

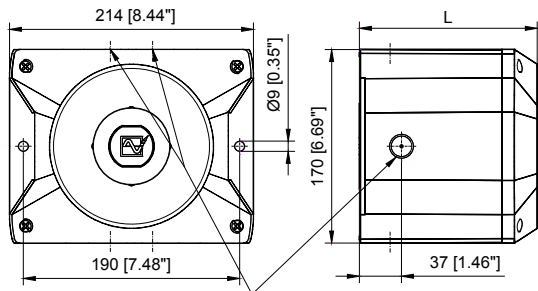
# PA 10/20

# PA X 10-10/ PA X 10-15

# PA X 20-10/ PA X 20-15

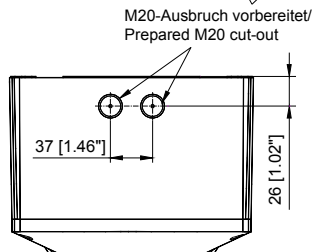
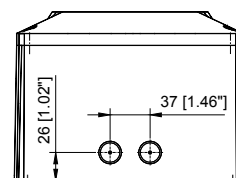
## Operating and installation instruction

### Dimensions

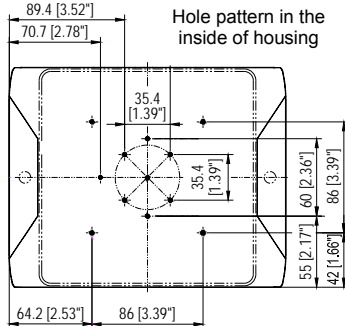


Content of package:  
1x Alarm device  
1x Diaphragm nipple M20  
1x Operating instruction  
1x Resistor (only –SSM)

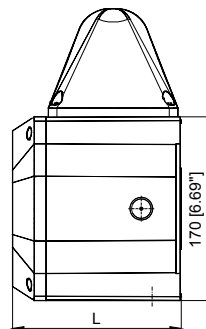
	L
PA (X) 10..	156.2 mm [6,15"]
PA (X) 20..	181.2 mm [7,13"]



