

MODEL 166XL

166XL 型号

INTRODUCTION

Congratulations on purchasing the dbx 166XL Compressor / Gate. The 166XL provides two channels of noise gating, OverEasy? or classic hard knee compression and PeakStop? limiting to give complete control of signal dynamics to studios, sound reinforcement companies, musicians, or anyone who needs quality processing quickly and easily. We recommend that you take a moment and read through the manual as it provides information that will assist you in using your unit to its fullest potential. Features Include:

祝贺你选购 dbx 166XL 压限/噪声器。166XL 提供两个噪声门通道，OVEREASY 或专业硬拐点压缩和峰值终止限制，限制性地提供完善的动态信号控制给演播室，专业音响公司，音乐人，或者任何需要高质量地快速且容易地处理信号的人。我们热切推荐你花一点时间来通读这本手册，因为它能够提供一些信息，这些信息能帮助你使用这个产品，并充分发挥它的潜力。特征如下：

Stereo or Dual Mono operation of gating, compression and peak limiting.

立体声或双单声操作的噪声门，压缩和峰值限幅。

OverEasy?/Hard Knee Selection - allows selection between our famous OverEasy compression curve and the classic “Hard Knee” curve popularized by the original dbx 160, 161 and 162.

OverEasy®/硬拐点选项：允许你在我们著名的普及了的 dbx 160, 161 and 162 中选择“OverEasy”和专业的“Hard Knee”压缩曲线。

Expander/Gate Circuit - with variable release time and +15dBu maximum threshold
扩展器/噪声门电路：可变化的恢复时间和最大的+15dBu 扩展阈值。

Selectable Low Frequency Shelf (via Contour button) in the Sidechain Path - recommended when compressing mixed program material to prevent low frequency energy from “punching holes” in the sound.

可选择的低频控制的边链通道（孔内的 Contour 按键）：当压缩混合节目素材时，在推荐的边链通道里，可选择的低频接口能够阻止声音中来自“punching holes”低频能量的丢失。

PeakStop®/Limiting - provides control of maximum peak levels at the output of the 166XL regardless of any other control. PeakStop comes after the compression, gating and other circuitry including the output gain, so it sets an absolute limit for peak excursions before they reach the output.

峰值终止®/限制：不管其它旋钮如何控制，166XL 在其输出端提供最大的峰值电平控制。峰值终止在压缩电路，噪声门电路和包括输出增益及其它电路之后，所以在信号到达输出时，它设置了一个绝对的最大振幅限制。

True RMS Level Detection - senses the power in the program in a musical manner, much as human hearing does, giving results superior to peak or average detection.

真正的有效值电平检测：在音乐式的节目中，该电路检测敏锐，甚至超过人耳所能及的，它能够给出较高水准的峰值或平均值检测。

Hardwire System Bypass Buttons on both channels - allow the audio to pass even if the unit is

unplugged, and are also useful for comparing the processed and unprocessed signals.

两个通道的 Bypass 按键：甚至关掉产品电源后，音频信号也毫无损失地通过。这样在比较是否处理信号时，是很有用的。

10-Segment LED Display for GAIN REDUCTION (up to 30dB).

10 段 LED 可显示的增益衰减表（可达 30dB）

Electronically Balanced XLR and “1/4” TRS Input and Output Jacks

电子平衡式的 XLR 和 “1/4” TRS 的输入输出接口。

Separate Sidechain Inserts - enables an outboard processor or signal to control compression or gating.

分离的边链插口：允许一个外部处理器或信号去控制压缩或选通。

DC-Controlled Parameters - the signal does not pass through any of the parameter controls. Instead a DC voltage controls all functions; this eliminates any possibility of potentiometer noise developing over time.

DC 控制的参数：DC 电压控制替代了其它任何参数控制从而控制了全部信号；不过这要排除在工作过程中任何电位器噪声影响的可能性。

INSPECTION （核实产品及附件）

Verify that the 166XL package contains the following:

核实 166XL 包装，包括以下内容。

166XL Unit :

166XL 产品

AC Power Cord AC:

AC 电源线

Operation Manual:

操作手册

Registration Card :

注册卡

OPERATING CONTROLS

操作控制

Front Panel:

前板

EXPANDER/GATE Section:



EXPANDER/GATE 选项

Expander/Gate THRESHOLD Control and LEDs (BELOW/ABOVE)

扩展器/噪声器阈值控制和 LEDS (BELOW/ABOVE)

Adjusting this control sets the level at which the gate will open and allow the signal at the input to pass through to the output. Turning the knob fully counterclockwise (to OFF) allows the gate to pass signals unattenuated, effectively bypassing the gate. Turning the knob fully clockwise causes the gate to attenuate input signals below +15dBu.

调节控制旋钮设置电平在噪声门即将打开且允许信号从输入直通到输出时，逆时针旋转旋钮到 OFF 位置，信号将毫无衰减地通过，有效地直通噪声门。顺时针旋转这个旋钮到最大，则+15dBu 以下的输入信号将被衰减。

The two Expander/Gate LEDs indicate the relationship of the input signal level to the threshold setting. The red LED lights when the signal is BELOW threshold, the green LED lights when the signal is ABOVE threshold.

两个 Expander/Gate LEDs 指示了输入信号相对阈值电平设置的关系。低于设定阈值时，红色指示灯亮，高于设定阈值时，绿色指示灯亮。

Note: The 166XL's expander/gate attack rate (which controls how fast the signal is restored after being attenuated) is internally set to be very fast - fast enough to allow all of the transient at the beginning of a note, vocal or spoken word to come through.

注意：166XL 的扩展器/噪声器的启动速度（决定多快的恢复速度）在产品内部设置，启动速度决定信号恢复速度的快慢。该速度设置很快，允许开始工作时的瞬间的音符，演唱，讲话快速通过。

Note: The 166XL's expansion ratio is internally fixed, at approximately 10:1. This ratio helps to eliminate the artifacts normally associated with common switch gates. Attenuation is >50dB.

注意：166XL 的扩展比在内部已经设定，约 10：1。该比率能有效消除人为的普遍的与开关切换相关的噪音。衰减值大于 50dB.

SIDECHAIN (SC) ENABLE Switch and LED:

边链(SC)使能开关和 LED

This switch enables the 1/4" TRS connector of the sidechain, allowing external processing of the detector signal. It has no effect if there is nothing plugged into the sidechain loop; however the switch will still light indicating the sidechain is enabled.

该开关控制“1/4” TRS 的边链连接，允许检测信号进行外部处理。如果没有任何插头插入边链插口时，则不会有任何作用。然而，开关仍能使边链信号指示发亮。

Expander/Gate RELEASE Control:

Expander/Gate RELEASE 控制

This control determines the rate at which the gate closes once the signal at the INPUT or SIDECHAIN INSERT falls below the threshold. SLOW settings are useful for gating out noise present behind vocals and acoustic instruments. FAST settings are useful for tightening up the sound of percussion (e.g., kick or snare drum) and drying up leakage from other instruments into percussion tracks.

一旦输入端或边链插口端的信号低于设定阈值时，该控制决定该门关闭的速度。“SLOW”设置对阻止演唱或音响设备之后噪音选通很有用的。FAST 设置对打击乐器（例脚踏鼓和小军

鼓)产生的声音具有紧凑作用,或从其它设备到打击乐器设备中的渗透。

Note: The gate release rate is “accelerating” in that the dB/Sec rate continually increases as the gate closes.

注意: 该门恢复速度是“加速的”,当噪声门关闭时,它以 dB/Sec 的速度持续增快。

CONTOUR Button and LED

CONTOUR 按键和 LED

Depress this button to make the 166XL’s detection circuitry less sensitive to low frequency energy, preventing this energy from “punching holes” in the sound, especially with mixed program. With the CONTOUR button Out, the 166XL’s detector is frequency-independent. The CONTOUR LED turns on when the CONTOUR button is depressed.

按下这个按键,166XL 的检测电路对低频能量敏感度减小,阻止来自声音中的“punching holes”,尤其是混合节目素材。当按键弹出时,166XL 检测的是毫无约束的频率。当“CONTOUR”按下时,CONTOUR LED 会亮。

COMPRESSOR Section

压缩选项

GAIN REDUCTION Meter

增益衰减表

This meter displays how much the signal is being attenuated by the compressor and the gate.

当压缩或扩展的信号衰减多少,该表就会显示多少。

Compressor THRESHOLD LEDs

压缩阈值 LEDs

These three LEDs indicate the relationship of the input signal level to the threshold of compression. The green BELOW LED is On when the signal is below threshold and the red ABOVE LED is On when the signal is above threshold. When the 166XL is switched to OverEasy mode, the yellow LED is On when the signal is in the OverEasy region (See Figure 2).

这三个灯指示了压缩阈值与输入信号电平的关系。当输入信号电平低于压缩阀时,绿灯(BELOW LED)亮;当输入信号高于压缩阀时,红灯(ABOVE)亮;当 166XL 的开关切换到 OVEREASY 模式,输入信号处于 OVEREASY 区域时,橙灯亮。

Note: Even though no input signal is being applied, it is normal for the LEDs to flicker when the power is applied or removed.

注意: 尽管没有输入信号被应用,在电源被打开或关闭时,这些 LED 灯处于闪烁状态是正常的。

Compressor THRESHOLD Control

压缩阈值控制 (COMPRESSOR THRESHOLD CONTROL):

Adjust this knob to set the threshold of compression from -40dBu (7.8mVrms) to +20dBu

(7.8Vrms). Setting the Compressor THRESHOLD control to +20dB will prevent all but the highest level peaks from being compressed. (Setting the Compressor RATIO to 1:1 will turn the Compressor off, regardless of the setting of the Compressor THRESHOLD control.)

调节这个旋钮来设置压缩阈值从-40dBu (7.8mVrms) 到 +20dBu (7.8Vrms)。设置压缩阀到+20dB，高于这个电平的所有信号全部被压缩（设置压缩比为 1:1，则压缩器压缩功能消失，尽管你设置了压缩阈值）。

In Hard Knee mode (OVEREASY button out), the THRESHOLD sets a reference level above which input signals will be processed by the 166XL's gain change circuitry in the manner defined by the setting of the RATIO control. Input signals which fall below this level will pass through the 166XL unprocessed (except for fixed gain changes directed by the OUTPUT GAIN control). See Figure 1.

在硬拐点模式（OVEREASY 按键弹出），在定义了压缩比控制后，压缩阀置设置在一个参考电平点，高于这个设置点的电平的输入信号将会被压缩比设定了的 166XL 增益改变电路处理。低于这个电平的输入信号将会不经过 166XL 处理直接通过（除了那些固定增益改变被输出增益控制检测）。

In OverEasy mode (OVEREASY button depressed), signals begin to gradually activate the 166XL's gain change circuitry as they approach the THRESHOLD reference level and they do not get fully processed in the manner defined by the RATIO control until they have passed somewhat above the THRESHOLD reference level. In OverEasy mode there is no distinct point at which processing begins, and the THRESHOLD setting corresponds to a point on the input/output transfer curve midway between the onset of processing and that point at which the transfer curve corresponds to the setting of the RATIO control. Figure 2 shows the OverEasy compression curves and how they correlate with the THRESHOLD LEDs.

