

Zenitel Marine



Amplifier System

Type VMA

User & Technical Manual

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1 Introduction

1.1 About this document

This system description is intended to give relevant information on the system features, available equipment, typical configurations, simplified wiring and technical data for the concept.

1.2 About this concept

The VMA-system is a very flexible system with several configuration-options, and it will always be necessary with additional documents. Please see documents prepared in accordance with the project specification.

2 System build-up and description

The VMA- system is designed as a sub amplifier-unit for intercommunication system,, specially for type ACM or ASA, all versions. But the system can also be used as a stand alone system without zone selection

The VMA-system is a simple and very flexible system and meet (together with the main system) necessary specifications for public address, loud hailing and alarm configurations.

3 System functions and priorities

3.1 Public address function basic.

Call distribution is made from ACM or ASA stations. Audio signal from ACM or ASA to the VMA-unit. 1 to 4 zones depending on VMA-type.

3.2 Public-address function with PA/mic. Panels.

All-call distribution is made from one of the PA/Mic.panels (Emergency) to the VMA loudspeaker network.The Call distribution will also be distributed to ACM or ASA stations. Up to 4 microphone panels with 4 priority options.

3.3 Loudhailer function (VMA-2,3,4,5)

The loudhailer function is independent of the ACM or ASA system.
Call distribution is made from one or two independent PA/Mic.panels

3.4 Alarm and mute of alarm function

Alarm signal is from two alarm generators EE1 (one alarm), or EE3 (three alarms) and can be distributed / started from alarm panel AC3 or any separate contact set.

The system can also be delivered with back up generators.

The automatic mute function consist of two contact set, both in function at same time.

The first contact set mute external alarm system, and the second mute internal alarm on the loudspeaker network when using emergency PA/Mic.panel.

4 System units

VMA-1	19" 8U amplifier rack with 1 power amplifier and up to 4 speaker zones.
VMA-2	19" 12U amplifier rack with 2 power amplifier and up to 4 speaker zones.
VMA-3	19" 16U amplifier rack with 3 power amplifier and up to 8 speaker zones.
VMA-4	19" 20U amplifier rack with 4 power amplifier and up to 8 speaker zones.
VMA-5	19" 24U amplifier rack with 5 power amplifier and up to 8 speaker zones.

VMA-1 Basic

Normal call distribution is made from ACM or ASA stations.

VMA-2,3,4,5 Basic

Normal call distribution is made from ACM or ASA stations, hailer distribution from PA/Mic.panel.

VMA-1 Mic/Al

Normal call distribution is made from ACM or ASA stations, emergency call distribution by PA/Mic.panels. Alarm and alarm mute functions.

VMA-2,3,4,5 Mic/Al

Normal call distribution is made from ACM or ASA stations, emergency call distribution by PA/Mic.panels and hailer distribution by separate PA/Mic.panels. Alarm and alarm mute functions.

VMP-603	PA/Mic. panel with gooseneck microphone and preamplifier.
VMT-603	PA/Mic. panel with handheld microphone and preamplifier WP
SP-111	PA/Mic. panel with gooseneck microphone and preamplifier.

VML-15T Loudspeaker 15W 100V

5 Installation, cabling and configurations.

5.1 General

For proper installation and operation of the VMA system we recommend to read this section thoroughly together with installation drawings in this manual and the project drawings.

Make sure that all mounting and cabling are correct before switching on.

5.2 Mounting

The VMA unit should be located near the main system ACM or ASA

The construction is for floor mounting in a normal and ventilated indoor environment with a temperature of 0 - 55⁰ C. We recommend shock absorbers.

See datasheets and dimension drawings for further details.

It is equipped with pluggable screw terminals on PCB for signal cables max.2,5mm² and screw terminals with switch for 24V DC and 230V AC connection. (110V AC)

5.3 Cable requirements

All signal cables have to be approved ship-cables with twisted pair min. 2 x 0,75mm² and outer screen

The screens must be interconnected in junction boxes and grounded in a common point in the central unit only. Power cable have to be approved ship cable.

Power cable is depending on number of amplifiers and type.

Note! Proper grounding is essential for reliable operation.

5.4 Power supply requirements.

24V DC Current consumption depending on type and number of power amplifiers.
VMA-60 7A, VMA-120 9A, VMA-250 23A.

230V AC Current consumption depending on type and number of power amplifiers
VMA-60 0,8A, VMA-120 1,2A, VMA-250 3A.

System power supply should be wired and fused independently from other systems.

5.5 Zone configuration

Strapping on terminal block X13A – 13F, X14 can set any zone loudspeaker configuration.

Note! This configuration-setting is done in accordance with the project requirement in our workshop before shipment.

6 Technical data / drawings and submanuals

6.1 Datasheets & Lay out drawings

VMA-1.....	Datasheet	VMA-1_ds rev.00
VMA-2.....	Datasheet	VMA-2_ds rev.00
VMA-3.....	Datasheet	VMA-3_ds rev.00
VMA-4.....	Datasheet	VMA-4_ds rev.00
VMA-5.....	Datasheet	VMA-5_ds rev.00
VMA-60 (amplifier)....	Datasheet	VMA-60_ds rev.00
VMA-120 (amplifier) ..	Datasheet	VMA-120_ds rev.00
VMA-250 (amplifier) ..	Datasheet	VMA-250_ds rev.00
VMP-603	Datasheet	VMP-603_ds rev.00
VMT-603	Datasheet	VMT-603_ds rev.00
SP-111	Datasheet	SP-111_ds rev.00
VML-15T.....	Datasheet	VML-15T_ds rev.00
VMA-1.....	Lay out.....	VMA-1
VMA-2.....	Lay out.....	VMA-2
VMA-3.....	Lay out.....	VMA-3
VMA-4.....	Lay out.....	VMA-4
19” 8U (VMA-1).....	Mounting details	Pa202010
19” 12U (VMA-2).....	Mounting details	Pa202020
19” 16U (VMA-3).....	Mounting details	Pa202030
19” 20U (VMA-4).....	Mounting details	Pa202040
19” 24U (VMA-5).....	Mounting details	Pa202050

6.2 Examples of cable connection diagram

VMA-1basic.....	VMA-1BASIC_cc rev.00
VMA-1mic/alarm EE3	VMA-1MIC.ALARM_cc01 rev.00
VMA-1mic/alarm EE1	VMA-1MIC.ALARM_cc02 rev.00
VMA-2basic.....	VMA-2BASIC_cc01 rev.00
VMA-2basic w/hailer ..	VMA-2BASIC_cc02 rev.00
VMA-2mic/alarm EE3	VMA-2MIC.ALARM_cc01 rev.00
VMA-2mic/alarm EE1	VMA-2MIC.ALARM_cc02 rev.00
VMA-2mic/alarm EE3 /hailer.....	VMA-2MIC.ALARM_cc03 rev.00
VMA-2mic/alarm EE1 /hailer.....	VMA-2MIC.ALARM_cc04 rev.00
VMA-3basic.....	VMA-3BASIC_cc01 rev.00
VMA-3basic w/hailer ..	VMA-3BASIC_cc02 rev.00
VMA-3mic/alarm EE3	VMA-3MIC.ALARM_cc01 rev.00
VMA-3mic/alarm EE1	VMA-3MIC.ALARM_cc02 rev.00
VMA-3mic/alarm EE3 /hailer.....	VMA-3MIC.ALARM_cc03 rev.00
VMA-3mic/alarm EE1 /hailer.....	VMA-3MIC.ALARM_cc04 rev.00
VMA-4basic.....	VMA-4BASIC_cc01 rev.00
VMA-4basic w/hailer ..	VMA-4BASIC_cc02 rev.00
VMA-4mic/alarm EE3	VMA-4MIC.ALARM_cc01 rev.00
VMA-4mic/alarm EE1	VMA-4MIC.ALARM_cc02 rev.00
VMA-4mic/alarm EE3 /hailer.....	VMA-4MIC.ALARM_cc03 rev.00
VMA-4mic/alarm EE1 /hailer.....	VMA-4MIC.ALARM_cc04 rev.00
VMA-5basic.....	VMA-5BASIC_cc rev.00
VMA-5mic/alarm EE3 /hailer.....	VMA-5MIC.ALARM_cc01 rev.00
VMA-5mic/alarm EE1 /hailer.....	VMA-5MIC.ALARM_cc02 rev.00

6.3 Wiring diagrams

VMA-1/basic2.....	VMA-1BA rev.00
VMA-2/basic2.....	VMA-2BA rev.00
VMA-3/basic4.....	VMA-3BA rev.00
VMA-4/basic4.....	VMA-4BA rev.00
VMA-mic2.....	MIC-2 rev.00
VMA-mic4.....	MIC-4 rev.00
VMA-mic 2/al.....	MIC-2AL rev.00
VMA-mic 2/al.....	MIC-2AL1 rev.00
VMA-mic 4/al.....	MIC-4AL rev.00
VMA-mic 4/al.....	MIC-4AL1 rev.00

6.4 Sub ,manuals

VMA-60/120/250.....	Installation instruction.....	Doc.no.A100K10070 ver. 01.00
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7 The ZENITEL Marine group

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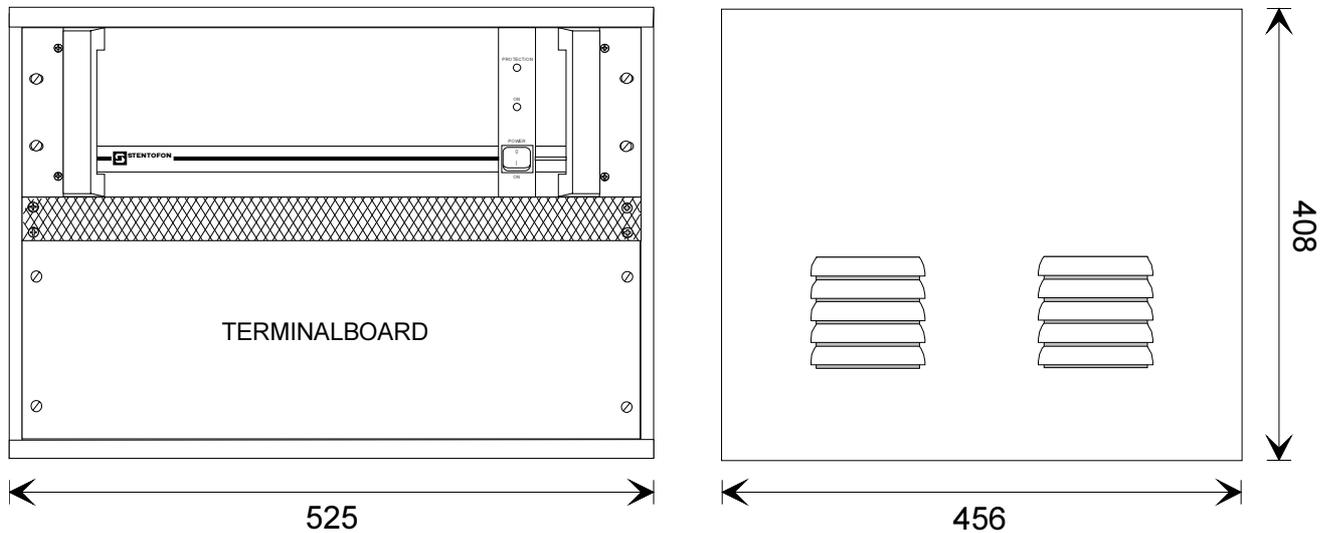
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Opatija - Croatia

Amplifier System VMA



Marine



Article No: VMA-1

Description:

VMA-1

- Combined 19" 8 U amplifier rack for hailer system and for ACM or ASA system
- 1x power amplifier
- 4x speaker zones

Options:

1 or 3 alarm inputs
Backup alarm generator, 1 or 3 inputs
2x microphone inputs
Automatic mute of alarm/ PA
VMA-60 poweramplifier
VMA-120 poweramplifier
VMA-250 poweramplifier

Technical data:

Color:	Black
Material:	Painted steel
Dimensions (w x h x d):	525 x 408 x 456 mm
Mounting:	Floor w/ 4 x 6 mm bolts. Shock absorbers recommended.
Weight exclusive amplifier:	Approx. 21,5 kg

Accessories:

VMP-603	P.A. panel
VMT-603	P.A. panel WP
SP-111	Mic. control panel

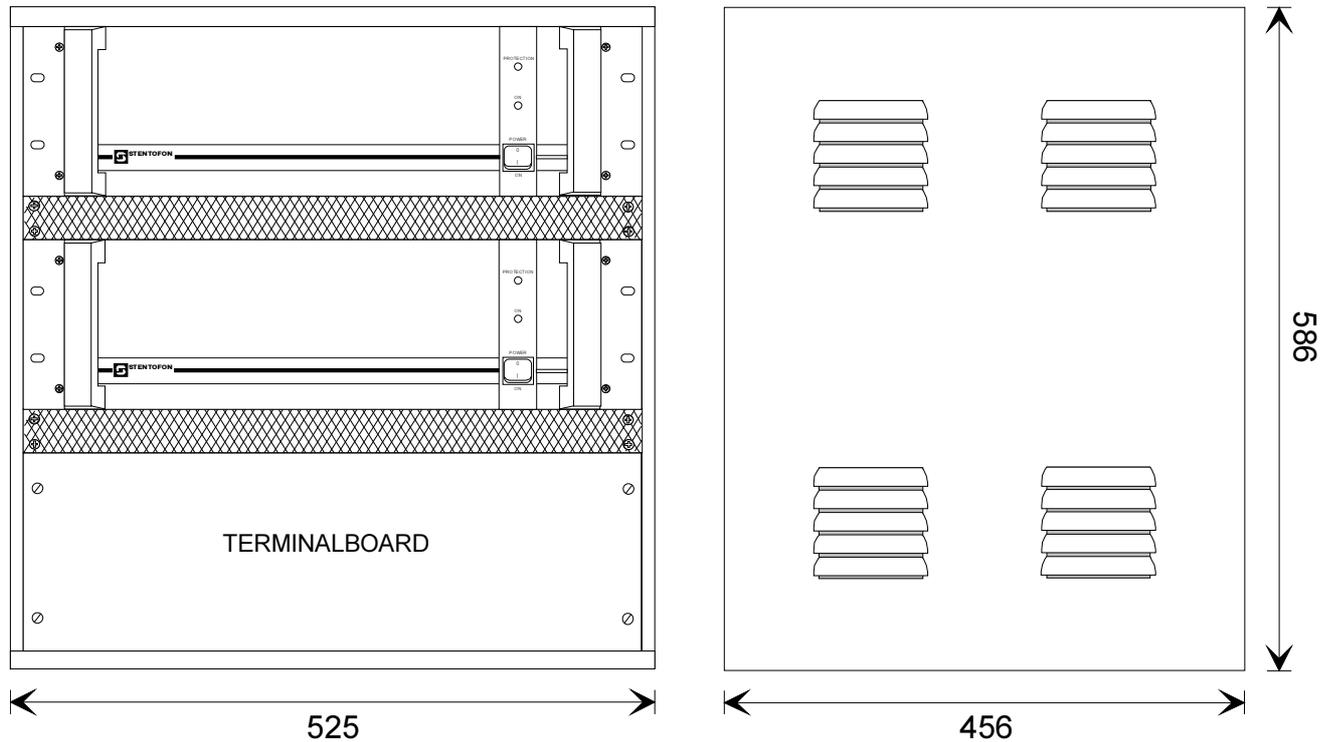
For further data:

Technical data for VMA-60/ -120/ -250, and P.A./ microphone panels (See separate datasheets)

Amplifier System VMA



Marine



Article No:
VMA-2

Description:

VMA-2

- Combined 19" 12 U amplifier rack for hailer system and for ACM or ASA system
- 2x power amplifiers
- 4x speaker zones

Options:

1 or 3 alarm inputs main
Backup alarm generator, 1 or 3 inputs
2x microphone inputs
Automatic mute of alarm/ PA
VMA-60 poweramplifier
VMA-120 poweramplifier
VMA-250 poweramplifier

Technical data:

Color:	Black
Material:	Painted steel
Dimensions (w x h x d):	525 x 586 x 456 mm
Mounting:	Floor w/ 4 x 6 mm bolts. Shock absorbers recommended.
Weight exclusive amplifier:	Approx. 23,5 kg

Accessories:

VMP-603	P.A. panel
VMT-603	P.A. panel WP
SP-111	Mic. control panel

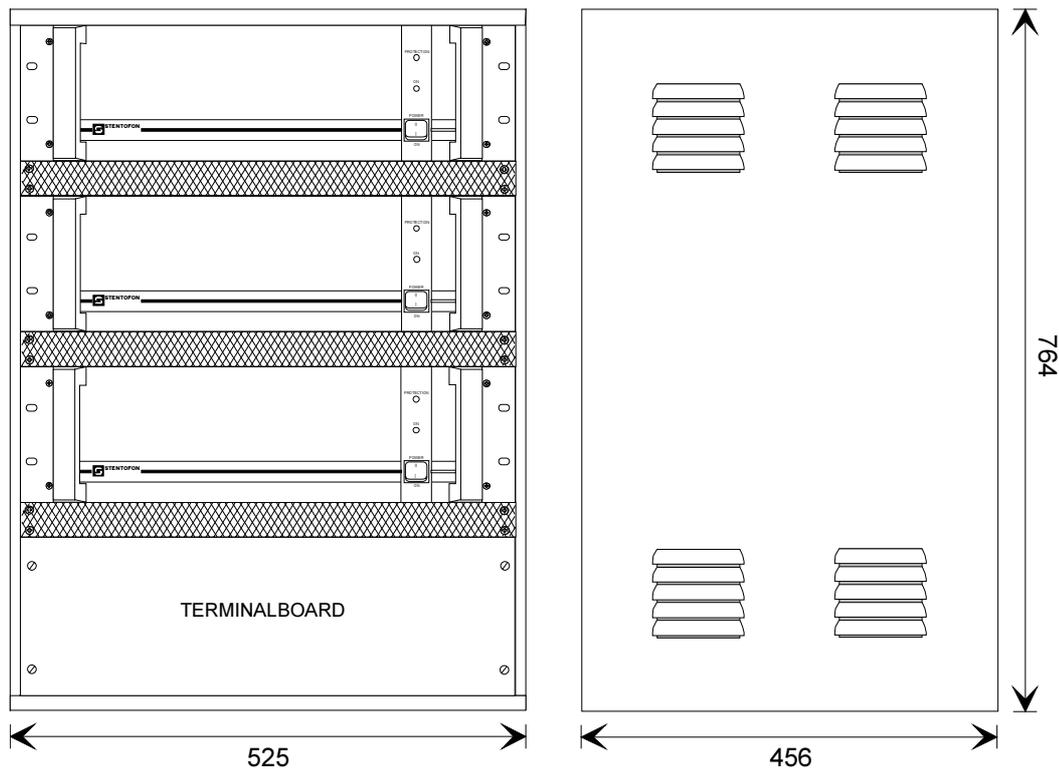
For further data:

Technical data for VMA-60/ -120/ -250, and P.A./ microphone panels (See separate datasheets)

Amplifier System VMA



Marine



Article No:
VMA-3

Description:

VMA-3

- Combined 19" 16 U amplifier rack for hailer system and for ACM or ASA system
- 3x power amplifiers
- 4x speaker zones (can be set up to 8)

Options:

1 or 3 alarm inputs main
Backup alarm generator, 1 or 3 inputs
Up to 4x microphone inputs
Automatic mute of alarm/ PA
VMA-60 poweramplifier
VMA-120 poweramplifier
VMA-250 poweramplifier

Technical data:

Color:	Black
Material:	Painted steel
Dimensions (w x h x d):	525 x 764 x 456 mm
Mounting:	Floor w/ 4 x 6 mm bolts. Shock absorbers recommended.
Weight exclusive amplifier:	Approx. 27,5 kg

Accessories:

VMP-603	P.A. panel
VMT-603	P.A. panel WP
SP-111	Mic. control panel

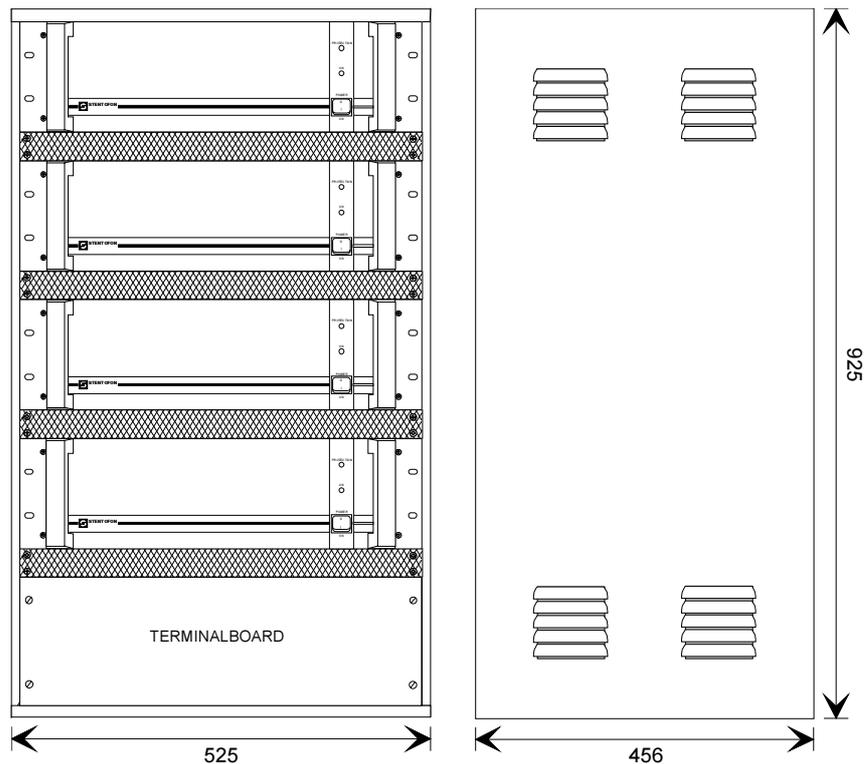
For further data:

Technical data for VMA-60/ -120/ -250, and P.A./ microphone panels (See separate datasheets)

Amplifier System VMA



Marine



Article No: VMA-4

Description:

VMA-4

- Combined 19" 20 U amplifier rack for hailer system and for ACM or ASA system
- 4x power amplifiers
- 4x speaker zones (can be set up to 8)

Options:

1 or 3 alarm inputs main
Backup alarm generator, 1 or 3 inputs
Up to 4x microphone inputs
Automatic mute of alarm/ PA
VMA-60 poweramplifier
VMA-120 poweramplifier
VMA-250 poweramplifier

Technical data:

Color:	Black
Material:	Painted steel
Dimensions (w x h x d):	525 x 925 x 456 mm
Mounting:	Floor w/ 4 x 6 mm bolts. Shock absorbers recommended.
Weight exclusive amplifier:	Approx. 32,5 kg

Accessories:

VMP-603	P.A. panel
VMT-603	P.A. panel WP
SP-111	Mic. control panel

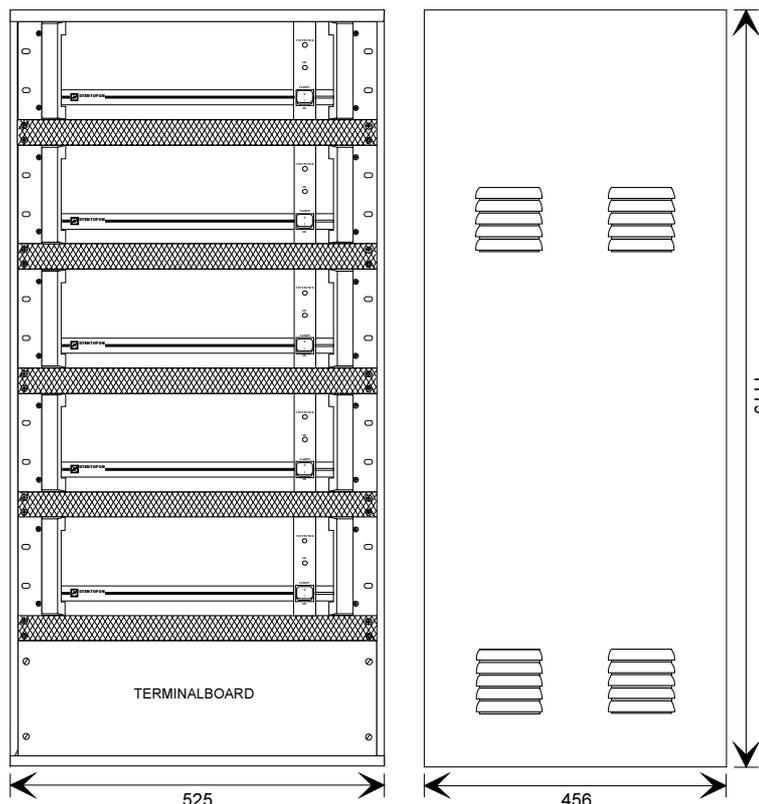
For further data:

Technical data for VMA-60/ -120/ -250, and P.A./ microphone panels (See separate datasheets)

Amplifier System VMA



Marine



**Article No:
VMA-5**

Description:

- Includes two separate systems in 19" 24 U amplifier rack for combined use for hailer system and for ACM or ASA system
- 5x power amplifiers total

Systems:

- System 1: 4x power amplifiers { same as VMA-4 }
4x speaker zones (can be set up to 8)
- System 2: 1x power amplifier { same as VMA-1 }
4x speaker zones

Options:

- 1 or 3 alarm inputs main
- Backup alarm generator, 1 or 3 inputs
- Up to 4x microphone inputs
- Automatic mute of alarm/ PA
- VMA-60 poweramplifier
- VMA-120 poweramplifier
- VMA-250 poweramplifier

Technical data:

- Color: Black
- Material: Painted steel
- Dimensions (w x h x d): 525 x 1119 x 456 mm
- Mounting: Floor w/ 4 x 6 mm bolts.
Shock absorbers recommended.
- Weight exclusive amplifier: Approx. 32,5 kg

Accessories:

- VMP-603 P.A. panel
- VMT-603 P.A. panel WP
- SP-111 Mic. control panel

For further data:

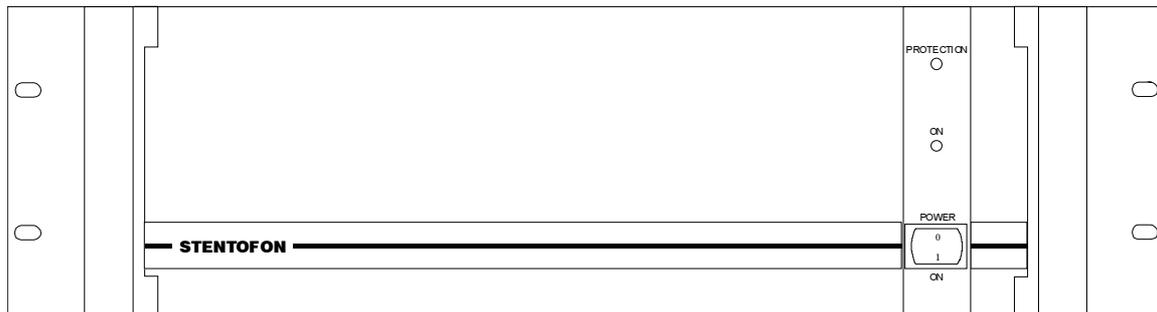
Technical data for VMA-60/ -120/ -250, and P.A./ microphone panels (See separate datasheets)

Slave Power Amplifiers

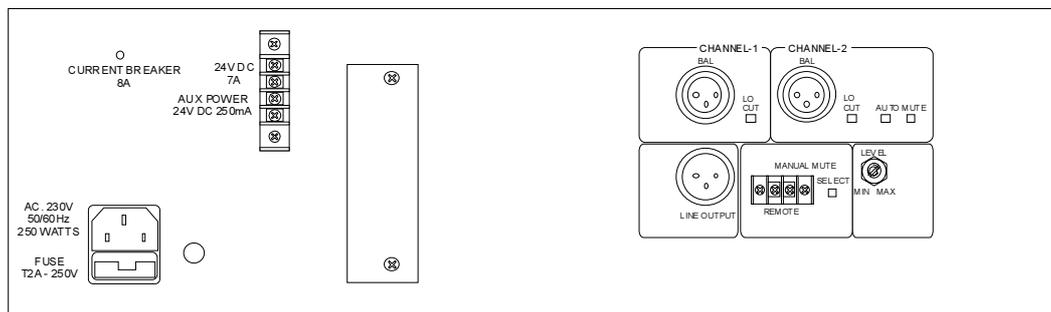


Marine

FRONT



REAR



Article No:
VMA-60

Description:

VMA-60

- The series of slave amplifier is designed for years of trouble free services in a variety of commercial and industrial sound systems. The VMA-series incorporate many useful features. The inputs are transformer isolated and set to operate in balanced mode. A low cut switch provides protection for horn speakers. Signal muting can be done either manually or automatically (voice operated). Auto-mute mode muting level can be switched between -20dB and -40dB. There is also an auxiliary power of 24V DC/250mA available on the back panel to drive other external

Technical data:

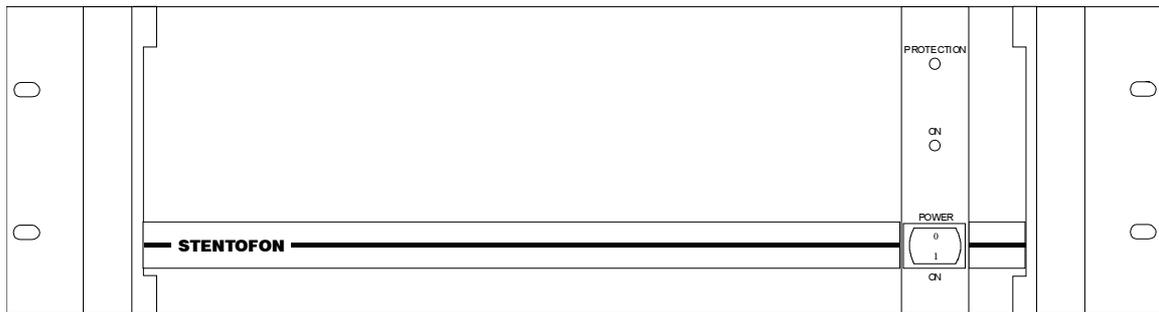
Manufacturer:	STENTOFON
Type/art.no.:	2806
Operation volt.:	230V AC 50-60Hz / 24V DC
Aux pwr output:	24V DC, 250mA
Rated current:	0.8A at 230V AC (90mA)
Rated current:	7A at 24V DC (150mA)
Outputs:	60W - 100V / 50V / 4 ohm
Distortion:	2% at 120W RMS
Line output:	600 ohm 1V balanced
Inputs (bal):	2 channels, 20kOhm line
Input sensitivity:	775mV for rated pwr output
Freq. response:	60 - 15KHz
Temp. range:	-10 to +60°C
Humidity. range:	10% - 85% RH
Dimensions:	W=19" H=3HU D=308mm
Weight:	10,5kg (shipping weight)

Slave Power Amplifiers

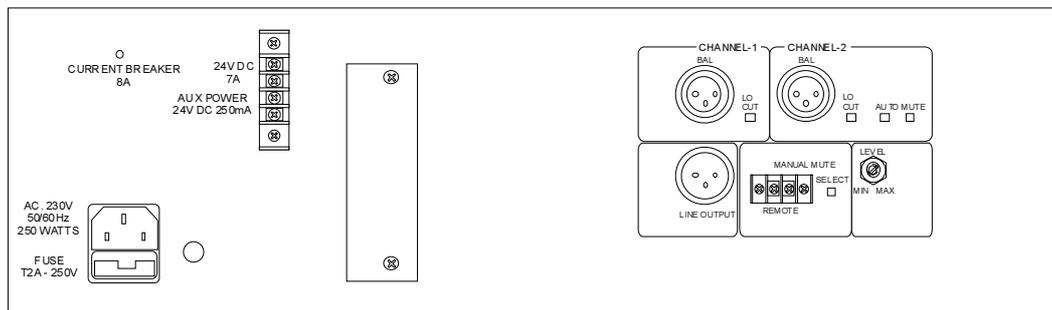


Marine

FRONT



REAR



Article No:
VMA-120

Description:

VMA-120

- The series of slave amplifier is designed for years of trouble free services in a variety of commercial and industrial sound systems. The VMA-series incorporate many useful features. The inputs are transformer isolated and set to operate in balanced mode. A low cut switch provides protection for horn speakers. Signal muting can be done either manually or automatically (voice operated). Auto-mute mode muting level can be switched between -20dB and -40dB. There is also an auxiliary power of 24V DC/250mA available on the back panel to drive other external equipment. The VMA amplifiers can operate from a 24V DC power source.

Technical data:

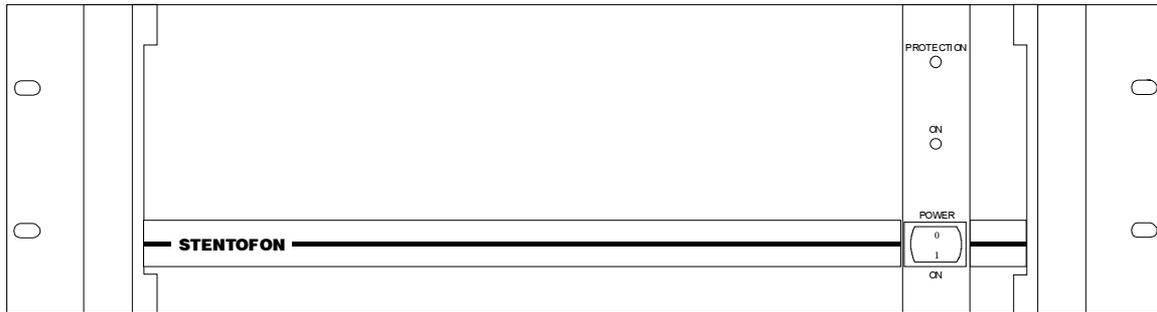
Manufacturer:	STENTOFON
Type/art.no.:	2812
Operation volt.:	230V AC 50-60Hz / 24V DC
Aux pwr output:	24V DC, 250mA
Rated current:	1.2A at 230V AC (100mA)
Rated current:	9A at 24V DC (150mA)
Outputs:	120W - 100V / 50V / 4 ohm
Distortion:	2% at 120W RMS
Line output:	600 ohm 1V balanced
Inputs (bal):	2 channels, 20kOhm line
Input sensitivity:	775mV for rated pwr output
Freq. response:	60 - 15KHz
Temp. range:	-10 to +60°C
Humidity. range:	10% - 85% RH
Dimensions:	W=19" H=3HU D=308mm
Weight:	17kg (shipping weight)

Slave Power Amplifiers

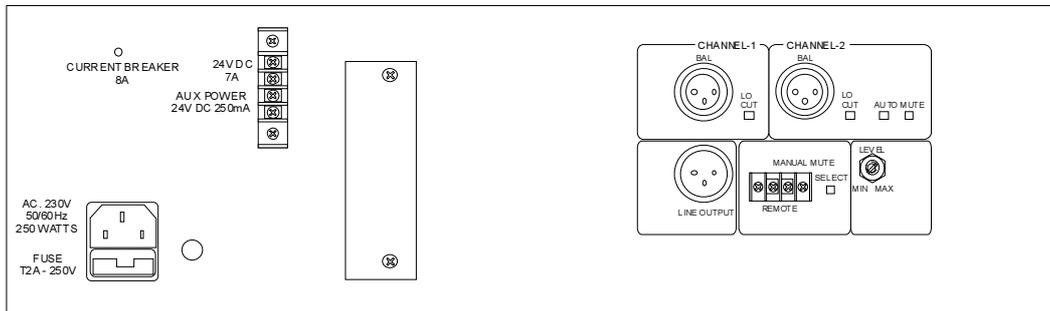


Marine

FRONT



REAR



Article No:
VMA-250

Description:

VMA-250

- The series of slave amplifier is designed for years of trouble free services in a variety of commercial and industrial sound systems. The VMA-series incorporate many useful features. The inputs are transformer isolated and set to operate in balanced mode. A low cut switch provides protection for horn speakers. Signal muting can be done either manually or automatically (voice operated). Auto-mute mode muting level can be switched between -20dB and -40dB. There is also an auxiliary power of 24V DC/250mA available on the back panel to drive other external equipment. The VMA amplifiers can operate from a 24V DC power source.

