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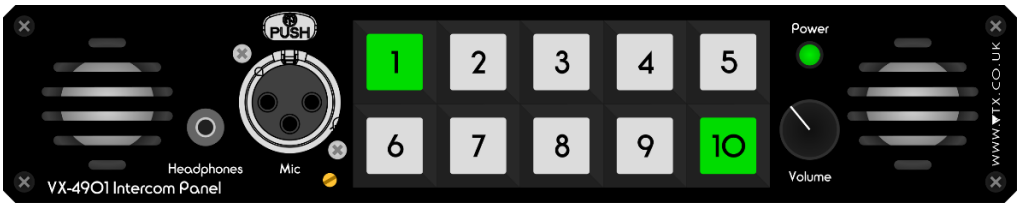
VORTEX
Communications Ltd

VX 4901 Intercom Panel



User Manual

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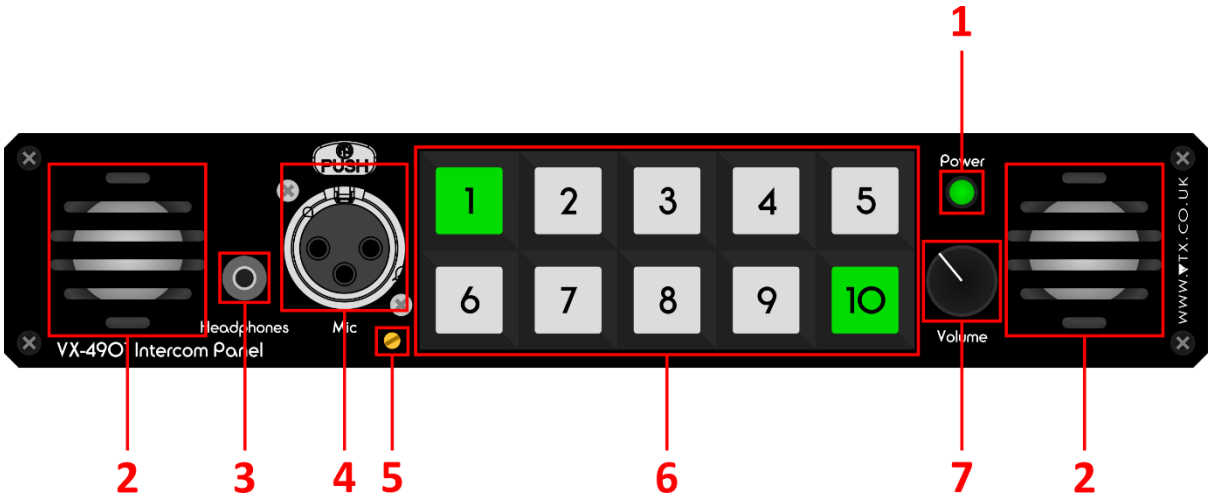
Introduction

The VX-4901 Intercom Panel transforms any Comrex BRIC codec (ACCESS, BRIC-Link, BRIC-Link II) into a complete IP intercom solution. It incorporates 10 reconfigurable illuminated pushbuttons to call remote stations (in either push-to-talk or latching mode), a microphone pre-amplifier with optional phantom power, a pair of high-quality loudspeakers and a stereo headphone amplifier. It can be used in either a desktop or rackmount configuration, with a headset-mounted or gooseneck microphone.

