Model 43
Interface

User Guide

Issue 1, July 2004

This User Guide is applicable for serial numbers:

M43-00151 and later

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50020-0704, Issue 1

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Introduction

The Model 43 is designed to create a broadcast-standard IFB circuit from two line-level audio sources. The unit will find use in on-air and production broadcast applications, as well as specialized applications such as post-production, recording studio, and equipment test and maintenance. The Model 43 is a unique and versatile product, providing the resources to easily create a high-performance "wet" IFB circuit in a compact, easy-to-use package.

The Model 43's audio inputs are compatible with standard line-level audio sources, including analog outputs associated with digital matrix intercom systems. The unit's IFB circuit provides DC power and two analog audio signals to support a range of IFB user devices. The audio quality is excellent—little hiss, hum, or other artifacts are present. The Model 43 is housed in a rugged aluminum enclosure, making it suitable for permanent or temporary applications. All inputs and outputs interface using industry-standard 3-pin male and female XLR-type connectors. The connectors are manufactured by Neutrik® and feature gold-paled contacts and metal housings. A source of 24 volts DC is required for operation. Included with each unit is an external wall-mount 24 volt DC power source.

View showing 24 volt DC input and IFB circuit connections

View showing left and right audio inputs

There may be persons not familiar with the term IFB. That's not unreasonable as it's a somewhat obscure acronym for interrupted foldback. (It can also be known as interruptible foldback.) On its own, the term "foldback" is an alternate way of describing a cue or monitor function. Adding "interrupted" before it means that the cue source can be temporarily replaced with an audio signal originating from a producer, director, or other production personnel. IFB circuits are often used in the broadcast industry for talent cueing applications, in both studio and field settings. Both "dry" and "wet" IFB circuits can be deployed and their characteristics are worth reviewing. The term "dry" IFB typically refers to a transformer-balanced line-level audio circuit with a +4 dBu nominal level. This is essentially a standard audio circuit that is commonly used to interconnect audio equipment. The term "wet" IFB refers to a circuit that combines DC power and one or two channels of analog audio. The audio is unbalanced with a typical nominal level of –10 dBu. A wet IFB circuit is the type implemented by the Model 43. As such, in this user guide the term IFB will always indicate a wet circuit.

IFB circuits provide an effective means of delivering power and two channels

of audio to user devices by means of standard audio cables. These cables, ubiquitous to the audio industry, interface using 3-pin male and female XLR-type connectors. With IFB circuits and standard audio cables it's a simple matter to support user devices such as listen-only belt packs and announcer's consoles with no external power source required. Whether the distance from the source to the user device is 100 or 1000 feet, reliable operation can be provided.

In many cases, the Model 43 Interface will be used in on-air television applications. No matter if a unit is installed in a fixed location or as part of a remote facility, excellent performance can be obtained. In addition, the Model 43 is applicable for non-broadcast applications. For example, audio recording and post-production facilities can also effectively use the unit. Combined with stereo or mono listen-only belt packs, also available from Studio Technologies, a variety of headphone cue systems can easily be deployed. Maintenance facilities and test benches will appreciate having a Model 43 available to provide assistance during the testing and repair of IFB user devices. As the unit's audio inputs are compatible with standard line-level audio signals virtually any analog source can be connected.

IFB Circuit

The Model 43 supplies one circuit that incorporates two audio inputs and a "wet" IFB output. The audio inputs are transformer coupled, have a nominal level of +4 dBu, and are compatible with balanced or unbalanced sources. In on-air television broadcast applications the audio sources will often be analog outputs from matrix intercom systems. If this is the case, two sources are typically designated to feed user cue signals to stereo or monaural headsets or headphones. Generally one source is configured in the matrix intercom system as "interrupt" while the other is configured as "program." An alternate term often used for the "interrupt" channel is "program-with-interrupt." This may be more descriptive as the function is actually a program source that gets interrupted with talkback audio. The "program" channel is typically a continuous source of program audio. An alternate term is "program-only." For other applications the Model 43's audio inputs can be connected to one or two monaural sources, or alternately, to a stereo audio source. This configuration may prove useful in radio broadcasting, audio-with-picture, or recording studio applications.

