XIOS\textsuperscript{Plus} Wall Module

Operating Instructions

This product is covered by one or more of the following US patents:

- US 5,912,942
- US 5,434,418
- US 6,811,312
- US 6,069,935
- US 6,134,298
- US 5,841,126;
- US 6,549,235;
- US 6,570,617
- US 5,513,252
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Dear Customer,

Thank you for purchasing the XIOSPlus intraoral X-ray system.

The XIOSPlus wall module allows digital image acquisition of intraoral radiographs in conjunction with one or two XIOSPlus X-ray sensors.

In combination with the XIOS XG wall module adapter, you can also use the X-ray sensors XIOS XG Select USB of sizes 1 and 2 with the XIOSPlus wall module.

A PC installed with version 2.4 or higher of the SIDEXIS XG software is required to operate the XIOSPlus wall module.

Your XIOS Team

1.1 Copyright and trademark

© Sirona Dental Systems GmbH 2008. All rights reserved.

Bonjour, the Bonjour logo and the Bonjour symbol are trademarks of Apple Computer, Inc.

Components of other manufacturers

Components of the software of this product are subject to the Apache License Version 2.0.

- The terms of the license are available at http://appache.org/licenses/LICENSE-2.0
- You herewith agree to the terms of the Apache License Version 2.0.

1.2 Contents of this document

These operating instructions describe the handling of the XIOSPlus wall module.

For information on handling the X-ray sensors XIOSPlus and XIOS XG Select, please refer to the operating instructions for "XIOSPlus sensors" or "XIOS XG USB system and sensors".

1.3 General conventions

You should familiarize yourself with the unit by reading through the operating instructions before taking patient exposures. Please always observe the valid radiation protection directives and the safety information in these instructions.

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

In case you get stuck despite having thoroughly studied the operating instructions, please contact your dental depot.

To prevent any personal injury or material damage, pay special attention to any notes printed in bold type or highlighted with signal words such as NOTICE, CAUTION or WARNING:
1.4 Structure of the document

1.4.1 Identification of the 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**
Potentially dangerous situation that could result in serious bodily injury or death.

**CAUTION**
Potentially dangerous situation that could result in slight bodily injury.

**NOTICE**
Potentially harmful situation which could lead to damage of the product or an object in its environment.

**IMPORTANT**
Instructions for use and other important information.

Tip: Information for facilitating work.

1.4.2 Formats and symbols used

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

<table>
<thead>
<tr>
<th>Format</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Prerequisite</td>
<td>Requests you to do something.</td>
</tr>
<tr>
<td>1. First action step</td>
<td></td>
</tr>
<tr>
<td>2. Second action step</td>
<td></td>
</tr>
<tr>
<td>➢ Alternative action</td>
<td></td>
</tr>
<tr>
<td>% Result</td>
<td></td>
</tr>
<tr>
<td>see “Formats and symbols used [→ 6]”</td>
<td>Identifies a reference to another text passage and specifies its page number.</td>
</tr>
<tr>
<td>● List</td>
<td>Identifies a list.</td>
</tr>
<tr>
<td>“Command / menu item”</td>
<td>Identifies commands, menu items or quotations.</td>
</tr>
</tbody>
</table>
1.5 Other valid documents

The following documents are required for the operation of a XIOS\textsuperscript{Plus} wall module:

- XIOS\textsuperscript{Plus} Sensors Operating Instructions
- Operating instructions, XIOS XG USB system and sensors
- XIOS\textsuperscript{Plus} Wall Module Installation Instructions
- SIDEXIS installation guide (not included in delivery)
- SIDEXIS Operator Manual (for working with SIDEXIS software, not included in delivery).

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

The system integrator must complete the enclosed declaration of conformity.
2 Warning and safety information

Symbols used
Observe accompanying documents (on rating plate)

This symbol can be found on the rating plate on the unit.
Meaning: The accompanying documents are available on the SIRONA homepage.
This product has been designed for the digital acquisition of intraoral X-ray images.
This product must not be used in areas subject to explosion hazards.

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

USA only: Caution!
According to US Federal Law, this product may be sold only to or by instruction of physicians, dentists, or licensed professionals.
Maintenance and service recommendations

Inspection and maintenance must be performed at scheduled intervals to ensure the operational and functional reliability of your product and to protect the safety and health of patients, users and other persons. In accordance with IEC 60601-1.

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

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.

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.

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.

Modifications to the unit

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.

CAUTION! PC extensions can lead to impairment of the system's functional reliability (e.g. patient safety and electromagnetic compatibility). The guarantee of the system's functional reliability will automatically be transferred to anyone who implements a system extension which has not been expressly approved by Sirona.

Use the XIOSPlus wall module only as described in these Operating Instructions.

Combination with other equipment

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

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.

X-raying of patients

X-rays of patients must be taken only when the system works without errors.

