Telecom Behnke

IP-Doorphone Series 43

Version 3.0

Technical Handbook

Service and Distribution

Important information – please observe!

1. The installation and maintenance of the Behnke telephones and their accessories must be carried out by a qualified professional. The relevant safety requirements must be upheld.
2. Disconnect the equipment from the power supply (wall plug transformer) and from the network before maintenance and repair work.
3. Observe the 'legal guidelines' in the appendix!

HELP THROUGH GOOD SERVICE

Info hotline

Detailed information on products, projects and our services:
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Internet and e-mail addresses

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info@behnke-online.de

DISTRIBUTION WITHIN EUROPE

You can obtain information directly from the Distributor responsible for your country. Information material is available in German, French, Dutch and in part in English.

A list of all European distributors can be found at: **www.behnke-online.de**

SEARCH SYSTEMATICALLY

SEARCH SYSTEMATICALLY

1. INTRODUCTION

Instructions for the following equipment:
IP-Doorphones / IP-Doorphone with IP camera / IP camera

1.1 Scope of delivery

- ① Depending on order:
  IP-Doorphone
  IP-Doorphone with IP camera
  IP camera as single module
  (including connection cable)
- ② 1 x electronic casing
- ③ 4 x mounting screw
- ④ 1 x Allen key
- ⑤ 1 x nameplate key
- ⑥ 1 x CD with:
  Software for audio processing,
  Technical handbook,
  Behnke IP video software
- ■ 1 x these instructions

1.2 General

Performance features

The Behnke IP-Doorphone is a VoIP door telephone with a built-in loudspeaker, hands-free microphone, integrated telephone book with two rows of text display or a keypad. The speech connection is achieved via Voice over IP (VoIP) in accordance with the SIP standard via the connected Ethernet LAN, either using an SIP-enabled telephone system, an SIP provider or directly dialling an IP address. The configuration is carried out using a web browser and the power is supplied via the LAN (PoE) or a directly connected power pack. The equipment allows connection of external direct call keys and has switch outputs for door opening, call display or sabotage monitoring. It is also possible to connect up to 115 key inputs that are shown directly on the telephone book entries, using an adapter module. Different equipment variations are available for indoor or outdoor operation or with a built-in IP camera.

System requirements

The following minimum requirements must be fulfilled in order to install the Behnke IP-Doorphone:

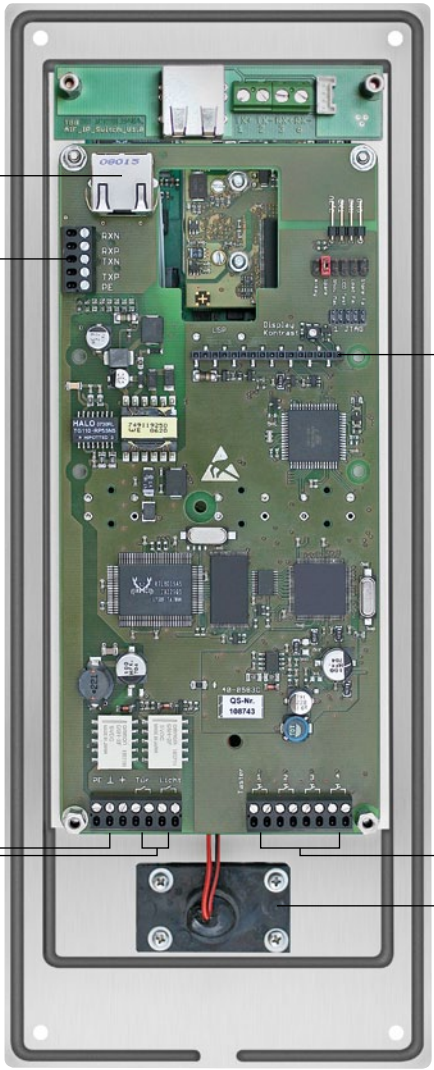
- PC or Apple Macintosh with functioning browser (e.g. Microsoft Internet Explorer, Mozilla Firefox, Apple Safari)
- Monitor / graphics card with at least 800 x 600 pixels of resolution and true colour display
- Computer must have a configured network connection
- 1 free Ethernet network port with PoE or 24 VDC wall plug transformer (available separately).
- SIP account, SIP server or a remote station that accepts direct SIP connections

The following minimum requirements must be fulfilled in order to install the Behnke IP video software:

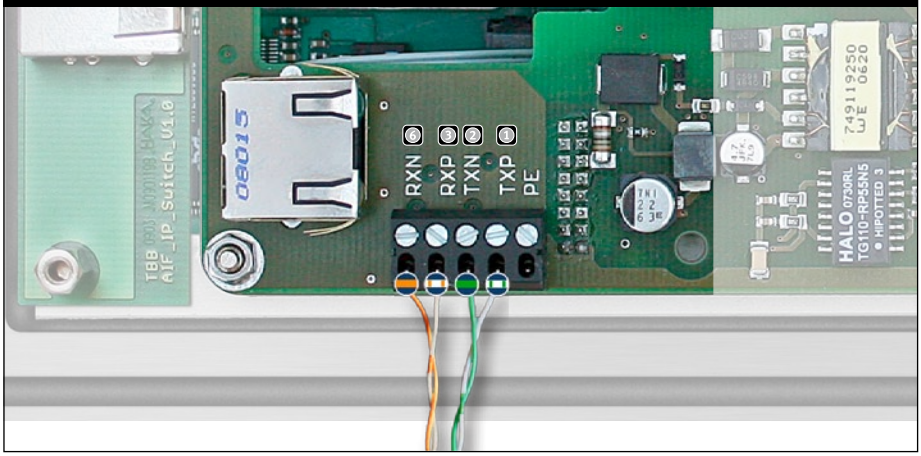
- PC with Intel® Pentium® IV processor (1.7 GHz) or AMD Athlon™ Processor (1.2 GHz) or higher
- Network card, configured
- Microsoft® Windows 2000® or Windows XP® operating system or higher
- 512 MB RAM or more
- Monitor / graphics card with at least 800 x 600 pixels of resolution and true colour display

1.3 Circuit Board

IP-Doorphone



LAN Connection area in detail



1.4 Connections on the IP-Doorphone

LAN connection
The LAN connection is carried out via a RJ-45 jack. Alternatively the individual wires can also be connected via the neighbouring terminal strip: the network is connected to terminals ① (green-white), ② (green), ③ (orange-white) and ⑥ (orange) in accordance with EIA/TIA 568 A. The number denotes the pin number of the RJ45 jack/the RJ45 socket.

Power supply
Power is supplied to the Behnke IP-Doorphone via the Ethernet interface (PoE in accordance with IEEE 802.3af). Alternatively the equipment can also be supplied with power via the terminal block.

PE, ground and +
Alternative input + 24 VDC (20-36 VDC) if PoE is not available. If both possibilities are used the supply will be taken from the first connection until it is interrupted.

Door, Light
Relay to door opening and/or conversation display. Both relays are NO contacts.

IP Camera – Circuit Board

1.5 Connections to the IP Camera

Note: in the version with an IP-Doorphone the camera is connected with the internal switch at the factory. The connection and the power supply occur together.

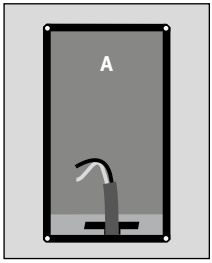
LAN connection
The LAN connection is carried out via a RJ-45 jack. Alternatively the individual wires can also be connected via the neighbouring terminal strip: the network is connected to terminals 1 (green-white), 2 (green), 3 (orange-white) and 6 (orange) in accordance with EIA/TIA 568 A. The number denotes the pin number of the RJ45 jack/the RJ45 socket.

Power supply
Power is supplied to the Behnke IP-Doorphone via the Ethernet interface (PoE). Alternatively the equipment can also be supplied with power via the terminal block.

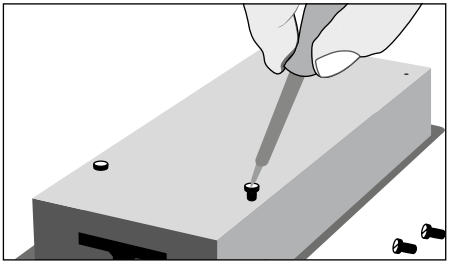
+ and –
Alternative input + 24 VDC (20-36 VDC) if PoE is not available. If the I/O interface (article 43-9604) is used then input must be carried out via these terminals. The I/O interface is then supplied with 24V and transfers this input via wires 7 (brown-white, GND) and 5 (blue-white, +24V) on the Cat5 cable to the camera.

A and B
Terminals for use with the I/O interface (43-9604). A is connected to IO1 and B to IO2. Wires 4 (blue, IO1) and 8 (brown, IO2) on the patch cable are used for this purpose.

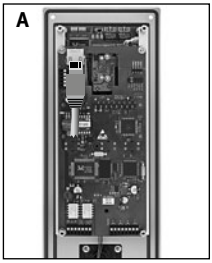
1.6 Installation



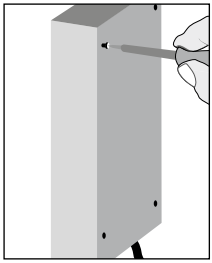
Brace the hole in the wall (only for flush-mounted fittings) and install the (A) flush-mounted or (B) surface-mounted casing. The relevant dimensions can be found from page 72 onwards.

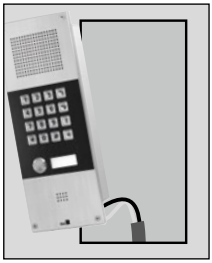


Remove the mounting screws on the electronics casing and put to one side until wiring.



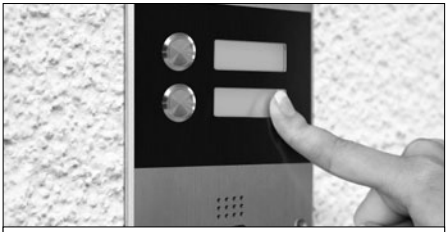
Connect the IP-Doorphone. Screw electronics casing and telephone together.





Install the connected telephone in the wall and/or install the casing and mount with the screws (included).

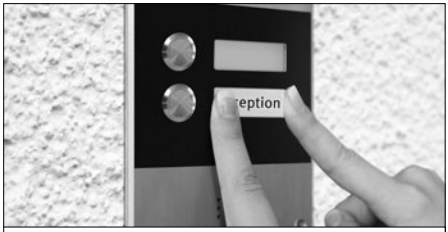
1.7 Changing the name plates



1: Depress the Plexiglas window.

5: Push the Plexiglas window to the left.

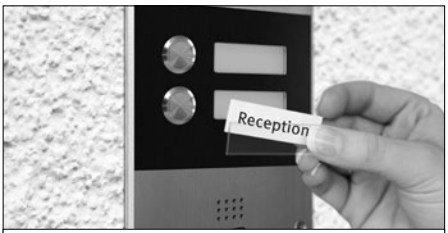
2: Push the Plexiglas window to the left.



6: Click Plexiglas's window into place.

3: Remove the window using the nameplate key.

Finished!



4: Insert and fix name strip.

2. CONFIGURATION AND INITIAL OPERATION

2.1 Preparation

- ► Connection of the IP-Doorphone with an Ethernet 10/100 LAN
- ► Power supply via Power over Ethernet (PoE) or suitable power unit

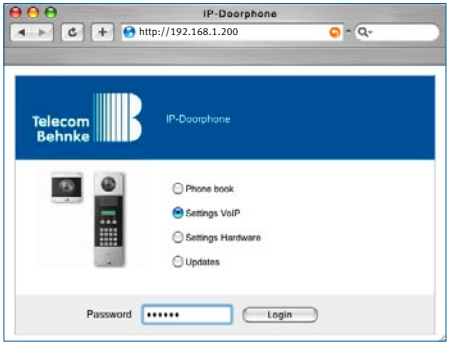
All IP-Doorphones are delivered with a standard IP address from the factory and this enables first communication:

- ► IP address set at factory = 192.168.1.200
- ► SubNet mask set at factory = 255.255.255.0

In the event that it is not possible to access this address in the customer network then we recommend temporarily changing the computer to an IP address in this area (e.g. 192.168.1.199) and to connect to the Series 43 IP telephone via a small hub or direct connection cable if possible (page 37).

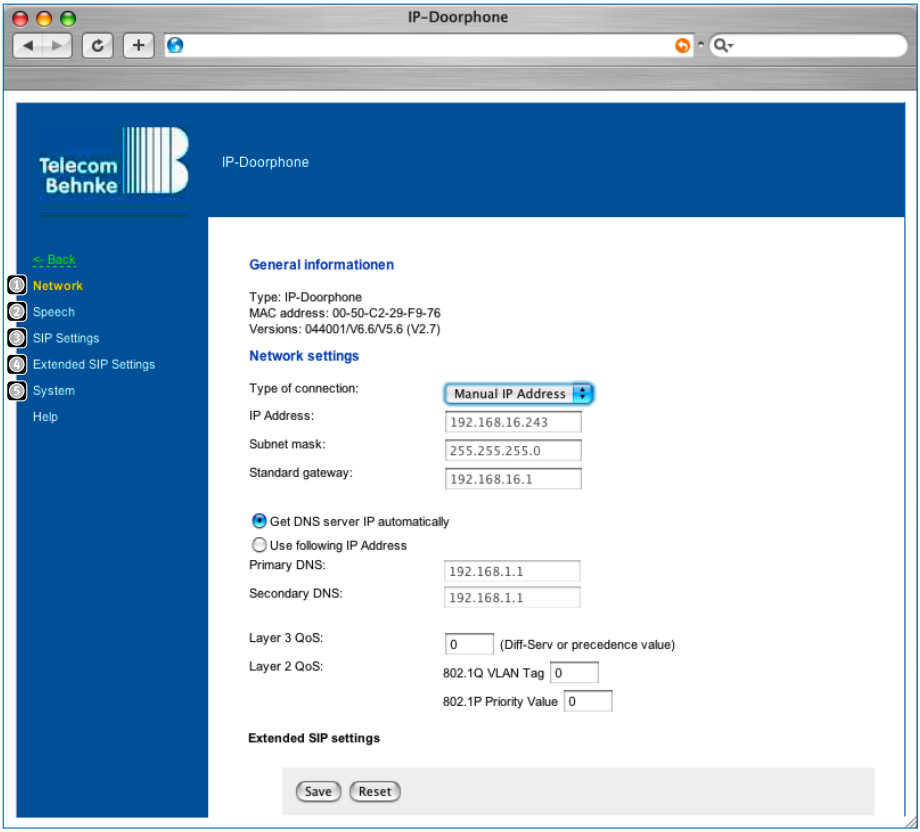
2.2 VoIP settings

Input the IP address of the IP-Doorphone into the address line of your browser. Activate the radio button 'VoIP settings', enter your password (as delivered: '1234') and click on 'Register'.



This will give you access to the following settings levels.

Summary



1 **Network** ▸ This is where the relevant data is inputted regarding the network in which the IP-Doorphone is integrated.

2 **Speech** ▸ Selection of and settings relating to which voice codec is used.

3 **SIP settings** ▸ This is where the access data from the SIP providers or the SIPTK system is entered.

4 **Extended SIP settings** ▸ If necessary.

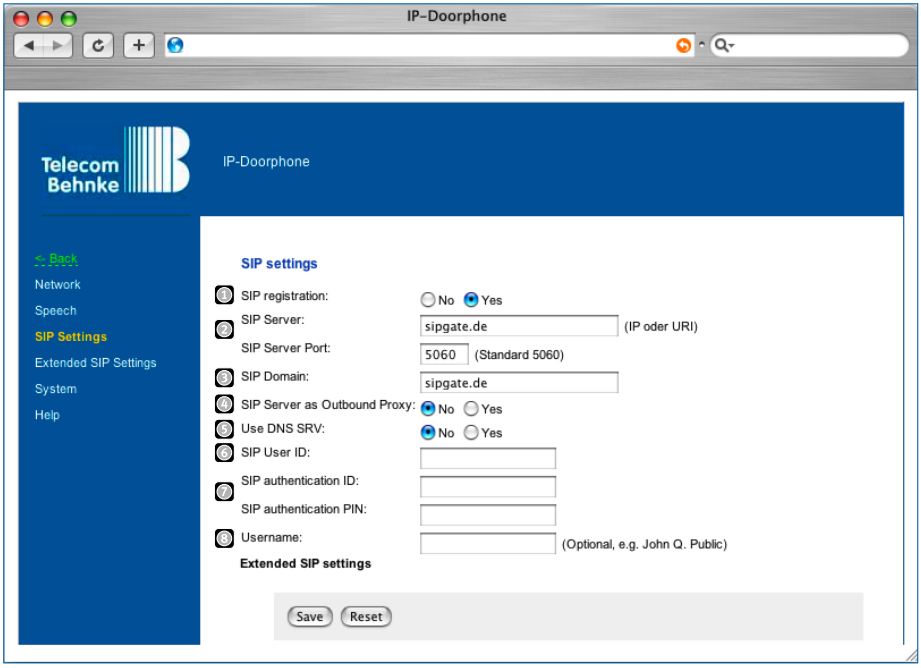
5 **System** ▸ Settings such as password, time zone etc.

Network

- The manual IP configuration is activated as standard, as shown on this diagram. DHCP can be activated by clicking on the drop down list. The fields beneath this are inactive and serve only as information. If DHCP is activated DHCP usually also obtains the address of the DNS servers so the item 'DNS server IP' must be selected here.
- The QoS (Quality of Service) settings serve to prioritise the data packages for transfer of speech above other network data traffic. If QoS is used in the network then these settings must agree with the network settings.

Attention: This can only be carried out in agreement with the system administrator! Incorrect IP settings can lead to instabilities of the network.

SIP settings

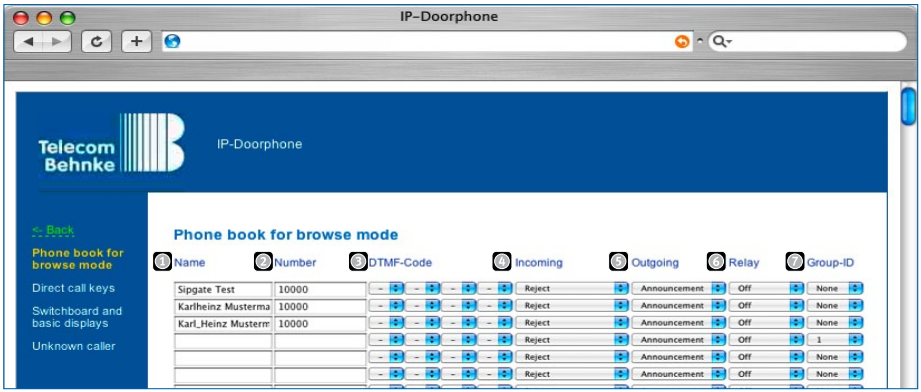


① **SIP registration** ► States whether the door entry phone should register at the SIP server. If this option is not activated then only direct connections (IP to IP) are possible. No connection is possible using phone numbers.
② **SIP-Server and Port** ► The URL or IP address of the SIP provider or an SIP telephone system. The port number shows which port the server obeys.
③ **SIP Domain** ► The SIP domain serves to look up subscribers. This is used in combination with the number in the SIP protocol to make a connection (e.g. 1234@sipgate.de). Without this there can be no connection via a phone number. It is possible to input the IP address of the SIP server here in place of a name.
④ **SIP server as outbound proxy** ► Use the SIP server as a proxy for outgoing calls. The SIP server must however also support this. This allows calls to be made through a NAT firewall into public Internet or the telephone network.
⑤ **Use DNS SRV** ► Use the DNS server entry in order to reach a subscriber within the SIP domain.
⑥ **SIP user ID** ► The user ID that is used within the SIP domain to identify the door entry phone. If a call comes in the allocation is carried out using this ID, i.e. the caller transmits e.g. the call request as '‹phone number›@ sipdomain.de' or as '‹User-ID›@sipdomain.de'.
⑦ **Authentication with ID and PIN** ► User name and password to register on the SIP server.
⑧ **Username** ► This field is transmitted as the SIP 'contact URI' when a connection is made. The numbers 0 to 9 and the letters a to z and A to Z are permitted. For example it is possible to enter the number of the door entry phone, which should make the administration of SIP accounts easier. This simplifies, e.g. the allocation of the user data for the number because the user IDs can be differentiated from the phone numbers.

