HYDRA3D
THE FIRST HIGH-RESOLUTION MULTI-TAP ToF SENSOR

Hydra3D is a 832 x 600 pixel resolution CMOS image sensor, designed with Teledyne e2v's proprietary CMOS technology, which enables the next generation of 3D vision systems. The sensor includes a 10 µm, three-tap, cutting-edge pixel, which provides very fast transfer times for customers seeking the highest levels of 3D performance, including high depth resolution, high speed and flexible operation conditions. Hydra3D can be operated without motion artefacts in real-time at short, mid and long range distances, in both indoor and outdoor conditions, while providing a best-in-class temporal precision.

SENSOR FEATURES	CUSTOMER BENEFITS
Spatial resolution of 832 x 600 pixels in both 2D and 3D LGA Ceramic package 24 x 22 mm Compatible with 2/3" optics	Large Field-of-View with good angular resolution in a compact sensor
Excellent temporal precision due to fast transfer time as low as 20ns Three-tap, cutting-edge pixel Multi-system management feature embedded on-chip More than 30 fps depth map	Real-time decision making combined with reliable 3D detection, without motion artefacts and interference with other systems
Short and long-distance range handling (>10m) High flexibility to trade-off distance range, object reflectivity, frame rate, etc. combined with powerful non-destructive readout HDR Robust to ambient light and challenging environments	Outstanding adaptability to all environments, including outdoors, with very high dynamic range management

ADEPT TURNKEY
SMARTER IMAGING FOR BETTER LIVES
Perth: (08) 9242 5411 Melbourne: (03) 9384 1775 Sydney: (02) 9905 1551
Email: sales@adeptturnkey.com.au
Web site: www.adept.net.au

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	37 / 19[2]			
Transfer time – ns	Down to 20			
Readout noise – e- RMS	2.5			
Linearity: LEmin / LEmax – %	-1 / +1			
	Node A	Node B	Node C	A+B+C
Full well capacity – e-	10,000	10,000	10,000	30,000
Temporal noise – e-	10	10	10	17.3
Dynamic Range[3] – dB	60	60	60	64.7

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: 2.2 W[4]
- Scalable LVDS outputs (13, 7 or 4 channels)
- SPI controls

4. Full array, 200ns gating cycle duration (three phases), 10% duty cycle, 50% gating time

TYPICAL APPLICATIONS

- Factory automation
- Robotics
- Logistics
- Surveillance
- ITS
- Mapping / building
- Drones

ORDER CODE – HYDRA3D SAMPLES

EV3S0M5B-CLVN000-T

ADEPT TURNKEY
SMARTER IMAGING FOR BETTER LIVES
Perth: (08) 9242 5411 Melbourne: (03) 9384 1775 Sydney: (02) 9905 1551
Email: sales@adepttumkey.com.au
Web site: www.adept.net.au

Teledyne e2v reserves the right to make changes at any time without notice.
Copyright © Teledyne e2v. All rights reserved. 2022 05 13