Installation Manual

Xeneth v2.6

ENG-2016-UMN006-R001

Disclaimer

All products manufactured by Xenics nv are warranted as laid down in the sales conditions.

Xenics nv has no other obligation or liability for defects than those set forth therein.

No other warranty is expressed or implied. Xenics nv specifically disclaims the implied warranties of merchantability and fitness for a particular purpose.

This warranty will no longer be valid if the instructions contained herein are not followed.

Xenics nv shall not be liable for any direct, indirect, special, incidental or consequential loss of damage, whether based on contract, tort, product liability or any other legal theory.

Copyright/Intellectual Property Rights

Quality Assurance

The Quality Management System under which these products are developed and manufactured has been certified in accordance with the ISO 9001 standard.

Xenics nv is committed to a policy of continuous development for which we reserve the right to make changes and improvements on any of the products described in this manual without prior notice.

Company confidential.
This document is the property of Xenics. It may not be reproduced – completely or partially – or passed to a third party without written permission from Xenics.

Xenics nv	**T +32 16 38 99 00**	**Doc Ref: ENG-2016-UMN006**
Ambachtenlaan 44	**F +32 16 38 99 01**	**Issue: 001**
BE-3001 Leuven • Belgium	**www.xenics.com**	**Date: 27/05/2016**
		XF-104_03/20-12-2012

Page 2 of 24

Revision History

Issue	Issue date	Changes	Modified by

Change Details

This table lists all changes of this issue compared to the previous released one.

Chapter/Section	Changes	Modified by

Table of Contents

Installation Manual

Xeneth v2.6

List of Abbreviations

ADC	Analog Digital Convertor
API	Application Programming Interface
BPR	Bad Pixel Correction
CL	Camera Link™
DDE	Dynamic Data Exchange
DHCP	Dynamic Host Configuration Protocol
GUI	Graphical User Interface
IP	Internet Protocol
LUT	Lookup Table
LWIR	Long-Waved InfraRed
MCT	Mercury Cadmium Tellurium
MWIR	Middle-Waved InfraRed
NIC	Network Interface Controller
NIR	Near InfraRed
NUC	Non-Uniformity Correction
OEM	Original Equipment Manufacturer
SW	Software
SWIR	Short-Waved InfraRed
TCP	Transmission Control Protocol
UI	User Interface
UTP	Unshielded Twisted Pair
VIS	Visible

Company confidential.
This document is the property of Xenics. It may not be reproduced – completely or partially – or passed to a third party without written permission from Xenics.

Xenics nv	**T +32 16 38 99 00**	**Doc Ref: ENG-2016-UMN006**
Ambachtenlaan 44	**F +32 16 38 99 01**	**Issue: 001**
BE-3001 Leuven • Belgium	**www.xenics.com**	**Date: 27/05/2016**
		XF-104_03/20-12-2012

Page 5 of 24

List of Figures

1. Introduction

Before being able to start the camera, the Xeneth imaging suite and its graphical user interface must be installed, so that the data coming from a wide variety of Xenics detectors and cameras can be easily operated on and analyzed.

Target group: This technical manual is written for professional users.

> **i** Please read this manual thoroughly before installing Xeneth!

1.1. Manual Overview

This section provides a chapter overview:

- Chapter 1 (this chapter) gives an overview of the conventions used in this manual (styles and symbols), the safety warnings, conformity information about Xenics cameras and the contact information.
- Chapter 2 lists the minimum system requirements
- Chapter 3 describes the Xeneth installation
- Chapter 4 describes the steps to remove Xeneth from the PC
- Chapter 0 describes the camera connection.

> **i** More information about the use of Xeneth can be found in the Xeneth User Manual, which can be consulted as part of the software (in the Help tab) after the Xeneth installation (see also chap. 0).

1.2. Conventions Used in This Manual

To give this manual an easily understood layout and to emphasize important information, the following typographical styles and symbols are used:

The styles used in this manual are:

- **Bold**: used for programs, inputs (commands or parameters) or highlighting important things
- `Courier New`: used for code listings and output.
- *Italics*: used for modes and fields.

The symbols used in this manual:

> **i** Note: This symbol highlights important information.

Warning: This symbol highlights important instructions. These instructions must be followed to avoid malfunctions!

