

New as of:

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XIOS Scan

Operating Instructions and Installation Instructions

English

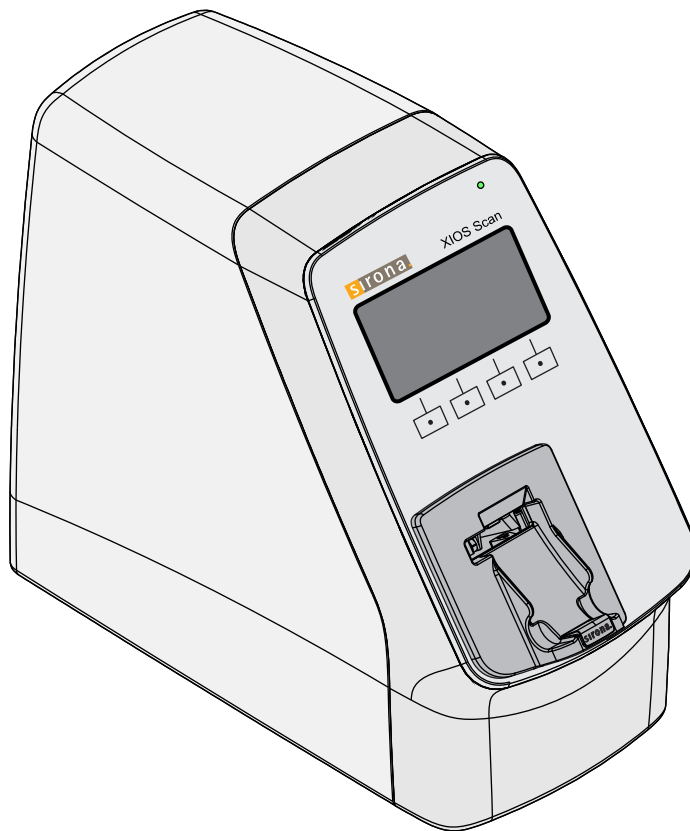


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1 General Information

1.1 User information

We are pleased that you have equipped your dental office with the XIOS Scan from Sirona.

These Operating Instructions are designed to assist you prior to initial use and whenever you require information later on.

We wish you much success and joy with XIOS Scan.

Your XIOS Scan Team

1.2 General information about this operating manual

Observe the Operating Instructions

Please familiarize yourself with the unit by reading through these Operating Instructions before putting it into operation. It is essential that you comply with the specified warning and safety information.

Keep documents safe

Always keep the Operating Instructions handy in case you or another user require(s) information at a later point in time. Save the Operating Instructions on the PC or print them out.

If you sell the unit, make sure that the Operating Instructions are included with it either as a hard copy or on an electronic storage device so that the new owner can familiarize himself with its functions and the specified warning and safety information.

Online portal for technical documents

We have set up an online portal for the Technical Documents at <http://www.sirona.com/manuals>. From here, you can download these Operating Instructions along with other documents. Please complete the online form if you would like a hard copy of a particular document. We will then be happy to send you a printed copy free of charge.

Help

If you reach an impasse despite having thoroughly studied the operating instructions, please contact your dental depot.

1.3 General conventions and structure of the document

1.3.1 Structure of the document

1.3.1.1 Identification of danger levels

To prevent personal injury and material damage, please observe the warning and safety information provided in this document. Such information is highlighted as follows:

DANGER

An imminent danger that could result in serious bodily injury or death.

WARNING

A possibly dangerous situation that could result in serious bodily injury or death.

CAUTION

A possibly dangerous situation that could result in slight bodily injury.

NOTICE



A possibly harmful situation which could lead to damage of the product or an object in its environment.



IMPORTANT

Application instructions and other important information.

Tip: Information on making work easier.

1.3.1.2 Designation of hazard symbols

Icon	Designation
	Failure to follow the instructions may have an adverse affect on the functions of the system.
	Incorrect operation by the user may cause malfunctions and hazards.

Icon	Designation
	Laser is in operation. Do not stare directly into the laser beam.
	Risk of electric shock when accessing areas of the system marked with this symbol.

1.3.1.3 Formats and symbols used

The formats and symbols used in this document have the following meaning:

<ul style="list-style-type: none"> ✓ Prerequisite 1. First action step 2. Second action step or ➤ Alternative action ↪ Result ➤ Individual action step 	Prompts you to do something.
see "Formats and symbols used [→ 9]"	Identifies a reference to another text passage and specifies its page number.
• List	Designates a list.
"Command/menu item"	Indicates commands, menu items or quotations.

1.3.2 Notes to the repository

It is mandatory to keep this operating manual in an easily accessible place for the purpose of later reference. In the event of a sale of the device to another user, make sure that the device is supplied along with the operating manual, so that the new owner can get acquainted with the operation and the appropriate precautions and warnings

1.4 Scope of this operating manual

Device variants

This operating manual is valid for the following devices:

XIOS Scan

Firmware

This document is valid for a device with a firmware version from:

Version 1.1.1.1

1.5 Other relevant documents

The X-ray system includes other components, such as PC software, which are detailed in other documents. Instructions and warning and safety information provided in the following documents must be taken into account:

- Installation Instructions SIDEXIS REF 64 47 200
- User Manual SIDEXIS REF 64 47 028
- User Manual SIDEXIS plug-in for XIOS Scan REF 64 83 171
- Operator Manual for imaging plate REF 64 79 583

Keep these documents handy at all times (file them in the X-ray System Logbook in the FR of Germany).

The system installer must complete the enclosed declaration of conformity.

1.6 Warranty and liability

Maintenance

In the interest of the safety and health of patients, users and other persons, inspection and preventive maintenance must be performed at scheduled intervals to ensure the operational reliability and functional safety of your product (IEC 60601-1 / DIN EN 60601-1 etc.).

The system owner must ensure that all inspections and maintenance events take place.

As manufacturers of medical electrical equipment, we can assume responsibility for the safety properties of the system only if maintenance and repair work on the system is performed by ourselves or by agencies expressly authorized by us, and if components affecting safe operation of the system are replaced by original spare parts in case of failure.

Exclusion of liability

If the system owner fails to fulfill the obligation to have inspections and maintenance work performed or ignores error messages, Sirona Dental Systems GmbH and its authorized dealers cannot assume any liability for resulting damage.

Certificate of work

We suggest that you request a certificate, showing the nature and extent of the work performed, from those who carry out such work, and specify that the certificate show any changes in rated parameters or working ranges, as well as the date, the name of the firm and a signature.

1.7 Normal use

XIOS Scan allows the creation of digital intraoral X-ray scans generated by way of exposed imaging plates.

1.8 Indications and contraindications

The XIOS Scan System consists of the following components: The XIOS Scan System consists of the following components:

- Scanner
- Power supply
- Imaging plates (various sizes)
- Accessories
- SIDEXIS Plugin for XIOS Scan

This system, when combined with an intraoral X-ray tube assembly, is used to create digital intraoral X-ray scans. To do so, imaging plates of different sizes (depending on the indication) are positioned in the patient's mouth and exposed with an intraoral X-ray device. The plate is removed from the mouth, and placed in the scanner, while maintaining the hygienic measures. This reads the X-ray information from the imaging plate and sends it to a computer via a LAN connection.

On the computer, the image data is processed using image processing algorithms and displayed on a monitor in the SIDEXIS image processing software. After the data is transmitted, the imaging plate is automatically erased and ejected from the scanner. Thus, the imaging plate becomes available again for a new exposure.

The underlying indications for intraoral X-ray scans, and thus for the use of the X-ray imaging plates, are determined by the dentist. Sirona makes corresponding recommendations on the exposure parameters (kV, mA, time) needed for customized exposures (see Exposing imaging plates [→ 53]). The dentist subsequently diagnoses the individual radiographs.

Indications in the areas:

- Conservative dentistry
- Caries diagnosis, especially of proximal lesions
- Endodontics
- Periodontology
- Prosthodontics
- Functional diagnosis and therapy of craniomandibular dysfunctions
- Surgical dentistry
- Implantology
- Oral and maxillofacial surgery
- Orthodontics

Contraindications:

- Display of cartilage structures
- Display of soft tissue

1.9 Qualifications of operating personnel

The system may only be operated by skilled or properly trained personnel.

Personnel undergoing education or training, or who are using the unit as part of general training may only operate the unit under the constant supervision of an experienced person.

1.10 Contact information

Customer service center

In the event of technical queries, please use our online contact form at www.sirona.com. In the navigation bar, go to the menu commands "*CONTACT*" / "*Customer Service Center*" and then click the "*CONTACT FORM FOR TECHNICAL QUESTIONS*" button.

Manufacturer's address

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e-mail: contact@sirona.com
www.sirona.com



2 Safety Instructions

2.1 General safety information

- Read this operating manual carefully before operating the device and observe the safety instructions.
- Observe the applicable documents listed in this operating manual.
- Observe the local laws and regulations when operating the device. The operator is responsible for the trouble-free use of the device for the purpose of compliance with the regulations and guidelines.
- The installation and commissioning may only be performed by trained or instructed personnel.
- Repair and maintenance works, which are not described in this operating manual may only be performed by trained and instructed personnel.
- Before each use, check the functional safety and proper condition of the device.
- The device must not be operated in explosive or combustible areas, e.g. when using flammable anesthetics, skin cleansers or oxygen.

2.2 Protection against electric current

IMPORTANT

Interference immunity and interference resistance

- ✓ The scanner complies with the applicable IEC 60601-1-2 standard for interference immunity and interference resistance.
- The scanner is developed and tested according to the requirements of CISPR 11, Class B. It may cause radio interference in its vicinity. In this case, radio interference must be eliminated.
- Before commissioning and operation of the scanner, study the electromagnetic environment.
- Do not use the scanner near sources of excessive electromagnetic radiation, e.g. unshielded, radio frequency sources that are consciously in continuous operation, as they may affect the device function.

- Follow the appropriate standards and safety regulations when performing electrical work on the scanner.
- Have electrical work done on the scanner only by appropriately trained personnel.
- Before working on electrical components, disconnect the scanner from the power supply and secure it against unintentional restart.
- The scanner may only be connected to a properly installed power outlet.
- Before connecting the scanner, check if the mains voltage and the mains frequency of the supply mains coincide with the values specified on the scanner.

- Before commissioning, check the scanner and the electrical leads for any damage. Damaged cables, plugs and sockets must be replaced immediately.
- Never touch the patient and an open plug connection of the scanner at the same time.

2.3 Mechanical safety

CAUTION

Mechanical safety precautions

- ✓ When the slide is retracted, this prevents the operator from coming into contact with moving parts.
- Never touch the lid during operation.
- Never tamper with the safety sensors of the lid.
- Do not insert the imaging plates in the slide or remove them from the scanner by force.

2.4 Protection against laser radiation

Laser Safety

The laser is not accessible during normal operation. Allow the scanner to be opened only by trained personnel for performing maintenance work.

WARNING

Eye Injury due to Laser Radiation

- ✓ The scanner is classified as laser class 1 (casing and optics in front of the laser beam).
- Do not stare directly into the laser beam. If the laser beam is incident directly on the eye, eyesight may be damaged.
- Never open the lid in front of the slide during scanning.

WARNING

Instructions for service personnel

- ✓ If the scanner is opened and disassembled for maintenance, laser beams of class 3B are accessible. Take appropriate precautions.
- Do not stare directly into the laser beam.
- During maintenance, no persons other than the customer service engineer are allowed to stay in the room.
- Wear safety glasses all the time.

The imaging plates are scanned and read by laser. The laser is located in the housing and is not visible during normal operation. The casing may only be opened by authorized personnel.

- Laser beams can damage your eyesight! Do not stare directly into the laser beam.
- Always wear safety glasses when working with the casing open.
- Never open the casing while scanning.



2.5 Hygiene

Suitable hygienic measures must be taken to prevent cross contamination between patients, users and other persons.

Before each exposure, sanitary covers (single use devices) must be attached.

Single use devices are identified with the symbol shown on the left. They must be disposed of immediately after use. Do not use single use devices more than once.

The imaging plate is disinfected before each patient! See operating manual for imaging plate chapter Disinfection and cleaning [→ 63].

2.6 Protection from sunlight

The imaging plate is light sensitive.

Environmental requirements and measures

- Do not expose the scanner to direct sunlight.
- Do not expose the imaging plates to sunlight, light from fluorescent bulbs, or light from halogen lamps when placing them in the scanner.
- In order to avoid bright ambient light, the scanner should not be placed near windows.
- Work with low ambient lighting in the following situations (the light intensity should be 1000 Lux maximum):
 - Unpacking the imaging plates.
 - Using the bite guard.
 - Placing the imaging plate in the scanner.

Tip: Using the bite guard is recommended with bright or changeable lighting conditions.

2.7 PC system and software

The data connection to the PC must be secured during the scan process. Under Power Options on the control panel set the PC so that it never switches to stand-by operation or goes to sleep.

SIDEXIS may not be terminated until the end of the scan process. Before image acquisition, close all programs that are not required for the operation of SIDEXIS. Any programs running in the background, such as media players, print managers, backup software, etc., may cause SIDEXIS to crash during the scan. In cases of doubt, consult your system administrator.

These operating instructions are based on the assumption that you are familiar with the SIDEXIS software.

2.8 Allocation of acquisition system to patient

During routine practice, the clear allocation of the acquisition system to the patient to be examined is ensured. This also applies to the allocation of the X-rays to the patient data stored by SIDEXIS XG.

2.9 IT security

Unexpected problems and risks may occur through connecting your scanner to your IT network and these may require additional analyses.

Measure

- Have the scanner incorporated into your IT network by the responsible system administrator.
They will need to implement the measures described in the "Network installation [→ 36]" section.

2.10 Trouble-free operation

Use of this device is only permitted if it is working correctly. If trouble-free operation cannot be guaranteed, the device must be shut down, checked by authorized service personnel for malfunctions, and repaired, if necessary.

2.11 Maintenance

We suggest that you request a certificate showing the nature and extent of the work performed from those who carry out such work; it must contain any changes in rated parameters or working ranges (if applicable), as well as the date, the name of the company and a signature.

2.12 Changes and extensions to the device

Modifications to this unit which might affect the safety of the system owner, patients or other persons are prohibited by law.

For reasons of product safety, this product may be operated only with original Sirona accessories or third-party accessories expressly approved by Sirona. The user assumes the risk of using non-approved accessories.

If any units not approved by Sirona are connected, they must comply with the applicable standards, e.g.:

- Any PC which is set up within the patient environment must be approved for medical units in accordance with IEC 60601-1.
- Any PC which is set up outside the patient environment may be approved for data-processing units in accordance with IEC 60950-1.

In case of doubt, contact the manufacturer of the system components.

2.13 Combination with other units

Permissible combinations are specified in the Declaration of Conformity by the system integrator.

2.14 Compliance

Any person who assembles or modifies a medical electrical system complying with the standard EN 60601-1 by combining it with other equipment is responsible for ensuring that the requirements of this regulation are met to their full extent for the safety of the patients, the operators and the environment.

2.15 Radiotelephones

Mobile RF communications equipment can affect electro-medical equipment. Therefore, the use of mobile wireless phones in medical office or hospital environments must be prohibited.

2.16 Electrostatic discharge

Protective measures

Electrostatic discharge (abbreviated: ESD – **E**lectro**S**tatic **D**ischarge)

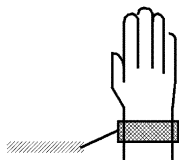
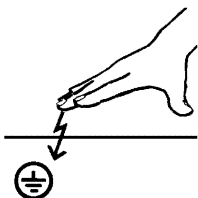
Electrostatic discharge from people can damage electronic components when the components are touched. Damaged components usually have to be replaced. Repairs must be performed by qualified personnel.

Measures to protect against ESD include:

- Procedures to avoid electrostatic charging via
 - air conditioning
 - air humidification
 - conductive floor coverings
 - non-synthetic clothing
- discharging the electrostatic charges from your own body through contact with
 - a metallic unit casing
 - a larger metallic object
 - any other metal part grounded with the protective earth

Endangered regions are indicated on the unit by the ESD warning label:

We recommend that all persons working with this system are made aware of the significance of the ESD warning label. A training course should also be held to inform users about the physics of electrostatic charges.



Physics of electrostatic charges

An electrostatic discharge requires prior electrostatic charging.

There is a danger of electrostatic charges building up whenever two bodies rub against each other, e.g. when:

- walking (soles of shoes against the floor) or
- moving (chair casters against floor).

The amount of charge depends on several factors: The charge is:

- higher at low air humidity than at high air humidity, and
- higher with synthetic materials than with natural materials (clothing, floor coverings).

The following rule of thumb can be applied to assess the transient voltages resulting from an electrostatic discharge.

An electrostatic discharge is:

- perceptible at 3,000 V or higher
- audible at 5,000 V or higher (cracking, crackling)
- visible at 10,000 V or higher (arc-over)

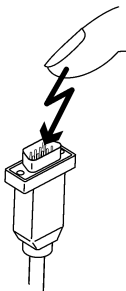
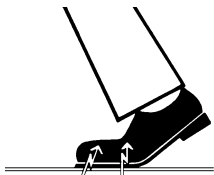
The transient currents resulting from these discharges have a magnitude of over 10 amps. They are not hazardous for humans because they last for only several nanoseconds.

Tip: 1 nanosecond = 1/1,000,000,000 second = 1 billionth of a second

Voltage differentials exceeding 30,000 volts per centimeter may lead to a charge transfer (electrostatic discharge, lightning, arc-over).

