

U3A Photography Group

*A brief introduction to*  
**Bounce & off-Camera**  
**Flash**

by **Stephen Jones**  
*5<sup>th</sup> June 2020*

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## Using Flash:

Introduction to flash basics - guide numbers, aperture, shutter speed and ISO

Effect of the inverse square law

Examples of on-camera, bounce and off-camera flash

Typical on-camera flashguns, extras

Typical accessory flashguns, bounce flash extras

Off-camera flash systems

Synch cable, infra-red trigger, optical trigger, wireless trigger

Typical wireless triggering systems

## Flash Basics:

“Guide Number” is what we use to express the power of a flashgun. It is normally expressed for a sensor sensitivity of ISO100, with distance in metres:

$$\text{Guide Number ("GN")} = \text{f-number} \times \text{subject distance}$$

With a flashgun of GN12, correct exposure can be obtained at ISO100 using f4 at 3m subject distance,

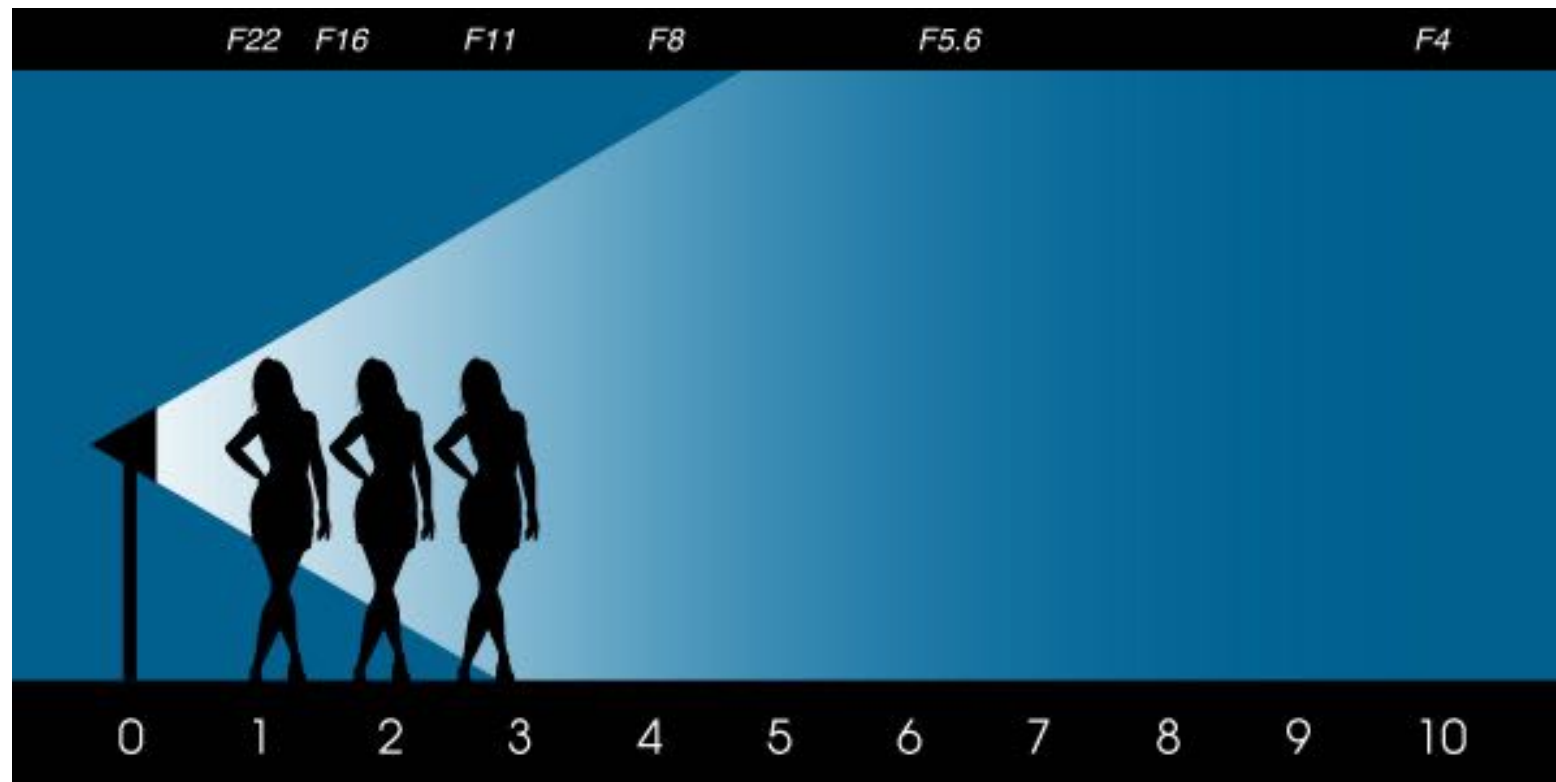
$$f4 \times 3m = GN12$$

With a flashgun of GN32, correct exposure can be obtained at ISO100 using f4 at 8m subject distance,

