Operation Guide
Installation, Operation and Configuration

Adapter and Switching Modules
a/b-Audiobox
a/b Switching Modules

Auerswald®
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Important Information

This section contains information that is necessary for you to operate your equipment safely. Before you put the device into operation, it is essential that you read the safety information described here and become familiar with how to use the device properly, and also the technical data.

Safety Information

**Warning:** Touching live terminal clamps or power cables can cause life-threatening electrical shocks.

- Only operate the device when it has been installed in a touch-safe way.
- Disconnect the connection to the telephone connection on the PBX before you carry out any work on the device.
- Ensure that any tools you use on live cables are sufficiently insulated.
- For the connection to the PBX, also note the safety information in the manual for your PBX.

**Warning:** Any liquid that penetrates the casing can result in a life-threatening electric shock or can damage or destroy the device.

- Only operate the device in closed, dry rooms.
- When cleaning the casing, make sure that no liquid enters the casing.

**Warning:** Damage to the casing or the device can cause life-threatening electrical shocks.

- Always arrange for a professional to carry out repairs. Please contact your qualified electrician or contact the manufacturer directly.

**Warning:** Power surges, which may occur during electrical storms, can cause life-threatening electric shocks, or damage or destroy the connected PBX.

- Arrange for a qualified electrician to lay all the cables inside the building.
- Do not connect or disconnect power cables during an electrical storm.

**Caution:** Exceeding the threshold values stated in the technical data (even temporarily) can damage or even destroy the device.

- Never exceed the threshold values stated in the technical data.

**Caution:** Power surges may occur on an exchange line connection, and damage or destroy the device.

- Never connect the device directly to an exchange line connection (public network provider connection).
Used Symbols and Signal Words

**Warning:**
This symbol warns of personal injury, for example, caused by hazardous electrical voltage.

**Caution:**
Warns of material damage.

**Important:**
This symbol indicates possible application errors and conditions which, for example, could cause functional restrictions or malfunctions during operation.

**Note:**
Indicates supplementary notes.

Proper Use

**Important:** Auerswald products are not designed, manufactured, or intended for use or resale, in environments that require fail-safe performance, such as in the operation of life-support systems and/or nuclear facilities. Our products can only be used for these purposes with prior written permission from Auerswald in each individual case.

**Important:** Improper use may cause, for example, functional restrictions or malfunctions, the destruction of the device or, in a worst-case scenario, personal injury.

→ If you are still uncertain about how to use the product properly after reading the section below, please contact your specialised dealer.

The a/b-Audiobox is an adapter for transferring low frequency signals over an analogue telephone line.

With the a/b-Audiobox you can connect a sound system to the internal a/b port on a PBX, for making loudspeaker announcements from the internal telephones. It also includes a switch contact with which the sound system's loudspeaker zone can be changed.

You can install up to six switchable a/b switching modules, available as accessories, between the PBX and a/b-Audiobox to implement additional switching functions.

The a/b-Audiobox can be combined with all Auerswald PBXs, providing a way to connect analogue DTMF telephones. It is also possible to connect it to PBXs
from other manufacturers, but you should verify this in advance, by checking
with the specialist supplier or the manufacturer.

You can program the a/b-Audiobox from a telephone on the PBX, and so con-
figure it to meet the special needs of the particular environment.

The a/b-Audiobox is only suitable for use indoors.

**Note:** Accessories and service components can be purchased in specialist
shops or from the distriCOM online store (see [http://www.districom.de](http://www.districom.de)).
Deliveries within Germany and Austria only.

## Technical Data for a/b-Audiobox

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating voltage</td>
<td>16 to 60 V DC from the PBX</td>
</tr>
<tr>
<td>Power consumption</td>
<td>Approx. 60 mW in the idle state</td>
</tr>
<tr>
<td>Casing</td>
<td>Polycarbonate, blue, transparent, 2-part</td>
</tr>
<tr>
<td>Dimensions</td>
<td>Diameter 95 x 33 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>Approx. 90 g</td>
</tr>
<tr>
<td>Safety</td>
<td>CE</td>
</tr>
<tr>
<td>Protection rating</td>
<td>IP 20</td>
</tr>
<tr>
<td>Temperature range</td>
<td>0 °C to 40 °C</td>
</tr>
<tr>
<td>a/b input (also see (1) in <strong>Fig. 1 on page 11</strong>)</td>
<td></td>
</tr>
<tr>
<td>Connection</td>
<td>To an internal analogue a/b port on a PBX</td>
</tr>
<tr>
<td>Connection unit</td>
<td>RJ-11 socket</td>
</tr>
<tr>
<td>Type of dialling</td>
<td>DTMF</td>
</tr>
<tr>
<td>Loop current</td>
<td>&lt; 3 mA (in the idle state), 20 to 60 mA (off the hook)</td>
</tr>
<tr>
<td>Announcement output (also see (2) in <strong>Fig. 1 on page 11</strong>)</td>
<td></td>
</tr>
<tr>
<td>Connection</td>
<td>To a sound system (e.g. ELA), an audio amplifier, or an active speaker</td>
</tr>
<tr>
<td>Connection unit</td>
<td>Cinch jack</td>
</tr>
<tr>
<td>Output level</td>
<td>Max. 0.3 V&lt;sub&gt;eff&lt;/sub&gt;</td>
</tr>
<tr>
<td>Output resistance</td>
<td>600 Ohm</td>
</tr>
</tbody>
</table>
Switching output (also see ③ in Fig. 1 on page 11)

