



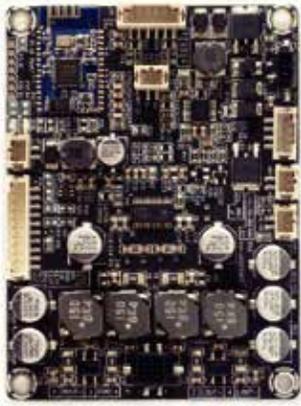
High Sound Quality
MPPT Solar Charging
LED Indicators Ports
Volume Control Port
Bluetooth Control Port
PBT Mode Configurable
Bluetooth Pairing Name Customizable



JAB Series Audio Amplifier Board with Bluetooth

For Wireless Speaker, Game Machine,
Portable Bluetooth Speaker, Jukebox,
Recreational Vehicle, Yacht,
Consumer Audio Applications, etc.

1 Overview



\$19.90

**2 x 15 Watt Class D
Audio Amplifier Board - JAB1
(AA-JA32151)**

- 3.6 x 2.7 Inches PCB Size
- Bluetooth V2.1 + EDR, A2DP
- Power Management Circuit
- Lithium Battery Board Supported
- PBTL Configurable
- LED Indicators Ports
(Power, Battery Charging & Bluetooth)
- 3.5mm AUX Port
- Volume Control Port (Potentiometer)
- Power Switch Port
- External Antenna (Optional)



\$32.9

**2 x 30 Watt Class D
Audio Amplifier Board - JAB2
(AA-JA32472)**

- 3.6 x 2.7 Inches PCB Size
- Bluetooth V4.0 APT-X + EDR, A2DP
- Power Management Circuit
- Lithium Battery Board Supported
- PBTL Configurable
- Compatible with JAB3*

* Sure Electronics will update the hardware of JAB2 to make it fully compatible with JAB3. This means, when using JAB3 with this version JAB2 (PCB Version: AA-JA13217V150), some compatibility problem, like popping noise, may occur and will not affect the normal use. For more information about JAB2, contact us at store@sure-electronics.com.



\$37.9

**2 x 50 Watt Class D
Audio Amplifier Board - JAB2
(AA-JA32171)**

- LED Indicators Ports
(Power, Battery Charging & Bluetooth)
- 3.5mm AUX Port
- Volume Control Port (Potentiometer)
- Power Switch Port
- Anodizing Aluminium Heatsink (2 x 50 Watt)
- Bluetooth Antenna (2 x 50 Watt)



\$4.99

**Interface Extension Board
(AA-JA11112)**

- 2 x 1.6 Inches PCB Size
- Ground Noise Isolation
- 2 USB Charging Ports with BC1.2 Protocol
- 3.5mm AUX Jack
- Switch for ON / OFF Control
- Aluminum Alloy Panel Customizable



\$7.99

**3S 18650 Lithium-ion
Battery Balance and protection
Extension Board (AA-JA11113)**

- 3 Pieces 18650 Type Battery Holders*
- Overvoltage Protection
- Undervoltage Protection
- Voltage Balancing



\$2.99

**L-style Aluminium Bracket
(AA-JA11115)**

- 5.0 x 3.0 x 1.0 Inches (L x W x H) Size
- Aluminium Alloy
- 4 x M3.5 Screw Lock Standoffs
- 2 x OD3.5 Pre-drilled Mounting Holes
- 7 x U-type Grooves

***Note:**

18650 Li-ion type batteries are not included in package due to air traffic control. Picture is for reference only.

2 Quick Installation

During the practical Jukebox / kiosk amplifier installation, up to several dozens of minutes will be spent on connection and debugging in the last step of assembly and test. Power pins reverse polarity, the channel's order of multi-channel amplifier, volume adjustment of each channel, signal channel disconnection caused by the poor contact may cause potential problems. In order to solve problems mentioned above and improve connection and pass rate of test effectively, we take advantage of different forms of connectors for power connections, speaker connections, signal input connections and potentiometer connections. For example, 2POS Molex Micro-Fit vertical headers, 4POS/ 6POS JST PH SMT top entry type headers are populated in JAB3 for easy recognition. Furthermore, we also provide the matched extension cables for different connectors, which can be easily distinguished from each other by different cable colors. We spare no efforts in improving the connection and debugging efficiency and saving the cost on installations and debugging.

Any customizable requirements on interfaces, materials and length of cables, please contact with store@sure-electronics.com.

| Power Cable | Overview | |
|--|----------|--|
| A-1 MOLEX 43645-0200 Multi-view | | |
| A-2 AWG22 Red & Black Cable | | |
| 1. AWG22, Temperature resistance: 80°C, Voltage rating: 300V, Length: 500mm. | Unit: mm | |

| Speaker Cable | Overview | |
|--|----------|--|
| A-1 MOLEX 43025-0400 | | |
| A-1 MOLEX 43025-0400 Multi-view | | |
| A-2 AWG22 Red & Black Cable | | |
| 1. AWG22, Temperature resistance: 80°C, Voltage rating: 300V, Length: 500mm. | Unit: mm | |

| Battery Charging Cable | Overview | |
|--|----------|--|
| A-1 JST PHR-4-BK | | |
| A-1 JST PHR-4-BK Multi-view | | |
| A-2 AWG24 Red & Black Cable | | |
| 1. AWG24, Temperature resistance: 80°C, Voltage rating: 300V, Length: 500mm. | Unit: mm | |

| Switch Cable | Overview | |
|--|----------|--|
| A-1 JST PHR-2-BK | | |
| A-1 JST PHR-2-BK Multi-view | | |
| A-2 AWG24 Black Cable | | |
| 1. AWG24, Temperature resistance: 80°C, Voltage rating: 300V, Length: 500mm. | Unit: mm | |

| AUX Line-in Cable | Overview | |
|--|----------|--|
| A-1 JST PHR-5-BK | | |
| A-1 JST PHR-5-BK Multi-view | | |
| A-2 AWG24 Black Cable | | |
| 1. AWG24, Temperature resistance: 80°C, Voltage rating: 300V, Length: 500mm. 2. PINS is idle. | Unit: mm | |
| A-3 HONGBO PJ-341M-4P | | |

| Volume Control Cable | Overview | |
|--|----------|--|
| A-1 JST PHR-6-BK | | |
| A-1 JST PHR-6-BK Multi-view | | |
| A-2 AWG24 Black Cable | | |
| 1. AWG24, Temperature resistance: 80°C, Voltage rating: 300V, Length: 500mm. | Unit: mm | |

| LED Indicator Cable | Overview | |
|--|----------|--|
| A-1 JST PHR-2-BK | | |
| A-1 JST PHR-2-BK Multi-view | | |
| A-2 AWG24 Black Cable | | |
| 1. AWG24, Temperature resistance: 80°C, Voltage rating: 300V, Length: 500mm. | Unit: mm | |
| A-3 LED Lamp-socket | | |

| Bluetooth Control Cable | Overview | |
|--|----------|--|
| A-1 JST PHR-2-BK | | |
| A-1 JST PHR-2-BK Multi-view | | |
| A-2 AWG24 Black Cable | | |
| 1. AWG24, Temperature resistance: 80°C, Voltage rating: 300V, Length: 500mm. | Unit: mm | |
| A-3 Push Button Switch | | |

- Basic Cables Package (Default package with JAB): Power Cable x 1, Speaker Cable x 1, Bluetooth Antenna x 1
- JAB1/2 Functional Cables Package (Optional): Battery Charging Cable x 1, Switch Cable x 1, Aux Line-in Cable x 1, Volume Control Cable x 1, Bluetooth Control Cable x 1, LED Indicator Cables: Red x 1, Blue x 1, Green x 1
- Interface extension cable is attached with interface board package. Battery charging cable is attached with battery charging board package.

