



TalkShow®

VS 4000 / VS 100



Skype TX™ Broadcast Connectivity

User Guide

NDI®

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This guide provides all the information you need to know to connect, configure and operate your NewTek TalkShow® live production system. Please take time to become acquainted with TalkShow's many tools and features designed to enhance your production.

TalkShow® provides a wealth of tools that will help you ensure the best possible audio and video quality for Skype™ calls supplied to your studio.

TalkShow's Talk Back feature provides convenient 'off-air' communication with the remote caller. Its ground-breaking NDI (Network Device Interface) implementation means that you can take advantage of the convenience and creative possibilities offered by this widely supported IP protocol.

This page provides a top level view of the organization of this guide.

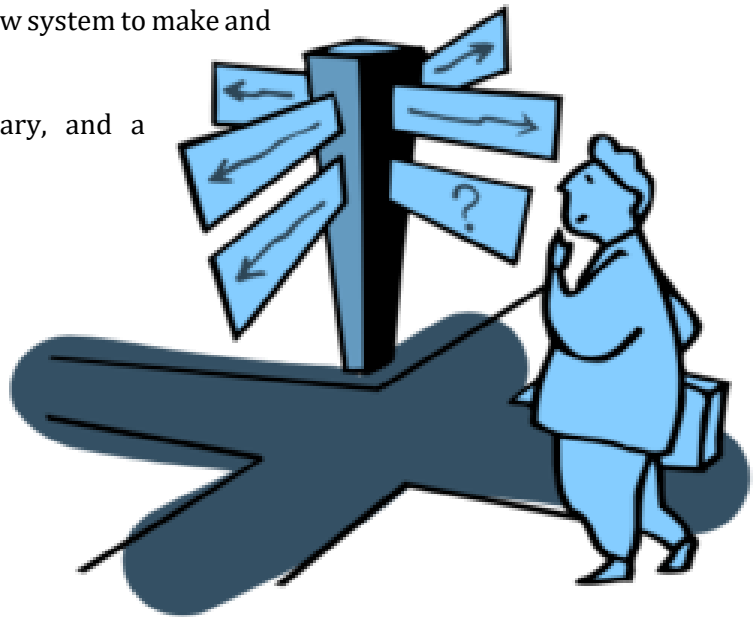
➤ *CHAPTERS 2 & 3 – GETTING STARTED*

Introduction to TalkShow – connecting devices (video sources, monitors, etc.) and registration, configuration, and overview of software and workflow.

➤ *CHAPTER 3 – MAKING CALLS, MANAGING CONTACTS*

This section covers the use of your TalkShow system to make and receive Skype calls.

➤ *APPENDICES* – Includes an FAQ, Glossary, and a comprehensive keyword index.



Chapter 2 INTRODUCTION



Thank you for purchasing this NewTek product. As a company, NewTek is extremely proud of its record of innovation and commitments to excellence in design, manufacture, and superb product support. You will find both NewTek VS 4000 and VS 100 systems exceptionally powerful and versatile. This chapter provides a quick tour of TalkShow's components and features.

SECTION 2.1 MEET TALKSHOW

For decades, NewTek innovations have repeatedly redefined live video production, providing new creative possibilities and revolutionary value propositions. In particular, NewTek has led the charge of integrated devices that provide a complete and powerful set of tools for program creation and broadcast, along with web streaming, social media support, and more.



NewTek TalkShow® is a perfect example of this innovation. Whether used in a NewTek live production environment or not, it will provide your productions with profound extensibility, delivering conversations that span the entire planet to your viewing audience.

The Skype™ video messaging platform has been embraced worldwide and, along with Skype for Business (formerly Lync), provides a unified communications system that allows you to integrate up to the minute audio and video sources from almost anywhere to be integrated into your show. NewTek VS 4000 and VS 100 systems with Skype TX™ technology provide a level of interactivity previously only dreamed of by the world's foremost broadcasters.

SECTION 2.2 OVERVIEW

TalkShow is an authorized Skype TX platform, and as such provides unique capabilities designed for the broadcast market, including the ability to input, and output full frame video HD-SDI formats with broadcast friendly audio. Skype TX products include both software and hardware.

For this reason, and also as an aspect of its scalable architecture, TalkShow VS 4000 and VS 100 consist of several primary components as described below:

- **TalkShow hardware** provides the platform without which none of this would be possible. This provides the all-important connections to and from your studio to remote Skype callers.
- **Skype TX**, in simplest terms, is a studio-grade version of the familiar Skype™ client software, developed by Microsoft® to let broadcasters integrate Skype technology into production infrastructure. Both Talkshow models support the most recent Skype TX 4 platform. In practice, you can think of Skype TX as your ‘switchboard’. It provides the connections between your local unit and the worldwide Skype network. You use Skype TX to log into a Skype account, and initiate, receive, and manage calls on connected TalkShow systems.

The **Skype TX control application** allows you to connect, control and operate *multiple* TalkShow VS 4000 and/or VS100 units on the same network from a unified interface, hosting up to four simultaneous Skype calls for a VS 4000, and one per connected VS100 system. Skype TX can operate locally on a TalkShow VS 4000 or VS 100, or remotely – on another network-connected system.

- **TalkShow software** completes the suite, providing extensive audio and video configuration tools, settings, and monitoring features for each of the four Skype ‘channels’ it provides.

SECTION 2.3 FEATURES

Let’s take time for a brief overview of just *some* of the key features of your TalkShow system.

2.3.1 PHYSICAL

- Rugged 1RU rack-mount chassis.
- All audio and video, monitoring and network connectors are easily accessible from the rear for convenient installation in industry standard configurations.
- Audio and video connectors are industry standard – XLR and ¼” TRS, or BNC as appropriate – to ensure broad studio compatibility and secure connections.
- Dual gigabit network ports provide ample connectivity for both local and internet needs.

2.3.2 A/V INPUT AND OUTPUT

- HD-SDI BNC connectors for video input and output.
- XLR inputs and outputs for analog audio i/o.
- ¼” TRS (balanced, line level) Phones output for local call output monitoring.
- Complete NDI® (Network Device Interface) a/v input and output support provides ultimate ‘video over ip’ functionality, allowing you to completely eliminate bulky SDI or analog cable runs. Transmit or receive high quality, low latency a/v signals output the local network, and easily re-route signals entirely in software.
- Unique *Talk Back* feature allows in-studio personnel (such as a director or call-screener) to converse privately with the remote caller without requiring external audio interrupt solutions.

2.3.3 TALLY

- Studio system(s) that provide tally over NDI connections trigger corresponding 'on air' state indication displayed on the TalkShow *Desktop* and, optionally, sent to remote Skype callers.

2.3.4 MONITORING



FIGURE 1

- TalkShow's *Desktop* includes extensive call and return channel monitoring capabilities, with multiple and easily customized multiview layouts.
- Viewports are user-configurable and include *Picture-in-Picture* support along with *Title Safe*, *4:3 Safe* and (audio) *VU* overlays.
- *The Scopes* display provides *Waveform* and *Vectorscope* monitors to help you to ensure your output meets broadcast standards and looks great.

2.3.5 VIDEO PROCESSING

- Full 4:4:4:4 32-bit floating point internal processing of all video sources.
- *Proc Amps* and *White Balance* controls for every source preserve pristine image and color fidelity.
- *Auto Color* is another NewTek innovation. It dynamically adapts the color characteristics of incoming Skype™ video calls as the remote lighting conditions vary. Often simply enabling Auto Color is all it takes to produce a show that looks amazingly consistent.

2.3.6 AUDIO

TalkShow provides multi-channel audio control to enable you to manage both ends of your Skype conversations and ensure best possible sound to your production systems.

- Adjust audio sources (local and remote) with individual VUs and per channel gain.
- Individually control output levels for Skype channels and headphones, auxiliary outputs, recording, and stream separately.
- Independent 7-band EQ, and compressor/limiter for each Skype output to your studio.

Chapter 3 SETTING UP



This chapter explains how to connect power, monitors and audio visual sources, and external control devices to your NewTek system. It also reviews the registration process. After completing this short section, you'll be all set to begin using your NewTek TalkShow® system.

To begin, let's review 'what came in the box':

- NewTek TalkShow system
- A/C power cord
- NewTek mouse and keyboard

SECTION 3.1 COMMAND AND CONTROL

Hint: TalkShow's interface requires a resolution of at least 1280x1024.

1. Connect an external computer monitor to an HDMI connector at left (facing the system's backplate).
2. Connect the *mouse* and *keyboard* to USB ports on TalkShow.
3. Connect the *power cord* between the power connection on TalkShow's backplate and an external power receptacle.
4. Turn on the computer monitor.
5. Press the *Power* switch located behind TalkShow's 'pull-down' faceplate door.

At this point, the blue *Power LED* will illuminate as the device boots up (otherwise, check your power connection and retry).

Though not a requirement, we do strongly recommend that you supply power to TalkShow using an uninterruptable power supply (UPS), as for any 'mission critical' system.

Likewise, it's wise to consider A/C "power conditioning", especially in situations where local power is unreliable or 'noisy'. Surge protection is especially important in some locales.

Power conditioners can reduce wear on TalkShow's power supply and other electronics, and provide a further measure of protection from surges, spikes, lightning, and high voltage.

A word about UPS devices:

'Modified sine wave' UPS devices are popular due to attractive manufacturing costs. However, such units should generally be viewed as being of low quality and possibly inadequate to fully protect the system from abnormal power events.

For a modest added cost, consider a "pure sine wave" UPS. These units can be relied on to supply very clean power, eliminating potential problems, and are recommended for applications demanding high reliability.

SECTION 3.2 LICENSE AND REGISTRATION

On launch, TalkShow will lead you through an *End User License Agreement* and the *Registration* dialogs. If requested to do so, enter the unique *Serial Number* for your system.

Hint: If the Serial number doesn't appear automatically, and you can't find it on your unit, you can obtain it from the registration webpage mentioned in the next section.

If you have connected your unit to the Internet, the registration process will automatically guide you through the process.

Hint: Information on connecting TalkShow to a network can be found in Section 3.14.

Otherwise, you can visit the registration webpage from another system with Internet access. In either case, after registering on the website, enter the resulting *registration code* into the field provided in the *Registration dialog*.

