

Manual



Crimson 3
Audio Interface with Analog Monitoring



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► Version 3.2 – 04/2018

Developer: Jens Gronwald

This manual contains a description of the product SPL Crimson 3. In no way it represents a guarantee of particular characteristics or results of use.

The information in this document has been carefully compiled and verified and, unless otherwise stated or agreed upon, correctly describes the product. Sound Performance Lab (SPL) continuously strives to improve its products and reserves the right to modify the product described in this manual at any time without prior notice.

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▶ Scope of Delivery

Crimson 3 (Black: Model 1700, White: Model 1702)

External power supply

USB cable

Quickstart/Product Overview

▶ Measurement & Weight

Housing (H x W x D): 0.17" x 12.99" x 8.35" (67 x 330 x 212 mm)

Weight: 6.17 lbs (2.8 kg) (without external power supply)

Please keep the original packaging. In case of a service procedure the original packaging ensures a safe transport. It also serves as a safe packaging for your own transports if you do not use special transportation cases.

► Welcome

and thank you for purchasing the Crimson 3. It combines a high-performance USB audio interface with high-quality preamps and a separate, fully-featured analog monitor controller. You can play and play back, record and convert, control and listen with one single device. So all you essentially need for a truly professional recording setup is the Crimson 3 and a DAW.

The SPL Phonitor Matrix – which is now part of the Crimson 3 – delivers a speaker-like listening experience on headphones. And with the built-in Talkback Mic the producer/engineer can communicate with the artist in Artist Mode without fiddling with an extra mic, cable or preamplifier.

► With and without DAW

Crimson 3 is designed to operate with your Digital Audio Workstation. But you can also do a lot with it as a stand-alone device: plug in an instrument and play. Connect a microphone and sing along. Mix your own monitor signal with playback or guide tracks from any source. You like what you hear? Connect the DAW and record it.

You can also use the Crimson 3 as a stand-alone DA-converter by using the SPDIF input as a digital in.

Specifications

▶ General

USB 2-Audio-System (can also be connected to USB 3 port)
High-performance, 32 bit microcontroller, 24 bit audio processing
6 input and 6 output channels
Sample rates (kHz): 44.1 | 48 | 88.2 | 96 | 176.4 | 192
Fixed master clock for lowest jitter
True 1:1 audio, no sample rate conversion or clock recovery
SPDIF and MIDI I/O s

▶ Firmware and Driver

Low-latency driver
Driver feedback synchronization to hardware clock
USB Audio Class 2.0 compliance (asynchronous mode)
Firmware updates via USB
Windows XP/7/8/10 (32 & 64 Bit)

- ASIO control panel for Windows
- simultaneous ASIO and/or WDM playback

Mac OS X 10.6 or higher, iOS 6 or higher

- For iPad and iPhone use an Apple camera adapter

Info:

Download the latest drivers and firmware from:
www.crimson3.spl.info.



→ Content

AD/DA Conversion

▶ AD-Conversion

Dynamic Range:

44.1 | 48 kHz: 113 dB

88.2 | 96 kHz: 110 dB

Signal to Noise Ratio (SNR):

44.1 | 48 kHz: -113 dB

88.2 | 96 kHz: -110 dB

Total Harmonic Distortion and Noise (THD+N) at 1 kHz
(-1 dBFS):

44.1 | 48 kHz: 0.002%

88.2 | 96 kHz: 0.0025%

0 dBFS = +15 dBu

Sample Rates (kHz): 44.1 | 48 | 88.2 | 96 | 176.4 | 192

▶ DA-Conversion

Dynamic Range:

44.1 | 48 kHz: 109 dB

88.2 | 96 kHz: 107 dB

Signal to Noise Ratio (SNR):

