TORPEDO *Live*

Professional digital loadbox

User's manual

V 1.3- 05/03/2012

Two notes
AUDIO ENGINEERING

TORPEDO *Live* User's Manual

Manual Version V1.3 - 05/03/2012.

The complete electronic version of this manual, as well as the Two Notes Audio Enginering software and hardware products, are subject to updates. You can download the most recent versions of the products on the following website http://www.two-notes.com.

This manual describes the TORPEDO *Live* and provides instructions for its operation. It is highly recommended to read this document before using this product. The contents of this manual have been thoroughly verified and it is believed, unless stated otherwise, to accurately describe the product at the time of shipment from the factory or download from our website.

Two Notes Audio Engineering is a registered trademark of:

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Contents

Part 1

Foreword

1 Safety instructions

Before using the product, it is necessary to carefully read and to bear in mind the following informations. **Keep this document in a safe place as it is important for the protection of the user and the product**. If any malfunction of the machine is suspected, you should always seek the assistance of a qualified technician.

1.1 Risk of electric shock

The warning panel located at the back of the unit lists all the messages related to your safety. All the internal parts of the unit **must only be manipulated by qualified technician**.

The triangle symbol with a lightning means that some parts of the product, even when the power is turned off or unplugged, can retain voltages high enough to lead to serious electric shock. Any operation that requires opening the machine should be left to a qualified technician.

1.2 Reader warning

The triangle symbol with an exclamation mark indicates important messages concerning the correct operation of the machine.

1.3 Mains power

Please verify that the voltage required by the machine matches the voltage of your country. If not or if unsure, don't connect the machine to the wall outlet, this could result in damages to the machine and injuries to the user. This product must not be used when there is lightning. In case of severe weather with a risk of lightning, unplug the mains power supply to reduce the risk of electric shock and fire. The mains power cable provided

with the machine complies with the standards of the country where you purchased the product. If replacement is needed, please use a standard compliant cable.

1.4 Ground connection

For safety reasons, the machine needs to be plugged to a wall outlet providing a ground connection. If your electric installation does not provide a ground connection or if you are unsure, please ask a qualified electrician for help.

If your mains power cable doesn't match your wall outlet, ask a qualified electrician for help.

Never remove the outer or inner ground connection of the unit to prevent risks of electric shock or fire.

1.5 Safety use conditions

The TORPEDO *Live* must never be used near a heat source, near a flame, in the rain, in damp areas, near any kinds of liquids.

The unit is designed to be rackmounted into a 19" rack unit with 4 screws (not provided).

When transporting the unit, care needs to be taken to avoid any shocks that could cause damage that would require the assistance of a qualified technician.

Never cover or restrict the ventilation openings. Never unplug or deactivate the heat control monitoring system, or you will be exposed to risk of electric shock and fire.

1.6 Cleaning

Always use a dry and soft cloth with no alcohol or solvents for cleaning. Please keep the unit clean and free from dust.

1.7 Maintenance

All maintenance operations must be done by service centers approved by OROSYS SAS or by qualified technicians. Never try to repair the machine by yourself.

2 Declaration of conformity

Manufacturer: OROSYS SAS
Category of product: digital audio signal processor
Product: TORPEDO *Live*
Test Manager: Guillaume Pille

The Two Notes TORPEDO *Live* is certified to be compliant to the CE and FCC standards:

- EN 55103-1 : 1996 and EN 55103-2 : 1996.
- EN 60065 05/2002 + A1 05/2006.
- EMC directive 89/336/EEC and Low Voltage Directive 73/23/EEC.
- FCC Part 15 : 2008.
- ICES-003 : 2004.
- AS/NZS 3548 class B for Australia and New Zealand.
- IEC : 2008 - CISPR 22 class B.

CE RoHS 2002/95/EC FC

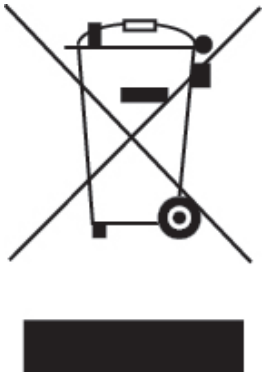
3 Contents of the package

The shipped package contains:

1. One TORPEDO *Live* unit in a protecting sleeve,
2. One mains power cable,
3. One USB cable,
4. One owner's manual.

The complete electronic version of this manual, as well as the TORPEDO Remote and TORPEDO Capture softwares are subject to updates. You can download the most recent versions of these products on the following website: http://www.two-notes.com.

4 Disposal of Waste Equipment by Users in Private Household in the European Union



This symbol on the product or on its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

5 Warranty

OROSYS SARL warrants that this TWO NOTES AUDIO ENGINEERING product shall be free of defects in parts and workmanship when used under normal operating conditions for a period of two (2) years from the date of purchase. This warranty shall apply to the original purchaser when purchased from an Authorized TWO NOTES AUDIO ENGINEERING dealer.

IMPORTANT: PLEASE RETAIN YOUR SALES RECEIPT, AS IT IS YOUR PROOF OF PURCHASE COVERING YOUR LIMITED WARRANTY. THIS LIMITED WARRANTY IS VOID WITHOUT YOUR SALES RECEIPT.

Defective products that qualify for coverage under this warranty will be repaired or replaced, (at OROSYS SAS's sole discretion) with a like or comparable product, without charge. In the case that warranty service is required, Please contact your authorized TWO NOTES AUDIO ENGINEERING dealer in order to obtain an RMA to return the complete product to the Authorized TWO NOTES AUDIO ENGINEERING Service Center closest to you, with proof of purchase, during the applicable warranty period.

Transportation costs to the service center ARE NOT INCLUDED in this limited warranty. OROSYS SAS will cover the cost of standard ground return transportation for repairs performed under this warranty.

This limited warranty becomes void if the serial number on the product is defaced or removed, or the product has been damaged by alteration, misuse including connection to faulty or unsuitable ancillary equipment, accident including lightning, water, fire, or neglect; or if repair has been attempted by persons not authorized by OROSYS SAS.

Any implied warranties, including without limitation, any implied warranties of merchantability or fitness for any particular purpose, imposed under state or provincial law are limited to the duration of this limited warranty. Some states or provinces do not allow limitations on how long an implied warranty lasts, so the above limitations may not be applicable.

OROSYS SAS ASSUMES NO LIABILITY FOR PROPERTY DAMAGE RESULTING FROM ANY FAILURE OF THIS PRODUCT NOR ANY LOSS OF INCOME, SATISFACTION, OR DAMAGES ARISING FROM THE LOSS OF USE OF SAME DUE TO DEFECTS OR AVAILABILITY OF SAME DURING SERVICE.

