



**CONCERT
SOUND**

CONTOUR SERIES™

MANUAL 1.0

Important Safety Instructions

Before connecting, read instructions

- Read all of these instructions!
 - Save these instructions for later use!
 - Follow all warnings and instructions marked on the product!
 - Do not use this product near water, i.e. bathtub, sink, swimming pool, wet basement, etc.
 - Do not place this product on an unstable cart, stand or table. The product may fall, causing serious damage to the product or to persons!
 - Slots and openings in the cabinet and the back or bottom are provided for ventilation; to ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered. This product should not be placed in a built-in installation unless proper ventilation is provided.
 - This product should not be placed near a source of heat such as a stove, radiator, or another heat producing amplifier.
 - Use only the supplied power supply or power cord. If you are not sure of the type of power available, consult your dealer or local power company.
 - Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord.
 - Never break off the ground pin on the power supply cord.
 - Power supply cords should always be handled carefully. Periodically check cords for cuts or sign of stress, especially at the plug and the point where the cord exits the unit.
 - The power supply cord should be unplugged when the unit is to be unused for long periods of time.
 - If this product is to be mounted in an equipment rack, rear support should be provided.
 - This product should be used only with a cart or stand that is recommended by HK AUDIO®.
 - Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in risk of fire or electric shock. Never spill liquid of any kind on the product.
 - Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage points or other risks. Refer all servicing to qualified service personnel.
 - Clean only with dry cloth.
 - Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for the safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
 - Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
 - When the power cord or plug is damaged or frayed.
 - If liquid has been spilled into the product.
 - If the product has been exposed to rain or water.
 - If the product does not operate normally when the operating instructions are followed.
 - If the product has been dropped or the cabinet has been damaged.
 - If the product exhibits a distinct change in performance, indicating a need of service!
 - Adjust only these controls that are covered by the operating instructions since improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.
 - Exposure to extremely high noise levels may cause a permanent hearing loss.
 - Individuals vary considerably in susceptibility to noise induced hearing loss, but nearly everyone will lose some hearing if exposed to sufficiently intense noise for a sufficient time. The U.S. Government's Occupational Safety and Health Administration (OSHA) has specified the following permissible noise level exposures:
- | Duration Per Day In Hours | Sound LeveldBA, Slow Response |
|---------------------------|-------------------------------|
| 8 | 90 |
| 6 | 92 |
| 4 | 95 |
| 3 | 97 |
| 2 | 100 |
| 1 1/2 | 102 |
| 1 | 105 |
| 1/2 | 110 |
| 1/4 or less | 115 |
- According to OSHA, any exposure in excess of the above permissible limits could result in some hearing loss.
 - Ear plug protectors in the ear canals or over the ears must be worn when operating this amplification system in order to prevent a permanent hearing loss if exposure is in excess of the limits as set forth above. To ensure against potentially dangerous exposure to high sound pressure levels, it is recommended that all persons exposed to equipment capable of producing high sound pressure levels such as this amplification system be protected by hearing protectors while this unit is in operation.
 - Fuses: Replace with IEC 127 (5x 20 mms) type and rated fuse for best performance only.

TO PREVENT THE RISK OF FIRE AND SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO MOISTURE OR RAIN. DO NOT OPEN CASE; NO USER SERVICE-ABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.
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Important Advice on Safety!

Please read before use and keep for later use!

- The unit has been built by HK AUDIO® in accordance with IEC 60065 and left the factory in safe working order. To maintain this condition and ensure non-risk operation, the user must follow the advice and warning comments found in the operating instructions. The unit conforms to Protection Class 1 (protectively earthed).
 - HK AUDIO® ONLY GUARANTEE THE SAFETY, RELIABILITY AND EFFICIENCY OF THE UNIT IF:
 - Assembly, extension, re-adjustment, modifications or repairs are carried out by HK AUDIO® or by persons authorized to do so.
 - The electrical installation of the relevant area complies with the requirements of IEC (ANSI) specifications.
 - The unit is used in accordance with the operating instructions.
 - The unit is regularly checked and tested for electrical safety by a competent technician.
- WARNING:
- If covers are opened or sections of casing are removed, except where this can be done manually, live parts can become exposed.
 - If it is necessary to open the unit this must be insulated from all power sources. Please take this into account before carrying out adjustments, maintenance, repairs and before replacing parts.
 - The appliance can only be insulated from all power sources if the mains connection is unplugged.
 - Adjustment, maintenance and repairs carried out when the unit has been opened and is still live may only be performed by specialist personnel who are authorized by the manufacturer (in accordance with VBG 4) and who are aware of the associated hazards.
 - Loudspeaker outputs which have the IEC 417/5036 symbol (Diagram 1, below) can carry voltages which are hazardous if they are made contact with. Before the unit is switched on, the loudspeaker should therefore only be connected using the lead recommended by the manufacturer.
 - Where possible, all plugs on connection cables must be screwed or locked onto the casing.
 - Replace fuses only with IEC127 type and specified ratings.
 - It is not permitted to use repaired fuses or to short-circuit the fuse holder.
 - Never interrupt the protective conductor connection.
 - Surfaces which are equipped with the "HOT" mark (Diagram 2, below), rear panels or covers with cooling slits, cooling bodies and their covers, as well as tubes and their covers are purposely designed to dissipate high temperatures and should therefore not be touched.
 - High loudspeaker levels can cause permanent hearing damage. You should therefore avoid the direct vicinity of loudspeakers operating at high levels. Wear hearing protection if continuously exposed to high levels.

MAINS CONNECTION:

- The unit is designed for continuous operation.
- The set operating voltage must match the local mains supply voltage.
- The unit is connected to the mains via the supplied power unit or power cable.
- Power unit: Never use a damaged connection lead. Any damage must be rectified by a competent technician.
- Avoid connection to the mains supply in distributor boxes together with several other power consumers.
- The plug socket for the power supply must be positioned near the unit and must be easily accessible.

PLACE OF INSTALLATION:

- The unit should stand only on a clean, horizontal working surface.
- The unit must not be exposed to vibrations during operation.
- Keep away from moisture and dust where possible.
- Do not place the unit near water, baths, wash basins, kitchen sinks, wet areas, swimming pools or damp rooms. Do not place objects containing liquid on the unit - vases, glasses, bottles etc.
- Ensure that the unit is well ventilated.
- Any ventilation openings must never be blocked or covered. The unit must be positioned at least 20 cm away from walls. The unit may only be fitted in a rack if adequate ventilation is ensured and if the manufacturer's installation instructions are followed.
- Keep away from direct sunlight and the immediate vicinity of heating elements and radiant heaters or similar devices.
- If the unit is suddenly moved from a cold to a warm location, condensation can form inside it. This must be taken into account particularly in the case of tube units. Before switching on, wait until the unit has reached room temperature.
- Accessories: Do not place the unit on an unsteady trolley, stand, tripod, base or table. If the unit falls down, it can cause personal injury and itself become damaged. Use the unit only with the trolley, rack stand, tripod or base recommended by the manufacturer or purchased together with the unit. When setting the unit up, all the manufacturer's instructions must be followed and the setup accessories recommended by the manufacturer must be used. Any combination of unit and stand must be moved carefully. A sudden stop, excessive use of force and uneven floors can cause the combination of unit and stand to tip over.
- Additional equipment: Never use additional equipment which has not been recommended by the manufacturer as this can cause accidents.
- To protect the unit during bad weather or when left unattended for prolonged periods, the mains plug should be disconnected. This prevents the unit being damaged by lightning and power surges in the AC mains supply.

Diagram 1



Diagram 2



Wichtige Sicherheitshinweise!

Bitte vor Gebrauch lesen und für späteren Gebrauch aufbewahren!

- Das Gerät wurde von HK AUDIO® gemäß IEC 60065 gebaut und hat das Werk in sicherheitstechnisch einwandfreiem Zustand verlassen. Um diesen Zustand zu erhalten und einen gefahrlosen Betrieb sicherzustellen, muss der Anwender die Hinweise und die Warnvermerke beachten, die in der Bedienungsanleitung enthalten sind. Das Gerät entspricht der Schutzklasse I (schutzgeerdet).
- DIE SICHERHEIT, ZUVERLÄSSIGKEIT UND LEISTUNG DES GERÄTES WIRD VON HK AUDIO® NUR DANN GEWÄHRLEISTET, WENN:
- Montage, Erweiterung, Neueinstellung, Änderungen oder Reparaturen von HK AUDIO® oder von dazu ermächtigten Personen ausgeführt werden.
- die elektrische Installation des betreffenden Raumes den Anforderungen von IEC (ANSI)-Festlegungen entspricht.
- das Gerät in Übereinstimmung mit der Gebrauchsanweisung verwendet wird.

