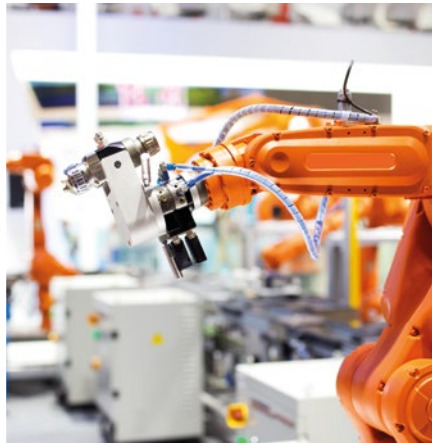


Emerald 2M, Ready for Embedded Vision



Motion free artefacts, miniaturization, low cost and low power, are all key characteristics that fuel the design of new (and future generations) of imaging systems. Teledyne e2v's new Emerald 2M CMOS image sensor offers an easy solution to all of these requirements by integrating on-chip functionalities that reduce the computational load on the processor as well as programming time for engineers.

Camera manufacturers and industrial OEM's can benefit from the features of Emerald 2M to bring their embedded vision systems to the market with the world's smallest full HD format global shutter image sensor.

SENSOR FEATURES

Full HD resolution 2 Megapixels	MIPI CSI-2 interface for direct data transfer to state-of-the-art ISP/SoC	1/2.9" optical format for cost effective optics
Fast Self Exposure® for single frame auto exposure control	Single frame HDR mode for blur-free and high dynamic image captures	Ultra-low power consumption ≤ 280 mW

CUSTOMER BENEFITS

Reduce total bill of materials including lighting & optics	Long battery autonomy for portable devices	Identify and classify high-speed moving objects
Miniaturized embedded vision systems due to optimized PCB area	Capture details on high dynamic outdoor scenes	

SENSOR CHARACTERISTICS

PARAMETER	EMERALD 2M		
Resolution – pixels	1,920 (H) x 1,080 (V)		
Pixel size – square	2.8µm		
Size type – inch	1 / 2.9		
Aspect ratio	16:9		
Max frame rate	60fps @12 bit	80fps @10 bit	110fps @8 bit
Bit depth	8/10/12		
Readout noise – e-	2.8		
Qsat – e-	6,400		
Dynamic range – dB	67.9 (standard mode) up to 120 (HDR mode)		
Power consumption	0.28W @max frame rate		
Q.E. – %, @550nm	65%		

KEY ELEMENTS

- » 2 Megapixels delivering full HD resolution
- » 2.8µm CMOS global shutter pixel allowing true CDS
- » Compatible S-mount, C-mount
- » Optical center is centered in package
- » 2 package options:
 - Ceramic LGA package, 13.3 x 14.1mm²
 - Fan-out package, 10.01 x 11.51mm²
- » Footprint and optical compatible with Emerald 5M
- » 4 lanes MIPI CSI-2
- » Power consumption: ≤0.28W @full speed & full resolution

EMBEDDED FEATURES

- » ROI (up to 4, overlap and independent configurations allowed)
- » Single frame HDR up to 100dB
- » Fast Self-Exposure®
- » Binning (analog & digital)
- » Sub sampling
- » Look-up table
- » Image statistics and context output in image

TYPICAL APPLICATIONS

- » Machine vision
- » Automated Optical Inspection
- » Product tracking and counting
- » Robotics
- » Embedded vision systems
- » Security & surveillance
- » Intelligent Transportation Systems