在 OVEREASY 模式（OVEREASY 按键按下时），当输入信号逼近压缩阈值参考电平时且它们完全没有被定义的压缩比方式处理，直到完全高于压缩阈值参考电平的过程中，信号开始逐渐地激活 166XL 增益改变电路。在 OVEREASY 方式中，在信号开始处理时没有清晰的点，在处理信号过程中，压缩阈值符合输入输出转移曲线上的这一点，并且这一点也符合压缩比率输入输出转移曲线。图 2 显示了 OverEasy 模式的压缩曲线和阈值灯的关系。

OVEREASY Button and LED:

OVEREASY 按键和 LED:

Depress this button to select the OverEasy Compression characteristic. The yellow THRESHOLD LED turns On when the signal is in the OverEasy region. When this button is in the Out position, the 166XL operates as a hard knee compressor/limiter. (Yellow OverEasy LED is active only in OverEasy Mode.)

按下这个按键选择 OVEREASY 模式压缩特征。当信号处在 OVEREASY 区域时，阈值黄灯变亮。当这个按键弹出时，166XL 就像硬拐点压缩器/限幅器那样处理（黄灯仅在 OVEREASY 模式时激活）。

In Hard Knee mode, the threshold of compression is defined as that point above which the output level no longer changes on a 1:1 basis with changes in the input level.

在硬拐点模式中，压缩阈值被定义成一个点，当压缩比被定义成 1:1 时，高于这个点的输入改变时，输出信号不再改变。

In OverEasy mode, the threshold of compression is defined as the middle of the OverEasy threshold region, that is, “half-way” into compression.

在 OVEREASY 模式中，压缩阈值被定义成 OVEREASY 压缩区域的中点，也就是说，“中途”进入压缩的。

Compressor **RATIO** Control:

压缩比控制

Rotate this control clockwise to increase the amount of compression from 1:1 (no compression) up to ∞ :1 (no increase in output level, regardless of input level increases above threshold.)

顺时针旋转这个旋钮，从 1:1 到 ∞ :1 增加一系列的压缩（尽管输入电平不高于这个阈值，但输出是不会增加的）。

INPUT LEVEL (dB) 输入电平 (dB)

Figure 1: Hard Knee Compression Curve and Threshold LEDs

图 1：硬拐点压缩曲线和阈值 LEDs。

Figure 2: Over Easy Compression Curve and Threshold LEDs

图 2：Over Easy 压缩曲线和阈值 LEDs。

When an input signal is above the THRESHOLD reference level, the setting of this control determines the number of decibels (dB) by which the input signal must change in level to produce a 1dB increase in the signal level at the output of the 166XL. A setting of 2:1 indicates an input: output ratio wherein a 2dB increase in signal (above threshold) will produce a 1dB increase in output signal. A setting of ∞ :1 indicates that an infinite increase in input level would be required to raise the output level by 1dB. In other words, the output level stays constant when the input signal rises above threshold.

当一个信号高于 THRESHOLD 参考电平时，该旋钮的设置决定了输入信号每改变 1dB 时，166XL 输出信号改变的分贝数。2:1 的设置决定了当输入信号高于压缩阀时，输入信号增加 2dB 时，输出信号增加 1dB。 ∞ :1 的设置决定了输入信号增加无限大，输出信号只增加 1dB。换句话说，当输入信号高于压缩阀且继续上升时，输出信号仍维持在保留阶段。

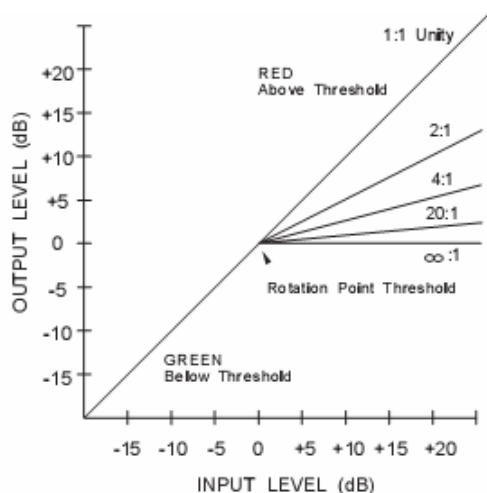


图1：硬拐点压缩曲线和阈值灯

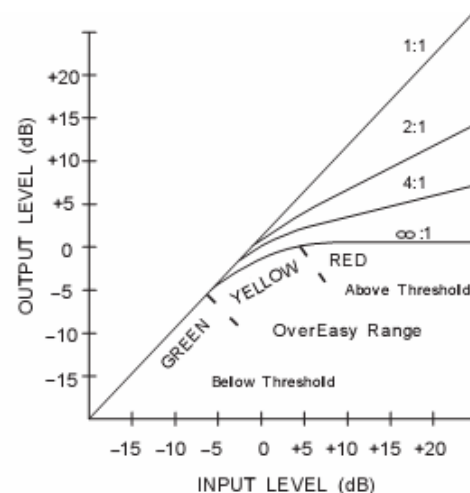


图2：OverEasy压缩曲线和阈值灯

Compressor **ATTACK** and **RELEASE** Control:

压限器的启动时间和恢复时间控制

The ATTACK control sets the amount of time, it takes the 166XL to begin compressing a signal once the detector has sensed a signal above threshold. The ATTACK range is from FAST (for a tighter and more noticeable compression effect with very little overshoot) to SLOW (for more delayed, gradual compression). A very fast ATTACK setting will cause the 166XL to act like a peak limiter even though RMS detection circuitry is used. Slower ATTACK settings cause the 166XL to act like an RMS or averaging detecting compressor/limiter。

ATTACK 旋钮设置一系列的时间，一旦检测系统感知到信号超过这个阈值时，166XL 就会压缩这个信号。ATTACK 范围从 FAST（紧紧地，显而易见地即时压缩效果）到 SLOW（更多地延时，逐渐地压缩）。一个快速启动时间设置将会引起 166XL 响应，如同峰值限幅器一样，甚至像有效值检测电路的实用效果。一个缓慢启动时间设置将引起 166XL 响应，如同有效值或平均值检测压缩机/限幅器的效果。

The RELEASE control sets how fast the compression circuit returns the input to its original level. The RELEASE rate is from FAST (where compression follows the envelope of the program material very tightly) to SLOW (for very smooth compression)。

恢复时间旋钮设置压缩电路还原输入信号对原始状态的快慢速度。当 RELEASE 速度从 FAST（紧跟节目素材进行压缩）到 SLOW（非常平滑的压缩）。

There is no absolute right way to set the ATTACK and RELEASE controls. However, in general, you will want them set slow enough to avoid pumping or breathing sounds caused when background sounds are audibly modulated by the dominant signal energy, yet the release must be fast enough to avoid suppression of the desired signal after a sudden transient or loud note has decayed. For low frequency tones (e.g., bass guitar), set RELEASE and ATTACK to 2:00 or slower。

在 ATTACK 和 RELEASE 旋钮设置中，没有绝对的正确的方法。然而，通常地，当背景声音被占优势的信号调制过程中是可闻的，你可以慢慢设置来避免喘气或呼吸声，RELEASE 必须足够地快，以避免渴望的信号在已经衰减的瞬时或大的音符后被抑制。对于低频音调（例如电吉它），设置 RELEASE 和 ATTACK 在 2: 00 点钟位置或更低。

Note: ATTACK and RELEASE controls operate together and in conjunction with the RATIO control. Changing one control may necessitate changing another setting.

注意：ATTACK，RELEASE 和 RATIO 旋钮一起使用。改变一个旋钮，或许会连动其它两个一起改变。

AUTO Switch and LED

AUTO 开关和 LED

This switch overrides both the ATTACK and RELEASE controls and enables preset program-dependent attack and release times. These times are derived from the input signal and continuously change to match its dynamics. The switch lights indicating the attack and release times are being automatically adjusted in a program-dependent fashion.

这个开关凌驾于 ATTACK 和 RELEASE 两个旋钮之上，允许随节目事先调整启动和恢复时间。这些时间源于输入信号和匹配它的动态持续变化。这个开关灯指示了随节目素材方式自动调整的 ATTACK、RELEASE 时间。

OUTPUT GAIN Control

输出增益控制

Adjust this control to vary the amount of fixed gain (up to $\pm 20\text{dB}$) in the 166XL's output amplifier stage. The OUTPUT GAIN control does not interact with the threshold of compression.

在 166XL 输出扩音阶段，调节这个旋钮改变一系列的固有的增益（直达 $\pm 20\text{ dB}$ ）。输出增益控制不会影响压缩阈值。

The OUTPUT GAIN control is especially useful to compensate for the RMS level decrease which results from the 166XL's dynamic processing effects. After you adjust the 166XL's controls for the desired amount of compression (and gating), set the OUTPUT GAIN to add the same amount of gain that is shown on the GAIN REDUCTION meters. For example, if the average amount of gain reduction shown on the meters is 10dB, then setting the OUTPUT GAIN control to 10dB will compensate for the 10dB average level reduction at the output. Note that the OUTPUT GAIN control comes before the PeakStop circuit.

在动态处理效果的衰减过程中，OUTPUT GAIN 旋钮对补偿 RMS 电平特别有用。当你在调节 166XL 的旋钮得到渴望的一系列的压缩（和扩展），可以设置 OUTPUT GAIN 来增加一系列的同等的增益，同时 GAIN REDUCTION 表给予相应的指示。举例说明，如果增益衰减表上的指示的是 10 dB，那么，通过设置 OUTPUT GAIN 来增加 10 dB 的增益以补偿在输出端增益衰减。注意，OUTPUT GAIN 在 PeakStop 电路之前。

Note: Because +20dB of gain can be added at the 166XL output, it is possible to cause clipping even when the input level is within the specified range. For example, when the COMPRESSION RATIO is set at a low number, extreme clockwise rotation of the OUTPUT GAIN may cause the 166XL output stage to clip program peaks.

注：同等的输入电平在一个指定的范围内，166XL 的输出能够增加+20dB 的增益，它可能会引起削波。举例说明：当 COMPRESSION RATIO 设置一个低的数值，顺时针旋转 OUTPUT GAIN 到最大会引起 166XL 的节目的输出在削波状态。

BYPASS Button and LED

BYPASS 按钮和 LED

Depress this button to “hard-wire bypass” the 166XL's circuitry,(i.e., unaltered input signal will pass through the unit even if it is unplugged). BYPASS works independently for each channel, even when the unit is stereo-coupled (via the STEREO COUPLE button).

