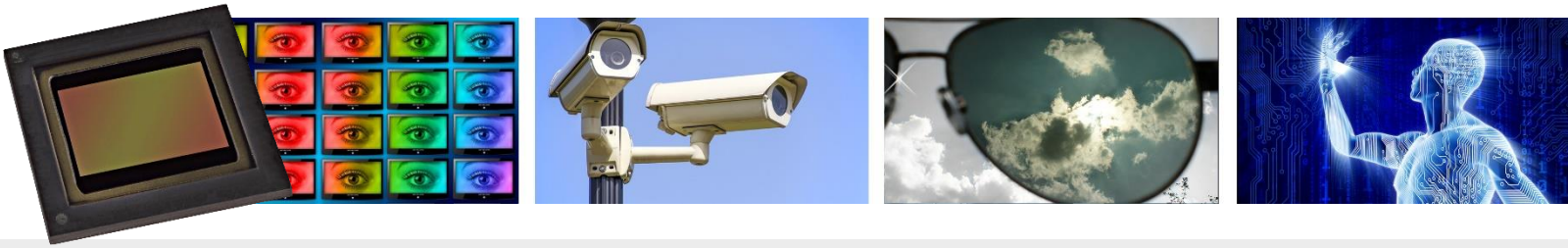


HDPYX 160 & 230 - G

G-Series, ultimate performance in global shutter



1.6 and 2.3 Megapixel, Global Shutter HDR CMOS image sensor



The HDPYX-G image sensors use a groundbreaking global shutter pixel with dual in-pixel memory to capture perfect high dynamic range (HDR) images. Outstanding features are excellent in-scene dynamic, low noise and high sensitivity. The result is a perfect picture in all conditions. Target applications and market include scanning, night vision, ITS, robotic and surveillance.

Key Features

- Global shutter pixel for easy use
- Build-in pixel high-dynamic technology
- Monochrome
- RGB+Nir or Bayer (HDPYX 230 only)
- Micro-lenses for higher efficiency
- Square pixels
- Very high MTF in NIR range
- Artefact free HDR processing
- Digital CDS for black level constancy
- Two low noise 11bits ADC
- Pixel processing pipeline (ISP)
- 8/10/12/14/16bits output format
- Linear and compressed mode
- 8 regions of interest (ROI)
- Sequencer
- Context meta data
- GPIO for trigger and status
- Master and slave modes
- Mirror and flip
- Subsampling and binning up to x4
- MIPI CSI-2 output (4 Lanes / 800Mbps)
- Parallel output (12bits / 100 MHz)
- Serial communication interface
- Integrated temperature sensors
- Embedded Auto-diagnostic features

Model

HDPYX 160-G

HDPYX 230-G

• Resolution Class	1.6 Megapixel	2.3 Megapixel
• Active Pixels	1472 x 1104	1944 x 1204
• Aspect Ratio	4 : 3	16 : 10
• Frame Rate	75 fps	60 fps
• Optical Diagonal	1/3" / 5.9mm	1/2.5" / 7.3mm

