

AQUARMONY UNDERWATER LOUDSPEAKER INSTALLATION MANUAL



CE



ASTRALPOOL 

TABLE OF CONTENTS

<i>IMPORTANT SAFETY, INSTALLATION AND MAINTENANCE INFORMATION</i>	3
<i>DESCRIPTION</i>	4
Key Features	4
Installation Considerations	4
<i>APPLICATIONS</i>	5
1. Pool and Spa Applications	5
2. Therapeutic and Rehabilitation Pools	5
3. Recreational and Public Swimming Pools	5
4. Residential Pools and Home Entertainment	5
5. Competitive Swimming and Training Pools	6
<i>TECHNICAL CHARACTERISTICS</i>	6
Ratings	6
<i>INSTALLATION</i>	7
Overview for fixed installation	7
Installation Recommendations	7
Installation & Maintenance Considerations	8
AQUARMONY installation example in concrete pools	8
Amplifier Considerations for AQUARMONY Underwater Loudspeaker	9
<i>SYSTEM CONNECTION</i>	9
Determining the Number of AQUARMONY for Excellent Sound Coverage	9
Connection example	10




















IMPORTANT SAFETY, INSTALLATION AND MAINTENANCE INFORMATION

IMPORTANT: Please read the manual carefully before installation and use of this appliance.

This manual contains important information about the correct installation and operation of AQUARMONY underwater loudspeaker.

The complete manual can also be read and downloaded as a PDF file from the website:

www.astralpoolmanuals.com

-  1) The appliance must be installed according to the manufacturer's instructions and in compliance with local and national regulations
-  2) This product may only be assembled and installed in pools compliant with standards IEC/HD 60364-7-702 and required national rules.
-  3) The installation should follow standard IEC/HD 60364-7-702 and required national rules for swimming pools. Consult your local dealer for more information.
-  4) Only qualified electrician is allowed to carry out the installation of this product. Even if it is not directly connected to the main supply voltage, good safety practices must still be taken into account.
-  5) Avoid direct contact with electrical power.
-  6) Respect all applicable regulations to prevent accidents.
-  7) All units must be disconnected from their amplifiers before performing any maintenance operations.
-  8) For safe and proper installation, ensure that those parts supplied with the product are used.
-  9) This unit is design for use only when fully submerged in fresh water, and connecting with a safety audio transformer (see installation manual)
-  10) This product should be installed according to your local electrical installation ordinances and regulations.
-  11) If the connection cable becomes damaged it must only be replaced by a qualified technician.
-  12) Due to the corrosive nature of unbalanced pool chemicals, ensure that your pool water's pH is balanced prior to installation to maintain the longevity of this loudspeaker.
-  13) If the external flexible cable or cord of this speaker is damaged, it shall be exclusively replaced by the manufacturer or his service agent or a similar qualified person in order to avoid a hazard.
-  14) Ensure there is enough cable behind the loudspeaker to allow for servicing above water, preferably at ground-level pool-side.
-  15) Never operate this underwater loudspeaker for more than 1 minute unless it is fully submerged in water.
-  16) Maximum installation depth: 2 meters (Optimal Depth: 40 cm).
-  17) Water temperature range for appliance's operation: 0-40°C

DESCRIPTION

AQUARMONY is a premium, waterproof audio device designed to deliver high-fidelity sound in underwater environments. Its robust, fully-sealed housing and marine-grade materials make it highly durable and resistant to corrosion, ensuring long-lasting performance. Engineered for optimal sound propagation in water, AQUARMONY produces clear, immersive audio, perfect for pools, spas, and water-based installations.



Key Features:

- **Waterproof Design:** AQUARMONY is IPX8 rated, ensuring it can operate continuously underwater without compromising audio quality.
- **High-Quality Sound:** Specifically tuned for underwater acoustics, it provides crystal-clear audio that remains balanced and distinct, even in challenging aquatic environments.
- **Easy Installation:** Equipped with versatile mounting options for both permanent and temporary setups, allowing it to be placed seamlessly within pool walls, underwater structures, or floating mounts.
- **Compatibility:** AQUARMONY is compatible with most audio systems, enabling effortless integration into existing sound setups.

