

R SERIES

Installation and Operation
Manual

MODELS

R.25-94Z/TZ
R.5COAX/T
R.5-xxZ/TZ
R.5HP/HPT
R.5SUB/-T



R.5



R.25

Introduction



Since the founding of our company in 1968, Community has been a constant developer and innovator of loudspeaker technology. Many of our engineering achievements were undertaken to solve problems, when no prior solutions existed. Others resulted from simply seeing a better way to do things.

Over the years our technologies have been imitated, and our methods have become common practice throughout the professional sound industry. However, developments like carbon fiber diaphragm compression drivers still stand alone, and well ahead of the competition.

In line with our history of excellence and innovation, each Community product is manufactured in accordance with a complicated and exacting chain of procedures that ensure absolute quality.

With our unique designs, our sophisticated techniques, and our proprietary materials and transducers, we are committed to bringing only the finest audio products to the many thousands of professional sound engineers, performers, and end users who rely on them daily.

Community's R SERIES is a high-quality, high-fidelity product line designed to be highly weather-resistant. R SERIES products perform consistently in continuous outdoor exposure while simultaneously providing superlative acoustic performance.

This manual is intended to help you install and use R SERIES loudspeakers safely and effectively. It provides useful information to help you obtain the best performance, sound quality, and reliability from your R SERIES systems. We've provided a series of Quick-Start diagrams to enable you to install and operate the products immediately. However, we recommend that you read this manual in its entirety, to ensure that your R SERIES installation meets the highest possible standards.

Every effort has been made to ensure that the information contained in this manual was complete and accurate at the time of printing. However, due to ongoing technical advances, changes or modifications may have occurred that are not covered in this publication. The latest version of this manual and the most recent product information published by Community is always available at <http://www.communitypro.com>.

EU/EC STATEMENT OF CONFORMITY

Community Professional Loudspeaker products bearing the CE label meet all the requirements in the EMC directive 2014/30/EU laid down by the Member States Council for adjustment of legal requirements, furthermore the products comply with the rules and regulations referring to the electromagnetic compatibility of devices from 16 April 2016.

The Community Professional Loudspeaker products bearing the CE label comply with:

Low Voltage Directive 2014/35/EU
Waste from Electrical Equipment Directive 2002/96/EC RoHS

The Declaration of Conformity statement is available upon request.

Technical specifications for products can be found at www.communitypro.com.

The responsible manufacturer is the company:

Community Light & Sound, Inc.
333 East Fifth Street
Chester, PA 19013 USA
Phone: +1 610 876-3400 Fax: +1 610 874-0190

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WHAT'S IN THE BOX

Each shipping carton contains the following items:

- Loudspeaker System (Qty 1)
- Mounting Yoke – Preinstalled on Loudspeaker (Qty 1)
- Multi-Angle Aiming Strap - only on R.5 Models (Qty 1)
- Operation Manual (Qty 1)
- Warranty Card (Qty 1)

Important Information

IMPORTANT SAFETY INFORMATION

Always follow these basic safety precautions when using or installing R SERIES loudspeakers and accessories. Read and keep these instructions, and heed all warnings.

Follow all instructions, particularly those pertaining to rigging, mounting, hanging and electrical connections. Only use accessories that are specified and approved by the manufacturer.

The terms **IMPORTANT**, **WARNING**, and **DANGER** are used throughout this manual to alert the reader to important safety considerations. If you have any questions or do not understand the meaning of these terms, do not proceed with installation. Contact your local dealer, distributor, or call Community directly for assistance. These terms are defined below:



IMPORTANT: describes an operating condition or user action that may expose the equipment or user to potential damage or danger.



WARNING: describes an operating condition or user action that will likely cause damage to the equipment or injury to the user or to others in the vicinity.



DANGER: describes an operating condition or user action that will immediately damage the equipment and/or be extremely dangerous or life threatening to the user or to others in the vicinity.

RIGGING AND ELECTRICAL SAFETY



DANGER: The loudspeakers described in this manual are designed and intended to be 'flown' or suspended for maximum acoustical performance using a variety of rigging hardware, means, and methods. Installation of loudspeakers should only be performed by trained and qualified personnel. It is strongly recommended that a licensed and certified professional structural engineer approve the mounting design. Severe injury and/or loss of life may occur if these products are improperly installed.



DANGER: R SERIES rigging fittings are rated at a Working Load Limit (WLL) of 100 lbs (45.4kg) with a 10:1 safety margin. No single rigging fitting should ever be subjected to a load that is greater than this stated limit. Failure to heed this warning could result in severe injury and/or loss of life.



IMPORTANT: Refer to the sections on installation and connections later in this manual for additional information on rigging and electrical safety.



IMPORTANT: The stainless steel mounting bolts that come installed in each enclosure must either be used to mount the Accessory Mounting Yoke or they must be kept in place to seal the enclosure from air leaks. If the rigging fittings do not remain sealed, air leaks will occur in the enclosure that will compromise the loudspeaker's weather-resistance and its low frequency performance.

UNPACKING AND INSPECTION

R SERIES loudspeakers are inherently rugged and are carefully packed in sturdy cartons. However, it's wise to thoroughly inspect each unit after it has been removed from the packaging, as damage could occur during shipping.

SHIPPING CLAIMS

Please note that once the shipment has left your dealer or the Community factory, the responsibility for damage is *always* borne by the freight company. If damage has occurred during shipping, you must file a claim directly with the freight company. It's very important to contact the freight company as soon as possible after receiving your shipment, as most freight companies have a short time limit within which they will investigate claims. Make sure to save the carton and the packing material, as most claims will be denied if these materials are not retained. Your Community dealer and the factory will try to help in any way they can, but *it is the responsibility of the party receiving the shipment to file the damage claim.*

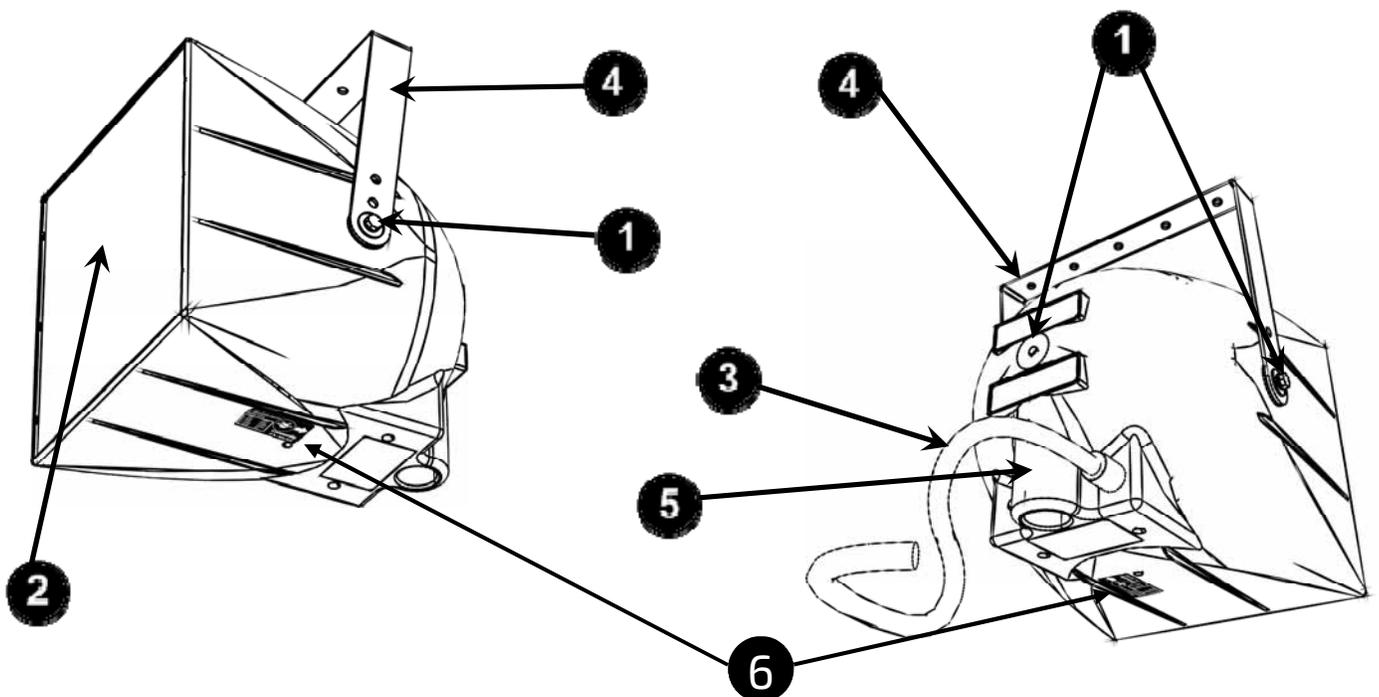
It's always a good idea to retain the carton and packing materials indefinitely, if possible, in the event that the unit may need to be returned to your dealer or distributor for repair in the future.

