w vtech Link2 2-Channel Line Output Converter Owner's Manual

Contents

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⚠️ **WARNING**	This symbol means important instructions. Failure to heed them can result in serious injury or death.
⚠️ **CAUTION**	This symbol means important instructions. Failure to heed them can result in injury or property damages.

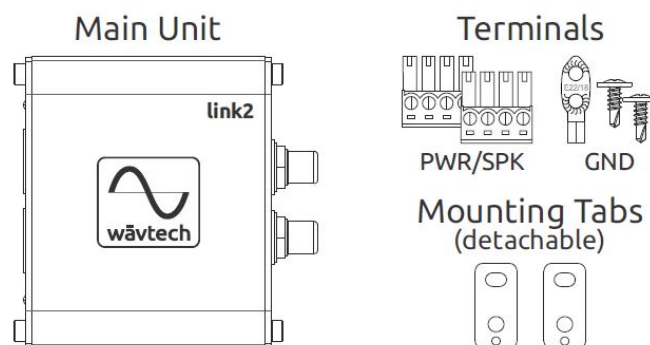## Safety Instructions

WARNING

- **DO NOT DRIVE WHILE DISTRACTED.** Any function that requires your prolonged attention should not be performed while driving. Always stop the vehicle in a safe location before performing any such function. Failure to do so may result in an accident.

- **KEEP THE VOLUME AT MODERATE LEVELS WHILE DRIVING.** Excess volume levels can obscure sounds such as emergency vehicle sirens or road warning signals and may result in an accident. Continuous exposure to high sound pressure levels may cause permanent hearing loss. Use common sense and practice safe sound.

- **FOR USE WITH 12V NEGATIVE GROUND VEHICLE APPLICATIONS ONLY.** Using this product other than in its designed application may result in fire, injury or product damage.

- **MAKE THE CORRECT WIRING CONNECTIONS AND USE PROPER FUSE PROTECTION.** Failure to connect wiring correctly or use appropriate fuse protection may result in fire, injury or product damage . Ensure proper fusing of all system power wiring and install a 1-ampere in-line fuse (not included) with the +12V lead to the unit's power supply connector.

- **DISCONNECT THE NEGATIVE BATTERY TERMINAL BEFORE INSTALLATION.** Failure to do so may result in fire, injury or damage to the unit.

- **DO NOT ALLOW CABLES TO BECOME ENTANGLED IN SURROUNDING OBJECTS.** Arrange wiring and cables to prevent obstructions when driving. Cables or wiring that obstruct or hang up on places such as steering wheel, brake pedals, etc. can be extremely hazardous.

- **DO NOT DAMAGE VEHICLE SYSTEMS OR WIRING WHEN DRILLING HOLES.** When drilling holes in the chassis for installation, take precautions so as not to contact, puncture or obstruct brake lines, fuel lines, fuel tanks, electrical wiring, etc. Failure to take such precautions may result in fire or an accident.

- **DO NOT UTILIZE OR CONNECT TO ANY PART OF VEHICLE SAFETY SYSTEMS.** Bolts, nuts or wires used

in the brake, airbag, steering or any other safety-related systems or fuel tanks should NEVER be used for mounting, power or ground connections. Using such parts may disable control of the vehicle or result in fire.