Hint: It's a good idea to record the login name and password you choose when creating your account and keep them in a safe place. Jot down the registration code too, as it could come in handy if you ever wish to restore the TalkShow software to as-shipped state when you don't have access to the Internet.

3.2.1 UPDATES

It's a great idea to check for recent free software updates for your system at this time, too. The NewTek homepage at newtek.com provides a link to the *Updates and Downloads* page, where the most recent software versions are always available.

ENHANCED SUPPORT (ProTek)

NewTek's optional ProTekSM service programs offer renewable (and transferable) coverage and enhanced support service features.

Please see [ProTek page](#) or your local authorized NewTek reseller for more details regarding ProTek plan options.

SECTION 3.3 RACK MOUNTING

TalkShow is designed for convenient mounting in a standard 19" rack (mounting rails are available separately from NewTek Sales). Please keep in mind that adequate cooling is a very important requirement for virtually all electronic and digital equipment, and this is true of TalkShow as well. We recommend allowing 1.5 to 2 inches of space on all sides for cool (i.e., comfortable 'room temperature') air to circulate around the chassis.

Hint: When operating TalkShow in a 'road case' for mobile production, it's best to do so with both the front and back covers of the (road) case removed.

When designing enclosures or mounting the unit, supplying good free air movement around the chassis as discussed above should be viewed as a critical design consideration. This is especially true in fixed installations where TalkShow might be installed inside furniture-style enclosures.

SECTION 3.4 INPUT CONNECTIONS

3.4.1 CONNECT A/V SOURCES

External audio and video sources are connected to the appropriate inputs on TalkShow's backplate.



FIGURE 2 - VS 4000



FIGURE 3 – VS 100

Note: Hardware details as depicted are subject to change without prior notice.

If the video sources you want to return to your remote Skype callers depend on SDI cabling, connect one or more return sources as necessary to BNC connectors *SDI IN* (if you are connecting NDI® video sources, you can skip this part).

Note: The broadcast video standard (NTSC or PAL) of all video sources connected must match.

Of course, SDI sources can supply *embedded* audio for use with the Skype return as well. If you prefer to supply *analog* audio to accompany return video, connect the desired audio source to one or both of the XLR connectors labeled in the *Audio In* group.

NDI®

NDI (Network Device Interface) protocol means that, assuming your other studio gear also supports NDI, all of your incoming (for return to caller) and outgoing (sent to the studio) audio and video needs can be supplied using a shared (gigabit or better) network connection. All you need to do is connect an Ethernet cable from TalkShow to the local network.

This is, of course, the ideal solution – especially when multiple channels or even multiple Talkshow units are involved. For more information on NDI and implementing NewTek's Advanced IP Workflow (including a number of very useful free NDI utilities), visit newtek.com.

SDI Recommendations

It's worth mentioning here that SDI, while ideal for many purposes, does nevertheless have some limitations.

We do not recommend cable runs exceeding 100 meters (for HD; or double that for SD). Transmission over greater distances may result in signal losses, and call for measures to boost levels, which may in turn introduce added latency into the signal path before TalkShow.

SECTION 3.5 GENLOCK CONNECTION

The *Genlock* input on TalkShow's backplate is for connection of a 'house sync' or *reference signal* (often a 'black burst' signal intended specifically for this purpose). Many studios use this method to synchronize equipment in the video chain. Genlocking is commonplace in higher-end production environments, and genlock connections are typically provided on professional gear.

If your equipment allows you to do so, you *should* genlock all video sources supplied to TalkShow, *and* TalkShow itself. To connect the genlock source, supply the reference signal from the 'house sync generator' to TalkShow's *Genlock* connector. (See Appendix B regarding genlock configuration.)

SECTION 3.6 OUTPUT CONNECTIONS

Next, we'll discuss audio and video output connection options and settings, start with video output.

3.6.1 A/V OUTPUT

TalkShow provides multiple video and audio output connectors, and flexible options for monitoring your Skype calls. Skype call outputs are always sent to the corresponding rear panel *SDI OUT* connector(s), and also to your local network via NDI, ready for varied utilization at any convenient place where your network extends.

3.6.2 ANALOG AUDIO OUTPUTS

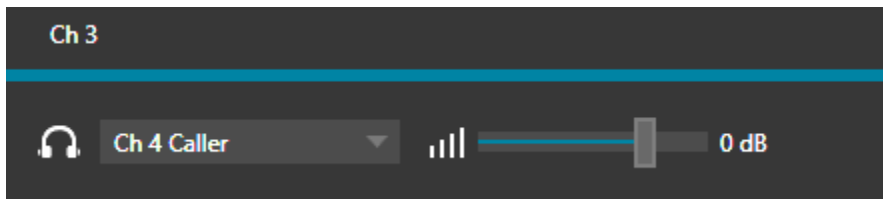


FIGURE 4

A menu and associated slider at left in footer of the TalkShow *Desktop* control the audio supplied to the 1/4" *Phones* jack and XLR outputs on the rear panel.

SECTION 3.7 TALK BACK

TalkShow's unique *Talk Back* feature permits the operator to selectively interrupt the normal audio return channel to remote Skype callers to communicate directly with them. By default, simply connect a standard headset with microphone to the pink (mic) and green (output) motherboard audio connectors on TalkShow's backplane. Make sure the *Talk Back Input* menu option in the *Setup* panel (opened by clicking the configuration gear gadget beside the titlebar clock) is set to Local>Microphone).

Click and hold down the *Talk Back* buttons beneath the viewport for a channel to talk, and release to restore standard return audio flow.

Headset Listen Gain for *Talk Back* can be adjusted in the *Setup* panel, too.

Hint: You can latch the Talk Back button in the ON position by holding down CTRL before clicking it. This lets you speak to several selected remote callers at one time on VS-4000.



FIGURE 5

TalkShow's production *Tally* support allows you to drive internal tally indicators from external devices, and also to trigger an "On Air" overlay that is shown to remote Skype callers at the appropriate time.

Tally indication can be received at TalkShow over a custom cable connected to the 15-pin Tally port on TalkShow's backplate. NDI connections are bi-directional, thus TalkShow outputs over NDI also natively support tally notification.

A red border is drawn around the viewport for a TalkShow channel that is currently visible on *Program* output of a connected system with corresponding tally notification features, while a green border denotes *Preview* row selection (NDI tally connections only).

3.8.1 CONNECTION DETAILS

VS100

Here is the pin-out listing for TalkShow VS100's HD15 Tally connector:

- Pin7 – GPI 3 Input
- Pin8 – GPI 4 Input
- Pin9 – GND
- Pin10 – GND
- Pin11 – GPI 1/Tally Input
- Pin12 – Talk Back (GPI 2) Input
- Pin14 – 3.3V (with 20 Ohms current limit)

VS4000

Here is the pin-out listing for TalkShow VS4000's HD15 Tally connector:

- | | |
|--------------------------------|--|
| • Pin1 – GPI (Talk Back ch. 1) | • Pin9 – GND |
| • Pin2 – GPI (Talk Back ch. 2) | • Pin10 – GND |
| • Pin3 – GPI (Talk Back ch. 3) | • Pin11 – GPI (Tally in, ch. 1) |
| • Pin4 – GPI (Talk Back ch. 4) | • Pin12 – GPI (Tally in, ch. 2) |
| • Pin5 – unused | • Pin13 – unused |
| • Pin6 – unused | • Pin14 – 3.3V (20 Ohms current limit) |
| • Pin7 – GPI (Tally in, ch. 3) | • Pin15 – unused |
| • Pin8 – GPI (Tally in, ch. 4) | |

ENGINEERING NOTES

- GPI stands for General Purpose Interface.
- To avoid damaging internal components when making connections to the Tally port, care should be taken that connection to Pins designated GND (Ground) are always at ground potential.

If TalkShow is not already running, power it up now to reveal the *TalkShow Desktop*, which provides video monitoring features and important configuration options. Let's take a closer look at the latter now.

1. Move your mouse pointer to the (configure) gear icon shown beside the clock at right in the titlebar of the *Desktop*.
2. Click the *Configure button* (gear) to open the *Setup* panel (Figure 6).

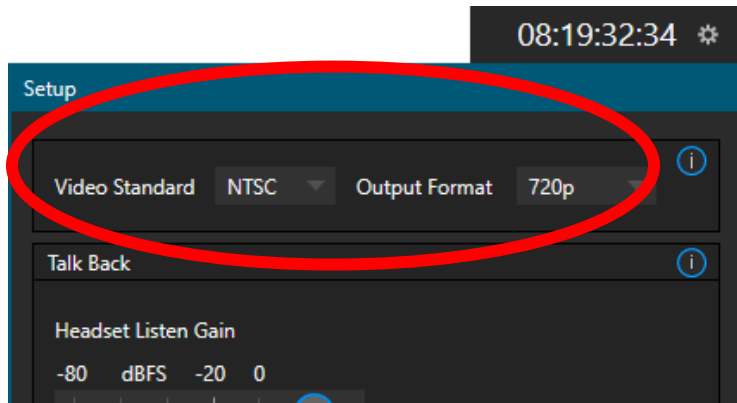


FIGURE 6

3. In this panel, select the *Video Standard* for your local, whether *NTSC* (North America and parts of Asia), or *PAL*.
4. Next, choose the *Video Output* format that meets your studio input needs.

The video settings you choose in the *Setup* panel apply to all four (Skype™) video outputs Talkshow sends to your studio, whether carried using SDI or NDI® connections. Talkshow provides additional control over individual Skype video outputs by channel, as discussed next.

3.9.1 SKYPE VIDEO OPTIONS

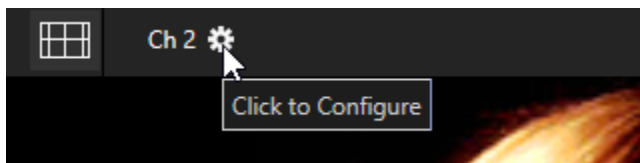


FIGURE 7

Each TalkShow channel features independent control over various aspects of the *Skype Video* and *Audio* output ultimately sent to your studio, and video and audio returned to the remote caller.

1. To access these features, move your mouse pointer to the footer below the viewport for the desired channel (see Figure 7).
2. Click the *Configure button* (gear) to open the *Configure Channel* dialog (Figure 9).