R.25 Quick Start - Features

FEATURES OF THE R.25

Figure 1: Physical Features of Typical R.25 Models

NO.	FEATURE	DESCRIPTION
1	Mounting/ Rigging Points	Five integral M8 (8mm) threaded mounting points on the sides and the back of the R.25 mate with the yoke bracket.
2	Grille	22-gauge perforated stainless steel grille backed by a foam sheet and stainless steel mesh (100 x 100 wires/sq in).
3	Input Cable	Attached 16 Gauge SJOW cable, approximately 12 feet (4m) long, rated for outdoor use. On 8-ohm versions the white conductor is positive (+) and the black is negative (-). See "Technical Information" for T-Version connection guide.
4	Mounting Yoke	R.5 and R.25 models include an attached Mounting Yoke. R.5 models include a Multi-Angle Aiming Strap. R.25 models do not include this strap.
5	Pole Socket	R.25 models have a 1-3/8" pole mount socket on the bottom. Remove the plastic plug to use the pole mount socket.
6	Input Tap Selection Switch	Input tap selection switch concealed behind plug cap with 5mm Allen Wrench fitting. Plug cap not to be confused with adjacent black rubber cap on mounting/ rigging point. Rotary switch operated with a flat-head #1 common screw driver and "clicks" for each tap.

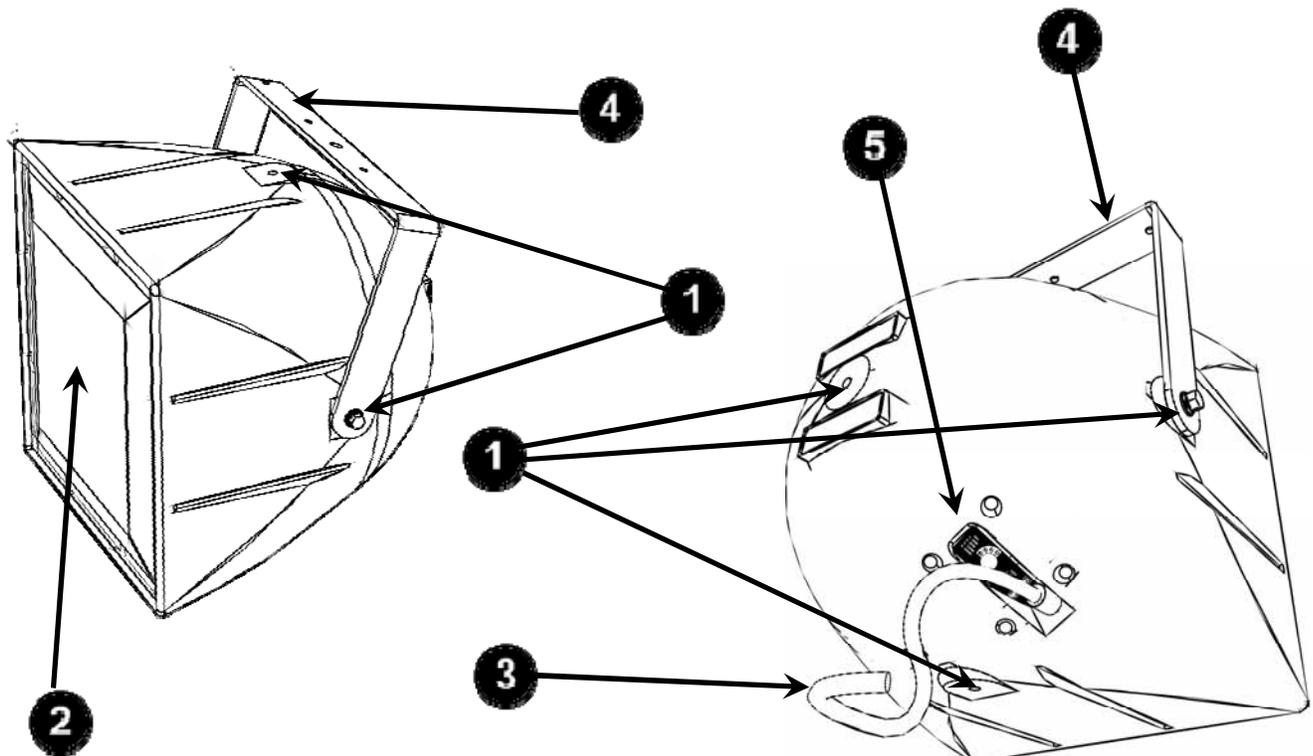


R.5 Quick Start - Features

FEATURES OF THE R.5

Figure 2: Physical Features of Typical R.5 Models
(R.5Z, R.5HP, R.5COAX and R.5SUB models)

NO.	FEATURE	DESCRIPTION
1	Mounting/Rigging Points	Five integral 3/8-16 threaded mounting points on the sides and the back of the R.5 mate with the yoke bracket or aiming strap.
2	Grille	20-gauge perforated stainless steel grille backed by a foam sheet and stainless steel mesh (100 x 100 wires/sq in). (R.5HP models have a 14-gauge grille)
3	Input Cable	Attached 16-gauge SJOW cable, approximately 12 feet (4m) long, rated for outdoor use. On 8-ohm versions the white conductor is positive (+) and the black is negative (-). See "Technical Information" for T-Version connection guide.
4	Mounting Yoke	R.5 and R.25 models include an attached Mounting Yoke. R.5 models include a Multi-Angle Aiming Strap. R.25 models do not include this strap.
5	Input Tap Selection Switch	Input tap selection switch concealed behind plastic hex screw (11mm, 7/16"). Rotary switch operated with a flat-head #1 screw driver.



Note: R.5 models do not include a pole mount socket.

Quick Start - Installation

ELECTRICAL INSTALLATION AND SAFETY

Electrical Safety

The output voltage and current capabilities of audio power amplifiers present a danger to installers especially in 70-volt and 100-volt distributed systems. To minimize the risk of electric shock from loudspeaker connecting cables, confirm that the power amplifiers are turned "off" before connecting loudspeaker cable to the loudspeaker or amplifier.

Electrical Connections and Cabling

R SERIES input is via an attached 16-gauge SJOW cable rated for outdoor use. This cable is approximately 12 feet (4m) in length. The table below shows the input connections for each model. Note that selected 70V/100V models have selector switches in place of the multi-wire cable.

