Free Incident Meter

'm sitting on the sun-drenched front deck of a Southern France vacation rental home enduring my 'Chron-V House Arrest' (along with the rest of France) but I do have access to an unending supply of really delicious inexpensive foie gras, so not all bad! My incarceration has

been ongoing for several days so I'm a little bored with the confines of my temporary home and yard, however, as always creativity is born out of boredom! (never forget Shakespeare wrote *King Lear* awaiting the Plague to pass). Looking for something to do I started fiddling with my smart phone deleting useless apps. While doing so I came across a couple of free photographic light-metering apps I had downloaded last year, *Lumu Light Meter* and *Light & Exposure Meter*. They are both reflective spot meters for manual, handheld metering but only work for measuring constant light – a paid upgrade on *Lumu* gives you an incident-metering dome and the ability to read short duration (flash/strobe) light. But it isn't cheap! For most situations an incident meter is easier and more convenient to use, plus you don't have to be as knowledgeable. Now I'm not looking a gift horse in the mouth – a free reflective spot meter built into your smart phone is great – but what if you could trick your phone into thinking it was also an incident meter? Now wouldn't that be the bee's knees!

In the interest of getting something for nothing, I set my poor bored, underused mind to turning these free apps into incident meters for constant light - flash isn't possible unless you are a hacker. Knowing that whatever tone you point a reflective meter at - assuming for simplicity's sake you are reading off a single tone – the meter's read-out will give you a setting to set that tone to middle-grey (aka, mid-grey). This is what all photographic light meters are calibrated to do – set the tone's brightness at the mid-point between white and black. If you read off a white tone, the meter will tell you an exposure setting to render that tone as middle-grey in your image; if you read off black, same thing again, it will give a reading that will render that tone as middle-grey; if you read off a middle-grey tone, it will render that tone as middle-grey - that's all just Photography 101 information that all should know. With that in mind to be really good at reflective metering you need to develop the ability to recognise tones. For example, when you read off a tone such as white with detail, you would know that the reading given will make that tone photograph as mid-grey and so you need to compensate for that difference - two stops brighter exposure is required to render that tone correctly. This way of metering is advanced and takes time to develop.

A simpler way, albeit more cumbersome, is to use an actual photographic middle-grey card. If you place that card against the tone in question, point the reflective meter to read off the card, then set this exposure reading on camera (which is on manual), the card will photograph as mid-grey (if left in camera frame) and the white tone will render as two stops brighter. Any other tones at same distance from light source as the grey-card will render as their actual tones – perfect! And it takes little skill to do this!

However, incident meter readings are easier to do and are a little more accurate. In practice, point the white dome or disk at the source of illumination in question so that the light will have to pass through the white plastic dome/disk. This white plastic absorbs the same amount of light as the grey pigment on a grey-card therefore an incident meter reading equals a reflective meter reading off a grey-card, or pretty close. You should also ensure that the meter is positioned with its back-side near or against the tone(s) to be photographed.

So getting back to the free incident meter and being bored, I surmised that if I added the right amount of density over the phone's camera lens and then pointed the phone's 'density-filtered' lens at the source of illumination, the results should read the same as pointing the bare phone's lens at a grey-card. The only challenge is, I'm travelling light with no grey-card or handheld meter, just a phone - so no way to figure out how much density to place over the phone lens. But being a man of resource, (well a bored one), I quickly figured out that if I pointed the phone's lens at a piece of regular office printer paper (see Image 001), then add two stops more brightness to the reading (regular white paper is about two stops brighter than mid-grey), hold this figure in my mind palace, turn the phone around and place it against the paper so that its lens is pointing directly at the light source, compare this new reading (which will be crazy high) to the reading stored in my mind palace, then add the right amount of density over the phone's lens so that a subsequent reading equals the mind-palace-stored reading (see Image 002), I'd have created an incident handheld phone meter! Wow! That's worth opening another jar of foie gras! But how does one add density over the phone lens? I tore a corner off the office paper and taped it over the phone's lens, a new reading read closer to the modified first reading but still too bright. I then doubled over the piece of office paper and read again, voila (I am in France after all so can't say awesome!) it read within 1/10 of a stop of the first reading. Essentially the doubled over white paper is acting as the white dome/disk on an incident meter.

Another way of figuring out how much density to add over the lens is to use the 'Sunny 16' rule and set your reflective metering phone app (see Image 003) so that the ISO and the shutter-speed are the same number (eg, 100 ISO and 1/100 of a second). Point the phone's paper-covered lens at the sun (see Image 004) on a perfectly clear, no-haze, sunny day and do it well after sunrise or well before sunset; if you have the right amount of paper over the phone's lens, it should read f16.

Well that was a fun little exercise that entertained my bored mind for an afternoon! So in closing I'd like to finish off with this: this method of incident metering is clever but, in use on a real shoot with all its stress, is not the best way to work since it is a more awkward and is slower. It is, however, good for someone with no budget for a meter who is just starting out or just learning lighting, or for those shoots where your meter's batteries die or you just plain forgot your meter. Which leads us to 'Why meter?' I believe that handheld metering, both incident and reflective, makes for faster more accurate exposures and lighting ratios when creating lighting, whether it is flash/strobe or constant light. In-camera metering, which is reflective metering, is pretty sophisticated but is often not dead-on-accurate because you are usually averaging a number of subject or scene brightnesses together.

Bio

Dave Montizambert lectures internationally on lighting, digital photography and Adobe Photoshop. He is also a published author having written two books on lighting and digital photography (www.montizambert.com) plus numerous magazine articles on these topics in North America, Europe, Russia and Asia. Dave also creates lighting and Photoshop tutorial DVDs for www.softwarecinema.com & www.PhotoshopCAFE.com/video and authors 'Dave On Demand' (www.montizambert.com) lighting tutorial based photo-training. Dave is available for lectures and workshops in your area and can be reached through www.montizambert.com.

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