

How (and when) to use a light meter

What do lighting technicians need to do to adjust their setups for congregants that are either attending the service or watching at home? asks **John Black**

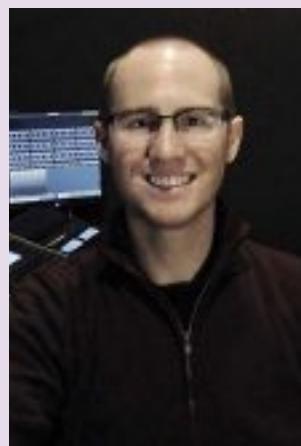
SO YOU'RE A VOLUNTEER LIGHTING

technician and you bring up the faders to a predetermined point, or press the 'go' button to recall a cue, and the lights come up. The level of light to your eyes looks good and a good visual image of the stage is what you're looking for. Job done, right? In houses of worship where the naked eye is the only 'eye' in the room, that may be true. However, there are fewer and fewer services anymore where the only audience is those sitting in the auditorium.

In today's world of video live streaming, on-demand viewing of archived services, image magnification (IMAG) systems and multi-venue broadcasting, the eye of a camera – or many cameras

MEET THE AUTHOR

John Black serves as the theatre manager for Seoul Foreign School in Seoul, South Korea. Holding a degree in Theatre Design, he provides technical production support and design in three state-of-the-art performance venues on campus for over 40 major concerts and productions a year in the areas of sound, lighting, video and staging. John especially enjoys sharing his passion for entertainment technology with high-school students each year through his student production team, *Crusader Live!*, giving students the opportunity to learn and work with professional-level technologies in a demanding production environment.

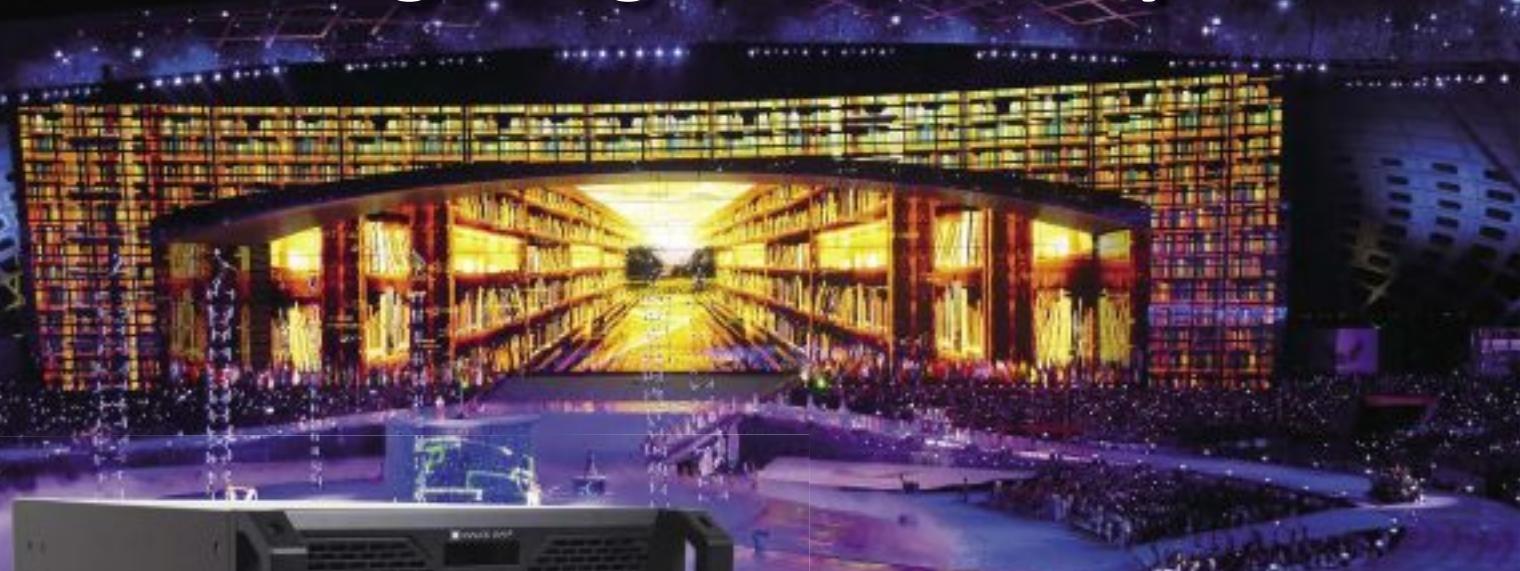


**John Black, theatre manager
for Seoul Foreign School**

– has become a very prominent viewer in many houses of worship. As camera sensors are much more sensitive to light than the human eye, the task of lighting a service appropriately for 'screen audiences' has become very important. This has added to the complexity of the lighting designer or technician's role as he or she must now consider lighting from the perspective of multiple audiences.

