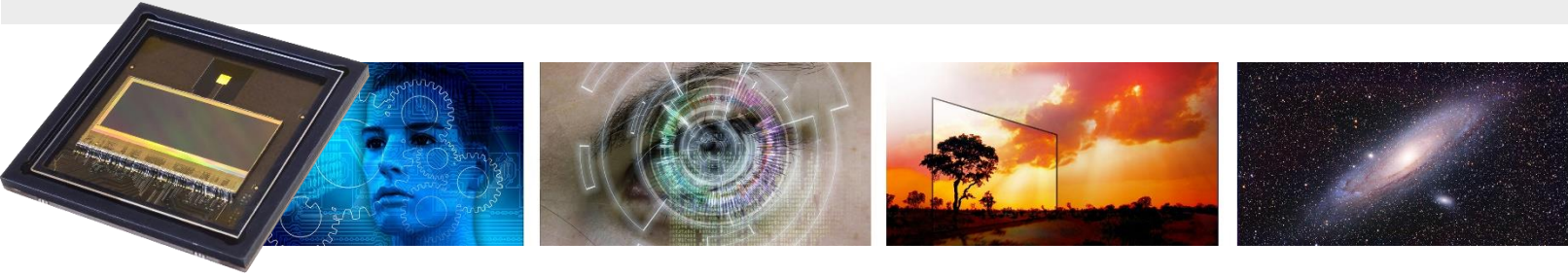


# HDPYX 300

## 3 MP, HDR 120dB, Dual Core CMOS image sensor

HDPYX, Best in class native HDR image sensor series



The HDPYX-300 Sensor is a high performance, high dynamic range 3MP image sensor.

Designed for Instrumentation, Scientific and high end security market as well as demanding HDR machine vision applications, the device offers extremely high dynamic range with a unique dual core architecture. The sensor works in different Global or rolling shutter modes.

### Key Features

- Shutter modes:
  - Electronic Rolling Shutter with CDS (ERS)
  - Global Shutter Low-Noise with CQS (GSLN)
  - Global Shutter with UDS (GS)
  - Global Start Rolling Shutter (GRS)
- Wide-Dynamic-Range capabilities and on-chip computing:
  - Mode 1: In-pixel dual gain with automatic switch selection (1 frame readout, true intra-scene HDR)
  - Mode 2: Line-interlaced (odd/even) dual integration times (configurable ratio)
- Digital corrections
  - Automatic column offset correction
  - Programmable digital gain and offset
  - HDR Interpolation filter for mode 2 (sat. pixels compensation)
  - HDR Reconstruction filter (compensation of dual integration and/or dual gain mode)
- Anti-blooming function & black sun effect correction
- Frame rates:
  - Up to 100fps in Full-HD (1968 x 1088), 12bits in ERS or GS
  - Up to 45fps in Full-ROI (2800 x 1088), 14bits in ERS with HDR
- Advanced ROI selection unit:
  - H&V flip
  - H&V Sub-sampling
  - Fully programmable ROI Selection down to pixel resolution
  - Configurable dark reference output
- Output format:
  - Configurable CMOS, LVDS or sub-LVDS data output
  - 2 data-output banks, each with 4 to 6 LVDS pairs
  - Up to 20bits data output
- 10bits temperature sensor
- SPI interface controller
- I/Os for Multipurpose triggers and Shutter & Flash synchronization

### Model

### HDPYX 300

- |                    |                                                                         |
|--------------------|-------------------------------------------------------------------------|
| • Resolution       | 3 Megapixel                                                             |
| • Active Pixels    | 2800 x 1088                                                             |
| • Aspect Ratio     | 2.5 : 1                                                                 |
| • Frame Rate       | 45 fps (@20bits, Full resolution)<br>100 fps (@12bits, Full resolution) |
| • Optical Diagonal | 30.04 mm                                                                |

### Pixel Performance

- 10  $\mu$ m square pitch, 6T structure.
- Dynamic range mode: 92 up to 120 dB
- ADC resolution: 14 bits
- Dual CVF HDR Mode
- High Full Well: > 100 ke-
- QE >60% @550nm
- Dark Current: < 6e-/s/pixel at 20°C
- Readout noise 2.6 e- RMS
- Shutter efficiency: 10 000 : 1
- EPI Thickness: Standard 5 $\mu$ m, Optional Thick EPI.

### Packaging, options

- Monochrome, Custom Hyper Spectral filters on demand
- 77 Pins CPGA Package 42,06 x 35,06 mm

