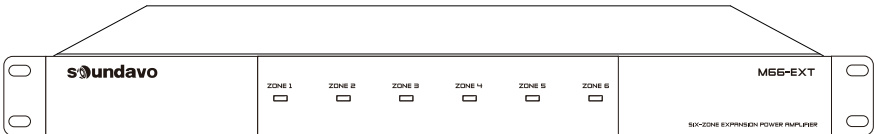




M66-EXT

Six-Zone Expansion  
Power Amplifier



# DEAR CUSTOMER

Thank you for purchasing this product. For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

## WARNING

1. Do not expose this unit to water, moisture, or excessive humidity.

2. Do not install or place this unit in a built-in cabinet, or other confined space without adequate ventilation.

3. To prevent risk of electrical shock or fire hazard, due to overheating do not obstruct unit's ventilation openings.

4. Do not install near any source of heat, including other units that may produce heat.

5. Do not place unit near flames.
6. Only clean unit with a dry cloth.

7. Unplug unit during lightening storms or when not used for an extended period of time. A surge protector is strongly recommended.


8. Protect the power cord from being walked on or pinched, particularly at the plugs.

9. Use unit only with accessories specified by the manufacturer.

10. Refer all servicing to qualified personnel.


## CAUTION


CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,  
DO NOT REMOVE COVER (OR BACK).  
NO USER-SERVICEABLE PARTS INSIDE.  
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



CAUTION

RISK OF ELECTRIC SHOCK  
DO NOT OPEN





# INTRODUCTION

Soundavo M66-EXT, specially designed for custom integration of whole home audio systems, the M66-EXT serves as a expansion amplifier for the Soundavo WS66i to expand other 6 zone speaker outputs. it provides up to 50W x 2 power by class D amplifier and distribute at most to 18 zones (with 1 x WS66i and 2 x M66-EXT), which all can be controlled by APP, or the optional keypads & IR remote controller.

## FEATURE

- Works together with Soundavo WS66i to expand speaker zone in custom integrated multi-room audio systems from original 6 zone to 12 zones (with Slave 1).
- 6 zones of high efficiency more than 85% Class D amplification with 4/8 ohms capable.
- Each of zone is also bridgeable to 100W RMS @ 8 ohms, giving you the option to increase power output to select speakers if needed.
- 6 LEDs for 6 zones Power On, Standby and Mute.
- Built in IR emitter output.
- Mini Jack TRS PRE-AMP output on each zone.
- Can be controlled via WS66i Control APP under Slave 1 and 2 page for the source selection, volume, zone on/off, treble, bass, mute and balance.
- Interlocks power on/off with Soundavo WS66i via Trigger I/O.
- Works with optional keypad/IR remote controller.
- 1U-high, rack-wide enclosure; removable rack ears and faceplate included.
- AC 115V / 230V input auto switching

## SPECIFICATION

Output Power: 25W x 2 per zone (at 8Ω)

Output Power: 50W x 2 per zone (at 4Ω)

Output Power: 100W per zone (Bridged at 8Ω)

