



1438

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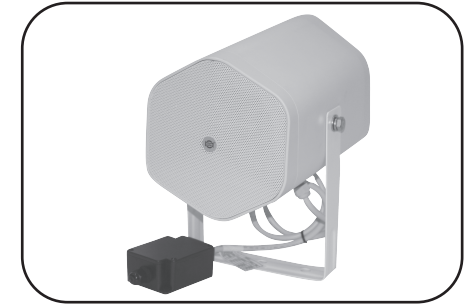
EN54-24: 2008
Loudspeaker for voice alarm systems for the detection and fire
alarm systems for buildings

NPJ-5
NPJ-5W
NPJ-5D
NPJ-5DW
Type B

Technical information available in paragraphs 2~9 of this manual



WATERPROOF PROJECTOR SPEAKER INSTRUCTION MANUAL



NPJ-5 (EN54-24)/NPJ-5W (EN54-24)

NPJ-5D (EN54-24)/NPJ-5DW (EN54-24)

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Thank you for purchasing SHOW WATERPROOF PROJECTOR SPEAKER
Please carefully follow the instructions in this manual to ensure long, trouble-free use of your equipment.




INSTRUCTION MANUAL


1. SAFETY PRECAUTIONS

- Before installation or use, be sure to carefully read all the instructions in this section for correct and safe operation.
- Be sure to follow all the precautionary instructions in this section, which contain important warnings and/or cautions regarding safety.
- After reading, keep this manual handy for future reference.

Safety Symbol and Message Conventions

Safety symbols and messages described below are used in this manual to prevent bodily injury and property damage which could result from mishandling. Before operating your product, read this manual first and understand the safety symbols and messages so you are thoroughly aware of the potential safety hazards.

 **WARNING** Indicates a potentially hazardous situation which, if mishandled, could result in death or serious personal injury.

 **CAUTION** Indicates a potentially hazardous situation which, if mishandled, could result in moderate or minor personal injury, and/or property damage.

 **WARNING**

 **CAUTION**

- Use only the specified amplifier output voltage and impedance, as exceeding the specified limits could result in fire or other failures (high-impedance version).
- To avoid accidental air explosions, do not use the unit around gasoline, thinner or other combustibles.
- Install the unit only in a location that can structurally support the weight of the unit and the mounting bracket. Doing otherwise may result in the unit falling down and causing personal injury and/or property damage.
- Protect the unit from exposure in snowy areas, as the weight of snow build-up could cause the speaker to fall, resulting in personal injury.
- Do not use other methods than specified to mount the bracket. Extreme force is applied to the unit and the unit could fall off, possibly resulting in personal injuries.
- Tighten each nut and bolt securely. Ensure that the bracket has no loose joints after installation to prevent accidents that could result in personal injury.
- Avoid mounting the unit in locations exposed to constant vibration. The mounting bracket can be damaged by excessive vibration, potentially causing the speaker to fall, which could result in personal injury.
- To avoid electric shocks, be sure to switch off the amplifier power when connecting the speaker.
- Avoid installing the unit in humid or dusty locations, or in locations exposed to heaters, solvents, acid, alkali, smoke, steam or direct sunlight (except outdoor-use versions), as excessive exposure to these factors could result in speaker failure, fire or electric shock.
- Do not operate the unit for an extended period of time with the sound distorting. This is an indication of a malfunction, which in turn can cause heat to generate and result in a fire.
- Do not stand or sit on, nor hang down from the unit as this may cause it to fall down or drop, resulting in personal injury and/or property damage.