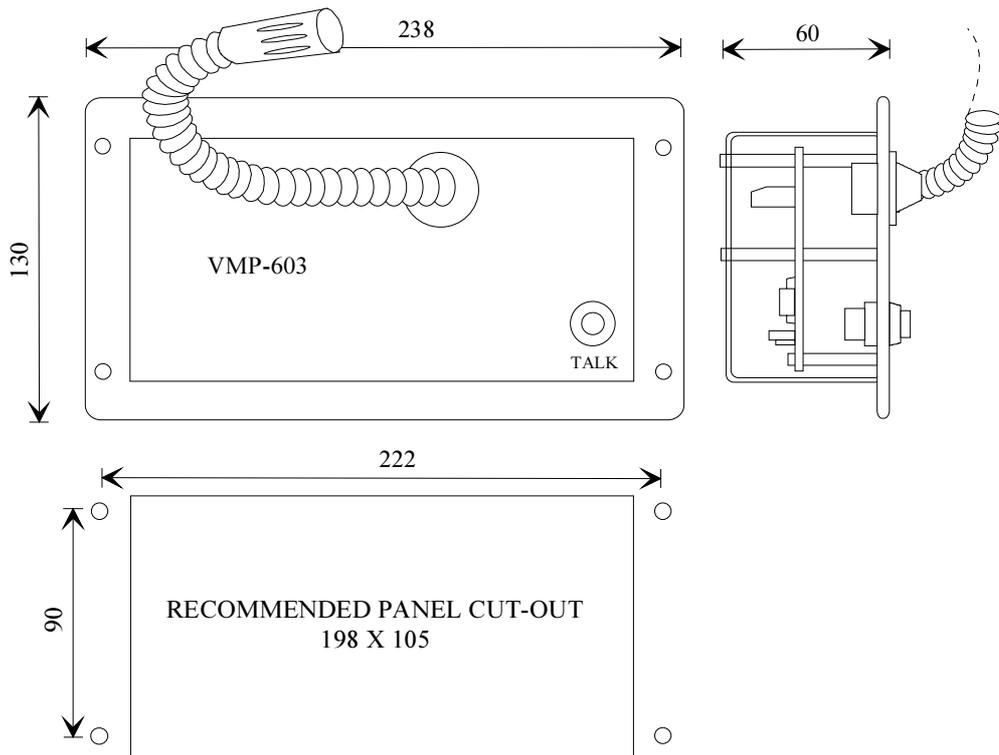
Technical data:

Manufacturer:	STENTOFON
Type/art.no.:	2825
Operation volt.:	230V AC 50-60Hz / 24V DC
Aux pwr output:	24V DC, 250mA
Rated current:	3A at 230V AC (175mA)
Rated current:	23A at 24V DC (220mA)
Outputs:	250W - 100V / 50V / 4 ohm
Distortion:	2% at 120W RMS
Line output:	600 ohm 1V balanced
Inputs (bal):	2 channels, 20kOhm line
Input sensitivity:	775mV for rated pwr output
Freq. response:	60 - 15KHz
Temp. range:	-10 to +60°C
Humidity. range:	10% - 85% RH
Dimensions:	W=19" H=3HU D=308mm
Weight:	21,5kg (shipping weight)

ACM System - Stations



Marine



Article No:
VMP-603

Description:

VMP-603:

- PA panel for interruption of Alarm signals for Emergency messages
- For flush mounting in consoles

Technical data:

Gooseneck mic.:	400 mm (total length)
Connection:	Screw terminals
Colour:	Black
IP rating	IP-44
Dimensions:	see drw. above
Weight:	0,8 kg

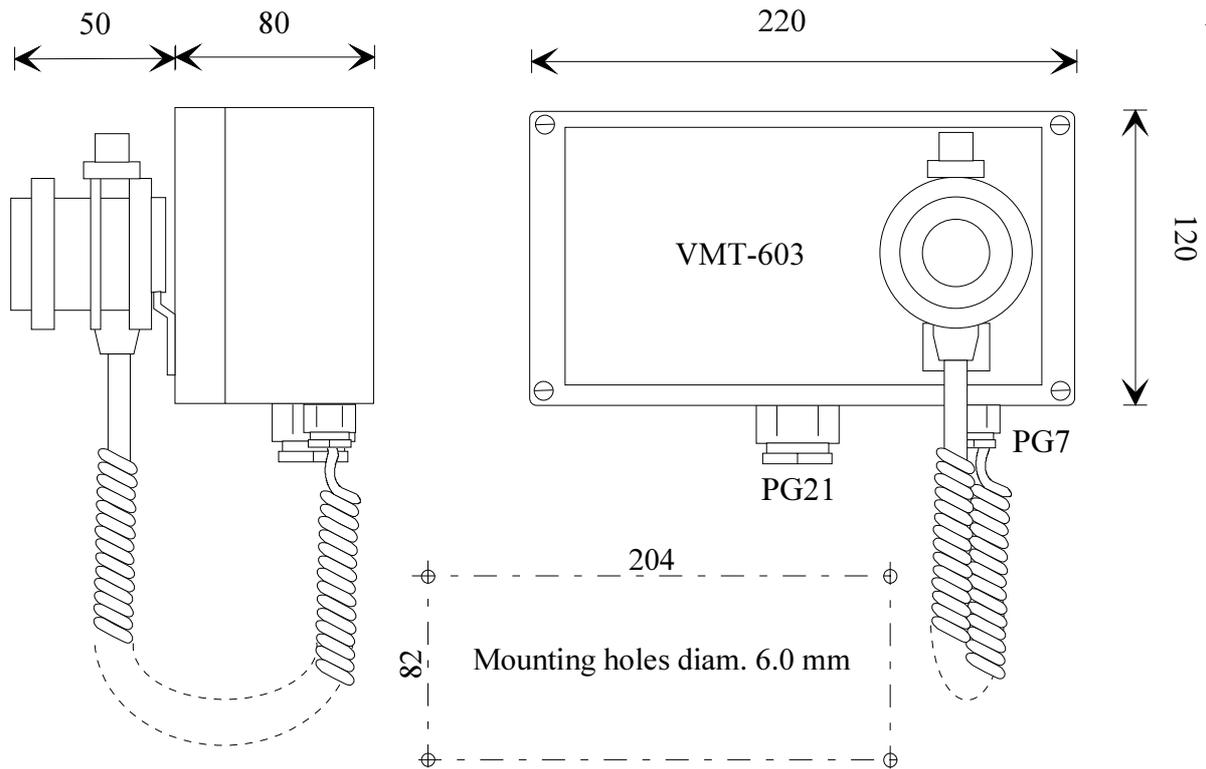


VMP-603_ds_rev.002001.07.16

ACM System - Stations



Marine



Article No: VMT-603

Description:

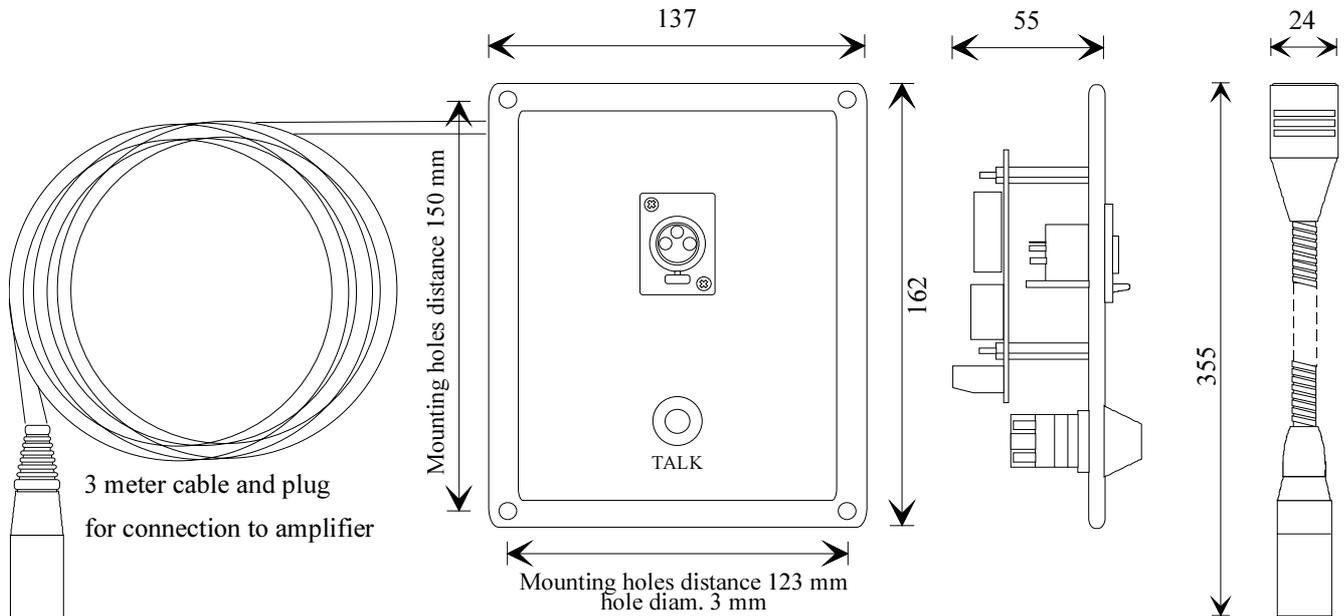
- VMT-603:
- W/t PA station for interruption of Alarm signals for Emergency messages
 - For wall mounting at muster or embarkment stations

Technical data:

Handheld mic.:	62A0005
Connection:	Internal screw terminals
Housing:	ROSE Box
Colour:	Grey box / Black sign
IP rating	IP-65
Dimensions:	see drw. above
Weight:	1,4 kg



VMT-603_ds_rev.002001.07.16



Article No: SP-111

Description:

SP-111

- A one line, one way Public Address panel w/socket for gooseneck microphone.
- Gooseneck microphone: article no. 44021
- Built-in pre-amplifier
- Designed to be used together with a 100V line VMA amplifier
- Fixed cable for connection to amplifier
- Flush mounted in consoles.
- A comprehensive range of loudspeakers are available

Technical data:

Power supply:	Powered from amplifier
Connections:	Screw terminals
Colour:	Black
IP rating:	IP-44 (in console)
Weight:	0.470 kg w/cable & plug
Dimensions:	See dwg. above
Panel cut-out:	90 x 115 mm
Gooseneck mic.	44021 (see data below)

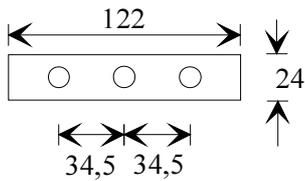
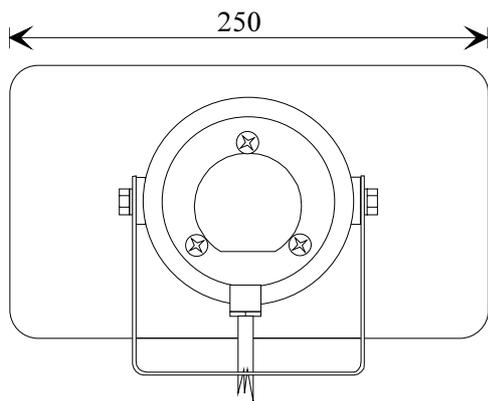
44021

Type:	Dynarnic
Art.no. :	D43/E
Impedance:	600 ohm
Freq.response:	150 -12.000Hz.
Sensitivity:	-80dBV +/-3dB at 1kHz
Length:	355 mm
Connection:	3 pin XLR (male)
Colour:	Satin black
Material:	Brass
Dimensions:	see dwg. above
Weight:	0,1 kg

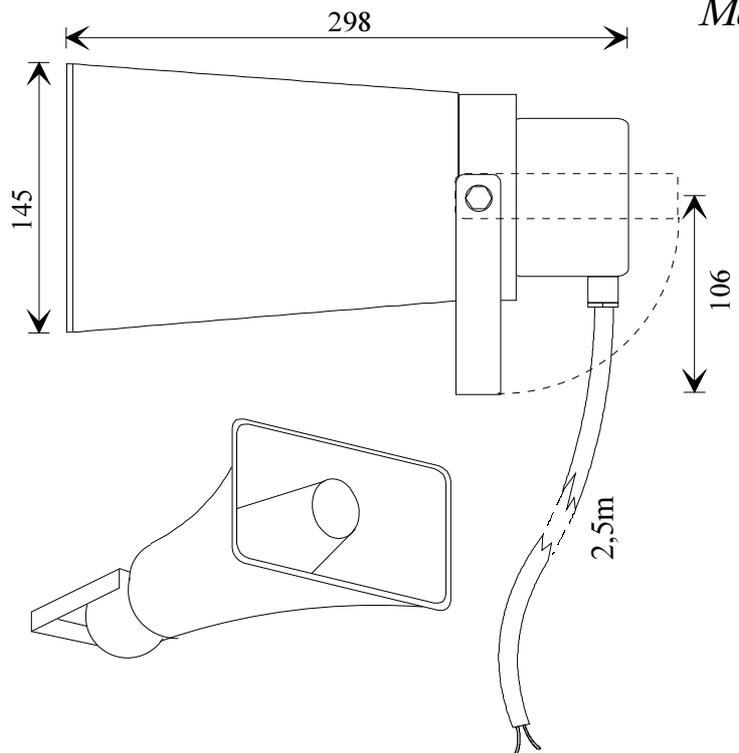
Loudspeakers



Marine



Mounting bracket
Holes: 3 x Ø11.0 mm



Article No: VML-15T

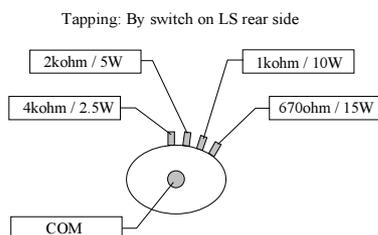
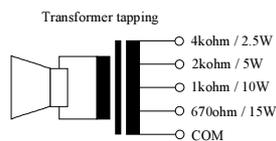
Description:

VML-15T

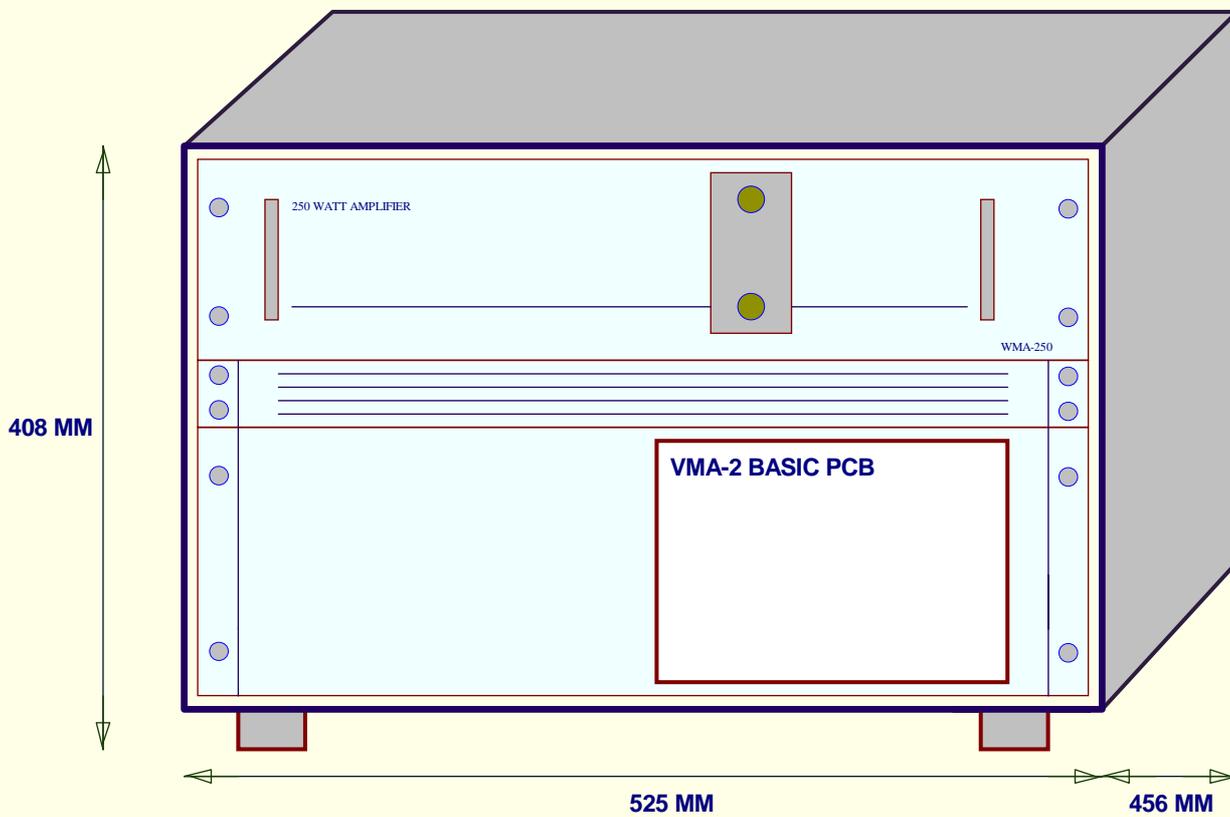
- is a general purpose 15 Watt horn loudspeaker w/transformer for use on deck areas, eng.room etc.
- to be used together with 100V line amplifier

Technical data:

Rated power:	15 Watt
Tranf.tapping:	see drw. below
Freq.range:	275 - 7.000 Hz
SPL at 1kHz:	106dB/1W/1m 118Db/15W/1m
Color/finish:	Grey
Material:	ABS
IP:	65
Dimensions:	see drw. above
Weight:	1,9 kg
Mounting:	Bracket (stainless steel)
Termination:	Cable 2.5m



VML-15T_ds.rev.002001.07.16



408 MM

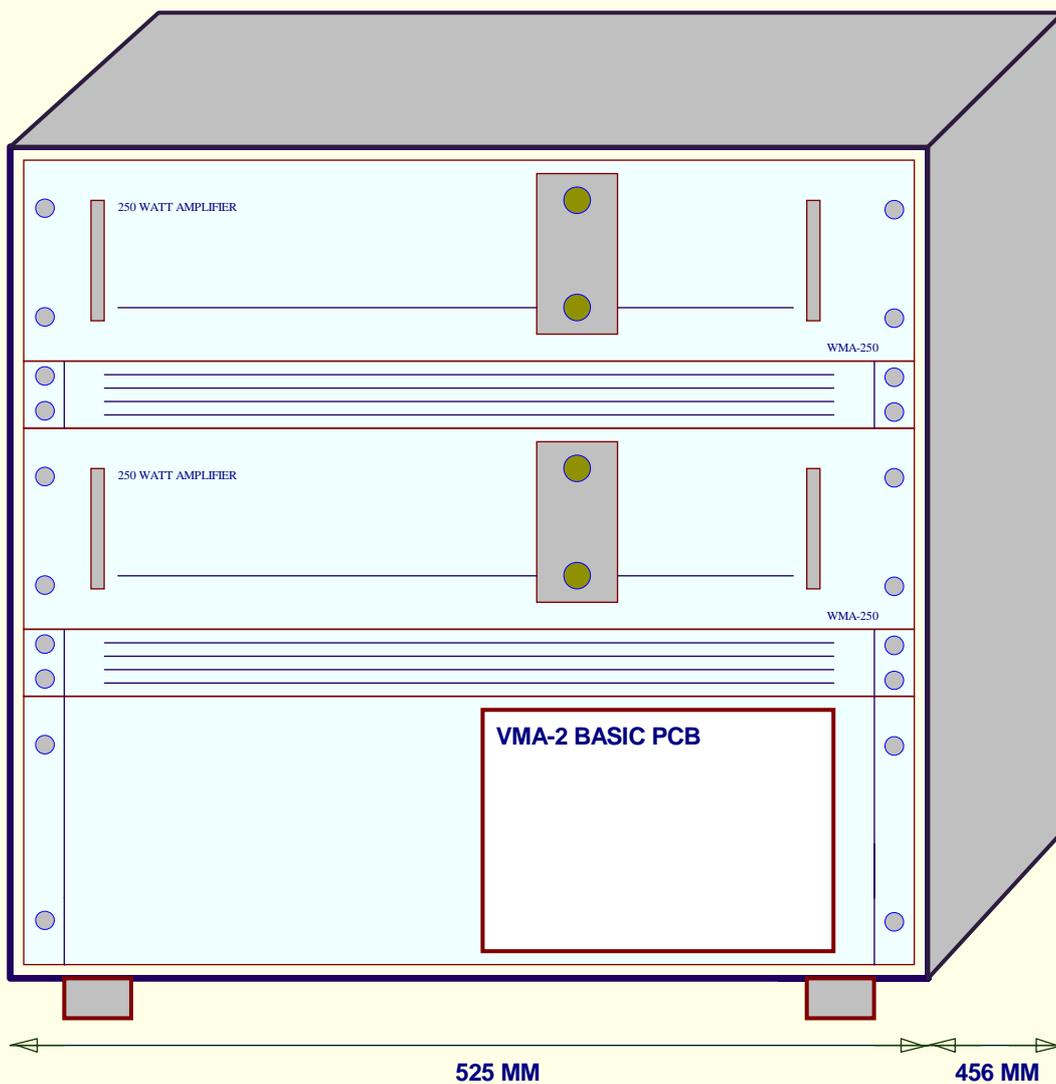
525 MM

456 MM

STENTO MARINE COMMUNICATION STEENHANS VINGTOR	VMA-1/BASIC2 19" RACK 8 UNITS VMA-SYSTEM	DRAWN BY: 02.03.19 JW APPROVED: DBASE: DOC. NO. VMA-1			
				REV.	BY

DESIGN AND SPECIFICATION ARE SUBJECT TO CHANGE WITHOUT NOTICE

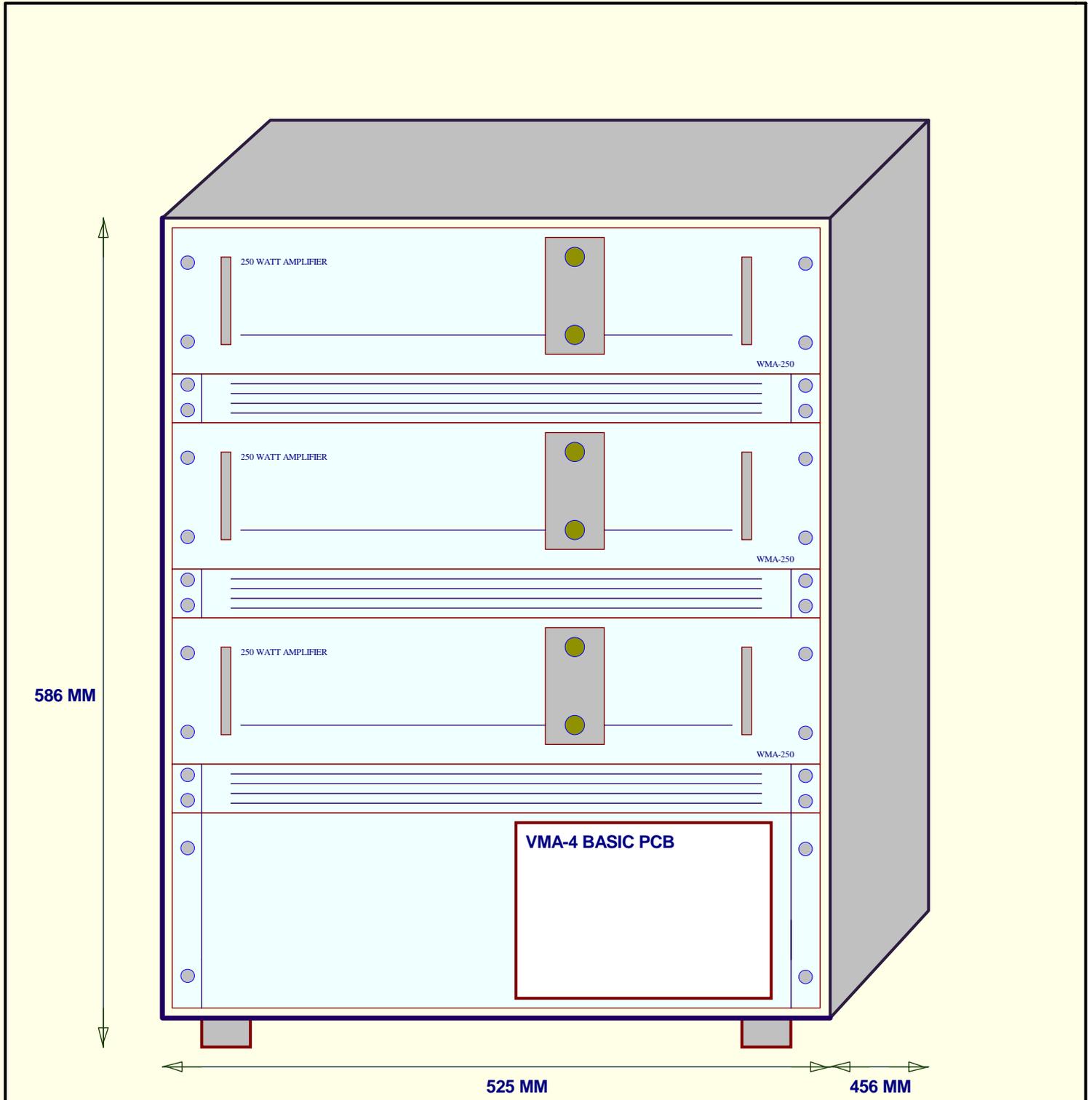
586 MM



525 MM

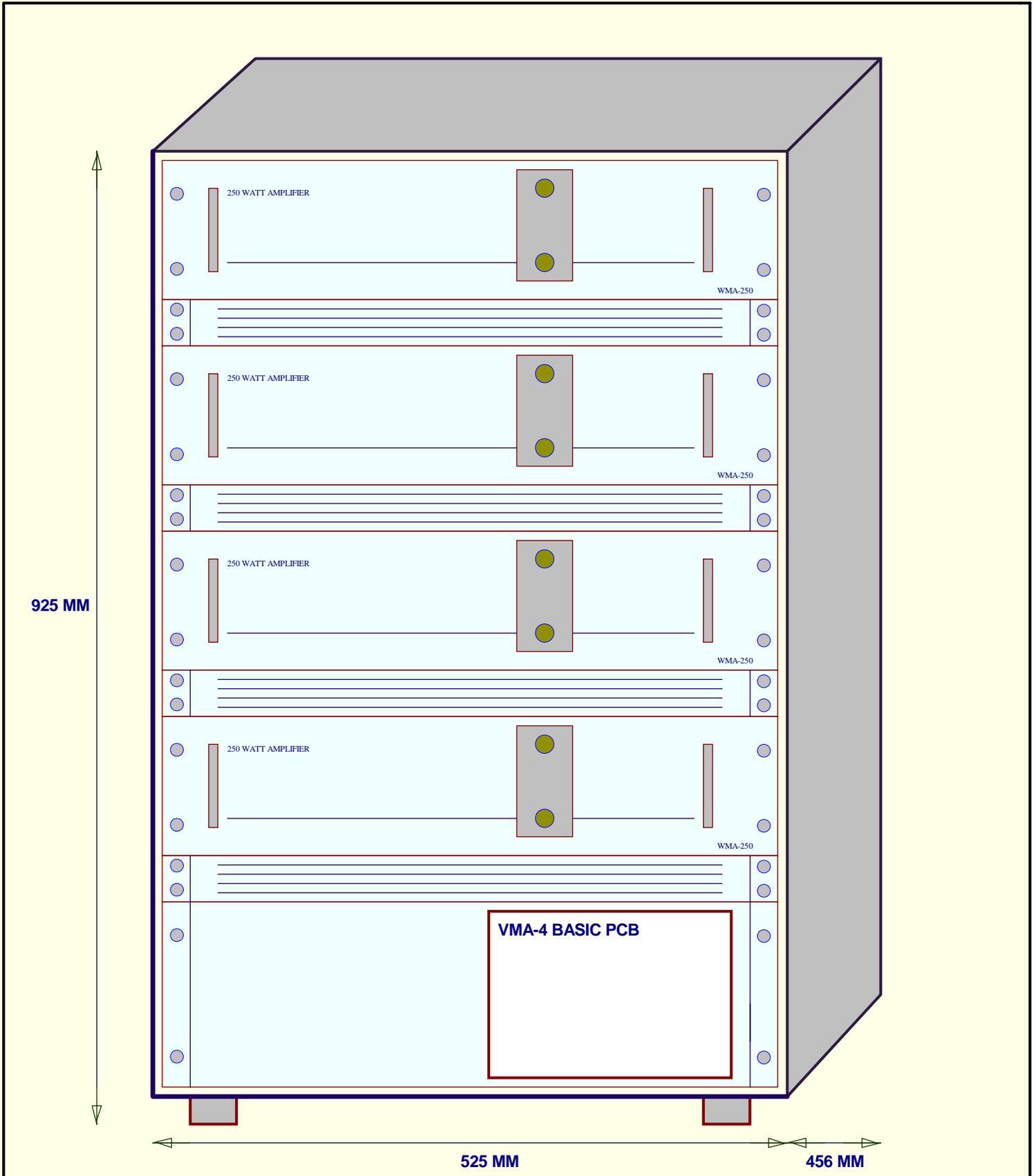
456 MM

STENTO MARINE COMMUNICATION	VMA-2/BASIC2 19" RACK 12 UNITS VMA-SYSTEM	DRAWN BY: 02.03.19	JW			
		APPROVED:				
STEENHANS VINGTOR		DBASE:				
		DOC. NO. VMA-2				
		REV.	BY	DATE		



STENTO MARINE COMMUNICATION STEENHANS VINGTOR	VMA-3/BASIC4 19" RACK 16 UNITS VMA-SYSTEM	DRAWN BY: 02.03.19 JW			
		APPROVED:			
		DBASE:			
		DOC. NO. VMA-3			
			REV.	BY	DATE

DESIGN AND SPECIFICATION ARE SUBJECT TO CHANGE WITHOUT NOTICE



925 MM

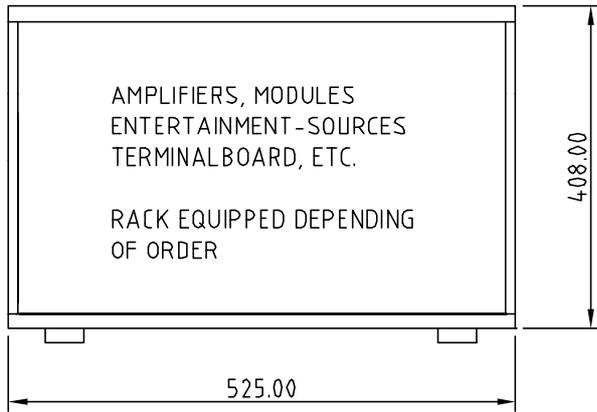
525 MM

456 MM

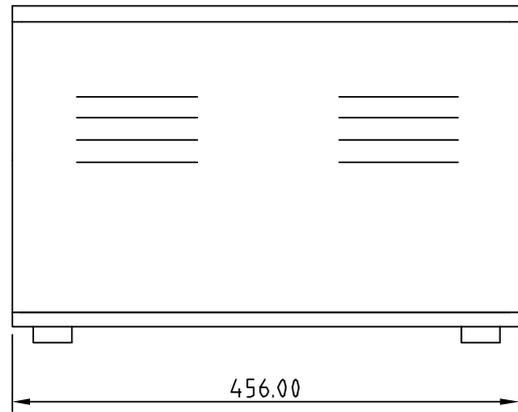
<p>STENTO MARINE COMMUNICATION</p> <p>STEENHANS VINGTOR</p>	<p>VMA-4/BASIC4 19" RACK 20 UNITS VMA-SYSTEM</p>	<p>DRAWN BY: 02.03.19 JW</p> <p>APPROVED:</p> <p>DBASE:</p> <p>DOC. NO. VMA-4</p>	<table border="1"> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td>REV.</td> <td>BY</td> <td>DATE</td> </tr> </table>							REV.	BY	DATE
REV.	BY	DATE										

DESIGN AND SPECIFICATION ARE SUBJECT TO CHANGE WITHOUT NOTICE

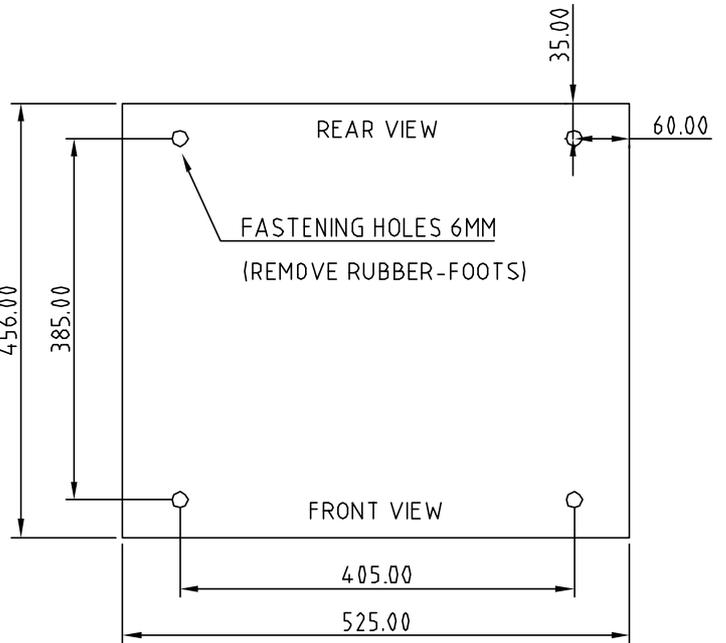
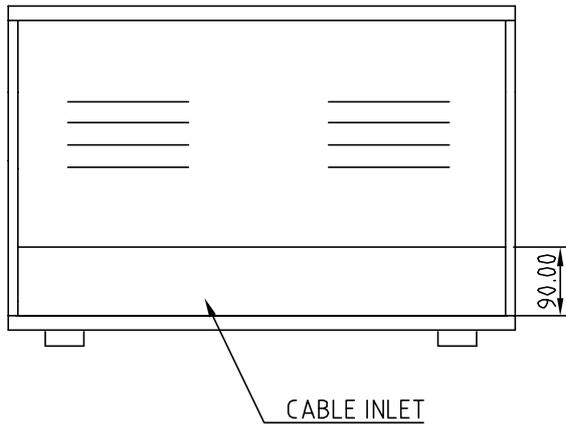
FRONT VIEW



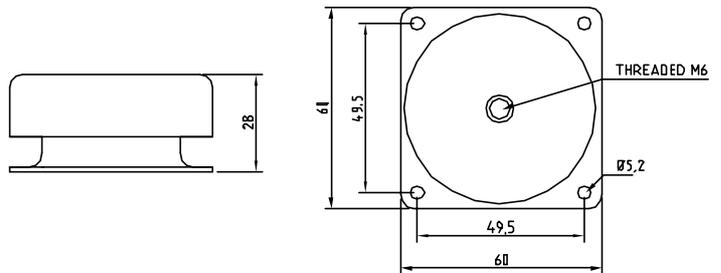
SIDE VIEW



REAR VIEW



SHOCK ABSORBER C1010 (OPTION)



MATERIAL: BLACK-PAINTED STEEL
ALL DIMENSION IN MM

DESIGN AND SPECIFICATION ARE SUBJECT TO CHANGE WITHOUT NOTICE

STENTO ASA
Marine Communication
STEENHANS VINGTOR

PUBLIC ADDRESS SYSTEM
SPA-System
8U Rack
Dimension / mounting details.

DRAWN BY: 12.05.99 Sen

APPROVED:

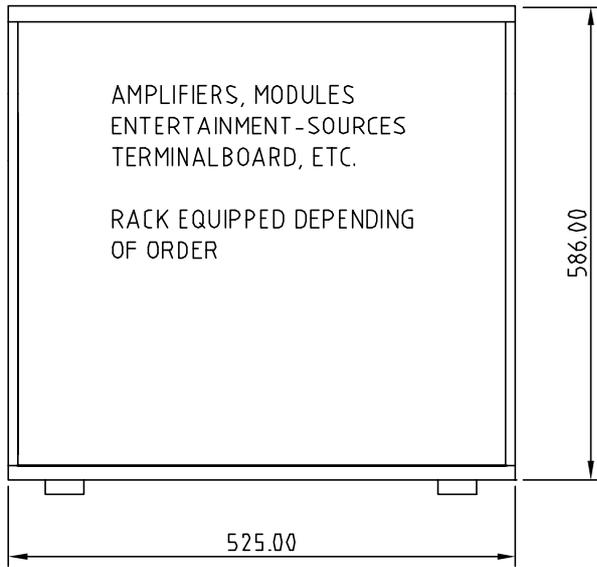
DBASE: S:\.Pa\2SPA

DOC.NO.

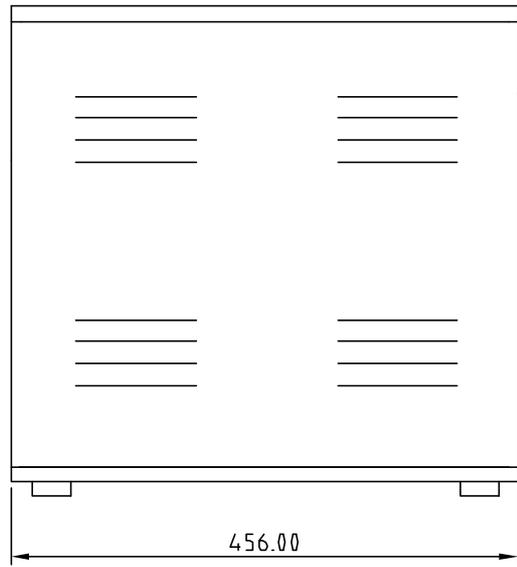
Pa202010

REV.	BY	DATE

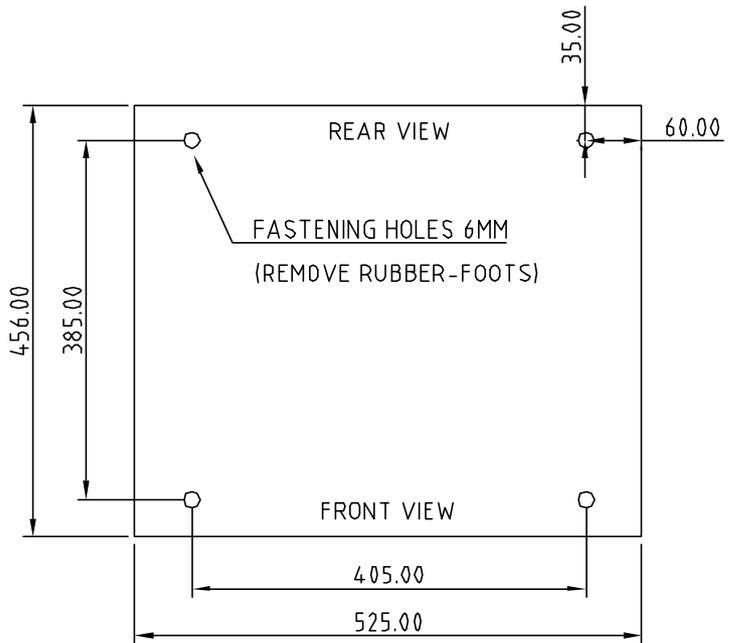
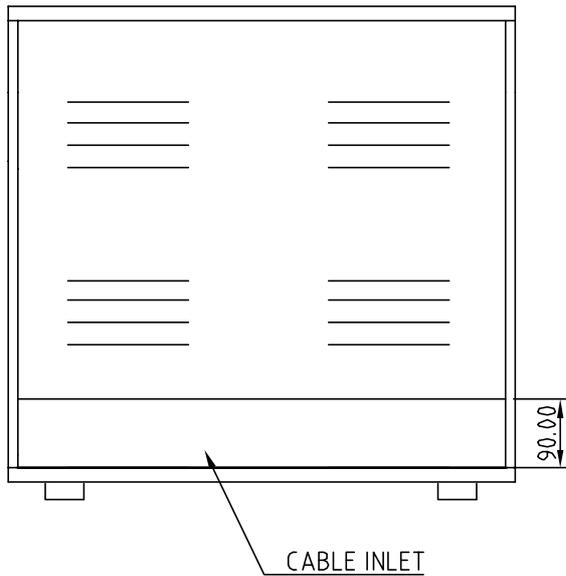
FRONT VIEW



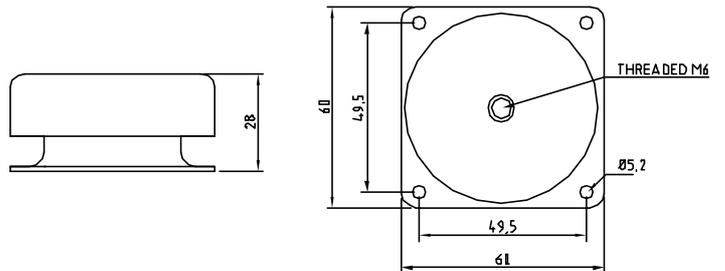
SIDE VIEW



REAR VIEW



SHOCK ABSORBER C1010 (OPTION)



MATERIAL: BLACK-PAINTED STEEL
ALL DIMENSION IN MM

DESIGN AND SPECIFICATION ARE SUBJECT TO CHANGE WITHOUT NOTICE

STENTO ASA
Marine Communication
STEENHANS VINGTOR

PUBLIC ADDRESS SYSTEM
SPA-System
12U Rack
Dimension / mounting details.