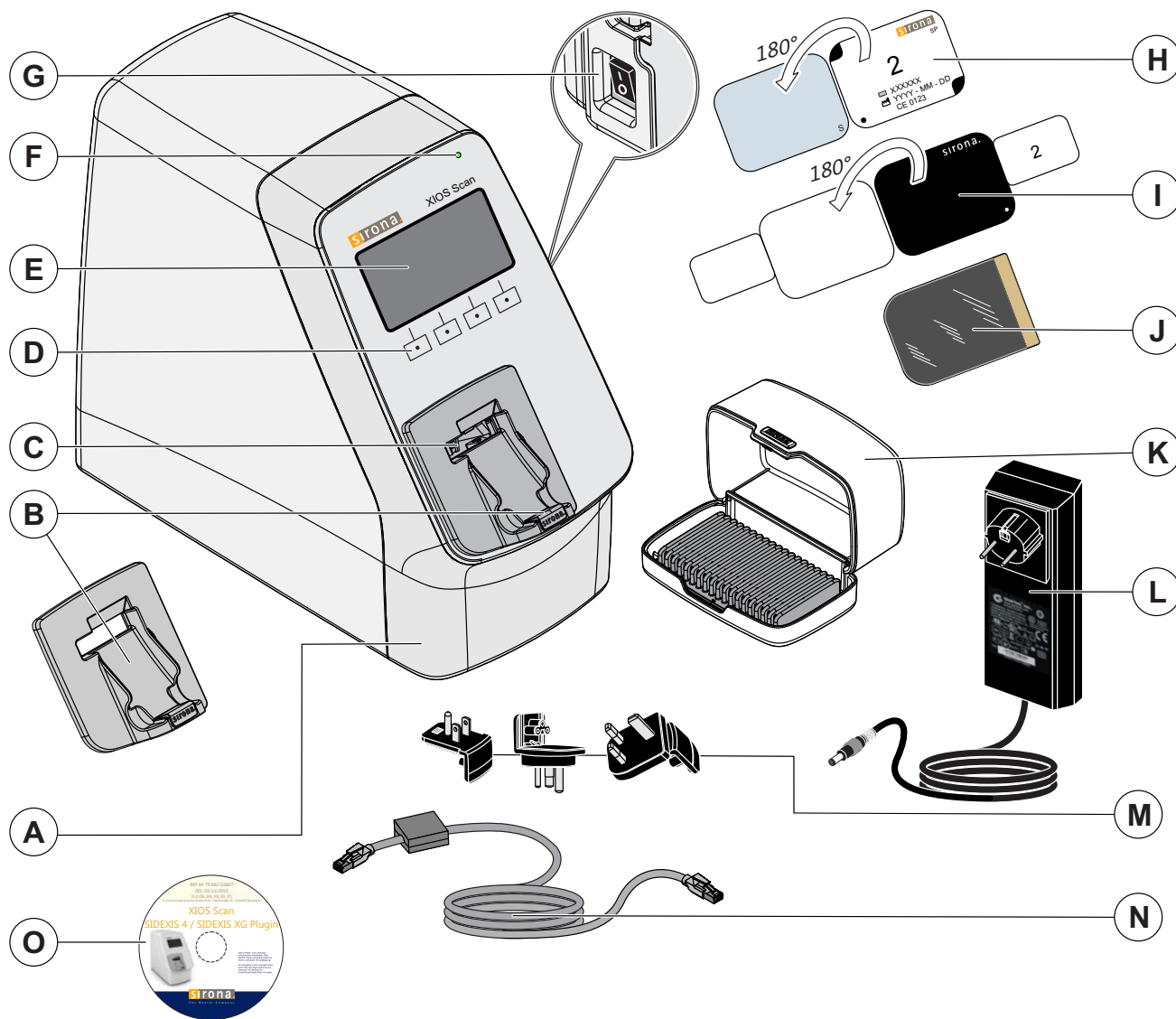
Integrated circuits (logical circuits and microprocessors) are used in order to implement a wide variety of functions in a device. The circuits must be miniaturized to a very high degree in order to include as many functions as possible on these chips. This leads to structure thicknesses as low as a few ten thousandths of a millimeter. Integrated circuits that are connected to wires leading externally are therefore particularly at risk from electrostatic discharge.

Even voltages that are imperceptible to the user can cause breakdown of the structures, thus leading to a discharge current that melts the chip in the affected areas. Damage to individual integrated circuits may cause malfunction or failure of the unit.



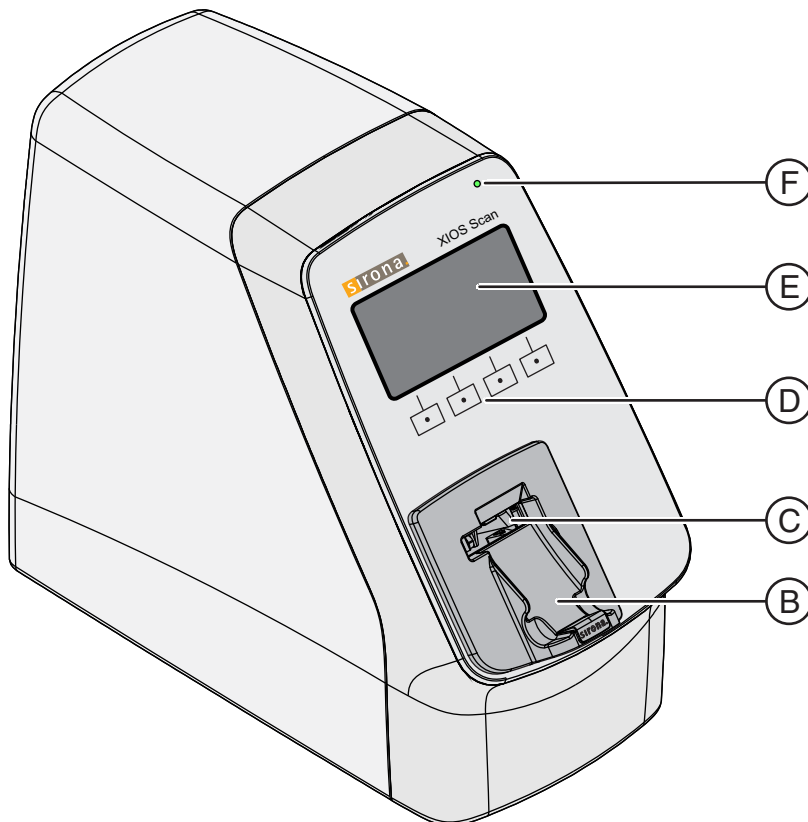
3 System description

3.1 System design



A	Scanner	I	Bite protection
B	Collection tray	J	Provision of
C	Slide / lid	K	Transport case
D	Control keys	L	Power supply unit with adapters
E	Display	M	Adapter
F	Ready LED	N	LAN cable with ferrite
G	Power switch (rear side)	O	CD with SIDEXIS Plugin for XIOS Scan
H	Imaging plate		

3.2 XIOS Scan Scanner



Ready LED

The power LED (F) indicates the operating status of the scanner:

- LED is lit up: The scanner is turned on and is ready for operation or is in standby mode.
- LED is not lit: The scanner is switched off.
- LED flashes: The scanner has an error.

Display

The display (E) shows different information, e.g. the status of the scanner or patient data. The display is not a touchscreen.

Control buttons

The scanner is controlled using the control buttons (D) beneath the display.

The functions that can be performed by pressing the keys - depending on the operating screen - are displayed on the display directly above the keys.

Collection tray

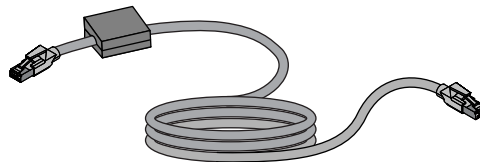
As soon as the scan process is complete, the imaging plate is ejected and falls into the collection tray (B). Multiple imaging plates can be caught in the collection tray.

Slide / lid

The imaging plate is transported to the scanner via the slide (C). The slide extends to allow the user to insert and eject the imaging plates. There is a lid in front of the slide to protect the slide. The lid opens and closes automatically.

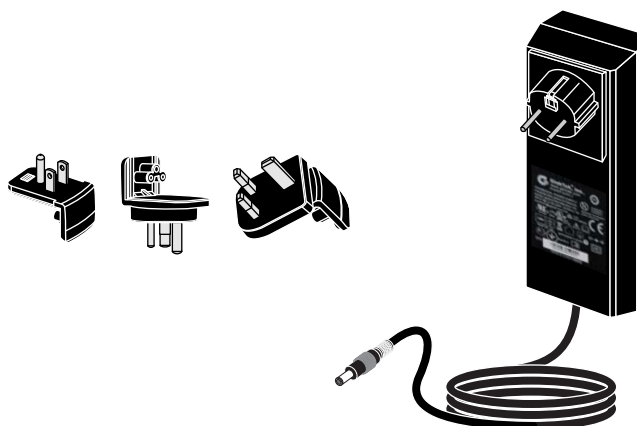
3.3 Data and supply cables

LAN cable with ferrite



Only connect the scanner to the network using the LAN cable with ferrite provided.

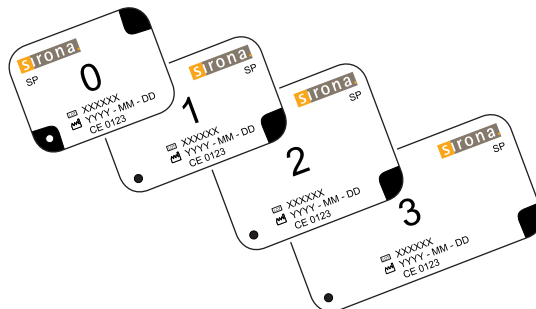
Power supply unit



With the power supply unit, the scanner is plugged into an outlet and supplied with power. The adapters provided can be used to adjust the power supply unit to the country-specific voltage values and connection systems.

3.4 Accessories

Imaging plate



The imaging plate is used as a medium for exposure to X-ray radiation, and stores the image data. The imaging plate has an active (blue) and an inactive printed side. The imaging plate must always be exposed on the active side. The image data can be erased from the imaging plate.

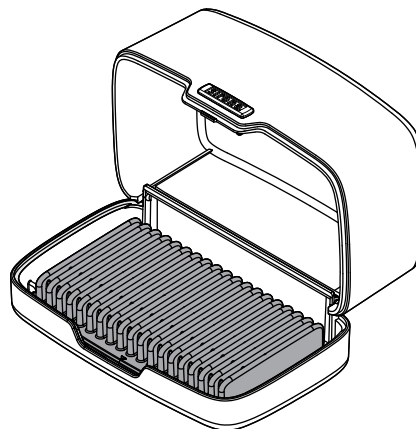
IMPORTANT

Read the imaging plates immediately after they are exposed, but no more than one hour after they are exposed.

IMPORTANT

If the imaging plates are not used for longer than one week, erase them manually before they are next used. See Erasing imaging plates manually [→ 60].

Transport case



The transport case is used to transport and store packaged imaging plates before their next use.

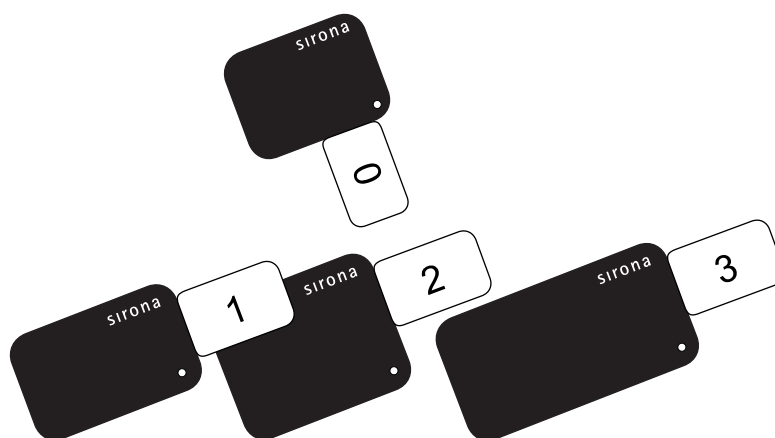
⚠ CAUTION

Risk of contamination

- Do not store exposed, unpackaged imaging plates and non-exposed, packaged imaging plates in the same transport case at the same time.
- Store non-exposed imaging plates only in a disinfected transport case.

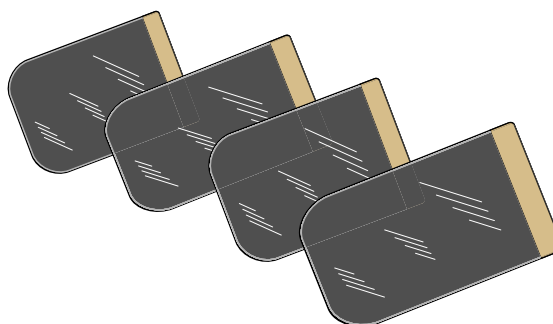
3.5 Consumables

Bite guard



The bite guard serves as additional mechanical protection for the imaging plate, as well as protection against direct sunlight when inserting the imaging plate into the scanner.

Hygienic protective sleeves



The hygienic protective sleeves protect the imaging plates against contamination and dirt from the outside environment. In addition, they protect the image data on the imaging plates from being erased by the ambient light.

3.6 Scope of delivery

IMPORTANT

Ordering spare parts and accessories

For the required order numbers, refer to the chapter Spare parts and consumables [→ 86].

- Check whether the packaging is intact at delivery.
- Check the delivery for completeness.
- Dispose of packaging in an environment-friendly manner.

The delivery contents include:

- Scanner
- Collection tray
- Power supply unit
- LAN cable with ferrite
- SIDEXIS Plugin for XIOS Scan
- Imaging plates size 0 (1x 2 pcs.)
- Imaging plates size 2 (2x 2 pcs.)
- Bite guard size 0 (1x 100 pcs.)
- Bite guard size 2 (1x 100 pcs.)
- Hygienic protective sleeves size 0 (1x 100 pcs.)
- Hygienic protective sleeves size 2 (1x 100 pcs.)
- Transport case with mat
- Technical documentation

3.7 Technical data

3.7.1 Scanner

General data		
Dimensions (L x W x H)	mm	363 x 163 x 286
Weight	kg	7.3
Heat dissipation		Self-heating about 35 °C. At ambient temperature 25° C
Pixel size (user-selectable)	µm	23 or 30*
Resolution	Line pairs/mm (LP/mm)	17 or 22*

* See the Operator's Manual SIDEXIS-Plugin for XIOS Scan for instructions on changing the resolution and pixel size

Electrical data of the scanner		
Voltage	VDC	24 ±5%
Maximum current draw	A	1.5
Power	W	< 30
Protection type		IP20
Protection class		II

Electrical data of power supply unit		
Manufacturer		GlobTek
Model number		GTM91099-6024-T3A
Voltage		
Input:	VAC : A	100 - 240 ±2% : 1.5
Output:	VDC : A	24 ±2% : 2.5
Frequency:	Hz	50 - 60
Power	W	60
Protection type		IP20
Protection class		I

Classification		
Medical device class		Class II a
Laser protection class according to EN 60825-1:2007-03; A1:2002-07 + A2:2001-03		1

Laser source		
Laser class according to EN 60825-1:2007-03; A1:2002-07 + A2:2001-03		3B
Wavelength	nm	660
Power	mW	< 12

3.7.2 Imaging plate

Dimensions of imaging plate for intraoral application		
Size 0	mm	31 x 22
Size 1	mm	24 x 40
Size 2	mm	31 x 41
Size 3	mm	27 x 54

Classification		
Medical device class		Class IIa

3.7.3 Operating and transport conditions

Scanner

operation	
Operating mode	Scan operation
Temperature	+10 to +40 °C
Relative humidity	0% – 90%
Air pressure	700 - 1060 hPa
Degree of contamination	2 according to IEC 60664-1
Max. installation height	3000 m

Storage and transport	
Temperature	-40°C – +70°C
Relative humidity	10% – 90%
Air pressure	500 - 1060 hPa
Max. storage height	3000 m

Imaging plates

operation	
Temperature	+10 to +40 °C
Relative humidity	0% – 90 %

Storage and transport	
Temperature	-40°C – +70°C
Relative humidity:	10% – 90 %

3.8 Certification

The unit, among other things, complies with the following standards. It complies with the requirements of these regulations:







- IEC 60601-1 (Electro-Medical Devices - Part 1: General Requirements for Safety)
- IEC 60601-1-2 (Medical electrical equipment - Part 1: General requirements for safety; 2. Collateral standard: Electromagnetic compatibility - Requirements and tests)








This product bears the CE mark in accordance with the provisions of the Council Directive 1993/42/EEC of June 14, 1993 concerning medical devices.

Original language of the present document: German

3.9 Symbols

Symbols attached to the unit and their meaning

Icon	Meaning
	Unit with protection class II in accordance with IEC 60601-1
 	Please refer to manual first
	CE mark in accordance with Council Directive 93/42/EEC, stating the manufacturer's Notified Body.
	Year of manufacture with manufacturer's address
	Denotes thermally disinfectable accessories.

Icon	Meaning
	Item is only approved for one-off use.
	Refers to Directive 2002/96/EC and EN 50419 Do not dispose of device with domestic waste
	Observe accompanying documents
	Alternating current
	Direct current
	PE protective ground conductor symbol grounding for protection class I
	Only suitable for indoor applications

4 Installation and startup

4.1 Transport and packaging

IMPORTANT

Only trained personnel may erect, install, and put the system into operation.

- The scanner weighs 7.3 kg.
- Do not subject the scanner to strong impacts as this may damage it.
- Check the delivery for completeness and transportation damage.
- Empty the packaging completely.

4.2 Installation

IMPORTANT

Get the installation and configuration performed only by personnel trained and certified by Sirona or our Customer Service.