S/N: >85dB A WTD

THD: <0.1%

Frequency Response: 20Hz-20KHz

Protection Function: Overload, Short Circuit

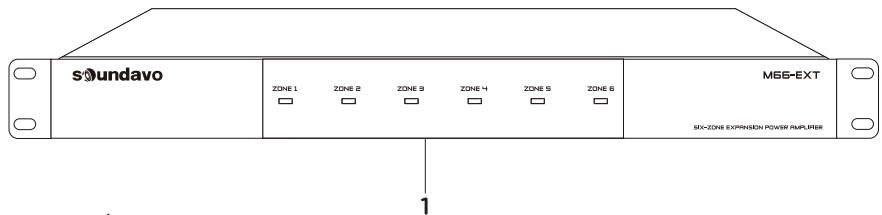
System on Voltage: DC +12V

External Mute Voltage: DC +12V

Power Supply: AC115V/60Hz, 230V/50Hz

Output Connection: 4P Terminal Block

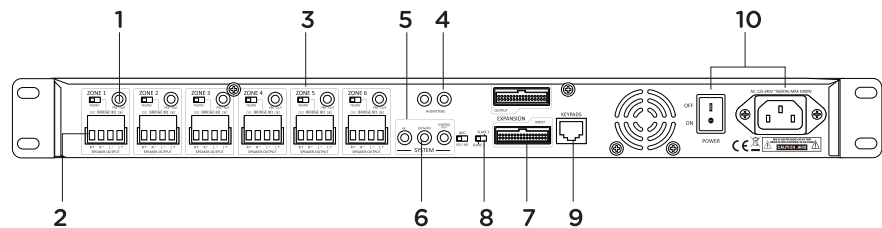
# FRONT PANEL



## 1. Standby/Zone ON LED

These six LEDs illuminate to indicate the status of each zone.  
Blue: In Standby mode.White: In Activate mode.Blue/White: In Mute mode.

# REAR PANEL



## 1. PRE-AMP OUTPUT

Stereo Line level output on each zone.  
Connect to additional amplifier with higher output, or powered Sub-woofers.

## 2.SPEAKER OUTPUTS

6 x Removable terminal block connectors on each zone.  
Each zone provides 2x50W @ 4 Ohm or 100W @ 8 Ohm in bridge mode.

## 3.STEREO/BRIDGE SWITCH

## 4.IR EMITTERS

Those two corresponding Infrared (IR) emitter outputs that can be used to control the audio source component/device that connected to the WS66i Master unit (see page 12)

## 5.PA-IN

12VDC paging trigger input

## 6.EXT. MUTE/CONTROL OUT

Mute the entire system with the 12VDC MUTE IN.  
Use the12VDC CONTROL OUT to trigger other equipment

## 7.EXPANSION IN/OUT PORT

Expandable to 18 zones with 3 x Multi-zone Controller systems.

## 8.SLAVE 1/SLAVE 2 SWITCH

Set the unit ID when connecting multi Controller systems

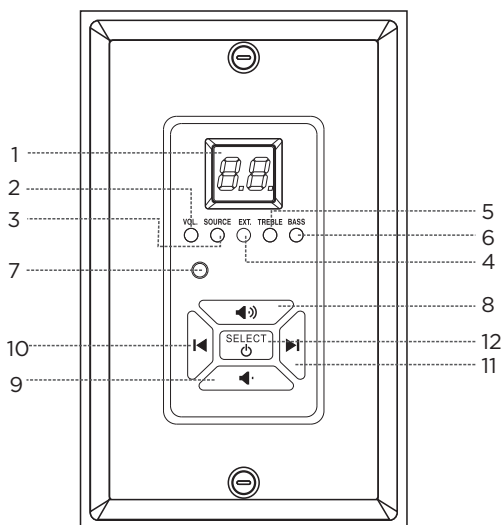
## 9.KEYPAD CONNECTOR

RJ-45 jack Connects to the keypad hub for 6 keypads.

## 10.AC INPUT/POWER SWITCH

# KEYPAD

## (optional accessories)



**1. Numeric LED Display:** The digital LED display show the number of the source device, as well as the volume, treble, and bass level.

**2. VOL. LED:** When illuminated, this LED indicates that the Numeric LED is displaying the volume level. Use the Up and Down buttons to increase and decrease the volume level.

**3. Source LED:** When illuminated, this LED indicates that the Numeric LED is displaying the source selection.

**4. EXT. LED:** When illuminated, this LED indicates that the Mute function is enabled or that a PA broadcast is in progress

**5. Treble Mode LED:** When illuminated, this LED indicates that the Numeric LED is displaying the treble level. Use the Up and Down buttons to increase and decrease the treble level.

**6. Bass Mode LED:** When illuminated, this LED indicates that the Numeric LED is displaying the bass

**7. Infrared (IR) Receiver:** The IR receiver is used to receive the signals sent from the include remote control are used to control the wall plate keypad.

**8. Up Button:** Use this button to increase the volume, treble, or bass levels (depending on which mode is selected). If the zone is muted, pressing this button will unmute it.

**9. Down Button:** Use this button to decrease the volume, treble, or bass levels (depending on which mode is selected). If the zone is muted, pressing this button will unmute it.

