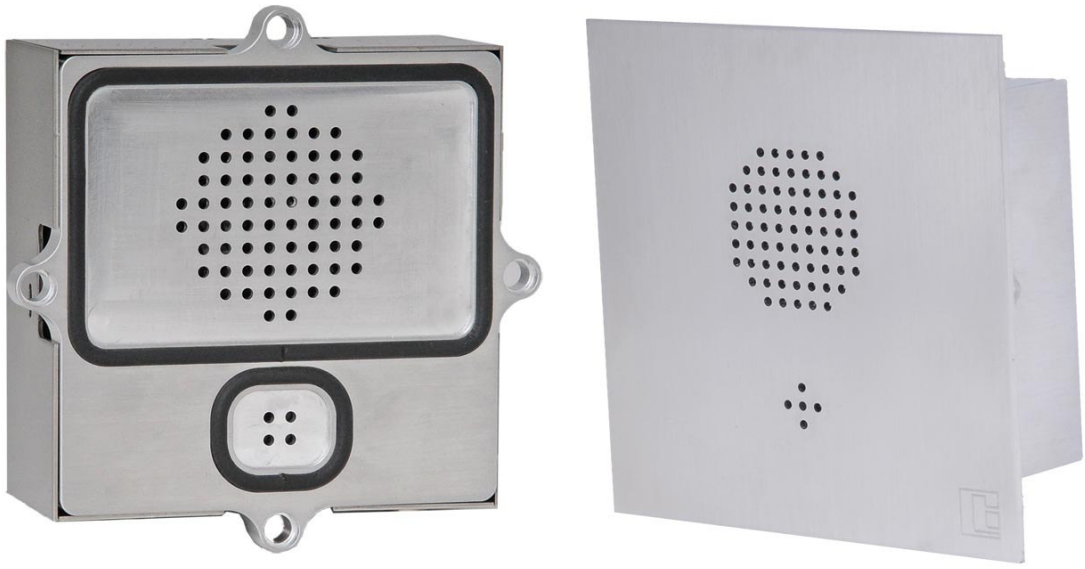


Baudisch.SIP DoorModule MAXI / ECO

Manual

History:

Version	Date	Name	Change
1.0	18.02.2010	R. Bley	Regenerated
1.1	07.04.2010	R. Bley	Enhancement KeypadModule
1.1	27.04.2010	E. Czeschka	English translation
1.2	07.07.2010	M. Bönisch	Update
1.6	05.11.2010	E. Czeschka	Update
1.7	11.05.2011	U. Meinert	Corrections
1.8	02.03.2012	T. Eberhardt	New layout, corrections, update of illustrations
1.9	03.05.2012	T. Eberhardt	Update of Software History

Approval latest version:

	Date	Name	Division	Initial	Signature
checked	03.05.2012	T. Eberhardt	DEV	TE	
checked			PF		
checked			VT		
checked			User		
checked			FE		

1. Table of Content

2. General Information

2.1. Symbols

Warning of dangerous electrical voltage.

Mis en garde - des tension dangereux.

This symbol points out important references which must be followed to avoid injuries, as well as damages and malfunctions of the product.

Ce symbole marques notices explicatives importante avec obligation de respecter pour esquiver blessures ou déprédation du système.

This symbol points out helpful references.

2.2. Software History

Date	DSP-Version (API)	AVR- (Lib) Version	Description / Function Expansion
26.04.2012	V7.7 (056000)	V3.1 (V4.3)	• Bug fix: Device stops transmitting registrations in some cases. • Web interface (java elements) customized due to problems with saving with IE8 and IE9
03.03.2012	V7.5 (056000)	V3.1 (V4.3)	• Lock of door opener customized: - Reset of the tries counter at correct code entry. - Time for counter of tries reduced to 2 min. - Max. number of failures increased to 4. • Customization: Auto test works in devices, that scan buttons in firmware, not in lib.
31.01.2012	V7.5 (056000)	V3.0 (V4.2)	• Bug fixes: Broadcast in local subnet fixed (before only 255.255.255.255). • DHCP timeout adjustable (due to problems with “Rapid Spanning Tree“). • Alternative call tone output for keypad available. • Option for Keypad: Only 4 digit codes allowed (DTMF may use less than 4 digits). • Keypad: Negative acknowledgment in state CLOSE/KEY_CLEAR added. • Keypad: Stop of code entry with a further push on the key symbol button. • Correction of parameter compensation (DSP->AVR) in lib.
14.10.2011	V7.3 (048000)	V2.7 (V3.8)	• Offset code for 2. relay (DTMF & Keypad)

			added • DTMF call potion via keypad (independent to configuration). • Blocking of code entry via key pad and/or via DTMF through UDP command.
04.10.2011	V7.3 (048000)	V2.6 (V3.7)	• Bug fix: No negative acknowledgment in case of pushed button if device between state STOP and IDLE. • Tone signal for button refuse conformed. • Relays selectable via key pad („*99x“). • Alternative numbering of speed dialing keys at the keypad. • Option for blocking some key pad functions. • Adjustable block time between call break and another call.
13.09.2011	V7.3 (048000)	V2.5 (V3.5)	• Bug fix: RTP port can’t be identical to SIP port and other used ports. • In case of active registration and no login to the server, incoming calls are disallowed (Code 486).
16.12.2010	V7.2 (047001)	V2.5 (V3.5)	• Limit of 75 speed dial numbers changed to 100. • Bug fix: TFTP-Server is no longer able to send in case of wrong file names.
30.10.2010	V7.1 (047001)	V2.4 (V3.3)	• DM32 functions added • Data format for phone book changed! Now there are numbers up to 31 digits supported. Binary data is not compatible to versions older that V7! • Bug fix: Checksum in configuration block was wrong.

2.3. Hardware Versions

Date	HW	Expansion
17.05.2011	1.2	• Improvement of the audio quality.
16.12.2009	1.1	• Lettering change of the layout for better overview • Upper extension of the working temperature range. • Sliding switch for factory settings added→ simplifies the accessibility by the resetting.
01.10.2009	1.0	• Layout with regard to the lettering an the accessibility optimized.
22.09.2009	0.3	• Improvement of the audio quality. • Expansion microphone – input regulation dynamic. • Steering a duo LED central call button. • Construction of the cover optimized.
17.07.2009	0.2	• Zero series, layout optimization

2.4. Fundamentals of VoIP and SIP

The transmission of voice and images over the Ethernet and by IP is increasingly replacing analog and ISDN-based transmission technologies.

The voice communication and image are converted into digital signals **(VoIP=VoiceOverIP)** and are then transmitted over the IP network in a specific protocol such as SIP **(Session Initiation Protocol)**. Also, by using an IP camera, the digital video image data is sent over the same network.

2.4.1. SIP und H.323

Apart from SIP, systems are also using the H.323 protocol. This method can simplistically also be called ISDN over IP. However, it requires very powerful hardware and has several disadvantages related to firewalls and network integration.

The Baudisch.SIP door module ECO/MAXI solely supports the sustainable SIP protocol.

2.4.2. Advantages of the SIP protocol

This creates substantial advantages, especially in companies which already have IT networks and structured cabling. Existing IT resources can be used; there is no need for an additional cable network.

Where there is no cable connection, intercoms can be operated over W-LAN (IP radio link).

This ideal intercom system provides a solution even in private homes where almost always LAN connections are found.

Other devices such as specific exchange or switchboard technology, storage distributors or interface modules are also unnecessary.

2.4.3. Transmission and connection types of calls

Direct connections (Door intercom – PoE switch – IP phone)

For the simplest applications, for example in a home. The intercoms call the IP address of an IP phone directly. By connecting several ring buttons, every ring button can have a different call destination assigned.

Public SIP provider

Door intercom and IP phone are switched, free of charge, via a public SIP provider (internet access and at least one DSL connection required). Transfers from SIP to the fixed and mobile phone network are offered on favorable terms. This makes the door intercom a worldwide telephone. Even switching functions, e.g. the door opening, can be carried out while on the road.

Local SIP server software

This software can be run on any PC. For example, the 3CX-SIP-server software (also available as freeware) runs directly on a Windows server. Alternatively, Asterisk is frequently installed on a Linux PC.

IP phone systems

Many phone system manufacturers offer devices with SIP features. Our door intercoms can also be directly connected there.

A current compatibility list is available on request.

3. Product Description

3.1. General Information

The Baudisch.SIP door module is a door intercom with internal loudspeaker, hands-free microphone, inputs for external call buttons as well as relay outputs for door opening and light.

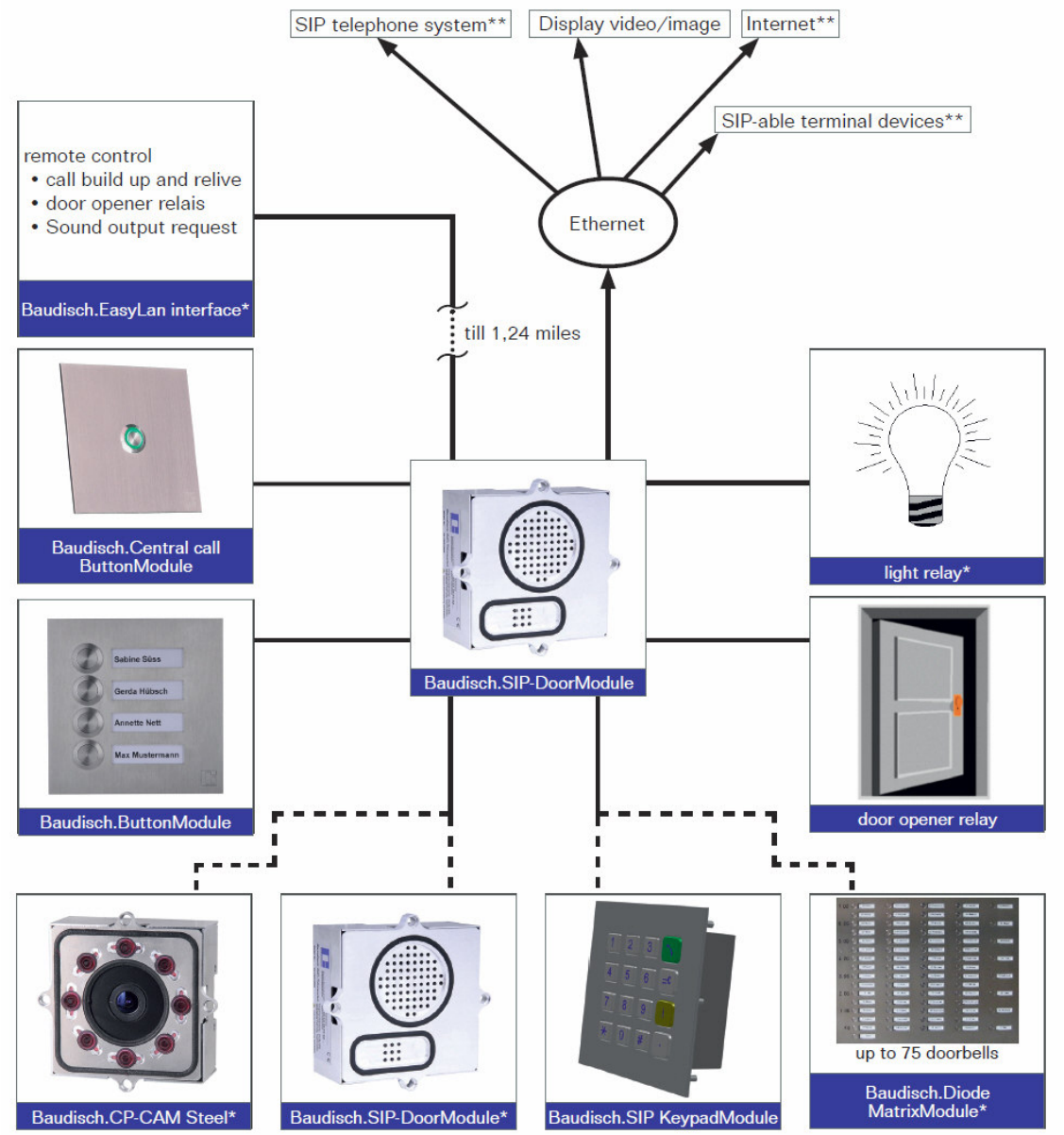
The device is the ideal solution for vandalism protection requirements or for outdoor applications. It includes a phone book with 76 speed dialing numbers, which can be triggered via external buttons. Fast dialing and very good quality giving a clear and loud replay are the characteristic features of this robust intercom.

The features are:

- Suitable for outdoor applications (protection class IP65 toward the front), poke-through protection by using the Baudisch V4A front panel or another front with a similar hole profile.
- Rear mount module, for example for mail box systems, cabinets or other panels. Suitable mounting frames are available.
- The voice connection occurs per VoiceOverIP (VoIP) over the installed Ethernet-LAN either directly to a SIP capable phone, via a SIP phone system or per internet over a SIP provider.
- Priority of voice from the control station; which means dialog is possible even if there are loud noises in the intercom's environment.
- The calls are triggered through the external ring buttons, which can be directly connected to the module. The maximum number of call buttons is dependent of the chosen model and optional expansions. The connection of a minimum of 4 call buttons and a central call button is possible by all models in the basic setup.
- Simple configuration via the built-in web server which is pre-installed in a required language version (German, English, French, Italian).
- Switch output for the door opening per DTMF dial or per UDP command.
- Emergency call logic: Features such as redialing, call forwarding to alternative destinations and call acceptance confirmation of the control station over DTMF.
- The electrical supply occurs over the LAN (PoE). Alternatively, a power supply can be connected.
- There is a cheaper ECO version available, where the connection possibilities are limited to a maximum of 5 ring buttons and one relay for the door opening.

The model MAXI has in comparison to the ECO version a second relay, a built-in Ethernet LAN switch for the connection and supply of a Baudisch.CP-CAM (or a linkage of several intercoms), a Baudisch.EasyLan-Bus for the connection of Baudisch switch components and a cable ribbon connector for a keypad module or for matrix boards, allowing up to 76 ring buttons to be connected.

3.2. Overview



*This connection option is only available with the Baudisch.SIP DoorModule MAXI

**The simultaneous operation of these connections has to be verified individually.

3.3. Baudisch.SIP DoorModule ECO / MAXI in comparison

Features	SIP DoorModule MAXI	SIP DoorModule ECO
Ethernet over RJ45	✓	✓
PoE (IEEE 802.3af) device power class 0	✓	✓
Screw type terminal for optional 24V – supply	✓	✓
PoE power supply over midspan or endspan	✓	✓
Connection for 1 central call button	✓	✓
Connections for 4 direct call buttons	✓	✓
Light output for the central call button	✓	✓
1 switch relay (door opener)	✓	✓
1 switch relay (light)	✓	-
EasyLan	✓	-
Internal switch for CP CAM expansion	✓	-
Expandable for matrix and keypad module	✓	-

3.4. Scope of delivery

Artikel-nummer	Name Beschreibung	
33-1000	**Baudisch.SIP-Türmodul MAXI (ohne Frontplatte)** Complete functional unit without front panel, with housing, with switch, EasyLan, door relay, light relay, extension port	**Baudisch.SIP-Türmodul MAXI (ohne Frontplatte)** Komplettgerät ohne Frontplatte, mit Gehäuse, mit Switch, EasyLan, Türrelais, Lichtrelais, Erweiterungsanschluss
		
33-0999	**Baudisch.SIP-Türmodul ECO (ohne Frontplatte)** Complete functional unit without front panel, with housing, without switch, EthernetOut, door relay	**Baudisch.SIP-Türmodul ECO (ohne Frontplatte)** Komplettgerät ohne Frontplatte, mit Gehäuse, ohne Switch, EthernetOut
		

Optional Accessories

Article number	Name
33-1119	V4A front panel for door module
33-1218	Dummy front panel for empty module spaces
33-1001	Baudisch.CP-CAM Steel (without front panel)
33-1121	V4A front panel for CP-CAM Steel
33-1116	Baudisch.ButtonModule 4 buttons (without front panel and buttons)
33-1122	V4A front panel for ButtonModule
33-1144	Baudisch.Central Call Button.Module (incl. front panel)
33-1202	Baudisch.KeypadModule 16B (without front panel)
33-1198	V4A front panel for KeypadModule 16B
33-1200	SIP DisplayModule
33-1201	V4A front panel for SIP DisplayModule
33-1127	Baudisch Diode MatrixModule
33-1123	Baudisch system housing IP65
27-0235A	Baudisch Mounting frame single RB 120x120x5.7mm (Rear Bolting)
27-0235B	Baudisch Mounting frame double RB 230x120x5.7mm
27-0235C	Baudisch Mounting frame triple RB 340x120x5.7mm
27-0235D	Baudisch Mounting frame quadruple RB 450x120x5.7mm
27-0281A	Baudisch Mounting frame single FB 150x150x7.5mm (Front Bolting)
27-0281B	Baudisch Mounting frame double FB 260x150x7.5mm
27-0281C	Baudisch Mounting frame triple FB 370x150x7.5mm
27-0281D	Baudisch Mounting frame quadruple FB 480x150x7.5mm
33-1193	Screw set V2A M5x12mm with 2 hole inward urge
33-1194	Screw set 4,8x50mm with 2 hole inward urge and cavity dowels
33-1195	Screw set 4,8x50mm with torx drive and cavity dowels
33-1196	Screw set M5x16mm with torx drive and safety pin
27-0169	Special bit tool for 2 hole inward urge screws
27-0282A	Flush-mounting box single 138x138x41mm
27-0282B	Flush-mounting box double 248x138x41mm
27-0282C	Flush-mounting box triple 358x138x41mm
27-0282D	Flush-mounting box quadruple 468x138x41mm

The optional accessories are not included in the delivery contents and must be ordered separately.

3.5. Optional Accessories

Name and Article Number	Description
Product Image	**Product Information**

Baudisch.CP-CAM Steel **(Art.-Nr. 33-1001)** **V4A front panel** **(Art.-Nr. 33-1121)**	IP Video Camera
	• Module for direct connection to the Baudisch.SIP DoorModule MAXI with built-in web server. • VGA color image with 640x480 pixel. • Video images can be accessed via internet browser from any PC on the network. • Several PCs can connect simultaneously to the camera. • Night vision due to IR function. • Without further components operational.

Connection to Baudisch.SIP DoorModule MAXI or directly to Ethernet possible.

PoE-supply (class 1, endspan) only by connection over a data line.

24V connection instead of PoE over unused wires on the network line possible.

The front panel is not included in the delivery of the Baudisch.CP-CAM Steel and must be ordered separately.

Baudisch.Central Call ButtonModule **(Art.-Nr. 33-1144)** **V4A front panel included**	Individual button, which can show 6 different modes of the door module using an integrated multi colored circle light.
	• Module for direct connection to the central call of the Baudisch.SIP DoorModule MAXI or ECO. • V4A front panel with vandalism protected stainless steel button. • LED circle illumination. • Mode display: -green „_____„ → ready -red „_____„ → connection -red „-- -- -- -- --„ → dialing -red „ - - - - - - - - -„ → announcement -rd/gn „ - - - - - - - - -„ → incoming call -green „ - - - - -„ → error

The front panel is included in the delivery.

Button Modules with 2 or 3 buttons are available upon request.

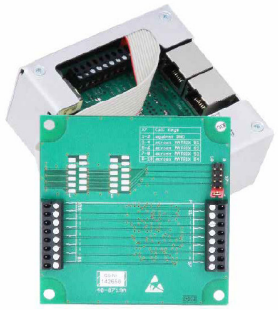
Baudisch.ButtonModule 4 buttons **(Art.-Nr. 33-1192)**	Button module with LED illumination.
	• Module for direct connection to the SIP door module (MAXI/ECO). • The lettering is inserted from the rear with push-in strips. • LED background illumination. • Up to 4 ring buttons are connectable.

Button Modules with 2 or 3 buttons are available upon request.

The front panel and the buttons are not included in the delivery and must be ordered separately.

Baudisch.KeypadModule 16B **(Art.-Nr. 33-1202)** **V4A front panel** **(Art.-Nr. 33-1198)**	Keypad with blue LED illumination with the choice of any phone number, IP addresses or numbers out of the Baudisch.SIP DoorModule MAXI phone book. Likewise, every door opening code, which has been entered in the phone book, can be keyed in. A protection function prevents the opening through several attempts.
	• Module for the direct connection to the SIP DoorModule MAXI. • Blue LED background illumination. **Possible numbers to dial** Any phone number • Included are phone numbers of the public network or SIP numbers (of the connected SIP account). To make a phone call to the public network an account with a SIP provider is needed. Adjusted the SIP settings in the configuration menu under the VoIP settings accordingly (see chapter 5.4.3 SIP Settings). • IP addresses VoIP capable devices in your network can also be directly dialed using their IP address. Numbers out of the phone book of the door module

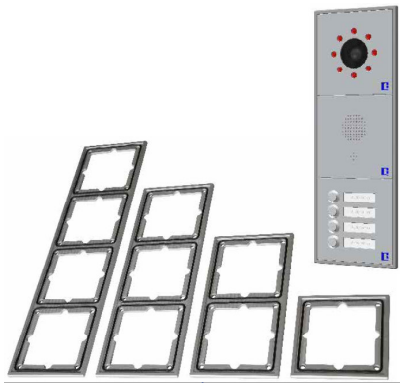
The front panel is not included in the delivery of the KeypadModule 16B and bust be ordered separately.

Baudisch.Diode MatrixModule **(Art.-Nr. 33-1127)**	Call button expansion with up to 75 call buttons via series switching of 5 modules possible.
	• Module for the direct connection to the SIP DoorModule MAXI. • Open circuit board to be mounted in protected areas. • Each Diode MatrixModule allows connection of up to 15 call buttons. • Up to 5 Diode MatrixModules can be cascaded to the SIP DoorModule MAXI.

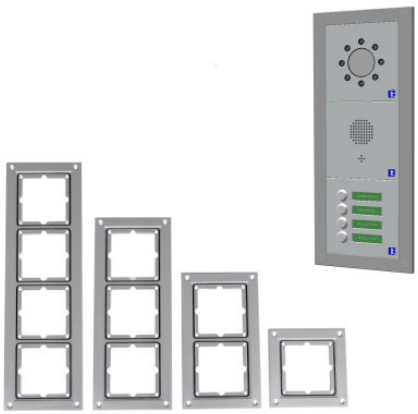
The connection of the Baudisch.Diode MatrixModule is only possible to the SIP DoorModule MAXI version.

Baudisch system housing IP65 (Art.-Nr. 33-1123)	System housing for the installation of any 3 modules.
	• Massive version to be used at factory buildings or on construction sites. • Wiring from below of the housing. • Material: aluminum die-casting • Color: - Top section: blue according to RAL 5002 - Bottom section: black powder coated

The built-in modules shown in the picture are not included in the delivery.

Baudisch.Mounting frames RB (Art.-Nr. 27-0235A - D)	Rear bolted module frames for the installation of several modules in a front panel.
	• The V4A front panels are inserted into the frame. • Material: aluminum • Color: light anodized, powder coated (on request) • Mounting of the module with rear bolting • Deliverable frame sizes: - single 120x120x5.7mm → Art.-Nr. 27-0235A - double 230x120x5.7mm → Art.-Nr. 27-0235B - triple 340x120x5.7mm → Art.-Nr. 27-0235C - quadruple 450x120x5.7mm → Art.-Nr. 27-0235D

The built-in modules shown in the picture are not included in the delivery.

Baudisch.Mounting frames FB (Art.-Nr. 27-0281A - D)	Front bolted module frames for the installation of several modules with flush mounting boxes or for direct wall mount.
	• The V4A front panels are inserted into the frame. • Material: aluminum • Color: light anodized, powder coated (on request) • Mounting of the module with front bolting • Deliverable frame sizes: -single 150x150x7.5mm → Art.-Nr. 27-0281A -double 260x150x7.5mm → Art.-Nr. 27-0281B -triple 370x150x7.5mm → Art.-Nr. 27-0281C -quadruple 480x150x7.5mm → Art.-Nr. 27-0281D Mounting material (not included in delivery contents): - Screw set V2A M5x12mm with 2 hole inward urge → Art.-Nr. 33-1193 - Screw set 4.8x50 (2 hole inward urge) and cavity dowels 8x40mm → Art.-Nr. 33-1194 - Screw set 4.8x50mm (torx drive) and cavity dowels 8x40mm → Art.-Nr. 33-1195 - Screw set M5x16mm (torx drive) with safety pin → Art.-Nr. 33-1196 - Special bit tool for 2 hole inward urge screws → Art.-Nr. 23-0169

The built-in modules shown in the picture are not included in the delivery.

Flush-mounting box FB (Art.-Nr. 27-0282A - D)	Flush mounting box for mounting frames with front bolting (FB)
	• The V4A front panels are inserted into the frame. • Material: aluminum • Color: light anodized, powder coated (on request) • Mounting of the module with rear bolting • Deliverable frame sizes: -single 138x138x41mm → Art.-Nr. 27-0282A -double 248x138x41mm → Art.-Nr. 27-0282B -triple 358x138x41mm → Art.-Nr. 27-0282C -quadruple 468x138x41mm → Art.-Nr. 27-0282D

The built-in mounting frames FB shown in the picture are not included in the delivery.