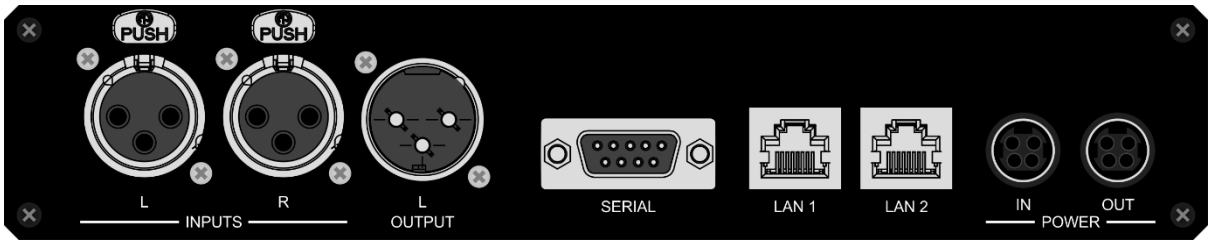
Although the VX-4901 will work with any BRIC codec, it is specifically designed to mount beside a BRIC-Link II in the 1-U rack adapter available from Vortex. To ease installation, the VX-4901 includes two network interfaces with a built-in switch, allowing a single Ethernet connection to be "daisy-chained" through the intercom panel to the BRIC-Link II. Similarly, power is passed through the VX-4901 allowing the pair of units to be powered from just one supply. The VX-4901 is supplied as standard with power, Ethernet and audio "loop" cables to connect to the codec.

Front Panel Interface



1	Power LED	Illuminates when power is supplied to the unit.
2	Stereo loudspeakers	Allow monitoring of receive audio from codec without headphones. Driven by INPUTS – L & INPUTS – R. Automatically muted when headphones connected.
3	Headphone socket	Accepts stereo headphones for monitoring of receive audio from codec. Driven by INPUTS – L & INPUTS – R.
4	Microphone socket	Allows connection of a dynamic or condenser microphone to provide send audio to codec. Drives OUTPUT – L.
5	Microphone trim	Allows adjustment of microphone gain.
6	Connect buttons	Instruct codec to connect to pre-configured destinations; illuminate when connection established. Short press to latch; long press for PTT.
7	Volume control	Adjusts audio level of loudspeakers and headphones.

Rear Panel Connections



The VX-4901 Intercom Panel's rear ports should be connected as follows:

Port	Connect to…
INPUTS – L	OUTPUTS – L / LINE OUT LEFT on codec
INPUTS – R	OUTPUTS – R/ LINE OUT RIGHT on codec
OUTPUT – L	INPUTS – L / LINE IN LEFT on codec
LAN 1	品 / LAN on codec or local network
LAN 2	品 / LAN on codec or local network
POWER – IN	BRIC-Link II PSU or VX-4901 PSU
POWER – OUT	BRIC-Link II using power "loop" cable supplied

At most one of the VX-4901's LAN ports should be connected to the local network.

Note that the codec does not need to be connected directly to the VX-4901; if the two units are not co-located, it may be more convenient to connect them separately to the same local network. The only requirement is that a network route exists between the two.

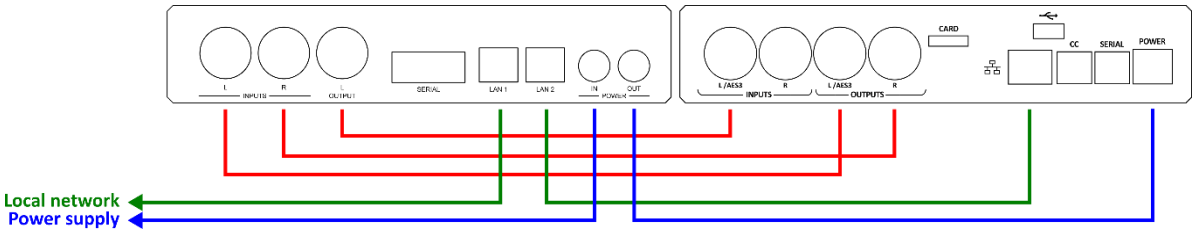
Similarly, when using the VX-4901 with a BRIC-Link II, the power does not have to be supplied by the Intercom Panel; the two units may be powered separately (additional PSUs are available from Vortex).

Mounting

The VX-4901 can be mounted alongside a BRIC-Link II codec in the rack adaptor available from Vortex. If all these units are purchased together, the devices will already be mounted; if not, follow the instructions below.