In case you have to send your TWO NOTES AUDIO ENGINEERING product to any other location, it is of vital importance to retain the original packing materials. It is very difficult to avoid damage if shipping the product without these materials. OROSYS SAS is not responsible for damages to the product due to improper packaging and reserves the right to charge a reboxing fee for any unit returned for service without the original packing materials.

THE FOREGOING CONSTITUTES THE ONLY WARRANTY MADE BY OROSYS SAS WITH RESPECT TO THE PRODUCTS AND IS MADE EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED

Part 2

Warning regarding the proper use of a loadbox with a tube amplifier

1 What is a loadbox ?

In the normal use of a tube amplifier, it is recommended to always connect its power output to a speaker cabinet prior to powering it up. The speaker cabinet (4, 8 or 16 Ohms) must always be connected to the corresponding speaker output of your amplifier. Not doing so can lead to partial or complete destruction of the output stage of the tube amplifier.

Most tube amplifier makers protect their products with fuses or other protection systems, but some amplifiers still remain not or insufficiently protected. It is impossible to predict the behavior of *all* the amplifiers on the market in case of use without a load (a speaker cabinet or a load box).

The electronic term that describes the speaker cabinet with respect to the amplifier is the "load": we say the cabinet "loads" the amplifier. The term loadbox fits any product embedding a load. The main parameter of the load box is its impedance, expressed in Ohms. An 8 Ohms load box has to be plugged to the 8 Ohms speaker out of the amplifier. The power sent to the load is changed into heat, so please follow the cooling recommendation of the load box, otherwise overheating may cause damage, both to the loadbox and the amp.

The TORPEDO *Live* is a loadbox. This term indicates that the TORPEDO *Live* is a load which can electrically replace the speaker cabinet while dissipating (transforming into heat) the power coming out of the amplifier.

The embedded load in the TORPEDO *Live* is a reactive one: it embeds a specific circuit to simulate the complex impedance of a real speaker. This kind of system is widely used in the industry to silently test amplifiers.

Always connect the speaker out of your tube ampilifier to a proper load (speaker cabinet or load box). TORPEDO *Live*, once powered up, is such a load. Please note that you always have to power up the TORPEDO *Live* before your amplifier.

2 Which output volume for my amplifier ?

The correct use of your amplifier with a loadbox requires some precautions. Because of the fact that you may be playing "silently," it is much easier to accidentally run your amplifier beyond the reasonable limits set by the manufacturer than when you are using an actual speaker cabinet. This can lead to faster tube wear and, in some cases, to more serious inconveniences.

During the first tests at high volume on the amplifier, monitor the color of the tubes and the general state of the amplifier. Red-glowing tubes or any appearance of smoke are signs of a problem that could lead to partial or complete destruction of the amplifier.

Keep in mind that the "sweet spot" — the perfect running point of the amplifier, the one that will give you the tone you are looking for — is rarely obtained at maximum volume. In addition, the volume control of the amplifier is usually logarithmic, which means that the volume goes up quickly on the first half of the potentiometer's rotation, reaches its maximum at 12 o'clock, and will not change much beyond that point. Therefore, you can reach the maximum volume of your amplifier even if the volume potentiometer is not set at maximum.

By reaching the maximum output power of your amplifier, you will hear a lot of distortion, which may not sound as good as you could hope. In fact, most amplifiers do sound rather poorly at maximum volume. Always keep in mind that your amplifier may not have been conceived to be used at maximum volume for a long time. Running an amplifier at high volume will cause premature wear of the tubes and possible malfunctions or damages at the output stage.

The fact that the volume control of your amplifier is not set at maximum does not mean your amplifier is not running at maximum volume. A good habit is to keep the usual volume setup you would use in rehearsal or on stage, rather than just following what the volume potentiometer indicates.

Part 3

About the TORPEDO *Live*

1 Introducing the TORPEDO *Live*

Two Notes Audio Engineering is proud to introduce the TORPEDO *Live*, the optimized for live playing version of the critically-acclaimed TORPEDO hardware series. This product has been developed through years of technical research, with great attention to the needs of guitarists, bassists and sound technicians confronted the challenges of miking instrument amplifiers, on stage or in studio. Our goal is to provide ease of use, reliability, versatility and, above all, perfect audio quality.

The Torpedo technology was created as an answer to the high pressure musicians have to deal with: lack of time, limited gear availability, loud amplifiers that can't be played at desired volume, as well as bulky and heavy cabinets to carry. In addition, many musicians are more comfortable with their analog amplifier and effect pedals, and don't want to perform using digital modeling systems, which may compromise their playing style and sound.

For them, the TORPEDO *Live* offers a "virtual" alternative to traditional miking, using a technology derived from the convolution reverberation, to achieve a degree of realism never experienced previously with simulators. The musician simply plugs the TORPEDO *Live* in place of his cabinet, connected to the speaker output of his amplifier, without modifying his usual settings (or connected effect pedals as applicable).

The TORPEDO *Live* comes with a large library of 45 cabinets and 8 microphones among the most commonly used models in the world. The virtual miking is done by choosing one cabinet and one microphone, and fine-tuning the position of the microphone in front of the cabinet. The Torpedo allows the user to assume the role of the sound engineer in a professional studio.

The TORPEDO Technology : to give you realism and playing comfort, Two Notes developed a unique technology based on an adaptation of convolution techniques. Starting with the measurement of an actual cabinet + microphone setup, the TORPEDO *Live* can accurately reproduce the system as it was measured, as well as the microphone position in space. In order to take full advantage of these digital algorithms, the highest quality audio design assures a perfect analog-to-digital conversion and a huge dynamic range to retain the ultimate playing experience.

This product has been thoroughly tested in professional studio and stage environments and is the alternative many musicians were waiting for professional sound capture of their amplified instruments. The TORPEDO *Live* will give you the elusive sound of the greatest recording studios and producers, every time, everywhere.

2 Front panel

Figure 3.1: Front panel of the TORPEDO *Live*

1	Ventilation slit	**4**	SETUP button	**7**	EDIT/SAVE button
2	Input gain	**5**	PRESET/PARAMETER encoder	**8**	Phones output
3	Display	**6**	OUT LEVEL/VALUE encoder	**9**	Mains switch

3 Rear panel

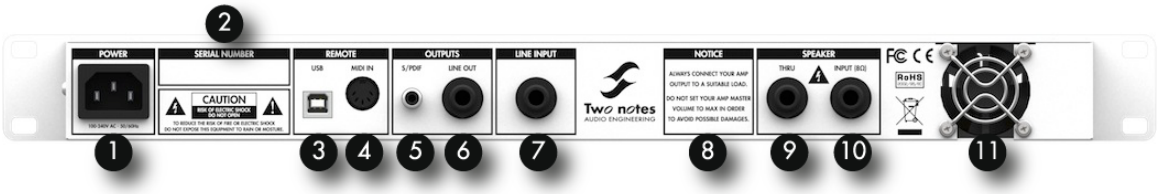


Figure 3.2: Rear panel of the TORPEDO *Live*

1	Mains connector	**4**	MIDI	**7**	Balanced line input	**10**	Amplifier input
2	Serial number	**5**	S/PDIF output	**8**	8 Ohms load warning	**11**	Fan
3	USB	**6**	Balanced line output	**9**	Speaker output		

4 Only a speaker simulation ?

The TORPEDO *Live* is a standalone unit you can bring with you in any situation, when silent playing is needed.

