stomdevice

ScanX Intraoral View

Installation and Operating Instructions

EN
US



Manufactured in Germany for

AIR TECHNIQUES equipped for life®

2151100018L40

G8602

1705V009

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1 About this document

These installation and operating instructions are an integral part of the unit.

Air Techniques shall not be held liable and offers no guarantees of the safe and smooth operation of this unit if you fail to comply with notes and instructions contained in these Installation and Operating Instructions.

1.1 Warnings and symbols

Warnings

The warning notes in this document highlight possible injury to persons or damage to machinery.

They are marked with the following warning symbols:

General warning symbol

Warning – risk of dangerous electric voltages

Warning - laser beams

The warnings are structured as follows:

SIGNAL WORD
Description of type and source of danger
Here you will find the possible consequences of ignoring the warning
› Measures to be taken to avoid the danger.

The signal word differentiates between different levels of danger:

- DANGER
  Direct danger of severe injury or death
- WARNING
  Possible danger of severe injury or death
- CAUTION
  Risk of minor injuries
- NOTICE
  Risk of extensive material/property damage

Miscellaneous symbols

These symbols are used in the document and on or in the unit:

Note, e.g. specific instructions regarding the efficient use of the unit.

Note the accompanying documents.

CE mark

Date of manufacture

Manufacturer

Dispose of properly in accordance with EU Directive 2012/19/EU (WEEE).

Do not reuse

Wear hand protection.

Switch off and de-energize the device (e. g. unplug from mains).

REF Part number

SN Serial number

HIBC Health Industry Bar Code (HIBC)

Adhesive label



Figure 1: Laser class 3B

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Figure 2: Warning - laser beams

Closed device:	Laser class 1
Open device:	Laser class 3B

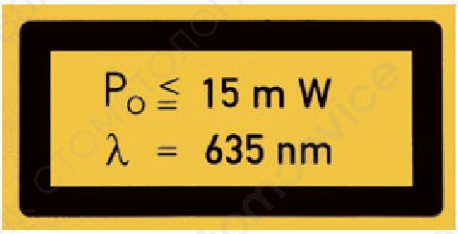


Figure 3: Specification of laser source

1.2 Copyright information

All electronic drawings, processes, names, software, and appliances mentioned here are protected under copyright.

Printing or copying these Installation and Operating Instructions, including excerpts thereof, may only be carried out with the written approval of Air Techniques.

2 Safety

The unit has been developed and designed appropriately such that hazards are largely excluded if the unit is used in accordance with its intended use. Nevertheless, residual hazards may remain. Therefore, please note the following.

2.1 Intended purpose

The unit is intended to be used for scanning and processing digital images exposed on Phosphor Storage Plates (PSPs) in dental applications.

2.2 Intended use

The ScanX Intraoral View is intended to be used for scanning and processing digital images exposed on Phosphor Storage Plates (PSPs) in dental applications.

2.3 Contraindication

Any other usage or usage beyond this scope is deemed to be improper. The manufacturer accepts no liability for damage resulting from improper usage. The user bears the sole risk.

The unit is not designed for operation within the patient environment.

This unit is not suitable for monitoring patients over extended periods of time.

This unit must not be used in operating rooms or similar rooms, in which hazards may arise from the combustion of flammable materials.

The touch screen only shows a preview as an initial impression of the X-ray image. For purposes of diagnosis, the X-ray image must be viewed on a diagnostic monitor. The preview of the X-ray image on the touch screen is not suitable for the purposes of diagnosis.

2.4 General safety information

US Federal law restricts this device to sale by or on the order of a dentist or licensed practitioner. This device should be used only under the continued supervision of a dentist or licensed practitioner.

Rx only US-FDA Regulated Medical Device

- Comply with the guidelines, laws, rules and regulations applicable at the site of operation when you use this unit.
- Prior to each use, check the function and proper condition of the device.
- Do not convert or modify the unit.

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› Comply with the Installation and Operating Instructions.
› Make the Installation and Operating Instructions always available to the operator in the vicinity of the device.

2.5 Specialist personnel

Operation

Persons operating the unit must ensure safe and correct handling based on their training and knowledge.

› Instruct or have every user instructed in handling the unit.

Installation and repairs

› All installation, resetting, alteration, expansion, and repair work must be carried out either by Air Techniques personnel or by a suitably qualified person approved by Air Techniques.

2.6 Protection from electric shock

› Comply with all relevant electrical safety regulations when you work with this unit.
› Never touch the patient and unshielded plug connections of the device at the same time.
› Replace any damaged cables or plugs immediately.

2.7 Only use genuine parts

› Only Air Techniques accessories and special accessories or those approved by Air Techniques may be used.
› Only use original spare and replacement parts.

Air Techniques accepts no liability for damage resulting from the use of non-approved accessories, special accessories or any parts other than original spare and wear parts.

The use of non-approved accessories, special accessories or non-genuine working parts / spare parts (e.g. mains cable) can have a negative effect on the electrical safety and EMC.

2.8 Transport

Only the original packaging ensures optimum protection for the unit during transport.

If necessary, the original packaging for this unit can be ordered from Air Techniques.

Air Techniques cannot be held responsible for any damage resulting from transport in unsuitable packaging, even during the warranty period.

› Only transport the unit in its original packaging.
› Keep all packaging away from children.
› Do not expose the unit to any strong vibrations or shocks.

2.9 Disposal

Disposal of the units, electronic circuitry and PSPs must be accomplished only at the appropriate facilities for recovery and recycling. Make sure to dispose of such items in accordance with current federal, national, state and local government rules and regulations.

2.10 Protection from cybersecurity threats

The unit is to be connected to a computer that can be connected to the Internet. Therefore, the system needs to be protected from threats from the Internet.

› Use antivirus software and update it regularly.
Look for evidence of possible virus infection and, if applicable, check with the antivirus software and remove the virus.
› Perform regular data backups.
› Provide access to units only to trustworthy users, e.g. by means of user name and password.
› Make sure that only trustworthy contents are downloaded. Install manufacturer-authenticated software and firmware updates only.

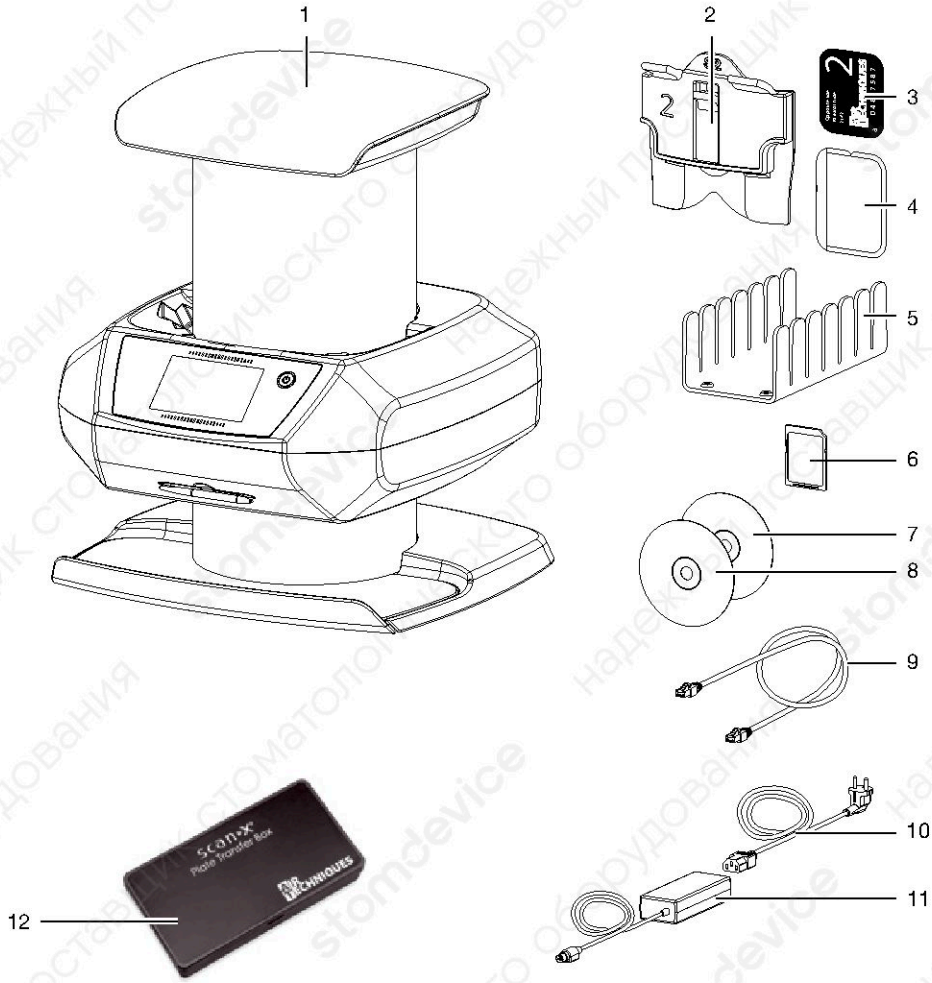
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3 Overview



1 ScanX Intraoral View imaging plate scanner
2 Plate guide, intraoral
3 Phosphor storage plate (PSP)
4 Barrier envelope
5 Holding tray for intraoral plate guide
6 SDHC memory card
7 DBSWIN Imaging Software DVD
8 Manuals CD
9 Network cable
10 Mains cable
11 Power supply unit
12 Transfer box

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3.1 Scope of delivery

The following items are included in the scope of delivery (possible variations due to country-specific requirements and/or import regulations):

ScanX Intraoral View System imaging plate scanner G8600A

- ScanX Intraoral View basic unit
- Network cable
- SDHC memory card
- Stylus
- Collector mat
- Collector bar
- Power supply unit
- Mains cable
- DBSWIN Imaging Software DVD
- Holding tray for intraoral plate guides
- Transfer box
- Phosphor storage plates:
  - Size 0 (2 pieces)
  - Size 2 (18 pieces)
- Plate guides:
  - Size 0 (1 pieces)
  - Size 2 (4 pieces)
- Barrier envelopes:
  - Size 0 (100 pieces)
  - Size 2 (300 pieces)
- PSP cleaning wipes (2 pieces)
- Installation and operating instructions
- Quick reference guide
- Manuals CD

3.2 Accessories

The following items are required for operation of the device, depending on the application:

SDHC memory card G8590

Phosphor storage plates (PSPs)

Intraoral phosphor storage plate size 0 (2 pcs.) 73445-0
Intraoral phosphor storage plate size 1 (2 pcs.) 73445-1
Intraoral phosphor storage plate size 2 (4 pcs.) 73445-2
Intraoral phosphor storage plate size 3 (2 pcs.) 73445-3
Intraoral phosphor storage plate, size 4 (1 pcs.) 73445-4

Plate guides

Plate guide, size 0 (1 pc.) G8610-0
Plate guide, size 1 (1 pc.) G8610-1
Plate guide, size 2 (1 pc.) G8610-2
Plate guide, size 3 (1 pc.) G8610-3
Plate guide, size 4 (1 pc.) G8610-4

Barrier envelopes

Patented, easy-to-open barrier envelope, size 0 (100 pcs.) 73248-0
Patented, easy-to-open barrier envelope, size 1 (100 pcs.) 73248-1
Patented, easy-to-open barrier envelope, size 2 (300 pcs.) 73248-2
Patented, easy-to-open barrier envelope, size 2 (1000 pcs.) . . .73248-2k
Patented, easy-to-open barrier envelope, size 3 (100 pcs.) 73248-3
Patented, easy-to-open barrier envelope, size 4 (50 pcs.) 73248-4

3.3 Special accessories

The following optional items can be used with the unit:

Transfer box 73470
Holding tray for intraoral plate guides . . . G8620
Network cable (5 m) G8595
Stylus G8585
2D X-ray test phantom G8795

3.4 Consumables

The following materials are consumed during operation of the device and must be re-ordered:

Cleaning and disinfection

PSP cleaning wipes (50 pieces) B8910

Barrier envelopes

refer to "3.2 Accessories"

3.5 Working parts and spare parts

Phosphor storage plates (PSPs)

refer to "3.2 Accessories"

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4 Technical data

4.1 Imaging plate scanner

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Electrical data of the unit		
Voltage	V DC	24
Max. current consumption	A	5
Output	W	< 120
Type of protection		IP20
Electrical data of the power supply unit		
Nominal voltage	V AC	100 - 240
Frequency	Hz	50/60
Max. current consumption	A	≤ 2.5
Classification		
Medical Devices Directive (93/42/EEC)		Class I
Medical Device (FDA)		Class II
Laser class (unit) in accordance with IEC 60825-1		1
Electromagnetic compatibility (EMC)		
High-frequency emissions in accordance with CISPR 11		Group 1 Class B
Harmonics in acc. with IEC 61000-3-2		Not applicable
Voltage fluctuations/flicker in acc. with IEC 61000-3-3		Not applicable
Conducted high-frequency disturbance variable V_1 in acc. with IEC 61000-4-6	V_{eff}	4
Emitted high-frequency disturbance variable E_1 in accordance with IEC 61000-4-3	V/m	4
Laser source		
Laser class in accordance with IEC 60825-1		3B
Wavelength λ	nm	635
Output	mW	15
Noise level		
Standby	dB(A)	0
Ready to scan	dB(A)	approx. 37
During scanning	dB(A)	approx. 55

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General technical data		
Dimensions (W x H x D)	in (cm)	14.96 x 17.72 x 16.14 (38 x 45 x 41)
Weight	lbs (kg)	ca. 43 (ca. 19.5)
Max. feeding width for phosphor storage plates	in (cm)	2.24 (5.7)
Heat output	W	< 140
Duty cycle S2 (in accordance with VDE 0530-1)	min	60
Duty cycle S6 (in accordance with VDE 0530-1)	%	70
Pixel size (selectable)	µm	12.5 - 50
Max. resolution (depending on PSP)	Line pairs/ mm (Lp/mm)	approx. 40

Network connection		
LAN technology		Ethernet
Standard		IEEE 802.3u 100Base-TX
Data rate	Mbit/s	100
Connector		RJ45
Type of connection		Auto MDI-X
Type of cable		≥ CAT5

WLAN connection		
WLAN technology		IEEE 802.11b/g
Encryption		WPA, WPA2

Memory card		
Type		SDHC
Maximum memory capacity	GB	32
File system		FAT32
Performance class	Class	≥ 4

Ambient conditions during operation		
Temperature	F (°C)	+50 to +95 (+10 to +35)
Relative humidity	%	20 - 80
Air pressure	hPa	750 - 1060
Elevation above sea level	ft (m)	< 6562 (< 2000)

Ambient conditions during storage and transport		
Temperature	F (°C)	-4 to +140 (-20 to + 60)
Relative humidity	%	10 - 95
Air pressure	hPa	750 - 1060
Height above sea level	ft (m)	< 52493 (< 16000)

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Manufacturer

Dürr Dental AG
Höpfigheimer Strasse 17, 74321 Bietigheim-Bissingen, Germany
www.duerrdental.com

Distributor

Air Techniques, Inc.
1295 Walt Whitman Road
Melville, New York 11747-3062, USA
www.airtechniques.com

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4.2 Phosphor storage plate

Classification		
Medical Devices Directive (93/42/EEC)		Class IIa
Medical Device (FDA)		Class I
Ambient conditions during operation		
Temperature	F (°C)	64 - 113 (18 - 45)
Relative humidity	%	< 80
Ambient conditions during storage and transport		
Temperature	F (°C)	< 91 (< 33)
Relative humidity	%	< 80
Dimensions of intraoral PSPs		
Size 0	in (mm)	0.87 x 1.4 (22 x 35)
Size 1	in (mm)	0.94 x 1.6 (24 x 40)
Size 2	in (mm)	1.2 x 1.6 (31 x 41)
Size 3	in (mm)	1.1 x 2.1 (27 x 54)
Size 4	in (mm)	2.2 x 3 (57 x 76)

4.3 Barrier envelope

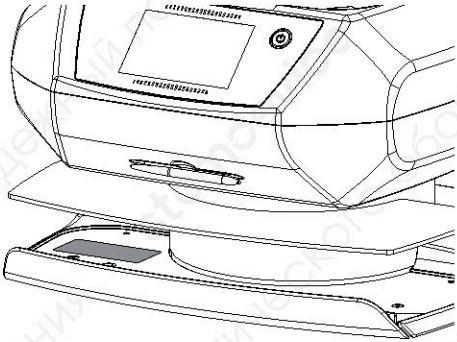
Classification	
Medical Devices Directive (93/42/EEC)	Class I
Medical Device (FDA)	Class I

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4.4 Model identification plate

The model identification plate is located underneath the rubber mat of the base plate of the unit.

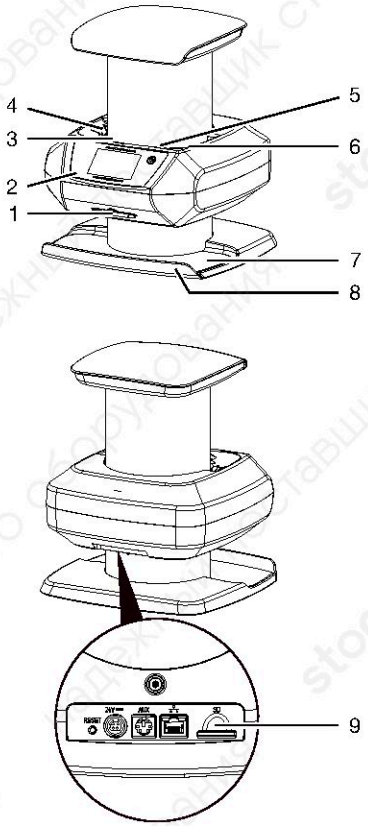


4.5 Conformity assessment

This device has been subjected to conformity acceptance testing in accordance with the current relevant guidelines of the European Union. This equipment conforms to all relevant requirements.

5 Function

5.1 Imaging plate scanner



1 Stylus
2 User interface
3 - 6 Insertion slots
7 Tray liner
8 Support bracket
9 Memory card slot

The imaging plate scanner is used to read image data stored on the phosphor storage plate (PSP).

The unit can be used in two different ways: via the imaging software (e.g. DBSWIN) on a PC or directly via the touch screen on the unit.

The transport mechanism guides the PSP through the unit. A laser in the scanner unit scans the PSP. The scanned data is converted into a digital image.

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If a scanning job is started via the imaging software, the image is automatically transmitted to the computer.

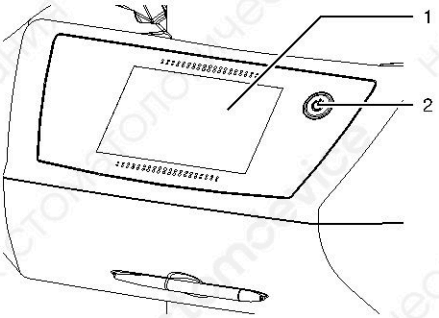
If a scanning job is started via the touch screen, the image is saved to the memory card and needs to be transferred to the computer later on.

After scanning, the PSP runs through the erasure unit. Image data still present on the PSP is erased with the aid of bright light.

The PSP is then ejected for re-use.

The unit can scan up to four PSPs simultaneously at the same resolution.

User interface



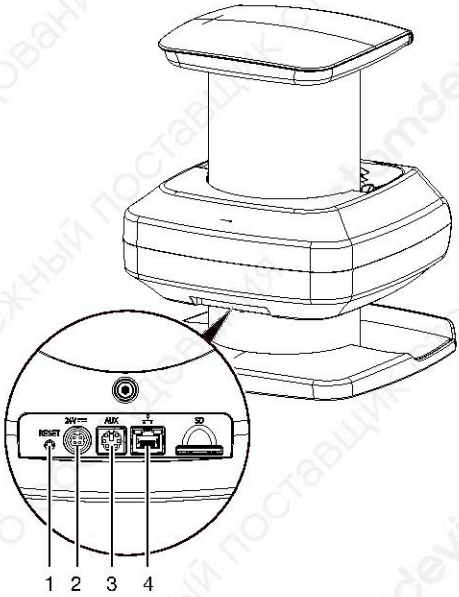
1 Touch screen
2 On/off switch

The touch screen allows the unit to be operated when it is not connected to a computer. Instructions can be entered on the touch screen either with the tip of a finger or the Stylus.

The *Help* button can be used to open a help page for the respective page. The *Messages* button can be used to call up current messages.