WARNUNG:

- Wenn Abdeckungen geöffnet oder Gehäuseteile entfernt werden, außer wenn dies von Hand möglich ist, können Teile freigelegt werden, die Spannung führen.
- Wenn ein Öffnen des Gerätes erforderlich ist, muss das Gerät von allen Spannungsquellen getrennt sein. Berücksichtigen Sie dies vor dem Abgleich, vor einer Wartung, vor einer Instandsetzung und vor einem Austausch von Teilen.
- Ein Abgleich, eine Wartung oder eine Reparatur am geöffneten Gerät unter Spannung darf nur durch eine vom Hersteller autorisierte Fachkraft (nach VBG 4) geschehen, die mit den verbundenen Gefahren vertraut ist.
- Lautsprecher-Ausgänge, die mit dem IEC 417/5036-Zeichen (Abb.1, s. unten) versehen sind können berührunggefährliche Spannungen führen. Deshalb vor dem Einschalten des Gerätes Verbindung nur mit dem vom Hersteller empfohlenen Anschlusskabel zum Lautsprecher herstellen.
- Alle Stecker an Verbindungskabeln müssen mit dem Gehäuse verschraubt oder verriegelt sein, sofern möglich.
- Es dürfen nur Sicherungen vom Typ IEC 127 und der angegebenen Nennstromstärke verwendet werden.
- Eine Verwendung von geflickten Sicherungen oder Kurzschließen des Halters ist unzulässig.
- Niemals die Schutzleiterverbindung unterbrechen.
- Oberflächen, die mit dem "HOT"-Zeichen (Abb.2, s.unten) versehen sind, Rückwände oder Abdeckungen mit Kühlschlitzen, Kühlkörper und deren Abdeckungen, sowie Röhren und deren Abdeckungen können im Betrieb erhöhte Temperaturen annehmen und sollten deshalb nicht berührt werden.
- Hohe Lautstärkepegel können dauernde Gehörschäden verursachen. Vermeiden Sie deshalb die direkte Nähe von Lautsprechern, die mit hohen Pegeln betrieben werden. Verwenden Sie einen Gehörschutz bei dauernder Einwirkung hoher Pegel.

NETZANSCHLUSS:

- Das Gerät ist für Dauerbetrieb ausgelegt.
- Die eingestellte Betriebsspannung muss mit der örtlichen Netzspannung übereinstimmen.
- Der Anschluss an das Stromnetz erfolgt mit dem mitgelieferten Netzteil oder Netzkabel.
- Netzteil: Eine beschädigte Anschlussleitung kann nicht ersetzt werden. Das Netzteil darf nicht mehr betrieben werden.
- Vermeiden Sie einen Anschluss an das Stromnetz in Verteilerdosen zusammen mit vielen anderen Stromverbrauchern.
- Die Steckdose für die Stromversorgung muss nahe am Gerät angebracht und leicht zugänglich sein.

AUFSTELLUNGORT:

- Das Gerät sollte nur auf einer sauberen, waagerechten Arbeitsfläche stehen.
- Das Gerät darf während des Betriebs keinen Erschütterungen ausgesetzt sein.
- Feuchtigkeit und Staub sind nach Möglichkeit fernzuhalten.
- Das Gerät darf nicht in der Nähe von Wasser, Badewanne, Waschbecken, Küchenspüle, Nassraum, Swimmingpool oder feuchten Räumen betrieben werden. Keine mit Flüssigkeit gefüllten Gegenstände -Vase, Gläser, Flaschen etc. auf das Gerät stellen.
- Sorgen Sie für ausreichende Belüftung der Geräte.
- Eventuelle Ventilationsöffnungen dürfen niemals blockiert oder abgedeckt werden. Das Gerät muß mindestens 20 cm von Wänden entfernt aufgestellt werden. Das Gerät darf nur dann in ein Rack eingebaut werden, wenn für ausreichende Ventilation gesorgt ist und die Einbauanweisungen des Herstellers eingehalten werden.
- Vermeiden Sie direkte Sonneneinstrahlung sowie die unmittelbare Nähe von Heizkörpern und Heizstrahlern oder ähnlicher Geräte.
- Wenn das Gerät plötzlich von einem kalten an einen warmen Ort gebracht wird, kann sich im Geräteinnern Kondensfeuchtigkeit bilden. Dies ist insbesondere bei Röhrengeräten zu beachten. Vor dem Einschalten solange warten bis das Gerät Raumtemperatur angenommen hat.
- Zubehör: Das Gerät nicht auf einen instabilen Wagen, Ständer, Dreifuß, Untersatz oder Tisch stellen. Wenn das Gerät herunterfällt, kann es Personenschäden verursachen und selbst beschädigt werden. Verwenden Sie das Gerät nur mit einem vom Hersteller empfohlenen oder zusammen mit dem Gerät verkauften Wagen, Rack, Ständer, Dreifuß oder Untersatz. Bei der Aufstellung des Gerätes müssen die Anweisungen des Herstellers befolgt und muss das vom Hersteller empfohlene Aufstellzubehör verwendet werden. Eine Kombination aus Gerät und Gestell muss vorsichtig bewegt werden. Plötzliches Anhalten, übermäßige Kraftanwendung und ungleichmäßige Böden können das Umkippen der Kombination aus Gerät und Gestell bewirken.
- Zusatzvorrichtungen: Verwenden Sie niemals Zusatzvorrichtungen, die nicht vom Hersteller empfohlen wurden, weil dadurch Unfälle verursacht werden können.
- Zum Schutz des Gerätes bei Gewitter oder wenn es längere Zeit nicht beabsichtigt oder benutzt wird, sollte der Netzstecker gezogen werden. Dies verhindert Schäden am Gerät aufgrund von Blitzschlag und Spannungssößen im Wechselstromnetz.

Abb.1



Abb.2



TABLE OF CONTENTS

A	Notes on Rigging Safety	.5
1	Warranty and Liability	.5
2	Notes on Safety for the HK Audio CT 112 and CT 115	.5
2.1	Responsibilities of the Operator	.5
2.2	Maintenance, Inspection and Repair of ConTour Series™ Rigging Hardware	.5
2.3	Technical Specifications of ConTour Series™ Rigging Hardware	.5
2.4	Mounting	.6
2.5	Maximum Number of Flown CT 112/ CT 115 Enclosures	.6
2.6	Structural Modifications of ConTour Series™ Rigging Hardware	.6
2.7	Original HK AUDIO® Accessories:	.6
2.8	Initiation and Operation	.6
B	ConTour Series™ Speakers	.7
1	CT 108	.7
1.1	Directivity, CT 108	.7
1.2	Adjusting Directivity	.7
1.3	Specifications, CT 108	.7
1.4	Technical Data, CT 108	.8
2	CT 112	.9
2.1	Directivity, CT 112	.9
2.2	Adjusting Directivity	.9
2.3	Shape and Mode Switches	.9
2.4	Specifications, CT 112	.9
2.5	Technical Data, CT 112	.10
3	CT 115	.11
3.1	Directivity, CT 115	.11
3.2	Adjusting Directivity	.11
3.3	Shape and Mode Switches	.11
3.4	Specifications, CT 115	.11
3.5	Technical Data, CT 115	.12
4	CT 118 Sub	.13
4.1	Optional Passive Crossover for the CT 118 Sub	.13
4.2	Specifications, CT 118 Sub	.13
4.3	Technical Data, CT 118 Sub:	.14
C	Rigging ConTour Series™ CT 108/ CT 112/ CT 115 Enclosures	.15
1.1	Flying Enclosures with Cables or Chains	.15
1.2	Mounting Yoke for CT 112 and CT of 115 Enclosures	.15
1.3	MS/1, MS/2, MS/3 Mounting Set for the CT 108	.16
D	ConTour Series™ Controller Settings	.17
E	Service	.18
1	ConTour Series™ Replacement Parts	.18
2	Replacing Loudspeakers and Voice Coils	.18
2.1	8", 12", 15" and 18" Speakers	.18
2.2	The Drivers' Voice Coils	.18

Index of Figures:

Fig. 1: CT 108	7	Fig. 12: CT 115	11	Fig. 23: Attaching the rigging cable	15
Fig. 2: Vertical directivity CT 108	7	Fig. 13: Vertical directivity CT 115	11	Fig. 24: Inserting studs	15
Fig. 3: Horizontal directivity CT 108	7	Fig. 14: Horizontal directivity CT 115	11	Fig. 25: Attaching mounting yokes to CT 112 and CT 115 enclosures	15
Fig. 4: CT 108 housing dimensions in [mm]	8	Fig. 15: Monitor and Shape switches	11	Fig. 26: Attaching the EB 10 eyebolt and arrest wire	15
Fig. 5: Frequency response CT 108	8	Fig. 16: CT 115 housing dimensions in [mm]	12	Fig. 27 a, b: Attaching the MS/1 yoke to the CT 108	16
Fig. 6: CT 112	9	Fig. 17: Frequency response CT 115	12	Fig. 28: MS/1 mounting yoke CT 108	16
Fig. 7: Vertical directivity CT 112	9	Fig. 18: CT 118 Sub	13	Fig. 28: MS/2 pole mount	16
Fig. 8: Horizontal directivity CT 112	9	Fig. 19: Passive crossover for the CT 118 Sub	13	Fig. 30: MS/3 TV stud	16
Fig. 9: Monitor and Shape switches	9	Fig. 20: CT 118 Sub housing dimensions in [mm]	14	Fig. 31: DSM 2060 Digital Controller	17
Fig. 10: CT 112 housing dimensions in [mm]	10	Fig. 21: Frequency response CT 118 Sub	14	Fig. 32: CT 112 sans grille	18
Fig. 11: Frequency response CT 112	10	Fig. 22: The rigging track in the lid	15		

A NOTES ON RIGGING SAFETY

Please read these instructions carefully before you begin setting up the system!

1 WARRANTY AND LIABILITY

HK AUDIO® shall not be held responsible for damages due to improper use or non-compliance with the safety specifications for setup and operation.