1.3. Safety Warnings

The following safety warnings must be followed:

Supply voltage polarity: Use the correct polarity of the 12 V supply voltage.

Warranty: The warranty becomes void in case of unauthorized tampering or any manipulations not approved by the manufacturer.

Electrostatic discharge: The camera contains sensitive electronic components which can be destroyed by means of electrostatic discharge. Use sufficient grounding to minimize the risk of damage.

Models with Camera Link™ interface (Gobi…-...): First connect CL camera and grabber with Camera Link™ data cable, and afterwards supply power to the CL camera.

Environmental conditions: Operate the camera in dry and dust free environment.

Regarding the signal quality of the camera it is an advantage to operate the camera under constant ambient air temperature (~20 °C).

Beneath or above ambient temperature a sufficient heating or cooling may be necessary.

Warm-up Period: Depending on the prevailing environmental conditions, some time might pass after the camera start, until the image quality reaches its optimum. A warm up period of 20 minutes is recommended.

1.4. Contact Information

- **Xenics nv (Headquarters)**
Ambachtenlaan 44
BE-3001 Leuven
Belgium
T +32 16 38 99 00
sales@xenics.com

  Xenics USA, Inc.
North and Latin American office
600 Cummings Center,
Suite 166-Y
Beverly, MA 01915-6194
United States of America
T +1 978 969 1706
sales@xenics-usa.com

- **sInfraRed Pte, Ltd**
Asian sales, manufacturing and custom solutions office
Blk 28 Sin Ming Lane #06-143, Midview City
Singapore 573972
T +65 6 47 666 48
sales@sinfrared.com

- **Xenics LLC**
Russian representative and service center
Dmitrovskoye Highway, 9A/5
127434 Moscow
Russia
T +7 985 763 4526
sales@xenics.ru

- **Distributors worldwide**

  Xenics is a European based provider of infrared imaging products and has representatives and distributor locations around the world to service our many customers.

  Please visit our website for more contact details:
www.xenics.com

2. Prerequisites

2.1. System Requirements

In order to run Xeneth, the minimum system requirements are:

- Windows XP (32 bit, SP3 minimal), Vista (32/64 bit, SP2 minimal), Windows 7 or 8
- 2 GB RAM or more
- **Gigabit** Ethernet network interface (for GigE Vision cameras)
- **100 Mb** Ethernet network interface (for Gobi 384 and Bobcat 320 cameras without GigE Vision)
- **USB 2.0** Hi-Speed ports (for cameras with an USB interface)
- A frame grabber compatible with Xeneth (for cameras with a Camera Link™ interface)
  - o **National Instruments**
  - o **Euresys GRABLINK™ Series.**
  - o **ImperX FrameLink™ Series**
- CD/DVD ROM for installation
- Display resolution of 1024x768 or higher (1920x1080 preferred)
- High speed storage (striped raid) (A 640x512, 16 bit camera can produce in excess of 72 MB/s)
- CPU that supports the SSE2 instruction set.

2.2. Applications

Xeneth can be used in the following applications:

- SWIR/VISNIR/MWIR/LWIR imaging
- Thermography
- High speed imaging & recording
- Real-time analysis/monitoring of thermal/infrared processes.

3. Installation

3.1. Installation Sequence

⚠ It is a good practice to first uninstall a previous Xeneth version when installing a new one (see chap. 4 Uninstall).

⚠ When using Camera Link™ cameras, it is also necessary to pre-install the frame grabber (see chap. 3.3.2) before installing Xeneth!

Follow the next installation sequence to avoid problems:

1. Uninstall a previous Xeneth version
2. First install the frame grabber drivers when using a frame grabber for Camera Link™ cameras (see chap. 3.3.2)
3. Install Xeneth (see chap. 3.2) and mark the frame grabber checkbox (Figure 3-4)!
4. Install the Xeneth SDK.

3.2. Xeneth Installation

When installing the CD-ROM, Figure 3-1 shows the language selection dialog box to choose the user interface language.

Figure 3-1 Language selection

The *Language → Welcome* page provides information about the SW version being installed as shown in Figure 3-2.