2.3 Telephone Book – Display

Browse mode
This is where the subscribers are inputted that need to be shown when the user leafs through using the arrow on the display. The speed-dial destinations are inputted here using a keypad. The position in the list provides the speed-dial number. The numbering is from top to bottom from 00-99.

Initial Operation



① **Name** ▸ The display on the IP-Doorphone is in the same order as shown here. An underline symbol '_' can be inserted in order to avoid moving to the second line of the display too early.

② **Number** ▸ Input of the telephone number to be dialled without any symbols. If an IP address needs to be dialled then 'SIPRegistration'(P.14) needs to be set to 'No' and the destination IP address entered in the format aaa*bbb*ccc*ddd.

③ **DTMF code** ▸ A secondary code that needs to be entered at the remote station in order to activate the door relay. A 1-4-figure code can be entered and short codes must begin at the left side. If several of the same character are used in the code then a sort pause of approximately 1 second is necessary between two identical characters.

④ **Incoming** ▸ Decision on what should be done if a call comes in from the relevant number. There is a choice of: reject, answer automatically, answer automatically and play a recorded message (heard by the caller) and manual answering. The additional option 'beep' ensures that the dialogue partner hears a signal tone when the audio connection has been made.

⑤ **Outgoing** ▸ Decision whether a recorded message (e.g. location of the door entry phone) should be inserted to the caller when a call is made.

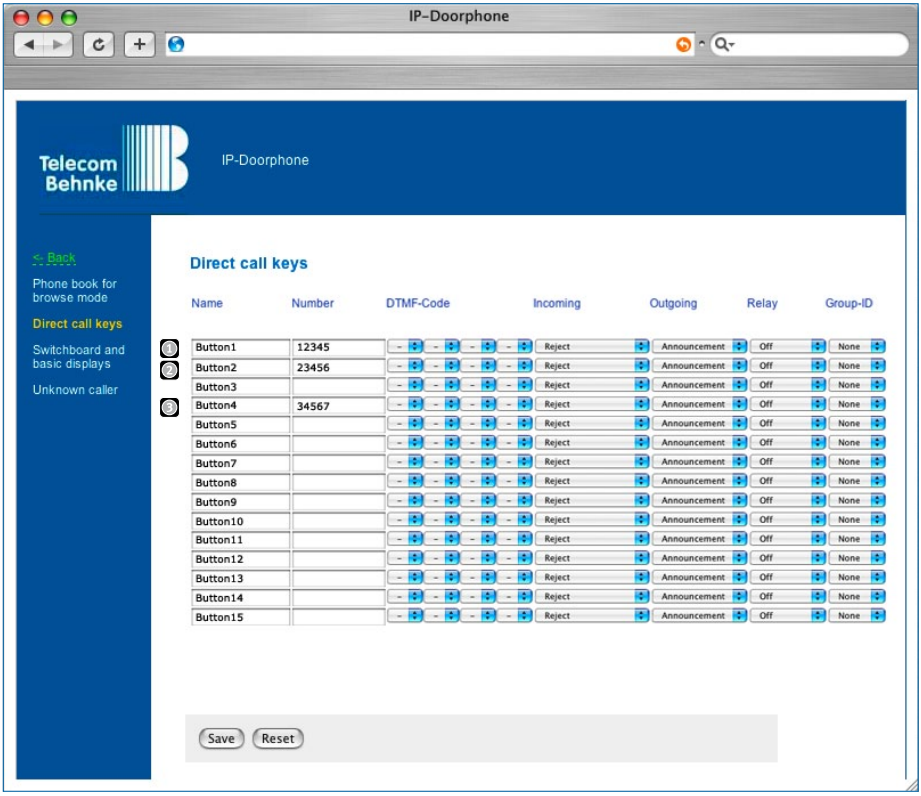
⑥ **Relay** ▸ Decision whether the light relay should be activated. 'On' = the relay is activated during dialling and until the connection is terminated.

⑦ **Group ID** ▸ The possibility of allocating several call destinations within a group. The destinations are called in the telephone book order if no connection is made. More settings are available in 'chain call' in the 'global call parameters' section. Once allocated to a group the destination becomes a member of a chain call group.

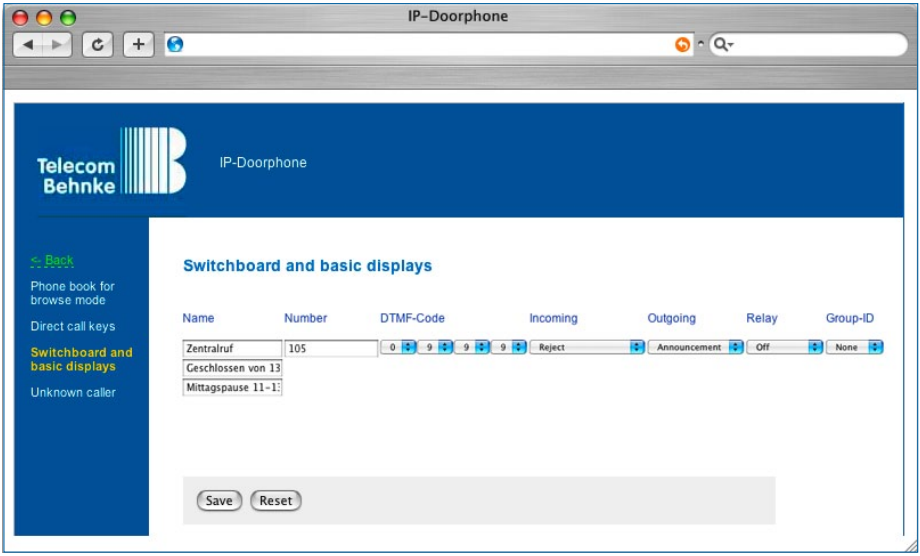
2.4 Telephone book – direct dial keys

Inputting direct dial numbers

On the Behnke IP-Doorphone with 1 to 3 direct dial keys the telephone numbers that have to be dialed when a direct dial key is pressed are stored in this form. It must be ensured that button 1 is configured on line ①, button 2 on line ② . **Attention button 3** is configured on line ③ **'button4'**. When using the direct dial key connections on the keypad the phone numbers are configured by entering 'button1' to 'button8'. The numbering of the keys on the telephone is from top to bottom.



Operator call options

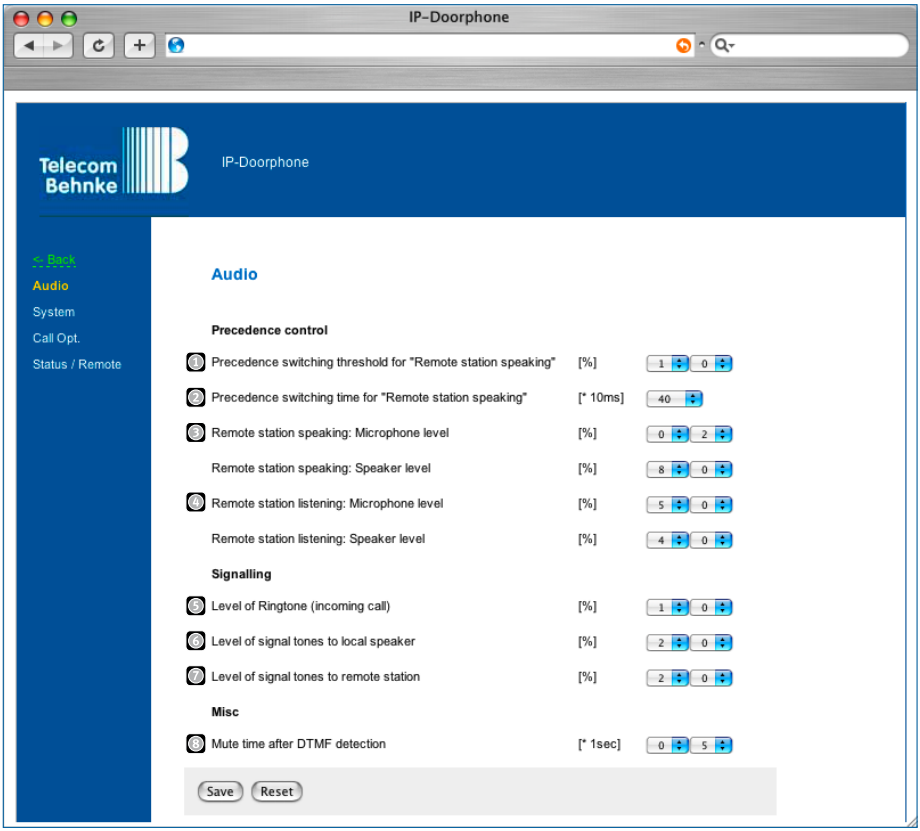


- The operator number is dialed if the visitor presses the 'i button' on the keypad and makes no other selection. Three explanatory texts run through the display automatically in turn. The first text acts like the name in the telephone book and/or on the direct dial keys. This text must always be valid (no empty field). An underline symbol '_' can be inserted in order to avoid moving to the second line of the display too early. Calls from numbers that are listed here are only accepted if they are not associated with a 'reject' note in the other lists (telephone book or direct dial keys).
- The other input fields determine the subscriber options for the operator call.
- If the code lock function on the keypad is used then a DTMF code must be inputted on the screen shown above.

2.5 Hardware settings

Audio settings

To avoid feedback and echoing the door entry phone automatically recognizes which side is currently active. This releases the relevant speaking direction and mutes the opposite direction. These settings can be made here.



Typical parameters are pre-set at the factory. They are, however, highly dependent on the installation environment and may need to be adjusted in accordance with the location of their use.

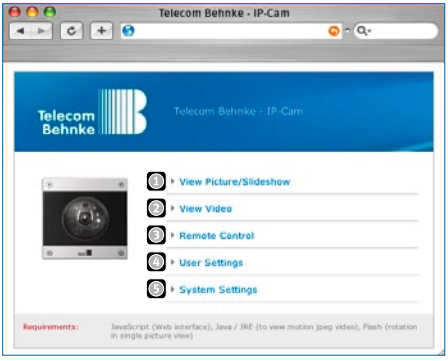
① **Switching threshold for 'dialogue partner speaking'** ► The sensitivity of the switch 'dialogue partner speaking'. Please keep in mind that the volume is not constant during speech.
② **Switching duration for 'dialogue partner speaking'** ► Delayed switch back if volume falls below the switching threshold.
③ **Dialogue partner speaking** ► Microphone level and loudspeaker level when the switch is active. The microphone level should be lower then in the 'dialogue partner listening' settings and the loudspeaker level should be higher.
④ **Dialogue partner listening** ► Microphone level and loudspeaker level when the switch is inactive. The loudspeaker level should be lower then in the 'dialogue partner speaking' settings and the microphone level should be higher.
⑤ **Ring tone volume for incoming call** ► Volume played by the call signal. The dialling or busy tone when the call is connected, is set at half of the value set here.
⑥ **Volume of the signals in the loudspeaker** ► The volume of the signals that the subscriber hears on the IP phone (local). These include the key tones, the activation melody and the action tones (e.g. call terminated)
⑦ **Volume of the signals to the remote station** ► This setting determines the volume of the signal tones that the subscriber at the remote station hears (DTMF signal, signal confirmation, door opener and error tone).
⑧ **Mute switch duration following DTMF recognition** ► The loudspeaker on the IP phone is muted from the 2nd incoming DTMF character. If the code is entered correctly the mute is cancelled immediately after the positive confirmation. If an incorrect code is entered or if the input is terminated before completion then the mute is cancelled after the mute switch duration.

2.6 Preparation

- ► Connection of the IP-Doorphone with an Ethernet 10/100 LAN
- ► Power supply via Power over Ethernet (PoE) or suitable power unit

Connection via Ethernet
All IP cameras are delivered from the factory with a standard IP address that enables the initial communication:
► IP address set at factory = 192.168.0.180
► SubNet mask set at factory = 255.255.255.0

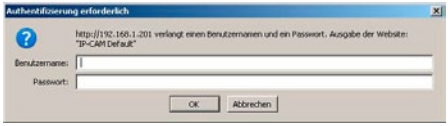
In the event that it is not possible to access this address in the customer network then we recommend temporarily changing the computer to an IP address in this area (e.g. 192.168.0.179) and connecting to the IP camera via a small hub or direct connection cable if possible (page 37).



2.7 Web interface on the IP camera

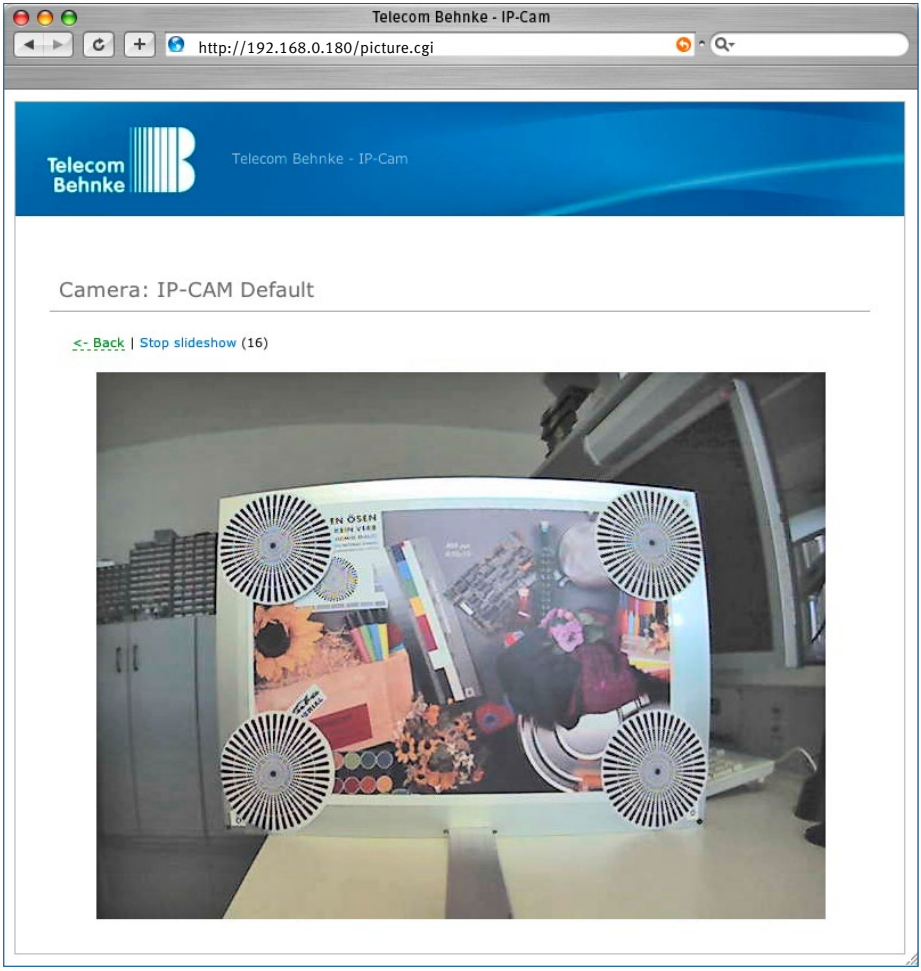
Home page / Main menu
Access to the web interface of the IP camera can be obtained by entering the IP address 192.168.0.180 (factory setting) into a web browser. After the IP is entered you will see the home page where you can make further selections:
1 **Display picture** ► Display of individual camera pictures (jpg)
2 **Display video** ► Display of the camera video stream (MJPG)
3 **Remote control** ► Operation of the camera's switch function
4 **User administration** ► Configuration of users and their access authorisations
5 **Settings** ► Configuration of the network and camera settings

Password input
The home page can be accessed without a password. A password is required for all further menus. The basic configuration of the user name from the factory is 'admin' and the password is '1234'.



2.8 Display picture

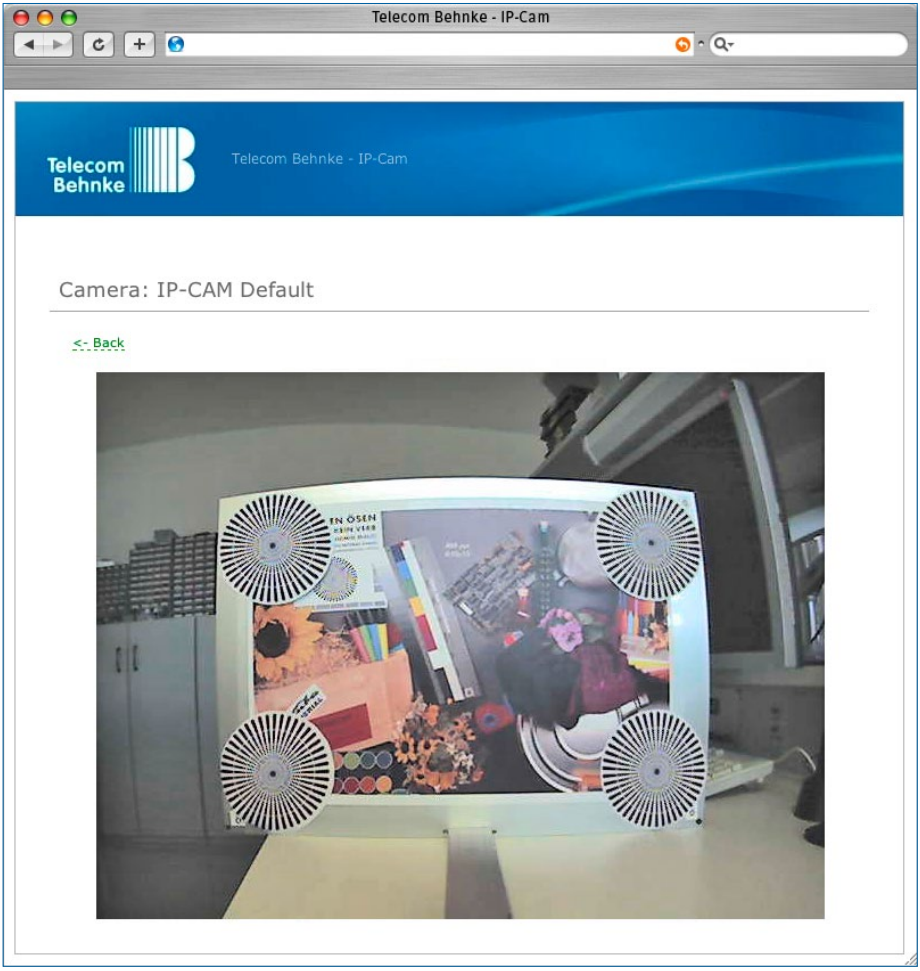
This item allows you to view a display of the individual pictures from the camera.