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

Do not leave the patient at the unit unattended.

Use the XIOSPlus wall module only as described in these Operating Instructions.
Electromagnetic compatibility (EMC)  
The XIOS\textsuperscript{Plus} wall module complies with the requirements of IEC 60601-1-2.

Medical electrical devices are subject to special precautionary measures regarding EMC. It must be installed and operated as specified in the document “Installation Requirements”.

Portable and mobile RF communications equipment may interfere with medical electrical equipment. Therefore, the use of mobile wireless phones in medical office or hospital environments must be prohibited.

Allocation of acquisition system to patient  
Within the scope of practice operations, unambiguous allocation of the acquisition system to the examinee must be ensured to guarantee reliable allocation of X-ray exposures to the patient data saved by SIDEXIS!

Hygiene information  
The hygiene instructions for sensors are described in the following documents:
- XIOS\textsuperscript{Plus} Sensors Operating Instructions
- Instructions List XIOS XG - Care, Cleaning and Storage

Disturbance of electronic devices worn on the patient’s body  
To prevent the malfunctioning of electronic devices and data memories, e.g. radio-controlled watches, telephone cards etc., these objects must be removed prior to the X-ray exposure.

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.

2.1 ESD protective measures

ESD  
ESD stands for ElectroStatic Discharge.

ESD protective measures include:
- Procedures for preventing electrostatic charge build-up (e.g. air conditioning, air moistening, conductive floor coverings and non-synthetic clothing)
- Discharging the electrostatic charges of your own body on the frame of the UNIT, the protective ground wire or large metallic objects
- Connecting yourself to ground using a wrist band.

We therefore recommend that all persons working with this system be instructed on the significance of this warning label. Furthermore, they also should receive training in the physics of electrostatic discharges which can occur in the practice and the destruction of electronic components which may result if such components are touched by electrostatically charged USERS.

The content of this training is explained in the Chapter "About the physics of electrostatic charges" [→ 12].
2.2 **About the physics of electrostatic charges**

What is an electrostatic charge?

An electrostatic charge is a voltage field on and in an object (e.g. a human body) which is protected against conductance to ground potential by a nonconductive layer (e.g. a shoe sole).

Formation of an electrostatic charge

Electrostatic charges generally build up whenever two bodies are rubbed against each other, e.g. when walking (shoe soles against the floor) or driving a vehicle (tires against the street pavement).

Amount of charge

The amount of charge depends on several factors:

Thus the charge is higher in an environment with low air humidity than in one with high air humidity; it is also higher with synthetic materials than with natural materials (clothing, floor coverings).

Electrostatic discharge must be preceded by electrostatic charging.

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 10 amperes. They are not hazardous for humans because they last for only several nanoseconds.

Background

Integrated circuits (logical circuits and microprocessors) are used to implement a wide variety of functions in dental/X-ray/CAD/CAM systems.

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.

It is obvious that integrated circuits which are connected to plugs leading outside of the unit via cables are sensitive to electrostatic discharge.

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

To prevent this from happening, the ESD warning label next to the plug warns of this hazard. ESD stands for ElectroStatic Discharge.

Connector pins or sockets bearing ESD warning labels must not be touched or interconnected without ESD protective measures.
3 Technical description

3.1 General data

The XIOS Plus wall module, type D3495, was checked according to IEC 60601–1.

It complies with the requirements of these regulations.

Original language of the present document: German


Patents

US 5,912,942
US 5,434,418
US 6,811,312
US 6,069,935
US 6,134,298
US 5,841,126;
US 6,549,235;
US 6,570,617
US 5,513,252

Additional patents pending.

3.2 Wall module

Nominal voltage: 100-240 ± 10%
Nominal frequency: 50/60 Hz
Rated current: max 120 mA
Power consumption: max 15 W
Operating mode: Continuous operation
Type of protection against electric shock: Protection class I
Degree of protection against ingress of water: Ordinary equipment (without protection against ingress of water)
Year of manufacture 20XX (on the rating plate)
Dimensions H x W x D (in mm): 230 x 210 x 63
Weight: 1.5 kg
3.3 Ambient conditions

Ambient temperature: 10° (50°F) – 40°C (104°F)
Storage temperature: -40°C (-40°F) – 70°C (158°F)
Relative humidity (storage and transport) 10% – 95%
Relative humidity in operation 10% – 75%
Air pressure (storage and transport) 500 – 1060 hPa
Air pressure (operation) 700 – 1060 hPa
Operating altitude: ≤ 3000 m

3.4 Minimum requirements for PC systems

NOTICE

Guarantee of functionality
In the case of subsequent installation or update of the program "Apple© Bonjour", the functionality of the XIOSPlus wall module is no longer guaranteed.

Do not install the "Apple© Bonjour" program!

