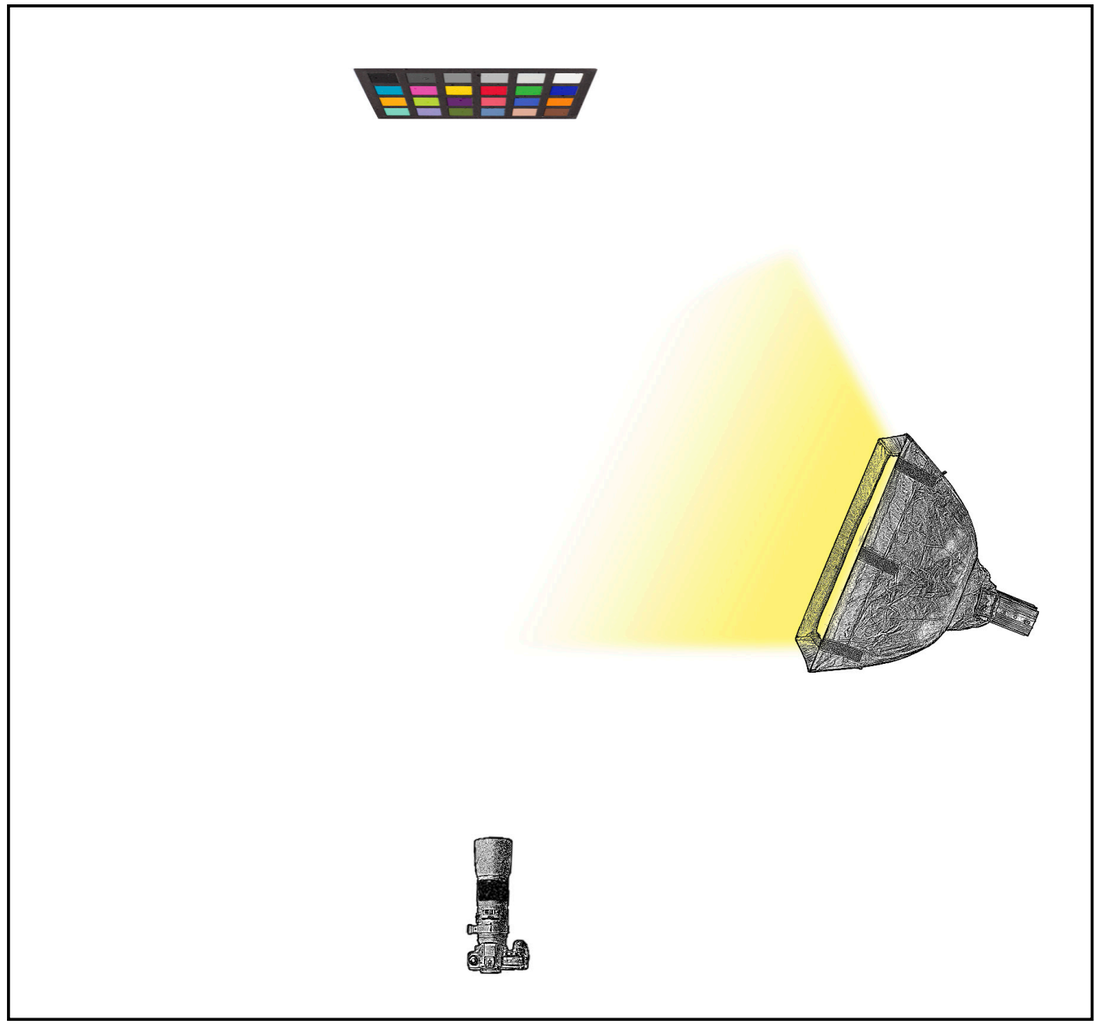
You still with me? Well here's the third and final part of the 'Dave Montizambert HyperSync' trilogy. Most or all photographers, other than myself, when using HyperSync don't meter —what is wrong with these people? Well I guess it's because with HyperSync, metering is a bit of a problem because flash-enabled light-meters can only read the burst of light from a strobe or flash from start to finish – they cannot be set to start reading after the strobe burst peaks. Why does that matter? Well, when you employ the HyperSync technique to your strobe and camera, you are only going to collect strobe-light after its peak – this after-peak light is the end portion of the burst which is a gradual trailing off of light energy rather than the abrupt spike of energy at the beginning. This is critical because high-speed shutter settings on DSLRs change the way the focal-plane shutter-curtains work: with normal shutter speeds, that is X-Sync speeds (generally 1/200th of a second and below – on DSLRs), the closed shutter, when activated to open, starts with the top of the bottom curtain at the top of the shutter-plane – this shuts off all light to the imaging sensor – then the top of this curtain moves down to the bottom of the shutter-plane effectively opening the shutter and exposing the sensor to light, and finally at the end of the exposure, the bottom of the top shutter moves down to the bottom of the shutter-plane, effectively closing the shutter which blocks all light from the imaging sensor. With focal-plane high shutter-speeds (those above X-Sync) the two curtains move in unison so that a slit or a thin opening between them moves down the shutter-plane (assuming landscape orientation). A thin line of light spills through this thin opening onto the imaging sensor, starting at the top and rapidly moving down – this movement being much like the action of the linear scan-head of a film/print scanner. Also the faster the shutter-speed, the narrower the slit and so less light onto the sensor. Knowing this, about high shutter-speed settings, it isn't too hard to figure out why you want to miss the peak of the strobe burst – if you did catch the peak which occurs near the beginning of the strobe burst, part of your captured image would receive many times more exposure than the rest – so it makes sense to omit this first part of the burst and only capture the somewhat constant exposure of the trailing off portion of the burst. Since the exposure doesn't include this brightest portion of the burst, we collect a lot less light than what a flash-meter measures (remember that it cannot help but measure the full burst). Typically I'm using HyperSync when I want to combine ambient light with strobe lighting and shallow DoF outdoors on a sunny day. Usually I'm looking to shoot wide open (ie f1.4 to f4) while setting my shutter-speed to dial in the perfect brightness for the direct sunlight relative to that aperture, then change distance of the light for desired exposure on subjects' front(s) (once again relative to that aperture). Depending on what look I'm trying to achieve with my lighting, I'll use anything from 1/500th to 1/8,000th of a second – as you go up in the range of high-speed shutters, the slit between the shutter blades narrows, allowing less and less ambient as well as less and less strobe light through. So let's look at how we can compensate for this problem with a little test I do so that we can use flash-meters and not have to rely on exposure by predetermined distances – a cumbersome way to work at best.