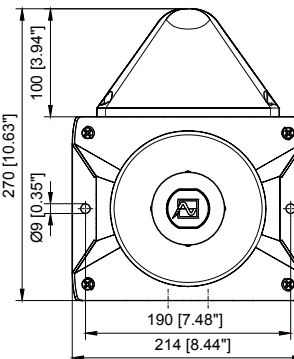
PA 10/ PA 20




Hole pattern in the inside of housing




PA X 10-10/ PA X 10-15  
PA X 20-10/ PA X 20-15



### Technical Data

	PA 10			PA 20		PA X 10-10				PA X 10-15			PA X 20-10			PA X 20-15				
Nom. sound level	110dB (A) 1m			120dB (A) 1m		110dB (A) 1m									120dB (A) 1m					
Volume control	-10dB			-9dB		-10dB									-9dB					
Tones	80																			
Flash energy	-				10J				15J			10J			15J					
Flash frequency	-				1Hz															
Rated voltage (limits see approvals)	24 V DC or 12-48V DC	24V AC	110 – 240 V AC	50/60 Hz	24 V DC oder 12-48V DC	24V AC	110 – 240 V AC	50/60 Hz	12V DC	24V DC	48V DC	24V AC	115V AC	230V AC	12V DC	24V DC	48V DC	24V AC	115V AC	230V AC
Operating voltage range	10 – 60 V DC	20 – 30V AC	95 – 265 V AC		10 – 60 V DC	20 – 30V AC	95 – 265 AC		10,5 – 15 V	18V – 30V	40V – 60V	20 – 30V	95V – 127V	195V – 253V	10,5 – 15 V	18V – 30V	40V – 60V	20 – 30V	95V – 127V	195V – 253V
Current consumption Sounder (max.) [mA]	360 485	850	140		24V: 800 880	1600	330		490	360	230	850	150	100	490	360	230	850	150	100
Current consumption Beacon (max.) [mA]	-	-	-		-	-	-		1400	680	300	1400	300	160	1550	850	440	1400	300	160
Power consumption	24V: 8,5 W 12-48V: 9W	17,5 VA	15,5 VA		24V: 24,5 W 12-48V: 27W	17,5 VA	50 VA		22 W	22 W	32 W	54,5 VA	34,5 VA	40,5 VA	29 W	27,5 W	32,5 W	57 VA	45 VA	65,5 VA
Duty cycle	100%																			
Connection terminal	0,14 - 2,5mm² / AWG24 - AWG 14 (stranded)																			
Ingress protection	IP66 (EN60529), Type 4 & 4x																			
Resistance against impact	IK08 (EN50102)																			
Protection class	II  Double insulated equipment																			
Operating temperature	-40°C...+55°C																			
Storage temperature	-40°C...+70°C																			
Max. rel. Humidity	90%																			
Cable entry	7x M20 (prepared)							5x M20 (prepared)												
Sealing range of grommet	7 – 13 mm																			
Material of housing	With the use of cable diameters <7mm, a cable screw joint with sufficient ingress protection must be provided PC/ABS Blend																			
Material of lens	PC																			
Installation position	arbitrarily																			
Options	-SSM, (see page 11)																			
Accessory	Sealing plug (Art-no. 28300000002)																			
Lens colours	-							clear, white, yellow, amber, red, green, blue												

## Approvals (valid for marked equipment)

<div>Construction Product Regulation (305/2011/EC)</div> <div></div>	<b>PA10/ PA 20, 110-230V AC:</b>		<b>PA10/ PA 20, 24-48V DC:</b>		<b>PA10-SSM, PA 20-SSM:</b>	
	VdS 0786-CPD- 21184		VdS 0786-CPD- 21223		0786-CPD- 21224	
			<b>PA 10/ PA 20</b>			
	Options		-SSM (24V DC)			
	Rated voltage		24 – 48 V DC		110V – 240V AC	
	Operating voltage range acc. to EN54-3, EN54-23		18V – 60V Option: -SSM (18V – 30V)		95V – 265V AC	
	Tone 2 15 60 104 131 146		Compliant with the Construction Product Directive (89/106/EEG) 1200Hz-500Hz (Saw tooth) DIN/PFEER P.T.A.P. 500Hz-1200Hz (Slow whoop) 825Hz (Continuous) 660Hz (Intermittent tone) 800Hz/ 1000Hz (Alternating tone) 544Hz/ 440Hz (NF S 32-001)			
	Signaling area		EN54-3: see documents 30305-005-1 (PA 10) and 30306-005-1 (PA 20)			
	Environmental protection class		Type B			
	Testing takes place using the supplied diaphragm nipple and the outer fastening bores.					
VdS	<b>PA10 / PA 20, 110 – 230V AC:</b>		<b>PA10/ PA 20, 24 - 48V DC:</b>		<b>PA10-SSM, PA 20-SSM:</b>	
	G212116		G212191		G212192	
	Data see Construction Product Regulation (305/2011/EC)					
GL	<b>61062-13 HH</b> Environmental Category C, H, EMC1					
MED	<b>61739-14 HH</b>					
UL, cUL		Rated voltage	Audible Signal Appliance Fire Alarm Equipment ULSZ, ULSZ7		Audible and Visual Signal Appliance General Signal Equipment UCST, UCST7 and UEES, UEES7	
	<b>PA 10</b> <b>PA 20</b>	24V – 48V DC (Fire Alarm Equipment) 12V – 48V DC (General Signal Equipment)	x Special application, limited operating voltage range 18 – 60V DC		x	
	<b>PA 10</b> <b>PA 20</b>	24V AC 110 – 240V AC	-		x	
	<b>PA X 10 ..</b> <b>PA X 20 ..</b>	115V AC 230V AC 24V AC 12V DC 24V DC 48V DC	-		x	

PATROL sounders and combined units **PA 10/ PA 20/ PA X 10../ PA X 20..** comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules.