"Apple© Bonjour" is a component, for example, of the Apple© programs Safari and iTunes and of the Adobe© program Dreamweaver CS3.

Processor: 32-bit (x86), min. 1GHz
Hard disk: > 5 GB / database
RAM: > 50 MB / SIDEXIS installation
Drives: CD-ROM writer
Operating systems:
  - Windows® 2000 SP4
  - Windows® XP SP3 32-bit
  - Windows® Vista Professional SP1 32-bit
  - Windows® 7 Professional 32-bit
  - Windows® 7 Ultimate 32-bit and 64-bit
Graphics system: Resolution at least 1024 x 768 pixels, 16.7 mil. colors ("TrueColor")
Network card: 100 MBit/s
Safety: The PC must conform to IEC 60950-1: 2001. A second protective ground wire must be attached as described in the "Installation Instructions".
3.5 Requirements for an Ethernet hub or switch

Data transmission rate: 10BaseT (10 MBit/s) and/or 100BaseXT (100 MBit/s)

Plug connections: RJ 45

Safety: The Ethernet hub or switch must comply with standard 60950-1:2001 or be certified by a testing laboratory which requires compliance with this standard (e.g. VDE, UL, CSA)
4 Operating and Display Elements

4.1 System design

4.1.1 System design with XIOS XG Select sensors

A XIOS\textsuperscript{Plus} wall module
B XIOS XG Select sensor with cable and connector (size 1 or size 2)
C PC with built-in network interface and installed SIDEXIS software
D Ethernet hub/switch (RJ45)
E XIOS sensor holder set with localizer rings and guide rods
F Ethernet connection (RJ45):
   XIOS\textsuperscript{Plus} wall module to Ethernet hub/switch
G Ethernet connection (RJ45):
   SIDEXIS PC to Ethernet hub/switch
H XIOS XG wall module adapter
4.1.2 System design with XIOS Plus sensors

- **A** XIOS\textsuperscript{Plus} wall module
- **B** XIOS\textsuperscript{Plus} sensor with cable and connector (size 1 or size 2)
- **C** PC with built-in network interface and installed SIDEXIS software
- **D** Ethernet hub/switch (RJ45)
- **E** XIOS sensor holder set with localizer rings and guide rods
- **F** Ethernet connection (RJ45):
  - XIOS\textsuperscript{Plus} wall module to Ethernet hub/switch
- **G** Ethernet connection (RJ45):
  - SIDEXIS PC to Ethernet hub/switch
- **H** XIOS\textsuperscript{Plus} sensor holder
4.2 Overview

4.2.1 Overview of XIOS XG Select sensors

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Standby button</td>
</tr>
<tr>
<td>B</td>
<td>Signal LED (green) for operational readiness</td>
</tr>
<tr>
<td>C</td>
<td>Display (to show system statuses)</td>
</tr>
<tr>
<td>D</td>
<td>R button (to confirm messages)</td>
</tr>
<tr>
<td>E</td>
<td>Sensor holder [→ 24]</td>
</tr>
<tr>
<td>F</td>
<td>XIOS XG wall module adapter</td>
</tr>
<tr>
<td>G</td>
<td>XIOS XG Select sensor cable and sensor connector</td>
</tr>
<tr>
<td>H</td>
<td>Position socket for XIOS XG wall module adapter</td>
</tr>
<tr>
<td>I</td>
<td>Position main switch ON/OFF</td>
</tr>
<tr>
<td>J</td>
<td>For surface mounting:</td>
</tr>
<tr>
<td></td>
<td>Possible outlet openings for the network connection cable (RJ45) and the power supply line.</td>
</tr>
<tr>
<td></td>
<td>See Installation Instructions</td>
</tr>
</tbody>
</table>
4.2.2 Overview of XIOS Plus sensors

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Standby button</td>
</tr>
<tr>
<td>B</td>
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<td>C</td>
<td>Display (to show system statuses)</td>
</tr>
<tr>
<td>D</td>
<td>R button (to confirm messages)</td>
</tr>
<tr>
<td>F</td>
<td>XIOSPlus sensor cable and sensor connector</td>
</tr>
<tr>
<td>G</td>
<td>Sensor holder [→24]</td>
</tr>
<tr>
<td>H</td>
<td>Socket for sensor plug</td>
</tr>
<tr>
<td>I</td>
<td>Main switch ON / OFF</td>
</tr>
<tr>
<td>J</td>
<td>For surface mounting:</td>
</tr>
<tr>
<td></td>
<td>Possible outlet openings for the network connection cable (RJ45) and the power supply line.</td>
</tr>
<tr>
<td></td>
<td>See Installation Instructions</td>
</tr>
</tbody>
</table>
4.3 Display

4.3.1 Design

Explanation

Configurable contents

The following contents can be configured on the display:

- Practice name: This is displayed when the unit is ready for operation, for example.
- Patient's last name, first name, date of birth, file card number, tooth number: This information is displayed during exposure readiness and exposure.
  The information displayed can be adapted to country-specific data protection regulations.