Ambient conditions

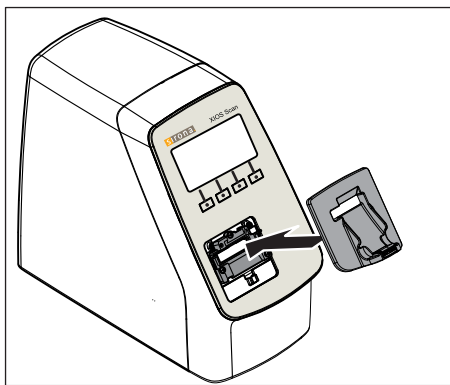
IMPORTANT

Place the scanner on a vibration-free surface to avoid errors when scanning the image data.

- Place the scanner in a shaded place. To this end, refer to Protection from sunlight [→ 15].
- The light intensity should be no more than 1000 Lux in the following situations:
 - Unpacking the imaging plates
 - Placing the imaging plate in the scanner
- The scanner and the power supply unit must be set up within the patient environment. Additional setup criteria apply for the PC (see Fitting a second protective ground conductor on the PC [→ 33])!
- Place the scanner in a dry, well-ventilated area.
- The installation room must be at room temperature.
- Do not expose the scanner to direct sunlight.
- Do not place the scanner in the direct vicinity of devices with large electromagnetic interference fields. See also Working clearances [→ 92].
- Place the scanner **only** on a stable, level, and vibration-free surface.
- Do **not** install the scanner in rooms that are exposed to volatile gases or vapors.

- Do not install the scanner if you are in doubt about its operation or state. Get the operating safety previously confirmed by a service technician.
- Inform the dentist about the recommendation to use only imaging slides from Sirona. Show the user where the information on cleaning, transport, storage, use, and safety of the Sirona imaging plates is available.

4.3 Fitting the collection tray



- Attach the collection tray. The collection tray is located in the accessories box.

4.4 Electrical connection

! WARNING

Electric shock

Only connect the scanner to a mains network with a ground conductor.

! WARNING

Electric shock

For safety reasons, use of multiple sockets is not permitted.

NOTICE

Only use the original power pack:

- Manufacturer: GlobTek
- Model number: GTM91099-6024-T34

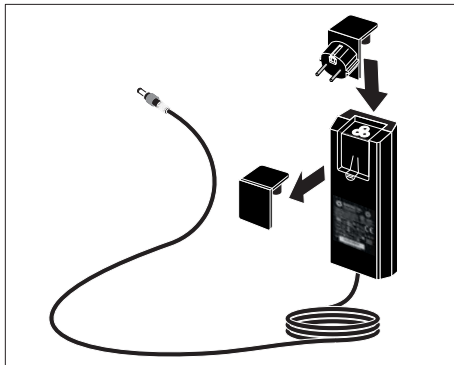
NOTICE

Only medical-electrical system components can be connected to XIOS Scan.

Following requirements must be met for the electrical connection of the scanner:

- A properly installed power outlet is available in the vicinity of the scanner.
- The power outlet is easily accessible.
- Mains voltage is in accordance with the specifications on the nameplate.

Connecting the adapter to the power supply



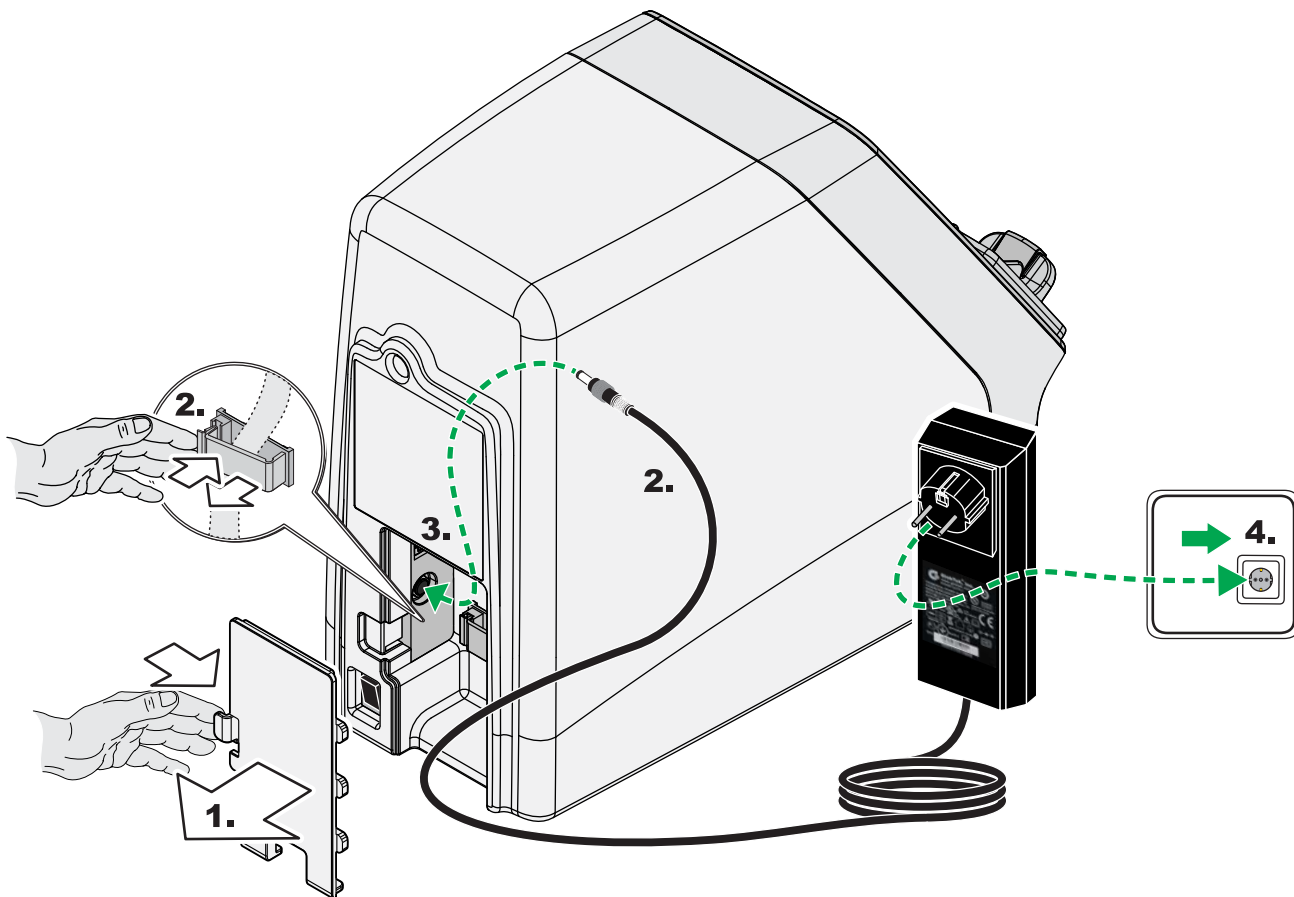
1. Remove the power supply cover cap.
2. Connect the applicable country-specific adapter to the power supply.
↳ The locking mechanism can be heard.
3. Alternatively, a matching connecting cable can be connected to the power supply instead of an adapter.

IMPORTANT

Changing tight fitting adapters!

- Note that the correct country-specific adapter is connected.
- It is possible to change the adapter by **strongly** pressing down the locking mechanism.

Electrical connection



1. Remove the cover on the back of the scanner.
2. Route the cable of the power supply unit through the cable routing clip provided.

NOTICE

Ensure that all cables are routed without kinks.

3. Plug the power supply unit into the socket of the scanner.
4. Plug the power supply unit into the outlet.

4.5 Fitting a second protective ground conductor on the PC

Depending on whether the PC is operated inside or outside of the patient environment (up to 1.5 m around the patient), an additional protective ground conductor must be provided on the PC housing.

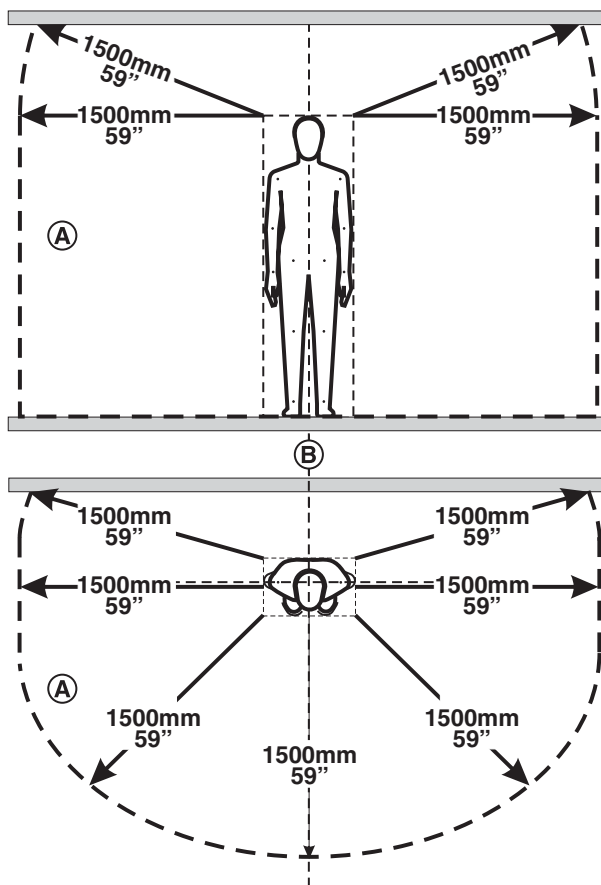
CAUTION

Leakage currents from the PC are transmitted to the scanner.

If a PC is not sufficiently grounded, there is a risk of electric shock for both the patient and the user.

- The PC must be connected to a grounded electric outlet when in operation.
- Any PC which is set up within the patient environment (up to 1.5 m around the patient) must be approved for medical units in accordance with IEC 60601-1.
- If a PC is operated within the patient environment, which is not approved according to IEC 60601-1, the PC must also be equipped with a second protective ground conductor.
- The second protective ground conductor must have a minimum cross section of 1.5 mm², the cable color must be yellow/green.
- For any PC, which is set up outside the patient environment, approval in accordance with IEC 60950-1 is sufficient for data-processing units.

Definition of the patient environment in accordance with IEC 60601-1



Within the patient environment (A), direct contact is only permissible with devices or system parts that are approved for use in the patient environment (A). This applies to all possible patient positions (B) during the examination or treatment.

Variant: PC located outside the patient environment

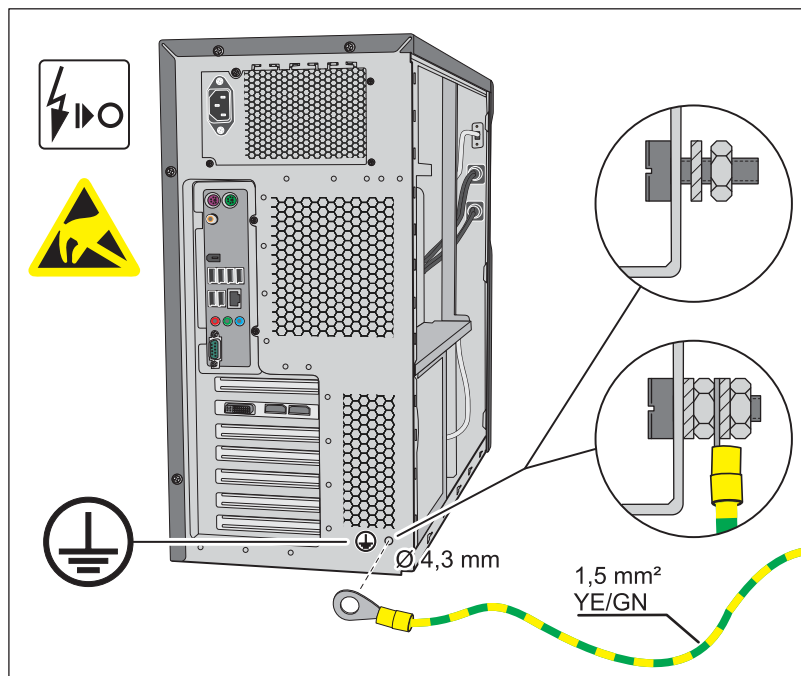
The scanner is connected to the IT network with at least one PC. PCs can be operated outside of the patient environment. In this case it is enough for the PC to be grounded via the socket outlet. Additional measures are not required.

CAUTION

The PC must not then be moved closer to the patient. A distance of 1.5 m should be maintained at all times.

Variant: PC located inside the patient environment

If the PC is operated inside the patient environment, the system integrator must fit a second protective ground conductor on the PC housing. To do this, proceed as follows:



- ✓ The PC is switched off and the mains cable removed.
- 1. Put on an ESD wrist band or discharge your body by touching an equipotential bonding conductor.
- 2. Loosen the PC housing screws and remove a PC cover. Refer to the manual for the PC.
- 3. Find a location to connect the protective ground conductor on the rear side of the metal PC housing that is readily accessible from the inside and from the outside.

NOTICE

Drilling may damage the PC.

- When drilling, ensure that no part of the PC is damaged and no swarf gets inside the PC.

- 4. Drill a suitable hole for an M4 screw at this location.
- 5. Remove any paint around the drill hole to achieve a good metal contact.
- 6. Fasten the M4 connecting screw to the PC casing firmly with a toothed lock washer and nut.
- 7. Screw down the protective ground conductor as shown.
- 8. Affix the "Grounding point" label provided next to the protective ground conductor connection.
- 9. Connect the protective ground conductor to a suitable equipotential bonding conductor.



4.6 Network installation

4.6.1 System description for the system administrator

Operate the scanner only using the LAN cable with ferrite provided.

The IT network is required for communication between the PC software and the scanner and to transfer images from the imaging plate scanner to the acquisition PC.

NOTICE

Potential problems when installing and operating the scanner on the network

Unexpected problems and risks may occur through connecting the scanner to an IT network and these may require additional analyses.

Incorporating the scanner into an IT network which includes other devices may lead to previously unknown risks for patients, operators, or third parties.

- The measures described for network installation may only be implemented by the **system administrator** responsible.
- Please find further details in the document Installation Requirements XIOS Scan, REF 65 28 140.

4.6.2 Analysis and evaluation

1. Analyze and assess whether any potential new risks may arise for your IT system through connecting the scanner to your IT network.
2. Analyze and assess whether any potential new risks may arise for the IT system through changes to the IT network.
3. Please evaluate whether security measures need to be taken for the IT network.

Analysis and evaluation aids

- Have the minimum requirements been met?

NOTICE! Faultless operation cannot be ensured if the minimum requirements are not met.

The following points must be observed when integrating the scanner into your existing IT network:

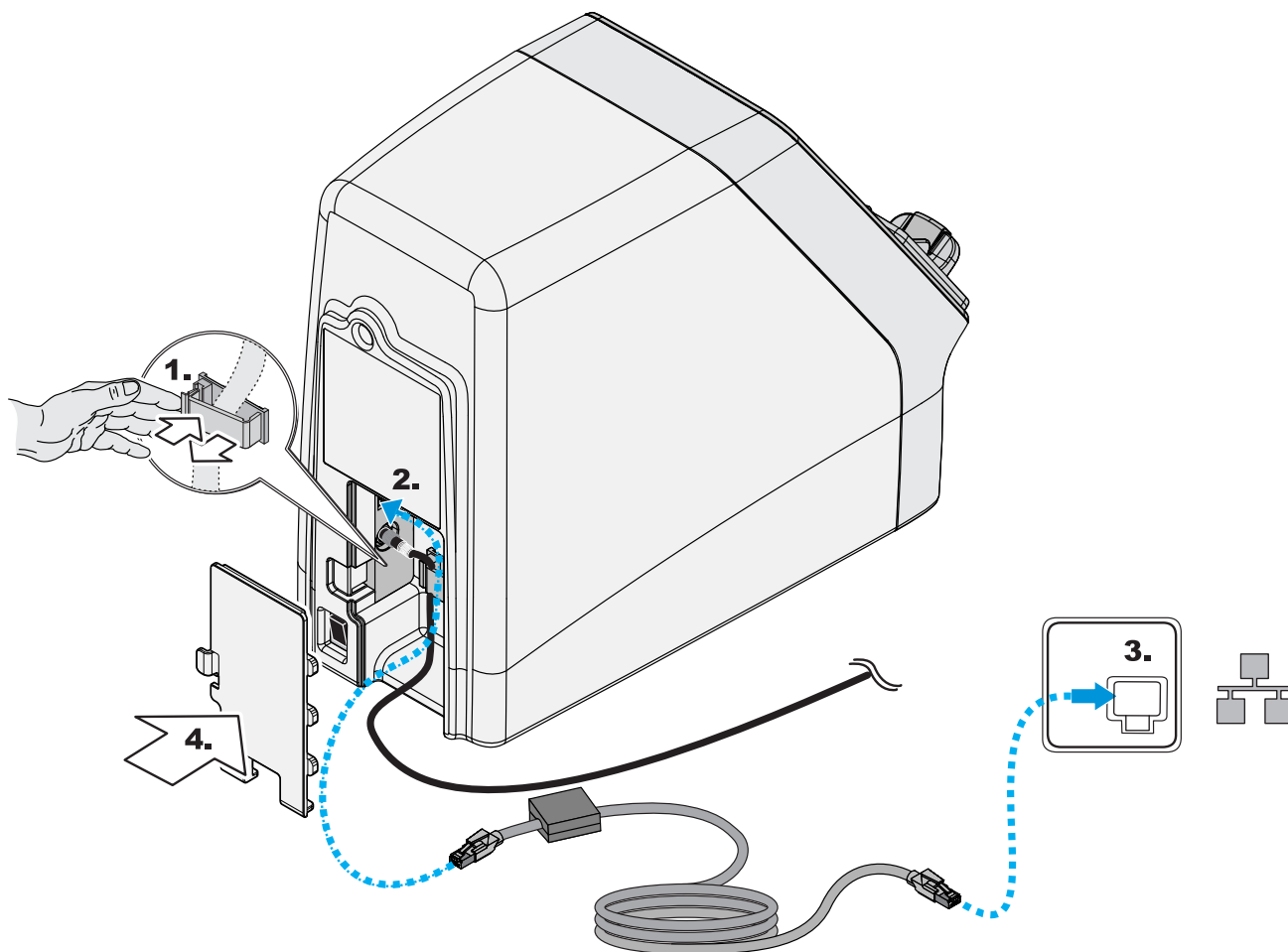
- IT-network with a minimum 100 Mbit/s transmission rate
- Free IP address

- Can changes to the IT network result in problems?

