

scan▶X Pro

— MANUAL —

EN
US



ALLPRO
IMAGING
equipped for life™

Contents



Important information

1 Concerning this documentation	3
1.1 Warnings and Symbols	3
1.2 Copyright and property rights information.	4
2 Safety	4
2.1 Correct Usage	4
2.2 Incorrect Usage	4
2.3 General safety notes	4
2.4 Qualified personnel	5
2.5 Protection against electric shock	5
2.6 Only use original parts	5
2.7 Transport	5
2.8 Disposal	5



Product description

3 Overview	6
3.1 Scope of delivery	7
3.2 Accessories	7
3.3 Special accessories	7
3.4 Disposable materials	8
3.5 Disposable parts and spare parts	8
4 Technical data	9
4.1 Image plate scanner	9
4.2 Image plate	11
4.3 Model identification plate	12
4.4 Evaluation of conformity	12
5 Function	13
5.1 Image plate scanner	13
5.2 Image plate	15
5.3 Light protection cover	15
5.4 Flexible foil cassette	15
5.5 Rigid foil cassette	16
5.6 Rigid cassette	16
5.7 Stylus	16
5.8 Bite protector (optional)	16
5.9 Light protection screen	16



Installation

6 Requirements	17
6.1 Room for set-up	17
6.2 System requirements	17
6.3 Monitor	17
7 Installation	17
7.1 Carrying the appliance	17
7.2 Installing the appliance	18
7.3 Remove the touch screen protective foil	18
7.4 Applying stylus	18
7.5 Electrical connection	19
7.6 Connect the appliance to the network	19
8 Initial start-up	20
8.1 Installing and configuring the appliance	20
8.2 Configuring the X-ray appliances	22



Use

9 Operating the touch screen	23
9.1 Navigating	23
9.2 Using the menu	23
9.3 Entering text in the field	23
9.4 Calling up messages on the touch screen	24
10 Using image plates correctly	24
11 Handling	25
11.1 X-rays	25
11.2 Reading the image data via computer	29
11.3 Reading image data via the touch screen on the appliance	31
11.4 Erasing the image plate	33
11.5 Switch off the appliance	33

- 12 Disinfection and cleaning** 34
 - 12.1 Image plate scanner 34
 - 12.2 Light protection cover 34
 - 12.3 Image plate 34
 - 12.4 Foil cassette 35
 - 12.5 Stylus 35
- 13 Maintenance** 36
 - 13.1 Recommended maintenance schedule 36

EN
US



Troubleshooting

- 14 Tips for operators and service technicians** 37
 - 14.1 Poor X-ray image. 37
 - 14.2 Software error 39
 - 14.3 Appliance fault. 40
 - 14.4 Error messages on the touch screen. 42



Appendix

- 15 Menu layout settings** 43
- 16 Scanning times** 45
 - 16.1 Intra 45
 - 16.2 Extraoral 45
- 17 File size (uncompressed)** 46
 - 17.1 Intra 46



Important information

1 Concerning this documentation

These Installation and Operating Instructions form an integral part of the appliance. They conform to the relevant version of the equipment and the technical standards valid at the time of installation.



ALLPRO Imaging cannot be held liable and cannot offer guarantees for safe and smooth operation of this appliance in the case that notes and instructions contained in these Installation and Operating Instructions are not observed.

The translation of the manual has been carried out in good faith. The original German language version of the manual prevails. ALLPRO Imaging is not liable for translation errors.

1.1 Warnings and Symbols

Warning notes

The warning notes in this document highlight potential dangers to people and equipment. They are marked with the following warning symbols:



General warning symbol



Warning - dangerous electrical voltage



Warning - laser beam

The warnings are structured as follows:



SIGNAL WORD

Description of type and source of potential danger

Here you will find the possible consequences of ignoring the warning

- Measures to be taken to avoid any possible danger.

The signal word differentiates between different levels of danger:

- **DANGER**
Immediate danger of severe injury or death
- **WARNING**
Possible danger of severe injury or death
- **CAUTION**
Risk of danger of minor injuries
- **ATTENTION**
Danger of considerable equipment damage

Further symbols

These symbols are used within the documentation and on the appliance itself:



Notes, e.g. special instructions concerning economic use of the appliance.



Observe the accompanying documentation.



CE mark



Date of manufacture



Manufacturer



ETL Certification
CONFORMS TO UL STD 61010-1
CERTIFIED TO CAN/CSA STD C22:2
NO 61010-1



Dispose of the appliance properly according to valid state and local legislation.



Only use once.



Wear protective gloves.



Switch off the appliance (i. e. unplug from mains).

Adhesive label



Class 3B laser



Warning - laser beam
Closed appliance:
Laser Class 1
Open appliance:
Laser Class 3B



Notes on laser source



Danger to components due to electrostatic discharge (ESD)

1.2 Copyright and property rights information

All circuits, processes, names, software programs and appliances quoted are protected under industrial property rights.

Printing or copying of these Installation and Operating Instructions, even excerpts thereof, may only be carried out with the written approval of ALLPRO Imaging.

2 Safety

ALLPRO Imaging has developed and designed this appliance in such a way that dangers are effectively ruled out if operated in accordance with the intended use. However, a small degree of risk is always present. Please observe the following notes.

2.1 Correct Usage

The appliance is intended exclusively for the scanning and processing of image data on an image plate under veterinary conditions.

2.2 Incorrect Usage

Any use of this appliance/these appliances above and beyond that laid down in the Installation and Operating Instructions is deemed to be incorrect usage. The manufacturer cannot be held liable for any damage resulting from incorrect usage. The operator will be held liable and bears all risks.



WARNING

Risk of explosion due to inflammation of combustible materials

- Do not use the appliance in rooms in which combustible mixtures may be present, e.g. in operating theatres.

The appliance is not suitable for prolonged X-ray diagnostic monitoring of animals.

The preview of the X-ray image on the touch screen is not suitable for the purposes of diagnosis.

2.3 General safety notes

- When operating the appliance, be sure to observe all local guidelines, laws, rules and regulations.
- Before each use check the function and condition of the appliance.
- Do not convert or change the appliance in any way.
- Observe the Installation and Operating Instructions precisely.
- Keep the Installation and Operating Instructions in an accessible place so that the operator has instant access to them.

2.4 Qualified personnel

Handling

Persons who operate the appliance must be sufficiently qualified and knowledgeable to ensure that it is used correctly.

- Each operator using the appliance must be trained in its handling.

Installation and repair

- All installation, resetting, changes, expansion and repair must be carried out either by ALLPRO Imaging personnel or by a suitably qualified person approved by ALLPRO Imaging.

2.5 Protection against electric shock

- When using the appliance observe all the relevant electrical safety procedures.
- Never touch persons or animals and open connectors of the appliance simultaneously.
- Damaged supply lines and connections must be replaced immediately.

2.6 Only use original parts

- Only parts specified by ALLPRO Imaging or specifically approved accessories and special accessories may be used with this appliance.
- Only use original working parts and spare parts.

Result:



ALLPRO Imaging accepts no liability for damage or injury resulting where accessories or special accessories or where non-original working parts or spare parts not specifically approved have been used.

2.7 Transport

Only the original packing ensures optimum protection for the appliance during transport.

Where required original appliance packing for this appliance can be ordered from ALLPRO Imaging.



ALLPRO Imaging cannot be held responsible for any damage to the appliance resulting from transport in unsuitable packaging, even during the period of guarantee.

- Only transport the appliance in its original packing.
- Keep all packaging away from children.
- Do not expose the appliance to any strong shocks.

2.8 Disposal

Appliance



Dispose of the appliance properly according to valid state and local legislation.

- If you have any questions concerning disposal of the product, please contact ALLPRO Imaging or your specialist dental supplier.

Image plate

The image plate contains barium compounds.

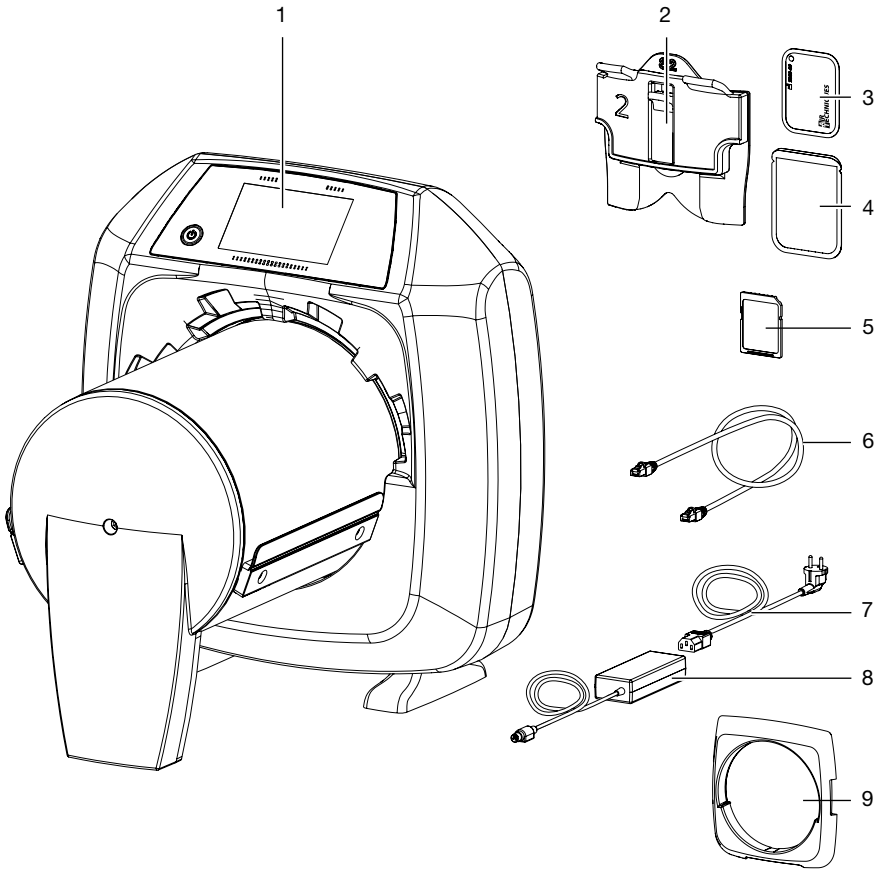
- Dispose of the image plate properly in accordance with the locally applicable regulations.