### UL/ cUL specifications:

Inrush current	PA 10, PA 20	Surge Current Peak	Surge Current RMS (16,7ms frame)	Voltage
	24 – 48 V DC	27 A	4,5 A	60 V DC
	24 V AC	11,5 A	6,8 A	30 V AC
	110 – 240 V AC	18,5 A	1,45 A	265 V AC

Suitable for indoor and outdoor use.

Signaling area: see document 30305-005-1 (PA 10) and 30306-005-1 (PA 20)

#### Cable gland entries:

Conduit installation needs to be UL/ cUL listed fittings suitable for knockout openings. The supply wiring has to be enclosed in metal conduits for products for Fire Alarm Use.

#### Installation:

The units shall be installed indoors or outdoors in accordance with the manufacturer's installation instructions as well as the National Electrical Code (NFPA 70) and the National Fire Alarm Code (NFPA 72) for the units evaluated for Public Fire Alarm applications in the U.S. In Canada, they shall be installed in accordance with the Canadian Electrical Code, Part 1 and the Standard for the Installation of Fire Alarm Systems CAN/ULC-S524-M91 for the units evaluated for Public Fire Alarm applications. The installation shall also be in a manner acceptable with the local authority having jurisdiction.

For audible application for Fire Alarm Service use both terminals for connection. Break wire run to provide Electrical Supervision (see UL 464 clause 39.1e). The tone no. 111 is to be used for evacuation use only (see UL 464 clause 39.1e)

**Volume control:** PA 20/ PA X 20 ... The volume control has to be set to the secured factory position.

#### cUL directional characteristics for the horn:

AXIS	LE	dB(A)
Horizontal	32 deg. left or right	-3
Horizontal	28 deg. left or right	-6
Vertical	32 deg. left or right	-3
Vertical	28 deg. left or right	-6

#### Min. Output sound pressure level: [dB(A)]

(Tone no. 2, 15, 60, 104, 131, 146, 111, 112, and 113 was used for this test.)

Type	Voltage	UL 464 db(A) at 10 ft ++	CAN/ULC-S525-07
PA 10 (24-48 DC)	18V DC	82,4 (for tone 113)	92,4 (for tone 111)
PA 20 (24-48 DC)	18V DC	84,3 (for tone 113)	99,3 (for tone 111)

#### Connecting cables:



## Taking into operation

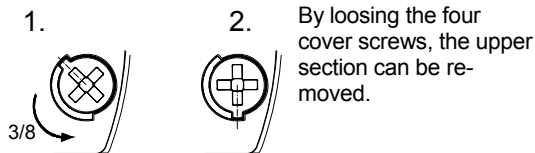
### Safety notes:

- Installation must be carried out by an electrician in compliance with the latest codes and regulations.
- Danger: High voltage may be present.
- Prior to opening, it must be ensured that no voltage is applied to the device.
- Before electrical connection, the supply voltage on the type plate is to be checked. The wrong operating voltage can lead to damages or to the destruction of the equipment.
- During installation it must be ensured that the connection cables are secured against tension and distortion.  
Please observe: The devices are not designed for portable use.
- CAUTION: When making installation, route field wiring away from sharp projections, corners and internal components.
- The opening of the bell mouth must not point upwards, especially in the case of use outdoors or in a particularly dusty environment.
- The function of the unit is only guaranteed if the upper and lower section is joined correctly.

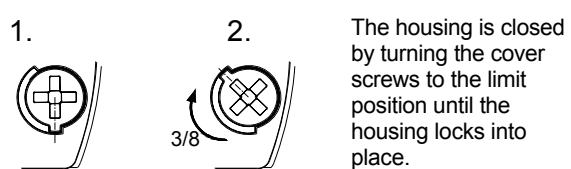
When using the sounder –beacon combination (PA X 10-10; PA X 10-15; PA X 20-10; PA X 20-15):

- In order to prevent detriment to sight, continuously looking directly in the activated light is to be avoided.

