic alarm horn 24V DC – IP55 – 100dB	A-100_ds
U2410	Footswitch for hands free operation	U2410_ds



Cable requirement:
Approved shipscable of type
twisted pair with outer braided tinned copper screen.
The screens must be interconnected in junctionboxes
and grounded in a common groundpoint in the central unit only.

Power cable 1,5mm
JB is yard supply

Note!
Output for extra signal device made for all lines.
In case, use 2pair cable to each substation line.

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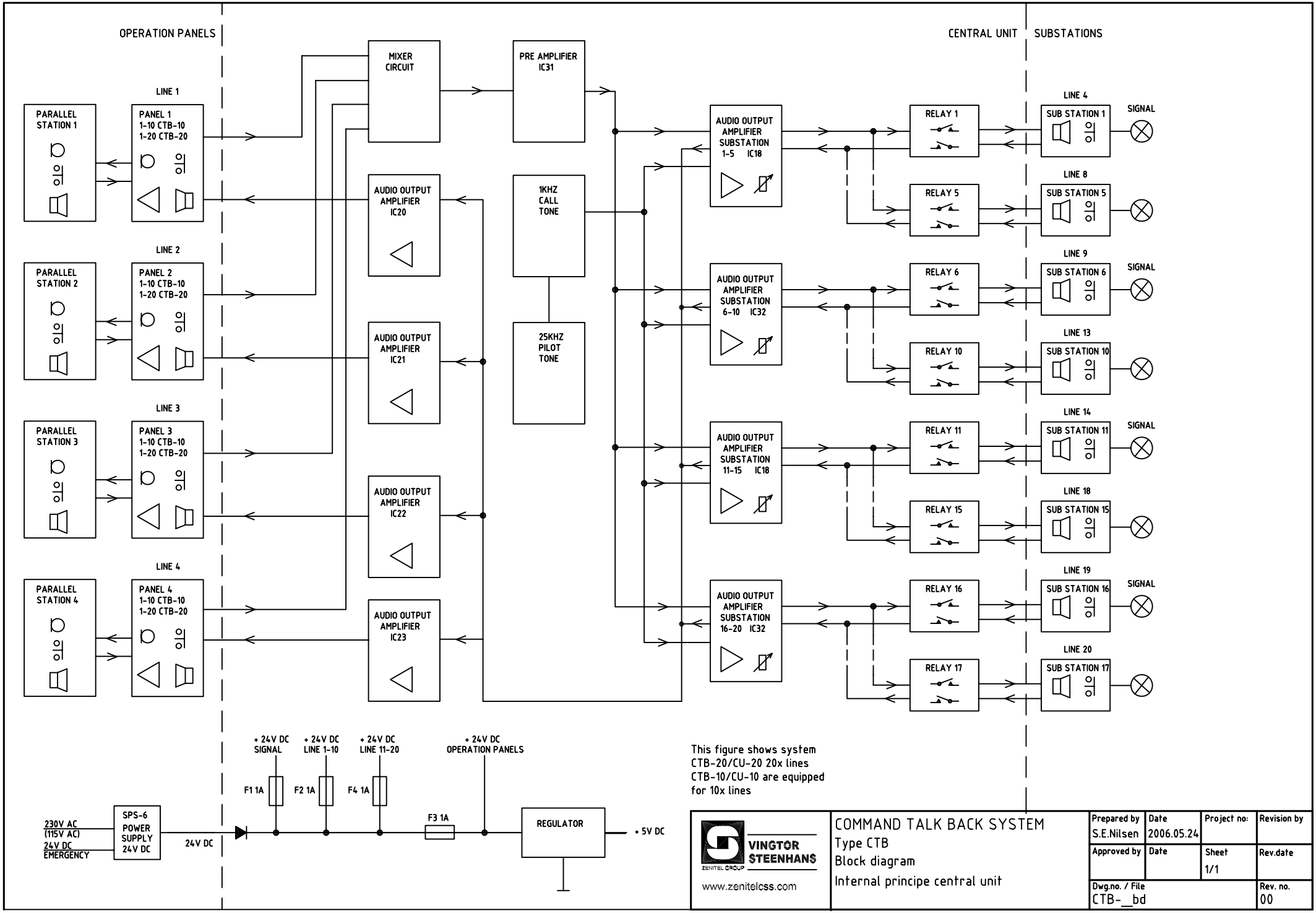
COMMAND TALK BACK SYSTEM
Type CTB
Single line diagram
Typical configuration / Options

Prepared by	Date	Project no:	Revision by
S.E.Nilsen	2001.08.30		S.E.Nilsen
Approved by	Date	Sheet	Rev.date
		1/1	2006.06.08
Dwg.no. / File			Rev. no.
CTB_sl			02



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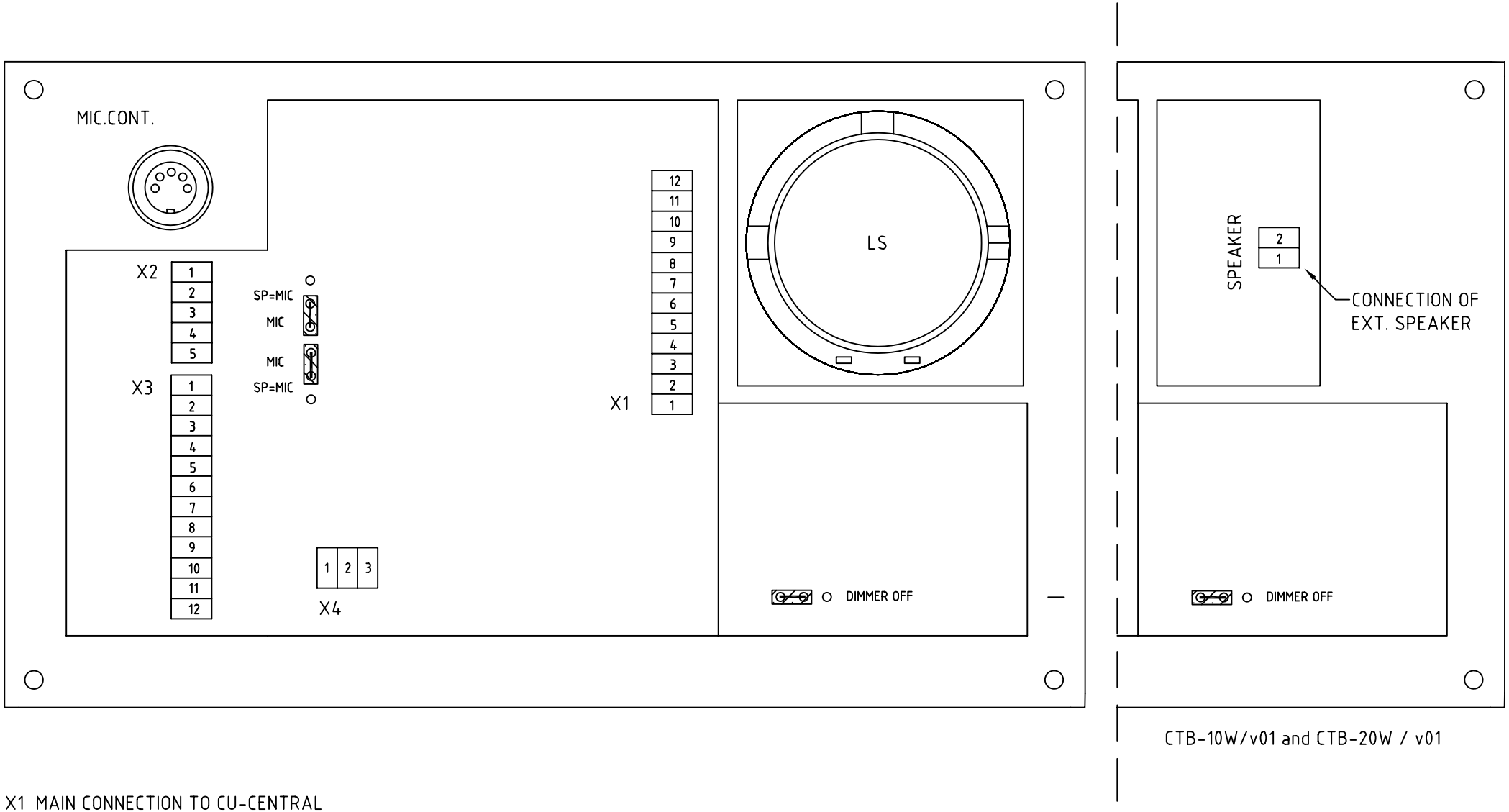
COMMAND TALK BACK SYSTEM
Type CTB
Block diagram
Internal principe central unit

Prepared by	Date	Project no:	Revision by
S.E.Nilsen	2006.05.24		
Approved by	Date	Sheet	Rev.date
		1/1	
Dwg.no. / File			Rev. no.
CTB-__bd			00



CTB-10W/v01 and CTB-20W / v01

X1 MAIN CONNECTION TO CU-CENTRAL
X2 BRIDGE WING MICROPHONE
X3 PARALLEL MICROPHONES / PARALLEL SPEAKER
X4 CALL IN RELAY CONTACTS

CTB-10W / V01 and CTB-20W / V01
WITHOUT INTERNAL SPEAKER

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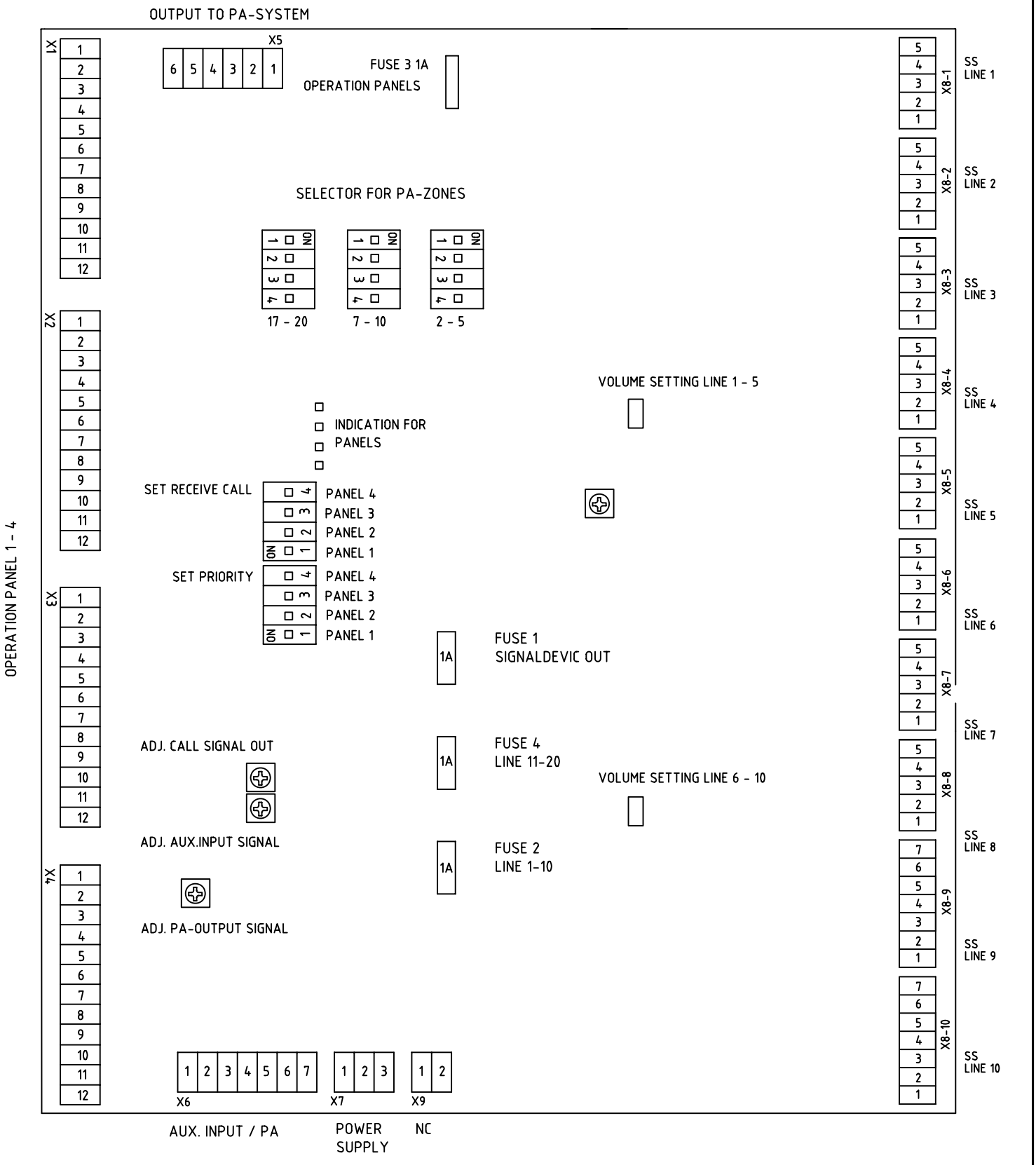
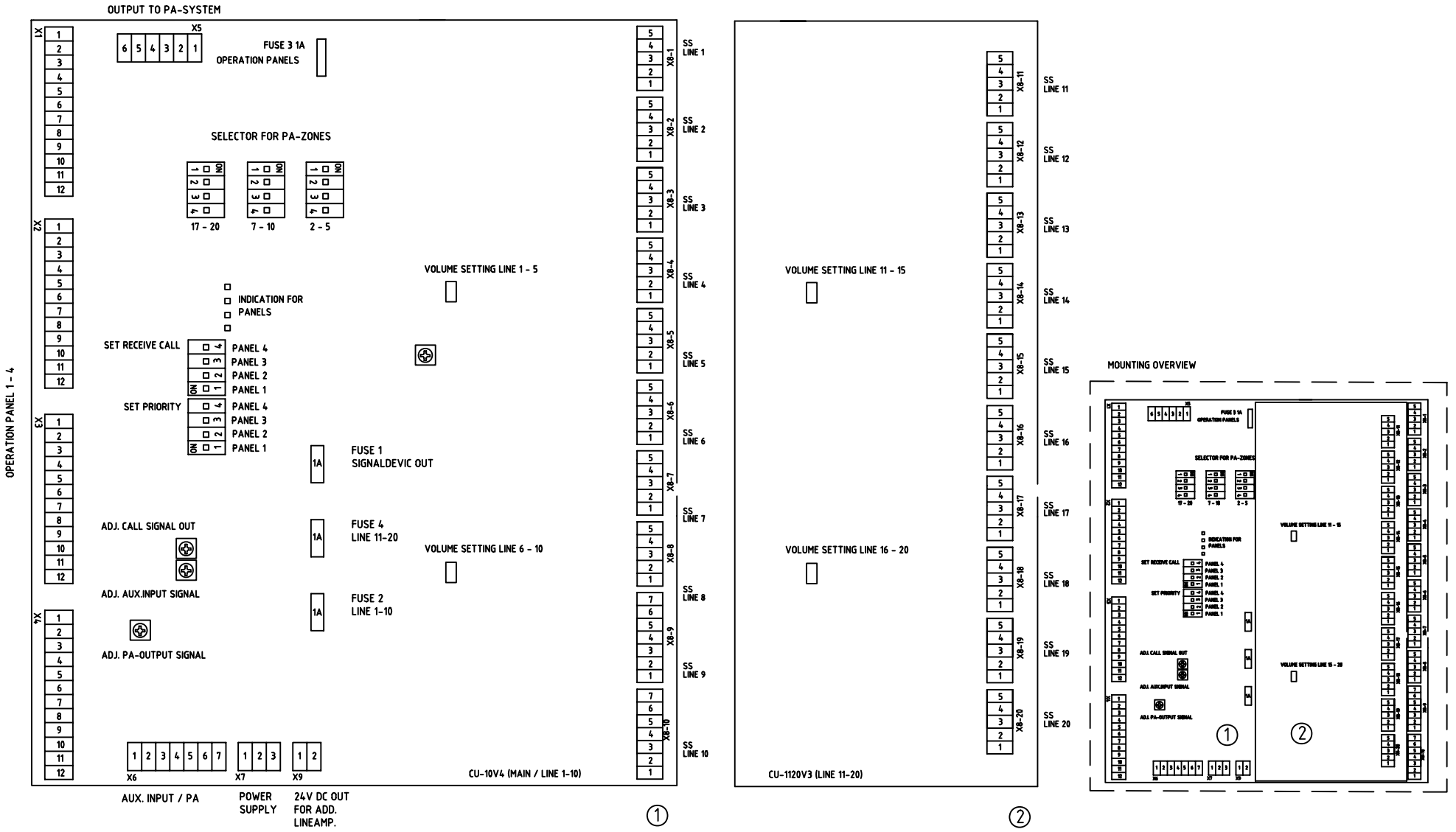
COMMAND TALK BACK SYSTEM

Type CTB & CTB-100
Operation panel CTB-10, CTB-20
CTB-10W/V01 & CTB-20W/V01
Lay out terminals and dipswitch

Prepared by	Date	Project no:	Revision by
S.E.Nilsen	2001.08.29		S.E.Nilsen
Approved by	Date	Sheet	Rev.date
xxx	xxx	1/1	2004.12.16
Dwg.no. / File			Rev. no.
CTB-1020__lo			01

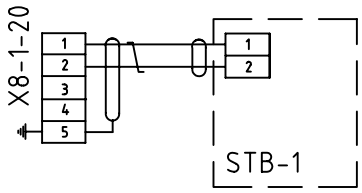


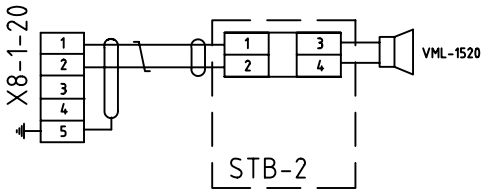
zenitel Zenitel Marine Norway	COMMAND TALK BACK SYSTEM Type CTB Lay out CU-10 Terminals, selctors, fuses, jumpers & adjustments.	Prepared by S.E.Nilsen	Date 2004.12.16	Project no:	Revision by S.E.Nilsen
		Approved by	Date	Sheet 1/1	Rev.date 2006.06.08
		Dwg.no. / File CU-10__lo			Rev. no. 01

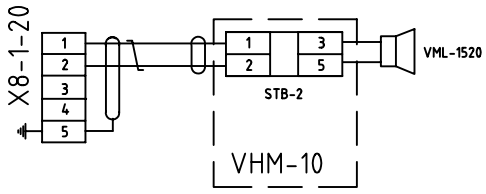


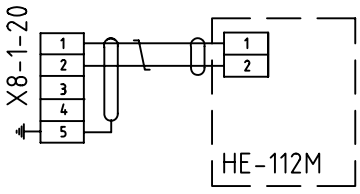
1 Main / line board 1-10
2 Line board 11-20

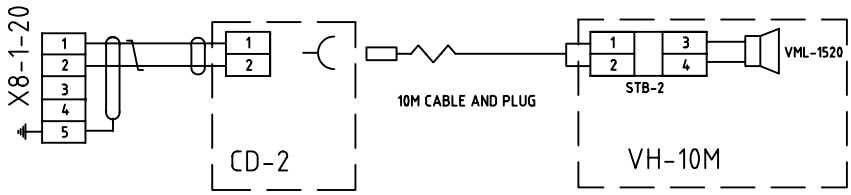
zenitel Zenitel Marine Norway	COMMAND TAK BACK SYSTEM Type CTB Lay out CU-20 Terminals, selectors, fuses, jumpers & adjustments.	Prepared by: S.E.Nilsen	Date: 2004.12.17	Project no:	Revision by: S.E.Nilsen
		Approved by:	Date:	Sheet: 1/1	Rev.date: 2006.06.14
		Dwg.no. / File: CU-20_lo			Rev. no.: 01

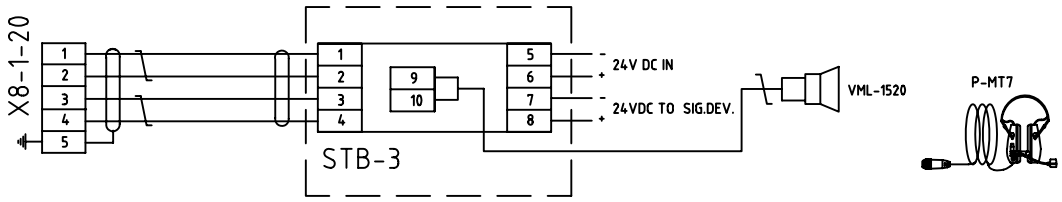


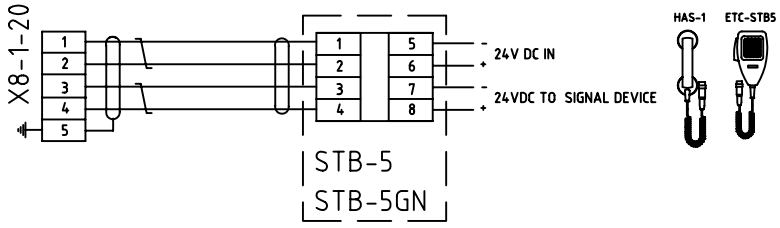




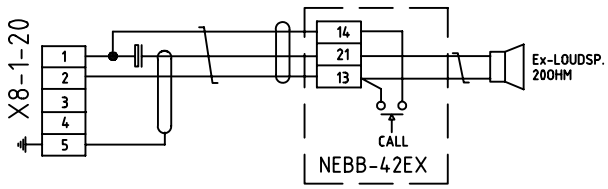


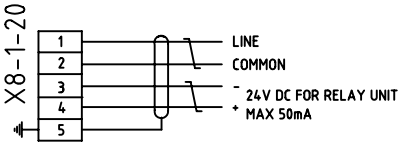






22uF/100V (MOUNTED IN CENTRAL)





ISOLATED SCREEN

Twisted pair

Cable requirement:
Approved shipscable of type
twisted pair with outer braided tinned copper screen.
The screens must be interconnected in junctionboxes
and grounded in a common groundpoint in the central unit only.