Product description

3 Overview

EN
US



- | | | | |
|---|-----------------------------------|---|---|
| 1 | ScanX Pro system | 6 | Network cable |
| 2 | Foil cassette, intraoral | 7 | Mains cable (country-specific) |
| 3 | Image plate, intraoral | 8 | Power unit |
| 4 | Light protection cover, intraoral | 9 | Light protection screen
(mounted on appliance) |
| 5 | SDHC memory card | | |

3.1 Scope of delivery

The following articles are included in the scope of delivery (deviations are possible due to country-specific regulations and import provisions):

ScanX Pro image plate scannerF2500 (2132-61AT)

- ScanX basic appliance
- Network cable
- SDHC memory card
- Power unit
- Mains cable (country-specific)
- Stylus
- Installation and Operating Instructions

3.2 Accessories

The following articles are necessary to operate the appliance (depending on particular application):

SDHC memory card F2579 (9000-134-18)

Image plate

Image plate 8x10 inch 73578-8M
Image plate 10x12 inch 73578-10M
Image plate 14x17 inch 73578-14M

Intra

Image plate size 0
(2 pieces) 73445-0
Image plate size 1
(2 pieces) 73445-1
Image plate size 2
(4 pieces) 73445-2
Image plate size 3
(2 pieces) 73445-3
Image plate size 4
(1 piece) 73445-4



Further image plate formats on request

Foil cassettes:

Foil cassette 8x10 inch (1 piece) . . . B2160-8M
Foil cassette 10x12 inch (1 piece) . . . B2160-10
Foil cassette 14x17 inch (1 piece) . . . B2160-14

Intra

Foil cassettes, size 0 (1 piece) . . F2504
(2130-010-00)
Foil cassettes, size 1 (1 piece) . . F2505
(2130-011-00)
Foil cassettes, size 2 (1 piece) . . F2506
(2130-012-00)
Foil cassettes, size 3 (1 piece) . . F2507
(2130-013-00)
Foil cassettes, size 4 (1 piece) . . F2508
(2130-014-00)

Light protection cover

The following articles are included in the scope of delivery:

Plus light protection cover, size 0
(100 pieces) 73248-0 (2134-080-00)
Plus light protection cover, size 1
(100 pieces) 73248-1 (2134-081-00)
Plus light protection cover, size 2
(300 pieces) 73248-2 (2134-082-00)
Plus light protection cover, size 3
(100 pieces) 73248-3 (2134-083-00)
Plus light protection cover, size 4
(100 pieces) 73248-4 (2134-084-00)

3.3 Special accessories

The following articles are optional and can be used with the appliance:

Image plate transport box 73470
Protective cover D5262 (GAPCGREY107)
Transport case F2557 (LIGHTCA213)
Lithium ion battery 24 V/3.8 Ah . F2558
(BATTERIE213)

Rigid cassette

Rigid cassette 8x10 inch (1 piece) . . . 74190-8
Rigid cassette 10x12 inch (1 piece) . . 74190-10
Rigid cassette 14x17 inch (1 piece) . . 74190-14



3.4 Disposable materials

The following materials are used when operating the appliance and must be ordered separately:

Light protection cover

see "Light protection cover"

Disinfection and cleaning

PSP cleaning wipes (50 pieces) B8910

Further cleaning agents and disinfectants can be purchased from an authorized dealer.

3.5 Disposable parts and spare parts

Set of light protection brushes. .F2560
(2134-205-00E)

Set of vibration reducers F2563 (2134-305-00E)

Set of toothed belts . . . F2565 (2134-315-00E)

Set of drive belts
(4 pieces)F2566 (2134-993-50)

Image plate

see "3.2 Accessories"

Foil cassettes:

see "3.2 Accessories"



Further information on spare parts is available on request

4 Technical data

4.1 Image plate scanner

Electrical data of appliance

Voltage	V DC	24
Max. voltage fluctuation	%	± 10
Max. current consumption	A	5
Output	W	< 120
Type of protection		IP20

Electrical data of power unit

Voltage	V AC	100 - 240
Max. voltage fluctuation	%	± 10
Frequency	Hz	50 - 60
Protection class		I
Type of protection		IP20
Over-voltage category		II
Output	W	< 140
Max. current consumption	A	2

Classification

Low Voltage Directive 06/95/EC

EMC Directive (04/108/EC)

Laser class (appliance)

according to EN 60825-1:1994-03 +
A1:2002-07 + A2:2001-03

1

Laser source

Laser class

according to EN 60825-1:1994-03 +
A1:2002-07 + A2:2001-03

3B

Wavelength λ	nm	660
Output	mW	80

Noise level

Stand-by	dB(A)	0
Ready to scan	dB(A)	approx. 37
During read out	dB(A)	approx. 55

General technical data

Dimensions (W x H x D)	inch	15 x 16 x 18.5
Weight	lbs	approx. 38.6
Max. feeding width for image plates	inch	14
Heat output	W	< 140
Duty cycle S2 (according to VDE 0530-1)	min	60
Duty cycle S6 (according to VDE 0530-1)	%	70
Degree of soiling		2
Pixel size (selectable)	µm	12.5 - 130
Max. resolution (depending on image plate)	Line pairs/ mm (Lp/mm)	approx. 20
Max. noise level	dB(A)	< 60

Memory card

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

Ambient conditions during operation

Temperature	°F	+50 to +95
Relative humidity	%	20 - 90
Air pressure	hPa	750 - 1060
Height above sea level	ft	< 6561.67

Ambient conditions for storage and transport

Temperature	°F	-4 to + 140
Relative humidity	%	10 - 95
Air pressure	hPa	750 - 1060
Height above sea level	ft	< 52493.43

Manufacturer

Dürr NDT GmbH & Co. KG
Höpfigheimer Straße 22
74321 Bietigheim-Bissingen, Germany
Tel: +49 7142 99381-0
Fax: +49 7142 99381-299
info@duerr-ndt.de
www.duerr-ndt.de

Dealer

Air Techniques, Inc
Allpro Imaging
1295 Walt Whitman Road
NY 11747 Melville
USA
Tel: +1 888.862.4050
Fax: +1 888.247.8481
www.allproimaging.com

4.2 Image plate

Ambient conditions during operation

Temperature	°F	59 - 93.2
Relative humidity	%	< 80

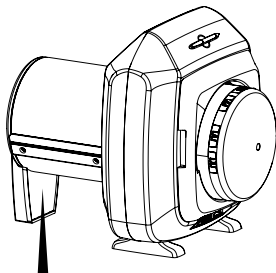
Ambient conditions for storage and transport

Temperature	°F	< 93.2
Relative humidity	%	< 80



4.3 Model identification plate

The model identification plate is located on the rear side of the base foot.



REF DÜRR NDT order number
 REF AT ALLPRO Imaging order number
 SN Serial number

4.4 Evaluation of conformity

This equipment has undergone a test of conformity as prescribed under the relevant European Union directive. This equipment conforms to all requirements.

ETL approval

This Class A digital apparatus complies with Canadian ICES-003.

This equipment has been tested and found to comply with the limits for a class A digital appliance, pursuant to Part 15 of the FCC rules.

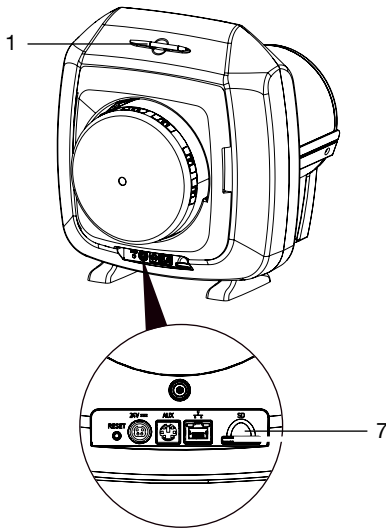
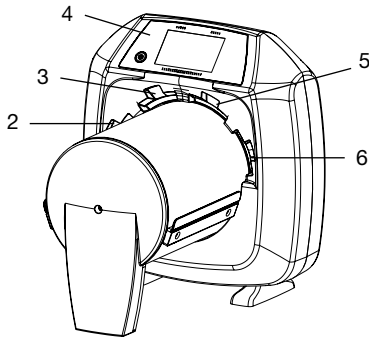
These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the installation and operating instructions, may cause harmful interference to radio communications. Operation of these equipment in a residential area is likely to cause harmful interference in which case the owner will be required to correct the interference at his own expense.

FDA-Registration

Complies with FDA performance standards for laser products except for deviations pursuant to Laser Notice No. 50, date (June, 2007).

5 Function

5.1 Image plate scanner



- 1 Stylus
- 2 + 3 Insertion slots
- 4 Operating panels
- 5 + 6 Insertion slots
- 7 Memory card slot

The image plate scanner is used to read image data stored on the image plate.

The appliance can be used two different ways: Use the imaging software on a PC or use the touch screen on the appliance directly.

The transport mechanism guides the image plate through the scanner. The image plate is read using a laser inside the scanner unit. The scanned data is converted into a digital image.