Maintaining excellent audio performance was a major Model 43 design goal—the hiss, hum, and noise associated with typical IFB circuits was simply not acceptable. The Model 43 meets those requirements with audio that is "on-air" quality: low distortion, high signal-to-noise ratio, and ample headroom. On-air talent and guests, production personnel, and technicians will all appreciate the clean, quiet cue signal.

As previously covered briefly, the Model 43's IFB circuit provides DC power and two channels of unbalanced audio over a single 3-conductor output. The DC output is nominally 30 volts with a maximum rated current of 200 milliamperes. A major strength of the Model 43 is the IFB circuit's ability to effectively deliver DC power over a variety of conditions. Unlike other interface devices that use a common but less-than-ideal circuit topology, a unique IFB

circuit was developed by Studio Technologies to achieve the desired performance goals. The result is a major improvement in effectively supporting IFB user devices over a wide range of conditions. Connected devices can draw up to the full rated 200 milliamperes of current with little drop in DC voltage. This output voltage stability is the key—whether drawing 50, 100, or 200 milliamperes, the output will remain close to 30 volts. In practical terms this means that reliable IFB-based cue systems can now be deployed in more stadiums, concert halls, or motor racing facilities than was previously possible.

Compatibility

The Model 43's audio inputs are compatible with virtually every digital matrix intercom system, including those from Clear-Com®, Drake, RTS™, and Riedel Communications. Interfacing requires only the connection of analog output ports from the intercom system to the Model 43's audio inputs. The Model 43's IFB circuit allows virtually any IFB user device to be supported. These include the Model 30-series listen-only belt packs and Model 200-series announcer console products from Studio Technologies. The announcer console units combine a variety of microphone control, headphone monitoring, IFB and intercom system interfacing, and related functions into compact desktop units. Industry-standard listen-only belt packs from RTS, including the 4020 and 4030, can also be directly supported.

Alternate Applications

In addition to broadcast IFB applications, the Model 43 can be used to create a high-performance stereo headphone cue system. Line-level signals coming from audio consoles, routing switchers, or off-air receivers can be connected to the Model 43's audio inputs. The IFB circuits can be connected to listen-only belt packs, several models of which are available from Studio Technologies. For example, the Model 35 Talent Amplifier will allow one or two pairs of stereo headphones to be supported. The Model 43's IFB circuit will support up to six Model 35 Talent Amplifiers.

Setup

In this section you will be unpacking and reviewing the Model 43. For permanent applications a specific location will be selected. Audio input and IFB circuit output connections will be made by way of 3-pin XLR-type connectors. A 24 volt DC power source will be connected by way of the 2.1 x 5.0 mm coaxial input power jack.

System Components

The shipping carton contains the Model 43 Interface, 24 volt DC power supply, and associated user guide. For units shipped to destinations in North America and Japan the power supply will have a nominal AC mains input of 120 volts. For other destinations a power supply compatible with 220/240 volts will be included.

Locating the Model 43

The location selected for the Model 43 depends on how the unit is going to be used. In a permanent application the unit can be placed on a shelf that's available in an equipment room or rack cabinet. For portable applications the unit can be placed on most any table or available surface. (The reality might be that the unit is simply "tossed" in a convenient location

inside the maze of wires, equipment, and road cases associated with field production!) The unit generates essentially no heat so providing special ventilation isn't an issue; any environment where the long-term ambient temperature is less than 80 degrees Fahrenheit is adequate. When selecting a location keep in mind that an outlet must be available to allow the 24 volt DC power source to be plugged in.

As one would expect, the specific location selected for the Model 43 will dictate the length of cable that will be needed to link the unit with the connected device(s). In some cases the location choice will have already been established. For example, in field broadcast applications the Model 43 will almost always be located in a production truck or trailer. But in fixed applications it may be possible to select the mounting location so as to minimize cable length. In general, a shorter cable run will lead to a more reliable and better performing system.

Audio Input Connections

For simplicity, the Model 43's two line-level audio inputs are designated as left and right. In many broadcast settings the left input would correspond to channel 1 and the right channel to channel 2. For on-air television applications the IFB sources are generally configured to provide a single- or dual-channel cue "feed" to talent personnel. In such cases the left channel is generally designated as the "interrupt" channel while the right channel is the "program" channel. For other broadcast applications, such as live radio, it's possible that a stereo cue source will be connected. In this situation the left source would connect to the left input while the right would connect to the right input. This might also be the case with other professional audio applications, such as recording and post-production.

