

Technical Article:

Understanding White Balance with Video Conferencing

Have you ever taken a photograph and noticed how the colours don't look quite right? Perhaps there is too much blue in the picture or too much red? In some pictures these errors can be quite effective in adding artistic flair. In photography and film work it is possible to correct images like these in post production, using software packages to correct the error.



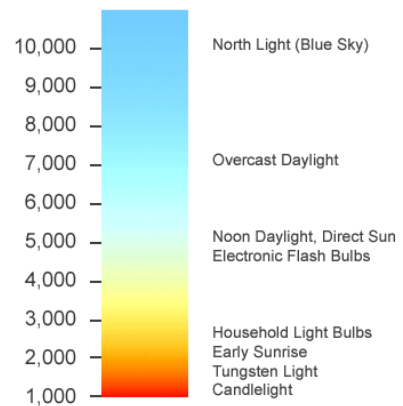
In live transmission of video this luxury doesn't exist as you don't ever get the opportunity to edit your images before they are sent to your viewers, whether they be an audience of millions watching the BBC News or a small group of people having a video meeting. Because of this it is imperative to get it right first time at the source, this guide explains what causes these problems and how best to fix them.

Different light sources create slightly different colours of light, these changes in colour can be represented by a colour temperature. Colour temperature is a way of describing the different hues of light and it is measured in *Kelvins* (K).



Fluorescent office lighting creates light which appears on camera as slightly blue, whereas typical tungsten filament bulbs create light which appears slightly red. The human eye automatically compensates for these changes in colour temperatures but cameras often struggle.

Colour Temperatures in the Kelvin Scale



The reason cameras struggle is they need a white point of reference from which they can base how much they need to adjust other colours. The technique used for setting this reference point is called *white balance*. There are different ways of setting the white balance depending on the camera and the user interface, some systems allow you to input the colour temperature, some have presets for certain conditions, some set the white balance automatically, and others white balance when you tell them to adjust to a specific reference point.

Being able to adjust to one light source is easy, in meeting rooms it is unlikely that all of your lighting will be calibrated to a specific colour temperature and if it does it is likely you'll also have windows allowing sunlight to flood your room. Television and film studios get around this



problem by having calibrated film lights, which are set to a specific colour temperature. All the cameras are set to this temperature so everything appears correct. In meeting

rooms there is simply not the space to have lights like this so there are really only two solutions to this problem.



The first method is to try adjusting to each of the different temperatures and checking which looks best, remember to put people in the room as the light has to look best on them. It may be that you have to sacrifice the background colours so that you get your foreground perfect. In some cases, if you have a real mix of light temperatures you will not be able to get an adequate balance and will probably need to start looking at redesigning your lighting solution or look at the second method.

The second method is a little more complicated. You will have to match all of your light sources to the same temperature. This can be done using lighting gels. Lighting gels are a thin piece of plastic that are placed over the light source and can raise or lower the lighting temperature at the source. Lighting gels come in a variety of sizes so if required you can purchase a large roll to place over a window. To get this method to work requires a understanding of both the properties of light and the gels, using the wrong gel will give you the same problem as you had before, potentially worse.



If you are experiencing problems with the colours on your video conferencing system then please do not hesitate to contact our technical team on **01256 891740** or email **techsupport@audeo.co.uk**. We can help you to set up your video conferencing system to show the best colours, and we can also recommend lighting, blinds and other solutions for your room.

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