Installation Considerations

AQUARMONY is designed for secure installation within various underwater settings, with comprehensive mounting instructions for different use cases. Always ensure that installation is conducted by professionals, especially in public or high-traffic environments, to guarantee safety and optimal performance.

For best results, consult this installation guide to ensure correct placement, wiring, and maintenance practices. AQUARMONY brings music and clarity to underwater environments, transforming any aquatic space into a serene, immersive experience.

APPLICATIONS

This underwater loudspeaker allows to listen to music and voice clearly.

1. Pool and Spa Applications

AQUARMONY is perfect for both commercial and residential pools or spas, creating an immersive audio experience underwater. Whether for relaxation, swim training, or entertainment, AQUARMONY's acoustic clarity in underwater environments enhances the overall ambiance of the space.

- **Placement Recommendations:**
 - For optimal sound distribution, install speakers at a depth of 40cm below the water's surface.
 - Place multiple speakers for larger pools, spaced evenly across the perimeter or aligned along the pool walls.
 - Position speakers on opposite sides for a balanced soundscape, enhancing the clarity and richness of the audio.
- **Application Tips:**
 - Use for background music, synchronized swimming routines, or underwater announcements.
 - Integrate with pool lighting for a complete sensory experience.

2. Therapeutic and Rehabilitation Pools

AQUARMONY's soothing audio can be used in therapeutic settings to aid in relaxation, meditation, and hydrotherapy exercises. For rehabilitation, clear underwater sound helps instructors provide guidance and motivation directly within the therapy pool.

- **Placement Recommendations:**
 - Install speakers along the edges of the therapy pool, where patients are likely to be positioned during exercises.
 - Use one or two speakers in smaller therapy tanks, positioning them to focus audio in key areas.
- **Application Tips:**
 - Play calming sounds or guided audio exercises to help with patient relaxation and focus.
 - Set up playlists with a variety of sounds for different therapeutic needs (e.g., calming, energizing, focus-driven).

3. Recreational and Public Swimming Pools

AQUARMONY can be used in public or recreational pools to provide background music, safety announcements, or instructions for swim classes and water aerobics. The loudspeaker's durable design makes it ideal for public spaces where it may be exposed to heavy use.

- **Placement Recommendations:**
 - For larger pools, use multiple speakers installed along the walls and near high-traffic areas to cover the entire pool space.
 - Place speakers at optimal depths to ensure sound is audible at all levels of the pool.
- **Application Tips:**
 - Coordinate audio with visual cues for synchronized events or public announcements.
 - For fitness classes, use a mix of music and instructor announcements to maintain class flow without the need for surface speakers.

4. Residential Pools and Home Entertainment

AQUARMONY can enhance personal pools by providing a unique underwater sound experience for guests and family. It is ideal for home users who want to transform their backyard pool into a multi-sensory entertainment zone.

- **Placement Recommendations:**
 - Install speakers along the pool's length for even sound distribution.
 - For smaller pools, a single speaker may suffice, while larger pools benefit from two or more units.
- **Application Tips:**
 - Connect to a home audio system for seamless integration with playlists or outdoor sound systems.
 - Perfect for pool parties, relaxation, or even film screenings with underwater sound.

5. Competitive Swimming and Training Pools

For training pools, AQUARMONY assists coaches by providing a reliable way to communicate with swimmers underwater. It is beneficial for team training, lap swimming, or professional coaching environments.