DRAWN BY: 12.05.99 Sen

APPROVED:

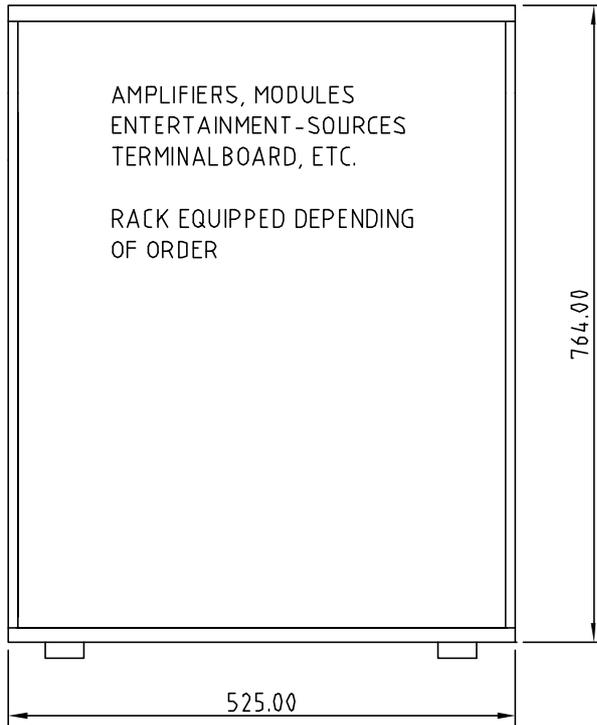
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DOC.NO.

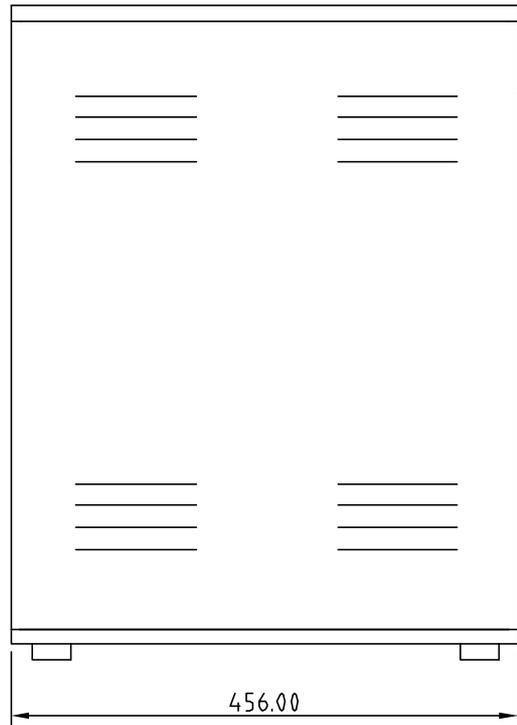
Pa202020

REV.	BY	DATE

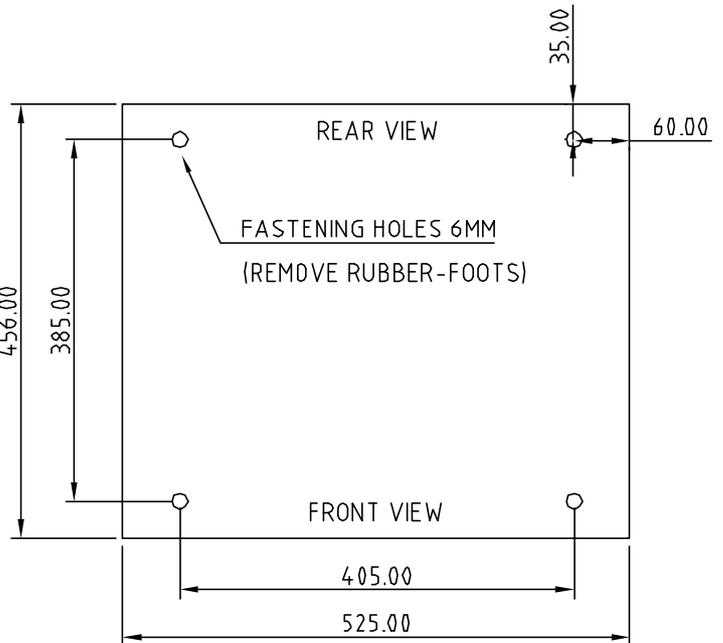
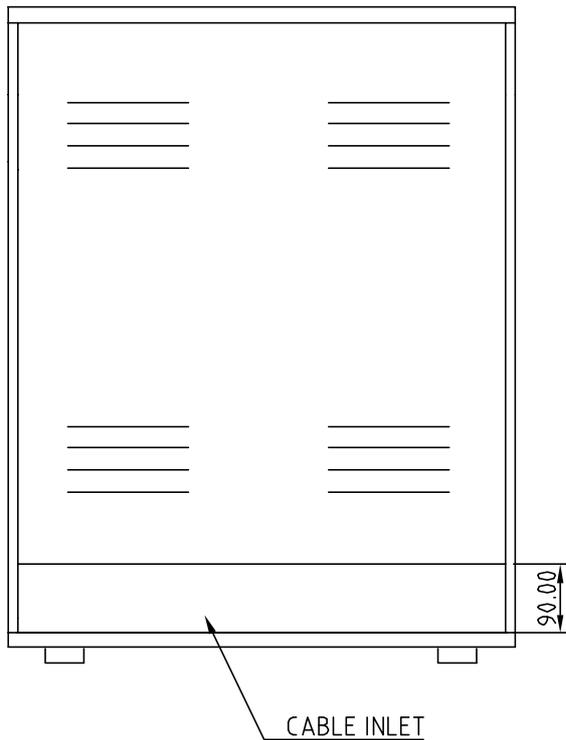
FRONT VIEW



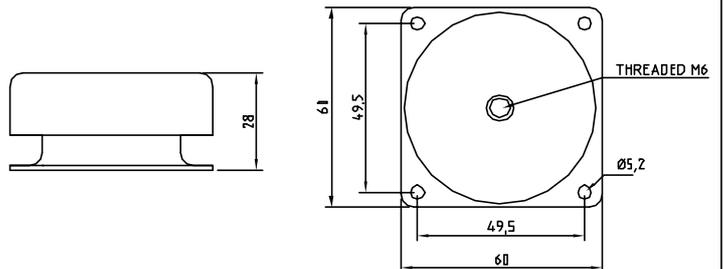
SIDE VIEW



REAR VIEW



SHOCK ABSORBER C1010 (OPTION)



MATERIAL: BLACK-PAINTED STEEL
ALL DIMENSION IN MM

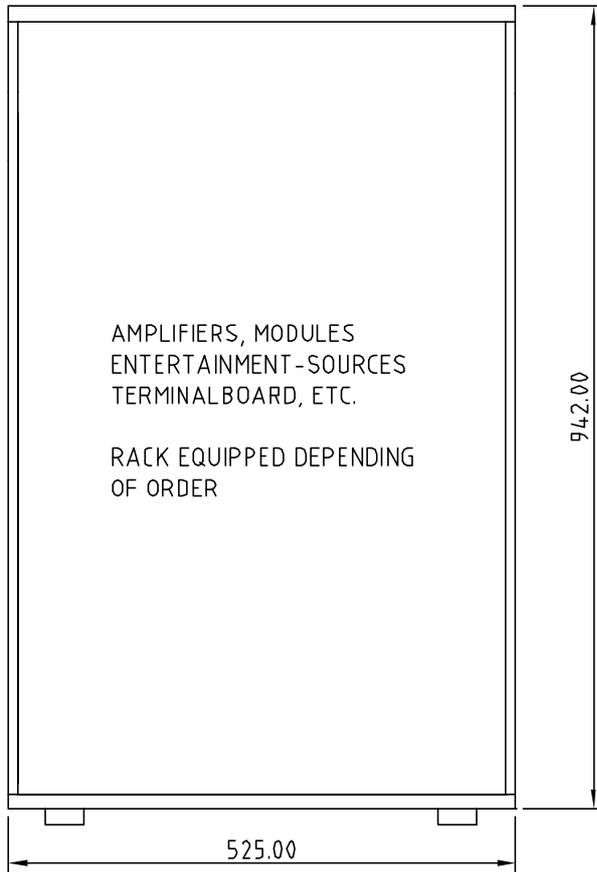
DESIGN AND SPECIFICATION ARE SUBJECT TO CHANGE WITHOUT NOTICE

STENTO ASA
Marine Communication
STEENHANS VINGTOR

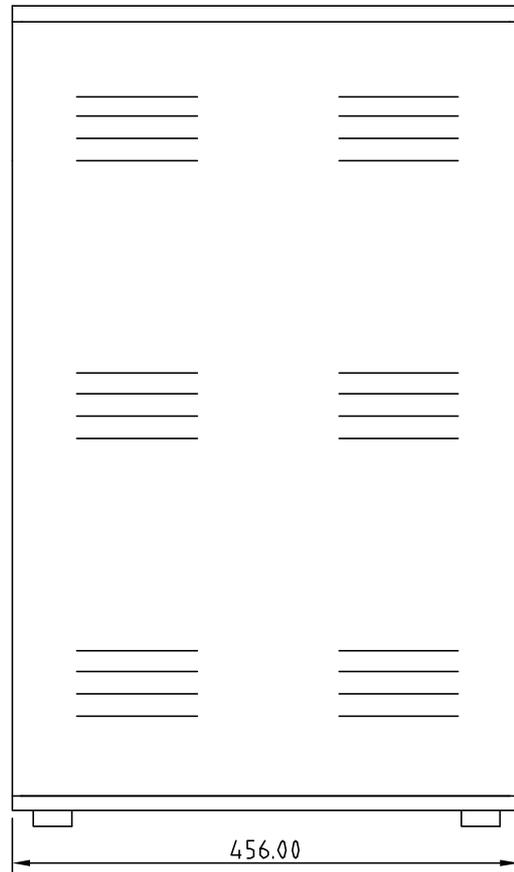
PUBLIC ADDRESS SYSTEM
SPA-System
16U Rack
Dimension / mounting details.

DRAWN BY: 12.05.99 Sen			
APPROVED:			
DBASE: S:\.\Pa\2SPA			
DOC.NO. Pa202030			
	REV.	BY	DATE

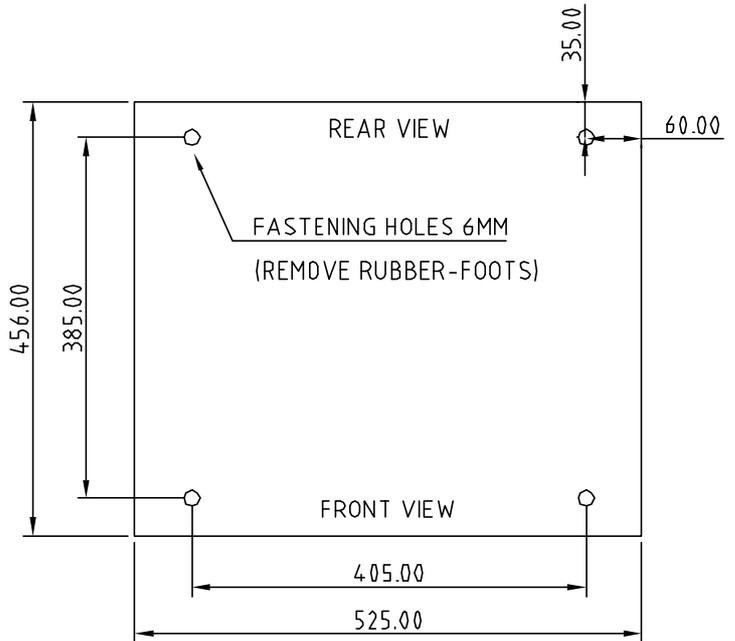
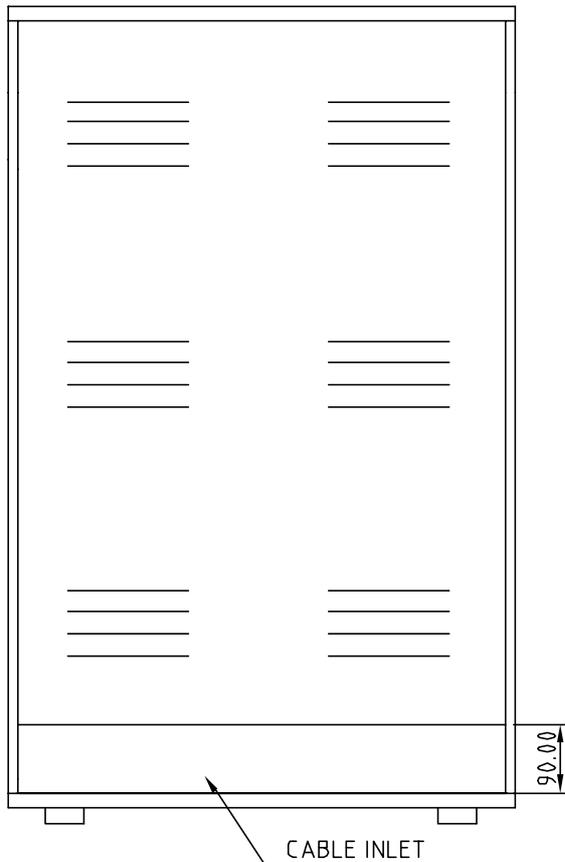
FRONT VIEW



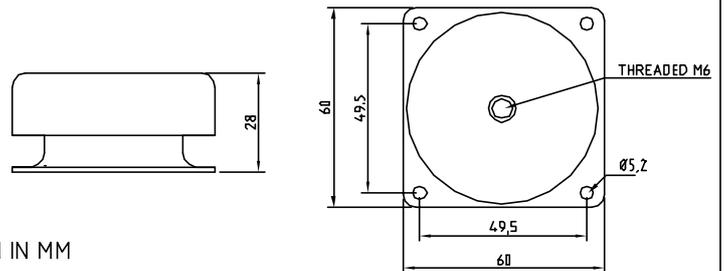
SIDE VIEW



REAR VIEW



SHOCK ABSORBER C1010 (OPTION)



MATERIAL: BLACK-PAINTED STEEL ALL DIMENSION IN MM

DESIGN AND SPECIFICATION ARE SUBJECT TO CHANGE WITHOUT NOTICE

STENTO ASA
Marine Communication
STEENHANS VINGTOR

PUBLIC ADDRESS SYSTEM
 SPA-System
 20U Rack
 Dimension / mounting details.

DRAWN BY: 12.05.99 Sen

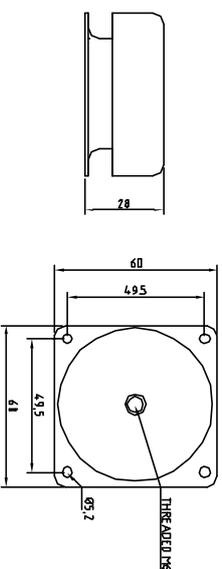
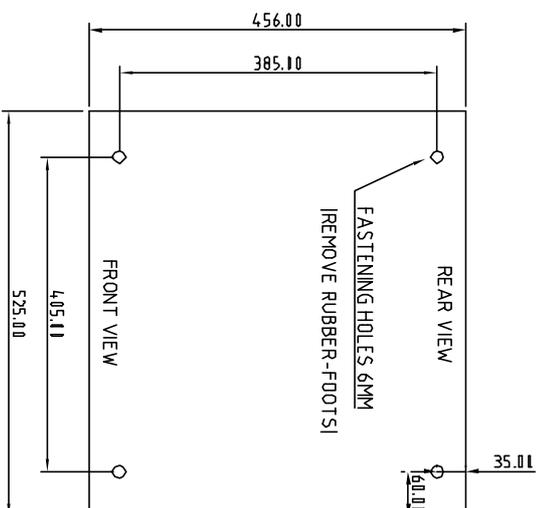
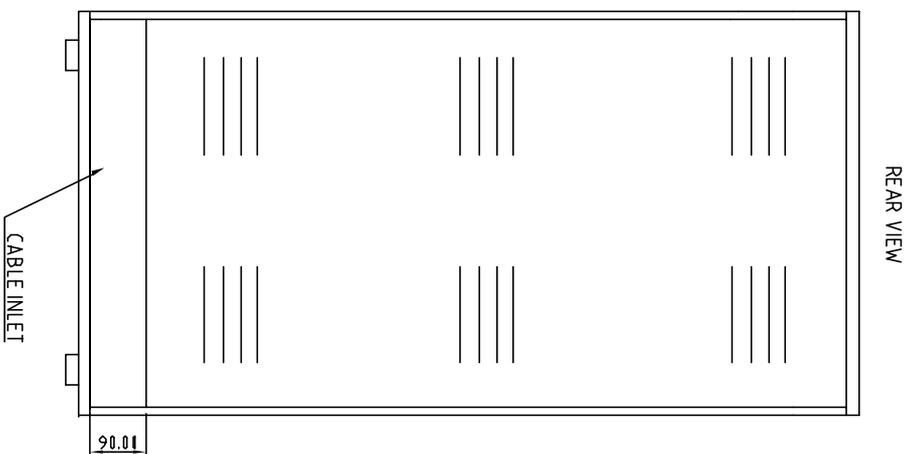
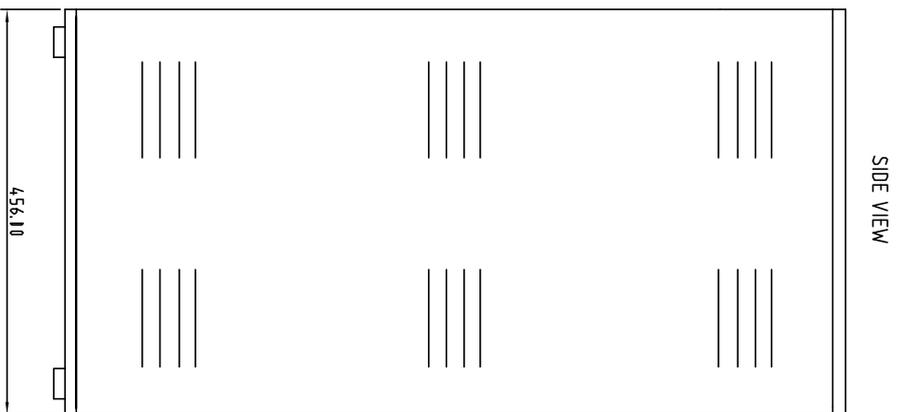
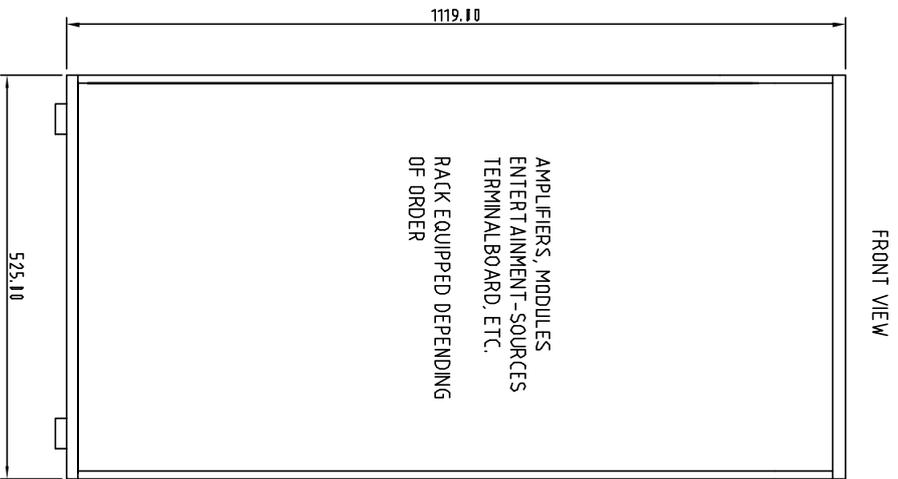
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DOC.NO.

Pa202040

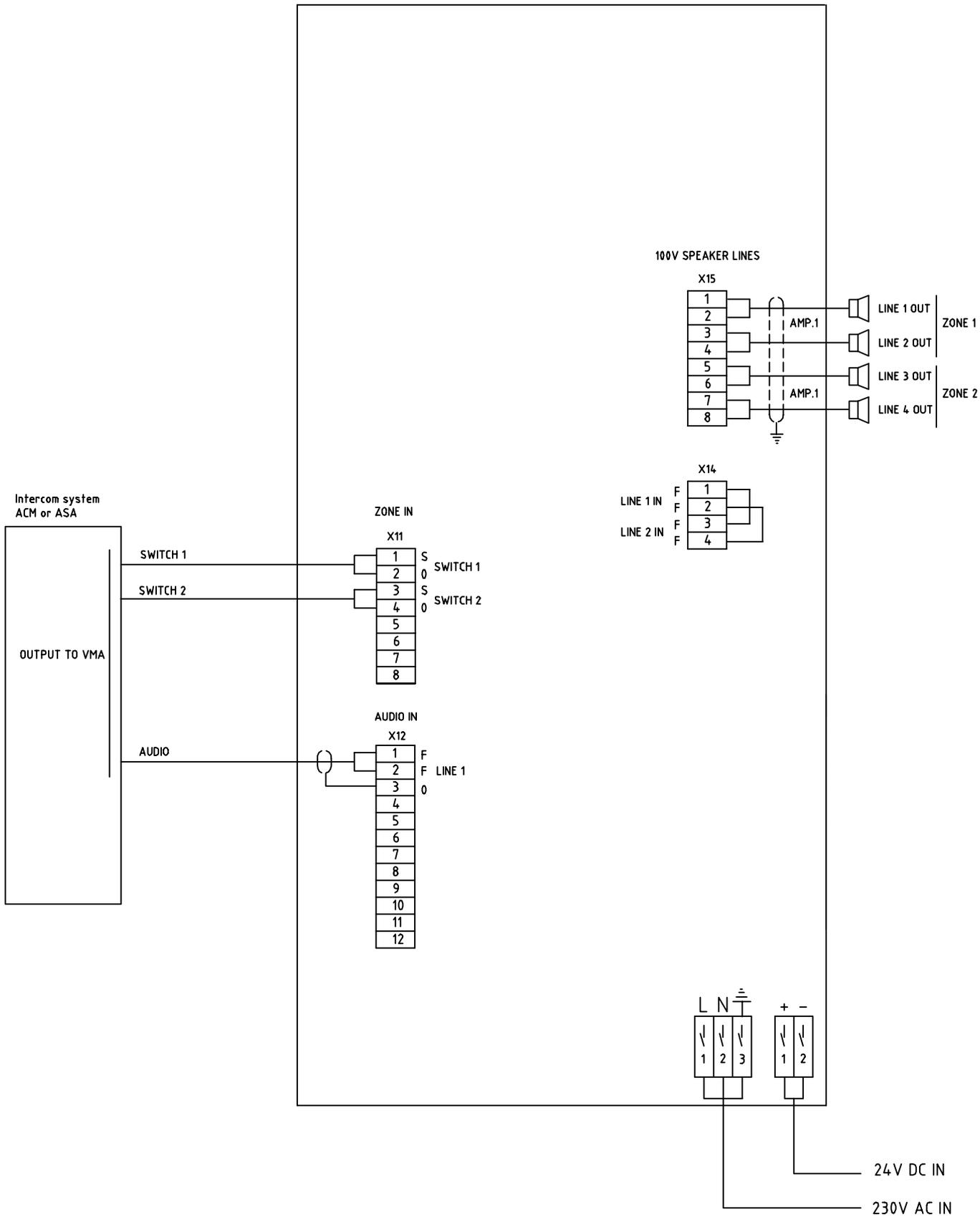
REV.	BY	DATE



MATERIAL: BLACK-PAINTED STEEL
ALL DIMENSION IN MM

STENTO ASA <i>Marine Kommunikation</i> STEENHANS VIKTOR	PUBLIC ADDRESS SYSTEM Type SPA 24U Rack Dimension / mounting details	DRAWN BY: 12.11.5.99 San APPROVED: DBASE: S:\PAVspa DOC.NR: P202050			
			REV.	BY	DATE

DESIGN AND SPECIFICATION ARE SUBJECT TO CHANGE WITHOUT NOTICE



Note! Signal cable

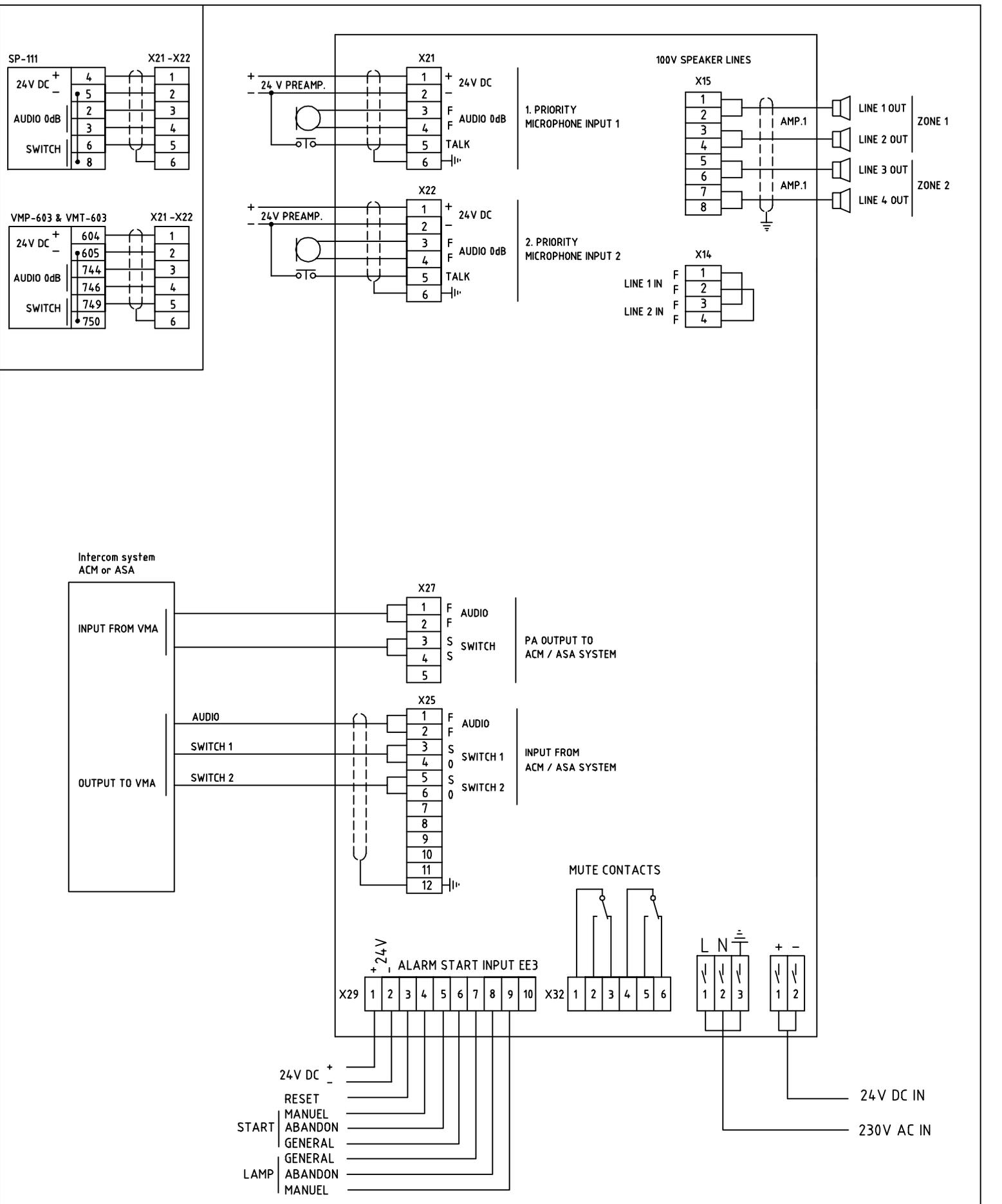
Use cable 0,75mm twisted pair with outer screen. The screens must be interconnected in junction boxes and grounded in a common point in the central unit only.

DESIGN AND SPECIFICATION ARE SUBJECT TO CHANGE WITHOUT NOTICE

STENTO ASA
Marine Communication
 STEENHANS VINGTOR

VMA AMPLIFIER SYSTEM
 VMA-1 BASIC
 Cable connection diagram

DRAWN BY: 02.19.03 Sen			
APPROVED:			
DBASE:			
DOC.NO. VMA-1BASIC_cc	00		
	REV.	BY	DATE



Note! Signal cable

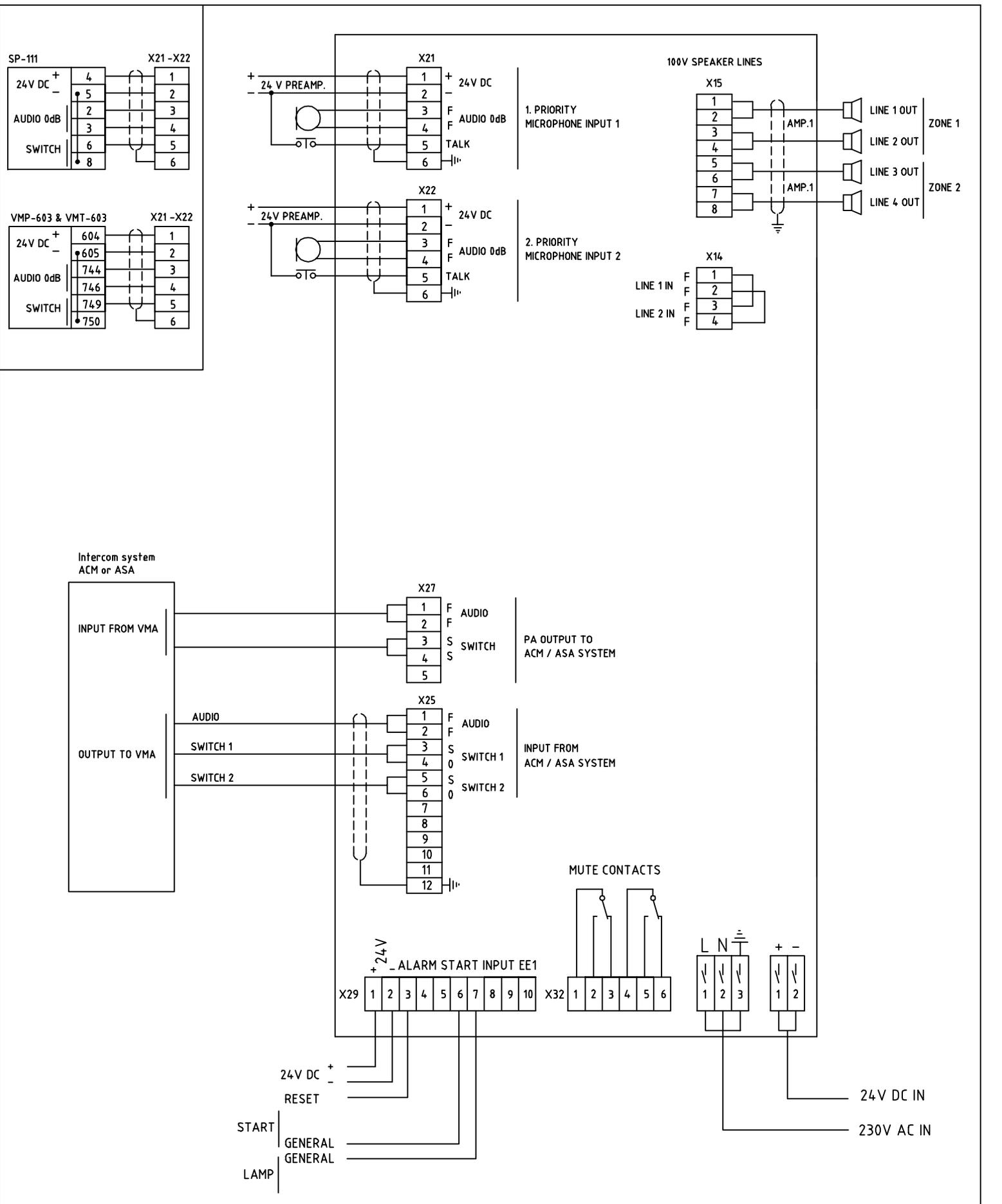
Use cable 0,75mm twisted pair with outer screen. The screens must be interconnected in junction boxes and grounded in a common point in the central unit only.

OPTION 1 WITH MICROPHONE ONLY
 OPTION 2 WITH MICROPHONE AND ALARM-MODULE EE3

STENTO ASA
 Marine Communication
 STEENHANS VINGTOR

VMA AMPLIFIER SYSTEM
 VMA-1Mic / Alarm
 Cable connection diagram
 Configuration w/ alarm EE3

DRAWN BY: 02.18.03 Sen			
APPROVED:			
DBASE:			
DOC.NO. VMA-1MIC.ALARM_cc01	00		
REV.	BY	DATE	



Note! Signal cable

Use cable 0,75mm twisted pair with outer screen.

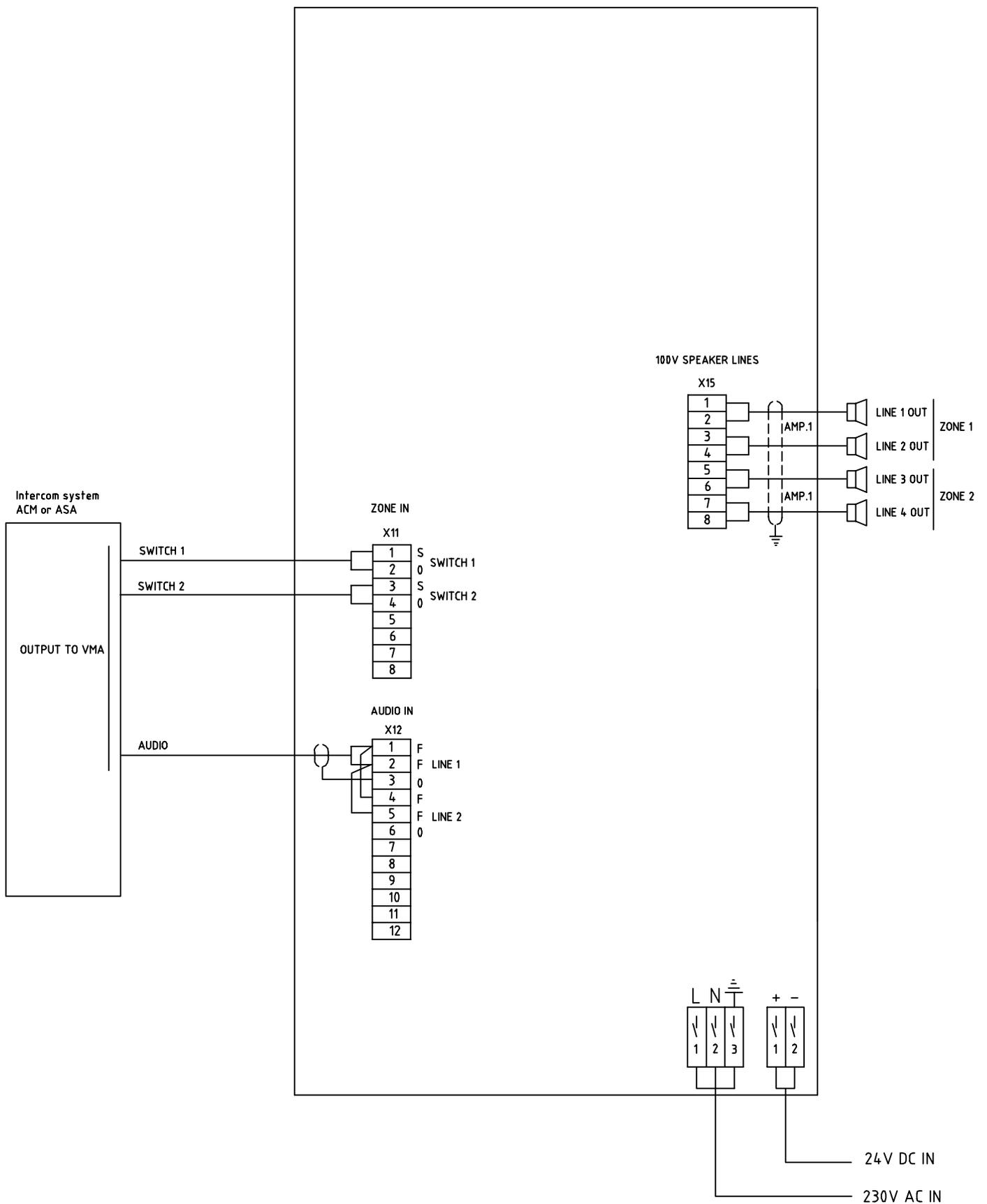
The screens must be interconnected in junction boxes and grounded in a common point in the central unit only.

