

CR 7 VET 2.0

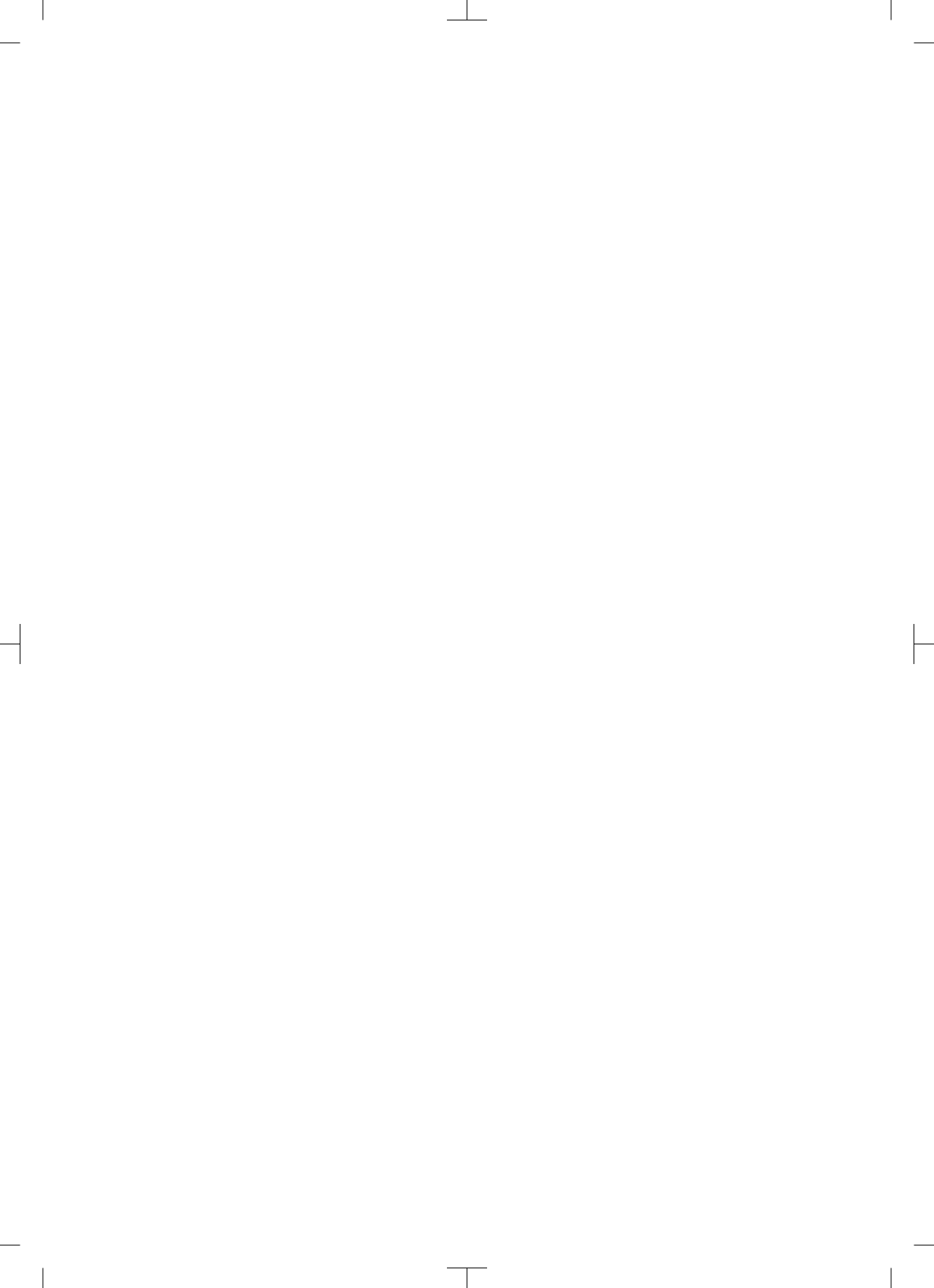
XPS07.1V...



