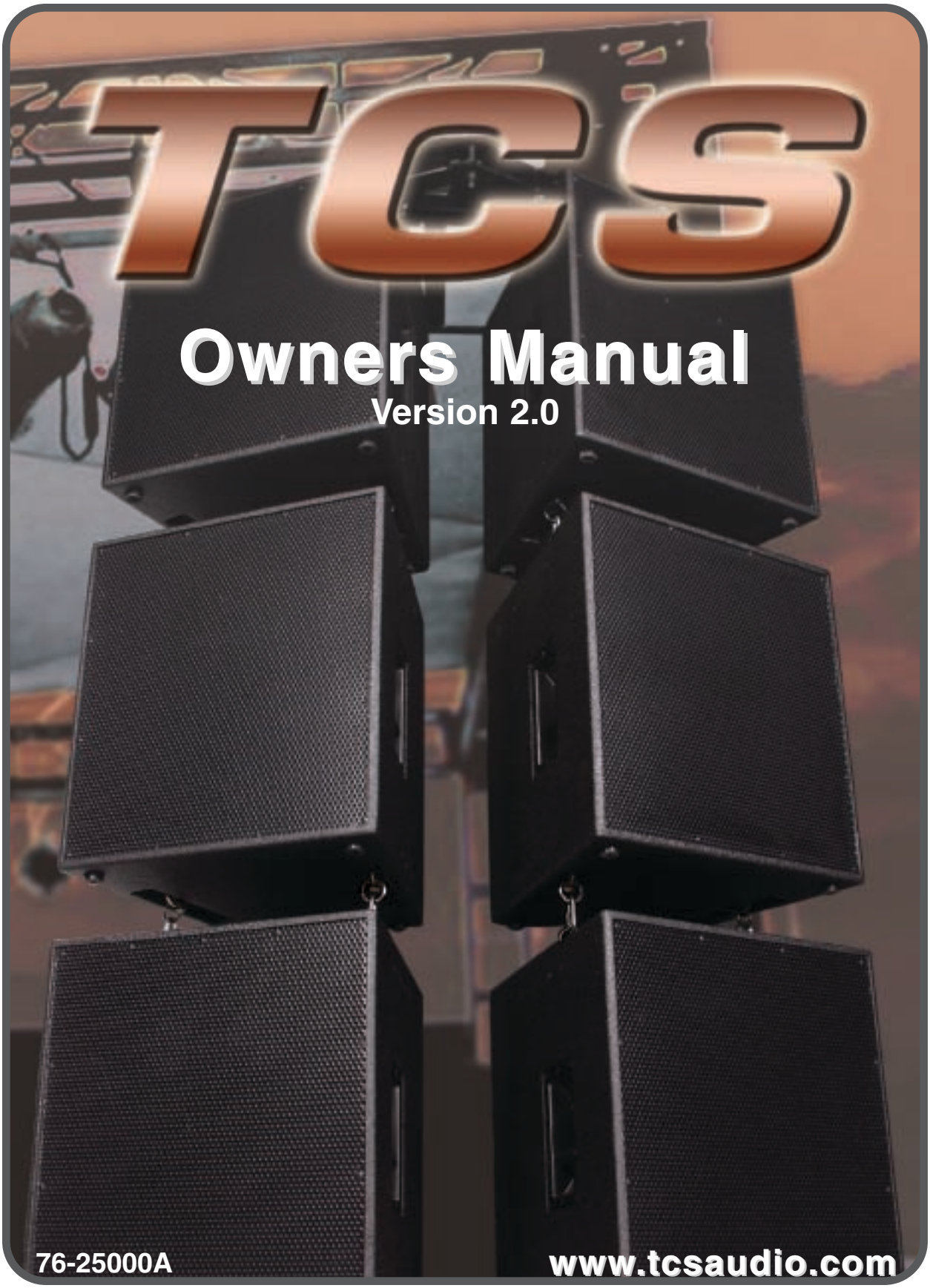

TCS
Owners Manual
Version 2.0
76-25000A
www.tcsaudio.com

# TABLE OF CONTENTS

## INTRODUCTION

Thank you for purchasing a TCS loudspeaker system. In order for you to use this product more effectively, please read this manual. We have included a great deal of information that will help you achieve optimum performance and sound quality from your new loudspeaker system.

## RECEIVING INSTRUCTIONS

**INSPECT YOUR UNIT FOR ANY DAMAGE** which may have occurred during shipping. If any damage is found, please notify the shipping company and TCS Audio immediately.

**SAVE THE CARTON & ALL PACKING MATERIALS**. In the event you have to re-ship your unit, always use the original carton and packing material. This will provide the best possible protection during shipment. TCS Audio and the shipping company are not liable for any damage caused by improper packing.

**SAVE YOUR INVOICE**. It will be required for warranty service if needed in the future.

**SHIPMENT SHORTAGE**. If you find items missing, they may have been shipped separately. Please allow several days for the rest of your order to arrive before inquiring.

**RECORD THE SERIAL NUMBER** on the enclosed warranty card or below on this manual for your records. Keep your portion of the card and return the portion with your name and comments to us.

For your records, you may wish to record the following information.

Serial No._____ Invoice Date_____

## IMPORTANT SAFETY INFORMATION

**CAUTION**: describes an operating condition or user action that may expose the equipment, user, or other parties to potential damage or danger.

**WARNING**: describes an operating condition or user action that will cause damage to the equipment or injure the user or other parties.

**DANGER**: describes an operating condition or user action that will immediately damage the equipment or be extremely dangerous or possibly be life threatening to the user or other parties.

### WARRANTY INFORMATION

TCS Audio loudspeakers are warranted against manufacturing defects in materials or craftsmanship for a period of 5 years from the original date of purchase. During the warranty period TCS Audio will, at its discretion, either repair or replace products or parts which prove to be defective from TCS Audio. TCS Audio cannot be held responsible for failures caused by unauthorized modifications, improper use, neglect, exposure to inclement weather, accidents, or any use of this product that is not in accordance with the specifications provided by TCS Audio. TCS Audio is not liable for any consequential damages. If possible, ship the enclosure in its original packaging. Ship prepaid to TCS Audio. TCS Audio is not responsible for damages incured in shipping transit

### OVERVIEW

This manual covers the entire TCS Loudspeaker series. TCS systems have been designed to help meet the many requirements of the ever changing professional audio industry. From large live performance venues to small music clubs, TCS systems will advance your sound to a higher level of excellence. TCS Audio engineers worked closely with audio production service companies from product conception, through design, to product release. TCS loudspeakers are ergonomically and logistically designed. Our “No Compromise” attitude joins the highest quality speaker components available with superior cabinet construction. All TCS loudspeaker cabinets are constructed of 3/4” and 1 1/2” cross grain laminated Baltic Birch plywood. Estensive internal bracing ensures solid construction and resonance free cabinet design. The drivers chosen for the TCS series are widely accepted and highly regarded in the industry. High current Neutrik NL4 4-pin and NL8 8-pin connectors are provided.

Due to continuing improvements and revisions, TCS Audio reserves the right to update any information given in this manual.

# *TCS2500*

**DESCRIPTION**

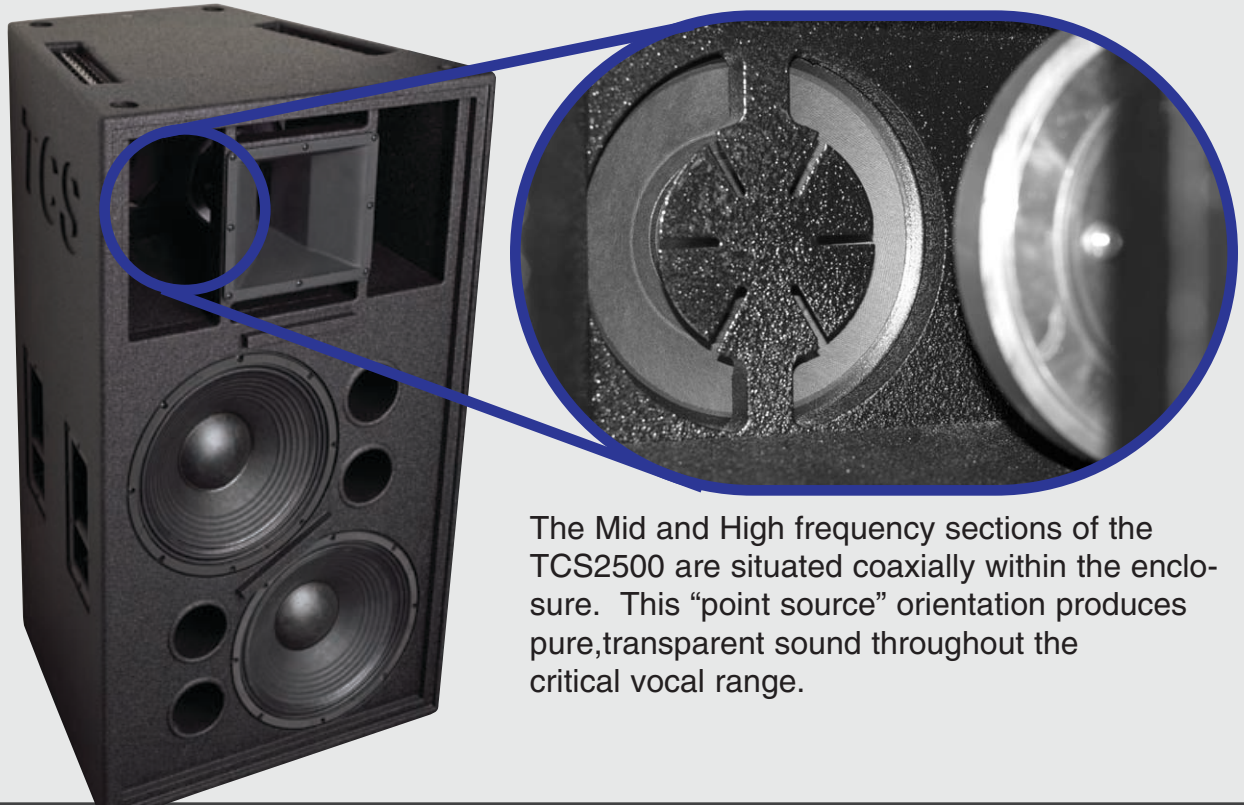
The TCS2500 is a full range 3-way loudspeaker system ideally suited for medium to long throw applications. Having a common trapezoidal shape (to TCS1500 / TCS1800), it can be easily stacked or flown to create a multitude of system configurations. The TCS2500 features dual front loaded 15" woofers, two horn loaded 55°x40° 8" MF drivers, and a 2" exit HF compression driver mounted to 60° x 40° aluminum constant directivity horn.

