

Guide to Buying Your TV



What you need to know!



Screen Types

LED



LED TV's all have an LCD screen, it is the backlight that uses LED technology. The use of LED lighting allows for a thinner panel which is why they are all wafer thin. LED TV's have a lower power consumption than other types of TV making them more economical. Using LED lighting also gives the TV's a brighter and sharper display and you will also see many LED TV's boasting much higher contrast ratios making them more favourable when you are looking to purchase a new TV. Their slim design is also a benefit as they look great in modern homes as well as traditional homes, they take up less space and do not protrude of walls too much.

LCD (Liquid Crystal Display) TV's are quickly becoming a thing of the past. When LCD's came out they quickly over-took typical rear projection TV's and CRT TV's and now with the release of LED TV's and their increasing popularity LCD TV's are slowly fading out. There are still a variety of LCD TV's in production and that do give you an excellent picture quality however in comparison to the majority of the LED TV's available the now, for not much more in terms of price, the logical choice seems to be to go for a more up to date LED TV.

LCD



Plasma TV's are more common in larger sizes, such as in 37" and above. They are called Plasma displays because the technology uses electrically charged ionised gases to generate the picture. Like any electrical item these days Plasma's have benefits and draw-backs. Plasma TV's have always boasted high contrast ratios giving you deeper black levels and brighter whites. They also have a greater viewing angle so the image doesn't darken when you are looking at the TV from certain angles. Plasmas naturally have a high refresh rate and so motion blur is not a major issue, if an issue at all, making them more suitable for people who watch a lot of sport or any fast moving images. Earlier plasmas did suffer from what was called screen burn however modern technology has improved this issue as most new plasma TV's have anti-burn technology built in to them whereby the screen will move the image side to side slightly to reduce the chance of screen burn however not so much that you will notice that it is doing it. Also with older models, they would eventually 'burn-out' where by the brightness would fade over time however newer models are less susceptible to this, with some manufacturers advertising 100,000 hours of actual display time, or 27 years when the TV is on for 10 hours a day.



Panasonic introduced a NeoPDP panel on some of their Plasma models which use larger plasma cells capable of emitting more light while using less power. NeoPDP Plasma's rival LED TV's for their sleek thin design as well as boasting frequencies of 600Hz causing them to have the smoothest picture going.



HD Ready TV's are all capable of displaying what is known as a 'Near HD' image, which when compared to a Full HD image doesn't look massively different. A HD Ready set is capable of displaying the following resolutions; 480i, 576i, 480p, 576p, 720p and 1080i. The 'i' stands for interlacing which means that the screen is fully refreshed each second cycle and so only half the image is updates every 60th of a second. This is what makes a 1080p image look smoother as it replaces each line individually. In terms of HD TV channels for the time being they are unable to broadcast a Full HD image to you TV as the technology is available so when watching ITV1 HD for example, the image will only come through in a 1080i resolution whether you are watching it on a Full HD TV or on a HD Ready TV. So for the time being if you want to watch the few HD channels available on your TV, you will get the same quality on a HD Ready set as a Full HD set, however if you are going to be connecting games consoles, blu-ray players or even your PC you will get a better HD display on a Full HD set.



Full HD 1080P

Full HD 1080p refers to the resolution of the screen on your television. A Full HD TV can display a resolution of 1920 x 1080p, which is the number of pixels displayed over the screen. This resolution can only be achieved when a Full HD signal is sent to the TV i.e through a games console or blu-ray player playing a blu-ray disc connected through a HDMI cable. Full HD gives a much clearer and sharper image than a standard resolution shown on almost all TV channels at the moment, even more noticable when they are compared side by side. A Full HD TV can display all Resolution types i.e. 480i, 576i, 480p, 576p, 720p, 1080i and 1080p.

A Full HD display will look smoother between image changes because of the way it replaces each individual pixel line with the next set which is where the 1080p comes from. The 'P' stands for progressive scan which removes each individual line with the next set. A HD progressive scan resolution, so 720p or 1080p, updates the Full image every 60th of a second.

