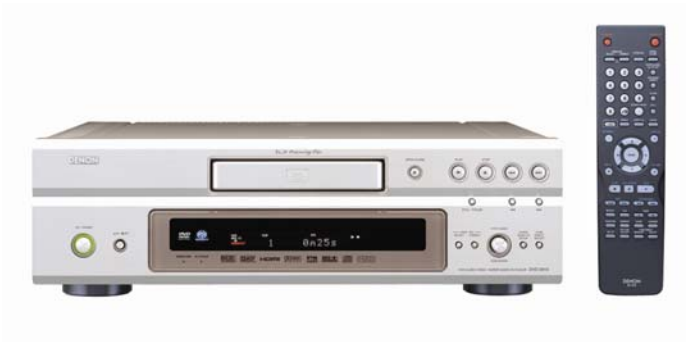
AUDIO TRENDS

L E A R N I N G C E N T R E

Screen Aspect Ratios – A Simple Explanation

Times have changed since you bought that old 68cm TV. Back then you simply took the set home, plugged it in and sat back. Now with widescreen TV, pictures come in a number of different sizes and sometimes even on widescreen sets, have little black bars! What does it all mean?

You will be well aware of the many benefits of DVD – twice the resolution of standard VHS tape, 5.1-channel surround sound, multiple aspect ratio options, multiple language capabilities, etc. However, as with any new technology, there is misunderstanding at first – and not just among the consumer ranks. But, with the introduction of widescreen television and the endless number of questions from our customers, it's easy to see that complete mastery of DVD and widescreen television technology is still a challenge for most. If you feel you would like to understand this interesting subject better, then please read on.



Based on your comments, we offer this instalment as an introduction to the most pressing issue posed to us – aspect ratios and the confusion with the various formats that DVD and widescreen television brings to the table. Obviously generalisations are in order – we can't speak for the operation of every DVD Player, television and projector or for that matter, personal preference in movie watching. You won't be an expert after reading this (and those in-the-know should keep in mind this piece is being written for a wide audience), but we do hope that you'll come away with a better understanding of what your options are when enjoying this outstanding new technology.

Everything You Need to Know About DVD Player Set-up

Well, maybe not! However, just before we dive into the particulars of format options; allow me to pass along some information that may solve many of the problems people are having out there right now. As you may know, DVD offers playback for two basic types of display – aspect ratios of 4:3 and 16:9. Aspect ratio refers to the shape of an image, expressed as a ratio of horizontal elements to vertical elements.

Here's the punch line: Every DVD Player out there has a set-up menu that offers both of these aspect ratios as playback options. You only need to make this setting on the player ONCE, based SOLELY on the aspect ratio of your television, not the aspect ratio of the playback format that you're using. Select the correct shape as soon as you get your player and don't even think about it again unless you get a new television and then only if it is in a different aspect ratio to the original.

Sounds obvious right? Take a stroll down the aisles of many big electronics stores, or even more surprisingly a consumer electronics show and you'll realise very quickly that it isn't – even among people who should know much better. Many of the local "if-it-plugs-in-we-sell-it emporiums" wouldn't have a clue. There

are other settings relating to playback format that you may come across depending on which Player and display you have, but none of these affect the rule about making the main aspect ratio setting once and once only and then leaving it alone unless you get a different television.

No matter what kind of display you have – television or projector – always consult the instruction manual when you come across a set-up option you don't understand. Whatever misplaced embarrassment people may feel for needing help, it is no match for the embarrassment they'll feel when showing off their new system and everyone on-screen suddenly looks as though they are out-of-work basketballers!

An interesting piece of Cinema trivia tells us that virtually all movies shot prior to the birth of television in the 50's were presented in an aspect ratio of 1.37:1 – just a hair off traditional televisions 1.33:1 standard. Anticipating the challenge that a TV set in every house in America would pose to box office revenues, studios began to develop the more rectangular aspect ratios that we're accustomed to today. The idea was to provide movie-goers with a more panoramic and thus more dramatic viewing experience that they couldn't get at home – at least not for a few decades. So, where are we today?

Most of you are familiar with the common aspect ratio for widescreen television – 16:9. However, 16:9 is a television ratio and actually equals a ratio of 1.78:1. This is not the film ratio, which correctly is 1.85:1. So, occasionally you will get a widescreen program, usually a movie which will still have very small horizontal black bars at the top.

The ratios of 1.85:1 and 2.35:1 are typical 'film' formats. Many modern day films are photographed in one of these two aspect ratios, not just 2.35:1. However, there are literally dozens of different aspect ratios that films have been produced in over the years – all the way from 1:1 to 2.77:1

Some really old movies (Citizen Kane, Wizard of Oz, etc) which came out before the wide adoption of cinemascope etc were originally shot in the 4:3 aspect ratio, the same as your old 68cm traditional television. While some studios later "soft-matted" these films for widescreen release, the correct way to watch these films is in the standard 4:3 aspect ratio. In this case, the image when shown on a 16:9 television or projector will fill the screen vertically but you will have black bars or pillars on the sides.

With 'anamorphic widescreen DVDs' there are actually four different situations that need addressing: (please note this does NOT refer to Full frame, Pan-n-Scan, or non-anamorphic widescreen DVDs, something not as relevant today with the introduction of widescreen television)

DVD Player Set Ups

- **DVD player set to 16:9 shown on a 16:9 TV**

The DVD player will output an anamorphic signal which will be correctly stretched to fill the screen on a widescreen TV. The image will fill the screen side to side, have small black bars at the top and bottom if the original material was wider than 1.78:1. This is the correct way to watch anamorphic DVDs with a 16:9 TV.

- **DVD player set to 4:3 shown on a 4:3 TV**

The DVD will letterbox the signal before output. In this way, you will be able to watch the original material in the correct aspect ratio, but theblack boxes on the top and bottom of the screen will be bigger than in point one and you will loose some resolution in converting from anamorphic to letterboxed. This is the correct way to watch anamorphic DVDs with a 4:3 TV.

- **DVD player set to 16:9 shown on a 4:3 TV**

The DVD player will output an anamorphic signal which will not be correctly stretched on the TV. In this case all people in the picture will look squeezed together and very tall. The image will still fill the screen side to side, have black bars at the top and bottom if the original material was wider than 1.78:1. A picture of a circle on the DVD will look like a vertical oval. To fix this the DVD player should be setup as in point two.

- **DVD player set to 4:3 shown on a 16:9 TV**

The DVD will letterbox the signal before output. The TV, expecting an anamorphic signal will stretch the signal out and everything will look REALLY wide. People will be very stalky and a picture of a circle on the DVD will look like a horizontal oval. To fix this the DVD player should be set as in point one.

'Special Note'

The incorrect way to fix point four would be to set the projector (or whatever 16:9 set in question) to a 4:3 input. This will return the original material to the correct aspect ratio, but there will now be black bars around all four sides of the picture.

Stretching a 4:3 DVD picture to 'fit' a 16:9 TV will fill the screen and make the picture look "bigger" because the display device is 'electronically' stretching the picture to fit the screen. This is not how it was meant to be viewed. As an exercise, find a home cinema setup DVD with a picture of a circle. When showing a 4:3 shot of the circle stretched to the 16:9 aspect ratio, the circle will be a horizontally flattened oval. Although not correct, the final decision really depends on how true to the original material you want it.