Examples:

- Changes to the IT network configuration
- Connection of additional devices
- Removal of devices
- Updates and upgrades of devices that are connected to the IT network

4.6.3 Installation



1. Route the LAN cable with ferrite through the cable routing clip provided. The end of the cable with the ferrite core must be facing towards the scanner.

NOTICE

Ensure that all cables are routed without kinks.

NOTICE

Ensure that the end of the cable with the ferrite core reaches the scanner.

NOTICE

Use only the LAN cable with ferrite provided.

2. Connect the other end of the LAN cable to the PC.
3. Replace the cover.

4.6.4 Configuring the scanner

IMPORTANT

A scanner can be controlled by more than one PC. But only one PC can be configured for a scanner.

4.6.4.1 Configuring the scanner with a direct connection to a PC

IMPORTANT

The SIDEXIS plugin for XIOS Scan is installed. See the Operator's Manual SIDEXIS Plugin for XIOS Scan for installation instructions.

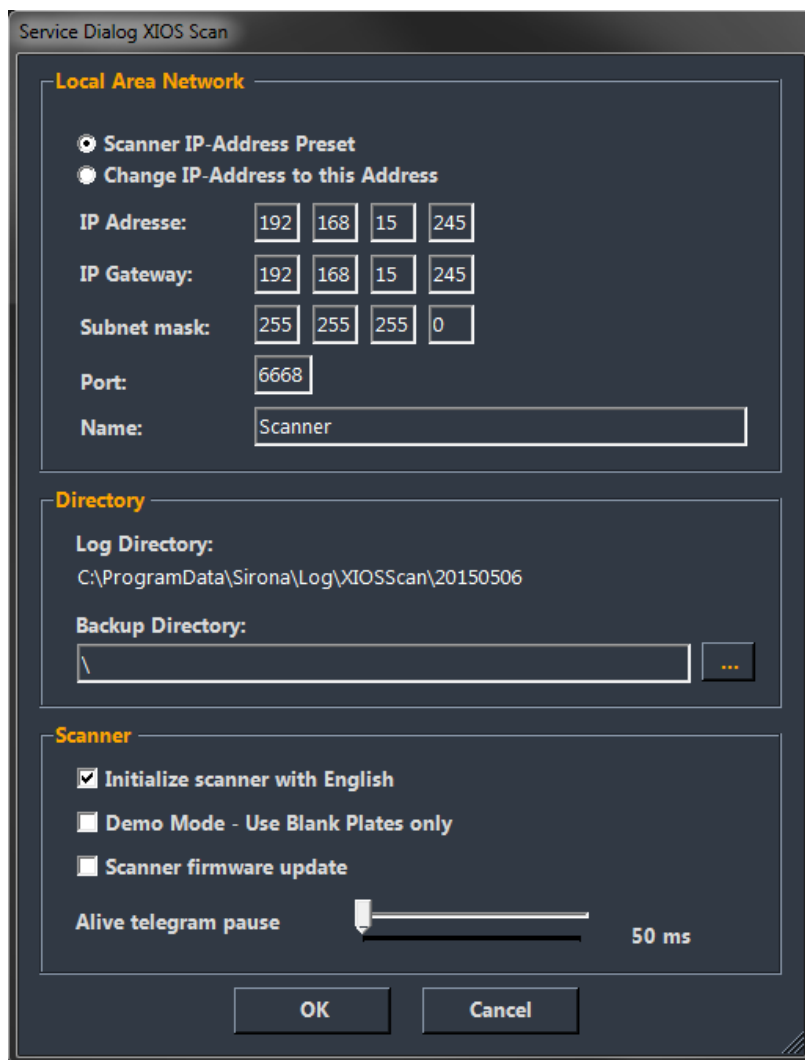
1. Stellen Sie eine Verbindung zwischen dem Scanner und Ihrem PC her, indem Sie dem PC die IP-Adresse des Scanners zuweisen.

IMPORTANT

Reading the IP address of the scanner

- In order to read the default IP address of the scanner, turn the scanner on and hold the function button (i) down for 3 seconds.
 - ↳ The IP address of the scanner is shown on the display of the scanner.

2. Start SiXABCon using the SIDEXIS Manager.
3. If several X-ray components are listed in SiXABCon, mark the scanner that is to be configured.
4. Select the "Attributes" tab.
5. Click on the "Configure..." button.
6. Enter the service password when prompted.
 - ↳ The service dialog for XIOS Scan is displayed.
 - ↳ The information is shown on the display of the scanner.



7. Enter the IP address, the subnet mas,k and the port of the scanner in the service dialog (as shown on the display).
8. For initial installation: Place a check mark in the checkbox *"Initialize scanner with English"*.
9. In the service dialog, click the *"OK"* button.

The screenshot shows a 'Status dialog' window with three main sections: 'Settings', 'Scanner Status', and 'Scanner info'. Each section contains several input fields with values. An 'OK' button is located at the bottom right of the dialog.

Section	Field	Value
Settings	IP-Address:	192.168.15.245
	IP-Gateway:	192.168.15.245
	Subnet Mask:	255.255.255.0
	Port:	6668
	Default Plate Size:	2
Scanner Status	Status:	Transfer screen number 5
	Error:	
Scanner info	Gain:	171
	Resolution:	43776
	FPGA Version:	1.0.4.1
	Firmware Version:	1.1.0.0
	Hardware Info:	0001
	Serial Number:	741-0102
	Scan Number:	404
Language:	de	

- ↳ The data entered are transferred automatically. During the data transfer, a status dialog window is displayed.
 - ↳ Once all the data has been transmitted, the status dialog window closes automatically and a confirmation dialog is displayed.
10. Click the "OK" button in the confirmation dialog that appears.
 11. Click the "OK" button to close SiXABCon.
 - ↳ The "Maintenance" message appears on the scanner display. The scanner reboots.
- ↳ The scanner configuration is complete.

IMPORTANT

Each time the configuration is modified, carry out a functional check of the scanner.

To do so, scan in an imaging plate that has not been exposed with a patient acquisition. See Reading imaging plates and sending them to SIDEXIS [→ 54].

The scan process must execute without errors.

4.6.4.2 Configuring the scanner when connected to a network

Connecting the scanner to a PC

IMPORTANT

The SIDEXIS plugin for XIOS Scan is installed. See the Operator's Manual SIDEXIS Plugin for XIOS Scan for installation instructions.

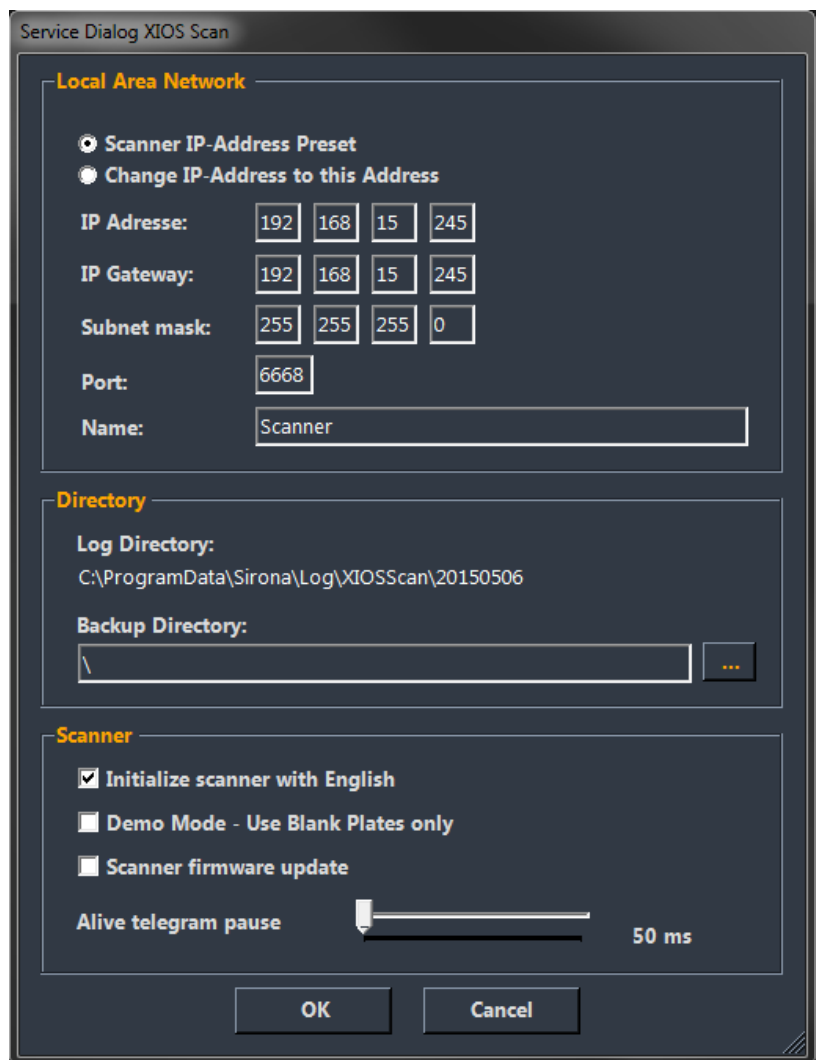
1. Read the IP address of your practice network using the system options. Note the IP address.
2. Prepare the scanner for operation in your practice network by assigning the IP address of the scanner to the PC.

IMPORTANT

Reading the IP address of the scanner

- In order to read the default IP address of the scanner, turn the scanner on and hold the function button (i) down for 3 seconds.
 - ↪ The IP address of the scanner is shown on the display of the scanner.

3. Start SiXABCon using the SIDEXIS Manager.
4. If several X-ray components are listed in SiXABCon, mark the scanner that is to be configured.
5. Select the "Attributes" tab.
6. Click on the "Configure..." button.
7. Enter the service password when prompted.



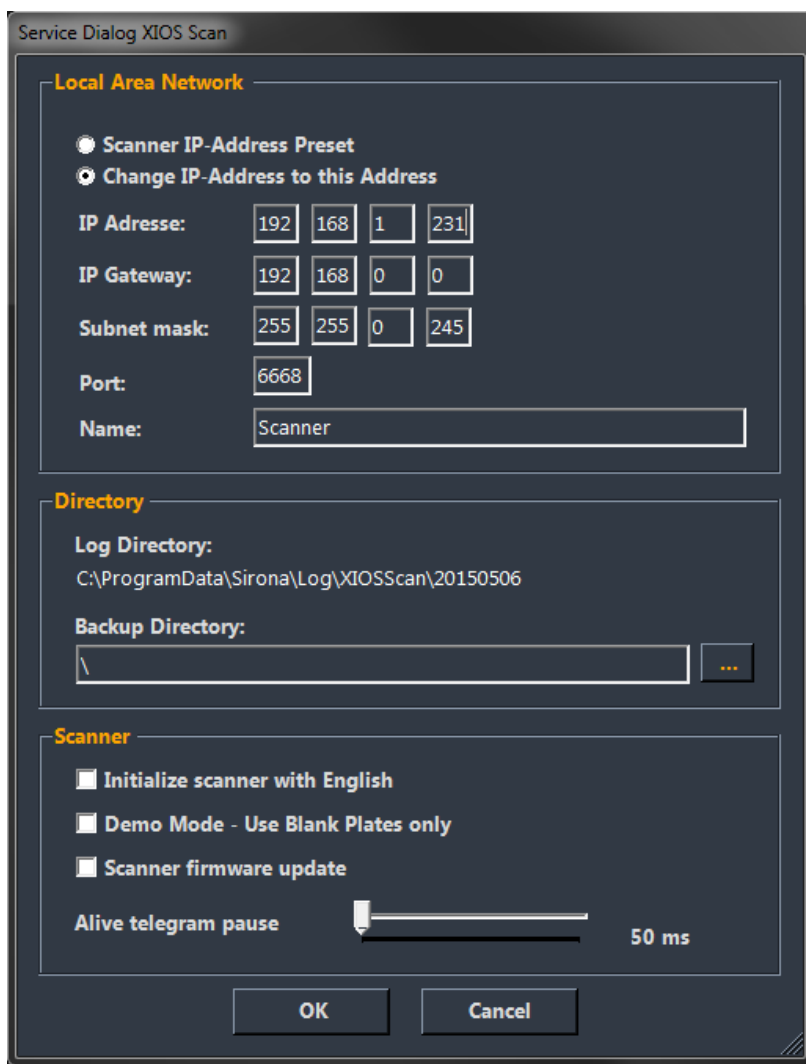
8. For initial installation: Place a check mark in the checkbox *"Initialize scanner with English"*.
9. In the service dialog, click the *"OK"* button.

Section	Field	Value
Settings	IP-Address:	192.168.15.245
	IP-Gateway:	192.168.15.245
	Subnet Mask:	255.255.255.0
	Port:	6668
	Default Plate Size:	2
Scanner Status	Status:	Transfer screen number 5
	Error:	
Scanner info	Gain:	171
	Resolution:	43776
	FPGA Version:	1.0.4.1
	Firmware Version:	1.1.0.0
	Hardware Info:	0001
	Serial Number:	741-0102
	Scan Number:	404
Language:	de	

- ↳ The data entered are transferred automatically. During the data transfer, a status dialog window is displayed.
 - ↳ Once all the data has been transmitted, the status dialog window closes automatically and a confirmation dialog is displayed.
10. Click the "OK" button in the confirmation dialog that appears.
 11. Click the "OK" button to close SiXABCon.
 - ↳ The "Maintenance" message appears on the scanner display. The scanner reboots.

Changing the IP address of the scanner

1. Start SiXABCon using the SIDEXIS Manager.
2. If several X-ray components are listed in SiXABCon, mark the scanner that is to be configured.
3. Select the "Attributes" tab.
4. Click on the "Configure..." button.
5. Enter the service password when prompted.
6. Change the IP address of the scanner to the IP address of your practice network.



7. Enter the IP address, the subnet mask, and the port of the scanner in the service dialog.
8. Select the "Change IP-Address to this Address" option button.
9. In the service dialog, click the "OK" button.

Section	Field	Value
Settings	IP-Address:	192.168.15.245
	IP-Gateway:	192.168.15.245
	Subnet Mask:	255.255.255.0
	Port:	6668
	Default Plate Size:	2
Scanner Status	Status:	Transfer screen number 5
	Error:	
Scanner info	Gain:	171
	Resolution:	43776
	FPGA Version:	1.0.4.1
	Firmware Version:	1.1.0.0
	Hardware Info:	0001
	Serial Number:	741-0102
	Scan Number:	404
	Language:	de

- ↳ The data entered are transferred automatically. During the data transfer, a status dialog window is displayed.
 - ↳ Once all the data has been transmitted, the status dialog window closes automatically and a confirmation dialog is displayed.
10. Click the "OK" button in the confirmation dialog that appears.
 11. Click the "OK" button to close SiXABCon.
 - ↳ The "Maintenance" message appears on the scanner display. The scanner reboots.

Connecting the PC to a network

1. Disconnect the LAN cable from the PC and connect it to the network via hub/switch.
2. Connect the PC to the network.
3. Reassign the PC to the original IP address.
 - ↳ The scanner configuration is complete.

IMPORTANT

Each time the configuration is modified, carry out a functional check of the scanner.

To do so, scan in an imaging plate that has not been exposed with a patient acquisition. See Reading imaging plates and sending them to SIDEXIS [→ 54].

The scan process must execute without errors.

IMPORTANT

Reset the scanner to the default network configuration

- Press and hold the "i" button on the scanner until the network settings are displayed.
- Also press the left button beneath the display (not labeled).
 - ↳ The message "*Reset network Settings*" and the default network configuration are shown on the display.
- In order to reset the network configuration of the scanner to the default values, press the confirm button.
 - ↳ The network configuration of the scanner is reset to the default values and the scanner is restarted.

4.7 Startup

4.7.1 Setting the X-ray device

Set the sensitivity of the x-ray device to **E**. Please refer to the manual for your intraoral X-ray tube assembly for this.

4.7.2 Perform acceptance test during commissioning

An acceptance test must be performed after installing the scanner.

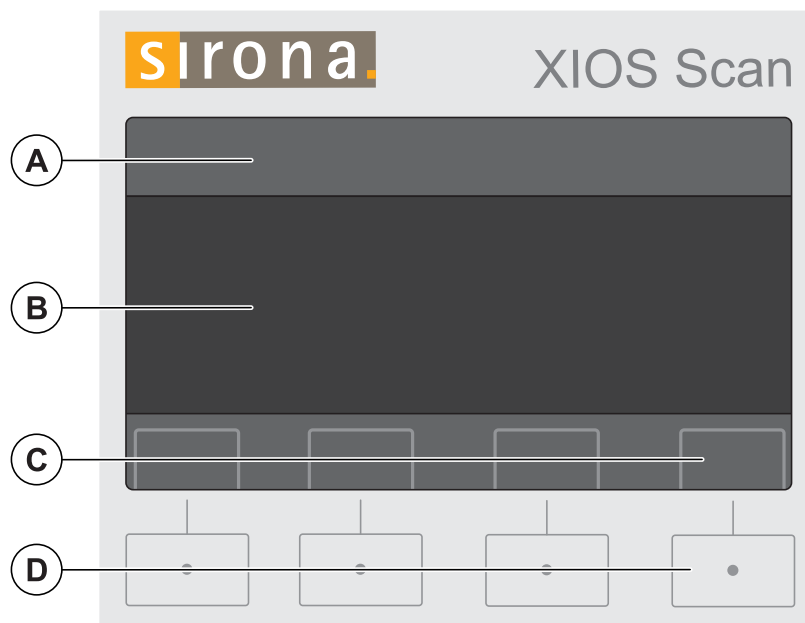
An acceptance test must be completed by a service engineer from a specialist retailer in Germany, Austria, and Switzerland.

