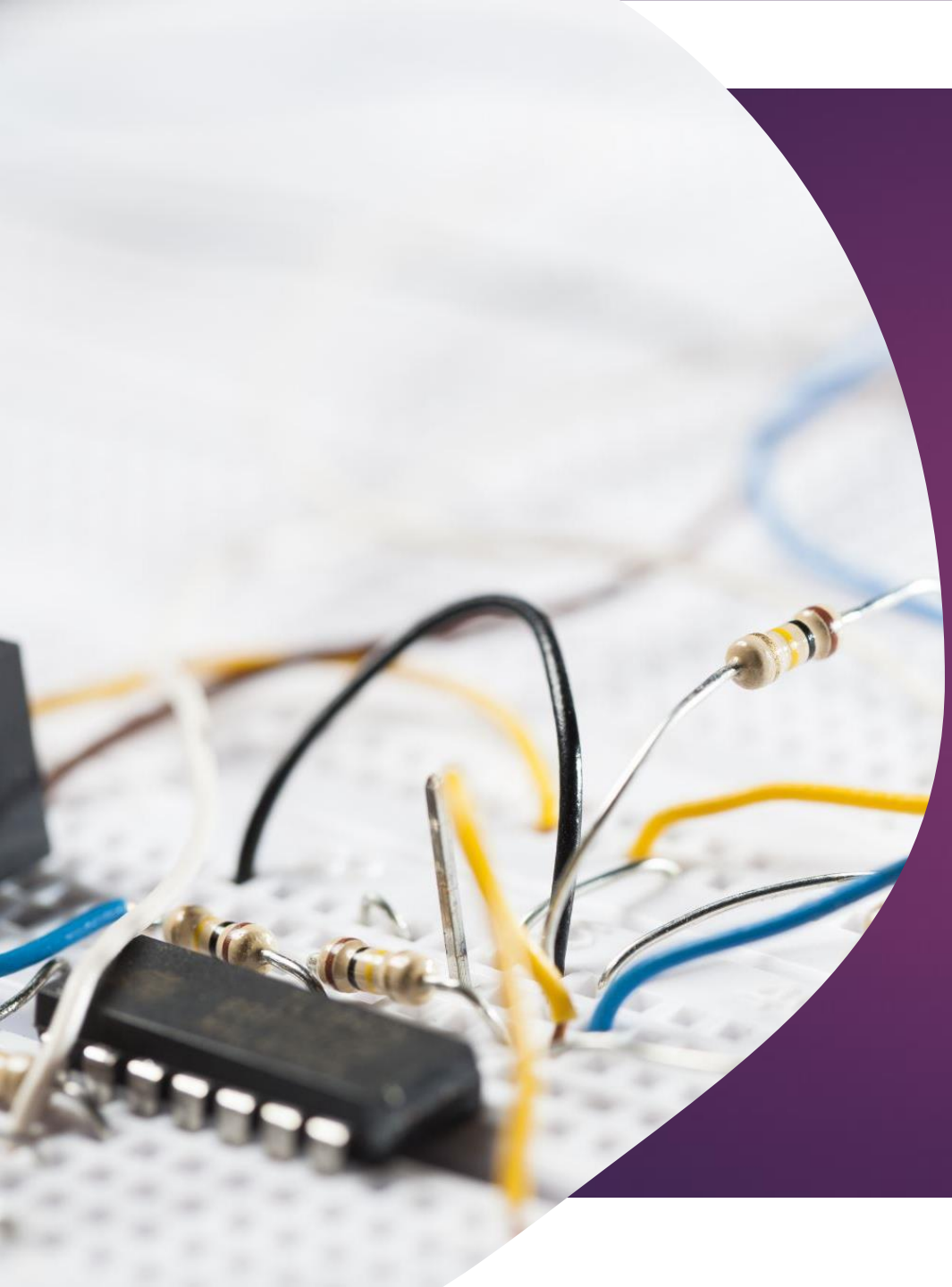


CHAPTER 03 - SENSORS

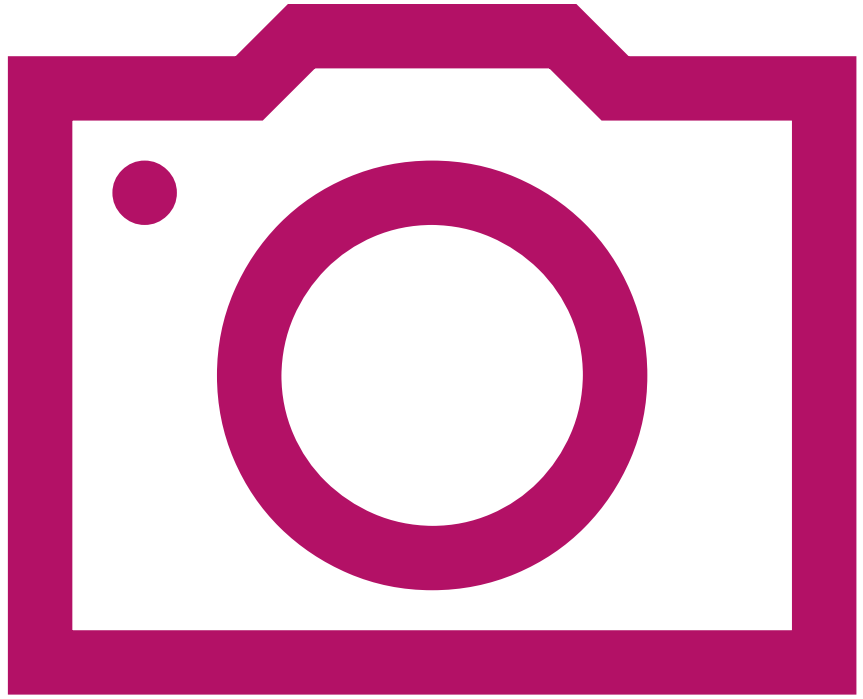
- An image sensor or imager is a sensor that detects and conveys information used to form an image. It does so by converting the variable attenuation of light waves (as they pass through or reflect off objects) into signals, small bursts of current that convey the information.

