

OS12D40

11.3-Megapixel Product Brief



Security Image Sensor Provides 11.3MP Resolution for 4K2K with Electronic Image Stabilization and Best-in-Class HDR for 1080p Video

OMNIVISION's OS12D40 is a 1.404-micron pixel, 11.3MP CMOS image sensor that offers the unprecedented combination of a large 1/2.49" optical format, on-chip remosaic (4-cell to Bayer) color converter and on-chip high dynamic range (HDR) processing for security applications.

It is the industry's only security sensor with 3-exposure, 4-cell HDR capability to provide larger-pixel low light performance with the best artifact elimination for moving objects. When in full-HD 1080p mode, this sensor's 3-exposure HDR with on-chip combination and tone mapping provides best-in-class video captures. This is superior to the competing method, known as staggered HDR, which relies on additional passes that introduce motion artifacts, especially in low light.

Integrated selective conversion gain technology allows the pixel conversion gain to be dynamically switched between low and high, depending on the scene being captured. In combination with its other features—including PureCel®Plus-S stacked pixel technology for reduced cross talk and maximum quantum efficiency in low light—this image sensor enables mass market security cameras to capture the industry's highest quality video and ultra wide angle photos.

The OS12D40's fast mode switch allows security operators or AI-enabled surveillance systems to seamlessly switch to 4K2K mode when a specific threat is identified for closer inspection, such as a potential intruder or unauthorized vehicle. This sensor's best-in-class 11.3MP resolution provides the extra pixels needed for 4K2K images with electronic image stabilization (EIS), to ensure that details can be clearly identified.

The OS12D40 is a native 16:9 aspect ratio image sensor that uses a 4-cell color filter pattern. It has an on-chip 4-cell to Bayer remosaic converter, in order to provide 4K video at 60 fps with 20% additional pixels for EIS. In a 4-cell binned mode, it can output an impressive 2.8MP/1080p resolution with 20% additional pixels for EIS video and images at four times the sensitivity. This sensor also supports both CPHY and DPHY interfaces.

Applications

- Security cameras
- Machine vision
- PC multimedia

Features

- **Active array size:** 4512 x 2512
- **Maximum image transfer rate:**
  - 4512 x 2512: 60 fps
- **Power supply:**
  - Core: 1.1V
  - Analog: 2.8V
  - I/O: 1.8V
- **Output interfaces:** Up to 4-lane MIPI TX interface with speed up to 2.5 Gbps/lane
- **Output formats:**
  10-bit RGB 4-cell pattern Bayer RAW
- **Lens size:** 1/2.49"
- **Pixel size:** 1.404 µm x 1.404 µm

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