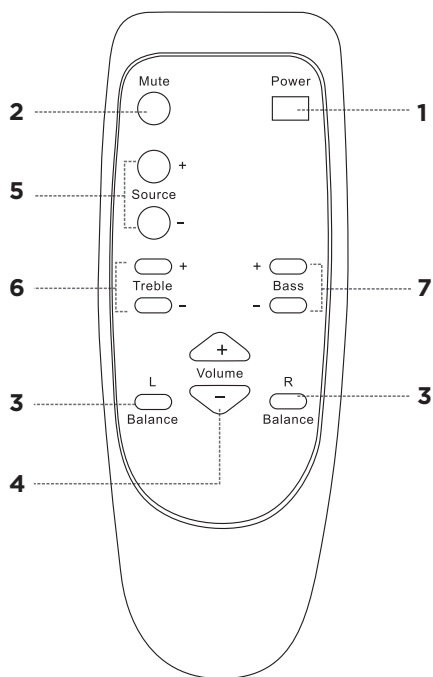
**10. Previous Source Button:** Use this button to cycle backwards through the list of available source. For example, if source 3 is currently selected, pressing this button will change to source 2.

**11. Next Source Button:** Use this button to cycle forwards through the list of available source. For example, if source 3 is currently selected, pressing this button will change to source 4.

**12. Select-Power Button:** Press and hold this button for about 3 seconds to turn the zone on or off. When the zone is on, pressing the button will cycle through the available adjustment modes.

# REMOTE CONTROL

(optional accessories)



1. Power: switches power (On/Off) for the certain zone.
2. Mute: allows you to mute a certain zone.
3. BAL: These L & R buttons can adjust the balance of L/R channel in stereo mode.
4. VOL: Volume adjustment
5. Source: Used to select signal input.
6. Treble: This allows you to enhance or reduce Treble of signal in individual zone.
7. Bass: This allows you to adjust the Bass for the individual zone

# CONNECT AND OPERATE

(Before you begin to install the M66-EXT)

\* The M66-EXT unit is not work as stand-alone, so it does not have audio input and volume controls, the main 6 audio sources will come from the WS66i master unit

\* Connect all the audio source devices to the WS66i MASTER unit to the Source Input 1 (RCA), 2 (RCA), 5 (Mini Jack TRS), 6 (Optical / Mini Jack TRS), and WiFi Streamer or USB stick to Source Input 3 & 4.

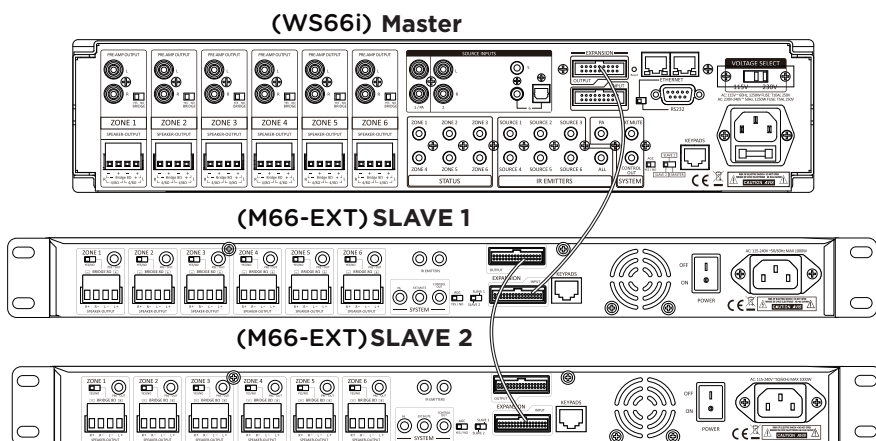
\* Make sure you connect with the WS66i matrix amplifier as the MASTER Unit via the ribbon cable to the M66-EXT unit.

\* The M66-EXT Slave 1 (Slave 2) unit only can be control via WS66i APP's Slave 1/2 window page (or the optional keypad/remote controller)

\* By using the expansion cable, the WS66i can be expanded up to 18 zones using 2 additional complete M66-EXT units. Connect the expansion cable from the WS66i MASTER unit output and cascade the units from output to input. Next you must select which M66-EXT unit will be the SLAVE 1, or SLAVE 2 by using the select switch.

