PLANMECA

Planmeca ProScanner®

user's manual

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1 INTRODUCTION

The Planmeca ProScanner is a dental computed radiography system intended for capturing, digitization and processing of intra oral X-ray images stored in imaging plate recording media. The system scans an x-ray exposed imaging plate and produces a digital radiography which can be transferred to workstation for further processing and routing.

The system consists of a scanner, reusable imaging plates, RFID reader (optional) and workstation software.

NOTE
This manual is valid for ProScanner SW revision 1.0.0.211 or later.

NOTE
This device must be operated in a radiological environment by qualified personnel only.

Please read this manual carefully before using the system.

This device complies with DHHS Radiation Safety Standards in effect as of the date of manufacture.

This device complies with Part 15 of the FCC Rules. Operation is subject to the condition that the device does not cause harmful interference.

NOTE
This equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment causes harmful interference to radio or television reception, which can be determined by turning the device off and on, the user is encouraged to try to correct the interference by one or several of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the device and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION
FOR US USERS
Federal law restricts this device to sale by or on the order of a health care professional

2 ASSOCIATED DOCUMENTATION

- Planmeca Romexis User's manual (publication number 10014593)
- Planmeca Romexis Installation manual (publication number 10014600)

3 REGISTERING YOUR SCANNER

Before you start using your scanner, you must register it to activate the warranty.

To enter the registration website:

- Read the QR code on the registration label on top your scanner with a QR code reader

OR

- Navigate to the registration website *www.planmeca.com/register/* in your Internet browser.

The serial number can be found on the scanner's device plate.
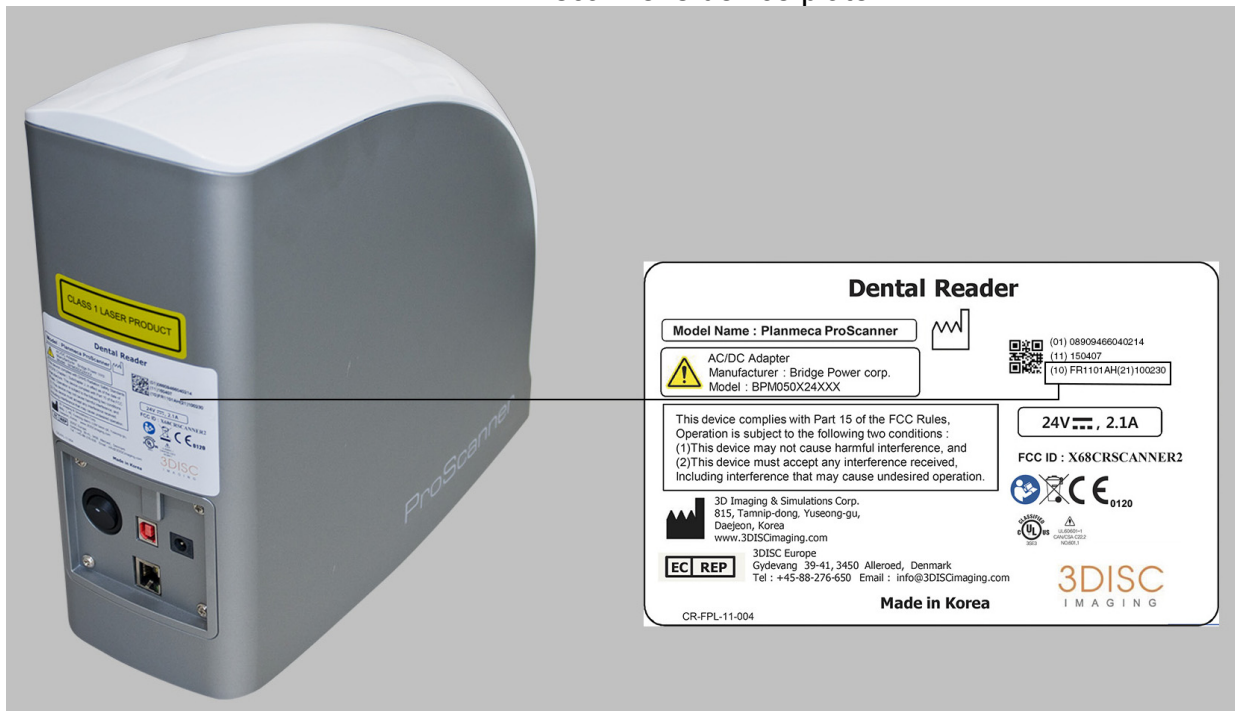
(10) **FR1101AH**(21)**100230**

The serial number is formed of the numbers that come after (10) and after (21). Thus the serial number of this example equipment is formed as follows: **FR1101AH100230**.

4 SYMBOLS ON PRODUCT LABELS

Manufacturer

Date of Manufacture

Warning, Consult Accompanying Documents

The functionality of the system can be limited in the case of incorrect use. Hints that require special attention.

General mandatory action manual

The functionality of the system can be destroyed in case of incorrect use.

If unauthorized changes have been made to delivered system and accessories, the warranty by 3D Imaging & Simulations Corp. becomes void. 3D Imaging & Simulations Corp. will not accept any responsibility or liability for the improper functioning of the product in such a case.

General prohibition symbol

The functionality of the system can be destroyed in case of incorrect use.

If unauthorized changes have been made to delivered system and accessories, the warranty by Planmeca Oy becomes void. Planmeca Oy will not accept any responsibility or liability for the improper functioning of the product in such a case

Consult accompanying documents

Directive on Waste Electrical and Electronic Equipment

Authorised Representative in the European Community

Keep Dry

Fragile

	Handle with care
	This side up
	Non-ionizing electromagnetic radiation
FCC ID: X68CRSCANNER2	FCC Mark
	Medical Equipment WITH RESPECT TO ELECTRIC SHOCK, FIRE, AND MECHANICAL HAZARDS ONLY IN ACCORDANCE WITH UL60601-1 / CAN / CSA CSS.2 No. 601.1 3SE3
	The software is created by 3Disc Imaging and fulfils the requirements of Directive 93/42/EEC.

5 SAFETY PRECAUTIONS

This device has been designed and tested to meet strict safety requirements applicable to medical equipment, and has been supplied in a safe condition.

To ensure personnel and patient safety, the device shall be operated and serviced in compliance with all procedures, warnings and precautions during all phases of operation and service of this device. Failure to comply with these safety guidelines may result in injury to operator, service personnel, or patient. Planmeca assumes no liability for failure to comply.

CAUTION
Any changes to software and hardware delivered by Planmeca may only be made with prior written permission from Planmeca.

CAUTION
This device must be used in normal conditions only. If this device is not used as specified, the protection provided by the device could be impaired.

CAUTION
Installation, service and operation of this device should only be undertaken by qualified and trained personnel. The instructions and precautions must be carefully read before using the system.

CAUTION
The device should only be opened and serviced by qualified service personnel. Failure to heed this warning may result in injury to service personnel or damage to equipment, and void any and all warranties.

CAUTION
Do not spill liquids on the device, and never operate the device in wet environment.

CAUTION
Keep the device away from radiators and heat sources.

CAUTION

Use the device only with accessories supplied with this device.

CAUTION

This device is intended to be grounded. Plug power cord into properly grounded electrical outlets. This cord is equipped with three-prong plugs to help ensure proper grounding.

CAUTION

This device contains static sensitive components. Proper static handling procedures and equipment must be used when servicing this device.

CAUTION

Do not open the device.

CAUTION

If any of the following conditions occur, unplug the device from the electrical outlet and contact authorized service personnel:

- The power cord, the power adapter or the Planmeca ProID USB cable has been damaged.
- An object has fallen into the device.
- The device has been exposed to water.
- The device has been dropped or damaged.
- The device does not operate correctly when the operating instructions are followed.

5.1 Laser safety statement

The computed radiography reader is certified in the U.S. to Conform to the requirements of DHHS 21 CFR, chapter 1 Subchapter J for Class I(1) Laser Products, and Elsewhere is Certified as a Class I(1) Laser Product Conforming to the Requirements of IEC 60825-1: 2007. Class I (1) Laser Products are not Considered to be Hazardous. The Laser System and Computed Radiography Reader are Designed so there is never any Human Access to Laser Radiation above a Class I (1) level during normal Operation, user Maintenance or Prescribed Service Condition.

- Wavelength: 658 nm (Typ.)
- Beam Divergence

  Parallel: 9.5 degrees (-2.5/+2.5)
  Perpendicular: 17 degrees (-3/+3)

- Maximum Power of Energy Output: 80 mW (CW)

WARNING

Never operate or service the product with the protective cover removed from laser/scanner assembly. The reflected beam, although invisible, can damage your eyes. When using this product, these basic safety precautions should always be followed to reduce risk of fire, electric shock and personal injury.

WARNING

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

6 SYSTEM REQUIREMENTS

NOTE

The PC and other equipment connected to the system must be:

- approved by local authorities: e.g. IEC-approved (CE marked), UL / CSA approved
- located outside the patient area (more than 2m (79 in.) from the X-ray unit)
- protectively earthed.

NOTE

The connection of additional equipment to a multiple portable socket-outlet must only be possible by using a tool or be supplied via separating transformer.

NOTE

The multiple portable socket-outlets shall not be placed on the floor.

NOTE

Make sure that the system is protected with fire wall and up-to-date anti-virus software. If possible, isolate the system from office network.

NOTE

Please note that these requirements are recommendations. Not meeting them may lead to degraded performance.

For latest up-to-date system recommendations browse to *http://www.planmeca.com/en/Software/Desktop/Planmeca-Romexis/Compatibility-and-DICOM/.*

Client workstation		Server
2D Imaging and general		
Processor	Intel Core 2 Duo 2 GHz or better	Intel Core 2 Duo 3 GHz or better
RAM	3 GB	3GB
Graphics card	Any (integrated or dedicated)	Any
Hard disk	80 GB	2 x 500GB (RAID1 mirroring) recommenrded
Operating system NOTE: Consult your local dealer for detailed information on device support for different platforms.	Windows 7 Pro (32 or 64 bit) Windows 8.1 Pro (32 or 64 bit) Windows 10 (64 bit) Mac OS X (Intel)	Windows 2008 Server (32 or 64 bit) Windows 2012 Server (64 bit) Windows 7 Pro (32 or 64 bit) Windows 8.1 Pro (32 or 64 bit) Windows 10 (64 bit) Mac OS X (Intel)
Common minimum requirements		
Monitor	1280 x 1024 (FullHD 1920x1080 recommended)	1280 x 1024
Peripherals	DVD ROM or R/W drive	DVD ROM or R/W drive
Backup medium	None required	DAT or equivalent
Database	None	MS SQL 2012 Server Express (included) MS SQL 2005 Server MS SQL 2008 Server MS SQL 2012 Server Oracle 10g2 Firebird (Mac OS X)
Java Platform, Standard Edition	Windows: Java SE Runtime Environment 8 (JRE) Apple OS X: Java SE Runtime Environment 6 (JRE) (included in installation)	Windows: Java SE Runtime Environment 8 (JRE) Apple OS X: Java SE Runtime Environment 6 (JRE) (included in installation)

7 UNPACKING PLANMECA PROSCANNER

Planmeca ProScanner is shipped in a custom designed container to protect the scanner from external shock. Before unpacking the scanner, inspect the shipping container for damage. In case the container is damaged, notify the shipper immediately.

To unpack the scanner:

1. Carefully remove the contents from the box.

   The imaging plates are on top of the package. Handle them with care.

2. Check that all listed items are included in the delivery.

3. Store the delivery box for possible later use.

NOTE
The scanner must always be shipped in the original delivery box.

7.1 Package contents

- Planmeca ProScanner
- Power adapter

  AC/DC Adapter
  Manufacturer: Bridge Power corp.
  Model: BPM050X24XXX
  This adapter meets the requirements of IEC60601-1.