Power cable 1,5mm
JB is yard supply

Output for extra signal device for all lines.
We recommend to use 2pair cable to each substation line.

24V DC out from substation w/ relay unit to signal device max.2A

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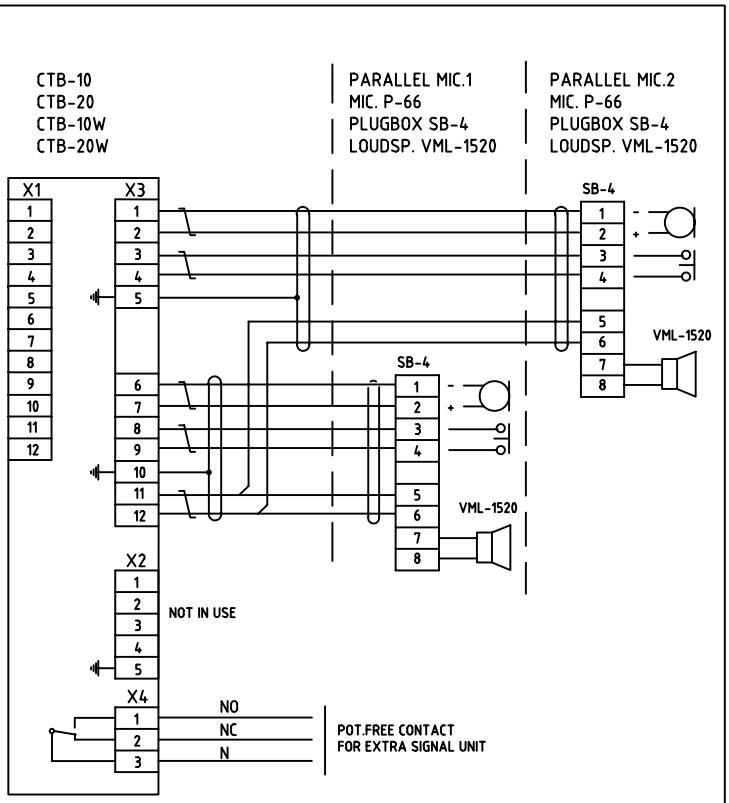
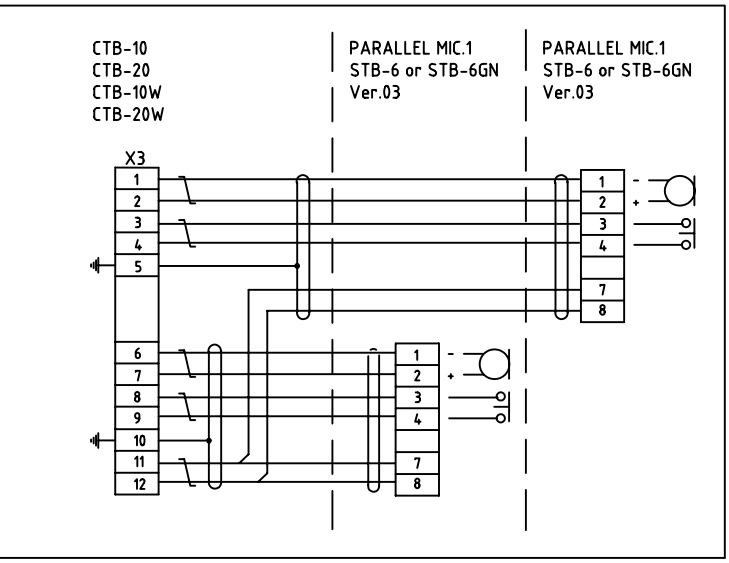
COMMAND TALK BACK SYSTEM
Type CTB
Connection substations
CU-10 & CU-20
Low impedance

Prepared by	Date	Project no:	Revision by
S.E.Nilsen	2001.08.29		Sen
Approved by	Date	Sheet	Rev.date
		1/1	2004.12.23
Dwg.no. / File			Rev. no.
CTB-__cc1			03

OPTION 1 PARALLEL MICROPHONE / LOUDSPEAKER

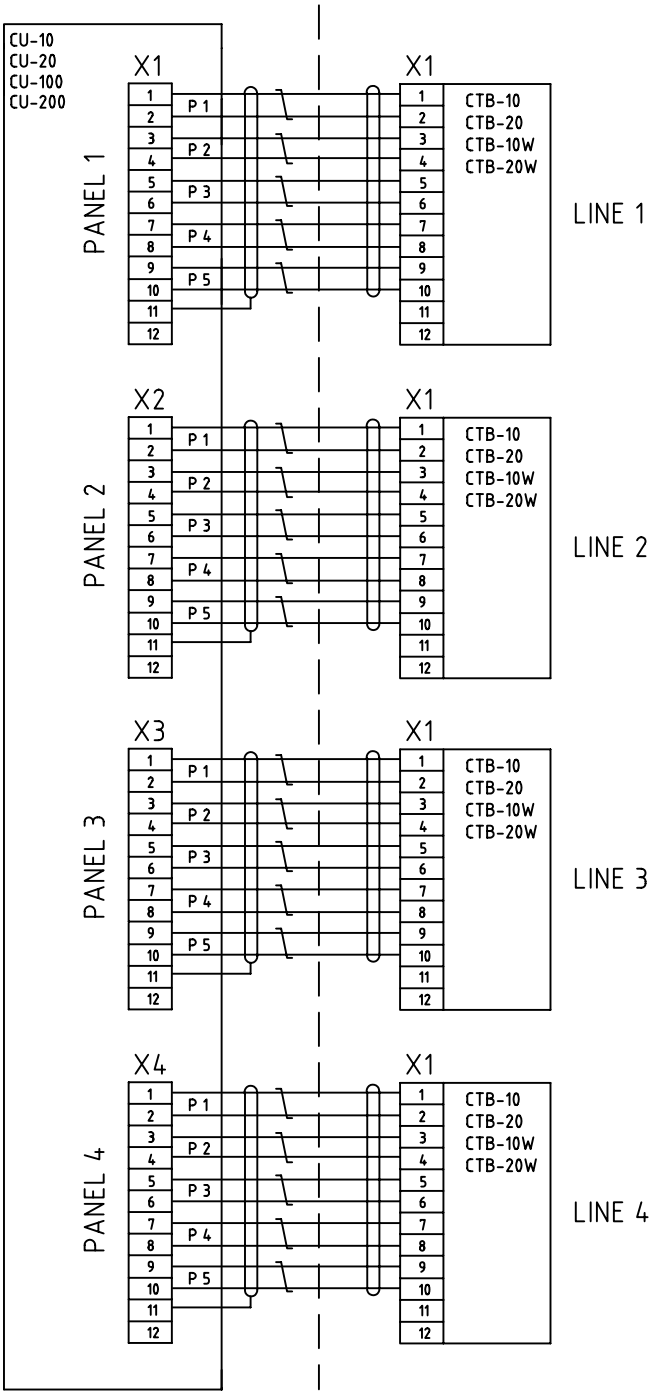


OPTION 2 PARALLEL MICROPHONE / LOUDSPEAKER



CENTRAL UNIT

OPERATION PANEL



Max. 4 operation panels
On system with more than
1 operation panel,
each panel take one
substation line.

CTB-10
CTB-20
CTB-10W
CTB-20W

X1

1	+ 24V DC
2	− 24V DC
3	CLK A
4	CLK B
5	RX TX A
6	RX TX B
7	F > MIC. LINE OUT
8	F > MIC. LINE OUT
9	F > SPEAKER LINE IN
10	F > SPEAKER LINE IN
11	SCREEN
12	

Output for extra signal device for all lines.
We recommend to use 2pair cable to each substation line.

Twisted pair

Isolated screen

Cable requirement:
Approved shipscable of type
twisted pair with outer braided tinned copper screen.
The screens must be interconnected in junctionboxes
and grounded in a common groundpoint in the central unit only.

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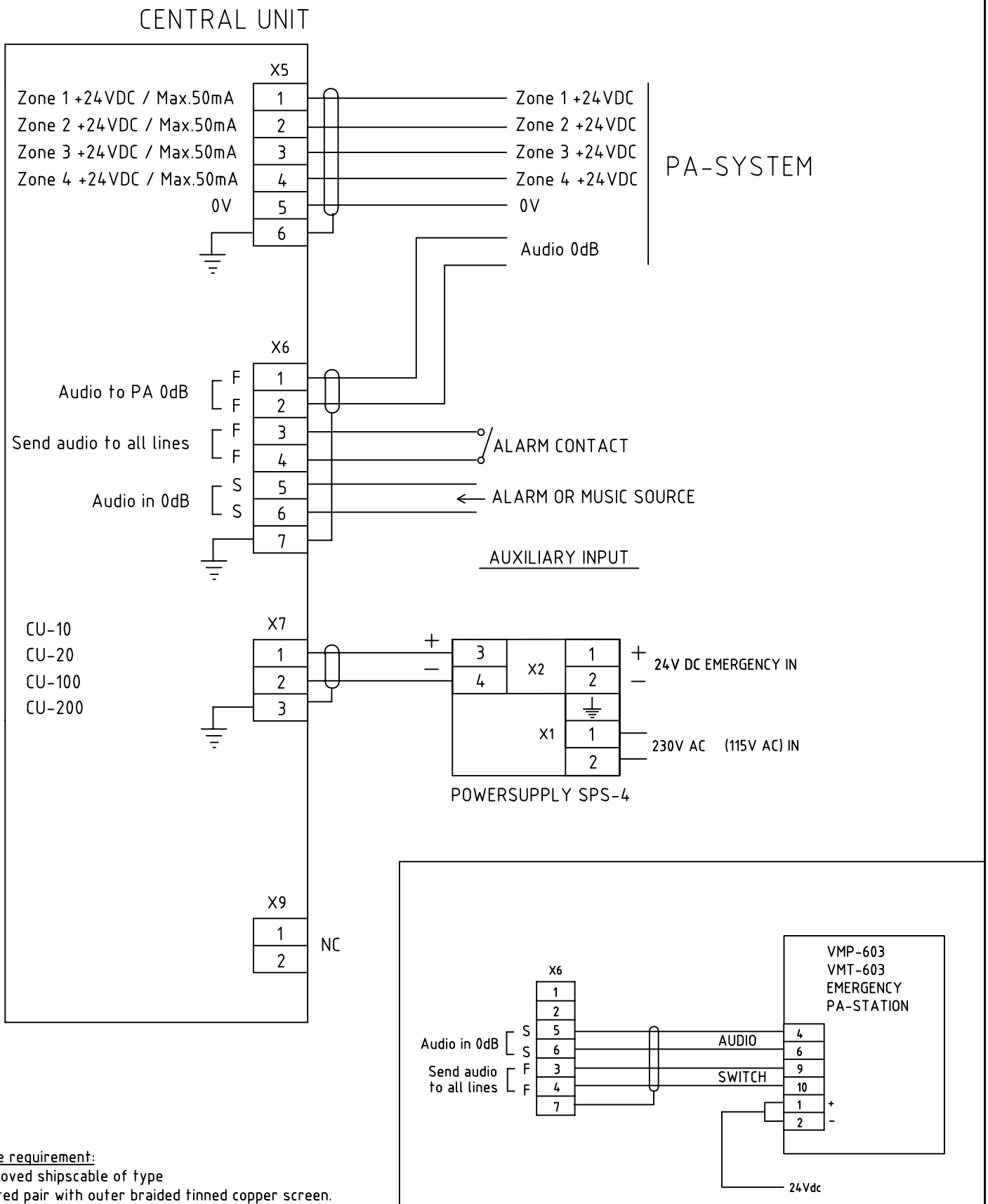
COMMAND TALK BACK SYSTEM
Type CTB & CTB-100V
Cable connection diagram
Central unit CU- / operation panels CTB-
Option operation panels.

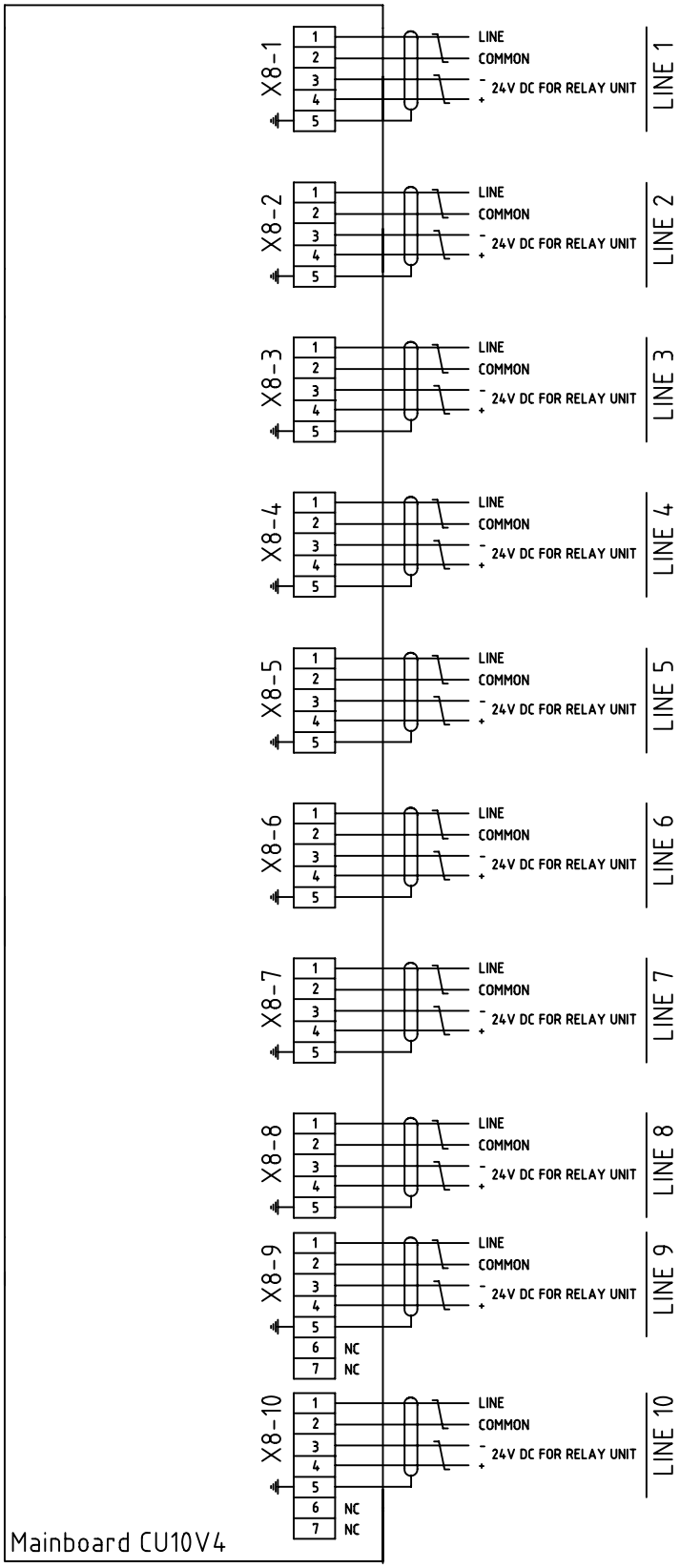
Prepared by	Date	Project no:	Revision by
S.E.Nilsen	2001.08.29		Sen
Approved by	Date	Sheet	Rev.date
		1/1	2004.07.04
Dwg.no. / File			Rev. no.
CTB__cc2			03



Cable requirement:
Approved shipscable of type
twisted pair with outer braided tinned copper screen.
The screens must be interconnected in junctionboxes
and grounded in a common groundpoint in the central unit only.

Powercable min 0,75mm

zenitel Zenitel Marine Norway	COMMAND TALK BACK SYSTEM Type CTB Cable connection diagram Power, PA, alarm & Auxiliary	Prepared by 2001.09.03	Date S.E.Nilsen	Project no:	Revision by S.E.Nilsen
		Approved by	Date	Sheet 1/1	Rev.date 2006.12.19
		Dwg.no. / File CTB_cc3			Rev. no. 05



Cable requirement:
Approved shipscable of type
twisted pair with outer braided tinned copper screen.
The screens must be interconnected in junctionboxes
and grounded in a common groundpoint in the central unit only.

Power cable 1,5mm
JB is yard supply

24V DC out for substation w/ relay unit
or other relay units (max 50mA)
We recommend to use 2pair cable to each
substation line.

