Instruction Manual

Voice Alarm System

MEVAC-4

Version 1.1

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1 Introduction: THE SYSTEM FAMILY

MEVAC-4 is a PA and evacuation system from MONACOR-INTERNATIONAL GmbH & Co. KG. A broad range of accessories for the system MEVAC-4 allows the setup of a voice alarm systems according to the current standards DIN/EN60849 (VDE 0828).

1.1 GENERAL DESCRIPTION OF THE SYSTEM - MEVAC-4 -

The system MEVAC-4 was primarily developed for setting up voice alarm systems according to DIN/EN60849 (VDE 0828).
The central unit MEVAC-4 organises the distribution of live-generated announcements, stored emergency and evacuation announcements, break-time bells or background music. It carries out all necessary and required monitoring functions. Detected irregularities and their consequences and effects are minimised by carrying out suitable procedures.
The applications of this system include e.g. schools, supermarkets, factories, office buildings or hotels.
The minimum set up consists of one main amplifier and one spare amplifier only and is thus available at a favourable price. Four call zones can be realised, each with complete A/B wiring.
Software updates (via PC interface) allow to meet future application requirements by applying the latest DSP technology.
Text messages and chimes are stored in an MP3 format on an MMC memory card. The availability of the text messages is continuously monitored. The expert installer can change the contents of the messages. (The memory card is positioned inside the unit and can only be reached by opening it.)
The central unit MEVAC-4 identifies all connected components via an automatic installation run. All identified components appear in the display. At the end of the installation run, all components are continuously monitored for a faultless operation.
In case of any faults, corresponding messages are sent to the connected components.

1.2 MAIN FEATURES OF THE MEVAC-4

- Monitoring of up to 4 connected 100 V power amplifiers.
- Control of the power amplifiers via 4 transformer-balanced AF outputs.
- Adjustment facilities for volume/treble/bass individually for each AF output.
- Monitoring of one connected 100 V spare amplifier.
- Control of the spare amplifier via transformer-balanced AF output.
- In case a main amplifier malfunctions, the spare amplifier automatically switches to the speakers of the respective amplifier.
- All function are maintained at the correct volume level (music, too).
- Monitoring of up to 4 speaker lines, each divided into circuit A and circuit B (8 testing circuits in total).
- Monitoring of each connected testing circuit for break, impedance deviation, short-circuit and ground fault.
- Disconnecting the corresponding speaker lines if a short-circuit has been detected.
- Connection of 2 fireman's microphones at the back panel or directly at the front panel (hand-held microphone). Monitoring of microphone cartridges and request lines for breakage and short-circuit.
- Connection facility for system microphones:
  MEVAC-4PTT 4 zones plus all-call (as many as desired)
  MEVAC-1PTT 1 + 1 zone (as many as desired)
- Up to 4 call zones can be realised, pre-chime can be programmed.
- Selective connection of an Aux audio input via an external floating contact (e.g. units for advertisements), assignment as desired and separate level adjustment for each AF output.
- Assignment of the music programme as desired via a fully developed assignment matrix for each AF output; separate level adjustment for each AF output.
- Transmission of 2 text messages (e.g. evacuation messages) to be selected via floating request contacts (detectors), assignment as desired and separate level adjustment for each AF output.
- Message can be recalled via external contact, assignment as desired and separate level adjustment for each AF output (e.g. closing time by clock contact).
- Easy programming directly at the central unit via momentary push-buttons and display; interface for PC connection is available, PC not required for operation.
- Interference relay for general faults or mains power failure. Emergency call relay for connecting level controls.
- Music is switched off and the bass attenuated automatically in 24 V operation.

1.3 SAFETY NOTES

The unit corresponds to all required directives in the EU and thus carries the CE mark.

WARNING

The unit is supplied with hazardous mains voltage (230 V~). Leave servicing to skilled personnel only. Otherwise, it may result in an electric shock.

Please observe the following items in any case:

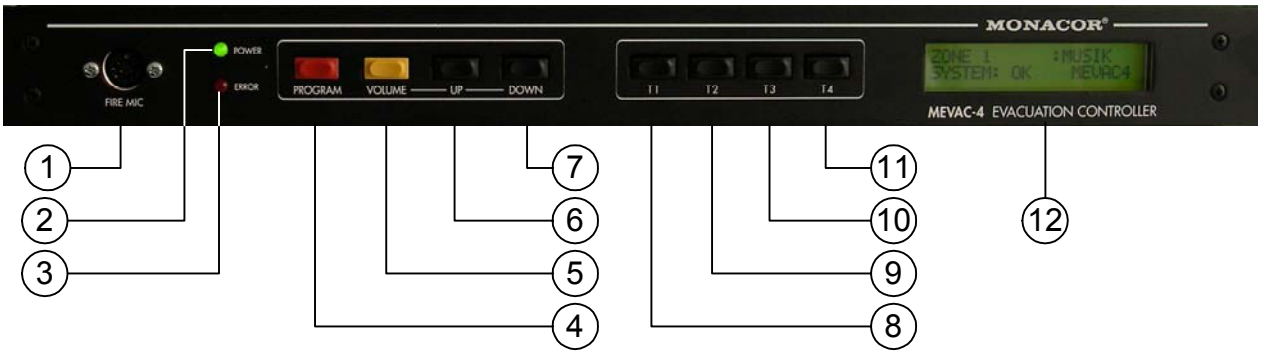
- The unit is suitable for indoor use only. Protect it against dripping water and splash water, high humidity and heat (admissible ambient temperature: –5 °C to +55 °C).
- Do not place any vessel filled with liquid on the unit, e.g. a drinking glass.
- Do not operate the unit or immediately disconnect the plug from the mains socket
  1. if there is visible damage to the unit or to the mains cable,
  2. if a defect might have occurred after the unit was dropped or suffered a similar accident,
  3. if malfunctions occur.

  In any case, the unit must be repaired by skilled personnel.
- Never pull the mains cable to disconnect the mains plug from the socket, always seize the plug.
- For cleaning only use a dry, soft cloth, by no means chemicals or water.
- No guarantee claims for the unit and no liability for any resulting personal damage or material damage will be accepted if the unit is used for other purposes than originally intended, if it is not correctly connected, operated, or not repaired in an expert way.

If the unit is to be put out of operation definitely, take it to a local recycling plant for a disposal which is not harmful to the environment.