The role of the TORPEDO *Live* is to replace the following elements of the traditional guitar or bass setup:

- the guitar/bass power amplifier
- the speaker cabinet
- the microphone
- the microphone preamplifier

to provide a signal that is the closest possible to a traditional guitar/bass miking in a professional studio environment.

The miking is achieved in 3 steps with the TORPEDO *Live*:

1. choose a power amplifier (or switch it off if you are using a loadbox), a speaker cabinet and a microphone (Amplifier, speaker and microphone section),
2. place the microphone in the virtual studio (Miking window and parameters),
3. shape the signal (Low Cut, Eq, Exciter and Comp sections).

With each step, Two Notes Audio Engineering implements its know-how to propose the most advanced simulations on the market and ensure a total realism both for the musician (playing sensations) and the listener (sound quality).

You can embed up to 32 Two Notes cabinets in the TORPEDO *Live*. Download the free TORPEDO Remote software (Mac OSX and Windows PC) from the Two Notes website, you will be able to add and remove the embedded cabinets, there are currently 45 Two Notes cabinets, and new free cabinets available directly from you TORPEDO Remote software.

4.1 Tube Stage Output

When using a guitar/bass preamplifier with other speaker emulators, the guitarist/bassist may miss the power amplifier's contribution to the overall sonic texture. Many musicians get their sound from a particular use of this element and this possibility is present in the TORPEDO *Live*.

To do this, Two Notes developed an original tube stage modeling, giving you the choice between 4 different tube models (6L6, EL34, EL84 and KT88) in Push-Pull (PP) in AB class or Single Ended (SE) in A class configurations. You can push this tube stage like a conventional amplifier and look for this subtle yet particular distortion.

The TORPEDO *Live* can be used as a super-DI for keyboards. The tube amp simulation feature, developed for guitarists and bassists, is also very interesting to warm-up the sound of a synthesizer, organ or a digital piano.

4.2 Section EQ

When recording guitars or basses, it is common to apply a few effects to shape the sound before sending it to a PA or a recorder. In the TORPEDO *Live* you will find a simple but efficient EQ filter with two modes, GUITAR or BASS.

4.3 The Torpedo technology, convolution and Impulse Responses

The impulse response (IR) of a system describes it behavior under the form of a very detailed filter. The convolution technique uses IRs to simulate the behavior or particular systems, such as reverbs, speakers, EQ...

It is the most accurate way to simulate sound signatures that are linear (i.e. without distortion) and time-invariant (i.e. no effect like modulation, compression, hysteresis...). It is particularly well suited for speaker miking simulation.

Two Notes developed a unique technology based on an adaptation of convolution techniques. Starting with a measure of a real cabinet + microphone setup, the TORPEDO TORPEDO *Live* can accurately reproduce the system as it was measured, as well as the microphone position in space by using **IR synthesis**.

4.4 Third party impulse responses

The TORPEDO *Live* is capable of delivering the best guitar and bass tones by using the TORPEDO technology, but you can also embed impulse responses you can purchase or download for free from 3rd party developers, in WAV or AIFF formats.

You can upload up to 512 third party IRs in the TORPEDO *Live*, using the free Torpedo Remote software.

4.5 Create your own IRs

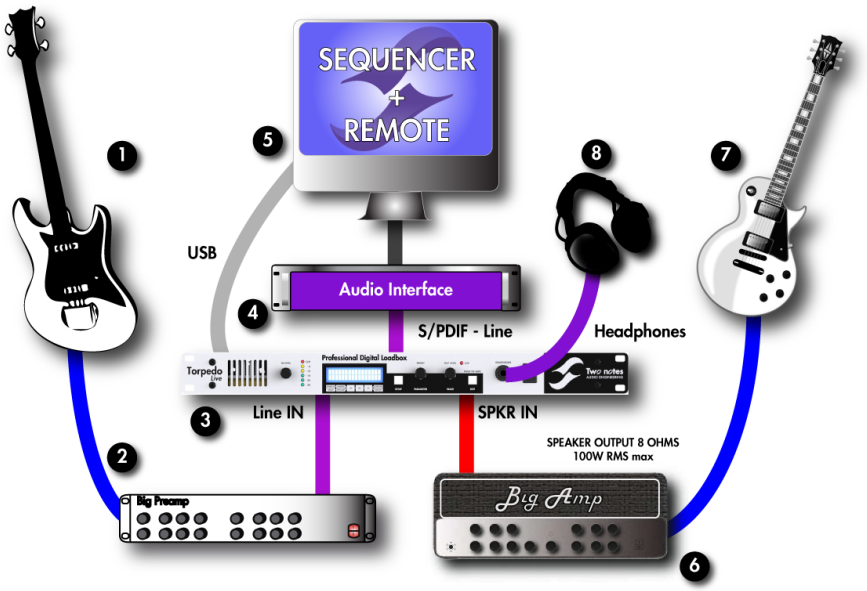
Download the free TORPEDO Capture software from the Two Notes website. With this software you will be able to capture your own cabinet + microphone setup and embed its sound signature into the TORPEDO *Live*.

Part 4

Connecting the TORPEDO *Live*

1 Overview

The TORPEDO *Live* offers a solution for silent and quality sound pick-up in many situations. The following illustrations show the most common situations theTORPEDO *Live* has been created for.



