

VOX-100+ PRODUCT MANUAL



- The VOX-100+ is a full-featured telephone paging amplifier designed to reduce installation costs and complexity.
- The VOX-100+ has all the required features to eliminate the need for external devices such as Telephone Paging Access Module, Zone Paging Module, Master Clock, MP3 Player, Feedback Terminator, Messaging System and FM Receiver.
- The VOX-100+ is the ultimate solution for any telephone paging application.



FEATURES

Built-In MP3 Player (USB Drive & MicroSD)	70V / 25V Output Selection	Music fade back after page
Built-In FM Receiver	Music On Hold (MOH) Adjustable Output	Adjustable Announcement Tone
Built-In 3 Zone Paging Output	Preamplifier Output	Announcement Tones selection
Built-In Telephone Access Interface	Bridgeable	Peak Level Indicator
Built-In Master Clock	100% Digital Interface	Output fully short circuit protected
Built-In Night Ringer	MicroSD Card included (Field Upgradable)	Thermal and electronic overload protection
Built-In Digital Feedback Terminator	VOX with sensitivity level Control	Wall Mount & Rack Mount installation
Built-In Messaging System (Automatic Paging System)	Automatic Level Control	Heavy Duty Design
Microphone Input	Volume, Bass, Treble & Audio Enhancement level controls	RoHS Compliant, Made in Canada
Music Input (RCA or Screw Terminal)	Separate level controls for Music, Telephone & Microphone	5 Years Warranty
100W RMS Continuous / 160W Paging	Adjustable Music Mute	UL/CSA Listed

Table of Contents

Product Overview	4
MP3 Player	5
Telephone Paging Access	5
Zones Paging	5
Night Ringer	5
Master Clock	5
Digital Feedback Terminator	6
Messaging System	6
USB Port	6
MicroSD Card	6
Expansion Module	7
VOXPRIME Media	7
Installation	8
Input Wiring Connections	9
Output Wiring Connections	10
Music On Hold	11
Preamp Output	11
Master Clock Battery	11
Configuration	12
Digital Interface Configuration Menu	12
Automatic Level Control	14
Announcement Tone	14
Night Ringer	15
Zone Paging	15
Music On Hold	16
Operation	17
LED Indicators	17
Telephone Access	17
Telephone Access Code	17
Paging	18
Digital Feedback Terminator	18
Touch Tone Commands	18
Main Menu	18

Advanced Commands	19
Configuration IVR	19
Zone Paging Configuration	20
Master Clock Configuration	20
Messaging System (Automatic Paging System) Configuration	20
Access Code Configuration	21
Storage Memory	22
MP3 Player Music Management.....	22
VOXPRIME Directory	22
RAW Audio File Format.....	22
Technical Support	23
Specifications	23
3 YEARS Limited Warranty	24
Class B Digital Device Warnings	24

Product Overview

The VOX-100+ is a full-featured 70V/25V wall-mounted Telephone Paging Amplifier that has all the features needed for small to medium size installations without the need for additional external devices.

It's easily configured with a digital LCD display interface. Navigating through the various menus is performed using the four tactical switches. The configuration menus offer lots of flexibility and convenient options while also keeping things simple and intuitive. Certain features such as the messaging system (also known as Automatic Paging System), can only be configured through the telephone interface using DTMF commands. Other advanced configuration options such as the master clock can only be performed by updating configuration files located on the MicroSD card. This requires a computer that uses the free **VOXPRIME Media** Windows application.

The equipment has a built-in FM Receiver, an MP3 player and an auxiliary music input. This integrated musical system offers 3 choices of music source options. Volume, bass, treble and audio enhancement controls adjust the audio quality of the output signal for music, telephone interface and microphone independently. This flexibility allows the audio signals from each input to provide the best possible acoustic experience. The Automatic Level Control feature limits the output level of a telephone or microphone page making the difference in volume of the person paging far less noticeable.

The VOX-100+ amplifiers include a built-in night ringer that can be triggered by either a standard telephone (analog) ring signal or an external contact closure. It also includes a volume adjustable Music On Hold (MOH) output that connects the output music signal to the telephone system.

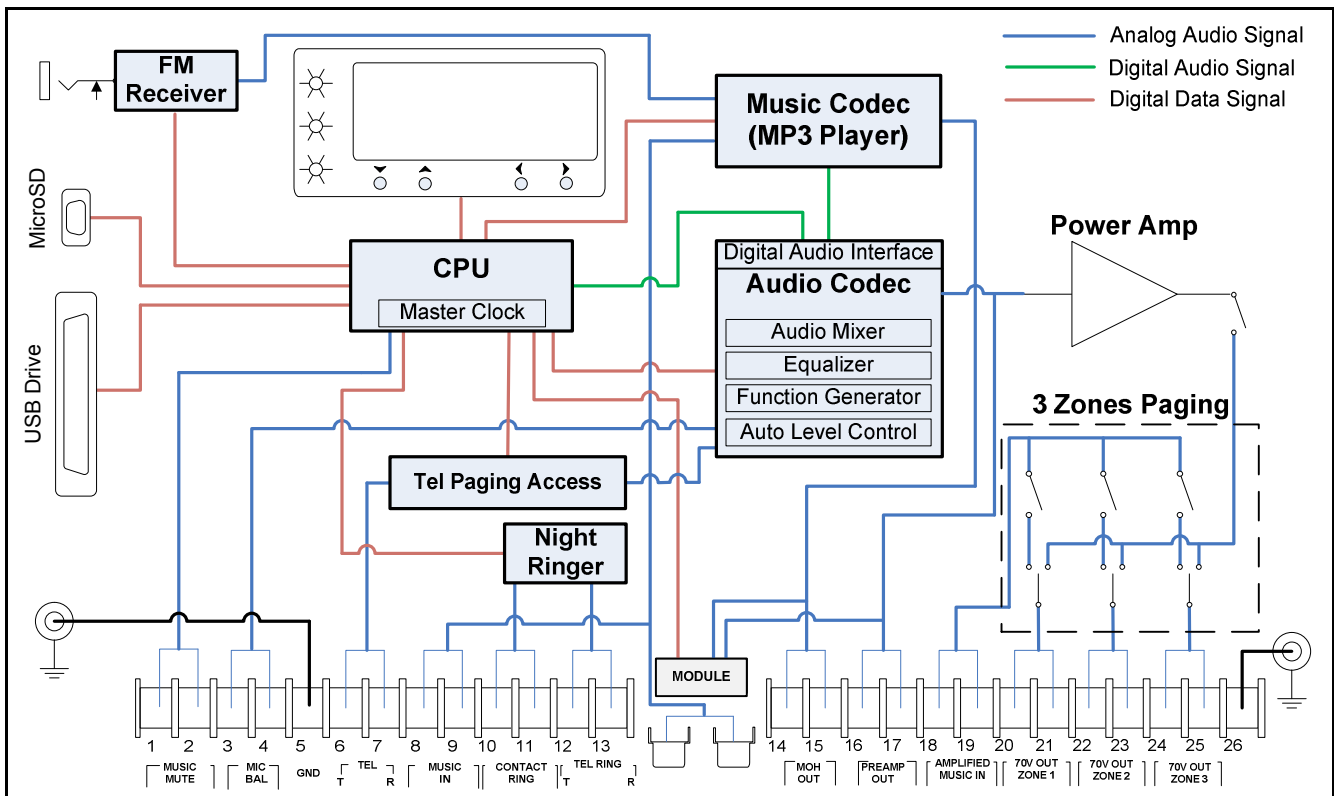


Figure 1: VOX-100+ Functional Block Diagram

MP3 Player

The VOX-100+ Built-In MP3 Player can be selected to provide background music (BGM). The MP3 Player will search the MicroSD of the VOX-100+ for MP3 files to play. It will also search for MP3 files if a USB drive is connected into the USB port. The operator can manually review and select the songs using the tactile switches and the LCD display. A shuffle option allows playing songs in a random sequence. The MP3 player also gives the flexibility to support multiple playlists that can be manually selected. It can also automatically follow a pre-programmed schedule managed by the built-in **Master Clock**.