Model No.	NPJ-5D	NPJ-5DW
Standard	Certified to the European Standard EN 54-24:2008 Loudspeaker for voice alarm systems for fire detection and fire alarm system. Certification Cation NO.1438-CPR-0692	
Environmental Type	TYPE B (Outdoor applications)	
Enclosure protection degree(IP)	IP55/IP33C(EN54-24)	
Built-In speaker	2*5.5" full range paper speaker	2*5.5" full range paper speaker
Rated Noise Power and Voltage	20W	20W
	(100V line and 70V line)	
Rated Impedance	100V line: 500Ω (20W), 1kΩ (10W), 2kΩ (5W)	100V line: 500Ω (20W), 1kΩ (10W), 2kΩ (5W)
	70V line: 250Ω (20W), 500Ω (10W), 1kΩ (5W),	70V line: 250Ω (20W), 500Ω (10W), 1kΩ (5W),
	BYPASS-4Ω	BYPASS-4Ω
Sensitivity	86dB(1W, 1m) (500Hz - 5 kHz, pink noise)	
	74dB(1W, 4m) (100Hz - 10 kHz pink noise) according to EN54-24	
	86dB (1W,1m) (100Hz - 10 kHz, pink noise) converted based on EN54-24	
Frequency Response	132Hz - 20kHz	132Hz - 20kHz
Maximum Sound Pressure Level	85dB(20W, 4m) (100Hz - 10 kHz pink noise) according to EN54-24	
	97.2dB (20W,1m) (100Hz - 10 kHz, pink noise) converted based on EN54-24	
Coverage Angle(-6dB)	2X180° (500Hz), 2X160° (1 kHz), 2X100° (2 kHz), 2X55° (4 kHz)	2X180° (500Hz), 2X160° (1 kHz), 2X100° (2 kHz), 2X55° (4 kHz)
Weight	2.8Kg	2.8Kg
Dimensions(mm)	φ168.3x246.2mm	φ168.3x246.2mm
Speaker Component	5.5"paper cone speaker	5.5"paper cone speaker
Operating Temperature	-25°C to +70°C	-25°C to +70°C
Applicable Cable	Solid wire: φ6.5mm (18AWG) UL2464	Solid wire: φ6.5mm (18AWG) UL2464
Cable Connection	steatle terminal x 6 speaker cable with a diameter of 6.5mm Brown Red Orange Gray White(+/-) Black(com)	
Finish	Enclosure: ABS+PC, Black Mesh speaker grill: Surface-treated steel plate, black paint Speaker Wall bracket: Surface-treated steel plate, black paint Joint bracket, screws and Stainless steel cable	Enclosure: ABS+PC, White Mesh speaker grill: Surface-treated steel plate, white paint Speaker Wall bracket: Surface-treated steel plate, white paint Joint bracket, screws and Stainless steel cable

2. GENERAL DESCRIPTION

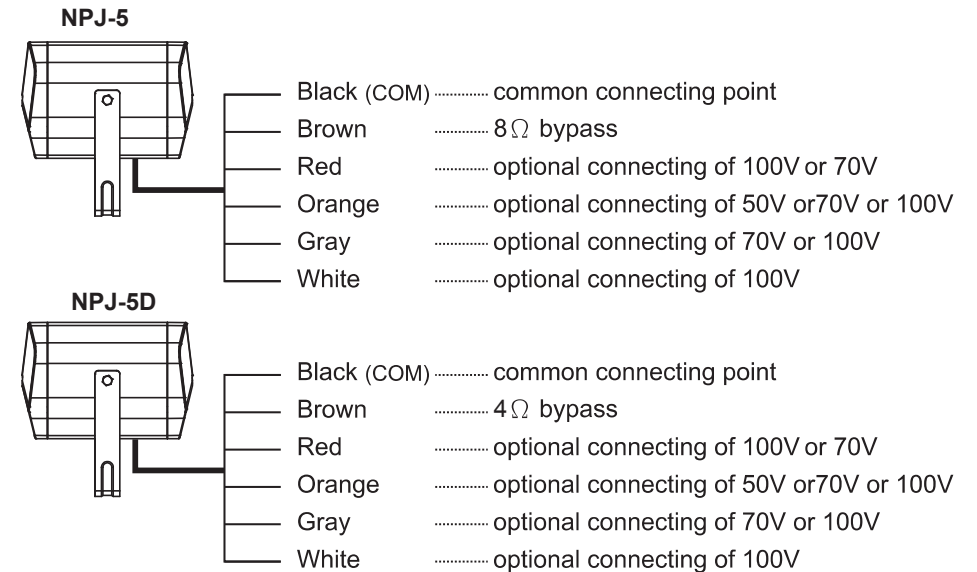
Speakers are compact waterproof speaker systems designed for high efficiency, wide range, and high power input handling capability. These speaker systems can be installed in a manner ideal for the location and intended application. The speaker is certified to the European Standard EN 54 24:2008.

