

Endo IQ[®] App

User Manual



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For Dental Use Only

Introduction

Congratulations on downloading **Endo IQ®** App.

This User Manual is kept current by Dentsply Sirona. The most current version can be accessed at dentsplysirona.com and uploaded into **Endo IQ®** App.

For environmental reasons, a printed version of the User Manual is not available in certain countries. However, a printed version is available upon request (free of charge within 7 calendar days to any address in Europe). For a free copy of the User Manual send your request to endo@dentsplysirona.com. The User Manual is available in other languages upon request.

The User Manual has been compiled with the utmost care. Nevertheless, it is not always possible to completely rule out the risk of error, despite all efforts to do so. We would appreciate your feedback in this area. If any errors are noted, please contact Dentsply Sirona.

The pictures in this User Manual may vary slightly from the current **Endo IQ®** App. Some images and sections of this User Manual may represent or describe devices or functionalities not available in all countries at a given point in time.



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1 INDICATIONS FOR USE

Endo IQ® App is an iPad® application that displays information about **X-Smart IQ®** Handpiece and **Propex IQ®** Apex Locator and it can be used to set their respective parameters.

It allows the user to define and to customize the following **X-Smart IQ®** Handpiece parameters:

- Speed;
- Torque limit;
- Rotation type (continuous or reciprocating);
- Behavior on torque limit reached (stop or Torque Reverse);
- Apical Reverse;
- Unconnected parameters;
- Power off.

The application gives the user the ability to select the current file from an integrated file-library and to automatically apply corresponding parameters.

The user can define his/her own file sequences with fully-customizable file parameters.

The **Endo IQ®** App allows the user to record treatments (type of tooth treated, speed, file and torque used, etc.) and to export the corresponding data via PDF.

The **Endo IQ®** App also allows the user to display the current file progression information of the **Propex IQ®** Apex Locator and to define the following parameters of the **Propex IQ®** Apex Locator:

- Sound volume;
- Sound scheme;
- Shaping target.

Furthermore, **Endo IQ®** App upgrades the firmware version of each device to guarantee device-app compatibility. It also allows the user to perform guided functional tests of the devices and cables to ensure the proper functioning of the system before use.

2 CONTRAINDICATIONS

Read the following contraindications before use.

- **Endo IQ®** App connected with **X-Smart IQ®** Handpiece and/or **Propex IQ®** Apex Locator must not be used in patients fitted with an implanted heart pacemaker (or other electrical equipment) who have been cautioned against the use of small electrical appliances (such as electric shavers, hair dryers, etc.).
- Safety and effectiveness have not been established in pregnant or breastfeeding women or in children.
- Clinical judgment needs to be exercised by the end user of the **Endo IQ®** App.

3 WARNINGS

Read the following warnings before use.

Dentist

- The **Endo IQ®** App is intended for endodontic treatment and may only be used by trained and qualified dentists.
- It is strongly recommended that all open applications are closed before launching **Endo IQ®** App.
- Dentsply Sirona cannot be held liable for the developed application if unauthorized modifications have been made (e.g. jailbreaking). It is the user's responsibility to ensure that all patient information and data is protected in accordance with HIPAA regulations.
- User must follow appropriate behavior to protect data on the iPad®, such as activating the device master password, activating the encryption of the backup on iTunes® and avoid using the iPad® outside of the medical environment.
- Treatment notes linked to patients in the application are subject to the requirements of the applicable legislation on data privacy.
- It is strongly recommended to periodically transfer all treatment notes associated with a patient to your Dental Practice Management Software and back-up your iPad® using iTunes®.
- **Endo IQ®** App does not replace your Dental Practice Management Software.

Ambient conditions

- The iPad® can emit radio-frequency energy because of the Bluetooth® and Wifi modules. These interferences are comparable to those from a computer or mobile phone.
- The use of the iPad® in a medical environment requires particular care in regards to electromagnetic interference with other devices. Please refer to the Apple User Manual for more information about the iPad® electromagnetic compatibility.
- Be aware that other equipment can disturb wireless connections. In such a case, the **Endo IQ®** App might indicate the actual file position with a delay. The dentist should sporadically cross-check that the **Endo IQ®** App indication corresponds to the indication on **Propex IQ®** Apex Locator.

iPad®

- The operating conditions and limitations specified by Apple® must be complied with.
- Do not disable the iPad® sounds when using **X-Smart IQ®** Handpiece or **Propex IQ®** Apex Locator.
- The wireless connection between **X-Smart IQ®** Handpiece, **Propex IQ®** Apex Locator and the iPad® can get jammed due to external interferences.
- Always check to ensure that the iPad® has sufficient battery charge before starting treatment.

4 PRECAUTIONS

Read the following precautions before use.

- The manufacturer declines any responsibility in the case of use of non-original components or components other than those specified in this manual.
- Please check the compatibility of your **Endo IQ®** App before updating the iPad® operating system.
- Always install the latest version of **Endo IQ®** App. Regularly check for updates on the Apple App Store®.
- Check Section [6.2 Endo IQ® App Compatibility](#) for iPad® requirements.

5 ADVERSE REACTIONS

There are no known adverse reactions.





6 STEP BY STEP INSTRUCTIONS

Refer to the section [3 Warnings](#) to verify any special care to exercise before starting to use **Endo IQ®** App.



*Refer to **X-Smart IQ®** Handpiece Directions For Use, **Propex IQ®** Apex Locator Directions For Use and **Endo IQ®** Accessories Directions For Use for information regarding these products.*

6.1 Document Symbols

Symbol	Identification
	Consult X-Smart IQ® Handpiece Directions For Use, Propex IQ® Apex Locator Directions For Use or Endo IQ® Accessories Directions For Use
	If the instructions are not followed properly, operation may have risks for the product or the user / patient
	Additional information, explanation on operation and performance
	Suggestion or advice

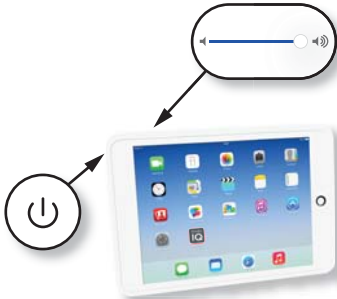
6.2 Endo IQ® App Compatibility

Specification	Description
iPad® requirements	<ul style="list-style-type: none">• iPad Mini™ 2• iPad Mini™ 3• iPad Mini™ 4• iPad® (6th gen)• iPad Pro® 10.5"• iPad Pro® 12.9" (2nd gen)
Operating system	<ul style="list-style-type: none">• iOS
X-Smart IQ® Handpiece	<ul style="list-style-type: none">• Original Dentsply Sirona X-Smart IQ® Handpiece
Propex IQ® Apex Locator	<ul style="list-style-type: none">• Original Dentsply Sirona Propex IQ® Apex Locator

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6.3 System Setup

6.3.1 Turning on the iPad® and setting the volume

N°	Action
A	Turn on the iPad®.
B	Adjust the volume to maximum.
	





6.3.2 Activating the WiFi

You need to activate the WiFi to download **Endo IQ®** App.

N°	Key	Action
A		Select Settings.
B		Select WiFi.
C		Set WiFi to ON.
D		Select your network and enter your password.


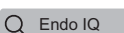



6.3.3 Activating the Bluetooth® functionality

You need to activate Bluetooth® to connect **X-Smart IQ®** Handpiece and/or **Propex IQ®** Apex Locator to **Endo IQ®** App.

N°	Key	Action
A		Select Settings.
B		Select Bluetooth®.
C		Set Bluetooth® to ON.
	To connect X-Smart IQ® Handpiece, see 6.6.1 Connecting X-Smart IQ® Handpiece . To connect Propex IQ® Apex Locator, see 6.7.1 Connecting Propex IQ® Apex Locator .	

6.3.4 Installing and Updating the Endo IQ® App

Endo IQ® App is available in the App Store®.

N°	Key	Action
A		Connect to the App Store®.
B		Search for Dentsply Endo IQ and download the Endo IQ® App.
	To download Endo IQ® App, you need an Apple ID. If you already have one, use it and log in. If you do not have one, follow the procedure on the Apple.com website to create an ID.	
	Regularly check for Endo IQ® App updates on the App Store®.	
	Always check that iOS is compatible with the application information (see 6.2 Endo IQ® App Compatibility) before updating your iPad® or iOS.	

6.4 Getting started with Endo IQ® App


6.4.1 Starting the application

Endo IQ® App is a multi-user iOS application for iPad® that can be used to manage, control and show feedback from **X-Smart IQ®** Handpiece and/ or **Propex IQ®** Apex Locator. The application includes the following features:

- **X-Smart IQ®** Handpiece management via Bluetooth® connection;
- **Propex IQ®** Apex Locator management via Bluetooth® connection;
- Treatment log and reporting system (see [6.6.7 Treatment report](#));
- File library (see [6.6.9 Customize endodontic file sequence](#));
- User profile management (see [6.4.3 Interface Presentation](#)).



Close all open applications before launching **Endo IQ®** App.







N°	Key	Action
A		Start the application.

6.4.2 Editing or creating a user profile

The first time you use the application, you will be asked to create a user's profile. Edit your profile with your data.




If there is only one user defined, you will be automatically connected as this user.

