



TriCaster[®] TC Mini[™]

TCMI4KUHD Input Adapter

Operating Instructions

NDI[®]

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Section 1 QUICKSTART



This section explains how to connect and configure your NewTek TCMI4KUHD device. It also explains how to update, and where you can find additional NDI® software to extend your workflow. After completing this section, you'll be ready to begin using your device.

This document briefly describes how to prepare your new NewTek™ TCMI4KUHD device for use. Please note that more detailed information is provided in the next chapter.

Step 1 – Connecting Your TCMI4KUHD Input Adapter

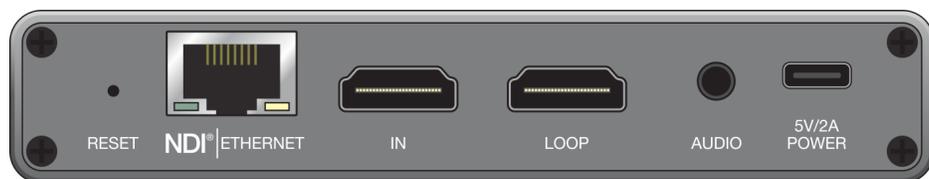


FIGURE 1

1. Using a CAT-5 (or better) Ethernet cable, connect the TCMI4KUHD device to one of the four PoE (Power over Ethernet) RJ-49 connectors labeled ND11-4 on the rear of your TriCaster TC Mini.

Step 2 – Access the Device Webpage

2. Open the *Input Configuration* panel for the TriCaster *Switcher* input you intend to connect this device to. To do so, right-click on either a *Switcher* button or the input's monitor viewport and select *Configure* in the context menu.

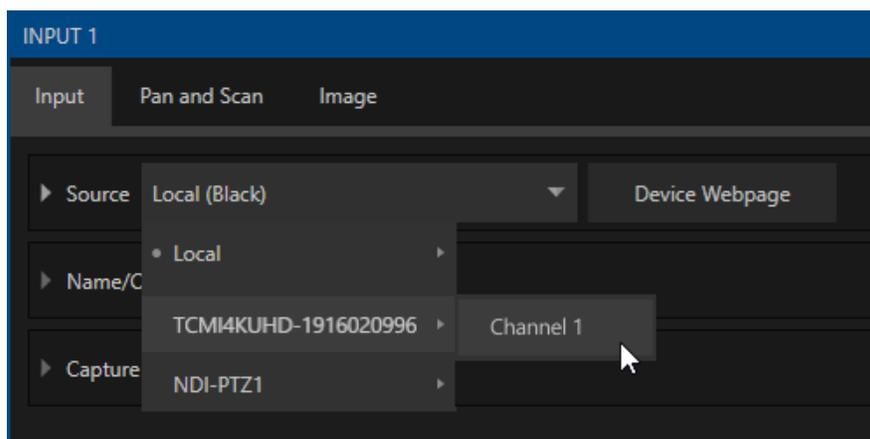


FIGURE 2

3. Click the *Source* menu at upper-left in the input tab to view available sources.

Hint: Connected TCMI4KUHD devices appear the menu as TCMI4KUHD – (unit serial number) > Channel 1.

4. Select TCMI4KUHD – (serial number) > Channel 1 as the source for the Switcher input.
5. Then click the *Device Webpage* button that appears at right upon connection to open TCMI4KUHD’s configuration webpage in a web browser.

