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No rights can be derived from this user manual. Boutronic strives to improve its products. Both the MusicControl 4 specifications and the data in this this user manual can be subject to change without notice.

Manual: MC422022017 – v5.0

Preface

Congratulations with the purchase of the MusicControl 4.
In the future one can make melodies, attention signals and MP3 audio sound in every corner in the company.

The MusicControl 4 makes it possible to let the doorbell or alarm sound through the speakers. With the built-in clock, the system can give an indication that the break has started or ended. The MusicControl 4 can also play MP3 audio files from a SD-card that is inserted into the SD-card slot of the MusicControl 4. This makes it possible to play spoken messages.



One can control the MusicControl 4 with a telephone or with BoutronicStudio2. The MusicControl 4 also offers the possibility to broadcast a message with the sound system.

Functionalities of the MusicControl 4

One can use the MusicControl 4 in a variety of ways. The table below shows an overview of the most important functions of the MusicControl 4.

	Broadcast with telephone over sound system.
	Clock by radio, for example the beginning and end of the lunchbreak.
	Doorbell, fire alarm, warning tones and MP3 through the sound system.
	Opening the door by telephone.
	Via Increasing or decreasing volume of the music by telephone.
	Operate devices by telephone.
	Hear sound of being called through the sound system.
	One can edit the settings through the BoutronicStudio2.

Liability and warranty

Every MusicControl 4 is tested by Boutronic for correct operation before being shipped. This is the reason that Boutronic applies a warranty period of 1 year.

The warranty is declared void if:

- The defect is caused by neglect or improper installation,
- Repairs or changes that are done to the MusicControl 4 without the consent/permission of Boutronic.

Boutronic may not be held liable for the consequences or damage directly/indirectly caused as a result of the use of the MusicControl 4.

(Alarm) inputs

The MusicControl 4 has four universal (alarm) inputs. If one of these inputs is activated, one will hear the melody of the sound system. This melody is adjustable, so the inputs can also be used from doorbell to (fire) alarm.

As an extra option one can set a report delay or repetition time. The relays can also be switched at the same time.

Built-in clock

The MusicControl 4 will play a melody through the sound system at set times. These times can be set in the BoutronicStudio2. With the built-in clock one can set to 24 time groups which can be set to 12 different times. The built-in clock adjusts for the daylight savings time (winter time) and daylight time (summer time).

Relay outputs

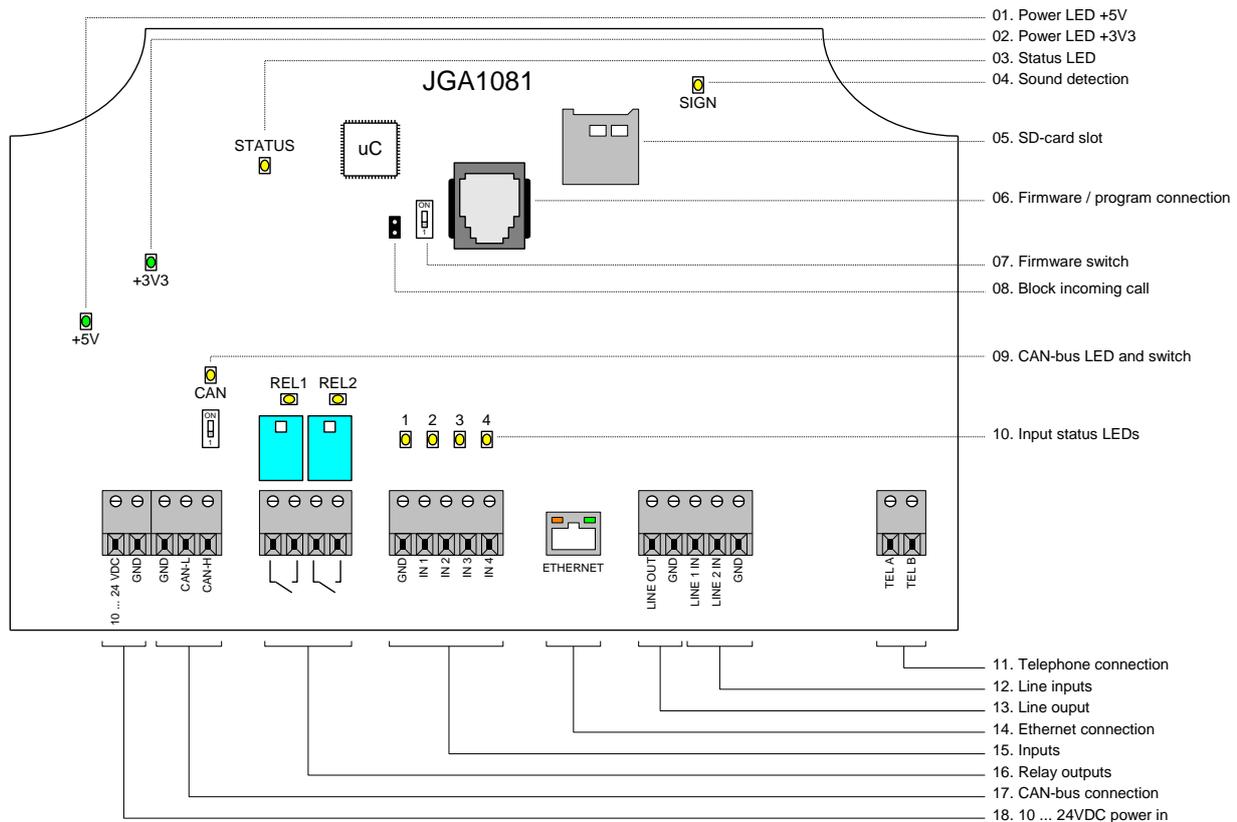
The MusicControl 4 has two relay outputs. With these outputs one can 'mute' the input from the amplifier, unlock a door or switch a device (such as the sound system, alarm system, coffee machine or lights).

Telephone connection

One can connect the MusicControl 4 to almost every telephone switchboard with an analog port. The MusicControl 4 is also available in a VoIP version. After one calls the MusicControl 4 with a phone, one can perform the following actions.

Mainmenu		
1 Unlock door 1	2 Unlock door 2	3 Broadcast
4 Music volume down	5 Reset calltime	6 Music volume up
7 Music mute	8	9 Mute inputs
*	0 Disconnect	#

MusicControl 4 print



Layout of the MusicControl4

01. Power LED +5V

If this green LED is on, the +5V supply is present.

02. Power LED +3V3

If this green LED is on, the +3V3 supply is present.

03. Status LED

This orange LED indicates the status of the MusicControl 4. Normally the LED is off, this indicates that the MusicControl functions well.

04. Sound detection LED

If the telephone line is active, the MusicControl 4 analyses the sound for tone detection. This LED blinks if the MusicControl 4 detects sound. Normally this LED is on.