1. Remove the four corner screws from the front panel of the VX-4901 and the BRIC-Link II. Be sure to keep these screws separate as they are not interchangeable between the two units.

2. Remove the rubber feet from the units (if present).
3. Place the units side-by-side in the rack adaptor (we recommend that the VX-4901 be placed on the right).
4. Replace and tighten the corner screws shown in step 1.
5. Use the supplied power, Ethernet and audio “loop” cables to connect the units together as described in Rear Panel Connections and illustrated below.



IP Configuration

Both the VX-4901 and BRIC codec are supplied configured to obtain IP addresses via DHCP. To discover the addresses which have been assigned to the units, or to assign them static IP information, use the Comrex Device Manager software on a computer on the same local network. Note that any changes to the units' network configuration needs to be performed within the first five minutes after they are powered on; after this time, the configuration is locked to avoid accidental changes.

1. If Device Manager is not already installed, download it (for either Windows or Mac) from the Comrex support site. Run the downloaded executable and follow the wizard (Windows) or open the dmg and drag DeviceManager.app to your applications folder (Mac) to install.

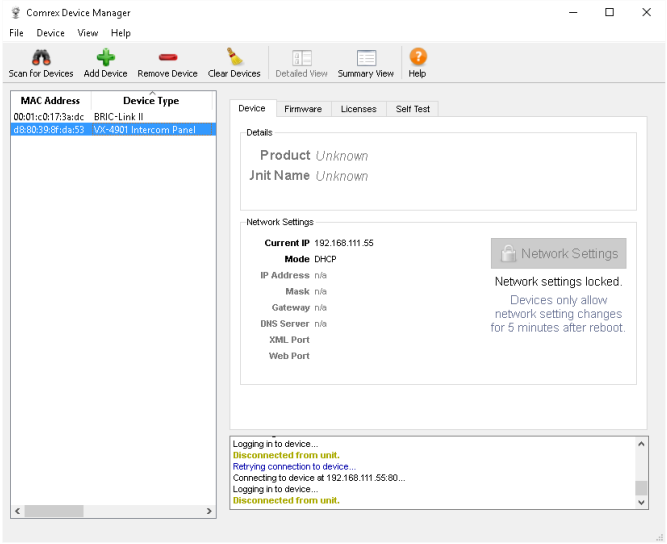
2. Run Comrex Device Manager (accepting any firewall exceptions requested) and click Scan for Devices. The list on the left should be populated with at least the codec and the VX-4901 Intercom Panel.

   If either device is missing, check all network connections, wait a couple of minutes and click Scan for Devices again. Note that if you have multiple network interfaces on the computer running Device Manager, you may need to disable any which are not connected to the VX-4901's network to ensure it scans the correct one.

3. Select the VX-4901 Intercom Panel in the list; the currently-assigned IP address will be shown in the right-hand pane. If you wish to assign a static address, click Network Settings, select the Static option and enter the desired IP address, subnet mask, gateway and DNS server addresses in the corresponding fields. Click OK to save.

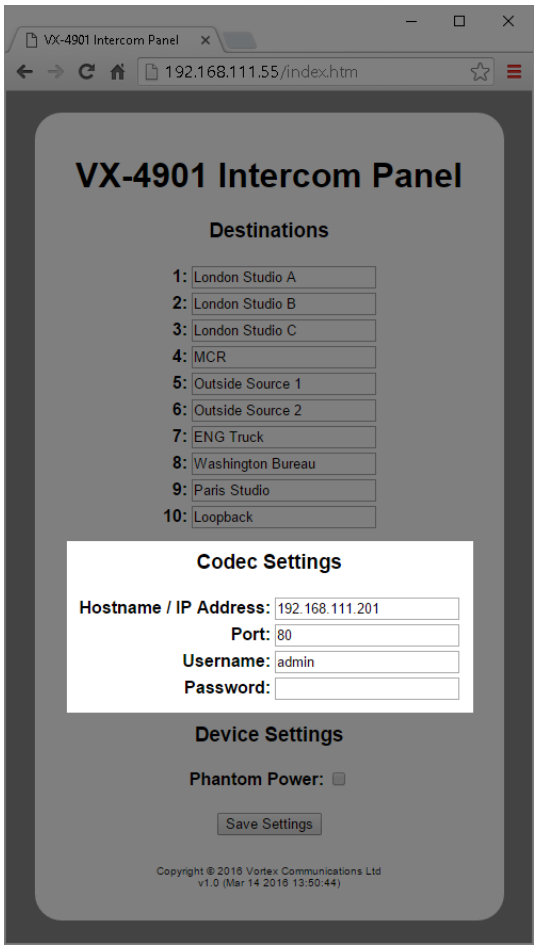
   If the VX-4901's IP address is shown as 0.0.0.0, this indicates that it has not yet received a valid address from a DHCP server. Wait a couple of minutes and click Scan for Devices again.