3 Applications



Soundbox



Jukebox



Desktop Audio



Jukecase



Coffee Machine



Vending Machine



Game Machine



Solar Amplifier



ATM



Ticket Checker



Guide Machine



Recreational Vehicle



Yacht



Motorcycle



Home Furnishing



Toy

4 Build for Your Applications

Sure Electronics provides customizable services. For some customization requirements, 500 pieces MOQ and engineering cost will be applied.

Customizable service includes:

- Bluetooth Pairing Name
- PBTL Mode Configuration
- Output Power Configuration
- Number of Output Channel
- Audio Performance Optimization
- External Bluetooth Antenna
- Cable Interfaces
- Safety Certification
- Special Package
- Manufacturing

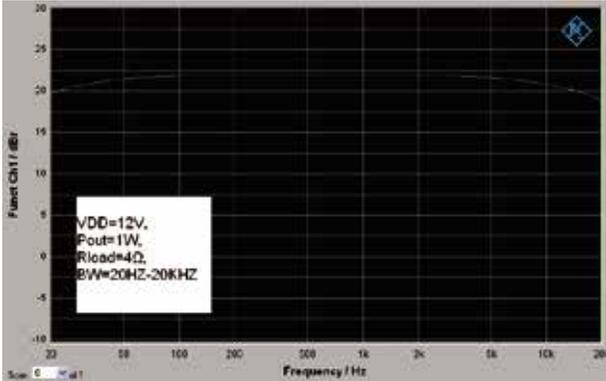
Please contact us at store@sure-electronics.com if you want any modification.

5 Benefits

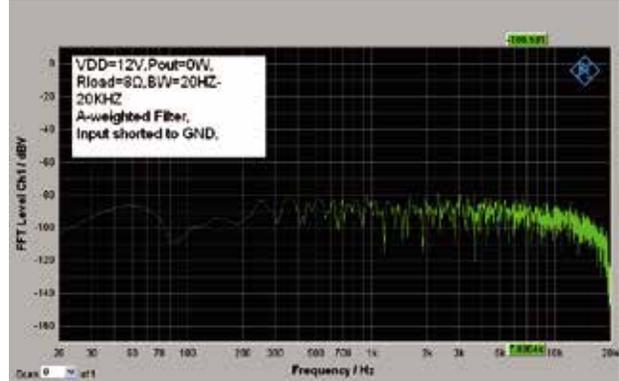
High Sound Quality

JAB series is highly reliable audio amplifier boards series with Bluetooth integrated which exactly satisfies customers' requirements of portability. All original and authorized components can help vastly reduce distortion caused by the output filters and compensate any frequency response variations due to the different loads connected to the amplifier. Besides, layout of the PCB is of great importance to high sound quality in this kind of amplifiers. Taking advantage of engineers' over 10 years' experience in audio design based on applications, this series gives consideration to both reliability and best possible audio reproduction with high SNR up to 89dB and 0.07% THD+N (19V @ 8Ω,10W, 1KHz).

Frequency Response



Noise Floor



BQB, APT-X, CE and FCC Ready

Developed by Sure Electronics experienced engineers, all JAB series boards have passed the pre-test of CE and FCC in EMC and EMS parts, which simplifies the task of customers achieving certifications for the final products, saving much valuable time and costs. If you have any requirements for the system certification, please contact our distributor or Sure Electronics. RoHS compliant will need an MOQ of 100pcs per order. Developed by Sure Electronics experienced engineers, all JAB series boards have passed the pre-test of CE and FCC in EMC and EMS parts, which simplifies the task of customers achieving certifications for the final products, saving much valuable time and costs. If you have any requirements for the system certification, please contact our distributor or Sure Electronics. RoHS compliant will need an MOQ of 100pcs per order.

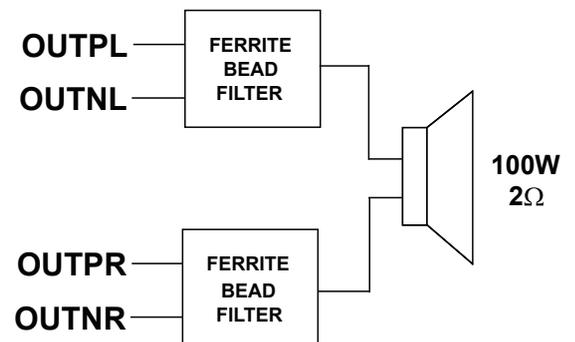


Bluetooth Pairing Name Customizable

Customers could use any Bluetooth Pairing Name (The Bluetooth name should be limited in 16 characters), and must send the Pairing Name by email to store@sure-electronics.com for confirmation before placing the order. Be very careful about special character and space. Serial Number for each module is acceptable. For order quantity less than 100pcs, this service will cost \$0.99 for each, no MOQ. If the subtotal of an order is more than \$1000, or quantity is more than 100pcs, this service will be free.

PBTL (Mono) Mode Configurable

The JAB series amplifier boards support Parallel Bridge Tied Load mode, under which two outputs are mixed together as one channel. Under PBTL (mono) mode, either of the two outputs can work as the output connector. If audio signal is transmitted to both of the two outputs, the outputs are mixed. Connect the positive and negative output together for best efficiency. For PBTL mode configuration, 500 pieces MOQ will be requested. Customers must send a requirement email to store@sure-electronics.com for confirmation before placing the order. Sure Electronics cannot be considered responsible for any eventual damage caused to persons, things or data by customers' misconfiguration of the PBTL mode.



Multiple Power Path

JAB1/2 provides a MPPT charge function and also works well with typical power adapters. If your application does not need Lithium or Lead-Acid batteries operation mode, the MPPT charge controller can be removed to save your cost. MOQ 100pcs will be applied for this option.

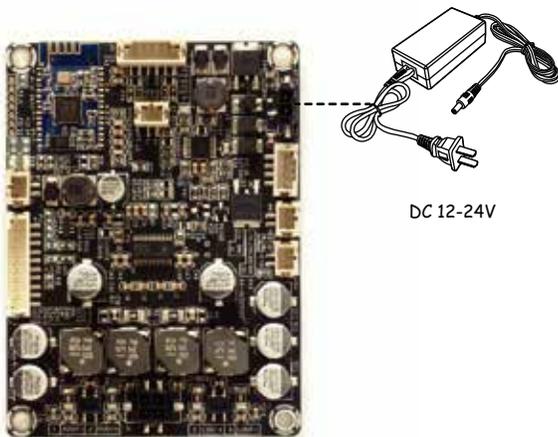
Input voltage should be 15-19V to make the battery fully charged. 3 cells Lithium-ion batteries in series will output more than 12.6V when fully charged, and Lead Acid batteries output more than 12.8V when fully charged, so if customers need batteries in their application, they must select DC15-24V adapters with maximum power output more than 30Watts.

Customers could also use solar panels for their applications. Just remember to use solar batteries with float (open) voltage with 16.5-21.5V, and use 20-100Watt panels for this application. In fact, every power source can provide more than 15V, and 0.15A will work with this board. The charge current of this board can be adjusted automatically.

