pco.µManager

Installation Guide

pco.
imaging

In this manual you find installation instructions for the micro-manager (µManager) adapter for PCO cameras on Microsoft Windows platforms.

Target Audience: This camera is designed for use by technicians, engineers, and scientists.

In case of any questions or comments, please contact us at PCO.

telephone	+49 (0) 9441 2005 50
fax	+49 (0) 9441 2005 20
email	info@pco.de
postal address	PCO AG Donaupark 11 93309 Kelheim, Germany

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www.micro-manager.org

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1 Introduction

Put together PCO's complete range of high performance scientific cameras into your specific microscopy setup with Micro-Manager!

Camera	Sensor	Interface	Bit
PCI-board series			
pixelfly	CCD	PCI	12
sensicam	CCD	PCI	12
pco.camera series			
pco.1200	CMOS	FW, CL, GigE, USB2.0	10
pco.1300	CCD	FW	12
pco.1400	CCD	FW	14
pco.1600	CCD	FW, CL, GigE, USB2.0	14
pco.2000	CCD	FW, CL, GigE, USB2.0	14
pco.4000	CCD	FW, CL, GigE, USB2.0	14
pco.pixelfly usb	CCD	USB2.0	14
pco.dimax	CMOS	GigE, USB2.0	12
pco.edge	sCMOS	CL	16

The µManager Project

µManager is software for control of microscopes. It works with almost all microscopes, cameras and peripherals on the market, and provides an easy to use interface that lets you run your microscopy-based experiments. µManager runs as a plugin to ImageJ, is Open Source, and is free. µManager is developed in Ron Vale's laboratory at UCSF and is funded by an NIH grant R01-EB007187 from the National Institute of Biomedical Imaging and Bioengineering (NBIB). Its main objective is to provide a universal, flexible and low-cost software platform for automated microscopy. In order to provide lasting value and real benefit to a wide community of researchers, the approach of building a self-contained software product has been taken, with quality and ease-of-use standards equal to commercial software. At the same time µManager project leverages other Open Source tools and components to the maximum extent possible.

Free of Charge

In contrast to virtually all of the available commercial solutions, Micro-Manager supports multiple platforms (Windows, Mac and Linux) and provides an **open plugin interface for adding new devices**. In addition, Micro-Manager is compatible with the widely used image processing package **ImageJ** available in the public domain. Combined with ImageJ Micro-Manager provides a **full featured microscope management and image processing package**, comparable in capabilities to commercial solutions. It is distributed free of charge and under an Open Source license. Its code base and functionality can be customized, extended and re-used practically without restrictions.

PCO now provides a free generic adapter for PCO scientific cameras on Microsoft Windows platforms.

2 Installation

2.1 Micro-Manager

First install the latest Micro-Manager version (release 1.4.8 and higher) on your computer.

2.2 PCO Files

Files needed for all PCO cameras: pco_conv.dll
pco_cdlg.dll

Additional file for pco.camera series: sc2_cam.dll

In case of Camera Link (CL) interface you also need the following files:
Silicon Software ME3: sc2_cl_me3.dll
Silicon Software ME4: sc2_cl_me4.dll
Matrox: sc2_cl_mtx.dll, clsermtx.dll, mtxclsermil.dll
National Instruments: sc2_cl_nat.dll

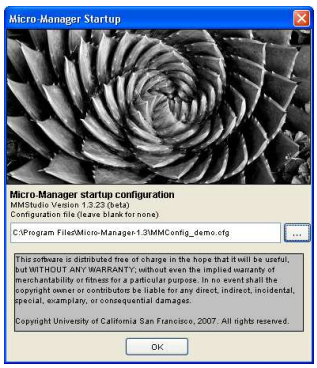
Please copy the corresponding dll files into your micro-manager directory. These files should be found on your computer under C:\Programs\Digital Camera Toolbox\Camware