When you click on ‘Start’ the camera begins to display an individual picture per second.
When you click on ‘Stop’ the current picture is displayed permanently.
When you click on ‘Back’ you will be taken back to the main menu.

2.9 Display video

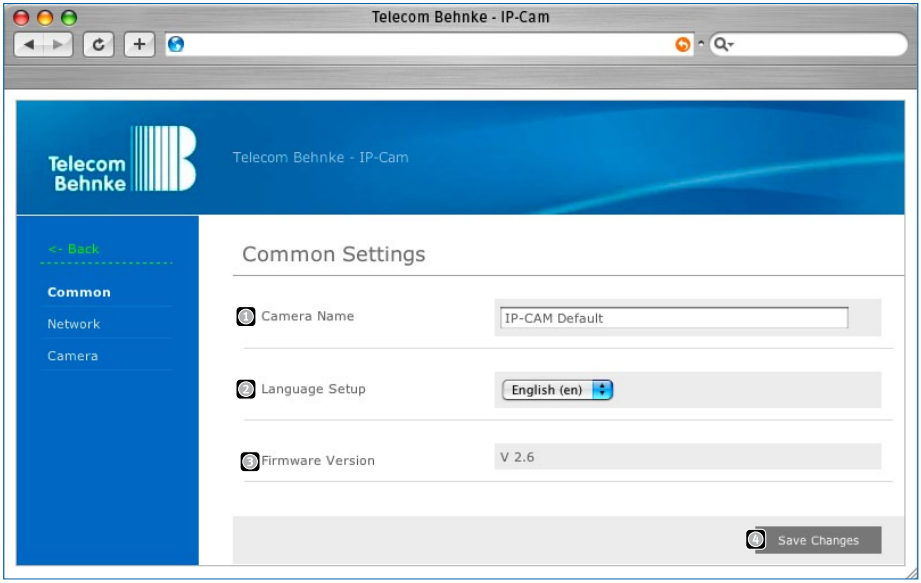
This menu displays the camera's video files.



Settings for the displayed video can be found at 'Settings'/'Camera'.
When you click on 'Back' you will be taken back to the main menu.

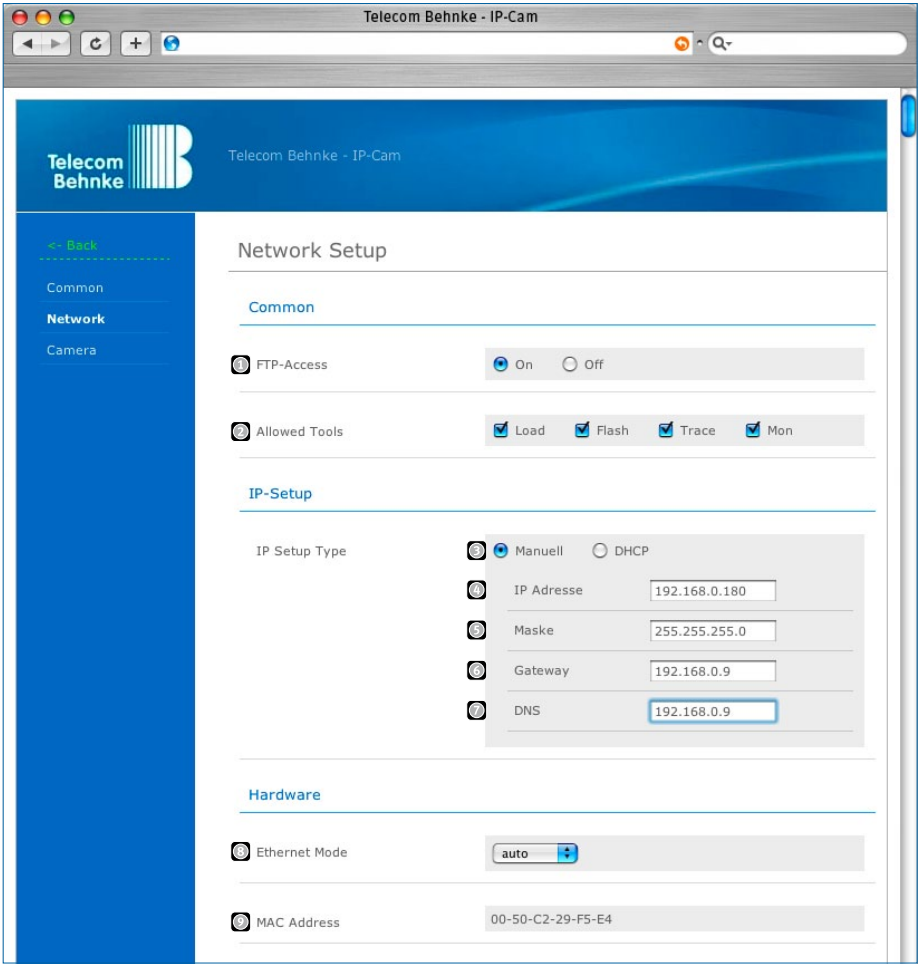
2.10 IP Camera settings

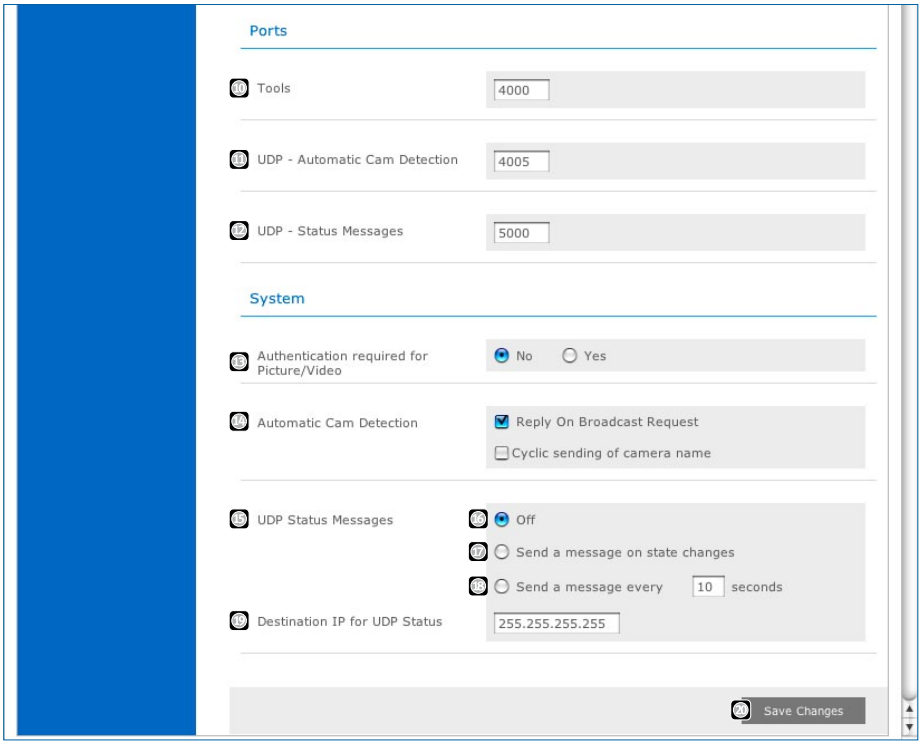
General



1 **Camera name** ► The name of the camera that will be shown as a heading on the camera window can be set here. The name is also shown in the password input window.
2 **Language Setup** ► Select the language of the web interface
3 **Firmware version** ► This point displays the software version that is installed on the IP-CAM
4 **Save changes** ► Saves the settings permanently and returns you to the main menu.

Network settings





General

① **FTP Access** ► Activation of FTP access to the IP camera data.
② **Allowed Tools** ► Determines which auxiliary administrative programmes can access the IP camera.

IP Setup

Note: only change these settings in consultation with your administrator as the network can otherwise be interrupted.

③ **Manual / DHCP** ► Determines whether the network settings need to be entered manually or if they should be allocated automatically.
④ **IP Address** ► The IP address where the IP camera can be accessed in the network.
⑤ **Mask** ► Enter the network mask here.
⑥ **Gateway** ► Enter the gateway here.
⑦ **DNS** ► Enter the DNS server here.

Hardware

⑧ **Ethernet Mode** ► Always set to the standard setting 'auto'. Other settings are only for network experts in the event of problems with the automatic function.
⑨ **MAC Address** ► Camera MAC address

Caution! The following port numbers must all have different values or malfunctions could result!

Note: the default values as listed may not be changed if Behnke software is used!

⑩ **Tools** ► Port for auxiliary programmes (default 4000)
⑪ **UDP – Automatic Cam Detection** ► UDP port for the automatic recognition of a camera in the network using specialist software (default 4005) (see page 26).
⑫ **UDP – Status Messages** ► UDP port for camera status reports (default 5000).

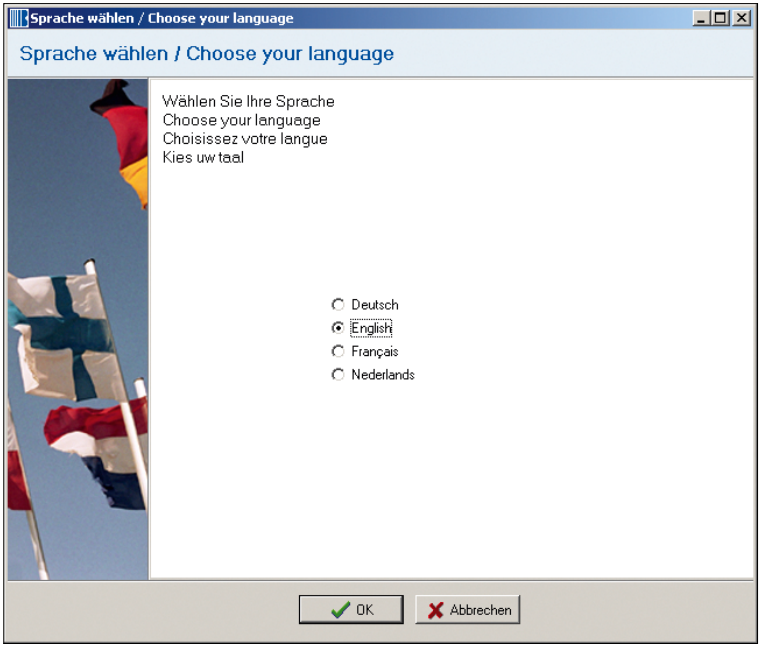
System

⑬ **Authentication required for pictures/videos** ► This determines whether the user requires a password to view pictures and videos.
⑭ **Automatic Cam Detection** ► Must be activated if you wish to recognise several cameras in the network. Should be switched off once a system has been set up. Particularly in networks where many broadcasts are sent.
⑮ **UDP status messages** ► Settings for status reports
⑯ **Off** ► The camera will not send status reports.
⑰ **Send a message on state change** ► A report is sent each time the status changes (I/O camera driver and LED status).
⑱ **Send a message every X seconds** ► An additional report is sent after a time interval, even when no status change has occurred.
⑲ **Destination IP for UDP status** ► Destination address for status reports.
⑳ **Save changes** ► Saves the settings permanently and returns you to the main menu.

3. BEHNKE IP-VIDEO SOFTWARE

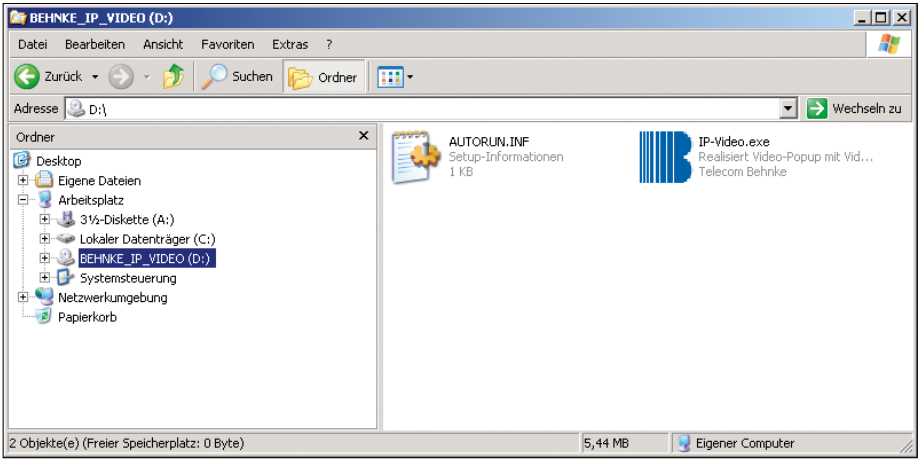
Certain settings are necessary on the IP camera and the IP-Doorphone in order to operate the Behnke IP video software. The description of the necessary settings on the IP camera can be found on page 27. The description of the necessary settings on the IP-Doorphone can be found on page 47 of the technical handbook. Some of the functionalitys described are only available after successful licensing.

3.1 Language Selection



After inserting the CD the software will start automatically as long as the 'autostart' option is activated in Windows (standard setting). You will first be asked to select the programme language: if this dialogue box does not appear automatically then the 'My Computer' must be opened in order to select the CD-ROM drive that contains the IP video CD. The software is started by double clicking on the 'IP-Video.exe' file and the above dialogue box for the language will appear.

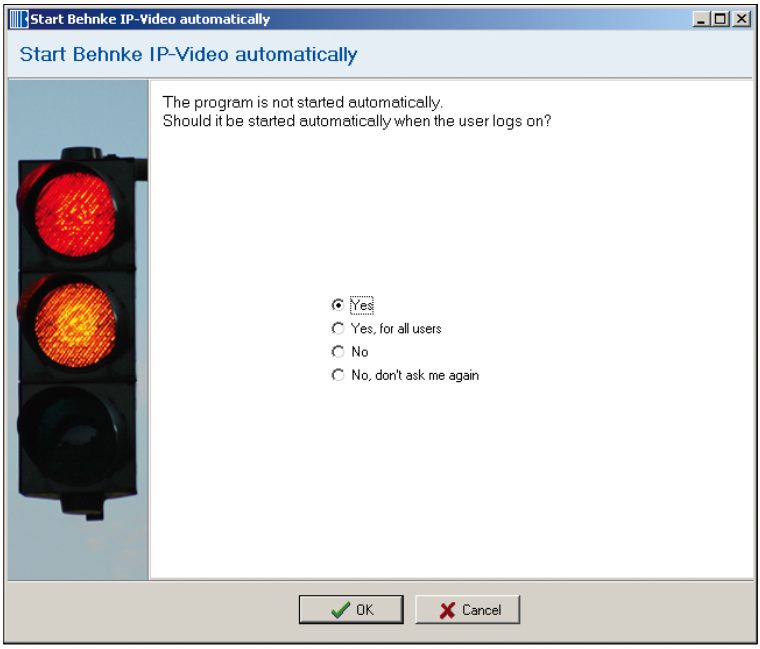
To start the software manually double click on the file ‘IP-Video.exe’.



When the language has been selected click on
‘OK’ to go to the next dialogue.

3.2 Autostart Options

The software will ask whether it should copy itself to the autostart folder so it can start automatically after User Logon:

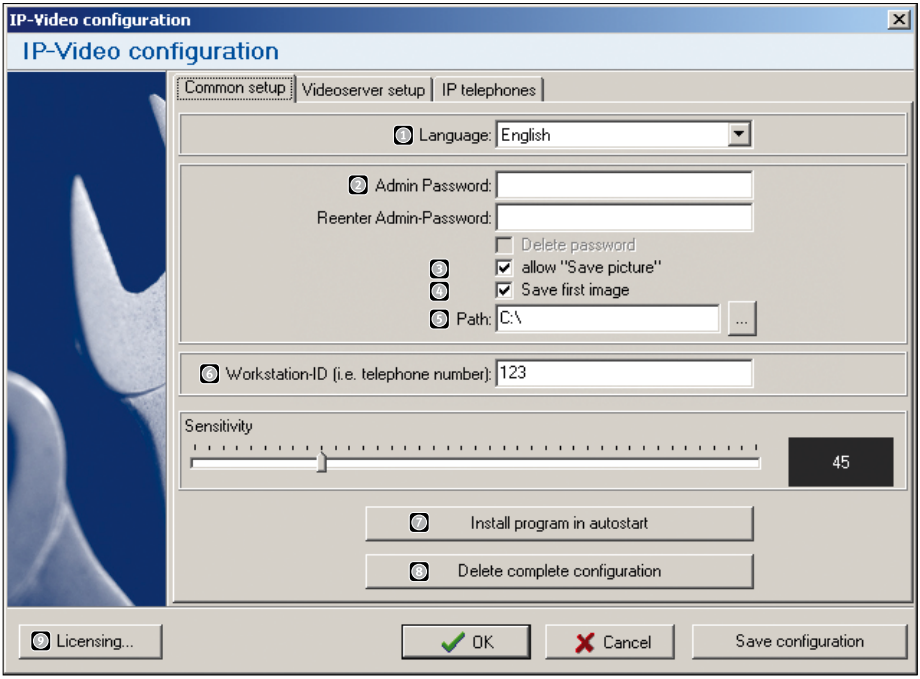


- **'Yes':** the software copies itself into the autostart folder of the user who is **currently logged on.** No administrator rights are necessary. It is started when the user who is currently logged on logs onto the system.
- **Yes, for all users':** the software is copied into the autostart folder for **all users.** The software is started every time a user logs in to this computer. Administrator rights are required.
- **„No":** the software does not copy into the autostart folder, but checks again at the next start whether it is started automatically and may show the above dialogue window again.
- **'No, do not ask again':** the software does not copy into the autostart folder and will no longer check whether it is started automatically.

Clicking on 'OK' confirms the selection and opens the configuration dialogue.