Audio input connections are made by way of two 3-pin female XLR-type connectors which are located on one side of the Model 43's enclosure. The audio input circuits are transformed coupled with a nominal impedance of 10 K ohms. They have a nominal signal level of +4 dBu and are compatible with balanced or unbalanced sources. With balanced sources the mating connectors (males) should be wired so that signal high (+ or hot) is connected to pin 2, signal low (– or cold) to the pin 3, and shield to pin 1. With unbalanced sources, connect signal high to pin 2, and shield to both pins 1 and 3. If connecting an unbalanced source in this manner results in hum or noise, try connecting signal high to pin 2, and shield to pin 3; leave pin 1 unterminated.

As previously mentioned, the Model 43 is compatible with matrix intercom systems from Riedel Communications. Appendix A, located near the end of this user guide, provides detailed connection information.

Audio Input Source Level Adjustment

Literally any audio source with a nominal operating level of +4 dBu can be successfully connected to the Model 43's audio inputs. Transformer coupled, the inputs are compatible with balanced or unbalanced signals. In some applications two analog outputs from a digital matrix intercom system will be connected to the Model 43. It's important to confirm and, if required, adjust the nominal output level provided by the specific system. In reality, it's acceptable that the nominal level deviates

slightly from precisely +4 dBu. But with the power of contemporary computer-controlled intercom systems there's no reason why sources with precisely calibrated levels can't be easily supplied.

From our research we found that the Clear-Com Eclipse™ system specifies a nominal level of 0 dBu. Since their headroom is listed as greater than 18 dB, increasing the nominal level of their analog output ports by 4 dB (to achieve the desired +4 dBu) should be acceptable. RTS in their ADAM™ and ZEUS™ systems specify nominal output levels of +8 dBu. With these systems maximum Model 43 performance would be provided by reducing their nominal output levels by 4 dB. With the Artist™ system from Riedel, the analog ports have a nominal level of +6 dBu. A 2 dB reduction in their output level would be beneficial.

IFB Circuit

As mentioned previously, the Model 43 supplies one IFB circuit that provides DC power and two channels of unbalanced audio. The IFB circuit is designed to connect to a variety of user devices that conform to the broadcast IFB standard. In this implementation pin 1 is used for a combination of shield, DC power return, and audio common; pin 2 supplies a combination of DC power and one channel of unbalanced audio; pin 3 supplies a second channel of unbalanced audio. With the Model 43, the DC power supplied on pin 2 is 30 volts nominal with a maximum rated current of 200 milliamperes. The audio superimposed on the DC power comes from the left audio input and has a nominal signal level of –10 dBu. The audio on pin 3 has a nominal level of –10 dBu. Its source is the right audio input.

The Model 43's IFB circuit is interfaced using a 3-pin male XLR-type connector which is located on one side of the unit's enclosure. The associated interface cable must be terminated with 3-pin female XLR-type connector. In permanent applications it's a good idea for the IFB circuit to be wired by way of an input/output connector panel rather than directly to the user device(s). It's also recommended that the panel have "mults" (multiple connectors) for the IFB circuit. For troubleshooting purposes it also may be useful to have the IFB circuit pass through points on an audio patch bay.

The type of interconnecting cable used between the Model 43's IFB circuit and the user device(s) will vary by application. In a fixed installation it would be typical to use 22AWG shielded cable in either a single- or 2-pair configuration. With single-pair cable, pin 1 of the "XLR" should be connected to the shield and pins 2 and 3 connected to the cable pair. If 2-pair cable is used, pin 1 should be connected to one side of each pair, with pin 2 going to one side of the first pair and pin 3 going to one side of second pair. The shields can either go only to the XLR connector shell or to both the connector shell and pin 1.

As any audio person "worth his salt" knows, effectively shielding unbalanced audio signals can be a tricky proposition. It is recommended that the focus be on using excellent twisted-pair cable, rather than worrying about whether or not it is shielded. The typical foil shield used in most contemporary audio cable generally offers very limited effectiveness. The best rule to follow is to always try to minimize exposure to large noise sources. (Okay, so that's hardly ever practical but at least it's a nice dream!)