4. If you need to determine or change the IP address of the BRIC-Link, select it in the list and repeat the procedure in step 3.



Pairing

The details of the codec need to be programmed into the VX-4901 via its web interface. Type the address of the VX-4901 (determined / set in the IP Configuration section) into a web browser to access the configuration page. Refer to the table below to set the correct values in the Codec Settings section of the page, then save the settings by clicking Save Settings. After a few seconds the side-to-side sweeping pattern on the front-panel buttons should stop to indicate that the Intercom Panel is connected to the codec.



Hostname / IP Address	Enter the IP address of the codec (determined / set in the IP Configuration section).
Port	The default Port setting of 80 is correct for codecs running firmware version 4.0 or later; if your codec has an earlier firmware version (shown on the Firmware tab in Device Manager), or its port number has been explicitly changed, enter the correct port here. The default for pre-4.0 codecs is 8080.
Username	The content of this field is currently unimportant and can be left at the default “admin”.
Password	The VX-4901 is pre-configured to use the default codec password of “comrex”. If you have explicitly changed this on the codec, enter the correct value here. Note that this field will always be empty regardless of the password currently set, and the password will not be changed if it is left blank when the settings are saved.

Configuring Destinations

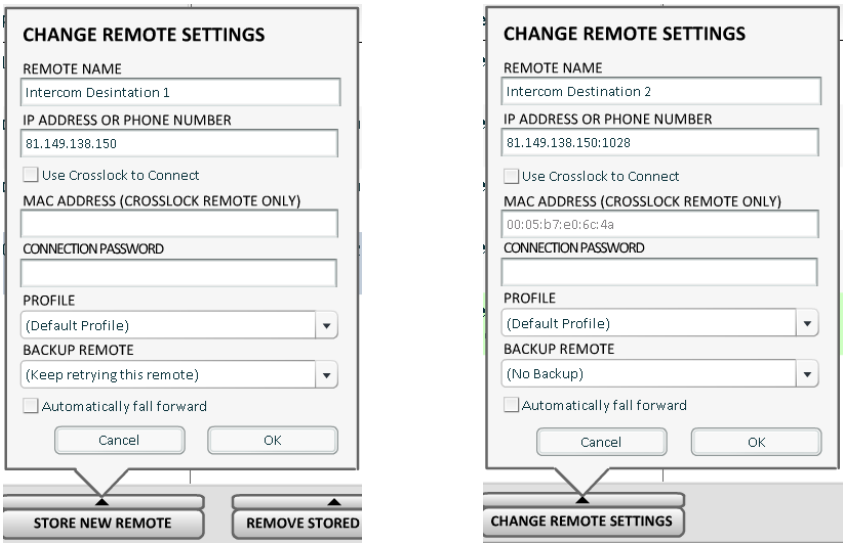
Codec Remotes

The destinations to be called when the VX-4901's front-panel buttons are pressed must exist as Remote entries on the BRIC codec. This is most easily achieved by having all intercom codecs which need to communicate associated with the same Switchboard server account, so each appears automatically in the others' Remotes lists when it is online. In this case the Remote's name is defined in the System Settings tab on the destination unit.