- USB 2.0 interface cable
- RJ45 CAT.5E FTP cable 2M (Cross type)
- Power Cord

  Type SJT or SVT, min. 18AWG, 3-Conductor, VW-1 125V, min 10A (or 250V, 10A). Max 3.0m long; one end with Hospital Grade Type, NEMA 5-15P for 125V or NEMA 6-15P for 250V, other end with appliance coupler.

CAUTION
Grounding reliability can only be achieved when the equipment is connected to an equipment receptacle marked "Hospital Only" or "Hospital Grade".

WARNING

For connection to a supply not located in the USA, make sure the power cord meets the requirements for your area.

- Imaging plate storage case
- Imaging plate starter kit
- Hygienic bags, size 0, 100 pcs
- Hygienic bags, size 2, 100 pcs
- Planmeca Manuals media
- Planmeca Romexis Installation & License media

7.2 Planmeca ProID kit (optional)

- Planmeca ProID RFID reader
- Mini USB cable
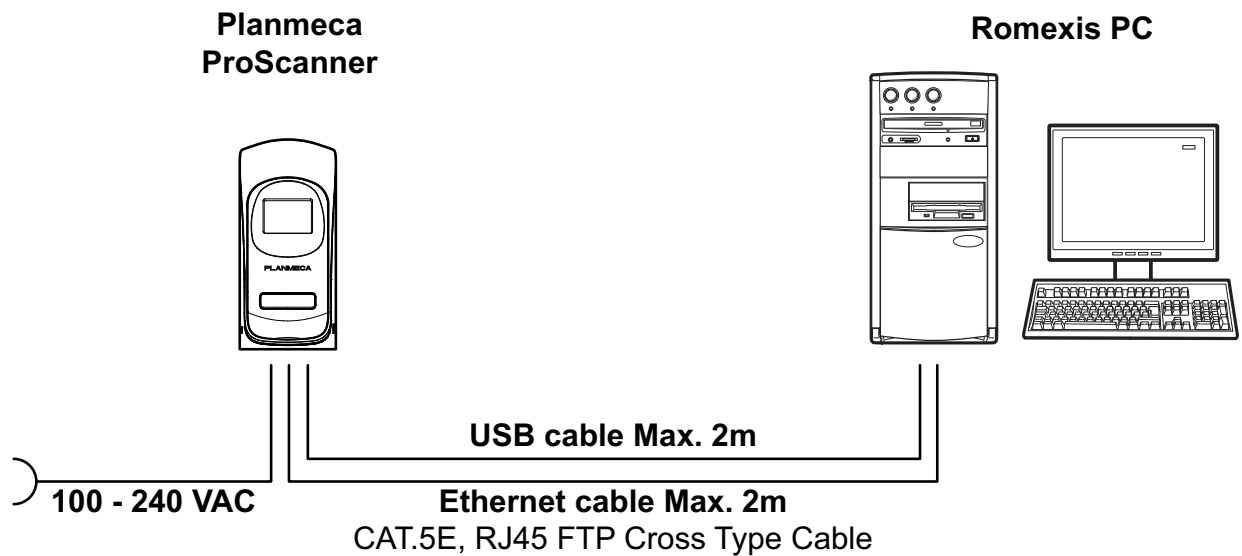
8 SYSTEM DESCRIPTION

The Planmeca ProScanner systems consists of a scanner, Planmeca Romexis computer, and an optional Planmeca ProID RFID reader. The scanner can be connected to the computer via Ethernet or USB cable.

NOTE
N-to-N Ethernet mode and 1-to-1 Ethernet mode cannot be used in the same network at the same time.
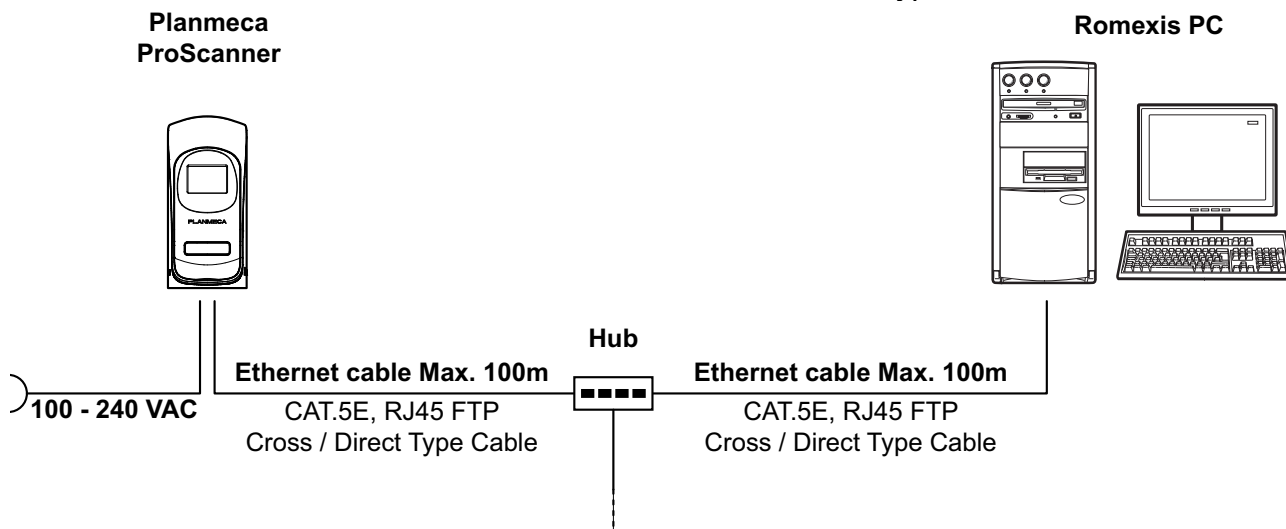
8.1 USB or direct 1-to-1 Ethernet

Planmeca ProScanner is attached to the PC using direct USB **or** Ethernet connection. Crossed Ethernet cable must be used.

Planmeca ProScanner

Romexis PC

USB cable Max. 2m

100 - 240 VAC   **Ethernet cable Max. 2m**
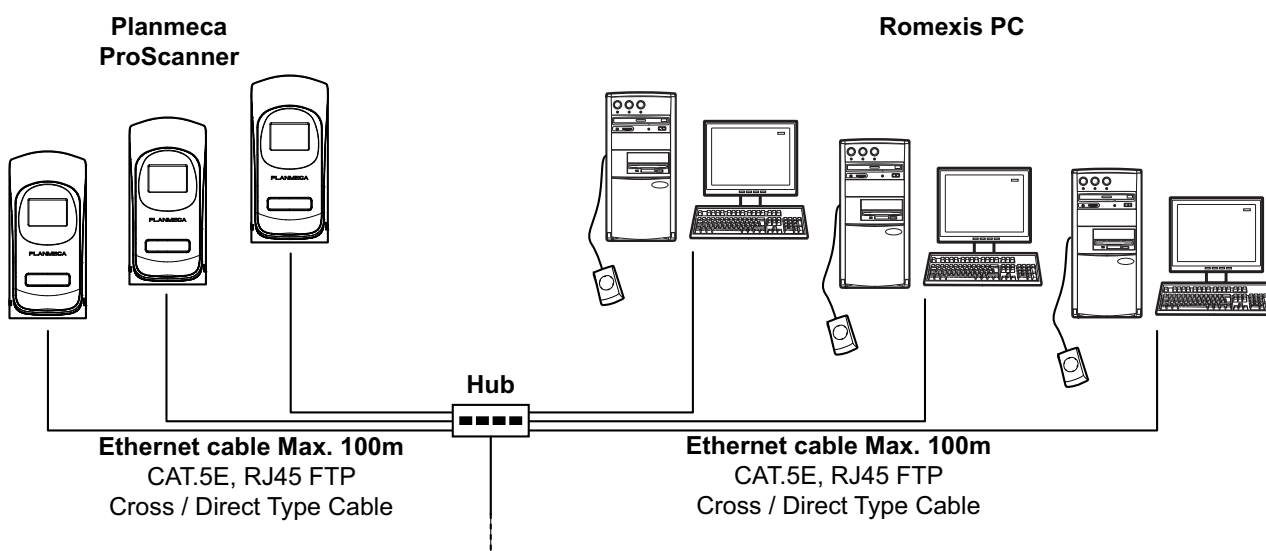CAT.5E, RJ45 FTP Cross Type Cable

8.2 1-to-1 Ethernet network configuration

Planmeca ProScanner is attached to a HUB/
switch using Ethernet connection. Crossed or
straight Ethernet cable can be used depending
on the HUB/switch type.

**Planmeca
ProScanner**

Romexis PC

Hub

Ethernet cable Max. 100m
CAT.5E, RJ45 FTP
Cross / Direct Type Cable

100 - 240 VAC

Ethernet cable Max. 100m
CAT.5E, RJ45 FTP
Cross / Direct Type Cable

8.3 N-to-N Ethernet

Planmeca ProScanner can be shared in the
network between several treatment rooms.
Planmeca ProScanner is attached to a HUB/
Switch using Ethernet connection. Planmeca
ProID readers are attached to the PC in the
treatment rooms with mini USB cable.

**Planmeca
ProScanner**

Romexis PC

Hub

Ethernet cable Max. 100m
CAT.5E, RJ45 FTP
Cross / Direct Type Cable

Ethernet cable Max. 100m
CAT.5E, RJ45 FTP
Cross / Direct Type Cable

9 SYSTEM SETUP

9.1 Scanner placement

← Front   Back →
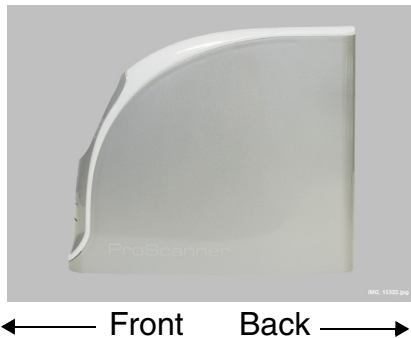
The scanner must be placed on a rigid and flat desk or tabletop with at least 5 cm (2 inches) free space on both sides, 10 cm (4 inches) on back side and 15 cm (6 inches) on the front side for imaging plate insertion.

CAUTION

Never place the scanner on the floor. Install only in a location that is level and stable. Installation in an unsuitable location can provoke an accident, or deterioration in image quality.

CAUTION

Sliding of the reader may result in internal damage or misalignment of the optics. External vibration or shock during scanning may affect image quality. The scanner must be placed on a rigid, flat and reinforced desk or tabletop.

CAUTION

Never install to locations with excessive humidity or dust, subject to high temperature, subject to shaking or vibration, exposed to considerable electrical or magnetic noise, or to any heath sources.

CAUTION

Do not place anything on top of the reader.

CAUTION

This equipment may be interfered with or may interfere with electromagnetic or other interferences. Assure a distance of minimum 1.0m between reader and neighbouring equipment.