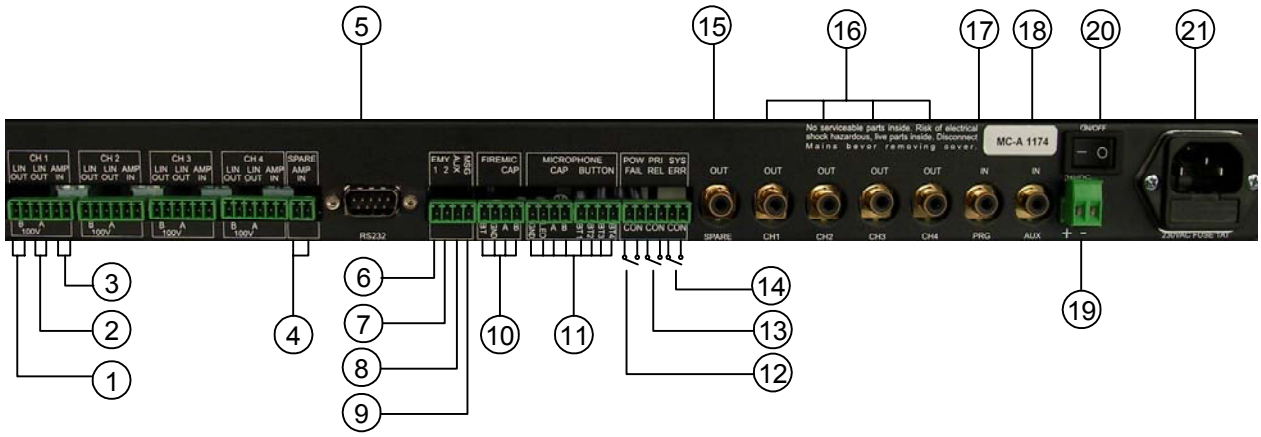
2 PRODUCT DESCRIPTION MEVAC-4

2.1 FRONT PANEL



1	Connection jack FIRE MIC for hand-held fireman's microphone
2	POWER LED indicates the connection of the 230V operating voltage.
3	ERROR LED indicates a current error; flashes briefly when the function test is switched on.
4	PROGRAMMING button [PROGRAM]
5	VOLUME button [VOL]
6	UP button [+]
7	DOWN button [-]
8	Master button [T1]
9	Master button [T2]
10	Master button [T3]
11	Master button [T4]
12	LC display, 2 x 20 characters

2.2 BACK PANEL



1	Speaker line 1B 100 V Out	connected 100 V outputs for the areas 1B
2	Speaker line 1A 100 V Out	connected 100 V outputs for the areas 1A
3	Speaker line 1 A/1B100 V LV In	100 V input for the areas 1A/1B
.....	Speaker line nA/nB 100 V LV In	items 1 - 3 are repeated for the lines 2 ... 4
4	Spare AMP 100 V In	100V input of the spare amplifier
5	RS232 interface	D-Sub, 9 poles (plug) for connecting a PC via a null modem cable. Different parameters can be read from the system and be recorded with a suitable communication programme (e.g. WINDOWS© HyperTerminal). Labelling messages and indication messages for the master can also be entered as a plain text. (see below)
6	EMY 1 Detector input Main alarm	Input for activating the main alarm which is stored on the memory card. The request lines are monitored. For this, the detector must contain respective internal wiring. (see below)
7	EMY 2 Detector input Pre-alarm	Input for activating the pre-alarm which is stored on the memory card. The request lines are monitored. For this, the detector must contain respective internal wiring. (see below)
8	AUX request	Request signal for transmitting the audio signal applied at the AUX signal jack
9	Message start	Phoenix clamps for connecting the request contact of the audio signal which is stored in the internal memory module. This could be e.g. a message at closing time or a special audio signal. For the duration of the signal run, the message which is stored as an audio signal is transmitted at the preset volume to the specified areas.
10	Fire mic	Phoenix clamps for connecting the dynamic microphone cartridges of the fireman's microphones and Phoenix clamps for connecting the request signal of the corresponding microphones. Both the cartridge and the request line are monitored in case of short-circuit or wire break. The audio signal is transmitted to the required areas after the request signal has been received. (see

		below)
11	Port for mic	Phoenix clamps for connecting the dynamic microphone signals of the microphones MEVAC-1PTT or MEVAC-4PTT and Phoenix clamps for connecting the buttons of the above-mentioned microphones. Cartridges, buttons and leads are not monitored. The applied audio signal is only transmitted to the required areas after the corresponding signal from the button has been received.
12	Transmitting relay: mains	Indicates that one of the two possible operating voltages is incorrectly available.
13	Transmitting relay: emergency	This relay is activated when the speaker lines are calibrated, an announcement is made via a fireman's microphone or an alarm message is transmitted. It serves as a bridge for the connected volume controls.
14	Transmitting relay: fault	Collective fault / system error: Compilation of all possibly occurring error messages of the unit to a combined message.
15	AF spare Out	Transformer-balanced floating line output for the audio signal of the 100 V spare amplifier.
16	AF 1 – 4 Out	Transformer-balanced floating line outputs for the 4 audio master signals of the individual 100 V area amplifiers.
17	PROG IN	RCA jack for background music.
18	AUX IN	RCA jack for the connection of AF signals with line level, e.g. for advertisements or other contributors. The applied signal is transmitted to the desired areas after the corresponding request signal has been received. (see below).
19	24 V connection	2-pole Phoenix plug-in clamp (supplied) for connecting the battery emergency power supply. Failure of the battery voltage activates an error message (when mains voltage is applied).
20	Mains switch ON/OFF	Activates the 230 V mains voltage at the central unit ATTENTION: The 24 V power supply continues to operate.
21	Mains connection 230 V/50 Hz	3-pin IEC Euro jack with integrated mains fuse; Fine wire fuse 5 x 20mm 1 AT. Failure of mains voltage activates an error message (when emergency power supply of the battery is applied).

NOTE: The required Phoenix plug-in/screw clamps for connecting the external wiring are included in the original scope of delivery.

2.3 SETUP

In a fully extended MEVAC-4 system, an individual power amplifier is assigned to each audio output. Hence, 5 power amplifiers are required in total including a spare power amplifier. Every amplifier is each connected to one audio output and one 100 V input. Thus, it is possible to play background music in one zone while making an announcement in another.

The input of the second amplifier is connected to the spare output (spare OUT) of the MEVAC-4. The 100 V output of the spare power amplifier is connected to the corresponding general feeding point at the rear side of the MEVAC-4.

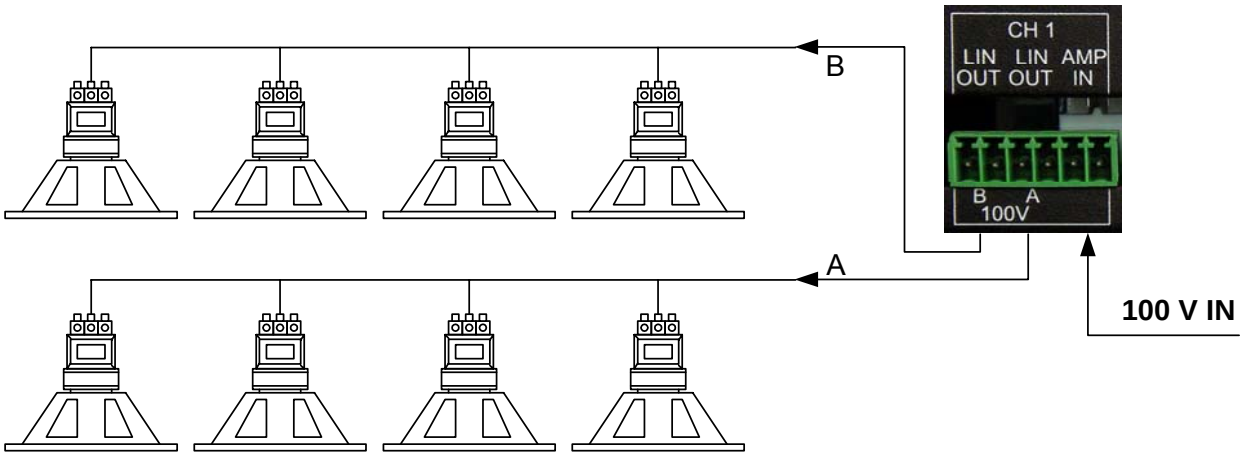
2.4 SETUP AT MINIMUM CONFIGURATION

Only two amplifier channels are required for setting up a minimum configuration. The application of 2 individual power amplifiers is recommended to ensure a perfect protection against failure of one amplifier. One amplifier serves as a standard amplifier, the second one as a spare amplifier. The line input of the standard amplifier is connected to one of the master outputs Out CH1 ... Out CH4 of the MEVAC-4 (shown in this example: Out CH1). The 100 V output of the standard amplifier is connected to the feeding point of the respective output.