Alternatively, the entries can be added manually by browsing to the codec, logging in (with any username and a default password of "comrex"), clicking STORE NEW REMOTE and entering a name and IP address. Note that whether populated manually or via the Switchboard server, the names of all the Remotes to be called from the Intercom Panel must be unique.

A Note on CrossLock

BRIC codec firmware 4.0 and higher offers the option of CrossLock connections, which provide increased redundancy and/or capacity by sharing data across multiple network devices. This is ideal for outside broadcast use, but comes at the expense of longer connection set-up times. When using the VX-4901 for quick-fire push-to-talk applications, it is recommended that CrossLock be left disabled when adding a Remote entry manually, and explicitly disabled on Switchboard entries by selecting the Remote in the list, clicking CHANGE REMOTE SETTINGS and unchecking the Use CrossLock to Connect box.

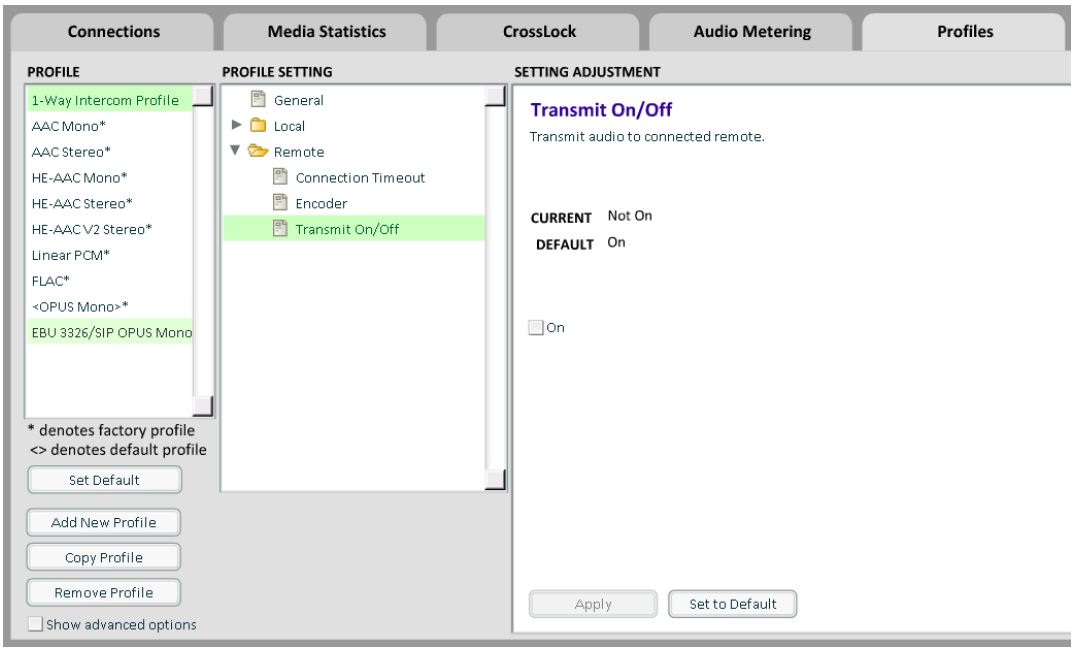


Codec Profiles

The PROFILE selected for the Remote entry determines whether the connections made to this destination from the VX-4901 will be mono, stereo or dual-mono, and whether they will be send-only (half-duplex) or send and receive (full-duplex). The default profile depends on the codec and firmware version, and can be ascertained by looking for the angle bracket indication (< >) in the Profiles tab of the codec's web interface.

