FOR NATIVE PLATFORMS ON MAC AND WINDOWS
VST, AU AND RTAS

SOFTUBE

TUBE-TECH CL 1B COMPRESSOR

USER'S GUIDE

Foreword by John G. Petersen

After several years of consideration, we decided that the time had come to introduce a plug-in of our TUBE-TECH CL 1B.

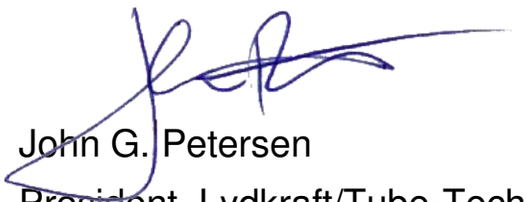
The development of the plug-in was initialized in November 2006, as a co-operation between Lydkraft, Softube and TC Electronic. Hearing the result, we found that Softube was able to reach the difficult goal of making a plug-in of the CL 1B which came extremely close to the original sound and gave the user all the characteristics of the hardware. After very serious testing of the software, the plug-in was released late 2007.

To take this project one major step further, we decided in early spring 2009 to release a VST/AU/RTAS version of the plug-in, and once again placed the developing task in the hands of Softube.

We are very impressed by the skills of these young guys from Sweden and we feel excited that the quality of the CL 1B is now available for all workstation users.

We hope you will enjoy the excellence of the TUBE-TECH CL 1B plug-in.

Yours sincerely,



John G. Petersen
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Support

On the Softube website (www.softube.com) you will find answers to common questions (FAQ) and other topics that might interest you.

Support questions can be posted at http://www.softube.com, where we will help you as fast as we can!

Patents

This Softube product is protected by patent SE525332 and pending patents US2004-0258250, EP1492081 and JP2004-183976.

Installation and Authorization

IF YOU BOUGHT THE PRODUCT IN A BOX you will have to register it in order to transfer the license to your iLok account:

1. Go to http://www.softube.com/register to transfer the license to your iLok account. You will need the **License Code** found in the box, your **iLok.com User ID**, and your iLok USB dongle. Follow the instructions on the web page.

IF YOU BOUGHT THE PRODUCT ONLINE and have got the confirmation e-mail, the license will already be deposited in your iLok account:

2. Make sure that you have the latest iLok drivers installed. They can be found at http://www.ilok.com.

3. Log on to http://www.ilok.com and transfer the newly received license to your physical iLok dongle.

4. Install the software from the DVD, or download the latest version from http://www.softube.com/installers.

Sometimes the DVD contains installers for all Softube products, but you will only be able to run those that you have acquired licenses for. In some cases, extra demo licenses are included when you buy a Softube product.

Introduction

IT WAS A VERY EXCITING PROJECT to be asked by TC Electronic and Tube-Tech to develop the CL 1B plug-in for PowerCore and TDM, but at the same time very intimidating. We knew that the same person that spent years developing the original unit would be the one with the final word on the quality and that he would be extremely demanding when it comes to our modeling. So it was quite a relief when we finally got the “go!” on the modeling and the PowerCore/TDM versions were released.

