TRIAKS USER GUIDE

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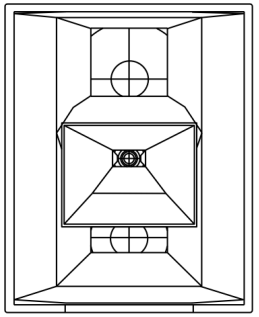
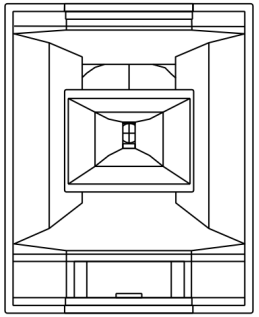
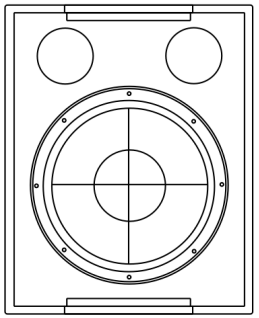
Table of Contents / *Inhaltsverzeichnis*







Preface

Congratulations to the KS TRIAKS Platform Technology System and welcome to the circle of KS PA Systems users.

It was always our aim at KS Beschallungstechnik GmbH of Germany to provide the musician, sound engineer, producer, PA rental person, or sound installer with highest technical standard products to make his life easy and to give him / her a tool at hand that satisfy the user as well as the client and listener and achieves highest quality standards. We at KS are proud that you have chosen our product and we would like to encourage you to get in touch with us to give us a feedback of your experience with our product. Our systems grew with our customers and your comment will be carefully noticed and it will help to make KS even better.

To this User Guide

Big words are not our thing and we are sure that you would make your sound even without reading this manual. But we are also sure that one or the other hint in this manual will help to achieve the results you were looking for when deciding to work with our products.

KS Beschallungstechnik GmbH

Vorwort

Wir freuen uns, Sie im Kreis der KS Anwender begrüßen zu können und wünschen Ihnen viel Freude und Erfolg mit Ihrem TRIAKS System.

Ziel aller KS Entwicklungen war und ist es, dem professionellen Musiker, Tonmeister, Produzenten, Veranstalter, Verleiher oder ELA - Installateur, ein ausgereiftes Werkzeug in die Hand zu geben, das ihn (oder Sie) weitestgehend von technischen Ballast befreit, und der eigentlichen Arbeit zu höchster Qualität verhilft.

Der ständige Dialog mit unsern Kunden hilft uns Produkte zu optimieren und auf dem aktuellen Stand zu halten, daher freuen wir uns über jede Anregung oder Kritik.

Zum Handbuch

Viele Worte sind nicht unsere Sache, und es würde Ihnen sicher nicht schwer fallen Ihrem TRIAKS System auch ohne dieses Handbuch einen „Supersound" zu entlocken. Sie werden aber das ein oder andere Detail finden das für Ihre Arbeit sicherlich hilfreich ist.

KS Beschallungstechnik GmbH

TRIAKS T10-L

Long-Throw Cluster Builder 30° x 20° / -5°

Horn with 30° horizontal und 20° vertical dispersion. The main axis is -5° tilt down.

Two HD 12" chassis, horn loaded and a coaxial 2" / 1" driver are combined to a triaxial horn. The concept guarantees defined dispersion.

Horn mit 30° horizontaler und 20° vertikaler Abstrahlung. Die Hauptabstrahlachse ist um 5° nach unten geneigt.

Das System ist bestückt mit 2x 12" HD Hochleistungschassis. Im Zentrum dieses Horns eingefügt Ist ein 2" Treiber mit einem integrierten 1" Treiber. Ein vorgesetztes Mittelhochtonhorn sorgt für exakte Dispersion des Mittel-Hochton Signals

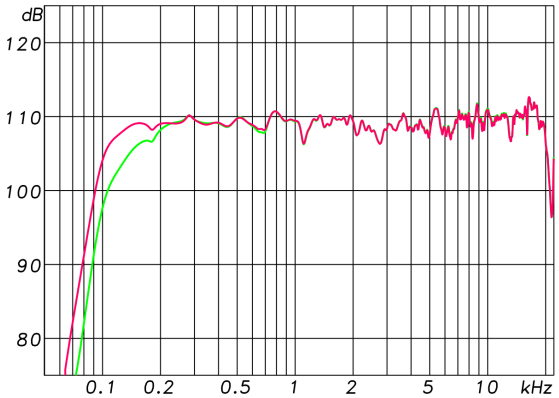
- ***TRIAKS™ KS Triaxial Inline Design***
  true point-source component setting
- ***ALS™***
  Advanced Line Source Technology
  cylindric wavefront-shaping in clusters and arrays with controllable dispersion in both the horizontal and the vertical provided by true point-source/true in-line component setting and tightly defined wide-range dispersion angle of the T10-L speaker system
- ***AeroLock™ Integrated Flying Hardware***
  providing the ability of flying 16 boxes on two rigging-points without use of any cradle and/or additional chains.

TECHNICAL SPECIFICATIONS T10-L

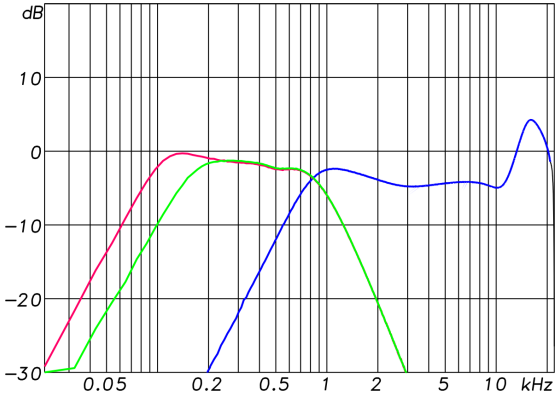
System T10-L	
frequency response (1)	140-19000Hz
output SPL (2)	136/142dB
dispersion angle (3)	30x20 -5° assymmetrical
recommended amplifier	KS TA-4U
recommended insertable controller	KS 104231 or KS FIR-MOD™
Components	
transducers	2x12"/1x2"/1x1" / 4 Ohms
power rms/peak (4)	600+150/1200+300W
amplification type	bi-amped 12-2 / passive filter 2-1
Housing	
input connectors	NL4, options on request
cabinet	birch plywood
grille	RVS perforated, acoustic foam front
finish	structural coating, anthracite black
	(custom RAL-colours on request)
dimensions & weight (5)	72x58x66cm/80kg
flying system	integrated KS AeroLock™ flyware
optional accessories	frontcover-dolly
	quilted padded heavy duty cover

(1) Frequency response in Hz +/-3dB.
(2) SPL is measured with band limited pink noise at 6dB crest factor in realistic distances and then normalized for 1m. Peak values are measured with a sine burst of at least 10 cycles.
(3) Dispersion: horizontal x vertical in degrees, -6dB.
(4) RMS power ratings of our speakers are given as AES standard in Watts.
(5) Height x Width x Depth in cm.

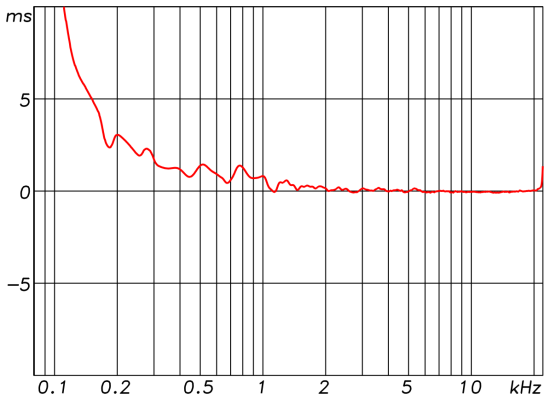
TECHNICAL SPECIFICATIONS T10-L



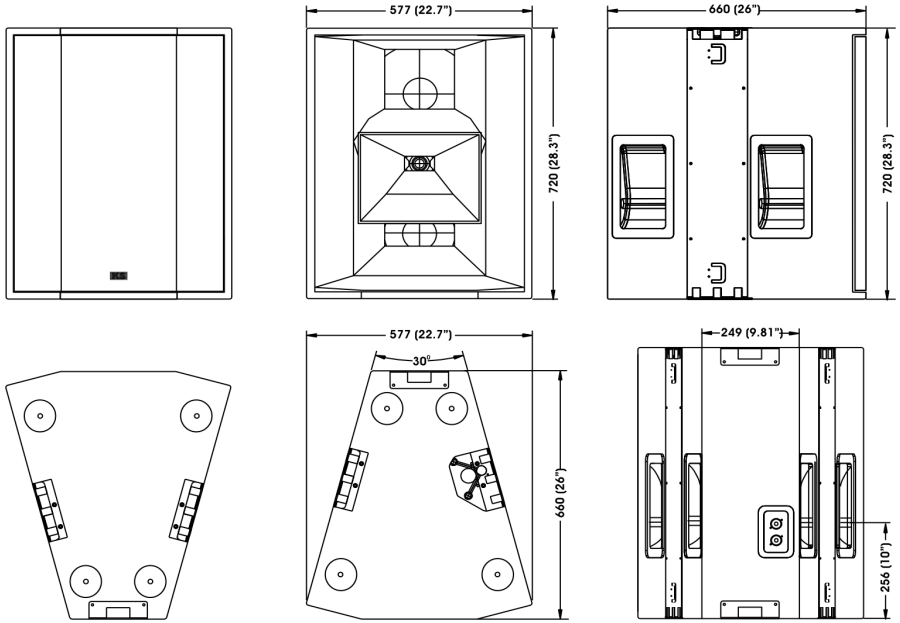
Frequency Response T10-L @1W/1m with 80Hz eq (red) and without 80Hz eg (green)



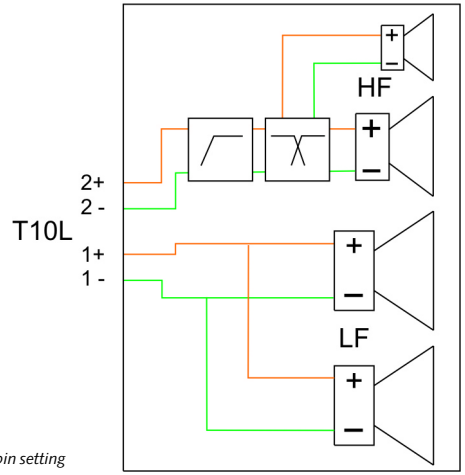
Correction curves of the 104231 controller module with 80Hz eq (red line) and without 80Hz eq (green line)



Group Delay T10-L

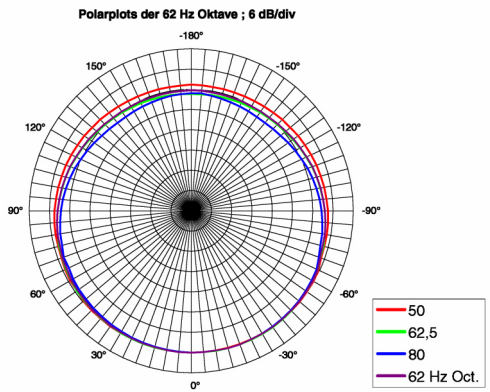


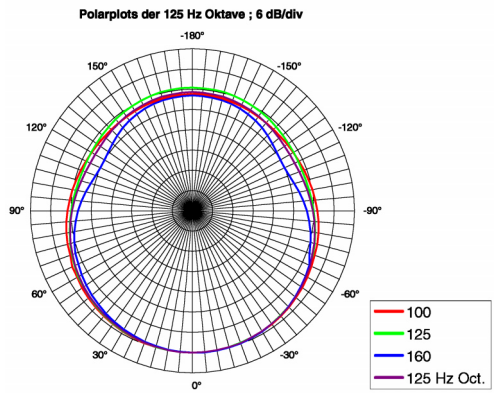
Measurements T10-L in mm (inches given in between ())

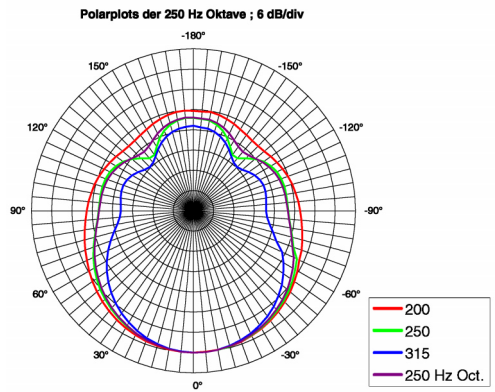


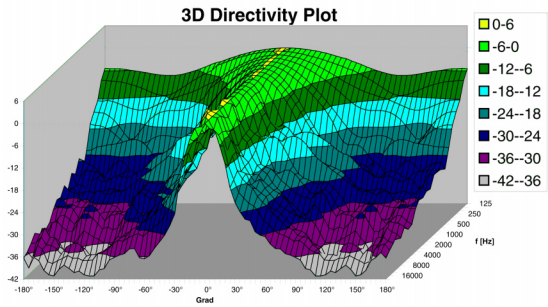
Neutrik Speakon NL4 pin setting

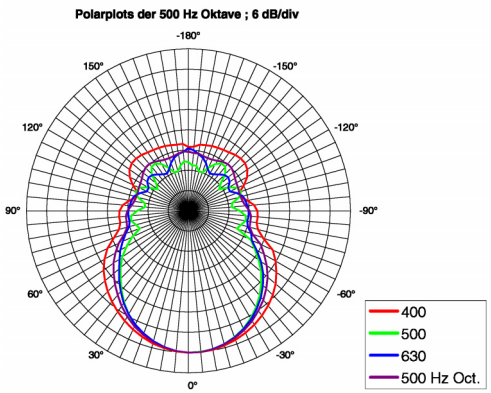
HORIZONTAL DIRECTIVITY T10-L

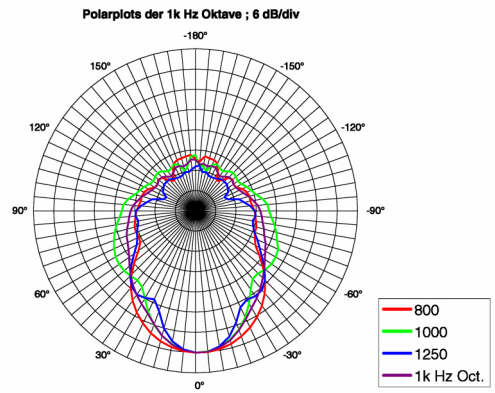


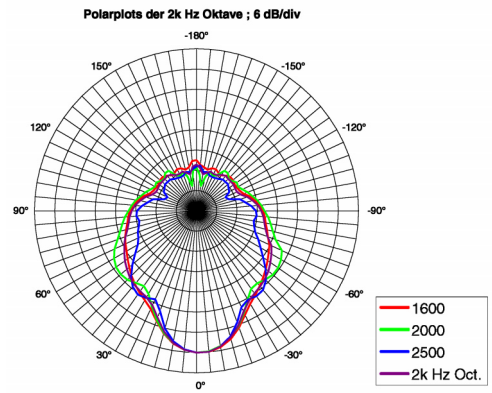


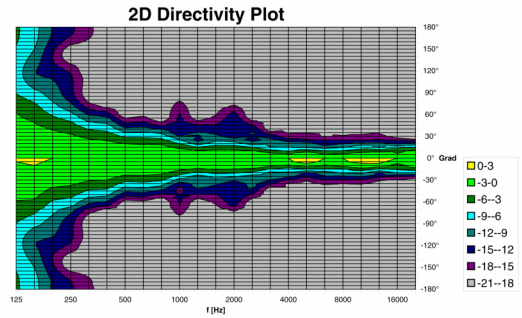


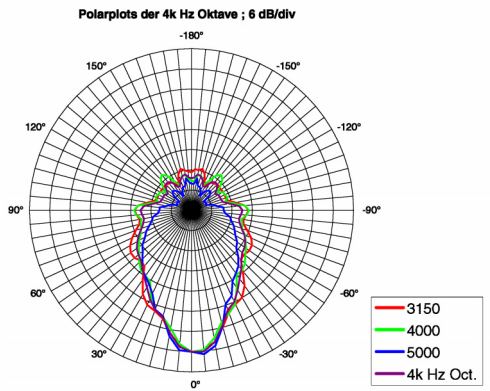


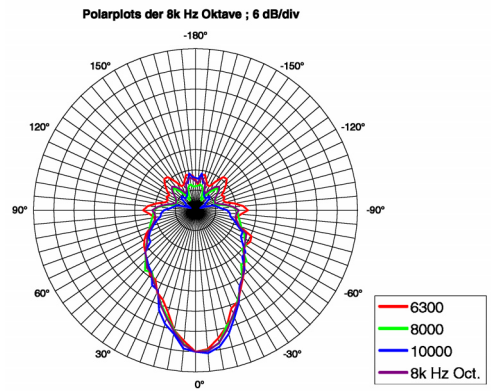


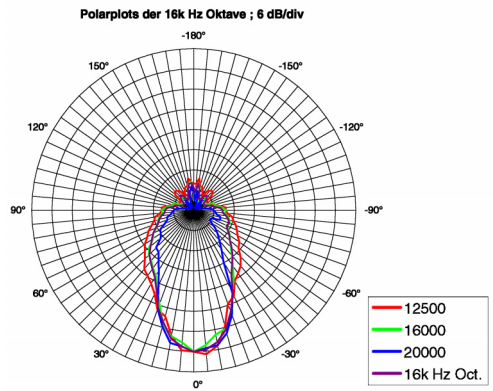


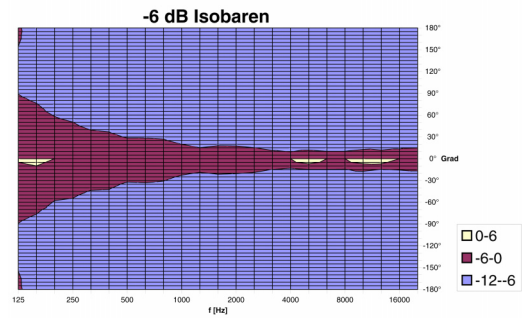




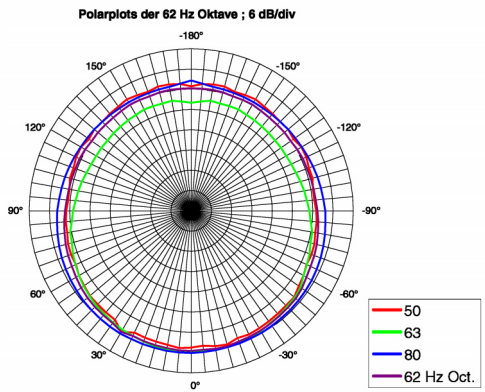


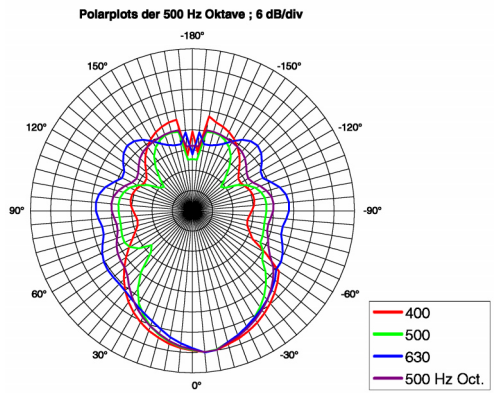


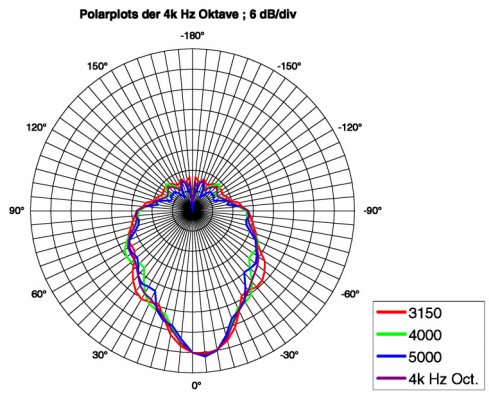


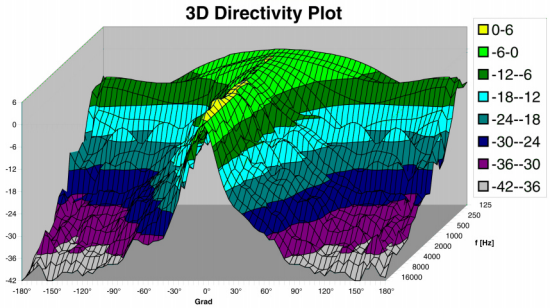


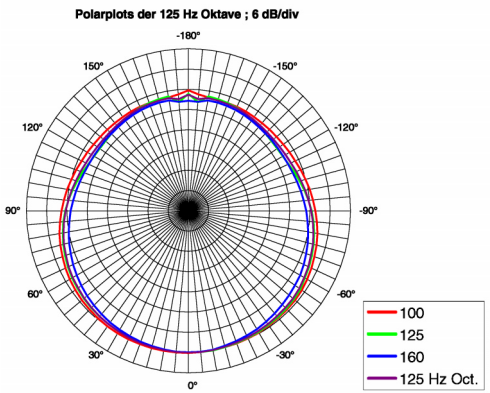
VERTICAL DIRECTIVITY T10-L

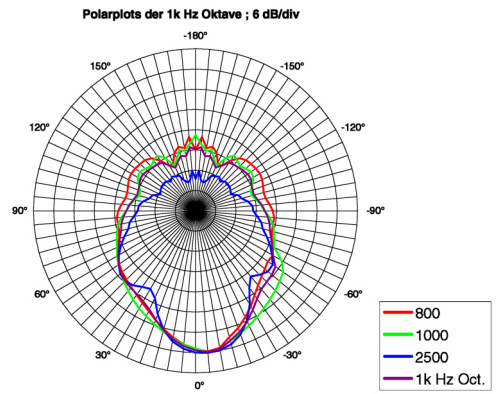


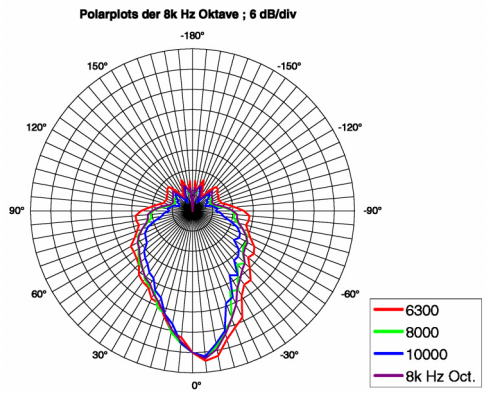


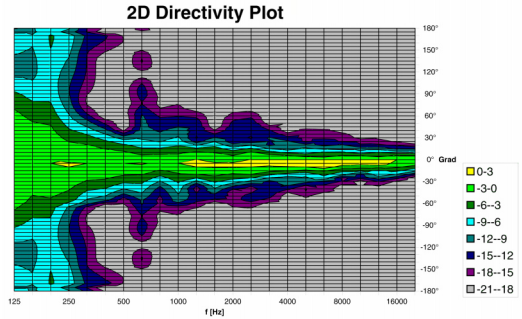


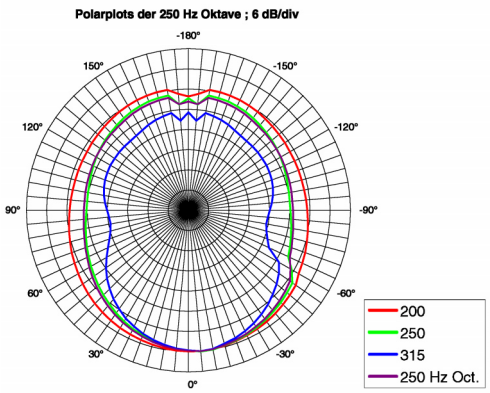


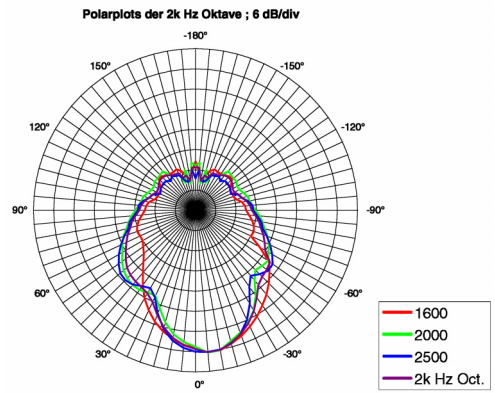


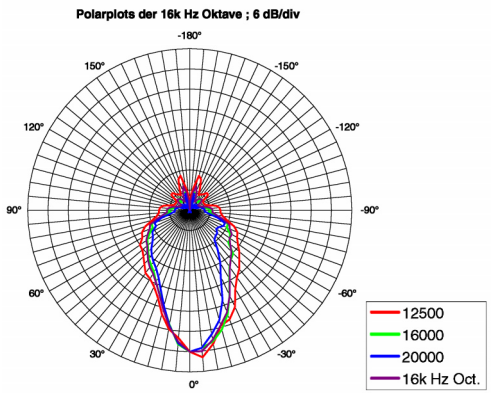


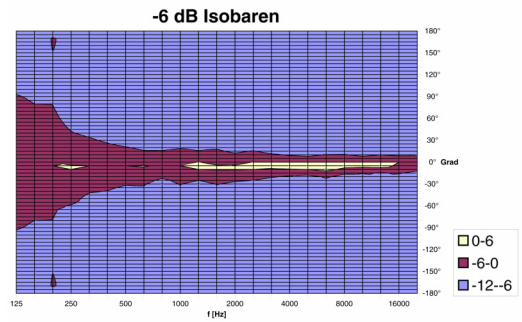












TRIAKS T10-F

Medium-Throw Cluster Builder 60° x 40° / -5°

Horn with 60° horizontal x 40° vertical dispersion and -5° tilted down at the main axis. The low mid chassis is 15" HD within its center the 2" / 1" coaxial driver is loaded into a dispersion horn of 60° x 40°. Three drivers into one acoustical axis guarantees highest output at even dispersion and lowest distortion.

Horn mit 60° horizontaler - und 40° vertikaler und Abstrahlung und -5° nach unten geneigt. Als low mid Chassis arbeitet ein 15" HD Hochleistungschassis, in dessen Zentrum ein 2" Treiber mit integriertem 1" Treiber hinter dem Dispersions Horn arbeitet. Das Near Fill ist fullrange tauglich. Die T10-F in Verbindung mit T10 - W low extension kommt als TRIAKS Startsystem zur Anwendung.

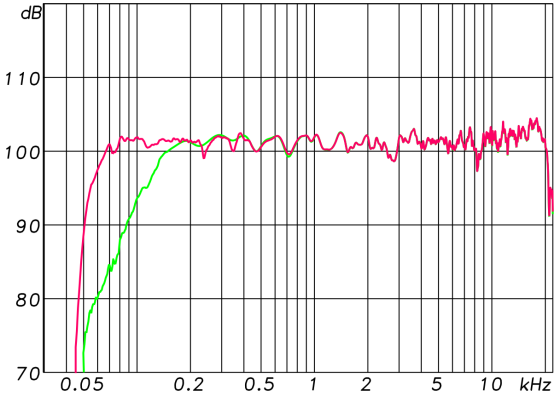
- ***TRIAKS™ KS Triaxial Inline Design***
  true point-source component setting
- ***AeroLock™ Integrated Flying Hardware***
  providing the ability of flying 16 boxes on two rigging-points without use of any cradle and/or additional chains.
- ***Full-Range Capability***
  frequency response 70-19000Hz in full-range setup

TECHNICAL SPECIFICATIONS T10-F

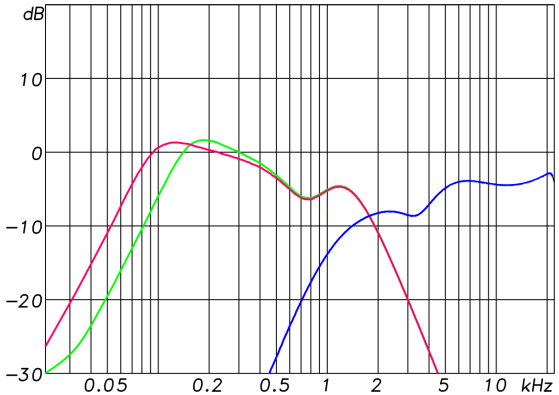
System T10-F	
frequency response (1)	70-19000Hz
output SPL (2)	130/136dB
dispersion angle (3)	60x40 -5° assymmetrical
recommended amplifier	KS TA-4U
recommended insertable controller	KS 104332, 104435 or KS FIR-MOD™
Components	
transducers	1x15"/1x2"/1x1"
power rms/peak (4)	600+150/1200+300W / 8 Ohms
amplification type	bi-amped 15-2 / passive filter 2-1
Housing	
input connectors	NL4, options on request
cabinet	birch plywood
grille	RVS perforated, acoustic foam front
finish	structural coating, anthracite black
	(custom RAL-colours on request)
dimensions & weight (5)	72x58x66cm/65kg
flying system	integrated KS AeroLock™ flyware
optional accessories	frontcover-dolly
	quilted padded heavy duty cover

(1) Frequency response in Hz +/-3dB.
(2) SPL is measured with band limited pink noise at 6dB crest factor in realistic distances and then normalized for 1m. Peak values are measured with a sine burst of at least 10 cycles.
(3) Dispersion: horizontal x vertical in degrees, -6dB.
(4) RMS power ratings of our speakers are given as AES standard in Watts.
(5) Height x Width x Depth in cm.