In this configuration, the spare amplifier ensures the monitoring of the inactive zones, but it is not possible to simultaneously provide background music and announcements.

2.5 CONNECTING SPEAKERS TO THE MEVAC-4

The speaker cabling is done as A/B wiring according to the latest standards e.g. EN 60849. That means, that the speakers of one zone will be divided into 2 groups and are connected to the MEVAC-4 via separate leads. Hence, it is possible to monitor the leads individually. This cabling ensures a failure of only half of the speakers in case one lead is faulty and thus, the sound level may only decrease by approx. 3 dB at the most. In order to achieve this, it is assumed that the load for both output paths (A/B) within one circuit is almost equal when dividing the power rating of the speakers.



2.5.1. POLARITY OF THE AMPLIFIERS AND SPEAKER CONNECTIONS

To avoid signal losses by deletions, a correct and constant polarity of the connected speakers and amplifiers must be ensured. The illustrations show one of the possible polarities.

Failure of circuit B will not be detected, because the deviation is below 20% if circuit B fails to operate.

2.5.2 ADMISSIBLE DEVIATION

In case, the total impedance of the line (path A + path B) deviates **20 %** or more from the value at the installation run, the system generates an error message. The distribution of the load for both of the output paths should not vary more than **75 % : 25 %** of the total power to ensure an effective error detection.
For example: Output A = 120 W : Output B = 40 W.

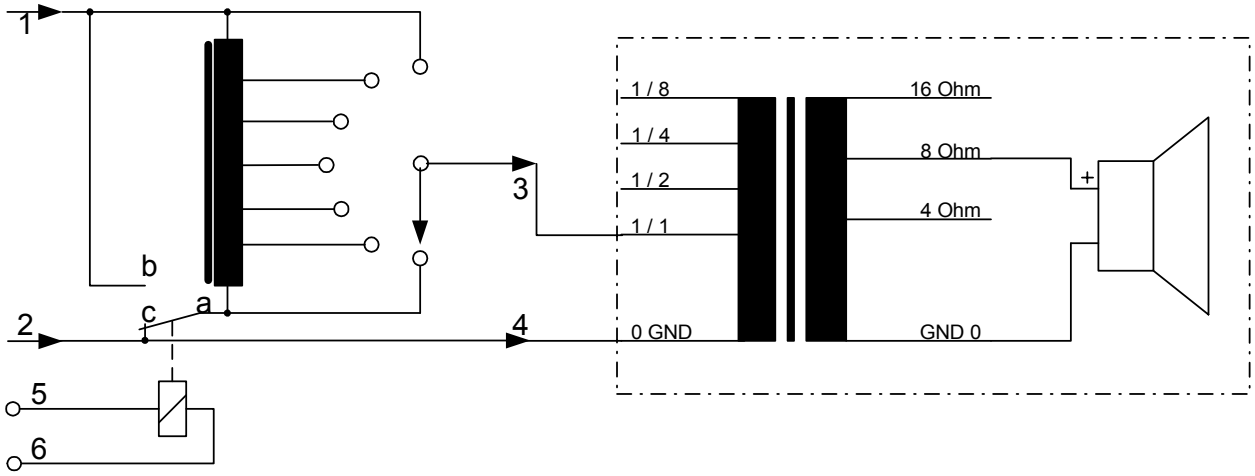
2.5.3 MINIMUM POWER RATING FOR EACH OUTPUT

A minimum load of **Pmin. > 10 W** for each path, i.e. a total of 20 W, must be installed for each zone output in order to obtain reliable measuring results.
The impedance of a speaker circuit must be lower than 1 kΩ at 22 kHz.

2.5.4 APPLICATION OF ATTENUATORS

In a 100 V speaker line, attenuators are often used to control the volume level of individual sections. With current attenuators, externally controlled emergency priority circuits additionally ensure the transmission of evacuation messages, even if the anttenuator is switched off.

However, the application of attenuators in monitored speaker circuits is generally a problem, because the attenuator is able to change the impedance of a speaker line considerably during operation. A safe detection of the connected speakers is not guaranteed due to its control range of 0-100 % of the speaker power.



When the control is set to its maximum position at the installation run and is then turned to 50 % during operation, it will be identified as a deviation of more than 20 % and a corresponding error message will be displayed. In case the attenuator is in operation during the installation run, the connected speaker circuit may be identified as uninstalled.

When using attenuators, the impedance monitoring of the respective range has to be switched off in order to avoid undesired error messages.

2.5.5 EXAMPLES OF UNIDENTIFIED IRREGULARITIES

Circuit A P = 100 W	Circuit B P = 10 W	Installation run: O.K. Failure of circuit B is not identified
Circuit A P = 10 W	Circuit B P = 6 W	Installation run: load at circuit B is not identified
Circuit A P = 36 W	Circuit B P = 18 W Control 50 %	Installation run: load at circuit B (9W) may not be identified.

2.6 THE MP3 MEMORY CARD

The unit contains a card insertion slot for standard multimedia memory cards (MMC). All of the system's voice messages and signal sounds can be stored on the MMC card in an MP3 format. A sampling rate of 256 Kbits/sec., 44 kHz, mono is recommended. Other formats are possible.
ATTENTION: Leave the card changing to expert personnel only, as the unit must be opened! The MEVAC-4 system must always be switched off while changing the card!
The card is programmed, e.g. via a WINDOWS© PC. The file name may only consists of up to 8 letters. Each file space must be occupied.

The sequence of the messages/signals on the memory card must be kept in any case:

1.) 16 kHz test tone
2.) Chime for the microphone
3.) Alarm
4.) Pre-alarm
5.) Message

ATTENTION: The WINDOWS©-Explorer may not show the files in the sequence as it is actually required. In order to copy the files in the requested sequence onto an MMC card, proceed as follows:

NOTE: In any case, before proceeding with the following steps, make a backup copy of the original files from the memory card.

Completely delete MMC card

1. Highlight/copy and paste source file (e.g. "16kHz.mp3“) … onto card. (drag and drop)
2. Highlight/copy and paste source file (e.g. "2GONG.mp3“) … onto card. (drag and drop)
Carry on procedure until …
5. Highlight/copy source and paste file (e.g. "PAUSE.mp3“) … onto card. (drag and drop)

This procedure must be complied with in any case to ensure that Windows© stores the files in the correct sequence on the card. The MEVAC-4 system identifies the signals according to their sequence, not their name. The name is for your information only.

The sequence of the messages in the MEVAC-4 system can be controlled as follows:

1. Press red **button [PROGRAM]**, then
2. **button [T4]**.

The system consecutively displays the no. of each storage space and the name of the corresponding MP3 file.

When reproduced during operation, the MEVAC-4 displays the storage space and the file name. The MEVAC-4 uses the 16 kHz tone for testing purposes. For this, the supplied original file must be used in any case. (The MMC card contains the 16 kHz file at the time of delivery).

2.7 PRIORITIES

The following priority sequence has been set for the different audio signals:

1. Fire mic1 (call) connection at the back panel
2. Fire mic2 (call) connection at the front panel
3. Alarm
4. Pre-alarm
5. Aux1
6. MEVAC-4PTT, MEVAC-1PTT (call)
7. Message
8. Music

The "ENGAGED LED INDICATOR" at the microphones **MEVAC-4PTT** and **MEVAC-1PTT** quickly flashes to indicate "ENGAGED", the microphone cannot call into the system during this time. The notification "Message" does not trigger an engaged tone at the microphones.