Please contact your service engineer for content configuration.

Attributes

The display of the XIOSPlus wall module has the following features:

- Background lighting changes colors [→ 21] depending on the operating status.
- Special symbols [→ 21] (e.g. network link (C)) or text is displayed depending on the operating status.
  The content of the display is partly configurable. Please ask your service engineer for further details.
- Available and occupied (sensor plugged in) sensor sockets are indicated by different symbols [→ 21] in normal mode.
  - Left sensor socket A (slot 1).
  - Right sensor socket B (slot 2).

Examples

The "Examples [→ 22]" section serves for better understanding.
4.3.2 Symbols

General

Network link
(display of an existing network connection)
The display can assume the following states:
- Empty square = No network connection
- Square with ‘X’ = There is a connection but the network speed could not be adjusted
  Contact your service engineer to correct the problem!
- Square with ‘L’ = Connection at 10 Mbit/s
- Square with ‘H’ = Connection at 100 Mbit/s

Sensors

No sensor plugged in.

Sensor XIOS\textsuperscript{Plus} or XIOS XG Select plugged in - not ready for operation

Sensor XIOS\textsuperscript{Plus} or XIOS XG Select plugged in - ready for operation

Examples

The “Examples [→ 22]” section serves for better understanding.

4.3.3 Display colors

The respective background colors of the display reflect the system statuses.

<table>
<thead>
<tr>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>white</td>
<td>Switch-on phase or service message</td>
</tr>
<tr>
<td>blue</td>
<td>Operational readiness or readiness for exposure without initialized sensor</td>
</tr>
<tr>
<td>green</td>
<td>Readiness for exposure with at least one initialized sensor</td>
</tr>
<tr>
<td>yellow</td>
<td>Exposure and image transfer</td>
</tr>
<tr>
<td>red</td>
<td>Error message</td>
</tr>
</tbody>
</table>

Examples

The “Examples [→ 22]” section serves for better understanding.
4.3.4 Examples

Startup screen

Configuration
- **Background color**: White
- **Progress bar**: Indicates current initialization
- **First text line**: Name of the wall module on the network
- **Second text line**: Current IP address
- **Network link symbol**: XIOS\textsuperscript{Plus} wall module connected to the network

Operational readiness

Configuration
- **Background color**: Blue
- **First text line**: Name of the practice
- **Second text line**: Name of the wall module on the network
- **Left sensor symbol**: Left sensor plugged in and ready for operation
- **Network link symbol**: XIOS\textsuperscript{Plus} wall module connected to the network
- **Right sensor symbol**: Right sensor not plugged in

Exposure readiness

Configuration
- **Background color**: Green
- **First text line**: Patient’s last name
- **Second text line**: Patient’s first name
- **Third text line**: Patient’s date of birth
- **Fourth text line**: Tooth number selected in SIDEXIS
- **Left sensor symbol**: Left sensor not plugged in
- **Right sensor symbol**: Right sensor not plugged in

Configuration
- **Background color**: Blue
- **First text line**: Patient’s last name
- **Second text line**: Patient’s first name
- **Third text line**: Patient’s date of birth
- **Fourth text line**: Tooth number selected in SIDEXIS
- **Left sensor symbol**: Left sensor not plugged in
- **Right sensor symbol**: Right sensor not plugged in
Exposure and image transfer

Configuration
- Background color: Yellow
- First text line: Patient's last name
- Second text line: Patient's first name
- Third text line: File card number of the patient
- Left sensor symbol: Left sensor not plugged in
- Progress bar: Shows the status of exposure and image transfer
- Right sensor symbol: Right sensor plugged in and ready for operation

Error message

Configuration
- Background color: Red
- First text line: Error message
- Second text line: Name of the wall module on the network
- Left sensor symbol: Left sensor not plugged in
- Right sensor symbol: Right sensor plugged in and ready for operation

Rescue

Configuration
- Background color: Red
- First text line: Patient's last name
- Second text line: Patient's first name
- Third text line: File card number of the patient
- Fourth text line: Error message "Rescue"
- Left sensor symbol: Left sensor plugged in and ready for operation
- Right sensor symbol: Right sensor is not plugged in
4.4 Sensor holders

4.4.1 Labeling

Labeling of sensor holders for XIOS\textsuperscript{Plus} sensors

The sensor holder for XIOS\textsuperscript{Plus} sensors (G) is provided with the following signs:

- Application part of type BF
- Observe accompanying documents symbol.