44.1 | 48 kHz: -109 dB

88.2 | 96 kHz: -107 dB

→ Content

Connections



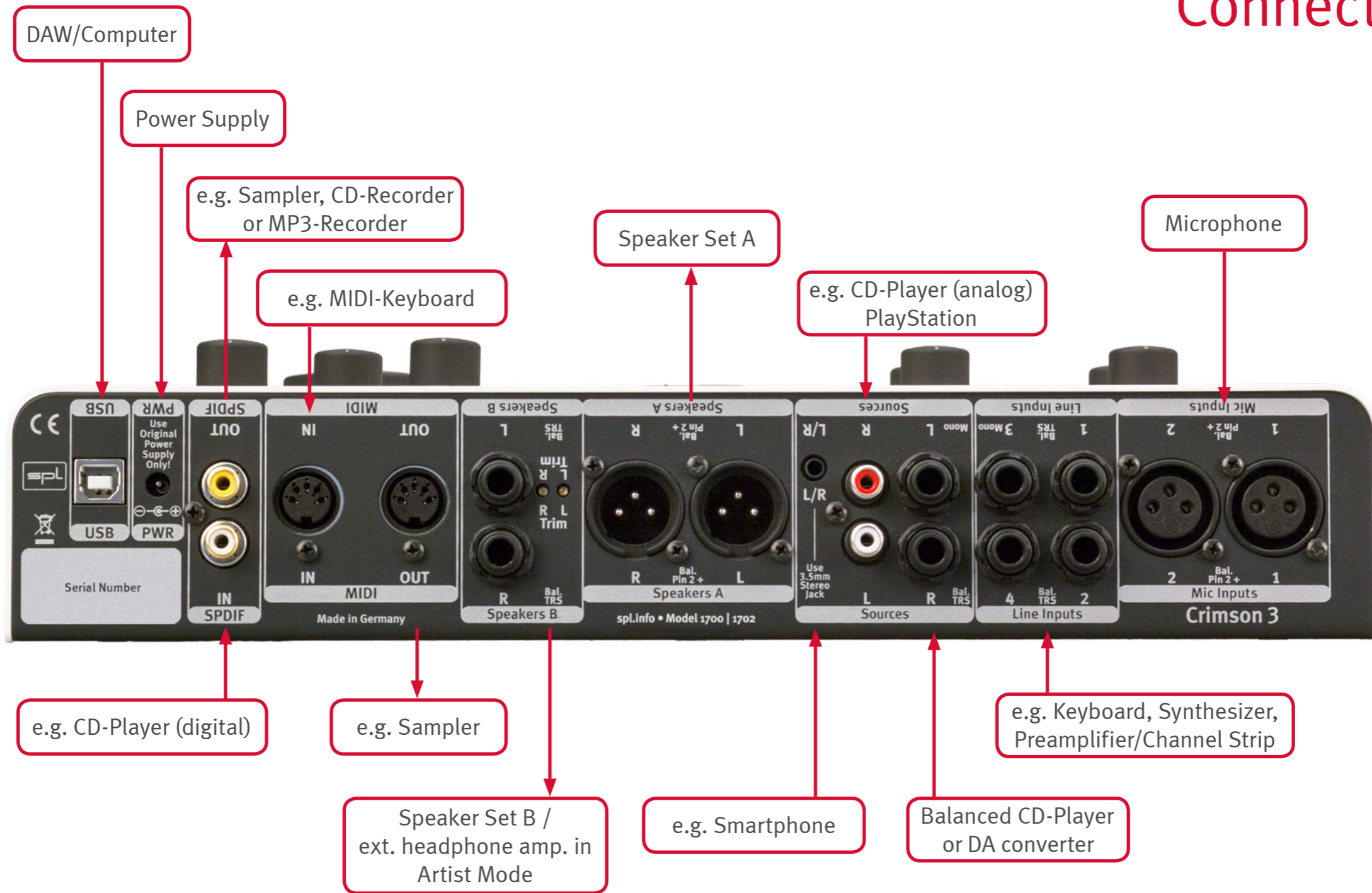
Instrument 1

Instrument 2

Headphones 1

Headphones 2

Connections



→ Content

Connections

► USB

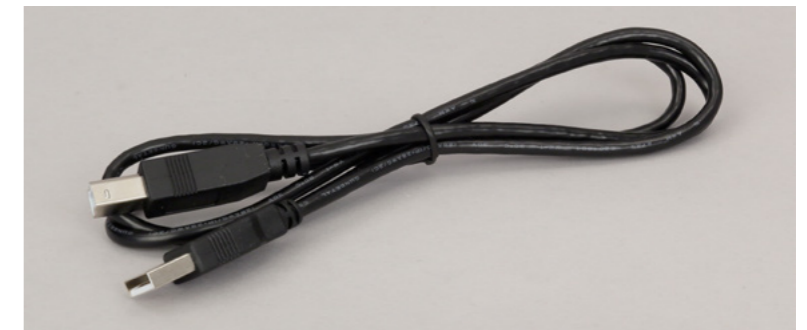
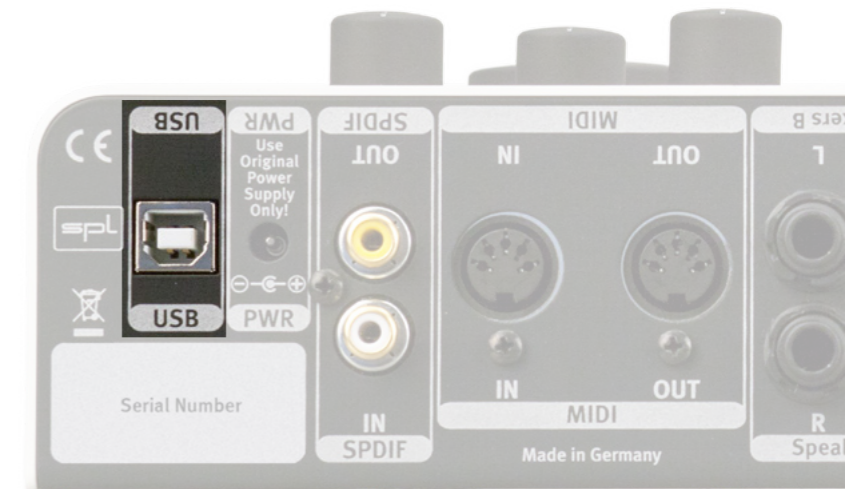
Connect your computer here. Alternatively you can connect an iPad or iPhone with the original Apple camera adapter. The USB port complies with the Hi-Speed USB 2.0 specification with a data transfer rate of 480 MBit/s, and is Apple Class 2 compliant as well.

USB 3 is backward compatible with USB 2, which means that the Crimson 3 can also be connected to any USB 3 port.

The package includes an appropriate USB cable.

In case you use a different cable, make sure it complies to the Hi-Speed USB 2 specification.

Recommended is a maximum length of five meters. Keep the cables as short as possible, remember: the shorter, the better. For cable runs extending over five meters, you could use a hub or a line extender, in which case you should get the advice of an expert.



→ Content

Connections

► Power Connection

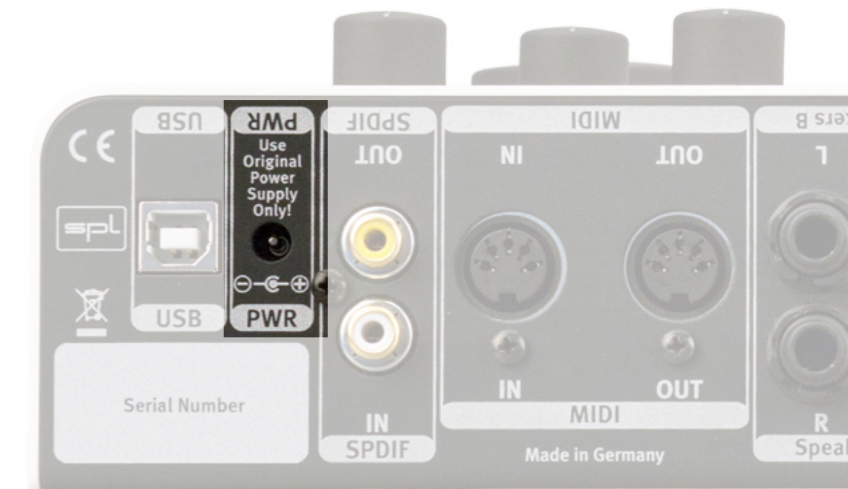
Connect the DC connector of the external power supply to the rear PWR socket of the Crimson 3. Plug the power supply into a wall power socket.

We recommend to connect the Crimson 3 and all other audio devices in the same electric circuit by using a high-quality and appropriately rated multi-outlet power strip. This allows you to switch power on and off for all audio devices simultaneously.

In any case, the connection of the audio equipment to one power outlet is the general recommendation, in order to avoid ground loops and other similar noises that could arise due to connection points having different potentials.

Note:

Before powering Crimson 3, lower the volume of the monitor speakers and remove headphones from your ears.



Connections

► Power Supply

The PSU comes with an appropriate mains adapter for the country where the Crimson 3 is bought. See also “Security Advices” on page 48 cont.

External Power Supply: Mean Well GE-18

Input 100–240V AC/50–60 Hz; Output 12V DC/1.5 A

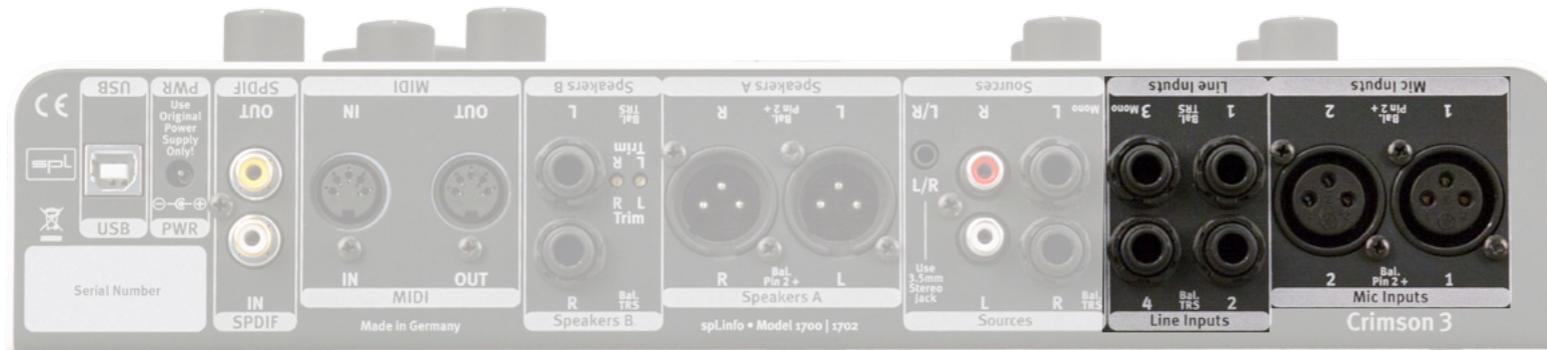
Internal Power Supplies

Audio: +/- 17.0V, Digital + 5 V and + 3.3 V, Phantom Power + 48 V

Power consumption: 16.8Watt



Connections



► Inputs

Microphone, Instrument and Line Inputs

Taking into account both microphone inputs, the two instrument and four line inputs, you have eight analog inputs at your disposal. **Four of the eight analog input signals can be simultaneously recorded.**

The selection is defined by the assignment of the corresponding inputs. This has the advantage that the channel configuration can be directly and intuitively made by the assignment of the connections, plus there is almost no need for switching.

The input selection follows this provision:

Line Inputs 1/2 have preference over Mic Inputs 1/2.

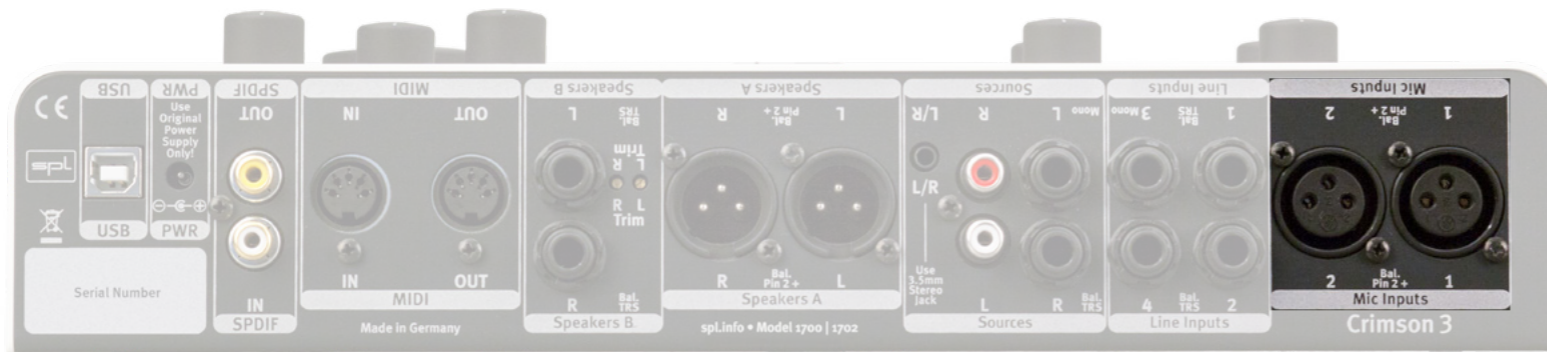
Instrument inputs 3/4 have preference over Line Inputs 3/4.

