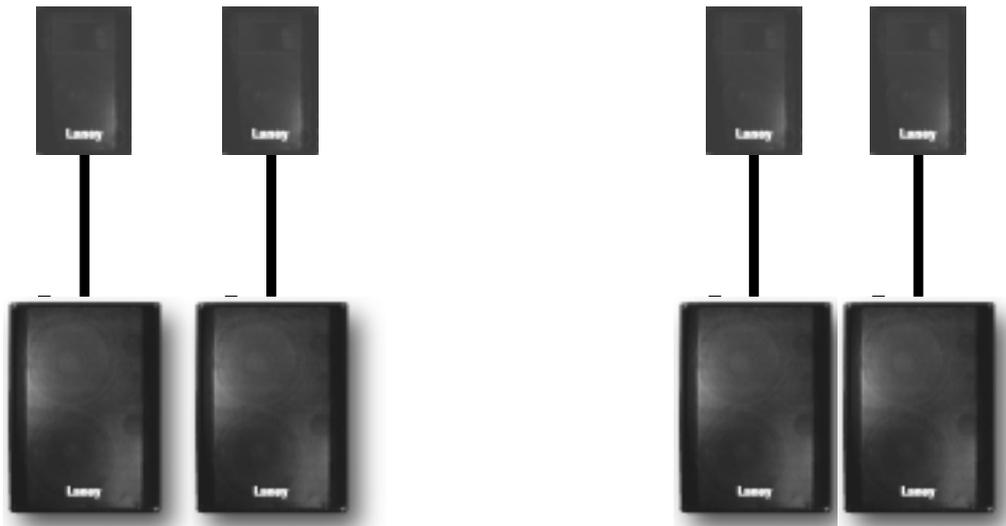


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Concept Loudspeakers Applications



**A new Concept
for a new millennium**

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Concept Application Notes

Myths and Reality of Sound Systems

Introduction

Within this application note you will find 4 sound systems which fulfill most of all typical system requirements. The systems which are covered :-

- 1) Vocal PA
- 2) Full Range + Vocal PA
- 3) Full Range Sound Reinforcement
- 4) Full Range Sound Reinforcement

Before these systems are discussed it's worth discussing myths and realities of sound systems.

Speaker Impedance - Do I buy 4 ohm or 8 ohm Enclosures ?

At some point while shopping around to buy your sound system you will be told you need 4 ohm cabinets because it's claimed they are louder. This may be due to what your supplier has in stock or it's what a particular manufacturer recommends - but what is actually true ?

You could look for a mathematical answer it will say change your 8 ohm loudspeaker to a 4 ohm loudspeaker you'll get double the power. **False** in practice most of amplifiers have conventional power supplies, when you drive an amp which will do 70W @ 8 ohms it will do 100W @ 4 ohms not double the power after all.

Even so I hear you cry that's still a whole 30W more output from my loudspeaker. Let's have a look at a few figures

Sound intensity is a logarithmic law so in fact to get twice as loud as your 70W you will need about a 700W amplifier - by going to a 4 ohm cabinet and dissipating an extra 30W in the driver you won't get 30% more sound level you'll probably only end up with 10-15% if you are lucky.

What you will do though is increase the working temperature of the voice coil so any fractional increase in output level you did get would be taken away due to thermal compression which could be as much as a 25% reduction in sound level..

So by using an 8 ohm enclosure the following happens :

- 1) Reliability Improved - the working temperature of the Loudspeakers voice coil is decreased
- 2) Reduced thermal compression - 50% less than in a similar 4 ohm unit
- 3) A Flexible sound System - you can parallel 2 loudspeakers together
- 4) If you run your amps at 8 ohms they run cooler - good for long term reliability.

So any marginal increase output level achieved by going to 4 ohm cabinets will instantly be taken away from you in thermal compression and reliability.

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Concept Application Notes

Concept Specification

Model	Power Rating (W)	Frequency Response	Sensitivity dB/W @ 1m	Impedance Available	Recommended Power amplifier*	Dimensions H * W * D
<i>Cabinets</i>						
CT10	80	100 – 20K	97	8	120	470*310*330
CT12	100	85 – 18K	98	8	200	545*384*397
CT15	150	65 – 18K	98	8	220	637*444*463
CT815	250	65 – 18K	98	8	350	715*444*463
<i>Powered Cabinets</i>						
CPC10	65	100 – 20K	99	8		470*310*330
CPC12	120	85 - 18K	98	8		545*384*397
CPC15	150	65 - 18K	98	8		637*444*463
<i>Low Frequency Enclosures</i>						
CS115	200	60 – 800	98	8	300	635*463*440
CS215	700	45 - 450	102	4	650	870*620*440
CS118	350	45 - 450	102	8	300	870*620*440
<i>CCX Cabinets</i>						
CTX10	200	90 – 20K	97	8		470*310*330
CTX12	350	65 – 17K	98	8	630	597*384*397
CTX15	350	60 – 17K	102	8	630	685*444*463

*Recommended power amps rating into 4 ohms

CT Range

The CT full range loudspeakers all feature custom bass drivers in reflex enclosures , two ¼ inch Jack connectors and piezo high frequency drivers which are extremely reliable .