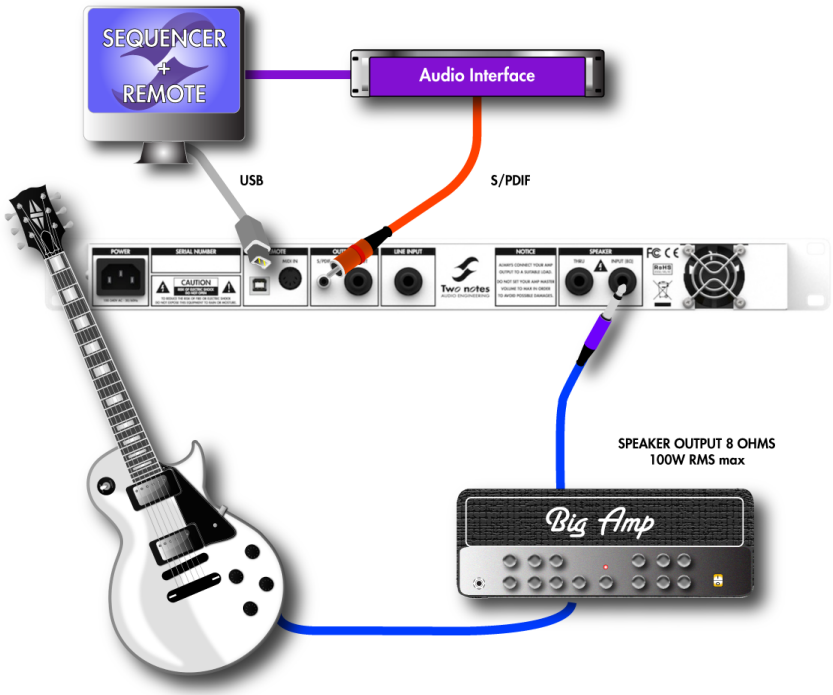
1	Guitar/bass	**3**	TORPEDO *Live*	**5**	PC/MAC with TORPEDO Remote	**7**	Guitar/bass
2	Guitar/bass preamp	**4**	Audio interface	**6**	Guitar/bass amp	**8**	Headphones

Even if it was design to go on stage, the TORPEDO *Live* fits perfectly in a digital or analog studio, to bring you the greatest tone with your amp, whatever the circumstances.

Please keep in mind that tube amplifiers have to be connected to an appropriate load (cabinet or load box). Always plug the 8 ohms output from your amp to the 8 ohms input of the TORPEDO *Live*.

2 In the studio

The studio setup shown here is an integration of the TORPEDO *Live* in a usual Digital Audio Workstation.



Plug your 8 ohms out on your amplifier to the SPEAKER input of the TORPEDO *Live*. If you want to use a preamplifier, plug its line output to the LINE INPUT of the machine.

Connect the S/PDIF OUT of the TORPEDO *Live* to the S/PDIF IN of your audio interface. **The sampling frequency can be set to 48KHz or 96KHz.**

In this configuration the TORPEDO *Live* is the master of the S/PDIF communication. This way, analog to digital conversion is handle by the TORPEDO *Live*, so you preserve all the tone coming from your preamp/amp.

An S/PDIF signal contains two audio channels. The TORPEDO *Live* is a mono unit, so we decided to give a great feature : sending the WET signal (with miking simulation) through the LEFT channel and the DRY signal (without miking simulation) on the RIGHT. This way you can record the dry and wet signal simultaneously. Use the WEt signal to play as usual, and the DRY signal from the amp with a plugin speaker simulator, such as our TORPEDO PI-101 WoS !!

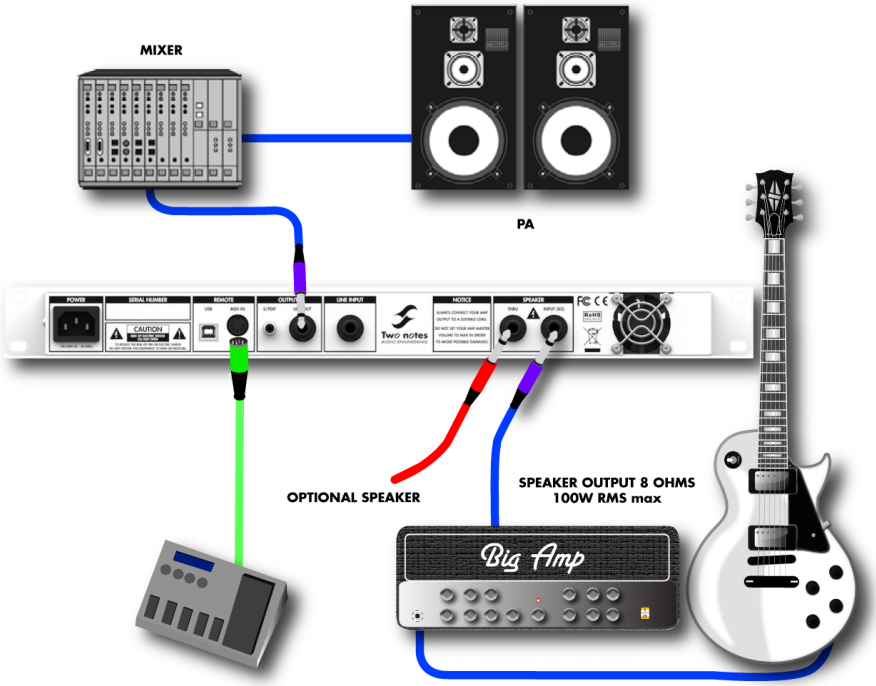
For a working S/PDIF connection, your audio interface must be in slave mode, while the TORPEDO *Live* is in master mode. Your audio interface must handle 48KHz and/or 96KHz to properly work with the TORPEDO *Live*. For more information on your audio interface, please refer to its user manual.

Control the machine from your computer (PC Windows or Mac OSX) with the TORPEDO Remote software in USB. Create, save and load presets, load new cabinets or Impulse Response (IR) files. Download the TORPEDO Remote for free on the Two Notes website.

3 On stage

The analog I/O of the TORPEDO *Live* offers great options on stage. For example, the analog output can be connected to the front mixing console. Or plug headphones to the appropriate output and enjoy playing your amp LOUD in a total silence, at home.

On the following figure you will find a simple setup with an amplifier,the same can be done with a preamplifier in the LINE INPUT of the TORPEDO *Live*.



With a MIDI foot controller, you gain access to the presets navigation and even parameter changing in real time. The TORPEDO *Live* handles both PROGRAM CHANGE et CONTROL CHANGE commands.

Playing in silence is a great feature, but at some point you have to listen to what you play! We preset a few option to use at home, in the studio or on stage:

1. Listen through the headphones out,
2. Listen on a guitar/bass cabinet plugged to the TORPEDO *Live* THRU output,
3. Having a local monitoring system on stage, by duplicating the LINE OUPUT with a mixer,
4. Having in-ear monitors or wedge speakers controlled by a sound engineer.

The THRU, S/PDIF and LINE outputs can be used simultaneously.

When you plug a cabinet to the THRU output, the impedance of this cabinet is the one that your amplifier sees. In other words, with a 4 Ohms cabinet, you need to connect the 4 Ohms output of your amplifier. In this configuration, the load box inside the TORPEDO *Live* is disconnected. This way, you can override the 8 Ohms only limitation of the TORPEDO *Live*.

you will probably find innovative ways to use the TORPEDO *Live*, share with other users your tips and tricks on the Two Notes user forums and other social networks, go to the Two Notes website and click on Community.