Telephone Paging Access

The VOX-100+ Built-In Telephone Paging Access is designed to interface with any telephone system using the following three methods:

Page Port: If configured to interface with a telephone system's page port, the VOX-100+ will sense the telephone system's dry relay contact closure to trigger a page. If the telephone system doesn't provide a dry relay contact to indicate when a page is coming, the VOX-100+ can instead be configured to detect an audio signal on the page port using the VOX feature that will trigger a page.

Loop Start Trunk: If configured to interface with a telephone system's trunk port, the VOX-100+ will supply -48V battery to the phone system's trunk. The VOX-100+ will trigger a page when it senses that a telephone is off-hook and will terminate the page when the receiver is on-hook.

Station Access: If configured to interface with a telephone system's extension port, the VOX-100+ will sense for a 90V ring signal in order to trigger a page. To determine when to terminate the page, the VOX-100+ will sense for a CPC signal (0 VDC burst) and/or use the VOX circuit to detect a period of silence.

Zones Paging

The VOX-100+ Built-In **Zone Paging** allows the installation of speakers in three different zones (reception, warehouse, outside, etc). The **Zone Paging** also offers the flexibility to enable and disable each zone individually. Alternatively it can enable and disable the background music in any given zone. Other built-in features of the VOX-100+ includes the ability to take advantage of the zoning capability, such as the **Microphone Input**, the **Night Ringer**, the **Master Clock**, the **Digital Feedback Terminator** and the **Messaging System**.

Night Ringer

The Night Ringer generates a ringtone over the speakers. It is activated by a ring signal from a 90V telephone ring signal or from a contact closure supplied by the telephone system's dry contact. The Night Ringer mutes the background music while doing this using the Music Mute setting. The Night Ringer and paging have the same priority level and as a result both will be heard simultaneously.

Master Clock

The VOX-100+ built-In **Master Clock** is an advanced clock-controlled chime, tone and message generator. This feature is a cost effective way of signaling breaks in many work areas; school recess, factory shifts, breaks, lunch periods, etc.

The Master Clock feature uses the included MicroSD card (this card is currently upgradable to 128 GB) for the storage of chimes and messages. It is capable of loading CD-quality WAV file audio storage and virtually unlimited chimes/tones/messages.

The unit comes from the factory with the most common tones and chimes for schools, businesses and factories. Additional audio can be incorporated using the free VOXPRIME Media Windows application.

The Built-In **Master Clock** can be programmed with up to 14 schedules and an unlimited number of events allowing the operator to program an entire year or multiple years of schedules in advance. Once programmed, the operator can change the Master Clock schedules or turn it on or off remotely from any touch-tone phone.

The Master Clock is highly integrated with other built-In features of the VOX-100+. Instead of only playing audio notifications, it can also perform the following actions according to any given schedule:

- Change the music input source
- Tune the **FM Receiver** to a different FM frequency
- Select a different MP3 playlist or even play a specific song
- Enable/Disable any given zones or background music only (e.g. shutting down outdoor speakers/horns at night)

Digital Feedback Terminator

The Digital Feedback Terminator (DFT) is designed to eliminate acoustic feedback by recording and playing back a page. It can record up to 20 paged messages. Each page has a maximum length of 2 minutes. The unit can record a page while simultaneously playing back a recorded one.

The following are three major features of the Digital Feedback Terminator:

- It eliminates feedback by recording the incoming page, and then plays it back.
- It is able to repeat a page to allow for a better receptivity in noisy environments.
- It is capable of queuing up to 20 incoming pages by recording and playing them back on a first-in, first-out basis.

Messaging System

The Messaging System feature can store up to 99 pre-recorded messages that can be used for paging via a DTMF command or by the **Master Clock**. Messages can be recorded, listened to and deleted in the configuration IVR of the **Telephone Access Interface**. Professional Announcement messages can be uploaded in the MicroSD card instead of being recorded over the telephone and the messages can be visually managed using VOXPRIME Media.

USB Port

The USB Port of the VOX-100+ allows connecting a USB drive (USB Key) to the equipment. The drive can be accessed by the **Built-In MP3 player** to directly play the songs and playlists. The operator simply needs to copy MP3 files in the USB drive from a computer and the VOX-100+ will play them once you connect the USB Drive into the unit. Playlists are easily created by placing MP3 files in subdirectories of the drive. It is possible to buy USB drives on VOXPRIME's e-commerce. The models sold are carefully tested for optimal performance and sustained audio quality.

MicroSD Card

A MicroSD card is required for the VOX-100+ because it is used as the main storage memory. The equipment should not be operated if the MicroSD card is removed and it should be turned off (disconnected from the power outlet) prior to removal of the card. The MicroSD card can be easily connected to a computer using the provided adapter. The operator can copy MP3 files onto the card and manage playlists in the same way as the USB port mentioned above. The operator can also make a backup of the entire setup by copying or zipping the VOXPRIME directory located on the SD Card. The directory can easily be restored back onto the MicroSD card if needed.

The VOX-100+ is sold with an included MicroSD card. This card can be upgraded to provide extra storage for MP3 files. To swap a MicroSD, the operator needs to copy the files contained on the actual MicroSD card to another MicroSD Card using a computer. It is strongly recommended to buy the MicroSD card on VOXPRIME E-commerce. The Built-In Digital

Feedback Terminator and **Messaging System** features require a fast and reliable MicroSD card (class 6 and above) to work effectively.

Expansion Module

The TPU expansion module is still under development. The expansion module will have an Ethernet interface for remote management and to update the **Master Clock's** time via the Internet time server. This module will provide extra features for more complex installations that include, but are not limited to auxiliary relays, trigger inputs and extra paging zones.

VOXPRIME Media

VOXPRIME Media is a free Windows application used to configure the VOX-100+ and saves the settings in the MicroSD card. It offers a graphical user interface to manage the following:

- Music playlists and songs for the Built-In **MP3 Player**.
- Additional announcement tones, **Night Ringer** ringtones, **Master Clock** chimes and message management from the **Messaging System**.
- An outlook-style calendar to manage the **Master Clock** events and daily schedules (Lunch times, breaks, etc.)

Once the operator has finished configuring the VOX-100+ settings on his computer, he simply needs to remove the MicroSD card from the VOX-100+ and connect it to his computer using the provided USB Adapter. The configuration will then be transferred over to the MicroSD Card. The last step involves inserting the MicroSD card back into the VOX-100+ in order for the new changes to become active.