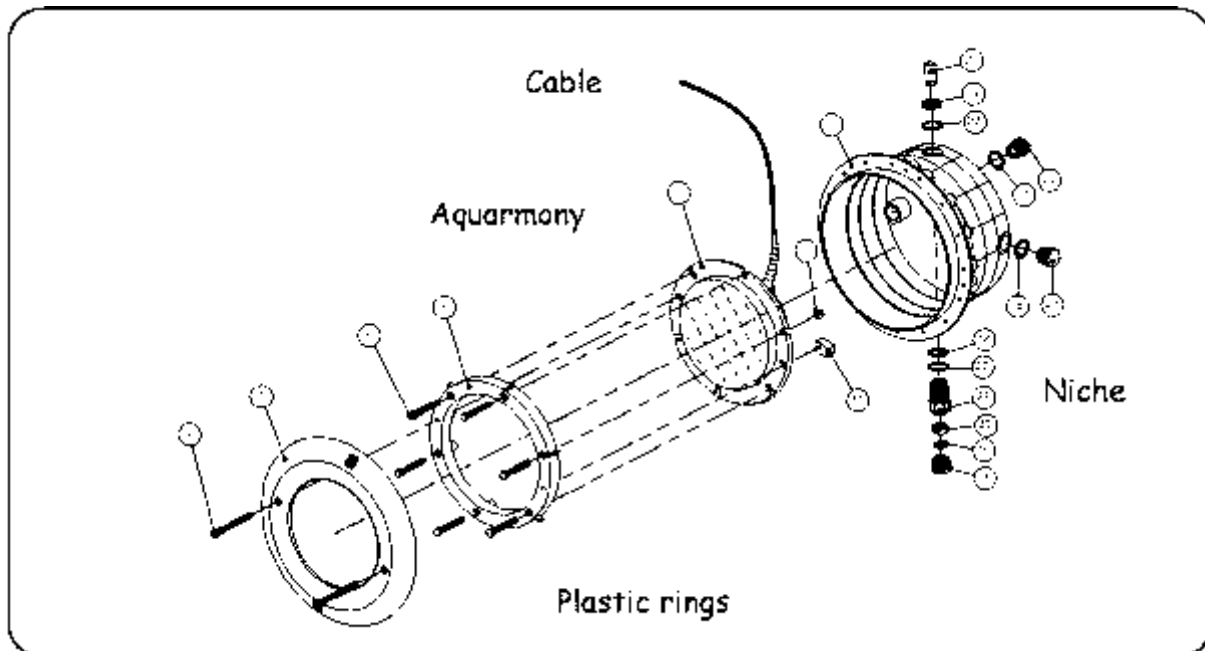
- **Placement Recommendations:**
 - Position speakers along the pool's length, especially near lane dividers or underwater walls where swimmers are in motion.
 - Place at optimal depths to cater to swimmers practicing dives.
- **Application Tips:**
 - Use for underwater communication during training drills.
 - Play audio cues or motivational messages to guide swimmers during high-intensity sessions.

TECHNICAL CHARACTERISTICS

Ratings

Max Power RMS	60W
Impedance	4 Ω
Frequency Response	200-12.000 Hz
Dispersion Under water	Full angle
Optional Area	See Table
Installation Depth	40 cm
Weight	6 Kg
Waterproof rating	IPX8
Cable length*	5 mt, type H07NR-F

* Cable length on demand



AQUARMONY technical characteristics are designed to ensure that the maximum voltage supplied by the amplifier does not exceed 12V @ 1000Hz, in accordance with current regulations