4. Starting up

4.1. Preconfiguration

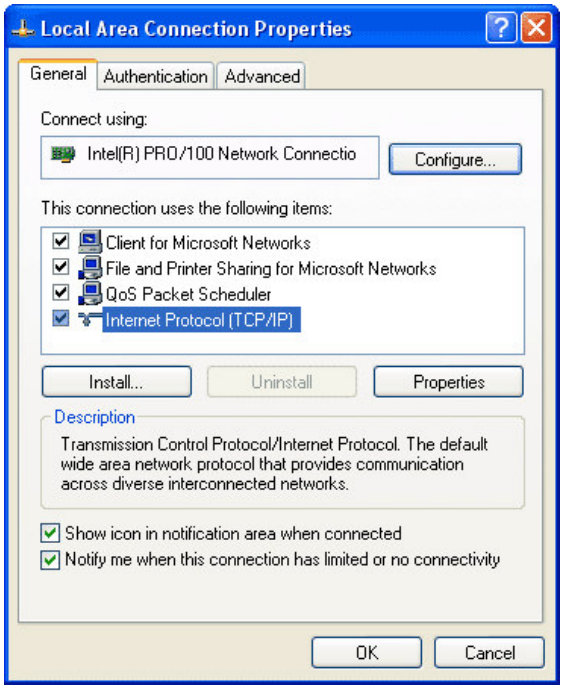
After the installation, to activate the door module, an IP address in the address range of the network has to be assigned to it. This setup can be carried out with a PC/laptop which is directly connected to the door module along with an external 24V power supply (see chapter 4.2 Connection). Another possibility without external power would be to connect the door module to a PC/laptop via a PoE switch.

To be able to connect to the door module, it is necessary that the PC/laptop temporarily is setup for the IP address range of the door module. The address range is defined from 192.168.1.1 to 192.168.1.254 with the delivery. The door module has the address 192.168.1.200.

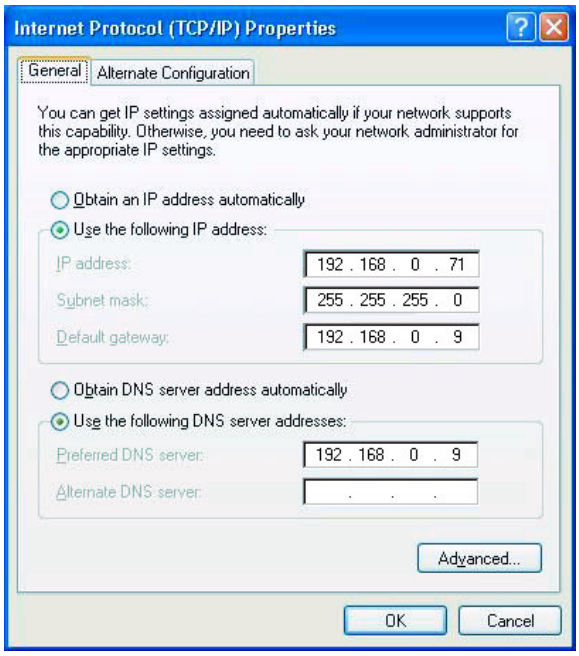
To configure the door module, follow the coming instructions.

1. Temporarily change the IP address and the address range of the PC/laptop (Windows XP).

a) settings → network connections → LAN connection

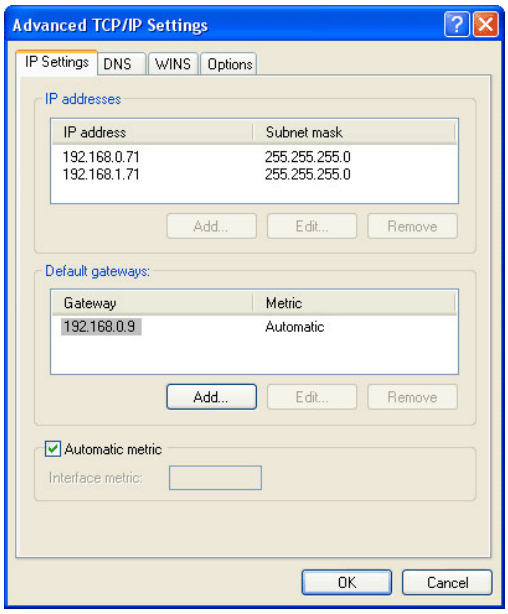


b) Choose internet protocol (TCP/IP) and click on **Properties**.

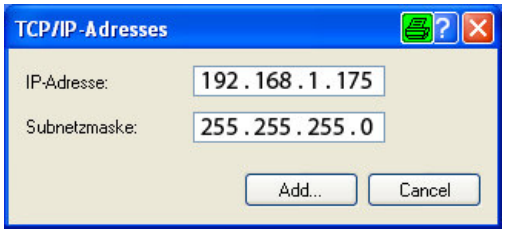


c) when the field **"Obtain an IP address automatically"** is activated, then skip the following pages to k.

d) when the **"Use the following IP address:"** and **"Use the following DNS server addresses:"** are activated, then do not change the values and click on **Advanced...**.



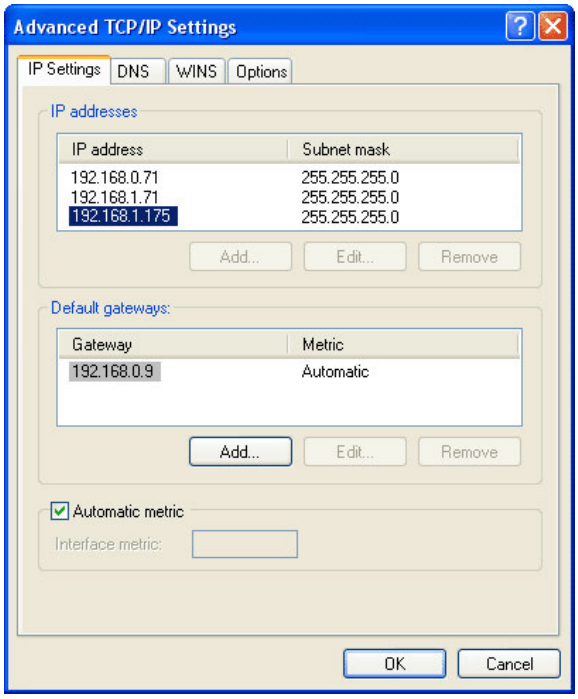
e) click on **Add** by the IP addresses.



f) enter the IP address: **192.168.1.175** and sub net mask: **255.255.255.0**

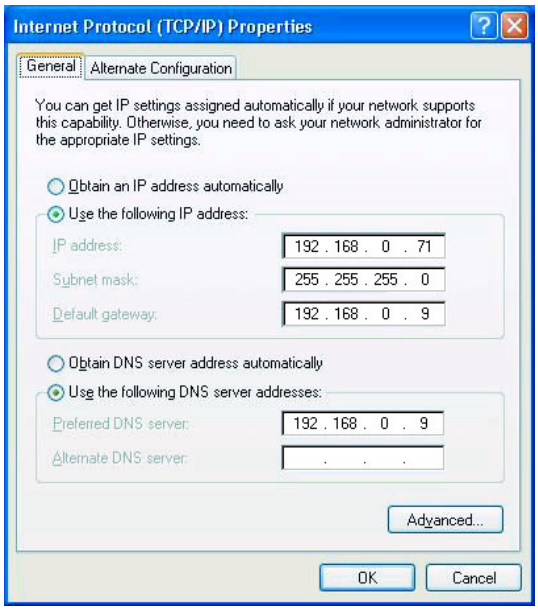
An IP-address from 192.168.1.1 to 192.168.1.254 can be chosen. Only the IP address 192.168.1.200 is not to be used, because it is used by the door module. The address range is defined with these two entries, which include the location of the PC/laptop and its associated IP address.

g) click on **Add.**

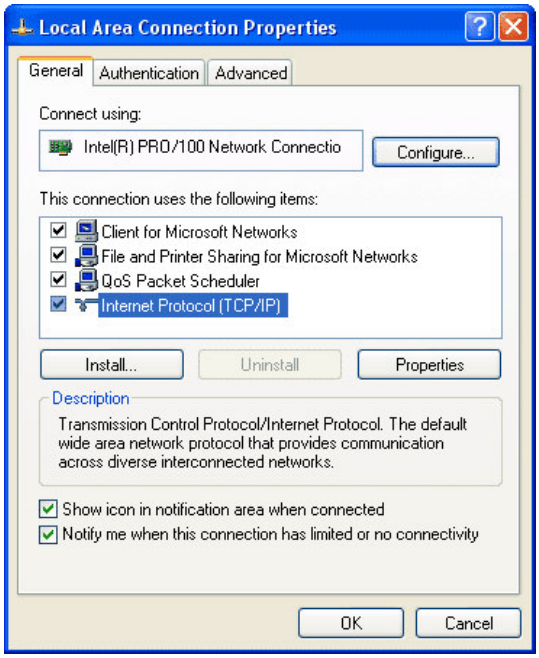


now the entered IP address and subnet mask are shown in the table.

h) click on **OK**.



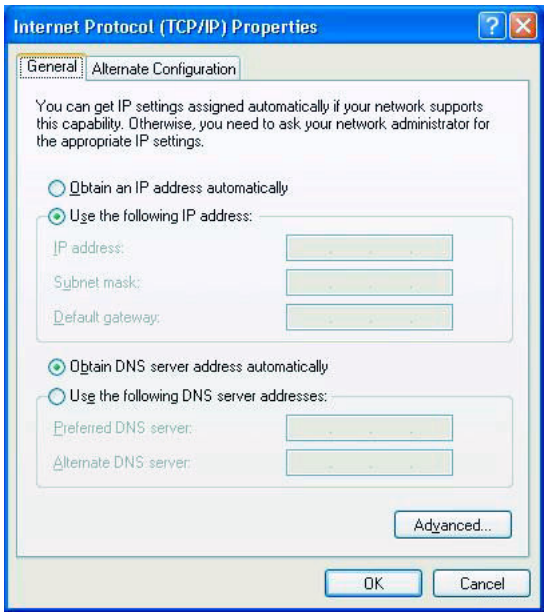
i) click on **OK**.



j) click on **OK**.

Now the installed PC/laptop is ready to be connected to the door module.

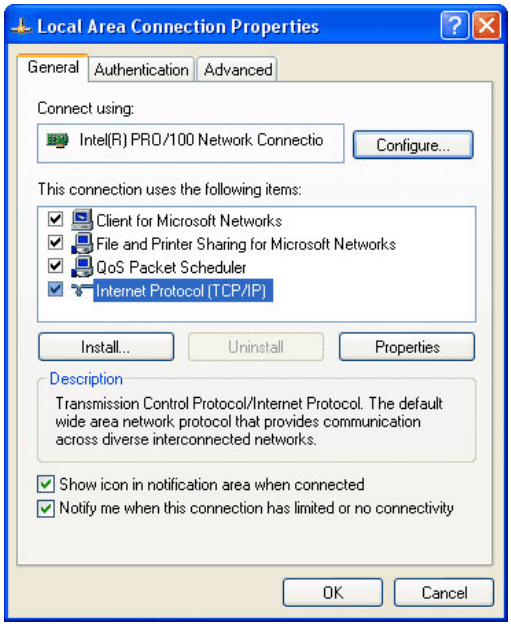
k) when the fields "**Obtain an IP address automatically**" and "**Use the following DNS server addresses**:" are activated, then click on "**Use the following IP address**:".



l) enter the IP address: **192.168.1.175** and sub net mask: **255.255.255.0**
Leave the rest of the fields blank!

Choose an IP address from 192.168.1.1 to 192.168.1.254 with the exception of IP address 192.168.1.200. This IP address is being used by the door module.

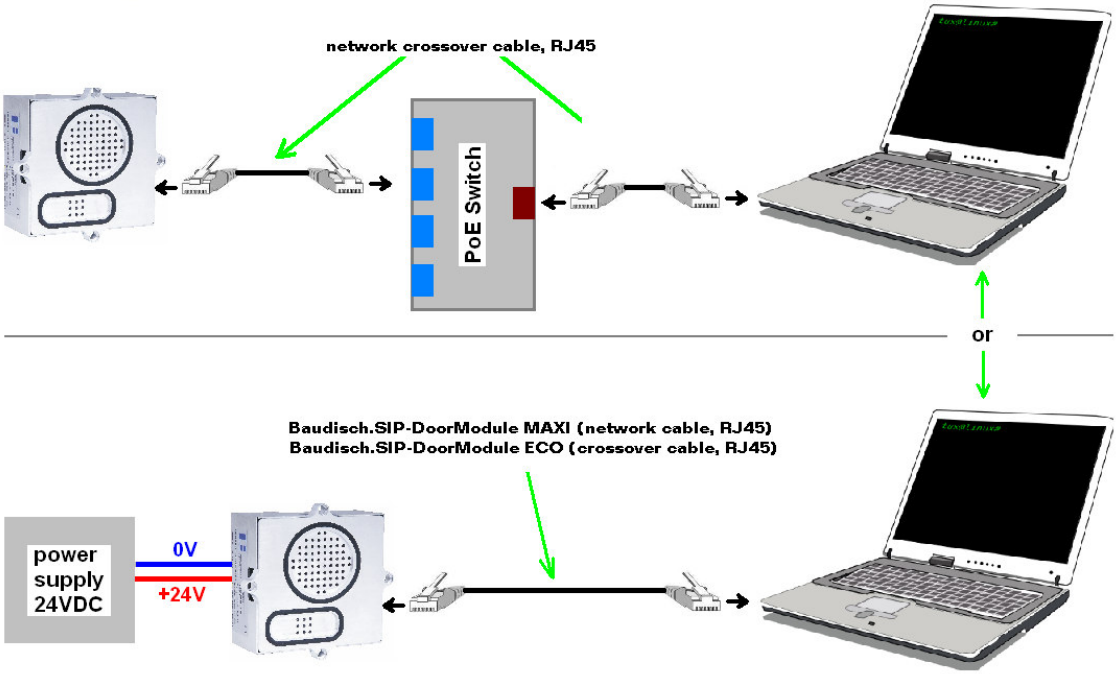
m) click on **OK**.



n) click on **OK**.

The address range is defined with these two entries, which include the location of the PC/laptop and its associated IP address.

2. To establish connections



Establish connection from PC/laptop to door module via PoE switch.

or

Connect the SIP door module directly to the PC/laptop with a network cable and to an external power supply (+24VDC, 1A fused). In this case, a crossover cable must be used with the ECO version.

3. Start the configuration menu (see chapter 5.2 Start of the configuration menu)

- Access the starting page in the web browser using the factory preset IP address **"192.168.1.200".**
- Choose **„Settings VoIP“** and login using preset password **"1234"**.
- Now you are in the sub menu network and you can carry out your network settings (see chapter 5.4.1 Network).

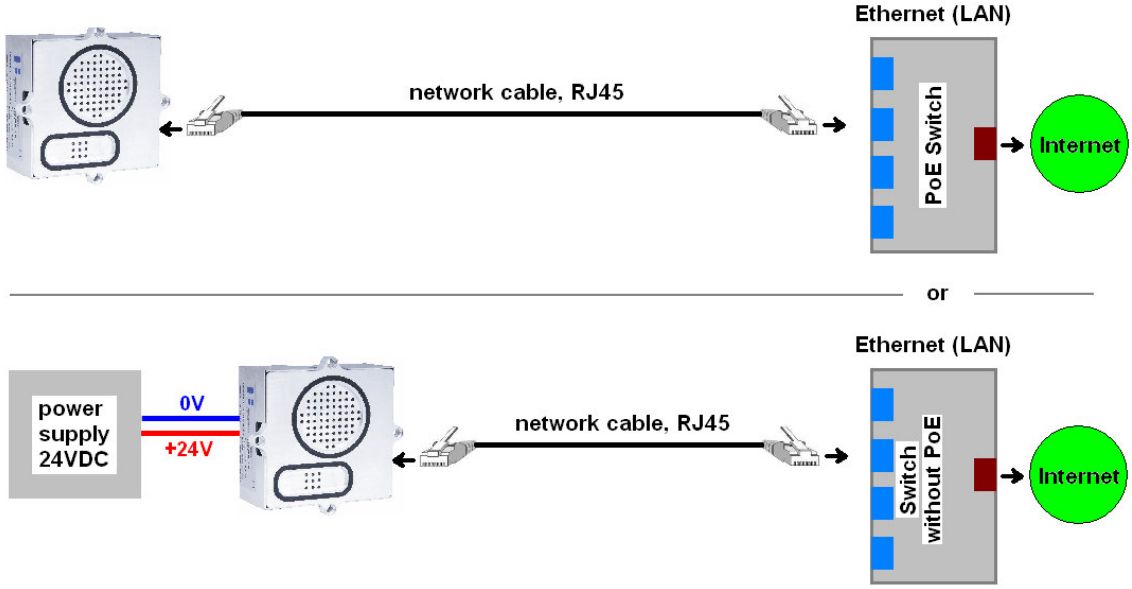
Is the new IP address saved, then the configurations menu can only be accessed with this address.

Après transférer une adresse IP neuve, le menu de configuration peut seulement être appeler avec cette adresse.

4.2. Connection

4.2.1. Baudisch.SIP DoorModule connection

First preconfigure, then assemble (see chapter 4.1 Preconfiguration)



Connection option 1 → (switch with PoE)

- Connect the door module to the PoE switch (Power over Ethernet Switch) with a network cable at X1 (see chapter 6.3 How to connect).

Connection option 2 → (switch without PoE)

- Connect a 24VDC power supply (24VDC, 1A fused) to the 0V and +UB of the terminal X3 (see chapter 6.3 How to connect).
- Connect the door module to the switch without POE with a network cable at X1 (see chapter 6.3 How to connect).

The description on how to connect the optional accessories follows in the following chapter.

4.2.2. Connecting the optional accessories

To avoid damage, connect the accessories in state of no power.

Pour prévenir des dégâts, ne connectez pas les accessoires avec tension connexe.

Baudisch.CP-CAM Steel **(Art.-Nr. 33-1001)**	

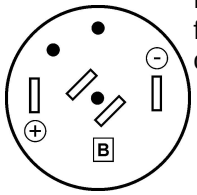
How to connect

The Baudisch.CP-CAM Steel is directly connected to the Baudisch.SIP DoorModule MAXI at the connector X2 using a conventional patch cable. Detailed information to the terminal assignment is found in the product manual of the Baudisch.CP-CAM Steel.

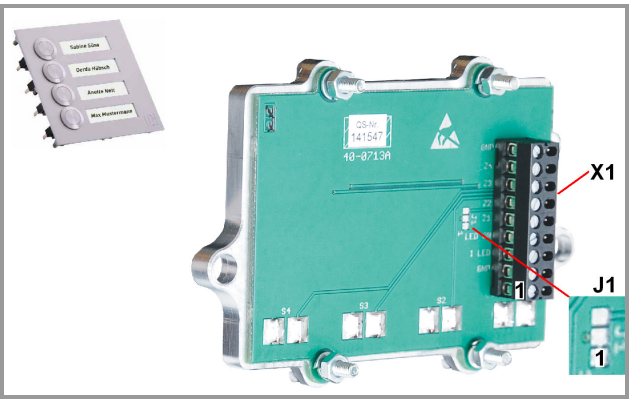
Baudisch.Central Call ButtonModule **(Art.-Nr. 33-1144)**	

How to connect

The Baudisch.Central Call ButtonModule is connected to the Baudisch.SIP DoorModule MAXI/ECO in the following way.

Connect at the button	Terminal X4 at the door module	Name	Reference
Button connection B	1	S3B	  Free assignment for the two closing contacts B
Button connection B	2	GND	
- (green)	3	LEDB	Connection for the illumination (Duo LED) of the central call button (The output LEDB is switched from GND to 24V. +5V is constant)
+ (red)	4	+5V	

Information on how to enter the contacts in the phone book is found in chapter 5.3.3.1 Entries in the call destination lists.

Baudisch.ButtonModule 4B **(Art.-Nr. 33-1116)**	

How to connect

The Baudisch.ButtonModule is connected to the Baudisch.SIP door module MAXI/ECO in the following way.

Terminal X1 at the button module	Name	Terminal X4 at the door module	Name
1	-	-	-
2	GND	-	-
3	I LED	3	+5V (Iges=0.2A)
4	LED ON	Connection of the external controlling of the keypad illumination (also see Jumper J1)	
5	Z1	5	Matrix_Z1
6	Z2	6	Matrix_Z2
7	Z3	7	Matrix_Z3
8	Z4	8	Matrix_Z4
9	GND	9	GND

Jumper J1

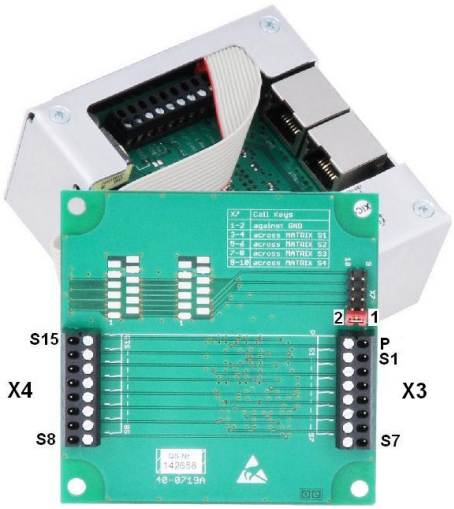
Constant illumination of the buttons (delivery status)

→ Solder bridge from pin 1 to pin 2 (connected via conductor by the delivery).

The button illumination is controllable (GND active) via an external signal at LED ON (X1.4).

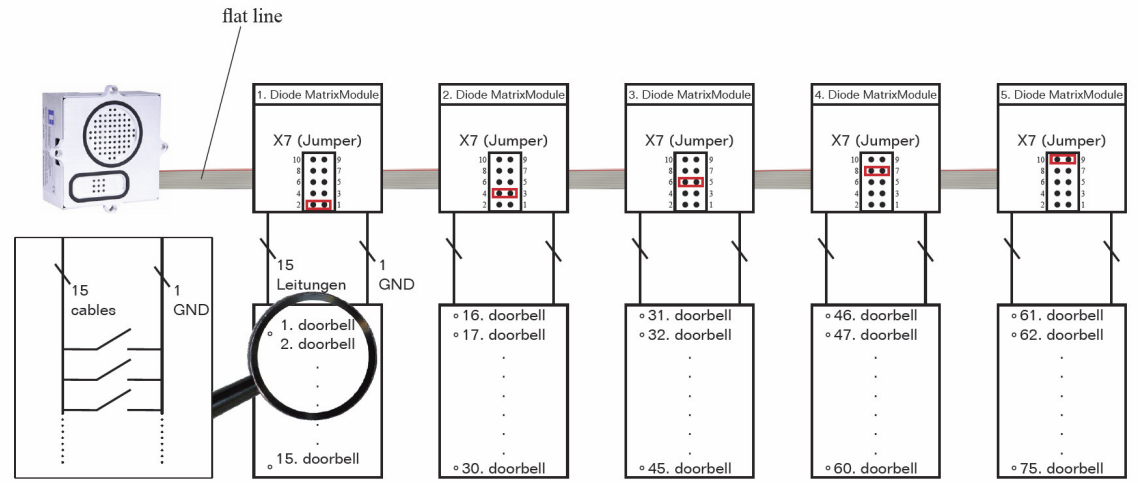
→ Solder bridge from pin 2 to pin 3 (remove and disconnect the solder bridge and conductor between pin 1 and pin 2 respectively).

Information on how to enter the contacts in the phone book is found in chapter 5.3.3.1 Entries in the call destination lists.

Baudisch.Diode MatrixModule (Art.-Nr. 33-1127)	

How to connect

The first or the only matrix module is connected to the door module directly at X5 with the ribbon cable (see chapter 6.3 How to connect). Further modules are row like added with ribbon cables dependent of the number of needed contacts/ring buttons. The Baudisch.SIP DoorModule can be expanded to include up to 75 contacts/ring buttons using this method of cascading.



To make the cascading work, the Jumper X7 must be correctly set on the individual modules. Apply the following table. In addition, the keypad option must be set on “matrix module” in the configuration menu under hardware settings / system.

Jumper table

Matrix module / Number of contacts	First Module	Second Module	Third Module	Fourth Module	Fifth Module
1-15	X7:1-2				
16-30	X7:1-2	X7:3-4			
31-45	X7:1-2	X7:3-4	X7:5-6		
46-60	X7:1-2	X7:3-4	X7:5-6	X7:7-8	
61-75	X7:1-2	X7:3-4	X7:5-6	X7:7-8	X7:9-10

Connecting the ring buttons on the matrix module

Ring button	Connection 1 Terminal (Name)	Connection 2 Terminal (Name)
1	X3.2 (S1)	X3.1 (P) Reference potential for all push buttons
2	X3.3 (S2)	
.	.	
.	.	
7	X3.8 (S7)	
8	X4.1 (S8)	
.	.	
.	.	
15	X4.8 (S15)	

Information on how to enter the contacts in the phone book is found in chapter 5.3.3.1 Entries in the call destination lists.