Installation

Using the provided screws, mount the amplifier on a wall, or backboard (plywood should have 3/8" minimum thickness), capable of securely supporting its weight.

Make sure no radiators or other heat producing elements are nearby. Also make sure that the area behind the amplifier allows a clear airflow and that the air slots are not obstructed.

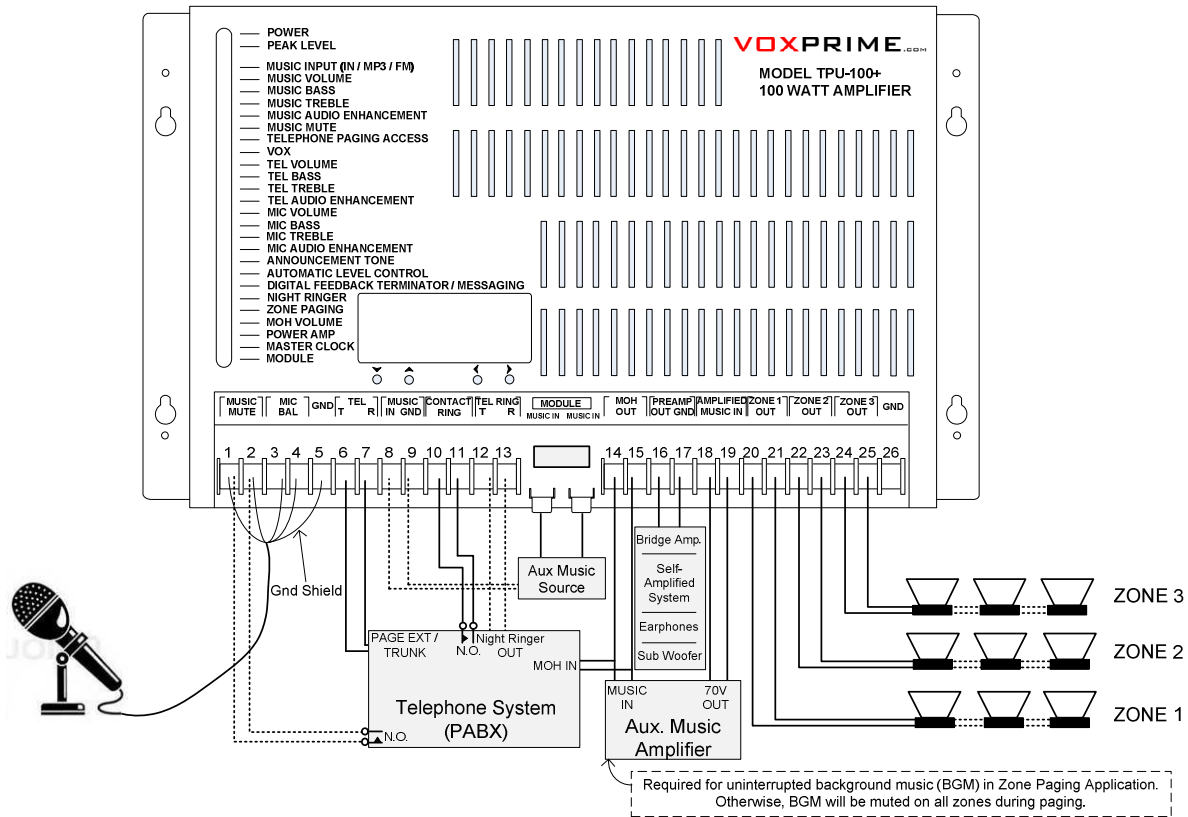
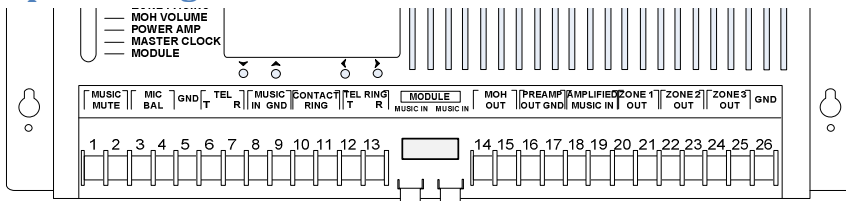


Figure 2

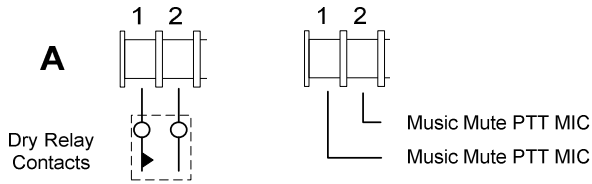
The VOX-100+ Rack Mounting Kit (sold separately) is required for mounting the VOX-100+ onto a rack.

IMPORTANT: To comply with NRTL/C safety regulations, a minimum 12 inches clearance must be maintained above the unit.

Input Wiring Connections



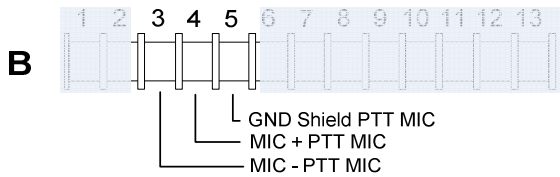
In accordance with your particular system installation and requirements, make the following connections at the terminal blocks.



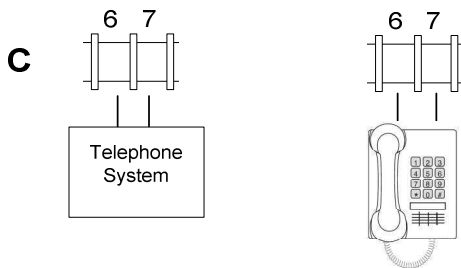
Connect the telephone system page port dry relay contacts to these pins. This will activate the voice input of the amplifier and deactivate the music input (Music mute) thus cutting off the background music.

Connect the two music mute wires from a balanced Push-to-Talk microphone to these pins for microphone paging.

Note : This input is isolated from the unit's chassis.

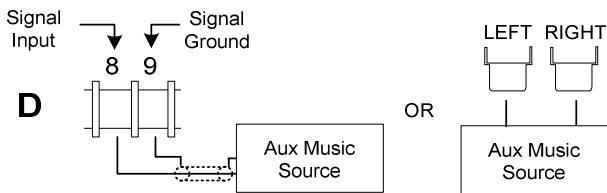


Connect the + and – wires from a balanced Push-to-Talk microphone to pin 3&4 and GND Shield to pin 5 for microphone paging. The polarity is not critical.

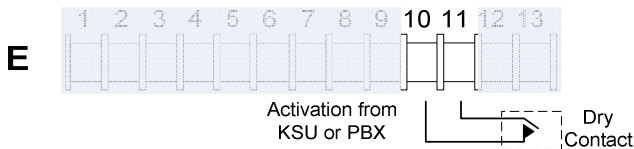


This port can be set as a Loop Start Trunk access, Station access or as a Page Port. The page port can be activated with the Music Mute using the dry relay contacts or VOX detection if no dry relay contacts are available on the telephone system.