3. Click the *Skype Video* tab to expose TalkShow's extensive color processing controls for the selected channel.

You may find it useful to simply enable the channel's *Auto Color* switch, located near the top of the panel.

This feature makes it easy to correct for lighting conditions at your remote caller's location, even if these vary over time.

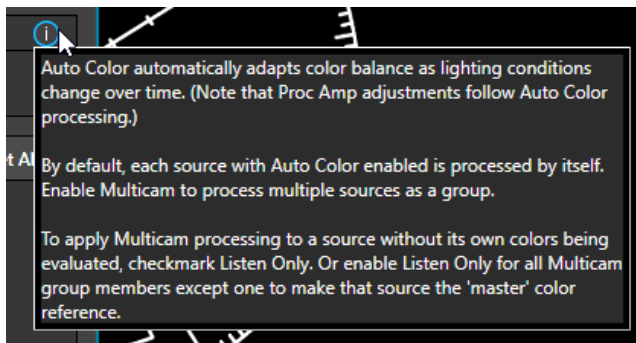


FIGURE 8

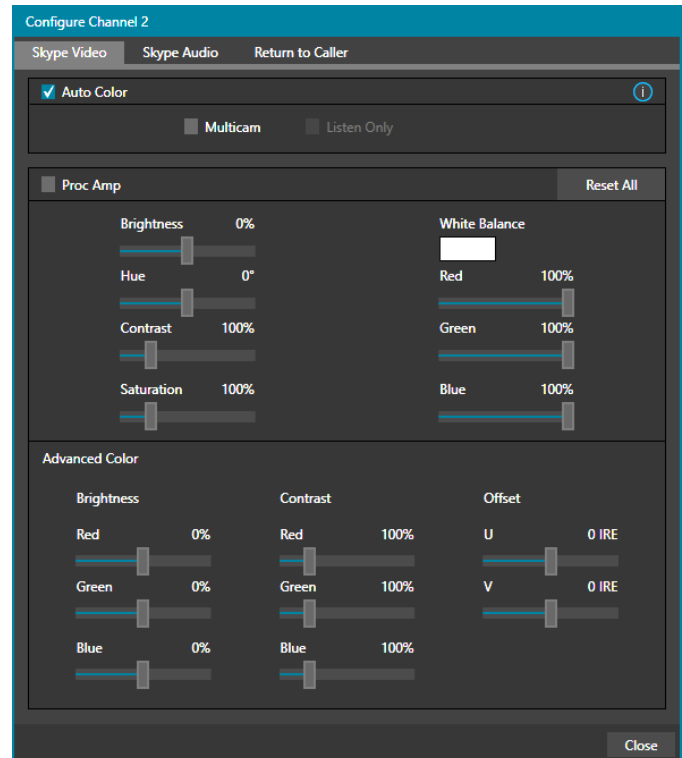


FIGURE 9

Hint: Click the small (i) icon at right in the Auto Color group to view brief instructions (Figure 8). 'Info' icons like this are provided throughout TalkShow's interface and provide a wealth of practical information about various settings and features.

AUTO COLOR

Lighting conditions can vary dramatically from one remote Skype source to the next. Ensuring consistent color and avoiding unwelcome brightness or color shifts as conditions change can be troublesome, and expensive.

To help you overcome these problems, TalkShow provides *Auto Color*, a unique feature capable of dynamically adapting the color characteristics of your video sources as lighting conditions vary. For many productions, simply enabling the *Auto Color* switch is all it takes to produce a show that looks amazingly consistent.

MULTICAM

By default, each source with *Auto Color* enabled is processed uniquely – without reference to video other Skype calls. For VS 4000, even greater consistency can be achieved by treating sources in similar illumination environments as a group. Enable *Multicam* for several sources causes *Auto Color* to evaluate and adjust them in unison. You might, for example, enable *Multicam* for multiple Skype feeds from a boardroom with consistent lighting.

LISTEN ONLY

Again, for VS 4000 only, the *Listen Only* switch allows you to include a source in the *Multicam* group without adding its own feed to the group evaluation. Thus, a camera trained on a giant purple dinosaur can be automatically corrected without disproportionately biasing the group evaluation and consequent *Auto Color* correction. Alternatively, one might enable *Multicam* for a number of sources, turning *Listen Only* on for all but one camera – effectively making that camera the color reference all other cameras in the group will follow.

Note: The Proc Amp, discussed next, is downstream of the Auto Color system. This allows you to apply further manual color adjustments to your individual sources, whether for fine tuning or to achieve a specific “look”.

PROC AMP

A switch at the top of the *Proc Amp* control group toggles the feature on/off. Other controls operate as follows:

- *Brightness*: Adjustment range from -50 to +50 IRE (the default being 0). As reference, the full luminance range of the visible portion of a video signal can be thought of as ‘100 IRE units’ (named for the Institute of Radio Engineers) – ignoring minor regional variations.
- *Contrast* – Adjustment range from 25 - 400% (default 100%).
- *Hue* – Adjustment range between -180° and +180°. Adjusts the master color of the video signal from the attached source, swinging the entire image through the color wheel’s spectrum.
- *Saturation* – Adjustment range from 0-500%. Zero saturation results in a ‘black and white’ picture; increased saturation results in richer colors. High saturation values can exaggerate the color portion of the signal.
(Note that over-saturated colors are considered illegal for broadcast transmission and may result in display problems on some devices.)

Hint: Proc Amp adjustments are also applied after LiveMatte is processed, which can help when composing greenscreen shots to match a background or LiveSet.

White Balance – to automatically white balance, click and hold the mouse button on the *Color* well, and then slide the ‘eyedropper’ pointer onto the monitor for the corresponding source. Release the mouse button over a part of the image that should appear as white after processing.

ADVANCED COLOR

This secondary control group provides additional methods of color control. In addition to per color channel (RGB) *Brightness* and *Saturation* sliders, it adds *U Offset* and *V Offset* controls.

- The U portion of the video signal carries blue and yellow color information. Rotating the *U Offset knob* clockwise shifts the signal toward blue, while a counter-clockwise twist shifts the signal toward yellow.
- The V portion of the video signal carries red and green color information. Rotate *V Offset* clockwise to shift the signal toward red and counter-clockwise to shift the signal toward green.

Hint: TalkShow provides Waveform/Vectorscope monitors, an invaluable aid to calibrating your video sources.

The next tab in the *Configure Channel* panel is labeled *Skype Audio*. The settings in this tab let you control and enhance the incoming Skype call sound TalkShow sends to your studio.

3.10.1 LEVEL

The *Level* knob and associated VU meter allow you to adjust the level of the audio TalkShow outputs to your studio equipment. Note that the VU meter is calibrated using the dBFS (decibel full scale) system.

Refer to Section 3.12.2 (Calibration and Headroom) for more information about this topic.

3.10.2 EQUALIZER

The seven-band equalizer allows you to ‘shape’ sound to taste, accommodate sources with different acoustic characteristics, and minimize feedback or roll off unwanted parts of the audio spectrum.

Enable or disable the *Equalizer* using the switch beside the label above its control group. The vertical sliders attenuate or boost the tonal range centered on the frequency shown at the top.

The effect applied falls off gradually as sound draws closer to neighboring frequencies on either side. Click *Reset* to return all sliders to 0dB.

Hint: Naturally, reducing or increasing the level of one or more tonal bands affects the overall output level as well. This may call for you to trim the main level setting for the affected input or output.

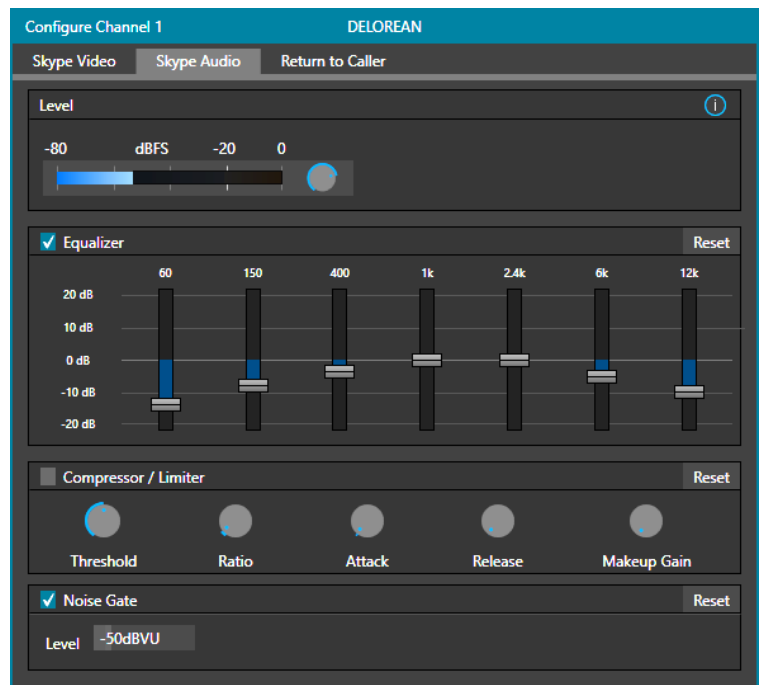


FIGURE 10

3.10.3 COMPRESSOR LIMITER

The *Compressor/Limiter* is capable of preventing clipping from unexpected peaks or transients and can make callers sound better than they do in real life, bringing voices, music, and other audio sources into an optimal dynamic range.

THRESHOLD

Sound above the set *Threshold* level will be compressed; the amount of compression and the manner in which it is applied are both dictated by the other settings.

RATIO

A *Ratio* of 4:1 means that if input level is 4 dB over the threshold, the output signal level after compression will be just 1 dB over the threshold. The gain (level) is reduced by 3dB.

Very high ratio settings are the reason the word “limiter” is part of the title for this feature. The highest ratio setting will effectively reduce any signal that would rise above the threshold all the way down to the threshold level (with the exception of a brief period during a sudden increase in source loudness, as dictated by the *Attack* setting).

ATTACK

Attack (like *Release*) is labeled in milliseconds. The setting represents the amount of time it takes for the gain to change by a specified amount.

It would not be grossly incorrect to think of this setting as changing the slope of a graph depicting how aggressively the compressor pursues the target value (defined by applying the *Ratio* setting to the amount the signal surpasses the *Threshold*). Shorter values are more aggressive, while longer values are more subtle (and tend to be less noticeable to the audience).