2.3 Micro-Manager Configuration

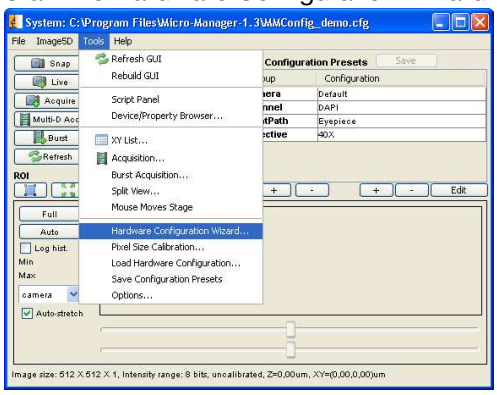
- Start Camera
- Start Micro-Manager

Micro-Manager 1.3.lnk

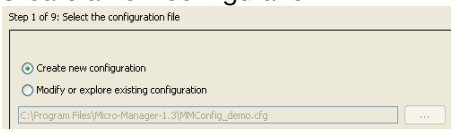
- Open Micro-Manager with default configuration



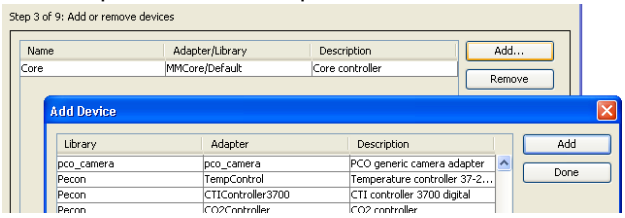
- Start the Hardware Configuration Wizard



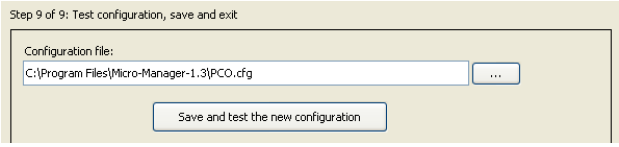
  - Create a new configuration

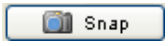


  - Add the pco_camera adapter from list



  - Rename and save new configuration (e.g. “PCO camera”)



- The connected camera should now be recognized.
- 

Snap Image for test.

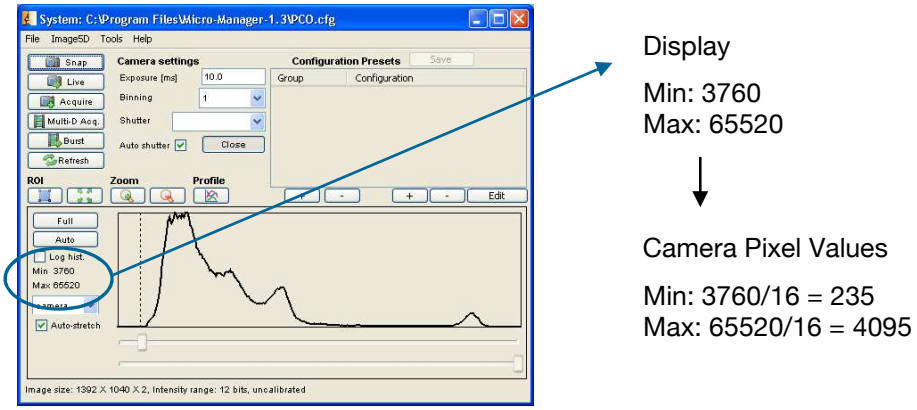
2.4 Pixel Values

The 16-bit image format of the pco.camera series is MSB aligned, thus resulting in a significant shift in the displayed pixel values (see table).

camera		ImageJ / µManager	
bit	pixel values	display	factor
10	0 – 1023	0, 64 - 65472	64
12	0 – 4095	0, 16 - 65520	16
14	0 – 16383	0, 4 - 65532	4

For Pixelfly or Sensicam cameras you will get the correct pixel values (LSB aligned).

Example: pco.1300 (1392x1049 pixel,12bit)



PCO AG was founded in 1987. The company headquarters in Kelheim employs more than 50 specialists in the development and production of optimized, fast, sensitive camera systems for scientific applications. PCO's range of products includes digital camera systems featuring high dynamics, extremely high sensitivity, high resolution, high speed, and extremely low noise, which are sold in industrial and scientific markets all over the world.

Cameras for every point of view.

The systems produced by PCO AG are cameras and scientific measuring instruments at the same time. Our high-tech systems are mostly the result of manual labor: over 50 highly specialized employees handle development and production at the Kelheim site. We deliver roughly 4.000 cameras a year to customers all over the world. As in every cutting edge technology, dialogue with the user is the main focus of PCO's approach. Worldwide representatives, in cooperation with the in-house marketing division and technical support team, ensure that PCO camera systems are developed in step with the individual requirements of our customers.

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