EN Installation and operating instructions



2137100008L02 2311V001



Contents



Important information

1 About this document	3
1.1 Warnings and symbols	3
1.2 Copyright information	4
2 Safety	4
2.1 Intended purpose	4
2.2 Intended use	4
2.3 Improper use	4
2.4 General safety information	5
2.5 Specialist personnel	5
2.6 Electrical safety	5
2.7 Only use original parts	6
2.8 Transport	6
2.9 Disposal	6
2.10 Protection from threats from the Internet	6



Product description

3 Overview	7
3.1 Scope of delivery	8
3.2 Accessories	8
3.3 Optional items	8
3.4 Consumables	8
3.5 Wear parts and replacement parts	8
4 Technical data	10
4.1 Image plate scanner (XPS07.1V1...)	10
4.2 Image plate	13
4.3 Type plate	15
4.4 Evaluation of conformity	15
4.5 Simplified declaration of conformity	15
5 Operation	15
5.1 Image plate scanner	15
5.2 Image plate	16
5.3 Light protection cover	17
5.4 Protective cover	17

5.5 Bite protector (optional)	17
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Assembly

6 Requirements	18
6.1 Installation/setup room	18
6.2 System requirements	18
6.3 Monitor	18
7 Installation	18
7.1 Setting up the unit	18
7.2 Electrical connections	19
7.3 Connecting the device to the network	20
8 Commissioning	21
8.1 Configuring the network	21
8.2 Configuring the unit	22
8.3 Security settings	22
8.4 Testing the device	22
8.5 X-ray unit settings	23
8.6 Acceptance tests	23



Usage

9 Correct use of image plates	24
10 Operation	25
10.1 Switch on the unit	25
10.2 Changing the plate guide	26
10.3 X-ray	27
10.4 Scanning the image data via a computer without SmartScan	30
10.5 Scanning the image data via a computer with SmartScan	31
10.6 Erasing the image plate	32
10.7 Switch off the unit	32
11 Cleaning and disinfection	33
11.1 Image plate scanner	33
11.2 Light protection cover	34
11.3 Image plate	34
11.4 Protective cover	34
12 Maintenance	35

12.1	Recommended maintenance schedule	35
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Troubleshooting

13	Tips for operators and service technicians	36
13.1	Poor X-ray image	36
13.2	Software error	38
13.3	Fault on the unit	40
13.4	Error message on display	42



Appendix

14	Scanning times	45
15	File sizes (uncompressed)	46
16	Addresses	47
16.1	iM3 Pty Ltd Australia	47
16.2	iM3 Dental Limited	47
16.3	iM3 Inc. USA	47

Important information

1 About this document

These installation and operating instructions represent part of the unit.



DÜRR MEDICAL will not offer any warranty or accept any liability for the safe operation and the safe functioning of the unit if the instructions and information in these installation and operating instructions are not complied with.

The German version of the installation and operating instructions is the original manual. All other languages are translations of the original manual. These operating instructions apply to:

CR 7 VET 2.0 (XPS07.1V1)

REF: 2137100500

1.1 Warnings and symbols

Warnings

The warnings in this document are intended to draw your attention to possible injury to persons or damage to machinery.

The following warning symbols are used:



General warning symbol

The warnings are structured as follows:



SIGNAL WORD

Description of the type and source of danger

Here you will find the possible consequences of ignoring the warning

› Follow these measures to avoid the danger.

The signal word differentiates between four levels of danger:

- **DANGER**
Immediate 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

Other symbols

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



Note, e.g. specific instructions regarding efficient and cost-effective use of the unit.



Order number



Serial number



Model number



CE labelling



Conformity mark for the United Kingdom of Great Britain and Northern Ireland



Manufacturer



Date of manufacture



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



Refer to the accompanying electronic documents.



Refer to Operating Instructions.



Wear protective gloves.



Disconnect all power from the unit.



