



***mp3 bBOX* DIN**

INSTALLATION GUIDE 2.2

Wiring

First, connect the speakers to terminals **3-4** for left channel and **5-6** for right channel.

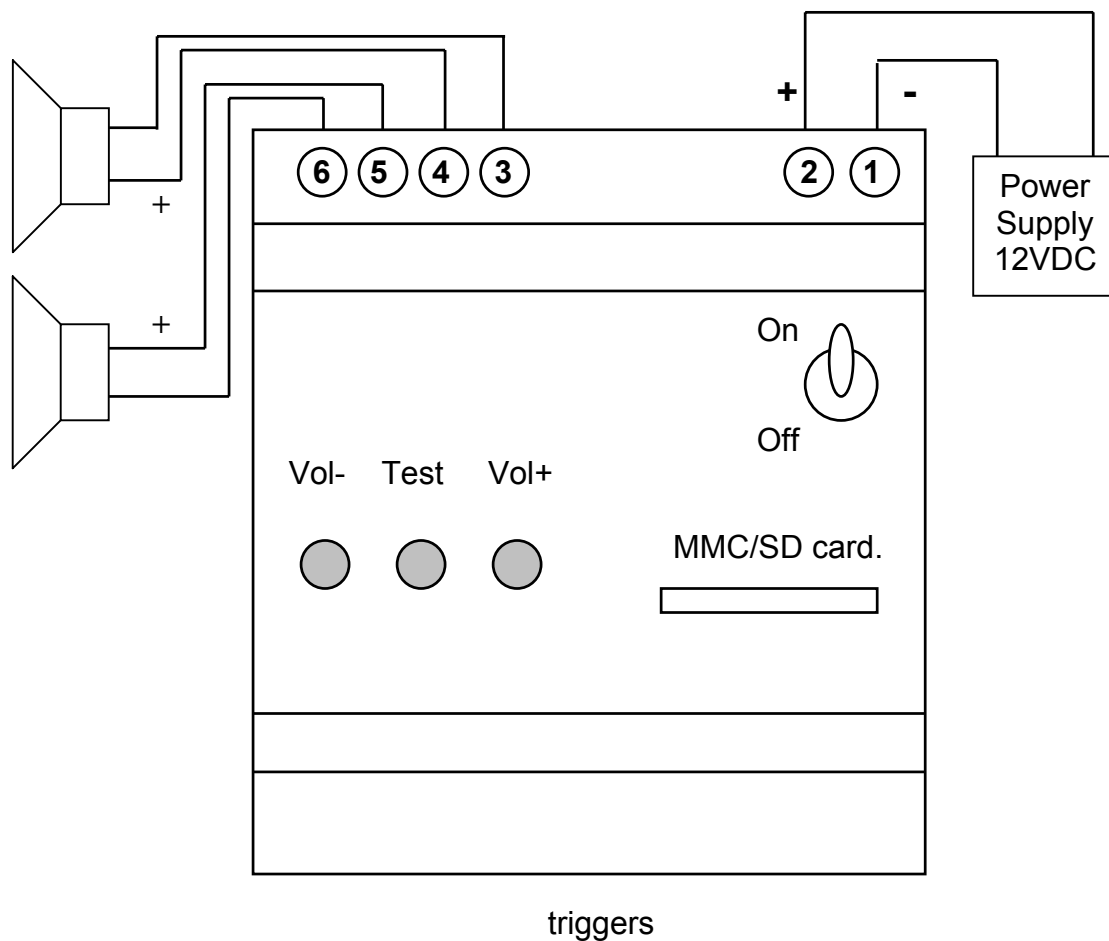
You can use several loudspeakers in parallel on each output, taking care of preserving resulting impedance higher than 2 ohms.
In a mono installation, you can use a "bridge" configuration by connecting the loudspeaker between **4** and **5**.

Check that the main switch on front panel is **OFF** (lever down)

Connect the power supply between terminals **1 (0V)** and **2 (+12V)**

The device is ready to be tested.

Power and speaker wiring diagram



Preparation of the MMC/SD memory card.

You can use SD memory cards or MMC memory cards.