按下这个按钮，使 166XL 硬件线路直通（即使拔掉电源插头，输入信号直通本机的输现端）。注意，BYPASS 独立于每一个通道，甚至立体声（孔内 STEREO COUPLE 按键切入）状态。

In Bypass mode, the input is sent directly to the output, bypassing the 166XL's processing and controls and presenting unaltered input signal at the 166XL's OUTPUT. Bypass mode is especially useful for making comparisons between processed and unprocessed signals.

在直通模式中，输入信号直接到输出，不受 166XL 的处理和控制，呈现出毫无改变的局面。直通模式在处理 and 未处理信号的对比中是特别有用的。

The YPASS LED turns On in Bypass mode if the 166XL is being provided with AC power.

如果接入了 AC 电源，在直旁通模式中，BYPASS LED 会点亮。

LIMITER Section

限幅选项

PEAKSTOP LEVEL Control and LED:

PEAKSTOP 电平旋钮和 LED

This control allows you to set the maximum peak output level of the 166XL regardless of any other control. PeakStop comes after the compression, gating and output gain circuitry; this provides for an absolute limit to be put on the peak excursions at the output. PeakStop works instantaneously; you can apply moderate amounts of dbx' s OverEasy compression and still be protected from large transients, other short-term overloads and overmodulation.

不管其它旋钮如何控制，该旋钮将允许你设置最大的输出峰值电平。峰值电平设置在压缩、噪声门、输出增益电路之后。该控制提供绝对的限制使之在输出端出现峰值偏移。峰值终止工作是瞬时的；适度地应用 OVEREASY 压缩，在特大的瞬时，其它的短期的过载和过调制时，仍能起到保护作用。

PeakStop is a smooth well-controlled soft clipper whose behavior is sonically similar to the gentleness of OverEasy compression; its clipping is much preferable to a power amp' s or analog-to-digital converter' s. PeakStop rounds the corners of a peak rather than cutting it off sharply. By making a signal' s leading and trailing edges curved instead of sharply angled, it reduces the amount of higher odd-order, offensive-sounding harmonics that conventional hard clipping causes.

峰值终止是一个平滑的很好控制的软剪切，如同 OVEREASY 压缩一样具有柔滑性。它的剪切作用在功放或模数转换器中有着优异的性能。PeakStop 绕着峰值的拐角通过缓慢的导入和导出边缘曲线进行倒圆角，从而代替峰利的拐角，而不是将它峰利地削去。它能减小大量常规硬限幅所产生的高奇次谐波，侵略性谐波。

The level at which PEAKSTOP is activated is adjustable from +0dBu to +20dBu. Note that small signal excursions above the set value of PEAKSTOP are possible, to allow the rounding to occur. Therefore, for applications where you must not exceed a given ceiling, set the PEAKSTOP control 1dB to 2dB below the ceiling.

在峰值终止上的电平是灵活可调的，可调范围在+0dBu 到 +20dBu 之间时。注意，高于峰值设定小信号也是可能的，允许圆滑地产生。因此，在应用中，你不能超过所界定的最高限制，设定 PEAKSTOP 控制在最高限度下 1dB 到 2dB 即可。

The PEAKSTOP LED illuminates whenever peaks attempt to exceed PeakStop level and are reduced in amplitude. If the PeakStop LED illuminates when the PEAKSTOP LEVEL control is set to +20dBu, the headroom capabilities of the 166XL are being exceeded and hard clipping is occurring.

当峰值电平试图超越峰值终止电平时，峰值终止 LED 会亮。当峰值终止电平控制设定在 +20dBu，如果峰值终止 LED 亮，那么 166XL 的动态容量会被超过，此时，硬削波发生。

MASTER Section

STEREO COUPLE 按钮和 LED:

This button toggles the unit between stereo and dual mono operation. Press the STEREO COUPLE button In, for stereo operation where Channel 1 becomes the master controller for both channels. All of Channel 2' s controls, buttons, and LEDs will be disabled (except for Channel 2' s BYPASS, SIDECHAIN ENABLE, and CONTOUR buttons, and its GAIN REDUCTION LEDs), since Channel 2 is the “slave.” Note that the detection circuitry senses the true RMS levels of the combined signal, so it is unaffected by phase shifts (or other discrepancies) between the channels.

This ensures stereo compression without loss of imaging stability.

该按键锁定产品是处在立体声状态还是双单通道操作。按下 STEREO COUPLE 按键，该产品处于立体声操作中，第一声道变成两声道的主控。所有第二通道旋钮，按键，LED 将会失去作用（除去通道 2 的 BYPASS、SIDECHAIN ENABLE, 和 CONTOUR 按键，和它的 GAIN REDUCTION LEDS），第二通道处于隶属地位。注意，它的检测电路实时检测组合信号的真正的 RMS 电平，所以在两个通道之间，它的相位转换仍未受影响，这就确保了立体声的稳定性。

With the STEREO COUPLE button Out, the unit functions as two separate mono compressor/gates, each with its own independent controls.

当 STEREO COUPLE 按键弹出时，产品被定义为两个分离的单压缩机/噪声器，它们各自的旋钮是独立控制的。

The STEREO COUPLE LED indicates that the 166XL is stereo-coupled.

STEREO COUPLE LED 指示 166XL 是处于立体声连接状态。

Rear Panel

后板

INPUT (BALANCED) Jacks:

输入（平衡式）接口

The Tip/Ring/Sleeve phone jack and XLR-type jack are wired in parallel; either INPUT will accept an audio signal for processing by the 166XL. The phone jack accepts a standard TRS 1/4" phone plug for a balanced input source, or a 2-circuit (Tip/Sleeve) 1/4" phone plug for an unbalanced source. The XLR-type jack is wired pin 2 HOT (+), pin 3 COLD (-) and pin 1 GROUND.

TRS 和 XLR 接口是并行的，任意一个都可以为 166XL 接收音频信号。PHONE 插头采用一个标准的 TRS 插头作为平衡输入接口，或两个非平衡式接口。XLR 类型插头的 2 脚为同相端(+)，3 脚为反相端(-)，1 脚是地。

Note: Only one input jack should be used at a time, except for “splitter” applications where one input jack is used as an input and the other input jack is used as an output (see “Using the SIDECHAIN INSERT” section on page 16). Since a given pair of channel input jacks (e.g., Channel 1 XLR INPUT and Channel 1 1/4" INPUT) are internally connected (TIP = Pin 2, RING = Pin 3, SLEEVE = Pin 1), if one of the jacks is unbalanced, then the other jack will be unbalanced. For example, if a 1/4" INPUT jack is used with a mono cable, and is therefore unbalanced, the XLR INPUT jack will also be unbalanced (Pin 3 shorted to ground).

注意：每一次只能使用一个输入端口，除了在一个输入接口作为输入，另一个输入接口作为输出的分离应用（请查看第 16 页的“边链插口使用”）。因为一对输入接口在内部是相连的，如果一个是非平衡式，那么另一个也是非平衡式。例：如果一个 1/4 插口用在单通道上，因此它是非平衡式，则 XLR 输入插头也是非平衡式（三脚接地）。

OPERATING LEVEL Switch: This switch selects between a -10dBV and +4dBu nominal operating level. When the switch is in the in position, a -10dBV operating level is selected. When it is in the out position +4dBu is selected. A -10dBV operating level should be selected when interfacing with “semi-pro” or low level equipment, while a +4dBu level should be selected when interfacing with “pro” equipment. The switch simultaneously changes the operating levels for

both the input and output circuits. the switch is slightly recessed to prevent accidental switching of operating levels while plugging in or unplugging cables.

操作电平开关：该开关在正常的-10dBV 和 +4dBu 两个选项上选择。当按键开关按下时，-10dBV 的操作电平被选择；当弹出时，+4dBu 被选择。-10dBV 的操作电平用在半专业或低水平设备中，而+4dBu 用在专业设备中。注意，开关在输入输出的电路上同时改变操作电平。当插上或拔掉电源线时，注意把开关按下去防止意外的开关操作电平。

注意：在专业的录音室中为+4dBu，而工作在私人用户范围内为-10dBV 许多半专业的声卡和录音室设备能够在软件上或硬件上进行切换。调音台通常以+4dBu 来工作，吉它、贝司、键盘乐器和用户（CD/MD 播放机、DAT 数字音频带播放机/录音机）一般采用-10dBV。如果你吃不准你机器的工作电平是多少，请在有关的产品使用说明书中查询，或干脆通过试验来测定。）

OUTPUT (BALANCED) Jacks:

输出（平衡式）接口

The Tip/Ring/Sleeve phone jack and XLR-type jack are wired in parallel; either OUTPUT will send an audio signal to a load. The phone jack accepts a standard “TRS 1/4” phone plug for a balanced output load, or a 2-circuit (Tip/Sleeve): “TRS 1/4” phone plug for an unbalanced load. The XLR-type jack is wired pin 2 HOT(+), pin 3 COLD (-) and pin 1 GROUND. For proper unbalanced operation, the unused pin (either pin 2 or 3) must be grounded. Nominal output signal level is +4dBu or -10dBV into 600 Ω , and typical maximum output level is +20dBu into 600 Ω (+20dBm).

TRS 和 XLR 类型接口的连线是并行的，任意一个输出端都能把音频信号传递给负载。PHONE 作为平衡式输出，接受一个标准的 TRS 插头或两路 TS 作为非平衡式接口。XLR 型接口的 2 脚接同相端，3 脚接反相端，1 脚接地。对正确的非平衡式操作，不使用的脚（2 脚或 3 脚必须接地）。正常的输出信号电平在 600 Ω 时，是+4dBu 或 -10dBV，典型的最大输出电平在 600 Ω 时，是+20dBu into 600 Ω (+20dBm)。

Note: A given pair of channel output jacks (e.g., Channel 1 XLR OUTPUT and Channel 1 1/4” OUTPUT) are internally connected (TIP = Pin 2, RING = Pin 3, SLEEVE = Pin 1) and can simultaneously deliver the same signal to two separate loads, but if one of the jacks is unbalanced, then the other jack will be unbalanced. For example, if a “1/4” OUTPUT jack is used with a mono cable, and is therefore unbalanced, the XLR OUTPUT jack will also be unbalanced (Pin 3 shorted to ground). If using both outputs of a given pair simultaneously, the total parallel load on the output should be 600Nminimum.

注：一对给定了的通道输出接口在内部是相通的(例，通道 1 XLR 输出 和通道 1 “TRS 1/4” 输出)，能够同时传递信号到两个负载。但时，如果一个是非平衡式的，则另一个也是非平衡式的。举例说明：如果 “ TRS 1/4 “输出接口是单端输出的话，那么 XLR 输出接口也是非平衡式（3 脚接地）。如果同时使用一对输出，总的输出负载最小应该是 600 Ω 。

SIDCHAIN INSERT Jack:

边链插座

This jack accepts a standard “TRS 1/4” phone plug and provides a connection to the 166XL detector path. The RING acts as a Send, carrying a buffered version of the signal present at the

166XL INPUT jack, at an impedance of $2k\Omega$. The TIP acts as a Return for equipment to feed the 166XL's detector circuitry, such as an equalizer for **de-essing** or frequency-sensitive gating/compression. You can also drive the 166XL SIDECHAIN INSERT with the output of most equipment, by using a 1/4" mono phone plug. Input impedance is greater than $10k\Omega$.