The following data and control is provided between units using the expansion cable: All source audio information - All RS232 control data - All MCU communication between the MASTER and SLAVE units.

Note, only WS66i as main MASTER unit needs to be connected to the LAN with internet router.



\* Connection between WS66i and M66-EXT:

1. Make sure each unit is correctly addressed:

The WS66i unit set as "Master" (for Zone 1 ~ Zone 6)

First M66-EXT unit set as "SLAVE 1" (for Zone 7 ~ Zone 12)

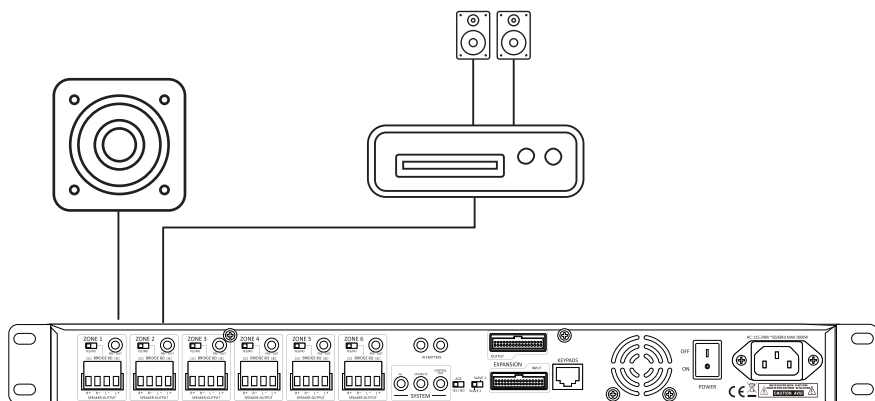
Second M66-EXT unit set as "SLAVE 2" (for Zone 13 ~ Zone 14)

2. Use the provided ribbon cables to connect the OUTPUT of the original WS66i MASTER unit into the INPUT of SLAVE1

3. To cascade the source into a third unit, using the provided expansion ribbon cable, go out of the OUTPUT port from the device addressed as SLAVE 1 into the INPUT port of the device addressed as of SLAVE 2

## USING THE PRE-AMP OUTPUTS

There are 6 unbalanced, line level Pre-Amp outputs that correspond to the first 6 Outputs. These can be used to connect an additional amplifier, expand zones, or to connect a powered subwoofer. The Pre-amp output levels are not fixed and are able to be controlled via IR, RS232, keypads and network.





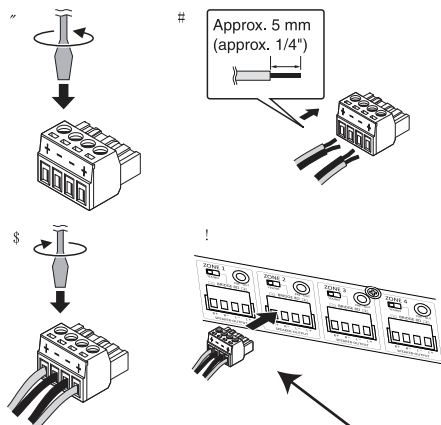
# CONNECTING THE SPEAKERS

The M66-EXT can work with speakers that are 4-8 ohms, there are two modes that can be set for different setups: Stereo or Bridge.

An 8 ohms speakers can only be used when in BRIDGE Mode, to choose between modes, please follow the speaker connection information below:

## ■ Connecting speakers

Connect the speakers to the unit with the supplied Euroblock plug and commercially-available speaker cables.



- 1 Loosen terminal screws.
- 2 Insert cables.
- 3 Securely tighten terminal screws.
- 4 Insert the Euroblock plug into the **SPEAKERS** terminals of the unit.