On a blank card, copy the mp3 files containing the audio tracks. If the memory card is not empty, format it first (quick formatting option).

Audio files have to be previously encoded in mp3 at a rate chosen by the user from 32 to 256 kbs or VBR (variable bit rate).

The files must be copied into the root folder of the card, do not create folders.

The maximum number of files is 250.

The maximum size for a file is 32 Mbytes.

The files will be played in the same order they were copied to the memory card.

Be carefull not to place hidden files or system files on the card, this generally happens with MAC OS.

Check your files by listening to them on your computer from the memory card.

Do not withdraw card of its reader before the copy is fully completed, with a right click on the icon representing the card reader, choose "eject".

Memory card insertion and start

With the bBox switched OFF, insert the card into its place, label up, contacts down, and the side whose corner is cut towards the interior.

Switch ON the bBox by using the main switch located on the front panel. The LED indicator must light ON for a few seconds, then OFF. The device is on standby waiting for a trigger.

Press on the small switch labeled "test", the first track is played. The led must flash while playing.

Using the switches V- and V+ you can change the sound level. Each pressure increases or decreases level, it is useless to press long. This setting is stored and restored after power down.

To stop playing a track press V- and V+ at the same time.

Triggering the bBox

If the test worked fine, you can now carry out the connection of the triggers. Switch OFF the main power during this operation.

There are multiple software options for trigger control of the bBox, each option is tailored to a specific application field. Actually available software are:

Exhibition, this software works with up to 4 normally open contact triggers, it is possible to start 1 of 4 tracks with these triggers. A 5th track can be played when no trigger is activated. There are priorities among inputs. Configuration is done with front panel switches.

Security, this software work with 1 normally closed input loop. A single track is started when the loop is opened. Track keeps on playing to its end, even if the loop is closed again. The configuration is done with front switches. This mode is generally used with security PIR detectors.

Industrial, the 4 inputs can be used in combination to trigger up to 15 different tracks. Any track can be repeated a predefined number of times after a trigger has occurred. The configuration is done with a file on the memory card.

Network, several bBox can be controlled through a network from a central computer or dedicated controller. Network is based on RS485 serial communication. Note that this mode request serial hardware option to be installed in the bBox.

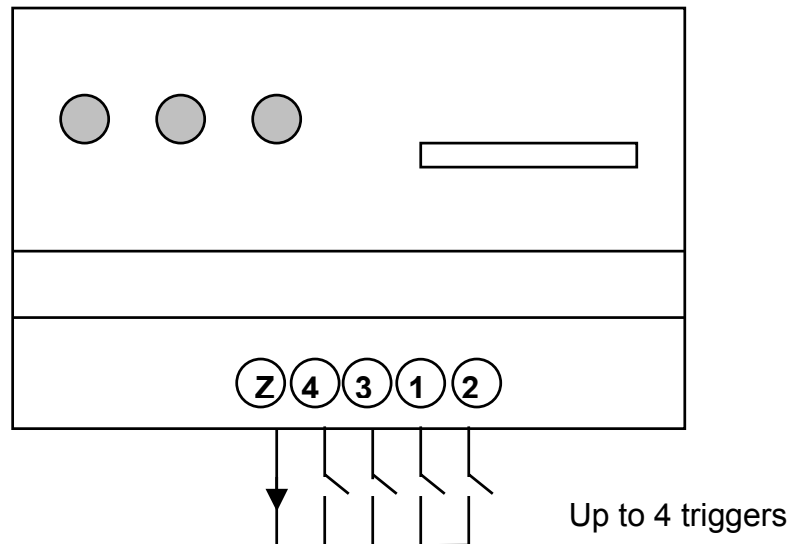
Each bBox is factory preloaded with one of this software options. It is possible to install new software on a bBox with a memory card, as you could do with a floppy disk on a PC.

With a PC computer, put the new software on a blank (formatted) card, this should be the only file on the card. With bBox power off, put this card in the bBox. Now press the 2 leftmost switches on the front face at the same time and power the bBox. Keep the switches pressed for a couple of second, the led should go on. You can release the switches, the led should remain on for about 10 sec while the software is upgrading. After 10 seconds, the light will flash. The software is upgraded, switch off the bBox and remove the software card.