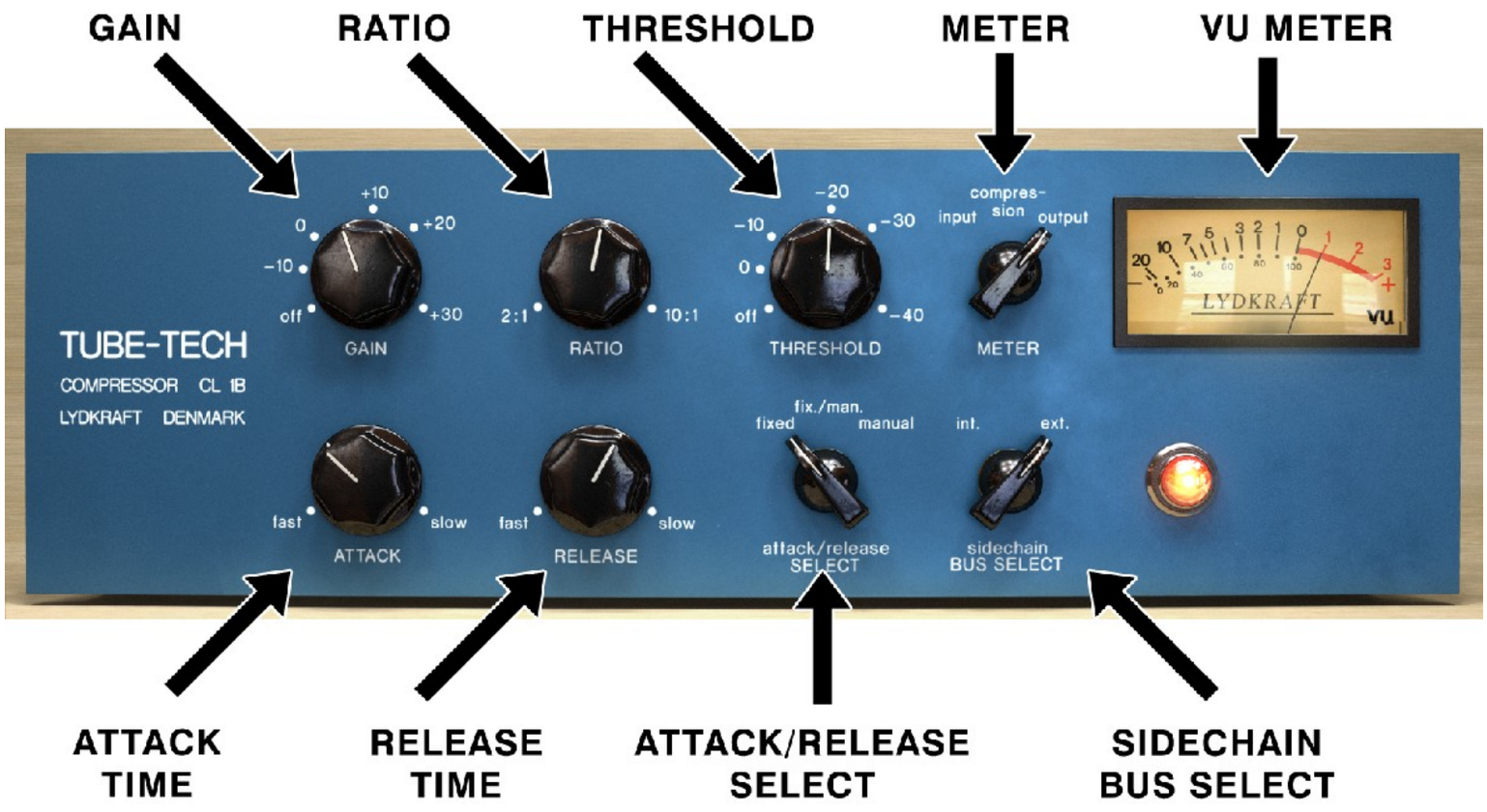
Rebuilding and releasing the CL 1B for the native formats is an equally exciting project – even if the sound is exactly the same as in the TDM/PowerCore version, it is an honor to finally release it under the Softube flag. We hope that you will enjoy using this plug-in as much as we enjoyed creating it!

About the CL 1B

The hardware CL 1B differs from many other compressors in that the gain-reduction element is made from a non-semiconductor component, which in itself has a very low harmonic distortion and none of the non-linearity problems involved when using most semiconductor elements. All parts of these equally important design choices have of course been painstakingly modeled when creating the CL 1B plug-in.

Another thing that is special about the CL 1B is the **Attack/Release Select** switch which allows the user to switch between a manual and a fixed attack/release setting, but also makes it possible for the user to combine both the fixed and manual settings. This gives a feature not normally obtained in other compressors: In the combined mode the attack and release controls makes it possible to obtain complex program dependent release-time slopes where a fast peak results in a fast release and vice versa.

User Interface



Gain

The **Gain** control is used to “make up” for the gain loss, which takes place when the unit is compressing. It is placed *after* the gain-reduction circuit and therefore has no influence on the threshold setting. The **Gain** control is continuously variable from off to +30 dB.

Ratio

The **Ratio** control varies the ratio by which the input signal is compressed. If the ratio selected is 2:1, and the input signal increases 10 dB, the output signal is only increased by 5 dB. The **Ratio** control is continuously variable from 2:1 to 10:1.

Threshold

The threshold is the point where the compressor begins its action. It is defined as the point where the gain is reduced by 1 dB. The **Threshold** control is continuously variable from +20 dB to –40 dB.

Meter

The VU meter switch has three positions:

1. **INPUT**: The meter shows the input level.
2. **COMPRESSION**: The VU meter is showing the gain reduction.
3. **OUTPUT**: The meter shows the output level.

Please note that it does not show peak or true RMS, it is a VU meter and behaves just like the original unit.

*Figure 1: Use the **Meter** knob to select what the VU meter displays.*

The meter and the plug-in is calibrated so that a sine wave showing 0 VU at the output corresponds to a –18 dBFS output signal. Correspondingly, a -18 dBFS sine at the input will show 0 VU if the meter is set at showing the input signal.

Attack

The **Attack** control chooses how fast/slow the compressor responds to an increase in the

input signal. The **Attack** is continuously variable from 0.5 to 300 milliseconds.

