Tieline®
The Codec Company

ViA

Quick Start User Manual

Software Version: 2.22.xx
Quick Start Manual Version: 4.0
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1 Warnings & Safety Information

1. The power cable and battery must be removed from the device for Power Disconnection.
2. Remove phone or ISDN cables from the codec before removing a module or servicing.

THUNDERSTORM AND LIGHTNING WARNING:
DO NOT USE Tieline codecs during thunderstorms and lightning. You may suffer an injury using a phone, Tieline codec, or any device connected to a phone during a thunderstorm. This can lead to personal injury and in extreme cases may be fatal. Protective devices can be fitted to the line, however, due to the extremely high voltages and energy levels involved in lightning strikes, these devices may not offer protection to the users, or the Tieline codec and equipment connected to the codec.

Secondary strikes can occur. These secondary strikes are induced by lightning strikes and also produce dangerously high currents and energy levels. You only need to be near an object struck by lightning to lead to personal injury or damage to equipment. e.g. if you are located near a lighting tower at a sports facility, water features and drains on golf courses, you may be affected by these secondary strikes.

Damage to personnel and Tieline codecs may occur during thunderstorm, even if the codec is turned off but remains connected to the phone or ISDN system, LAN or the power.

ANY DAMAGE TO A TIELINE PRODUCT CAUSED BY LIGHTNING or an ELECTRICAL STORM WILL VOID THE WARRANTY.

DIGITAL PHONE SYSTEM WARNING:

DO NOT CONNECT THE ANALOG POTS MODULE TO A DIGITAL PHONE SYSTEM. PERMANENT DAMAGE MAY OCCUR! If you are unfamiliar with any facility, check that the line you are using is NOT a digital line. If the Tieline codec becomes faulty due to the use of a digital phone system, the WARRANTY WILL BE VOID.

SAFETY PRECAUTION:

- Any procedures that involve opening panels or changing components must be performed by qualified service personnel only.

SERVICING WARNINGS:

- Do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.
- All work should be carried out by suitably qualified personnel.

LINE VOLTAGE:

- Before connecting the AC adapter to the power line, make sure the voltage of the power source matches the requirements of the device. Refer to the device Specifications for information about the correct power rating for the unit.

WARNING: To Reduce the Risk of Electrical Shock and Fire

1. All servicing must be undertaken only by qualified service personnel. There are not user serviceable parts inside the unit.
2. DO NOT plug in, turn on or attempt to operate an obviously damaged unit.
3. Ensure that the chassis ventilation slots/holes in the unit are NOT COVERED OR BLOCKED.
4. Do not operate the device in a location where the maximum ambient temperature exceeds 40°C (104°F), or is below 0°C (32°F).

LITHIUM-ION BATTERY WARNINGS:

1. The latest revision of the RRC2057 battery shipped with new ViA codecs has a nominal voltage of 7.2V rather than 7.5V which was shipped with older units. All ViAs manufactured with a serial number of 51397 and higher can accept these new 7.2V batteries. Unfortunately, older ViA codecs manufactured earlier than mid-2020 and with a serial number lower than 51397 need to be modified to use the newer 7.2V batteries. Customers can send their ViA unit to Tieline and we will perform the modification at no charge, the only cost to the customer is to ship the unit to and from Tieline. As a result of the battery voltage change, Tieline recommends that customers do not swap batteries between units and adhere to proper storage and charging procedures.
2. Please read the RRC2057 battery safety information shipped with the ViA before use. The full multilingual battery user manual can also be downloaded at http://www.rrc-ps.com/ which includes very important safety, charging, operational and disposal information.
3. For safety reasons, the battery is prevented from discharging (i.e. from powering the codec) if the internal temperature reaches a pre-set threshold. If a battery temperature warning is displayed, the battery should be removed from the codec and allowed to cool.
4. For safety reasons, the battery is prevented from charging if the internal temperature reaches a pre-set threshold. Move the codec to a cooler location to allow the battery to continue charging.
5. If a battery is installed and the "battery unavailable" icon appears (or the battery icon doesn't appear at all). The battery should immediately be removed from the codec. Please contact Tieline if this situation persists.
6. The battery may continue to charge when external power is applied to the codec even when the codec is off.
7. When external power is not being applied to the codec, the battery will discharge slowly even if the codec is off. To avoid depleting the battery it should be removed from the codec when not in use.

BATTERY TRANSPORTATION

1. This device includes a Lithium-ion battery and it is the owner's responsibility to ship this device in full compliance with all of the latest applicable transportation regulations. For air transport, refer to current IATA and FAA regulations, as appropriate, and to your carrier for air transport compliance information. For worldwide sea transportation compliance information refer to the IMO-IMDG code (special provision 188). For European road transportation compliance information see ADR (special provision 188).
2. When the codec is first shipped from Tieline to the customer the battery pack is delivered in shipping-mode (status display off, no measurable voltage at the connector).
3. Please request the RRC2057 Material Safety Data Sheet from RRC at http://www.rrc-ps.com/ for additional transportation and regulatory information.

GENERAL WARNINGS:

1. Do not operate the codec on a hot surface.
2. Only operate the codec within the specified environmental conditions. The codec is considered to be in an operational state when external power is being supplied or the battery is installed, even if the codec is off.
3. If the environmental conditions exceed the specified values, the codec should be switched off, external power should be removed and the battery should be removed from the codec.
4. Do not operate or store the codec in direct sunlight for an extended period of time. Heat build-up due to sunlight exposure can cause permanent damage to the codec that is not covered under warranty.

RADIO FREQUENCY SAFETY INFORMATION:

IMPORTANT: To satisfy radio frequency exposure compliance requirements, the antenna and transmitter in the ViA codec, or cellular module antennas/transmitters, must be at least 20 cm from all persons and must not be used in conjunction with any other antennas or transmitters. Only use the product with the supplied antenna/s. Failure to adhere this may result in the product exceeding RF exposure limits and may void the user's authorization to operate the equipment.

The device has an internal Wi-Fi antenna which is located at the rear of the unit. For optimum performance with minimum power consumption do not shield the device or cover with any object. Covering the antenna affects signal quality, may cause the product to operate at a higher power level than needed, and may shorten battery life.

Due to the possibility of radio frequency (RF) interference, it is important that you follow any special regulations regarding the use of radio equipment. Follow the safety advice:

- Operating your device close to other electronic equipment may cause interference if the equipment is inadequately protected. Observe any warning signs and manufacturers' recommendations.
- Different industries and businesses restrict the use of cellular devices. Respect restrictions on the use of radio equipment in fuel depots, chemical plants, or where blasting operations are in process. Follow restrictions for any environment where you operate the device.

- Do not place the antenna outdoors.
- Switch OFF your wireless device when in an aircraft. Using portable electronic devices in an aircraft may endanger aircraft operation, disrupt the cellular network, and is illegal. Failing to observe this restriction

may lead to suspension or denial of cellular services to the offender, legal action, or both.

- Switch OFF your wireless device when around gasoline or diesel-fuel pumps and before filling your vehicle with fuel.
- Switch OFF your wireless device in hospitals and any other place where medical equipment may be in use.

Sécurité relative aux appareils à radiofréquence (RF)

À cause du risque d'interférences de radiofréquence (RF), il est important de respecter toutes les réglementations spéciales relatives aux équipements radio. Suivez les conseils de sécurité ci-dessous.

- Utiliser l'appareil à proximité d'autres équipements électroniques peut causer des interférences si les équipements ne sont pas bien protégés. Respectez tous les panneaux d'avertissement et les recommandations du fabricant.
- Certains secteurs industriels et certaines entreprises limitent l'utilisation des appareils cellulaires. Respectez ces restrictions relatives aux équipements radio dans les dépôts de carburant, dans les usines de produits

chimiques, ou dans les zones où des dynamitages sont en cours. Suivez les restrictions relatives à chaque type d'environnement où vous utiliserez l'appareil.

- Ne placez pas l'antenne en extérieur.
- Éteignez votre appareil sans fil dans les avions. L'utilisation d'appareils électroniques portables en avion est illégale: elle peut fortement perturber le fonctionnement de l'appareil et désactiver le réseau cellulaire. S'il

ne respecte pas cette consigne, le responsable peut voir son accès aux services cellulaires suspendu ou interdit, peut être poursuivi en justice, ou les deux.

- Éteignez votre appareil sans fil à proximité des pompes à essence ou de diesel avant de remplir le réservoir de votre véhicule de carburant.
- Éteignez votre appareil sans fil dans les hôpitaux ou dans toutes les zones où des appareils médicaux sont susceptibles d'être utilisés.

Interference with Pacemakers and Other Medical Devices

Potential interference:

Radio frequency energy (RF) from cellular devices can interact with some electronic devices. This is electromagnetic interference (EMI). The FDA helped develop a detailed test method to measure EMI of implanted cardiac pacemakers and defibrillators from cellular devices. This test method is part of the Association for the Advancement of Medical Instrumentation (AAMI) standard. This standard allows manufacturers to ensure that cardiac pacemakers and defibrillators are safe from cellular device EMI. The FDA continues to monitor cellular devices for interactions with other medical devices. If harmful interference occurs, the FDA will assess the interference and work to resolve the problem.

Precautions for pacemaker wearers:

If EMI occurs, it could affect a pacemaker in one of three ways:

- Stop the pacemaker from delivering the stimulating pulses that regulate the heart's rhythm.
- Cause the pacemaker to deliver the pulses irregularly.
- Cause the pacemaker to ignore the heart's own rhythm and deliver pulses at a fixed rate.

Based on current research, cellular devices do not pose a significant health problem for most pacemaker wearers. However, people with pacemakers may want to take simple precautions to be sure that their device doesn't cause a problem.

- Keep the device on the opposite side of the body from the pacemaker to add extra distance between the pacemaker and the device.
- Avoid placing a turned-on device next to the pacemaker (for example, don’t carry the device in a shirt or jacket pocket directly over the pacemaker).

Vehicle Safety

When using your device in a vehicle:

- Do not use this device while driving.
- Respect national regulations on the use of cellular devices in vehicles.
- If incorrectly installed in a vehicle, operating the wireless device could interfere with the vehicle’s electronics. To avoid such problems, use qualified personnel to install the device. The installer should verify the vehicle electronics are protected from interference.
- Using an alert device to operate a vehicle’s lights or horn is not permitted on public roads.

- UL evaluated this device for use in ordinary locations only. UL did NOT evaluate this device for installation in a vehicle or other outdoor locations. UL Certification does not apply or extend to use vehicles or outdoor applications or in ambient temperatures above 40° C.

Device Maintenance

When maintaining your device:

- Do not attempt to disassemble the device. There are no user serviceable parts inside.
- Do not expose your device to any extreme environment where the temperature or humidity is high.
- Do not expose the device to water, rain, or spilled beverages. It is not waterproof.
- Do not place the device alongside computer discs, credit or travel cards, or other magnetic media. The information contained on discs or cards may be affected by the device.
- Using accessories, such as antennas, that Tieline has not authorized or that are not compliant with Tieline's accessory specifications may invalidate the warranty.

SAFE LISTENING GUIDANCE

WARNING: LISTENING TO AUDIO AT EXCESSIVE VOLUMES CAN CAUSE PERMANENT HEARING DAMAGE. USE AS LOW A VOLUME AS POSSIBLE.

Over exposure to excessive sound levels can damage your ears resulting in permanent noise-induced hearing loss (NIHL). Please use applicable health and safety authority guidelines on maximum exposure limits. As a rule of thumb, avoid extended periods listening to sound pressure levels (SPLs) of 85dBA or higher.

CHINESE SAFETY WARNINGS:

此设备仅限于非热带地区使用

This device must only be used in not-tropical climate regions.

此设备只限在海拔高度低于 2000 米处使用。

This device must only be used at altitude not exceeding 2000 meters.

JAPANESE SAFETY WARNINGS:
Statement for Class A VCCI-certified Equipment:

この装置は，クラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 VCCI－A

Translation of previous Class A VCCI Statement: This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may occur, in which case, the user may be required to take corrective action.

Special Notices for North American Users:
For North American power connection, select a power supply cord that is UL Listed and CSA Certified 3 - conductor, [18 AWG], terminated in a molded on plug cap rated 125 V, [5 A], with a minimum length of 1.5m [six feet] but no longer than 4.5m.

Special Notices for European Users:
For European connection, select a power supply cord that is internationally harmonized and marked “<HAR>”, 3 - conductor, 0,75 mm2 minimum mm2 wire, rated 300 V, with a PVC insulated jacket. The cord must have a molded on plug cap rated 250 V, 3 A.

Interconnection Cabling:

Cables for connecting to the unit's RS232 and Ethernet Interfaces must be UL certified type DP-1 or DP-2. (Note: when residing in non-LPS circuit)

Overcurrent Protection:

A readily accessible listed branch-circuit over current protective device rated 15 A must be incorporated in the building wiring for the power input.

Replaceable Batteries:

The equipment is provided with replaceable batteries, and if replaced by an incorrect battery type, then an explosion may occur.

CAUTION: RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT BATTERY TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

This equipment is provided with a long life replaceable Panasonic CR2032 model 3V manganese dioxide lithium coin battery. Service personnel should only replace this battery with the same brand and type of battery. If this is replaced by an incorrect battery type, then an explosion may occur. Contact the manufacturer to view the Material Safety Data Sheet for this battery.

This equipment is provided with a replaceable RRC2057 Lithium-ion battery. Service personnel should only replace this battery with the same brand and type of battery. If this is replaced by an incorrect battery type, then an explosion may occur. Contact the manufacturer to view the Material Safety Data Sheet for this battery.

End of Life Statement

Tieline hereby declares that all materials, components and products supplied are in full compliance with RoHS & WEE directives. This product must be disposed of according to local laws and regulations. Because the product contains a battery it must be disposed of separately from household waste. Do not incinerate, but take it to a recycling facility.