<table>
<thead>
<tr>
<th>Connection</th>
<th>To the switching input on a sound system</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection unit</td>
<td>Terminal clamp (4-core), removable</td>
</tr>
<tr>
<td>Type of contact</td>
<td>Volt-free, 1 operating and quiescent current contact (NC and NO)</td>
</tr>
<tr>
<td>Contact load capacity</td>
<td>Max. 40 V/1 A</td>
</tr>
</tbody>
</table>

Technical Data for a/b Switching Module

<table>
<thead>
<tr>
<th>Operating voltage</th>
<th>8 to 18 V AC or 40 V DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>45 mm x 35 mm x 10 mm (W x H x D)</td>
</tr>
<tr>
<td>Weight</td>
<td>Approx. 30 g</td>
</tr>
<tr>
<td>Safety</td>
<td>CE</td>
</tr>
</tbody>
</table>

a/b input (also see ① in Fig. 2 on page 13)

<table>
<thead>
<tr>
<th>Connection</th>
<th>To the 2-core cable between the a/b-Audiobox and the internal a/b port on the PBX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection unit</td>
<td>Terminal clamp (2-core)</td>
</tr>
<tr>
<td>Switching frequency</td>
<td>6 channels in the range 20 to 50 kHz, 100 mV</td>
</tr>
<tr>
<td>Range</td>
<td>200 meters</td>
</tr>
</tbody>
</table>

Switching output (also see ② in Fig. 2 on page 13)

<table>
<thead>
<tr>
<th>Connection</th>
<th>To the device to be switched and the power supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection unit</td>
<td>Terminal clamp (2-core)</td>
</tr>
<tr>
<td>Contact load capacity</td>
<td>18 V AC / 40 V DC, 1 A</td>
</tr>
</tbody>
</table>

Environmental Notice

Dispose of the packaging material properly and in interest of the environmental protection.

Consult your responsible authority for information about the professional and environment-friendly disposal of your device.

If you want that we handle the disposal for you, you can send the device to us.
We only accept pre-paid shipments.

Care Instructions

If the device gets dirty you can wipe it with a damp cloth.

Information about the Accompanying Instructions

Additional Instructions

Also note the information about the warranty, service, environment, CE mark and declaration of conformity in the "Conditions of Guarantee, Information Service" leaflet.

The Latest Information

Current instructions can be found in the internet (see www.auerswald.de/service).

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Installation

In this chapter you can find out how to connect the a/b-Audiobox to a PBX and a sound system. It also describes how to connect and configure the a/b switching modules (which are not included in the scope of delivery).

Connecting a Sound System

**Warning:** Touching live terminal clamps or power cables can cause life-threatening electrical shocks.

→ Disconnect the connection to the telephone connection on the PBX before you carry out any work on the device.
→ Ensure that any tools you use on live cables are sufficiently insulated.
→ For the connection to the PBX, also note the safety information in the manual for your PBX.

**Warning:** Power surges, which may occur during electrical storms, can cause life-threatening electric shocks, or damage or destroy the connected PBX.

→ Arrange for a qualified electrician to lay all the cables inside the building.
→ Do not connect or disconnect power cables during an electrical storm.

**Note:** For more information about the contact assignments, also refer to the manual for your PBX.
You will find information about the connections for extending the switching functions below.
Always install the cables for connecting to the a/b ports separately from other power lines. This will avoid the creation of a disruptive humming noise during the announcement.
Requirements

- The RJ-11 to RJ-11 connection cable supplied
- The RJ-11 to TAE-F adapter supplied

*Note: If the a/b-Audiobox is more than 10 m from the PBX, the cables and sockets must be permanently installed.*
– Cinch cable
– For switching function: Installation cable (for example, J-Y(St)Y n x 2 x 0.6) with the following features:
  ▪ at least two cores
  ▪ unscreened, but screened if conditions are unfavourable, for example, near a strong transmitter or an electrical power line

1. Connect the a/b input on the a/b-Audiobox to an internal a/b port on the PBX.
2. Connect the announcement output on the a/b-Audiobox to the amplifier input on the sound system.
3. For switching function: Connect the switching output on the a/b-Audiobox to the switching input on the sound system.

**Extending the Connections with a/b Switching Modules**

You can extend the a/b-Audiobox with optional a/b switching modules to add some switching functions (e.g. switching a lighting system).

An a/b-switching module only switches a device on if a signal with a specific frequency is sent over the a/b line. In total six different switching frequencies are available for the a/b switching modules. You can use the integrated DIL switch to configure them (see Fig. 3 on page 13).

