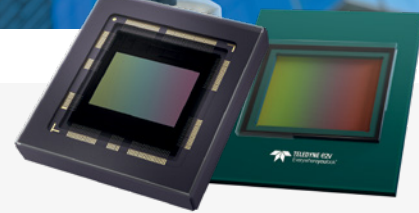# EMERALD 3.2M & 5M
EMPOWERING EMBEDDED VISION

The Emerald family of sensors has been designed to match the unique requirements of machine vision and security applications. From pixel performance and features, to the MIPI output; every aspect of this product has been optimized to address the next challenges of embedded vision.

SENSOR FEATURES

High precision 3.2 and 5 Megapixel resolutions	**MIPI CSI-2 outputs** to interface with leading edge ISP and FPGA
Combining speed and image quality with a single frame HDR mode	**Reduced integration costs** with its compact 1/1.8" and 1/2.5" optical formats

CUSTOMER BENEFITS

Accurate and fast operation enabling **an improved detection/control ratio**	Simultaneous verification tasks **using a single sensor**
Lighting system costs saving due to improved dynamic range	Seamless and **cost-effective integration**

Sensor Characteristics

	EMERALD 3.2M	EMERALD 5M
Resolution – pixels	2,048 × 1,536	2,560 × 1,936
Aspect ratio	4:3	4:3
Frame rates @ 8-10 bit **@ 12 bit**	68 fps 50 fps	54 fps 40 fps
Size type	1"/2.5"	1"/1.8"
Pixel type / size – square	Global shutter/2.8 µm	
Readout noise	2.8 e-	
Full well capacity	6,970 e-	
Dynamic range	66 dB (normal mode) 100+ dB (HDR mode)	
SNRmax	38 dB	
Q.E. – %, @550nm	65	

SYSTEM INTEGRATION

- Options:
  - Color Filter Array: B&W or color
  - Package: ceramic LGA 15 x 16mm²
    or Glass fan-out BGA 12 x 14 mm²
  - Chief Ray Angle: 2 options available to
    ensure the perfect match with your optics
- Optical center centered in package
- Full compatibility with Emerald 2M
  (footprint, optical, electronic)
- MIPI CSI-2, 1.2Gbps lanes (up to 4 lanes)
- SPI/I2C (selectable) controls
- Versatility between 8, 10 or 12 bit depth
- Power consumption: <450W @ full speed
  & full resolution

EMBEDDED FEATURES

- ROI (independent configurations allowed)
- High Dynamic Range modes
- Fast Self Exposure
- Binning
- Sub sampling
- Look-up table
- Defective pixel correction
- Flipping/mirroring
- Image statistics and context output
- Multiple trigger modes

TYPICAL APPLICATIONS

- Embedded vision systems
- Factory automation
- Intelligent transportation systems
- Security cameras
- Drones/UAVs

ORDER CODES – EMERALD 3.2M

	GLASS FAN-OUT		CERAMIC LGA
	4° CRA	9.6° CRA	4° CRA
B&W	EV2S3M2B-FM20150-T	EV2S3M2B-FM20350-T	EV2S3M2B-CM20150-T
COLOR	EV2S3M2C-FM20150-T	EV2S3M2C-FM20350-T	EV2S3M2C-CM20150-T

ORDER CODES – EMERALD 5M

	GLASS FAN-OUT		CERAMIC LGA
	5° CRA	12° CRA	5° CRA
B&W	EV2S05MB-FM20150-T	EV2S05MB-FM20350-T	EV2S05MB-CM20150-T
COLOR	EV2S05MC-FM20150-T	EV2S05MC-FM20350-T	EV2S05MC-CM20150-T