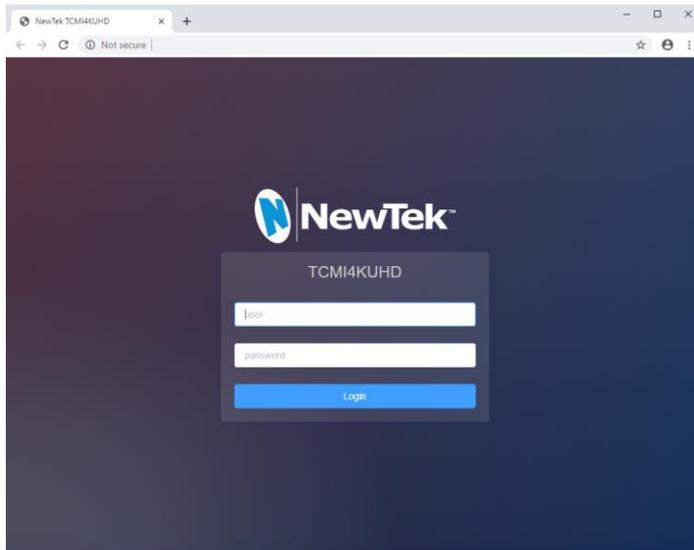


FIGURE 3

6. Log in to the webpage (Figure 3) using the default user name “admin” and password (also “admin”).
At this point, the TCMI4KUHD configuration webpage will be displayed (Figure 4).

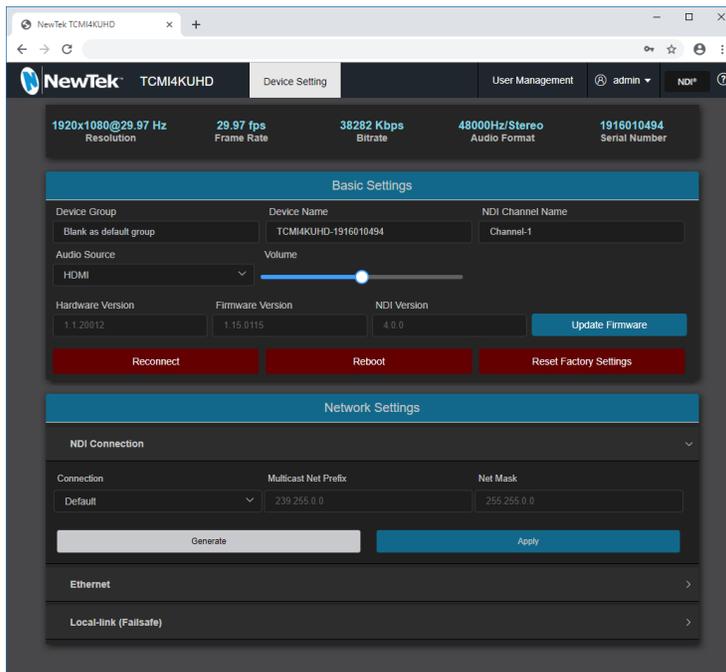


FIGURE 4

Step 3 – (Optional) Update Your Firmware

We encourage you to keep the firmware on your device up to date. Updates may contain bug-fixes, provide improved performance, or even enable new features.

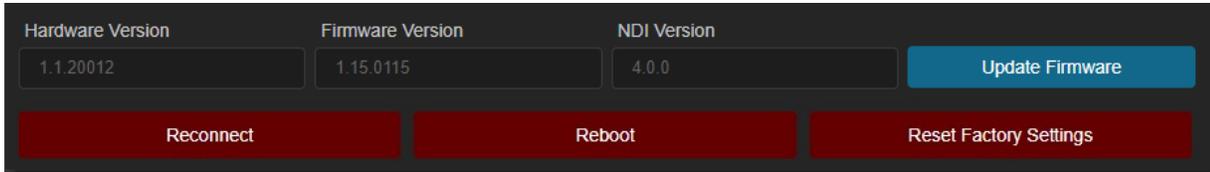


FIGURE 5

The update process is not complicated – simply follow the steps listed below:

7. Download and unzip the most recent firmware update archive to extract the '.bin' file.
8. Click the *Device Settings* tab at the top of TCMI4KUHD's webpage and compare the *Firmware Version* shown to the number in the filename of the firmware version you downloaded. If the download has a higher revision number, continue below to perform the update.
9. Click the *Update Firmware* button and click *Choose File* to show a file explorer.
10. Use the file explorer to locate the firmware .bin file, and follow the prompts to perform the update.

The device will reboot during this process, which can take up a few moments. Please be careful not to interrupt power to the device during the update process.