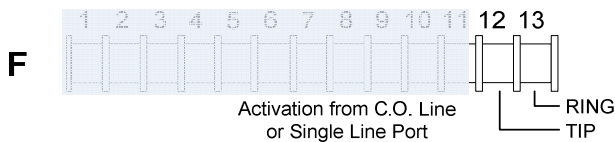
If the telephone paging access is set to Page Port, and that the page port detection method is set to "Music Mute Contact", Pins 3&4 (MIC BALANCED) will be disabled.



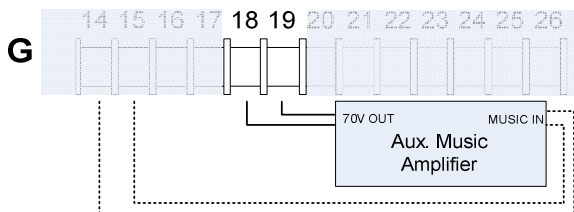
Connect an auxiliary music source to these terminals, noting that pin 9 is a signal ground pin. It is important that shielded cable be used to avoid any induced hum. Use some RCA cables to connect the music source using the RCA jacks.



Connect N.O. (normally open) dry relay contact from KSU or PBX to these pins.
Note : Isolated from the unit's chassis.



Connect Tip & Ring from the 90V ringing source.

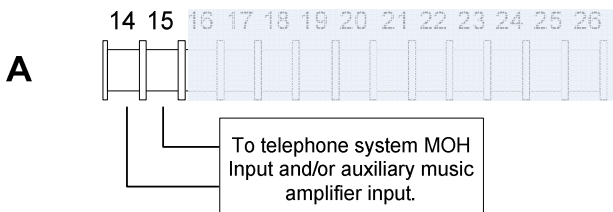
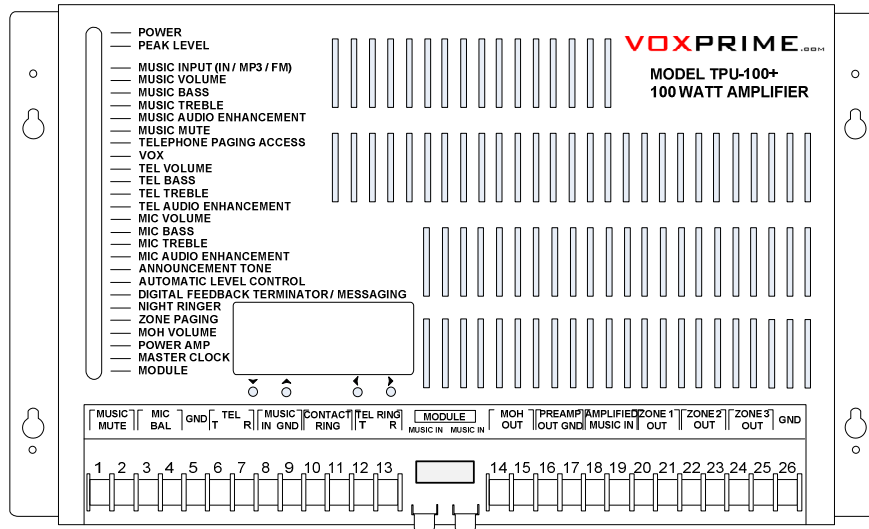


Connect the output of a 70/25V auxiliary background music amplifier to these pins. This is required for multi zone installation in order to provide uninterrupted background music on zones which are not selected during paging.

You can use the Music On Hold (MOH) as the music source.

Output Wiring Connections

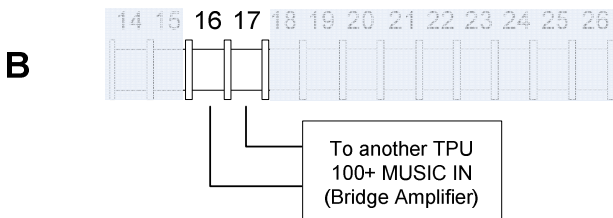
In accordance with your particular system installation and requirements, make the following connections at the terminal blocks.



A) Pins 14&15 – MOH OUT

Connect the telephone system music on hold Input and/or the auxiliary music amplifier input to these pins.

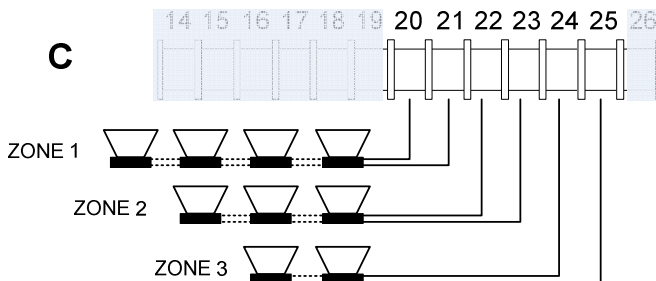
See in the “**Music On Hold**” section below for more details.



B) Pins 16&17 – PREAMP OUT

Connect MUSIC IN (pin 8&9) of another TPU 100+ (or any other 70V/25V amplifier) to these pins in order to increase the total output power of the system.

See in the “**Preamp Output**” section below for more details.



C) Pins 20&21, 22&23, 24&25 – ZONE 1, 2 & 3 OUT

Connect the speaker wiring to these terminals. Follow the guidelines for Class 2 Wiring making sure that the total load does not exceed 100W.



D) Pin 26 – GND

Pin 26 is a ground.

Music On Hold

Music On Hold (MOH) is an adjustable pre-amplified music output that transmits the Background Music (BGM) signal of the VOX-100+. The purpose of this output is to feed the telephone system's music on hold input and/or the auxiliary music amplifier music input.

The Music On Hold (MOH) has an 8-ohm impedance output and its maximum output voltage is 3.3V. The majority of telephone systems have a 600-ohm impedance input for their MOH port. Other telephone systems may have 8-ohms or 10K-ohm input impedance. Since the VOX-100+ MOH output provides an 8-ohm impedance, it can be connected to any telephone system, regardless of the telephone system's input impedance.

A small disadvantage of having an 8-ohm impedance output is that of the MOH cable between the VOX-100+ and the telephone system must be within a distance of about 30 feet (9 meters). Since the MOH's output is unbalanced, it may induce noise on longer cables. However, using a shielded cable such as an RCA cable will ensure a better signal quality when using longer cables. In a typical installation, the telephone paging amplifier is normally located near the telephone system therefore this constraint will not be applicable.

In specific installations where the MOH distance is greater than 30 feet (9 meters), a 600-ohm transformer can be connected to the VOX-100+ MOH's output pins in order to change the impedance. This transformer can be purchased on VOXPRIME's e-commerce.

Preamp Output

The VOX-100+ Preamp Output (Pins 16&17) is the pre-amplified signal before it enters the power amplifier circuit. The audio signal transmitted at the preamp output is the same one as the 70/25V amplified output in Zones 1, 2 and 3. Note that if zone paging is enabled, the preamp output will always transmit the page regardless of the selected paging zone(s).

The Preamp Output has an 8-ohm impedance and has the same characteristics as the Music On Hold (MOH). To use the Preamp Output to feed a Self Amplified System, a 600-ohm transformer must be connected in series. This transformer can be purchased on VOXPRIME's e-commerce.

