

**AMR650 V2.0**  
**A-BUS Active Ceiling Speakers**  
**Installation Guide**

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# PACKAGING CONTENTS

This package should contain the following:

- 1 x AMR650-A V2.0 Active Speaker
- 1 x AMR650-P V2.0 Passive Speaker
- 1 x Installation Guide
- 1 x cutting template
- 1 x painting mask

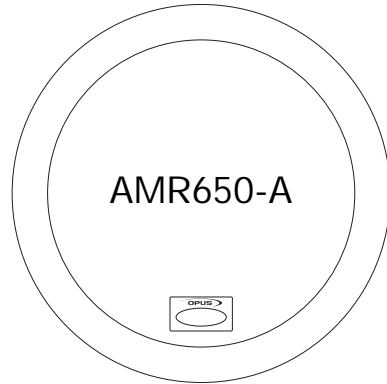
If any of the above items are missing or appear damaged, contact your Opus dealer immediately. Do not throw the away the packaging in case you need to return your AMR650 V2.5.

# INTRODUCTION

The Opus AMR650 V2.0 is an A-BUS™ compatible ceiling-mounted speaker pair for use where an installer wishes to avoid the complication of a separate keypad and speakers. It uses the Octopus MCU300 as the hub or connects to an Opus sub-zone output etc.

The AMR650 V2.0 consists of one active speaker with a stereo power amplifier and other electronics built-in (AMR650-A); and one passive speaker (AMR650-P).

Please take the time to read this guide fully as it contains important information and should be retained for future reference.



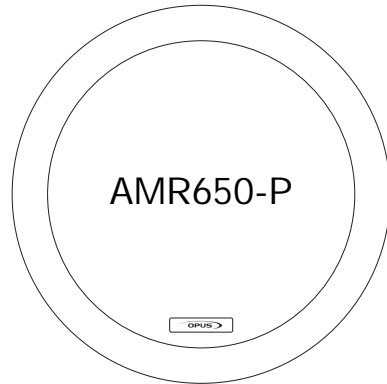
# CARE AND MAINTENANCE

Your speakers are an example of superior design and craftsmanship. These suggestions will help you care for them so you can enjoy them for years.

Keep the speakers dry. If they get wet dry immediately. Liquids can contain minerals that can corrode electronic components.

Keep the speakers away from dust or dirt, which can cause premature wear of parts.

Wipe the speaker frame occasionally with a damp cloth to keep it looking new. Do not use harsh chemicals, cleaning solvents or strong detergents.



# INSTALLATION NOTES

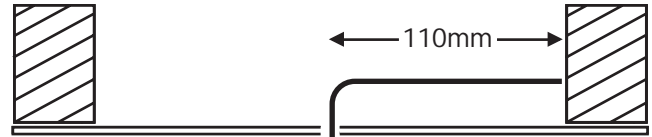
It is advisable to plan all aspects of installation in advance of work beginning, preferably with the house/flat building schematics if available. Great care should be taken to ensure that all building regulations are followed. When deciding upon a ceiling placement, care should be taken to avoid joists, load bearing beams etc

Before cutting ceiling loudspeaker holes it is suggested that the area is tested for clearance by making an L-shaped probe from strong wire (eg a coat hanger), drilling a small hole in the target area, inserting the probe and slowly turning. Any obstructions will be immediately obvious, and the target area can be moved to a more suitable position.

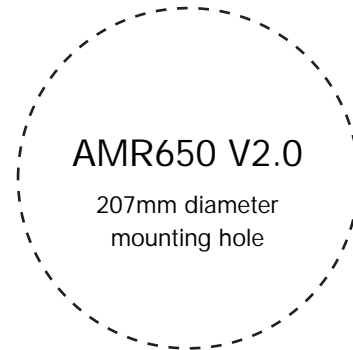
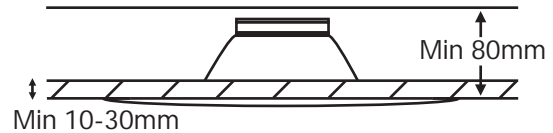
When placing the AMR650 V2.0 speakers, thought should be given to positions which give the best desired sound coverage throughout a room, while not interfering with existing or planned light fittings or joists. Also, locate loudspeakers taking into account location of furnishings for optimal stereo reproduction.

