OnyxMax
HIGH-PERFORMANCE CMOS IMAGE SENSORS FOR EXTREMELY LOW LIGHT CONDITIONS

OnyxMax™ is the next generation of Teledyne e2v's popular Onyx 1.3M low light CMOS image sensor. This new sensor has been designed for extremely low light conditions, down to 1 mLux. The combination of sensitivity and image resolution increases its range, allowing even small objects to be detected in harsh conditions. This makes OnyxMax ideal for a wide range of applications including science, defense, traffic cameras, broadcast, surveillance, border control and astronomy.

SENSOR FEATURES

High image processing throughput with 120 fps frame rate @ 1.3M resolution

Global shutter and rolling shutter HDR

A high-performance low noise global shutter pixel

Teledyne's patented HiRho technology

CUSTOMER BENEFITS

High speed and accurate

Flexible integration and resolution

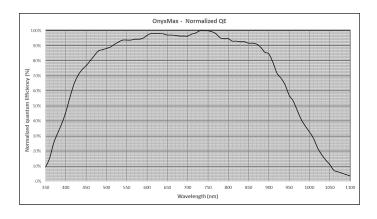Excellent SNR and frequency contrast in low light conditions

Enhanced NIR responsivity enabling increased signal generation

Sensor Characteristics

	OnyxMax
RESOLUTION – PIXELS	1,280 x 1,024
PIXEL SIZE SQUARE – µm	10
ASPECT RATIO	5/4
DEPTH - BITS	8 / 10 / 12 / 14
FRAME RATE – fps	120 / 120 / 80 / 25
READOUT NOISE – e-rms	1.8
FWC – ke-	14
DYNAMIC RANGE – dB HDR – dB	75 100
SNRMAX – dB	41.5
Q.E. – %, @ 850 nm MTF – %, @ 850 nm	58 63
OPERATING POWER CONSUMPTION / STANDBY mW	275 / 1.2

KEY SPECIFICATIONS

- Global and rolling shutter in serial and overlap modes
- Rolling shutter with HDR mode in serial and overlap modes
- Global shutter with external CDS mode
- Range gating mode for active imaging
- 1" optical format
- Output format true 8 / 10 / 12 / 14bit LVDS and synchronization
- Frame clamp and on-chip fixed pattern noise correction
- SPI controls
- Control input pins: Trigger in, reset
- Light control output – Trigger out
- 3.3 V and 1.8 V power supplies
- 80 MHz input clock
- 67 pins PGA ceramic package

EMBEDDED FUNCTIONS

- Image statistics and context output
- Sub-sampling
- Two PLL for LVDS and ADC frequencies generation
- Wide dynamic range capabilities
- Accumulation mode for active imaging applications
- Time to read improvement (good first image, abort image)
- Low power

TYPICAL APPLICATIONS

- Surveillance & security cameras
- Military and law enforcement
- Scientific imaging / astronomy
- Industrial inspection
- Biometric and medical imaging
- Traffic cameras