The CT satisfies most sound system requirements where cost effective sound systems are required

CPC Range

The CPC Range consists of 3 loudspeakers which are powered versions of the CT10 ,CT12 and CT15.

CTX Range

The CTX full range loudspeakers feature high power custom drivers in reflex enclosures .The CTX12 and CTX15 use 1 inch compression drivers on a horn with a 90 * 40 dispersion pattern.

The CTX range is designed where high quality high sound levels are required , eg band , club and bars.

CS Range

The CS Bass Loudspeaker features high power custom drivers in reflex enclosures.

The CS range is designed to complement the CT , CPC and CTX enclosures where extended low frequency response is required, such as with dance music and accurate reproduction of drums.

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Concept Application Notes

Myths and Reality of Sound Systems

How much Power do you really need ?

Application Hints

1.) Reduce any subsonic signals to your loudspeakers it will increase the life of your drivers by reducing the driver power dissipation and cone excursion but also improve low frequency definition. You can achieve this by switching in any sub-sonic filters that operate at 30Hz and below or reducing these frequencies on a graphic equaliser.

2.) Avoid feedback - when feedback occurs it builds up until it is at the maximum output level the sound system is able to produce - even if it involves the sound system clipping. This is potentially damaging to any loudspeaker and thus should be avoided.

i) make sure sound from the speakers, cannot be picked up by microphones .
(speakers are best in front and facing away of the band).

ii) Only keep microphones open which are needed

iii) Try to cut rather than boost when using any Eq.

iv) If feedback does occur use the graphic Eq or feedback eliminator to stop it.

v) Turntables are particularly prone to low frequency feedback is wise to isolate them mechanically from any low frequency vibration.

3.) In venues which have a particularly lively/reverberant sound. It is best to use a distributed loudspeaker system as this will improve intelligibility/definition trying to compensate with more volume will just excite the reverberant space even more.

Safety Information

1.) High sound pressure levels from loudspeakers can cause permanent and temporary hearing damage. Take care when setting maximum sound levels.

2.) The CT and CTX enclosures are designed for stand/pole mounting via the top hat, in the base of the loudspeaker. The top hat is designed to suit a 35mm pole.

The loudspeakers do not incorporate any facilities for flying or hanging. Do not use the handles for this purpose.

3.) Care should still be taken when lifting, otherwise back injuries may result.

If you can, get someone to help you when lifting the loudspeaker or remember to bend your knees when you pick up and put down the cabinet.

4.) When you position your loudspeakers remember to position them to minimize the risk of people falling over them (particularly the stands). Also remember to secure the loudspeaker cable to minimise any risk of tripping people.

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Concept Application Notes

Vocal P.A.



CPC10 + CT10



Description

This is a medium level music PA. It is built around a CPC10 active enclosure and a CT10 enclosure.

This system is the ideal solution where a vocal PA is required where it needs to be simple to operate and lightweight.

Vocal PA's do not need the large power amplifiers associated with high level music systems so if you do not really need to club/band sound levels this system will meet your requirements.

The CPC10 is a version of CT10 with a 65W power amplifier and mixer built in.

The CPC10 has 2 input channels

1) Phono/Jack input - for CD/tape/Keyboard type inputs

2) Mic/line input - for microphones or CD/ tape/ Keyboard type inputs.

Application : General Purpose Vocal PA
Medium Level Music

Typical User : Schools - fixed install or
general mobile use
Places of Worship
Small Aerobic / Fitness suites

Output Power: 65W r.m.s.
93W Peak

Equipment Required:

1 off LANEY CPC10
1 off LANEY CT10
2 off Speaker Stands
1 off Jack to Jack Speaker
cable
1 off Microphone
1 off Microphone cable
1 off CD/tape/minidisc as
required

Power Requirement: 130W
0.56A

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Concept Application Notes

Full Range + Vocal P.A.



