Dentsply
Sirona

Sidexis 4 Sensor Plugin

Operating Instructions

English

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1 Description of plugin

1.1 Sidexis 4 Sensor Plugin

Dear customer,

We are pleased that you use the XIOS XG and Schick intraoral X-ray system from Dentsply Sirona.

The Sidexis 4 Sensor plugin for XIOS XG and Schick sensors offers the following functions and features:

- Image acquisition with the XIOS XG Supreme (and Schick 33) sensors and with XIOS XG Select (and Schick Elite) sensors via USB or WiFi Interface
- Optimized workflow for intraoral image acquisition
- Visual display of exposure quality
- Intraoral enhancements for XIOS XG Supreme and Schick 33 images, including user-selectable diagnostic tasks and dynamic sharpening
- Intraoral enhancements for XIOS XG Select and Schick Elite images, including user-selectable enhancements.

Related documents

More information on Sidexis 4 software may be found on the Dentsply Sirona website.

More information on XIOS XG sensor products, including USB and WiFi options, may be found on the Dentsply Sirona website.

More information about Schick sensor products, including USB and WiFi options, may be found on the Schick by Sirona website.

1.2 System requirements

In addition to the Sidexis 4 Sensor Plugin, Sidexis 4 (version 4.2 and above) must be installed.

The PC should meet the following minimum requirements for Sidexis 4 and the Sidexis 4 Sensor Plugin:

Processor:	Dual-core 2 GHz
RAM	4 GB
Free hard disk storage:	5 GB for Sidexis XG installation and database
Removable medium:	CD/DVD writer
Graphics card:	$\geq$ 512 MB, minimum resolution 1280 x 1024, recommended resolution 1600 x 1200
Screen:	Suitable for diagnostic applications
Network:	1 GBit/s
USB port:	in accordance with USB 2.0 standard

The following operating systems are supported:

- Windows 7 Professional SP 1 (32-bit or 64-bit)
- Windows 8.1 Professional (64-bit)
- Windows 10 Professional (64-bit)

2 Operation

2.1 Connect the sensor

A calibration file is transferred from the XIOS XG or Schick sensor to the device (USB or WiFi interface) whenever the sensor is connected.

If connecting sensor to USB Module:

✔ The Sidexis 4 Sensor plugin is installed.

✔ The USB Module can be connected to the USB port of a PC either directly or via a USB hub.

1. Start Sidexis 4.
2. Plug the connector of the sensor into the USB Module.
3. Register a patient and establish readiness for intraoral exposures.

If connecting sensor to WiFi Interface:

✔ The Sidexis 4 Sensor plugin is installed.

✔ The WiFi Interface is configured for the practice network.

1. Start Sidexis 4.
2. Plug the connector of the sensor into the WiFi Interface..
3. Register a patient and establish readiness for intraoral exposures.

2.2 Determine unit status

2.2.1 USB Module

The USB module features three LED displays. They indicate the unit status.
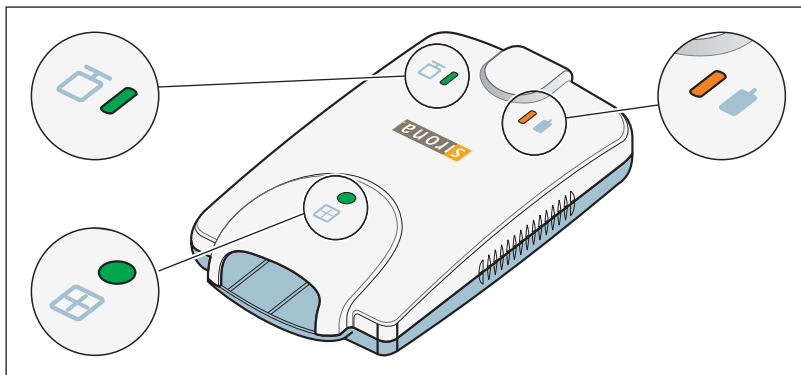
Sensor	Sidexis 4	Sensor status LED, green	Exposure readiness LED, orange	Sensor connection LED, green	Status / bug fixing
Connected	Running	at	Flashes every half to one and a half seconds	at	Ready for exposure
Connected	Running	on	off	on	Exposure in progress
Connected	Not running	off	off	on	Start Sidexis 4 to establish unit exposure readiness
Connected	Running or not running	off	on	off	Short circuit or overcurrent condition. Replace the sensor cable. If the problem persists, replace the sensor.
Connected	Running or not running	off	on	flashing	Undercurrent condition. Replace the sensor cable. If the problem persists, replace the sensor.
Not connected	Not running	off	on	off	Connect sensor and start Sidexis 4.
Connected or not connected	Running or not running	On or off	flashing	off	USB voltage supply too low. Use another original USB cable, another USB port on the PC or use a hub.

2.2.2 WiFi Interface

The WiFi interface is fitted with a multi-color LED. The charge state for the storage battery and the unit status can be determined using the light color and the flashing signals.
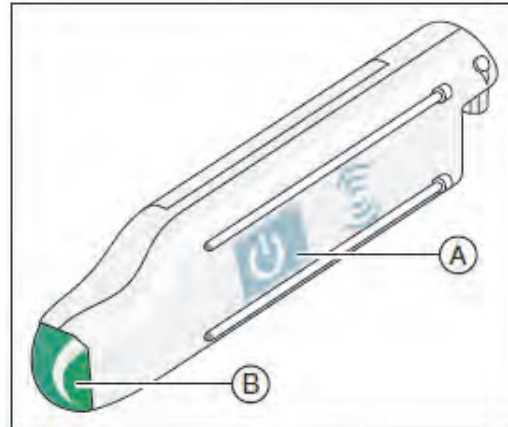
A	On/Off switch
B	Multi-color LED display

If the LED is green, the storage battery is fully charged. If the LED is red, the battery must be re-charged in the charger prior to use.

LED color	Storage battery charge state
green	100 - 70 %
Yellow	69 - 40 %
orange	39 - 1 %
Red	dead

When the module is switched on, the LED lights up purple until the startup sequence has completed. During firmware upgrades, the LED flashes blue.

purple	Startup sequence
Blue	Firmware update

2.3 Exposure readiness with XIOS XG Supreme and Schick 33 sensors

✔ The Sidexis 4 Sensor plugin is installed.

1. Start Sidexis 4.

2. Register a patient.

3. Perform one of the following, depending on whether you intend to acquire images with either the USB or WiFi sensor system.

   - For USB systems, connect a XIOS XG Supreme or Schick 33 sensor to the USB module.

   - For WiFi systems, make sure you turn the WiFi Interface on, then connect a XIOS XG Supreme or Schick 33 sensor to the WiFi Interface.

4. Double-click on the connected sensor to select it. If multiple sensors are connected to the workstation, these will appear here as well.

   Samples of the Device Selection screen can be found on the following pages.

5. Select an appropriate template or intraoral exposure. Choose other indications that apply. In this example, Single Exposure is selected.

   Samples of the Indication screen can be found on the following pages.

(Device selection screen with no Sensors attached)
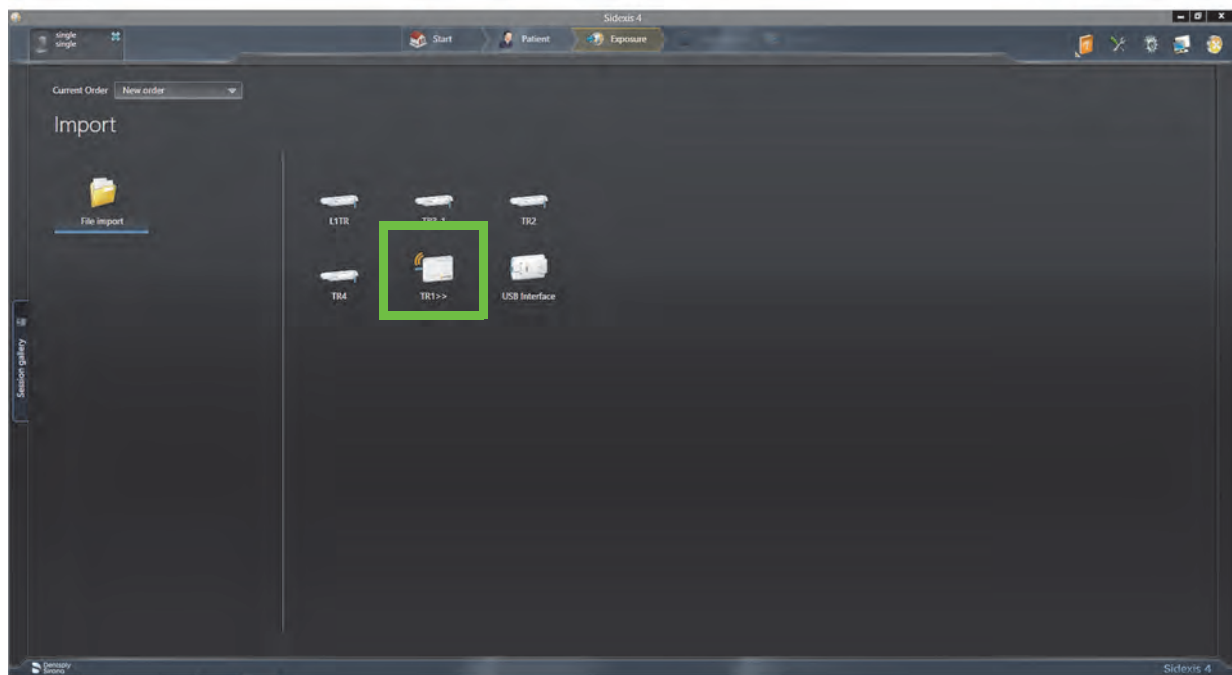
(Device selection screen with XIOS XG Supreme with WiFi Interface selected)
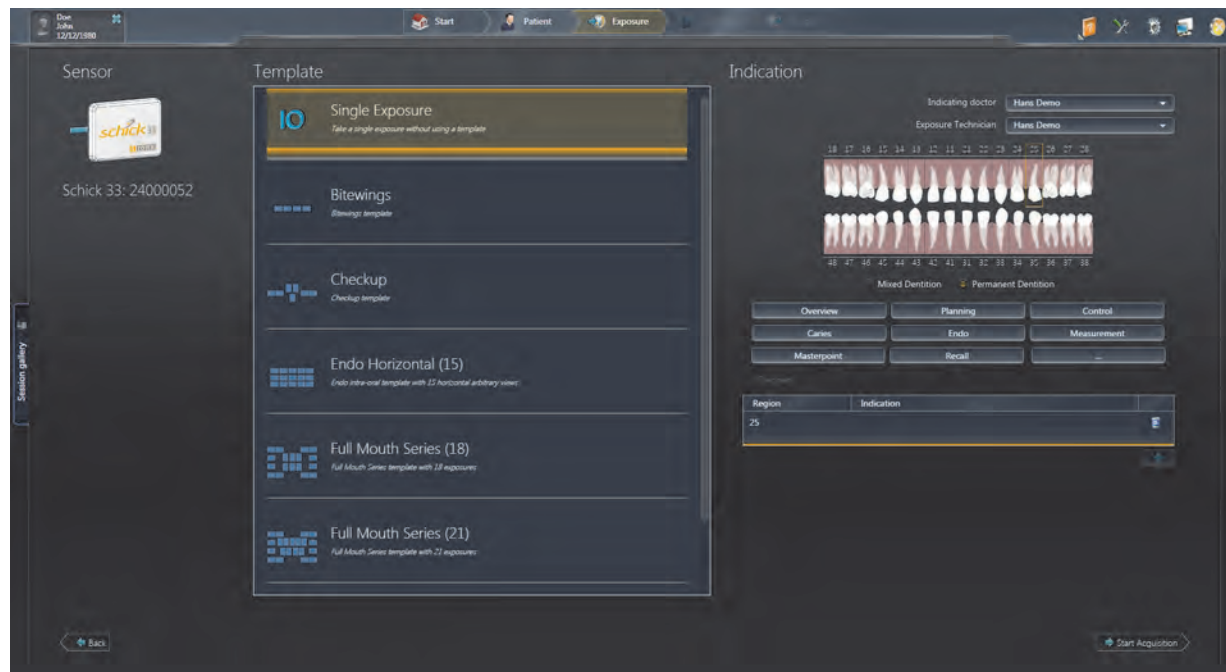
(Indication screen with Schick 33 Sensor and USB Interface)
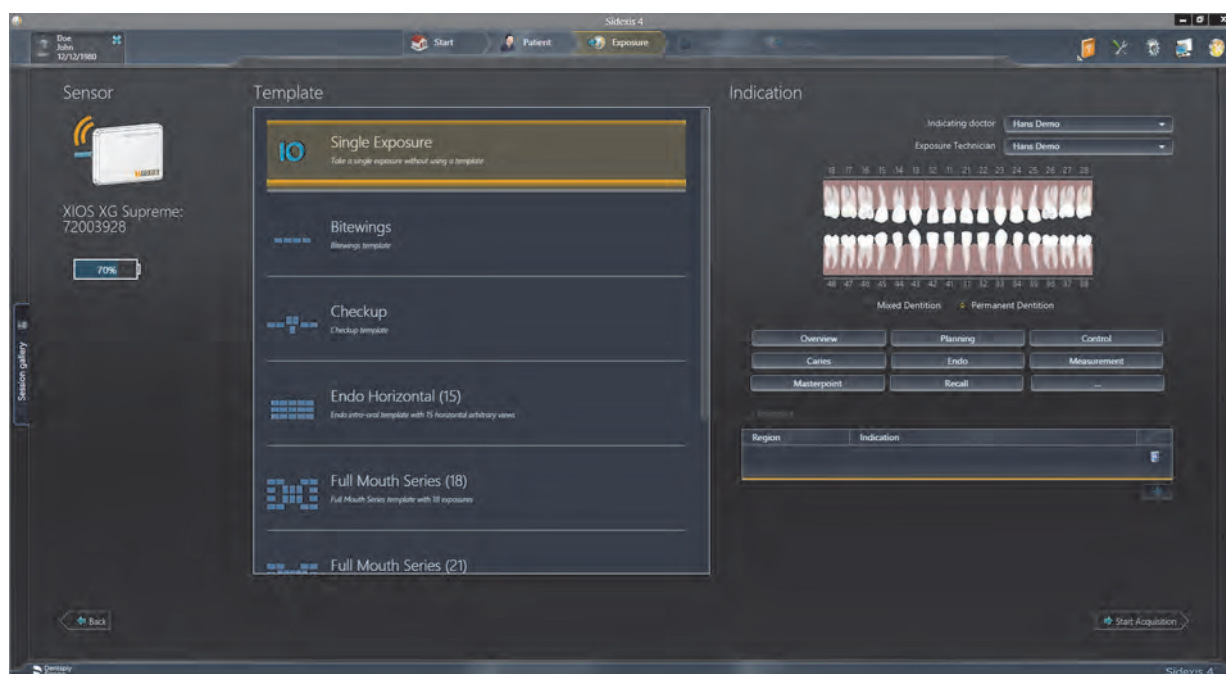
(Indication screen with XIOS XG Supreme and WiFi Interface)