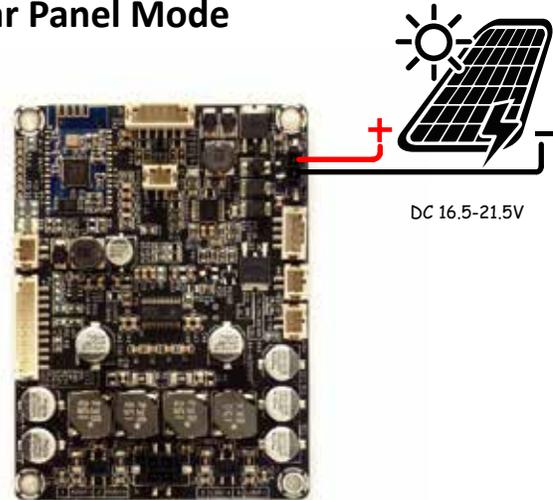
Sure Electronics boost converter boards especially designed for car audio can be used with JAB series amplifier boards. Please feel free to contact with store@sure-electronics.com for more detailed information.

8 AA (Alkaline) Batteries in series will be 12V to power the amplifier. Please note that AA batteries couldn't be connected with charging port unless MPPT module is removed.

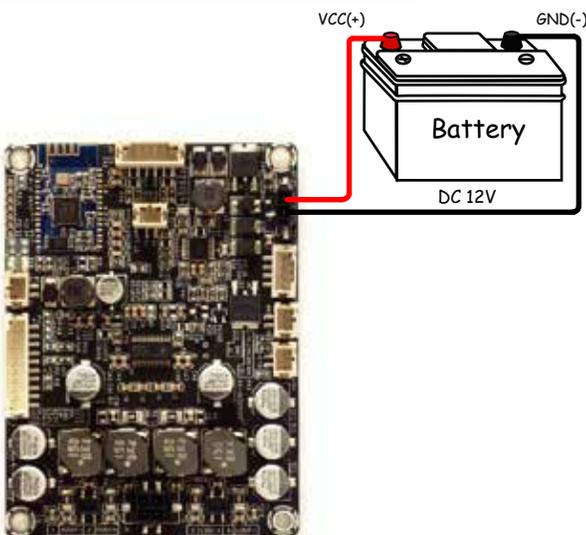
Adapter Mode



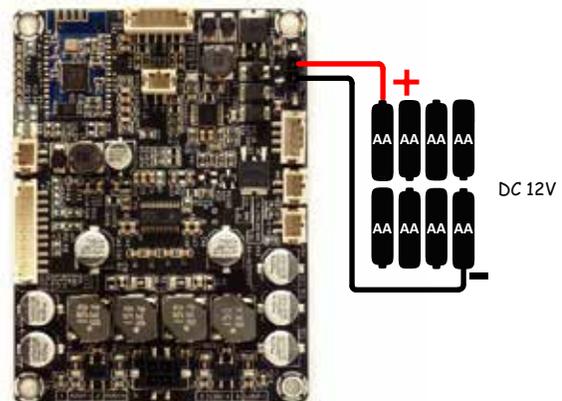
Solar Panel Mode



Lead Acid Car Battery Mode



AA (Alkaline) Mode

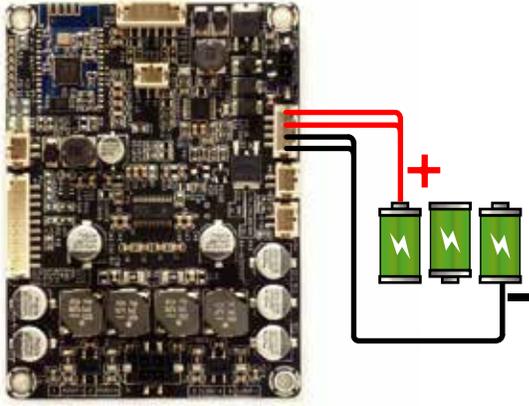


Multiple Chemical Components of Rechargeable Batteries

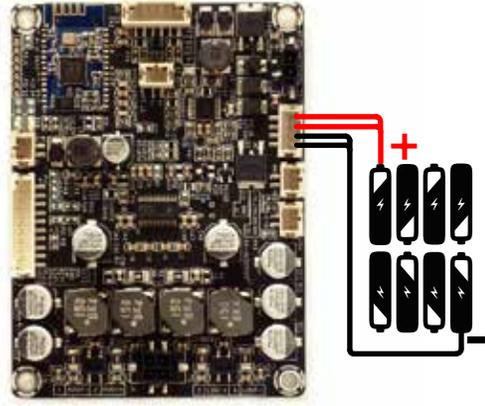
JAB1/2 supports multiple chemical components of rechargeable batteries like Lithium-ion battery, Lithium-iron phosphate battery, Ni-MH battery, Li-Fe-Po battery and Lead-acid battery.

The default battery configuration of JAB series is 3 pieces Lithium-ion batteries in series. Sure Electronics also provides a Lithium Battery Balance and Protection Extension Board (AA-JA11113) which is equipped with 3 pieces 18650 type battery holders. JAB series also supports 4 pieces batteries (Lithium-ion, Lithium iron phosphate, Ni-MH and Li-Fe-Po chemical components) in series. For any changes of battery setting, customers should contact with us for confirmation first. Sure Electronics cannot be considered responsible for eventual damages caused to persons, things or data by customers' changing of the batteries.

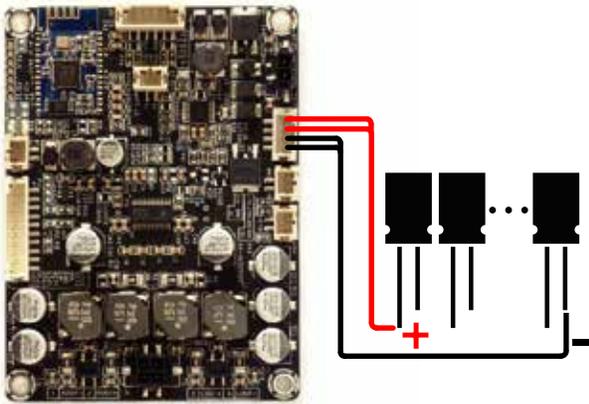
Lithium-ion Batteries Mode



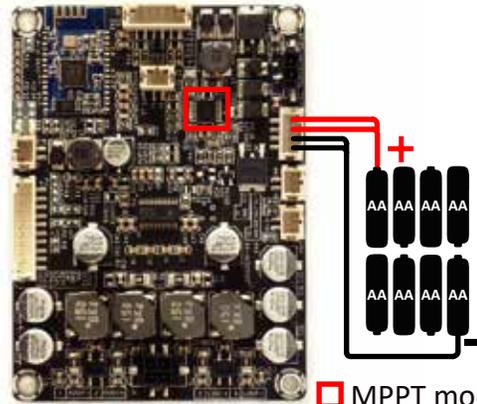
NI-MH Batteries Mode



Super Farad Capacitors Mode



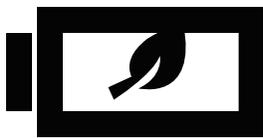
AA (Alkaline) Batteries Mode (Non-rechargeable)



MPPT module needs to be removed.

Following phenomena may occur for incorrect battery quantity, connections or chemical components:

- Audio amplifier board working improperly
- Fire and human injury
- Noise
- Batteries not being charged
- LED indicators not working



Low Power Consumption



24 hours Playback

Extremely Low Power Consumption

The JAB series could offer playback time up to 24 hours continuously, which was tested with Bluetooth connected and Jazz style songs playing back continuously. The maximum output voltage on the speaker is 4V RMS and the duty is no less than 5%.

Sure Electronics also offers a solution with the continuous playback time up to 60 hours, which is more than 2 days with only 2 hours quick charge. This version can only provide a 7.5Watts maximum output at 4ohm loads, but that is already enough for most applications.

