



OVMed®

OCHSA Cable Module product brief



available in
a lead-free
package

OVMed® Cable Modules Combined with OmniVision's CameraCubeChip® Modules and OVMed® ISP Boards, Provide Complete Medical Imaging Subsystems for Endoscopes and Catheters

OmniVision's OVMed® cable module line of endoscope, catheter and dental cables create a platform, in combination with the company's portfolio of CameraCubeChip® wafer-level camera modules and OVMed® image signal processor (ISP) boards. As the world's top supplier of medical imaging components, this addition makes OmniVision the industry's first supplier of complete, end-to-end medical imaging subsystems, enabling medical device OEMs to focus on differentiating their core endoscope and catheter designs, while accelerating time to market and obtaining a competitive materials cost. This single source of supply and support for the entire medical imaging subsystem is also tuned for optimal performance by OmniVision's imaging experts.

OVMed® cable modules provide high image quality with minimal artefacts, for the transmission of captured images from the endoscope's distal tip, down the endoscope shaft to the proximal end. These cables are optimized for small module size, thin diameter, flexibility, mechanical robustness and cost. Additionally, they are electrically shielded for electromagnetic

compatibility (EMC) and interference (EMI), which allows the cables to withstand high energy discharges during multimodal medical imaging procedures inside the body, while eliminating interference with other devices in the operating room.

OmniVision's flexible design and manufacturing model allows the company to provide semi-custom cable solutions based on customer requirements. Customizable parameters include short cables of 2.5 meters or less, long cables up to 5 meters, analog or digital MIPI output from 200 x 200 at 30 fps up to 720p resolution at 60 fps, as well as a wide range of connectors—all with or without LED illumination. In addition, every OVMed® cable module undergoes comprehensive certification, qualification and testing, including testing for banned substances, operation tests, stress tests, sterilization, bio-compatibility and workmanship, making it more suitable for medical devices.

Find out more at www.ovt.com.



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Applications

- Medical Endoscopes
- Veterinary Endoscopes
- Dental Equipment
- Industrial Endoscopes

Technical Specifications

- **active array size:** 800 x 800
- **power supply:**
 - 5V from MIPI connector to sensor
 - 6V / 8 mA from LED connector
- **power requirements:**
 - active: 82.2 mW
 - standby: 0.5 mA
 - XSHUTDN: 2 μ A
- **temperature range:**
 - operating: -20°C to +70°C junction temperature
 - stable image: 0°C to +50°C junction temperature
- **output interface:** 1-lane MIPI serial output/LVDS
- **output formats:** 10-bit RGB RAW
- **optical size:** 1/14.25"
- **diagonal field of view (FOV):** 120° \pm 4°
- **LED CRI:** 80 - 85
- **LED color temperature:**
 - target: 6300
 - range: 5500 - 7100
- **tip x-y dimension:**
 - max. diameter: $\leq \varnothing 4.26$ mm
- **rigid parts z-dimension:**
 - max. z-dimension: ≤ 10.8 mm
- **cable diameter:** 2.52 \pm 0.1 mm
- **cable length:** 1500 \pm 60 mm
- **end connector PCB:**
 - dimension x-y:
 - x: 40 mm \pm 1.0 mm
 - y: 45 mm \pm 1.0 mm
 - MIPI connector: QTE-020-01-L-D-A (40 Pin)
 - LED connector: 0.1" pitch Male (2 pin)
- **f no.:** 4.37
- **focal length:** 0.445 mm
- **input clock frequency:** 6 - 27 MHz
- **maximum transfer rate:**
 - 800 x 800: 60 fps
 - 400 x 400: 90 fps
- **sensitivity:** 4500 e⁻/lux-sec
- **max S/N ratio:** 36.8 dB
- **dynamic range:** 72.2 dB @ 16x gain
- **minimum exposure:** 4-row
- **maximum exposure:** VTS-8
- **pixel size:** 1.116 μ m x 1.116 μ m