When a scanning job is started via the imaging software, then the image is automatically transmitted to the PC.

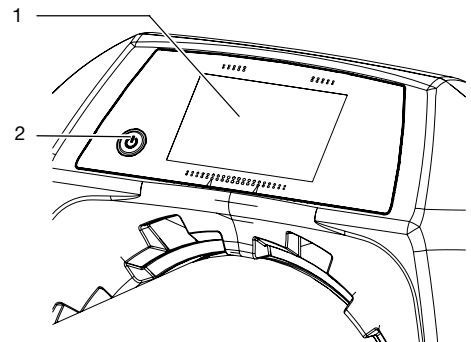
When a scanning job is started via the touch screen, then the image is saved to the memory card and must subsequently be transmitted to the PC.

After scanning, the image plate passes through an erasure unit. Any image data remaining on the image plate is erased using a strong light source.

The image plate will then be released for further exposure.

The appliance is capable of scanning up to four image plates (depending on the sizes) simultaneously at the same resolution.

Operating panels



- 1 Touch screen
- 2 On/Off switch

The touch screen allows the appliance to be operated even when not connected to a PC. Instructions can be entered on the touch screen either with the tip of a finger or the stylus.

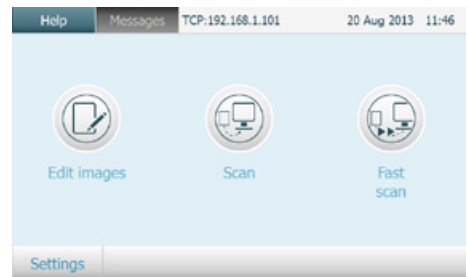


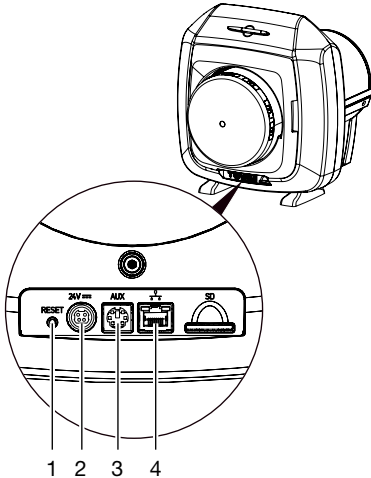
Figure 1: Opening menu on the touch screen

The **Help** button can be used to open a help page for the relevant screen. The **News** button can be used to call up current events.



Connections

The connections are on the rear side of the appliance.



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

Exposure recognition

When the exposure recognition is switched on, then the appliance will detect whether an image plate is exposed or not on insertion. When an exposed image plate is scanned then an X-ray image will be displayed. When an unexposed image plate is scanned then an empty image plate will be displayed. A preview image will not be displayed on the touch screen.

When the exposure recognition is switched off and an unexposed image plate is scanned then the appliance will not display anything on the touch screen or in the software.

DualFoc

The DualFoc technology of the appliance allows the size of the laser spot to be set. This provides X-ray exposures with optimal signal-to-noise ratio and optimally adapted resolution. The predefined scanning modes allow the appropriate scanning mode to be selected for the particular application, depending on the image plate used.

For example with the intraoral image plates (blue), the "VET Dental" scanning mode supports the read-out for maximum detailing with the high resolution of 12.5 μm laser spots.

On the other hand, for an abdomen examination, the "VET Standard" scanning mode is used with an extraoral image plate (white) and the setting for the large laser spot of 50 μm is selected in order to produce a brilliant, low noise image.



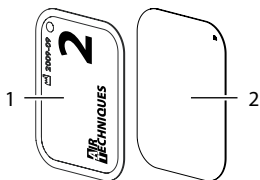
5.2 Image plate

The image plate stores X-ray energy which is emitted in the form of light when stimulated by a laser. This light is then transformed into image data in the image plate scanner.

The image plate has both an active and an inactive side. The image plate must always be exposed to the active side.

When used properly, image plates can be exposed, read and erased several hundred times provided there is no mechanical damage. Replace the image plate if there are any signs of damage (e.g. protective layer is damaged or visible scratches) which could interfere with diagnosis.

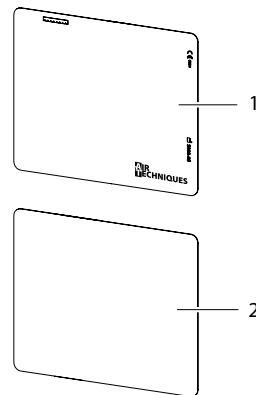
Intra



- | | | |
|---|---------------|---|
| 1 | Inactive side | Black, printed with size and manufacturer information |
| 2 | Active side | Light blue, with positioning aid "a" |

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

Extraoral



- | | | |
|---|---------------|--|
| 1 | Inactive side | black, with manufacturer's information |
| 2 | Active side | white |

5.3 Light protection cover

The light protection cover provides several protection functions for the intraoral image plate:

- Protection against sunlight and UV light, thereby adding protection against premature erasure
- Protection against mechanical damage
- Protection against contamination and dirt

The light protection cover is a disposable item.

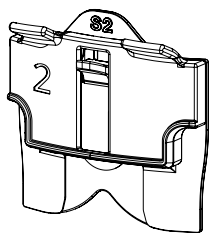
5.4 Flexible foil cassette

The flexible foil cassette has several protection features for extraoral image plates:

- Protection against sunlight and UV light, thereby adding protection against premature erasure
- Protection against mechanical damage

The flexible foil cassette can be used in non-dirty environments.

5.5 Rigid foil cassette

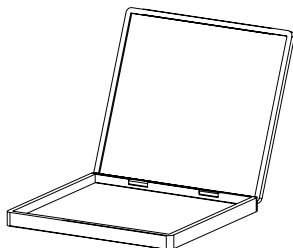


The rigid foil cassette has several protection features for intraoral image plates:

- Protection against sunlight and UV light, thereby adding protection against premature erasure
- Protection against mechanical damage

The rigid foil cassette can be used in non-dirty environments.

5.6 Rigid cassette

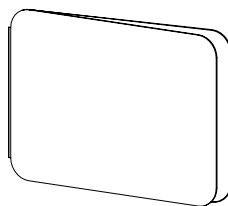


The rigid cassette can be inserted into conventional X-ray unit trays. Additionally rigid cassettes offer protection against damage.

5.7 Stylus

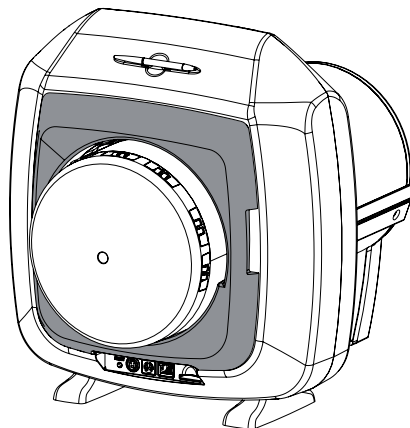
The touch screen can be operated using the stylus as an alternative to the tip of a finger.

5.8 Bite protector (optional)



The bite protector protects image plate Plus Size 4 as well as the light protection cover against heavy mechanical damage, e. g. excessive biting during the X-ray exposure.

5.9 Light protection screen



The light protection screen reduces the amount of stray light that can enter the appliance. Additionally the light protection screen hinders the image plate from falling out after scanning is completed.



Installation



Only qualified specialists or persons trained by ALLPRO Imaging may install, connect and commission the appliance.

6 Requirements

6.1 Room for set-up

The room chosen for set up should fulfil the following requirements:

- Closed, dry, well-ventilated room
- Should not be a purpose-made room (e. g. boiler room or wet cell)
- Max. light intensity 1000 Lux, no direct sunlight at the place of installation
- No large fields of interference (e. g. strong magnetic fields) present, that can interfere with the function of the appliance.
- Take environmental conditions into consideration "4 Technical data".

6.2 System requirements



For system requirements of computer systems, see information sheet or on the Internet at <http://www.allproimaging.com/>.

6.3 Monitor

The monitor must comply with the requirements for digital X-ray with higher light intensity and high contrast range (according to EN 25580). Strong ambient light, direct sunlight and reflections can reduce the diagnostic usefulness of the X-rays.

In Germany, an acceptance test in accordance with DIN V 6868-57 can be carried out.

In other countries, observe the applicable legal regulations!

7 Installation

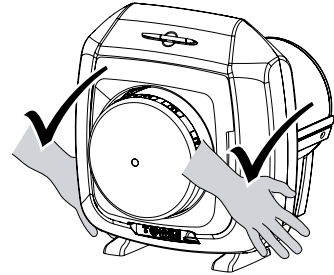
7.1 Carrying the appliance



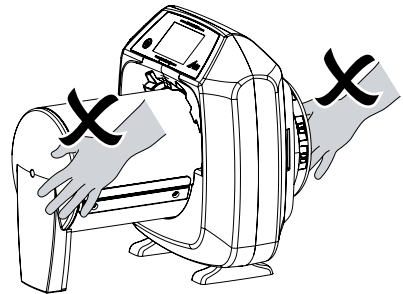
NOTICE

Damage to sensitive appliance components from shocks

- Do not expose the appliance to any strong shocks.
- Do not move the appliance during operation.
- When carrying only lift the appliance by the side of its housing.



- Do not hold the appliance by its tube.



7.2 Installing the appliance

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

- Do not place this appliance too close to other appliances or stack appliances on top of each other.
- If, however, this appliance is operated close to other appliances or stacked with other appliances, monitor the appliance carefully in the configuration selected in order to ensure normal operation.

The appliance can be set up as a tabletop appliance.