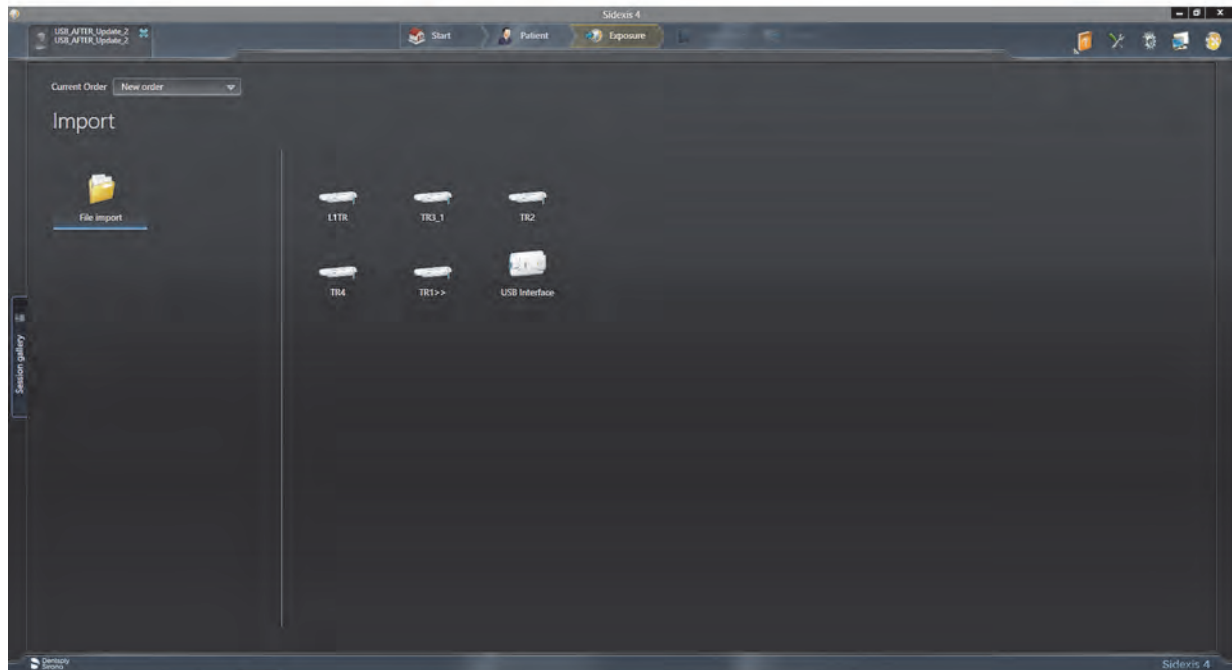## 2.4 Exposure readiness with XIOS XG Select and Schick Elite sensors

✔ The Sidexis 4 Sensor plugin is installed.

1. Start Sidexis 4.

2. Register a patient.

3. Perform one of the following, depending on whether you intend to acquire images with either the USB or WiFi sensor system.

   - For USB systems, connect a XIOS XG Select or Schick Elite sensor to the USB module.

   - For WiFi systems, make sure you turn the WiFi Interface on, then connect a XIOS XG Select or Schick Elite sensor to the WiFi Interface.

4. Double-click on the connected sensor to select it. If multiple sensors are connected to the workstation, these will appear here as well.

   Samples of the Device Selection screen can be found on the following pages.

5. Select an appropriate template or intraoral exposure. Choose other indications that apply. In this example, Single Exposure is selected.

   Samples of the Indication screen can be found on the following pages.

NOTE
When the WiFi Interface is connected, please note the battery charge level, which appears below the sensor information.
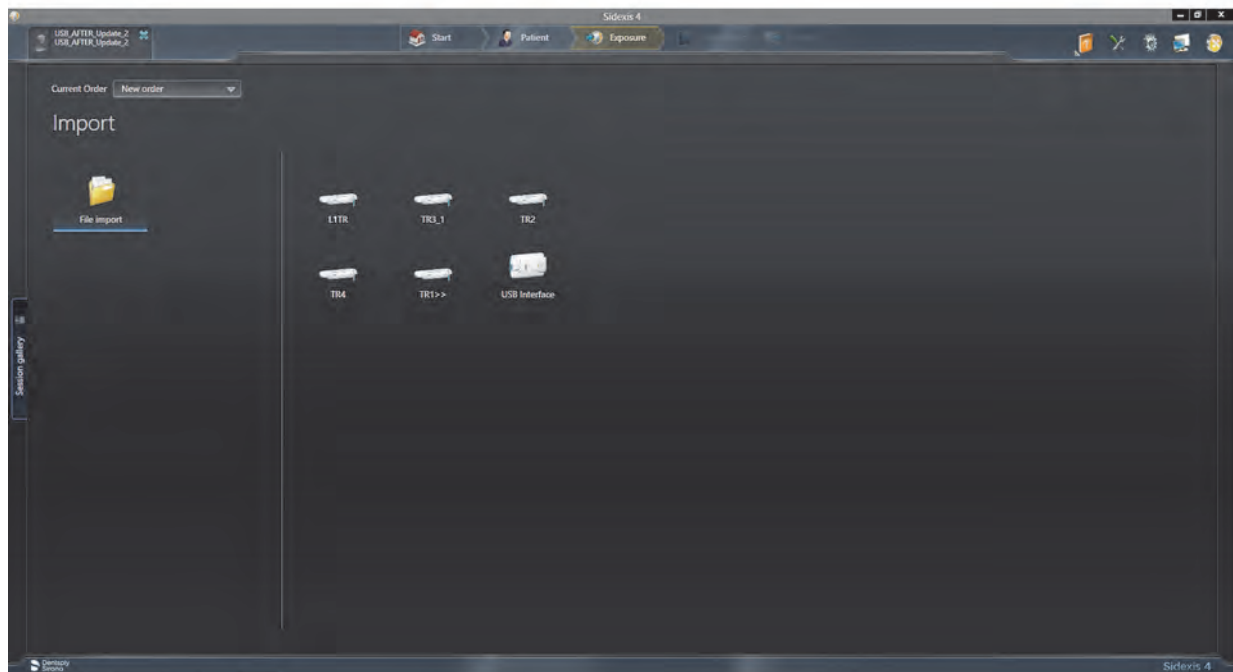
(Device selection screen with no Sensors attached)
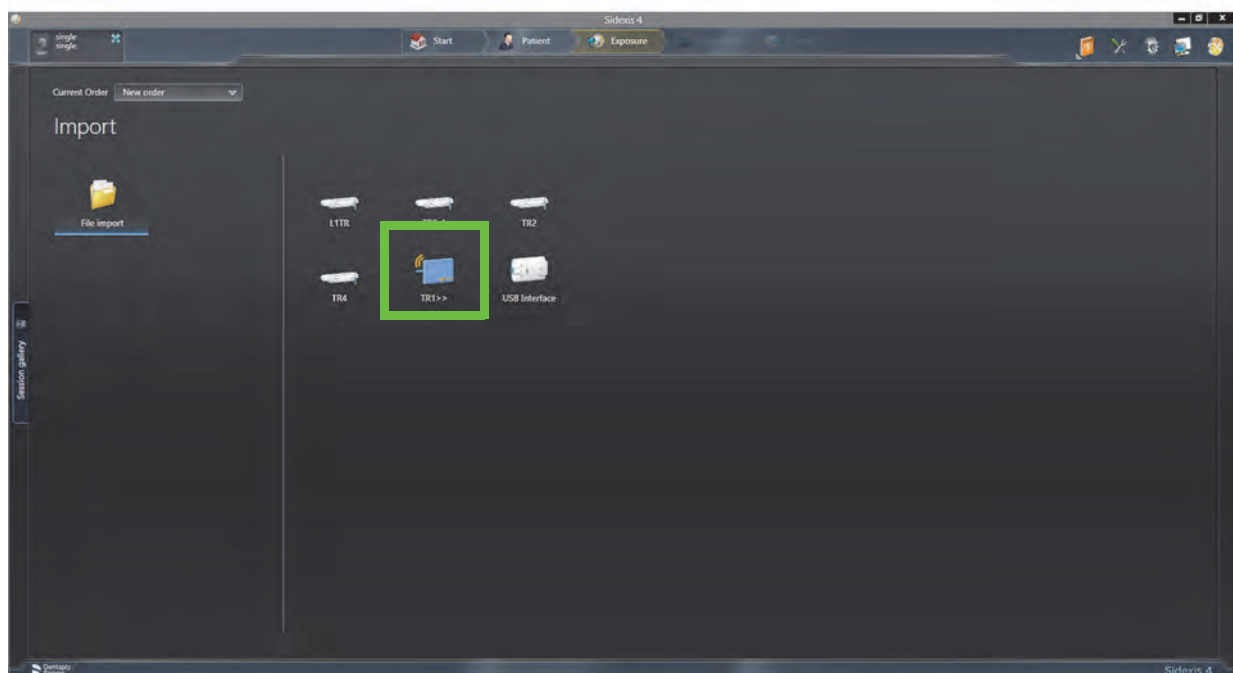
(Device selection screen with XIOS XG Select and WiFi Interface)

(Indication screen with XIOS XG Sensor and USB Interface)

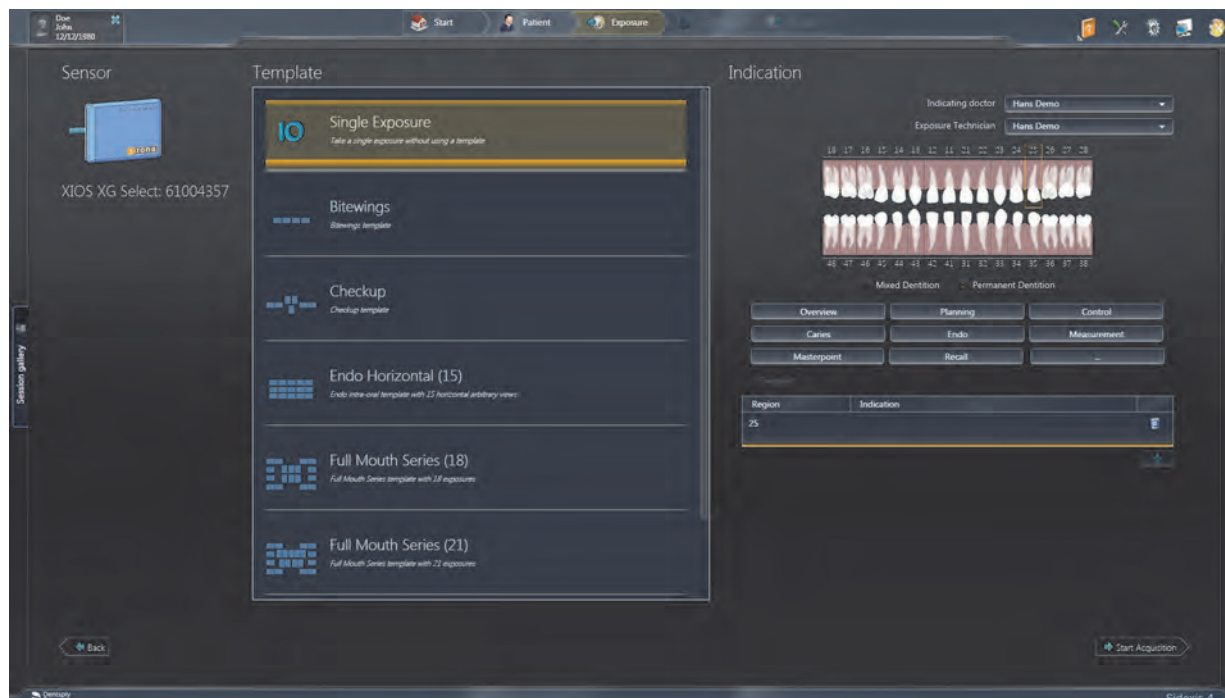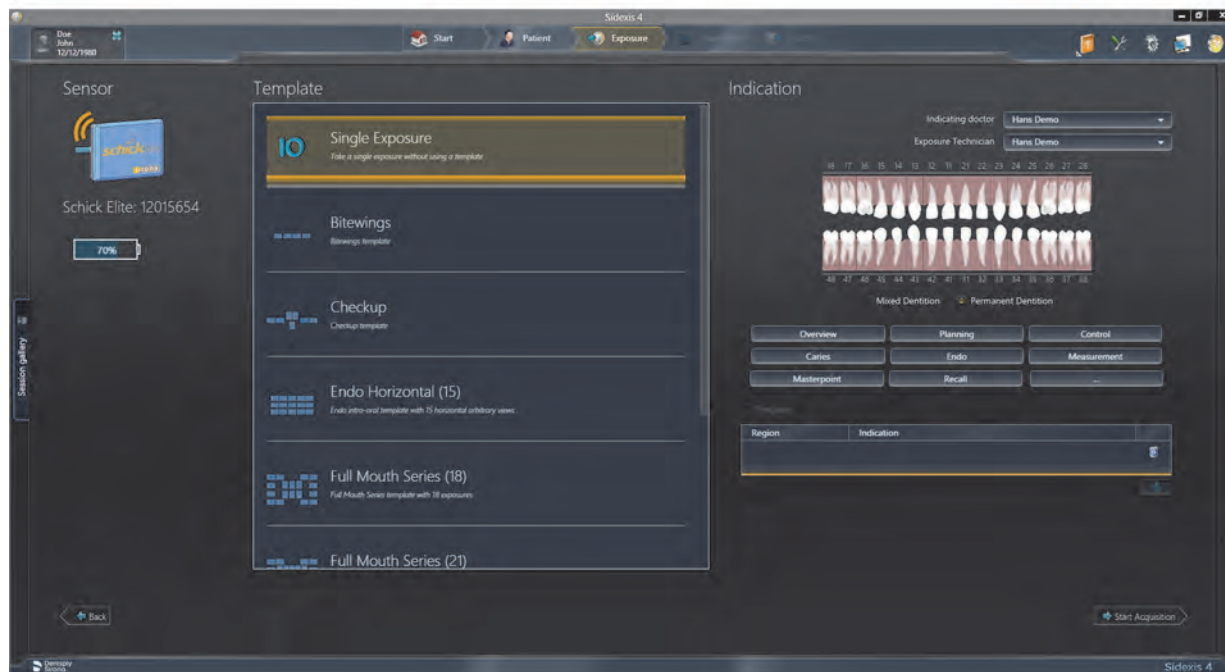*(Indication screen with Schick Elite and WiFi Interface)*