All warranty and liability claims for personal injury and property damages are excluded if attributable to one or several of the following:

- non-compliance with operating manual instructions, voiding product liability and warranty claims
- unintended use of rigging frames
- non-compliance with operating manual instructions regarding transportation, storage, initial setup, operation, maintenance and repair
- unauthorized structural modifications performed on rigging hardware
- unauthorized modification of the parameters indicated in the operating manual
- inadequate or improper repairs

2 NOTES ON SAFETY FOR THE HK AUDIO® CT 112 AND CT 115

The ConTour Series™ Rigging System's provisions for use require that it be installed in accordance with the following specifications. Before you begin installation, ensure that the pick points (for example, a chain hoist) on the stage roof or the venue's ceiling comply with BGV-C1 accident prevention regulations and that the safety standards authority TÜV has certified them for the full load. Prior to every installation, inspect all components to ensure they are in good working order, taking particular care to confirm that all Aeroquip tracks and connecting components (cables, fittings) are undamaged.

Use only the parts specified in this operating manual! Be sure to protect cabinets against rain and moisture when they are deployed outdoors. These enclosures must be mounted in accordance with the instructions stipulated in this installation manual. Keep all documents pertaining to the system in a safe place.

The principle requirement for safe handling and trouble-free operation of this rigging system is a thorough understanding of fundamental operating safety and safety regulations. This operating manual contains the most vital instructions concerning the safe operation of CT 112 and CT 115 enclosures.

2.1 Responsibilities of the Operator

As the operator, you are obligated to allow only those persons to work with rigging frames who are

- 16 years of age or older,
- physically and mentally able, familiar with the basic rules of industrial safety and accident prevention, and trained in the handling of rigging systems.

Be sure to regularly review and confirm personnel's working safety awareness. In addition, task personnel with specific responsibilities for setting up, putting into service, operating, maintaining, and repairing equipment. Ensure that personnel are trained to work with the

rigging system only under the supervision of a proficient and experienced technician. Ensure also that defects, flaws and other damage that could impede safety are repaired immediately.

2.2 Maintenance, Inspection and Repair of HK AUDIO® ConTour Series™ Rigging Hardware

Inspections

§ 39, VBG 9a of the German employers' liability insurance association's accident prevention regulations requires that load-bearing equipment be inspected by a qualified expert and possible defects be eliminated prior to initial commissioning by the recipient.

§ 40, VBG 9a requires that load-bearing equipment be inspected at least annually for cracks. When used in dynamic applications, equipment must be inspected for cracks every six months.

Maintenance

You are authorized to replace easily serviceable wearing or standard parts in accordance with the manufacturer's instructions. Use original parts for this purpose.

Tighten screws and bolted connections whenever necessary.

Repair

In the event that parts of the load-bearing equipment have been deformed, it is up to the manufacturer to determine if they are repairable. Solely the manufacturer is authorized to perform welding and repair work on load-bearing equipment.

2.3 Technical Specifications of HK AUDIO® ConTour Series™ Rigging Hardware

Load-bearing capacity: 35 kg

Test load: 210 kg

Ambient temperature when in operation: min -10° C, max + 60° C

Components:

Stud starter cable:

Steel-wire cable with a length of 270 mm, including a stud and snap link for fastening the speaker enclosure to the pick point on the stage ceiling.

HK Audio® item number: 193 543

Arrest wire

Additional securing cable for flown CT 112/ CT 115 speakers; 4 mm in diameter, 100 cm in length, including snap links

HK Audio® item number: 193643

EB 10 eyebolt

HK Audio® item number: 193673

2.4 Mounting

Attach the speaker enclosure to a pick point on the Aeroquip track using a starter cable comprising a snap link, a cable with the required length, and a stud. One track is located on the top of the housing for arraying the enclosure vertically, and one is on the side for arraying the enclosure horizontally.

Secure the speaker to prevent it from falling. To this end, insert an HK AUDIO® EB 10 eyebolt into the recessed thread on the rear of the CT 112 or CT 115. Attach the arrest wire to the eyebolt and transom.

Ensure the pick points are able to handle the given load (a CT 112 with a starter cable weighs approx. 27 kg; a CT 115 with a starter cable weighs approx. 37 kg).

The position of the stud in the Aeroquip track determines the cabinet's angle of tilt. Since the length of the cables used to attach the cabinets to the rigging point (the ceiling of the venue, a transom, a cross beam, etc.) will vary according to the given venue's mounting options, you must adjust the length of the cables accordingly. If the length of the HK AUDIO® starter cable does not suffice, you can have cables made in the required length by any certified cable manufacturer using the following parts.

Snap link: Snap link with safety lock gate, 1 ton load-carrying capacity, quality grade 8 (for example: SOCS 6-8)

Stud: Aeroquip 5013 Series L Double Stud Fitting (ISO 9788)

HK Audio® item number: 193195

Cable: Galvanized steel-wire cable, DIN 3060, Ø 6 mm, 1770 N/mm², sZ 6 x 19 + FE, calculated breaking strength: 22.8 kN; minimum breaking strength: 19.6 kN

2.5 Maximum Number of Flown CT 112/ CT 115 Enclosures

Mount no more than one CT 112 or CT 115 enclosure using this system. This applies to the speaker in both vertical and horizontal array.

Caution: Flying more than one CT 112 / 115 cabinet in stacked array voids the operating license!

2.6 Structural Modifications of ConTour Series™ Rigging Hardware

No structural modifications may be made without the manufacturer's consent. This also applies to welding work performed on supporting parts. Structural alterations require the manufacturer's written approval. Use original replacement and wearing parts only.

2.7 Original HK AUDIO® Accessories:

Use original HK AUDIO® parts only! The safety standards authority TÜV has not certified any other parts for use! Always install parts in accordance with these installation instructions! Store all documents pertaining to the system in a safe place!

2.8 Initiation and Operation

§ 39, VBG 9a of the German employers' liability insurance association's accident prevention regulations requires that load-carrying equipment be inspected by a qualified expert and possible defects be eliminated prior to initial commissioning by the recipient.

§ 41 VBG 9a requires that load-carrying equipment be subjected to a non-routine inspection following damage, repair work and other incidents that can affect load-carrying capacity.

B CONTOUR SERIES™ SPEAKERS

1 CT 108



CT 108 Fullrange Cabinet

The CT 108 is an extremely compact, passive public address / full-range speaker cabinet. Featuring a dual-purpose housing, it may be employed as an FOH or delay speaker as well as a stage monitor. It is an excellent choice for rendering the human voice and acoustic instruments. Hallmark features include superb intelligibility, extraordinary phase linearity and wide dynamic range. The CT 108 is available in left and right versions. In combination with a CT 118 subwoofer, it also serves as a small club system.

The CT 108 may be operated with or without a controller. For the best audio results, the use of an HK AUDIO® DSM 2060 Controller or HK AUDIO® Digital Field Controller is recommended.

Application scenarios: Decentralized (public address) sound reinforcement, playback or instrument monitor in theaters and for orchestras, and as a FOH mid-/high-range unit for smaller club gigs.

Enclosure design and mechanical appointments
The CT 108's enclosure is constructed of 12-mm, 9-ply birch plywood. Shaped to serve dual purposes, the housing is 23.5 cm wide, 40.5 cm high and 23.5 cm deep, and weighs 8 kg. The surface is coated with black water-repellent acrylic lacquer. The front baffle is protected by a steel grille. The enclosure's panels are equipped with a total of nine threaded M8 bushings fitted pair-wise in the

top and bottom panels, as well as the right and left panels. A 360° mounting yoke and a 35-mm pole mount adapter are optionally available.

Electrical and acoustical data:

The CT 108 features a direct-loaded 8" HK AUDIO® Custom speaker and a 1" B&C high-frequency driver with a 90° x 60° CD horn. Courtesy of the housings' foursquare design, the horn may be rotated to 60° x 90° inside the housing. The CT 108's frequency response ranges from 100 Hz to 19 kHz (+/- 3 dB). Nominal power handling is 200 watts RMS at 16 ohms. Axial sensitivity is 101 dB, measured under half-space conditions at 1 watt @1m. Maximum SPL measured under the same conditions at a distance of one meter is 122 dB.

Connectors:

Connectors are located out of harm's way on a countersunk panel on the back of CT 108. This panel offers two Speakon NL 4 ports. Both ports' four pins are wired in parallel. Pin assignments are pin 1+ = mid/high +, 1- = mid/high -, 2+ = sub +, 2- = sub 2-.

1.1 Directivity, CT 108

The following charts depict horizontal and vertical directivity at various frequencies. These data were ascertained using -6 dB and -12 dB sound pressure isobars.

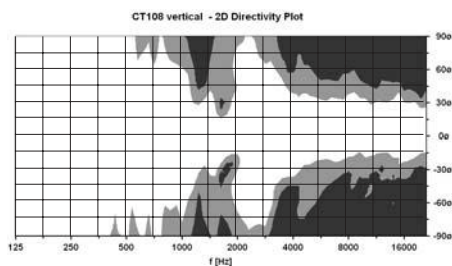


Figure 2: Vertical directivity CT 108

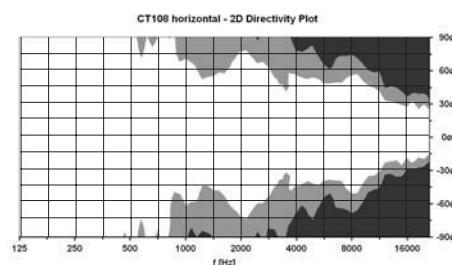


Figure 3: Horizontal directivity CT 108

1.2 Adjusting Directivity

The HF horn's mounting yoke is square, enabling the horn to be rotated 90°. To do this, please detach the front grille by unscrewing the screws (M4 x 25 countersunk) on the side panels using a Phillips screwdriver. Then remove the four M4x25 screws holding the horn in place. Now you can rotate the horn by 90°.