Twisted pair

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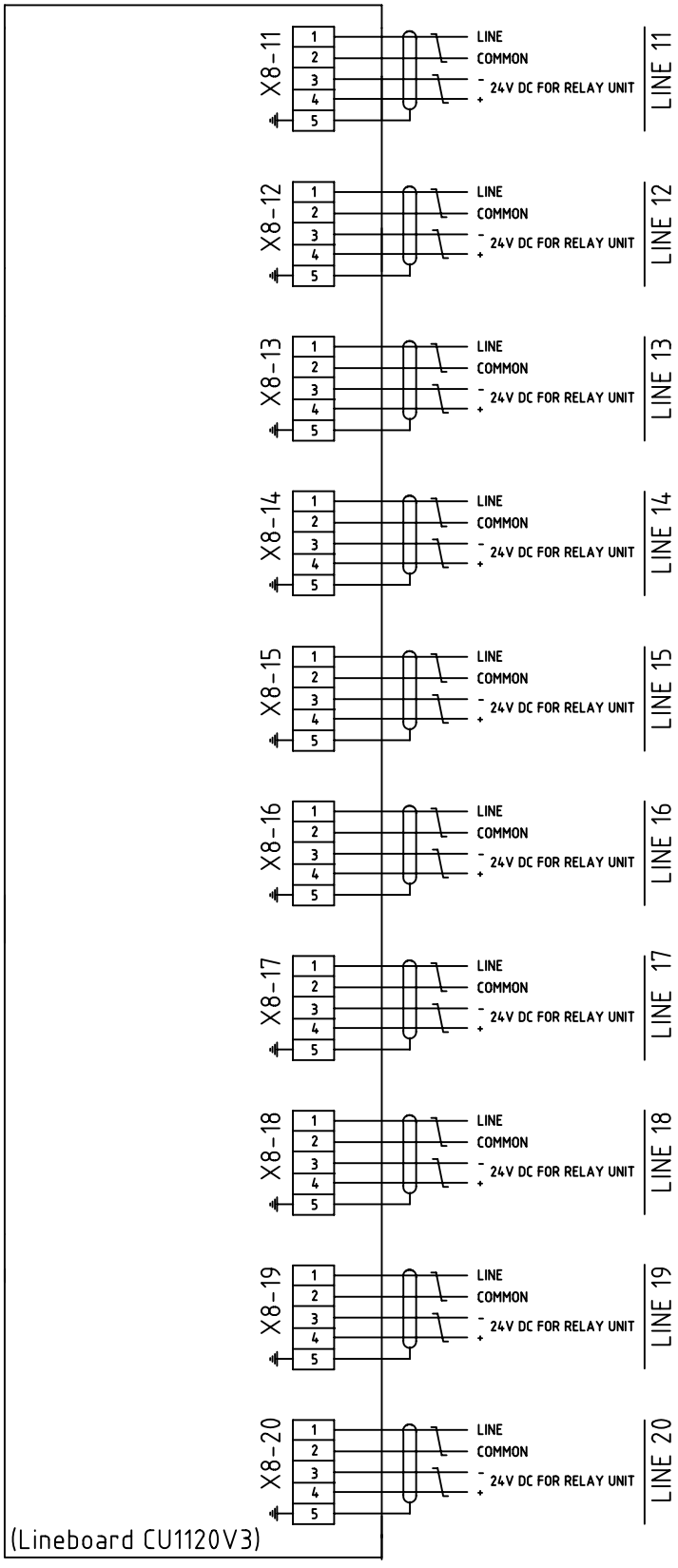
COMMAND TALK BACK SYSTEM
Type CTB
Cable connection diagram
Central unit CU-10 & CU-20
Substation line 1 - 10

Prepared by	Date	Project no:	Revision by
S.E.Nilsen	2002.09.12		S.E.Nilsen
Approved by	Date	Sheet	Rev.date
		1/1	2004.12.22
Dwg.no. / File			Rev. no.
CTB__cc4			01



Cable requirement:
Approved shipscable of type
twisted pair with outer braided tinned copper screen.
The screens must be interconnected in junctionboxes
and grounded in a common groundpoint in the central unit only.

Power cable 1,5mm
JB is yard supply

24V DC out for substation w/ relay unit
or other relay units (max 50mA)
We recommend to use 2pair cable to each
substation line.

\ Twisted pair

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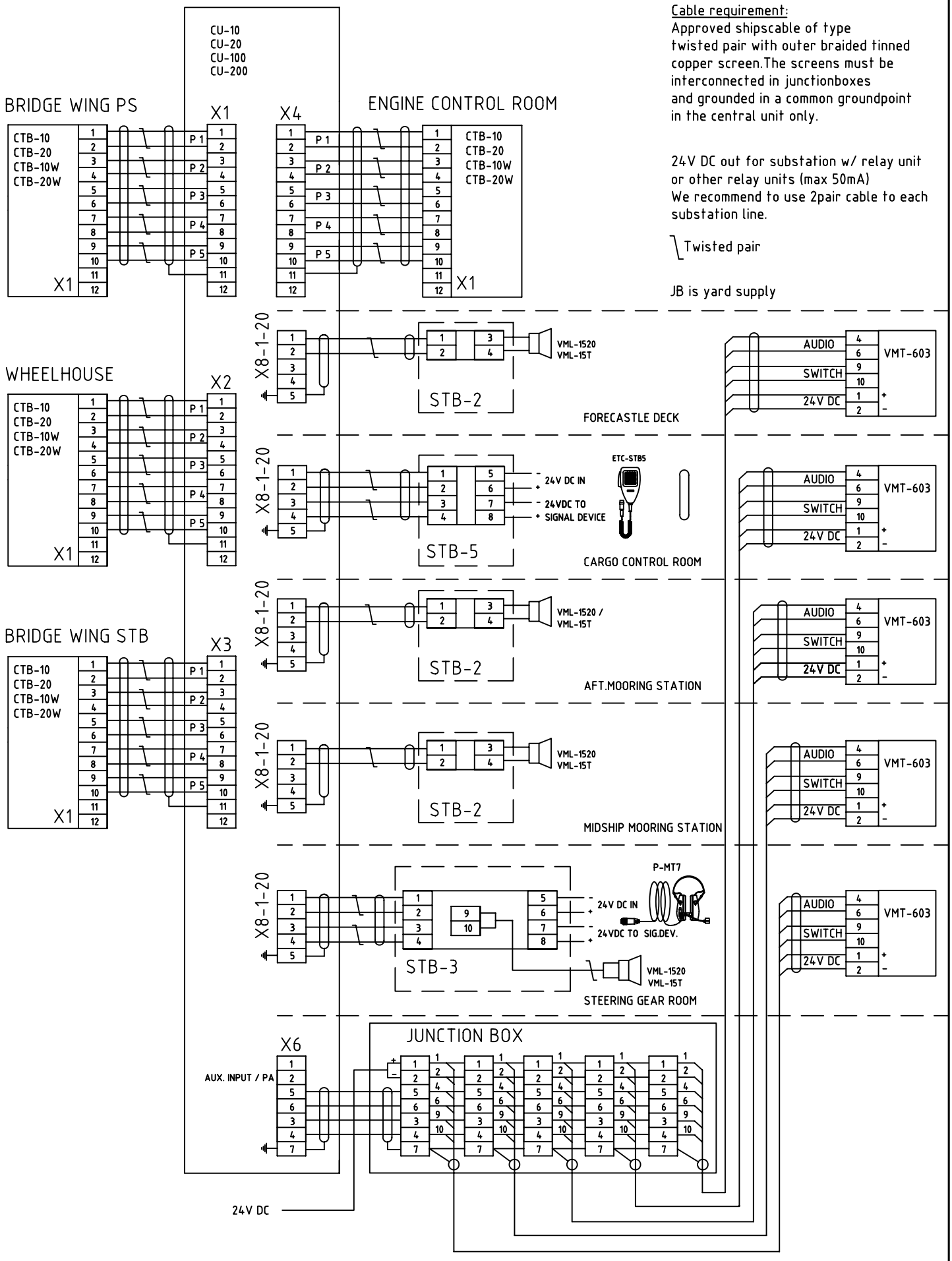
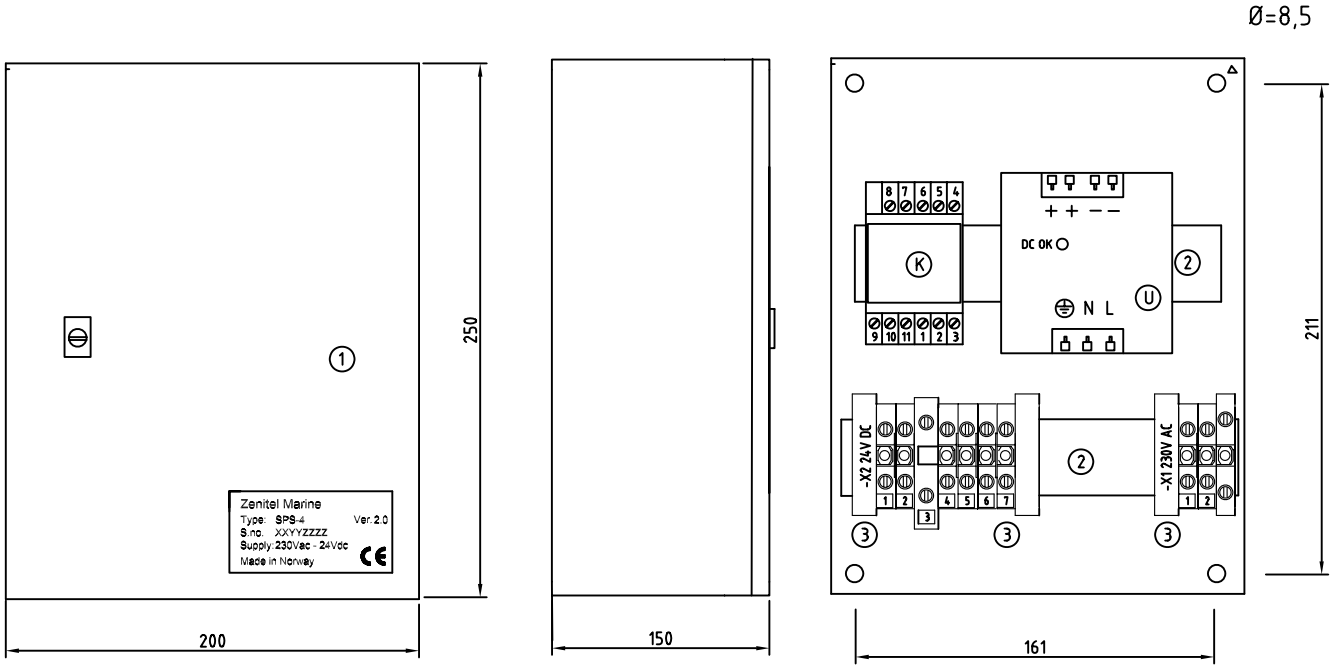
COMMAND TALK BACK SYSTEM
Type CTB
Cable connection diagram
Central unit CU-20
Substation line 11 - 20

Prepared by	Date	Project no:	Revision by
S.E.Nilsen	2002.09.12		S.E.Nilsen
Approved by	Date	Sheet	Rev.date
		1/1	2004.12.22
Dwg.no. / File			Rev. no.
CTB__cc5			01



VINGTOR STEENHANS / ZENITEL GROUP www.zeniteloss.com	COMMAND TALK BACK SYSTEM Type CTB & CTB-100 Cable connection diagram when system is classified in DNV C500 Nautical Safety	Prepared by: S.E.Nilsen Approved by: Dwg.no. / File: CTB__cc6	Date: 2006.06.08 Date: Project no: Sheet: 1/1 Revision by Rev.date Rev. no.: 00



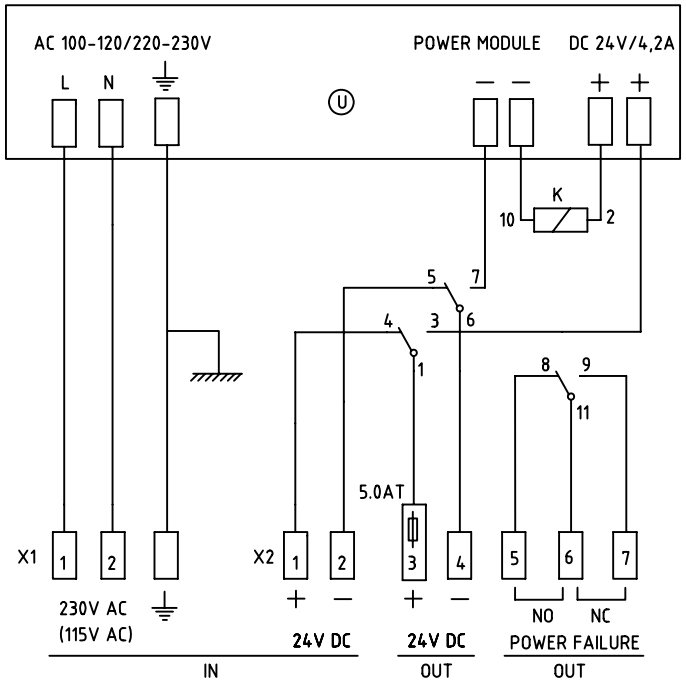
NORMAL OPERATING,
GREEN LIGHT IN "DC OK"
230V AC OR 115V AC MAIN POWERSUPPLY X1 No.1-2
24V DC OUT ON TERMINAL X2 No.3-4

OPERATING WITH 24V DC EMERGENCY POWERSUPPLY
WHEN POWERFAILURE FROM 230V AC OR 115V AC
NO GREEN LIGHT IN "DC OK"
24V DC IN ON TERMINAL X2 No.1-2
24V DC OUT ON TERMINAL X2 No.3-4

POWERFAILURE INDICATION
INDICATION ON X2 No.5-6 NO (=NORMAL OPEN)
OR ON X2 No.6-7 NC (=NORMAL CLOSED)
OR DEVICE CONNECTED TO THIS CONTACTS.
NO LIGHT IN LAMP MARKED "DC ok"

TWO POSSIBILITIES:
1. 230V AC OR 115V AC HAS FAILED AND HAVE BEEN
SWITCHED TO 24V DC EMERGENCY
RECOMMENDED ACTION: CHECK MAIN POWERSUPPLY.

2. THE POWER SUPPLY MODULE HAS FAILED
RECOMMENDED ACTION 1: CHECK FUSE 5.0AT TERMINAL X2 No.3
RECOMMENDED ACTION 2: THE POWERSUPPLY
HAVE TO BE REPAIRED/REPLACED



ID	Description 1	Description 2	Qty.
1	CABINET w/ MOUNTINGPLATE	MAS0252015 ELDON	1
2	DIN-RAIL	TS-30 (150MM)	2
U	POWERSUPPLY MODULE	ML100.100	1
K	RELAY 24V DC w/SOCKET	C3-A30X RELECO	1
X1: 1 2 X2: 1 2 4 5 6 7	TERMINAL w/MARKING	4MM	8
X2: 3	FUSE TERMINAL w/MARKING	4MM	1
X1: G/Y	GROUND TERMINAL	4MM	1
3	END LOCK w/ MARKING X1, X2		3
X2: 3	FUSE 5x20	5,0A T	1

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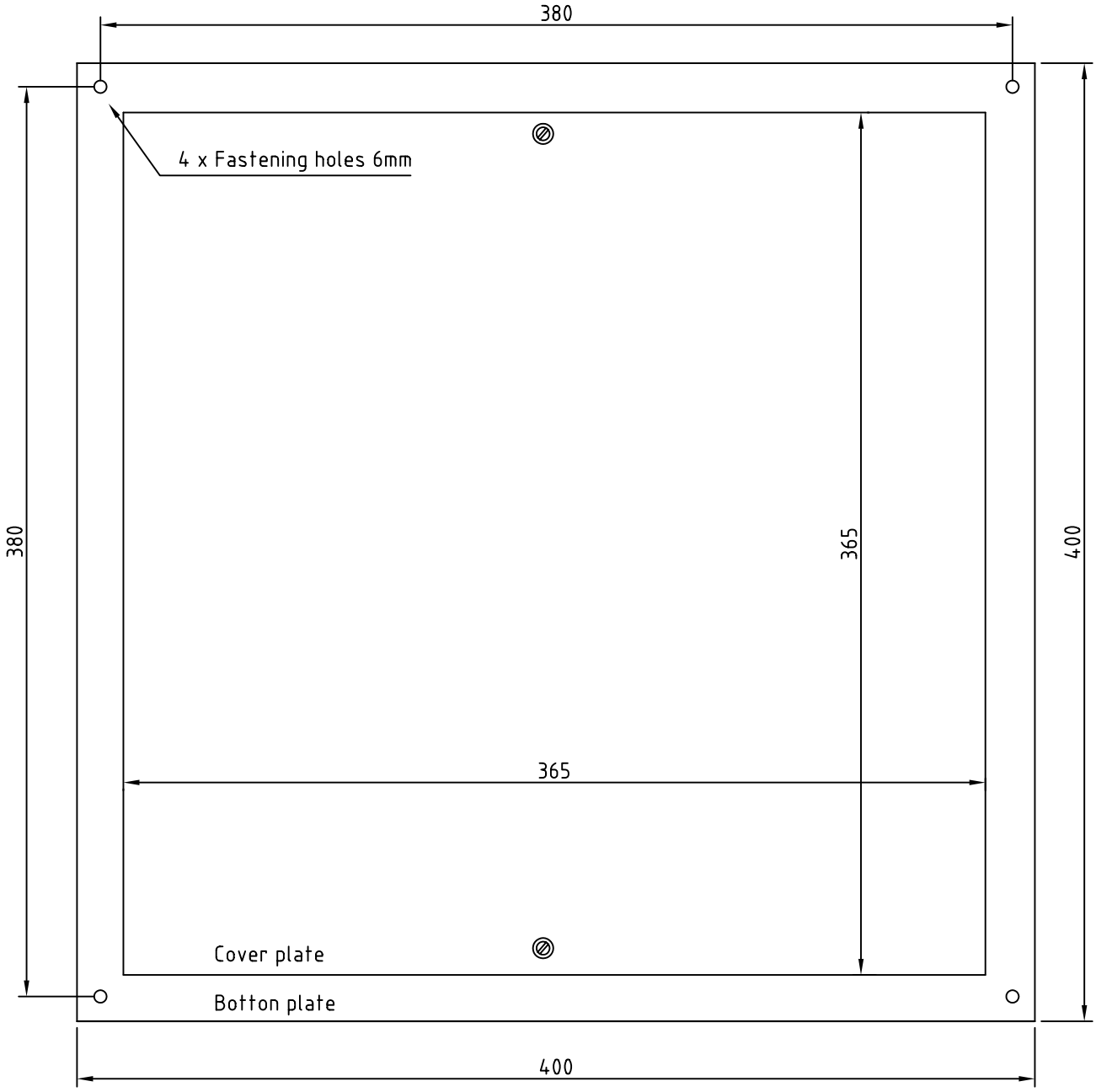
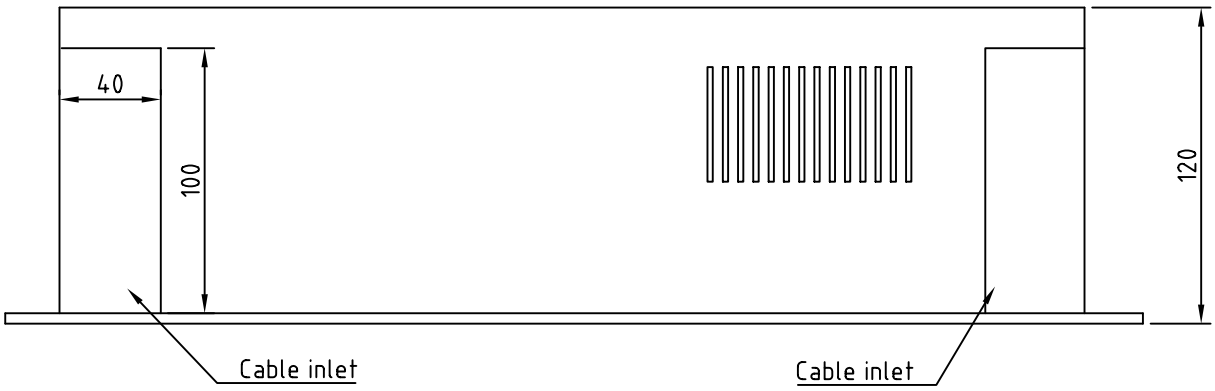
www.zenitelcss.com