Version	Black	White	Brown	Orange	Yellow	Red
R.25-94Z/TZ	Negative	Positive	TZ version has selector switch on bottom panel			
R.5-xxZ/TZ	Negative	Positive	TZ version has selector switch near cable			
R.5COAXxx (8Ω)	Negative	Positive				
R.5COAXxxT (70V)	Negative	Positive	T version has selector switch near cable			
R.5COAXxxT (100V)	Negative	Positive	T version has selector switch near cable			
R.5HP (8Ω)	Negative	Positive				
R.5HPT (70V)	Negative		200W	100W	50W	25W
R.5HPT (100V)	Negative			200W	100W	50W
R.5SUB (8Ω)	Negative	Positive				
R.5SUB-T (70V)	Negative		200W	100W	50W	25W
R.5SUB-T (100V)	Negative			200W	100W	50W

Ensure the connection you make to this cable is suitably weather-sealed. The gland nut that attaches the cable to the lower rear of the enclosure is sealed at the factory and should not be removed as this can compromise the weather integrity of the enclosure.

If installed outdoors, the insulation of the installer-provided cabling should be resistant to water, the effects of temperature, and the effects of ultraviolet radiation from the sun. These are recommended insulations: UV-stabilized polyethylene, neoprene, Teflon™, Silicon™, and Hypalon™. These insulations are not recommended because of potentially shorter life expectancy in outdoor environments: rubber, PVC (polyvinylchloride), polypropylene, polyurethane, and nylon. UV-stabilized polypropylene may be acceptable.

See the Technical Information section for the recommended amplifier power and the recommended high pass filter for each R.25 and R.5 model.

Quick Start - Installation

MECHANICAL INSTALLATION AND SAFETY

Rigging Safety

The loudspeakers described in this manual are designed and intended to be 'flown' or suspended for maximum acoustical performance using a variety of rigging hardware, means, and methods. **It is essential that all installation work involving the suspension of these loudspeaker products be performed by competent, knowledgeable persons who understand safe rigging practices. Severe injury and/or loss of life may occur if these products are improperly installed.**

Rigging / Mechanical Installation

Five, integral threaded mounting points on the four sides and the back of the enclosure mate with the included yoke bracket or can be used for a custom fabricated mounting. As shipped, the unused holes have plugs that can be removed if these holes are needed for mounting or attaching the aiming strap. The plugs are purposely designed to "catch" on the mounting point threads and will be somewhat difficult to remove. Reinstall removed plugs into any unused holes, such as where the included yoke bracket was attached for shipment.

The factory yoke attachment uses studs and a nut / lock washer / flat washer combination rather than bolts. This allows removal of the yoke to attach it to its supporting structure while leaving the studs on the enclosure. This procedure will make it easier to reinstall the R.5 or R.25 to the yoke without the need to both hold the loudspeaker and align bolts with the mounting points.

IMPORTANT INSTALLATION NOTES

When tightening mounting hardware in the mounting points, do not use excessive force. The mounting point holes are approximately 7/16" (11 mm) deep. Any bolts used should not extend into the hole more than 3/8" (9.5 mm). If they do either you may not be able to tighten the bolt to the mounting or the threaded insert may dislodge in the effort to further tighten the bolt.

Ensure that the hardware used to attach the included yoke or other mounting to the supporting structure and that the supporting structure itself are load rated for the intended use and suitably weather-resistant.

We recommend angling the R.5 or R.25 loudspeaker at least 5 degrees downward so as to reduce the possibility of rain and other precipitation compromising the performance of the loudspeaker. In this orientation, the R.5, R.5HP, R.5COAX, R.5SUB and R.25 will maintain an IEC 60529 rating of IP55W.

FOR MORE INFORMATION

For more information on installing and operating your R SERIES loudspeaker, please refer to the "Installation and Connections" section of this manual or go to Community's web site at www.communitypro.com.

For applications support, service or warranty information, refer to Community's web site or contact Community at 800-523-4934 or 610-876-3400.

R SERIES Information

DESCRIPTION OF THE R SERIES

All-Weather, All-Purpose

Though designed to handle the harshest environmental conditions, R SERIES is the perfect choice for many indoor environments. With more than 20 models to choose from, ranging from short throw with wide coverage angles to ultra-narrow, long throw systems, the task of designing an acoustically and economically effective sound system has never been easier. In many cases, a small number of R SERIES loudspeakers can provide top quality sound for a surprisingly large physical area, making them one of the most acoustically and economically effective solutions available anywhere. Visit www.communitypro.com to learn more about the entire R SERIES family including **R6, R2, R1, R.5, R.25, R.35, R.15, R-MAX, RSH** and **RMG** systems.

R SERIES Applications

R SERIES products are designed for permanent installation or portable use both outdoors and indoors. The primary applications for Community's R SERIES are those where re-entrant horns, outdoor two-way horn/woofer loudspeakers, and some larger horn loudspeakers typically are used but lack capability for both high quality music reproduction and longer distance voice projection. By contrast, R SERIES products have excellent fidelity and wide frequency range for both music reproduction and voice projection.

R SERIES products are ideally suited for athletic fields (football, soccer, baseball, tennis) and field houses, theme parks, amusement parks, swimming pools, ski slopes, cruise ships, steeple carillons, fairgrounds, rodeos, small arenas, racing tracks, air shows, skating rinks, convention centers, factories, warehouses, and portable sound systems. They can complement Community W SERIES products for projects needing a combination of both longer and shorter-throw applications.

R SERIES Features

R SERIES products are entirely constructed of corrosion-resistant materials like fiberglass, stainless steel, polyimide and carbon fiber, using sophisticated technologies to ensure they will withstand exposure to harsh environmental conditions.

- Weather-Treated Cones
- Weather-Resistant High- and Mid-Frequency Diaphragms
- Ferrofluid
- Driver Protection
- Fiberglass or Polyethylene Horns and Enclosures
- Horn Technology
- Weather-Stop™ Grille
- Stainless Steel Hardware
- Input Cables
- Envirotech™ Technology
- High-Performance Crossovers and Autoformers
- Versatile Mounting Accessories
- Custom Colors

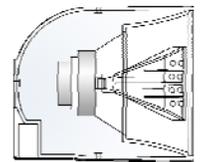
R SERIES Information

R SERIES MODELS

The R SERIES family features 32 models that range in capability from short throw usage for local area fill (about 30 to 50 feet), to extremely long throw capable of reaching across an entire stadium (about 700 feet). A wide selection of coverage angles and power output capabilities characterize this versatile product line. A small, single 12" subwoofer (called the R.5SUB) and a much larger dual 12" subwoofer (called the R2SUB) are available to complement full-range systems. Full, horn-loaded subwoofer/bass augmentation loudspeakers are available in the R6-Basshorn or R6-BHMAX. Smaller R SERIES products are injection molded ABS (R.15, R.35), rotationally molded of polyethylene (R.25, R.5, R.5MAX), while the larger models are made from hand-laid fiberglass (R1, R2, R2-MAX, R6-51, R6-51MAX). All models are available in architectural light grey, but custom colors are also available for volume purchases. All medium and long throw R SERIES systems feature horn loading in all frequency bands. The R2 is offered in three symmetric horn patterns and two asymmetric horn patterns, and the R2-MAX family has 4 horn patterns. All models except the R.5SUB, R6 family, R.5HP, RMG and RSH are equipped with internal protection circuitry to guard against excessive power. Because of their versatility, performance and weather-resistant properties, R SERIES systems are found in many of the world's preeminent motor speedways, sports venues, and convention centers.

