mp3 bBOX 12-24V

INSTALLATION GUIDE 4.0

Wiring

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

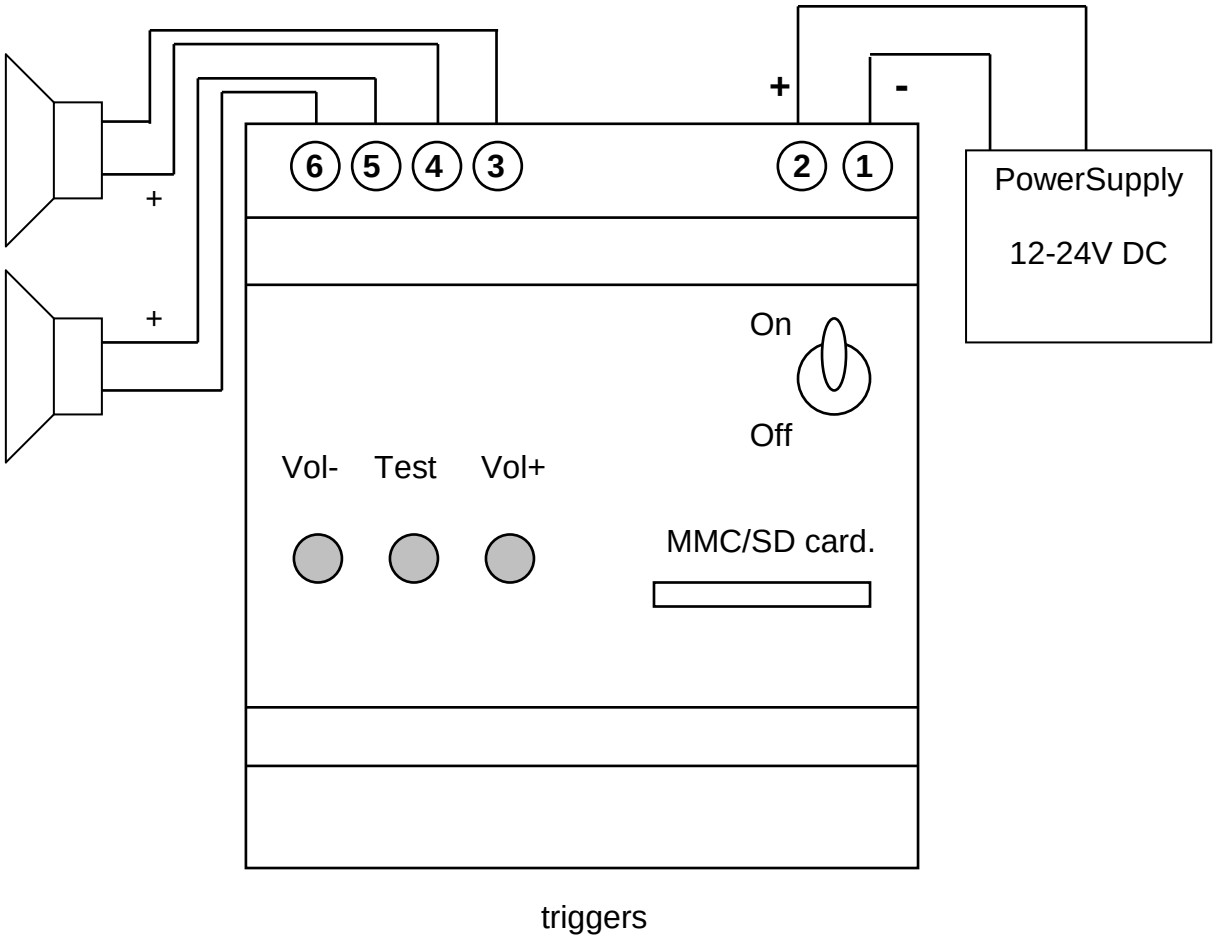
You can use several loudspeakers in parallel on each output, taking care of preserving resulting impedance higher than 2 ohms.
In a mono installation, you can use a "bridge" configuration by connecting the loudspeaker between **4** and **5**.

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

Connect the power supply between terminals **1 (0V)** and **2 (+12 up to 24V)**

The device is ready to be tested.