**APPLICATIONS**

Used for permanent installations or portable touring systems, the TCS2500 will advance your sound to a new level of audio excellence. Ideal for use in:

Indoor and Outdoor Live Performance Venues
Concert tours — Festivals
Live Music Clubs — Dance Clubs and Discos
Convention and Worship Centers

Included with the TCS2500 is the DB2500 dolly board for ease of transportation and setup. Ten position flytrack (2 top and 2 bottom) areprovided for overhead suspension. (See pg.8 for more on rigging and rigging safety)



The Mid and High frequency sections of the TCS2500 are situated coaxially within the enclosure. This “point source” orientation produces pure,transparent sound throughout the critical vocal range.

# TCS1500

**DESCRIPTION**

The TCS1500 is a full range 3-way loudspeaker system ideally suited for near to medium throw applications. Having a common trapezoidal shape (to TCS2500 / TCS1800), it can be easily stacked or flown to create a multitude of system configurations. The TCS1500 features a single front loaded 15" woofer, one high efficiency 8" MF drive, and a 1" exit HF compression driver mounted to 60° x 40° aluminum constant directivity horn.

**APPLICATIONS**

Used for permanent installations or portable touring systems, TCS1500 will advance your sound to a new level of audio excellence. Ideal For:

Indoor and Outdoor Live Performance Venues
Concert tours Festivals
Live Music Clubs Dance Clubs and Discos
Convention and Worship Centers

Included with the TCS1500 is the DB2500 dolly board for ease of transportation and setup. Ten position flytrack (2 top and 2 bottom) are standard features for overhead suspension. (See pg.8 for more on rigging and rigging safety)

# TCS2800

**DESCRIPTION**

The TCS2800 is a dedicated subwoofer loudspeaker system ideally suited for near to long throw applications. It can be easily stacked to create accurate subwoofer arrays for awesome chest pounding lows. The TCS2800 features two compound planar loaded 18" woofers for maximum low frequency response while maintaining the smallest possible frontal footprint. More Space, More cabs, More bass!

**APPLICATIONS**

Used for permanent installations or portable touring systems, TCS2800 will advance your sound to a new level of audio excellence. Ideal For:

Indoor and Outdoor Live Performance Venues

Concert tours — Festivals

Live Music Clubs — Dance Clubs and Discos

Convention and Worship Centers

# TCS1800

**DESCRIPTION**

The TCS1800 is a dedicated subwoofer loudspeaker system ideally suited for near to medium throw applications Having a common (to TCS1500/TCS2500) trapezoidal shape, it can be easily stacked or flown to create accurate system arrays. The TCS1800 features a front loaded 18" woofer for maximum low frequency response.

**APPLICATIONS**

Used for permanent installations or portable touring systems, TCS1800 will advance your sound to a new level of audio excellence. Ideal For:

Concert tours — Festivals

Live Music Clubs — Dance Clubs and Discos

Convention and Worship Centers

Included with the TCS1800 is the DB2500 dolly board for ease of transportation and setup. Ten position flytrack (2 top and 2 bottom) are standard features for overhead suspension. (See pg.8 for more on rigging and rigging safety)

# TCS210

**DESCRIPTION**

The TCS210 is a full range 2-way loudspeaker system ideally suited for near to medium throw applications. Featuring a trapezoidal shape, it can be easily stacked or flown to create a multitude of system configurations. The TCS210 features dual front loaded 10" Low Mid / Mid range drivers and a 1" exit HF compression driver mounted to 60° x 40° aluminum constant directivity horn.

**APPLICATIONS**

Used for permanent installations or portable touring systems. Ideal For:

Concert tours
Festivals
Live Music Clubs
Dance Clubs and Discos
Convention and Worship Centers

# TCS212M

**DESCRIPTION**

The TCS212M is a low profile, full range 2-way stage monitor loudspeaker system ideally suited for medium to large productions. The TCS212M features dual front loaded 12" woofers for good low/mid frequency response and a 1" exit HF compression driver mounted to 40°H x 60°V dispersion horn. The TCS212M has a very flat response to extend maximum gain before feedback.

APPLICATIONS

Used for permanent installations or portable touring systems. Ideal For:

Concert tours
Festivals
Live Music Clubs
Convention and Worship Centers

# *TCS115M*

**DESCRIPTION**

The TCS115M is a full range 2-way stage monitor loudspeaker system ideally suited for medium to large productions. The TCS115M features a single front loaded 15" woofer for good low/mid frequency response and a 1" exit HF compression driver mounted to 60°H x 40°V dispersion horn. The TCS115M has a very flat response to extend maximum gain before feedback.

APPLICATIONS

Used for permanent installations or portable touring systems. Ideal For:

| | |
|---|---|
| Concert tours | Festivals |
| Live Music Clubs | Convention and Worship Centers |

## FLYING AND STACKING INFORMATION

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

### DANGER

Mounting or rigging loudspeakers is a serious endeavor, always seek the advice of qualified experts. Improper installations may result in damage, injury or death.

### WARNING

Never use the handles for suspending the loudspeaker, they are not designed or rated for this purpose.

### CAUTION

All hardware used for overhead suspension should be designed and used with a minimum 5:1 design factor. This is the ratio between the structural failure point and the loading to be applied to the component. Periodically inspect and maintain all rigging points on the loudspeaker and all suspension hardware. **DANGER**: hardware found at your local hardware store should not be used as it may not be rated for this application. **NOTICE:** The user assumes liability for proper design, installation and use of rigging systems.

## STACKING

Ensure that the floor, stage or soundwings are level and solid.

Be cautious of outdoor windy conditions, speaker stacks could topple over in high wind conditions or be accidentally pushed or bumped over by over zealous crowds.

Loudspeakers producing very high spl (especially subwoofers) can shift from their original position. Ensure the feet of the loudspeakers are locked into the feet cups of the speaker below. Place frictional material between the floor and the loudspeaker.

## FLYING

TCS series loudspeakers are fitted with 10 position flytrack and/or captive 3/8"-16 threaded nuts for suspending or permanent installation. Each flytrack has a Working Load Limit of 750 lbs. (340 kg.) and the captive nuts have a WLL of 500 lbs. (226 kg.).

**Note**: Working Load limits are based on vertical pull or 0°, for derating please see derating note below.

**De-Rating**

Using the mounting points at an angle will de-rate the WLL (working load limit) for each point. Each point mounted at an angle should be de-rated according to the following formula. WLL=cosine(angle) x 500 angle = degrees form vertical pull 500 = WLL for each TCS mounting point @ vertical pull

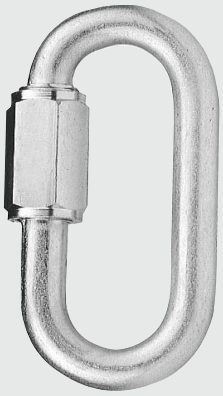
**WARNING –** Never exceed the WLL throughout the system.

TCS loudspeakers can be flown with ATM flyware systems (AMFS-3x4 series and MEGS-3x4 series). Visit www.atm-fly-ware.com for more information and hardware.

## RIGGING ACCESSORIES

TCS Audio offers the 3/8" forged steel eyebolts & washers (model number **TCSHK10**), the forged steel Quicklink™ connectors (model number **TCSHK15**), and flytrack double stud fitting (model number **FTF1**) Visit www.tcsaudio.com for ordering information.


**TCSHK10**
3/8-16 forged steel eyebolt with washer
WLL=1600 lbs.

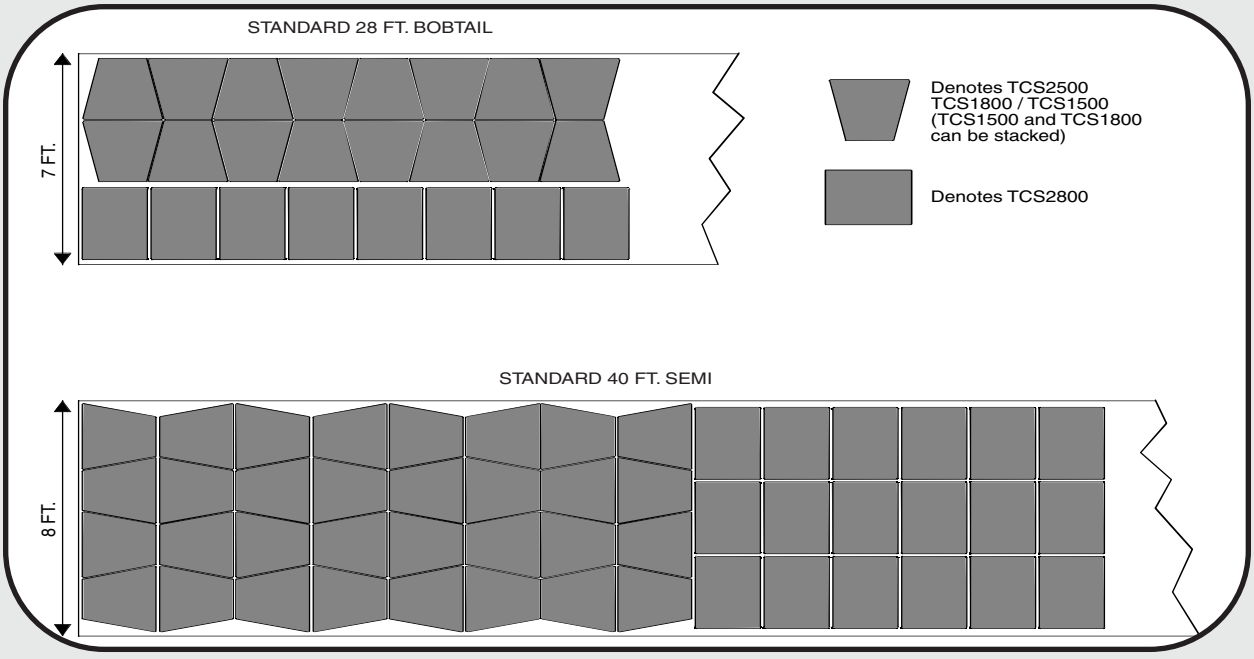


**TCSHK15**
3/8-16 forged steel quicklink connector
WLL=2000 lbs.

**FTF1**
Forged Steel
Flytrack Fitting
WLL=750 lbs.

## TRUCK PACK

TCS were designed with logistics in mind. The illustration below shows recommended truck packs.



## CHOOSING THE CORRECT AMPLIFICATION

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

TCS Audio recommends an amplifier capable of producing at least the power rating of the speaker up to 1.5 times the power rating of the speaker. (See **TECHNICAL SPECIFICATIONS** on pg. 20)

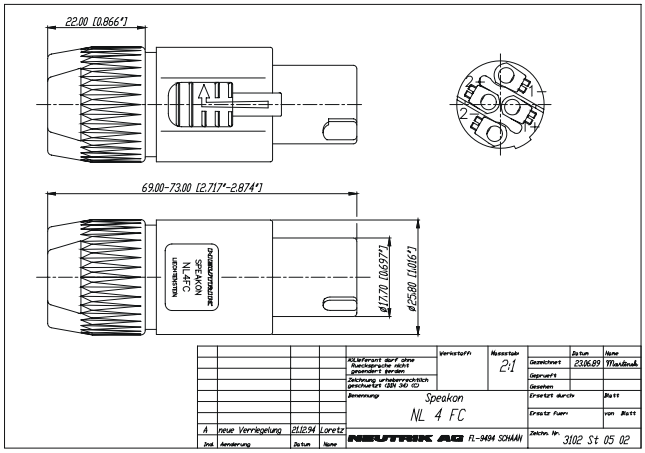
Always turn on the amplifiers after the mixer and control systems have been powered on. This will eliminate power peaks due to switch on surges which can damage loudspeakers. When powering down the system, reverse the sequence and switch off the power amplifiers first.