Release

The **Release** control sets how fast/slow the compressor responds to a decrease in the input signal. The **Release** is continuously variable from 0.05 to 10 seconds.

Attack/Release Select

This switch selects how the compressor reacts to an increase (attack) or a decrease (release) of the input signal.

There are three settings of this switch:

1. **FIXED:**
   Attack time: 1 millisecond
   Release time: 50 milliseconds

2. **MANUAL:**
   Attack time: From 0.5 to 300 milliseconds
   Release time: From 0.05 seconds to 10 seconds

3. **FIX./MAN:**
   This setting combines the release times of fixed and manual mode. The attack time is as it is in the fixed mode.

The FIX./MAN. mode always has a fast attack, but it is possible to obtain a release time that depends on the input signal, for example get a fast release when the peak disappears, then superseded shortly thereafter by the release time selected by the **Release** control.

The time the peak disappears to the point where the selected **Release** time takes over, is dependent upon the setting of the **Attack** control. That is, the **Attack** control changes function from a pure attack control to a control of the delayed release with the same time range.

Turn the **Attack** control clock-wise to increase the time before the **Release** control takes over. Decrease the **Attack** control to shorten the time before the **Release** control takes over.

This function is valid only if the time of the peak is shorter than the setting of the **Attack** control. If the peak of the program is longer, or if the **Attack** control is set at its minimum position, it will respond just as in the MANUAL mode.

*Figure 2: Attack and release times are constant in the FIXED position and cannot be changed. In the other two settings you can use the **Attack** and **Release** knobs to set the times.*

The FIX./MAN. Mode acts as an automatic release function with a constant fast attack time and fast release time for short peaks and longer release times for longer peaks. This settings is mainly intended for use on program material (overall compression).

Sidechain Bus Select

This knob has two settings:

1. **INTERNAL**:
   Normal mode. The compression depends on the same material as is being compressed.

2. **EXTERNAL**:
   Use an external side chain (if your hosts supports it) to control the gain reduction.

Figure 3: Use the EXT. setting to activate external sidechaining.

In some plug-in formats, such as RTAS, TDM and AU, it is possible to use an external signal as input to the detector.[1] This is very common if you for instance want to compress a bass line using the bass drum as the trigger to the compressor. In that case, the bass line will be compressed whenever the bass drum is hit.

Monitor the Gain Reduction VU Meter when you set the threshold, since the Input VU Meter will show the original input signal. Just work with the Threshold knob until you get enough gain reduction.

> *Even if an external side chain signal is present, you will have to activate the external side chain by setting the* ***Sidechain Bus Select*** *to* EXTERNAL.

1) External side chaining *might* also work in some VST hosts. It depends very much on which VST host and version you are using. The plug-in will add two extra inputs (inputs 3 and 4) and regards these as the external side chain input.

Key and Mouse Commands

All labels (such as the dB or ratio labels) are clickable. This allows you to easy select a setting by clicking on the wanted value. Hovering above a label will turn the mouse pointer into a pointing hand.

Mouse

- UP/DOWN: Change a parameter, such as a knob or a switch.
- CLICK: Clicking on labels or activate the “About” box.
- MOUSE WHEEL *(Mac only)*: Use the mouse wheel to change parameters.

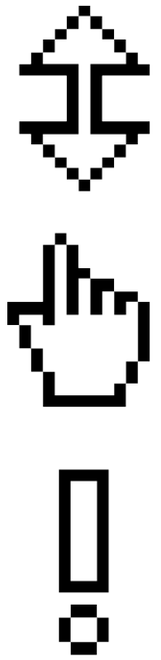


Figure 4: From top to bottom: Knob- and switch-changing cursor, Label cursor and the “About” box cursor.

Keyboard Commands

Use these key commands while changing a parameter.

- FINE ADJUST: Command (Mac) or Control (Win)
- RESET TO DEFAULT: Alt (while clicking on the knob or mic).

Pro Tools Specific Keyboard Commands

- AUTOMATION CONTROL WINDOW:
  Control+Command+Alt+click (Mac)
  Control-Windows-Alt-click (Windows)
- SHOW AUTOMATION TRACK: Control+Command+click (Mac), Control-Windows-click (Windows)

Suggested Applications

Here you will find suggestions on various applications of the Tube-Tech CL 1B compressor plug-in. They are given as a convenient guide that enables you to familiarize yourself with the different aspects of using the compressor. We have not mentioned specific settings of the **Gain** and **Threshold** as they are dependent on the input levels. Instead we have specified how much compression in dB we feel is needed for the various examples.[2]