IMPORTANT:

To record microphone signals, nothing should be connected to the Line Inputs 1 or 2. If you cannot hear a microphone signal, check whether a jack plug is inserted into Line 1 or 2.

To record Line Inputs 3 and 4 or to listen to a stereo signal through Line 3 and 4, nothing should be connected to the instrument inputs. If you cannot hear a line signal, check whether a jack plug is inserted into an instrument input.

Connections



► Mic Inputs

You can connect dynamic, condenser, tube, and ribbon microphones to the mic inputs. Use the 48V switch to provide phantom power to the microphones that require it. For more information, read the section “48V” on page 31.

Specifications:

XLR balanced (Pin 1=Ground, Pin 2=hot, Pin 3=cold)

Input impedance: 10 kohms

Maximum input level: +14.5 dBu (Mic Gain control hard left).

Frequency Response: 10 Hz - >200 kHz

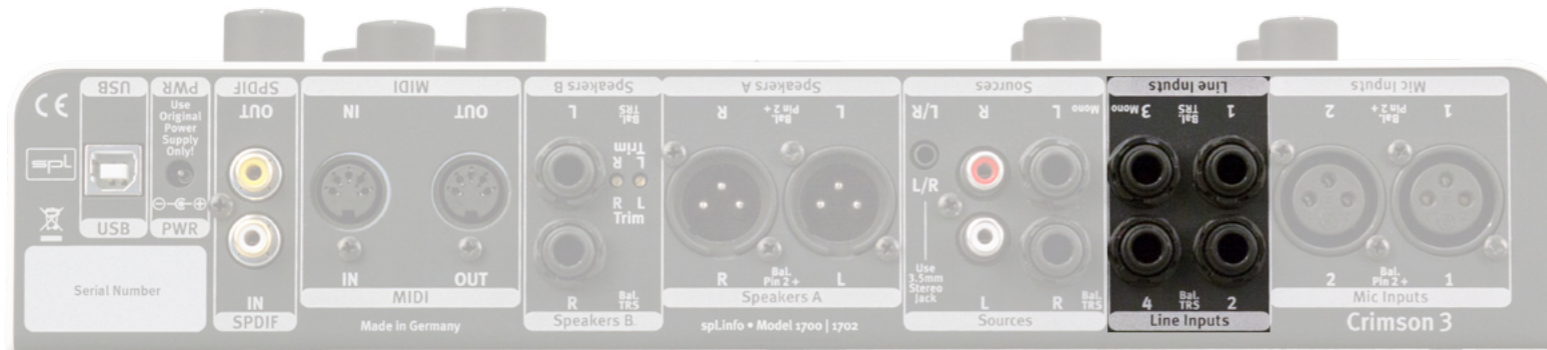
Noise: -90 dBu (unweighted, 30 dB gain, input termination 150 ohms)

Equivalent Input Noise: -123 dBu

Common Mode Rejection Ratio: > -70 dBu (at 1 kHz with -30 dBu input level/30 dB gain)

THD+N Ratio: 0.003 % (at 1 kHz, 30 dB gain, input termination 150 ohms)

Connections



▶ Line Inputs

You can connect and record four line signals. E.g. keyboards, synths, preamps or channel strips. All four balanced line inputs are routed 1:1 (unity-gain) to the converter and monitoring section. Level adjustment is not provided.

Specifications:

1/4" stereo jacks (TRS)

Balanced input impedance: 20 kohm

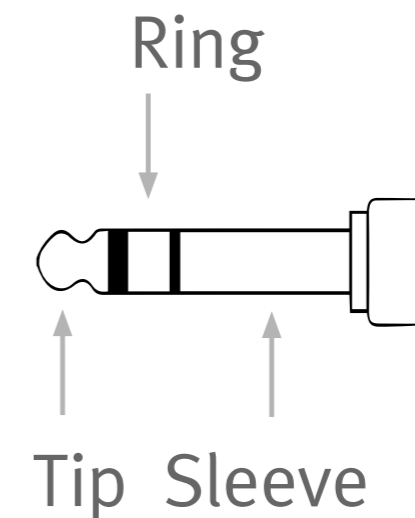
Maximum input level: +22.5 dBu

Frequency Response: 10 Hz - >200 kHz

Noise: -95 dBu (unweighted, unity gain, input termination 600 ohms)

Common Mode Rejection ratio: > -60 dBu (at 1 kHz with 0 dBu input level/unity gain)

THD+N Ratio: 0.002 % (at 1 kHz unity gain, input termination 600 ohms)



→ Content

Connections



► Instrument Inputs

Both Instrument inputs are on the front for easy access. They support high levels to allow the connection of active or passive instruments, and they have a corresponding high impedance. Active instruments already feature a preamp circuit, passive do not (pickups only). Connection examples: electric guitars and basses, acoustic guitars with pickups, double bass, etc.

Specifications:

1/4" mono jack, unbalanced (Sleeve=Ground, Tip=hot/Signal)

Input impedance: 1.1 Mohms

Maximum input level: +24.0 dBu

Frequency Response: 10 Hz - > 200 kHz

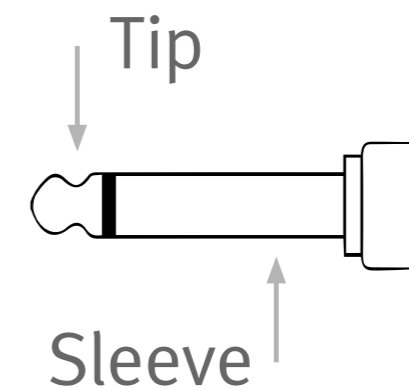
Noise: -89 dBu (unweighted, unity gain, input termination 100 kohms)

THD+N Ratio: 0.003% (at 1 kHz unity gain, input termination 100 kohms)

Crimson 3
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Note:

Low impedance line signals (DA converter, sampler, synthesizer, etc.) ought to be connected to the line inputs on the rear panel.



→ Content

Connections



► Phones 1 and Phones 2

Use the Phones 1 and Phones 2 jacks on the front panel to connect your headphones. You can connect all types of headphones with impedances from 20 to 600 ohm. This wide range entails big volume differences between low and high impedance headphones. In order to keep low impedance headphones under good control, we use a comparatively high impedance of 33 ohms at the output.

Specifications:

1/4" stereo jacks (TRS)

(Sleeve=Ground, Tip=left channel, Ring=right channel)

Output impedance: 33 ohms

Frequency Response: 10Hz - > 200 kHz

IMPORTANT:

When connecting headphones, make sure that the plug is fully inserted.

Power at 0 dBu:

47 ohms load: 13 mW

300 ohms load: 1.7 mW

600 ohms load: 1.0 mW

Max. Power:

47 ohms load: 670 mW

300 ohms load: 265 mW

600 ohms load: 150 mW

THD+N Ratio (at 1 kHz, Power at 0 dBu):

47 ohms : 0.0026%

300 & 600 ohms : 0.002%

→ Content

Connections



► Important Recommendations

Always reduce the volume before you connect or disconnect your headphones especially when changing headphones. This way you will avoid loud crackling noises reaching your ears. Plus, it will also protect you from unexpected surprises whenever the new headphones you connect have a lower impedance or a higher efficiency, which will make them sound louder at the same volume setting.

Never connect mono plugs to the stereo jacks on the front panel. Otherwise you can cause a short circuit that will damage the amplifier! Headphone cables always have stereo plugs.



→ Content

Connections



► Speakers A

Connect your active monitors or a power amplifier here.

Specifications:

XLR balanced

(Pin 1=Ground, Pin 2= hot, Pin 3=cold)

Output impedance: 75 ohms unbalanced, 150 ohms balanced

Maximum output level: +22.5 dBu

IMPORTANT:

In Artist Mode, Speakers A only play back DAW's 1|2. The artist mix is provided on Speakers B and Phones 2.

Note:

DIP switch 5 (on the bottom of the unit) generally enables or disables the Artist Mode. See page 38.

