

OWNER MANUAL

TT22-A II
TT25-A II
TT25-CXA
TT45-CXA

ACTIVE
HIGH DEFINITION
SPEAKERS





1. All the precautions, in particular the safety ones, must be read with special attention, as they provide important information.

2. Power supply from mains

- a. The mains voltage is sufficiently high to involve a risk of electrocution; install and connect this product before plugging it in.
- b. Before powering up, make sure that all the connections have been made correctly and the voltage of your mains corresponds to the voltage shown on the rating plate on the unit, if not, please contact your RCF dealer.
- c. The metallic parts of the unit are earthed through the power cable. An apparatus with CLASS I construction shall be connected to a mains socket outlet with a protective earthing connection.
- d. Protect the power cable from damage; make sure it is positioned in a way that it cannot be stepped on or crushed by objects.
- e. To prevent the risk of electric shock, never open this product: there are no parts inside that the user needs to access.

3. Make sure that no objects or liquids can get into this product, as this may cause a short circuit.

This apparatus shall not be exposed to dripping or splashing. No objects filled with liquid, such as vases, shall be placed on this apparatus. No naked sources (such as lighted candles) should be placed on this apparatus.

4. Never attempt to carry out any operations, modifications or repairs that are not expressly described in this manual.

Contact your authorized service centre or qualified personnel should any of the following occur:

- **the product does not function (or functions in an anomalous way).**
- **The power cable has been damaged.**
- **Objects or liquids have got in the unit.**
- **The product has been subject to a heavy impact.**

5. If this product is not used for a long period, disconnect the power cable.

6. If this product begins emitting any strange odours or smoke, switch it off immediately and disconnect the power cable.

7. Do not connect this product to any equipment or accessories not foreseen.

For suspended installation, only use the dedicated anchoring points and do not try to hang this product by using elements that are unsuitable or not specific for this purpose. Also check the suitability of the support surface to which the product is anchored (wall, ceiling, structure, etc.), and the components used for attachment (screw anchors, screws, brackets not supplied by RCF etc.), which must guarantee the security of the system / installation over time, also considering, for example, the mechanical vibrations normally generated by transducers.

To prevent the risk of falling equipment, do not stack multiple units of this product unless this possibility is specified in the user manual.

8. RCF S.p.A. strongly recommends this product is only installed by professional qualified installers (or specialised firms) who can ensure correct installation and certify it according to the regulations in force.

The entire audio system must comply with the current standards and regulations regarding electrical systems.

9. Supports and trolleys.

The equipment should be only used on trolleys or supports, where necessary, that are recommended by the manufacturer. The equipment / support / trolley assembly must be

IMPORTANT



moved with extreme caution. Sudden stops, excessive pushing force and uneven floors may cause the assembly to overturn.

10. There are numerous mechanical and electrical factors to be considered when installing a professional audio system (in addition to those which are strictly acoustic, such as sound pressure, angles of coverage, frequency response, etc.).

11. Hearing loss.

Exposure to high sound levels can cause permanent hearing loss. The acoustic pressure level that leads to hearing loss is different from person to person and depends on the duration of exposure. To prevent potentially dangerous exposure to high levels of acoustic pressure, anyone who is exposed to these levels should use adequate protection devices. When a transducer capable of producing high sound levels is being used, it is therefore necessary to wear ear plugs or protective earphones. See the manual technical specifications to know the maximum sound pressure level.

IMPORTANT NOTES

To prevent the occurrence of noise on line signal cables, use screened cables only and avoid putting them close to:

- **Equipment that produces high-intensity electromagnetic fields.**
- **Power cables.**
- **Loudspeaker lines.**

IMPORTANT NOTES



OPERATING PRECAUTIONS



OPERATING PRECAUTIONS

- **Place this product far from any heat sources and always ensure an adequate air circulation around it.**
- **Do not overload this product for a long time.**
- **Never force the control elements (keys, knobs, etc.).**
- **Do not use solvents, alcohol, benzene or other volatile substances for cleaning the external parts of this product.**

IMPORTANT NOTES

Before connecting and using this product, please read this instruction manual carefully and keep it on hand for future reference. The manual is to be considered an integral part of this product and must accompany it when it changes ownership as a reference for correct installation and use as well as for the safety precautions. RCF S.p.A. will not assume any responsibility for the incorrect installation and / or use of this product.

WARNING: to prevent the risk of fire or electric shock, never expose this product to rain or humidity.

CAUTION: to prevent electric shock hazard, do not connect to mains power supply while grille is removed

IMPORTANT NOTES



WARNING



CAUTION



FCC NOTES



Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if it is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Modifications: Any modifications made to this device that are not approved by RCF may void the authority granted to the user by the FCC to operate this equipment.