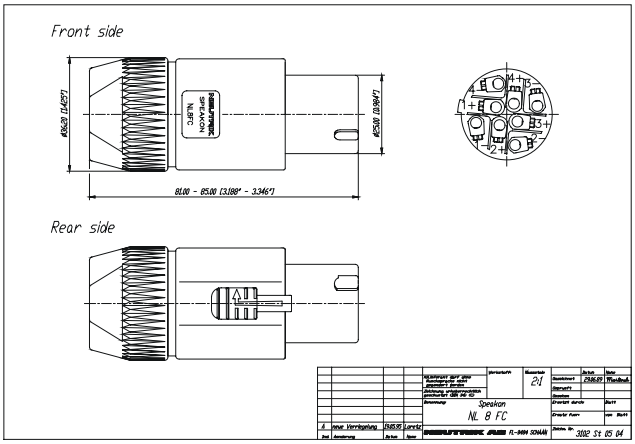
## CONNECTING TCS

The rear panels the the TCS loudspeakers are fitted with either two Neutrik Speakon NL8 or NL4 connectors. All connectors are wired in parallel.

| NL8 pin | Tri-amp |
|---|---|
| 1+ | Low Positive |
| 1– | Low Negative |
| 2+ | Mid Positive |
| 2– | Mid Negative |
| 3+ | High Positive |
| 3- | High Negative |
| 4+ | Through |
| 4– | Through |

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




## SYSTEM CONFIGURATIONS

TCS loudspeakers can be used with many different types of controllers such as analog type active crossovers or digital loudspeaker management systems. TCS Audio recommends using the **BSS FDS-336 MINIDRIVE** loudspeaker management system for its unsurpassed quality and ease of use.


**BSS FDS-336 MINIDRIVE** for more information visit **www.bss.co.uk**

Whichever controller is used be sure it has sufficient limiting capability to prevent amplifiers from clipping (some controllers may not have built in limiters and may require external devices). Limiter thresholds must be set to match the sensitivity of the amplifiers being used. Consult the controller's users manual for further information on how to set the limiter threshold.

Visit www.tcsaudio.com for ordering information.

## PROCESSOR SETTINGS

Listed below are the suggested processor settings for each of the TCS Loudspeaker enclosures. Any of these settings may be changed, but may sacrifice the overall sound of the enclosure.

| TCS2500 | Low | Mid | High |
|---|---|---|---|
| Gain | +3dB | -3 dB | -2dB |
| Delay (milliseconds) | 0.854 | 0 | 0.604 |
| Polarity | Normal | Normal | Normal |
| L0 Shape | L-R 24dB/Oct | But 24dB/Oct | But 24dB/Oct |
| L0 Frequency | 40 Hz - 100 Hz | 350 Hz - 400 Hz | 1.5kHz - 2.5kHz |
| Hi Shape | But 24dB/Oct | But 24dB/Oct | N/A |
| Hi Frequency | 350 Hz - 400 Hz | 1.5kHz - 2.5kHz | N/A |
| EQ1 Type | Bell | Bell | Hi 6 |
| EQ1 Frequency | 112 Hz | 900 Hz | 16kHz |
| EQ1 +/- | -6dB | +6dB | +3dB |
| EQ1 Width | 0.10 Octave | 0.20 Octave | N/A |
| EQ2 Type | Bell | N/A | N/A |
| EQ2 Frequency | 170 Hz | N/A | N/A |
| EQ2 +/- | +3.5dB | N/A | N/A |
| EQ2 Width | 0.30 Octave | N/A | N/A |

| TCS1500 | Low | Mid | High |
|---|---|---|---|
| Gain | 0dB | 0 dB | -7.6dB |
| Delay (milliseconds) | 0.083 | 0.313 | 0 |
| Polarity | Normal | Normal | Normal |
| L0 Shape | L-R 24dB/Oct | But 24dB/Oct | But 24dB/Oct |
| L0 Frequency | 40 Hz - 100 Hz | 350 Hz - 400 Hz | 1.5kHz - 2.5kHz |
| Hi Shape | But 24dB/Oct | But 24dB/Oct | N/A |
| Hi Frequency | 350 Hz - 400 Hz | 1.5kHz - 2.5kHz | N/A |
| EQ1 Type | Bell | N/A | Hi 6 |
| EQ1 Frequency | 176 Hz | N/A | 16kHz |
| EQ1 +/- | +7dB | N/A | +6dB |
| EQ1 Width | 0.40 Octave | N/A | N/A |

| TCS2800 | Low | Mid | High |
|---|---|---|---|
| Lo Shape | Butterworth -24dB | N/A | N/A |
| Lo Frequency | 22 Hz | N/A | N/A |
| Hi Shape | Butterworth -24dB | N/A | N/A |
| Hi Frequency | 91 Hz | N/A | N/A |
| EQ1 Type | N/A | N/A | N/A |
| EQ1 Frequency | N/A | N/A | N/A |
| EQ1 +/- | N/A | N/A | N/A |
| EQ1 Width | N/A | N/A | N/A |

| TCS1800 | Low | Mid | High |
|---|---|---|---|
| Lo Shape | Butterworth -24dB | N/A | N/A |
| Lo Frequency | 22 Hz | N/A | N/A |
| Hi Shape | Butterworth -24dB | N/A | N/A |
| Hi Frequency | 80 Hz - 100 Hz | N/A | N/A |
| EQ1 Type | N/A | N/A | N/A |
| EQ1 Frequency | N/A | N/A | N/A |
| EQ1 +/- | N/A | N/A | N/A |
| EQ1 Width | N/A | N/A | N/A |

| TCS212M | Low | High |
|---|---|---|
| Gain | -1dB | 0dB |
| Delay (milliseconds) | 0.167 | 0 |
| Polarity | Normal | Normal |
| LPF Shape | L-R 24dB/Oct | But 24dB/Oct |
| LPF Frequency | 39 Hz | 2kHz |
| HPF Shape | But 24dB/Oct | N/A |
| HPF Frequency | 2kHz | N/A |
| EQ1 Type | Hi 6 | Hi 12 |
| EQ1 Frequency | 683 Hz | 5.65 kHz |
| EQ1 +/- | +3.5dB | +4dB |
| EQ1 Width | N/A | N/A |

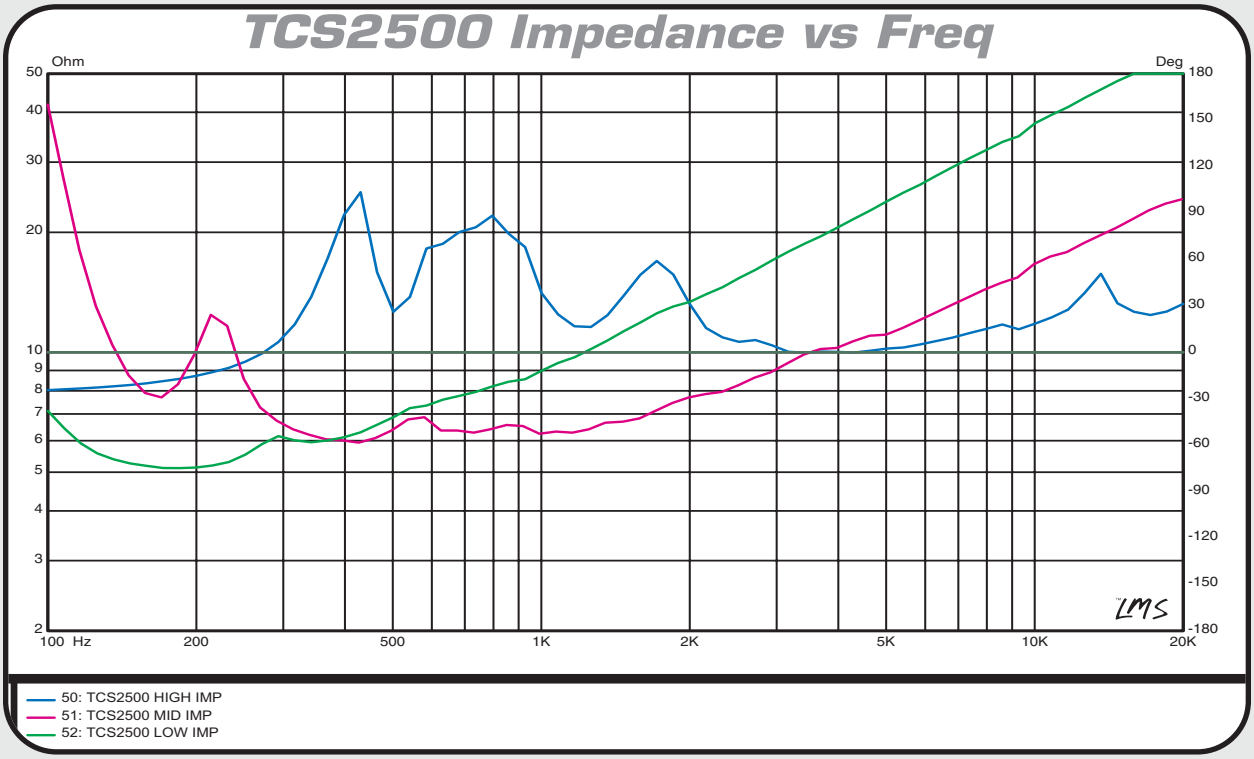
| TCS115M | Low | High |
|---|---|---|
| Gain | 0dB | -1dB |
| Delay (milliseconds) | 0.083 | 0 |
| Polarity | Normal | Normal |
| LPF Shape | L-R 24dB/Oct | But 24dB/Oct |
| LPF Frequency | 50 Hz | 2kHz - 2.5kHz |
| HPF Shape | But 24dB/Oct | N/A |
| HPF Frequency | 2kHz - 2.5kHz | N/A |
| EQ1 Type | N/A | Bell |
| EQ1 Frequency | N/A | 5.46 kHz |
| EQ1 +/- | N/A | +4.5dB |
| EQ1 Width | N/A | 0.30 Octave |

| TCS210 | Low | High |
|---|---|---|
| Gain | -2dB | +3dB |
| Delay (milliseconds) | 0.229 | 0 |
| Polarity | Normal | Normal |
| LPF Shape | L-R 24dB/Oct | But 24dB/Oct |
| LPF Frequency | 50 Hz | 2.5kHz - 3kHz |
| HPF Shape | But 24dB/Oct | N/A |
| HPF Frequency | 2.5kHz - 3kHz | N/A |
| EQ1 Type | Bell | Bell |
| EQ1 Frequency | 594 Hz | 5.46 kHz |
| EQ1 +/- | -3dB | +4.5dB |
| EQ1 Width | 0.30 Octave | 0.30 Octave |
| EQ2 Type | Bell | N/A |
| EQ2 Frequency | 750 Hz | N/A |
| EQ2 +/- | +7dB | N/A |
| EQ2 Width | 0.30 Octave | N/A |