1.3 Specifications, CT 108

Engineered to render audio signals with consistently natural sound and considerable dynamic range, this professional two-way speaker system is designed for use as a fullrange cabinet or a mid/high unit in combination with the CT 118 Sub or HK AUDIO® COHEDRA™ subwoofers. It is loaded with an 8" speaker mounted in a precision-tuned bass reflex enclosure, and a 1" high-frequency driver with a 2" voice coil connected to a pivoting 90° x 60° / 60° x 90° Constant Directivity horn. Made of 12-mm birch plywood coated with black acrylic lacquer, the dual-purpose housing can be placed at a 45° angle for monitor applications. It is equipped with nine threaded M8 bushings that accept accessory fittings. An impact-resistant steel grille backed with laminated acoustic foam rubber protects the front baffle. An internal passive crossover splits the signal at 1.8 kHz (12 dB / octave). Frequency response ranges from 100 Hz to 19 kHz (+/- 3 dB), with 101 dB axial sensitivity in the main direction of throw @ 1W / 1 m under half-space conditions and 128 dB maximum SPL at 10 % THD under half-space conditions. Power handling is 200 watts RMS; nominal impedance is 16 ohms.

Connectors: 2x Neutrik NL 4 Speakon

Dimensions (W x H x D): 23.5 x 40.5 x 23.5 cm

Weight: 8 kg

Accessories: Mounting yoke, Pole Mount Adapter, M8 Eyebolts

1.4 Technical Data, CT 108

Power-handling nominal/ program/ peak:	.200 W RMS / 400 W / 800 W
Recommended amplifier power:	.200 W RMS/ 4 ohms
Frequency response- 10 dB:	.90 Hz – 19 kHz
Frequency response +/- 3 dB:	.100 Hz – 19 kHz
Directivity	.90° x 60° / 60° x 90° CD Horn , rotatable
Sensitivity 1W@1m 1):	.101 dB
Max. SPL calculated 1):	.130 dB 2)
Max. SPL peak 1):	.129 dB
Max. SPL 1):	.128 dB @ 10% THD (200 Hz- 5 kHz)
Nominal impedance:	.16 ohms
Low-/ midrange woofer:	.8"
High frequency driver:	.1", 2" voice coil
Crossover frequency:	.1.8 kHz, 12 dB/ octave
Crossover modes:	.passive
Connectors:	.2x Speakon® NL 4
Enclosure (birch):	.12 mm (1/2"), 9-ply
Angles up:	.45° (monitor application)
Finish:	.Black acrylic lacquer
Grille:	.Metal grille with black acoustic foam
Rigging hardware:	.9x M8 threaded bushing
Pole mount:	.optional
Weight:	.8 kg / 17.6 lbs.
Dimensions (W x H x D):	.24.7 x 40.5 x 23.1 cm / 9-3/4" x 16" x 9-1/4"
Accessories: MS/1 Mounting Yoke, Pole Mount Adapter, MS/3 TV Stud, MS/4 Cluster Plate, M8 Eyebolt, Touring-Flight Case (2x CT 108)	

1) Based on half space conditions 2) Based upon peak power capacity

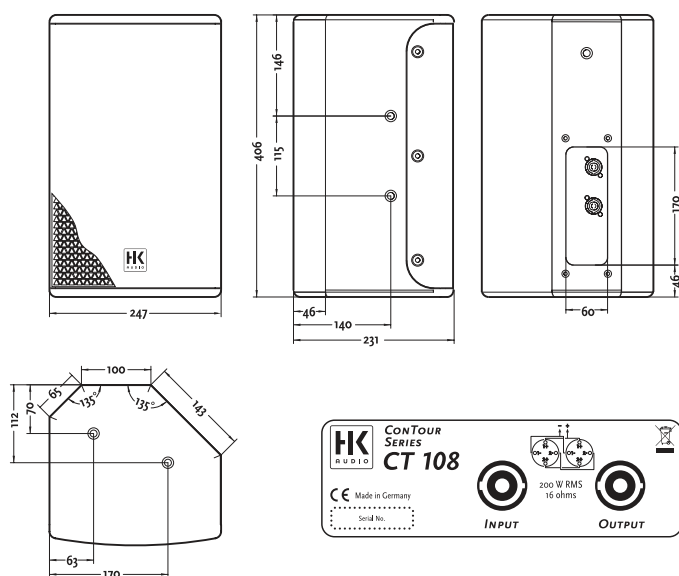


Figure 4: CT 108 housing dimensions in [mm]

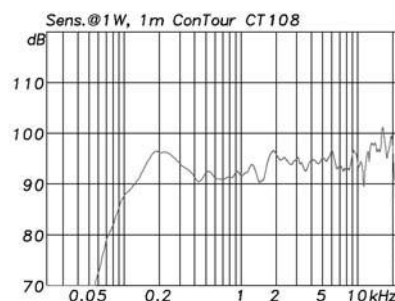
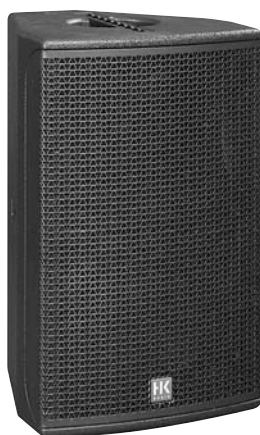


Figure 5: Frequency response CT 108

2 CT 112



CT 112 Fullrange Cabinet

The CT 112 is a passive speaker cabinet that may also be configured in biamp mode. Courtesy of its dual-purpose housing, it can serve as a FOH speaker as well as a stage monitor. The CT 112's hallmarks include extremely high SPL and speech intelligibility, extraordinary phase linearity, considerable dynamic range and an HF horn optimized with the BEM (Boundary Element Method) ensure ultra precise directivity and optimal clustering without phase cancellations. Courtesy of its low-profile housing, it is also an outstanding option for demanding stage monitoring applications. The Shape switch on its rear panel reconfigures and optimizes the CT 112 crossover to satisfy the different requirements of FOH and monitor applications. The CT 112 is available in left and right versions for symmetrical monitoring arrays. The CT 118 Sub subwoofer is the recommended enhancement for setting up powerful, two-way active systems.

The CT 112 may be operated in passive or biamp mode with or without a controller. For the best audio results, it is recommended that this enclosure be operated with the HK AUDIO® DSM 2060 Controller or HK AUDIO® Digital Field Controller (DFC) in combination with a DFC network.

Application scenarios: Full-range public address, near-field sound reinforcement for applications demanding high SPL, for example, as an FOH mid-/high-range unit in live clubs, an ancillary front fill for COHEDRA™ systems, a mid-/high-range unit for side or drum fills and for monitoring on larger stages.

Enclosure design and mechanical appointments: The CT 112's enclosure is constructed of 18-mm, 13-ply birch plywood. Shaped to serve dual functions, the housing is 38 cm wide, 62 cm high and

34 cm deep, and weighs 25 kg. The surface is coated with black water-repellent acrylic lacquer. The front baffle is protected by a steel grille. The enclosure's panels are equipped with a total of two Aeroquip rigging tracks and two threaded M10 bushings. The CT 112 may be flown horizontally as well as vertically. Recessed handles are located on the top and bottom panels of the housing. An HK AUDIO® TripleTilt™ Pole Mount Adapter is on the bottom panel; it allows the cabinet to be mounted on a tripod at three different tilt angles (+5°, -3° or -10°).

Electrical and acoustical data:

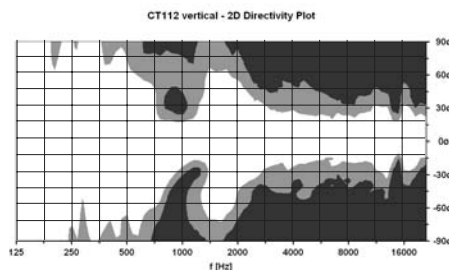
The CT 112 features a direct-loaded 12" Neodymium speaker and a 1.4" B&C high-frequency driver with a 60° x 40° CD horn. Courtesy of the housings' foursquare design, the horn may be rotated to 40° x 60° inside the housing. The CT 112's frequency response ranges from 80 Hz to 16 kHz (+/- 3 dB). Nominal power handling is 400 watts RMS at 8 ohms. Axial sensitivity is 107 dB, measured under half-space conditions at 1 watt @1m. Maximum SPL measured under the same conditions at a distance of one meter is 134 dB.

Connectors:

Connectors, the Passive/Biamp switch and the Shape switch are located out of harm's way on a countersunk panel on the back of the CT 112. This panel offers two Speakon NL 4 ports. Both ports' four pins are wired in parallel. Pin assignments in passive mode are pin 1+ = mid/high +, 1- = mid/high -, 2+ = sub +, 2- = sub -. In biamp mode, the HF signal is routed via pin 1+ / 1-. The LF/MF signal is routed via pin 2+ / 2- of the Speakon connectors.

2.1 Directivity, CT 112

The following charts depict horizontal and vertical directivity at various frequencies. These data were ascertained using -6 dB and -12 dB sound



pressure isobars.

