UD-064 600W x 4 High-Efficient Switching Power Amplifier
UD-064D with Dante Input

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UNiKA UD-064 & UD-064D Switching Power Amplifier

Overview:

The UD-064/UD-064D is a high-efficient switching power amplifier with a concise and intuitive digital control interface. The amplifier is designed to achieve its maximum output by paralleling speakers on its outputs. Every output of the amplifier can deliver 600W of power over 4Ω load. Pair of adjacent outputs also supports Bridge Tied Load (BTL) which can drastically extend output capability up to 1.2 kilowatts over an 8Ω load. The amplifier comes with an unprecedented eXtraTone™ mechanism to compensate the speaker for its intrinsic acoustic loss below its bass cutoff. Besides boosting the bass audio on cutoff frequency of the speakers, eXtraTone™ mirrors the audio below the cutoff frequency in a way of harmonic audio over a range of frequency above the cutoff frequency.

Features:

- 300W x 4 in single-ended outputs configuration with 8Ω speaker, or
- 600W x 4 in single-ended outputs configuration with 4Ω speaker, or
- 1200W x2 in bridged outputs configuration with 8Ω speaker, or
- 600W x2 in bridged outputs configuration to drive a bunch of parallelized 70V/100V Hi-Z speakers
- High-efficient switching power supply and Class-D Switching power amplifier
- eXtraTone™ to compensate speaker for loss below its bass cutoff
- A subwoofer dedicated Low Pass Filter (SUB) is automatically introduced on channels configured as bridged output
- SUBMix auto feeds input of subwoofer dedicated SUB LPFilter with a mono mixed from the other pair of channels
- A Low Pass Filter (LPF) is automatically introduced on channels configured as bridged output for 70V/100V Hi-Z speakers
- Up to 157ms individual delay control over each output of the amplifier
- Concise and intuitive digital operating interface to cut learning curve
- All-time PPM meter with clip hold indicator for every output channel
- Cooling fans with digital speed controlled
- Voltage and temperature monitoring and protection
- Automatically compresses output in low operating voltage or high operating temperature
- Volume and all the device configuration are automatically saved upon power-off or power loss
- Auto-switching for AC voltage in range of either 110~127V or 220~240V
- Wide range of tolerance in AC voltage
- Sensitivity of inputs of both Analog and Dante (UD-064D) adjustible in a ranage over 24dB
- Dante network interface in 1Gbps link speed (UD-064D)
- Dante audio sample rate up to 96KHz (UD-064D)
- Dante Domain Manager (DDM) is supported, and
- Dante Director, a cloud-based management platform, is also supported (UD-064D)
- Dante firmware updating from Dante Controller (UD-064D)
- Two RJ-45 ports for Dante network make Daisy-chain cascading feasible (UD-064D)
- slim 1U rack-mount chassis with elegant aluminum faceplate

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Description:

The UD-064/UD-064D is a high-efficient switching power amplifier with a concise and intuitive digital control interface and elegant style of aluminum facet. Despite its high-power driving capability, the amplifier remains incredibly compact of 1U height and lightweight of under ten kilograms due to its adoption of power-efficient and advanced switching technologies in both power supply and signal amplification.
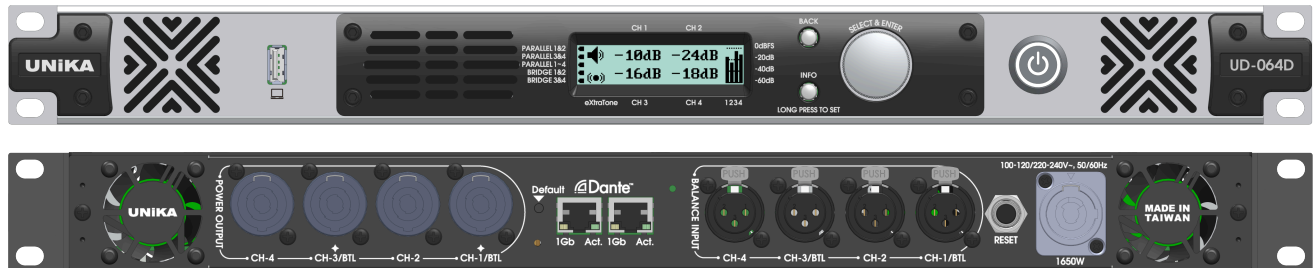
2.4KW Totally in Heavy Load of 4Ω

The UD-064/UD-064D amplifier is by default configured to operate as x4 individual channels (i.e., in x4 single-ended outputs) with 600W of driving capability for each channel with 4Ω speaker. You can even drastically extend the drive capability of the amplifier to the kilowatt range, if you configure a pair of outputs to work in bridge mode to drive an 8Ω speaker.

Furthermore, each pair of the outputs of UD-064/UD-064D amplifier also supports driving parallelized Hi-Z speakers of either 70V or 100V subcategory if the pair of the outputs is configured to operate for BTL.

eXtraTone™ to Compensate Speaker for Bass Loss

The UD-064/UD-064D amplifier comes with an unprecedented eXtraTone™ mechanism to compensate speaker for its intrinsic bass loss by boosting the bass audio on cutoff frequency of the speakers and mirroring the audio below the the cutoff frequency in a way of harmonic audio over a range of frequency above its cutoff frequency. While doing so the amplifier does not need to waste energy by sending power below the cutoff frequency to speakers, the harmonic mirror of audio below the cutoff frequency enforces the audience perceptible feel of the presence of audio below the cutoff frequency.

SUB LPFilter and auto mono mix dedicated for subwoofer (SUBMix)

When a set of bridge outputs is configured in the UD-064/UD-064D amplifier, a LPF (Low Pass Filter) with adjustable cut-off frequency is automatically introduced in the signal path. When you decide to have a subwoofer on the bridged output, the LPF becomes a SUB LPFilter so that you can direct connect your subwoofer to the amplifier without any external SUB LPFilter in between. Evenmore, if only one pair of channels is configured as bridged output, you can enable SUBMix which automatically feeds the SUB LPFilter with a mono mixed from the other channels. That is a way you don't need an extra mixer to generate L+R mix specific for the subwoofer.

Adjustable Delay to Each Output

You have the option to enable a lossless digital delay right in the signal path ahead of the power stage of the UD-064/UD-064D amplifier. There are actually 4 delays for the 4 channel outputs and the delay time of each delay is independently adjustable up to 157ms in step of mini-second. The 157ms of delay time is equal to 54m (or 177ft) in speaker displacement which should be far enough for a small to medium performance venue.

Extended Sensitivity Control for Analog and Dante Inputs Respectively

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Sensitivity control can be independently configured for analog and Dante inputs in the UD-064/UD-064D amplifier. Even more, the control range of both sensitivity are extended to 24dBu which means the analog sensitivity can be adjustable from 0dBu up to 24dBu while the Dante sensitivity can be adjustable from -24dB up to 0dB. The extended range of sensitivity control allows the amplifier to easily align with the other similar devices with a variety of sensitivities.

Concise and Intuitive Digital Control Interface

All the features and functionalities of UD-064/UD-064D amplifier are precisely controlled digitally to avoid over time annoying degradation or deviation introduced by traditional analog treatment. For simplified operation, there are mere two buttons and one encoder for the whole control and monitoring operation. While the control interface is concise, the information from it is far rich. Besides the digital volume control and 32-segment PPM meter with clip hold for each output channel, the digital processor thoroughly provides device information including temperature of each heatsink and transformer, revolution speed of each fan, AC voltage, input parallelized and output bridged settings, and etc.. Of course, all the device configuration, such as input parallelization, output bridging, input selecting, input sensitivity selecting, and etc., are set in a digital way to minimize the chance of hardware failure.

Maintaining Performance According to Operating Voltage and Temperature

The audio outputs of UD-064/UD-064D amplifier are constantly monitored by a digital processor and the processor automatically compresses the audio to avoid audio clip due to low operating voltage or to avoid overheat failure due to high operating temperature.

Low operating internal voltage can be caused by insufficient AC voltage on the field or heavy load on the amplifier outputs. The digital processor compresses the peak portion of audio in a timely manner to avoid clip sound due to the possible output being capped by the low operating voltage. This dramatically improves the audio perceptibility by the audience whereas only a little of loudness on peak volume is sacrificed.

Operating temperature in the amplifier is always a big impact to the performance of the amplifier. The processor in the UD-064/UD-064D amplifier tightly controls the revolution speed of the fans in the chassis to cool down the temperature in every heatsink and power transformer. In extreme case, if the fans with their max revolution speed still can't blow out the heat fast enough, the built-in audio compressor in the amplifier will compress the peak volume of audio to cut down the power dissipation to avoid device failure due to overheat.

Auto-Switch for AC Voltage Selection

At power-on startup, the processor in the UD-064/UD-064D amplifier automatically switches the rectifier circuit in the amplifier according to the range of AC voltage from the outlet. Which means the amplifier can work straightaway in an environment of AC range in either 110~127V or 220~240V without the user having to do any setting of AC select in advance.

Wide range of tolerance in AC voltage

Beside the auto-switch features mentioned above, the tolerance of either AC voltage ranges is so wide that make the UD-064/UD-064D amplifier still survive to operate in an AC voltage under its 80% of nominal voltage. For example, after the amplifier is powered on, it can keep working fine at an AC voltage of 180V when it is supposed to be powered by an AC source of 220~240V, though the maximum output power can be slightly limited because of the insufficient of the supplied voltage.

Auto-Save on Power Loss

After power up, the processor in the UD-064/UD-064D amplifier automatically brings up all the previous settings used in previous run time. The processor can even gradually turn up the output volume from mute to their previous so that, on every power recycle, the user doesn't need to set the volume again while

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avoiding pop noise on power rush simultaneously. The processor can even capture the settings, including volume settings, on the failure caused by an AC shortage.

Dante Digital Audio Input

The UD-064D is also equipped with a x4 channels Dante interface which allows the amplifier to work fully digitally by receiving digital audio from the popular Dante network. We fully integrate the Dante capability to our UD-064D amplifier so that users can also quickly browse all the Dante information, such as Dante Name, Sample Rate, Sync status, IP address, device lock status, DDM enrollment, and etc., on the display of the front panel. The UD-064D can even display the events received from the Dante Network, including events for device identify, clear configuration, reboot, firmware upgrading, and etc.

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Getting Started Guide:

Installation

Although the internal processor of UD-064/UD-064D amplifier can optimize the performance of the amplifier according to the operating environment, too much high operation temperature and intermittent AC source void the guarantee of the performance of the amplifier to meet the specifications.