### Note

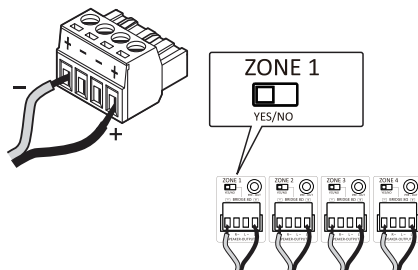
- You must use the supplied Euroblock plugs. If the plugs have been lost, please contact your Yamaha dealer.
- Recommended cable gauges for the Euroblock plug: AWG26 (0.13 mm<sup>2</sup>) to AWG16 (1.3 mm<sup>2</sup>)
- To prepare the cable for attachment to a Euroblock connector, strip the wire as shown in the illustration using stranded wire to make connections. With a Euroblock connection, stranded wires may be prone to breakage because of metal fatigue due to the weight of the cable or due to vibration. When rack mounting your device, use a lacing bar when possible to bundle and fasten the cables.
- Do not tin (solder) the exposed end.

## ■ Connecting speakers in bridge mode

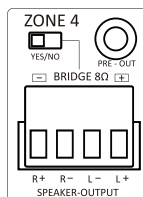
Connect the speakers to the unit with the supplied Euroblock plug and commercially-available speaker cables, and set the NORMAL/BRIDGE switch to "BRIDGE".

### Note

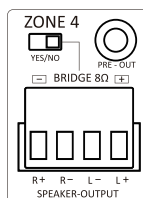
Unplug the unit's power cord from the AC wall outlet before changing the BRIDGE (YES/NO) switch setting.



## BRIDGE MODE

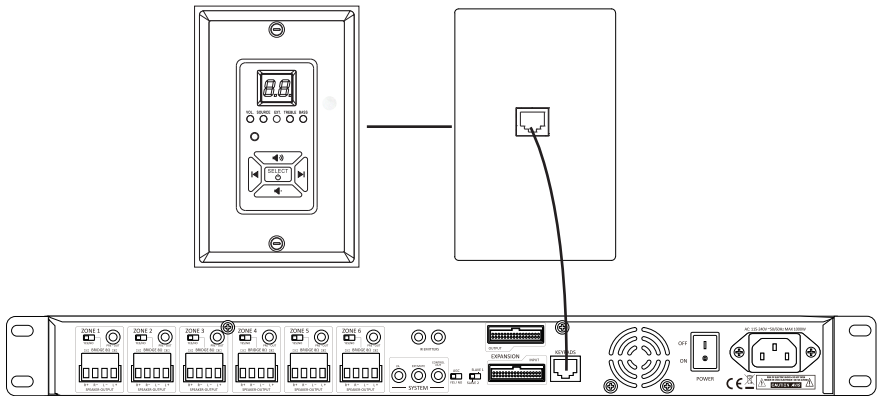


## STEREO MODE

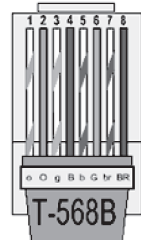


# CONNECTING THE KEYPADS

The M66-EXT can be controlled via 6 POE enabled keypads (optional). This allows for source control from each specific zone as well as IR routing to the appropriate source devices once selected. The M66-EXT also comes with optional hub that allows for all 6-keypads to be connected to the amp via Cat5e/6.



Without power being connected, connect a Cat5e/6 cable to the RJ45 port labeled KEYPADS on the back of the AMP We recommend terminating the Cat5e/6 using the 568B standard.



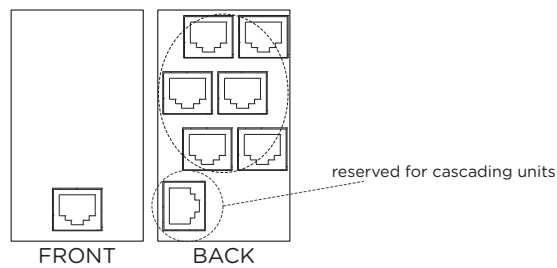
At this point it is also important to address your keypads. Refer to the chart below which is also found on the PCB board of the back of the keypad to set the dip switches according to the zone you would like it to control.