This article is going to take a look at a specific tool – the light meter – that lighting technicians and designers can utilise to ensure that the screen audience receives as good an experience as those in the auditorium. If you've never seen or used a light meter, or don't know how or what it is used for, hopefully

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you'll finish this article with more knowledge than when you started.

What is a light meter?

If your lighting experience has been working in situations where you are only dealing with the eyes of those in the auditorium, chances are you have not come across a light meter before or have very little experience with one. If you're a photographer or videographer, however, chances are much higher that a light meter is a tool you are experienced with and knowledgeable about.

A light meter is a tool used to help you plan and understand the lighting of a scene as it will be captured by a camera. Camera sensors are much more sensitive to light and shadow than the human eye, so using a light meter can help you make sure that your camera settings and light levels are optimum for capturing a balanced, quality picture. The light meter measures the intensity of light and also provides exposure information without needing to have your camera with you.

There are two types of light meters differentiated by two methods used for taking a light reading. An incident meter measures the light that falls onto a subject, while a spot



Sekonic LiteMaster Pro L-478DR-U light meter

(or reflection) meter measures the light reflected from a subject. You can purchase either type of meter, as well as some models that will take incident and spot metering measurements.

Both types of measurements are helpful; though when lighting a stage, you will most likely use an incident

meter more frequently. The advantage of incident metering is that the measurement takes into account all of the light hitting a subject from multiple directions – the key light, fill light, back light, etc. When taking an incident reading, the meter is placed at the subject facing towards the camera. To contrast, spot metering reads a very narrow field of light, with the meter being placed at the camera facing towards the subject. As spot metering reads the light reflected off a subject, the reading can vary according to the reflectiveness, lightness or darkness of the subject under the same lighting setup. This is useful when considering how different areas within the same frame will appear.

When to use a light meter

As a lighting technician or designer for a house of worship, it may be that you aren't directly involved in the video or photo elements of your services. You may not need to know or understand the exposure

information provided by a light meter, but the measurements of light intensity – typically measured in foot-candles, though more commonly in lux – is important to understand as you are in charge of lighting the subject(s) of the video crew.

Perhaps the most important reason to use a light meter is to be able to understand and correct inconsistent levels of brightness across the area(s) that a subject may be shot on camera. Remember that a camera sensor is more sensitive to light than the human eye. Small areas with increased brightness may appear as overexposed areas in a shot and therefore lack detail. Small shadow areas may appear underexposed in a shot, as if an object is placed directly between the camera and subject being shot.

The goal is to create an even wash of light across the stage. You can walk your stage with an incident light meter and find areas that are under-lit or over-lit. From there you then can refocus your fixtures to create a more even wash of light. On a side note, it is better to correctly position and focus your fixtures than to balance the lighting through adjusting the fixture intensities – especially when working with conventional fixtures. The reason for this is that as you



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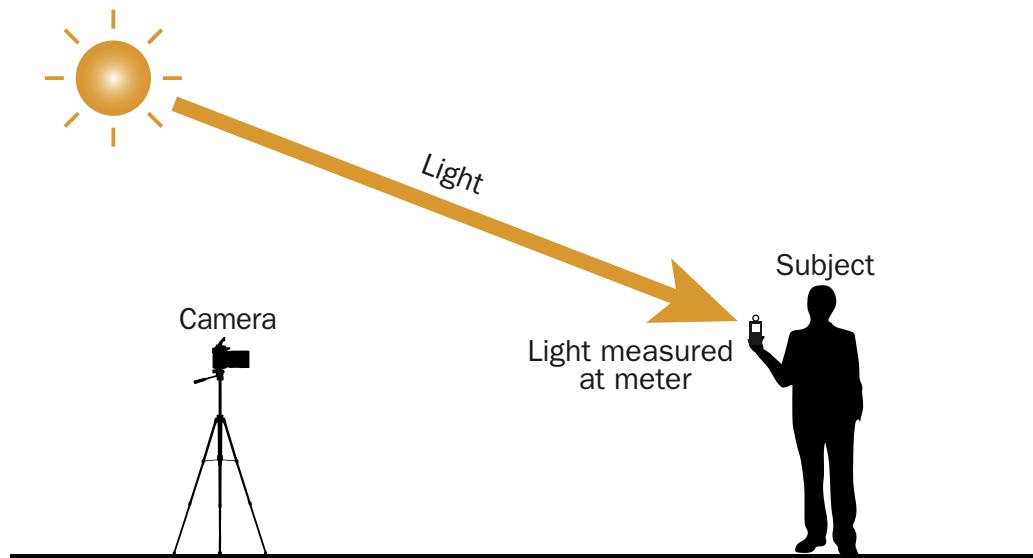
lower the intensity of an incandescent lamp, the colour temperature of the light changes. This introduces additional problems for the video crew.

