

# TRx

Congratulations on your selection of the **TRxN** loudspeaker. **TRxN** represents Carvin's highest performance sound reinforcement loudspeakers. The **TRxN** series was designed from the beginning as a complete system using the highly-efficient Neodymium drivers. Each **TRxN** cabinet is constructed of cross grain multi-ply laminated hardwood with internal bracing to increase efficiency and eliminate cabinet resonance. Specially selected Neo drivers for each loudspeaker assure optimum performance. Each enclosure is covered in Carvin's **Duratex™** scratch-resistant, UV stable, weatherproof polyurethane finish. For install and tour rigs, the **TRx** series includes fly point on all enclosures except subwoofers.

**Specifications TRx12N**  
 System Type: 12-inch 2-Way  
 Frequency Response: 65 Hz – 20 kHz (-10dB)  
 70 Hz – 18 kHz (-3 dB)  
 Coverage Pattern: 80 round  
 Crossover: 2-Way with Speaker Guard™ HF protection  
 Crossover Frequency: 2.5 k Hz  
 Power: Continuous / Program / Peak  
 Full Range 300w /600w /1200w  
 Recommended Amplifier Power: 450 – 900w  
 Sensitivity (1w @ 1m): 96dB  
 Maximum SPL: 121dB  
 LF Driver: 12-inch woofer  
 HF Driver: 1-inch Neodymium 1.5-inch VC  
 Nominal Impedance full range: 8 ohms  
 Bi-amp LF: 8 ohms 300w /600w /1200w  
 Bi-amp HF: 8 ohms 60w /120w /240w  
 Enclosure: 18mm Multi-Ply Hardwood  
 Suspension/Mounting: 1-3/8-inch pole mount cup  
 Finish: Black DuraTex™  
 Transport: 1 Recessed Handle  
 Grill: Black powder coated 16-Ga steel  
 Acoustically Transparent Foam Backing  
 Connectors: Two NL-4 Neutrik Speakon's  
 Dimensions (H x W x D): 14.5 in x 15.5 in x 19.5 in  
 370 mm x 395 mm x 495 mm  
 Net Wt: 33 lb (15 kg)

**Specifications TRx115N**  
 System Type: 15-inch 2-Way, bass-reflex  
 Frequency Response: 54 Hz – 20 kHz (-10DB)  
 62 Hz – 18 kHz (-3 dB)  
 Coverage Pattern: 60H x 40V  
 Crossover: 2-Way with Speaker Guard™ HF protection  
 Crossover Frequency: 2.5 k Hz  
 Power: Continuous / Program / Peak  
 Full Range 600w /1200w /2400w  
 Recommended Amplifier Power: 800 – 1600w  
 Sensitivity (1w @ 1m): 100dB  
 Maximum SPL: 128dB  
 LF Driver: 15-inch Neodymium 3-inch VC  
 HF Driver: 1-inch exit Neodymium 2-inch VC  
 Nominal Impedance full range: 8 ohms  
 Bi-amp LF: 8 ohms 600w /1200w /2400w  
 Bi-amp HF: 8 ohms 60w /120w /240w  
 Enclosure: 18mm Multi-Ply Hardwood  
 Suspension/Mounting: 1-3/8-inch pole mount cup  
 8 captive 3/8in –16 nut fly points  
 Finish: Black DuraTex™  
 Transport: 2 Recessed Handles  
 Grill: Black powder coated steel  
 Acoustically Transparent Foam Backing  
 Connectors: Two NL-4 Neutrik Speakon's  
 Dimensions (H x W x D): 27 in x 19 in x 15.5 in  
 660 mm x 510 mm x 440 mm  
 Net Wt: 45 lb (21 kg)  
 Rigging Accessories: TCSHK10 3/8-16 Eyebolt  
 TCSHK15 3/8-16 Quicklink™

