

# NSI1000 - 1K CMOS Image Sensor Chip

- ☐ Matrix of 1024 x 32 pixels (4.8μm x 6μm)
- ☐ Matrix of 1024 x 4 with an effective resolution of 1 line of 2048 ultra-high sensitive pixel array (by analog binning)
- ☐ Integrated configurable direct A/D converter with parallel 10 bits of digital output
- ☐ Per-frame configuration and scenario scheduler
- ☐ Optional automatic exposure control
- ☐ Optional automatic Triangulation peak detection per each line (center of mass algorithm in HW)
- ☐ Solid state eTOF support (Enhanced Time of Flight)
- ☐ Multi-Triangulation support, up to 32 concurrent vertical points (using a line laser)
- ☐ Integrated Bandgap reference
- ☐ Integrated CDS for fixed-pattern noise reduction
- ☐ Output speed/ internal processing at up to 100 MHz
- ☐ Programmable frame rate up to 50,000 fps (line) and 3,000 fps (array)
- ☐ Optional shut down of frame clock (between frames) for less power consumption
- ☐ Optional frame data out inversion
- ☐ Double buffer mode for high frame rate
- ☐ Ambient light subtraction support
- ☐ Continuous or single frame capture modes
- ☐ Tristate on data out pins for multiple parallel sensor connections
- ☐ Dual Power Supply: 3.3v (analog) and 1.8v (digital)
- ☐ Sensitivity: 60V/lux-sec
- ☐ Power consumption: 58mW
- ☐ Package: Organic Substrate 5mm x 4mm

The **NSI1000** imager is the low-cost solution of Newsight Imaging family of machine vision sensors. Based on the NSI3100, it was designed for applications such as Robotics LiDAR and AR/VR, which require more than 1 line, for example to detect obstacles like carpet or stairs. The sensor is composed of 32 rows x 1024 pixels, and one effective line of 2048 pixels which is composed of analog binned lines. The NSI1000 supports programmable frame rates, Multiline Triangulation, eTOF 3D distance measurement per pixel, automatic exposure control to avoid saturation from close or bright objects and enhance sensitivity to distant or dark objects, automatic peak detection for Triangulation and per-frame configuration to allow on-the-fly reactions to events.

### PIXEL OUTPUT INTERFACES

3 options: Parallel synchronous data out (pixel values), parallel peak triangulation values only, serial peak triangulation values.

### SERIAL CONFIG INTERFACES

Either I<sup>2</sup>C or Proprietary simple serial I/F.



**NSI1000EVb EVALUATION BOARD**