Take sample exposures on the XIOS Scan test specimen and insert the imaging plates into the scanner. Follow the instructions in Chapter Reading imaging plates and sending them to SIDEXIS [→ 54].

5 Operation

5.1 Controls

The control panel has the following structure:



A	Info box	B	Action box
C	Icon box	D	Keypad

Info box

The info box row contains information on the order.

Action box

The action box displays ongoing or pending actions.

Icon box

The icon field shows the function of keys below the display. Depending on the action in progress, the function of the buttons changes.

Keypad

The scanner is controlled by pressing the buttons on the keypad.

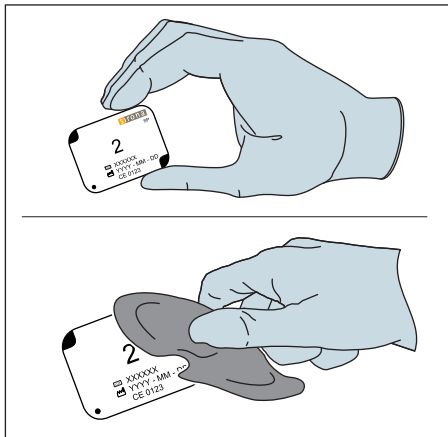
IMPORTANT

The display is not a touchscreen!

The scanner is operated solely using the keypad.

5.2 Preparing the imaging plate for an exposure

General instructions and safety instructions for working with the imaging plates



- Always wear gloves when working with imaging plates.
- Marks on the active (blue) side can reduce the image quality. Hold the imaging plate at the edges only.
- Wipe off moisture and dirt on the imaging plate gently with a dry cotton cloth.
- Protect the imaging plates from sunlight, light from fluorescent bulbs, and light from halogen lamps.

General instructions and safety instructions for working with the bite guard

WARNING

Risk of contamination and spreading of illness

The bite guard is a single use item!

- Use a new bite guard for each exposure.

General instructions and safety instructions for working with the hygienic protective sleeves

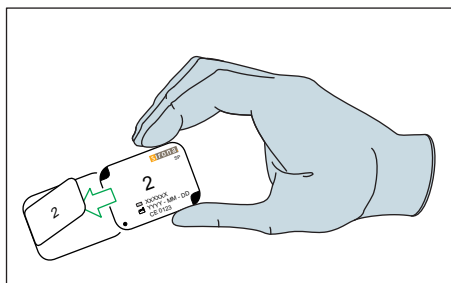
WARNING

Risk of contamination and spreading of illness

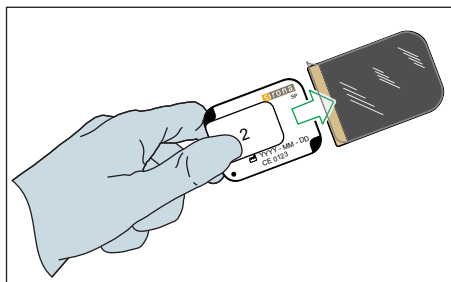
The hygienic protective sleeves are single use items!

- Use a new hygienic protective sleeve for each exposure.

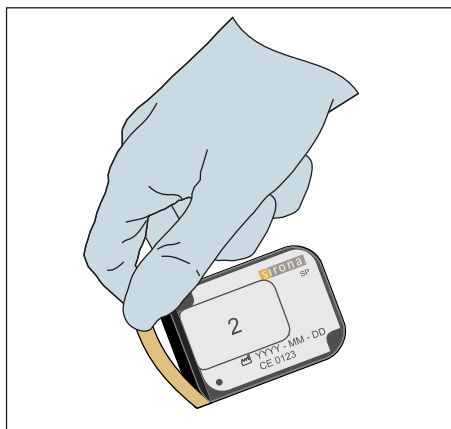
Push the imaging plate with bite guard into the hygienic protective sleeve



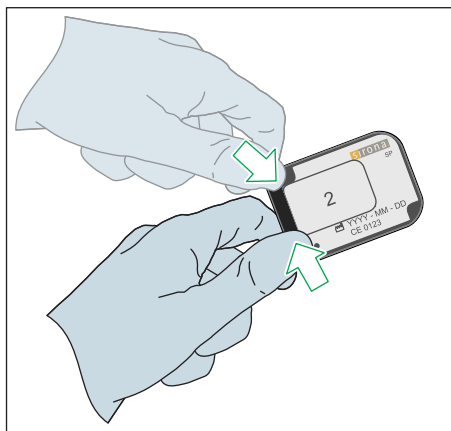
1. Select the correct sized bite guard for the imaging plate.
2. Push the imaging plate over the bite guard.



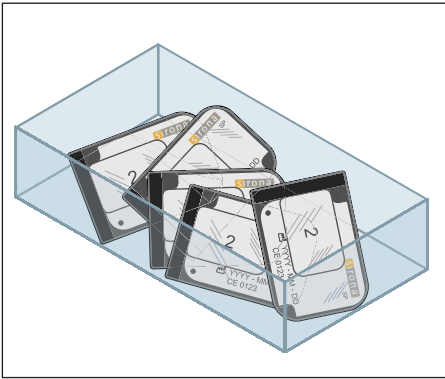
3. Select the correct sized hygienic protective sleeve for the imaging plate. Insert the imaging plate with bite guard into the hygienic protective sleeve.



4. Remove the adhesive strip from the strap.



5. Close the hygienic protective sleeve by pressing the straps together.

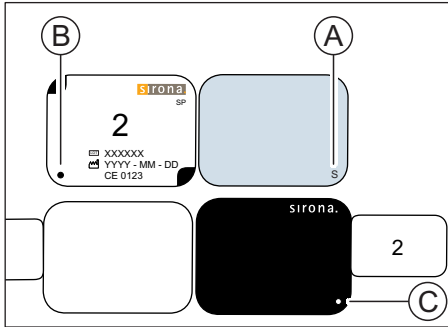


6. We recommend keeping the imaging plate in the bite guard and hygienic protective sleeve inside a suitable container until it is next used.

5.3 Positioning and exposing imaging plates

5.3.1 Aligning imaging plates

Information



To aid in the alignment, a letter "s" (pos. A) is printed on the side of the imaging plate to be exposed.

The same position is marked with a spot on the side of the imaging plate not to be exposed (B) and on the black side of the bite guard (C).

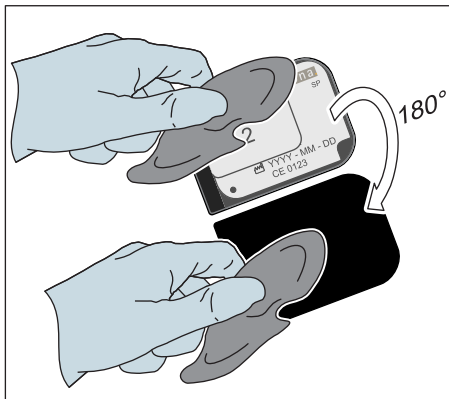


The same position is also marked on the X-ray image with a letter "s" (pos. D).

- Position the imaging plate such that the strap of the hygienic protective sleeve does not go into the patient's mouth.

Positioning the imaging plate	Alignment of the imaging plate	Inserting the plate into the scanner	Inverted S (encircled) and image alignment
Patient's right side			 Right bite wing
Patient's left side			 Left bite wing
Upper jaw			 Upper jaw anterior teeth
Lower jaw			 Lower jaw anterior teeth

5.3.2 Positioning imaging plates



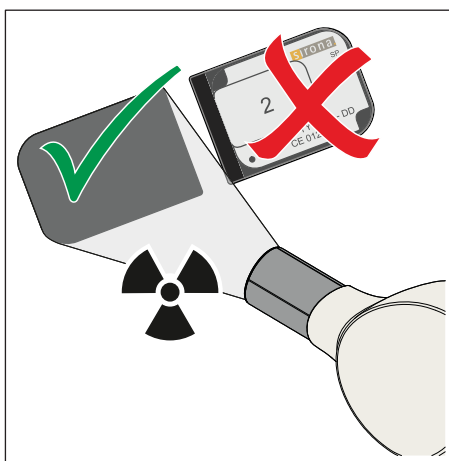
1. Take the packaged imaging plate and rub it with an ethanol-based disinfectant wipe.
2. Position the packaged imaging plate in the patient's mouth. See Aligning imaging plates [→ 51].

IMPORTANT

Using the bracket system

Position the imaging plates with a commercially available bracket system.

Since the positioning of the imaging plates in the beam path of the cone strongly influences the image quality, using the parallel technique with film holders is recommended for optimal positioning of the imaging plates.



IMPORTANT

The active, blue surface of the imaging plate – packaged in the bite guard and hygienic protective sleeve – must always face towards the X-ray tube assembly.

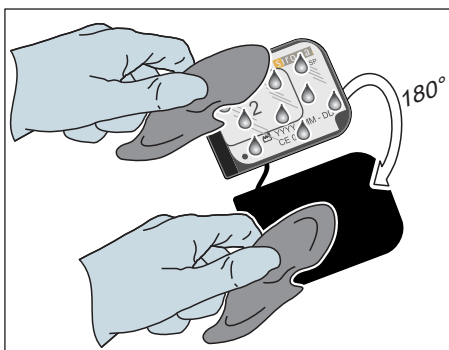
5.3.3 Exposing imaging plates

1. Trigger the radiation to expose the imaging plates

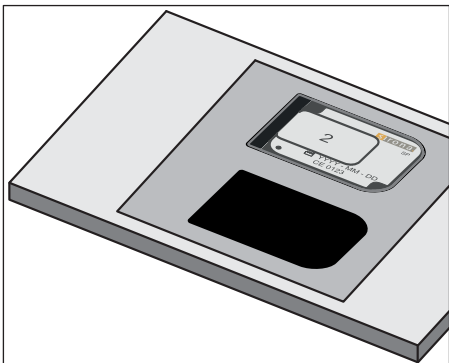
IMPORTANT

Recommended dose for XIOS Scan imaging plates

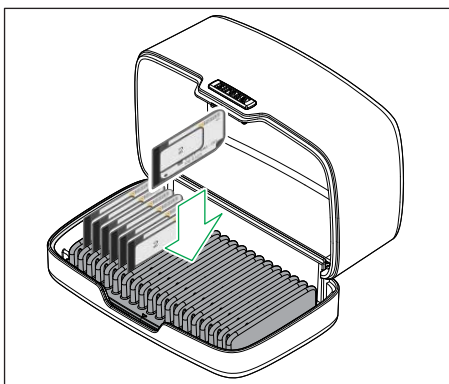
For exposure parameters, please refer to the operating instructions supplied with the X-ray tube assembly. For XIOS Scan imaging plates, observe the preprogrammed exposure times for films of sensitivity class E.



2. After the exposure, remove the packaged imaging plate from the patient's mouth and rub it with a disinfectant wipe.



3. Allow the disinfectant to fully take effect and dry.



4. Store the exposed imaging plate (still in its packaging) in the transport case provided. To do so, insert the imaging plates from back to front in the transport case mat.

↪ The imaging plate is ready for the scan process.

IMPORTANT

In order to achieve optimal image quality, read the imaging plate immediately after creating the exposure, but no later than one hour after the exposure.

CAUTION

Risk of contamination

- Do not store exposed, unpackaged imaging plates and non-exposed, packaged imaging plates in the same transport case at the same time.
- Store non-exposed imaging plates only in a disinfected transport case.

IMPORTANT

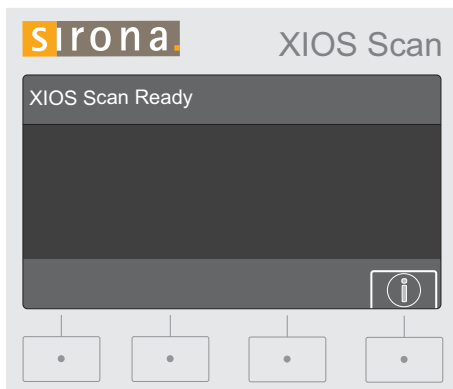
Cleaning the transport box

- Clean and disinfect the transport box and mat regularly, see Cleaning and disinfecting the transport case [→ 67]

5.4 Turning on the scanner



- Switch on the scanner.
- ↻ In the course of the boot process with self-diagnosis, the power LED will blink and the scanner will display the SIRONA logo.



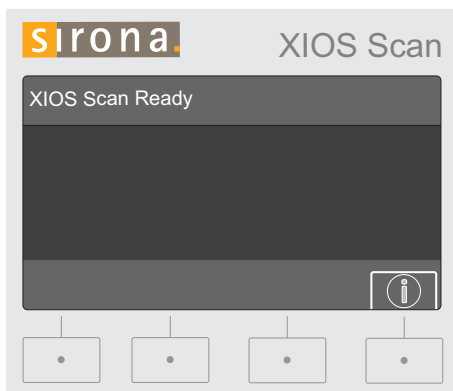
- ↻ After the boot process, the scanner is ready for use. The standard display *""Scanner Name" Ready"* will appear.

If the scanner has not been used for a predefined period, it will switch to standby mode. The time it takes to enter standby mode can be specified in the settings dialog. See Settings [→ 69].

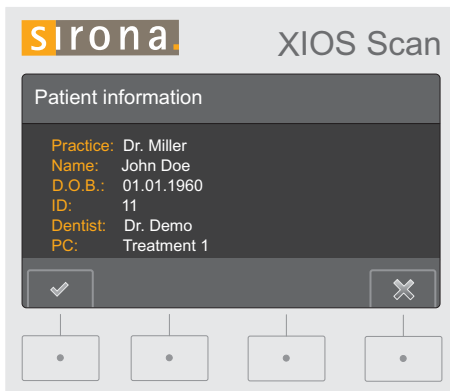
IMPORTANT

The scanner will only switch to standby mode if there are no rescue exposures and no errors.

5.5 Reading imaging plates and sending them to SIDEXIS

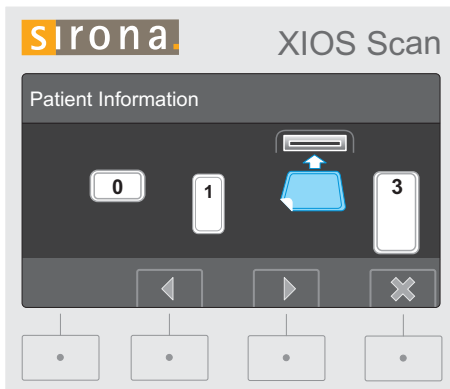


- ✓ The *""Scanner Name" Ready"* report is displayed.
- 1. Log the patient who is the subject of the exposure into SIDEXIS.
- 2. Open the SIDEXIS Plugin for XIOS Scan. Note the SIDEXIS Plugin Operator's Manual for XIOS Scan.
 - ↻ The PC is waiting for the scanned exposure.

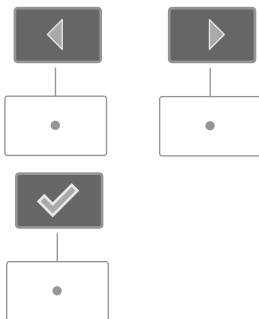


↪ The patient information is displayed.

3. Check that the patient's information is correct and confirm the order with the control button OK (check mark)
Press the Cancel control button (X) to finish the process. If the order is canceled, the scanner will wait for a new order assignment from SIDEXIS.



↪ The slide will move to the preset imaging plate size. Imaging plate size 2 is set as the default (factory settings).



4. If the imaging plate is not the preselected size, select the size of your imaging plate using the arrow buttons and confirm this with the check mark button.



↪ The slide will move to the selected imaging plate size. The selected imaging plate size will be shown in blue on the scanner's display.

NOTICE

Risk of damage to the slide

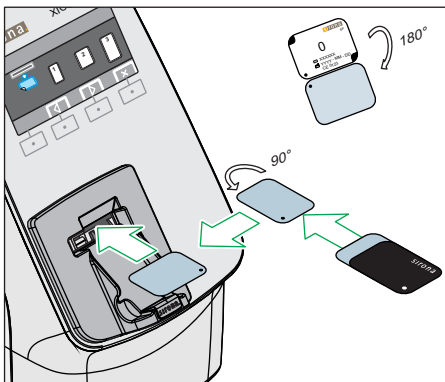
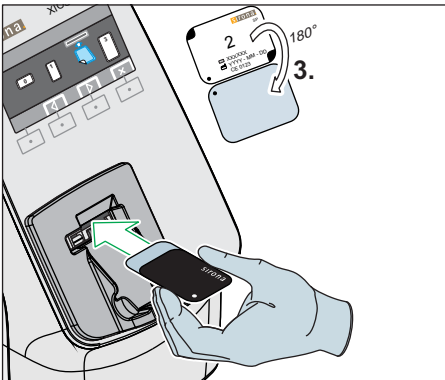
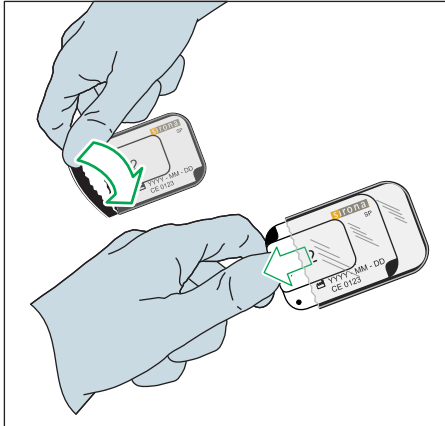
The slide mechanism can be damaged by pushing or pulling.