In the event that a very long cable run is required, the resistance of the cable can impact the DC power supplied by the Model 43. There's no way to get around the fact that some DC voltage will be dropped by the interconnecting cable. A simple ohms law calculation will tell you the impact a specific cable run will have. You'll need to know the current draw of the connected device(s), the minimum voltage required by the connected device(s), and the resistance of the cable's conductors. This is generally stated as ohms per 1000 feet. Make sure that you account for the resistance in both the pin 1 and pin 2 legs! In general, if there is the potential for a cable-length problem, moving to a more substantial cable gauge, such as 20, 18, or 16 can be effective.

24 Volt DC Power

An external source of 24 volts DC nominal is required for Model 43 operation. (In reality, correct operation will take place with any source that is in the range of 20 to 32 volts.) The unit requires 450 milliamperes (0.45 amperes) maximum for correct operation. The power source is connected by way of a 2.1 x 5.0 mm coaxial power jack that is located on one side of the Model 43's enclosure, adjacent to IFB circuit's connector. The center pin of the jack is the positive (+) connection.

A 24 volt DC external power supply is included with each Model 43. The power supply's DC output cable is terminated with a compatible but non-locking power plug. For special applications, a provision has been made to support a positive "lock" between the external source and the Model 43's jack. An installer can terminate the cable associated with the external source using a Switchcraft® S760K "locking" plug. Using its threaded bushing, this plug can be secured onto the Model 43 power entry jack. As soon as 24 volts DC is applied, the Model 43's power present LED will light. The unit is now fully functional.

Operation

There are no switches, potentiometers, or user controls associated with the Model 43. It's designed for continuous operation with no adjustment or maintenance required. Proper operation will take place as long as attention is paid to the level presented on the audio inputs and the loading placed on the IFB circuit.

Troubleshooting

If you're having trouble getting the Model 43 up and running, this section may help. If you haven't read the previous sections of this guide, you should do so before proceeding.

If the Model 43 Doesn't Work At All

A source of nominal 24 volt DC power must be connected to the Model 43. The unit is fairly forgiving of the power that is applied; generally anything between 20 and 32 volts DC is acceptable. Whenever power is connected the power present LED should be lit. This LED is powered by the 30 volts DC that is provided on pin 2 of the IFB circuit output connector. If the LED is not lit confirm that external 24 volt DC power source is active and that its connector is securely mated with the inlet connector. Also ensure that an acceptable load is being place on the IFB circuit.

In all foreseeable situations, both normal and abnormal, the LED should be lit. However, it's possible that if the IFB circuit is presented with an over current or short circuit condition the circuitry may enter its protection mode and shut down. In this case the LED will not light, or will light intermittently. If the LED presents this scenario, even after confirming that 24 volts DC is correctly being applied, try removing the load from the IFB circuit. The easiest way to do this is to remove the 3-pin female XLR-type connector that is plugged into the Model 43. If after a few seconds the LED again lights, carefully check the IFB circuit wiring for a fault condition.

If the LED still doesn't light, even after confirming that an external source of 24 volts DC is present and that the IFB circuit is not shorted, it's likely that the unit requires factory service. The Model 43 must be returned to the factory, or an authorized service location, for review and repair.

Maintaining Correct Input Signal Levels

The Model 43's two audio inputs are designed for nominal signal levels of +4 dBu. Applying signal levels significantly lower than +4 dBu will reduce the signal-to-noise ratio (raising the perceived noise floor) and can prevent the connected user devices from operating optimally. Applying signal levels significantly higher than +4 dBu will reduce the headroom and greatly increase the chance of reaching audio "clipping." Obviously, these cautions are not unique to the Model 43, but apply to most audio equipment.

The easiest means of confirming that the Model 43 is being presented with the correct audio levels is to use a Model 72 Level Meter/Interface, also available from Studio Technologies. The Model 72 is a compact, portable device that plugs directly into an IFB or intercom circuit and provides two useful functions. Two 5-segment LED meters display the audio levels present on pins 2 and 3 of the circuit. In addition, two "dry" line-level audio outputs are provided. The Model 72 should prove to be very useful, both during initial Model 43 installation and routine system testing. Complete information on the Model 72 is available on the Studio Technologies website.