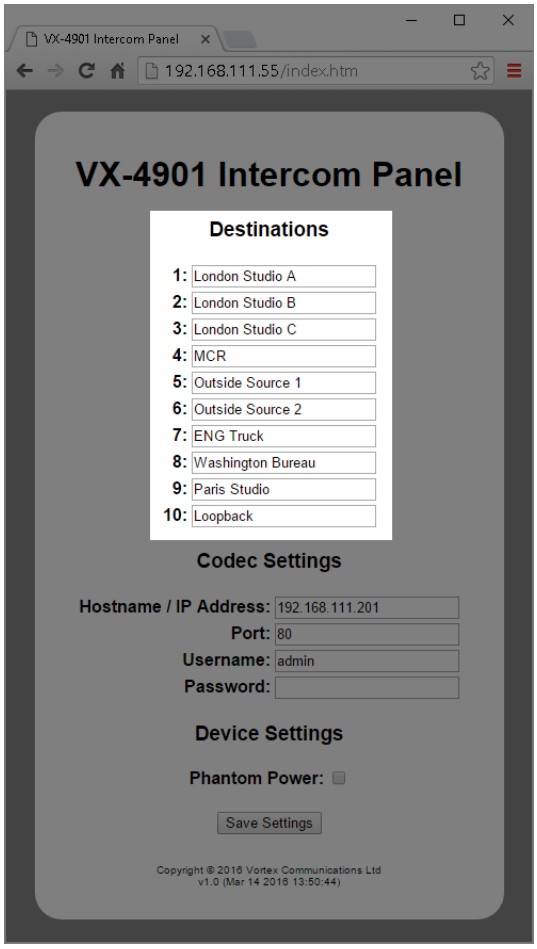
For dual-mono or one-way connections, it may be necessary to create a custom profile. To do this, follow the instructions below.

1. Click the Profiles tab.
2. Click Add New Profile, then in the Profile list, select "New Profile".
3. In the Profile Setting list select General, enter a suitable name (e.g. "1-Way Intercom Profile") and click Apply.
4. To determine whether the connection will be mono, stereo or dual-mono, in the Profile Setting list expand Local, select Encoder, choose an appropriate algorithm (e.g. HE-AAC Dual Mono 96Kb for dual-mono) and click Apply.
5. To determine whether the connection will be half- or full-duplex, in the Profile Setting list expand Remote, select Transmit On/Off, ensure the On box is checked for full-duplex or unchecked for half-duplex and click Apply.



VX-4901 Button Assignment

Once the required Remotes are present on the codec, either via Switchboard or manual entries, these should be assigned to the VX-4901 buttons. Return to the VX-4901 web interface and, in the Destinations section, enter the name of each Remote to be called in the field corresponding to the button which should call it. Fields corresponding to unused buttons can be left blank (or simply set to the name of a non-existent Remote). Click Save Settings when done.



Making Connections

Once the one-time setup steps in IP Configuration, Pairing and Configuring Destinations have been completed, connections can be made simply by pressing the buttons on the front of the VX-4901. A short press (< 1 second) latches the connection on; another press disconnects. Pressing and holding provides push-to-talk functionality where the connection is maintained only until the button is released.

It is possible to make multiple connections simultaneously by briefly pressing several buttons in sequence. To achieve this, the profiles assigned to the selected destinations on the codec must be such that no more than one has Remote >Transmit On/Off set to On, i.e. there may be a maximum of one full-duplex connection active at any time (since the codec can only decode one audio stream).