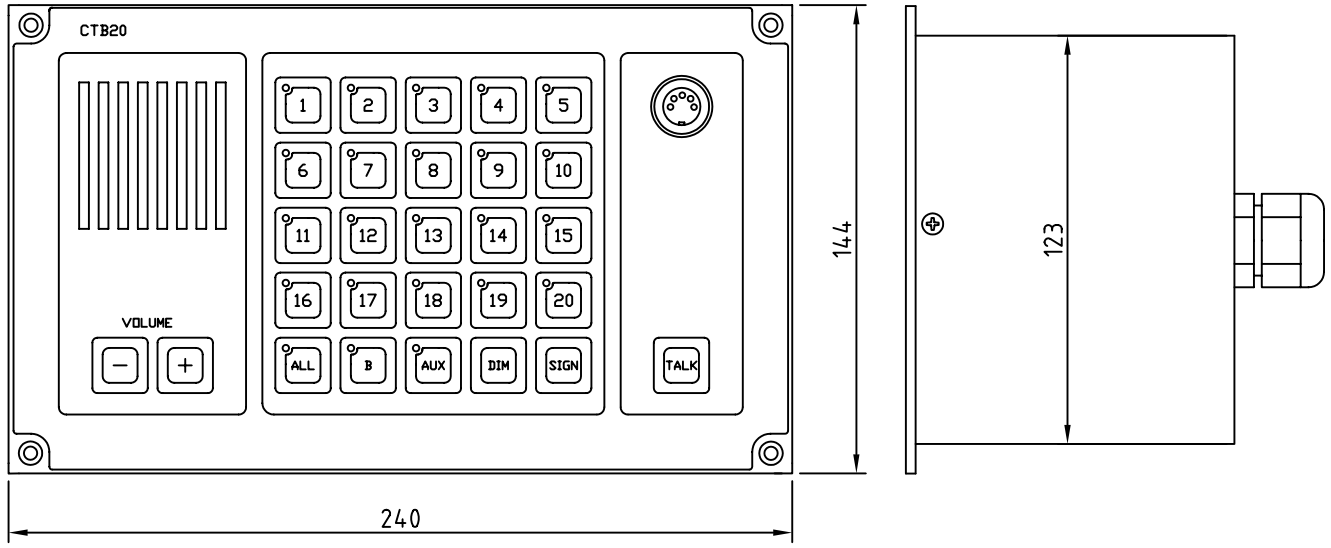
COMMON EQUIPMENT
Powersupply SPS-4
230V AC - 115V AC / 24V DC
w/relay and powerfailure contact
Ver.2.0

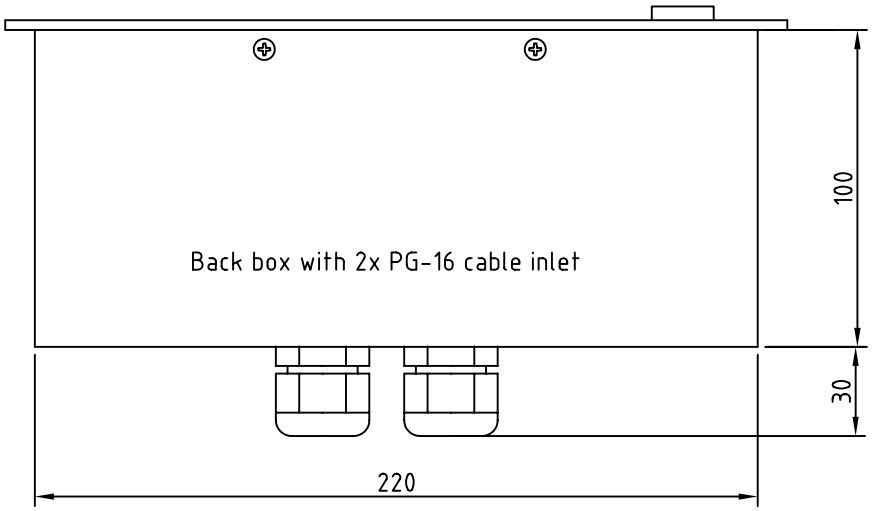
Prepared by	Date	Project no:	Revision by
S.E.Nilsen	2005.08.19		S.E.Nilsen
Approved by	Date	Sheet	Rev.date
xxx	xxx	1/1	2006.05.31
Dwg.no. / File			Rev. no.
SPS-4 Ver.2.0_ddwd			01

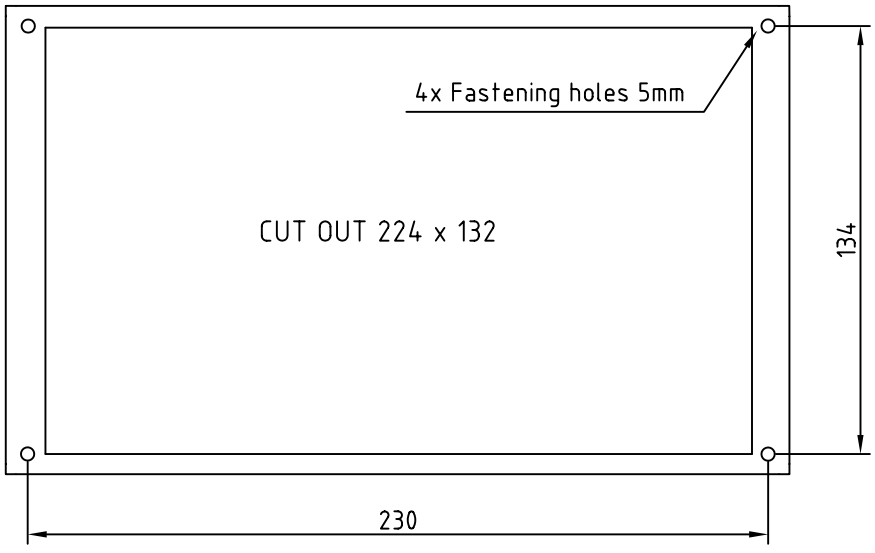




zenitel Zenitel Marine Norway	COMMAND TALK BACK SYSTEM CTB & CTB-100 Central unit CU-10, CU-20, CU-100,CU-200 Outline dwg.	Prepared by S.E.Nilsen	Date 2001.08.29	Project no:	Revision by S.E.Nilsen
		Approved by	Date	Sheet 1/1	Rev.date 2004.12.29
		Dwg.no. / File CU__dd			Rev. no. 01

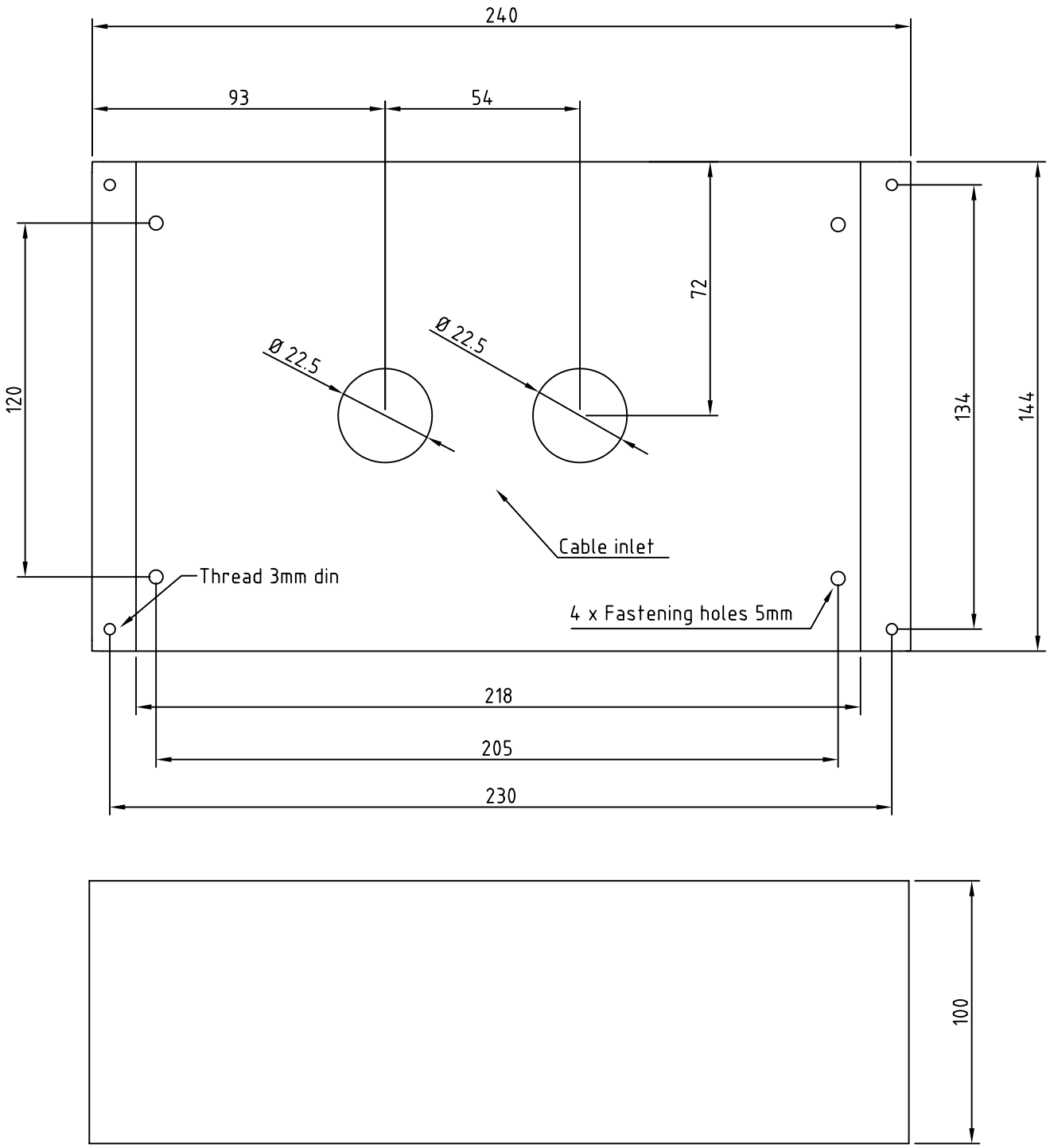




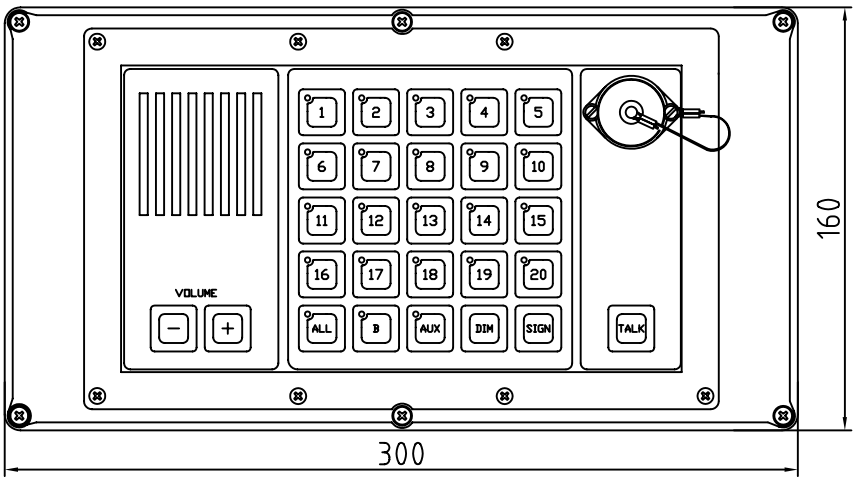


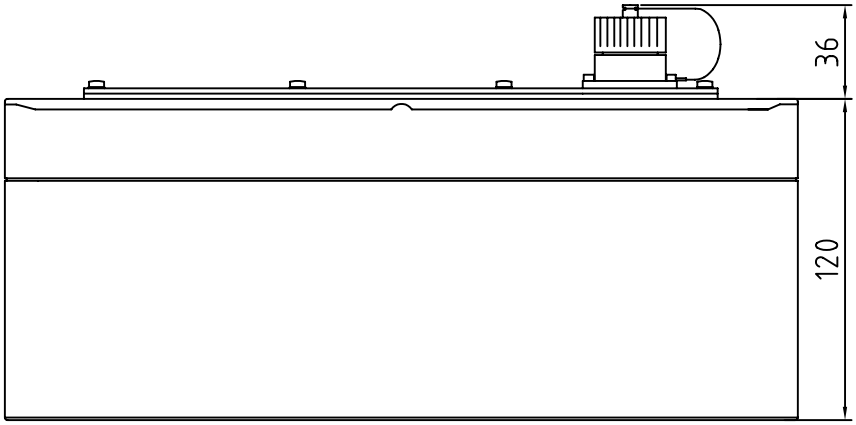
CTB-10 Equipped with 10 line push buttons
CTB-20 Equipped with 20 line push buttons

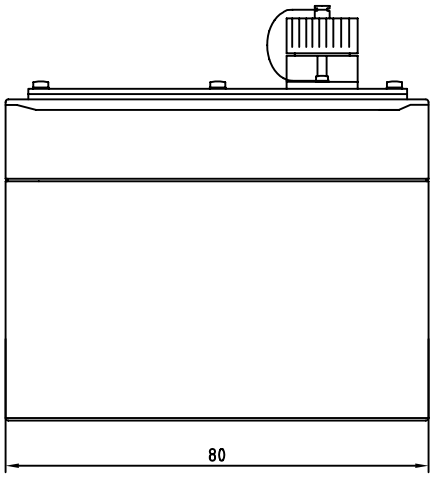
zenitel Zenitel Marine Norway	COMMAND TALK BACK SYSTEM Type CTB & CTB-100 Operator panel Type CTB-10 & CTB-20 Outline dwg.	Prepared by: S.E.Nilsen	Date: 2001.08.30	Project no:	Revision by: S.E.Nilsen
		Approved by:	Date:	Sheet: 1/1	Rev.date: 2004.12.29
		Dwg.no. / File: CTB-1020__dd1			Rev. no.: 01

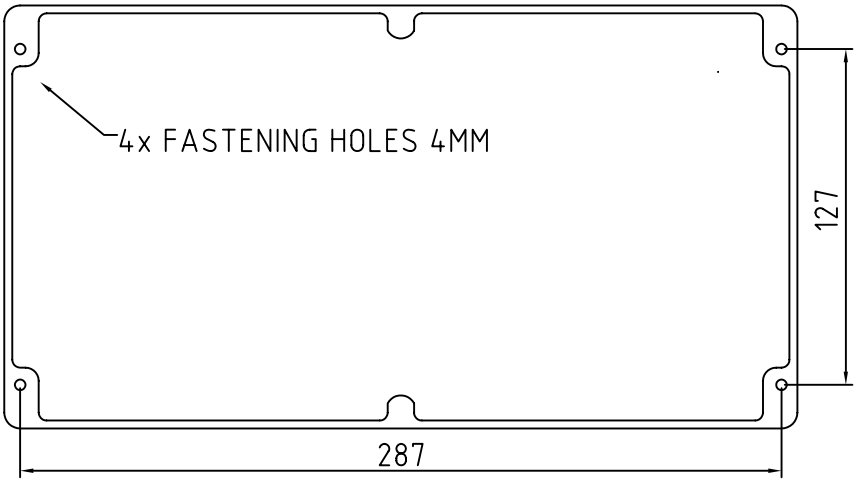


zenitel Zenitel Marine Norway	COMMAND TALK BACK SYSTEM Type CTB & CTB-100 Box for wall mounting CTB-10 & 20 ETB-5,10,100. Type WBOKS	Prepared by: S.E.Nilsen Approved by:	Date: 2004.12.29 Date:
		Project no: Sheet: 1/1	Revision by Rev.date
		Dwg.no. / File: WBOKS_dd	Rev. no.: 00



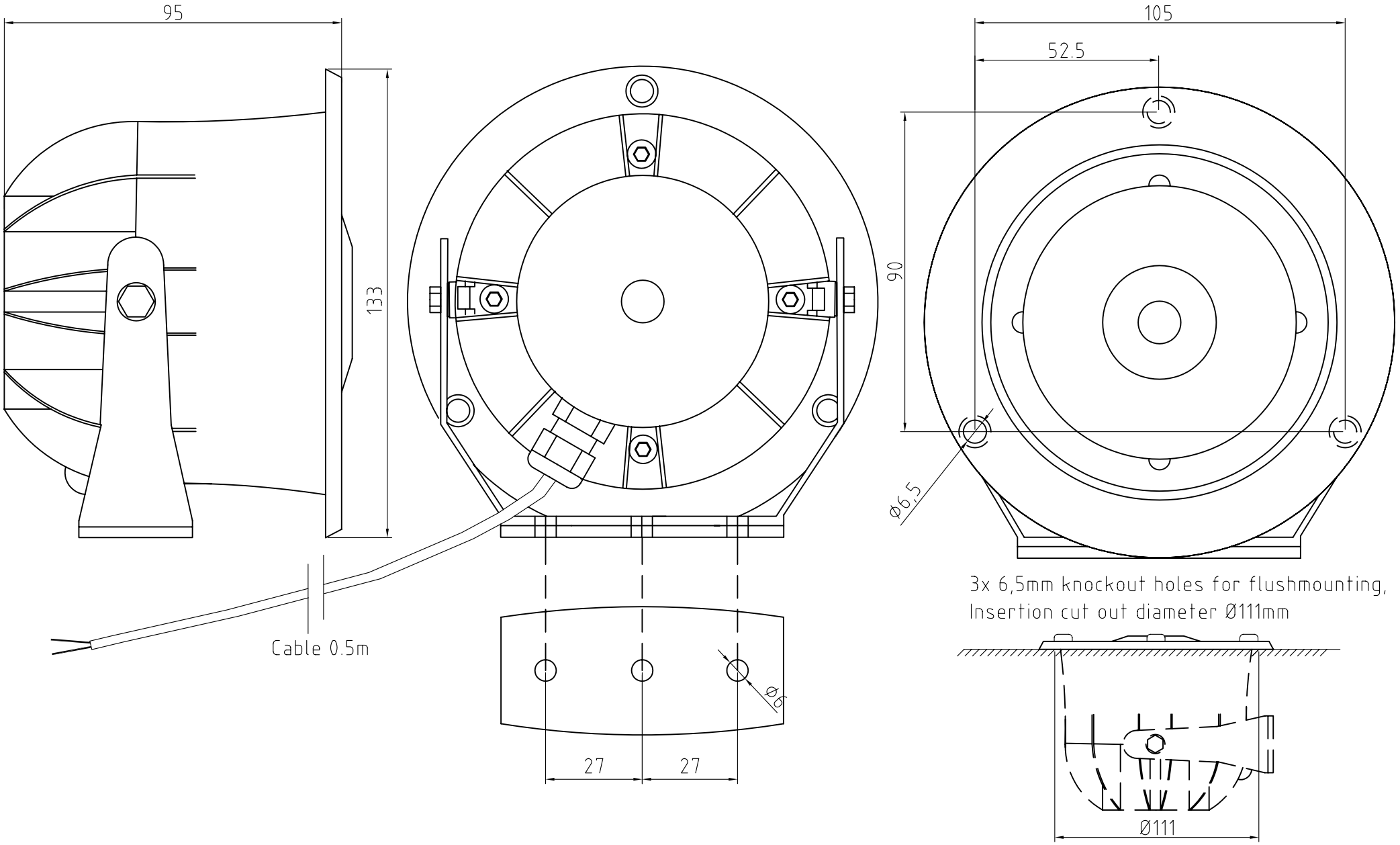






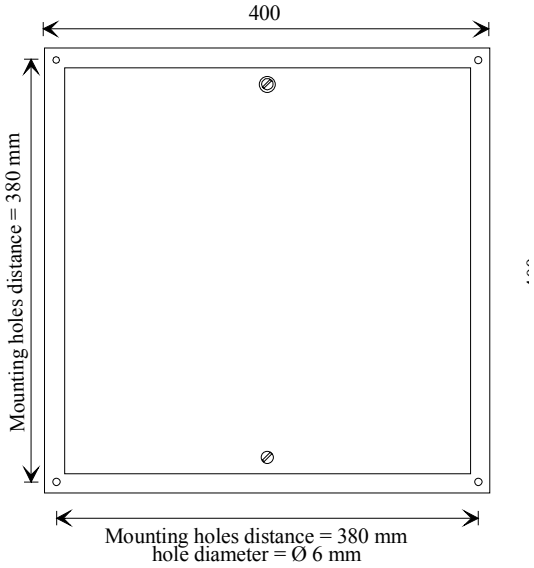
CTB-10 Equipped with 10 line push buttons