2.5 Slide the hygienic protective sleeve over the sensor

Hygienic protective sleeves are available depending on the size of the sensor (0, 1 or 2). They fit both XIOS XG and Schick sensors.

To reorder the hygienic protective sleeves, see"Consumables and spare parts" [→ 69].

⚠ WARNING
Sensors and sensor cables must be disinfected prior to initial use.
Patients may become sick due to components that have not been disinfected.
➢ Remove the sensor connector from the unit.
➢ Clean the sensor and the sensor cable thoroughly with disinfectant at least twice. Refer to Hygiene.

⚠ WARNING
The hygienic protective sleeves and sensor holder tabs are single use devices.
Patients may become sick due to unsterilized accessories.
➢ Replace the hygienic protective sleeves and sensor holder tabs after each patient. However, they can be used multiple times on the same patient. The adhesive on the sensor holder tabs is suitable for gluing and detaching them from the hygienic protective sleeve repeatedly.
➢ Under no circumstances should you slide a hygienic protective sleeve over a sensor where a sensor holder tab is already glued on it.
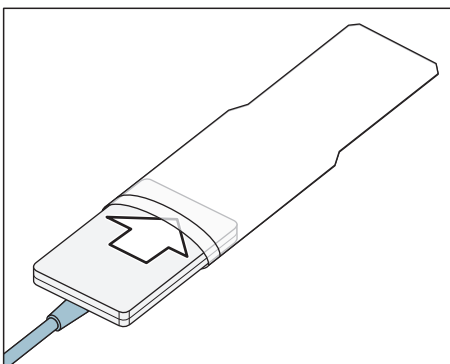
1. Please select a hygienic protective sleeve with a size that matches the sensor.

2. Slide the Sensor into the Sheath

   ↳ The hygienic protective sleeve is slightly undersized, so that it surrounds the sensor tightly and prevents the sensor from slipping out of place.

2.6 Position the sensor

Since the positioning of the sensors in the beam path of the cone strongly influences the image quality, using the parallel technique with the #AimRight# sensor holder system is recommended for optimal positioning of the sensors.

With the AimRight adhesive positioning sensor holder system the sensor is affixed to the sensor holder with a sensor holder tab. Sensor holder tabs may be detached and reaffixed several times during an ex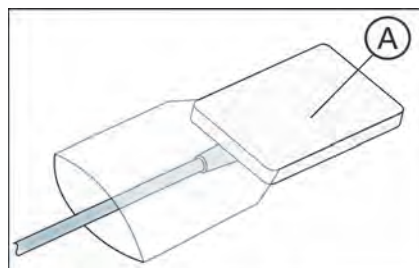posure series on the same patient. The sensor holder tabs must be attached to the active sensor surface (A) in all cases.

The AimRight autoclavable positioning sensor holder system is a plug-in system. No sensor holder tabs are required.

NOTICE
The sensor cable is sensitive to mechanical influences.
The cable may become damaged or may wear out prematurely.
➤ Avoid bending, creasing or rotating the cable or exposing it to other strains. Do not ride over the sensor cable, e.g., in a chair. Do not swirl the sensor about by its cable.
➤ When removing the plug pull on the plug and not on the cable.
➤ Make sure that the sensor cable is run out of the patient's mouth in such a way that the patient cannot bite it.
➤ Inspect the sensor cable visually for damage every day.

2.6.1 Position sensor with single-use sensor holder system

2.6.1.1 Anterior tooth exposure

For anterior tooth exposures use the **blue** sensor holder.
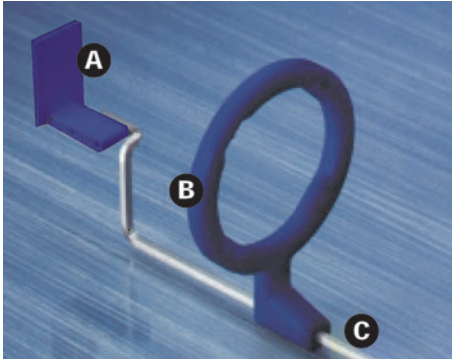
1. Place the blue localizer ring (B) onto the **triple-angled** guide rod (C).
2. Place the blue sensor holder tab (A) onto the guide rod (C).
3. Slide the sensor into the hygienic protective sleeve, see section "Slide the hygienic protective sleeve over the sensor".

4. Glue the sensor holder tab onto the sensor's hygienic protective sleeve. Place the tab **in the center** of the sensor as shown in the diagram.

5. Position the sensor in the patient's mouth.
6. Bring the X-ray tube assembly into the correct position and take an X-ray exposure.
7. Remove the sensor from the hygienic protective sleeve. For this follow the instructions in section "Remove the hygienic protective sleeve from the sensor" [→ 42]. The used sensor holder tab and hygienic protective sleeve must be disposed of after the examination.
8. Clean and sterilize the guide rod and localizer ring.

2.6.1.2 **Posterior tooth exposures**

For posterior tooth exposures use the **yellow** sensor holder.

1. Place the yellow localizer ring (B) onto the **double-angled** guide rod (C).
2. Place the yellow sensor holder tab (A) onto the guide rod (C).
3. Slide the sensor into the hygienic protective sleeve, see section "Slide the hygienic protective sleeve over the sensor".
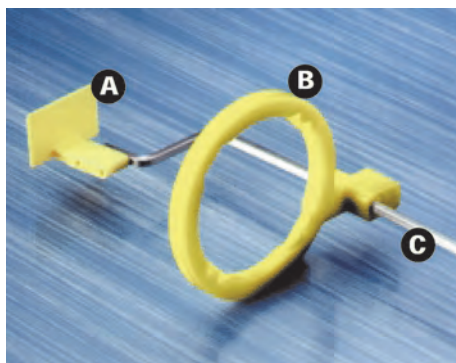

4. **For the left upper jaw and right lower jaw:** Glue the sensor holder tab onto the sensor's hygienic protective sleeve. Place the tab **in the center** on the sensor. The edge of the tab must **lock** with the **edge** of the sensor, as shown in the diagram.

5. **For the right upper jaw and left lower jaw** the sensor holder tab must be placed in the mirrored position. See the adjacent drawing.
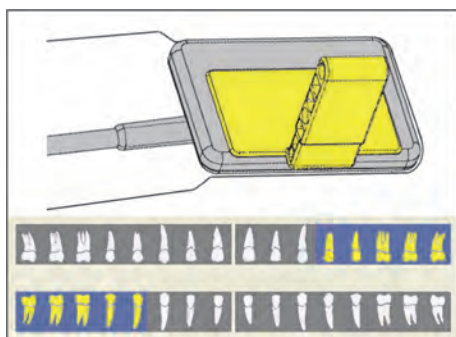

6. Position sensor in patient's mouth.
7. Bring the X-ray tube assembly into the correct position and take an X-ray exposure.
8. Remove the sensor from the hygienic protective sleeve. For this follow the instructions in section "Remove the hygienic protective sleeve from the sensor" [→ 42]. The used sensor holder tab and hygienic protective sleeve must be disposed of after the examination.
9. Clean and sterilize the guide rod and localizer ring.
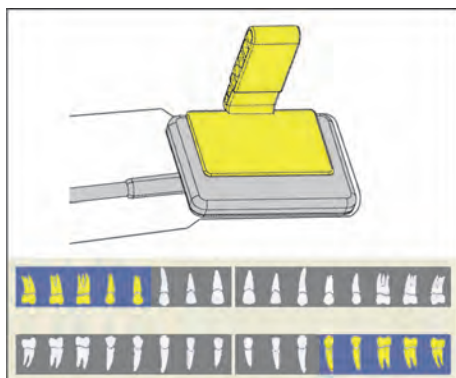
2.6.1.3 Bite wing exposures

For bite wing exposures use the **red** sensor holder.
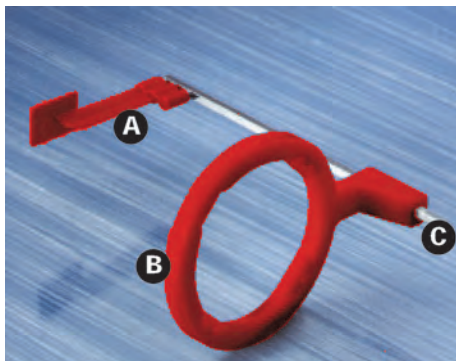
1. Place the red localizer ring (B) onto the **straight** guide rod (C).
2. Place the red sensor holder tab (A) onto the guide rod (C).
3. Slide the sensor into the hygienic protective sleeve, see section "Slide the hygienic protective sleeve over the sensor".

4. **For vertical bite wing exposures:** Glue the sensor holder tab onto the sensor's hygienic protective sleeve. Align the tab **vertically** to the sensor and place it **in the center** on the active sensor surface, as shown in the diagram.

5. **For horizontal bite wing exposures** the tab must be placed aligned **horizontally** to the sensor. See the adjacent drawing.
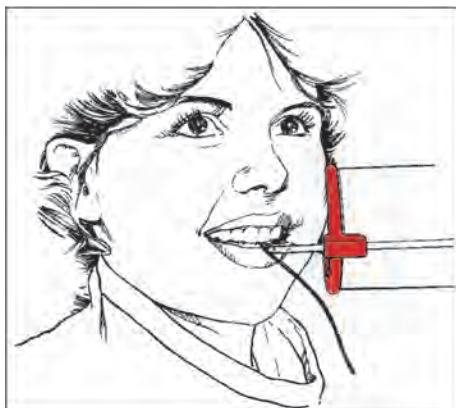
6. Position the sensor in the patient's mouth.
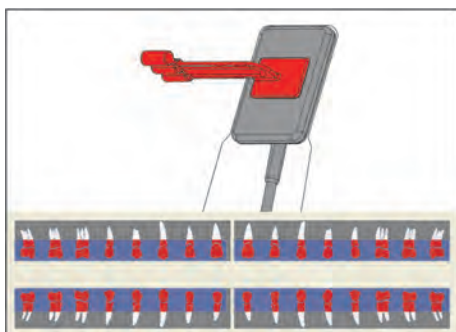7. Bring the X-ray tube assembly into the correct position and take an X-ray exposure.
8. Remove the sensor from the hygienic protective sleeve. For this follow the instructions in section "Remove the hygienic protective sleeve from the sensor" [→ 42]. The used sensor holder tab and hygienic protective sleeve must be disposed of after the examination.
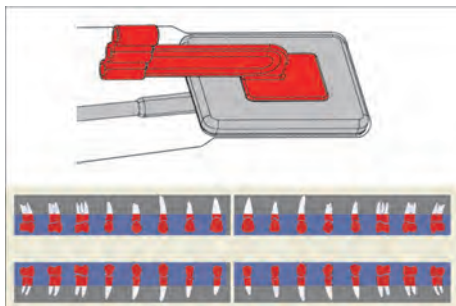9. Clean and sterilize the guide rod and localizer ring.

2.6.1.4 Endodontics exposures with the half-angle technique

For endodontics exposures with the half-angle technique use the **green** universal sensor holder tab.

1. Slide the sensor into the hygienic protective sleeve, see section "Slide the hygienic protective sleeve over the sensor".