RELEASE

Release is similar to *Attack* in many ways but refers instead to the speed with which the compression effect is removed as a source signal falls back on its own so that it no longer exceeds the *Threshold*.

GAIN

Naturally, compression impacts the overall output level of the source or output. The *Gain* control allows you to compensate, bringing the post-compressor/limiter signal back to a comfortable nominal range.

Hint: Different circumstances call for different Attack and Release strategies. For example, much less aggressive settings could work nicely for vocals, but fail badly when applied to a snare drum. Many websites provide suggestions on establishing the best compressor/limiter settings for different environments.

Compressor ... Limiter – what’s the difference, anyway?

Compression and limiting are not really different processes, but rather a matter of degree and perceived effect. Compression, ideally, takes the form of a subtle, almost imperceptible modulation of the sound level to bring it into a more pleasing and convenient range. A limiter is applied more for the purpose of managing, even ‘crushing’, unwanted spikes and transients.

That distinction aside, a limiter is essentially just a compressor set to a high ratio and, generally, a fast attack time. Audio engineers typically consider ‘compression’ with a ratio of 10:1 or more as ‘limiting’.

3.10.4 NOISE GATE

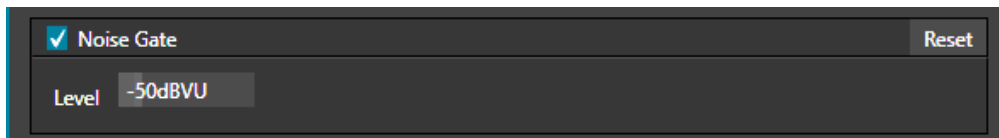


FIGURE 11

The audio options panel also include a configurable *Noise Gate* for each audio source, as well as all outputs. This lets you ensure that unwanted low-level sounds are prevented from inadvertently intruding into the mix.

SECTION 3.11 CONFIGURE RETURN VIDEO INPUTS

Selection and adjustments of one or more video sources intended for *Return to Caller* purposes can likewise be performed in a tab by the same name in the *Configure Channel* pane (Figure 12).

Note that each channel can be configured to use a different video source to return to the remote caller, although in many cases you might choose to assign the same source to supply all four channels with a program feed. Generally, having made a source selection using the *Video Source* menu, TalkShow will auto-detect the *Video Format*.

Hint: SDI video sources can be manually set to a specific format (Figure 13) using the Video Format menu in the same control group if Auto-detect doesn't produce a correct result for any reason.

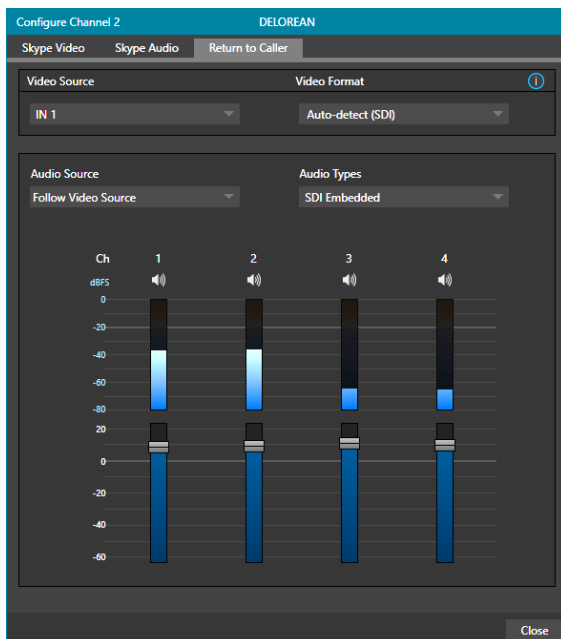


FIGURE 12

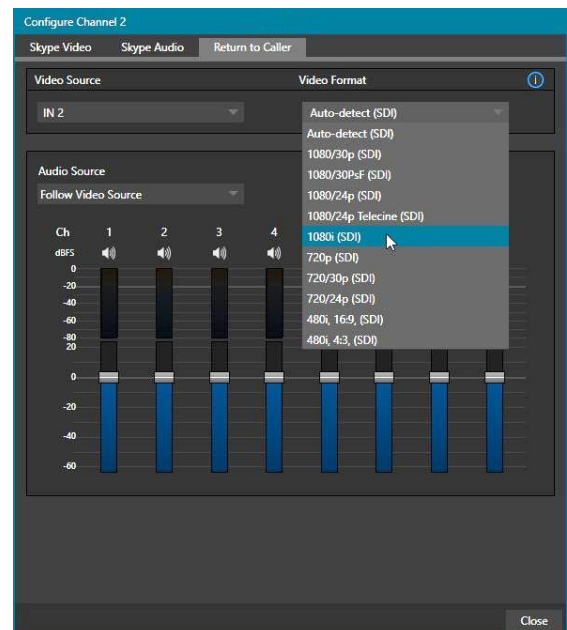
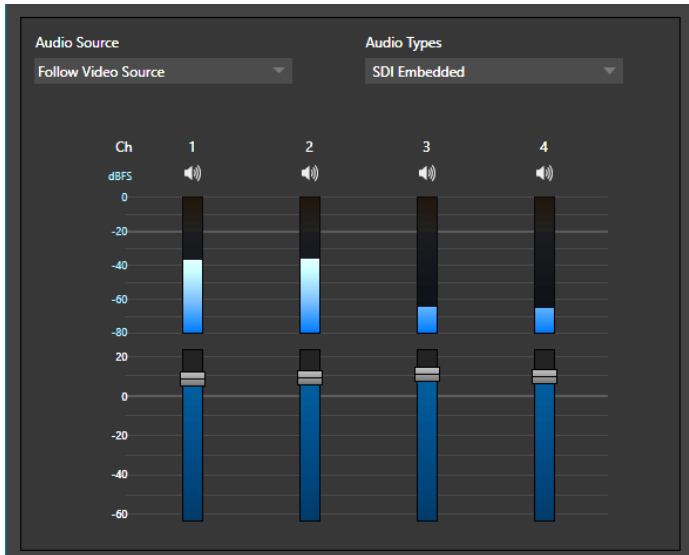


FIGURE 13

Beneath the video controls in the *Return to Caller* tab of the *Configure Channel* pane, notice corresponding return audio features.



The *Audio Source* and *Audio Type* menus let you control the default audio returned to remote Skype callers. Below this you will notice audio level controls for the different channels the selected source provides.

FIGURE 14

3.12.1 MIX MINUS AUDIO

Note that you will often wish to supply a so-called ‘mix minus’ audio source to return to the remote Skype caller. Using a mix minus allows the caller to hear the program without also hearing a (late) return of their own voice – a disconcerting “echo”. Properly prepared mix minus sources typically supply clean output consisting of just the interviewer’s voice (or the interviewer plus other participants), without sound from a selected remote caller. Let’s consider an example:

A TalkShow VS 4000 may be in use, allowing up to 4 remote callers to participate in a single on-air program. Usually, you will send a single program *video* source back to all remote callers. However, eliminating the aforementioned echo problem requires up to four unique audio mix minuses – one for each remote caller. These must be prepared upstream of TalkShow’s audio return connections and control.

Having configured mix minus audio sources upstream, these can be supplied to TalkShow in a number of ways. For example, a single NDI or SDI a/v source carries one video stream but multiple audio channels. You can send a different (mono) mix minus on each of four channels. Thus, one SDI cable, or a single NDI connection, can carry all of the necessary return signals to properly support your four remote Skype calls, both audio and video.

Hint: You might prepare the mix minus for caller 1 on audio channel 1, the mix minus for caller 2 on audio channel 2, and so on. Assign this multi-channel input as the Audio Source in the Return to Caller tab for each TalkShow channel, then use the Mute buttons (speaker icons) above the VU meters to silence all channels except the one intended for the caller.

3.12.2 CALIBRATION AND HEADROOM

In digital audio systems, levels exceeding ‘legal’ values are ‘clipped’ (uniformly assigned the maximum value). This results in audible glitches that cannot be easily corrected later. For this reason, it’s customary to configure normal operating level (also referred to as the ‘alignment level’, and sometimes, ‘nominal level’) *well* below the clipping limit – sufficiently so that occasional excessively loud sounds (say, loud laughter or applause) can be accommodated without risk.

The range between nominal level and the highest *possible* level is referred to as ‘headroom’. What is considered a suitable headroom allowance varies is somewhat objective, and standards vary from one locale to another, in different industry applications, and even in individual studios. TalkShow follows well-established conventions, providing 20dB headroom above nominal level by default.

Hint: Confusion sometimes arises because different scales are in common use in various audio realms, and even for different device types and software. For example, analog mixers commonly show VU scales that top out at +20 dB VU, with a 0dB ‘Alignment level’ below. In contrast, digital devices and editing software usually display levels in dBFS (Decibels Full Scale) with 0dBFS – the absolute maximum signal level that can be recorded – at the top. TalkShow’s VU meters use this scale.

Whatever system you are accustomed to, you can use the *Volume* controls provided in the *Return to Caller* panel to avoid over-modulation.

SECTION 3.13 CONFIGURE GENLOCK

Configure Talkshow’s genlock feature as follows:

1. Open TalkShow’s *Setup* panel by clicking the configuration (gear) gadget near the titlebar clock.
2. The default *Reference Type* in the *Genlock* settings group is *SD (Bi-level)*, as this is currently the most common reference signal type. However, if you supply an HD reference signal to the Genlock input, you may want to change the setting to *HD (Tri-level)*.
3. With the aid of *Waveform* and *Vector Scopes*, adjust TalkShow’s *Horizontal* and *Vertical Position* and *Phase* settings in the *Genlock* section of the *I/O Configuration* panel.

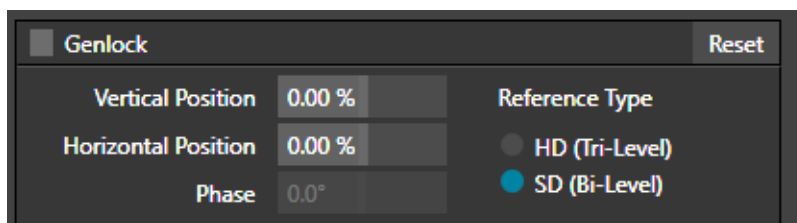


FIGURE 15

Note: For a deeper discussion of genlocking, please see Appendix B.