CAUTION

- **STOP USE IMMEDIATELY IF A PROBLEM OCCURS.** Failure to do so may result in personal injury or damage to the product. Return it to your authorized Wāvtech dealer.
- **HAVE AN EXPERT DO THE WIRING AND INSTALLATION.** This unit requires special technical skill and experience for wiring and installation. To insure safety and proper function, always contact the authorized dealer where you purchased the product to have it done professionally.
- **INSTALL THE UNIT SECURELY WITH SPECIFIED PARTS.** Be sure to use only the included parts and specified installation accessories (not included). Use of other than designated parts may damage this unit. Install the unit securely so that it will not come loose during a collision or sudden jolt.
- **ROUTE WIRING AWAY FROM SHARP EDGES AND MOVING PARTS.** Arrange cables and wiring away from sharp or pointed edges and avoid moving parts such as seat hinges or rails to prevent pinching or wear. Use loom protection where appropriate and always use a grommet for any wiring routed through metal.
- **NEVER RUN SYSTEM WIRING OUTSIDE OR UNDERNEATH THE VEHICLE.** All wiring must be routed, secured and protected inside the vehicle. Failure to do so may result in fire, injury or property damage.
- **INSTALL THE UNIT IN A DRY AND VENTILATED LOCATION.** Avoid mounting locations where the unit will likely be exposed to high moisture or heat without adequate ventilation. Moisture penetration or heat buildup may result in product failure.
- **EDUCE GAIN AND SOURCE VOLUME TO MINIMUM LEVELS FOR INITIAL SYSTEM TUNING AND BEFORE CONNECTION TO AN AMPLIFIER.** Ensure amplifier power is off before connecting RCA cables and follow proper system gain setting procedures. Failure to do so may result in damage to the amplifier and/or connected components.

Package Contents

Accessories Required for Installation (not included):

- RCA Interconnects
- 18AWG Wire
- In-line Fuse Holder w/1A fuse
- Battery Ring Terminal
- Wire Crimp Connectors
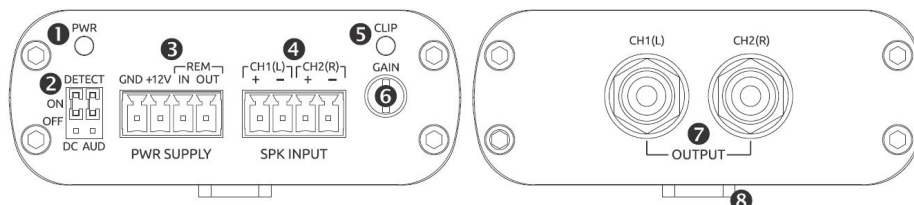
- Grommets and Loom
- Cable Ties
- Mounting Screws

Introduction
Welcome to Wāvtech, exceptional mobile audio integration products for audiophiles. Our products are engineered to provide a truly remarkable listening experience. Built for the professional installer, our OEM integration and signal processor models are simply the best solution available for unlimited sound system upgrades while retaining the factory receiver.

Features

- 2-Channel Line Output Converter
- Differential Balanced Inputs
- Low Impedance Outputs
- Variable Gain Adjustment w/Clip LED
- Selectable DC-Offset and/or Audio Detect Auto Turn-On
- Generated +12V Remote Output
- OEM Load Detect Compatible
- Locking Detachable Power/Speaker Terminals
- Panel Mount RCA Jacks
- Compact Aluminum Chassis
- Detachable Mounting Tabs

Connections & Functions

1. **Power Indicator:** This red LED indicates when the link2 is powered on. Once illuminated, there will be a short delay before audio signal output is enabled. During initial power connections, the LED may illuminate for a brief period.
2. **Auto Turn-On Detect Jumpers:** By default, the link2 is set to detect both DC-offset and audio signal for turning itself on/off automatically. These jumpers allow either mode to be independently defeated for cases where only one turn-on mode is preferred or to bypass both modes when a switched +12V trigger is available and connected to the REM IN terminal.
3. **Power Supply Terminal:** For +12V battery, chassis ground, remote in and remote output wire connections. A minimum of 18AWG wire is recommended for power and ground connections. Always protect the +12V power wire with a 1-amp fuse.
4. **Speaker Level Input Terminal:** For left and right channel speaker level (a.k.a. high level) connections to the source. Input signals ranging from 2Vrms to 20Vrms will produce up to 10Vrms RCA output from maximum to minimum gain. For factory amplifiers with more than 20Vrms signal or if the link2's output is too high for the connected aftermarket amplifier(s) with all gains at minimum, internal jumpers are available to reduce the input

sensitivity range by half (-6dB) for 4Vrms up to 40Vrms.