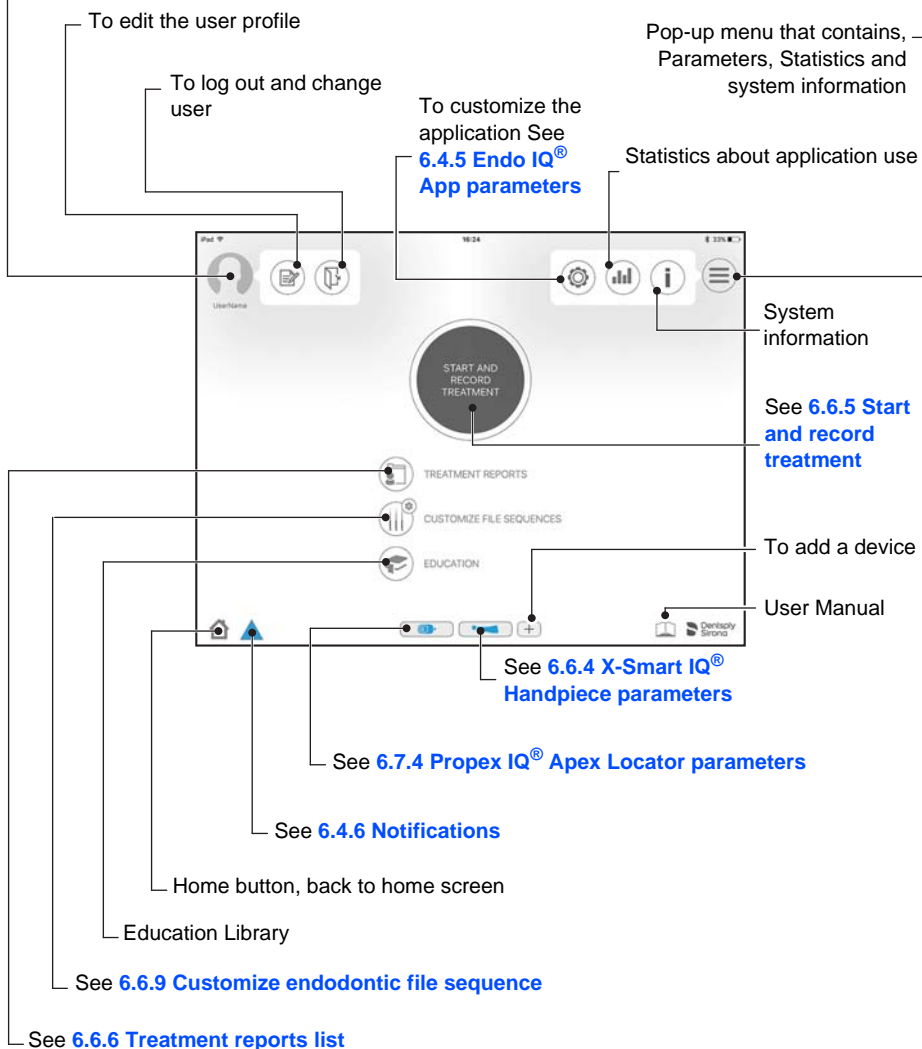
N°	Key	Action
A		Tap the user icon. See 6.4.3 Interface Presentation .
B		Edit the profile. See 6.4.3 Interface Presentation . <i>Enter a user name (mandatory) and an email address (optional).</i>
		To add a new user, follow the steps below.
C		Log out (see 6.4.3 Interface Presentation).
D		Create a new user. <i>Enter a user name (mandatory) and an email address (optional).</i>
		The email address is used as the default recipient for treatment reports. To use this function, you must have an email account set up in the Mail settings of the iPad® to send the treatment reports.

6.4.3 Interface Presentation

When launching **Endo IQ®** App, users are prompted to enable the Bluetooth® link between **Endo IQ®** App and the devices (**X-Smart IQ®** Handpiece and/ or **Propex IQ®** Apex Locator).




No device detected	Device detected
	<p>Endo IQ® App recognizes each device once the user has pressed on the device Bluetooth® switch. Then, the user must select the serial number of the device that appears on the app screen.</p> <p>The treatment can start, and the active devices appear at the bottom of the screen.</p> <p>See 6.6.1 Connecting X-Smart IQ® Handpiece and 6.7.1 Connecting Propex IQ® Apex Locator.</p>

Pop-up menu that contains: Edit user profile and log out
See [6.4.2 Editing or creating a user profile](#)








6.4.4 Symbols





Image	Description
	Go back to previous page without saving.
	Save and leave the actual page.
	Patient information. See 6.6.6 Treatment reports list .
	Treatment notes. See 6.6.8 Treatment notes .
	File library. See 6.6.9 Customize endodontic file sequence .
	Torque recording graph. See 6.6.5 Start and record treatment .
	Calibration. See 6.6.5 Start and record treatment .
	Create and send a PDF report by email. See 6.6.6 Treatment reports list .
	Send multiple reports by email.
	Edit (a file, a sequence, a patient's details, etc.).
	Delete (a file, a sequence, a patient's details, etc.).
	More information.
	All icons with a small < + > are used to create: new file, new sequence, new patient, etc.
	Draw.
	Erase your drawings.
	Continuous rotation mode.
	Reciprocating motion mode.

Image	Description
	Torque Reverse
	Bluetooth® connection level between the iPad® and X-Smart IQ® Handpiece or Propex IQ® Apex Locator.
	X-Smart IQ® Handpiece or Propex IQ® Apex Locator battery level.


X-Smart IQ® Handpiece status symbols

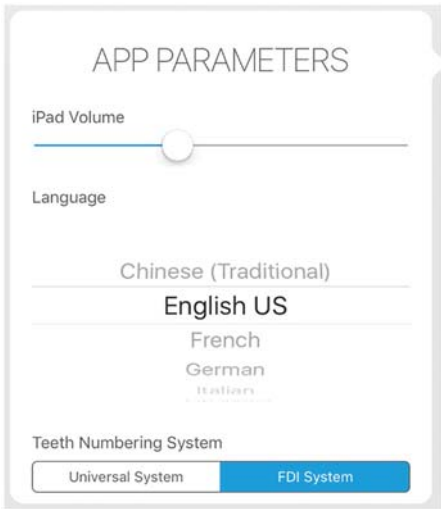
Image	Description
	X-Smart IQ® Handpiece connected. See 6.6.1 Connecting X-Smart IQ® Handpiece.
	X-Smart IQ® Handpiece combined. See 6.8.1 Combined mode parameters and visualization.
	Apical Reverse is ON on X-Smart IQ® Handpiece. See 6.8.1 Combined mode parameters and visualization.
	X-Smart IQ® Handpiece unconnected.
	Data transferring to X-Smart IQ® Handpiece.

Propex IQ® Apex Locator status symbols

Image	Description
	Propex IQ® Apex Locator connected. See 6.7.1 Connecting Propex IQ® Apex Locator.
	Propex IQ® Apex Locator combined. See 6.8.1 Combined mode parameters and visualization.
	Propex IQ® Apex Locator unconnected.
	Propex IQ® Apex Locator shaping target See 6.7.4 Propex IQ® Apex Locator parameters

6.4.5 Endo IQ® App parameters





Press the button .



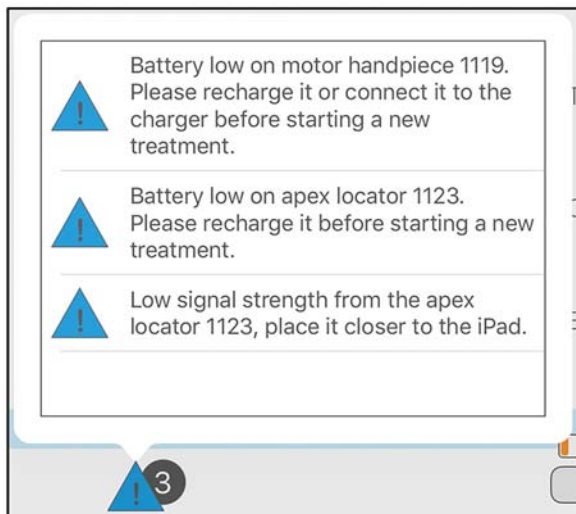
- Set the iPad® volume by sliding the cursor.
- Set your language.
- Choose the Teeth Numbering System.

6.4.6 Notifications

Endo IQ® App provides two levels of notifications in the toolbar. The level of notification depends on the criticality of the situation.

Image	Description
	Yellow/double exclamation mark: high criticality. It indicates that an issue will have an imminent impact on the intended treatment. It requires your <u>immediate action</u> .
	Multiple high criticality notifications are active.
	Blue/single exclamation mark: low criticality. The issue does not imminently impact a treatment but it requires your attention to ensure the correct course of the treatment.
	Multiple low criticality notifications are active.

To display the reason of the active notifications, press on the warning sign in the toolbar and refer to section **9 Endo IQ® application error codes**.



6.5 Modes of operation

In this User Manual we only describe the connected operation mode with **Endo IQ®** App, but **X-Smart IQ®** Handpiece and **Propex IQ®** Apex Locator can also work in unconnected mode.



*For **X-Smart IQ®** Handpiece unconnected mode refer to **X-Smart IQ®** Handpiece Directions For Use - **6 Step by Step Instructions**.*



*For **Propex IQ®** Apex Locator unconnected mode refer to **Propex IQ®** Apex Locator Directions For Use - **6 Step by Step Instructions**.*

6.5.1 X-Smart IQ® Handpiece

Connecting **X-Smart IQ®** Handpiece with **Endo IQ®** App allows you to create and use your predefined sequences of files and parameters (default or custom sequences).

It also allows treatment data and treatment notes to be recorded and treatment reports to be sent.

6.5.2 Propex IQ® Apex Locator

Connecting **Propex IQ®** Apex Locator with **Endo IQ®** App allows you to follow the progression of the file in the tooth canal on the iPad® screen.

6.5.3 Combined mode

Combining **X-Smart IQ®** Handpiece and **Propex IQ®** Apex Locator, which means plugging-in **X-Smart IQ®** Handpiece and **Propex IQ®** Apex Locator with the cable supplied with the **Propex IQ®** kit allows you to highlight file progression while shaping. **Endo IQ®** App allows you to work with both devices simultaneously.


6.6 X-Smart IQ® Handpiece






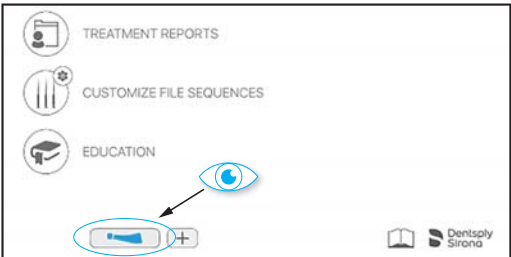



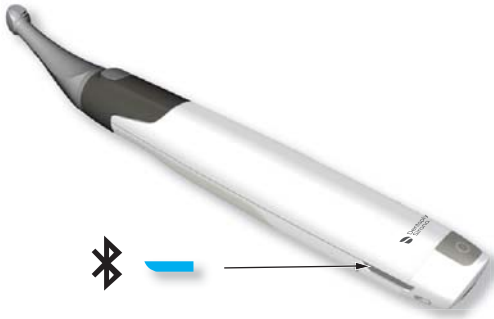

Refer to **X-Smart IQ®** Handpiece Directions For Use for information, warning and precautions related to **X-Smart IQ®** Handpiece.

