

datasheet

pco.horizon 9.1 bi TDI CLHS

state-of-the-art in line scan imaging

TDI time delay
integration

UV ultraviolet*

resolution
9K

pixel size
5.0 μm x 5.0 μm

interface
CLHS FOL



2 photosensitive bands
p1: 9072 pixels x 256 stages
p2: 9072 pixels x 32 stages

temperature-stabilized
image sensor

max. line frequency
608 kHz

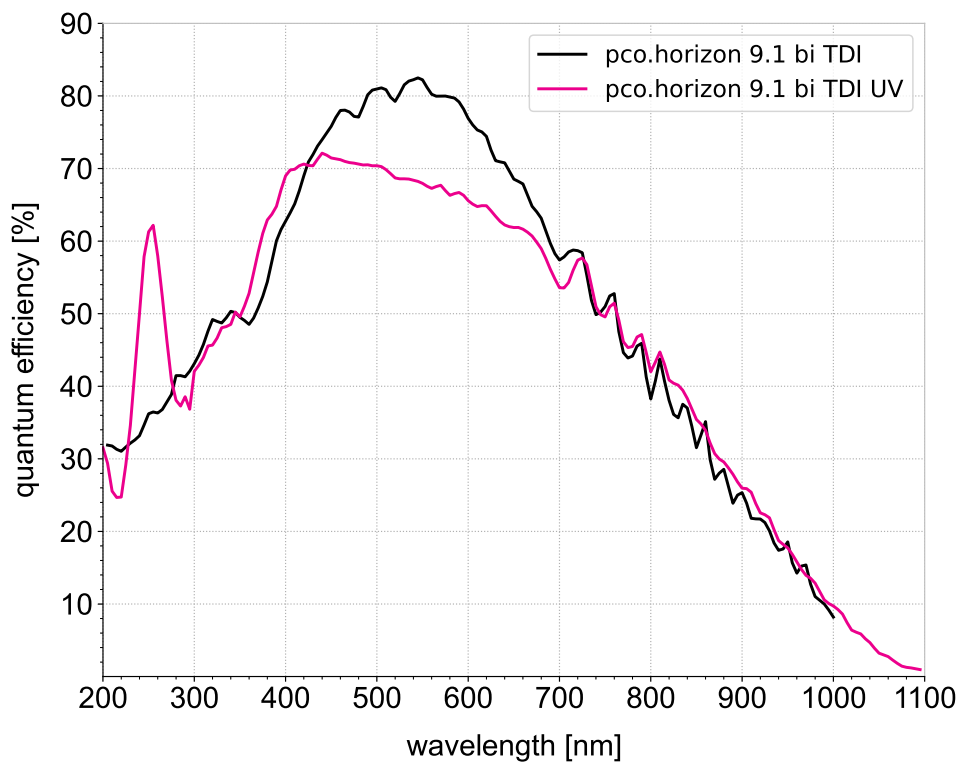
ultraviolet variant
available*

back illuminated CMOS

technical data

image sensor	
sensor technology	back illuminated CMOS time delay integration (bi CMOS TDI)
color type	monochrome
resolution (horizontal x vertical)	2 photosensitive bands p1: 9072 px x 256 stages p2: 9072 px x 32 stages
pixel size (horizontal x vertical)	5.0 µm x 5.0 µm
sensor size (horizontal x vertical)	p1: 45.36 mm x 1.28 mm p2: 45.36 mm x 0.16 mm
sensor diagonal	p1: 45.38 mm p2: 45.36 mm
shutter mode	global shutter
peak quantum efficiency	82 % @ 550 nm 72 % @ 440 nm (UV variant)
spectral range	200 nm - 1100 nm
dark current (typ.)	8000 e ⁻ /pixel/s @ +30 °C sensor temperature
fullwell capacity	15 000 e ⁻
readout noise (typ.)	11 e ⁻ @ 10 bit single band 6 e ⁻ @ 12 bit single band
dynamic range (intra-scene)	62.7 dB @ 10 bit single band 68.0 dB @ 12 bit single band