Connections

The connections are located on the rear of the unit.



1 Reset button
2 Connection for power supply unit
3 AUX connection for diagnostic units
4 Network connection with status LED

ScanManager

When the ScanManager is enabled, more than one X-ray job can be transmitted simultaneously to the unit from different computers. The unit manages the X-ray jobs in a queue from which the respective X-ray job can be selected using the touch screen and then executed.

Without ScanManager, the unit processes one X-ray job at a time and is blocked until this job has been completed. During this time, no further X-ray jobs can be transmitted to the unit from other computers.

ScanManager can be enabled via *Settings > System Settings> Operating Type*.

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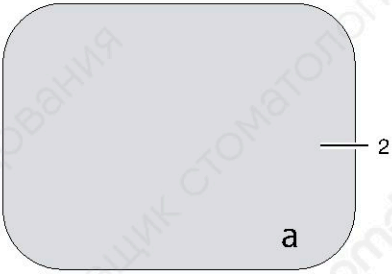
5.2 Phosphor storage plate

The phosphor storage plate (PSP) stores X-ray energy, which is re-emitted in the form of light after excitation by the laser. This light is then converted into image information in the imaging plate scanner.

The PSP has an active side and an inactive side. The PSP must always be exposed on the active side.

When used properly, PSPs can be exposed, read and erased several hundred times provided there is no mechanical damage. The PSP must be replaced if there are any signs of damage, e.g. if the protective layer is damaged or there are visible scratches that could interfere with the diagnosis.





1	Inactive side	Black, size and manufacturer information printed on it
2	Active side	Light blue, with positioning aid *a*

Positioning aid *a* is visible on the x-ray image and makes orientation easier during diagnosis.

5.3 Barrier envelope

The barrier envelope provides several protective functions for the intraoral PSP:

- Protection against sunlight and UV light, and therefore protection against accidental erasure
- Protection against mechanical damage
- Protection against contamination and soiling

The barrier envelope is a disposable item.

5.4 Stylus

The touch screen can be operated using the Stylus as an alternative to the tip of a finger.

5.5 Transfer box



Protects the PSP during day-to-day use and storage.

The transfer box also protects the PSPs against the light source when these are moved from the patient to the unit.

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Only qualified specialists or persons trained by Air Techniques may install, connect, and commission the unit.

6 Requirements

6.1 Installation/setup room

The room chosen for set up must meet the following requirements:

- Closed, dry, well-ventilated room
- It should not be a room made for another purpose (e.g. boiler room or wet cell)
- Max. light intensity 1000 Lux, no direct sunlight at the place of installation of the unit
- There should be no major fields of interference (e.g. strong magnetic fields) present that can interfere with the proper operation of the unit.
- Ambient conditions correspond to "4 Technical data".
- Installation location outside the vicinity of patients

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6.2 System requirements

CPU:	≥ Intel Pentium IV compatible, 1.4 GHz
RAM:	≥ 1 GB (2 GB recommended)
Operating system:	Microsoft Windows 7, 32 bit (Home Premium or higher), SP1 and additionally update KB3033929, recommended: KB2921916 Microsoft Windows 7, 64 bit (Home Premium or higher), SP1 and additionally update KB3033929, recommended: KB2921916 Microsoft Windows 8, 64 bit (not Windows RT) Microsoft Windows 10, 64 bit (Pro or higher)
Hard disk:	Workstation (without database) ≥ 50 GB The memory requirements depend on the number of images taken at the surgery in question. (Camera image: ca. 1 MB, x-ray image: ca. 2 MB - 10 MB)
Drive:	DVD-ROM
Data backup:	Daily data backup
Interface:	Ethernet ≥ 100 Mbit WLAN IEEE 802.11b/g with encryption WPA and WPA2
Graphics board:	Resolution ≥ 1024 X 768 Depth of color 32 bit, 16.7 million colors
Diagnostic monitor:	according to X-ray directive, SVGA,≥ 17" (43 cm), ≥ 1024 x 768 Pixel, 24 / 32 bit color depth
Software:	DBSWIN version 5.13 or higher, VistaEasy, Image Bridge

For the system requirements of the computer systems, visit the download area at www.airtechniques.com (document no. E7201).

6.3 Monitor

The monitor must meet the requirements for digital X-ray with a high light intensity and wide contrast range.

Strong ambient light, sunlight impinging directly onto the monitor and reflections can make it more difficult or even impossible to perform a diagnosis based on the X-ray images.

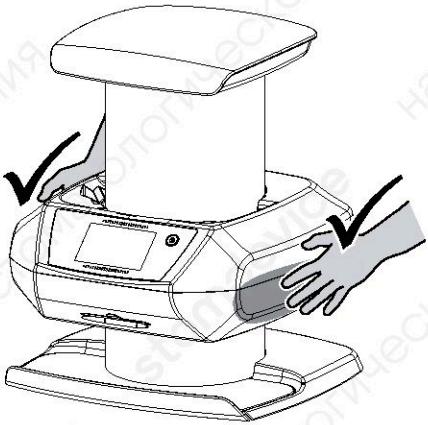
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7 Installation

7.1 Carrying the unit

NOTICE
Damage to sensitive components of the unit due to shocks or vibrations
› Do not expose the unit to any strong vibrations or shocks.
› Do not move the unit during operation.

› Only carry the unit by the transport arch at the sides.



› Do not hold or apply pressure to the cover or collector bar.



› Do not carry the unit on its side.



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7.2 Setting up the unit

Portable and mobile HF communication appliances can interfere with the effectiveness of electrical medical devices.

› Do not stack the unit next to or together with other appliances.

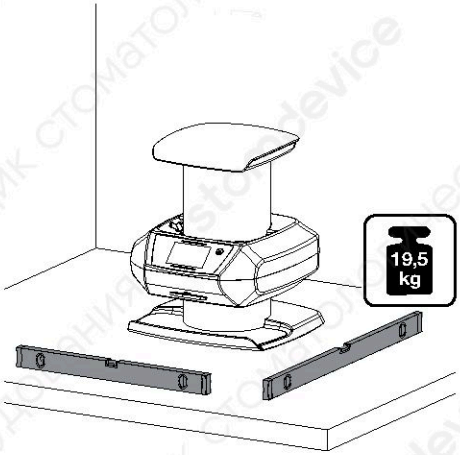
› If, however, this unit is operated next to other units or stacked with other units, monitor the unit carefully in the configuration selected in order to ensure normal operation.

The unit can be set up as a tabletop unit.

The load-bearing capacity of the table must be suitable for the weight of the unit (see "4 Technical data").

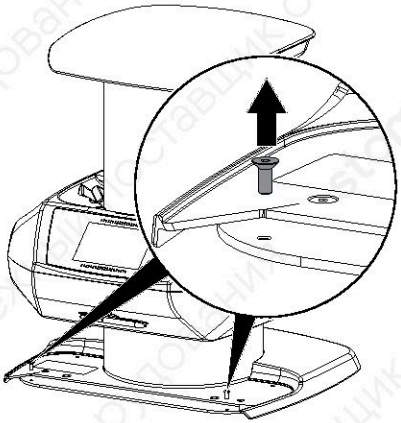
To prevent errors when scanning the image data, install the unit so it is not exposed to vibrations.

› Place the unit on a firm, horizontal surface.

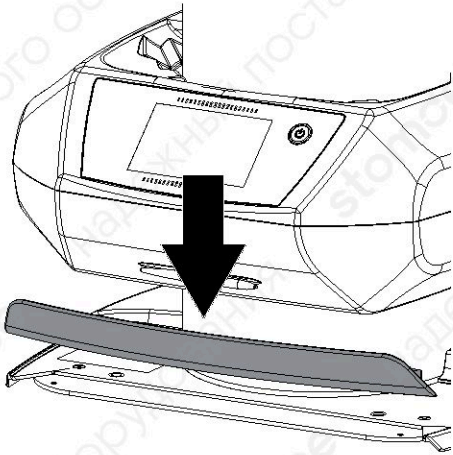


7.3 Assembling the support bracket

› Unscrew the screws from the base plate.

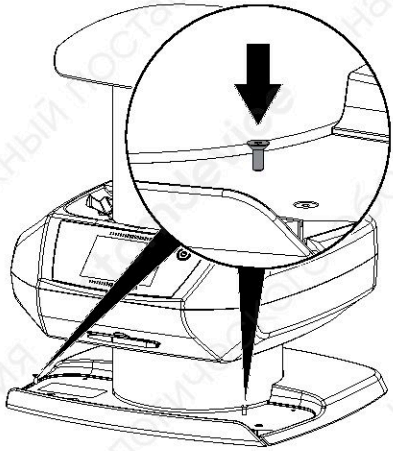


› Place the support bracket on the base plate.

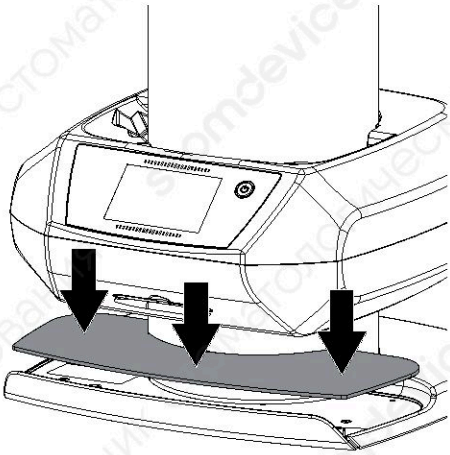


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› Attach the support bracket to the base plate using the screws.

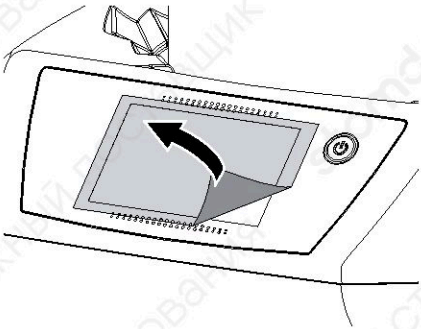


› Place the tray liner in the appropriate recess.



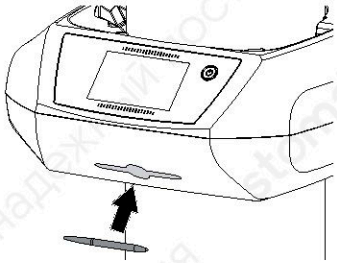
7.4 Removing the protective film from the touch screen

› Remove one corner of the protective touch screen film and peel it off carefully.