**Specifications TRx215N**  
 System Type: Dual 15-inch 3-Way, bass-reflex  
 Frequency Response: 50 Hz – 20 kHz (-10DB)  
 57 Hz – 18 kHz (-3 dB)  
 Coverage Pattern: 60H x 40V  
 Crossover: 3-Way with Speaker Guard™ HF protection  
 Crossover Frequency: 400/2.5 k Hz  
 Power: Continuous / Program / Peak  
 Full Range 1200w /2400w /4800w  
 Recommended Amplifier Power: 1600 – 3200w  
 Sensitivity (1w @ 1m): 100dB  
 Maximum SPL: 131dB  
 LF Driver: Dual 15-inch Neodymium 3-inch VC  
 HF Driver: 2-inch exit Neodymium 3-inch VC  
 Nominal Impedance full range: 4 ohms  
 Tri-amp LF: 8 ohms 600w /1200w /2400w  
 Tri-amp MF/LF: 8 ohms 600w /1200w /2400w  
 Tri-amp HF: 8 ohms 100w /200w /400w  
 Enclosure: 18mm Multi-Ply Hardwood  
 Suspension/Mounting: 12 captive 3/8in –16 nut fly points  
 Finish: Black DuraTex™  
 Transport: 6 Recessed Handles  
 Grill: Black powder coated steel  
 Acoustically Transparent Foam Backing  
 Connectors: Two NL-4 Neutrik Speakon's  
 Two NL-8 Neutrik Speakon's  
 Dimensions (H x W x D): 45.5 in x 19 in x 21 in  
 1155 mm x 480 mm x 535 mm  
 Net Wt: 99 lb (45 kg)  
 Rigging Accessories: TCSHK10 3/8-16 Eyebolt  
 TCSHK15 3/8-16 Quicklink™

**Specifications TRx153N**  
 System Type: 15-inch 3-Way, bass-reflex  
 Frequency Response: 50 Hz – 20 kHz (-10DB)  
 60 Hz – 18 kHz (-3 dB)  
 Coverage Pattern: 60H x 40V  
 Crossover: 3-Way with Speaker Guard™ HF protection  
 Crossover Frequency: 500, 2.5 k Hz  
 Power: Continuous / Program / Peak  
 Full Range 600w /1200w /2400w  
 Recommended Amplifier Power: 800 – 1600w  
 Sensitivity (1w @ 1m): 100dB  
 Maximum SPL: 128dB  
 LF Driver: 15-inch Neodymium 3-inch VC  
 LF Driver: 8-inch Neodymium 1.75-inch VC  
 HF Driver: 1-inch exit Neodymium 2-inch VC  
 Nominal Impedance full range: 8 ohms  
 Tri-amp LF: 8 ohms 600w /1200w /2400w  
 Tri-amp MF/LF: 8 ohms 200w /400w /800w  
 Tri-amp HF: 8 ohms 60w /120w /240w  
 Enclosure: 18mm Multi-Ply Hardwood  
 Suspension/Mounting: 12 captive 3/8in –16 nut fly points  
 Finish: Black DuraTex™  
 Transport: 4 Recessed Handles  
 Grill: Black powder coated steel  
 Acoustically Transparent Foam backing  
 Connectors: Two NL-4 Neutrik Speakon's  
 Two NL-8 Neutrik Speakon's  
 Dimensions (H x W x D): 41.75 in x 20 in x 17.25 in  
 1060 mm x 510 mm x 440 mm  
 Net Wt: 95 lb (43 kg)  
 Rigging Accessories: TCSHK10 3/8-16 Eyebolt  
 TCSHK15 3/8-16 Quicklink™