1 *Exhibition software* Normally Open (NO) trigger

This software option is better suited for push button applications, where a user will push a button for starting a message. It should also be used for non-triggered repeater applications when the device is used to play messages or background music as soon as it is powered up.

Normally Open wiring diagram



If a single switch or starting relay (trigger) is used, it must be connected at location **Z** and **1** of the lower connector block.

Any type of switch can be appropriate, it is possible to use other equipment, provided that they produce a **temporary closure** (i.e. contact have to be re-opened before the end of audio sequence).

Other triggers have to be connected in the same way, connector Z is common to all , it source current (12V) to the trigger switches.

Audio tracks are started as following:

- Contact plug Z to plug 1 -> play track 1
- Contact plug Z to plug 2 -> play track 2
- Contact plug Z to plug 3 -> play track 3
- Contact plug Z to plug 4 -> play track 4

Priorities: a higher number input has priority on a lower one.

If contact 3 is closed while track 1 is playing, track 3 start playing.

On reverse if track 3 is playing, closing switch 2 will not start track 2.

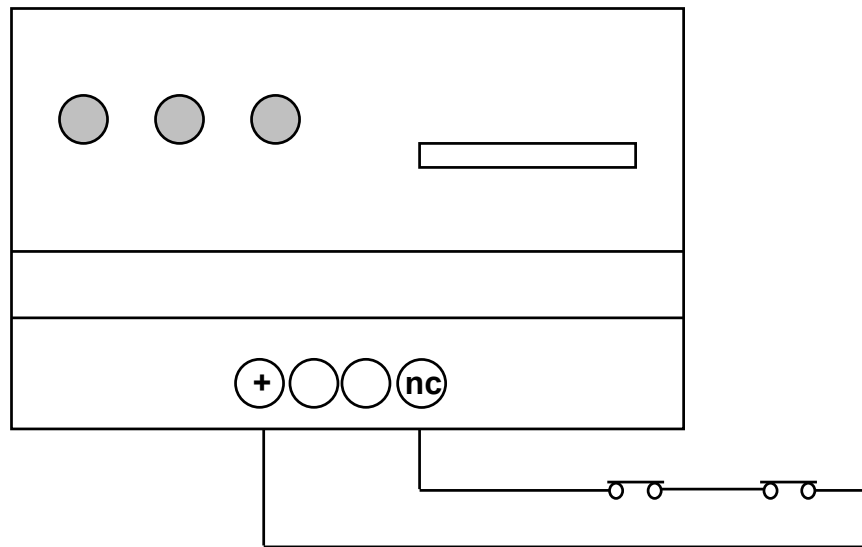
Also, closing any switch while its track is playing, does not restart this track.

2 Security software Normally Closed (NC) trigger

This software is to be selected when using devices that behave like a normally closed switch. This is most the case with security devices that needs to trigger an alarm when the wires are cut.

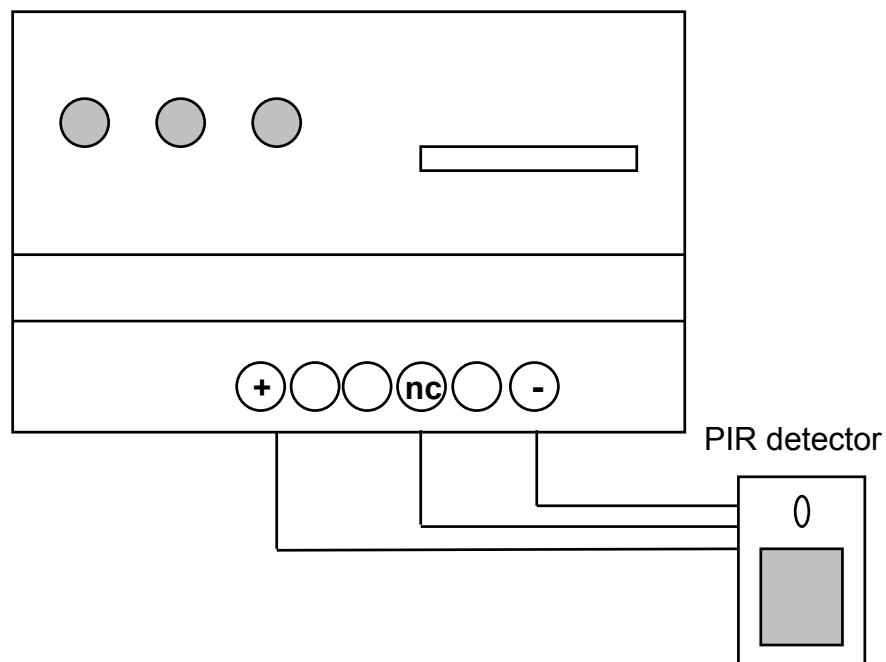
In this mode, the bBox can supply power to an external trigger like a 12V PIR detector.