4.2.3. Connecting a keypad module

With the Baudisch.KeypadModule 16B, Baudisch offers the possibility to connect a 16-button keypad to the SIP DoorModule MAXI. If an existing keypad from another manufacturer is to be connected to the Baudisch.SIP DoorModule MAXI, it is possible to request an OEM hardware.

4x4 Baudisch.KeypadModule 16B **(Art.-Nr. 33-1202)** **or** **4x4 direct call module (matrix)** **- other manufacturer -** Board for OEMs to easily connect 4x4 keypads from other manufacturers to the SIP DoorModule via screw type terminal. (Art.-Nr. 33-1202P)	

3x4 direct call module (matrix) **- other manufacturer -** Board for OEMs to easily connect 3x4 keypads from other manufacturers to the SIP DoorModule via screw type terminal. (Art.-Nr. 33-1202P)	

3x4 or 4x4 direct call modules with individual connections to the 12 and 16 keys cannot be connected.
The DoorModule MAXI is solely designed for a 4x4 or a 3x4 direct call module with matrix circuit.

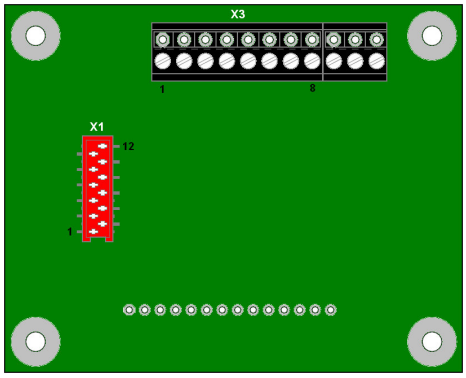
This expandability is only possible with the SIP DoorModule MAXI version.

4.2.3.1. How to connect

To be able to choose any phone numbers, the Baudisch.KeypadModule 16B or another OEM version of the hardware can be connected via the interface X5 (see chapter 6.3 How to connect) on the SIP door module MAXI. The required ribbon cable is included in the delivery.

The OEM version of the hardware enables the simple connection of another 4x4 and 3x4 direct call module with matrix circuit via the screw type terminals X3.

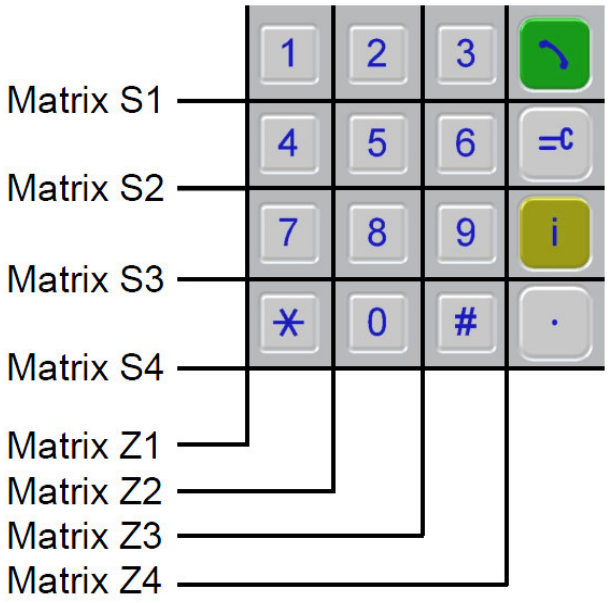
View of the OEM-Hardware



In order for the keypad module to work, the keypad option must be set on “keypad” under the hardware settings / system in the configuration menu.

In addition, parallel to this function, it is possible to connect either the Central Call ButtonModule and a ButtonModule with 4 buttons or 1 MatrixModule with 15 direct call buttons. A combination with further matrix modules is not possible.

Connection diagram



Connecting the 4x4 Baudisch.KeypadModule 16B.

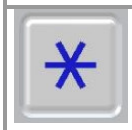
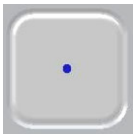
The 4x4 KeypadModule is connected to the SIP DoorModule MAXI at X5 (see chapter 6.3 How to connect) using the ribbon cable which is included in the delivery.

Connecting the 3x4 and 4x4 direct call modules from any manufacturer with OEM hardware from Baudisch.

The OEM-Hardware is connected to the SIP DoorModule MAXI at X5 (see chapter 6.3 How to connect) using the ribbon cable which is included in the delivery. The signals matrix S1-S4 and matrix Z1-Z4 are in this way easily connected to the other module via the screw type terminals X3.1 - X3.8. By the connection of a 3x4 Keypad Module, the connection matrix Z4 is inapplicable..

Terminal on OEM-Hardware	Signal
X3.1	Matrix S1
X3.2	Matrix S2
X3.3	Matrix S3
X3.4	Matrix S4
X3.5	Matrix Z1
X3.6	Matrix Z2
X3.7	Matrix Z3
X3.8	Matrix Z4

Overview of the button functions

Button	Button function → 4x4 KeypadModule	Button function → 3x4 KeypadModule
0-9	0-9	0-9
	Star(*)	1. Start → Dialing 2. While dialing = Star (*)
	Confirmation	Confirmation
	Start → Selection of speed dial numbers	
	Selection of the central call	
	Start → Code entry door opener	
	1. Start → Dialing 2. Make a call 3. End a call	

4.2.3.2. Dialing

Possible numbers to choose

Any phone number

- Included are phone numbers in the public network or SIP numbers (SIP account login).
- To be able to make a phone call in the public network, you must have opened an account by a SIP provider and adjusted the SIP settings in the configurations menu under VoIP settings accordingly (see chapter 5.4.3 SIP Settings).

IP addresses

- VoIP capable devices in your network can also be directly dialed using their IP address.

Numbers of out the phone book of the door module

All numbers entered in the phone book can be directly dialed as well.

Entry at the 4x4 KeypadModule

Sequence → / Example	<Button>	<Number>	<Button>
Any phone number		1234567890	
IP address		192*168*1*153	
Number out of the phone book of the door module		4321	

You can end a dialing process or a call by pressing the green button with the receiver symbol.

Entry at the 3x4 KeypadModule

Sequence → / Example	< Button >	<Number>	< Button >
Any phone number		1234567890	
IP address		192*168*1*153	
Number out of the phone book of the door module		4321	

A call is made even after the first entered digits, when no additional number is entered within 3 seconds.

4.2.3.3. Code entry

This function is not available by the 3x4 direct call module.

All DTMF codes which have been saved in the phone book can be entered in order to open the door using the KeypadModule.

Entry at the 4x4 direct call module

Sequence → / Example	<Button>	<Number>	<Button>
DTMF code (max. 4 digits)		1234	

An entry can be ended by pressing the button „#“, even when no code digits were entered. Otherwise the already entered digits on the door module will be sent and evaluated.

Time block by the code entry

A time block is activated for the door opening function with the KeypadModule. This makes several attempts of possible code combinations difficult.

When an incorrect code is entered 4 times within 3 minutes, the block is activated. The duration depends on the currently active time block level. When the block already was activated and no 60 minutes are passed, then the current time block level will be raised to the next level with a longer time block.

For every additional entry within an active time block, the time block and the reset time for the level is restarted.

Level	Time block [min]
1	3
2	5
3	10
4	20

A resetting of the time block level occurs after 60 minutes of no time block activation. Likewise, a resetting of the time block and time block level takes place after a power break.

Example

The code was 4 times incorrectly entered at an intercom and the last time block is beyond 60 minutes. The code entry is therefore blocked for 3 minutes.

When the code is once again 4 times incorrectly entered, after the 3 minute time block, the new time block lasts for 5 minutes.

When the code is once again 4 times incorrectly entered, after the 5 minute time block, the new time block now lasts for 10 minutes, and so on.

There is no longer time block than 20 minutes.

4.2.3.4. Central call

This function is not available with a 3x4 KeypadModule.

By pressing the yellow i-button at the 4x4 direct call module, the central call is dialed which has been set up in the phone book. To end a call press the green receiver button.

4.2.3.5. Speed dialing

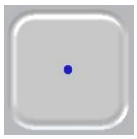
This function is not available with a 3x4 KeypadModule.

Speed dial numbers

The speed dial numbers corresponds with the assigned numbers from 00...59 in the phone directory. The following table shows the assignments.

Speed dial number	**Configuration menu → Phone book**	**Contact (corresponding rows)**
00...14	Call button via matrix module	1...15 (table block 1)
15…29	Call button via matrix module	16…30 (table block 2)
30…44	Call button via matrix module	31…45 (table block 3)
45…59	Call button via matrix module	46…60 (table block 4)
60...99	Phone book block	61..100

Entry at the 4x4 KeypadModule

Sequence →	**<Button>**	**<Number>**
Example		13

To cancel a speed dial call and end an ongoing call press the green receiver button.

4.2.3.6. Configuration of the keypad parameters

First the configuration selection must be started in order to configure the keypad parameters.

Activation of the configuration selection

To activate this mode, the following button combination must be pressed:

- Press and hold the key „0“. Now press the green receiver button.
  - → In addition to the error tone, a button confirmation follows. Then release the buttons.
- Press „*“ and „1“ simultaneously.
  - → A confirmation follows as well. Then release the buttons.
- Press „#“ and „2“ simultaneously.
  - → A short continuous tone follows as confirmation.
- Now you are in the selection of the configuration options.

There is a time limit by all the steps. It switches to idle mode after 10 seconds of no further entry.

Configuration of the keypad parameters

→ Setting of timeout for number entry

- Press the key „*“ and „1“ simultaneously in the configuration selection. A confirmation follows.
- Two digits must be entered just like the speed dialing. Values in the range „01“ to „10“ (one to ten seconds) can be entered. To large values are limited to 10 seconds and „00“ is corrected to „01“.
- After the entry of the new timeout value a confirmation follows and the keypad switches to idle mode. The procedure „activation of the configuration selection“ must be reaccomplished if further settings are to be made.

4.2.3.7. Tone signals

Pressing the keys

- Confirmation tone (pressed key)
- No confirmation tone (pressed more than 2 keys or no key)
- Negative confirmation 1 – button has currently no function
- Negative confirmation 2 – keypad is blocked

Alarm

- Alarm tone sequence
- Confirmation from intercom by dialing (normal confirmation tone)
- Error tone (general)
- Incorrect code entry
- Function could not be accomplished (for example call request when intercom is not in idle mode).

Door opener

- Signal that block is removed.

4.2.3.8. Ending a call

A dialing process or a call can be ended by pressing the green receiver button, when no entry mode is active. This corresponds to pressing the ring button at the door module. Ending a call is always possible, even when the keypad is blocked. Likewise, repressing a ring button ends the dialing process or the call.

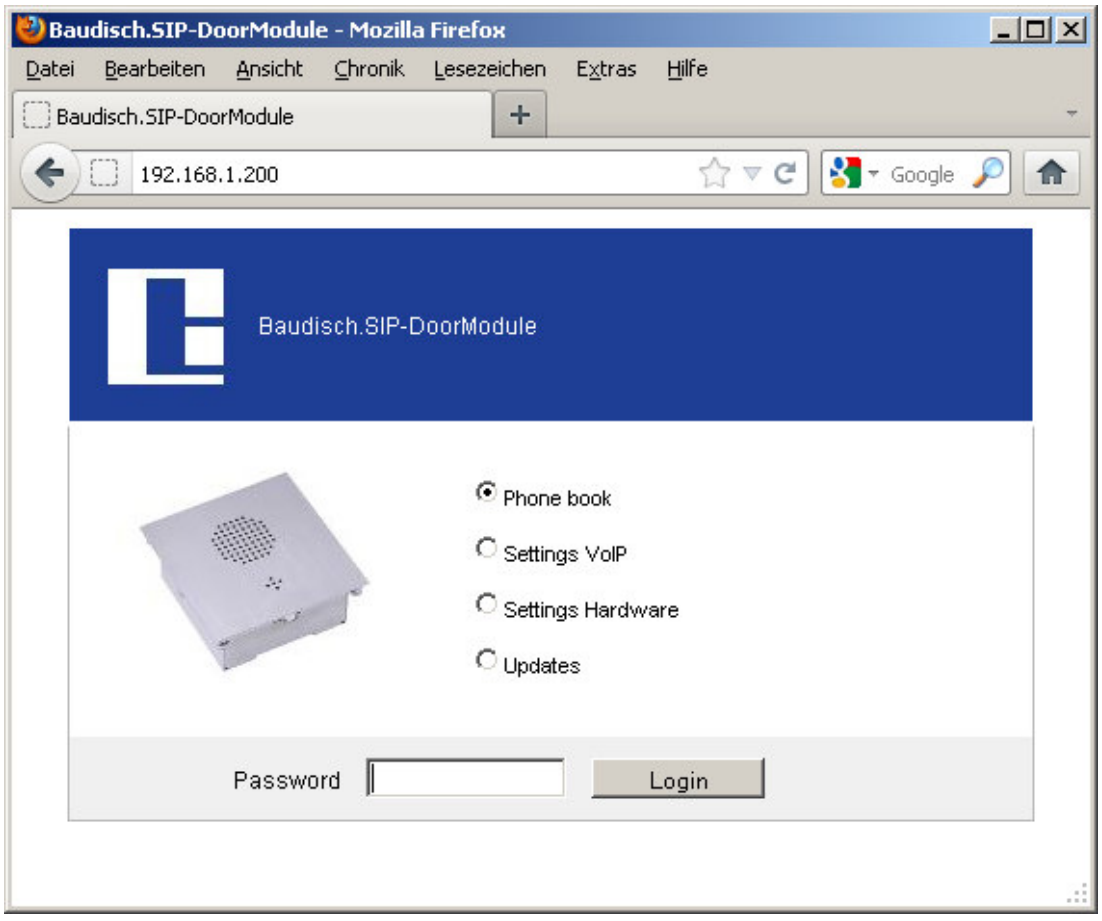
5. Use and configuration

5.1. Starting requirements

- Connection of the SIP door module with an Ethernet 10/100 LAN.
- The supply of current can take place over the Ethernet via PoE (Power over Ethernet) or with a suitable power supply.

5.2. Start of the configuration menu

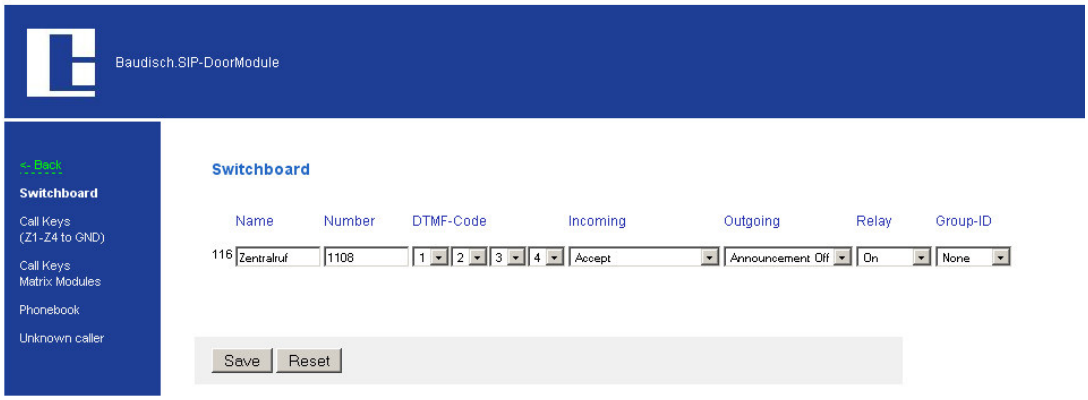
Access the starting page of the web interface by entering the factory preset IP address **„192.168.1.200“** in the web browser.



Choose an option and login with the factory default password **„1234 “**.

5.3. Phone book

5.3.1. Switchboard



Name

A name for the call destination can be entered here. Both fields below are reserved for expansions and remain blank.

Number

Here is the entry for the phone number or the IP address (IP entry with dots) entered.

DTMF code

In order to trigger the relay with the door opening function, an additional code can be entered via a keypad at the remote site during the call. Up to 4-digit codes can be entered. Shorter codes must be left justified. In case several identical characters are used consecutively, a pause of approximately a second is required between each character in order for the code to be recognized.

Incoming

Just like for any incoming call, a decision has to be made on how to proceed. The options are: Not answer, automatic answer, automatic answer with announcement and signaling an answer via a ring button. The additional option “beep” makes sure that the phone partners hear a signal tone during the audio connection.

Outgoing

By outgoing calls is decided if a message is to be left by the recipient (for example: location of the intercom).

Relay

Here is decided whether or not the call display relay is switched on during a call. If the setting “on” is chosen, the relay remains switched on from the beginning to the end of a call.

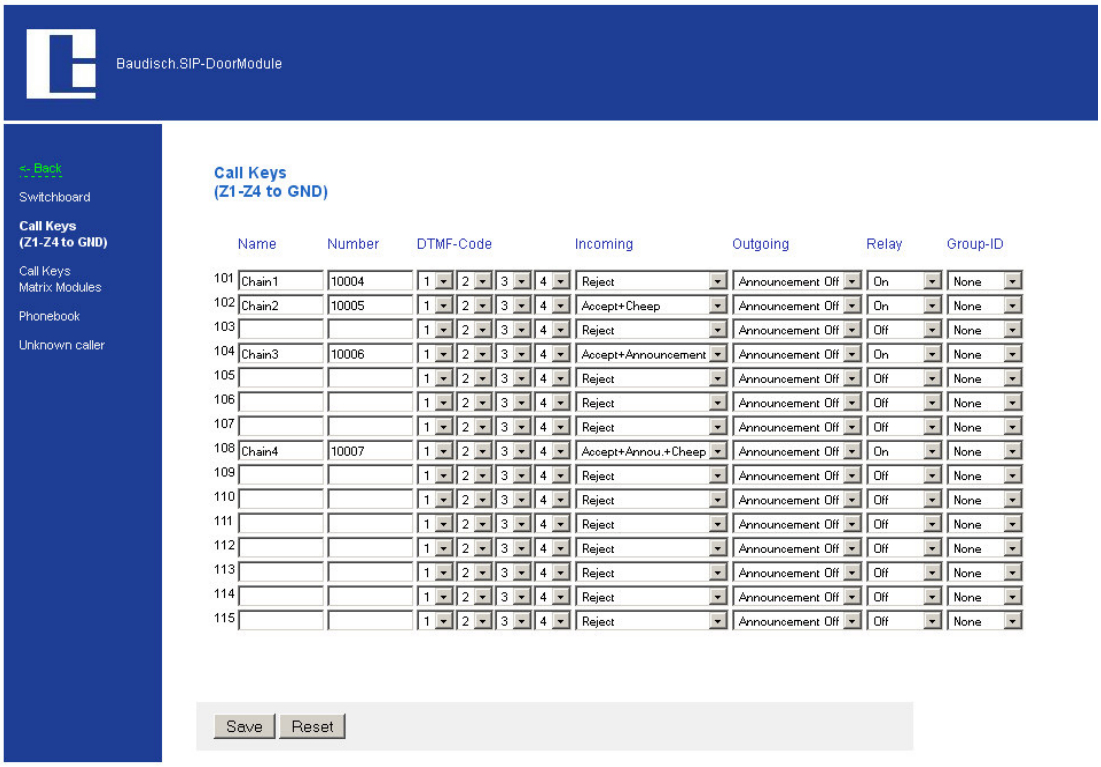
Group-ID

It is possible to assign a group of several call destinations with this setting. When a call destination out of a group is called and not reached, then all call destinations out of this group are called. They are called one by one according to how they are listed in the phone book. Other related settings are possible in chapter under „global call parameters“ and „chain call“.

5.3.2. Call Keys (Z1-Z4 to GND)

In addition to the Central Call ButtonModule, up to 4 direct call buttons can be connected to the terminal block X4 of the door module (see chapter 6.3 How to connect).

In order to assign the direct call buttons to its call destinations, the call destination data must be entered in the rows 1, 2, 4 and 8 according to the following table. The names of the individual columns are found in chapter 5.3.1 Switchboard.



5.3.3. Call keys via the matrix module

This expansion option is only available with the SIP DoorModule MAXI version.

The „MAXI“ version of the SIP door module has an expansion possibility of up to a total of 76 call buttons. This is possible with a series switch of a maximum of 5 Diode MatrixModules (see chapter 3.5 Optional Accessories). Each module has 15 connections for ring buttons and one connection for another diode matrix module. An expansion to 76 ring buttons is possible with the central call button and the 5 x 15 connections of the individual modules.

When the fifth diode matrix module is connected, the 4 direct call buttons of the DoorModule MAXI can no longer be used.

Information on how to connect the MatrixModule is found in chapter 4.2.2 Connecting the optional accessories and information about the entries in the call destination list in the following chapter.

5.3.3.1. Entries in the call destination lists

In order to assign the ring buttons to the call destinations, the call destination data must be entered in the following way.

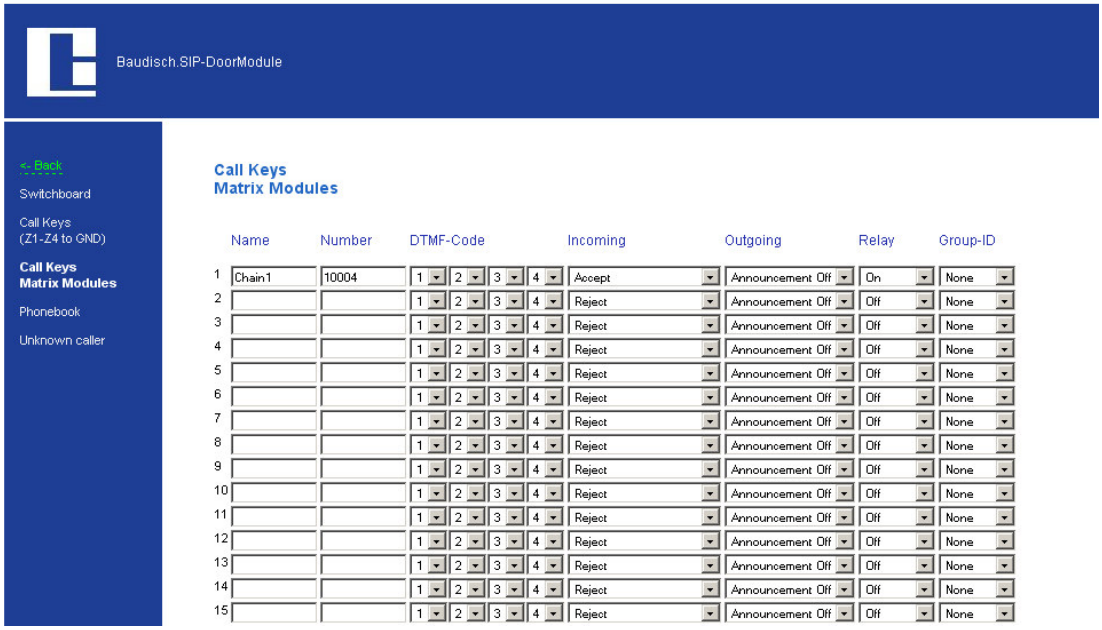
The call destinations 1 - 15 of the first matrix module in table 1.

The call destinations 16 - 30 of the second matrix module in table 2.

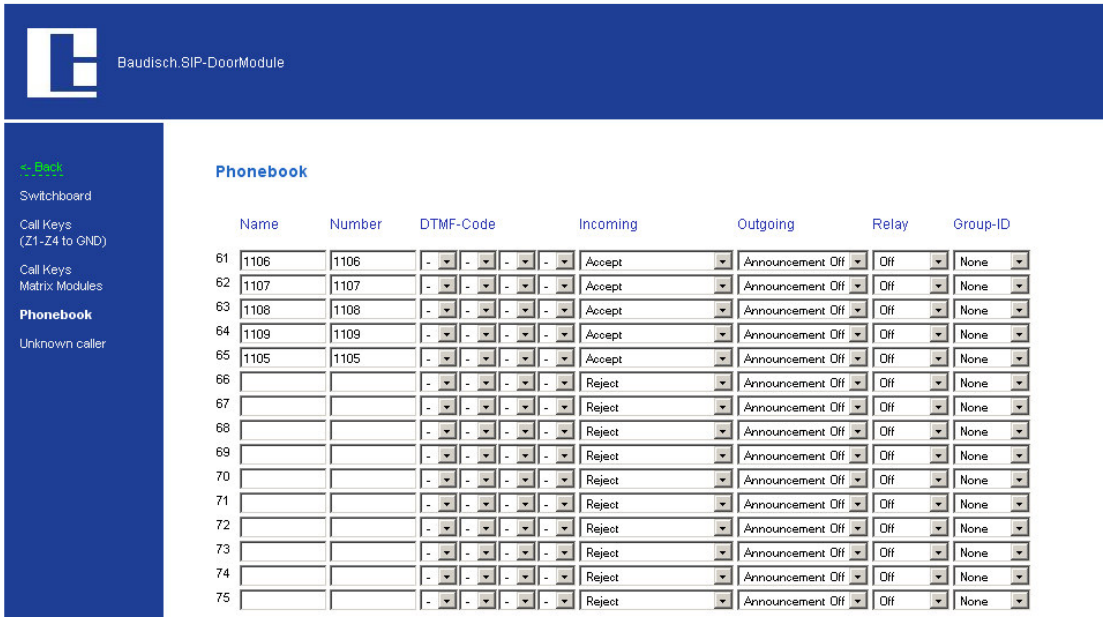
The call destinations 31 - 45 of the third matrix module in table 3.