3 MICROPHONES AND DETECTORS

3.1 MEVAC-4PTT

Passive desktop gooseneck microphone

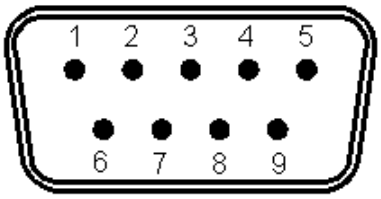
- Four call zone buttons
- One ALL-CALL button
- 'Engaged' LED indicator
- Incl. connection cable with 9-pole Sub-D plug

3.2 MEVAC-1PTT

Passive desktop gooseneck microphone

- Two call zone buttons
- 'Engaged' LED indicator
- Incl. connection cable with 9-pole Sub-D plug

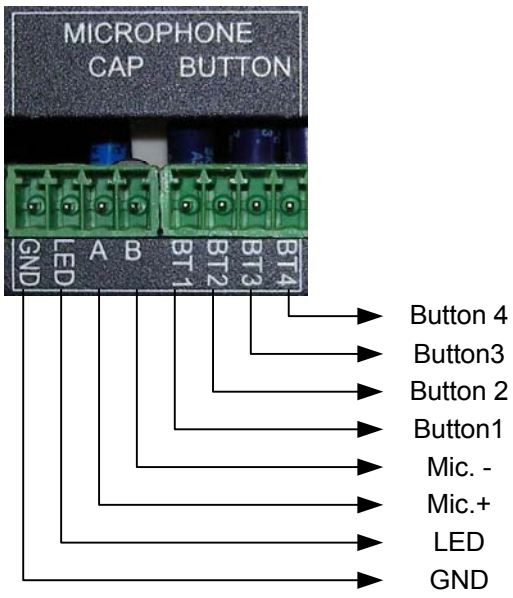
Pin assignment 9-pole Sub-D plug



Button
2 Button 1
3 Button 2
4 Button 3
5 Button 4
6 LED
7 Mic. +
8 Mic. -
9 NC

BUTTON 3 and 4 only assigned at MEVAC-4PTT

Pin assignment MEVAC-4 back panel



Pin assignment MEVAC-2CON

The following pin assignment results when the connection outlet MEVAC-2CON is used.

1 -- TASTE 4
2 -- NC
3 -- TASTE 3
4 -- Mic. +
5 -- TASTE 2
6 -- Mic. -
7 -- TASTE 1
8 -- LED
9 -- MASSE

3.3 MEVAC-1FT Fireman's microphone

Desktop gooseneck microphone, suitable for emergency announcements according to IEC 60849. The integrated circuit allows for the central unit MEVAC-4 to monitor the functions automatically.

The microphone lines are monitored by the MEVAC-4.

3.4 MEVAC-1FH Fireman's microphone

Hand-held microphone for emergency announcements according to DIN/EN 60849. The integrated circuit allows for the central unit MEVAC-4 to monitor the functions automatically. Including steel clip for attaching it to the front panel.

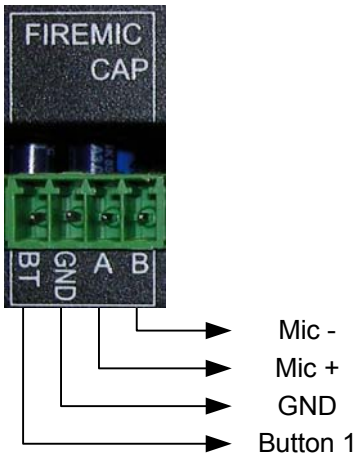
The microphone lines are monitored by the MEVAC-4.
No programming is required at the microphone MEVAC-1FH, it is merely a passive microphone.

Pin assignment DIN 5-pole

Pin 1: Mic –
Pin 2: NC
Pin 3: Mic +
Pin 4: GND
Pin 5: Button 1

MEVAC-1CON can be used as an external connection outlet.

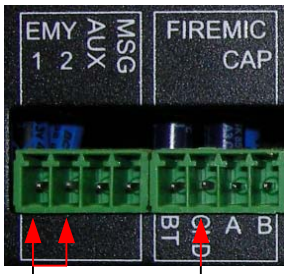
Back panel MEVAC-4

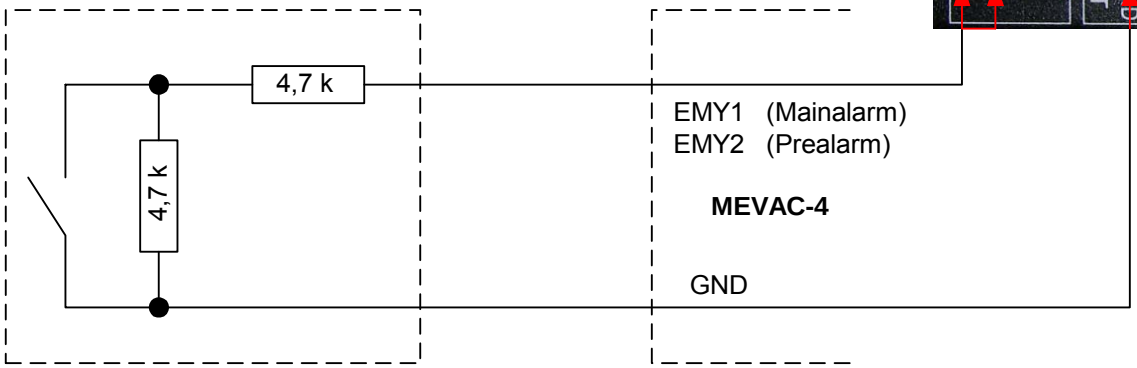


3.5 CONNECTING EXTERNAL DETECTORS

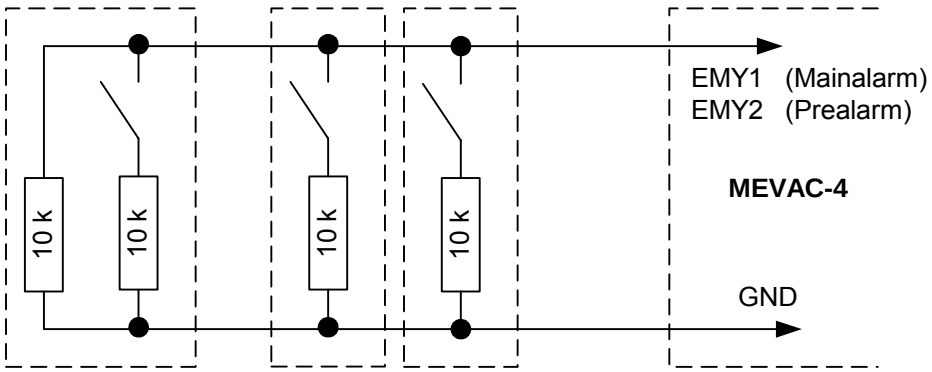
The reproduction of a stored alarm message or pre-alarm message can be triggered by connecting an external detector (EMY1 and EMY 2). Built-in resistors continuously monitor the detector line. The capacity of the resistors depends on the number of detectors to be connected.

The external pin assignment for one detector is described below.





In case of several detectors to be connected to one alarm connection, they are connected together as follows. A series connection is compulsory.
The terminating resistor is to be connected at the end of the series connection.



Special feature:
In case an emergency message is triggered by a contact and the supply line of the detector is destroyed, e.g. by a fire, the message continues to be transmitted. It can only be stopped directly at the unit. When a detector has started the evacuation process, failure of the detector supply line will not stop the process.

4 OPERATION

The functions of the **MEVAC-4** can be programmed with the buttons on the front panel.