Normally Closed mode with passive loop wiring diagram



Any type of switch can be used. As soon as the loop is opened, the track is started. The loop should be closed again before the end of the track or it will be restarted.

Normally Closed mode with PIR wiring diagram



Configuration with front switches, for Exhibition and Security software

It is possible to configure the bBox to be used in one of the 3 following modes

MODE 1 CONTINUOUS PLAYER

On powering, the device immediately plays the first track, at the end of this one, it loop or continue to the following track if other tracks are present on the memory card. At the end of the last track it loop with the first.

The device never stops.

A pressure on the TEST button or a trigger command causes the immediate skip to the next track.

Example: background music, message repeater.

MODE 2 SINGLE TRACK PLAYER

On powering, the device is in standby waiting for a command. On a starting contact, the bBox plays the track corresponding to the contact, and stops at the end of the track.

Example: information system, alarm, automated exhibition.

MODE 3 SINGLE TRACK PLAYER + LOOP

On powering, the device plays the first track, at the end of this one, it starts again indefinitely. On a trigger contact, the device plays the track corresponding to the contact (track 2 if only 1 contact), at the end of that track, it starts again to loop on track 1.

Example: background music or sound, a message is announced when somebody pass by.

The operating mode selection is done in the following way :

Switch OFF the bBox, wait a few seconds, switch ON while holding the V- switch down (on the left).

The device must emit a continuous beep. Release the switch the device emits repetitive "beeps" and the LED light flash.

Now, press one of the 3 switches,

test for mode 1 (1 beep)
V- for mode 2 (2 beep)
V+ for mode 3 (3 beep).

This choice is stored into memory.

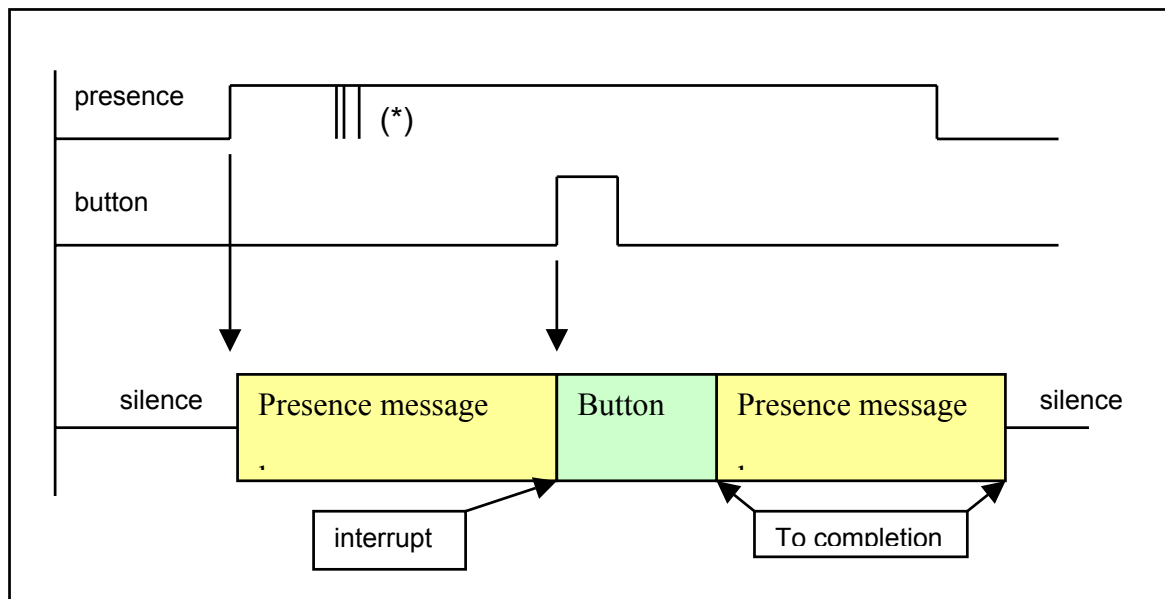
Priority sample (Trigger Setup 1)