**Caution:** The a/b switching modules are not suitable for direct connection to 230 V mains voltage.

→ For this reason you also need an additional load-switching relay, to connect devices that run on mains voltage.

**Important:** An a/b switching module can only maintain a switching operation for 1 to 4.5 seconds.

→ If a switching operation needs to last longer, use a time relay such as a stair light timer (for connection details, see Fig. 4 on page 14).

The a/b switching modules only need a very low quiescent current for problem-free operation. If an electronic ringer or an electronic stair light timer with a high internal resistance is connected, it is possible that the a/b switching module will not function correctly.

→ Each a/b switching module is supplied with an additional resistor to resolve this problem. Connect this resistor to the terminal clamps on the electronic ringer or electronic stair light timer. This ensures that a mini-
mal quiescent current is provided for the a/b switching module (for connection details, see Fig. 4 on page 14).

**Note:** If several a/b switching modules are always to be addressed at once, you must set the same switching frequencies on these a/b-switching modules.

**Fig. 2: a/b switching module connections and pinout**

1. a/b input
2. Switching output
3. DIL switch
4. For example, flush-mounted box

**Fig. 3: Setting the switching frequencies**

- Switching frequency 1
- Switching frequency 2
- Switching frequency 3
- Switching frequency 4
- Switching frequency 5
- Switching frequency 6
**Requirements**

- Power supply for a/b switching modules (e.g. ringer transformer)
- Installation cable (for example, J-Y(St)Y n x 2 x 0.6) with the following features:
  - at least four cores
  - unscreened, but screened if conditions are unfavourable, for example, near a strong transmitter or an electrical power line

1. Connect the a/b input on the a/b-Audiobox to any location on the 2-core cable that leads from the a/b-Audiobox to the PBX.

2. Connect the switching output on the a/b-Audiobox to the device that is to be switched and the ringer transformer.

**Fig. 4: Installation example**
This chapter describes how to configure the PBX and how to program it to adapt the a/b switching module to your requirements.

**Setting of the PBX**

The a/b switching module must also be configured in the PBX. The type of configuration depends on the various Auerswald PBXs.

**COMpact 4000, COMpact 5000/R or COMmander 6000/R/RX (Firmware Version 6.4A or Later)**

The a/b switching module is set up as announcement output in the configuration of the PBX. A device template is available for this purpose. The a/b switching module will then have an internal telephone number.

**Other Auerswald PBXs**

The a/b switching module is set up as an analogue subscriber in the configuration of the PBX. The a/b switching module will then have an internal telephone number.

*Important:* For operation on a COMmander Business/ Basic.2 or COMmander 6000 (firmware version < 6.4A), the CLIP information must be switched off for the analogue subscriber in question (under **Subscriber (scr.) > Properties > Analogue settings**). A different setting may result in erroneous behaviour when calling the a/b switching module.

**Basic Information about Programming**

Programming is necessary to tailor the a/b-Audiobox to suit the local environment. The settings already made for the individual functions in the factory settings are given in the functional descriptions.

You can perform several programming steps one after the other, without disconnecting. Correct entries are confirmed with a confirmation tone (five quick tones in succession). For some functions it is necessary to put down the receiver after
dialling the programming character string. This is specified in the individual functional descriptions.

To prevent you from having to enter the PIN again each time you perform several sequential programming actions, you only have to enter it once, and it is retained until you exit programming mode.

Programming mode closes automatically if there is more than a 3 minute pause in programming (after the connection is broken) or if you press the programming key.

**Fig. 5: Overview of Keys and LEDs**

1. LED
2. Programming key

**Initiating and Performing Programming (Overview)**

**Requirements:**
- Connection has been made to the internal a/b port on a PBX
- An internal telephone number has been set up for the a/b-Audiobox on the PBX
- Knowledge of the PIN (0000 in the factory settings)
- DTMF-enabled internal telephone or DTMF tone generator
1. Press and hold down the programming key for approximately five seconds.
   The LED lights up while you are holding down the key and begins to flash after five seconds.
   The a/b-Audiobox is in programming mode.

2. Pick up the receiver of an internal telephone within three minutes.

3. Dial the internal telephone number of the a/b-Audiobox.
   This establishes the connection.

4. Dial *. You will hear a tone.

5. Enter the PIN and dial *. You will hear the confirmation tone (five sequential tones).

6. After the confirmation tone ends, dial the character string entered for the function.
   You will hear the confirmation tone (five sequential tones).

7. Wait until the confirmation tone ends or put down the receiver.

   **Important:** If you perform another programming action shortly after you have finished one, you immediately hear the confirmation tone after you dial *. This means that the a/b-Audiobox is still in programming mode. Now omit step 5.

   **Note:** If there is an input error, you hear a negative confirmation tone (three slow tones in succession) instead of the normal confirmation tone (five quick tones in succession). Then begin again by dialling *.
   We strongly recommend that you change the PIN to protect against unauthorised access.