<b>ZONE-1</b> <table><tr><td>OFF</td><td>OFF</td><td>OFF</td></tr><tr><td>1</td><td>2</td><td>3</td></tr></table>	OFF	OFF	OFF	1	2	3	<b>ZONE-2</b> <table><tr><td>OFF</td><td>OFF</td><td>ON</td></tr><tr><td>1</td><td>2</td><td>3</td></tr></table>	OFF	OFF	ON	1	2	3	<b>ZONE-3</b> <table><tr><td>OFF</td><td>ON</td><td>OFF</td></tr><tr><td>1</td><td>2</td><td>3</td></tr></table>	OFF	ON	OFF	1	2	3
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<b>ZONE-4</b> <table><tr><td>OFF</td><td>ON</td><td>ON</td></tr><tr><td>1</td><td>2</td><td>3</td></tr></table>	OFF	ON	ON	1	2	3	<b>ZONE-5</b> <table><tr><td>ON</td><td>OFF</td><td>OFF</td></tr><tr><td>1</td><td>2</td><td>3</td></tr></table>	ON	OFF	OFF	1	2	3	<b>ZONE-6</b> <table><tr><td>ON</td><td>OFF</td><td>ON</td></tr><tr><td>1</td><td>2</td><td>3</td></tr></table>	ON	OFF	ON	1	2	3
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<b>ZONE-13</b> <table><tr><td>ON</td><td>ON</td><td>OFF</td></tr><tr><td>1</td><td>2</td><td>3</td></tr></table>	ON	ON	OFF	1	2	3	<b>ZONE-14</b> <table><tr><td>ON</td><td>OFF</td><td>ON</td></tr><tr><td>1</td><td>2</td><td>3</td></tr></table>	ON	OFF	ON	1	2	3	<b>ZONE-15</b> <table><tr><td>ON</td><td>OFF</td><td>OFF</td></tr><tr><td>1</td><td>2</td><td>3</td></tr></table>	ON	OFF	OFF	1	2	3
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<b>ZONE-16</b> <table><tr><td>OFF</td><td>ON</td><td>ON</td></tr><tr><td>1</td><td>2</td><td>3</td></tr></table>	OFF	ON	ON	1	2	3	<b>ZONE-17</b> <table><tr><td>OFF</td><td>ON</td><td>OFF</td></tr><tr><td>1</td><td>2</td><td>3</td></tr></table>	OFF	ON	OFF	1	2	3	<b>ZONE-18</b> <table><tr><td>OFF</td><td>OFF</td><td>ON</td></tr><tr><td>1</td><td>2</td><td>3</td></tr></table>	OFF	OFF	ON	1	2	3
OFF	ON	ON																		
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(SLAVE 2)

Connect the other end of the Cat5e/6 to the lone RJ45 port found on the front side of the Keypad Hub. The front is what fits into the provide decora plate. Note that the Cat5e/6 between the unit and the hub should only be between 7-10ft. The RJ45 ports on the back of the Keypad Hub are not assigned but the single RJ45 port isolated on the bottom of the hub is reserved for cascading units.



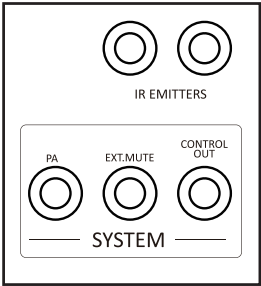
Connect the other end of the terminated Cat5e/6 to the RJ 45 port on the back of the assigned keypad and installation is complete. Complete zone and source control as well as IR and power are provided through the single Cat5e/6.

CONTROL: When any zone is on, 12Vdc applied to the CONTROL OUT. When All zones are OFF, 12Vdc removed from the CONTROL OUT

Trigger Inputs:

PA- IN: Apply 12Vdc for input #1 override on all six zones.

MUTE - IN: Apply 12Vdc to mute all zones.



# IR EMITTERS

The M66-EXT provides two corresponding Infrared (IR) emitter outputs that can be used to control the audio source component/device that connected to the WS66i Master unit, remotely through the WS66i/M66-EXT IR system.

When being used with keypads (optional), the M66-EXT can receives total 2 IR signals from each zone, and routed back through the Cat5e/6 and Keypad up to the amplifier to control all (global) source that connected to the WS66i master unit.

For example, if the CD Player device has been connected to the Input Source 2 on the WS66i master unit, simply connect an IR emitter to the IR Emitter output jack (either one) from the M66-EXT, and then connect the flasher from the IR emiiter cable to the IR receiver window on source 2 (CD Player)

The user will be able to control the CD Player to power the device on/off, change settings etc....

(Repeat this for the second Infrared (IR) enabled sources for complete IR source control)