quantum efficiency



camera

max. line frequency	608 kHz @ 10 bit single band 300 kHz @ 12 bit single band
dynamic range A/D	10 bit 12 bit
max. data rate	75 Gbps
photo response non-uniformity (PRNU)	< 1 %
cooling method	forced air liquid cooling system integration via defined thermal interface
trigger input signals	line trigger
status output signals	exposure, busy
input / output signal connector	Hirose 12-pin circular
meta data	available
data interface	Camera Link HS FOL

general

power supply	24 VDC (± 10 %) (tbd) (Hirose 12-pin circular)
power consumption	max. 30 W (tbd)
weight	0.8 kg (tbd)
dimensions¹ (height x width x length)	115 mm x 79 mm x 51 mm (tbd)
operating temperature range	+10 °C to +40 °C
storage temperature range	-10 °C to +60 °C
humidity range (non-condensing)	10 % to 80 % (recommended < 65 %)
certifications	CE, FCC, UKCA

¹ The specific dimensions depend on the cooling method.

optical interface

direct mounting distance (no camera flange)	4.3 mm ± 10 %
lens mounting	M58 x 0.75 (flange focal distance 12.3 mm)

Configure your optical setup with our **MachVis Lens Selector** online tool.

special features

The pco.horizon 9.1 bi TDI CLHS is a line scan camera. It incorporates a back illuminated, charge-domain CMOS image sensor with built in Time Delay Integration (TDI).

The sensor features a pixel size of 5 μm , an effective resolution of 9072 pixels, and is equipped with two photosensitive bands, 256 stages and 32 stages respectively. By maximizing the sensitivity from ultraviolet to near infrared, it is designed to meet the needs of high-speed and low-light applications.

There are two camera variants available: a standard variant with a broad spectral response and a UV variant dedicated to DUV.

The camera's data output impresses with its reliability, speed and high bandwidth due to utilizing the standard protocol of Camera Link HS with a FOL cable connection.

thermal design options



rear view of the pco.horizon 9.1 bi TDI CLHS with forced air cooling via fan

The pco.horizon 9.1 bi TDI CLHS features sophisticated thermal management, based on a heatpipe design. It is engineered to offer several options for cooling, such as forced air, liquid cooling, or individual system integration. All while having a compact form and space-saving dimensions.

software

Your first choice is pco.camware:

Our main camera control software enables control of most camera settings and facilitates image acquisition and storage.

You can customize it exactly to your needs using different layouts, styles and features.

You prefer to use a different software:

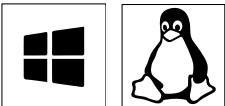
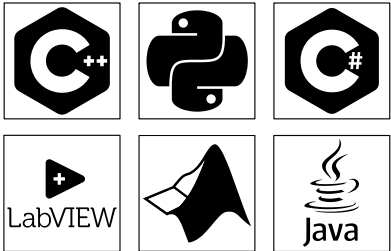
Our cameras integrate with a range of third-party software applications.

In microscopy we offer dedicated support for µManager, while ensuring compatibility with other software maintained by their providers.

You want to create your own application:

We feature a wide range of software development kits (SDK) for various programming languages, such as C++, Python, C#, LabVIEW, Matlab, and Java.

If you are looking for more general SDKs, we present pco.sdk and pco.recorder, our low-level SDKs with C interface.



Our software is available for Windows and Linux platforms.

Visit our **website** for detailed information, installation guidance, and Github projects.

areas of application

digital pathology | flat panel inspection | fluorescence imaging | gene sequencing | industrial quality inspection | machine vision | material testing | optical inspection | PCB and electronics inspection | wafer inspection

ordering information

pco.horizon 9.1 bi TDI CLHS	camera system, 9072 pixels, 2 photosensitive bands, monochrome, time delay integration, global shutter, CLHS interface
pco.horizon 9.1 bi TDI UV CLHS	camera system, 9072 pixels, 2 photosensitive bands, monochrome, time delay integration, global shutter, UV-enhanced sensor, CLHS interface

address:	Excelitas PCO GmbH Donaupark 11 93309 Kelheim, Germany
phone:	(+49) 9441-2005-0 (+1) 866-662-6653 (+86) 0512-6763-4643
mail:	pco@excelitas.com
web:	www.excelitas.com/pco