Powering

The UD-064/UD-064D amplifier can work in a range of AC voltage of either 110~127V or 220~240V. The amplifier detects the range of voltage from the AC outlet and automatically switches the circuit of the internal rectifier to meet the range of AC voltage accordingly when the power switch is pressed. A diffused white LED is integrated into the power switch to indicate its ON/OFF status.

The UD-064/UD-064D amplifier receives AC power via powerCON socket and a power cord with lockable powerCON plug for rugged and safe power connection. A push-to-reset circuit breaker is located next to the powerCON socket for additional overload protection.
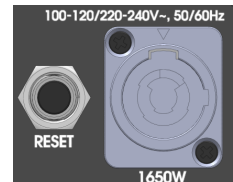
NOTE: The amplifier detects the range of voltage from the AC outlet and switches the internal rectifier circuit accordingly during and only during the moment of power on. **Abruptly switching AC voltage range from one to another on the AC outlet after power-on can permanently injure the amplifier.**

Control & Monitoring Interface

Besides the prominent LCD display on the center of the front panel, there are only two buttons (BACK & INFO/SET) and one ENCODER for users to navigate all the control settings and monitoring status. The concise and intuitive user interface leads to dramatically cutting down the users' learning curve, so that most people probably don't need to read through the whole manual to setup the amplifier for operation.
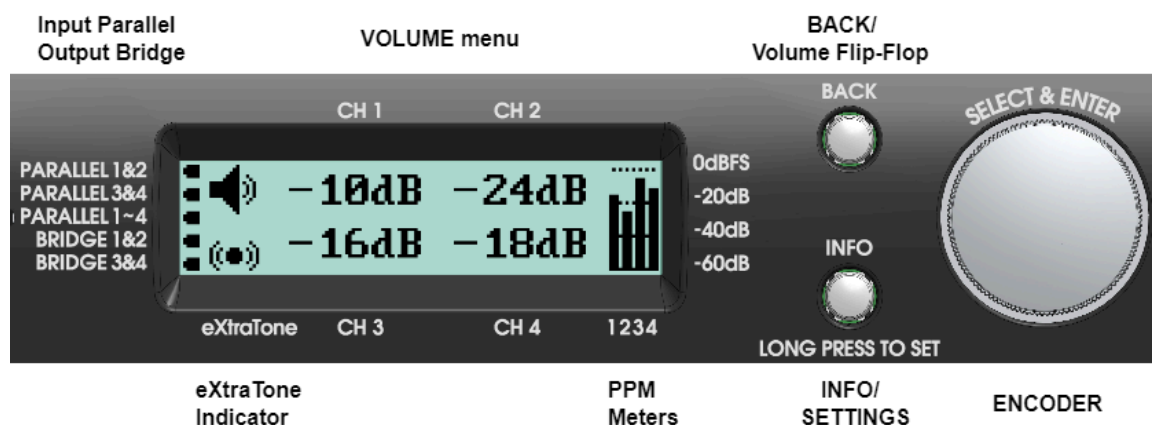
ENCODER There are two operation modes for the ENCODER,

1. browse mode: to browse the content for read only.
2. edit mode: to edit the value of the item being browsed to.

Briefly pressing the ENCODER can switch back and forth between the browse mode and edit mode.

Usually, the ENCODER is in browse mode for users to browse the operating status or device information. If the item being browsed to is editable, the selected item is enclosed by a box. Simply pressing the

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ENCODER will have the ENCODER switch to edit mode. When the ENCODER is in edit mode, a flashing edit bar scores under the selected item appears to remind the user that the item is now editable by rotating the ENCODER again. Rotate the ENCODER to change or edit the value of the selected item to whatever you want, and briefly press the ENCODER again to complete the editing and exit edit mode. Pressing the BACK button when the ENCODER is in edit mode can also bring back the ENCODER to browse mode.

For example, as illustrated on the right, the amplifier always starts up with the VOLUME menu in the middle of the display. When you 1st rotate the ENCODER in the VOLUME menu, you browse to the channel you wish to do the volume tuning. The channel to which you are browsing is indicated by a boxed enclosure. Once you press the ENCODER, the channel to which you are browsing is editable and an underscored edit bar is flashing to indicate the selected item in edit mode. You then can now edit the volume by rotating the ENCODER again. Once you complete your volume tuning, press the ENCODER again (or press BACK button alternatively) to exit edit mode. The edit bar below the selected item vanishes to indicate backing to browse mode.
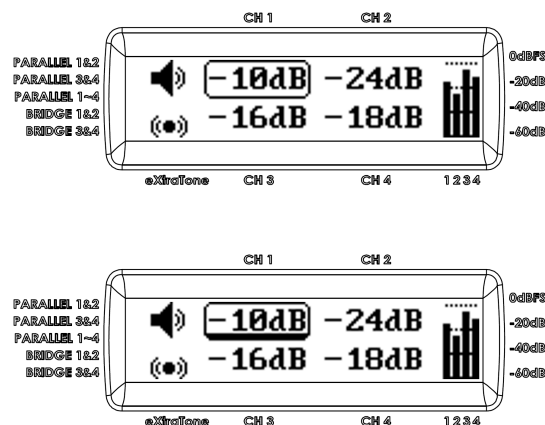
TIP:
- The above operations can be completed in a very swift way. Simply press and hold the ENCODER on the selected item and simultaneously rotate the ENCODER to change the value of the selected item. Release the ENCODER once you O.K. the new change. The ENCODER and the selected item will automatically exit edit mode after you release the ENCODER.
- The increment and decrement step is variable depending on the speed you rotate the encoder. So that you can turn volume up to its maximum or down to its minimum in one shot by rotating the encoder very quickly.

BACK The BACK button, as implied by the name, backs to the previous menu or exits the edit mode or browse mode. You can always simply press the BACK button a couple of times to go back to the startup VOLUME menu once you are lost in the menu navigation. Briefly press the BACK button when ENCODER in EDIT mode makes ENCODER leave the edit mode; While briefly press the BACK button when ENCODER in browse mode make the ENCODER leave the browse mode and save the edited value previously modified in edit mode.

TIP: There is a hidden feature in the BACK button. By long pressing the BACK button for more than one second, you trigger the controller to volume down or up all the channels of the amplifier to MUTE or their maximum depending on the current volumes. If there is a volume of any channel not muted, you long press the BACK button will volume down all channels to mute. If all the volumes of the channels are muted, you long press the BACK button will bring up the volumes of all channels to their maximum. Also, briefly press the BACK button again during the volume change can stop the volume change in the meantime.

INFO/SET There are two functions in the INFO/SET button.

1. Info: Briefly press the button to cycle through the different read-only menu for operating status or device information.
2. Set: Long press the button to the editable SETTINGS menu to set the device configuration.

The INFO/SET button is for displaying device information or setting the device configuration. Briefly press the INFO/SET button cycles through the status and information categorized as device info (INFO), Dante (DANTE), temperature (TEMP), and fan speed (FAN). Each category may contain many items of status/information which can be browsed by rotating the ENCODER. You can also use the ENCODER to

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browse across the category boundary back and forth for quick navigation. Browsing to the end of items or pressing the BACK button will intermediately return back to the startup VOLUME menu.

Long pressing the INFO/SET button for more than one second will bring up the device SETTINGS menu. You can then browse the settings items by rotating the ENCODER, edit the selected item by pressing the ENCODER, and complete the setting by pressing ENCODER again or by pressing BACK button.

TIP: Similarly to volume editing, you can also swiftly edit the selected setting item by pressing and holding ENCODER and simultaneously rotating the ENCODER until you feel O.K. to complete the setting by releasing the ENCODER.

LCD Display The LCD display in the middle of the front panel shows the amplifier operating status and device information. The initial menu shown up after power startup is the VOLUME menu. You can cycle through to other menus by briefly pressing the INFO/SET button or go to SETTINGS menu by long pressing the INFO/SET button.

Four PPM meters on the right and five parallelized/bridged indicators on the left are permanently shown up on the display, no matter what menu is cycled through in the middle on the display. The PPM meters show the output audio level for each channel of the amplifier. The 0dBFS is aligned to the amplifier maximum output which means you should never drive the input level, combined with the volume control and eXtraTone™ bass boost, over the threshold of 0dBFS. Otherwise, you hear an audible clip noise on the output of the amplifier. There are clip hold indicators on the top of each PPM meter to bring up your attention if the amplifier is overdriven. The 32 segments of each PPM is scaled from 0dBFS down to -60dB with each little segment representing a 2dB difference in signal strength.
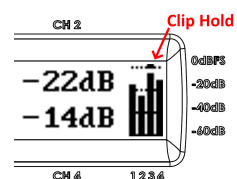
NOTE:
- The analog input sensitivity to drive the amplifier to its 0dBFS maximum output is configurable in the SETTINGS menu. You can cycle through 0dBu(0.775V), 1V, and 1.4V for sensitivity setting while the factory default is set to 1.4V.
- The output of the amplifier can also be clipped when the railed DC voltage from the power supply is insufficient due to lower AC voltage or heavy loading on output of the amplifier. When it happens at the first time, the backlight of the display also flashes to bring up your attention.

Operation Menu on Display

There are totally 6 operation menus: VOLUME, INFO, DANTE, TEMP, FAN, and SETTINGS.

The UD-064/UD-064D amplifier starts up by default by showing the VOLUME menu in the middle of the display. Briefly pressing the INFO/SET button will cycle through to the additional operation menus, in the order of INFO, DANTE, TEMP, FAN, and back to VOLUME. Long pressing the INFO/SET button will specially bring up the SETTINGS menu for device configuration. The details of these menus are described below,

- **VOLUME menu:** A speaker icon is stayed on the upper left of the display when the content of the VOLUME menu is being browsed. The VOLUME menu is where you can tune the channel volume individually. Rotate the encoder to browse to different channels you wish to tune its volume, and press the ENCODER for tuning the volume of the selected channel.
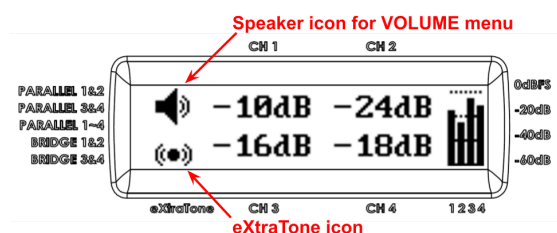
   The VOLUME menu is the default menu when the amplifier starts up. You can always press the

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BACK button a couple of times to return back to the VOLUME menu when you are lost in menu navigation.