The call destinations 46 - 60 of the fourth matrix module in table 4.

The last 15 call destinations 61 -75 of the fifth matrix module are entered in the phone directory of the direct call button **„Call Keys (Z1-Z4 to GND)“** (see chapter 5.3.2 Call Keys (Z1-Z4 to GND)).



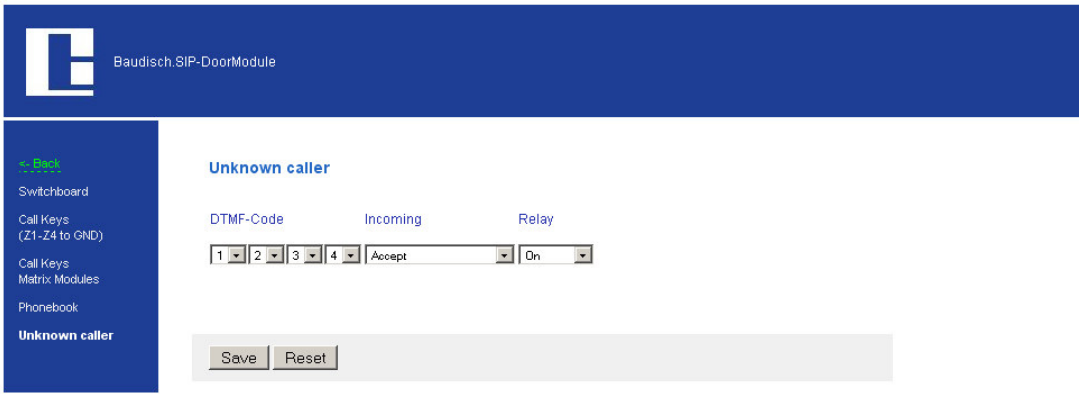
5.3.4. Phone book



The contact options name, DTMF code and so on comply with the contacts in the phone directory with the exception they apply for all unknown callers. For this reason, the option for outgoing calls is missing here.

The option „**Show number instead of label**“ is by the SIP DoorModule ECO/MAXI without a function.

5.3.5. Unknown caller



The Options Name, DTMF code etc. act like the entries in the Switchboard, but are only effective for unknown callers. Due to this there is no option for outgoing calls.

The option “Announcement” is deactivated in SIP DoorModule MAXI/ECO.

5.4. Settings VoIP

Network Settings

The corresponding settings for the network in which the SIP DoorModule is integrated, must be entered here.

Codec Settings

Selection and setting possibilities about the used codecs.

SIP Settings

The access data of the SIP provider must be entered here.

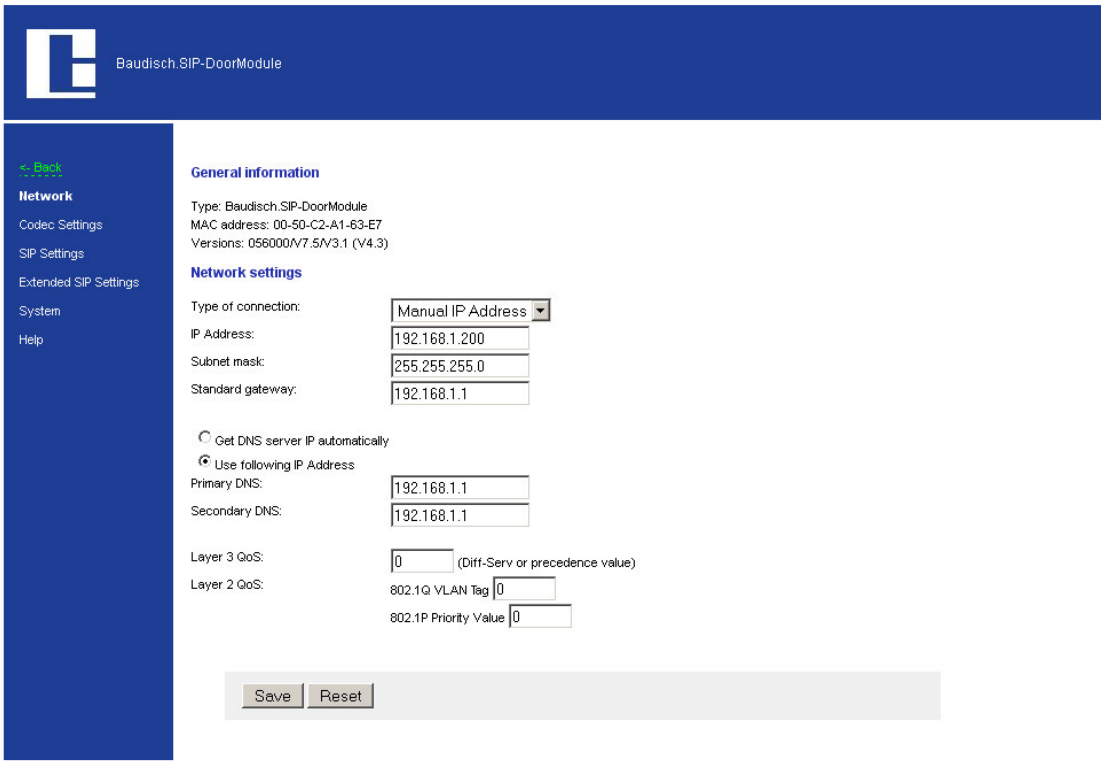
Extended SIP Settings

Additional settings when required.

System

System settings such as passwords, time zone etc.

5.4.1. Network



Network settings

Connection type

The network settings can be either manually entered, when „Manual IP Address“ is chosen or automatically set via a DHCP (Dynamic Host Configuration Protocol) server.

IP address

Here you can choose an available IP address for your SIP DoorModule out of your network.

In case the IP address was manually changed, the web browser can possibly no longer show the page with the response. In this case, enter the new IP manually in the browser to get back to the starting page of the web interface.

Sub net mask

The sub net mask informs the door module of the size of the sub net in which it is located.

Standard Gateway

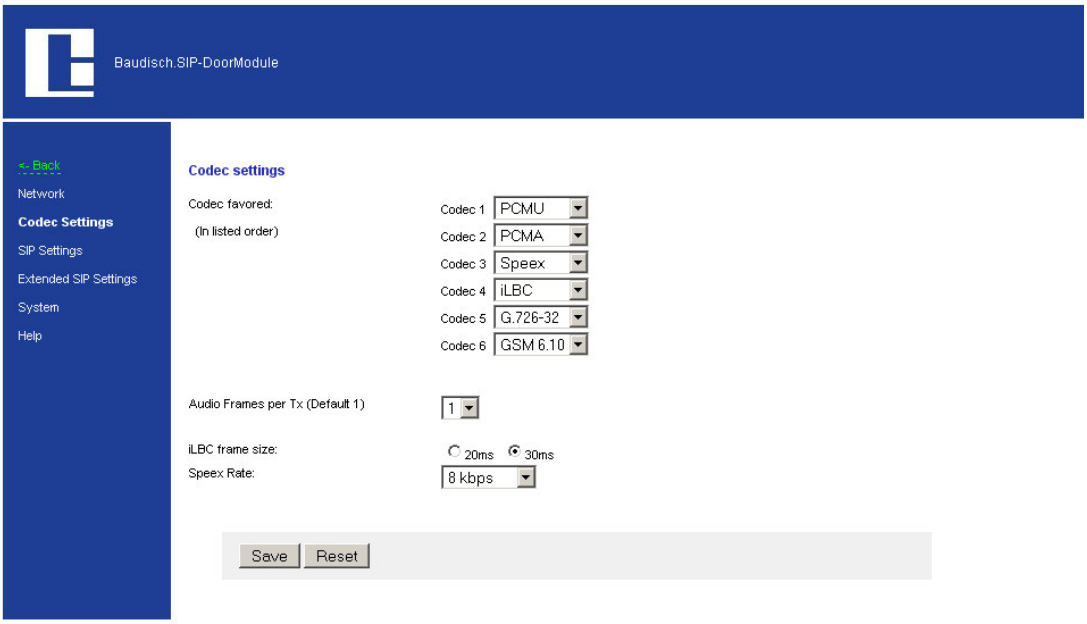
A gateway is a transmission point between different nets.

The settings for the DNS (Domain Name Server) can be set either manually or automatically via the DHCP Server.

- **Automatically obtain the DNS server IP**
  When this option is chosen, the fields for the primary and secondary DNS are shown gray and the IP address is automatically obtained.
- **Use the following address**
  If this option is chosen, the primary and secondary DNS must have been assigned addresses.

The settings for QoS (Quality of Service) are only to be adjusted by experienced system administrators. Basically, these settings serve to prioritize the data packages for the voice transmission compared to other network data communication.

5.4.2. Codec Settings



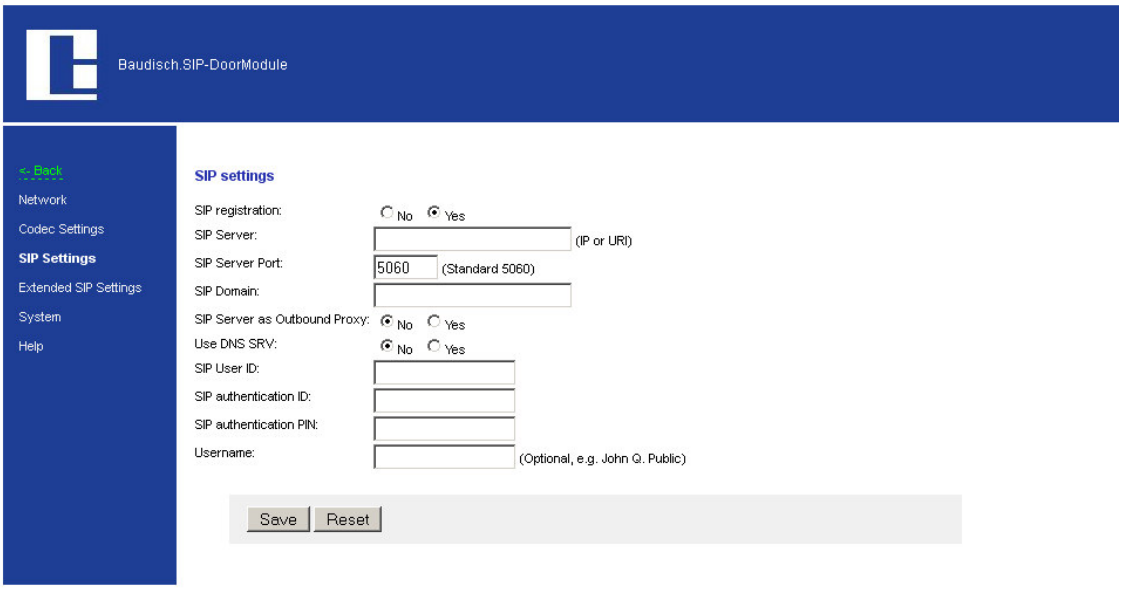
Preferred language codec

- **PCMU** (G.711 µ-Law) is the standard for digital communication in Europe. A very good voice quality but requires also a very high data volume from appr. 80 to 100 kbit/s.
- **PCMA** (G.711 A-law) is the standard for digital communication in North America and Japan. Very good voice quality but requires also a very high data volume from appr. 80 to 100 kbit/s.
- **Speex** is for the voice transmission optimized and therefore very scalable. But only the data to rate is scalable. The standard setting of 8kbit/s should be sufficient for understandable communication. The loss of data packages makes hardly to no problem.
- **iLBC** (Internet Low Bit rate Codec) was especially designed for the voice transmission over IP networks. It generates a data volume of appr. 14 kbit/s (20msec frame size) or 16 kbit/s (30msec frame size) and is rubust in comparison to the loss of data packages.
- **G.726-32**
  Generates a data volume of appr. 32 kbit/s by moderate voice quality.
- **GSM 6.10** originates from the mobile communications area. It generates only a very low data volume by an acceptable quality.

The settings for „**iLBC frame size“ und „Speex Rate“** are only to be adjusted by experienced system administrators.

Change le paramètage „**iLBC Frame size“ et „Speex Rate“** faut seulement être exécutée d’un technicien experte.

5.4.3. SIP Settings



SIP registration

Indicates if the intercom should be registered by the SIP server. If this option is not activated, only direct connections (IP to IP) are possible. A connection via call numbers is not possible.

SIP Server and SIP Server Port

The IP address, the URL of the SIP provider or a SIP telephone system is entered here. The port number specifies to which port the server listens.

SIP Domain

It serves the determination of contacts and is used for the connection buildup together with the number in the SIP protocol. A connection via a call number can not occur without it. The IP address of the SIP server can be entered here instead of a name.

SIP Server as Outbound Proxy

Use the SIP server as proxy for outgoing calls. However, it must also be supported by the SIP server. This way telephone calls can be made through a NAT firewall.

Use DNS SRV

To reach a contact within the SIP domain, use the DNS server entry.

SIP User ID

It is the ID within a SIP domain which is used to identify the intercom. This way the assignment is processed by an incoming call. That means that the caller communicates the call enquiry as „<phone number>@sipdomain.com“ or as „<user ID>@sipdomain.com“.

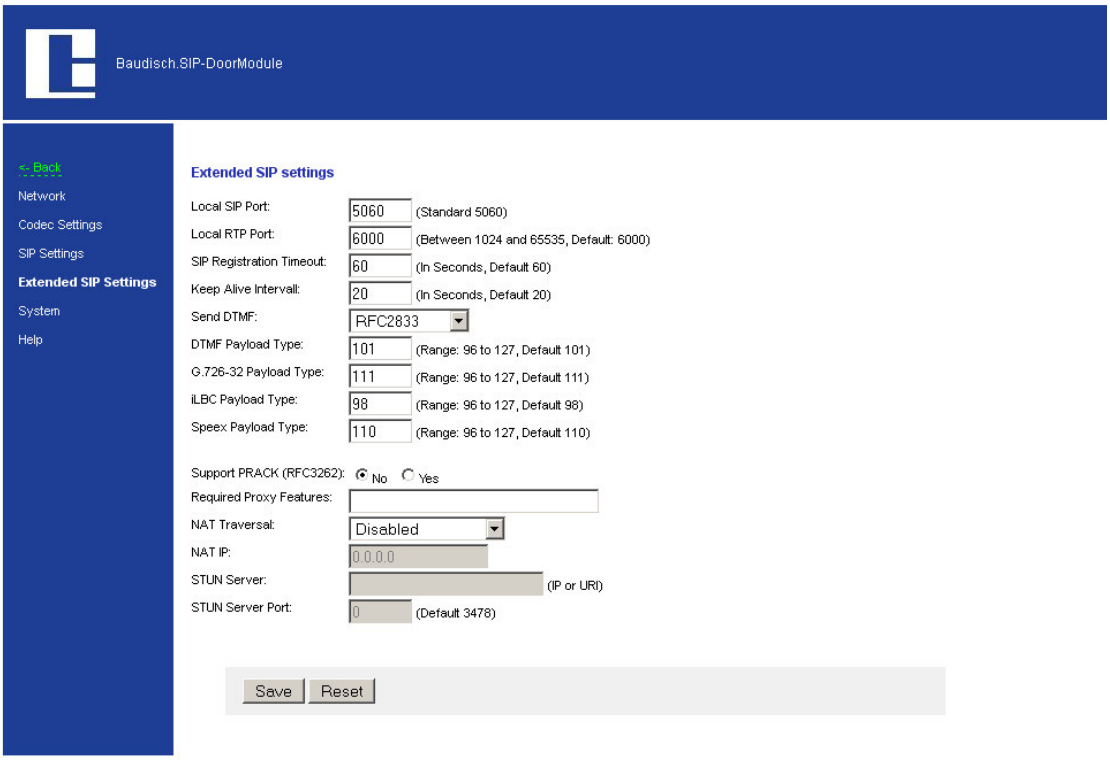
SIP authentication ID and SIP authentication PIN

User name and password for the login at the SIP server.

Username

This field is only for information purposes and has no special function. For example, the call number of the door module could be entered here to simplify the administration of the SIP accounts. It would alleviate the assignment of the user data to the call numbers because mostly the user IDs are different than the call numbers.

5.4.4. Extended SIP Settings



Local SIP Port

The SIP protocol, which is responsible for the administration of the SIP connections, is processed here via this specified port.

Local RTP Port

The real time data transmission of the audio data is processed here via this specified port.

SIP Registration Timeout

This setting indicates in which interval the registration by the SIP server is renewed.

Keep Alive Interval

Indicates in which intervals an empty RTP data package should be sent to the SIP server in order for the RTP port to remain open due to a NAT firewall and alternatively a router.

Send DTMF

Here is the method chosen over which the DTMF signaling is processed:

- **Inband Audio –** DTMF tones are transferred as audio data.
- **SIP info –** DTMF digits are transferred via the SIP protocol.
- **RFC2833 –** DTMF digits are transferred via the RTP protocol.

Data type to be used (DTMF, G.726-32, ILBC, Speex)
The data type to be used should be left on its standard setting. There is no special benefit for the user here.

Support PRACK (RFC3262)

If this setting is activated, specific signaling in the SIP protocol is secured.

Required Proxy features

Characteristics which the proxy server must handle.

NAT Traversal

Here is defined how the door module identifies its public IP address when the door module is located behind a NAT firewall or alternatively a router. This can be done either by a permanent IP address (for example a dedicated line) with the option use NAT IP or by a dynamic assignment via a STUN server. This option can be deactivated when exclusively a local network is used.

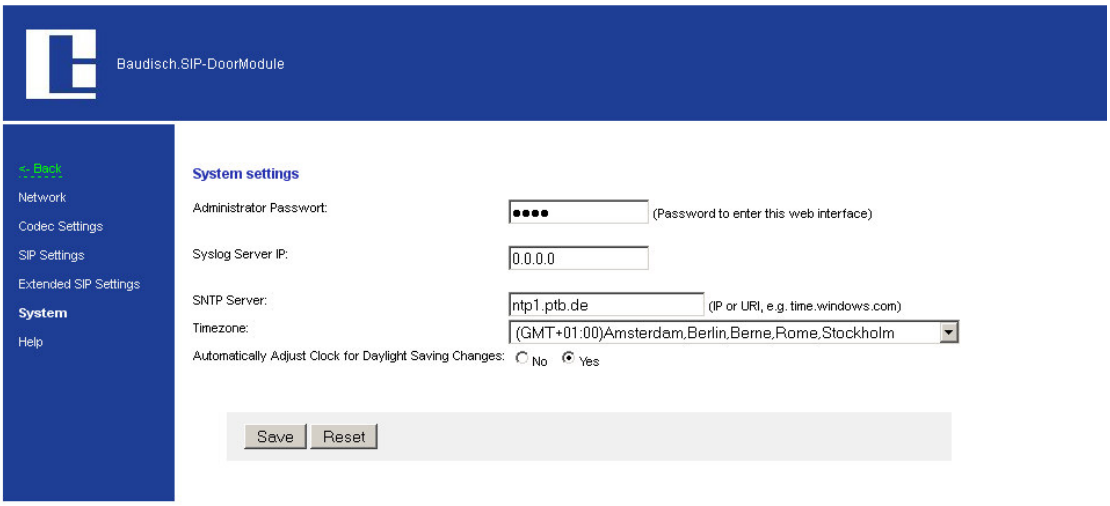
NAT IP

Describes the IP address of the door module from the view of the internet (WAN address). This should automatically occur via a STUN server by a dynamic assignment.

STUN Server and STUN Server Port

IP or URL of the server, over which the current, public IP address of the door module should be identified and its port number.

5.4.5. System



Administrator password

Access password for the configuration of the door module via the web interface. The factory preset standard password is „1234“.

Syslog server IP

The IP address which is specified here can be used to forward system information to a Syslog server. When the IP is set to 0.0.0.0, the mode is deactivated.

SNTP Server and Time zone

The time zone for the system time and a server over which the current time is loaded, can be entered here. The time is set to the standard time GMT and responds accordingly without consideration of the summer and winter time. To consider these, the option „adjust clock“ must be activated.

5.5. Settings Hardware

Audio

Settings for the precedence control of the speaker and microphone levels by the connection with another intercom, as well as the switch barrier and switch duration.

Signaling settings for the volume of the ring tone and the signal tones.

System

Settings for the function and pulse duration of relay 1 and 2, the door opener signaling, the ID announcement, the extended port function and the keypad options.

Call Opt.

Settings

...for the call duration, the dialing and the redial attempts.

...for the request for acknowledgement via DTMF characters.

...for the call buttons of the matrix module, the central call button as well as the direct call button (Z1-4 to GND).

...for the number of cycles of the chain calls.

Status / Remote

Settings...

...to activate the status message and/or the remote control.

...of for the entry port for the remote control and the exit port for the status message.

...for the code authentication which is required for the use of the remote control.

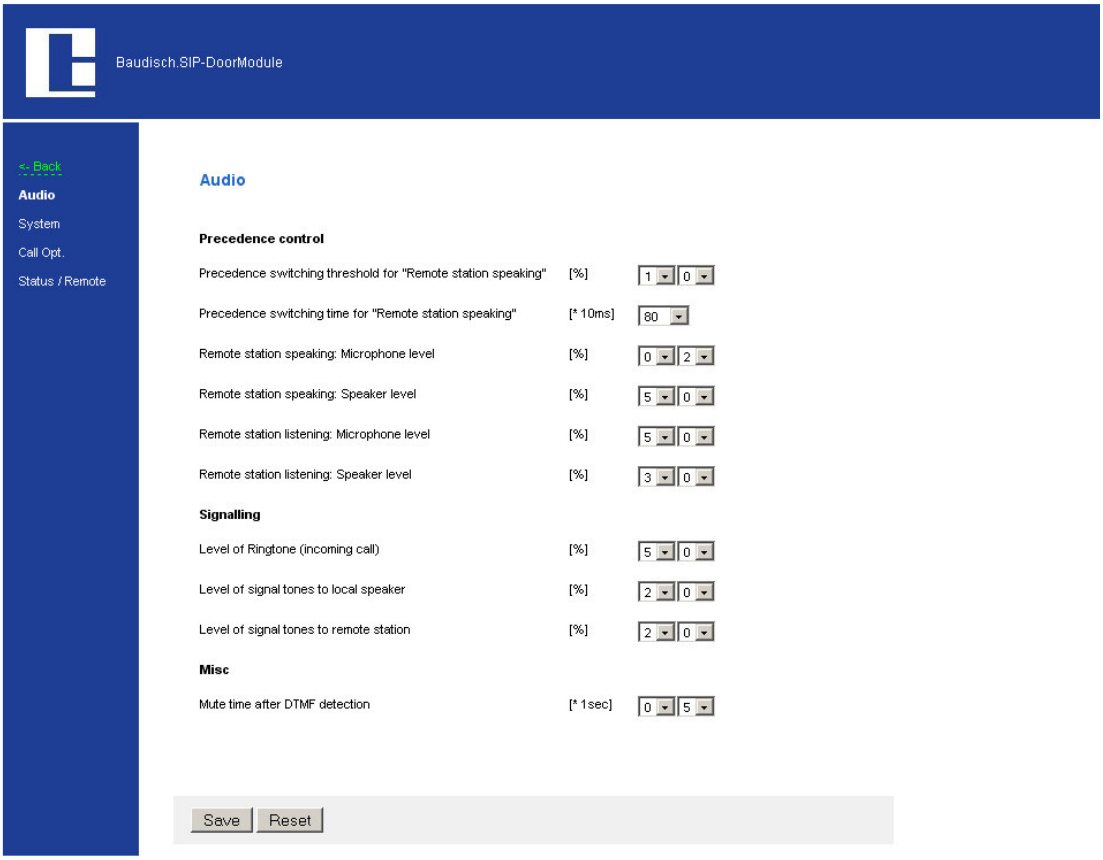
...for an IP address which indicates the status message to the recipient.

...for the connection of a Snom 820 VoIP Phone.

5.5.1. Audio

To prevent feedback noise and reduce echoes, the SIP DoorModule automatically detects if the remote intercom currently is active or not. This way the direction of the speech is activated and the opposite direction toned downed. It switches between the pair of values „remote station speaking“ and „remote station listening”. Appropriate settings can be entered here.

Typical parameters are preset from the factory. However, they are very dependent of the installation environment and must be adjusted accordingly at the site of operation.



Precedence control

Switching threshold for „Remote station speaking“

Sensitivity of the switching to „remote station speaking”. Be aware that the volume while speaking doesn’t stay constant.

Switching time for „Remote station speaking“

Delay of the return switching when below the switching threshold.