Power and speaker wiring diagram



triggers

Line Out model : 6 – 5 – 4 – 3 HP connectors are replaced with a female Mini-Jack

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:

2x20W amplifier & HP output
This software works for several applications with parametrable functionalities through on start Setup Switching. Configuration is done with front panel switches. (this software is the default installation if no other specified on order).

no amplifier but line-out mini-jack output
Same as above but for use without amplifier but for line-out output.

NETWORK request hardware serial chip
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 (in place of trigger's octocoupler). Several serial adapters exist (Ethernet, Profibus, …).

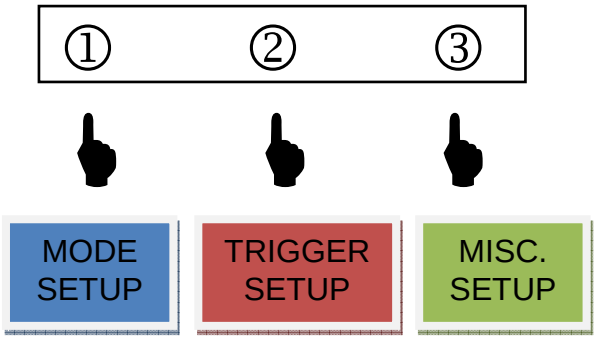
Other software :
Other special software exist already (industrial, pulse, elevator …), and our R&D Dpt can also develop specific software for your specific needs.

Firmware upgrade
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.

SETUP WITH SWITCHES, for triggers software version

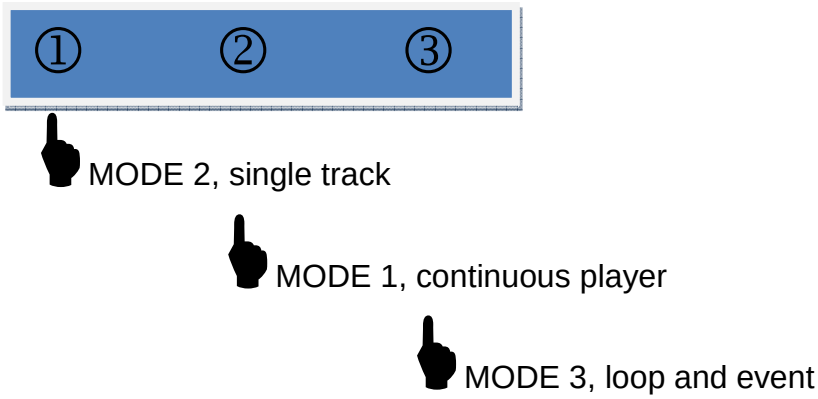
SHUT DOWN THE POWER

RESTART THE POWER WHILE HOLDING ONE SWITCH PRESSED



Wait 5 sec and RELEASE THE SWITCH,
led flashes, beep…beep…beep

IF YOU HAVE PRESSED "**MODE SETUP**"
NOW, PRESS A SWITCH AGAIN TO CHOSE A ***MODE***



- Single track, when it has been started, a track is played and the device stops at the end of this track.

- **Continuous**, all the tracks on the card are played after each other, the player never stops.

- **Loop and event**, the first track is repeated forever, when a trigger occurs, an alternate track is played, when this one is finished, the player restart looping the first track.

SHUTDOWN THE bBOX AFTER EACH NEW SETUP (then restart it to test)

OR IF YOU HAVE PRESSED "**TRIGGER SETUP**"
*PRESS A SWITCH AGAIN TO CHOSE A **TRIGGER SETUP***

DIRECT (trig 1 play 1, trig 2 play 2, …)

CD PLAYER. (next / prev / VOL- / VOL+)

Track 1 / RANDOM / Previous / Next.

- **Direct**, each of the 4 input trigger start a different track.

- **CD player**, input 1 is for next track, input 2 is for previous track,
input 3 is for volume down, input 4 is for volume up.

- **Random**, input 1 start track 1, input 2 start a random track, input 3 and 4 are for next and previous track

OR IF YOU HAVE PRESSED "**MISC. SETUP**"
PRESS A SWITCH AGAIN TO CHOSE BETWEEN N.O., N.C. or 15 coded inputs

4 TRIGGERS, **NORMALY OPEN**, must be closed to start

4 TRIGGERS, **NORMALY CLOSED**, must be open to start

15 TRIGGERS N.O. and **binary coded**,
ex: Closed | Open | Closed | Closed, will start track 11

To apply different setups, you must power down and restart the process from the beginning.