NOTE:

- The speaker icon on the upper left of the display will be replaced with a Dante icon if you configure the amplifier to source input from the Dante audio network. Dante audio input will be described later in the manual.
- The position of CH2 (or CH4) can be instead displayed the cut-off frequency of the SUB/LPF filter to CH1 (or CH3) input audio if there is a set of bridged output configured. The SUB/LPF filter will be addressed later in the manual.
- When you forward browse and roll over the last channel in the VOLUME menu, you are browsing to the eXtraTone™ setting items which will be particularly described later in the manual.
- If you enable the delay in the SETTINGS menu and backward browse and roll over the 1st channel in the VOLUME menu, you are browsing to the DELAY menu where you can trim time delay of every output individually. The speaker icon on the upper left will be replaced with a time clock when you browse to the DELAY menu.

Clock icon for DELAY menu

- As mentioned previously, you can mute all the channels by long pressing the BACK button for more than one second. If all of the channels are already muted, you, on the contrary, volume up all channels to their maximum by long pressing the BACK button.

- **INFO menu:** An information icon is stayed on the upper left of the display when the content of INFO menu is being browsed. The INFO menu is where you can browse through the device operating information of the amplifier, including,
  - MDL: Model Number of the device
  - UID: Unique ID assigned to the device
  - SW: Firmware Version in the device
  - CMPRS: Compressing level on Output
  - ACin: AC Voltage (roughly estimated)

*Information icon for INFO menu*
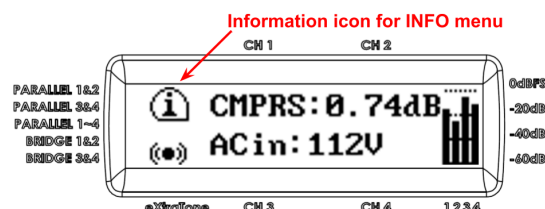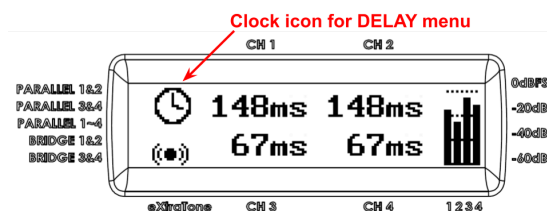
NOTE:

- A built-in compressor for output is automatically engaged due to high operating temperature or low operating voltage.
- Long time operating the device in high temperature can cause the device to cease operation due to part failure. The compressor will dynamically compress the audio in the portion of high level when the temperature of any of the monitoring spots in the amplifier is over about 88°C in order to reduce the power dissipation and cut heat generation.
- Low AC voltage can cause audible clips due to insufficiency of rectified and filtered voltage to drive the output to its nominal maximum. The compressor also compresses the output audio in the portion of high level to avoid the audible clip noise when a low operating voltage is detected.
- The CMPRS item shows how many dB of output level is compressed due to high operating temperature or low operating voltage.
- The operating temperature in many of the monitoring spots in the amplifier can be found on the TEMP menu described later.
- The estimated AC voltage from the AC outlet is shown on the item next to CMPRS. Although the reading follows the AC voltage from the AC outlet, there is about a four seconds delay from the real voltage from the AC outlet. Also, please be informed that the heavy loading on the output of the amplifier can pull down the operating voltage and reflect as a lower reading of AC Voltage on the INFO menu. Therefore, the AC voltage reading in the INFO menu is only meaningful when the amplifier does not heavily drive the loads on

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its outputs. The AC voltage reading is just for quick reference and is not supposed to replace the meter that you use to measure AC voltage on a daily basis.

- **DANTE menu:** UD-064D comes with a Dante interface built-in. A Dante icon is stayed on the upper left of the display when the content of the DANTE menu is being browsed. The DANTE menu is where you can browse through the Dante related information in the amplifier, including,
  - Dante Name
  - Dante Sample Rate
  - Dante Clock Sync Status
  - Ethernet Link Speed
  - IP address assigned to the device
  - Whether the device is locked by Dante Controller
  - The DDM manager to which the device is enrolled
  - Whether the device is connected to a Dante Domain
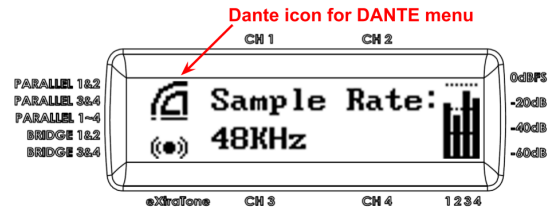
NOTE:
  - All the Dante related settings are configured by Dante Controller software. And the Dante interface of UD-064D can be locked with password protect via the Dante Controller software.
  - The Dante interface of UD-064D can also be enrolled in a DDM domain and be managed. In the circumstance, the configuration of the Dante interface can't not be changed without the allowance or the password of the DDM manager.
  - Also, you should make sure that the setting of the Dante sample rate of your UD-064D to align with the sample rate of your whole Dante network. Basically, **all the devices in the same Dante network should be synced to the same sample rate.**

- **TEMP menu:** A thermometer icon is stayed on the upper left of the display when the content of the TEMP menu is being browsed. The TEMP menu is where you can find the operating temperature of all the monitored spots in the amplifier, including
  - Temperature of Heatsink for amplifier of channel 1 and channel 2
  - Temperature of Heatsink for amplifier of channel 3 and channel 4
  - Temperature of Heatsink for power supply
  - Temperature of Transformer for power supply
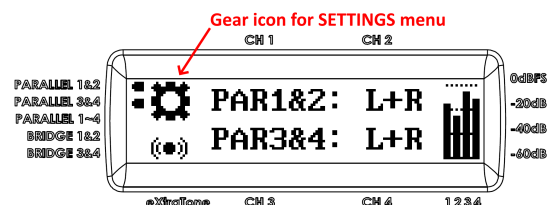 - Temperature of Digital Processor
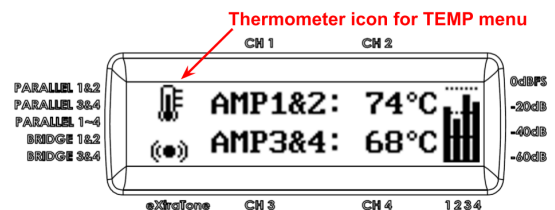
The unit of temperature can be changed between °C and °F from TEMP setting item in the SETTINGS menu.

- **FAN menu:** A fan icon is stayed on the upper left of the display when the content of the FAN menu is being browsed. The FAN menu is where you can read the revolution speed of cooling fans in the amplifier, including,
  - Speed of Fan on rear left
  - Speed of Fan on rear right
  - Speed of Fan for power transformer
  - Speed of Fan on front right
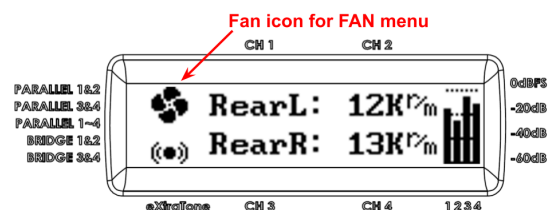
- **SETTINGS menu:** A gear icon is stayed on the upper left of the display when the content of the SETTINGS menu is being browsed. The SETTINGS menu is where you can configure the operating parameters to the amplifier. The details of each setting item are described in the following section for device configuration.

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Device Configuration:

Long pressing the INFO/SET button more than one second will bring up the SETTINGS menu. You can browse the content SETTINGS menu by rotating the ENCODER. Once you find the item you wish to change the value of it, switch the ENCODER to edit mode by pressing the ENCODER on the selected item. You will see a flashing edit bar under the selected item to indicate that the item is now editable. You can then rotate the ENCODER again to change the value of the selected item to whatever you need. Once you feel O.K. for the change to the item, simply press the ENCODER again or press the BACK button to leave the edit mode.

TIP: The above operations can be completed in a very swift way. Simply press and hold the ENCODER on the selected item and simultaneously rotate the ENCODER to change the value of the selected item. Release the ENCODER once you O.K. the new change. The ENCODER and the selected item will automatically exit edit mode after you release the ENCODER.

Here is the list of items in the SETTINGS menu,

- **PAR1&2:** Input1 and Input2 are parallelized and fed with the signal from input1 (IN L), input2 (IN R), or a half and half mix of them (L+R). The outputs of both channels are still able to be controlled by their Volume controls respectively.

- **PAR3&4:** Input3 and Input4 are parallelized and fed with the signal from input3 (IN L), input4 (IN R), or a half and half mix of them (L+R). The outputs of both channels are still able to be controlled by their Volume controls respectively.

- **PAR1~4:** Input1, Input2, Input3, and Input4 are all parallelized, and all channels are fed by Input1. Input2, Input3, and Input4 are all disconnected internally to avoid unconscious noise coupling.
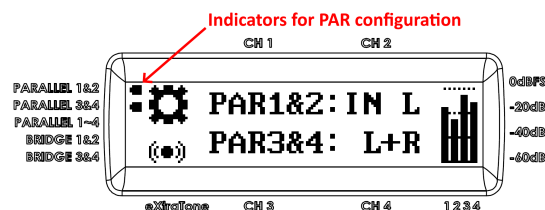
  NOTE:
  - There are three options for the input of **PAR1&2** or **PAR3&4**,
    - IN L: both channels are driven by the left signal which would be Input1 in case of **PAR1&2** or Input3 in case of **PAR3&4**.
    - IN R: both channels are driven by the right signal which would be Input2 in case of **PAR1&2** or Input4 in case of **PAR3&4**.
    - L+R: both channels are driven by a half and half mix of left and right signals.
  - Three small indicators on the left of the display show up to remind users how inputs are parallelized.
  - Turning on PAR1~4 will forcibly disable PAR1&2 and PAR3&4 automatically.
  - PAR1~4 can turn on along with BTL1&2 and BTL3&4. In this circumstance, however, both bridged BTL outputs are sourced from Input1 only.