11. Following a firmware update, we recommend performing a *Restore* operation. A recessed *Reset button* is located at left on the device's rear connector panel, or you can use the *Restore* function from the web page.

Hint: On some web browsers, you may occasionally need to clear the browser's cache (history) to see the result of a firmware update or Factory Reset. Also, please note that it can take a minute or two before the NDI channel name shown in TriCaster refreshes.

The IP address of the device can change as a result of a *Restore* operation. You may need to use TriCaster to locate the device on the network and log in again afterward. Also, if you have previously set a manually configured IP address for the unit, you will need to reconfigure the IP settings again following a *Restore* operation.

Hint: Should you set a custom password and then forget it, you can reset the device to factory defaults using the Factory Reset process.

Conclusion

This completes the initial setup of your NewTek™ TCMI4KUHD. You should see its output displayed on Studio Monitor. The sections that follow provide more in-depth coverage of features and options.

Section 2 INTRODUCTION AND SETUP



This section, like the preceding one, explains how to connect and configure your NewTek TCMI4KUHD input device. The discussion in the chapter, however, is more leisurely and detailed, and you may find it helps answer any questions that have arisen thus far.

2.1 OVERVIEW



Thank you for purchasing this NewTek™ product. NewTek is extremely proud of its record of innovation, and its commitment to excellence in design, manufacture, and superb product support.

NewTek provides some of the most advanced live production tools available anywhere, and we are confident you will find them exceptionally powerful and versatile. Your NewTek input module delivers a huge amount of functionality in a compact package. Prosumers and video professionals alike will appreciate the convenience and flexibility it provides in connection with both video production and capture.

Unlike typical encoders and capture card systems, your NewTek TCMI4KUHD leverages NewTek's NDI-based IP workflow, supported by leading video software and hardware developers around the globe. This manual will assist you to install and configure your new device.

2.2 MAKING CONNECTIONS



FIGURE 6

1. Supply *power* and *network connectivity* between the TCMI4KUHD device and your TriCaster TC Mini by connecting an Ethernet (Cat 5 or better) cable from the input module's Ethernet port and one of the special RJ-45 ports marked NDI 1-4 on TriCaster TC Mini's rear.

Hint: The input module boots as soon as this connection is made if TriCaster is powered up.

At this point, the NewTek logo will illuminate. (If this does not happen, check your connections and retry.)

2. Optional steps:
 - a. Connect an HDMI video cable from a suitable video source to the device's HDMI connector.
 - b. If you wish, connect an analog audio source to the 6.35mm stereo audio input.

If you connected a video source in step 2 above, the TCMI4KUHD module is ready to send NDI audio and video to TriCaster. To access and use it, we need to open TriCaster's Live Desktop.

Hint: In 'mission' critical installations, it is wise to use an uninterruptable power supply (UPS). Likewise, 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 power supplies and other electronics, and provide a further measure of protection from surges, spikes, lightning and high voltage.

2.3 CONFIGURING TRICASTER

TCMI4KUHD is very easy to use. In many installations all you need to do is supply power, connect a video source to the input module, connect the module to your TriCaster, and assign it to a *Switcher* input. Let's take that last step before discussing other features.

3. Open the *Input Configuration* panel for the TriCaster *Switcher* input you intend to connect this device to. To do so, right-click on either a *Switcher* button or the input's monitor viewport and select *Configure* in the context menu.