2. Glue the green universal sensor holder tab onto the sensor's hygienic protective sleeve. Place the tab **in the center** of the sensor as shown in the diagram.

3. **For anterior tooth exposures:** Glue the sensor holder tab onto the sensor's hygienic protective sleeve. Align the tab **to the sensor edge of the cable** and place it **in the center** on the sensor, as shown in the diagram.
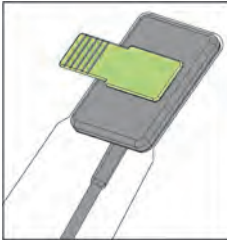
4. **For posterior tooth exposures** the tab must be aligned **vertically** to the sensor and placed **in the center** on the sensor. See the adjacent drawing.

5. Position sensor in patient's mouth.

6. Bring the X-ray tube assembly into the correct position and take an X-ray exposure.

7. Remove the sensor from the hygienic protective sleeve. For this follow the instructions in section "Remove the hygienic protective sleeve from the sensor" [→ 42]. The used sensor holder tab and hygienic protective sleeve must be disposed of after the examination.

8. Clean and sterilize the tab.

2.6.1.5   **Measurement exposure for endodontics**

Endodontic needles and files can remain in the root canal for the measurement exposure.

For endodontics exposures use the **grey** sensor holder.
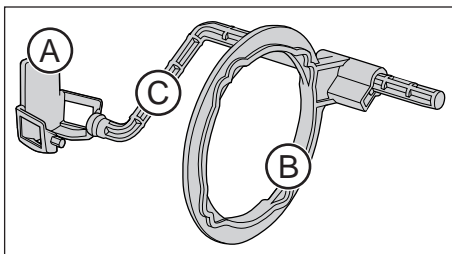
1. Place the grey localizer ring (B) onto the **plastic guide rod** (C).
2. Place the grey sensor holder tab (A) onto the guide rod (C).
3. Slide the sensor into the hygienic protective sleeve, see section "Slide the hygienic protective sleeve over the sensor".

4. Glue the sensor holder tab onto the sensor's hygienic protective sleeve. Place the tab **in the center** of the sensor as shown in the diagram.
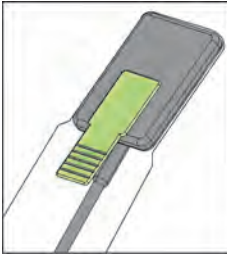5. Position the sensor in the patient's mouth.
6. Bring the X-ray tube assembly into the correct position and take an X-ray exposure.
7. Remove the sensor from the hygienic protective sleeve. For this follow the instructions in section "Remove the hygienic protective sleeve from the sensor" [→ 42]. The used sensor holder tab and hygienic protective sleeve must be disposed of after the examination.
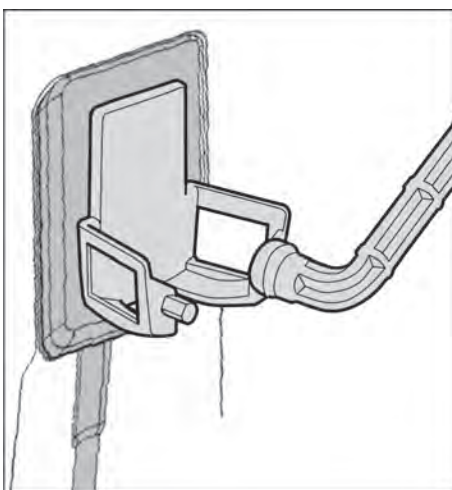8. Clean and sterilize the guide rod and localizer ring.

2.6.2 Position sensor with Aimright reusable sensor holder system

2.62.1 Anterior tooth exposure

Preparing the sensor holder

For anterior tooth exposures use the **blue** sensor holder.

1. Fasten the guide rod for the sensor holder (C) in the perforation (B) of the localizer ring (A).
2. Slide the sensor into the hygienic protective sleeve; see "Slide the hygienic protective sleeve over the sensor".

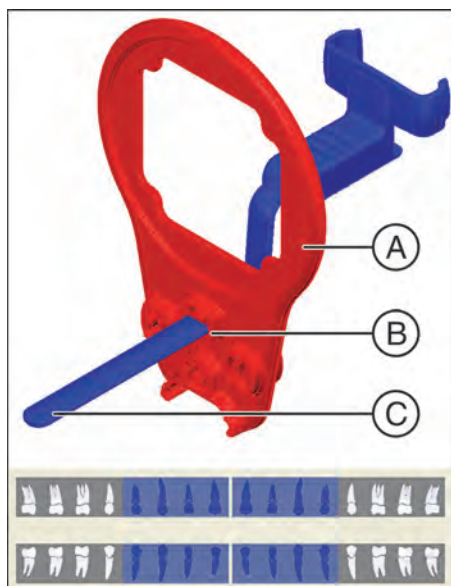3. To do this, place the sensor on the palm of your hand and clip the sensor holder onto the sensor.

4. Push the sensor into the sensor holder up to the stop.

Positioning the sensor for exposures of the lower jaw

1. Look through the localizer ring to check the alignment of the sensor. The sensor must be located centrally in front of the opening in the localizer ring.
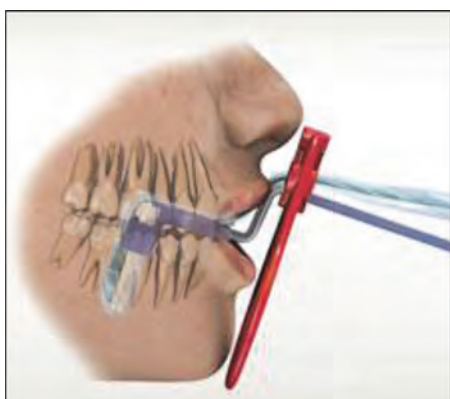
2. Position the sensor in the patient's mouth.
3. Use light pressure to align the sensor so that it lies parallel with the lower front teeth.
4. Ask the patient to close their mouth slowly and bite down on the sensor holder.
5. Slide the localizer ring onto the patient's lips.

6. Align the cone of the X-ray tube assembly parallel to the sensor directly on the localizer ring.
7. Release an X-ray exposure. Refer to sections Select the exposure parameters for the X-ray tube assembly [→ 30] and Releasing the exposure. Also observe the operating instructions for the X-ray tube assembly.

Positioning the sensor for exposures of the upper jaw

1. Look through the localizer ring to check the alignment of the sensor. The sensor must be located centrally in front of the opening in the localizer ring.

2. Position the sensor centrally in the oral cavity without it touching the roof of the mouth.
3. Ask the patient to close their mouth slowly and fix the sensor holder to the cutting edge.
   Tip: A cotton roll on the lower cutting edge stabilizes the sensor holder support and supports parallelism with the bite block on the sensor holder.
   ↳ The sensor is parallel with the upper front teeth.
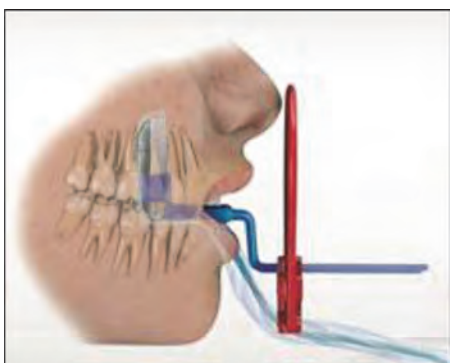
4. Slide the localizer ring to the patient's face.

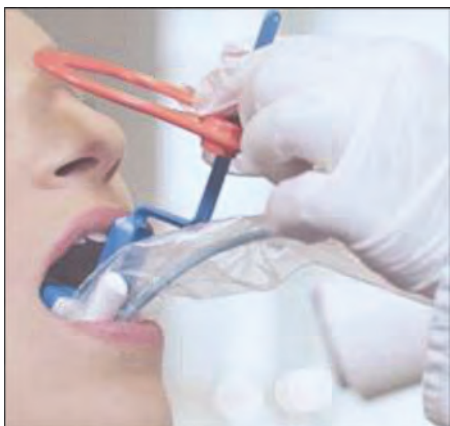5. Align the cone of the X-ray tube assembly parallel to the sensor directly on the localizer ring.

6. Release an X-ray exposure. Refer to sections Select the exposure parameters for the X-ray tube assembly [→ 30] and Releasing the exposure. Also observe the operating instructions for the X-ray tube assembly.

After the exposure

1. Ask the patient to open their mouth.

2. Remove the sensor from the patient's mouth.

3. Remove the sensor from the hygienic protective sleeve. Follow the instructions in the section Removing the hygienic protective sleeve from the sensor [→ 42]. The hygienic protective sleeves must be disposed of after the examination.

4. Clean and sterilize the sensor holder and localizer ring.

Posterior tooth exposures

Preparing the sensor holder

For posterior tooth exposures use the **yellow** sensor holders.
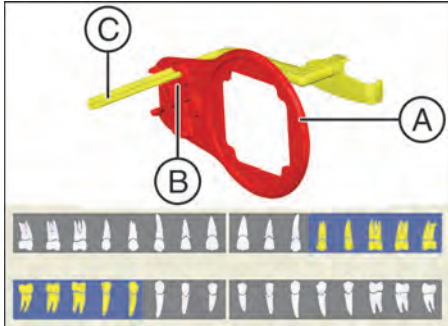
1. **For the right upper jaw and left lower jaw:** Fasten the guide rod for the sensor holder (C) in the perforation (B) of the localizer ring (A).
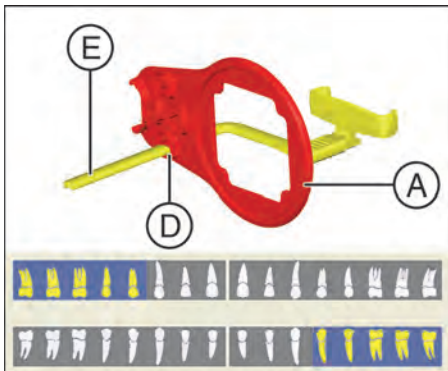
2. **For the left upper jaw and right lower jaw:** Fasten the guide rod for the sensor holder (E) in the perforation (D) in the localizer ring (A).

3. Slide the sensor into the hygienic protective sleeve, see section "Slide the hygienic protective sleeve over the sensor".

4. Place the sensor on the palm of your hand and clip the sensor holder onto the sensor.

5. Push the sensor into the sensor holder up to the stop.

Position the sensor

1. Look through the localizer ring to check the alignment of the sensor. The sensor must be located centrally in front of the opening in the localizer ring.

2. Position the sensor in the patient's mouth and align it so that it is parallel with the posterior teeth.
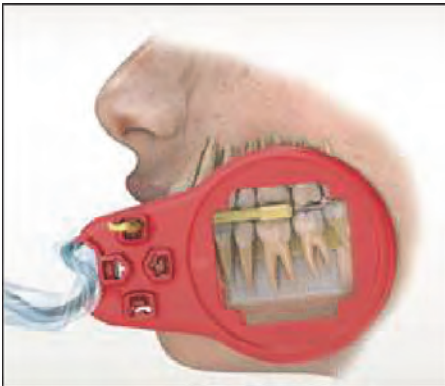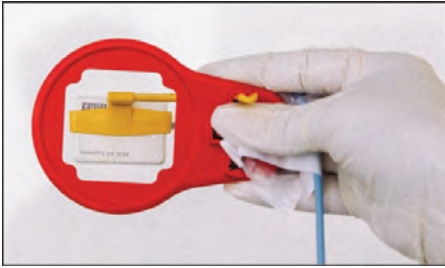
ꜭ Example: Positioning on the lower jaw
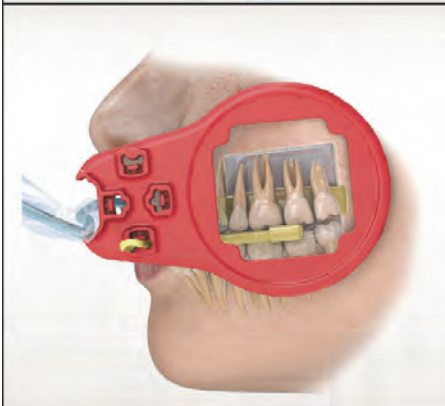
ꜭ Example: Positioning on the upper jaw

3. Align the cone of the X-ray tube assembly parallel to the sensor directly on the localizer ring.

4. Release an X-ray exposure. Refer to sections Select the exposure parameters for the X-ray tube assembly [→ 30] and Releasing the exposure. Also observe the operating instructions for the X-ray tube assembly.

After the exposure

1. Ask the patient to open their mouth.

2. Remove the sensor from the patient's mouth.

3. Remove the sensor from the hygienic protective sleeve. Follow the instructions in the section Removing the hygienic protective sleeve from the sensor [→ 42]. The hygienic protective sleeves must be disposed of after the examination.

4. Clean and sterilize the sensor holder and localizer ring.

2.6.2.3   **Horizontal bite wing exposures**

Preparing the sensor holder

For bite wing exposures use the **red** sensor holder.
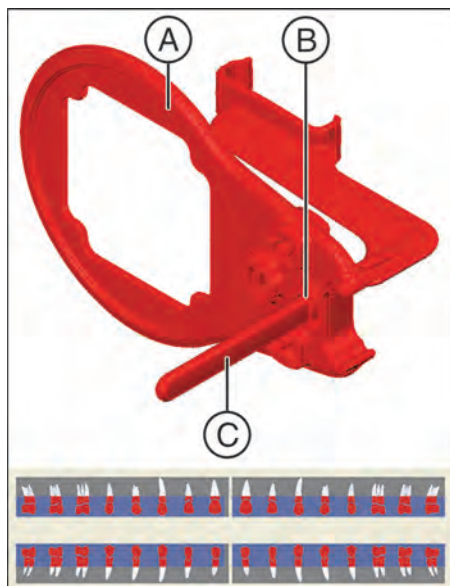
1. Fasten the guide rod for the sensor (C) in the perforation (B) of the localizer ring (A).