R.25 Multipurpose 8-Inch Full-Range

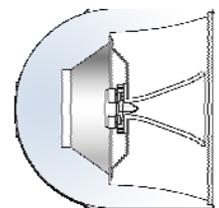
One of the smallest of the R SERIES family, the R.25 features a horn-loaded, high power 8-inch cone LF driver with Community's patent-pending Carbon Ring Cone Technology, providing smooth frequency response and high sensitivity. The R.25's coaxial HF compression driver is coupled to a 90° x 40° horn, coaxially mounted with the LF driver to minimize interference at crossover. Combining wide frequency response with excellent efficiency and projection ability, R.25 loudspeakers can serve as great, point-and-shoot "mini PA" systems with surprising bandwidth from a discreetly sized package. An optional "T" version (model R.25-94TZ) includes a factory-installed 200W autoformer for 70-volt and 100-volt systems.



R.25

R.5Z Medium-Throw, 12-Inch Full-Range

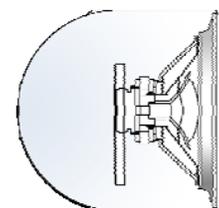
The wide range, smooth frequency response and high efficiency of the R.5Z offer excellent music and speech reproduction in a compact package, ensuring superb projection and clear intelligibility with very low distortion over moderate distances. R.5Z's are available in three coverage patterns - 60° x 60°, 90° x 40° and 90° x 90°. Highly weather-resistant with a strong molded polyethylene enclosure and Community's Weather-Stop™ grille, R.5Z loudspeakers are easy to install with the included stainless steel mounting yoke and mounting strap. Optional "T" versions include a factory-installed 200W autoformer for 70-volt and 100-volt systems.



R.5Z

R.5COAX Nearfield 12-Inch Full-Range

The R.5COAX two-way, full-range loudspeaker system provides the same quality sound as the other members of the R.5 family. Its wide range, smooth frequency response and high efficiency ensure both high fidelity music reproduction and superb projection of clear intelligible speech with very low distortion. The R.5COAX is offered for nearfield applications requiring extra smooth response in either a 60° x 60° or 90° x 90° coverage pattern. Optional "T" versions include a factory-installed 200W autoformer for 70-volt and 100-volt systems.

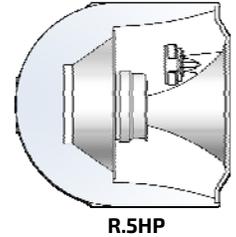


R.5COAX

R SERIES Information

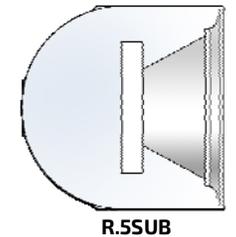
R.5HP High-Performance, Medium-Throw 12-Inch Full-Range

The "high performance" R.5HP is a three-way horn loaded system engineered to provide maximum intelligibility from the same compact form factor. By combining Community's M200 midrange driver coaxially within the mouth of a 12" LF horn, an extremely powerful tool for voice announcement systems with 60° x 40° coverage was created. High frequencies are handled by Community's non-metallic diaphragm UC1 1" exit HF driver. The M200/UC1 combination creates effortless voice-power with excellent musical performance. Optional "T" versions include a factory-installed 200W autoformer for 70-volt and 100-volt systems.



R.5SUB 12-Inch Subwoofer

The R.5SUB is a compact, weather-resistant subwoofer that complements the R.25 and R.5 full-range models. Its compact size and weather-resistant properties allow for easy inclusion in a wide variety of environments. An optional "T" version includes a factory-installed 200W autoformer for 70-volt and 100-volt systems.



R SERIES ACCESSORIES AND OPTIONS

Mounting Yoke and Multi-Angle Aiming Strap

All R.25 and R.5 models include a stainless steel mounting yoke. A Multi-Angle Aiming Strap is included with R.5 models to help keep the loudspeaker aimed in the intended direction.

Other Rigging Accessories

Always purchase rigging accessories, including eyebolts and other mounting hardware, from a reliable supplier who certifies their products for the intended application. For outdoor use or use in corrosive atmospheres (like indoor swimming pools), make sure the rigging accessories are corrosion resistant. ATM Flyware (www.atmflyware.com), a division of Allen Products, and Polar Focus (www.polarfocus.com) are examples of rigging suppliers that supply certified products for professional audio installations.

70-Volt, 100-Volt Autoformer

For 70-volt and 100-volt distributed systems, T-versions of the full-range R.5 and R.25 models include a high-quality, 200-watt autoformer pre-installed in the enclosure.

Custom Colors

For volume purchases, all R SERIES and W SERIES products may be ordered in custom color enclosures at a nominal fee to elegantly match their physical installation environment. Please contact Community for a quote on cost and lead time.

TRC400

Optional external 400-watt transformer for 140-volt distributed systems.

Installation

ELECTRICAL INSTALLATION AND SAFETY



DANGER: The output voltage and current of audio power amplifiers are a shock hazard especially in 70-volt and 100-volt distributed systems. To minimize the risk of electric shock from loudspeaker connecting cables, confirm that the power amplifiers are turned "off" before connecting loudspeaker cable to the loudspeaker or amplifier. Always follow local electrical codes and proper electrical safety procedures.

Inputs

R SERIES input is via an attached 16 Gauge SJOW cable rated for outdoor use. This cable is approximately 12 feet (4m) in length. The Technical Information section shows the input connections for each model. Note that some 70V/100V models have selector switches in place of the multi-wire cable.

Ensure the connection you make to this cable is suitably weather-sealed. Do not remove the gland nut that attaches the cable to the lower rear of the loudspeaker as this can compromise the weather integrity of the enclosure.

Polarity

The white jacketed conductor is the positive or + signal wire and the black is the negative or – signal wire. Positive voltage applied to the + wire produces positive acoustic pressure at the mouth of the loudspeaker.

Impedance

R.5 and R.25 loudspeakers are rated at 8-ohms nominal impedance. The impedance of transformer versions ("T" suffix) depends on the tap chosen.

Recommended Amplifier Power

See the Technical Information section in this manual for recommended amplifier power for each specific model. Using an amplifier of less power than recommended will not allow maximum performance of the system and can quickly damage the loudspeaker. The built-in DYNA-TECH™ protection circuitry (PowerSense DDP on model R1) cannot detect clipping nor will it detect when less than the recommended power is used. Correspondingly, using an amplifier of more power than recommended can result in overdriving the loudspeaker with the potential for damaging the drivers and/or the protection circuitry.

Recommended Cable Type and Size

The resistance of the cable between the loudspeaker and the amplifier affects the performance of the loudspeaker. Cable with too high a resistance can cause power losses and impair low frequency performance by reducing the electrical damping factor. To minimize these problems it is desirable to keep the total cable resistance under 0.2 ohm. For lengths over 100 feet the wire gauges needed to meet this requirement are usually not practical to use for both physical and cost reasons. Therefore 10 Gauge is recommended as the most practical gauge for those situations. Use the following table to select the proper wire gauge. Either stranded or solid conductors are acceptable although cable with stranded conductors can be easier to work with. The run length for both conductors has been figured into the total resistance. Note the lower the gauge number the larger the wire size.

Installation

ELECTRICAL INSTALLATION AND SAFETY (continued)

However, in most cases, using transformer versions of the R SERIES loudspeakers along with 70.7-volt or 100-volt amplification will yield the best performance at a reasonable cost. In this approach, the need for larger gauge wire will be reduced. Refer to page 7 for more discussion of this topic and the technical support page of our website for technical articles on this subject.

Run Length	Minimum Gauge (AWG)	Total Resistance
10 ft. (3m)	16	0.08 ohm
25 ft. (8m)	14	0.13 ohm
50 ft. (15m)	12	0.16 ohm
75 ft. (25m)	10	0.15 ohm
100 ft. (30m)	10	0.20 ohm
200 ft. (60m)	10	0.40 ohm
300 ft. (90m)	10	0.60 ohm
400 ft. (120m)	10	0.80 ohm
500 ft. (150m)	10	1.00 ohm

Figure 1: Recommended Cable Gauge

If installed outdoors, the insulation of the installer-provided cabling should be resistant to water, the effects of temperature, and the effects of ultraviolet radiation from the sun. These are recommended insulations: polyethylene, neoprene, Teflon™, Silicon™, and Hypalon™. These insulations are not recommended because of potentially shorter life expectancy in outdoor environments: rubber, PVC (polyvinylchloride), polypropylene, polyurethane, and nylon.