## 9.2 Planmeca Romexis and Planmeca ProScanner USB driver installation

1. Install Romexis from the Romexis installation media delivered together with the unit.

2. Tick the *ProScanner* checkbox during Romexis installation in *Component Selection* dialogue under Client Components.
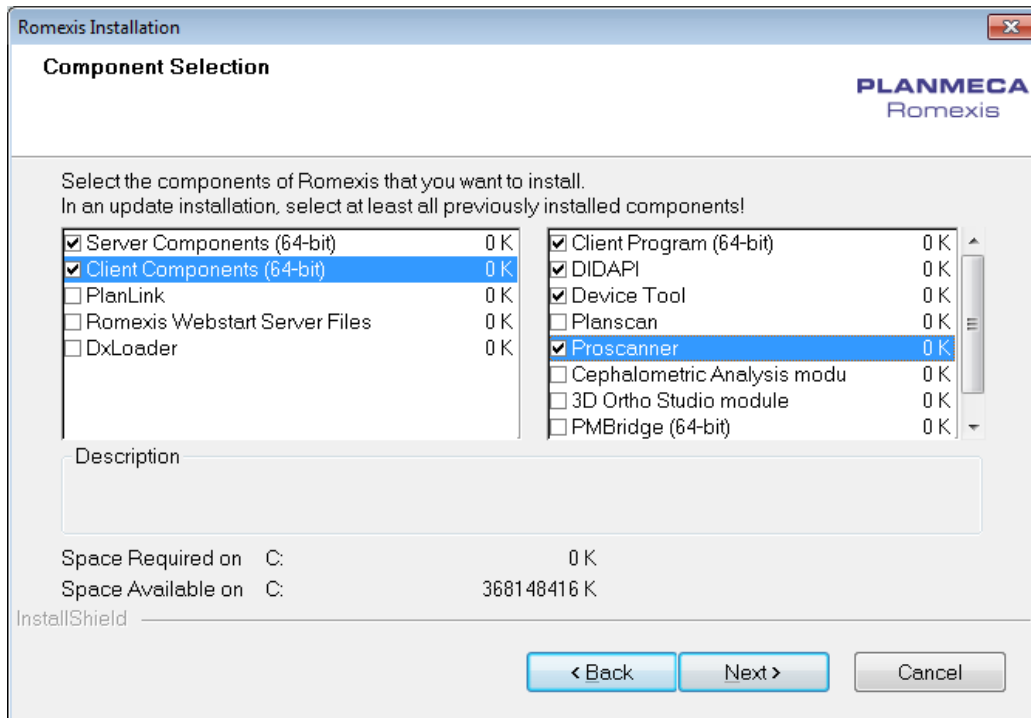
When the ProScanner component is selected during Romexis installation, the ProScanner USB driver is automatically installed.

If needed, the driver can be installed manually by running the **ProScanner_Driver_overwrite.exe** file from the Planmeca Romexis installation media installation folder */DIDAPIKIT.*

The USB driver can also be installed separately from DidapiKit by selecting the ProScanner USB driver in the component selection window.
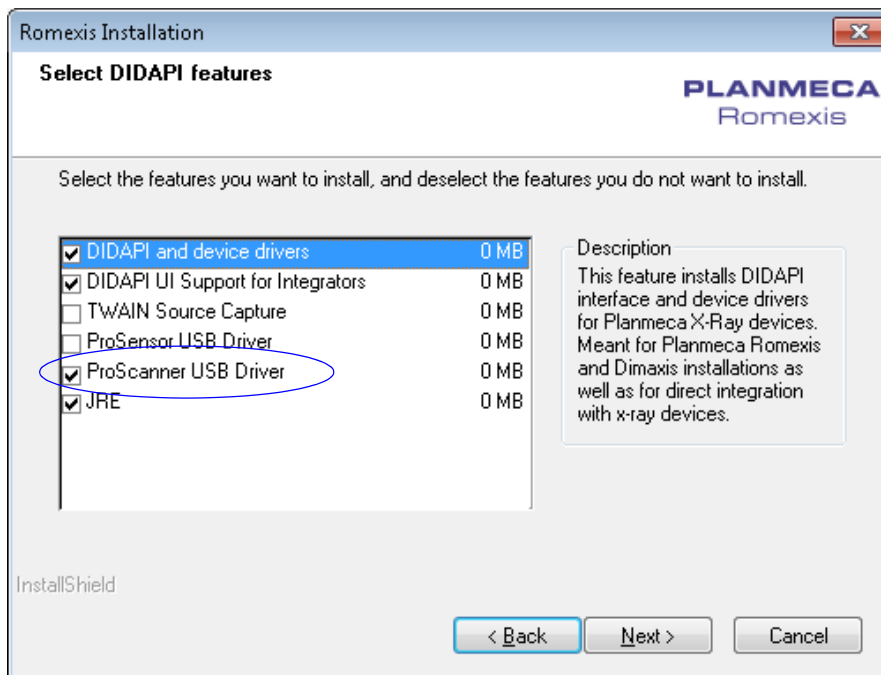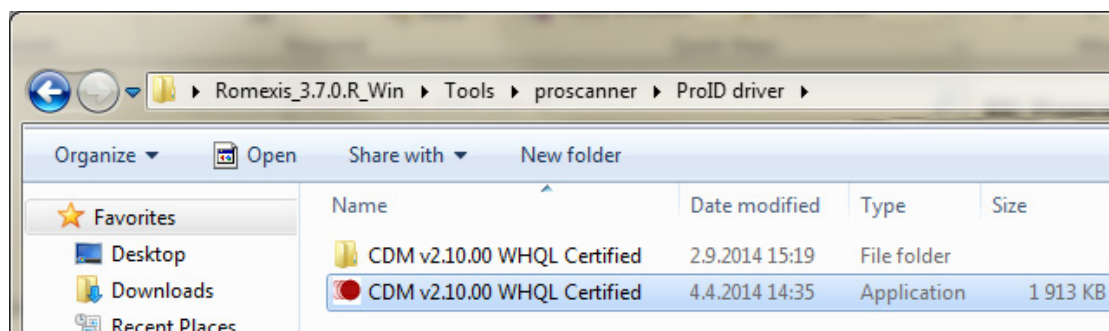

9.3 Planmeca ProID driver installation

When attaching the Planmeca ProID RFID reader to the computer, the driver is installed automatically if the computer is connected to the Internet.

In case the driver installation does not start automatically or the driver installation fails, the driver can be installed manually by using one of the following methods.

9.3.1 Method 1

1. Browse to the Planmeca Romexis installation media folder and start the **CDM v2.10.00 WHQL Certified.exe** by double-clicking the application icon.

2. In the following window select **Extract**.

FTDI CDM Drivers

Click 'Extract' to unpack version 2.10.00 of FTDI's Windows
Driver Package and launch the installer.

www.ftdichip.com

| < Back | Extract | Cancel |

3. Click **Next**.

**Welcome to the Device Driver
Installation Wizard!**

This wizard helps you install the software drivers that some
computers devices need in order to work.

To continue, click Next.

| < Back | Next > | Cancel |
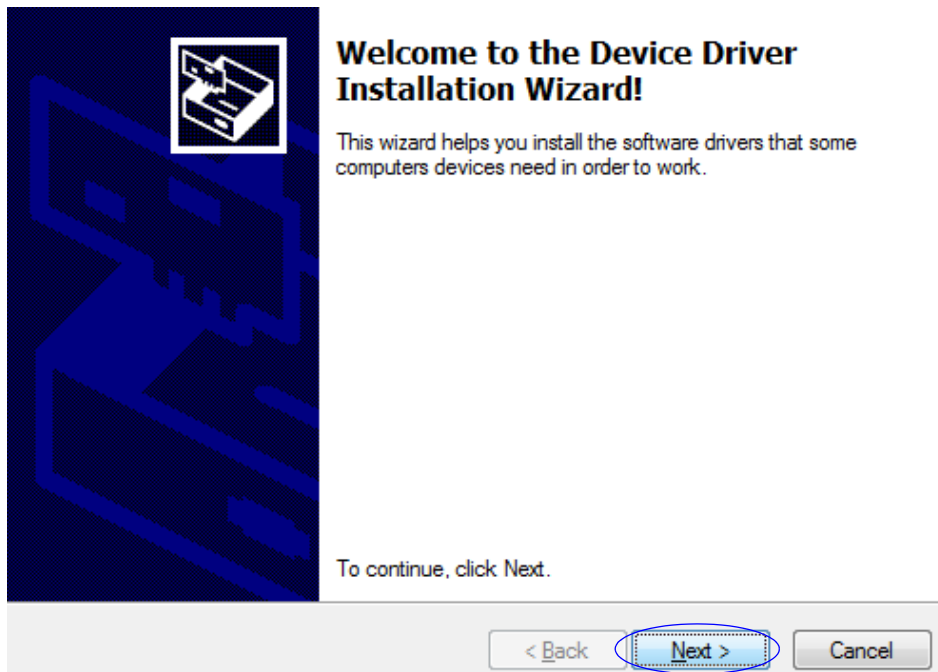
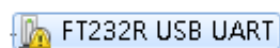4. Click **Finish** to complete the installation.
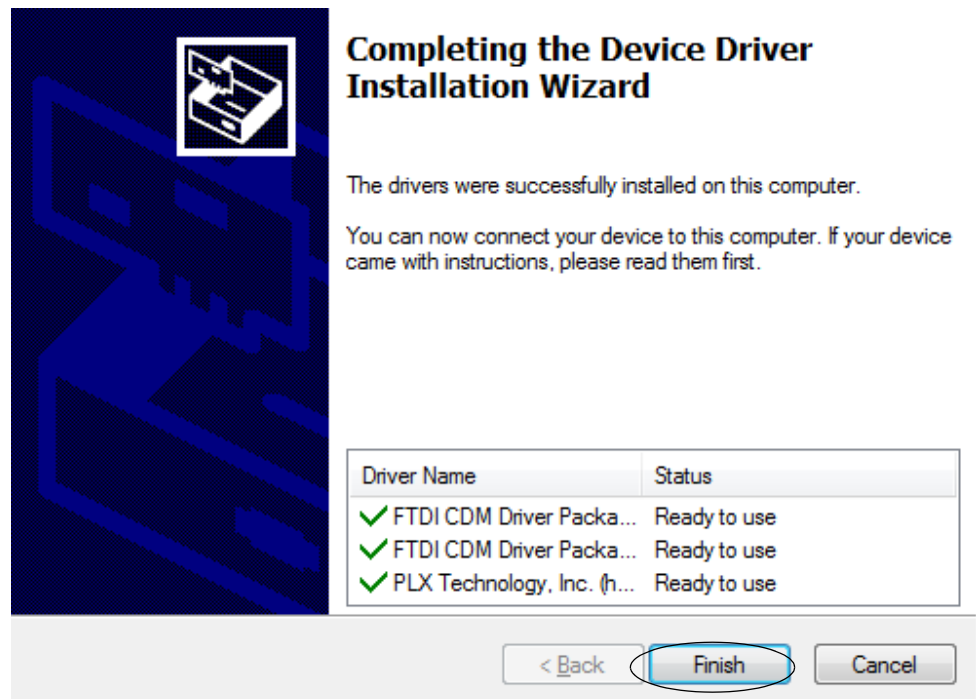
9.3.2 Method 2

1. Start the installation by inserting the Planmeca Romexis installation media to the PC.

2. From the Windows *Start* menu select **Control Panel**.

3. Go to *Device Manager*.

    In the Device Manager, under *Other devices*, the following line appears.

4. Right-click on the line and select **Update Driver Software**.

5. Select **Browse my computer for driver software**.

6. In the opening window, click the **Browse** button to indicate the location of the ProID driver folder.

   The folder is located under *\Tools\proscanner\ProID driver* on Romexis installation media.