2. Slide the sensor into the hygienic protective sleeve, see section "Slide the hygienic protective sleeve over the sensor".


3. Place the sensor on the palm of your hand and clip the sensor holder onto the sensor.

4. Slide the sensor into the center of the sensor holder.

Position the sensor

1. Look through the localizer ring to check the alignment of the sensor. The sensor must be located centrally in front of the opening in the localizer ring.
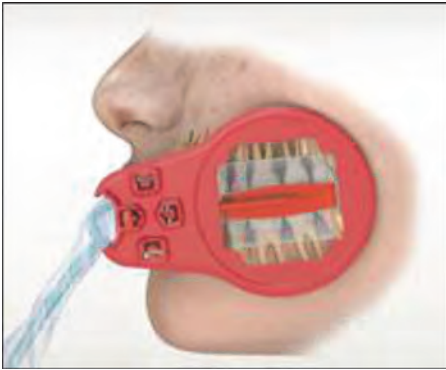
2. Position the sensor directly on the dental arch.
    ✋ The bite block of the sensor holder must be located between the upper molars, parallel to the occlusal plane.
    ✋ In order to avoid superimpositions, the sensor must be positioned parallel to the dental arch line.

3. Slide the localizer ring to the patient's face.
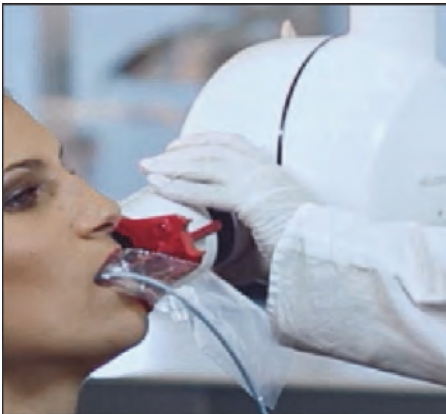
4. Align the cone of the X-ray tube assembly parallel to the sensor directly on the localizer ring.
5. Release an X-ray exposure. Refer to sections Select the exposure parameters for the X-ray tube assembly [→ 30] and Releasing the exposure. Also observe the operating instructions for the X-ray tube assembly.

After the exposure

1. Ask the patient to open their mouth.
2. Remove the sensor from the patient's mouth.
3. Remove the sensor from the hygienic protective sleeve. Follow the instructions in the section Removing the hygienic protective sleeve from the sensor [→ 42]. The hygienic protective sleeves must be disposed of after the examination.
4. Clean and sterilize the sensor holder and localizer ring.

2.7 Select the exposure parameters for the X-ray tube assembly

2.7.1 X-ray doses and image quality

Factors for determining the X-ray doses

The dose to be set for X-ray exposure depends primarily on the following:

- Type of X-ray tube assembly (manufacturer, AC/DC, etc.)
- Distance between focal spot and sensor
- Morphology of patient
- Object, which tooth is to be X-rayed

The dose is adjusted through tube voltage and tube current (specified by kV/mA) as well as exposure time.

Please refer to the operating instructions for the X-ray unit.

Effects of too low or too high a dose

For physical reasons the digital X-ray sensors behave in the same way as with X-ray film. The lower the dosage value the higher the image noise, which in turn generally leads to a poorer detail resolution.

⚠ CAUTION
Image degradations caused by overexposure of the sensor cannot be compensated using subsequent image processing!

Default setting for brightness and contrast

Default settings for brightness and contrast can always be optimally adjusted through the image preprocessing function, independent of dose.

2.7.2 Recommended dose for XIOS XG and Schick sensors

XIOS XG and Schick sensors have a very wide effective dose area, so that, depending on the object and diagnostic question at hand, the selection of an optimal parameter adjustment is always possible.
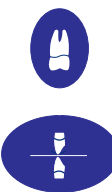
IMPORTANT
Since the exposure time depends on the diagnostic problem as well as the respective clinical situation, the selection of an optimal adjustment is the responsibility of the treating physician.

Corresponding values apply to X-ray tube assemblies from other manufacturers and to AC tube units. However, for optimal image quality DC tube units should be used.

Please follow the manual for your intraoral X-ray tube assembly.

2.7.3 HELIODENT Plus exposure times

2.7.3.1 Pre-programmed exposure times for XIOS XG sensors with 200 mm (8") FHA cone

0.01	0.02	0.03	0.04	0.05	0.06	0.08	0.10	0.12	0.16	0.20	0.25	0.32	0.40

Exposure time in seconds with:					
60kV	0.06	0.08	0.10	0.12	0.16
70kV	0.03	0.04	0.05	0.06	0.08
Freely programmed values					

2.7.3.2 Pre-programmed exposure times for XIOS XG sensors with 300 mm (12") FHA cone (round or square cone)

0.03	0.04	0.05	0.06	0.08	0.10	0.12	0.16	0.20	0.25	0.32	0.40	0.50	0.64	0.80

Exposure time in seconds with:					
60kV		0.12	0.16	0.20	0.25	0.32
70kV		0.06	0.08	0.10	0.12	0.16
Freely programmed values					

2.8   Release the exposure

✓   The exposure parameters for the X-ray tube assembly are set, see "Select the exposure parameters for the X-ray tube assembly" [→ 30].

✓   The sensor is positioned in the patient's mouth with the corresponding auxiliary exposure equipment, see "Position the sensor" [→ 15].

1.   Ensure that the device is ready for X-ray exposures.

●   If the connected device is the USB module, the orange LED on the USB module must be flashing and the adjacent and upper LED must light up green, see "Determine unit status" [→ 6]

●   If the connected device is the WiFi Interface, the multi-color LED at the tip of the WiFi Interface must be flashing (the color reflects the current charge of the storage battery), see "Determine unit status" [→ 6]

2.   Ensure that Sidexis 4 is ready to acquire an image by clicking on the "*Start Acquisition*" button. The image box must be flashing green in the Exposure readiness window.

3.   Check that the X-ray tube assembly is in the correct position and take the X-ray exposure.
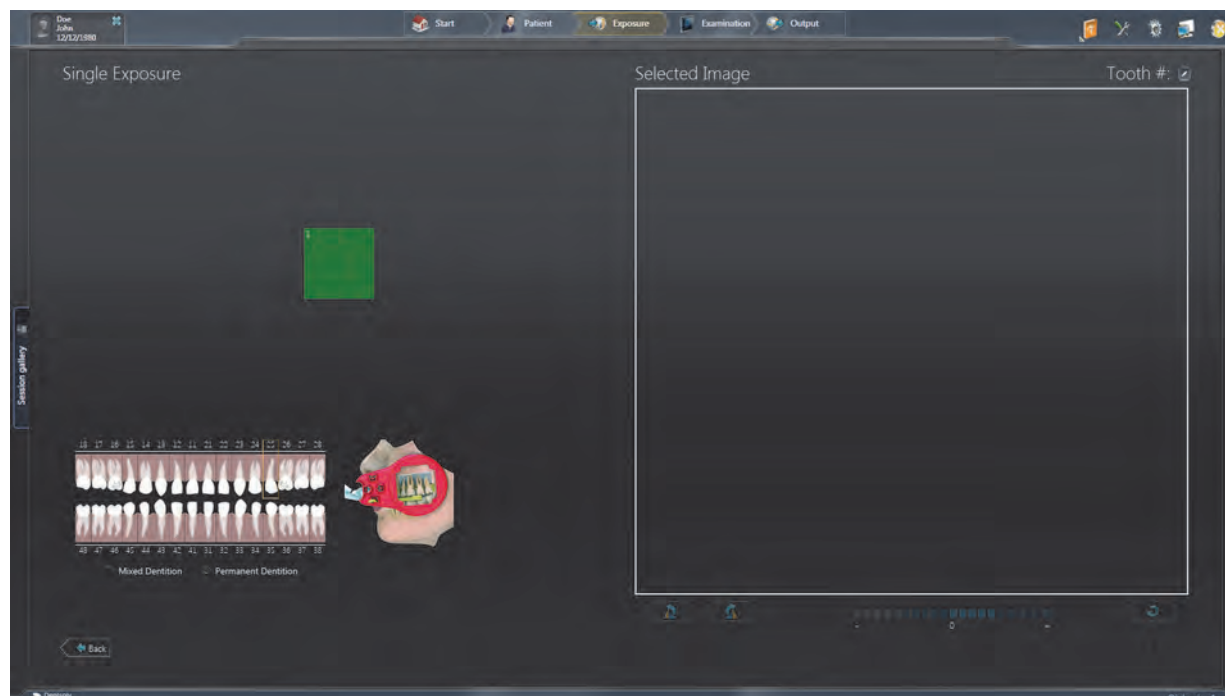
4. When the image view box (representing the Single Exposure selection in this example) starts flashing green, the sensor is ready for an exposure.

5. Trigger the X-ray source when the sensor is ready for exposure. Alternatively, cancel exposure readiness by clicking on the *"Back"* button.

NOTE
Depending on the sensor system you are using, whether USB or WiFi, refer to either the Operating Instructions for the XIOS XG and Schick USB Module and Sensors or the XIOS XG and Schick WiFi Interface and Sensors manuals for additional details.
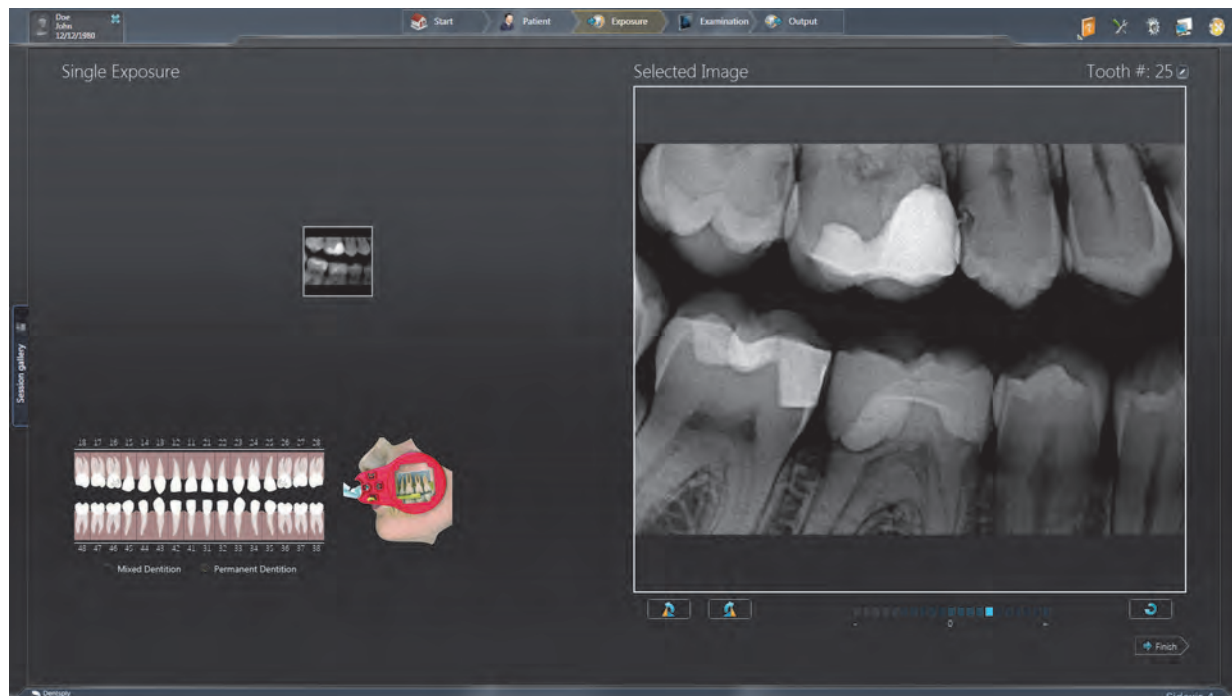
6. When the exposure has been acquired, several additional actions are available. These include swapping images, changing image orientation, and performing an image retake. If none of these actions are needed, click the *"Finish"* button to open the image in the *"Light box"*.

NOTE
The sensor positioning aid, shown next to the odontogram in the Acquisition screen, will only be displayed when one or more teeth are selected in the odontogram of this screen.

NOTE
Single Exposure, demonstrated by example here, does not use a template and the image will be opened in the *"Light box"* immediately after acquisition.