Recommended High-Pass Filter

Community recommends use of a high-pass filter to prevent over-excursion of the LF driver from lower frequencies that it is not designed to reproduce. See the Technical Information section for the recommended high-pass filter for each model.

Many power amplifier manufacturers offer plug-in high-pass filter input modules. This is an excellent method to provide the necessary filter and to make it relatively tamperproof.



IMPORTANT: Operating an R SERIES loudspeaker without the recommended high pass filter will reduce its low frequency power handling and may result in physical damage to the low-frequency devices.

Use of Limiters

Community recommends use of a limiter to help prevent loudspeaker damage due to sudden transients (dropped microphones, etc.) or amplifier clipping. When used for this purpose, connect the limiter as the last item in the signal chain before the power amplifier (at the input to the power amplifier). Set the limiter's "threshold" high enough so that no limiting occurs until the signal is in danger of clipping. Set the limiter's "compression ratio" to a high enough ratio to prevent clipping. For professional audio equipment, a typical threshold setting would be +10 dBu and a typical compression ratio setting would be 10:1 or higher.

Installation

ELECTRICAL INSTALLATION AND SAFETY (continued)

Use of Protection Capacitors

A properly chosen high-pass filter and limiter will provide all the protection needed for most systems. However, a properly chosen capacitor, inserted in the speaker line between the amplifier and loudspeaker, acts as an additional high-pass filter providing an additional level of protection when needed.

Use a non-polarized capacitor with a voltage rating exceeding the peak-to-peak voltage output of the power amplifier. A "motor start" capacitor will usually meet these specifications. Install the capacitor in the equipment rack or in a weather-tight electrical box near the loudspeaker. Choose the capacitance value from the following equation:

$$C = \frac{500,000}{\pi * f * Z}$$

**Figure 2:
Protection Capacitor
Equation**

Where C is in microfarads, $\pi = 3.14$, z is the actual impedance seen by the power amplifier and f is the desired -3dB frequency. A good choice of f is the same frequency as the recommended high-pass filter for the chosen R SERIES model. The impedance seen by the power amplifier will be 8-ohms for a single R SERIES model, 4-ohms for a pair of loudspeakers in parallel and 2-ohms for four loudspeakers in parallel.

For a 70-volt system, a single protection capacitor can be installed for all of the distributed loudspeakers connected to a single amplifier channel. Use the same equation to calculate the capacitor size. Remember that the amplifier peak-to-peak output voltage will be very high (at least 200 volts) so choose a non-polarized capacitor with an adequate voltage rating. To calculate the impedance presented to the amplifier, use this equation:

Where z is the impedance presented to the amplifier and P is the total power drawn by all of the distributed loudspeakers connected to that amplifier channel. That power is simply the sum of all of the 70-volt taps chosen for the individual loudspeakers. For a 100-volt system, substitute the constant 10,000 in place of the constant 5,000 in the equation.

$$Z = \frac{5,000}{P}$$

**Figure 3:
70-Volt Impedance
Equation**

Installation

ELECTRICAL INSTALLATION AND SAFETY (continued)

Loudspeaker Grounding

In a low-impedance (8-ohm) system (not 70/100-volt), the minus (-) output terminal of the power amplifier is usually grounded. This provides a ground reference for the loudspeaker.

In a 70/100-volt system, it is necessary for the amplifier output terminals to be ungrounded. Thus, there is no ground reference for the loudspeaker. In most cases, this is acceptable. However, in outdoor installations in areas prone to lightning, it is possible for static electricity to build up on an ungrounded loudspeaker line. In an extreme case, the static electricity can reach a high enough voltage to arc to ground, either at the loudspeaker or at the power amplifier, causing damage to the loudspeaker or amplifier.

If this is a concern, it is possible to bleed static charge away from the loudspeaker line by connecting a resistor from each side of the line to ground either at the power amplifier or at the loudspeaker (in a weather-tight electrical box). Typically, a pair of 5,000-ohm resistors with 2-watt (or higher) ratings is used for this purpose for 70-volt lines. For 100-volt lines, use a pair of 10,000-ohm resistors.

Bi-amplification

R.5 and R.25 products include an internal passive crossover network. They are not designed for bi-amplification.

70-Volt, 100-Volt Autoformer

Transformer versions ("T" suffix) include an internal 200W, 70/100V autoformer or transformer. For 70V lines the input taps are 200W, 100W, 50W and 25W. For 100V lines the taps are 200W, 100W and 50W.

Some models have a multi-wire input cable to select the tap (R.5SUBT, R.5HPT). In this case, termination is usually best made inside an appropriate electrical box (weatherized as needed) using standard wire splicing methods. Other versions have a screwdriver-selectable switch accessible through a plug screw (R.5COAXxxT, R.25-94TZ and R.5xxTZ) which is accessed by removing the plug. Rotate the switch to the appropriate stop ("click") for the desired tap using a flat-head #1 screwdriver.

Re-insert the plug screw after adjusting the tap to maintain weather-resistance. Use caution not to over tighten the plastic plug screw to avoid stripping the delicate plastic threads. For the R.25-94TZ, reinstall the plug so that is flush with the exterior of the cabinet to avoid undue pressure on the switch mechanism. See the charts on pages 5-7 or the Technical Information Section near the end of this manual for details about a specific model.

For additional information, Community's web site includes a technical note on the design of 70-volt/100-volt distributed systems.

Connecting Multiple Loudspeakers to a Single Amplifier

The best way to connect multiple loudspeakers to a single power amplifier is to design a 70-volt or 100-volt distributed system. However, it is acceptable to connect as many as four 8-ohm loudspeakers in parallel and connect this combination to a single amplifier channel provided that amplifier is rated for the resulting 2-ohm impedance load.

Installation

MECHANICAL INSTALLATION AND SAFETY



DANGER: The loudspeakers described in this manual are designed and intended to be 'flown' or suspended for maximum acoustical performance using a variety of rigging hardware, means, and methods. It is essential that all installation work involving the suspension of these loudspeaker products be performed by competent, knowledgeable persons who understand safe rigging practices. Severe injury and/or loss of life may occur if these products are improperly installed.

Important Notes on Rigging Loudspeakers

There are three areas of responsibility for rigging loudspeakers. The first is the building structure. Always consult with the building architect or structural engineer to assure the ability of the structure to support the loudspeaker system. The second area of responsibility is the loudspeaker itself. Community certifies its loudspeaker systems for suspension when they are properly installed according to our published guidelines. The third area of responsibility is everything between the loudspeaker and the building structure and the actual process of installation. The installing contractor assumes this responsibility. **Loudspeaker rigging should be performed only by certified rigging professionals using certified rigging hardware chosen for the specific application.** Prior to installation, the contractor should present a rigging plan, with drawing and detailed parts list, to a licensed structural engineer (P.E.) or architect for written approval.

Mounting Points

Five, integral threaded mounting points on the four sides and the back of the enclosure mate with the included yoke bracket or can be used for a custom fabricated mounting. As shipped, the unused holes have plugs that can be removed if these holes are needed for mounting or attaching the aiming strap. The plugs are purposely designed to "catch" on the mounting point threads and will be somewhat difficult to remove. Reinstall removed plugs into any unused holes, such as where the included yoke bracket was attached for shipment.