When mounting speakers flush to a ceiling or wall, ensure that enough depth/clearance is available in the respective cavity. A clearance of at least 80mm is necessary when mounting an AMR650 V2.0.

Remove the round cardboard pad from inside the supplied template (see below). Use the template to mark the position for the mounting hole at the selected location. Cut the mounting hole with a drywall or keyhole saw.



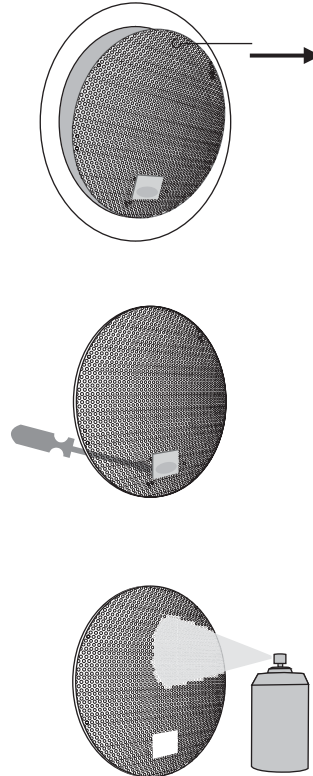
Use an L-shaped probe to check available void space before cutting loudspeaker holes



## PAINTING THE AMR650 V2.0

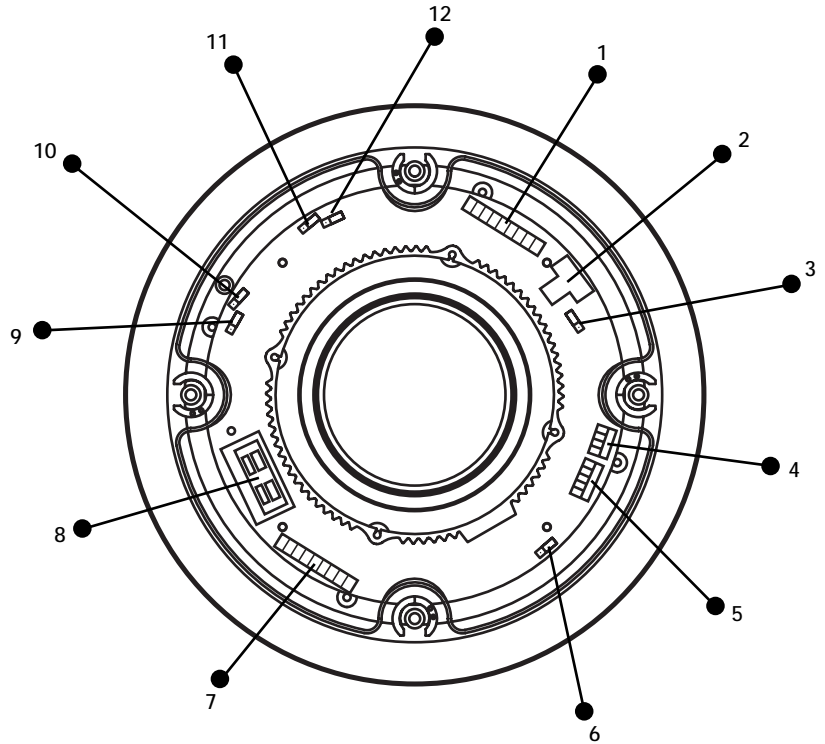
1. Remove the grille by inserting a small hook or similar small implement into one of the grille openings, then pulling on the grille. For the AMR650-A, carefully disconnect the IR connector lead before proceeding.
2. Fit the clear plastic painting mask provided when painting the speaker surround to avoid getting paint getting on the speaker cone.
3. Spray-painting the grille will prevent blocking the grille holes with paint. For the AMR650-A unscrew the IR window assembly before spray painting. Do not paint the silver IR window on the AMR650-A Active speaker. If you do not wish to not paint the silver badge on the AMR650-P Passive speaker, cover with masking tape.