Thanks to engineers' delicate design of power management circuit and reliable components employed in JAB1/2, its power consumption is extreme low, ensuring the high efficiency and long standby time. When powered by battery board, the quiescent current is only 2mA, meanwhile, the standby current is only 2.9mA with SD short to GND and only low power module available when connected with 19V power adapter. (The specific value of power consumption changes to different model. For more specifications on power consumption, please refer to the manual of JAB1/2.)

Compatible with JAB3 (Only apply to JAB2)

JAB2 provides a stereo solution for portable Bluetooth speakers with MPPT battery charging. Sure Electronics offers audio 4.0/2.1/0.2 system solution for customers through connecting JAB2 with JAB3, which is integrated with DSP. This means, when working with JAB3 main boards, it is a complete 4.0 (Both JAB2 and JAB3 are stereo mode.), 2.1 (One board is stereo mode and another is mono mode.) and 0.2 (Both JAB2 and JAB3 are mono mode.) audio system with control interfaces and signal processing. The application ranges from active loudspeaker concepts (digital 3 way 3 unit, 2 way 2 unit crossover, bass enhancement, etc.) and realize the transformation from 2.0 to 2.1 (when used with JAB3). With integrated debug port for Sigma Studio on JAB3, customers can pre-program with Sure Electronics ICP1, ICP2 or the original Analog USBi to get more functions which includes equalization, crossover, bass enhancement, multiband dynamics processing, delay compensation, etc. For detailed information, please refer to JAB3 Brochure.

Customers can connect the JAB3 with JAB2 via the JST-PH-6PIN connectors on board.

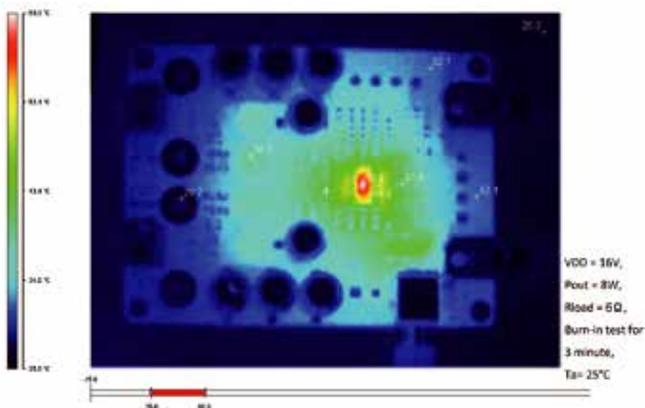
For more detailed connection information, please refer to the installation guide for JAB2 and JAB3 connection.



Full Protection, Robust Performance

The amplifier board series employs the TPA311x series from TI as the main chip. All of them are equipped with overcurrent and overtemperature protection, which is able to avoid permanent stress caused by improper operation.

Besides built-in chip protection, ESD and spike protection components are used throughout input and output of the amplifier board to ensure its robustness and reliability. And all the available input and output pins are presented as Molex headers which facilitate mating and prevent accidental mismatching during assembly.



High Performance Cost Ratio

More and more Jukeboxes and kiosks come to our daily life in different applications. Wherever in retail, vending & rental, health care or ticketing & check-in, gaming, security, etc., audio amplifier plays an important part in audio reinforcement of the system. Sure Electronics provides 3 pieces audio amplifier boards according to different applications for easy integration. These amplifier boards incorporate class D ICs, which feature stable running for hours, sufficient rating power, high sound quality, high efficiency and convenient connection. As for JAB 1/2, 3.5mm AUX analog and Bluetooth input channels are configured flexibly; the volume is adjusted by the external potentiometers; 3 output power level versions are provided as 2 x 15W, 2 x 30W and 2 x 50W, which are listed at the price as \$19.9, \$29.9 and \$34.9. Various accessories including interface extension board, battery balance and protection extension board, functional cables package and L-style aluminum bracket provide more functional features and convenient installation method. For more detailed price information, please refer to Price List chapter. We will provide the JAB series at the most competitive price with the approach of no compromise for components quality, testing process, manufacturing and total cost.

Adaptive Power Supply Module for RV/Yacht Application

If your projects are powered by the battery system of the RV or Yacht, we could provide the adaptive power supply which always outputs DC 24V when the input voltage is not less than 10V and no more than 40V. And the power supply module is capable of delivering 100W continuously and 200W with the efficiency up to 85%, which is suitable for audio power amplifier application.



Extension Boards Optional

Sure Electronics has released one interface extension board to provide a simple panel mounting solution for customer's applications. Interfaces on board include a 3.5mm AUX jack, 2POS USB ports for charging, a switch button with LED power indicators (The ON/OFF switch on extension board cannot work for JAB1). With the headers or a 10 pin cable, the interface extension board will be connected to the JAB1/2 board and integrated to your system quickly.



The Sure Electronics 18650 Lithium-ion battery balance and protection extension board is especially designed for 3 cells 18650 type batteries in series. Customers can use solar panels for their applications. Just remember to use solar batteries with float (open) voltage with 16.5-21.5V, and use 20-100Watt panels for this application. 3 Lithium-ion batteries in series will output more than 12.6V when fully charged. Customer could also connect 2 pieces lithium battery balance and protection extension boards in parallel to get higher volume while the voltage will not increase. The 18650 Lithium-ion battery balance and protection extension board is integrated with overvoltage and undervoltage protection circuits. It could balance different voltage among batteries while it cannot be used to charge the batteries. For more detailed information, please refer to product data sheet. The battery charging circuit is integrated in JAB1/2, which means that JAB1/2 is a requisite if you want to charge battery board.



Batteries are not included in package

L-style Aluminium Bracket Optional

It is quite difficult to assemble the audio amplifier board into a closed space in most Kiosk and Jukebox applications. To improve the connection and debugging efficiency and save the cost on installations, Sure Electronics provides a L-style aluminum bracket for JAB series. The aluminum bracket supports vertical and horizontal installation ways to satisfy different installation requirements. With screw lock standoffs and pre-drilled mounting holes, the JAB series audio amplifier boards could be installed on the bracket easily.



Zero Stock for Customers

Sure Electronics always prepares full back-up for customers, which greatly reduces the delivery time to fit for the customers' 'Just - in - Time' manufacturing and 'Zero Stock' Policy.

We guarantee each standard product at least 100 pieces inventory while best sellers have more than 1000 pieces inventory. This means Sure Electronics keeps at least 100K pieces circuit board in stock at any time. With more than 80 CBM of finished products and more than 100 CBM half-finished products, Sure Electronics can ship more than 98% requirements of our standard products to save customers' time and cost.