Warranty and Disclaimer

This equipment manufactured by Tieline is warranted by Tieline against defects in material and workmanship for two years from the date of original purchase. During the warranty period, we will repair or, at our option, replace at no charge a product that proves to be defective, provided you obtain return authorization from Tieline and return the product, shipping prepaid, to Tieline. For return authorization, contact Tieline's US or Australian office (see www.tieline.com).

This Warranty does not apply if the product has been damaged by accident or misuse or as the result of service or modification performed by anyone other than Tieline. With the exception of the warranties set forth above, Tieline makes no other warranties, expressed or implied or statutory, including but not limited to warranties of merchantability and fitness for a particular purpose, which are hereby expressly disclaimed. Use of this product is subject to Tieline's SOFTWARE LICENSE and WARRANTY conditions, which should be viewed at www.tieline.com before using this product.

In no event will Tieline, its directors, officers, employees, agents, owners, consultants or advisers (its “Affiliates”), or authorized dealers or their respective Affiliates, be liable for incidental or consequential damages, or for loss, damage, or expense directly or indirectly arising from the use of any Product or the inability to use any Product either separately or in combination with other equipment or materials, or from any other cause.

Whilst every effort has been made to ensure the accuracy of this manual we are not responsible for any errors or omissions within it. The product specifications and descriptions within this manual will be subject to improvements and modifications over time without notice, as changes to software and hardware are implemented. This codec can provide high voltages on inputs and suitable broadcast equipment must be used at all times. Tieline takes no responsibility for any damage to equipment attached to the codec.

Battery Warranty

Tieline expressly disclaims any and all implied warranties on the RRC Li-ion Smart Battery Pack RRC2057. The manufacturer's warranty applies. Contact the battery manufacturer for any warranty claims. To contact the battery manufacturer visit their website at http://www.rrc-ps.com/.

2 Battery Use and Power Management

ViA has an internal battery slot on the rear panel designed for high performance RRC2057 Lithium-ion smart batteries. Only use this battery in the codec.

Caution:

1. Please read the important safety and user information in the manufacturer user manuals for both the battery and any external charger purchased separately before use.
2. The internal **BATTERY** is delivered in shipping-mode (status display off, no measurable voltage at the connector). Attach the codec power supply to the **POWER SOCKET** to charge the battery. When you start the charge cycle the **BATTERY** will be activated. Charge fully before first use.
3. If the codec is off the **BATTERY** continues to charge when external power is applied to the codec.
4. The latest revision of the RRC2057 battery shipped with new ViA codecs has a nominal voltage of 7.2V rather than 7.5V which was shipped with older units. All ViAs manufactured with a serial number of 51397 and higher can accept these new 7.2V batteries. Unfortunately, older ViA codecs manufactured earlier than mid-2020 and with a serial number lower than 51397 need to be modified to use the newer 7.2V batteries. Customers can send their ViA unit to Tieline and we will perform the modification at no charge, the only cost to the customer is to ship the unit to and from Tieline. As a result of the battery voltage change, Tieline recommends that customers do not swap batteries between units and adhere to proper storage and charging procedures.
5. Please read the RRC2057 battery safety information shipped with the ViA before use. The full multilingual battery user manual can also be downloaded at http://www.rrc-ps.com/ which includes very important safety, charging, operational and disposal information.

Inserting the Battery

1. Push down on the **BATTERY CASE CLIP** to open the lid to the battery compartment.
2. Insert the **BATTERY** carefully and ensure the grooves at the bottom of the **BATTERY** line up correctly with the bottom of the **BATTERY COMPARTMENT**. Note: It should slide in smoothly.
3. Replace the **BATTERY CASE CLIP** carefully by lining up the two protruding plastic lugs with the base of the compartment, then push the center of the **BATTERY CASE CLIP** to close it fully.

Removing the Battery

1. Push down on the **BATTERY CASE CLIP** to open the lid for the **BATTERY COMPARTMENT**.
2. Pinch the tag on the **BATTERY** to pull it slowly out of the **BATTERY COMPARTMENT**.

Charging the Battery

When the power supply is connected to the codec's **POWER SOCKET** it will charge the internal **BATTERY** in less than 4 hrs.

Battery Indications

The battery has a charge status button to verify its charge state when it is **[ON]**. The **POWER** ⏻ button is green when the power supply is connected to the codec's power socket. When the codec is operating on battery power it provides the following battery level indications:

1. The **Battery symbol** and charge remaining is visible in the **Status Bar** in the top right corner of the **TOUCH SCREEN**.
2. When operating on battery power the **POWER** ⏻ button indications are as follows:

	LED Indication	Battery State
	**GREEN LED** (Solid)	Battery level is between 21 - 100 %
	**ORANGE LED** (Solid)	Battery level is between 11 - 20 %
	**RED LED** (Solid)	Battery level is between 6 - 10 %
	**RED LED** (Flashing)	Battery level is 5% or lower

Low Battery Headphone Alarm Tones

A low battery alarm is audible in the headphones when the battery level reaches 20%, 10% and 5%.

1. Alarm tones are audible in the left headphone output of **HP 1-3**.
2. A warning dialog is displayed on the **TOUCH SCREEN** until acknowledged.
3. The **ALARM LED** flashes until acknowledged, and then turns solid red.

Tap the **TOUCH SCREEN** or touch any codec controls to acknowledge the alarm and stop the alarm tones.

Touch Screen Battery Indications

The percentage of battery charge remaining is displayed next to the battery symbol in the **Status Bar** on the **TOUCH SCREEN**. In addition:

- When power is attached to the codec the **BATTERY** symbol is green and the white **Power**  symbol is displayed.
- When operating on battery power the **BATTERY** symbol is white.

Symbol	Battery State
	Power is attached to the codec and the battery is charging.
	The battery is fully charged and no power is attached to the codec.
	The battery is fully charged and the external power supply is in use.
	Unknown battery error while the external power supply is attached. The battery should immediately be removed from the codec. Please contact Tieline if this situation persists.
	Unknown battery error. The battery should immediately be removed from the codec. Please contact Tieline if this situation persists.
	The battery is too hot or too cold. Move the codec to a cooler or warmer location as required.
	The battery has overheated or is faulty. For safety reasons the battery will be prevented from discharging and powering the codec. Plug in external power to prevent imminent shutdown. The battery **MUST** be removed from the codec and allowed to cool.
	An external power supply is attached and the battery is too hot or too cold and not charging. For safety reasons, the battery is prevented from charging if the internal temperature is above or below pre-set thresholds. Move the codec to a cooler or warmer location as required, to allow the battery to continue charging.
	An external power supply is attached and the battery has overheated or is faulty. For safety reasons the battery is prevented from charging, or discharging

	and powering the codec. The battery **MUST** be removed from the codec and allowed to cool.

HTML5 Toolbox Web-GUI Low Battery Indications

A low battery icon is displayed in the HTML5 Toolbox Web-GUI when the battery level is 20 percent or lower. This flashes until it is acknowledged on the unit itself.

3 Inserting and Removing Modules

A single module slot is available on the codec rear panel for inserting an optional cellular, ISDN or POTS module into the codec.

ViA codec with an ISDN module installed

Inserting or Removing a Module

Ensure the codec is **[OFF]** when inserting or removing modules. Where possible use anti-static precautions to help minimize the chance of static charges damaging the highly sensitive circuitry. Do not force a module into the codec. Modules should be installed slowly and gently.

1. Press the **POWER** button and tap **Shut Down** to turn the codec **[OFF]**.
2. Remove the 4 screws from the blanking panel or module installed in the codec.
3. Carefully slide the new module into the module slot and ensure the base of the module remains flat during insertion, to ensure it lines up correctly with the module connector in the codec.
4. Reinsert the 4 screws to hold the module firmly in place.
5. Press the **POWER** button to power up the codec.
6. Press the **HOME** button to return to the **Home** screen and tap **Settings**.
7. Tap **Transport Interfaces** to expand the menu and tap **ISDN Module**, **POTS Module** or **Cellular > Cellular Module** to configure module settings.
8.

4 Wireless IP Connection Options

The codec has multiple IP interface connection options, including:

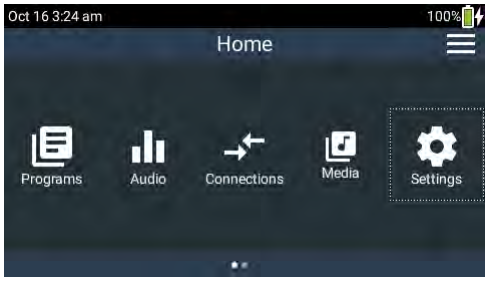
1. **LAN1** Ethernet port (default **Primary** interface)
2. **LAN2** Ethernet port (default **Secondary** interface)
3. Internal Wi-Fi (default **Tertiary** interface)
4. External **USB PORT 1**. Note: for use with a USB modem or tethered smartphone.
5. External **USB PORT 2**. Note: for use with a USB modem or tethered smartphone.
6. Optional Internal Single SIM LTE Module. Note: two antennas are shipped with this module to support diversity.
7. Optional Internal Dual Active SIM LTE Module: Note: Requires firmware v2.20.xx or higher and four antennas are shipped with this module to support diversity.

For more information about prioritizing the interface used when dialing a connection see Configure Default Interfaces.

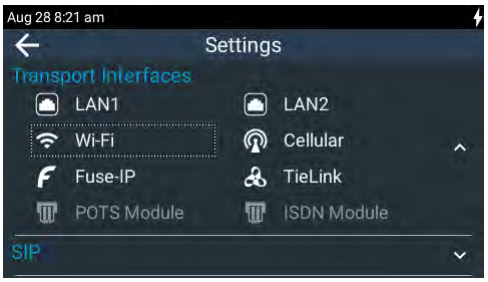
Connecting a Wi-Fi Access Point

To connect the codec to a Wi-Fi network access point:

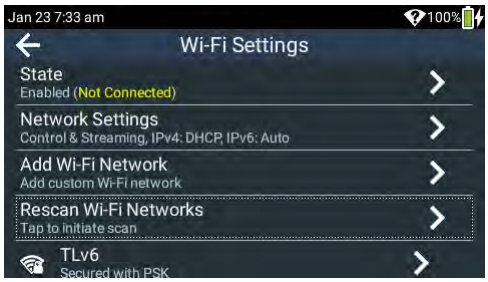
1. Press the **HOME** button to return to the **Home** screen, then tap **Settings**.



2. Tap to select **Transport Interfaces** and then tap **Wi-Fi**.

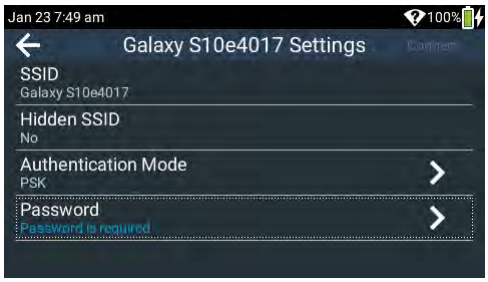


3. Ensure the Wi-Fi **State** is **Enabled** and tap **Rescan Access Points** if the required Wi-Fi network is not populated in the access point list.

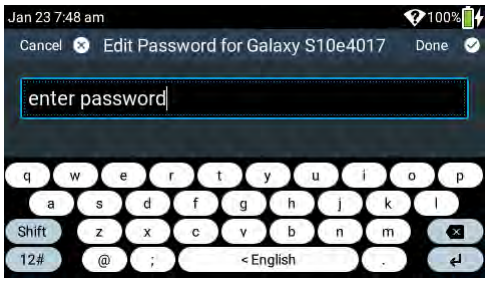


4. Tap to select the Wi-Fi access point to which you are connecting, in this example **Galaxy S10e4017**.

5. Tap to select the preferred **Authentication Mode** and then tap **Password** to enter the network password.



6. Enter the password, then tap **Done** in the top right-hand corner of the **TOUCH SCREEN**.



7. Tap **Connect** in the top right-hand corner of the **TOUCH SCREEN** to connect to the Wi-Fi network.

8. Verify the Wi-Fi symbol is visible in the **Status Bar** to confirm the codec has connected to the Wi-Fi access point.

Important Notes:

- ViA supports IEEE 802.11 a/b/g/n Wi-Fi with dual band connectivity (2.4 and 5 GHz). For increased security Tieline has implemented the WPA2-PSK authentication protocol because standard WEP encryption is less secure.
- It is also possible to configure Wi-Fi settings remotely using the Toolbox web-GUI and Cloud Codec Controller if required using the **Network panel**.

Wi-Fi Indications

The following Wi-Fi indications are displayed in the **Status Bar** on the codec screen.

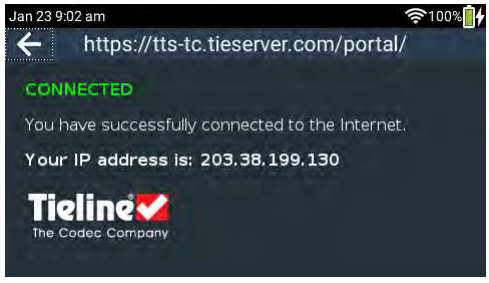
	Symbol	Description of Status
1	No symbol displayed	Wi-Fi is disabled in the codec
2		• Wi-Fi is enabled in the codec, but it is out of range of a Wi-Fi network, or • The codec is within range of a Wi-Fi network, but is either not connected or is in the process of connecting
3		The codec is connected to a Wi-Fi network and signal strength is displayed

Browser Wi-Fi Login

Some Wi-Fi networks require a browser to log in and connect to the access point, e.g. hotel Wi-Fi networks. To log in to this type of network:

1. Press the **HOME** button to return to the **Home** screen, then tap **Settings** > **Transport Interfaces > Wi-Fi**.
2. Tap to select the network to which you are connecting.

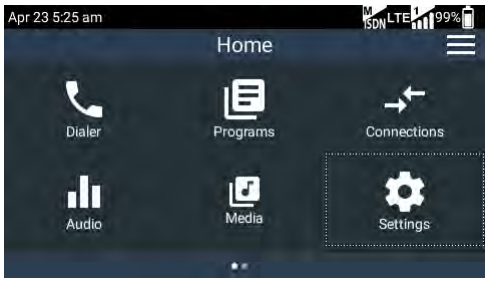
3. Tap to select **Portal Browser** to launch a web-browser on the **TOUCH SCREEN**. Then enter credentials and/or accept terms as required in the web-browser.