该接口接受一个标准的“TRS 1/4”话筒插头，连接到 166XL 的检测通道，RING 代表输入，输送一个缓冲信号到 166XL 输入接口，阻抗是 $2k\Omega$ 。TIP 代表 166XL 检测电路的反馈回路，对频率较敏感的压缩器/噪声器。你可以通过一个单声道话筒插头，驱动 SIDECHAIN INSERT 成为设备的输出。输入阻抗远大于 $10k\Omega$ 。

Note: When a cable is plugged into this jack, it automatically breaks the connection from the INPUT circuit to the 166XL's detection circuitry.

注意：当一个话筒插头插入这个接口时，它会自动断开 166XL 检测电路的输入电路。

Note: The following Operating Notes section contains several applications for using the sidechain circuit.

注意：下面几个操作事项包含几个边链电路的应用。

AC POWER Receptacle:

AC 电源插座

This receptacle accepts an IEC-type power cord (as shipped with the unit). Plug the cord into the unit and mains power. Note that the 166XL does not have a power switch. It is recommended that the 166XL be “On” at all times. Power consumption is low. If you do not plan to use the 166XL for an extended period of time, unplug it.

该插座接受 IEC 规格电源插头。注意，166XL 没有电源开关，166XL 推荐该产品随时处于通电状态。它的功耗是很低的。如果你没有打算长时间使用 166XL，请你拔掉电源插头。

Warning: Be sure to verify both your actual line voltage and the voltage for which your Model 166XL was wired, as indicated on the rear panel of your unit. Connection to an inappropriate power source may result in extensive damage which is not covered by the warranty.

警告：在电源线连接前，请依照产品后板的指示核实你的实际线路电压和 166XL 所需的电压。如果忽视了警告，连接了不适合产品的电源电压，将会给你的产品带来破坏性的损失。

OPERATING NOTES

Expander/Gate Applications

扩展器/噪声门应用

Note: Control settings for each application are suggested as a starting point. Adjust them for your requirements.

注意：在每个应用中，建议该旋钮设置一个起点，根据需求再调节它们。

Gating Dry Percussive Sounds (e.g., Snare Drum, Kick Drum)

选通干燥的冲击音（例如：小军鼓，脚踏鼓）

To effectively gate percussive sounds with high-level transients, you need to set the 166XL's gate controls to ensure that the gate is less sensitive to nearby signals that would cause the gate to open or "false trigger." Set the RELEASE setting fast enough to enable the gate to close very quickly once the signal falls under the THRESHOLD. The RELEASE can also be used to shape the envelope of the sound.

为了有效地用一个瞬时高电平去选通冲击声，你需要设置噪声门旋钮，确保它对信号及其附近的信号的迟钝性，以免引起噪声门被打开或者“误触发”。设置 RELEASE 足够的快，一旦信号跌落到 THRESHOLD 阈值之下时，以确保噪声门能及时关闭。RELEASE 也用在塑造声音的包络方面。

Note: Fast gating of sustained low frequency signals can result in "chattering." Because the 166XL is capable of extremely fast gating, make sure the RELEASE time is longer than one full cycle of the gated signal's fundamental frequency. To eliminate any "chattering," simply adjust the RELEASE time to a longer time (slower rate). The proper THRESHOLD setting will also minimize false triggering and "chattering."

注意：快速选通持续不变的低频信号会导致“喘息声”。因为 166XL 有足够快的选通能力，须确信 RELEASE 时间长于被选通信号的基本频率的整个周期。为消除喘息声，简单地调节 RELEASE，时间稍长一点就可以了。合适的 TRESHOLD 设置也能减小误触发和喘息声。

These types of settings are most useful for tightening up drum tracks, removing the "ring" from some drums, or gating out the leakage of one drum through another's MIC .

从这些鼓乐器中去除鼓声中的尾音，或者通过其它麦克风选通出鼓声的渗漏，这些类型的设置对紧凑鼓声音轨是很有用的。

Gating Sounds That Have Longer Decay(e.g., Cymbal, Piano)

具有长时间衰减的声音选通（例：铙钹，钢琴）

To effectively gate sounds which have more decay after the initial transient, set the RELEASE control slow enough to allow the gate to remain open and capture the signal's entire envelope.

为了有效地选通在大量衰减之后的初始瞬间的声音，设置 RELEASE 旋钮足够的慢，以至于充许噪声门打开，捕获信号完的全包络。

The gate can also be used to "dry up" a track or mix that has too much reverb or ambience. Set the RELEASE control so that the natural decay of the sound is somewhat truncated.

在单音轨或混音中有太多的混响或背景音时，噪声门可用来消除它。设置 RELEASE 旋钮使其噪音自然而柔和地衰减。

Changing Sound Quality

改变音质

The 166XL's gate can effectively change the sonic character of a sound because it can reduce or otherwise alter the quality of instrumental ambience and reverb. For example, as an instrument stops, its reverberation level will fall through the 166XL's THRESHOLD setting. It can now be made to die out more quickly - faster than the natural decay (of the sound). Experiment with different THRESHOLD and RELEASE settings to change the "tail" of the sound; a FAST RELEASE setting will nearly eliminate reverb.

166XL 噪声门能有效地改变任意音质特性，因为它能衰减或改变背景声或反馈声的音质。

例如，某个设备停止工作了，166XL 的 THRESHOLD 的设置立即闭它的回音，速度比人工衰减还要快。对 THRESHOLD 和 RELEASE 进行各种配合设置，可有效地改变尾声效果。设置 RELEASE 在 FAST 位置，则消除混响迅捷有效。

Keyed Gating

嵌入式选通

Keyed gating（选通），that is, controlling the gating of one signal by another, can be used to add dynamics to a sound (e.g., creating perfectly in-sync playing and overdubbing among individual instruments or “fattening” a dynamically weak track).

嵌入式选通，也就是说，通过一个信号的选通控制另一个信号的选通，经常用在声音动态处理上(创作完美的同步伴奏和个别设备中原始配音,或加厚一个动态的虚弱的音轨力度)。

To create two distinct channels of bass guitar for your mix (by splitting the bass signal into two channels and synchronizing one channel of bass guitar with the kick drum), start by feeding one channel of bass directly into the mix and the other into the 166XL’s INPUT. Then key the gate with a signal from the kick drum (connected to the SIDECHAIN INSERT - adjust controls as needed). The gated bass track will now open with each kick, adding punch and dynamics. This can really tighten up the tracks and add life to the mix。

为你的混音器创作两个清晰的电贝司通道(通过分离低音信号到两个通道和一个附有脚踏鼓声的电贝司通道同步)，开始直接馈入一个通道低音到混音器和另一个通道的低音到 166XL 的输入端。然后嵌入一个附有脚踏鼓的信号去选通(连接到根据需要调节的 SIDECHAIN INSERT 中)。被选通的低音音轨在每次冲击下将会打开，同时增加冲击和同步。这就紧密地紧凑了音轨，渲染了混音器的活力。

Another example of keyed gating（选通） is using the drum signal to key an oscillator which is set to an appropriate frequency to “tune” and “punch up” the drum sound.

另一个嵌入选通的例子，是用鼓信号去嵌入一个音源信号，这个音源信号被设置成一个合适的频率去调谐或冲击鼓的声音。

Note: For all keyed gating（选通） applications, be aware to adjust the compressor accordingly or bypass it by setting the Compressor RATIO fully counter-clockwise to 1:1

注意：对所有嵌入选通的应用，必须存在这种意识，即通过逆时针调节旋转 RATIO 到 1:1，来相应调节压缩阈值或旁通它。

Frequency-Sensitive Gating

灵敏频率的信号选通

Frequency-sensitive gating（选通） lets you use the SIDECHAIN INSERT to tune the response of the gating（选通） action. For example, if you’re gating（选通） a kick drum in a track with lots of leakage, you can tune in to the frequency of the kick with an outboard EQ and the gate will respond only to that drum. Feed the kick drum signal both directly into the gate and also through an equalizer which is connected to the SIDECHAIN INSERT. With the equalizer adjusted so that only the desired signal is strong at the SIDECHAIN INSERT, the gate becomes even more selective in opening.

灵敏的频率选通让你使用 SIDECHAIN INSERT 去调谐选通的频率。举例说明，如果你在一个音轨中监测一个击鼓的漏音，你可以使用

一个外接的 EQ 去调谐击鼓音轨的频率，此时，该噪声门仅仅响应这个击鼓的音轨。

Basic Compressor Applications

基本压缩器应用

Note: Control settings for each application are suggested as a starting point. Adjust them for your requirements. In general, the “smoothest” compression is achieved with the OVEREASY and AUTO buttons In, while the most “aggressive” compression is achieved with a Hard Knee fast setting (i.e., OVEREASY button Out with fast ATTACK and RELEASE times).

注意：针对每一个应用，建议旋钮设置在一个起点。根据需求调节它们。通常，切入 OVEREASY 和 AUTO 就能达到“最大平滑”的压缩 而快速设置的硬拐点能达到 “最猛烈”的压缩（OVEREASY 弹出，ATTACK 和 RELEASE 设置为 FAST）。

To compress a mix, begin with a low RATIO setting, THRESHOLD set for a few dB of Gain Reduction, and SLOW Attack and Release, OVEREASY and CONTOUR buttons In.

若压缩混音，在开始的时候，RATIO 低设置，THRESHOLD 设置在增益衰减表为几个 dB，且 ATTACK 和 RELEASE 都在 SLOW 的位置，OVEREASY 和 CONTOUR 按键按下。

Smoothing Out Variations in Microphone Levels

弱化麦克风电平的异常变化

Variations in signal level can occur when the distance between a vocalist and a mic changes, or when the dynamics of a voice changes relative to a vocalist's range. To smooth out these variations, start with the 166XL in OverEasy mode (OVEREASY button In) with a medium attack time and a fairly slow release time and adjusted for a low to medium compression RATIO (e.g., 4:1). Many people prefer the use of AUTO mode for vocals rather than setting the attack and release controls manually. Adjust the THRESHOLD control so that the GAIN REDUCTION meters show 6dB to 10dB of gain reduction, then increase the RATIO if necessary. Due to the gentle OverEasy characteristic of your 166XL you will find that even fairly high ratios are handled transparently. If the lower energy of the vocals is compressed too much (e.g., if the voice sounds too thin or it's lower register presence 现场感 is lost), press the CONTOUR button In to allow more of the original low energy to pass through the 166XL unaffected.