- **BTL1&2:** Output1 and Output2 are bridged to drive a BTL load. In this circumstance, the Output2 is driven by the inverted audio from Input1. Since both Output1 and Output2 are routed to speakON1 socket, users can get bridged output from 1+ and 2+ contacts of the socket. Input2 is disconnected internally to avoid unconscious noise coupling.
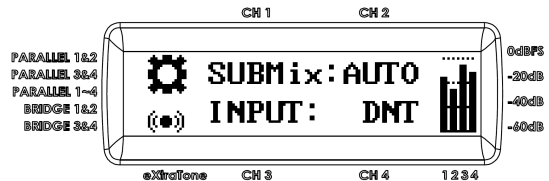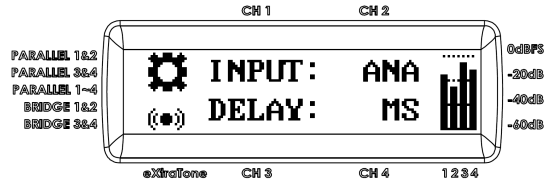

- **BTL3&4:** Output3 and Output4 are bridged to drive a BTL load. In this circumstance, the Output4 is driven by the inverted audio from Input3. Since both Output3 and Output4 are routed to speakON3 socket, users can get bridged output from 1+ and 2+ contacts of the socket. Input4 is disconnected internally to avoid unconscious noise coupling.
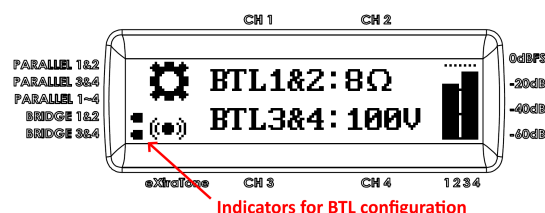
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NOTE:

- There are 3 configuration options to the BTL output,
  - 8Ω: The load on the bridged output is supposedly to be an 8Ω speaker. Please be informed that **the 4Ω speaker is not supported by the bridged output of the amplifier.** A SUB LPFilter is automatically introduced in the signal path for you to direct connect a subwoofer to the bridged output.
  - 100V: The load on the bridged output is supposedly to be a bunch of parallelized 100V Hi-Z speakers. A limiter is automatically applied to the bridged output to avoid the swing voltage over 100V. A LPFilter is automatically introduced in the signal path for you to limit the frequency response of output sent to the Hi-Z speakers.
  - 70V: The load on the bridged output is supposedly to be a bunch of parallelized 70V Hi-Z speakers. A limiter is automatically applied to the bridged output to avoid the swing voltage over 70V. A LPFilter is automatically introduced in the signal path for you to limit the frequency response of output sent to the Hi-Z speakers.
- Switching BTL options between 8Ω and Hi-Z will reset the introduced LPFilter of new engagement.
- Two small indicators on the left of the display show up to remind the user how outputs are bridged; while the user can also tell the bridge configuration from the combined bars of PPM meters on the right of the display.
- Please be informed that BTL1&2 and PAR1&2 are not exclusive to each other which means it is possible to mix up sources from channel 1 and 2 and drive their outputs in bridged.
- Similarly, BTL3&4 and PAR3&4 are also not exclusive to each other.
- BTL stands for Bridge Tied Load.

- **SUBMix:** Set it to AUTO will automatically feed the input of SUB LPFilter with the mix of the audio from the other channels instead, when the introduced SUB LPFilter is enabled. For example, if BTL3&4 is enabled while SUBMix is set to AUTO, the mix of audio from Input1 and Input2 will replace the Input3 source and feed into the input of the SUB LPFilter

which is introduced due to the enabling of BTL3&4. The SUBMix won't be enabled if the SUB LPFilter is not enabled. The usage of SUB LPFilter and SUBMix function will be described later in the manual.

- **INPUT:** UD-064D comes with a Dante interface installed. This is where you can switch to receive audio from the Dante network.
  - ANA: default analog audio inputs from XLR sockets are selected.
  - DNT: Dante network audio from RJ-45 ports is selected as input.
  Please be informed that changing the source of input will reset all the volume to MUTE to prevent unconsciously overloading the amplifier due to overdriven input signal.

- **DELAY:** To enable the delay in the signal path ahead of the power stage of the amplifier, set it to any of the following values other then OFF,
  - MS: delay will be displayed in milli-second as unit.
  - MTR: delay will be displayed in meter as unit.
  - FOOT: delay will be displayed in foot as unit.
  - OFF: delay is OFF from the signal path.

The delay time can be adjusted from the DELAY menu which can be shown by backward browsing over the 1st channel in the VOLUME menu. Switching the delay to OFF will hide the DELAY menu from operation.

- **TEMP:** This is where you can switch between °C and °F as unit of temperature displayed in the TEMP menu.

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- **FAN:** This is where you can switch between r/m (Revolutions per Minute) and r/s (Revolutions per Second) as unit of fan speed displayed in the FAN menu. For the sake of simplification, the setting can be permanently set to RPM and hidden from users.
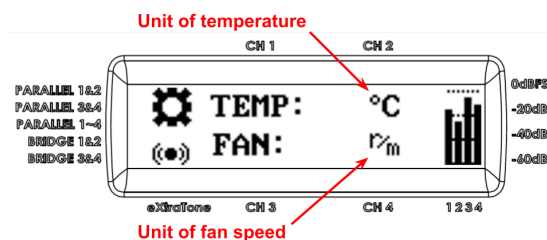
- **FAN_HI:** This makes the fan run at a higher speed to aggressively cool down the amplifier if the internal operating temperature of the amplifier suddenly raises.
  By default the setting item is disabled to make the amplifier operate quietly. The default setting should be good for most circumstance unless you plan to put the amplifier to work in an environment with temperature of more than 40°C (or 104°F).

- **PROTEC (Protection):** A built-in compressor will by default automatically compress the output in low operating voltage or high temperature. You have the option to disable the compressor for whatever reason, though doing so can more likely lead to audible clip noise due to low operating voltage or amplifier shutdown due to over temperature.

  NOTE: In some markets, the compressor may be forcibly set to engage automatically to prevent the amplifier from inadvertently running into shutdown or causing any permanent damage in the amplifier.

- **SENSITIVITY:** This is where you can set the input sensitivity to drive the amplifier to its 0dBFS maximum.
  - **ANA:** You can cycle through 0.775V (0dBu), 1V, and 1.4V for analog sensitivity while factory default is set to 1.4V. The amplifier also has extended sensitivity selection which allows you even set the sensitivity up to 24dBu in step of 6dB.
  - **DNT:** Dante sensitivity is still widely selectable from -24dB ~ 0dB in step of 6dB.
    Factory default is set to 0dB so that is maximum of Dante input is aligned with the maximum output of the amplifier.

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## Auto-Save and Reset Device Settings/Configuration

Auto-Save: All the items of settings or configuration, including the items for volume and eXtraTone™, you change in edit mode are saved automatically when you press the BACK button to leave the browse mode. When the processor is saving one or more items in the background, the background light of the display flashes once to bring your attention to the saving activity. You don't need to press the BACK button every time you edit an item because the processor will auto-save everything unsaved every time you press the POWER button to switch off the amplifier. An unexpected interruption of AC power will also trigger an auto-save activity so that you won't lose any modified setting or configuration.

Reset: For whatever reason, you may want to reset the settings of your UD-064/UD-064D amplifier back to its factory default. To do so, press and hold the BACK button when you press the POWER button to start up the amplifier. Once you see a message of "Device Reset to Default" with a wrench icon on the upper left of the display, the amplifier has reset to its factory default. You can then release the BACK button and the amplifier is ready for further operation.

Please be informed that the above reset operation does not affect the configuration of the Dante interface in the UD-064D. To bring the configuration of the Dante interface to its factory default, you must either,

- have your device connect to a computer running Dante Controller software and trigger a reset by pressing the "Clear Config" button on the tab of device config in the device view window for your UD-064D. You need to re-power your UD-064D for the default settings to take effect after you see a message about "Dante Reset to Default" on the display of your UD-064D. Please be informed that you can't reset Dante configuration via Dante Controller if the Dante interface is previously locked. You must click the "unlock" button on the UD-064D device view window of the Dante Controller to unlock the Dante interface before you can reset its configuration.
- press and hold the DEFAULT button next to RJ-45 ports on the rear panel of your UD-064D when you press the POWER button to start up your UD-064D. After more than 5 seconds you press the POWER button, you can release the DEFAULT button and re-power your UD-064D for the default settings to take effect.

Furthermore, if the Dante interface of your UD-064D is previously enrolled in a DDM managed domain, all the setting operations, including resetting to factory default, can only be achieved via Dante Controller with DDM password. If you forgot to un-enroll the Dante interface of your UD-064D before it disconnected from the managed environment, the Dante interface of your UD-064D is not going to work in any other managed or unmanaged environment anymore. To reset the Dante interface of your UD-064D from the previous managed enrollment, you need to clear the domain credentials in the Dante interface of your UD-064D. Solely (i.e., no other Dante device involved) connect the Dante interface of your UD-064D to your computer with Dante Controller running, and click the "clear Domain credentials" under the device drop down menu on device view window to your UD-064D.
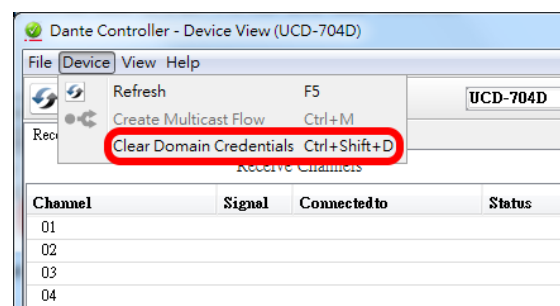
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Error & Service Message

Although it is scarcely, you may see some kind of messages with a wrench icon on the upper left of the display. This is something about the operating event which need to be brought up to your attention, such as follows,

Wrench icon for Error/Service Message
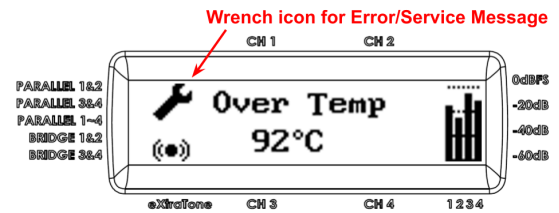
- Over Temp: It means the amplifier is now working at over temperature. This message comes out with a number showing the current operating temperature. A message of Over Temp may immediately trigger a shutdown of DC power supply to the amplifier which will consequently mute the audio on the outputs of the amplifier. When it happens, the amplifier is not able to go back to work again and a message about "requiring a re-power on" will also pop up on the display. Once you re-power the amplifier, you may also have to wait for the amplifier to cool down below 80℃ to let the amplifier get ready to work again.

- AC Shortage: It means an AC shortage is detected. This message comes out with a number showing the current AC voltage. When it happens, all the four internal output amplifiers will be disabled so that all the outputs are muted. Of course, the processor in the device may enable the internal amplifiers to go back to work after the AC source steadily comes back. Please be informed, although the output is immediately muted when AC Shortage is detected, the volume meter remains the last state before mute.

- Check ACVolt: It means an abnormal AC voltage is detected. This message comes out with a number showing the current AC Voltage. For example, if an AC voltage far above 127V but far below 220 is detected, the error message will pop up to bring it to your attention.