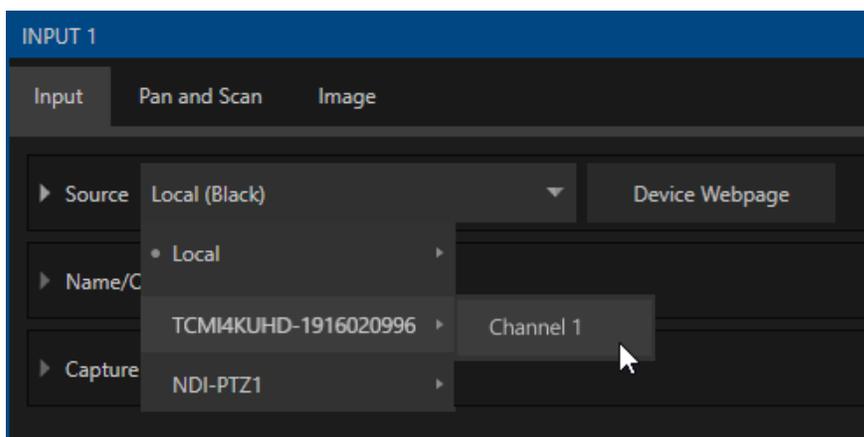


FIGURE 7

4. Click the *Source* menu at upper-left in the input tab to view available sources.

Hint: Connected TCMI4KUHD devices appear the menu as TCMI4KUHD – (unit serial number) > Channel 1.

2.4 WEB CONFIGURATION

Sometimes, though, you will want to access your input module's local settings, perhaps to configure login credentials, update firmware, etc. These features are made available by means of the device's local configuration webpage, which you can access directly from TriCaster.

Note: You may occasionally find it necessary to delete cached files (sometimes referred to as the browser's "history") before the display refreshes to properly show some recent change. This can happen, for example, after a firmware update.

When you assign TCM14KUHD as the source for a TriCaster *Switcher* input as described earlier, a convenient *Device Webpage* button is shown in TriCaster's *Input Configuration* panel (Figure 8).

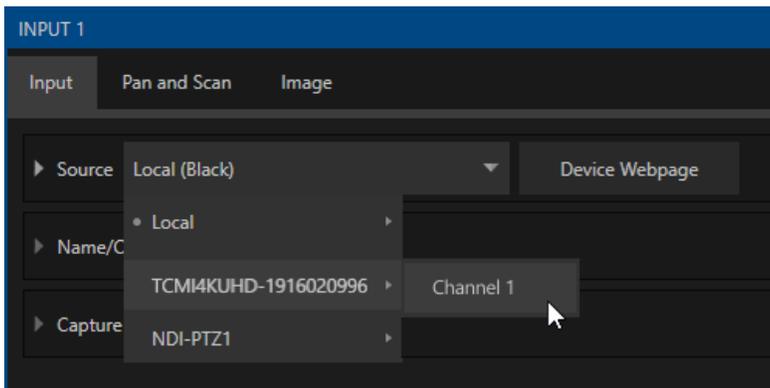


FIGURE 8

Simply click this to open the corresponding web control page.

5. Having selected *TCM14KUHD – (serial number) > Channel 1* as the source for the *Switcher* input, click the *Device Webpage* button that appears at right to open TCM14KUHD's configuration webpage in a web browser.