7.5 Attaching the Stylus

› The Stylus is held on the unit by a magnet. Place the Stylus in the indentation provided.



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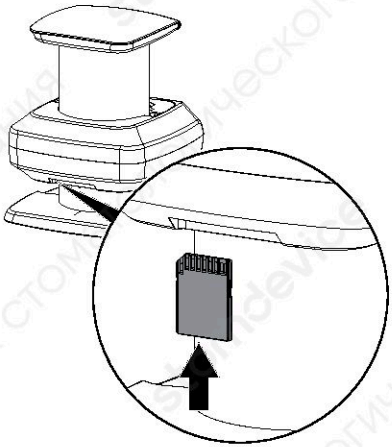
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7.6 Checking the memory card

NOTICE
Loss of image data due to unexpected insertion or removal of the memory card
› Insert or remove the memory card only when unit is switched off.

› Checking proper insertion of the memory card in the unit. If the memory is inserted incorrectly in the device, take it out again and re-insert it properly.



7.7 Electrical connection

Electrical safety when making connections

› Connect the device to a correctly installed power outlet only.
› Do not operate any other systems using the same multiple socket.
› Make sure that none of the electrical cables leading to the unit are under any mechanical tension.
› Before initial start-up verify that the mains supply voltage and the voltage stated on the type plate match (see also "4. Technical data").

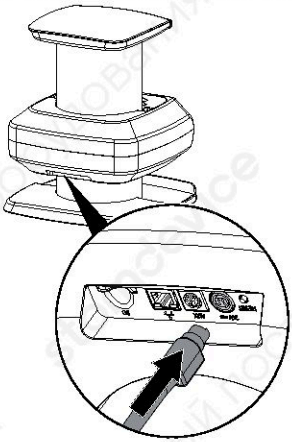
Connecting the unit to the mains supply

The unit has no main power switch. Therefore, the unit must be set up appropriately such that the power outlet is easily accessible so that the unit can be unplugged if necessary.

Requirements:

– Correctly installed socket outlet in the vicinity of the unit (max. length of mains cable 3 m)
– Easily accessible power outlet
– Mains voltage matches the information shown on the type plate of the power supply unit

› Plug the mains cable supplied with the unit into the power supply.
› Plug the connecting plug of the power supply unit into the connection socket of the unit.



› Plug the mains plug into the power outlet.

Result:

The connection plug has a locking system. To unplug the unit, slide the housing of the connector down. Do not pull on the cable.

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7.8 Connecting the unit to the network

Purpose of the network connection

The network connection is used to exchange information or control signals between the unit and a software installed on a computer, in order to, e. g.:

- Display parameters
- Select operating modes
- Indicate messages and error situations
- Change device settings
- Activate test functions
- Transmit data for archiving
- Provide documents concerning the devices

The unit can be connected to the network with a network cable or via WLAN.

For information on connection via WLAN, see "8.1 Installing and configuring the unit".

Combining devices safely

› Safety and essential performance features are independent of the network. The device is designed appropriately for operation independent of a network. However, some of the functions are not available in this case.

› Faulty manual configuration can lead to significant network problems. The expert knowledge of a network administrator is required for configuration.

› The data connection utilizes part of the bandwidth of the network. Interactions with other medical devices cannot be completely excluded. Apply the IEC 80001-1 standard for risk assessment.

› The device is not suitable to be connected directly to the public internet.

Danger can arise when connecting appliances to each other or to parts of systems (e.g. through leakage currents).

› Only connect appliances together when there can be no danger to the operator or to the patient.

› Only connect appliances when there can be no environmental impairment through such interconnection.

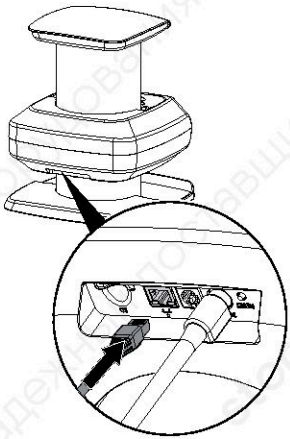
› If it is not clear from the appliance data sheets that such connections can be safely made or if you are in any doubt, always get a suitably qualified person (e.g. the manufacturer) to verify that the setup is safe.

A template for the system manufacturer's declaration in accordance with article 12 of Directive 93/42/EEC is available in the download area at www.duerr.de (document no. 9000-461-264).

› Only connect peripheral units (e.g. computer, monitor, printer) that conform at least to the requirements set out in IEC 60950-1 (EN 60950-1).

Connecting the unit via the network cable

› Plug the enclosed network cable into the network socket of the device.



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8 Commissioning and first start-up

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NOTICE
Short circuit due to the build-up of condensation
› Do not switch on the unit until it has warmed up to room temperature and is dry.

8.1 Installing and configuring the unit

The unit supports the following imaging programs:
– DBSWIN
– VistaEasy (ImageBridge, TWAIN compliant third party dental imaging application software)

Configuring the network

› Switch on the network devices (router, PC, switch).
› Check if TCP port 2006 and UDP port 514 are enabled in the firewall; enable them, if necessary.
If you are using the Windows firewall, you do not need to check the ports since you will be asked whether you want to enable them during the driver installation process.

When the unit is first connected to a computer, it applies the language and time settings of the computer.

Network configuration

Various options are available for network configuration:
– Automatic configuration via DHCP.
– Automatic configuration via Auto-IP for direct connection of device and computer.
– Manual configuration.
› Configure the network settings of the device using the software or, if applicable, the touch screen.
› Check the firewall and release the ports, if applicable.

Network protocols and ports

Port	Purpose	Service
45123 UDP, 45124 UDP	Device recognition and configuration	
2006 TCP	Device data	
514[1] UDP	Event protocol data	Syslog
2005 TCP, 23 TCP	Diagnosis	Telnet, SSH

[1] The port can vary depending on the configuration.

Configuring WLAN on the unit

If the unit is to be operated via WLAN, the connection needs to be configured on the unit.

In order to establish a secure WLAN connection, we recommend encrypting the WLAN network with WPA2.
The quality and transmission range of the WLAN connection can be reduced by ambient conditions (e.g. thick walls, other WLAN devices). Mind the signal strength when you select a suitable location for set-up.

Prerequisites:
– You need to be logged-in on the unit as Administrator or Service Technician (*Settings > Access Levels > Administrator/Service Technician).*.
› Request the WLAN settings from your Network Administrator.
› Tap the following on the touch screen: *Settings > System Settings > Network*.
› Under *Interface*, select the *WLAN* option and confirm with *OK*.
› Configure the WLAN.
› Confirm with *OK*.

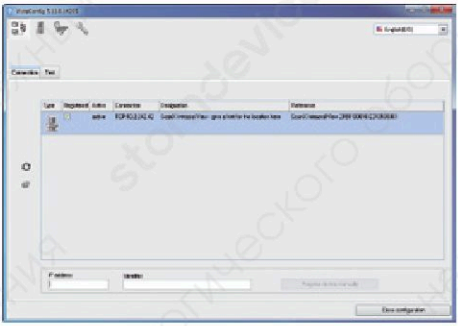
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Configuring the unit

The configuration is done with VistaConfig, which is automatically installed during the installation of DBSWIN or VistaEasy.

› *Start* > *All Programs* > *Air Techniques* > *VistaEasy* > *VistaConfig*.



› Click .

This updates the list of connected devices.

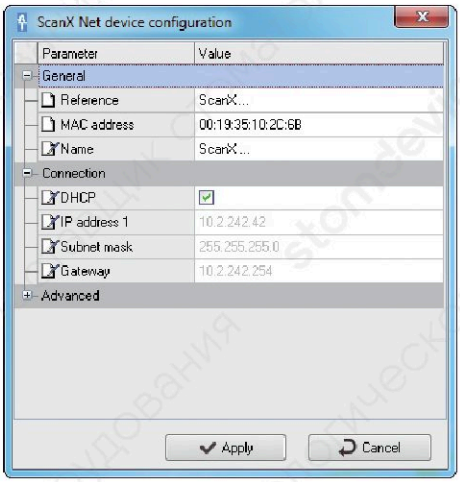
› If the device isn't found, enter the IP address manually and click *Register device manually*.

› Activate the connected device in the *Registered* column.

You can also register multiple devices.

Use the *ScanX device configuration* window to change the device name, (*name*), to manually enter an IP address and to request information.

› Click .



Entering a fixed IP address (recommended)

To reset the network settings, keep the unit reset button pressed for 15 - 20 seconds while switching on.

› Deactivate *DHCP*.

› Enter the IP address, subnet mask and gateway.

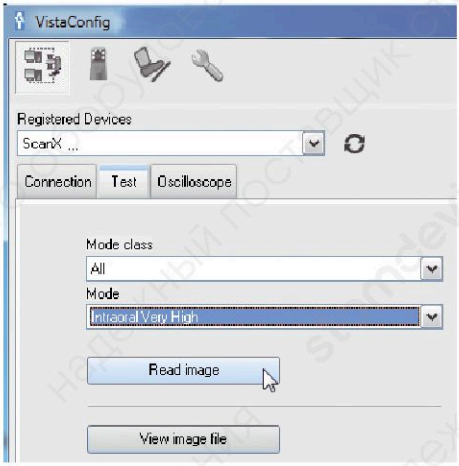
› Click on *Apply*.

This saves the configuration.

Testing the device

You can scan an X-ray image to check if the unit is properly connected.

› Select the *Test* tab.



› Select the unit from the *Registered Devices* selection list.

› Select the mode class.

› Select the mode.

› Click on *Scan Image*.

› For the scanning of an image plate, see "11.2 Scanning the image data via a computer".

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8.2 X-ray unit settings

Intraoral X-ray units

The indicated standard values are a recommendation, the dentist determines the individual setting of the exposure values.

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A setting of 60 kV is preferred provided it can be set on the X-ray unit.
The standard exposure values for F-speed film (e. g. Kodak Insight) can be used.

The following table shows the standard values for the exposure time and the dose area product of a PSP for an adult patient.