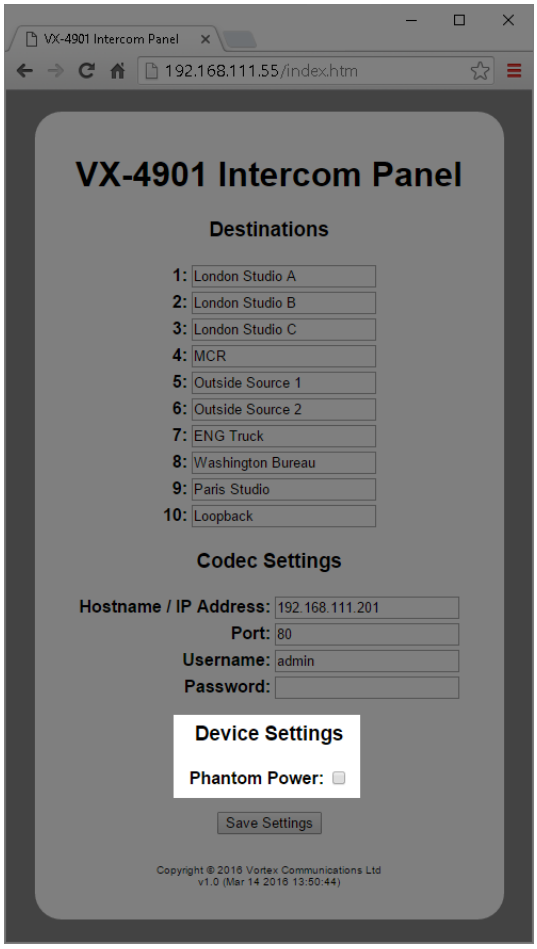
Note that the buttons illuminate whenever a connection is active between the local codec and the configured destination. Therefore, if a destination is busy when its button is pressed, the button will not remain lit. This also means that the button will illuminate when a connection is incoming from a particular destination as well as when the call has been made from the local end.

Incoming audio can be monitored via either the built-in loudspeakers or a pair of headphones connected to the front-panel socket. The speakers are automatically muted when headphones are connected, and the volume control on the front panel adjusts both the speaker and headphone levels.

Microphone Compatibility

The VX-4901 Intercom Panel is designed to work with a wide range of dynamic and condenser microphones. Optional phantom power is available for microphones which require it. This can be enabled by browsing to the VX-4901 web interface and, in the Device Settings section, checking the Phantom Power box and clicking Save Settings.

Note that it is recommended to turn down any loudspeakers connected to the VX-4901's line output when enabling or disabling phantom power to avoid the "pop" which can be generated. It is also good practice to connect or disconnect a microphone only when phantom power is disabled.



The VX-4901's microphone pre-amplifier is factory-set for a gain of +60dB, which is appropriate for most dynamic mics. For some lower sensitivity types, however, it may be necessary to increase the gain; conversely, when using condenser or self-powered mics, the gain may need to be reduced.

The gain can be adjusted by carefully inserting a small flat-bladed screwdriver (max. 1.5mm) or trim tool into the hole below the microphone connector on the front panel and turning clockwise to increase gain or anticlockwise to reduce it.

Specifications

Audio input (from codec)	Format / connector	2x balanced XLR-F on rear panel
	Level	Line, 0dBu nom., 20dBu max.
	Impedance	12k ohm (balanced)
Audio output (to codec)	Format / connector	1x balanced XLR-M on rear panel
	Level	Line, 0dBu nom., 20dBu max.
	Impedance	100 ohm (balanced)
	Load	600 ohm min.
Microphone input	Format / connector	1x balanced XLR-F on front panel
	Level	Mic, -72dBu – -26dBu nom., -52dBu – -6dBu max.
	Impedance	2.95k ohm (balanced)
	Phantom power	24V, 10 mA max. (IEC 61938 P24)
Headphone output	Format / connector	1x stereo 3.5mm TRS socket on front panel
	Headphone impedance	16 ohm min.
	Power	25mW RMS / channel @ 0.1% THD
Loudspeakers	Power	2x 2W RMS
Ethernet	Format / connector	2x RJ45 10/100BaseT on rear panel
	Link	Auto negotiation and auto MDI-X
Power	Requirements	24VDC 550mA max.
	Supply	VX-4901 PSU or BRIC-Link / BRIC-Link II PSU only
Physical	Size without connectors / feet	216 x 41.6 x 155.4 mm (8.50” x 1.64” x 6.12” approx.)
	Size with connectors / feet	216 x 45.1 x 175.4 mm (8.50” x 1.78” x 6.91” approx.)
	Weight	1.05 kg (2.31 lbs) approx.