



SPECIFICATIONS

	ProEM:1600 ⁽²⁾ _eXcelon 	ProEM:1600 ⁽⁴⁾ _eXcelon 
Features	Back-illuminated EMCCD with eXcelon technology. 3.2 mm sensor height for high-speed data acquisition.	Back-illuminated EMCCD with eXcelon technology. 6.4 mm sensor height for multiple-ROI spectroscopy with multi-fiber bundles.
CCD format	1600 X 200, 16 μ m pixels 25.6 X 3.2 mm (optically centered)	1600 X 400, 16 μ m pixels 25.6 X 6.4 mm (optically centered)
	EM mode	Low noise mode
Read noise (typical)	25 e- rms @ 1 MHz 35 e- rms @ 4 MHz 65 e- rms @ 6.67 MHz Read noise effectively reduced to <1 e- rms with on-chip multiplication gain enabled	3 - 7 e- rms @ 100 kHz 5 - 8 e- rms @ 1 MHz 15 - 20 e- rms @ 5 MHz
Full well (typical)	800 ke- (EM register)	400 ke- (low noise register)
Nonlinearity	<2%	<1%
Operating temperature (@ +20° C ambient)	-55° C (typical, +/- 0.05° C) Maximum Cooling: -70° C (air), -85° C (+20° C liquid), -90° C (+10° C liquid)	
Dark current	0.2 e-/p/sec at -55° C 0.016 e-/p/sec at -70° C	
Clock-induced charge (CIC) (typical)	0.005 e-/pixel/frame measured with 30 msec exposure time and ~1000x multiplication gain	
Electron multiplication (EM) gain	1 to 1000x, controlled in linear, absolute steps	
Digitization	16 bits	
Vertical shift rate	1.5 μ sec/row - 6 μ sec/row (variable)	
Spectral rate @ 6.67 MHz	Full Vertical Binning (1600x200) > 1500 fps Full Vertical Binning (1600x400) > 1000 fps Custom chip (both formats) > 3000 fps (10 rows binned)	
Binning	Flexible binning in vertical, and 2x to 32x in horizontal	
Operating systems supported	Windows XP/7 (32-bit) and Windows 7/Vista (64-bit)	
I/O signals	Exposure, Readout, Trigger In, Trigger Out, Waiting for Trigger	
Operating environment	0 to 30° C ambient, 0 to 80% relative humidity, non-condensing	

NOTE: All specifications subject to change