OPTION 1 WITH MICROPHONE ONLY
 OPTION 2 WITH MICROPHONE AND ALARM-MODULE EE1

STENTO ASA
Marine Communication
 STEENHANS VINGTOR

VMA AMPLIFIER SYSTEM
 VMA-1Mic / Alarm
 Cable connection diagram
 Configuration w/alarm EE1

DRAWN BY:	02.18.03 Sen			
APPROVED:				
DBASE:				
DOC.NO.	00			
VMA-1MIC.ALARM_ cc02	REV.	BY	DATE	



Note! Signal cable

Use cable 0,75mm twisted pair with outer screen.

The screens must be interconnected in junction boxes and grounded in a common point in the central unit only.

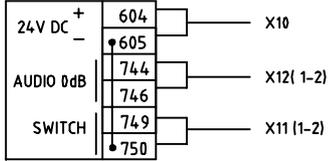
STENTO ASA
Marine Communication

STEENHANS VINGTOR

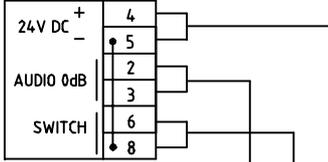
VMA AMPLIFIER SYSTEM
VMA-2 BASIC
Cable connection diagram

DRAWN BY: 02.19.03 Sen			
APPROVED:			
DBASE:			
DOC.NO. VMA-2BASIC_cc01	00		
REV.	BY	DATE	

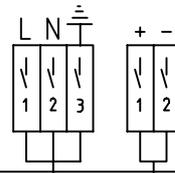
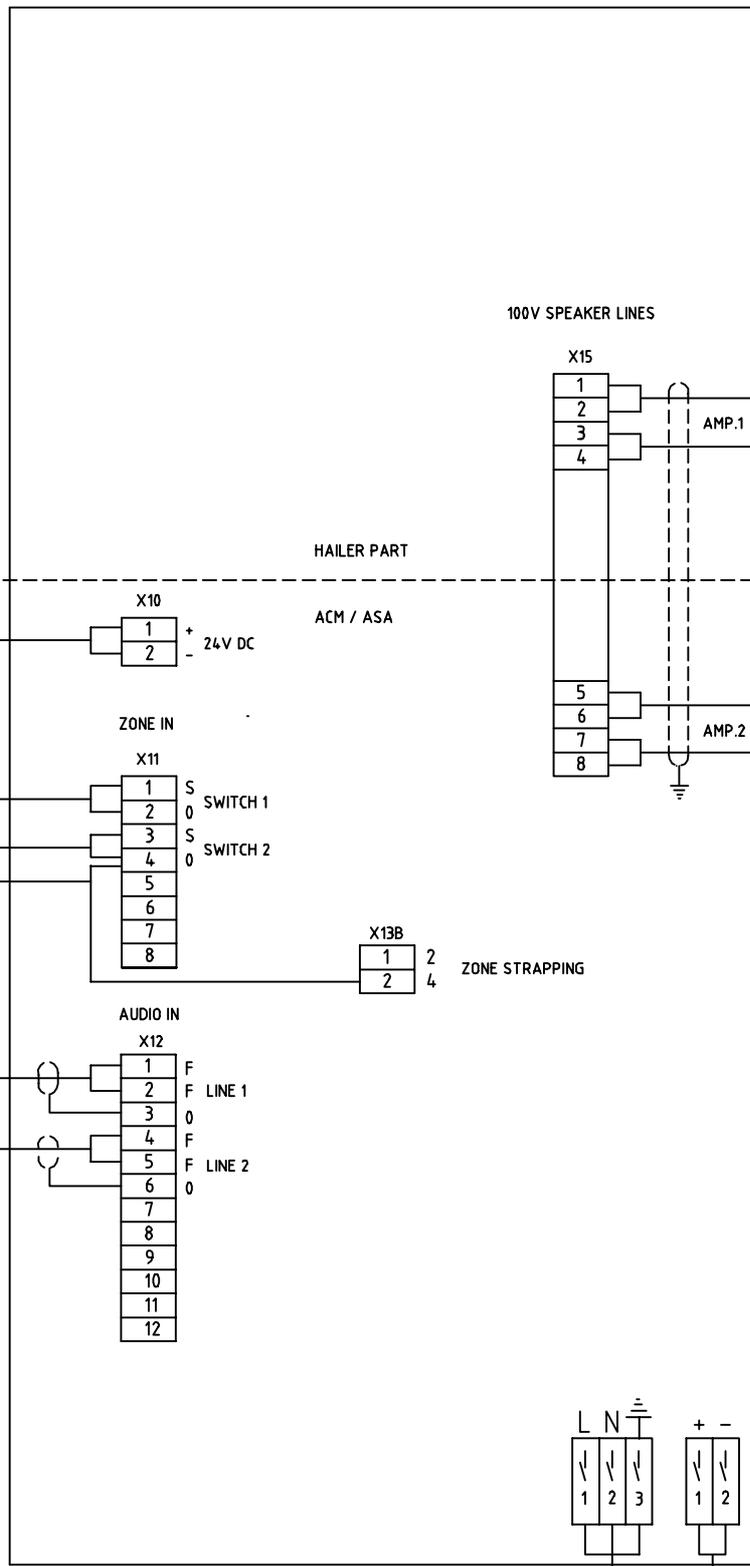
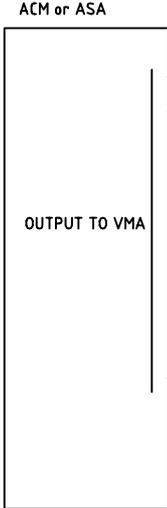
VMP-603 & VMT-603



SP-111



Intercom system
ACM or ASA



24-V DC IN
230V AC IN

Note! Signal cable

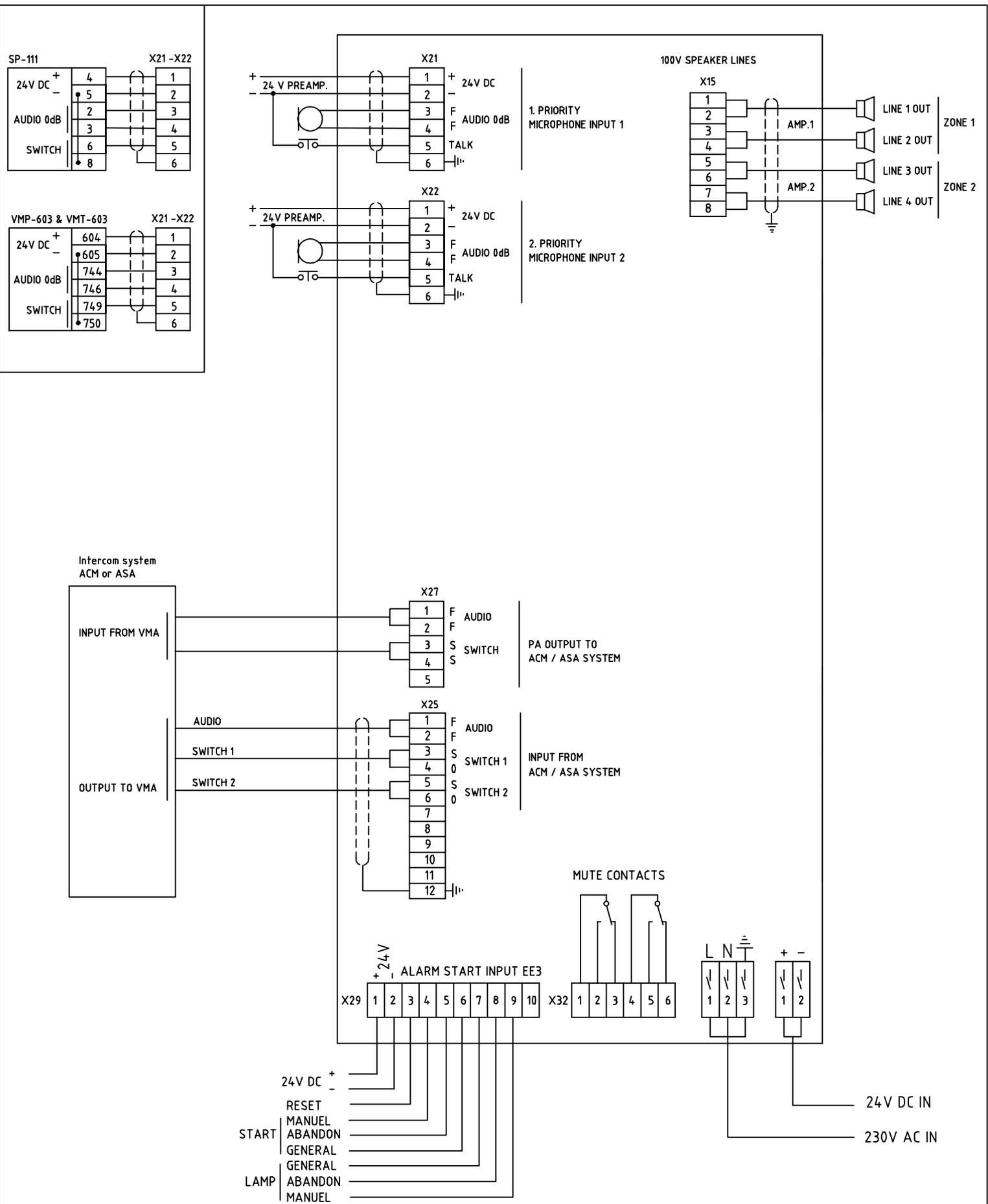
Use cable 0,75mm twisted pair with outer screen.

The screens must be interconnected in junction boxes and grounded in a common point in the central unit only.

STENTO ASA
Marine Communication
STEENHANS VINGTOR

VMA AMPLIFIER SYSTEM
VMA-2 BASIC
Cable connection diagram
Configuration w/hailer

DRAWN BY: 02.19.03 Sen			
APPROVED:			
DBASE:			
DOC.NO. VMA-2BASIC_cc02	00		
	REV.	BY	DATE



Note! Signal cable

Use cable 0,75mm twisted pair with outer screen.

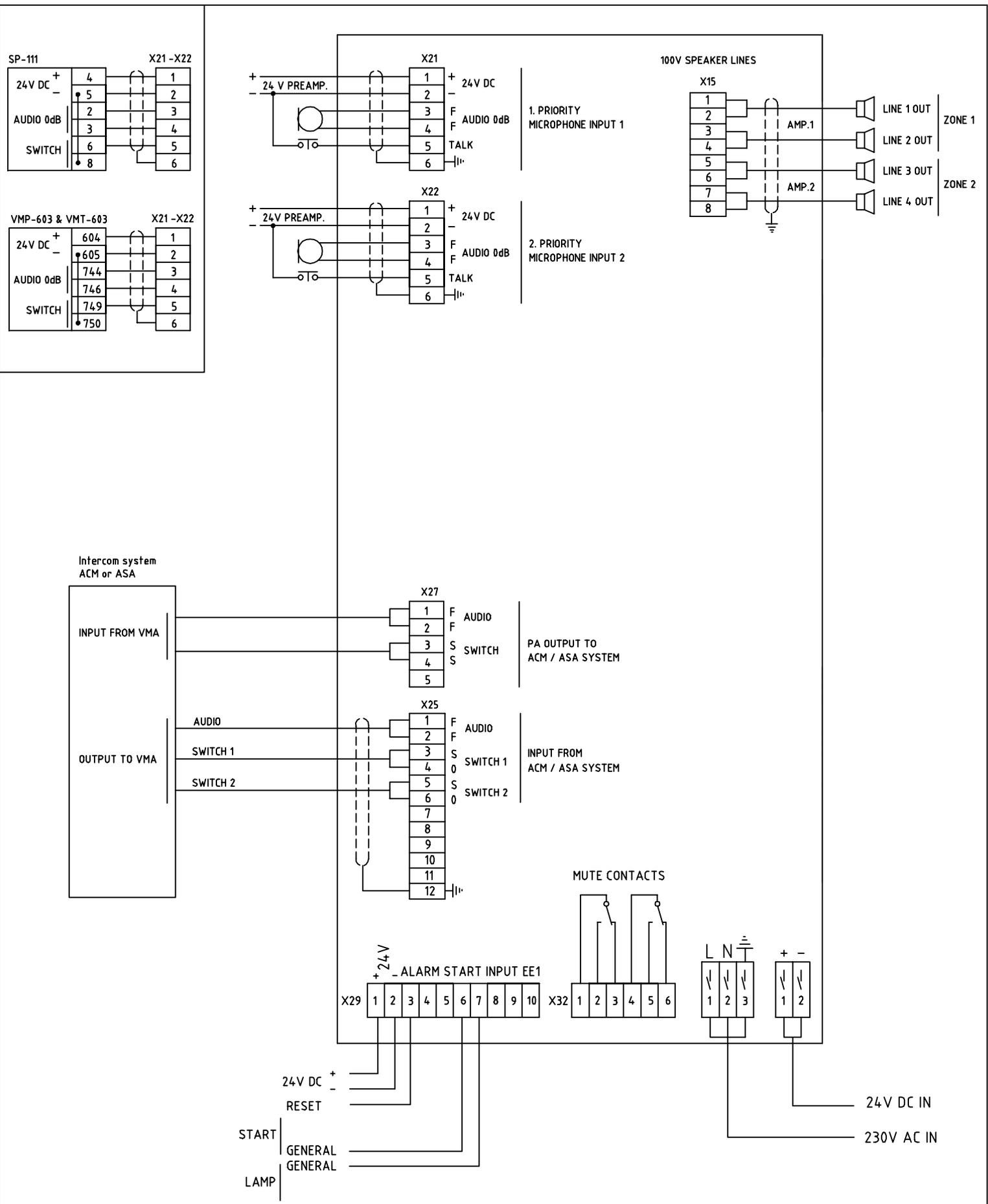
The screens must be interconnected in junction boxes and grounded in a common point in the central unit only.

OPTION 1 WITH MICROPHONE ONLY
 OPTION 2 WITH MICROPHONE AND ALARM-MODULE EE3

STENTO ASA
Marine Communication
 STEENHANS VINGTOR

VMA AMPLIFIER SYSTEM
 VMA-2 Mic / Alarm
 Cable connection diagram
 Configuration w/ alarm EE3

DRAWN BY:	02.18.03 Sen			
APPROVED:				
DBASE:				
DOC.NO.	VMA-2MIC.ALARM_cc01	00		
REV.		BY		DATE



Note! Signal cable

Use cable 0,75mm twisted pair with outer screen.

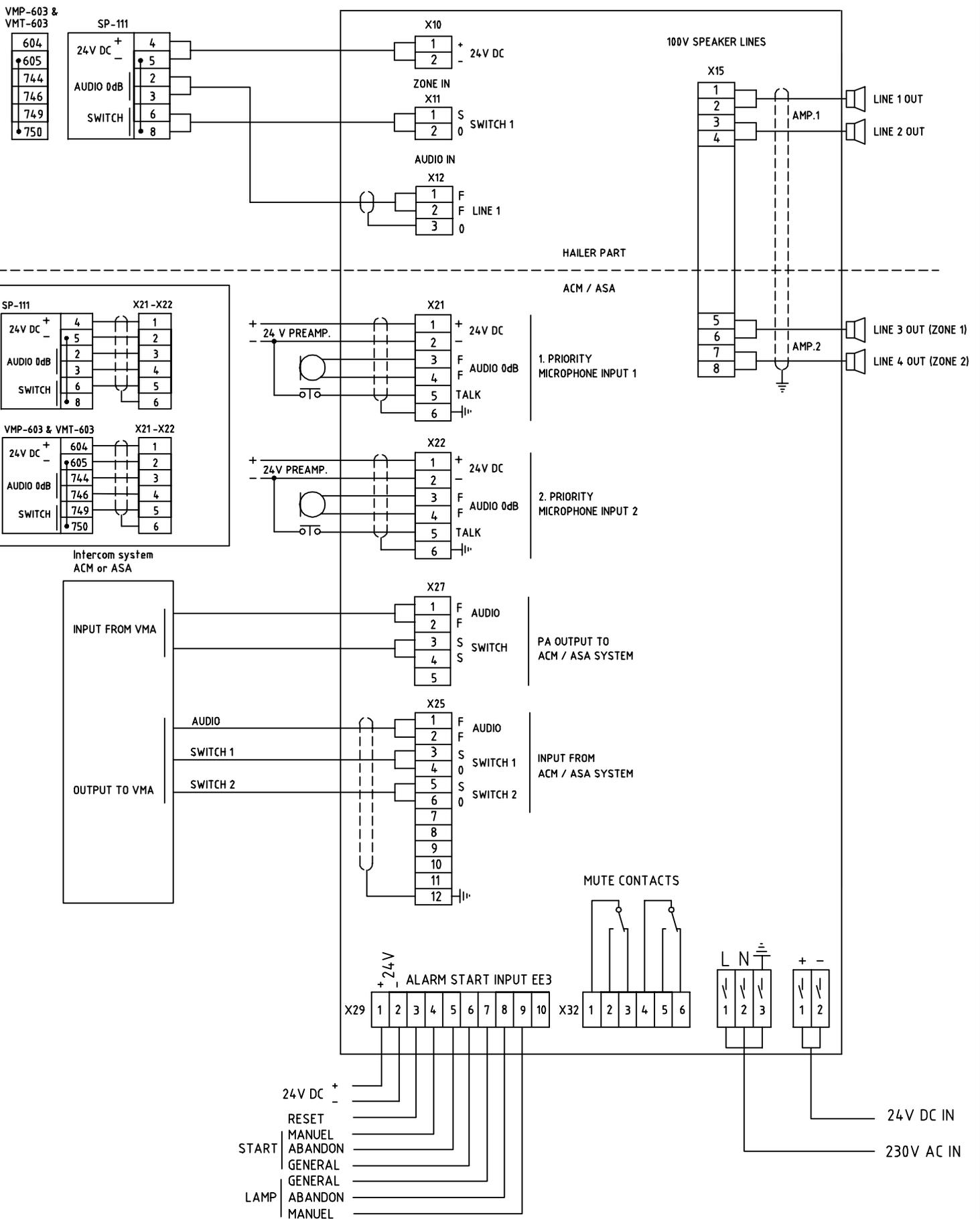
The screens must be interconnected in junction boxes and grounded in a common point in the central unit only.

OPTION 1 WITH MICROPHONE ONLY
 OPTION 2 WITH MICROPHONE AND ALARM-MODULE EE1

STENTO ASA
Marine Communication
 STEENHANS VINGTOR

VMA AMPLIFIER SYSTEM
 VMA-2 Mic / Alarm
 Cable connection diagram
 Configuration w/ alarm EE1

DRAWN BY: 02.18.03 Sen			
APPROVED:			
DBASE:			
DOC.NO.	00		
VMA-2MIC.ALARM_ cc02	REV.	BY	DATE



Note! Signal cable

Use cable 0,75mm twisted pair with outer screen.

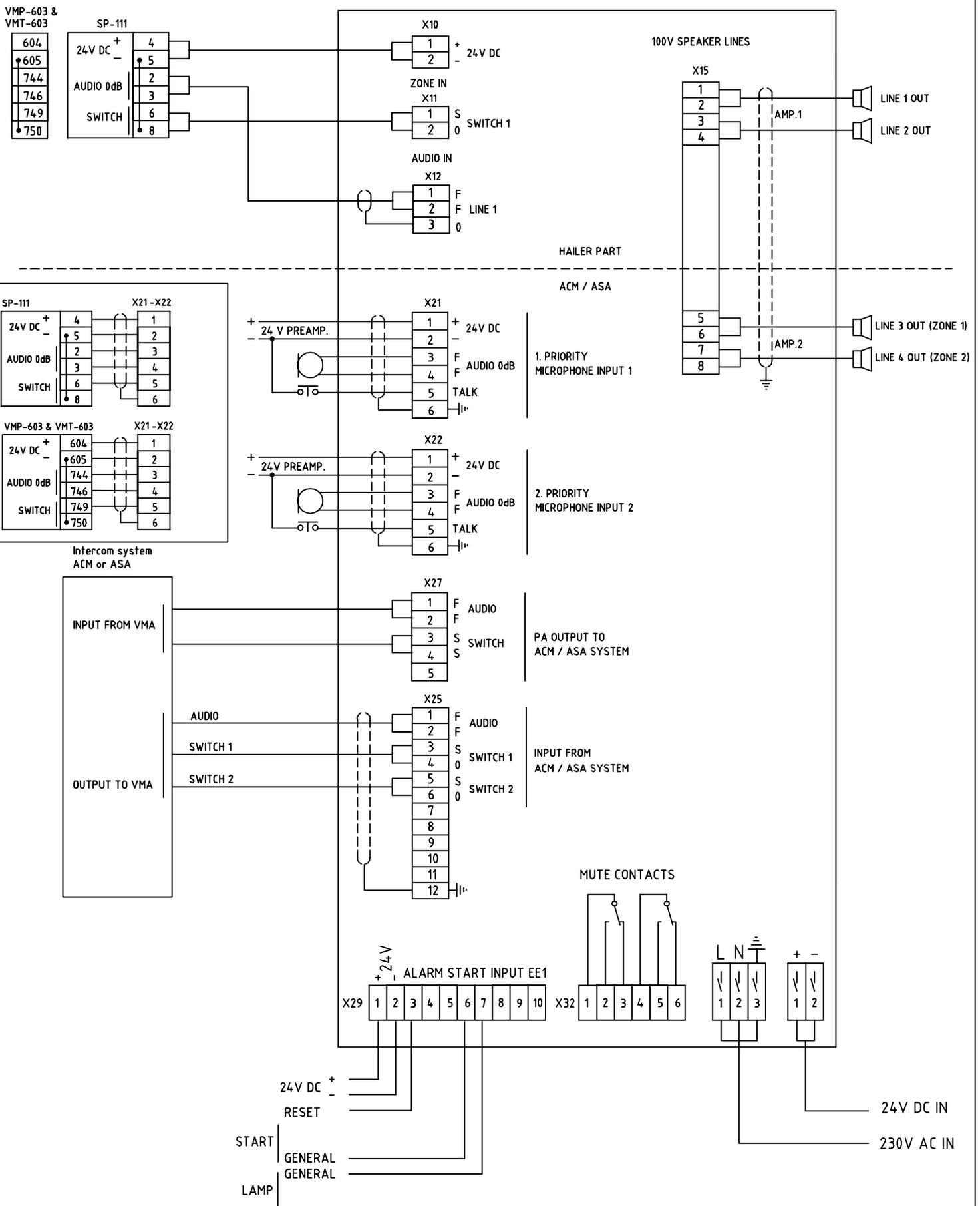
The screens must be interconnected in junction boxes and grounded in a common point in the central unit only.

OPTION 1 WITH MICROPHONE ONLY
 OPTION 2 WITH MICROPHONE AND ALARM-MODULE EE3

STENTO ASA
 Marine Communication
 STEENHANS VINGTOR

VMA AMPLIFIER SYSTEM
 VMA-2 Mic / Alarm
 Cable connection diagram
 Configuration w/ hailer

DRAWN BY:	02.18.03 Sen			
APPROVED:				
DBASE:				
DOC.NO.	00			
VMA-2MIC.ALARM_cc03	REV.	BY	DATE	



Note! Signal cable

Use cable 0,75mm twisted pair with outer screen.

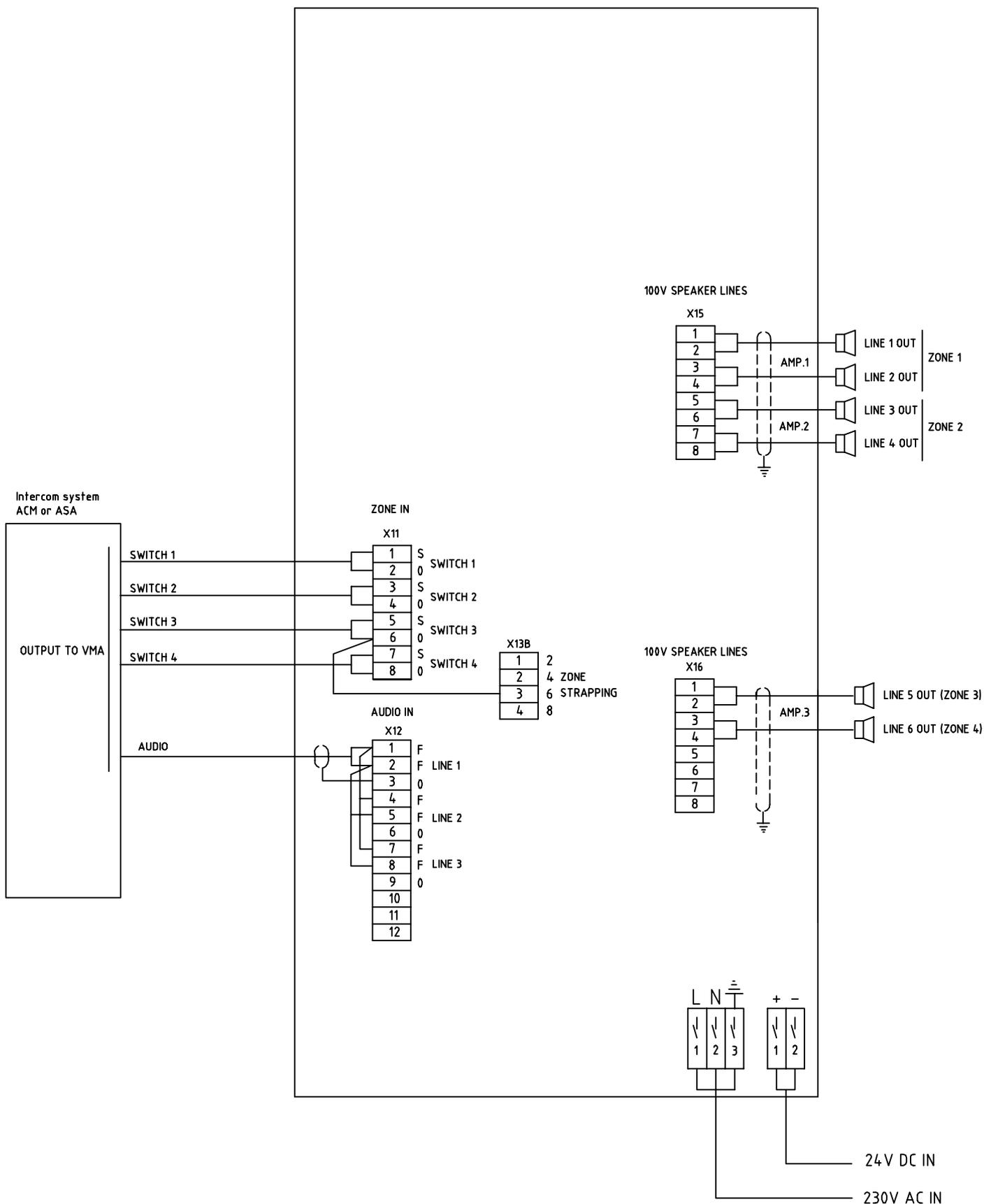
The screens must be interconnected in junction boxes and grounded in a common point in the central unit only.

OPTION 1 WITH MICROPHONE ONLY
 OPTION 2 WITH MICROPHONE AND ALARM-MODULE EE1

STENTO ASA
Marine Communication
 STEENHANS VINGTOR

VMA AMPLIFIER SYSTEM
 VMA-2 Mic / Alarm
 Cable connection diagram
 Configuration w/ hailer
 and alarm module EE1

DRAWN BY: 02.18.03 Sen			
APPROVED:			
DBASE:			
DOC.NO. VMA-2MIC.ALARM_cc04	00		
REV.	BY	DATE	



Note! Signal cable

Use cable 0,75mm twisted pair with outer screen.

The screens must be interconnected in junction boxes and grounded in a common point in the central unit only.

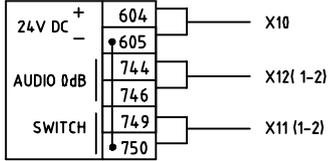
STENTO ASA
Marine Communication

STEENHANS VINGTOR

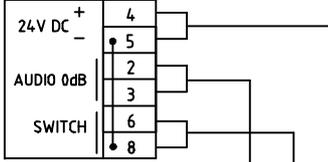
VMA AMPLIFIER SYSTEM
VMA-3 BASIC
Cable connection diagram

DRAWN BY: 02.19.03 Sen			
APPROVED:			
DBASE:			
DOC.NO. VMA-3BASIC_cc01	00		
	REV.	BY	DATE

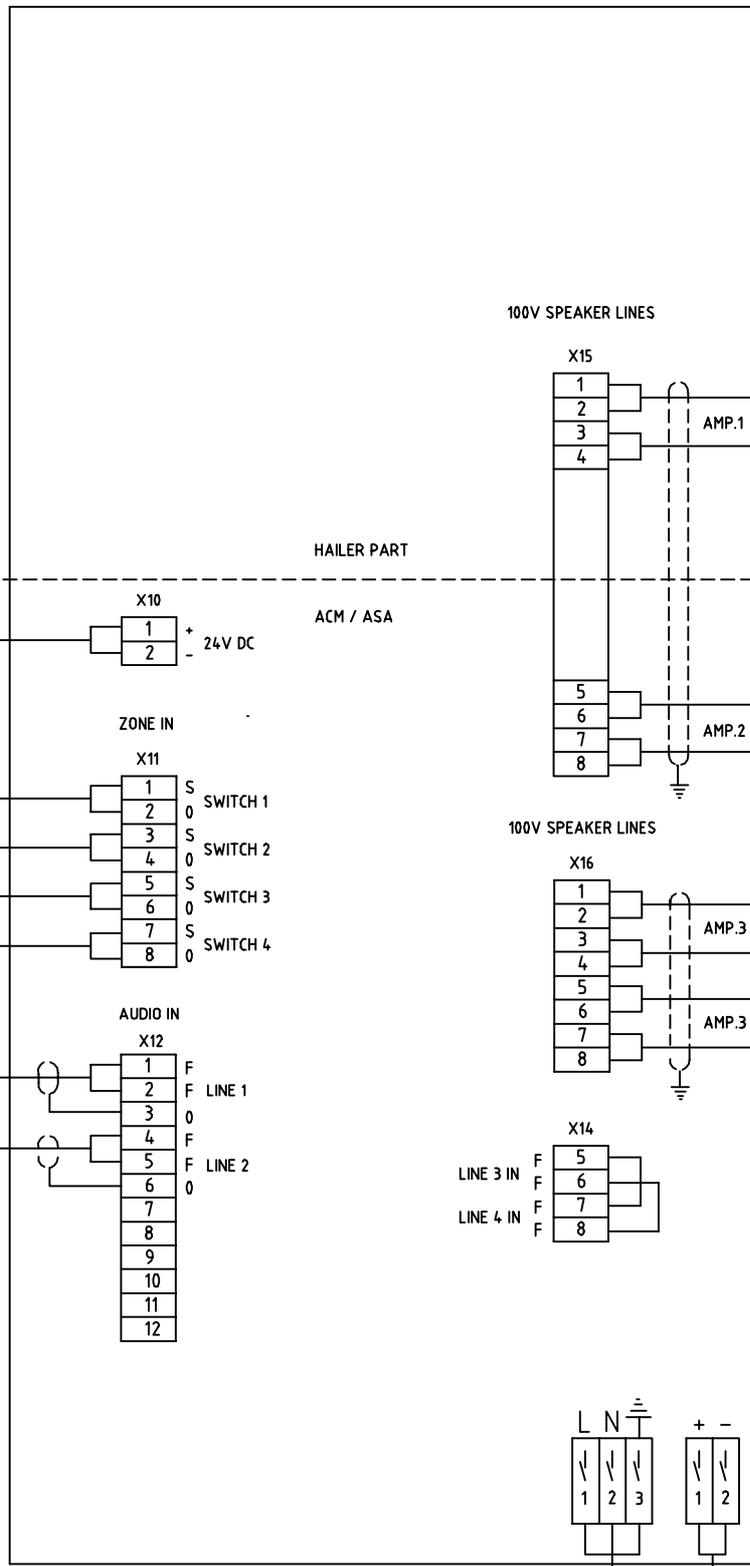
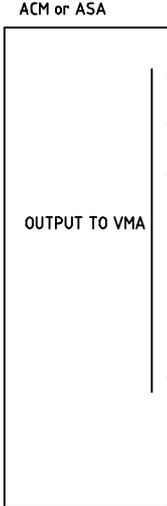
VMP-603 & VMT-603



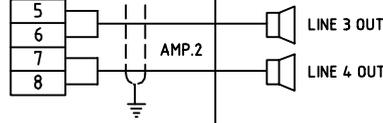
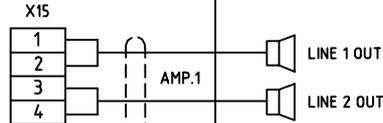
SP-111



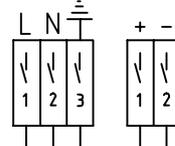
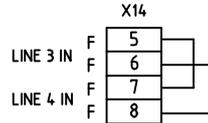
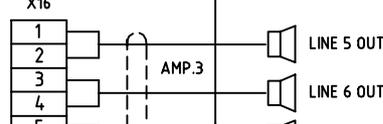
Intercom system
ACM or ASA



100V SPEAKER LINES



100V SPEAKER LINES



24V DC IN
230V AC IN

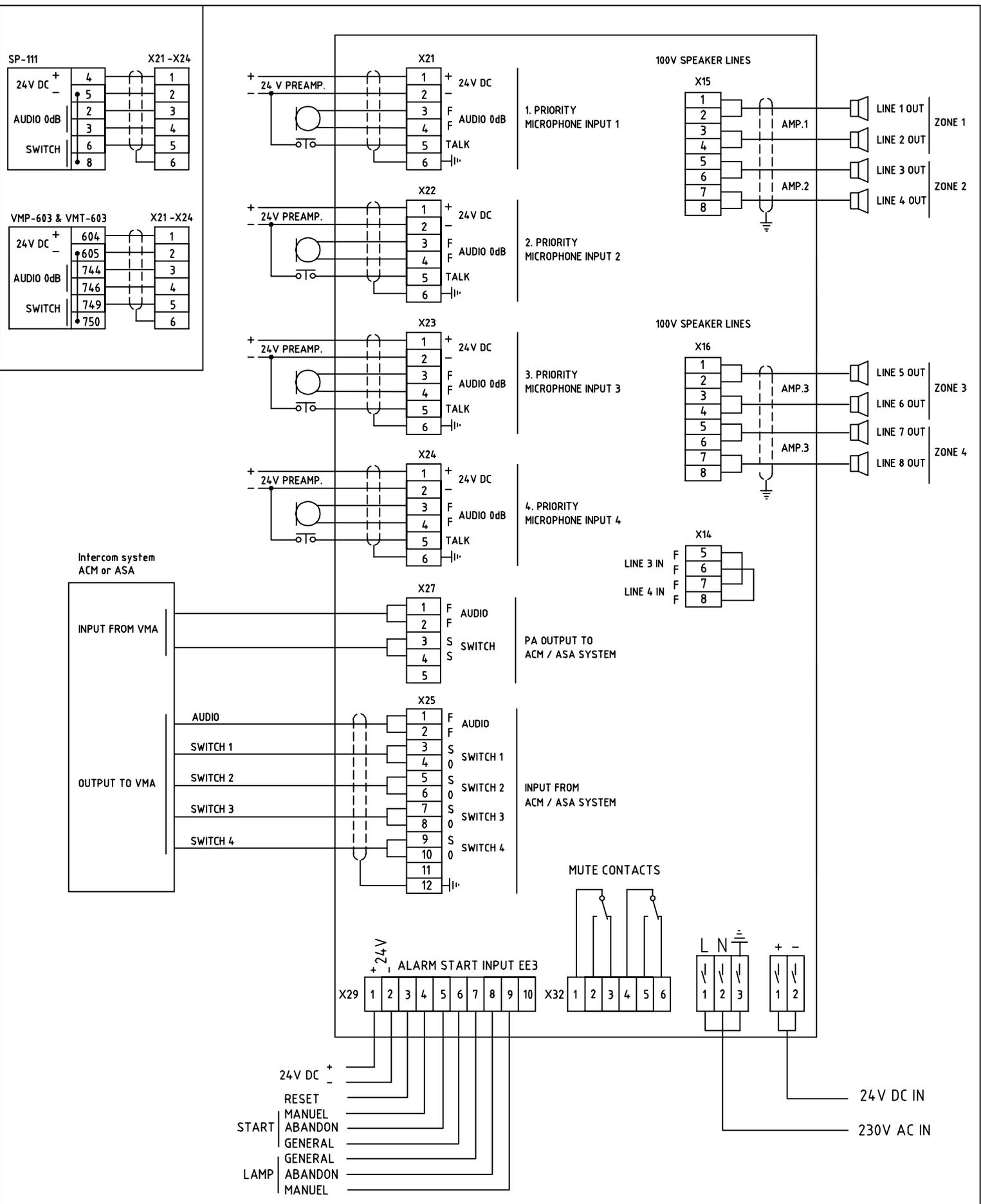
Note! Signal cable

Use cable 0,75mm twisted pair with outer screen. The screens must be interconnected in junction boxes and grounded in a common point in the central unit only.

STENTO ASA
Marine Communication
STEENHANS VINGTOR

VMA AMPLIFIER SYSTEM
VMA-3 BASIC
Cable connection diagram
Configuration w/hailer

DRAWN BY:	02.19.03 Sen			
APPROVED:				
DBASE:				
DOC.NO.	VMA-3BASIC_cc02	00		
REV.		BY		DATE



Note! Signal cable

Use cable 0,75mm twisted pair with outer screen.

The screens must be interconnected in junction boxes and grounded in a common point in the central unit only.