Connections



► Speakers B

The Speakers B output is meant for alternative monitoring through a second set of active speakers. You can trim the Speakers B output in order to level them to Speakers A: two ten-step trimmers allow a fine adjustment of +6/-5 dB.

Specifications:

1/4" jack, balanced

(Sleeve=Ground, Tip=hot, Ring=cold)

Output impedance: 75 ohms unbalanced, 150 ohms balanced

Maximum output level: +22.5 dBu

Note:

In Artist Mode, you can also connect an external headphone amplifier to the Speakers B to provide a specific headphone mix. Other alternatives include the connection of an AD converter or an external processor (AD/DA insert: send from Speakers B, return to Line 3/4). See page 38.

→ Content

Connections



► Sources

You have three stereo source inputs with different connectors at your disposal: Source input 1 via two stereo jacks, Source input 2 via two RCA connectors, Source input 3 via mini stereo jack.

This means you can connect up to three audio devices as playback sources, like a CD or MP3 player, a tape machine, an external DA converter or even a smartphone.

Typical applications include the use of reference tracks to do A/B comparisons or playing an instrument along with a song.

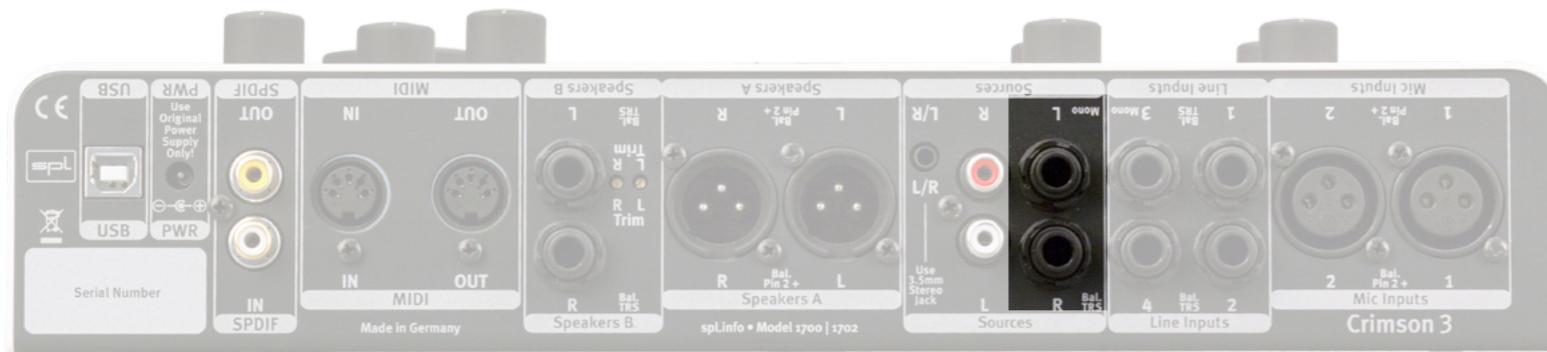
IMPORTANT:

The Source inputs are monitoring-only. They cannot be recorded in the DAW.

Note:

The levels of both unbalanced sources are automatically converted to professional levels in order for them to be directly comparable according to the Crimson 3's standard level. You can also deactivate this preamplification (refer to "Level Increase for Source Inputs 2 and 3" on page 26).

Connections



► Source 1: Jack

Connect a DA converter or CD-Player here. If you have a mono source to be monitored, connect it to the left input to place it in the center of the stereo image.

Specifications:

1/4" jack, balanced (Sleeve=Ground, Tip=hot, Ring=cold)

Input impedance: 20 kohms balanced

Maximum input level: +22.5 dBu.

Frequency Response: 10 Hz - >200 kHz

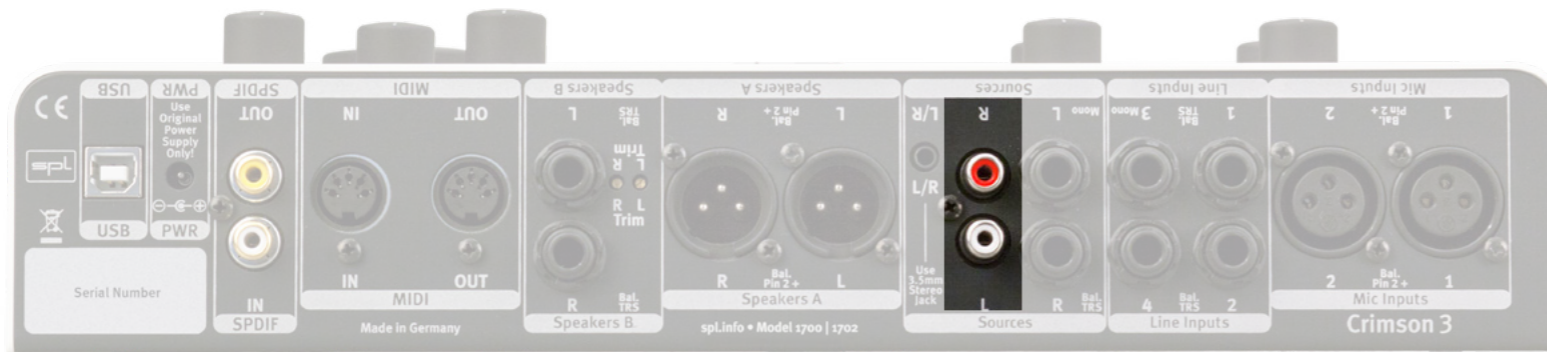
Noise: -95 dBu (unweighted, unity gain, input termination 600 ohms)

Common Mode Rejection ratio: > -60 dBu (at 1 kHz with 0 dBu input level/unity gain)

THD+N Ratio: 0.002% (at 1 kHz, unity gain, input termination 600 ohms)

→ Content

Connections



► Source 2: RCA

RCA connectors are ideal for any type of consumer devices with unbalanced connections, for example CD/DVD/BluRay player, AV receiver, Sat receiver, cable receiver, etc. The signal gets preamplified from consumer level (-10 dBV) to professional level (0 dBu).

Specifications:

RCA connector, unbalanced

Input impedance: 10 kohms

Maximum input level: +22.5 dBu

Frequency Response: 10 Hz - >200 kHz

Noise: -90 dBu (unweighted, unity gain, input termination 600 ohms)

Noise: -85 dBu (unweighted, -10 dBV, input termination 600 ohms)

THD+N Ratio: 0.003% (at 1 kHz unity gain, input termination 600 ohms)

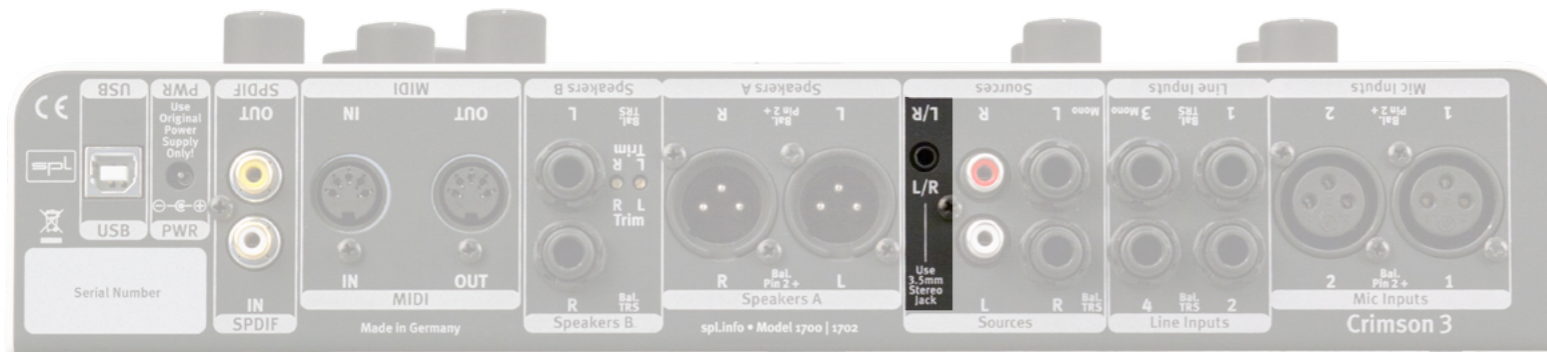
THD+N Ratio: 0.003% (at 1 kHz, -10 dBV, input termination 600 ohms)

Note:

The level of the RCA source is automatically boosted to professional level to be directly comparable with the other sources and inputs. You can also deactivate this preamplification (refer to “Level Increase for Source Inputs 2 and 3” on page 26).