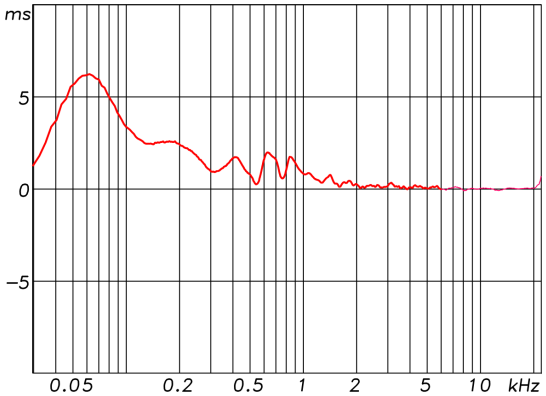
TECHNICAL SPECIFICATIONS T10-F



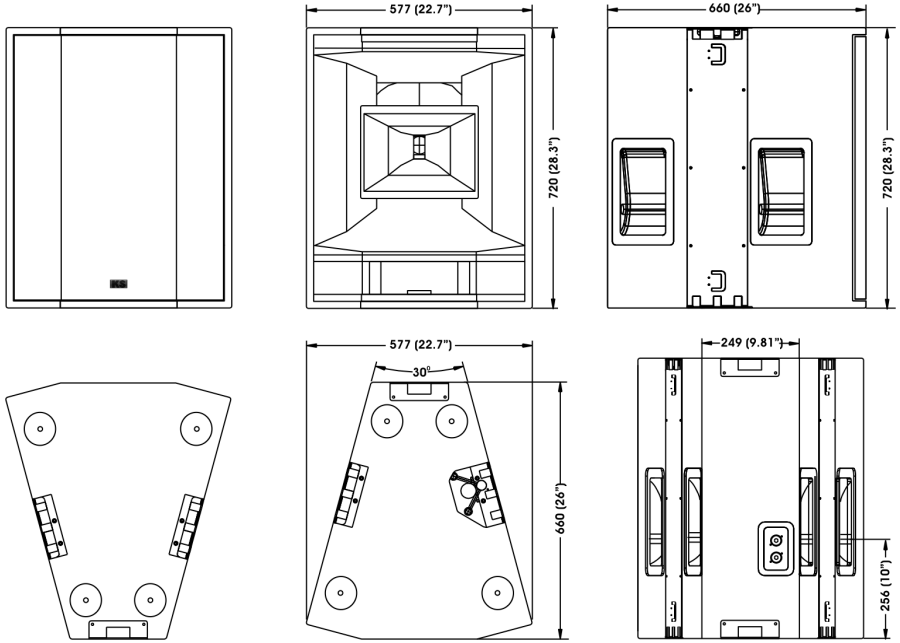
Frequency Response T10-F @1W/1m with 80Hz eq (red) and without 80Hz eq (green)



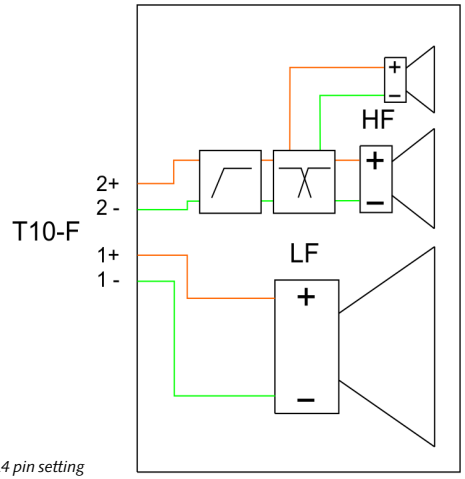
Correction curves of the 104232 controller module with 80Hz eq (red line) and without 80Hz eq (green line)



Group Delay T10-F

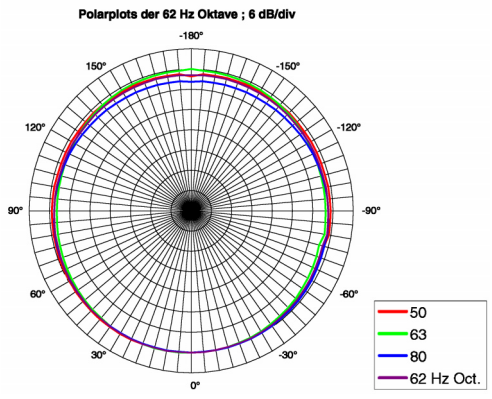


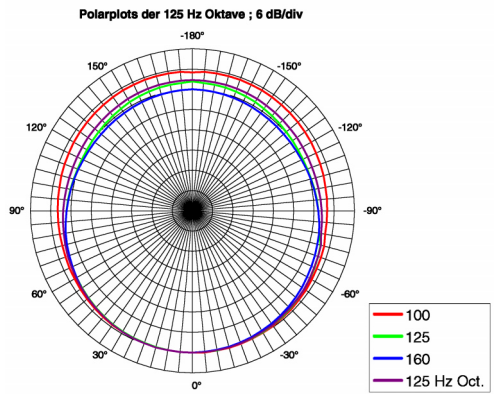
Measurements T10-F in mm (inches given in between ())

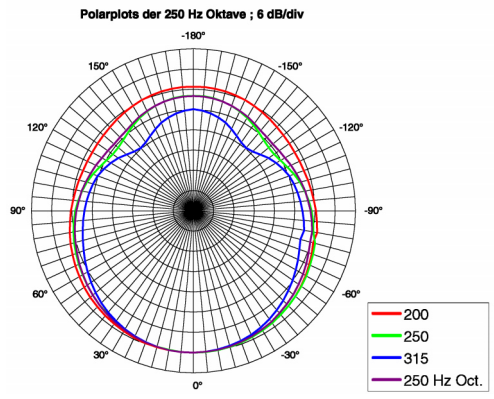


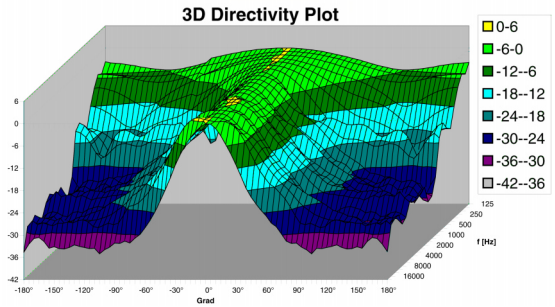
Neutrik Speakon NL4 pin setting

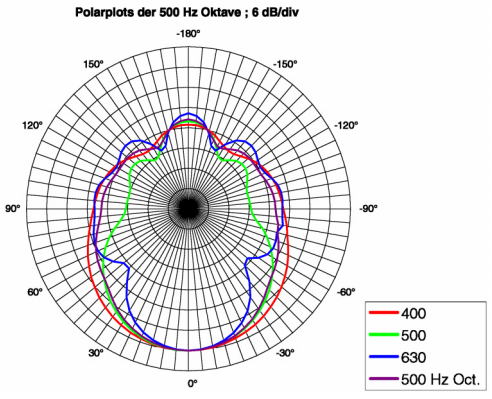
HORIZONTAL DIRECTIVITY T10-F

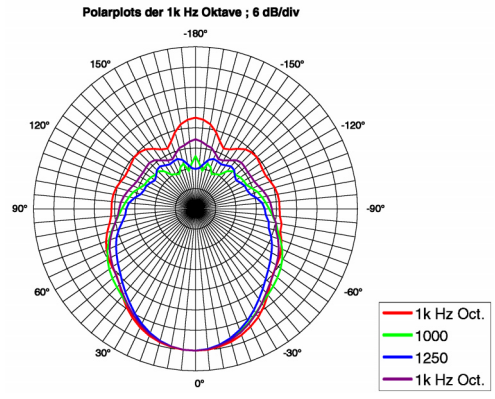


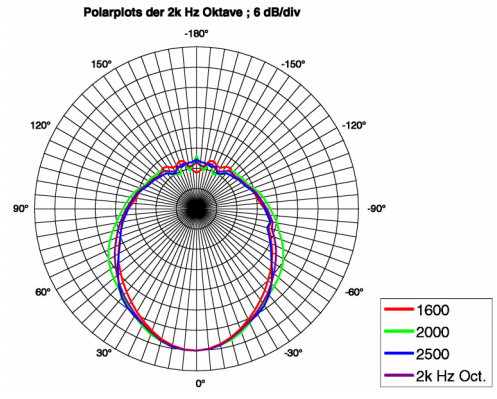


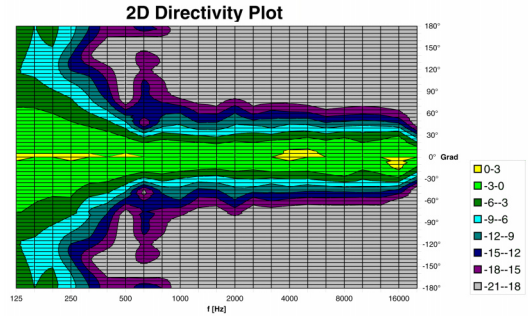


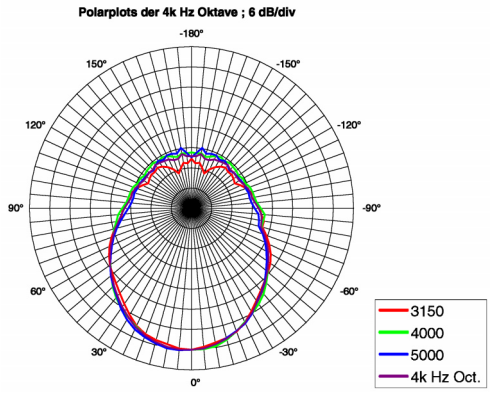


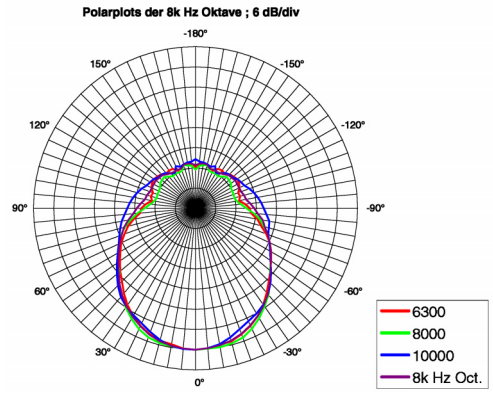


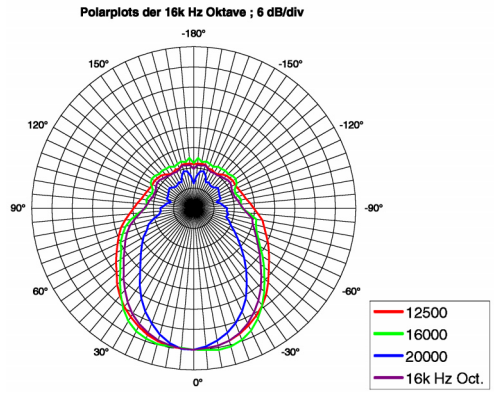


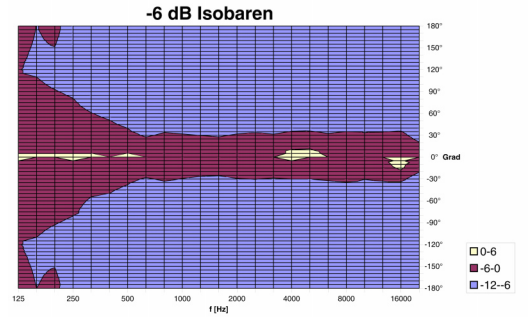




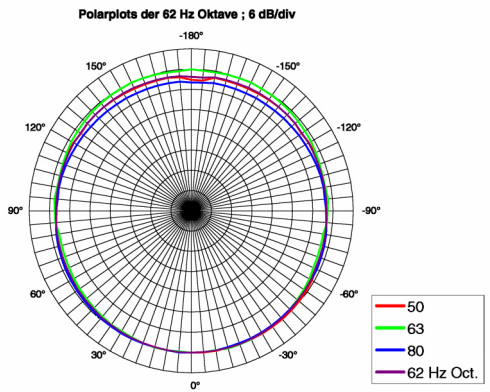


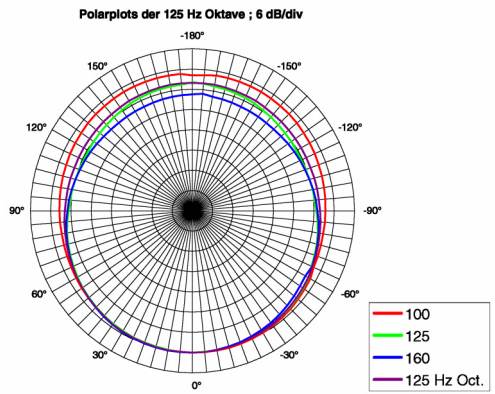


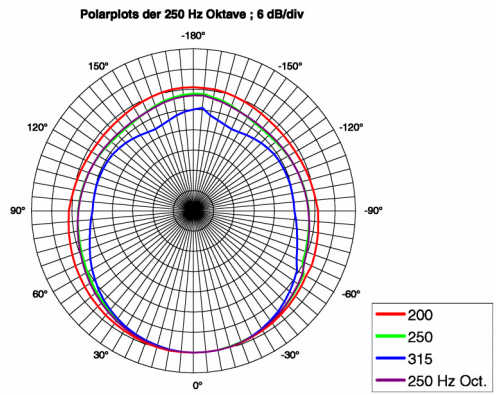


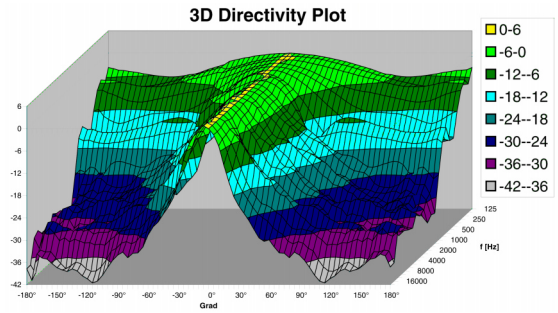


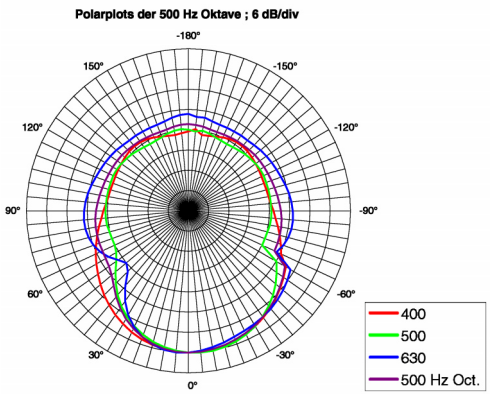
VERTICAL DIRECTIVITY T10-F

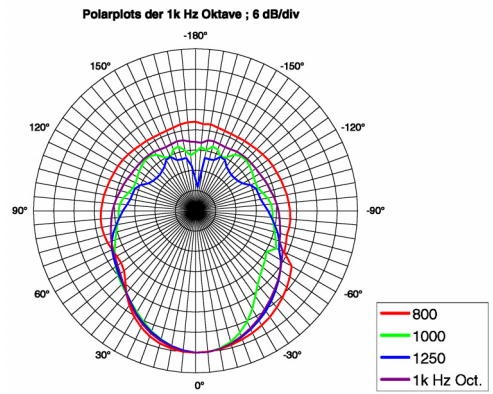


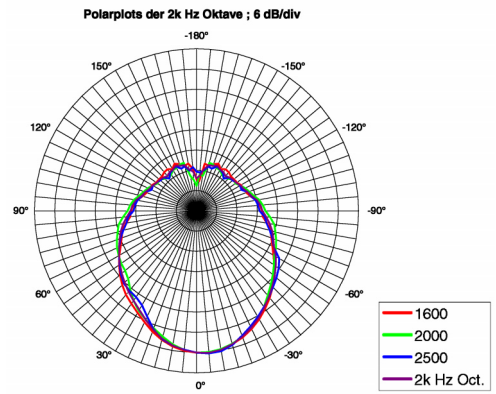


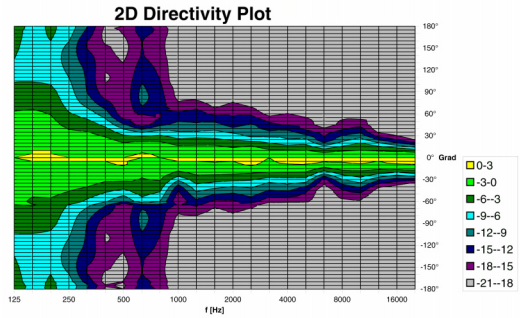


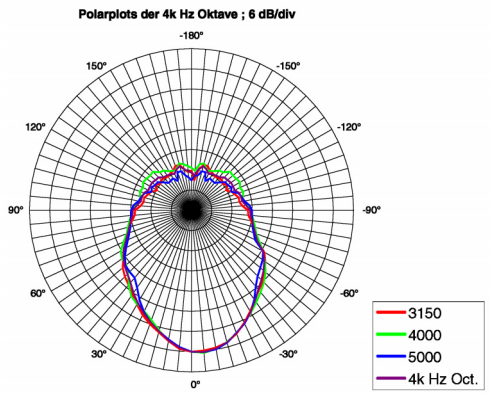


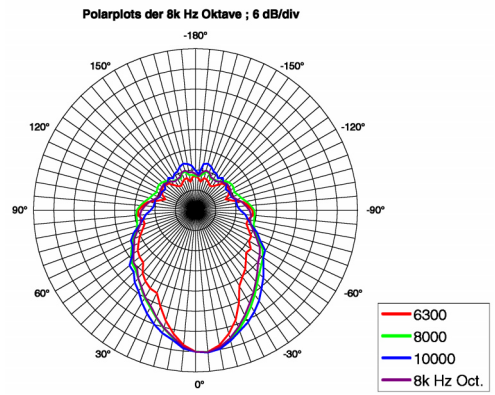


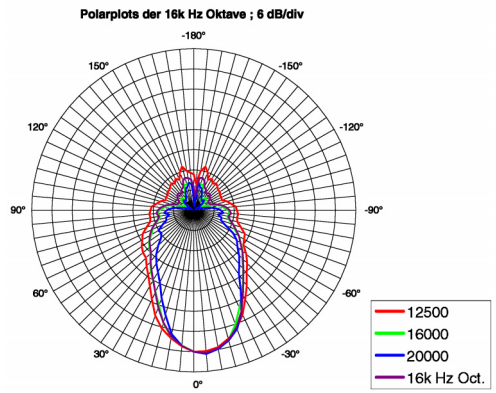


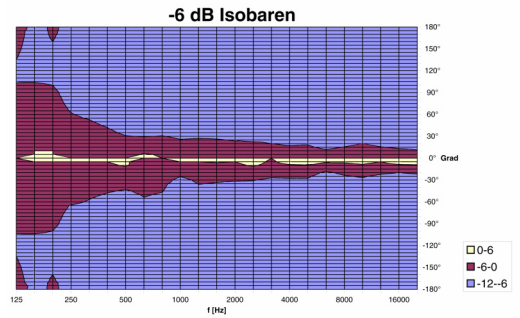












TRIAKS T10-W

Sub-Bass / Mid-Bass System

The direct reflecting 18" subwoofer contains a HDlong hub chassis in the same box as the other TRIAKS systems, therefore it integrates into the cluster or stack. It also houses the same integrated flyware so that no External cradles are necessary.

Der direktabstrahlende Subwoofer mit Baß-reflexöffnung ist das Fundament der TRIAKS Serie. Sein 18" HD long hub Chassis ist in exakt das gleiche Gehäuse integriert wie die MH Systeme und kann in das fliegende Cluster System ebenso einfach integriert, wie gestackt werden.

- ***Extended Excursion***
  Extended Low Frequency
  1600Watt peak extremely long-hub 18" chassis and 135L housing providing 134dB peak from 38-140Hz

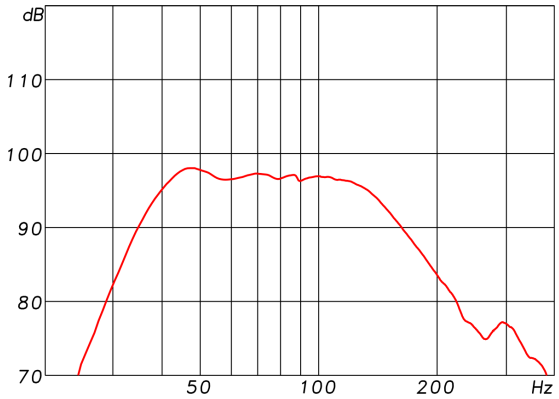
- ***AeroLock™ Integrated Flying Hardware***
  providing the ability of flying 16 boxes on two rigging-points without use of any cradle and/or additional chains.

TECHNICAL SPECIFICATIONS T10-W

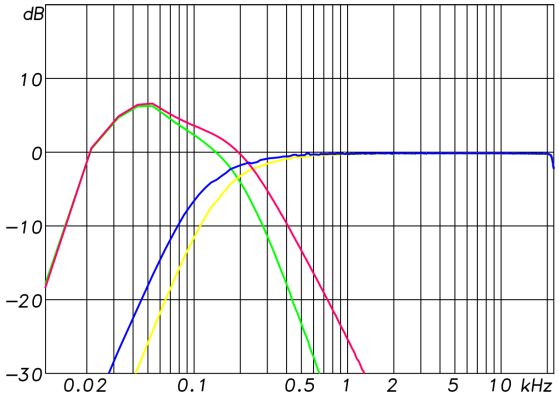
System T10-W	
frequency response (1)	38-140Hz
output SPL (2)	128/134dB
dispersion angle (3)	spherical
recommended amplifier	KS TA-4U
recommended insertable controller	KS 104333, 104435 or KS FIR-MOD™
Components	
transducers	1x18"
power rms/peak (4)	800/1600W / 8 Ohms
amplification type	active
Housing	
input connectors	NL4, options on request
cabinet	birch plywood
grille	RVS perforated, acoustic foam front
finish	structural coating, anthracite black
	(custom RAL-colours on request)
dimensions & weight (5)	72x58x66cm/60kg
flying system	integrated KS AeroLock™ flyware
optional accessories	frontcover-dolly
	quilted padded heavy duty cover

(1) Frequency response in Hz +/-3dB.
(2) SPL is measured with band limited pink noise at 6dB crest factor in realistic distances and then normalized for 1m. Peak values are measured with a sine burst of at least 10 cycles.
(3) Dispersion: horizontal x vertical in degrees, -6dB.
(4) RMS power ratings of our speakers are given as AES standard in Watts.
(5) Height x Width x Depth in cm.

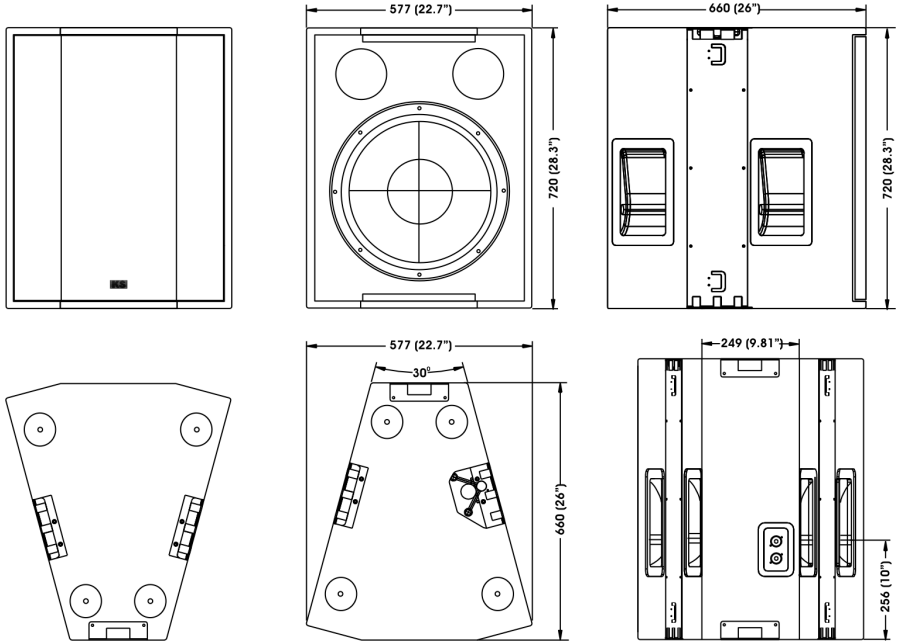
TECHNICAL SPECIFICATIONS T10-W



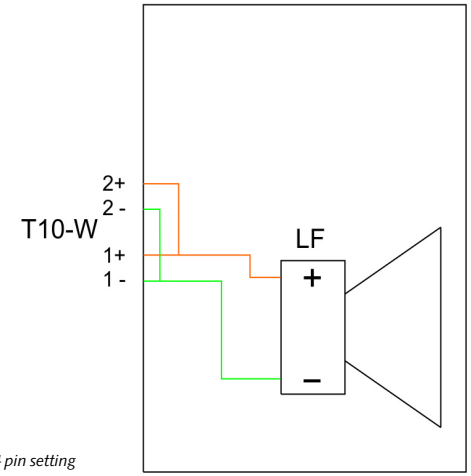
Frequency Response T10-W @1W/1m



Correction curves of the 104333 controller module with 140Hz crossover-point (green & blue line) and 200Hz crossover-point (red & yellow line)



Measurements T10-W in mm (inches given in between ())



Neutrik Speakon NL4 pin setting

AeroLock™ Flying Hardware

Fixed Connections between TRIAKS Boxes using KS AeroLock™ Integrated Flying Hardware

The T10 Series of KS is a genuine cluster-builder system with integrated AeroLock™ flying hardware for long- and medium-throw applications. Two TRIAKS enclosures are interconnected by simply single hand turning the onboard locking mechanism. The system offers the possibility to safely and quickly lift a stack of 4x4 cabinets by using two rigging points only.

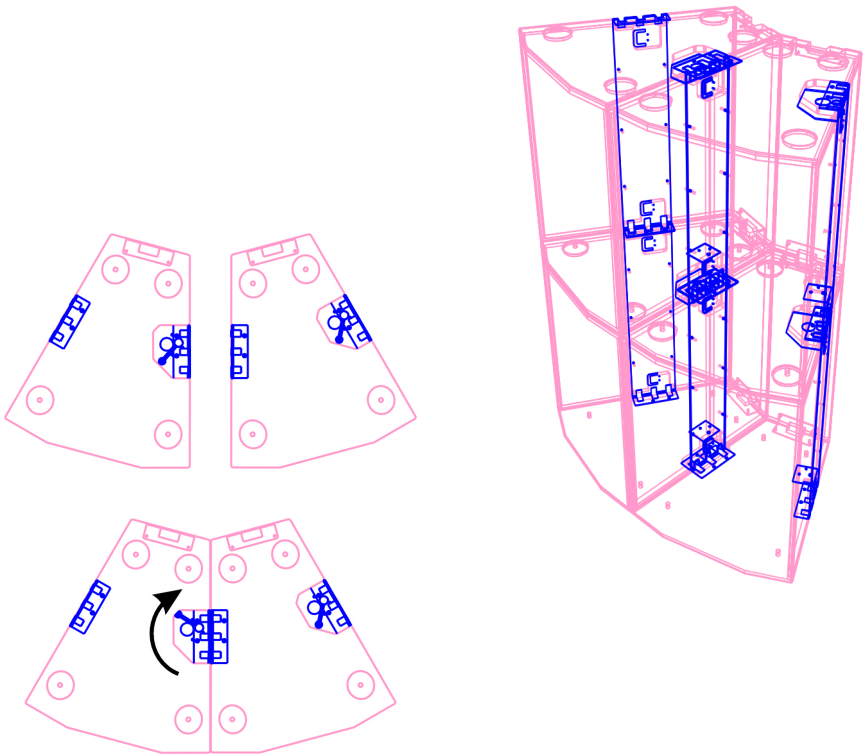
At groundstacking situations the integrated flying hardware offers many advantages as well. At interconnecting the boxes next to each other it is no longer necessary to secure groundstacks with straps. The interlocking AeroLock™ devices connect your TRIAKS stack solid and safe and provides all the security needed. No extra strapping is necessary. Due to the trapezoidal design of the TRIAKS the projected footprint of a stack is always circular. Interconnected TRIAKS stacks are stable in themselves and cannot get pushed over.

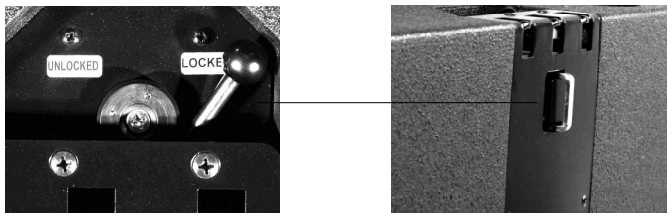
(For maintaining safety all the time, please refer to the flying manual before use)

Das integrierte Flugsystem in Verbindung mit den eingebauten TRIAKS AerLock™ Verbindungselementen ergeben das perfekte Lautsprechersystem zur Lösung aller nur erdenklichen Beschallungsaufgaben.

Die TRIAKS Lautsprecher werden unabhängig ob geflogen oder gestackt mit den eingebauten Verbindungselementen fest und sicher verbunden. Der einfach zu bedienende Verbindungs-Mechanismus ermöglicht das schnelle und sichere Fliegen von bis zu 4x4 Systemen. Hierfür werden nur zwei Flugpunkte benötigt.

Beim Aufbau des Systems auf dem Boden ergeben sich durch Verbindung der einzelnen Systeme weitere Vorteile von unschätzbarem Wert. Sind die TRIAKS Lautsprecher fest mit einander verbunden, ergibt sich aus der Trapezform eine statisch feste und stabile Einheit.





Simply turn the handle to connect two boxes side-by-side

Flying a TRIAKS System

The KS T10 multifunctional PA System is designed to form clusters for the building of a cylindrical wavefront. Apart from the flexibility in possible set-ups with Triaks, the major difference to a line array is that the TRIAKS is capable of shaping a defined wavefront both horizontal and vertical.

The theoretical approach to this was to combine the advantages of the array-principle (with angled and time-retarded single speakers) with those of narrow, horizontal circle segments out of a trapezoidal box design. The concentric layout of three drivers (TRIAKS™) result in the best possible way to form a cylindrical wavefront-segment while combined TRIAKS systems operate as one big loud-speaker by introducing KS ALS™ (Advanced Line Source Technology)

Due to horizontal set-up of all TRIAKS-systems, the rigging and stacking of TRIAKS is very simple and fast as well. Each TRIAKS system is completely weight-balanced that all TRIAKS systems, single or in clusters hang always horizontal. This ingenious design allows both stacking and rigging and make the TRIAKS the perfect solution at each and every demanding public address situation while 'line arrays must be flown and/or framed.