Master Clock Battery

In order for the Master Clock to retain the date and time during a power outage, an optional battery must be installed in the VOX-100+. The battery is a CR2032 3V coin cell and the socket to install it is accessible by removing the access cover. This battery can be purchased on VOXPRIME's e-commerce.

Configuration

Digital Interface Configuration Menu

Many of the VOX-100+ settings can be adjusted using its digital interface. This interface has an LCD display allowing the operator to verify or change the unit's configuration. The operator can browse through the various configuration menus using the up and down arrows and the configuration values can generally be changed using the left and right arrows.

Each configuration menu is related to a group of menus. The groups of menus are listed on the unit's chassis and each of them has a dedicated LED indicator. When browsing through the different menus using the up and down arrows, the specific group's LED indicator will light up.

The table below describes each configuration menu:

LED Indicator	Menu	Description
Music Input	Music Input Selection	Select the desired music source: Music In / MP3 Player / FM Receiver
	MP3 Playlist Selection	Select available playlists from the MicroSD card, and the USB Drive if connected
	MP3 Music Selection	Select a song from the desired playlist
	MP3 Player Shuffle	Turn shuffle option on/off to randomly select a song within the playlist
	FM Receiver	Select the desired FM channel
Music Volume	Music Volume	Adjust the background music volume
Music Bass	Music Bass	Adjust the background music bass
Music Treble	Music Treble	Adjust the background music treble
Music Audio Enhancement	Music Audio Enhancement	Adjust the background music Audio Enhancement
Music Mute	Music Mute	Adjust volume of background music heard when page is sent/received
Telephone Paging Access	Telephone Input Selection	Select the following: Page Port / Loop Start Trunk / Station Access, depending on your personal system installation
	Number of Rings Before Answering	In Station Access mode, sets the delay before answering a page to immediately answer (set to 0), or to answer after first ring burst (set to 1)
	CPC Detection	In Station Access mode: Enable/Disable the detection of a CPC (Calling Party Control) pulse is issued by certain equipment when the calling party hangs up. CPC is normally sent as an open (0 volts DC), ranging from 250 to 900 milliseconds
	Page Port detection method	In Page Port mode, determine the page detection method by either monitoring the telephone system page port relay contact closure connected to the VOX-100+ Music Mute Contact input, or by sensing the audio signal on the port by using the VOX
	Page Timeout	Set page timeout value. Value range: 1 to 200 seconds or the timeout setting can be disabled
	Send dial tone	Determine if dial tone will be sent to the telephone handset when the VOX-100+ is waiting for a DTMF command
	Microphone Page Override	Determine if the microphone page request will override a page in progress by cancelling it
	Configuration IVR (Interactive Voice Response)	Determine if the telephone access remote configuration IVR can be accessed by pressing the # key. Deactivating it is more secure and can prevent unauthorized personnel remotely accessing the configuration menu
	Access Code	View the 5 digit telephone access code to access the VOX-100+. This page is displayed only when an access code is defined

LED Indicator	Menu	Description
	Configuration Code	View the 5-digit configuration access code to access the configuration IVR menu. This page is displayed only when a configuration code is defined
VOX	VOX Delay	Sets maximum silence period allowed for an active page. Delay can be set from 1-12 seconds or VOX can be disabled
	VOX Sensitivity	Adjust the sensitivity of the VOX threshold of the Tel input
Tel Volume	Tel Volume	Adjust the telephone input volume
Tel Bass	Tel Bass	Adjust the telephone input bass
Tel Treble	Tel Treble	Adjust the telephone input treble
Tel Audio Enhancement	Tel Audio Enhancement	Adjust the telephone input volume Audio Enhancement
Mic Volume	Mic Volume	Adjust the microphone input volume
Mic Bass	Mic Bass	Adjust the microphone input bass
Mic Treble	Mic Treble	Adjust the microphone input treble
Mic Audio Enhancement	Mic Audio Enhancement	Adjust the microphone input Audio Enhancement
Announcement Tone	Output Selection	Select option for how the announcement tone will be heard: Handset, Speakers, Handset & Speakers
	Announcement Volume	Adjust the announcement tone signal level over the speakers
	Tel Selection	Choose the desired announcement tone for a telephone page from the list of tones available on the MicroSD Card
	Mic Selection	Choose the desired announcement tone for a microphone page from the list of tones available on the MicroSD Card
Automatic Level Control	Automatic Level Control	Adjust the level at which the amplifier will begin to limit the voice output signal
Digital Feedback Terminator / Messaging	Digital Feedback Terminator	Activate/Deactivate the Digital Feedback Terminator (DFT)
	Messaging	Activate/Deactivate the messaging system
	Number of plays	When DFT or messaging is enabled, select the number of times that each message plays during the playback sequence. Choose from 1 or 2. If multiple messages are queued, each message will play the selected number of times before the next message is played
	Delay between plays	When DFT or messaging is enabled, adjust the pause time inserted between each message in the playback sequence as well as between any repeat. This delay time can be set from 1-10 seconds
Night Ringer	Night Ringer Volume	Adjust the night ringer volume level signal over the speakers
	Contact Ring Ringtone	Choose the desired ringtone for contact ring (Pins 10 & 11) from the list of tones available on the MicroSD Card
	Contact Ring Cadence	Simulate a telephone ring cadence of 2 seconds ON and 4 seconds OFF when the contact ring signal (Pins 10 & 11) are active
	Tel Ring Ringtone	Choose the desired ringtone for telephone ring (Pins 12 & 13) from the list of tones available on the MicroSD Card
Zone Paging	Zone Paging Activated	Activate / Deactivate the integrated zone paging module
	Telephone paging zones	Select the zone(s) when the telephone page action is performed
	Allow All-Call paging	When the telephone paging zones is set to: "DTMF selection", select permission for all Zone Paging when dialing "0" (All-Call)
	Use amplified music in	Use an amplified music source from an external music amplifier (connected to pins 18 & 19). Required for uninterrupted background music (BGM) in Zone Paging Application. Otherwise, BGM will be muted on all zones during paging
	Zone 1	Configure each individual zone. The configuration options are as follows: - Zone Enabled: Enable/Disable the zone - Background Music: Enable/Disable BGM in the zone - Microphone Page: Enable/Disable microphone page in the zone
	Zone 2	
	Zone 3	

LED Indicator	Menu	Description
		- Zone Group: Include this zone in the selected zone group - Contact Ring: Include Night Ringer activated by Contact Ring in the zone - Tel Ring: Include Night Ringer activated by Tel Ring in the zone
MOH Volume	MOH Volume	Adjust the Music On Hold volume level
Power Amp		Indicates the Power Amp status

VOX

The VOX is a circuit that monitors the audio signal of the telephone port. The sensitivity of the VOX circuit can be adjusted to allow a page to be properly detected based on its signal level instead of being treated as ambient noise. The VOX can be used to detect a page request and also to determine when a page has finished.

For example, when the Telephone Paging Access input selection is set to Page Port and the detection method is VOX, the VOX will be used to trigger and end the page. Another example is when the Telephone Paging Access input selection is set to Station Access, the VOX can be used to determine when a page is over when the specific phone system does not send a CPC signal.