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Connections



► Source 3: Mini-J

The mini stereo jack input is the natural input for all MP3 players, tablets, smartphones and laptops. The signal gets preamplified by 15 dB.

Specifications:

3,5 mm stereo jack, unbalanced

Input impedance: 10 kohms

Maximum input level: +22.5 dBu.

Frequency Response: 10 Hz -> 200 kHz

Noise: -88 dBu (unweighted, unity gain, input termination 600 ohms)

Noise: -76 dBu (unweighted, +15 dB, input termination 600 ohms)

THD+N Ratio: 0.003% (at 1 kHz unity gain, input termination 600 ohms)

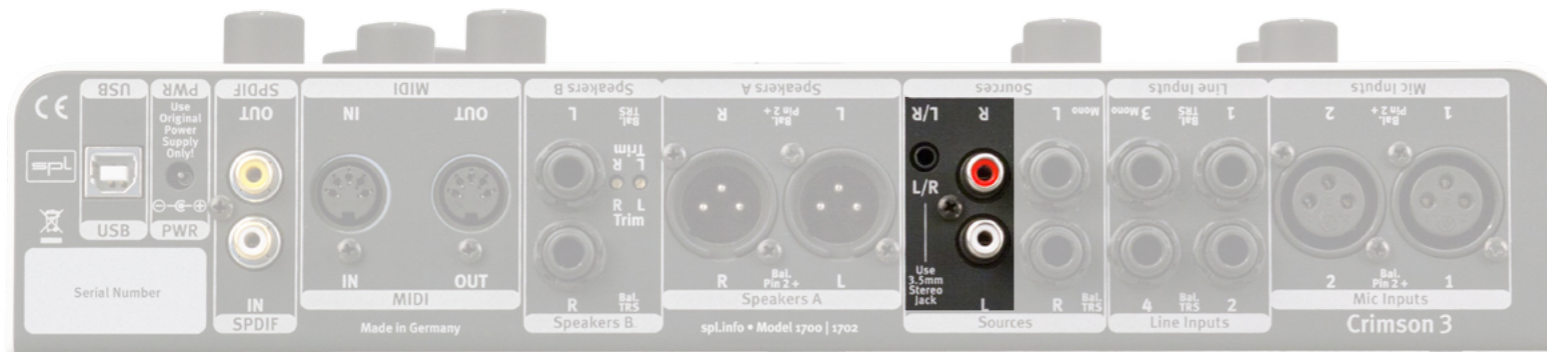
THD+N Ratio: 0.005% (at 1 kHz, +15 dB, input termination 600 ohms)

Note:

The level of the Mini-J source is automatically boosted to professional level to be directly comparable with the other sources and inputs. You can also deactivate this preamplification (refer to “Level Increase for Source Inputs 2 and 3” on page 26).

→ Content

Connections



► Level Increase for Source Inputs 2 and 3

The Crimson 3 includes preamps for RCA and Mini-J inputs. Consumer level of equipment connected to the RCAs is boosted from -10 dBV to the professional level of 0 dBu. Mini-J signals are boosted by 15 dB to reach professional level. The preamps are activated by default so that consumer signals are directly comparable with professional signals. If you want to deactivate the preamps in case the signals are too loud, use the DIP switches:

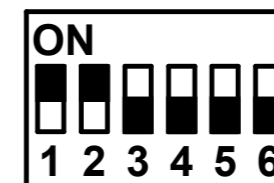
On the bottom of the unit, you will find six DIP switches. The first four switches are assigned to the inputs as stereo pairs:

1. DIP switches 1 and 2 for the RCA connectors
2. DIP switches 3 and 4 for the Mini-J

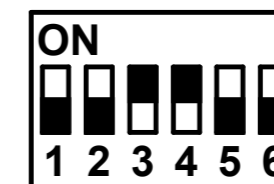
(The switches are set towards the numbers 1-4, when amplification is activated)

Note:

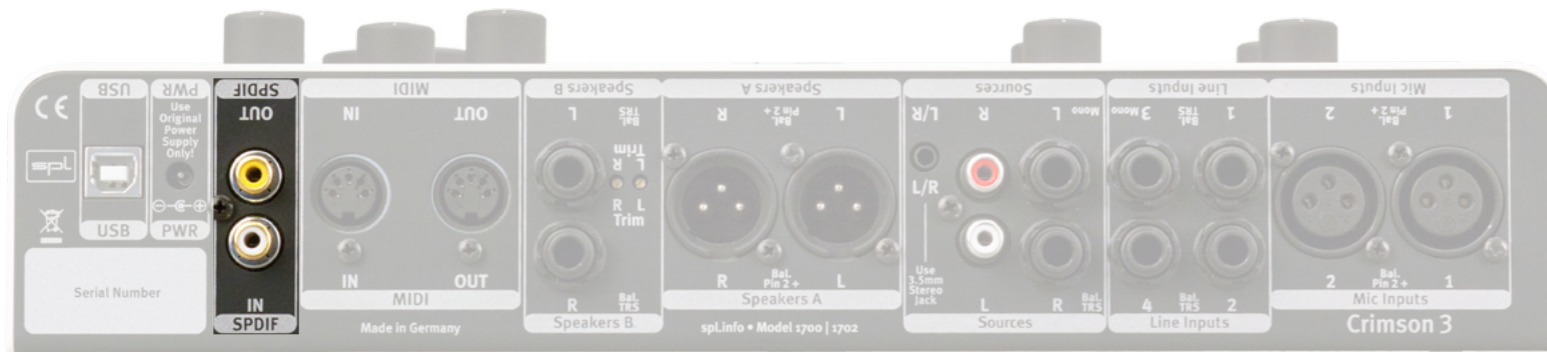
If you want to deactivate the RCA boost:
DIP switches 1 and 2 to ON



If you want to deactivate the Mini-J boost:
DIP switches 3 and 4 to ON



Connections



► SPDIF In/Out

The digital SPDIF input allows you to connect a CD player for monitoring. But you can also connect any other source with an SPDIF output (profiling guitar amp, synthesizer, drum machine, etc.). The SPDIF output can be connected to a sampler or a DAT/CD/MP3 recorder for instance.

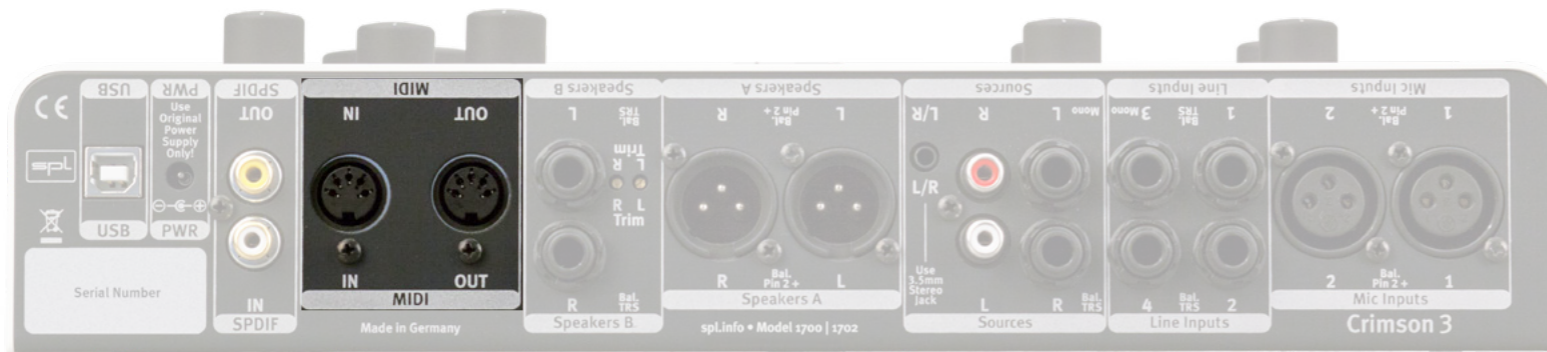
Additionally with the SPDIF input you can record two more tracks.

The SPDIF input and output are AES3 compatible, often called “SPDIF Professional”.