05. SD-card slot

The SD-card slot can hold a Micro-SD card. This SD-card contains the audio files which can be played with the MP3 function of the MusicControl 4. For more information, see chapter 'play MP3 files'.

06. Firmware / program connection

This connection one can connect the Boutronic USB Dongle.

07. Firmware switch

This switch is only used for a firmware update.

If the red PROG LED is on, the MusicControl 4 is ready to receive new firmware. If this red PROG LED is off, the MusicControl 4 is active.

08. Block incoming call

If this jumper is closed, the MusicControl 4 won't accept an incoming call. One can hear the telephone through the radio (setting).

09. CAN-bus LED and switch

With this switch a terminating resistor is placed in the CAN-bus. CAN-bus LED is on if the network connection is active. The CAN-bus LED blinks shortly when a message is received. Place the CAN-bus resistor only at the end of the bus. See appendix B 'Boutronic CAN-bus network' for more information about the Boutronic CAN-bus.

10. Input status LED's

These LEDs gives the status of the inputs, LED on means input activated, LED off means input is not activated.

11. Telephone connection

Connect, if desired, the telephone line to this connection. With the telephone connection one can:

- Broadcast with the sound system
- Switching the relay outputs
- In/decrease volume of the music
- Adjust settings of the MusicControl 4
- Hearing the signal of being called over the sound system

12. Line inputs

The MusicControl 4 has two audio input lines, these are converted into one audio line output (mono). The two audio lines can be connected to two audio devices with mono audio output or one device with stereo audio output. It is not necessary to connect both audio lines.

- LINE1 IN: device 1 line in input (or left stereo channel).
- LINE2 IN: device 2 line in input (of right stereo channel).

13. Line output

The Line output of the MusicControl 4 can be connected to the audio input of an audio amplifier.

14. Ethernet connection

With this connection the MusicControl 4 can be connected to the network/internet and the settings can be changed with the Boutronic Studio 2 windows software program.

15. Inputs

With the four inputs, one can give a (alarm) report (signal) through the sound system. The inputs are controlled by means of a potential-free connection. One can set the melody, duration of the melody and the type of the contact (NO/NC). An input needs a priority. Input 1 has the highest priority and input 4 has the lowest priority, example:

Alarm 3 is activated but alarm 2 is activated during alarm 3:

- Alarm 3 is interrupted
- Alarm 2 is shown
- When alarm 2 is done, alarm 3 is given, even if alarm 3 is no longer active. This is done so that every alarm is always heard.

16. Relay outputs

The relay outputs for the mute input of an amplifier, or a random other device.

17. CAN-bus connection

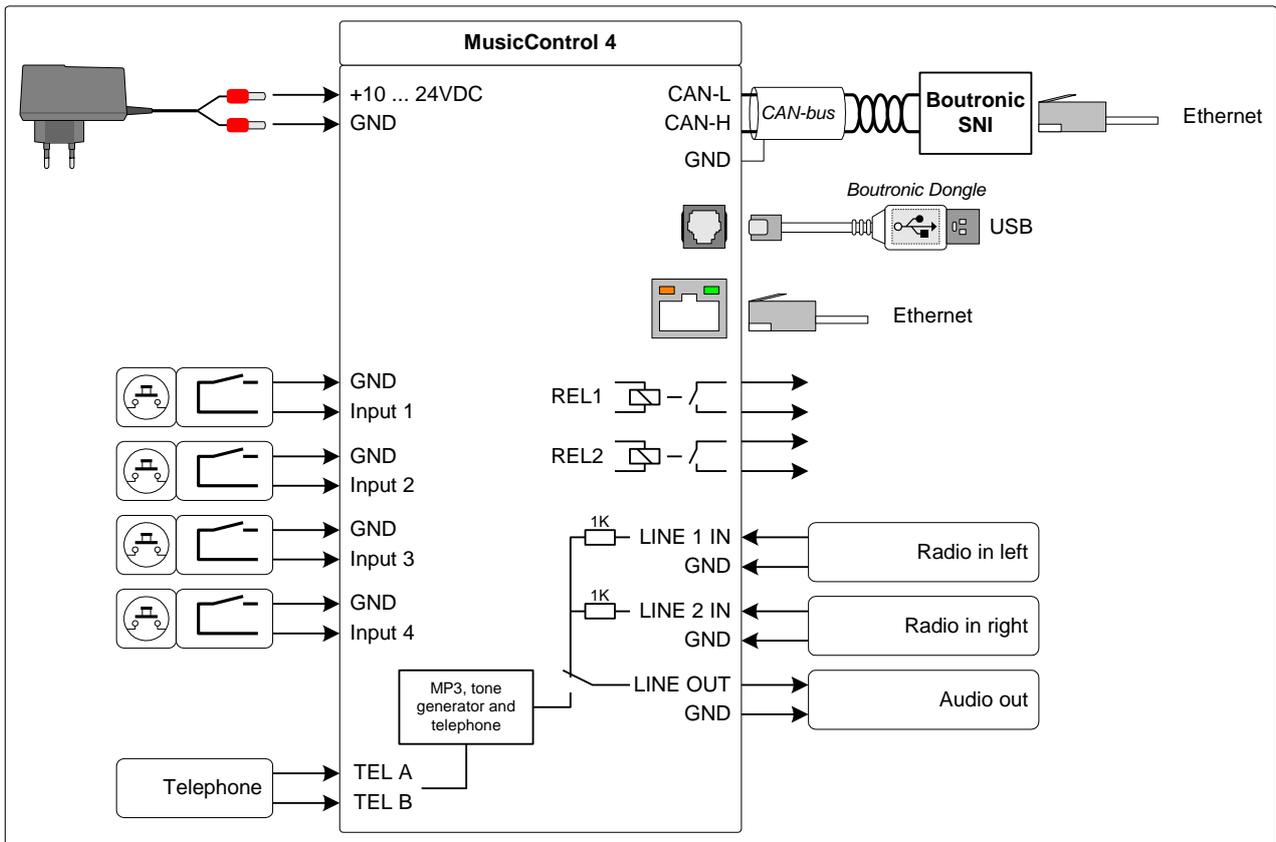
With this connection one can connect the MusicControl 4 to the Boutronic CAN network, so one can control the MusicControl 4 in combination with the SNI, together with other devices, with the Boutronic studio 2.

18. 10 ... 24VDC power in

Power in for the MusicControl 4. Normally a 12VDC adapter is delivered together with the MusicControl 4. If present, cut off low power connector, strip and connect it. It is advised to always check the polarity of the connector before connecting the power lines. Normally the wire with the white stripe is the positive (+) and the other one the negative (-).

