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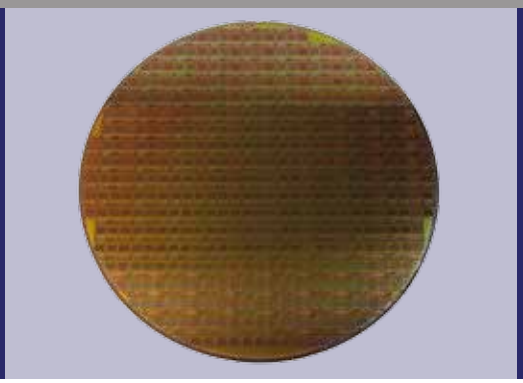

1 *Eval-Kit camera system.*
2 *Wafer carrying linear sensors.*

EVALUATION KIT FOR LINEAR SPECTROSCOPY SENSORS

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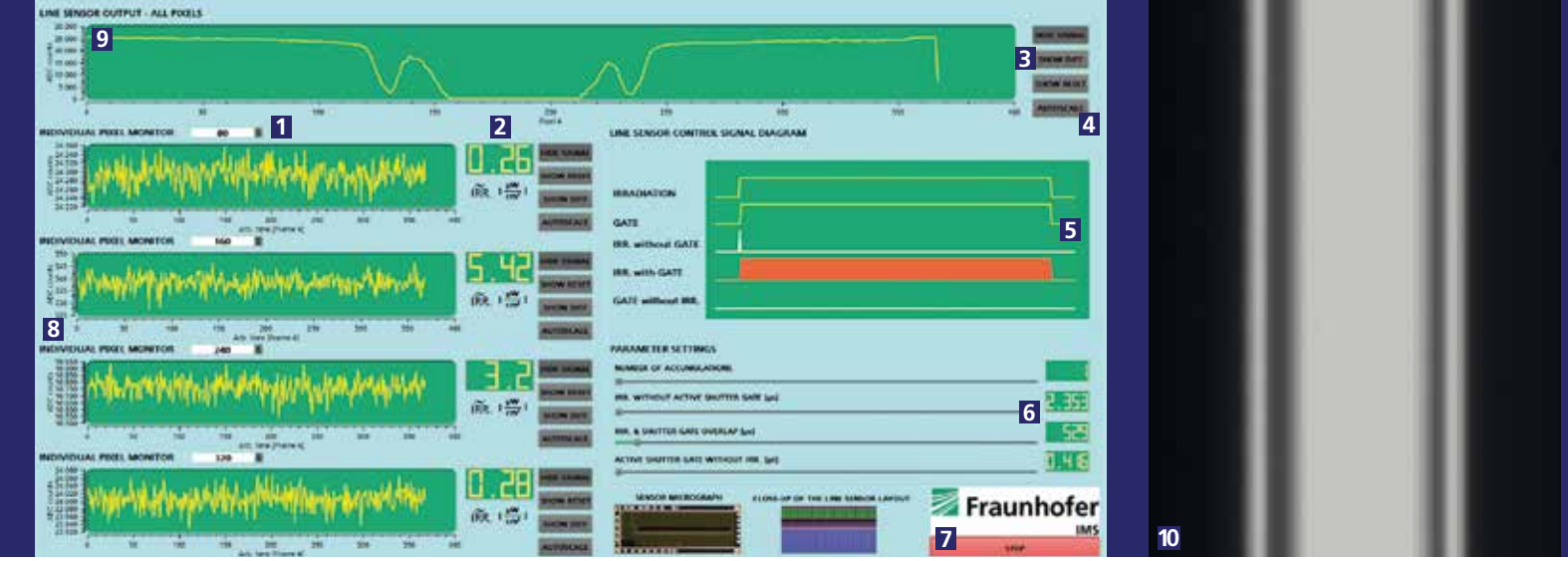
Our new EvalKit for linear spectroscopy sensors supports product managers and R&D departments in their development tasks. You will have a complete spectroscopy camera system, which enables testing the functionality and performance of our linear sensors. Adjustments to customer's applications are possible within a wide range of flexibility.

The EvalKit for the spectroscopy line sensor is used for raw data image acquisition in time-gated measurements. The designed detector exhibits a very high sensitivity in a broad spectral range, starting from the UV up to the NIR, as it is required in dedicated applications. The photogenerated charge is accumulated over several programmable measurement cycles without the need of resetting, thanks to the very low dark current profile of the linear sensors. In our sensor family, a high dynamic range and pulse gated image acquisition has been realized along with the non-destructive readout and in-pixel accumulation possibilities. This makes the EvalKit for spectroscopy line sensors an ideal candidate for optical emission spectroscopy applications.

With the EvalKit software it is possible to display raw line sensor pixel signals, as well as corrected signals utilizing digital double sampling. The analog to digital conversion is performed by a high performance 16bit 10MHz A/D converter, enabling noise measurements for sensor characterization. The image output is available in spatial representation of the integrated, 368 spectroscopy pixel line with an option to display additional waveforms of 4 arbitrary pixel signals. In addition, a FIFO based waterfall like visualization of the sensor pixel signals with a memory of the last 50 lineframes is also available in the software.

By employing the acquisition control signals represented by different sliders in the EvalKit GUI, a user has an option to realize a large variety of pulse illuminated measurements, which are capable of capturing the pulse shape of the illumination source for calibration and / or measurement purposes. Moreover, the effective dynamic range of the sensor can be adapted to the illumination conditions by adjusting the number of accumulations.



EvalKit Specifications

Evaluation Kit

Supply voltage	12 V / 1 A via wall power supply
Power consumption	3 W
Lens	Standard C-Mount 1/3" (not included)
Board dimensions	98.9 mm × 53 mm
Operating temperature	-20 °C up to + 60 °C
Standard accessory	USB driver FTDS, Visualization
Sensor	368 × 1 Pixel CMOS LDPD
Line rate	25 Hz
Data format	16 bit / 100 kHz
Interface	USB 2.0 (Raw sensor data, configuration and control)
Illumination gate signal	LV CMOS 3.3 V output
Configuration software	Arduino, openCV, Qt
System requirements	Windows 7 PC
Operating manual	Included
	(development source upon customer request)

CMOS Spectroscopy linear sensor

Spatial resolution	368 × 1
Pixel pitch / size	10 µm * 200 µm
Conversion gain	17 µV/e^-
Spectral range	250 nm up to 1000 nm
Responsivity @ 525 nm	530 V/(µJ/cm²)
Quantum efficiency @ 525 nm	60 %
Linearity	0.5 %
Saturation capacity	59 ke^-
Sense node capacitance	7.50 fF
Signal-to-noise ratio	47 dB
Dynamic range	63 dB
Read noise	38 e^-
DSNU1288	7.5 mV
PRNU1288	1.6 %
Electrical crosstalk	< 4 %
Dark signal (T ≈ 22 °C)	75 mV/s
Process	0.35 µm CMOS + LDPD + UV-Transparent Passivation

3 *Layout items of Graphical User Interface (GUI):*

1. *Geometrical position of the pixel on the line sensor (i.e. pixel select)*
2. *Calculated irradiance for selected pixel*
3. *Buttons enable/disable monitoring of individual pixel parameters*
4. *Autoscale switch for the Y axis*
5. *A display to monitor temporal relation of sensor digital control signals with respect to each other*
6. *Sensor digital control signal timing configuration*
7. *Start sensor readout*
8. *Four displays to track evolution of the pixel parameters for individual (selected) pixels*
9. *Displays instantaneous pixel parameter values of the whole line sensor*
10. *Waterfall visualization of last 50 lines in separate window*