3. FEATURES

- Wide directivity high-frequency horn.
- Supplied bracket permits mounting to a wall.
- Impedance change available by a rotary switch located in rear side.
- Certified to EN 54-24:2008.

4. IMPEDANCE CHANGE AND WIRING

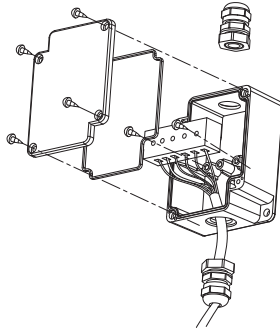
To change the impedance, press the corresponding input voltage and power on the power label sticker indicated on the cable and connect the corresponding cable to get the required input power.



		INPUT	
		100V	70V
BROWN	8Ω(BYBASS)	—	—
RED	250Ω	—	20W
ORANGE	500Ω	20W	10W
GRAY	1KΩ	10W	5W
WHITE	2KΩ	5W	—

		INPUT	
		100V	70V
BROWN	4Ω(BYBASS)	—	—
RED	250Ω	—	20W
ORANGE	500Ω	20W	10W
GRAY	1KΩ	10W	5W
WHITE	2KΩ	5W	—

- Step1: Remove the junction box cover screw, loosen the nut on the cable fixing head, and remove the cable fixing head from the junction box.
- Step2: Pass the cable through the cable clamp of the separating nut for a certain length, then through the junction box and nut. Tighten the cable fixing head and fix it.
- Step3: Select the appropriate power input and output by referring to the type of machine on the host or the power mark on the cable line. After the selection, find the corresponding impedance according to the selected power source and power. Connect the line according to the connection port of the terminal corresponding to the impedance on the connection mark in the junction box and tighten the screw.
- Step4: Cover the bottom cover with the connected cable on the top cover and lock the screw.



Notes:

- When removing the upper cover, be careful that the rubber ring of the upper cover drops.
- The cable selected should be 6.5mm, not more than 6.5mm, which is the maximum installation size of the cable fixed seat.
- After connecting and tightening the cable, pull the cable slightly to prevent the fixing head of the blue line from not tightening thoroughly.
- When locking the junction box, pay attention to cover the top cover with the bottom cover to prevent the rubber ring of the top cover from dropping. If the rubber ring is dropped, be sure to reinstall the top cover, otherwise the junction box will not be waterproof.
- If there is any unclearness to the wiring connection, please refer to the CONNECTION DESCRIPTION in Part 7 of the manual or ask a professional to make wiring to avoid damage to the equipment and shorten the life of the equipment.

5. INSTALLATION

Note: commercial audio installation system must conform to local building laws, when install speaker on wall or ceiling, please consult a building constructor with a license or a professional engineer. The corporation won't be responsible for the improper installation or damage because of not conforming to installation description. Never install this product unto a motor vehicle. Never operate this product beyond its specifications, which might influence its life span as well as performance