3.3 Configuration

General configuration

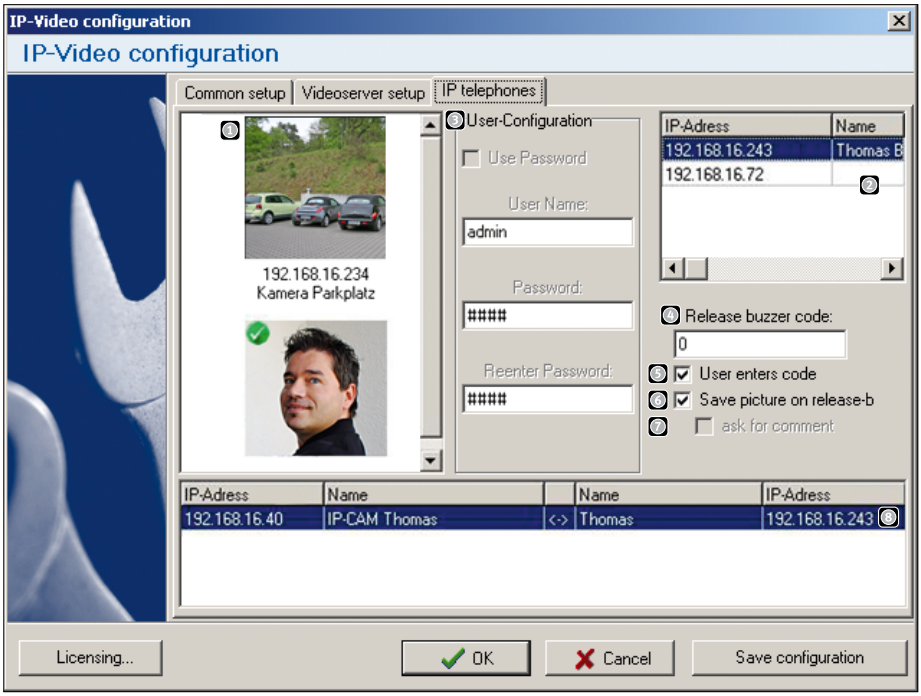


- The programme language can be corrected in the Language 1 field.
- The configuration of the software can be protected against unauthorised or mistaken modifications with a password 2 , comprising up to 20 characters made up of letters and numbers. If a password is set then this can be removed again by marking the field 'delete password' and then 'OK'.
- 'allow save picture' 3 activates the 'save image' button in the video window. This allows the user to save individual pictures during the conversation (date and time are shown on the image).
- 'save first image' 4 means that the first image of every call is saved with date, time and server name.
- „path:" 5 provides information on where the image is saved.
- Workstation ID 6 provides the telephone number, IP address or SIP ID that the phone is calling to reach this workplace. Every time a Behnke telephone dials this number the image of the camera that belongs to this telephone will be displayed.

- If the previous step stipulated that the programme should not be installed in the autostart folder then the software can be copied into the autostart folder with the 'install programme in autostart' button 7
- The computer can be set back to its original status using 'delete complete configuration' 8 All IP video configurations will be deleted and the programme will be terminated.
- You can go on to the last step in the configuration of the video server that is relevant for this workplace by clicking on the 'IP phone' tab.
- 'Licensing...' 9 opens a dialogue box in which the purchased licence key can be entered. This is case-sensitive.

Server configuration

The IP video camera is allocated to a telephone in this dialogue.



A list of the IP video camera found in the network is displayed in the left section of window ① . An IP video camera with a current image is shown for better orientation. The current IP address and the name of the IP video camera are shown under the image. The IP video camera configuration is opened by double clicking on the image. The right part of window ② contains a list of the Behnke telephones found in the network. Double clicking on the IP address opens the configuration of the Behnke telephone. User configuration ③ includes the input form for the user name and password of the IP video camera.

- ‘Release buzzer code’ ④ provides the code with which the door of the selected telephone can be opened. Once this code is entered the ‘door opener’ button is displayed in the video window. The door opener code for the telephone is configured in the IP door entry phone under ‘hardware settings’› ‘status/ remote control’ as the ‘authentication code’.
- ‘User enters code’ ⑤ means that the door opener button will appear but the user himself must know the code in order to open the door. The door opener code is requested when the door opener button in the video window is selected.
- ‘Save picture on release-b’ ⑥ means that an image is saved every time the door is opened. The image includes the name of the video server, the date and time. The location where it is saved is given in the ‘general configuration’ (see page 31) with the ‘path’ parameter.
- ‘ask for comment’ ⑦ The user is asked for an input that is recorded with the saved image.

The list of allocated equipment can be seen in the lower part of window ⑧. To the left are IP addresses and names of the IP video camera and, to the right, the IP address of the allocated telephone.

Configuration

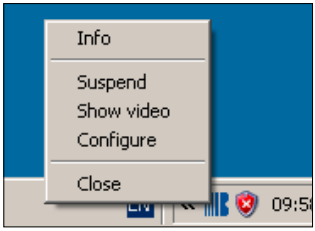
- Click in the left of the dialogue on the image of the video server to be configured.
- If a password is required in order to display the image then a tick is placed at ‘Use Password’. In this case the input fields below it are activated. This is where the user name and password for the IP video camera are entered. The factory setting password is:
  User name: admin
  Password: 1234
- Click on the right on the Behnke telephone to be allocated. A click on the OK button completes the configuration. This workplace is now configured in such a way that the relevant video picture will appear automatically in the event of a call from the door.

An individual configuration can be deleted by right clicking on an entry in the lower allocation list and selecting ‘delete entry’ in the context menu.

3.4 Software Operation

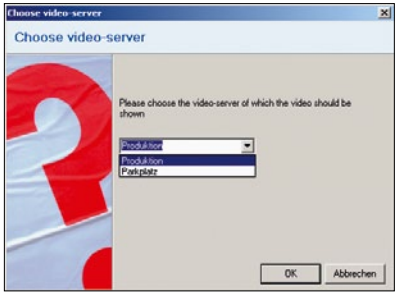
The programme window minimizes once the software has started. It appears as a symbol in the system task bar:

Right click on the symbol  to see the menu:



- **Info:** The start window appears.
- **Suspend:** The software continues to run but no image is shown if the door is called. The standard pop-up functionality is restored by clicking again on ‘pause’.
- **Show video:** Watch the video from a configured video server here.
- **Configure:** Opens the configuration dialogue.
- **Close:** Quits the software. The pop-up functionality is now no longer available.

After clicking on the menu item ‘display video’ the image appears of the video server that is configured at this workplace. If several video servers are configured at this workplace then the following selection dialogue is displayed: after selecting an image source click ‘ok’ to display the image from the selected source.



Double clicking on the IP video symbol has the same effect as clicking on the menu item ‘configure’. If a password has been entered to protect against unwanted changes to the configuration then this will be requested with the following dialogue: the configuration dialogue will open after inputting the password and confirming with ‘ok’.

3.5 Problem solving

The following error messages can be displayed by the programme:

No video server configured. Configure now?
No configured video server was found on the network. Cause:
► The software has not yet been configured on this computer. Install software in configuration dialogue.
► The video server is not available. Check whether the video server is connected to the network, connected to the power and switched on.

Please enter the administrator password.
► Configuration of the software was protected with a password against unauthorised changes. Please ask your administrator.

The programme is not started automatically. Should the programme be started automatically when the user registers?
► The software can copy itself into the autostart folder to make it available once the user logs on. Only then is the video image of the video server displayed. Please select the correct option.

How can I uninstall the software?
► Uninstall the software by deleting the programme from the autostart folder. No further files will be copied into the system.

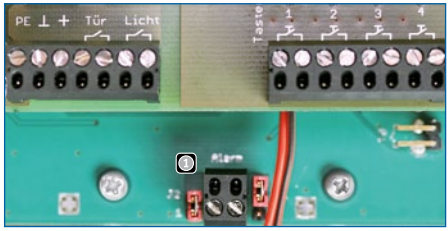
The video image is flickering or an 'error' message appears in place of the video.
► The Behnke IP video software creates an HTTP connection to the IP video camera via which the video is streamed. Modern virus scanners monitor the network data stream. This can cause reactions with the Behnke IP video software. If the problem is solved by deactivating the virus scanner then please contact the manufacturer of the antivirus software. Because the necessary settings to scan the network data stream are different for every antivirus product only the manufacturer of the antivirus software is able to provide competent information on the necessary settings.

Software cannot find IP video camera/IP phone
► Check that the IP video camera and the IP phone are in the same IP network as the PC running the Behnke IP video software.
► Check the status/broadcast settings for the equipment. See the printed settings on page 26 for the IP video camera and page 47 of the technical handbook for the IP phone settings.
► Check the firewall settings on the PC. Ensure that a third party provider's firewall (e.g. one contained in an 'Internet security suite') can be active as well as the Windows firewall. The following ports must be enabled:
Port 80 TCP, outgoing (HTTP, Web, normally enabled)
Port 4005 UDP, incoming and outgoing
Port 8112 UDP, incoming
Port 8113 UDP, outgoing

4. OPERATION

4.1 Display

Operation of the display is carried out using the two arrow keys and the ok key. The arrows can be used to scroll up and down in the telephone book. The connection to the selected participant is activated by pressing the ok key. The connection is terminated by pressing the ok key again.



4.2 Direct dialling

Pressing a direct dial button initiates a call to a number stored in the telephone. The connection is terminated by pressing the key again.

4.3 Keypad

The keypad has 10 number keys (0-9) and 6 function keys. The keypad allows free dial of telephone numbers. '[+]' allows you to call 99 speed dial destinations. It has a code lock function ('[🔑]') and an additional direct dial key ('[T]'). The door opener is activated using the code lock function '[🔑]'.

Inputs
The alarm input [1] dials the first chain call group (if activated). If this is not the case then the first number in the direct dial section is called without automatic call forwarding. The delay is fixed and set to one second. The alarm signal is activated if the call was initiated (internal loudspeaker only) and output on the LCD.

Number input
► Start with '[📞]'. A text is displayed that asks the user to input a number.
► The key '[📞]' ends the call or interrupts the number input.

Code input
► Start with '[🔑]'. A text is displayed that asks the user to input the code.
► Input is completed with '[#]'.

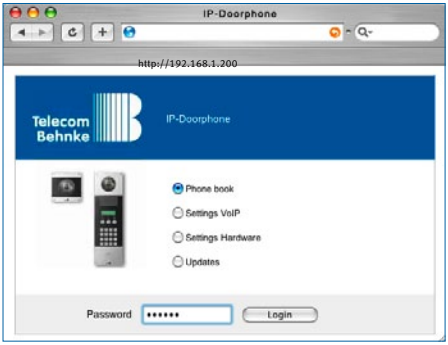
Call abort
If no input mode is active '[📞]' can be used to initiate a call or interrupt a connection. This is the same as pressing the bell key on the IP-Doorphone. The interrupt function is always possible, even if the keypad has been locked.

5. ADVANCED CONFIGURATION

5.1 IP-Doorphone

Homepage

The homepage is called up by entering the IP address in the web browser. The pre-set IP address is: 192.168.1.200 and the factory setting password is: 1234



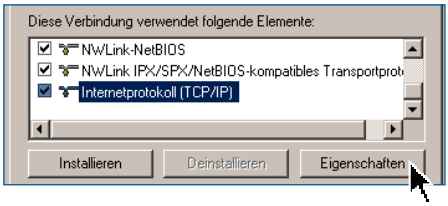
Changing the IP address on a computer running Windows XP

In Windows XP a PC IP address can be changed as follows: right click on the network environment (symbol is on the desktop).

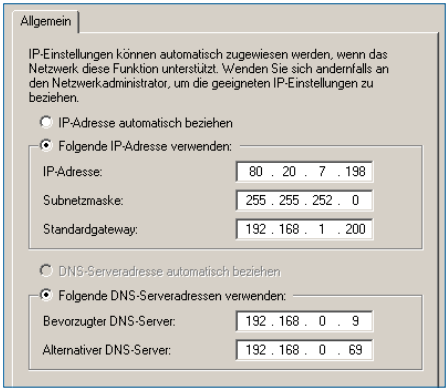
Then choose the ‘properties’ menu item from the context menu.

Right click on the network connection and choose the item ‘properties’ in the menu.

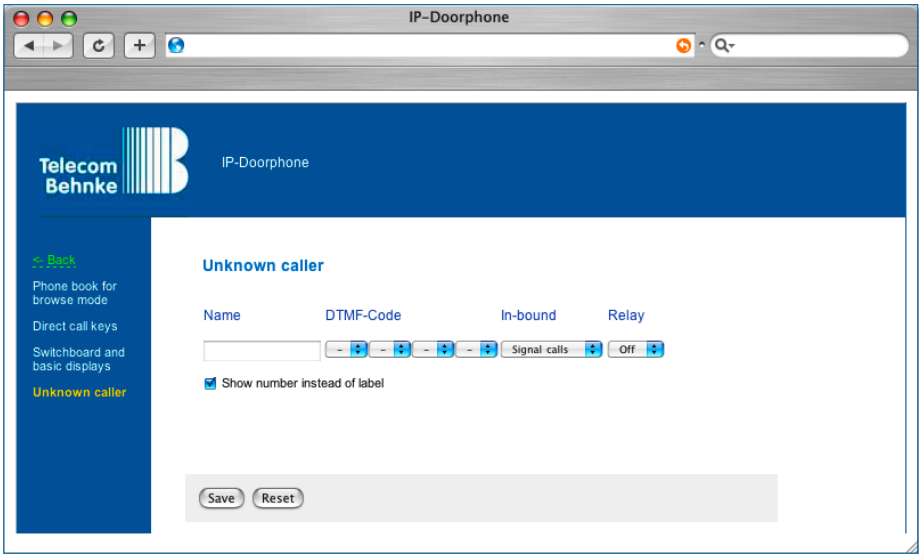
The window will then open as shown above. Then select the ‘Internet protocol’ item and click on the ‘properties’ button.



Set the relevant IP format. The IP address and the subnet mask are identical to the address of the IP camera except the last character of the IP address, which must be set differently.



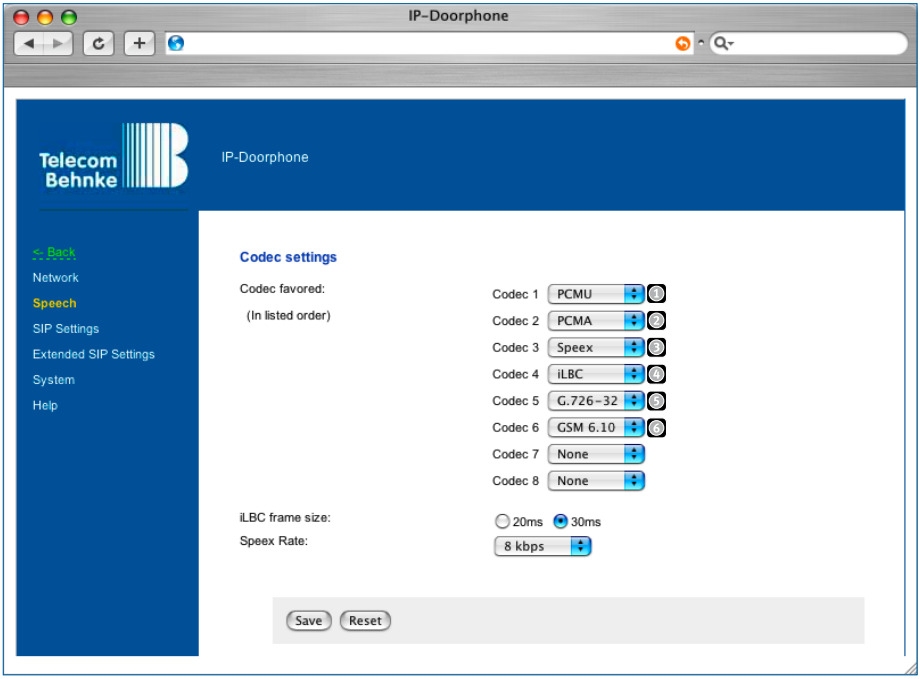
Options for unknown callers



- The subscriber options behave in the same way as with other subscribers in the telephone book except that they are valid for all unknown callers. That is why there is not option for outgoing calls in this case.
- Any name can be entered in the name field that will be displayed if an unknown subscriber calls. This field can also be left blank or the option activated to display the number in place of the name. Both mean that the caller's number will be shown in the display.

Language settings

This mask is used to set the codec that is to be used.



① **iLBC** ▸ This codec was conceived specifically for transferring speech via IP networks. It brings about a data volume of approx. 14 kbit/s (20 msec frame size) or 16 kbit/s (30 msec frame size) and is resilient to the loss of data packets.

② **Speex** ▸ Also optimised for speech transfer and highly scalable but only the data rate is scalable here. The standard setting of 8 kbit/s should be sufficient for functional communication. The loss of data packets causes hardly if any problems.

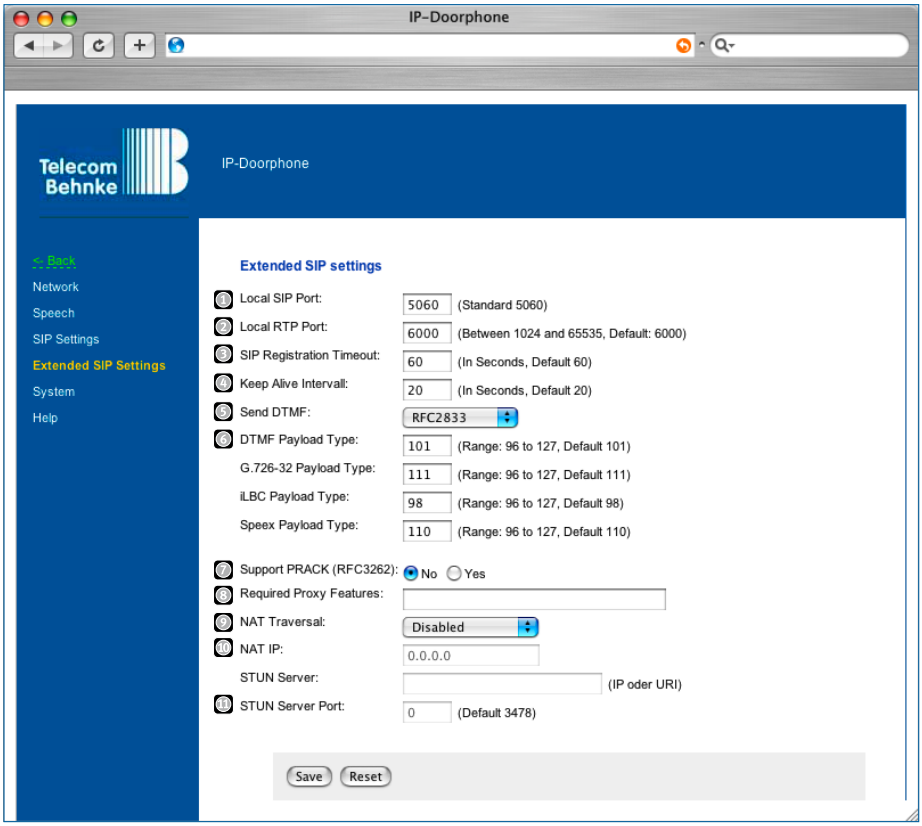
③ **PCMU** ▸ Standard for digital communication in North America and Japan. Very good speech quality but also a very high data volume of approx. 80 to 100 kbit/s.

④ **PCMA** ▸ Standard for digital communication in Europe. Very good speech quality, very high data volume of approx. 80 to 100 kbit/s.

⑤ **G.726-32** ▸ CODEC from the mobile phone sector. It brings about a very low data volume at still acceptable quality.

⑥ **GSM 6.10** ▸ Brings about a data volume of approx. 32 kbit/s at moderate speech quality.