Do note that there are electric differences between the SPDIF and AES specifications. Generally speaking, any AES device ought to be able to receive SPDIF Professional from the Crimson 3 without problems. In very rare occasions, it might happen that the AES signals are not correctly received by the SPDIF input of the Crimson 3.

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Connections



► MIDI In/Out

The Crimson 3 is equipped with two 5-pin DIN connectors to send and receive MIDI. To communicate with a computer via MIDI, the Crimson 3 features a MIDI interface that translates the voltage level and provides galvanic isolation.

Use the MIDI input to connect a master keyboard, for example. Such a keyboard generates note information in MIDI format and, thus, can control a software synthesizer, for instance, or can also be used to record key movements when inputting data into the sequencer. In such cases, the MIDI output of the master keyboard is connected to the MIDI input of the Crimson 3. The MIDI output of the Crimson 3 can also be used to play back pre-recorded MIDI tracks, in order to use the sound generator of an external synthesizer, sampler, drum machine, etc. You can then record the audio outputs of the latter via the Crimson 3 Line Inputs 1-4, when analog, or via the SPDIF input, when digital.

→ Content

Control Elements



Control Elements

► Mic Gain

The Crimson 3 features two identical microphone preamps. The preamps are ‘discrete’, which means they use single transistors instead of ICs, usually found in high-end preamps. This allows the preamp to be perfectly optimized for its task.

Use the Mic Gain control to adjust the microphone preamp level. The adjustable gain range spans from +7 to +60 dB. To achieve the best recording level, the -6 dB LED should flash from time to time: you have enough headroom left. If the LED permanently remains on, it means that the level is at the brink of overloading — in such cases, you should reduce the Mic Gain value.

The OVL LED indicates that the Crimson 3’s AD-converter is overloading, which should be strictly avoided.

IMPORTANT:

Line Input 1|2 has preference over Mic Input 1|2. If you cannot hear a microphone signal, check whether a jack plug is inserted into Line 1 or 2.



Control Elements

▶ 48 V

Use the 48V switch above the Mic Gain knob to activate phantom power. Condenser microphones need phantom power to drive their integrated preamp. We recommend to disengage the phantom power for all other types of microphones.

- First connect the microphone to the Crimson 3 and then engage the 48V switch.
- Before you remove the microphone disengage the 48V switch and then wait at least ten seconds.

A microphone with an unbalanced output should only be used without phantom power!

▶ High-Pass Filter (↘)

The high-pass filter filters out impact noise, rumble and other unwanted noises below 75 Hz. This first order filter has a 6 dB slope per octave.



→ Content

Control Elements

▶ Instrument Gain (Instr Gain)

The Crimson 3 also includes two identical instrument preamps. Use the Instr Gain control to adjust the instrument preamp level.

The adjustable volume range spans from -6 to +31 dB. The possibility to reduce the gain to -6 dB allows the connection of active electric bass guitars. To achieve the best recording level, the -6 dB LED should flash from time to time: you have enough headroom left. If the LED permanently remains on, it means that the level is at the brink of overloading — in such cases, you should reduce the Instr Gain value. The OVL LED indicates that the Crimson 3's AD-converter is overloading, which should be strictly avoided.

IMPORTANT:

Instrument inputs 3|4 have preference over Line Inputs 3|4.



IMPORTANT:

To record Line Inputs 3 and 4 or to listen to a stereo signal through Line 3 and 4, nothing should be connected to the instrument inputs. If you cannot hear a line signal, check whether a jack plug is inserted into an instrument input.

Control Elements

▶ LED Indicators

The LED display panel provides information about the operating status and also helps you adjust microphone and instrument levels.

Level Adjustment with four LED sets

Four ‘traffic-light’ LED sets indicate the level of the recording channels 1-4. Every set of LEDs is numbered: set 1 and 2 correspond to mic and line inputs 1 and 2, while set 3 and 4 correspond to instrument and line inputs 3 and 4.

- The OVL LEDs light red to indicate that the Crimson 3’s AD-converter is being overloaded. As a safety measure, the OVL LEDs have a peak hold for one second.
- The -6 (dBFS) LEDs light yellow. An optimally adjusted level makes it go on and off from time to time. The -6 (dBFS) LEDs have a peak hold for about one second.
- The SIG LEDs light green and indicate the presence of a signal.

Status-LEDs

- The PWR LED indicates the power supply of the unit.
- The Host LED indicates that a host computer or iPhone/iPad has been detected at the USB port and the connection has been correctly established.
- The Midi In LED indicates data flow on the Midi input.



OVL > +15 dBu

-6 > +9 dBu

SIG > -20 dBu



→ Content

Control Elements

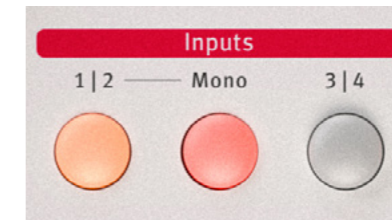
▶ Analog Inputs

The Crimson 3 allows the simultaneous recording of up to four analog inputs. To determine which signal you want to monitor use the switches underneath the Inputs as follows:

Switch 1|2 engaged: you hear Mic or Line inputs 1 and 2.

Switch 3|4 engaged: you hear Instrument or Line inputs 3 and 4.

When recording a mono vocal track it makes sense to hear it in the center of the stereo image (rather than hard left or hard right), so you should engage the Mono switch as well.

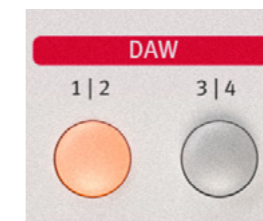


▶ DAW Returns

The Crimson 3 has four DA converters that allow to monitor two stereo signals (four channels) from the DAW.

Switch 1|2 engaged: you hear the Mix from DAW outputs 1/2.

Switch 3|4 engaged: you hear, for example, an AUX mix from DAW outputs 3/4.



Control Elements

► Sources

As a true monitor controller Crimson 3 offers further monitoring-only inputs. They cannot be recorded and are therefore called Sources. Use the three switches to manage the three stereo sources, which are named after their connector format.

For more information on the connectors refer to “Sources” on page 22.

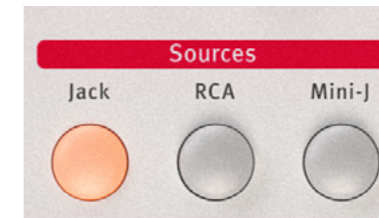
Jack= balanced 1/4" input (for a professional CD player or a DA converter, for example)

RCA= unbalanced RCA input (CD player, AV receiver or similar)

Mini-J = unbalanced Mini-J input (MP3 player, tablets, smartphones, etc.)

Note:

The levels of both unbalanced sources are automatically converted to professional levels in order for them to be directly comparable with other signals or inputs. You can also deactivate this preamplification, see “Level Increase for Source Inputs 2 and 3” on page 26.



Control Elements

▶ Digital In

It is good practice to compare your own mixes with reference CDs to gain perspective. The Crimson 3 makes such comparisons easy and meaningful, since it uses the exact same high-quality converters for the SPDIF and DAW 1|2 in order to avoid any sound differences. Use the SPDIF switch to toggle between your Mix and the reference.

You can also use the digital SPDIF input to record two more tracks. SPL channel strips are an excellent choice, since they can be fitted with an optional AD converter.

The SPDIF input can also be used as an insert, however, only when the external unit is clockmaster. Usually, there is a possibility to select this on the device. If there is no possibility to make the external unit clockmaster, the insert doesn't work, because the Crimson 3 tries to clock the device onto SPDIF of the unit, whereas the external device tries to clock itself to the Crimson 3.

Tip: When there is no signal plugged into SPDIF Input, the output of the DAW 1/2 can also be used for **“Digital Loopback”**. The output signal of the DAW output 1/2 can simply be recorded again on the DAW input 5/6. The transfer remains entirely in the digital domain.



IMPORTANT:

When activated, the SPDIF switch lights up. If the DAW 1|2 has been active before, the DAW 1|2 switch now flashes. This indicates that the activated SPDIF input has precedence over the DAW 1|2 return.