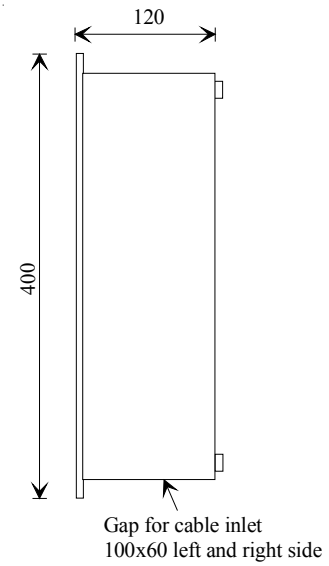
zenitel Zenitel Marine Norway	COMMAND TALK BACK SYSTEM Type CTB & CTB-100 Operator panel Type CTB-10W / V01 and CTB-20W / V01	Prepared by: S.E.Nilsen	Date: 2004.12.30	Project no:	Revision by
		Approved by	Date	Sheet: 1/1	Rev.date
		Dwg.no. / File: CTB-1020W__dd			Rev. no.: 00



zenitel Zenitel Marine Norway	COMMON EQUIPMENT Loudspeaker Horn Type HP-8 & HP-8T Flush and bracket mounting	Prepared by S.E.Nilsen	Date 2005.03.15	Project no:	Revision by
		Approved by	Date	Sheet	Rev.date
		Dwg.no. / File HP-8__dd			Rev. no. 00

Talk-Back Systems CU-10





Description:

CU-10

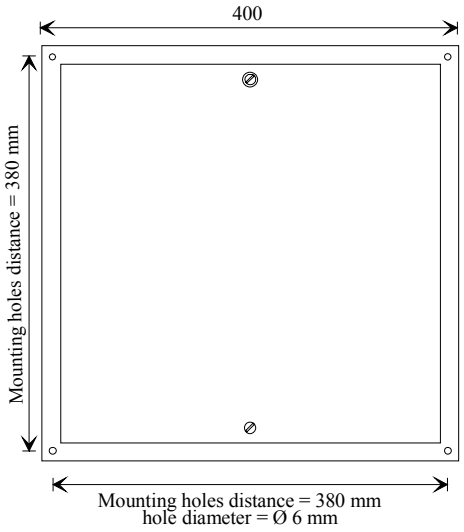
* Central unit 10 lines for the CTB system
* Operates with CTB-10 panel unit
* AUX / Alarm input
* Output to Public Address system
* Signal oscillator
* 24 VDC power supply

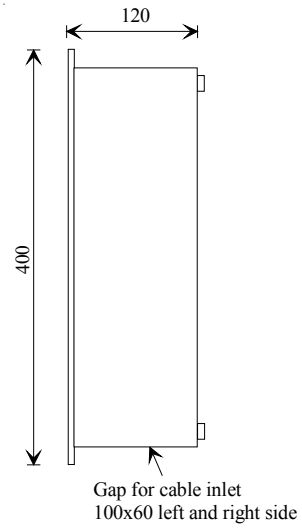
Technical data:

Material / finish:	Aluminium / black.
Mounting:	Bulkhead with 4 x 4mm screws
Terminals:	Plugable screw terminals for cable max. 2,5mm^2
Fuses:	F1,F2,F3;F4 1A 5 x 20
DIP-switches:	For PA-zones, set priority, set receive call.
Pot.meter:	For volume setting line 1-5, 6-10
Dimension W/H/D mm:	400 x 400 x120
Weight:	Approx. 2,6Kg
Protection:	IP-22
External connections:	4x Operation panels, up to 10 substations, AUX, PA
AUX input:	0 dB 0,775V/600ohm
Alarm contact:	Potential free N/O
Frequency range:	200Hz - 8KHz (-3dB)
Temperature operating:	-20 + 55^{0}C
Humidity:	5 - 95 %
Power supply:	20 - 32V DC
Power consumption at 24V DC:	2,5 A
Output power:	30W per 10 lines
Output impedance:	20 ohm per line

Document no.	CU-10_ds rev.02 2004.09.06
Article no.	CU-10

Talk-Back Systems CU-20





Description:

CU-20

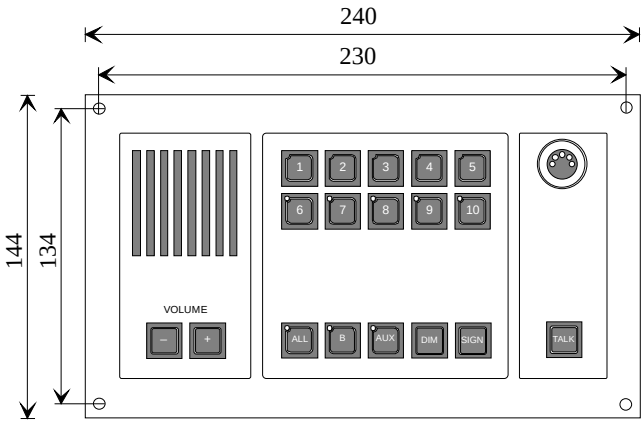
* Central unit 20 lines for the CTB system
* Operates with CTB-20 panel unit
* AUX / Alarm input
* Output to Public Address system
* Signal oscillator
* 24 VDC power supply

Technical data:

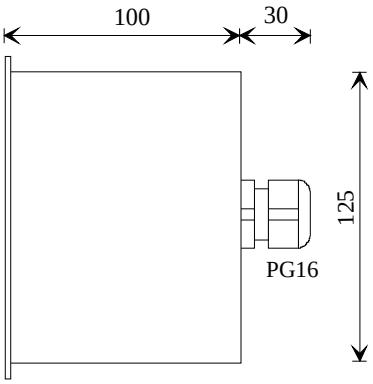
Material / finish:	Aluminium / black.
Mounting:	Bulkhead with 4 x 4mm screws
Terminals:	Plugable screw terminals for cable max. 2,5mm^2
Fuses:	F1,F2,F3;F4 1A 5 x 20
DIP-switches:	For PA-zones, set priority, set receive call.
Pot.meter:	For volume setting line 1-5, 6-10, 11-15, 16-20
Dimension W/H/D mm:	400 x 400 x 120
Weight:	Approx. 2,6Kg
Protection:	IP-22
External connections:	4x Operation panels, up to 20 substations, AUX, PA
AUX input:	0 dB 0,775V/600ohm
Alarm contact:	Potential free N/O
Frequency range:	200Hz - 8KHz (-3dB)
Temperature operating:	-20 + 55^{0}C
Humidity:	5 - 95 %
Power supply:	20 - 32V DC
Power consumption at 24V DC:	5 A
Output power:	30W per 10 lines
Output impedance:	20 ohm per line

Document no.	CU-20_ds rev.02 2004.09.06
Article no.	CU-20

Talk-Back Systems CTB-10



Mounting holes = Ø 4,5 mm
Panel cut-out = 224 x 132



Description:

CTB-10

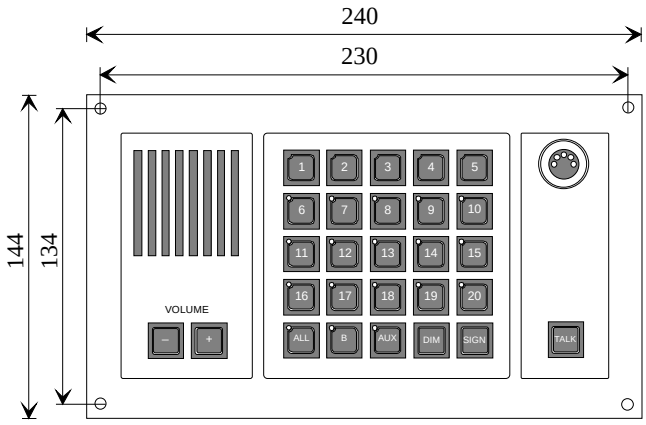
* Operator panel CTB-10 with 10 lines selection
* Operates with CU-10 or CU-20 central unit
* Bridge Wing communciation facility
* All Call / Group Call facility
* Re-entrant monitor-speaker / microphone
* Connector for gooseneck or handheld microphone
* Dimable panel background light
* Extension buttons with memory light
* Buzzer indication of incoming calls
* Step volume control
* Signal oscillator
* Output for extra signal device all lines

Technical data:

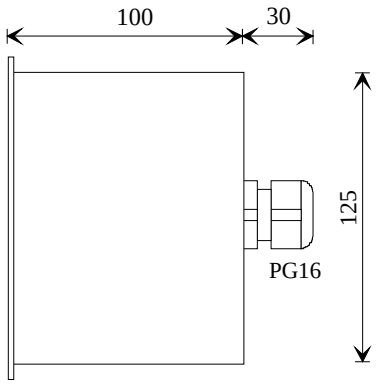
Material / finish:	Aluminium / black.
Mounting:	Flush with 4 x 4mm screws Optional Back box for bulkhead mounting.
Terminals:	Plugable screw terminals for cable max. 2,5mm^2
Cable gland:	2x PG-16
Dimension W/H/D mm:	240 x 144 x 100
Cut out dimension:	224 x 132
Weight:	Approx. 1,2Kg
Microphone input:	Contact for handheld and electret gooseneck microphone
External connections:	Central unit, ext. microphones. ext.loudspeaker
Front panel:	Graphic front film
Switches:	Push button type with LED indication
Loudspeaker:	3W / 8 ohm
IP rating:	IP-47

Document no.	CTB-10_ds rev.03 2005.01.06
Article no.	CTB-10

Talk-Back Systems CTB-20



Mounting holes = Ø 4,5 mm
Panel cut-out = 224 x 132



Description:

CTB-20

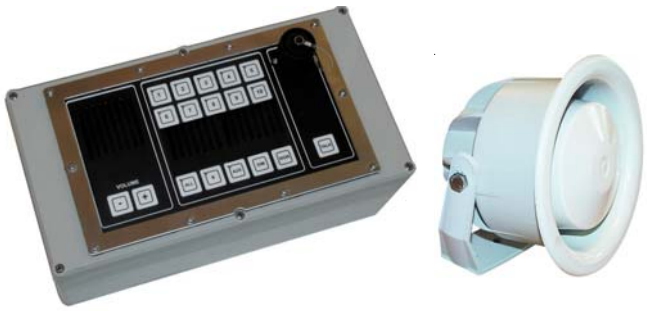
* Operator panel CTB-20 with 20 lines selection
* Operates with CU-20 central unit
* Bridge Wing communication facility
* All Call / Group Call facility
* Re-entrant monitor-speaker / microphone
* Connector for gooseneck or handheld microphone
* Dimable panel background light
* Extension buttons with memory light
* Buzzer indication of incoming calls
* Step volume control
* Signal oscillator
* Output for extra signal device all lines

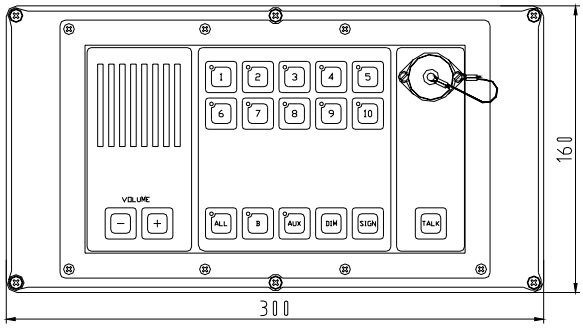
Technical data:

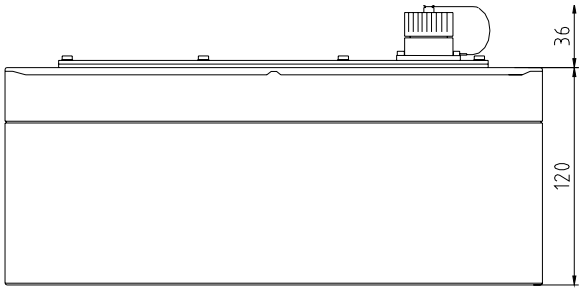
Material / finish:	Aluminium / black.
Mounting:	Flush with 4 x 4mm screws Optional Back box for bulkhead mounting.
Terminals:	Plugable screw terminals for cable max. 2,5mm^2
Cable gland:	2x PG-16
Dimension W/H/D mm:	240 x 144 x 100
Cut out dimension:	224 x 132
Weight:	Approx. 1,2Kg
Microphone input:	Contact for handheld and elec. gooseneck microphone
External connections:	Central unit, ext. microphones. ext.loudspeaker
Front panel:	Graphic front film
Switches:	Push button type with LED indication
Loudspeaker:	3W / 8 ohm
IP rating:	IP-47

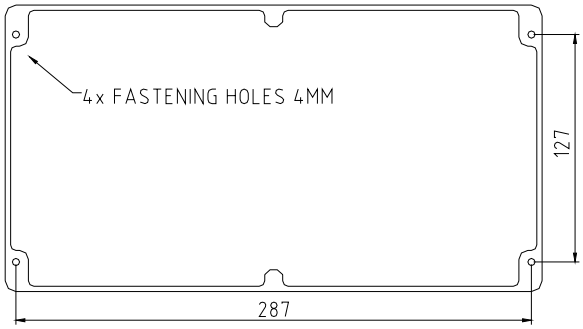
Document no.	CTB-20_ds rev.03 2005.01.06
Article no.	CTB-20

Talk-Back Systems CTB-10 W / V01









Description:

CTB-10W / V01

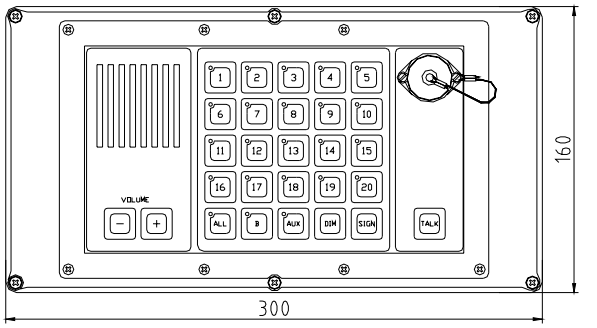
* Operator panel with 10 lines selection, and loudspeaker HP-8, bulkhead mounting.
* Option, microphone P-66 and P-66/10
* Operates with CU-10 or CU-100 central unit
* Bridge Wing communication facilty
* All Call / Group Call facility
* Re-entrant monitor-speaker/microphone
* Dimable memory light
* Line buttons with memory light
* Buzzer indication of incoming calls
* Step volume control
* Signal oscillator
* Weather-proof

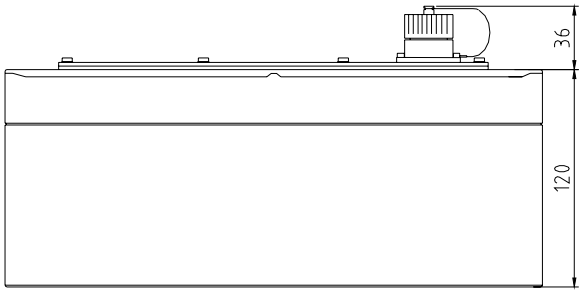
Technical data:

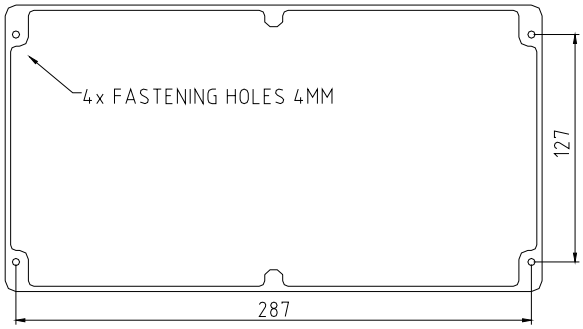
Material / finish:	Aluminium / Steinless steel Box ABS plastic.
Mounting:	Bulkhead mounting with 4 x 4mm screws
Terminals:	Plugable screw terminals for cable max. 2,5mm^2
Dimension W/H/D mm:	300 x 160 x 156
Weight:	Approx. 1,4Kg
External connections:	Central unit, ext. loudspeakers
Front panel:	Graphic front film
Switches:	Push button type with LED indication
Microphone contact:	Amphenol w/cover IP-67
WP Microphone:	P-66 or P-66/10, see seperate datasheet.
Loudspeaker:	External loudspeaker HP-8 8ohm See seperate datasheet.
Protection:	IP-66

Document no.	CTB-10W / V01_ds rev.00 2005.01.03
Article no.	CTB-10W / V01

Talk-Back Systems CTB-20W / V01







Description:

CTB-20W / V01

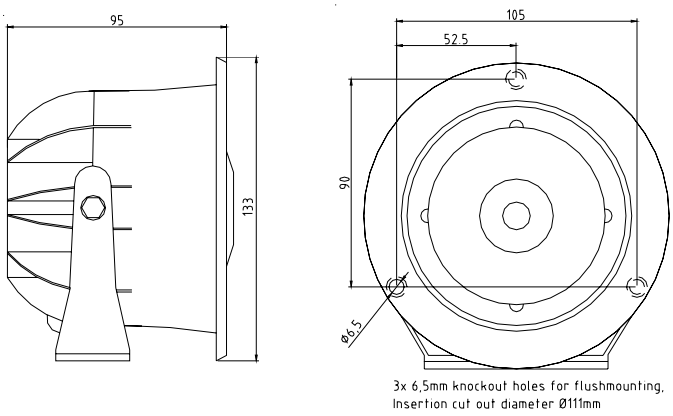
* Operator panel with 20 lines selection, and loudspeaker HP-8, bulkhead mounting.
* Option, microphone P-66 and P-66/10
* Operates with CU-20 or CU-200 central unit
* Bridge Wing communication facilty
* All Call / Group Call facility
* Re-entrant monitor-speaker/microphone
* Dimable memory light
* Line buttons with memory light
* Buzzer indication of incoming calls
* Step volume control
* Signal oscillator
* Weather-proof

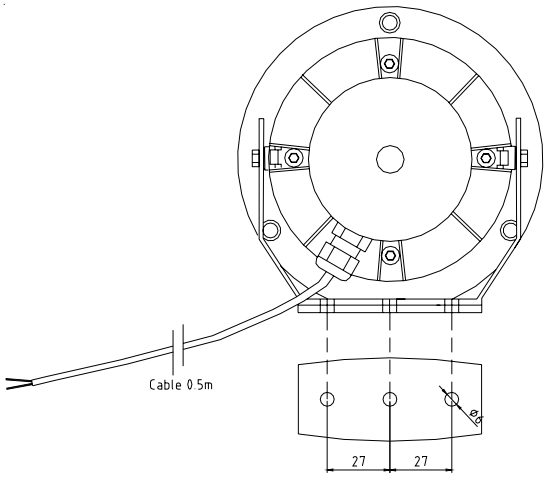
Technical data:

Material / finish:	Aluminium / Steinless steel Box ABS plastic.
Mounting:	Bulkhead mounting with 4 x 4mm screws
Terminals:	Plugable screw terminals for cable max. 2,5mm^2
Dimension W/H/D mm:	300 x 160 x 156
Weight:	Approx. 1,4Kg
External connections:	Central unit, ext. loudspeakers
Front panel:	Graphic front film
Switches:	Push button type with LED indication
Microphone contact:	Amphenol w/cover IP-67
WP Microphone:	P-66 or P-66/10, see seperate datasheet.
Loudspeaker:	External loudspeaker HP-8 8ohm See seperate datasheet.
Protection:	IP-66

Document no.	CTB-20W / V01_ds rev.00 2005.01.03
Article no.	CTB-20W / V01

Loudspeakers HP-8





Description:

HP-8

Horn loudspeaker for use on open deck areas, eng room etc. WP, IP-67.