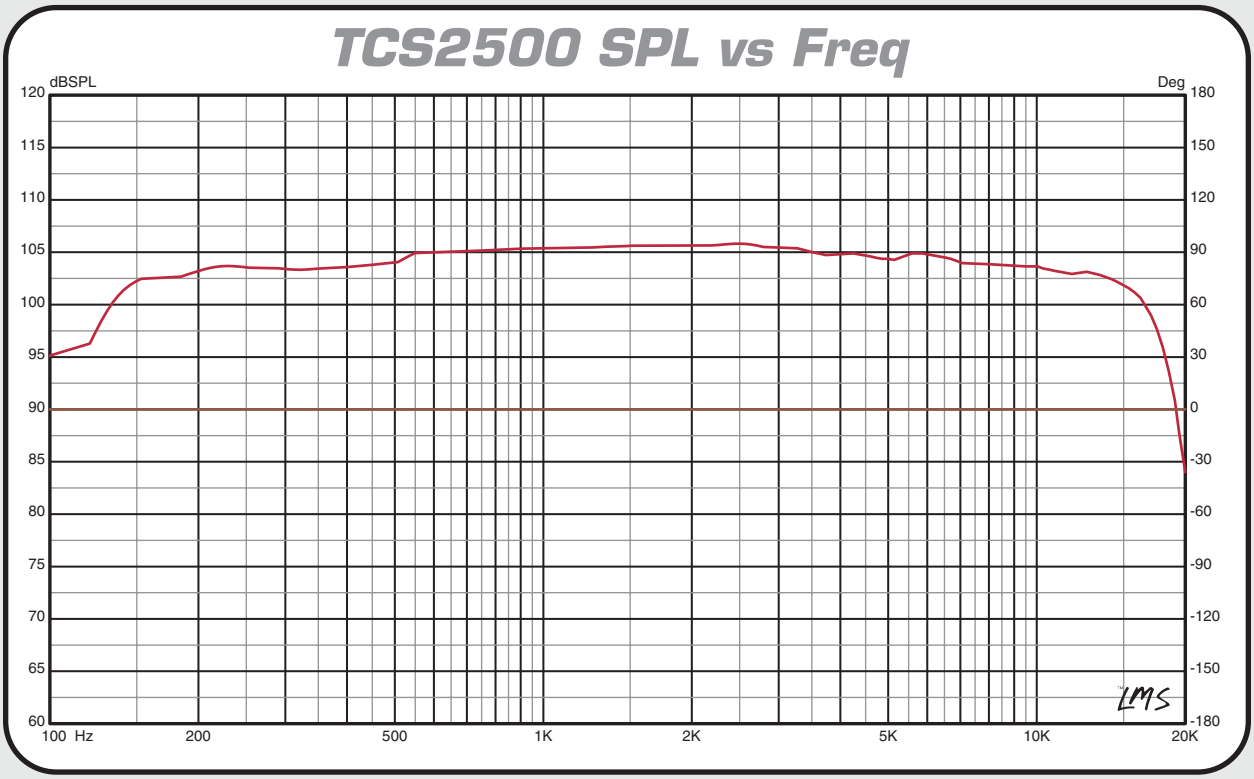
## TCS2500 TECHNICAL SPECIFICATIONS

| | |
|---|---|
| **FEATURE DATA** | |
| **Model Number** | TCS2500 |
| **System Configuration** | 3-Way, Full Range<br>Triamplified |
| **Connections** | 2 x Neutrik NL8 |
| **LF system** | 2x15" Front Loaded |
| **MF system** | 2x8" Horn Loaded |
| **HF system** | 2" exit 60 x 40<br>Constant Directivity |
| **Cabinet Type** | Trapezoidal 12.5 deg. per side |
| **Enclosure Structure** | 13 ply and 26 ply Baltic Birch |
| **External Coating** | Duratex |
| **Grille Material** | 14 Ga. Powder Coated perforated steel |
| **Suspension Hardware** | 10 position flytrack<br>2 ea. top and bottom<br>3/8-16 flypoints – 4 ea. |
| **NOMINAL AND PHYSICAL SPECS** | |
| **Frequency Response** | 40Hz - 19kHz |
| **Sensitivity (1 W/1 M)** | **LF**: 104 dB<br>**MF**: 106 dB<br>**HF**: 108 dB |
| **Max SPL (1 M)** | 142 dB SPL |
| **Impedance** | **LF**: 4 Ohms<br>**MF**: 8 Ohms<br>**HF**: 8 Ohms |
| **Power Handling** | **LF**: 1400 Wrms<br>2800 Wprogram<br>**MF**: 400 Wrms<br>800 Wprogram<br>**HF**: 80 Wrms<br>160 Wprogram |
| **Dimensions:** | |
| | Height 48 inches<br>Width (front) 27.75 inches<br>Width (rear) 16.5 inches<br>Depth 25.5 inches<br>Weight 235 lbs. |

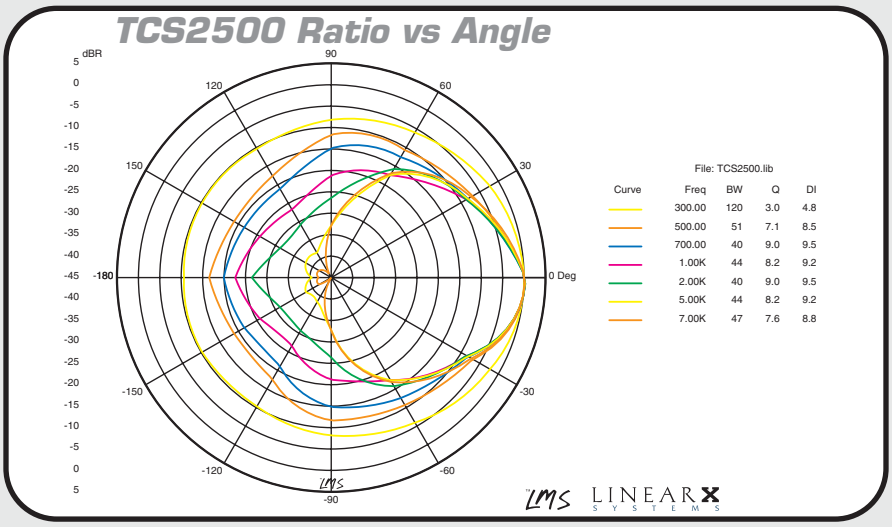
## Impedance Plot

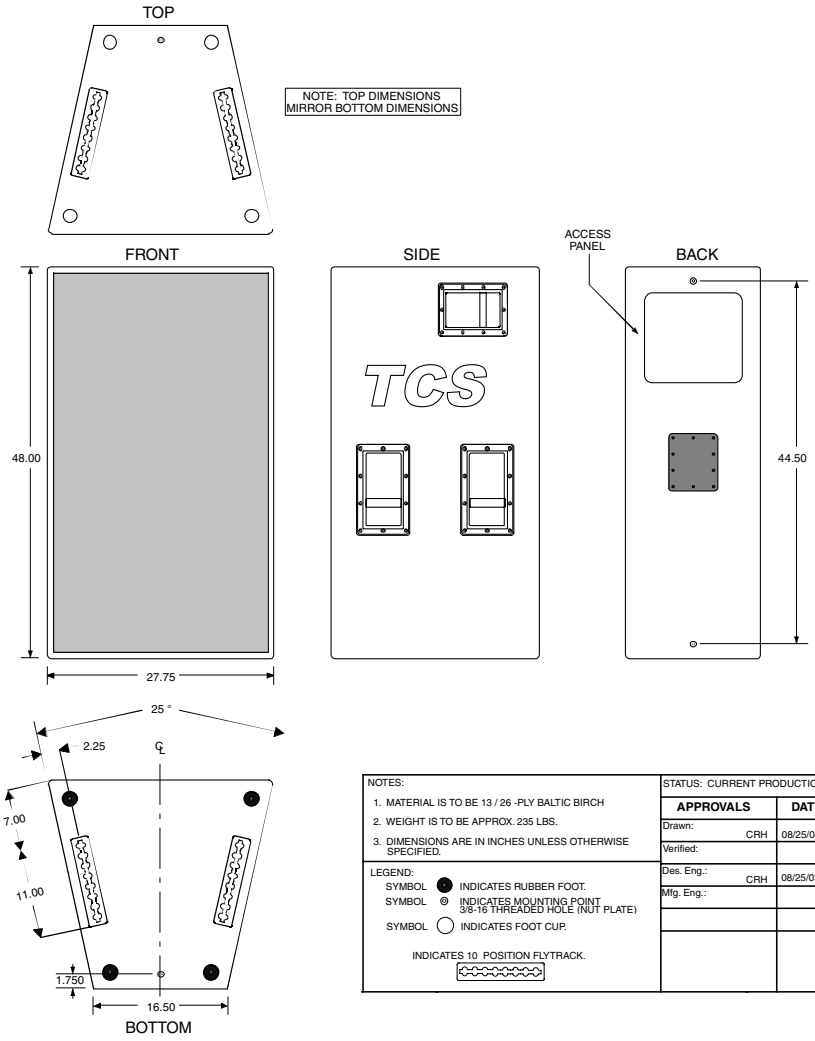



## 1 Watt / 1 Meter on Axis Frequency Response



# Horizontal Polar Response




NOTES:
1. MATERIAL IS TO BE 13 / 26 -PLY BALTIC BIRCH
2. WEIGHT IS TO BE APPROX. 235 LBS.
3. DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.

LEGEND:
SYMBOL ● INDICATES RUBBER FOOT.
SYMBOL ◎ INDICATES MOUNTING POINT 3/8-16 THREADED HOLE (NUT PLATE)
SYMBOL ○ INDICATES FOOT CUP.

INDICATES 10 POSITION FLYTRACK.