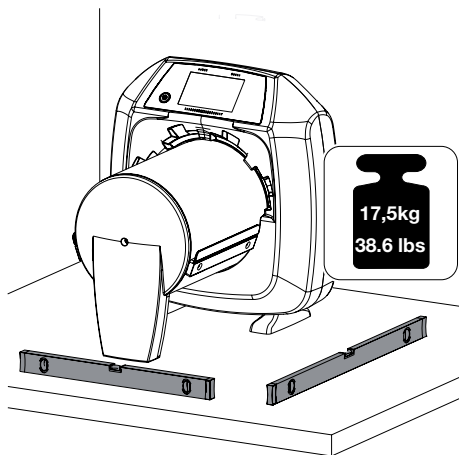
The load-bearing capacity of the table must be suitable for the weight of the appliance (see "4.1 Image plate scanner").

Setting the appliance on a table



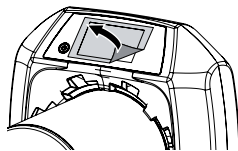
To prevent errors when scanning the image data, install the appliance so it is not exposed to vibrations.

- Place the appliance on a firm, horizontal surface.



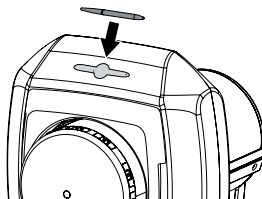
7.3 Remove the touch screen protective foil

- Take hold of the touch screen protective foil in one corner and peel off carefully.



7.4 Applying stylus

- The stylus is held on the appliance by a magnet. Place the stylus in the recess provided.



7.5 Electrical connection

Safety when making the electrical connection

- The appliance may only be connected to a correctly installed socket-outlet.
- Make sure the connection lines to the appliance are not subject to any mechanical tension.
- Before initial start-up, check the supply voltage with the voltage information on the model identification plate (see also "4. Technical Data").

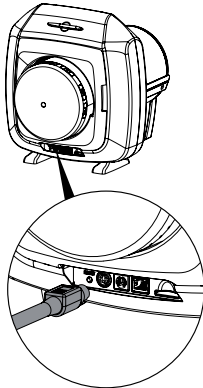
Connect the appliance to the mains



The appliance has no main power switch. For this reason the appliance must be so set up that the socket-outlet is easily accessible and the unit can be unplugged if necessary.

Requirements:

- ✓ Correctly installed socket-outlet in the vicinity of the appliance (max. length of electric cable 3 m)
- ✓ The socket-outlet must be easily accessible
- ✓ Rated voltage conforms with the information on the model identification plate of the power unit
- Connect the mains cable supplied to the appliance power unit.
- Connect the power unit to the connection socket on the appliance.



- Now connect the plug to the socket-outlet.

Result:



The connection cable has a catch system. To undo the appliance, slide the housing of the connector towards the back. Do not apply pulling force to the cable.

7.6 Connect the appliance to the network.

The appliance 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 appliance".

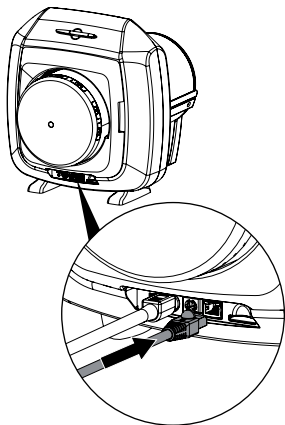
Connecting appliances securely

Danger can arise when connecting appliances with each other or to parts of the system (e.g. through discharge current).

- Only connect appliances together when there can be no danger to the operator or to the environment.
- Only connect appliances when there can be no environmental impairment through such interconnection.
- When it is not clear from the appliance data sheets that such connection will cause no danger, then a qualified expert should be consulted to ensure no danger (e.g. one of the product manufacturers).
- Only connect peripheral units (e. g. computer, monitor, printer) which conform to IEC 60950-1 (EN 60950-1) as a minimum standard.

Connecting the appliance with network cable

- Connect the network cable provided into the appliance's network port.



8 Initial start-up



NOTICE

Short circuit due to build up of condensation

- The appliance can only be put into operation once it has warmed up to room temperature and it is dry.

8.1 Installing and configuring the appliance

The appliance can be operated with an imaging software which can be requested from ALLPRO Imaging.

Configuring the network

- Switch on the network devices (router, PC, switch).
- Check that port 2006 and UDP port 514 is released in the firewall of the TCP used; release if necessary.

With the Windows firewall, the ports do not need to be checked as release is requested during the driver installation.

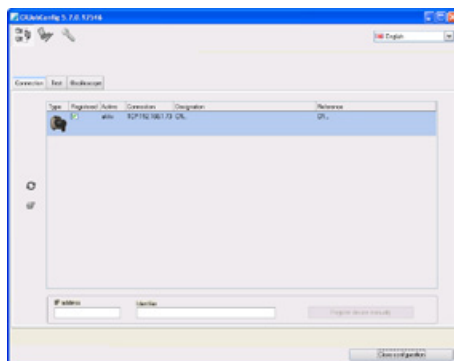



When the appliance is first connected to a computer, it adopts the language and time of the computer.

Configuring the appliance

Configuration is carried out using CRJobConfig which is automatically installed on installation of CRJob.

- *Select Start > All Programs > Dürr NDT > CRJob > CRJobConfig.*



- Click on .

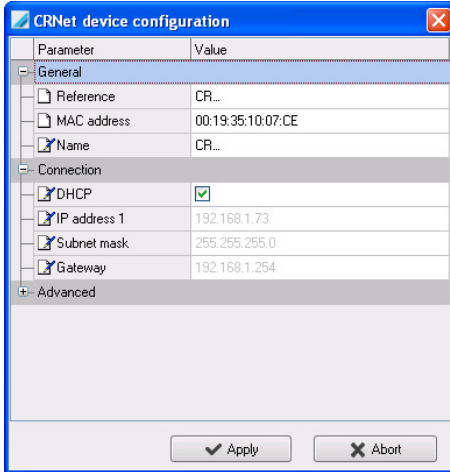
The list of appliances connected will be brought up to date.

- The appliance connected can be activated in the **Registered** column.

Several appliances can be registered.

The **CRNet appliance configuration** menu window allows you to change the appliance name, (*name*), manually enter an IP address and call up information.

- Click  on.



Parameter	Value
General	
Reference	CR...
MAC address	00:19:35:10:07:CE
Name	CR...
Connection	
DHCP	<input checked="" type="checkbox"/>
IP address 1	192.168.1.73
Subnet mask	255.255.255.0
Gateway	192.168.1.254
Advanced	

Enter a fixed IP address (recommended)

- Deactivate **DHCP**.
- Enter IP address, subnet mask and gateway.
- Click on **Apply**.

The configuration is saved.

Result:



To reset the network settings, hold the reset button of the appliance pressed for 15 - 20 seconds when switching on.

Configuring WLAN on the appliance



LAN connection should be preferred in order to ensure the highest possible and interruption-free transfer speed.

If the appliance is to operate via WLAN, the connection must be configured on the appliance.



For a secure WLAN connection, encrypting the WLAN network with WPA2 is recommended.

The quality and transmission range of the WLAN connection can be reduced by environmental conditions (e.g. thick walls, other WLAN units). When selecting a suitable set up location take the signal strength into consideration.

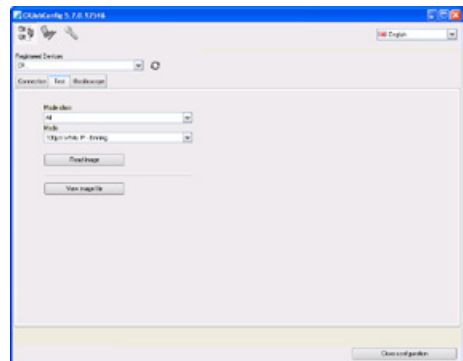
Prerequisite:

- ✓ You are registered on the appliance as Administrator or Service Technician (**Settings > Access Level > Administrator/Service Technician**).
- Check the WLAN settings with the network administrator.
- Tap the following on the touch screen **Settings > System Settings > Network**.
- Under **Interface** select option **WLAN** and confirm with **OK**.
- Set **WLAN**.
- Confirm with **OK**.

Testing the appliance

To test whether the appliance has been connected correctly, an X-ray image can be scanned.

- Select the **Test** tab.




- Select the **Registered Appliance** from the options list.
- Select the mode class.
- Select the mode.
- Click on **Scan Image**.
- Scan the image plate, see "11.2 Reading the image data via computer".


8.2 Configuring the X-ray appliances

Intraoral X-ray appliances

The following table gives the standard values for the exposure time for a house cat (approx. 6 kg) to a medium-sized dog (approx. 20 kg).

 The exposure times listed in the table for a tube length of 20 cm were achieved using a dental X-ray unit with DC-emitter (cathode spot 0.7 mm). The exposure times for a tube length of 30 cm were calculated using the exposure times for a 20 cm tube.

	DC radiator, 7 mA Tube length 20 cm		DC radiator, 7 mA Tube length 30 cm	
	60 kV	70 kV	60 kV	70 kV
Upper jaw				
Incisor	0.1 s	0.08 s	0.2 s	0.16 s
Pre-molar	0.125 s	0.1 s	0.25 s	0.2 s
Molar	0.16 s	0.125 s	0.32 s	0.25 s
Lower jaw				
Incisor	0.1 s	0.08 s	0.2 s	0.16 s
Pre-molar	0.125 s	0.1 s	0.25 s	0.2 s
Molar	0.125 s	0.1 s	0.25 s	0.2 s

 Where 60 kV can be set on the X-ray appliance, this setting is preferred. The standard exposure values for F-speed film (e. g. Kodak Insight) can be used.