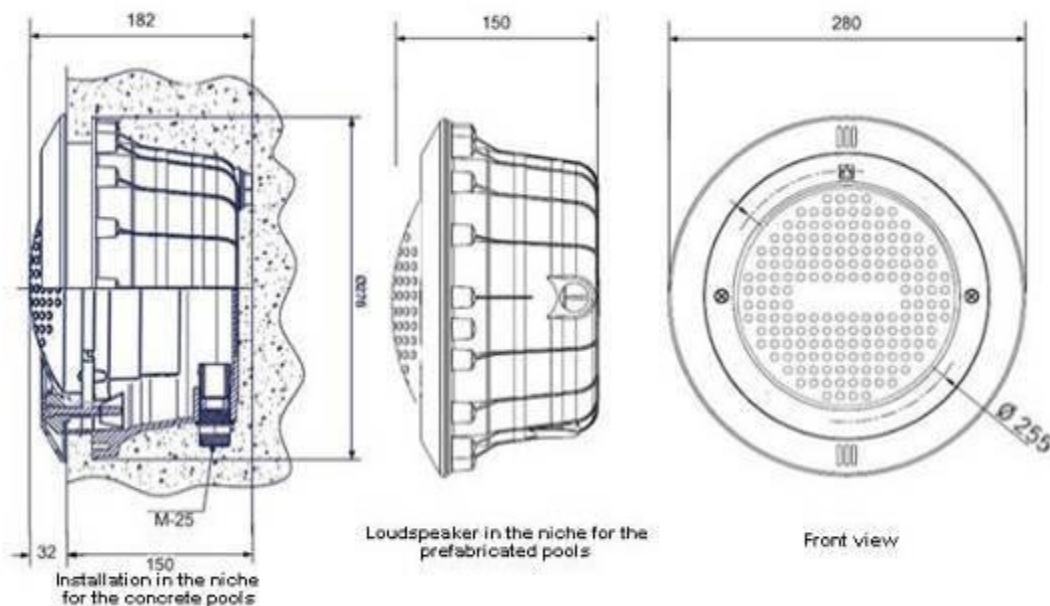
INSTALLATION

About its installation, it is very simple to install AQUARMONY as it is available in two versions: for the swimming pools that are already operating and for the swimming pools under construction.

About the first version, it does not require any intervention as the underwater loudspeaker is plunged into water by a cable and connected to the amplifier system. It is pulled out of the water after its utilization.

Overview for fixed installation

Concerning the fixed installation for the swimming pools under construction, AQUARMONY is set in the lamp niches. The loudspeaker can be supplied with the assembling kit in order to make its installation very easy. Moreover, AQUARMONY is provided with the plastic rings to be fixed better in the niche.



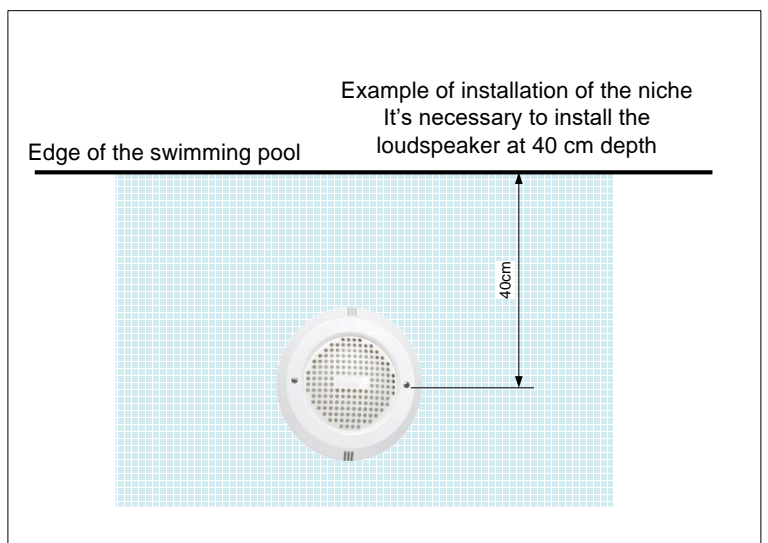
Installation Recommendations:

AQUARMONY loudspeaker works at best if the middle of the niche is at 40 cm depth from the water surface.

In any case, it is advisable not to install the loudspeaker at more than 60 cm depth.

AQUARMONY must be completely plunged into water, it doesn't spread music outside water.

To spread music outside water it is necessary to install loudspeakers appropriate to the environment and to the specific requirements.