Advanced SIP settings



1 **Local SIP port** ▸ Port number, via which the SIP protocol is processed for the administration of SIP connections.

2 **Local RTP port** ▸ Port number, via which the real time data transfer (audio data) is processed.

3 **Registration expiration** ▸ States the interval at which the registration at the SIP server needs to be renewed.

4 **Maintenance interval** ▸ States the interval at which empty RTP data packets should be sent to the SIP server so that the RTP port is kept open through an NAT firewall or a router.

⑤ **Send DTMF** ► States the method by which the DTMF signal is processed. This setting is only valid for the DTMF tones sent from the Behnke IP-Doorphone:

In the audio data stream ► Audio DTMF tones are transmitted as audio data. If the equipment is used in a telephone system that only supports In-audio-DTMF then this option should be selected, otherwise the door cannot be opened using DTMF tones.

RFC2833 ► DTMF characters are transmitted via the RTP protocol

SIP-Info ► DTMF characters are transmitted via the SIP protocol

⑥ **Payload type (all)** ► The payload type should be left at its standard setting except if the telephone system administrator expressly stipulates other values.

⑦ **PRACK support** ► PRACK (Provisional Acknowledge) protection of certain signals in SIP protocol.

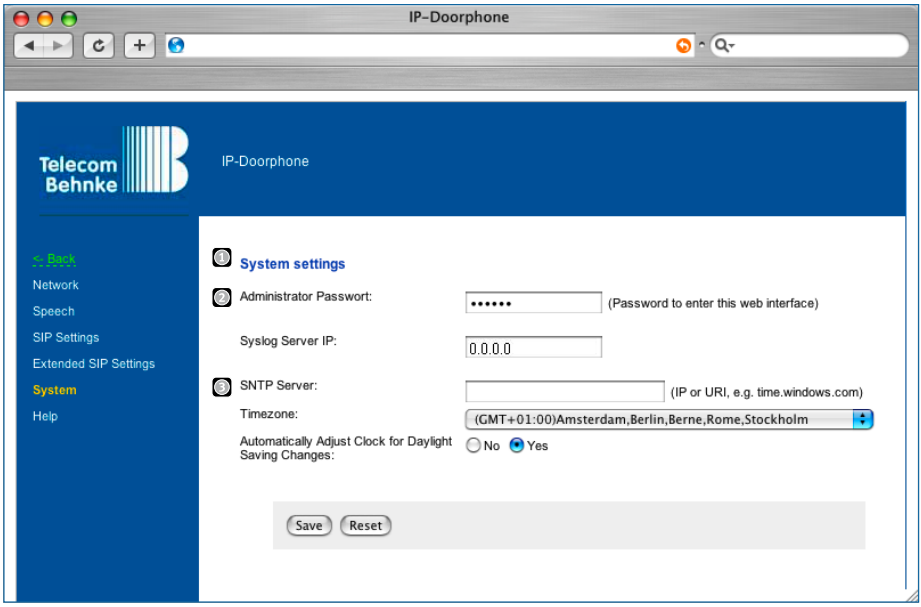
⑧ **Necessary proxy properties** ► Properties that the proxy server must control.

⑨ **NAT Traversal** ► If the door entry phone is behind an NAT firewall or a router then this is where we find how the door entry phone will determine its public IP address. This can be carried out with the option 'use NAT IP' for a fixed IP address (e.g. a leased line) or via an STUN server for dynamic allocation. If all work is carried out in a local network then this option can be deactivated.

⑩ **NAT-IP** ► IP address for the door entry phone from the point of view of the Internet (WAN address). With dynamic allocation this should happen automatically via an STUN server.

⑪ **STUN server and port** ► IP or URL of the server, via which the current public IP address of the door phone is to be determined, and its port number.

5.2 System settings



Administrator password ▸ Access password for the configuration of the door entry phone via the web interface.

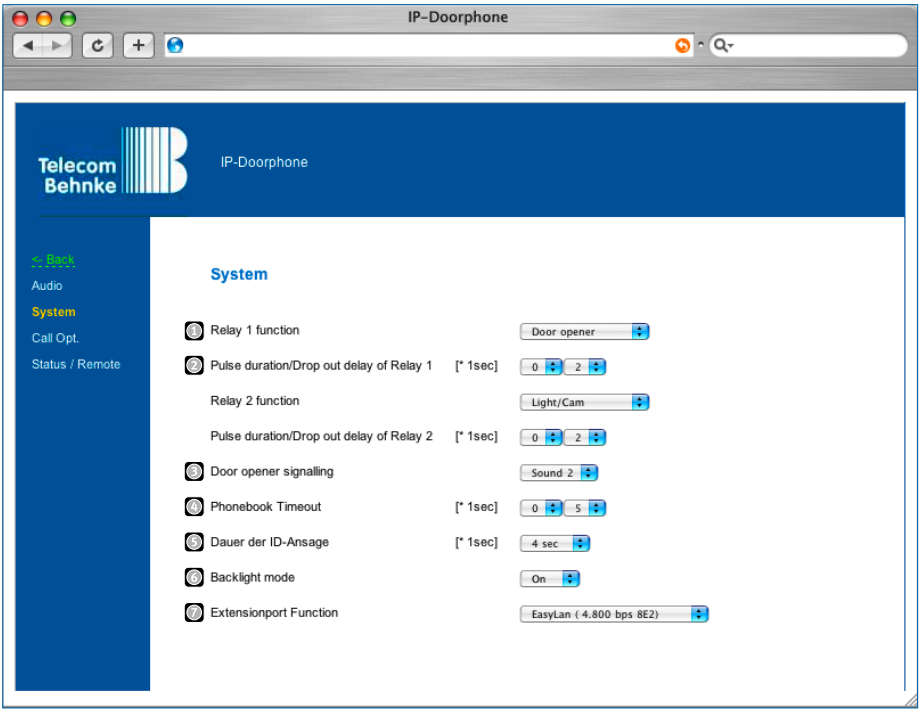
Syslog server IP ▸ IP address of the Syslog server. Particularly for finding error in the software development. This setting brings about a lot of data traffic in the network and should therefore always be left at the factory settings.

Current time – automatic settings via NTP ▸ This is where the time zone for the system time can be entered together with a server via which the current time can be downloaded. The time relates to standard GMT time and therefore shows only this without summer and winter times. To take account of this the ‘adjust clock’ option must be activated. The door entry phone only shows the time if no login has yet taken place at the SIP server, the registration with the SIP server was deactivated or there is a defect (connection to the SIP server). This setting is therefore not essential.

5.3 Hardware settings

System settings

General settings for the IP-Doorphone



Function of relay 1 (door)/relay 2 (light)
This allocates a function to each relay on the door entry phone.
Remote controlled ▸ No automatic function is allocated to the relay and it can be controlled remotely by UDP without being affected by internal controls.
Door opener ▸ The relay is activated by using the door opener function.
Light/Cam ▸ The relay is activated when a call is made from the speaker unit and activated during the conversation.
Fault report ▸ The relay is activated if there is no defect. It is cancelled if no network connection exists (only standard execution); there is no connection to the SIP server (only when the registration at the server is activated) and in the event of power failure.

② Active time/delay before shutdown ►
Depending on the allocated function the setting is either an active time (door opener) or a delay before shutdown (light/camera). For the defect report function the switch is made immediately if a new status is recognised. For remote control the active time that is transmitted with the signal is relevant.

③ Door opening signal ► The door opening signal functions on the same principle as a 'pedestrian crossing for the blind'. A tone sounds for as long as the door opener is pressed. This can be useful, for example, when the opener is used for direct current operation because there is no electro-acoustic signal.

④ Telephone book timeout ► The telephone book is called up by pressing the arrow keys when inactive. The time set here determines how long it takes until it once again becomes inactive after the last arrow key is pressed.

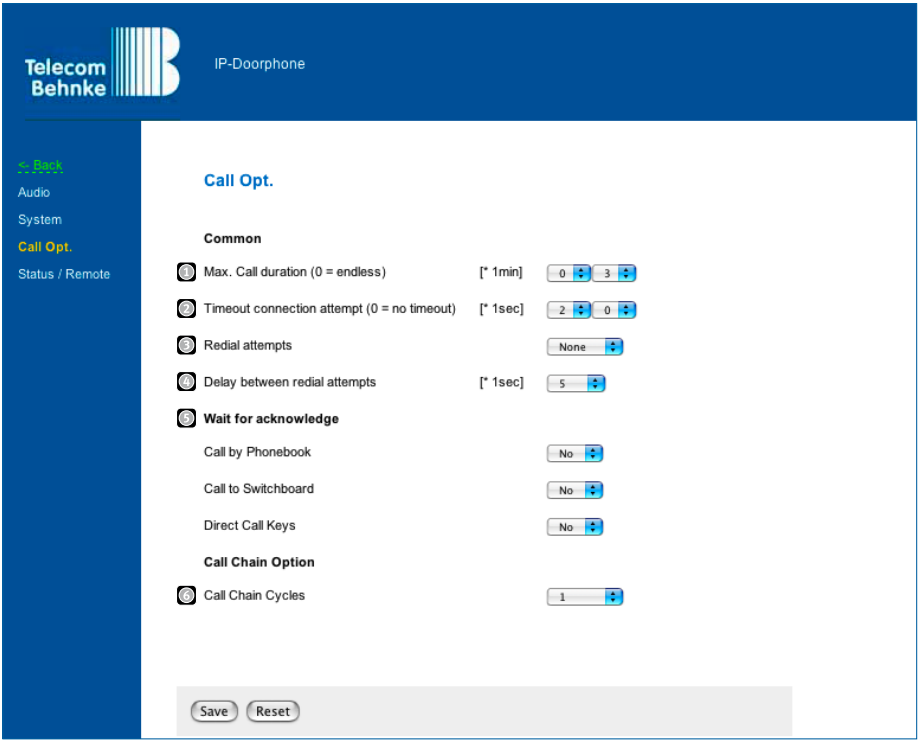
⑤ Duration of the ID announcement ► The duration of the stored announcement texts must be set here.

⑥ LCD background lighting ►
There are three options:
Off ► Always switched off
On ► Always switched on
Auto ► Only active if an action is carried out or an incoming call is signalled.

⑦ Extension interface function ► The extension interface serves to connect an additional external module and for internal service purposes. An additional external module can, for example, connect up to 115 bell keys to the speaker unit.

Global call parameters

General settings for the IP-Doorphone



① **Maximum call duration** ► Limits call duration. The connection is automatically terminated after this time.

② **Timeout connection attempt** ► Determines the maximum time to wait for a connection. This parameter can also be set with an SIP provider or an SIP server. If the call is not accepted then the call attempt is terminated.

③ **Redial attempts** ► The number of attempts that will be made until the call attempt is terminated. If the remote station is busy then the call will be tried again after the set time.

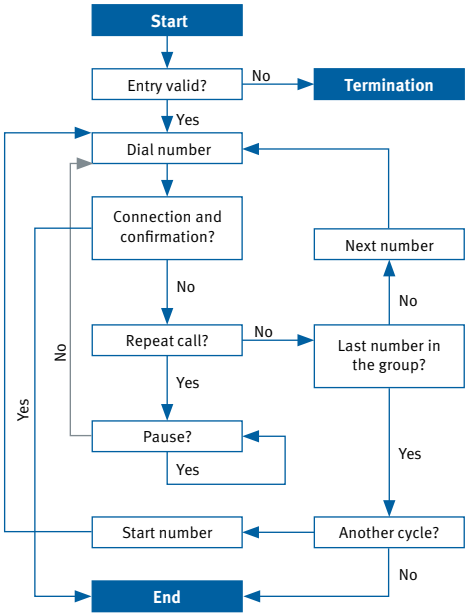
④ **Delay between redial attempts** ► Interval between dialling. In a chain call this interval is only upheld if a number is re-dialled. When changing to a different number the next call is made immediately!

Wait for acknowledge ▸ This function can be used to realise an explicit confirmation of a call acceptance. The subscriber who is called must confirm the acceptance with the '#' key. Otherwise the connection is terminated after 10 seconds and the call is tried again.

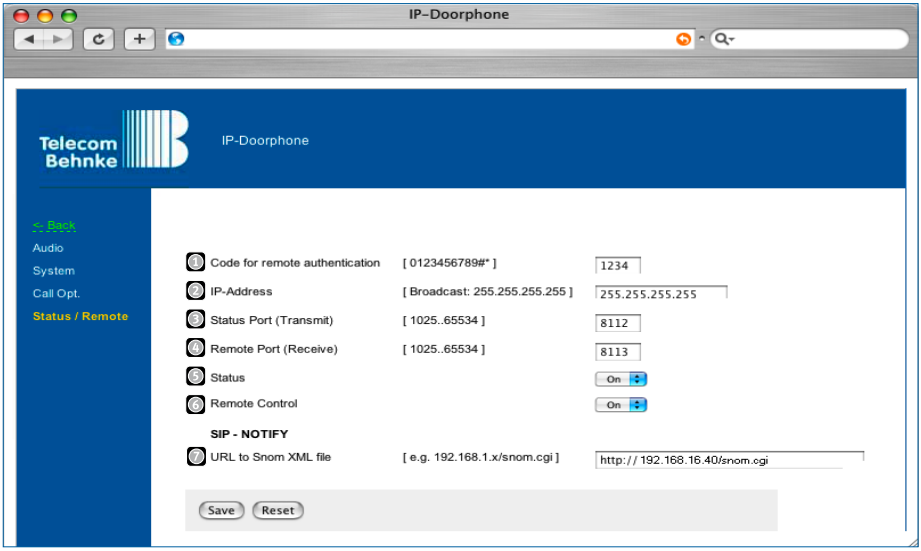
Call Chain Cycles ▸ The 15 direct dial numbers can either be used as direct dial numbers or as chain call groups. If the field 'group ID' contains a group then the button is configured for the relevant chain call group. The numbers in a group will be called in order until a connection is made. If confirmation with '#' is activated then the remote station must also confirm the acceptance with '#' (see 'hardware settings'› 'call'). This takes the global call parameters into account. The parameter 'chain call cycles' determines how often the number chain is dialled without success before the telephone returns to inactive.

- ▸ If 'infinite' is set for the number of call repetitions then it will not move onto the next number!
- ▸ Confirmation with '#' must be entered within 10 seconds after the connection. Otherwise the call hangs up and the next number is dialled. Successful confirmation results in a signal tone for the information of the subscriber who is called.

The graphic displays the function of a chain call.



Status reports



The above values must be entered in order to guarantee the functionality of the Behnke IP video software

① **Authentication code** ► Code that is transmitted by remote control software in order to activate the door opener. A maximum of 4 characters are permitted (numbers from 0 to 9 plus '*' and '#').

② **IP address** ► Provides the destination address to which the status reports are to be sent. This is the broadcast address as standard. This sends the reports to all the subscribers in the sub-network.

③ **Status port** ► Identification number for the application. This can allow specific framework conditions (firewall, etc.) to be taken into account.

④ **Remote control port** ► Port on which the telephone expects remote control commands (e.g. switch relay). This can allow specific framework conditions (firewall, etc.) to be taken into account.

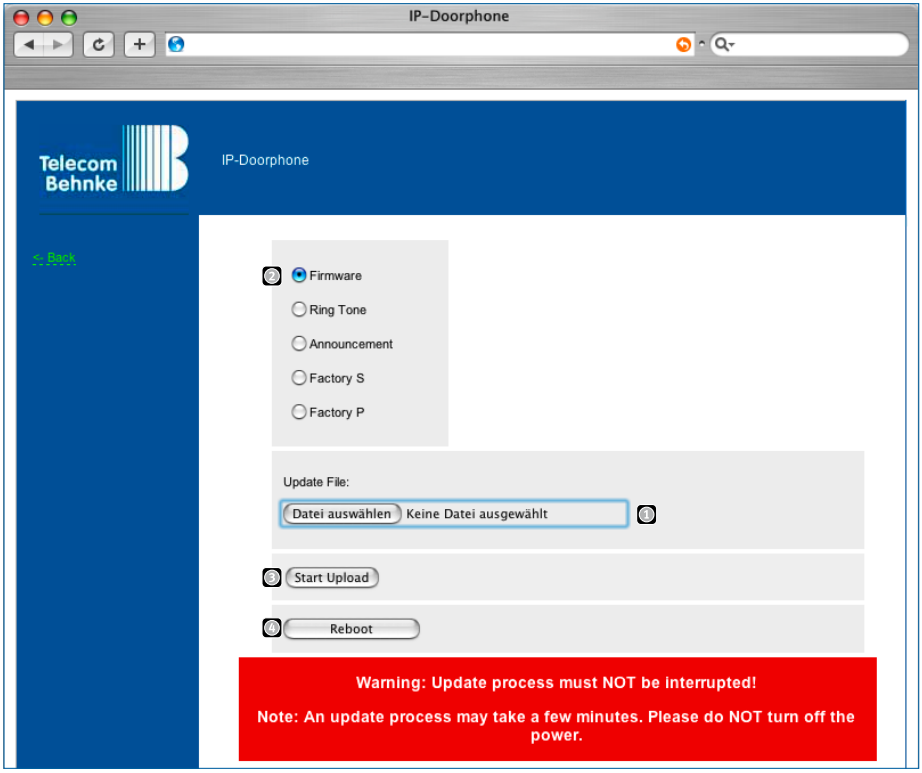
⑤ **Status** ► The status reports signal the various operational statuses of the door entry phone. This can be used to inform client-specific software of status changes and this can be used to report or initiate certain events.

⑥ **Remote control** ► Certain telephone functions can be initiated (e.g. trigger a relay).

⑦ **URL of the snom XML file** ► The URL that is entered here will be transmitted to the remote station that is called when calling via SIP notify. If the IP address entered here is the IP address of a Behnke IP camera then the video of this IP camera is displayed during the speech connection on an SIP telephone of the type 'snom 820'.

5.4 Update

This is where self-made ring tones or announcement texts are uploaded. The following instructions show how to make sound files for the telephone using the included software.



① **Browse** ► The desired sound file is selected after clicking on 'browse'.
② **Firmware** ► Upload firmware file (e.g. to change the language on the web interface)
Ring tone ► Upload ring tone
Announcement ► Upload announcement text
Factory S ► Upload setup data
Factory P ► Upload telephone book data
③ **Start upload** ► Ends the procedure
④ **Reboot** ► Carries out a telephone reset

5.5 Settings via DTMF

Introduction

Some audio settings can be changed during a call. This is carried out using special DTMF codes. However these settings only serve to simplify setup. They are temporary and the parameters that have been changed will be reset to their original values after the call. However if you have determined suitable values then these can be set permanently later via the web configuration.

Command structure

All DTMF commands for special functions are five-figure. They begin with a star (*), followed by a command digit, two digits for the parameter and end with a hash (#). Example command line:
‹star[1]›‹command[1]›‹parameter[2]›‹hash[1]›

Before the volume parameters can be set you must first change to service mode with *999#. **Note: please note that a break of 1 second must be left between two identical digits (e.g. 999).** The below parameters can then be changed.