当演唱者和麦克风的距离远近发生变化时，或相对于歌手声音动态变化时，异常的信号电平就会产生。为了消除这些异常，在开始演唱的时候，设置 166XL 在 OverEasy 模式(OverEasy 切入)，Attack 设置在中间位置，Release 设置得相当地慢的位置，RATIO 比例设置在中等偏小位置（例，4:1）。很多人在唱歌的时候，喜爱使用 AUTO 模式而不愿意手动设置 ATTACK 和 RELEASE 这两个旋钮。调节 THRESHOLD 旋钮使 GAIN REDUCTION 表指示 6dB 到 10dB，然后，有必要的话再增大 RATIO。由于 166XL 柔和的 OverEasy 特性，甚至在压缩比相当高的情况下，你也会体现到这种模式的优越性。如果在演唱过程中，音量较弱的时候变被压缩，请按下 CONTOUR 按键，此时，允许原始的较弱音量的声音毫无影响地通过。

Smoothing Out Variations (and Increasing Sustain) in Musical Instrument Levels (e.g., Bass Guitar, Electric Guitar, Synthesizer)

弱化音乐设备（例：电贝司，电吉它，合成器）电平的异常变化（例：

增加持续性)

To achieve a smoother electric (or electronic) bass sound, compress the instrument's output with a RATIO of approximately 4:1, then adjust the THRESHOLD control for 10dB to 12dB of gain reduction. Compression lessens the loudness variations among the strings and increases the bass' inherent sustain. Other instruments, such as horns, vary in loudness depending on the note being played, and benefit similarly. Note that if the compressed bass sounds smooth, but too thin for your needs, try pressing In the CONTOUR button to thicken the sound.

为了达到电贝司的发声更平滑，用约 4:1 的压缩比来压缩设备的输出，然后调节 THRESHOLD 控制旋钮使之衰减 10dB 到 12dB。Compression lessens the loudness variations among the strings and increases the bass' inherent sustain. 例如：号，依据弹奏的效果来改变它的响度，同样受益。注意，如果压缩低音使之平滑，但是，与所需相比又太微弱，可以试图切入 CONTOUR 按键来加重低音。

To control untimely volume shifts in “hot” guitar or synth parts and to keep them from overloading your tape deck or mixer during recording and live performances, start with a slow Hard Knee compression, the RATIO at approximately 5:1 and the THRESHOLD set to the average maximum level of the track - this will ensure that only the offending “hot” part is compressed. Use CONTOUR, if necessary.

在节奏感强的吉他和合成器乐器中，为了控制不适时宜的音量转换，并在录音或实时演奏过程中阻止它们以防录音磁带机或混音器过载。开始一个慢的硬拐点压缩，调节 RATIO 约在 5:1 位置，THRESHOLD 设置在最大的平均轨迹电平，这样可确保仅有不愉快的演奏部分被压缩，如有必要，请使用 CONTOUR。

To add sustain to guitar or synthesizer string sounds, begin with a higher RATIO (from 10:1 to ∞ :1), then adjust the THRESHOLD control to taste. For example, to alter the envelope of a synthesizer sound that has a bite on its attack, but ends with a long release time, begin by playing slow, but steady, synth stabs or chords, while compressing the sound heavily (with a higher RATIO). Heavy compression of guitars and synths, as they are being recorded to digital formats, can often help revive their sense of “analog life.”

为了增加吉它或合成器声音的延续性，开始调节 RATIO 到一个较高的程度（从 10:1 到 ∞ :1），然后因人而异地调节 THRESHOLD 旋钮。举例说明，为了改变合成器声音，使其具有显著饱满的，且带有攻击性的音色，在其结束时具有较长的恢复时间，开始弹奏时节奏舒缓除坚硬音色外，强烈或柔和地合成，则需要强烈地压缩（设置较高 RATIO）。作为数字格式的录音，吉它或合成器的强烈的压缩，则有助于它们显著的模拟成份表现力。

Fattening Kick Drums and Compressing Other Drums

平直脚踏鼓和压缩其它鼓声

Weak, flabby kick drums often have too much boom, and not enough slap. To tighten them up, start with the 166XL adjusted for a medium to high RATIO (e.g., 6:1); adjust the THRESHOLD control so that the GAIN REDUCTION meters show 15dB of gain reduction, then increase the RATIO if necessary. In OverEasy mode, the 166XL takes slightly longer to react than in Hard Knee mode, and will therefore emphasize the slap at the beginning of the note and reduce the boominess of its body. The 166XL also works well for tightening snare drums and tom-toms and can be used with drum machines to effectively alter the character of any electronic drum sound.

疲惫的，松弛的脚踏鼓声经常表现出太多的混响声，不能足够地合拍。欲紧凑它们，开始设置 RATIO 到一个中高的比例（例：6：1），调节 THRESHOLD 旋钮使其增益衰减表显示 15dB 的衰减，然后增加 RATIO，如有必要的话。在 OverEasy 模式下，166XL 反应比硬拐点模式漫长一些，因此在开始的时候注重合拍，中途减少混响。166XL 很好地紧凑小军鼓和嗵嗵鼓，也能用机械鼓去有效地改变电子鼓声音的品质。

Cymbals and tom-toms can be effectively compressed (using the 166XL's Sidechain) to help prevent analog tape saturation. Split the drum signal, sending one channel directly to the 166XL's INPUT and the other channel to an equalizer (e.g., dbx's 20 Series or 30 Series Graphic Equalizer). Then connect the equalizer's output to the 166XL's SIDECHAIN INSERT. The equalizer can be adjusted for boost with a peak of about 5 kHz, causing the cymbal to be compressed on a very loud crash, stopping tape saturation at high frequencies, where there is less headroom. However, gentle tapping of a drumstick or brushing of the cymbal will not be affected. Assuming the tom-tom is a lower frequency instrument and can be better tolerated by the tape, it has less need for compression. Equalization in the Sidechain circuit means that the compressor is not triggered as readily by a loud tom-tom beat as by an equally loud cymbal crash. Refer to the next page for more Sidechain applications.

铙钹和嗵嗵鼓在有效的被压缩过程中，能够预防模拟磁带饱和。分离出鼓信号，直接送入 166XL 的一个通道输入端，另一个通道则用 EQ（例 dbx20 系列或 dbx30 系列图示 EQ）。然后连接 EQ 的输出端到 166XL 的边链插口中。在余量不足的情况下，EQ 运用 5kHz 的峰值去调节提升，引起铙钹在大的爆破音时被压缩，终止了高频时磁带模拟饱和。However, gentle tapping of a drumstick or brushing of the cymbal will not be affected. 假定嗵嗵鼓是一个低频设备，对磁带饱和具有很好的容忍度，那么，它就没有必要进行压缩。当嗵嗵鼓响度和铙钹响度相等时，在边链电路中的 EQ 就不易被触发。详细请参考边链应用。

For drum kit submixes (e.g., mixing multiple drum tracks to two tracks while using both channels of a 166XL for compression), consider backing off the RATIO on each channel (down to 2:1) to avoid an excess of cymbal "splattering." In larger multitracking systems, compress the kick and snare separately. A further possibility is to heavily compress a stereo submix of toms and leave the remaining percussives unaffected.

对于成套的鼓（例如：当使用 166x1 的两个通道进行压缩时，混音鼓可跟踪两个轨迹），可以调节 RATIO 低至 2：1 来避免过度的不连续的铙钹音。在大的多音轨系统中，则需分离地压缩脚踏鼓和小军鼓。更可能地加重压缩嗵嗵鼓的立体声，除去多余的无效的敲击声。

Raising a Signal Out of a Mix

提高信号的混音输出

Since reducing dynamic range, increases the average signal level by a small amount, a single track can be raised out of a mix by boosting its level slightly and applying compression. Start with a 2:1 RATIO and a relatively low THRESHOLD setting (-20dBu). Adjust both controls as necessary.

因为减少动态范围，增加少量平均信号电平，一个单音轨能够通过稍许提升混音电平和应用压缩来提高混音的输出。开始设置 RATIO 为 2：1，THRESHOLD 很低（-20dBu），必要时，同时调节两个旋钮。

Compressors have also been used to bring vocals to the forefront of a mix in volume-restricted studios (e.g. home studios). Start by adding a foam windscreen to the mic (if it

doesn't have one). Set the **RATIO** to 10:1 and the **THRESHOLD** to -10dBu. With your mouth approximately 2 inches from the mic, sing the vocal(演唱) part, but with less volume than normal. Use phrasing to give the part some intensity. An equalizer (e.g., a dbx 20 Series Equalizer or dbx 30 Series Graphic Equalizer) or a vocal effects device (e.g., reverb, delay, and distortion) can be added to further define the performance.

压缩器也被用来在音量限制的混音器中产生乐音（例如：家庭录音室）。开始在麦克风风里加入一个档风的泡沫（如果里面一个也没有）。设置 **RATIO** 为 10:1, **THRESHOLD** 在 -10dBu 的位置。在离麦克风约 2 英寸的位置，用略低于平时音量演唱歌曲（例：用一个 dbx 20 系列 EQ 或一个 dbx30 系列图表 EQ）。再增加一个 EQ 或一个效果器（例混响器，延时器，变调器）来加强它的性能。

It is also possible to separate certain vocals or instruments from a mono program already mixed: refer to frequency-weighted compression on page 9.

从一个已经混音的单声道节目中分离一系列的歌唱和设备也是可能的。（这部分在第 9 页频率加权压缩中提到）

Note: When compressing a stereo program with a 166XL, the factors affecting a compression curve and the actual **RATIO** and **THRESHOLD** settings, are like those previously covered with reference to single channels of program material. However, it will generally be found that large amounts of compression are more audible in a mixed stereo program than they might be on the separate tracks that were mixed to create the program.

注意：当用 166XL 压缩立体声节目素材，影响压缩曲线和实际 **RATIO** 和 **THRESHOLD** 设置的因数与那些提及到的节目素材中的单个通道被预先覆盖的情况相似。然而，巨大数量的压缩在混合立体声节目中是可闻的，通常情况下，它或许比在分离音轨在混合中创作节目还要多。

Preventing Analog Tape Saturation

防止磁带模拟饱和

With programs of widely varying levels, compression can prevent recording levels (e.g., cymbal tracks in a final mix or drum kit submix) from saturating tape tracks (see frequency-weighted compression, on page 9).

在宽范围变动电平的音乐中，压缩器能阻止来自饱和磁带音轨中的录音电平（详细参考频率加重部分）。

Preventing Digital Overload

防止数字设备过载

Digital recorders and samplers produce audible distortion when they exceed their headroom (i.e., the range above their maximum operating level). The 166XL effectively ensures that audio input does not overload a digital recorder's A/D (analog-to-digital) converters. The 166XL can perform this function quietly enough for all digital media. To use the 166XL so that no changes in gain occur unless an emergency arises (wildly excessive levels), set **Hard Knee** mode On, the **RATIO** to $\infty:1$, and the **THRESHOLD** to the highest permissible level.

当数字记录和数字采样器超过了它们的头空间时会产生可闻失真（）。166XL 确保音频输入在数字记录器的 A/D 转换器中不会过载。166XL 能够为所有的数字媒体履行这个功能。166XL 在增益中没有任何改变，直到巨大能量产生时。设置硬拐点模式，**RATIO** 为 $\infty:1$, **THRESHOLD** 设置到允许的最高电平位置。

Note: PeakStop limiting can also be used to prevent raucous-sounding digital overload.