BBOX screw terminals

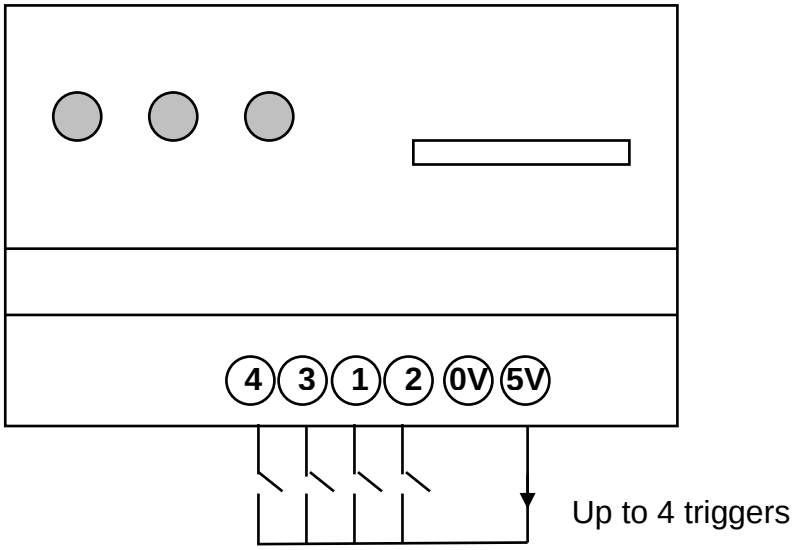
+24V	INPUT 4	INPUT 3	INPUT 1	INPUT 2	GND 0V	+ 5V

Closing an input means connecting to +5V

TRIGGER DIRECT CONNECTION

This 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 **5V** 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 5V is common to all, it source current (from 12 up to 24V) to the trigger switches.

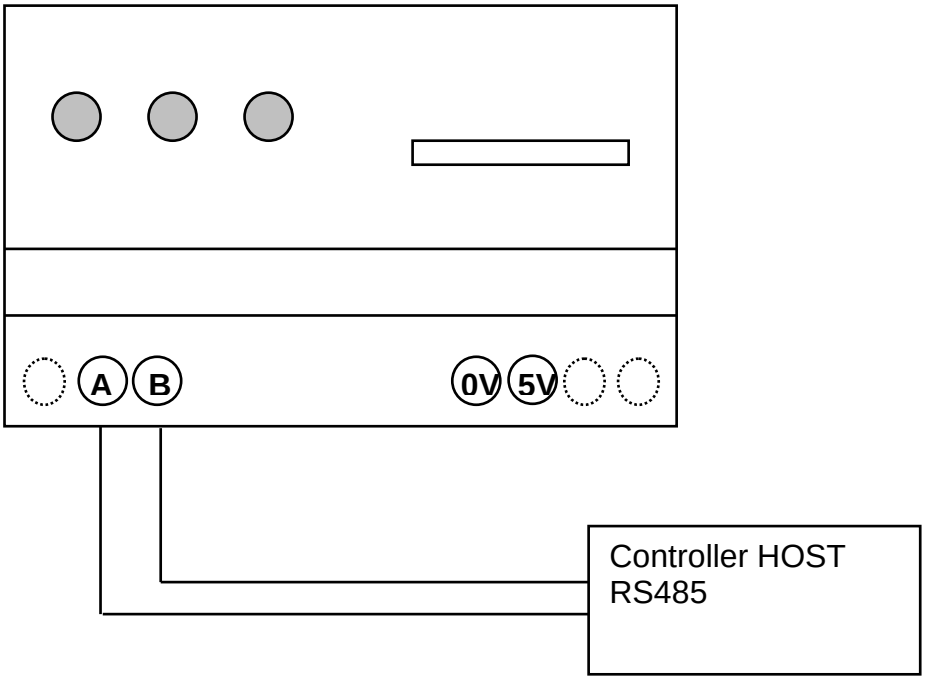
Audio tracks are started as following:

Contact plug 5V to plug 1 -> play track 1
Contact plug 5V to plug 2 -> play track 2
Contact plug 5V to plug 3 -> play track 3
Contact plug 5V 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.

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 serial 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 :	2X20W RMS on 2Ω
Interface trigger :	5V optoisolated
Processors :	2 (CPU RISC + DSP)
Recording media:	Flash MMC « MultiMediaCard » or SD
Power Supply :	From 12 up to 24VDC
Start playing :	By closing or opening contact or serial
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