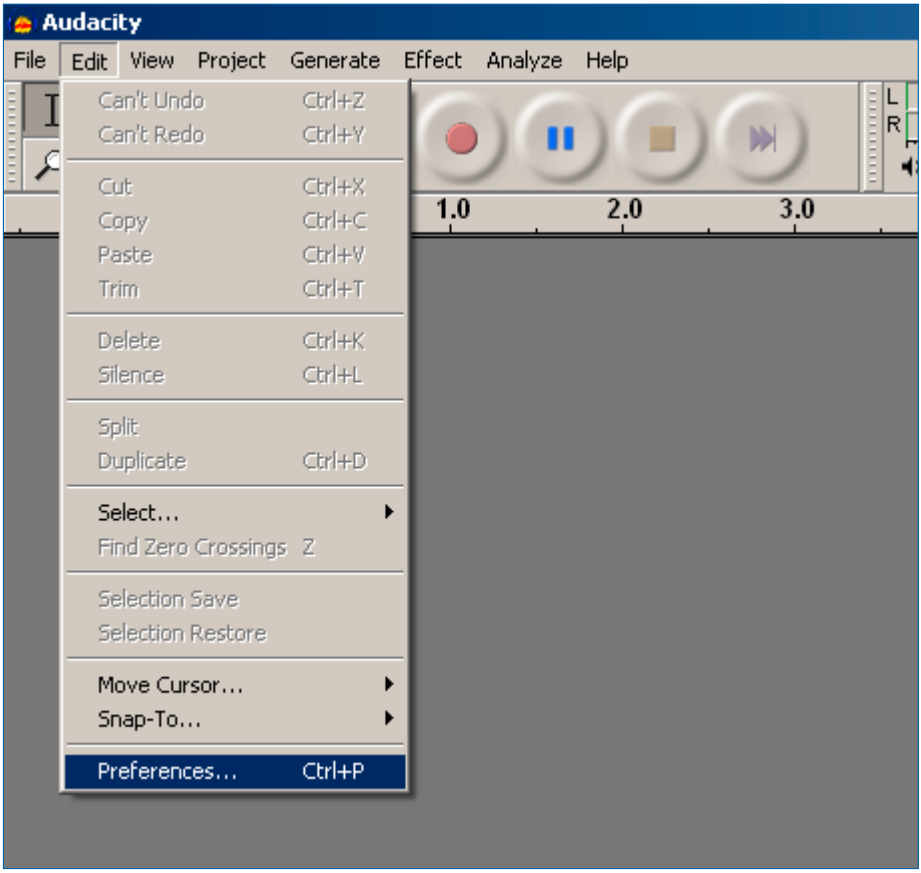
Kommandos

Kommando	Parameter	Funktion
9	[00..99]	Special functions
	99	Activate service mode
	00	Deactivate service mode
1	[00..99]	Change the LSP volume (door entry phone › telephone)
2	[00..99]	Change the LSP volume (telephone › door entry phone)
3	[00..99]	Change the beep volume
4	[00..99]	Change the volume of the confirmation tone
5	[00..99]	Change microphone volume (normal operation)
6	[00..99]	Change microphone volume (language weighing active)
7	[00..99]	Change the switch level on the language weighing
8	[00..20]	Change duration of mute [value * 100 ms]

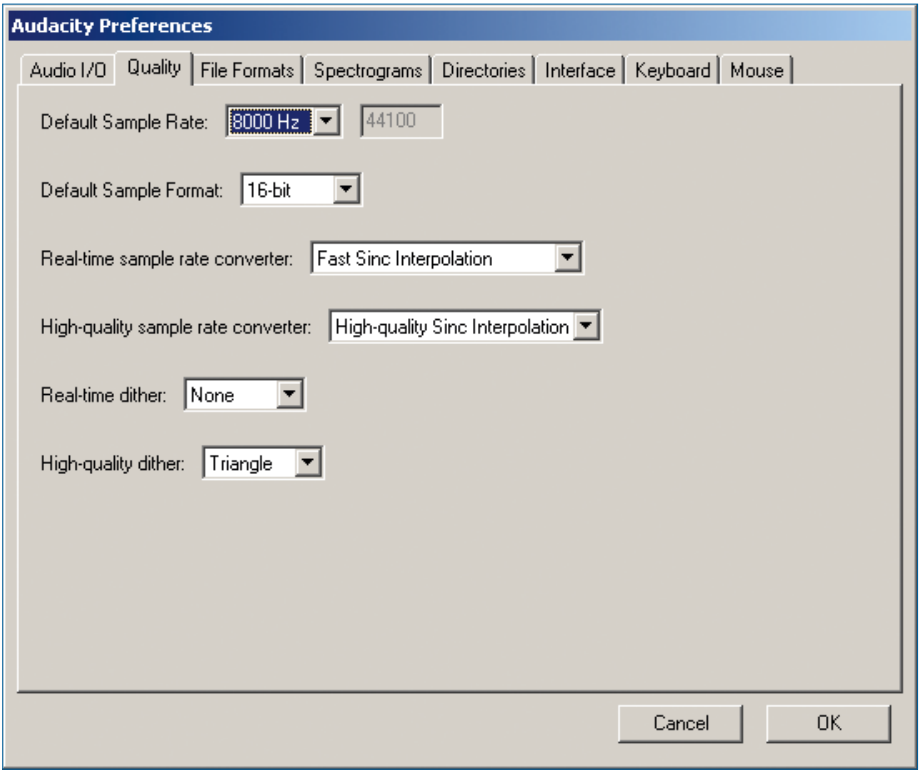
5.6 Create sound files

The ring tone and the announcement (text, e.g. the text that the subscriber who is called hears relating to the location of the door entry phone) can be produced in-house and uploaded into the door entry phone. To do this the audio file must be converted to the correct form (*.raw format in accordance with G711 u-Law) and then converted into the loadable flash binary format.

The following illustrations show how the announcement text is changed using the open source software 'Audacity'. If a new ring tone or announcement text is to be recorded then the sample rate of the project must first be set to 8000 Hz. This is carried out by selecting the item 'settings...' in the 'edit' menu.

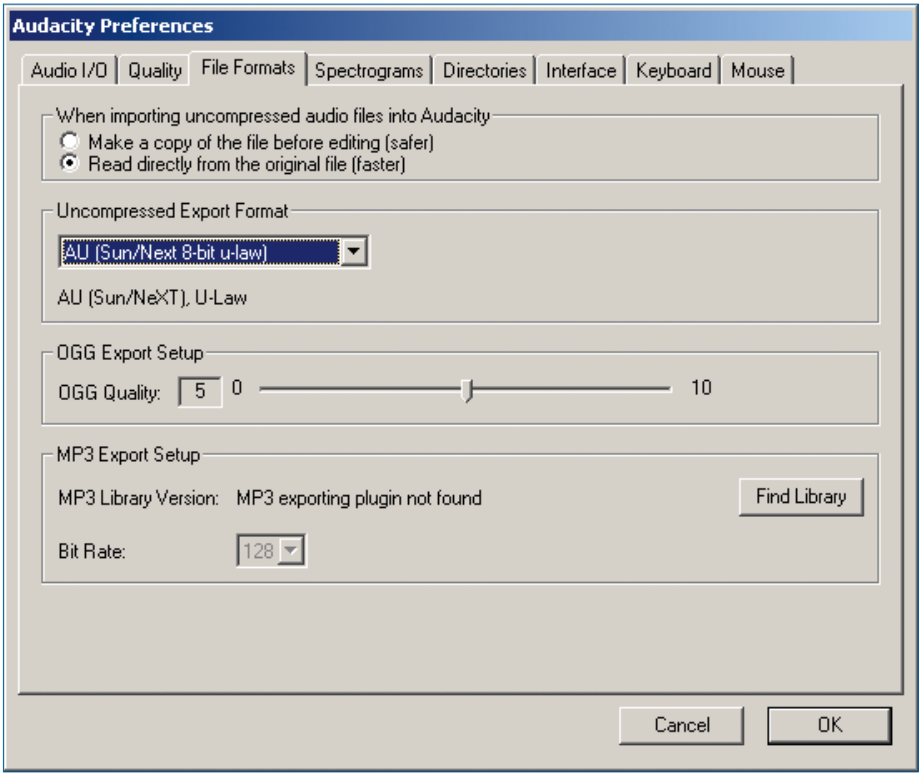


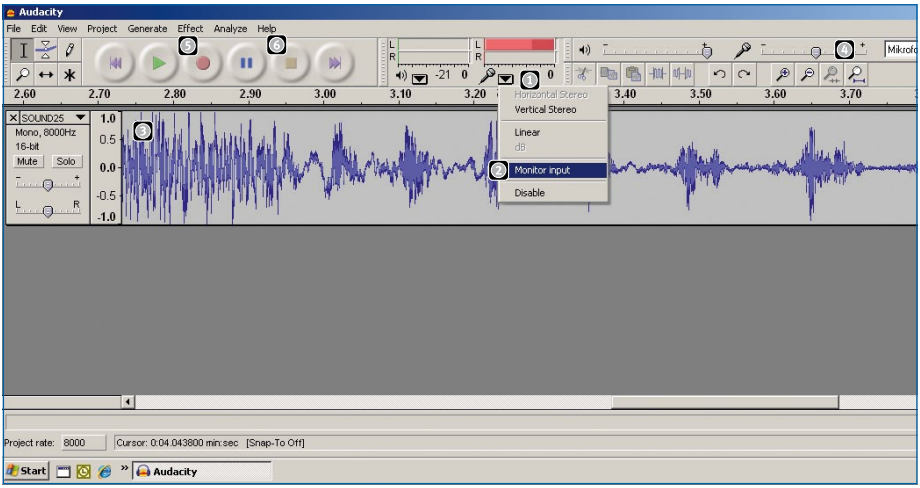
Initial settings



The ‘standard sample frequency’ must be set at 8000 Hz as shown for this purpose. The export format must remain set (page 52).

In the ‘file format’ tab the item ‘AU (Sun/Next 8-bit u-law)’ must be set as ‘uncompressed export format’.



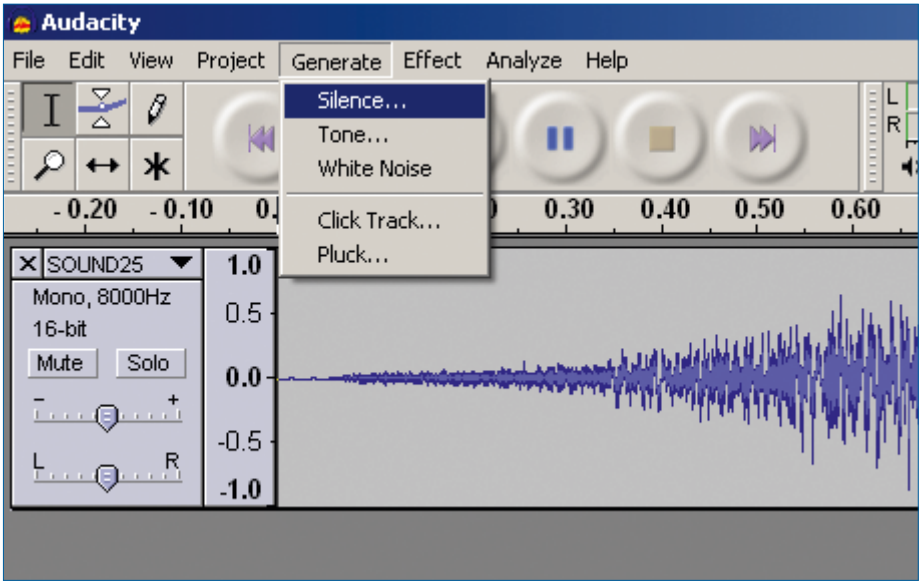


The sound must be adjusted before recording:

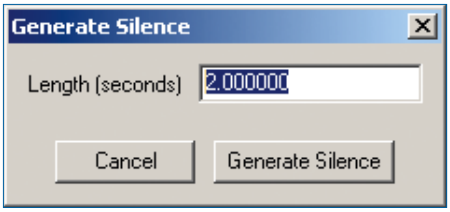
1. Press the button next to the microphone
2. Select ‘hear input signal’
3. The adjustment display appears
4. Use the slide control to set the volume so that the red bar never swings all the way to the right edge. Recording can now begin
5. Press the record button
6. Press the stop button to end

Instead of making a recording it is also possible to use an existing audio recording. This is loaded into the software via the menu item ‘open…’ in the file menu.

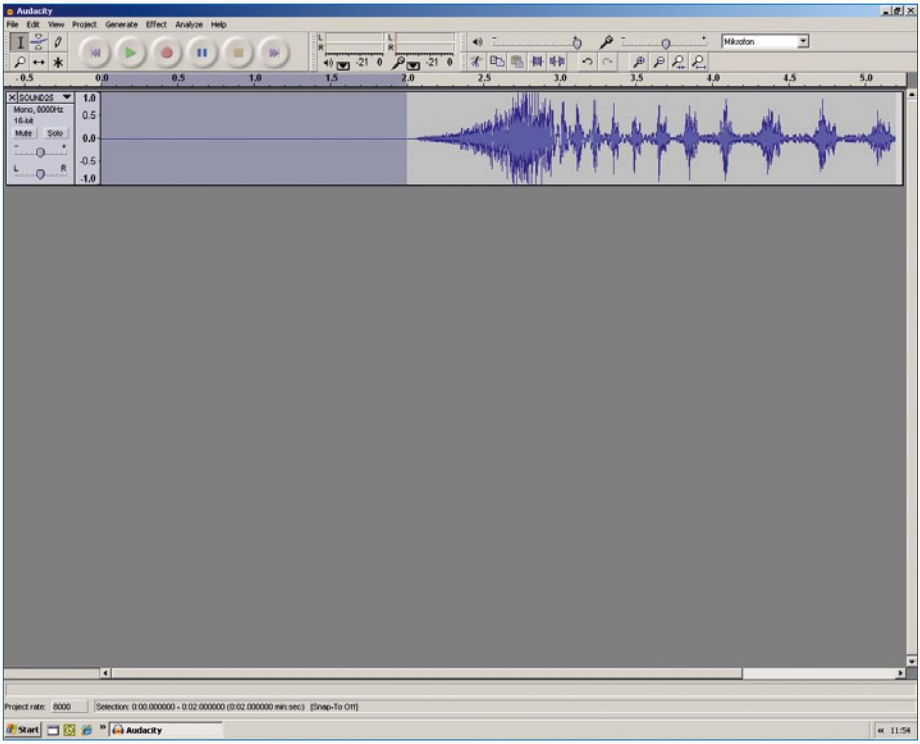
For the processing of the audio recording that now follows it makes no difference whether it was recorded with Audacity or with another software. For announcement texts ‘silence’ is required as a preliminary sound and it is inserted here: first click directly on the beginning of the recording where the silence needs to be inserted.



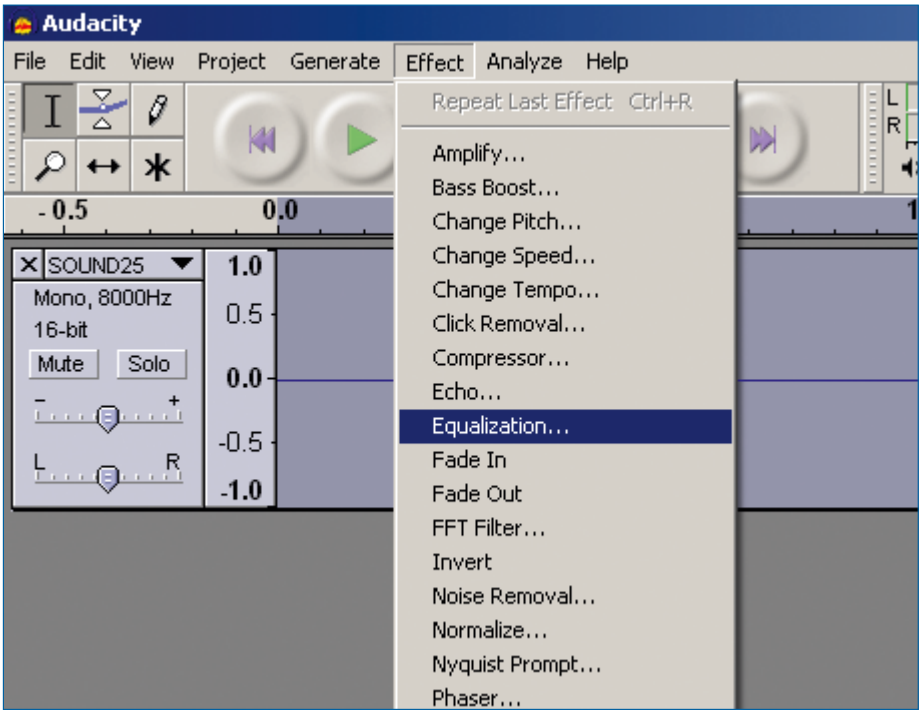
After selecting ‘silence...’ in the ‘generate’ menu a dialogue box will appear asking you to enter the duration of the silence. Enter a value between 1.5 and 2 seconds.



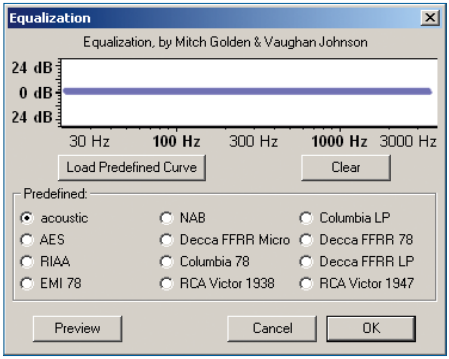
‘Create silence’ delivers the following result:



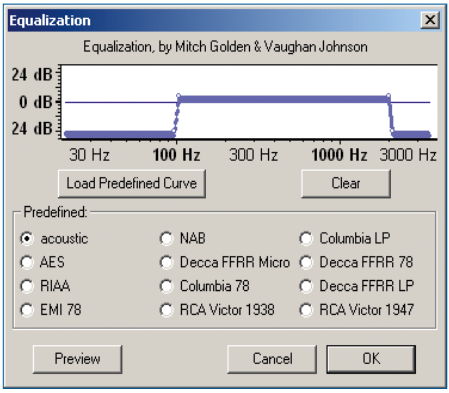
Now the frequency response in the recording needs to be trimmed. First mark the entire audio sequence (‘edit’ menu, ‘select…’ item, then click ‘all’). You can move to equalizer settings via the item ‘equalizer…’ in the ‘effect’ menu.