Part 5

Configuring and using the TORPEDO *Live*

1 The TORPEDO *Live* interface

The TORPEDO *Live* parameters are organized in menus, accessible by different push-buttons and knobs you will see on the figure 3.1:

- Two 2-function rotary encoders: PRESET/PARAMETER, OUTPUT LEVEL/VALUE
- Two push-buttons: SETUP and EDIT/HOLD TO SAVE.
- One potentiometer: input gain.

When pushing a button or turning an encoder, you see a parameter moving on the two lines display (item 3 in figure 3.1).

2 Input gain control

This encoder controls the input gain of the unit. As the TORPEDO Live being a digital product, it is absolutely critical to avoid any saturation of the input signal and avoid the risk of considerably reducing the audio quality. The input level is controlled by a potentiometer and is the same for all presets. To get the best sound, try to have the same volume (or close) on all different sounds coming to the TORPEDO *Live*. This way you won't have to change the input gain when switching the channels on your amplifier. If you don't have individual volume settings on your amplifier channels, always do the gain setting with the loudest channel.

The input gain adjustment must be done with input signal present at the input selected (speaker or line input). The input bargraph gives you a visual indication of the input signal amplitude. The upper red led is on when there is saturation in the input stage: lower the volume of your amplifier output and/or lower the input gain.

For optimum quality, we advise to keep the peak levels of the input signal at a maximum of -12dB to -6dB on the bargraph.

3 Three modes: PERFORM, EDIT & SETUP

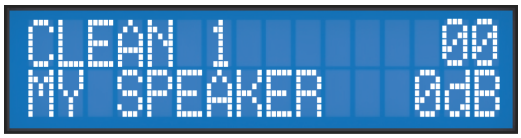
The TORPEDO *Live* has three different mode, giving you access to different parameters:

1. Navigate through the 100 presets in **PERFORM** mode
2. Edit a preset in **EDIT** mode
3. Setup global parameter of the machine in **SETUP** mode

To enter a mode, whatever the current mode, push the appropriate button. To see and modify the various parameters, use the appropriate encoders wich function depends on the current mode.

4 PERFORM mode

The PERFORM mode is the default mode you will see when first using the TORPEDO *Live*. You will have the following information on screen:



- First line: preset name and number (between *01* and *00* corresponding to preset 100.
- Second line: Cabinet name (or IR name) and output volume (OUT LEVEL between -95dB and +12dB).

In this mode you can navigate in the presets and set the output volume of the machine. You will be in this mode when playing without editing or modifying any parameter. This way you can have a fast access to the volume in case you have to quickly lower or increase the volume in any situation.

We recommend first to search for a preset close to the sound you have in mind, then tweak the selected preset in EDIT mode.

The preset name is limited to 12 letters or numbers. The authorized characters are capital A to Z, 0 to 9 and space.

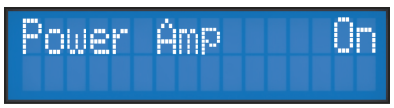
The various functions of the buttons in PERFORM mode are described in the following tab:

Button	**Function**
SETUP	Switch to SETUP mode
PRESET/PARAMETER	Navigate the preset
OUT LEVEL/VALUE	Set the output volume between -95dB and +12dB
HOLD TO SAVE/EDIT (hold)	Save a preset between *01* and *00* (preset 100)
HOLD TO SAVE/EDIT (toggle)	Switch to EDIT mode

5 EDIT mode

In the EDIT mode, you will have access to all the parameters of a preset. The various functions of the buttons in PERFORM mode are described in the following tab:

Bouton	**Fonction**
SETUP	Switch to SETUP mode
PRESET/PARAMETER	Navigate the parameters
OUT LEVEL/VALUE	Modify the selected parameter
HOLD TO SAVE/EDIT (hold)	Save a preset between *01* and *00* (preset 100)
HOLD TO SAVE/EDIT (toggle)	Switch to PERFORM mode



You will find three modules in the EDIT mode (Power Amp, Miking and EQ), followed by the output volume of the preset (this volume setting is saved with the preset, so you can adjust the levels in order for the presets to be at comparable volumes).

You will see on the first line of the screen the **module name** and its **current state** (On, Off, level in dB for the OUTPUT LEVEL)

Navigate through the modules with the PARAMETER encoder. A module is activate when it's On, you can change the module state with the VALUE encoder. Once the module is On, you gain access to the module parameters.

On a parameter page (change the page with the PARAMETER encoder), you will see on the first line the module name, the parameter index and the number of parameters of the module.

On the second line you will find the parameter name and its value. Change the value using the VALUE encoder. The following tab contains the modules list, their parameters with the possible values. All details about the parameters are below.

Module	Parameter	Value
Power Amp		On or Off
	Model	8 models, from SE 6L6 to PP KT88
	Volume	0 to 30dB
	Presence	If Model PP: 0 to 100%
	Depth	0 to 100%
	Type	Triode or Pentode
Miking		On or Off
	Bank	Cab/mic, User 0 to User 3 (in User bank, the options Mic, Distance, Center and Position are not available). 32 memory slots for Cab/mic, 128 per User bank
	Cab or File	Cabinet name or IR file name
	Mic	Microphone name
	Distance	0 to 100% (i.e. 0 to 10 feet)
	Center	0 to 100% (i.e. 0 to cabinet side, length depending on the real cabinet geometry)
	Position	Back or Front
EQ		On or Off
	Mode	Guitar or Bass
	120Hz (Guitar) or 50Hz (Bass)	-20dB to +20dB
	360Hz/120Hz	-20dB to +20dB
	800Hz/360Hz	-20dB to +20dB
	2KHz/800Hz	-20dB to +20dB
	6KHz/4KHz	-20dB to +20dB
Level		-95 to 0dB

5.1 Power Amp

When using the TORPEDO *Live* with any kind of guitar/bass preamplifier, or even an electric piano or a synthesizer, you need the color brought by the final stage of a traditional amplifier: the power amplifier. Plug your device to the LINE input of the TORPEDO *Live* and enjoy the typical sound of the Two Notes electrically accurate virtual tube power amplifier:

- **Power Amp On**: Activate the power amplifier simulation by turning "On" this parameter.
- **Model**: Choose the amplifier topology (Push Pull or Single Ended) and the tubes type (6L6, EL34, EL84 or KT88).
- **Volume**: Set up the output volume of your virtual power amplifier.

- **Presence**: This setting affects the tube stage frequency (loudness).
- **Depth**: this setting affects the tube stage frequency (bandwidth).
- **Pentode/Triode**: elect how the tube is used, either in triode or in pentode mode. Pentode mode has more headroom and volume than triode.