2.9 Edit and enhance exposures
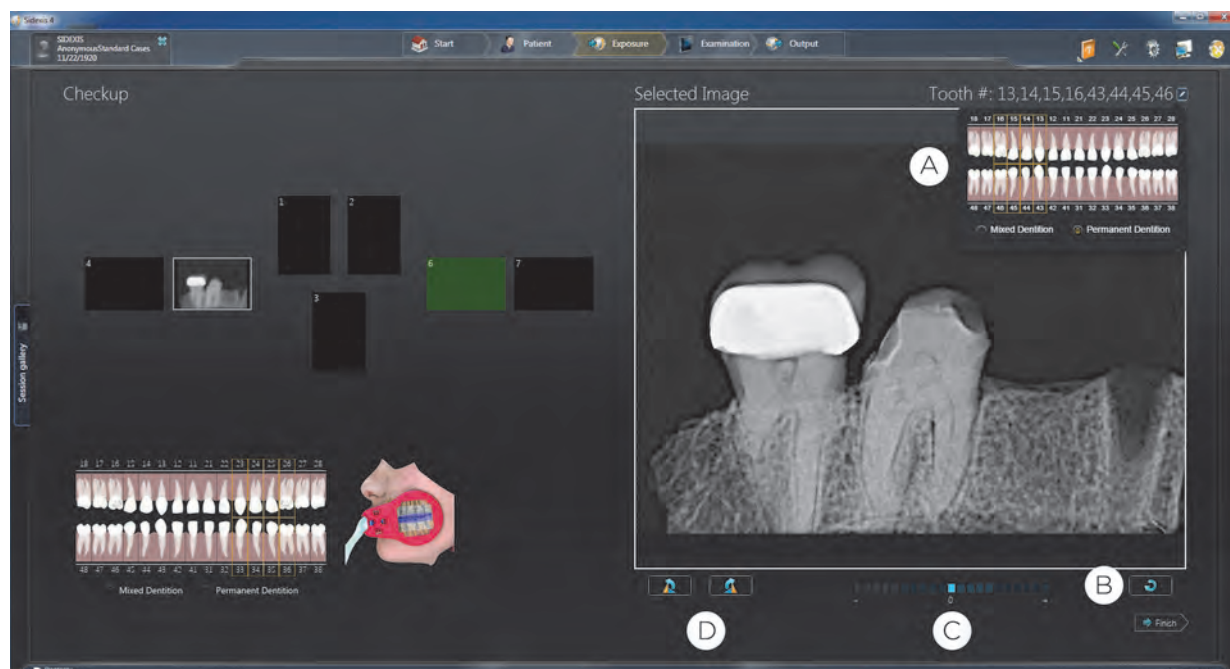
A	Odontogram (clear, assign, or change tooth numbers)
B	Retake image
C	Exposure meter
D	Re-orient image (rotate left or right)

2.9.1 Working with images in the Acquisition view

With the Sidexis 4 Sensor plugin clinicians have access to several features immediately after image acquisition. These include the following:

- Swapping images
- Changing image orientation
- Changing tooth numbering
- Getting exposure quality information
- Performing an image retake

Refer to the following paragraphs for more information about these features.

2.91.1 **Swapping images**

Swapping is a simple drag-and-drop action, enabling clinicians to move an image to a different viewbox in the same template or to swap two images in different viewboxes.

To swap images, perform the following steps:

1. In the Acquisition view, select an image to be swapped to a new position by clicking on it.

2. While holding the mouse button down, start moving the image to its new destination viewbox. As the image moves from its current location, the viewbox outline changes to orange.

3. As the image touches the destination viewbox, its outline will change to blue, indicating that this viewbox is selected as the new destination for the image. If that viewbox contains an image, the two images will swap positions when the drag-and-drop action is completed.

4. Release the mouse button to finish swapping.

5. Perform other actions in Acquisition view, if any, then click the *"Finish"* button to continue to the *"Light box."*

2.9.1.2 **Changing image orientation**

Changing the orientation of the acquired image -- a feature also available in the *"Light box"* -- is possible using the appropriate buttons located below the *"Selected Image"* window.

To change image orientation, perform the following steps:

1. Click on any image in the Acquisition view.

2. Change the orientation of the selected image by clicking on the appropriate buttons. Use the direction of the arrow in the icon to re-orient the image accordingly.

3. As the image is re-oriented, the smaller viewbox in the template also reflects those changes.

4. Perform other actions in Acquisition view, if any, then click the *"Finish"* button to continue to the *"Light box."*

2.9.1.3   **Changing tooth numbering**
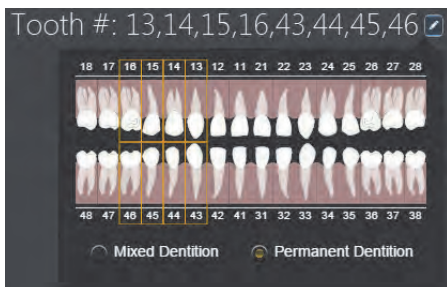
Changing tooth numbers — a feature also available in the *"Light box"* — is possible using the edit button located after any *"Tooth #"* assignments. It is also possible to assign new tooth numbers, to change the dentition, and to clear any currently assigned tooth numbers.

NOTE
The odontogram located above the *"Selected Image"* will add, change, or remove dental notations for that exposure only. The odontogram located below the viewboxes reflects the choices and dental notations made on the Indications screen: the teeth intended for exposure.

To change tooth numbers, perform the following steps:

1. Locate the edit button (after *"Tooth #"*) and click on it.
2. When the odontogram is displayed, any currently assigned tooth numbers will be highlighted. To clear all currently assigned tooth numbers in one action, hover the mouse over the odontogram. When the clear selection button appears, click on it to remove all currently assigned tooth numbers.
3. Click on any currently assigned tooth number to de-select it. As tooth numbers are de-selected, the *Tooth #"* list is updated*.
4. Click on any tooth number currently unassigned to add it to the *Tooth #"* list. As tooth numbers are added, the *Tooth #"* list is updated*.
5. Change the dentition by clicking on the appropriate button or text label. The standard tooth numbering for the selected dentition is changed automatically.
6. Perform other actions in Acquisition view, if any, then click the *"Finish"* button to continue to the *"Light box."*

2.9.1.4   **Using the Exposure meter**

The exposure meter — a feature also available in the *"Light box"* — is designed to convey exposure quality. Exposure quality is an assessment of an image in a range where exposure is considered optimal.

The middle of the meter *("0")* indicates that the image has been exposed optimally for the technique factors that were used.
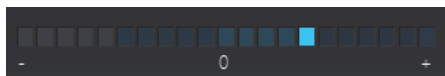
At one end of the meter *("-")*, the indication is that the image was underexposed and adjusting technique factors would improve image quality.

At the other end of the meter *("+")*, the indication is that the image was overexposed and adjusting technique factors would reduce patient dose without reducing image quality.

2.9.1.5 Performing an image retake

Performing an image retake — a feature also available in the *"Light box"* — is available for any image in the current exam at any time. Most commonly, this feature is used immediately after an image is acquired. Some typical reasons for retaking an image would be the result of unexpected patient or sensor movement, adjustment in X-ray settings, or improvement in image placement or quality.
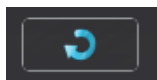
To retake an image, perform the following steps:

1. Click on any image in the Acquisition view.
2. Locate the retake button below the *"Selected Image"* window and click on it.
3. When the Retake image window is displayed, two viewboxes — "*Current Image*" and *"New Image"* — are shown.
4. The "*New Image*" viewbox functions just as any empty viewbox selected for imaging. The viewbox flashes red initially, as the sensor prepares for an exposure, and flashes green when the sensor is ready.
5. Trigger the X-ray source and acquire the new image.
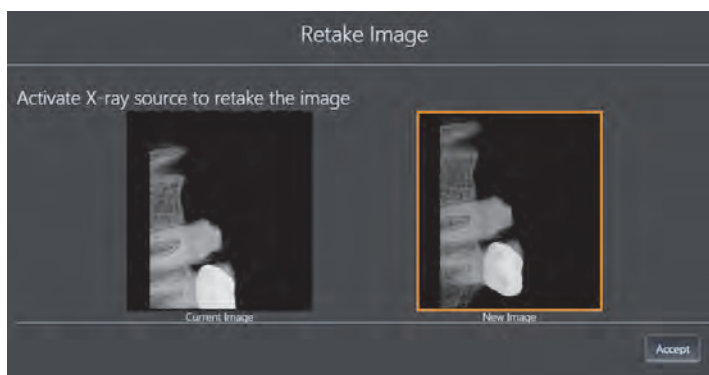
6. Select the desired image and click on the *"Accept"* button. The alternate image is removed from the exam, although it is still present in the Timeline.
7. Perform other actions in Acquisition view, if any, then click the *"Finish"* button to continue to the *"Light box."*

2.9.2 Enhancing exposures (XIOS XG Supreme and Schick 33)

The following features, specific for XIOS XG Supreme and Schick 33 sensors, are available In the *"Light box."*

- Diagnostic tasks
- Dynamic sharpening

To apply an enhancement or to select a task, perform the following steps:

1. Open a XIOS XG Supreme or Schick 33 image in the "*Light box."*
2. Click on the *"Tools"* docking window.
3. In the *"Filter"* tool kit, click on *"Intraoral Enhancements"* to expand it, then select a *"Task"* that provides the appropriate degree of enhancement.
4. For additional image adjustment, adjust the slider controller located below the *"Task"* menu.
5. Perform other actions in the *"Light box"* as needed.
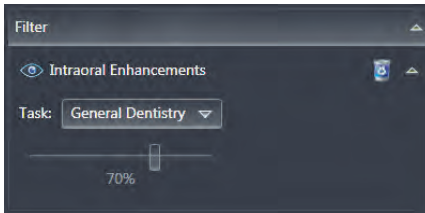
NOTE

To change the preset *"Task"* for newly acquired images and sharpness, go to *"Global Tools"* > "Exposure" > *"Intraoral Enhancements."*

NOTE

Intraoral enhancements, like other tools available in the *"Light box,"* can be removed with a single step by clicking on the recycle container. To restore intraoral enhancements, click on the *"Reset"* feature in the *"Analysis"* toolkit.

2.9.3 Enhancing exposures (XIOS XG Select and Schick Elite)

The following feature, specific for XIOS XG Select and Schick Elite sensors, is available In the *"Light box."*

- Image enhancements

To apply an enhancement, perform the following steps:

1. Open a XIOS XG Select or Schick Elite image in the *"Light box."*
2. Click on the *"Tools"* docking window.
3. In the *"Filter"* tool kit, click on *"Intraoral Enhancements"* to expand it, then select an *"Enhancement"* that provides the appropriate degree of improvement.
4. Perform other actions in the *"Light box"* as needed.
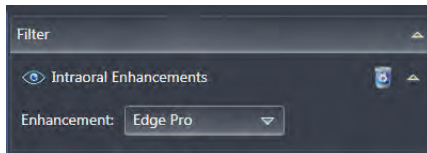
NOTE
To change the preset *"Task"* for newly acquired images and sharpness, go to *"Global Tools"* > "Exposure" > *"Intraoral Enhancements."*

NOTE
Intraoral enhancements, like other tools available in the *"Light box,"* can be removed with a single step by clicking on the recycle container. To restore intraoral enhancements, click on the *"Reset"* feature in the *"Analysis"* toolkit.

2.10 Remove the hygienic protective sleeve from the sensor

2.10.1 With AimRight adhesive sensor holder system

Have the sensor holder tab and the sensor holder glued onto the hygienic protective sleeve. This makes it easier to remove the hygienic protective sleeve.

NOTICE
The sensor cable is sensitive to mechanical influences.
The cable may become damaged or may wear out prematurely.
➤ Do not pull on the sensor cable when pulling the sensor out of the hygienic protective sleeve. Slide the sensor further out of the hygienic protective sleeve with your thumb as described below.
➤ Avoid bending, creasing or rotating the cable or exposing it to other strains.

1. Grasp the guide rod in one hand so that you can touch the side of the sensor facing away from the sensor cable with your thumb.

2. Carefully push the sensor out of the part of the hygienic protective sleeve that is glued to the sensor holder tab with your thumb.

3. Slide the sensor further out of the hygienic protective sleeve with your thumb.

4. Hold the sensor cable firmly to prevent the sensor from falling out of the hygienic protective sleeve.

2.10.2 With Aimright autoclacvable sensor holder system

> **NOTICE**
>
> **The sensor cable is sensitive to mechanical influences.**
>
> The cable may become damaged or may wear out prematurely.
>
> ➢ Do not pull on the sensor cable when pulling the sensor out of the hygienic protective sleeve. Slide the sensor further out of the hygienic protective sleeve with your thumb as described below.
>
> ➢ Avoid bending, creasing or rotating the cable or exposing it to other strains.

1. Remove the sensor with the hygienic protective sleeve from the sensor holder. To do this, open up the sensor holder by pressing gently on one side as shown in the figure.

2. Carefully push the sensor out of the narrow part of the hygienic protective sleeve with two fingers.

3. Slide the sensor further out of the hygienic protective sleeve.

4. Hold on to the sensor and remove it from the hygienic protective sleeve.

2.11   Rescue mode

During normal use, Sidexis software saves patient data and images to the server and makes them available whenever needed. In some situations, however, communication with the Sidexis server may be disrupted, preventing images from being saved properly.

Several reasons can cause this issue, but the most common include:

- Connection to the Sidexis server is lost
- Network connection is interrupted
- Incorrect software or system configuration.

In the event of a disruption, only images in the current exam would be affected, but the clinician will be able to complete the exam if one was in progress. In a typical recovery the issue is corrected, whatever its cause, and the images are saved automatically without further interaction from the clinician.

In the event the images could not be saved properly to the server the Sidexis 4 Sensor Plugin will enter *"Rescue mode."* Rescue mode means that there are images that have not been stored in the patient database and further action is needed to resolve the problem. Rather than exposing the patient to additional radiation as a result of these unstored images, the Sidexis 4 Sensor Plugin can be used to rescue them.

A clinician is alerted to Rescue mode by the appearance of a special icon (in Sidexis) on the currently connected sensor, USB Interface, or WiFi Interface. This icon does not indicate a hardware problem with those devices, but the presence of unsaved images requiring user action. Substituting different hardware, by itself, will not resolve the issue.