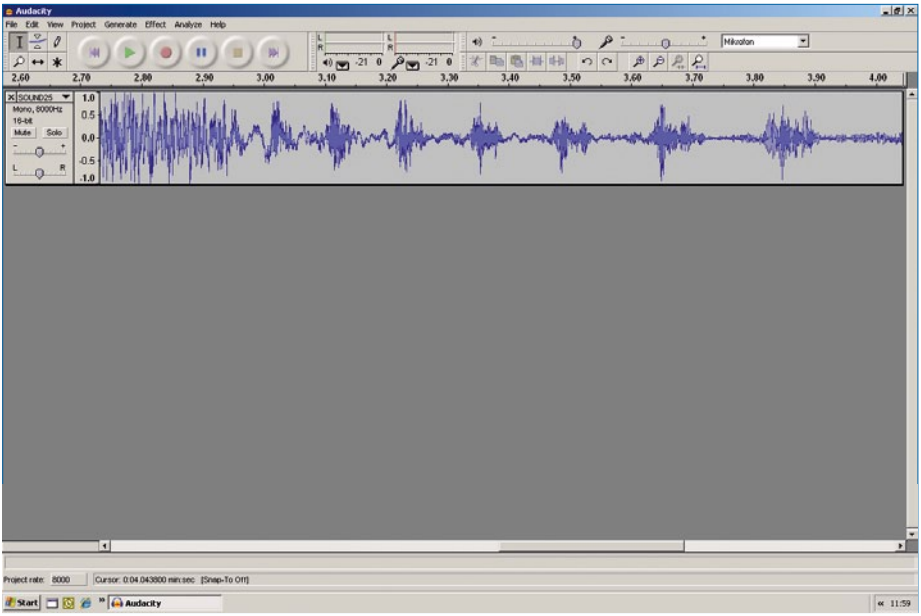
A window appears with the frequency curve. A straight line at 0 means no change to the original material in this case.



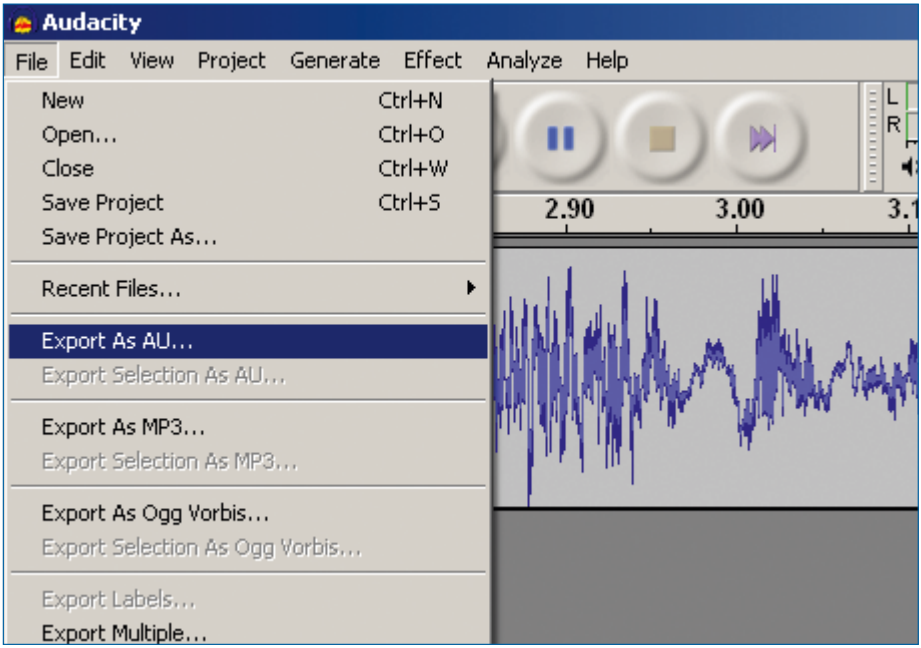
The frequency response of the recording should be limited to the frequency area of 300 Hz to 4 kHz. Click the mouse twice at approximately 100 Hz and twice at approximately 3500 Hz on the continuous line. The line will now be split at these points (small circles). Now click on each outer circle and hold the mouse button down in order to move that part of the line downwards. The illustration shows what the curve needs to look like after modification. A click on ‘ok’ applies the setting.



It must be ensured that the project rate (lower left of the window) is set to ‘8000’. If this is not the case then click on the number bottom left and select ‘8000’ in the drop-down menu. ‘silence’ may need to be removed from the end of the file before saving. The silence is shown as a horizontal blue line. To remove the silence, mark the area to be removed and click the ‘delete’ button on the keyboard.

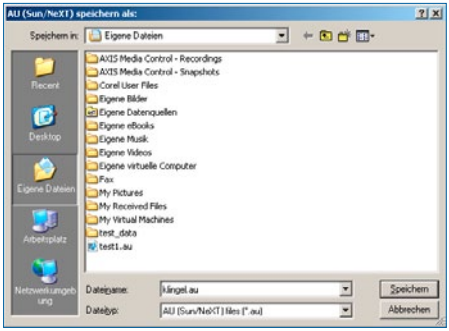


The sound file can now be saved. Select the item ‘export as AU...’ in the ‘file’ menu in order to write the file.



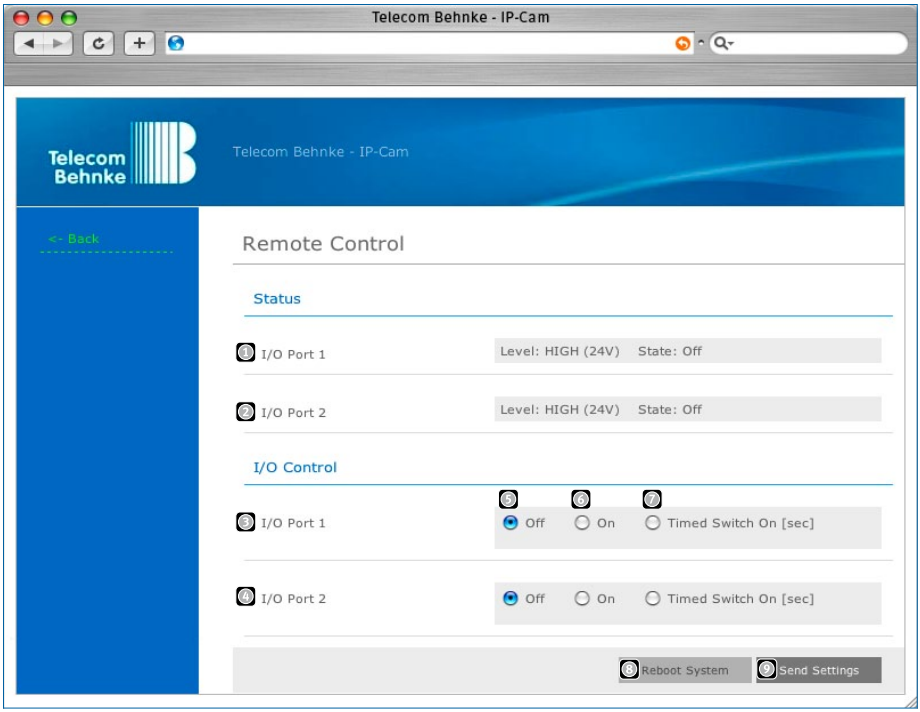
A file dialogue opens that can be used to determine the location and name of the sound file. After saving the file that has been created it needs to be converted into the flash format for the telephone. This requires the ‘convert’ tool. **Use:**

- Convert –r name.au holdmusic.dat to produce the announcement
- Convert –r name.au ringtone.dat to produce the ring tone
- ‘name.au’ is the name that was given previously in Audacity as the file name in the ‘save as’ dialogue.



5.7 Camera remote control

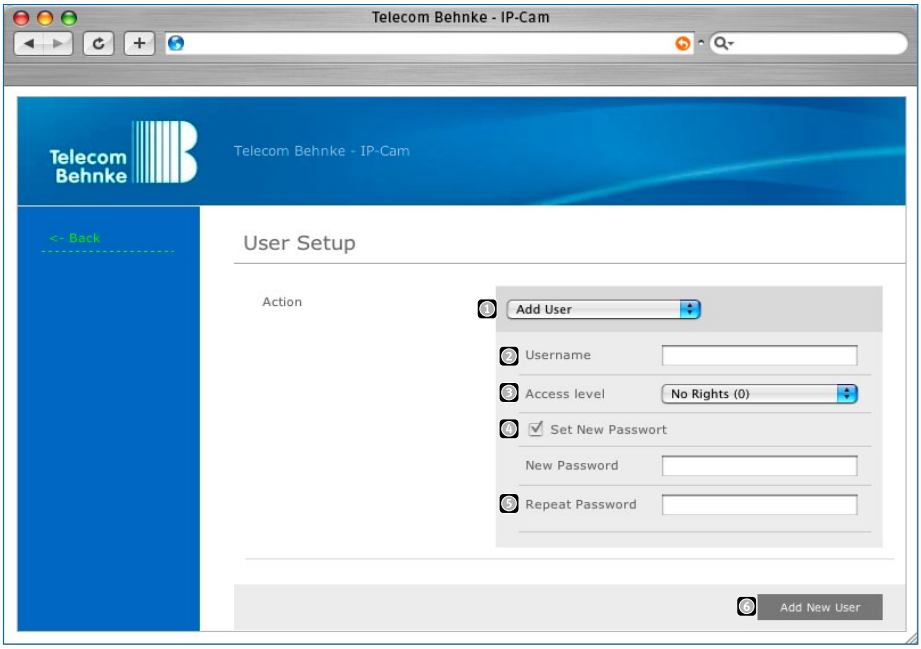
The IP camera can provide two optical coupler inputs or two relay outputs in connection with a I/O-Interface (43-9604). The outputs can be used, e.g., to switch a door opener or light via the web interface.



1. **I/O Port 1** ► displays the status of the first I/O input
2. **I/O Port 2** ► displays the status of the second I/O input
3. **I/O Port 1** ► to determine the switch status of the first output
4. **I/O Port 2** ► to determine the switch status of the second output
5. **Off** ► output always off
6. **On** ► output always on
7. **Time Switch On** ► switch the output on for a fixed period
8. **Reboot System** ► restarts the IP camera
9. **Send Settings** ► sends the settings to the camera so that they become effective

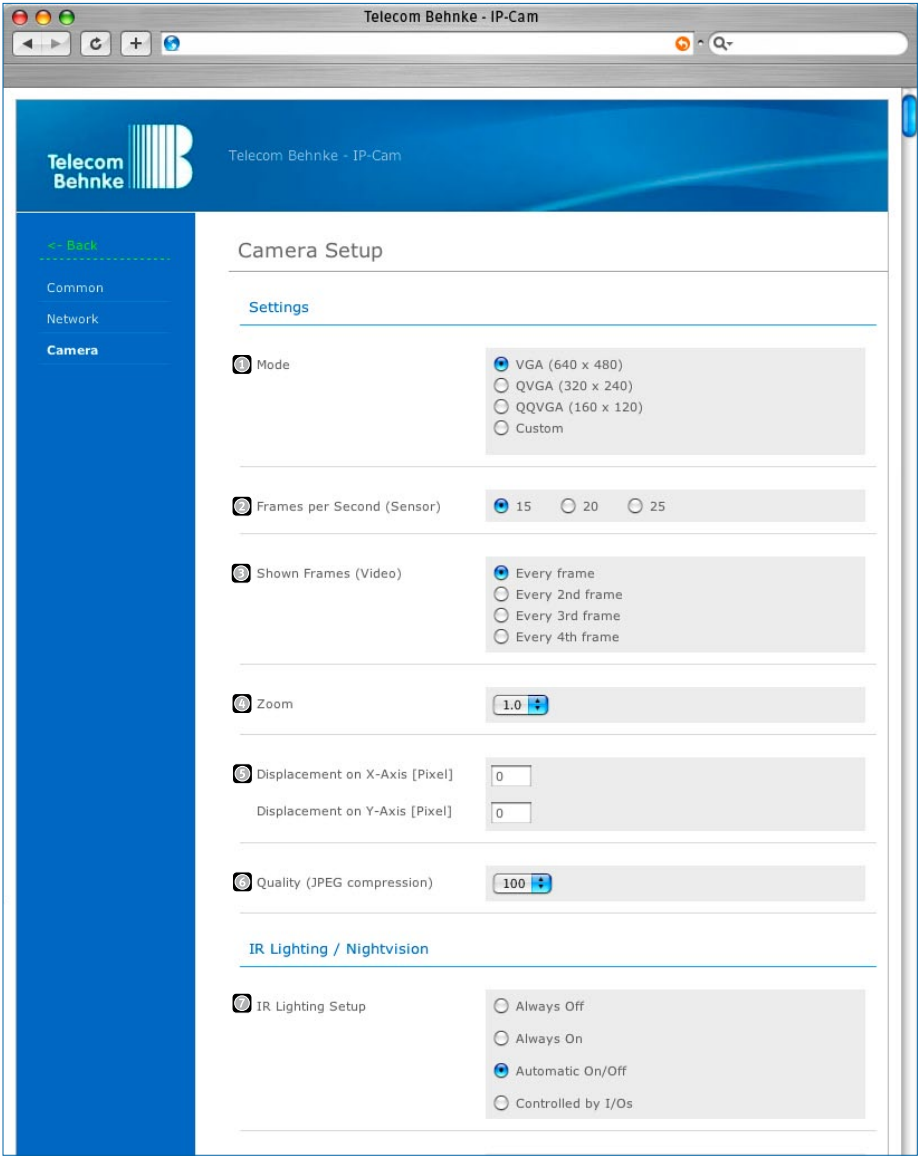
5.8 User administration / Access authorisation

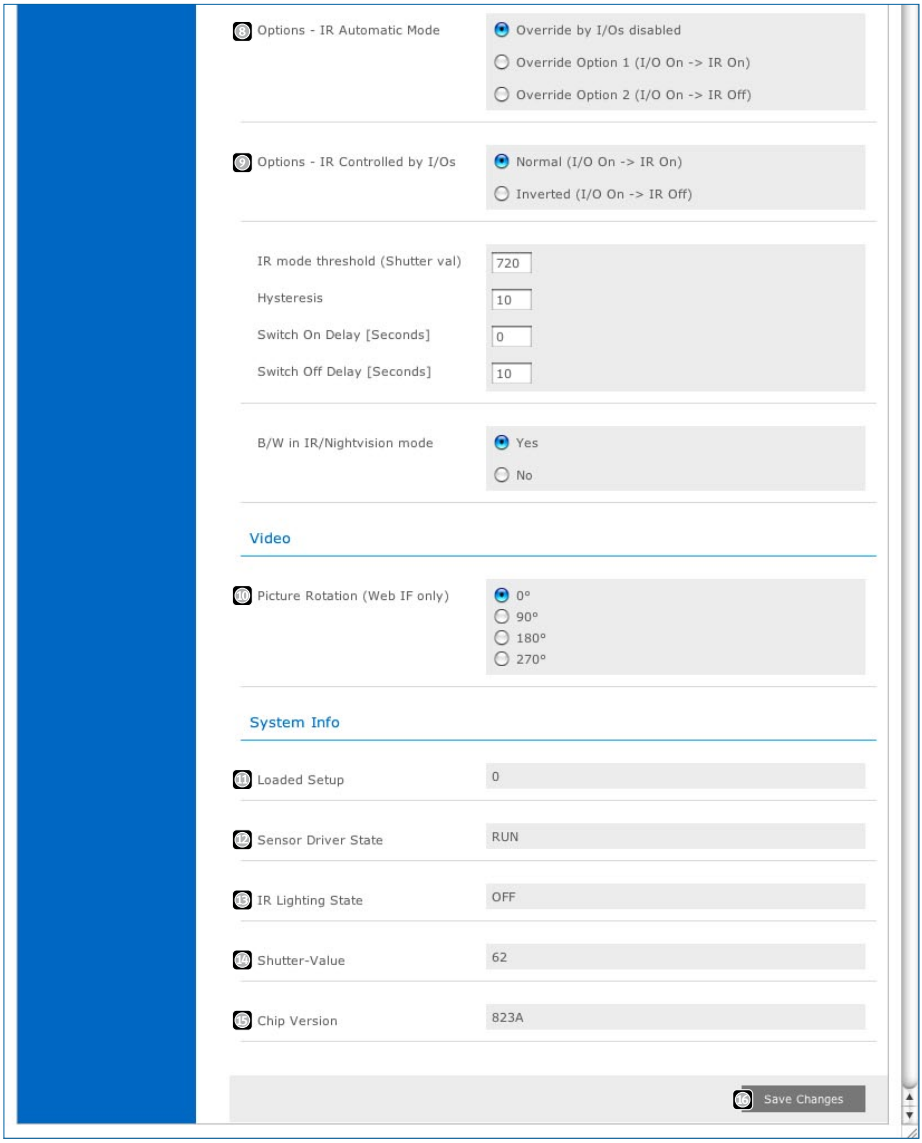
The IP camera users can be administered in this menu. Different authorisations can be allocated to one user. If you wish to provide the video and still picture displays without password protection this can be set under ‘settings’/’network’.



1. **Action** ► add, change or delete user.
2. **Username** ► enter user name (do not use umlauts or special symbols).
3. **Access level** (select access for a user).
   No access ► user is deactivated
   Viewer ► user has access to still picture and video display and to the camera ID.
   Remote control ► user has access to remote control.
   Admins ► user has unlimited access.
4. **Set New Password** ► enter password
5. **Repeat Password** ► confirm password
6. **Add New User** ► click to apply settings.

5.9 Camera settings




Options - IR Automatic Mode
Override by I/Os disabled
Override Option 1 (I/O On -> IR On)
Override Option 2 (I/O On -> IR Off)
Options - IR Controlled by I/Os
Normal (I/O On -> IR On)
Inverted (I/O On -> IR Off)
IR mode threshold (Shutter val)
720
Hysteresis
10
Switch On Delay [Seconds]
0
Switch Off Delay [Seconds]
10
B/W in IR/Nightvision mode
Yes
No
Video
Picture Rotation (Web IF only)
0°
90°
180°
270°
System Info
Loaded Setup
0
Sensor Driver State
RUN
IR Lighting State
OFF
Shutter-Value
62
Chip Version
823A
Save Changes

Settings

① **Mode** ► Setting the camera resolution
② **Number of pictures per second** ► Defines the number of pictures that the video sensor records per second. For VGA max. 15 (20 at quality 40), for QVGA/QQVGA max. 25.
③ **Pictures displayed** ► Shows how many of the recorded pictures are passed on as video. Then only every xth picture is transmitted.
④ **Zoom** ► Zoom setting. It is only possible to zoom with a resolution of less than VGA (640x480). The zoom factor can only be as great as the factor by which the picture was reduced. So for QQVGA max. 4.0 x. If the value entered is too large the setting is automatically corrected back to 1.0 x. In general:
(resolution X * zoom) M ≤ 640
(resolution X * zoom) M ≤ 480
⑤ **Relocate in X/Y direction** ► It is possible to relocate the image section (only for resolutions ‹ VGA). If you wish to display a certain section of the image the section can be relocated in an x/y direction until the desired section is visible. Incorrect values are corrected automatically! For example: at a resolution of 320x240 and 2x zoom, the centre of the picture is to be shown. To achieve this the image must be relocated by 160 pixels in an x direction and 120 pixels in a y direction.
⑥ **Quality (JPEG compression)** ► A low quality should be selected if the network bandwidth is insufficient (too many users).
⑦ **IR lighting** ► Select the mode for IR lighting here.
Always off ► IR lighting always off.
Always on ► IR lighting always on.
Automatic ► The camera measures brightness and switches the lighting on automatically as necessary.
Control via I/O ► IR lighting is controlled via the 2nd I/O port.
⑧ **Options – automatic IR operation** ► Determines that the IR lighting can be controlled via the second I/O port despite automatic operation.
I/O control off ► No reaction if I/O port is operated.
Control 1 ► If the I/O port is on then the IR lighting is also forced to activate.
Control 2 ► If the I/O port is on then the IR lighting is forced to deactivate.
⑨ **Options – IR control using I/O** ► Determines whether the IR control via the I/O port should be normal or inverted.