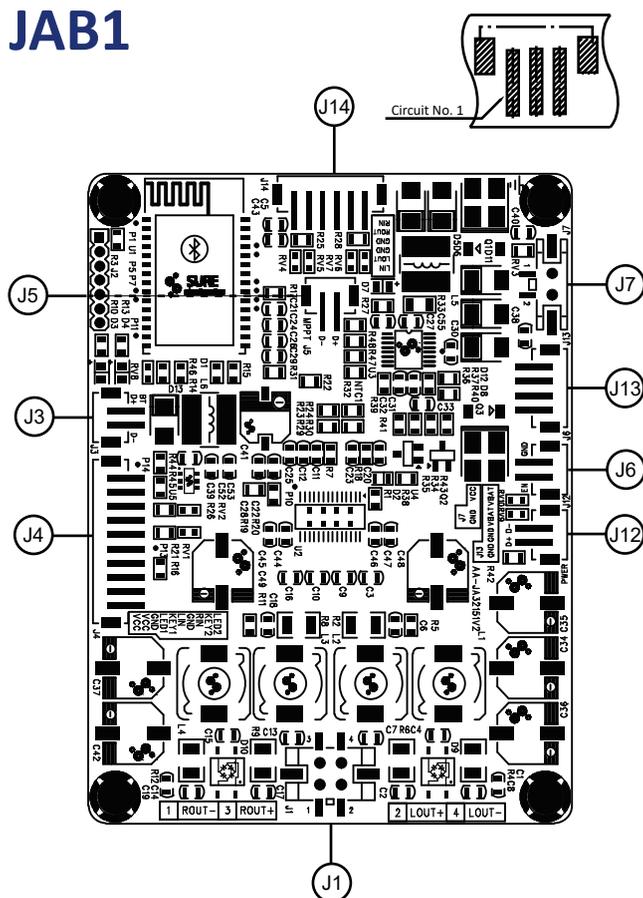
5 Years Product Life

Sure Electronics guarantees at least 5 years PLC (Product Life Cycle) to our customers, this means, once products are launched to the market, you can place orders and get technical support from Sure Electronics' distributors within 5 years. For any halt production caused by the discontinued core materials, Sure Electronics will provide full pin to pin, screw to screw compatible solutions for you to ensure you a smooth Production Transition.

6 PIN Definition

JAB1

Top View of PH Connector



Speaker Output Connector:

J1 MOLEX-4PIN-3MM

| Pin | Definition |
|-----|------------|
| 1 | ROUT- |
| 2 | LOUT+ |
| 3 | ROUT+ |
| 4 | LOUT- |

LED Indicator Connectors:

J3, J5, J12 PH-2PIN-2MM

| Pin | Definition |
|-----|------------|
| 1 | LED- |
| 2 | LED+ |

Switch Control Connector:

J6 PH-2PIN-2MM

| Pin | Definition |
|-----|------------|
| 1 | GND |
| 2 | EN |

Volume Control Connector:

J14 PH-6PIN-2MM

| Pin | Definition |
|-----|------------|
| 1 | RIN |
| 2 | ROUT |
| 3 | GND |
| 4 | GND |
| 5 | LOUT |
| 6 | LIN |

Extension Connector:

J4 PH-10PIN-2MM

| Pin | Definition |
|-----|------------|
| 1 | VCC |
| 2 | VCC |
| 3 | GND |
| 4 | LED1 |
| 5 | KEY1 |
| 6 | LIN |
| 7 | GND |
| 8 | RIN |
| 9 | KEY2 |
| 10 | LED2 |

Battery Charging Connector:

J13 PH-4PIN-2MM

| Pin | Definition |
|-----|------------|
| 1 | VBAT |
| 2 | VBAT |
| 3 | GND |
| 4 | GND |

Power Connector:

J7 MOLEX-2PIN-3MM

| Pin | Definition |
|-----|------------|
| 1 | VCC |
| 2 | GND |

Specification

| Parameters | Conditions | Min | Typ | Max |
|--------------------------------------|---|--------|------|------|
| Power Supply Range(VDC) | / | 12 | 19 | 24 |
| Idle power(W) | SD GND,BT Disconnection | / | 0.06 | 0.07 |
| | BT Connection | / | 0.58 | 0.64 |
| Standby Power(mW) | SD GND,only when low power module available | / | 1 | 10 |
| Battery Undervoltage Protection(VDC) | / | / | 10.4 | 10.5 |
| Constant Charging Voltage(V) | / | 12.5 | 12.6 | 12.7 |
| Charge Current(A) | / | / | 0.5 | 1 |
| Output Noise Level(μ V) | A-weighting, input connected to GND | / | 412 | / |
| BT Version | / | / | 2.1 | / |
| Gain(dB) | / | 35 | 36 | 37 |
| SNR(dB) | 19V, 10W@ 8 Ω THD+N=1% | / | 82 | / |
| THD(%) | 19V @ 8 Ω , 10W, 1KHZ | / | 0.07 | / |
| Output Power(W) | 19V @ 8 Ω | 2 x 15 | | |

JAB2

Bluetooth Control Connector:
 J18 PH-2PIN-2mm
 Short Press: Cancel Bluetooth Pairing
 Long Press: Turn on/off Bluetooth

| Pin | Definition |
|-----|------------|
| 1 | EN |
| 2 | +3.3V |

Power Connector:
 J3 MOLEX-2PIN-3MM

| Pin | Definition |
|-----|------------|
| 1 | VCC |
| 2 | GND |

Speaker Output Connector:
 J2 MOLEX-4PIN-3MM

| Pin | Definition |
|-----|------------|
| 1 | ROUT- |
| 2 | LOUT+ |
| 3 | ROUT+ |
| 4 | LOUT- |

Switch Control Connector:
 J5 PH-2PIN-2MM

| Pin | Definition |
|-----|------------|
| 1 | GND |
| 2 | EN |

LED Indicator Connectors:
 J7, J8 PH-2PIN-2MM

| Pin | Definition |
|-----|------------|
| 1 | LED- |
| 2 | LED+ |

J7, Bluetooth
 J8, MPPT Charging

Control Connection with JAB3 Connector:
 J9 PH-9PIN-2MM

| Pin | Definition |
|-----|------------|
| 1 | STBY |
| 2 | GND |
| 3 | MUTE |

Volume Control Connector:
 J11 PH-6PIN-2MM

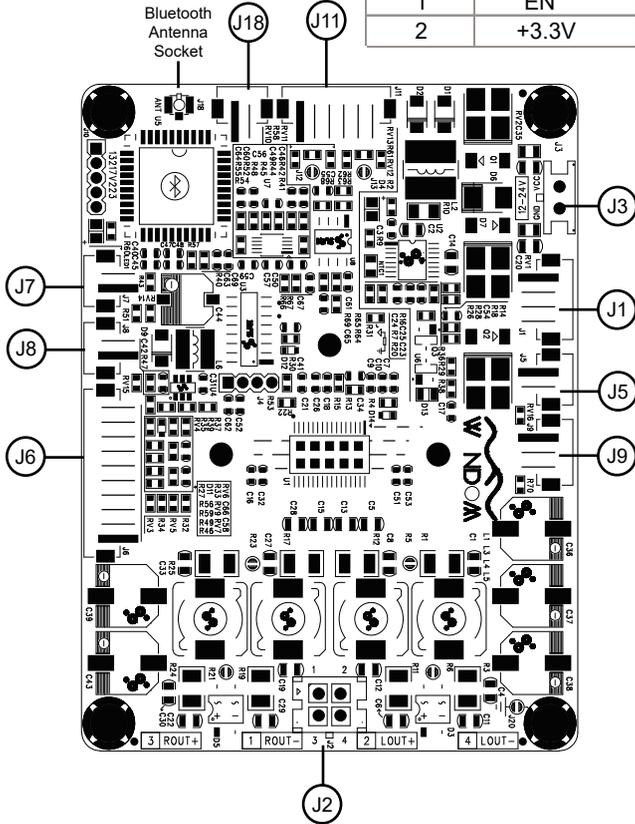
| Pin | 1 | 2 | 3 | 4 | 5 | 6 |
|------------|-----|------|-----|-----|------|-----|
| Definition | LIN | LOUT | GND | GND | ROUT | RIN |

Extension Connector:
 J6 PH-10PIN-2MM

| Pin | Definition |
|-----|------------|
| 1 | VCC |
| 2 | VCC |
| 3 | GND |
| 4 | LED1 |
| 5 | KEY1 |
| 6 | LIN |
| 7 | GND |
| 8 | RIN |
| 9 | KEY2 |
| 10 | LED2 |