You want to setup a display where a message is generated in loop when some one comes close to that display, this could be detected by a pyro sensor, photocell or radar.

Then you want another message generated when people push a button, this one should interrupt the loop-playing message, and be played only once.

After that you want to go back to the looping message, and finally, you want the loop to stop when the visitor leaves.

This is resumed in the diagram.



To accomplish this, you only need to use priority 1 for button and priority 2 for presence detector.

If there are bad re-triggers (*) produced by the presence sensor, this will have no effect because an input cannot interrupt itself.

Priority order:

4 has higher priority than 3

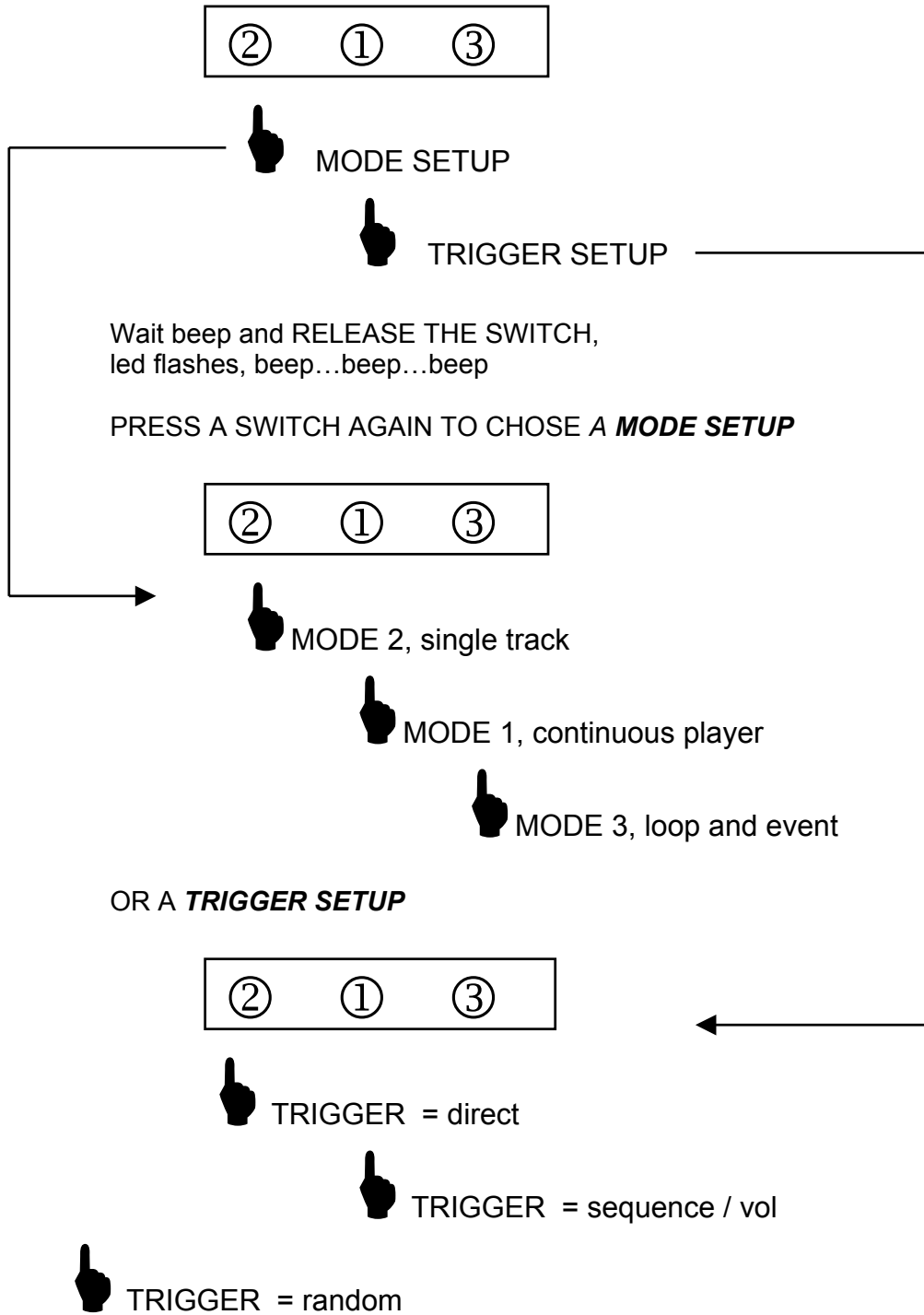
3 has higher priority than 2 ...