Overall Compression *(Final Mix)*

Compression needed: **3-4 dB**

Attack/Release Select: **FIX./MAN.**

Attack: **2 o'clock**

Release: **10 o'clock**

Ratio: **9 o'clock**

Standard Compression *(Bass, Piano, Guitar, Keys and Vocals)*

Compression needed: **4-5 dB**

Attack/Release Select: **MANUAL**

Attack: **2 o'clock**

Release: **10 o'clock**

Ratio: **10-2 o'clock**

Heavy Compression on Instruments *(Line Guitar and Piano)*

Compression needed: **10 dB**

Attack/Release Select: **MANUAL**

Attack: **7 o'clock**

Release: **1 o'clock**

Ratio: **3 o'clock**

Compression of Drums *(Snare and Bass Drum)*

Compression needed: **2-3 dB**

Attack/Release Select: **FIXED**

Attack: **–**

Release: **–**

Ratio: **9-12 o'clock**

2) These examples were taken from the CL 1B hardware manual and are of course just as valid for the plug-in as for the real unit.

Technical Side Notes

Mono and Stereo Operation

The TUBE-TECH CL 1B plug-in is designed to work in both stereo and mono. How the different modes are selected depends on your host software. In most VST/AU/RTAS hosts you can select these when you select the plug-in. In other cases, inserting one the plug-in on a mono track will usually make it use the MONO mode, while selecting it on a stereo track makes it use the STEREO mode.

In stereo mode, the gain reduction of the left and right channel is always linked, in order to reduce stereo image shifting. The gain reduction used will be calculated from a combination of the two channels, just as if two hardware CL 1B had been linked together using a sidechain bus.

RTAS on Pro Tools|HD

There are some specific issues to consider when using an RTAS plug-in in recording mode on a Pro Tools|HD system. First of all, an audio buffer latency is introduced in the RTAS version.

Secondly, all RTAS plug-ins are automatically bypassed in recording mode, unless an TDM plug-in is inserted on the insert slot *before* the RTAS plug-in.

Enabling the plug-in in recording mode (Pro Tools|HD 7 or higher):

- Insert a TDM plug-in (such as the “Trim” plug-in) on your track.
- Insert the Tube-Tech CL 1B plug-in as RTAS on an insert slot *after* the TDM plug-in.

Please see your Pro Tools reference guide for more info.

Differences Between TC Electronic's TDM/PowerCore Version and VST/AU/RTAS Version

This VST/AU/RTAS version is built on the same modeling and algorithms as TC Electronic's TDM/PowerCore version. Soundwise, the only difference is how *hot* the input volume to the plug-in is. This is a pure virtual concept and has nothing to do with the accuracy of the modeling. We just chose to run it a little bit hotter than TC Electronic.

List of Differences Between TDM/PowerCore and VST/AU/RTAS

- Increased input volume by 16 dB (see next section about the Threshold knob).
- Removed L/L+R/R sidechaining functionality and added external sidechaining instead.
- Removed PowerCore specific on/off bypass functionality, the In switch and the clip meter.

Convert Threshold Settings between TDM/PowerCore and VST/AU/RTAS

In order to convert an old (TDM/PowerCore) setting to a new (VST/AU/RTAS) setting you only need to change the **Threshold** parameter by +16 dB (counter clock-wise). The factory settings included with the plug-in are already modified so that they corresponds to the factory settings in the TDM/PowerCore version.

Old Threshold Setting (TDM/PowerCore)	**New Threshold Setting** (VST/AU/RTAS)
–15 dB	**+1 dB** = –15 + 16 dB
–20 dB	**–4 dB** = –20 + 16 dB
–30 dB	**–14 dB** = –30 + 16 dB
–40 dB	**–24 dB** = –40 + 16 dB

Buying Recommendations

If you are in the market for a hardware compressor, we can truly recommend the real deal: Tube-Tech CL 1B. With a sound ranging from crystal clear to in-your-face character, uncompromising build quality, and stunning blue looks, it will never go out of style.

System Requirements

Supported sample rates: 44.1, 48, 88.2, 98, 176.4 and 192 kHz, in both mono and stereo.

All versions

- Mac OS 10.4 (or higher) on a G4 or Intel CPU (or higher)
- Windows XP (or higher) on a PIII CPU (or higher)
- 512 MB RAM
- Any VST, Audio Units or RTAS (Pro Tools 7 or higher) compatible host application
- **iLok USB key and the latest iLok drivers** (download them from http://www.ilok.com)
- DVD drive or Internet access for installation

Please, make sure that you always use the latest iLok driver. It is not included in the Softube installer, but can be downloaded from www.ilok.com.

Tube-Tech CL 1B plug-in was made by: Arvid Rosén – modeling. Oscar Öberg – modeling and DSP programming. Torsten Gatu – framework and DSP programming. Niklas Odelholm – GUI and framework programming. Ulf Ekelöf – 3D rendering. Original hardware was designed by John G. Petersen at Lydkraft ApS.