5.2 Miking

In the "MIKING" menu, you take the place of the sound engineer. This is where you will find the "sweet spot", the perfect microphone position. You'll also be able to control speaker saturation and balance between simulated and non-simulated sound.

You have to choose whether you want to use the Two Notes cabinets and microphones combinations (Cab/mic) or a third party IR (User) picked in on of the three User banks.

In Cab/mic mode, you have access to 32 different cabinets, each cabinet can be miked with 1 of the 8 available microphones. **Please refer to Part 7 to discover the microphones and cabinets library.**

The next step is to place the microphone on the trapezoidal plan (you can see it in the TORPEDO Remote interface):

- **DISTANCE**:
  Determine the distance between the simulated cabinet and microphone. Placing a microphone close to the cabinet will result in a precise sound with a large amount of proximity effect (dependent on the chosen model of microphone). When you move the microphone away from the cabinet, you increase the proportion of the studio's acoustics (early reflections) in the overall sound.

Furthermore, depending on the cabinet model used, and especially with the ones with multiple speakers, moving the microphone away can bring some higher frequencies back. This is simply due to the directivity of the loudspeakers. At the maximum position (100%), the microphone is placed 3 meters (10 feet) away from the cabinet.

- **CENTER**: Determine the distance between the axis of the loudspeaker and the microphone (placed at right angle). The on-axis position (0%) allows the maximum amount of treble frequencies which are highly directional. Moving the microphone away from the axis decreases the treble, resulting in an enhancement of bass response. At maximum position (100%), the microphone is placed at the edge of the speaker when Distance is 0%, and 1 meter (3 feet) away from the axis when Distance is 100%.
- **POSITION**: in standard sound capture, the microphone is usually placed in front of the cabinet. However, placing the microphone behind the cabinet can be quite interesting. The sound is usually softer and darker. This is particularly obvious with closed cabinet, less with open ones.

5.3 EQ

This is a simple yet powerful 5-band EQ. Changing the mode (guitar or bass) shifts the band frequencies to focus on the interesting signal frequencies for the corresponding instrument.

- **EQ On**: Activate the EQ filter.
- **GUITAR I BASS**: Guitar or Bass, EQ presets to fit the center frequencies with the instrument you play.
- **120Hz, 360Hz, 800Hz, 2000Hz, 6000Hz (Guitar mode)**: center frequency of each band, from the lower to the higher. The frequencies depend on the mode, Guitar or Bass. You can adjust the level in dB of each band.

6 SETUP mode

Bouton	Fonction
SETUP	Return to PERFORM mode
PRESET/PARAMETER	Navigate the parameters
OUT LEVEL/VALUE	Set a parameter value
HOLD TO SAVE/EDIT (hold)	Save a preset between *01* and *00* (preset 100)
HOLD TO SAVE/EDIT (toggle)	Switch to EDIT mode

Whether you are in EDIT or PERFORM mode, click on the SETUP button to enter the SETUP mode. The SETUP mode groups all the global parameters of the TORPEDO Live. In this mode, you will gain access to some information, such as the reception of a MIDI command or the syncing of the machine with the TORPEDO Remote.

Parameter	Value
MIDI CC	Control Change receive, On or Off
MIDI PC	Program Change receive, On or Off
MIDI CHANNEL	MIDI Channel selection, from 1 to 16 or ALL (the machine listens to all MIDI channels)
MIDI MONITOR	Incoming MIDI command monitoring • "- -": a command is received on a MIDI channel different from the one you selected for the machine. • "In": a command is received on the channel you selected for the machine.
REMOTE MONITOR	• No Connection: no active USB connection • USB Connected: active USB connection • Remote connected: active USB connection, sync with the TORPEDO remote
SPDIF Freq	Selection of the S/PDIF output frequency (48KHz or 96KHz)
Firmware	Current firmware version of the TORPEDO *Live*
Serial	Serial number

7 MIDI setup

The MIDI parameter can be found on the SETUP mode. The TORPEDO *Live* handles both preset change commands (PROGRAM CHANGE or PC) and parameter change commands (CONTROL CHANGE or CC). This way, you can interact with all the parameters on the machine from any kind of standard MIDI controller, like a MIDI pedalboard or a keyboard.

1. Select if the machine is to receive to PROGRAM CHANGE and/or CONTROL CHANGE commands. For example, if you plan to use the preset switching (PC), the CC receive can be Off.
2. Set a MIDI channel for the machine to receive. You can choose to receive all channels, which is useful when you don't know exactly on which channel the commands are sent.
3. With the MIDI monitor, check the correct reception of the commands by the TORPEDO textitLive.

8 Continuous save, preset save

The state of the machine is saved in real time, continuously, and is reloaded when you switch on the machine. The parameters continuously saved are:

- the current preset,
- the modified preset if any (with all its parameters and name),
- the SETUP mode parameters,
- and the OUT LEVEL.

The navigation is not saved (for example if you were in a particular parameter menu). The purpose is to reload the machine at its initial state, after a power outage on stage, for example.

When you edit a preset, a star can be seen after the preset number in PERFORM mode. It is possible to navigate through the presets and to come back to the preset you are editing. This way, the modified and the non-modified preset can be compared. If you edit a second preset, this will cancel the modification on the first edited preset if it was not saved. It is only possible to edit one preset at a time.

Saving a preset can be done from any mode, by holding the HOLD TO SAVE/EDIT button. The saving process is done in three steps:

1. "**Rename & hold...**": choose the preset name, use PARAM to change the character position and VALUE change the character. Hold the button to go to the next step.
2. "**Hold to save to:**": Choose where you want to save the preset, the default slot is the current one. Hold the button to go to the next step.
3. You will see on the screen "**Saving, please wait...**" for less than a second, the preset is now saved.

9 Want more cabinets ?

It is possible to add new cabinets or IRs files to your TORPEDO *Live* using the TORPEDO Remote software. Download the software from the Two Notes website: `http://www.two-notes.com`. Take control of the machine through USB, change the parameter, arrange or add/delete cabinets and IR files or apply updates. The TORPEDO Remote detects any new update or new Two Notes cabinets (requires a working Internet connection).

The install process of the TORPEDO Remote creates two default folders where the Impulses are stored:

- "**Program Files\Two Notes Audio Engineering\Impulses**" on Windows™.
- "**/Library/Application Support/Two Notes Audio Engineering/Impulses**" on MAC™.

All the cabinets files have to be on this folder without any subfolders. The TORPEDO Remote automatically saves the downloaded cabinets in this folder.

9.1 .tsr files

The .tsr files are the official Two Notes cabinet and microphones format. Two Notes provides new cabinets for free from time to time. The Remote will request permission to download them and you just have to upload them into your TORPEDO *Live*.