7. Click **Next**.
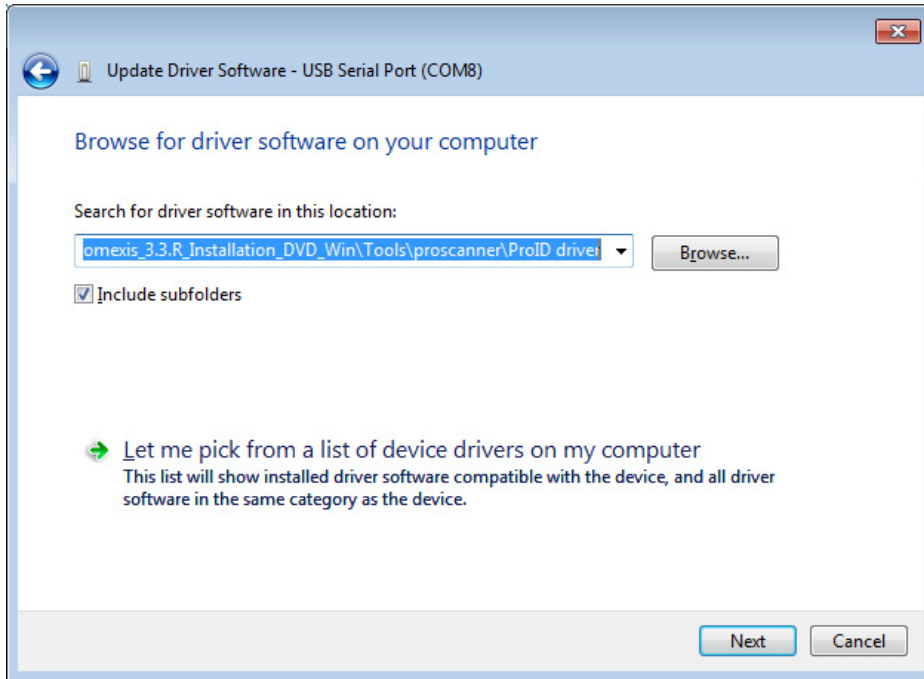
When the driver is installed correctly, a USB Serial Converter is added under Universal Serial Bus Controller category and a new USB Serial Port is displayed under Ports category.
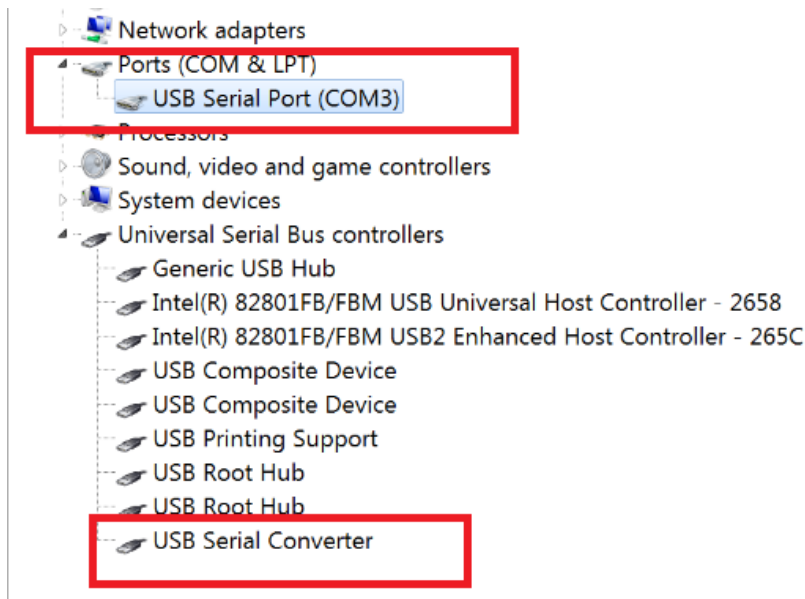
9.4 Connecting cables

1. On / off switch
2. USB port
3. SD card slot
4. Power cord
   connector
5. Ethernet port

NOTE

This equipment is for indoor use only and all the communication wiring is limited to inside of the building.

NOTE

Do not pull out the cables during scanning.

NOTE

The SD card slot (3.) may also be hidden under the back panel. To access the SD card please see the technical manual.

9.4.1 Power cord

WARNING

This equipment must only be connected to supply mains with protective earth. Use only a three-wire cord that has grounding. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. For your safety, do not remove the ground from the grounding-type plug.

WARNING

Do not use the cord with any electrical power supply that does not meet the ratings displayed on the power adapter. Usage of any other power adapter may lead to fire or electrocution.

⚠️

WARNING

Only use the supplied power adapter and power cord included with the system. Not doing so may lead to fire, electrical shock, or electrocution.

CAUTION

Socket-outlet should be installed near the device for easy access.

CAUTION

Do not place the device where access to appliance inlet is obstructed.

CAUTION

Do not unplug the power cord or turn the power switch off during scanning.

1. Connect the power cord to the back side of the scanner.
2. Connect the other end of the cord to a grounded power outlet.

Power cord connector

9.4.2 USB interface cable

The scanner interfaces with computer via USB 2.0 cable.

CAUTION
Use only devices meeting the requirements of IEC60950-1 or IEC60601-1 when connecting to the Planmeca ProScanner via USB port.

1. Connect the USB cable to the scanner's USB port.
2. Connect the other end of the cable to the USB 2.0 port on the computer.

9.4.3 Ethernet cable

The scanner interfaces with computer via Ethernet cable (RJ45 CAT.5E FTP).

1. Connect the cable to the scanner's Ethernet port.
2. Connect the other end of the cable to the Ethernet port of the Ethernet-hub or directly to your computer.

   To connect to PC directly, use the supplied crossed type cable.

9.4.4 Planmeca ProID RFID reader cable

The reader interfaces with computer via mini USB cable.

1. Connect the other end of the cable to the reader's USB port.
2. Connect the other end of the cable to the USB port on the computer.

9.5 Switching on the scanner

When the system has been properly connected the system can be switched on.

To switch on the scanner press the On/Off switch on the back side of the scanner.


WARNING

This device uses laser. Avoid looking inside the scanner.

9.6 Installing calibration files

The calibration file of each used scanner must be installed before use. The calibration files are stored inside the scanner and may be retrieved using **ProScannerAdmin.exe**.

1. To retrieve the calibration files, connect the scanner using USB connection (see section 8.1 "USB or direct 1-to-1 Ethernet" on page 13).

2. Make sure Planmeca ProID is *not* connected to the PC.

3. Browse to Planmeca Romexis *Client* installation folder on your computer.

4. Start **ProScannerAdmin.exe** by double-clicking the file.

If calibration file is not found on the computer, the following window opens.
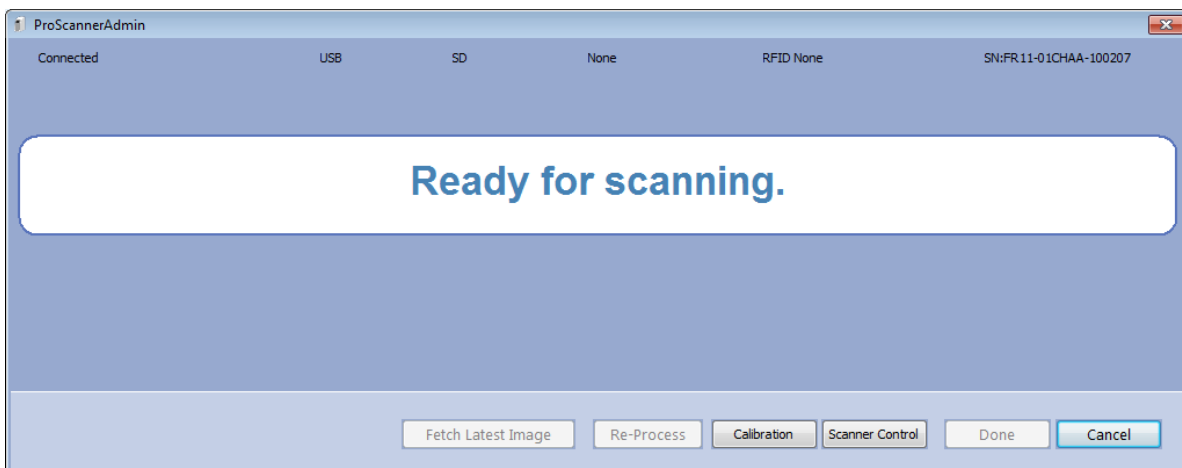
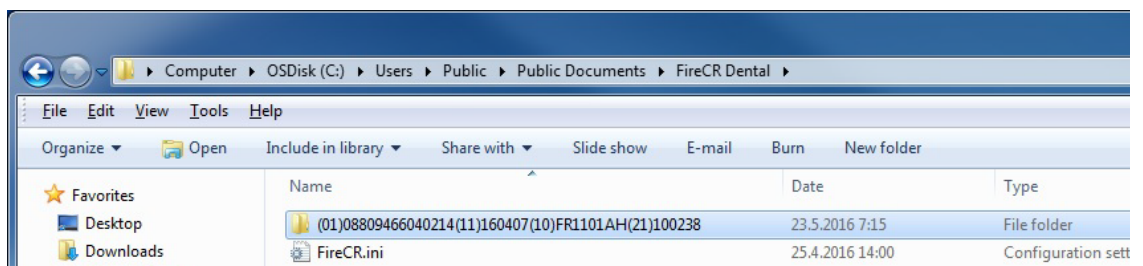The calibration files are automatically downloaded. The bar in the lower left corner shows the download progress.
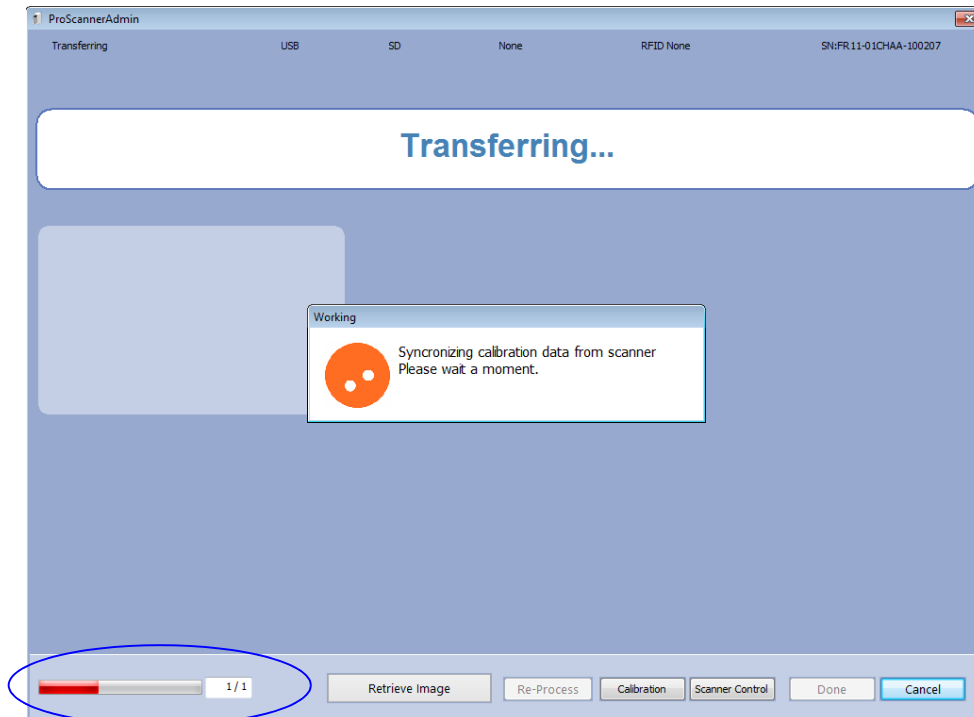
The calibration files are downloaded to *C:\Users\Public\Public Documents\FireCR Dental*.

Seen in Windows Explorer window as *C:\Users\Public\Documents\FireCR Dental*

The calibration file folder is named according to the serial number of the scanner. Inside each folder is located the calibration file named **Section.dat**.

NOTE

On how install calibration files for Mac OS see instructions in Appendix B.4 "Installing calibration files" on page 55.

5. When using shared scanners, repeat the same procedure with all used scanners and copy all calibration file folders to all client computers.

As a safety precaution, it is suggested that a backup of the files is created.

9.7 Connecting scanner to network

### 9.7.1 IP-address configuration on the scanner

When Ethernet connection is used, the network settings must be defined in the *Settings* menu before use.

For more information refer to section 10.2.5 "Settings" on page 32.