5. **Clipping Indicator:** This yellow LED indicates when the output signal is at maximum level before distortion (clipping) occurs. It will be dimly lit just before the onset of clipping, and full bright at clipping. If the connected amplifier(s) input can handle full 10Vrms output from the link2, then the gain is set correctly when source unit is at its maximum unclipped volume and this LED is just starting to flicker. It is likely, however, that gain will need to be reduced to match your amplifier(s) maximum input capability or optimize source volume range.

6. **Gain Adjustment:** This adjustment is for matching the output signal level of the link2 with the maximum unclipped signal range provided by your source and the maximum input capability of your amplifier(s). Follow proper gain setting procedures to ensure optimum source volume range with minimum chance for clipping at any point in the signal chain. Aside from music, a 1kHz -10dBfs signal tone may also be used for the tuning process to ensure proper headroom and gain overlap for typical music recording levels.

7. **RCA Output Jacks:** For left and right channel line level signal connections to your amplifier(s). Use quality interconnects to ensure stable connection and minimize the possibility for induced noise.

8. **Mounting Tabs:** These mounting tabs are pre-attached and should be used to properly secure the link2 during installation with screws or cable ties. They are removable if the unit can be safely secured by another method.

Installation & System Wiring

It is important to read this manual thoroughly before starting your installation and always plan accordingly. Before installing any Wāvtech product, disconnect the negative (ground) wire from the vehicle's battery to avoid damage to the vehicle or yourself. Following all guidelines will help provide years of enjoyment with your Wāvtech link2 audio interface.

Ground Connection (GND): The GND terminal must be connected to a metal part of the vehicle that is welded to the vehicle body with ground plane back to the main battery ground attachment point (a.k.a. chassis ground). This wire should be a minimum of 18AWG and as short as possible to minimize potential for noise to enter the system. The chassis ground connection point should have all of the paint removed and be scuffed to the bare metal. The ground wire should be terminated by a ground specific interlocking terminal such as the included EARL terminal or a ring terminal securely bolted to the vehicle with star or lock washer and nut to prevent from coming loose. Avoid using factory ground points to reduce the chance of induced noise from other components.

Power Connection (+12V): The constant power connection should be made at the vehicle battery when possible. For direct battery connection, a 1-amp fuse must be installed in-line with the power wire within 18"of the battery and securely connected to the positive battery terminal bolt with a ring terminal. If connecting to another available constant +12V power source, a 1-amp in-line fuse must be added at the connection point. The power wire should be a minimum of 18AWG. Do not install the fuse until all other system connections have been made.
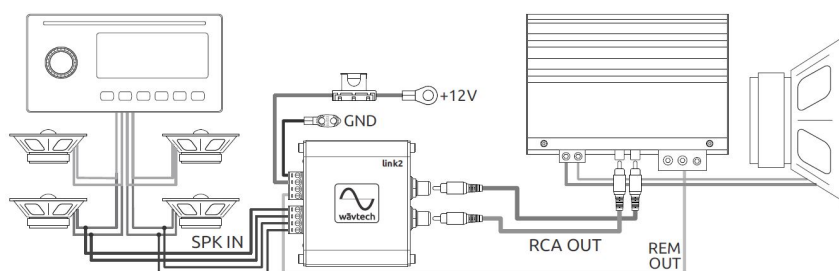
Speaker Level Input (SPK): Connect the speaker wires from the source unit to corresponding terminals on the interface. Always ensure the correct polarity of each channel when making these connections, as failure to do so can severely effect sound performance.

Remote Input (REM IN): If a switched +12V or remote trigger wire is available, it is recommended to connect it to the REM IN terminal. If a trigger wire is unavailable, the link2 also has an auto turn-on circuit that simultaneously detects audio signal and DC-offset from the source. While auto turn-on will work well in most applications, a +12V trigger may be required for satisfactory results under certain vehicle or system conditions. Additionally, DC-offset and/or audio signal detect functions can be independently defeated via the external jumpers if necessary.

