EMBERION

Emberion VS20 Compact

Data Sheet

Broaden your vision

- Wide spectral range from VIS to SWIR up to 2000 nm with one image sensor from Emberion

- Lightweight and compact

- High Dynamic Range (HDR) without saturation and capability for optical power measurement are targeted for a variety of imaging application needs

- Scalability, affordability and customizability is enabled by monolithic integration of colloidal quantum dots (CQD) using in-house designed CMOS readout IC

| Image sensor specifications	
Image sensor type	Emberion colloidal quantum dot (CQD) photodiode
Spectral range	400 to 2000 nm
Pixel pitch	20.0 µm x 20.0 µm
Resolution in pixels	640 x 512
Image size	12.80 mm x 10.24 mm
Image diameter	16.39 mm
Fill factor	90 %
Operable pixels	> 99.9%
Shutter	Global, built-in electronic
Cooling	Built-in thermoelectric cooler (TEC)
Camera specifications	
A/D conversion	14 bits
Image processing	Non-uniformity correction, linearisation, defect pixel correction
Exposure time	Min 0.1 ms, adjustable with 1 µs resolution
Ambient operating temperature	-20 to +40 °C
Power consumption	11.4 W at 200 fps
Mechanics	
Dimensions (L x W x H)	98.8 mm x 50.0 mm x 50.0 mm
Weight	450 g
Lens mount	C-mount with full thread

Interfaces

Image data	GigE Vision, RJ45 connector
Communications	GenICam compatible
Firmware update	through GigE interface
Max frame rate (full VGA)	400 fps
Trigger	2 HW triggers (Opto-isolated and non-isolated), Trigger over Ethernet (IEEE 1588 PTP)
Power input	12 VDC
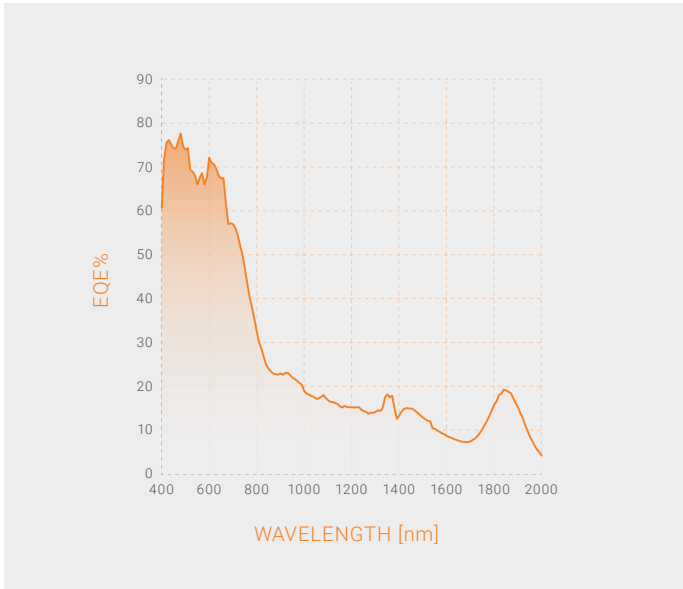
Camera external quantum efficiency (EQE) vs. wavelength at 0°C sensor temperature
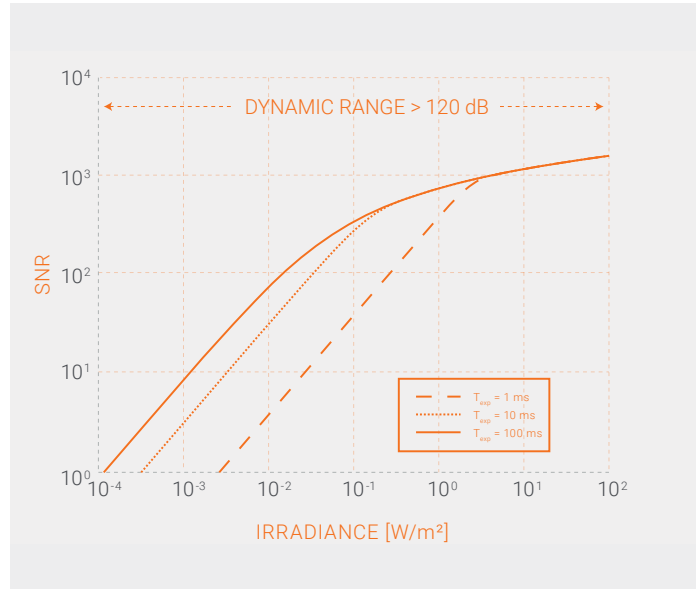
Camera signal-to-noise (SNR) ratio vs. irradiance at 1850 nm wavelength and F#=1

Image sensor performance at sensor temperature 0°C

Dynamic range (optical input)	120 dB
Responsivity	1.5×10^9 V/W at 10 ms exposure time and 1850 nm wavelength
Input refered voltage noise	200 µV
Saturation current density	1×10^{-4} mA/cm^2
Noise equivalent irradiance (NEI)	3×10^{-4} W/m^2 at 10 ms exposure time and 1850 nm wavelength

Mechanics design, dimensions and connectors

6x M3 mounts (top)

C-mount

6x M3 mounts (bottom)

50.0

88.6

98.8

50.0

Power and IO
Hirose LF10, 12 pin

GigE Vision
RJ45 connector