6.6.1 Connecting X-Smart IQ® Handpiece

The **X-Smart IQ®** Handpiece and the iPad® communicate via Bluetooth®.




N°	Action
A	After X-Smart IQ® Handpiece is powered ON, press the multifunction button once. <i>Bluetooth® LED flashes blue.</i>
	
B	Wait until the X-Smart IQ® Handpiece icon is visible on Endo IQ® App. <i>See 10 Troubleshooting if the X-Smart IQ® Handpiece icon is not visible on the Endo IQ® App after 10 s.</i>

N°	Action
	When the X-Smart IQ® Handpiece is detected by Endo IQ® App, the following pop-up window is displayed.
	
C	Select the corresponding X-Smart IQ® Handpiece serial number from the pop-up window.
	The serial number can be found at the back of the X-Smart IQ® Handpiece.
	
	When the X-Smart IQ® Handpiece is connected the “blue Handpiece” icon appears at the bottom of the screen (see illustration below).
	


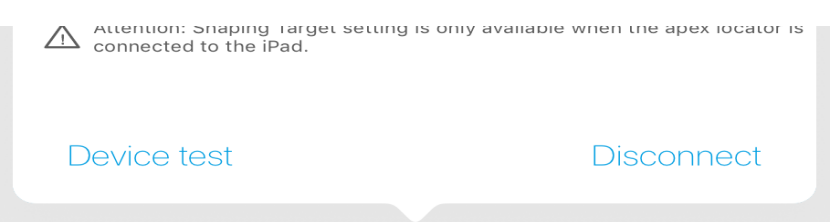





N°	Action
	The Bluetooth® LED on the X-Smart IQ® Handpiece turns blue.
	
	X-Smart IQ® Handpiece will connect automatically to Endo IQ® App when it is combined with a Propex IQ® Apex Locator that is already connected to Endo IQ® App.

6.6.2 **Firmware update**

The **Endo IQ®** App checks **X-Smart IQ®** Handpiece firmware version and, if it is obsolete, requires an update to be performed through the App.
Follow the instructions on the screen to perform the update.

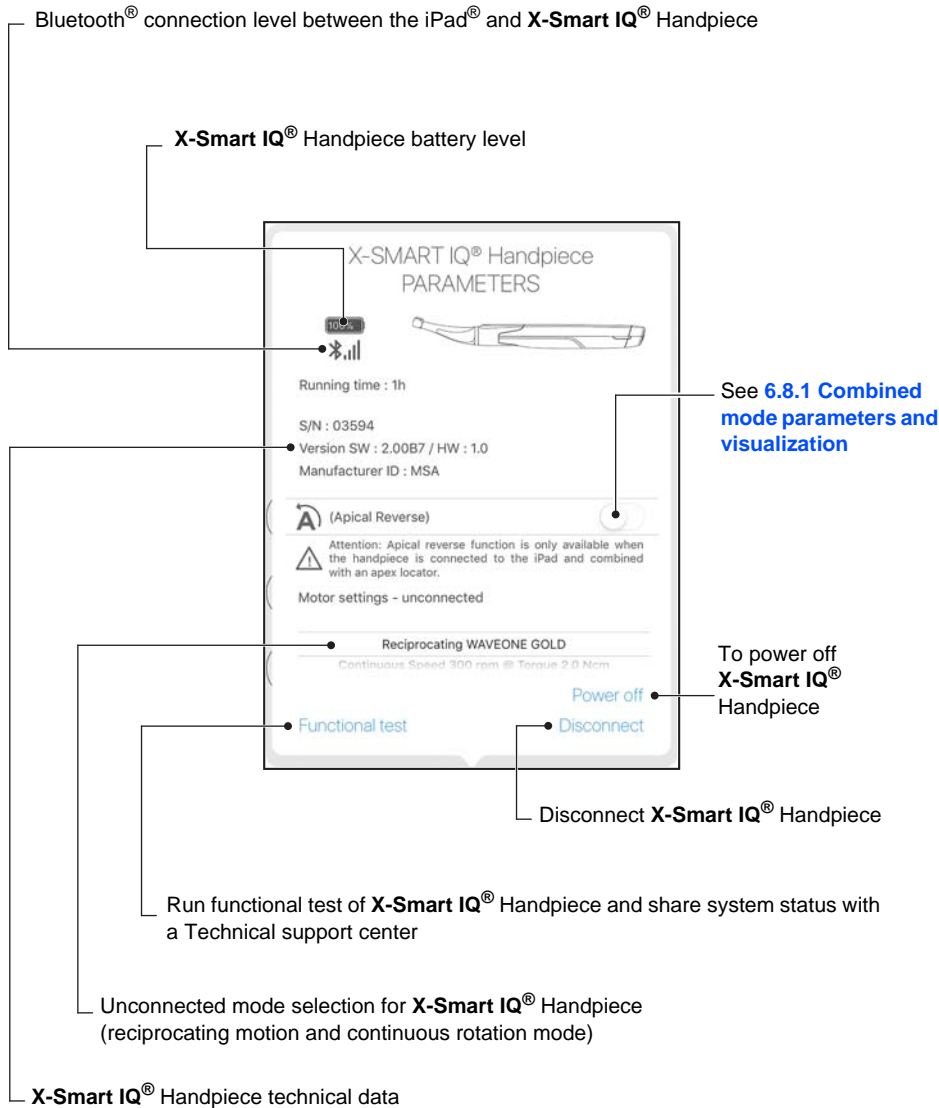
	Connect X-Smart IQ® Handpiece to the AC adapter before starting the firmware update.
	See X-Smart IQ® Handpiece Directions For Use - section 6 Step by Step Instructions .
	Regularly check for updates of the firmware and verify that the latest version is installed.

6.6.3 Disconnecting X-Smart IQ® Handpiece

N°	Action
A	Click on X-Smart IQ® Handpiece icon  .
B	Select Disconnect and confirm the operation.
	
	X-Smart IQ® Handpiece icon disappears from the status bar.
	Check the current settings of the unconnected mode before using X-Smart IQ® Handpiece.
	X-Smart IQ® Handpiece will revert to its unconnected mode after disconnection.
	If X-Smart IQ® Handpiece is involuntarily disconnected from the Endo IQ® App (e.g. due to a communication issue), it will keep its last settings for 5 minutes. Then it will revert to its unconnected mode settings.
	See X-Smart IQ® Handpiece Directions For Use - 6 Step by Step Instructions .

6.6.4 X-Smart IQ® Handpiece parameters

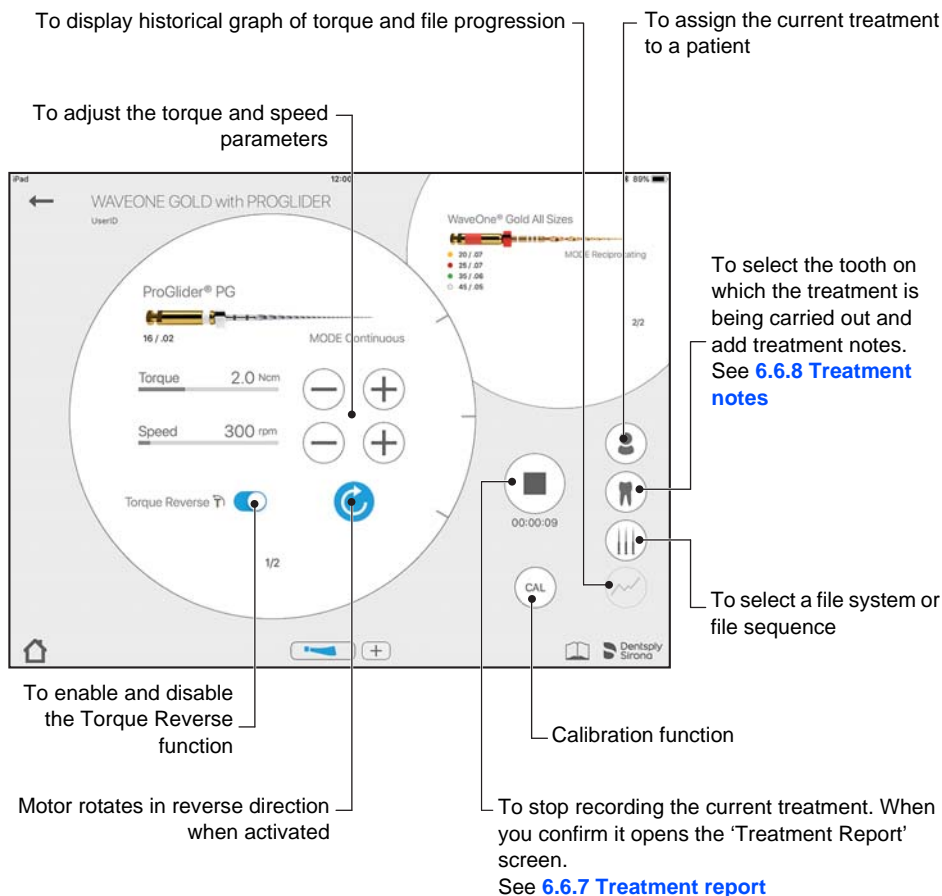
On the status bar, select the X-Smart IQ® Handpiece icon  .



6.6.5 Start and record treatment

Press “Start and record treatment” button (see [6.4.3 Interface Presentation](#)).

On this page, the user can customize file parameters like torque and speed or switch on/off functions like Torque Reverse. This screen also gives access to the file library, teeth overview, patient ID and the Real Time Torque Monitoring (RTTM™) graph.



6.6.5.1 Step by step

N°	Action
A	Log in.
B	Connect X-Smart IQ® Handpiece.
C	Select Start and Record Treatment.
D	Select a file sequence.
E	Create or select a patient.
F	Perform the endodontic treatment.
G	Add treatment notes.
H	Save the data and share the treatment report.

6.6.5.2 Calibration function

The calibration function of **X-Smart IQ®** Handpiece ensures it has accurate usage parameters.

Press the **CAL** button and follow the procedure on the screen.



Always calibrate **X-Smart IQ®** Handpiece after the **X-Smart IQ®** Contra-angle has been sterilized or exchanged.

6.6.5.3 Torque Reverse function

The Torque Reverse function allows the **X-Smart IQ®** Handpiece to automatically reverse its rotation direction when the applied torque is higher than the maximum defined torque.