Battery Charging Connector:
 J1 PH-4PIN-2MM

| Pin | Definition |
|-----|------------|
| 1 | VBAT |
| 2 | VBAT |
| 3 | GND |
| 4 | GND |



Specification

2 x 30 Watt Class D Audio Amplifier Board - TPA3118

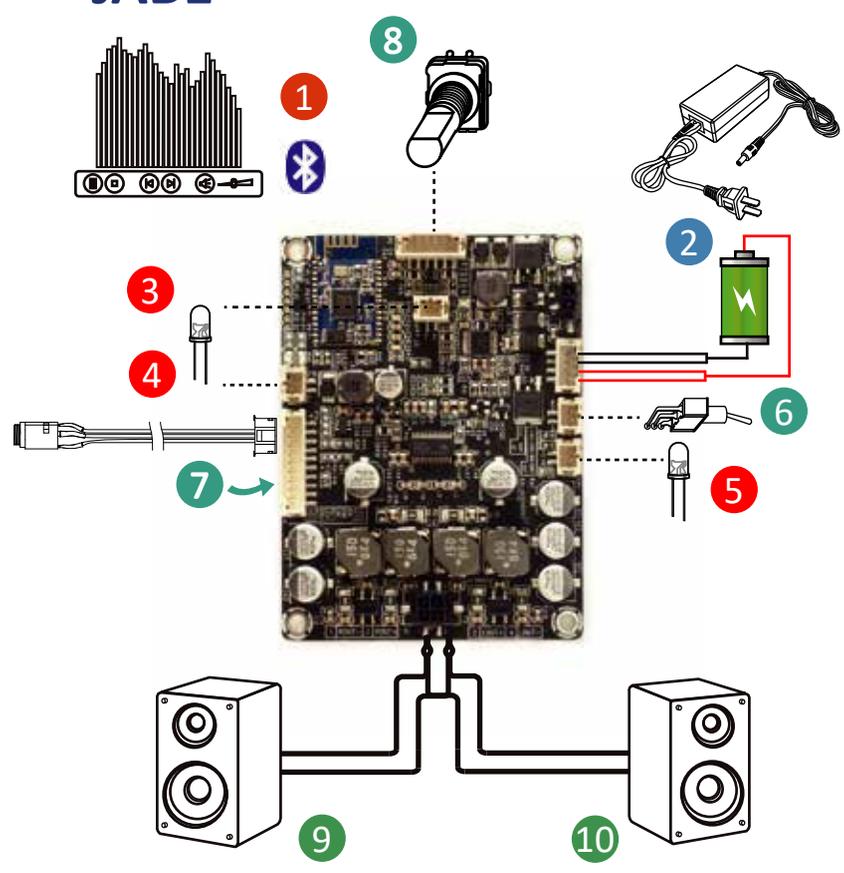
| Parameters | Conditions | Min | Typ | Max |
|--------------------------------------|---|------|--------|------|
| Power Supply Range(VDC) | / | 12 | 19 | 24 |
| Idle power(W) | SD GND,BT Disconnection | / | 0.06 | 0.1 |
| | BT Connection | / | 0.35 | 0.45 |
| Standby Power(mW) | SD GND,only when low power module available | / | 0.4 | 1 |
| Battery Undervoltage Protection(VDC) | / | / | 10.4 | 10.5 |
| Constant Charging Voltage(V) | / | 12.5 | 12.6 | 12.7 |
| Charge Current(A) | / | / | 0.5 | 1 |
| Output Noise Level(μ V) | A-weighting, input connected to GND | / | 213 | / |
| BT Version | / | / | 4.0 | / |
| Gain(dB) | / | 19 | 20 | 21 |
| SNR(dB) | 19V, 10W@ 8 Ω THD+N=1% | / | 89.3 | / |
| THD(%) | 19V @8 Ω , 10W, 1KHZ | / | 0.07 | / |
| Output Power(W) | 19V @ 8 Ω | / | 2 x 30 | / |

2 x 50 Watt Class D Audio Amplifier Board - TPA3116

| Parameters | Conditions | Min | Typ | Max |
|------------------------------|--|-----|------|-----|
| Idle Power(W) | SD GND, BT Disconnection | / | 0.06 | 0.1 |
| | BT Connection | / | 0.4 | 0.5 |
| Standby Power(mW) | SD GND, only when low power module available | / | 0.5 | 1 |
| Output Noise Level(μ V) | A-weighting, input connected to GND | / | 185 | / |
| SNR(dB) | 10W@4 Ω THD+N=1% | / | 92 | / |
| THD(%) | @4 Ω ,10W,1KHZ | / | 0.02 | / |

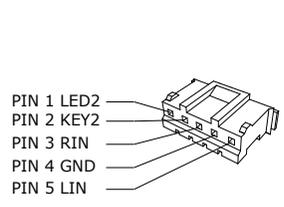
7 Installation and Typical Performance Graphs

JAB1



- Input**
- 1 Bluetooth 2.1 Module
- Power Supply**
- 2 19V adapter for 2 x 15W Audio Amplifier Board
-
- 12.3V lithium battery for 2 x 15W Audio Amplifier Board, lithium battery charged from 19V adapter
- LED Indicators**
- 3 Battery Charging Indicator
 - 4 Bluetooth Indicator
 - 5 Power Indicator
- Control**
- 6 Switch
 - 7 Interface Extension Board / AUX Line-in Cable
 - 8 Volume Control
- Output**
- 9 Left Channel (PBTL: Speaker +)
 - 10 Right Channel (PBTL: Speaker -)

How to plug in AUX line-in cable?



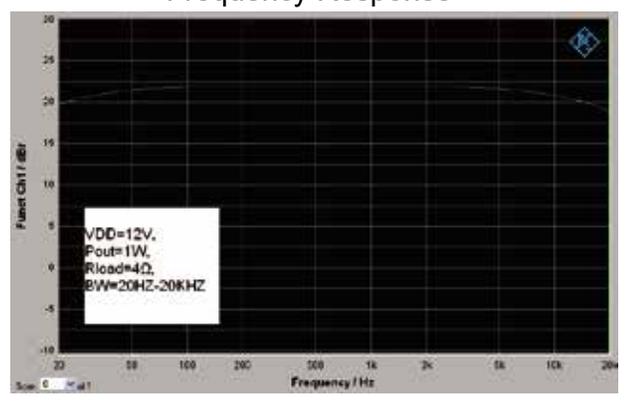
Extension Connector:
J6 PH-10PIN-2MM

| Pin | Definition |
|-----|------------|
| 1 | VCC |
| 2 | VCC |
| 3 | GND |
| 4 | LED1 |
| 5 | KEY1 |
| 6 | LIN |
| 7 | GND |
| 8 | RIN |
| 9 | KEY2 |
| 10 | LED2 |

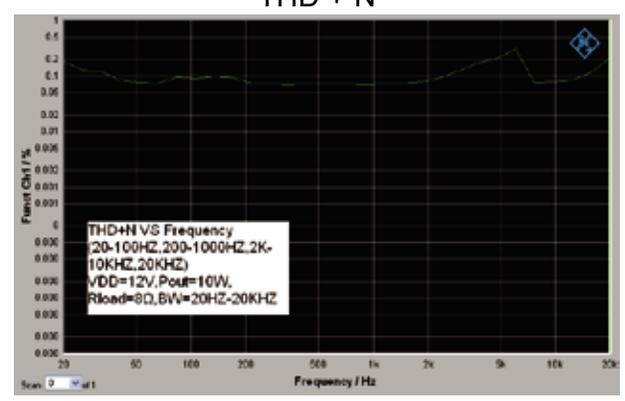
Each PIN connection of AUX Line-in Cable and JST PHR-10 terminal should be corresponding. For more detailed information, please refer to silkscreen on board or PIN Definition chapter. Basically, the AUX Line-in Cable should be connected on the upper of the JST PHR-10 terminal. (Near the Bluetooth module part)