Figure 3-2 Xeneth Setup wizard

When clicking 'Next' the *Language → Welcome → License* page is shown (see Figure 3-3).
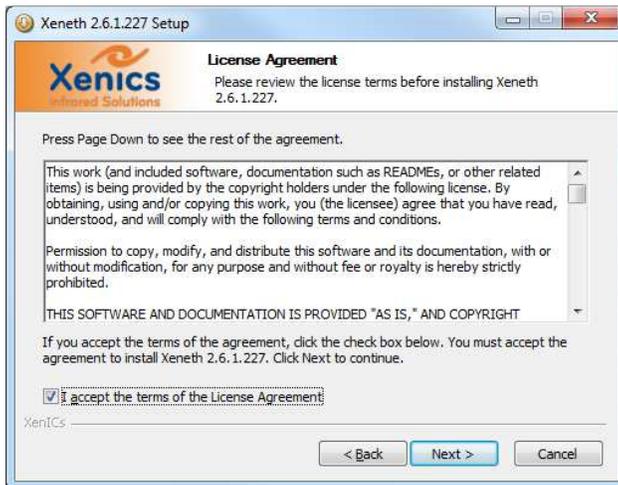

Figure 3-3 License agreement page

The license page, contains useful information per release on the top half (under read me first), the copyright notice, and copyright notices about the software components used. Proceed by checking the 'I accept the terms in the License Agreement' checkbox. When clicking 'Next' the *Language → Welcome → License → Components* page is shown (see Figure 3-4).
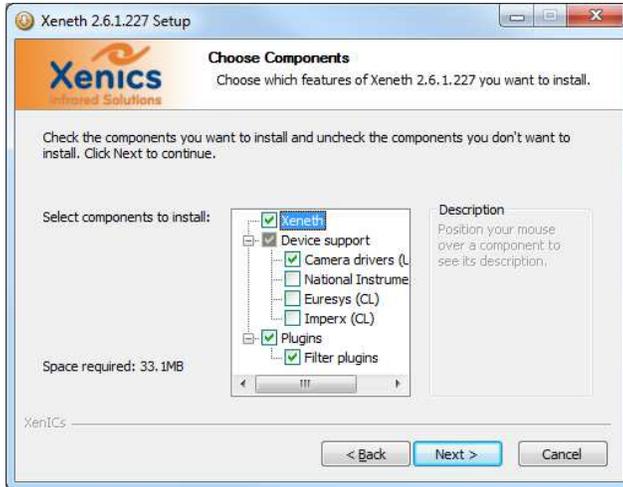
Figure 3-4 Components selection page

As shown in Figure 3-4, the 'Device support' category may be necessary for acquisition over third party drivers or cards, such as e.g. frame grabbers.

3.3. Device Support

The device support sub category contains items that may be necessary to get access using third party drivers or cards.

The following two device support categories exist:

3.3.1. Camera drivers (USB)

⚠ **!** When using a Xeva-line camera, do not forget to plug the camera into the USB port at this stage and mark the Camera drivers (USB) checkbox here.

⚠ **!** When any new hardware detected dialogs from windows pops up, be sure to dismiss them before proceeding.

3.3.2. Camera Link™

The options from the following sub categories can be selected to install the desired frame grabber plug-in for frame grabbers that are natively supported by our software. The available plug-ins are used for grabbing the frames from the acquisition board and do provide an interface to the board-specific settings.

To enable serial communication over the Camera Link™ serial lines to the camera, Xeneth makes use of the clallserial.dll specification from the Camera Link™ standard API. This is a

wrapper to other brand specific DLLs that comply with the clserxxx.dll naming convention and API definition. A dedicated clserxxx.dll should be shipped with all Camera Link™ compatible brands and should be located where the value of CLSERIALPATH points to. To obtain this value look in the HKLM registry under the key "SOFTWARE\Cameralink".

The binary clallserial.dll is always installed with Xeneth and enables the user to use command and control with *any* brand that complies with the standard clserxxx.dll API specification.

⚠ When a frame grabber is used for which Xeneth does not provide a plugin, always make sure the frame grabber specific clserxxx.dll resides at the correct path!

⚠ When Device Support for an integrated frame grabber is selected, the installer adds a copy of the corresponding clserxxx.dll to the root installation folder and updates the key CLSERIALPATH. Note that this could interfere with other software applications.

3.3.2.1. National Instruments (Camera Link™)
Select this option (see Figure 3-4) to install the National Instruments frame grabber plug-in for use in combination with our Camera Link™ enabled cameras.