See **X-Smart IQ®** Handpiece Directions For Use - [6 Step by Step Instructions](#).

6.6.5.4 Apical Reverse function

The Apical Reverse function allows the **X-Smart IQ®** Handpiece to automatically reverse its rotation direction when the reference point for working length determination is reached.

Settings

- By default, the Apical Reverse function is OFF.
- The Apical Reverse function can only be switched ON from **Endo IQ®** App when **X-Smart IQ®** Handpiece is combined to **Propex IQ®** Apex Locator and the handpiece is connected to the **Endo IQ®** App.
- Settings chosen by the user will be kept for any future connection.

Functioning

- While **X-Smart IQ®** Handpiece is rotating in reverse direction:
 - Short beeps are emitted.
 - START / STOP button is lit yellow.
- Rotation in reverse direction will stop when the user presses the START / STOP button on **X-Smart IQ®** Handpiece. If the user presses the button again to start **X-Smart IQ®** Handpiece, it will rotate in its previous mode (forward or reciprocating).

To guarantee the proper functioning of Apical Reverse function, ensure that (i) the cable combination between **Propex IQ®** Apex Locator and **X-Smart IQ®** Handpiece is stable and that (ii) the connection of the devices with the **Endo IQ®** App has been established and is stable before starting the reading with **Propex IQ®** Apex Locator.



See **X-Smart IQ®** Handpiece Directions For Use - [6 Step by Step Instructions](#).

6.6.5.5 Scenarios with Apical Reverse function

Scenario	Apical Reverse OFF	Apical Reverse ON
Continuous rotation, motor running, reference point reached.	No reaction on the X-Smart IQ® Handpiece.	X-Smart IQ® Handpiece automatically switches to reverse rotation (Apical Reverse function). If torque limit is reached, the motor stops. (Torque Reverse function)
Reciprocating rotation, motor running, reference point reached.		X-Smart IQ® Handpiece automatically switches to continuous forward rotation. If torque limit is reached, the motor stops. (Torque Reverse function)
Continuous or reciprocating rotation, motor not running, reference point reached.		X-Smart IQ® Handpiece is automatically locked.

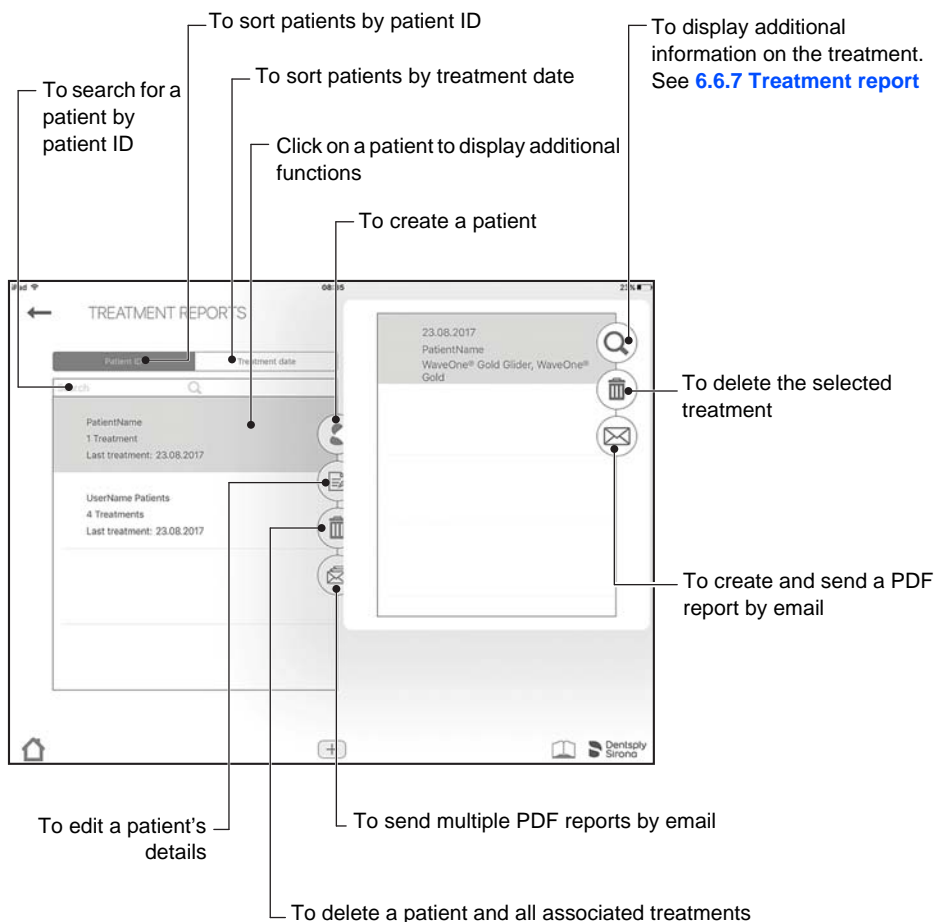
6.6.5.6 Adverse events

Adverse event	Consequence
Cable unplugged on Propex IQ® Apex Locator and / or on the X-Smart IQ® Handpiece.	<ul style="list-style-type: none"> • X-Smart IQ® Handpiece will automatically rotate in reverse mode.
Bluetooth® connection lost on X-Smart IQ® Handpiece while the motor is running.	<ul style="list-style-type: none"> • For 5 minutes the motor will run, start or stop normally while retaining Apical Reverse settings. After 5 minutes the motor will be locked. • The user has to reconnect the device to Endo IQ® App or switch to unconnected mode (therefore deactivate Bluetooth® on the device). In the latter case, Apical Reverse settings will be turned off.
Bluetooth® connection lost on X-Smart IQ® Handpiece while the motor is not running (e.g. settings are about to be transmitted).	<ul style="list-style-type: none"> • X-Smart IQ® Handpiece is locked. • The user has to reconnect the device to the Endo IQ® App.
Connection lost in combined mode (Propex IQ® Apex Locator with X-Smart IQ® Handpiece) and Apical Reverse function set to ON.	<ul style="list-style-type: none"> • For 5 minutes after the disconnection, X-Smart IQ® Handpiece will run. After 5 minutes the motor will be locked. During these 5 minutes, as long as there is a cable connection between the devices, the Propex IQ® Apex Locator will be detected by X-Smart IQ® Handpiece and will run correctly.

6.6.6 Treatment reports list

Treatment reports allow you to:

- Create, edit and delete a treatment record.
- View, edit or delete the treatments associated with the records.



6.6.7 Treatment report

In a treatment report, details like files used, treatment duration, treatment time and which motor and Apex Locator have been used, are shown. Further information (such as which tooth was treated) is also saved, and will be shown on the Treatment Report email.

Basic information for the patient and specific information for the associated treatment

To display a historical graph of torque and file progression

To delete the treatment report

To review your treatment notes. See [6.6.8 Treatment notes](#)

To create and send a PDF report by email

Technical data of the files used for the treatment

The screenshot shows an iPad screen titled 'TREATMENT REPORT'. At the top, it says 'iPad' and '12:01'. Below the title, there's a patient information section with fields for 'Patient' (containing 'No Patient'), 'Start time' (17 April 2018, 12:00:47 PM), 'Treatment duration' (31s), and 'Motor(s) used' (01290). To the right of this section are three circular icons: a trash can, a checkmark, and an envelope. Below the patient info are two panels showing technical data for files used. The left panel is for 'PG ProGlider®' and the right is for 'All Sizes WaveOne® Gold'. Each panel lists file name, system name, creator, tip size/taper, file type, torque, and speed. At the bottom of the screen are a home button icon, a 'PDF' button, and a '+' button. The Dentsply Sirona logo is in the bottom right corner.

File Name	File System Name	Created by	Tip size/taper	File Type	Torque	Speed
PG	ProGlider®	Dentsply Sirona	16 / 02	Glide Path	2.0 Nom	300 rpm
All Sizes	WaveOne® Gold	Dentsply Sirona	20 / 07	Shaping		

6.6.8 Treatment notes

In treatment notes, the user can store information about which file has been used, what length the individual canals are and which filling has been applied.

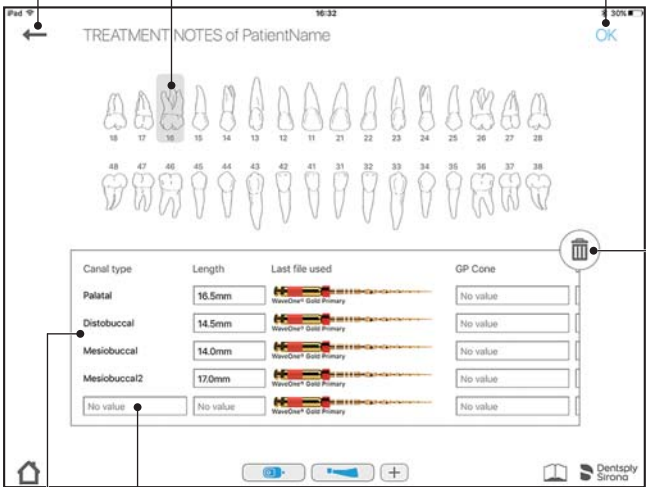


The tooth numbering system can be changed in the system setup (section 6.4.5 Endo IQ® App parameters).