Obviously, Skype requires a network connection. One of the great advantages of TalkShow is its native support for NDI a/v sources over the network. Generally, simply connecting a suitable cable from one of the Ethernet ports on TalkShow's backplate to your local network is all that is required to connect to a *local area network* (LAN).

In some settings, additional steps may be required. You can access the operating system's *Network settings* control panel for more extensive configuration tasks. If further help connecting is required, please consult your system administrator.

SECTION 3.15 CONFIGURE SKYPE TX

As we explained back in Section 2.2, Skype TX™ provides the switchboard interface you use to initiate Skype™ calls using your NewTek TalkShow. It also provides a number of useful options and related settings.



FIGURE 16

A single instance of the Skype TX management application can control one or more TalkShow systems and can be launched locally or run on another system on the network. In this section we consider launching Skype TX and basic configuration, whether running locally or on another host.

3.15.1 LAUNCH SKYPE TX

LOCAL TALKSHOW LAUNCH

Let us first discuss launching Skype TX directly on an individual TalkShow unit.

This is quite easy – just open the *Display* widget using the button in the TalkShow *Desktop* footer and click the Skype TX icon (Figure 17).

The Skype TX controller application will launch.

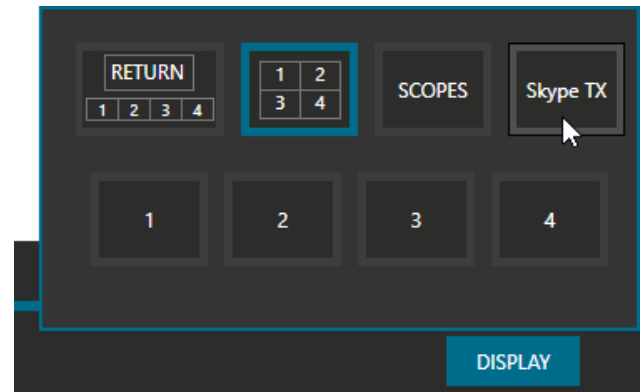


FIGURE 17



Hint: If you have a second monitor connected to TalkShow, you can move the Skype TX interface to it, so you can see it and the TalkShow desktop at the same time.

EXTERNAL HOST LAUNCH

If, however, you are in a setting that makes it preferable to launch Skype TX on another networked system (as, for instance, to control several TalkShow VS 4000 units), you will need to download the Skype TX installer first, and perform the installation on that system.

Please note the system requirements for this application:

- Operating System - Windows 10, Windows 7, and Windows 8.
- At least 1 GHz processor, at least 512 MB of RAM

You can locate the download for the most recent installer for the Skype TX controller [here](#).

Having installed the application, you can launch it in the usual manner for Windows® applications.

3.15.2 CONNECT TO TALKSHOW CHANNELS

Upon launching Skype TX, you will be asked to enter login credentials for the Skype Name or Microsoft Account you wish to use for incoming and outgoing Skype calls (Figure 18).

Hint: The account credentials you enter will be applied to each individual TalkShow channel under control of this instance of the Skype TX software.

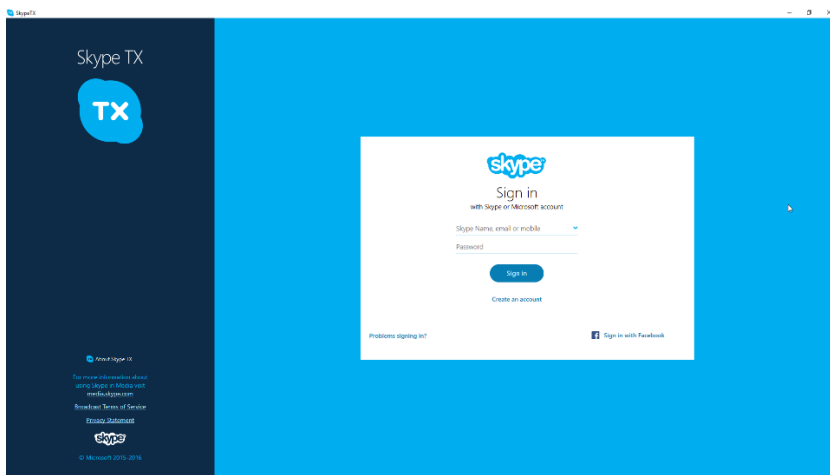


FIGURE 18

After you click the *Sign In* button, the Skype TX controller interface appears. Initially, the central *Channel pane* will be blank (Figure 19), with contacts at left and a *Menu* column at right.



FIGURE 19

Whether Skype TX is running on TalkShow or another networked system, the process of adding channels is the same. (And thankfully, unless you are modifying your control setup, it only need to be done once.)



FIGURE 20

- Click in the *Add a Skype TX Unit to control* entry field and enter the target machine name or its IP address.

Hint: When running Skype TX on a local TalkShow unit, you can simply enter "localhost" as shown.

- Then click the + button at right. A new column will appear in the *Channel* pane.

Skype TX will connect to the target TalkShow unit, and list the available channels (that is, those not already claimed by another instance of Skype TX).

Note: the Skype TX unit must be on the same network as Skype TX and able to connect to TCP port 8000.

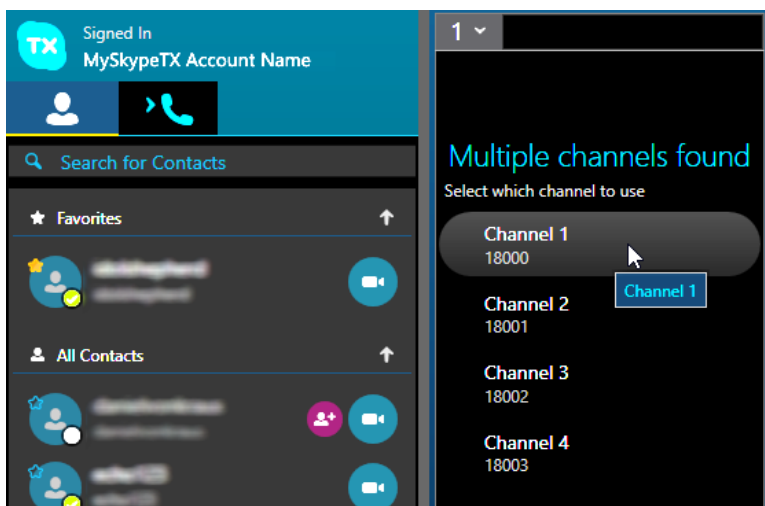


FIGURE 21

At this point, a new column will be added to the *Channels* pane. Typically, when adding a channel, it will resemble Figure 21.

Click the mouse on a channel entry in this column and claim it; the controls shown will update as shown in Figure 22.

Note: If a remote TalkShow target system cannot be located on the network, Skype TX will show "Skype TX unit not found" with a retry button. In this case, check that the target machine is online and connected to the same network.

Channel Feedback

When adding a channel, at times you may see one of the status messages listed below:

- **Channel not found** – TalkShow has been found, but the software is not running.
- **Channel Claimed** – The TalkShow unit has already been claimed by someone using a different Skype Name / Microsoft account.
- **Channel in use** – Skype TX is unable to connect to the TalkShow unit because another user is currently in a call.
- **Unclaimed** – The TalkShow unit is ready to be claimed.

Hint: When preparing to add channels served by a remote TalkShow unit, make sure the TalkShow software has been launched on the latter unit so Skype TX can establish a connection with it.

To add a channel, click the *Menu* icon seen at upper right in (Figure 20) to expand the menu.

3.15.3 CONFIGURE SKYPE TX CHANNELS

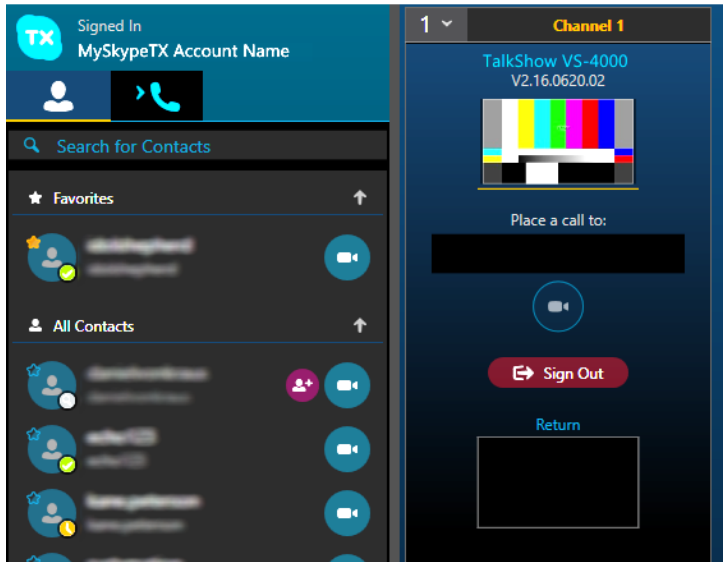


FIGURE 22

During a call, however, this lower pane provides useful data about the connection and various settings.

There are two tabs in this area. One shows data related to the *incoming* Skype call, and the other provides information about the *outgoing* Return to Skype caller connection.

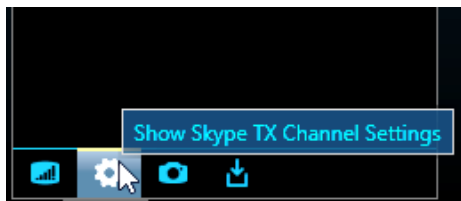


FIGURE 24

The column for a claimed TalkShow channel contains important settings, call controls, and compact monitors, making it an ideal switchboard for your Skype conversations.

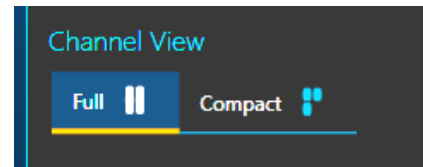


FIGURE 23

The lower part of each column is empty by default and can be minimized by choosing the *Compact* view option in the *Menu* column at right in the Skype TX screen.