Acceptable Mounting Point Loading

The mounting points should always be used so that either shear force is applied perpendicular to the direction of and in tight proximity to the mounting hole or tension force is applied perpendicular to the enclosure surface. See Figure 4, below.



DANGER: Use the mounting points only as described above and shown in the figure. Do not use them in such a way as to apply sideways leverage to them. Failure to follow this instruction could result in immediate failure of the mounting points resulting in damage to the loudspeaker and serious injury or death to personnel.

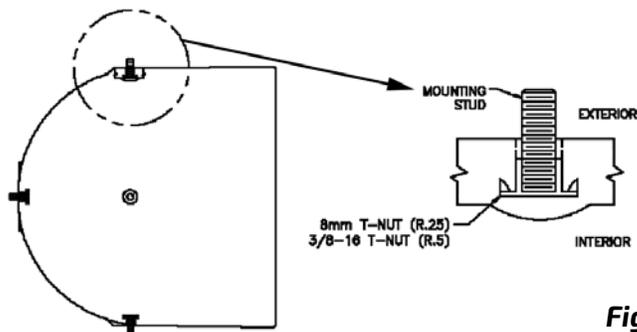


Figure 4: Mounting Point Detail

Installation

MECHANICAL INSTALLATION AND SAFETY (continued)

Using Yoke Brackets

Community provides one yoke-type mounting bracket with each R.25 or R.5 loudspeaker. In most cases, this will be the preferred hardware for mounting these products. The yoke attaches to the sides of the cabinet with the provided fasteners. It also includes an array of holes along the center strap of the yoke to fasten to structural points deemed suitable by the installer and/or professional engineer.

Mounting Yoke and Multi-Angle Aiming Strap

Fasten the mounting yoke securely to a supporting structure using properly rated, corrosion-resistant fasteners. For mounting to a round pole, use a properly rated mounting system.

The factory yoke uses studs and a nut/lock washer/flat washer combination rather than bolts. This allows removal of the yoke to attach it to its supporting structure while leaving the studs on the enclosure. This procedure will make it easier to reinstall the loudspeaker to the yoke.

R.5 models include a Multi-Angle Aiming Strap. Use the Multi-Angle Aiming Strap to secure the R.5's aiming angle as shown in Figure 5. Choose an enclosure mounting point that keeps the Multi-Angle Aiming Strap in tension (to avoid buckling). The table below shows the approximate down angle obtained by using the strap as shown below

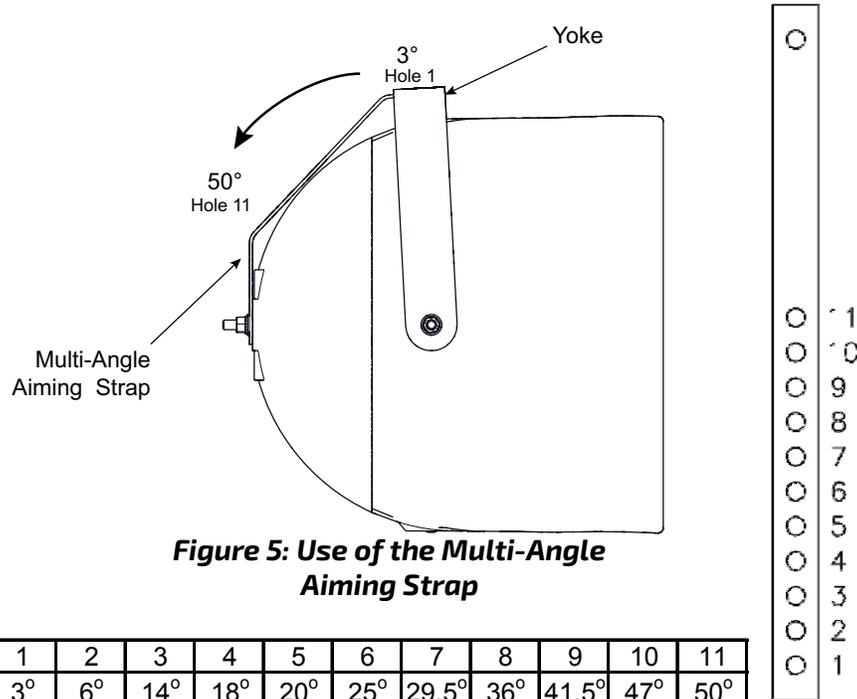


Figure 5: Use of the Multi-Angle Aiming Strap

Hole #	1	2	3	4	5	6	7	8	9	10	11
Down Angle	3°	6°	14°	18°	20°	25°	29.5°	36°	41.5°	47°	50°

Installation

MECHANICAL INSTALLATION AND SAFETY (continued)

Using Safety Cables

For most applications, the installing contractor or professional engineer might deem necessary (or advisable) that R SERIES cabinets be installed with a secondary means of attachment such as a safety cable. In fact, some local building codes and other regulations may require safety cables, chains or other secondary supports due to seismic concerns, excessive wind loads, etc. Be aware that safety attachment points should not be located at insert points on opposite sides of the cabinet in such a manner that they present a significant force that pulls the insert points away from each other. All safety cables, chains, or other restraining hardware shall be installed so that the line is taut and positioned to minimize dynamic loading (falling, bouncing, swinging, etc.) in the event that the loudspeaker's primary mount fails.

Community does offer in its catalog forged, rated eyebolts intended for rigging loudspeakers. However, these eyebolts are not rated for outdoor use and the shank is too long for the threaded inserts on R.25 and R.5 loudspeakers. Using an eyebolt with too long of a shank will not permit the eyebolt shoulder to properly seat against the exterior of the cabinet. Installers will need to procure appropriate hardware made from the appropriate material and shank length to meet the needs of each application.

In some cases, forged, overhead rated shoulder eyebolts may be used as attachment points on the cabinet for safety cables with some restrictions. The eyebolt must be screwed in and firmly seated (do not over tighten) with the shoulder of the eyebolt making contact with the rubber washer on the exterior of the cabinet. A rubber washer shall be used between the eyebolt and the cabinet to maintain weather resistance. Shims may be used between the eyebolt and the rubber washer to position the eye so that it is in the same plane as the suspension cable or chain. Care must be taken to ensure that the safety cable will not induce a load off-axis from the eyebolt's threaded shank.

Hoist Rings provide a method of attachment which has advantages over eyebolts that permit more flexibility in regard to the pull/load direction of the safety line, though at a higher cost. Hoist rings include a hinged "eye" which allows the load applied to the cabinet threaded inserts to remain largely in shear, thus preserving the integrity of the insert point. The same precautions should be taken to properly seat the hoist ring as when seating an eye bolt.

As with all aspects of mounting and rigging loudspeakers, the use of eyebolts, hoist rings, and other safety cabling hardware should be included in a rigging plan approved by a professional engineer.



IMPORTANT: The mounting bolts that come installed in each R SERIES enclosure must either be used to mount the Accessory Mounting Yoke or they must remain in place. If the rigging fittings are not sealed, air leaks will occur in the enclosure that will compromise the loudspeaker's weather-resistance and its low frequency performance.



IMPORTANT: Eyebolts and other mounting hardware for outdoor usage with R SERIES loudspeakers must be corrosion resistant steel properly rated for the load weight.

Custom Mounting Brackets

Custom brackets may be used. When mounting the loudspeaker the bracket should pull directly either in tension or shear on the mounting point (See Figure 5). It is recommended that any custom bracket be designed to utilize two mounting points on the opposite sides or top and bottom of the enclosure.

Orienting an R SERIES Loudspeaker

An R SERIES loudspeaker has a definite top, bottom and sides. However, a 180° inversion will not affect the coverage. When the top of the enclosure is up, the input cable gland nut will be down and to your right when looking directly at the front of the loudspeaker. Also, the manufacturer's label is on the top of the enclosure. Once the top is determined, you can properly orient the loudspeaker for your particular application according to the specified coverage pattern.