Do not reuse



DC current



Warning – dangerous high voltage



Warning - laser beam



This way up / store and transport in an upright position



Keep dry



Stacking limits



Lower and upper humidity limits



Lower and upper temperature limits



Lower and upper atmospheric pressure limits



Fragile, handle with care



Keep away from sunlight

1.2 Copyright information

All circuits, processes, names, software programs and units mentioned in this document are protected by copyright.

Reprinting of the installation and operating instructions, or parts thereof, is only permitted with the written approval of DÜRR MEDICAL.

2 Safety

The unit has been developed and designed in such a way that dangers are effectively ruled out if used in accordance with the Intended Use. Despite this, the following residual risks can remain:

- Personal injury due to incorrect use/misuse
- Personal injury due to mechanical effects
- Personal injury due to electrical shock
- Personal injury due to radiation
- Personal injury due to fire
- Personal injury due to thermal effects on skin
- Personal injury due to lack of hygiene, e.g. infection

2.1 Intended purpose

CR 7 VET 2.0

The unit is intended solely for use in an veterinary medicine setting for the scanning and processing of image data on an image plate.

Light protection cover

The functions of the Light Protection Cover are:

- to protect the image plate from light and therefore against accidental erasure
- to protect against cross-contamination

2.2 Intended use

CR 7 VET 2.0

The unit must only be operated with accessories and optional items manufactured by DÜRR MEDICAL or labelled by DÜRR MEDICAL.

The unit must only be cleaned and disinfected using disinfectants and cleaning agents that have been specified or approved by the manufacturer.

Light protection cover

The light protection cover is a disposable item.

The light protection cover is designed exclusively for use with image plate scanners or image plates manufactured by DÜRR MEDICAL or labelled by DÜRR MEDICAL.

2.3 Improper use

CR 7 VET 2.0

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

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

Light protection cover

Multiple use and reprocessing contrary to the manufacturer's specifications are considered not intended use. In such cases, the user/operator will bear the sole risk.

Use of the accessory in combination with other image plate scanners that are not manufactured by DÜRR MEDICAL or do not carry the DÜRR MEDICAL logo, or with image plates that are not manufactured by DÜRR MEDICAL or do not carry the DÜRR MEDICAL logo.

2.4 General safety information

- Always comply with the specifications of all guidelines, laws, and other rules and regulations applicable at the site of operation for the operation of this unit.
- Check the function and condition of the unit prior to every use.
- Do not convert or modify the unit.
- Comply with the specifications of the Installation and Operating Instructions.
- The Installation and Operating Instructions must be accessible to all operators of the unit at all times.

2.5 Specialist personnel

Operation

Unit operating personnel must ensure safe and correct handling based on their training and knowledge.

- Instruct or have every operator instructed in handling the unit.

Installation and repairs

- Have the manufacturer or a qualified company authorised by the manufacturer perform mounting, new installations, modifications, expansions and repairs.

2.6 Electrical safety

- Comply with all the relevant electrical safety regulations when working on the unit.
- Never touch the patient and unshielded plug connections or metallic parts of the device at the same time.
- Replace any damaged cables or plugs immediately.

Observe the EMC rules

- The unit is intended for use in professional healthcare facilities (in accordance with IEC 60601-1-2). If the appliance is operated in another environment, potential effects on electromagnetic compatibility must be taken into account.
- Do not operate the unit in the vicinity of HF surgical instruments or MRT equipment.
- Maintain a minimum distance of at least 30 cm between the unit and other electronic devices.
- Note that cable lengths and cable extensions have effects on electromagnetic compatibility.

No maintenance measures are required to maintain the EMC basic safety.



NOTICE

Negative effects on the EMC due to non-authorized accessories

- › Use only those accessories named or approved by the manufacturer.
- › Using any other accessories may result in increased electromagnetic interference emissions or the unit having reduced electromagnetic immunity, leading to an erroneous operation mode.



NOTICE

Erroneous operation mode due to use immediately adjacent to other devices or with other stacked devices

- › Do not stack the unit together with other devices.
- › If this is unavoidable, the unit and other devices should be monitored in order to ensure that they are working correctly.