9.7.2 IP-address configuration on PC

1-to-1 ETH mode

When several scanners are installed to the same network in **1-to-1 Ethernet** mode, the IP-address of the used scanner must be defined separately on each client computer. The IP-address must be entered manually in the **firecr.ini** file under *C:\Users\Public\Public Documents\FireCR Dental*.
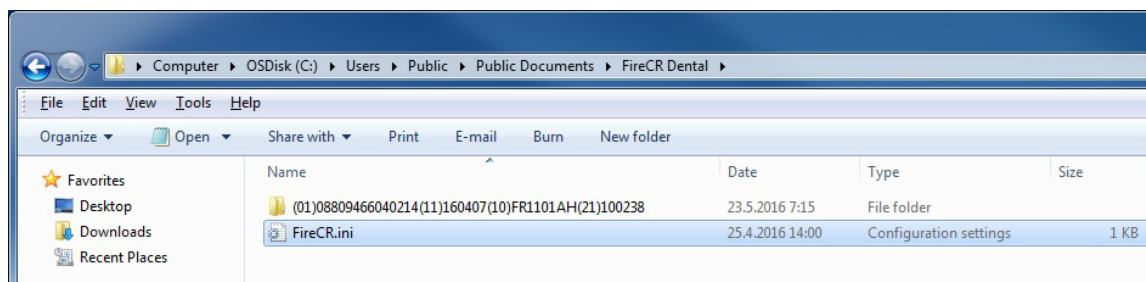
Seen in Windows Explorer window as *C:\Users\Public\Documents\FireCR Dental*

NOTE
Firecr.ini is created the first time the scanner is connected to the PC. If necessary the fireri.ini file can be created by starting the ProScannerAdmin.exe.

By default the CONNECTION parameter is set to AUTO in which case the HOST parameter is not used. The IP-address of the scanner is automatically detected.

//----------------------------FireCR.ini-------------------

[SCANNER]
CONNECTION=AUTO
[NETWORK]
HOST=0.0.0.0

//---

To set the IP-address manually, change the CONNECTION parameter to MANUAL and fill in the IP-address of the scanner to HOST parameter.

```
//----------------------------FireCR.ini------------------

[SCANNER]
CONNECTION=MANUAL
[NETWORK]
HOST=192.168.1.134

//-----------------------------------------------------------
```

NOTE
The configuration is not necessary if only one scanner is used in the same network.

NOTE
When configuring the IP-address manually, the scanner DHCP mode must NOT be used.

N-to-N mode

When using N-to-N mode, it is not necessary to configure the **FireCR.ini** file as the CONNECTION parameter is by default set to AUTO. The CONNECTION parameter cannot be set to MANUAL in N-to-N mode.

However, make sure the Planmeca ProID reader is attached to the PC before attempting to connect from PC to the scanner in N-to-N mode. If the reader is not connected, the scanner will be connected in 1-to-1 ETH mode.

NOTE
The device must be rebooted whenever the mode is changed ie. if the scanner has been used in 1-to-1 mode, a reboot is needed to connect in N-to-N mode.

10 MAIN PARTS

Touch panel display

Tray

IMG_15333.jpg

10.1 Tray

IMG_15335.jpg
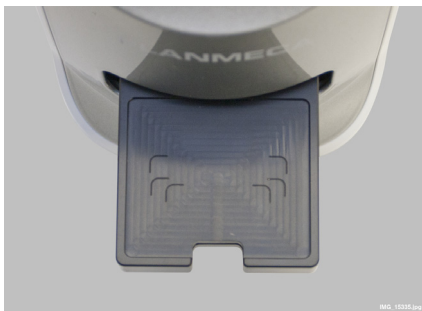
The tray is intended for placing imaging plates. To start scanning, the tray is inserted into the scanner manually.

The outlines on the tray indicate the correct placement for imaging plates of different sizes.

10.2 Touch panel display

The touch panel display indicates the status of the Planmeca ProScanner and is used to adjust the settings of the scanner.

10.2.1 Initialization (booting screen)

The booting screen is displayed during system initialization after the scanner is switched on.

10.2.2 Main window

The main window communicates the status of the system and guides the user.

This screen is displayed when the scanner has booted and is awaiting connection to Planmeca Romexis.

- To activate a stand-alone scanner, open the Planmeca Romexis ProScanner image capturing window.
- To activate a shared scanner open the Planmeca Romexis ProScanner image capturing window and read an imaging plate with Planmeca ProID reader.

  When the scanner has been activated, the scanning mode is displayed (see section 10.2.4 "Scanning" on page 31).

  If the scanning mode cannot be activated, check the cabling and network settings.

Display symbols

Imaging plate (size)

NOIP (no imaging plate on the tray),
Size0, Size1, Size2, Size3, Size4c

Resolution

Temporarily toggles when it is touched.
Permanent changes can be made at the
Settings menu.

HD (High resolution)

SD (Standard resolution)

Connection status

No connection

Network connection

USB connection

Sleep button

See section 10.2.3 "Sleep mode" on page 31.
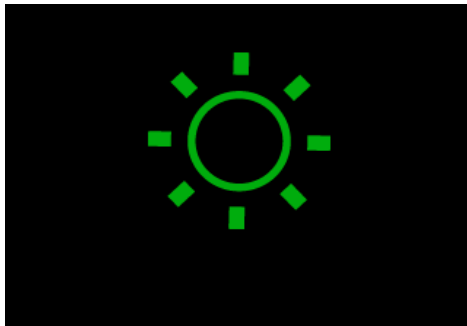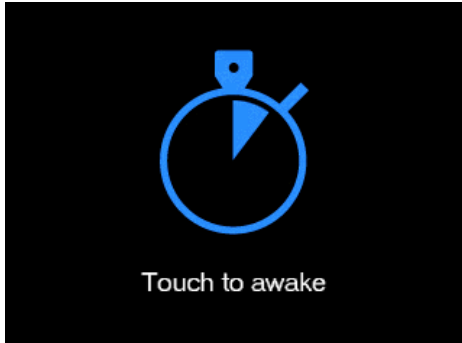
Settings button

See section 10.2.5 "Settings" on page 32.

10.2.3 Sleep mode

When the **Sleep mode** button is pressed the scanner goes to sleeping (power saving) mode. The imaging plate tray moves back inside the scanner and the hatch closes.

To awake the scanner and to return to the normal operating mode simply touch the screen.

As the scanner awakes the tray ejects and the following screen appears.

Once awake, the status of the scanner changes to operating mode.

The sleep mode can also be set to activate automatically if the device has not been used for a certain period of time. For more information, see section "Auto sleep" on page 33.

10.2.4 Scanning
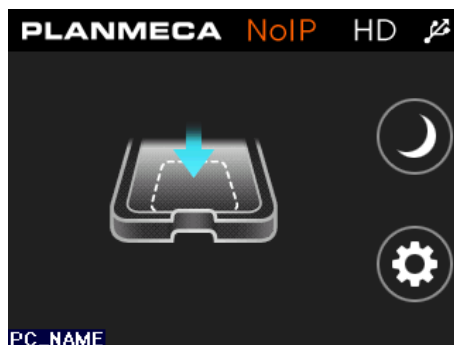
Scanner activated

The scanner is ready for scan, but there is no imaging plate on the tray (NoIP). The name of the currently connected computer appears on the lower left corner of the screen.
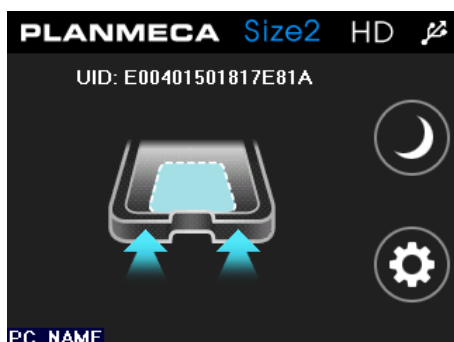
Ready for scan

The imaging plate size is recognized and the scanner is ready for scan.

The imaging plate size is shown on top when the plate is recognized. To start scanning insert the tray.

The UID code is the image plate specific serial number. The code is saved to the *Image properties* window in Planmeca Romexis together with the image.
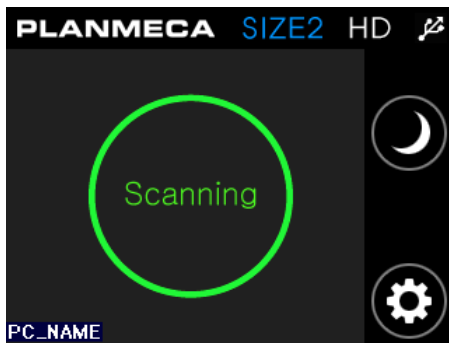
Scanning

Scanning in progress.
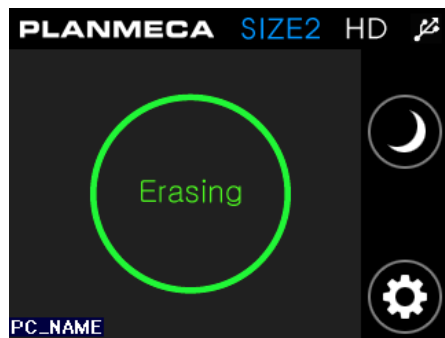
Erasing

Erasing in progress.

The imaging plate is automatically erased after each scan.

10.2.5 Settings

To access the *Settings* menu touch this button.
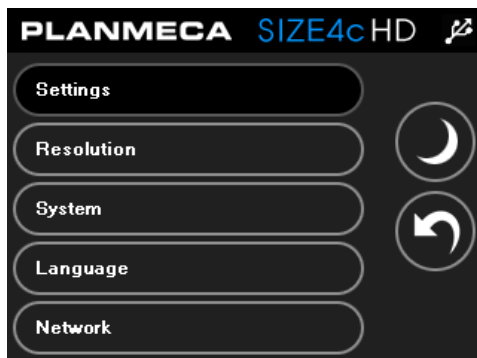
In the *Settings* menu you can set the resolution and adjust the system, language and network settings.
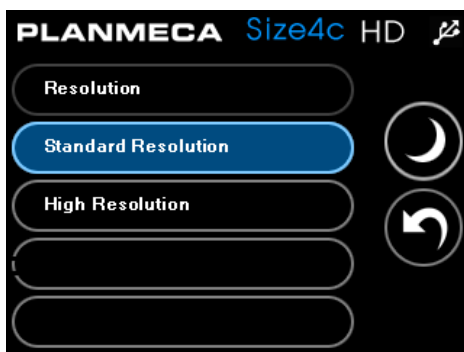
Resolution

Choose scanning resolution between standard (SD) and high resolution (HD).
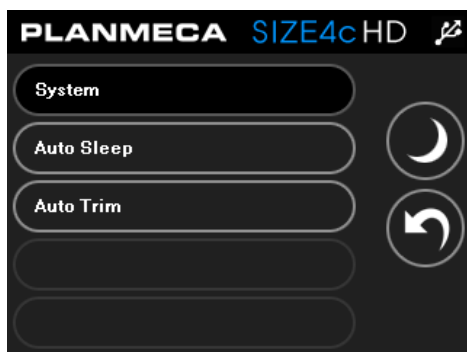
System

In the *System* menu you can set the auto sleep and auto trim mode.
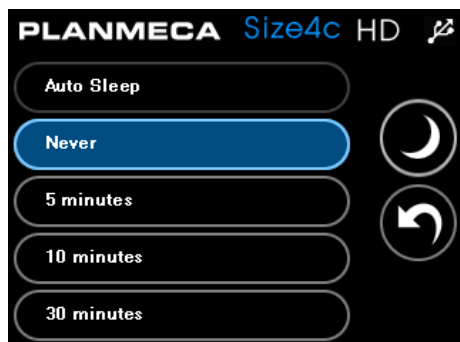
Auto sleep

In the auto sleep display you can set the period of idle time after which the device goes into sleep mode.