**Specifications TRx118N**  
 System Type: 18-inch Sub, bass-reflex  
 Frequency Response: 29 Hz – 265 Hz (-10DB)  
 35 Hz – 150 Hz (-3 dB)  
 Coverage Pattern: omni  
 Crossover: Low Pass  
 Crossover Frequency: 150 Hz  
 Power: Continuous / Program / Peak  
 Full Range 800w /1600w /3200  
 Recommended Amplifier Power: 1200 – 2400w  
 Sensitivity (1w @ 1m): 98dB  
 Maximum SPL: 127dB  
 LF Driver: 18-inch Neodymium 4-inch VC woofer  
 Nominal Impedance full range: 8 ohms  
 Enclosure: 18mm Multi-Ply Hardwood  
 Suspension/Mounting: Top: 1-3/8-inch Pole Mount Cup  
 Finish: Black DuraTex™  
 Transport: 2 Recessed Handles  
 Grill: Black powder coated steel  
 Acoustically Transparent Foam Backing  
 Connectors: Two NL-4 Neutrik Speakon's  
 Dimensions (H x W x D): 23.5 in x 19.75 in x 22.75 in  
 600 mm x 505 mm x 580 mm  
 Net Wt: 61 lb (27 kg)

**Specifications TRx218N**  
 System Type: Dual 18-inch Sub, bass-reflex  
 Frequency Response: 24 Hz – 265 Hz (-10DB)  
 30 Hz – 150 Hz (-3 dB)  
 Coverage Pattern: omni  
 Crossover: Low Pass  
 Crossover Frequency: 150 Hz  
 Power: Continuous / Program / Peak  
 Full Range 1600w /3200w / 6400w  
 Recommended Amplifier Power: 2000 – 3200w  
 Sensitivity (1w @ 1m): 102dB  
 Maximum SPL: 134dB  
 LF Driver: Dual 18-inch Neodymium 4-inch VC  
 Nominal Impedance full range: 4 ohms  
 Enclosure: 18mm Multi-Ply Hardwood  
 Suspension/Mounting: none  
 Finish: Black DuraTex™  
 Transport: 2 Recessed Handles  
 Grill: Black powder coated steel  
 Acoustically Transparent Foam Backing  
 Connectors: Two NL-4 Neutrik Speakon's  
 Dimensions (H x W x D): 23.5 in x 40 in x 22.75 in  
 600 mm x 1020 mm x 580 mm  
 Net Wt: 109 lb (50 kg)



TRx12N



TRx115N



TRx215N



TRx153N



TRx118N



TRx218N

**LIMITED WARRANTY**

Parts and labor are covered for 1 year on manufacturer's defects. Warranty does not cover burned out drivers caused by excessive power or distortion, or physical damage caused by general use, moisture or dust. CAUTION: Square wave distortion from power amps can destroy drivers much faster than clean RMS power.

**SERVICE**

In the USA, please call 800-854-2235 for a RMA # (return authorization number). Write this number on the box and enclose a description of the problem. Prepay to Carvin 12340 World Trade Drive, SD, CA 92128  
 Outside the USA, contact your dealer or go to <http://www.carvinworld.com> for your nearest service center. Include a written description of the problem with serial number and date of purchase.



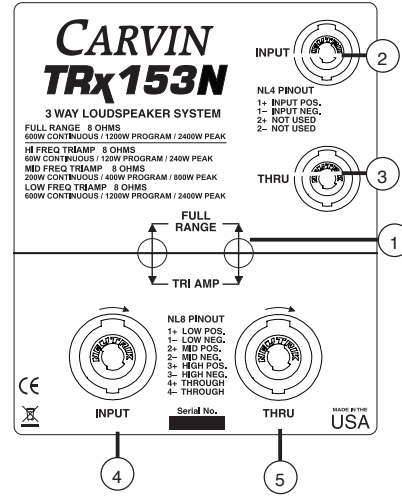
**CHOOSING THE CORRECT AMPLIFICATION**

TRx Loudspeakers are designed to be used with professional power amplifiers capable of producing the correct power into equivalent speaker loads. Care should be taken to avoid amplifier clipping. Due to the fact that music signals have a high peak-to-average "crest" factor, a lesser power amplifier driven into clipping is more likely to damage a speaker than a higher power amplifier used within its ratings. When an amplifier is over driven, its output waveform is clipped or squared off reducing the crest factor. If an amplifier is extremely over driven, the output waveform can approach that of a square wave. Under these extreme conditions, an amplifier is capable of producing far more power than its un-distorted rated power output. The use of amplifiers with outputs greater than those recommended is discouraged.