Installation

IMPORTANT INSTALLATION NOTES

Mounting Hardware Notes

When tightening mounting point hardware, do not use excessive force. Any bolts used in place of the supplied mounting studs should be properly rated stainless steel and should not extend into the hole more than 3/8" (9.5 mm). Ensure that the hardware used to attach the yoke (or other mounting hardware) to the supporting structure and that the supporting structure itself are load rated for the intended use and suitably weather resistant.

Notes on Weather-Resistance

No loudspeaker is completely "weatherproof". However, Community R SERIES loudspeakers are designed to withstand continuous outdoor exposure for many years of operation. Community R.5 loudspeakers have an IP (Ingress Protection) rating of IP55W in accordance with guidelines set forth under test standard IEC 60529 by the International Electrical Commission (IEC).

We recommend angling the R.5 or R.25 loudspeaker at least 5 degrees downward so as to reduce the possibility of rain and other precipitation compromising the performance of the loudspeaker. The R.5 or R.25 will maintain an IEC 60529 rating of IP55W in this orientation.

All five mounting holes must be sealed off with the stainless steel bolts, washers, and rubber washers supplied. If, for any reason, these bolts must be removed, seal off the hole with silicone caulking or some other suitable weather-tight sealant. The rubber washers supplied with the mounting bolts must always seat against the enclosure.

The gland nut securing the loudspeaker cable to the enclosure is sealed at the factory. Do not attempt to remove this nut or the weather-tight seal will be broken. If it is desired to replace the gland nut with a connector, the connector must be a weather-proof design. It must be suitably sealed to the enclosure with silicone caulk or some other suitable weather-tight sealant. The Neutrik model NLT4MP is an excellent connector for this purpose.

The grille assembly is designed to prevent normal and wind-driven rain from directly entering the mouth of the loudspeaker. The grille is not designed to withstand such things as being directly sprayed from a hose; therefore this should be avoided.

If you use any hardware in place of the stainless steel screws, bolts, nuts, and washers supplied, it should also be made of stainless steel. Community recommends periodic inspections of installed rigging hardware to discover and repair any unexpected corrosion or damage.

Always use outdoor-rated cable. Always seal connections in a weather-tight electrical box.



IMPORTANT: If the above instructions are not observed, the weather-resistant integrity of an R SERIES loudspeaker can be compromised. This can result in damage to or failure of the hardware or internal components.

System Optimization

CHOOSING THE RIGHT LOUDSPEAKERS AND ELECTRONICS

Choose R SERIES models with high enough maximum SPL to provide the needed SPL at the farthest listener with an appropriate headroom. Typical headroom factors are at least 6dB for voice paging, at least 10dB for voice reinforcement and at least 20dB for music reinforcement.

Choose R SERIES models with the right frequency response for the application. Subwoofers will improve the sound quality of a music reinforcement system but may reduce intelligibility in a voice-only system in a reverberant space.

Choose R SERIES models with the right coverage patterns to cover the audience evenly. Point the loudspeakers at the listeners and away from walls and ceilings or outdoor obstructions.

In outdoor applications, loudspeakers may be far enough apart to create artificial echoes in areas of overlapped coverage. Ideally, put all loudspeakers in a central location (central cluster design) or use a distributed system design to minimize this problem. In any case, minimize overlap when speakers are separated by more than approximately 40 feet.

Choose power amplifiers large enough to provide the desired power output with enough headroom to avoid clipping. Use a limiter and high-pass filter to protect the loudspeakers. Follow proper wiring design and adjust gains and levels to minimize hum and noise.

COMMISSIONING THE SYSTEM

Commissioning is the process of optimizing the performance of the system after it has been installed. There are several steps in commissioning including verifying the proper operation of each system component and adjusting system gains and levels.

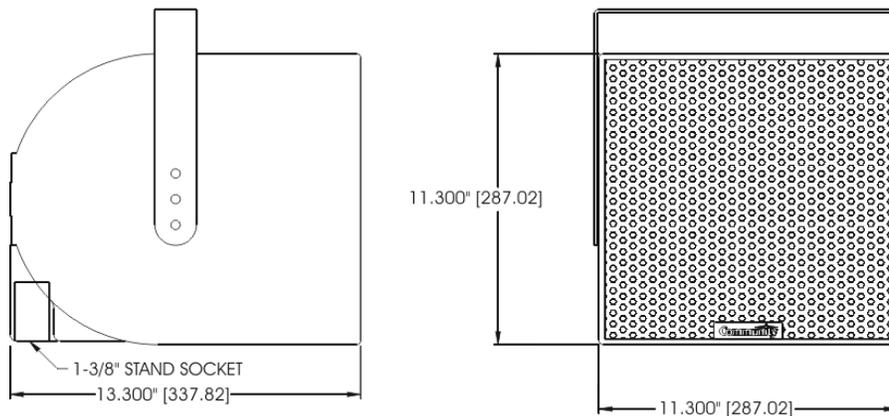
The last step in system commissioning is known as system equalization or "voicing". Equalization is the process of adjusting the frequency response of the system to optimize voice intelligibility or musical sound quality (or both). Note that R SERIES loudspeakers are factory-voiced to optimize their speech intelligibility and musical sound quality. For this reason, many designers find they can minimize overall system equalization and still achieve excellent voice intelligibility and musical sound quality.

R.25 Technical Information

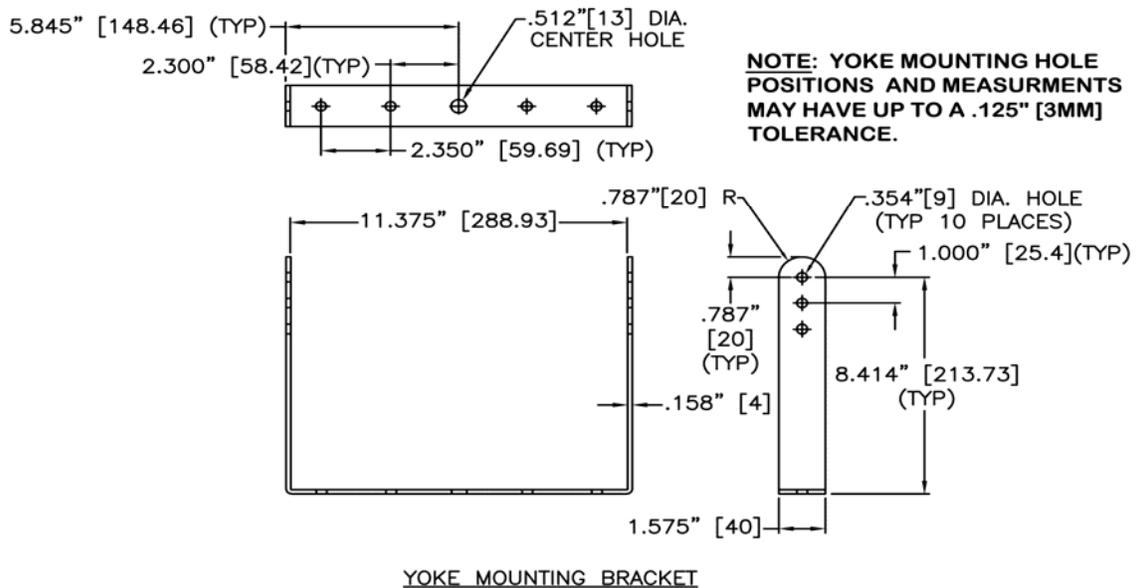
R.25 Input Connection Guide

Model	Cable		70V/100V Selector Switch			
	Black	White	Pos. 1	Pos. 2	Pos. 3	Pos. 4
R.25-94Z	Negative	Positive	N/A			
R.25-94TZ (70V)	Negative	Positive	25W	50W	100W	200W
R.25-94TZ (100V)	Negative	Positive	50W	100W	200W	N/A