注意：峰值终止保护也能用来防止 raucous-sounding 数字过载。

Speaker Protection (Auditoriums, Churches, Mobile DJs and Sound Systems)

扬声器保护

Compressors are frequently used to prevent excessive program levels from distorting power amps and/or damaging drivers in a sound-reinforcement system (whether you're doing auditorium, church, or club sound engineering, or are a mobile DJ, or like to push the limits of your home's audio entertainment center). Set the 166XL for limiting (Hard Knee mode on, with a RATIO of 10:1 or greater) and adjust the THRESHOLD to provide 15dB or more of compression (just a few dB below the input clip). For low-level signals, the 166XL won't change gain, but if large signals come along, the gain will be reduced to prevent clipping and save sensitive system components from excessive heat buildup or other type of damage.

压缩器频繁地用在防止节目电平过高而损坏功放情况下,或防止在扩声系统中的驱动器被破坏情况下。设置 166XL 进行限幅(硬拐点模式,压缩比为 10:1 或者更高)。调节 THRESHOLD 在规定的 15dB 或者更多的压缩(比输入峰值 dB 数稍低一些)。为了得到一个低电平信号,166XL 将不会改变其增益,但是,如果有太大的持续信号时,输出增益被迫阻止峰值,防止热量过度而保护敏感系统的组成,或者其它形式的破坏。

In circumstances where the 166XL is expected to cause no change in gain unless an emergency arises (wildly excessive levels), some operators set Hard Knee mode On, the RATIO to $\infty:1$, and the THRESHOLD to the highest permissible level. As with preventing digital overload, the 166XL's PeakStop limiter can be used instead of or in combination with the 166XL's compression.

在 166XL 使用的环境中,它不期望引起增益电路的变化,除非有过激信号出现时,此时,将 166XL 设置成硬拐点模式, RATIO 为 $\infty:1$, THRESHOLD 为允许的最高电平位置。在数字设备过载的情况下,166XL 的 PeakStop 经常取而代之地使用,或者与 166XL 的压缩组合使用。

As a general rule, compressors should be as close to the amplifiers as possible in the signal chain. If the 166XL is placed before the EQ (equalizer), for example, a potentially damaging boost in the EQ won't be seen by the 166XL and the speakers may be damaged. (See Multi-way speaker systems, page 10). For maximum sound pressure levels, large sound reinforcement systems frequently use a separate compressor on each output of the electronic crossover(s). For a stereo sound-reinforcement system, one 166XL can be used for each stereo band (low, low-mid, mid, etc.).

通常地讲,在信号链中,压限器应该尽可能地贴近功放。如果 166XL 放 EQ 之前,举例说明,一个潜在的危险就会发生在提升 EQ 时,将不会被 166XL 发现,从而扬声器可能损坏。对于最大的声压电平,巨大的声音增强系统,通常在每一个电子分频器的输出后面拉一个独立的压限器。对于一个扩声系统,166XL 常常用在每一个立体声波段(低,低中,中频等)。

Raising Average Level in PA Systems

在 PA 广播系统中提升平均电平

Limiting (i.e., compression at high ratios like $\infty:1$) also benefits intelligibility by allowing low-level input signals to be reproduced through the system at higher volume.

限制器（也就是说，压缩最高比如 $\infty:1$ ）

In a musical performance, this provides additional intimacy so that a vocalist's whispers are heard more clearly. The OverEasy curve available with the 166XL permits a very high amount of compression (RATIO of 10:1 or greater) to be used in many situations. This allows dynamic speakers, vocalists and other musicians to concentrate on their presentation or performance without worrying about the ill effects of volume changes.

在演奏会上，它提供了一个附加的行为，可使歌手私下谈天。166XL 可利用的 OverEasy 曲线允许在很多场合下设置一个很高的总体压缩（RATIO 在 10: 1 或更高）。这就允许演讲者、歌手或其它音乐家在对音量改变出现差的效果的毫无忧虑的情况下全神贯注地陈述或表演

Using Your EQ to Reduce Feedback in Live Settings (Indoor and Outdoor Concerts, Churches)

使用 EQ 在实时设置中减少反馈

You can use your 166XL and EQ (equalizer) to reduce feedback in clubs, churches, outdoor concerts and other live settings. Patch or insert the 166XL into the main output of a mixer, set the 166XL to Hard Knee mode and slowly increase OUTPUT GAIN until the first feedback “ring” occurs, then set up the 166XL with its RATIO at $\infty:1$ and THRESHOLD low. The 166XL will catch the first feedback ring and hold it as a constant tone so you can adjust your EQ to minimize it. Continue to increase your console gain and set your EQ until the next 3 or 4 “ring” frequencies have been compensated for.

在俱乐部、教堂、户外音乐会或其它实时设置中，你可以使用 166XL 和 EQ 来减少反馈。将 166XL 插入到调音台的主输出中，设置 166XL 在硬拐点模式上，然后慢慢地增大 OUTPUT GAIN 直到第一次反馈声发生，然后设置 166XL 的 RATIO 在 $\infty:1$ ，THRESHOLD 比较低。

The 166XL as a Line Amplifier

166XL 作为线性放大器

To use the 166XL as a line amplifier, adjust the RATIO control fully counterclockwise (1:1 position), THRESHOLD fully clockwise (+20), PeakStop to +20 and OUTPUT GAIN to whatever setting is required for the application. Remember, excessive gain may lead to output clipping of high level signals. To add compression, adjust the RATIO and the THRESHOLD controls to the desired settings.

如果把 166XL 作为一个线性放大器使用，则逆时针调节 RATIO 到 1: 1 位置，THRESHOLD 顺时针在 +20 位置，PeakStop 在 +20 位置，OUTPUT GAIN 调节在所需要调节的位置。请记住，巨大的增益将导致高电平的输出信号的消波。如需增加压缩，则调节 RATIO 和 THRESHOLD 旋钮来进行设置，

Frequency-Weighted Compression (Sidechain Application)

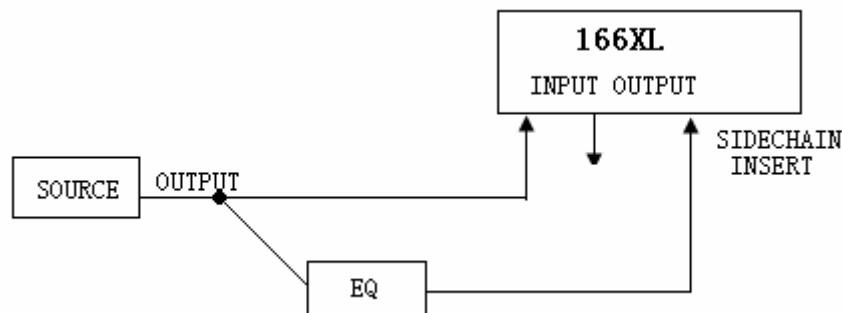
频率加权压缩(边链应用)

It is possible to separate certain vocals and instruments from a mix by frequency-weighted compression. With an equalizer (such as a dbx 20 Series or 30 Series EQ) inline ahead of the SIDECHAIN INSERT (but not in the audio path), the equalization settings do not shift the timbre or frequency response of the audio signal. They merely alter the threshold response of the compressor on a “frequency-weighted” basis.

通过频率压缩从调音台分离部分声乐和设备是可能的。将一个均衡器（如 DBX 20 系列或 30 系列 EQ）放入 SIDECHAIN INSERT 前面（但是不是在音频线路上）。均衡器设置不转换音色或音频信号的频率响应。它们仅仅在频率加重的基础上改变压缩器的响应阈值。

With this arrangement, raising certain frequencies on the equalizer causes them to be suppressed in the audio signal. A relatively high THRESHOLD setting can allow normal sounds to be unaffected while solo and very loud sounds are compressed. (Of course, when compression occurs, the level of the entire program is affected - however, if the 166XL's CONTOUR button is pressed in, even more of the signal's lower energy can be preserved.) Depending on the THRESHOLD setting, lower amplitude fundamentals or harmonics will not cause compression, and the program is not subject to the phase shift normally caused by program equalization.

在这种安排下，在均衡器上提高部分音频能使音频信号被抑制。一个相关的高阈值设置允许正常语音不受影响，而独奏和很大声音却被压缩。依靠压缩值的设置，lower amplitude fundamentals 或和声学将不会被压缩，而节目素材则不受正常的相位转换影响至平等化。



When recording cymbals and tom-toms（通通鼓），a compressor with an equalizer in the Sidechain path can help prevent analog tape saturation. The equalizer can be adjusted for boost with a peak of about 5 kHz, causing the cymbal to be compressed on a very loud crash, stopping tape saturation at high frequencies, where there is less headroom. However, gentle tapping of a drumstick or brushing of the cymbal will not be affected. Assuming the tom-tom（通通鼓） is a lower frequency instrument and can be better tolerated by the tape, it has less need for compression. Equalization in the Sidechain circuit means that the compressor is not triggered as readily by a loud tom-tom（通通鼓） beat as by an equally loud cymbal crash.

当我们对铙钹和通通鼓录音时，在边链开关上使用一个带 EQ 的压限器能够防止模拟磁带饱和。EQ 用调节铙钹使其在约 5kHz 的峰值频率得以提升，在一个大的撞击音时，将将会引起铙钹被压缩，终止高频的磁带饱和，因为在高频时很少有净空。However, gentle tapping of a drumstick or brushing of the cymbal will not be affected. 通通鼓是一个低频设备，不能很好地被录音带容忍，它很少被压缩。当一个与铙钹响度大小的通通鼓声起时，边链是电路里的 EQ 意味着压缩器不是很容易地被触发。

The converse of the above EQ technique may be used: dipping the equalizer bands causes any sound with dominant energy in the affected register to pull the level up because the 166XL will detect a need for less compression.

上面的 EQ 技术也可以颠倒使用：

Increasing Sustain

增加持续

To increase the sustain of a musical instrument (e.g., a guitar or bass), use an equalizer in the Sidechain circuit and boost the EQ in the dominant frequency range of the instrument. Set the 166XL for slow Hard Knee compression, with a fairly low THRESHOLD and a moderate RATIO.

为了增加音乐设备支持（如吉它或贝司），在边链电路里使用一个 EQ, 并且在设备占有优势频率的范围内提升 EQ。设置 166XL 进行慢的硬拐点压缩，相当低的 THRESHOLD 和一个适度的 RATIO。

Multi-Way Speaker Systems

多路扬声系统

If a single compressor is to be used with a multi-way speaker system (i.e., before the crossover, after the EQ), the system operator is faced with the problem of keeping levels below the point of damage of the most sensitive part of the system. If, for example, mid-range drivers are frequently damaged, the whole system must be operated at a lower sound-pressure level, or additional mid-range drivers must be added. By inserting an equalizer in the Sidechain path to the 166XL, it can be made more sensitive to frequencies in the range handled by the sensitive drivers. The system can then be run at higher levels and will only be dropped back when damaging signals are present.