➤ **Never** push or pull the slide directly.

IMPORTANT

Do not touch the imaging plates

Hold the imaging plates at the edges only. Make sure that the imaging plates are inserted only in a dry and clean condition into the slide. Remove moisture and dirt on the imaging plate with a dry, lint-free cloth.



1. Remove the packaged imaging plates from the transport case individually.
2. Gently tear open the hygiene protection cover at the perforation to remove the imaging plate with the bite guard.
IMPORTANT! The bite guard helps protect the imaging plate from light and damage.

3. Let the imaging plate slip out of the bite guard directly into the slide. Make sure that the blue, exposed side is facing up.

IMPORTANT

Make sure that the correct imaging plate size has been selected before placing the imaging plate into the scanner.

IMPORTANT

If the imaging plate is inserted with the non-exposed side facing upwards, the scanner will issue an error message and the imaging plate will be ejected.

IMPORTANT

Correct alignment for imaging plate 0.

Imaging plate 0 may **not** be placed into the slide with the short side (upright).

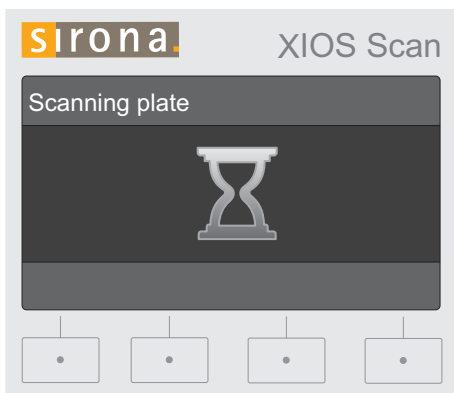
- Always place imaging plate 0 into the slide with the long side.

IMPORTANT

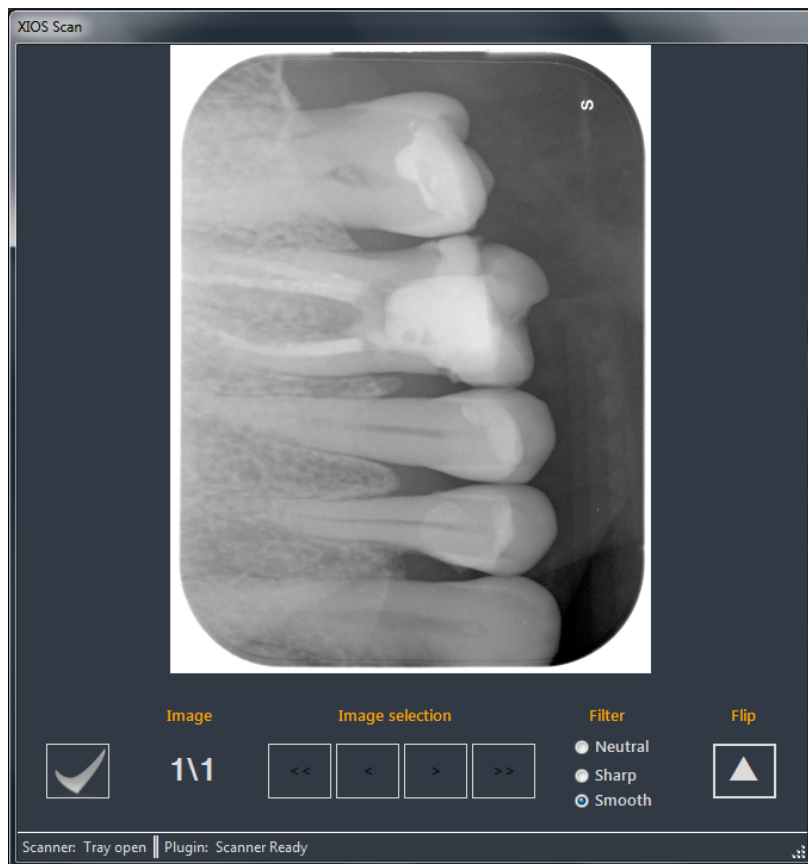
Make sure that the positioning spot is positioned properly!

The positioning spot must be facing towards the user.

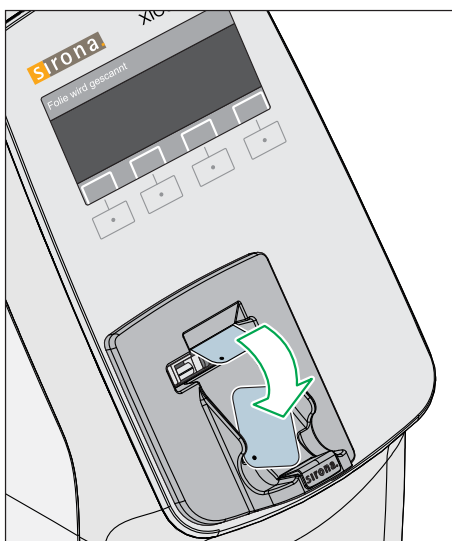
- ☞ After the imaging plate is inserted, the slide will automatically retract. The panel is closed and the scan process will start.



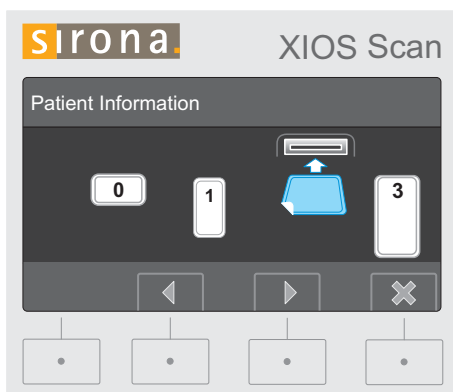
↪ A sand timer will show that the imaging plate is being scanned.



↪ The scanned image will appear in the SIDEXIS Plugin for XIOS Scan on the PC monitor.
For further information, see the Operator's Manual SIDEXIS Plugin for XIOS Scan.



- ↪ As soon as the exposure has been scanned, it is automatically erased. The erase process is visible as the erasing lamp lights up above the retracted slide. As soon as the exposure has been erased, the imaging plate is ejected.



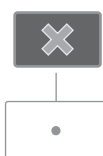
- ↪ The scanner is once again ready to accept exposures. Further imaging plates can be scanned.

4. To scan further imaging plates, repeat steps 1-4.

Finishing the scan process

After scanning the last imaging plate, the scan process on the scanner is complete.

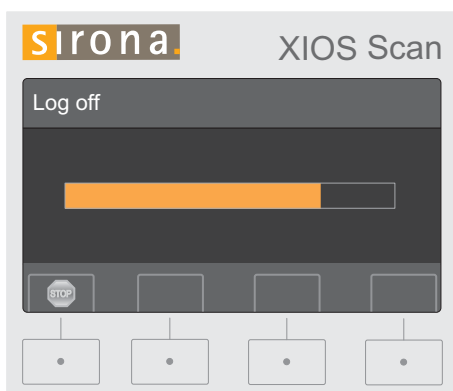
1. Press the Cancel key.



- ↪ The scan process is finished and the slide will retract.

- ↪ A progress bar relating to the logoff process is shown on the display of the scanner.

2. Press the "Stop" button on the control panel of the scanner to cancel the logoff process on the scanner. The patient will then remain logged on and further imaging plates can be scanned.





↪ If the transfer of the exposures to SIDEXIS has been successful, a green check mark is displayed in the SIDEXIS Plugin for XIOS Scan.

3. Click on the *"Green check mark"* in the SIDEXIS Plugin for XIOS Scan to finish the scan process.
You can click on the green check mark while the logoff process on the scanner is still running. This will accelerate the logoff process.

↪ The exposures are transferred to SIDEXIS and can now be processed as normal.



5.6 Further processing of exposures on the PC

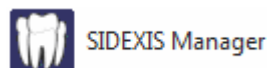
Note the SIDEXIS Plugin Operator's Manual for XIOS Scan.

5.7 Erasing imaging plates manually

If the imaging plates are not used for longer than one week, erase them manually.

SIDEXIS Manager startup for SIDEXIS 4

1. Click on the toothed wheel icon (A) in the header line.
 - ↳ The "General Setting" window opens.
2. Open the SIDEXIS Manager.

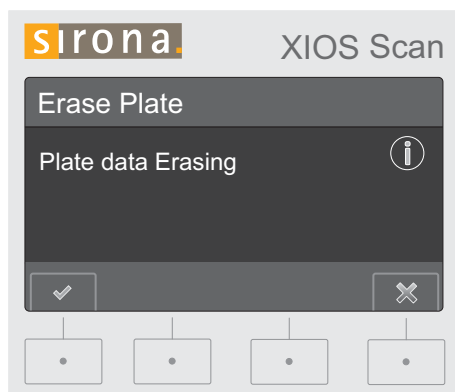
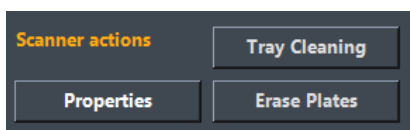


SIDEXIS Manager startup for SIDEXIS XG

- Start the SIDEXIS Manager via "start" > "Programs" > "SIDEXIS" > "SIDEXIS Manager"

Erasing imaging plates

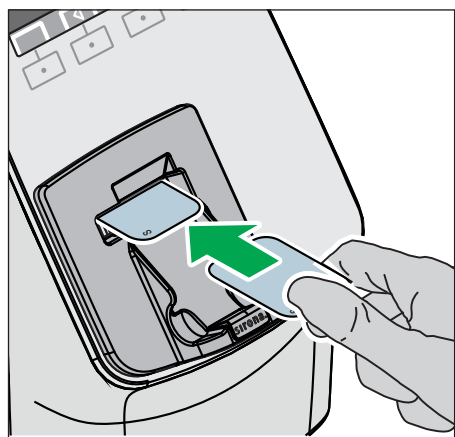
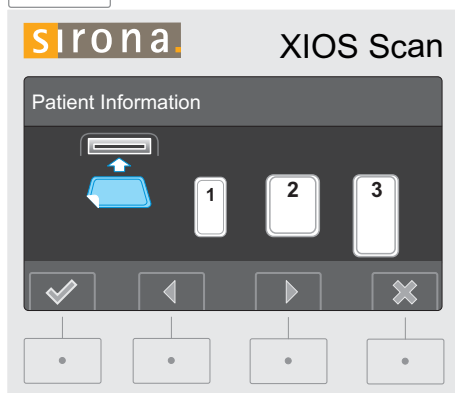
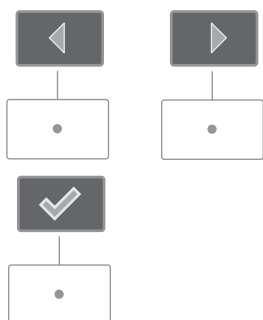
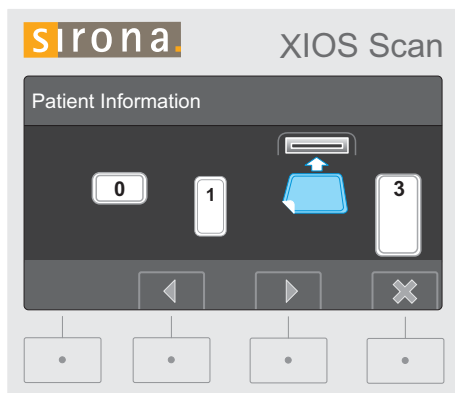
1. Click on SIDEXIS Manager in the "XIOS Scan Configuration".
2. Click the "Erase Plates" button in the dialog that appears.



- ↳ The "Erase plate" message appears on the scanner display.



3. Press the Confirm button (check mark) on the scanner to confirm.



↪ The slide will move to the preset imaging plate size. Imaging plate size 2 is set as the default (factory settings).

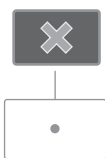
4. If the imaging plate is not the preselected size, select the size of your imaging plate using the arrow buttons and confirm this with the check mark button.

↪ The slide will move to the selected imaging plate size. The selected imaging plate size will be shown in blue on the scanner's display.

5. Insert the imaging plate to be erased in the extended slide.

↪ The scanner will start the erase process and the image data on the imaging plates is erased.

↪ You can then erase further imaging plates.



6. Finish the erase process by pressing the "Cancel" button on the scanner.
7. Close user settings for XIOS Scan by clicking on the "OK" button.
 - ↳ The scanner is once again ready to accept exposures.

5.8 Switch off the scanner

NOTICE

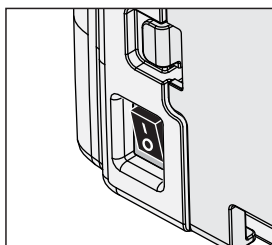
Do not turn off the scanner during the scan process

Turning off the scanner will cancel the scan process.

SIDEXIS may show an incomplete scan on the PC.

The imaging plate may become unusable.

- ✓ All scan processes have been finished.
- ✓ There is no imaging plate in the scanner.
- ✓ The slide is retracted.
- Press the power switch on the back of the scanner.



6 Cleaning and care by the dental assistants

6.1 Care, cleaning, and disinfecting agents

NOTICE

Approved care, cleaning, and disinfecting agents

Use only care, cleaning and disinfecting agents approved by Sirona!

For a continuously updated list of approved agents, please visit "www.sirona.com". To access the online portal for technical documentation, follow the "SERVICE" / "Technical Documentation" menu items in the navigation bar. The portal can also be accessed directly via the following address <http://www.sirona.com/manuals>. Click on the menu item "General documents" and then open the "Care, cleaning and disinfection agents" document.

If you do not have any access to the Internet, please contact your dental depot to order the list (REF 59 70 905).

6.2 Disinfection and cleaning

NOTICE

Damage caused by liquids

Cleaning liquid must not enter the inside of the scanner. Do **not** spray the scanner with disinfectant or cleaning solution.

IMPORTANT

Always comply with the exposure time

Liquids can damage the scanner. Cleaning fluids must be completely evaporated.

6.2.1 Cleaning and disinfecting the scanner

The casing of the scanner can be treated with the cleaning solutions and disinfectants recommended by Sirona.

1. Remove the collection tray and clean it according to the instructions (see Cleaning the collection tray [→ 64]).
2. Gently wet the surface of the scanner with a damp cloth and rub it with a disinfectant wipe.

6.2.2 Cleaning the collection tray

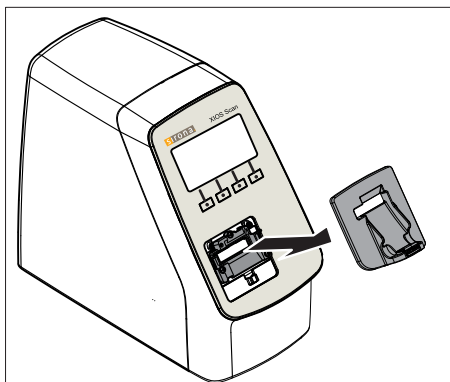
Clean the collection tray every 1-4 weeks as required.

The collection tray and the stopper can be treated with the cleaning solutions and disinfectants recommended by Sirona.

IMPORTANT

Always comply with the exposure time

Liquids can damage the scanner. The cleaning fluids must be completely evaporated before the collection tray is once again fitted to the scanner.



1. Pull the collection tray forward and out of the fastening clamp.
2. Spray the collection tray with disinfectant.
3. Leave the collection tray to dry.
4. Fit the collection tray in the holder until it locks into place.

6.2.3 Cleaning the slide

Clean the slide on a regular basis, every 1-4 weeks as required.

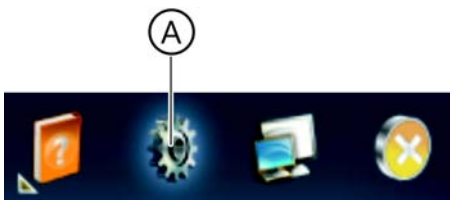
IMPORTANT

Always comply with the exposure time

Liquids can damage the scanner. Cleaning fluids must be completely evaporated.

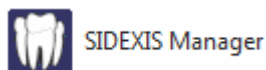
SIDEXIS Manager startup for SIDEXIS 4

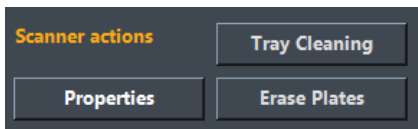
1. Click on the toothed wheel icon (A) in the header line.
 - ↳ The "General Setting" window opens.
2. Open the SIDEXIS Manager.



SIDEXIS Manager startup for SIDEXIS XG

- Start the SIDEXIS Manager via "start" > "Programs" > "SIDEXIS" > "SIDEXIS Manager"





Calling the action "Cleaning the slide"

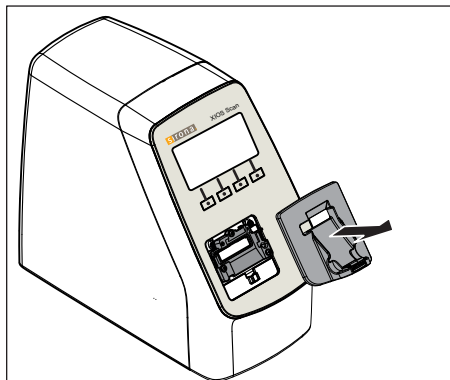
1. Click on "SIDEXIS Manager" in the "XIOS Scan Configuration".
2. Click the "Tray Cleaning" button in the dialog that appears.
 - ↳ The message will appear in the display "Use approved cleaner only. Do Not Insert Plate."
3. Press the Confirm button (check mark) on the scanner.
 - ↳ The slide will completely retract. The scanner is in cleaning mode.