R.25 Dimensions



R.25 Yoke Mounting Bracket (included)



R.5 Technical Information

R.5COAX / R.5-xxZ Input Connection Guide

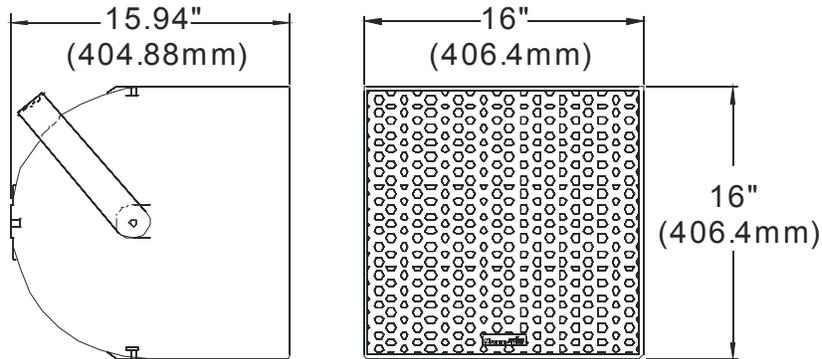
Model	Cable		70V/100V Selector Switch			
	Black	White	Pos. 1	Pos. 2	Pos. 3	Pos. 4
R.5 COAX / R.5-xxZ (8 ohm)	Negative	Positive	N/A	N/A	N/A	N/A
R.5 COAX-T (70V)	Negative	Positive	200W	100W	50W	25W
R.5 COAX-T (100V)	Negative	Positive	N/A	200W	100W	50W
R.5-xxTZ (70V)	Negative	Positive	200W	100W	50W	25W
R.5-xxTZ (100V)	Negative	Positive	N/A	200W	100W	50W

R.5HP / R.5HPT / R.5SUB / R.5SUB-T Input Connection Guide

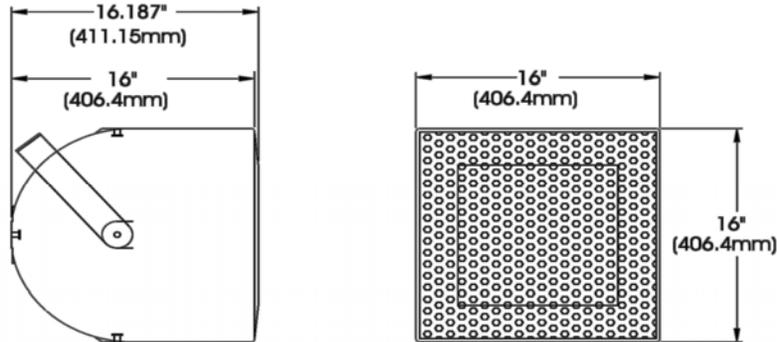
Model	Black	White	Brown	Orange	Yellow	Red
R.5HP (6 ohm)	Negative	Positive	N/A	N/A	N/A	N/A
R.5HPT, 70V	Negative	N/A	200W	100W	50W	25W
R.5HPT, 100V	Negative	N/A	N/A	200W	100W	50W
R.5SUB	Negative	Positive	N/A	N/A	N/A	N/A
R.5SUB-T 70V	Negative	N/A	200W	100W	50W	25W
R.5 SUB-T 100V	Negative	N/A	N/A	200W	100W	50W

R.5 Technical Information

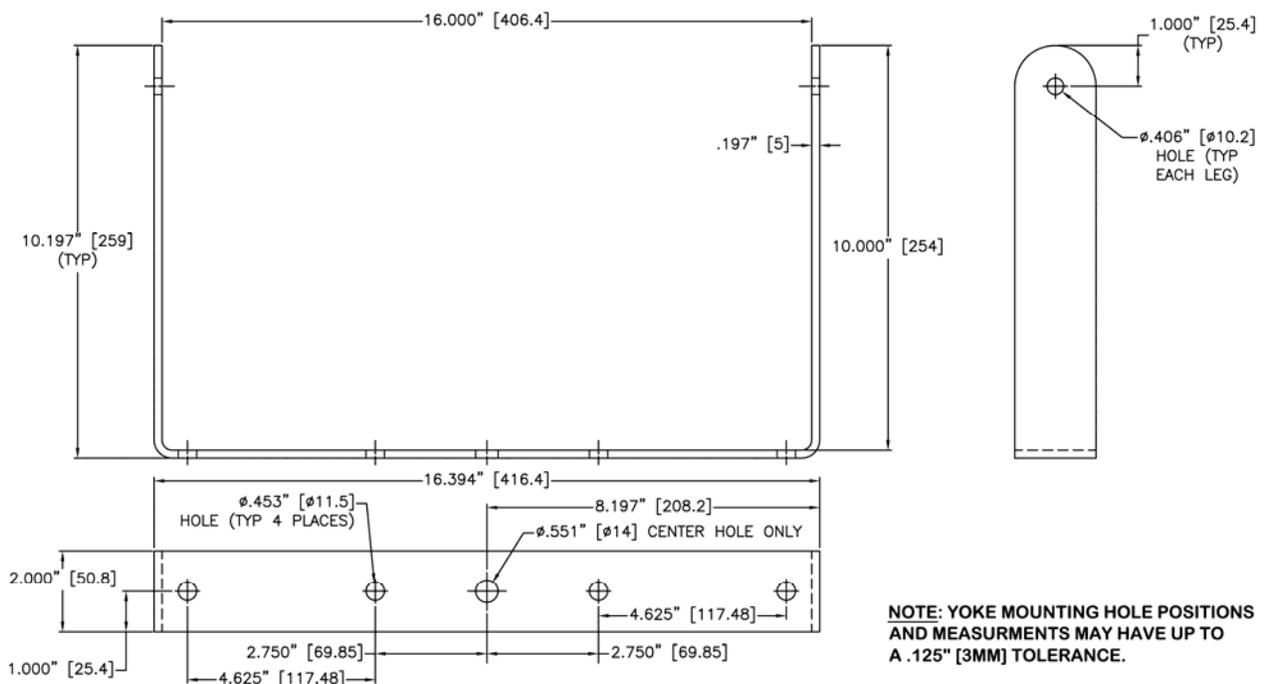
R.5COAX / R.5-xxZ / R.5SUB Dimensions



R.5HP Dimensions



R.5 Yoke Mounting Bracket (included for all models)



Service, Warranty and Contact Information

FIELD SERVICE

Any driver or crossover service required is done from the front of the enclosure by removing the screws around the edge of the grille. For warranty repair, contact Community directly or ask us for the location of your nearest Authorized Service Center.

WARRANTY INFORMATION

TRANSFERABLE WARRANTY “(LIMITED)” VALID IN THE USA ONLY

The R SERIES loudspeakers are designed and backed by Community Professional Loudspeakers. For complete warranty statement information within the USA please refer to www.communitypro.com/warranty. Please call 610-876-3400 or visit the website to locate your nearest Authorized Field Service Station. For Factory Service call 610-876-3400. You must obtain a Return Authorization (R/A) number prior to the return of your product for factory service.

Upon receipt, the service center will determine if the problem is covered under warranty. If covered under this warranty, the product will be repaired or replaced, at Community's option, and returned to the owner freight prepaid. If the problem is not covered under this warranty, the owner will be notified of the problem with an estimate of the repair costs.

WARRANTY INFORMATION AND SERVICE FOR COUNTRIES OUTSIDE THE USA

To obtain specific warranty information and available service locations for countries other than the United States of America, contact the authorized Community Distributor for your specific country or region.



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