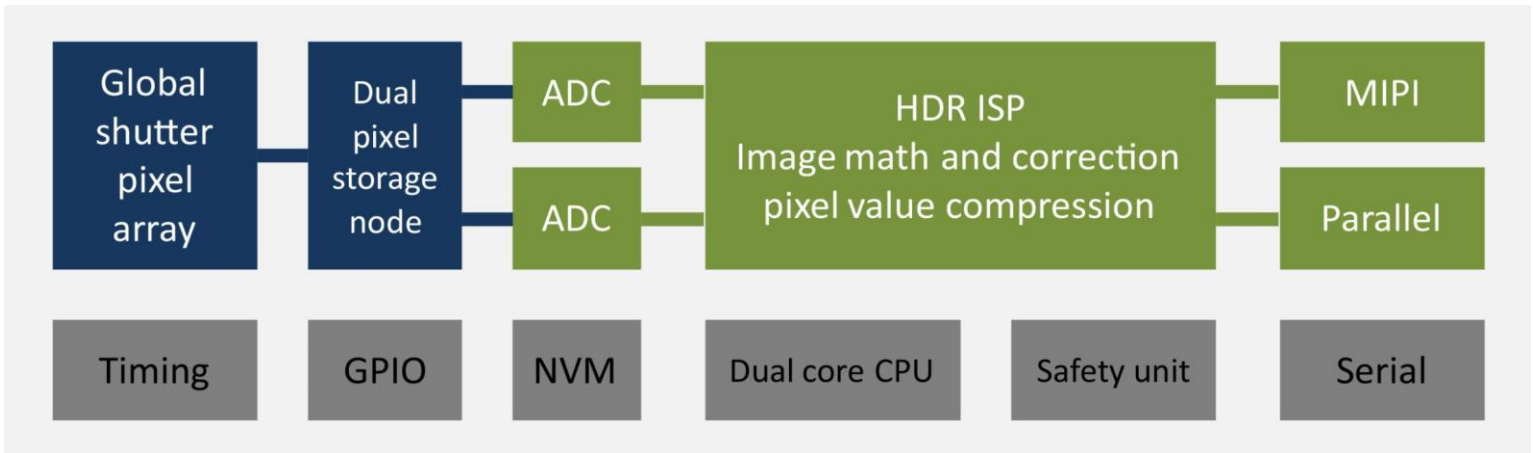
Pixel Performance

- 3,2µm pitch
- Linear Dynamic range up to 98 dB
- Single integration with 72dB de DR
- Saturation capacity (Full Well) 2 x 8.5 ke-
- QE 69% at 550nm and 19% at 850nm
- SNR Max 41.6dB
- Noise of 2.1 e- RMS (60°C)
- Dark current of 21.75 e-/s (60°C)

Environment

- Low power design (1.6MP: <350mW / 2.3MP: <435mW)
- Operating temperature of -40°C to 125°C
- Automotive qualified IM2BG4 plastic package
- Automotive qualification AEC-Q100 grade 2
- BGA or bare die available

1.6 and 2.3 Megapixel, Global Shutter HDR CMOS image sensor



Operation modes

The sensor can work in Linear mode with up to 11 bits per pixels

HDR image capture is done in two phases:

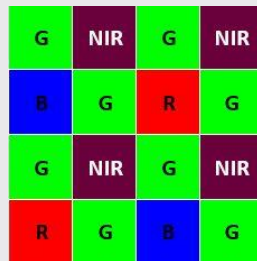
A short and a long exposure in a sequence without noticeable timing gap. The pixel uses two storage nodes for the results. Charges accumulated in long and short timing storage nodes are converted in parallel through a double 11bits ADC. The 22bits result is processed in the image processing unit (ISP) and formatted to a 16bits HDR value.

ISP Special features

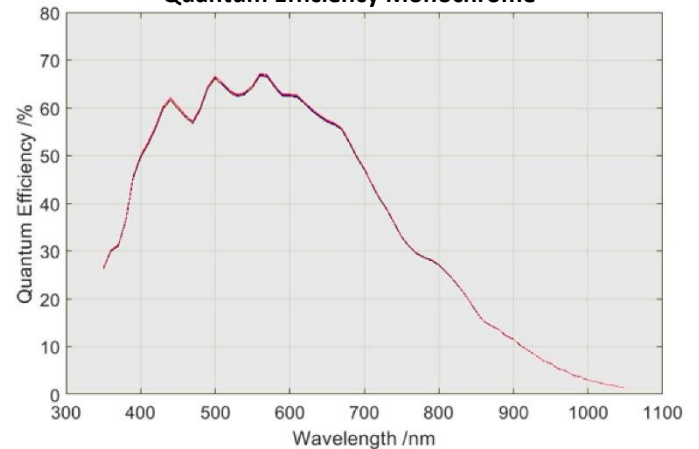
Background removal in combination with an illumination source to get higher contrast in pattern projection systems.
Compression from 18 to 8bits for a logarithmic response
Digital correction artefacts like hot pixels.

RGB+NIR Color Filter Array

The color version featured with a RGB+Nir CFA as detailed beside. This pattern offers a better color accuracy (with more green pixels) than a NIR-dense solution. The Nir Pixels give a solution from very low light or night (mono) to high level (color) applications.



Quantum Efficiency Monochrome



Quantum Efficiency RGB