**Switching Audio Transmission on Establishment of Connection On/Off**

If audio transfer during connection establishment is switched on, tones are passed to the connected loudspeaker immediately when the a/b-Audiobox receives a call from an internal telephone.
If audio transfer during connection establishment is switched off, tones are only passed to the connected loudspeaker if audio transmission is switched on by dialing the character string *1.

Requirements:
– Connection has been made to the internal a/b port on a PBX
– An internal telephone number has been set up for the a/b-Audiobox on the PBX
– Knowledge of the PIN (0000 in the factory settings)
– DTMF-enabled internal telephone or DTMF tone generator
– Programming mode has been initiated (by pressing and holding the programming key for five seconds)

1. Pick up the receiver of an internal telephone.
2. Dial the internal telephone number of the a/b-Audiobox.
   This establishes the connection.
3. Dial *.
   You will hear the confirmation tone (five sequential tones).

   Note: If you only hear a short sound instead of the confirmation tone (after restarting programming mode), enter the PIN and then dial * again.

4. After the confirmation tone ends, dial one of the following character strings.
   281: Switches on audio transfer during connection establishment (factory settings).
   280: Switches off audio transfer during connection establishment.
   You will hear the confirmation tone (five sequential tones).
   The a/b-Audiobox continues to be in programming mode. For additional programming actions, begin with the 3rd step.

Switching Sound of the Gong before the Announcement On/Off

If the sound of the gong before the announcement is switched on, a gong sounds as soon as audio transmission is enabled.
Requirements:
- Connection has been made to the internal a/b port on a PBX
- An internal telephone number has been set up for the a/b-Audiobox on the PBX
- Knowledge of the PIN (0000 in the factory settings)
- DTMF-enabled internal telephone or DTMF tone generator
- Programming mode has been initiated (by pressing and holding the programming key for five seconds)

1. Pick up the receiver of an internal telephone.
2. Dial the internal telephone number of the a/b-Audiobox.
   This establishes the connection.
3. Dial *.
   You will hear the confirmation tone (five sequential tones).
   
   Note: If you only hear a short sound instead of the confirmation tone (after restarting programming mode), enter the PIN and then dial * again.

4. After the confirmation tone ends, dial one of the following character strings.
   711: Switches on the sound of the gong before the announcement.
   710: Switches off the sound of the gong before the announcement (factory settings).
   You will hear the confirmation tone (five sequential tones).
   The a/b-Audiobox continues to be in programming mode. For additional programming actions, begin with the 3rd step.

Setting the Volume

You can use this programming to configure the volume of the connected loudspeaker, within certain limits.

Requirements:
- Connection has been made to the internal a/b port on a PBX
– An internal telephone number has been set up for the a/b-Audiobox on the PBX
– Knowledge of the PIN (0000 in the factory settings)
– DTMF-enabled internal telephone or DTMF tone generator
– Programming mode has been initiated (by pressing and holding the programming key for five seconds)

1. Pick up the receiver of an internal telephone.
2. Dial the internal telephone number of the a/b-Audiobox.
   This establishes the connection.
3. Dial *.
   You will hear the confirmation tone (five sequential tones).
   **Note:** If you only hear a short sound instead of the confirmation tone (after restarting programming mode), enter the PIN and then dial * again.
4. After the confirmation tone ends, dial one of the following character strings.
   570: Sets the volume to level 0 (quiet).
   ... 
   572: Sets the volume to level 2 (factory settings).
   ... 
   579: Sets the volume to level 9 (loud).
   You will hear the confirmation tone (five sequential tones).

   The a/b-Audiobox continues to be in programming mode. For additional programming actions, begin with the 3rd step.

**Setting Maximum Connection Time**

The maximum connection time specifies the number of minutes after which the a/b-Audiobox breaks the connection to the internal telephone by disconnecting.

**Note:** In programming mode the timer is reset for the maximum connection time for each confirmation tone.

**Requirements:**
– Connection has been made to the internal a/b port on a PBX
– An internal telephone number has been set up for the a/b-Audiobox on the PBX
– Knowledge of the PIN (0000 in the factory settings)
– DTMF-enabled internal telephone or DTMF tone generator
– Programming mode has been initiated (by pressing and holding the programming key for five seconds)

1. Pick up the receiver of an internal telephone.
2. Dial the internal telephone number of the a/b-Audiobox.
   This establishes the connection.
3. Dial *.
   You will hear the confirmation tone (five sequential tones).
   Note: If you only hear a short sound instead of the confirmation tone (after restarting programming mode), enter the PIN and then dial * again.
4. After the confirmation tone ends, dial one of the following character strings.
   510: The connection time is unlimited or the connection is broken when the receiver is put down.
   511: The a/b-Audiobox breaks the connection after 1 minute.
   ...
   513: The a/b-Audiobox breaks the connection after 3 minutes (factory settings).
   ...
   519: The a/b-Audiobox breaks the connection after 9 minutes.
   You will hear the confirmation tone (five sequential tones).
   The a/b-Audiobox continues to be in programming mode. For additional programming actions, begin with the 3rd step.