Adjusting the VOX sensitivity threshold of the TEL input can be performed using the following steps:

- 1) Set the VOX sensitivity to 100%.
- 2) Have someone make a page call. You will notice the VOX being triggered by the flashing VOX LED. During the page call decrease the VOX control until the VOX circuitry is not triggered by the background noise but only when the person is speaking.
- 3) If the VOX function has a tendency to drop out, increase the control by an additional 10% and leave it on this setting.

Notes

- 1) The absence of speech for more than 3 seconds (VOX Delay factory preset) will suspend the VOX circuit and will allow the background music to resume since the page has been terminated.
- 2) This adjustment is critical and may require some experimentation.
- 3) The VOX Delay is adjustable (1 position up in the menu). The setting range is from 1-12 seconds.

Automatic Level Control

Setting Procedure

- 1) Disable the AUTOMATIC LEVEL CONTROL by setting it to 0%.
- 2) Send a page and set the TEL VOLUME and / or MIC VOLUME to the desired level while speaking softly and distinctly.
- 3) Then speak loudly and gradually increase the AUTOMATIC LEVEL CONTROL until it reaches a similar loudness to when you are speaking softly.

Announcement Tone

An announcement tone can be used to indicate an incoming page.

The first menu is the Announcement Tone Output Selection. This selects when the Announcement Tone will be played. This menu has the following options:

- **NONE:** No Announcement Tone will be played.
- **Handset:** The announcement tone will be played in the handset only.
- **Speakers:** The announcement tone will be played in the speakers only.
- **Handset & Speakers:** The announcement tone will be played in both outputs.

The second menu is the Announcement Volume. This sets the announcement tone volume. When the operator changes the volume, the announcement tone is played in the speakers so the operator is able to hear the announcement tone at the chosen volume level.

The third menu is the Announcement Tone Tel Selection. This selects the Telephone Paging Announcement Tone. The VOX-100+ comes factory installed with a selection of Announcement Tones. The operator can customize or add additional tones using VOXPRIME Media application.

The final menu is the Announcement Tone Mic Selection. This sets the Microphone Paging Announcement Tone. The operator can also customize this feature using VOXPRIME Media application.

Night Ringer

The Night Ringer generates a ringtone over the speakers. It is activated by a signal from a 90V telephone ring, or from a contact closure supplied by the telephone system's dry contact or by other contact closures such as doorbells and alarms.

The first configuration menu sets the **Night Ringer Volume**. This volume level determines how loud the ring tones will be played in the speakers when the input conditions are met to trigger them. When the operator changes the volume, the selected ringtone is played on the speakers to allow the operator to hear the ringtone at the new volume level.

The second menu is for the "**Contact Ring Ringtone**". The operator can select the desired Ringtone for the Contact Ring input. The VOX-100+ comes factory installed with a small selection of ringtones. When a new selection is made, the selected ringtone is played in the speaker to allow the operator to hear the new selected ringtone.. The operator can customize or add additional ringtones using the VOXPRIME Media application.

The third menu is "**Contact Ring Cadence**". It can be enabled or disabled. This is to simulate a telephone ring cadence which is 2 seconds on and 4 seconds off if the telephone system dry relay contacts is activated for the entire ringing process.

The last menu is **Tel Ring Ringtone**. The operator can select the desired Ringtone for the Tel Ring input.

Zone Paging

The "**Telephone Paging Zones**" menu allows the operator to select which zone or zone group to activate when creating a page for telephone paging access. This menu has the following options:

- DTMF Selection
- All Zones
- Zone 1
- Zone 2
- Zone 3
- Zone Group 1
- Zone Group 2
- Zone Group 3

DTMF Selection lets the operator manually select the desired zone using the telephone keypad. The other option configures the zones that the telephone access will page, but the operator will not be able to select them when making a page.

The "**Use amplified music in**" menu has to be selected when the background music is provided by an auxiliary music amplifier. Its 70V output has to be connected to pins 18&19 of the VOX-100+. The amplified music input is used to provide uninterrupted music in zones that are not selected during a page. If no auxiliary music amplifier is used to provide an amplified music signal, the background music will be muted on all zones during a page.

Zone Configuration

There are configuration menus for each zone and they can all be individually configured. For these menus, the operator must use the left and right navigation arrows to select the check box they wish to change. The up and down arrow keys will change the value of the selected check box.

The first check box either enables or disables the Zone. Note that the **Master Clock** can manage this action based on a pre-determined schedule. This can be useful in many situations. For example, a VOX-100+ installed at a car dealer can automatically be configured to shut down the outside zone at night to prevent disturbing the surrounding neighborhood and to turn it back on in the morning.

The second check box affects the background music only. The **Master Clock** can also manage this action. Using the car dealer example again, it can be convenient for the outside zone to only page and not provide background music.

The third checkbox enables and disables the microphone page feature. When performing a page using a microphone, the page will only provide an output for the zones when this checkbox is enabled.

Checkbox four includes or excludes the zone from the zone groups. When the operator initiates a page and selects a zone group, the zones in this group can be selected or deselected for the page.

The last checkbox enables or disables the contact ring and telephone ring from the zone. For example, if the night ringer were used for a doorbell using the contact ring input, it may be convenient to hear it inside the building only and not outside.

Music On Hold

Music On Hold (MOH) is an adjustable pre-amplified music output that transmits the Background Music (BGM) signal of the VOX-100+. The purpose of this output is to feed the telephone system music on hold input and/or the auxiliary music amplifier music input. The output volume level can be adjusted via the digital interface, so the telephone system's music will be heard at the desired level when on hold. This output does not transmit the pages in progress, the night ringers or any audio announcement.

Operation

LED Indicators

The VOX-100+ has different LEDs to indicate various statuses and conditions. The Power and Peak Level LED indicator is dedicated to the display of status information. All the other LED indicators are used to help navigate the configuration menus.

However, when the operator is not browsing through the various configuration menus, the unit displays the main page (which indicate: "VOX-100+" on the first line). When on the main page, some of these LEDs have an alternative purpose. They also indicate some of the operating conditions of the unit.

The table below lists the different LED indicators and describing their function when indicating a particular operating condition.

LED Indicator	Description
Power	Indicates that the amplifier is powered
Peak Level	Indicates when the speaker output signal level is approaching its maximum level. This indicator should flash intermittently on loud peaks only. If it illuminates steadily then there is some distortion. Decrease the volume control for the appropriate input until the indicator flashes intermittently
Music Mute	Indicates that the background music is muted by the Music Mute feature
Telephone Paging Access	Indicates the connection on the Telephone port
VOX	Indicates the detection of a voice signal on the telephone port
Announcement Tone	Indicates that an Announcement Tone is being played
Digital Feedback Terminator / Messaging	Indicates that a message is being played. When the LED is blinking it indicates that a message is being recorded
Night Ringer	Indicates that a condition on the night ringer is triggering it
Zone Paging	Indicates that a page is in progress
Master Clock	Indicates that the Master Clock is playing an audio announcement

Telephone Access

The operator can access the VOX-100+ via the telephone port by dialing the trunk access number, station access number or via the page port. When the connection with the VOX-100+ is established, the page can start immediately or wait for a touch-tone (DTMF) command, depending on how the VOX-100+ is configured. When one of the following features is enabled, the VOX-100+ will wait for touch-tone command instead of immediately initiating a page:

- Messaging System
- Zone Paging, when then "telephone paging zones" option is selected to: "DTMF Selection"
- Configuration IVR

Telephone Access Code

To restrict the VOX-100+ telephone access from unauthorized access, a 5-digit security access code can be created in the Configuration IVR settings. After an access code has been created, the operator will hear three consecutive tones to indicate the access code should now be entered. The operator must correctly enter the access code to be able to send a page or perform a DTMF command.