Labeling of sensor holders at XIOS XG wall module adapter

The sensor holder at the XIOS XG wall module adapter (H) is provided with the following signs:

- Application part of type BF
- ESD symbol
4.4.2 Application

- The sensor holders (G) and (H) are used for mounting the sensors.
- In order to prevent the sensor cable from touching the floor, the former can be placed over the sensor holder once.
5 Installation

5.1 Prior to installation

The PC

The PC must be in a state of operational readiness before the installation of the XIOS Intraoral System.

- Make sure that the hardware and the operating system are properly installed.
- Also observe the “Installation Instructions” and “Operator’s Manual” for SIDEXIS as well as the relevant manuals for your PC and its operating system.

⚠️ WARNING

Danger due to electric shock

The PC must be connected to a grounded electric outlet when in operation.

⚠️ WARNING

Danger due to electric shock

The PC may not be operated in the patient environment [→ 10] without an additional protective ground wire. See "Installation Instructions" document.

5.2 Hardware requirements

Explanation

One XIOS\textsuperscript{Plus} wall module must be connected to at least one SIDEXIS PC via an Ethernet network.

Prerequisites

At least one hub or switch must be installed between the XIOS\textsuperscript{Plus} wall module and a SIDEXIS PC.

Network requirements:

- Network connector = RJ45
- Network connection = at least CAT 5
- Network hub or switch.
  Sirona recommends 100BaseXT (100 Mbit/s)

The technical requirements for the network hub or switch are described in the chapter "Technical Description [→ 13]".

Install the hub or switch as described in the relevant operating instructions.
5.3 Installing sensors

Explanation

Connection

- Two sensors may be plugged into the XIOSPlus wall module at once. Sensors of the range XIOSPlus and XIOS XG Select can simultaneously be plugged in.

Sensor management

- The sensor data are managed centrally.
- The sensors are installed once automatically prior to the first exposure. It is therefore not necessary to install the sensors manually.

5.3.1 Hardware installation

XIOSPlus sensors

1. Plug the connector of the sensor into a completely installed XIOSPlus wall module.
2. When using XIOS XG Select sensors: Make sure that a XIOS XG wall module adapter (REF. 64 50 493) is installed at the XIOSPlus wall module. The installation of the XIOS XG wall module adapter is described in the Instructions List "XIOS XG wall module adapter" (REF 64 53 778).

XIOS XG Select sensors

1. Make sure that a XIOS XG wall module adapter (REF. 64 50 493) is installed at the XIOSPlus wall module. The installation of the XIOS XG wall module adapter is described in the Instructions List "XIOS XG wall module adapter" (REF 64 53 778).
2. Plug the connector of the sensor into the XIOS XG wall module adapter.

NOTICE

Risk of damaging the sensor and the sensor cable

- The sensor cable must not be bent, folded or twisted or subjected to any other form of mechanical stress.
- Do not unplug the sensor by pulling on the cable.
- Inspect the sensor cable visually for damage every day.

5.4 After the installation

Test exposure

Take a test exposure after the following installations:

- After installation of a XIOSPlus wall module.
- Following the initial installation of a new sensor.
6 Accessories and spare parts

XIOS XG wall module adapter
REF 64 50 493

Additional accessories and spare parts are listed in the following documents:

- XIOS\textsuperscript{Plus} Sensors Operating Instructions
- Operating instructions, XIOS XG USB system and sensors
7 Operation

7.1 General

7.1.1 Notes

**NOTICE**

Risk of damage
- Do not bend the sensor cables or run over them (e.g. with a chair)!
- Avoid laying sensor cables on the floor if possible.

**NOTICE**

Risk of damage with surface mounting
- Do not bend the Ethernet cables or power supply lines or run over them (e.g. with a chair)!
- Avoid laying the Ethernet cables or power lines on the floor if possible.

**NOTICE**

Check all adhesive labels at regular intervals, and at least once a month, to make sure that they are intact, legible and properly affixed.

Also check the XIOSPlus wall module and the cables connected to it for damage.

In case of visible damage to the XIOSPlus wall module, cables or adhesive labels, please contact your dealer.

7.1.2 Standby mode

**Explanation**

The XIOSPlus wall module is equipped with a standby mode. You can switch this on and off manually using the standby key.

**Switch the unit on.**

✔ The XIOSPlus wall module is ready for operation.

➢ Briefly press the Standby key.

✎ The XIOSPlus wall module switches to standby mode.

✎ The green signal LED stays lit.

**Shutdown**

✔ The XIOSPlus wall module is in standby mode.

➢ Press the R key.

✎ The XIOSPlus wall module switches to operational readiness.
7.1.3 Power-save mode

Explanation
The XIOS\textsuperscript{Plus} wall module is equipped with a standby mode to save energy. You can switch this on and off manually using the standby key.

Switch the unit on.

✔ The XIOS\textsuperscript{Plus} wall module is ready for operation.
➢ Press the Standby button for 2 seconds.
➢ The XIOS\textsuperscript{Plus} wall module switches to power-save mode.
➢ The green signal LED switches off.