Extensive time consuming calculations of curves and angles prior and while setup of line arrays is nil with TRIAKS due to the horizontal design, which is not only an enormous man power saving advantage but makes the TRIAKS very much easy to operate for the sound engineer.

Horn loaded systems with high capacity drivers in extremely compact boxes like the TRIAKS are unbeatable in their acoustic performance. The throw of a system can be very well defined by the number of applied TRIAKS systems and will be only limited by the natural physical absorption of air. The reduction of sound pressure level however is with the TRIAKS-L only 3dB with the doubling of the thrown distance due to the coupling physics in the mid & low frequencies in combination with an X-large exponential horn.

The design of each TRIAKS System (Long-Throw, Medium-Throw and Sub) is optically identical. All TRIAKS systems look the same and feature the same KS AeroLock™ on board rigging facilities which allow flying and stacking of any design and necessity. The implant of the "cradle" into each box reduces man power at set-up, transportation and warehousing in a more than drastic manor. TRIAKS saves time, transport capacity, warehouse space and is therefore very economical in all perspects. The mechanical KS AeroLock™ devices assures overall safety during application and use of the TRIAKS.

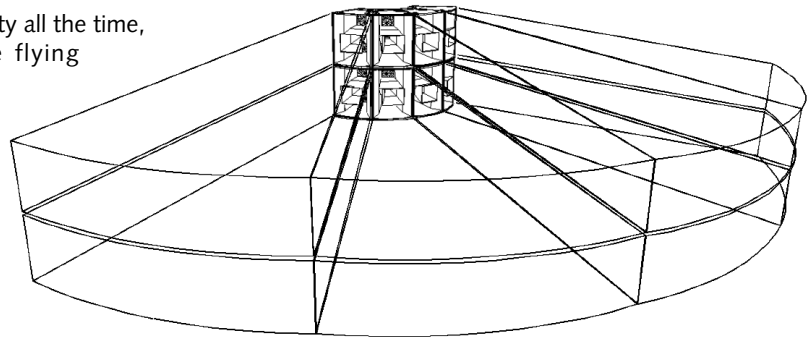
Three ways, one acoustical axis and cylindrical wavefront-shaping, the ideal system to build a long-throwing sound reinforcing cluster.

(For maintaining safety all the time, please refer to the flying manual before use)

Das KS T10-TRIAKS Beschallungssystem dient zum Aufbau von Clustern mit zylinderförmiger Wellenausbreitung. Im Gegensatz zu Line Arrays ist die exakte Definition der Wellen-front sowohl horizontal wie vertikal in weiten Grenzen realisierbar.

Der theoretische Ansatz verbindet die Vorteile der Lautsprecherzeile aus geneigten und verzögerten Einzellautsprechern mit denen schmaler Horizontaler Kreissegmente in trapezförmiger Bauweise. Die konzentrische Anordnung der drei akustischen Wege „triachsial" (TRIAKS™) ergibt dabei die bestmögliche Definition als Zylinderwellen - Segment in Clustern KS ALS™ (Advanced Line Source Technology).

Durch die waagerechte Anordnung aller Systeme sind sämtliche Flugmanöver zum Aufbau von Clustern sehr einfach durch-zuführen. Alle TRIAKS Systeme sind so austariert, daß diese grundsätzlich waagerecht hängen. Durch diese waagerechte Anordnung, können TRIAKS Systeme im Gegensatz zu Line Arrays einfach gestackt werden.



Cylindrical Wavefront Shaping

Die zeitraubenden und umständlichen Berechnungen von Kurven und Neigungs-winkeln wird durch die waagerechte Anordnung der Einzelsysteme und des Gesamtsystems nahezu überflüssig.

Hornsysteme mit hochbelastbaren Treibern in einem kompakten Gehäuse sind in ihrer akustischen Leistung nicht zu übertreffen. Die Reichweite eines Gesamtsystems ist durch die Menge der eingesetzten TRIAKS exakt bestimmbar und wird lediglich durch die physikalisch gegebene und nicht beeinflußbare Luftabsorption eingeschränkt. Die Schallpegel-abnahme beträgt durchschnittlich jedoch lediglich nur 3dB je Entfernungsverdop-pelung.Der Aufbau der einzelnen TRIAKS Systeme ist äußerlich identisch. Die baugleiche äußere Gehäuseform erleichtert Lagerung, Transport, Aufbau, Rigging, Stacking und letztlich Abbau und Weitertransport in ganz erheblichem Maße.

Logistikkosten, Personalaufwand und Aufbauzeiten werden drastisch reduziert, was sich wiederum sofort in der Konkurrenz-fähigkeit des Anwenders niederschlägt. Ermöglicht wird dies jedoch nicht nur auf Grund gleicher Bauformen, sondern vielmehr durch die geniale Integration des zum Rigging notwendigen Flugsystems. Ein in jedes Gehäuse intergriertes Flugsystem erfordert keine weiteren cradles oder weitere Hilfsmittel zum Fliegen der gesamten PA.

Dieses Flugsystem verfügt über ein mechanisches Hebelwerk mit Hilfe dessen die einzelnen Systeme, „Box an Box" per Einhand-bedienung einfach und leicht zusammengefügt werden.

Flying a TRIAKS System

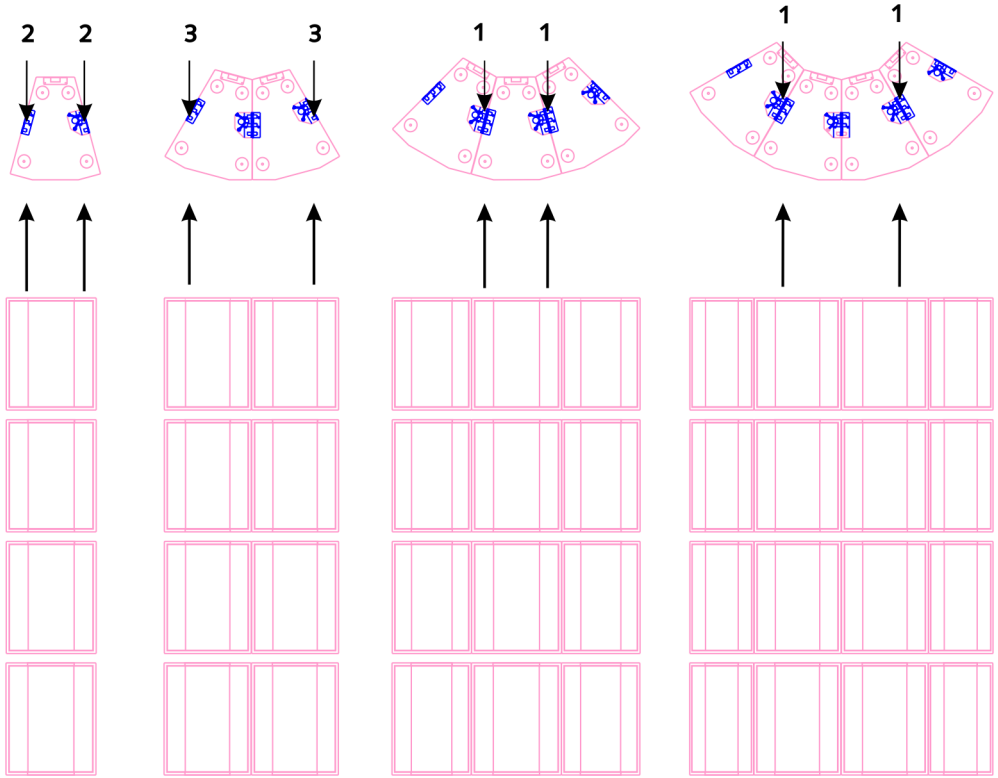
Flying securely without a Cradle on no more than 2 rigging points, up to 4 wide & up to 4 deep

99 Out of 100 flown applications require no more then 4 boxes deep. With the KS AeroLock™ onboard flying hardware you are free to fly up to 16 cabinets on no more then two rigging points without the use of a cradle whatsoever. The only rigging hardware you need is our shackle for interconnecting the cabintes vertically.

You can fly the system angled by leading a strap through the strapholders on the back of the Triaks and pull the system backwards.

Please always make shure to charge the rigging points with equal forces in order not to overload the interconnection mechanisme in between the boxes. (For maintaining safety all the time, please refer to the flying manual before use)

In 99 von 100 Anwendungen werden lediglich vier Reihen unter-einander geflogen. Mit dem KS AeroLock™ onboard Flugsystem können bis zu 16 Triakssysteme an zwei Flugpunkten ohne Cradle ohne weitere Hilfsmittel geflogen werden. Sie benötigen die speziellen KS Triaks-Shackle und -Ringe, um ihr Wunsch-system zu fliegen. Bitte stellen Sie sicher, daß die Flugpunkte gleichmäßig belastet werden.



flown angled by tilting with a strap through the strapholders

flown upright

groundstacked

Flying a TRIAKS System

Flying securely with a Cradle, max. 8 deep

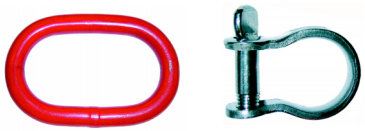
If you intend to fly more than 4 cabinets underneath, please use the KS TRIAKS cradle. With this cradle you are able to use more flying-points on the T10-cabinets so you can go deeper with the number applied. With this cradle you are able to fly 2, 3 or 4 rows wide and 8 deep on two single rigging points. As the cradle forms one tirth of a full circle you are able to build up a complete circular column which you can fly on three rigging points.

Please make sure to charge the rigging points with equal forces in order not to overload the connection mechanism of the boxes.

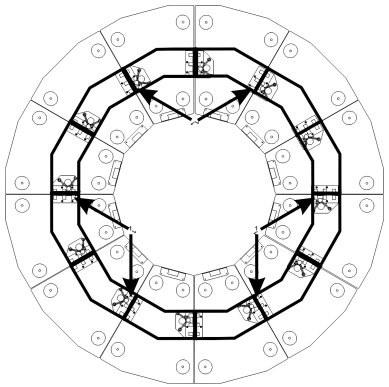
For maintaining safety all the time, please refer to the flying manual before use

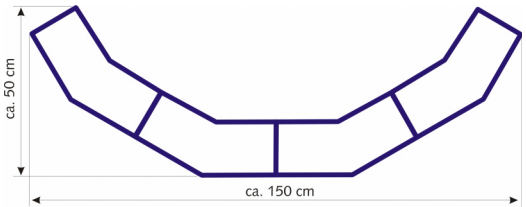
Wenn Sie mehr als vier Reihen TRIAKS untereinder fliegen müssen, sollten Sie das TRIAKS Cradle zur Anwendung bringen. Dieses Cradle erlaubt weitere 16 TRIAKS System an zwei Flugpunkten an zu fügen. Jedes Cradle deckt bis zu 120⁰ des Kreises ab. Mit Hilfe von drei Cradles kann aus dem TRIAKS ein Vollkreis gebildet werden.

Fluganwendungen nur nach genauen Studium des Handbuchs.

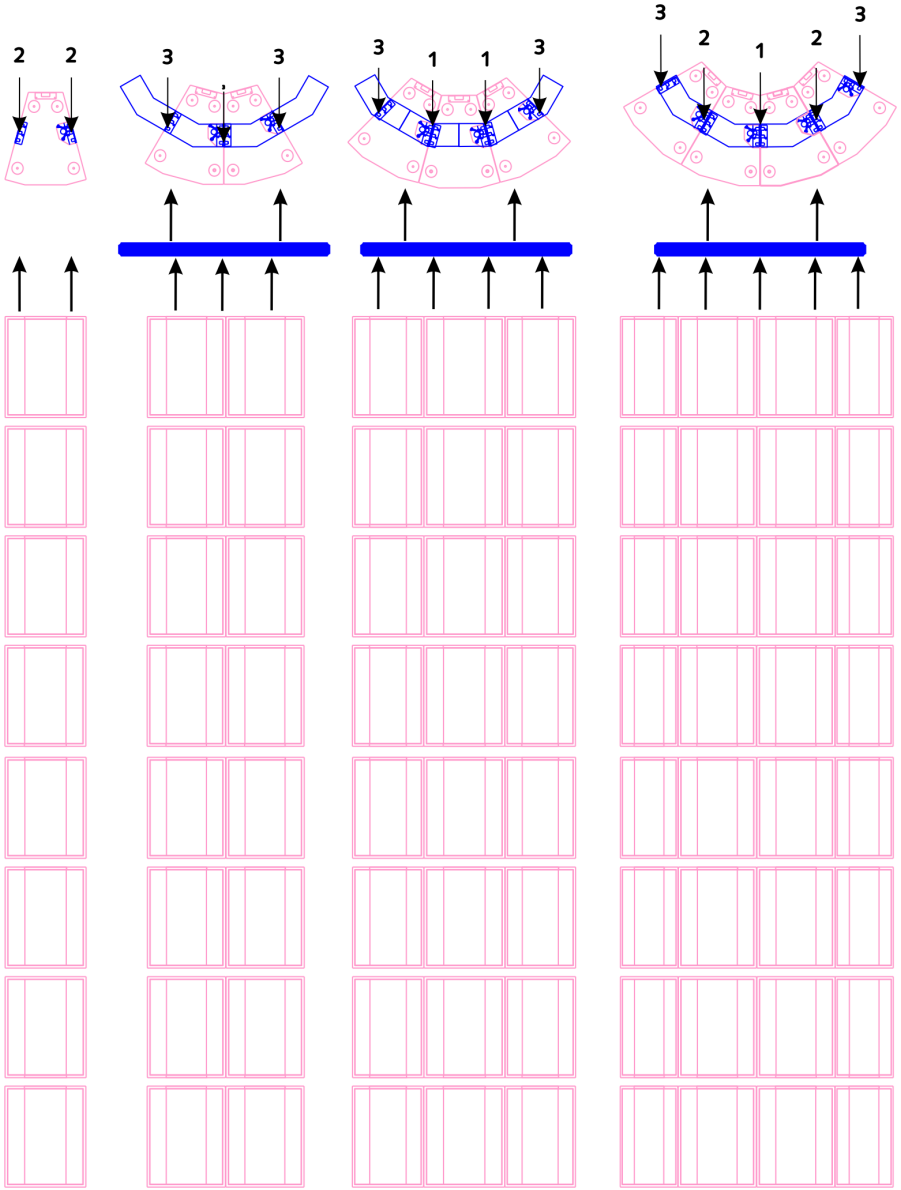


Your flying hardware:
OR10 (left) & VSH10 (right)





KS TRIAKS Cradle 2/3/4 wide



TA4-U

Controller-Amplifier

The TA4-U is a four channel mainframe controller-amplifier capable of powering the T10-system. Several powering modes are available. This depends on the controllercard being applied. The TA4-U can act as a stereo high-power mode amp, mono triamp mode amp, stereo biamp-mode amp and 4-channel mode amp.

Each TA4-U can be internally switched to each desired voltage 110V or 240V.

On the front there is an easy to clean airfilter system. The airflow, provided by two automatic variable fans, cannot touch electronic devices and circuit boards. Keep this filter clean!

Der KS TA 4-U bietet eine einzigartige Lösung für alle Anwendungen im Bereich professioneller Beschallungstechnik. Vom linearen 4-Kanal Leistungsverstärker bis zum ´active controlled multiway pa system´ erhalten Sie jede denkbare Konfiguration durch einfachsten
frontseitigen Austausch eines Controller Einschubs.

Der TA 4-U liefert pro Kanal 1000W Sinus Leistung. Bei der Auslegung der Netzversorgung ist zu beachten, dass für jeden TA4-U eine eigene 16A Steckdose zur Verfügung steht. Die Absicherung muss träge erfolgen.

Dem TA4-U werd gekühlt von zwei stufenlos geregelten Lüfter mit frontseitigem einfach zu reinigenden Luftfilter.

- ***Plug-it-In™ Platform Technology*** providing the ability of plugging in both several system-dependend analog controller-cards and the KS FIRTEC™ digital universal controllercard

- ***4 Independend Power Channels*** delivering 4 x 1000 Watts into 4 Ohms RMS or 2 x 2000 Watts into 8 Ohms RMS output power

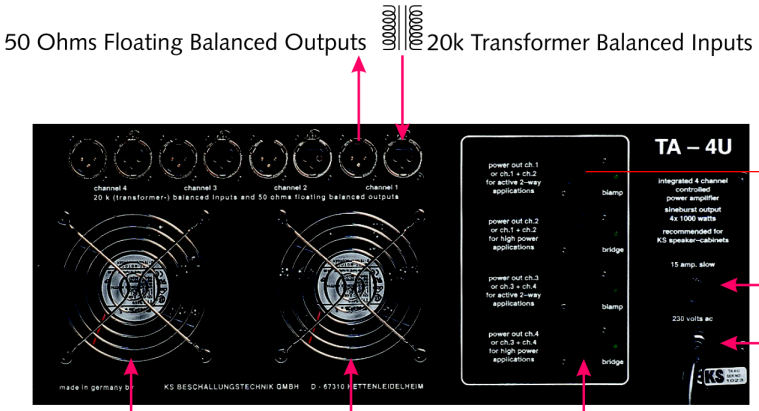
TECHNICAL SPECIFICATIONS TA4-U

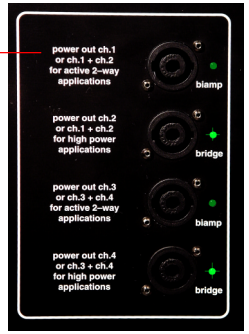
System TA4-U	
frequency response (1)	5-100.000Hz
output power	4 x 1000 Watts @ 4 Ohms 20-20.000Hz
	2 x 2000 Watts @ 8 Ohms 20-20.000Hz
voltage	120V/240 V / 50-60Hz
fuse	16A /20A slow
input	4 x symmetrically balanced transformer
	4 x electronically balanced through
controller	front-slot insertable dedicated card
	with 4 x gold-pin multiconnector
Components	
transformer	toroidial
PS capacity	320.000uF
power stage	hi-speed J-MOS
cooling	double automatic fan, adjustable variability
protection	fully input- / load- & temp-protected
Housing	
input connectors	XLR3F in / XLR3M through (pin 2 hot)
output connectors	NL4 / options via external 19"-panel
air inlet	external easy-claenable filter on front
dimensions & weight	4U x 19" x 35cm / 24kg
finish	black

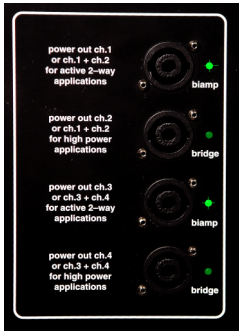
(1) Frequency Response measured within +\-3dB. RMS Long term output measured with band limited pink noise at 6dB crest

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

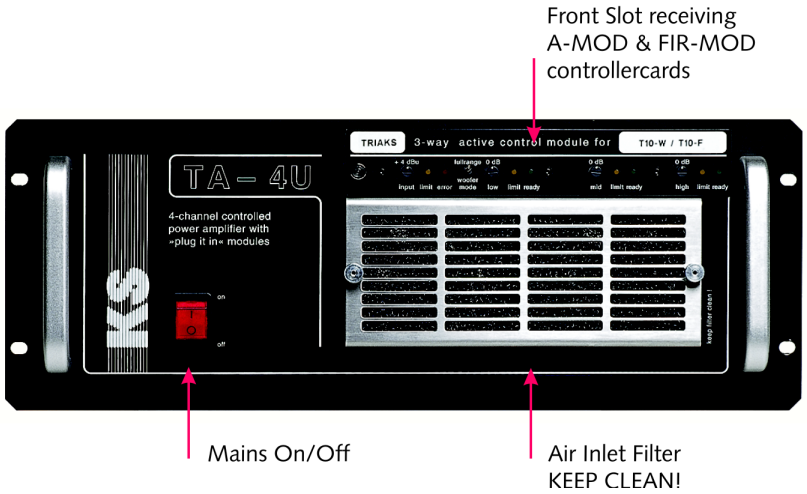
TECHNICAL SPECIFICATIONS TA4-U

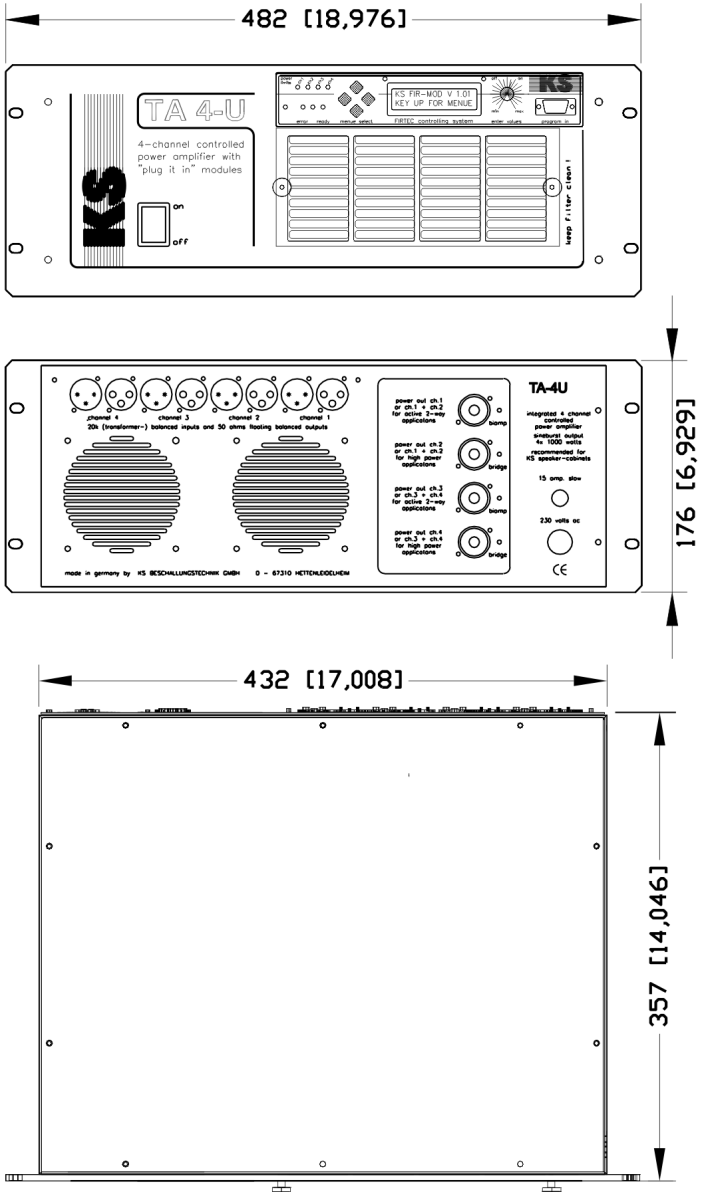






LED's on the output section of the amplifier indicate which channels are being used by the controllercard specific to the system





FIR-MOD / A-MOD

TA4-U Controller-Modules

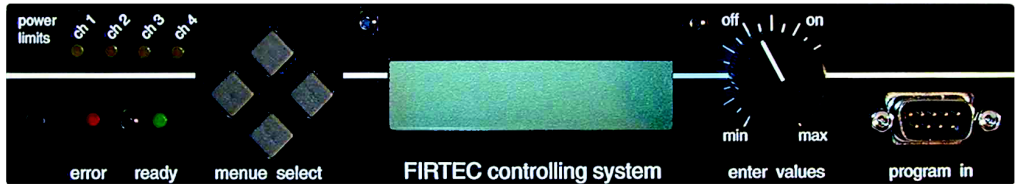
All KS-systems are driven by one same amplifier. The change of Plug-it-In™ controller cards is very simple and done in seconds without taking out the amplifier from the rack. The connectors are 4 different gold-coated multiconnectors so erroring is zero. The choice of KS for using these connectors is on purpose, the contacts are more durable and have a longer lifetime and offer more secure connection than the -by others- too often used printboardside connectors.

Alle KS Systemen werden von demselbe Verstärker angetrieben. Das Auswechseln die Plug-it-in™ Controllerkarten ist sehr einfach und in Sekunden geschehen ohne den Verstärker aus dem Rack zu nehmen. Die verwendete Konnektoren sind alle unterschiedlich und verhindern damit ein falsches durchschleifen. KS hat sich absichtlich fur diese Konnektoren entschieden weil die viel -von anderen Hersteller- verwendeten Platine-Konnektoren sind weniger dauerhaft und zuverlassig.

- ***Plug-it-in™ Platform Technology***
  providing the abilty of plugging in both several system-dependend analog controller-cards and the KS FIRTEC™ digital universal controllercard

- ***VBE (Variable Dynamic Equalisation)***
  control circuits to provide an even frequency response at all volume levels (A-MOD)

- ***FIRTEC™***
  KS In-House Developed Finite Impuls Response Filtering for utmost accuracy of Impuls Reproduction and absolute flat Phase- and Frequency-responses (FIR-MOD)



CONTROLLER-CONFIGURATIONS

FIR-MOD		
	2-channel biamp	2 x KS T10-L
	2-channel biamp	2-4 x KS T10-F
	2-channel subwoofer	2-4 x KS T10-W
	1-channel biamp / 1-channel subwoofer	1 x KS T10-L / 1-2 x KS T10-W
	1-channel biamp / 1-channel subwoofer	1-2 x KS T10-F / 1-2 x KS T10-W
A-MOD		
104231	*2-channel biamp*	2 x KS T10-L
104232	*2-channel biamp*	2-4 x KS T10-F
104333	*2-channel subwoofer*	2-4 x KS T10-W
104434	*1-ch biamp/1-ch sub*	1 x KS T10-L / 1-2 x KS T10-W
104435	*1-ch biamp/1-ch sub*	1-2 x KS T10-F / 1-2 x KS T10-W

FIR-MOD

Digital FIR Controller Module (FIRTEC™)

Together with this controllercard the TA4-U can do a large number of jobs. This depends fully on the software loaded into the module. It can work in 4-channel mode, stereo-biamp mode, 3-way active mode with a sub-section using two channels in bridged mode, high-power double sub in bridged mode or even stereo with a mono bridged sub-output.

The basic parameters for the KS system driven are pre-programmed. Therefore the system is ready for use when hooked up. Other parameters usefull can be set by the user through the menue, like delaytimes for lining up clusters.

The fully phase-linear FIRTEC™ controlling and crossing, compared with KS analog controllers, result in a even better audio-quality. The Firtec-controller uses 24Bit converters and 32Bit Floating Point processing.

The balanced inputs, depending on the software, are on XLR-input channel 1 to channel 4. Wenn the software generates a crossover output (for instance for a subwoofer), the lowpass outputs are on the XLR's channel 2 and channel 4. AES/EBU inputs are available as an option.

The speakerconnections are on the Speakon4 outputs channel 1 to channel 4. The number and type of the outputs are also generated by the software.

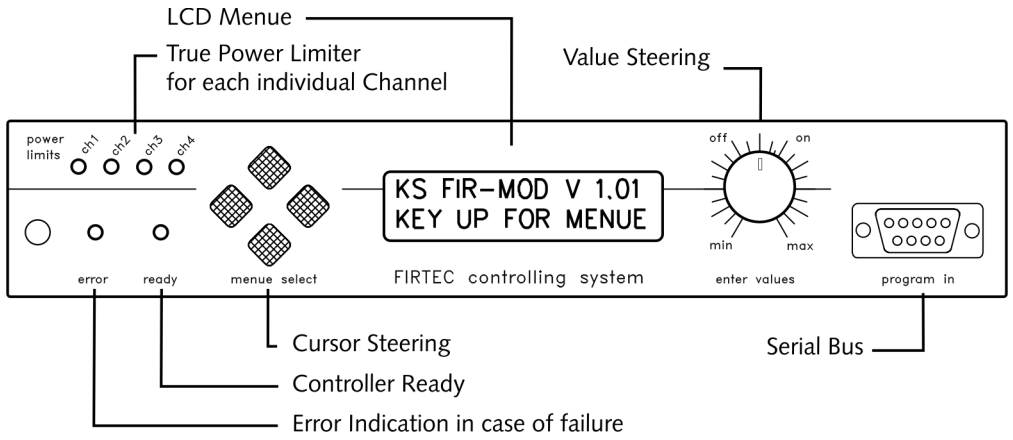
Mit diesem Modul arbeitet der TA 4-U je nach geladener Software in einer Vielzahl von Modi: 4-Kanal-Verstärker, Stereo 2-Wege, 3-Wege aktiv mit Bassbrücke, High Power Doppel-Bassbrücke oder Stereo mit Mono-Bassbrücke.

Die grundsätzlichen Parameter für das betriebene KS-Lautsprechersystem sind dabei vorgegeben, und somit ist es sofort einsatzbereit. Sinnvolle Benutzereinstellungen erfolgen Menü gesteuert, wobei Art und Bereich der Parameter auf das benutzte System abgestimmt sind. Besonders wertvoll ist die Möglichkeit der Laufzeitanpassung innerhalb von Clustern, sowie zusätzliche lange Delays.

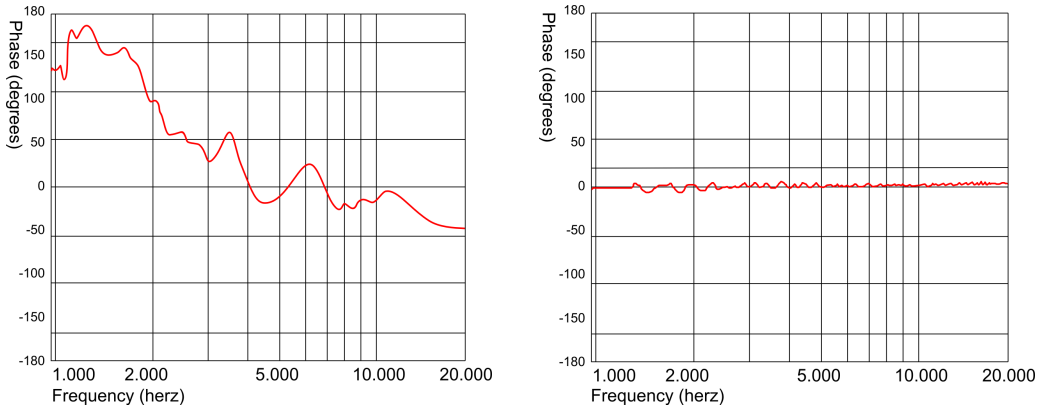
Die phasenreinen FIRTEC™ Entzerrungen und Frequenzweichen erhöhen die Übertragungs-qualität gegenüber analogen Controllern er-heblich. Die Signalbearbeitung erfolgt nach 24Bit Wandlern mit einem 32Bit Floating Point Processor.