Carvin recommends an amplifier capable of producing at least the power rating of the speaker up to 1.5 times the power rating of the speaker. (See TECHNICAL SPECIFICATIONS).

Always turn on the amplifiers after the mixer and control systems have been powered on. This will eliminate power peaks due to switch on surges which can damage loudspeakers. When powering down the system, reverse the sequence and switch off the power amplifiers first.

**TRx215N & TRx153N Connection Plate**



- 1. FULL RANGE PASSIVE/TRIAMP SWITCHES**  
 Slide switches to FULL RANGE PASSIVE position when using a single amplifier delivering a full range signal. (The internal passive crossover network divides the signals and delivers to the appropriate drivers.)  
 Slide switches to TRI AMP position when using external active crossover and multiple amplifiers in a tri amp configuration. (TRI AMP position bypasses internal passive crossover network.)
- 2. NL4 FULL RANGE INPUT**  
 Use this input when using a single amplifier delivering a full range signal. (The internal passive crossover network divides the signals and delivers to the appropriate drivers). Ensure switches are in FULL RANGE PASSIVE position.
- 3. NL4 FULL RANGE THROUGH**  
 This jack is wired in parallel with the full range input jack for daisy chaining additional enclosures.
- 4. NL8 TRIAMP INPUT**  
 Use this input when using external active crossover and multiple amplifiers in a tri amp configuration. Ensure switches are in TRI AMP position.
- 5. NL8 TRIAMP THROUGH**  
 This jack is wired in parallel with the tri amp input jack for daisy chaining additional enclosures.

**FLYING AND STACKING INFORMATION**

Prior to suspending or stacking any TRx Audio loudspeaker systems, it is essential that the user be familiar with overhead suspension and stacking techniques, load ratings, and safety considerations.

**SUSPENSION**

TRx series loudspeakers are fitted with captive 3/8"-16 threaded nuts for suspending or permanent installation. Each captive nut has a WLL of 500 lbs. (226 kg.).  
 Note: Working Load limits are based on vertical pull or 0°, for derating please see derating note below.

**DANGER:**

- 1) Hardware found at your local hardware store should not be used as it may not be rated for this application.
- 2) Mounting or rigging loudspeakers is a serious endeavor, always seek the advice of qualified experts.
- 3) Never use the handles for suspending the loudspeaker, they are not designed or rated for this purpose.
- 4) Improper installations may result in damage, injury or death.

**CAUTION:** All hardware used for overhead suspension should be designed and used with a minimum 5:1 design factor. This is the ratio between the structural failure point and the loading to be applied to the component. Periodically inspect and maintain all rigging points on the loudspeaker and all suspension hardware.

**NOTICE:** The user assumes liability for proper design, installation and use of rigging systems.

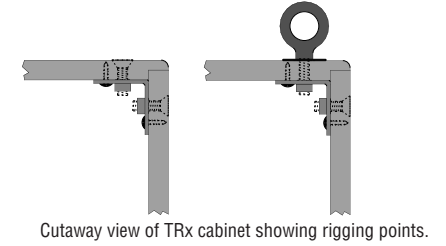
**STACKING**

Ensure that the floor, stage or soundwings are level and solid. Be cautious of outdoor windy conditions, speaker stacks could topple over in high wind conditions or be accidentally pushed or bumped over by over zealous crowds. Loudspeakers producing very high spl (especially subwoofers) can shift from their original position. Ensure the feet of the loudspeakers are locked into the feet cups of the speaker below. Place frictional material between the floor and the loudspeaker.

**De-Rating:** Using the mounting points at an angle will de-rate the "WLL" (working load limit) for each point. Each point mounted at an angle should be de-rated according to the following formula.