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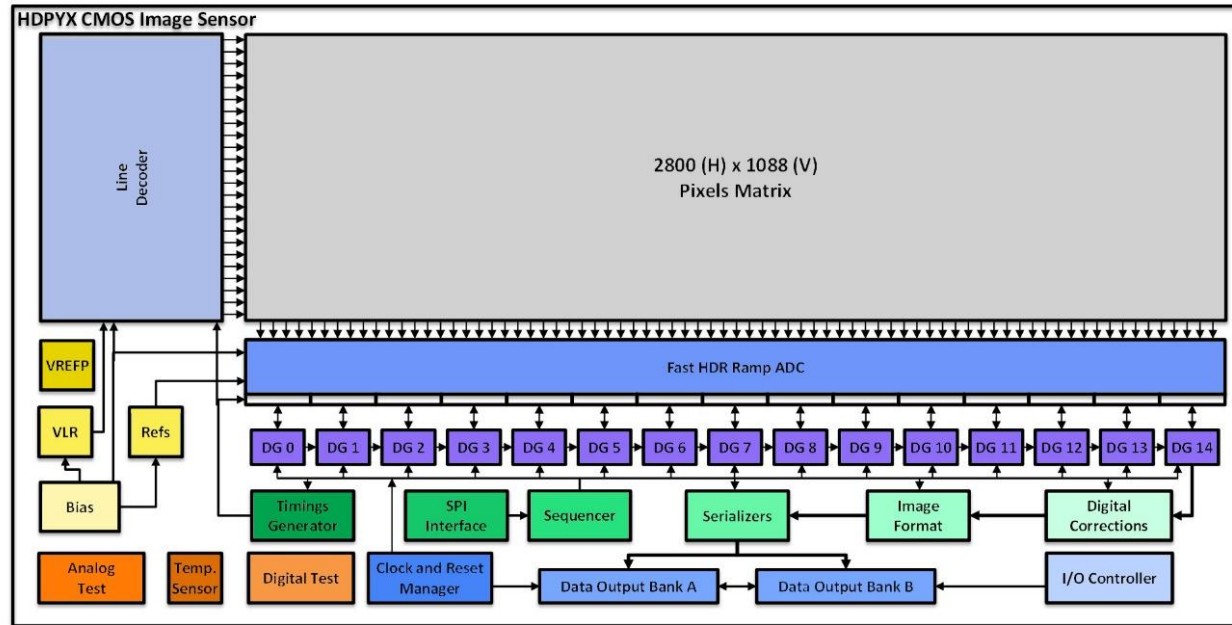


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# HDPYX 300

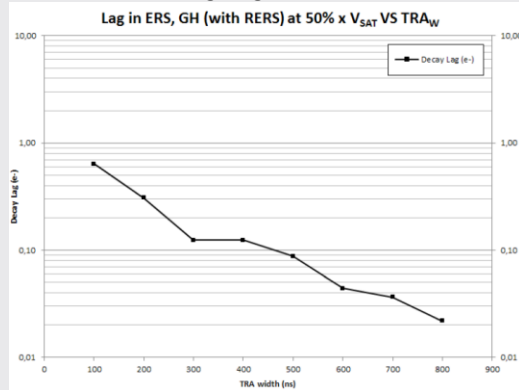
**3 MP, HDR 120dB, Dual Core  
CMOS image sensor**

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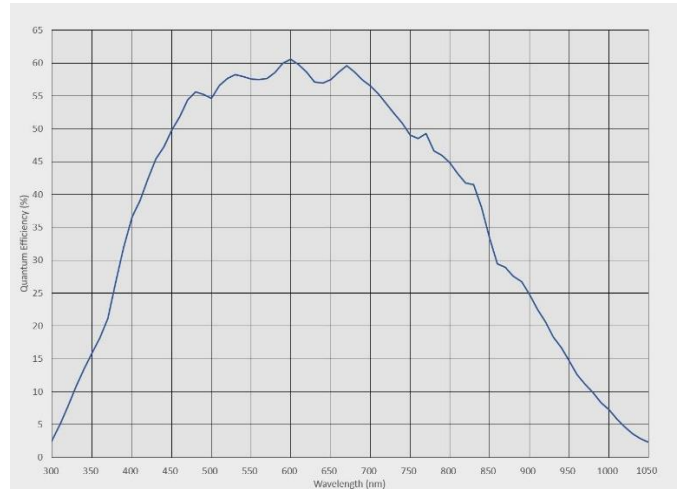
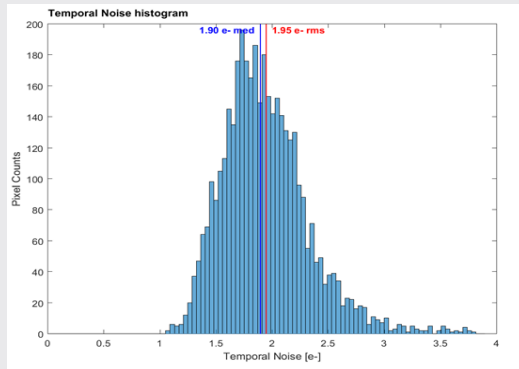


## Scientific grade performances:

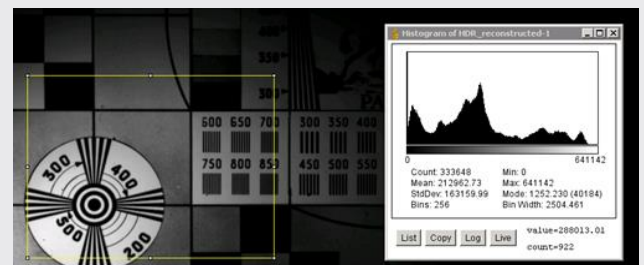
*1e- image lag @ 50% Vsat :*



*ultra-low noise mode: 1.9e- RMS :*



## True 120dB intra-scene dynamic range:



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