**Setting Waiting Period for Silence Detection or Switching off Silence Detection**

The waiting period for silence detection specifies the number of seconds of "silence" after which the a/b-Audiobox disconnects.
If silence detection is switched off, the a/b-Audiobox only recognises that the caller has disconnected from the busy signal.

**Requirements:**
– Connection has been made to the internal a/b port on a PBX
– An internal telephone number has been set up for the a/b-Audiobox on the PBX
– Knowledge of the PIN (0000 in the factory settings)
– DTMF-enabled internal telephone or DTMF tone generator
– Programming mode has been initiated (by pressing and holding the programming key for five seconds)

1. Pick up the receiver of an internal telephone.
2. Dial the internal telephone number of the a/b-Audiobox.
   This establishes the connection.
3. Dial *.
   You will hear the confirmation tone (five sequential tones).

   **Note:** If you only hear a short sound instead of the confirmation tone (after restarting programming mode), enter the PIN and then dial * again.

4. After the confirmation tone ends, dial one of the following character strings.
   590: Switches silence detection off.
   591: The a/b-Audiobox disconnects after 1 second “silence”.
   ...
   595: The a/b-Audiobox disconnects after 5 seconds “silence” (factory settings).
   ...
   599: The a/b-Audiobox disconnects after 9 seconds “silence”.
   You will hear the confirmation tone (five sequential tones).
   The a/b-Audiobox continues to be in programming mode. For additional programming actions, begin with the 3rd step.
Setting the Input Sensitivity of the a/b Line

You can use this programming to configure the a/b-Audiobox to suit PBXs from other manufacturers that have different attenuation. This is necessary in the following situations, for example:

- There is no busy signal detection i.e. when the receiver is put down, the a/b-Audiobox does not end the call.

Requirements:

- Connection has been made to the internal a/b port on a PBX
- An internal telephone number has been set up for the a/b-Audiobox on the PBX
- Knowledge of the PIN (0000 in the factory settings)
- DTMF-enabled internal telephone or DTMF tone generator
- Programming mode has been initiated (by pressing and holding the programming key for five seconds)

1. Pick up the receiver of an internal telephone.
2. Dial the internal telephone number of the a/b-Audiobox.
   This establishes the connection.
3. Dial *.
   You will hear the confirmation tone (five sequential tones).
   
   Note: If you only hear a short sound instead of the confirmation tone (after restarting programming mode), enter the PIN and then dial * again.

4. After the confirmation tone ends, dial one of the following character strings.
   
   500: Sets the input sensitivity to level 0 (low).
   501: Sets the input sensitivity to level 1 (factory settings).
   ...
   509: Sets the input sensitivity to level 9 (high).

   You will hear the confirmation tone (five sequential tones).
   The a/b-Audiobox continues to be in programming mode. For additional programming actions, begin with the 3rd step.
Switching the Switching Function during Establishment of Connection On/Off

If the switching function during establishment of connection is switched on, the switch contacts on the switching output are switched on immediately when the a/b-Audiobox receives a call from an internal telephone.

If the switching function during establishment of connection is switched off, the switch contacts on the switching output can only be switched manually.

Requirements:

– Connection has been made to the internal a/b port on a PBX
– An internal telephone number has been set up for the a/b-Audiobox on the PBX
– Knowledge of the PIN (0000 in the factory settings)
– DTMF-enabled internal telephone or DTMF tone generator
– Programming mode has been initiated (by pressing and holding the programming key for five seconds)

1. Pick up the receiver of an internal telephone.
2. Dial the internal telephone number of the a/b-Audiobox.
   This establishes the connection.
3. Dial *. 
   You will hear the confirmation tone (five sequential tones).
   
   Note: If you only hear a short sound instead of the confirmation tone (after restarting programming mode), enter the PIN and then dial * again.
4. After the confirmation tone ends, dial one of the following character strings.
   601: Switches on the switching function during establishment of connection (factory settings).
   600: Switches off the switching function during establishment of connection.
   
   You will hear the confirmation tone (five sequential tones).
   
   The a/b-Audiobox continues to be in programming mode. For additional programming actions, begin with the 3rd step.
Setting the Switching Time of the Switching Function

The switching function's switching time specifies how long the switch contacts on the switching output are switched on, if they have been switched on during the establishment of a connection.

*Note:* The switching time does not apply if the switching function is switched manually.