Cleaning the slide

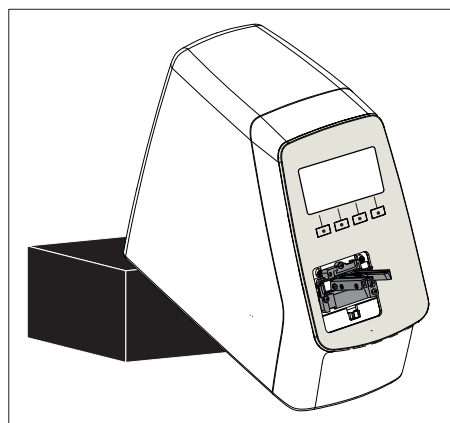
IMPORTANT

Turn off the scanner before the start of cleaning.

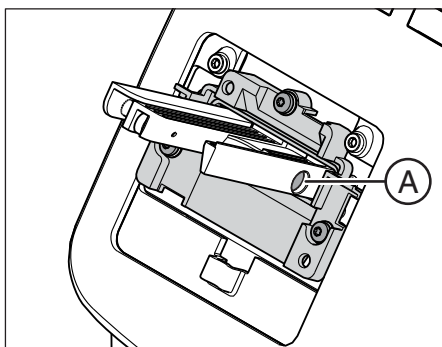
It is prohibited for any imaging plates to be located in the scanner slide during the cleaning!



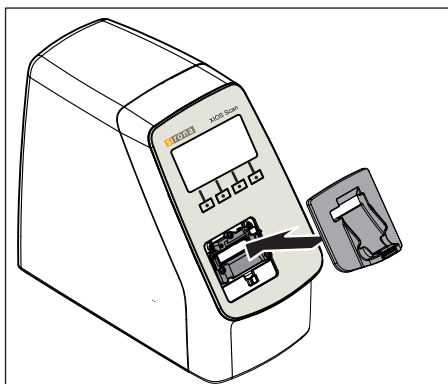
1. Pull off the collection tray.
2. Switch off the scanner.



3. Lift the back side of the scanner using a suitable support until the slide is roughly level. This prevents liquid from entering into the inside of the scanner.
4. Clean the slide by spraying or wiping it. Use isopropanol for this.
5. Allow the slide to dry.



6. If the pin (A) was moved during cleaning, push it back into the slide.
7. Turn the scanner back on.
 - ↪ The slide will retract once again.



8. Fit the collection tray once more.
 - ↪ The scanner is again ready for use.

6.2.4 Cleaning the power supply unit

Use a dry, soft cloth to remove dust from the power supply unit. More stubborn spots can be removed with a damp cloth.

You can wipe the power supply unit to disinfectant it using all products that are normally used for electromedical devices.

⚠ CAUTION

Spray disinfection may allow liquids to penetrate into the power supply unit!

The power supply unit can only be **disinfected using a wipe**. Never use a spray disinfectant on the power supply unit.

Observe the instructions provided by the manufacturers of these disinfectants.

6.2.5 Cleaning and disinfecting the hygiene protection covers

Rub the hygienic protective sleeves with an ethanol-based disinfectant wipe before and after placement in the patient's mouth.

IMPORTANT

The exposure time must be adhered to. The liquids must have dried up completely.

6.2.6 Cleaning and disinfecting the transport case

Shell and cover of the transport case

The shell and cover of the transport case can be treated with the cleaning solutions and disinfectants recommended by Sirona.

Transport case mat

⚠ CAUTION

Risk of contamination!

The transport case mat will come into contact with packaged imaging plates, which are wetted with bodily fluids.

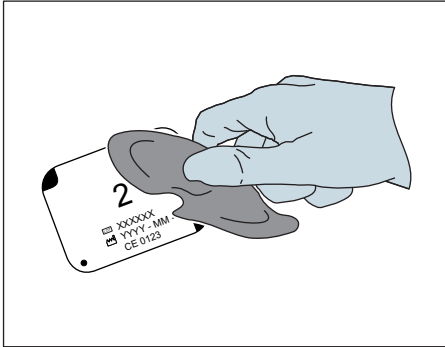
- Clean and disinfect the transport case mat on a regular basis.



Machine-based treatment may take place with dental-thermo disinfectants or automatic cleaning and disinfection systems. The cleaning program must ensure a temperature of 93 °C / 200 °F over a period of 75 minutes.

Fold out the mat during the cleaning as shown in the diagram.

6.2.7 Disinfecting imaging plates



Disinfect XIOS Scan imaging plates after each application with Ethanol-based cleaning solutions.

Clean imaging plates regularly with a soft, lint-free pulp or cotton cloth to remove dust and particles.

The imaging plate must be dry before packaging.

IMPORTANT

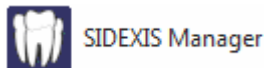
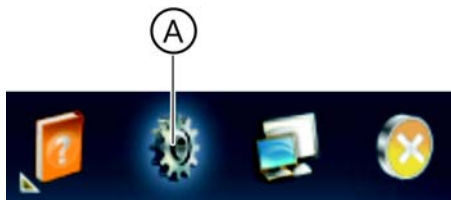
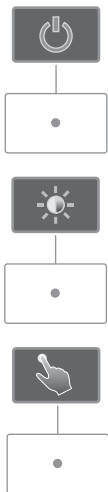
To this end, please refer to the operating manual for the imaging plate (REF 64 79 583).

7 Settings

7.1 Opening the settings dialog

In this dialog, the following device settings are possible:

- Time to standby
- Display brightness
- Keystroke



SIXELIS Manager startup for SIXELIS 4

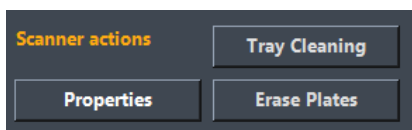
1. Click on the toothed wheel icon (A) in the header line.
↳ The *"General Setting"* window opens.
2. Open the SIXELIS Manager.

SIXELIS Manager startup for SIXELIS XG

- > Start the SIXELIS Manager via *"start" > "Programs" > "SIXELIS" > "SIXELIS Manager"*

Opening the settings dialog

1. Click on SIDEXIS Manager in the "XIOS Scan Configuration".
2. Click the "Properties" button in the dialog that appears.
 - ↳ The settings dialog is displayed on the scanner display.

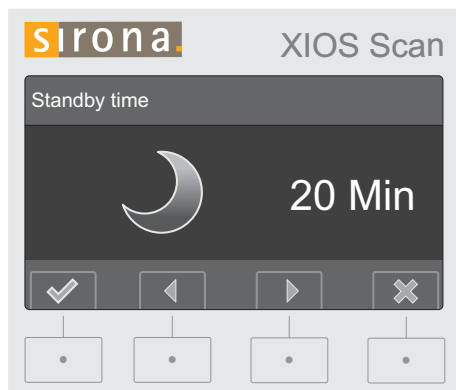


7.2 Setting the time to standby

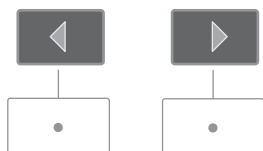
1. Press the "Standby time" key.



↳ The "Standby time" dialog window is displayed.

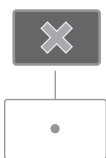


2. Press the **Increase** or **Decrease** key to change the time.



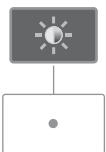
3. Confirm the settings by pressing the "Confirm" button





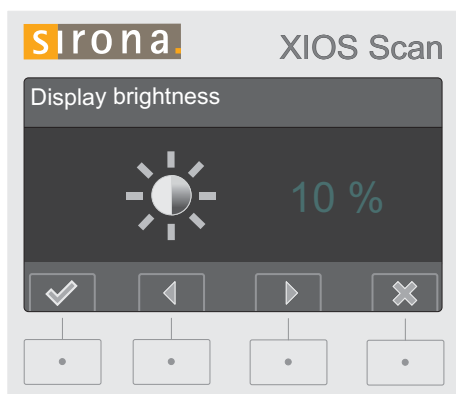
4. Complete the process by pressing the "Cancel" button.
 - ↳ You can now adjust further settings.
 - To leave the settings dialog, press the Cancel button once more.
 - ↳ The scanner is once again ready to accept the order.

7.3 Changing display brightness

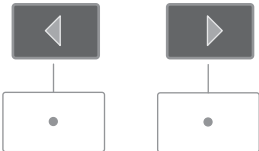


1. Press the "Display brightness" key.

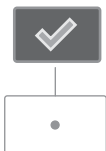
↳ The "Display brightness" dialog window is displayed.



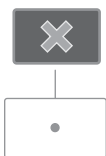
2. Press the **Increase** or **Decrease** key to change the brightness.



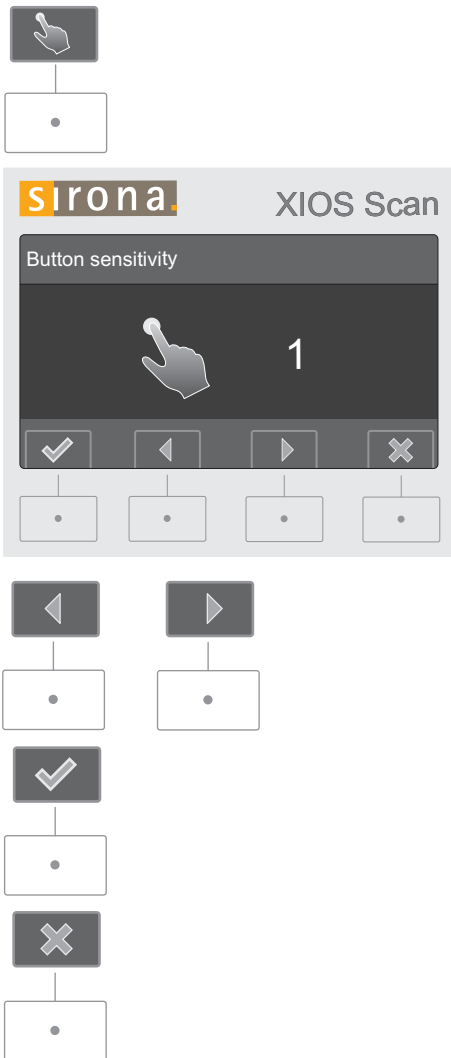
3. Confirm the settings by pressing the "Confirm" button



4. Complete the process by pressing the "Cancel" button.
 - ↳ You can now adjust further settings.
 - To leave the settings dialog, press the Cancel button once more.
 - ↳ The scanner is once again ready to accept the order.



7.4 Changing keystroke



1. Press the "Button sensitivity" key.

↳ The "Button sensitivity" dialog window is displayed.

2. Press the **Increase** or **Decrease** key to change the keystroke.

3. Confirm the settings by pressing the "Confirm" button

4. Complete the process by pressing the "Cancel" button.

↳ You can now adjust further settings.

➤ To leave the settings dialog, press the Cancel button once more.

↳ The scanner is once again ready to accept the order.

8 Maintenance

8.1 General

8.1.1 Maintenance of the unit

cleaning

The unit should be cleaned regularly by the user.

Maintenance costs for the unit

The unit is entirely maintenance-free.

Service calls

Service calls are only made upon demand in an emergency.

8.2 Regular inspections

Inspections must be performed at regular intervals to protect the health and safety of patients, users, and other persons.

- The system owner must make sure that no changes are made to the second protective ground wire connection where available.
- The operator must ensure that the casing and the cable are undamaged.

NOTICE

All parts of the device are maintenance-free. In case of malfunctioning, please always contact your specialized dealer.

8.3 Constancy test

Checking image quality

Constancy test for Germany, Austria, Switzerland

Device:

Please observe the regular checks of the image quality of your X-ray device (e.g. the X-ray Ordinance) required by law in your territory. Sirona provides you with the SIDEXIS software for the simple conducting of this constancy test and for its documentation.

The required test specimen and the description of the constancy test come with the device.

Results monitor:

In Germany a regular constancy test of the results monitor is required by the X-ray Ordinance in accordance with DIN 6868-157. Sirona provides the software SIMOCON for the simple conducting of this statutory requirement. You can find this software and the operating instructions that belong to it on your SIDEXIS CD under the section "Tools".

8.4 Annual check performed by the system owner or authorized persons

Checking image quality

The image quality should be assessed by the system owner at regular intervals, at least once a year.

If imaging plates and scanners are used, an increasing number of image post-processing operations performed with the brightness or contrast control in the image processing software (e.g. SIDEXIS) is employed as an assessment criterion.

If these assessment criteria are regarded as given irrespective of the patient's anatomy and/or possible sources of error such as patient positioning, a service engineer should be called in immediately to rectify any possible system faults.

Observe any possible additional country-specific requirements.

Labeling

- Perform a visual check to make sure that all labels on the underside of the scanner are undamaged and legible.

9 Troubleshooting and repair

9.1 Resend non-transmitted exposures to SIDEXIS

9.1.1 Explanation

General

The X-ray scans read in with the scanner are not transmitted to the database in the event of a "rescue".

There are two different cases and procedures for this:

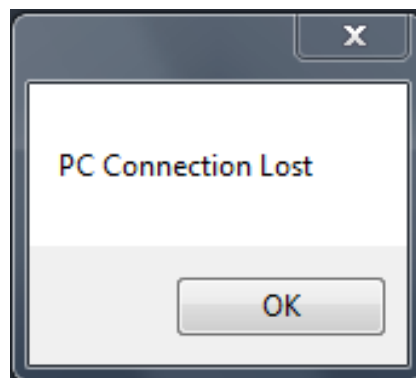
- Network fault with XIOS Scan [→ 75]
- Image transfer error [→ 78]

9.1.2 Network fault with XIOS Scan

Explanation

In case of unexpected network errors, there may be problems with image transfer between the scanner and SIDEXIS.

In this case the system closes the connection after a while (Time-out settings) and enters the so-called Rescue state.



This means that the image is not lost, but is kept in the RAM of the scanner by a safety mechanism until it is retrieved by SIDEXIS.

CAUTION

Loss of the X-ray scan

The scanner may not be switched off while in the Rescue state.

If the scanner is turned off despite this, the images will be lost. The scanner is once again ready for use after it is turned back on.

IMPORTANT**Eliminating network fault**

Determine and eliminate the cause of the network fault prior to using the scanner.

Check whether the LAN cable is correctly connected and free from damage.

If required, notify a member of the IT team.

IMPORTANT**Backing up an exposure on another computer**

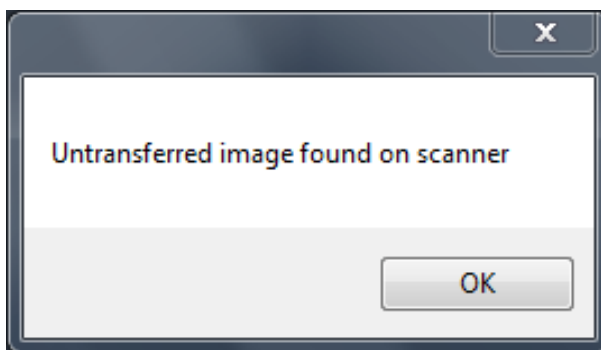
The logical connection between the scanner and the control computer will remain intact for 15 minutes after the rescue. After this, it will be separated.

Only after this can the scanner be addressed by another computer (e.g. in the case of a failure of the control computer).

Scenario 1: Collecting an X-ray exposure within 15 minutes of the occurrence of a network fault

This scenario takes place in the following case:

- Within 15 minutes of the occurrence of a network fault, the patient is once again logged on to SIDEXIS via the same computer with the missing exposure.
1. Log the patient with the missing X-ray scan into SIDEXIS.
 2. Go to intraoral readiness to scan.
 - ↳ The exposure dialog box opens.



3. Confirm this message with OK.
 - ↳ The scanner transmits the missing X-ray scans.
4. Close the scan dialog.
 - ↳ The missing X-ray scan is transmitted to SIDEXIS.

⚠ CAUTION**Restarting the scanner prior to further use**

Switch the scanner off and on again for approx. 5 s prior to further use.

Scenario 2: Incorrect patient accidentally logged on or more than 15 minutes have passed since the network fault

This scenario takes place in the following cases:

- Within 15 minutes of the network fault, another patient was logged on to SIDEXIS accidentally.

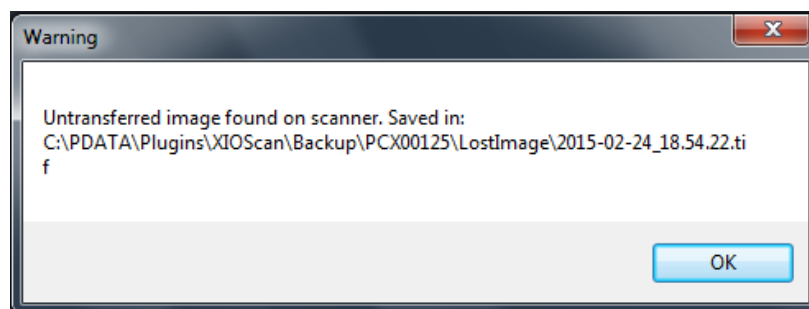
or

- Over 15 minutes have passed since the network fault occurred.

The X-ray scan is automatically copied to a back-up directory under the following path:

<PDATA>\Plugins\XIOScan\Backup\<Computer name>\LostImage

The following message is issued:



1. Confirm this message with OK.
2. Log the correct patient into SIDEXIS.
3. Import the missing X-ray scans via the SIDEXIS image import function.