Installation & Maintenance Considerations

- **Mounting:** AQUARMONY includes various mounting accessories for wall or bracket installation. For permanent installations, it is recommended to use secure, corrosion-resistant fixtures.
- **Maintenance:** Regularly inspect speakers for signs of wear or debris accumulation, especially in public pools with high foot traffic.

This Product does not contain any element that can be handled, dismantled or replaced by the user, it is forbidden to access inside the product, otherwise the guarantee of the product become in valid

AQUARMONY installation example in concrete pools

Put on the neoprene cable in the flexible pipe up to reach the junction box, giving attention that the cable gland and the gasket are well embedded.

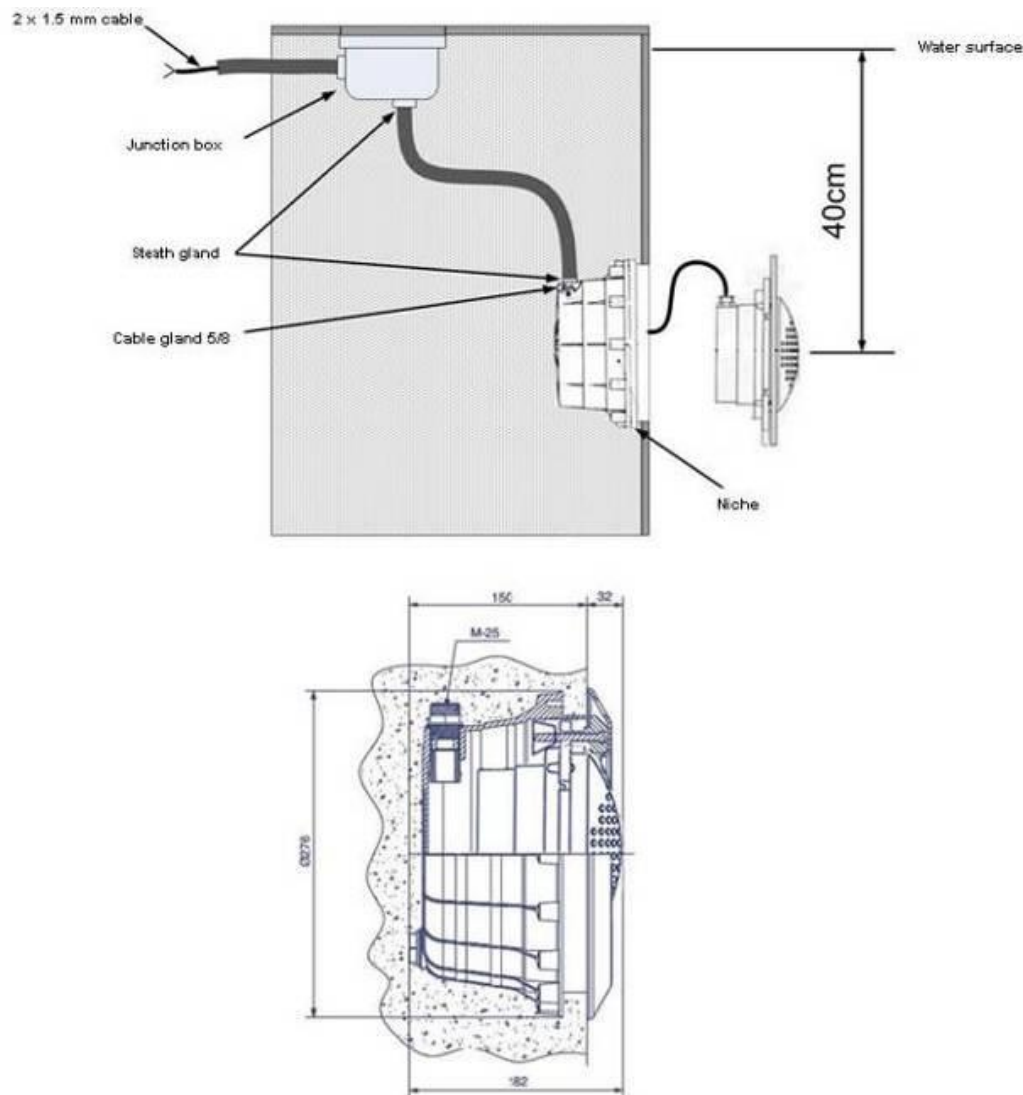
Be sure to have at least 1 m cable length wrapped in the niche in order to be able to carry the loudspeaker on the edge of the pool.