**Requirements:**

– Connection has been made to the internal a/b port on a PBX
– An internal telephone number has been set up for the a/b-Audiobox on the PBX
– Knowledge of the PIN (0000 in the factory settings)
– DTMF-enabled internal telephone or DTMF tone generator
– Programming mode has been initiated (by pressing and holding the programming key for five seconds)

1. Pick up the receiver of an internal telephone.
2. Dial the internal telephone number of the a/b-Audiobox.
   This establishes the connection.
3. Dial *.
   You will hear the confirmation tone (five sequential tones).
   *Note:* If you only hear a short sound instead of the confirmation tone (after restarting programming mode), enter the PIN and then dial * again.
4. After the confirmation tone ends, dial one of the following character strings.
   **6100:** The switch contacts remain switched on until the end of the announcement (factory settings).
   **6101:** The switch contacts remain switched on for 1 second.
   **6102:** The switch contacts remain switched on for 2 seconds.
   ... 
   **6190:** The switch contacts remain switched on for 90 seconds.
   You will hear the confirmation tone (five sequential tones).
   The a/b-Audiobox continues to be in programming mode. For additional programming actions, begin with the 3rd step.
**Switching over a Switching Function Manually**

You can use this programming to manually toggle the switch contacts on the switching output while the a/b-Audiobox is in programming mode (Switching during the announcement, see page 34).

**Requirements:**
- Connection has been made to the internal a/b port on a PBX
- An internal telephone number has been set up for the a/b-Audiobox on the PBX
- Knowledge of the PIN (0000 in the factory settings)
- DTMF-enabled internal telephone or DTMF tone generator
- Programming mode has been initiated (by pressing and holding the programming key for five seconds)

1. Pick up the receiver of an internal telephone.
2. Dial the internal telephone number of the a/b-Audiobox.
   This establishes the connection.
3. Dial *.
   You will hear the confirmation tone (five sequential tones).

   **Note:** If you only hear a short sound instead of the confirmation tone (after restarting programming mode), enter the PIN and then dial * again.
4. After the confirmation tone ends, dial the character string 63.
   You will hear the confirmation tone (five sequential tones).
   The switch contacts remain switched on or off dependent on their state.
   The a/b-Audiobox continues to be in programming mode. For additional programming actions, begin with the 3rd step.

**Assigning a/b Switching Modules to the Switching Function**

If a/b switching modules are assigned to the switching function, you address these a/b switching modules simultaneously with the switching output's switching function.
Note: If several a/b switching modules are to be addressed at once, you must set the same switching frequencies on these a/b-switching modules.

Requirements:
– Connection has been made to the internal a/b port on a PBX
– An internal telephone number has been set up for the a/b-Audiobox on the PBX
– Knowledge of the PIN (0000 in the factory settings)
– DTMF-enabled internal telephone or DTMF tone generator
– Programming mode has been initiated (by pressing and holding the programming key for five seconds)

1. Pick up the receiver of an internal telephone.
2. Dial the internal telephone number of the a/b-Audiobox.
   This establishes the connection.
3. Dial *.
   You will hear the confirmation tone (five sequential tones).

Note: If you only hear a short sound instead of the confirmation tone (after restarting programming mode), enter the PIN and then dial * again.

4. After the confirmation tone ends, dial one of the following character strings.
   320: Assigns no a/b switching modules to the switching function (factory settings).
   321: Assigns a/b switching modules with switching frequency 1 to the switching function.
   322: Assigns a/b switching modules with switching frequency 2 to the switching function.
   323: Assigns a/b switching modules with switching frequency 3 to the switching function.
   324: Assigns a/b switching modules with switching frequency 4 to the switching function.
   325: Assigns a/b switching modules with switching frequency 5 to the switching function.
   326: Assigns a/b switching modules with switching frequency 6 to the switching function.

   You will hear the confirmation tone (five sequential tones).
The a/b-Audiobox continues to be in programming mode. For additional programming actions, begin with the 3rd step.

Assigning a/b Switching Modules to the Key on the Device

If a/b switching modules are assigned to the key on the device (programming key), you address these a/b switching modules by pressing the key.

*Note:* If several a/b switching modules are to be addressed at once, you must set the same switching frequencies on these a/b-switching modules.

**Requirements:**
- Connection has been made to the internal a/b port on a PBX
- An internal telephone number has been set up for the a/b-Audiobox on the PBX
- Knowledge of the PIN (0000 in the factory settings)
- DTMF-enabled internal telephone or DTMF tone generator
- Programming mode has been initiated (by pressing and holding the programming key for five seconds)

1. Pick up the receiver of an internal telephone.
2. Dial the internal telephone number of the a/b-Audiobox.
   This establishes the connection.
3. Dial *. You will hear the confirmation tone (five sequential tones).
   *Note:* If you only hear a short sound instead of the confirmation tone (after restarting programming mode), enter the PIN and then dial * again.
4. After the confirmation tone ends, dial one of the following character strings.
   310: Assigns no a/b switching modules to the key (factory settings).
   311: Assigns a/b switching modules with switching frequency 1 to the key.
   312: Assigns a/b switching modules with switching frequency 2 to the key.
   313: Assigns a/b switching modules with switching frequency 3 to the key.
   314: Assigns a/b switching modules with switching frequency 4 to the key.
   315: Assigns a/b switching modules with switching frequency 5 to the key.
316: Assigns a/b switching modules with switching frequency 6 to the key. You will hear the confirmation tone (five sequential tones). The a/b-Audiobox continues to be in programming mode. For additional programming actions, begin with the 3rd step.