### Opening the housing:



### Closing the housing

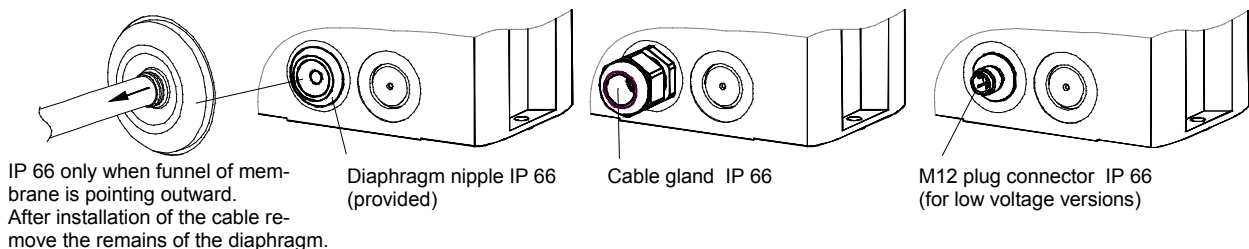


The unit is not closed when delivered.

Sealing plugs for the housing screws are available as accessories.

### Cable gland entries

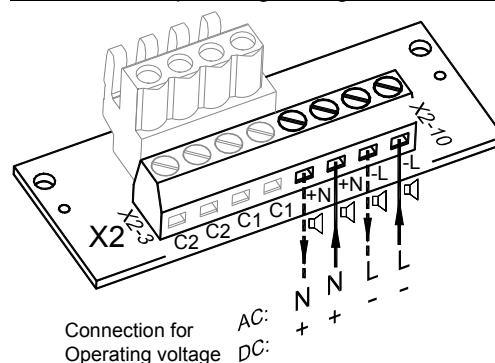
To guarantee the specified protection type, cable grommets with a protection type of IP 66 are to be installed at the openings provided for this purpose. The supplied diaphragm nipple can be replaced with a cable gland or with an M12 plug connection with a flange measurement of M20.



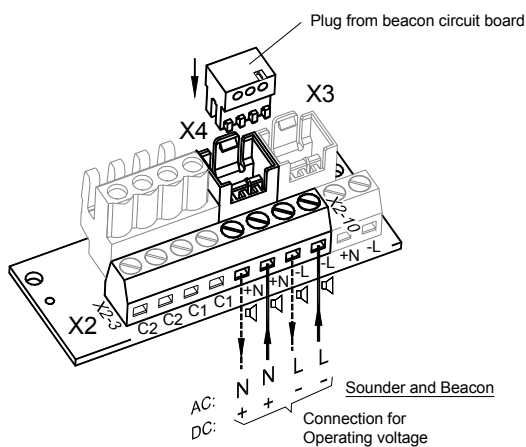
### Circuit board for electrical connection (located in the base section):

#### Electrical connection and tone selection using external control C1 and C2

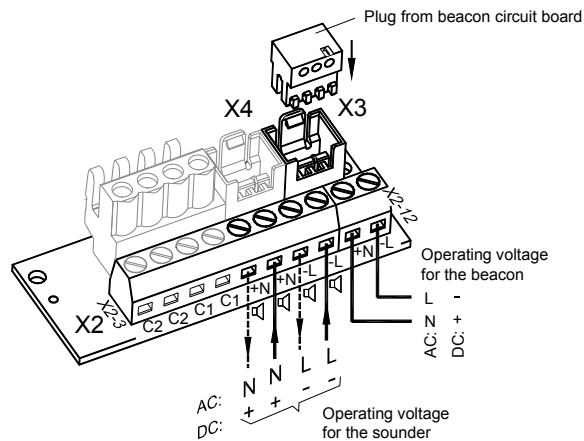
##### Terminal for operating voltage - Sounder:



## Terminal for operating voltage - Sounder-beacon combination:



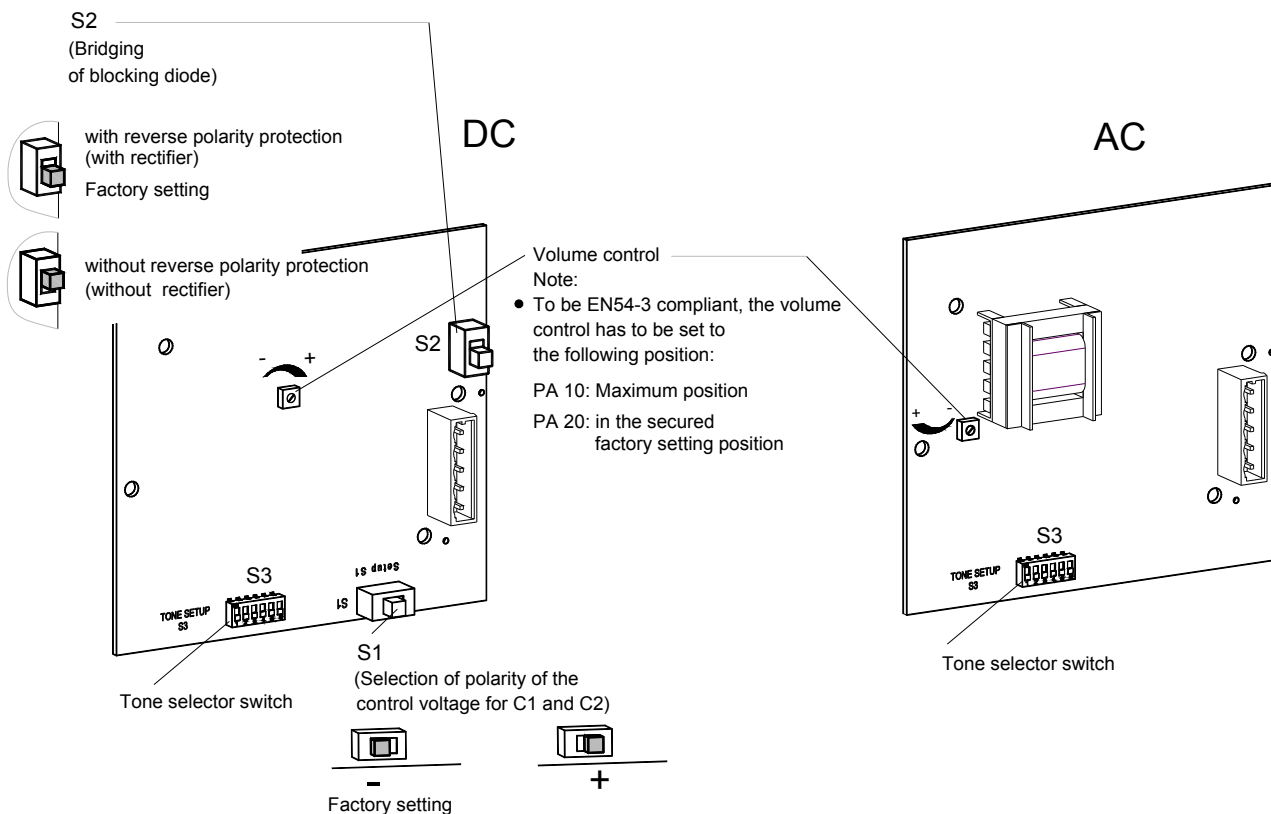
Common connection of beacon and sounder (Delivery status)



Separate connection of beacon and sounder

The desired tone can be selected using the tone selector switch S3 (on the driver circuit board). The available tones are described in the tone table in the appendix. After establishing the supply voltage the tone is generated.

## Driver circuit board of sounder (located in the upper section):



## Change of the tones by external control

For applications which require more tones than just the base tone, it is possible to provide up to three additional tone types with the use of the following electrical controls.