	DC emitter, 7 mA Tube length 20 cm					
	without X-ray field limitation		X-ray field limitation 0.8 x 1.2 in² (20 x 30 mm²)		X-ray field limitation 1.2 x 1.6 in² (30 x 40 mm²)	
	60 kV	mGycm²	60 kV	mGycm²	60 kV	mGycm²
Incisor	0.08 s	14.6	0.08 s	3.1	0.08 s	6.2
Premolar	0.12 s	21.9	0.12 s	4.6	0.12 s	9.3
Molar	0.17 s	31.1	0.17 s	6.6	0.17 s	13.2
Bite wing	0.18 s	32.9	0.18 s	7.0	0.18 s	14

	DC emitter, 6 mA Tube length 30 cm					
	without X-ray field limitation		X-ray field limitation 0.8 x 1.2 in² (20 x 30 mm²)		X-ray field limitation 1.2 x 1.6 in² (30 x 40 mm²)	
	70 kV	mGycm²	70 kV	mGycm²	70 kV	mGycm²
Incisor	0.13 s	11.8	0.13 s	2.5	0.13 s	5.0
Premolar	0.18 s	16.4	0.18 s	3.4	0.18 s	6.9
Molar	0.25 s	22.8	0.25 s	4.8	0.25 s	9.6
Bite wing	0.27 s	24.6	0.27 s	5.2	0.27 s	10.4

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The following table shows the standard values for the exposure time and the dose area product of a PSP for a pediatric patient.

Children are more sensitive to radiation than adults. Keep the exposure parameters as low as possible taking into consideration the image quality. Also refer to the information on pediatric x-ray imaging of the FDA (http://www.fda.gov/Radiation-EmittingProducts/RadiationEmitting-ProductsandProcedures/MedicalImaging/ucm298899.htm).

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	DC emitter, 7 mA Tube length 20 cm					
	without X-ray field limitation		X-ray field limitation 0.8 x 1.2 in² (20 x 30 mm²)		X-ray field limitation 1.2 x 1.6 in² (30 x 40 mm²)	
	60 kV	mGycm²	60 kV	mGycm²	60 kV	mGycm²
Incisor	0.05 s	9.1	0.05 s	1.9	0.05 s	3.8
Premolar	0.07 s	12.8	0.07 s	2.7	0.07 s	5.4
Molar	0.11 s	20.1	0.11 s	4.2	0.11 s	8.5
Bite wing	0.11 s	20.1	0.11 s	4.2	0.11 s	8.5

	DC emitter, 6 mA Tube length 30 cm					
	without X-ray field limitation		X-ray field limitation 0.8 x 1.2 in² (20 x 30 mm²)		X-ray field limitation 1.2 x 1.6 in² (30 x 40 mm²)	
	70 kV	mGycm²	70 kV	mGycm²	70 kV	mGycm²
Incisor	0.08 s	7.3	0.08 s	1.5	0.08 s	3.1
Premolar	0.11 s	10.0	0.11 s	2.1	0.11 s	4.2
Molar	0.14 s	12.8	0.14 s	2.7	0.14 s	5.4
Bite wing	0.14 s	12.8	0.14 s	2.7	0.14 s	5.4

› Check and adjust the specific X-ray unit in accordance with the standard values.

8.3 Commissioning tests

The required tests (e.g. acceptance test) must be done in accordance with local rules and regulations.

› Find out which tests are required.
› Carry out testing in accordance with local rules and regulations.

Electrical safety checks

› Carry out the electrical safety check according to national law (e. g. in accordance with IEC 62353).
› Document the results.

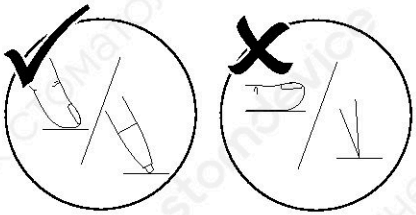
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9 Operating the touch screen

NOTICE
Damage to the touch screen due to incorrect handling
- Only operate the touch screen using your fingertips or the Stylus.
- Do not use sharp objects (e.g. ball-point pen) to operate the touch screen.
- Protect the touch screen from water.

› Operate the touch screen by tapping it with a fingertip or the Stylus to select a menu or field.



› For further information about any window, tap on the *Help* field.

9.1 Navigating

If the contents of the window cannot be completely displayed on the touch screen, a scroll bar appears.

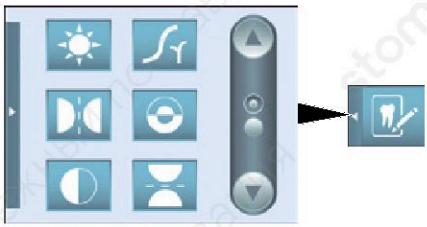


› Tap ▼ or ▲ to move the displayed section of the window.

9.2 Using menus

The menus integrated in a window contain additional commands that can be selected.

› To open the menu, tap ◀.



› Select a command.

9.3 Entering text in a field

› If a field requires input, tap in the field.
This opens the keyboard window.



123	Switch to numbers/special characters
⇧	Shift key
äöü	Switch to German accents and special vowels ("umlauts")
⇦	Delete
✕	Cancel input and close keyboard
✓	Confirm input and close keyboard
␣	Spaces

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9.4 Calling up messages on the touch screen

The *Messages* view shows a history of all previous messages. Messages are subdivided into the following categories:

Malfunction	Unit will no longer function. When the error has been remedied, it may be necessary to acknowledge the error message.
Notice	After acknowledgement the unit will continue to work, but only with limited functions.
Information	Important information for the operator, e.g. about the current status of the device. The unit continues to operate.
Note	Information for the operator. The unit continues to operate.
Fault-free operation	

› Tap on *Messages*.

This displays the message. If there are several messages, the most current with the highest priority is displayed first.

› For more information about the message, tap on *Help*.

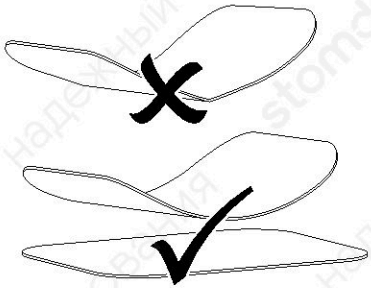
10 Correct use of phosphor storage plates

CAUTION
Phosphor storage plates (PSP) are toxic

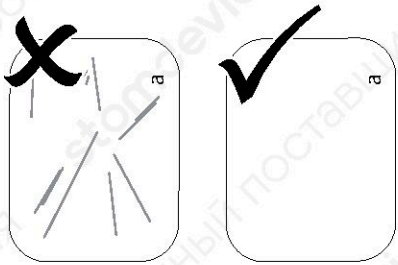
PSPs that are not packed in a barrier envelope can lead to poisoning when placed in the mouth or swallowed.

› Only place PSPs in the patient's mouth in a barrier envelope.
› Do not swallow the PSP or parts of it.
› If the PSP or parts of it have been swallowed, consult a specialist doctor immediately and remove the PSP.
› If the barrier envelope was damaged in the patient's mouth, rinse the mouth thoroughly with copious amounts of water. Do not swallow the water in the process.

› Phosphor storage plates (PSP) are flexible like X-ray film. However, the PSPs should not be kinked.



› Do not scratch the PSPs. Do not subject the PSPs to pressure from hard or pointed objects.



› Do not soil the PSPs.
› Protect the PSPs from sunlight and ultraviolet light.

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Store PSPs in a barrier envelope or plate guide of the correct size.

› PSPs will be pre-exposed on exposure to natural radiation and stray X-ray radiation. Protect erased or exposed imaging plates from X-ray beams.

If the PSP has been stored for longer than one week, erase the PSP prior to use.

› Do not store PSPs under hot or moist conditions. Note the ambient conditions (see "4 Technical data").

› When used properly, PSPs can be exposed, read and erased several hundred times provided there is no mechanical damage.

Replace the PSP if there are any signs of damage, e.g. protective layer is damaged or visible scratches, that could interfere with the diagnosis.

› PSPs that have a production or packaging defect will be replaced by Air Techniques in the same quantity.

› Clean PSPs properly (see "12 Cleaning and disinfection").

11 Operation

CAUTION
Image data on the phosphor storage plate (PSP) is not permanent

The image data is altered by light, natural X-ray radiation and scattered X-ray radiation. This impairs the diagnostic information and clarity.

› Read the image data within 30 minutes of exposure.

› Never handle exposed PSPs without the barrier envelope.

› Do not subject an exposed PSP to X-ray radiation before and during the scanning process.

› Do not X-ray during the scanning process if the unit is in the same room as the X-ray tube.

11.1 X-ray

Intraoral X-ray

The procedure is described using a size 2 phosphor storage plate as an example.

Required accessories:

– Phosphor storage plate (PSP)
– Barrier envelope of the same size as the PSP
– Plate guide of the same size as the PSP

WARNING
Risk of cross contamination when not using the barrier envelope or when using the barrier envelope more than once

› Do not use an phosphor storage plate without a barrier envelope.

› Do not re-use the barrier envelope (disposable item).

Preparing the X-ray

– The PSP has been cleaned.
– The PSP is not damaged.
– The marker (if present) sticks to the correct position on the PSP. If the marker peels off, replace the PSP.

› If using it for the first time or if it has been stored for over a week: erase the PSP (see "11.4 Erasing the imaging plate").

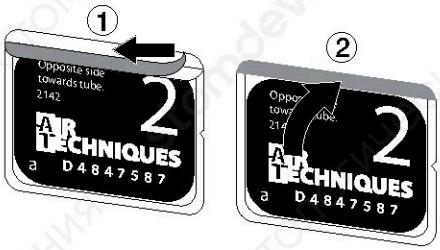
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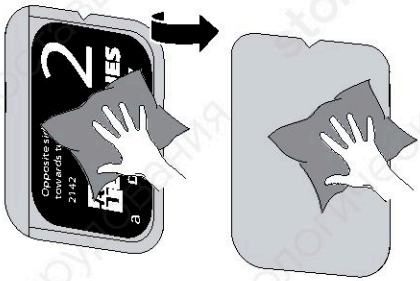
› Completely slide the PSP into the barrier envelope. The black (inactive) side of the PSP must be visible.



› Pull off the adhesive strip and close the barrier envelope tightly by pressing together firmly.



› The barrier envelope must be disinfected using a disinfectant wipe immediately before positioning it inside the patient's mouth.
Alternatively, use a spray disinfectant on a soft, lint-free cloth.