- Check actual X-ray unit used against the standard values and adapt.

Extraoral X-ray appliances

Most extraoral X-ray appliances can be operated using the same settings as for analogue films. The sensitivity of the image plate scanner has been optimized for film-foil system of class 200.

- Set the sensitivity class to 200 (film-foil system).
- If the X-ray unit does not use the sensitivity class 200 (film-foil system), adapt the sensitivity of the image plate scanner using the HV settings.

For detailed setting, consult the manufacturer.

- If deviations occur (see "14.1 Poor X-ray image"), adapt the image plate scanner to the X-ray unit (e. g. HV setting, scanning mode).



Use

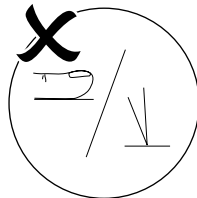
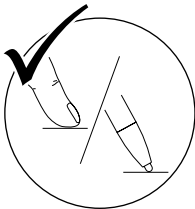
9 Operating the touch screen



NOTICE

Damage to the touch screen due to incorrect handling

- Only operate the touch screen using the tip of a finger or a stylus.
- Do not use any sharp instrument (e.g. ballpoint pen) to operate the touch screen.
- Protect the touch screen from water.
- Operate the touch screen by tapping with the tip of a finger or the stylus in order to select a button or input field.





- For further information to 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.

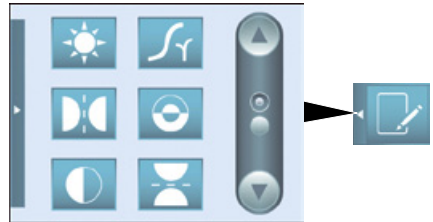


- Touch  or  to move the displayed section of the window.

9.2 Using the menu

The integrated menus within the main window contain additional commands that can be selected as required.

- Touch  to open the menu.










- Select a command.

9.3 Entering text in the field

- Where fields require input, touch the field. The keyboard window will open.








-  Switch to numbers/special symbols
-  Shift key
-  Switch to umlauts
-  Delete
-  Cancel input and close keyboard
-  Confirm input and close keyboard
-  Space bar

9.4 Calling up messages on the touch screen

When the touch screen is set to *Messages* an overview of all previous messages is displayed. Messages are differentiated by various categories as follows:

EN
US

-  **Fault** Appliance stops functioning.
When the error has been remedied, it may be necessary to confirm the error message.
-  **Warning** Following confirmation, the appliance will function to a limited extent only.
-  **Information** Important information for the operator, e.g. the current status of the appliance.
The appliance continues to function.
-  **Note** Information for the operator.
The appliance continues to function.
-  **Trouble-free operation**

- Touch *Messages*.

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

- For further information concerning the message, touch *Help* .

10 Using image plates correctly

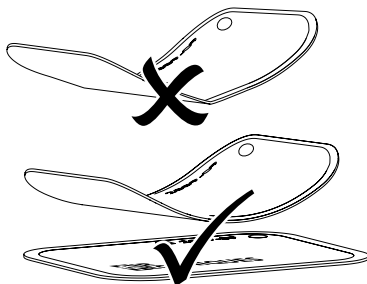


CAUTION

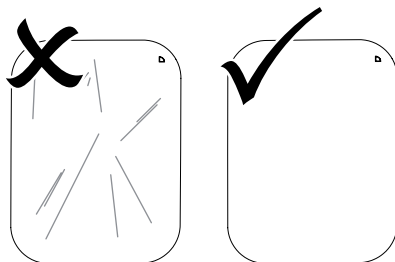
Image plates are toxic

Image plates that are not in a light protection cover can cause poisoning when placed in the mouth or swallowed.

- Only place the image plate in the mouth of an animal when it is in a light protection cover.
- Do not allow the image plate or parts of it to be swallowed.
- If the image plate or parts of it have been swallowed, remove the image plate immediately.
- If the light protection cover has been damaged while in the animal's mouth, rinse out the mouth as thoroughly as possible with water.
- Image plates are as flexible as an X-ray film. The image plates should not be bent.



- Do not scratch the image plates. Do not expose the image plates to pressure from hard or pointed objects.



- Do not soil the image plates.
- Protect the image plates against sunlight and ultraviolet light.

Store image plates in a light protection cover of the correct size.

- Image plates will be pre-exposed if exposed to natural radiation and stray X-ray radiation. Protect erased and exposed image plates from X-ray interference.

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

- Do not store image plates in hot or moist conditions. Heed ambient conditions (see "4.2 Image plate").
- When used properly, image plates can be exposed, read and erased several hundred times provided there is no mechanical damage.

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

- Clean image plates properly (see "12.3 Image plate").

11 Handling



CAUTION

Image data on the image plate are not resistant

The image data is altered by light, natural X-ray radiation and scattered X-ray radiation. This will lead to a reduction in diagnostic information.

- Read the image data within 30 minutes of exposure.
- Never handle exposed image plates without the light protection cover.
- Do not subject an exposed image plate to X-ray radiation before and after the reading process.
- Do not X-ray during the reading process if the appliance is in the same room as the X-ray tube.

11.1 X-rays

Intraoral X-ray



The exact procedure is described using a size 2 image plate as an example.

Required accessories:

- Image plate
- Light protection cover the same size as the image plate
- Foil cassette the same size as the image plate



WARNING

Danger of cross contamination when not using the light protection cover or when using the light protection cover more than once

- Do not use an image plate without a light protection cover.
- Do not use the light protection cover more than once (disposable item).

Preparing the X-ray

- ✓ Image plate is cleaned.
- ✓ Image plate is not damaged.
- Before first time use or after storage of longer than one week, erase the image plate (see "11.4 Erasing the image plate").
- Slide the image plate completely into the light protection cover. The black (inactive) side of the image plate must be visible.
- Pull off the adhesive strip and close the light protection cover tightly by pressing together firmly.
- Disinfect the light protection cover with a disinfection wipe immediately prior to placing it in the mouth of the animal.

Producing an X-ray exposure



NOTICE

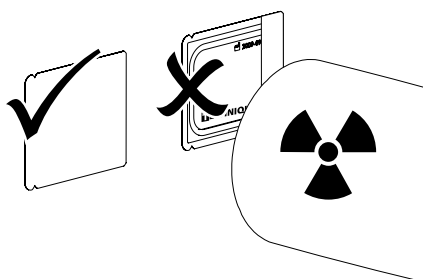
Damage to the image plate caused by a sharp-edged holding system

- Only use holding systems which will not damage the light protection cover or the image plates in any way.
- Do not use holding systems with sharp edges.



Wear protective gloves.

- Place the image plate in the light protection cover into the animal's mouth. Make sure that the active side of the image plate points towards the X-ray tube.



- Set the exposure times and setting values on the X-ray appliance (see "8.2 Configuring the X-ray appliances").
- Produce an X-ray exposure.

Result:

The image data must be read within 30 minutes.

Preparing for reading



CAUTION

Light erases the image data on the image plate

- Never handle exposed image plates without the light protection cover.



Wear protective gloves.

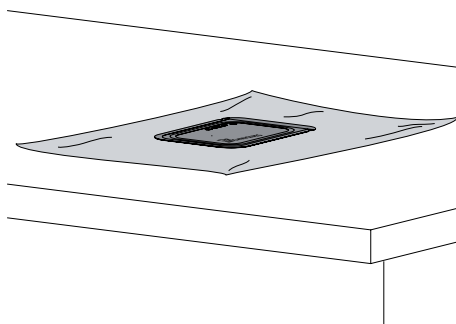
- Take the image plate with the light protection cover out of the animal's mouth.



WARNING

Contamination of the appliance

- Clean and disinfect the light protection cover before removing the image plate.
- In the event of heavy soiling, e. g. from blood, clean the light protection cover and protective gloves, e. g. wipe with a clean, dry cellulose cloth.
- Disinfect the light protection cover and protective gloves with a disinfection wipe.
- Place the light protection cover with the image plate on the disinfection wipe.

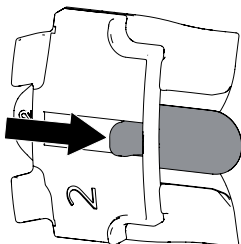


- Allow the light protection cover to fully dry.
- Pull off the protective gloves, disinfect and clean the hands.

**NOTICE**

Powder from the protective gloves on the image plate can damage the appliance during scanning

- Completely clean the hands of the protective glove powder before handling the image plate.
- Tear open the light protection cover along the adhesive edge.
- Push the lever on the foil cassette downwards until it engages. The tongue must be completely visible.



- The image plate in its light protection cover is placed on the tongue. The inactive side must be visible.
- Slide the image plate out of the light protection cover and immediately into the foil cassette until it is firmly in position.

Extraoral X-ray

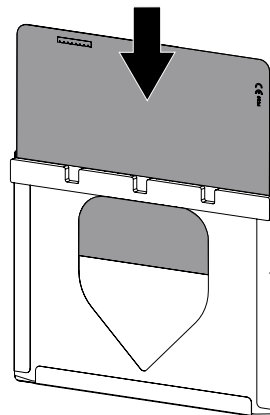
The exact procedure is described using an 8x10 inch image plate as an example.

