pco.dimax
digital high speed 12 bit CMOS camera system

- 1100 fps @ full resolution 2016 x 2016 pixel
- 12 bit dynamic range
- 4000 fps @ 1008 x 1008 pixel
- color & monochrome image sensor versions available
- exposure time range 2 µs – 1 s
- image memory in camera (camRAM up to 32 GB)
- double shutter operation
- GigE & USB2.0 data interfaces
- multiple trigger interface optimized for automotive applications
- DVI interface
- smart battery control (1h full operation or 6h data backup)

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This high speed 12 bit CMOS camera system comprises advanced CMOS and electronics technology. With its sensitive 12 bit dynamic it enables remarkable fast image rates of 1100 frames per second (fps) at full resolution of 2016 x 2016 pixel. The system features also a variety of trigger options to cover all offboard applications that have been required by the automotive industry. The image data are transferred via GigE Vision or USB2.0 interfaces. For preview purposes a DVI interface is integrated. The pco.dimax has a smart battery control, which allows a full operation for 1 h and a data backup for 6 h. The available exposure times range from 2 µs to 1 s. This digital CMOS camera system is perfectly suited for high speed camera applications such as material testing, offboard crash or impact tests or super slow motion movie clips.

technical data

	unit	setpoint	pco.dimax
resolution (hor × ver) [1]	pixel		2016 × 2016
pixel size (hor × ver)	µm²		11.0 × 11.0
sensor format / diagonal	mm² / mm		22.18 × 22.18 / 31.36
quantum efficiency	%	@ 600 nm	> 44
full well capacity	e^-		39 000
image sensor			proprietary
dynamic range	dB	@ CMOS camera	tbd [6]
dynamic range A/D [2]	bit		12
readout noise	e^- rms	@ 55 MHz	tbd
imaging frequency, frame rate	fps	@ full frame @ 1008 x 1008	1100 4000
pixel scan rate	MHz		55
A/D conversion factor	e^- / count	normal	tbd
spectral range	nm		290 .. 1100
exposure time	s		2 µs .. 1 s
anti–blooming factor		typical	no blooming
smear	%		no smear
dark current	e^- / pixel·s		tbd
region of interest [7]	pixel	steps of	48 x 4
interframing time (PIV mode)	ns	@ FWHM [3] and 100% fullwell signal	tbd

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technical data

	unit	setpoint	pco.dimax
non linearity	%	full temperature range	tbd
uniformity darkness DSNU [4]	e^- rms	@ 90 % center zone	tbd
uniformity brightness PRNU [5]	%	typical	tbd
trigger, auxiliary signals		internal external	software TTL high / low level, passive, differential
power consumption	W	maximum	100
power supply	VAC		90 .. 260 (12 VDC optional)
mechanical dimensions camera (w × h × l)	mm^3		170 × 185 × 290
mechanical dimensions power supply (w × h × l)	mm^3		tbd
weight	kg		7
operating temperature range	°C		+5 .. +40
operating humidity range	%		10 .. 90
storage temperature range	°C		–20 .. +70
optical input			Nikon f–mount
data interface			GigE Vision & USB2.0, camera link

[1] horizontal versus vertical
[2] Analog–to–Digital–converter
[3] full width half maximum
[4] dark signal non–uniformity
[5] photo response non–uniformity
[6] to be done, not yet measured
[7] ROI – always center aligned

software

Camware software for camera control, image acquisition and archiving of images in various file formats, WindowsXP and later, 32 bit–dynamic link library (DLL) is available for user customisation and integration on PC platforms (software development kit – SDK), software is operational in either single mode or with built–in recorder functions, drivers for popular third party software packages are available (see website)

options

CMOS image sensor in color version
custom made versions
camRAM available in: 16 GB and 32 GB

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frame rate table [frames per second]

The given resolutions are selected for the frame rate calculations in the tables only, they are not mandatory. For ROIs see „technical data“ table on page 2.

resolution [pixel]	frame rate [fps]
2016 x 2016 (full frame)	1100
1008 x 1008	4000
528 x 512	10 900
288 x 256	27 000
144 x 128	56 300

camera views

Distributed By:

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pco.dimax preliminary product sheet 3/2009
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