Select the setting by touching the appropriate button.
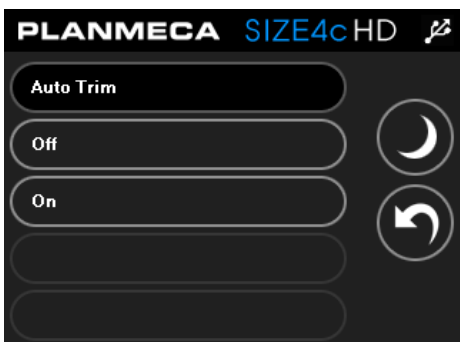
Auto trim

The scanner scans an area slightly larger than the imaging plate. With auto trim enabled, the excess white area around the image will be automatically removed.
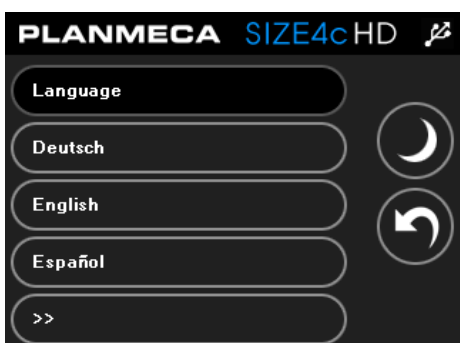
Language

Click the *Language* menu to select the language for the user interface.
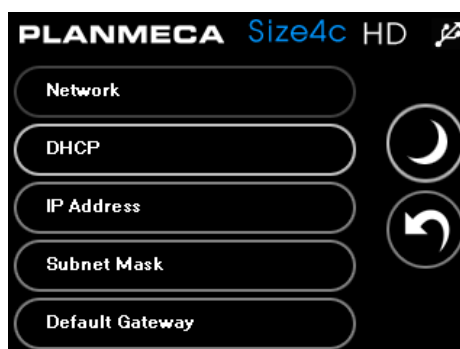
Network

Network related settings.
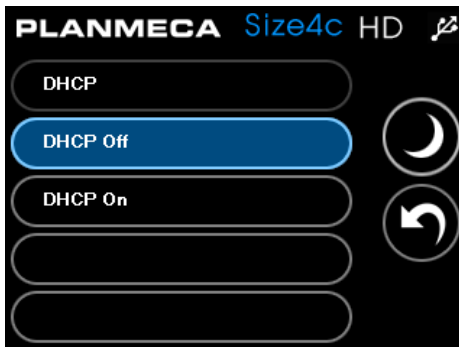
DHCP mode

To search automatically the network settings touch the **DHCP on** button.

For manual setting select **DHCP Off** and proceed to IP address field to manually enter the IP address.

When this setting is changed, the system will restart automatically.

IP Address

From the *Network* menu select **IP address**.

Enter the IP address.

Save the new IP address by touching the check mark button. The system will restart automatically.

Subnet mask

From the *Network* menu select **Subnet mask**.

Enter subnet mask manually.

Save the new subnet mask by touching the check mark button. The system will restart automatically.

Default gateway

From the *Network* menu select **Default Gateway**.

Enter gateway address manually.

Save the new gateway by touching the check mark button. The system will restart automatically.

10.2.6 System information
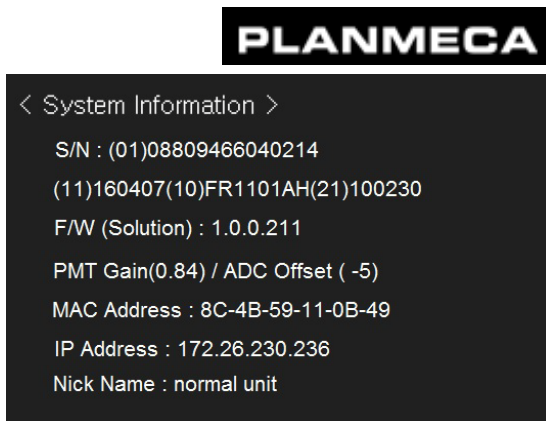
Clicking the Planmeca logo opens a window displaying scanner related information.

10.2.7 System error
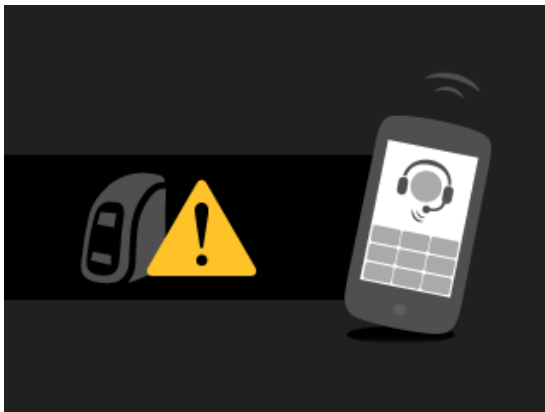
An unexpected system error occurred. Contact technical support.

11 CAPTURING IMAGES WITH PLANMECA PROSCANNER

For detailed instructions on how to capture ProScanner images see Planmeca Romexis User's manual (publication number 10014593)

12 READING IMAGING PLATES WITH PLANMECA ProID READER

When the scanner is shared between several treatment rooms the imaging plates must be read in the treatment room with the Planmeca ProID reader before scanning.

The Planmeca ProID reader identifies the serial number of the plate. The serial number is used to automatically route the images to the correct patient file.

NOTE
Select the patient and open the Planmeca ProScanner imaging window in 2D module before proceeding to reading.

1. Open the Planmeca ProScanner imaging window in Planmeca Romexis 2D module.

2. Show the imaging plate to the Planmeca ProID reader.

   When the imaging plate serial number has been recognized the serial number appears on the Planmeca Romexis Imaging window (see Planmeca Romexis 2D User's Manual).

3. When all imaging plates have been read leave the imaging window open and proceed to exposing of the plates.

   NOTE
   Never close the imaging window before all images have been scanned.

4. Scan the plates as described in section 13 "SCANNING / ERASING IMAGING PLATES" on page 37.

13 SCANNING / ERASING IMAGING PLATES

NOTE

The imaging plates must be removed from the hygienic bag for scanning. To prevent the plates from being exposed to light remove the plate from the hygienic bag right before placing it onto the tray. If there is a protective cover on the imaging plate also remove the cover.

NOTE

In shared use (N-to-N mode) images of one patient cannot be scanned on different scanners at the same time.

1. Open the Planmeca ProScanner imaging window in Planmeca Romexis 2D module (if not already open).
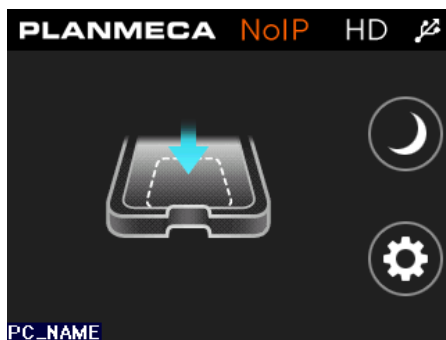
   When the following screen appears the scanner is ready for scanning and the imaging plate can be placed on the tray.

2. Place the imaging plate towards the front and centre of the tray with the **active (blue) side up**.
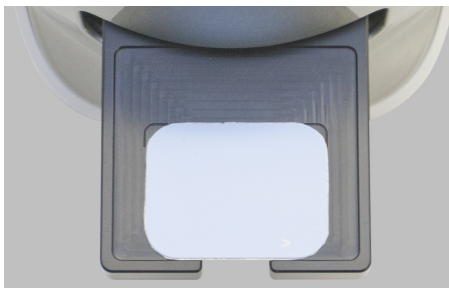
The following two images illustrate the *incorrect* positioning of the imaging plates.
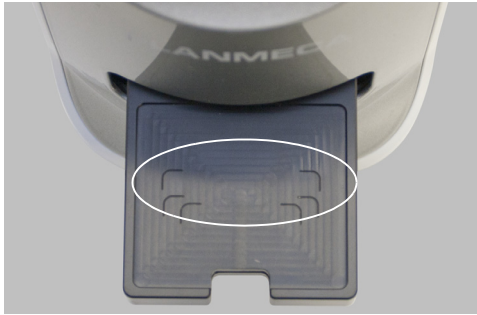
The outlines for imaging plates of different sizes are marked on the tray to help with correct positioning.

NOTE
Make sure the imaging plate is in correct position and direction.
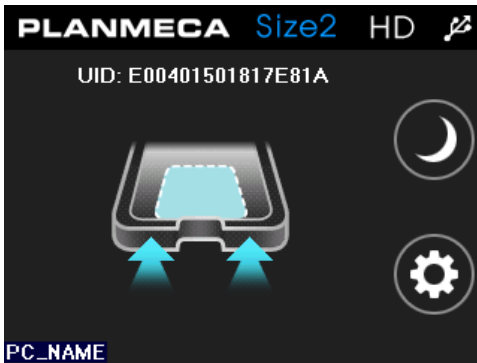
When the imaging plate has been placed on the tray, the following window appears. The scanner is now ready for scanning.

NOTE
In shared use (N-to-N) once the imaging plate on the tray is recognised and the UID code displays you can no longer change the plate. Proceed with scanning with the recognised plate.

3. Gently push the tray inside the scanner until the interlock holds the tray.

NOTE
If the tray cannot be inserted check that the Planmeca Romexis imaging window is open and that the plate has been read with Planmeca ProID (when applicable)

4. When the tray is attached to the interlock remove your hand from the opening.
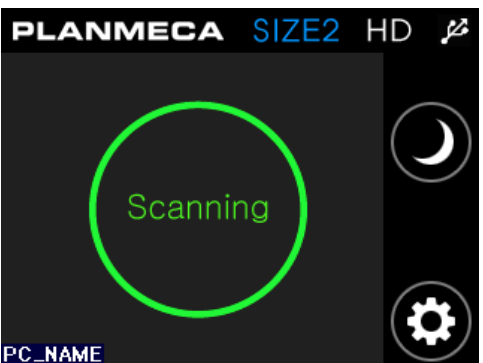
The tray door closes and the scanning starts automatically.
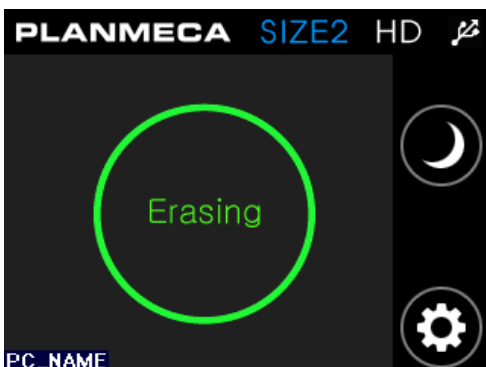
The scanner then automatically reads and erases the plate and sends the image to Planmeca Romexis.
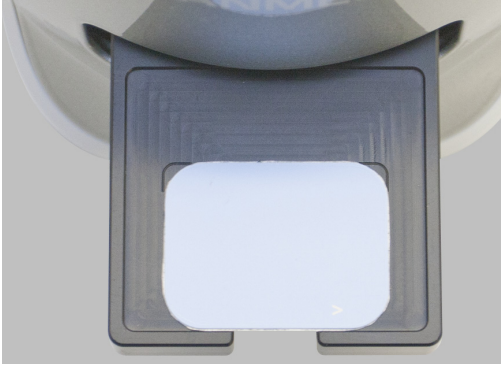
When scanning is completed the tray ejects and a preview image appears on Planmeca ProScanner touch panel display.

5. When the tray has ejected gently lift the plate off of the tray.

When the plate has been removed, the preview image will disappear from the ProScanner touch panel display. Alternatively, the preview image can be hidden by touching the screen when the plate is still on the tray.

14 RETRIEVING STORED IMAGES

The scanner is equipped with an SD card capable of storing the scanned image to memory. The images can be retrieved from the scanner in the image capturing dialogue in Planmeca Romexis. For more information, see Planmeca Romexis 2D Imaging User's manual.

NOTE
Retrieving the images is not possible in N-to-N Ethernet mode i.e. when using ProScanner with Planmeca ProID reader. If the image must be retrieved when the scanner is connected using 1-to-1 Ethernet or USB mode.

NOTE
N-to-N Ethernet mode and 1-to-1 Ethernet mode cannot be used in the same network at the same time.

NOTE
Make sure that the retrieved image belongs to the selected patient.