Screw the cable gland inside the niche by using the provided gasket, screw the cable gland of the junction box too.

Insert AQUARMONY in the niche and be sure that the plastic ring is perfectly adhered to the wall.

Finally, screw tighter the plastic ring to the wall so that the loudspeaker is perfectly fixed in the niche.

The electric wire joining the junction box to the amplifier system must not be smaller than $\text{mm}^2 2 \times 2,5$ size.



Amplifier Considerations for AQUARMONY Underwater Loudspeaker

The AQUARMONY Underwater Loudspeaker requires an amplifier capable of delivering clear and powerful audio signals underwater. Due to the unique acoustics of water, selecting the right amplifier is crucial to maximize sound quality and ensure reliable performance. Below are guidelines and recommendations for choosing and setting up an amplifier.

It is very important that the amplifier system has an equalizer and a limiter or compressor in order to protect the loudspeaker from excessive power.

In particular, all frequencies under 300Hz must be attenuated by at least 12 dB to reduce distortion and to prevent the voice coil from overheating, and frequencies above 2000 Hz should be amplified by at least 10 dB.

It is important to calibrate the limiter in order to prevent saturation of the amplifier and prevent the loudspeakers from passing 60W RMS.

As you cannot listen to music outside water if you haven't a limiter you cannot control the sound volume, so the loudspeakers may be damaged.

SYSTEM CONNECTION

Determining the Number of AQUARMONY for Excellent Sound Coverage

The number of AQUARMONY speakers required for optimal underwater sound coverage depends on factors such as pool size, depth, usage purpose, and desired sound quality. Below is a guide to help you determine the ideal number of speakers for different types of aquatic spaces, ensuring even sound distribution and a high-quality listening experience.

POOL'S SIZE		QUANTITY OF UNDERWATER LOUDSPEAKERS		POWER AMPLIFIER
up to 25 m ²		N.2	LOUDSPEAKERS	200W R.M.S.
From 25 m ²	to 50 m ²	N.3	LOUDSPEAKERS	300W R.M.S.
From 50 m ²	to 120 m ²	N.4	LOUDSPEAKERS	400W R.M.S.
From 120 m ²	to 300 m ²	N.6	LOUDSPEAKERS	500W R.M.S.
From 300 m ²	to 500 m ²	N.8	LOUDSPEAKERS	800W R.M.S.
From 500 m ²	to 800 m ²	N.10	LOUDSPEAKERS	1000W R.M.S.
From 800 m ²	to 1.250 m ²	N.16	LOUDSPEAKERS	1600W R.M.S.

Particular cases:

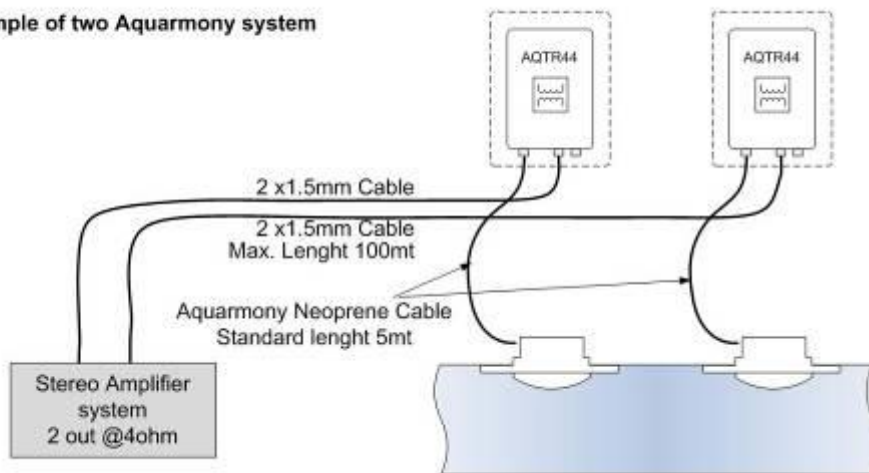
- 1) If the swimming pool is prefabricated with PVC lining or manufactured with other soundproof materials the quantity of loudspeakers and that of the amplifiers must be doubled
- 2) If the swimming pool is near the water plays or whirlpool baths it is necessary to increase the quantity of loudspeakers in order to make their sound louder than the background noise
- 3) If the loudspeaker is mobile, that is it is plunged into water by a cable, the values indicated in the table above remain valid only if the loudspeakers are not deeper than 40 cm from the surface.

The electric wire joining the junction box to the amplifier system must not be smaller than mm² 2 x 2,5 size.

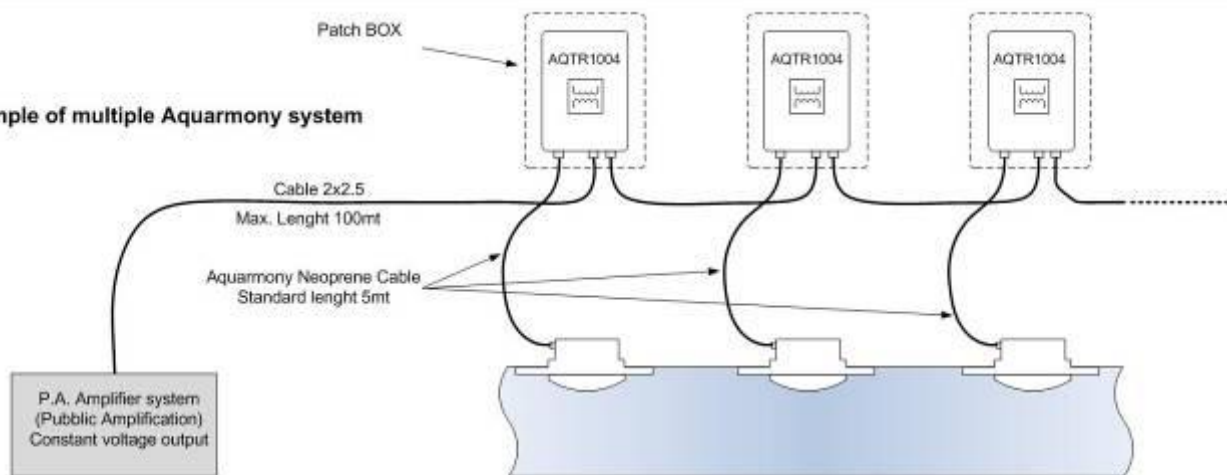
AQUARMONY loudspeakers must be connected to the amplifier system by the isolating transformers (see the connections example) : AQTR1004 for the audio systems with fixed voltage , AQTR44 for 4 ohm audio systems.

Connection example

Example of two Aquarmony system



Example of multiple Aquarmony system



The amplifier must be calibrated according the number of loudspeaker. The system of the picture is composed by 3 Aquarmony and the amplifier must supply $3 \times 100W = 300W$. This type of system avoid soud distortion



This symbol is required by European Community Directive 2012/19/UE on WEEE (Waste Electrical and Electronic Equipment) and means that your appliance must not be thrown into a normal bin. It will be selectively collected for the purpose of reuse, recycling or transformation. Any substances it may contain which are potentially dangerous to the environment shall be eliminated or neutralized. Request information on recycling procedures from your retailer.



The products to which this manual refers comply with:
2011/65/EU - Restriction of the use of certain hazardous substances (RoHS)



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