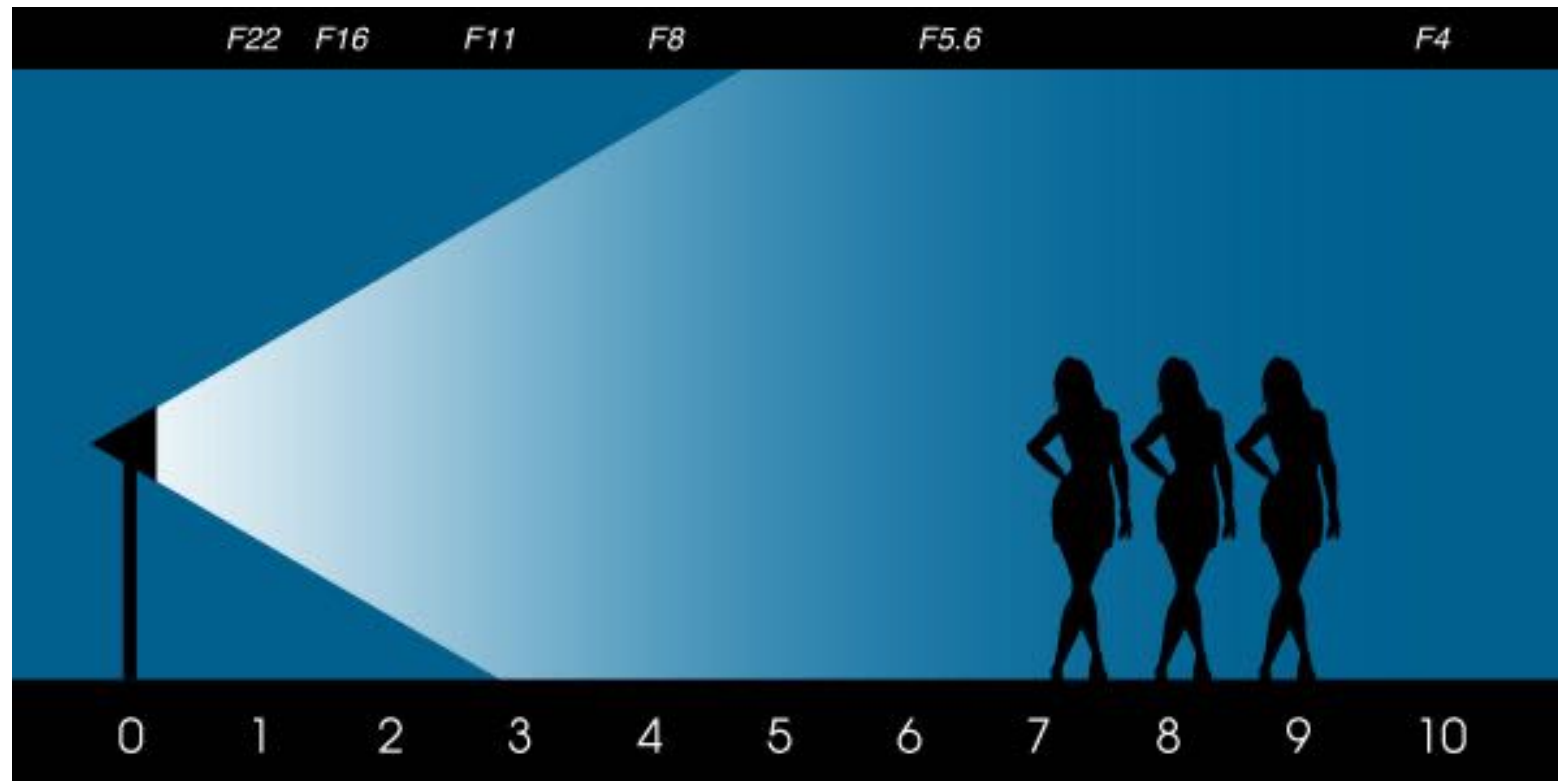
$$f4 \times 8m = GN32$$

Note that in these two examples, if you set ISO200, instead of using f4, the correct exposure could be achieved