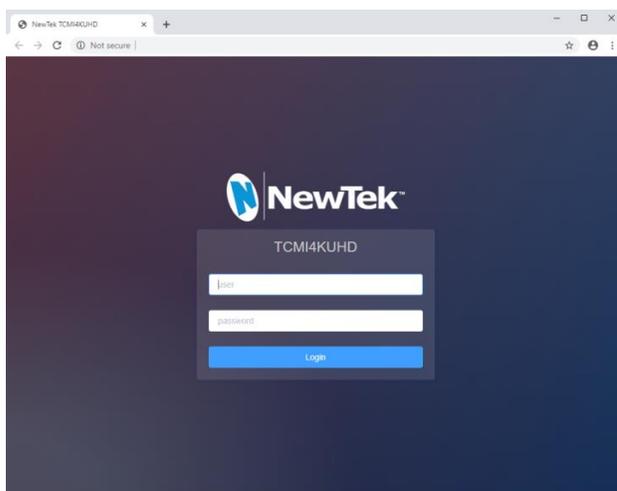


FIGURE 9

6. Log in to the webpage (Figure 9) using the default user name "admin" and password (also "admin").

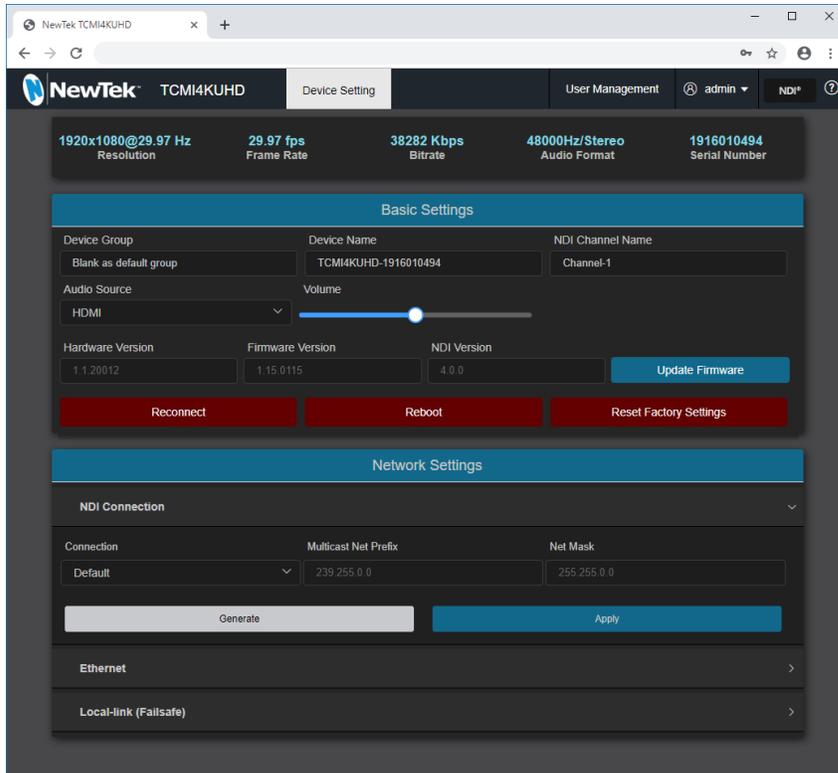


FIGURE 10

At this point, the TCMi4KUHD configuration webpage will be displayed (Figure 10).

2.4.1 DEVICE DETAILS

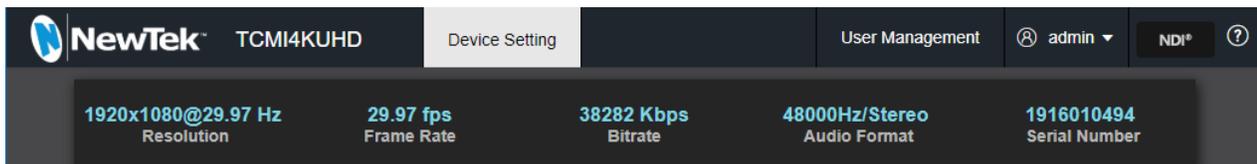


FIGURE 11

The uppermost section of the Device Setting tab on the web page shows Audio/Video format details, the current bitrate and the unit's serial number. These values are automatically detected, and are not editable.

2.4.2 DEVICE AND CHANNEL NAME

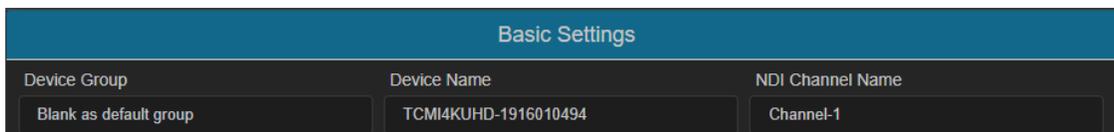


FIGURE 12

Just beneath, under the heading Basic Settings, you will find *Device Name* and *NDI Channel Name* boxes. The entries here determine how your device is identified by TriCaster.

These names are editable, allowing you a convenient way to identify the output of specific units to downstream NDI-enabled devices and systems.

Hint: The default name includes the unit serial number, which is also provided on a sticker on the chassis to help you identify a specific device.