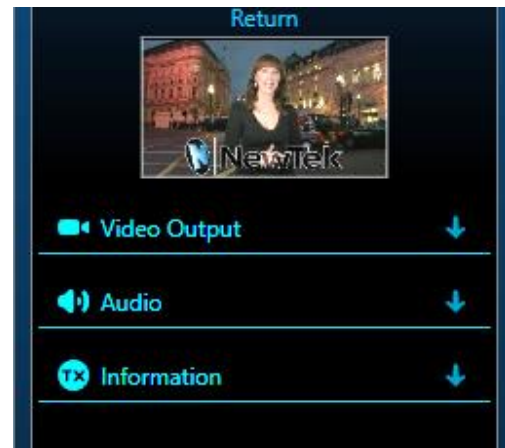


FIGURE 25

Buttons at the bottom of channel columns provide alternative displays in this area, including some important settings. Click the gear icon (Figure 24) here to reveal a configuration menu (Figure 25).

Click the headings in this menu to expand and contract them. Let's consider the most important of these – *Output Resolution*. Note that we configured TalkShow's video *Output Format* back in Section 3.9. Before output to your studio equipment, TalkShow will convert the Skype TX video to the desired output format. The resolution you select here for the Skype TX channel, then, should be the nearest available match to your TalkShow choice.

At this point, we'll also just mention the *When not on call* options. The icon you select in this group determines what appears on the channel's output to the studio when no Skype call is in progress. Options include the *Test Signal* (color bars), the 'NoCall' image (Figure 26), or black.

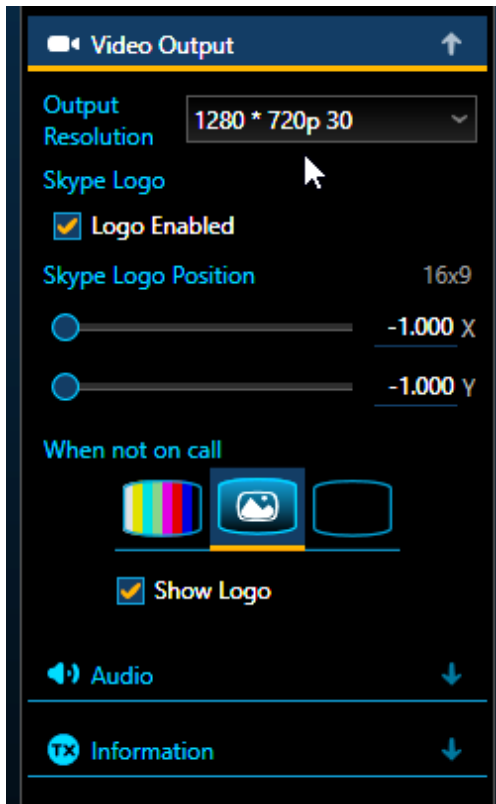


FIGURE 27

Hint: Clicking the 'camera' icon at the bottom of the column (Figure 27) replaces the settings controls with features that let you grab a snapshot from a live Skype call, and configure an *Auto-Fallback Mode* to kick in when call video quality declines below a *Minimum Resolution* you determine.

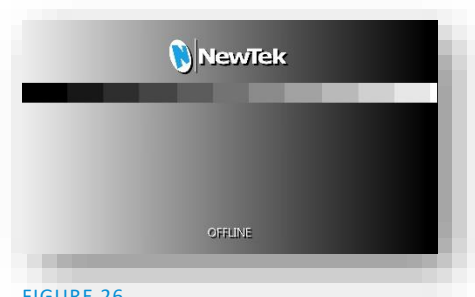


FIGURE 26

Note that you can substitute a different image to act as the NoCall image if you wish. TalkShow uses the PNG image named 'NoCall' located at the path shown below (you can replace this file with a custom one with the same resolution):

`%USERPROFILE%\Pictures\Skype TX\Client\`

For a well-prepared TalkShow system, enable *Disable all Skype audio processing* (Figure 28).

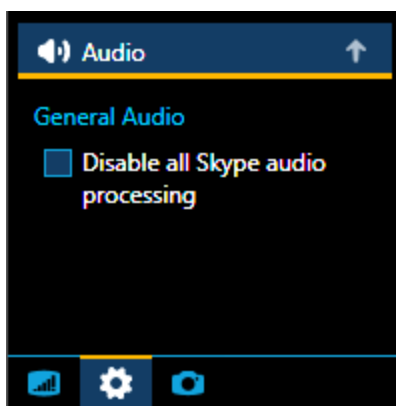


FIGURE 28

Chapter 4 SKYPE CALL MANAGEMENT

TS

This chapter will walk you through making and receiving Skype calls using your TalkShow system. It also considers the options and features related to those calls, and details related to Skype accounts and managing their associated contact lists.

Having made the essential connections and configured your *Return to Caller* inputs and *Skype Call* outputs, you're ready to make your first Skype call.

SECTION 4.1 CALLING OUT

As mentioned in Section 2.2, Skype TX™ serves as the central switchboard for initiating or accept Skype calls. This columnar 'hub' allows you to control Skype TX channels from one or more TalkShow units, making it possible to operate and manage each channel from a single interface.



Hint: You can launch Skype TX from TalkShow's Display widget. You may choose to minimize the TalkShow application while working with Skype TX, or perhaps show it on a second monitor while displaying a high quality TalkShow multiview layout or Scopes on the other.

Having launched signed into Skype using a suitable *account as you launch Skype TX (Section 3.15.1), and having added at least one TalkShow channel, let's proceed.

* For the moment, we're going to assume you have added some entries to the *Contact* list associated with this Skype account.

1. Locate the contact you wish to call in the *Contacts* list at left (or alternatively, simply type the Skype Name or Microsoft account of the remote caller into the input box on the target channel.)

Hint: If calling a Microsoft account, type "live: " (without the quotation marks) before the ID and skip on to step 4.

2. Click the camera gadget beside the contact name to open the *Call Contact* panel (Figure 29).

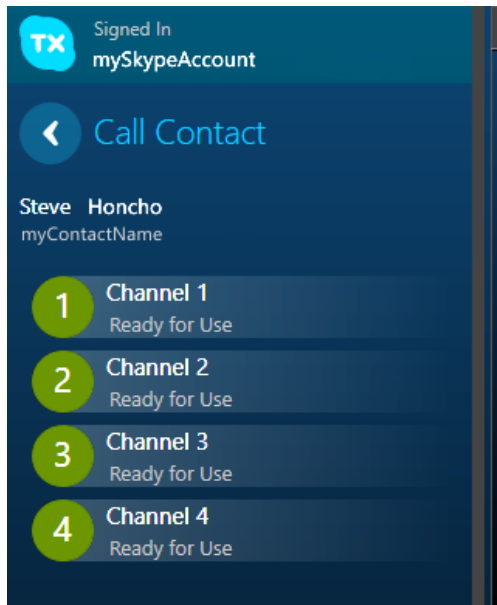


FIGURE 29

3. Click an available channel from the list below to call your contact.
4. Skype TX will now show *Establishing Call*. Once the call has been established, the call status will show *Ringin at the far end*.

Hint: If the call is declined by the user, the call status will show User declined call. Once the call is answered, the call will be connected.

Channel States

The channel list may indicate any of the following conditions for your individual contacts:

- **Ready for use**
- **Busy – in a call.**
- **Claimed by another user.**
- **Claimed and in a call**
- **Unclaimed**
- **Unit not found**
- **Skype TX not found on unit**
- **Signing in**
- **Signing out**
- **Error**

First, the audio stream is connected, as represented by orange audio indicators near Skype TX's video output and return video viewports (a bar at the bottom also indicates audio from the remote caller). Video connection is established following the successful audio link.

Hint: You can see the uncorrected incoming Skype call video by hovering over the video output and holding down the left mouse button.

The video symbol under the return video viewport in will change from a red camera with a line through it, to a solid green camera once the return video has connected. The call is completely connected once the video indicators have turned green and the audio indicators are jumping up and down.

Otherwise – should the video connection fail – output to the studio will fall back to the default image or a user-defined still image. Another way to initiate a call is to type the target contact’s *Skype Name* or *Microsoft Account* into the box and click the video button to start a call.

Note: In this case, the remote caller does not necessarily have to be in you Contact list – but the remote caller will need to modify their Skype client privacy settings for the call to go through.

4.1.1 SNAPSHOT

During the call, the video call button is transformed to a red disconnect button (Figure 30).

Located right beside this red button you will see a *Snapshot* button. Click this button to store a snapshot that can serve as a fallback image should call video quality drop below a resolution you define (see Section 3.15.3).

You can also use the snapshot if the video feed from the remote caller drops entirely. In this case the remote caller’s audio feed will continue, and the snapshot will be displayed on TalkShow’s video output.

Note: If you have not grabbed a snapshot, Skype TX shows a default fallback image in the snapshot preview.



FIGURE 30

SECTION 4.2 CALL MANAGEMENT



FIGURE 31

If video is lost or becomes unsatisfactory, Skype TX can (automatically or manually) switch between live video from the remote caller and a snapshot or default image.

Click the camera icon at the bottom of a channel column to choose the *Auto-Fallback Mode* for that channel. Choose between the following options:

Always send caller video to air – The caller’s video is broadcast regardless of the video resolution.

Automatically switch to snapshot or default image – When its quality falls below the quality threshold you choose, the video switches to a snapshot or the PNG image named ‘NoCall’. (If the video falls below the minimum resolution, a red overlay is displayed on the related icon.)

Send snapshot to air – When selected, the snapshot replaces the caller’s video.

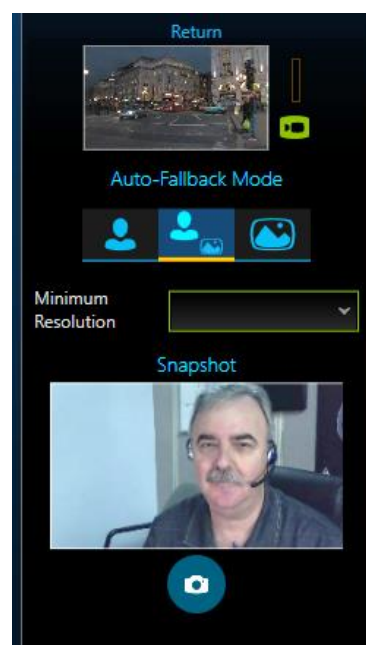


FIGURE 32

You can also manage the call by refreshing the channel to check that the call information and previews are live. You can do this by choosing the Refresh button on the selected channel.