Technical data:

Manufacturer:	DNH A/S
Material / Colour:	Polyamide / RAL 7035
Mounting:	Bracket or flush
Termination:	0,5m cable
Weight:	0,75 kg
IP-rating (UL Equivalent)	IP-67
Max. / min. amb. temp:	150 °C / -50 °C
Impedance:	8 ohm
Rated / max. power:	8 W / 15 W
SPL 1 W / 1 m:	101 dB
SPL rated power:	110 dB
Effective freq. range:	600 - 7500 Hz
Dispersion (-6 dB)1kHz / 4kHz:	160° / 50°
Directivity factor, Q :	6,0

HP-8T:

Transformer 100V

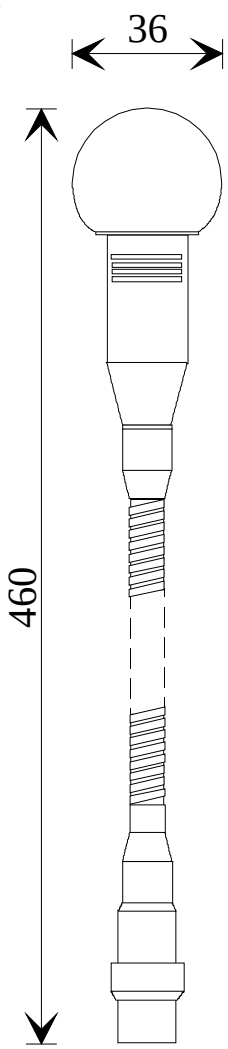
Primary nominal tappings:

1 : 2	8,0W
2 : 3	4,0W
3 : 4	2,0W
1 : 3	1,5W
2 : 4	0,7W
1 : 4	0,4W

1= Red, 2= Yellow, 3= Green, 4= Blue

Document no.	HP-8_ds rev.00 2005.03.15
Article no.	HP-8

Common Equipment MB-30G



Description:

MB-30G

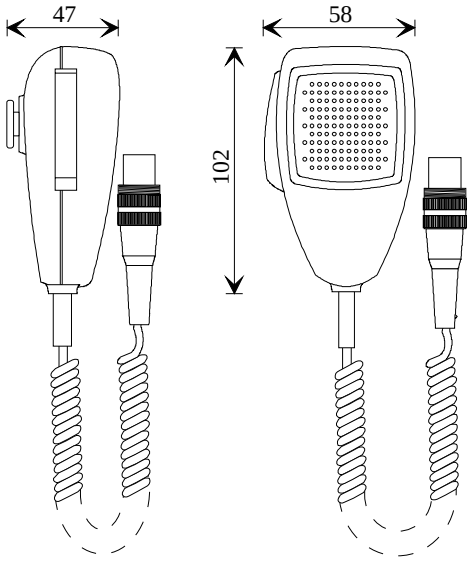
* Gooseneck microphone
* For use in: Public Address System and Talk-Back System

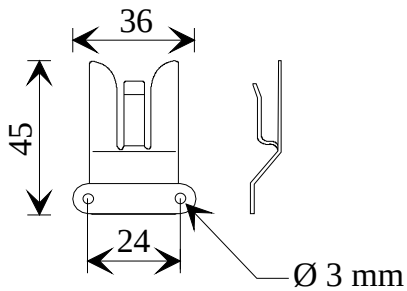
Technical data:

Manufacturer:	Paso
Type :	Electret
Art.no. :	MB30G
Impedance:	2 K ohm
Freq.response:	100 - 20000Hz.
Sensitivity:	4mv/Pa.
Supply:	1,1-9V.
Front rear ratio:	10 dB
Length:	430mm
Plug:	5 pole din
Accessories:	Sponge windscreen
Dimensions:	See dwg. beside
Weight:	0,1 kg

Document no.	MB-30G_ds rev.02 2004.08.30
Article no.	MB-30G

Talk-Back Systems ETC-1-TB





Mic. clip-on

Description:

ETC-1-TB

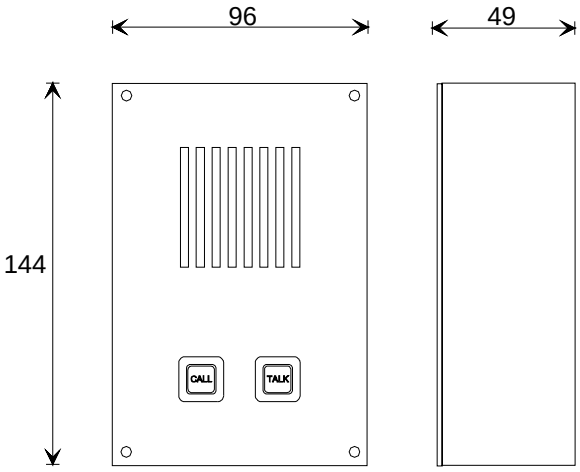
* Handheld microphone for use with ETB and CTB control unit panels.

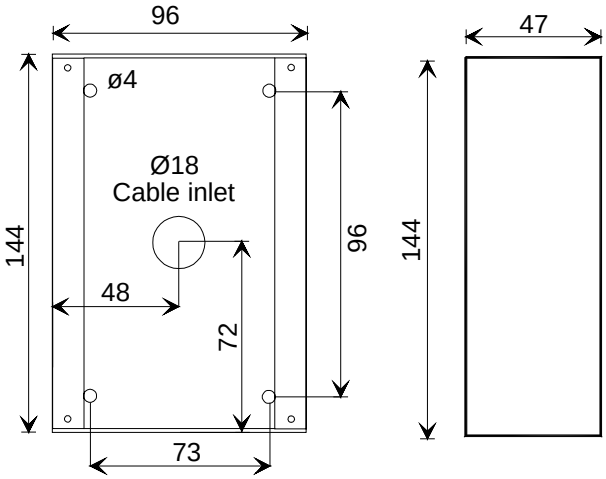
Technical data:

Type :	Dynamic
Art.no. :	ETC-1-TB
Impedance:	200 ohm
Freq.response:	200 - 4500Hz.
Sensitivity:	1 mV/Pa.
Polar pattern:	Non directional
Switch:	PTT
Cable:	3-wires coiled cord w/ shield
Plug:	5 pole din
Accessories:	Hang-up clip
Dimensions:	See dwg. beside
Weight:	0,2 kg

Document no.	ETC-1-TB_ds rev.03 2004.10.15
Article no.	ETC-1-TB

Talk-Back Systems STB-1





Description:

STB-1

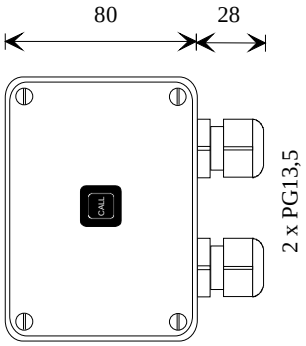
* Talk-Back substation, designed for use in cabins, messrooms, etc.
* Delivered for bulkhead mounting
* Call-button for calling Master unit
* Privacy
* Talk-button with privacy off function.

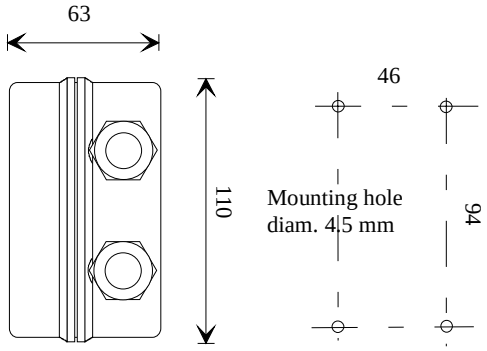
Technical data:

Connections:	Screw terminals
Colour:	Black front
IP rating	IP-44
Dimensions:	See dwg. beside
Weight:	0,35 kg

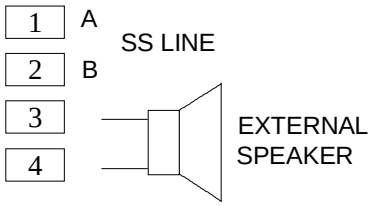
Document no.	STB-1_ ds. rev.04 2004.10.12
Article no.	STB-1

Talk-Back Systems STB-2





SCREW TERMINAL



Description:

STB-2

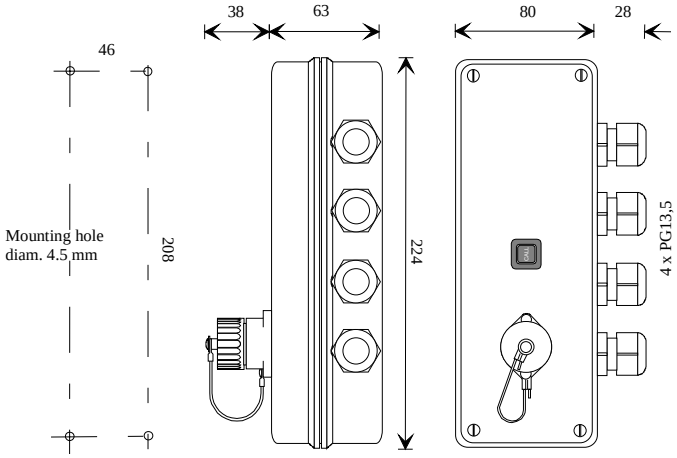
* Calling box
* Delivered for bulkhead mounting
* Call-button for calling Master unit
* Forming a loudspeaking Talk-Back Substation together with a horn loudspeaker.

Technical data:

Connections:	Screw terminals
Colour:	Grey
IP rating	IP-66
Dimensions:	See dwg. beside
Weight:	0,3 kg

Document no.	STB-2_ ds. rev.03 2004.10.12
Article no.	STB-2

Talk-Back Systems STB-3



SCREW TERMINAL

1	A	> SS LINE
2	B	
3	0V	> SIGNAL DEVICE IN
4	+24V	
5	0V	> IN EXTRA SIGNAL DEVICE
6	+24V	
7	0V	> OUT
8	+24V	
9		EXTERNAL SPEAKER
10		

Description:

STB-3

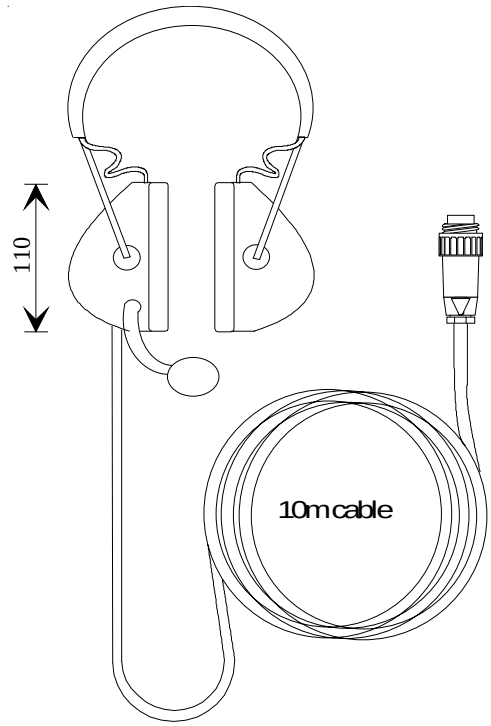
* Calling unit
* Delivered for bulkhead mounting
* Call-button for calling Master unit
* Call-button with LED for incoming call indication
* Socket with dust-cap for connection of headset or microphone
* Built-in relay circuit for operation of external signalling devices.
* Forming a loudspeaking Talk-Back substation together with a horn loudspeaker.

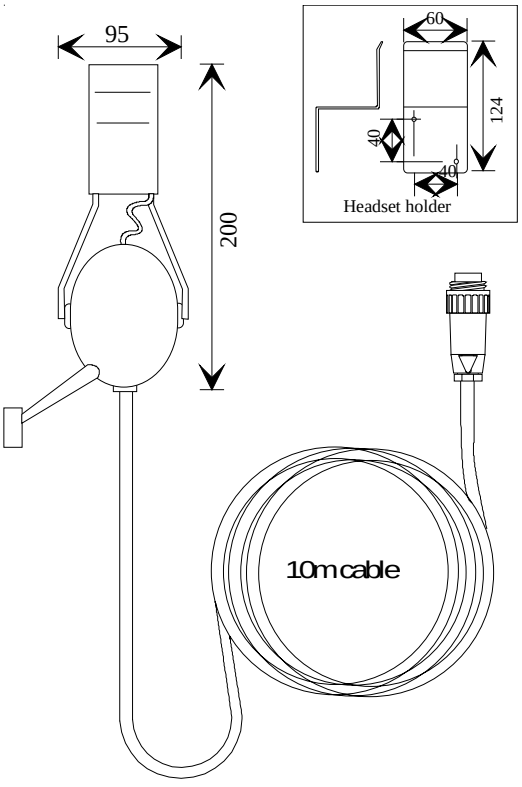
Technical data:

Connections:	Screw terminals
Colour:	Grey
IP rating	IP-66
Dimensions:	See dwg. beside
Weight:	0,5 kg

Document no.	STB-3_ ds. rev.03 2004.10.13
Article no.	STB-3

Analogue Telephone System P-MT7





Description:

P-MT7

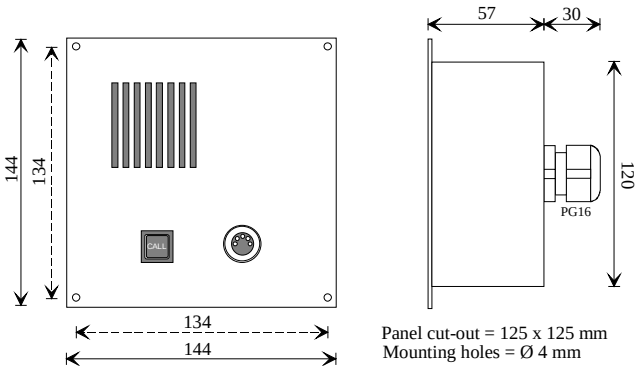
* Headset for Analogue Telephone System connected through HSB-01 or HSB-0.2
* Standard with 10 meter cable and plug.
* To be used in noisy areas.
* Includes headset holder.

Technical data:

Connections:	4 pin Amphenol (C16-1)
Headset:	Peltor MT 7H7A
Colour:	Black
IP rating:	IP-54
Dimensions:	See dwg. beside
Weight:	Approx. 1,2 kg

Document no.	P-MT7_ds rev.03 2004.09.01
Article no.	P-MT7

Talk-Back Systems STB-5



SCREW TERMINAL

1	A	> SS LINE
2	B	
3	0V	> SIGNAL DEVICE IN
4	+24V	
5	0V	> IN EXTRA SIGNAL DEVICE
6	+24V	
7	0V	> OUT
8	+24V	

Description:

STB-5

* Talk-Back substation, designed for multipurpose indoor use (engine room)
* Delivered for flush or bulkhead mounting
* Call button for calling Master unit
* Built-in relay circuit for operating of external signalling devices.
* Loudspeaker
* Socket for handset or handheld microphone

Technical data:

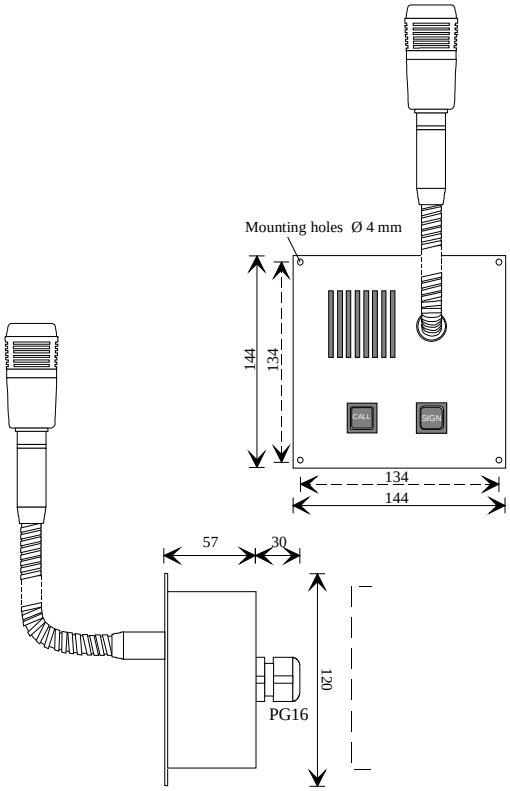
Material / Colour:	Aluminium / black
Connections:	Screw Terminals
Loudspeaker:	3 W
Dimensions:	See dwg. above
Weight:	Approx. 0,5 kg
IP rating:	IP-44

Accessories:

Box for bulkhead mounting (see seperate datasheet)
Handset HAS-1 (see seperate datasheet)
Handheld microphone ETC-STB5 (see seperate datasheet)

Document no.	STB-5_ds rev.02 2004.09.07
Article no.	STB-5

Talk-Back Systems STB-5GN



SCREW TERMINAL

1	A	> SS LINE
2	B	
3	0V	> SIGNAL DEVICE IN
4	+24V	
5	0V	> IN
6	+24V	EXTRA SIGNAL DEVICE
7	0V	> OUT
8	+24V	

Description:

STB-5GN

- Talk-Back substation, designed for multipurpose indoor use (engine room)
- Delivered for flush or bulkhead mounting
- Call button for calling Master unit
- Built-in relay circuit for operating of external signalling devices.
- Loudspeaker
- Gooseneck microphone

Accessories:

Box for bulkhead mounting (see seperate datasheet)

Technical data:

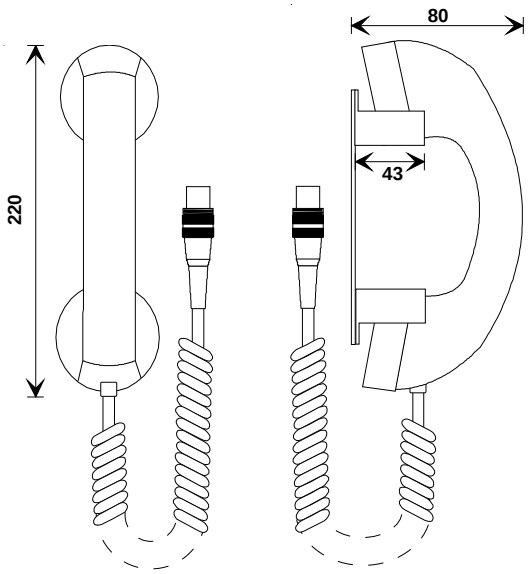
Material / Colour:	Aluminium / black
Connections:	Screw Terminals
Loudspeaker:	3 W
Dimensions:	See dwg. above
Weight:	Approx. 0,9 kg
IP rating:	IP-44

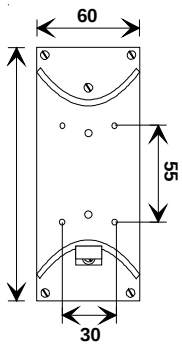
Gooseneck microphone M610:

Colour:	Black
Length:	330 mm
Type:	Uni-directional cardioid microphone (dynamic)
Freq. response:	50 - 16 000 Hz
Sensitivity:	1,5 mV

Document no.	STB-5GN_ds rev.03 2004.10.13
Article no.	STB-5GN

Talk-Back Systems HAS-1





Mounting holes
Ø 3,5 mm

Description:

HAS-1

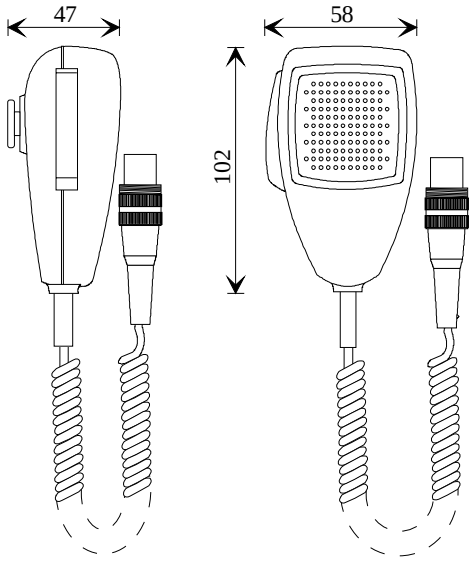
* Handset with cradle designed for use together with Talk-back substation STB-5