As a basic rule, the desired base tone (J, see tone table in the appendix) is set with the tone selector switch S3 on the driver board. The corresponding additional tones (C1, C2, C1+C2) can be gathered from the table "Selection of the tones".

### Tone selection with control input (TAS)

#### DC-Version:

When used with correct polarity, the tone selection takes place through the control inputs C1 and C2 on the circuit board. In the process, the supply voltage must always be applied together with the two control inputs. Setting of switch S2 in position

"with rectifier"  
= with reverse polarity protection.

The selection of the polarity of the control voltage ("+" or "-") takes place with the switch S1 on the driver board.

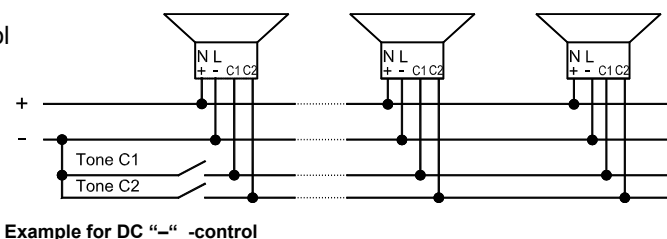
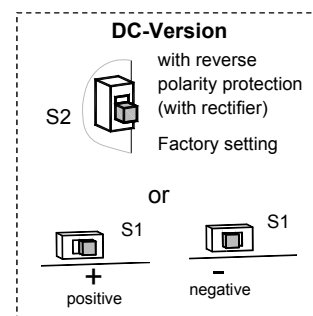
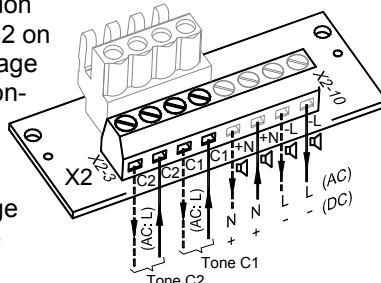
"+": positive control

"-": negative control (factory setting)

**Caution:** If the control voltage is greater than the supply voltage or the supply voltage is not applied, the operating current supply is provided through the control inputs. A corresponding load capacity must then be guaranteed.

#### AC-version:

In the AC version the tone selection takes place by connecting the phase "L" of the supply voltage to the control inputs C1 and C2. In the process, the supply voltage must always be applied together with the two control inputs.



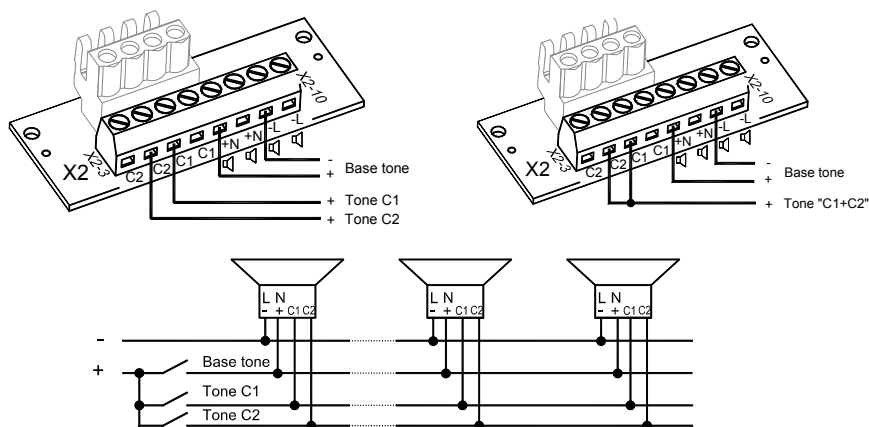
### Tone selection with supply through control input (TAV) - for all DC versions

The sounder can be supplied with operating voltage through the control inputs C1 and C2 on the circuit board. Supply and tone selection thus take place simultaneously.

