



OH08A



8-megapixel product brief

Industry's First 8-Megapixel Medical-Grade Image Sensor Provides High Resolution with Excellent Image Quality for Single-Use and Reusable Endoscopes

The OH08A is OMNIVISION's next-generation 8-megapixel (MP) resolution CMOS image sensor for single-use and reusable endoscopes. The sensor is designed for endoscopes with a 10-12 mm outer diameter, such as gastroscopes, duodenoscopes, amnioscopes, laparoscopes and colonoscopes. The medical-grade OH08A image sensor features a 1/2.5-inch optical format, incorporates 1.4 μm PureCel®Plus-S pixel technology and offers 4K2K resolution in a small 7.1 x 4.6 mm package, which is ideal for chip-on-tip endoscopes.

Built on OMNIVISION's next-generation PureCel®Plus-S stacked die technology, the OH08A enables high functionality in the smallest possible die size. The sensor utilizes this proprietary pixel technology to improve image quality by reducing or eliminating fixed pattern noise, as well as providing high full well capacity (improving dynamic range),

excellent low light sensitivity, zero blooming and lower power consumption. The high frame rate of 60 fps reduces smearing to produce a crisp, stable image.

The OH08A offers high quality 8MP Bayer still frame or 4K video in real time. It features 4-cell three-exposure high dynamic range (HDR) with tone mapping for improved HDR output at 1080p60 or native 4K2Kp60 resolution.

Other key features of the OH08A include a 15.5 degree chief ray angle, enabling the use of lenses with large field of view and short focus distance; pulse width modulation output LED drivers; and 4 lane MIPI output with raw data. The OH08A is stereo ready with frame synchronization to support a host of depth perception applications. Additionally, it is autoclavable for reusable endoscope sterilization.

Find out more at www.ovt.com.



Applications

- medical endoscopes
- medical and dental equipment

Technical Specifications

- active array size:** 4024 x 2180
- maximum image transfer rate:**
 - 4024 x 2180: 60 fps
- power supply:**
 - core: 1.1V
 - analog: 2.8V
 - I/O: 1.8V
- power requirements:**
 - active: 370 mW
- output format:**
 - 10-bit RGB 4-cell pattern Bayer RAW
- lens size:** 1/2.49"
- temperature range:**
 - operating: -30°C to +85°C junction temperature
 - stable image: 0°C to +60°C junction temperature
- lens chief ray angle:** 15.46°
- scan mode:** progressive
- pixel size:** 1.404 μm x 1.404 μm
- image area:** 5672.16 μm x 3083.184 μm
- package dimensions:**
 - CSP: 7074.4 μm x 4621.9 μm

Product Features

- automatic black level calibration (ABLC)
- programmable controls for:
 - frame rate
 - mirror and flip
 - binning
 - cropping
 - windowing
- support for dynamic defect pixel cancellation (DPC)
- supports output formats:
 - 10-bit RGB 4-cell pattern Bayer RAW
- supports horizontal and vertical subsampling
- supports typical images sizes:
 - 4024 x 2180
 - 3840 x 2160
 - 1920 x 1080
 - 1280 x 720
- standard serial SCCB interface
- up to 4-lane MIPI TX interface with speed up to 2.5 Gbps/lane
- embedded 8k bits of one-time programmable (OTP) memory (4k bits reserved for user)
- 2/3 trio C-PHY interface, up to 1.6 Gbps/trio
- 4-cell support:
 - 4-cell binning
 - 4-cell full
- on-chip 4-cell to Bayer converter
- three on-chip phase lock loops (PLLs)
- sequential multi-frame HDR
- 2.2MP 10-bit 3-exposure 4C HDR output after tone mapping
- programmable I/O drive capability
- built-in temperature sensor

Functional Block Diagram