OPTION 1 WITH MICROPHONE ONLY

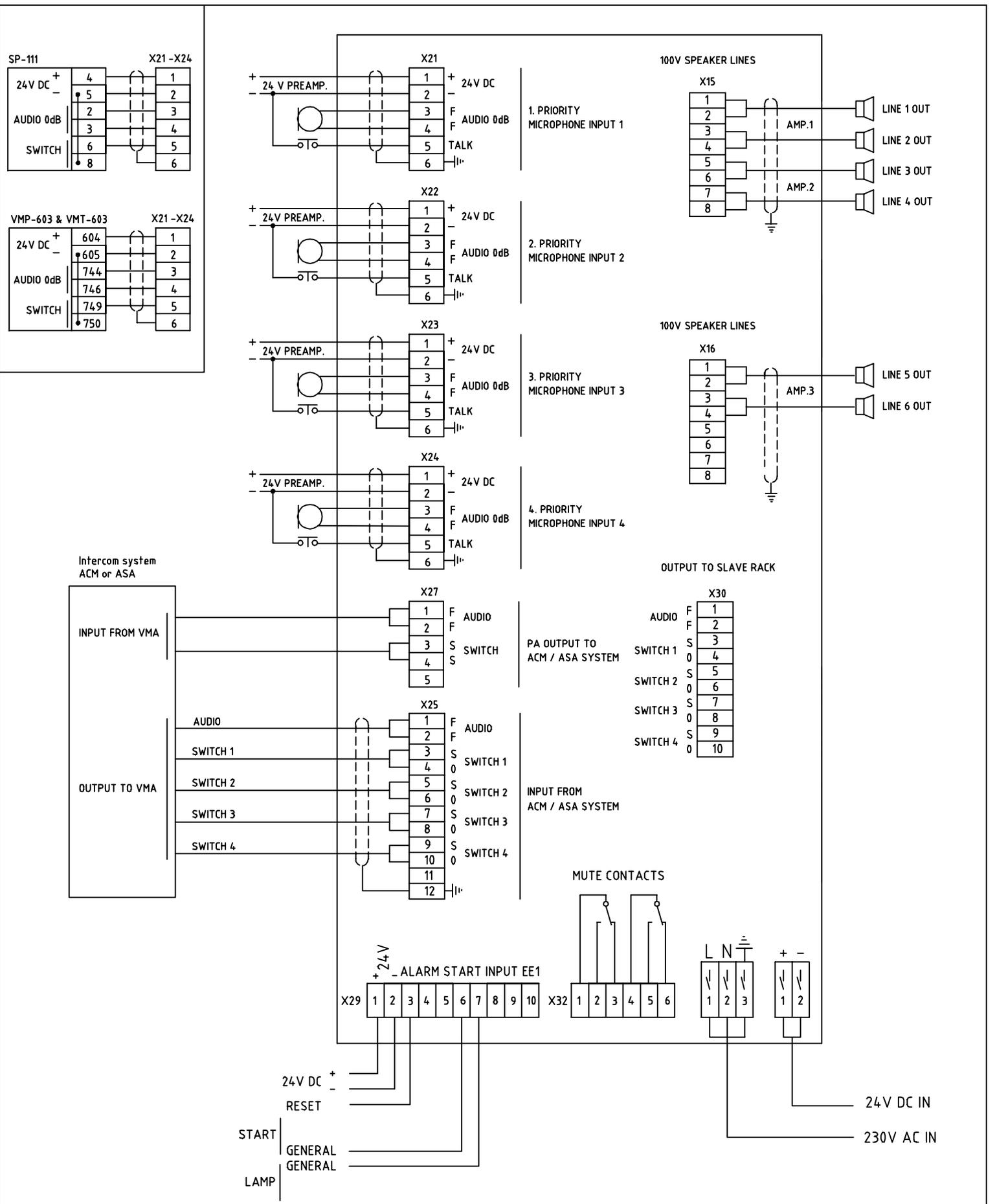
OPTION 2 WITH MICROPHONE AND ALARM-MODULE EE3

STENTO ASA
Marine Communication

STEENHANS VINGTOR

VMA AMPLIFIER SYSTEM
VMA-3 Mic / Alarm EE3
Cable connection diagram
Typical Configuration 1

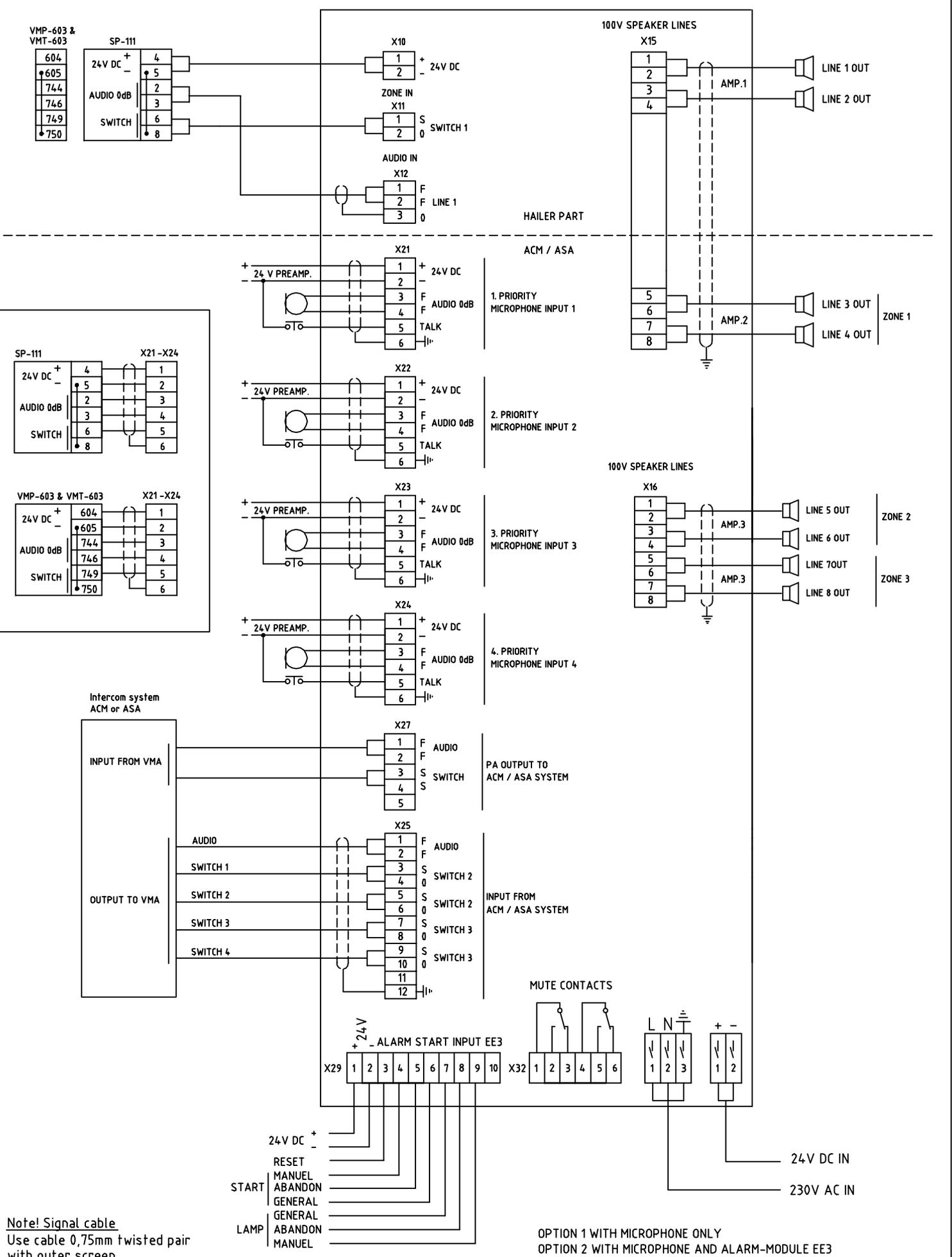
DRAWN BY:	02.18.03 Sen			
APPROVED:				
DBASE:				
DOC.NO.	00			
VMA-3MIC.ALARM_cc01	REV.	BY	DATE	



Note! Signal cable
 Use cable 0,75mm twisted pair with outer screen.
 The screens must be interconnected in junction boxes and grounded in a common point in the central unit only.

OPTION 1 WITH MICROPHONE ONLY
 OPTION 2 WITH MICROPHONE AND ALARM-MODULE EE1

STENTO ASA <i>Marine Communication</i> STEENHANS VINGTOR	VMA AMPLIFIER SYSTEM	DRAWN BY: 02.18.03 Sen			
	VMA-3 Mic / Alarm	APPROVED:			
	Cable connection diagram	DBASE:			
	Configuration w/alarm EE1	DOC.NO.	00		
		VMA-3MIC.ALARM_cc02	REV.	BY	DATE

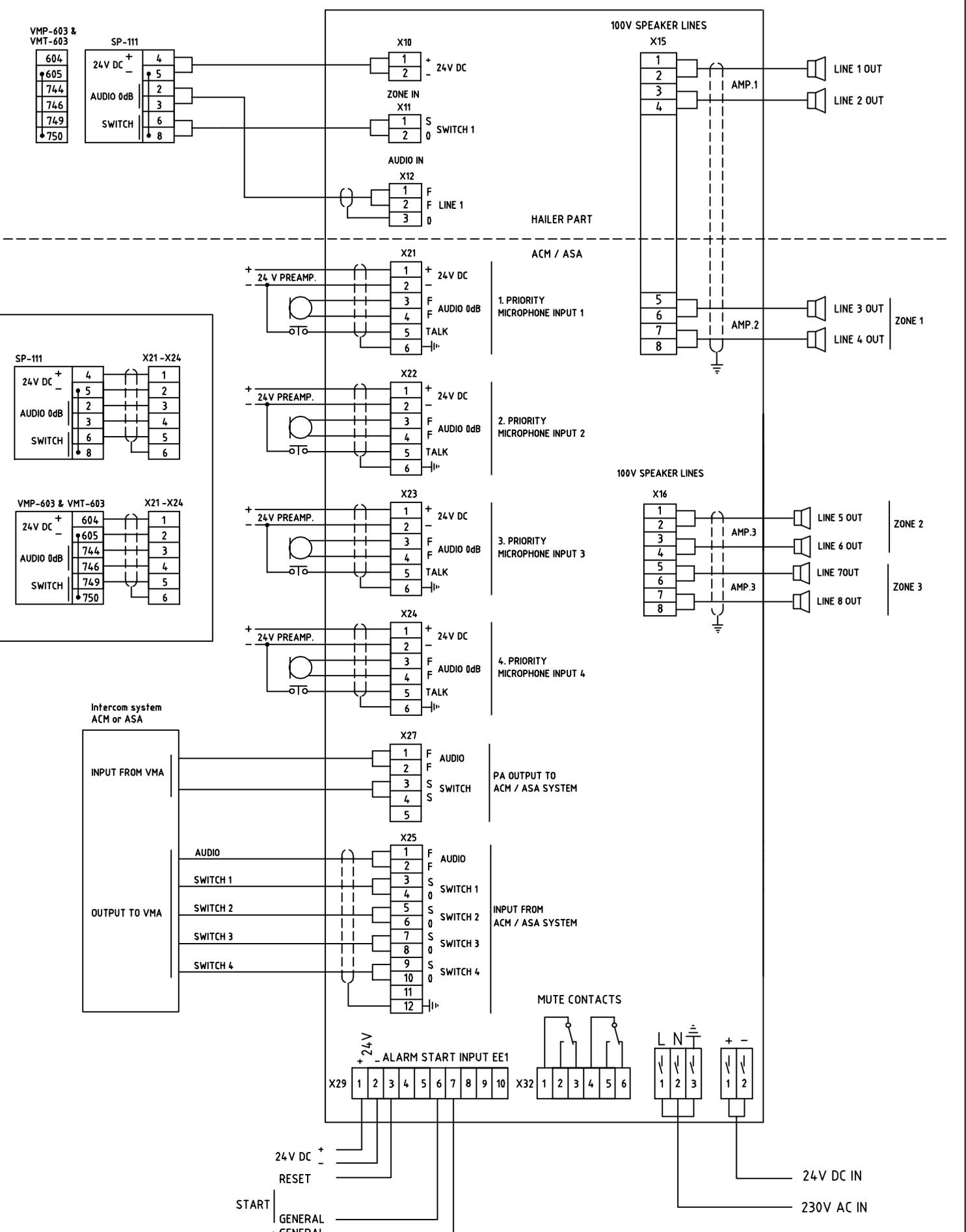


Note! Signal cable
 Use cable 0,75mm twisted pair with outer screen.
 The screens must be interconnected in junction boxes and grounded in a common point in the central unit only.

OPTION 1 WITH MICROPHONE ONLY
 OPTION 2 WITH MICROPHONE AND ALARM-MODULE EE3

STENTO ASA <i>Marine Communication</i> STEENHANS VINGTOR	VMA AMPLIFIER SYSTEM		DRAWN BY: 02.18.03 Sen			
	VMA-3 Mic / Alarm		APPROVED:			
	Cable connection diagram		DBASE:			
	Configuration w/ hailer and alarm module EE3		DOC.NO.	00		
			VMA-3MIC.ALARM_cc03	REV.	BY	DATE

DESIGN AND SPECIFICATION ARE SUBJECT TO CHANGE WITHOUT NOTICE



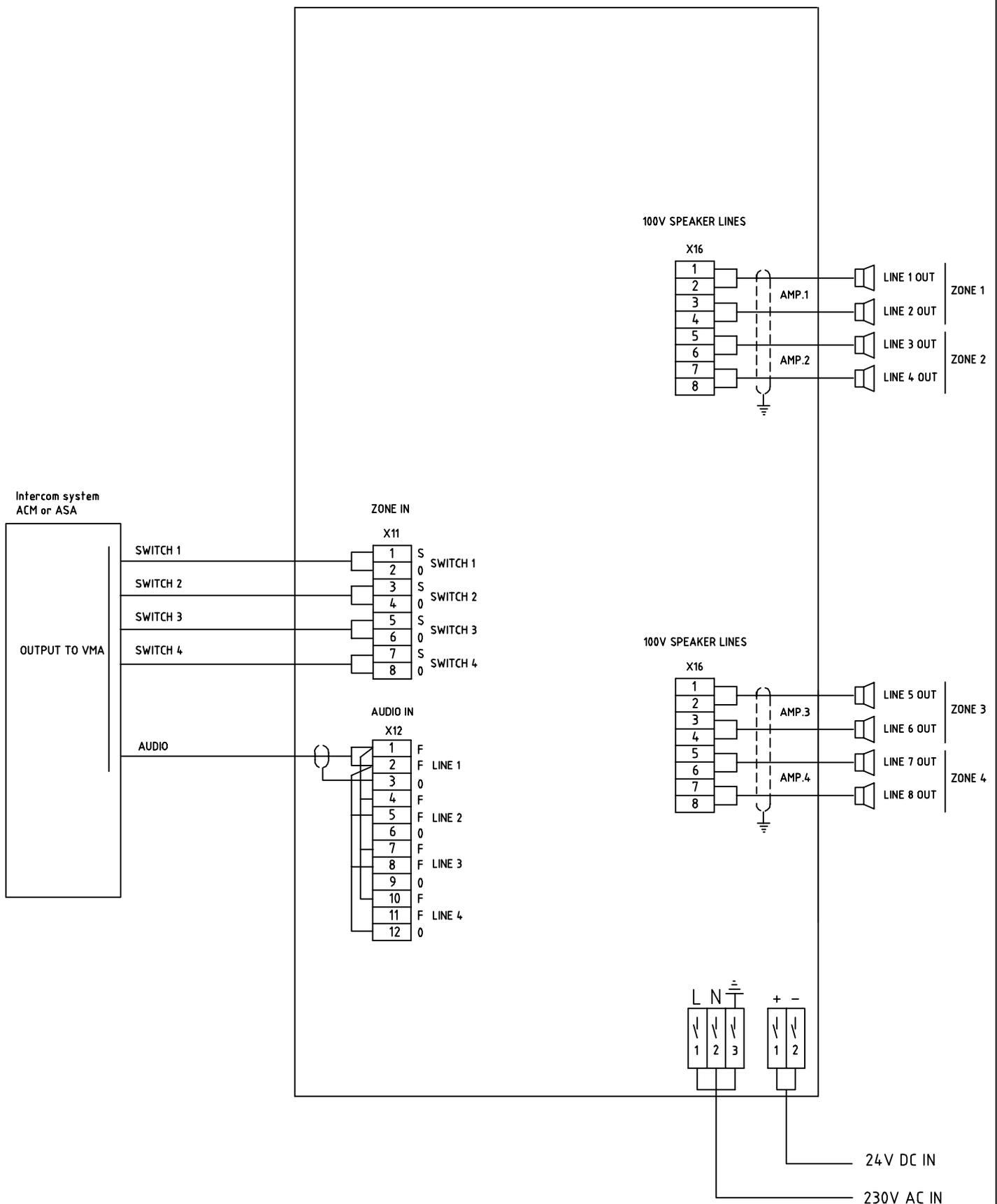
Note! Signal cable
 Use cable 0,75mm twisted pair with outer screen.
 The screens must be interconnected in junction boxes and grounded in a common point in the central unit only.

OPTION 1 WITH MICROPHONE ONLY
 OPTION 2 WITH MICROPHONE AND ALARM-MODULE EE1

STENTO ASA
 Marine Communication
 STEENHANS VINGTOR

VMA AMPLIFIER SYSTEM
 VMA-3Mic / Alarm
 Cable connection diagram
 Configuration w/ hailer
 and alarm module EE1

DRAWN BY:	02.18.03 Sen		
APPROVED:			
DBASE:			
DOC.NO.	00		
VMA-3MIC.ALARM_	cc04	REV.	BY DATE



Note! Signal cable

Use cable 0,75mm twisted pair with outer screen.

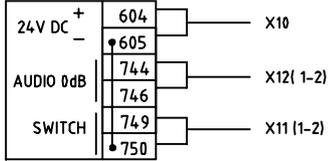
The screens must be interconnected in junction boxes and grounded in a common point in the central unit only.

STENTO ASA
Marine Communication
 STEENHANS VINGTOR

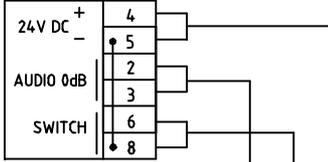
VMA AMPLIFIER SYSTEM
 VMA-4 BASIC
 Cable connection diagram

DRAWN BY:	02.19.03 Sen			
APPROVED:				
DBASE:				
DOC.NO.	VMA-4BASIC_cc01	00		
REV.		BY		DATE

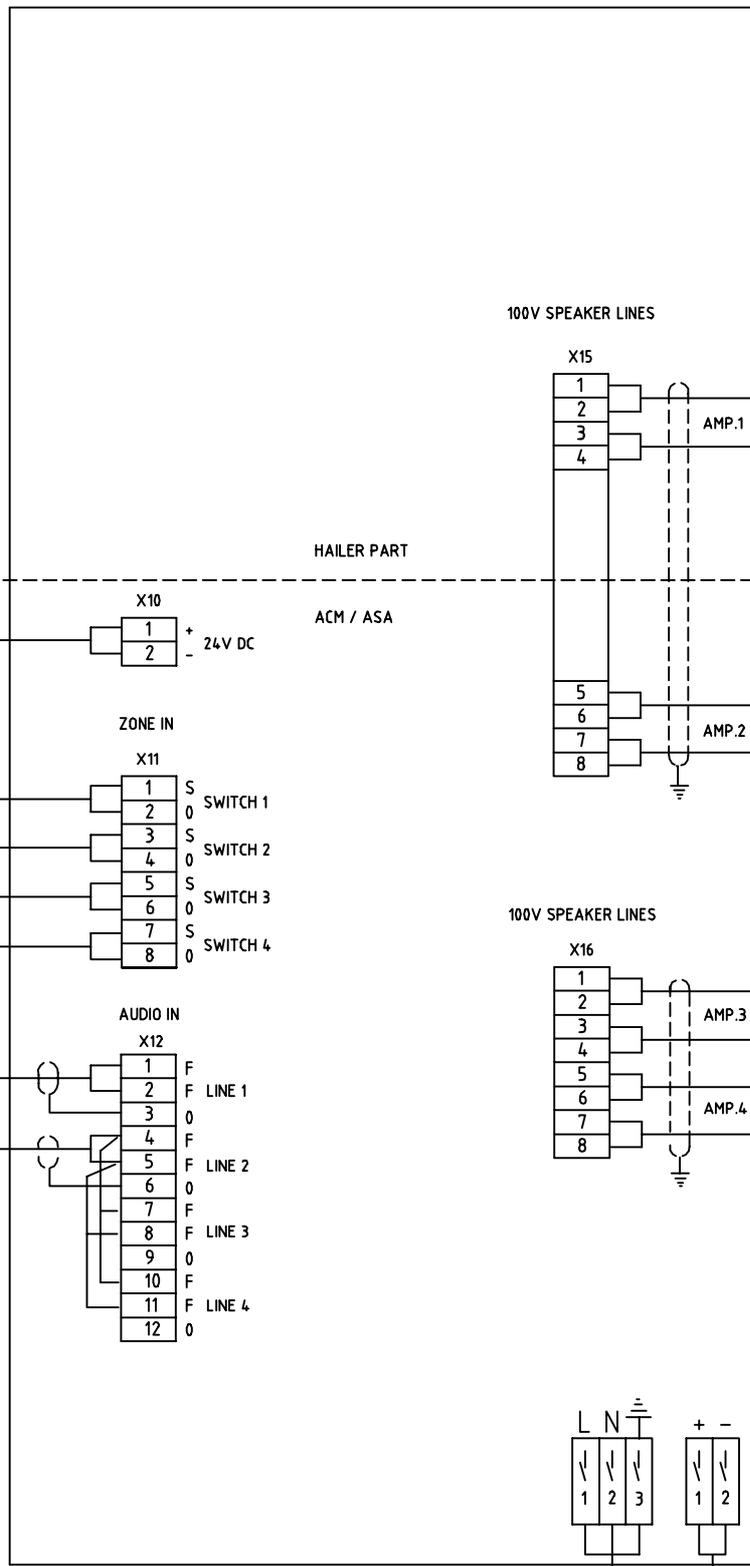
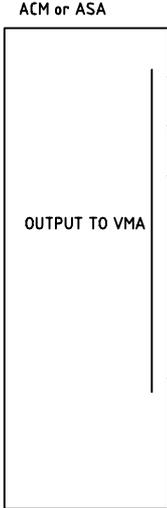
VMP-603 & VMT-603



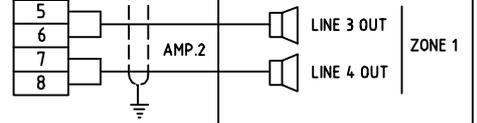
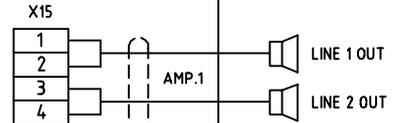
SP-111



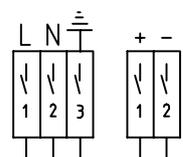
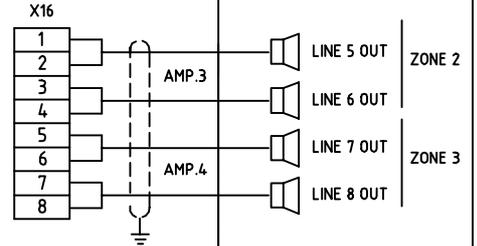
Intercom system
ACM or ASA



100V SPEAKER LINES



100V SPEAKER LINES



24 V DC IN
230V AC IN

Note! Signal cable

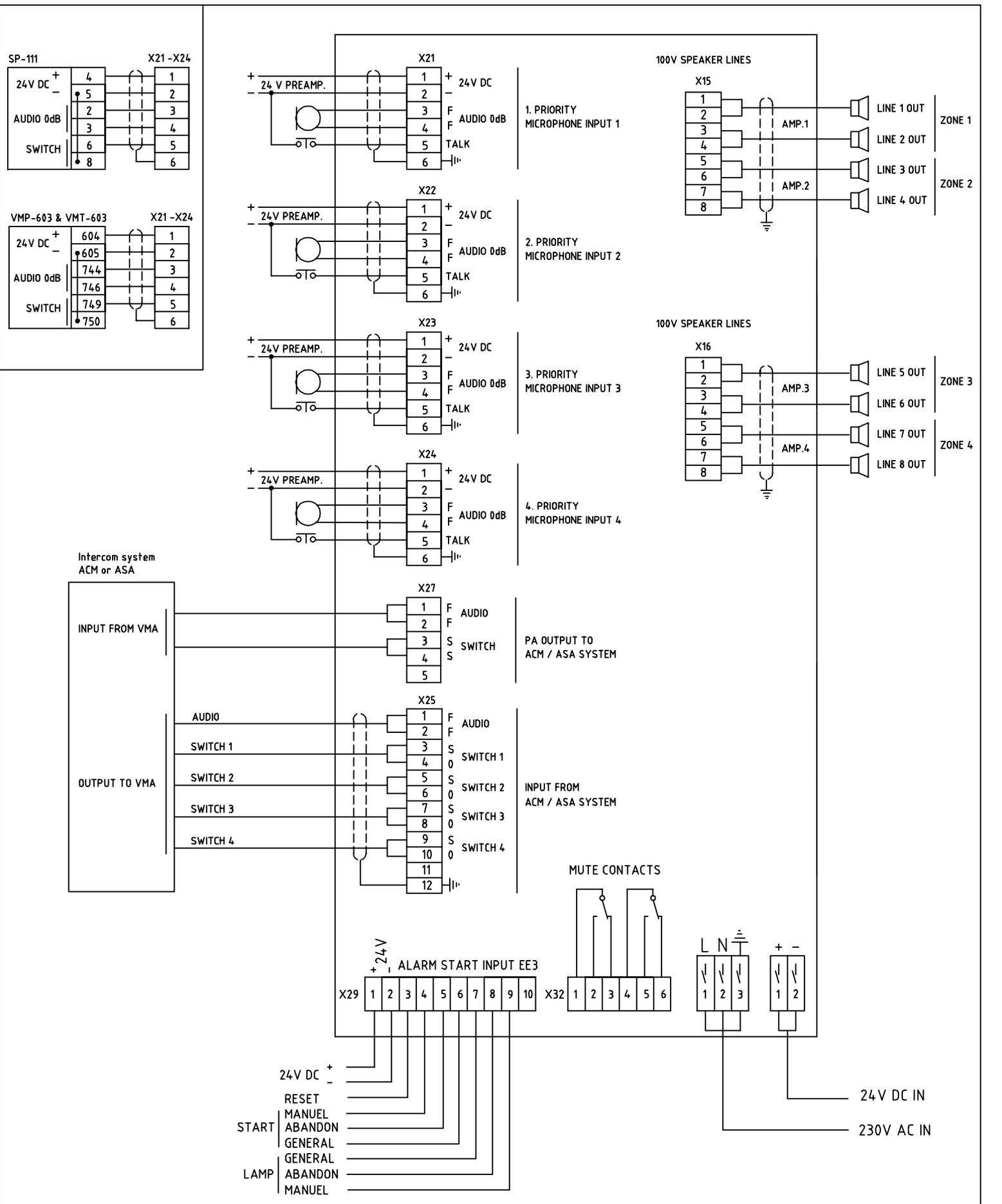
Use cable 0,75mm twisted pair with outer screen.

The screens must be interconnected in junction boxes and grounded in a common point in the central unit only.

STENTO ASA
Marine Communication
STEENHANS VINGTOR

VMA AMPLIFIER SYSTEM
VMA-4 BASIC
Cable connection diagram
Configuration w/hailer

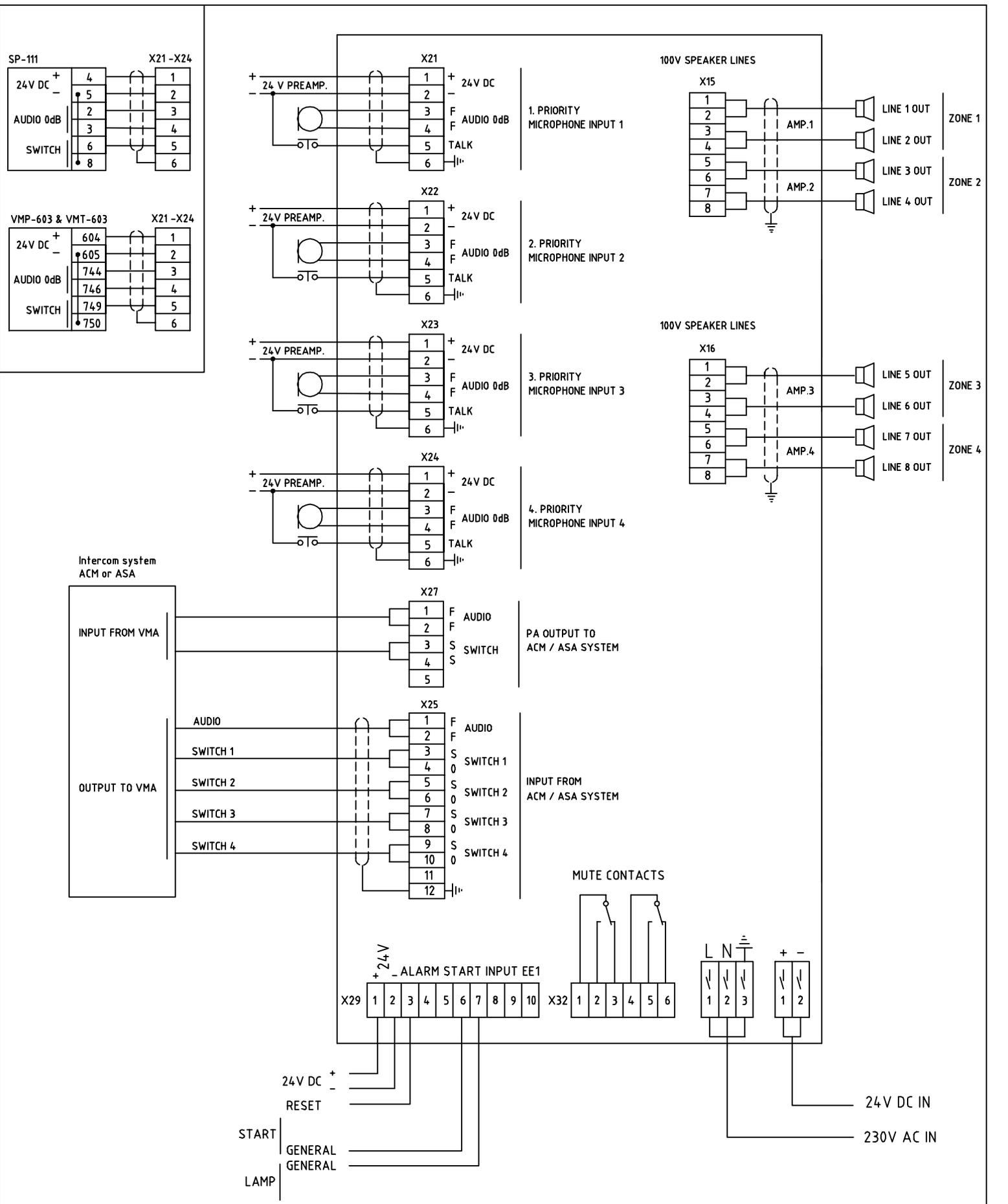
DRAWN BY: 02.19.03 Sen			
APPROVED:			
DBASE:			
DOC.NO. VMA-4BASIC_cc02	00		
	REV.	BY	DATE



Note! Signal cable
 Use cable 0,75mm twisted pair with outer screen.
 The screens must be interconnected in junction boxes and grounded in a common point in the central unit only.

OPTION 1 WITH MICROPHONE ONLY
 OPTION 2 WITH MICROPHONE AND ALARM-MODULE EE3

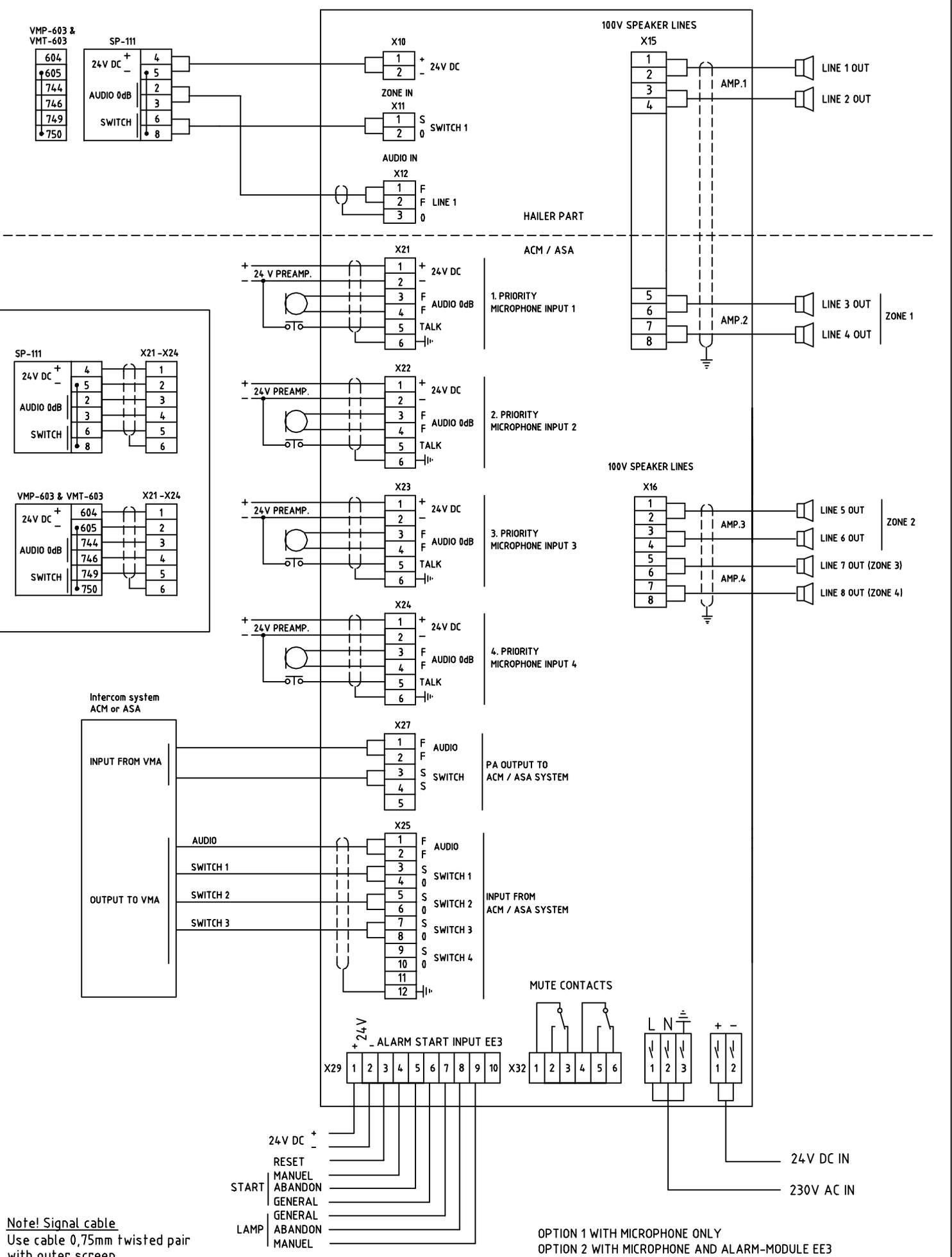
STENTO ASA <i>Marine Communication</i> STEENHANS VINGTOR	VMA AMPLIFIER SYSTEM	DRAWN BY: 02.18.03 Sen			
	VMA-4 Mic / Alarm	APPROVED:			
	Cable connection diagram	DBASE:			
	Configuration w/alarm EE3	DOC.NO.	00		
		VMA-4MIC.ALARM_cc01	REV.	BY	DATE



Note! Signal cable
 Use cable 0,75mm twisted pair with outer screen.
 The screens must be interconnected in junction boxes and grounded in a common point in the central unit only.

OPTION 1 WITH MICROPHONE ONLY
 OPTION 2 WITH MICROPHONE AND ALARM-MODULE EE1

STENTO ASA <i>Marine Communication</i> STEENHANS VINGTOR	VMA AMPLIFIER SYSTEM		DRAWN BY: 02.18.03 Sen			
	VMA-4 Mic / Alarm		APPROVED:			
	Cable connection diagram		DBASE:			
	Configuration w/alarm EE1		DOC.NO.	00		
			VMA-4MIC.ALARM_cc02	REV.	BY	DATE



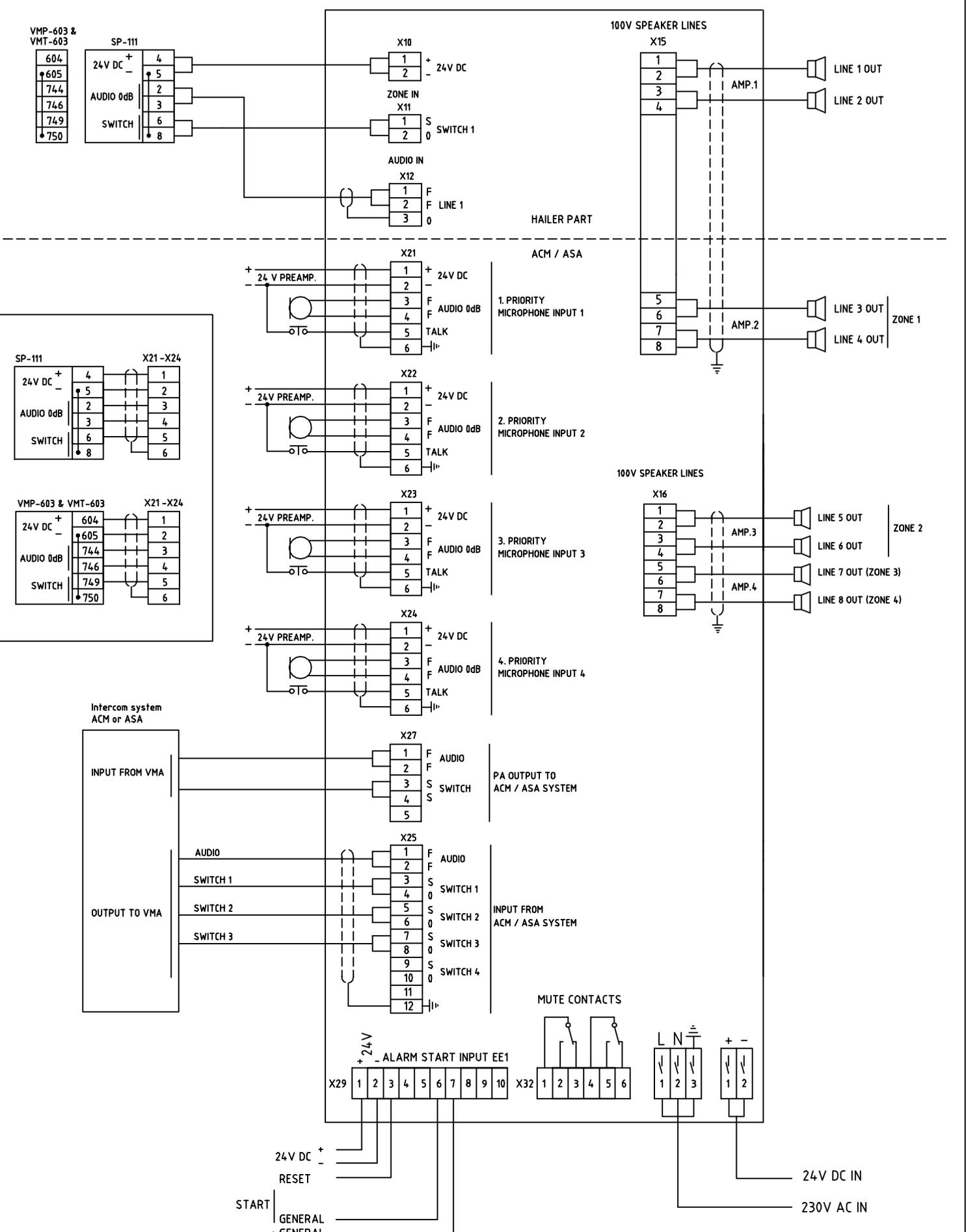
Note! Signal cable
 Use cable 0,75mm twisted pair with outer screen.
 The screens must be interconnected in junction boxes and grounded in a common point in the central unit only.