Remote station speaking: Microphone and Speaker level

Microphone level and speaker level when the switching is active. Then the microphone level should be lower than with “remote station listening” and the speaker level should be higher.

Remote station listening: microphone and Speaker level

Microphone level and speaker level when the switching is not active. Then the speaker level should be lower than with „remote station speaking” and the microphone level should be higher.

Signaling

Level of Ringtone (incoming call)

The volume of the ring tone being played back. The dial and busy tones while dialing are played back with half of the preset value.

Level to signal tones to local speaker

The volume of the signal tones which is heard by the person at the intercom (local). Included are the button confirmation tones, the switch-on tune and action confirmation (for example call ended)

Level of signal tones to remote station

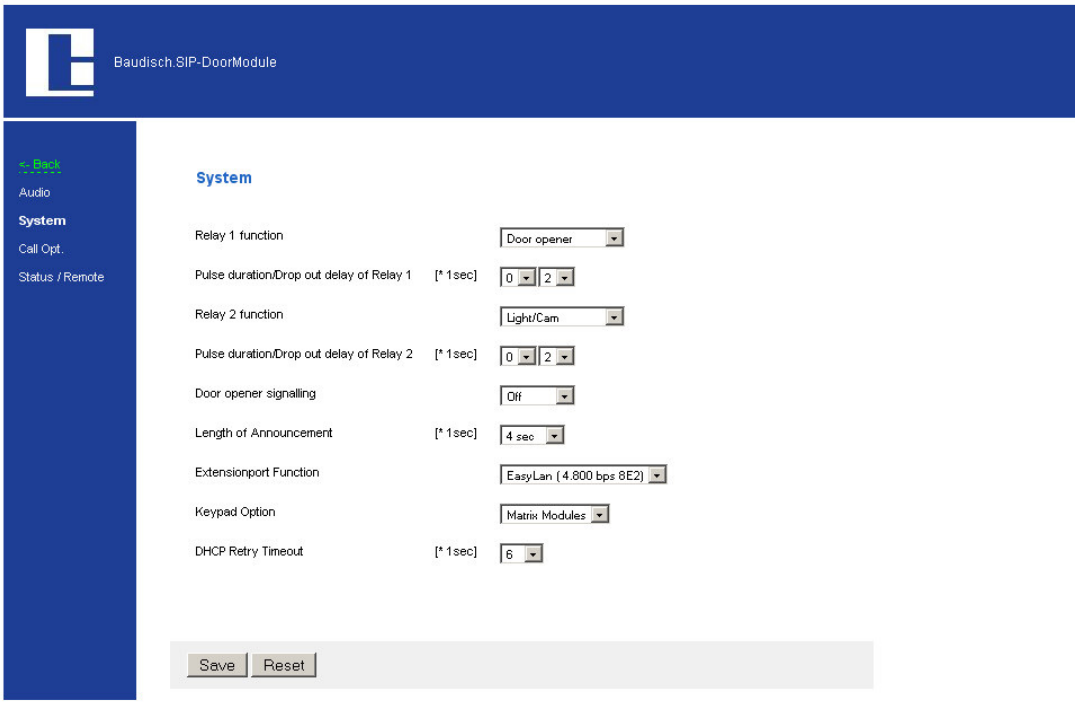
The setting decides the volume of the signaling tones which the person hears at the remote station (DTMF confirmation, confirmation acknowledgement, door opener signaling and error tone)

Misc

Mute time after DTMF detection

The speaker at the door module is switched to mute mode as soon as the second DTMF digit is entered. When the code is correctly entered, the mute modus is immediately cancelled after the positive confirmation. When an incorrect or an incomplete code is entered, the mute modus is cancelled after the mute time.

5.5.2. System



Function of relay 1/relay 2 (relay 2 only at MAXI)

The existing relays on the module can be triggered in different ways to carry out different switching operations.

Door opener

By this function, the relay is triggered when the called person enters a DTMF code on a keypad which is listed in the phone directory or when a specified UDP command is triggered via an external software.

Light / camera

The relay is activated by dialing at the intercom and during a call.

Failure

The relay is activated when there is no failure. It deactivates when there is no network connection (only standard version), no connection to the SIP server (only when the registration at the server is activated!) and by a power outage.

Remote controlled

No automatic function is assigned to the relay and it can therefore be remotely controlled without interaction via internal control operations per UDP.

Call signal

By this function, the relay is activated for the set duration via central call dialing. This makes it possible to control a second ring or to inform a building management system of the dialing process.

Pulse duration / Drop out delay of relay 1 (door) / relay 2 (light)
Depending on the assigned function, the setting is either a pulse duration (door opener) or a drop out delay (light / camera). There is an immediate switch by the failure notification function when a new condition is recognized. By the remote control is the preset pulse duration relevant.

Door opening signaling

The door opening signaling operates with the same principle as a blind traffic light. A tone signal is heard as long as the door opener is pressed. It can for example be useful by the application of a direct current voltage opener because there is no electro acoustics carried out.

Length of ID announcement

Here the length of the recorded announcement must be set.

Extensionport function

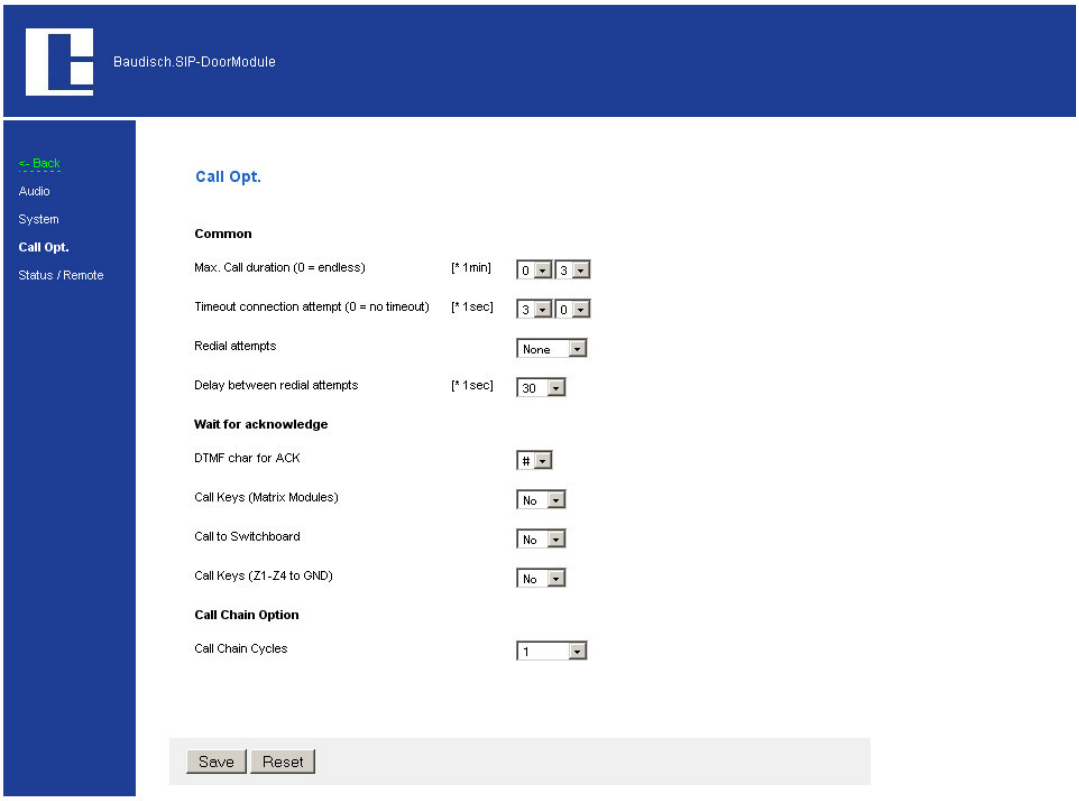
The extension port serves the connection of external add-on modules and intra-company service purposes. An external add-on module could for example be a switch component, which makes it possible to connect up to 115 ring buttons at the intercom.

Keypad option

This choice must be made when you would like to expand the door module with a „keypad“ or matrix modules“.

The keypad option has no function by the DoorModule ECO version.

5.5.3. Call Opt.



General

Maximum call duration

Call time limit. The call is disconnected after the expiration of this term.

Timeout connection attempt

Decides the time of how long is waited for a call to be made. This parameter can also be set by a SIP provider and a SIP server respectively. The dial attempt is disconnected when there is no answer.

Delay between redial attempts

Delay between dial attempts. There is a delay between redial attempts only by a chain call. A dial attempt follows immediately with a phone number change!

Redial attempts

Number of redial attempts, until the dialing process is disconnected. A redial attempt takes place after the preset delay time when the remote station is busy.

Wait for acknowledgement

This function can be set when an explicit acknowledgement of a call acceptance is desired. The called person must confirm the acceptance by pressing a key.
Otherwise the call is discontinued after 10 seconds and a new number can be dialed.

DTMF character for acknowledgement

Choice of key with which the called person should confirm the call acceptance.

Call buttons (matrix module)

This setting must be changed to „on“ in case a MatrixModule is connected to the SIP DoorModule.

Central call

This setting must be changed to „on“ in case a Central call ButtonModule is connected to the SIP DoorModule.

Call keys (Z1 – Z4 to GND)

This setting must be changed to „on“ in case a ButtonModule is connected to the SIP DoorModule.

Call chain option

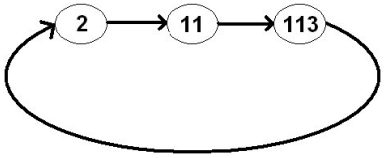
In case the entered numbers were divided into groups (group ID), the numbers within a group are called in sequence until a connection occurs, a call acceptance acknowledgement is given or the entered call chain cycle is run through.

The order in which the entries in the phone directory are set decides the sequence of a chain call. The index in the following table shows the sequence.

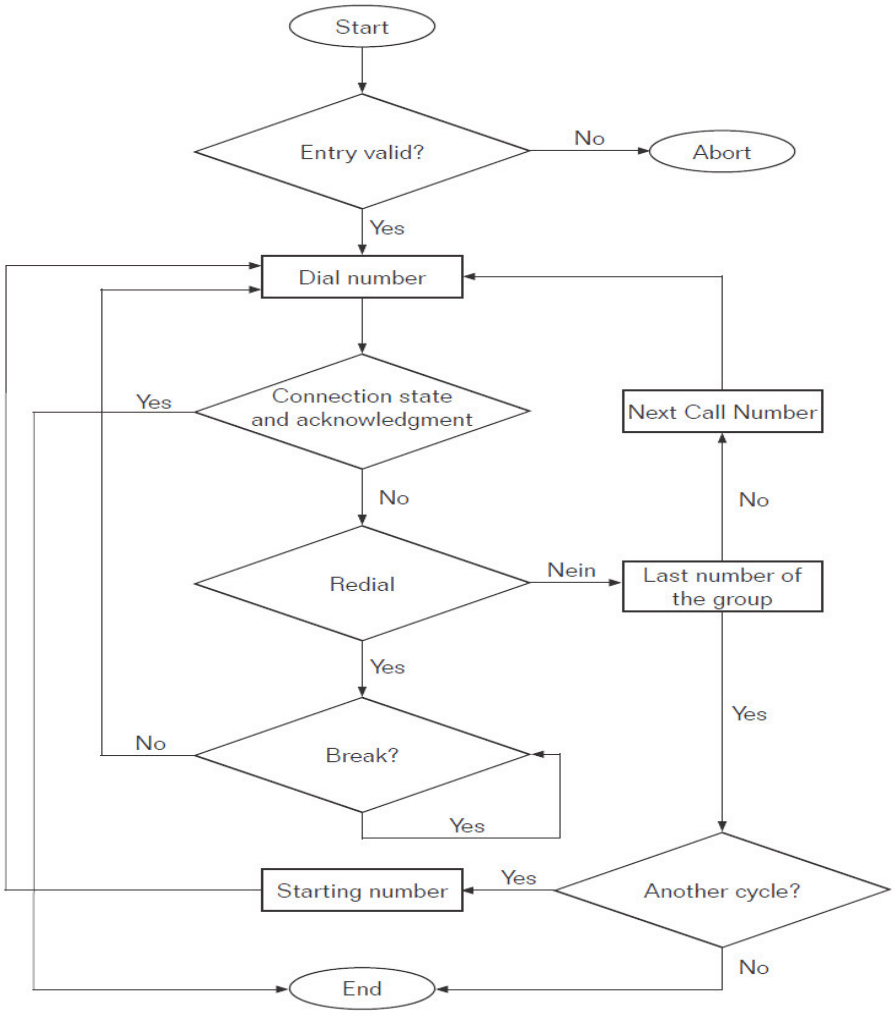
Index	**Configuration menu → Phone directory**	**Contact (corresponding rows)**
1...15	Call button via matrix module	1...15 (table block 1)
16…30	Call button via matrix module	16…30 (table block 2)
31…45	Call button via matrix module	31…45 (table block 3)
46…60	Call button via matrix module	46…60 (table block 4)
61...100	Not in use	
101...115	Call buttons (Z1-Z4 to GND)	61...75
116	Central call	76

Example:

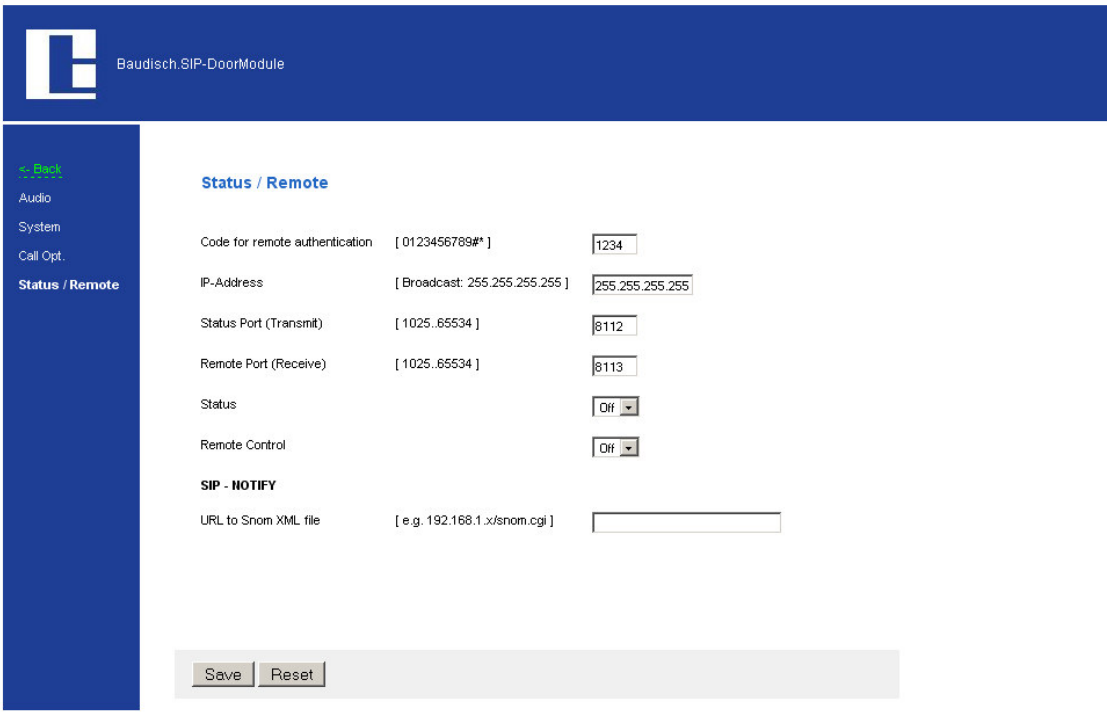
Index (contact) 2 (2), 11 (11) and 113 (73) are assigned to a group ID. When a contact is called within this group ID and not reached, then the next contact is called and so on. When the cycle is run through, then the number of call chain cycles decides whether to discontinue or run through the given cycles.



The function of the call chain is illustrated in the following flow chart.



5.5.4. Status / Remote



Code for remote authentication

To be able to remote control, the code entered here must correspond with the entered code in the protocol.

IP-Address

Specifies the destination address to which the status messages are to be sent. It is the broadcast address by default. This way the messages are sent to all contacts in the sub net. It only makes sense when several contacts in a network should receive the messages. Otherwise, only a direct destination address should be entered here.

Status Port (Transmit)

Identification number of the application. Thereby special basic conditions (firewall etc.) can be considered.

Remote Port (Receive)

Identification number of the application. Thereby special basic conditions (firewall etc.) can be considered.

Status

Status messages are sent when this option is activated. In case of deactivation, no confirmations are sent, not even by using the remote control function! The status messages and the applied protocol are described in more detail in chapter 7.5 Status messages.

Remote Control

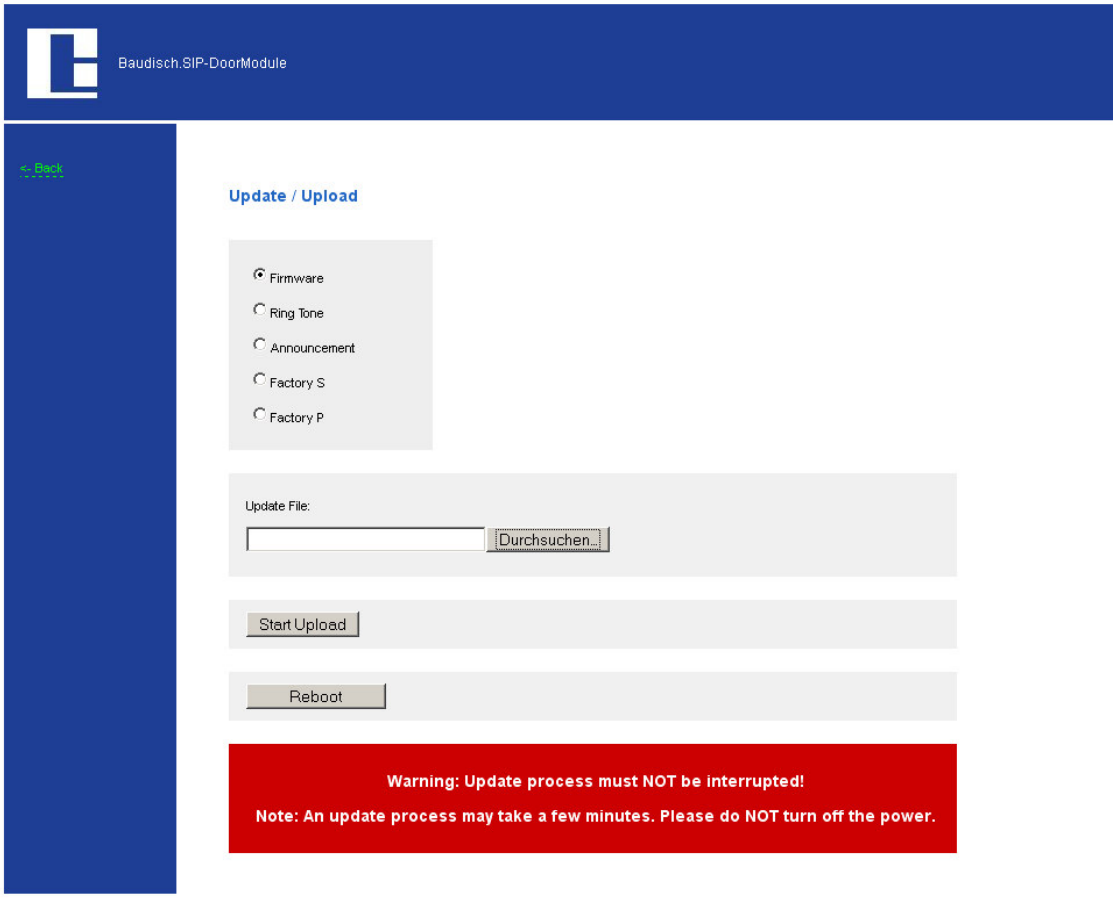
The relays of the SIP DoorModule can be operated by remote control over the network when this function is activated. By the DoorModule MAXI, both camera IOs can additionally be controlled. The remote control operates indeed by activated remote control, however, without activated status message, no confirmation will be sent on a remote command!

SIP-NOTIFY

When a Baudisch.CP-CAM is connected to the DoorModule, the image of the corresponding CAM can be shown by calls to a Snom 820 (VoIP phone). Therefore a separate file must be run which is located on the Baudisch.CP-CAM. The path for the URL to the Snom-XML file must be entered here.

5.6. Updates

Updates can be imported for the firmware, the ring tone and for the announcement.



The following file types are given:

Firmware:	xxxx.bin (Firmware file for the intercom)
Ring tone:	xxxx.dat (Sound file – see chapter 7.1 AVR firmware update)
Announcement:	xxxx.dat (Sound file – see chapter 7.1 AVR firmware update)
Factory setting S:	Upload for setup data
Factory setting P:	Upload from phone directory data

The corresponding update files are available from Baudisch or the files can be generated on your own according to the instructions manual for the ring tone or the announcement.

5.6.1. Firmware

The software of the SIP DoorModule can be updated by updating the firmware.

The update is available from Baudisch on request. Send us an e-mail with the product names and serial numbers. We need this information in order to send you the applicable firmware. In case you do not have the serial numbers, indicate the date of purchase.

E-mail : **update@baudisch.de**

To keep the functions of the DoorModule warranted, an update of the AVR firmware should follow an update of the firmware (see chapter 7.1 AVR firmware update).

To perform an update of the firmware.

1. Start the configuration menu (see chapter 7.1 AVR firmware update).
2. Choose updates, enter password and login.
3. Choose firmware.

- **File to be transferred:** enter the path where the file *xxx.bin* from us is located.
- **Start the transfer** and wait until the automatic reset of the module, which is performed after an update, is completed. (< 2 min.)

You have successfully updated the firmware.

5.7. Reset to factory settings

The device can be reset to factory settings when the setting of the IP address or the access password is unknown.

From version 1.1 the reset is done with a small switch (see side view of the door module). In older versions a connection at jumper J3 must be established on the bottom circuit board (see top view of audio circuit board on the next page).

When loading the factory settings, all VoIP- and hardware settings are reset. The entries in the phone directory are not affected.

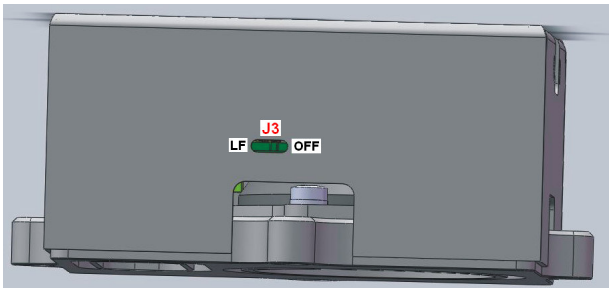
The preset network settings are:

IP address:	**192.168.1.200**
Sub net mask:	**255.255.255.0**
Password:	**1234**

Reset to factory settings! (from version 1.1)

1. Turn off the power.
   - When supply over PoE, unplug the network connector at X1 / INPUT. (see chapter 6.3 How to connect)
   - When supply over an external power supply, remove the connection +Ub at the terminal X3/X4.

Side view of the DoorModule



2. Turn the switch J3 to LF (load factory).
3. Connect power.
4. Wait until the booting process and the following automatic sequence are completed.
   - Confirmation tone and LED 1 + 2 (red/yellow) are lit
   - LED 2 (red) is lit
   - LED 1 (green) is blinking
5. Switch J3 to OFF. The door module is automatically restarting.

The resetting to factory settings is completed!

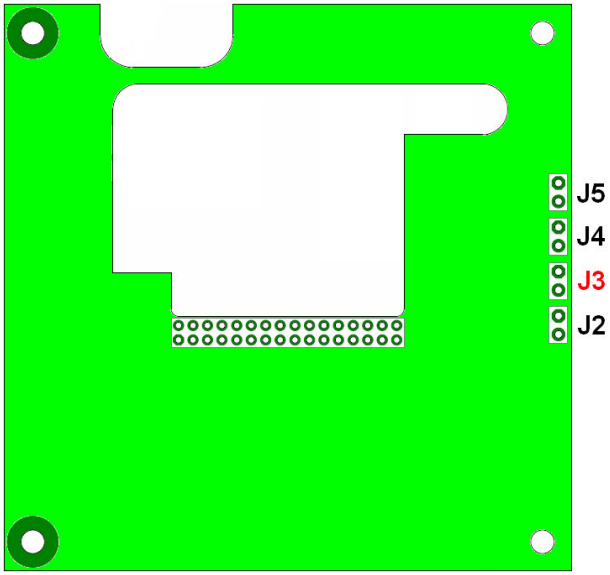
Reset to factory settings (older versions 0.1...1.0)

1. Turn off the power.

- When supply over PoE, unplug the network connector at X1 / INPUT. (see chapter 6.3 How to connect)
- When supply over an external power supply, remove the connection +Ub at the terminal X3/X4.