This option also installs the .ICD files that contain the camera and board specific configurations into the camera files path of NI. The path is obtained from NIIMAQPATH in the HKLM registry, location "SOFTWARE\National Instruments\NI-IMAQ for Windows 95/NT".

A copy of *clsernat.dll* is placed in the root installation folder of Xeneth and CLSERIALPATH is updated.

⚠ The National Instruments Image Acquisition installation procedure must be completed before installing the Xeneth software. The installation CD and installation manual is **provided by National Instruments** together with the frame grabber card.

3.3.2.2. Euresys (Camera Link™)
Select this option (see Figure 3-4) to install the Euresys frame grabber plug-in to use the GRABLINK™ series acquisition boards in combination with our Camera Link™ enabled cameras.

This option installs the .cam files that contain the camera specific configurations into the camera files path of Euresys. The path is obtained from CAMERAS in the HKLM registry, location "SOFTWARE\Euresys\MultiCam\Parameters".

A copy of *clseremc.dll* is placed in the root installation folder of Xeneth and CLSERIALPATH is updated.

⚠ **!** The Euresys MultiCam studio installation procedure must be completed before installing the Xeneth software. The installation manual is **provided by Euresys** together with the frame grabber card. The software needs to be **downloaded** from www.euresys.com → DOWNLOAD.

3.3.2.3. Imperx (Camera Link™)

Select this option (see Figure 3-4) to install the Imperx frame grabber plug-in to use the FrameLink series acquisition boards in combination with our Camera Link™ enabled cameras.

This option installs the .cxf files that contain the camera specific configurations into the "GrabberFiles"-folder of Xeneth.

A copy of *clseripx.dll* is placed in the root installation folder of Xeneth and CLSERIALPATH is update.

⚠ **!** The Imperx installation procedure must be completed before installing the Xeneth software. The installation manual and software is **provided by Imperx** together with the frame grabber card.

⚠ **!** If the Imperx installer is not installed using the default installation directory the Xeneth GUI application is unable to find the required Imperx SDK DLLs. When Xeneth is installed with the Imperx option checked a configurable path property is appended in Application Settings → Framegrabber options named "*Imperx SDK path"* to allow the user to configure a custom path. Make sure to set this path to the correct location taking into account the version of Xeneth (32 or 64 bit) installed.

3.4. Plug-ins and Scripts

The Plug-ins & Scripts category contains additional filters/scripts that are used to perform a number of image processing tasks.

Select the required components, and click 'Next'.

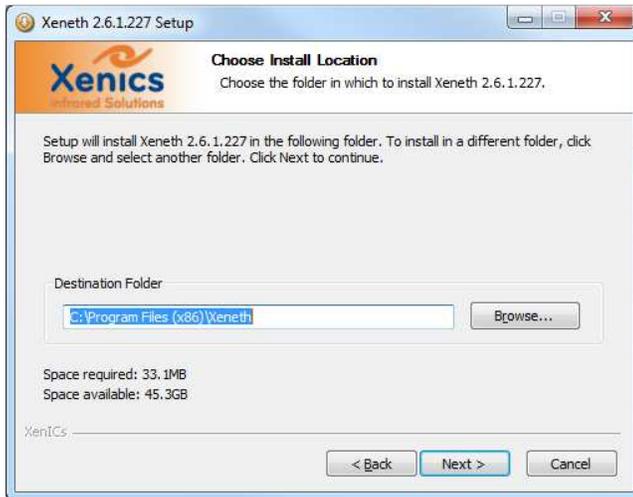The *Language → Welcome → License → Components → Install location* page is shown in Figure 3-5.

Figure 3-5 Install location page

Choose the location in which Xeneth must be installed. It is highly recommended to choose only one installation location.