- Checking ACV: It means the processor is checking the range of AC voltage. This message comes out with a number showing the current AC Voltage. The message usually comes out briefly at the very beginning when you press the POWER switch for the processor to determine how to switch the rectifier circuit to meet the voltage fed from the AC socket.

- AC Over Volt.: It means an AC over voltage is detected. This message comes out with a number showing the current AC Voltage. Although it won't have an immediate impact on the amplifier operation, keeping the amplifier running at an excessively high AC voltage will shorten the life of the amplifier.

- Overloaded: It means one or more of outputs is overloaded, which can further cause even severe output failure such as a DC voltage appearing on outputs. All the four internal output amplifiers are immediately disabled to prevent further possible damage on the speakers connected. Since it belongs to a fatal event, the power supply in the device will be also forcibly died out and won't startup again without a re-powering. If the message appears again after the amplifier is re-powered on, you may have to contact the factory for repair service. Please be informed that a huge clipped audio may also cause "Overloaded" due to the fact that the clipped portion of audio is actually DC. Therefore, please don't overdrive the amplifier to make any of its outputs clipped. Moreover, although the output is immediately muted, the volume meter remains the last state before mute, which lets the audio technician know the volume when overload occurs.

- Fan Stuck: It means any one of the fans in the amplifier gets stuck for whatever reason. This message comes out with a number showing the fan speed of the affected fan. The error won't have a direct impact on the operation of the amplifier initially, but can lead to a failure caused by over temperature in the long term.

- Device Reset to Default: It reminds you that you have reset the amplifier to its factory default. As it was mentioned previously, users can reset the amplifier to its factory default by pressing and holding the BACK button while powering on the amplifier.

- Dante Reset to Default: It means that someone has reset the Dante interface of the amplifier to its factory default from Dante Controller software. The reset won't affect the current session of operation. You need to re-powered the amplifier for the default settings to take effect on next run time.

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- Dante is Rebooting: It means that someone has triggered a reboot to the Dante interface of the amplifier from Dante Controller software.

- Dante was Rebooted: It means that the Dante interface has completed its reboot process. You may sometimes need to re-power the amplifier for the processor in the amplifier to regain control of the Dante interface.

- Dante in Upgrading: Dante interface is in a process of software upgrading. Please wait for the upgrade to complete and then re-power the amplifier.

- Upgrade Done: The Dante interface of the amplifier has just completed a process of firmware upgrade. Please re-power the amplifier.

- Dante not OK: It means that Dante interface is not ready for operation. This can happen if you re-powered on the amplifier immediately right after it was powered off. You may have to turn off the amplifier again and wait for a couple of seconds to re-power it to let the Dante interface get a complete recycle restart.

Most of the time, you can simply press the BACK button to ignore the error/service message even if the power supply of the amplifier has been shut down for protection. However, a similar error/service message may pop up again if an even worse condition occurs. For example, a message of a fan stuck at 1.2KRPM may pop up after you ignored a message of a fan stuck at 1.5KRPM.

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eXtraTone™ to Boost the Bass Performance of Speakers

eXtraTone™ is an unprecedented digital algorithm to boost and compensate speaker for loss below its bass cutoff.

Most speakers have their -6dB or -10dB bass cutoff frequency around 70Hz or so. Audio technicians may try to extend acoustic response below the cutoff frequency by sending more power below the cutoff frequency to speakers. However, sending more power below the cutoff frequency to speakers actually just wastes energy over the speakers but does no benefit on audible bass perception to the audience.

eXtraTone™, on the contrary, cuts down the power of audio below the cutoff frequency to the speakers. Besides boosting the audio on the cutoff frequency of the speakers, the eXtraTone™ mirrors the audio below the cutoff frequency up to the range of frequency above the cutoff frequency in a way of harmony. Though the audio below the cutoff frequency is cutting down, the audience can actually perceive the presence of bass through the harmonic audio over a range of frequency above the cutoff frequency.

When eXtraTone™ is enabled, an indicator is shown up on the bottom left of the display to remind users of its engagement. Users browse to eXtraTone™ setting items by rotating the ENCODER over the last item of channels in the VOLUME menu. The setting items include,
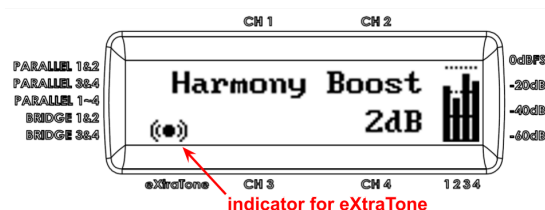
- Base Frequency: We recommend you to set this to the -6dB or -10dB cutoff frequency of your speakers. The eXtraTone™ provides a significant bass boost over the audio on the base frequency. Default is 63Hz.

- Base Boost: Here you can set the intensity of bass boost on the base frequency set above. The eXtraTone™ can boost a great amount of bass over the base frequency. Default is +2dB.

- Harmony Boost: Here you can set the intensity of the harmonic mirror of audio below the base frequency to pile up over the range of frequency above the base frequency. Default is +2dB.

- eXtraTone™ On/Off: You have the option to turn off the eXtraTone™ feature. When it is turned off, all the above three items are hidden in item browsing in the VOLUME menu.

NOTE: The strength of Base Boost and Harmony Boost is actually dynamically controlled by the processor in the amplifier. For example, a setting of +2dB Base Boost may actually boost audio in base frequency up to 6dB if the input level is -30dB from its 0dBFS; while hardly more than 1dB if the input level almost reaches its 0dBFS. The mechanism prevents the amplifier from overdrive, while it also makes sense that the weak audio always requires more bass boost in the real world.

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SUB LPFilter and SUBMix Function for Subwoofer

Subwoofer is always power hungry, therefore, you may have to reserve more power for the subwoofer by connecting the subwoofer to a bridged output due to the fact that the bridged output usually can deliver power double or more than double to a regular single-ended output. Here are a couple of illustrations for the deployment with subwoofers.
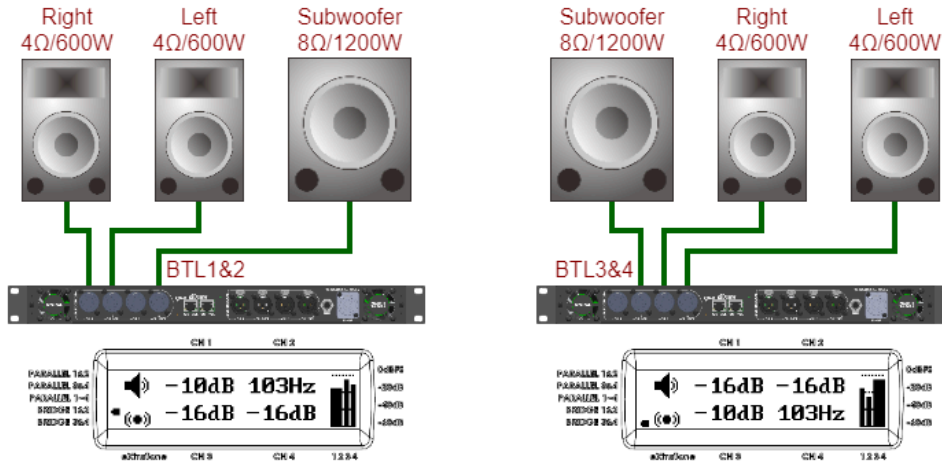
When you setup a couple of outputs of the amplifier for a set of Bridge Tied Load (BTL), a 2nd-order LPFilter (Low Pass Filter, -40dB/dec) is automatically introduced in the signal path. Below is a block diagram illustrating the LPFilter in the signal path.
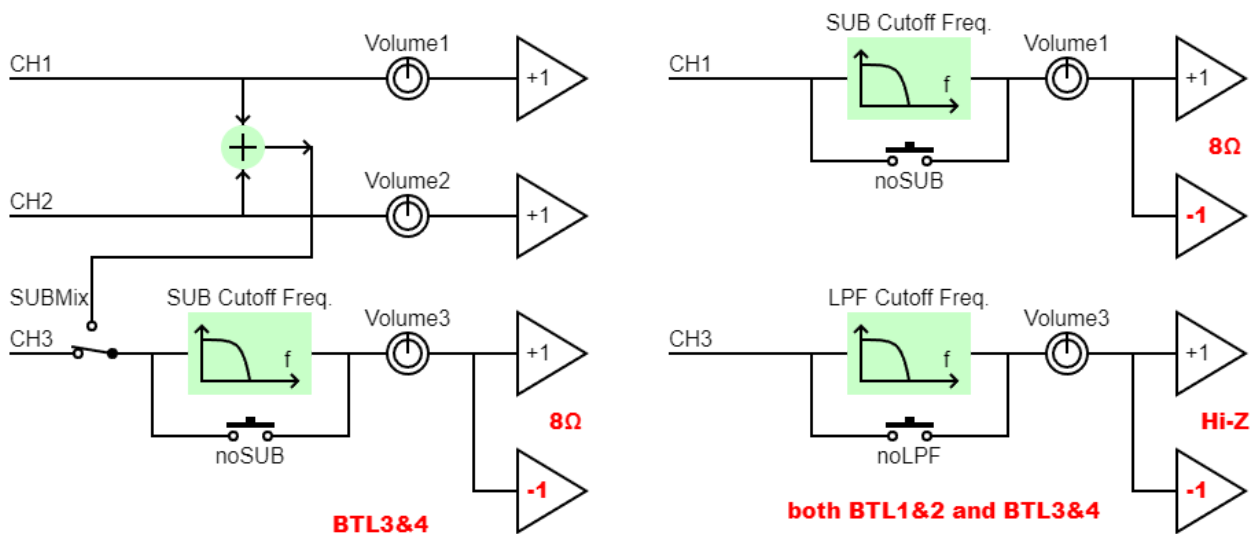
The LPFilter cuts mid- and high-frequency components of audio from the bridged outputs which allows you to direct connect a subwoofer or a bunch of parallelized Hi-Z speakers to the outputs of the amplifier without any speaker management processor in front of the amplifier.

- If the bridged outputs are configured for a 8Ω speaker, the LPFilter become and SUB LPFilter which adjustable cut-off frequency is ranged in 20~250Hz, whereas
- if the bridged outputs are configured for a bunch of parallelized speakers, the adjustable cut-off frequency of the LPFilter is ranged in 5~18KHz.