如果一个压缩器用在一个多路扬声系统中（也就是，分频器前，EQ 后），系统操作员面对的问题是保持电平低于系统的大多数敏感损害点以下。例如，如果在一个系统中，中间的某个驱动器时常损坏，整个系统必须运行在一个被压制的低音电平中，或者一个附加的中间驱动器是必须增加的。通过在 166XL 的边链路径中插入一个均衡器，产生更多的敏感的频率，而这些敏感的则在敏感驱动器的把握之中。系统就能运行在一个高电平状态下，或者破坏性信号到来时，系统会衰减它们。

Using a Filter in the Sidechain Circuit

使用一个滤波器在边链电路中

The results of inserting a filter in the Sidechain circuit are basically the same as obtained with an equalizer, as previously described. Those frequencies passed by the filter are subject to compression (or at least they are subject to considerably more compression than those frequencies outside the passband). Because a passive filter can have insertion loss, it may be necessary to lower the 166XL's THRESHOLD setting to maintain a given amount of gain reduction within the filter passband; this can be determined by monitoring the 166XL's THRESHOLD LEDs.

如前所述，在边链电路中插入一个滤波器的结果是最基本的连接，如同获得一个均衡器。通过滤波器的那些频率受到压缩器不同程度的影响（与通频带外信号相比，至少它们被压缩很多）。因为一个无源滤波器存在频幅衰减，在通频带内，它必然降低 166XL 的压缩阈值设置，继续维持特定的增益衰减；166XL 的阈值指示灯如实描述这一特点。

Pre-Emphasis for Broadcast Applications

预加重在广播系统应用中

By inserting a pre-emphasis filter network in the Sidechain path of a 166XL processing pre-emphasized audio, higher levels can be run within the headroom limitations of the broadcast chain.

CONNECTING THE 166XL TO YOUR SYSTEM

Basic Connection

基本连接

The 166XL has balanced inputs and outputs, and can be used with any line-level device. Some common examples include: mixing consoles, musical instruments, patch bays and other signal processors. For more specific cabling information, refer to Installation Considerations, page 18.

166XL 拥有平衡式输入输出接口，可以使用任何线性电平设备。一些很普通的包括：调音台，音乐设备，配电盘和其它的信号处理器。更多的线缆信息，参考安装事项，第 18 页。

For all connections, refer to the following steps:

针对所有的连接，参考下述步骤：

1 Turn Off all equipment before making any connections

1、在连接之前，关掉所有设备。

2 Mount the 166XL in a 1U rack space (Optional).

2、

The 166XL requires one rack space (height) and 1 rack space (width). It can be mounted above or below anything that doesn't generate heat, since it requires no special ventilation. Ambient temperatures should not exceed 113°C when equipment is powered.

166XL 需求一个安装空间。安装空间大小合适不易产生热量，因为它不需求特殊通风条件。当产品在工作过程中，周围的环境温度不能超过 113°C。

Caution: Never remove the cover. There are no user-serviceable parts inside, and you run the risk of an electric shock.

警告：禁止移走产品顶盖。在产品内部没有用户需要调整的地方，并且你将会受到电击的危险。

3. Make connections via XLR or 1/4" TRS jacks according to your requirements.

Typical patch points include: a mixer's channel or subgroup inserts when using the 166XL on individual instruments or tracks; the mixer's main outputs or bus inserts when mixing; an instrument preamp's effects loop when using the 166XL for guitar or bass; main outs of a submixer (e.g., keyboard mixer) as the signal is sent to main mixer; between a DAT's output and an analog cassette input. When using a chain of processors, the 166XL may be placed either before or after effects or dynamic processors. However, if you are using the 166XL for speaker protection, the compressor should be as close to the amplifier as possible in the signal chain. We recommend you use common sense and experiment with different setups to see which one provides the best results for your needs.

3、依据需求对 XLR 或 “1/4” TRS 进行连接。

Note: Never connect the 166XL's input to the speaker output of an instrument or power amplifier.

注意：禁止连接 166XL 的输入设备的扬声器输出或功放输出。

4. Power On the unit: Securely connect the AC power cord to the unit and mains power.

4、产品的电源：安全连接 AC 电源线到产品和主电源上。

Note: Check the line voltage. The unit is shipped for 115V or 230V operation. Refer to the unit's rear panel to verify your unit's precise line voltage.

注意：请核查线路电源电压。该产品的使用电压是 115V 或 230V。参考产品后板，核查产品的准确使用电压。

Using the SIDECHAIN INSERT

使用边链接口

The SIDECHAIN INSERT can be used to control the compressor or the expander/gate by signals other than the audio input (via an auxiliary device, such as an equalizer). Common Sidechain applications include keyed gating (选通), frequency-sensitive gating (选通) and frequency-weighted compression. These topics are covered in detail in the previous pages of this manual. Certain Sidechain applications may require special cabling.

边链插口通过信号而不是音源输入来控制压缩或扩展/噪声门（孔内辅助设备，像均衡器）。普通的边链应用包括键控噪声门，频率敏感门和频率加重门压缩。这些主题在本手册前几页已经复述。几种边链应用需求特殊的线材。

For example, to set up your 166XL for frequency-sensitive gating (选通) or frequency-weighted compression, you must feed an equalizer's input with the same signal feed to the 166XL's INPUT, and then connect the equalizer's output to the 166XL's SIDECHAIN INSERT jack (Figure 3). Providing the signal to both the 166XL's INPUT and the equalizer can be accomplished in several different ways: (1) use an insert cable plugged into the SIDECHAIN INSERT jack. The SEND goes to the input of the EQ. The RETURN goes to the output of the EQ; (2) use a Y-cable to feed the audio source to both the 166XL INPUT and the equalizer input; (3) feed the signal to one of the 166XL's INPUT jacks and use the compressor channel's parallel INPUT jack to drive the equalizer (e.g., if the audio source feeds into Channel 1's 1/4" INPUT jack, use Channel 1's XLR INPUT jack to feed the signal to the equalizer); (4) if the audio source can internally split its output signal (e.g., Some synthesizers can send the same signal from two outputs), plug a cable into each output and feed one cable to the 166XL INPUT and the other to the equalizer.

举例说明，如设置 166XL 为频率敏感门或频率加重门压缩，你必须使用输入均衡器同样的信号去反馈到 166XL 的输入端，然后连接均衡器的输出到 166XL 的边链插口中（如图三所示）。给 dbx166x1 的两具输入通道提供信号，EQ 能完成几个不同的途径：（1）使用一个插线插到 SIDECHAIN INSERT 插口里，SEND 连接到 EQ 的输入端，RETURN 连接到 EQ 的输出端；（2）使用一个 Y 型线，输入一个音源信号到 dbx166x1 和 EQ 的输入端；（3）输入一个信号到 dbx166x1 的输入端接口，使用压限器的平行输入接口去驱动 EQ；（4）如果音源信号能够在内部分离出输出信号，则在每一个输出接口 f 插一根线，输入一根线到 166XL 的输入端和其它到 EQ。

Specific System Connections

特殊系统连接

The 166XL has balanced inputs and outputs, and can be used with any balanced or unbalanced line-level device. Some common examples include: mixing consoles, musical instruments, patch bays, and other signal processors.

166XL 有平衡式输入输出接口，可使用在任何平衡或非平衡式线性电平设备中。如，调音台，音乐设备，插线架和其它信号处理器。

Mixing Board

调音板

If you wish to compress a particular track of a multitrack recording or one channel of a live performance, connect the 166XL INPUT to the audio source's output jack while the 166XL OUTPUT can be directly connected to a line input jack (balanced or not) or the 166XL's INPUT and OUTPUT can be wired to an Insert point. In the latter case, the signals will most likely be unbalanced.

如果你希望压缩一个特殊的多音轨录音的轨迹或一个实时演奏的声道，可连接 166XL 的输入端口到音源的输出端口，同时 166XL 输出直接连接到一个线性输入接口（平衡式或非平衡式），或 166XL 的输入输出连接到一个插口点，在后来的事例中，信号大多数像非平衡式信号。

It is important to note that the amount of compression is directly related to the level of the input signal. However, depending upon your system's setup, it may not always be clear as to what volume controls in your chain affect input level and which affect output level. If the 166XL is connected so that compression occurs before the mixer's volume controls (e.g., the 166XL is connected directly between an audio source and the mixer input, or the 166XL is connected to mixer inserts that are "pre-fader"), you can boost or cut the input level by adjusting the source's volume control (e.g., a synthesizer's volume control) and boost the track's output level using the 166XL's OUTPUT GAIN control or the mixer's volume fader (the latter here is great for track fade-outs). However, if the 166XL is connected to "post fader" mixer inserts, adjusting the mixer's volume fader changes the input level and the amount of compression. If you would rather have this volume fader control output, we suggest that you set up the compressor directly between the source and the mixer channel's input. This way, you can use the instrument's volume control to define the input level and amount of compression and the mixer's volume fader to change only the overall volume of the track.

涉及到大量的压缩直接关系到输入信号的电平是很重要的。然而，仅仅依靠系统设置，是不可能清除音量电位器带来的输入输出电平产生的链式效果。如果 166XL 连接到系统中，那么在调音台音量（例如：166XL 直接连接在音源和混音器输入，或 166XL 连接在调音台 "pre-fader" 的那个 INSERT）控制之前压缩已经发生的话，你可以通过调节音源电位器进行提升或切除输入电平（例：合成器的音量电位器）和使用 166XL 的 OUTPUT GAIN 电位器来提升输出电平的音轨或者调音台的音量衰减推子，或混音器的音量推子。然而，如果 166XL 连接在调音台的 "post fader" 的 INSERTS，则调节调音台的音量推子改变输入信号和所有的压缩。如果你宁愿使用音量推子去控制输出，我们建议你直接在音源和调音台的输入通道中设置压缩器。通过这种方法，你可以使用设备的音量电位器去定义输入电平和总体压缩和调音台的音量推子去仅能改变的音轨中的全部音量。

Musical Instruments (e.g., Electric Guitar, Bass, Keyboards, Electric-Acoustic Instruments)

电声设备（例：电吉它，电贝司，键盘器，电声设备）

The output of an electric guitar is sometimes not “hot” enough to drive the 166XL’s INPUT. When this is the case, switch the rear panel +4/-10 switch to the IN position which will boost the low level signal by approximately 12dB. If this is still not enough boost then you should use the “PREAMP OUT” of your guitar amp (if so equipped), or the output of some other device that is designed to accept low-level instrument inputs (including various foot pedal effects, acoustic pickup preamps, and some rack mount audio products). Such sources can be balanced or unbalanced - this is no problem for the 166XL.