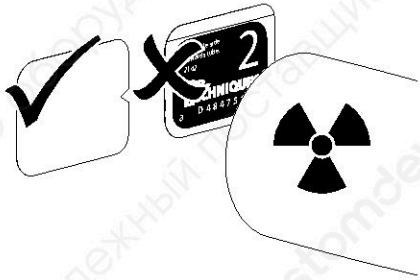


Recording the X-ray image

NOTICE
Damage to the phosphor storage plate (PSP) caused by a sharp-edged holding system
› Only use holding systems that do not damage the barrier envelope or the PSP.
› Do not use holding systems with sharp edges.

Wear hand protection.

› Place the PSP in the barrier envelope into the patient's mouth.
Doing this, make sure that the active side of the PSP faces the X-ray tube.



› Set the exposure time and setting values on the X-ray unit (see "8.2 X-ray unit settings").
› Record the X-ray image.

Result:
The image data must be scanned within 30 minutes.

Preparing for scanning

CAUTION
Light erases the image data on the phosphor storage plate (PSP)
› Never handle exposed PSPs without either a barrier envelope or a plate guide.

Wear hand protection.

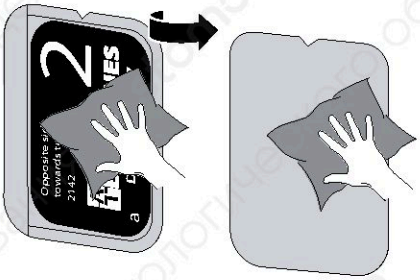
› Remove the PSP with the barrier envelope from the patient's mouth.

WARNING
Contamination of the unit
› Clean and disinfect the barrier envelope before removing the PSP.

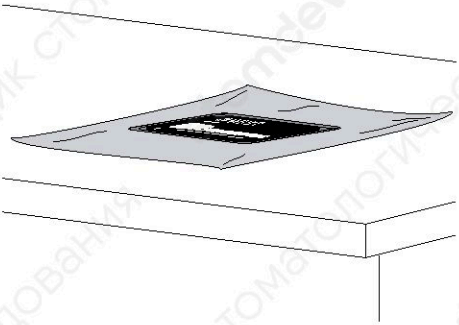
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› In the event of heavy soiling, e.g. from blood, clean the barrier envelope and protective gloves with a dry cloth, e.g. wipe with a clean cellulose cloth.
› Disinfect the barrier envelope and protective gloves with a disinfection wipe.
Alternatively, use a spray disinfectant on a soft, lint-free cloth.



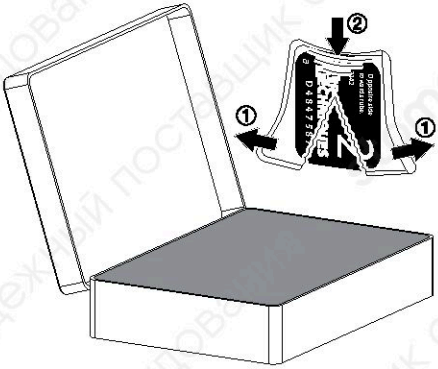
› Place the barrier envelope with the PSP on the disinfection wipe.



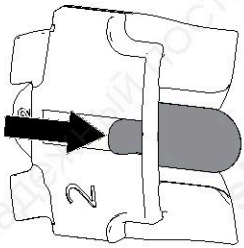
› Allow the barrier envelope to fully dry.
› Pull off the protective gloves, disinfect and clean the hands.

NOTICE
Powder from the protective gloves on the PSP damages the unit during scanning
› Completely clean all traces of the protective glove powder from your hands before handling the PSP.

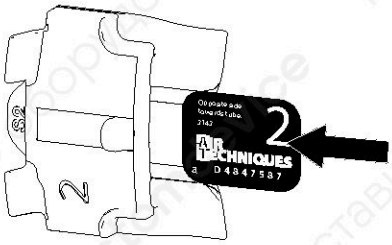
› Tear the barrier envelope and place the PSP in the transfer box.
If the active side of the PSP is facing up, turn the PSP over immediately.



› Slide the lever on the plate guide downwards as far as it will go. The tongue must be completely visible.



› Place the PSP by its active side on the tongue. The inactive side must be visible.
› Immediately slide the PSP in the plate guide until it reaches the stop.



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11.2 Scanning the image data via a computer

Starting the imaging plate scanner and software

The scanning process using the DBSWIN imaging software is described.
For further information on using the imaging software, refer to the relevant manual.

› Press the on/off switch to switch on the unit.
› Switch on the computer and monitor.
› Start DBSWIN.
› Select the patient.
› Select the exposure values in the X-ray module.
› Set the required resolution.
› Click the *Scan* button.
› If ScanManager is enabled, select the X-ray job on the touch screen of the unit.

Result:

An animation on the touch screen prompts for insertion of the imaging plate.

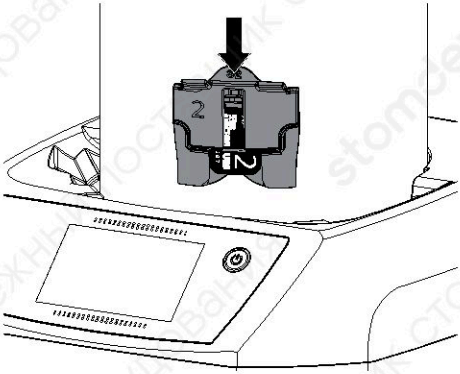
Insert the imaging plate only once the bar above the animation is green.



Figure 4: Example of the animation prompting for insertion of the imaging plate

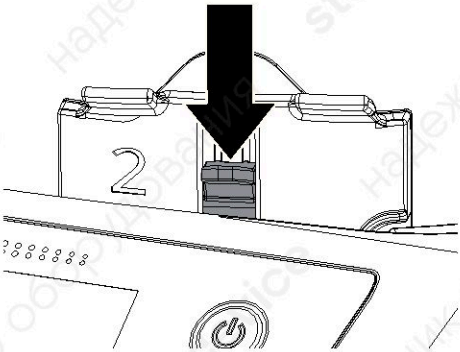
Scanning an intraoral phosphor storage plate

› Place a plate guide with an PSP into one of the free entry slots on the transport arch until it engages in place.



CAUTION
Loss of image data caused by stray ambient light entering the unit
› Remove the plate guide only after the phosphor storage plate has dropped into the collecting tray.

› Press the lever down as far as necessary until the PSP is automatically drawn in.



Scanning progress is displayed on the touch screen. Image data is saved automatically.

The touch screen only shows a preview as an initial impression of the X-ray image. Limitations to image previews occur due to image size and/or exposure conditions. For purposes of diagnosis, the X-ray image must be viewed on a diagnostic monitor.

After it has been scanned, the PSP is erased and drops into the collecting tray.

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› Save the X-ray image.
› Remove the PSP and prepare it for recording another X-ray image.
› Remove the plate guide after the insertion slot status LED on the touch screen switches to green.

11.3 Scanning image data via the touch screen on the unit

Starting the imaging plate scanner

No PC connection is needed for scanning the image data via the touch screen. The image data is stored locally on the memory card. In order to transfer the image data to the imaging software, the unit must be connected to a computer.

There are two options for scanning via the touch screen:



Scan:

Before scanning the image data, the patient data and exposure settings of the image are acquired and then saved with the image data.

If no patient data and exposure settings of the image are entered, the image is saved to a folder with date and time.



Quick scan:

The image data is saved to a folder with the date and time and no additional information.

Use *Help* on the touch screen for further information on operating the unit via the touch screen.

Prerequisites:

– Memory card (SDHC, max. 32 GB) is inserted in the slot of the unit.

› Press ⏻ to switch the unit on.

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Start scanning:

› On the touch screen, tap on *Scan*.
› Enter the patient data.
› Select the image settings and scanning mode.

An animation on the touch screen prompts for insertion of the imaging plate.

Insert the imaging plate only once the bar above the animation is green.



Figure 5: Example of the animation prompting for insertion of the imaging plate

Start quick scan:

› On the touch screen, tap on *Quick scan*.
› Select the scanning mode.

An animation on the touch screen prompts for insertion of the imaging plate.

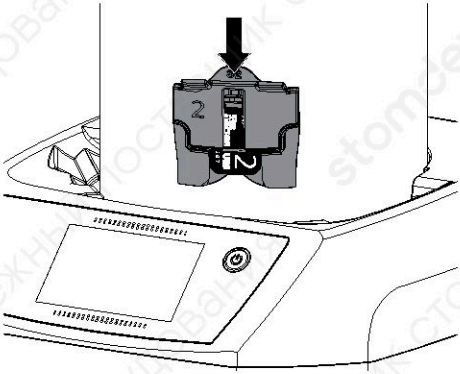
Insert the imaging plate only once the bar above the animation is green.



Figure 6: Example of the animation prompting for insertion of the imaging plate

Scanning an intraoral phosphor storage plate

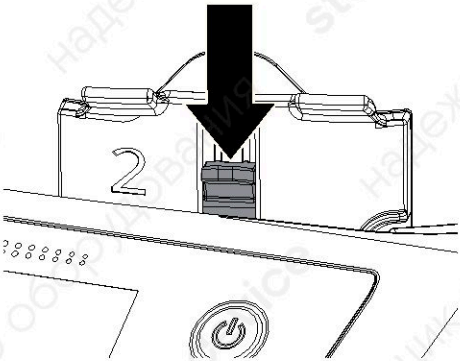
› Place a plate guide with an PSP into one of the free entry slots on the transport arch until it engages in place.



CAUTION
Loss of image data caused by stray ambient light entering the unit

› Remove the plate guide only after the phosphor storage plate has dropped into the collecting tray.

› Press the lever down as far as necessary until the PSP is automatically drawn in.



Scanning progress is displayed on the touch screen. Image data is saved automatically.

The touch screen only shows a preview as an initial impression of the X-ray image. Limitations to image previews occur due to image size and/or exposure conditions. For purposes of diagnosis, the X-ray image must be viewed on a diagnostic monitor.

After it has been scanned, the PSP is erased and drops into the collecting tray.

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› Save the X-ray image.
› Remove the PSP and prepare it for recording another X-ray image.
› Remove the plate guide after the insertion slot status LED on the touch screen switches to green.