STATUS: CURRENT PRODUCTION

| APPROVALS | | DATE |
|---|---|---|
| Drawn: | CRH | 08/25/03 |
| Verified: | | |
| Des. Eng.: | CRH | 08/25/03 |
| Mfg. Eng.: | | |

TCS AUDIO
12340 World Trade Drive
San Diego, CA 92128
858-487-1600
FAX 521-6032

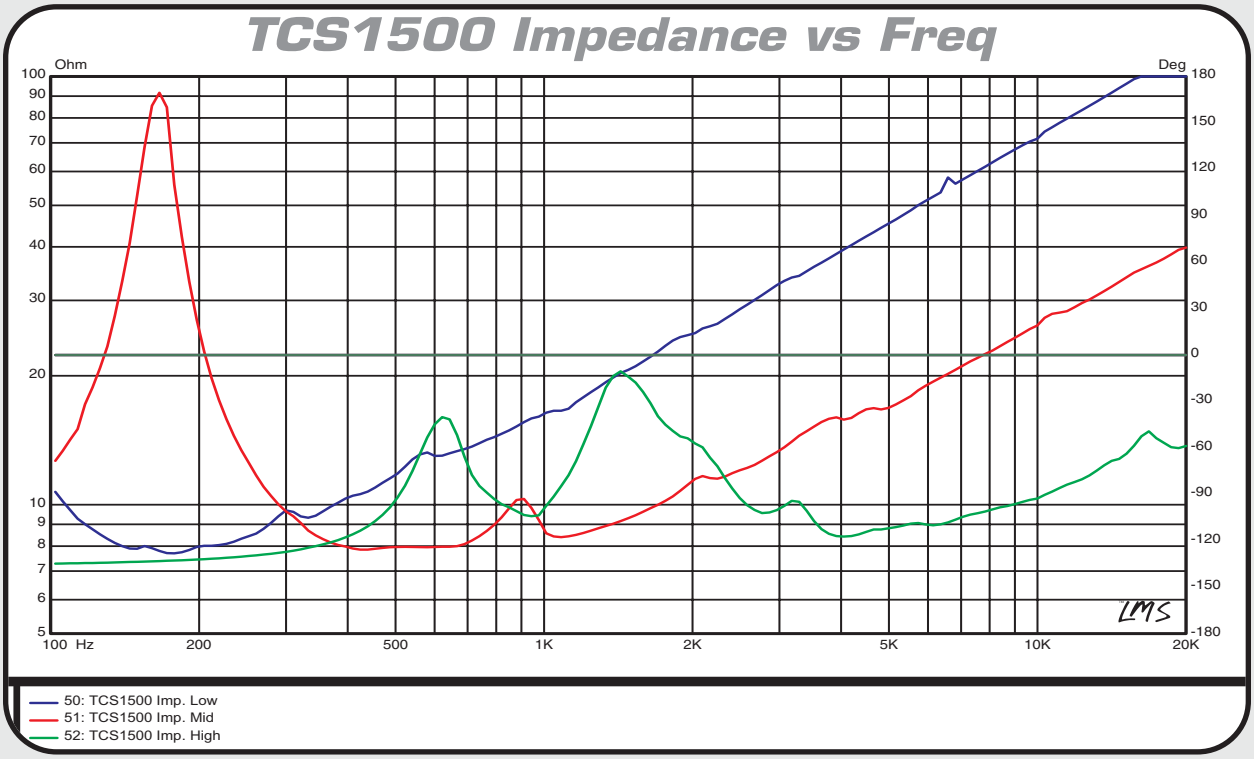
TITLE:
CABINET / FINISHED
BLACK DURATEX
– TCS2500 –
[ MECHANICAL DRAWING ]

Revision: A
Date Revised

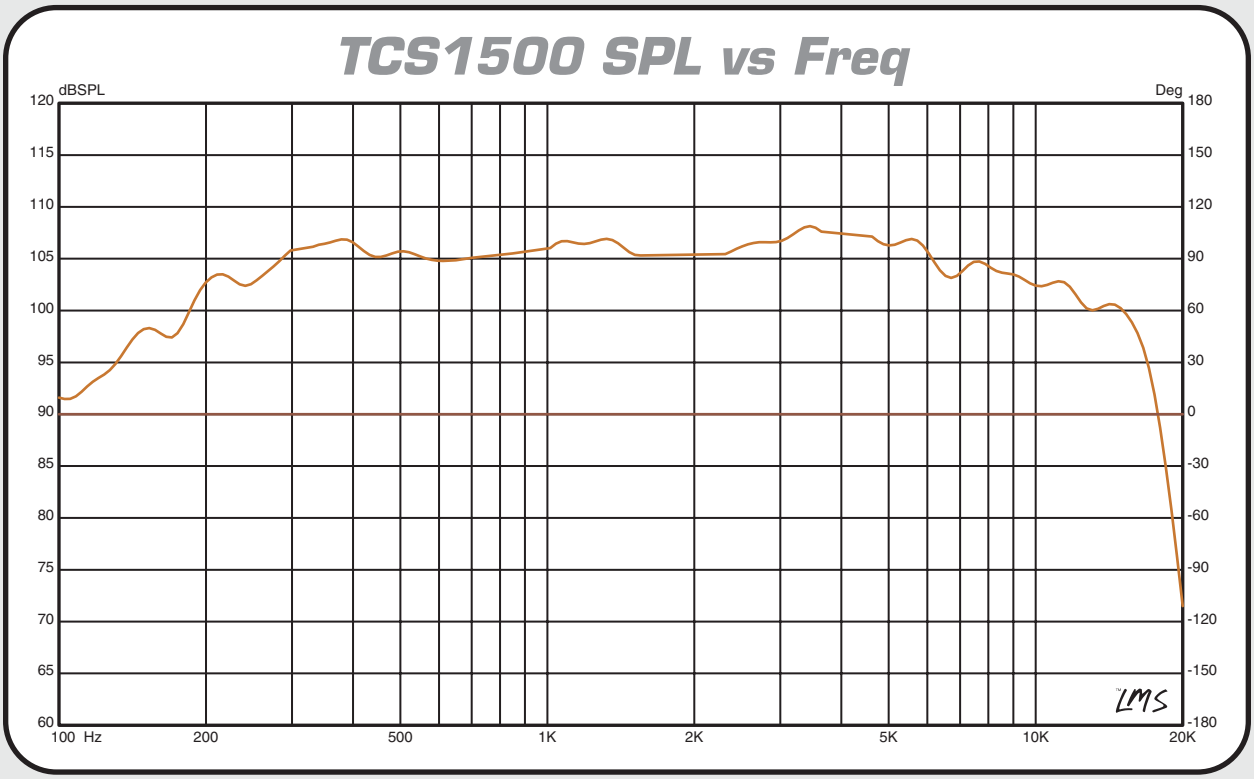
## TCS1500 TECHNICAL SPECIFICATIONS

| | |
|---|---|
| **FEATURE DATA** | |
| **Model Number** | TCS1500 |
| **System Configuration** | 3-Way, Full Range<br>Triamplified |
| **Connections** | 2 x Neutrik NL8 |
| **LF system** | 15" Front Loaded |
| **MF system** | 8" Front Loaded |
| **HF system** | 1" exit 60 x 40<br>Constant Directivity |
| **Cabinet Type** | Trapezoidal 12.5 deg. per side |
| **Enclosure Structure** | 13 ply and 26 ply Baltic Birch |
| **External Coating** | Duratex |
| **Grille Material** | 14 Ga. Powder Coated perforated steel |
| **Suspension Hardware** | 10 position flytrack<br>2 ea. top and bottom<br>3/8-16 flypoints – 4 ea. |
| **NOMINAL AND PHYSICAL SPECS** | |
| **Frequency Response** | 40Hz - 19kHz |
| **Sensitivity (1 W/1 M)** | **LF**: 99 dB<br>**MF**: 101 dB<br>**HF**: 108 dB |
| **Max SPL (1 M)** | 134 dB SPL |
| **Impedance** | **LF**: 8 Ohms<br>**MF**: 8 Ohms<br>**HF**: 8 Ohms |
| **Power Handling** | **LF**: 700 Wrms<br>1400 Wprogram<br>**MF**: 200 Wrms<br>400 Wprogram<br>**HF**: 40 Wrms<br>80 Wprogram |
| **Dimensions:** | |
| | Height 31 inches<br>Width (front) 27.75 inches<br>Width (rear) 16.5 inches<br>Depth 25.5 inches<br>Weight 155 lbs. |

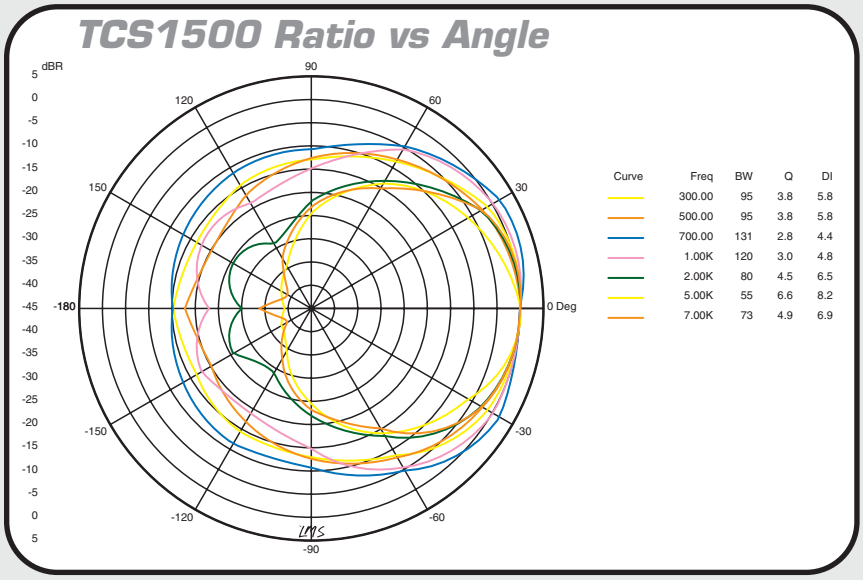
## Impedance Plot

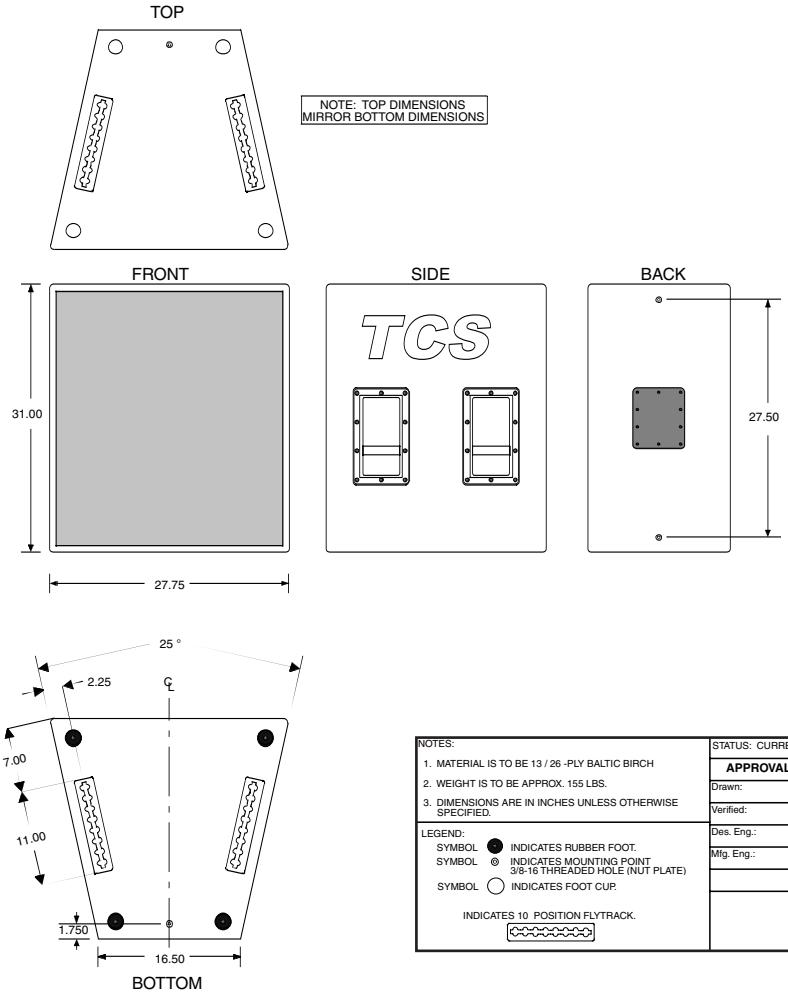



## 1 Watt / 1 Meter on Axis Frequency Response



# Horizontal Polar Response




NOTES:
1. MATERIAL IS TO BE 13 / 26 -PLY BALTIC BIRCH
2. WEIGHT IS TO BE APPROX. 155 LBS.
3. DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.