Tip: if you are looking for a way to stop a track from playing with a trigger, just record a file with a few seconds of silence, and attach it to a high priority input.

SETUP WITH FRONT SWITCHES

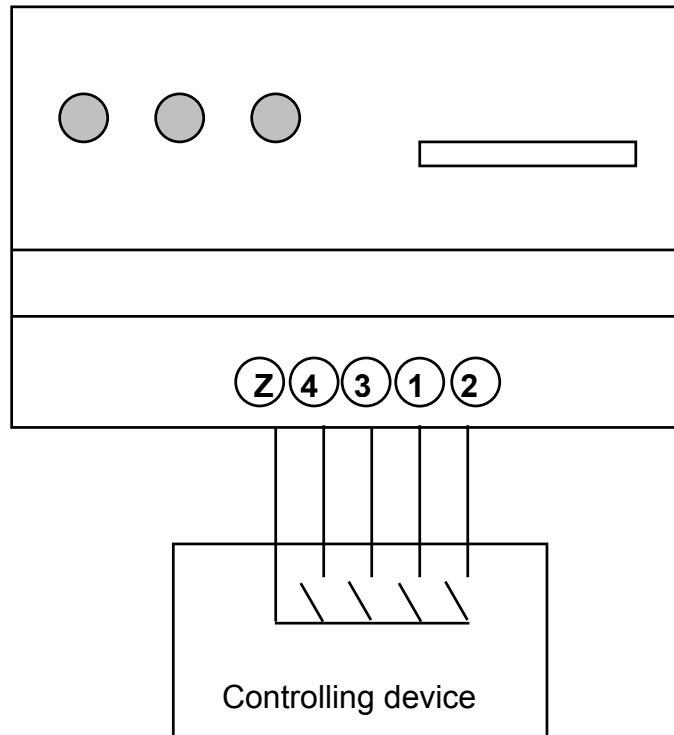
SHUT DOWN THE POWER

RESTART THE POWER WHILE HOLDING A SWITCH PRESSED



3 Industry software binary controls for trigger

This software is to be selected when one needs more than 4 tracks. The control will be done using combination of the inputs.



0=open 1=closed

1	2	3	4	Track being played
0	0	0	0	No track
1	0	0	0	Track 1
0	1	0	0	Track 2
1	1	0	0	Track 3
0	0	1	0	Track 4
1	1	1	1	Track 15

Configuration by config file, to be used with industrial software

With industrial software, you should save a file named config.txt in the root folder of the memory card. This file should be written after all audio tracks have been written on the card.