Figure 7: Vertical directivity CT 112

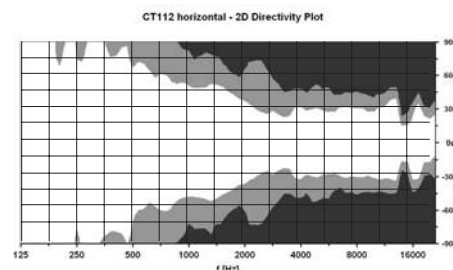


Figure 8: Horizontal directivity CT 112

2.2 Adjusting Directivity

The HF horn's mounting yoke is square, enabling the horn to be rotated 90°. To do this, please detach the front grille by unscrewing the screws (M4 x 25 countersunk) on the side panels using a Phillips screwdriver. Then remove the four M4x25 screws holding the horn in place. Now you can rotate the horn by 90°.

2.3 Shape and Mode Switches

The CT 112 features a Shape switch on its rear panel. This switch optimizes the passive crossover, enabling the cabinet to be used as an FOH speaker or as a (passive) monitor. When the switch is set to the Monitor position, the 1.4" driver's dampening factor is reduced to ensure the speakers cuts through on loud stages. The Mode switch configures the CT 112 for passive or bi-amp modes. In bi-amp mode, the 12" speaker's passive crossover is deactivated, though the 1.4" driver's slight pre-dampening - accomplished using passive components - remains enabled. The HK AUDIO® Controller DSM 2060 is equipped with a factory preset filter for bi-amp mode. When configuring the enclosure for bi-amp mode, set the Shape switch to the position labeled Monitor!



Figure 9: Monitor and Shape switches

2.4 Specifications, CT 112

Engineered to render audio signals with consistently natural sound and considerable dynamic range, this professional two-way speaker system features a BEM-optimized HF horn for precise directivity and optimal clustering without phase cancellations. It is designed for use as a fullrange speaker or as a mid/high unit in combination with the CT 118 Sub or HK AUDIO® COHEDRA™ subwoofers. It is loaded with a 12" Neodymium low-/ midrange woofer mounted in a precision-tuned bass reflex enclosure, as well as a 1.4" high-frequency driver with a 3" voice coil connected to a pivoting 60° x 40° / 40° x 60° Constant Directivity horn. Made of 18-mm birch plywood coated with black acrylic lacquer, the dual-purpose housing can be placed at 47° and 18° angles for monitor applications. It is equipped

with a 35-mm TripleTilt™ 3-way Pole Mount Adapter offering +5°, -3° and -10° tilt angles, two Aeroquip rigging tracks, and two threaded M10 bushings for attaching optional one pick-point rigging equipment or other mounting accessories. An impact-resistant steel grille backed with laminated acoustic foam rubber protects the front baffle. Recessed handles are located on the

enclosure's top and bottom panels. An internal passive crossover splits the signal at 850 Hz (12 dB/octave); it may be configured in passive or biamp mode via an external switch. Frequency response ranges from 80 Hz to 16 kHz (+/- 3 dB), with 107 dB axial sensitivity in the main direction of throw @ 1W / 1 m under half-space conditions and 134 dB maximum SPL at

10% THD under half-space conditions. Power handling is 400 watts RMS; nominal impedance is 8 ohms.

Connectors: 2x Neutrik NL 4 Speakon
Dimensions (W x H x D): 38 x 62 x 34 cm
Weight: 25 kg
Accessories: Mounting Yoke, Protective Cover, M10 Eyebolt

2.5 Technical Data, CT 112

Power-handling nominal/ program/ peak:	400 W RMS / 800 W / 1800 W
Recommended amplifier power:	1200 W RMS / 4 ohms
Frequency response- 10 dB:	65 Hz- 19 kHz
Frequency response+/- 3 dB:	80 Hz – 16 kHz
Directivity:	60° x 40° / 40° x 60° CD Horn, rotatable
Sensitivity 1W@1m 1):	107 dB
Max. SPL calculated 1):	139 dB 2)
Max. SPL peak 1):	138 dB
Max. SPL 1):	134 dB @ 10% THD (200 Hz- 5 kHz)
Nominal impedance:	8 ohms
Low-/ midrange woofer:	12" Neodymium
High frequency driver:	1.4", 3" voice coil
Crossover frequency:	850 Hz, 12 dB/ octave
Crossover modes:	Bi-amp/ passive, switchable
Crossover Shapes:	FOH, Monitor
Connectors:	2x Speakon® NL 4
Enclosure (birch):	18 mm (3/4"), 13-ply
Angles up:	47° + 18° (monitor application)
Finish:	Black acrylic lacquer
Grille:	Metal grille with black acoustic foam
Handles:	2x ergonomic grips
Rigging hardware:	2x Aeroquip fly tracks, 2x M10 threaded bushing
Pole mount:	HK AUDIO® TripleTilt™, 35 m diameter, +5°, -3°, -10°
Weight:	25 kg/ 55 lbs.
Dimensions (W x H x D):	37.9 x 61.1 x 33.5 cm / 15" x 24" x 13-1/4"
Accessories: Mounting Yoke, M10 Eyebolt, Protective Cover, Touring Flight Case (2x CT 112)	

1) Based on half space conditions 2) Based upon peak power capacity

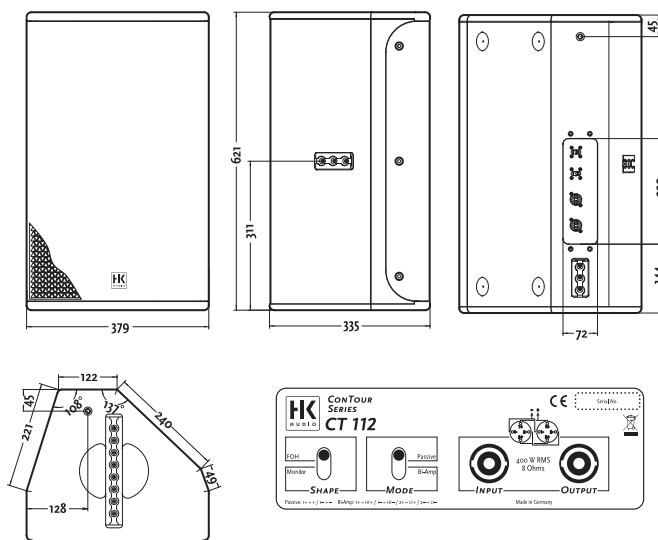


Figure 10: CT 112 housing dimensions in [mm]

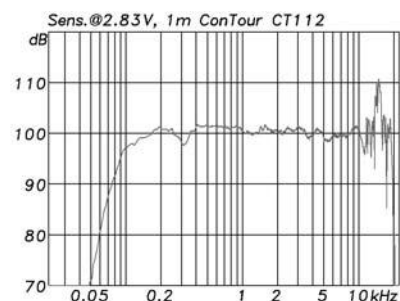


Figure 11: Frequency response CT 112

3 CT 115



CT 115 Fullrange Cabinet

The CT 115 is a passive speaker cabinet that may also be configured in biamp mode. Offering an extended low-frequency range and featuring a dual-purpose housing, it can serve as a FOH speaker as well as a stage monitor. The CT 115's hallmarks include speech intelligibility, extraordinary phase linearity, and wide dynamic range. Its HF horn has been optimized using the BEM (Boundary Element Method) for precise directivity and optimal clustering without phase cancellations.

The CT 115 was developed principally for fullrange sound reinforcement applications over short to medium throw distances, without an additional subwoofer. When used as a stage monitor (Shape switch set to Monitor), the CT 115 cuts through even on loud stages and is able to handle kick drum and bass signals. The CT 115 is available in left and right versions for symmetrical monitoring arrays. The CT 118 Sub subwoofer is the recommended enhancement for setting up powerful, two-way active systems.

The CT 115 may be operated in passive or biamp mode with or without a controller. For the best audio results, it is recommended that this enclosure be operated with the HK AUDIO® DSM 2060 Controller or HK AUDIO® Digital Field Controller (DFC) in combination with a DFC network.

Application scenarios: Stand-alone fullrange system, near-field sound reinforcement for applications demanding high SPL, for example, as an FOH mid-/high-range unit in live clubs, an ancillary front fill for COHEDRA™ systems, a mid/high-range unit for side or drum fills and for monitoring on larger stages.

Enclosure design and mechanical appointments: The CT 115's enclosure is constructed of 18-mm, 13-ply birch plywood. Shaped to serve dual functions, the housing is 45 cm wide, 69.5 cm high and 39 cm deep, and weighs 33 kg. The surface is coated with black water-repellent acrylic lacquer. The front baffle is protected by a steel grille. The enclosure's panels are equipped with a total of two Aeroquip rigging tracks and two threaded M10 bushings. The CT 115 may be flown horizontally as well as vertically. An optionally available mounting yoke attaches to the Aeroquip track on the top panel to rig and fly the cabinet. Recessed handles are located on the top and bottom panels of the housing. An HK AUDIO Triple-Tilt™ Pole Mount Adapter is on the bottom panel; it allows the cabinet to be mounted on a tripod at three different tilt angles (+5°, -3° or -10°).

Electrical and acoustical data:

The CT 115 features a direct-loaded 15" neodymium speaker and a 1.4" B&C high-frequency driver with a 60° x 40° CD horn. Courtesy of the housings' foursquare design, the horn may be rotated to 40° x 60° inside the housing. The CT 115's frequency response ranges from 65 Hz to 16 kHz (+/- 3 dB). Nominal power handling is 600 watts RMS at 8 ohms. Axial sensitivity is 106 dB, measured under half-space conditions at 1 watt @1m. Maximum SPL measured under the same conditions at a distance of one meter is 134 dB.