DIFFERENT TYPES OF SENSORS

Sensor Type	Width & Height (mm)	Diagonal (mm)	Sensor Area (sq. mm.)	Crop Factor
Medium Format	53.7×40.2	67.08	2159	0.65
35mm Full-Frame	35.8×23.9 to 36×24	43.1–43.3	856–864	1.0
APS-H	27.9×18.6	33.5	519	1.29
APS-C (Nikon, Pentax, Sony, Fujifilm, and Sigma)	23.6×15.6	28.2–28.4	368–370	1.52–1.54
APS-C (Canon)	22.3×14.9	26.82	332	1.61
Four Thirds / Micro Four Thirds	17.3×13	21.6	225	2.00
1” Type	13.2×8.8	15.86	116	2.72

MEDIUM FORMAT

- Medium format cameras tend to have sensors that range between 50MP and 100MP in resolution, which, with some notable exceptions, is higher than most smaller format cameras. This greater number of pixels contributes to greater clarity in an image—it's the ability to discern smaller, finer details at greater distances.



35mm FULL FRAME SENSOR

- A full-frame sensor is most simply defined by its sheer size—36 mm by 24 mm—and the distinctive look it makes possible. Compared to a Super 35 mm sensor, a full-frame sensor has over twice the surface area while providing a wider angle of view and shallower depth of field.

APH-S SENSORS

APS-H IS A SENSOR SIZE THAT CANON USED IN THE EARLY DAYS OF DIGITAL CAMERAS. THE STANDARD FOR THIS SIZE SENSOR IS 27.9 X 18.6MM, AROUND 70% OF THE SIZE OF A FULL FRAME SENSOR (36 X 24MM).

APS-H WAS ALSO ONE OF THREE FRAME SIZES USED WITH THE SHORT-LIVED APS (ADVANCED PHOTO SYSTEM) FILM FORMAT.

CANON HAS USED THREE SENSOR SIZES IN ITS EOS RANGE: APS-C, APS-H AND FULL FRAME. APS-H WAS A SHORT-LIVED SENSOR SIZE USED IN FIVE PROFESSIONAL LEVEL DSLR CAMERAS – THE LAST WAS THE EOS-1D MARK IV IN 2009.

APS-C SENSORS

- Advanced Photo System type-C (APS-C) is an image sensor format approximately equivalent in size to the Advanced Photo System film negative in its C ("Classic") format, of 25.1×16.7 mm, an aspect ratio of 3:2 and Ø 30.15 mm field diameter.

FOUR THIRDS & MICRO FOUR THIRDS

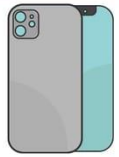
- Introduced in 2002, Four Thirds cameras are smaller and lighter than their DSLR predecessors. Using a large CCD with a 4:3 aspect ratio, the lens mount opening is twice the size of the CCD image circle.
- Micro Four Thirds is a system that provides high image quality with small size and lightweight by pursuing the optimal relationship between image sensor size and the mount. - a design that suppresses ghosts and flares due to reflection off the image sensor and re-reflection from the lens surface.

1” TYPE SENSOR

- The name of a 1" digital sensor should more accurately be read as "one inch video camera tube equivalent" sensor. Current digital image sensor size descriptors are the video camera tube equivalency size, not the actual size of the sensor. For example, a 1" sensor has a diagonal measurement of 16 mm.
- The physical size of the 1" sensor is large enough to suppress much of the noise that traditionally plagues photographs taken with point-and-shoot cameras. The dynamic range of 1" sensors is also notably greater than smaller point-and-shoot sensors, which results in greater detail in the highlights and shadows
- These sensors may be small, but they still pack a punch, bringing a level of quality to compact cameras that can still yield some great photos. As a result, the one-inch sensors found in high-quality compact cameras are great for photographers who are new to the hobby.

CAMERA SENSOR COMPARISON CHART

CAMERA SENSOR SIZE COMPARISON CHART

	MEDIUM FORMAT	FULL-FRAME	APS-C	MICRO 4/3	1"	1/2.55"
PICTURE						
SENSOR SIZE	53.0 X 40.20 MM	35.00 X 24.00 MM	23.6 X 15.60 MM	17.00 X 13.00 MM	12.80 X 9.60 MM	6.17 X 4.55 MM
CROP FACTOR	0.64	1	1.52	2	2.7	5.62
CAMERA						

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