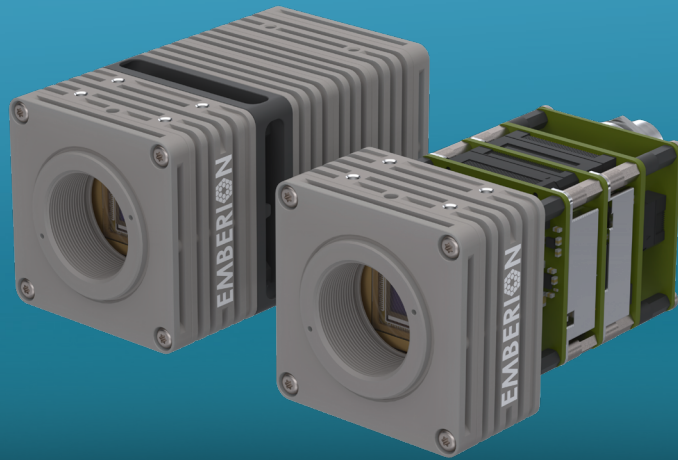


Extended SWIR CQD Cameras

VS17 & VS20 series



SWIR and eSWIR Cameras

KEY FEATURES



Extended SWIR Imaging (VS20)



High Dynamic Range



Compact Camera Design



Flexible Optical Mount & Lens Options

Exosens' The VS17 and VS20 are vis-SWIR cameras that use colloidal quantum dots (CQD) as the detector material.

The VS17 and VS20 offers an exceptionally wide spectral range, from 400 nm to 1700 nm (VS17) or 2000 nm (VS20), and even beyond.

The high dynamic range and non saturating pixel structure make this an excellent option for surveillance, dynamic environments, or optical measurements that require a large dynamic response.

CAMERA SPECIFICATIONS		VS17 & VS20	
Mechanical specifications		CAM	OEM
Dimensions (width x height x length) [mm]		50 x 50 x 99 mm	50 x 50 x 99 mm
Weight [gr] – excluding lens		450 g	251 g
Optical interface		C-mount	
Interface specifications			
Command and control		GigE Vision, GenICam	
Max frame rate [Hz] (full frame)		400 FPS	
Digital output format		MONO16	
Connector video		RJ45	
Connector power, trigger I/O		Hirose LF10, 12 pin	
Trigger		2x trigger in; 2x trigger out (2x opto-isolated, 2x non-isolated 3.3V)	
Environmental & power specifications		CAM	OEM
Operating case temperature [°C]		-20° to +40°C	
Power consumption [W]		11 W @ 400 FPS, Ta = 20°C	
Power supply voltage		12V	
Regulatory compliance		CE, UKCA, FCC, ICED	-
Electro-optical specifications		VS17	VS20
Image format [pixels]		640 x 512 px	
Pixel pitch [µm]		20 x 20 µm	
Detector type		Colloidal quantum dot pin photodiode	
Sensor temperature stabilization		1-stage TEC stabilised	
Integration type		Open-circuit voltage mode	
Active area and diagonal [mm]		12.80 x 10.24 mm	
Optical fill factor		90%	
Spectral range [nm]		400 ~ 1700 nm	400 ~ 2000 nm
Quantum efficiency @ SWIR peak		45% @ 1550 nm	20% @ 1850 nm
Noise equivalent irradiance (NEI) @ SWIR peak		$6 \times 10^{-4} \text{ W/m}^2$ $T_{\text{exp}} = 10 \text{ ms}, T_{\text{DETECTOR}} = 25^\circ\text{C}$	$8 \times 10^{-4} \text{ W/m}^2$ $T_{\text{exp}} = 10 \text{ ms}, T_{\text{DETECTOR}} = 25^\circ\text{C}$
Dynamic range (optical input)		120 dB	
Read noise [electrons]		200 e-	
Input referred voltage noise		200 µV	
Read out modes		Integrate then readout (ITR), Integrate while readout (IWR)	
Pixel operability		>99.9%	
Exposure time range [ms]		0.1 to 100 ms	