2.11.1 Resending Images in Rescue mode (Recommended)

To rescue unsaved images, please perform the following steps:

1. Resolve the issue that caused the Sensor plugin to enter Rescue mode.

2. Click on Windows Start menu > All Programs > Sidexis 4 Sensor Plugin.

3. Click on Sidexis 4 Sensor Configuration.

4. Click *"Status"* at the Sidexis 4 Sensor Configuration page.

5. Select the device in Rescue mode. If several devices are connected, choose the one in Rescue Mode from the drop down list.

6. The Exposure Information area provides the number of unsaved images and patient-related information. Click *"Resend Images."*
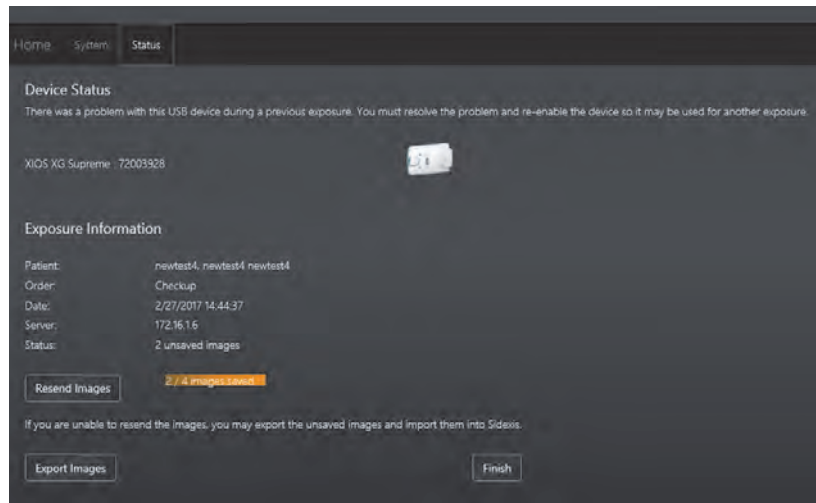
7. When all the images are resent, click *"Finish."*

8. The *"Status"* will now indicate that the system is ready and no additional recovery steps are needed.

9. In Sidexis, on the device selection screen, the Rescue icon is removed.

   If, for some reason, the images cannot be resent, they can still be rescued by exporting them from this page and then importing them manually into Sidexis and saving them in that way. This alternate procedure is described in the following section.

2.11.2 Exporting Images in Rescue Mode

To rescue unsaved images by exporting them, please perform the following steps:

NOTE
This procedure is an alternate approach to rescue images if you are unable to resend them using the recommended procedure above.

1. Click on Windows Start menu > All Programs > Sidexis 4 Sensor Plugin.
2. Click on Sidexis 4 Sensor Configuration.
3. Click *"Status"* at the Sidexis 4 Sensor Configuration page.
4. Select the device in Rescue mode. If several devices are connected, choose the one in Rescue Mode from the drop down list.
5. The Exposure Information area provides the number of unsaved images and patient-related information. Click *"Export Images."*
6. Click "*Save As"* to save a zip file of unsaved images to a known location on the workstation
7. Browse for the zip file, select it, and extract the contents.

NOTE
Before importing images into Sidexis, check the patient information box located in the phase bar area. This is the patient to whom the imported images will be assigned.

8. In Sidexis, in the Exposure phase, click *"File Import"* and browse for the images just extracted.
9. Select the images and click *"Open."*
10. The File Information table will list the selected images and their status. Click *"Import."*
11. The images will open in the *"Light box."* They will also be available in the Timeline for that patient.
12. On the Sidexis 4 Sensor Configuration page, click *"Finish."* If you have not attempted successfully to rescue images by resending them, which is the recommended approach, this is an opportunity to do so. Otherwise, click "*OK"* to conclude the rescue procedure.
13 The *"Status"* will now indicate that the system is ready and no additional recovery steps are needed.
14. In Sidexis, on the sensor selection screen, the Rescue icon is removed.

3 Intraoral Enhancements

3.1 Accessing intraoral enhancements

Information about the Exposure page

Enhancements for images acquired with XIOS XG Supreme (and Schick 33 sensors) and with XIOS XG Select (and Schick Elite sensors) are available in Sidexis 4 from *"Global Tools,"* located above the phase bar, in the upper right side of the application.

NOTE
Any changes made in "Global Tools," such as changes in the type of image resolution, the diagnostic task, or the sharpness level will be applied to all workstations on the network. Intraoral enhancements can also be edited in the Sidexis *"Light box."*

The following settings are available in the Exposure window:

- Image resolution, diagnostic tasks, and dynamic sharpening for XIOS XG Supreme and Schick 33 sensors

- Enhancement options for XIOS XG Select and Schick Elite sensors.
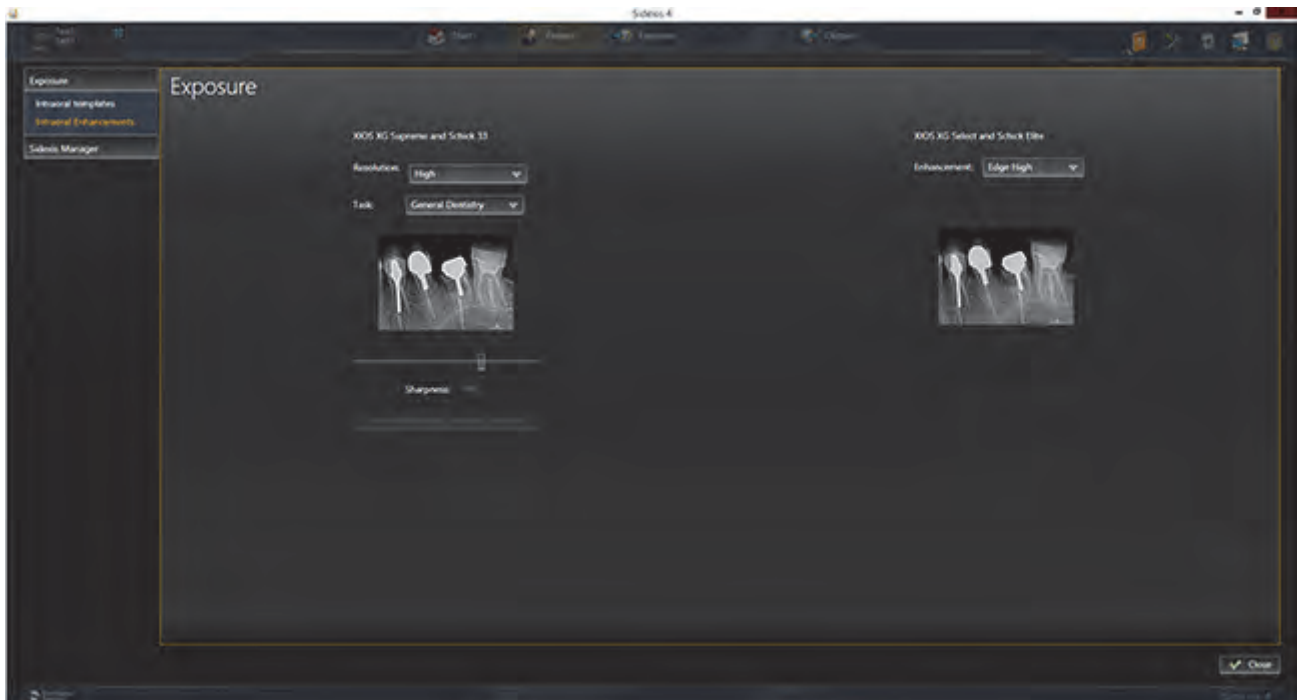
3.2 Image enhancements for XIOS XG Supreme and Schick 33 sensors

3.2.1 Resolution

Resolution in this context refers to a level of image quality attainable by the sensor's performance. The resulting image, affected directly by the type of resolution selected, is the product of the pixel binning process in the sensor.

Maximum image quality is attained in the 1x1 binning mode (High Resolution), which is enabled by default and recommended for most practices. In the 2x2 binning mode (Standard Resolution), 4 pixels are combined to form a single pixel. The resolution of the exposure is lower but less storage space is required.

The default setting for image resolution, if changed, is applied to all new images acquired with XIOS XG Supreme and Schick 33 sensors. This change becomes effective with a new acquisition session.

3.2.1.1 Changing image resolution

1. Click on the "*Global Tools*" icon in Sidexis 4.
2. Under the *"Exposure"* section, click on *"Intraoral Enhancements."*
3. High resolution is the default and recommended setting for most practices with XIOS XG Supreme and Schick 33 sensors. To change the resolution, click on the drop-down menu and change the selection to Standard.
4. Click *"Close"* to save the new selection and exit "*Global Tools.*"

3.2.2 Task

XIOS XG Supreme and Schick 33 sensors and supporting software enable clinicians to optimize image presentation to a level appropriate for the diagnostic task being performed. These settings (General Dentistry, Endodontic, Periodontic, Restorative, and Hygiene) are applied at display time and do not affect the original image data.

Task selections can be changed for any image, from one task to another, and back at will. The different task selections optimize the contrast and brightness of the displayed image to improve visibility of the anatomical structures important for that diagnostic task.

The default setting for diagnostic tasks, if changed, is applied to all new images acquired with XIOS XG Supreme and Schick 33 sensors. This change becomes effective with a new acquisition session.
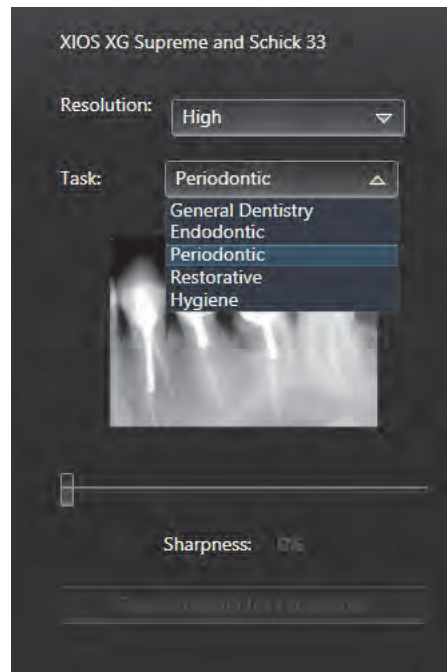
3.2.2.1 Changing diagnostic tasks

1. Click on the "*Global Tools*" icon in Sidexis 4.
2. Under the "*Exposure*" section, click on "*Intraoral Enhancements.*"
3. General Dentistry is the default and recommended setting for most general practices with XIOS XG Supreme and Schick 33 sensors. To choose a different task, click on the drop-down menu and change the selection accordingly.
4. Choosing a different task causes the image preview window to update as well. Although the image is intended only as a sample, the effects of the different tasks can be visualized clearly.
5. Click "*Close*" to save the new selection and exit "*Global Tools.*"

IMPORTANT

The intraoral enhancements for XIOS XG Supreme and Schick 33 only affect exposures taken with those sensors.

3.2.2.2 Changing diagnostic tasks and saving a new Sharpness value

1. Click on the "*Global Tools*" icon in Sidexis 4.
2. Under the "*Exposure*" section, click on "*Intraoral Enhancements.*"
3. General Dentistry is the default and recommended setting for most general practices with XIOS XG Supreme and Schick 33 sensors. To choose a different task, click on the drop-down menu and change the selection accordingly.
4. Choosing a different task causes the image preview window to update as well. Although the image is intended only as a sample, the effects of the different tasks can be visualized clearly.
5. Click on the pointer of the sharpness slider controller to further refine the selected task. Each diagnostic task includes a preset amount of sharpness, but this can be adjusted for personal preferences. Changing the sharpness for a particular task affects the sharpness for that task only.
6. Move the pointer in one direction to increase the sharpness of the image. Move the pointer in the other direction to increase the smoothness of the image.
7. To save a new default sharpness value for that task, click the "*Save as default*" button.
8. Click "*Close*" to save the new selection and its new sharpness value and exit "*Global Tools.*"

Selecting Diagnostic Tasks
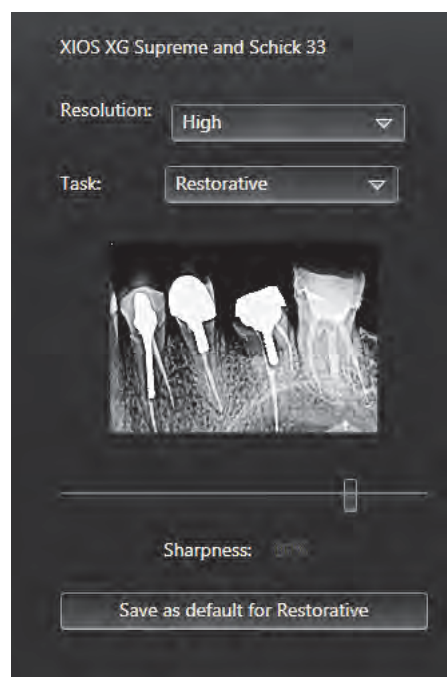
Changing Sharpness Values for Diagnostic Tasks

3.3 Image enhancements for XIOS XG Select and Schick Elite sensors

3.3.1 Enhancement

The names of the Smooth, Edge Low, and Edge High are themselves accurate descriptions of the way in which the presentation of the image is enhanced. Edge Pro presents a smoother image with lower contrast and brightness for customers who prefer their images displayed with these characteristics.

Use of these options is discretionary so clinicians can try one that offers the best presentation for review. An image enhancement, when selected, will be applied to all new images acquired with XIOS XG Select and Schick Elite sensors. This change becomes effective with a new acquisition session.

Enhancements can be also changed in the "*Light box*". Remember that choosing a different enhancement will not affect images acquired already. Alternatively, it is possible to choose to not have any enhancement applied (No Enhancement), if desired.