Die symmetrischen Eingänge liegen je nach Programm auf den XLR- Buchsen "channel 1" bis "channel 4". Wenn das Programm einen X-Over Ausgang z.B. für zusätzliche Sub-woofer zur Verfügung stellt liegen diese auf den Buchsen ´channel 2´ und ´channel 4´, AES/EBU Ein- und Ausgänge sind optional erhältlich.

Die Ausgänge liegen auf den SPEAKON-Buchsen "channel 1" bis "channel 4". Sie werden programmgesteuert ggf. In den Bi-Amp oder Bridge-Mode geschaltet.



The FIR MOD controller card comes pre programmed to your system but you can download and upload all possible combinations of TRIAKS systems as well as other KS systems via resp. internet and a serial cable. The configuration of TRIAKS is made simple by menue directed desktop at the PC or at the card itself in addition to analog cards the delay is already available as well as digital connection to a total digital environment.



Taking control over the phase-behavior (and thus Impulse Response of your system) is of even more importance to your sound than controlling the frequency.The FIR MOD digital controller independendly controls digital frequency AND phase-control. Left phase-behavior of a system without FIRTEC-controlling. Right picture, the same system with FIRTEC controlling.

A-MOD *104231*

Two Channel Bi-amping T10-L

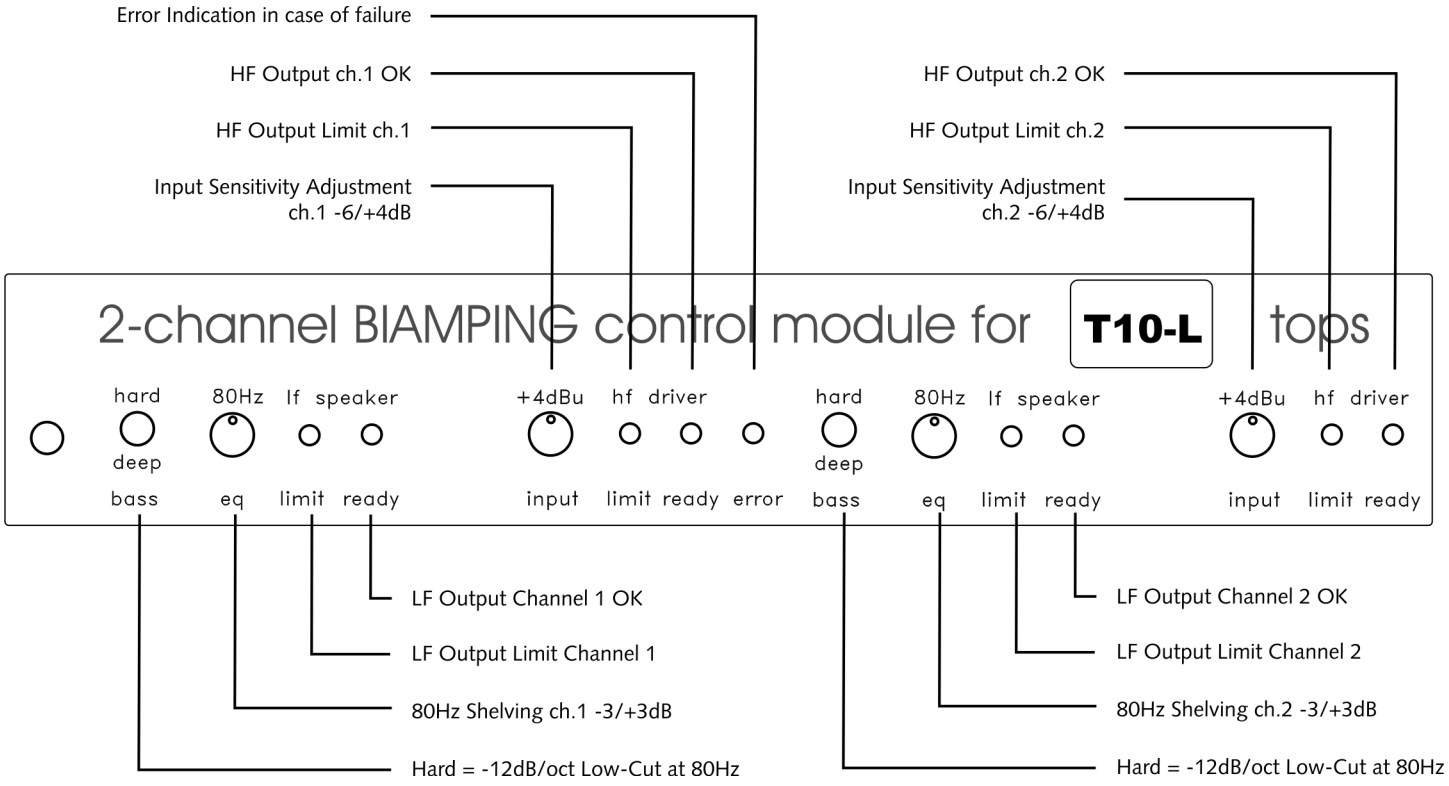
Together with this controllercard the TA4-U works in stereo-biamp mode.

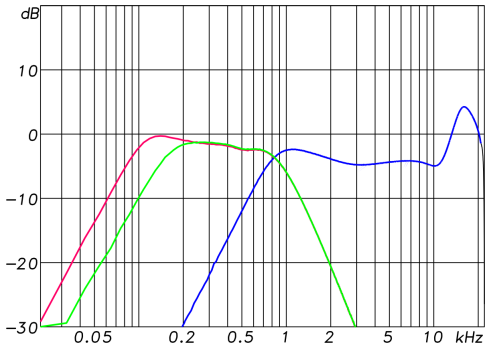
The low output is optimized for the 2x12" horn of the T10-L and it can be set on 100Hz or 140Hz as cross-overfrequency for the subwoofer-link. A 120Hz shelving filter is available for adjustments to your sound in clusters, depending on the shape and the size of it. The max. dipping is -9dB at 220Hz.

The high output is set to the 2"/1" horn of the T10-L. both the low and high output have separated limiter circuits with different timeconstants. The adjustable input sensitivity for both channels is +4dBv nominal.

Mit diesem Modul arbeitet der TA 4-U als 2-Kanal Verstärker mit jeweils zwei aktiv getrennten Wegen. Der Tieftonweg ist für das 2x 12"-Horn optimiert. Er läßt sich in seiner unteren Grenzfrequenz auf Full-Range "100Hz", oder auf die KS standard Woofer-Trennfrequenz "140Hz" umschalten. Ein 120Hz shelving Filter erlaubt eine Anpassung an die Abstrahlbedingung größerer Cluster, die max. Absenkung beträgt -9dB bei 220Hz.

Der Hochtonweg ist auf das coaxiale 2"/1" Horn der TRIAKS abgestimmt. Beide Wege haben getrennte Limiter mit unterschiedlichen Zeitkonstanten. Die Eingangsempfindlichkeit ist nominell +4dBv, für die beiden Kanäle getrennt einstellbar.





Correction curves of the 104231 controller module with 80Hz eq (red line) and without 80Hz eq (green line)

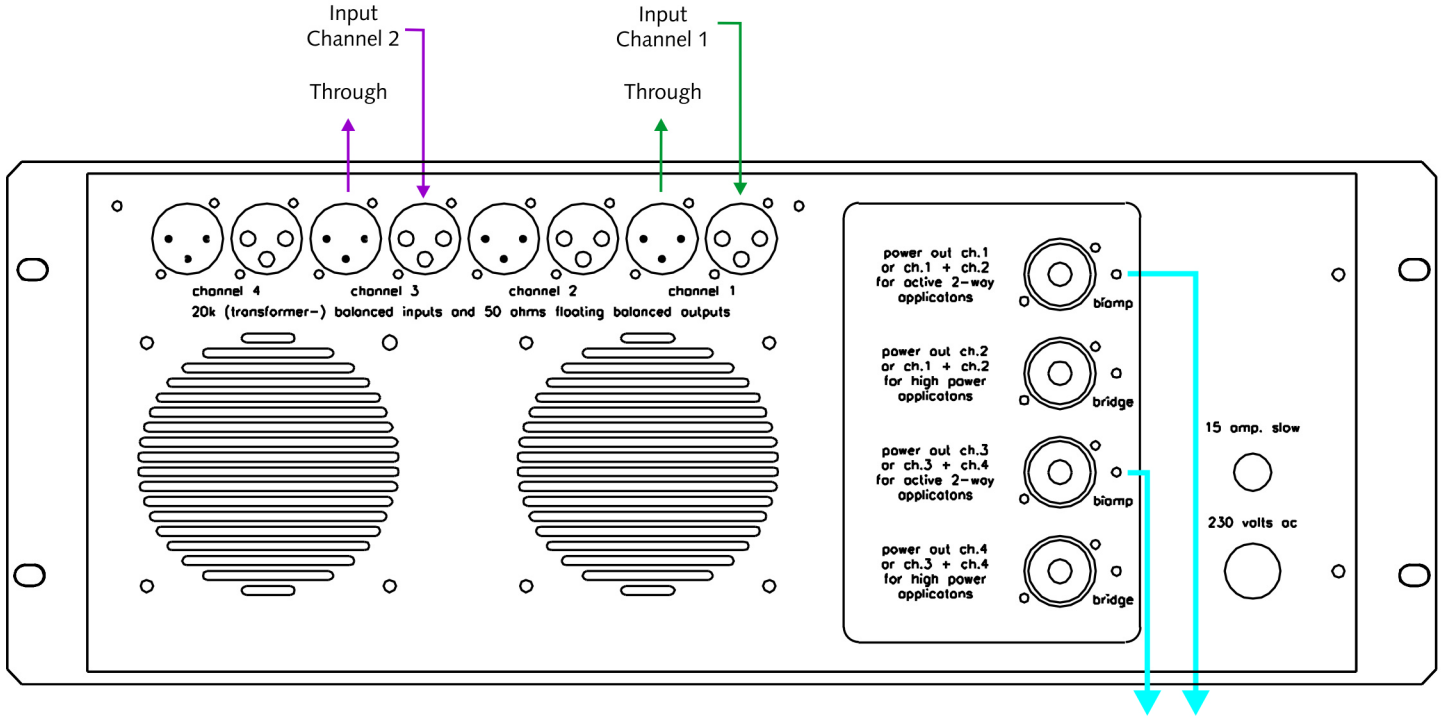
Two Channel Bi-amping T10-L

The balanced inputs are on XLR-input channel 1 and channel 3. Timealigned crossover outputs are on the XLR's channel 2 and channel 4. The lowcut switch must be set to 100Hz then.

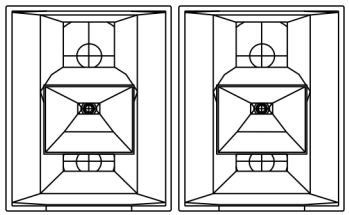
The biamp speakerconnections are on the Speakon-4 outputs channel 1 and channel 3. Please use 4-wire cable of 2,5mm diameter each wire.

Die symmetrischen Eingänge sind in der Regel die XLR- Buchsen "channel 1" und "channel 3". Nur wenn vom X-Over Ausgang eines Woofer-Moduls oder eines aktiven Subwoofers (z.B. TW-X) angesteuert wird, sind für eine korrekte Phasenlage stattdessen die Buchsen ´channel 2´ und ´channel 4´ zu verwenden. Der "lowcut" Schalter steht dann auf "100Hz".

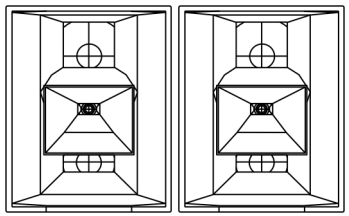
Die BiAmp-Ausgänge liegen auf den SPEAKON-Buchsen "channel 1" und "channel 3". Die Anschlüsse müssen 4-adrig mit mindestens 2,5mm² Querschnitt erfolgen.



CH2 + CH1 OUT
Output Channel 1 + Channel 2 (min 2 Ohms)
Green LEDs at 'Biamped" will come on
Use these Outputs for your bi-amped tops



max. load channel 1



max. load channel 2

A-MOD *104232*

Two Channel Bi-amping T10-F

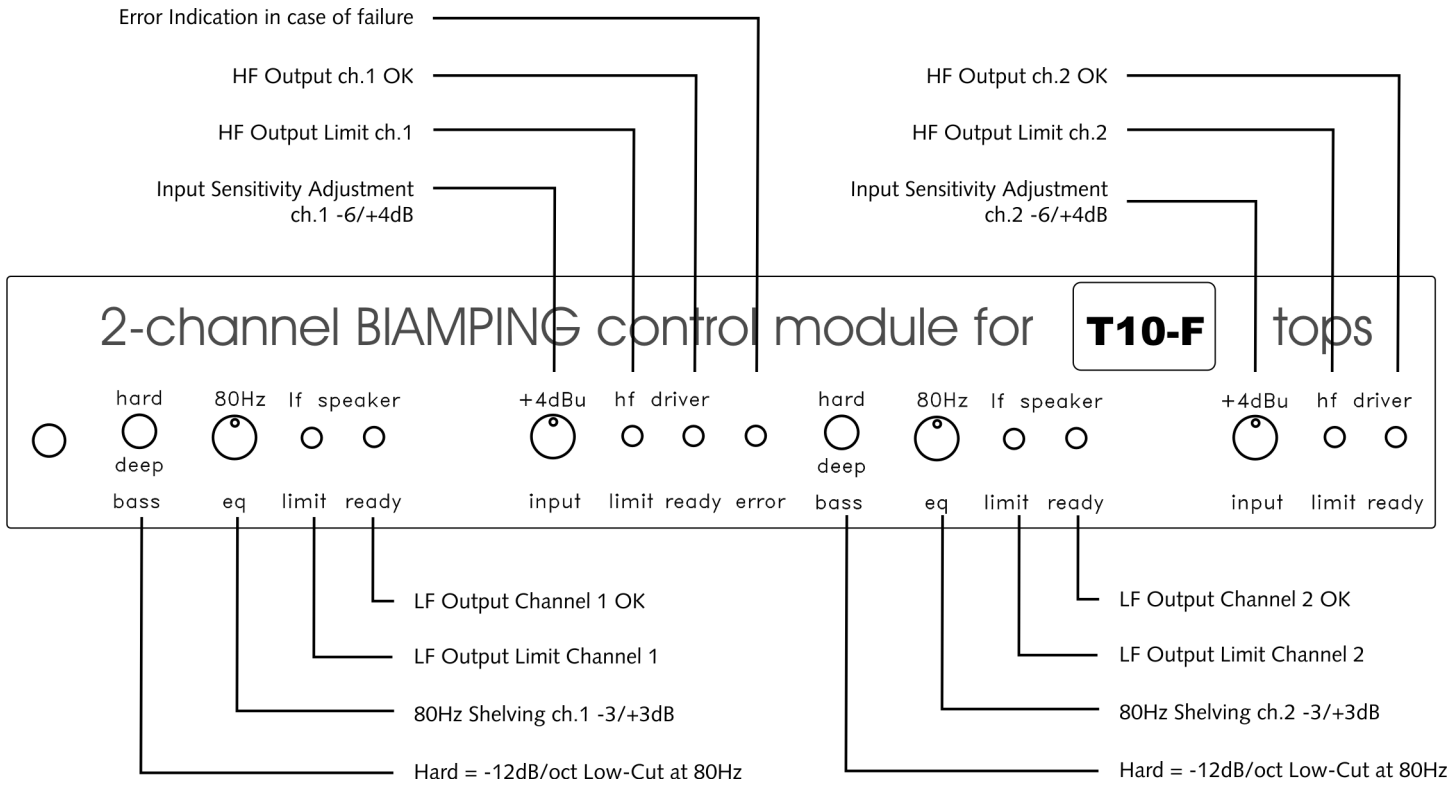
Together with this controllercard the TA4-U works in stereo-biamp mode.

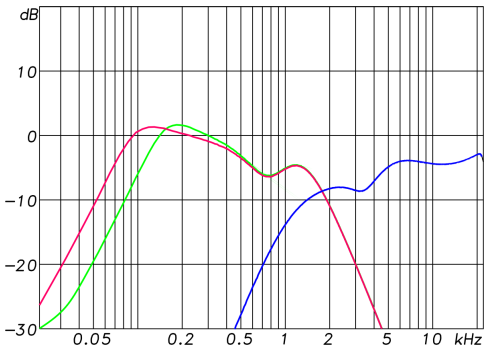
The low output is optimized for the 15" horn of the T10-F and it can be set to fullrange 100Hz or to 140Hz as cross-overfrequency for the subwoofer-link. An 80Hz shelving filter is available for adjustments to your sound in clusters, depending on the shape and the size of it and the place in it.

The high output is set to the 2"/1" horn of the T10-F. Both the low and high output have separated limiter circuits with different timeconstants. The adjustable input sensitivity for both channels is +4dBv nominal.

Mit diesem Modul arbeitet der TA 4-U als 2-Kanal Verstärker mit jeweils zwei aktiv getrennten Wegen. Der Tieftonweg ist für das 15"-Horn optimiert. Er läßt sich in seiner unteren Grenzfrequenz auf Fullrange "70Hz" oder auf die KS standard Woofer-Trennfrequenz "140Hz" umschalten. Ein 80Hz Bandpass Filter erlaubt eine Anpassung an die Abstrahlbedingung größerer Cluster, bzw. des Aufstellungsortes.

Der Hochtonweg ist auf das coaxiale 2"/1" Horn des T10-F abgestimmt. Beide Wege haben getrennte Limiter mit unterschiedlichen Zeitkonstanten. Die Eingangsempfindlichkeit ist nominell +4dBv, für die beiden Kanäle getrennt einstellbar.





Correction curves of the 104232 controller module with 80Hz eq (red line) and without 80Hz eq (green line)

Two Channel Bi-amping T10-F

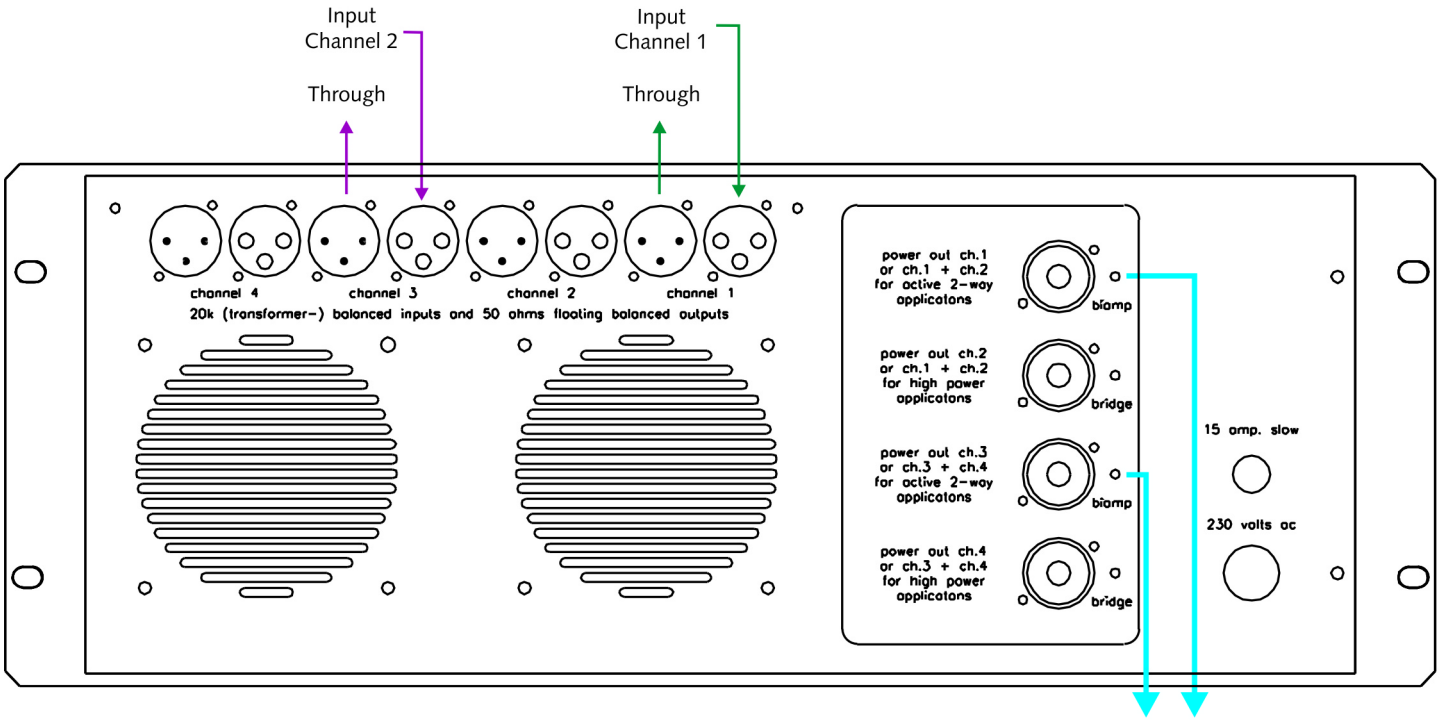
The balanced inputs are on XLR-input channel 1 and channel 3. Timealigned crossover outputs are on the XLR's channel 2 and channel 4. The lowcut switch must be set to 70Hz then.

The biamp speakerconnections are on the Speakon-4 outputs channel 1 and channel 3. Please use 4-wire cable of 2,5mm diameter each wire.

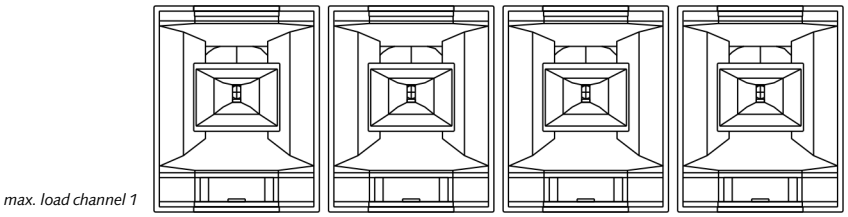
Die symmetrischen Eingänge sind in der Regel die XLR- Buchsen "channel 1" und "channel 3".

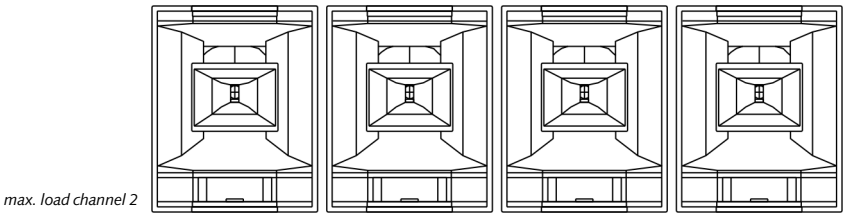
Nur wenn vom X-Over Ausgang eines Woofer-Moduls oder eines aktiven Subwoofers (z.B. TW-X) angesteuert wird, sind für eine korrekte Phasenlage stattdessen die Buchsen ´channel 2´ und ´channel 4´ zu verwenden. Der "lowcut" Schalter steht dann auf "70Hz".

Die BiAmp-Ausgänge liegen auf den SPEAKON-Buchsen "channel 1" und "channel 3". Die Anschlüsse müssen 4-adrig mit mindestens 2,5mm² Querschnitt erfolgen.



CH2 + CH1 OUT
Output Channel 1 + Channel 2 (min 2 Ohms)
Green LEDs at 'Biamped" will come on
Use these Outputs for your bi-amped tops





A-MOD *104333*

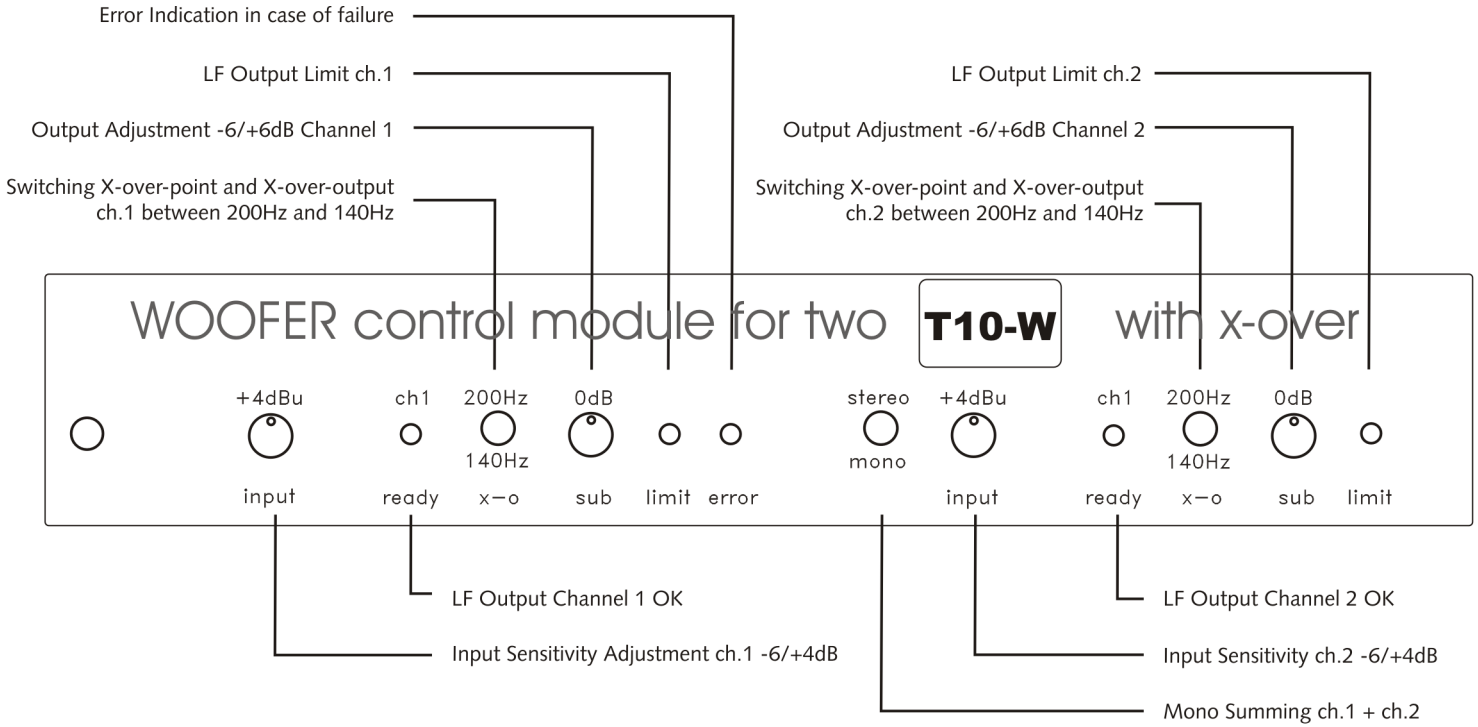
Two Channel Subwoofer T10-W

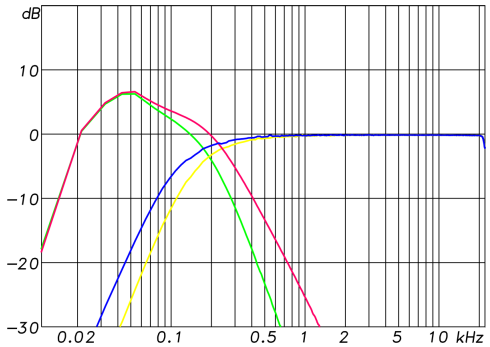
Together with this controllercard the TA4-U works in high-power 2-channel subwoofer mode. Two crossover outputs are available to drive a mid-high system. The crossover frequency is switchable between 140Hz and 200Hz.

The outputs are optimized to drive and protect the T10-W subwoofer. Both cahnnels are equiped with separated rms limiters, gain and low-shelving. The adjustable input sensitivity for both channels is +4dBv nominal.

Mit diesem Modul arbeitet der TA 4-U als 2-Kanal Controller-Verstärker für Hochleistungs-Woofer. Zwei X-Over Ausgänge dienen zur Ansteuerung der Mitten-/Hochton Systeme. Die Trennfrequenz ist zwischen 140Hz (standard) und 200Hz umschaltbar.

Der TRIAKS Woofer T10-W wird damit optimal entzerrt und geschützt. Die Kanäle haben getrennte Peak- und RMS-Limiter mit Anzeigen sowie Eingangs- und Bass-Pegelsteller.





Correction curves of the 104333 controller module with 140Hz crossover-point (green & blue line) and 200Hz crossover-point (red & yellow line)

Two Channel Subwoofer T10-W

The balanced inputs are on XLR-input channel 1 and channel 3. Timealigned crossover outputs are on the XLR's channel 2 and channel 4.