Maintaining Correct IFB Circuit Current Draw

The Model 43's IFB circuit is designed to provide up to 200 milliamperes of DC current. By design, the circuit is protected so that an overload condition, or even a complete short circuit, should not cause damage. Exceeding about 220 milliamperes will cause the protection circuitry to come into play. An overload condition will cause the output voltage to shut off continually or intermittently. The exact action will depend on the specific overload condition that is present. In general, the more extreme the overload condition, the sooner normal operation will cease. Restoring the output load to be within the rated 200 milliamperes will allow the output to again operate normally. A few seconds may be required from the time an overload condition is removed and when normal operation again takes place. Please don't test the Model 43's ability to sustain frequent overload or short-circuit conditions! The

long-term reliability of the unit can be impacted by the stress caused by these fault conditions.

If there is concern that an excessive load is being placed on the IFB circuit, performing a simple test is recommended. This can be performed using any good-quality digital multimeter. Begin by setting the meter to measure DC current. Then place the meter leads in series with the pin 2 lead of the XLR-type connector. The easiest way to measure the pin 2 current is to create a simple adapter cable using one female and one male 3-pin XLR-type connector. Connect pin 1 on both connectors together. Connect pin 3 on both connectors together. Connect separate wires to the pin 2 leads on both connectors. Then connect the meter leads to these two wires. The meter will indicate the DC current being drawn while normal operation of the connected device(s) takes place. Be certain to connect the maximum number of devices that might be powered by the IFB circuit. That is, measure the worst-case condition and ensure that the load is within the rated 200 milliamperes output. If possible, leaving a 10 or 20% reserve margin is a good practice.

Technical Notes

Cable Length

There are no hard and fast rules defining the maximum cable length possible when connecting user devices to the Model 43's IFB circuit. The maximum cable length is directly related to the amount of resistance in the connecting cable; the lower the resistance per foot (or meter), the longer the cable can be. (Although cable capacitance affects high-frequency performance, resistance is the limiting factor in this case.) For example, a standard 20 AWG microphone-type cable is Belden 8412, which has 10.9 ohms resistance per conductor per 1000 feet. Since we're using two conductors to carry the signal (pins 1 and 2) you'd get 21.8 ohms per 1000 feet of cable. By knowing the cable resistance value, along with the minimum voltage and maximum load current required by an IFB user device, a simple "ohms law" calculation will tell you the maximum cable length.

Let's use the example of a Studio Technologies Model 220 Announcer's Console being connected to the Model 43. We'll select Belden 8412 as the interconnecting cable. For correct operation, the Model 220 needs at least 24 volts DC between pins 1 and 2 of its IFB input connector. It has a current draw of 125 milliamperes. The Model 43's IFB circuit presents an output voltage of 30 volts across pins 1 and 2 and can supply a maximum current of 200 milliamperes. (As the Model 220's current draw is well within the Model 43's capability, this is not a limiting factor.) The difference between the voltage supplied by the Model 43 (30 volts) and the voltage required by the Model 220 (24 volts) allows a 6 volt maximum drop over the interconnecting cable. Using the current draw and maximum voltage drop figures, the maximum cable resistance can easily be calculated: 6 volts divided by 0.125 amperes equals 48 ohms. And finally, with 8412's 21.8 ohms (total) per 1000 feet of cable, a maximum of 2200 feet of cable can be used and still be less than or equal to 48 ohms. Using this example as a guide, entering the appropriate values will allow you to determine the maximum cable length for your application.

Cabling Issues – Crosstalk

The Model 43's IFB circuit conforms to a broadcast industry standard for sending DC power and two channels of audio over a single pair shielded audio cable. This implementation allows standard portable cables, such as are used for microphone signals, to interconnect IFB user devices. This method is undoubtedly convenient and practical, but is not without limitations. The main audio quality issue is the possibility of crosstalk between the two audio channels. This issue arises due to the capacitance presented by the two wires that form the twisted pair. The greater the capacitance presented and the longer the cable run, the greater the crosstalk will become. Is this normally a problem during actual use? No. But it's something that should be noted.