Please see an illustration on the right. The cutoff frequency of the LPFilter can be adjusted on the item next to volume setting for the BTL introducing it. You can disable or bypass the LPFilter by rolling the setting of the cutoff frequency over its maximum (250Hz or 18KHz), from where you can find that the reading of cutoff frequency setting turns "noSUB" or "noLPF" instead of "xxxHz".

In a simple or compact system where no audio console to mix out a dedicated mono for subwoofer, you can enable the built-in SUBMix function in UD-064/UD-064D amplifier to automatically generate a mono

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mixed from the other channels and have the mono mix to feed to the input of SUB LPFilter. Please look into the above block diagram for understanding how SUBMix is positioned in the signal path. For example, if you have Left on CH1 and Right on CH2, by enabling SUBMix as well as BTL3&4, you can have a mono mix of CH1 & CH2 to feed the input of SUB LPFilter when the SUB LPFilter is enabled. By doing so, you actually get a SUB-filtered output mixed from Left and Right audio without an audio console involved.

BTL1&2 is enabled but the associated SUB is disabled

BTL3&4 is enabled and the cutoff freq. of the associated SUB is set to 123Hz
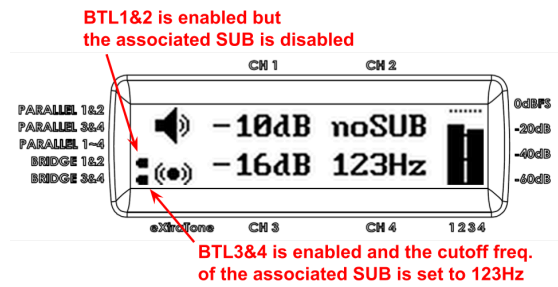
NOTE:

- The above block diagrams do not show the preceding gain controls on each respective analog pre-amplifier.
- The control range of gain of each preceding gain control is about -16dB ~ +8dB. The operation of the gain control is linked and integrated into the volume control of its corresponded channel and is transparent to the users' operation. However, users do observe the initial volume change on the input of SUB LPFilter when users adjust the volume of the corresponded channels from where SUBMix sources in the range from 0dB down to -19 ~ -24dB (depending on the setting of analog sensitivity).
- When inputs are sourced from Dante network audio, the whole analog pre-amplifier is excluded from the signal path, so the above block diagram is already completely depicted and, for the above example, changing the volume1/volume2 won't affect the input level of SUB LPFilter or output level of SUBMix.

Furthermore, you have the option to enable the eXtraTone™ function along with the SUB LPFilter, so that you can further extend the bass performance of your subwoofer into the band of insanely ultra low frequency. The overall frequency response might look like the illustration on the right.

NOTE:

- the SUB Filter is introduced only in the pair of channels where BTL is enabled.
- the mono mix of SUBMix can only apply to the input of the introduced SUB LPFilter.
- the SUBMix is forcibly disabled if all the 4 channels belong to a BTL configuration.
- the eXtraTone™ function only applies to the pairs of SUB-filtered channels if any of the SUB LPFilters in the amplifier is enabled.
- the SUBMix is by default set to OFF in the SETTINGS menu.
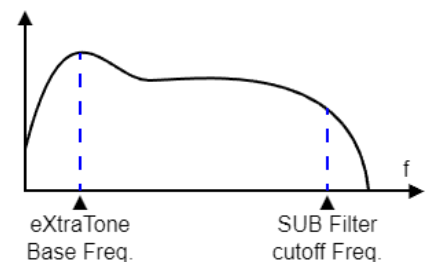
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Power Output Interface

The amplifier outputs are routed to reliable and robust speakON sockets with quick lock feature. The output of channel 2 is also routed to contact 2+/2- of speakON1 for bridged connection (a.k.a. BTL) or for Bi-Amp speaker connection. Similarly, the output of channel 4 is also routed to contact 2+/2- of speakON3 for the same purpose. The contact 2+/2- of both speakON2 and speakON4 are left unconnected. See an illustration for regular single-ended (SE), bridged (BTL), and Bi-Amp speaker connections on the right.

	speakON 1	speakON 2	speakON 3	speakON 4
contacts 1+/1-	CH1	CH2	CH3	CH4
contacts 2+/2-	CH2	N.C.	CH4	N.C.

Since the UD-064/UD-064D amplifier is designed to be able to drive heavy load with impedance down to 4Ω, each output of the amplifier can connect to a couple of parallelized speakers with equivalent impedance as low as 4Ω. Most speakers with speakON sockets offer a pass through socket for the parallelizing, so audio technicians can easily achieve the parallelizing of a bunch of speakers via cables with speakON plugs.

NOTE: Though the power can be delivered from each output of the amplifier depending on the load (impedance) connected on the output, the total power of the amplifier can be delivered to all the connected speakers, however, is restricted to about 2.4KW in AC240V environment or 2.2KW in AC120V environment. This is due to the limited capacity of capacitors in the internal power supply and limited driving capability of the output transistors in the power amplifier.
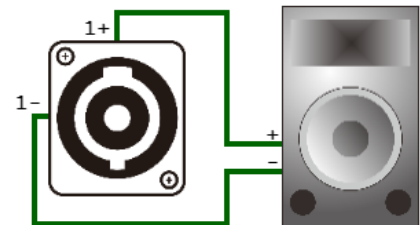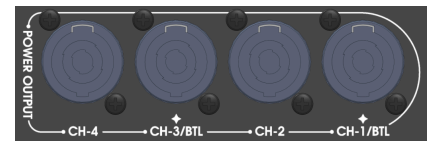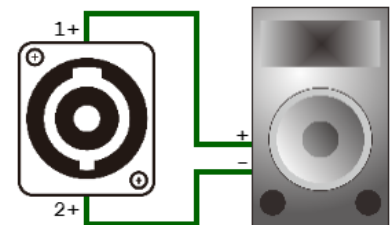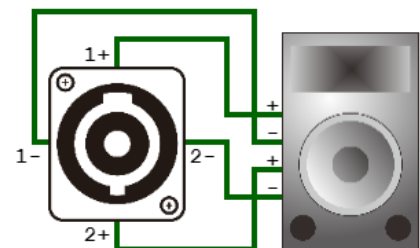
Analog Audio Inputs

By default, the UD-064/UD-064D amplifier is configured to receive audio from analog inputs via balanced XLR sockets on the rear panel. The maximum acceptable signal level to the XLR input sockets is 24dBu, and input sensitivity to drive the amplifier to its 0dBFS maximum output can be set from the SNSTVT setting item in the SETTINGS menu mentioned previously.

The signal wiring on the contacts of XLR socket is exactly the same as industrial standard as follows,

1. Signal Ground
2. Signal +
3. Signal -

Enabling **PAR1~4** will internally disconnect Input2, Input3, and Input4 to avoid possible noise coupling from the unused inputs.

USB Computer Interface

An USB2.0 port on the front panel is used for firmware flashing on the factory side. Currently it is not intended to be used for any application on the user side. Also, this belongs to a peripheral port and does not offer the capability of delivering 5V power.
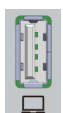
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Dante Audio Network Interface for UD-064D:

The UD-064D amplifier adopts Audinate Dante networking technology for AoIP (Audio over IP) receiving. When the amplifier sources the input from Dante audio network, a Dante icon, instead of speaker icon, is shown on the upper left of the VOLUME menu on the display to remind users that the digital audio from Dante network is selected as input. See the illustration on the right for an example.

The UD-064D amplifier is by default configured to source audio from analog inputs via XLR sockets. To source digital audio from the Dante interface via RJ-45 ports, you need to switch the INPUT setting item from ANA (Analog) to DNT (Dante) in the SETTINGS menu, as illustrated on the right.

The Dante interface is very network friendly with unlimited flexibility in topology of deployment. It supports up to Layer 3 of IEEE 802.3 network standard, enabling you to organize your audio network with the on-the-shelf Ethernet switches/routers or to immediately transport streaming audio by taking advantage of your existing installed network facility with no hassle. Even better, the UD-064D amplifier comes with two Ethernet ports which allow you to physically cascade several UD-064D amplifiers in the same network link without an extra switch in between. Accompanying with Ethernet switches, this capability helps UD-064D amplifier gaining flexibility and expanding territory in device deployment in audio networking.

The sample rate, as well as other configurations such as device name and etc., for the Dante interface of the UD-064D amplifier are set via computer with dedicated Dante Controller software. The assignment of audio routing between UD-064D amplifiers and all the other Dante-enabled devices in the same Dante network is also set via the Dante Controller software. If you have a Dante Virtual Soundcard software installed in a computer (or in the same computer), you are even able to arrange the audio routing with Dante Controller software to have your DAW software direct play streaming audio to the UD-064D amplifier.

The Dante Controller software is available free for download from the following Audinate webpage,

www.getdante.com/products/software-essentials/dante-controller
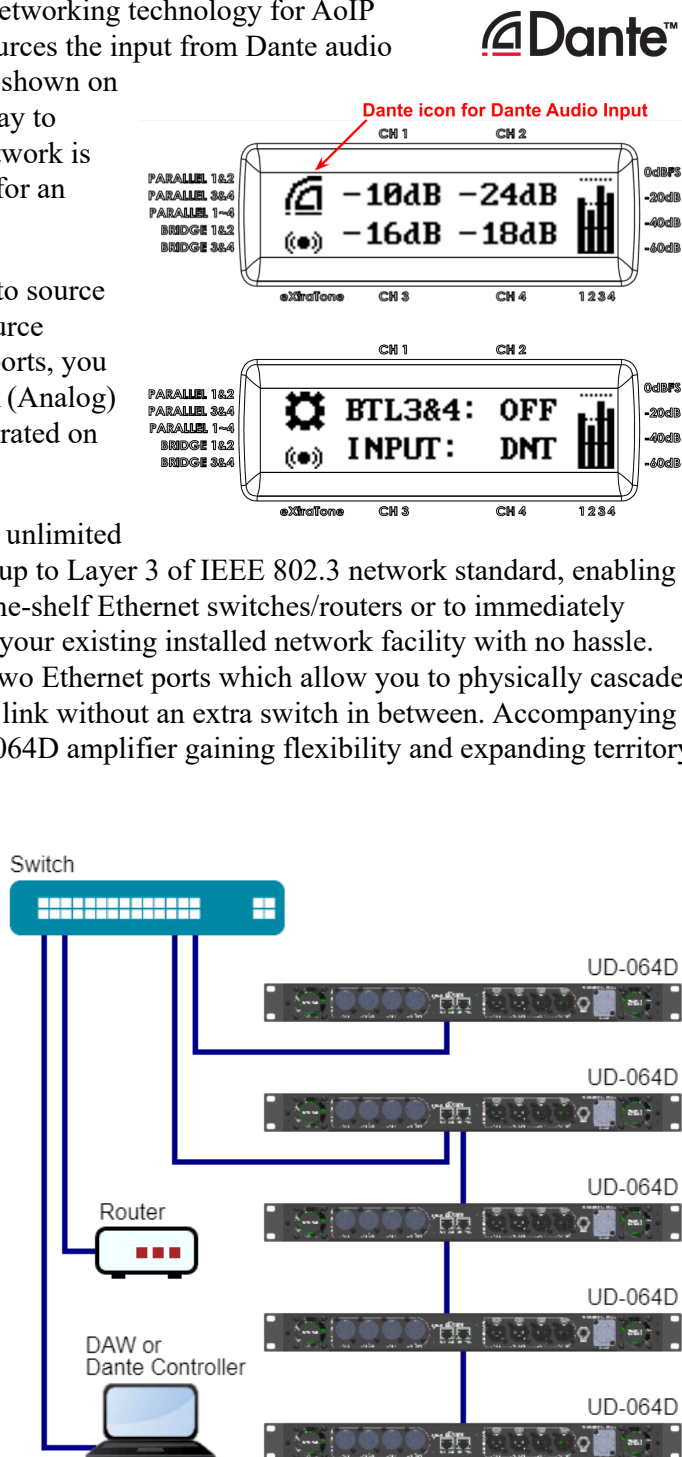
Among all the configuration and routing assignments in Dante Controller software, most importantly, **you should set the operating sample rate of your UD-064D amplifier to align with the sample rate of your whole Dante network.** Basically, all the devices in the same Dante network should be synced to the same sample rate. You do not need to worry about the bit-depth of coding of your audio stream in network. Although the UD-064D amplifier decodes audio in 24-bit PCM stream, it automatically does bit-depth converting when it streams audio from other Dante-enabled devices manipulating audio data in different bit-depth.