2.4.3 AUDIO

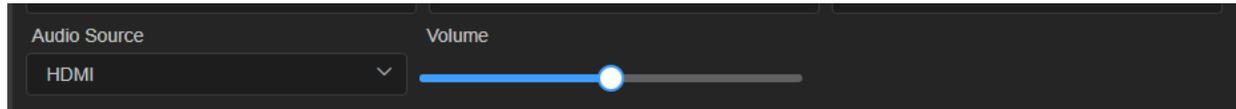


FIGURE 13

Just below, you will see the *Audio Source* menu (Figure 13). It offers two options, labeled *Line In* and *HDMI*. These determine whether device supplies TriCaster with the embedded audio source (digital audio included with an HDMI video source) or analog audio supplied to its 1/8" line level stereo input connector. The nearby volume control governs the audio output level. The device's nominal audio level is +4dBu.

2.4.4 VERSION AND UPDATE



FIGURE 14

The control group below *Audio* settings lists *Hardware*, *Firmware*, and *NDI Version* details, which can be helpful if you need support or wish to confirm you have the latest firmware update installed.

Hint: The firmware update process is detailed in Section 1, Quickstart.

2.4.5 UTILITIES



FIGURE 15

Completing our discussion of the *Basic Settings* control group, we find *Reset*, *Reboot* and *Restore* buttons at the bottom of this pane.

- **Reconnect** – breaks and re-establishes the connection between the source and TriCaster.
- **Reboot** – restarts the device (a 'warm' reboot)
- **Reset Factory Settings** – has the same effect as pressing the recessed *Reset* pin near the RJ-45 NDI connector on the back of the device for a few seconds. This resets all settings to their as-shipped default states. (On selection, the tally LEDs on the front of the unit progressively cycle to off, then on again a short while later after defaults have been restored and the unit has rebooted.)

2.5 NETWORK SETTINGS

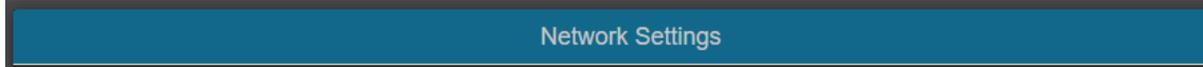


FIGURE 16

Just beneath the *Reset*, *Reboot* and *Restore* controls in the *Device Settings* tab is a control group labeled *Network Settings*, which is host to *NDI Connection*, *Ethernet*, and *Local –Link* settings.

2.5.1 NDI CONNECTION

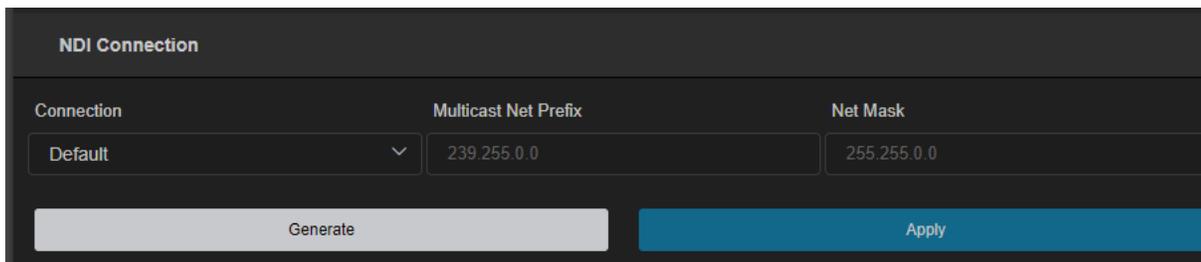


FIGURE 17

CONNECTION: DEFAULT OR MULTICAST

Although it serves no useful purpose when connecting directly to one of TriCaster TC Mini's dedicated NDI inputs, this option may be helpful in some more sophisticated environments. Select *Multicast* to transmit video using multicast, rather than the default unicast method. A suitable multicast address is generated, but you can edit the result manually if you need to. To update the address to another random value, click *Generate*.