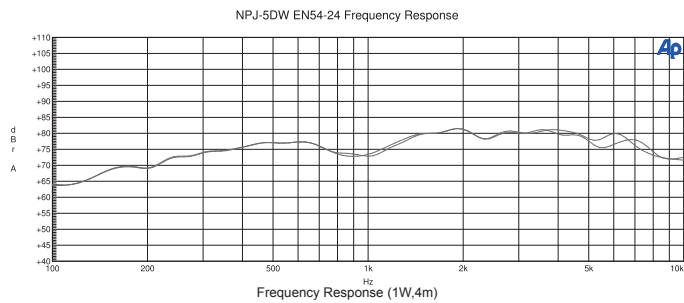
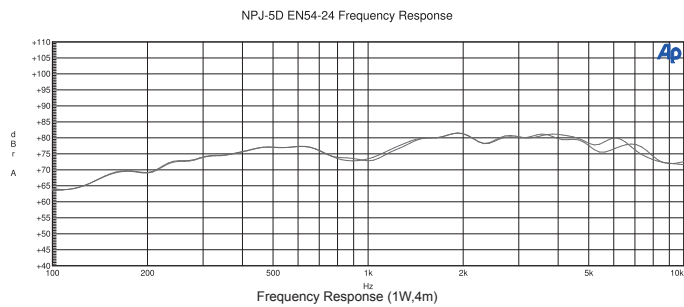
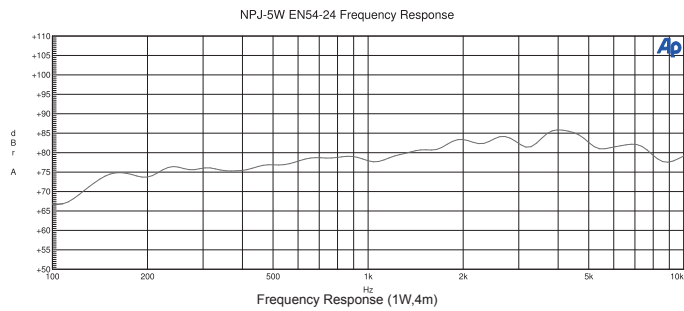
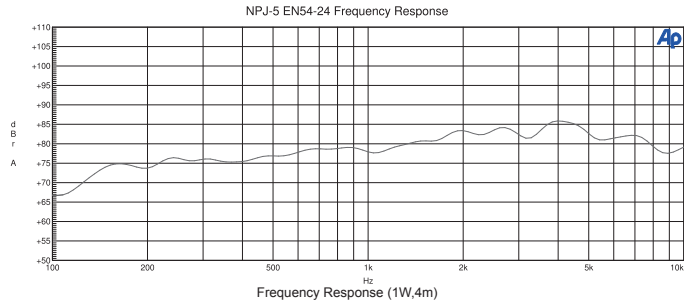
Installation procedure of bracket is very simple and convenient , the appearance is pleasing to the eye

- step 1. The screw secures the horn "U" bracket to the wall. Wall material must support the weight of the cabinet
- Step 2: Adjust the orientation of the "U" bracket according to the required mounting angle. This installation has been completed.