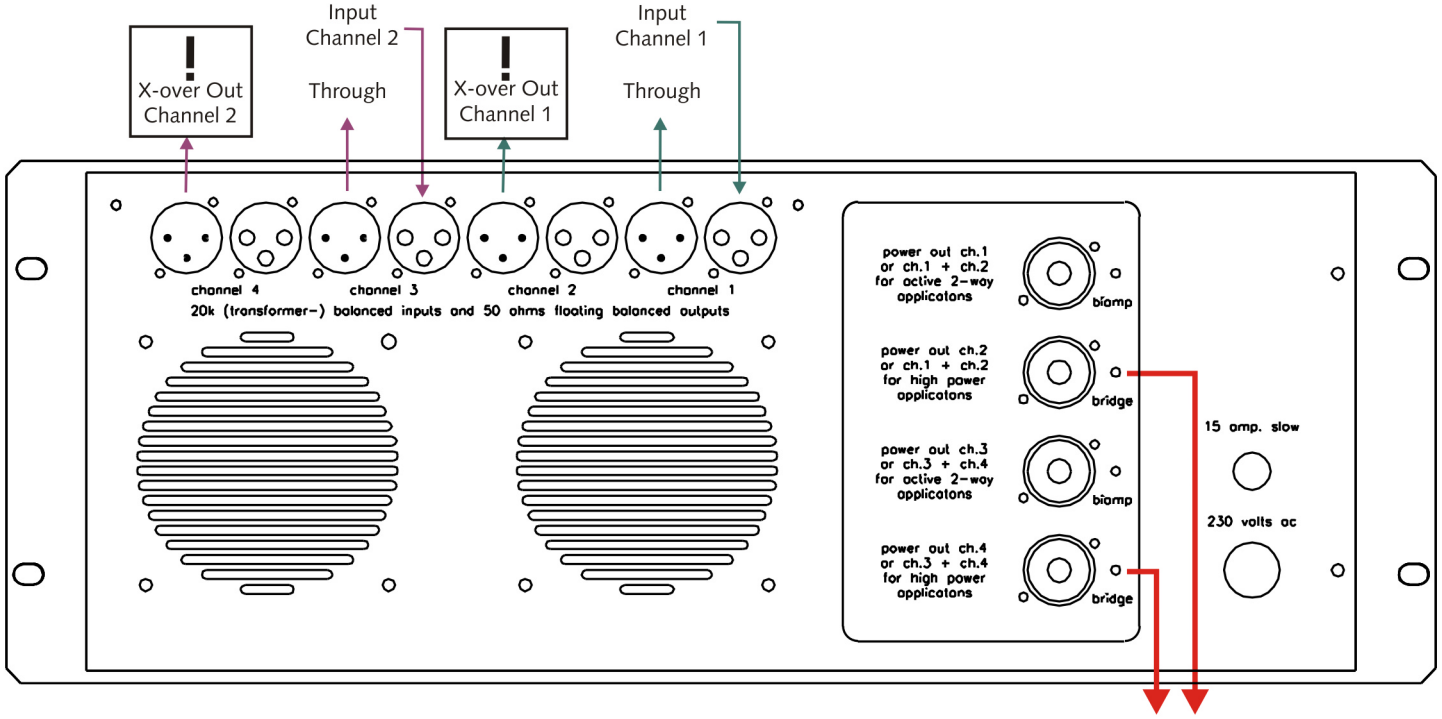
The bridges speakerconnections are on the Speakon-4 outputs channel 2 and channel 4. on both 1+/2+ and 1-/2- so please use 4-wire cable of 2,5mm diameter each wire at least.

Attention: The peak-voltage on the outputs can reach as high as 200 Volts!

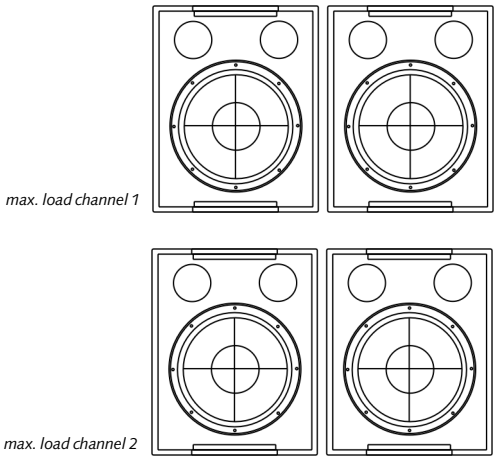
Die zwei symmetrischen Eingänge liegen auf den XLR-Buchsen ´channel 1´ und ´channel 3´, die X-Over Aus-gänge auf den XLR-Buchsen ´channel 2´ und ´channel 4´.

Die Leistungs-Ausgänge liegen im Brücken-Modus auf den SPEAKON-Buchsen ´channel 2´ und ´channel 4´ jeweils auf den Pins 1+/2+ und 1-/2-.

Achtung: Die Spitzenspannung kann hier 200V betragen!



LF OUT
Output Channel 1 = Ch. 1 + 2 Bridged
Output Channel 2 = Ch. 3 + 4 Bridged
for Subwoofer(s) (min 4Ohms)
Green LEDs at 'Bridged" will come on
Use these Output for your subs



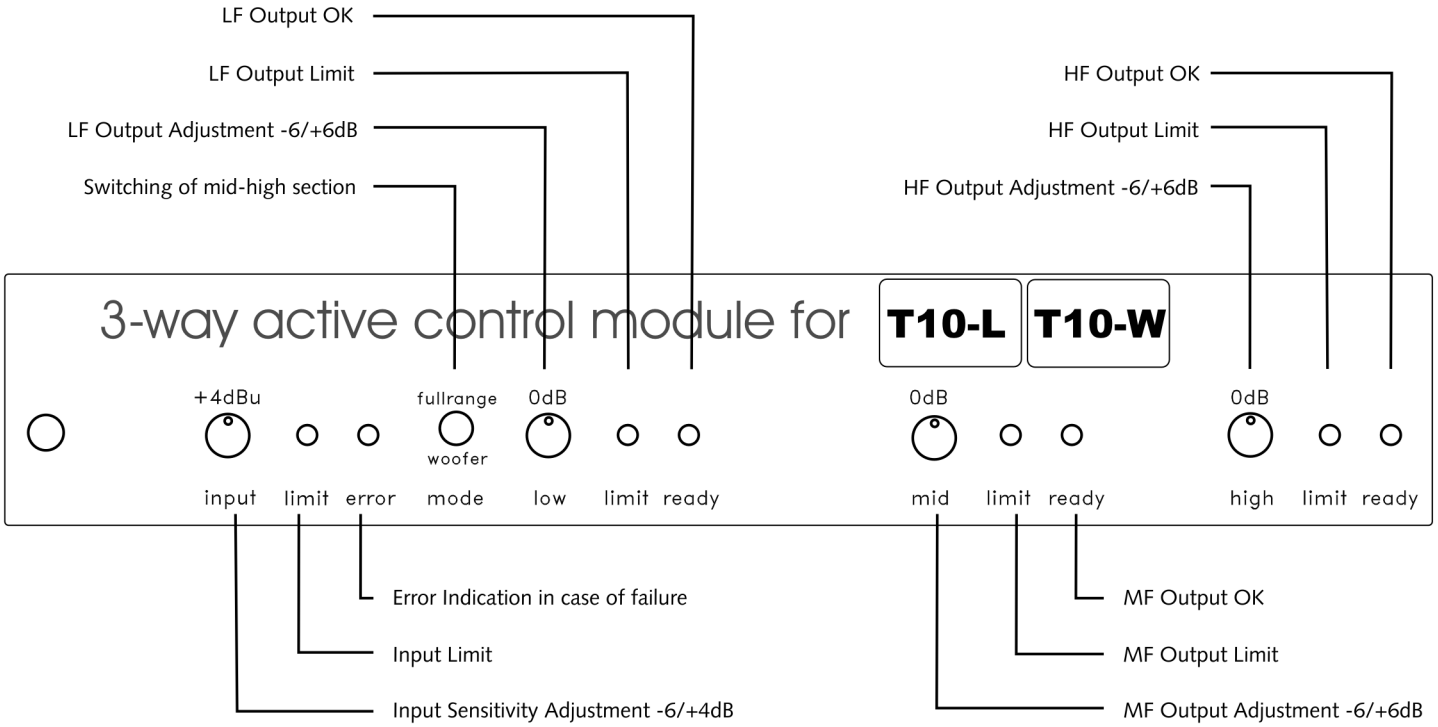
A-MOD *104434*

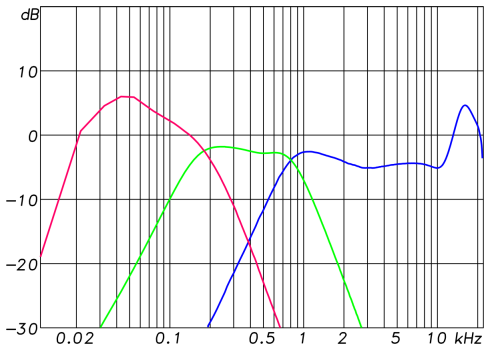
One Channel Tri-amping T10-L/T10-W

Together with this controllercard the TA4-U works in one channel tri-amp mode.

The outputs are optimized for the KS mid-high horn T10-L and the subwoofer T10-W.

Mit diesem Modul arbeitet der TA 4-U als Controller-Verstärker für ein aktives 3-Wege PA-System. Die KS Mitten-/Hochton-Hörner T10-L und ein oder zwei direkt abstrahlende Subwoofer T10-W werden damit optimal geweicht, entzerrt und geschützt.





Correction curves of the 104434 controller module

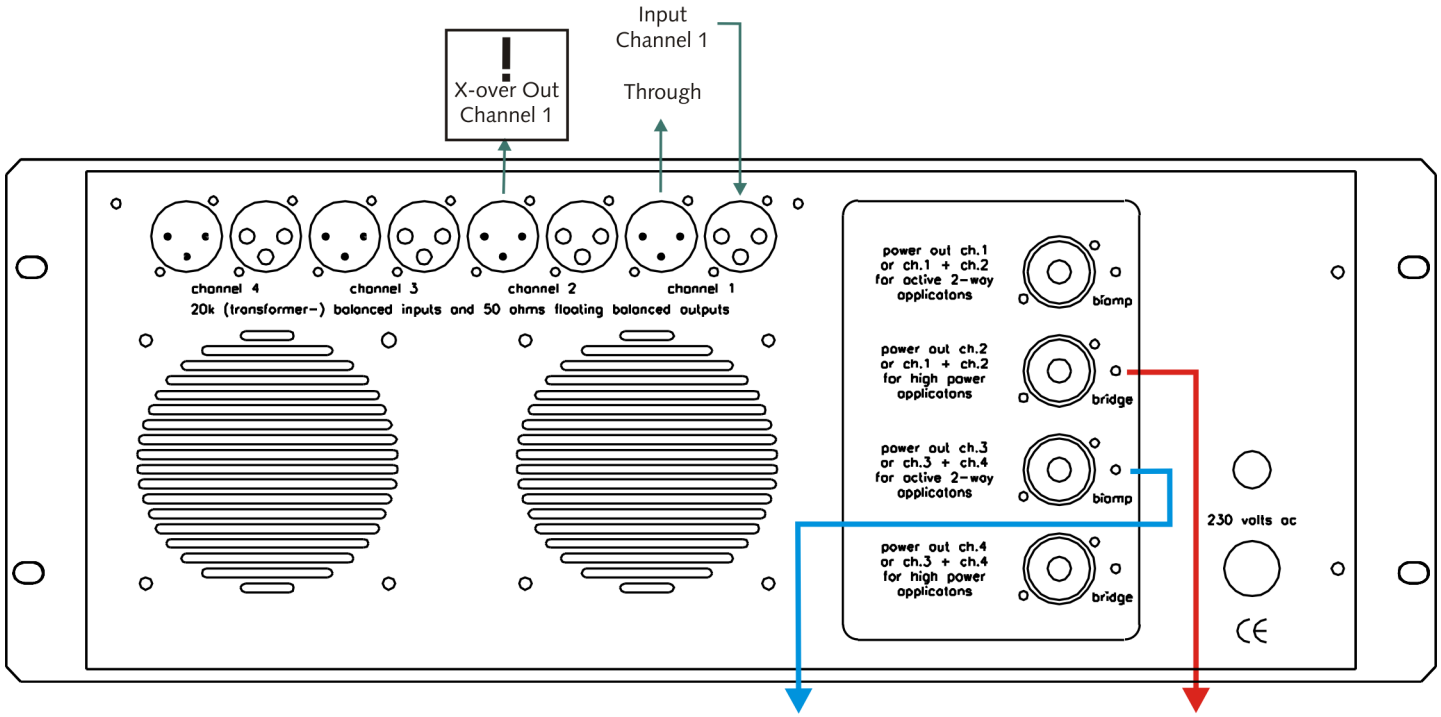
One Channel Tri-amping T10-L/T10-W

The balanced input is on XLR-input channel 1. The time aligned crossover output is on the XLR channel 2. This output becomes active only when the modul is set to woofer-mode

The speakerconnections are on the Speakon-4 outputs channel 2 for the T10-L biamped and channel 3 for the T10-W bridged.

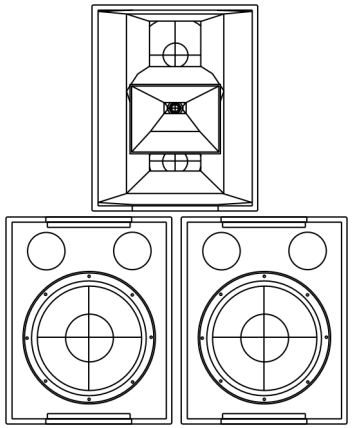
Der symmetrische Eingang liegt auf den XLR-Buchsen ´channel 1´. Der X-Over Ausgang (>140Hz) liegt auf den XLR-Buchsen ´channel 2´. Der X-Over ist nur aktiv, wenn das Modul im ´woofer´-mode betrieben wird.

Die Leistungs-Ausgänge liegen auf den SPEAKON-Buchsen ´channel 2´ im Brücken-Modus für den Bass, sowie auf ´channel 3´ im Biamp-Modus für den Mitten-bereich (Pins 1+ und 1-) und Höhen (Pins 2+ und 2-).



MF + HF OUT
Output Channel 3 + Channel 4
for Bi-Amping (min 2 Ohms p/ch)
Green LED at 'Biamped" will come on
Use this Output for your tops

LF OUT
Output Channel 1 + Channel 2 Bridged
Mode for Subwoofer(s) (min 4Ohms)
Green LED at 'Bridged" will come on
Use this Output for your subs



max. load 104434

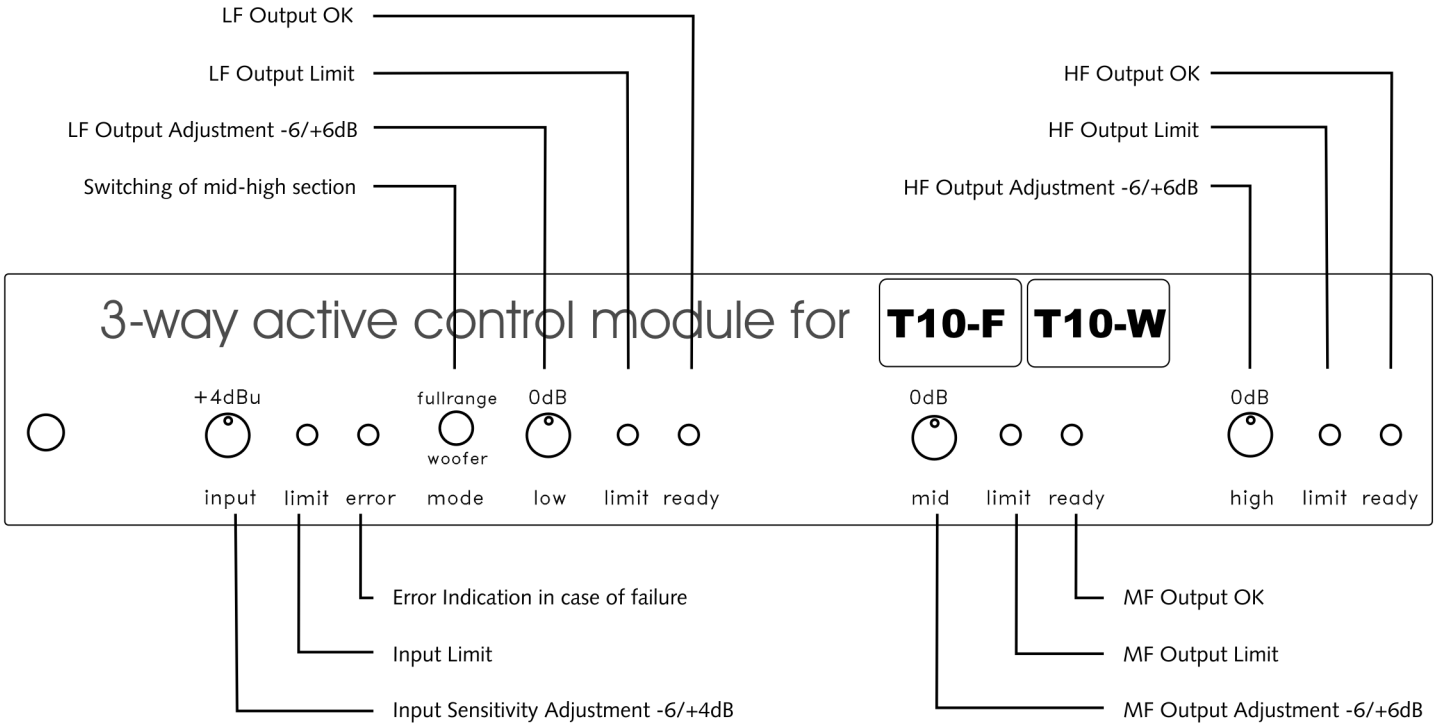
A-MOD *104435*

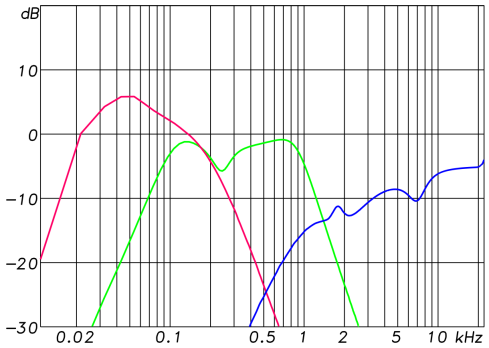
One Channel Tri-amping T10-F/T10-W

Together with this controllercard the TA4-U works in one channel tri-amp mode.

The outputs are optimized for the KS mid-high horn T10-F and the subwoofer T10-W.

Mit diesem Modul arbeitet der TA 4-U als Controller-Verstärker für ein aktives 3-Wege PA-System. Die KS Mitten-/Hochton-Hörner T10-F und ein oder zwei direkt abstrahlende Subwoofer T10-W werden damit optimal geweicht, entzerrt und geschützt.





Correction curves of the 104435 controller module

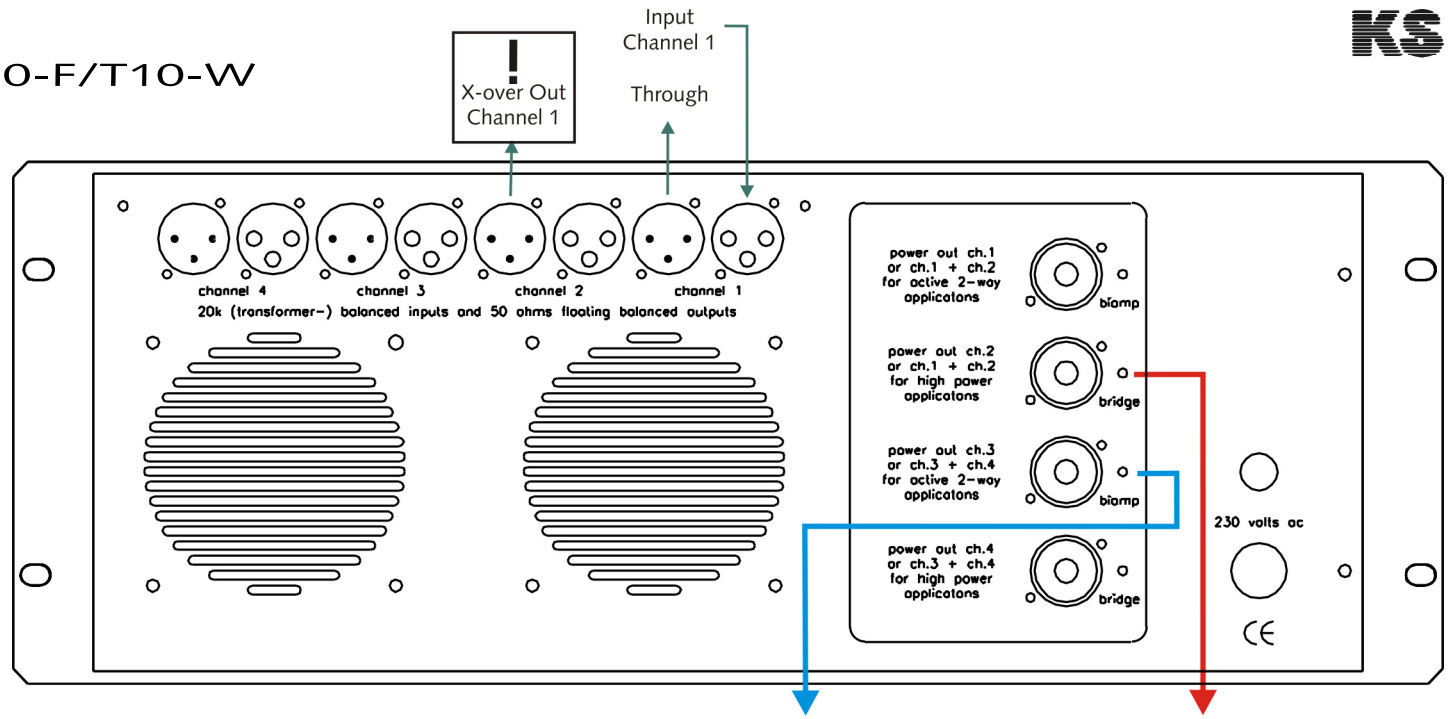
One Channel Tri-amping T10-F/T10-W

The balanced input is on XLR-input channel 1. The time aligned crossover output is on the XLR channel 2. This output becomes active only when the modul is set to woofer-mode

The speakerconnections are on the Speakon-4 outputs channel 2 for the T10-F biamped and channel 3 for the T10-W bridged.

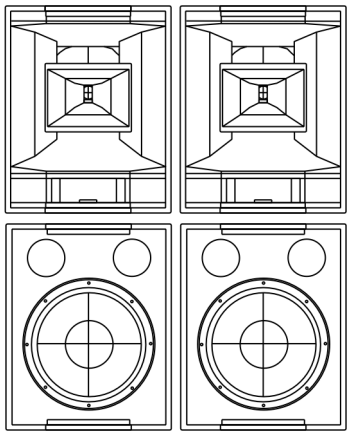
Der symmetrische Eingang liegt auf den XLR-Buchsen ´channel 1´. Der X-Over Ausgang (>140Hz) liegt auf den XLR-Buchsen ´channel 2´. Der X-Over ist nur aktiv, wenn das Modul im ´woofer´-mode betrieben wird.

Die Leistungs-Ausgänge liegen auf den SPEAKON-Buchsen ´channel 2´ im Brücken-Modus für den Bass, sowie auf ´channel 3´ im Biamp-Modus für den Mitten-bereich (Pins 1+ und 1-) und Höhen (Pins 2+ und 2-).



MF + HF OUT
Output Channel 3 + Channel 4
for Bi-Amping (min 2 Ohms p/ch)
Green LED at 'Biamped" will come on
Use this Output for your tops

LF OUT
Output Channel 1 + Channel 2 Bridged
Mode for Subwoofer(s) (min 4Ohms)
Green LED at 'Bridged" will come on
Use this Output for your subs



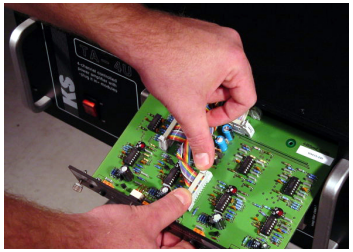
max. load 104435

Changing Controller Modules

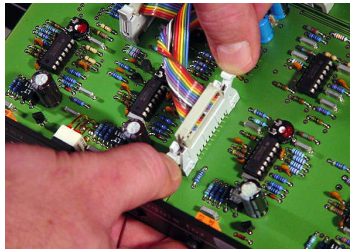
Remove

1) Unscrew silver knob on the controller-module

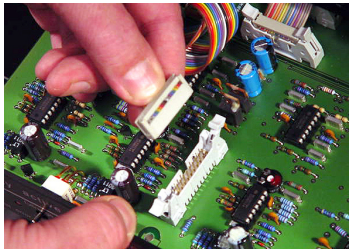
2) Pull the controllercard-module towards you



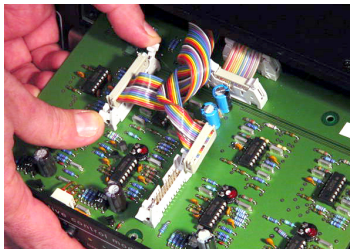
3) Push on the side-lips of the first multiconnector simultaniously



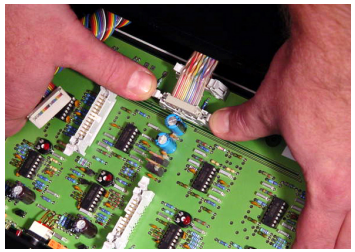
4) The connector will then lift itself out



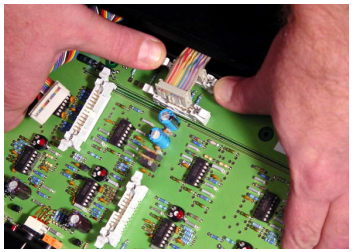
5) Take the connector out



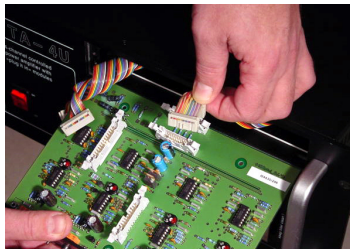
6) Push out the second connector and take it out



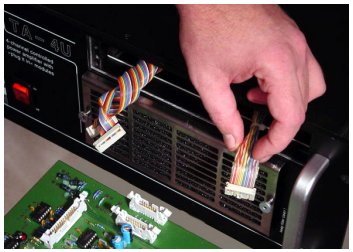
7) Push out the thirt connector



8) Push out the fourth connector

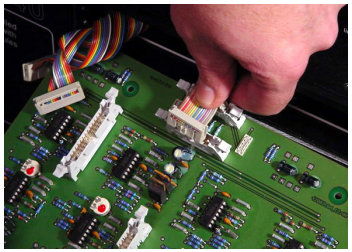


9) Remove both connectors simultaniously

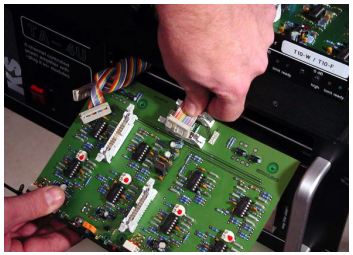


10) Pull out the entire module

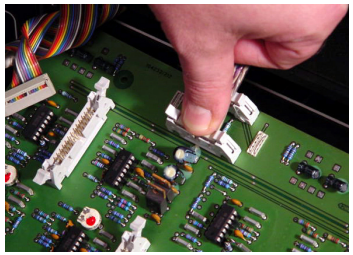
Insert



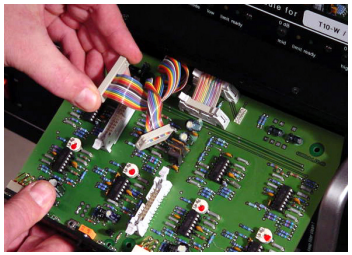
1) Pre-position the fourth connector



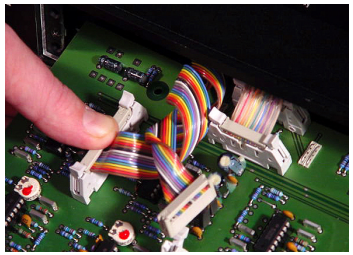
2) Push it downwards untill it locks itsself



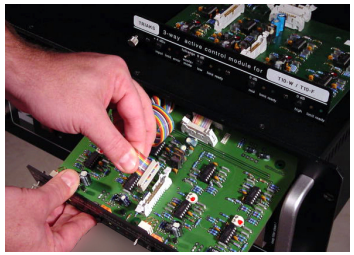
3) Do the same with the thirth connector



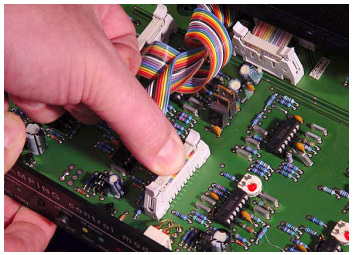
4) Pre-position the second connector



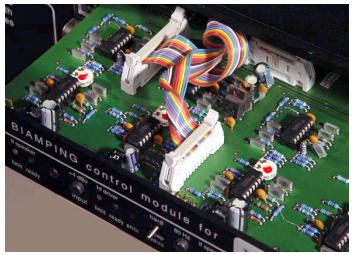
5) Push downward untill it locks



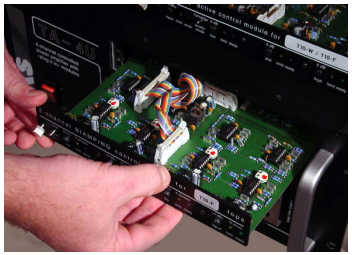
6) Pre-position the first connector



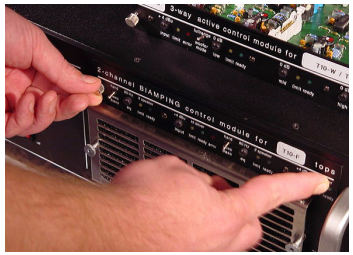
7) Push downward untill it locks



8) Your wiring should now look like this



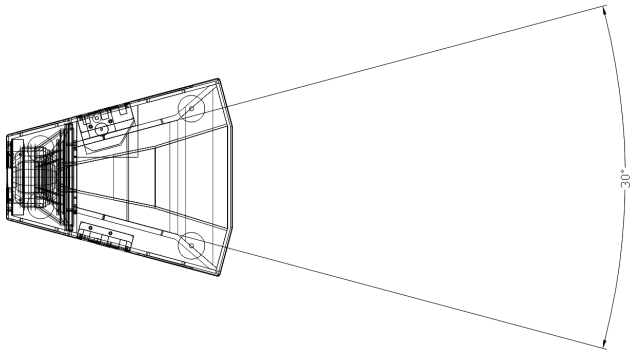
9) Place the module into the slits (don't force it, it has to fit in smoothly)



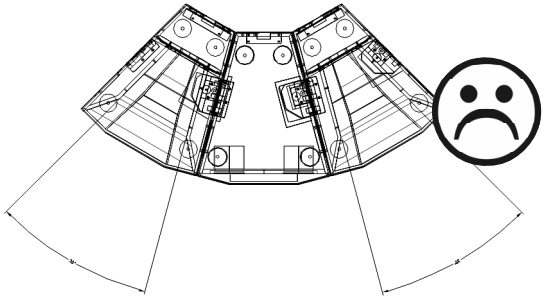
10) Push the module into the amp and tighten the screw-knob on the left.