LEGEND:
SYMBOL ● INDICATES RUBBER FOOT.
SYMBOL ◎ INDICATES MOUNTING POINT 3/8-16 THREADED HOLE (NUT PLATE)
SYMBOL ○ INDICATES FOOT CUP.

INDICATES 10 POSITION FLYTRACK.

STATUS: CURRENT PRODUCTION

| APPROVALS | | DATE |
|---|---|---|
| Drawn: | CRH | 08/25/03 |
| Verified: | | |
| Des. Eng.: | CRH | 08/25/03 |
| Mfg. Eng.: | | |

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San Diego, CA 92128
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FAX 521-6032

TITLE:
CABINET / FINISHED
BLACK DURATEX
– TCS1500 –
[ MECHANICAL DRAWING ]

Revision: A
Date Revised

## TCS2800 TECHNICAL SPECIFICATIONS

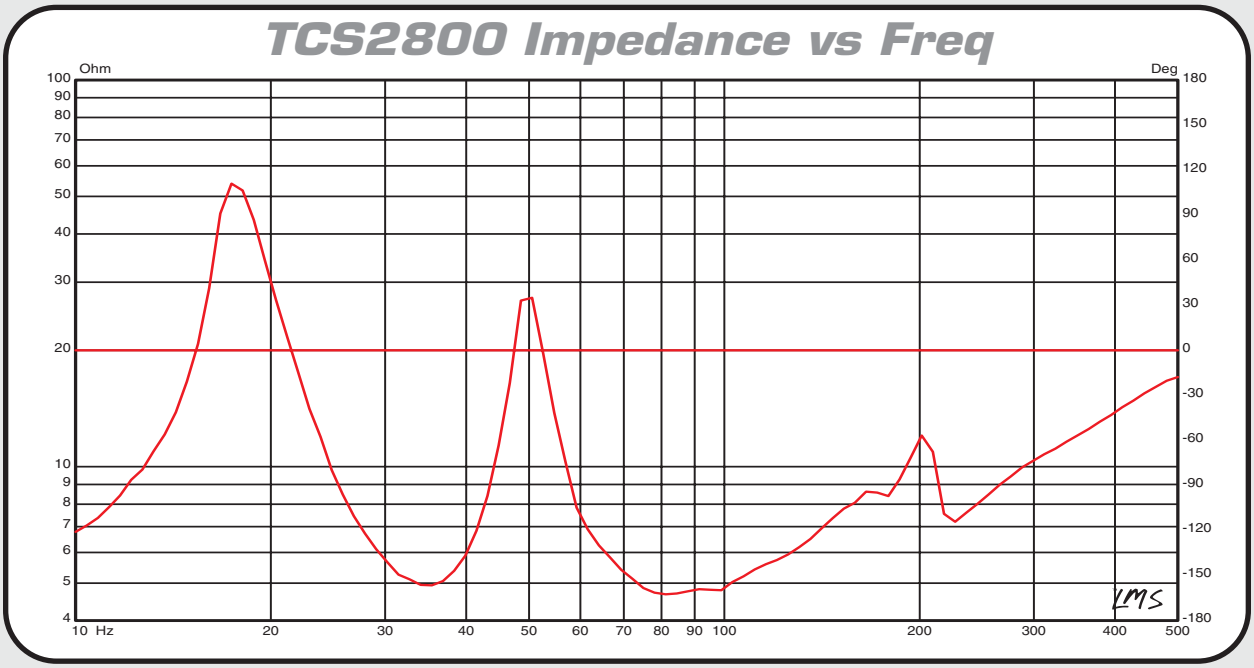
**FEATURE DATA**

| | |
|---|---|
| **Model Number** | TCS2800 |
| **System Configuration** | Dedicated Subwoofer System |
| **Connections** | 2 x Neutrik NL4 |
| **LF system** | 2 x 18" Compound Planar Loaded |
| **Cabinet Type** | Rectangular, Small frontal footprint |
| **Enclosure Structure** | 13 ply and 26 ply Baltic Birch |
| **External Coating** | Duratex |
| **Grille Material** | 14 Ga. Powder Coated perforated steel |
| **Suspension Hardware** | None |

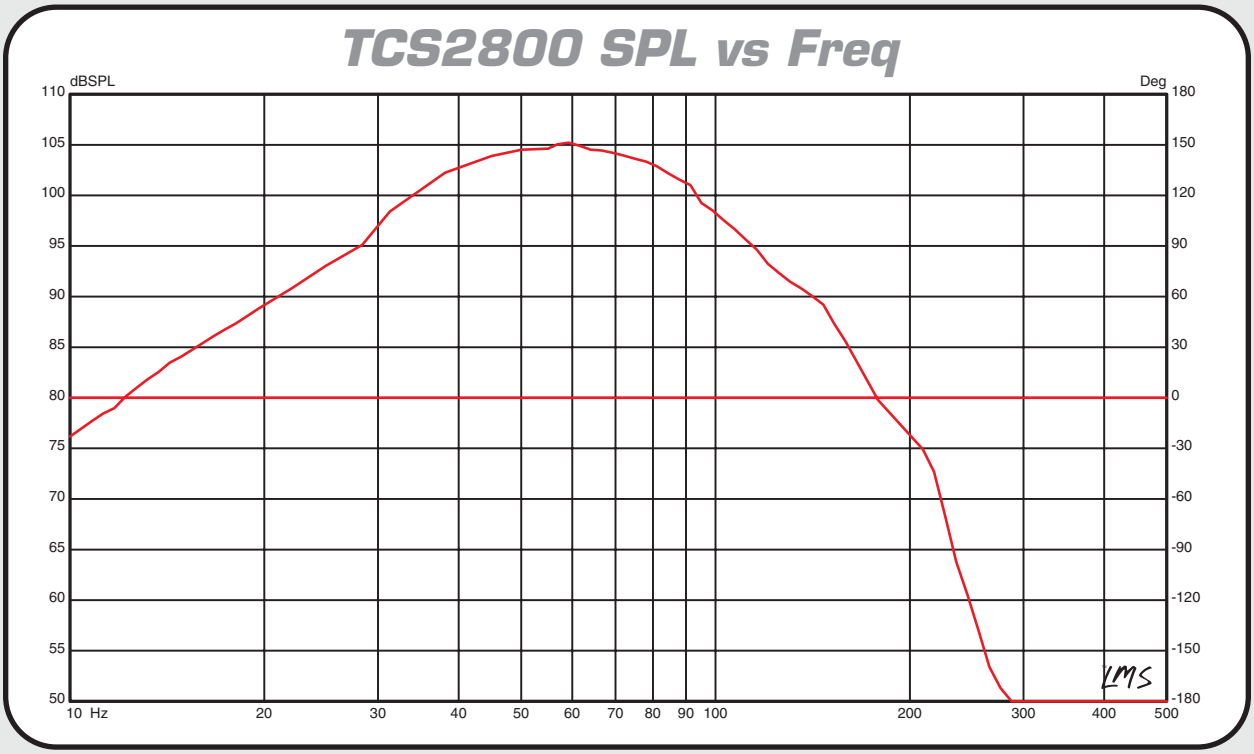
**NOMINAL AND PHYSICAL SPECS**

| | | |
|---|---|---|
| **Frequency Response** | 24Hz - 120 Hz | |
| **Sensitivity (1 W/1 M)** | **LF**: | 105 dB |
| **Max SPL (1 M)** | | 141 dB SPL |
| **Impedance** | **LF**: | 4 Ohms |
| **Power Handling** | **LF**: | 1400 Wrms |
| | | 2800 Wprogram |
| **Dimensions:** | | |
| | Height | 22.75 inches |
| | Width | 30 inches |
| | Depth | 40 inches |
| | Weight | 179 lbs. |

## Impedance Plot




## 1 Watt / 1 Meter on Axis Frequency Response



## TCS1800 TECHNICAL SPECIFICATIONS

**FEATURE DATA**

| | |
|---|---|
| **Model Number** | TCS1800 |
| **System Configuration** | Dedicated Subwoofer System |
| **Connections** | 2 x Neutrik NL4 |
| **LF system** | 18" Front Loaded |
| **Cabinet Type** | Trapezoidal 12.5 deg. per side |
| **Enclosure Structure** | 13 ply and 26 ply Baltic Birch |
| **External Coating** | Duratex |
| **Grille Material** | 14 Ga. Powder Coated perforated steel |
| **Suspension Hardware** | 10 position flytrack<br>2 ea. top and bottom<br>3/8-16 flypoints – 4 ea. |