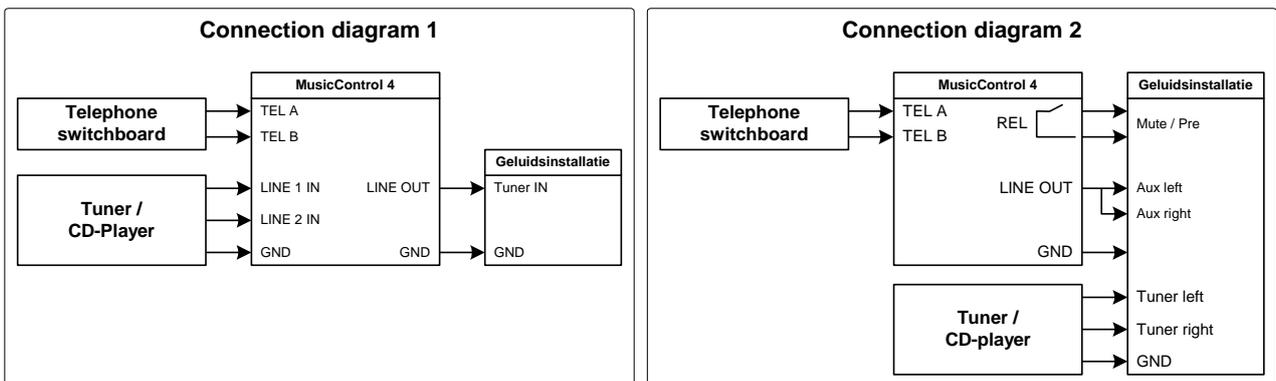
Connection diagram

Below one can see the standard connection diagram of the MusicControl 4.



Connecting a sound system

Below one can see two connection diagrams for a sound system.



Setting up the MusicControl

The MusicControl 4 can be set up by the Boutronic Studio 2, this application is available for free on the website of Boutronic. (www.boutronic.nl)

Connecting

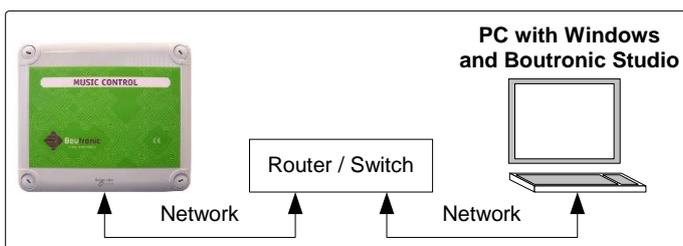
One can connect the MusicControl 4 on three different ways to set it up with the computer:

1. Network (Ethernet)
2. SNI (CAN-bus and Ethernet)
3. USB dongle

Network (Ethernet)

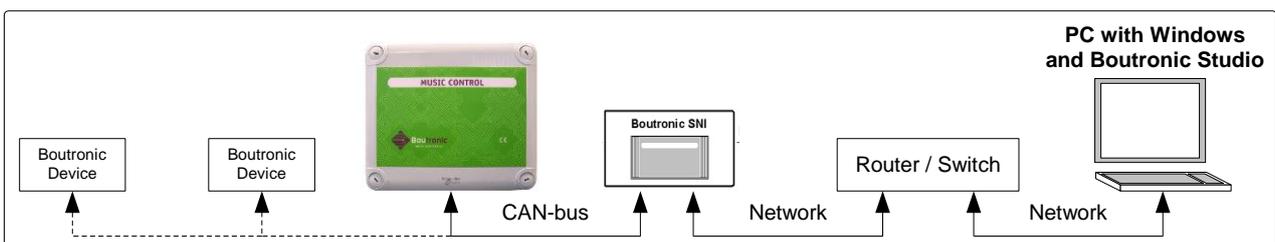
One can connect the MusicControl 4 to the computer with a network. One must connect the MusicControl with a router or switch. The BoutronicStudio 2 can then find the MusicControl 4 in the network. (Devices - > Devices settings -> Device overview -> Devices (right column) -> add ... -> Direct via Network).

For more information about network settings: see chapter ‘**Fout! Verwijzingsbron niet gevonden.**’.



SNI (CAN-bus)

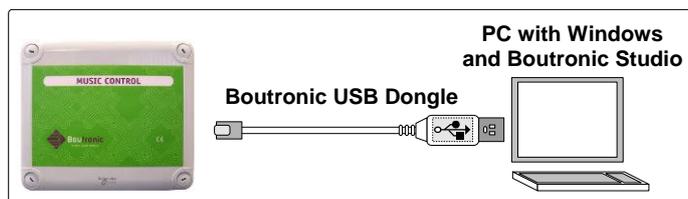
One can connect the MusicControl to a CAN-bus network. The Boutronic SNI can then convert the CAN-bus to the computer network.



See Appendix B: Boutronic CAN-bus network for connecting the MusicControl 4 by the means of a CAN-bus.

USB dongle

With the USB Dingle one can make a direct connection to MusicControl 4. For this connection no extra information is needed, only a Boutronic USB Dongle and computer are necessary.



With the Boutronic Dongle one can add one device per USB port.

For more information please visit www.boutronic.nl.

Boutronic Studio 2

The Boutronic Studio 2 is a free software package that one can download on www.boutronic.nl.

The software can be used on a Windows computer.

If one has added the MusicControl 4 to the Boutronic Studio 2, all the settings can be showed and changed.

The screenshot shows the 'General' tab of the Boutronic Studio 2 software. The interface includes a menu bar with options: General, Errors, Inputs, Timeclock, Radio, Phone, Intercom, Clock, Network settings, I/O, License codes, Factory, and Backup. Below the menu, there are 'Write' and 'Read' buttons. The main area displays the following configuration for 'MusicCtrl 4':

MusicCtrl 4	
Device type	MusicControl4
Device nr	100
Name	MusicCtrl 4
Serial nr	27784
Software version	v5.0e
Connected via	BoutronicSNI [192.168.15.153:8080]

At the bottom of the window, the status bar shows: License codes: Present, Current time: 01-07-2019 14:38:24, Current user: Default user.

Inputs

Various functions can be realized using the inputs of the MusicControl 4.

Functions

Every input can have a specific function, this can be set.

Functions	Description
None	Nothing happens when this input is activated.
Standard	When the input is activated, a melody is played and/or a relay will be switched.
Suppress input	Dependent on the setting 'suppress input' the inputs will be suppressed when activated. When the setting is set to 0 sec, the inputs will be suppressed as long as the input is activated. When the setting is set to more than 0 sec, the input will be suppressed for the set time.
Telephone over radio	If the radio is activated and there is an incoming call, the selected melody will be played and relays will be switched (if set).

Drivetime

Every input has their own drivetime that can be set. The drivetime refers to the time a melody is played or a relay is switched. The drivetime can be set from 0 to 6000 sec. (100 min)

When the drivetime is set to 0 sec, the melody will be played as long as the input is active. When a report delay is set, the melody will start after this delay.

The relays are, if set in 'drivetime', switched a long as the input is active. When a report delay is set, the melody will start after this delay.