Building TRIAKS Systems

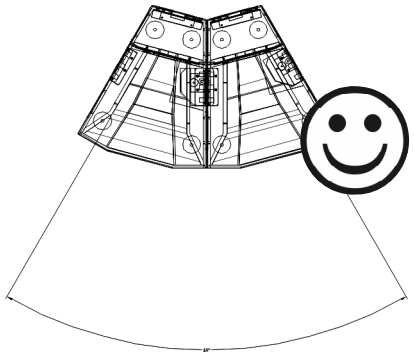
How to Cluster T10-L for Optimum Performance



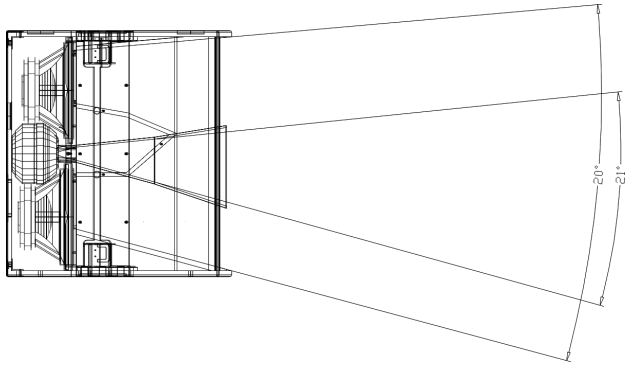
Horizontal dispersion T10-L 30º



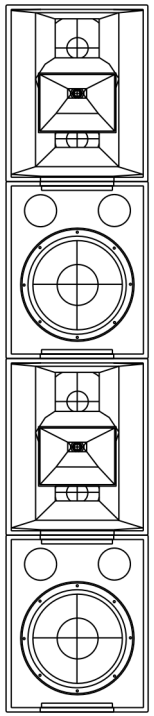
Do not place a T10-F or a T10-W in between 2 T10-L's as you will create a 'hole' in the shape of the wavefront



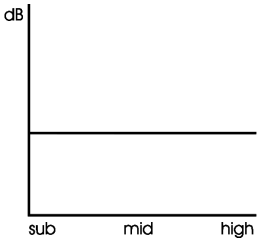
Two T10-L's next to eachother create an equal wavefront while the the two 30º fronts will ad up to an equal 60º wave-front

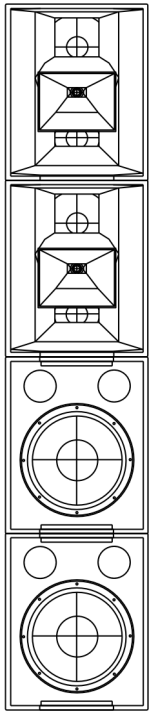


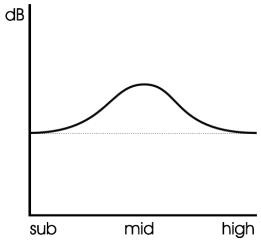
Vertical dispersion T10-L 20º



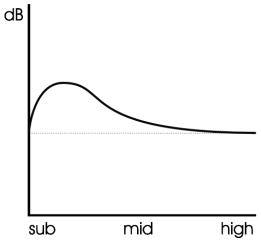
In the vertical two T10L's and a two T10-W's, this way and that, result in most equal response curves.





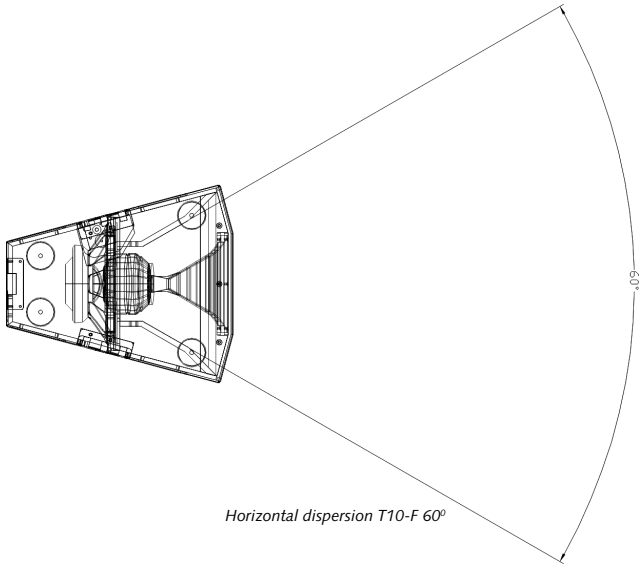


In the vertical two T10L's and a two T10-W's placed as shown left gives most boost in both the lows and the mids

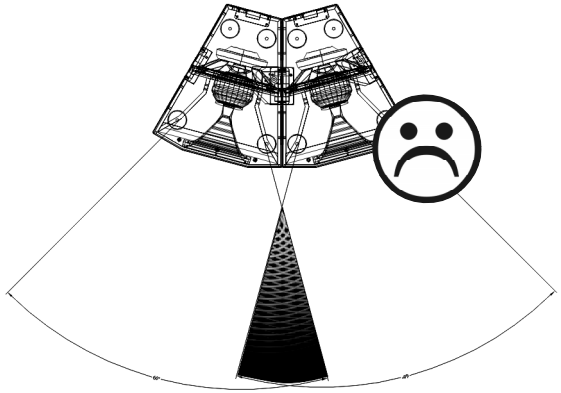


Building TRIAKS Systems

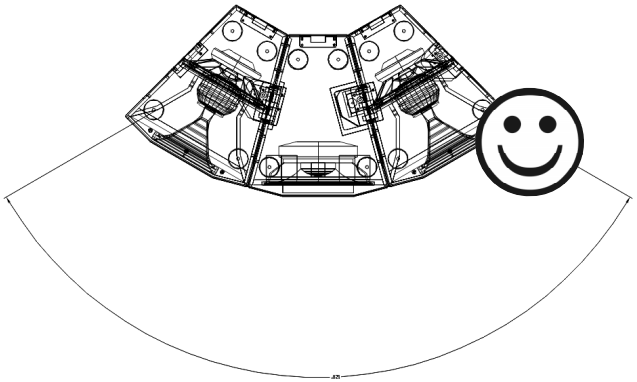
How to Cluster T10-F for Optimum Performance



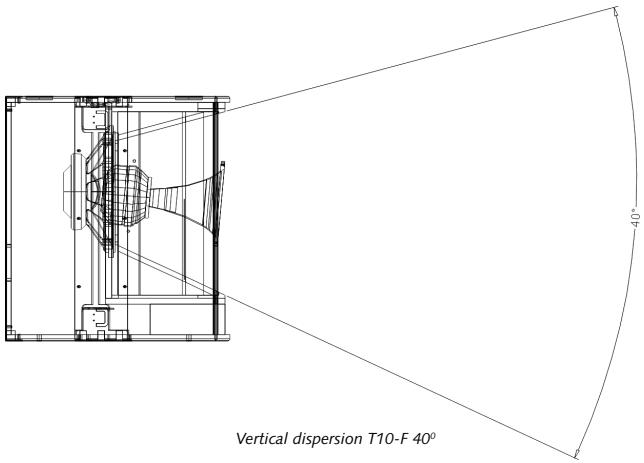
Horizontal dispersion T10-F 60º



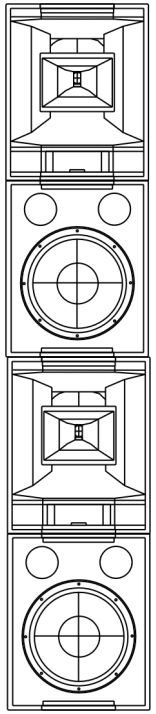
Do not place two T10-F's next to eachoter as you will create interference in the wavefront due to overlapping.



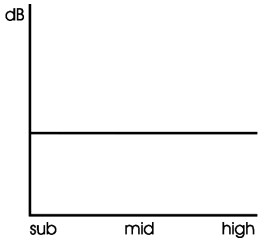
Always use a T10-W in between 2 T10-F'sTwo T10-L's next to eachother in order to create an equal wavefront. while the the two 60º fronts will ad up to an equal 120º wave-front.

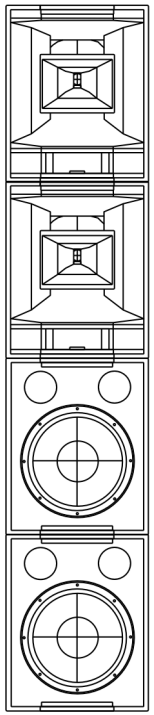


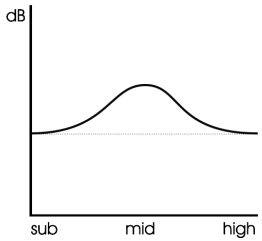
Vertical dispersion T10-F 40º



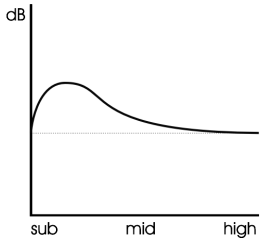
In the vertical two T10F's and a two T10-W's, this way and that, result in most equal response curves.





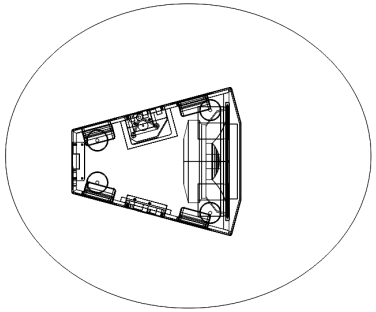


In the vertical two T10FL's and a two T10-W's placed as shown left gives most boost in both the lows and the mids

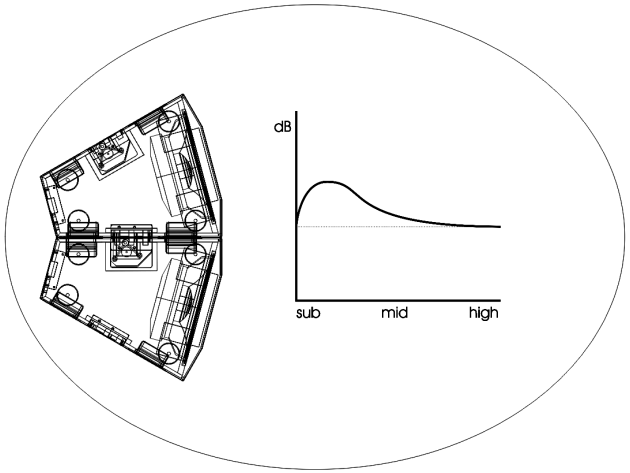


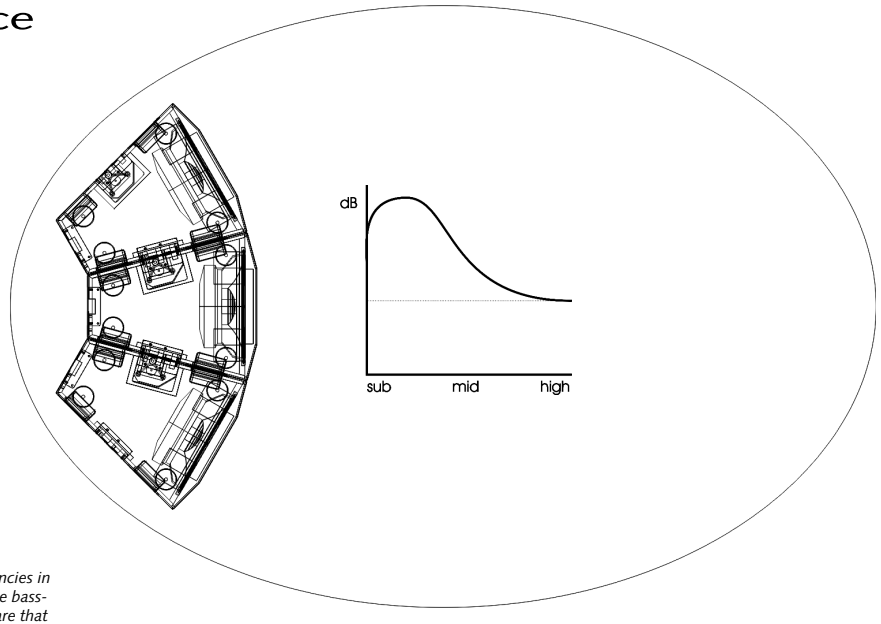
Building TRIAKS Systems

How to Cluster T10-W for Optimum Performance

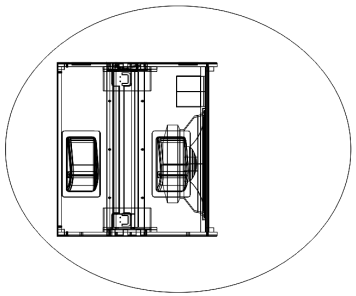


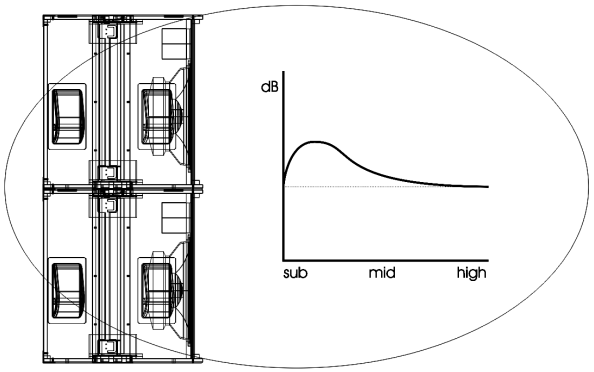
Like almost all single bass cabinets bothe the horizontal and the vertiacal dispersion of the T10-W is spherical

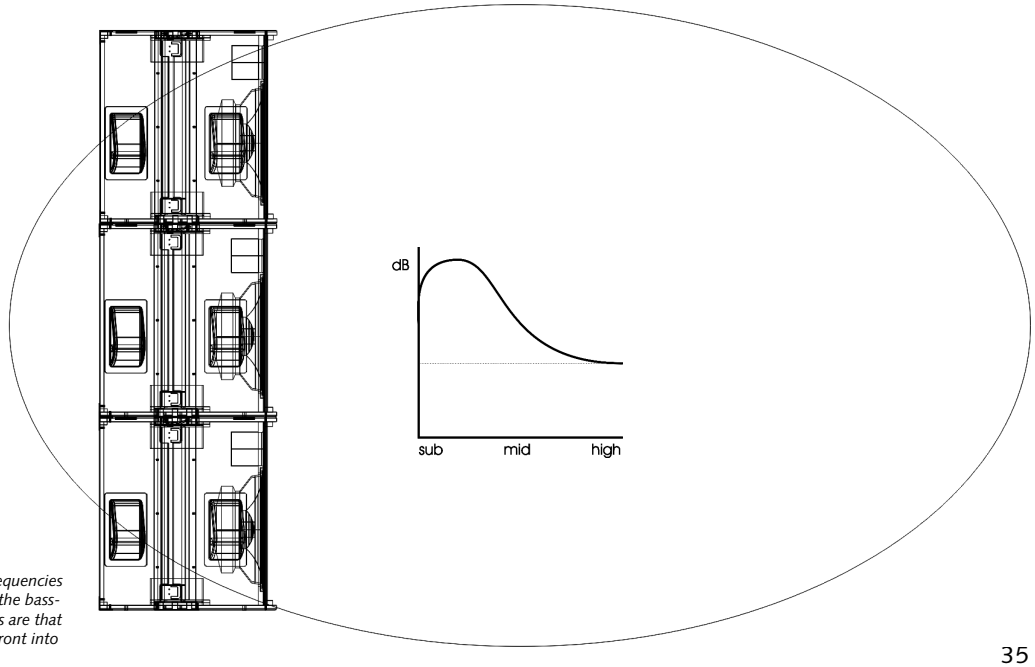




Placing two or more T10-W's next to eachother will result in a boost of the low-frequencies in the horizontal as the spherical behavior becomes less and less as the front surface of the bass-section gets larger. The larger the front surface, the less and the lower the frequencies are that are able to 'bend' around the cluster. Therefore the more energy is radiated off the front into the desired direction.







Placing two or more T10-W's on top of eachother will result in a boost of the low-frequencies in the vertical as the spherical behavior becomes less and less as the front surface of the bass-section gets larger. The larger the front surface, the less and the lower the frequencies are that are able to 'bend' around the cluster. Therefore the more energy is radiated off the front into the desired direction.