Please take time to consider the following information before enabling this feature.

MULTICAST OR UNICAST?

Multicast can seem like a bandwidth-saving miracle. Unlike NDI's default mode (unicast), multicast does not require a unique stream from the source to each receiver. When using unicast, each connection to the sender reduces the bandwidth available by a similar amount.

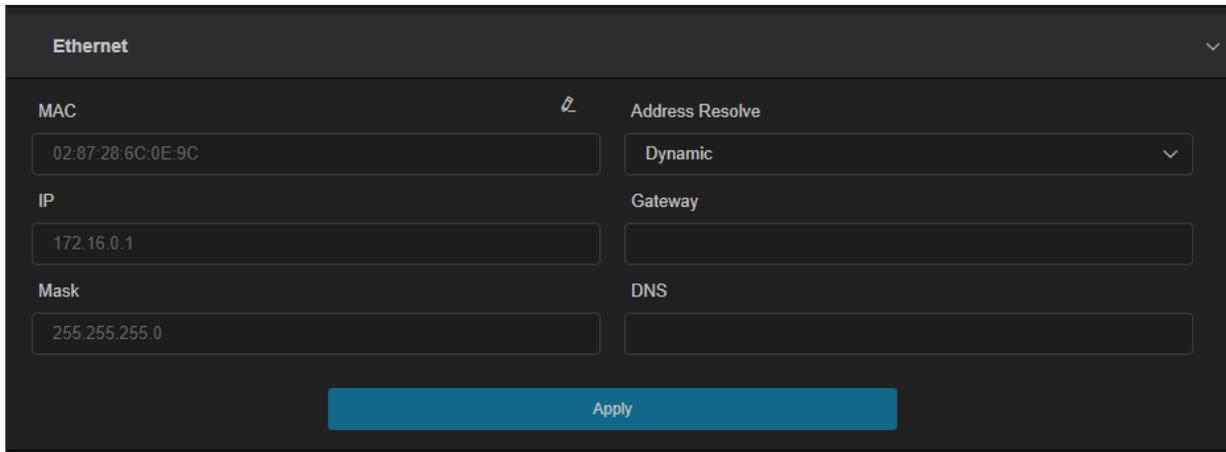
By contrast, multicast connections do *not* add significantly to the bandwidth required as connections multiply. You could be forgiven for wondering why anyone would ever turn this option off - yet, it is off by default. Why?

This is because multicast requires more careful network configuration. While you might not notice any issues in a simple network setting; a poorly configured environment can have serious impact on more complex networks.

- Specifically, it is essential that IGMP snooping be enabled for each switch on the network. This lets the device listen to traffic between other hosts, switches and routers, and identify receiving ports using various IP multicast streams.

- In addition, we strongly recommend that all network switches be of the ‘managed’ type (see the sidebar “Managed vs. Un-managed”).

2.5.2 ETHERNET



The screenshot shows a dark-themed configuration window titled "Ethernet". It contains several input fields and a dropdown menu. The "MAC" field contains "02:87:28:6C:0E:9C". The "IP" field contains "172.16.0.1". The "Mask" field contains "255.255.255.0". The "Address Resolve" dropdown menu is set to "Dynamic". The "Gateway" and "DNS" fields are empty. A blue "Apply" button is located at the bottom center of the window.

FIGURE 18

Controls in this section will be quite familiar to anyone who has connected a computer or mobile device to a network and require little explanation.

Typically, networks are configured to automatically supply IP addresses to devices you connect to it by means of a DHCP server. Your device’s IP Address resolution method is set to *Dynamic* by default, to take advantage of this scheme. To assign a static IP address to your unit, change the IP Address setting to *Manual*.

2.5.3 LOCAL-LINK (FAILSAFE)

If the default IP Address setting (Dynamic) should ever fail to provide a usable IP address within a minute or two – as when an active DHCP server is not found on the network – you can locate your device on the network using its failsafe Local-Link feature.