电吉它传输电平较低，以至于不能驱动 166XL。当这一特例出现时，请切入后板上的“+4/-10”按键，该按键提升低电平信号约 12dB。如果仍然不能驱动 166XL，那么应该使用吉它功放上的“PREAMP OUT”（如果有此装置），或者使用同类型其它能够接受低电平信号的其它输入设备（包括各种各样的脚踏开关，音响类的前置放大拾音装置，和一些 rack mount 音频产品）。这些平衡或非平衡式的声源与 166XL 是相匹配的。

Microphones, bass guitars, and electric-acoustic instruments, also typically have low-level outputs. With most setups they require signal boost to drive the 166XL’s INPUT. For example, when recording voice directly to a portable tape deck, a mic preamp placed between the mic and the 166XL (which is then fed to one of the recorder’s inputs) can boost the signal for the 166XL as well as provide a high level signal to the tape deck.

麦克风、电贝司（低音吉它）、和电子音响设备，特殊的也有低电平输出。使用这类设备，对于 166XL 来说都需要进行信号提升。举例来说：当使用一个便携磁带机录音时，就必须在麦克风和 166XL 之间安装一个麦克风前置放大器，以此来为 166XL 提升信号，得到足够高的电平信号来供应磁带机。

Keyboards, samplers, drum machines and sound modules typically produce a line-level signal and can be connected directly from the instrument’s output to the 166XL’s INPUT.

键盘乐器，采样器，鼓类和具有代表性的声音调制类乐器能产生一个线性电平信号，可以直接将其设备输出连接到 166XL 输入上。

Note: DO NOT CONNECT the 166XL’s input to the speaker output of an instrument or power amplifier. Severe damage to system components may result.

注意：不要将 166 XL 的输入与输出设备扬声器或功放的输出端相连接。不则，结果是严重地损坏组成系统。

Patch Bay

插线架

In the studio, the 166XL may be connected to a patch bay (such as a dbx PB-48) to allow it to be used anywhere in the studio system. If your studio is not fully balanced, you must ground the unused balanced output conductor: XLR pin (either pin 2 or 3) or the ring of a 1/4” stereo phone jack. Note that grounding pin 2 of the XLR jack reverses the phase through the 166XL.

在录音室里，166XL 常常连接在插线架上（如 dbx PB-48），充许它用在录音系统中的任

何地方。如果你的录音系统不完全平衡式接口，你必须把平衡接口中的未使用的脚接地：XLR 脚（要么 3 脚，要么 2 脚）或“1/4”立体声话筒接口的环环形部分接地。注意：XLR 接口的 2 脚是反相接在 166XL 上。

Sound Reinforcement

增强声音

To compress a live mix or to protect loudspeakers, connect the 166XL between the source (mixing board or distribution amp) and the power amp(s). If multi-way loudspeakers with low-level electronic crossovers are used, the 166XL(s) should go after the crossover(s). For a stereo system, you can separately stereo couple the two high band crossovers, low band crossovers, etc. If limitations require that you use a single 166XL channel before a crossover, adding an equalizer to the sidechain may provide some additional protection to your high frequency components (see “Speaker Protection,” page 8).

为实时压缩调音台信号或保护扬声器，连接 166XL 在声源（调音台面板或分配给功放）和功放。如果在多路扬声器中使用低电平电子分频器，则 166XL 应该放置在分频器之后。对于一个立体声系统，你可以分离立体声为两个高频段、低频段分频器等。如果存在局限性，在分频器前只能使用 166XL 的一个通道，那么在边链中增加一上均衡器，它能够提供额外的保护你的高频组成部分（看“扬声器保护”，第八页）。

INSTALLATION CONSIDERATIONS

安装事项

Input/Output Cable Configurations

输入输出线配置

Hookups and Cabling

连接和信号线

The 166XL is a balanced (differential) unit designed for nominal +4dBu or -10dBV levels; inputs and outputs are 1/4” tip/ring/sleeve (TRS) phone jacks and XLR-type jacks. The 166XL can be used with either balanced or unbalanced sources and outputs can be used with either balanced or unbalanced loads, provided you use proper cabling.

166XL 是一个被设计为普通电平+4dBu 或 -10dBV 的平衡式产品。输入输出都是 1/4” tip/ring/sleeve (TRS) 话筒接口和 XLR 类型接口。166XL 用在平衡式或非平衡式源和输出，也被用在平衡式或非平衡式负载，为你提供合适的信号线。

A balanced line is defined as two-conductor shielded cable with the two center conductors carrying the same signal but of opposite polarity with respect to ground. An unbalanced line is generally a single-conductor shielded cable with the center conductor carrying the signal and the shield at ground potential.

一个平衡式信号线被定义为两根被屏蔽了的信号线，这两根信号线传输的信号相同但极性相反，且关联于同一个地。对于非平衡式信号线来说，就是一根被屏蔽了的信号线，这个

中心信号线传输信号，且相对于地电势。

Input Cable Configurations

输入线配置

The 166XL has an actual input impedance of $>40k\ \Omega$ in balanced or unbalanced configurations. This makes the 166XL audio input suitable for use with virtually any source impedance, low or high. The 166XL's input jacks are wired in parallel. The phone jack TIP (+) connection is internally wired to the XLR pin 2, the RING (-) is wired to pin 3, and the SLEEVE (shield) is wired to pin 1. Note that pins 2 and 3 are the reverse of certain older dbx and other manufacturer's equipment, but if the same connection is used at both the input and the output, the signal will be correctly polarized ("in phase").

166XL 在平衡或非平衡结构中，存在一个实际阻抗，该阻抗大于 $40k\ \Omega$ ，这将使 166XL 输入端与任何源阻抗，低或高阻抗进行良好的匹配。166XL 的输入接口的线是并行的。话筒接口的 TIP(+) 在内部连接 XLR 的 2 脚，RING(-) 在内部连接 XLR 的 3 脚，SLEEVE(外壳) 连接 1 脚。注意，在 DBX 或其它制造设备中，2 脚和 3 脚是相反的。但是，如果进行同样的连接，则在输入输出中，信号的极性则是正解的。

Reversing the input wires to the input terminals will result in the output signal polarity being the opposite of the input signal ("180° out of phase").

调反输入端输入线将会导致输出信号极性与输入信号的极性相反（输出相位反 180°）。

Output Cable Considerations

输出线需要考虑的事项

The model 166XL's outputs are wired in parallel: either the XLR-type OUTPUT jack or the 1/4" stereo phone jack are capable of driving a $600\ \Omega$ load. The phone jack TIP (+) connection is internally wired to the XLR pin 2, the RING (-) is wired to pin 3, and the SLEEVE (shield) is wired to pin 1. Note that pins 2 and 3 are the reverse of certain older dbx and other manufacturer's equipment, but if the same connection is used at both the input and the output, the signal will be correctly polarized ("in phase").

166XL 产品的输出是平行输出：XLR 类型输出接口和“1/4”立体声话筒接口的负载驱动能力是 $600\ \Omega$ 。话筒接口的 TIP(+) 连接在 XLR 的 2 脚，RING(-) 接在 3 脚，SLEEVE(外壳) 接在 1 脚。注意，dbx 公司原有的系列产品和其它公司的产品中的 2 脚 和 3 脚相位是相反的，那么在输入输出中应该保持同样的连接方式，否则信号将会有适当的偏振（在相位方面）。

Figure 4: Signal Flow (Balanced Connection)

如图 4 所示：信号流程（平衡式连接）。

Grounding

地

For maximum hum rejection with a balanced source, avoid common grounding at the 166XL's input and output. Most balanced (3-conductor) cables have the shield connected at both ends. This can result in ground loops which cause hum. If hum is a problem, try disconnecting the shield on one or more of your cables, preferably at the input of a device, not at the output: Ground the shield

of the input cable at the source device (leaving it unconnected at the 166XL's INPUT) and ground the shield of the output cable to the ground terminal of the 166XL (leaving it unconnected at the receiving device). The shield is pin 1 on the XLR, SLEEVE on a 1/4" TRS.

平衡式接法可拒绝巨大的哼哼声，避免 166XL 输入输出的共地。大多数平衡线（三段导线）在两端都有屏蔽外壳。这就是导致地循环中所引起的哼哼声的原因。如果哼哼声是一个问题，试着拆离一个或多个外壳，最好在输入端，而不是输出端：在源设备的输入线屏蔽外壳地（远离它，并且不要和 166XL 输入端相接）和 166XL 接地端子的输出线的屏蔽外壳地（远离它，并且不要和接收设备相接），XLR 的 1 脚是屏蔽地，而“1/4” TRS 的 SLEEVE 是屏蔽地。

TECHNICAL SUPPORT, FACTORY SERVICE

技术支持、售后服务

The 166XL is an all-solid-state product with components chosen for high performance and excellent reliability. Each 166XL is designed, assembled, tested, burned in and calibrated at the factory in the USA and should require no internal adjustment of any type throughout the life of the unit. We recommend that your 166XL be returned to the factory only after referring to the manual and consulting with Customer Service.

166XL 是一个可供选择的高性能，极具依赖性的固态产品。每一个 166XL，都是经过美国 dbx 公司设计、组装、测试、老化并校准的产品，在它的寿命周期中，不需要再进行公司以外的校准。如果涉及到用户手册或售后服务咨询的问题，请将 166XL 返回本公司。

Our phone number, fax number and address are listed on the rear cover. When you contact dbx Customer Service, be prepared to accurately describe the problem. Know the serial number of your unit - this is printed on a sticker attached to the unit.

我们的电话号码、传真号码和地址全部丝印在产品的后板上。当联系 dbx 客户服务部时，请你精确阐述问题所在。并请你一并告诉我们，你产品上的序列号码（该号码牢牢地丝印在该产品上）。

Note: Please refer to the terms of your Limited Two-Year Standard Warranty, which extends to the first end-user. After the warranty expires, a reasonable charge will be made for parts, labor, and packing if you choose to use the factory service facility. In all cases, you are responsible for transportation charges to the factory. dbx will pay return shipping if the unit is still under warranty.

注意：请查阅你使用产品的两年期限条例，日期从最终用户第一次使用算起。如果你选择了本公司的售后服务，则在保证期内，我们将会对部分零件、工时及包装采取合理的收费。Shipping Instructions:

船运说明：

Use the original packing material if it is available. Mark the package with the name of the shipper, and with the following words in quotes in red: "DELICATE INSTRUMENT, FRAGILE!" Insure the package properly. Ship prepaid, not collect. Do not ship parcel post. (If you do not plan to save the packaging material, please recycle it.)

如果原始包装材料可利用的话，请使用它。在包裹上注明发货人的姓名，并用红色字体注明“精密产品、易碎！”语句来适当地确保你的包裹完好。已付费，收件人不再付费。不要船运包裹（如果你不打算保存你的包装材料，请回收它。）

Registration Card and User Feedback

注册卡和用户反馈

We appreciate your feedback.。 After you have an opportunity to use your new 166XL, please complete the Registration Card and return it.

我们感激你的反馈。在你有机会使用你的新产品 166XL 后，请完成这份注册卡，并寄给我们。