9. SPECIFICATIONS

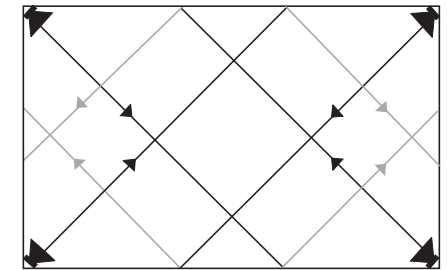
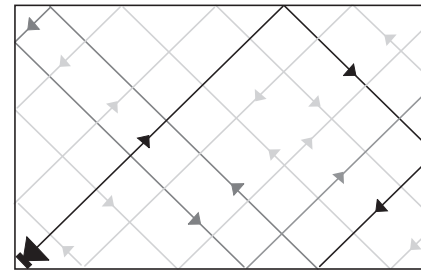
Model No.	NPJ-5	NPJ-5W
Standard	Certified to the European Standard EN 54-24:2008 Loudspeaker for voice alarm systems for fire detection and fire alarm system. Certification Cation NO.1438-CPR-0692	
Environmental Type	TYPE B (Outdoor applications)	
Enclosure protection degree(IP)	IP55/IP33C(EN54-24)	
Built-In speaker	5.5" full range paper speaker	5.5" full range paper speaker
Rated Noise Power and Voltage	20W	20W
	(100V line and 70V line)	
Rated Impedance	100V line: 500Ω (20W), 1kΩ (10W), 2kΩ (5W)	100V line: 500Ω (20W), 1kΩ (10W), 2kΩ (5W)
	70V line: 250Ω (20W), 500Ω (10W), 1kΩ (5W),	70V line: 250Ω (20W), 500Ω (10W), 1kΩ (5W),
	BYPASS-8Ω	BYPASS-8Ω
Sensitivity	89dB(1W, 1m) (500Hz - 5 kHz, pink noise)	
	77dB(1W, 4m) (100Hz - 10 kHz pink noise) according to EN54-24	
	89dB (1W,1m) (100Hz - 10 kHz, pink noise) converted based on EN54-24	
Frequency Response	132Hz - 20kHz	132Hz - 20kHz
Maximum Sound Pressure Level	89dB(20W, 4m) (100Hz - 10 kHz pink noise) according to EN54-24	
	101dB (20W,1m) (100Hz - 10 kHz, pink noise) converted based on EN54-24	
Coverage Angle(-6dB)	360° (500Hz), 240° (1 kHz), 90° (2 kHz), 60° (4 kHz)	360° (500Hz), 240° (1 kHz), 90° (2 kHz), 60° (4 kHz)
Weight	2.2Kg	2.2Kg
Dimensions(mm)	φ168.3x246.2mm	φ168.3x246.2mm
Speaker Component	5.5"paper cone speaker	5.5"paper cone speaker
Operating Temperature	-25°C to +70°C	-25°C to +70°C
Applicable Cable	Solid wire: φ6.5mm (18AWG) UL2464	Solid wire: φ6.5mm (18AWG) UL2464
Cable Connection	steatile terminal x 6 speaker cable with a diameter of 6.5mm Brown Red Orange Gray White(+/-) Black(com)	
Finish	Enclosure: ABS+PC, Black Mesh speaker grill: Surface-treated steel plate, black paint Speaker Wall bracket: Surface-treated steel plate, black paint Joint bracket, screws and Stainless steel cable	Enclosure: ABS+PC, White Mesh speaker grill: Surface-treated steel plate, white paint Speaker Wall bracket: Surface-treated steel plate, white paint Joint bracket, screws and Stainless steel cable

8. FREQUENCY RESPONSE



OUTDOOR INSTALLATION DESCRIPTION:

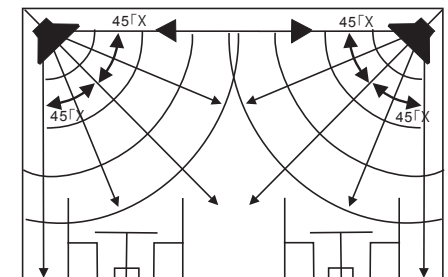
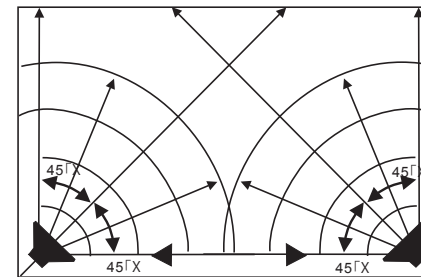
NPJ series speakers are designed specially for fixing and using in different circumstances. The property of speakers may be different due to different circumstances. There is an acoustic surface wall in a closed room, so the acoustic indoor will turn complex. When acoustic wave hits the surface, a part of acoustic energy is reflected, and others are absorbed. Reflection and absorption are depending on the frequencies of acoustic wave and angle of hitting surface. When operate the cabinet, both man and furniture can absorb the acoustic energy. Please note the position of man and furniture when installing. Reverberation is the results of the reflected acoustic wave continue bouncing between the surfaces. Every reflection will loss the energy. When the acoustic hit the reflection surface, the room will be filled with random reflected acoustic wave. The music and address will be complex. It is recommended that install more speakers and make the volume of speakers lower to reduce the reverberation in high reverberating room. (Please see figure 5B)



Speaker coverage range - Direct the center axle of the speaker to the flat surface of receiving area.