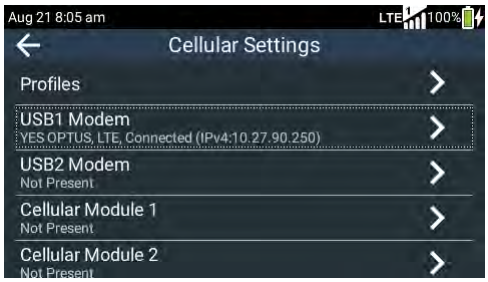
Helpful Hint: Use fingers on the **TOUCH SCREEN** to pinch zoom in to web-browser content, or zoom out.

Connecting over Cellular Wireless via USB Modems

1. Attach a supported USB Modem to either **USB PORT 1** or **USB PORT 2** on the codec. When the modem is detected by the codec, the network symbol and signal strength is displayed in the **Status Bar** on the **TOUCH SCREEN**. Note: It may take up to 90 seconds for the modem to be detected by the codec and connect to the network.



2. From the **Home** screen tap **Settings** > **Transport Interfaces** > **Cellular** > **USB1/2 Modem** to view menus and cellular modem details.



Important Notes:

- Sometimes a cellular network will be detected and a USB modem will connect automatically after it is inserted. Tieline recommends always using the **Overwrite APN** (Access Point Number) menu setting and entering the correct APN for your Telco. This ensures use of the correct data APN. It is usually simple to search the internet for the correct APNs used by each Telco. See Adding Access Points and a SIM PIN for more details.
- It may be necessary to enter a SIM PIN if the codec cannot connect automatically to the network.
- To safely remove a USB modem press the **HOME** button to return to the **Home** screen, then tap **Settings** > **System** > **Safe Eject**.

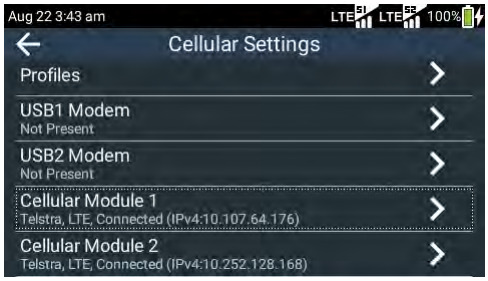
USB Cellular Modem Indications

	Symbol	Description of Status
1	No symbol	• A cellular modem is not attached to the codec. • A modem is attached but not ready yet; it can take up to a minute for the modem to be detected. • The modem has a SIM card issue (locked or not present). • The modem is not supported by the codec.
2	1 2	Each USB port is identified by the number 1 or 2 in the top-left corner of the symbol.
3	LTE 1 ?	A cellular modem is attached to the codec but there is an error. Check that: • The SIM card does not have a PIN code enabled. • The modem has data enabled. • The modem is compatible with the network to which you are attempting to connect.
4	LTE 1	The cellular modem is connected to the network and signal strength is displayed. Note: when first attached the symbol is greyed out while the modem is connecting to the cellular network. It will remain greyed out if: • Data is not enabled. • No APN is selected and the modem doesn't contain a correct APN setting from a factory default or previous connection.

		• An incorrect APN is selected. When using different SIMs they may require different APNs, even if they are from the same Telco. • The correct APN is selected but data has run out. • A custom APN has been added but either the APN info, or the Authentication Type, is incorrect.

Connecting using a Cellular Module

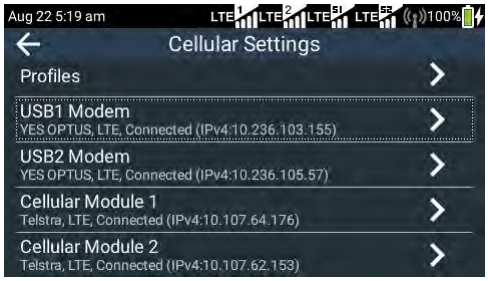
1. Turn the codec off and insert a cellular module into the module slot.
2. Power up the codec and press the **HOME** button to return to the **Home** screen, then tap **Settings > Transport Interfaces > Cellular > Cellular Module 1 / 2** to view cellular module menus and details.



Important Notes:
- Sometimes a cellular network will be detected and a module will connect automatically after it is inserted. Tieline recommends always using the **Overwrite APN** (Access Point Number) menu setting and entering the correct APN for your Telco. This ensures use of the correct data APN. It is usually simple to search the internet for the correct APNs used by each Telco. See Adding Access Points and a SIM PIN for more details.
- It may be necessary to enter a SIM PIN if the codec cannot connect automatically to the network.
- Cellular radio transmissions can be turned off without removing the module. Select **Settings > Transport Interfaces > Cellular > Cellular Module 1 / 2 > Enable Radio [OFF]**

SIM LTE Indications

Indications displayed in the **Status Bar** on the **TOUCH SCREEN** for an internal cellular module are similar to USB modem cellular network indications. The only difference is that **S1** and **S2** is displayed to identify SIM card 1 and 2. In the following image there are two USB modems and two SIM cards displayed in the **Status Bar**.

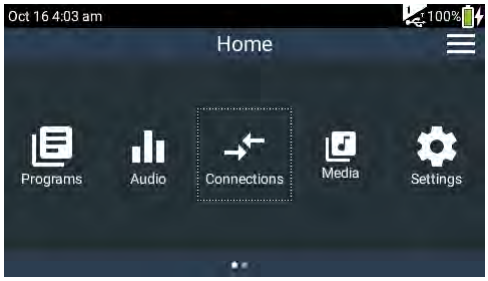


Tethering a Smartphone

Important Note: Only tethering to an Android phone is supported.

It is possible to tether a phone to the codec with a USB cable and use cellular or Wi-Fi data from the connected device.

1. Enable USB tethering in the smartphone to allow sharing of the phone's internet connection. Note: This will probably need to be enabled each time the phone is connected to the codec.
2. Attach a USB cable to the phone and then attach the USB cable to one of the two host **USB PORTs** on the codec.
3. The codec should detect the smartphone connection and acquire an IP address from the phone. When it connects successfully the USB tethering symbol changes from greyed out to illuminated in the **Status Bar** at the top of the **TOUCH SCREEN**.

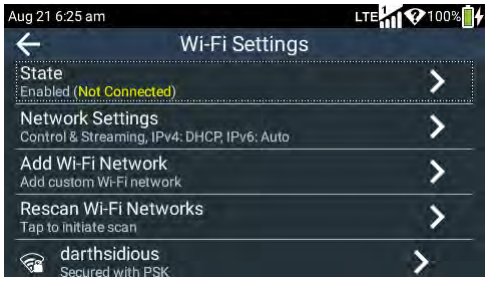


4. Select **Any**, or choose **USB1** or **USB2** when specifying an interface to use when connecting.

Wi-Fi Hotspot Configuration

The codec supports Wi-Fi hotspot data sharing, which allows external devices to share data.

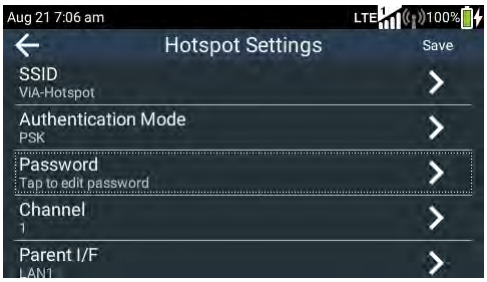
1. Press the **HOME** button to return to the **Home** screen, then tap **Settings** **> Transport Interfaces > Wi-Fi** **> State**.



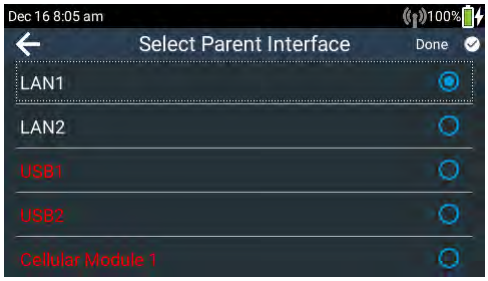
2. Tap **Hotspot** to enable the Wi-Fi hotspot.

3. Tap **Hotspot Settings** to adjust Wi-Fi hotspot settings.

4. Tap **Password** to edit the default Wi-Fi hotspot password.



5. Tap **Parent Interface** to choose the interface from which data will be shared using the Wi-Fi hotspot.



6. When a device connects successfully the Hotspot symbol changes from greyed out to illuminated in the **Status Bar** in the top right corner of the **TOUCH SCREEN**.

Helpful Hint: Note the Wi-Fi IP address on the screen when you set up a hotspot and then enter this IP address in a browser on a device connected to the hotspot, e.g. a tablet, to view the Toolbox HTML web-GUI for the codec and control the codec.

Important Note: Exercise extreme caution when using the Wi-Fi hotspot feature if streaming live IP audio simultaneously while this mode is enabled. Sharing data may lead to less reliable IP connections due to reduced bandwidth being available.

4.1 Cellular Activation in the USA

LTE Activation Notice

Before using a Tieline ViA LTE module in the USA it is necessary to set up a wireless account with your Telco. Follow the steps in the tech note at the following link to set up a wireless account: https://www.multitech.com/documents/publications/activation-guides/lte-device-activation-steps-s000620.pdf

Before you can begin to use the modem, you need to set up a wireless account with your carrier.

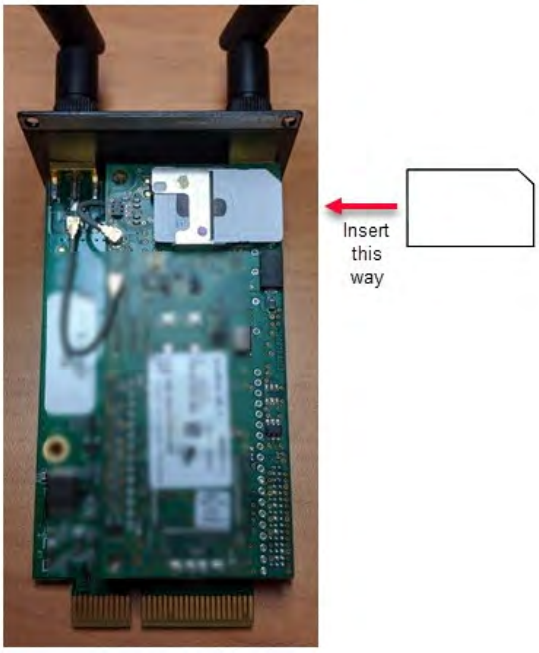
1. Call your LTE Carrier, and request the proper size SIM card and Data Account.

2. Your carrier may request the IMEI Number(s) of your modems on the module.
3. IMEI Software Location: **[Menu] > [About & Firmware] > [Unit Details] > Cell Module #**
4. LTE Data accounts for the Tieline modules are considered “Data Only” Devices.

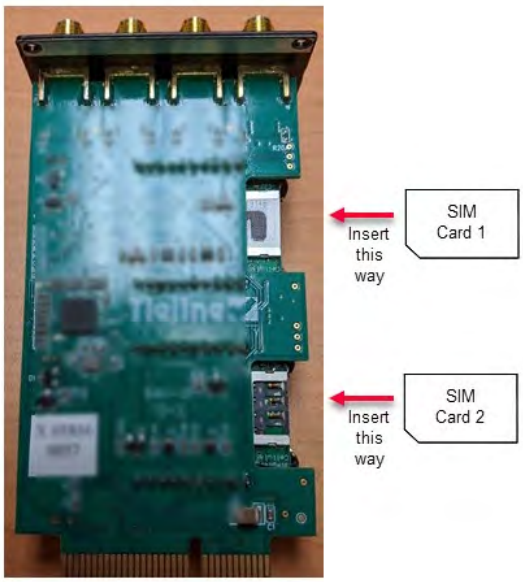
4.2 Inserting a SIM in Cellular Modules

Use the following images as a guide for how to insert a SIM card in a Tieline ViA cellular module.

TLVIACELLULAR:SIM Size - Mini Size (2FF)

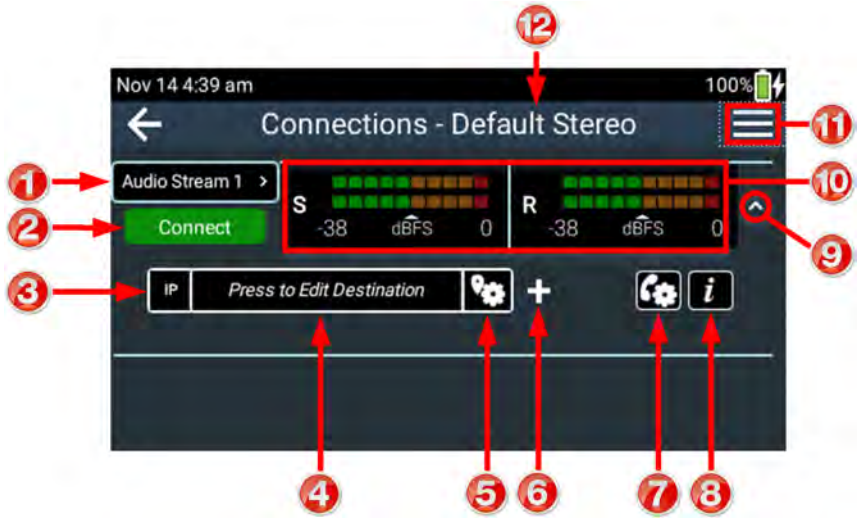


TL3G4GDUALVIA:SIM Size - Micro Size (3FF)



5 Connection Guide

This quick start guide will get you connected with ViA in mono or stereo in just a few minutes. Configuration features on the **Connections screen** are as follows:



	Feature	Description
1	Audio Stream name / button	Displays the audio stream name; tap to edit audio stream settings, including Stream Name, Caller ID, Routing Type, G3 Profile Type, G3 Channel.
2	Connect button	Tap the **Connect button** to dial a connection.
3	Connection type / TieLink selector	Tap to toggle between selecting whether to dial a configured IP/SIP, ISDN or POTS connection, or a TieLink Address Book contact.
4	Dialing destination	Tap to enter an IP/SIP address or ISDN/POTS number, or select a TieLink Contact list contact if TieLink is configured.
5	Destination settings	Tap to configure destination settings, e.g. dialing interface and IP ports.
6	Add SmartStream PLUS	Tap the **Plus symbol** to add a SmartStream PLUS dialing connection. By default, the last configured IP address is inserted in a new SmartStream PLUS connection.
7	Connection settings	Tap to adjust connection-related settings like Transport, Algorithm, Auto Reconnect, Jitter Buffer, FEC, Direction, Auxiliary Data, Connection Name.
8	Information (statistics)	Tap to view audio stream connection statistics, e.g. Link quality, packet statistics. Swipe in this screen to view other active audio stream statistics.
9	Expand / Collapse	Tap to expand or collapse the audio stream information displayed.
10	PPMs	Audio stream PPMs for send and return audio in dBFS by default.
11	'Hamburger Menu'	Tap to load a default or custom program, or create a new program and save it as a custom program. Switch between Basic and Admin modes of operation. Also, lock the Address Mode as either IP or TieLink.
12	Program name	The name of the loaded program.