NOTICE

Reduced performance characteristics due to insufficient distance between unit and portable HF communication devices

- › Keep a distance of at least 30 cm between the unit (including parts and cables of the unit) and portable HF communication devices (wireless units) (including their accessories such as antenna cables and external antennas).

2.7 Only use original parts

- Only use accessories and optional articles named or authorised by the manufacturer.
- Only use only original wear parts and replacement parts.



The manufacturer and distributor accept no liability for damages or injury resulting from the use of non-approved accessories, optional accessories, or from the use of non-original wear parts or replacement parts.

The use of non-approved accessories, optional accessories or non-genuine wear parts / replacement parts (e.g. mains cables) can have a negative effect in terms of electrical safety and EMC.

2.8 Transport

The original packaging provides optimum protection for the unit during transportation.

If required, the original packaging for the unit can be ordered.



The manufacturer and the distributor do not accept liability, even during the warranty period, for damage during transportation due to improper packaging.

- Only transport the unit in its original packaging.
- Keep the packing materials out of the reach of children.
- Do not expose the unit to any strong vibrations or shocks.

2.9 Disposal



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



An overview of the waste keys for DÜRR MEDICAL products can be found in the download area at: www.duerr-medical.de (Document no. GA10100002).

Image plate

The image plate contains barium compounds.

- Dispose of the image plate properly in accordance with the locally applicable regulations.
- In Europe, dispose of the image plate in accordance with waste code 20 03 01 "Mixed municipal waste".

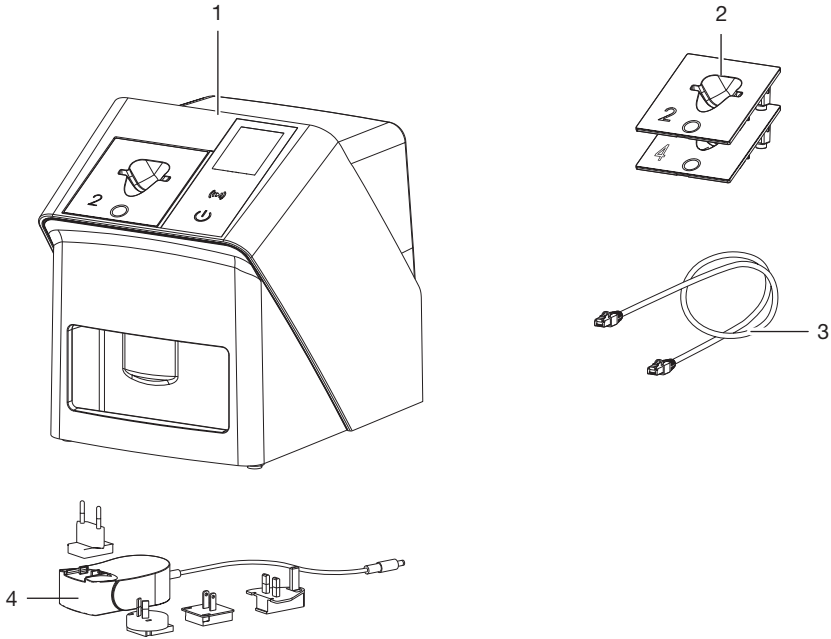
2.10 Protection from threats from the Internet

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.
- Restrict access to units to trustworthy users, e.g. via a user name and password.
- Make sure that only trustworthy content is downloaded. Only install software and firmware updates that have been authenticated by the manufacturer.