### Setting the Switching Time of the a/b Switching Modules

The switching time of the a/b switching modules specifies how long the a/b switching modules are addressed for.

**Requirements:**
- Connection has been made to the internal a/b port on a PBX
- An internal telephone number has been set up for the a/b-Audiobox on the PBX
- Knowledge of the PIN (0000 in the factory settings)
- DTMF-enabled internal telephone or DTMF tone generator
- Programming mode has been initiated (by pressing and holding the programming key for five seconds)

1. Pick up the receiver of an internal telephone.
2. Dial the internal telephone number of the a/b-Audiobox. This establishes the connection.
3. Dial *. You will hear the confirmation tone (five sequential tones).
   
   **Note:** If you only hear a short sound instead of the confirmation tone (after restarting programming mode), enter the PIN and then dial * again.
4. After the confirmation tone ends, dial one of the following character strings.
   - 551: The a/b switching modules remain switched on for 0.5 seconds (factory settings).
   - 552: The a/b switching modules remain switched on for 1 second.
   - 553: The a/b switching modules remain switched on for 1.5 seconds.
   - 554: The a/b switching modules remain switched on for 2 seconds.
   - 555: The a/b switching modules remain switched on for 2.5 seconds.
The a/b switching modules remain switched on for 3 seconds.

The a/b switching modules remain switched on for 3.5 seconds.

The a/b switching modules remain switched on for 4 seconds.

The a/b switching modules remain switched on for 4.5 seconds.

You will hear the confirmation tone (five sequential tones).

The a/b-Audiobox continues to be in programming mode. For additional programming actions, begin with the 3rd step.

Changing the PIN

We strongly recommend that you change the PIN to protect against unauthorised access.

Requirements:

– Connection has been made to the internal a/b port on a PBX
– An internal telephone number has been set up for the a/b-Audiobox on the PBX
– Knowledge of the PIN (0000 in the factory settings)
– DTMF-enabled internal telephone or DTMF tone generator
– Programming mode has been initiated (by pressing and holding the programming key for five seconds)

1. Pick up the receiver of an internal telephone.
2. Dial the internal telephone number of the a/b-Audiobox.
   This establishes the connection.
3. Dial *.
   You will hear the confirmation tone (five sequential tones).
   Note: If you only hear a short sound instead of the confirmation tone (after restarting programming mode), enter the PIN and then dial * again.
4. After the confirmation tone ends, dial the character string 29.
5. Enter the required PIN (1 to 6) and dial #.
6. Enter the PIN again and dial #.
You will hear the confirmation tone (five sequential tones).

The a/b-Audiobox continues to be in programming mode. For additional programming actions, begin with the 3rd step.

Restoring Factory Settings

If required, the a/b-Audiobox can be restored to factory settings. This does not reset the PIN, which continues to apply.

Requirements:

– Connection has been made to the internal a/b port on a PBX
– An internal telephone number has been set up for the a/b-Audiobox on the PBX
– Knowledge of the PIN (0000 in the factory settings)
– DTMF-enabled internal telephone or DTMF tone generator
– Programming mode has been initiated (by pressing and holding the programming key for five seconds)

1. Pick up the receiver of an internal telephone.
2. Dial the internal telephone number of the a/b-Audiobox.
   
   This establishes the connection.
3. Dial *.

   You will hear the confirmation tone (five sequential tones).

   Note: If you only hear a short sound instead of the confirmation tone (after restarting programming mode), enter the PIN and then dial * again.
4. After the confirmation tone ends, dial the character string 91.

   You will hear the busy signal.
5. Put down the receiver.

   The a/b-Audiobox continues to be in programming mode but needs to be called up again for further programming actions.
Operation

This section describes how to use the device after commissioning.

Making an Announcement

Requirements

- Connection has been made to the internal a/b port on a PBX
- An internal telephone number has been set up for the a/b-Audiobox on the PBX
- DTMF-enabled internal telephone or DTMF tone generator
- No programming mode

1. Lift the receiver of an internal telephone.
2. Dial the internal telephone number of the a/b-Audiobox.
   This establishes the connection.
   
   Note: If audio transfer during connection establishment is disabled, switch it on first by dialling the character string *1.
   
   If the sound of the gong before the announcement has been switched on: You hear the gong.
3. Say the announcement into the receiver.
4. End the announcement by putting down the receiver or dial the character string #*.
   
   The a/b-Audiobox disconnects.
Temporarily Muting an Announcement

If you would like to discuss something with someone in the room, or perform some switching functions, you can temporarily mute an announcement.

**Requirements**

– Existing connection for announcement

1. Dial the character string *0.
   
   You will hear the confirmation tone (five sequential tones).
   
   Audio transmission is disabled.

2. To enable audio transmission again, dial the character string *1.
   
   You will hear the confirmation tone (five sequential tones).

Resetting the Timer for the Maximum Connection Time

If experience shows that the announcement lasts longer than the set maximum connection time, you can reset the timer during the announcement.