using f8. Alternatively, keep the aperture at f4 and double the subject distances to 6m and 16m respectively.

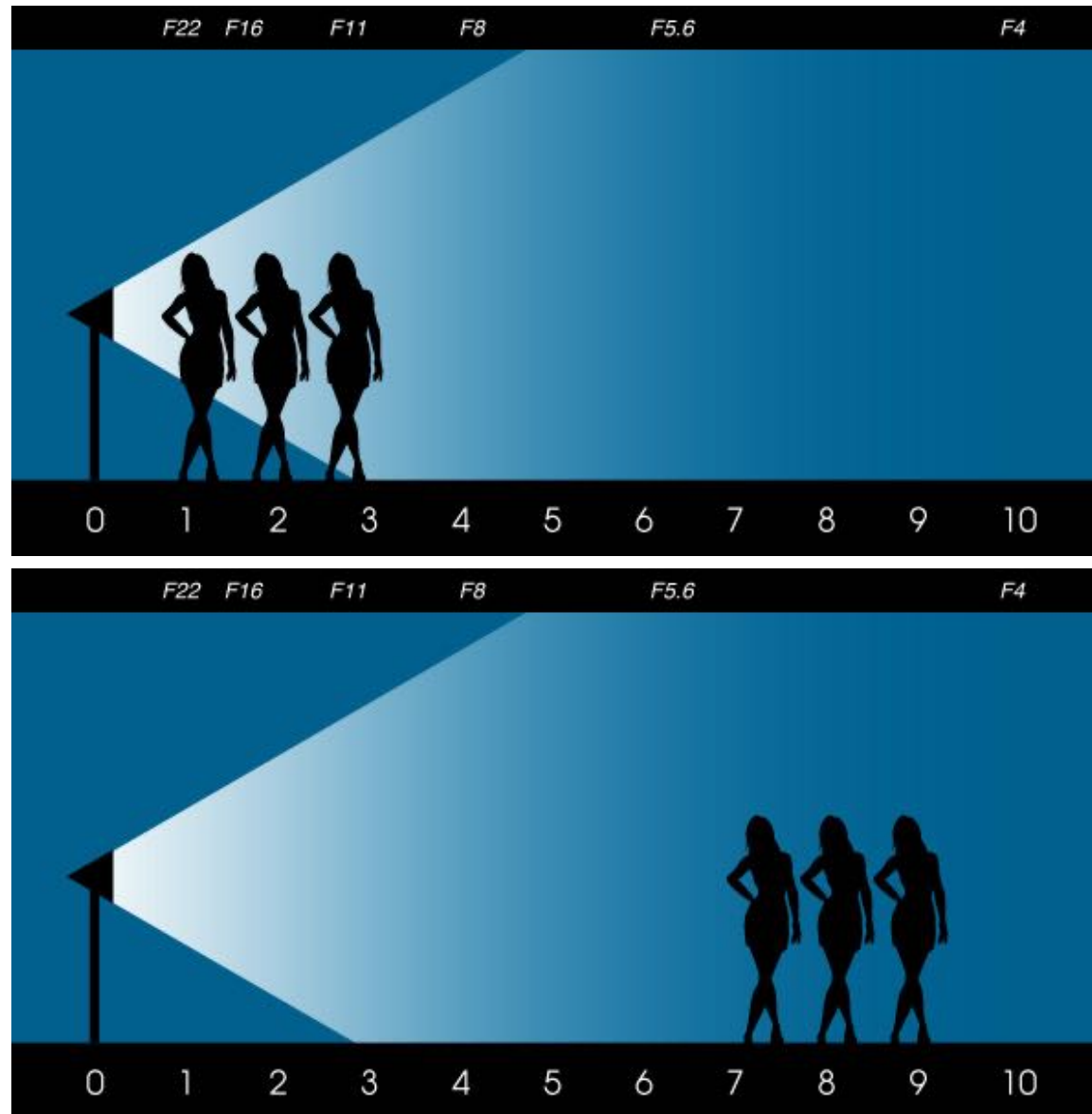
## The Inverse Square Law:



## The Inverse Square Law:



## Bounce and Off-Camera Flash



**Bounce and Off-Camera Flash**



Direct on-camera flash

F4,  
ISO125,  
1/125<sup>th</sup> sec.



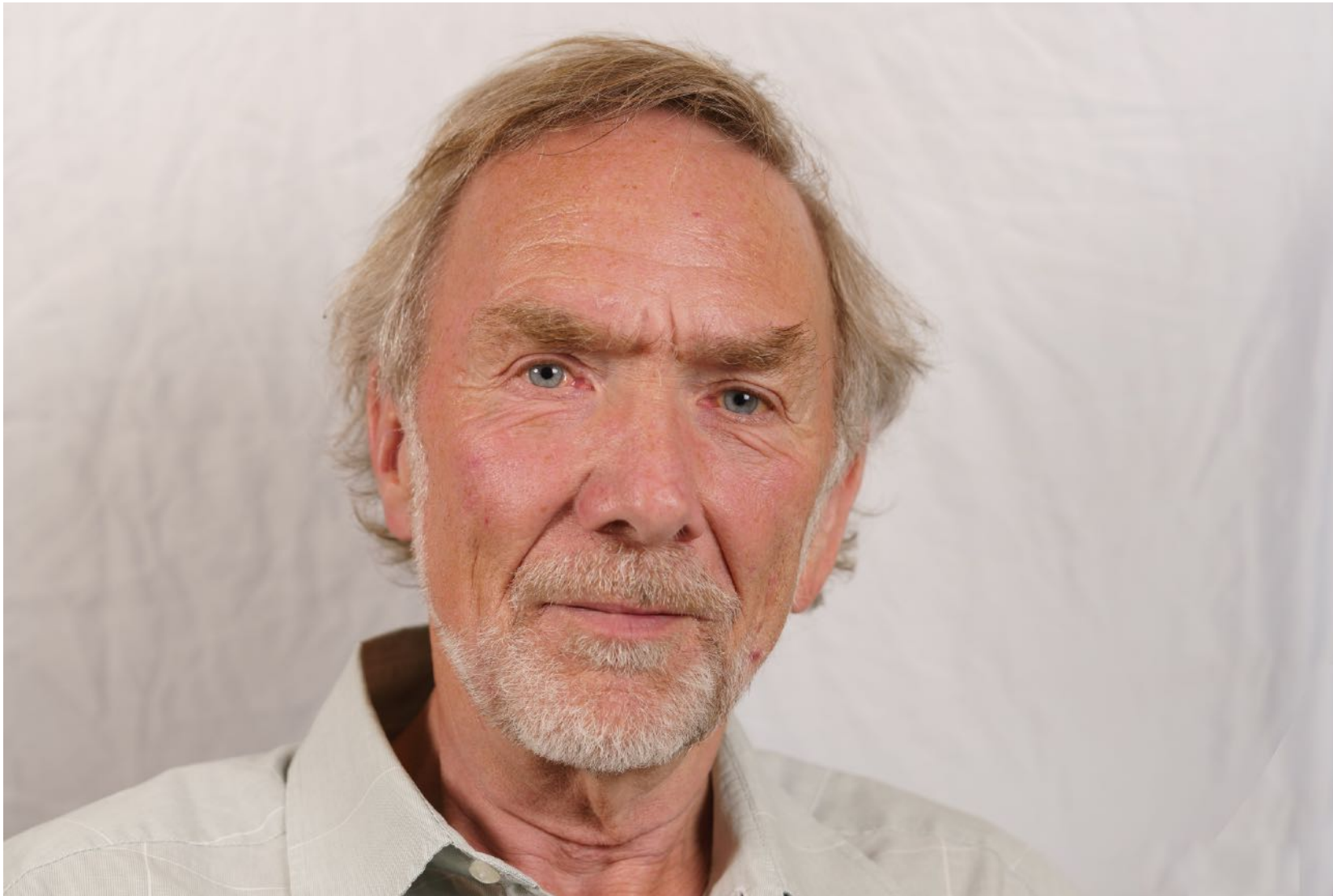
## Bounce and Off-Camera Flash



Bounce flash

F4,  
ISO125,  
1/125<sup>th</sup> sec.

## Bounce and Off-Camera Flash



2 off-camera flash guns

F4,  
ISO125,  
1/125<sup>th</sup> sec.