Report delay

On every input with function 'Event', a report delay can be set.

When set to above 0 sec, the report will be delayed with the set time.

When set to 0 sec, the report will be given immediately.

Reloading the report delay

With the setting 'Report input after' one can enable that the report delay is reset when the input is activated during the delay.

Repetition of the report

It is possible to repeat the reports of the inputs. To activate this function, one must set the 'Repeat after' bigger than 0 sec. As soon as this setting is set, the report of the input will be repeated as long as the input is active. As soon as the input is no longer active the report will stop. The repetition starts after the first report. This means that when a report delay is set, the report will first wait the report delay. After this delay the report is repeated after the set time of 'Repeat after'.

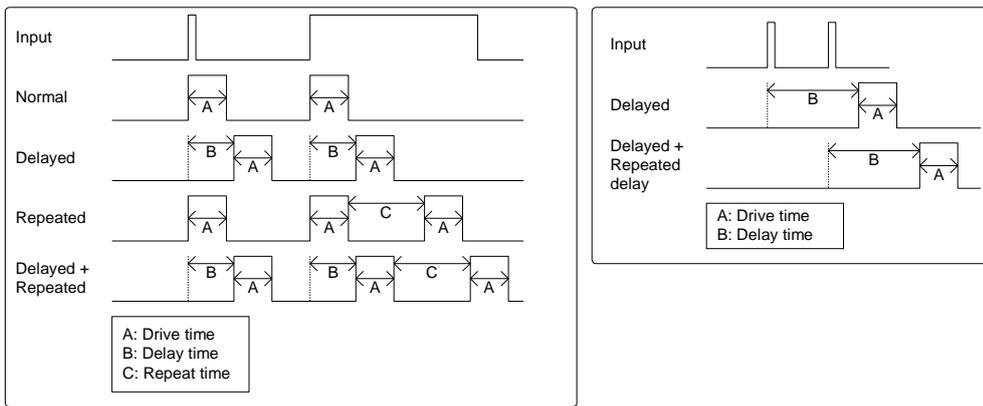


Figure 1: Schematic view input

Settings

The following settings can be set per input:

Setting	Description	Standard
Name	Name of the input	Input x ¹
Function	Function of the input	Standard
Report input after	This is the report delay of the input	0 sec (0 sec = direct)
Repeat after	This is the interval on which the report is repeated.	0 sec (0 sec = no repeat)
Priority	Give high priority to input, relative to the other inputs.	No (not checked)
Melody type	Type melody (None, Tone, MP3)	Tone
Melody index	The selected index of the melody	3-Tone: 'Gong High'
Drivetime	Drivetime of the report	3 sec. (0 = continues)
Volume	Volume of the melody	90 %
Relay 1	Select what relay 1 must do when activating the input.	Don't change
Relay 2	Select what relay 2 must do when activating the input.	Don't change
Type	This gives the type of the input (NO/NC)	NO

1. Where x is the number of the input.

The following settings are used for all inputs:

Setting	Description	Standard
Suppress inputs for	This setting specifies how long the inputs must be suppressed when an input with type 'Suppress inputs' is activated. When the user suppresses the inputs through the telephone menu, this setting will also be used. (If this setting is set to 0 sec, the inputs will be suppressed as long as the input with type 'Suppress inputs' is activated.)	90 sec
Reload input delay	With this setting, it can be set that when the input is activated, the report delay is reloaded.	Off

Timeclock

In the MusicControl 4 there a built-in timeclock is present. With this timeclock the MusicControl 4 can play certain sounds or switch the relays at certain times. One can choose between pre-programmed sounds or add one's own MP3 files to the SD-card (See: Playing MP3 files).

One can set 6 different time for each 24 timeclocks.

Settings

The following settings can be set for all 24 timeclocks:

Setting	Description	Standard
Name	Name of the alarm	Alarm x ¹
Priority	Set priority relatively higher than the rest of the reports	No
Melody type	Type melody (None, Tone, MP3)	Tone
Melody index	The selected index of the melody	3-Tone Gong High
Drivetime	Drivetime of the alarm	3 sec.
Volume	Volume of the melody	80 %
Relay 1	Give action of relay 1	Don't change
Relay 2	Give action of relay 2	Don't change
Link to input	This setting gives the inputs that need to be active to start this alarm	No input
Days	Check which days the alarm must be active	mo, tu, we, th, fr, sa, su
Times [12x]	Times on which the alarm must be active	__:__ (= not set)

1. Where x is the number of the alarm.

Drivetime 0 sec.

When the control time is set to 0 seconds, the melody that is selected will be sent once. (If the control time is set to 0 seconds and a relay is set to control the control time, the relay will not be controlled)

Link to input (school function)

It is possible to link a timeclock to the status of the inputs. If an input is selected at the 'Link to input' setting, this input must be active when this alarm is triggered. If one or more of the inputs is not activated, this alarm will not be executed.

This function is e.g. for a school bell function and by connecting a rotary switch to the 4 inputs, the following functions can be easily selected:

1. Normal schedule (input 1 active)
2. Shortened timetable (input 2 active)
3. 10 minutes of conversations with parents (input 3 active)
4. Exam time (input 4 active)
5. Off (no inputs active)

Telephone

One can connect the MusicControl to an analog telephone line, the telephone signal can then be played through the sound system. The MusicControl 4 can also be called to broadcast or to control the outputs.

One also has the option to extend the MusicControl 4 with a VoIP module, when one has such a module one must set the module up with the settings of one’s provider. (See Appendix C: Setting up the VoIP)

Controls

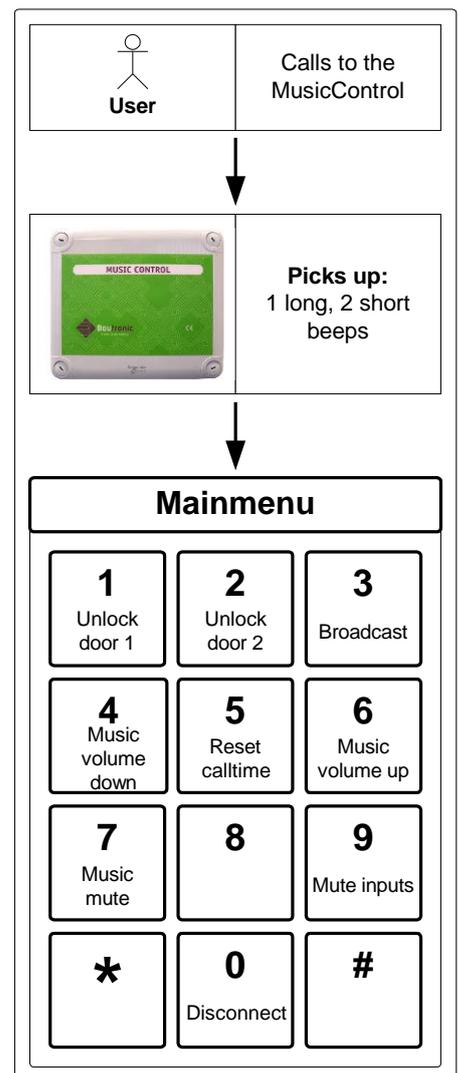
It is possible to control certain option with the telephone.