Press the red **button** again **[PROGRAM]** and the display changes to the previous menu. All menus will automatically be closed if there is no input for 15 seconds.

4.1 SETTING-UP OPERATION

Zone 1:	MUSIK
SYSTEM OK	MEVAC-4

MUSIK = MUSIC

4.1.1 STARTING THE INSTALLATION RUN

An installation run has to be carried out in order to initialise the system for operation.
During the installation run, all connected units are tested and the results of the test are displayed. This installation run must be carried out by expert personnel only, who have received training on use of the system.
When the system is on stand-by, the installation run will be carried out as follows:

Press the red **button [PROGRAM]** and the following SELECTION menu will appear:

T1=ERROR	T2=RESET
T3=PROG.	T4=MP3 TEXT

MP3 TEXT = MP3 MESSAGE

Press the **button [T3]** and enter the requested password.
For the preset password, press the red button **[PROGRAM]** three times.

??? PASSWORT ???

PASSWORT = PASSWORD

After the password has been entered, the PROGRAMMING menu will appear:

T1= WEITER	T2= PEGEL
T3=INST.	T4= NF/REL

WEITER = CONTINUE PEGEL = LEVEL
NF/REL = AF/REL

Press **button [T3]** to start the installation run.

4.1.2 DISPLAY SEQUENCE DURING THE INSTALLATION RUN

The following illustrations show the various possible displays during the installation run in the order of appearance. The stated values are an example only and may vary, depending on the configuration.

A) Testing the system for connected detectors

ALARM 1 3.3 V INSTALLIERT	INSTALLIERT = INSTALLED
ALARM 2 5.0 V NICHT INSTALLIERT	NICHT INSTALLIERT = NOTINSTALLED

B) Functional test of the amplifier circuits
Includes a test of their assignment to the output lines

AMP: 1 KREIS*: 1, 2, 3*	Kreis = 100V Speaker Output
AMP: 2 KREIS*: 4*	Kreis = 100V Speaker Output
AMP: 3 KREIS*:*	Kreis = 100V Speaker Output
AMP: 4 KREIS*:*	Kreis = 100V Speaker Output
RESERVE AMP 001 INSTALLIERT	RESERVE AMP = Spare AMP INSTALLIERT = INSTALLED

C) Testing the output circuits

KREIS: 1 STROM: A: 015 B:025	KREIS = CIRCUIT STROM = CURRENT
KREIS: 2 STROM: A: 017 B:029	KREIS = CIRCUIT STROM = CURRENT
KREIS: 3 STROM: A: 015 B:025	KREIS = CIRCUIT STROM = CURRENT
KREIS: 4 STROM: A:037 B:040	KREIS = CIRCUIT STROM = CURRENT

D) Testing the rechargeable battery voltage (emergency power supply)

AKKU SPANNUNG: 27 V INSTALLED	AKKU SPANNUNG = RECH. BATT. VOLTAGE INSTALLIERT = INSTALLED

E) Lines for fireman's microphones

FIRE MIC 1 KAPSEL: 098 NICHT INSTALLIERT	KAPSEL = CARTRIDGE NICHT INSTALLIERT = NOT INSTALLED
FIRE MIC 2 KAPSEL: 019 INSTALLED	INSTALLIERT = INSTALLED

After a successful run, the following message appears:

Zone 1 : MUSIK SYSTEM OK MEVAC-4	MUSIK = MUSIC

During the installation run, the installer of the system must ensure that the system identifies all relevant components correctly. Detectors which have not been identified at the inputs during the installation run are ineffective later on. In case additional units or detectors are integrated into the system or components have to be exchanged, an installation run must be carried out after completion of the work.

Connecting various sources will result in the following indications which will appear in the display of the unit, independently of any possible error messages in the system.
Calling up or using the following sources results in the display of these messages:

FIRE MIC 2	1234
SYSTEM OK	MEVAC-4

Fire Mic1 to the AF outputs 1, 2, 3 and 4

03 ALARM 1	124
SYSTEM OK	MEVAC-4

07 TEXT	13
SYSTEM OK	MEVAC-4

TEXT = MESSAGE
The MP3 file "Message" is given to the AF outputs 1 and 3.

4.2 MUSIC: LEVEL AND ROUTING OF ENABLED SOURCES

Level adjustments

Based e.g. on the following initial display

Zone 1 :	MUSIK
SYSTEM OK	MEVAC-4

MUSIK = MUSIC
based e.g., on the adjacent initial display

[T1] … **[T4]** Press one of these buttons to select the master/zone to be processed. Music sources can also be completely disabled for certain zones

Press the **button [VOL]** once to switch to the LEVEL menu

Zone 1 :	MUSIK
PEGEL:MUSIK	-06 dB

MUSIK = MUSIC
PEGEL:MUSIK = LEVEL: MUSIC

Press the button **[VOL]** several times to select one of the following sources for level adjustments of the currently selected master/zone in this order:
Music => Music master => Chime => Aux => Message => and back to the music.
Press the buttons **[+]** and **[-]** to set the level for the displayed combination of input source and master output / output zone. **[+]**: increases the volume level, **[-]**: decreases the volume level

Possible values:
– with music, chime, message and AUX: "-16 dB" ... "-00 dB"
– with music master: "-30dB" ... "-00 dB"

In case the level value "- - dB" appears behind the selected source, the assignment of this source to a currently displayed master output / output zone has been disabled by the programming (also refer to the installation).

5 PROGRAMMING

5.1 LEVEL AND ROUTING / DISABLING AND ENABLING OF SOURCES

In order to move from the initial display of the MEVAC-4 (example)

Zone 1: MUSIK SYSTEM: OK MEVAC-4	MUSIK = MUSIC

to the level programming, please follow these steps:
Press the red button **[PROGRAM]** and first of all the following selection menu will appear:

T1=ERROR T2=RESET T3=PROG. T4=MP3 TEXT	MP3 TEXT = MP3 MESSAGE

Press the **button [T3]** to enter the requested password.
For the preset password, press the red button **[PROGRAM]** three times.

??? PASSWORT ???	PASSWORT = PASSWORD

After the password has been entered, the PROGRAMMING menu will appear:

T1= WEITER T2= PEGEL T3=INST. T4= NF/REL	WEITER = CONTINUE PEGEL = LEVEL NF/REL = AF/REL

Press **button [T2]** to open the level configuration menu:

Zone 1 : :MUSIK Level: Music – 12 dB	MUSIK = MUSIC

The display shows the selected output zone { 1 } of the currently assigned source { MUSIC } as well as the source to be processed { MUSIC } and the currently selected relative volume in dB.

Press the **button [VOLUME]** to select the level to be adjusted.

The following volume levels can be selected and adjusted:
MUSIC / MUSIC MA / CHIME / AUX / MESSAGE / VOLUME (master output) / TREBLE / BASS / TER 4/2, (microphones) / ALARM 1 / ALARM 2 / FIRE-MIC 1 / FIRE-MIC 2 => and back to the MUSIC

Volume adjustment:
Press the **buttons [+]** and **[-]** to set the volume of the selected source.
[+]: increases the volume level, **[-]**: decreases the volume level.

The control range for the following sources is **-16dB to 00dB.**

MUSIC, CHIME, AUX, MESSAGE, TER 4/2 (microphones), ALARM1, ALARM2, FIRE Mic 1 + 2.

The level value can also be set at "**- - dB**" for the above-mentioned sources; the assignment of this source to a currently displayed master output/zone has been disabled by the programming. These sources can also be adjusted in the LEVEL menu which features the same basic functions and can be entered directly by pressing the button [VOL].