Please note that the Edge Pro is more sensitive to severe underexposure than other enhancements. Very light images are an indication that the dose is insufficient for the anatomy being imaged and a slight increase in exposure time is indicated.

3.3.1.1 **Changing enhancements**

1. Click on the "*Global Tools*" icon in Sidexis 4.

2. Under the *"Exposure"* section, click on *"Intraoral Enhancements."*

3. Edge Pro is the default and recommended setting for most practices with XIOS XG Select and Schick Elite sensors.To choose a different task, click on the drop-down menu and change the selection accordingly.

4. Choosing a different task causes the image preview window to update as well. Although the image is intended only as a sample, the effects of the different tasks can be visualized clearly.

5. Click *"Close"* to save the new selection and exit *"Global Tools."*

IMPORTANT
The intraoral enhancements for XIOS XG Select and Schick Elite only affect exposures taken with those sensors.
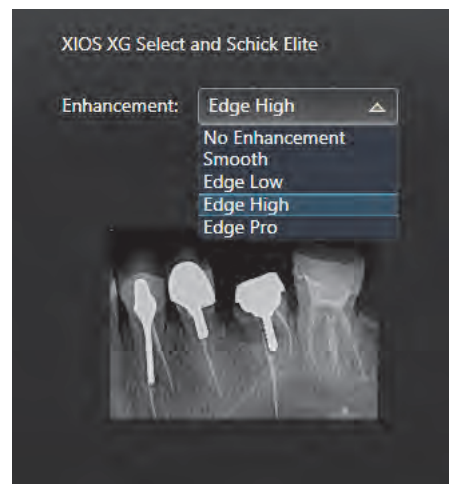
4 Maintenance and Inspection

4.1 Hygiene

Disinfect and sterilize accessories prior to initial use and after each patient.

4.1.1 Care and cleaning agents

NOTICE
Approved care and cleaning agents
Use only care and cleaning agents which have been approved by Dentsply Sirona!

A continuously updated list of approved agents can be downloaded from the Internet at the address *"www1.dentsplysirona.com"*. Browse to the "Care and Cleaning" section on the website for related documents.

If you do not have any access to the Internet, please contact your dental depot to order the list of cleaning and disinfecting agents, identified by the following document number: REF 59 70 905.

Approved disinfectants in the USA and Canada include:

- Original CaviCide
- Original CaviCide Wipes

4.1.2 Intraoral Sensor Wallbox and sensors
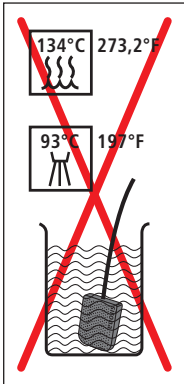
NOTICE
Liquids can seep into the Intraoral Sensor Wallbox or the sensor during cleaning and disinfection. The plug contacts may become wet.
The Intraoral Sensor Wallbox, sensor, and PC can be damaged or destroyed by a short circuit.
➢ Before performing cleaning and disinfecting procedures, disconnect the Ethernet cable, power supply cable, and the sensor from the Intraoral Sensor Wallbox.
➢ The Intraoral Sensor Wallbox and the sensor must not be disinfected thermally, sterilized or immersed in disinfectant. They must not be disinfected or sterilized with radiation.
➢ Never spray connectors with disinfectants or cleaning solutions. Make sure that the plug contacts do not become wet.

NOTICE
Medicaments chemically react with the surface of the unit.
Due to their high concentrations and the substances they contain, many medicaments can dissolve, etch, bleach or discolor surfaces.
➢ Clean any medicament residues off of the unit immediately with a moist cloth!

✔ All plug connections are disconnected.

✔ Wash hands and put on a new pair of disposable gloves.

1. If any product surface is visibly soiled (e.g., with blood or saliva), it should be cleaned with a soapy cloth or paper towel, and then dried with a clean lint-free cloth or paper towel.

2. Thoroughly spray or wipe the sensor, the sensor cable, and the Intraoral Sensor Wallbox with an approved disinfecting product. Do not expose the enclosure on either the sensor or the Intraoral Sensor Wallbox to any amount of liquid. If using a spray disinfectant, allow it to remain on the surface for 5 minutes. If using a liquid disinfectant, allow it to remain on the surface for 30 seconds.

3. When the surfaces of the sensor, the sensor cable, and the Intraoral Sensor Wallbox have been sprayed or wiped two times, remove any potential chemical residue with a lap sponge saturated with de-ionized water.

4. Use a dry lap sponge to dry the product surfaces as needed.

5. Store the sensor in its holster on either side of the Intraoral Sensor Wallbox for the next treatment.

4.1.3   Sensor holders

The positioning rods and rings for the XIOS XG and Schick sensor holders are sterilizable.

The rods and rings must be sterilized before initial use and once a treatment has ended. Rods and rings must be cleaned before each sterilization.

> **NOTICE**
>
> **The plastic parts of the sensor holder must not be exposed to high sterilization temperatures.**
>
> The plastics may melt, warp or become brittle as a result of improper sterilization.
>
> ➤ Sterilize metallic and plastic parts in separate sterilization pouches.
> ➤ Ensure that the temperature in the steam sterilizer does not exceed 134°C (273°F) during the sterilization process. Operate the steam sterilizer according to the manufacturer's instructions.
> ➤ Do not use phenol-based glutaraldehyde, ultrasonic cleaners, chemiclaves or hot-air sterilizers for sterilization. Do not use cold sterilization.

> **IMPORTANT**
>
> Plastic parts have a limited lifetime. This is reduced with each sterilization cycle. As a result replace the plastic parts of the sensor holder on a regular basis.

1. Separate the rods and rings.
2. Remove any residues with hot soapy water or mild dishwashing liquid.
3. Put the components, metal parts separated from plastic parts, into individual sterilization pouches.
4. Put the sterilization pouches into the middle tray of the steam sterilizer, ensuring sufficient distance to the walls of the steam sterilizer and the heating element.
5. Sterilize in a steam sterilizer at **134°C (273.2°F) for at least 3 min. holding time and 2.1 bar (30.5 psi) overpressure**.

4.2 Regular inspections

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

Before and during operation

The system owner or an appointed person must ensure that:

● there are no changes to the additional second protective ground conductor connection of the PC

● the PC used is outside the patient environment (up to 1.5 m around the patient) if it is installed without a second protective ground conductor

● all components, such as cables, sensors and housing parts, are in sound condition

Monthly

Once a month the system owner or an appointed person must:

● check the sensor cable thoroughly for wear and tear

● make sure the connector housing is fastened securely at the sensor cable

Annually

The image quality must be assessed by the system owner or an appointed person at regular intervals, at least once a year.

On digital sensors, the degree of postprocessing (brightness or contrast adjustment) that is required in the image processing software (e.g. Sidexis 4) to produce satisfactory results is used 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.

> ⚠ **CAUTION**
>
> Should you identify faulty components in your XIOS XG or Schick product, please inform your appointed service engineer. In this case, the device should no longer be used for patient exposures.

Observe any possible additional country-specific requirements.

Please also check that the labels on the underside of the Intraoral Sensor Wallbox is undamaged and legible.

> ⚠ **CAUTION**
>
> **The Intraoral Sensor Wallbox must not be opened or repaired by the user.**
>
> **All parts of the device are maintenance-free. In case of malfunctioning, please always contact your specialized dealer.**

4.3 Replace the sensor cable

The sensor cable can be replaced with a new one in the event of damage.

A "sensor cable" replacement set, containing the required spare parts and tool, is required for this procedure

● Sensor cable

● Screwdriver

● 2 protective screw caps

● 2 Elastomer strips or Elastomer frames

● 4 flathead screws

● gel disks

| NOTICE |
| --- |
| **The electric plug contacts of the sensor are exposed during installation.** |
| The sensor may be destroyed by the electrostatic discharge at the contacts. |
| ➢ Before installation discharge at a conductive grounded item, e.g., a water faucet or a bare heating pipe. |

NOTICE
No dirt or moisture must be allowed to get into the exposed plug contacts.
Dirt causes contacts faults, moisture may lead to a short circuit.
➢ Wash and dry your hands. Do not wear powdered gloves. The powder could become deposited in the plug contacts of the sensor.
➢ Place the sensor on a clean, dry and stable surface.

Unscrew a damaged cable from the sensor

1. Disconnect the XIOS XG or Schick sensor.

2. With a dental instrument remove the protective screw cap from the rear side of the sensor.

3. Using the screwdriver supplied with the set remove the 2 screws which fasten the cable to the sensor.
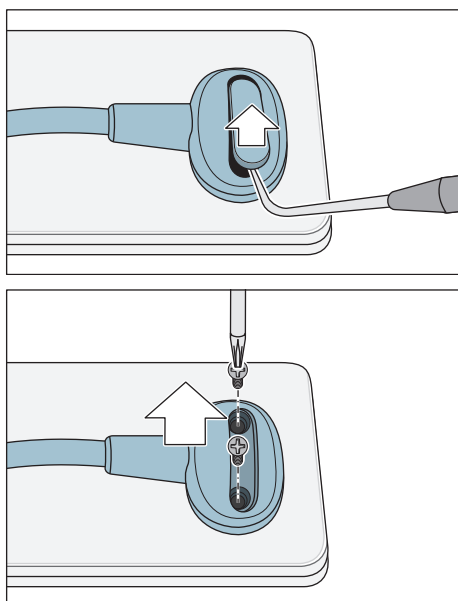
Replace the Elastomer (XIOS XG Select or Schick Elite)

1. Replace the blue elastomer with a blue elastomer from the spare parts kit

Replace the Elastomer / frame (XIOS XG Supreme or Schick 33)

1. Check the contents of the spare parts kit.

2. If your spare parts kit contains a red elastomer:

   Use it to replace the red elastomer just removed from the sensor.

   Check that the new elastomer is positioned correctly by pressing lightly across the top of the elastomer.

3. If your spare parts kit contains a white elastomer frame:

   Remove the red elastomer and the red frame from the sensor and replace them with the white elastomer frame.

   Carefully place the white frame into position, flat surface facing up and notched cutout facing the longer side of the sensor. Avoid contact with the gold elastomer strip in the center.

   After inserting the frame, apply a small amount of finger pressure around the outer edges to ensure that the material is seated correctly.
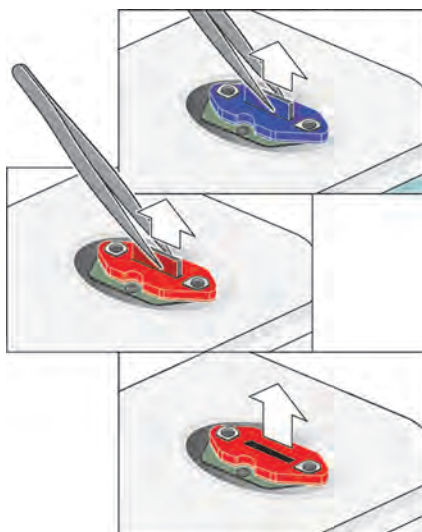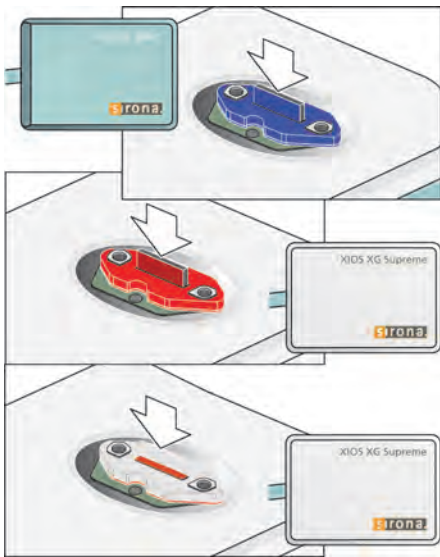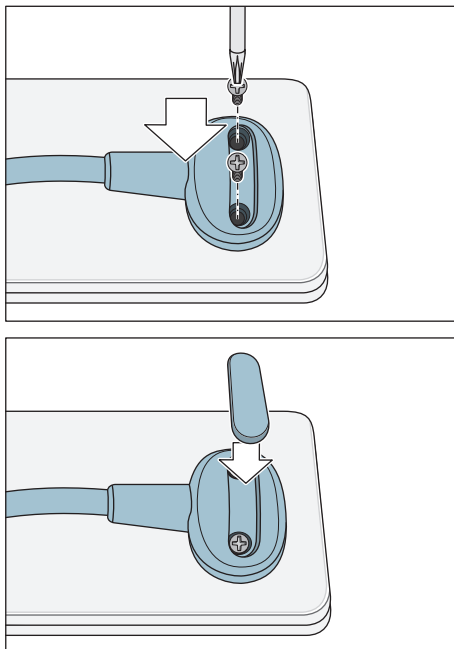
IMPORTANT
Use the new parts supplied with the cable for the assembly!

IMPORTANT
The spare parts for XIOS XG Select and Schick Elite sensors are blue while those of the XIOS XG Supreme and Schick 33 sensors are either red or white. The Elastomer strip (or frame) must be placed exactly in the slot so that the sensor works.

Attach a replacement cable

1. Place the plug for the sensor cable properly on the sensor. Both parts must interlock.

2. Screw the sensor cable to the sensor using the screws supplied. Initially only tighten the screws until a light resistance can be felt. After this tighten both screws carefully.

3. For each screw just tightened, remove a gel disk from its paper backing and place it over the screw. make sure that the gel completely covers the screw.

4. Cover the screw heads with a new protective screw cap. Press the cap into the plug of the sensor cable until it locks in place.

↳ The cable replacement is now completed. The sensor can be used again.

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

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