When the user calls the MusicControl 4, the MusicControl 4 answers and confirms this by sending a confirmation beep.

From this point the user can execute the following commands:

Button	Function	Description
1	Unlock door 1	Relay 1 will be switched.
2	Unlock door 2	Relay 2 will be switched.
3	Broadcast	The intercom function will be started
4	Music volume increase	The music volume will be decreased by 5 %. ⁽¹⁾
5	Reset speech time	The time before the MusicControl cuts off the connection will be extended.
6	Music volume decrease	The music volume will be increased by 5%. ²
7	Music mute	The music will be muted.
8	-	No function
9	Inputs mute	The inputs will be muted.
0	Cut off connection	The connection will be cut off. ⁽²⁾
*	-	No function
#	-	No function

1. The volume of the music can be adjusted when the intercom is not active. If the intercom is active, the volume of the intercom is adjusted.
2. If the mute function is active, it will be deactivated.



Settings

Setting	Description	Standard
Amount of call signals	The number of signals after which the MusicControl 4 will answer the phone.	3
Engaged tone amount	The number of engaged tones the MusicControl 4 has to detect before hanging up.	1
Dial tone detection	The time that the MusicControl 4 gets to detect a dial tone before hanging up. (this can be deactivated by setting it to 0 sec)	1,0 sec
Silence time-out	The time the MusicControl 4 must detect a silence to hang up.	0 sec (0 = off)

Controlling the relays

When one controls the relay, the selected relay will be switched. One can set the time the relay needs to be switched.

Adjusting volume

One can adjust the volume of the music with the buttons 4 and 6. If one is busy with broadcasting, the broadcast volume will be adjusted. If the mute function is activated it will be deactivated.

When one presses the 4, the volume will be decreased, pressing button 6 will increase the volume. After pressing the button one can hear a confirmation tone.

Mute inputs

One can suppress inputs by muting them with this setting. This will suppress the alarms by the means of the input for a certain time. This time can be set with the setting 'suppress inputs for'.

Incoming calls

It is possible to indicate incoming calls with a sound through the sound system. When one sets the incoming calls sound on the sound system, a melody will play when there is an incoming call detected.

Settings

Setting	Description	Standard
Phone signal via radio	With this setting one can set the call signal to be played by the radio	Off
Melody type	The type of melody that can be chosen. (Options: None, Tone, MP3)	Tone
Melody index	The melody that is chosen. At type tone: selected tone At type MP3: Index of the MP3 ¹	Extern Phone Bell
Drivetime	The time the melody is sent.	3 sec
Volume	Volume of the melody	70 %
Drive relay 1	Drive action for relay 1	Don't change
Drive relay 2	Drive action for relay 2	Don't change

1. For more information see chapter MP3

Block

To prevent the MusicControl 4 answering the incoming telephone calls one can place the 'BLOCK IN' jumper on the PCB. This way the MusicControl 4 will report incoming calls by the sound system (if set) but won't answer the phone. This can be used to when it is needed to report the user's phone.

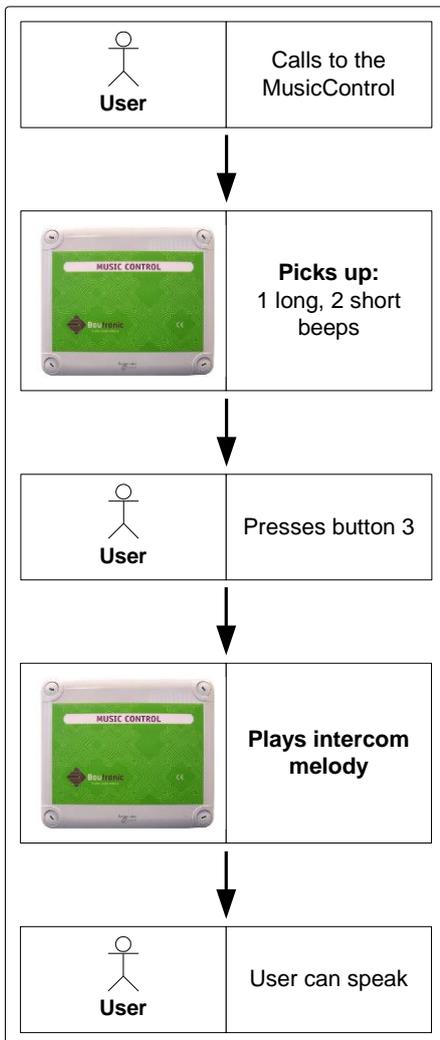
Intercom

One can use the MusicControl 4 as intercom.



Note: When 'BLOCK IN' jumper is placed, one cannot use the intercom function.

Schematic view:



Activate

When one calls the MusicControl 4, after 3 rings¹ the MusicControl 4 will answer. One will hear a confirmation by telephone. One can then press 3 to activate the intercom. The MusicControl 4 will play the intercom attention tone and after this one can speak through the sound system.

1. This setting is adjustable.

Direct to intercom

One can set the intercom to go directly to the intercom function when an incoming call is picked up.

Extend speech time

By default, one can speak for 25 seconds¹. After 25 seconds¹, the MusicControl will disconnect. To indicate that the time is almost over, the MusicControl will give a 'beep' tone every second 5 seconds before it hangs up.

To extend the conversation time, the user can press the '5' button during the conversation. This extends the speech time by 25 seconds¹.

1. This time is adjustable.

Stop

When one is finished with the intercom, one can press the '0' key.

The MusicControl switches the telephone off from the radio and one will hear the radio signal again.

Hanging up directly

One can set the MusicControl 4 to hang up immediately when one stops the intercom function.

Settings

The following settings are available for the intercom:

Settings	Description	Standard
Speech time	Speech time before the MusicControl 4 hangs up.	25 sec.
Volume	Volume of the intercom	70 %
Direct intercom	With this setting the MusicControl 4 will directly go to the intercom function after picking up.	Off
Direct hanging up with '0'	With this setting the MusicControl 4 will directly hang up after pressing the button '0'.	Off
Melody type	Melody type of the attention signal of the intercom.	Tone
Melody index	Melody for the attention signal of the intercom.	2- Tone Gong Low ¹
Tone time	The drivetime of the melody of the attention signal of the intercom.	3 sec
Tone volume	Volume of the melody of the attention signal of the intercom.	70 %

¹ For November 2018, the default setting was 'Westminster Chime' (for firmware version v5.0g).

Playing MP3 files

With the MusicControl 4 it is possible to play MP3 files instead of standard tones.