Additional adjustments can also be carried out via the function **[T2] = LEVEL**.

– Music master: "-30dB" … "-00dB"
– VOLUME: "-68dB" … "-00dB"
– Treble: "-15dB" … "+15dB"
– Bass: "-15dB" … "+15dB"

5.2 Assignment of the additional input sources

Select the programming mode 'entering password' and the following display will appear:

T1=WEITER T2=PEGEL T3=INST. T4= NF/REL	WEITER = CONTINUE PEGEL = LEVEL NF/REL = AF/REL

Press **button [T4]** to reach the configuration menu of the input sources:

T1=TEXT/AUX/ALARM T2=TER4/2	TEXT = MESSAGE TER4/2 is the name of the microphones given by the system.

Press the button **[T2]** to display the menu for the assignment of the microphones to the output circuits:

TASTE NR. 1 T1=NEXT T3=AUDIO T4= RELAIS	TASTE NR. = BUTTON NO. RELAIS = RELAY

The audio/relay programming for the call button of the MEVAC-1PTT or the call button 1 { button NO. 1 } of the announcement microphone MEVAC-4PTT can be carried out here.
Press **[T1]** = NEXT to select the other call buttons (2,3,4).
Press **[T3]** = AUDIO to display the menu for the assignment of the call buttons to the outputs:

T3=WAHL T4=SET/CLR T3=AUDIO I I I I I	WAHL = SELECT

Press **[T4]** = RELAY to display the following:

T3=WAHL T4=SET/CLR T3=RELAIS I I I I I	WAHL = SELECT RELAIS = RELAY

The RELAY function is required for systems with less than 4 power amplifiers.

5.3 SYSTEMS WITH 4 SEPARATE POWER AMPLIFIERS

When a system is equipped with 4 power amplifiers, one separate power amplifier is assigned to each speaker circuit. In an application where one speaker circuit is assigned to each button of the 4-zone microphone **MEVAC-4PTT** as a call zone, the corresponding circuit is entered as the data for AUDIO. All adjustments made in the setting RELAY (see data on the spare amplifier) remain disabled. The selection of the buttons is done as described above.

This results in the following settings.

For **BUTTON 1**

T3=WAHL	T4=SET/CLR
T3=AUDIO	I 1 I I I I

WAHL = SELECT

T3=WAHL	T4=SET/CLR
T3=RELAIS	I I I I I

WAHL = SELECT
RELAIS = RELAY

For **BUTTON 2**

T3=WAHL	T4=SET/CLR
T3=AUDIO	I I 2 I I I

WAHL = SELECT

T3=WAHL	T4=SET/CLR
T3=RELAIS	I I I I I

WAHL = SELECT
RELAIS = RELAY

Use the same method for **BUTTON 3** and **BUTTON 4**.

Example of a double assignment for one button: with button 4, it should be possible to call circuit 2 as well as circuit 4.

For **BUTTON 4**

T3=WAHL	T4=SET/CLR
T3=AUDIO	I I 2 I I 4 I

WAHL = SELECT

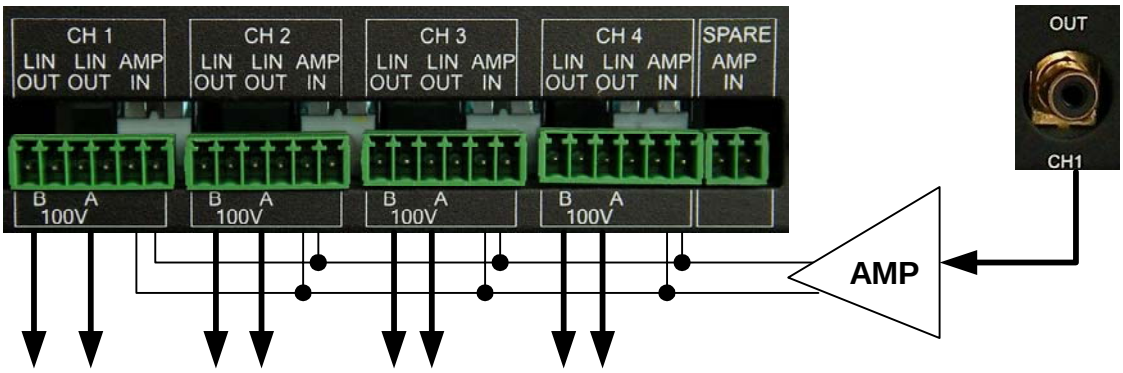
T3=WAHL	T4=SET/CLR
T3=RELAIS	I I I I I

WAHL = SELECT
RELAIS = RELAY

The **button [ALL]** is positioned on the microphone and activates all outputs automatically.

5.4 SYSTEMS WITH ONE POWER AMPLIEFIER

The second example shows how to set up the system with one power amplifier only. Select the audio channel 1 as the audio output in each case, connect the amplifier output to all 100V inputs. To select the speaker circuit, only use the function **RELAY**.



The spare amplifier can carry out a special task in such a system. In case the system is only set up as described with one amplifier and e.g. during regular operation, the background music is only played in circuit 1, the speakers of the circuits 2 – 4 will not be monitored. The spare amplifier can then carry out this task. For this, the function **RELAY** is available in the routing menu.

The **AUDIO** adjustment is set to channel 1 in each case, because one amplifier is connected to this audio output only. The corresponding RELAY is activated at all outputs which should **not** receive the required signal. This output is then switched to the spare amplifier for the time being.

For **BUTTON 1**

T3= WAHL	T4=SET/CLR
T3=AUDIO	I 1 I I I I

WAHL = SELECT

T3= WAHL	T4=SET/CLR
T3=RELAIS	I I 2 I 3 I 4 I

WAHL = SELECT
RELAIS = RELAY

The display shows, that the announcement which is started with the **button** 1 is only made to the CIRCUIT 1, whilst the others are switched to the spare amplifier for a simultaneous monitoring.

In case the **BUTTON 2** is to call into the circuits 2 and 3, the adjustment is done accordingly.

T3= WAHL	T4=SET/CLR
T3=AUDIO	I 1 I I I I

WAHL = SELECT

T3= WAHL	T4=SET/CLR
T3=RELAIS	I 1 I I I 4 I

WAHL = SELECT
RELAIS = RELAY

5.5 SEVERAL CALL ZONES WITH ONE BUTTON

In case the **BUTTON 1** is to call into two zones, the assignment is done according to these adjustments.

With several amplifiers

T3= WAHL	T4=SET/CLR
T3=AUDIO	I 1 I 2 I I I

WAHL = SELECT

T3= WAHL	T4=SET/CLR
T3=RELAIS	I I I I I

WAHL = SELECT
RELAIS = RELAY

With one amplifier

T3= WAHL	T4=SET/CLR
T3=AUDIO	I 1 I 2 I I I

WAHL = SELECT

T3=WAHL	T4=SET/CLR
T3=RELAIS	I I I 3 I 4 I

WAHL = SELECT
RELAIS = RELAY

Keep the microphone button 1 pressed, as shown in the example, to transmit the audio signal to the AF output 1 + 2. Press **[T3]** = SELECT and **[T4]** = SET/CLR to carry out other programming.

5.6 ASSIGNMENT OF ALARM MESSAGES, AUX SIGNAL AND TEXT MESSAGE

The other signals can also be assigned to the outputs, just like with the microphones.

T1=TEXT/AUX/ALARM
T2=TER4/2

TEXT = MESSAGE
TER4/2 is the name of the microphones given by the system.

Press the **BUTTON [T1]** to start the configuration.