2. Dismount the housing. The jumper J3 on the bottom circuit board is now accessible from the side.

Top view of the audio circuit board



3. Connect at jumper J3.
4. Connect power.
6. Wait until the booting process and the following automatic sequence are completed.
   - Confirmation tone and LED 1 + 2 (red/yellow) are lit
   - LED 2 (red) is lit
   - LED 1 (green) is blinking
6. Remove connection at jumper J3. The door module is automatically restarting.

The resetting to factory settings is completed!

The resetting to factory settings is completed!

An error message in form of a single tone and a rapidly flashing red LED indicates that the switch J3 was activated too soon. In this case, repeat the reset procedure.

6. Product details

6.1. Technical data

Connections and interfaces

Ethernet over RJ45 10/100 Mbit/s	Ethernet with PoE → without external supply
	Ethernet without PoE → with external supply
Ethernet over RJ45	Integrated switch for direct connection of a CP-CAM (only by the MAXI version)
Screw type terminal	Grounding
	External supply (Ub, 0V), 24V DC 1A secured!
	Relay (closer, dry contacts, max. loading 24V/2A) for door opener
	Relay (closer, dry contacts, max. loading 24V/2A) for call display alternatively useful for online monitoring (only by the MAXI version)
	EasyLan (24V, Bus, GND) (only by the MAXI version)
	Button (closer) (max. cable length to push button 0.5m)
	Output illumination central call button (for two colored LED)
	4 inputs for external, dry contact buttons for direct call triggering. Binary coded for direct call to 15 contacts.
	GND
Female connector 12 pin	Expansionport for diode matrix module (only by the MAXI version)

Physical characteristics

Dimensions	without Baudisch VA4 panel (LxBxH) ca. 95 x 95 x 40 mm
	with Baudisch VA4 panel (LxBxH) ca. 109.5 x 109.5 x 43 mm
Operating voltage	48 V by supply over PoE (Power over Ethernet)
	24V DC (20-36V DC, 1A secured), by external supply
Power input	Open-circuit operation: ca. 2.2W Voice transmission: ca. 4W
Environmental conditions	Working temperature –20 to 50℃ (- 20℃ after 15 min. running time)
	Protection class IP 65 toward the front for outdoor applications with protection against splash water Poke through protection by using the Baudisch V4A panel
Weight	• without Baudisch VA4 panel, ca. 320 g • with Baudisch VA4 panel, ca. 460 g
Protection class	IP65 in conjunction with a suitable housing

Configuration, operating display

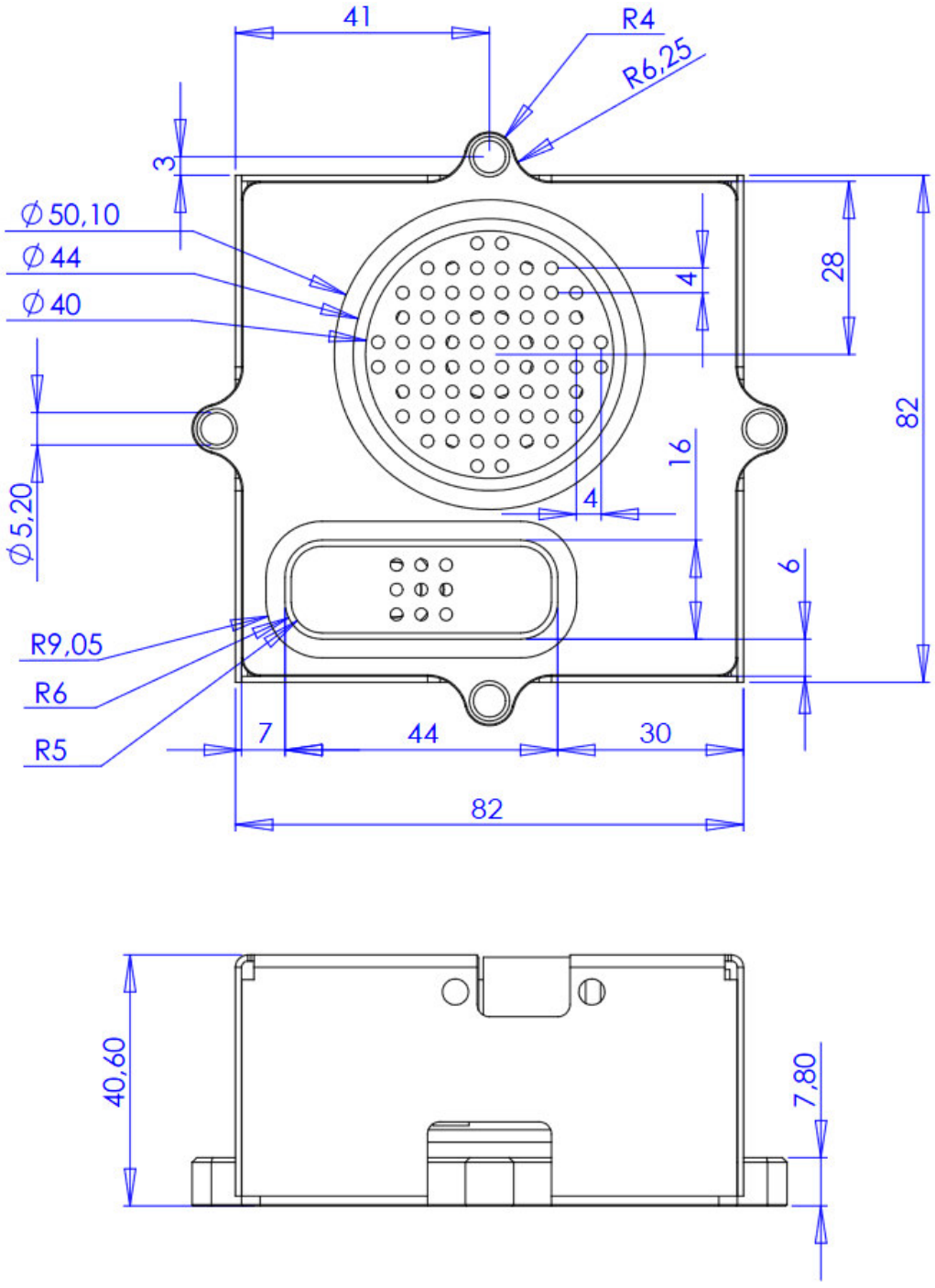
Integrated web server for configuration of all operating parameters and its internal phone directory per network via a web browser.	
Illuminating diodes indicating device status	In the MAXI version: 6 LEDs
	In the ECO version: 5 LEDs

Miscellaneous

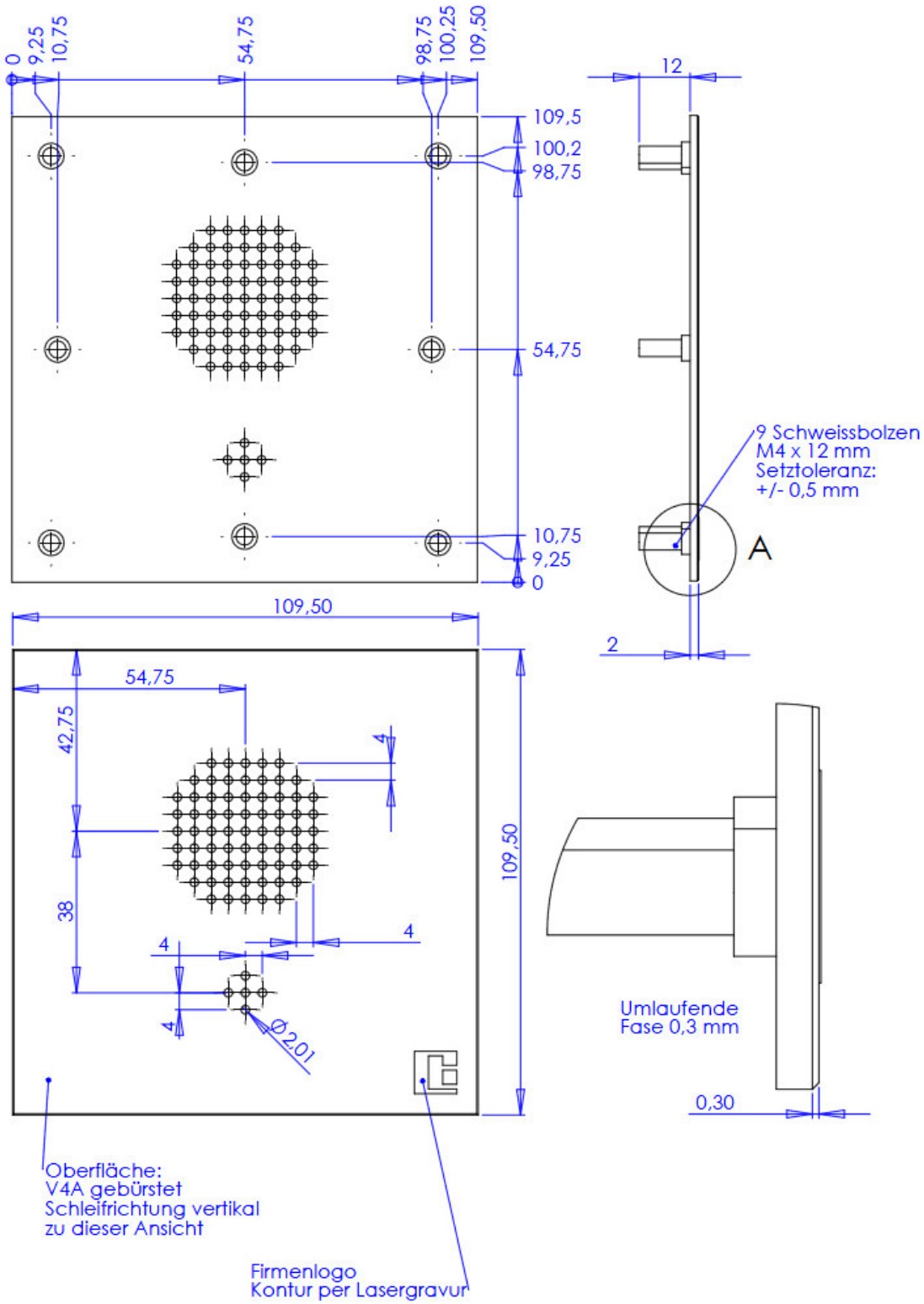
Network switch	• REALTEK RTL8305SC • Ethernet 10Base-T and 100Base-TX • Half duplex, full duplex • Auto negotiation
SIP	RFC 2833 (DTMF), RFC2976 (SIP info)
Protocols	SIP over 10/100 Mbit LAN, IP V4, TCP, RTP, DHCP UDP, HTTP, TFTP, EasyLan, VLAN (IEEE 802.1pq)
Audio	• Built-in speaker RL=8 Ohm/1W Typ. power output=1,36 W with RL= 8 Ohm Typ. power output =2,22 W with RL= 4 Ohm Typ. power output =2,45 W with RL= 3 Ohm • Built-in hands-free microphone • Jitter buffer
Used audio codecs	PCMU, PCMA, Speex, iLBC, G.726-32, GSM 6.10

6.2. Technical drawings

6.2.1. Baudisch.SIP DoorModule MAXI/ECO



6.2.2. V4A front panel



6.2.2.1. Installations instructions V4A front panels

Risk of cutting injury on the back of the front panel!

Risque de blessure au versu du panel de front!

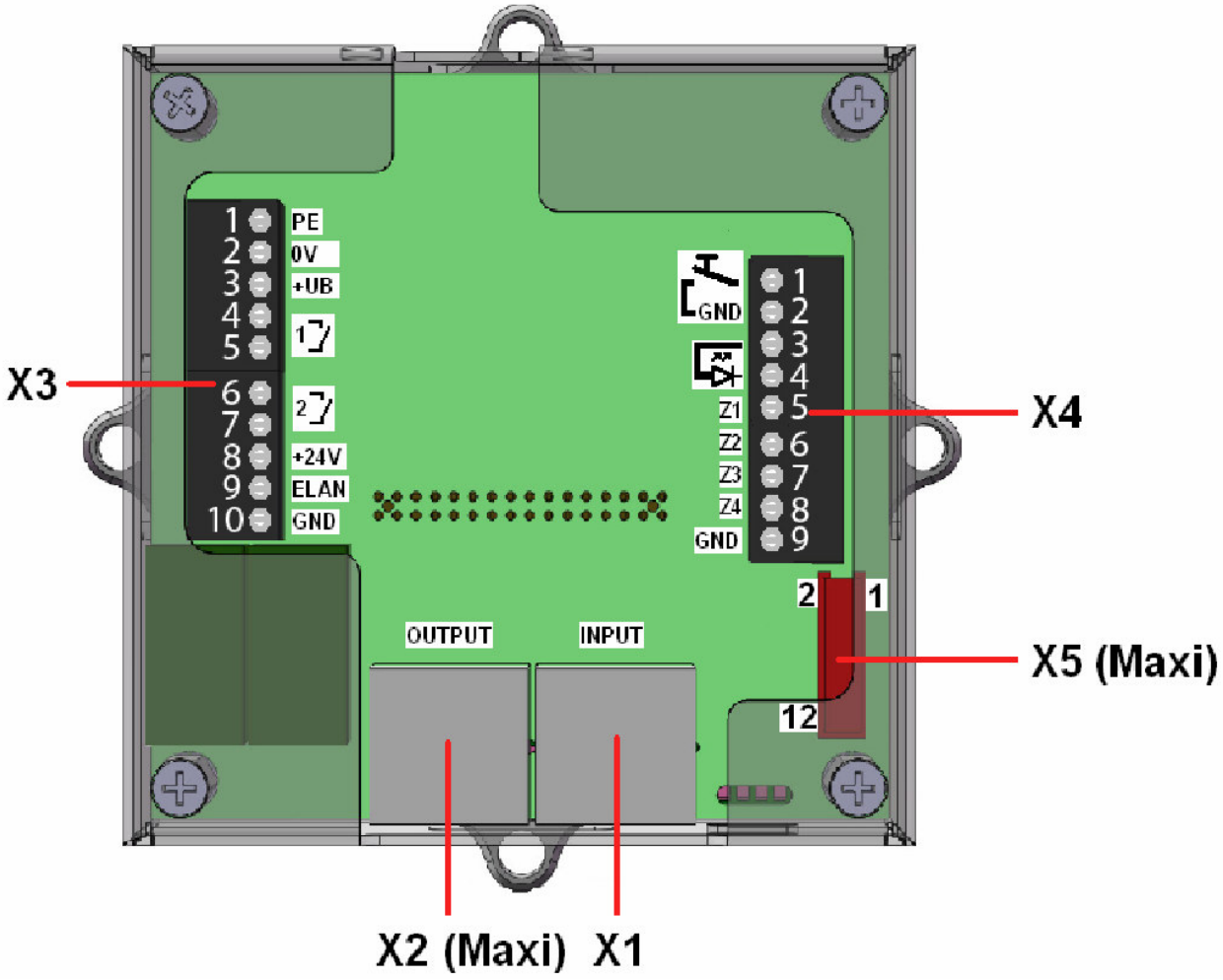
By the installation of the VA4 front panel on the Baudisch.SIP DoorModule, be aware that the surface of the front panel can be deformed when the screws are tightened too firmly. The reason is the different hardness of the welded stud (VA2) and the front panel (VA4).

6.3. How to connect

The Baudisch.SIP DoorModule is in no case to be operated or charged with voltages of ~230VAC.

If this is not followed, possible lack of grounding can destroy the module to the point where voltage is applied to the housing which causes danger to life.

Back view of the door module



Be aware of the total load current Iges = 0,2A of the 24V outputs at X2.5, X3.8 and X5.12.

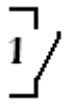
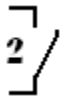
Respectez le courant maximal Iges = 0,2A des flux sortants 24V X2.5, X3.8 et X5.12.

Terminal block		Pin	Name	Description
X1 (INPUT)		1	TPOUT0+ (PoE)	Tx+ (PoE over phantom power middi: 48V and by middi-x: 0V)
		2	TPOUT0- (PoE)	Tx- (PoE over phantom power middi: 48V and by middi-x: 0V)
		3	TPIN0+ (PoE)	Rx+ (PoE over phantom power middi: 0V and by middi-x: 48V)
		4	(PoE)	PoE over spare pair power 48V
		5	(PoE)	
		6	TPIN0- (PoE)	Rx- (PoE over phantom power middi: 0V and byi middi-x: 48V)
		7	(PoE)	PoE over spare pair power 0V
		8	(PoE)	
X2 (OUTPUT)	**Not available with the ECO version**	1	TPOUT2+	**Tx+**
		2	TPOUT2-	Tx-
		3	TPIN2+	Rx+
		4	CAM_OUT1	To control the relay K1 on the Baudisch.CP-CAM module (open → inaktive; GND → aktive)
		5	+24V	+24V output (be aware of Iges!)
		6	TPIN2- (Rx-)	Rx-
		7	GND	
		8	CAM_OUT2	To control the relay K2 on the Baudisch.CP-CAM module (Open → inaktive; GND → aktive)

If no Baudisch.CP-CAM is added, the DoorModule can be used as a switch with a standard 4-wire connection (pins 1,2,3 und 6) via the X2 connection. This way it is possible to connect a foreign device to the network via the integrated switch in the DoorModule.

Be aware of the total load current Iges = 0,2A of the 24V outputs at X2.5, X3.8 and X5.12.
Respectez le courant maximal Iges = 0,2A des flux sortants 24V X2.5, X3.8 et X5.12.

1. Connect PE (protection earth) to prevent dangerous situations!
   Connectez PE (connection de masse) por prévenir des situations dangereuse!
2. Be aware of the maximal load of the dry relay contact of REL1, 2.
   Respectez le courant maximal pur les contacts de relais 1 et 2.
3. Comply with +UB (+24VDC) for external power supply.
   Respectez le tension maximale +UB (+24VDC) pour alimentation externe.

Terminal block		Terminal	Name		Description
X3		1	PE		Protection Earth
		2	OV		Ground potential +Ub
		3	+UB		Operating voltage from external power supply (+24VDC, 1A secured)
		4	REL1.1		Relay - closing contact - dry contacts, max. load 24V, 2A
		5	REL1.2		
	Not available with the ECO version	6	REL2.1		Relay – closing contact - dry contacts, max. load 24V, 2A
		7	REL2.2		
		8	+24V		+24V output (Be aware of Iges!)
		9	EASYLAN		EasyLan-Bus
		10	GND		

4. Be aware of the maximum load current Imax = 0,2A at the connection X3 pin 8.
   Respectez le courant maximal pur current Imax = 0,2A at the connection X3 pin 8.
5. Be aware of the maximum cable length of 0.5m to the central call button.
   Respectez le encablure max.0,5m pour le „central call button“.

Terminal block	Terminal	Name		Description
X4	1	S3B		Central call button (closing contact) (max. cable length of 0.5m to the button)
	2	GND		
	3	+5V		Connection for the illumination (Duo LED) of the central call button (therefore LEDB switched from GND to 24V; +5V to be constant)
	4	LEDB		
	5	MATRIX_Z1		Direct call button 1 / button matrix
	6	MATRIX_Z2		Direct call button 2 / button matrix
	7	MATRIX_Z3		Direct call button 3 / button matrix
	8	MATRIX_Z4		Direct call button 4 / button matrix
	9	GND		GND for direct call button

Be aware of the total load current Iges = 0,2A of the 24V outputs at X2.5, X3.8 and X5.12.

Respectez le courant maximal Iges = 0,2A des flux sortants 24V X2.5, X3.8 et X5.12.

Be aware of the maximum cable length of 1.5m to the matrix module or the keypad.

Respectez le encablure max.1,5m pour le „keypad“.

Terminal block		Pin	Name	Description
X5	**Not available with the ECO version**	1	MATRIX_S1	Scan line 1 (open collector)
		2	MATRIX_S2	Scan line 2 (open collector)
		3	MATRIX_S3	Scan line 3 (open collector)
		4	MATRIX_S4	Scan line 4 (open collector)
		5	MATRIX_Z1	Button matrix input 1 (TTL)
		6	MATRIX_Z2	Button matrix input 2 (TTL)
		7	MATRIX_Z3	Button matrix input 3 (TTL)
		8	MATRIX_Z4	Button matrix input 4 (TTL)
		9	GND	
		10	GND	
		11	EASYLAN	EasyLan-Bus
		12	+24V	+24V output (Be aware of Iges!)

More information about the expansion port X5 for the matrix module and keypad can be found in chapter 3.5 Optional Accessories.

Terminal block	Pin	Name	Description
X6	1	+3,3V	JTAG
	2	TCK	
	3	TMS	
	4	TDO	
	5	TDI	
	6	RESET#	
	7	GND	

6.4. Displays

The DoorModule displays different states on several LEDs on the module.

6.4.1. Power supply

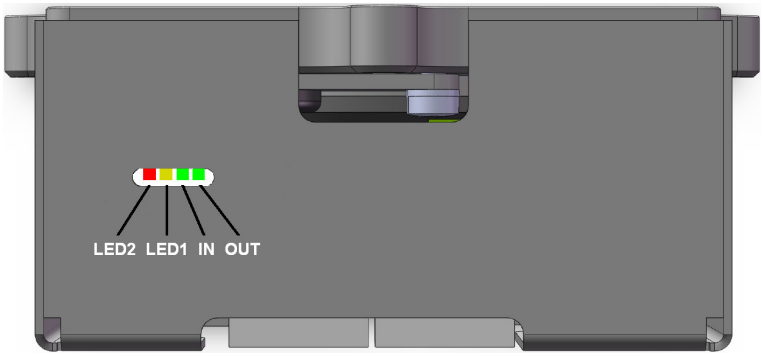
The power and the PoE LED are found on the back side of the DoorModule and are described in the following way.

PWR ● Power supply available. (is lit by external and PoE supply)

POE ● Power supply over PoE available (is only lit by PoE supply)

6.4.2. Connections and operating states

4 additional LEDs are visible in a recess on the side of the DoorModule as shown in the picture..



IN ● Is lit with a network connection at X1.

OUT ● Is lit with a further connection at X2.

Fluttering LEDs signals data communication.

The OUT LED is only available with the SIP DoorModule MAXI version.

The operating states, which are shown by the LED1 and LED2, are found in the following table.

Description of the operating statuses of LED1 and LED2

LED2	LED1	Description
off	off	If the device is supplied with power, then it is in idle state and the connection with the SIP server is established.
on	off	If the device is supplied with power, then it is in idle state and the connection was not established or cannot be established.
off	on	Indicates the calling state or the dialing process from the intercom to an external party. An incoming call is not indicated here.
on	on	Transition state: (Special functions) The function factory settings load/save is accessed or entry in the save mode.
on off	off on	Alternate blinking: The device is in save mode.
off	blinking	Factory settings loaded/saved. Jumper can be removed.
blinking	off	Error while loading/saving the factory settings or several jumpers are attached.

6.5. Declaration of conformity

EC - Declaration of Conformity

for devices according to EU directive 2004/108/EC (EMC directive)

The device

Baudisch.SIP DoorModule with all its designs

is designed to be in line with the EC directive 2004/108/EC
under the sole responsibility of

Baudisch Electronic GmbH
Im Gewerbegebiet 7-9
D-73116 Wäschenbeuren

The following harmonized standards are applied:

EMC - directive:

EN 61000-6-2, 2006-3, with the basic standards set out therein
(immunity to interference for industrial environment)
EN 61000-6-3, 2007-9, with the basic standards set out therein
(emitted interference for residential, commercial and industrial area as well as small business)
EN50121-3-2, 2007-7, railway applications – electromagnetic compatibility

Wäschenbeuren, September 1st, 2009 Peter Baudisch, CEO

7. Extras

7.1. AVR firmware update

An update of the AVR firmware is only recommended when you have previously installed an update for the DoorModule (see chapter 5.6.1 Firmware).

A program („SIP Remote Control“) was developed, which enables an update of the firmware over the network, without opening the device.

Why and when should the AVR firmware be updated?

To keep the functions of the DoorModule warranted, an update of the AVR firmware should be made after an update of the firmware is performed.

How do I get the latest firmware and SIP Remote Control?

You receive the SIP Remote Control and the AVR firmware together with the e-mail, in which the firmware for the DoorModule was sent on your request.

To perform an update of the AVR firmware via the boot loader function in SIP Remote Control.

Before you can start the SIP Remote Control, the following configurations must be made in the web interface of the DoorModule.

1. Start the configuration menu (see chapter 5.2 Start of the configuration menu)

- Select hardware settings, enter password and login (standard password: 1234).