Remote Output (REM OUT): Use the remote output to provide a +12V trigger to turn on amplifiers or other aftermarket devices. This +12V output is generated internally by the interface when turned on either by REM IN or automatic sensing, and will provide over 500mA of continuous current for external devices.
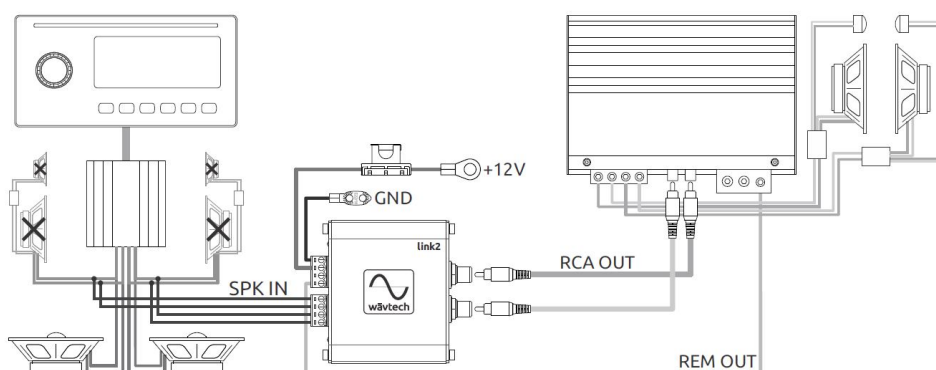
System Examples

Example-1: Speaker Level Input from OEM Radio

Note: When using a receiver's internal power IC to drive speakers directly and provide the link2 with signal, note that its speaker outputs will likely clip before reaching the maximum volume setting. Adjust gain settings accordingly for optimum unclipped volume range.

Example-2: Speaker Level Input from OEM Amplifier

Note: In factory amplified systems where output from the radio is a fixed level or digital, input signal for the link2 should be connected at the OEM amplifier's outputs.

Installation Notes

Vehicle Description

- Year, Make, Model:
- Trim Level / Package:

OEM Audio System Info

- Head Unit (type, BT/AUX in, etc.):
- Speakers (size/location, etc.):
- Subwoofer(s) (size/location, etc.):
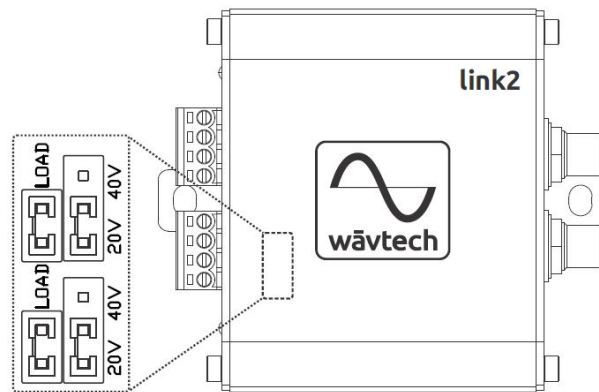- Amplifier(s) (location, output voltage, etc.):
- Other:

link2 Connections & Settings

- Installed Location:
- Wiring (connection locations, signal type, turn-on mode, etc):
- Level Settings (gain position, max master vol, etc.):
- Other:

System Configuration

Internal Jumper Locations and Settings

While all Wāvtech models provide external controls for main adjustments, there are also a few internal configuration jumpers available to resolve certain special vehicle or system conditions. The link2's internal jumper locations and default settings are shown in the illustration below. To access these jumpers, simply remove the two top screws from each end panel and loosen two bottom screws on one side in order to easily remove the chassis top cover. It is recommended to detach the power supply connector first to ensure that the unit is completely powered off while making any jumper changes.