MicroSD card

A micro-SD card holder is available on the MusicControl. Here one can insert micro-SD cards, then the MusicControl can read the MP3 files from the card.



Note: The micro-SD card must be formatted in FAT or FAT32. Otherwise, it will not work with the MusicControl 4.

Remove card

One can remove the micro-SD card from the MusicControl 4 to place new files on it.

One does the following:

1. Disconnect the power supply from the MusicControl 4.
2. Check whether all LEDs on the circuit board are off.
3. Press micro-SD card to unlock it from the card holder.
4. Carefully remove the card from the card holder.

One can now place the micro-SD card in the computer to put files on it.



Note: If one wants to remove the micro-SD card from the MusicControl 4, for example to place other files, one must first disconnect the power supply from the MusicControl.

Insert card

When one has placed the files on the micro-SD card, one must go through the following steps to place the card in the MusicControl 4.

1. Disconnect the power supply from the MusicControl 4.
2. Check whether all LEDs on the circuit board are off.
3. Gently push the micro-SD card into the card holder.
4. Carefully push the micro-SD card through until a click is heard.
5. Reset the power supply to the MusicControl 4.
6. Check whether the LEDs for the supply voltage are lit.
7. The MusicControl 4 is ready for use again.

MP3 files

MP3 files are music files where the music is compressed, so that the same music can be played with much less data. Depending on the quality of the MP3 file, the music sounds better.

Quality

Maximum quality is 192 kbps.

File Name

To indicate which MP3 file should be played, the MusicControl 4 uses indexing based on the file name. Every MP3 to be played by the MusicControl 4 must start with 3 digits. These 3 digits indicate the index of the file. One can place any text behind these 3 digits, this text has no effect on how MP3 plays.

Index	File name
0	000xxxx.MP3
1	001xxxx.MP3
..	..
255	255xxxx.MP3

xxxx: are random characters. The length can also vary.

To select a MP3 to play, one must select the MP3 type when selecting the melody type. One can then specify which melody to play by giving the index.

Example:

One wants to play MP3 file 003muziek.mp3.

For this one chooses the type of melody: MP3. Then choose index 3.

Network Settings

The MusicControl 4 has a network connection, this allows one to connect the MusicControl 4 directly to the computer network. This allows one to connect directly to the MusicControl 4 through the Boutronic Studio 2. (Application can be downloaded on our website: www.boutronic.nl)

One can set the MusicControl 4 to automatically retrieve its network settings in the network or one can enter the network settings manually.

The MusicControl 4 is set by default to retrieve the network settings automatically.

Automatic (DHCP)

One can set the MusicControl 4 so that the network settings are automatically requested from a DHCP server.

Ask the system administrator if the network has a DHCP server.

Manual

One can also enter the network settings manually. To do this, one must enter the following settings.

Setting	Description
IP-address	The address of the MusicControl 4 in the network.
Subnet	Subnet for the network.
Gateway	Het IP-address for the gateway in the system.
DNS-server	Het IP-address for the DNS server.

Ask the system administrator for these settings.



Note: If one manually selects a random IP address, it may be that this address is already being used. As a result, IP conflicts may arise and both the MusicControl 4 and the other device that has the same IP address cannot be reached.

Clock

The MusicControl 4 contains an internal clock. This clock keeps track of time and is used by the time clock. The internal clock automatically adjusts for summer and winter time.

Deviation

Because the internal clock of the MusicControl 4 can deviate, the MusicControl 4 is calibrated at the factory. An adjustment value comes from this calibration procedure. This value will be adjusted to the time every day at 00:00.

Backup power supply

A backup power supply is available on the MusicControl 4 for the internal clock. This can provide the MusicControl clock with power for a few days. As a result, the MusicControl 4 will not forget its time when the power supply unexpectedly disappears temporarily.

Settings

Setting	Description	Standard
Clock RTC adjustment	This is the value which the MusicControl 4 needs to adjust the clock with to remove deviation. This value is calibrated by the factory.	*varies* (xx,x sec / 24 h)
Auto sync. clock	Specifies whether the MusicControl 4 automatically synchronizes its clock with the Boutronic Studio 2.	On
Use daylight saving	This setting modifies the time to daylight saving time or daylight time. It only modifies the time when setting is set to 'On'.	On

Synchronize time

One can have the MusicControl 4 time synchronize automatically with the time of the computer. This is done in combination with the Boutronic Studio 2.

If one sets the 'Auto sync. Clock' to 'on' and the Boutronic Studio 2 is set to synchronize, the time will be synchronized automatically. The interval at which the Boutronic Studio performs a synchronization can be set in the 'Studio settings.'



Note: If one wants to use the automatic synchronization of the clock, check whether the Boutronic Studio 2 setting is set correctly (Settings → Studio settings → Sync. Interval time)

If time synchronization via the Boutronic Studio 2 is not possible, the MusicControl 4 synchronizes its time with the internet time. For this the MusicControl 4 needs access to the internet.

Daylight saving time

The MusicControl 4 has the option to adjust daylight saving time automatically. One can switch this option on or off using the 'Use daylight saving time' setting.

The time is adjusted to the European Union standard.

Daylight saving time is adjusted to:

On the last Sunday of March, at 2:00 am, the time is set 1 hour ahead.

The winter time is adjusted on:

On the last Sunday of October, at 3:00 am, the time is set back 1 hour.

Settable melodies

The table below shows an overview of the 24 available melodies.

#	Melody	Description	Application	Tone (Hz)	Duration (ms)
0	No melody	No melody, so one can use the input or timer to control a relay output.		x	x
1	Slow Whoop	Slowly rising from low to high.	Evacuation fire alarm	500-1200	4000
2	Fast Whoop	Fast ascending from low to high	Evacuation international	800-1000	270
3	German Whoop	Descending from high to low	Evacuation Germany	1295-545	1200
4	Frequency sweep	Fast ascending with a break	Alarm siren	987-2217	700
5	Alarm siren 1	Up and down, without a break	Alarm siren	700-1000-700	400
6	Alarm siren 2	Up and down, without a break	Alarm siren	800-970-800	240
7	Doorbell	2 tones	Door bell	970 / 800	2500
8	Single peep slow	Single tone with pulse / pause (slow)	General attention	970	760
9	Single peep fast	Single tone with pulse / pause (fast)	General attention	800	260
10	Westminster chime	4 tones of Westm. 1/2 hour report	Intercom attention	E/G#/F#/B	6500
11	1 tone gong low	1 tone, decreasing volume	Timeclock attention	680	5000
12	2 tone gong low	2 tones, decreasing volume	Timeclock attention	660/550	6000
13	3 tone gong low	3 tones, decreasing volume	Timeclock attention	660/550/440	6150
14	1 tone gong high	1 tone, decreasing volume	Timeclock attention	1,3k	3000
15	2 tone gong high	2 tones, decreasing volume	Timeclock attention	1300/1100	2900
16	3 tone gong high	3 tones, decreasing volume	Timeclock attention	1300/1100/880	3450
17	Continues 800Hz	Continues 800Hz tone	Attention	800	cont
18	3 tone up slow	3 tones up, stable volume	Attention / Call signal	700/800/900	2980
19	3 tone down slow	3 tones down, stable volume	Attention / Call signal	900/800/700	2980
20	3 tone up fast	3 tones up, stable volume	Attention / Call signal	700/800/900	420
21	3 tone down slow	3 tones down, stable volume	Attention / Call signal	900/800/700	420
22	Extern phone bell	2 freq changes quickly, with pause	Callsignal telephone	880/1600	5000
23	Warble siren	Extremely fast siren	Break In alarm	600-1200	66
24	Airhorn	High / low tone alternated	Break In alarm	363/518	1500