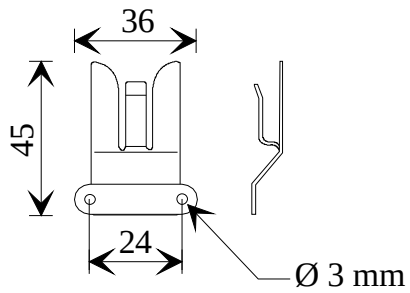
Technical data:

Colour:	Black
Material:	Metal (cradle) / plastic (handset)
Spiralcord:	Approx. 1,2 m
Plug:	5 pin DIN
Switch:	ON / OFF
Weight:	0,55 kg

Document no.	HAS-1_ds rev.03 2004.09.07
Article no.	HAS-1

Talk-Back Systems ETC-STB5





Mic. clip-on

Description:

ETC-STB5

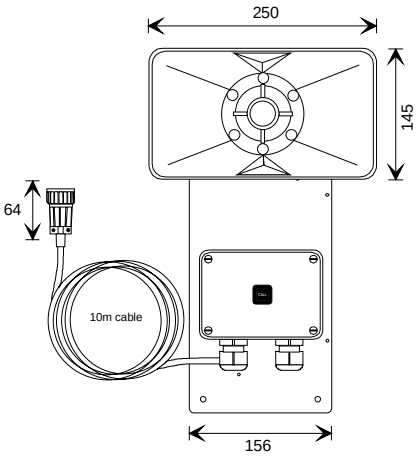
* Handheld microphone configurated for substation STB-5

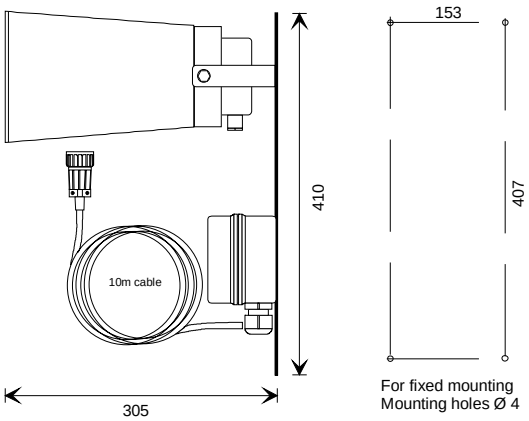
Technical data:

Type :	Dynamic
Art.no. :	ETC-STB5
Impedance:	200 ohm
Freq.response:	200 - 4500Hz.
Sensitivity:	1 mV/Pa.
Polar pattern:	Non directional
Switch:	PTT
Cable:	3-wires coiled cord w/ shield
Plug:	5 pole din
Accessories:	Hang-up clip
Weight:	0,2 kg

Document no.	ETC-STB5_ds rev.03 2004.10.19
Article no.	ETC-STB5

Talk-Back System VH-10M





Description:

VH-10M

* Portable deck loudspeaker with callbox
* Delivered with 10 meter cable and plug

Technical data:

Material:	Anodized aluminium (Backplate) / ABS (Speaker)
Colour:	Black (Backplate) / Grey (Speaker)
Dimensions:	See dwg. above
IP rating:	IP-65
Weight:	3,7 kg

For further data:

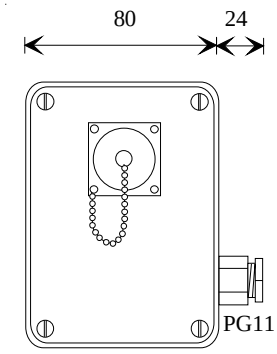
Speaker VML-1508, see separate datasheet

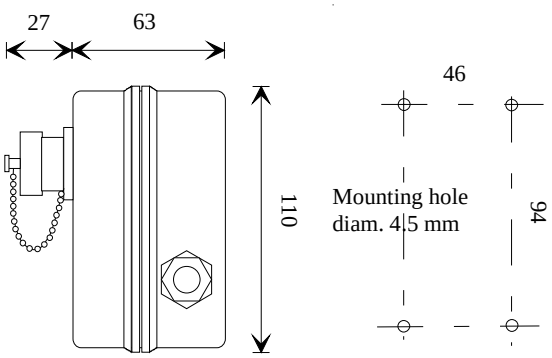
Accessories:

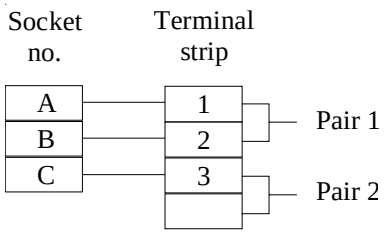
Plugbox CD-2 (See separate datasheet)

Document no.	VH-10M_ds rev.03 2004.10.15
Article no.	VH-10M

Talk-Back Systems CD-2







Description:

CD-2

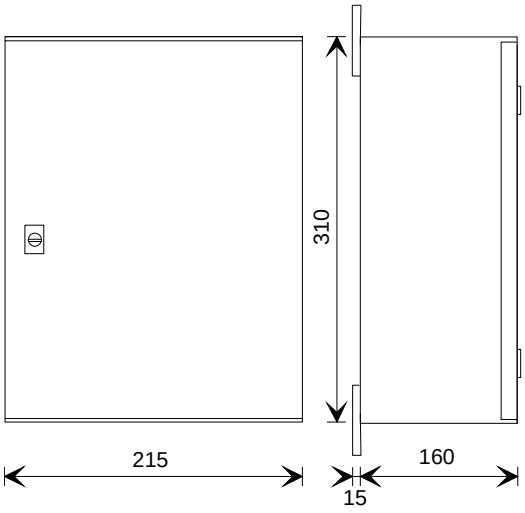
* Watertight plug box
* Designed to be used together with substations, VH-10M and VH-10MT
* Socket with dustcap
* Delivered for bulkhead mounting
* Suitable for installation in noisy areas

Technical data:

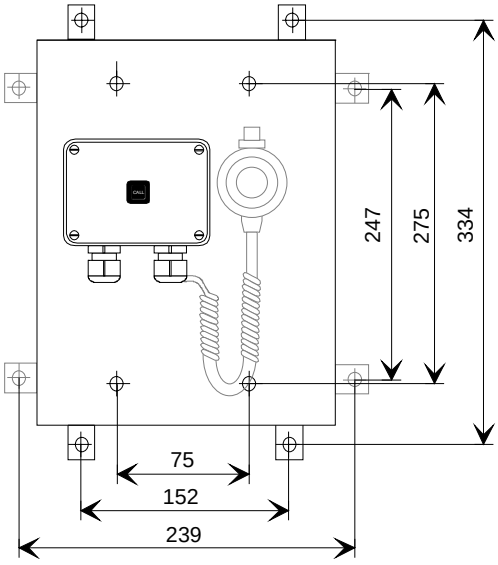
Connections:	Screw terminals
Colour:	Grey
IP rating:	IP-66
Dimensions:	See dwg. above
Weight:	0,35 kg

Document no.	CD-2_ds rev.02 2004.09.07
Article no.	CD-2

Talk-Back System VHM-10



MOUNTING HOLES Ø 8,5



Description:

VHM-10

* Special substation with hand microphone and callbox in a cabinet

Technical data:

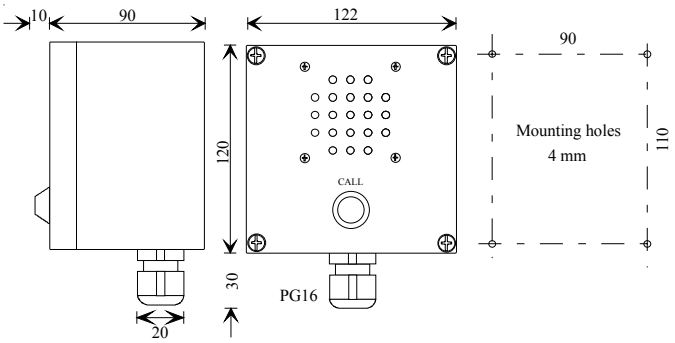
Material:	Polycarbonate (Cabinet)
Colour:	Grey (Cabinet)
Dimensions:	See dwg. above
IP rating:	IP-66
Weight:	2,5 kg

Microphone P-66:

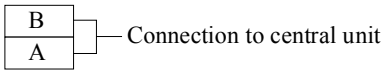
Colour:	Black
IP class:	IP-66
DC resistance:	200 ohm
Mic.sensitivity:	0.5 mV/dyne/sq.cm at 1 kHz
Power capacity:	0.2 W (0.5 W peak)
LS sensitivity:	57 dB/mW at 1 kHz and 50 cm distance i.e. 80 dB at 0.2 W audio-frequency power.
Dimensions:	Ø 54 x 81 x 54
Working temp.	-30 to +60 °C
Weight:	0,3 kg

Document no.	VHM-10_ds rev.03 2004.10.15
Article no.	VHM-10

Talk-Back Systems HE-112M



terminal strip



Description:

HE-112M

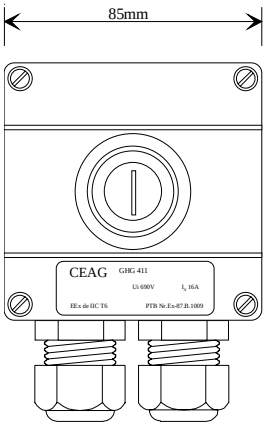
* Talk-Back Substation, designed for use in open deck areas
* Delivered for bulkhead mounting
* Call-button for calling Master unit

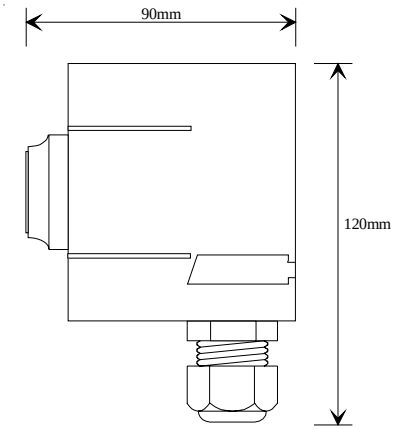
Technical data:

Connections:	Screw terminals
Colour:	Grey
IP rating:	IP-66
Dimensions:	See dwg. beside
Weight:	0,4 kg

Document no.	HE-112M_ds rev.04 2006.05.11
Article no.	HE-112M

Talk-Back Systems NEBB-42-EX





Description:

NEBB-42EX

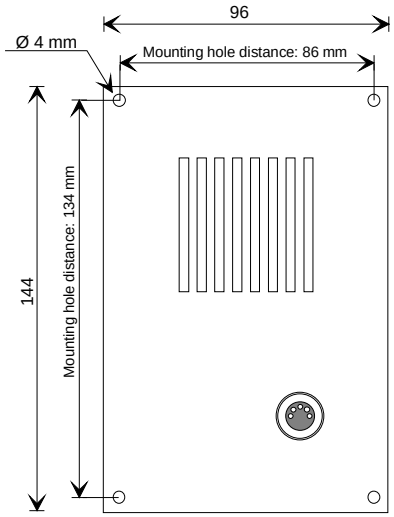
* Explosion-proof calling box for hazardous areas
* Delivered for bulkhead mounting
* Call-button for calling Master unit
* Forming a loudspeaking Talk-Back Substation together with a EX-horn loudspeaker.

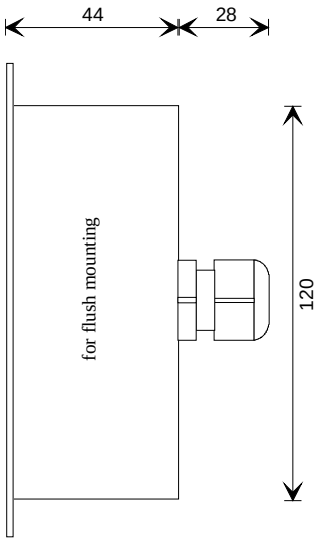
Technical data:

Connections:	Screw terminals
Colour:	Black
Material:	Moulded polyamid reinforced by glas fibres
PTB approval:	EEx de IIC T6
IP rating:	IP-67
Dimensions:	See dwg. beside
Weight:	0,35 kg

Document no.	NEBB-42EX_ds rev.02 2004.09.07
Article no.	NEBB-42EX

Command Talk-Back System STB-6





Description:

STB-6

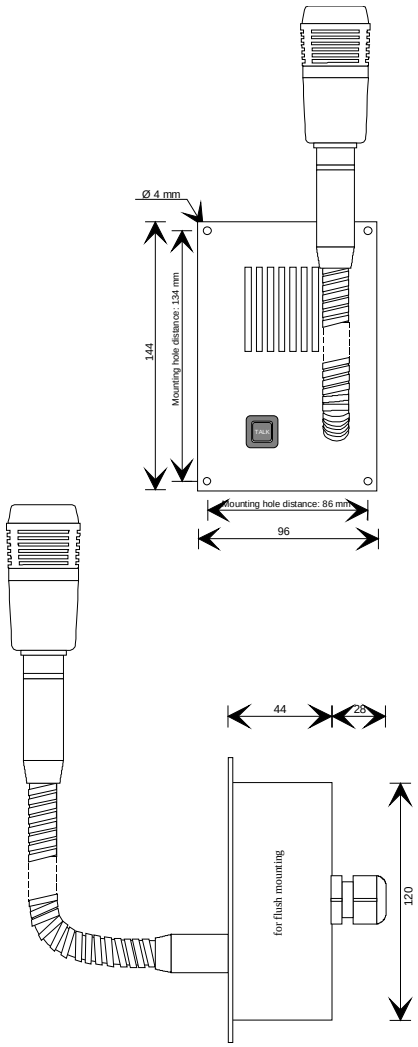
* Substation for indoor bridge wing
* Parallel microphone / loudspeaker for ETB and CTB operator panels
* Delivered for flush or bulkhead mounting
* Socket for handheld microphone

Technical data:

Dimensions (WxHxD):	144 x 96 x 44
Mounting:	4x 4mm screws
Weight:	Approx. 0,350kg
Housing:	Aluminium elox.
Colour:	Black
IP-rating:	IP-44
Cable entry:	PG-16
Connections:	Screw terminal
Loudspeaker:	3W

Document no.	STB-6_ds rev.05 2004.10.14
Article no.	STB-6

Command Talk-Back System STB-6GN



Description:

STB-6GN

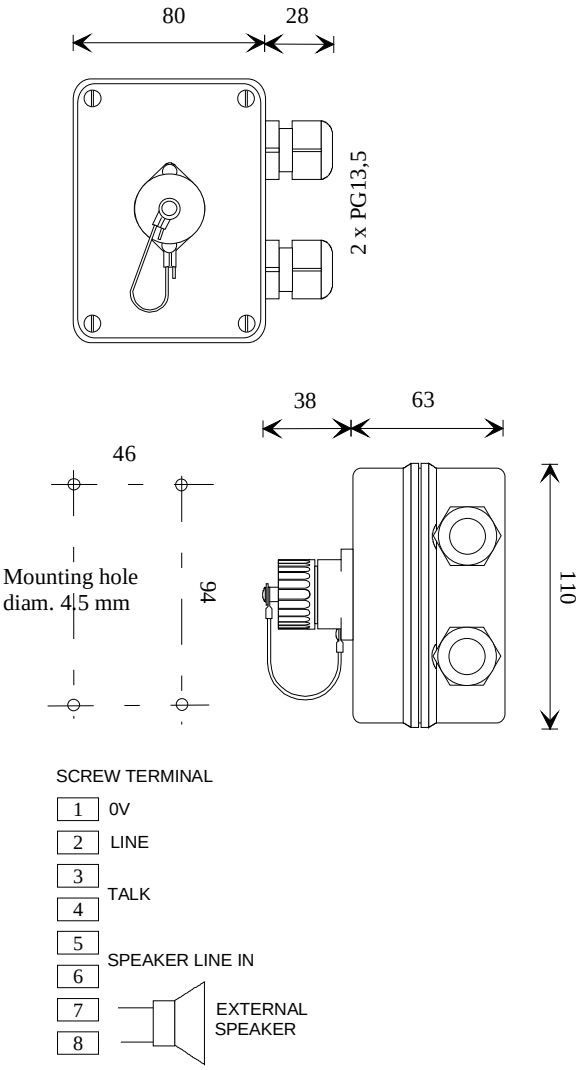
* Substation with gooseneck microphone for indoor bridge wing
* Parallel microphone / loudspeaker for ETB and CTB operator panels
* Delivered for flush or bulkhead mounting

Technical data:

Dimensions (WxHxD):	144 x 96 x 44
Mounting:	4x 4mm screws
Weight:	Approx. 0,850kg
Housing:	Aluminium elox.
Colour:	Black
IP-rating:	IP-44
Cable entry:	PG-16
Connections:	Screw terminal
Loudspeaker:	3W

Document no.	STB-6GN_ds rev.04 2004.10.14
Article no.	STB-6GN

Talk-Back Systems SB-4



Description:

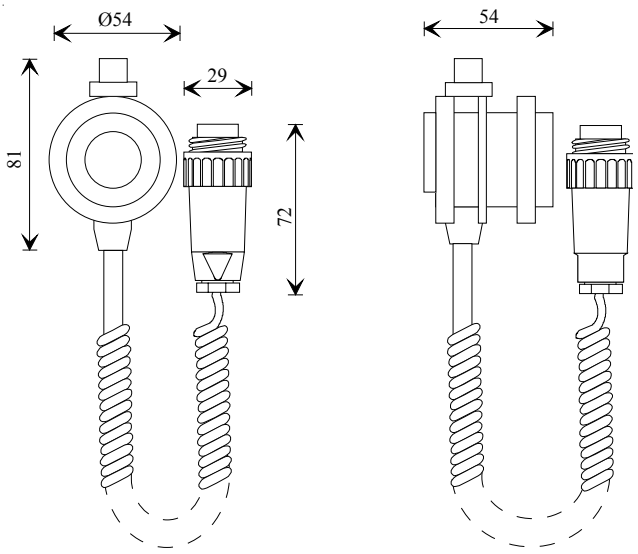
SB-4

* Is a watertight socket box
* Is designed to be used together with handheld microphone or headset units
* Has socket with dustcap
* Is delivered for bulkhead mounting
* is suitable for installation in noisy areas

Technical data:

Connections:	Screw terminals
Colour:	Grey
IP rating	IP-66
Dimensions:	See dwg. beside
Weight:	0,3 kg

Document no.	SB-4_ ds. rev.03 2004.10.14
Article no.	SB-4



Description:

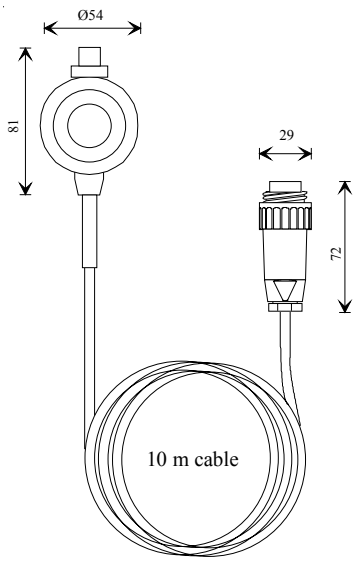
P-66

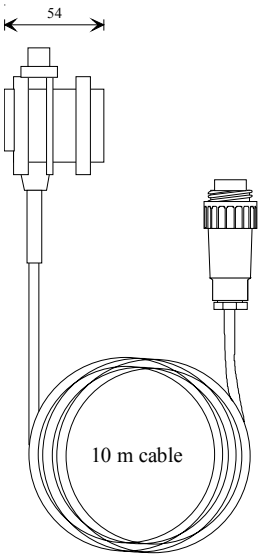
* Watertight, salt water resistant handheld microphone-loudspeaker unit.
* Suitable for heavy-duty outdoor operation subject to noise disturbance.
* Delivered with 2 meter flexicable and plug.
* For use in: Public Address System and Talk-Back System.