TRIAKS Basic Setups

30° Long-Throw

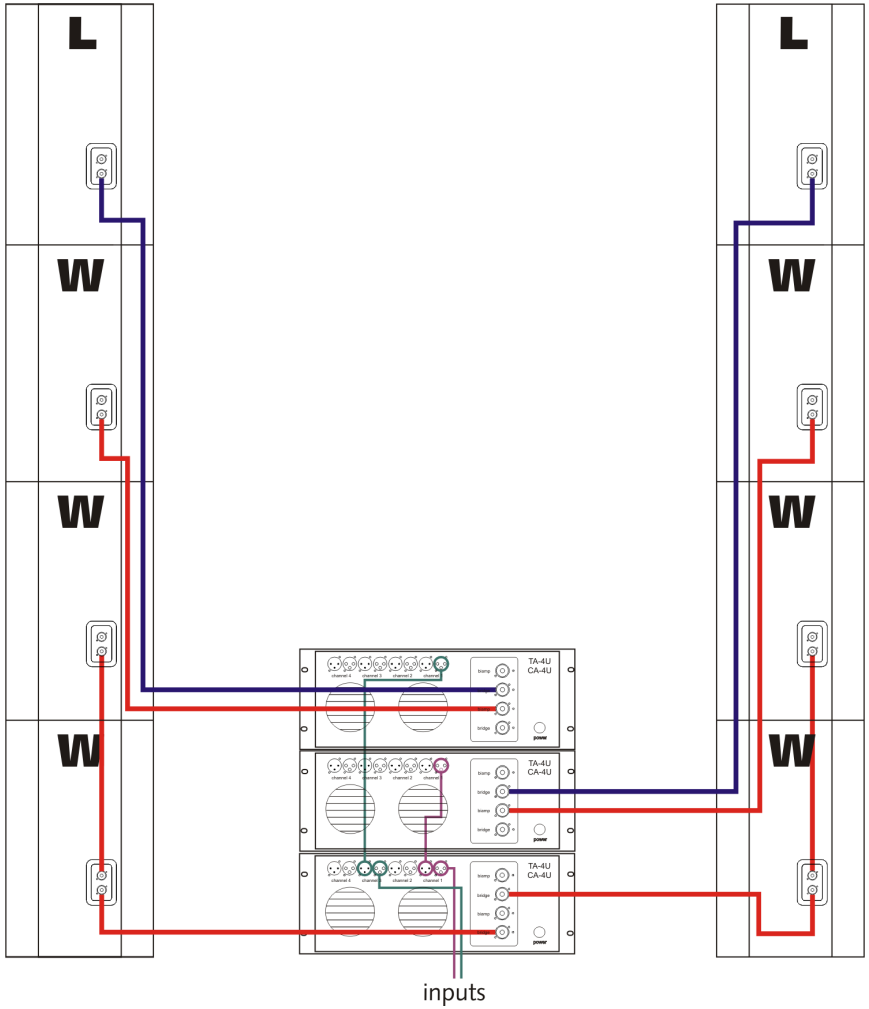
loudspeakers:
2x T10-L
6x T10-W

amplifiers:
3x TA4-U

controller-cards:
2x 104434
1x 104333
or
3x FIR-MOD

cables:
6x Speakon-4 amp-to-box

2x XLR3 left-right input
2x XLR3 link



TRIAKS Basic Setups

60° Medium-Throw

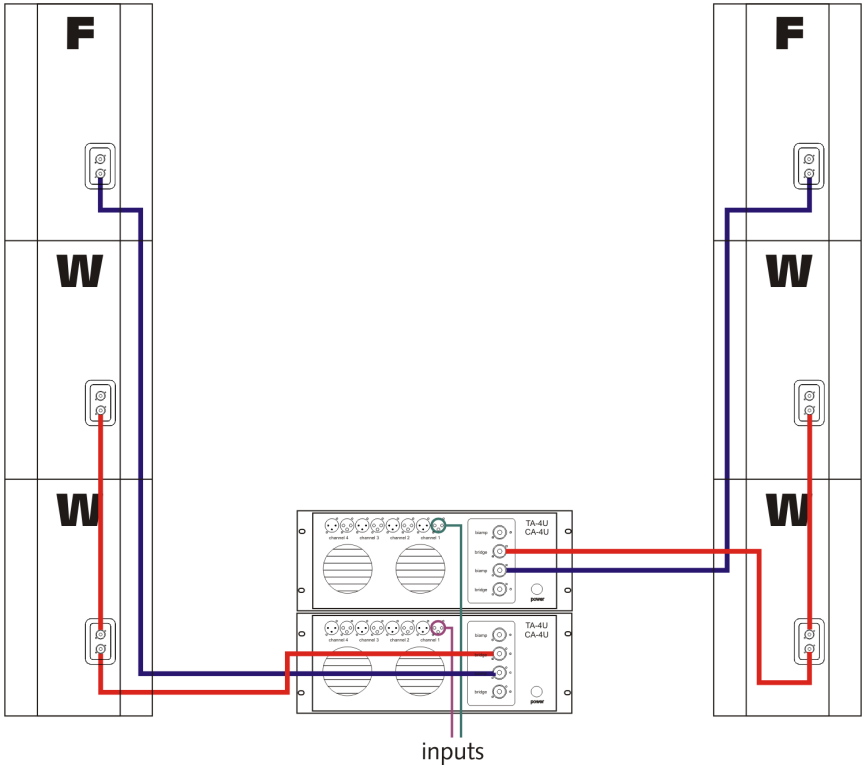
loudspeakers:
2x T10-F
4x T10-W

amplifiers:
2x TA4-U

controller-cards:
2x 104435
or
2x FIR-MOD

cables:
4x Speakon-4 amp-to-box
2x Speakon-4 box-to-box

2x XLR3 left-right input



TRIAKS Basic Setups

60° Medium-Long-Throw

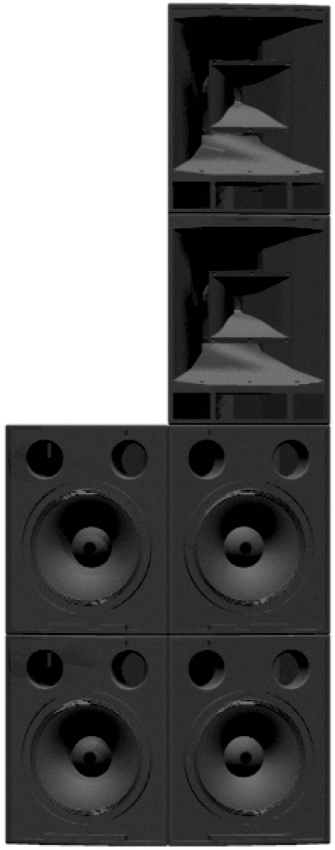
loudspeakers:
4x T10-F
8x T10-W

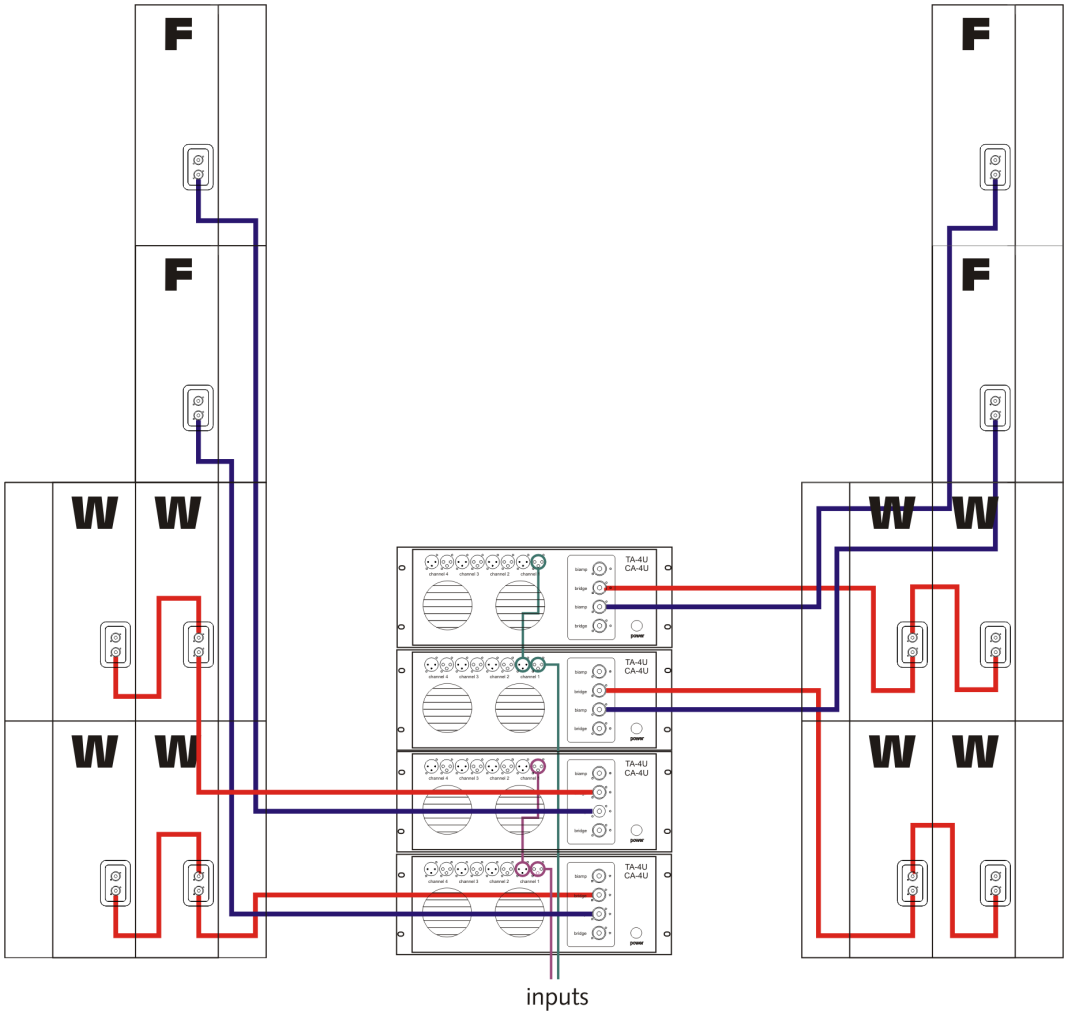
amplifiers:
4x TA4-U

controller-cards:
4x 104435
or
4x FIR-MOD

cables:
8x Speakon-4 amp-to-box
4x Speakon-4 box-to-box

2x XLR3 left-right input
2x XLR3 link





TRIAKS Basic Setups

60° Medium-Long-Throw

Same setup as shown on page before but lower powered

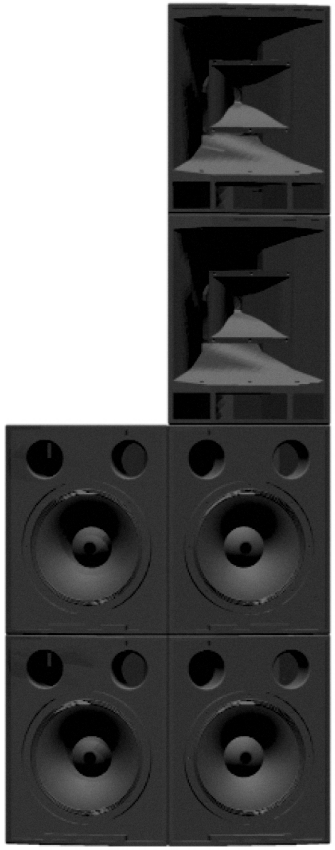
loudspeakers:
4x T10-F
8x T10-W

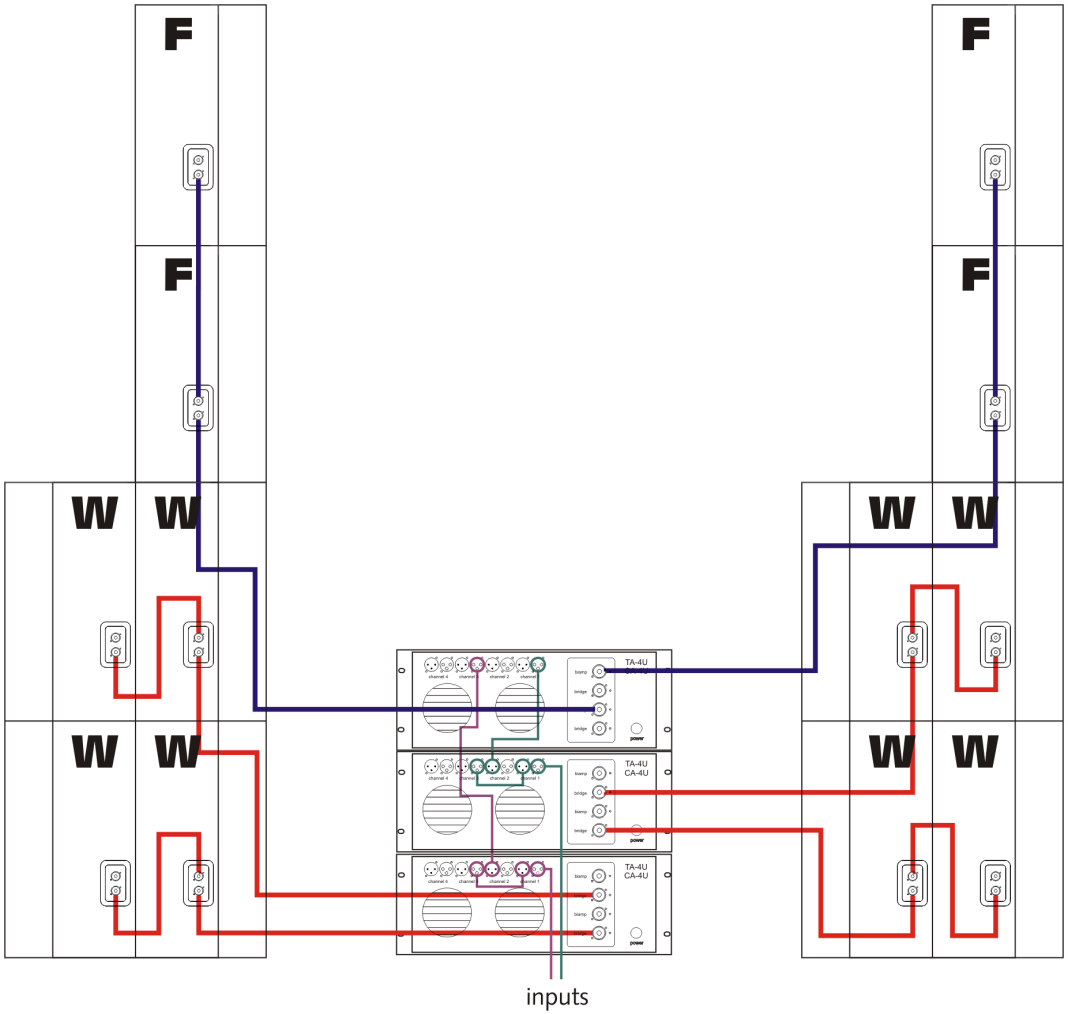
amplifiers:
4x TA4-U

controller-cards:
4x 104435
or
4x FIR-MOD

cables:
8x Speakon-4 amp-to-box
4x Speakon-4 box-to-box

2x XLR3 left-right input
4x XLR3 link





TRIAKS Basic Setups

60° Long-Throw

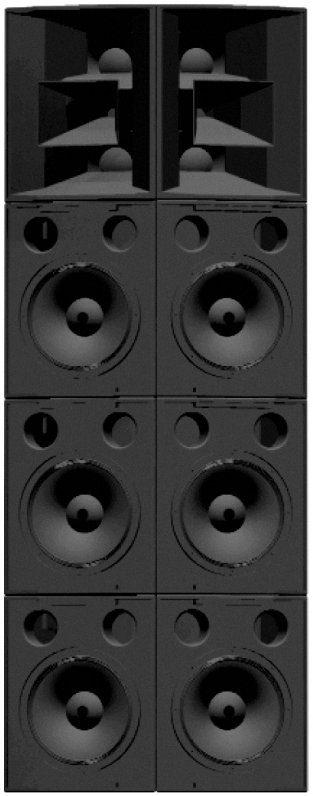
loudspeakers:
4x T10-L
12x T10-W

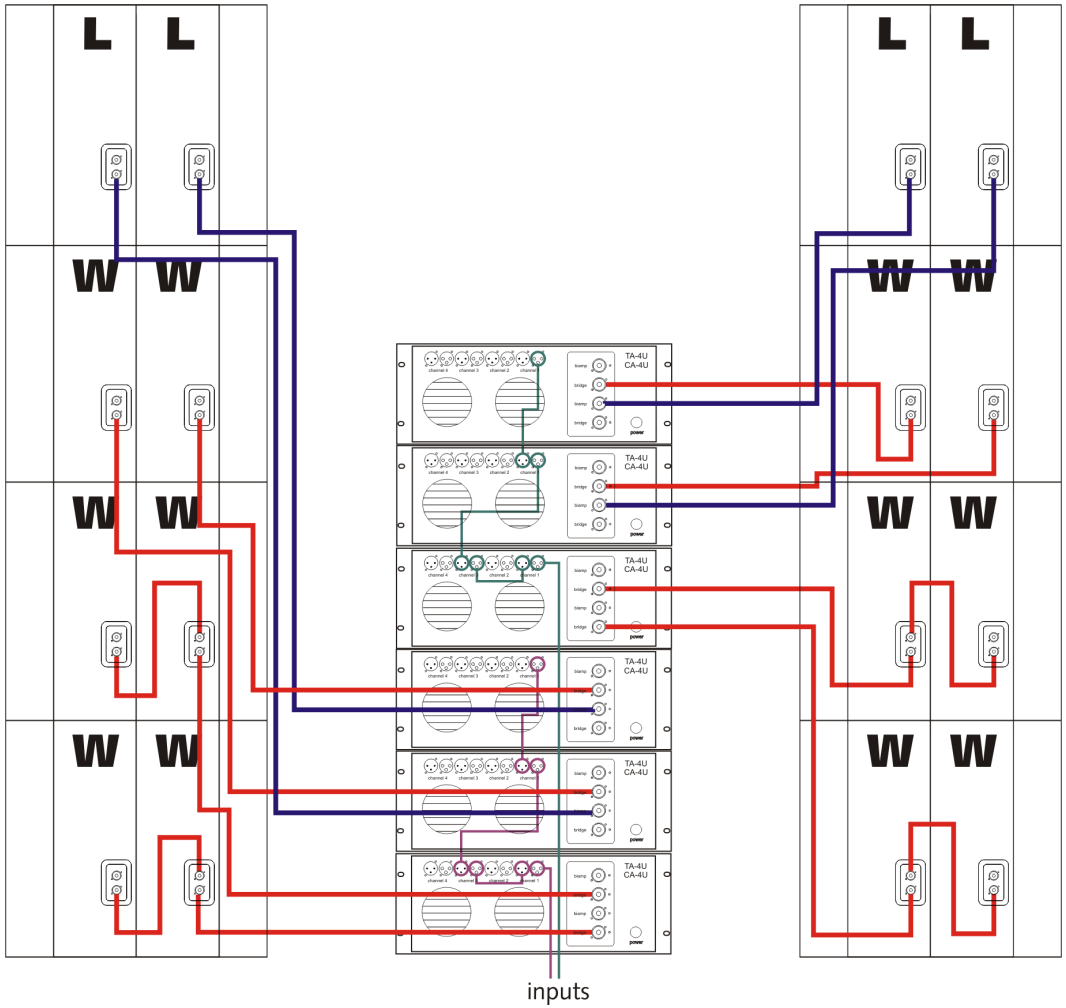
amplifiers:
6x TA4-U

controller-cards:
4x 104434
2x 104233
or
6x FIR-MOD

cables:
12x Speakon-4 amp-to-box
4x Speakon-4 box-to-box

2x XLR3 left-right input
6x XLR3 link





TRIAKS Basic Setups

90° Medium-Throw

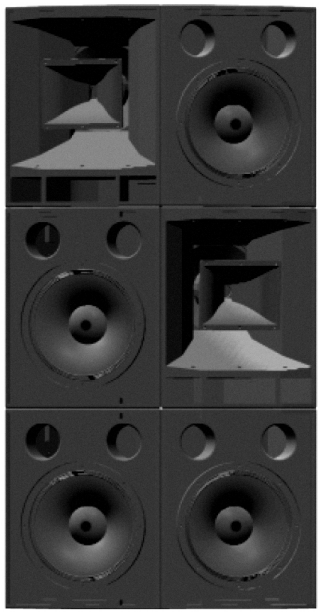
loudspeakers:
4x T10-F
8x T10-W

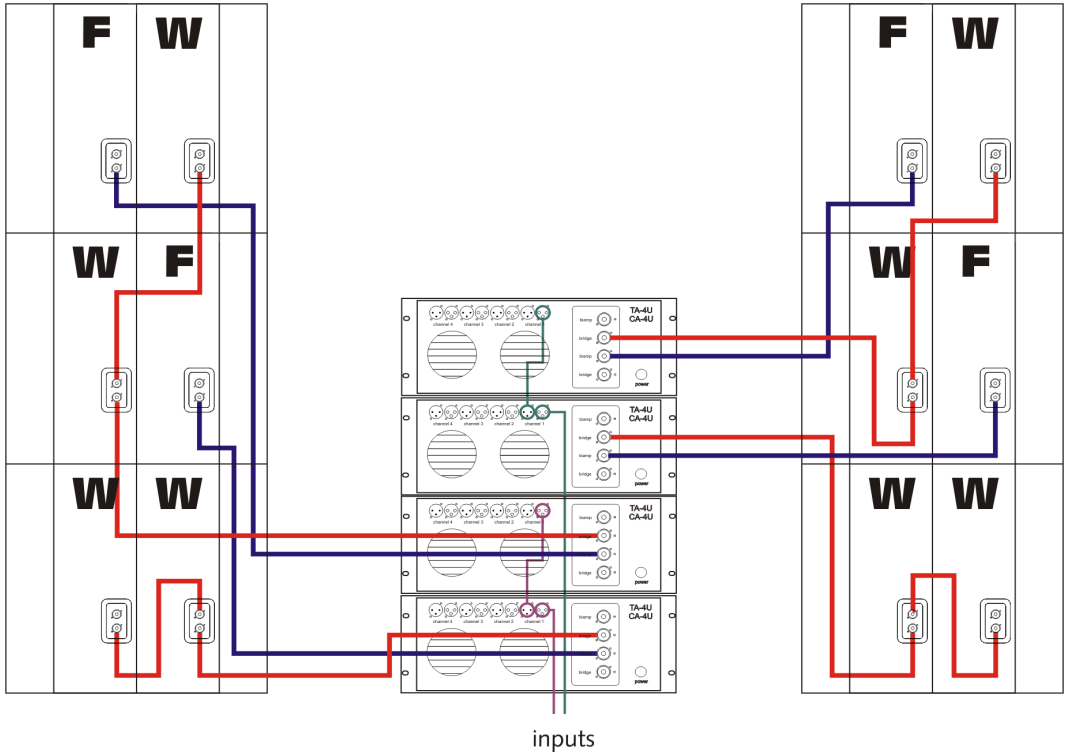
amplifiers:
4x TA4-U

controller-cards:
4x 104435
or
4x FIR-MOD

cables:
8x Speakon-4 amp-to-box
4x Speakon-4 box-to-box

2x XLR3 left-right input
2x XLR3 link





TRIAKS Basic Setups

90° Medium-Throw

Same setup as shown on page before but lower powered

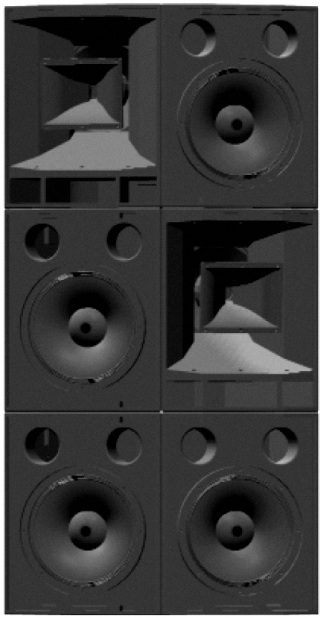
<u>loudspeakers:</u>
4x T10-F
8x T10-W

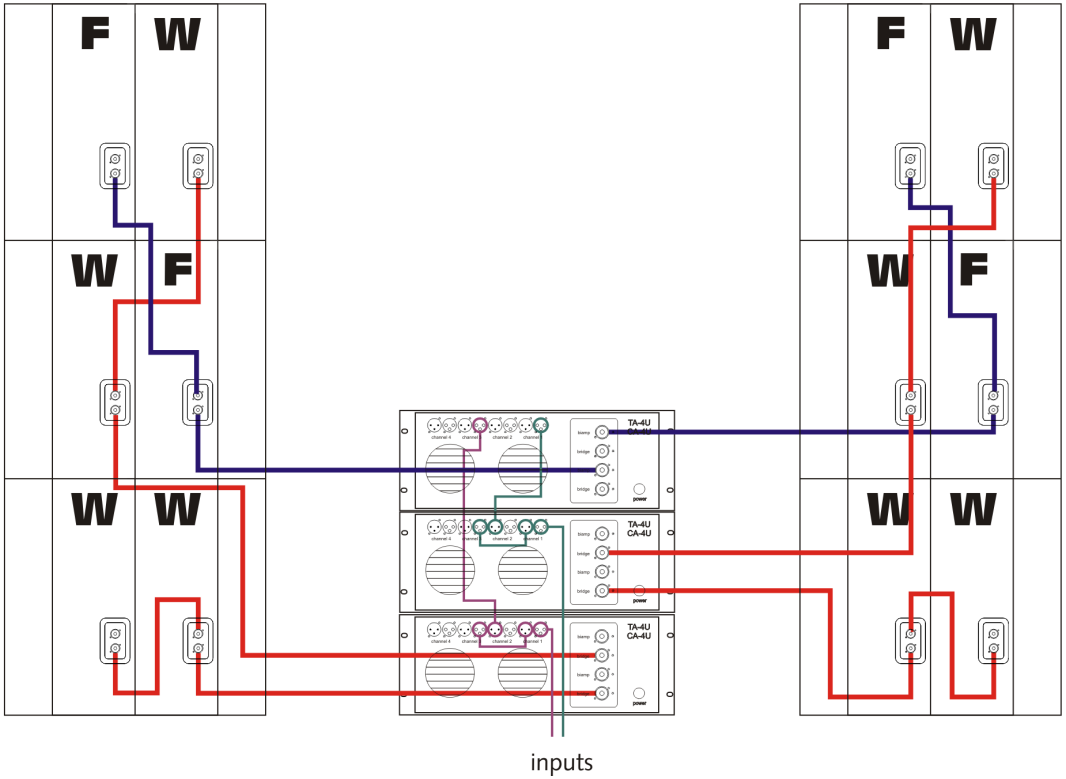
<u>amplifiers:</u>
3x TA4-U

<u>controller-cards:</u>
2x 104435
1x 104333
or
3x FIR-MOD

<u>cables:</u>
6x Speakon-4 amp-to-box
6x Speakon-4 box-to-box

2x XLR3 left-right input
4x XLR3 link





TRIAKS Basic Setups

90° Medium-Long-Throw

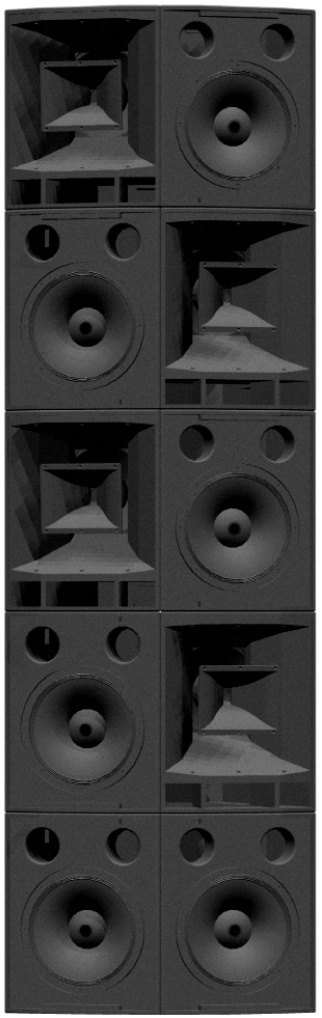
loudspeakers:
8x T10-F
12x T10-W

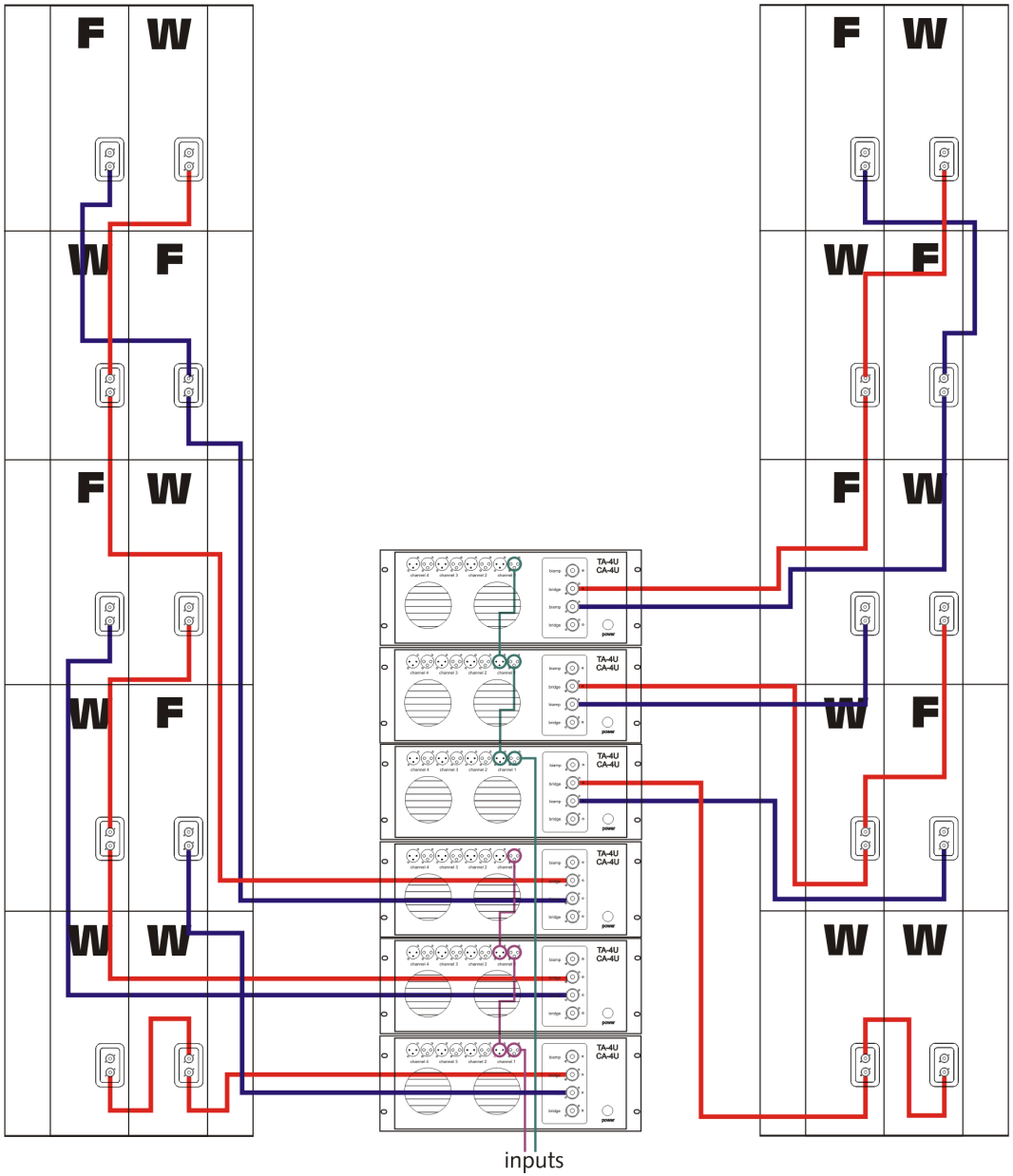
amplifiers:
6x TA4-U

controller-cards:
6x 104435
or
6x FIR-MOD

cables:
12x Speakon-4 amp-to-box
6x Speakon-4 box-to-box

2x XLR3 left-right input
4x XLR3 link





TRIAKS Basic Setups

90° Medium-Long-Throw

Same setup as shown on page before but lower powered

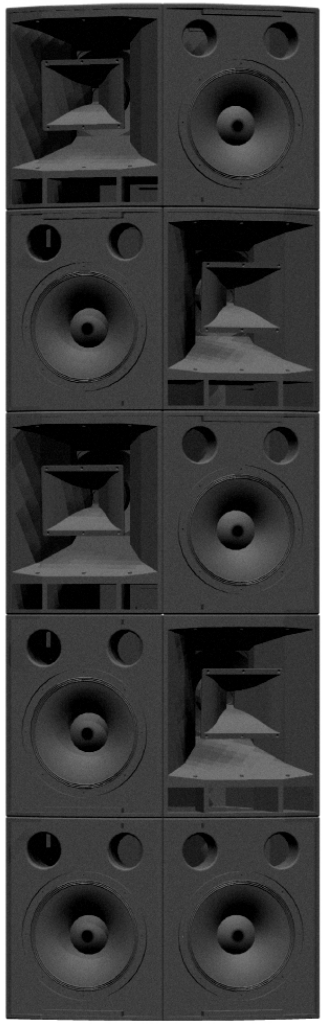
loudspeakers:
8x T10-F
12x T10-W

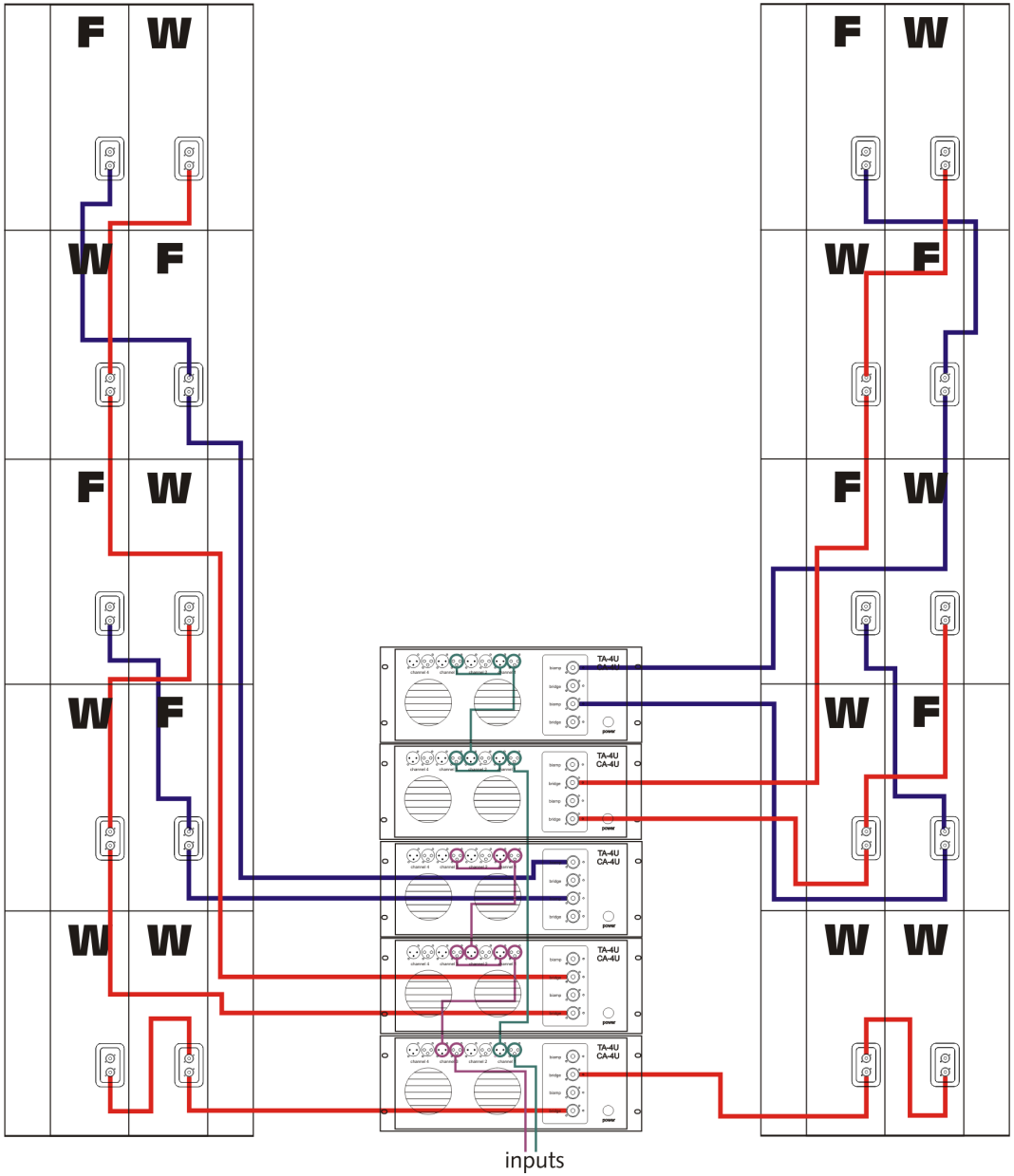
amplifiers:
5x TA4-U

controller-cards:
2x 104435
3x 104333
or
5x FIR-MOD

cables:
10x Speakon-4 amp-to-box
10x Speakon-4 box-to-box

2x XLR3 left-right input
8x XLR3 link





TRIAKS Basic Setups

90° Long-Throw

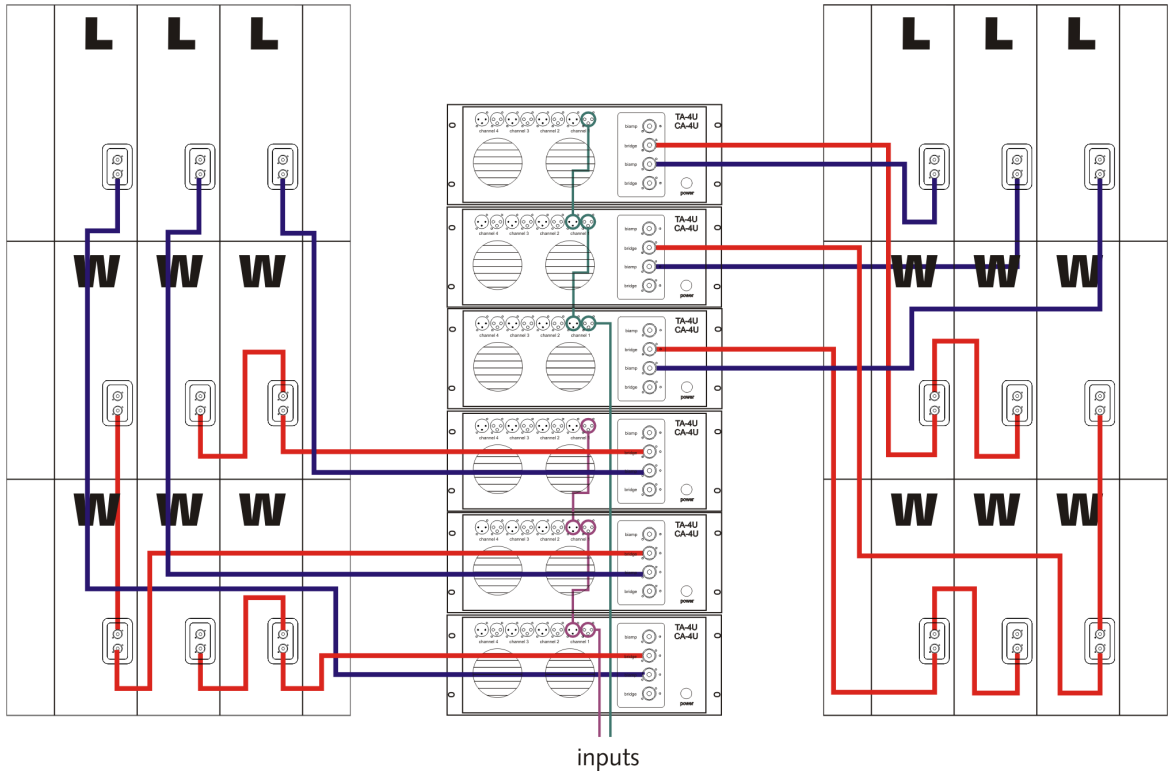
loudspeakers:
6x T10-L
12x T10-W

amplifiers:
6x TA4-U

controller-cards:
6x 104434
or
6x FIR-MOD

cables:
6x Speakon-4 amp-to-box
6x Speakon-4 box-to-box

2x XLR3 left-right input
4x XLR3 link



TRIAKS Basic Setups

120° Medium-Throw

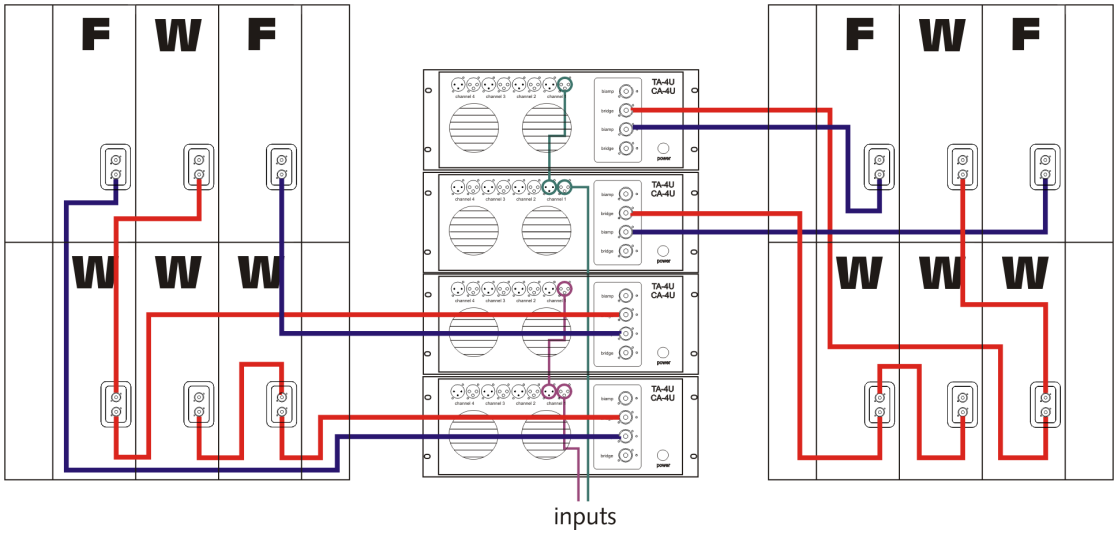
loudspeakers:
4x T10-F
8x T10-W

amplifiers:
4x TA4-U

controller-cards:
4x 104435
or
4x FIR-MOD

cables:
8x Speakon-4 amp-to-box
4x Speakon-4 box-to-box

2x XLR3 left-right input
2x XLR3 link



TRIAKS Basic Setups

120° Medium-Throw

Same setup as shown on page before but lower powered

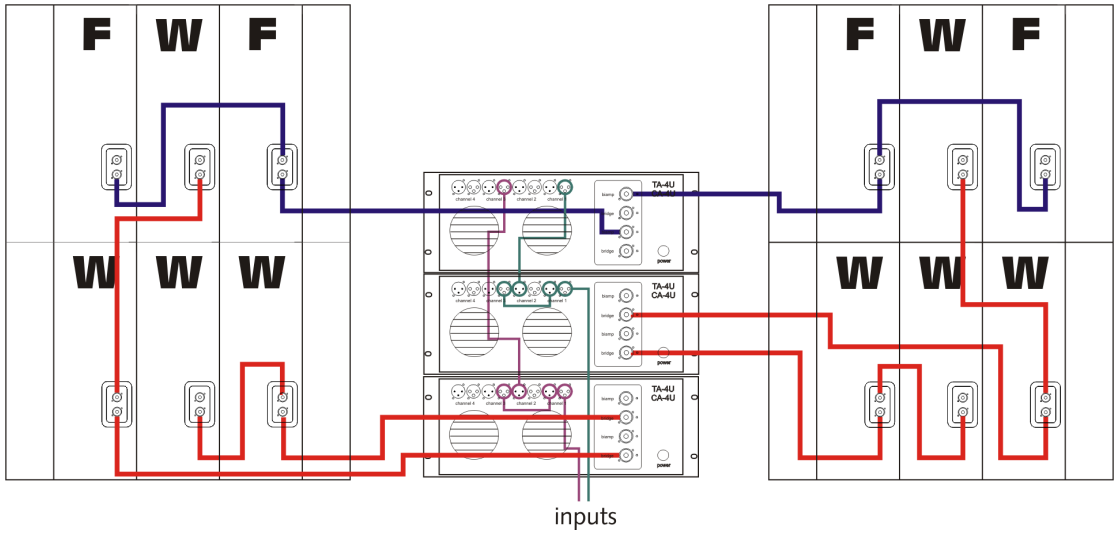
loudspeakers:
4x T10-F
8x T10-W

amplifiers:
3x TA4-U

controller-cards:
1x 104232
2x 104333
or
3x FIR-MOD

cables:
6x Speakon-4 amp-to-box
6x Speakon-4 box-to-box

2x XLR3 left-right input
4x XLR3 link



TRIAKS Basic Setups

120° Medium-Long-Throw

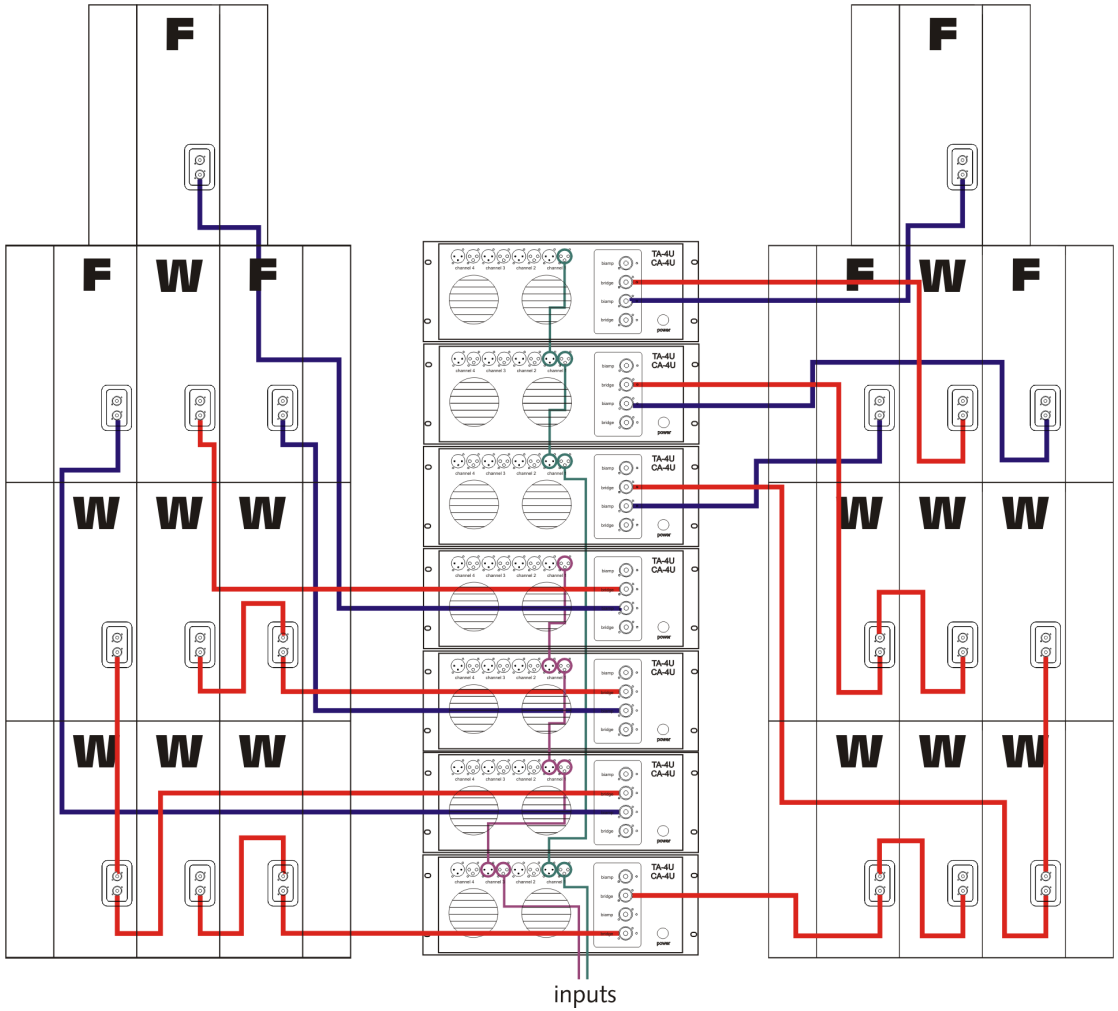
loudspeakers:
6x T10-F
14x T10-W

amplifiers:
7x TA4-U

controller-cards:
6x 104435
1x 104333
or
7x FIR-MOD

cables:
14x Speakon-4 amp-to-box
6x Speakon-4 box-to-box

2x XLR3 left-right input
6x XLR3 link



TRIAKS Basic Setups

120° Medium-Long-Throw

Same setup as shown on page before but lower powered

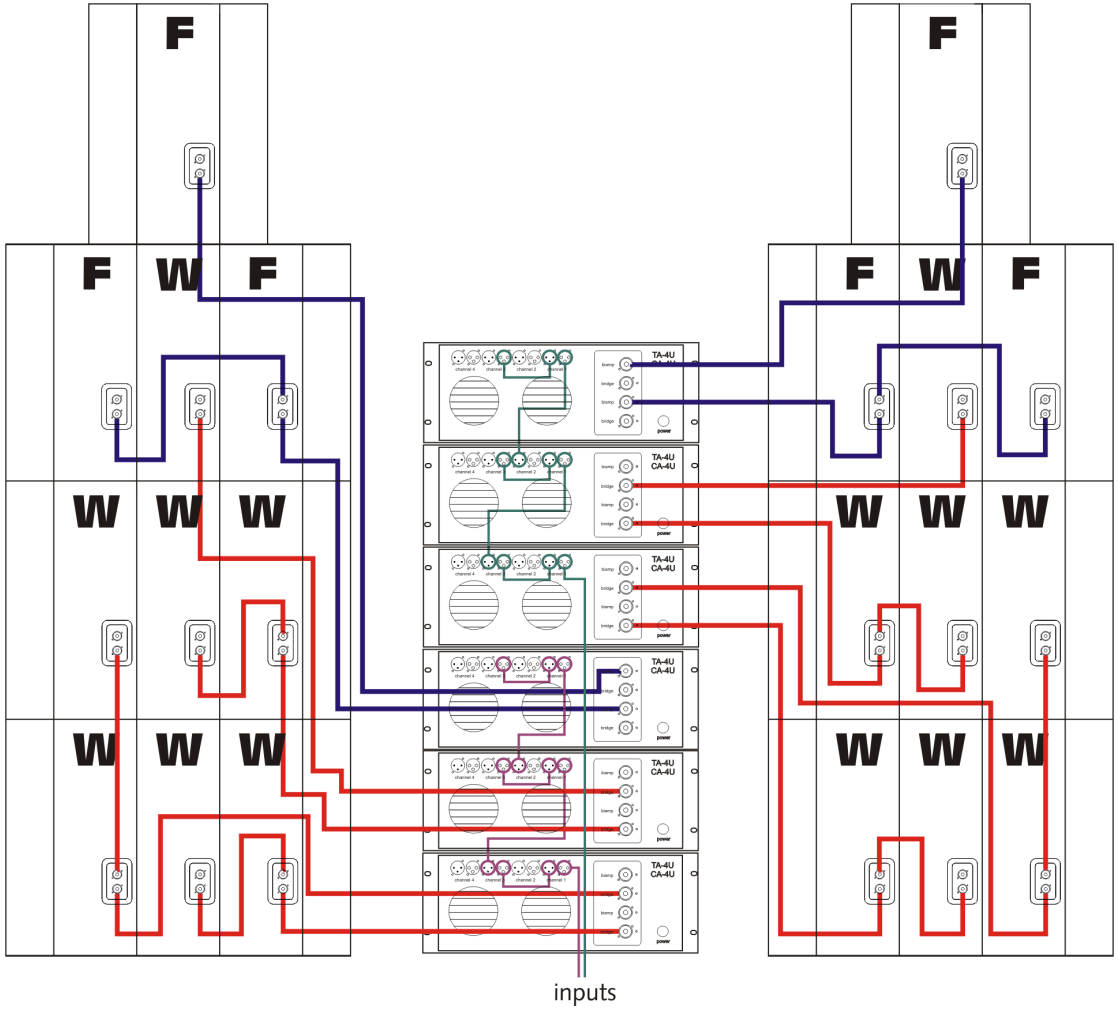
loudspeakers:
6x T10-F
14x T10-W

amplifiers:
6x TA4-U

controller-cards:
2x 104232
4x 104333
or
6x FIR-MOD

cables:
12x Speakon-4 amp-to-box
8x Speakon-4 box-to-box

2x XLR3 left-right input
10x XLR3 link



TRIAKS Basic Setups

120º Long-Throw

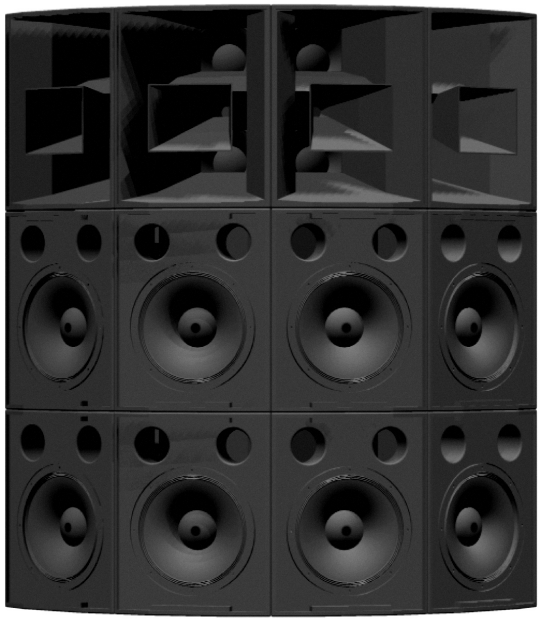
loudspeakers:
8x T10-L
16x T10-W

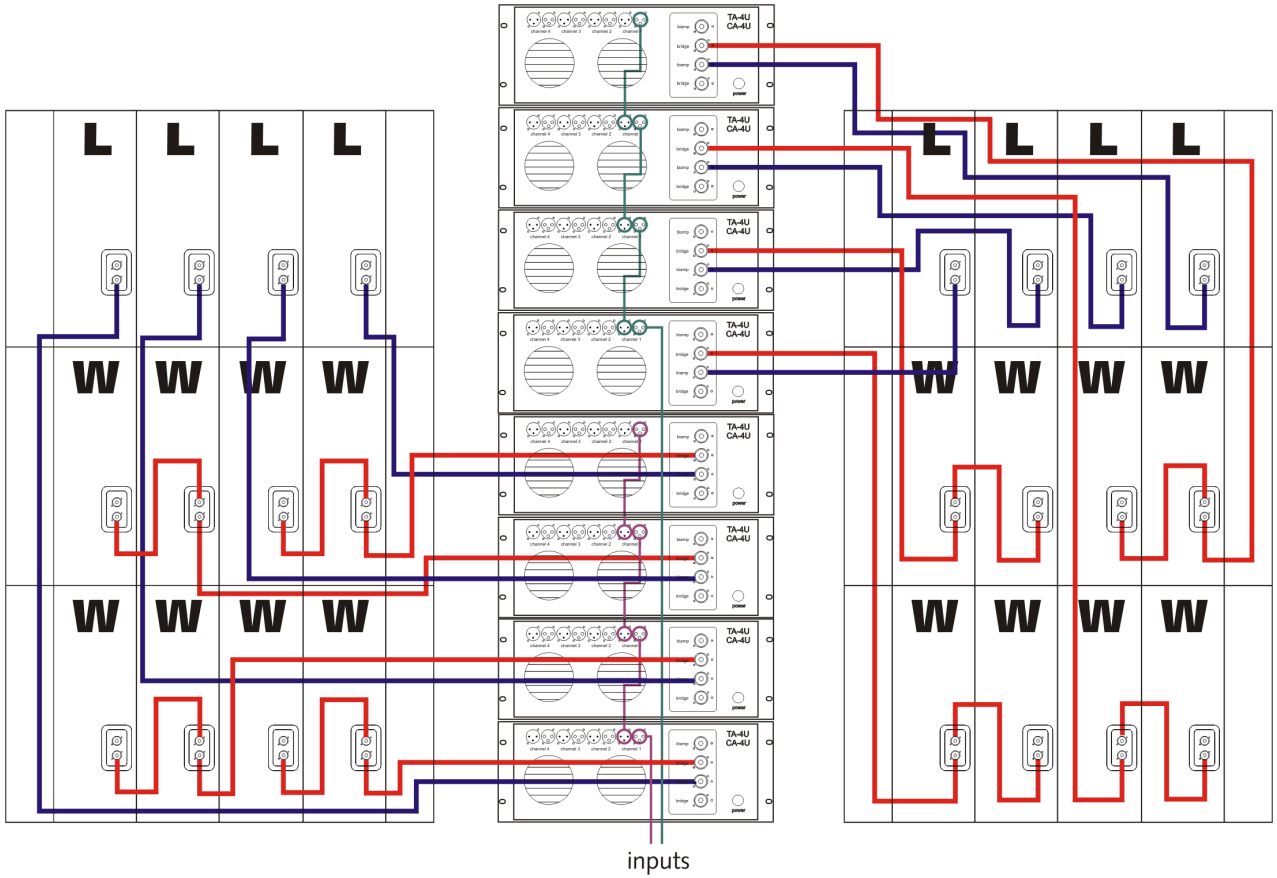
amplifiers:
8x TA4-U

controller-cards:
8x 104434
or 8x FIR-MOD

cables:
16x Speakon-4 amp-to-box
8x Speakon-4 box-to-box

2x XLR3 left-right input
6x XLR3 link





TRIAKS Combi Setup

120° Medium-Long-Throw

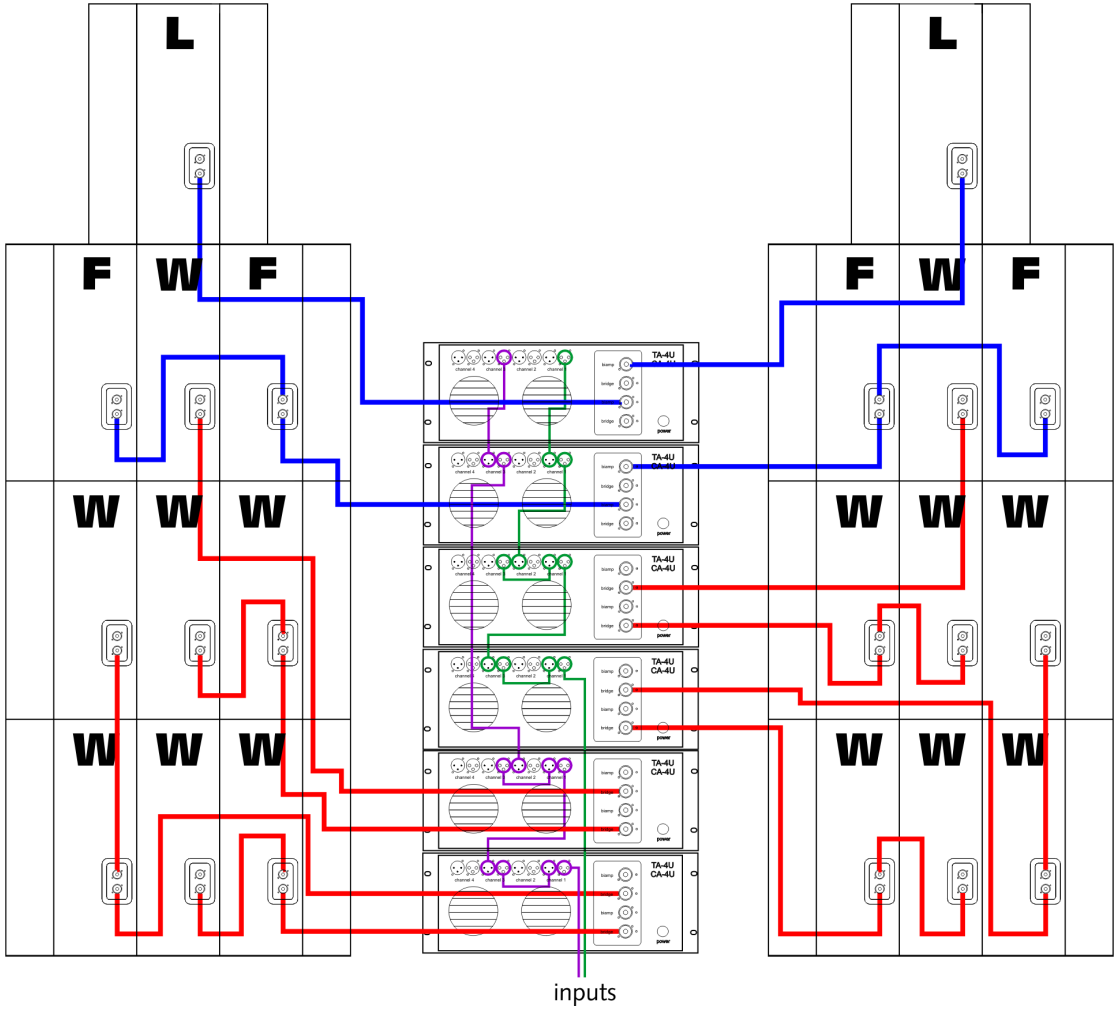
loudspeakers:
2x T10-L
4x T10-F
14x T10-W

amplifiers:
6x TA4-U

controller-cards:
1x 104231
1x 104232
4x 104333
or
6x FIR-MOD

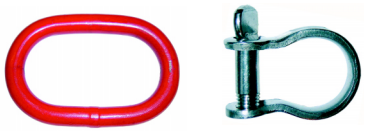
cables:
12x Speakon-4 amp-to-box
8x Speakon-4 box-to-box

2x XLR3 left-right input
10x XLR3 link

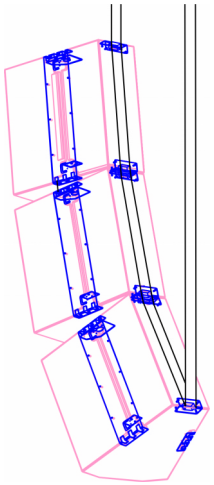


TRIAKS Accessories

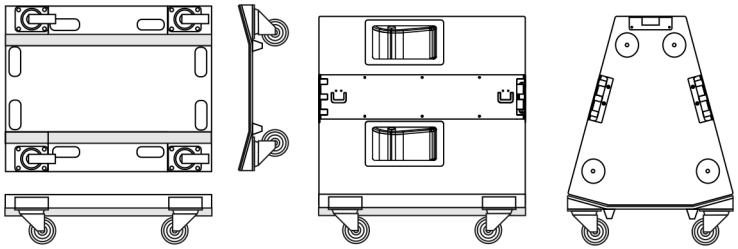
Trimite Cabinet Paint



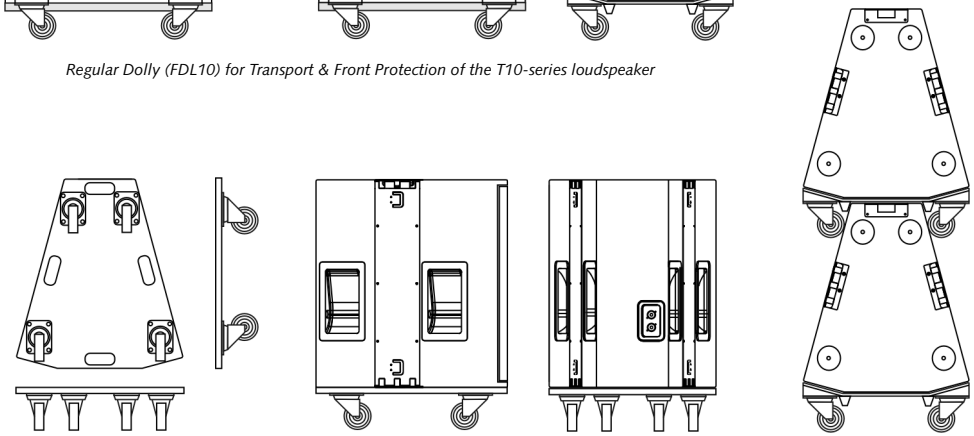
Your flying hardware:
OR10 (left) & VSH10 (right)



With the onboard strapholder on each TRIAKS cabinet conventional flying with angled boxes is very convenient. You may use the KS-STR10 strap to tilt one or more rows in a flown cluster as needed.



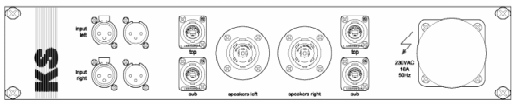
Regular Dolly (FDL10) for Transport & Front Protection of the T10-series loudspeaker



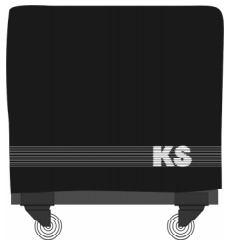
Special Upright Dolly (UDL10) for Transport of the T10-series loudspeaker

	description	ordernr.
T10-L	Long -throw cluster builder, 2x 12"/2"/1", integrated AeroLock™ flyware	5110
T10-F	Medium-throw cluster builder, 15"/2"/1", integrated AeroLock™ flyware	5130
T10-W	Low frequency extension, 18"-long excursion, integrated AeroLock™ flyware	5120
T-SUB	High output - infra low frequency Subwoofer	5140
TA4-U	4-channel power amp with Plug-it-In™ controller cards	5051
FIR-MOD	FIRTEC™ Plug-it-in™ Universal Digital FIR-controllercard	104000
A-MOD	Plug-it-in™ 2-channel biamp analog controllercard for 2 x KS T10-L	104231
A-MOD	Plug-it-in™ 2-channel biamp analog controllercard for 2-4 x KS T10-F	104232
A-MOD	Plug-it-in™ 2-channel subwoofer analog controllercard for 2-4 x KS T10-W	104233