This is how the file looks like.

```
;bBox example configuration file  
;version 1.1  
[vol]=65 ; volume 0=max 255=min  
[inp]=0 ; input type 1=bin, 0=not coded  
[lck]=0 ; locked 1=yes, 0=no  
[int]=1 ; interupt. allowed 1=yes, 0=no  
[num]=1 ; file names with number 1=yes, 0=no  
[lop]=1 ; continuous play 1=yes, 0=no  
[all]=0 ; seq. play 1=yes,0=no  
[cnt]=5 ; nb. repeat  
End
```

Comments can be added by preceding character “;”, everything following is ignored up to the end of the line. Bbox setup parameters are defined this way:

[name]=value name is a 3 letters code for the parameter
value is an integer value. Do not add spaces.

vol : audio attenuation, from 0 = max audio level to 255 = audio off (def=15)

inp : input type (def = 0) 0 : 4 direct input
 1 : 15 input with binary coding

lck : if set to 1, front switches are disabled (def = 0)

int : interupt enabled(def = 0) 0 : track will be played to its end
 1 : a trigger can interrupt a playing track

num : if flag is 0, track 1 is the first file on the card (def = 0)
 if flag is 1, track are sorted, files names must be AXXXX.mp3

lop : if set to 0, track is played only once (def = 0)
 if set to 1, track is played in loop after trigger

all : option for loop mode, 0 : for loop mode, same track is repeated
 1 : for loop mode, each track is played in turn (def = 1)

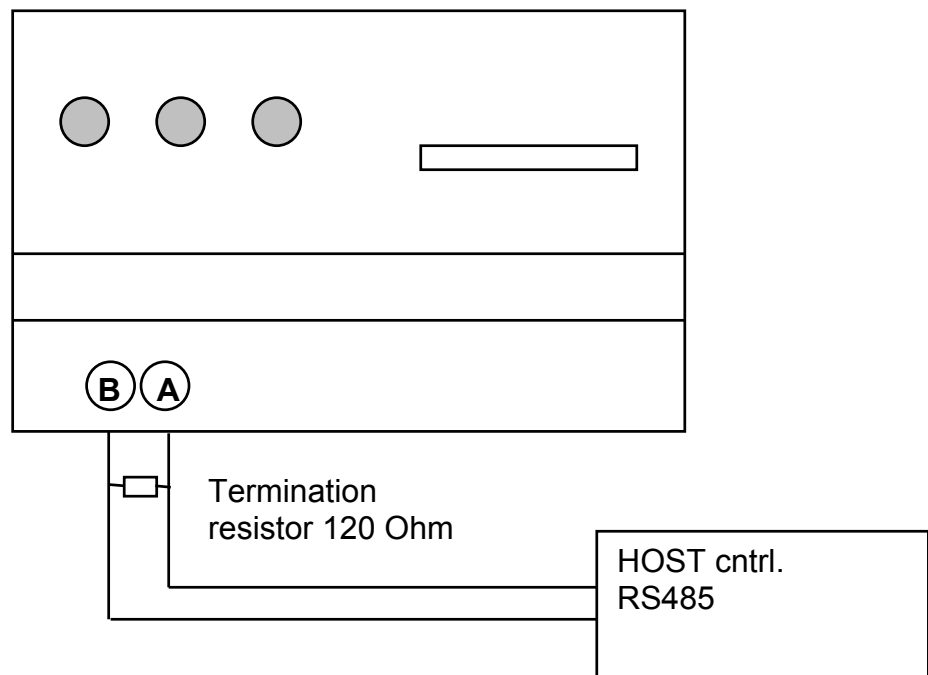
cnt number of repetition for loop, 0 = loop forever (def = 0)

If the file is not present, or if a parameter is missing, the last value stored in flash memory will be used

4 Network mode RS485 serial communication

This software is to be selected when one needs to communicate with the bBox through a serial RS485 link.

This option needs the bBox to be fitted with RS485 option, which does exclude the parallel option.



For the complete command set, see the serial protocol manual

In case of trouble

The Led on the module gives indications on its operation.

At powering ON, the led lights on and remains lit during initialization of the module and memory card. During playing, led is flashing, speed depends on the bitrate.

Led do not light on.

Check power supply, is polarity correct?

On starting, bBox emits a « beep », LED lights on and do not light off.