Takes you back to the previous page without saving

Treated tooth

To save the treatment notes



Canal type	Length	Last file used	GP Cone
Palatal	16.5mm	WaveOne® Gold Primary	No value
Distobuccal	14.5mm	WaveOne® Gold Primary	No value
Mesiobuccal	14.0mm	WaveOne® Gold Primary	No value
Mesiobuccal2	17.0mm	WaveOne® Gold Primary	No value
No value	No value	WaveOne® Gold Primary	No value

To delete the treatment notes

To add an extra canal

Information related to the treatment:
canal type, length, filling method, product used for the filling,
filling size, file and note

6.6.9 Customize endodontic file sequence

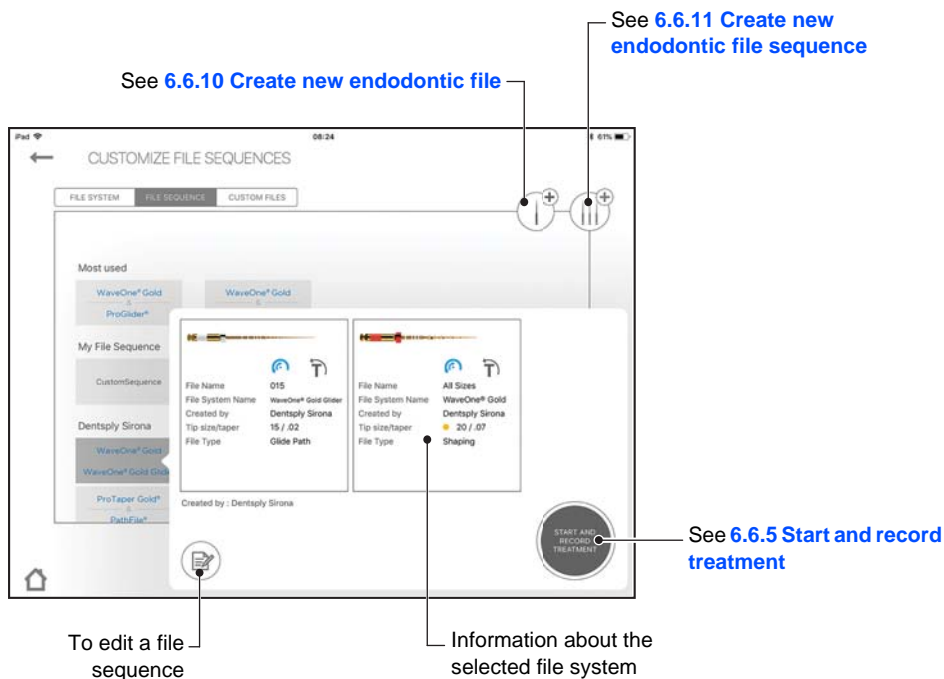
A file sequence is a collection of endodontic files that are used during a treatment. The sequence is composed of files supplied by Dentsply Sirona or custom files.

The list of file sequences is divided into 3 categories:

- Most frequently used sequences;
- Sequences created by the user;
- Standard file sequences provided by Dentsply Sirona.

The Customize Endodontic File Sequences screen allows you to:

- Review all file systems and file sequences;
- Create, edit or delete file sequences (see [6.6.11 Create new endodontic file sequence](#));
- Create and define custom files as desired by the user;
- Start and record a treatment from the chosen file (see [6.6.5 Start and record treatment](#)).





Follow the file manufacturer's instructions for use of endodontic files.



The file system shown on the display must always match the file in use. This is of the utmost importance to avoid misusing reciprocating files and continuous rotary files.



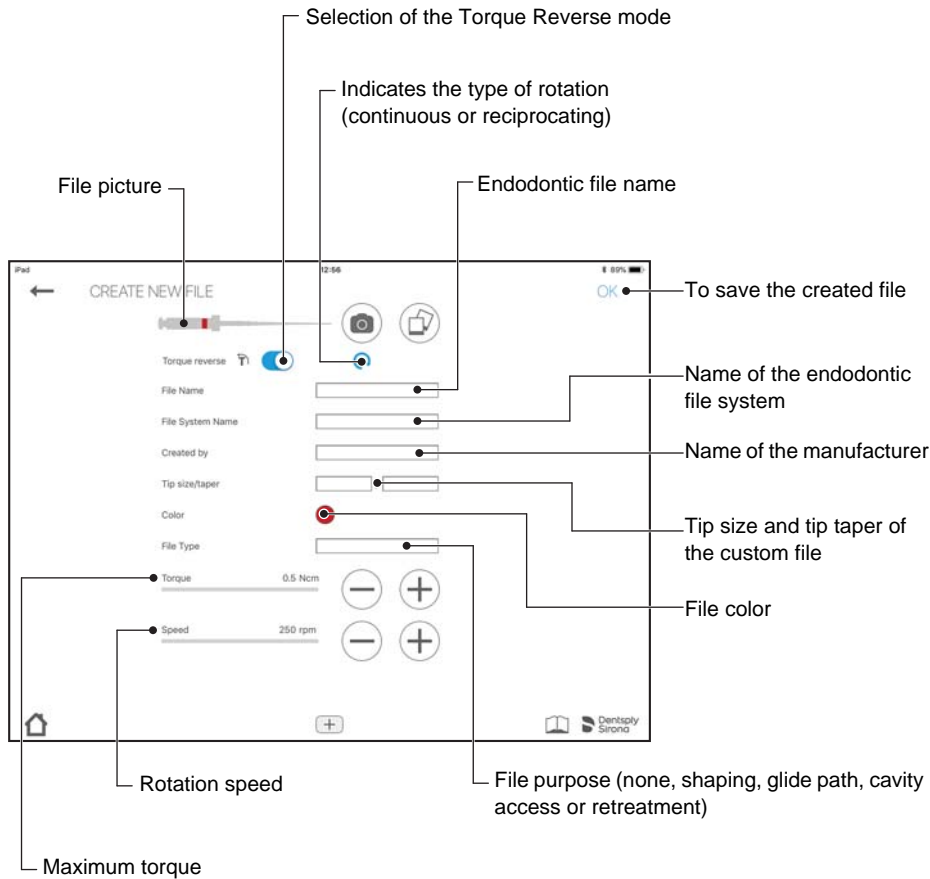
Torque and speed values are liable to modification by the file manufacturers without notice; therefore, present values in the file library must be checked prior to use.



Torque values shown on the application are accurate and reliable only if **X-Smart IQ®** 6:1 Contra-angle is properly maintained and lubricated.

6.6.10 Create new endodontic file

If a particular third-party file needs to be added to **Endo IQ®** App file library, the user may take a photo of this file, give it a name and add further information like tip and taper size, file type, and recommended torque and speed parameters.



6.6.11 Create new endodontic file sequence

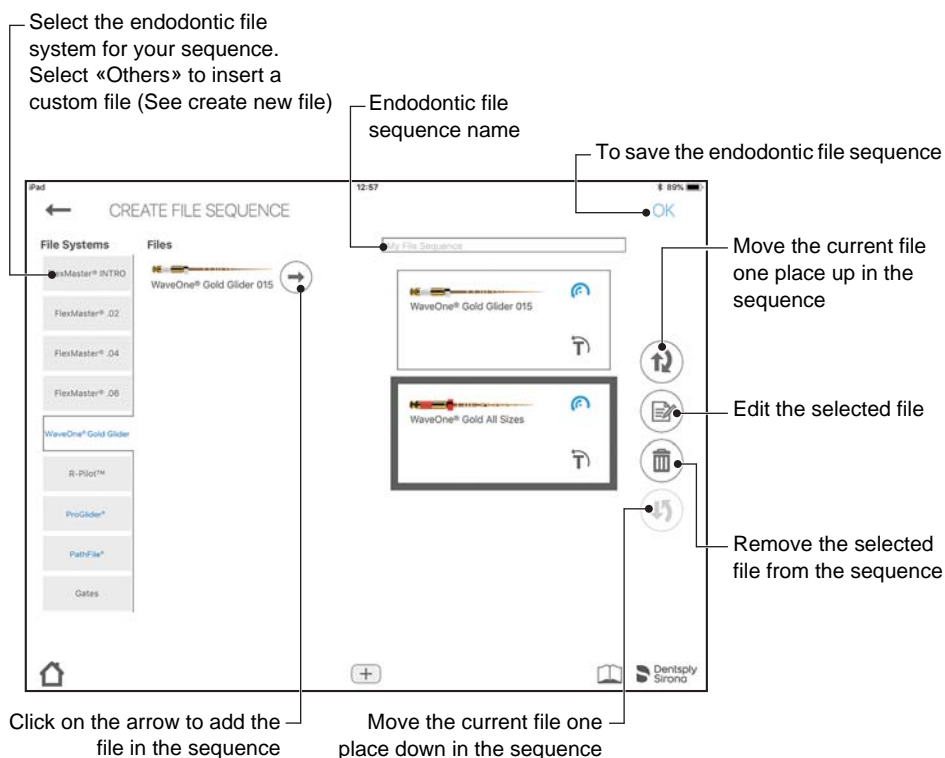


The standard endodontic file sequence cannot be edited or deleted but it is possible to create a copy that can be edited.



A custom endodontic file can only be deleted if not used in any sequence.

With this feature, the user can create its own file sequences. Any file from the scrollbar on the left can be added via the circled arrow. Then the rank order can be modified via the arrows on the right. Files accidentally added can be removed again with the recycling-bin symbol.



6.7 Propex IQ® Apex Locator



Refer to **Propex IQ® Apex Locator Directions For Use** for information, warnings and precautions related to **Propex IQ® Apex Locator**.

6.7.1 Connecting Propex IQ® Apex Locator



Close all open applications before launching **Endo IQ® App**.






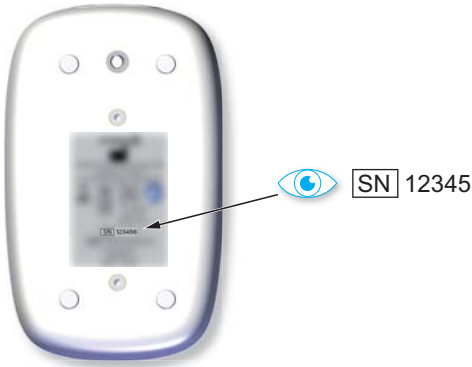



Activate the “Do not disturb mode” to deactivate the notifications from the other applications on the iPad®. This will ensure that the user can always read working length information on screen during a procedure and is not disturbed by an incoming phone call or notification displayed on the iPad®.



Make sure that the Bluetooth® is enabled on:

- the iPad®;
- **Propex IQ® Apex Locator**.

N°	Action
A	Press the Bluetooth® button. <i>Bluetooth® LED flashes blue.</i>
	See Propex IQ® Apex Locator Directions For Use - section 6 Step by Step Instructions .
B	Wait until Propex IQ® Apex Locator icon is visible on Endo IQ® App . See 10 Troubleshooting if the Propex IQ® Apex Locator icon is not visible on Endo IQ® App after 10 s.






N°	Action
	When the Propex IQ® Apex Locator is detected, the following pop-up window is displayed.
	
C	Select the corresponding Propex IQ® Apex Locator serial number from the pop-up window.
	The serial number can be found at the back of Propex IQ® Apex Locator. All connected devices can be recognized by their serial number and their icon on Endo IQ® App.
	
