TELEDYNE

FLASH 4K ENABLING HIGH-END 3D LASER TRIANGULATION SYSTEMS

The Flash family of CMOS image sensors are specifically tailored and proven for 3D laser triangulation applications. They deliver high resolution and high speed and are easy to integrate. The same CMOS sensor can be used for all the camera versions in your portfolio, which helps to minimize camera redesigns and simplifies the supply chain.

SENSOR BENEFITS & FEATURES

Specifically designed for 3D laser triangulation with high speed and high horizontal resolution	**High quality single-tap image sensor** with proven pixel/electro-optical performance
Perfectly meet your application challenges with its powerful single-frame HDR feature embedded on-chip	**Optimized for affordable systems and easy to integrate**, with low-costs FPGAs and standard optics

CAN BE TAILORED TO MEET YOUR SPECIFIC REQUIREMENTS

To differentiate even more a large library of hardware and software derivatives are available	**To perfectly fit your application**, full or partial customization is possible	**To help you design your system**, skilled local support is available in your region

APPLICATIONS

Measure, detect and inspect:
- Length, width, height, tilt or the volume of any surface
- Shapes and profiles
- Worn or broken parts, roughness, aging, patching, humps, corrugation and waves
- In motion

For many markets:
- Battery inspection
- Electronics / PCB inspection
- Wood, metal, road, rail inspection
- Plus many more

MAX FRAME RATE ACCORDING TO THE NUMBER OF ROWS

NUMBER OF ROWS	1,024	512	256	128	64	32	16	8
FLASH 4K – FPS	1,786	3,488	6,661	12,217	20,957	32,626	45,214	56,022

FIND OUT MORE!

Sensor Characteristics

	FLASH 4K
Resolution – pixels	4,096 (H) × 1,080 (V)
Pixel size – square	6 µm
Max frame rate – fps	1,786 (1,024 rows, 8 bits)
Bit depth	8-10
Dark noise – e-	22
Qsat – e-	> 10,000
Dynamic range – dB	>53 (Linear integration) - Up to 100 (HDR multi-slope mode)
SNRmax – dB	40
FFxQE – % @ 550 nm	47
Interface	64 LVDS Data Ports @ 480.75 MHz + 12[*]
Package type and size	380-pin µPGA – 49 × 37 mm
Power supplies	3.3V Analog & 1.8V Digital
Optics	APS-Like at full frame 4/3" with a 3400 column-wise ROI
Max power consumption – W	3.1

*64 LVDS high-speed ports for data + 12 LVDS for black columns, clock recovery and synchronization.

EMBEDDED FEATURES

- Region of Interest [X,Y]: multiple ROIs defined separately by columns and by rows
- Binning: ×2 independently controlled for rows and columns
- Single-capture with the well adjustment technique and High Dynamic Range (HDR) for imaging both highly reflective and dark areas
- Concurrent exposure and readout in linear integration mode
- Analog gain control: 1×, 2×, 4×
- Offset control: on-chip, software configurable
- Trigger modes: single edge, pulse width control
- Vertical flipping

WIDE LIBRARY OF DERIVATIVES AVAILABLE

- Soft: higher full-well capacity, additional operating modes trading-off speed, spatial resolution and power consumption, etc.
- Hard: custom color-filter array, micro-lens arrangement, etc.

To achieve even more differentiation and optimal fit for your application, more derivatives are available on request.
Please contact our sales team!

An Evaluation Kit to assess the performance of the Flash sensors and a Reference Design to improve your time-to-market are also available.

ORDER CODE – FLASH 4K

EV3S4M0B-CLVFL40-T: Standard micro-lenses
EV3S4M0B-CLVFL4G-T: Standard micro-lenses, with removable glass lid
EV3S4M0B-CLVFL4X-T: Without micro-lenses, with removable glass lid