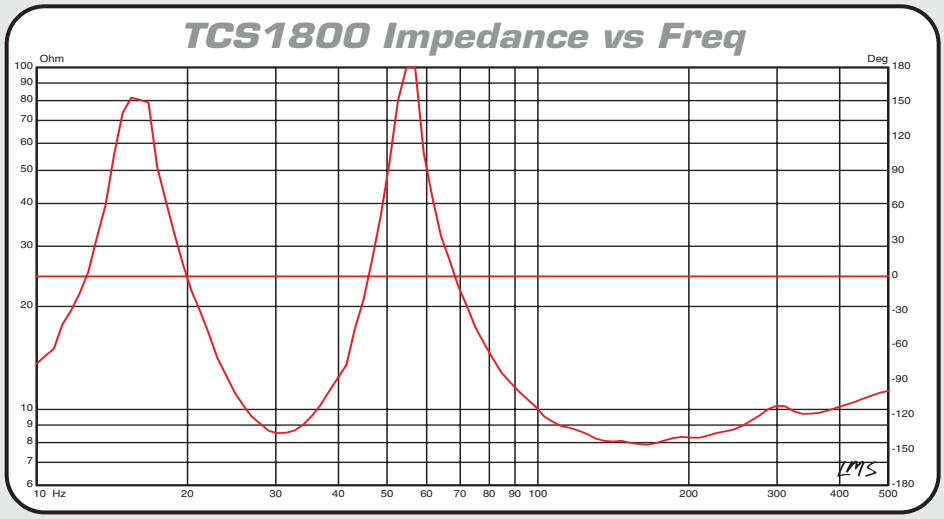
**NOMINAL AND PHYSICAL SPECS**

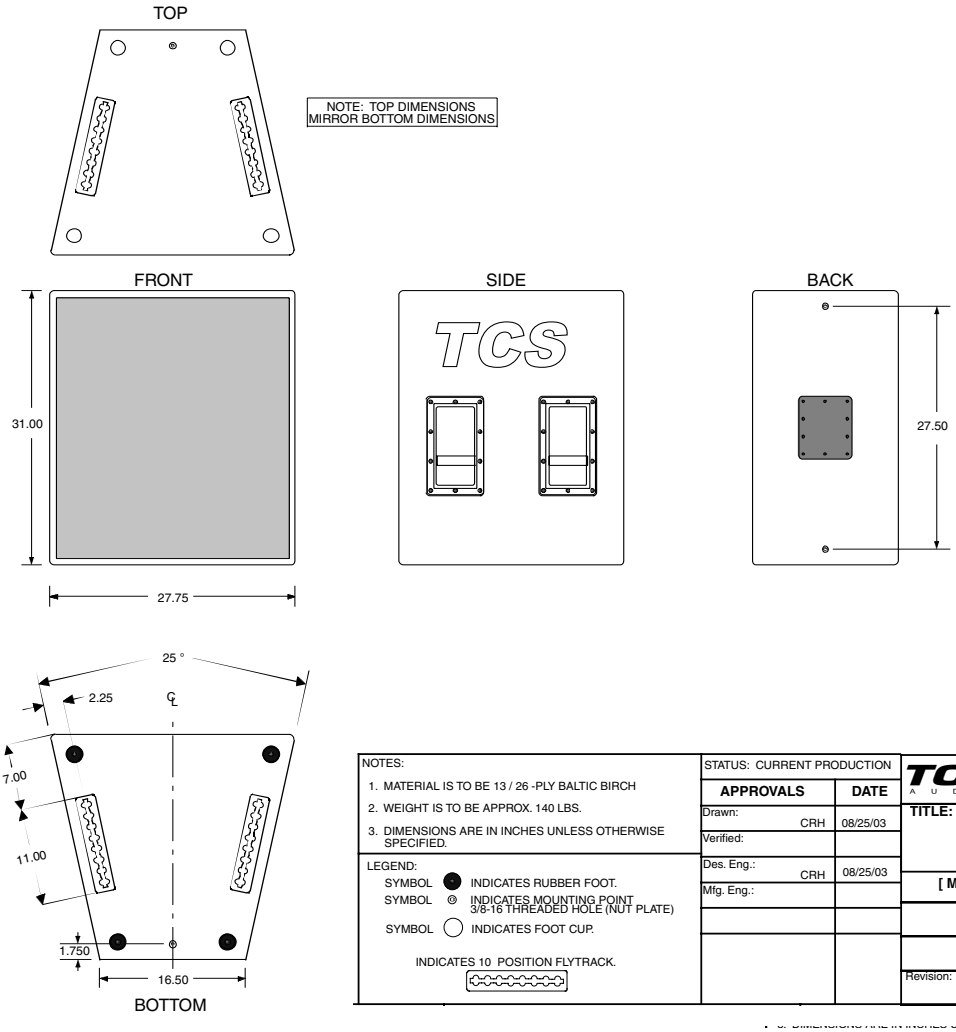
| | |
|---|---|
| **Frequency Response** | 25Hz - 120 Hz |
| **Sensitivity (1 W/1 M)** | **LF**: 103 dB |
| **Max SPL (1 M)** | 137 dB SPL |
| **Impedance** | **LF**: 8 Ohms |
| **Power Handling** | **LF**: 700 Wrms<br>1400 Wprogram |

**Dimensions:**

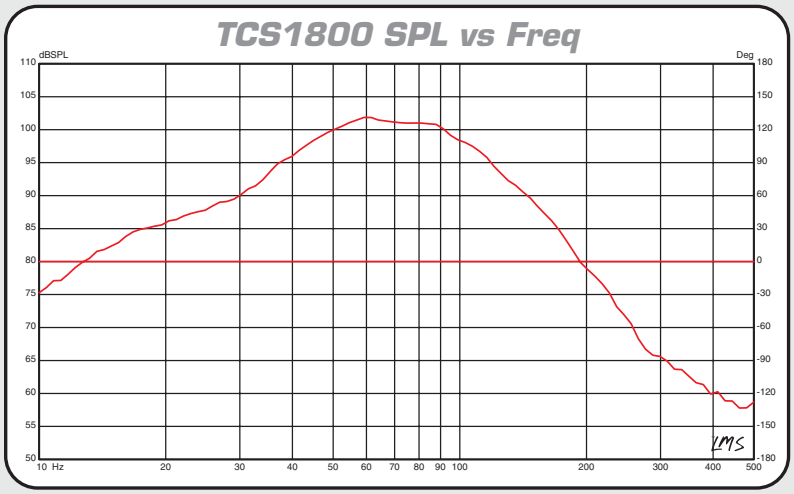
| | |
|---|---|
| Height | 31 inches |
| Width (front) | 27.75 inches |
| Width (rear) | 16.5 inches |
| Depth | 25.5 inches |
| Weight | 140 lbs. |

# Impedance Plot



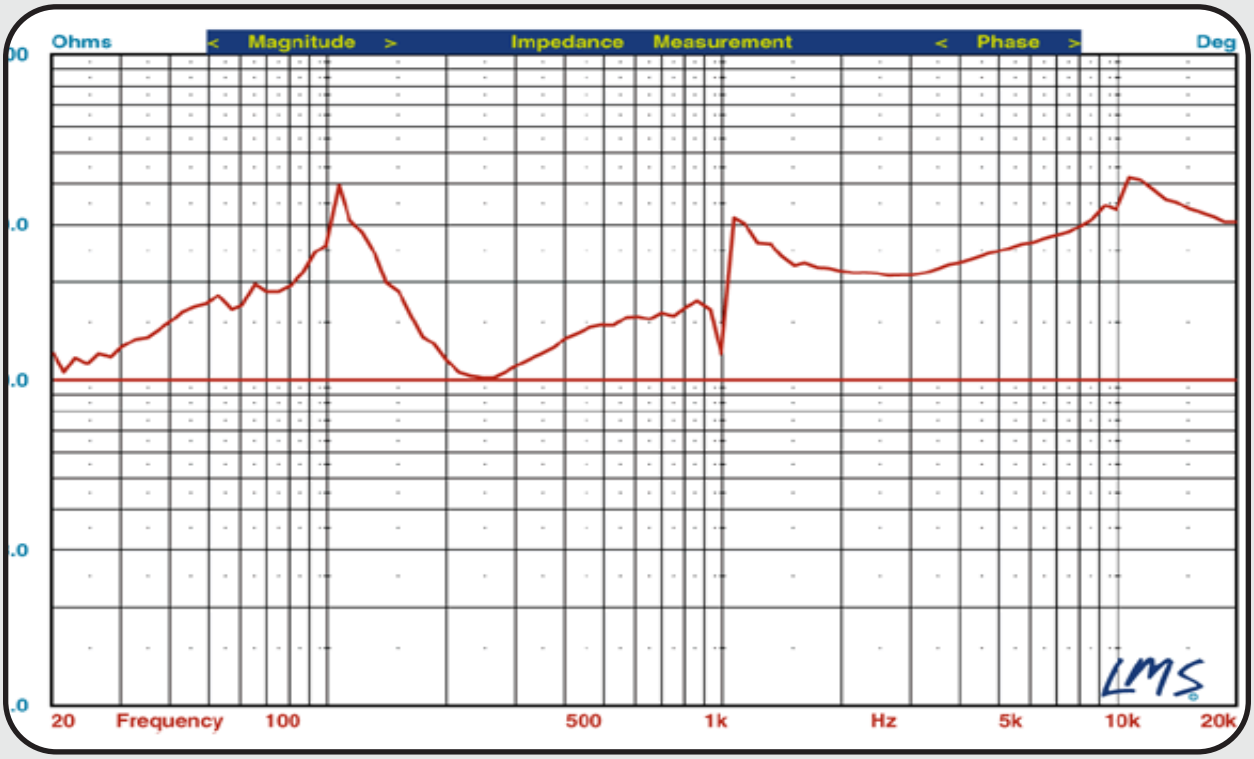
## 1 Watt / 1 Meter on Axis Frequency Response