Studio Technologies did some experimenting with various cables and the crosstalk that was created. For example, a 1000-foot reel of 24-gauge 2-pair unshielded telephone cable was used to link the Model 43's IFB circuit with an IFB user device. One pair carried the pin 2 (DC with channel 1 audio) and pin 3 (channel 2 audio) connections. One wire from the second pair carried the pin 1 (DC and audio common) connection. The inter-channel crosstalk in the voice audio band was on the order of –45 dB. Is this a good value for "professional" audio? Of course not. But for the intended talent cueing applications it should be fine. In almost all cases the audio signals being carried are somewhat or fully phase-coherent. A bit of one channel getting into the other won't even be noticed, especially since monitoring is generally done using headsets, headphones, or ear pieces.

Is it possible to reduce the crosstalk that is created? Absolutely, as long as a non-standard cable connection is made. This becomes a trade-off between an improved crosstalk figure and ease of installation and use. Using two full pairs can significantly reduce crosstalk. Several connection schemes are possible; the exact one selected will depend on the specific installation and personal technical philosophy. Two unshielded twisted pairs can be effectively used. The first pair would carry the DC and channel 1 audio signal and common. The second pair would carry the channel 2 audio signal, again along with common. There will still be some capacitance between the conductors carrying the two audio channels but it should be significantly less. Two shielded pairs can also be used, as was discussed in the Installation section of this user guide.

Superior Power Delivery and Audio Quality

As previously discussed, one of the Model 43's strengths is its ability to very effectively deliver energy to the connected IFB user device(s). This allows more devices to be supported over longer cable runs. How does the Model 43 accomplish this? Simply by having circuitry that is superior to that used in most of the "industry-standard" equipment. In most IFB interface devices, an adjustable voltage regulator integrated circuit is used as a combination of audio modulator and current limiter. While this is a simple and inexpensive solution, it's not without significant limitations. The major problem with this method is the type of voltage-current "knee" that is created. As the load current increases past about 50% of the rated maximum the output voltage begins to decrease. This

means that the usable power delivered to the connected device(s) will start to drop well before the rated output is reached. This limitation will become significant in applications that use long cable runs. As the IFB circuit voltage begins to drop problems with user device performance can occur. Contrast this situation with the performance provided by the Model 43. The DC voltage supplied by its IFB circuit won't "poop out" when loaded over its 0 to 200 milliamperes range. This will allow IFB belt pack and announcer's console devices to work correctly in many more applications. Figure 1 shows the IFB circuit voltage-current curves for the RTS 4000-series and the Model 43 Interface. The performance differences are quite interesting.

It's interesting to note the reason why typical IFB circuit audio quality is less than pristine. It's not hard to notice the background "hiss" that is always present on pin 2 (DC with channel 1 audio) of the interface connector. Technically, it's white noise that comes from the adjustable voltage regulator being used as an "AM" modulator and current limiter. The noise is an artifact of the design topology and simply can't be overcome. How does Studio Technologies know this? Because our first "breadboard" designs used this method and achieved the same poor results! Only after the problem came to light did work on an improved circuit begin. The results were worth the effort.