'-' : Frequency sweep

'/' : Direct frequency

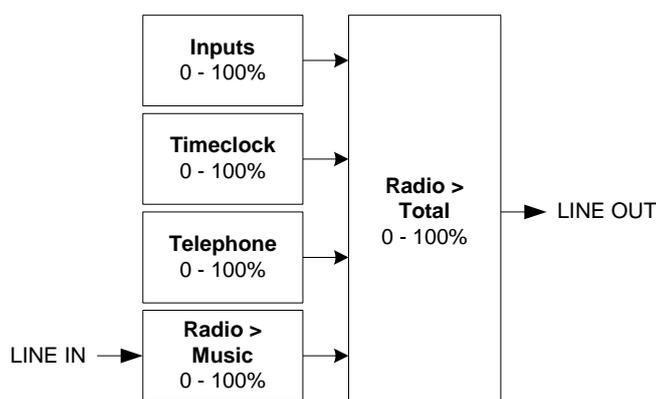
Priorities

1. Test signal (Test button in Boutronic Studio)
2. Intercom
3. Timeclock & input events (priority)
4. Timeclock & input events (normal)
5. Input continues (priority)
6. Input continues (normal)
7. Music via line input

Volume

The volume of each part of the MusicControl 4 can be adjusted separately. One can also set the total volume. The MusicControl 4 is not an amplifier. If the settings 'Music volume' and 'Total volume' (see radio tab within the Boutronic Studio) are both at 100 percent, the amplitude of the LINE OUT signal is the same as the LINE IN signal. Settings lower than 100 percent result in a weakening of the signal.

The image below is a simple representation of the volume circuit. The names: Inputs, Timeclock, Telephone, Radio> Music, Radio> Total, correspond to the tabs within the Boutronic studio 2.



Because each signal can be set separately, the LINE OUT signal can be adjusted as required. The following situation is used as a setting example:

The volume of the LINE IN signal is clearly audible, the volume of the timer is too low.

1. Switch off the LINE IN signal.
2. If desired, set the total volume at **Radio> Total**. By default, this value is 95 percent and can be adjusted to a maximum of 100 percent. 100 percent is maximum.
3. Adjust the timeclock volume so that this signal can be heard as desired (test the signal with the TEST button within the Boutronic studio). If the volume at 100 percent is not satisfactory (too soft), turn up the volume of the power amplifier so that the desired volume is achieved.
4. Switch on the LINE IN signal.
5. At **Radio> Music**, weaken the signal so that the desired volume can be heard.

The adjustment of the MusicControl 4 is done with all volume settings in the MusicControl 4 and the volume setting of the audio amplifier. If the settings are at 100 percent and the signal is too soft, setting the power amplifier to a higher level is the only option.

Technical specifications

Housing (ABS)

Dimensions : 175 x 150 x 80mm (L x W x H).

Operating temperature : 0°C t/m 70°C

Electrical specifications

Included adapter : 12VDC, 500mA (6W)

Power supply in : 12 - 24VDC, (Active: 2W, idle: 1W)

Telephone connection

PSTN (analog) : Directly or by telephone switch

Inputs

Input 1 .. 4 : 4x potential-free, contact current 1mA
Open terminal voltage 3V3 DC

U maximum line: 1 IN & 2 IN : 0,77V

Outputs

REL 1 : 1x Potential-free, (max. 24VAC/DC, 200mA).

REL 2 : 1x Potential-free, (max. 24VAC/DC, 200mA).

Relays are settable as mute output

Jumpers on print

BLOCK IN : Jumper to block incoming calls

DIP switches on print

CAN : DIP switch to close Boutronic CAN-bus.

FRMW : DIP switch to put the MusicControl in 'firmware update position'

Connection cables

Wires CAN-bus..... :100kBit/s : 0,6 mm², shielded twisted pair, max 500 m
20kBit/s : 0,8 mm², shielded twisted pair, max 1000 m

Network cable : CAT5E, RJ45

Wiring Line-in/out : Shielded audio cable

Other wiring..... : 0,5 mm², max 10 m
0,8 mm², max 100 m

Appendix A: Problem solving

Problem	Cause / Solution
After entering '# 0' the connection is terminated.	Some Tiptel exchanges also respond to this code, and therefore terminate the connection. Press '* # 0' (instead of '# 0'). The * ensures that the control panel does not respond to the codes.
After entering # 0 I can't enter the telephone menu	The '#0' has been pressed too late, call again and try again. The MC4 can send or receive tones. If one presses the # 0 key during the 'accept beeps' button, they will not be received. If 'direct to intercom' is switched on, one must first enter a '0' before one can use # 0.
The busy tone is not detected.	Check if the 'detection level LED' on the print blinks if there is a busy tone.
The MusicControl 4 does not answer the incoming call.	Ensure that the 'BLOCK RING' jumper is not in place. Ensure that the 'block incoming' input is not active.
The MusicControl 4 sometimes does not respond to songs that I enter.	This can occur if the MusicControl 4 is sending a tone at that time. Enter the code again.
I hear strange beeps when I want to enter the installation menu.	The test is done too quickly. Hang up, wait a moment and call the MusicControl 4 again. Wait until the MusicControl 4 has answered and the attention beeps have sounded. Then enter '# 0'.
The timer clock alarm is not played.	Check whether the 'day' setting is correct and whether a melody has been set. Then, if the message is linked to an input, check that the input is active.

Appendix B: Boutronic CAN-bus network

Boutronic devices communicate via the Boutronic CAN bus network. Via this network one can manage settings centrally with the PC. The CAN bus network is also used by devices to exchange information with each other.

For connecting one must use at least:

- at 100kBit / s (standard speed) : 0.6 mm², shielded twisted pair, max 500 m
- at 20kBit / s (adjustable *) : 0.8 mm², shielded twisted pair, max 1000 m

** Note: All devices on the bus must be set to the same speed.*

Screw the shield onto GND at one point.