Control Elements

► Speakers: A to B

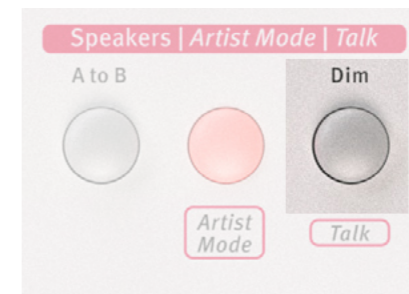
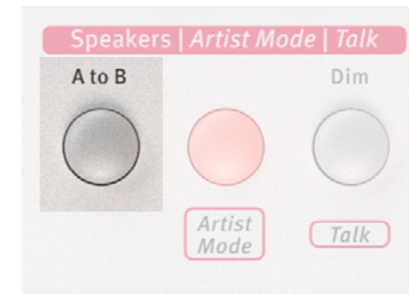
You can connect two stereo speaker sets. Use the A to B switch to select the speaker set you want to listen to. If the switch is not engaged, you hear Speakers A. If A to B is engaged you hear Speakers B (the other set being automatically deactivated).

► Speakers: Dim

The Dim switch reduces the monitoring level by -20 dB.

Note:

Both speaker outputs are muted if no input is selected.



Control Elements

► Artist Mode

When you record other artists, you can give them their own headphone mix with Artist Mode and use the Talkback function by pressing the Talk button to communicate with them.

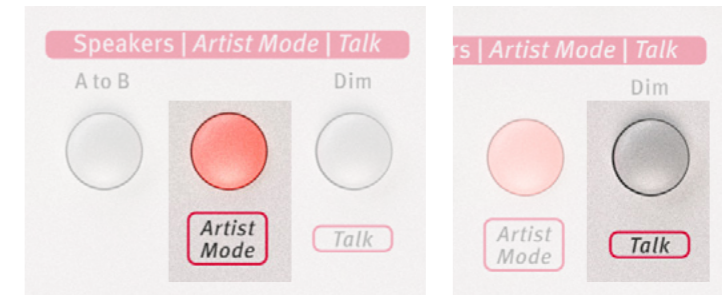
The monitoring options for artists include:

1. Mic, Line and Instrument inputs in real time
2. DAW 1|2, to hear the current mix
3. DAW 3|4, for an alternative mix, with effects (a reverb, for example).
4. Any source as playback or play along

As sound engineer or producer your job is to concentrate on the mix. That's why DAW 1|2 is routed to Phones 1 and Speakers A, to spare you any other switching.

If you want to check the artist's headphone mix, deactivate Artist Mode. If you want to let the artist hear the current mix, push the A to B switch anytime. This means no monitoring setting needs to be changed. Speakers A and Headphones 1 remains active.

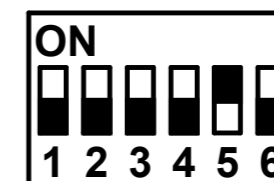
Tip: If the artist is not in the control room, connect a headphone amplifier to Speakers B. If you are recording several artists at the same time, connect a multi-channel headphone amplifier to Speakers B.



IMPORTANT:

In factory setting, the Artist Mode is deactivated via a DIP-Switch. This prevents from unintentionally switching it on. If the Artist Mode switch flashes when engaged, this indicates that the Artist Mode is deactivated.

To activate the Artist Mode, set the DIP switch 5 into the ON position.



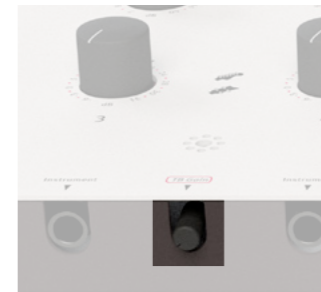
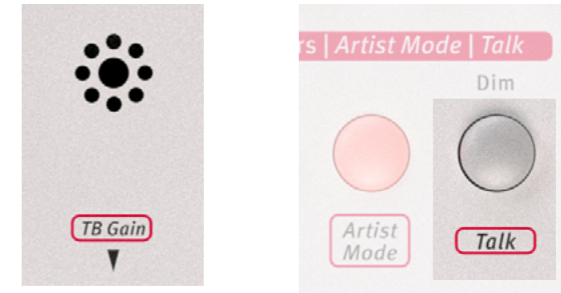
Control Elements

► Talkback Mic (**Artist Mode**)

The Crimson 3 includes a built-in Talkback Mic so you don't have to fiddle with an extra mic, cable or preamplifier.

Press the Talk button and speak into the Talkback Mic – leave about 15" to 20" distance. The artist will hear you on Phones 2 and Speakers B. Speakers A will be dimmed automatically to avoid feedback.

You control the amplification of the Talkback Mic signal with the TB Gain potentiometer at the front.



Control Elements

► Monitor Mix

With the Monitor Mix control you create a monitor mix fast and easily. No need to fiddle with gain controls or faders, just blend between the Inputs (mic, line, instrument) and the DAW/Sources/Digital Input.

The analog monitoring of all analog inputs and sources is absolutely latency-free, it is as real-time as it gets.

In the center position (1:1), the volume of the analog inputs (mic, line, instrument) and DAW returns and sources is balanced. When set hard left, you only hear the analog inputs (mic, line, instrument). Hard right you only hear the DAW returns, sources and the Digital In through your monitoring system.



Control Elements

► Phones

The Crimson 3 has two independent high-quality headphone amplifiers. Use volume controls Phones 1 and Phones 2 to adjust the level of the headphones signal. Thanks to the separate headphone amplifiers there is no risk of any interferences when connecting two headphones. The outputs and gain ranges are designed for headphones with impedances from 20-600 ohms.

For more details regarding the connection of headphones, refer to “Phones 1 and Phones 2” on page 18.

Optimal Potentiometer Control Range

The control range of the headphone amplifiers is very wide: it allows you to listen to very high level signals with 30 ohms headphones, as well as to detect the faintest details in quiet passages with 600 ohms headphones. To achieve such a wide range, and due to component characteristics, a constant taper during the beginning of the travel of the potentiometer cannot be guaranteed. A reduction of the overall volume would also lower the tolerance in this initial range, but at the price of wasting power margin. Thus, we recommend you to adjust the level above the “1” mark to achieve best results.



Control Elements

► Phonitor Matrix

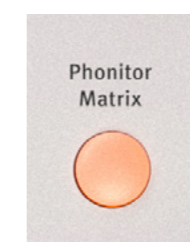
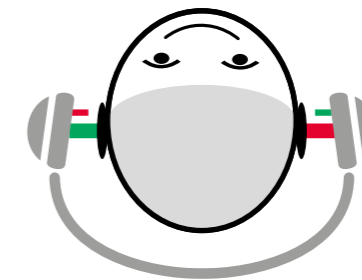
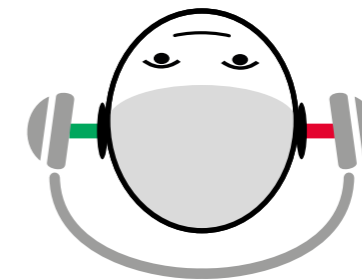
When listening to music with a traditional headphone amplifier, the right ear only perceives the right signal (red line) and the left ear only perceives the left signal (green line).

In contrast to listening to speakers the delayed and quieter signal of the respective opposite side is missing. As a result to this super-stereo-effect reverb and delay effects as well as EQ and panorama adjustments are perceived more intense on headphones.

The Phonitor Matrix calculates the interaural time difference (Speaker Angle) and interaural level difference (Crossfeed) with their specific frequency responses to deliver a speaker-like listening experience on headphones.

The super-stereo-effect is eliminated and reverb and delay effects as well as EQ and panorama adjustments are perceived correctly on headphones. The headphone mix therefore translates well to speakers.

With the Phonitor Matrix switch you activate and deactivate the Phonitor Matrix. You can control the intensity of the Crossfeed with the Crossfeed potentiometer at the front.



→ Content

Control Elements

► Volume

Use the Volume potentiometer to adjust the volume of both channels of Speakers A or B. The high-grade potentiometer regulates the audio signal directly to avoid any coloration/distortion typical of VCAs and DCAs, which either require higher inter-channel tolerances or have a tendency towards higher distortion.

The Volume control uses a relative dB scale referenced to the input level. When set fully clockwise the input level is unity gain. The signal can be attenuated up to -78 dB.

If the signal can still be heard when hard left, do not worry: the potentiometer is not a switch. Both speaker outputs are muted if no input or sources switch is engaged.

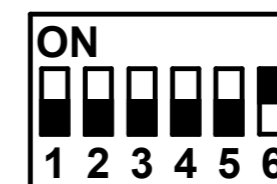
Recommendation: Calibrate the whole monitoring system (read the following section) so that the control range in use is always between ten and two o'clock of the travel. This is the range where the potentiometer works best, which guarantees a good and noiseless level matching for the monitoring system.