Notes:

- Input sensitivity range jumpers (20V/40V) are independent for each SPK input channel, so may be set differently between channels as system conditions require.
- Load bypass jumpers (LOAD) are independent for each SPK input channel and must be removed or moved to a single pin in order to disconnect the internal loading from that channel.

Specifications

Frequency Response	Max Flat (+0/-1dB)		<10Hz to >100kHz
	Extended (+0/-3dB)		<5Hz to >100kHz
Input Impedance	Spk Input		180Ω / >20KΩ
Input Sensitivity	Spk Input (max-min gain)		2-20Vrms / 4-40Vrms
Max Input Voltage	Spk Input	peak, <5sec cont.	40Vrms
Output Impedance			<50Ω
Max Output Voltage	at 1% THD+N		>10Vrms
THD+N	Spk Input at 10V output		<0.01%
S/N	Spk Input	at 1V output	>90dBA
		at 4V output	>102dBA
		at 10V output	>110dBA
Turn-On Trigger	Remote	via REM IN	>10.5V
	DC-offset	via Spk Input	>1.3V
	Audio Signal	via Spk Input	<100mV
		via RCA Input	<10mV
		Turn-off Delay	up to 60sec
Remote Output	Current Capacity		>500mA
	Voltage		Within 3% of B+
Current Draw	Max Draw (w/o REM OUT)		<120mA
	Sleep Current		<1.4mA
Operating Voltage	Power On (B+)		10.5V-18V
	Power Off (B+)		<8.5V
Product Dimensions	Chassis (not incl. terminals/jacks)		1.1"x2.9"x2.5"
			29x75x63mm

Notes:

- Speaker level input sensitivity range is selectable per channel via internal jumpers (20V/40V)
- Built-in speaker level input loading is defeatable per channel via internal jumpers (LOAD)
- DC-offset and/or audio signal detect functions are defeatable via external jumpers (DC, AUD)
- All specifications are subject to change without notice

Warranty & Service Care

Wāvtech warrants this product to be free from defects in material and workmanship for a period of one (1) year when purchased from an authorized Wāvtech retailer within the United States. This warranty will be extended to a period of two (2) years when the installation is performed by an authorized Wāvtech retailer. A valid sales receipt

is required to verify eligibility of purchase and installation.

This warranty is valid only to the original purchaser and is not transferrable to subsequent parties. This warranty is void if the product serial number has been altered or removed. Any applicable implied warranties are limited in duration to a period of express warranty as provided herein beginning with the date of the original purchase at retail, and no warranties, whether expressed or implied, shall apply to this product thereafter. Some states do not allow limitations on implied warranties, therefore these exclusions may not apply to you. This warranty gives you specific legal rights. You may also have other rights which vary from state to state.

If your product needs service, you should contact Wāvtech Customer Service to receive a Return Authorization (RA) Number. Any product received without an RA number will be returned to sender. Once your product is received and inspected by customer service, Wāvtech at its sole discretion, will be repair or replace it with a new or remanufactured product at no charge. Damage caused by the following is not covered under warranty: accident, abuse, failure to follow instructions, misuse, modification, neglect, unauthorized repair or water damage. This warranty does not cover incidental or consequential damages. This warranty does not cover the cost of removing or reinstalling the product. Cosmetic damage and normal wear are not covered under warranty.

For Service within the United States:
Wāvtech Customer Service: (480) 454-7017 Monday – Friday, 8:30am to 5:00pm MST

Serial Number:
Installation Date:
Place of Purchase:

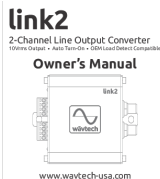**Important Notice for International Customers:**
For products purchased outside the United States of America or its Territories, please contact your local distributor concerning specific procedures for your country's warranty policy. International purchases are not covered by Wāvtech, LLC.

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Documents / Resources

w vtech Link2 2-Channel Line Output Converter [pdf] Owner's Manual
Link2 2-Channel Line Output Converter, Link2, 2-Channel Line Output Converter, Line Output Converter, Output Converter, Converter

References

- **Wāvtech**