	When the Apex Locator is connected the icon  appears.
	Propex IQ® Apex Locator will connect automatically to Endo IQ® App when it is combined with an X-Smart IQ® Handpiece that is already connected to Endo IQ® application.

6.7.2 **Firmware update**

The **Endo IQ®** App checks **Propex IQ®** Apex Locator firmware version and, if it is obsolete, requires an update to be performed through the App. This firmware update can take up to 20 minutes and must be performed when the **Endo IQ®** App has been updated and **Propex IQ®** Apex Locator is connected to the iPad® for the first time after this update.

Follow the instructions on the screen to perform the update.

6.7.3 **Disconnecting Propex IQ® Apex Locator**

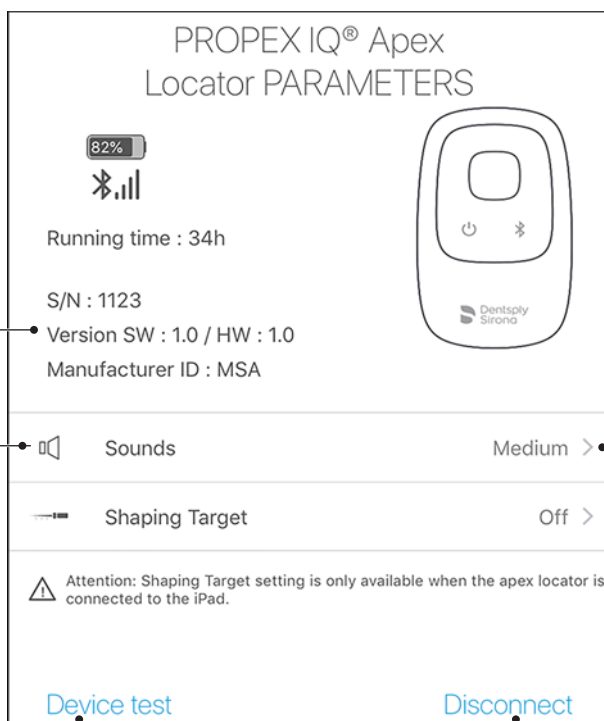
N°	Action
A	Click on Propex IQ® Apex Locator icon  .
B	Select Disconnect and confirm the operation.
	<div> Attention: Shaping target setting is only available when the apex locator is connected to the iPad.</div> <div>Device testDisconnect</div>
	Propex IQ® Apex Locator is now disconnected from the iPad®, the bluetooth® LED is OFF.
	Propex IQ® Apex Locator will revert to default reference point settings for working length determination. See section 6.7.4 for Shaping Target definition.
	If Propex IQ® Apex Locator is involuntarily disconnected from Endo IQ® App (e.g. due to a communication issue), it will keep its last settings for 5 minutes. Then it will revert to its default reference point settings for working length determination.

6.7.4 Propex IQ® Apex Locator parameters

On the status bar, select the **Propex IQ®** Apex Locator icon  .

Propex IQ® Apex Locator technical data

Volume setting of the **Propex IQ®** Apex Locator



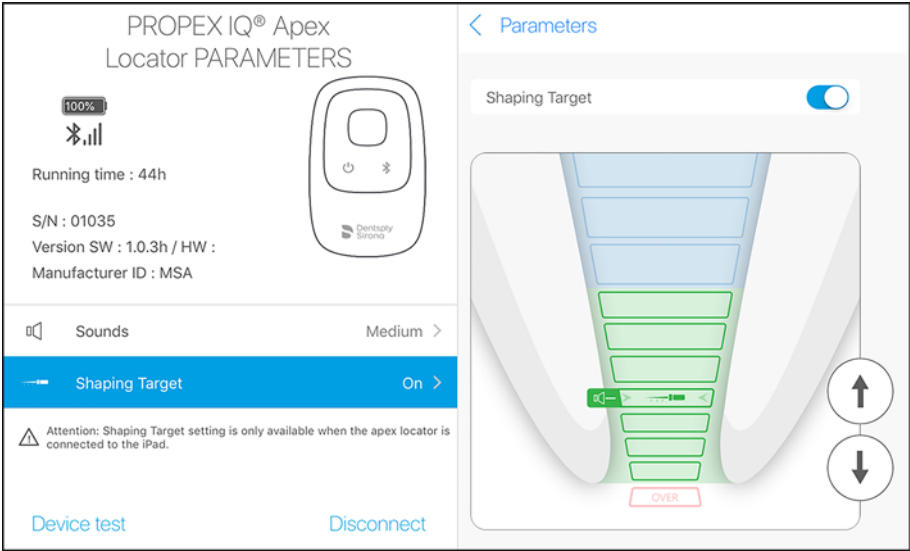
To disconnect **Propex IQ®** Apex Locator

Test basic function of **Propex IQ®** Apex Locator and accessories.
See [6.7.5 Testing Propex IQ® Apex Locator functionalities](#)

Sound scheme selection

Shaping target

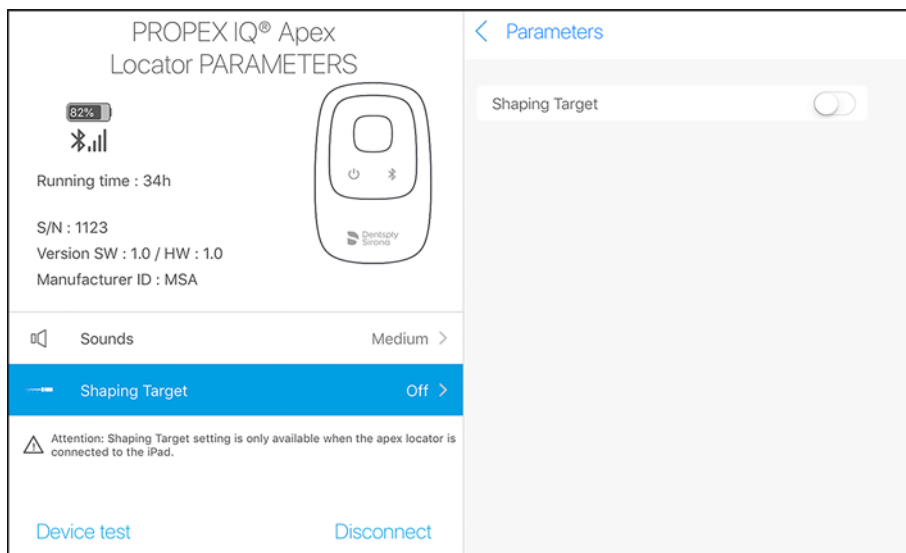
The Shaping Target function allows the user to customize the location of the reference point for the working length determination:



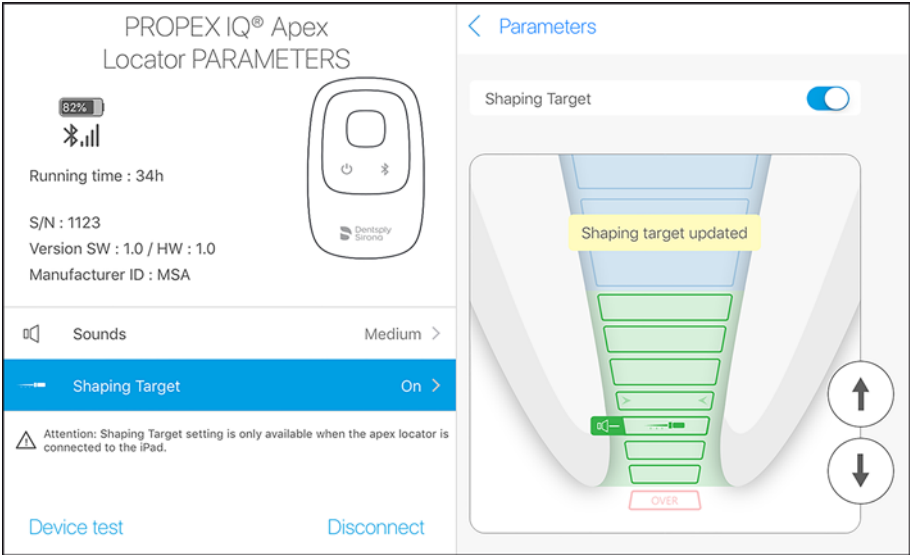
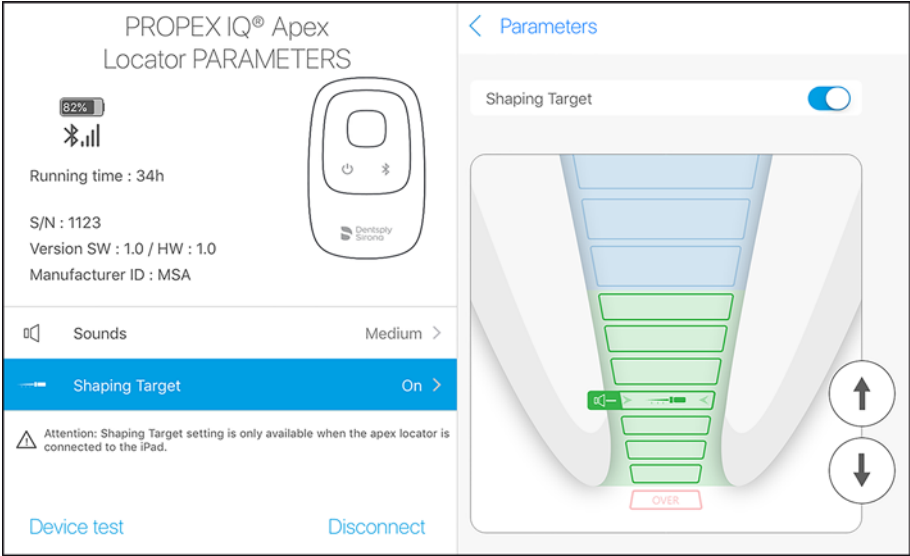
Functioning

To activate this function and customize the reference point, click on the apex locator icon to open the **Propex IQ®** Apex Locator parameters.

Then click on "shaping target" to activate the function.



The reference point can be adjusted from its default settings (below, top) by using the arrow icons on the right or by clicking on the relevant color bar on the canal image. Changes will be automatically saved and the message "Shaping target updated" will appear (below, bottom).