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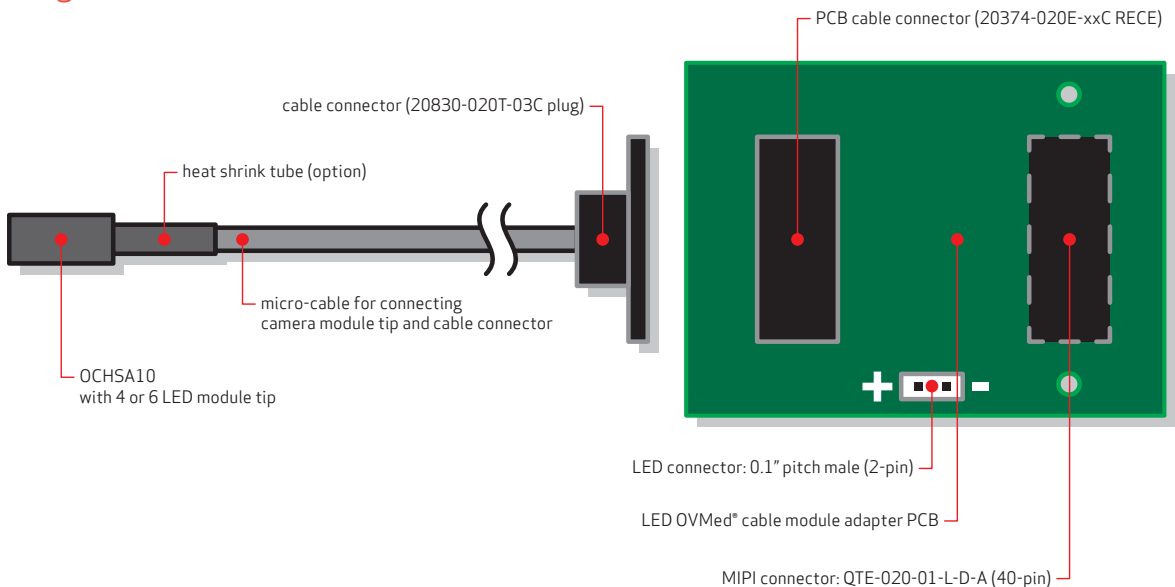
Ordering Information

- **OCHSA10-KM1C-6E1A-Z** (color, lead-free) LED OVMed® cable module with single channel, with six LED illumination, connector E, 1.5 m, generation 1
- **OCHSA10-KM1C-4JE2A-Z** (color, lead-free) LED OVMed® cable module with single channel, with four LED illumination, connector E, 1.5 m, generation 1
- **OCHSA10-KM1C-4F2A-Z** (color, lead-free) LED OVMed® cable module with single channel, with four LED illumination, connector E, 1.5 m, generation 1

Product Features

- OCHSA10 is a 640 Kpixel (800x800) CameraCubeChip® with PureCel®Plus-S technology based on OH01A10 color CMOS image sensor
- non-autoclavable
- highest resolution in small die size
- best image quality
- high frame rate for jitter-free images
- PureCel®Plus-S high color fidelity
 - high FWC with less saturation
 - best low light sensitivity
 - almost no blooming
 - low noise
 - better color crosstalk
 - higher QE performance
- supports images sizes:
 - 800 x 800
 - VGA (640 x 480)
 - 400 x 400, and more
- single 5.0V power supply for sensor
- individual power supply for LED
- output format can be 8/10-bit RGB RAW
- stereo ready (frame sync)
- sync light source (strobe)
- horizontal and vertical subsampling
- low power
 - more than 25% lower power than previous generation
 - low power mode for subsampling modes (<10 mW)
- on-chip phase lock loop (PLLs)
- 2x2 analog binning support
- image quality controls:
 - lens shading
 - denoise
 - manual exposure
 - gain control
 - defect pixel correction
 - automatic black level calibration
- group hold

Diagram



4275 Burton Drive
Santa Clara, CA 95054
USA

Tel: +1 408 567 3000
Fax: +1 408 567 3001
www.ovt.com

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