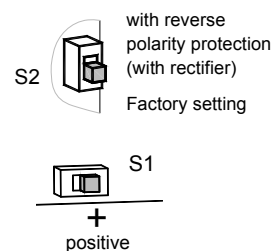
The minus pole of the sounder must be connected. With connection of the positive voltage to the plus pole of the circuit board, the base tone (J) is generated; with connection to C1 or C2 the corresponding tone is selected.

With simultaneous connection of the positive voltage to C1 and C2 the tone "C1+C2" is selected.

The switch S1 on the driver board must be set to "+".

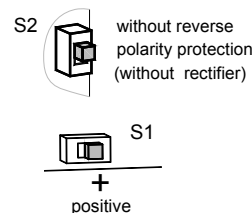
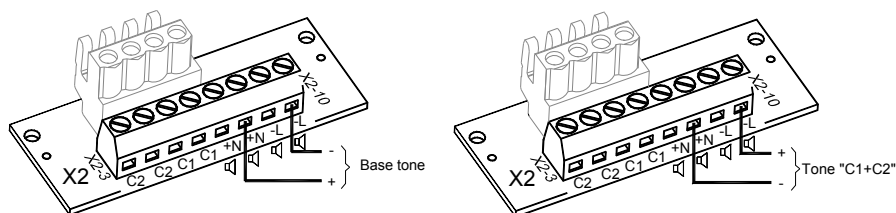


Connection example









### Tone selection through pole reversal (TAR) - for all DC versions except for option -SSM

If the switch S2 on the driver board is in the position "without reverse polarity protection = without rectifier", the tone "C1+C2" can be selected in addition to the base tone through pole reversal. The switch S1 must be set to "+". The control inputs C1 and C2 may not be switched on the circuit board.



### Option –SSM (Soft-Start-Module) (24V DC only):

- Limitation of start-up peak:

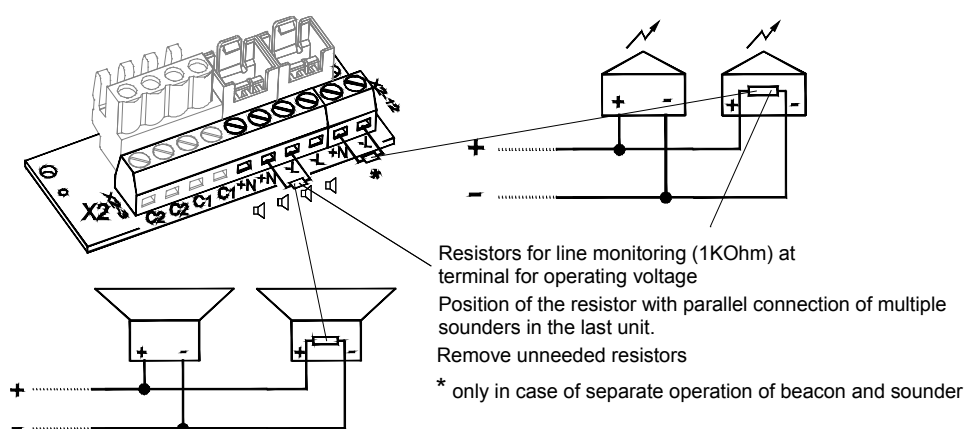
PA 10-SSM:	 : max. 2,1 A	
PA 20-SSM:	 : max. 4,5 A	
PA X 10-xx-SSM:	 : max. 2,1 A	 : max. 4,5 A
PA X 20-xx-SSM:	 : max. 4,5 A	 : max. 4,5 A

- Switching through the operating voltage to equipment: above 7V

- Resistor for line monitoring mounted

Operating voltage range: 18V – 30V DC

### Connection of a resistor for line monitoring:



### Maintenance, Service and Ordering Spare Parts

The device does not require any special maintenance.

External cleaning should be done with a mild soap solution without the use of solvents.

The device may only be operated in the undamaged state within the specified rating.

Conversions, alterations, improper and inadmissible use as well as the non-observance of the notes in these operating instructions shall render the warranty null and void.

Components may be replaced only by original spare parts.

As a matter of principle, repairs are to be carried out in the manufacturing works.