Typical Performance Graphs

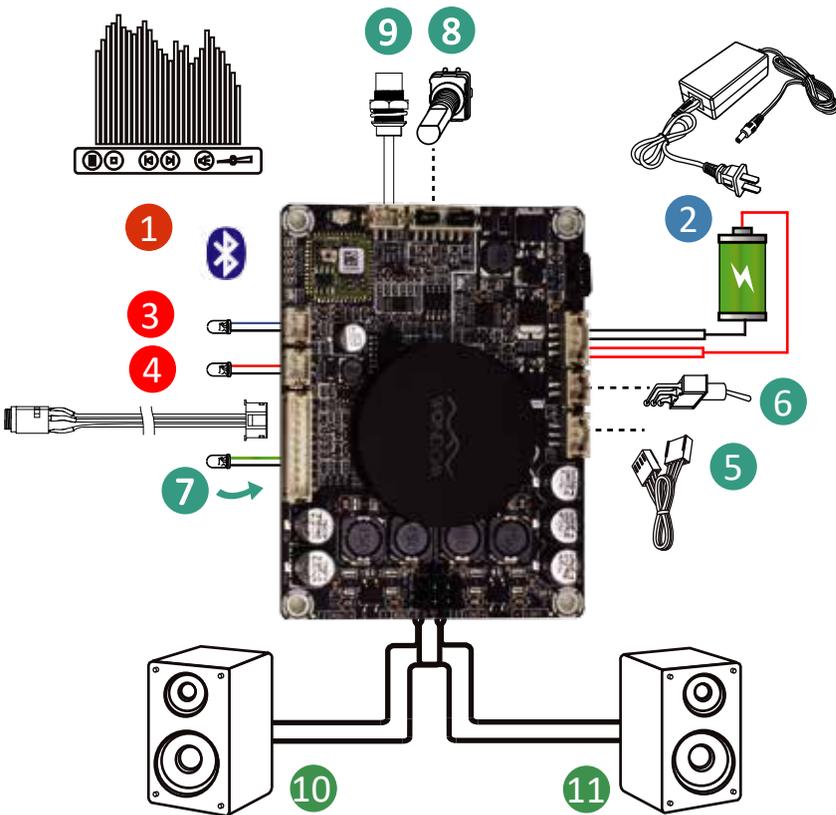
Frequency Response



THD + N



JAB2



- Input**
- 1 Bluetooth 4.0 Module
- Power Supply**
- 2 19V adapter for 2 x 30/50W Audio Amplifier Board
-
- 12.3V lithium battery for 2 x 30/50W Audio Amplifier Board, lithium battery charged from 19V adapter
- LED Indicators**
- 3 Bluetooth Indicator
 - 4 Battery Charging Indicator
- Control**
- 5 Control Connection with JAB3
 - 6 Switch
 - 7 Interface Extension Board / AUX Line-in Cable/ Power Indicator
 - 8 Volume Control
 - 9 Bluetooth Control

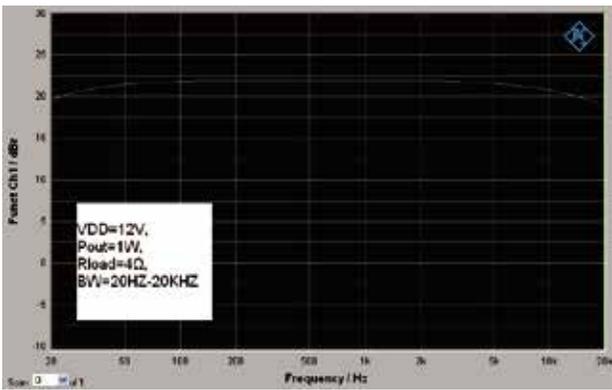
Output

- 10 Left Channel (PBTL: Speaker +)
- 11 Right Channel (PBTL: Speaker -)

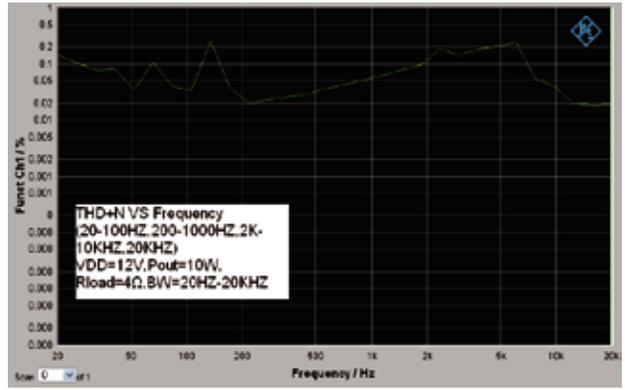
Typical Performance Graphs

JAB2-250

Frequency Response

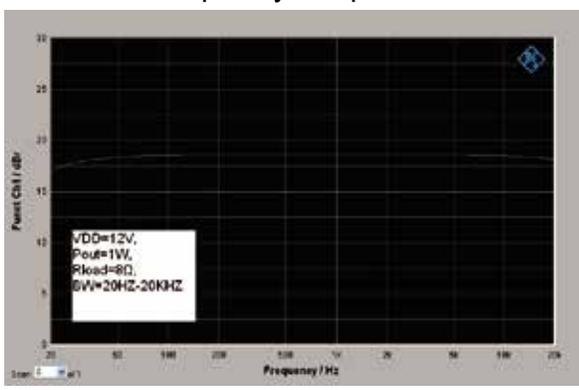


THD + N

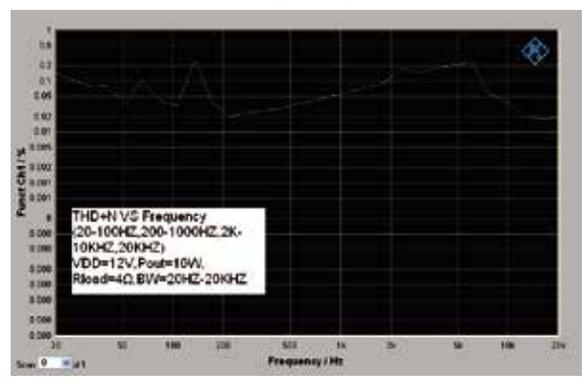


JAB2-230

Frequency Response



THD + N



8 Extended Functions

The 2-port USB charger on interface extension board supports USB battery charging specification, revision 1.2 (BC 1.2) which could automatically switch D+ and D- lines connections for an attached device. It is able to charge any mobile phones with the maximum charging current, including Apple and Samsung. And it is equipped with Ground Noise Isolation, so it will not lead to noise on the 3.5mm auxiliary input. USB Type-C form charging port is optional. Please contact us at store@sure-electronics.com for more detailed information.

Maximum battery voltage will be 12.3V when fully charged so default configuration for battery extension is 3 pieces 18650 type batteries in series.

A special circuit is built in JAB audio amplifier boards for undervoltage protection and will only consume 30µA when battery voltage is less than 10V or any specified value customer requires. When the board is running and battery is fully charged with no audio signal applied, typical standby current is only 10mA. More than 1 week continuous playback time is achievable and customers do not need to worry about battery damages from being fully discharged.

MOQ 5,000 pieces batteries will be required due to air traffic control. It is suggested to choose ocean shipping for batteries. Please feel free to contact with store@sure-electronics.com for more detailed information.