Required accessories:

- Image plate
- Foil cassette the same size as the image plate

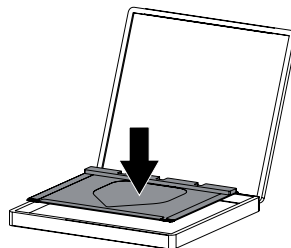
Preparing the X-ray

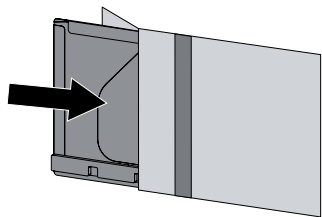
- ✓ Image plate is cleaned.
- ✓ Image plate is not damaged.
- Where using for the first time or when stored for over a week: erase image plate (see "11.4 Erasing the image plate").
- Slide the image plate completely into the flexible foil cassette. The black (inactive) side of the image plate must be visible.



- Place the foil cassette in the rigid cassette. The foam rubber side of the foil cassette must point in the direction of the cover of the X-ray cartridge.

Alternatively the foil cassette can be packed inside a foil sleeve. The seal must be on the inactive side of the image plate.





EN
US

- Where required the correct position of the image plate (left or right side) can be identified using lead letters.

Producing an X-ray exposure

- Place the X-ray cartridge into the X-ray unit. Make sure that the active side of the image plate points towards the X-ray tube.
- Set the exposure times and setting values on the X-ray appliance (see "8.2 Configuring the X-ray appliances").
- Produce an X-ray exposure.

Result:

The image data must be read within 30 minutes.

Preparing for reading



CAUTION

Light erases the image data on the image plate

- Never handle exposed image plates without the foil cassette.



Wear protective gloves.

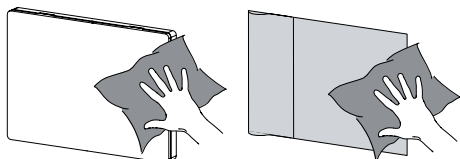
- Take the rigid cassette/foil sleeve out of the X-ray unit.



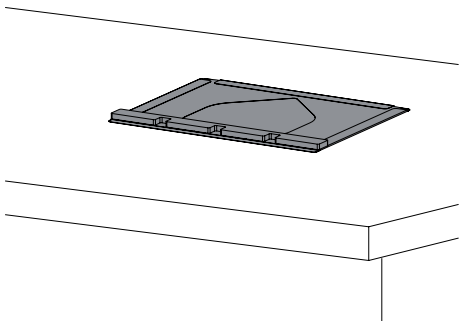
WARNING

Contamination of the appliance

- Clean and disinfect the rigid cassette/foil sleeve before removing the foil cassette.
- In the event of heavy soiling, e. g. from blood, clean the rigid cassette/foil sleeve and protective gloves, e. g. by wiping with a clean, dry cellulose cloth.
- Disinfect the rigid cassette/foil sleeve and protective gloves with a disinfection wipe.



- Take the foil cassette with the image plate and place on a working surface.



- Pull off the protective gloves, disinfect and clean the hands.




NOTICE


Powder from the protective gloves on the image plate can damage the appliance during scanning

- Completely clean the hands of the protective glove powder before handling the image plate.


11.2 Reading the image data via computer

Starting the image plate scanner and software

 For information on handling the imaging software, see respective manual.

- Press the on/off switch  to switch on the appliance.
- Switch on the computer and monitor.
- Start the imaging software.
- Create a read-out task.

The touch screen will display an animated visual symbol requesting insertion of the image plate.

 Only insert the image plate once the bar above the animated sequence has turned to green.

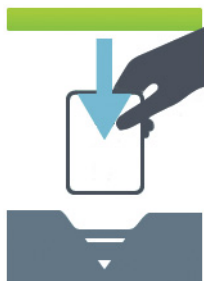

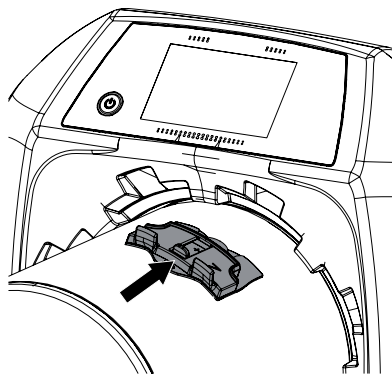



Figure 2: Example of an animation requesting insertion of the image plate

 In order not to mislabel X-ray images, only scan X-ray images from the selected owner's animal.

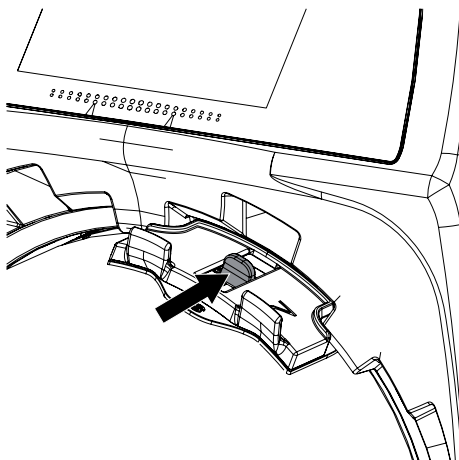
Reading in the intraoral image plate

- Place a foil cassette with an image plate into one of the free insertion slots on the transport drum until it engages.



 **CAUTION**
Loss of image data caused by stray ambient light on appliance

- Do not remove the foil cassette until the image plate has passed completely through the appliance.
- Slide the lever as far as necessary until the point where the image plate is automatically drawn in.





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



The touch screen only shows a preview which serves to provide an initial impression of the final 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 scanning the image plate data is erased.

- Save the X-ray image.
- Remove the image plate and prepare to take a new X-ray.
- Once the insertion slot status LED has changed to green on the touch screen remove the foil cassette.

Reading in the extraoral image plate

- Remove the foil cassette from the X-ray cartridge.
- Pull the image plate a little way out of the foil cassette.
- Position the foil cassette with the image plate in front of the transport drum.



CAUTION

Loss of image data caused by stray ambient light on appliance

- Do not remove the foil cassette until the image plate has passed completely through the appliance.
- Slide the image plate into the appliance with both hands until it is automatically taken up by the transport.

Make sure that the foil cassette is not also pulled into the appliance.

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



The touch screen only shows a preview which serves to provide an initial impression of the final 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 scanning the image plate data is erased.

- Save the X-ray image.
- Remove the image plate and prepare to take a new X-ray.
- Remove the foil cassette.

11.3 Reading image data via the touch screen on the appliance

Starting the image plate scanner

When scanning the image data only via the touch screen there is no need for connection to a computer. The image data is stored locally on the memory card. In order to transfer the image data to the imaging software the appliance must be connected to a computer.

Scanning by touch screen can be done either of two ways:



Scanning:

Before scanning the image data, the animal and owner data and exposure settings of the image are entered and then saved with the image data.

When no owner/animal data and exposure settings of the image are entered then the image is saved to a folder with date and time.




Rapid scanning:

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



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

Prerequisite:

- ✓ Memory card (SDHC, max. 32 GB) in a spare slot on the appliance.
- Press on  to switch on the appliance.

Start scanning:

- On the touch screen tap on **Scan**.
- Enter animal data.
- Select image settings and scanning mode.

The touch screen will display an animated visual symbol requesting insertion of the image plate.



Only insert the image plate once the bar above the animated sequence has turned to green.



Figure 3: Example of an animation requesting insertion of the image plate

Start rapid scanning:

- On the touch screen tap on **Rapid scan**.
- Select scanning mode.

The touch screen will display an animated visual symbol requesting insertion of the image plate.



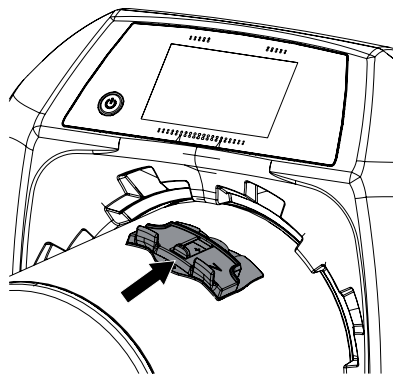
Only insert the image plate once the bar above the animated sequence has turned to green.



Figure 4: Example of an animation requesting insertion of the image plate

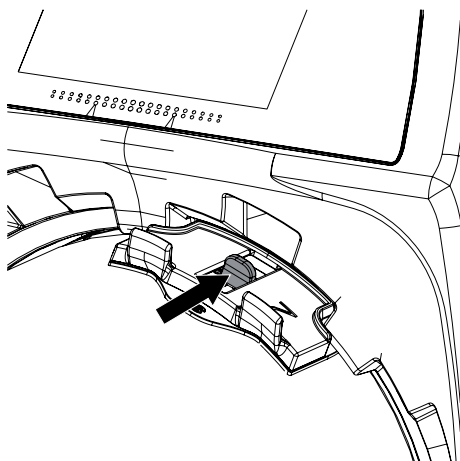
Reading in the intraoral image plate

- Place a foil cassette with an image plate into one of the free insertion slots on the transport drum until it engages.



CAUTION
Loss of image data caused by stray ambient light on appliance

- Do not remove the foil cassette until the image plate has passed completely through the appliance.
- Slide the lever as far as necessary until the point where the image plate is automatically drawn in.



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



The touch screen only shows a preview which serves to provide an initial impression of the final 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 scanning the image plate data is erased.

- Save the X-ray image.
- Remove the image plate and prepare to take a new X-ray.
- Once the insertion slot status LED has changed to green on the touch screen remove the foil cassette.

Reading in the extraoral image plate

- Remove the foil cassette from the X-ray cartridge.
- Pull the image plate a little way out of the foil cassette.
- Position the foil cassette with the image plate in front of the transport drum.



CAUTION

Loss of image data caused by stray ambient light on appliance

- Do not remove the foil cassette until the image plate has passed completely through the appliance.
- Slide the image plate into the appliance with both hands until it is automatically taken up by the transport.

Make sure that the foil cassette is not also pulled into the appliance.

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



The touch screen only shows a preview which serves to provide an initial impression of the final 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 scanning the image plate data is erased.