Transmitting image data to the computer

X-ray images generated via the touch screen on the unit are saved to the SD card. These X-ray images can be imported into an imaging software via a network connection (e.g. DBSWIN).

› Connect the unit to the network.
› Start the imaging software.
› Start the image import via the imaging software (for further information, refer to the manual of the imaging software).
› Save the image data.

The image data on the memory card is erased automatically as soon as the transfer has been successfully completed.

11.4 Erasing the imaging plate

The image data is erased automatically after scanning.

If you do not want the image data to be erased, this function can be disabled for the current scanning process by selecting *Disable erasing light* on the touch screen of the unit.

The special *ERASE* mode only activates the erasure unit of the imaging plate scanner. No image data is scanned.

The PSP needs to be erased using the special mode in the following cases:

– The first time the PSP is used, or if it is stored for more than one week.
– Due to an error, the image data on the PSP has not been erased (software error message).

Erasing the PSP via a computer

› Select the special *ERASE* mode in the software.
› Scan the PSP (see "11.2 Scanning the image data via a computer").

Erasing the PSP via the touch screen

› On the touch screen, tap on *Quick scan*.
› Select the scanning mode *ERASE*.
› Scan the PSP (see "11.3 Scanning image data via the touch screen on the unit").

11.5 Switching the unit off

› Press the on/off switch ⏻ for 3 seconds.

As soon as the unit has shut down it switches off completely. The touch screen is off.

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12 Cleaning and disinfection

Unless specified otherwise, Air Techniques recommends Monarch disinfection wipes for cleaning and disinfection of the unit and accessories. For a full list of approved cleaning agents, please contact Air Techniques.

Do not use the following disinfection wives:

– CaviWipes 1
– Discide Ultra

NOTICE
The use of unsuitable agents and methods can damage the unit and accessories

› Only use the disinfection and cleaning agents specified or approved by Air Techniques and the EPA.
› Comply with the operating instructions of the disinfectants and cleaning agents.

Wear protective gloves.

12.1 Imaging plate scanner

Surface of the unit

The surface of the unit must be cleaned and disinfected if it is contaminated or soiled.

NOTICE
Liquid can cause damage to the unit

› Do not spray the unit with cleaning agents or disinfectants.
› Make sure that liquid penetrates into the unit.

› Remove any soiling with a soft, damp, lint-free cloth.
› Disinfect the surfaces with a disinfection wipe. Alternatively, use a spray disinfectant on a soft, lint-free cloth. Comply with the operating instructions of the disinfectant.

12.2 Barrier envelope

The surface must be cleaned and disinfected if it is contaminated or soiled.

› Disinfect the barrier envelope using a disinfection wipe before and after placement. Alternatively, use a spray disinfectant on a soft, lint-free cloth. Comply with the operating instructions of the disinfectant.
› Allow the barrier envelope to completely dry before using it.

12.3 Phosphor storage plate

Use the following cleaning agent exclusively:

– PSP cleaning wipes

NOTICE
Heat or humidity damage the PSP

› Do not sterilize the PSP with steam.
› Do not disinfect the PSP by immersion.
› Only use approved cleaning agents.

› Soiling on both sides of the PSP should be cleaned off with a soft, lint-free cloth before each use.
› Remove persistent or dried soiling with the PSP cleaning cloth. Comply with the instructions for use of the cleaning cloth.
› Allow the PSP to completely dry before using it.

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12.4 Plate guide

The surface must be cleaned and disinfected if it is contaminated or soiled.

NOTICE
Heat damages the plate guide
› Do not sterilize plate guides by steam.

› Remove any soiling from both sides of the plate guide with a soft, damp, lint-free cloth.
› Disinfect the plate guide using a disinfection wipe. Alternatively, use a spray disinfectant on a soft, lint-free cloth. Comply with the operating instructions of the disinfectant.
Intraoral plate guides can also be disinfected in a disinfectant bath.
› Allow the plate guides to dry fully before use.

12.5 Stylus

The Stylus can be cleaned in the same way as the unit (see "12.1 Imaging plate scanner").

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13 Maintenance

13.1 Recommended maintenance schedule

Do Not Attempt Internal Service.
The interior of each component of the unit is only accessible by removing hardware with special tools and should only be opened and serviced by an authorized dealer service technician. Contact your local Air Techniques authorized dealer for service. Failure to heed this directive may result in equipment damage and voids the warranty.

Prior to working on the device or in case of danger, disconnect it from the mains (e. g. pull the mains plug).

The recommended maintenance intervals are based on using the unit for 50 intraoral images per day and 220 working days per year.

Maintenance interval	Maintenance work
Annually	› Visually inspect the unit.
	› Check the phosphor storage plates and plate guides for scratches, and replace if necessary.
	› Check the light protection brushes, cut any protruding hairs and remove them.
	› Check the belt drives, transport belts and springs, and replace if necessary.
	› Disassemble the transport arch.
	› Remove dust and dirt from accessible parts.
	› Mount the transport arch.
	› Carry out a system check.
Every 2 years	› Replace the pressure roller modules.
	› Replace the transport belts and tension springs.
	› Replace the timing belts.

13.2 Check image quality

To assure the image quality, the unit must be subjected to maintenance (see "13.1 Recommended maintenance schedule") and regular cleaning and disinfection (see "12 Cleaning and disinfection") and the image quality of the PSP and X-ray system need to be checked.

Inspection interval	Work
Daily / before each use	› Clean the PSP, if applicable.
	› Check the PSP for scratches. If there are scratches on the surface, take a homogeneous test image (see "Check the PSP with a homogeneous test image"), replace the PSP, if applicable.
	› Keep an eye on the image quality with each X-ray image taken, also refer to "14.1 Poor X-ray image".
Monthly	› Take a homogeneous test image of the PSP (refer to "Check the PSP with a homogeneous test image"). If scratches or artifacts are visible in the image that may possibly have an adverse effect on the diagnostics, replace the PSP.
Every 3 months	› Check X-ray system.
	› Take an X-ray image with a test body. Check the image for homogeneity, resolution, contrast and artifacts, refer to "Check X-ray system".

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Check the PSP with a homogeneous test image

Scratches on the surface of the PSP may be visible in the X-ray image and may impair the ability to diagnose the X-ray images. If scratches are visible in the image that may impair the diagnostics, the PSP must be discarded.

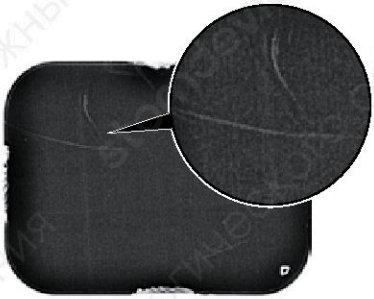


Figure 7: PSP with scratches

› Place the PSP on a level surface at a distance of approximately 30 cm from the X-ray tube. Doing this, make sure that the active side of the PSP faces the X-ray tube.
› Set the exposure time and setting values on the X-ray unit for a molar x-ray image (see "8.2 X-ray unit settings").
› Scan the PSP with the PSP scanner at high resolution.
› Check the image for homogeneity.

No scratches visible in the image: PSP can still be used.

Scratch is visible in the image: discard the PSP.

Check X-ray system

To check the X-ray system, take an X-ray image with the test body (refer to "3.3 Special accessories"). This can be used to check the image produced with the X-ray system for homogeneity, resolution, contrast and artifacts.

› Take an X-ray image with the test body. Comply with the instructions for use of the test body.
› Read the PSP.
› Check the image for homogeneity, resolution, contrast and artifacts.
› If errors are visible in the image, contact a service technician.

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14 Tips for operators and service technicians

Any repairs above and beyond routine maintenance may only be done by suitably qualified personnel or by one of our service technicians.

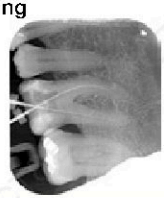
Prior to working on the device or in case of danger, disconnect it from the mains (e. g. pull the mains plug).

14.1 Poor X-ray image

Fault	Probable cause	Solution
X-ray image does not appear on the monitor after scanning	PSP not fed in straight and inactive side was scanned	› Scan the PSP again immediately, making sure you feed it in correctly in the process.
	Image data on the PSP has been erased, e.g. by ambient light	› Always scan the image data of the PSP as soon as possible.
	Fault on the unit	› Contact technician.
	No image data on PSP, PSP not exposed	› Expose the PSP.
	X-ray unit is faulty	› Contact technician.
X-ray image too dark	X-ray dose too high	› Check X-ray parameters.
	Incorrect brightness/contrast settings in the software	› Adjust the brightness of the X-ray image in the software.
X-ray image too bright	Exposed PSP has been exposed to ambient light	› Always scan the image data of the PSP as soon as possible.
	X-ray dose too low	› Check X-ray parameters.
	Incorrect brightness/contrast settings in the software	› Adjust the brightness of the X-ray image in the software.
X-ray image only shadowy	The X-ray dose on the PSP was insufficient	› Increase X-ray dose.
	Amplification (HV value) is set too low in the software	› Increase amplification (HV value).
	Unsuitable scanning mode selected	› Select a suitable scanning mode.
	The setting for the threshold value is too high	› Reduce the threshold value.
X-ray image is mirror-inverted	PSP incorrectly inserted in plate guide or barrier envelope.	› Insert PSP correctly.
	PSP not placed straight.	› Position the PSP correctly.

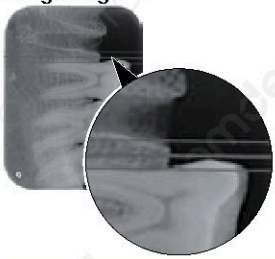
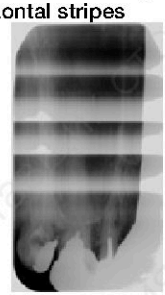
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Fault	Probable cause	Solution
Ghosting or double exposure on X-ray image 	PSP exposed twice	› Only expose the PSP once.
	PSP not sufficiently erased	› Check the erasure unit for proper function. › Inform a service technician, if the problem persists.
X-ray image mirrored in one corner 	PSP kinked during X-ray exposure	› Do not kink the PSP.
Shadow on the X-ray image 	PSP removed from the barrier envelope before scanning	› Do not handle PSPs without a barrier envelope. › Store the PSP in a barrier envelope.
X-ray image cut off, part missing 	A metal part of the X-ray tube is in front of the X-ray beam	› Recording an X-ray image, make sure there are no metal parts between the X-ray tube and the patient.
		› Check X-ray tube.
	Faulty edge masking in imaging software	› Deactivate edge masking.
Software unable to combine the data to make a complete image	The X-ray dose on the PSP was insufficient	› Increase X-ray dose.
	Amplification (HV value) is set too low in the software	› Increase amplification (HV value).
	Unsuitable scanning mode selected	› Select a suitable scanning mode.
	The setting for the threshold value is too high	› Reduce the threshold value.