Connectors:

Connectors, the Passive/Biamp switch and the Shape switch are located out of harm's way on a countersunk panel on the back of the CT 115. This panel offers two Speakon NL 4 ports. Both ports' four pins are wired in parallel. Pin assignments in passive mode are pin 1+ = mid/high +, 1- = mid/high -, 2+ = sub +, 2- = sub -. In biamp mode, the HF signal is routed via pin 1+ / 1-. The LF/MF signal is routed via pin 2+ / 2- of the Speakon connectors.

3.1 Directivity, CT 115

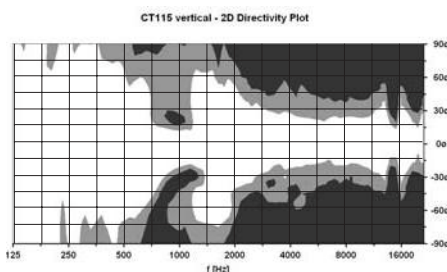


Figure 13: Vertical directivity CT 115

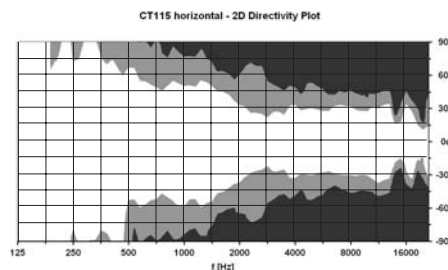


Figure 14: Horizontal directivity CT 115

The charts depict horizontal and vertical directivity at various frequencies. These data were ascertained using -6 dB and -12 dB sound pressure isobars.

3.2 Adjusting Directivity

The HF horn's mounting yoke is square, enabling the horn to be rotated 90°. To do this, please detach the front grille by loosening the screws (M4 x 25 countersunk) on the side panels using a Phillips screwdriver. Then remove the four M4x25 screws holding the horn in place. Now you can rotate the horn by 90°.

3.3 Shape and Mode Switches

The CT 115 features a Shape switch on its rear panel. This switch optimizes the passive crossover, enabling the cabinet to be used as an FOH speaker or as a (passive) monitor. When the switch is set to the Monitor position, the 1.4" driver's dampening factor is reduced to ensure the speakers cuts through on loud stages. The Mode switch configures the CT 115 for passive or bi-amp modes. In bi-amp mode, the 15" speaker's passive crossover is deactivated, though the 1.4" driver's slight pre-dampening – accomplished using passive components – remains enabled. The HK AUDIO® Controller DSM 2060 is equipped with a factory preset filter for biamp mode. When configuring the enclosure for biamp mode, set the Shape switch to the position labeled Monitor!



Figure 15: Monitor and Shape switches

3.4 Specifications, CT 115

Engineered to render audio signals with consistently natural sound and tremendous dynamic range, this professional two-way speaker system features a BEM-optimized HF horn for precise directivity and optimal clustering without phase cancellations. It is designed for use as a fullrange speaker or a mid/high unit in combination with the CT 118 Sub or HK AUDIO COHEDRA™ subwoofers. It is loaded with a 15" neodymium low-/midrange woofer mounted in a precision-tuned bass reflex enclosure, as well as a 1.4" high-frequency driver with a 3" voice coil connected to a

pivoting 60° x 40° / 40° x 60° Constant Directivity horn. Made of 18-mm birch plywood coated with black acrylic lacquer, the dual-purpose housing can be placed at 47° and 18° angles for monitor applications. It is equipped with a 35-mm Triple-Tilt™ 3-way Pole Mount Adapter offering +5°, -3° and -10° tilt angles, two Aeroquip rigging tracks and two threaded M10 bushings for attaching optional one pick-point rigging equipment or other mounting accessories. An impact-resistant steel grille backed with laminated acoustic foam rubber

protects the front baffle. Four recessed handles are located on the enclosure's top, bottom and side panels.

An internal passive crossover splits the signal at 850 Hz (12 dB / octave); it may be configured in passive or biamp mode via an external switch. Frequency response ranges from 65 Hz to 16 kHz (+/- 3 dB), with 106 dB axial sensitivity in the main direction of throw @ 1W / 1 m under half-space conditions and 134 dB maximum SPL at 10% THD under half-space conditions.

Power handling is 600 watts RMS; nominal impedance is 8 ohms.

Connectors: 2x Neutrik NL 4 Speakon
Dimensions (W x H x D): 45 x 69.5 x 36 cm
Weight: 33 kg
Accessories: Mounting yoke, Protective Cover, M10 Eyebolt.

3.5 Technical Data, CT 115

Power-handling nominal/ program/ peak:	600 W RMS/ 1200 W/ 2400 W
Recommended amplifier power:	1200 W RMS / 4 ohms
Frequency response- 10 dB:	55 Hz – 19 kHz
Frequency response+/- 3 dB:	65 Hz – 16 kHz
Directivity:	60° x 40° / 40° x 60° CD Horn, rotatable
Sensitivity 1W@1m 1):	106 dB
Max. SPL calculated 1):	140 dB 2)
Max. SPL peak 1):	138 dB
Max. SPL 1):	134 dB @ 10% THD (200 Hz- 5 kHz)
Nominal impedance:	8 ohms
Low-/ midrange woofer:	15" Neodymium
High frequency driver:	1.4", 3" voice coil
Crossover frequency:	850 Hz, 12 dB/ octave
Crossover modes:	Bi-amp/ passive, switchable
Crossover Shapes:	FOH, Monitor
Connectors:	2x Speakon® NL 4
Enclosure (birch):	18 mm (3/4"), 13-ply
Angles up:	47° + 18° (monitor application)
Finish:	Black acrylic lacquer
Grille:	Metal grille with acoustic foam
Handles:	4x ergonomic grips
Rigging hardware:	2x Aeroquip fly tracks, 2x M10 threaded bushing
Pole mount:	HK AUDIO® TripleTilt™, 35 m diameter, +5°, -3°, -10°
Weight:	33 kg/ 72.6 lbs.
Dimensions (W x H x D):	45 x 69.6 x 36.6 cm / 17 3/4" x 27 3/8" x 15 2/3"
Accessories:	Mounting yoke, M10 Eyebolt, Protective Cover ,Touring Flight Case (2x CT 115)

1) Based on half space conditions 2) Based upon peak power capacity

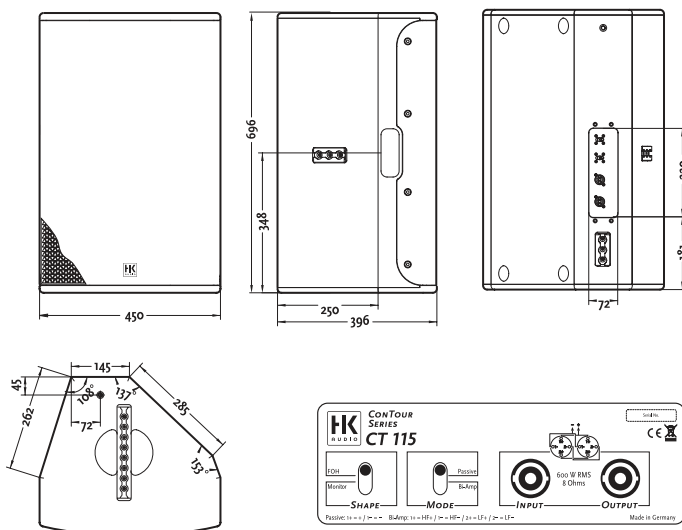


Figure 16: CT 115 housing dimensions in [mm]

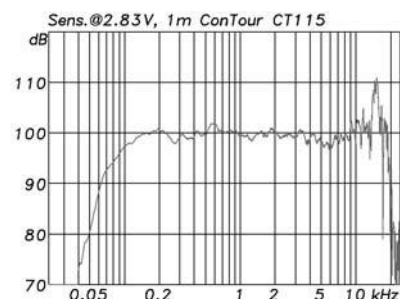


Figure 17: Frequency response CT 115

4 CT 118 Sub



CT 118 Sub Subwoofer

The CT 118 Sub is a direct-radiating bass reflex subwoofer designed for use in active sound reinforcement systems. It was developed specifically for deployment in combination with the ConTour Series™ cabinets CT 108, CT 112 and CT 115. Loaded with a neodymium woofer, the CT 118 Sub is extremely compact and light-weight. Delivering uniform bass response, it renders impulses with accuracy and authority even at peak loads. The CT 118 Sub is the perfect choice of bass bin for setting up high-performance front-of-house systems and drum/side fills.

The CT 118 Sub can be retrofitted with an optional passive crossover. The passive crossover is equipped with bona fide low-pass and high-pass filters enabling the configuration of basic satellite systems without having to resort to further power amps or active crossovers. This makes it the ideal no-hassle option for enhancing low-end response.

For maximum performance, it is recommended that this enclosure be operated with an HK AUDIO® DSM 2060™ Controller or an HK AUDIO® Digital Field Controller™ (DFC) in combination with a DFC network.

Application scenarios: Low-frequency enhancement for setups entailing CT 108, CT 112 and CT 115 speakers.

Enclosure design and mechanical appointments: The enclosure is constructed of 18-mm, 13-ply birch plywood. The housing is 50 cm wide, 60 cm high and 68 cm deep, and weighs 42.5 kg. The surface is coated with black water-repellent acrylic lacquer. The front baffle is protected by a steel grille. One recessed handle each is located on the side panels. An M20 Pole Mount Adapter provides the base for a pole designed to accept a CT 108, CT 112 or CT 115 enclosure used in

satellite systems. An optionally available dolly equipped with four 100-mm castors makes the cabinet easy to transport.