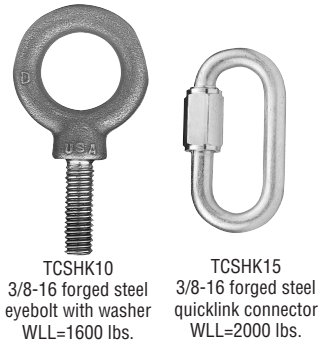
“WLL”=cosine(angle) x 500  
 angle = degrees from vertical pull  
 500 = WLL for each TRx mounting point @ vertical pull

**WARNING –** Never exceed the "WLL" throughout the suspension system.



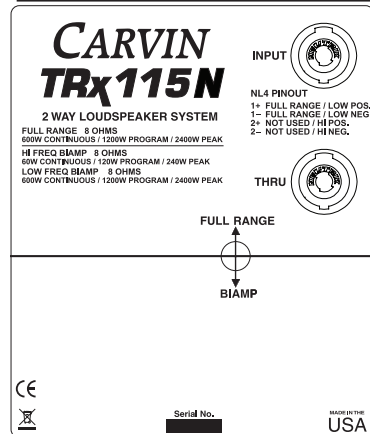
**IMPORTANT NOTE**

The mounting/rigging points of the TRx loudspeakers must either be used for mounting hardware (eyebolts) or "plugged" with the hex-socket screws provided. There are two reasons for this. When suspending the loudspeaker from one end, the screws in the mounting/rigging points on the other end transfer the load through the internal steel bracing to the bottom surface of the enclosure for structural support. Also if they are not "plugged", the holes can create air leaks compromising the low frequency performance of the enclosure.



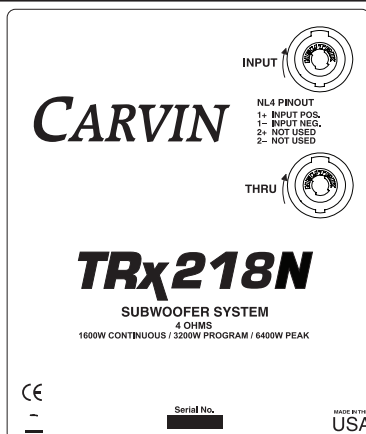
www.carvin.com & www.atm-fly-ware.com for more rigging information and hardware.

**TRx12N & TRx115N Connection Plate**



- 1. NL4 INPUT**  
 Full range or bi-amp input depending on the position of the crossover switch.
- 2. NL4 THROUGH**  
 This jack is wired in parallel with the input jack for daisy chaining additional enclosures.
- 3. CROSSOVER SWITCH**  
 Changes between full range or bi-amped inputs. See connection chart.

**TRx118N & TRx218N Connection Plate**



- 1. NL4 INPUT**  
 Full range input, external crossover required. (TRx218N & TRx118N do not have an internal passive crossover).
- 2. NL4 THROUGH**  
 This jack is wired in parallel with the input jack for daisy chaining additional enclosures.

**RECOMENDED CROSSOVER FREQUENCIES**

	Low/Mid	Mid/High
TRx153N	400Hz - 700Hz	2.5kHz - 4kHz
TRx215N	400Hz - 700Hz	2.5kHz - 4kHz
TRx115	1.75kHz - 3kHz	
TRx12N	1.75kHz - 3kHz	
TRx118N	80Hz - 100Hz	
TRx218N	80Hz - 100Hz	

**CONNECTING TRxN**

The rear panels of the the TRx loudspeakers are fitted with Neutrik Speakon NL8 or NL4 connectors. All connectors are wired in parallel.

NL8 pin	TRx153N	TRx215N
1+	Low Positive	Low Positive
1-	Low Negative	Low Negative
2+	Mid Positive	Low2 Positive
2-	Mid Negative	Low2 Negative
3+	High Positive	High Positive
3-	High Negative	High Negative
4+	Through	Through
4-	Through	Through

NL4 pin	Bi-amp	Passive	Subwoofers
1+	Low Positive	Positive Input	Positive Input
1-	Low Negative	Negative Input	Negative Input
2+	High Positive	Through	Through
2-	High Negative	Through	Through

**TRX153-44T & TRX153-22T SYSTEM SET-UP**

