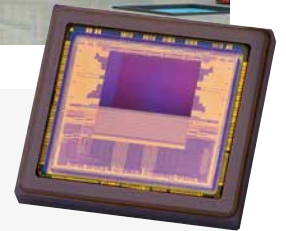


HYDRA3D+

FIRST HIGH RESOLUTION ToF SENSOR TO WORK IN ALL LIGHT CONDITIONS WITHOUT MOTION ARTEFACTS



Hydra3D+ is a 832 x 600 pixel resolution CMOS image sensor, designed with Teledyne e2v's proprietary CMOS technology, and is tailored for versatile 3D detection and measurement. The sensor includes a brand-new 10 µm, three-tap pixel, which provides very fast transfer times and displays high sensitivity in the NIR wavelength, alongside excellent demodulation contrast. This combination enables the sensor to operate in real-time without motion artefacts (even if there are fast moving objects in the scene) for customers seeking reliable 3D detection and the highest levels of 3D performance, including high depth resolution, high speed and flexible operation conditions, all without system interference. Hydra3D+ can be operated in real-time at short, mid and long-range distances, in both indoor and outdoor conditions while providing an excellent temporal precision, making it suitable for a wide range of professional and challenging applications.



SENSOR FEATURES

Compact, with high spatial resolution

832 x 600 pixels
LGA ceramic package 24 x 22 mm



Excellent precision and speed performance
Three-tap cutting edge pixel with transfer time down to 10 ns, >400 fps (readout only)
On-chip multi-system management



Flexible configuration and high dynamic range management
Frame-to-frame timing configuration changes
Non-destructive readout HDR feature



CUSTOMER BENEFITS

Large Field-of-View with good angular resolution in a compact sensor
High spatial resolution in both 2D and 3D
2/3" optics compatible

Real-time decision making combined with reliable 3D detection, without motion artefacts and systems interferences
High precision, >30 fps depth map

Outstanding adaptability to various scenarios, in all light conditions
Capability to trade-off distance range, object reflectivity, frame rate, light power, etc.
Robust to ambient light



Sensor Characteristics

Resolution – pixels	832 x 600		
Aspect Ratio	4 : 3		
Size Type	2/3" (10.3 mm diagonal)		
Pixel Type / size – square	Three-tap global shutter – gated global shutter / 10 µm		
Maximum frame rate @ 12 bits	416.7 fps ¹		
FFxQE – %, @ 850 / 940 nm	41 / 31 ²		
Transfer time – ns	Down to 10		
Readout noise – e- RMS	2.5		
Linearity: LEmin / LEmax – %	-1 / +1		
	Node A	Node B	Node C
Full well capacity – e-	18,000	18,000	18,000
Temporal noise – e-	12	12	12
Dynamic Range³ – dB	64	64	64

1. Considering only readout. Exposure is not concurrent

2. In 2D greyscale mode

3. Single readout, 2D greyscale mode

EMBEDDED FEATURES

- Multiple acquisition modes: distance measurement and greyscale
- High Dynamic Range mode through non-destructive readout
- Programmable exposure time
- Row-wise ROI (up to 4 for distance measurement, 1 for 2D greyscale image)
- Column-wise ROI (with 64 columns granularity)
- Frame-to-frame “hot” changes of exposure parameters and ROI
- Multiple trigger modes
- HFPN correction
- On-chip multi-system management

SYSTEM INTEGRATION

- Package: ceramic LGA
- Operating temperature [-40°C to 105°C]
- Power consumption: 2.6 W⁴
- Scalable LVDS outputs (13, 7 or 4 channels)
- SPI controls

TYPICAL APPLICATIONS

- Warehouse/Logistics management
- Pick and place robots
- Robot navigation
- Factory automation
- Factory safety
- Construction/building mapping
- Surveillance
- ITS

4. Full array, 100 ns gating cycle duration (three phases), 10% duty cycle, 50% gating time

HYDRA3D+ SAMPLES

Coming in January 2023