Shutdown

✔ The XIOS\textsuperscript{Plus} wall module is in power-save mode.
➢ Press the Standby button for 2 seconds.
➢ The XIOS\textsuperscript{Plus} wall module switches to operational readiness.
➢ The green signal LED lights up.

7.2 Image acquisition

7.2.1 Messages

NOTICE

Risk of crash during image acquisition
During image acquisition, programs running in the background (e.g. media player, print manager, backup software, etc.) can cause SIDEXIS to crash.
➢ Before image acquisition, close all programs that are not required for the operation of SIDEXIS. In cases of doubt, consult your system administrator.
7.2.2 Permitted sensors

⚠️ CAUTION
Exposure is possible only with the permitted sensors listed here

➢ Use the XIOSPlus wall module only with the permitted sensors listed here.

Permitted XIOS XG Select sensors (in conjunction with XIOS XG wall module adapter)

The following XIOS XG Select sensors can be used with the XIOSPlus wall module:

● XIOS XG Select, size 1
● XIOS XG Select, size 2

XIOS XG sensors not permitted

The following XIOS XG sensors cannot be used with the XIOSPlus wall module:

● XIOS XG Select, size 0
● XIOS XG Supreme, size 0
● XIOS XG Supreme, size 1
● XIOS XG Supreme, size 2
7.2.3 Preparation

- The XIOS\textsuperscript{Plus} wall module has been installed and connected to the network as described in the "XIOS\textsuperscript{Plus} wall module installation instructions".

\begin{center}
\textbf{NOTICE}
\end{center}

\textbf{Device is not equipped with switch-on delay.}

Constant switching on and off reduces the service life of individual device components and results in increased power consumption.

- After switching off, wait for at least 5 seconds before switching the device on again.

- Switch the XIOS\textsuperscript{Plus} wall module on using the ON/OFF switch.
  \begin{itemize}
  \item The startup screen is displayed (this process can take up to 10 seconds).
  \item The green signal LED lights up
  \item The XIOS\textsuperscript{Plus} wall module is initialized.
  \item Approximately 30 seconds after the unit is switched on, the XIOS\textsuperscript{Plus} wall module enters operational readiness mode. This can be recognized by the blue background lighting of the display.
  \end{itemize}
7.2.4 Preparing the unit for exposure

- SIDEXIS is started on the PC.
- At least one sensor XIOS\textsuperscript{Plus} or XIOS XG Select was plugged into the XIOS\textsuperscript{Plus} wall module.

1. Start by registering a patient in SIDEXIS.

2. To take a single exposure, click the intraoral exposure button.

   ![Select X-ray component dialog box](image)

   If several intraoral sensors/systems are enabled on this PC, then the Select X-ray component dialog box is displayed. Select the "XIOS_Plus" entry in this dialog box.

**IMPORTANT**

If you use the XIOS\textsuperscript{Plus} wall module with the XIOS XG wall module adapter and a XIOS XG Select sensor, the entry "XIOS_Plus" also appears in the Select X-ray component dialog box. Other entries mean that another X-ray component is connected to the PC.

➤ Always select the entry "XIOS_Plus" for the XIOS\textsuperscript{Plus} wall module.
Exposure readiness is enabled.

The exposure readiness dialog box opens on the SIDEXIS user interface.

A new sensor is automatically installed in the network.

Display of exposure readiness

**Operational readiness window on the SIDEXIS interface:**

- The sensors that are connected to the XIOSPlus wall module and ready for operation are displayed.
- The green display in the exposure readiness dialog box starts flashing.
- The message "Waiting for exposure ..." is displayed in the exposure readiness window.

**XIOSPlus wall module display:**

- The display lights up in green.
- The sensors that are connected to the XIOSPlus wall module and ready for operation are displayed.
- Depending on the configuration, data such as the patient’s last name, first name, date of birth, file card number and tooth number will be displayed.

**NOTICE**

If the display is not lit up green, check to determine whether at least one sensor is connected and initialized.
7.2.5 Positioning the sensor

1. Use the holder to position the sensor in the patient’s mouth.
2. Bring the intraoral X-ray unit into position.

For more information on using the sensor, refer to the operating instructions for "XIOS\textsuperscript{Plus} sensors" or "XIOS XG USB system and sensors".

### NOTICE

**Risk of mix-up**

The sensors could be crossed in the sensor holders of the XIOS\textsuperscript{Plus} wall module.

- Check to make sure that the required sensor is ready for operation.

### CAUTION

**Possibility of operating error**

X-ray exposure should only be carried out with one sensor at a time. Therefore do not place more than one sensor in the patient’s mouth at a time!