The speakers of 90° x 90° series can spread the speaker tone to all the directions at the axle of 45°.

If you use the speakers in large room, you can divide the room to some zones. Then decide the installing location of the speakers. (Please see figure 6)



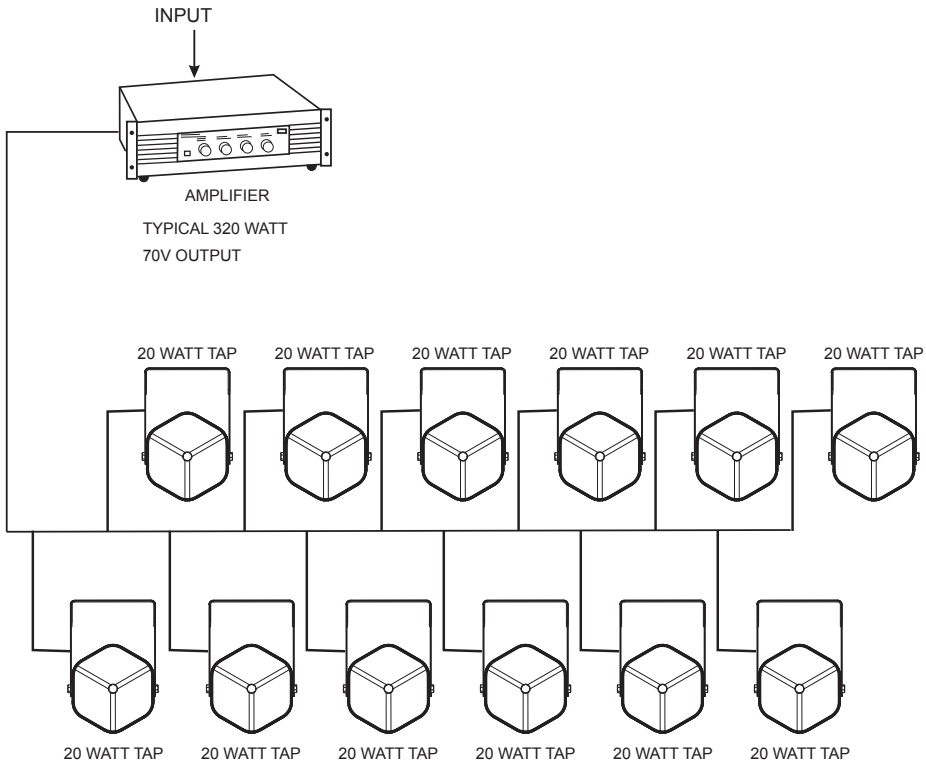
(figure6)

6. CONNECTION DESCRIPTION

LEVEL DISTRIBUTION SYSTEM CONNECTION DESCRIPTION:

NPJ-5 (EN54-24) and NPJ-5D (EN54-24) series have built-in transformer of 70/100V, can connect many speakers to one channel, and only need one amplifier. The amplifier output terminal "com/-" stands for positive. The red speaker terminal stands for positive, black stands for negative. Please connect amplifier to speaker right, incorrect connection may cause damage to amplifier and speaker. Finally set your desired output power, See Figure 3A to connect the cable to the corresponding power to meet your needs, in this case, the total power of all the speakers can't exceed the nominal power of amplifier. One 320W amplifier channel can drive 12 speaker of 20W, i.e. $20 \times 12=240<320W$. For safety, the total power of all the speakers should be less than 3/4 nominal power of amplifier (One 320W amplifier channel can drive 12 speakers of 20W, i.e. $20 \times 12=240W<320W$).

12x 20 WATT=240 WATT TOTAL LOAD ON AMPLIFIER



(figure3B)

7. DIMENSIONAL DIAGRAM