After the paint dries, remove the paint mask and replace the grille.



# AMR650-A REAR CONNECTIONS

- 1 - Connection to MCU or A-BUS Ready socket via Cat-5/5E cable
- 2 - Optional independent local power socket
- 3 - Stereo/Mono jumper (CN17)
- 4 - Local input
- 5 - Preamp output
- 6 - Stereo/Mono jumper (CN14)
- 7 - Cat-5e connection to passive speaker
- 8 - Speaker cable connection to passive speaker
- 9 - 123 jumper (no current function)
- 10 - Opus/A-BUS mode jumper
- 11 - Local jumper
- 12 - Fader jumper



# AMR650-A JUMPER SETTINGS

The AMR650-A has six 'Push-on Jumpers' (shown below - see opposite for PCB location) that select between different modes of operation. Incorrect positioning will prevent the AMR650 V2.0 from working properly.

## Fader

Turns Fader function on and off. See page 11 for further details.



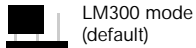
Fader off (default)



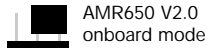
Fader on

## Local

Switches between LIM300 local and AMR650 V2.0 onboard option. See page 10 for further details.



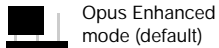
LM300 mode (default)



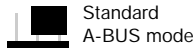
AMR650 V2.0 onboard mode

## Opus/A-BUS

Switches between Opus Enhanced mode for use with Octopus hubs, and normal A-BUS mode.



Opus Enhanced mode (default)

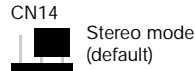


Standard A-BUS mode

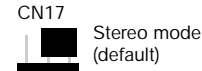
For use with an Octopus MCU300 A-BUS hub the jumper MUST be in the OPUS position. For use with standard A-BUS hubs and amplifiers from other manufacturers (or as a sub-zone to a MCU500 based system) the jumper MUST be in the A-BUS position.

## Stereo/Mono

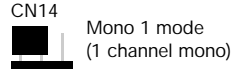
Adjusting the CN17 and CN14 jumpers together switches the speaker between some stereo and mono modes. Two mono modes are available, see page 10 for further details.



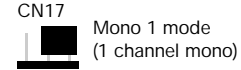
CN14 Stereo mode (default)



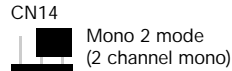
CN17 Stereo mode (default)



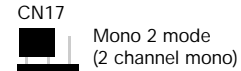
CN14 Mono 1 mode (1 channel mono)



CN17 Mono 1 mode (1 channel mono)



CN14 Mono 2 mode (2 channel mono)



CN17 Mono 2 mode (2 channel mono)

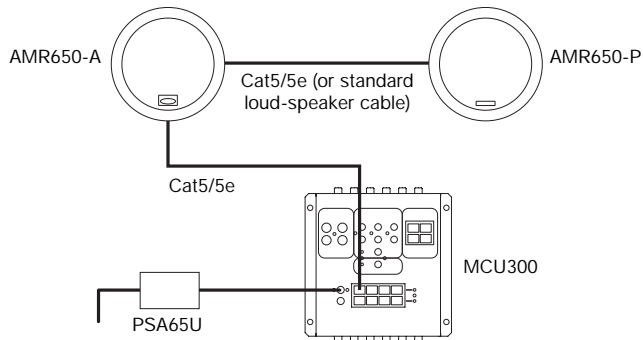
## 123

No current function.

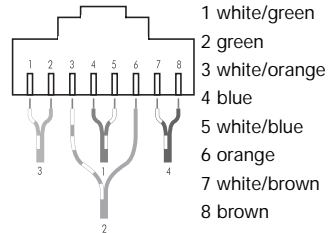
# CONNECTING THE AMR650 V2.0

- Using a single Cat5e cable, connect the AMR650-A to the MCU300 via an RJ45 plug at the Master Control Unit, and the 8-way colour-coded punch down connection at the AMR650-A. The RJ45 hub connection should be wired to EIA/TIA568A standard as shown. The Cat5 connection from MCU to the AMR650-A should not exceed 30 metres/100 feet.
- The AMR650-A is then connected to the AMR650-P using either Cat5e cable terminated at 8-way colour-coded punch down connections (all 8 cores must be connected) or using a run of standard speaker cable.