As you're using your meter to check for even washes of light, be sure to meter all of the areas that may be shot on camera. If your video crew often uses audience shots, meter the auditorium and make sure that the light is balanced for clear, detailed audience images. To ensure correct exposure, this means that the audience area should be of similar brightness to the stage brightness. Also meter any set areas to ensure that they are visible behind subjects instead of being too dim and therefore appearing in the camera shot as underexposed, dark areas.

How to use a light meter

To use a light meter correctly, make sure that you know what type of meter you have. As mentioned above, you may have an incident meter, a spot meter or a meter that is able to take both measurements. In most circumstances where you are looking to evenly light a large area, taking an incidence reading is the most useful. Remember that an incident meter takes into account all of the light falling on the subject or area being lit because it is placed where the subject will be.

Typically, you want to face the meter towards the camera as this will tell you how much light hitting the meter will be bouncing back to the camera. In some circumstances, such as if you are troubleshooting an excess of light from a particular angle, you may face the meter directly towards



Incident meter reading

the light sources to determine which fixture needs to be adjusted.

Be sure that you look through the user manual for your specific meter for exact details on the operation of your unit. Most light meters on the market now are digital and may require you to input either a shutter speed or f-stop before taking a reading. Be sure to get this information from the video crew as they will have those set on the cameras. Make sure that you are located where the subject would be, face the camera and then push the measurement button and the meter will take a measurement, giving you information about the intensity of the light in that location, as well as additional settings that the camera can be set to in order to achieve a particular exposure.

If your video crew shows you footage of a service and there are

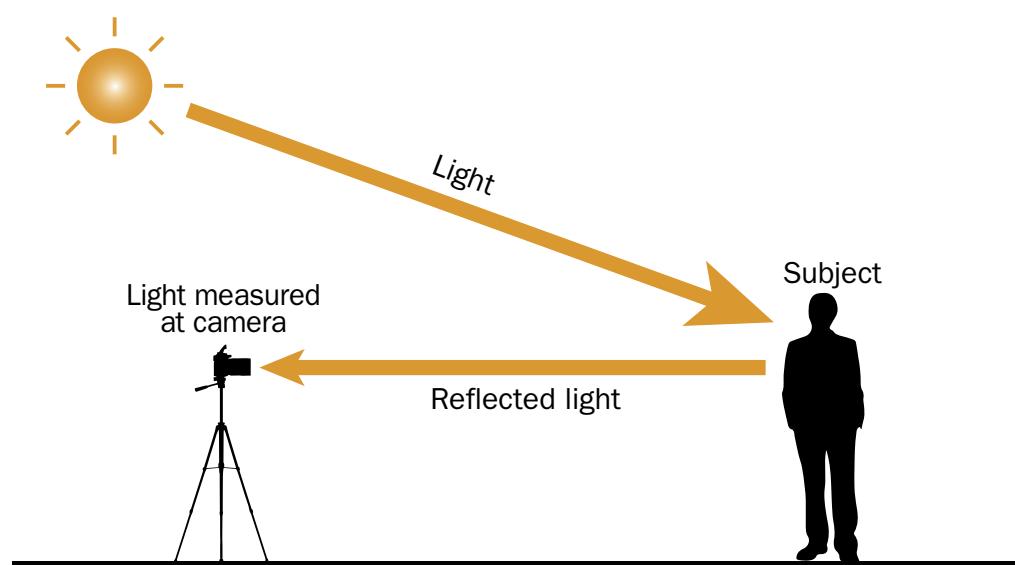
A light meter attachment for iOS devices



Lumu Power light meter

particular areas of the stage where the subject goes dark because of uneven coverage, you can use the light meter to find those trouble areas and plan how to address the problem to create a more even coverage. If the video crew shows you footage and there is an excess of shadows on the subject under their nose or eyebrows, you will know that you need to add light sources in footlight positions to compensate and remove those shadows for video audiences. You would then use the light meter to ensure that, once added, the overall brightness hasn't changed and the wash remains even across the stage.

I hope that this very brief overview has shed a bit of light onto how and when to use a light meter. As a lighting technician or designer, if you become very familiar with the tool and use it when preparing lighting in your house of worship, you will be the video crew's favourite person week to week. There are many product options on the market – even as an attachment to iOS devices – so go ahead and pick up a light meter and start using it. And if you're completely new to light metering, use your video crew as a resource as the chances are high that they will be familiar with this tool.



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