Electrical and acoustical data:

The CT 118 Sub features a direct-loaded 18" neodymium speaker. The CT 118 Sub's frequency response ranges from 41 Hz to 350 kHz (+/- 3 dB). Nominal power handling is 1,000 watts RMS at 8 ohms. Axial sensitivity is 100 dB, measured under half-space conditions at 1 watt @1m. Maximum SPL measured under the same conditions at a distance of one meter is 129 dB.

Connectors:

Connectors*) are located out of harm's way on a countersunk panel on the back of the CT 118 Sub. This panel offers two Speakon NL 4 ports. Both ports' four pins are wired in parallel. Pin assignments are pin 1+ = mid/high +, 1- = mid/high -, 2+ = Sub +, 2- = Sub 2-.

*) without a passive crossover

4.1 Optional Passive Crossover for the CT 118 Sub

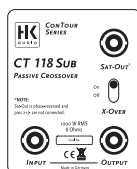


Figure 19: Passive crossover for the CT 118 Sub

The passive crossover is equipped with full-fledged low-pass and high-pass filters. They enable you to set up basic passive satellite systems without requiring further power amps or active crossovers.

To install the crossover, proceed as follows: Remove the front grille and the 18" speaker. Then replace the internally mounted connector panel with the passive crossover. Reconnect the 18" speaker to the two ends of the speaker wires. Ensure the polarity is correct! Red marks the positive terminal, and black the negative terminal!

Handling:

On the passive crossover's connector panel you will find a selector switch that serves to deactivate the crossover's low-pass filter for the 18" speaker. If you intend to use the CT 118 Sub in an active setup (that is, bi-amped), set the switch to Crossover OFF. For a passive configuration with a satellite speaker (mid-/high-range unit), set the switch to Crossover ON. In this case, be sure to connect the satellite speaker (mid-/high-range unit) to the Satellite Out port. For active two-way mode, connect the satellite speaker to the Output port (and not to Satellite Out!). Ensure that the signal destined for the satellite speaker is routed via pins 1+ and 1- of the Speakon connectors! The subwoofer signal is then routed via pin 2+ and 2-.

4.2 Specifications, CT 118 Sub

A professional subwoofer loaded with an 18" neodymium woofer mounted in a precision-tuned bass reflex enclosure, the CT 118 Sub delivers low-ranging, dynamic bass response to enhance ConTour Series™ cabinets' low-end performance. The rectangular block housing is made of 18-mm birch plywood coated with black acrylic lacquer. The top panel features indentations to accept the feet of a subwoofer stacked on top of the enclosure, while a recessed threaded M20 bushing accepts an optional mounting pole. An impact-resistant steel grille backed with laminated acoustic foam rubber protects the front baffle. Recessed handles are located on the side panels. Crossover frequencies are determined by an HK AUDIO® DSM 2060 Controller using a 4th-order Hardman low-pass filter at 100 Hz and a 4th-order Hardman high-pass filter at 30 Hz. Frequency response without a controller ranges from 32 Hz to 350 Hz (-10 dB), with 100 dB axial sensitivity in the main direction of throw @1W/1m under half-space conditions, and 129 dB maximum SPL at 10% THD under half-space conditions. Nominal power handling is 1,000 watts RMS at 8 ohms impedance.

Connectors: 2x Neutrik NL 4 Speakon

Dimensions (W x H x D): 50 cm x 60 cm x 68 cm

Weight: 42.5 kg

Accessories: Dolly with butterfly latches and 100-mm castors, Cover, Passive Crossover with Satellite Out for CT108, CT112, and CT115 enclosures.

4.3 Technical Data, CT 118 Sub:

Power-handling nominal/program/Peak:	.1000 W RMS / 2000 W / 4000 W
Recommended amplifier power:	.2000 W RMS / 4 ohms
Frequency response- 10 dB:	.32 Hz- 350 Hz
Frequency response+/- 3 dB:	.41 Hz- 350 Hz
Sensitivity 1W@1m 1):	.100 dB (50 Hz- 200 Hz)
Max. SPL calculated 1):	.136 dB 2)
Max. SPL peak 1):	.133 dB
Max. SPL 1):	.131 THD (50 Hz- 200 Hz)
Nominal impedance:	.8 ohms
Low-/ midrange woofer:	.18" Neodymium
Recommended crossover frequencies:	.100 Hz/ 4th order Hardman LPF, Subsonic: 30 Hz/ 4th order Hardman HPF
Recommended controller:	.HK Audio DSM 2060
Connectors:	.2x Speakon® NL 4
Enclosure (birch):	.18 mm (3/4"), 13-ply
Finish:	.Black acrylic lacquer
Grille:	.Metal grille with black acoustic foam
Handles:	.2x ergonomic grips
Pole mount:	.M20 threaded plate
Weight:	.42.5 kg / 93.5 lbs.
Dimensions (W x H x D):	.50 x 60 x 68 cm / 19-2/3" x 23-2/3" x 26-3/4"
Accessories:	Dolly with 100 mm casters, Protective Cover, Passive Crossover with Satellite Out (CT 108, CT 112, CT 115)

1) Based on half space conditions 2) Based upon peak power capacity

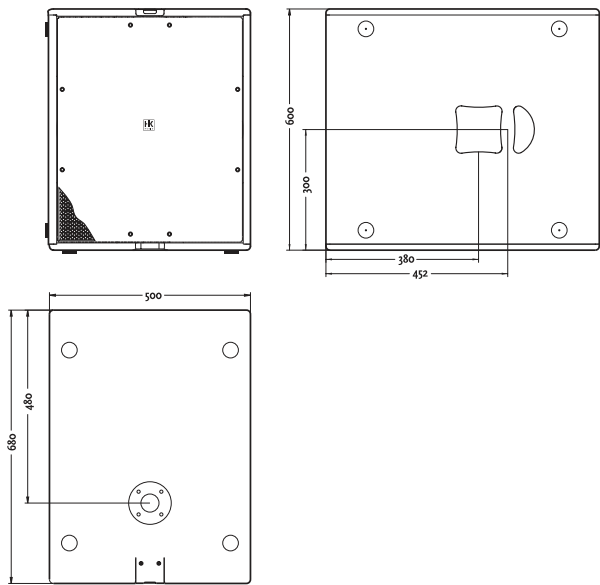


Figure 20: CT 118 Sub housing dimensions in [mm]

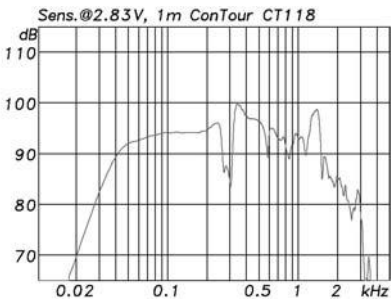


Figure 21: Frequency response CT 118 Sub

C RIGGING CONTOUR SERIES™ CT 108/ CT 112/ CT 115 ENCLOSURES

Please also read the Notes on Rigging Safety in Chapter A of this manual.

ConTour Series™ Rigging Hardware for CT 112 and CT 115 enclosures enables the cabinets to be flown from a single pick-point. One Aeroquip track each is embedded in the enclosure's lid and in one side panel for this purpose.

Cables or chains may be used to fly cabinets. These are connected to the Aeroquip tracks using suitable connectors. A special mounting yoke is available for CT 112 and CT 115 enclosures. It attaches to the track embedded in the speaker's lid.

1.1 Flying Enclosures with Cables or Chains

Figure 22: The rigging track in the lid

Figure 23: Attaching the rigging cable



Figure 22: The rigging track in the lid



Figure 23: Attaching the rigging cable

1.2 Mounting Yoke for CT 112 and CT of 115 Enclosures

The mounting yoke for CT 112 and CT 115 enclosure is attached to the Aeroquip track on the lid using two M10 screw attachments (M10 studs). Insert an M10 stud into the first and last points on the track, affix the locking ring into its designated hole and set the mounting yoke in place. Attach the yoke using the knob screws. Secure the speaker and yoke hanger with a suitable arrest wire to prevent the enclosure from falling. Use the HK AUDIO® EB 10 eyebolt for this purpose. Remove the countersunk screw on the speaker's rear panel and insert the EB 10 eyebolt in its place. Run the safety cable through the eyebolt.

Figure 24 a, b: Inserting studs

Figure 25: Attaching mounting yokes to CT 112 and CT 115 enclosures

Figure 26: Attaching the EB 10 eyebolt and arrest wire



Figure 24 a, b: Inserting studs



Figure 25: Attaching mounting yokes to CT 112 and CT 115 enclosures

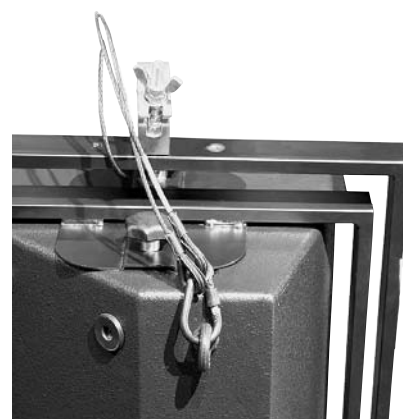


Figure 26: Attaching the EB 10 eyebolt and arrest wire

Loosen the side-mounted toggle screws to adjust the tilt angle.