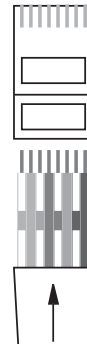
**Note:** Use a professional quality punch down tool to ensure secure punch down connections.



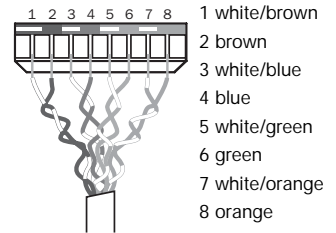
EIA/TIA 568A wiring standard  
(view from contact end):



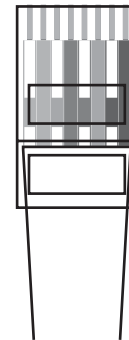
Gather pairs, trim and carefully insert into RJ45 plug:



Cat5e cable terminated at AMR650 V2.0 8-way punch down connector:

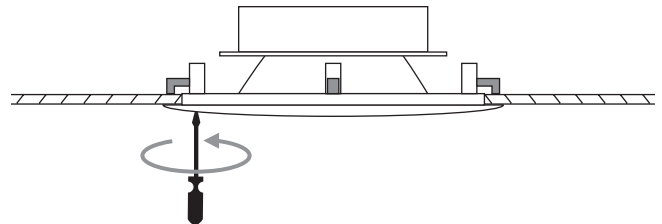
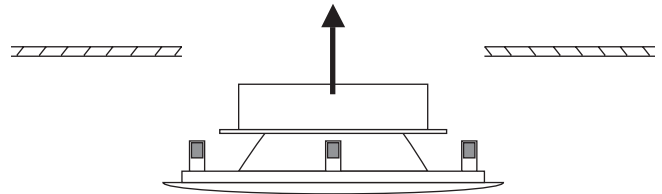


Crimp wires in place using a professional quality crimping tool to ensure a secure connection:



## MOUNTING THE AMR650 V2.0

1. Before mounting, ensure that the four fixing screws are slackened off so that the red mounting dog-legs can move freely.
2. Move each red dog-leg foot to the LEFT into it's holding slot, and then insert the speaker into the mounting hole.
3. Using a cross-head screwdriver, slowly turn each fixing screw clockwise. This will move the mounting dog-legs out of their slots.
4. Tighten each fixing screw until the mounting dog-legs grip the ceiling.



# ADVANCED FEATURES

## Local Source Input

It is possible to install a piece of source equipment to be used local to the room that contains the AMR650 V2.0. This might be a games machine or CD player in the bedroom, for example. There are two ways of connecting a local source:

### **1. Octopus LIM300 Wallplate**

The LIM300 wallplate has a line input and an IR output socket for IR control of the local source via the AMR650 V2.0. See dedicated literature for installation instructions. Local Jumper MUST be set to left and centre pins - see page 7.

### **2. AMR650 V2.0 onboard local input**

A local source can be connected directly to the AMR650 V2.0. IR control of the source can only be done 'line-of-sight' in this case as the AMR650 V2.0 does not have an IR output. Connection to the local input socket on the AMR650-A should be via screened audio cable, terminated at a suitable faceplate. Local jumper MUST be set to centre and right pins - see page 7.

## Stereo/Mono mode

The default mode for the AMR650-A is stereo, but there are two optional mono modes:

### **1. Mono 1 Mode (1 channel mono)**

In instances where it is desired to fit only one speaker (ie in a small room such as a bathroom), the AM650-A (active) speaker can be set to mono mode, and the AM650-P (passive) speaker not used. The active speaker then reproduces both left and right signals combined. Starting from the default jumper positions on the AMR650-A, the CN17 jumper stays on the RIGHT end pins and the CN14 jumper moves to the LEFT end pins - see page 7.