The codec is configured to connect in mono over IP by default when shipped, or when factory default settings are restored.

1. Ensure the codec is not powered up when inserting or removing modules.
2. Attach the 12VDC power supply to the codec or insert the charged **BATTERY**. Note: the **BATTERY** is automatically charged inside the codec when the power supply is connected.
3. Attach headphones and microphones to the codec.
4. Press the **POWER** button to power up the codec.
5. Press the **INPUT ON/OFF** button to turn each input on and adjust the **INPUT GAIN** rotary encoder for each microphone. Note: Navigate to **Home screen > Audio > Inputs > Input Type** > **Gain Type** to adjust coarse gain levels for each input source.
6. Follow the procedure for connecting over IP, SIP, ISDN or POTS.

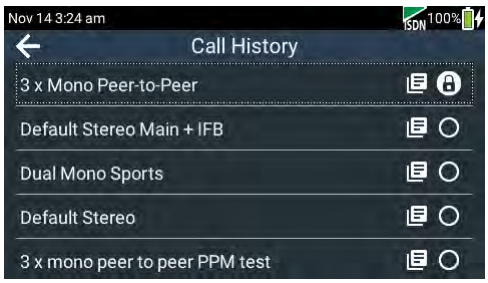
CAUTION: DO NOT attach non-digital microphones or an AES3 source to input 1 when **AES42** mode is selected, or equipment may be damaged by high voltages.

Important Note:

- Unused inputs should be turned **[OFF]** to avoid introducing noise and improve audio quality.
- To load a saved program and dial, press the **HOME** button to return to the **Home screen** and then tap **Programs**. Tap to select the program you want to use and then tap **Load Program** in the dialog. Tap **Connect** or press the **CONNECT** button to dial using the newly loaded program.
- It is also possible to load a program from the **Connections screen**. From the **Home screen** tap **Connections > Menu > Load Program [tap to select a custom program]**, or tap **Default Program** and select a program from the default configurations listed.

Helpful Hints:

- Swipe left once from the home screen to view programs selected as **Favorites**. To learn more about configuring programs as **Favorites** see Load, Connect and Manage Programs.
- The codec remembers recent calls just like a cell-phone. To view **Call History** press the **CONNECT** button in any screen, except when you have selected **Programs** from the **Home** screen.



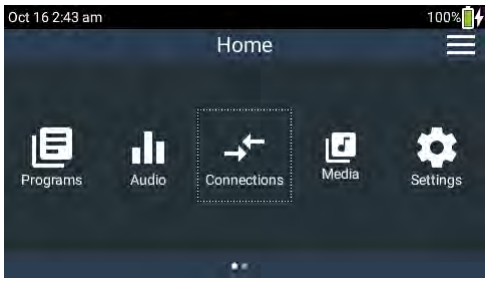
- If you don't rename and save a program during configuration, the default program is displayed in the **Call History** list if you want to redial the program.

5.1 Connecting over IP

The following procedure will use a default 'program' to connect using the codec's **TOUCH SCREEN**. For IP connections, attach an RJ45 Ethernet cable to one of the **LAN** ports on the codec's left side panel, or use one of the codec's wireless IP connection options.

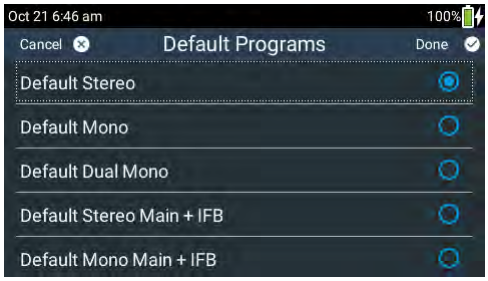
The following example uses Tieline default settings to create a stereo IP connection:

1. Press the **HOME** button to return to the **Home** screen, then tap **Connections**.

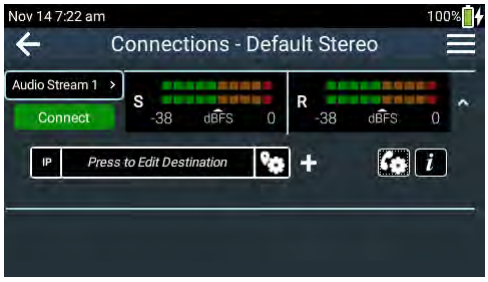


2. Tap **Menu** ☰ and then tap **Default Programs** to view default program options. Note: Tap **Load Program** to load preconfigured custom programs. Default programs cannot be locked in the codec. Save a program as a custom program if a program needs to be locked.

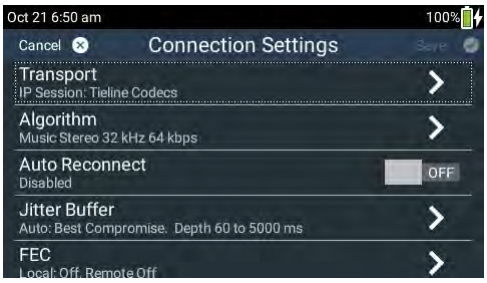
3. Tap to select the preferred program connection option, e.g. **Default Mono** or **Default Stereo**, and then tap **Done** in the top right-hand corner of the **TOUCH SCREEN**.

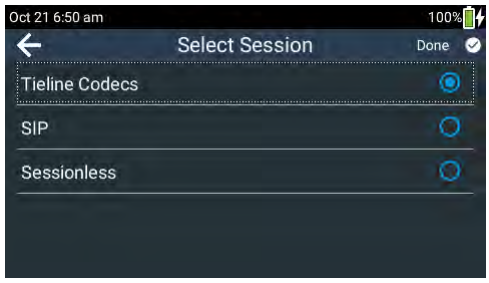


4. With factory default settings the codec is configured to connect over IP. To adjust connection settings tap the **Connection Settings** ⚙ symbol.

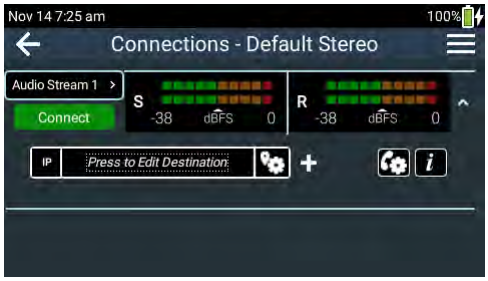


5. If required, tap **Transport** and select **IP > Tieline Codecs** if ISDN or POTS is the currently configured transport. Note: Select **SIP** instead of **Tieline Codecs** when dialing non-Tieline codecs. Select **Sessionless** to dial a sessionless IP connection over networks supporting this connection method.

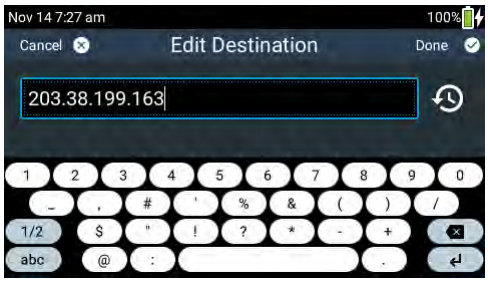




6. To connect very simply using default settings navigate to the **Connections screen**.

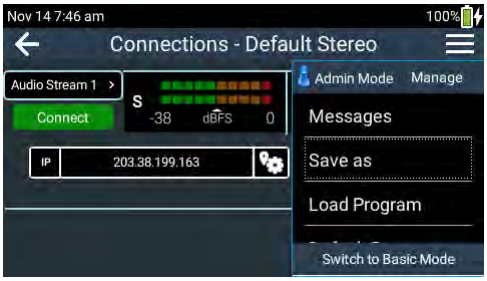


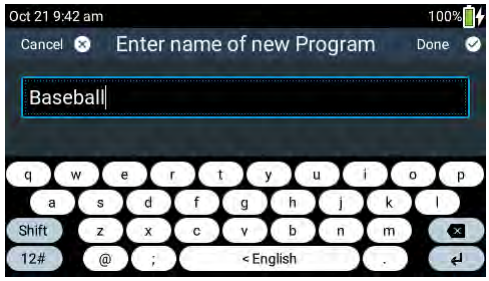
7. Tap **Press to Edit Destination** and then enter the IP address of the destination codec being dialed, or tap the **Dial History** symbol to select a previously dialed number. Then tap **Done** in the top right-hand corner of the **TOUCH SCREEN**. Note: Tap **IP** to toggle and display the **Address Book** symbol, then tap to select a TieLink Traversal Server contact list destination if this is available.



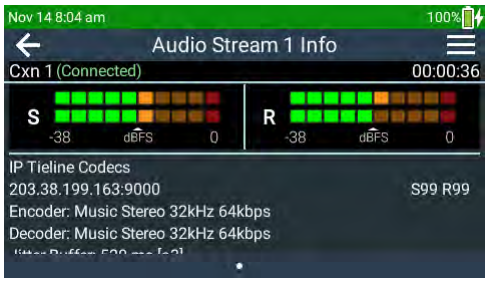
8. Tap **Connect** Connect or press the **CONNECT** button to dial the destination codec. The **Status Bar** turns green when the codec is connected.

Helpful Hint: To save the program as a new custom program for later use tap **Menu** and then tap **Save as**, then name the program before connecting.

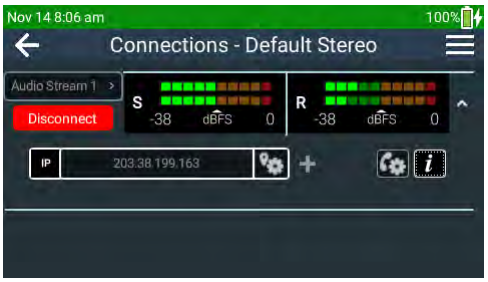


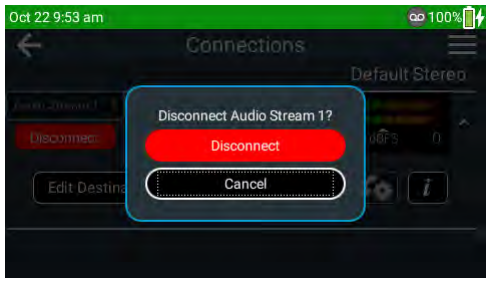


9. Tap the **Info** button to view audio stream connection details and packet statistics while connected. Note: Incrementally renegotiate higher connection bit rates by pressing the **F2** button and then the **NAVIGATE UP** ▲ button while viewing the **Audio Stream Info** screen; for lower bit rates press the **F2** button and then the **NAVIGATE DOWN** ▼ button.



10. Tap **Disconnect** Disconnect or press the **DISCONNECT** button to hang up the connection.

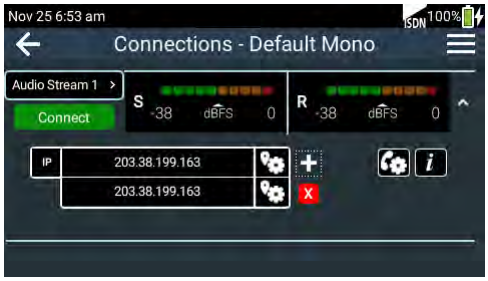




Adding/Removing a SmartStream PLUS Connection

To add a SmartStream PLUS IP connection for redundancy:

1. Tap the **Plus symbol** to add a SmartStream PLUS connection.
2. A new connection will appear below the primary connection. Note: By default, each new SmartStream PLUS connection uses the same IP address as the last configured connection.



3. Tap the IP address field to edit the IP address of the destination codec being dialed, then tap **Done**. Note: Tap **IP** to display the **Address Book** symbol and then tap to select a TieLink Traversal Server contact list destination if this is available.
4. Ports are allocated automatically and tap the **Destination Settings** symbol to select the interface over which to stream the connection, e.g. LAN, Wi-Fi or Cellular. See Other IP Connection Settings for more details.
5. The SmartStream PLUS connection is now configured.
6. Tap the **Red Cross symbol** to delete a SmartStream PLUS connection.