SECTION 4.3 RECEIVING CALLS

In addition to making calls, Skype TX can be configured to receive incoming calls. This means that remote callers can call directly into Skype TX.

To receive calls:

1. Choose the *Incoming calls* tab at the top of the *Contacts* list column (Figure 33).
2. Choose to either allow calls from anyone, or from contacts only. Incoming calls are now enabled.

Choosing to allow calls from contacts only means that only contacts that are in the signed in accounts Skype address book will be able to call into this account.

When receiving a call, the remote caller will appear in the panel (the number of callers appears at any time on the *Incoming calls* tab above). Note that exiting Skype TX will result in the loss of any incoming calls.

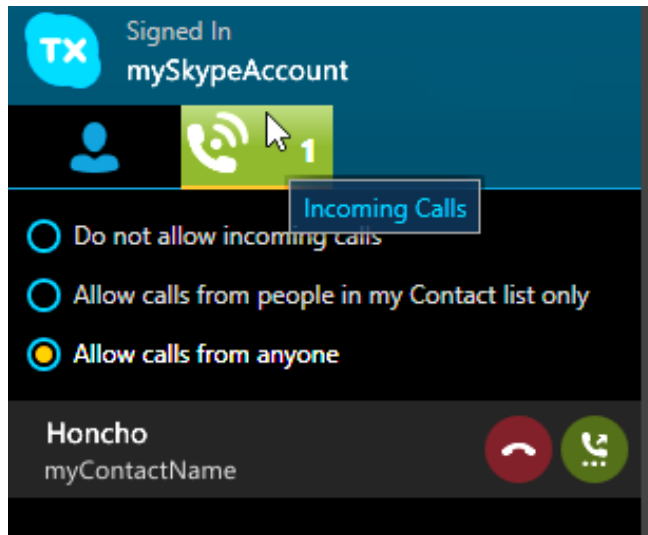


FIGURE 33

SECTION 4.4 CONTACT MANAGEMENT

As you are using a Skype Name or Microsoft account to sign in, you have access to the Skype Contacts from the address book for the account. These contacts are loaded as soon as the software starts which can take a few seconds if you have a large number of contacts.

The list shows the display name and the real-time online status of each of your contacts. Skype TX only shows the contacts that you can actually contact using Skype TX (blocked contacts, removed contacts, Facebook contacts, phone numbers, Skype for Business contacts or contacts without a valid username are not shown).

4.4.1 STATUS INDICATORS

The Skype status of a contact is indicated in Skype TX. Status updates occur automatically when the contact connects to Skype or manually changes their status. You can see exactly when a contact comes online, goes offline or is busy.

4.4.2 FAVORITES

When you first sign into Skype TX with a given Skype account, Skype TX does not synchronize your Skype favorites from another Skype client. You will need to add them manually. However, if you sign in with a Microsoft account, Skype TX will automatically display your favorites in the Favorites section.

Once your favorites have been displayed, or if you added a contact as a favorite, the *Favorites* group appears at the top of the contacts list. Favorite contacts no longer appear in the *All Contacts* group. Each group can be collapsed by clicking the arrow at the side of each group.

To make a contact a favorite, click the star outline next to a contact, or click the avatar of the contact to open the *Edit Contact* panel. Then click the star gadget to mark the contact as a favorite. To remove a contact as a favorite, click the filled star. This will return the contact to the All Contacts list. If you remove the last contact from the favorite group, the *Favorites* is not shown.

4.4.3 ADDING CONTACTS

You can add someone to your *Contact* list by searching for the contact and sending them a contact request. The first step to adding someone to your contact list is to search for them.

You can easily search the Skype directory for any of more than 300 million Skype users and send them a contact request.

1. Navigate to the search box at the top of the *Contacts* list and ...
2. Search for the person you want to add using their email address, Skype Name, Microsoft Account, name, or their display name.
3. Click the *Search Skype for* button after you've typed in the contact info you want to search by.

Profiles matching your search info will be listed under the search box.

4. Choose the *Add* button next to the contact you want to add.

The Skype Name or Microsoft account of the chosen contact is shown to let you confirm the selection, and a message input box is provided.

5. Enter an appropriate message to accompany your new contact request, so that they know who is contacting them.
6. Click *Send Request* to send the contact request.
7. The new entry is now added to your *Contact* list with *Pending* status. Once your new contact accepts your request, you can see when they are online.

Hint: If you have a large contacts list and can't find your newly added contact, you can always search for their Skype Name or Microsoft account, or display name and Skype TX will perform a local search before you choose to search the Skype directory.

4.4.4 CONTACT DETAILS

You can edit the details for each contact in the *Edit Contact* panel, accessed by clicking the avatar to the left of the contact. You can change or add the following information:

- **Display Name** – By default, this is the display name defined by the contact. If this has not changed since the account was created, then the first name and last name defined by the contact are shown.
- **Designation / Location** – When adding a new contact or signing into Skype TX, this field is blank. It can be used to supply information such as the contacts location, designation, title, etc.

- **Notes** – This is a general memo field for further information about the contact.
- **Favorite** – You can toggle the contact's *Favorites* group status in the *Edit Contact* panel by clicking the star next to the contact Skype Name / Microsoft account.

At any time, you can click the 'back' button to cancel changes. To confirm changes, choose the checkmark button.

Hint: Move the mouse over a Contact to see any notes you added.

The information added to a contact will also be seen in other Skype Clients as this information roams with the contact. This means that the changes you make in Skype TX to a contact, will also be seen on the desktop Skype Client, as well as all mobile devices, to name a few. Thus, it can be seen in the Skype desktop client *Contact* profile, accessed by right-clicking on the contact and choosing *View Profile*.

4.4.5 REMOVE CONTACTS

To remove a contact from your contacts list:

1. Select a contact to remove. Use CTRL and SHIFT keys to select multiple contacts

The contact entry is highlighted, and a bright bar appears at the bottom of the *Contacts column* showing the number of contacts selected.

2. Click the x button at left to cancel selection or click the menu (...) button at right to remove the contact.

APPENDIX A FREQUENTLY ASKED QUESTIONS



If you experience any problems with Skype TX, check this list of Frequently Asked Questions first. You can also find helpful information on NewTek's website, as well as the website at www.skypeinmedia.com.

WHY CAN'T I SIGN IN TO SKYPE TX?

First, check that you are connected to the Internet by navigating to Internet Explorer and attempt to connect to www.bing.com. If an Internet connection is present, next check the username and password you used to sign into Skype TX to see if they are correct. If they are, try a different username and password. If you are still unable to sign into Skype TX, contact us for further assistance at www.skypeinmedia.com.

WHY ISN'T THE CAMERA SHOWING ON THE REMOTE CALLER'S MACBOOK?

When using a computer running the Mac OS, the camera is often used by another application such as FaceTime or Photo Booth in the background. Only one application can use the camera at a time. Get the remote caller to close all applications, including Skype. Then get them to reopen Skype and try the call again.

WHY IS IT THAT WHEN I TRY TO CALL A CONTACT, SKYPE TX IMMEDIATELY HANGS UP?

This is most likely due to entering an incorrect Skype Name for the contact. Check the Skype Name of the remote caller and try to make the call again.

WHY AM I NOT SEEING THE VIDEO IN PREVIEW IN SKYPE TX?

The local video input feed won't show until Skype TX has been signed in. If you are seeing black, then the video feed could be in the wrong format or has not been turned on. Make sure the video input format used is on the list of accepted inputs.

I CAN SEE A VIDEO OUTPUT PREVIEW BUT WHY CAN'T THE BROADCAST FACILITY SEE IT?

This could be because the Video Out settings haven't been set correctly for the broadcast. Check what video format is required and set it as such in Skype TX under Video Out in Video Settings. If the broadcast facility still can't see the video out feed, then check that all cables are connected. If the problem persists, contact your hardware partner.

REMOTE CALLER CAN'T HEAR STUDIO.

First ask the remote caller if they have their speakers turned on. If they do, check that you can see outgoing audio levels bouncing next to the local video preview. If audio levels are bouncing, then the remote caller needs to check their Skype settings by going to: Tools, Options, Audio Settings, Speakers, and checking that audio output is being shown.

REMOTE CALLER CAN'T SEE STUDIO

Once the call has been accepted, a second dialogue box pops up, asking the user to accept the incoming video signal that is being sent by Skype TX. Clicking Accept allows the video being sent from Skype TX to be seen by the remote caller.

STUDIO CAN'T SEE REMOTE CALLER

Ask the remote caller to check whether they answered the call by clicking Answer rather than Answer with Video. Clicking on the camera icon in the center at the bottom of the screen will show the camera. If the video continues to not show, check the remote caller's Skype video settings by going to Tools, Options, Video Settings and make sure the desired video input device is selected.

STUDIO CAN'T HEAR REMOTE CALLER

First check that you can see outgoing audio levels bouncing next to the local video preview. If you can't, open up the audio card control panel by opening the hidden icons and finding the icon to access the control panel. When a signal is being sent, the audio meters show green, bouncing levels. If you don't see this, then check that the audio settings in Skype TX are set appropriately for your needs. If the problem persists, contact Skype TX.

THE CALL KEEPS COMING IN AS 'RELAY UDP', WHAT CAN I DO TO STOP THAT?

This means Skype cannot establish a direct connection from end to end due to routing or security settings on the network. On a corporate network, the IT department might be able to configure their routers to improve the situation.

See the Skype IT Administrator's Guide for more information:

<http://download.skype.com/share/business/guides/skype-it-administrators-guide.pdf>.

THE REMOTE CALLER RECEIVED THE CALL ON THEIR PHONE AND NOT THEIR COMPUTER. WHAT SHOULD I DO TO GET THE CALL TO BE RECEIVED ON THEIR COMPUTER?

Log out of all devices and log back in on just the computer.

SKYPE TX CLIENT IS STILL ANSWERING CALLS FROM ACCOUNTS WHICH I FLAGGED IN SKYPE TX CONTROL

If you are using auto-answering functions in Skype TX Control, turn off auto-answer in Skype TX Client. These function independently, so enabling both will result in Client and Control getting into a race for how to handle each incoming call.