To retrieve images from Planmeca ProScanner

1. Connect the PlanmecaProScanner with USB or with 1-to-1 connection to Planmeca Romexis workstation.

   NOTE
   Retrieving images is not possible in N-to-N mode

2. In Planmeca Romexis 2D imaging module select **ProScanner Capture**.
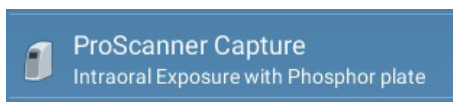
3. From the bottom of the Planmeca ProScanner image capturing window select **Retrieve image**.

4. Select the desired image from the image list.

NOTE
Make sure that the retrieved image belongs to the selected patient.

The selected image is transferred to Planmeca Romexis.

15 EXPOSURE VALUES

The following tables show the recommended exposure values for Planmeca ProScanner

Short cone 20 cm (8") exposure values

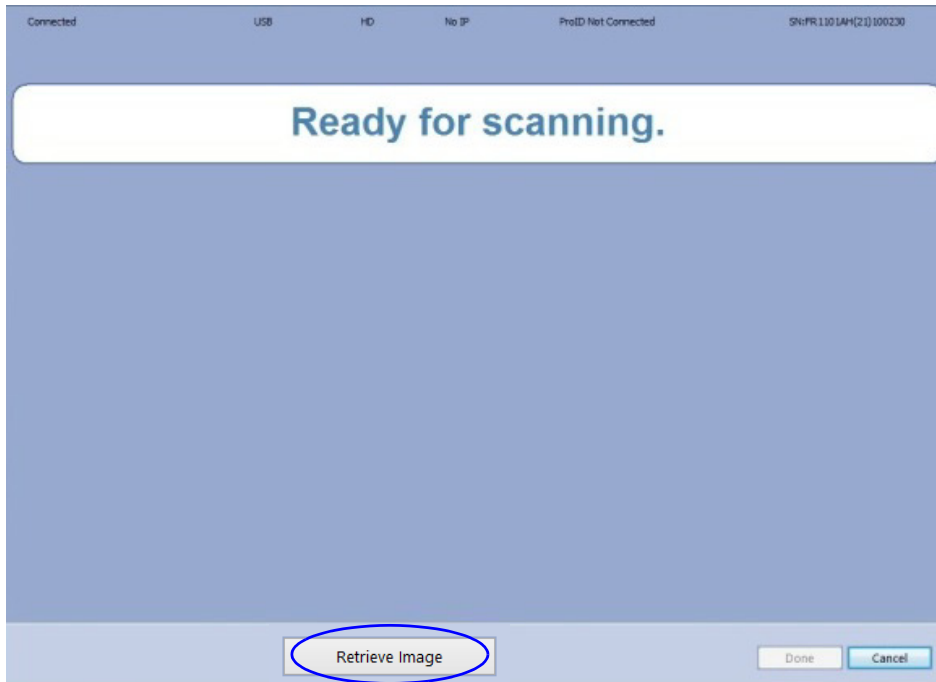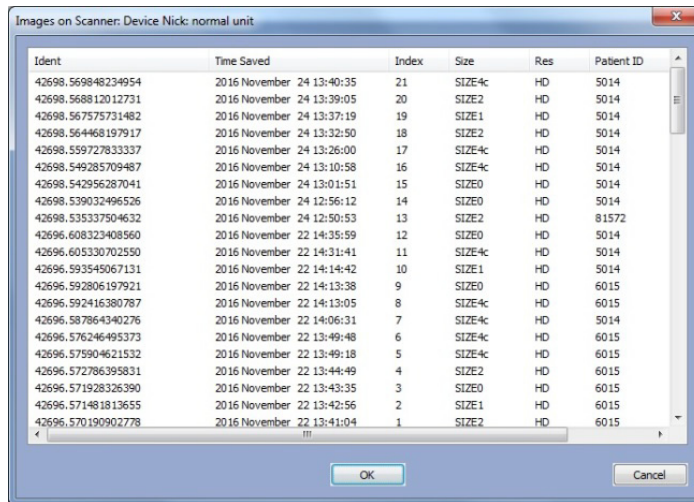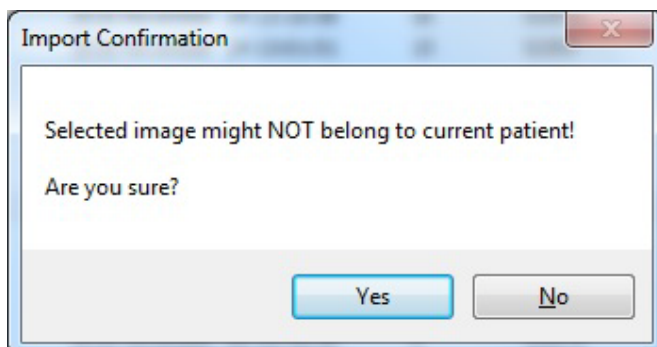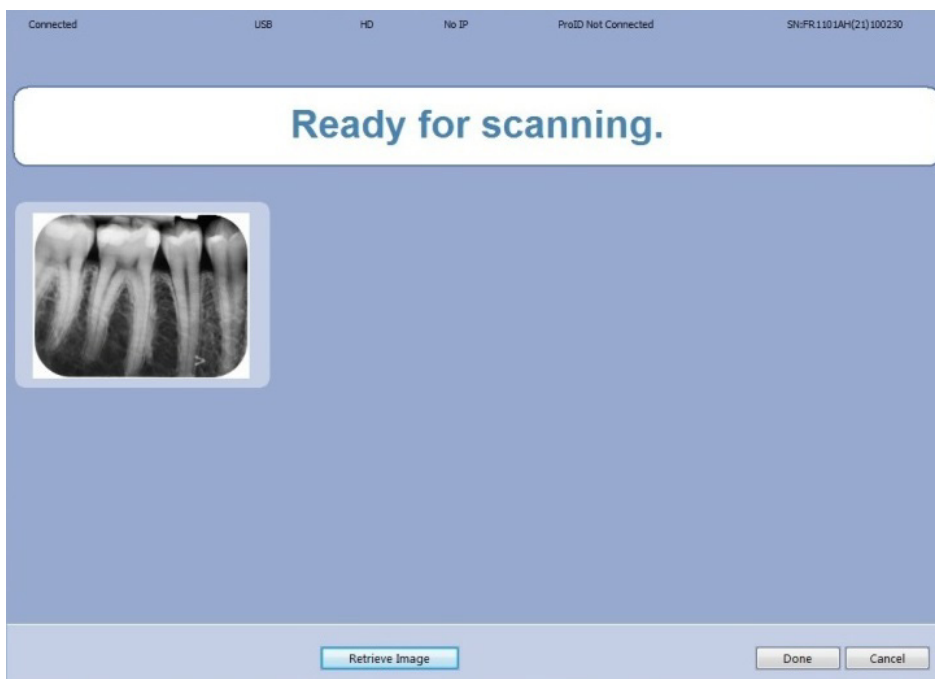| Jaw	mA	TIME	0.010s	0.012s	0.016s	0.020s	0.025s	0.032s	0.040s	0.050s	0.063s	0.080s	0.100s	0.125s	0.160s	0.200s	0.250s	0.320s	0.400s	0.500s	0.630s	0.800s
MAXI	8 mA	70 kV/child				I			I	P	M											
MAND	8 mA	70 kV/child	I			P	I	P	M													
MAXI	8 mA	66 kV/child				I			P	I	P	M										
MAND	8 mA	66 kV/child	I			P			I	P	M											
MAXI	8 mA	63 kV/child					I		P	M	I	P	M									
MAND	8 mA	63 kV/child		I			P		M	I	P	M										
MAXI	8 mA	60 kV/child							I	P	M	I	P	M								
MAND	8 mA	60 kV/child					I		P	M	I	P	M									
MAXI	8 mA	70 kV/adult					I		P	I	P	M										
MAND	8 mA	70 kV/adult		I			P		I	P	M											
MAXI	8 mA	66 kV/adult							I	P	I	P	M									
MAND	8 mA	66 kV/adult					I		P	I	P	M										
MAXI	8 mA	63 kV/adult								I	P	I	P	M								
MAND	8 mA	63 kV/adult							I	P	I	P	M									
MAXI	8 mA	60 kV/adult									I	P	I	P	M							
MAND	8 mA	60 kV/adult								I	P	I	P	M								

I = INCISORS, **M =** MOLARS, **P =** PREMOLARS AND CANINES

Long cone 30 cm (12") exposure values

Jaw	mA	TIME	0.010s	0.012s	0.016s	0.020s	0.025s	0.032s	0.040s	0.050s	0.063s	0.080s	0.100s	0.125s	0.160s	0.200s	0.250s	0.320s	0.400s	0.500s	0.640s	0.800s
MAXI	8 mA	70 kV/child							I				I	P	M							
MAND	8 mA	70 kV/child				I				P		I	P	M								
MAXI	8 mA	66 kV/child							I				P	I	P	M						
MAND	8 mA	66 kV/child				I				P			I	P	M							
MAXI	8 mA	63 kV/child								I			P	M	I	P	M					
MAND	8 mA	63 kV/child					I			P			M	I	P	M						
MAXI	8 mA	60 kV/child											I	P	M							
MAND	8 mA	60 kV/child											I	P	M							
MAXI	8 mA	70 kV/adult											I	P	M							
MAND	8 mA	70 kV/adult										I	P	M								
MAXI	8 mA	66 kV/adult											I	P	M							
MAND	8 mA	66 kV/adult										I	P	M								
MAXI	8 mA	63 kV/adult											I	P	M							
MAND	8 mA	63 kV/adult										I	P	M								
MAXI	8 mA	60 kV/adult												I	P	M						
MAND	8 mA	60 kV/adult											I	P	M							

I = INCISORS, **M =** MOLARS, **P =** PREMOLARS AND CANINES

16 USE, CARE, MAINTENANCE AND INFECTION CONTROL OF IMAGING PLATES

⚠️ **WARNING**

Pay particular attention to use, care, maintenance, and infection control of imaging plates.

NOTE
Before using the plates, read carefully the instructions delivered inside the imaging plate kit.

NOTE
Only Planmeca imaging plates can be used with Planmeca ProScanner.

NOTE
Handle the imaging plates with care. Damage in the plate can result in the production of artifacts that may interfere with diagnosis.

NOTE
Make sure you use hygienic bags. The hygienic bags have been found in most cases to be effective in protecting the imaging plate from becoming contaminated. Remove the hygienic bags after use on each patient to prevent cross-contamination. The hygienic bags are for single patient use only.

16.1 Using protective cover
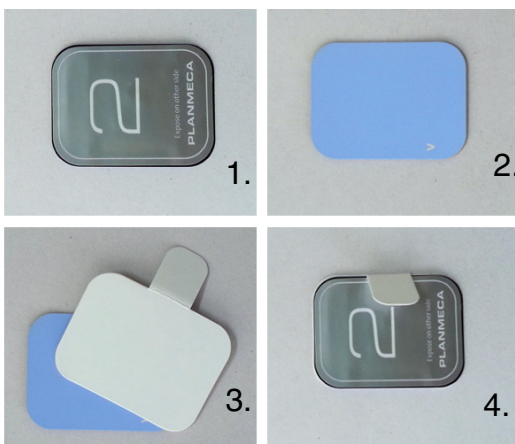
NOTE
Never reuse a protective cover. A protective cover is for single patient use only.

1. Back side of imaging plate.

2. Front = active side of imaging plate.

3. Place the protective cover on the active side of the imaging plate.

4. Fold the tail of protective cover to opposite side of imaging plate.

16.2 Using hygienic bags

NOTE

Never reuse a hygienic bag. A hygienic bag is for single patient use only.

1. Insert imaging plate into the hygienic bag so that the printed side of the imaging plate is facing the printed side of the envelope as illustrated.

2. Peel off the adhesive strip and seal the envelope.

3. Remove the plate from the hygienic bag by tearing the hygienic bag lengthwise starting at the notch and gently pull the plate out of the hygienic bag.