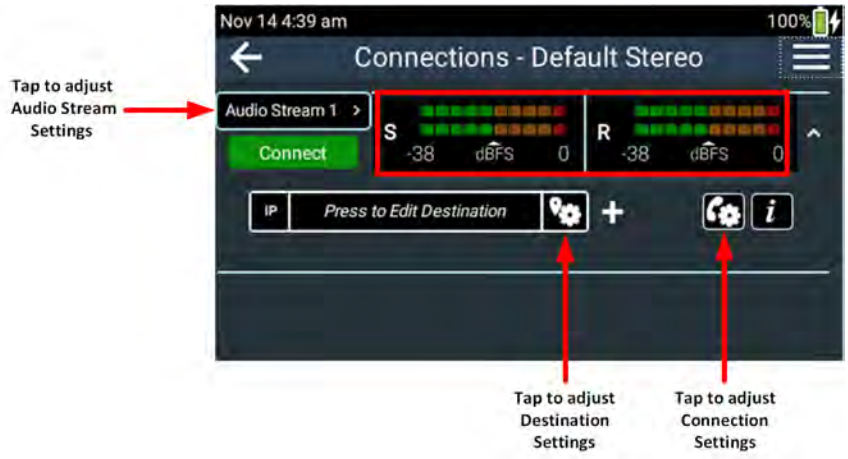
Important Notes:

- Only one SmartStream PLUS connection per audio stream is supported with uncompressed PCM, or when encoding with aptX Enhanced, G.711 or G.722 algorithms.
- Two SmartStream PLUS connections are supported per audio stream with Music PLUS encoding.
- Up to three SmartStream PLUS connections are supported per audio stream when encoding using Tieline Music, AAC algorithms, MP2, MP3 and Opus.

5.2 Advanced IP Connection Settings

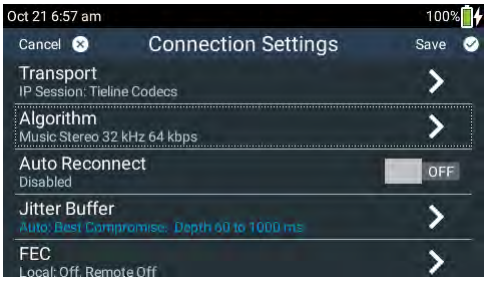
To adjust other IP connection settings there are three options:

- Connection settings: Algorithm, jitter, FEC, auto reconnect, auxiliary data, encoding/decoding settings and connection name.
- Destination settings: Stream level settings like selection of IP interface and local/remote audio and session ports.
- Audio stream settings: High level settings for Caller ID, call routing, G3 Profile and Channel settings, and adjust the stream name.

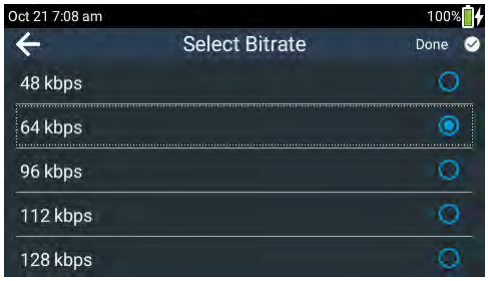


Adjusting IP Connection Settings

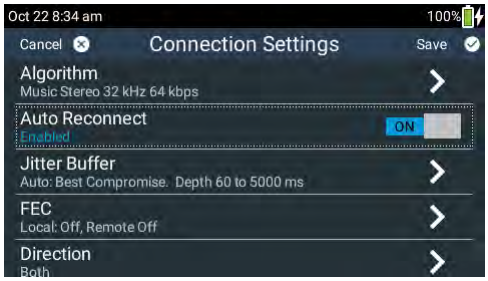
1. Press the **HOME** button to return to the **Home** screen, then tap **Connections**.
2. Tap the **Connection Settings** symbol.
3. Tap **Algorithm**, then tap to select an algorithm from those listed. Note: In most situations Tieline Music is the best algorithm to use and this is configured by default. See Selecting an Algorithm for more details on algorithm options.



4. Tap to select a sample rate. Note: multiple sample rate options are available for algorithms like MP2, MP3, AAC and aptX Enhanced.
5. Tap to select the initial connection bit rate.

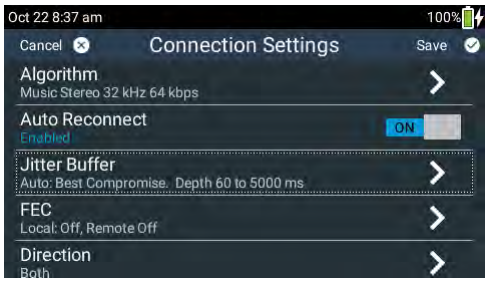


6. Tap to toggle the **On/Off** button for **Auto reconnect** if you want the codec to automatically reconnect when the connection is temporarily lost.

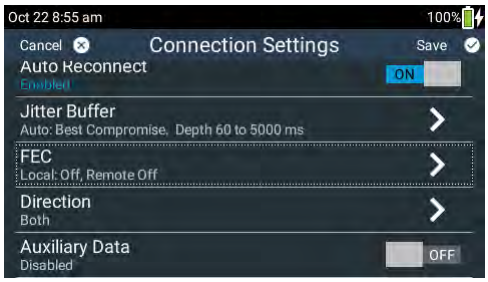


7. Tap **Jitter Buffer** to select a different automatic jitter buffer setting for your connection, or to enter a fixed buffer setting in milliseconds (maximum 5000 ms). The default **Auto, Best Compromise** setting is a good starting point for most internet connections. Note: The **Depth** setting allows you to select predetermined minimum and maximum jitter settings within the auto jitter buffer's minimum and maximum jitter limitations. The default setting of **60 to 1000ms** is a good starting point for most networks. Recommended maximum fixed jitter limits are as follows:

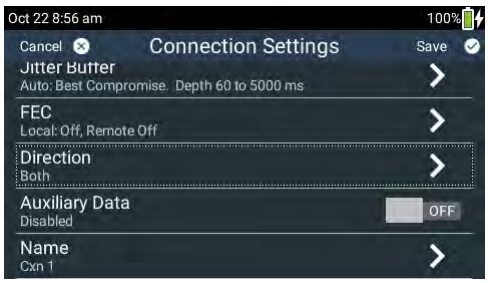
- 1,000ms for PCM and G.711, G.722 and aptX Enhanced encoding.
- 2,500ms for AAC ELD, AAC LD.
- 5,000 for all other algorithms including Opus, MP2, AAC, AAC-HE, Tieline Music and Music PLUS. See Configuring the Jitter Buffer for more details.



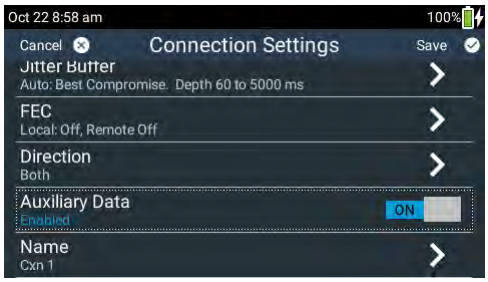
8. Tap **FEC** to configure local and remote forward error correction settings. See Configuring Forward Error Correction for more details.



9. Tap **Direction** if you want to save data and configure the codec to either **Encode Only** or **Decode Only**. Note: this can be helpful if connection bandwidth is limited.



10. Tap to toggle the **On/Off** button for **Auxiliary Data** to activate **CONTROL PORT I/O** operation and RS232 data in the codec.

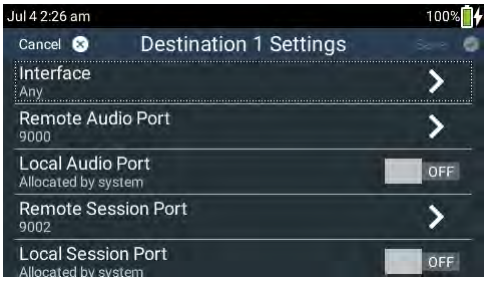


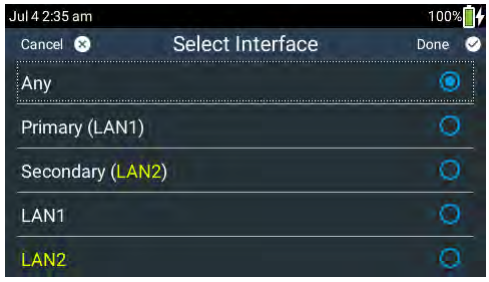
11. Tap **Name** to rename the connection. When all settings have been configured tap **Save** in the top right-hand corner of the **TOUCH SCREEN**.

Destination Settings

1. Press the **HOME** button to return to the **Home** screen, then tap **Connections**.
2. Tap the **Destination Settings** symbol.
3. Tap **Interface** to select a specific dialing interface in the **Select Interface** screen, or use the default **Any** setting. Tap **Save** in the top right-hand corner of the screen to dial using the default **Any** setting. This setting uses the first available interface based on the following default priorities.

- Primary = LAN1.
- Secondary = LAN2.
- Tertiary = Wi-Fi.





You can also select a specific interface, e.g. **Primary**, **Secondary**, **LAN1** or **LAN2**, as displayed in the preceding image. A LAN interface displayed in yellow text is enabled, but a network cable is not attached. Interfaces are not displayed if they are unavailable, e.g. if Wi-Fi is turned off or there is no cellular modem attached to **USB PORT 1** or **USB PORT 2**. To reconfigure the default **Primary**, **Secondary** and **Tertiary** settings see Configure Default Interfaces.

4. If required:

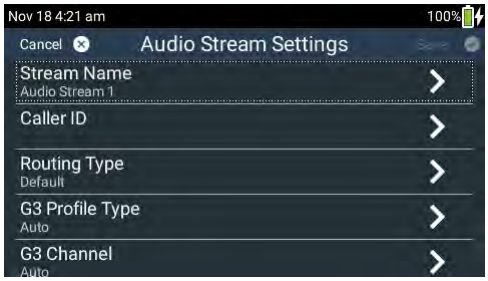
- Tap **Remote Session Port** to enter the session port number of the remote codec (to which you are dialing).
- Tap **Remote Audio Port** to enter the audio port number of the remote codec (to which you are dialing).

Important Note: The **Local Audio Port** and **Local Session Port** can also be configured. In most situations this is configured by the codec arbitrarily.

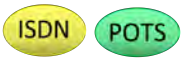
5. Tap Save in the top right-hand corner of the **TOUCH SCREEN** when these settings are configured .

Audio Stream Settings

1. Press the **HOME** button to return to the **Home** screen, then tap **Connections**.
2. Tap the **Audio Stream name** to display stream settings.



3. Tap **Stream Name** to edit the default name.
4. Tap **Caller ID** to enter an identifier for inbound calls on Tieline codecs.
5. Tap **Routing Type** to configure routing options as per the table below:

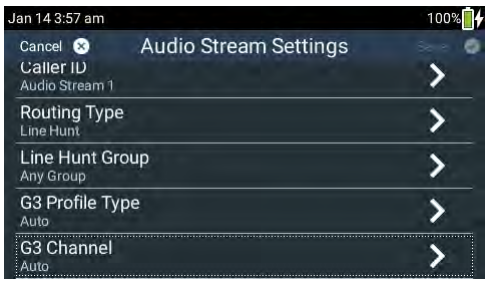
Routing Type Options:	
Default 	No **Dial Route** or **Answer Route** is configured. An incoming call will be routed to an audio stream on a first-come, first-served basis in a multi-stream program. Note: By default IP streams are routed using audio ports.
Deterministic 	Select a **Dial Route** or **Answer Route** to configure deterministic routing of multiple audio streams using transports like ISDN or POTS. Use of **Dial** and **Answer Routes** is not usually necessary over IP because dedicated ports or **Line Hunt** mode call answering is employed. However dial routes can be used over IP when a single stream on an answering codec answers using POTS and/or ISDN connections, as well as IP. This effectively creates an answering group using different transports. See Configuring ISDN Answering or Configuring POTS Answering for more information.
Line Hunt 	Create line hunt groups for multiple incoming callers on a first come, first served basis. This is ideal for separating groups of inputs and outputs between different studios or stations. See Line Hunt Call Answering for more information.

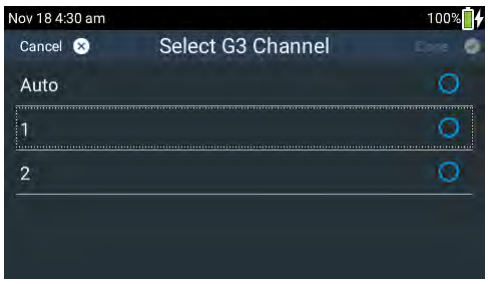
6. Tap **G3 Profile** to configure profile settings when dialing a Tieline G3 Codec.

Important Note: The G3 profile setting supports maintaining specific G3 codec settings when answering a call from a G5 codec.

1. **Auto**: The codec will dial the G3 codec and connect in mono or stereo. Note: This is overridden in a ViA codec when a G3 Main + IFB use-case is configured.
2. **Dual Program**: This allows the codec to dial a G3 codec with a Dual Program profile loaded and support two simultaneous mono connections.
3. **Runtime**: The G3 codec will retain runtime settings when answering a call from a G5 codec.
4. **Custom**: The G3 codec will load a specified profile, e.g. profile 6, which is the first custom profile number.

7. Tap **G3 Channel** when connecting to a G3 codec in dual mono mode. This setting lets you configure which G3 channel (encoder) is used when the G3 codec receives a call from this codec. E.g. **Channel 1** will route the incoming stream to Encoder 1 on the G3 codec and **Channel 2** will route the incoming stream to Encoder 2 on the G3 codec.