If the access code becomes lost, it is possible to retrieve it by consulting the digital Interface of the VOX-100+. The access code will be displayed in a menu at the end of the Telephone Paging Access section. Due to this feature precautions should be taken to restrict physical access to the VOX-100+ to trusted personnel only.

Paging

When a page is triggered, the VOX-100+ will send an announcement tone to the paging zone(s) and/or the telephone headset if that feature is enabled. The operator can then speak and generate his page. To complete the page the operator should hang-up the telephone or press the “#” key. The VOX-100+ will interrupt the page if the selected time limit has been reached or if the VOX has not detected any signal for 3 seconds (factory preset) or as selected in the VOX DELAY configuration menu.

Digital Feedback Terminator

When the Digital Feedback Terminator (DFT) feature is enabled, the operator must first record his page. The page will then be played back once the recording is completed. The message will be queued if other pages are pending.

When a DFT recording starts, an audible beep will be transmitted to notify the operator that the paging message is being recorded. When the operator finishes recording the message they can either dial the “#” key or simply hang up. If the operator wants to cancel the page they can dial “###” within 1 second. If the operator wants to bypass the DFT they can dial “*”. This will initiate a regular page.

Touch Tone Commands

When the VOX-100+ requires the operator to select a command, it will wait for a DTMF command instead of paging immediately when the telephone access is established. If the "Send dial tone" option is enabled, the operator will hear a dial tone signal in the telephone handset to notify them that they must dial a command. When telephone access is established, it goes to the "Main Menu" first.

Main Menu

On the **Main Menu** the operator can select a zone to page, go to the advanced options or go to the Configuration IVR. The following table describes the list of DTMF commands the operator can select in the main menu:

DTMF	Description
1	Paging Zone 1
2	Paging Zone 2
3	Paging Zone 3
0	All-Call paging (If the option is enabled)
*	Advanced Command
#	Configuration IVR (If the option is enabled)

If a zone is invalid or disabled, an error tone will be transmitted and the operator will be allowed to try another option. If the **Zone Paging** is disabled, selecting any digit from 0 to 9 will automatically page in all zones.

Advanced Commands

When the "*" has been dialed for Advanced commands in the Main Menu, it gives the operator a new series of commands for the operator. The following table describes the list of advanced DTMF commands the operator can select:

DTMF	Description	Requirement
1	Paging Zone Group 1	Zone Paging
2	Paging Zone Group 2	Zone Paging
3	Paging Zone Group 3	Zone Paging
4	Page the message "XX"	Messaging
5	Page the message "XX" in Zone(s) "Z" or "ZZ"	Messaging + Zone Paging
6	Stop Playing all queued messages	DFT or Messaging
7	Set External Relay "R" to value: 1=on, 0=off	Expansion Module
8	Reset trigger inputs	Expansion Module

Note: XX = The DTMF message number from 01 to 99.

Z = The DTMF Zone selection (1,2,3), (0=All Zones) and ZZ = Zone Group (*1,*2,*3)

Configuration IVR

When entering the Configuration IVR by hitting the "#" key in the main menu, a confirmation tone will be transmitted to the operator's telephone and an intermittent dial tone will follow. This confirms to the operator that they are now in the configuration IVR. If an error tone is transmitted when the operator dials the "#" key, this means access to the configuration has been disabled in the "Configuration IVR" digital interface menu.

The following table describes the configuration IVR DTMF commands the operator can select:

DTMF	Description
1	Change Zone Configuration option "Z", "O", "E"
2	Enable/Disable the Master Clock "E"
3	Set Master Clock active Schedule "SS"
4	Delete the message "XX"
5	Record the Message "XX"
6	Review the Message "XX"
7	Assign Zone(s) to the Message "XX" in Zone "Z " or "ZZ"
8	Telephone Access Code
9	Configuration Access Code
*	Leave configuration IVR and return to the Main Menu

Note: Z = The DTMF Zone selection (1,2,3), (0=All Zones) and ZZ = Zone Group (*1,*2,*3)

O = Zone option (See the "Zone Options" Table below)

E = Enable or Disable (1=Enable, 0=Disable)

SS = Schedule (01-14), or (99 = Calendar Mode)

XX = The DTMF message number from 01 to 99.

Zone Paging Configuration

The VOX-100+ has the ability to remotely configure the options of each individual Zone via the Telephone Access.

To remotely change a configuration option of a zone:

- The operator must first dial "1" in the DTMF command menu
- The operator must then select a zone option (see the "Zone Options" Table below)
- The operator must then enable or disable the option (1= Enable, 0= Disable)

DTMF	Zone Options
1	Zone Enabled
2	Background Music
3	Microphone Page
4	Zone Group 1
5	Zone Group 2
6	Zone Group 3
7	Contact Ring
8	Tel Ring

Master Clock Configuration

The VOX-100+ also has the ability to remotely configure the Master Clock via Telephone Access.

The Master Clock can be enabled or disabled via a DTMF command. When the Master Clock is enabled it will check the schedules and events configured by the VOXPRIME Media. As a result events will be triggered as set in the schedule. When the Master Clock is disabled it will not trigger any schedule. This configuration can be changed by dialing DTMF command "2" in the configuration IVR menu.

The Master Clock supports up to 14 daily schedules where recurring events can be assigned to a schedule. The active schedule can be changed manually or can be managed using the calendar. To change the active schedule of the Master Clock, dial DTMF command "3" in the configuration IVR menu. Then select the daily schedule or dial "99" to activate calendar mode. The schedule will be selected based on the schedule-calendar configuration found in the VOXPRIME Media.

Messaging System (Automatic Paging System) Configuration

Deleting a message erases the corresponding message on the MicroSD card. A special confirmation tone indicates that the message has been successfully deleted. An error tone means the delete operation failed. The most likely reason for this is that the specified message number does not exist.

Recording a message allows the operator to record a message that can be played back when required. The operator will hear a recording beep tone when the recording starts. The operator can either dial the "#" key when the recording is completed or dial "*" to cancel the recording.

Reviewing a message only allows the operator to listen to a message stored in the messaging system of the operator's telephone handset.

Zones can be assigned for each recorded message. When a new message is recorded, all the zones are assigned to this message by default. However, it is also possible to have pre-determined zone paging for each message in the messaging system.

Access Code Configuration

To restrict the VOX-100+ Telephone access or configuration IVR from unauthorized personnel, a 5-digit security access code can be created for both options. If an access code has been created successfully, the operator will hear 3 consecutive tones to indicate that they should enter the access code. The operator must correctly enter the access code to be able to enter the configuration IVR menu.