OPTION 1 WITH MICROPHONE ONLY
 OPTION 2 WITH MICROPHONE AND ALARM-MODULE EE3

STENTO ASA
Marine Communication
 STEENHANS VINGTOR

VMA AMPLIFIER SYSTEM
 VMA-4 Mic / Alarm
 Cable connection diagram
 Configuration w/ hailer
 and alarm module EE3

DRAWN BY:	02.18.03 Sen		
APPROVED:			
DBASE:			
DOC.NO.	00		
VMA-4MIC.ALARM_	cc03	REV.	BY DATE



Note! Signal cable
 Use cable 0,75mm twisted pair with outer screen.
 The screens must be interconnected in junction boxes and grounded in a common point in the central unit only.

OPTION 1 WITH MICROPHONE ONLY
 OPTION 2 WITH MICROPHONE AND ALARM-MODULE EE1

STENTO ASA
Marine Communication
 STEENHANS VINGTOR

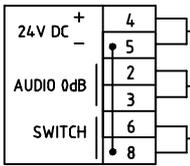
VMA AMPLIFIER SYSTEM
 VMA-4 Mic / Alarm
 Cable connection diagram
 Configuration w/ hailer
 and alarm module EE1

DRAWN BY:	02.18.03 Sen		
APPROVED:			
DBASE:			
DOC.NO.	00		
VMA-4MIC.ALARM_ cc04	REV.	BY	DATE

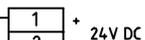
VMP-603 &
VMT-603

604
605
744
746
749
750

SP-111

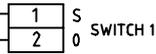


X10



ZONE IN

X11



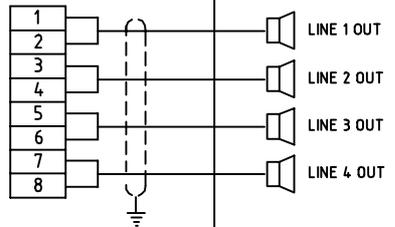
AUDIO IN

X12



100V SPEAKER LINES

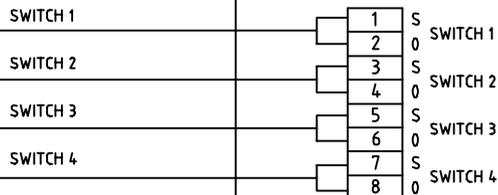
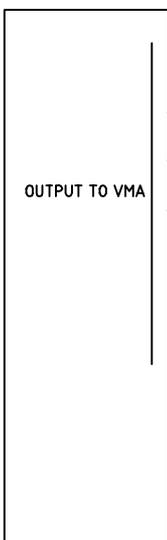
X16



HAILER PART (VMA-1)

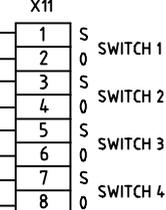
ACM / ASA (VMA-4)

Intercom system
ACM or ASA



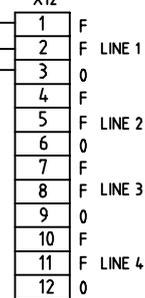
ZONE IN

X11



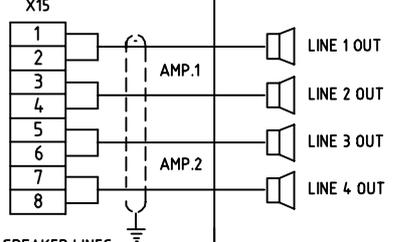
AUDIO IN

X12



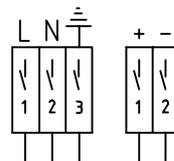
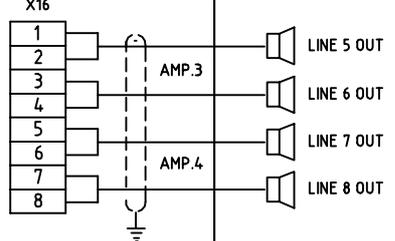
100V SPEAKER LINES

X15



100V SPEAKER LINES

X16



24V DC IN

230V AC IN

Note! Signal cable

Use cable 0,75mm twisted pair with outer screen.

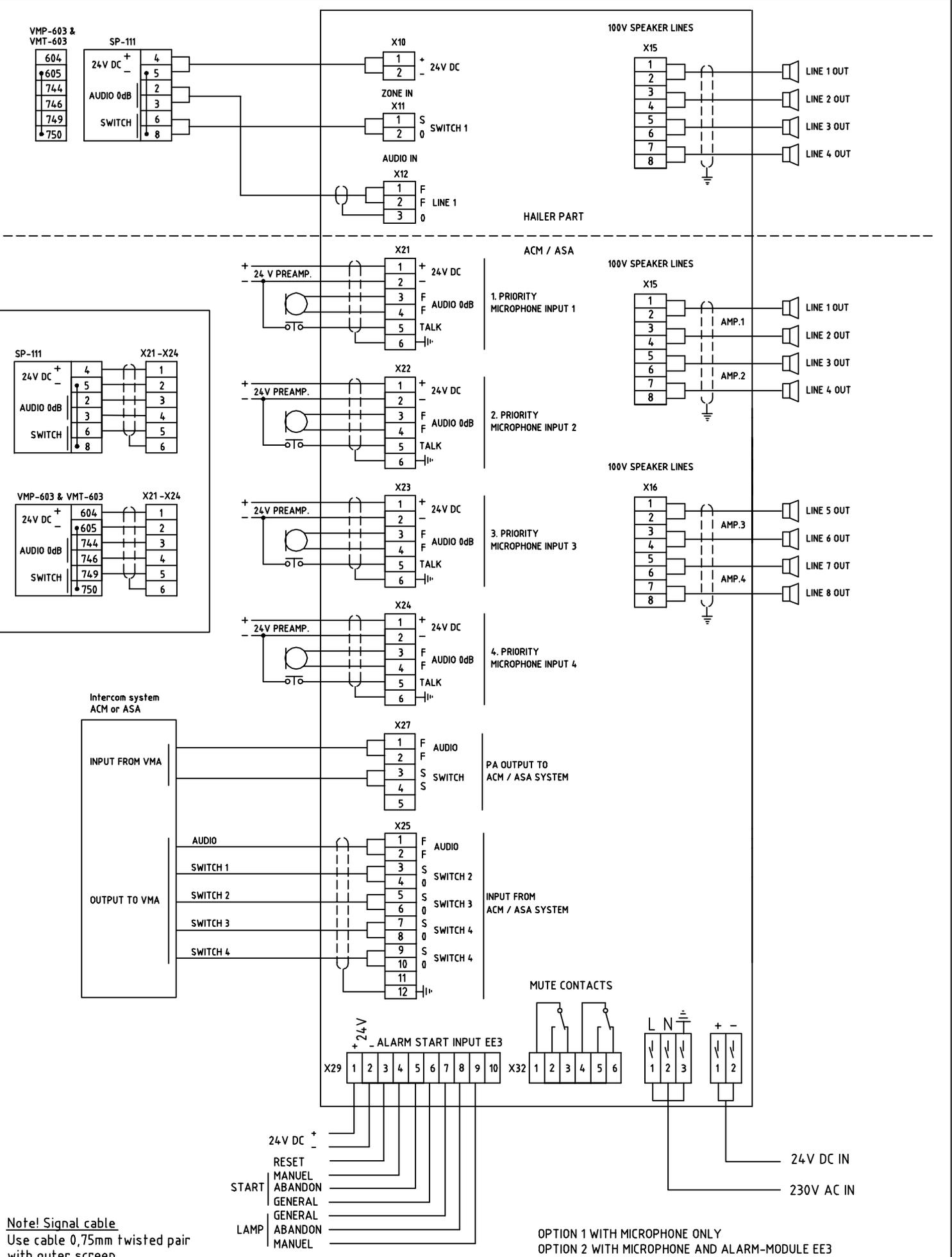
The screens must be interconnected in junction boxes and grounded in a common point in the central unit only.

STENTO ASA
Marine Communication

STEENHANS VINGTOR

VMA AMPLIFIER SYSTEM
VMA-5 BASIC
Cable connection diagram

DRAWN BY: 02.19.03 Sen			
APPROVED:			
DBASE:			
DOC.NO. VMA-5BASIC_cc	00		
	REV.	BY	DATE



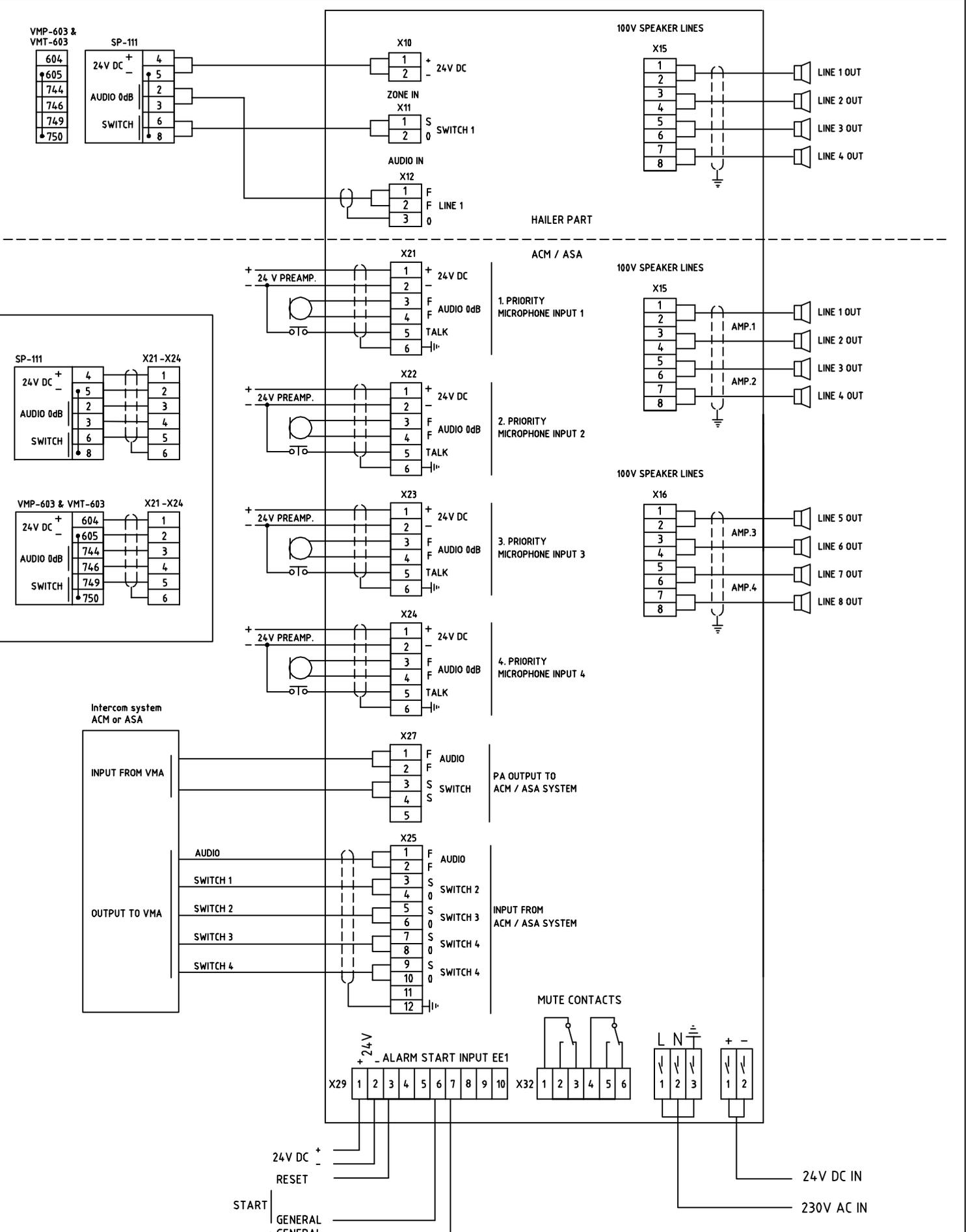
Note! Signal cable
 Use cable 0,75mm twisted pair with outer screen.
 The screens must be interconnected in junction boxes and grounded in a common point in the central unit only.

OPTION 1 WITH MICROPHONE ONLY
 OPTION 2 WITH MICROPHONE AND ALARM-MODULE EE3

STENTO ASA
 Marine Communication
 STEENHANS VINGTOR

VMA AMPLIFIER SYSTEM
 VMA-5 Mic / Alarm
 Cable connection diagram
 Configuration w/ alarm EE3

DRAWN BY:	02.18.03 Sen		
APPROVED:			
DBASE:			
DOC.NO.	00		
VMA-5MIC.ALARM_cc01	REV.	BY	DATE

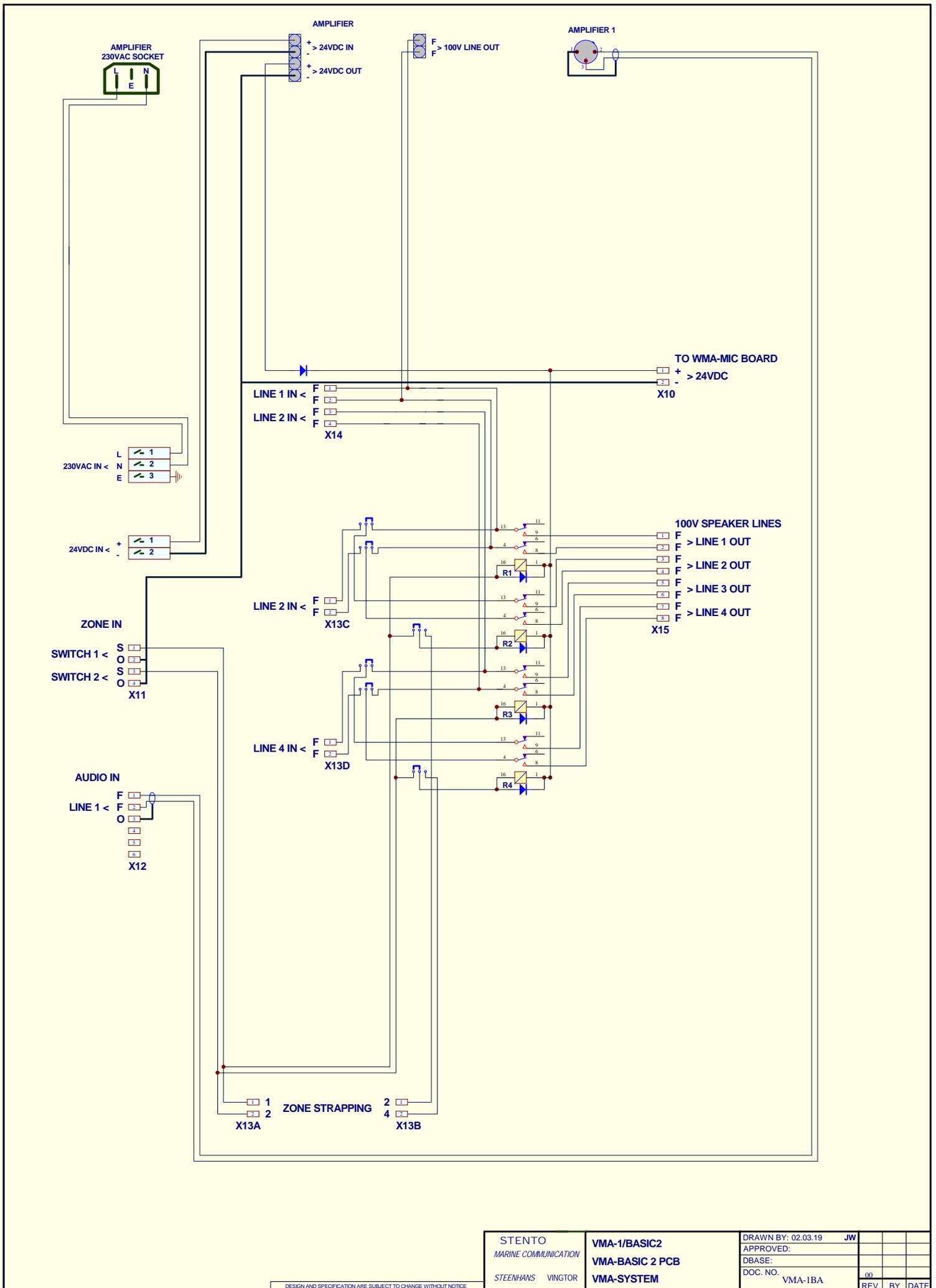


Note! Signal cable
 Use cable 0,75mm twisted pair with outer screen.
 The screens must be interconnected in junction boxes and grounded in a common point in the central unit only.

OPTION 1 WITH MICROPHONE ONLY
 OPTION 2 WITH MICROPHONE AND ALARM-MODULE EE1

STENTO ASA <i>Marine Communication</i> STEENHANS VINGTOR	VMA AMPLIFIER SYSTEM		DRAWN BY: 02.18.03 Sen			
	VMA-5 Mic / Alarm		APPROVED:			
	Cable connection diagram		DBASE:			
	Configuration w/alarm EE1		DOC.NO.	00		
			VMA-5MIC.ALARM_cc02	REV.	BY	DATE

DESIGN AND SPECIFICATION ARE SUBJECT TO CHANGE WITHOUT NOTICE

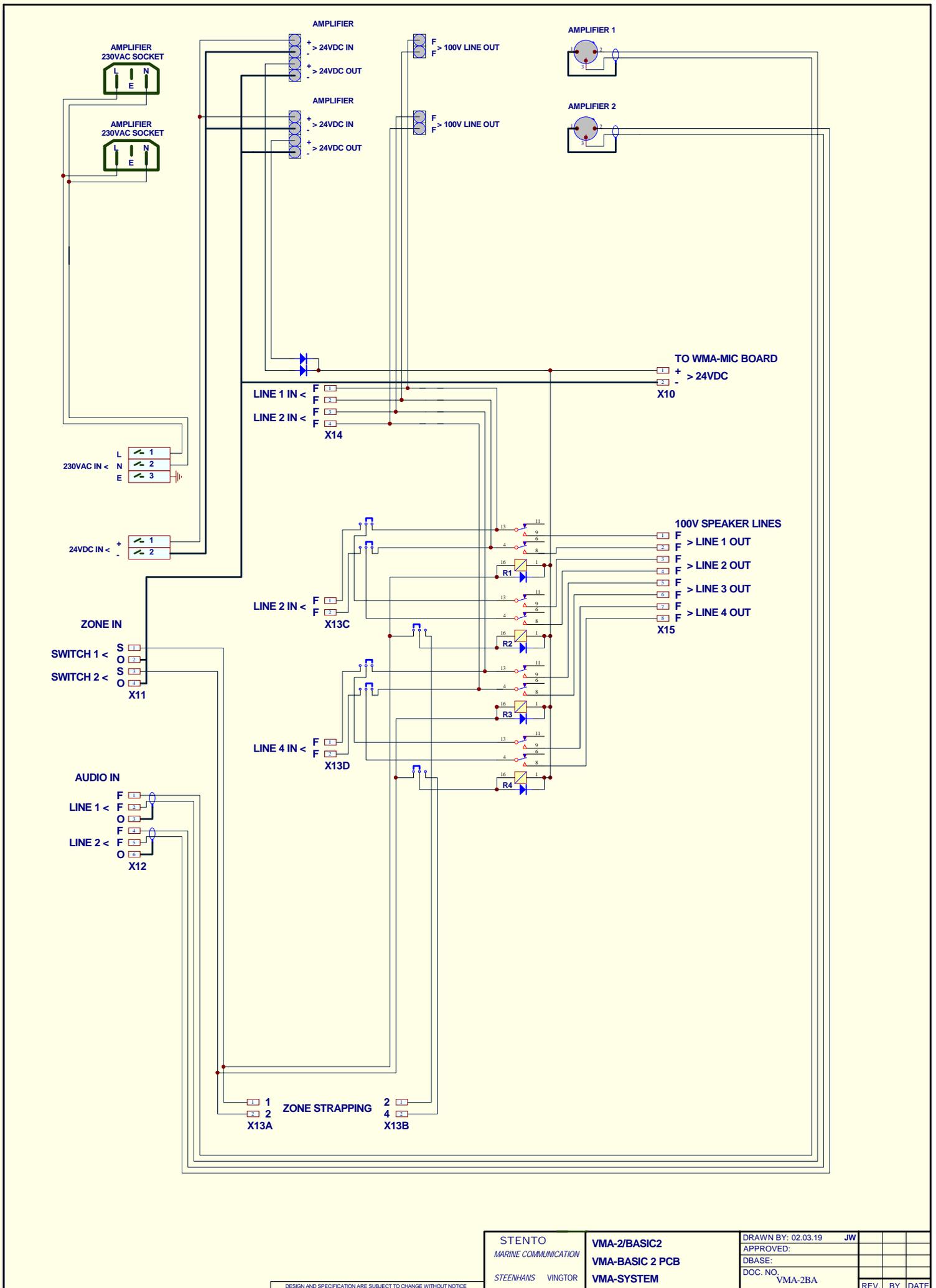


STENTO
MARINE COMMUNICATION
STEENHANS VINGTOR

VMA-1/BASIC2
VMA-BASIC 2 PCB
VMA-SYSTEM

DRAWN BY: 02.03.19	JW		
APPROVED:			
DBASE:			
DOC. NO.	VMA-1BA	00	
REV.	BY	DATE	

DESIGN AND SPECIFICATION ARE SUBJECT TO CHANGE WITHOUT NOTICE

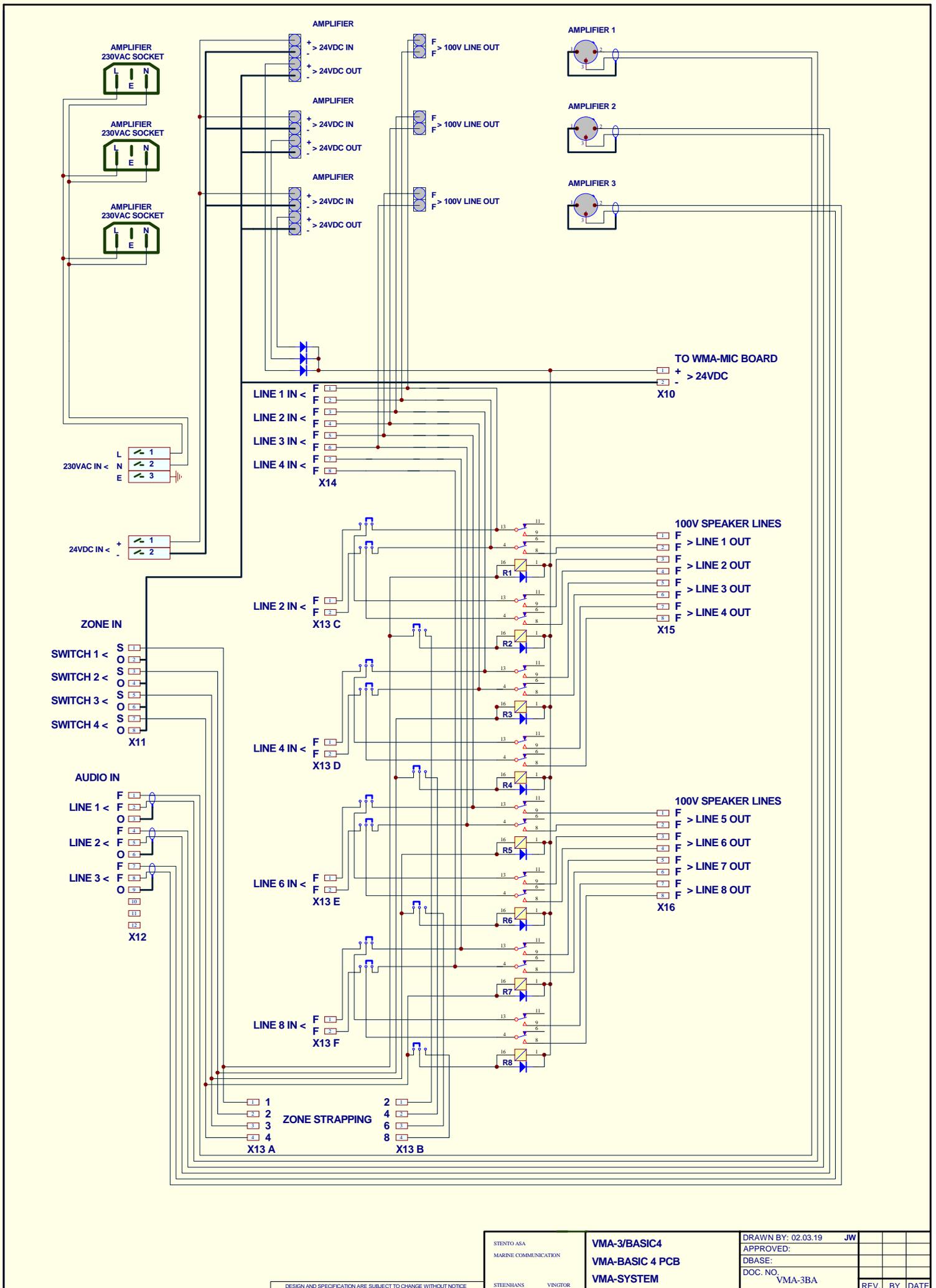


DESIGN AND SPECIFICATION ARE SUBJECT TO CHANGE WITHOUT NOTICE

STENTO
 MARINE COMMUNICATION
 STEENHANS VINGTOR

VMA-2/BASIC2
 VMA-BASIC 2 PCB
 VMA-SYSTEM

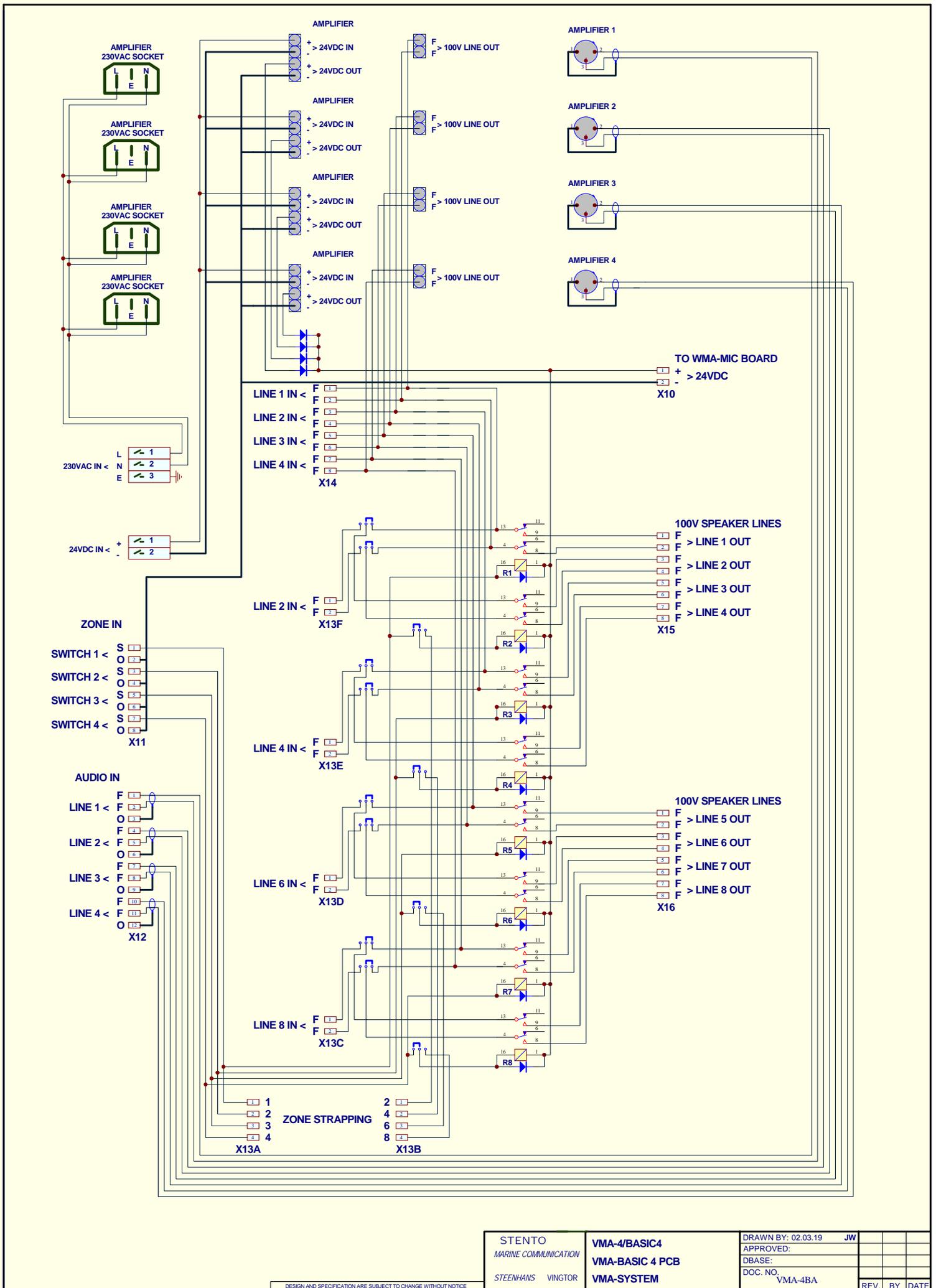
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APPROVED:			
DBASE:			
DOC. NO.	VMA-2BA		
REV.	BY	DATE	



STENTO ASA
MARINE COMMUNICATION
STENHANS VINGTOR

VMA-3/BASIC4
VMA-BASIC 4 PCB
VMA-SYSTEM

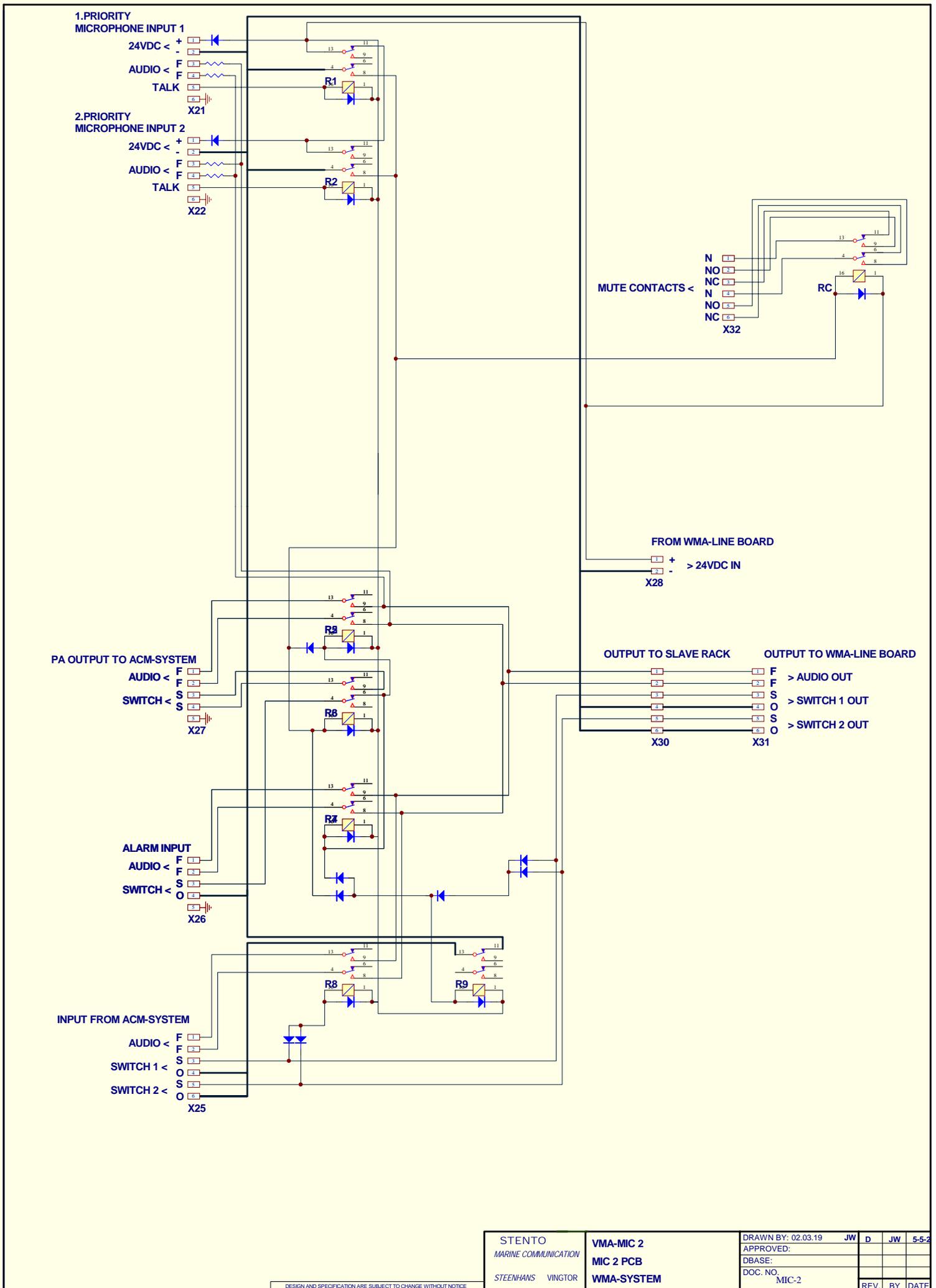
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DOC. NO.	VMA-3BA		
REV.	BY	DATE	



STENTO
MARINE COMMUNICATION
STEENHANS VINGTOR

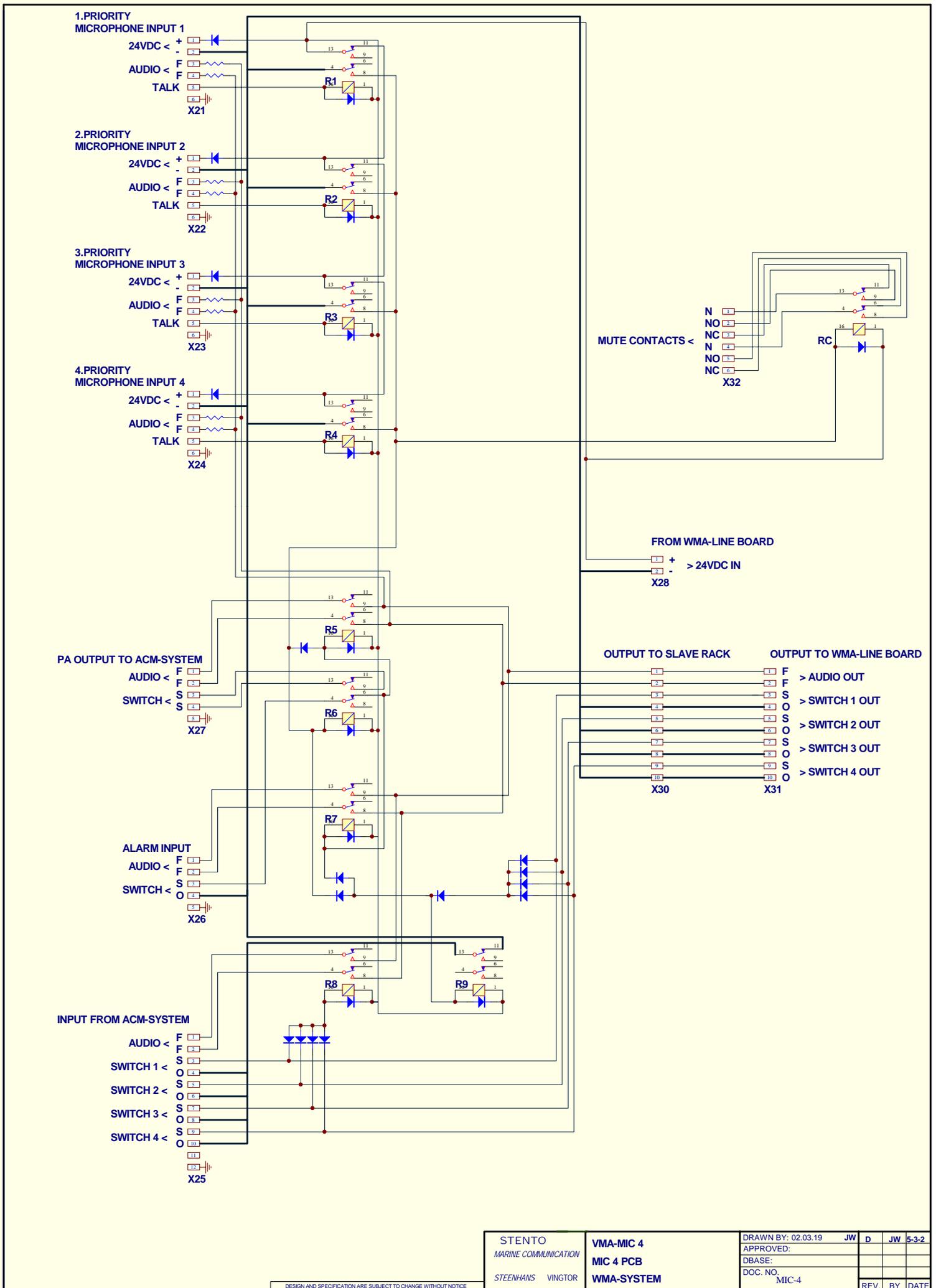
VMA-4/BASIC4
VMA-BASIC 4 PCB
VMA-SYSTEM

DRAWN BY: 02.03.19	JW		
APPROVED:			
DBASE:			
DOC. NO.	VMA-4BA		
REV.	BY	DATE	



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STENTO MARINE COMMUNICATION	VMA-MIC 2 MIC 2 PCB WMA-SYSTEM	DRAWN BY: 02.03.19 JW D JW 5-5-2
STEENHANS VINGTOR		APPROVED:
		DBASE:
		DOC. NO. MIC-2
		REV. BY DATE