Low Battery Protection Mode



Total Standby Consumption

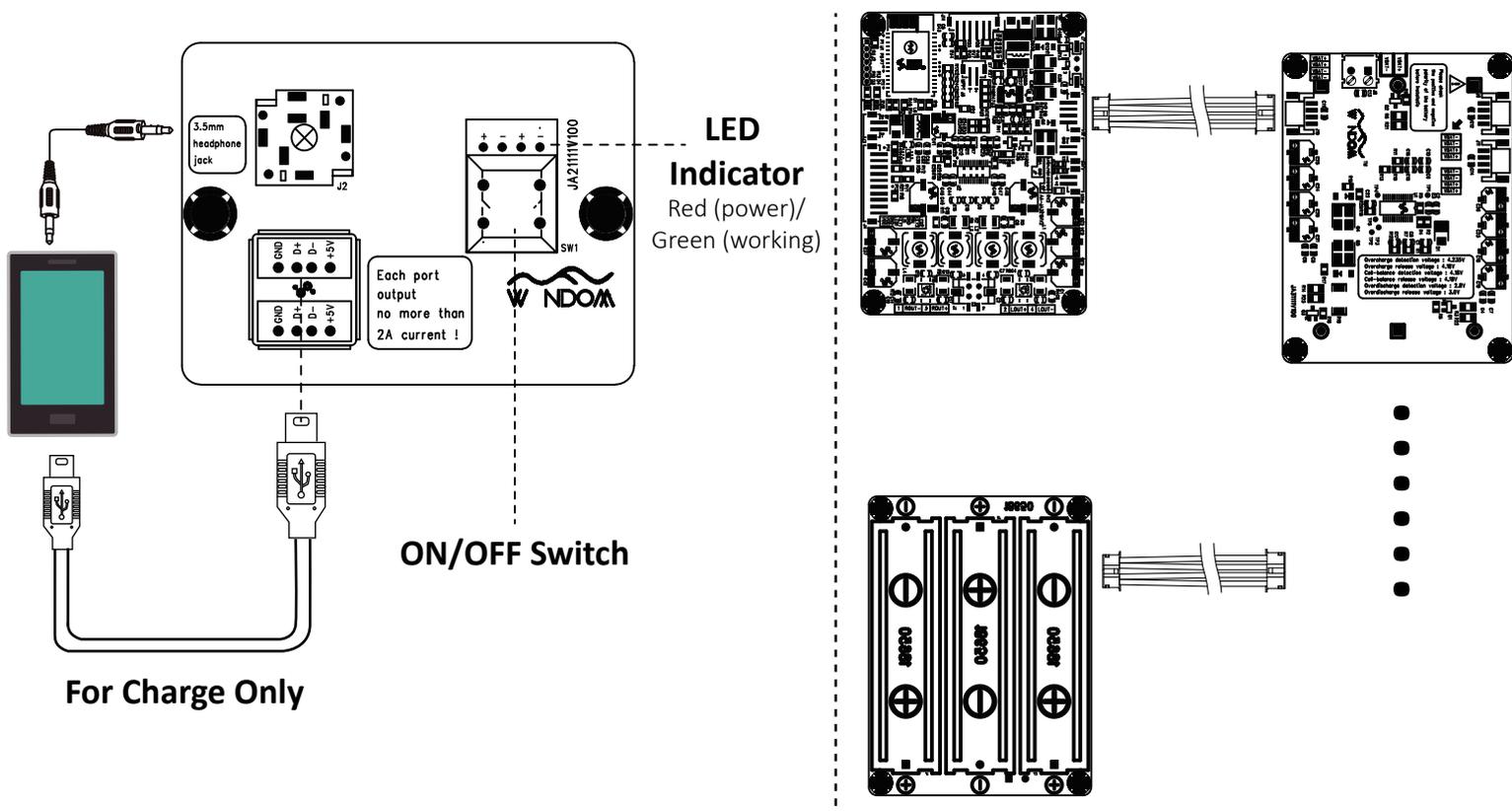


Undervoltage Protection Mode



Fully Charged Battery Voltage

9 Extension Board (Optional)



For more detailed information about Interface Extension Board with USB Charge Only and 3.5mm AUX (AA-JA11112) and 3S 18650 Lithium Battery Balance and Protection Extension Board (AA-JA11113), please refer to the datasheet.

10 Disclaimers

1. Sure Electronics will update the hardware of JAB2 to make it fully compatible with JAB3. This means, when using JAB3 with this version JAB2 (PCB Version: AA-JA13217V150), some compatibility problem, like popping noise, may occur and will not affect the normal use. For more information about JAB2, contact us at store@sure-electronics.com. When new generation of JAB released, different versions may appear in the market at the same time. Sure Electronics will reserve the right to stop supporting or provide limited support for the old version. This means, when using new generation with old version, some functions may be invalid. For example, JAB3 can work with JAB2, but it is not suggested to work with JAB1.
2. 3S 18650 Lithium Battery Balance and Protection Extension Board (AA-JA11113) is designed for protecting batteries and balancing voltage. Please kindly be noticed that the battery charging circuit is integrated in JAB1/2, which means that JAB1/2 is a requisite if you want to charge battery board.
3. Please note that the JAB1 has a plug in detection circuit on board, the Bluetooth input and 3.5mm AUX in can not be used at the same time. 1 jumper cap is added on the JAB1. Please do not remove it if you do not need 3.5mm AUX IN Jack in your application.
4. The on/off switch on interface extension board can not work for JAB1. The switch cable (connect with 2PIN PH terminal on board) can work without any problem.

11 Price List

| Basic Products | | | |
|----------------------|------------|--|--------------|
| Package List | P/N | Item | Listed Price |
| JAB1 | AA-JA32151 | 2 x 15 Watt 4 Ohm Class D Audio Amplifier Board BT2.1 | \$19.90 |
| JAB2-230 | AA-JA32472 | 2 x 30 Watt 8 Ohm Class D Audio Amplifier Board BT4.0 | \$32.90 |
| JAB2-250 | AA-JA32171 | 2 x 50 Watt 4 Ohm Class D Audio Amplifier Board BT4.0 | \$37.90 |
| JAB3-230 | AA-JA32473 | 2 x 30 Watt 8 Ohm Class D Audio Amplifier Board w DSP | \$29.90 |
| JAB3-250 | AA-JA32172 | 2 x 50 Watt 4 Ohm Class D Audio Amplifier Board w DSP | \$34.90 |
| Optional Accessories | | | |
| Accessories | AA-JA11114 | Functional Cables Package for JAB1/2 | \$4.99 |
| | AA-JA11116 | Functional Cables Kit for Connection of JAB3 and JAB2 | \$4.99 |
| | AA-JA11112 | Interface Extension Board | \$5.99 |
| | AA-JA11113 | Lithium Battery Balance and Protection Extension Board | \$7.99 |
| | AA-JA11115 | L-type Aluminum Bracket | \$2.99 |
| Power Adapter | PS-SP11504 | HuntKey HKA03619021-8C 19V 2.1A 40W AC/DC Power Adapter | \$16.90 |
| | PS-SP11505 | HuntKey HKA06519034-6J 19V 3.42A 65W AC/DC Power Adapter | \$22.90 |
| | PS-SP11506 | HuntKey HKA09019047-6D 19V 4.74A 90W AC/DC Power Adapter | \$39.90 |

Note:
Basic cables package includes one piece 4 Pin Molex micro-fit speaker cable and one piece 2 Pin Molex micro-fit power cable. Length of listed above are 50cm. Additional \$0.29 will be charged for each extra 50cm length.

12 Contact Us



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