RCF TT+ represents another prominent chapter in the long history of RCF Sound Systems. Whether a speaker system is designed for live sound or large concert situations as well as permanent installed theatre sound applications, the paying customer now expects a level of audio fidelity and intelligibility of such a standard unsurpassed by previous generations.

This requirement has fostered the need for Audio Professionals to be able to offer a range of speaker systems combined with dedicated transducer and crossover technologies that are superior in acoustic performance and control.

RCF TT+ offers ready to use solutions and tools in true high definition speaker systems.

Our research and engineering faculty can today offer innovative projects with finite control of each detail, from the loudspeaker voice coil wire to the highly efficient extended dynamic amplifier topology. There are many different ingredients that go into creating quality products and systems. These include computer aided simulation software to assist the understanding of transducer behaviour and amplifier operation and the relationship of dynamics and transient response.

RCF utilises over thirty state of the art software packages to identify magnetic circuits, voice coil dynamics, suspension linearity, horn dispersion simulation, crossover filters, amplifier thermal behaviour etc.

RCF is one of only a few loudspeaker manufacturers worldwide who have the ability to completely design and manufactures transducers, speaker systems and amplification and control electronics. Our 60 plus years heritage in Audio combined with our state of the art research and development and manufacturing processes allows us to seamlessly integrate all the ingredients to design and build TT+.

The design philosophy for the new TT+ series is based upon offering the sound engineer solutions and tools that are ready to use. Key factors are the ability to sustain very high power with highly efficient sound pressure levels. Intense sound levels are created with extremely high definition and extended dynamic range. Modern construction materials result in mechanical weight ratios that are light for practical flying and portability.

TT22-A II is a 2-way active system featuring 12" neodymium woofer, 86 mm voice coil in a bass reflex configuration and a 1,4" exit, 75 mm voice coil neo compression driver. The amplifier section features 1100 watt power, 800 watt low frequency, 300 watt high frequency. The cabinet is made of marine baltic birch plywood and features high resistance polyurea coating. The cabinets features 2 side handles, 6 x fly-track rigging points, quick lock pin receptacles and a steel pole mount.

The TT25-A II is the most flexible and powerful tool in its class. TT 25-A II offers very high output and dynamics, and extreme linearity and accuracy in a compact size.

TT25-A II is a 2-way active system featuring 15" neo woofer, 86 mm voice coil in a bass reflex configuration; 1,5" exit, 75 mm voice coil neo compression driver; 90° x 60° constant directivity horn, 90° rotatable. The TT25-A II is the ideal professional speaker for sound reinforcement, live performances and events.

The TT25-CXA is a full range, high performance coaxial monitor. The linear curve response, the consistent coverage and acoustic output make the TT25-CXA II the professional choice for most demanding situations. The voicing is accurate and deep, the sound transparent in the mids and extremely accurate at very high frequencies. The size is compact and the profile very low for a discrete appearance. The TT25-CXA is a full range, high power active system that sets a new standard in the touring and theatre sound reinforcement. By producing flat amplitude and phase response, full-range bandwidth and exceptional impulse response, the TT25-CXA far exceeds the capabilities of conventional stage monitors.

The TT45-CXA is a full range, high performance symmetrical monitor. The linear curve response, the consistent coverage and acoustic output make the TT45-CXA the professional choice for medium and large stages. The voicing is accurate and deep, the sound transparent in the mids and extremely accurate at very high frequencies. The size is compact and the profile low for a discrete appearance. The TT45-CXA is a full range, high power active system that sets a new standard in the touring and theatre sound reinforcement. By producing flat amplitude and phase response, full-range bandwidth and exceptional impulse response, the TT45-CXA far exceeds the capabilities of conventional stage monitors.