Technical data:

Manufacturer:	Holmberg & Co
Type/art.no.:	Holmco 66 / 84-15-06980
DC resistance:	200 ohm
Mic.sensitivity:	0.5 mV/dyne/sq.cm at 1 kHz
Power capacity:	0.2 W (0.5 W peak)
LS sensitivity:	57 dB/mW at 1 kHz and 50 cm distance i.e. 80 dB at 0.2 W audio-frequency power.
Working temp.	-30 to +60 °C
IP class:	IP-66
Colour:	Black
Dimensions:	see dwg. beside
Weight:	0,3 kg

Document no.	P-66_ds rev.03 2004.08.30
Article no.	P-66





Description:

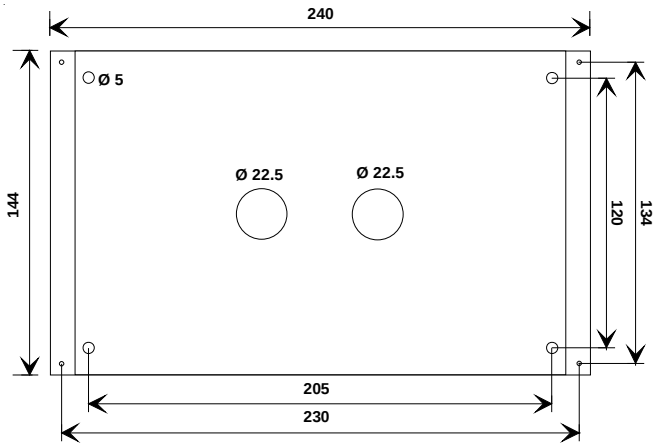
P-66/10

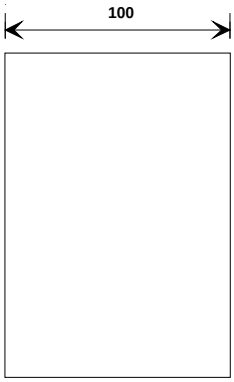
* Watertight, salt water resistant handheld microphone-loudspeaker unit.
* Suitable for heavy-duty outdoor operation subject to noise disturbance.
* Delivered with 10 meter cord and plug.
* For use in: Public Address System and Talk-Back System

Technical data:

Manufacturer:	Holmberg & Co
Type/art.no.:	Holmco 66 / 84-15-06980
DC resistance:	200 ohm
Mic.sensitivity:	0.5 mV/dyne/sq.cm at 1 kHz
Power capacity:	0.2 W (0.5 W peak)
LS sensitivity:	57 dB/mW at 1 kHz and 50 cm distance i.e. 80 dB at 0.2 W audio- frequency power.
Working temp.	-30 to +60 °C
IP class:	IP-66
Colour:	Black
Dimensions:	see dwg. above
Weight:	0,4 kg

Document no.	P-66-10_ds rev.03 2004.08.30
Article no.	P-66-10





Description:

WBOKS

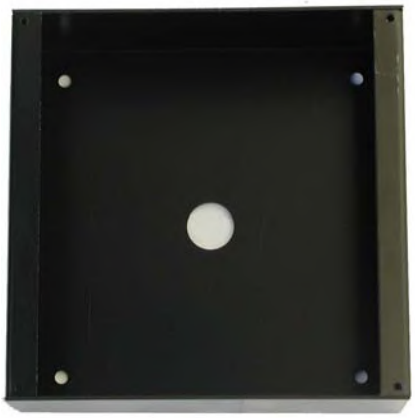
* Box for bulkhead mounting for ETB and CTB operation panels

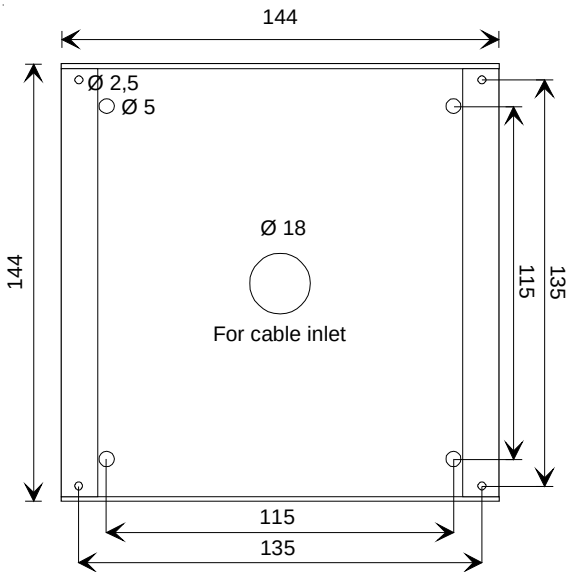
Technical data:

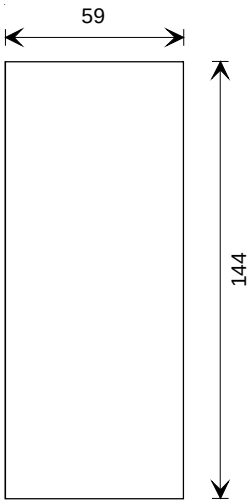
Colour:	Black finish
Material:	Aluminium
Dimensions:	See dwg. beside
Mounting:	4x 5 mm holes
Weight:	415 g

Document no.	WBOKS_ds rev.02 2004.09.07
Article no.	WBOKS

Command Talk-Back System STBOKS5







Description:

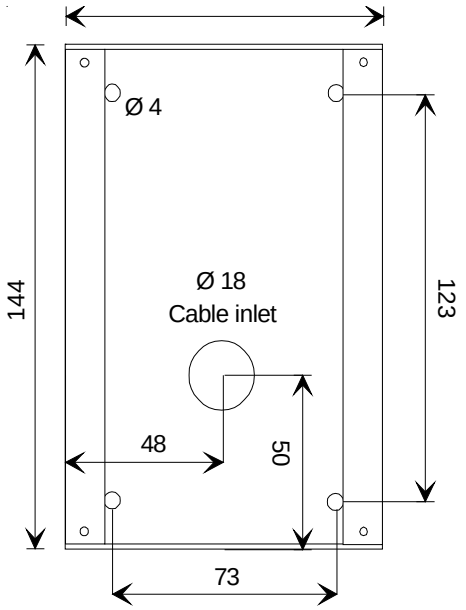
STBOKS5
Box for bulkhead mounting of STB-5 & STB-5GN

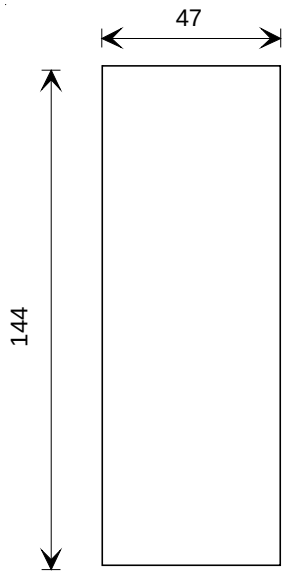
Technical data:

Dimensions (WxHxD):	144 x 144 x 59
Mounting:	4x 4mm screws
Weight:	Approx. 0,215kg
Housing:	Aluminium elox.
Colour:	Black
Cable entry:	Rear side

Document no.	STBOKS5_ds rev.02 2004.09.07
Article no.	STBOKS5

Command Talk-Back System STBOKS





Description:

STBOKS

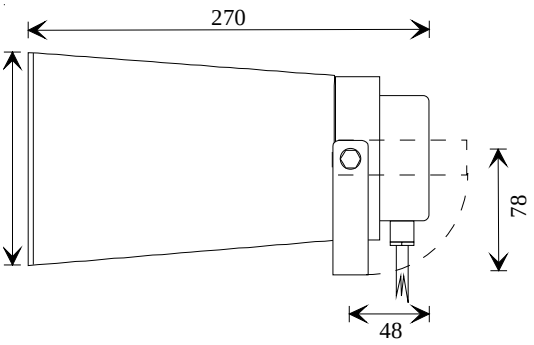
Box for bulkhead mounting of STB-6 & STB-6GN

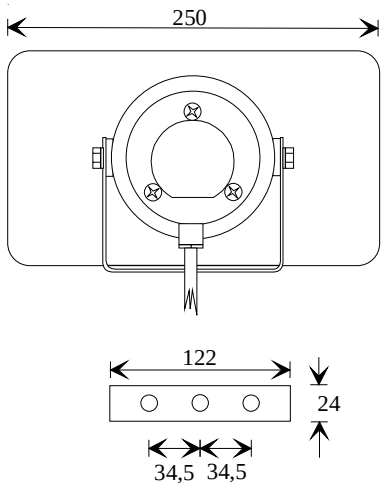
Technical data:

Dimensions (WxHxD):	144 x 96 x 47
Mounting:	4x 4mm screws
Weight:	Approx. 0,1kg
Housing:	Aluminium elox.
Colour:	Black
Cable entry:	Rear side

Document no.	STBOKS_ds rev.03 2004.09.07
Article no.	STBOKS

Loudspeakers VML-1520





Mounting bracket
Holes: 3 x Ø11.0 mm

Description:

VML-1520

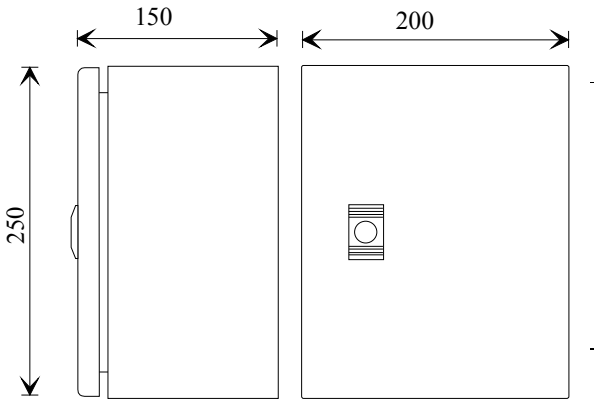
* Is a general purpose15 Watt horn loudspeaker w/transformer for use on deck areas, eng. room etc.
* To be used together with ACM system stations

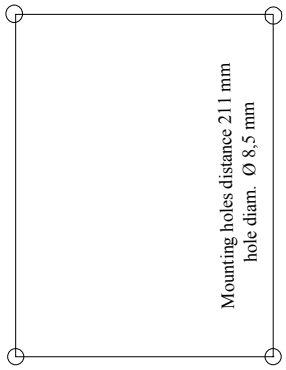
Technical data:

Rated power:	15 Watt RMS
Impedance:	20 ohm
Freq.range:	275 - 7.000 Hz
SPL at 1kHz:	106dB/1W/1m 118Db/15W/1m
Colourr/finish:	Grey
Material:	ABS
IP:	65
Dimensions:	See drw. beside
Weight:	1,35 kg
Mounting:	Bracket (stainless steel grade 304)
Termination:	Cable 0.5m

Document no.	VML-1520_ds rev.03 2004.08.31
Article no.	VML-152

Power Supply SPS-4





Mounting holes distance 161 mm
hole diam. Ø 8,5 mm

Description:

SPS-4 Ver.2.0
Power supply 115/ 230 VAC to 24VDC 4A with autoswitch relay for main supply fails and powerfailure.

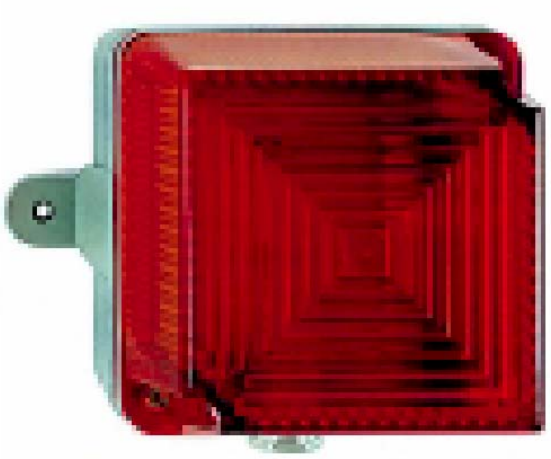
Technical data:

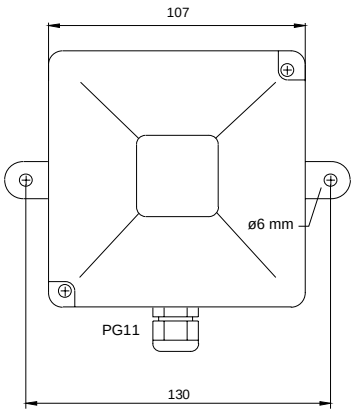
Input voltage AC:	AC100 - 120/220-240V Autoselect
Input voltage DC:	DC220 - 375V
Hold-up time:	>20 ms (AC 196V)
	>20 ms (AC 100V)
Rated Input current:	< 2,1 A (AC 100V)
	< 1,0 A (AC 220V)
Efficiency :	typ.90% (AC 230V)
Output voltage:	24 - 28V
	24.5V preset
Rated output current:	4,2A(at 24.5V), 3.6A (at 28V)
Rippel noise 20Mhz/50ohm:	< 50mVpp
Operating temperature Range (T_amb)	-10....+70^{0}C >60^{0}C: 2W/K Derating
MTBF	500.000 hours

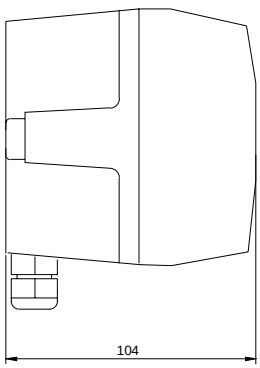
Relay:	For automatic switch to 24V when main supply fails.
Cabinet Material / Finish:	Steel RAL7032
Terminal:	Screwterminals for cable 4mm^2
Fuse:	5.0AT

Document no.	SPS-4 Ver.2.0_ds rev.03 2006.05.19
Article no.	SPS-4

Common Equipment BLK5







Description:

BLK5

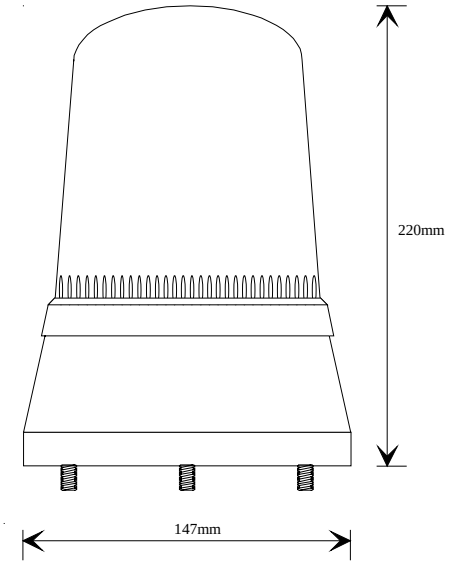
* Optical signalling device of rugged design for indoor and outdoor use with compensation valve to prevent condensation water
* Delivered in two versions: for 24 Vdc or 230 Vac.

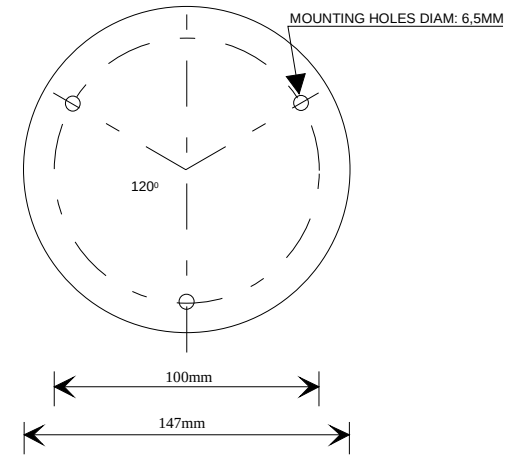
Technical data:

Manufacturer:	Comax
Material:	Case of aluminium Dome of ABS
Colour:	Red, amber, green, blue , clear
Dimension:	See dwg. beside
Weight:	Approx. 0,7 kg
Cable gland:	PG11
IP rating:	IP-65
Mounting direction:	Unlimited
Flash frequency:	Approx. 60 flash / min
Temperatur range:	-30 to + 50 °C
Flash energy:	5 Joule
AC version	
Rated voltage:	230 Vac
Rated current:	0,07 A
DC version	
Rated voltage:	15 - 32 Vdc
Rated current:	0,3 A

Document no.	BLK5_ds rev.03 2004.08.31
Article no.	BLK5

Signal Units EHS-24





Description:

EHS-24

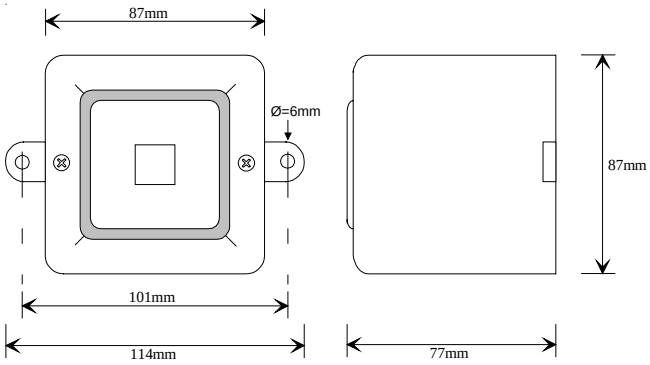
* Rotary light for all systems.
* To be mounted in noisy areas etc

Technical data:

Manufacturer:	Sunbeam
Type / art.no.:	EHS-24
Colour available:	Orange-red-green-blue
Rotation speed:	180 rpm
Operation volt.:	24V DC
Rated current:	2.6A
Dimensions:	See dwg. beside
Weight:	0,9kg

Document no.	EHS-24_ ds. rev.02 2004.08.31
Article no.	EHS-24

Signal Devices A-100



Description:

A-100

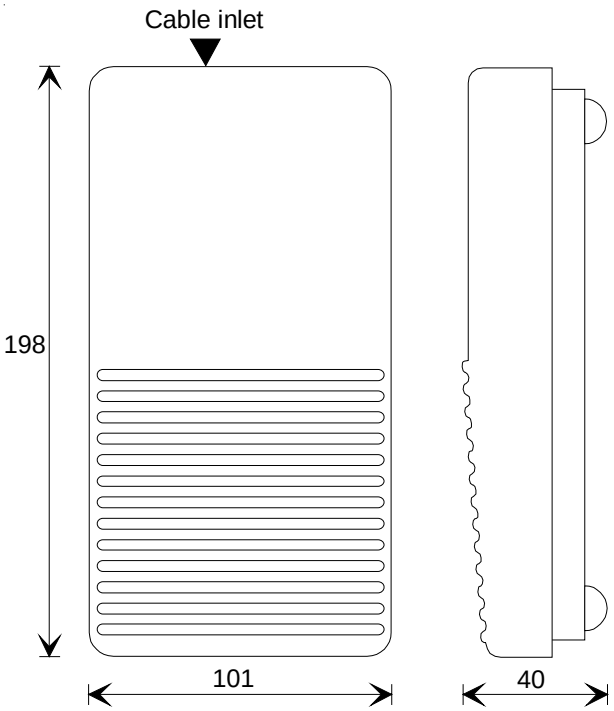
* Audible signal device for all systems.
* Signal device do have the possibility for many different tones.
* To be wall-mounted in noisy areas like engine room etc.

Technical data:

Manufacturer:	European Safety Systems
Type/art.no.:	A-100
Operation volt.:	12-24V DC
Sound pressure:	100dB at 1 metre
Rated current:	19mA
Sound options:	32 programmable tones
Freq. range:	300 - 2900Hz
Protection:	IP55
Dimensions:	See dwg. beside
Weight:	0,255 kg

Document no.	A-100_ds rev.02 2004.08.31
Article no.	A-100

Talk-Back Systems U2410



Description:

U2410

* Foot switch for VOC, ETB and CTB systems

Technical data:

Colour:	Black
Type:	1 pole-switch
Voltage:	250 Vac
Current:	6 A

Document no.	U2410_ds rev.02 2004.08.30
Article no.	U2410

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