Video

⑪ **Rotating picture in video applet** ► The IP camera is able to rotate the displayed image in 90°steps so that the installation location of the IP camera can be selected freely. The rotation is only valid for display in the web interface. The images that can be called up directly via http://‹Kamera-IP›/jpg/image.jpg, and the motion JPEG stream that can be called up via http://‹Kamera-IP›/mjpg/video.mjpg are always as the original orientation. The client software must take over the rotation. **Note: still pictures can only be rotated if the web browser has Flash installed and supports it.**

General

⑪ **Preliminary settings** ► Shows which preliminary settings have been applied.

⑫ **Driver status** ► Status of the camera driver. This should always be set as 'RUN' or else the camera must be restarted.

⑬ **Status IR lighting** ► Shows whether the IR lighting is on or off.

⑭ **Shutter value** ► This is where the current 'position' of the camera's integrated shutter is displayed. This shutter ensures automatic lighting correction. This value allows an inference as the intensity of the current lighting. The greater the value the less ambient light.

⑮ **Chip version** ► Version of the installed video chip

⑯ **Save changes** ► Saves the settings permanently and returns you to the main menu.

6. APPENDIX

6.1 Configuration of keypad

Configuration mode

To programme the keypad it must be set to configuration mode. This is carried out as follows:

- ► Press and hold down '0'. Then press the 'headset' key at the same time. As well as the error signal there will also be a key confirmation tone. Then release the keys.
- ► Press the keys '*' and '1' at the same time. Release both keys once confirmed.
- ► Keys '#' and '2'. A short, continuous tone confirms the selection. The key selection block is now in configuration mode. After 10 seconds with no further input the configuration mode will be ended.

Set time out for number input

This is where you set how long the key selection block will wait before considering the call number input complete and the inputted number is dialled.

- ► Hold the '*' and '1' keys in the configuration selection down together. A confirmation will follow. Release the keys. The display will show an input demand.
- ► Two digits must be entered, as for the speed dial. Values from '01' to '10' can be entered (meaning from one second to 10 seconds). Values that are too great are limited to 10 seconds and '00' is corrected to '01'.
- ► After the new time out value has been entered a confirmation tone will sound and the keyboard will return to idle. If another setting needs to be entered then the procedure 'activate configuration selection' must be repeated.

6.2 Status reports

The IP-Doorphone is able to send reports on its status into the network. It is also still possible to remotely control the relay on the door entry phone via software, which also works without making a call.

Protocol

- ► The status reports are transmitted via UDP and give the current status or the change to the status of the IP-Doorphone. A UDP data packet is structured as follows: ‹sequencenumber›# ‹status›@‹parameterbytes›‹testsum›

Sequence number

- ► The number of the current data set. Is always increased by 1 up to 255 and then starts again at 0. This enables recognition of the multiple receipt of a data set. The sequence number consists of a 2 Byte HEX string (e.g.: 01, FF, ...).

Status

- ► Provides the current status and/or the type of data report. The status consists of a 2 byte HEX string.

Parameter bytes

- ► The parameter bytes are an extension of the status byte. They contain more information (e.g. a phone number, more detailed status etc.) for the status byte. The parameter always comprises 24 characters (ASCII – no control characters!). Unused positions are filled with blank spaces.

Test sum

- The test sum serves to control whether the status data in the data packet is correct. Transmission security is carried out via the Ethernet – transmission layer (CRC32). The test sum comprises a 2 Byte HEX string and is formed over all data bytes as Addition Modulo 256.

Status reports

Status byte	Parameter byte	Description
0x0A	‹empty› or ‹XY›	IDLE XY = Firmware version Atmega (2 digits HEX)
0x01	Caller number	Incoming call
0x05	Remote station number	Connection status
0x06	‹empty›	Call status
0x07	Remote station number	Call establishment status
0x14	Send ID	A maximum of 24 characters of the optional user name are transmitted (SIP settings).
0x4C	Byte0 = 0x31	Login at SIP server successful
	Byte0 = 0x32	Login at SIP server unsuccessful
0x1E	‹see remote control protocol›	Reply to remote control packet

When the number is suppressed (incoming call) the parameter field ‘anonymous’ is entered. Please ensure that there is no zero added at the end of a string in the parameter field.

6.3 Remote control

Protocol

► ‹ID›‹sender IP›‹sequencenumber› ‹outputnumber›‹duration›‹password› ‹testsum›

ID

► Identification of the protocol: 'BSREM' (5 characters - ASCII)

Sender IP

► Includes the sender's IP as a string of hex characters. 192.168.0.2 would be 'C0A80002'.

Sequence number

► Serves to identify a packet if a series of packets was sent. Thus packets that were received twice can be identified. The sequence number is represented as a hexadecimal with two characters. Range 0 to 255 => 00..FF

Output number

► Number of the output to be controlled. Values from 1 to 4 are permitted. The number has only one hex character.
1 = door opener relay
2 = light relay (attention! Observe special function in web interface!)
3 = camera IO 1
4 = camera IO 2

Duration

Is coded as a two character hex string.
0 = Off
1 = On (permanent)
2..255 = active duration in seconds

Password

► Equivalent to the DTMF Code for central call. Only switched if agreement occurs. Unused positions in the password must be transmitted as 'F'. The password always comprises 4 characters (only DTMF characters '0123456789*#' and 'F').

Test sum

► The test sum is created in the status reports. The IP-Doorphone sends confirmation after successful testing and forwarding the enquiry. The confirmation is only sent if the status reports have been activated. The data packet has the status code 0x1E and the defined remote control data packet above is sent pack 1:1 as a parameter (fills all 24 bytes and parameters).

6.4 Technical data for IP-Doorphone

Functions
- LC display, two rows with lighting
- Telephone book with 100 entries (in conjunction with display)
- Three keys to search and call (in conjunction with display)
- Up to three potential-free direct call keys
- Speed dial with up to 100 destinations (in conjunction with keypad)
- Code lock function with up to 4-figure code (in conjunction with keypad)
- Built-in loudspeaker 2 Watt
- Built-in microphone
- Door opener (potential-free relay contact 24 V, 2 A) via DTMF selection out-of-band (SIP-Info/ RFC 2833) or code lock function
- Call display (Potential-free relay contact 24 V,2 A)

Video
- Video web server, browser support: Microsoft Internet Explorer, Mozilla Firefox, Apple Safari, Java necessary
- Video resolution of 640x480 pixels
- Support for fixed IP address and DHCP

Network
- MAC address (IEEE 802.3)
- IPv4 – Internet Protocol Version 4 (RFC 791)
- ARP – Address Resolution Protocol
- DNS – A record (RFC 1706), SRV Record (RFC 2782)
- DHCP Client – Dynamic Host Configuration Protocol (RFC 2131)
- TCP – Transmission Control Protocol (RFC 793)
- UDP – User Datagram Protocol (RFC 768)
- RTP – Real Time Protocol (RFC 1889) (RFC 1890)
- RTCP – Real Time Control Protocol (RFC 1889)
- DiffServ (RFC 2475), Type of Service (RFC 791, RFC 1349)
- SNTP – Simple Network Time Protocol (RFC 2030)
- SIPv2 – Session Initiation Protocol Version 2 (RFC 3261,3262,3263,3264)
- SIP in NAT networks (STUN)

Speech codecs
- G.711 (A-law, µ-law)
- G726 (32 kbps)
- GSM 6.10
- iLBC
- Speex
- DTMF In-Band and Out-of-Band (SIP Info / RFC 2833) transmission
- DTMF Out-of-Band (SIP Info / RFC 2833) receiving
- Full duplex
- Echo suppression

Security
- Password protection for admin access

Administration
- Web browser supported administration

Physical connections
- RJ-45 Port for Ethernet 10baseT (IEEE 802.3)
- Terminal strip for power supply

Power supply
- Via Power over Ethernet (PoE) in accordance with IEEE 802.3af
- Or via terminal strip: 20-36 V DC
- Consumption 4 W without Video
- Consumption 9 W with Video

6.5 Reset IP-Doorphone to factory settings

Up to firmware version 2.4:

- ► Remove power from IP-Doorphone.
- ► Hold down the 'up arrow' key.
- ► Reconnect device to power (PoE/Endpan or via the connection strip).
- ► After approx. 5-8 seconds hold down the bell key briefly and then release. A short acoustic confirmation sound is heard. Hold down the 'up arrow' key and hold it down until a second acoustic confirmation sound is heard. The display will then show '0'.
- ► Remove the jumper from the 'spare' position and insert it into 'Load Fa.'. The factory settings will now be applied and the speaker unit will restart. The idle display appears (date/time and 'system offline').
- ► **Attention: on no account should the jumper be placed at the 'Store fa.'Position.**
- ► Now reinsert the jumper in the 'spare' position and hold down the 'down arrow' key until you hear an acoustic confirmation sound. The door entry phone will now per form a 'cold start'.
- ► The reset process is now complete and the settings should be back as at delivery.

From firmware version 2.4:

- ► Remove power from IP-Doorphone.
- ► Move the jumper from 'spare' to 'Load Fa.'.
- ► Reconnect device to power (PoE/Endpan or via the connection strip)

Up to hardware 1.2 the following automatic sequence will follow:

1) confirmation tone and both LEDs (red/ yellow) light up.
2) LCD text 'settings complete' and only the red LED is lit.
3) LCD text 'remove jumper' and yellow LED flashes.

From hardware 1.4 the following automatic sequence will follow:

1) 'LED3' lights
2) 'LED2' lights, LCD text 'settings complete'
3) 'LED3' goes out, 'LED2' flashes. LCD text 'remove jumper'

- ► Now remove the jumper and reinsert it at 'spare'.
- ► The speaker unit will restart as soon as the jumper is removed.
- ► Alternatively you can remove the device from the power before removing the jumper (yellow LED flashing).

Error: cycling error tone and red LED flashes (once a second).
Cause: several jumpers inserted or short circuit in jumper field.

Error: single error tone and red LED flashes rapidly.
Cause: Jumper removed too early.

6.6 Technical data for camera

Hardware

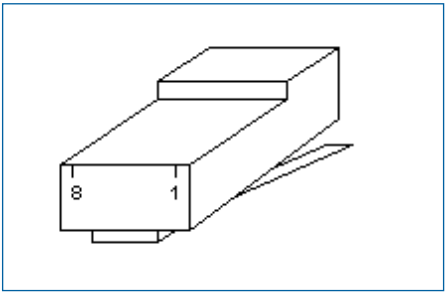
- The IP-CAM has a powerful 32 bit RISC-DSP processor with a frequency of 128 MHz.
- The camera is based on a CMOS Image Sensor, which delivers the image information directly to the CPU with DMA.
- The colour picture is available at 640 x 480 (VGA) or 320 x 240 (¼ VGA).
- Hardware-based JPEG compression with a maximum of 25 images per second. The maximum network load when transmitting an MJPEG stream at 640 x 480 pixels resolution is approx. 2 MBit/s.
- 100BaseTX Ethernet Interface
- Power-over-Ethernet (PoE) Interface
- Alternative power supply 24V DC
- IR LED lighting
- -20° C to + 40°C (-20°C from 15 minutes operating time)
- EMC tested, CE certificate

Software

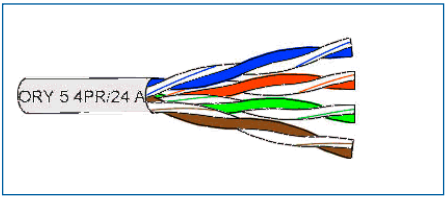
- Image representation in web browser in VGA (640x480), QVGA (320x240) and QQVGA (160x120)
- Up to 4x digital zoom.
- Display can be rotated in 90°steps.
- Configurable via web interface.
- Automatic recognition of night use and switching IR lighting on.

Connection scheme

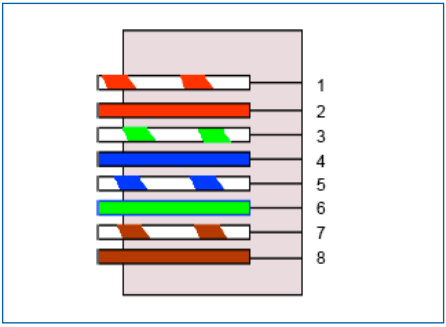
Pin numbering RJ45 jack



Colour coding of cable in accordance with EIA/TIA 568A

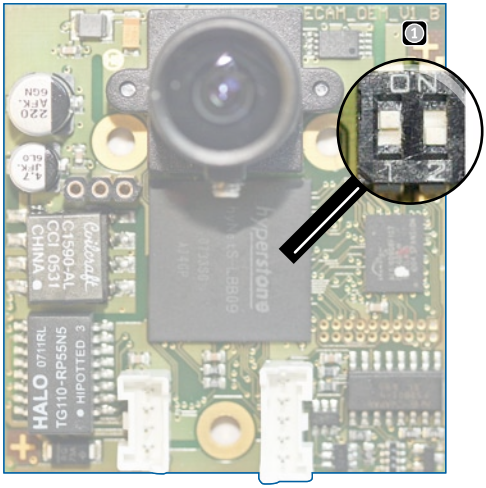


Layout



6.7 Reset IP address on camera

This should only be carried out by professionals. The client is responsible for damage caused by the incorrect opening of the casing.



If the set IP address is not known it is possible to reset it to the address 10.10.10.10 via ① DIP switch. The device must be opened to do this.

Note: if only the IP address needs changing this can be done via the web interface of the IP camera.

Procedure

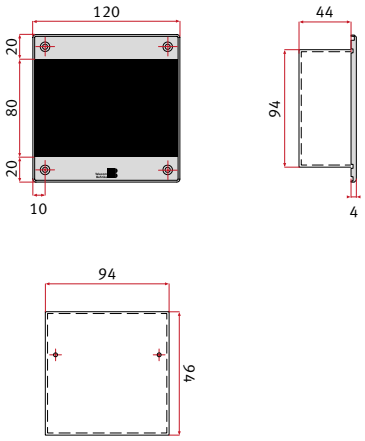
The procedure for resetting the IP address is as follows:

- ► Open the IP camera so both DIP-switches are accessible (see picture).
- ► Note the switch positions and then set both switches to 'off' (opposite to 'on').
- ► Connect a PC with the IP number 10.10.10.xxx and set the desired IP address via the web interface.
- ► Return switch settings to their original position.
- ► Close the casing again correctly.

Dimensioning sketches

SERIES 40 – ‘EXTENSION MODULES’ SINGLE

Dimensioning in mm



43-2911 IP camera

Dimensions (H x W x D)

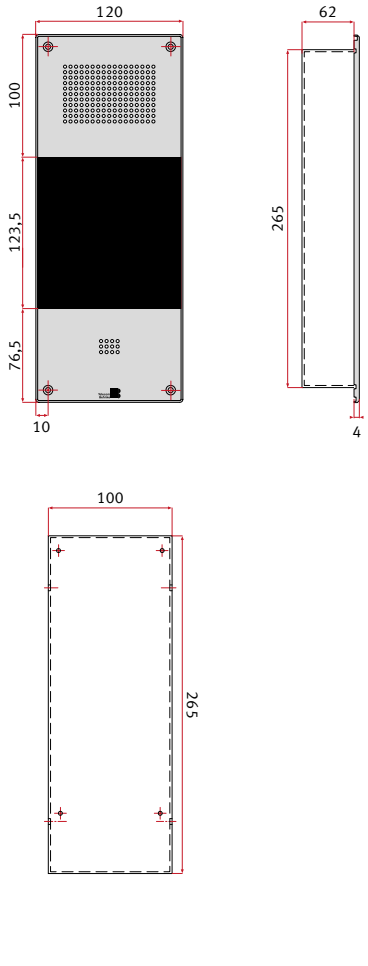
- Exterior dimensions: 120 x 120 x 48 mm (camera without dome)
- Installation dimensions: 94 x 94 x 44 mm

Module (with electronics)

- We recommend a cavity depth of approx. 55-65 mm in order to have sufficient space for cables and similar.

SERIES 40 – ‘DESIGN LINE’ TRIPLE

Dimensioning in mm



BT 43-752 Example

Dimensions (H x W x D)

- Exterior dimensions: 300 x 120 x 66 mm
- Installation dimensions: 265 x 100 x 62 mm

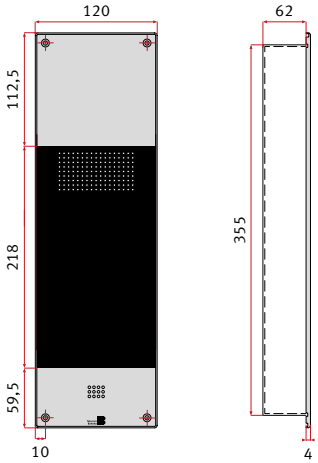
Telephone (with electronics)

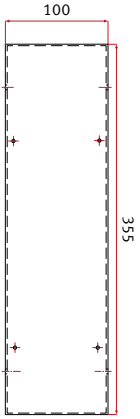
- We recommend a cavity depth of approx. 75-85 mm in order to have sufficient space for cables and similar.

Dimensioning sketches

SERIES 40 – ‘DESIGN LINE’ QUADRUPLE

Dimensioning in mm





BT 43-660 Example

Dimensions (H x W x D)

- Exterior dimensions: 390 x 120 x 66 mm
- Installation dimensions: 355 x 100 x 62 mm

Telephone (with electronics)

- We recommend a cavity depth of approx. 75-85 mm in order to have sufficient space for cables and similar.

Legal notes:

1. We reserve the right to make modifications to our products in accordance with technical advances. The products that are illustrated can also differ optically from the product as delivered as a result of constant development.

2. The copying of texts, illustrations, photos and any media from these instructions, in whole or in part, is only permitted with our express, written permission.

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CE

Electromagnetic compatibility
Low voltage regulations

Our products are of course certified in accordance with the CE regulations, which are valid across the EU: EMC in accordance with 2004/108/EC and the Low Voltage Directive in accordance with 73/23/EEC modified by Directive 93/68/EEC.

Information on the product liability law:

1. All products in these instructions may be used only for the intended purpose. In the event of doubt this must be clarified with a competent professional or with our service department (see hotline numbers).

2. Products that are connected to power (particularly 230 V supply voltage) must be removed from the power supply before opening or connecting lines.

3. Damage and consequential damage caused by interference with or changes to our products as well as incorrect use are not covered by our liability. The same is true for incorrect storage or outside influences.

4. When handling 230 V supply voltage or products operated by battery or mains power the relevant guidelines must always be followed, e.g. regulations to maintain electromagnetic compatibility or low voltage regulations. Corresponding work should always be carried out by an experienced professional.

5. Our products conform to all valid, technical and telecommunications regulations in Germany and the EU.

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