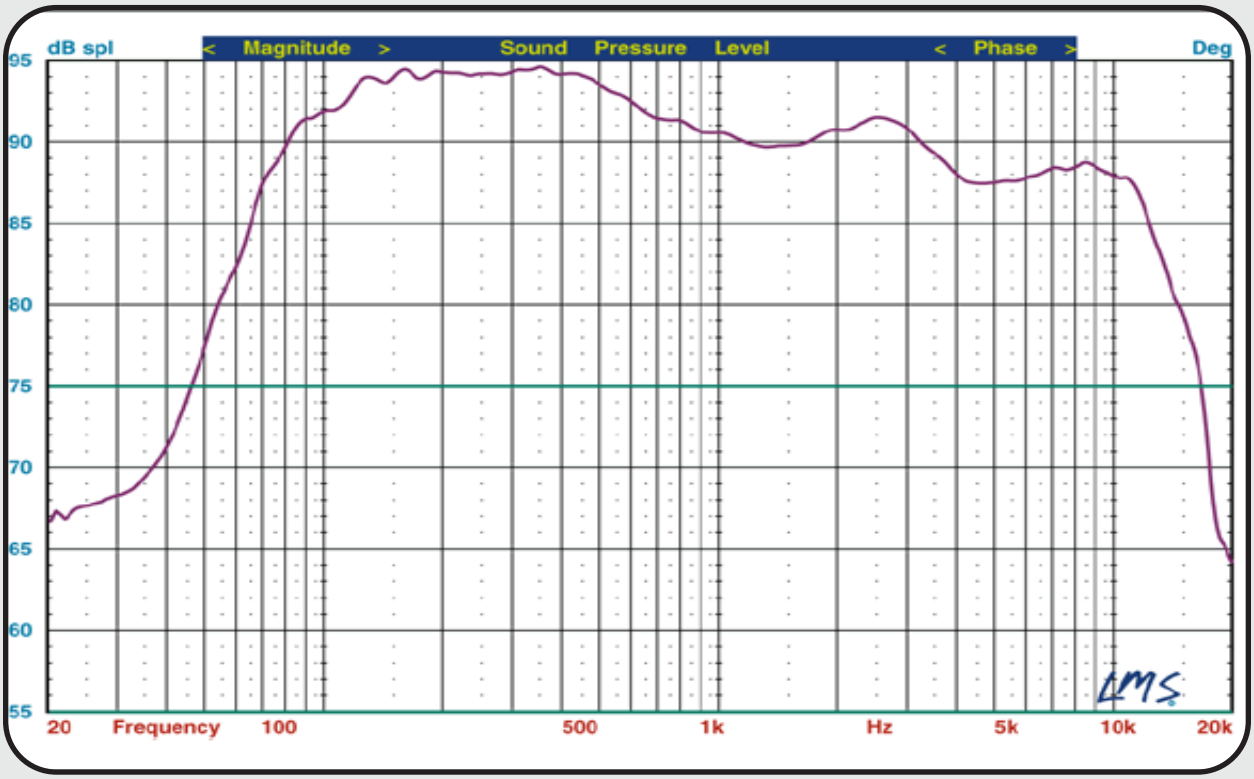

## TCS210 TECHNICAL SPECIFICATIONS

| | |
|---|---|
| **FEATURE DATA** | |
| **Model Number** | TCS210 |
| **System Configuration** | 2-Way, Mid HIgh Enclosure<br>Passive or Bi-Amp (Selectable) |
| **Connections** | 2 x Neutrik NL8 |
| **MF system** | 2 x 10" Front Loaded |
| **HF system** | 1" exit 60 x 40<br>Constant Directivity |
| **Cabinet Type** | Trapezoidal 12.5 deg. per side |
| **Enclosure Structure** | 13 ply Baltic Birch |
| **External Coating** | Duratex |
| **Grille Material** | 14 Ga. Powder Coated perforated steel |
| **Suspension Hardware** | 3/8-16 flypoints – 12 ea. |
| **NOMINAL AND PHYSICAL SPECS** | |
| **Frequency Response** | 60Hz - 16kHz |
| **Sensitivity (1 W/1 M)** | 102 dB |
| **Max SPL (1 M)** | 129 dB SPL |
| **Impedance** | **MF**: 4 Ohms<br>**HF**: 16 Ohms |
| **Power Handling** | **MF**: 400 Wrms<br>800 Wprogram<br>**HF**: 40 Wrms<br>80 Wprogram |
| **Dimensions:** | |
| | Height 31.25 inches<br>Width (front) 13.25 inches<br>Width (rear) 7.4 inches<br>Depth 14 inches<br>Weight 63 lbs. |

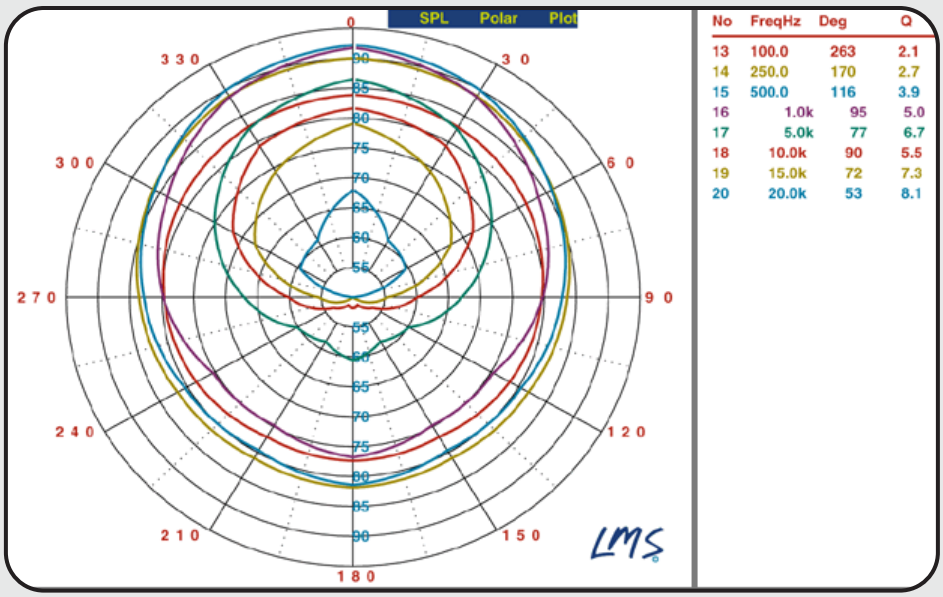
## Impedance Plot



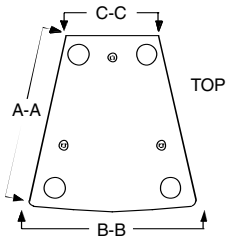

## 1 Watt / 1 Meter on Axis Frequency Response



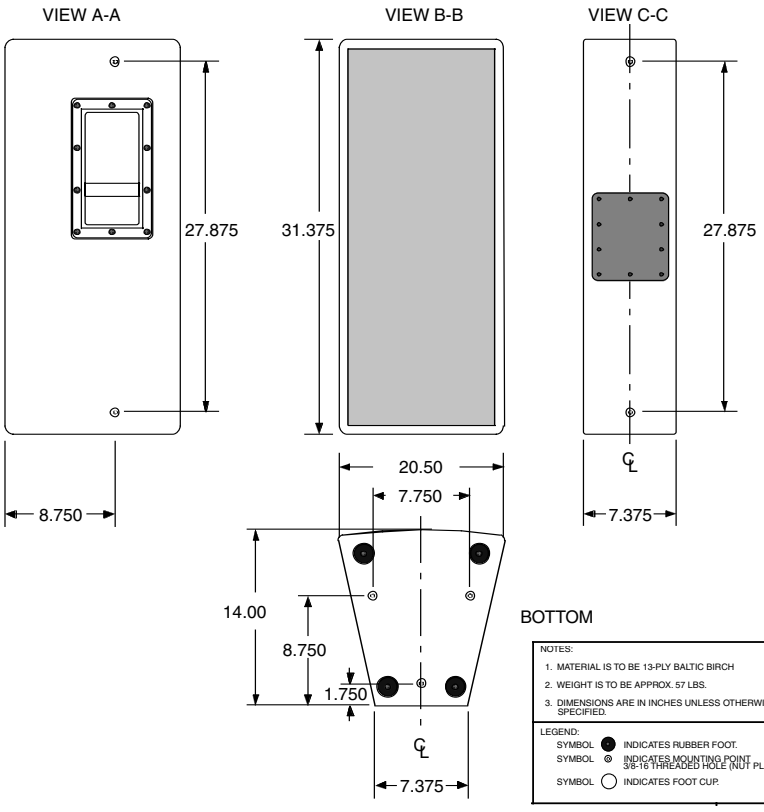
# Horizontal Polar Response




| No | FreqHz | Deg | Q |
|---|---|---|---|
| 13 | 100.0 | 263 | 2.1 |
| 14 | 250.0 | 170 | 2.7 |
| 15 | 500.0 | 116 | 3.9 |
| 16 | 1.0k | 95 | 5.0 |
| 17 | 5.0k | 77 | 6.7 |
| 18 | 10.0k | 90 | 5.5 |
| 19 | 15.0k | 72 | 7.3 |
| 20 | 20.0k | 53 | 8.1 |




NOTE: TOP DIMENSIONS MIRROR BOTTOM DIMENSIONS




BOTTOM

NOTES:
1. MATERIAL IS TO BE 13-PLY BALTIC BIRCH
2. WEIGHT IS TO BE APPROX. 57 LBS.
3. DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.

LEGEND:
SYMBOL ● INDICATES RUBBER FOOT.
SYMBOL ⊗ INDICATES MOUNTING POINT 3/8-16 THREADED HOLE (NUT PLATE)
SYMBOL ○ INDICATES FOOT CUP.

STATUS: CURRENT PRODUCTION

| APPROVALS | DATE |
|---|---|
| Drawn: CRH | 08/01/03 |
| Verified: | |
| Des. Eng.: CRH | 08/01/03 |
| Mfg. Eng.: | |

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TITLE:
CABINET / FINISHED
BLACK DURATEX
– TCS210 –

[ MECHANICAL DRAWING ]

Revision: A
Date Revised

## TCS212M TECHNICAL SPECIFICATIONS

| | |
|---|---|
| **FEATURE DATA** | |
| **Model Number** | TCS212M |
| **System Configuration** | 2-Way, Dedicated stage monitor system<br>Passive or Bi-Amp (Selectable) |
| **Connections** | 2 x Neutrik NL8 |
| **MF system** | 2 x 12" Front Loaded |
| **HF system** | 1" exit 40 x 60<br>Constant Directivity |
| **Cabinet Type** | Wedge 40 deg. |
| **Enclosure Structure** | 13 ply Baltic Birch |
| **External Coating** | Duratex |
| **Grille Material** | 14 Ga. Powder Coated perforated steel |
| **NOMINAL AND PHYSICAL SPECS** | |
| **Frequency Response** | 45Hz - 19kHz |
| **Sensitivity (1 W/1 M)** | 101 dB |
| **Max SPL (1 M)** | 134 dB SPL |
| **Impedance** | **LF**: 4 Ohms<br>**HF**: 8 Ohms |
| **Power Handling** | **LF**: 600 Wrms<br>1200 Wprogram<br>**HF**: 40 Wrms<br>80 Wprogram |
| **Dimensions:** | |
| Height | 14.5 inches |
| Width | 37 inches |
| Depth | 19.25 inches |
| Weight | 85 lbs. |

## TCS115M TECHNICAL SPECIFICATIONS

| | |
|---|---|
| **FEATURE DATA** | |
| **Model Number** | TCS115M |
| **System Configuration** | 2-Way, Dedicated stage monitor system<br>Passive or Bi-Amp (Selectable) |
| **Connections** | 2 x Neutrik NL8 |
| **MF system** | 15" Front Loaded |
| **HF system** | 1" exit 60 x 40<br>Constant Directivity |
| **Cabinet Type** | Wedge 45 deg. |
| **Enclosure Structure** | 13 ply Baltic Birch |
| **External Coating** | Duratex |
| **Grille Material** | 14 Ga. Powder Coated perforated steel |
| **NOMINAL AND PHYSICAL SPECS** | |
| **Frequency Response** | 75Hz - 16kHz |
| **Sensitivity (1 W/1 M)** | 102 dB |
| **Max SPL (1 M)** | 129 dB SPL |
| **Impedance** | **LF**: 8 Ohms<br>**HF**: 16 Ohms |
| **Power Handling** | **LF**: 450 Wrms<br>900 Wprogram<br>**HF**: 40 Wrms<br>80 Wprogram |
| **Dimensions:** | |
| Height | 17 inches |
| Width | 29.25 inches |
| Depth | 17 inches |
| Weight | 68 lbs. |

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