ALARM 1	T1=NEXT
T3=AUDIO	T4= RELAIS

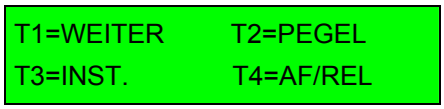
RELAIS = RELAY

With every additional press of the **button [T1]**, the selection is changed. The following sources can sequentially be selected: ALARM1, ALARM2, CHIME, AUX, Fire Mic 1, Fire Mic 2, Message.

As described above, the assignment to the outputs can now be programmed.

5.7 SPECIAL FEATURES

After the password has been entered, the following display will appear:



WEITER = CONTINUE PEGEL = LEVEL
NF/REL = AF/REL

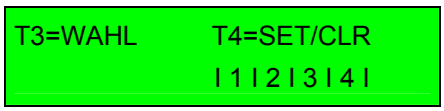
Press the **button [T1]** to enter another menu and to program whether a Chime is to be played before an announcement of the TER 4/2. Press the **button [T2]** to change the programming.

GONG = CHIME EIN = ON

Press the **button [T1]** again to access other functions.

ERDSCHLUSS = GROUND FAULT

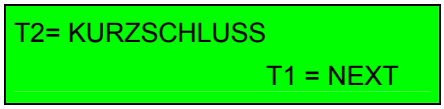
Press the **button [T2]** each time to enter the submenu and to program if a corresponding monitoring is to be carried out or not.



WAHL = SELECT

This is also programmed in further submenus for the tests of break, short-circuit and impedance deviation.

IMPEDANZ = IMPEDANCE



KURZSCHLUSS = SHORT CIRCUIT

UNTERBRECHUNG = BREAK

To insert volume controls into one circuit, the impedance deviation test of the corresponding circuit must be switched off. Also connect the emergency priority relays of the volume controls. A 1 kΩ terminating resistor has to be connected to the speaker line, if volume controls are used which switch themselves off at the position off/zero. Otherwise, the error message BREAK will appear.

6 SYSTEM ERROR MESSAGES OF THE MEVAC-4

The MEVAC-4 system monitors its own functions and those of other units connected every 15 seconds. It can take up to 75 seconds for an error to be displayed, depending on the type of error. A mistake which has occurred internally or externally, is indicated as follows:

- by an internal horn
- by the red fault LED flashing at the front panel
- the fault relay is activated (for transmitting an error message, e.g. to an error control system)
- indication on the display:

Zone 1 : MUSIK SYSTEM: ERROR MEVAC-4	MUSIK = MUSIC

The horn of the MEVAC-4 can be switched off as follows:
Press the red **button [PROGRAM]** and the following SELECTION menu will appear:

T1=ERROR T2=RESET T3=PROG. T4=MP3 TEXT	MP3 TEXT = MP3 MESSAGE

Press the **button [T2]** and the following RESET menu will appear:

T1= HUPE AUS T2= KREISRELAIS	HUPE AUS = HORN OFF KREISRELAIS = CIRCUIT RELAY

ATTENTION:
Press the **button [T1]** and the horn is switched off permanently. It cannot be reactivated for the current error!

When all the current errors are eliminated, the above-mentioned messages are automatically cancelled and moved into the error storage area "PREVIOUS ERRORS".
The system operates again as set during the installation run.

ATTENTION: In case a short-circuit has been detected on a faulty speaker line after the measurement procedure and one circuit relay had to be switched off to protect the power amplifiers, the circuit cannot automatically be activated again – not even after the possible error has been eliminated!

This separated circuit must be RESET manually as follows:
Press the red **button [PROGRAM]** and the following SELECTION menu will appear:

T1=ERROR T2=RESET T3=PROG. T4=MP3 TEXT	MP3 TEXT = MP3 MESSAGE

Press the **button [T2]** and the following RESET menu will appear:

T1= HUPE AUS T2= KREISRELAIS	HUPE AUS = HORN OFF KREISRELAIS = CIRCUIT RELAY

Press the **button [T2]** to reactivate separated circuit relays. The system resets itself to the initial display.

When an error message occurs in the MEVAC-4 system, the installer of the system or the authorised specialist who is contracted to carry out the maintenance and repair must be informed in any case!

The display can show a detailed specification / description of the type of error.
Press the red **button [PROGRAM]** and the following menu will appear at first:

T1=ERROR T2=RESET T3=PROG. T4=MP3 TEXT	MP3 TEXT = MP3 MESSAGE

Then, press the **button [T1]** and the following ERROR menu will appear:

T1= AKTUELLE FEHLER T3= ALTE FEHLER	AKTUELLE FEHLER = CURRENT ERRORS ALTE FEHLER = PREVIOUS ERRORS

CURRENT ERRORS: press the **button [T1]** and a current error may be indicated in the display. In case several errors occur at the same time, the corresponding error messages will be displayed sequentially. Ten seconds after all the current error messages have been listed, the system resets itself to the initial display. The same happens, if no current error has occurred. The display can be viewed as often as required.

PREVIOUS ERRORS: press the **button [T2]** and the errors which may have previously occurred are indicated in the display. In case several errors have occurred already, the error messages will be displayed sequentially. Ten seconds after all the previous error messages have been listed, the system resets itself to the initial display. The same happens, if no previous error has occurred so far. The display can be viewed as often as required.
The "Previous Errors" are deleted when starting the installation run.

The following error messages are possible:

Error messages at the speaker circuit

KREIS: KURZSCHLUSS	Short-circuit of a line, the connected speakers do not work anymore.
KREIS : UNTERBRECHUNG	Break of a line, the speakers behind the break do not work anymore.
KREIS : IMPEDANZ	Impedance deviation of a supply line. Individual speakers of this line do not work anymore.
KREIS: ERDSCHLUSS	Ground fault is detected in a supply line. Individual speakers of this line may not work anymore.

KREIS = CIRCUIT
KURZSCHLUSS = SHORT-CIRCUIT
UNTERBRECHUNG = BREAK
IMPEDANZ = IMPEDANCE
ERDSCHLUSS = GROUND FAULT

Error messages at the power amplifiers

KREIS: AMP DEFEKT	The corresponding power amplifier does not work anymore.

KREIS = CIRCUIT
AMP DEFEKT = AMP DEFECTIVE

In case there is no working spare amplifier available, whole groups of speakers do not work anymore!

RESERVE AMP AMP DEFEKT	The spare amplifier does not work anymore.

RESERVE AMP = SPARE AMP
AMP DEFEKT = AMP DEFECTIVE

If the failure of the spare amplifier is the only fault detected, it may not be a serious problem in a sole announcement/alarm system. There is no immediate limitation of the alarm function. For the duration of the announcements of the microphones or music transmission, however, the measurement procedure may not be completed anymore, depending on the system configuration.
As soon as a standard amplifier additionally fails to operate, whole groups of speakers or possibly the whole system do not work anymore.

Error messages at the fireman's microphone(s)

FIRE MIC 1 ANFORDERUNG ANFORDERUNG = REQUEST	The switching line which is responsible for controlling the microphone transmission of the fireman's microphone line FireMic 1 in case of an alarm has got a break or a short-circuit. Result: the fireman's microphone at the microphone line FireMic 1 does not work anymore.
FIRE MIC 1 KAPSEL KAPSEL = CARTRIDGE	The microphone cartridge which is installed at the microphone line FireMic 1 of the fireman's microphone is faulty. In case of an alarm, the fireman's microphone does not work anymore.

The messages of the FIRE MIC 2 are similar.

Detector or Alarm

ALARM 1 ANFORDERUNG ANFORDERUNG = REQUEST	The switching line which is responsible for controlling the transmission of the stored alarm message in case of an alarm has got a break or a short-circuit. Result: The alarm message cannot be started.