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There are two LEDs on each of the RJ-45 ports for the Dante interface. The LEDs reveal the network status described as follows,

- Amber: 1Gbps network is detected
- Green: flashing in network activity
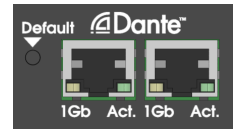
A DEFAULT button next to RJ-45 ports is used to restore the Dante configuration of the UD-064D amplifier to its factory default. Press and hold the button when you power up the amplifier will restore the Dante interface to its default state. Once you hold the button for more than 5 seconds after you press the power switch, you can then release the DEFAULT button and re-power the amplifier for the default settings to take effect. The cap of the DEFAULT button is sunk to panel to avoid your accidentally triggering the action of default restoring.

Every Dante-enabled device has a unique Dante name for identifying in the Dante network. You can find the factory assigned Dante default name on a label in an enclosure of Dante Default Name on the top panel of your UD-064D amplifier. The Dante name of the Dante interface of your amplifier can be changed to whatever you like by using Dante Controller software.

Usually, UTP (Unshielded Twisted Pair) Cat.5e cable should be good enough for all the network installation for UD-064D amplifier. However, STP (Shielded Twisted Pair) cable is strongly recommended if you plan to route the cable through a noisy environment. The foil or braided screens in STP cable can provide great noise immunity from electromagnetic interference around. Also, make sure the EIA/TIA-568B standard is fully followed on the wiring of RJ-45 plug, as illustration on the right.
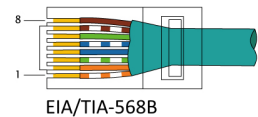
UNiKA UD-064 & UD-064D Switching Power Amplifier

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Applications:

Dante Networking without Switch

One of the beauties of Dante is that you do not need a DHCP server or router in between to establish all kinds of communication among different Dante-enabled devices. Since the UD-064D amplifier comes with two RJ-45 Ethernet ports, you can even simply cascade all your UD-064D amplifier to your computer and digital console without any Ethernet switch in between.
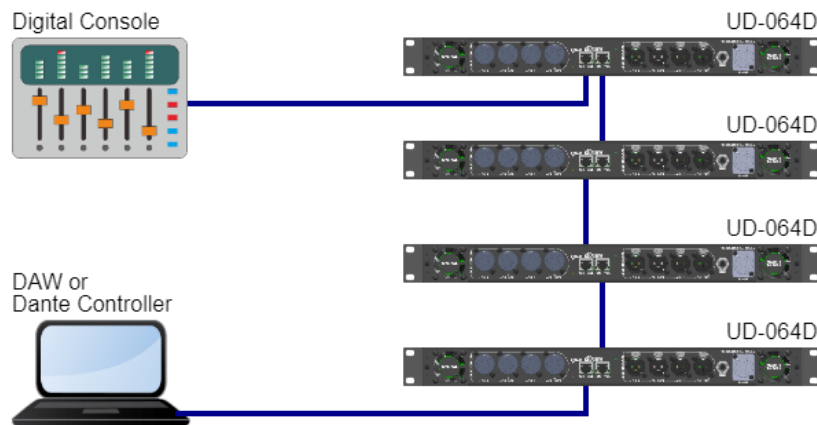
Dante Networking with Switches

Once your audio network grows up and turns complex, you may want to add Ethernet switches in your audio network so that you can better manage the cabling among all your Dante-enabled devices. For a large-scale system, you may even have many Ethernet switches in your audio network. The switches, including the mini switch in UD-064D amplifier, do cause propagation delay but fortunately every one of them only contribute delay in several tens of microseconds.
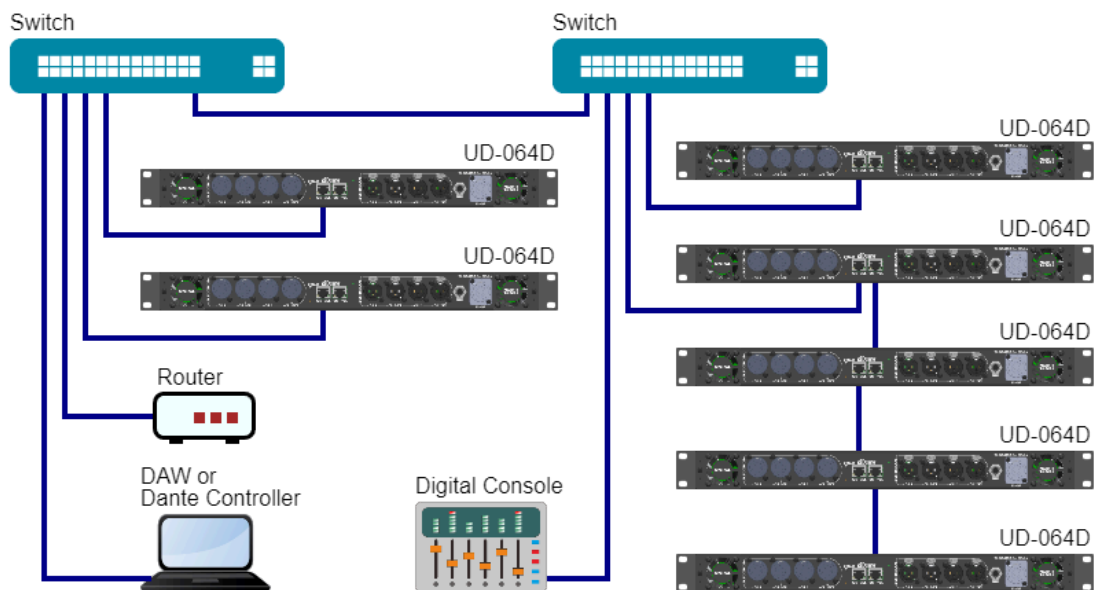
Putting a router somewhere in the Dante network is very helpful for simplifying IP management.

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Power Output to Speakers

There are lots of variety of output configurations that can be achieved through the high driving capability and high connection flexibility of the outputs of the UD-064/UD-064D amplifier. Every output of the amplifier can drive a couple of parallelized speakers with equivalent impedance as low as 4Ω; while every bridged output can drive a single 8Ω speaker or a bunch of parallelized Hi-Z speakers. Overall, totally about 2.4KW of power can be delivered from the UD-064/UD-064D amplifier.
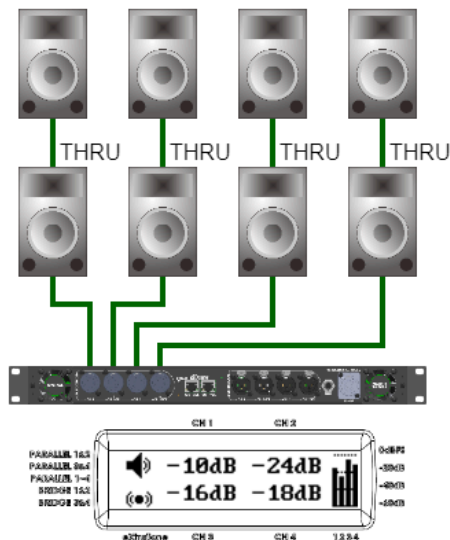
x4 configuration with parallelized speakers on each output.
estimated max. output: 600Wx4
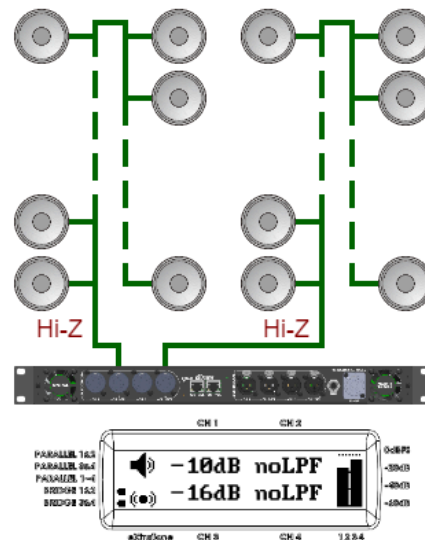
x2 bridge configuration with parallelized Hi-Z speakers on each bridged output.
estimated max. output: 600Wx2
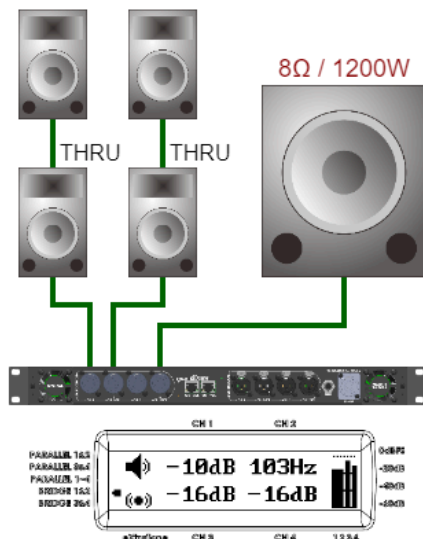
x3 configuration with mix of a bridged output on the 1st pair of outputs.
estimated max. output: 1200W + 600Wx2
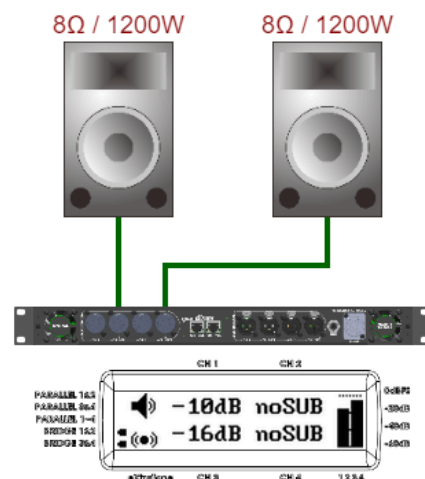
x2 bridge configuration with an 8Ω speaker on each bridged outputs.
estimated max. output: 1200Wx2

UNiKA UD-064 & UD-064D Switching Power Amplifier

Output to Line Array

The UD-064/UD-064D amplifier is initially designed to seamlessly work with line arrays. Audio technicians can efficiently manage the amplifier's output capability to each speaker of the line array.