8. When configuration is complete, tap **Save** in the top right-hand corner of the **TOUCH SCREEN**.

5.3 Connecting over SIP

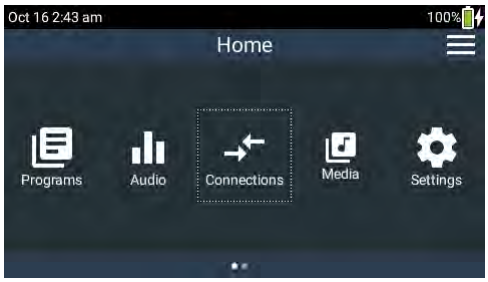
Important Notes:

1. SIP interfaces are disabled by default.
2. **SIP1** is configured to use **LAN1** by default, which is mapped to the **Primary** interface by default.
3. **SIP2** is configured to use **Wi-Fi** by default, which is mapped to the **Tertiary** interface by default.
4. **SIP1** and **SIP2** each need to use a separate IP interface when connecting, e.g. **LAN1** or **LAN2**.
5. **SIP1** and **SIP2** can each make multiple SIP calls, e.g. two calls can be made over **SIP1**, or two calls can be made over **SIP2**.
6. The settings for **SIP1** and **SIP2** cannot be edited if the interface has been enabled.
7. Enter a public IP address in the **Public IP** menu if you want to dial over SIP from behind a firewall. Then configure port forwarding to route traffic to the codec's local IP address behind your firewall. Note: Do not enter a **Public IP** address if STUN is configured. They cannot be used together because both will attempt to use a public IP address over SIP. STUN settings are prioritized and used if both are configured.
8. It is not possible to renegotiate the connection bit rate over a SIP connection.
9. When connecting to a Tieline G3 codec using SIP you need to manually select the G3 audio reference level. From the **Home** screen navigate to **Audio > General > Reference Level > Tieline G3**. In addition, select the following on the G3 codec prior to dialing.
   - Select either a mono or stereo profile
   - Select **[Menu] > [Configuration] > [IP1 Setup] > [Session Type] > [SIP]**
   - Select **[Menu] > [Configuration] > [IP1 Setup] > [Algorithm] > [G711/G722 or MP2]**

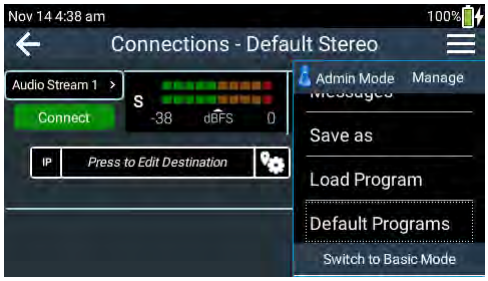
Dialing SIP Connections

SIP can be used to make direct peer-to-peer or SIP account calls to IP codecs configured with public IP addresses, or between two codecs over a LAN. Peer-to-peer SIP calls are often used to connect to other brands of codecs and perform call and session management tasks. To make a peer-to-peer SIP call between codecs we recommend both codecs use public IP addresses. Find out the IP address of the codec being dialed and configure each codec with a compatible algorithm and sample rate etc. If the remote codec has a private IP address then it should be configured for port forwarding and should dial the public IP address at the studio. To dial using a SIP account it is necessary to add a SIP account and register it to the codec.

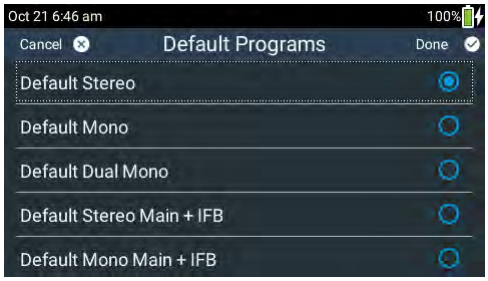
1. Press the **HOME** button to return to the **Home** screen, then tap **Connections**.



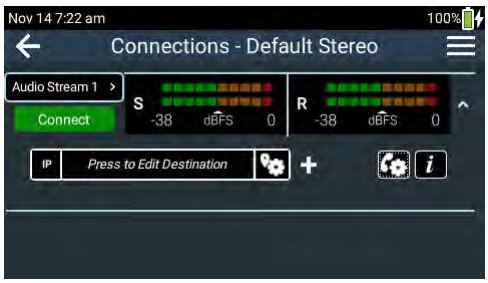
2. Tap **Menu** ☰ and then tap **Default Programs** to view default program connection options. Note: Tap **Load Program** to load preconfigured custom programs. Default programs cannot be locked in the codec. Save a program as a custom program if a program needs to be locked.



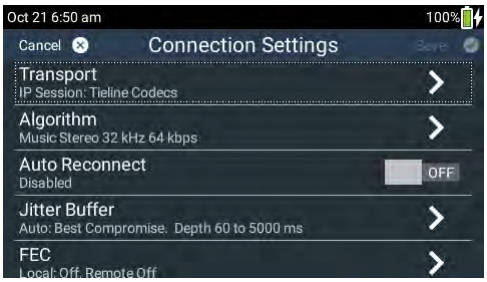
3. Tap to select the preferred program connection option, e.g. **Default Mono** or **Default Stereo**, and then tap **Done** in the top right-hand corner of the **TOUCH SCREEN**.

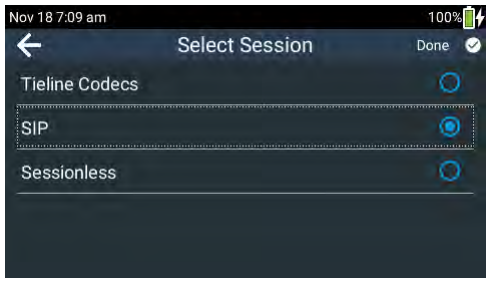


4. To adjust connection settings tap the **Connection Settings** ⚙ symbol.

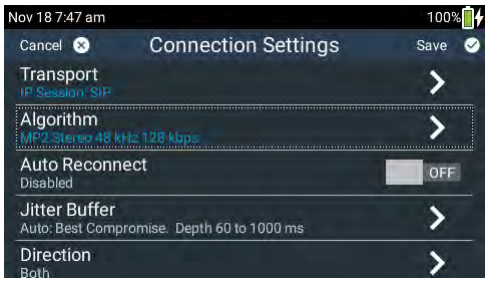


5. Tap **Transport** and select **IP > Tieline Codecs** if ISDN or POTS is the currently configured transport, then tap **SIP**.

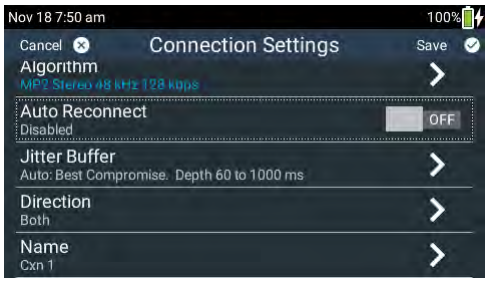




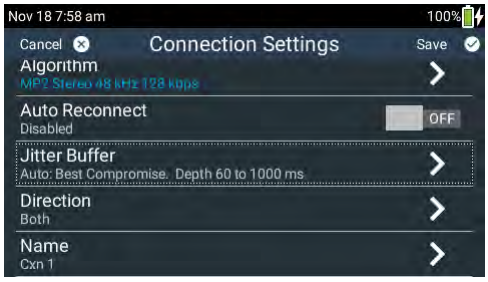
6. Tap **Algorithm** to select the preferred algorithm, sample rate and bit rate. G.711 is configured by default in mono.



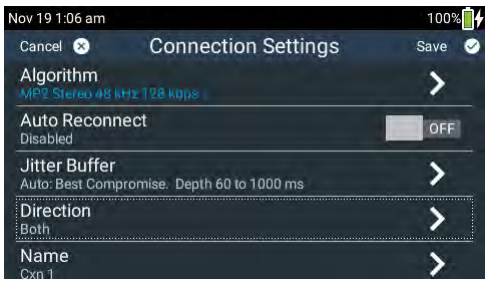
7. Tap to toggle the **On/Off** button for **Auto reconnect** if the codec should automatically reconnect if the connection is temporarily lost.



8. Tap **Jitter Buffer** to select a different automatic jitter buffer setting for your connection, or to enter a fixed buffer setting in milliseconds (maximum 5000 ms). The default **Auto, Best Compromise** setting is a good starting point for most internet connections. Note: The **Depth** setting allows you to select predetermined minimum and maximum jitter settings within the auto jitter buffer's minimum and maximum jitter limitations. The default setting of **60 to 1000ms** is a good starting point for most networks. Recommended maximum fixed jitter limits are as follows:
   - 1,000ms for PCM and G.711, G.722 and aptX Enhanced encoding.
   - 2,500ms for AAC ELD, AAC LD.
   - 5,000 for all other algorithms including Opus, MP2, AAC, AAC-HE, Tieline Music and Music PLUS.

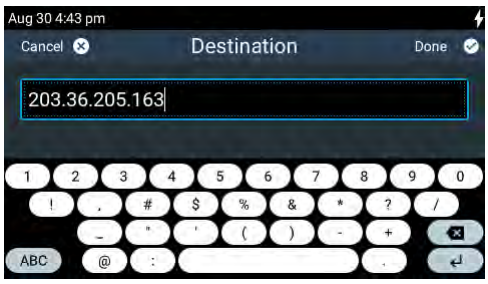


9. Tap **Direction** if you want to save data and configure the codec to either **Encode Only** or **Decode Only**. Note: this can be helpful if connection bandwidth is limited.

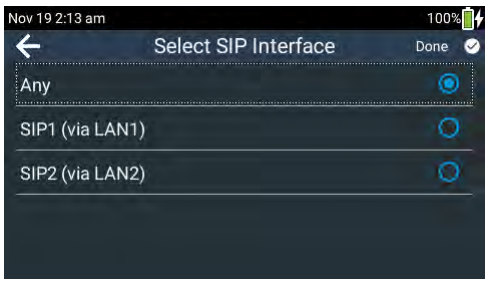


10. Tap **Name** to rename the connection. When all settings have been configured tap **Done** in the top right-hand corner of the **TOUCH SCREEN**.

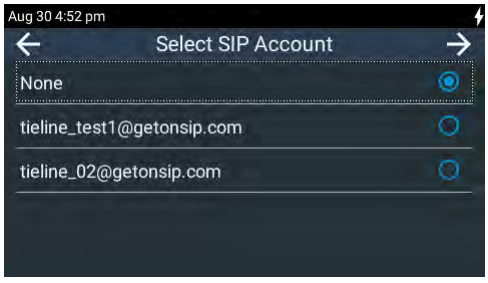
11. Tap **Press to Edit Destination** and then enter the IP address, or alphanumeric characters in the SIP URI for the codec you want to dial, then tap **Done** in the top right-hand corner of the **TOUCH SCREEN** to confirm all settings.



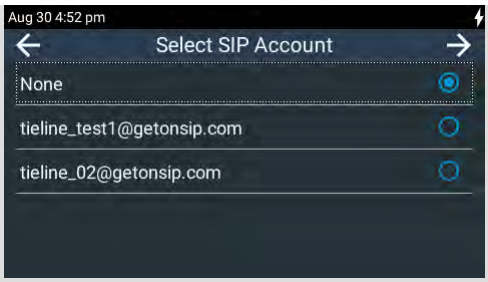
12. Tap the **Destination Settings** symbol and then tap **Interface** to select a specific dialing interface in the **Select SIP Interface** screen. For a peer-to-peer SIP connection select **Any** as the interface to use if you have an Ethernet cable connected to **LAN1** or **LAN2**.



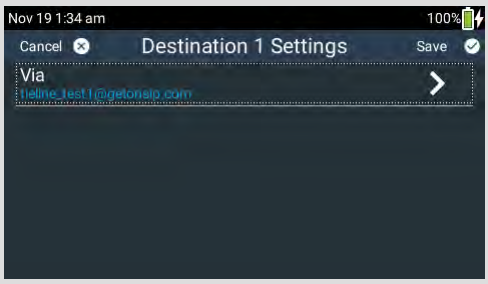
13. If a SIP Account is registered to the codec, tap to select **None** as the SIP account when dialing peer-to-peer, or select a registered SIP account if you are using a SIP server to establish a connection.



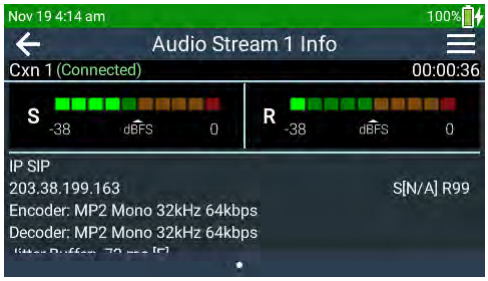
Important Note: Any valid SIP server accounts registered successfully to the codec will be displayed in the **Select SIP Account** screen. Tap to select an account if you want to use a SIP server to establish the connection.



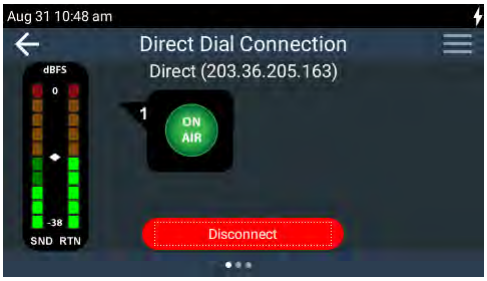
When you select a SIP account this will complete configuration. Simply tap **Save** in the top right-hand corner of the **Destination Settings** screen to return to the **Connections screen**.

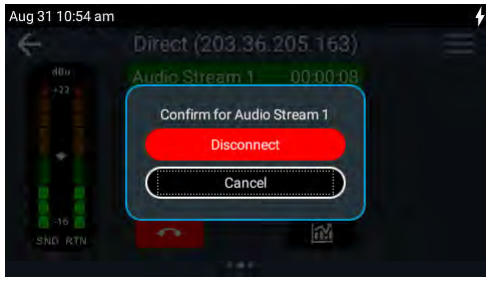


14. When configuration is complete, tap **Connect** Connect or press the **CONNECT** button to dial the destination codec. The **Status Bar** turns green when the codec is connected.
15. Tap **Info** to view audio stream connection details and statistics.



16. Tap **Disconnect** Disconnect or press the **DISCONNECT** button to hang up the connection.



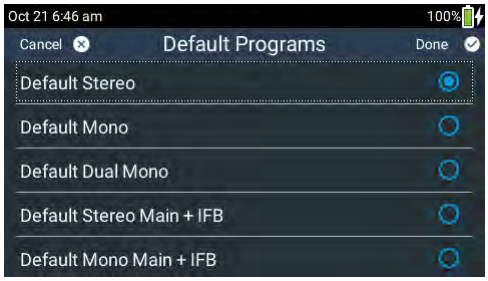


5.4 Connecting with ISDN

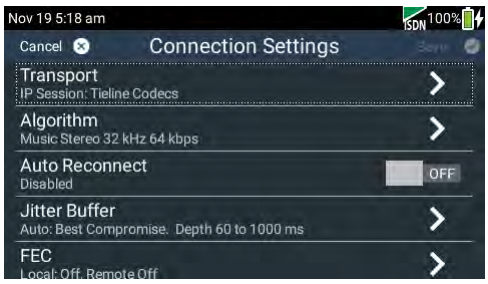
The following procedure will create a custom peer-to-peer ISDN connection program using the codec's **TOUCH SCREEN**. Attach an ISDN cable to the ISDN module installed in your codec. The codec displays ISDN line sync status in the **Status Bar** at the top of the **TOUCH SCREEN**.