The CT 112/ CT 115 mounting yoke's maximum load-handling capacity is 34 kg. No more than one enclosure may be mounted to it.

1.3 MS/1, MS/2, MS/3 Mounting Set for the CT 108

A three-piece mounting set is available for the CT 108, enabling the speaker to be placed on a pole or flown from a truss.

MS/1:

An L-shaped mounting bracket, the MS/1 can be attached either to the left or right side panel. To do this, remove the countersunk M8 screws and use them to affix the MS/1's mounting plate. Loosen the knob screws to adjust the tilt angle.

MS/2:

The pole mount adapter for the MS/1; two bushings that accept MS/2 are located on the bottom of the MS/1.

MS/3:

The MS/3 TV stud for mounting cabinets on poles; an 11-mm bushing that accepts the MS/3 TV stud is located on the bottom of the MS/1.

An M8 bushing that accepts an EB 8 eyebolt is located on the rear panel of the CT 108. Secure the flown speaker with an arrest wire to prevent it from falling!

Figure 27 a, b: Attaching the MS/1 yoke to the CT 108

Figure 28: MS/1 mounting yoke CT 108

Figure 29: MS/2 pole mount

Figure 30: MS/3 TV stud



Figure 27 b: Attaching the MS/1 yoke to the CT 108



Figure 28: MS/1 mounting yoke CT 108



Figure 29: MS/2 pole mount



Figure 30: MS/3 TV stud

D CONTOUR SERIES™ CONTROLLER SETTINGS



Figure 31: DSM 2060 Digital Controller

You can download recommended settings for driving ConTour Series™ speakers via a digital controller from the website at www.hkaudio.com

For the best performance, use an HK AUDIO DSM 2060 Digital Controller. The DSM 2060 is factory-equipped with special filters for all ConTour Series™ speakers for use in both FOH and (bi-amped) monitor applications.

It features two inputs and six outputs that may be configured individually for FOH and monitoring applications to serve touring and fixed installation purposes. Up to six parametric EQs and two additional shelving filters may be applied to every input/output for the purpose of fine-tuning the system to suit the given requirements. The innovative HFT™ Hardman Filter Technology

satisfies high-end audio-demands and raises the performance bar for this class of controller. The HK AUDIO® DSM 2060 Digital Speaker Management device is equipped with high-end 24-bit, 96-kHz converters that ensure pure, unadulterated digital signal processing and frequency response ranging up to 40 kHz. It offers input delays ranging up to 400 ms and output delays ranging up to 80 ms for configuring delay zones and aligning the times of speaker components in systems comprising multiple amped signals. Various limiters can be assigned to each output and adjusted in fine 0.2 dB increments to protect speakers and drivers.

This controller's flagship feature is an extensive selection of Butterworth, Bessel, Linkwitz-Riley and other crossovers with slopes varying from 6 to 24 dB. The HK AUDIO® DSM 2060's fourth-

order and eighth-order Hardman filter is a unique feature serving to configure 36 dB and 52 dB slopes for crossovers.

In contrast to conventional filters with steep slopes, the Hardman filter minimizes phase shifting and group delay even at maximum slopes to preserve the signal's natural sound. This results in exceptionally precise frequency crossover and faster roll-off rates, thereby minimizing distortion, enabling lower crossover frequencies, and affording drivers greater protection. And all this makes the most of the connected system's headroom and enhances operating reliability. More information on the functions and technical specifications is available in the DSM 2060's manual.

Technical Data:

Inputs / outputs:	2 / 6	Limiter:	High performance limiter; threshold adjustable in 0.2 dB steps; automatic time constants
Sample rate:	96 kHz	EQ frequency:	10 Hz to 25 kHz, 1/36 octave steps
Bit depth:	24 bits	EQ gain:	+15 dB to -15 dB, 0.2 dB steps
Frequency response:	10 Hz to 40 kHz, +/- 3 dB	EQ width:	5.0 to 0.1 octaves bandwidth, 1/36 octave steps
Dynamic range:	>112 dB (A weighted, 22 kHz bandwidth)		
Interface:	Serial for PC applications		
Parameters:		Dimensions:	WxHxD 48.2 x 4.4 x 25.4 cm
Gain:	+20 dB to -80 dB in 0.2 dB steps	Weight:	2.7 kg
HP filter frequency:	Off, 10 Hz to 25.4 kHz, 1/36 octave steps		
LP filter frequency:	10 Hz to 25.4 kHz and off, 1/36 oct. steps		
LP / HP filter type:	12, 18 & 24 dB/octave Bessel and Butterworth; 12, 24 and 48 dB/octave Linkwitz-Riley; 4th or 8th order Hardman		
Delay:	up to 480 ms		

For more information on handling and configuring the DSM 2060, please consult its manual; it is also available for downloading from our website at www.hkaudio.com.

E SERVICE

1 CONTOUR SERIES™ REPLACEMENT PARTS

Note:

- If your equipment requires service, please turn to your HK AUDIO® dealer or the HK AUDIO® distributor in your country. They stock the required spare parts.
- In the event of a defect, always indicate the defective device's serial number. This way the HK AUDIO® service team can immediately ascertain if an update is available for your product.
- Use only original HK AUDIO® replacement speakers and parts! Most of these have been developed especially for HK AUDIO® products and are not available directly from speaker manufacturers!

2 REPLACING LOUD- SPEAKERS AND VOICE COILS

2.1 8", 12", 15" and 18" Speakers

Proceed as follows to replace the given speaker:

- Unfasten and remove the Phillips screws on the side panels holding the grille in place. Remove the grille. On the CT 118 Sub these screws are located on the front panel.
- Unfasten and remove the hex head bolts holding the speaker in place.

The speaker is now detached. Disconnect the speaker wires.

When installing and connecting a replacement speaker, ensure the polarity is correct!
Red= positive, black = negative

2.2 The Drivers' Voice Coils

Proceed as follows to replace the drivers' voice coils:

- Remove the front grille as described above.
- Unfasten the four screws holding the horn yoke and remove the horn and driver from the baffle.
- Disconnect the wires connecting the driver. When installing and connecting a replacement speaker, ensure the polarity is correct! Red= positive, black = negative.
- Unfasten the voice coil housing's four hex head bolts using a 3-mm wrench. Disconnect the wires at the push-pins.
- Take the lid off the voice coil housing.
- The voice coil can now be replaced.

Important note: Replace the voice coil in a clean working environment only. Be sure to keep dust and dirt out of the open driver. If despite your precautions particles manage to get in, use a strip of adhesive tape to remove them or carefully blow compressed air into the back of the driver to whisk the particles out. When installing the new voice coil, ensure it is centered properly. Proceed as follows to check this:

Close the cover of the voice coil housing and reconnect the cords (red = positive, black = negative). Feed a sine wave signal with a frequency between 1000 Hz and 1500 Hz into the mid/high enclosure's input. Sweep through the frequency. If you hear abrasive noises like crackling or scratching, the voice coil is not centered properly. Reopen the voice coil chassis and turn the voice coil a bit until the signal is rendered cleanly!



Figure 32: CT 112 sans grille

Für die folgend bezeichneten Erzeugnisse

HK AUDIO®
CONTOUR SERIES™ CT 108

HK AUDIO®
CONTOUR SERIES™ CT 112

HK AUDIO®
CONTOUR SERIES™ CT 115

HK AUDIO®
CONTOUR SERIES™ CT 118 SUB

wird hiermit bestätigt, dass sie den wesentlichen Schutzanforderungen entsprechen, die in der Richtlinie des Rates zur Angleichung der Rechtsvorschriften der Mitgliedsstaaten über die elektromagnetische Verträglichkeit (89/336/EWG) und der Niederspannungsrichtlinie (73/23/EWG) festgelegt sind. Diese Erklärung gilt für alle Exemplare, und bestätigt die Ergebnisse der Messungen, die durch die Qualitätssicherung der Fa. Stamer Musikanlagen GmbH durchgeführt wurden. Zur Beurteilung des Erzeugnisses hinsichtlich elektromagnetischer Verträglichkeit wurden folgende Normen herangezogen: EN 50081-1 • EN 50082-1. Zur Beurteilung der Einhaltung der Niederspannungsrichtlinie wurde folgende Norm herangezogen: EN 60065

Diese Erklärung wird verantwortlich für den Hersteller



Stamer Musikanlagen GmbH*
Magdeburger Str. 8
66606 St.Wendel

abgegeben durch

Lothar Stamer Dipl.Ing.
Geschäftsführer
St.Wendel, den 12.12.2005

* Stamer Musikanlagen stellt exklusiv für
HK AUDIO® her.

This is to certify that

HK AUDIO®
CONTOUR SERIES™ CT 108

HK AUDIO®
CONTOUR SERIES™ CT 112

HK AUDIO®
CONTOUR SERIES™ CT 115

HK AUDIO®
CONTOUR SERIES™ CT 118 SUB

complies with the provisions of the Directive of the Council of the European Communities on the approximation of the laws of the Member States relating to electromagnetic compatibility (EMC Directive 89/336/EEC) and the low voltage Directive (73/23/EEC). This declaration of conformity of the European Communities is the result of an examination carried out by the Quality Assurance Department of STAMER GmbH in accordance with European Standards EN 50081-1, EN 50082-1 and EN 60065 for low voltage, as laid down in Article 10 of the EMC Directive.



Stamer Musikanlagen GmbH*
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Lothar Stamer Dipl.Ing.
Managing Director
St.Wendel, 06/14/05

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