For the time being in order to get a Full HD image on your screen you will need to be playing a games console connected through a HDMI port, a Blu-ray through the HDMI port or connecting a PC through a DVI or HDMI port. Most of these inputs will automatically set the resolution on your TV however in some cases you will need to adjust the settings on your console, PC or Blu-ray player.





Freeview HD is a television service which allows you to receive HD channels through your existing TV aerial, all for free, no subscription required. Freeview HD is available in set top boxes which need to be connected to your HD Ready or Full HD TV. You can also purchase TV's which already have Freeview HD tuners built in. As well as the HD channels you also get access to all the usual freeview channels broadcast in Standard Definition as well as a variety of radio stations. On a standard definition channel they screen will display around 400,000 pixels which does sound like a lot, however on a HD channel your screen will display over 2 Million pixels which is why HD looks so much clearer and life like. The HD channels available are BBC HD, BBC One HD, ITV1 HD, Channel 4 HD. For the time being the HD channels do only come through in a 1080i resolution rather than a Full HD resolution of 1920x1080p (the difference is explained in the HD Section of this booklet) however despite the resolution not being the best it could be, you will still notice a massive difference between a HD channel and a SD channel.



Freesat is another free digital service which was released in 2008 to ensure anyone could receive free digital TV. On freesat you will receive 150+ channels as standard and with Freesat HD you will also get 5 HD channels. Freesat also had a Freesat+ and a Freesat HD+ service which allows you to pause, rewind and record your favourite TV programmes. Freesat does require you to have a satellite dish to be able to receive the channels, which is relatively cheap to have installed when looked at in the long term.



Types of 3D.

There are 2 main types of 3D TV's, commonly known as Active and Passive 3D. They both give similar effects but they have different production costs which is passed on to you as the customer.

Passive 3D.



Polarized 3D Technology, more commonly known as Passive 3D Technology. Typically used in Cinemas for modern films, it works just as well as

Active 3D technology however only requires glasses that are cheap and light. The cost of glasses plays an important part in the choice of a 3D TV for some people, which is why Passive 3D is becoming more and more popular. With passive 3D the TV does the majority of the work in generating the 3D effect which is why you will often find the cost of the TV to be higher than the cost of an Active 3D TV, however where you spend more on the TV, you save a significant amount on the purchase of 3D glasses.

Active 3D.

Active 3D Technology uses shutter glasses. This type of 3D is more mainstream for Home 3D televisions. The glasses do the majority of the work in creating the 3D effect, hence their price, Shutter glasses are heavier than passive 3D glasses as they are battery powered and are alot bulkier but give a similar 3D effect to passive 3D. Active 3D TV's are often cheaper than passive 3D TV's however where you save on the TV, you pay significantly more for 3D glasses, especially when you have a medium or large sized family.



Overview.

Active 3D TV's where the main type of 3D TV available for household use until recently when Passive 3D TV's have taken off. There are pros and cons to each type of 3D TV available.

Passive 3D has cheaper, and slightly better looking glasses, however you pay more for the TV itself, whereas with an Active 3D TV's it is the other way around, you will pay a bit less for the TV itself, yet pay a lot more for the glasses, which are bulky and uncomfortable. In terms of quality of the 3D effect they give, they both look very similar and it would take a keen eye to pick out any differences.

Manufacturers are working on 3D technology which doesn't require glasses, which has been released by the likes of Nintendo in the 3DS, however it's going to be a while before this becomes mainstream as at the moment you need to be at a certain angle to the TV for the 3D effect to work, which would be a problem if everyone had to sit on top of each other in your living room.