Choose the installation location, and when clicking 'Next', the *Language → Welcome → License → Components → Install location → Start menu* page is shown (see Figure 3-6).
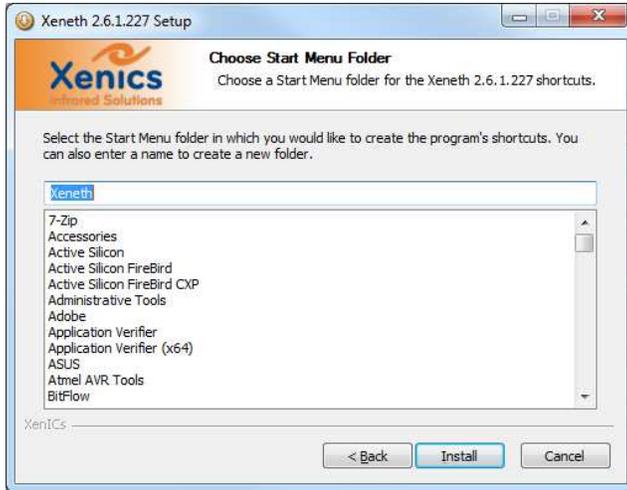
Figure 3-6 Start menu page

This page determines the Xeneth location in the start menu.

Choose the start menu folder, and when clicking 'Next', the *Language → Welcome → License → Components → Install location → Start menu → Install* page is shown (see Figure 3-7).
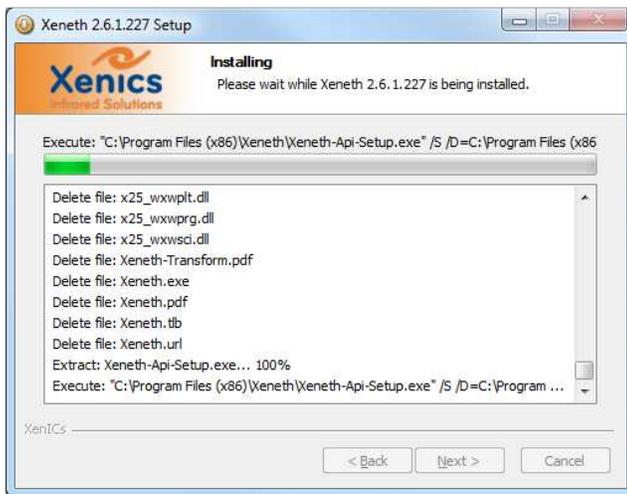

Figure 3-7 Installation page

During installation, when the USB drivers were selected to install, an additional dialog will pop up as shown in Figure 3-8.

Figure 3-8 USB driver installation page

When clicking 'Next', Figure 3-9 is shown.

Figure 3-9 End user license agreement page

Proceed by accepting the end user license agreement and click 'Next'.

⚠ **!** At this point, make sure to have the USB camera plugged in, and dismiss any 'new hardware found' dialogs that Windows presents.

The USB driver is installed at this point, as shown in Figure 3-10.

Figure 3-10 Installation end page

Click 'Finish' to proceed with the rest of the installation.

Find the Xeneth shortcut ( ) on the windows desktop that makes it able to start up Xeneth.

3.5. Xeneth Documentation

After the Xeneth installation, the Xeneth User Manual can be found in the following Xeneth installer folder and in the Help tab within Xeneth:

– C:\Program Files\Xeneth
   (64 bit Xeneth installed on a 64 bit operating system or 32 bit Xeneth installed on a 32 bit operating system).
– C:\Program Files (x86)\Xeneth
   (32 bit Xeneth installed on a 64 bit operating system).

4. Uninstall

When selecting the Xeneth uninstall option, Figure 4-1 is shown.

Figure 4-1 Xeneth uninstall

Click 'Yes' to remove the Xeneth software. Afterwards the uninstaller will prompt whether or not the data stored in the "C:\Program Files\Xeneth\Calibrations" directory must be kept and whether the calibration data packs must be kept (see Figure 4-2).
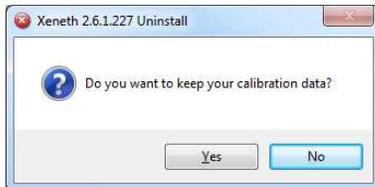

Figure 4-2 Xeneth uninstall - calibration data

Click 'Yes' to keep the data.
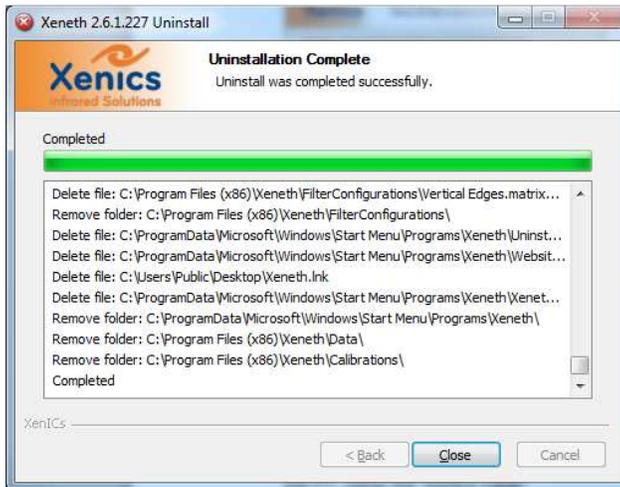
The following figure is shown afterwards:

Figure 4-3 Xeneth uninstall – finish

When clicking the 'Close' button, the uninstaller will proceed to remove the Xeneth software and SDK runtimes.

5. Getting Started

5.1. Connecting the Camera Using USB

Connect the camera to its power supply, and proceed to connect the camera's USB port to the PC using the Xenics cable.

When any new hardware detected dialogs from windows pops up, refer to chap. 3 Installation. It is possible that the USB driver was not installed, or the proper procedure was not followed.

5.2. Connecting the Camera Using GigE

Connect the camera to its power supply, and proceed by connecting the camera's Ethernet connection to the local network (Cat 5e or better).

i	Alternatively, it is possible to connect the camera directly to the PC, but keep in mind that if the PC has a 100Mbit NIC, a crossed UTP cable must be used instead of a regular UTP cable.
⚠	Please keep in mind that an Ethernet network is being built. If the camera in question does not have Zero Configuration support a DHCP server must be available so that the camera can be assigned an IP address.

5.3. Connecting the Camera Using Camera Link™

If a compatible Camera Link™ card is available and the camera has a Camera Link™ port available, connect the Camera Link™ cables at this point.

⚠	Keep in mind that for cameras with multiple Camera Link™ outputs, great care has to be taken as to which cable to be plugged into which slot. Always pay attention to the Base/Medium designations on both the camera housing and the grabber.
i	Not all USB cameras allow commands to be sent over Camera Link™, so they must be used in combination with the USB cable described above.

After making sure that all cables are connected, proceed by clicking the Xeneth shortcut on your desktop.

The software will proceed by scanning the network (as shown in Figure 5-1), the USB bus and any Camera Link™ or PC serial ports * available for cameras. (* If support for Camera Link™ cameras is installed)

Figure 5-1 Scanning screen

After this scanning screen has disappeared the following connection dialog will appear:
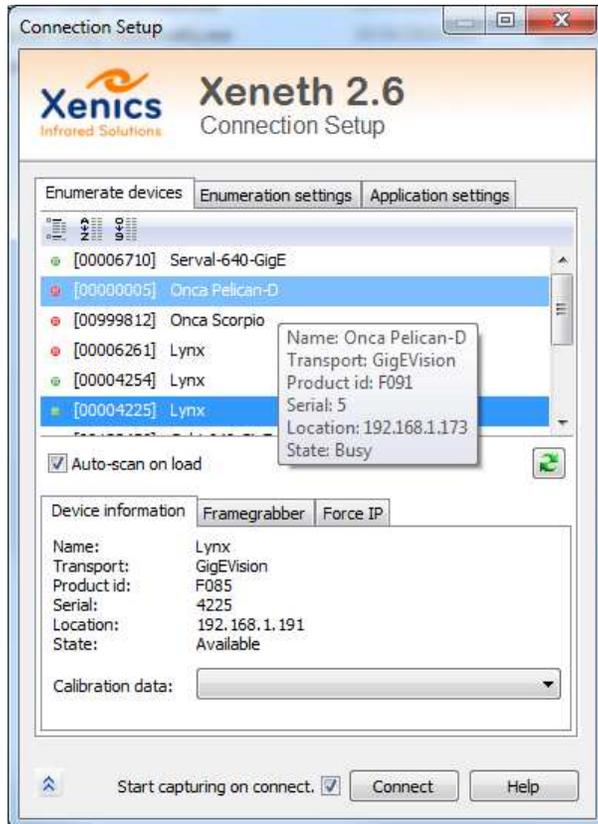

Figure 5-2 Camera selection

Select the camera to use, together with the calibration data suited for it.

⚠ **!** When the camera is not shown here immediately, check the serial number (Ser#) on the back and click the green refresh button until it does.