A .tsr file contains information of the cabinet response with 8 microphones placed at different places in our controlled studio room.

If you ever have to move .tsr files, always remember the TORPEDO Remote will only fetch the files located in the default folder, without sub-folders.

9.2 .tur files

The .tur files are created using the free TORPEDO Capture software, available on the Two Notes website. With the TORPEDO Capture you will be able to measure the sound signature of your OWN cabinet and microphone.

To upload a .tur file in your machine, place the file in your default Remote folder (or in a folder you define in the TORPEDO Remote) and use the Memory Manager of the TORPEDO Remote.

Moving the microphone is not available for IRs files in .tur format.

9.3 Third party IRs in .WAV or .AIF format

The TORPEDO *Live* complies with standards IRs in .WAV or .AIFF format. The remote will handle any kind of resolution, frequency, length, and will do the following process to convert the file to the TORPEDO format:

The TORPEDO *Live* is compatible with standard IRs in .WAV or .AIFF format. The remote will handle any kind of resolution, frequency, length, and will do the following process to convert the file to the TORPEDO format:

1. Normalizing to 0 dB
2. Troncation at 18,66 ms
3. Conversion to 24 bits/48 KHz

To upload a .WAV or AIFF file in your machine, place the file in your default Remote folder (or in a folder you define in the TORPEDO Remote) and use the Memory Manager of the TORPEDO Remote.

Moving the microphone is not available for IRs files in .WAV or .AIFF format.

9.4 Uploading new Two Notes cabinets or third party IRs

The TORPEDO *Live* includes an innovative function named **QUICK PREVIEW**. The propose is to select an IR or a new cabinet in QUICK PREVIEW to load it almost instantaneously. This way you can browse a huge IRs folder and listen to the result on the fly. To use this mode:

1. Create a folder where you put all your IRs and select it with the TORPEDO Remote (folder icon behind "IMPULSE").
2. Clik on the QUICK PREVIEW button (on the Remote main window). Choose a cabinet or an IR file from the gear window.

To permanently upload a Two Notes cabinet or an IR file, open the Memory Manager window on the TORPEDO Remote. Simply drag and drop files from your computer to an empty memory slot, wait for the transfer to be done and you are ready to bring that new cabinet on stage.

Part 6

MIDI

Your TORPEDO *Live* can receive MIDI PROGRAM CHANGE (PC) and CONTROL CHANGE (C) commands sent by any kind of MIDI controller connected to the MIDI IN of the machine.

It is important to setup the TORPEDO *Live* so it will be listening to the MIDI control commands. Please refer to part 5.6 of this manual.

1 PROGRAM CHANGE (PC)

Each preset on the TORPEDO *Live* has a single program number. The preset *01* of the machine is triggered by a MIDI PC 00, you can address the 100 presets (from *0*1 to *00* meaning 100), with MIDI PC 00 to MIDI PC 99. This way, it is possible to randomly access the preset by sending the appropriate MIDI PC number.

2 CONTROL CHANGE (CC)

The following table contains the assignment of the parameters of the machine and the MIDI CC numbers and values. It is important to setup the TORPEDO *Live* so it will receive MIDI control change.

Parameter name	CC♯	Range	Behaviour
Power Amp			
On/Off	0	0 - 1	0 = Off ; 1 = On
Model	1	0 - 7	0 = Model ♯0 ; 1 = Model ♯1...
Volume	2	0 - 30	0 = 0dB% ; 30 = 30dB
Presence	3	0 - 127	0 = 0% ; 63 = 50% ; 127 = 100%
Depth	4	0 - 127	0 = 0% ; 63 = 50% ; 127 = 100%
Character	5	0 - 1	0 = Triode ; 1 = Pentode
Cab/Mic			
On/Off	6	0 - 1	0 = Off ; 1 = On
Mode	7	0 - 4	0 = Cab/Mic ; 1= User 0 ; 2= User1; 3 = User 2 ; 4 = User 3
Cab	8	0 - (Cab Qty-1)	0 = Cab ♯0 ; 1 = Cab ♯1...
User 0 File	9	0 - (File Qty-1)	0 = File ♯0 ; 1 = File ♯1...
User 1 File	10	0 - (File Qty-1)	0 = File ♯0 ; 1 = File ♯1...
User 2 File	11	0 - (File Qty-1)	0 = File ♯0 ; 1 = File ♯1...
User 3 File	12	0 - (File Qty-1)	0 = File ♯0 ; 1 = File ♯1...
Mic	13	0 - 7	0 = Mic ♯0 ; 1 = Mic ♯1...
Distance	14	0 - 127	0 = 0% ; 63 = 50% ; 127 = 100%
Center	15	0 - 127	0 = 0% ; 63 = 50% ; 127 = 100%
Position	16	0 - 1	0 = Back ; 1 = Front
EQ			
On/Off	17	0 - 1	0 = Off ; 1 = On
Mode	18	0 - 1	0 = Guitar ; 1 = Bass
EQ - Low	19	0 - 40	0 = -20dB ; 20 = 0dB ; 40 = 20dB
EQ - Low Mid	20	0 - 40	0 = -20dB ; 20 = 0dB ; 40 = 20dB
EQ - Mid	21	0 - 40	0 = -20dB ; 20 = 0dB ; 40 = 20dB
EQ - High Mid	22	0 - 40	0 = -20dB ; 20 = 0dB ; 40 = 20dB
EQ - High	23	0 - 40	0 = -20dB ; 20 = 0dB ; 40 = 20dB
GENERAL			
Preset Level	24	0 - 107	0 = -95dB ; 95 = 0dB
Out Level	25	0 - 107	0 = -95dB ; 95 = 0dB ; 107 = 112dB
Mute	21	0 - 1	0 = Off ; 1 = Mute

Table 6.1: TORPEDO *Live* MIDI map

Part 7

Specifications

1 Power Amplifier list

Designation	Characteristics
SE 6L6	Configuration Single Ended - Class A with 6L6
SE EL34	Configuration Single Ended - Class A with EL34
SE EL84	Configuration Single Ended - Class A with EL84
SE KT88	Configuration Single Ended - Class A with KT88
PP 6L6	Configuration Push-Pull - Class AB with 6L6
PP EL34	Configuration Push-Pull - Class AB with EL34
PP EL84	Configuration Push-Pull - Class AB with EL84
PP KT88	Configuration Push-Pull - Class AB with KT88

2 Microphones list

Designation	Inspired by
Dynamic 57	Dynamic microphone Shure™ SM57
Dynamic 421	Dynamic microphone Sennheiser™ MD421
Knightfall	Condenser microphone Blue™ Dragonfly
Condenser 87	Condenser microphone Neumann™ U87
Ribbon160	Ribbon microphone Beyerdynamic™ M160N
Ribbon121	Ribbon microphone ruban Royer™ R121
Bass 20	Dynamic microphonee Electrovoice™ RE20
Bass 5	Dynamic microphone Shure™ Beta52

