

smart eye ► IVS

INDUSTRIAL VISION SENSOR

GENERAL

The smart eye IVS is a dual-line dynamic vision sensor for high-speed vision in a compact processing architecture. This sensor incorporates a number of unique features exploiting the very high temporal resolution and sparse visual information that ensures robust imaging of objects at low processing cost.

The 2x256 pixel dynamic vision sensor asynchronously reacts to relative light intensity changes and consequently performs on-chip extraction of contours of moving objects.



Stimulus (above picture)

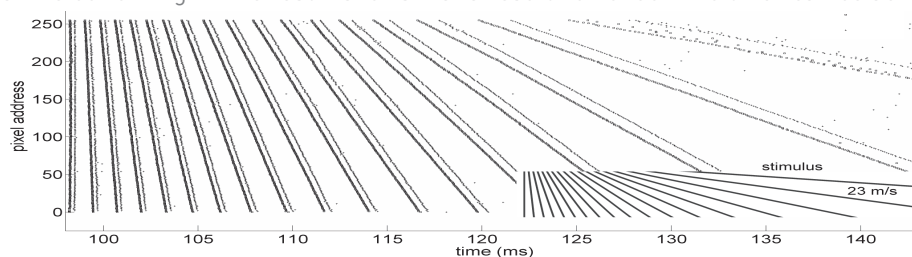
Sensor data (bottom picture)

@10 m/s, @ 1 kLux, 700 kb/s, time stamp resolution 10 μ s

Therefore, real-time processing is the key advantage of this technology for high-speed vision applications. The sensor includes a DSP that allows on-board implementation of various computer vision algorithms.

EXAMPLE

The figure shows imaging of an angle test chart at high object speed (23 m/s) and low average illumination (1 kLux). The stimulus is shown at the bottom right. The result shows that a resolution of down to 0.25° can be achieved.



The user interface software provided allows access and display of the sensor data for objects passing the sensor field of view.

Operating in the MS® Windows environment by using a tool with graphical user interface (GUI) allows a clear display of the sensor data as well as zoom on area of interest and the configuration of the sensor.

KEY ADVANTAGES

- Time resolution of 5 μ s at 10 kLux
- Wide dynamic range of 120 dB
- Dynamic (frame-free, time-continuous) operation (no triggers required for detection)
- Low power consumption 3 W @ 5 V
- Compact single box solution
- Data, control interfaces: Ethernet, RS232, RS485
- CE conformity
- Low data rate in high-speed applications supports long time recording and data analysis over months and years

APPLICATIONS

- Industrial automation
- Quality inspection
- Object counting

SPECIFICATIONS

- ▶ Pixel resolution: 2 x 256 pixel
- ▶ Pixel pitch: 15 μm
- ▶ Photo diode size: 15 μm x 22.5 μm
- ▶ Line separation: 250 μm
- ▶ Time resolution: 5 μs @ 10 kLux
- ▶ Dynamic range: 120 dB
- ▶ Processor: 600 MHz BF537 Blackfin
- ▶ Interface: 100Mb Ethernet
- ▶ Power supply: 5V

BASIC

- ▶ Power consumption: 3W @ 5V
- ▶ Dimensions (L x W x H): 120 x 120 x 90 mm

DISPLAY

- ▶ Power consumption: 6W
- ▶ Dimensions (L x W x H): 130 x 105 x 50 mm
- ▶ Display size: 3.4"
- ▶ Resolution: 200 x 80 pixels

LIGHTING

- ▶ Power consumption: 7.2W
- ▶ Dimensions (L x W x H): 60 x 135 x 135 mm

CONTROL AND DISPLAY SOFTWARE

- ▶ Operating system: Windows 7
- ▶ Software functions: Real time display
Zoom function
Recording of sequences (raw data),
Configuration of image quality
Configuration of sensor

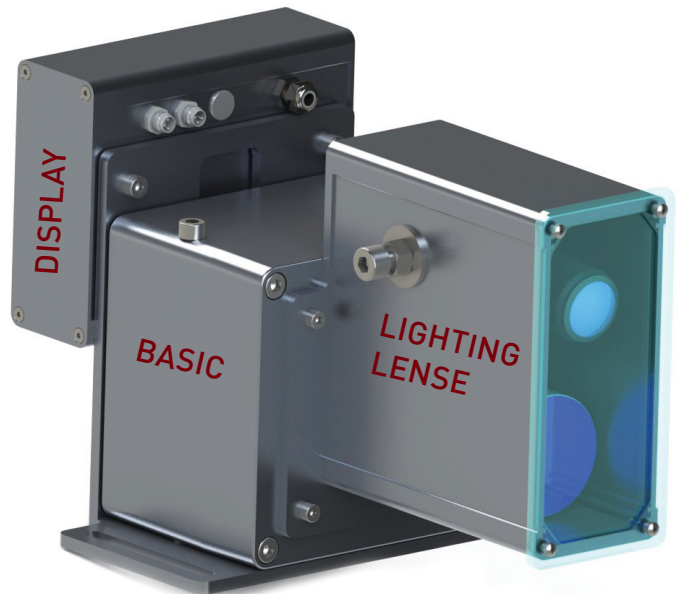
CONTACT

AIT Austrian Institute of Technology
Digital Safety & Security Department
Donau-City-Straße 1, 1220 Wien

DI MICHAEL HOFSTÄTTER

New Sensor Technologies

Business Development
Phone: +43(0) 50550 - 4202
Mobile: +43(0) 664 235 1858
E-Mail: michael.hofstaetter@ait.ac.at
Web: www.ait.ac.at/nst



The Dual line vision sensor in IP54 housing including light source and display.

DR. MARTIN LITZENBERGER

New Sensor Technologies

Thematic Coordinator
Phone: +43(0) 50550 - 4111
Mobile: +43(0) 664 825 1087
E-Mail: martin.litzenberger@ait.ac.at
Web: www.ait.ac.at/nst