TT+ HIGH DEFINITION TOURING AND THEATRE

INNOVATION

INTEGRATION

INTENSITY

TT22-A II, ACTIVE HIGH DEFINITION TWO-WAY SPEAKER

TT25-A II, ACTIVE HIGH DEFINITION TWO-WAY SPEAKER

TT25-CXA, ACTIVE HIGH DEFINITION COAXIAL MONITOR

TT45-CXA, ACTIVE HIGH OUTPUT STAGE MONITOR



- 1 FEMALE XLR INPUTS (BAL/UNBAL). The system accept XLR input connectors.
- 2 MALE XLR SIGNAL OUTPUT. The output XLR connector provides a loop through for speakers daisy chaining. The balanced connector is connected in parallel and can be used to send the audio signal to other amplified speakers, recorders or supplementary amplifiers.
- 3 SYSTEM SET UP ENCODER. Push the encoder to select a function (gain reduction, delay, preset). Rotate the encoder to select a value or a preset.
- 4 GAIN REDUCTION LED. Pushing the encoder once the gain reduction indicator lights green. Then rotate the encoder to reduce the gain to the right level.
POWER LED. This green led is ON when the speaker is connected to the main power supply.
- 5 DELAY LED. Pushing the encoder twice the delay indicator lights green. Then rotate the encoder to delay the speaker. The delay is expressed in meters.
SIGNAL LED. The signal indicator lights green if there is audio signal present on the main
- 6 PRESET LED. Pushing the encoder three times the preset indicator lights green. Then rotate the encoder to load the right preset to the speaker.
LIMITER LED. The amplifier has a built in limiter circuit to prevent clipping of the amplifiers or overdriving the transducers. When the soft clipping circuit is active the LED blinks RED. It is okay if the limit LED blinks occasionally. If the LED lights continuously, turn down the signal level.
- 7 SYSTEM SET UP DISPLAY. Display the system setting values. In case of RDNet active connection a rotating segment will light up.
- 8 RDNET LOCAL SETUP/BYPASS. When released the local setup is loaded and RDNet can only monitor the speaker. When switched the RDNet setup is loaded and bypass any speaker local preset.
- 9 RDNET IN/OUT PLUG SECTION. The RDNET IN/OUT PLUG SECTION features etherCON connectors for the RCF RDNet protocol. This allows the user to completely control the speaker using the RDNet software.



- 10 AC INPUT. Powercon locking 3-pole AC mains.
- 11 AC OUTPUT. Powercon locking 3-pole AC mains output.

WARNING: the Powercon connector is used to disconnect the system from the power supply network. It shall be easily accessible after the installation and during the use of the system.

WARNING



THE REAR ENCODER CONTROL AND SPEAKER SETTING

Pushing the rear encoder it is possible to select the following three functions:

- input gain reduction
- speaker delay setting
- selection of a speaker preset

Pushing once the rear encoder the gain reduction LED will light up. Now rotating the encoder counter clockwise it will be possible to reduce the input gain. The gain reduction will be in steps of 0,1 dB for the first 10 dB and than in 1 dB steps. The maximum reduction is 99 dB.

INPUT GAIN REDUCTION

Pushing a second time the rear encoder the delay LED will light up. Now rotating the encoder clockwise it will be possible to delay the signal output of the speaker. The delay is expressed in meter. The delay will be in steps of 0,1 m for the first 10 m and than in 1 m steps. The maximum delay will be 20 meter.

SPEAKER DELAY SETTING

Pushing a third time the rear encoder the preset LED will light up. Now rotating the encoder clockwise it will be possible to select a preset.

There are eight presets in three groups:

- CLOSE (C). When the listening distance is less than 4 meter
- LINEAR (L). When the listening distance is from 4 to 11 meter
- FAR (F). When the listening distance is more than 11 meter.

SELECTION OF A SPEAKER PRESET

PRESET		LOW FREQ.	HIGH FREQ.
L1	Linear	LINEAR	LINEAR
L2	Linear	HIGH PASS	LINEAR
L3	Linear	3 dB BOOST	LINEAR
L4	Linear	-3 dB SHELF	LINEAR
C1	Close listening	LINEAR	-3 dB SHELF
C2	Close listening	HIGH PASS	-3 dB SHELF
F1	Far listening	LINEAR	3 dB SHELF
F2	Far listening	HIGH PASS	3 dB SHELF

TT22-A II & TT25-A II presets

PRESET		LOW FREQ.	HIGH FREQ.
M1	Monitor x 1	FLOOR CPL	LINEAR
M2	Monitor x 2	FLOOR x 2CPL	LINEAR
L1	Linear	LINEAR	LINEAR
L2	Linear	HIGH PASS	LINEAR
C1	Close listening	LINEAR	-3 dB SHELF
C2	Close listening	HIGH PASS	-3 dB SHELF
F1	Far listening	LINEAR	3 dB SHELF
F2	Far listening	HIGH PASS	3 dB SHELF

TT25-CXA & TT45-CXA presets

L1. LINEAR. Is the totally linear preset. The speaker curve response is perfectly linear. It is ideal when listening outdoor or in low reverberation rooms, at medium distance and at a medium or high sound pressure level.

L2. LINEAR HIGH PASS. This preset is the same as L1 with a 24 dB/oct. high pass filter at 100 Hz. To be used when the speaker is a part of a bigger system, when is a satellite of a subwoofer system or when the application is speech reproduction.

L3. LINEAR LOW LEVEL - PLAYBACK. This preset is linear with a gentle +3 dB boost at low frequency. To be used when playing at low level or for playback music.

L4. LINEAR INDOOR. This preset is linear with a gentle -3 dB shelf at low frequency. It is ideal for a better sound balance in reverberant rooms and for indoor speech reproduction.

C1. CLOSE. Close listening preset. To be used when the average listener is closer than 3 meter. The preset shows a gentle -3 dB shelf in high frequencies. The sound balance is natural and never aggressive.