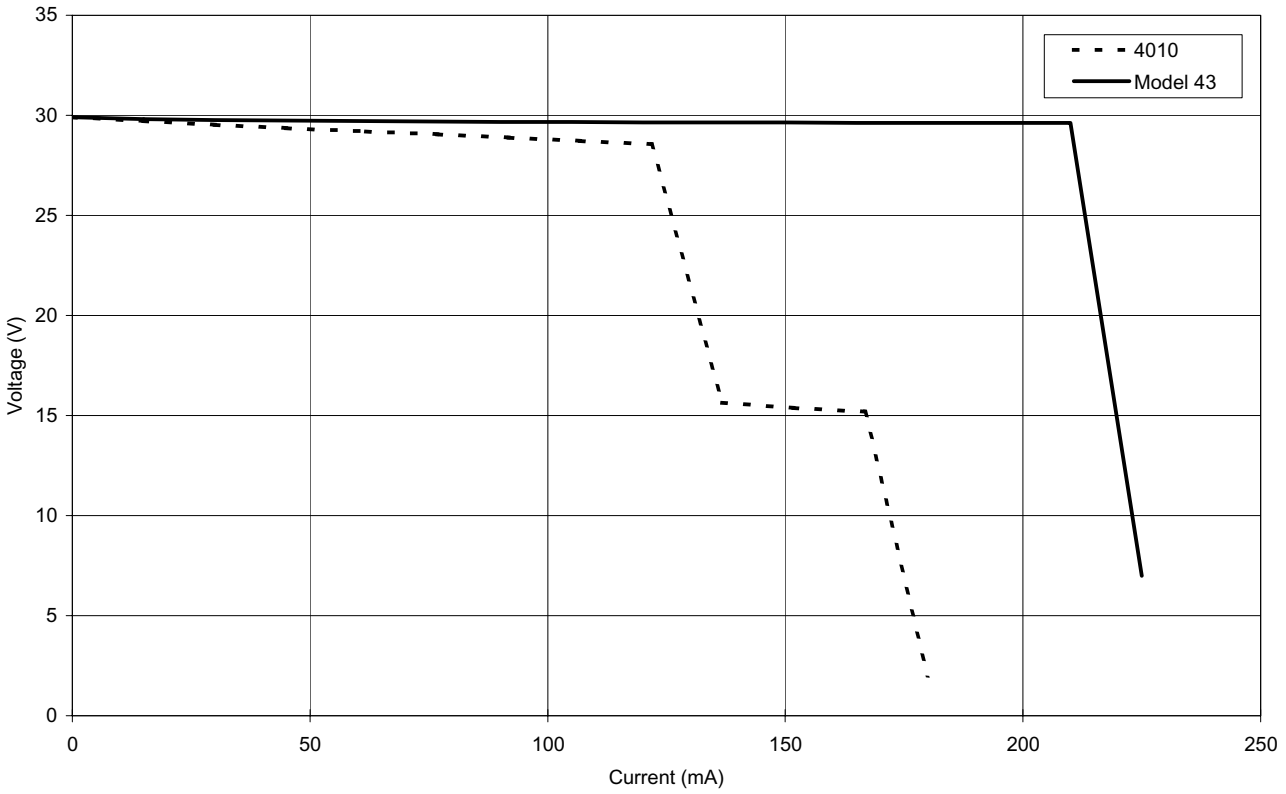


Figure 1. IFB Circuit Voltage-Current Curves for RTS 4000-Series and Model 43 Interface

Specifications

General Audio:

Frequency Response:
Pin 2 Output (DC with Channel 1 Audio): 20 Hz-20 kHz ±3 dB (80 Hz-20 kHz ±0.25 dB)
Pin 3 Output (Channel 2 Audio): 20 Hz-20 kHz ±0.25 dB

Distortion (THD+N): 0.02%, measured at 1 kHz, +4 dBu, pin 2 output (DC with channel 1 audio)

S/N Ratio: 80 dB, ref +4 dBu out, 20 Hz-20 kHz, pin 2 output (DC with channel 1 audio)

Crosstalk: 75 dB, typical, ref +4 dBu in, 20 Hz-20 kHz

Audio Inputs: 2

Type: transformer balanced, capacitor coupled, compatible with balanced or unbalanced sources

Impedance: 10 k ohms, nominal

Nominal Level: +4 dBu

IFB Output Circuit:

Type: DC power with two channels of unbalanced audio

Connections: common on pin 1, DC (+30 V nominal) modulated with channel 1 audio (–10 dBu nominal) on pin 2, and channel 2 audio (–10 dBu nominal) on pin 3

Maximum Audio Output Level:
Pin 2: +9 dBu with +23 dBu on audio input
Pin 3: +14 dBu with +28 dBu on audio input

DC Current Output: 200 mA maximum

Connectors:

Audio Inputs: 2, 3-pin XLR-type female

IFB Circuit: 3-pin XLR-type male

24 Vdc: 2.1 x 5.0 mm locking coaxial power jack (compatible with Switchcraft S760K plug)

Power Requirement:

20 to 32 Vdc, 0.4 A at 24 Vdc, 0.45 A @ 20 Vdc

Dimensions (Overall):