### **2. Mono 2 Mode (2 channel mono)**

In instances where two speakers will be installed but due to physical placement stereo imaging will not work effectively (ie in an L-shaped room or corridor etc), the speaker pair can be set to mono mode. The speakers then both reproduce left and right signals combined. Starting from the default jumper positions on the AMR650-A, move the CN17 jumper to the LEFT end pins and the CN14 jumper stays on the RIGHT end pins - see page 7.

## **Preamp Output**

A preamp output is provided for optional driving of an auxiliary stereo amplifier or active subwoofer etc. Connection from the preamp should be by screened audio cable. If utilising the preamp output facility you may wish to activate the Fader function. This will allow you to balance the relative output levels between the AMR650 V2.0 and the auxiliary component. Move the Fader jumper switch on the AMR650-A to the the centre and right pins - see page 7.

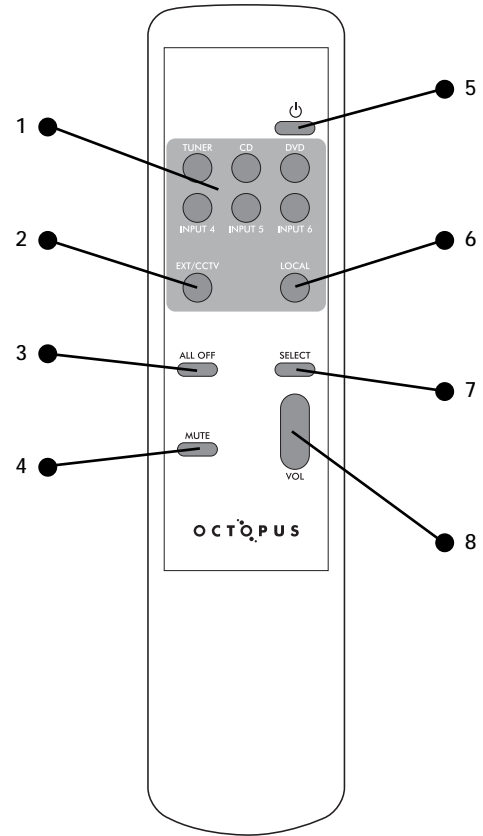
## **Independent 24V local power supply**

The AMR650 is powered directly from the MCU300 via the Cat5 cable. If your installation has very long cable runs from the MCU300 to the AMR650 V2.0 (greater than 30M) the AMR650 V2.0 must be locally powered instead. This simply involves plugging an Opus PSA65U power supply into the local power socket on the AMR650-A.

# OPERATING THE AMR650 V2.0

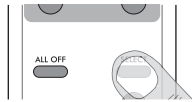
The AMR650 V2.0 can be operated entirely via an Octopus SRC300 (pictured) or LRC300 remote handset:

- 1. **Source select**      Selects source to be listened to.
- 2. **EXT/CCTV**        Selects CCTV source on the VSU300 if fitted.
- 3. **All off**            Switches the whole system to Standby.
- 4. **Mute**              Mutes the audio output of the room.
- 5. **Standby**          Switches the whole system to Standby mode. Audio is muted and 12V trigger output turned off.
- 6. **Local**              Switches to local input (where fitted).
- 7. **Select**             See opposite page for details.
- 8. **Volume**          Controls volume level and sound adjustment functions (see opposite page).

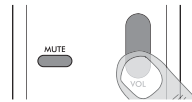


# SOUND ADJUSTMENT FUNCTIONS

## Bass

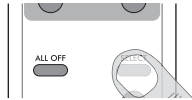


Press the *Select* button once:  
One beep will sound

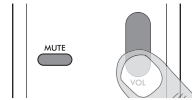


Adjust the bass level using  
the *Volume* buttons

## Treble

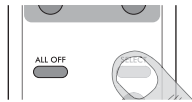


Press the *Select* button twice:  
two beeps will sound

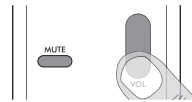


Adjust the treble level using  
the *Volume* buttons

## Balance

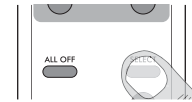


Press the *Select* button three  
times: three beeps will sound



Adjust the balance using the  
*Volume* buttons (Up = towards  
right, Down = towards left)

## Fader (if applicable)



Press the *Select* button four  
times: four beeps will sound



Adjust audio levels between main  
speakers, and any extra  
equipment connected to the  
AMR650 V2.0 pre-amp output  
(Up = towards main,  
Down = towards pre-amp)

**During sound adjustment tones are generated to indicate position within the available range:**

A single medium frequency tone indicates a neutral setting.