7.2.6 Releasing an exposure

#### Operating notes

**Sensor cable**

- Do not fold or bend any cables.
- Do not pinch any cables (e.g. in drawers).
- Do not roll over cables (e.g. with a chair).
- Do not allow patients to bite the sensor cables.
- Do not pull on the cable. When unplugging cables from sockets, always pull the plug only.

**Sensor**

- Do not allow patients to bite the sensor.
- Do not drop the sensor.

#### Checklist prior to exposure

- Is the green indicator lit in the exposure readiness window of the SIDEXIS interface (on the PC)?
- Is the display of the XIOS\textsuperscript{Plus} wall module lit green?
- Is the desired sensor plugged in and ready for operation? Observe the display for the sensors. Risk of confusion - the sensors could be crossed in the sensor holders.
- Is the correct exposure time for the respective exposure region set on the X-ray tube assembly (check display)?

Refer to document “Operating Instructions for XIOS\textsuperscript{Plus} Sensors” or “Operating Instructions for XIOS XG USB system and sensors” in the sections "Recording times".
Exposure

1. Create a radiograph (note "Exposure times" chapter in the operating instructions for the sensor used).
2. Remove the hygienic protective sleeve (note "Remove hygienic protective sleeve" chapter in the operating instructions for the sensor used).
3. Disinfect the sensor.
4. Following the X-ray exposure, carefully place the sensor in the sensor holder on the XIOSPlus wall module to prevent it from falling down.
5. Clean and sterilize the guide rod and localizer ring.
6. Continue with image processing.
8 Care of outer surface

8.1 Care and cleaning agents

**NOTICE**

Approved care and cleaning agents

Use only care and cleaning agents which have been approved by Sirona.

A continuously updated list of approved cleaning agents can be downloaded from the Internet here "www.sirona.com". In the navigation bar, go to the menu items "SERVICE" / "Care and cleaning" and then open the document "Care and cleaning agents".

If you do not have any access to the Internet, please contact your dental depot to order the list.

REF 59 70 905

The outside areas may be disinfected with a suitable chemical disinfectant. Only use disinfectants that meet the requirements of the national authorities and have been tested and certified for the necessary bactericidal, fungicidal and virucidal properties.

Examples of approved disinfectants are:

- MinutenSpray classic, by ALPRO®
- MinutenWipes, by ALPRO®

In the USA and Canada:

- CaviCide® or
- CaviWipes™.

8.2 Cleaning

**NOTICE**

Risk of short circuit

Do not allow liquids to run into the plug connections!

**NOTICE**

Immediately wipe off medications that come into contact with the surface.

XIOS wall module

Remove dirt, grime and disinfectant residue regularly using mild, commercially available cleaning agents.

PC and monitor

When cleaning the PC and the monitor, please follow the operating instructions supplied for these components.
8.3 Disinfecting

General

The following components can only be disinfected by wiping them off:

- XIOSPlus wall module

**NOTICE**

Risk of short circuits, plugged connections
Never spray with disinfectants or cleaning agents!

Sensors

The disinfection of the sensors is described in the operating instructions for "XIOSPlus Sensors", in the operating instructions for "XIOS XG USB module and sensors or in the Quick Maintenance Manual "XIOS XG Care, Cleaning and Storage".
9 Inspection and maintenance

9.1 Regular inspection and maintenance

Inspection and preventive maintenance must be performed at scheduled 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 additional second protective ground wire connection.
- The system owner must also make sure that all components (cables, sensors and housing parts) are in undamaged condition.

**NOTICE**

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

**NOTICE**

The XIOSPlus wall module must not be opened or repaired by the user.

9.2 Monthly check performed by the system owner or authorized persons

Every month the operator must:

- check the sensor cable thoroughly for wear and tear
- make sure the connector housing is fastened securely.

9.3 Annual check performed by the system owner or other authorized persons

**Image quality check**

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

If digital image receptors are used, an increasing number of image postprocessing 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 XIOSPlus wall module are undamaged and legible.
10 Selected error messages

Exposure was performed with the XIOS XG Supreme sensor

Error code: E6 22 05

In SIDEXIS, a dialog box appears with an error message and a gray image is displayed.

Solution:
1. Acknowledge the dialog box on the SIDEXIS interface.
2. Acknowledge the error message on the XIOSPlus wall module by pressing the button R.
3. Connect a sensor XIOS XG Select of size 1 or 2 to the wall module.
   ☐ The exposure can be performed once again.

Exposure was performed with XIOS XG Select sensor of size 0

No error message appears on the XIOSPlus wall module.

In SIDEXIS, a dialog box appears with an error message and a gray image is displayed.

Solution:
1. Acknowledge the dialog box on the SIDEXIS interface.
2. Connect a sensor XIOS XG Select of size 1 or 2 to the wall module.
   ☐ The exposure can be performed once again.