CPC10 + CPC10



CS115 + CS115



Description

This is a vocal / medium level music PA with bass extension which belies its low power rating

The additional bass extension provided by the CS115 enclosure allows the system to provide high level reinforcement of pre-recorded/live material in small venues. This systems performance really needs to be auditioned to realise the full benefits of the additional low frequencies. These low octaves are where much of the emotion and feeling exist within music. This makes the system ideal for DJ's / vocal + keyboard reinforcement for bands.

The CS115 enclosures are connected to the 'extension speaker socket' on the CPC10.

The previous two systems can easily be changed to use a CPC12 (120W) or CPC15(150W) should you need louder systems which may be typical band/ DJ 's.

Application : General Purpose Vocal PA
Medium Level Music

Typical User : Bands - Vocal / Keyboard PA
Mobile discos <200
Schools - fixed install or
general mobile use
Aerobic / Fitness suites
Places of Worship

Output Power: 130W r.m.s.
186W Peak

Equipment Required: 2 off LANEY CPC10
2 off LANEY CS115
2 off Pole Stands
1 off Jack to Jack Speaker
cable
An external mixer may be
used to drive into the CPC10
line inputs - or the internal
mixer could be used as
described in the previous
application note

Power Requirement: 260W
1.12A

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Concept Application Notes

Full Range Sound Reinforcement



CT15 + CT15



CS115 + CS115



Description

This is a system designed for primary reinforcement system for bars , DJ's ,bands.

The simplest operation of this system is by linking the CT15 and CS115 socket together using the sockets on the rear panel. Due to the extended frequency response of the CS115 it can operated without a crossover without sonic compromise.

If Bi-amping is being considered where a separate amplifier would be used for CS115 and CT15 performance improvements can be made. The crossover or low pass filtering should be set to attenuate frequencies above 300Hz. It is advised however not to set the CT15 low frequency roll off to 300Hz otherwise you will not realise the low frequency extension which exists in the CT15, in simple terms there is no point rolling of the bass to 15 inch drivers they reproduce it very well ! Experience shows that in many instances running the CT15 full range with low frequency roll off below 30Hz to be give best results.

You can achieve a simple low pass filter by smoothly rolling of the frequencies above 300Hz on a graphic equaliser .

Application : Full range Sound Reinforcement

Typical User : Band Sound systems
Mobile discos
Clubs / Bars
Aerobic / Fitness suites
Places of Worship

Recommended Power Amplifier: 1 off stereo 120 - 630W per channel amplifier

Equipment Required: 2 off LANEY CT15
2 off LANEY CS115
2 off Pole Stands
2 off Speaker cable (long) - Jack at speaker end
2 off Speaker cable (short) - Jack to Jack

Power Requirement : <2000W
<8A

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Concept Application Notes

Full Range Sound Reinforcement



CTX12 + CTX12

CS215 + CS215

or

CS118 + CS118



Description

This is a system designed for primary reinforcement system in bars , in clubs ,bands.

The move from the CT range to the CTX range sees the use of a 1 inch compression driver for mid/ high frequencies, this makes mid and treble frequencies sound purer and project better. Audition this you can hear the difference , you don't need golden ears !

The CTX12 enclosure is an competent full range enclosure its bass extension is fine for most application however in large venues and/or events requiring high sound levels the addition of a CS bass enclosure is recommended.

The simplest operation of this system is by linking the CTX15 and CS118 socket together using the sockets on the rear panel. Due to the extended frequency response of the CS118 it can operated without a crossover without sonic compromise. The CS215 does benefit from the use of a crossover - and it does need a separate amplifier due to its 4 ohm impedance.

If Bi-amping is being considered , where a separate amplifier would be used for CTX12 and CS enclosures performance improvements can be made.

Application : Full range Sound Reinforcement

Typical User : Band Sound systems
Mobile discos
Clubs / Bars
Aerobic / Fitness suites
Places of Worship

Recommended Power Amplifier: 2 off 120 - 630W per channel amplifier

Equipment Required: 2 off LANEY CTX12
2 off LANEY CS215 or CS118
2 off Pole Stands
4 off Speaker cable (long)

The crossover or low pass filtering should be set to attenuate frequencies above 250Hz. It is advised however not to set the CTX12 low frequency roll off to 300Hz otherwise you will not realise the low frequency extension which exists in the CTX12, in simple terms there is no point rolling of the bass to 12 inch drivers they reproduce it very well ! Experience shows that in many instances running the CTX12 with low frequency roll off below 60Hz gives best results.

You can achieve a simple low pass filter by smoothly rolling of the frequencies above 250Hz on a graphic equaliser .