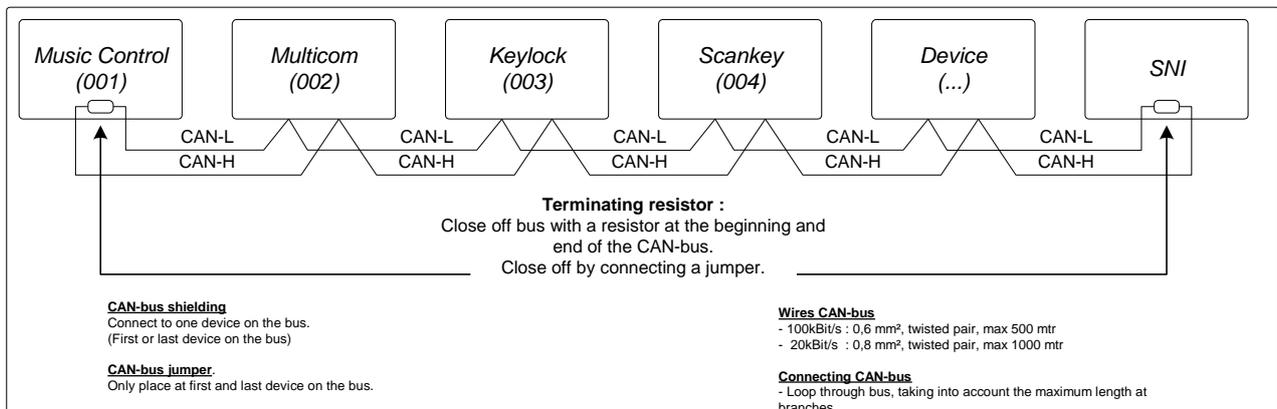
Loop through the bus (and shield).

The bus may not be branched, therefore one cannot make star points.

A CAN bus is not circular. The bus is terminated at both ends with a resistor (one places this on the PCB with the CAN-bus jumper).

It is not necessary to connect the devices to the CAN bus in the order of the device number. One can connect devices in any order.

A Boutronic CAN bus network is shown schematically in the figure below.



Tip:

More information can be found in out in the manual 'laying down the CAN-bus'.

Appendix C: Setting up the VoIP extension

VoIP is the abbreviation for Voice over IP, or calling via the internet. With the 'VoIP MusicControl', the audio interface calls via the internet. A VoIP extension is added to the MusicControl 4 for this functionality. This chapter describes how to set this extension. The basic settings have already been made and tested by Boutronic, so that one can get started quickly.

Connecting

The VoIP extension is integrated in the cover of the MusicControl 4. The power supply and internet are not connected by Boutronic.



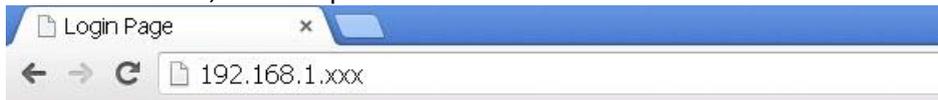
Start up

There are 4 LEDs on the VoIP extension. These indicate the status:

 Power	Off	: No voltage or print can't start up
	Blinking green (slow)	: Request IP address
	Green	: Done, IP address has been received
	Blinking green (fast)	: Execute firmware upgrade
 Internet	Off	: Not internet connection / cable not connected
	Blinking green	: Data send / receive
 Telephone 1 Telephone 2	Off	: Telephone line hung up
	Blinking green	: Dial tone
	On	: Connected

Reaching the settings menu

To set the VoIP extension one needs the IP address of the module. Then enter this in the address bar of an internet browser, for example:



Note: The VoIP extension automatically retrieves the IP address. The IP address will be different than the one above in most cases.

Retrieve IP address

One can find out the IP address in the following way:

1. Connect an analog telephone to line 2.

(The MusicControl 4 is connected to line 1)

2. Lift the handset

One does not hear a dial tone.

3. Key ****

The VoIP extension responds with 'Configuration Manual ...'

4. Enter the code: 110

Our advice is to put in the code slowly, because the numbers entered are repeated. *Once one has entered the '#', one will hear the IP address in spoken text.*

Example

One will hear: One, nine, two - dot - one, six, eight - dot - one, five - dot - six, two
This is the IP address: 192.168.15.62

Adjust settings

Enter the IP address in the address bar of the browser, for example:



Login

One reaches the login page of the VoIP extension:

<p>Username: <input type="text" value="admin"/></p> <p>Password: <input type="password" value="*****"/></p> <p><input type="button" value="Log In"/></p> <p><input type="checkbox"/> Remember Username</p>	<p>The default login is:</p> <p>Username : admin</p> <p>Password : admin</p>
--	--

Setting up the provider

In the top menu bar, press : 

Then in the left menu press : 

Scroll down to the following settings:

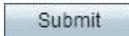
- Proxy and registration
- Subscriber information

Here one enters the data that one has received from the provider.

The settings to be adjusted depend on the provider, these are settings such as:

Setting	Description	Default
Proxy	The domain name / URL of the service providers proxy server.	-
Outbound Proxy	Proxy Setting for the outgoing SIP proxy server.	-
Use Outbound Proxy	Enables the outgoing SIP proxy server. Disabled: The settings 'outbound proxy' and 'use OB proxy in dialog' are ignored.	No
User ID	User's username with user's service provider.	-
Password	The password with user's service provider.	-
Auth ID	Extra verification ID for SIP control.	-
Use Auth ID	To enable Auth ID and password for SIP check, choose 'yes', 'no' will use UserID and password.	No



After entering the settings, press: 
After this the changes will be implemented.

Advanced settings



With the following settings, the dialling and calling tones meet the European standard. These settings are set by Boutronic, so one does not need to set them.

Quick Setup | Network Setup | **Voice** | Administration | Status

Information System
SIP
Provisioning
Regional
Line 1
User 1
Line 2
User 2

Regional

Ring and Call Waiting Tone Spec

Ring Waveform: Sinusoid
Ring Frequency: 25
Ring Voltage: 85
CWT Frequency: 440@-10
Synchronized Ring: no

Quick Setup | Network Setup | **Voice** | Administration | Status

Information System
SIP
Provisioning
Regional
Line 1
User 1
Line 2
User 2

Regional

Call Progress Tones

Dial Tone: 440@-15;10(*0/1)
Second Dial Tone: 440@-15;10(*0/1)
Outside Dial Tone: 440@-15;10(*0/1)
Prompt Tone: 440@-15;10(.3/6/1)
Busy Tone: 440@-15;10(.3/6/1)
Reorder Tone: 440@-15;60(.3/6/1)
Off Hook Warning Tone: 440@-15;60(.3/6/1)

Submit | Cancel | Refresh

Show phone line

The MusicControl 4 uses a busy tone detection. Whether these tones are actually generated by the VoIP extension depends on the VoIP provider.