UNiKA UD-064 & UD-064D Switching Power Amplifier

DSP-428

UD-064D

Speaker Array

Dante Controller or DAW

Ethernet Switch

UD-064D

Ethernet Switch

Ethernet Cable up to 100m

Stage

NBB-0202

NBB-0404

NBB-04R

Dressing Room

Digital Console

Analog Console

NBB-1616

Optional NBB-1616e Expansion Box

NBB-1616

DSP-428

UD-064D

Speaker Array
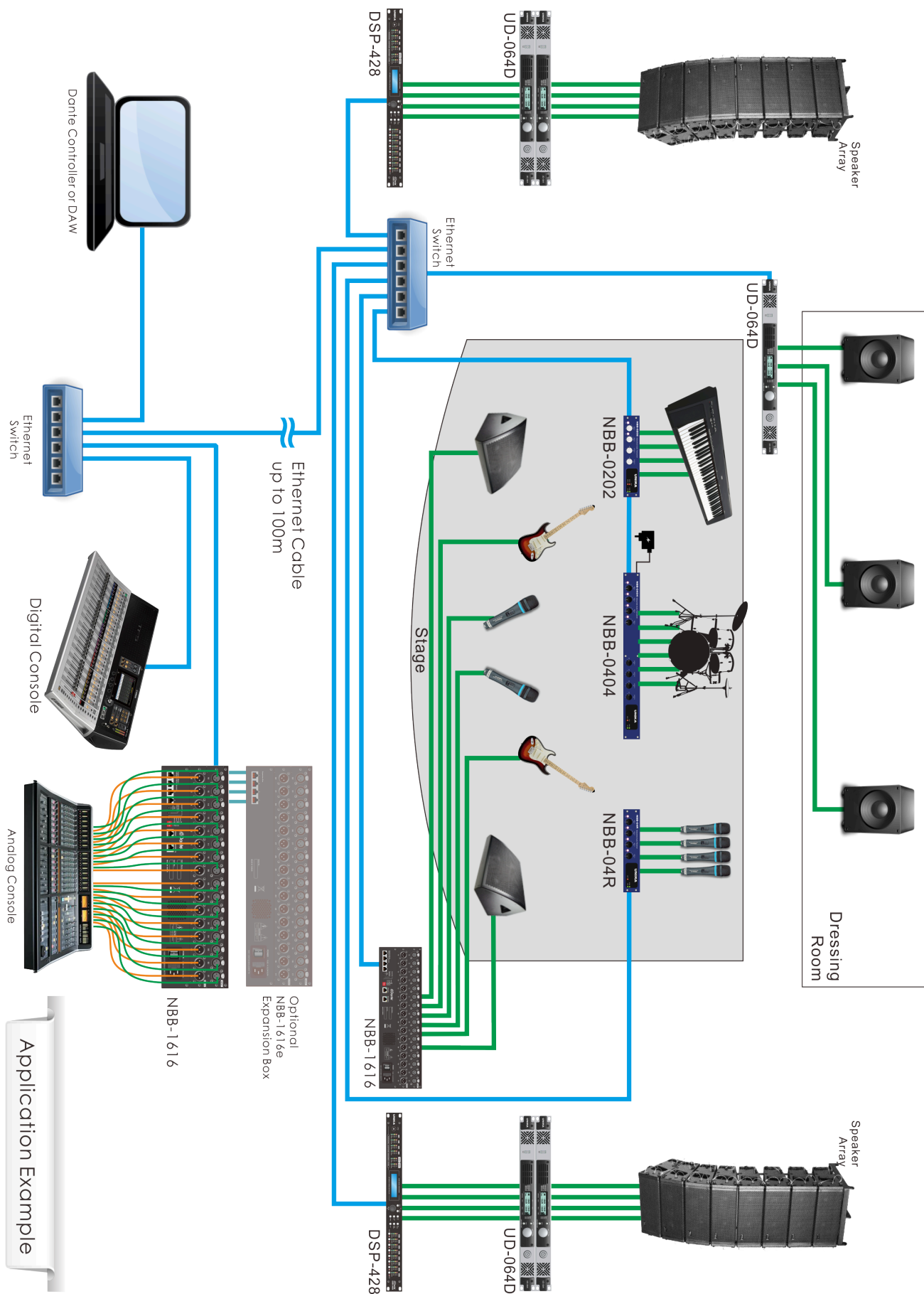
Application Example

UNiKA UD-064 & UD-064D Switching Power Amplifier

Specifications:

Model		UD-064	UD-064D
Single Ended Output (< 1% THD)	AC240V	330W@8Ω	600W@4Ω
	AC220V	280W@8Ω	500W@4Ω
	AC127V	330W@8Ω	620W@4Ω
	AC120V	320W@8Ω	550W@4Ω
	AC110V	265W@8Ω	465W@4Ω
	AC100V	220W@8Ω	380W@4Ω
Bridged Output (< 1% THD)	AC240V	1.2KW@8Ω	600W@Hi-Z(70V/100V)
	AC220V	1.0KW@8Ω	600W@Hi-Z(70V/100V)
	AC127V	1.2KW@8Ω	600W@Hi-Z(70V/100V)
	AC120V	1.1KW@8Ω	600W@Hi-Z(70V/100V)
	AC110V	920W@8Ω	600W@Hi-Z(70V/100V)
	AC100V	750W@8Ω	600W@Hi-Z(70V/100V)
AC Cord Connection		1x powerCON	
Output Connector		4x speakON	
Input Connector		4x XLR	4x XLR for Analog 2x RJ-45 for Dante
Dante Input Sensitivity		N/A	-24dB ~ 0dB in step of 6dB
Analog Input Sensitivity		0.775V (0dBu) / 1V / 1.4V / 6dBu / 12dBu / 18dBu / 24dBu	
Analog Input Level		24dBu max.	
Analog Input Impedance		22KΩ Balanced	
Volume Control		-60 ~ 0dBFS per Channel	
Delay Control		0 ~ 157ms per Channel	
SUB Filter for SubWoofer		20~250Hz, -12dB/Oct	
LPF Filter for Hi-Z Speakers		5~18KHz, -12dB/Oct	
PPM meter with clip hold		32 segments per channel	
Digitized Scaling		0dBFS at maximum output	
Audio Encoding		Uncompressed 24-bit PCM	
Sample Rate (Audio Process)		48KHz	
Sample Rate (Dante Interface)		N/A	44.1KHz / 48KHz / 96KHz
Ethernet		N/A	x2 Gigabit RJ-45 Ports
Networking Mode		N/A	Switch Mode (a.k.a. Daisy-chain)
Dante Audio Latency		N/A	< 2ms typical
Dante Node to Node Distance		N/A	100m with Cat.5e Cable
Gain (Dante in)		N/A	36.6dB @0dBFS
Gain (Analog in)		31.5dB @sensitivity of 1.4V	
Frequency Response		20Hz ~ 20KHz ±1dB @-1dBFS	
S/N Ratio (A-weighting)		> 85dB @0dBFS	
THD + Noise		< 0.15% @-3dBFS	
Dynamic Range (A-weighting)		> 90dB	
Crosstalk (Rated Output)		< -85dB @1KHz	
Output Impedance (20~1000Hz)		< 30mΩ	
AC Voltage		110~127V or 220~240V Auto-Switching	
AC Power Consumption		< 1650Watts	
Operation Temperature		0 ~ 40°C	
Operation Rel. Humidity		0 ~ 90%	
Construction		Metal Chassis with Aluminum Front Panel	
Dimensions (HxWxD)		44mm x 483mm x 490mm	
Net Weight (including Power Cord)		9.3Kg	

All the result are tested under load of 4Ω and AC source of 120V/60Hz or 240V/50Hz if not specified.
The above information is subject to change without notice.

UNiKA UD-064 & UD-064D Switching Power Amplifier

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Cautions and Important Safety Instructions

- minimum distances around the apparatus for sufficient ventilation.
- the ventilation should not be impeded by covering the ventilation openings with items, such as newspapers, table-cloths, curtains, etc..
- no naked flame sources, such as lighted candles, should be placed on the apparatus.
- the use of apparatus in tropical and/or moderate climates.

WARRANTY CONDITIONS

UNiKA products are designed and manufactured in Taiwan to the highest quality standard. However, if something does go wrong with a product, UNiKA Electronic Co., Ltd. will repair or replace such product in accordance with this warranty policy in any country served by an authorized UNiKA distributor. This warranty complements any national or regional law obligations of dealers, partner or national distributors and does not affect your statutory rights as a consumer. This warranty will only apply to products purchased from a legal UNiKA distributor or dealer, partner etc. This warranty will be effective from the serial number and initial date of purchase and will be valid for the warranty periods detailed as distributor's sales and service document. No claim under this warranty will be valid unless accompanied by proof of purchase of the product to which the warranty claim relates. This warranty is transferable from owner to owner and will apply and remain with the product to which it relates from the initial date of purchase for the specified term in the distributor's Area, as long as it's supported with the original proof of purchase.

UNiKA Service and Warranty Form

Model	☐ UD-064D ☐ UD-064	Date	
User/Buyer information			
Company		Contact	
Tel		Fax	
Website		eMail	
Distributor/Dealer			
Contact		Remark	
Warranty valid date			
Signature and Stamp			