C2. CLOSE HIGH PASS. This preset is the same as C1 with a 24 dB/oct. high pass filter at 100 Hz.

F1. FAR. Far listening preset. To be used when the average listener distance is more than 10 meter. The preset shows a +3 dB shelf in high frequencies to compensate the air absorption. The clarity and intelligibility in distance are improved.

F2. FAR HIGH PASS. This is the same as F1 with a 24 dB/oct. high pass filter at 100 Hz.

Only for TT 25-CXA and TT 45-CXA, instead of presets L3 and L4:

M1. MONITOR PRESET. This preset is linear when the speaker is in a floor monitor position. This preset is specifically designed for vocal or instrument monitoring. Intelligibility and vocal reproduction are optimized, time delay is minimized.

M2. 2 X MONITOR PRESET. This preset is linear when the speaker is in a floor monitor position and two speakers are used in couple. This preset is specifically designed for vocal or instrument monitoring. Intelligibility and vocal reproduction are optimized, time delay is minimized.

After the parameter settings the 2 digits display will flash one time. This represent saving all the preset values in the speaker memory.

Once saved, all the speaker settings are permanent. It is possible to turn off and turn on, the speaker will remember the last settings.

To reset the speaker to the original settings :

- **turn off the speaker**
- **keep the encoder pressed**
- **turn on the speaker**
- **the status yellow led will be blinking slowly, keep the encoder pressed**
- **the status yellow led will be blinking fast, now release the encoder**
- **the reset procedure is finished**

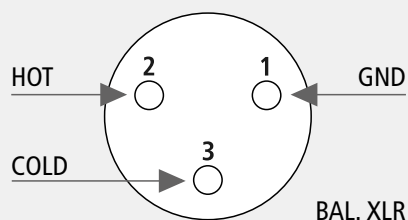
Using the RDNet IN/OUT connection it is possible to load in the speaker memory a dedicated user equalisation. The speaker reset procedure will cancel even this equalisation.

The XLR connectors use the following AES standard:

PIN 1 = GROUND (SHIELD)

PIN 2 = HOT (+)

PIN 3 = COLD (-)



SAVING A SPEAKER PRESET

SPEAKER RESET

CONNECTIONS

At this point you can connect the power supply cable and the signal cable, but before turning on the speaker make sure that the volume control is at the minimum level (even on the mixer output). It is important that the mixer is already ON before turning on the speaker. This will avoid damage to the speakers and noisy "bumps" due to turning on parts on the audio chain. It is a good practice to always turn on speakers at last and turn them off immediately after the show. Now you can turn ON the speaker and adjust the volume control to a proper level.

BEFORE TURNING ON THE SPEAKER

INSTALLATION



WARNING: daisy chaining speakers always make sure that the maximum current requirement does not exceed the maximum admitted POWERCON current. In case of doubt call the closest RCF SERVICE CENTRE.

WARNING



WARNING: The powercon connector is used to disconnect the system from the power supply network. It shall be easily accessible after the installation and during the use of the system.

SERVICE NOTE



The fuse settings/replacement shall be as follow:

FUSE VALUE T 6.30 A H 250 V

VOLTAGE SETUP

(RESERVED TO THE RCF SERVICE CENTRE)

SPECIFICATIONS



	TT22-A II	TT25-A II	TT25-CXA	TT45-CXA
ACOUSTICAL				
Operating frequency range	50 - 20.000 Hz	50 - 20.000 Hz	50 - 20.000 Hz	45 - 20.000 Hz
Max SPL	133 dB	134 dB	133 dB	136 dB
Coverage	90° x 60°	90° x 60°	60° x 60°	50° x 90°
Crossover point	800 Hz	750 Hz	900 Hz	650 Hz
TRANSDUCERS				
Low frequency	12" neo, 3.5" v.c.	15" neo, 3.5" v.c.	15" neo, 3.5" v.c.	2x10" neo, 3" v.c.
High frequency	1.5" neo, 3.0" v.c.	1.5" neo, 4.0" v.c.	1.5" neo, 2.5" v.c.	1.5" neo, 4" v.c.
AMPLIFIER				
Total power	1100 Watt	1100 Watt	1100 Watt	2200 Watt
Low section	800 Watt	800 Watt	800 Watt	1100 Watt
High section	300 Watt	300 Watt	300 Watt	1100 Watt
CONNECTIONS				
Signal Input/Output	XLR, RDNet on-board			
Power Input/Output	Powercon male/female			
CONTROLS				
	8 selectable presets			
ENVIRONMENTAL				
Operating temperature	0° C to +45° C			
Humidity	max 95% at 45° C			
MECHANICAL				
Size	600 x 365 x 379	670 x 425 x 425	353 x 580 x 486	420 x 575 x 628
Weight	18.5 Kg	26.0 Kg	18.0 Kg	30.0 Kg



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