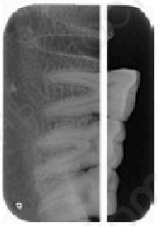
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Fault	Probable cause	Solution
X-ray image has strips on image	PSP has been pre-exposed, e.g. by natural radiation or stray X-ray radiation	› If the PSP has been stored for more than one week, erase the PSP prior to use.
	Parts of PSP exposed to light during handling	› Do not expose exposed PSPs to bright light. › Scan image data within half an hour after the exposure.
	PSP dirty or scratched	› Clean the PSP. › Replace scratched PSP.
Bright stripes in the scanning window	Too much incident ambient light during the scanning process	› Darken the room. › Turn the unit such that no light is directly incident on the input unit.
Horizontal, grey lines in the X-ray image, extending beyond the left and right image edge 	Transport slipping	› Clean the transport mechanism, replace the transport belts if necessary.
X-ray image is stretched lengthwise with bright, horizontal stripes 	Wrong barrier envelope or PSP used	› Only use original accessories.

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Fault	Probable cause	Solution
X-ray image split vertically into two halves 	Dirt in the laser slit (e.g. hair, dust)	› Clean the laser slit.
X-ray image with small bright spots or clouding	Micro scratches on the PSP	› Replace the PSP.
Lamination of the PSP detaches at the edge 	Wrong retainer system used	› Only use original PSP and film retainer systems.
	PSP handled incorrectly.	› Use the PSP correctly. › Comply with the operating instructions of the PSP and film retainer systems.

14.2 Software error

Fault	Probable cause	Solution
"Too much ambient light"	Unit is exposed to too much light	› Darken the room. › Turn the unit such that no light can directly enter into the entry slot.
"Overtemperature"	Laser or erasure unit too hot	› Switch the unit off and allow it to cool.
"Erasure unit fault"	LED defective	› Contact technician.

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Fault	Probable cause	Solution
Imaging software fails to recognize the unit	Unit not switched on	› Switch the device on.
	Connecting cable between unit and computer not correctly connected	› Check the connecting cable.
	Computer does not detect any connection to the unit	› Check the connecting cable. › Check the network settings (IP address and subnet mask).
	Hardware error	› Contact technician.
	The IP address of the unit is being used by another unit	› Check the network settings (IP address and subnet mask) and assign a unique IP address to each unit. › Inform a service technician, if the problem persists.
The unit does not appear in the selection list in VistaConfig	Unit is connected downstream of a router	› Configure the IP address without an intermediate router on the unit. › Reconnect the router. › Manually enter the IP address in VistaConfig and register the unit.
	The IP address of the unit is being used by another unit	› Check the network settings (IP address and subnet mask) and assign a unique IP address to each unit. › Inform a service technician, if the problem persists.
The unit appears in the VistaConfig selection list, but connection is not possible	Subnet masks of the computer and the unit do not match	› Check subnet masks, adjust if necessary.
Error message "E2490"	The connection to the unit was interrupted while the software was still attempting to communicate with the unit	› Restore the connection to the unit. › Repeat the process.
Error during data transmission between unit and computer. Error message "CRC error timeout"	Connecting cable used is incorrect or too long	› Only use original cables.

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14.3 Fault on the unit

Fault	Probable cause	Solution
Unit does not switch on	No mains voltage	› Check the mains cable and plug connection and replace if necessary.
		› Check the power supply unit. › If the touch screen does not light up, replace the power supply.
		› Check the mains fuse in the building.
	On/off switch is defective	› Contact technician.
Unit switches off again after a short time	Mains cable or power supply unit plug not inserted correctly	› Check the mains cable and plug connections.
	Hardware defect	› Contact technician.
	Mains supply voltage too low	› Check the mains supply voltage.
Loud operating noises after switching on lasting for more than 30 seconds	Radiation deflector defective	› Contact technician.
Unit not responding	The unit has not yet completed the startup procedure	› After switching the unit on, wait 20 - 30 seconds for the startup procedure to be completed.
	Unit is blocked by the firewall	› Enable the ports for the unit in the firewall settings.
Unit is on, but there is no display on the touch screen	Touch screen initialization fault	› Switch the unit off and on again.
	Touch screen brightness set too dark	› Update firmware. › Increase the brightness of the touch screen.
	Touch screen defective	› Contact technician.

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14.4 Error messages on the touch screen

Fault	Probable cause	Solution
Error code 1008	Connection interrupted	› Update the firmware.
Error code 1010	Temperature of unit too high	› Allow the unit to cool down. › Contact technician.
Error code 1022	Subassembly not initialized	› Fault in software, update the software if required. › Contact technician.
Error code 1024	Internal data communication fault	› Switch the unit off and back on again. › Update the firmware. › Darken the room. › Turn the unit so that no light can fall directly into the insertion slot.
Error code 1026	Incorrect acquisition mode	› Select a different acquisition mode › Inform a service technician. › Update the firmware. › Reset the scanning modes to the factory settings via the unit interface or the Imaging Software.
Error code 1100	Permitted time for scan process exceeded	› Contact technician. › Check the belt drive. › Check for blockage, remove PSP from unit.
Error code 1104	Erasure unit fault	› Contact technician. › Replace the erasure unit.
Error code 1153	Unit fault	› Switch the unit off and on again. › Update firmware.
Error code 1154	Internal data communication fault	› Switch the unit off and on again. › Update firmware.
Error code 1160	Final pentaprism assembly rotation speed not reached	› Contact technician. › Update firmware. › Replace the pentaprism assembly if the problem occurs regularly.
Error code 1170	SOL sensor timeout Fault on the laser, SOL sensor or pentaprism assembly	› Contact technician. › Update firmware.
Error code 1172	SOL sensor timeout Fault on the laser, SOL sensor or pentaprism assembly	› Inform a service technician. › Update the firmware.

EN US

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EN US

Fault	Probable cause	Solution
Error code 10000	Unit is exposed to too much light	› Darken the room. › Turn the unit such that no light can be directly incident in the entry slot.
Error code 10009	Internal communication error warning; unit remains ready for operation	› Update the firmware.
Error code 10017	Unit shuts down	› Wait until the unit has shut down completely
Error code 2	System error during startup of the unit	› Switch the unit off and back on again. › Update the firmware.
Error code 78	Memory card full	› Transmit image data to the computer. › Insert an empty memory card.
	Fault during memory cleanup	› Press and hold the reset button while switching on the unit.
		› Update firmware. › Press and hold the reset button while switching on the unit.
Firmware not running	A firmware update has been carried out	› Switch the unit off and on again.
	Internal communication fault	› Switch the unit off and on again.
Settings (e.g. language) reset after unit restart	Faulty configuration file	› Update the firmware. › Reset the configuration to the factory settings and reconfigure.
Warning message during shutdown of the unit	Not a malfunction	› Update the firmware.

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15 Menu structure Settings

Unit information[1]	Unit data
	Dealer information
	Report
Access level[1]	Operator
	Administrator
	Service technician
	In-house technician

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EN US

System settings[2]	Language	Deutsch (DE)	
		English (EN)	
		...	
	Date & Time	Date	
		Time	
	Network	MAC address	
		Name	
		Interface	LAN
			WLAN
		DHCP	
		IP address	
		Subnet mask	
		Gateway	
	Exposure settings	Patient ID	
		Family name	
		First name	
		Date of birth	
		Gender	
		Pregnancy	
		Comment	
		X-ray station	
		X-ray parameters	
	Image type	INTRA	
		Child	
		...	
	X-ray stations	Room 1	
		Room 2	
		...	
	Touch screen	Brightness	
		Touch screen calibration	
	Unit settings	Stand-by	
		Stand-by time	
		Fade-out time menu	
		Autom. rotation	
		Call up radiation dose	
		Patient ID scheme	
		Service information	
		Service interval	
	Operating type	ScanManager	

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EN
US

Service menu[3]	Test		
	Scanning mode	Display scanning mode	
		Edit scanning mode	
	Maintenance		
	Messages		
	Diagnosis	Statistics	Display statistic counter
			Display error counter
		Manupulation	Transport
			Insert
			Erasure unit
			Pentaprism
			PMT
		Call up sensor values	Sensors
			Temperatures
			Internal unit voltage
		Oszilloscope	
		Check touch screen	
		Display test images	
	Factory settings	Reset scanning mode	

1 visible from access level *Operator* or higher
2 visible from access level *Administrator* or higher
3 visible from access level *Service technician* or higher

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16 Scanning times

The scanning time is the time required for complete scanning of image data and depends on PSP format and pixel size.

The time to image depends mainly on the computer system used and its work load. Times stated are approximate.

EN US

16.1 Intraoral

Theor. resolution (LP/mm)	24	17	10
Pixel size (µm)	21	29.4	50.5
Resolution (DPI)	1210	864	503
Intra Size 0	41 s	27 s	16 s
Intra Size 1	42 s	37 s	17 s
Intra Size 2	45 s	37 s	18 s
Intra Size 3	60 s	41 s	22 s
Intra Size 4	78 s	59 s	29 s

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17 File sizes (uncompressed)

The file sizes depend on the PSP format and the pixel size. File sizes stated are approximate and have been rounded upwards.
Suitable compression methods can considerably reduce the file size without loss of data.

17.1 Intraoral

Theor. resolution (LP/mm)	24	17	10
Pixel size (µm)	**21**	**29.4**	**50.5**
Resolution (DPI)	**1210**	**864**	**503**
Intra Size 0	3.49 MB	1.78 MB	0.60 MB
Intra Size 1	4.35 MB	2.22 MB	0.75 MB
Intra Size 2	5.76 MB	2.94 MB	1.00 MB
Intra Size 3	6.61 MB	3.37 MB	1.14 MB
Intra Size 4	19.65 MB	10.02 MB	3.40 MB

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