Here's how the test works – indoors, set up an evenly illuminated grey-card or Macbeth Color Checker using the strobe unit that you want to test, see set-up diagram 001. I used a White Lighting X3200 mono-block strobe set to full power and affixed a small Chimera soft-box to it – you can omit the light modifier if you want; I included it to help even out the lighting. When shooting outdoors for real, I don't always use the same modifiers and this can change the exposure, more on this in a minute. Next, using methodical trial and error, I photograph the test card with the light at different distances. The lens is set to its widest aperture, f4 in the case of my test, the shutter at either end, 1/8,000th or 1/500th – you are going to reshoot the test for each shutter-speed: 1/8,000th, 1/4,000th, 1/2,000th, 1/1,000th, and 1/500th. I also take an incident meter reading with the back of the meter against the test card and the dome pointed at the light. I write down these meter readings even though they seem crazy. For instance, once the distance for my studio strobe was found for a perfect exposure on the card with the camera set at f4 at 1/8,000th at 100 ISO, I observed an f32 incident meter reading! After loading the images into Lightroom or Adobe Camera Raw, then renaming them with the corresponding shutter-speed, camera aperture setting, incident meter reading, and strobe distance to card/subject (ie 1/8000_F4_F32_1.3M) – I don't worry about ISO since I typically shoot outdoors in sunlight at my lowest ISO, 100 ISO. Next I select the eyedropper/densitometer tool to find the exposure with a perfectly exposed grey-card or middle grey patch of the Macbeth card. By the way, if the grey-card/Macbeth card is too technical for you, you could photograph a person's face that you are familiar with, but this is not the best method. Once the perfect exposure is identified for each shutter-speed, compile this information as a chart or list (see call-out box "HyperSync Settings for White Lightning X3200 at 100iso") to take with you on location when feeling the urge to create fine photographs in bright sunlight with high shutter-speeds. This chart should also include the Offset Test figures described in my previous article "Part 38: HyperSync 2". Since I'll be using my meter to set exposures, I could ignore the recorded distances from the test, but I like to use these figures to help me roughly place the light, then check and finesse it with my flash-meter – these readings are compared to the test flash-meter readings for the shutter-speed I'm wanting to shoot at and if necessary, I then adjust the distance accordingly – I never alter the power on the strobe, it stays set to full power which gives me the much needed long flash duration. Using my meter takes into account any light loss from any lighting modifiers I might use and it allows me to change modifiers on the fly at any time – different modifiers will affect exposure by differing amounts. If you set up a test that only determines what distance you need your light from the subject, it is only accurate to the strobe set-up used on the test – you cannot add, change, or remove a modifier if it wasn't included in the test, doing so will screw up your exposure.

And finally, from my test I observed a one-stop gain in strobe lighting with every one-stop decrease in shutter-speed: 1/8,000th read f32, 1/4,000th read f22, 1/2,000th read f16 and so on. As I stated earlier, setting the light using the recorded incident meter readings from the test automatically takes into account any lighting modifiers that I might be using. All I know is that if I'm shooting at f4 at 1/8,000th at 100 ISO for instance, then I better make that light striking the subject read f32 incident. So the recorded meter readings help me to create a documented correlation that I can recreate any time anywhere with any variation of modifiers. Pretty smart don't you think? I gave myself a raise after I figured that out! Now that's a lot of info to digest and there is more to it, but that's pretty much the basics.

Tip: When I'm metering, if the light reads too strong, I often feather the light off the subject rather than changing distance since the change in distance affects light quality more than feathering.



HyperSync Test

HyperSync Settings for White Lighting X3200 at 100 ISO

- **1/8,000 @ f4 = f32 incident at 54" (-6 stops) use -3600 offset**
- **1/4,000 @ f4 = f22 incident at 80" (-5 stops) use -3450 offset**
- **1/2,000 @ f4 = f16 incident at 111" (-4 stops) use -3300 offset**
- **1/1,000 @ f4 = f11 incident at 143" (-3 stops) use -3050 offset**
- **1/500 @ f4 = f8 incident at 176" (-2 stops) use -2100 offset**