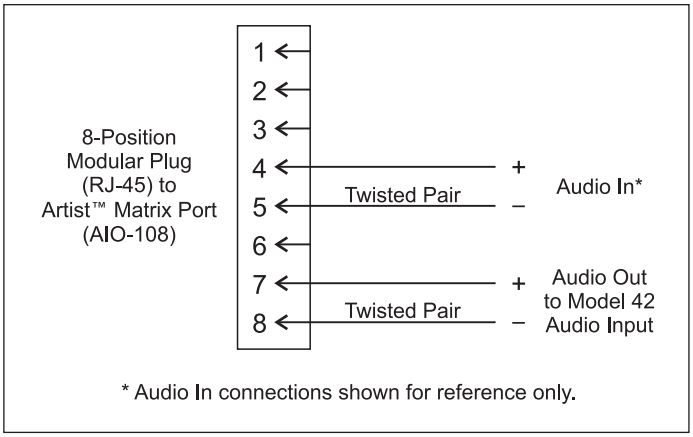
4.2 inches wide (10.7 cm)
2.0 inches high (5.1 cm)
4.7 inches deep (11.9 cm)

Weight: 0.8 pounds (0.35 kg)

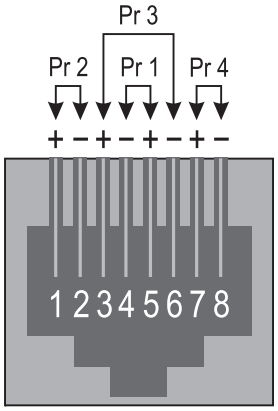
Specifications and information contained in this User Guide subject to change without notice.

Appendix A

Interfacing Riedel Artist™ Matrix Intercom Systems with the Model 43 Interface



Back Panel Jack on
Artist™ Chassis

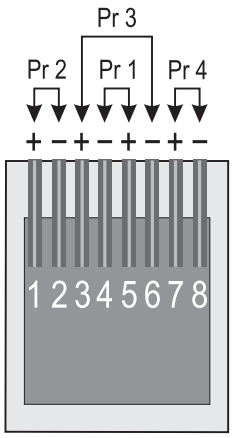


Jack Front View

T568B RJ-45 Wiring

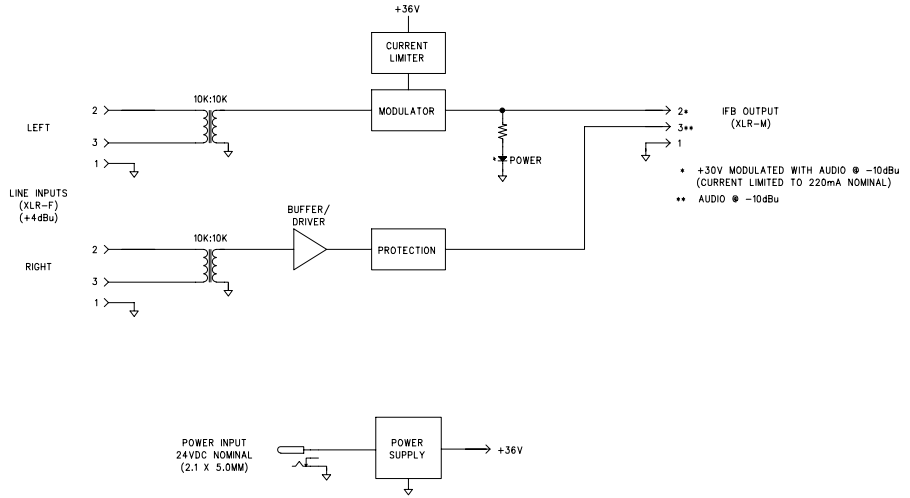
Pin 1	WHT/ORG
Pin 2	ORG/WHT
Pin 3	WHT/GRN
Pin 4	BLU/WHT
Pin 5	WHT/BLU
Pin 6	GRN/WHT
Pin 7	WHT/BRN
Pin 8	BRN/WHT

8-Position Modular Plug
(also known as RJ-45)



Plug Top View
(Release Tab on Bottom)

Information courtesy of
Riedel Communications Inc.



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STUDIO TECHNOLOGIES, INC.

MODEL 43 INTERFACE
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