## Bounce and Off-Camera Flash





Bounce and Off-Camera Flash

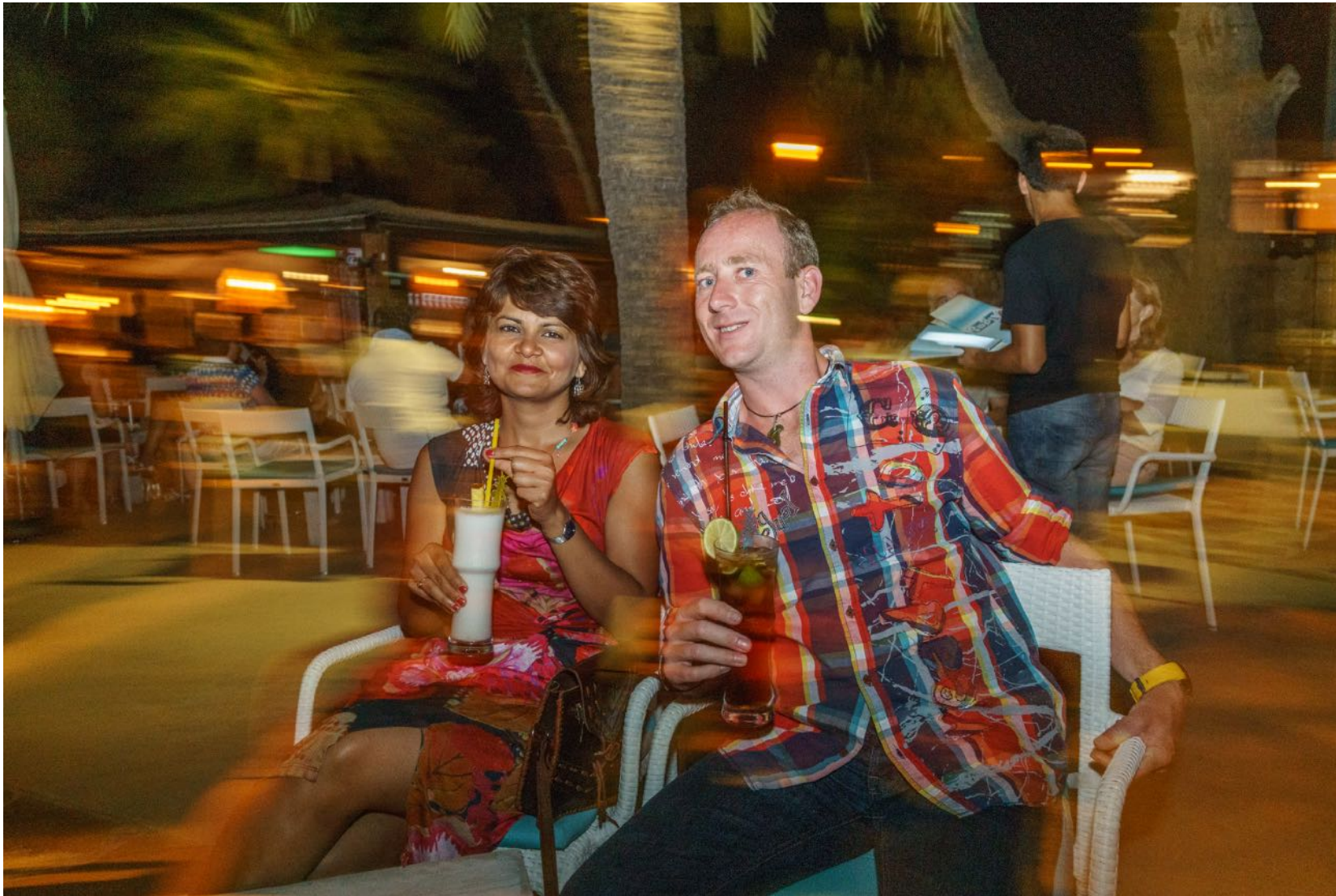
Typical Pop-up / in-camera flashguns



## Flash diffusers/bounce accessories



**Bounce and Off-Camera Flash**



On-camera flash

F4,  
ISO500,  
1/60<sup>th</sup> sec.



## Typical accessory flashguns



## Bounce flash accessories





**Bounce and Off-Camera Flash**



Off-camera bounce  
flash

F4,  
ISO100,  
1/60<sup>th</sup> sec.

## Bounce and Off-Camera Flash



On-camera bounce  
flash

F4.5,  
ISO200,  
1/100<sup>th</sup> sec.

## Bounce and Off-Camera Flash



Off-camera bounce  
flash

F4,  
ISO200,  
1/60<sup>th</sup> sec.



## Bounce and Off-Camera Flash



Room Lighting

F4,  
ISO200,  
1/90<sup>th</sup> sec.

**Bounce and Off-Camera Flash**



Room Lighting  
(colour cast corrections  
in LightRoom)

F4,  
ISO200,  
1/90<sup>th</sup> sec.



## Bounce and Off-Camera Flash



Off-camera bounce  
flash

F4,  
ISO200,  
1/90<sup>th</sup> sec.

## Off-camera flash:

You have to have a way of triggering the off-camera flash.

This can be done by

- Synch lead
- Optical trigger
- Infra-red trigger
- Wireless trigger

In my view, by far the easiest and most adaptable is the last option - a wireless trigger.

## Typical 3<sup>rd</sup> party wireless flash triggers



Bounce and Off-Camera Flash





## Typical 3<sup>rd</sup> party wireless flash triggers



## Bounce and Off-Camera Flash



## Typical wireless flash triggers

Godox

X1<sup>C</sup>

### TTL Wireless Flash Trigger

Godox first TTL wireless flash trigger X1C applies to Canon EOS series cameras. Featuring multi-channel triggering, stable signal transmission, and sensitive reaction, it can be used to trigger camera shutter, studio flash and camera flash. X1C is compatible with market-available cameras which support E-TTL II.

For CANON





**Bounce and Off-Camera Flash**

Lacy Green Windmill  
Photoshoot

Off-camera flash

F13,  
ISO3200,  
1/30<sup>th</sup> sec.



**Bounce and Off-Camera Flash**



Off-camera flash

F5.6,  
ISO200,  
1/90<sup>th</sup> sec.