*Note:* In programming mode the timer is reset for the maximum connection time for each confirmation tone.

**Requirements**

– Existing connection for announcement

• Dial the character string *2.

   You will hear the confirmation tone (five sequential tones).
Switching over a Switching Function Manually

During the announcement you can switch over the switch contacts manually (Switching in programming mode, see page 25).

Requirements
– Existing connection for announcement

• Dial one of the following character strings.
  ##71: Switches the switch contacts on.
  ##70: Switches the switch contacts off.

  You will hear the confirmation tone (five sequential tones).

Addressing a/b Switching Modules

During the announcement you can address the a/b switching modules for the set switching time.

Requirements
– Existing connection for announcement

• Dial one of the following character strings.
  ##1 Addresses a/b switching modules with switching frequency 1.
  ##2 Addresses a/b switching modules with switching frequency 2.
  ##3 Addresses a/b switching modules with switching frequency 3.
  ##4 Addresses a/b switching modules with switching frequency 4.
  ##5 Addresses a/b switching modules with switching frequency 5.
  ##6 Addresses a/b switching modules with switching frequency 6.

  You will hear the confirmation tone (five sequential tones).
### Functional Overview

This chapter provides you with an overview that summarises the available programming and operating functions.

## Overview of Programming Functions

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<thead>
<tr>
<th>Description</th>
<th>Function</th>
<th>Value</th>
</tr>
</thead>
<tbody>
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<td>Switching audio transmission on establishment of connection on/off</td>
<td>28</td>
<td>1 (on), 0 (off)</td>
</tr>
<tr>
<td>Switching sound of the gong before the announcement on/off</td>
<td>71</td>
<td>1 (on), 0 (off)</td>
</tr>
<tr>
<td>Setting the volume</td>
<td>57</td>
<td>0 (quiet) to 9 (loud)</td>
</tr>
<tr>
<td>Setting maximum connection time</td>
<td>51</td>
<td>0 (unlimited), 1 (1 min) to 9 (9 min)</td>
</tr>
<tr>
<td>Setting time to wait for silence detection or switching off silence detection</td>
<td>59</td>
<td>0 (silence detection off), 1 (1 s) to 9 (9 s)</td>
</tr>
<tr>
<td>Setting the input sensitivity of the a/b line</td>
<td>50</td>
<td>0 (low) to 9 (high)</td>
</tr>
<tr>
<td>Switching the switching function during establishment of connection on/off</td>
<td>60</td>
<td>1 (on), 0 (off)</td>
</tr>
<tr>
<td>Setting the switching time of the switching function</td>
<td>61</td>
<td>00 (duration of the announcement), 01 (1 s) to 90 (90 s)</td>
</tr>
<tr>
<td>Switching over a switching function manually</td>
<td>63</td>
<td></td>
</tr>
<tr>
<td>Assigning a/b switching modules to the switching function</td>
<td>32</td>
<td>0 (none), 1 (switching frequency 1) to 6 (switching frequency 6)</td>
</tr>
<tr>
<td>Assigning a/b switching modules to the key on the device</td>
<td>31</td>
<td>0 (none), 1 (switching frequency 1) to 6 (switching frequency 6)</td>
</tr>
</tbody>
</table>
### Setting the switching time of the a/b switching modules

<table>
<thead>
<tr>
<th>Function</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>55</td>
<td>1 (x 0.5 = 0.5 s) to 9 (x 0.5 = 4.5 s)</td>
</tr>
</tbody>
</table>

### Changing the PIN

<table>
<thead>
<tr>
<th>Function</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>29</td>
<td>new PIN (1 to 6 digits) + # + repeat new PIN + #</td>
</tr>
</tbody>
</table>

### Restoring factory settings

<table>
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<th>Function</th>
<th>Value</th>
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<tbody>
<tr>
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#### Overview of Operating Functions During the Announcement

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<th>Description</th>
<th>Function</th>
</tr>
</thead>
<tbody>
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<td>Ending announcement</td>
<td>#*</td>
</tr>
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<td>Muting announcement (switch off audio transmission)</td>
<td>+0</td>
</tr>
<tr>
<td>Switching on audio transmission</td>
<td>+1</td>
</tr>
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<td>Resetting the timer for the maximum connection time</td>
<td>+2</td>
</tr>
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<td>Enabling switching function manually</td>
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<td>Addressing a/b switching modules with switching frequency 1</td>
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<td>Addressing a/b switching modules with switching frequency 3</td>
<td>##3</td>
</tr>
<tr>
<td>Addressing a/b switching modules with switching frequency 4</td>
<td>##4</td>
</tr>
<tr>
<td>Description</td>
<td>Function</td>
</tr>
<tr>
<td>----------------------------------------------------</td>
<td>----------</td>
</tr>
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<td>Addressing a/b switching modules with switching frequency 5</td>
<td>##5</td>
</tr>
<tr>
<td>Addressing a/b switching modules with switching frequency 6</td>
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