If the output level still is too high, when the input sensitivity of the speakers are already calibrated, the output level of the Crimson 3 can also be reduced by 10 dB with the DIP switch 6 on the bottom of the unit. This requires the DIP switch 6 in position “On”.



IMPORTANT:

In Artist Mode the Volume potentiometer adjusts the volume of Speakers A only.



→ Content

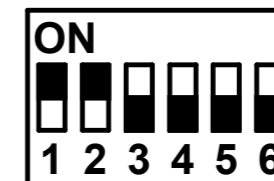
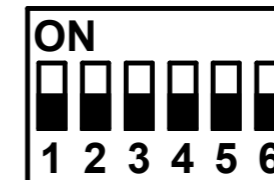
Control Elements

► DIP switch on the bottom of the unit

Six DIP switches are located on the bottom of the unit.

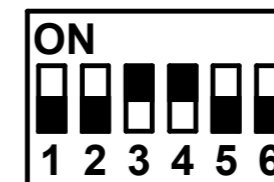
You wish to switch off the amplification for the RCA input (Source 2):

DIP switch 1 and 2 upwards (direction ON)



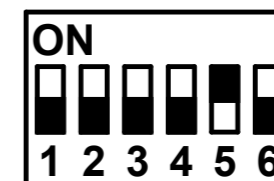
You wish to switch off the amplification for the Mini-J (Source 3):

DIP switch 3 and 4 upwards (direction ON)



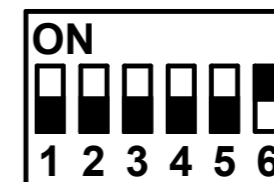
You wish to activate the Artist-Mode:

DIP switch 5 upwards (direction ON)



You wish to reduce the output level by 10 dB:

DIP switch 6 upwards (direction ON)



Calibration of the Monitoring System

► Calibration of the Monitoring System

The input signal level of the Crimson 3 and the input sensitivity of the power amps or active speakers should be matched to ensure a proper overall gain. An inappropriate level matching results, for example, in a high monitoring level with a fairly low volume setting (at 9 o'clock). Likewise, settings above two o'clock should sound really loud, otherwise it is indicative of a matching problem.

For calibration we recommend using a SPL Meter (where SPL stands for "Sound Pressure Level"). Place the measuring microphone at the listening position and playback pink noise from a generator calibrated to 0 dBu. Each measurement should be done with one channel (and loudspeaker) at a time. 83 dB SPL at the listening position is a good and very common reference value.



Calibration of the Monitoring System

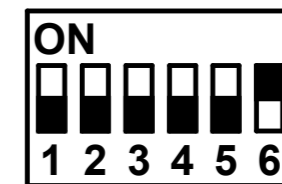
Adjust the Volume control until the SPL meter reaches 83 dB with pink noise.

Ideally, 83 dB SPL should be reached when the Volume control is near the 12 o'clock mark.

You may mark position for 83 dB SPL. If it only reaches 83 dB SPL above two o'clock, increase the power amps' or active loudspeakers' input sensitivity (higher dB value).

Conversely, you should decrease the power amps' or active loudspeakers' input sensitivity (lower dB value) when it indicates 83 dB SPL before reaching the 12 o'clock mark.

If the input sensitivity is already reduced to the maximum but the output level is still too high, the output level of the Crimson 3 can be reduced by 10dB by using the DIP switch 6 on the bottom of the unit.



▶ Exclamation mark within a triangle

An exclamation mark within a triangle is intended to make you aware of important operational advice and/or warnings that must be followed.

Be especially attentive to these and always follow the advice they give.



▶ Lightning symbol within a triangle

In this Manual a lightning symbol within a triangle warns you about the potential for dangerous electrical shocks – which can also occur even after the device has been disconnected from a power source.



▶ Symbol of a lamp

The symbol of a lamp directs your attention to explanations of important functions or applications.



Security Advices

► Placement

Place the unit on a leveled and stable surface. The unit's enclosure is EMC-safe and effectively shielded against HF interference. Nonetheless, you should carefully consider where you place the unit to avoid electrical disturbances. It should be positioned so that you can easily reach it, read the meters and status LED's well, but there are other considerations as well. Try not to place it near heat sources or in direct sunlight, and avoid exposure to vibrations, dust, heat, cold or moisture.



► Connections

Only use the connections as described.

Other connections can lead to health risks and damage the equipment.



► Water and humidity

Do not use this device anywhere near water (for example in a bathroom, a damp cellar, near swimming pools, or similar environments). Otherwise you are dealing with an extremely high risk of fatal electrical shocks!



→ Content

Security Advices

▶ Insertion of objects or fluids

Be careful to not insert any object into any of the chassis openings. You can otherwise easily come into contact with dangerous voltage or cause a damaging short circuit. Never allow any fluids to be spilled or sprayed on the device. Such actions can lead to dangerous electrical shocks or fire!



▶ Air ventilation

Chassis openings offer ventilation and serve to protect the device from overheating. Never cover or otherwise close off these openings. Never place the device on a soft surface (carpet, sofa, etc.).



▶ Opening the unit

Simply put: DON'T, if you are not a certified SPL technician or engineer. Really: Do not open the device housing, as there is great risk you will damage the device, or – even after being disconnected – you may receive a dangerous electrical shock.



Security Advices

▶ Electrical power

Operate the device only from power sources that can provide proper power. When in doubt about a source, contact your dealer or a professional electrician. To be certain you have isolated the device, disconnect all power and signal connections. Make sure that the power supply plug is always accessible. When not using the device for a longer period, make sure to unplug it from your wall power socket.



▶ Power connection overloads

Avoid any kind of overload in connections to wall sockets, extension or splitter power cords, or signal inputs. Always keep manufacturer warnings and instructions in mind.

Overloads create fire hazards and risk of dangerous shocks.

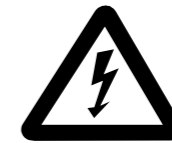


Security Advices

▶ Lightning

Before thunderstorms or other severe weather, disconnect the device from wall power; do not do this during a storm in order to avoid life threatening lightning strikes.

Similarly, before any severe weather, disconnect all the power connections of other devices and antenna and phone/network cables which may be interconnected so that no lightning damage or overload results from such secondary connections.



▶ Controls and switches

Operate the controls and switches only as described in the manual. Incorrect adjustments outside safe parameters can lead to damage and unnecessary repair costs. Never use the switches or level controls to effect excessive or extreme changes.



Security Advices

► Repairs

Unplug the unit from all power and signal connections and immediately contact a qualified technician when you think repairs are needed – or when moisture or foreign objects may accidentally have reached inside the housing, or in cases when the device may have fallen and shows any sign of having been damaged. This also applies to any situation in which the unit has not been subjected to any of these unusual circumstances but still is not functioning normally or its performance is substantially altered.

In cases of damage to the power supply and cord, first consider turning off the main circuit breaker before unplugging the power cord.



► Replacement/substitute parts

Be sure that any service technician uses original replacement parts or those with identical specifications as the originals.

Incorrectly substituted parts can lead to fire, electrical shock or other dangers, including further equipment damage.



Security Advices

▶ Safety inspection

Be sure always to ask a service technician to conduct a thorough safety check and ensure that the state of the repaired device is in all respects up to factory standards.

▶ Cleaning

Do not use any solvents, as these can damage the chassis finish.

Use a clean, dry cloth (if necessary, with an acid-free cleaning oil).

Disconnect the device from your power source before cleaning.



► Declaration of CE Conformity

The construction of this unit is in compliance with the standards and regulations of the European Community.



► Disclaimer

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SPL cannot be held responsible for damage caused by improper use or modification of the device or data that is lost or destroyed.

► Notes on Environmental Protection

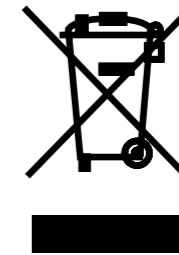
At the end of its operating life, this product must not be disposed of with regular household waste but must be returned to a collection point for the recycling of electrical and electronic equipment.

The wheelie bin symbol on the product, user's manual and packaging indicates that. The materials can be reused in accordance with their markings.

Through reuse, recycling of raw materials, or other forms of recycling of old products, you are making an important contribution to the protection of our environment.

Your local administrative office can advise you of the responsible waste disposal point.

WEEE Registration: 973 349 88



► Contact

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