- Save the X-ray image.
- Remove the image plate and prepare to take a new X-ray.
- Remove the foil cassette.

Transmitting image data to computer

X-ray images created using the touch screen of the appliance are saved to a memory card. These X-ray images can be imported to the imaging software via a network connection.

- Connect the appliance to the network.
- Start the imaging software.
- Start the image import via the imaging software (further information can be found in the manual of the imaging software).
- Save the image data.

The image data on the memory card is erased as soon as the data transfer has been successful.

11.4 Erasing the image plate

The image data are automatically erased after scanning.

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

In the following cases, the image plate must be erased with the special mode:

- The first time the image plate is used or if stored for longer than a week.
- Because of an error, the image plate data have not been erased (software error message).


Erasing the image plate via computer

- Select special **ERASE** mode in the software.
- Scanning the image plate (see "11.2 Reading the image data via computer").

Erasing the image plate via touch screen

- On the touch screen tap on *Rapid scan*.
- Select **ERASE** scanning mode.
- Scanning the image plate (see "11.3 Reading image data via the touch screen on the appliance").

11.5 Switch off the appliance

- Press the On/Off switch  for 3 seconds. The appliance will shut down completely. The touch screen is off.

12 Disinfection and cleaning



NOTICE

Unsuitable agents and methods can damage the appliance and accessories

- Only use the disinfection and cleaning agents specified or approved by ALL-PRO Imaging.
- Observe the operating instructions of the disinfection and cleaning agents.



Wear protective gloves.

12.1 Image plate scanner

Appliance surfaces

The appliance surface must be cleaned and disinfected of contamination or soiling.



NOTICE

Liquid can cause damage to the appliance

- Do not spray the appliance with cleaning and disinfectant agents.
- Make sure that liquid does not get inside the appliance.
- Remove any soiling with a soft, wet, lint-free cloth.
- Disinfect the surfaces using a disinfection wipe. Alternatively, use a spray disinfectant on a soft, lint-free cloth. Observe the disinfectant operating instructions.

12.2 Light protection cover

The surface must be cleaned and disinfected in cases of contamination or soiling.

- Disinfect the light protection cover before and after placement using a disinfection wipe. Alternatively, use a spray disinfectant on a soft, lint-free cloth. Observe the disinfectant operating instructions.
- Allow the light protection cover to dry completely before using.

12.3 Image plate

Use the following cleaning agents:

- ✓ Image plate cleaning wipes PSP cleaning wipes



NOTICE

Heat or humidity damages the image plate

- Do not steam sterilize the image plate.
- Do not immerse-disinfect the image plate.
- Only use approved cleaning agents.
- Soiling on both sides of the image plate should be cleaned off with a soft, lint-free cloth prior to each use.
- Remove resistant or dried on dirt with the image plate cleaning cloth. While doing so, observe the cleaning cloth operating instructions.
- Allow the image plate to dry fully before use.

12.4 Foil cassette

The surface must be cleaned and disinfected in cases of contamination or soiling.



NOTICE

Heat can damage foil cassette

- Do not steam sterilize foil cassettes.
- Remove any soiling from both sides of the foil cassette with a soft, damp, lint-free cloth.
- Disinfect the foil cassette using a disinfection wipe. Alternatively, use a spray disinfectant on a soft, lint-free cloth. Observe the disinfectant operating instructions.

Intraoral foil cassettes can be disinfected in a disinfectant bath.

- Allow the foil cassettes to dry fully before use.

12.5 Stylus

The stylus can be cleaned in the same way as the appliance (see "12.1 Image plate scanner").

13 Maintenance

13.1 Recommended maintenance schedule

EN
US



Only qualified personnel or personnel trained by ALLPRO Imaging may be allowed to service the scanner.



Power down the appliance (e. g. pull out the plug) prior to working on it or in case of danger.

The recommended maintenance intervals are based on operating the appliance with 25 intraoral and 10 extraoral images per day and 220 working days per year.

Maintenance interval	Maintenance work
Annually	<ul style="list-style-type: none"> • Visually inspect the appliance. • Check the image plates and foil cassettes for scratches; replace if necessary. • Check the light protection brush; trim and remove long hairs or replace the light protection brush if necessary. The oscilloscope must not display more than 600 counts. • Check the belt drive, transport belts and springs; replace if necessary. • Disassemble the transport drum. • Remove all dust and dirt from accessible parts. • Assemble the transport drum. • Carry out a system check. Set up report files using CRConfig.
Every 2 years	<ul style="list-style-type: none"> • Replace the pressure roller unit. • Replace the transport belts and tension springs. • Replace the toothed belt. • Check the light protection brush; trim and remove long hairs or replace the light protection brush if necessary. The oscilloscope must not display more than 600 counts. • Disassemble the transport drum and clean. Remove hair and fluff.
Every 5 years	<ul style="list-style-type: none"> • Have the appliance overhauled by ALLPRO Imaging.



Troubleshooting

14 Tips for operators and service technicians



Repairs, above and beyond standard maintenance, may only be carried out by a suitably qualified technician or one of our service technicians.



Power down the appliance (e. g. pull out the plug) prior to working on it or in case of danger.

14.1 Poor X-ray image

Problem	Probable cause	Solution
X-ray image does not appear on the monitor after the scanning	Image plate not fed in straight and non-active side scanned	<ul style="list-style-type: none"> Scan the image plate again immediately while feeding it in correctly.
	Image data on the image plate has been erased, e.g. by ambient light	<ul style="list-style-type: none"> Always scan the image data of the image plate as quickly as possible.
	Appliance fault	<ul style="list-style-type: none"> Inform the service technician.
	No image data on image plate, image plate not exposed	<ul style="list-style-type: none"> Expose the image plate.
	X-ray device is faulty	<ul style="list-style-type: none"> Inform the service technician.
X-ray image is too dark	X-ray dose is too high	<ul style="list-style-type: none"> Check X-ray parameters.
	Wrong brightness/contrast setting in the software	<ul style="list-style-type: none"> Adjust the brightness of the X-ray image in the software.
X-ray image too bright	The exposed image plate has been contaminated by ambient light	<ul style="list-style-type: none"> Always scan the image data of the image plate as quickly as possible.
	X-ray dose too low	<ul style="list-style-type: none"> Check X-ray parameters.
	Wrong brightness/contrast setting in the software	<ul style="list-style-type: none"> Adjust the brightness of the X-ray image in the software.
X-ray image only shadowy	The X-ray dose on the image plate was insufficient	<ul style="list-style-type: none"> Increase the X-ray dose.
	The amplification (HV value) is set too low in the software	<ul style="list-style-type: none"> Increase amplification (HV value).
	Unsuitable scanning mode selected	<ul style="list-style-type: none"> Select suitable scanning mode.
	The setting for the threshold value is too high	<ul style="list-style-type: none"> Reduce the threshold value.
Top or bottom bulge in the X-ray image	Image plate off-center and fed at an angle	<ul style="list-style-type: none"> Centre the image plate and feed straight.

Problem	Probable cause	Solution
X-ray image is laterally inverted	Image plate not inserted straight in foil cassette or light protection cover.	<ul style="list-style-type: none"> • Insert image plate correctly.
	Image plate not placed straight.	<ul style="list-style-type: none"> • Place image plate correctly.
Ghosting or double exposure on X-ray image	Image plate exposed twice	<ul style="list-style-type: none"> • Expose image plates once only.
	Image plate not sufficiently erased	<ul style="list-style-type: none"> • Check erasure unit function. • Inform service technician if problem recurs.
X-ray image shows mirror image in one corner	Image plate bent during exposure	<ul style="list-style-type: none"> • Do not bend image plate.
Shadow on the X-ray image	Image plate removed from light protection cover before scanning	<ul style="list-style-type: none"> • Do not handle image plates without a light protection cover. • Store image plates in a light protection cover.
X-ray image cropped, part missing	The metal part of the X-ray tube is in front of the X-ray beam	<ul style="list-style-type: none"> • When taking an X-ray, make sure there are no metal parts between the X-ray tube and patient. • Check the X-ray tube.
	Edge masking defective in the imaging software	<ul style="list-style-type: none"> • Deactivate edge masking .
Software cannot combine the data to make a complete image	The X-ray dose on the image plate was insufficient	<ul style="list-style-type: none"> • Increase the X-ray dose.
	The amplification (HV value) is set too low in software	<ul style="list-style-type: none"> • Increase amplification (HV value).
	Unsuitable scanning mode selected	<ul style="list-style-type: none"> • Select suitable scanning mode.
	The setting for the threshold value is too high	<ul style="list-style-type: none"> • Reduce the threshold value.
X-ray image has stripes on image	Image plate has been pre-exposed, e.g. by natural radiation or stray X-ray radiation	<ul style="list-style-type: none"> • If the image plate has been stored for longer than one week, erase the image plate prior to use.
	Part of the image plate was exposed to light during handling	<ul style="list-style-type: none"> • Do not expose used image plates to light. • Scan image data within half an hour after the exposure.
	Image plate dirty or scratched	<ul style="list-style-type: none"> • Clean the image plate (see "12.3 Image plate"). • Replace scratched image plate.
Pale stripes in the scanning window	Too much stray light entered during scanning	<ul style="list-style-type: none"> • Darken room. • Turn the appliance so that the light does not fall directly onto the input unit.