A-MOD	Plug-it-in™ 1-ch biamp/1-ch subw. analog contr. card for 1 x T10-L / 1-2 x T10-W	104434
A-MOD	Plug-it-in™ 1-ch biamp/1-ch subw. analog contr.card for 1-2 x T10-F / 1-2 x T10-W	104435
FlyWare	Cradle for T10-system	CR10
FlyWare	Shackle for T10-system	VSH10
FlyWare	O-RIng for T10-system	OR10
FlyWare	Strap 10m for T10-system	STR10
Transport	Regular Dolly for Transport & Front Protection of the T10-series loudspeaker	FDL10
Transport	Special Upright Dolly for Transport of the T10-series loudspeaker	UDL10
Transport	Heavy Duty Padded Cover for T10, 2mm Cordura, Rainprotection	COV10
Wiring	Universal Rackpanel for racks with two TA4-U amplifiers, 16A CEE-form	URP2
Wiring	Loudspeakercable Speakon4 / 15m	01061
Wiring	Loudspeaker-link cable Speakon4 / 2m	01066
Paint	Custom Paint (price and RAL-color on request)	09101
Paint	Trimite cabinet paint, black, 5l	TRIM5

Other options on request



KS Universal Rackpanel (URP2) for two amps



Heavy Duty Padded Cover (COV10)

Transport, Handling, Care

KS Sound Systems are tools for professional use. Therefore the systems are designed to handle the everyday rough life of the pa world. A few handling recommendations should be mentioned.

Always avoid condensation of water on electrical gear. Especially when transport a speaker or an amplifier from cold environment into heated buildings. If the speaker is used at special climate zones like tropical or arctic weather we recommend an optional KS treatment against moist and humidity. The speakers can be kept after that treatment outside and open air. Direct water must be avoided also after the tropical treatment. If the gear sits outside open air and you have pauses overnight we recommend to leave the amplifiers running. Their current consumption while not working is minor but it keeps a healthy temperature and will not condense humidity. You can leave a KS amplifier running for 24 hours weeks, months and years it will work and will not harm it or shorten is life. Give the speaker time to adjust the temperature. Always avoid all sorts of liquids around an electrical tool.

To keep the your great KS gear for a life put in into a flightcase while travelling. Please clean frequently the airfilter foam and clean internals with air or special vacuum cleaner. Before open a a KS amplifier disconnect the power from outlet.

All theatre velours carpet surfaces can be brushed with a normal brush. Repairs are easy to make check our web site for www.cap.de under service.

Rigging: always follow the rigging procedures of the country your´re working in. Flying PA´s above peoples heads requires detailed knowledge of such. KS will not be responsible for improper rigging. Remember: "one safety pin less leads to mess". Be responsible. Check all your rigging gear on a frequent basis

Transport, Handling, Care

KS Lautsprecher sind Werkzeuge für den täglichen Einsatz und entsprechend robust gefertigt. Sie sollten jedoch einige Gesichtspunkte beachten.

Wie bei allen Arten von elektronischen Gerät muß unbedingt das entstehen von Kondenswasser vermieden werden, d.h. werden die Lautsprecher z. B. vom kalten LKW in einen feuchtwarmen Veranstaltungsraum gebracht, sollte nach Möglichkeit vorher einige Zeit zum Aufwärmen bleiben. Selbstverständlich ist direkte Einwirkung Von Flüssigkeit schon aus Sicherheitsgründen unbedingt zu verhindern.

Vibrationen im Transportfahrzeug sind unbedenklich - alle Schraubverbindungen sind entsprechend gesichert. Es hat sich jedoch gezeigt, dass der Versand in Güterwaggons der Bahn ohne weitere stoßdämpfende Verpackung eine besondere Belastung für alle Verbindungen darstellt. Wir empfehlen für solche Fälle handelsübliche „Flight-Cases".

Starke Verschmutzung durch Staub u. ä. Ablagerungen sind für Elektronische Baugruppen gefährlich, da sie zu Kurzschlüssen führen können. Es ist daher ratsam, gelegentlich die Geräte zu öffnen, und mit Druckluft zu reinigen.

Auch die Frontabdeckung aus schalldurchlässigem Filterschaum sollte bei sichtbarer Ablagerung von Schmutzteilchen abgenommen und ausgewaschen werden, da sonst insbesondere hohe Frequenzen bedämpft werden.

Limited Warranty

KS products are manufactured to highest standards of production.

Each KS product leaves the factory not unless extensive electronic testing and visible inspections was exceuted to the product.

If you have any reason to complain the condition of the product, please check if the damage to the product is the result of improper handling while being shipped. If this is the case please immediately inform the freight forwarding company before signing any paperwork of acceptance of the shipment.

All warranty claims to the product must be presented to KS Beschallungstechnik not later than 8 days of receiving the KS product.

KS warranties with limitations all product defects within 12 months after purchase with exchange or repair unless no obvious damage was brought to the product with improper handling, transport or other use.

If repair cannot be accomplished within 4 weeks, KS must exchange the product.

Repair or any kind of manipulation other than KS authorized repair facilities at the product cancel KS warranties.

KS can not be hold responsible for liability charges due to failure of KS products.

Gewährleistung

KS Produkte verlassen nur nach abschließender Prüfung mängelfrei unser Haus.

Sollten Sie trotzdem Grund zur Beanstandung haben, bitten wir zunächst festzustellen, ob ein erkennbarer Transportschaden vorliegt. In diesem Fall ist der Spediteur zu verständigen, bzw. direkt bei Übernahme der Ware der Schaden bestätigen zu lassen. Sollten uns Mängel nicht innerhalb von 8 Tagen mitgeteilt werden, gilt unsere Lieferverpflichtung als erfüllt.

Innerhalb von 12 Monaten nach Lieferung übernehmen wir die Gewährleistung.

Für auftretende Mängel - unter Ausschluß weitergehende Ansprüche - in folgende Umfang:

Austausch oder Reparatur defekter Teile, sofern der Defekt nicht durch äußere Einwirkung, oder unsachgemäße Verwendung entstanden ist.

Austausch des kompletten Gerätes, sofern uns die Reparatur nicht innerhalb vier Wochen möglich ist, bzw. wiederholt fehlschlägt.

Eingriffe von Dritten, insbesondere Veränderungen an Geräten entbinden uns von jeglicher Gewährleistung.

Unsere Gewährleistungsverpflichtung ruht, sofern der Kunde seinen Vertragspflichten (insbesondere Zahlungsverpflichtungen) nicht nachkommt.

Die Instandsetzung erfolgt in unserem Werk oder einer unserer Vertragswerkstätten. Frachtaufwendungen gehen zu Lasten des Kunden.

manufacturer

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