IMPORTANT

Select the correct file.

- ✓ The scanner will store the raw data and the image data filtered using the standard filter specified in the user settings in the backup directory.
- Only select the files that have a filter description ("*Neutral*", "*Unionis*", "*Duae*" or "*_Filter*") at the end of the file name.

CAUTION

Restarting the scanner prior to further use

Switch the scanner off and on again for approx. 5 s prior to further use.

9.1.3 Image transfer error

Explanation

In case of an unexpected fault on the PC, there may be problems with image transfer from the scan dialog to SIDEXIS.

The scans transmitted from the scanner must then be imported subsequently via the SIDEXIS import image function.

The X-ray scans are in the PDATA directory of the SIDEXIS system under the following path:

<PDATA>\Plugins\XIOS Scan\Backup\<>Rechnername<>

Import

IMPORTANT

Select the correct file.

- ✓ The scanner will store the raw data and the image data filtered using the standard filter specified in the user settings in the backup directory.
- Only select the files that have a filter description ("*Neutral*", "*Unionis*", "*Duae*" or "*_Filter*") at the end of the file name.

1. Log the relevant patient into SIDEXIS.
2. Import the missing X-ray scans via the SIDEXIS image import function.

9.2 Error messages

If a fault occurs, an error code is issued on the display.

IMPORTANT

An error during read-out can render the images recorded unreadable. The usability of the generated images can only be estimated by the user himself.

Error code

Note the error code.

Note the instructions contained in the troubleshooting measures in chapter 9.4.

9.3 Faulty radiographs

Errors	Cause of error	Corrective action
Structures cannot be identified or can hardly be identified, X-ray image very noisy	X-ray dose is too low	Check X-ray parameters
	Exposed imaging plate was exposed to ambient light	Read the imaging plate within 30 minutes of the exposure where possible
	No image data on the imaging plate, Imaging plate not exposed	Expose the imaging plate
	Defective scanner	Inform the technician
	X-ray device is faulty	Inform the technician
X-ray image too dark or too bright	Incorrect brightness/contrast settings in the software	Adjust the brightness of the radiograph in the software
	Possible technical defect with the X-ray device, the imaging plate or the scanner	Inform the technician if there is an impermissible deviation. For clarification: In Germany, Austria, Switzerland: Perform consistency check in accordance with RÖV (German x-ray ordinance). Outside Germany, Austria, Switzerland: Perform consistency check in accordance with quality inspection.
Radiograph is a mirror image	Imaging plate exposed from the wrong side	The "Mirror" function is used to correct previously scanned exposures. See the Operator's Manual SIDEXIS Plugin for XIOS Scan Note: When taking a radiograph, make sure that active side points to the X-ray tube. Insert the imaging plates into the hygienic protective sleeves correctly (see Figure xy)
Ghosting or multiple exposures on the radiograph	Imaging plate exposed twice	Expose imaging plate only once
	Insufficient erasure	Defective erasing unit Inform a service technician

Errors	Cause of error	Corrective action
Shadows or stripes on the X-ray image	Imaging plate exposed to light before it is read	Do not handle imaging plate without hygiene protection cover
		Keep imaging plate in hygiene protection cover
		Quickly place the imaging plate on the scanner slide
		Darken the room
		Place the scanner such that no direct light falls on the input unit.
	Imaging plate pre-exposed, e.g. by natural radiation or scattered X-ray radiation	When the imaging plate was stored for more than a week, erase it again before use.
Dirty or scratched imaging plate	Dirty or scratched imaging plate	Clean the imaging plate (see Disinfection and cleaning [^ 39])
		Replace scratched imaging plate
Radiograph shows stripes	Imaging plate pre-exposed, e.g. by natural radiation or scattered X-ray radiation	When the imaging plate was stored for more than a week, erase it again before use.
	Parts of the imaging plate were exposed to light when handling	Do not keep exposed imaging plates under bright light
		Read image data within half an hour after exposure
	Dirty or scratched imaging plate	Dirty or scratched imaging plate
Replace scratched imaging plate		
X-ray image with small, bright lines and spots	Micro-scratches on the imaging plate	Replace the imaging plate
	Dirty or scratched imaging plate	Replace scratched imaging plate

9.4 Error Messages

Errors	Cause of error	Corrective action
1001 ... 1030	Line error	<ul style="list-style-type: none"> Attention: The X-ray image may be missing lines. This may possibly impair diagnostics. Note the error code and turn off the scanner. If the error appears more often, contact service, tell them the error code and do not use the scanner.
2001	Temperature increases	<ul style="list-style-type: none"> Operate the scanner in a cooler location. If the error cannot be corrected, contact service and tell them the error code.

Errors	Cause of error	Corrective action
2002	Defective power supply unit	<ul style="list-style-type: none"> • Switch the scanner off, wait 3-4 seconds and then switch it back on. • If the error cannot be corrected, contact service, tell them the error code and turn off the scanner.
2010	Extraneous light	<ul style="list-style-type: none"> • Check whether items are preventing the slide door from closing • Switch the scanner off, wait 3-4 seconds and then switch it back on. • If the error cannot be corrected, contact service, tell them the error code and turn off the scanner.
2011	Extraneous light during self-test initiation	<ul style="list-style-type: none"> • Check whether items are preventing the slide door from closing • Switch the scanner off, wait 3-4 seconds and then switch it back on. • If the error cannot be corrected, contact service, tell them the error code and turn off the scanner.
2020	Mechanical error	<ul style="list-style-type: none"> • Switch the scanner off, wait 3-4 seconds and then switch it back on. • If the collection tray has been removed, the position of the clamping jaws must be checked. • If the error cannot be corrected, contact service, tell them the error code and turn off the scanner.
2021	Mechanical error	<ul style="list-style-type: none"> • Switch the scanner off, wait 3-4 seconds and then switch it back on. • If the error cannot be corrected, contact service, tell them the error code and turn off the scanner.

Errors	Cause of error	Corrective action
2030	Mechanical error during the erase process	<ul style="list-style-type: none"> • Switch the scanner off, wait 3-4 seconds and then switch it back on. • Please note that the imaging plate may not have been completely erased. • If the error cannot be corrected, contact service, tell them the error code and turn off the scanner.
4xxx 6xxx	Electronic error	<ul style="list-style-type: none"> • Note the error code and turn off the scanner) • Contact service and tell them the error code

9.5 Extraordinary situations

Scanner not responding

If the scanner is not responding, proceed as follows:

1. Make sure that there is no imaging plate in the scanner.
2. Switch off the scanner.
3. Wait 3-4s.
4. Turn the scanner back on.

Scanner in demo mode

The scanner has a demo mode, which can be activated by the service technician.

The demo mode is shown by the text *"Demo Mode"* on the scanner display.

IMPORTANT

Exposures not transferred to SIDEXIS

If the scanner is in demo mode, a demo exposure will be displayed. No imaging plates can be scanned in demo mode.

- If the scanner is in demo mode, contact your service technician.

10 Dismantling and disposal

10.1 Disposal



Your product is marked with the adjacent symbol. Within the European Economic Area, this product is subject to Directive 2002/96/EC as well as the corresponding national laws. This directive requires environmentally sound recycling / disposal of the product. The product must not be disposed of as domestic refuse!

Please observe the disposal regulations applicable in your country.

Disposal procedure

Please note that this product is subject to the stipulations in EC Directive 2002/96 governing waste electrical and electronic equipment and must be disposed of in line with these special requirements within the European Union (EU).

Prior to disassembly / disposal of the product, it must be fully prepared (cleaned / disinfected / sterilized).

When disposing of equipment permanently, please proceed as follows:

In Germany:

To initiate return of the electrical device, please send a disposal order to "enretec GmbH".



1. You can find a form for placing a disposal order on the company's homepage (www.enretec.de) under the menu item "Entsorgung elektrischer und elektronischer Geräte" (Disposal of electric and electronic devices). The form can either be downloaded or completed online.
 2. Fill out the form with the corresponding details and send it as an online order or fax it to enretec GmbH at +49(0)3304 3919 590. You can also get in touch with the following contacts for disposal orders and any questions relating to this you may have:
Phone: +49(0)3304 3919 500;
E-mail: pickup@eomRECYCLING.com
Mailing address: enretec GmbH, Geschäftsbereich eomRECYCLING
Kanalstrasse 17, 16727 Velten
- ↳ Any nonpermanently installed equipment will be picked up at its installation site in the practice. Permanently installed equipment will be picked up curbside at your address by appointment.

All disassembly, transport and packaging costs are to be borne by the owner / operator of the equipment. The disposal itself is free of charge.

Worldwide (outside Germany):

Please contact your local dental equipment specialist for country-specific information on disposal.

11 Packaging symbols

Symbols on the packaging

Take note of the following symbols on the packaging:

Top



Protect from moisture



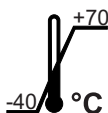
Fragile; handle with care



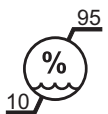
Stack limit



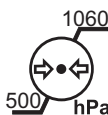
Temperature during storage and transport



Relative humidity during storage and transport



Air pressure during storage and transport



Apply fork-lift truck here



Do not apply fork-lift truck here

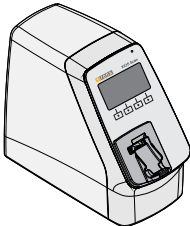








CE Mark

12 Spare parts and consumables

Hardware


Illustration	Designation	Lot size	Purchase order number
	XIOS Scan Scanner, replacement	1 pc.	6492701

Accessories


Illustration	Designation	Lot size	Purchase order number
	XIOS Scanner transport case	1 pc.	6492503
	XIOS Scan transport case mat	1 pc.	6526730
	XIOS Scan power supply unit with connection for UK, EU, Japan, Australia	1 pc.	6492727
	Cat. 6 LAN cable with ferrite	1 pc, 2 m	6547421

Consumables

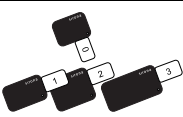
Imaging plates

Illustration	Designation	Lot size	Purchase order number
	XIOS Scan imaging plate size 0	2 pc.	6479039
	XIOS Scan imaging plate size 1	2 pc.	6479047
	XIOS Scan imaging plate size 2	2 pc.	6479054
	XIOS Scan imaging plate size 3	2 pc.	6479062

Hygienic protective sleeves

Illustration	Designation	Lot size	Purchase order number
	Hygienic protective sleeve 0	100 pc.	6479278
	Hygienic protective sleeve 1	100 pc.	6479286
	Hygienic protective sleeve 2	100 pc.	6479294
	Hygienic protective sleeve 3	100 pc.	6479302

Bite guard

Illustration	Designation	Lot size	Purchase order number
	XIOS Scan bite guard size 0	100 pc.	6490572
	XIOS Scan bite guard size 1	100 pc.	6490580
	XIOS Scan bite guard size 2	100 pc.	6490598
	XIOS Scan bite guard size 3	100 pc.	6490606

Spare parts

Designation	Lot size	Purchase order number
XIOS Scan clamping mechanism kit	1 pc.	6531300
XIOS Scan collection tray	1 pc.	6531268
XIOS Scan collection tray support	1 pc.	6531276
XIOS Scan cover for connector compartment	1 pc.	6531243
XIOS Scan erasing lamp	1 pc.	6531342
XIOS Scan rear casing section	1 pc.	6531250

13 Appendix

13.1 Electromagnetic compatibility

XIOS Scan complies with the requirements for electromagnetic compatibility (EMC) according to IEC 60601-1-2.

XIOS Scan is hereinafter referred to as "UNIT". Observance of the following information is necessary to ensure safe operation regarding EMC aspects.

13.1.1 Accessories

Designation of the interface cable:
 Ethernet cable 2 m with ferrite

The UNIT may be operated only with accessories and spare parts approved by Sirona. Unapproved accessories and spare parts may lead to an increased emission or to a reduced immunity to interference.

The unit should not be operated in the immediate vicinity of other devices. If this proves to be unavoidable, the unit should be monitored to ensure that it is operating properly.

13.1.2 Electromagnetic emission

The **UNIT** is intended for operation in the electromagnetic environment specified below.

The customer or user of the **UNIT** should make sure that it is used in such an environment.


Emission measurement	Conformity	Electromagnetic environment - guidelines
RF emissions according to CISPR 11	Group 1	The UNIT uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions according to CISPR 11	Class B	The UNIT is intended for use in all facilities, including residential areas and in any facilities connected directly to a public power supply providing electricity to buildings used for residential purposes.
Harmonics according to IEC 61000-3-2	Class A	
Voltage fluctuations / flicker according to IEC 61000-3-3	coincides	

13.1.3 Interference immunity

The **UNIT** is intended for operation in the electromagnetic environment specified below.

The customer or user of the **UNIT** should make sure that it is used in such an environment.

Interference immunity tests	IEC 60601-1-2 test level	Compliance level	Electromagnetic environment - guidelines
Electrostatic discharge (ESD) according to IEC 61000-4-2	± 6 kV contact discharge ± 8 kV air discharge	± 6 kV contact discharge ± 8 kV air discharge	Floors should be made of wood or concrete or finished with ceramic tiling. If the floor is covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst according to IEC 61000-4-4	± 1 kV for input and output lines ± 2 kV for power supply lines	± 1 kV for input and output lines ± 2 kV for power supply lines	The quality of the line power supply should be that of a typical commercial or hospital environment.
Surge voltages according to IEC 61000-4-5	± 1 kV differential mode ± 2 kV common mode voltage	± 1 kV differential mode ± 2 kV common mode voltage	The quality of the line power supply should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and variations of the power supply according to IEC 61000-4-11	<5% U_T for ½ period (>95% dip of U_T) 40% U_T for 5 periods (60% dip of U_T) 70% U_T for 25 periods (30% dip of U_T) <5% U_T for 5sec. (>95% dip of U_T)	<5% U_T for ½ period (>95% dip of U_T) 40% U_T for 5 periods (60% dip of U_T) 70% U_T for 25 periods (30% dip of U_T) <5% U_T for 5sec. (>95% dip of U_T)	The quality of the line power supply should be that of a typical commercial or hospital environment. If the user of the UNIT requires it to continue functioning following interruptions of the power supply, it is recommended to have the UNIT powered by an uninterruptible power supply or a battery.
Magnetic field of power frequencies (50/60 Hz) according to IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
Note: U_T is the AC supply voltage prior to application of the test level.			
			Portable and mobile radio equipment must not be used within the recommended working clearance from the UNIT and its cables, which is calculated based on the equation suitable for the relevant transmission frequency. Recommended working clearance:

Interference immunity tests	IEC 60601-1-2 test level	Compliance level	Electromagnetic environment - guidelines
Conducted RF disturbance IEC 61000-4-6	3 V _{eff} 150 kHz to 80 MHz ¹	3 V _{eff}	$d = [1, 2] \sqrt{P}$
Radiated RF interference IEC 61000-4-3	3 V/m 80 MHz - 800 MHz ¹ 3 V/m 800 MHz - 2.5 GHz ¹	3 V _{eff} 3 V _{eff}	$d = [1, 2] \sqrt{P}$ at 80 MHz - 800 MHz $d = [2, 3] \sqrt{P}$ at 800 MHz - 2.5 GHz with P as the power rating of the transmitter in watts (W) according to the transmitter manufacturer's specifications and d as recommended safety distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey ² should be less than the compliance level ³ in each frequency range. Interference is possible in the vicinity of equipment bearing the following  graphic symbol.

1. The higher frequency range applies at 80 MHz and 800 MHz.
2. The field strengths of fixed transmitters, such as base stations of radiotelephones and mobile agricultural radio broadcast services, amateur radio stations, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. A site survey is recommended to assess the electromagnetic environment due to fixed RF transmitters. If the measured field strength in the location in which the **UNIT** is used exceeds the applicable RF compliance level above, the **UNIT** should be observed to verify normal operation. If unusual performance characteristics are observed, it may be necessary to take additional measures such as reorientation or repositioning of the **UNIT**.
3. Over the frequency range 150kHz to 80 MHz, field strengths should be less than 3 V/m.

13.1.4 Working clearances

Recommended working clearances between portable and mobile HF communication devices and the UNIT

The UNIT is intended for operation in an electromagnetic environment, where radiated RF interference is checked. The customer or the user of the UNIT can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the UNIT - depending on the maximum output power of the communication device, as shown below.

Power rating of the transmitter [W]	Working clearance according to transmission frequency [m]		
	150 kHz - 80 MHz	80 MHz - 800 MHz	800 MHz - 2.5 GHz
	$d = [1, 2] \sqrt{P}$	$d = [1, 2] \sqrt{P}$	$d = [2, 3] \sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

The recommended safety distance d in meters (m) can be determined for transmitters, whose maximum power rating is not specified in the above table, using the equation that belongs to the corresponding column, wherein P is the maximum power rating of the transmitter in watts (W) according to the transmitter manufacturer.

Note 1

The higher frequency range applies at 80 MHz and 800 MHz.

Note 2

These guidelines may not apply in all cases. The propagation of electromagnetic waves is influenced by their absorption and reflection by buildings, objects and persons.

13.2 Data sizes (uncompressed)

The data size depends on the imaging plate format and the pixel size. The sizes stated are rounded, approximate values.

Theoretical Resolution	22 LP/mm	17 LP/mm
Pixel size (µm)	23 µm (High image quality)	29 µm (High scan speed)
Size 0	3,020 KB	1,620 KB
Size 1	4,230 KB	2,280 KB
Size 2	5,560 KB	2,990 KB
Size 3	6,360 KB	3,430 KB

For instructions on changing the resolution and pixel size, see the Operator Manual SIDEXIS Plugin for XIOS Scan.

We reserve the right to make any alterations which may be required due to technical improvements.

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