APPENDIX B GENLOCKING

TalkShow's *Genlock* feature allows it to 'lock' its video output to a reference video signal supplied to its *Genlock* input connector. This synchronizes SDI output to other external equipment locked to the same reference.

Genlocking is not a *requirement*, but it is very beneficial, and you should definitely use it if you have the capability.

TalkShow® can provide output from up to four sources. Miniscule local timing differences between these may force tiny delays during switching operations, which can also contribute to overall latency. Thus, serving i) TalkShow's Genlock input and ii) other video devices in the chain with a single reference is the best approach.

SECTION 4.5 VERTICAL POSITION, HORIZONTAL POSITION AND PHASE

Locking all devices to house sync is important, but this alone does not actually ensure a perfect downstream match.

Consider an army marching along: each step the soldiers take occurs at precisely the same moment, so we could say their timing is synchronized. Even so, problems result if one soldier leads with the left foot while everyone else is on the right. Or perhaps everyone is evenly spaced and perfectly aligned but for one misfit who 'tailgates' the soldier ahead of him and keeps stepping on his heels.

Hint: The term "genlock" refers to "generator locking".

Professional video devices often provide a "genlock input", which allows an external reference signal (often referred to as 'house sync') to control its video timing.

The output of video devices connected in this manner is synchronized to the reference signal, and they are referred to as 'genlocked'.

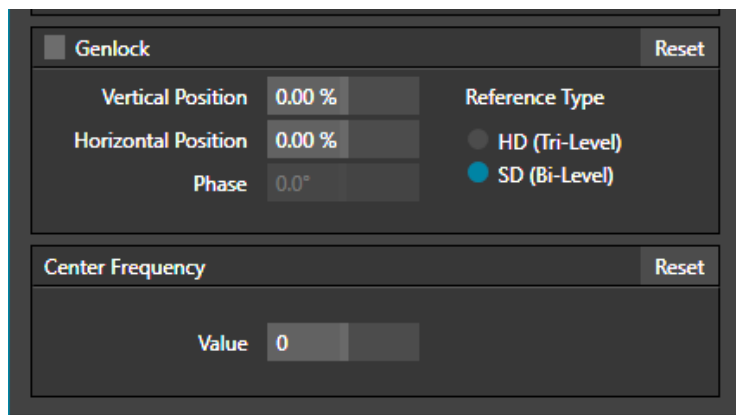


FIGURE 34

This is essentially why TalkShow provides several adjustments in its *Genlock* section. The *Horizontal* and *Vertical Position* settings pin the image in the proper space in the frame, and in doing so could be likened to making sure each marching soldier is in position relative to his fellows (as viewed from above). The *Phase* setting ensures proper color alignment, corresponding to making sure everyone is on the left or right foot at the same time.

Thus, the *Vert Position*, *Horiz Position* and *Phase* settings allow you to tweak synchronization to arrive at an optimum match between devices. Typically, these settings are fine-tuned with the aid of a downstream Vectorscope and Waveform Monitor. (A discussion of these adjustments goes beyond the scope of this manual, but a quick online search for the keywords “genlock” and “adjust” turns up a number of excellent references).

SECTION 4.6 REFERENCE TYPE

The ‘bi-level’ reference signal long used for standard definition television is often used for genlocking both SD and HD installations. However, if you are supplying an HD reference signal to TalkShow’s *Genlock Input* (and your other equipment), select the *HD (Tri-level)* switch in the *Reference Type* area of the Genlock settings pane.

SECTION 4.7 CENTER FREQUENCY

This setting is applied when a genlock reference signal is not in use. To adjust the setting, supply color bars to an input and pass TalkShow’s video output to a downstream vectorscope. The vectorscope display is completely stable when Center Frequency is properly adjusted.

APPENDIX C GLOSSARY

ARC

Aspect Ratio Conversion. The process of converting an image from one aspect ratio to another using different techniques. For example, converting 16:9 to 4:3 using scale to height.

Audio codec

The process that performs coding or decoding of a digital data stream of audio. In the case of Skype TX, the host negotiates codec selection with the other participants as part of setting up the call.

Bandwidth

The number of bits per second that can be transmitted along a digital network giving a measure of its performance.

Bitrate

The amount of data that can be carried from one point to another, giving a measure of the quality of audio or video.

Color Bars

Also known as 'broadcast bars,' or 'testcard.' Color bars are an artificial electronic signal generated to test and match outputs, such as cameras and monitors. Skype TX's color bars are at 75%.

CPU

Central Processing Unit. Computer hardware chip that carries out the instructions of a computer program.

Embedded audio

This refers to the audio being carried as part of an SD-SDI or HD-SDI video signal (see SDI). This means that video and audio can be transported via the same coaxial cable.

FPS

Frames per Second. The frequency at which an imaging device produces unique consecutive images, known as 'frames.'

Maximum Transmission Unit

The size of the largest packet that the network can currently transmit.

Overlay

The process of superimposing one image over another.

Packets

Formatted unit of data carried by a network.

Ping

Time it takes, in milliseconds, for a request to be sent to a remote host and then a response to be received by the sender.

Raw video

In the case of Skype TX, raw video refers to the video being received from the remote caller (see remote caller) before being processed by Skype TX.

Relay

Seen with the transport status of a call. Relay means a direct connection between clients could not be made.

Remote caller

In this context, refers to the person or place being called on location.

Sample rate

The number of samples per unit of time taken from a continuous signal to convert it into digital form.

Snapshot

An image from a video stream grabbed at a particular point in time.

TCP

Transmission Control Protocol. Set of rules to send data in the form of message units between computers via the Internet.

UDP

User Datagram Protocol. Send data messages to other networks without prior communications to set up special transmission channels or data paths.

UI

User Interface. The means by which a user and a computer interact.

Video codec

The process that performs compression or decompression of digital video.

Video resolution

The dimensions of a video picture measured in pixels.

Watermark

Semi-transparent graphic that is overlaid on a video signal.

APPENDIX D DIMENSIONS AND MOUNTING

TalkShow® comprises a 1 Rack Unit (RU) enclosure supplied with 'ears' designed to permit mounting in standard 19" rack architecture (Figure 35).

The units weigh approximately 14 pounds (6.35 KG). A shelf or rear support will distribute the load more evenly if rack-mounted. Good rear access for convenience when connecting cabling should be considered. In view of the top panel vents on the chassis, at least one RU should be allowed above the system for ventilation and cooling.

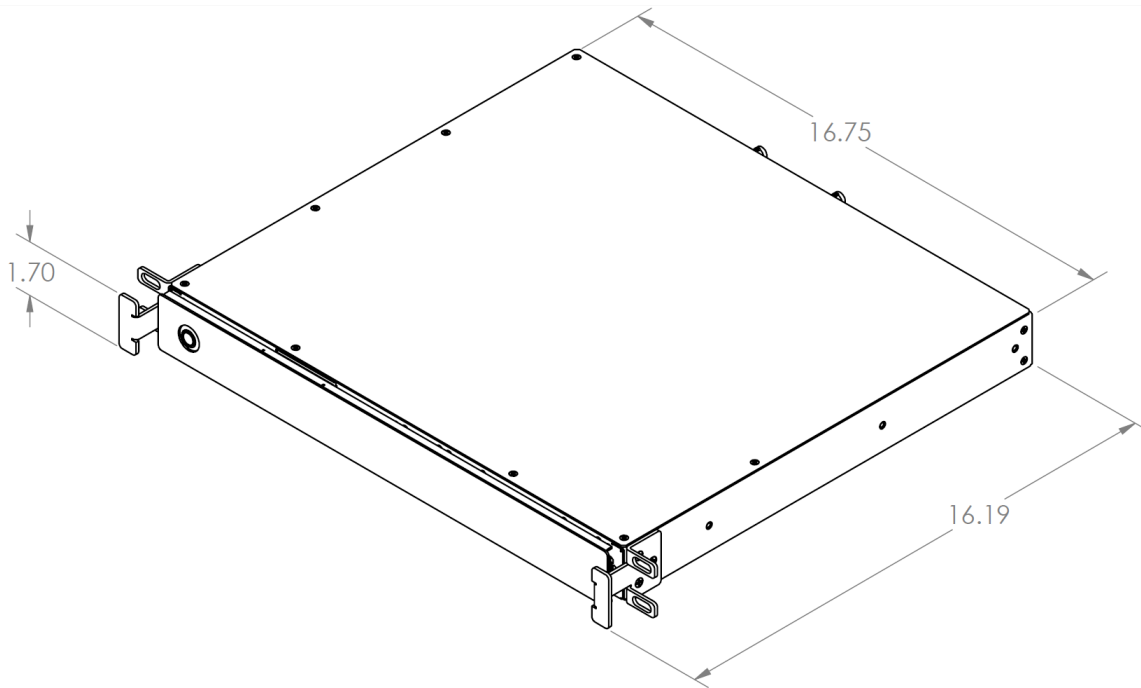


FIGURE 35

APPENDIX E RELIABILITY TESTING

We appreciate that our products serve vital roles in the productions of our customers. Durability and consistent, robust performance are much more than just adjectives for your business and ours.

For this reason, all NewTek products undergo rigorous reliability testing to ensure they meet or exceed our own exacting test standards, as well as relevant criteria by various regulatory bodies worldwide.

For TalkShow® VS 4000 and VS 100, the following standards are applicable:

Test Parameter	Evaluation Standard
Temperature	Mil-Std-810F Part 2, Sections 501 & 502
Ambient Operating	0°C and +40°C
Ambient Non-Operating	-10°C and +55°C
Humidity	Mil-STD 810, IEC 60068-2-38
Ambient Operating	20% to 90%
Ambient Non-Operating	20% to 95%
Vibration	ASTM D3580-95; Mil-STD 810
Sinusoidal	Exceeds ASTM D3580-95 Paragraph 10.4: 3 Hz to 500 Hz
Random	Mil-Std 810F Part 2.2.2, 60 minutes each axis, Section 514.5 C-VII
Electrostatic Discharge	IEC 61000-4-2
Air Discharge	12K Volts
Contact	8K Volts

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- FreeImage library <http://freeimage.sourceforge.net/>
- LAME library <http://lame.sourceforge.net/>
- FFmpeg library <http://ffmpeg.org/>

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