WARNING

Active side of the imaging plate should face the blank side of the hygienic bag and the x-ray source.

16.3 X-ray exposure

The blank side of the hygienic bag (active side of imaging plate) must face the tooth and X-ray source.

16.4 Cleaning imaging plates

Clean imaging plate using soft lint-free cellulose cloth with Ethanol (99.7%).

17 CLEANING PLANMECA PROSCANNER

WARNING

There are no user serviceable parts inside the Planmeca ProScanner and Planmeca ProID reader. They should only be opened and serviced by qualified service personnel. Failure to heed this warning may result in injury to service personnel or damage to equipment, and void any and all warranties. In case of a service problem, please contact Planmeca or an authorized dealer.

To remove dust wipe outside of the scanner with soft and dry cloth.

17.1 Tray

Clean the tray using soft lint-free cellulose cloth dampened with ethanol (99.7%).

17.2 Planmeca ProID RFID reader

Wipe the outside of the reader to remove dust, using a soft and dry cloth.

18 SHIPPING

The Planmeca ProScanner is a solidly built system designed to survive shipping around the world. However, in order to avoid damage during shipping, the Planmeca ProScanner and all its accessories must be properly packaged.

In general, the best way to package the Planmeca ProScanner is in the original factory container. If this is no longer available, we recommend carefully wrapping the Planmeca ProScanner in at least 75 mm (3 inch) and the Planmeca ProID RFID Reader in at least 25 mm (1 inch) of foam or bubble pack sheeting. The wrapped device should then be placed in a sturdy cardboard carton. Mark the outside of the box with word FRAGILE and an arrow showing which way is up.

We do not recommend using loose foam pellets to protect the Planmeca ProScanner. If the carton is dropped by the shipper, there is a good chance that the device will shift within the loose pellet packing and be damaged.

It is user's responsibility to package the system properly before shipping. If the packaging is inadequate, and the system is damaged during shipping, the shipper will not honour the user's claim for compensation. If the user does not have a means to adequately package it, additional shipping containers may be purchased from Planmeca.

For transportation conditions see section 20 "TECHNICAL SPECIFICATIONS" on page 50.

19 DISPOSAL

WARNING

Improper disposal of this product may result in environmental contamination. When disposing of this equipment, contact Planmeca's representative or related organs of government. Do not dispose of any part of this equipment without consulting a Planmeca's representative first.

Planmeca does not assume any responsibility for damage resulting from disposal of this equipment without consulting Planmeca.

In order to reduce the environmental load over the product's entire life cycle, Planmeca's products are designed to be as safe as possible to manufacture, use and dispose of.

Parts which can be recycled should always be taken to the appropriate processing centres, after hazardous waste has been removed. Disposal of obsolete systems is the responsibility of the waste possessor.

All parts and components containing hazardous materials must be disposed of in accordance with waste legislation and instructions issued by the environmental authorities. The risks involved and the necessary precautions must be taken into account when handling waste products.

NOTE
If the component boards cannot be recycled handle them as electronic scrap, i.e. according to the local legislation.

20 TECHNICAL SPECIFICATIONS

Sampling pixel pitch		SD	64um
		HD	35um
Pixel matrix	Size 0	SD	343 x 484
		HD	628 x 885
	Size 1	SD	375 x 625
		HD	685 x 1143
	Size 2	SD	484 x 640
		HD	886 x 1171
	Size 3	SD	421 x 843
		HD	771 x 1542
	Size 4c	SD	750 x 843
		HD	1370 x 1542
Accepted imaging plate size		0, 1, 2, 3, 4c	
Gray scale resolution		16 bit	
Eraser		Embedded	
Computer interface		USB 2.0 / 100Mbps Ethernet	
Dimensions		265 (H) x 120 (W) x 318 (D) mm 10.4 (H) x 4.7 (W) x 12.5 (D) inch	
Weight		5.5 kg (12.1 lbs)	
Power requirements		100 ~ 240V / 50 ~ 60Hz, 30W	
Planmeca ProID RFID reader			
Dimensions		27 x 60 x 96 (H x L x W)	
Weight		90g	
Frequency		13.56 MHz	
Protocol		ISO 15693	
Interface		Mini USB B	
Power Supply		USB Power	

20.1 Operating conditions

NOTE
Indoor use only.

Operating temperature	15°C ~ 30°C (59°F ~ 86°F)
Temperature gradient	0.5°C / Min
Relative humidity	15% ~ 95% (non-condensing)
Storage temperature	-10°C ~ 50°C (14°F ~ 122°F)
Storage humidity	15% ~ 95% (non-condensing)
Storage atmospheric pressure	500 ~ 1,060 hPa
Transportation temperature	-10°C ~ 50°C (14°F ~ 122°F)
Transportation humidity	15% ~ 95% (non-condensing)
Transportation atmospheric pressure	500 ~ 1,060 hPa
Installation category	II
Pollution degree	2
Ingress of liquids	IPX0
Altitude	Up to 2,000m
Protective class	Class 1
Equipment maintenance	No user maintenance is required and no service is allowed. Please contact technical support if there is a problem.

Appendix A: Exposure value tables for Planmeca ProX

A.1 Default exposure values

The following table shows the default exposure values for Planmeca ProScanner with no target selected.

Short cone	kV	mA	s	Long cone	kV	mA	s
Adult	63	8	0,125	Adult	63	8	0,25
Child	60	8	0,1	Child	60	8	0,2

A.2 Preprogrammed settings values

Short cone 20 cm (8")

		INCISORS			PREMOLARS AND CANINES			MOLARS		
		kV	mA	time	kV	mA	time	kV	mA	time
Adult	Maxilla	60	8	0.080	63	8	0.1	63	8	0.125
	Mandible			0.063			0.08			0.1
Child	Maxilla	60	8	0.063	60	8	0.08	60	8	0.1
	Mandible			0.050			0.063			0.08

		OCCLUSAL			ENDODONTIC			BITE-WING		
		kV	mA	time	kV	mA	time	kV	mA	time
Adult	Maxilla	70	8	0.08	60	8	0.08	60	8	0.125
	Mandible									
Child	Maxilla	66	8	0.063	60	8	0.063	60	8	0.1
	Mandible									

Long cone 30 cm (12")

		INCISORS			PREMOLARS AND CANINES			MOLARS		
		kV	mA	time	kV	mA	time	kV	mA	time
Adult	Maxilla	60	8	0.16	63	8	0.2	63	8	0.25
	Mandible			0.125			0.16			0.2
Child	Maxilla	60	8	0.125	60	8	0.16	60	8	0.2
	Mandible			0.1			0.125			0.16

		OCCLUSAL			ENDODONTIC			BITE-WING		
		kV	mA	time	kV	mA	time	kV	mA	time
Adult	Maxilla	70	8	0,16	60	8	0.16	60	8	0.25
	Mandible									
Child	Maxilla	66	8	0,125	60	8	0.125	60	8	0.2
	Mandible									

Appendix B: Installing Planmeca ProScanner on MacOS

B.1 Romexis and ProScanner USB driver installation

The Planmeca ProScanner USB does not require a separate driver installation as the driver is installed automatically during Planmeca Romexis client installation. Therefore (contrary to Windows version):

- During Romexis client installation no ProScanner option selection is required.
- The driver cannot be found separately in the DidapiKit for Mac.

B.2 ProID driver installation

Planmeca ProID does not require a separate driver installation on MacOS. Driver is installed automatically during Romexis client installation.

B.3 Connecting scanner to network

Please follow the instructions in section 9.7 "Connecting scanner to network" on page 26. On Mac OS the FireCR.ini file is located under Romexis client installation folder.

B.4 Installing calibration files

Please follow the instructions in section 9.6 "Installing calibration files" on page 24. On MacOS ProScannerAdmin.exe is named *ProScannerAdmin.app*
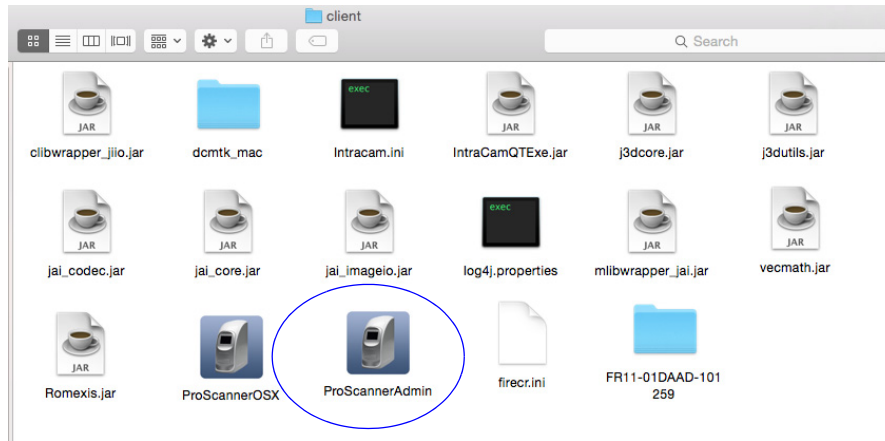

On Mac OS the calibration files are installed to Romexis client installation folder.

B.5 Setting on windowed option

If Planmeca Romexis is not used in Full screen mode with MacOS the ProScannerApp opens in the background. To avoid this set the windowed option on. This setting can also be used if some of the Romexis buttons are out of the visible are in the monitor.

1. Open the folder */Applications/Planmeca* with finder.

2. Right-click on the Romexis icon and select **Show Package Contents**.
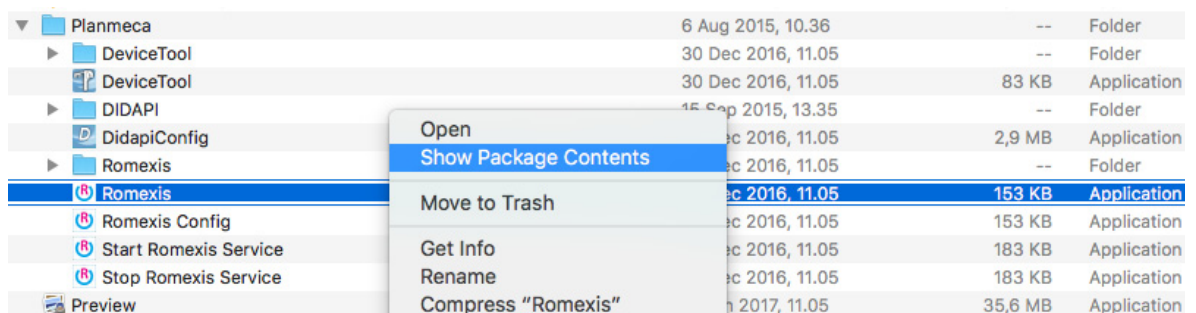
3. Open the Romexis file in subfolder *Contents/MacOS* with a text editor.

Name	^	Date Modified
▼ 📁 Contents		8 Mar 2017, 11.25
📄 Info.plist		2 Mar 2016, 14.45
▼ 📁 MacOS		8 Mar 2017, 11.25
🖥 Romexis		8 Mar 2017, 11.25
▶ 📁 Resources		8 Mar 2017, 11.25

4. Add parameter *-windowed* to Romexis file:

   host=localhost language=en -windowed \

```
#!/bin/sh

progdir="/Applications/Planmeca/Romexis/client"

JAVACMD="/Applications/Planmeca/Romexis/tools/jre/bin/java"

# Additional parameters can be given with argument $1
additionalArguments=${@-""}

cd "${progdir}"

# Romexis startup parameters
exec "$JAVACMD" \
        -Dj3d.rend=d3d \
        -Xms500m -Xmx6000m \
        -Dapple.laf.useScreenMenuBar=true \
        -jar Romexis.jar \
        host=localhost language=en -windowed \
        ${additionalArguments}
```

5. Save the file and restart Romexis.

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