	Symbol	Description of Status
1	No ISDN Symbol	No ISDN module is installed in the codec.
2		An ISDN module is installed in the codec and either: • No ISDN line is attached to the codec, or • ISDN line is attached but line sync hasn't been detected by the module
3		An ISDN module is installed in the codec and line sync has been detected.

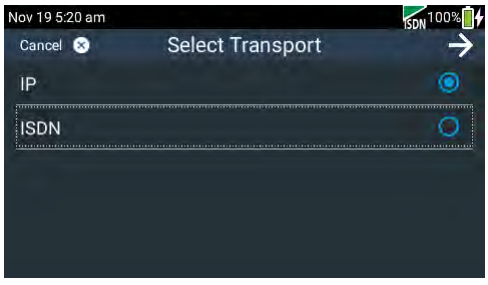
1. Press the **HOME** button to return to the **Home** screen, then tap **Connections**.
2. Tap **Menu** and then tap **Default Programs** to view program connection options. Note: Default programs cannot be locked in the codec. Save a program as a custom program if a program needs to be locked.
3. Tap to select the preferred program connection option, e.g. **Default Mono** or **Default Stereo**, and then tap **Done**. Note: Tap **Load Program** to load preconfigured custom programs.



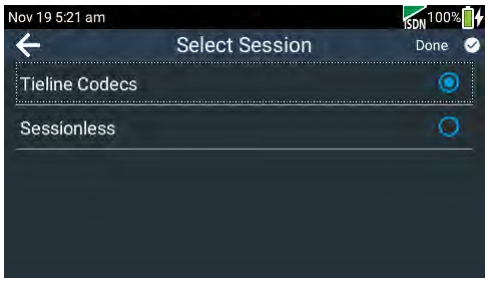
4. To adjust connection settings tap the **Connection Settings** symbol.
5. Tap **Transport** to adjust this setting if the current selection is IP.



6. Tap to select **ISDN** as the preferred connection type.

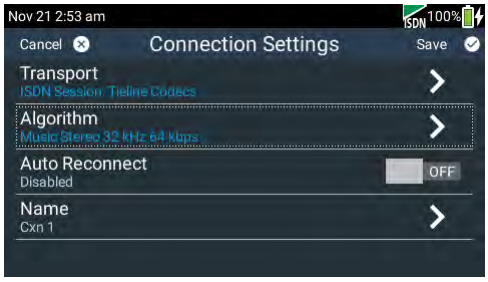


7. When dialing a Tieline codec tap to select the default **Tieline Codecs** Session Data setting, or tap **Sessionless** if dialing a non-Tieline codec.

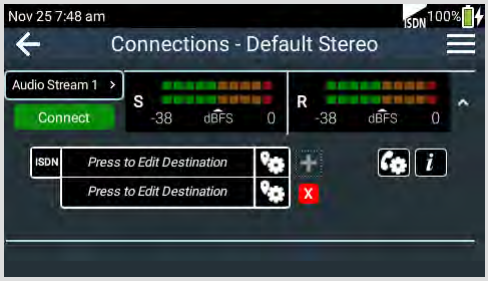


Important Note: By default, when Tieline codecs dial they send configuration settings to the remote codec using Tieline Session Data. This configures the codec receiving the call with matching algorithm, sample rate and bit rate settings. Non-Tieline devices don't support this feature and **Sessionless** must be selected to provide compatibility. See www.tieline.com for more compatibility information when dialing non-Tieline codecs.

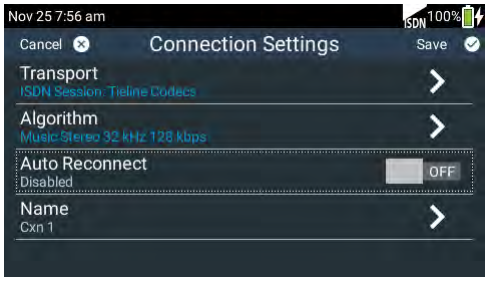
8. Tap **Algorithm** to reconfigure the selected algorithm and adjust the sample rate.



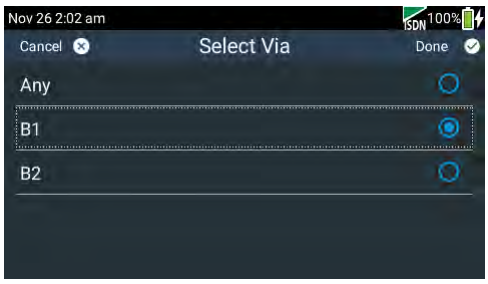
Important Note: When a stereo program template is selected, only supported algorithms and bit rates are displayed. To display 128kbps algorithm options, e.g. MP2 stereo at 128kbps, tap the **Plus symbol** ✚ on the **Connections screen** to add a second bonded 64kbps B channel connection.



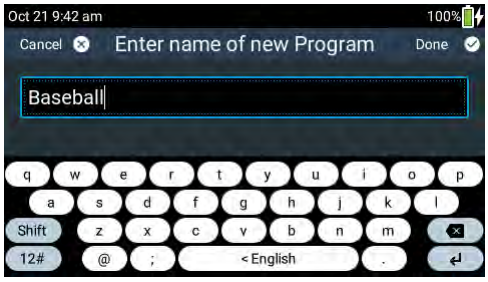
9. Tap to enable or disable **Audio Reconnect** as required and tap **Name** to edit the connection name. Tap **Save** to store all connection settings.



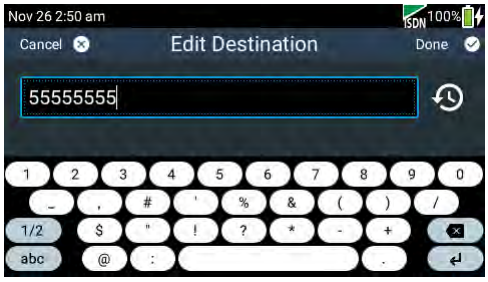
10. Tap the **Connection Settings** symbol on the **Connections screen** to specify a B channel dialing interface for each connection when more than one B channel is in use. Then tap **Done**. Note: **Any** is the default setting.



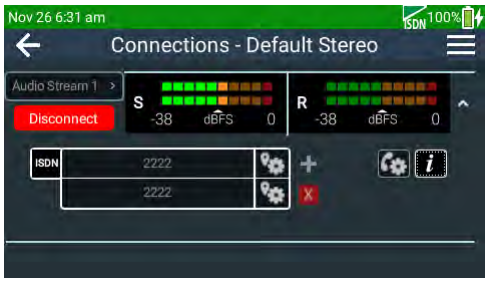
Helpful Hint: To save the program as a new custom program for later use tap **Menu** ☰ and then tap **Save as**, then name the program before connecting.



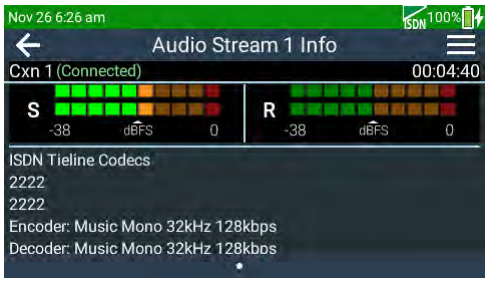
11. Tap **Press to Edit Destination** to enter the number for the codec being dialed, or tap the **Dial History** symbol to select a previously dialed number. Then tap **Done** in the top right-hand corner of the **TOUCH SCREEN**. Note: If you are dialing over multiple B channels you will need to enter a **Destination** for each B-channel.



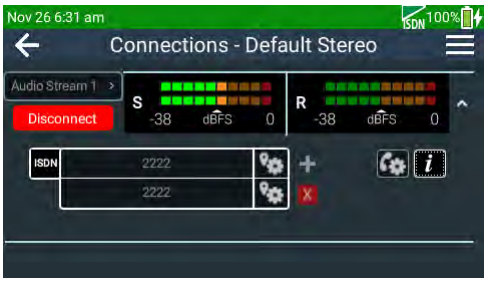
12. Tap **Connect** Connect or press the **CONNECT** button to dial the destination codec. The **Status Bar** turns green when the codec is connected.

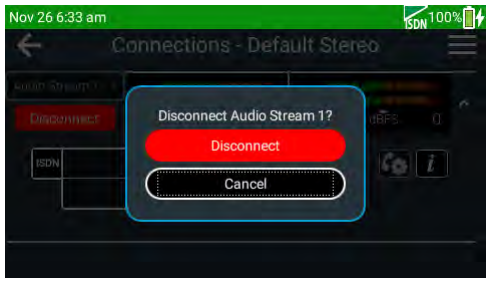


13. Tap the **Info** button to view audio stream connection details.



14. Tap **Disconnect** Disconnect or press the **DISCONNECT** button to hang up the connection.



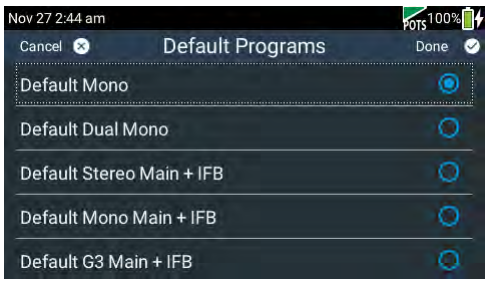


5.5 Connecting POTS

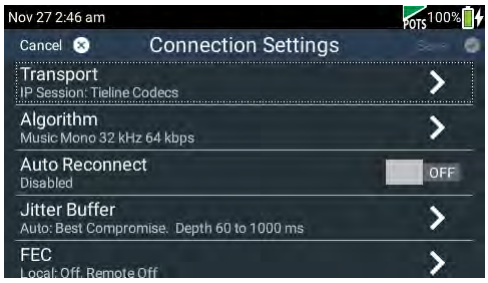
The following procedure will create a custom peer-to-peer POTS connection program using the codec's **TOUCH SCREEN**. Attach a POTS line to the module installed in your codec. The codec displays POTS line status in the **Status Bar** at the top of the **TOUCH SCREEN**.

	Symbol	Description of Status
1	No POTS Symbol	No POTS module is installed in the codec.
2	POTS	A POTS module is installed in the codec but no POTS line is attached to the codec
3	POTS	A POTS module is installed in the codec and line voltage has been detected

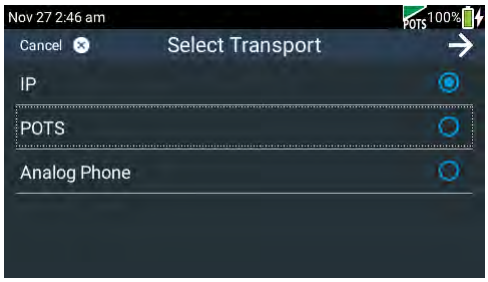
1. Press the **HOME** button to return to the **Home** screen, then tap **Connections**.
2. Tap **Menu** and then tap **Default Programs** to view program connection options. Note: Default programs cannot be locked in the codec. Save a program as a custom program if a program needs to be locked.
3. Tap to select the preferred program connection option, e.g. **Default Mono**, and then tap **Done**. Note: Tap **Load Program** to load preconfigured custom programs.



4. To adjust connection settings tap the **Connection Settings** symbol on the **Connections screen**.
5. Tap **Transport** to adjust this setting if the current selection is IP.

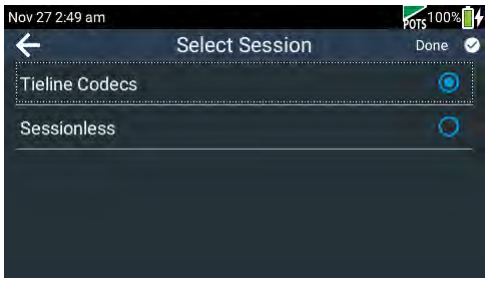


6. Tap to select **POTS** as the preferred connection type, or tap **Analog Phone** to configure a standard analog phone call.



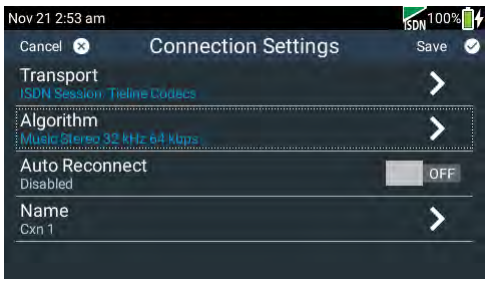
Important Note: When **Analog Phone** is configured, the codec displays a simplified **Connection Settings** menu with applicable settings.

7. When dialing a Tieline codec tap to select the default **Tieline Codecs** Session Data setting, or tap **Sessionless** if dialing a non-Tieline codec.



Important Note: By default, when Tieline codecs dial they send configuration settings to the remote codec using Tieline Session Data. This configures the codec receiving the call with matching algorithm, sample rate and bit rate settings. Non-Tieline devices don't support this feature and **Sessionless** must be selected to provide compatibility. See www.tieline.com for more compatibility information when dialing non-Tieline codecs.

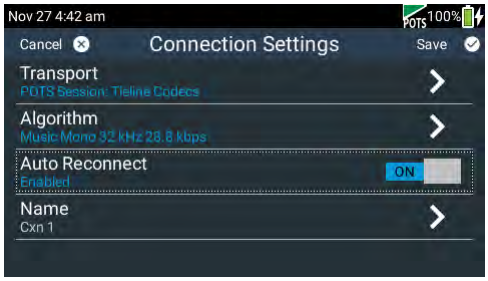
8. Tap **Algorithm** to reconfigure the selected algorithm.