To assign a Telephone Access Code or a Configuration Access Code, select the DTMF command 8 or 9 and then enter a 5-digit access code. To remove an access Code, dial the "#" key instead of entering a 5-digit code. Should the operator forget his access code, it is possible to retrieve it by consulting the digital Interface of the VOX-100+. The access code will be displayed in a menu at the end of the Telephone Paging Access section. Due to this feature, precautions should be taken to restrict physical access to the VOX-100+ to trusted personnel only.

Storage Memory

MP3 Player Music Management

The MP3 player analyzes the files and directories in the MicroSD card. If a USB drive is connected into the USB port, it will also analyze the content of the USB drive. When the VOX-100+ is turned on or when a MicroSD or USB Drive is connected/disconnected, the MP3 player rebuilds the playlists.

To construct the playlists, the MP3 Player first scans the root directory of the MicroSD card in search of MP3 files. If one or more MP3 files are found, the MP3 player will automatically create the first playlist called: "MicroSD Root". This playlist will contain all the songs found in the root directory of the MicroSD card. The MP3 player will then search in each first level directory for MP3 songs. For each directory that contains at least one MP3 file, a playlist will be created and the name of the playlist will be the name of the directory containing those MP3 files. Once the MP3 player finishes scanning the MicroSD card, it repeats the same operation for the USB drive. If there is one connected then the new playlist selection will be merged with the one on the MicroSD card. The playlist for the MP3 files is located in the root directory of the USB drive and is called: "USB Root".

If an operator inserts a USB drive into the VOX-100+, it will automatically select the "USB Root" playlist and start playing it. If the operator disconnects a USB drive while the MP3 player is playing a song located on the drive, the MP3 player will select the first playlist on the MicroSD card and start playing it.

The operator can simply copy the files on the MicroSD card and USB drive using a computer but they can also use the VOXPRIME Media Windows application. This application provides a graphical user interface to manage the MP3 playlists. VOXPRIME Media also has options to arrange the song order in the playlist and to adjust the volume for each individual song when the volume of various songs on the playlist is not consistent.

VOXPRIME Directory

All the storage memory required for proper operation of the VOX-100+ is kept on the MicroSD card. On this card, there is a directory called: "VOXPRIME". This directory contains all the necessary files for the VOX-100+ configuration settings. In this directory there is a file called: "SETTINGS.BIN". This file contains the primary settings defined by the operator while using the digital interface. Another file called: "CONFIG.INI" can be utilized if the operator uses the **VOXPRIME Media** to configure more advanced configuration like the **Master Clock**.

The VOXPRIME directory has the following sub-directories:

- ANNOUNCE (Contains the announcement tones audio files)
- CLOCK (Contains the audio files for chimes and messages to be used by the **Master Clock**)
- MSG (Contains the audio files for announcement messages to be used by the **Messaging System**)
- RINGTONE (Contains the audio files for ringtones used by the Night Ringer)

RAW Audio File Format

The VOX-100+ can record and play RAW audio messages that are stored on the MicroSD Card. These files end with the ".RAW" file suffix. This audio format is a "headerless" RAW audio file. Encoding must be known in order to open or create a RAW file compatible with the VOX-100+. There is a free online software program called Audacity that can open, edit and save these audio files, but the following properties must be specified: "Signed 16 bit PCM", "Little-endian", "1 Channel (Mono)" and a sample rate of : "24000". It is easier to use the **VOXPRIME Media** to import the audio files onto the MicroSD card because it will automatically perform the necessary audio conversion.

Technical Support

Should you require technical assistance during installation, please visit voxprime.com/tutorial. You will find installation examples and training videos there.

You can also call our Toll free Technical Support Line on **1-888-633-2666**.

Specifications

Power Output: 100 watt RMS Continuous / 160 watt Paging

Distortion: Less than 1%

Frequency Response: ± 3 dB, 100 \approx 20,000Hz

Sensitivity: TEL: 150mV; MIC: 1mV; MUSIC: 100mV

Inputs: TEL: 600 Ω balanced line, transformer-isolated
MUSIC: 10k Ω unbalanced, Hi-Z source, RCA jacks or screw terminals, Built-In MP3 player (using MicroSD card and USB drive), Built-In FM receiver, Amplified Music In
MIC: Lo-Z balanced, screw terminal connection (dynamic only)
MUSIC MUTE: Mutes music when shorted
CONTACT RING: Triggers night ringer when shorted
TEL RING: Triggers night ringer in response to 90V ring signal

Indicators & Digital Controls: POWER & PEAK LEVEL LED indicators. MUSIC INPUT, MUSIC VOLUME, MUSIC BASS, MUSIC TREBLE, MUSIC AUDIO ENHANCEMENT, MUSIC MUTE, TELEPHONE PAGING ACCESS, VOX, TEL VOLUME, TEL BASS, TEL TREBLE, TEL AUDIO ENHANCEMENT, MIC VOLUME, MIC BASS, MIC TREBLE, MIC AUDIO ENHANCEMENT, ANNOUNCEMENT TONE, AUTOMATIC LEVEL CONTROL, DIGITAL FEEDBACK TERMINATOR / MESSAGING, NIGHT RINGER, ZONE PAGING, MOH VOLUME, POWER AMP, MASTER CLOCK, MODULE indicators & digital controls (tactile switch with 4 X 20 characters LCD screen).

Outputs: ZONE 1, 2, 3 OUT (70/25V RMS), MOH OUT (8 Ohms), PREAMP OUT (8 Ohms)

Overload Protection: Thermal and electronic protection with a 2.5A, 120V \sim slow blow fuse

Power Source: 120V AC, 60Hz

Power Consumption: 176 watts

Finish: Black powder paint with silver and red lettering

Dimensions: 14- $\frac{1}{4}$ " W x 8- $\frac{3}{8}$ " H x 2- $\frac{3}{4}$ " D

Weight: 15 lb (6.80 kg)

5 YEARS Limited Warranty

VOXPRIME warrants its products to be free from defects in materials and craftsmanship when using normally for a period of five (5) years after the delivery to the ultimate user. **VOXPRIME** will repair or replace, free of charge, a product should it, upon examination, be proved defective and under warranty. **VOXPRIME** reserves the right to make the final decision as to whether there is an actual defect in the material and/or craftsmanship, and whether or not the product is under warranty.

This warranty shall not apply to any **VOXPRIME** product that has been subject to misuse, neglect, accident, or used in violation of the instructions included. This warranty shall not apply to any **VOXPRIME** products that have been repaired or altered outside of our factory.

This warranty covers bench repairs only. Any repairs must be made at the shop or place designated in writing by **VOXPRIME**. **VOXPRIME** will not be responsible for any costs incurred involving on-site calls.

All implied warranties, including any implied warranty of merchantability or fitness for any particular purpose, are limited in duration to three years from the date of original purchase. In no event will **VOXPRIME** be responsible for damages resulting from the use of this product.

Class B Digital Device Warnings

Information to owner or installer

This equipment has been tested and found to comply with the limits for Class B Digital Device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates and can radiate radio frequency energy and if not installed and used in accordance with the instructions included, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception - which can be determined by turning the equipment off and on - the operator can attempt remove the interference by employing one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected;
- Consult the dealer or an experienced radio/TV technician for assistance

Any changes or modifications not expressly approved by **VOXPRIME** could void the owner's authority to operate the equipment.