Problem	Probable cause	Solution
Grey horizontal lines in X-ray image extending beyond left and right edges	Transport slipping	<ul style="list-style-type: none"> • Clean transport mechanism, replace belts if necessary.
X-ray image is stretched lengthwise with bright, horizontal stripes	Either incorrect light protection cover or wrong image plate used	<ul style="list-style-type: none"> • Only use original accessories.
X-ray image split into two vertically	Dirt in laser opening (e. g. hair, dust)	<ul style="list-style-type: none"> • Clean the laser slit.
X-ray image with small pale spots or clouding	Micro scratches on the image plate	<ul style="list-style-type: none"> • Replace the image plate.
Image plate lamination comes loose at edges	Wrong retainer system used	<ul style="list-style-type: none"> • Only use original image plates and right-angle holders.
	Image plate incorrectly handled.	<ul style="list-style-type: none"> • Use the image plate correctly. • Observe the installation and operating instructions for the image plates and film retainer systems.

14.2 Software error

Problem	Probable cause	Solution
"Too much ambient light"	Appliance exposed to too much light	<ul style="list-style-type: none"> • Darken room. • Turn the appliance so that no direct light falls on the insertion slot.
"Overtemperature"	Laser or erasure unit too hot	<ul style="list-style-type: none"> • Switch off the appliance and allow to cool.
"Erasure unit fault"	LED defective	<ul style="list-style-type: none"> • Inform the service technician.
Imaging software does not detect appliance	Appliance not switched on	<ul style="list-style-type: none"> • Switch on the appliance.
	Connection cable between appliance and computer not correctly connected	<ul style="list-style-type: none"> • Check connection cable.
	Computer does not detect connection to appliance	<ul style="list-style-type: none"> • Check connection cable . • Check network setting (IP address and subnet mask).
	Hardware fault	<ul style="list-style-type: none"> • Inform the service technician.
	IP address of the appliance is being used by another appliance	<ul style="list-style-type: none"> • Check network setting (IP address and subnet mask) and assign each appliance a unique IP address. • Inform service technician if problem recurs.

Problem	Probable cause	Solution
Appliance does not appear in the options list in CRScanConfig	Appliance is connected behind a router	<ul style="list-style-type: none"> • Configure the IP address without intermediate router on the appliance. • Connect the router in between again. • Manually enter the IP address in CRScanConfig and register the appliance.
	IP address of the appliance is being used by another appliance	<ul style="list-style-type: none"> • Check network setting (IP address and subnet mask) and assign each appliance a unique IP address. • Inform service technician if problem recurs.
Appliance appears in the CRScanConfig options list but connection is not possible	Subnet masks of computer and appliance do not agree	<ul style="list-style-type: none"> • Check subnet masks, adapt if necessary.
"E2490" error	Appliance connection was lost while software attempting to contact the appliance	<ul style="list-style-type: none"> • Set up the appliance connection again. • Repeat process.

14.3 Appliance fault

Problem	Probable cause	Solution
Appliance does not switch on	No mains voltage	<ul style="list-style-type: none"> • Check the mains cable and plug connector, change if necessary. • Check the power supply. • If the touch screen does not light, replace power supply. • Check the mains fuse in the building.
	On/Off switch defective	<ul style="list-style-type: none"> • Inform the service technician.
Appliance switches back off after a short time	• Mains cable or power unit connector has not been inserted correctly	<ul style="list-style-type: none"> • Check the mains cable and all connections.
	Hardware defective	<ul style="list-style-type: none"> • Inform the service technician.
	Mains supply voltage too low	<ul style="list-style-type: none"> • Check the supply voltage.
Loud noises during operation after switching on, longer than 30 seconds	Radiation deflector defective	<ul style="list-style-type: none"> • Inform the service technician.

Problem	Probable cause	Solution
Appliance does not react	The appliance has not yet completed the boot procedure	<ul style="list-style-type: none"> • After switching on, wait 20 - 30 seconds until the boot procedure has finished.
	Appliance is blocked by the firewall	<ul style="list-style-type: none"> • Release the ports for the appliance in the firewall settings.
Appliance is on but no display on touch screen	Touch screen initialization fault	<ul style="list-style-type: none"> • Switch the appliance off and on.
	Touch screen defect	<ul style="list-style-type: none"> • Inform the service technician.
Network connection was disconnected	Distance to WLAN router too great	<ul style="list-style-type: none"> • Set appliance up closer to the WLAN router.
	Walls between WLAN router and appliance too thick	<ul style="list-style-type: none"> • Set appliance up closer to the WLAN router.
	Another WAN network is interfering with the operation of this WLAN network	<ul style="list-style-type: none"> • Change the frequency range of the WLAN network.
	Connection cable between appliance and computer not correctly connected	<ul style="list-style-type: none"> • Check connection cable .
	IP address of the appliance is being used by another appliance	<ul style="list-style-type: none"> • Check network setting (IP address and subnet mask) and assign each appliance a unique IP address. • Inform service technician if problem recurs.

14.4 Error messages on the touch screen

Problem	Probable cause	Solution
Fault code -1010	Temperature of appliance too high	<ul style="list-style-type: none"> • Allow appliance to cool down. • Inform the service technician.
Fault code -1022	Subassembly not initialized	<ul style="list-style-type: none"> • Fault in software, if necessary up-date the software. • Inform the service technician.
Fault code -1100	Scanning process has exceeded allotted time allowance	<ul style="list-style-type: none"> • Inform the service technician. • Check belt drive. • Check for blockage, remove image plate from appliance.
Fault code -1104	Erasure unit fault	<ul style="list-style-type: none"> • Inform the service technician. • Replace erasure unit.
Fault code -1153	Subassembly fault	<ul style="list-style-type: none"> • Switch the appliance off and on.
Fault code -1154	Internal data communication fault	<ul style="list-style-type: none"> • Switch the appliance off and on.
Fault code -1160	Final radiation deflector rotation speed not achieved	<ul style="list-style-type: none"> • Inform the service technician. • Replace the radiation deflector subassembly if problem regularly occurs.
Fault code -1170	SOL-Sensor Timeout Fault at laser, SOL-sensor or the radiation deflector assembly	<ul style="list-style-type: none"> • Inform the service technician. • Firmware update.
Fault code -1171	Fault at laser	<ul style="list-style-type: none"> • Send appliance for repair.
Fault code -1172	Radiation deflector assembly or the SOL sensor defect	<ul style="list-style-type: none"> • Switch the appliance off and on • Inform the service technician. • Replace the radiation deflector assembly.
Fault code -78	Memory card is full.	<ul style="list-style-type: none"> • Transmit image data to computer. • Insert empty memory card.
Fault code -10000	Appliance exposed to too much light	<ul style="list-style-type: none"> • Darken room. • Turn the appliance so that no direct light falls on the insertion slot.
Fault code -10017	Appliance switches off	<ul style="list-style-type: none"> • Wait until the appliance has shut down
Firmware not running	Firmware update not carried out	<ul style="list-style-type: none"> • Switch the appliance off and on.
	Internal communication fault	<ul style="list-style-type: none"> • Switch the appliance off and on.



Appendix

15 Menu layout settings

Appliance information ¹	Appliance data		
	Dealer information		
	Report		
Access level ¹	Operator		
	Administrator		
	Service technician		
	Factory technician		
System settings ²	Language	German (DE) English (EN) ...	
	Date & Time	Date	
		Time	
	Network	MAC address	
		Name	
		Interface	LAN WLAN
		DHCP	
		IP address	
		Subnet mask	
		Gateway	
		Settings for work flow	Name of animal
	Name affix		
	Gender		
	Owner		
	Tattoo / Chip-No.		
	Image type	INTRA X-ray ...	
		Touch screen	Brightness
			Touch screen calibration
	Stand-by time	Stand-by time	
		Stand-by	

Service-Menu ³	Testing		
	Scanning modes	Editing the scanning mode	
		Displaying scanning modes	
	Maintenance	Update firmware	
		Reset maintenance interval	
	Diagnostics	Statistics	
		Manipulation	Transport settings
			Service mode
			Sensors
		Oscilloscope	
		Check the touch screen	
	Display test images		
	Messages		
Factory settings			

¹ visible from *Operator* level upwards
² visible from *Administrator* level upwards
³ visible from *Service Technician* level upwards

16 Scanning times

Scanning time is time taken for complete scanning of image data and depends on image plate format and pixel size.

The time to image will depend largely on the PC system employed and the work load. Times stated are approximate.

16.1 Intra

Scanning mode	VET Dental	VET Dental rapid
Theor. resolution (LP/mm)	40	10
Pixel size (µm)	12,5	50
Size 0	55 s	14 s
Size 1	61 s	15 s
Size 2	61 s	15 s
Size 3	78 s	20 s
Size 4	103 s	26 s

16.2 Extraoral

Scanning mode	VET +	VET Standard
Theor. resolution (LP/mm)	10	5
Pixel size (µm)	50	100
8 x 10 inch	57 s	23 s
10 x 12 inch	75 s	38 s
14 x 17 inch	134 s	68 s

17 File size (uncompressed)

The actual file size will depend on the image plate 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.

EN
US

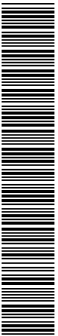
Theor. resolution (LP/mm)	10	5
Pixel size (µm)	50	100
8 x 10 inch	34.56 MB	8.64 MB
10 x 12 inch	57.60 MB	14.40 MB
14 x 17 inch	120.40 MB	30.10 MB

17.1 Intra

Theor. resolution (LP/mm)	40	10
Pixel size (µm)	12,5	50
Size 0	7.30 MB	0.62 MB
Size 1	9.80 MB	0.77 MB
Size 2	14.70 MB	1.02 MB
Size 3	17.80 MB	1.19 MB
Size 4	52.90 MB	3.47 MB



F2011



9000-608-161/30



Air Techniques, Inc
Allpro NDT
1295 Walt Whitman Road
NY 11747 Melville
USA

1408V005