Recording was not transferred to SIDEXIS

Error code: E0 04 20

In addition, a dialog box is displayed with an error message on the SIDEXIS interface (sample dialog box: "A network error occurred.").

Solution:

1. Acknowledge the dialog box on the SIDEXIS interface.
2. Start a new X-ray exposure via the SIDEXIS interface.
   ☐ A dialog box appears which asks you to save the relevant X-ray exposure (dialog box: "The device is in rescue state. Should the exposure now be transferred?").
3. Click on the "Yes" button.
   ☐ The X-ray exposure is transferred to SIDEXIS.
4. Acknowledge the error message on the XIOSPlus wall module by pressing the button R.
   ☐ Continue working as normal.
Device is in display mode

Error code: E1 11 88

<table>
<thead>
<tr>
<th>NOTICE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Important note!</strong></td>
</tr>
<tr>
<td>No patient scans can be made in this mode!</td>
</tr>
</tbody>
</table>

Solution: Call service engineer

Error upon initializing the sensor in slot 1

Error code: E6 21 01

Solution: Remove the sensor plug and then reconnect it. If the error persists, please contact your service center.

Error upon initializing the sensor in slot 2

Error code: E6 22 01

Solution: Remove the sensor plug and then reconnect it. If the error persists, please contact your service center.
11 List of messages

11.1 List of help messages

The above-listed measures clear those help messages that result from operator errors.

If it is not possible to clear the help message by taking these measures, another type of error is the cause. To locate the error, proceed as described on the following pages.

<table>
<thead>
<tr>
<th>Help message</th>
<th>Actions required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H4 20</td>
<td>Call up existing exposure.</td>
<td>The image could not be transferred to SIDEXIS. See SIDEXIS Operator's Manual. <strong>ATTENTION!</strong> Do not switch the system off until the help message has disappeared.</td>
</tr>
</tbody>
</table>

**NOTICE**

Separate operating instructions for troubleshooting in the image data path (Rescue Management) are attached to your documents. Order No. 61 81 114

11.2 Error message structure

The error messages are displayed on the device in the form of an error code. The display does not show any plain text error output.

The error codes are structured according to the following pattern: **Ex yy zz**

Explanation of abbreviations:

*Ex* – Error type

The x character provides a foundation for making quick decisions as to how serious the error is and how to handle the error.

*yy* – Locality

Describes the impaired function of the device.

*zz* – Identification

Further specification of the error with a consecutive number.
11.3 Error description

11.3.1 Ex – Error type

NOTICE
Device is not equipped with switch-on delay.
Constant switching on and off reduces the service life of individual
device components and results in increased power consumption.

➢ After switching off, wait for 5 seconds before switching the device on
again.

E1 – System warning/message
The error is in an acceptable tolerance range. Device operation is not
directly impaired.

1. Acknowledge the error message.
2. Contact your Customer Service.
   ▶ Continued device operation is ensured.

E2 – Overload
The error can be traced back to temporary overheating or something
similar.

1. Acknowledge the error message.
2. Wait for a moment and repeat the procedure step. If the error
   reappears, extend the waiting time.
   ▶ The error no longer occurs after a certain waiting period.
3. If the error persists, contact your Customer Service.

E3 – Key pressed during power-up
The error results from an invalid signal state due to pushing buttons and
security signals when switching on.

1. Switch the unit off and on again. Observe waiting period!
2. If the error persists, contact your Customer Service.

E4 – Unassigned

E5 – Malfunction during exposure or exposure preparation
Error resulting from a certain system action triggered by the user which
could not be performed because a required (internal) partial function
(software or hardware) is not ready or fails.

1. Acknowledge the error message.
2. Repeat the last procedure step or exposure.
   ▶ The error no longer occurs.
3. If the error persists, contact your Customer Service.
E6 – Self-check
The error occurs spontaneously and without a corresponding operation.

1. Acknowledge the error message.
   - The error no longer occurs.

2. If the error remains, switch the unit off and on again. **Observe waiting period!**
   - The error no longer occurs.

3. If the error persists, contact your Customer Service.

E7 – Serious system error
The error occurs spontaneously and without a corresponding operation.

1. Switch off the unit.
2. Contact your Customer Service immediately.
   - The unit is functional.

11.3.2 yy – Locality

Explanation
The identifier yy defines the location or logical function unit where the error has occurred. If necessary, give this number to your service engineer.

**Location**

<table>
<thead>
<tr>
<th>yy</th>
<th>Location/Function unit</th>
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</thead>
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<td>Central control DX1; system software</td>
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<td>14</td>
<td>Central control DX1; network</td>
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<td>15</td>
<td>Central control DX1; configuration (wrong software, wrong module constellation, etc.)</td>
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<tr>
<td>17</td>
<td>Overall system</td>
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<td>Sensor in slot 1</td>
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<td>22</td>
<td>Sensor in slot 2</td>
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</tbody>
</table>