The messages of the input ALARM 2 are similar.

Voice storage

MP3 TEXT ERROR MP3 TEXT = MP3 MESSAGES	The internal voice storage for reproducing the alarm messages is faulty. Result: The stored alarm message and signal sound may not be reproduced as required.

Mains failure

NETZAUSFALL NETZAUSFALL = MAINS FAILURE	The unit is no longer supplied with 230 V~. Activation of the internal fuse or failure of the 230 V mains power supply.

In case a 24 V emergency power supply from the battery is available, the unit still works for a limited period of time. Depending on the capacity, age, previous working history and charging status of the batteries, this will surely result in the failure of the alarm or a complete failure of the system. Even when the mains voltage is available again, the system will still require a certain period of time for the complete capacity of the rechargeable battery to be available again.

Reachargeable battery voltage

AKKUSPANNUNG AKKUSPANNUNG = RECH. BATTERY VOLTAGE	The voltage of the 24 V emergency power supply is less than 20 V. In case the mains voltage is applied, the system continues to operate effectively. Nevertheless, an additional mains failure results in a total failure of the system.

7 OPERATION WITH A PC

Connect the MEVAC-4 via a zero modem cable, e.g. COM1 of a PC. Start the communication programme, e.g. WINDOWS© HyperTerminal with the following parameters (interface setting):
Bits per second: 9,600, data bits: 8, stop bits: 1, parity: none, protocol: none

Press the button **[i]** after making a connection and the following picture will appear on your keyboard:

KEYBOARD CONFIGURATION
BUTTON 1: installed components
BUTTON 2: all set levels
BUTTON 3: audio and relay programming
BUTTON 4: other settings
BUTTON 5: message input
BUTTON 6: current errors
BUTTON 7: load factory settings.
ATTENTION: Programming will be deleted.

Button [1]: INSTALLED COMPONENTS (example)

ALARM 1	3.3 V		
ALARM 2	3.3 V		
FIRE MIC1	3.3 V CARTRIDGE:	INSTALLED	
FIRE MIC2	3.3 V CARTRIDGE:	INSTALLED	
AMP: 1	CIRCUIT: 1	A:012	B:008
	CIRCUIT: 2	A:031	B:057
	CIRCUIT: 3	A:009	B:010
AMP: 2	CIRCUIT: 4	A:009	B:013
SPARE AMP	INSTALLED		

RECH. BATTERY VOLTAGE 27 V

BUTTON [2]: LEVEL

SOURCE	**ZONE1**	**ZONE2**	**ZONE3**	**ZONE4**
MUSIC	|-06 dB	|-07 dB	|-16 dB	| -- dB |
MUSIC MA	|-28 dB	|-12 dB	|-12 dB	|-12 dB |
CHIME	|-06 dB	|-06 dB	|-06 dB	|-06 dB |
AUX	|-06 dB	|-06 dB	|-06 dB	|-10 dB |
MESSAGE	| -- dB	|-06 dB	|-06 dB	|-06 dB |
VOLUME	|-10 dB	|-06 dB	|-06 dB	|-06 dB |
BASS	| 00 dB	| 00 dB	| 00 dB	| 00 dB |
TREBLE	| 00 dB	| 00 dB	| 00 dB	| 00 dB |
ALARM 1	|-12 dB	|-06 dB	|-06 dB	|-06 dB |
ALARM 2	|-12 dB	|-06 dB	|-06 dB	|-06 dB |
FIRE MIC	|-12 dB	|-06 dB	|-06 dB	|-06 dB |

BUTTON [3]: Audio and relay programming

Attention: Sources will not be displayed where the zones and relays are not activated.

SOURCE		**| Z1**	**| Z2**	**| Z3**	**| Z4**	**|**	**| R1**	**| R2**	**| R3**	**| R4**	**|**
TER 4/2	01	| **	|	|	|	|	|	|	|	|	|
TER 4/2	02	|	| **	|	|	|	|	|	|	|	|
TER 4/2	03	|	|	| **	|	|	|	|	|	|	|
TER 4/2	04	|	|	|	| **	|	|	|	|	|	|
ALARM 1		| **	| **	| **	| **	|	|	|	|	|	|
ALARM 2		| **	| **	| **	| **	|	|	|	|	|	|
CHIME		| **	| **	| **	| **	|	|	|	|	|	|
AUX		| **	| **	| **	| **	|	|	|	|	|	|
FIRE MIC1		| **	| **	| **	| **	|	|	|	|	|	|
FIRE MIC2		| **	| **	| **	| **	|	|	|	|	|	|
MESSAGE		| **	| **	| **	| **	|	|	|	|	|	|

BUTTON [4]: OTHERS

CHIME	ON							
MUSIC	ON							
GROUND FAULT		|	4	|	3	|	2	|	1	|
IMPEDANCE		|	4	|	3	|	2	|	1	|
SHORT-CIRCUIT		|	4	|	3	|	2	|	1	|
BREAK		|	4	|	3	|	2	|	1	|

BUTTON [5]: message input

This allows to change the displayed name of the zone.
Press the button 5 and the following display will appear:

Message input

ZONE 1	BUTTON 1
ZONE 2	BUTTON 2
ZONE 3	BUTTON 3
ZONE 4	BUTTON 4

Press the button “1” on the keyboard for the PC to change e.g. the message for zone 1.
The message input menu will automatically be closed if no button is pressed for a longer period of time. Proceed with the steps as follows to change e.g. the message for zone 2:

1. Press the button “2”.
2. Enter new message.
3. Press return key to finish.

BUTTON [6]: Error report

CIRCUIT: 1	020	020	000	OK
CIRCUIT: 2	088	088	000	OK
CIRCUIT: 3	019	019	000	OK
CIRCUIT: 4	022	022	000	OK
SPARE AMP	OK			
FIRE MIC1 REQUEST		OK	CARTRIDGE	OK
FIRE MIC2 REQUEST		OK	CARTRIDGE	OK
REQUEST ALARM 1		OK		
REQUEST ALARM 2		OK		
MP3 MESSAGES		OK		

(3 measured values are taken. The number 20 is the sum of circuit 1A and B of the installed circuit 1. Measurements are carried out every 15 seconds. Evaluation is done after 3 measurements).

BUTTON [7]: Load factory settings / RESET

Press the button 7 to load the factory settings onto the unit. (Delivery status). After a further confirmation prompt, the system is reset to the factory settings!

ATTENTION: All manual programming will be deleted.

8 SPECIFICATIONS

AF-inputs	1 x music 0 dB, unbalanced 1 x sound source 0 dB, unbalanced 2 x fire microphone, transformer-balanced 1 x microphone BUS (MEVAC-4PTT or MEVAC-1PTT)
AF outputs	5 x 0 dB (max. +10 dB), transformer-balanced
Pilot tone measuring frequency	22 kHz (faded, not permanently)
Measuring frequency fire mic	1 kHz
100 V switching relay	Switching voltage max. 160 V~, switching current max. 4 A~ (P_{MAX} 500 W/100 V)
Other relay contacts	max. 120 V~, max. 2 A~
Display	Alphanumeric LC display in 2 rows
Voice storage	MMC card (up to 2 GB)
Operating voltage	230 V~, 50/60 Hz
Mains fuse	Fine-wire fuse 5 x 20 mm, 1 AT
Power supply DC	24 V, max. 600 mA
Temperature range	–5 °C to +55 °C
Power consumption	max. 25 VA
Housing	19“, 1 RS (depth: 300 mm, w/o plug), sheet steel, black
Weight	4 kg