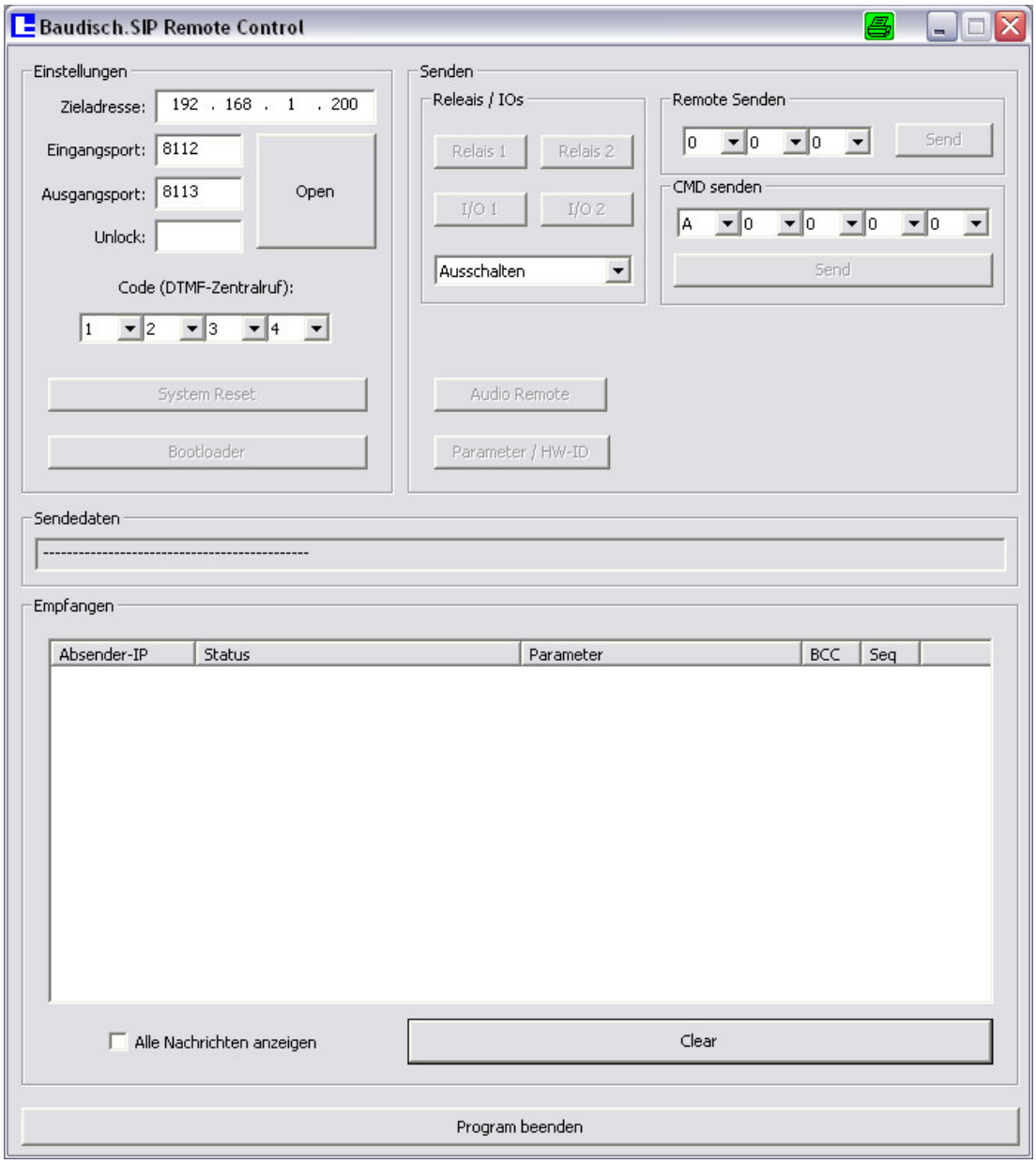
2. Select status / remote control and enter the following settings.

- IP address**:** The IP address of the PC over which the firmware update is made should be entered here. Otherwise, there is too much data communication in the network.
- Status port (send): 8112 (recommended)
- Remote control port (receive): 8113 (recommended)
- Status: „on“
- Remote control: „on“

3. Save

4. Start „SIP Remote Control“

Open the file to be executed, SIPControl.exe, on a PC in your network. The file was included as an attachment in our e-mail you received. The following screen is shown.



5. Make the following settings in the „SIP Remote Control“.

- **Destination address:** Destination of the data package. The IP address of the SIP DoorModule, which is remote controlled or should be updated, must be entered here.
- **Input port:** 8112
  UDP port for incoming data. The setting must match the port for the status messages in the configuration of the SIP DoorModule.
- **Output port:** 8113

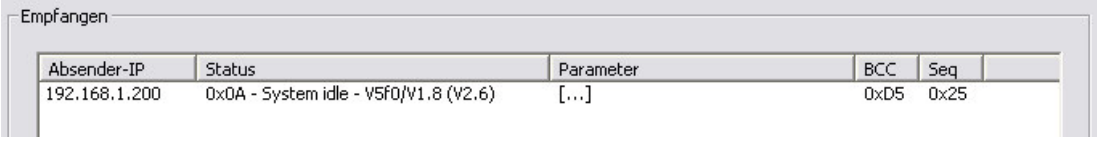
UDP port for outgoing data. The setting must match the port for the remote control in the configuration of the SIP DoorModule.

The specified ports are not to be blocked by a firewall on your computer, otherwise the SIP remote control cannot establish a connection with the DoorModule.

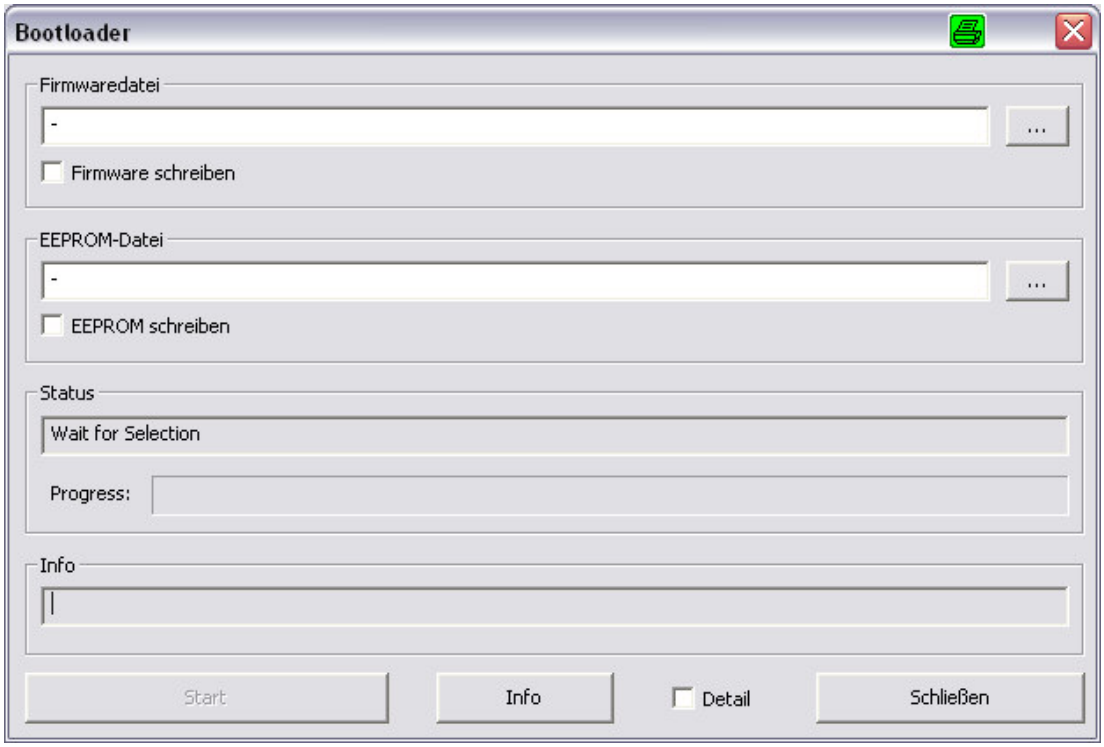
- **Unlock:** Enter the unlock code „Update“. (case sensitive!). The basic functions include the remote control of the relay and the camera IOs as well as the possibility to restart the DoorModule. By entering „Update“ the boot loader function is activated.
- **Code (DTMF central call):** This setting must match the code setting for the central call at the intercom.

6. Press the button „Open“.

A connection is established when the data is shown in the following form in the window Received. The screen is similar to the example.



7. By pressing the button „Bootloader“, the following window opens up.



8. Enter the path of the file *xxx.hex* in the firmware file, which you have received as an e-mail attachment.
9. Make a check at “Firmware schreiben”.
10. By pressing „Start“, the firmware is installed.

The process may take longer and is complete when „Operation successful” is shown in the status field. Deactivate state and remote control in web interface.

Reset the status and remote control in the web interface to „off“.

You have successfully completed the update of the AVR firmware.

7.2. EasyLan connection

7.2.1. General information

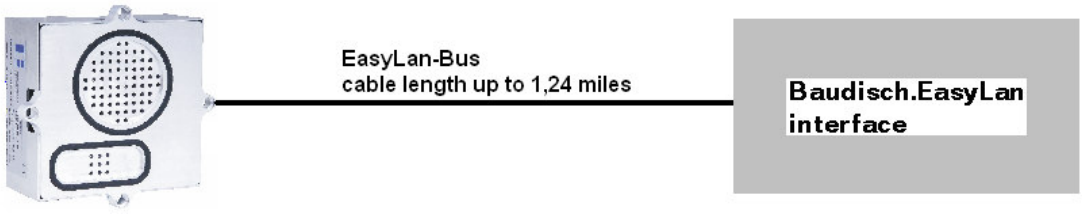
An EasyLan connection is only possible with the Baudisch.SIP DoorModule MAXI version.

The EasyLan Bus was developed by Baudisch Electronic GmbH to link together electronic components, devices and systems in a simple manner. The data bus enables secure communication between individual devices. A bus segment can consist of up to 1,24miles shielded cable 2x0.6mm² and can differentiate up to 64 participating devices. The Baudisch.SIP DoorModule MAXI has the necessary connections and can be integrated into an EasyLan system.

The protocol description of the EasyLan interface is not published. However, it can be handed out by signing a confidentiality agreement (NDA).

7.2.2. Using an EasyLan connection

This way the Baudisch.SIP DoorModule can be controlled via field bus modules from a distance of up to 1,24miles. It can process a request to make or end a call, open the door or give a sound output.



7.2.3. Baudisch.EasyLan field bus module and functions

7.2.3.1. Controlling per PC or embedded PC via an EasyLan PC interface

EasyLan PC Interface	USB (Art.-Nr.: 36-0176)	IP (Art.-Nr.: 36-0194)	RS232 (Art.-Nr.: 36-0101
			

There is a client software which enables the DoorModule to be remote controlled. It can process a request to make or end a call, open the door or give a sound output.

7.2.3.2. The connection to the ASB_32InSPS_4OutRelais

(Art.-No 36-0133)

Product details:

This EasyLan switch component can detect 32 input signals and release 4 output signals.

The inputs and outputs can be set or read via the EasyLan data bus as well as a RS232 terminal interface.

Supply voltage between 9 and 30V DC

The inputs are electrically isolated by optocoupler and executed with a common minus potential point. It is operated using a positive DC voltage between 9 and 30 V DC.

16 inputs and 2 outputs are available on two 25 pin SUBD connectors (male) respectively.

The RS232 interface is designed with a 9 pin SUBD connector (female) which enables the connection of a PC with a 1:1 extension cable.

The power supply as well as the data bus connection are connected via 4 pin screw type terminals. Each device has 2 such terminals which are internally direct parallel switched. This enables a simple linkage of several devices.

All inputs and outputs are visualized by LEDs.

Calls can be made and ended via these 32 inputs of the module.

7.2.4. Configuration Baudisch.SIP DoorModule MAXI for EasyLan

Start the configuration menu (see chapter 5.2 Start of the configuration **menu**)

- Hardware settings → System
- Set the function expansionport to „EasyLan (4.800 Bps 8E2)“.

7.3. Chain operation

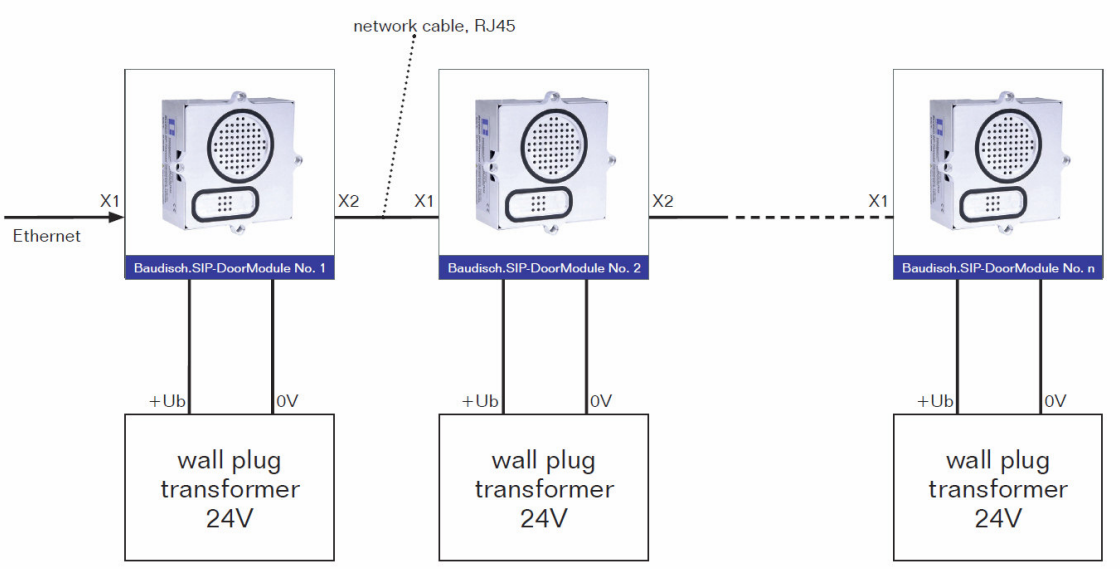
The chain operation function is only possible with the Baudisch.SIP DoorModule MAXI version, because it has an integrated switch which provides a corresponding connection.

This type of series connection with the Baudisch.SIP DoorModule MAXI is designed for use in tunnels.

The chain operation is connected to a separate operating voltage of 24 V on the specified terminals (see chapter 6.3 How to connect) for each individual module.

Except for the last module in the chain, the camera IOs of the previous modules are not to be activated.

Chain operation



7.4. Special functions

Different parameters in the EEPROM-Register can be read and overwritten via UDP. Due to the change, special functions can be activated and configured which are not accessible over the web interface.

Attention! Updating the AVR firmware may reset all settings to factory default.

7.4.1. Functions with the configuration parameters

7.4.1.1. Send door opening code during a call

Parameter: SendDoorEnable (Address: 0x0603 / 1539d)

When this parameter is set to a value other than 0, a DTMF code from the phone directory can be sent to the remote station during a call by pressing the UP button twice. As code is either the code of the called person sent, or in case the call was made from the remote station, the code of the identified participant or the code of the unknown caller.

7.4.1.2. Call logic

Parameter: CallAbortOptions (Address: 0x0602 / 1538d)

Value	Function
0	Ending the dialing process and ending a call via any button possible.
1	Ending the dialing process and ending a call via any button blocked.
2	Ending the dialing process and ending a call via any other button than the one used to dial possible.
3	Ending the dialing process and ending a call via any other button than the one used to dial possible as well as the selection of a new number.
4...255	Works the same as for 0!

7.4.1.3. Button simulation

The activation of the following option of active simulation intervenes with the internal functional logic making normal operation no longer possible.

This option should therefore only be used by specialized persons!

Option seulement pour des technicien experte.

Parameter: TestOptions (Address: 0xFF1 / 4081d)

Bit 0=1 → Activation of the call button simulation for long term or load tests.
It simulates a keystroke according to the following parameters. With the delivery is bit 0=0 (deactivated).

The remaining 7 bits are not used.

Parameter: SwitchPattern (Address: 0xFF2 / 4082d)

Bit pattern with which the buttons are set to be simulated.

Bit 0 = SW_EXT1
Bit 1 = SW_EXT2
Bit 2 = SW_EXT3
Bit 3 = SW_EXT4
Bit 4 = UP
Bit 5 = DOWN
Bit 6 = OK
Bit 7 = no function

Not all combinations can be used, because the buttons UP, DOWN and
OK only individually make sense and the other 4 buttons only as a bit combination.
If all bits are set to 0 is no button pressed.

The value of the following 3 parameters must be between 1 and 255!

Parameter: SwitchOnTime (Address: 0xFF3 / 4083d)

Time, which should fit the bit pattern. The time is:
→ Value x SwitchGranularity x 50ms

Parameter: SwitchPauseTime (Address: 0xFF4 / 4084d)

Time expected between the strokes. The time is:

→ Value x SwitchGranularity x 50ms

Parameter: SwitchGranularity (Address: 0xFF5 / 4085d)

Unit of time for „SwitchOnTime“ and „SwitchPauseTime“.

7.4.1.4. Disconnect a call after remote relay

Parameter: RemoteCancelCall **(Address: 0x0604 / 1540d)**

Bit 0 = ending the dialing process
Bit 1 = disconnect a call
Bit 2 = always execute the function at remote relay 1
Bit 3 = always execute the function at remote relay 2
Bit 4 = no function
Bit 5 = no function
Bit 6 = no function
Bit 7 = no function

This function is used to end the dialing process or disconnects a call when the door opening relay was activated via the UDP remote control. Each relay must be configured with the function “door opener”. Otherwise, the function is only executed when bit 2 or bit 3 is set.

7.4.1.5. Activation of the DTMF relay selection

Parameter: EnableDTMFDoorSelect (Address: 0x0605 / 1541d)

If this parameter is set to a value other than 0, then the relay to be used can be selected with the code sequence „*99n#“ giving n one of the following values:

0 = Both relays (always with a new connection or after DTMF timeout)
1 = only switch relay 1
2 = only switch relay 2

The actual door opening code must be sent immediately after the selection sequence, otherwise the selection value is reset due to the timeout.

Also when the function is activated, the door code can still be entered alone (without preselection „*99n#“).

7.4.1.6. Configure addresses for Displaymodul32

Parameter: ScanDM32 (address: 0x0606 hexadecimal / 1542 decimal)

Value		Addresses
Hexadecimal	**Decimal**	
0x00	**0**	**Do not search for DM32**
0x01	**1**	**Include module 1 in search (Address: 0x70)**
0x02	2	Include module 2 in search (Address: 0x71)
0x03	**3**	**Include module 1, 2 in search (Address: 0x70, 0x71)**
0x04	4	Include module 3 in search (Address: 0x72)
0x05	5	Include module 1, 3 in search (Address: 0x70, 0x72)
0x06	6	Include module 2, 3 in search (Address: 0x71, 0x72)
0x07	**7**	**Include Module 1, 2, 3 in search (Addresses: 0x70, 0x71, 0x72)**
0x08	8	Include module 4 in search (Address 0x73)
0x09	9	Include module 1,4 in search (Addresses: 0x70, 0x73)
0x0A	10	Include module 2, 4 in search (Addresses: 0x71, 0x73)
0x0B	11	Include module 1, 2, 4 in search (Addresses: 0x70, 0x71, 0x73)
0x0C	12	Include module 3, 4 in search (Addresses: 0x72, 0x73)
0x0D	13	Include module 1, 3, 4 in search (Addresses: 0x70, 0x72, 0x73)
0x0E	14	Include module 2, 3, 4 in search (Addresses: 0x71, 0x72, 0x73)
0x0F	**15**	**Include module 1, 2, 3, 4 in search (Addresses: 0x70, 0x71 ,0x72, 0x73)**

All parameters listed in the table are possible to use. Bold printed addresses are recommended.

A restart is necessary after changing a value! If a address is included to the search, but no DM32 can be found, the duration of starting up the DoorModule will increase.

7.4.1.7. EasyLan switching functions

It is possible to send up to 2 switch commands to EasyLan switching modules.
There are 4 values for each switching function.

Switch function	Address	function
1	1544 (dec)	Options for switching function 1
	1546 (dec)	Destination address for switch function 1
	1547 (dec)	Contact number for switching function 1
	1548 (dec)	Parameter time for switch function 1
2	1545 (dec)	Options for switching function 2
	1549 (dec)	Destination address for switch function 2
	1550 (dec)	Contact number for switching function 2
	1551 (dec)	Parameter time for switch function 2

Parameters: Options for switch commands

Bit 0 = switching command format – Bit 0
Bit 1 = switching command format – Bit 1
00 = function not active
01 = switching command to EasyLan TM
10 = switching command to SW2 with contact number address
11 = switching command to SW2 without contact number address
Bit 2 = link-up option – Bit 0
Bit 3 = link-up option – Bit 1
Bit 4 = link-up option – Bit 2
000 = no link-up
xx1 = link-up to door opener function
x1x = link-up to remote command
1xx = link-up to CAM-IO
Bit 5 = no function
Bit 6 = no function
Bit 7 = no function

Parameters: Target address for switch function

The switch command is sent to this address. Switching modules are usually programmed to Addresses 0x50 / 0x51 (Relay 1/ Relay 2) by factory default or there is a address used in the range 0x50…0x5F.

Parameters: Contact number for switch function

The contact number is used to address switching modules, that have a shared address. Default value is 0.

Parameters: Time for switch function

0 = OFF
1 = always ON
2..255= switch time in seconds

The time parameter is only active in case of linked to a door opener relay. If linked-up to Remote or CAM-IO, the value sent via remote protocol is in use.

At the link-up options only one option can be active for the same time. In other case different time parameters will collide and there will be sent a command for each link-up.

7.4.1.8. Mask for keypad / keypad functions

Parameter: (Address: 0x0614 / 1556 decimal)

Value 0x3E = all functions active (except send DTMF)

Bit 0 = no function
Bit 1 = every number possible to dial activated
Bit 2 = code entry for door opener active
Bit 3 = Central call activated
Bit 4 = Speed dial activated
Bit 5 = Setting for dial timeout activated
Bit 6 = Only 4 digit codes allowed
Bit 7 = Send DTMF while calling activated

A restart is necessary after changing a value!

7.4.1.9. Alternative numeration of speed dial keys (keypad)

Parameter: (Address: 0x0615 / 1557 decimal)

Value 0 = standard numeration

Bit 0 = alternative order activated
Bit 1..7 = no function

Standard numeration:
00 => Call entry 001
01 => Call entry 002
99 => Call entry 100

Alternative numeration:
01 => Call entry 001
99 => Call entry 099
00 => Call entry 100

A restart is necessary after changing a value!

7.4.1.10. Time lock between call cancel and further dial

Parameter: (Address: 0x0616 / 1558 decimal)

Value 0 = no time lock

The lock time is defined by the chosen value x 50ms. Value 20 effects in a lock time of 1 second (1000ms).

A restart is necessary after changing a value!

Value 0 effects a lock duration for about 500…800ms. There are systems, that can't handle a fast following change between new calls and ended calls. So these parameters allow to increase the duration.

7.4.1.11. Offset for door opener code for selection relay (DTMF & keypad)

address		function	value range
hexadecimal	decimal		
0x0617	1559	Offset for first digit of the code	[0..9;'F']
0x0618	1560	Offset for second digit of the code	[0..9;'F']
0x0619	1561	Offset for third digit of the code	[0..9;'F']
0x061A	1562	Offset for forth digit of the code	[0..9;'F']

Valid offsets are 0 to 9. Unused digits must be ‚F' (0x46).

If there is one or all invalid value, the offset function is disabled (e.g. value 0xFF and accordingly 255).

The code of the second relay is the sum of the offset and the configured door code.

Example 1:

DTMF code = 1234
Offset code = 1111

Code for 2. relay is 2345.

Example 2:

DTMF code = *12#
Offset code = 0110

Code for 2. relay is *23#.

Example 3:

DTMF code = *12#
Offset code = 1000

Code for 2. relay is -12#. This code is invalid and so the 2. relay won't work.

If all digits of the offset code are set to 0, only the 1. relay will work, due to a appraisal checking of the 1. code. In addition the preselection of the relays by prefix code "*99n#" or "*99n" have priority. If the prefix code for relay 2 is selected, both codes control relay 2!

7.4.1.12. Form for block function selection via UDP command

Parameter: (Address: 0x061B / 1563 decimal)

Value 0x0F = all functions activated

Bit 0 = local entry Code 1 (relay 1)
Bit 1 = local entry Code 2 (relay 2)
Bit 2 = remote entry Code 1 (relay 1)
Bit 3 = remote entry Code 2 (relay 2)
others = no function

7.4.1.13. Choosing dial tone for keypad

Parameter: (Address: 0x061C / 1564 decimal)

Value: 0xMN

M = dial tone for entered phone number
N = dial tone for speed dials

M and/or N	Dial tone
0	3 tones (425Hz and 250ms duration). Pause between tones is 250ms. This order is repeated every 4 seconds.
1	Constant tone 425 Hz
2	Constant tone 450 Hz
3..255	Same as 0

The loudness of the ring tone can be adjusted in setting "Level of signal tones to local speaker"

7.4.2. Read or write the configuration parameters

These parameters can be changed with the software „SIP Remote Control“ from Baudisch Electronic. You receive the software on request.

E-mail : **update@baudisch.de**

Read or write parameters with SIP Remote Control.

Before you can start SIP Remote Control, the following configurations must be made on the web interface of the DoorModule.