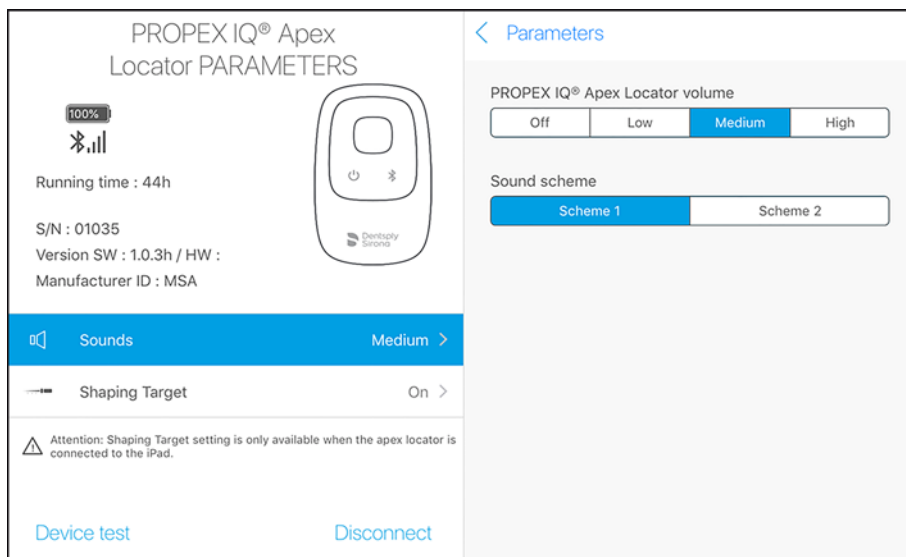
To revert to the factory settings of the reference point, deactivate the function in the **Propex IQ®** Apex Locator parameters.

The Shaping Target function can only be used in connected mode. If **Propex IQ®** Apex Locator is disconnected, the location of the reference point reverts to factory settings. If the disconnection was involuntary, the customized settings are retained for 5 minutes.

Propex IQ® Apex Locator volume

Four sound levels can be selected:

- level 0: off;
- level 1: low;
- level 2: medium, default setting;
- level 3: loud.



These levels only apply to endodontic file progression audio indications. When the sound level is modified by the user, the device will beep once at the selected sound level.

If the user sets the sound level to low, medium or loud, the device will retain this setting when it is switched OFF and ON again, or when Bluetooth® is disconnected. If the user sets the sound level to OFF, **Propex IQ®** Apex Locator will revert to the last audible setting when it is switched OFF and ON again, or if Bluetooth® is disconnected.

Sound Schemes

Two sound pitches can be selected:

- Sound pitch 1 : 2700 Hz (default setting);
- Sound pitch 2 : 4000 Hz.



When the sound pitch is set, the device will retain this setting when it is switched OFF and ON again, or when Bluetooth® is disconnected.



When the pitch is modified by the user, the device will beep once.

6.7.5 Testing Propex IQ® Apex Locator functionalities

Device test



*Device test can also be performed without the use of **Endo IQ®** App. Refer to **Propex IQ®** Directions For Use - **6 Step by Step Instructions**.*

On the status bar, click on **Propex IQ®** Apex Locator icon and select  'Device test'.






The **Endo IQ®** App will guide you through the different steps of the device test.

6.7.6 Start treatment



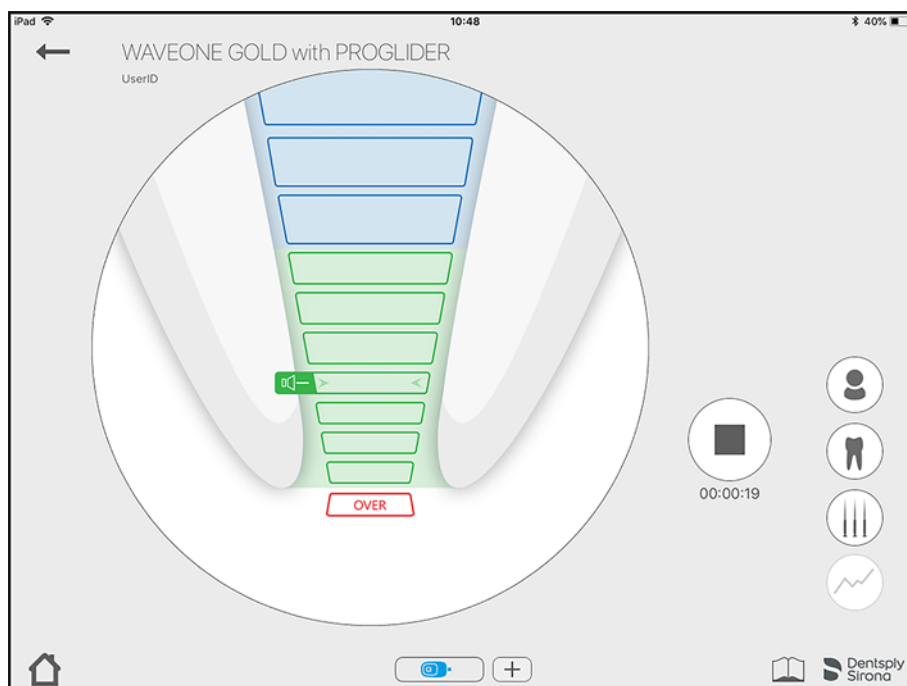
To change the sound level see **6.7.4 Propex IQ® Apex Locator parameters**.

N°	Action
A	Start Endo IQ® App.
B	Press the Bluetooth® button on Propex IQ® Apex Locator to start the connection process. The connection LED starts flashing. When Propex IQ® Apex Locator and the iPad® are connected, the connection LED on Propex IQ® Apex Locator stops flashing and is lit continuously.
	Make sure that Bluetooth® is also enabled on your iPad®.
C	When the connection is activated press the  button (if the serial number is not already displayed on the home screen) on Endo IQ® App status bar and click on the corresponding serial number.
	<p>Endo IQ® App is now connected to Propex IQ® Apex Locator and will give you additional information during the treatment.</p> <p>If the connection to the iPad® is lost, the device continues to operate in unconnected mode; visual and audible signals are emitted by the device.</p>

Treatment execution

To start the treatment :

- Check proper connection of the cables;
- Clean the **Propex IQ®** File Clip contact;
- If necessary, irrigate the canal;
- Ensure that **Propex IQ®** Apex Locator is connected (see section [6.7.1 Connecting Propex IQ® Apex Locator](#));
- Press the button "Start and Record Treatment" and the following screen will appear:



6.7.7 Working length determination



Do not start a treatment if the battery is low.

The endodontic file progression is visualized on the central LED of **Propex IQ®** Apex Locator. In connected mode with **Endo IQ®** App, the endodontic file progression is shown on the iPad® screen.

The tooth image shown in the **Endo IQ®** App is only a representation of a root canal and may not coincide with its actual shape. As with all electronic length determination devices, the bars shown in **Endo IQ®** App do not represent the distance in millimeters or any other linear unit.





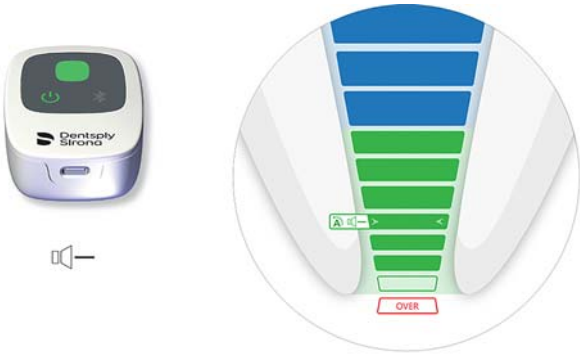

Dentsply Sirona recommends using the iPad® screen in order to improve visualization of the file progression.



The intended use of the **Endo IQ®** App is to capture the visual signals from **Propex IQ®** Apex Locator and to display them on the iPad®. In the unlikely case of discrepancy, signals from **Propex IQ®** Apex Locator should be followed

Endodontic File progression	Color and Sound indication on Propex IQ® Apex Locator and Color indication in Endo IQ® App
	See Propex IQ® Apex Locator <i>Directions For Use</i> - section 6 Step by Step Instructions .
<p>Coronal and medial region.</p> <p>Move the endodontic file apically.</p> <p>LED on Propex IQ® Apex Locator: Solid Blue</p> <p>Sound on Propex IQ® Apex Locator: Slow pulsating tone</p>	

Endodontic File progression	Color and Sound indication on Propex IQ® Apex Locator and Color indication in Endo IQ® App
<p>Region coronal to the reference point for working length determination.</p> <p>The endodontic file can be moved further apically.</p> <p>LED on Propex IQ® Apex Locator: Flashing Green</p> <p>Sound on Propex IQ® Apex Locator: Fast pulsating tone</p>	
<p>Relevant position for working length determination</p> <p>This is the reference point for determining the working length.</p> <p>LED on Propex IQ® Apex Locator: Solid Green</p> <p>Sound on Propex IQ® Apex Locator: Solid tone</p>	

Endodontic File progression	Color and Sound indication on Propex IQ® Apex Locator and Color indication in Endo IQ® App
<p>Region beyond reference point.</p> <p>Further file progression beyond the reference point is visualized.</p> <p>LED on Propex IQ® Apex Locator: Solid Green</p> <p>Sound on Propex IQ® Apex Locator: Solid tone</p>	
<p>Apical foramen (Major apical foramen or diameter) passed/over-instrumentation</p> <p>LED on Propex IQ® Apex Locator: Flashing Red</p> <p>Sound on Propex IQ® Apex Locator: Fast pulsating tone</p>	

6.8 Combined mode with X-Smart IQ® Handpiece and Propex IQ® Apex Locator



You can connect up to two devices (1 **X-Smart IQ®** Handpiece and 1 **Propex IQ®** Apex Locator) with **Endo IQ®** App.

