

	PMT	Photodiode	APD (Photodiode with EM)	CCD/CMOS /EMCCD
QE	10-50%	80%	80%	60%-90%
Spectral Range	UV-Green	Blue-NIR	Blue-NIR	Blue-NIR
Internal Gain	10^6 - 10^8	1	100-1000	1 10^3 for EMCCD
Dark Noise (\propto Area)	e^- /sec	1000 e^- /sec	1 e^- /sec	e^- /sec
Multiplication Noise	Yes	No	Yes	No (Yes for EMCCD)
Electronic (Read) Noise	not affected because you have internal gain	1000 e^-	not affected because you have internal gain	3-1000 e^- <1 for EMCCD
Response Speed	+++	+++	+	-
Pixel Size	cm	mm	mm	3–30 μ m