1. Start the configuration menu (see chapter 5.2 Start of the configuration menu)

- Choose hardware settings, enter password and login (standard password: 1234).

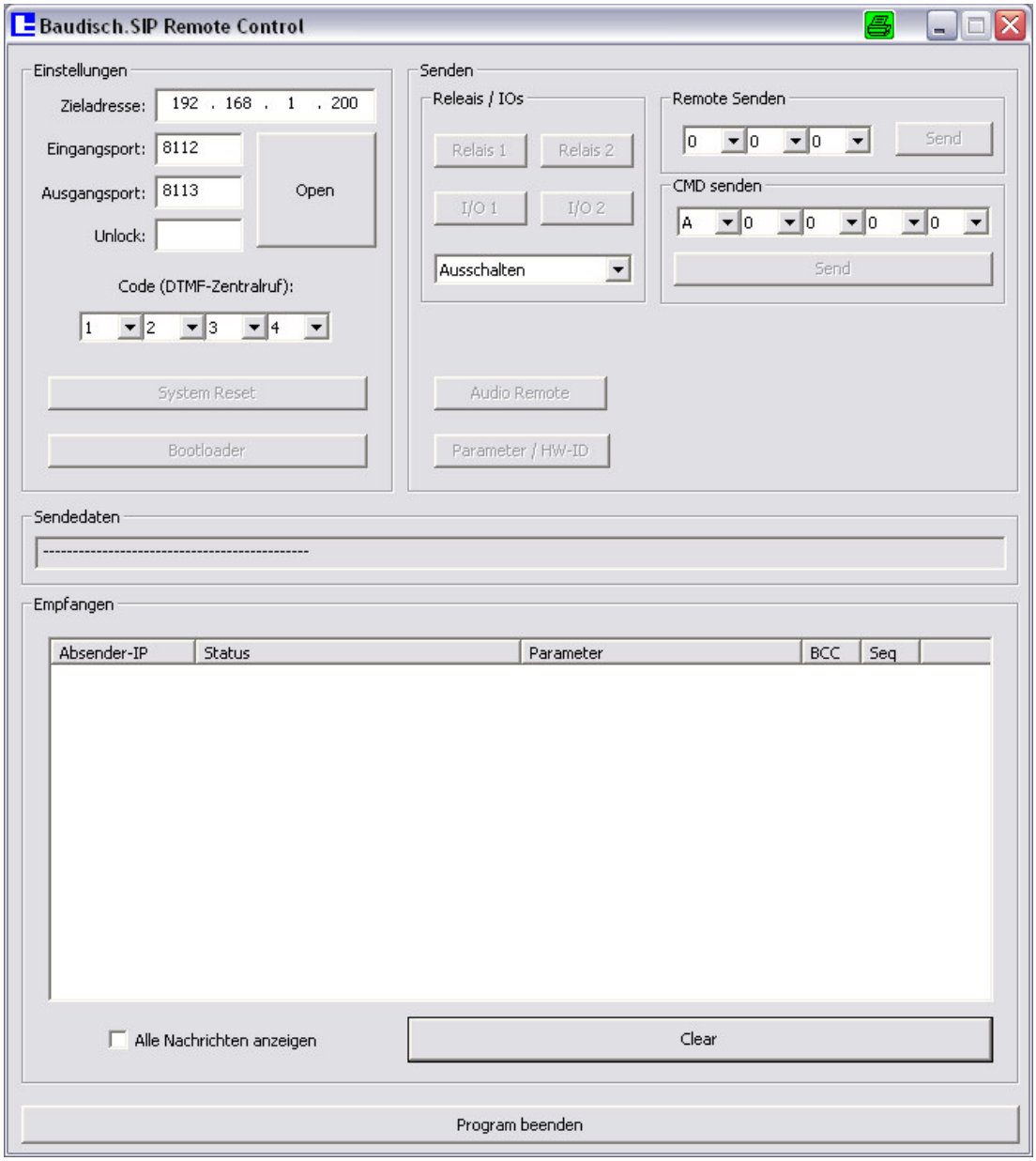
2. Choose status / remote control and select the following settings.

- **IP address:** Here, the IP address of the PC should be entered over which the parameters are changed.
- Status port (send): 8112 (recommended)
- Remote control port (receive): 8113 (recommended)
- Status: „on“
- Remote control: „on“

3. Save

4. Start „SIP Remote Control“

- Open the file to be executed, SIPControl.exe, which you received as an attachment in our e-mail. The following screen is shown.



5. Make the following settings in the „SIP Remote Control“.

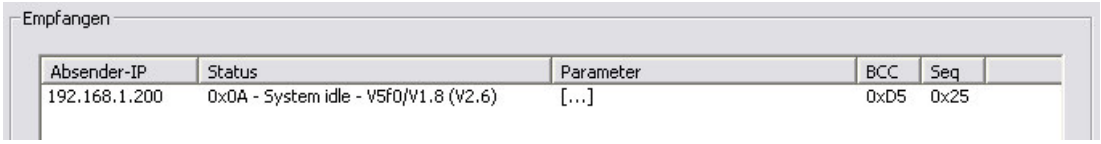
- **Destination address:** Destination of the data package. The IP address of the SIP door module, which parameters are to be changed, must be entered here.
- **Input port:** 8112
  UDP port for incoming data. The setting must match the port for the status messages in the configuration of the SIP door module.
- **Output port:** 8113
  UDP port for outgoing data. The setting must match the port for the remote control in the configuration of the SIP DoorModule.

The specified ports are not to be blocked by a firewall on your computer, otherwise the SIP remote control cannot establish a connection with the DoorModule.

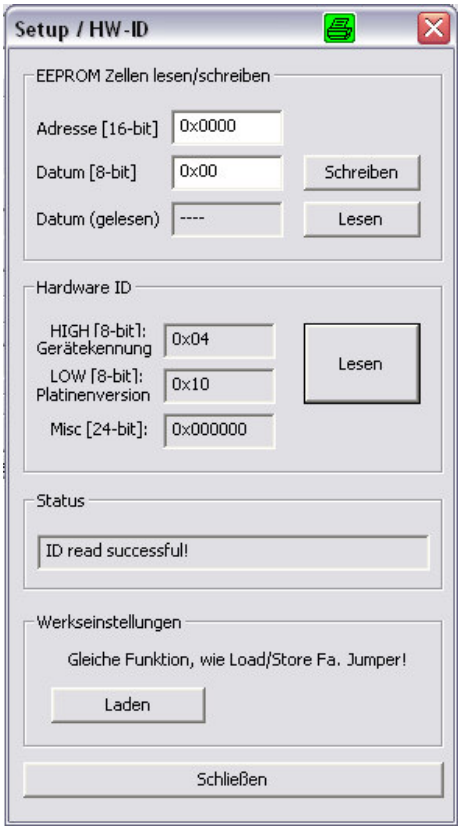
- **Unlock:** Enter the unlock code „Setup“. (case sensitive!). The basic functions include the remote control of the relay and the camera IOs as well as the possibility to restart the DoorModule. By entering „Setup“ the boot loader function is activated.
- **Code (DTMF –Central call):** This setting must match the code setting for the central call at the intercom.

6. Press the button „Open“.

A connection is established when the data is shown in the following form in the window Received. The screen is similar to the example.



7. By pressing the button „Parameter / HW-ID“, the following window opens up.



8. In the Address field is the address of the parameter entered which is to be changed or read.

9. In the Date field is the new value entered, when you want to write.

10. By pressing „write“ or „read“ is the corresponding action executed.

7.5. Status messages

Status changes and current statuses can be sent as status messages via an UDP data package from the DoorModule. Status messages must be activated and a recipient IP address must be entered in the configuration menu under Status / Remote (see chapter 5.5.4 Status / Remote).

7.5.1. Protocol

A UDP data package is structured as follows:

<Sequence number>#<Status>@<Parameter bytes><Proof total>

Sequence number

Number of the current data batch. Is always increased by 1 until 255 is reached and then restarts at 0. This allows the recognition of multiple reception of a data batch. The sequence number consists of a 2 byte HEX string (example: 01, FF, ...).

Status

Specifies the current status or type of the data message. The status consists of a 2 byte Hex-string.

Parameter bytes

The parameter bytes complement the status bytes. They contain detailed information about the status bytes (for example a phone number, status refinement etc.). The parameter always consists of 24 characters (ASCII – no functional characters!). Unused spaces are filled with blanks.

Proof total

The proof total is used to check if the data package contains correct status data. A transmission backup is done over the Ethernet – transmission layer (CRC32). The proof total consists of a 2 byte HEX-string and is made up of all data bytes as Addition Modulo 256.

7.5.2. Messages

Status byte	Parameter bytes	Description
0x0A	<blank> or <XY>	Idle mode (IDLE) XY = Firmware version ATmega (2 digits HEX)
0x01	Number of the caller	Incoming call
0x05	Number of the remote station	Connection status
0x06	<blank>	Status to dial
0x07	Number of the remote station	Dialing status
0x14	Send identification	A maximum of 24 characters of the optional user name (SIP settings) is transmitted.
0x4C	Byte0 = 0x31	Login at the SIP server successfully completed

7.6. Remote control

The remote control can be used to operate the relays (1 and 2) and the camera IOs (1 and 2). Further there are several more functions.

7.6.1. Protocol

A UDP data package is structured as follows:

<ID><Sender IP><Seq.-No.><Output No.><Duration><Password><Proof total>

ID

Identification of the protocol: „BSREM“ (5 characters - ASCII)

Sender IP

Contains the IP address of the sender as a string of hex digits.
192.168.0.2 would be „C0A80002“.

Seq.-No. (Sequence number)

Serves to identify the package when a number of packages is sent. This way double received packages can also be recognized. The sequence number is represented as hexadecimal with two digits in the range 0 to 255 (00..FF).

Output No. (Output number)

Number of the controlled output. Allowed values are 1 to 4. The number consists of only one hex digit.
1 = Door opener relay
2 = Light relay (be aware of special function in the web interface!)
3 = Camera IO 1
4 = Camera IO 2

Duration

Is encoded as two digit hex string.
0 = off
1 = on (permanent)
2..255 = duration in seconds

Password (Code of authentication)

Is switched only in accordance with the specified authentication code in the configuration menu. Unused spaces of the password must be sent as ‚F'. The authentication code always consists of 4 digits (DTMF characters „0123456789*# and ‚F').

Proof total

The proof total is formed as in the status messages.

The DoorModule sends a confirmation after successful verification and forwarding of the request. The confirmation is only sent when the status messages were activated. The data package has the status code 0x1E and as parameter is above defined remote controlled data package 1:1 sent back (fills all 24 bytes of the parameter).

7.6.2. Additional functions

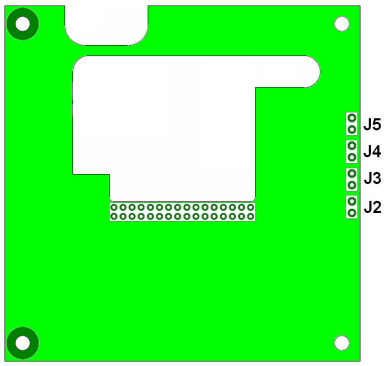
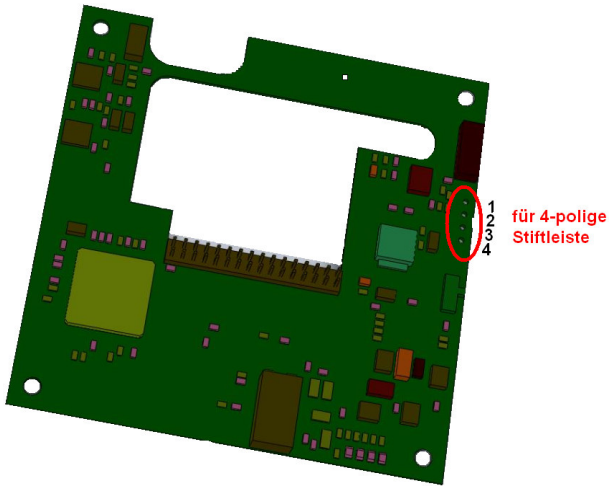
The additional functions are selected by a virtual number. In this case the part of the duration is the function of the parameter.

Number	Parameter	Function
D	00 01..FF	Deactivating the code entry lock for n*10 seconds (depends on special parameter!)
F	5A	System Reset

7.7. Pin strips on the Hardware

The pin strip is not assembled, because these options only are assigned for factory internal purposes. Only qualified personnel should use these options.

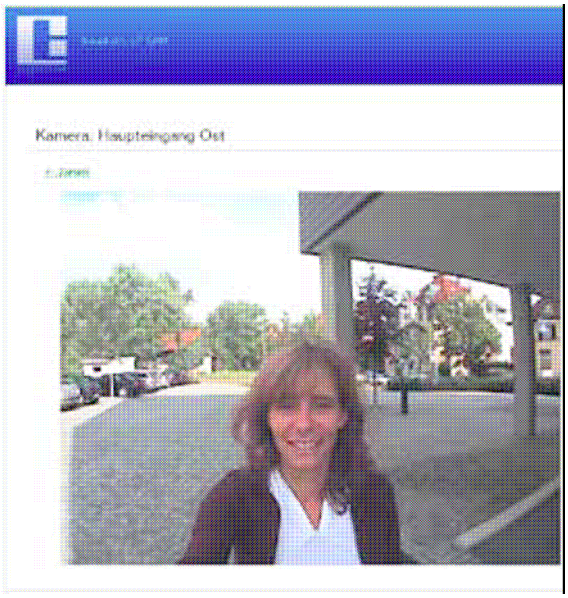
Via the pin strip on the bottom board of the hardware can different settings be saved via connections of the individual pins or a special boot loader modus started.

Version 0.1...1.0	From Version 1.1
	

Version 0.1...1.0	from Version 1.1	Description
Jumper on...	**Bridge on pin strip from...**	
J5	Pin 1 to 4	save DSP → save mode
J4	Pin 2 to 4	store factory → saves the current VoIP and hardware settings as factory settings.
J2	Pin 3 to 4	boot → forces boot loader modus.

7.8. IP Video integration with Baudisch.CP CAM Steel

7.8.1. Video display in the web browser



The video data of the Baudisch.CP CAM can be accessed directly over the IP network independent of a call or the SIP server. That is a big advantage.

Without additional components, the video color images can be viewed at several locations in the network (also simultaneously) via the web browser. Only the execution of a Java plug-ins is free.

A protected access with a password protects as needed the camera images against unauthorized viewing.

If the user network possesses an appropriately configured router is a global access of the camera images possible.

7.8.2. Baudisch.SIP-VideoClient

Alternatively to the video images in a web browser, this software allows the automatic display (pop-up) of the door video images on the screen.

The called PC workstation displays immediately the image with the applicable Baudisch IP camera – this saves the user the manual start of the display and the manual selection of a camera.

The door opens per mouse click with the pop-up button.

In the same simple manner, it is possible to save individual picture images by clicking or automatically by the door opening as JPG directly on the hard drive

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7.8.3. Snom IP telephone with TFT display

With the desktop telephone snom 820, the video image of the CP- CAM is directly shown on the phone display.

The image display of the desired camera can always be turned on using the speed dial buttons on the phone. With a suitable function of the SIP server or a direct configuration without SIP server, this is also automatically possible during a call or during dialing.

Of course, a special code at the snom 820 can also trigger the switch to open the door in the DoorModule during a call.

Detailed information and application notes are received on request.

7.9. Guide for audio settings

To facilitate the setup, audio settings can be changed during an ongoing call. This is done using a special process, the DTMF code. The audio settings changed this way are not saved and after the hang-up reset to the original values. Reasonable values can be set permanently over the configuration menu which is described in chapter 5.5.1 Audio.

DTMF Code

All DTMF commands for special functions are five digits and entered using the buttons on one of the phones connected to the intercom. They start with a star (*), followed by a command digit, two digits for the parameter and end with the hash button (#).

DTMF code example

Command setup	<star>	<command>	<parameter>	<hash>
Example 1	*	2	65	#
Example 2	*	7	33	#

For the guide to work by the change of the audio characteristics, it has to be activated with *999#. To be able to test the settings without delay, the DTMF muting is deactivated.

Possible DTMF commands

Command	**Parameter range**	**Function description**
9	[00..99]	Special functions
	99	Activate service mode
	00	Deactivate service mode
	90	Reset pre-selection of door opener relay (requires no service mode!)
	91	Pre-selection of door opener relay 1 (requires no service mode!)
	92	Pre-selection of door opener relay 2 (requires no service mode!)
1	[00..99]	Remote station listening: speaker level
2	[00..99]	Remote station speaking: speaker level
3	[00..99]	Volume of the signals in the local speaker
4	[00..99]	Volume of the signals to the remote station
5	[00..99]	Remote station listening: microphone level
6	[00..99]	Remote station speaking: microphone level
7	[00..99]	Switching threshold for „remote station speaking“
8	[00..20]	Switching time for „remote station speaking“ [value * 100ms]

7.10. Create ring tones and announcement messages

The ring tone and the announcement message (e.g. a message about the location of the intercom which the called person hears) can be created and loaded into the intercom. However, the audio template must be in the appropriate form (*.raw –format to G711 u-Law) and then converted to the loadable flash binary format.

For this purpose, the company Baudisch Electronic GmbH provides an appropriate tool upon request.

The tool inserts a 2 second silence at the beginning of the audio stream which is required as a forerun. In addition, the audio stream is set in a predetermined frequency range and converted into the right format.

You need the following files:

1. mkSipSnd.exe (conversion tool)
2. Audio stream in wav format for announcement and ring tone.

The audio stream for an announcement may not be longer than 12 seconds and for a ring tone the maximum length is 22 seconds.

To convert the audio stream, do the following:

1. The tool mkSipSnd.exe and the audio stream must be saved in a shared folder.
2. Start the command line (<Start> <Execute> „cmd“ <Return>)
3. Enter the path in the command line where audio stream and tool are saved.
4. Enter the following command in the command line and confirm it with return:
   “mkSipSnd <Name_Audiostream>.wav <Name.Audiostream>.dat
   Example: mkSipSnd Announcement.wav Announcement.dat
5. A Dat file should be added in the folder where tool and audio stream are saved.

The Dat file can be loaded as ring tone or announcement via the update function of the door module (see chapter 5.6).

8. FAQ

Which methods of DTMF transmission can be used?

There are 3 ways of transmission!

1. Inband audio method over RTP

   A DTMF tone is created by pressing a button and coded via the set audio codec and then transmitted as payload (voice data) in the RTP package.

2. SIP INFO method over SIP (RFC2976)

   The information that a button pressed during a SIP session is transmitted as info message in the SIP data package.

3. DTMF event method over RTP (RFC2833)

   The information that a button pressed during a SIP session is recognized as DTMF event and is transmitted as payload in a separate RTP data package.

Cause of error, when dialing is not possible? (disconnection shortly after activation)

There can be different reasons when dialing is not possible. The most common reasons are related to the configuration field „SIP domain“:

- field blank (not allowed)
- field with FQDN (a filled domain without a given DNS server)
- Typing error in the domain or in the IP address

Solutions:

- If in doubt, enter the IP address of the SIP server when working in a local network.
- set up DNS server
- correct the typing error

With which system solutions is the Baudisch.SIP DoorModule tested to date and software compatible?

1. Sipgate.de
2. 3CX Free Edition
3. Asterisk
4. accessVoIP
5. Asterisk-Cluster
6. FOXFON
7. EasyPBX
8. Swyx
9. Siemens HiPath
10. Octopus NetPhone
11. Open Office E+ME
12. OpenScape
13. Auerswald Compact 5010 VoIP
14. Starface
15. Cytel

There are problems with the transmission of the DTMF data. No DTMF or always only the first comes through after starting the server.

The problem should at least be partially solved as of version 4.0 build 175a according to Cytel (and an internal test with an inofficial patch). The transmission worked reliably over RFC 2833. With the SIP info, there are still problems.

16. Agfeo

a) Disconnection after appr. 10 seconds

There can be two causes:

- Confirmation request is set and no confirmation DTMF is sent
- Server does not answer to „SIP-NOTIFY“ (Snom video display)

Solutions:

- Deactivate confirmation request or send confirmation sign before 10 second deadline is passed
- Remove NOTIFY-URL (then NOTIFY is no longer sent) or use firmware from version 6.1 (from test version 6a0 is the SIP stack adjusted).

b) DTMF transmission problem

Currently, these units are not able to convert DTMF signals from an analog participant in SIP info or RFC2833 (as of 12/2009).

The only solution is to apply units solely with SIP products with new DSP, because only the DTMF inband analysis works!

9. Customer service

Updates

The description, where you found the latest firmware and how to perform the updates is mentioned in chapter 7.1 AVR firmware update

Support using FAQ

Answers to frequently asked questions are found in chapter 8 FAQ.

E-Mail support:

support@baudisch.de

10. Glossary

SIP (Session Initiation Protocol)

is a network protocol to dial, to control and to end a communication session between two and more participants. The protocol is specified in RFC 3261. SIP is a frequently used protocol in the IP phone communication.

http://en.wikipedia.org/wiki/Session_Initiation_Protocol

H.323

is a protocol in the H32X serie which also includes the communication over public phone networks and ISDN.

http://en.wikipedia.org/wiki/H323

PoE (Power over Ethernet)

describes a method where network capable devices are supplied with energy over the 8 core Ethernet cable.

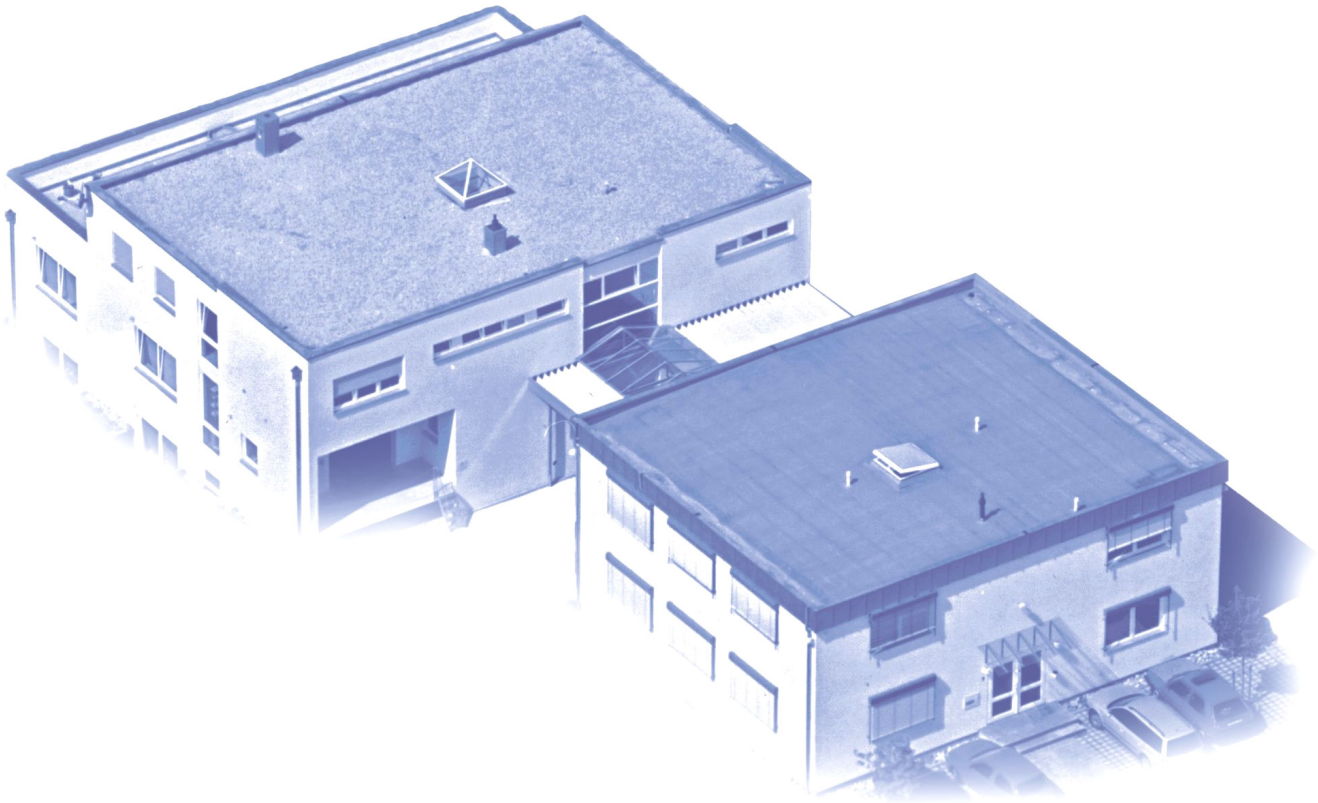
http://en.wikipedia.org/wiki/Power_over_Ethernet

Midspan

By the midspan power supply, a feeding device is placed between the switch and the PoE end device. This way the switched feeder supplies the end device with the necessary PoE voltage using both unused pairs of core.

Endspan

With this type of PoE supply, the switch is able to directly deliver the supply of voltage to a PoE end device without midspan feeder. The feeding takes place via the data lines.



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