Two rising tones indicate the upper level of adjustment has been reached.

Two falling tones indicate the lower level of adjustment range has been reached.

# TECHNICAL SPECIFICATIONS

<b>Frequency response</b>	60Hz–20kHz (+/- 2dB)
<b>THD</b>	<0.25% @ 5W, 1kHz
<b>Signal/Noise ratio</b>	80dB
<b>Input impedance (local input)</b>	33K Ohms
<b>Volume control range</b>	0 to -78dB in 31 steps
<b>Treble control range</b>	+/- 14dB @ 20kHz, in seven 2.5dB steps (cut and boost)
<b>Bass control range</b>	+/- 14dB @ 100kHz, in seven 2.5dB steps (cut and boost)
<b>Balance control range</b>	+0/- 17.5dB @ 20kHz, in seven 2.5dB steps (L and R)
<b>Fader control range</b>	+0/- 17.5dB @ 20kHz, in seven 2.5dB steps (front and back)
<b>Pre-amp output</b>	Variable, following volume setting
<b>IR passthrough</b>	34–40kHz and 54–58kHz frequencies supported
<b>Speaker impedance</b>	4 Ohms
<b>Power requirement</b>	+24V DC @ 1A max from hub
<b>Weight (AMR650-A)</b>	1.4kg / 3.1lbs
<b>Weight (AMR650-P)</b>	1.1kg / 2.4lbs
<b>Dimensions</b>	240 x 75 (mm), 9.4 x 3 (inches)

This guide is designed to make using the AMR650 V2.0 as easy as possible. Information in this document has been carefully checked for accuracy; however, no guarantee is given to the correctness of the contents. The information in this document is subject to change without notice. If you notice any errors please feel free to email us at: [info@opus-technologies.co.uk](mailto:info@opus-technologies.co.uk)

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The crossed-out wheeled bin is the European Union symbol for indicating separate collection for electrical and electronic equipment. This product contains electrical and electronic equipment which should be reused, recycled or recovered and should not be disposed of with unsorted regular waste. Please return the unit or contact the authorised dealer from whom you purchased this product for more information.



# LIMITED WARRANTY

Opus Technologies warrants this product to be free from defects in materials and workmanship (subject to the terms set forth below). Opus Technologies will repair or replace (at Opus Technologies' option) this product or any defective parts in this product. Warranty periods may vary from country to country. If in doubt consult your dealer and ensure that you retain proof of purchase.

To obtain warranty service, please contact the Opus Technologies authorised dealer from which you purchased this product. If your dealer is not equipped to perform the repair of your Opus Technologies product, it can be returned by your dealer to Opus Technologies or an authorised Opus Technologies service agent. You will need to ship this product in either its original packaging or packaging affording an equal degree of protection.

Proof of purchase in the form of a bill of sale or receipted invoice, which is evidence that this product is within the warranty period, must be presented to obtain warranty service.

This Warranty is invalid if (a) the factory-applied serial number has been altered or removed from this product or (b) this product was not purchased from an Opus Technologies authorised dealer. You may call Opus Technologies or your local country Opus Technologies distributor to confirm that you have an unaltered serial number and/or you purchased from a Opus Technologies authorised dealer.

This Warranty does not cover cosmetic damage or damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or modification of, or to any part of, the product. This Warranty does not cover damage due to improper operation, maintenance or installation, or attempted repair by anyone other than Opus Technologies or an Opus Technologies dealer, or authorised service agent which is authorised to do Opus Technologies warranty work. Any unauthorised repairs will void this Warranty. This Warranty does not cover products sold AS IS or WITH ALL FAULTS.

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For full details of this product visit the Opus website:

[www.opus-technologies.co.uk](http://www.opus-technologies.co.uk)

Part No. AP18922/1