Smart TV's are the next generation in home entertainment. The majority of manufacturers have their own versions of a smart TV i.e. Panasonic have Smart Viera, Samsung have their Samsung Smart TV's which are possibly the best and most advanced ones available at the moment. Depending on the Smart TV you go for you will get access to some TV enabled internet content such as BBC iPlayer, Youtube, facebook, twitter etc. Smart TV's really are the ultimate TV for the 'couch potato'. Being able to do a lot of what you can do on your computer all through your TV means less faffing about switching between inputs or units and you can never get bored of what is on the TV with the on demand services available. With Smart TV's you are able to download applications or content directly to your TV. Different manufacturers will have their own variations of applications such as Love Film or Netflix. The latest generation of Smart TV's such as Samsung D8000 model (pictures on the next page) have a built in memory which remembers your favourite programmes or genre types and can make recommendations based on what you have watched previously.



Frequency Hz



The Frequency of a TV is the rate at which the TV screen 're-draws' its picture, also known as the refresh rate. There are a few different refresh rates available on a TV, i.e. 50/60Hz, 100Hz etc.

The refresh rate is the number of times the display reloads the image a second i.e. A 100Hz screen will 're-draw' the image 100 times every second. Often, especially with new TV's, you will see them being advertised as 600Hz or 400Hz, these tend to be on Plasma TV's. These refresh rates do not mean the screen is 're-drawing' the image 600 times every second and are often referred to as a sub-field drive. A 600Hz refresh rate will show 60 frames per second and will flash the pixels 10 times in each frame, $60 \times 10 = 600\text{Hz}$. For normal programmes such as soaps or films with little action a low refresh rate will cope with the image change fine however a lower refresh rate will show a serious lag when you are watching something with a lot of action such as Football, this is where a higher refresh rate will benefit you.



Contrast Ratio



With the new Smart TV's boasting very high specifications such as having Smart Hubs, 3D capability, integrated Wifi, Freeview HD and Freesat HD, 600Hz refresh rates, USB media players and recorders, the list goes on. It is no wonder they are so expensive, they combine what used to require 3 or 4 different units in to 1 easy to use TV, making it much more convenient for most people. No need to have 4 different remotes lying around your living room as your Smart TV does everything you want from the one remote. The best Smart TV's will allow you to socialise on Facebook, Twitter or Skype, while you watch your favourite TV programmes. Some people will love this feature, others would actually prefer to go out and socialise in person, but when you are having a lazy day it is a convenient application to have on your TV meaning you can just lay about on your couch all day without having to move for hours on end.

The contrast ratio on a TV is what confuses most people looking to purchase a new TV. If you look at older models in TV's you will see that a lot of them are advertised as having a contrast ratio of 1,000:1 or 10,000:1, whereas with modern TV's you will see a lot advertising 7,000,000:1 or in some manufacturers cases Infinite:1. The contrast ratio is defined as the ratio of the luminance of the brightest colour (White) to that of the darkest colour (Black) that the system can produce.

Inputs

HDMI



High Definition Multimedia Interface

This type of connection is becoming more and more popular with the amount of HD content available. HDMI can transmit up to a 1080p image from your Games Console, Blu-Ray player, Sky HD Box or other HD Set Top Boxes.

Component



Component Video Cables

This type of cable can also be used to transmit High Definition content however some manufacturers do limit the sets to displaying a maximum of 1080i through this connection and so in order to get a Full HD 1080p display you would need to be connected using a HDMI cable.

Scart



Scart Video

Scart connections are becoming more and more dated and less popular by the day. You will notice that a lot of new TV's will only have 1 scart input and with the way they are designed you can't really blame them, scarts are very bulky and abit of an eye sore when you have a nice new slim TV. Scarts can only transmit Standard Definition resolutions to your TV.

Composite



Composite Video Cables

These are the typical Red, Yellow and White plug in's that used to be very popular when connecting a games console or DVD player however like scart leads they are becoming less popular because they can only transmit Standard Definition resolutions to your TV.

PC



PC Input (VGA)

There is a high demand for TV's to have a PC (VGA) input as many consumers like to connect their laptop or PC tower directly to the TV to use it as a monitor. A PC can be connected to the TV if your PC/Laptop has a HDMI output, in which case you use a HDMI cable, or a VGA or DVI output. If your PC/ Laptop has a a DVI output then you will need a DVI to VGA adaptor.

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