 Product description

3 Overview



- 1 OR 7 VET 2.0 image plate scanner
- 2 Plate guides (S2 and S4)
- 3 Network cable (3 m)
- 4 Power supply unit with country-specific adapter

3.1 Scope of delivery

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

CR 7 VET 2.0

image plate scanner 2137110001

- CR 7 VET 2.0 basic unit
- Power supply unit
- Network cable (3 m)
- Cover over device terminals
- Plate guides:
 - S2 (mounted on unit)
 - S4
- Image Plate Cleaning Wipe
- Protective cover
- Short information

3.2 Accessories

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

Image plates

- Image Plate IPX, size 0
- Image Plate IPX, size 1
- Image Plate IPX, size 2
- Image Plate IPX, size 3
- Image Plate IPX, size 4
- Image Plate IPX, size 4C
- Image Plate IPX, size 5
- Image Plate IPX, size R3

Light protection covers

- Light Protection Cover Plus, size 0 / R3
- Light Protection Cover Plus, size 1
- Light Protection Cover Plus, size 2
- Light Protection Cover Plus, size 3
- Light Protection Cover Plus, size 4
- Light Protection Cover Plus, size 4C
- Light Protection Cover Plus, size 5

3.3 Optional items

The following optional items can be used with the unit:

- Smart Reader VET 2162100020
- Wall bracket 2144100021
- Plate guide tray 2144100079
- VistaScan bite protector S4 (100x) . 2130-074-03

3.4 Consumables

The following materials are consumed during operation of the device and must be reordered separately:

Cleaning and disinfection

IP Cleaning Wipes (10x10 pcs.) . CCB351A0101

Light protection covers

Description	Exist. No. Dürr Medical	Exist. No. iM3
Light Protection Cover Plus, size 0 / R3	2134-080-00	X7101
Light Protection Cover Plus, size 1	2134-081-00	X7111
Light Protection Cover Plus, size 2	2134-082-00	X7122
Light Protection Cover Plus, size 3	2134-083-00	X7133
Light Protection Cover Plus, size 4	2134-084-00	X7144
Light Protection Cover Plus, size 4C	2134108800	XC144
Light Protection Cover Plus, size 5	2134-085-00	X7155

3.5 Wear parts and replacement parts

Image plates

Description	Exist. No. Dürr Medical	Exist. No. iM3
Image Plate S0 IPX 2 x 3 cm (2 pcs.)	21341040 50	IPXS0
Image Plate S1 IPX 2 x 4 cm (2 pcs.)	21341041 50	IPXS1
Image Plate S2 IPX 3 x 4 cm (4 pcs.)	21341042 50	IPXS2
Image Plate S3 IPX 2.7 x 5.4 cm (2 pcs.)	21341043 50	IPXS3
Image Plate S4 IPX 5.7 x 7.6 cm (1 pcs.)	21341044 50	IPXS4
Image Plate S4C IPX 4.8 x 5.4 cm (1 pcs.)	21341048 50	IPXS4C

Description	Exist. No. Dürr Medical	Exist. No. iM3
Image Plate S5 IPX 5.7 x 9.4 cm (1 pcs.)	21341045 50	IPXS5
Image Plate R3 IPX 2.2 x 5.4 cm (2 pcs.)	21341047 50	IPXS3

 Further image plate formats available on request

Plate guides

Plate Guide S0 / R3 (1 piece) 2144100187


Plate guide S1 (1 each) 2144100188

Plate guide S2 (1 each) 2144100189

Plate guide S3 (1 each) 2144100193

Plate guide S4 / S5 (1 piece) 2144100194

Plate Guide S4C (1 piece) 2137100045

 Further information about the replacement parts on demand

4 Technical data

4.1 Image plate scanner (XPS07.1V1...)

Electrical data – power supply unit

Nominal input voltage	V AC	100 - 240
Frequency	Hz	50/60
Nominal output voltage	V DC	24
Max. output current	A	1.25

Electrical data for the device

Voltage	V DC	24
Max. current consumption	A	1.25
Output	W	< 30
Type of protection		IP20

General technical data

Dimensions (W x H x D)	mm	211 x 249 x 258
	in	8.31 x 9.80 x 10.16
Weight	kg	approx. 5.1
	lb	approx. 11.24
Pixel size (selectable)	µm	12.5 - 50
Max. theoretical resolution	Line	approx. 40
	pairs/mm (Lp/mm)	

Network connection

LAN technology		Ethernet
Standard		IEEE 802.3u/IEEE 802.3ab
Data rate	Mbit/s	100/1000
Connector		RJ45
Type of connection		Auto MDI-X
Cable type		≥ CAT5e