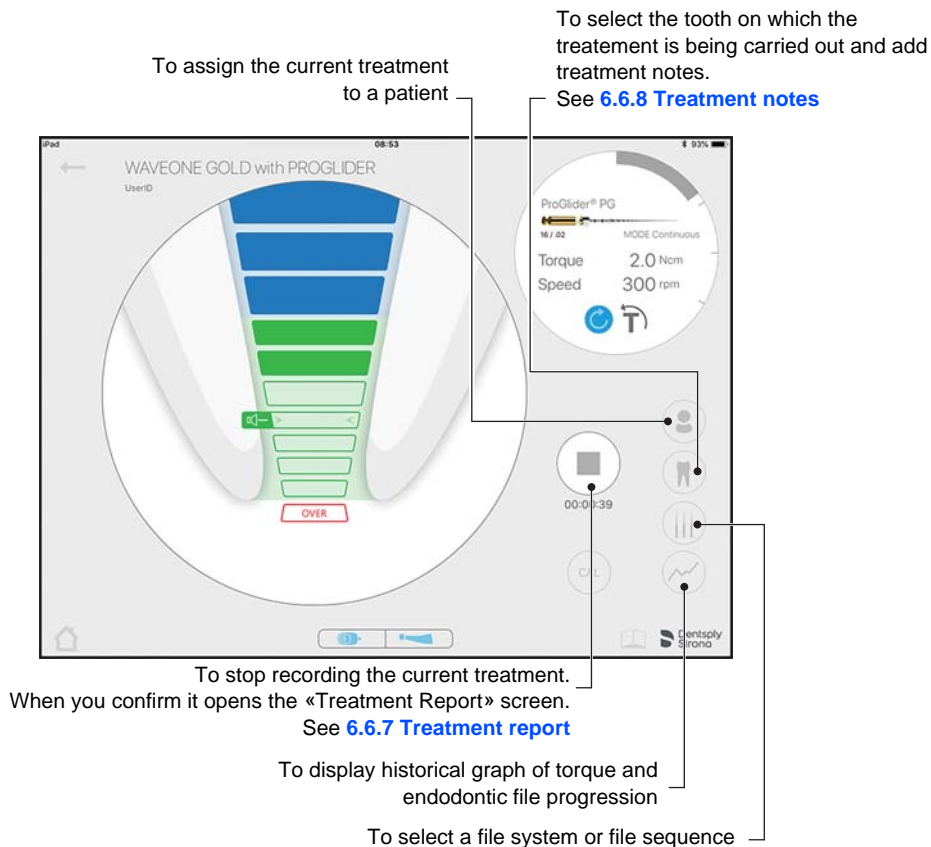
6.8.1 Combined mode parameters and visualization

On the status bar, tap and select the combined mode icon (i.e. **X-Smart IQ®** Handpiece and **Propex IQ®** Apex Locator are plugged-in together with a cable and connected via Bluetooth® with the **Endo IQ®** App)



Apical Reverse
settings

When the treatment starts, the screen shown below will indicate the endodontic file progression in the canal (large circle) as well as the endodontic file used and the torque applied (small circle). This screen also indicates if Torque Reverse is enabled and offers the possibility to switch this feature ON or OFF.



7 **CLEANING, DISINFECTION AND STERILIZATION**

N/A

8 **TECHNICAL CHARACTERISTICS**
















See **X-Smart IQ®** Handpiece Directions For Use - section **8 Technical Characteristics**.

See **Propex IQ®** Apex Locator Directions For Use - section **8 Technical Characteristics**.

Specification	Description
Manufacturer	Maillefer Instruments Holding Sàrl Chemin du Verger 3 CH-1338 Ballaigues Switzerland Telephone +41 21 843 92 92 Fax +41 21 843 92 93 endo@dentsplysirona.com dentsplysirona.com
iPad® requirement	<ul style="list-style-type: none">• iPad Mini™ 2• iPad Mini™ 3• iPad Mini™ 4• iPad® (6th gen)• iPad Pro® 10.5"• iPad Pro® 12.9" (2nd gen)
Endo IQ® App Operating System	<ul style="list-style-type: none">• iOS
Bluetooth®	<ul style="list-style-type: none">• Bluetooth 4.0 low energy• Device contains transmitter with:<ul style="list-style-type: none">- FCC ID: RFRMSR- IC-ID: 4957A-MSR• Working distance: 25 m• Output Power: 6 mW• Frequency Range: 2400.0 - 2483.5 MHz

9 ENDO IQ® APPLICATION ERROR CODES

Level	Situation	Action to take
	X-Smart IQ® Handpiece is locked OR General error.	Reset X-Smart IQ® Handpiece by pressing the multifunction button for 10 seconds.
	The temperature on X-Smart IQ® Handpiece is too high (>45 °C).	Disconnect X-Smart IQ® Handpiece from charger.
	Propex IQ® Apex Locator battery is critically low.	Charge Propex IQ® Apex Locator immediately.
	X-Smart IQ® Handpiece battery is critically low.	Charge X-Smart IQ® Handpiece immediately.
	iPad® battery critical low.	Charge the iPad®.
	Attempt to launch Endo IQ® App on an incompatible iPad®.	Refer to User Manual or Endo IQ® App info for iPad® compatibility.
	Attempt to launch Endo IQ® App on an unsupported iOS version.	Refer to User Manual or Endo IQ® App info for iOS compatibility. Update iOS.
	X-Smart IQ® Handpiece connection strength is critically low (< - 90 dB).	Place X-Smart IQ® Handpiece closer to the iPad®.
	Bluetooth® on iPad® is OFF.	Switch on Bluetooth® on iPad®.
	Propex IQ® Apex Locator connection strength is critically low (< - 90 dB).	Place Propex IQ® Apex Locator closer to the iPad®.
	Propex IQ® Apex Locator battery is low.	Charge Propex IQ® Apex Locator immediately.
	X-Smart IQ® Handpiece battery is low.	Charge X-Smart IQ® Handpiece immediately.
	iPad® battery low.	Charge the iPad®.

10 TROUBLESHOOTING

If the connection between **X-Smart IQ®** Handpiece, **Propex IQ®** Apex Locator and **Endo IQ®** application is not operating properly, read the following checklist. If you are unable to solve the problem by referring to the checklist, contact your service center.


Also refer to the any error codes which may be indicated on the device, as described in section **9 Endo IQ® application error codes**.



Refer to **X-Smart IQ®** Handpiece Directions For Use - section **10 Troubleshooting**.



Refer to **Propex IQ®** Apex Locator Directions For Use - section **10 Troubleshooting**.

Connection impossible between X-Smart IQ® Handpiece and iPad®.	
Possible causes	Solutions
<ul style="list-style-type: none">The Bluetooth® connection has failed.	<ul style="list-style-type: none">iPad®:<ol style="list-style-type: none">Activate Bluetooth® on your iPad® under settings (see 6.3.3 Activating the Bluetooth® functionality).Perform a reboot on your iPad® (press and hold the iPad® ON/OFF button for a few seconds).X-Smart IQ® Handpiece:<ol style="list-style-type: none">Perform a factory reset. <div> Refer to X-Smart IQ® Handpiece Directions For Use - 6 Step by Step Instructions.</div>

Connection lost between X-Smart IQ® Handpiece and the iPad®.	
Possible causes	Solutions
<ul style="list-style-type: none"> iPad® switched off (empty battery). 	<ul style="list-style-type: none"> X-Smart IQ® Handpiece keeps the last used settings for 5 min. You can either recharge the iPad® and reconnect the X-Smart IQ® Handpiece or use X-Smart IQ® Handpiece in stand-alone mode.
<ul style="list-style-type: none"> iPad® Bluetooth® switched off. 	<ul style="list-style-type: none"> Switch on the Bluetooth® on the iPad® and reconnect X-Smart IQ® Handpiece (see 6.3.3 Activating the Bluetooth® functionality and 6.6.1 Connecting X-Smart IQ® Handpiece).
<ul style="list-style-type: none"> X-Smart IQ® Handpiece far from the iPad®. 	<ul style="list-style-type: none"> Place the X-Smart IQ® Handpiece near the iPad® and reconnect it (see 6.6.1 Connecting X-Smart IQ® Handpiece).

Apical Reverse feature impossible to switch ON.	
Possible causes	Solutions
<ul style="list-style-type: none"> No connection between X-Smart IQ® Handpiece and Endo IQ® App, e.g.: <ul style="list-style-type: none"> Bluetooth® is not working properly; Bluetooth® connection failed: No identification of Serial Number between X-Smart IQ® Handpiece and Endo IQ® App. 	<ul style="list-style-type: none"> Activate the Bluetooth® on your iPad®. Disconnect the connected devices and perform a reboot of your iPad®. Reconnect your devices. Perform a device functional test. Perform a factory reset. Contact Dentsply Sirona Endodontics Customer Service.

Endodontic file progression on the Propex IQ® Apex Locator is not consistent with the file progression visualized on the Endo IQ® App.

Possible causes	Solutions
<ul style="list-style-type: none"> Bad connection between the Propex IQ® Apex Locator and Endo IQ® App (e.g. Bluetooth® is not working properly). 	<ul style="list-style-type: none"> Activate the Bluetooth® on your iPad®. Disconnect the connected devices and perform a reboot of your iPad®. Reconnect your devices. Perform a device functional test with the Propex IQ® External Tester. Perform a factory reset. Contact Dentsply Sirona or an authorized service partner.

Connection impossible between Propex IQ® Apex Locator and Endo IQ® App.

Possible causes	Solutions
<ul style="list-style-type: none"> Bluetooth® is not working properly. Bluetooth® connection failed. No identification of Serial Number between the Propex IQ® Apex Locator and the Endo IQ® App. 	<ul style="list-style-type: none"> Activate the Bluetooth® on your iPad®. Disconnect the connected devices and perform a reboot of your iPad®. Reconnect your devices; Perform a device functional test with the Propex IQ® External Tester. Perform a factory reset. Contact Dentsply Sirona or an authorized service partner.

Demo mode cannot be started.

Possible causes	Solutions
<ul style="list-style-type: none"> Endo IQ® App not up-to-date. Endo IQ® App not working properly. 	<ul style="list-style-type: none"> Check in the App Store® if a new version of the Endo IQ® App is available. Perform a reboot of your iPad® and try again.

11 WARRANTY

N/A

11.1 Exclusion of Liability

In the following cases the manufacturer declines all liability:

- Use for purposes and applications that differ from the specific requirements made in this User Manual.
- Work or repairs performed by unauthorized persons.
- Damage caused to or by the iPad®.
- Electrical installations in the room must meet the provisions of IEC 60364-7-710 (Installation of electrical equipment in rooms used for medical purposes) and the regulations applicable in your country.

If you have any questions, contact your dealer or Dentsply Sirona.

12 DISPOSAL OF THE PRODUCT

N/A

13 IDENTIFICATION OF SYMBOLS

N/A

dentsplysirona.com



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