In this scenario, temporarily set the corresponding TriCaster’s network connection (or that of another computer if not directly connected to TriCaster) to a static IP address such as 192.168.100.1, with a netmask of 255.255.0.0) and connect the device. Then run TriCaster (or NDI Studio Monitor, from the free NDI Tools suite) as described earlier to locate the unit. This will allow you to use the *Device Webpage* to set a static IP or re-enable the *Dynamic* option, following which you can restore the downstream network to its usual configuration.

2.6 TALLY



FIGURE 19

Your TCM14KUHD unit provides 'tally' notification from TriCaster. Specifically, a row of LEDs will light up in red or green to tell you when video output from the device is visible on the *Program* output or *Preview* row of a video switcher respectively, as illustrated above.

CREDITS AND TRADEMARKS

CREDITS

Engineering: Andrew Cross, Alvaro Suarez, Brian Brice, Cary Tetrick, Charles Steinkuehler, Dan Fletcher, James Killian, Jarrod Davis, Jeremy Wiseman, John Perkins, Karen Zipper, Kevin Rouviere, Kirk Morger, Mahdi Mohajer, Matt Gorner, Menghua Wang, Michael Joiner, Michael Watkins, Mike Murphy, Nancy Sanchez, Nathan Kovner, Naveen Jayakumar, Ryan Cooper, Ryan Hansberger, Shawn Wisniewski, Steve Bowie, Troy Stevenson

TRADEMARKS

NewTek, NewTek VMC, NewTek VMC1, NewTek VMC1 IN, NewTek VMC1 OUT, NewTek NC1, NewTek NC1 IN, NewTek NC1 I/O, NewTek NC1 I/O IP, TriCaster, TriCaster TC1, TriCaster Advanced Edition, TriCaster XD, TriCaster 8000, TriCaster TCXD8000, TCXD8000, TriCaster 860, TriCaster TCXD860, TCXD860, TriCaster 460, TriCaster TCXD460, TCXD460, TriCaster 410, TriCaster TCXD410, TCXD410, TriCaster Mini SDI, TriCaster Mini, TriCaster TC Mini, TriCaster 40, TriCaster TCXD40, TCXD40, TriCaster 855, TriCaster TCXD855, TCXD855, TriCaster 455, TriCaster TCXD455, TCXD455, TriCaster EXTREME, TriCaster 850 EXTREME, TriCaster TCXD850 EXTREME, TCXD850 EXTREME, TriCaster 450 EXTREME, TriCaster TCXD450 EXTREME, TCXD450 EXTREME, TriCaster 850, TriCaster TCXD850, TCXD850, TriCaster 450, TriCaster TCXD450, TCXD450, TriCaster 300, TriCaster TCXD300, TCXD300, TriCaster PRO, TriCaster STUDIO, TriCaster BROADCAST, TriCaster DUO, MediaDS, MDS1, 3PLAY, 3Play, 3Play 3P1, 3Play 4800, 3PXD4800, 3Play 440, 3PXD440, 3Play Mini, 3Play 820, 3PXD820, 3Play 425, 3PXD425 3Play 330, 3PXD330, TalkShow, TalkShow VS 4000, TalkShow VS100, Network Device Interface, NDI, NewTek Connect, NewTek Spark, NewTek Connect Spark, NewTek Connect Spark Plus, NewTek Spark Pro, NewTek IsoCorder, ProTek, ProTek Care, ProTek Elite, iVGA, SpeedEDIT, IsoCorder, LiveText, LiveGraphics Creator, LiveGraphics, Live Story Creator, DataLink, LiveSet, LiveGraphics, TriCaster Virtual Set Editor, Virtual Set Editor Advanced Edition, TriCaster VSE, TriCaster VSE Advanced Edition, LiveMatte, TimeWarp, VT, VT[3], VT[4], V[T5], Video Toaster, Toaster, Inspire 3D, 3D Arsenal, Aura, LightWave, LightWave 3D and LightWave CORE are trademarks, service marks, and registered trademarks of NewTek. All other brand names, product names, or trademarks belong to their respective holders.



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