Important Notes: Tieline Music Mono is the algorithm automatically configured for **Tieline Codecs**. The **Other** algorithm is automatically configured when **Sessionless** is

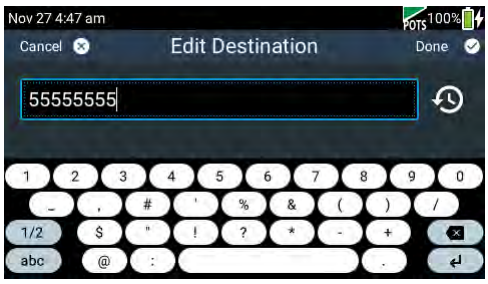
selected to support dialing a Comrex® Vector, Matrix® or BlueBox® codec. 9.6kbps connections are not supported by Comrex codecs.

9. Tap the **On/Off** button for **Auto reconnect** to toggle between enabling and disabling this feature. Note: See Configuring Auto Reconnect for more details.



10. Tap **Name** to adjust the connection name and then tap **Save** to store all settings and return to the **Connections screen**.

11. Tap **Press to Edit Destination** to enter the number for the codec being dialed, or tap the **Dial History** symbol to select a previously dialed number. Then tap **Done** in the top right-hand corner of the **TOUCH SCREEN**.



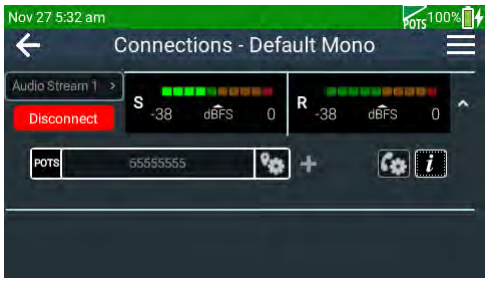
Important Note on Dial Pause Time:
When dialing out through a PBX the codec must find a line on two occasions:

- At the beginning of the call, and
- When the call goes into the POTS/PSTN network from the PBX.

The PSTN takes time to prepare the line for an outgoing call, i.e. disabling the incoming call circuitry. A pause is inserted by typing a comma "," in the dial string. The length of the pause may need to be adjusted when dialing through older PBX systems that have latency in connecting to the PSTN. Pauses can be set from zero up to two seconds in 250 millisecond increments. Each comma you insert will insert a pause of 250ms.

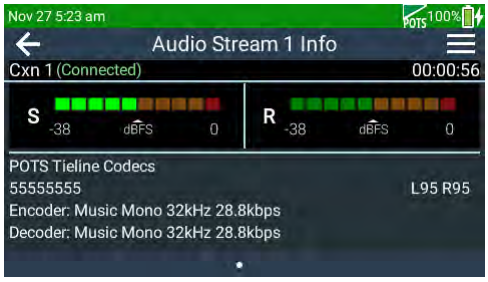
It is also usually necessary to add a pause when making long distance or international calls e.g. dialing Tieline 1,3178458000.

12. Tap **Connect** Connect or press the **CONNECT** button to dial the destination codec. Note:
    - The **CXN LED** on the front of the unit flashes green when dialing and negotiating; it turns solid green when connected.
    - The **Status Bar** turns green after modem negotiation when the connection stabilizes.

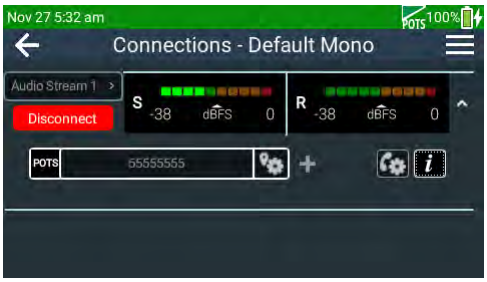


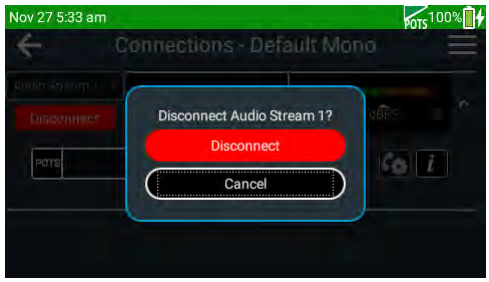
13. Tap the **Info** button to view audio stream connection details and **Local** and **Remote** line quality. The **Local** and **Remote** line quality displayed for **POTS Codec** connections is related to the actual POTS line quality at either end of the link. This reading affects the maximum allowable bit rate when the codec is training and negotiating a connection. It also indicates the stability of the connection when a call has been connected for a long period of time. If the line quality starts drop quite low after being connected for a long period, we recommend you retrain the connection to improve the line quality and avoid loss of audio.

Note: Incrementally negotiate higher connection bit rates by pressing the **F2** button and then the **NAVIGATE UP** ▲ button while viewing the **Audio Stream Info** screen; for lower bit rates press the **F2** button and then the **NAVIGATE DOWN** ▼ button.



14. Tap **Disconnect** Disconnect or press the **DISCONNECT** button to hang up the connection.





6 ViA Headphone Controls

WARNING: LISTENING TO AUDIO AT EXCESSIVE VOLUMES CAN CAUSE PERMANENT HEARING DAMAGE. REDUCE VOLUME AS LOW AS POSSIBLE.

A headphone volume limiter can be employed to protect hearing when monitoring loud sources and/or when using low impedance headphones. To configure this:

1. Press the **HOME** button to return to the **Home** screen, then tap **Audio**.
2. Tap **Headphones**.
3. Tap **Headphone Volume Limiter** to toggle between enabling and disabling this feature.

Adjust Headphone Levels

The codec has three 6.35mm (1/4") RTS stereo headphone outputs (**HP 1-3**) for monitoring inputs and return program audio. Use the green headphone **HP 1-3** rotary encoders to adjust the headphone level for each headphone output.

Adjust Headphone Monitoring Settings

1. Press the **SOURCE** button on inputs 1-3 to display the headphone monitoring screen for each headphone output.

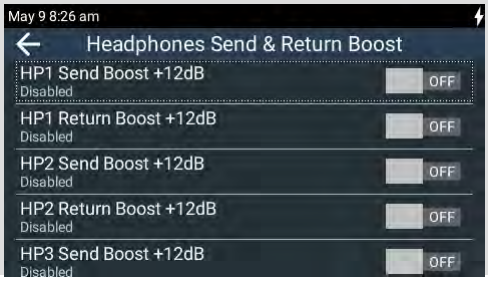
2. To monitor different audio sources tap on the **TOUCH SCREEN** to select or deselect an audio crosspoint, or use the **NAVIGATION** buttons to focus on a crosspoint and press the **OK** button to select or deselect an audio crosspoint. Changes not yet saved as a custom headphone mix are displayed in orange. Runtime changes are audible in real-time and persist if the unit is powered down and rebooted. These routing changes are also reflected in the **Matrix Editor**, which displays all input/output routing in the codec.

3. Adjust the **Send & Return Balance** slider to change the **Send** and **Return** audio headphone balance. Each headphone output has individual controls and fine adjustment in 2% increments is possible using the left and right arrow-shaped **NAVIGATION** buttons. This doesn't affect the level of the audio transmitted or received, only the local headphone monitoring level.

4. Swipe left on the **TOUCH SCREEN** to adjust the audio level of each individual headphone source. This allows the audio levels of feeds to be adjusted in relation to each other and tailored for each headphone output.

Important Notes: When the audio menu is enabled in administrator mode it is possible to configure the headphone mix via the **Headphone** menu. Select **Home** screen **> Audio > Headphones**. Then tap **Headphone Settings** for each headphone output and select the preferred headphone mix.

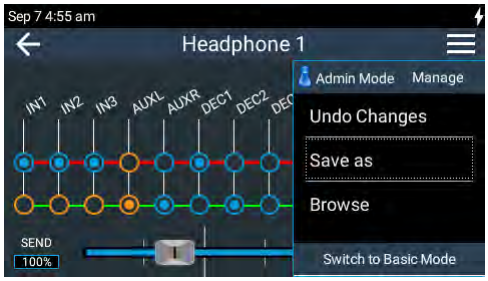
Tap **Headphones Send & Return Boost** to boost either the Send or Return audio for Headphones 1-3 by 12dB. This can be helpful when attempting to balance audio in noisy environments, or if incoming return audio is low.



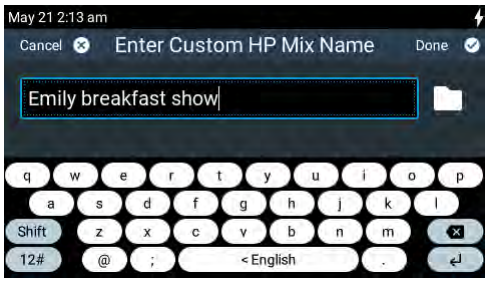
Save & Edit a Custom Headphone Mix

The codec supports saving and recalling custom headphone mixes configured for specific users and events. A custom headphone mix includes matrix crosspoint routing and **Send** and **Return** balance settings.To save edits to current headphone settings, or a custom headphone mix:

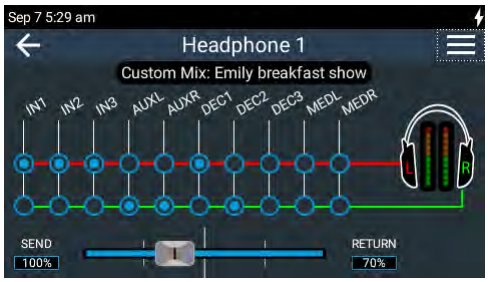
1. Press the **SOURCE** button on inputs 1-3 to display the headphone monitoring screen for a headphone output.
2. Tap **Menu** and then **Save as**.



3. Enter a custom headphone mix name and tap **Done**, or tap the file symbol to select an existing Custom HP Mix to either edit or overwrite it.



4. The custom mix will be saved and loaded and is displayed in the **Headphone** screen.



Important Notes:

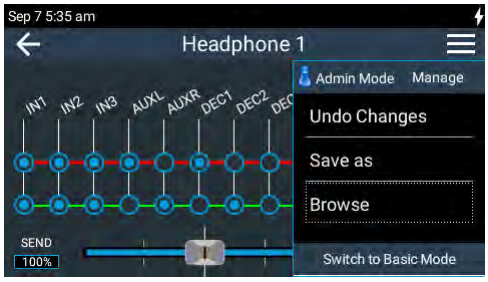
- The mix displayed for **Headphone 1-3** in the panel is reflected in the loaded mix in the **Matrix Editor**. If you create custom headphone mixes and load them, and then save all routing in the **Matrix Editor** as a custom matrix, all the custom headphone mixes and their **Send/Return** balance settings are also saved. In essence, custom headphone mixes are "attached" to a **Matrix Editor** matrix when it is saved. This is displayed in the codec as per the following image. In this example, "Basketball" is the name of the custom **Matrix Editor** matrix and "Glenn mix" is the name of the custom headphone mix attached to this matrix.

- If a custom headphone mix is saved with a custom matrix and the headphone mix is subsequently deleted, the custom headphone mix settings are retained in the saved custom matrix.
- Individual headphone source level adjustments for each headphone output are not saved with a **Matrix Editor** custom matrix. These individual source levels are accessed by swiping left in the **Headphone Mix** view on the **TOUCH SCREEN**.

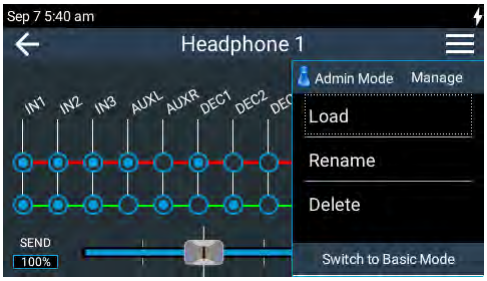
Load a Custom Headphone Mix

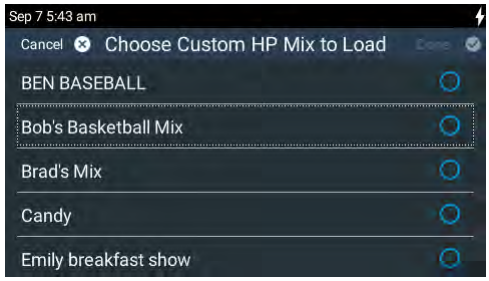
To load a saved custom headphone mix:

1. Press the **SOURCE** button to display the headphone monitoring screen.
2. Tap **Menu** ☰ and then tap **Browse**.



3. Tap **Load** and then tap to select a custom mix to load. Note: When you load a custom headphone mix the **Matrix Editor** will be adjusted based on the headphone mix loaded. Any edits to the **Matrix Editor** are displayed in orange.

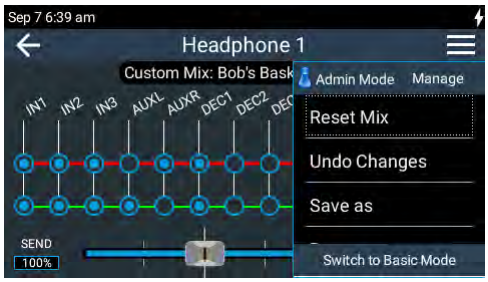




Reset Headphone Mix Settings

There are two options for resetting headphone matrix settings.

1. Press the **SOURCE** button to display the headphone monitoring screen.
2. Tap **Menu** ☰ and then either:
   a. Tap **Reset Mix** to reset routing to the matrix editor's default headphone mix settings. This will unload a custom headphone mix and clear any runtime changes.
   b. Tap **Undo changes** to reset any runtime changes made to default matrix editor headphone settings, or a custom headphone mix.



3. Tap **OK** in the confirmation dialog to reset the headphone matrix settings.

Important Note: The following scenarios lead to the same result:
1. **Reset Mix**.
2. **Undo Changes** when no custom headphones are loaded.