This indicates a problem with the memory card.

Is there is a SD or MMC card and is it well inserted?

Are there mp3 files on the card? (See 1, preparation of the memory card)

After a trigger contact, LED is flashing slowly but no sound.

Check that Volume is not set to minimum.

Check speakers and their connections.

Technical specifications

Recording Format :	Digital mp3, 32->256kbs + vbr,
Sample frequency :	22khz or 44khz, mono or stereo.
Bandwith (-3db):	20 – 20khz
Output impedance :	> 2Ω
Separate stereo :	> 58db
S/N :	> 92db
Track access time :	< 100ms
Output Power :	2X25W RMS on 2Ω
Interface trigger :	12V optoisolated
Processors :	2 (CPU RISC + DSP)
Recording media:	Flash MMC « MultiMediaCard » or SD
Power Supply :	12VDC (min 10.5V max 15V)
Start playing :	By closing contact
Communication :	Serial asynchronous 9600,8,N,1

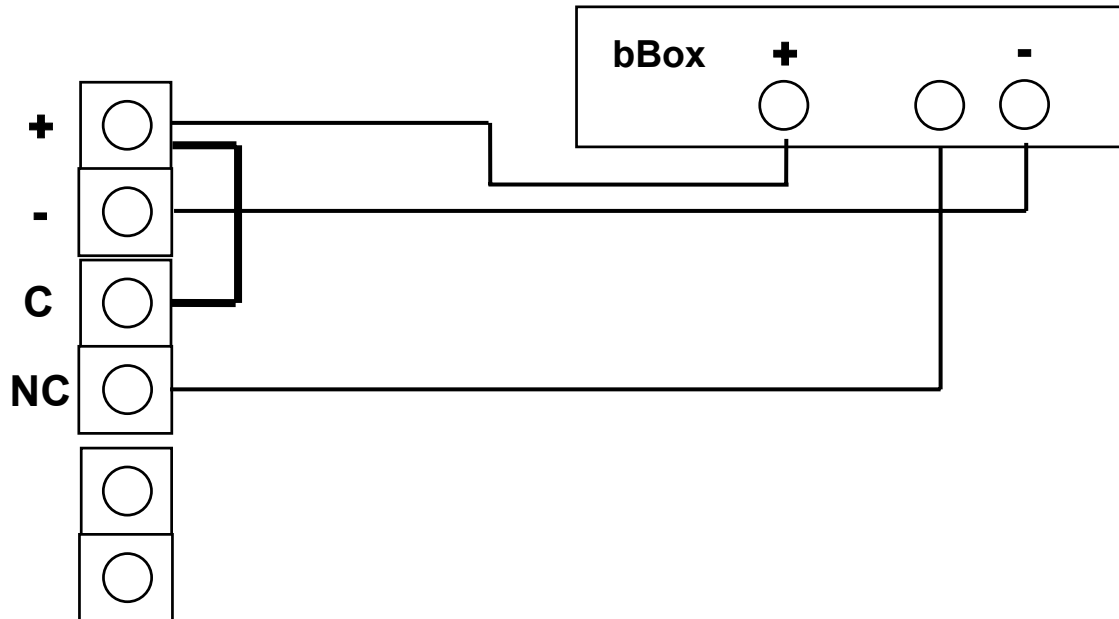
Recording time :

MMC Card	comments	+ music	« CD » quality
32MB	2 h	90 min	40 min
64MB	4 h	3 h	80 min
128MB	8 h	6 h	160 min
256MB	16 h	12 h	5h 30 min
512MB	32 h	24 h	11 h
1GB	64 h	48 h	22 h

Connecting an Intellisense IS-215T PIR motion sensor with bBox

This device behaves like a normally closed switch, bBox should be loaded with SECURITY software.

Refer to Intellisense IS-215T manual for opening the PIR sensor.



Inside of the sensor, connect a small wire from screw terminal “+” to terminal C

The terminals marked “T” are not used.

Use the described procedure to adjust sensitivity. Note that the sensor needs a couple of minutes to stabilize.

The red light indicates that a detection has occurred, when it turns on, bBox should be started.