1.PRIORITY
MICROPHONE INPUT 1
24VDC < +
-
AUDIO < F
F
TALK < F
F
X21

2.PRIORITY
MICROPHONE INPUT 2
24VDC < +
-
AUDIO < F
F
TALK < F
F
X22

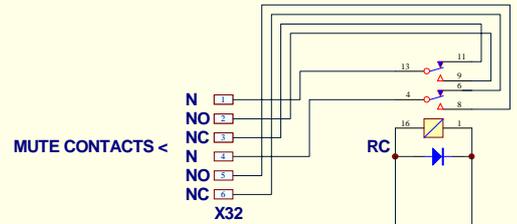
3.PRIORITY
MICROPHONE INPUT 3
24VDC < +
-
AUDIO < F
F
TALK < F
F
X23

4.PRIORITY
MICROPHONE INPUT 4
24VDC < +
-
AUDIO < F
F
TALK < F
F
X24

PA OUTPUT TO ACM-SYSTEM
AUDIO < F
F
SWITCH < S
S
X27

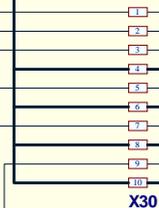
ALARM INPUT
AUDIO < F
F
SWITCH < S
S
O
X26

INPUT FROM ACM-SYSTEM
AUDIO < F
F
SWITCH 1 < S
S
O
SWITCH 2 < S
S
O
SWITCH 3 < S
S
O
SWITCH 4 < S
S
O
X25

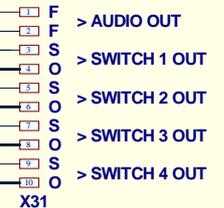


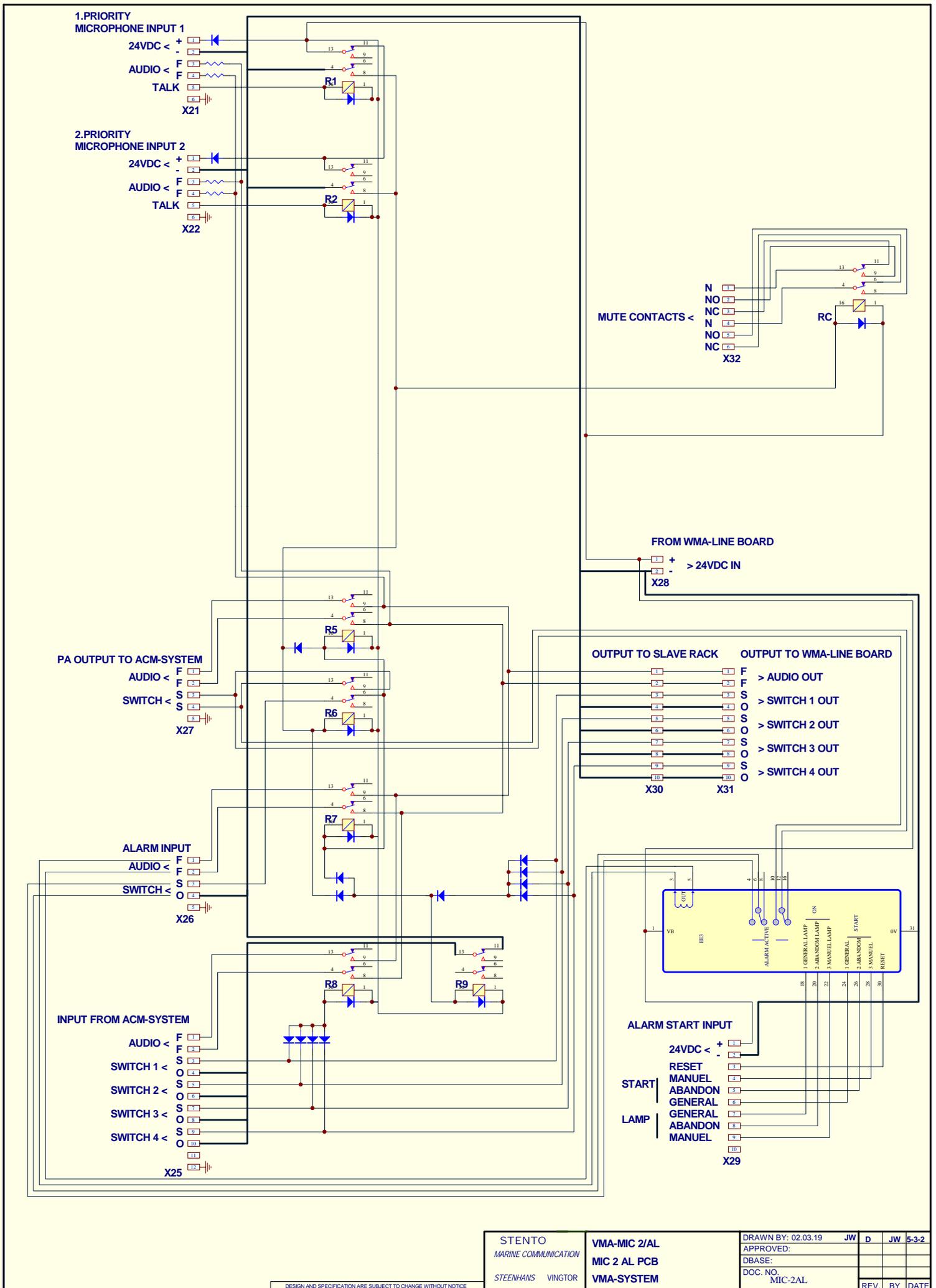
FROM WMA-LINE BOARD
+ > 24VDC IN
-
X28

OUTPUT TO SLAVE RACK



OUTPUT TO WMA-LINE BOARD





1.PRIORITY
MICROPHONE INPUT 1
24VDC < +
-
AUDIO < F
F
TALK F
F
X21

2.PRIORITY
MICROPHONE INPUT 2
24VDC < +
-
AUDIO < F
F
TALK F
F
X22

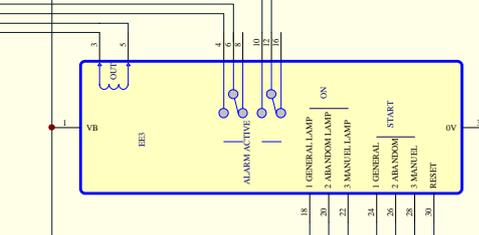
MUTE CONTACTS <
N 1
NO 2
NC 3
N 4
NO 5
NC 6
X32

FROM WMA-LINE BOARD
+ > 24VDC IN
-
X28

PA OUTPUT TO ACM-SYSTEM
AUDIO < F
F
SWITCH < S
S
X27

OUTPUT TO SLAVE RACK OUTPUT TO WMA-LINE BOARD
1 F > AUDIO OUT
2 F
3 S > SWITCH 1 OUT
4 S
5 S > SWITCH 2 OUT
6 S
7 S > SWITCH 3 OUT
8 S
9 S > SWITCH 4 OUT
10 S
X30 X31

ALARM INPUT
AUDIO < F
F
SWITCH < S
O
X26

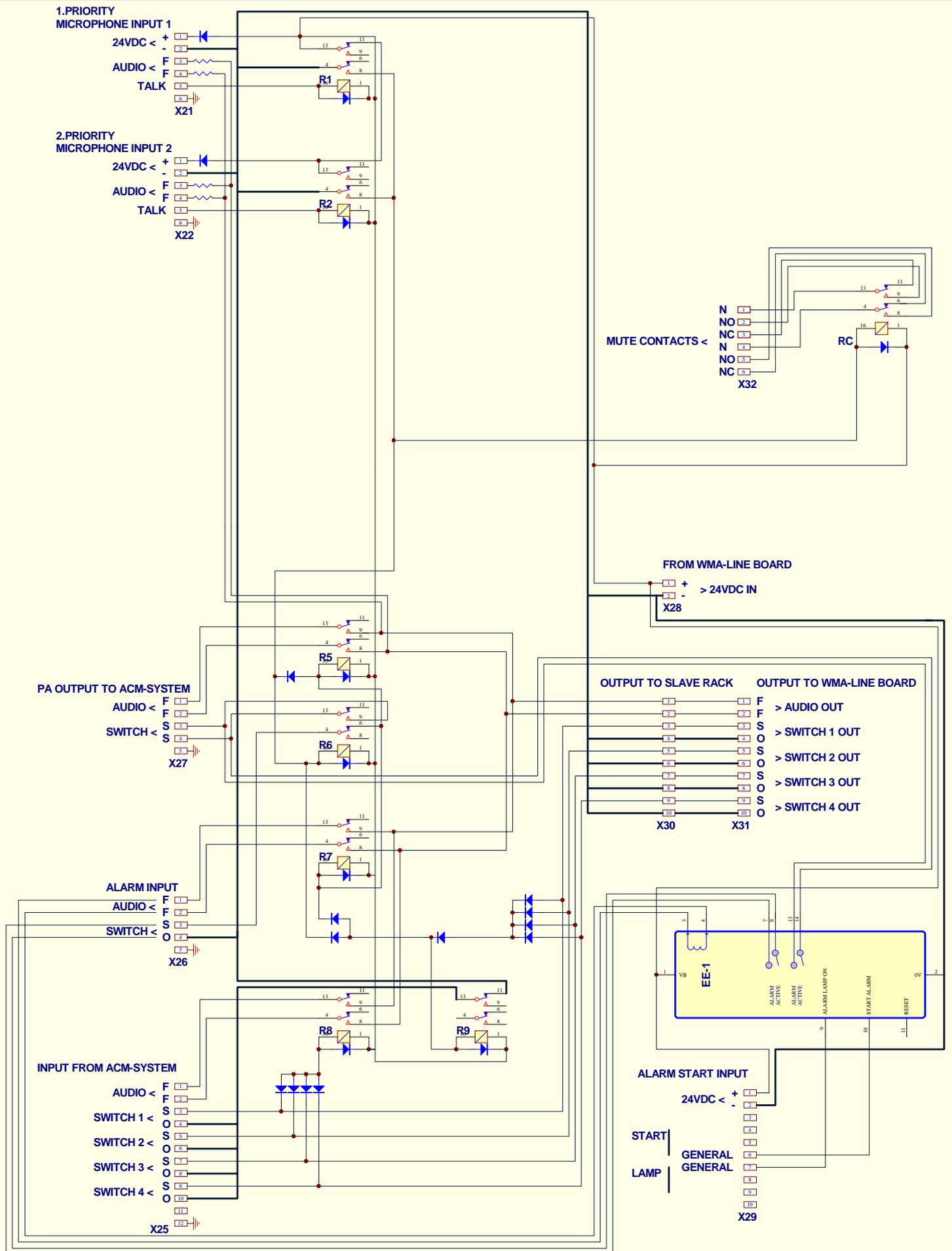


INPUT FROM ACM-SYSTEM
AUDIO < F
F
SWITCH 1 < S
O
SWITCH 2 < S
O
SWITCH 3 < S
O
SWITCH 4 < S
O
X25

ALARM START INPUT
24VDC < +
-
RESET
MANUEL
START
ABANDON
GENERAL
LAMP
GENERAL
ABANDON
MANUEL
X29

STENTO MARINE COMMUNICATION STEENHANS VINGTOR	VMA-MIC 2/AL MIC 2 AL PCB VMA-SYSTEM	DRAWN BY: 02.03.19 JW D JW 5-3-2 APPROVED: DBASE: DOC. NO. MIC-2AL	REV. BY DATE
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DESIGN AND SPECIFICATION ARE SUBJECT TO CHANGE WITHOUT NOTICE

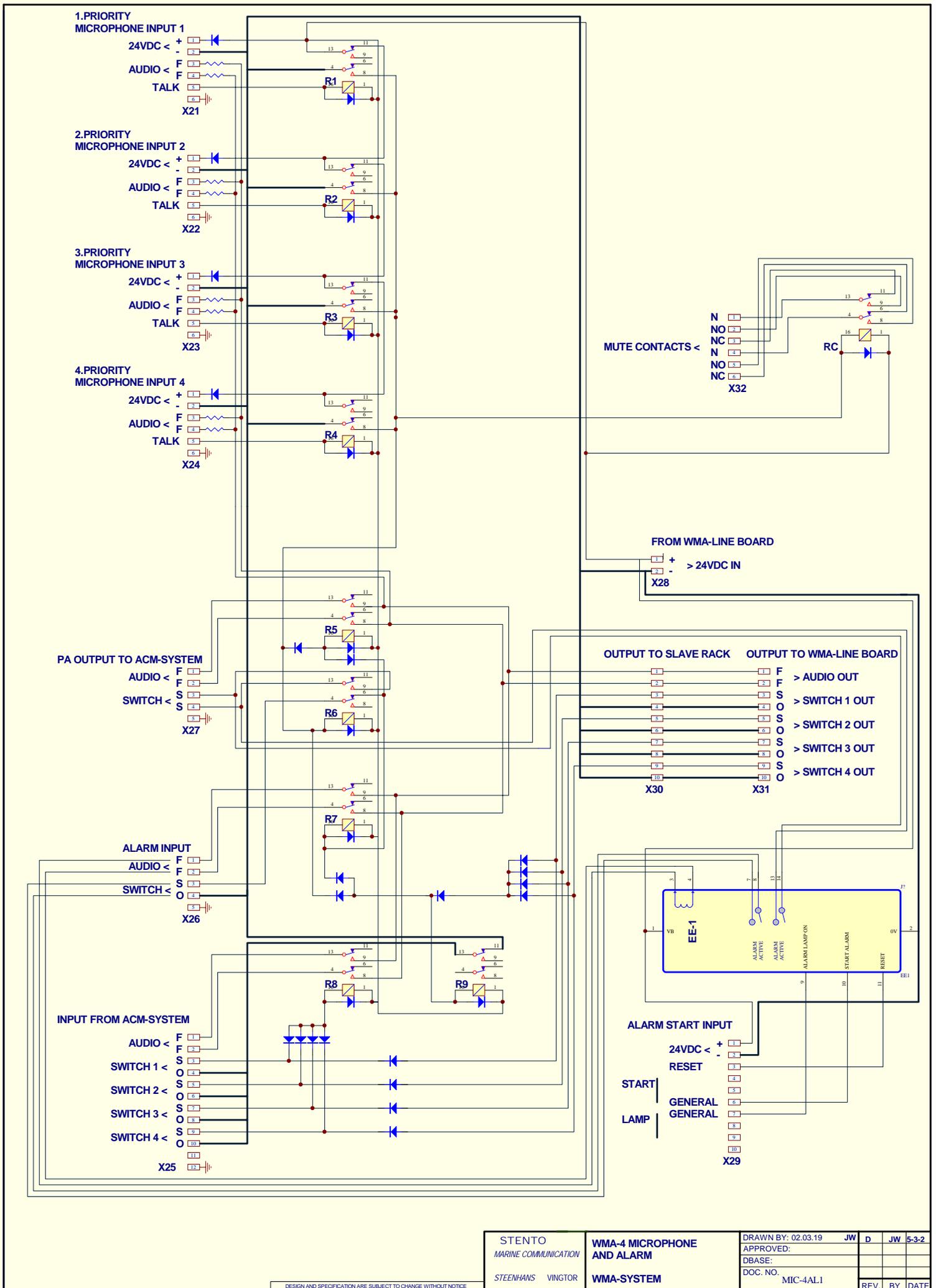


DESIGN AND SPECIFICATION ARE SUBJECT TO CHANGE WITHOUT NOTICE

STENTO
MARINE COMMUNICATION
STEENHANS VINGTOR

VMA-MIC 2/AL
MIC 2 AL PCB
VMA-SYSTEM

DRAWN BY: 02.03.19	JW	D	JW	5-3-2
APPROVED:				
DBASE:				
DOC. NO.	MIC-2AL1			
REV.	BY	DATE		



STENTO
 MARINE COMMUNICATION
 STEENHANS VINGTOR

WMA-4 MICROPHONE
 AND ALARM
 WMA-SYSTEM

DRAWN BY: 02.03.19 JW D JW 5-3-2
 APPROVED:
 DBASE:
 DOC. NO.
 MIC-4AL1
 REV. BY DATE

Public Address System



A100K10070 version 01.00

Installation Instructions Slave Amplifier

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1. Introduction

1.1 About This Manual

This manual describes the function and connections for the following slave amplifiers :

- 2130-242701 60W
- 2130-242801 120W
- 2130-242811 250W

1.2 Liability

STENTOFON AS AND ITS SUBSIDIARIES ASSUME NO RESPONSIBILITY FOR ANY ERRORS THAT MAY APPEAR IN ITS DOCUMENTATION, OR DAMAGES ARISING FROM THE INFORMATION IN IT. NO INFORMATION IN THIS PUBLICATION SHOULD BE REGARDED AS A WARRANTY MADE BY STENTOFON. THIS PUBLICATION MAY BE UPDATED WITHOUT NOTICE. PRODUCT NAMES MENTIONED IN THIS PUBLICATION MAY BE TRADEMARKS. THEY ARE USED ONLY FOR IDENTIFICATION.

1.3 Brief Description

The STENTOFON 2800 series of Slave Amplifier is designed for long term trouble-free service in a variety of commercial and industrial sound systems.

The STENTOFON 2800 amplifiers incorporate many useful features. The inputs are transformer-isolated and set to operate in a balanced mode. A LO-CUT switch provides protection for horn speakers. The constant 50V and 100V connections have a center tap. Signal muting can be either manual or automatic (voice-operated)

For automute mode, you can switch the muting level between -20 dB and -40 dB.

There is also auxiliary power of 24V-250 mA available on the back panel to drive other external equipment.

The 2800 amplifiers can operate from a 24V DC power source.

1.4 Unpacking

The amplifier was thoroughly checked at the factory. Inspect the amplifier, the enclosed parts and the shipping container for signs of improper handling during shipment. If you find any damage, immediately contact the dealer from whom you purchased the unit to make a claim.

2. Installation

The amplifier should be installed where there is adequate ventilation, a moderate temperature, and an AC power outlet with provision for grounding.

- **Desk-Top:**

The amplifier should be placed on a level, open surface. Make sure that nothing restricts the air flow. Do not place the unit on a yielding surface or place objects on or around it.

- **Rack:**

For rack mounting, the amplifier requires a rack with a standard width of 483 mm (19"), and 133 mm (5 1/4") vertical space.

See also the data sheet for each amplifier

A cooling fan is recommended when amplifiers are mounted in an enclosed rack.

Caution

Failure to observe the above precautions could result in overheating that could damage the equipment or create a fire hazard.

2.1 Wiring

WARNING

Do not connect AC power to the amplifier until all the necessary input and output connections have been completed.

Power lines, speaker wires and microphone cables should be kept as far apart as possible. Good practice dictates separate conduits for each type of signal cabling and insulation of the power lines. Shielded, two-conductor cable is required for the microphone.

2.2 Grounding

Caution

Do not disconnect the third wire on the power plug. This wire grounds the amplifier's chassis to prevent a possible shock hazard. If an adapter is used to connect the plug to an ungrounded outlet, make sure that the amplifier's chassis is connected to a proven ground..

In a desktop or other free installation, run a wire from the grounding point to the amplifier's grounding point near to the power connection.

For a rack installation, connect the rack frame to the grounding point.

2.3 Input connections

There are two Line levels input

- Channel-1
- Channel-2.

The inputs are through XLR connectors.

Input signal is connected to pin 2 - positive and pin 3 - negative.

2.4 Output connections

- **Line Out:**

This jack provides a 600 ohm 1 volt unbalanced output that can be used for making recordings or driving slave amplifiers.

2.5 Speaker connections

Caution

Servicing shall be done by qualified personnel only. Disconnect power supply before servicing. Replace terminal cover after servicing.

- **General.**

The 4 and 8 ohm outputs are generally used when the wires running to the speakers are relatively short, and the line loss is less than 0.5 dB.

Most audio- and sound-systems handbooks have tables listing the line loss for each wire size and load impedance.

For the best performance, make sure that the impedance of the total speaker load matches that of the tap being used.

Use serial or parallel speaker arrangements as needed to obtain the proper impedance matching.

The 50V and 100V outputs are for speakers designed for constant voltage lines. Each speaker must have a line-matching transformer, and the speakers must be connected in parallel.

The impedance taps on the primaries of the line-matching transformer indicate how much power will be taken from the line.

You can add speakers as needed until the total wattage absorbed by all of the transformers is equal to the rated power output of the amplifier.

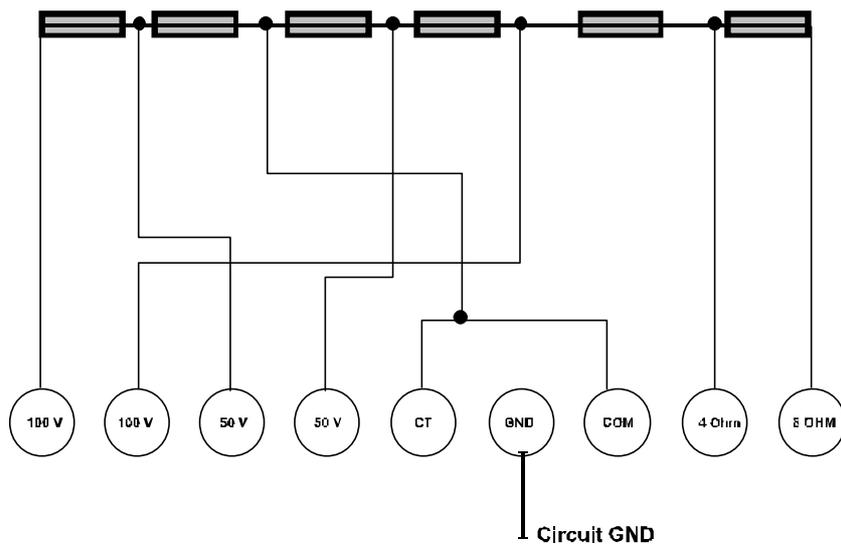
It is a good practice to allow an amplifier a headroom of 10% to 20%.

For a 120W amplifier (2812) the maximum speaker load should be approximately 100W.

The output taps differ significantly between the 2806 and the 2812-2825.

The output connection for the three amplifiers are described below.

2.6 Output Transformer 2806



Note: The CT tap and the COM terminal are wired together internally on the 2806.

The following table summarizes the proper speaker connections to the 2806

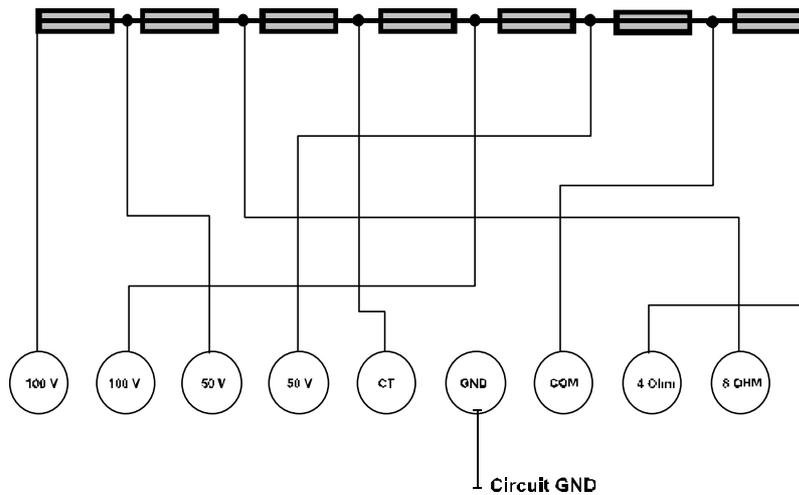
Output Desired	Amplifier Connections	
100V Balanced	Both 100V taps	*
100V Unbalanced	Both 100V taps, jumper from left "100V" to "GND"	** *
50V Balanced	Both 50V taps	*
50V Unbalanced	Both 50V taps, jumper from left "50V" to "GND"	** *
4 ohm	4 ohm and COM	
8 ohm	8 ohm and COM	

(*) Install the supplied jumper between GND and CT with these connections only if balanced and grounded operation is needed.

(**) *Do NOT install a jumper between GND and CT with the unbalanced 100V and 50V connections.*

IT WILL SHORT-CIRCUIT THE OUTPUT TRANSFORMER.

2.7 Output Transformer 2812 and 2825



Note: The CT tap and the COM terminal are NOT wired together internally on the 2812 and 2825.

The following table summarizes the proper speaker connections to the 2812 and 2825

Output Desired	Amplifier Connections	
100V Balanced	Both 100V taps	*
100V Unbalanced	Both 100V taps, jumper from left "100V" to "GND"	* *
50V Balanced	Both 50V taps	*
50V Unbalanced	Both 50V taps, jumper from left "50V" to "GND"	* *
4 ohm	4 ohm and COM	
8 ohm	8 ohm and COM	

(*) Install the supplied jumper between GND and CT with these connections only if balanced and grounded operation is needed.

(**) ***Do NOT install a jumper between GND and CT with the unbalanced 100V and 50V connections. IT WILL SHORT-CIRCUIT THE OUTPUT TRANSFORMER.***

2.8 Power connections

- **AC Connections.**

Make sure the Power switch is "OFF".

Then plug the cord into a 230V - 50 Hz three-wire grounded power socket that can provide 250W (2812) or 700W (2825).

- **DC connection.**

The amplifier can be powered by an external battery or other direct current 24 volt source. Normally this is used as a back-up source.

Use appropriately sized cables with spade plugs to terminate the DC power.

NOTE

The amplifier will not recharge the batteries. If this function is desired, obtain an approved charger and follow the manufacturer's instructions.

NOTE

The DC source is not switched OFF by the amplifier's Power switch. If DC power control is a requirement, an external switch or relay should be installed by a qualified service representative.

2.9 Operating the controls

- **Input Level Control**

This control on the back panel is used to adjust the sound to an appropriate level. It should be set so that the maximum possible input signal will not cause the output to “clip”. This control should be adjusted by the installer and then left alone.

- **“LO-CUT” (Low Frequency Roll-Off) switch**

Release the “LO-CUT” switch to obtain the rated frequency response of the amplifier. To protect horn speaker systems, depress the switch. This will enable a Hi-pass filter with - 3dB point at 350Hz /6dB/oct.

- **Signal Muting**

Signal muting can be done either manually or automatically (voice operated)

- **Manual Muting**

If you want to set the amplifier to manual mute mode, short the remote contacts on the back panel. Either CH-1 or CH-2 can be selected for muting from the back panel.

- **Automute**

The mute circuit is activated by the presence of a signal at CH-1, which automatically causes the signal coming from CH-2 to be reduced to either -20 dB or -40 dB. To select the level, there is a switch on the rear panel of the amplifier.

In this way the signal from CH-1 can be heard immediately and easily.

To accommodate the brief pauses typical of paging, and to make a smooth transition back to the ongoing audio program after the announcement has been completed, the amplifier gradually increases the CH-2 sound back to its normal level over a period of five to ten seconds.

- **LEDs and Circuit Breakers**

When the amplifier is operating normally, the Power LED glows. Should an overload or a short circuit occur in the speaker lines, the DC (8A-10A or 20A) circuit breaker will trip. To signal this condition, the Power LED will turn off, and the Protection Monitor LED will light.

Should the AC blow, both LEDs will turn off.

If either of these conditions occurs, find out what the problem is and correct it before resetting the circuit breaker or replacing the fuse.

The reset switch for the DC is on the rear panel. To reset, push its stem back in. Should the circuit breaker trip repeatedly, turn off the power switch, unplug the power cord and consult a qualified service engineer.

2.10 Initial tests

Play a program source through CH-1, and check that:

- Level adjustments change the output level

- The signal gets muted in manual mute.

Repeat the above test with the signal at CH-2.

Play program sources through both channels and check that:

- In automute mode, the signal at CH-1 lowers the sound level of channel-1
- Cutting the CH-1 signal causes the sound level from CH-2 to resume its normal level.

2.11 Initial troubleshooting

- Problem: Low volume or distorted sound
 - * Check whether all the input and output connections are properly made and securely fastened
 - * If the problem occurs with both input channels, check the impedance between the amplifier and the speakers.
 - * If the sound is distorted, check whether the speakers are being overdriven. The distortion disappears when the level controls are turned back to a lower setting.
 - * If the problem occurs only with one input channel, try switching the input device to determine whether it is the device or the input channel that is at fault.

- Problem: The amplifier does not operate. The Power and the Protection LED do not light
 - * Make sure that the power cord is plugged in properly, there is power in the outlet and the switch is in the ON position.
 - * Examine the input and output lines for broken connections and obvious shorts among lines and surrounding equipment.
 - * If everything appears in order, try pushing the circuit breaker switch. If the LED at Power ON still fails to light, disconnect the power and contact a qualified service engineer.

2.12 Service information

The service that follows is intend for qualified service technicians.

- **Gaining access to the components**

To remove the cover, unscrew the side screws and lift it off. This will provide access to all the internal components.

- **Testing voltages**

To pinpoint a defective component, refer to the nominal voltages for the amplifier that are marked on the schematic diagram.

- **Removing and replacing transistors**

Transistors are normally long-lived devices that normally should not need replacement. If systematic troubleshooting indicates a problem, however, please observe these precautions when removing and replacing transistors.

Transistors can be damaged by excessive heat, so use a small soldering iron when removing or replacing those with solder connections.

Transistors come with a wide variety of cases and leads. To avoid costly mistakes, make a careful sketch of the lead connections before removing a transistor from a circuit board or tie point.

Before installing a power transistor, obtain an appropriate mica insulator, coat both sides of it with silicone grease, and fit the insulator between the transistor and the heat sink. An alternative is a “silpad”, which does not require silicone grease.

3. Specifications

3.1 Features

Model 2806-2812-2825

- * Versatile output for virtually any system requirements.
- * Built-in transformer-isolated balanced input.
- * Lo-cut switch to protect horn-only systems.
- * Circuit breaker and fuse protection.
- * 230V AC and 24V DC battery operation.
- * 24V DC auxiliary output for preamplifiers.
- * Patch connection for multiple amplifier applications.

3.2 Description

This Stentofon Slave Amplifier is housed in a metal cabinet with a professional low-glare black epoxy finish. The unit is prepared for mounting in a 19" rack.

The unit has two balanced input channels, which are individually equipped with lo-cut switches for horn-only systems.

A VOX-operated priority is available on input channel 1 with automatic muting of the second channel by -20 dB or -40 dB. Both the muting level and the priority on/off settings are easy to select using switches on the rear of the amplifier. In addition, there are switches on the rear panel to enable manual muting.

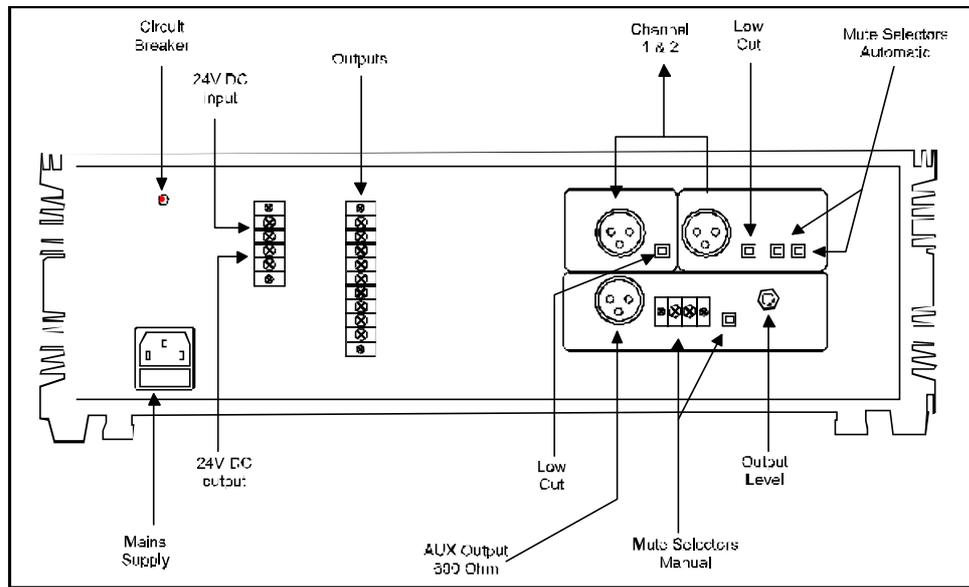
The amplifier has screw connectors for 4 ohm and 8 ohm loudspeakers, and supports both 50V and 100V lines.

The unit is fully protected by a fuse on the power input as well as an overload circuit breaker. The amplifier operates on both 230V AC and 24V DC, allowing battery operation.

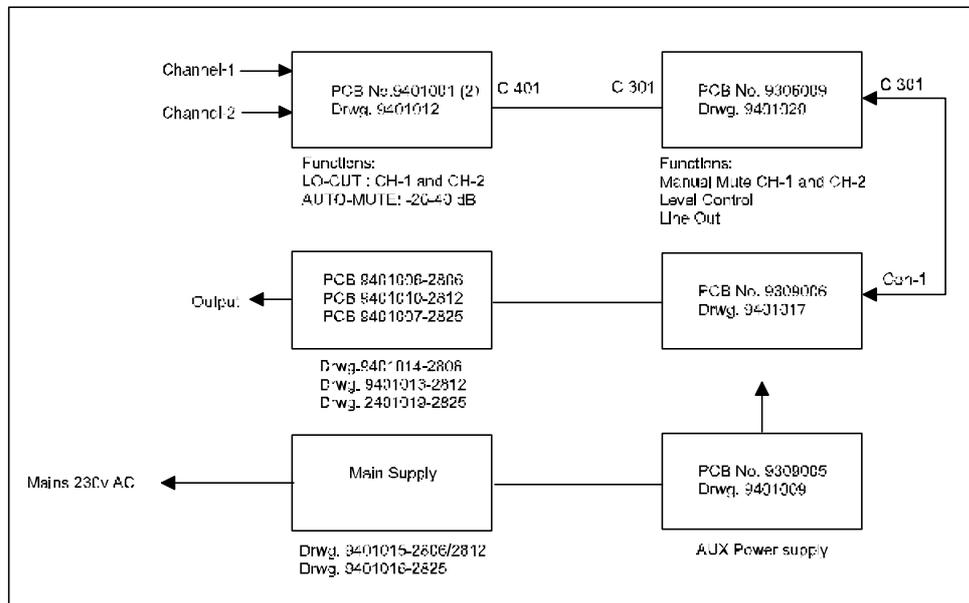
Order Number	Description	Ship Weight
2130-242701	60W Slave Amplifier	10.5 kg / 23 lb
2130-242801	120W Slave Amplifier	17 kg / 37.5 lb
2130 242811	250W Slave Amplifier	21.5 kg / 47 lb
Accessories		
2130 272400	15W / 100V Horn Speaker	1.83 kg / 4 lb
2130 272900	15W / 100V Rectangular Horn Speaker	1.93 kg / 4.25 lb
2130 272600	25W / 100V Horn Speaker	2.20 kg / 4.85 lb
2130 273000	25W / 100V Rectangular Horn Speaker	2.43 kg / 5.36 lb
2130 272700	30W / 100V Horn Speaker	2.40 kg / 5.30 lb

Order Number:	242701,242801 and 242811
Power Requirement:	AC = 230V / 50-60 Hz DC = 24V (floating)
Aux. power output:	24V DC, 250 mA (floating)
Power Consumption 60W Slave	AC = 0.8 Amp, Standby 90 mA DC = 7 Amp, Standby 150 mA
Power Consumption 120W Slave	AC = 1.2, 8 Amp, Standby 100 mA DC = 9 Amp, Standby 150 mA
Power Consumption 250W Slave	AC = 3 Amp, Standby 175 mA DC = 23 Amp, Standby 220 mA
Output Power 60W Slave	60 Watts RMS 2% distortion
Output Power 120W Slave	120 Watts RMS 2% distortion
Output Power 250W Slave	250 Watts RMS 2% distortion
Output Regulation:	Less than +2 dB from no load to full load.
Available Outputs: 2806-2812 and 2825	4 ohm 8 ohm 50V balanced 41.7 ohm 100V balanced 166.66 ohm
Line Output:	600 ohm 1V balanced
Frequency Response:	-3 dB 60 Hz to 15 kHz
Harmonic Distortion (tone control at "0"):	Less than 2% at 3 dB below rated power output 60 Hz to 15 kHz
Inputs (balanced):	2 channels, 20 kohm Line
Input Sensitivity:	0.775V for rated power output
Input Overload:	3V
Noise Level ref. full power :	Level control at minimum -75 dB Level control at maximum -74 dB
Mute level - manual:	-70 dB
Mute level - automatic:	-20 dB or -40 dB (selectable)
Low-cut:	- 3 dB at 350 Hz / 6dB / oct
Temperature Range:	-10° C to +60° C +14° F to +140° F
Humidity Range:	10% - 85% RH
Dimensions: 60W Slave	482 mm W x 133 mm H x 275 mm D 19" x 5 1/4" x 10 3/4"
Dimensions: 120W Slave	482 mm W x 133 mm H x 308 mm D 19" x 5 1/4" x 10 3/4"
Dimensions: 250W Slave	482 mm W x 133 mm H x 356 mm D 19" x 5 1/4" x 10 3/4"
Finish:	Metal cabinet with black epoxy finish

3.3 Rear panel



3.4 Schematic, references



4. Reader's Comments

Please help us to improve the quality of our documentation by returning your comments on this manual:

Title: *Public Address System, Installation Instructions Slave Amplifier*
Ref. No.: *A100K10070 version 01.00*

Your information on any inaccuracies or omissions (with page reference):

Please turn the page

Suggestions for improvements

Thank you! We will investigate your comments promptly.