3 Cabinets list

Designation	Inspired by
Default factory GUITAR cabinets	
2Notes CSG	Two Notes Custom 1x12" ElectroVoice® EVM12L
Angl VintC	Engl® 4x12" Celestion® V30
Blonde 63	Fender® Bassman '63 Blonde Tolex Piggy Back 2x12"
Brit 65C	Marshall® 1965A 4x10" Celestion® G10L-35 close back
Brit VintC	Marshall® Slash Signature 4x12" Celestion® V30 close back
Calif StdC	Mesa/Boogie® Rectifier® Standard 4x12" Celestion® V30 close back
Eddie	Peavey® 5150 2x12" Sheffield 1200
Free Rock2	VHT® Deliverance 2x12" Eminence® P50E
Green Tri	Hughes&Kettner® Triamp 4x12" Celestion® Greenback
Jazz 120	Vintage Roland® JC120 2x12"
JubilGreen	Marshall® 2550 2x12" Celestion® Greenback
Kerozen	Diezel® 4x12" Celestion® V30
Silver77	Vintage Fender® Twin Reverb® 2x12" orange JBL®
SilverJen	Vintage Fender® Twin Reverb® 2x12" Jensen® C12K
The One	Brunetti® Neo1512 1x15" + 1x12"
Vibro Utah	Vintage 1961 Fender® Vibrolux® 1x12" original Utah speaker
Vibro V30	Vintage 1961 Fender® Vibrolux® 1x12" Celestion® V30
Voice 30	Original Vox® AC30 JMI 2x12" Celestion® « Silver Bell »
Voice 65	1965 Vox® 2x12"
VoiceModrn	Vox® V212H, 2x12" Celestion® Alnico Blue
Watt FanC	Hiwatt® 2x12" Fane close back
XTCab	Bogner® 4x12" Celestion® V30
New GUITAR cabinets to download with the TORPEDO Remote	
BDeLuxe	Fender® Blues Deluxe 1x12"
Brit 65O	Marshall® 1965A 4x10" Celestion® G10L-35 open back
Brit Std	Marshall® JCM900 2x12" Celestion® G12T
Brit VintO	Marshall® Slash Signature 4x12" Celestion® V30 open back
Calif C90	Mesa/Boogie® 1x12" Celestion® C90 (Black Shadow)
Calif StdO	Mesa/Boogie® Rectifier® Standard 4x12" Celestion® open back
Forest	Elmwood® 2x12" Celestion® V30
Free Rock	VHT® Deliverance 4x12" Eminence® P50E
JubilV30	Marshall® 2550 2x12" Celestion® V30
StrongBack	VHT® Fat Bottom 4x12" Eminence® P50E
Watt FanO	Hiwatt® 2x12" Fane open back

Designation	Inspired by
Default factory BASS cabinets	
2Notes CSB	Two Notes Custom 1x15"
Alu XL	Hartke® XL 4x12"
AZ Ben	SWR® Big Ben 1x18"
AZ Work	SWR® WorkingMan 4x10"
Calif Low	Mesa/Boogie® 2x10"
Fridge	Ampeg® 8x10"
Heaven Bot	David Eden® 1x15"
Heaven Top	David Eden® 4x10"
Marco	Markbass® 2x10"
Voice V125	Vox® V125 2x12"
New BASS cabinets to download with the TORPEDO Remote	
New York	Markbass® 4x6"
Rea One	AER® Cab One 2x10"

4 Technical data

Designation	**Characteristics**
Speaker Input	Jack 6.35mm (1/4") unbalanced (TS, Tip/Sleeve) Maximum input voltage: 280 Volts AC (51 dBu) Security load: 220 Ohms / 10 Watts
LINE Input	Jack 6.35mm (1/4") balanced (TRS, Tip/Ring/Sleeve) Maximum input level: 36 dBu Input impedance: 10 KOhms
Loadbox	Reactive load, nominal impedance: 8 Ohms Maximum admissible power: 100 Watts (assuming proper ventilation) Cooled by temperature-controlled fan High Impedance mode if a cabinet is connected to the THRU output (loadbox disconnected).
Speaker Thru	Jack 6.35mm (1/4") unbalanced (TS)
LINE Output	Jack 6.35mm (1/4") balanced (TRS) Impedance: 470 Ohms Maximum output level: • (no load, balanced): 16.5 dBu • (10k Ohms load, balanced): 16 dBu • (no load, unbalanced): 11 dBu • (10k Ohms load, unbalanced): 10.5 dBu Noise: less than -94 dBu from 20 Hz to 20 KHz
Headphones Output	MONO out, Jack 6.35mm (1/4") balanced (TRS)

Designation	**Characteristics**
S/PDIF	Sampling frequency: 48 KHz or 96 KHz Master only, no external synchronization Wet signal on left channel, dry signal on right channel
ADC	Gain controlled by analogue potentiometer, -inf to 0dB Minimal full-scale input level: -2.8 dBu (Line Input) Sampling frequency: 96 KHz Resolution: 24 bits Signal to noise ratio: 100 dB
DAC	Sampling frequency: 96 KHz Resolution: 24 bits Signal to noise ratio: 105 dB
Frequency response (-1db)	5 - 19 KHz
Latency	2.875 ms (Line Input to Line Output)
Thermal security	Temperature controlled fan At 100°C, a visual warning is displayed and -12 dB attenuation is applied on the signal At 110°C, the loadbox is disconnected, the amplifier sees a 220 Ohms security load, and signal is muted.
Power supply	IEC60320 C14 power connector Input voltage: 85-264 V AC, 47-63 Hz Power: approx. 10 W
Dimensions	Width: 430mm, 483mm including rack-mounting edges Depth: 163mm, 182mm including connectors and knobs Height: 44mm Weight: 2 kg

Part 8

Technical support

Should you encounter a problem with your TORPEDO *Live* or if you need help on some technical aspects, please note that Two Notes Audio Engineering has developed on-line services to give you fast and efficient technical support.

1 Two Notes Website

On the http://www.two-notes.com website, you will find:

- news about the company and the products (news at the homepage),
- comprehensive information about the TORPEDO *Live* and its many applications (FAQ),
- firmware and software update to download (products/TORPEDO *Live*/downloads),
- new speaker cabinets (products/TORPEDO *Live*/downloads),
- the Torpedo Capture software (products/TORPEDO *Live*/downloads),
- an official forum where you can share tips and advice with other Torpedo users (forum).

2 By e-mail

Please contact us at the following e-mail address: support@two-notes.com