Would you like a written reply? Yes No

Name: -----

Title: -----

Company: -----

Address: -----

Telephone: -----

Fax: -----

Date: -----

SPA-V2

PUBLIC ADDRESS SYSTEM



when communication is critical

FEATURES

- Standalone PA and GA system made for the ship environment
- 19" rack w/screw terminals for ship cable network
- Power Amplifiers, 100 V line with alternative power output of 120, 240 or 400 W
- Provides monitoring of power amplifiers
- 6 zones selection + ALL
- VINGTOR integrated PA/GA solution in combination with VINGTOR ACM
- Input for 3 microphone panels
- AUX / Alarm input
- Input from Talk-Back system
- Input from PABX (preselected zones)
- Mains 230 V AC/24 V DC w/auto switch-over
- Built-in pre-amplifiers
- Wide set of microphone and alarm panels

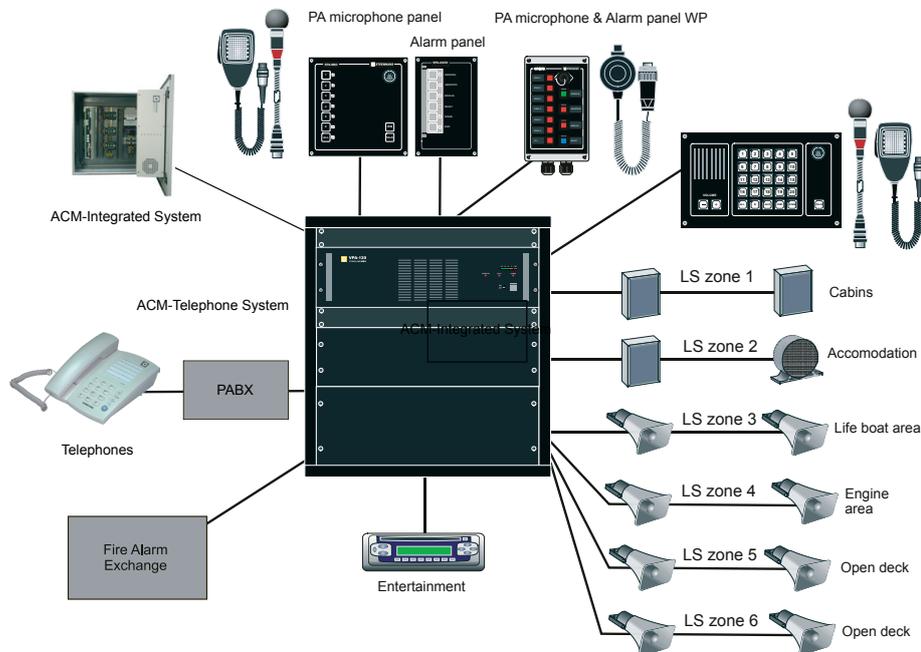
DESCRIPTION

The SPA-V2 system is specially designed to meet the demands for a cost-effective Public Address system for use on board ships. The system is available in different versions and offers a set of standard and optional features which covers the requirements for a marine PA and general alarm systems for all type of ships.

Each SPA rack supports from 120W to 2800W. A system can consist of multiple racks to provide needed capacity. The racks can be provided in the following sizes: 12 HU, 16 HU, 20 HU, 24 HU, 30 HU and 40 HU.

The SPA system supports the VINGTOR integrated PA and GA solution. This solution is type approved for Public Address and general alarm. Together with the VINGTOR ACM, the SPA system are extremely cost efficient where SPA loudspeaker loops are used together with the integrated ACM units to cover areas where PA and GA are required onboard the ship.

At delivery, the rack is equipped and internally wired according to customer specifications.



Type approved

The system is tested according to EN60945, and is type approved by DNV, RMRS and CCS,

SPECIFICATIONS

Main unit	
Rack size (WxHxD)	525 x 584 x 525 (19" 12HU)
Material	Black painted steel
Mounting	Floor
Voltage input	Mains 230 VAC & 24 VDC (110V AC on req.)
Connections	Plugable terminals for max. 2.5mm ² cable
Cable requirements	Signal cable 0.75mm ² twisted outer screen
Amplifier	VPA-120, VPA-240 AND VPA-400 See separate data sheet
Output	100V -120W -400W
Operating temperaure	-20 - +55°C
Relative humidity	<95%
Safety	EN 60065
Tested according	EN 60945
Optional rack sizes	19" 12,16, 20,24,30 and 40HU
Field Equipment	See separate data sheets

SYSTEM UNITS

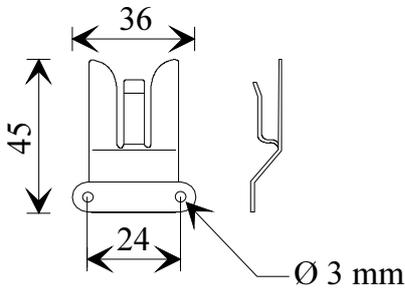
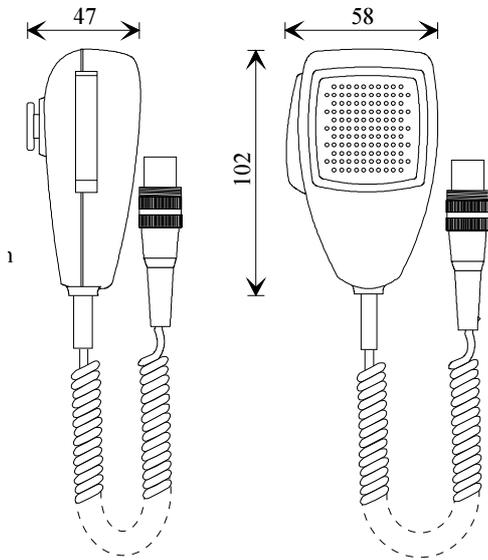
ORDER NUMBER	DESCRIPTION	ORDER NUMBER	DESCRIPTION
Central units, Control units & Amplifiers		Announcement And Alarm Units	
SPA-120-V2	PA main unit, 19" rack, incl. 120w amplifier	SPA-M1H-V2	PA panel single for all call - flush - w/handheld mic ETC-1
SPA-240-V2	PA main unit, 19" rack, incl. 240w amplifier	SPA-M1S-V2	PA panel single for all call - flush - w/gooseneck mic MB-30G
SPA-400-V2	PA main unit, 19" rack, incl. 400w amplifier	SPA-M1H-D	PA panel dual for all call - flush - w/handheld mic ETC-1
VPA-120	19" power amplifier 120W/100V - 220V AC/24V DC - 3HU	SPA-M1S-D	PA Panel Dual For All Call - Flush - W/Gooseneck Mic MB-30G
VPA-240	19" power amplifier 240W/100V - 220V AC/24V DC - 3HU	SPA-M6H-V2	PA panel single w/6 zones, all call and dimmer - flush - w/handheld mic ETC-1
VPA-400	19" power amplifier 400W/100V - 220V AC/24V DC - 3HU	SPA-M6S-V2	PA panel single w/6 zones, all call and dimmer - flush - w/gooseneck mic MB-30G
SPA-SHELF	Shelf for additional equipment for VCR or DVD, 3HU	SPA-M6H-D	PA Panel Dual w/6 Zones, All Call And Dimmer - Flush - w/Handheld Mic ETC-1
SPA-SHELF4	Shelf w/drawer f/CU-system incl. rack expansion 3HU	SPA-M6S-D	PA panel dual w/6 zones, all call and dimmer - flush - W/gooseneck mic MB-30G
SPA-SWITCH-V2	6 line input w/ monitor	SPA-M6BOKS	Back box for SPA-M1 and M6 panels when wall mounted
SPA-RCD	Radio/CD/player (car type)	SPA-AC6	Single alarm panel with covered and illuminated alarm start and reset button for indoor use
SPA-CAD6	6xCD player (car type)	SPA-AC6-D	Dual alarm panel with covered and illuminated alarm start
SPA-RCD6	Radio / 6xCD player (car type)	ACBOKS	Back box for SPA-AC6 panels when wall mounted
SPA-PABXR-V2	PABX recall voice recorder	SPA-W1-V2	Weatherproof PA-panel for outdoor use
SPA-DMG9016	Digital message recorder	SPA-W1-D	Dual weatherproof PA-panel for outdoor use
SPA CHIME-V2	Chime generator	SPA-W1AR-V2	Weatherproof PA-and alarm panel for outdoor use
SPA-MUL-V2	SPA- zone control board with 4way entertainment 6 zones	SPA-W1AR-D	Dual weatherproof PA-and alarm panel for outdoor use
DR-4524	Power supply 230 VAC / 24 VDC, 2A	SPA-W6A4-V2	Weatherproof PA-and alarm panel w/6 zones for outdoor use
DRA-24FSA	Power supply 230V AC / 24V DC, 10A	SPA-W6A4-D	Dual weatherproof PA-and alarm panel w/6 zones for outdoor use
SPA-TERM-V2	Terminal board SPA w /2, 5M cable	SPA-DMG	Remote panel for message recorder SPA-DMG9016
SPA-EE3D-V2	Alarm set for dual system		
SPA-EE3-V2	Single alarm gen. W/3 alarm tones		
SPA-EMS-V2	Switching board for emergency pa message		
SPA-AL-REL-V2	3 X pot free relay output		
SPA-ENT4-V2	SPA 4 way entertainment 6 zones		
SPA-VDR-V2	Output for voice data recorder		
SMIII-PA	PA telephone interface (trunk line needed per PA-line)		
SPA-FAIL	Power failure output relay with potential free contact		
SPA-UPS	Auto switch between 230AC main & emerg./Ups incl. Power fail		

DOC.NO.

A100K10688

sales@vingtor.com





Mic. clip-on

Description:

ETC-1

- * Handheld microphone for use with SPA-M1H and SPA-M4H Standard Microphone Panels

Technical data:

Type :	Dynamic
Art.no. :	ETC-1
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_ds rev.01 2003.01.27
Article no.	ETC-1





ETC-1-CH

CHASSIS CONTACT 5-PIN DIN FOR ETC-1-TB WITH 1 M CABLE

- Prepared with screw terminals for connections

SPA-240-V2

MAIN UNIT



when communication is **critical**

FEATURES

- Input & priorities for 3 microphone panels
- Input from talk-back system
- Input from entertainment system
- PABX Input with zone presets
- 6 zones 100 V signal output
- Input for 2 alarm panels
- 2x Fire alarm input, all call and zone selection (fire crew)
- Alarm mute during PA message

DESCRIPTION

The SPA series public address and general alarm system combines quality and value. The SPA-V2 is an improved second generation system which in first generation version has been installed in thousands of ships around the world. The basic functionality module can support a single, non-redundant system and delivered as a 19" rack which contains main board, minimum one amplifier and optional functions.

Optional functions are:

- Number of microphone and alarm panels
- Dual system, redundancy
- Additional amplifiers
- Alarm generators
- PABX Interface
- Redundant power supply
- Digital message recorder
- Chime generator
- Entertainment
- Output for voice data recording

At delivery, the rack is equipped and internally wired according to customer specifications. The system is tested and passed according to EN60945.

SPECIFICATIONS

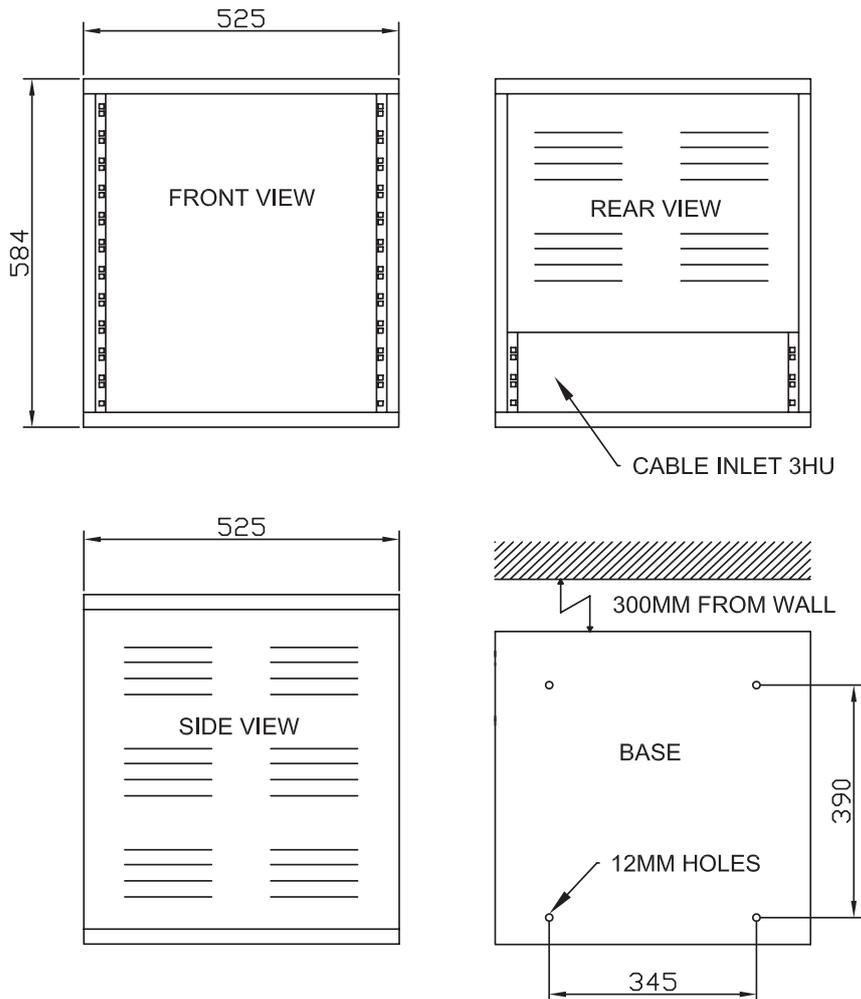
Rack size (WxHxD)	525 x 584 x 525 (19" 12HU)
Material	Black painted steel
Mounting	Floor



ORDER NUMBER	DESCRIPTION	SHIP WEIGHT
SPA-240-V2	PA Main Unit, 19" Rack, inclusive 240W Amplifier	45.0 kg

SPA-240-V2 MAIN UNIT

Voltage input	Mains 230 VAC & 24 VDC (110V AC on req.)
Connections	Plugable terminals for max. 2.5mm ² cable
Cable requirements	Signal cable 0.75mm ² twisted outer screen
Amplifier	1x VPA-240, details on separate datasheet
Output	100V -240W
Operating tempereare	-20 - +55°C
Relative humidity	<95%
Safety	EN 60065
Tested according	EN 60945
Optional rack sizes	19" 12,16, 20,24,30 and 40HU



System Datasheet

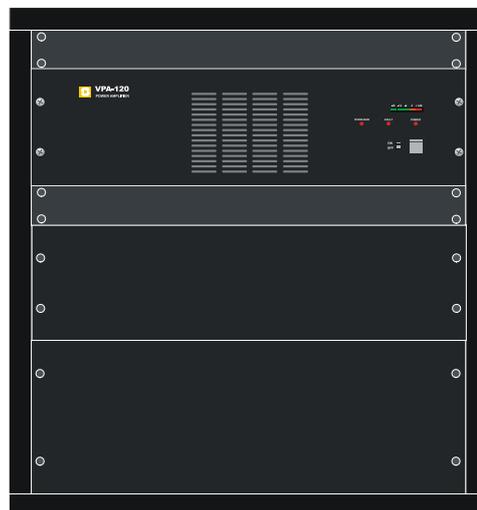
Public Address & General Alarm System SPA-V2

Main unit SPA-240-V2



Feature

- Input & priorities for 3 microphone panels
- Input from talk-back system
- Input from entertainment system
- PABX Input with zone presets
- 6 zones relay output 100 V for speakers
- Input for 2 alarm panels
- 2x Fire alarm input, all and zone selection (fire crew)
- Alarm mute during PA message



Description

The SPA series public address and general alarm system combines quality and value. The SPA-V2 is an improved second generation system which in first generation version has been installed in thousands of ships around the world. The basic functionality module can support a single, non-redundant system and delivered by use of a 19" rack which contains main board, minimum one amplifier and optional functions.

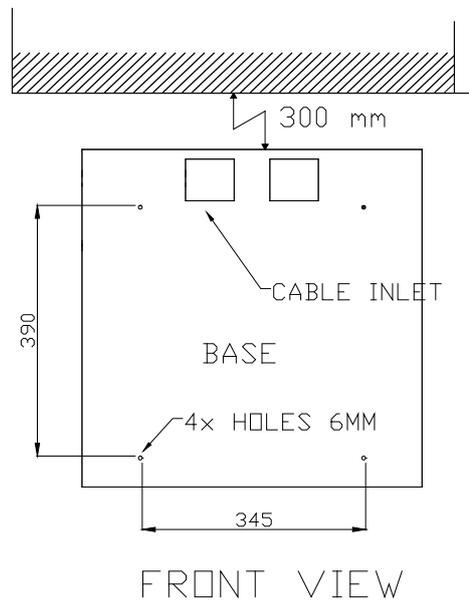
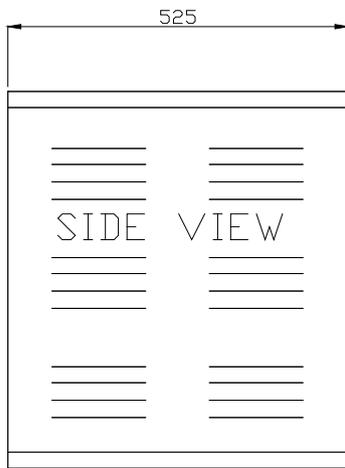
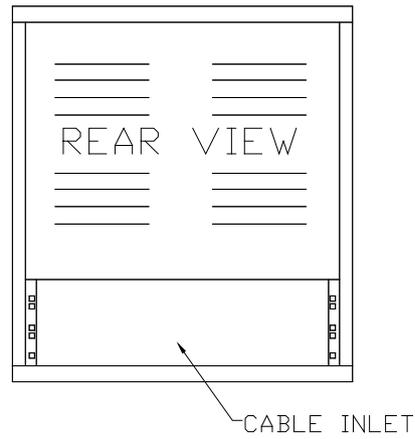
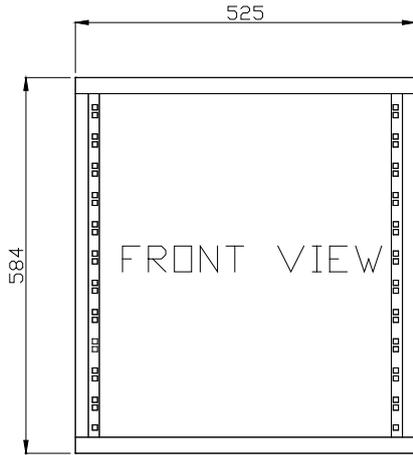
Optional functions are - in addition to a number of panels to operate the system dual function systems (redundancy), additional amplifiers and higher racks, chime generator, entertainment (4 way in 6 zones), CD-player and radio, alarm generators, GA relay outputs, telephone interface, auto switch between 230V AC and emergency UPS (24V), output for voice data recorder, and digital message recorder/recall for pre-recorded message output.

At delivery, the rack is equipped and internally wired according to customer specifications. The system is tested and passed according to EN60945.

Specification

Rack size (WxHxD)	525 x 584 x 525 (19" 12HU)
Material	Black painted steel
Mounting	Floor
Voltage input	Mains 230 VAC & 24 VDC (110V AC on req.)
Connections	Plugable terminals for max. 2.5mm cable
Cable requirement	Signal cable 0.75mm ² twisted outer screen
Amplifier	1x VPA-240, details on separate datasheet
Output	100V -240W
Operating temp.	-20 - +55°C
Relative humidity	<95%
Safety	EN 60065
Tested according	EN 60945
Optional rack sizes	19" 12,16, 20,24,30 and 40HU

Dimension



System units

Order Number	Description	Ship weight
SPA-240-V2	PA Main unit, 19" rack, 240W	45,5 Kg

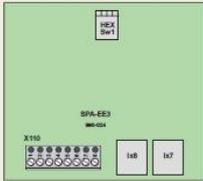


ZENITEL NORWAY AS
www.zenitel.com
sales.marine@zenitel.com



SPA-EE3-V2

SINGLE ALARM GEN. W/3 ALARM TONES



- The module has a microprocessor that administrates the alarm tones and set-up the inputs and utput
- A selector can set all required configuration of alarm tones
- The module has three start inputs and three outputs for relay or lamps
- Interconnections to main terminal board by RJ45 8pin plug
- Plugable screwterminals for external connections.

Standard settings:

1. Priority: general alarm: 7 short and 1 long tone, 1kHz
2. Priority: abandon ship alarm: Wobbling tone approx. 1 kHz
3. Priority: manual alarm: Continuous tone, 1 kHz

Accessories For SPA Systems

RACK EXPANSION

Product Number

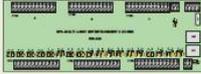
SPA-EXPW

Product Name

RACK EXPANSION

Product Group

Accessories For SPA Systems



SPA-MUL-V2

SPA- ZONE CONTROL BOARD WITH 4WAY ENTERTAINMENT 6 ZONES

- Board for zone distribution when more than one amplifier are used
- Internal or external 24V override
- Configuration settings by jumpers.
- Interconnections to main terminal board by RJ45 8pin plug
- Plugable screwterminals for external connections.

Accessories For SPA Systems

MULTIPURPOSE POTENS. FREE RELAY

Product Number

SPA-REL-V2

Product Name

MULTIPURPOSE POTENS. FREE RELAY CONTACT -
FUNCTION TO BE SPECIFIED

Product Group

Accessories For SPA Systems

POWER AMPLIFIER

120W



when communication is **critical**

FEATURES

- 120 W power amplifier in a 19" rack cabinet
- 100 V and 8 ohm output
- Dual inputs with priority switching
- Temperature controlled, forced back-to-front ventilation
- 115/230 VAC mains and 24 VDC battery backup
- Pilot tone line monitoring
- 24 VDC / 800 mA power output for external equipment
- Chime signal with on/off switch



DESCRIPTION

The VPA power amplifier is specially designed for marine use. The amplifier has to be installed in 19" rack and occupies 3 HU with addition of a 1 HU ventilation grid.

The amplifier is protected against overload and short circuits. A temperature controlled fan ensure high reliability at high output level and low ventilation noise at lower output levels.

The amplifier operates on 115 or 230 VAC mains with option for automatic switching to 24 VDC battery backup in case of power failure. The amplifier is supervised by a pilot tone to continuously check the signal path, and a fault will be reported by an indicator in front combined with a closing contact for external fault warning.

The amplifier has a built in selectable chime generator activated by a priority switch to give an alert signal in front of a message.

SPECIFICATIONS

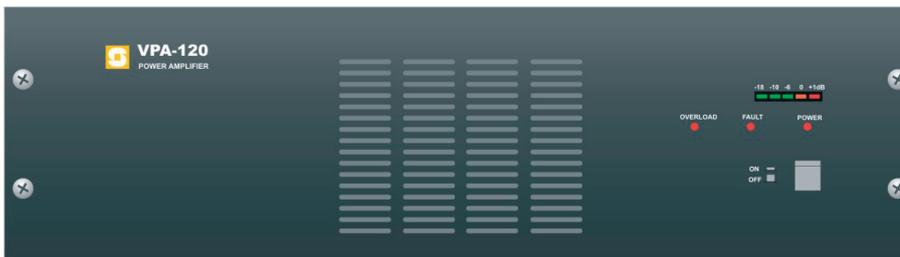
Colour	Black
Dimensions (W x H x D)	482 x 133 x 420 mm
Weight	18.2 kg
Power supply	115/230 VAC $\pm 10\%$, 50/60 Hz, 390 W, 24 VDC $\pm 25\%$ - max 7,5 A
Operating temp.	-15 – +55°C
Relative humidity	< 95%
Output	100 V, 8 ohm - 120 W
Frequency response	50 Hz – 20 kHz ± 3 dB
Distortion	< 1% at 1 kHz

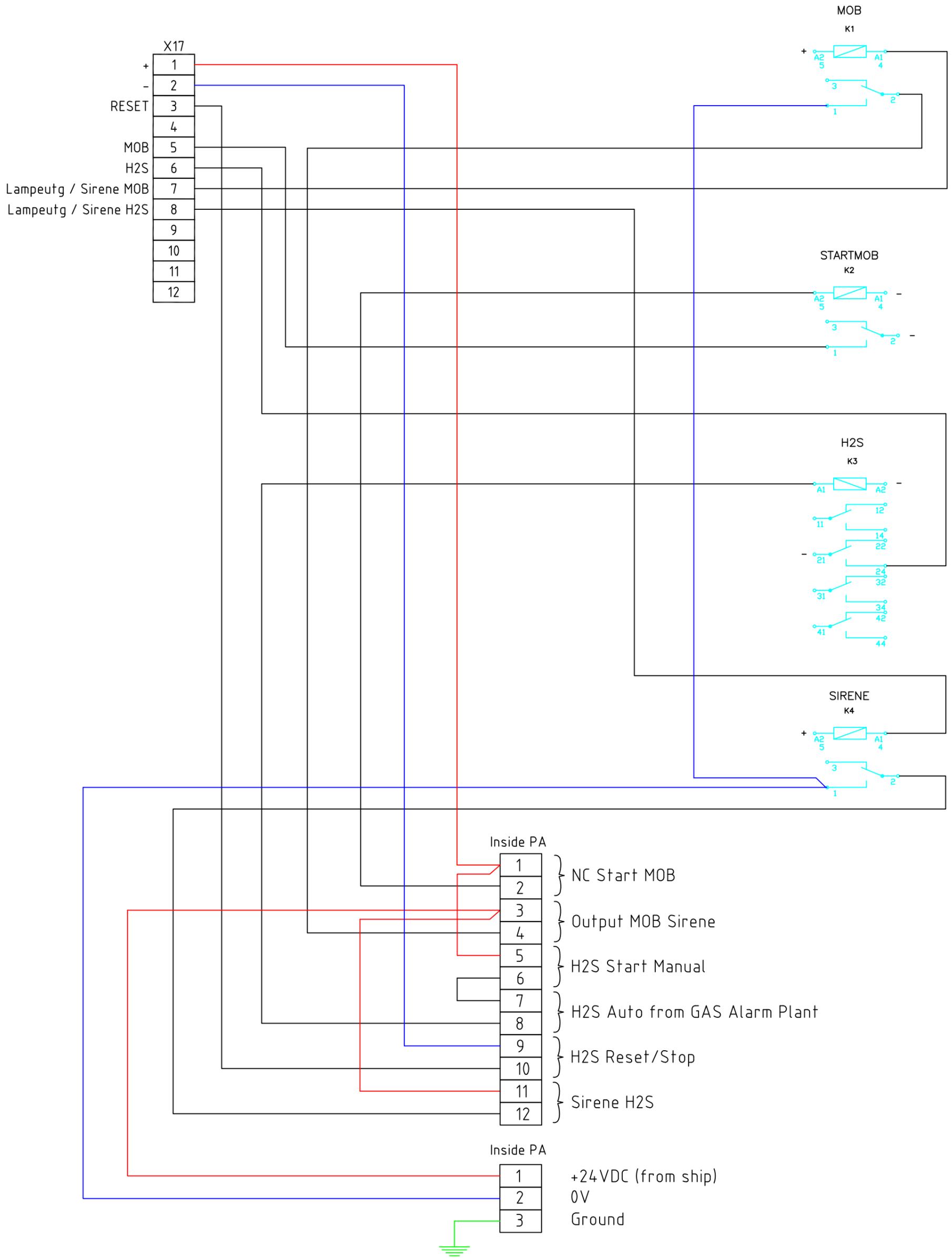
ORDER NUMBER	DESCRIPTION	SHIP WEIGHT
VPA-120	Power amplifier 120W / 100V 220 VAC / 24 VDC	18.2 kg

POWER AMPLIFIER 120W

Line input	1 V ±50% in 47 kOhm, balanced
Connector	3-pin XLR
Safety	EN 60065
Tested according to	EN 60945, IACS E10, IEC 60533
Connections	Screw terminals
LED indicators	VU-meter, Mains power on, Overload, Fault warning
Controls	Level controls for Call and BGM inputs, Master volume, Tone adjustment, Chime on/off and volume adjustment, Monitor volume

OVERVIEW

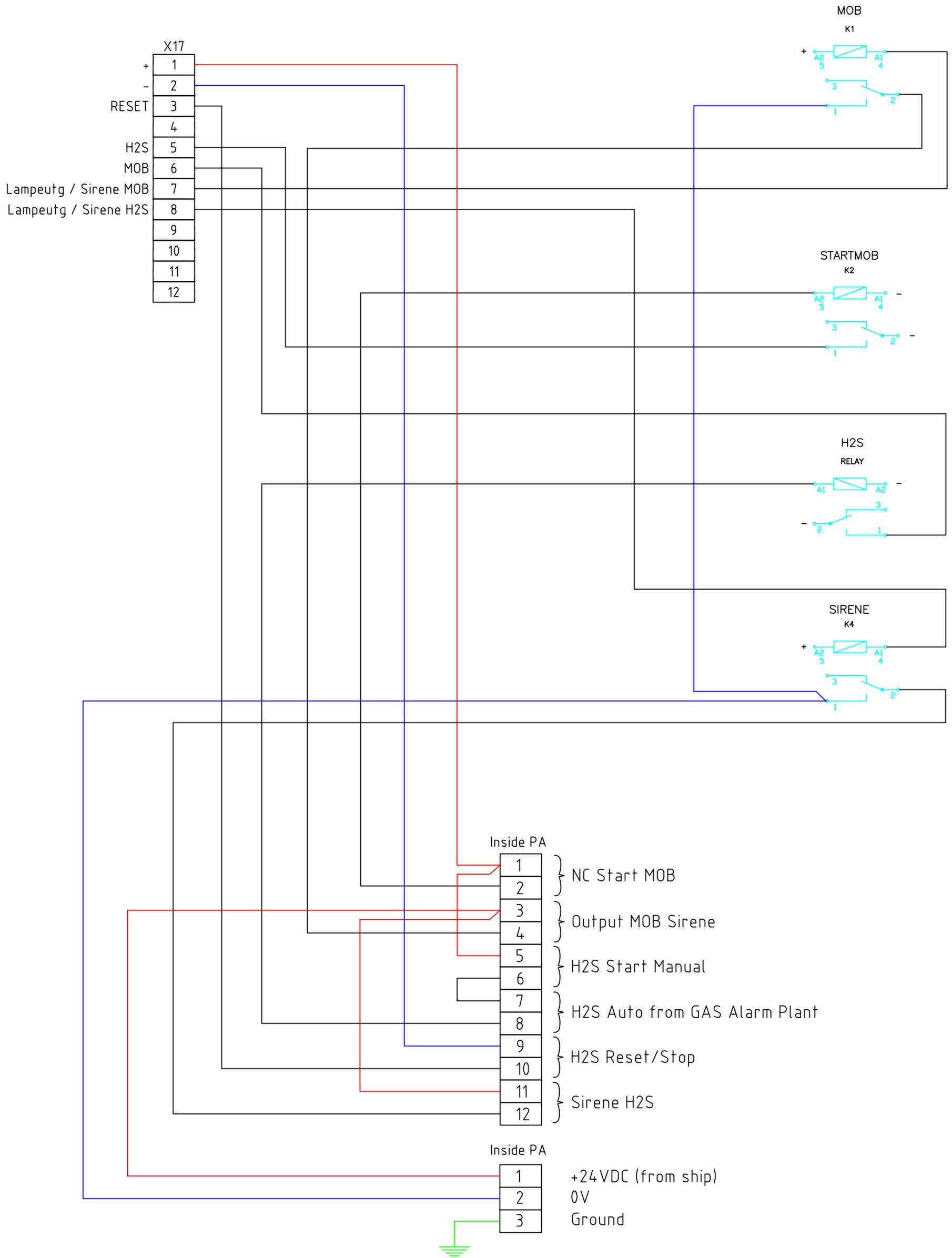




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VINGTOR SPA-240-V2
 Internal wiring alarms
 Hull: 740
 Yard: Braila
 Customer: STX Norway Electro AS

Prepared by TF	Date 2010.04.13	Project no: 209479	Revision by -
Approved by -	Date -	Sheet 1/1	Rev.date 2010.04.28
Dwg.no. / File 209479702			Rev. no. 03



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VINGTOR SPA-240-V2
 Internal wiring alarms
 Hull: 740
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Prepared by TF	Date 2010.04.13	Project no: 209479	Revision by TH
Approved by -	Date -	Sheet 1/1	Rev.date 2010.05.7
Dwg.no. / File 209479702			Rev. no. 04



DET NORSKE VERITAS TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. A-10738

This Certificate consists of 4 pages

This is to certify that the

Public Address and General Alarm System

848.20

with type designation(s)

SPA-V2

Manufactured by

Zenitel Marine

HORTEN, Norway

is found to comply with

Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards

IMO Resolution A. 830 (19), Code on Alarms and Indicators, 1995

IMO MSC Circ 808

LSA Code VII 7.2

General requirements for electromagnetic compatibility for all electrical and electronic ship's equipment (IMO Res. A.813(19))

Environmental Application:

"Protected" equipment based on IEC60945 edition 4.

Place and date
Høvik, 2008-05-08
for Det Norske Veritas AS

This Certificate is valid until
2012-06-30

Olaf Jansen
Head of Section

Local Office
DNV Sandefjord

Ahmad Naddaf
Surveyor

Holder of certificate

Zenitel Norway AS Avd. Marine

HORTEN, Norway

Product description

Different Variants:

The SPA-V2 system can be configured in different ways. The type approval covers the following variants of the system:

Only PA system: SPA2-xx-P

Notes:

- xx defines the height of the cabinet in HU (Height Units) which could be 12, 16, 20 and 24 for this variant.
- The system contains minimum one approved amplifier.

Integrated PA/GA system for standard vessels: SPA2-xx-GD

Notes:

- xx defines the height of the cabinet in HU (Height Units) which could be 16, 20 and 24 for this variant.
- The system contains minimum two approved amplifiers.

Integrated PA/GA system for passenger vessels: SPA2-xx-GP

Notes:

- xx defines the height of the cabinet in HU (Height Units) which could be 12, 16, 20 and 24 for this variant.
- The system contains minimum two approved amplifiers divided in two separate racks.

Approved Modules and subunits:

Module/Subunit	Type
Amplifiers	- Zenitel: VPA-120 (120W), VPA-240 (240W), VPA-400 (400W) - Paso: AW-8121 (120W), AW-8241 (240W), P-8501 (500W)

Microphone panels	SPA-M1S-V2, SPA-M1S-D, SPA-M1H-V2, SPA-M1H-D,
Alarm panels	SPA-M6S, SPA-M6S-D, SPA-M6H, SPA-M6H-D
Combined alarm and microphone panels	SPA-AC6, SPA-AC6-D
Volume Controls (not be used on the Bridge)	SPA-W1-V2, SPA-W1-D, SPA-W1AR-V2, SPA-W1AR-D, SPA-W6A4 and SPA-W6A4-D
Function boards	VM5-R, VM15-R, VM50-R, VM15-RD and VM50-RD
Power Supply Unit	SPA-TERM-V2, SPA-CHIME-V2, SPA-EMS-V2, SPA-FAIL, SPA-MUL-V2, SPA-EE3-V2, SPA-EE3D-V2, SPA-AL-REL-V2
Racks:	AEH80US24 (XP plc) Paso 58xx-D, in which the xx means the height in HU- units.

Application/Limitation

- 1- Drawings of the system, specifying the number and type of approved amplifiers installed in the system shall be available and attached to the delivered racks.
- 2- Volume Controls should not be used on the Bridge as the EMC characteristics of these units are not tested. The units are passive modules and hence they can be installed outside Bridge without EMC testing.
- 3- The maximum height of units shall be 24 HU.
- 4- When used as PA/GA, the input to the system for Talk Back shall not be used since this have the highest priority.
- 5- Any PA panel which is not used for emergency PA activation shall have a lower priority than GA.

Type Approval documentation

Tests carried out

- IEC60945 Edition 4: 2002.
- Functional tests for compliance with DNV RULES FOR CLASSIFICATION OF SHIPS Pt. 3 Ch. 3 Sec. 10 JANUARY 2008.
- Functional tests for compliance with LSA Code 7.2.1 and 7.2.2
- Functional tests for compliance with PA and GA requirements in IMO A.830 (19).
- Functional tests for compliance with IMO MSC Circ. 808.
- Functional tests for compliance with PA and GA requirements in SOLAS Consolidated Edition 2004.

Marking of product

The system shall be marked with:

- Manufacturers Name: Zenitel Norway AS,
- Type designation: SPA-V2,
- Serial Number of the product, and
- Variant number as specified under product description.

Certificate retention survey

A retention survey is to be carried out upon renewal of this certificate.

The scope of the retention/renewal survey is to verify that the production quality conditions stipulated for the type approval are complied with and that no alterations are made to the product design or its components and/or materials without appraisal by the Society.

END OF CERTIFICATE

Notice: This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.