Ambient conditions during operation

Temperature	°C	+10 to +35
	°F	+50 to +95
Relative humidity	%	20 - 80
Air pressure	hPa	750 - 1060
Height above sea level	m	< 2000
	ft	< 6562

Ambient conditions during storage and transport

Temperature	°C	-20 to 60
	°F	-4 to +140
Relative humidity	%	10 - 95
Air pressure	hPa	750 - 1060

Classification

Laser class (unit) In accordance with IEC 60825-1:2014	1
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Laser source

Laser class In accordance with IEC 60825-1:2014	3B	
Wavelength λ	nm	639
Output	mW	<12

Technical data for the RFID module

Frequency	MHz	13.56
Modulation		ASK

Electromagnetic compatibility (EMC)**Interference emission measurements**

High-frequency emissions in accordance with CISPR 11	Group 1 Class B
Interference voltage at the power supply connection CISPR 11:2009+A1:2010	Compliant
Electromagnetic interference radiation CISPR 11:2009+A1:2010	Compliant

Electromagnetic compatibility (EMC)**Interference immunity measurements cover**

Immunity to interference, discharge of static electricity IEC 61000-4-2:2008 ± 8 kV contact ± 2 kV, ± 4 kV, ± 8 kV, ± 15 kV air	Compliant
Immunity to interference, high-frequency electromagnetic fields IEC 61000-4-3:2006+A1:2007+A2:2010 3 V/m 80 MHz - 2.7 GHz 80 % AM at 1 kHz	Compliant
Immunity to interference, near fields of wireless HF communication devices IEC 61000-4-3:2006+A1:2007+A2:2010 See immunity to interference table, near fields of wireless HF communication devices	Compliant

Immunity to interference table, near fields of wireless HF communication devices		
Radio service	Frequency band MHz	Test level V/m
TETRA 400	380 - 390	27
GMRS 460 FRS 460	430 - 470	28
LTE band 13, 17	704 - 787	9
GSM 800/900 TETRA 800 iDEN 820 CDMA 850 LTE band 5	800 - 960	28
GSM 1800 CDMA 1900 GSM 1900 DECT LTE band 1, 3, 4, 25 UMTS	1700 - 1990	28
Bluetooth WLAN 802.11 b/g/n RFID 2450 LTE band 7	2400 - 2570	28
WLAN 802.11 a/n	5100 - 5800	9

Electromagnetic compatibility (EMC) Interference immunity measurements supply input	
Immunity to interference, rapid transient bursts – AC voltage grid IEC 61000-4-4:2012 ± 2 kV 100 kHz repetition frequency	Compliant
Immunity to interference, surges IEC 61000-4-5:2005 ± 0.5 kV, ± 1 kV	Compliant
Immunity to interference, line-conducted disturbances induced by high-frequency fields – AC voltage grid IEC 61000-4-6:2013 3 V 0.15 - 80 MHz 6 V ISM frequency bands 0.15 - 80 MHz 80 % AM at 1 kHz	Compliant
Immunity to interference due to voltage dips, short interruptions and voltage variations IEC 61000-4-11:2004	Compliant

Electromagnetic compatibility (EMC) Interference immunity measurements SIP/SOP

Immunity to interference, discharge of static electricity IEC 61000-4-2:2008 ± 8 kV contact ± 2kV, ± 4 kV, ± 8 kV, ± 15 kV air	Compliant
Immunity to interference, rapid transient bursts – I/O, SIP/SOP ports IEC 61000-4-4:2012 ± 1 kV 100 kHz repetition frequency	Compliant
Immunity to interference, line-conducted disturbances induced by high-frequency fields – SIP/SOP ports IEC 61000-4-6:2013 3 V 0.15 - 80 MHz 6 V ISM frequency bands 0.15 - 80 MHz 80 % AM at 1 kHz	Compliant

4.2 Image plate

Ambient conditions during operation

Temperature	°C	18 - 45
	°F	64 - 113
Relative humidity	%	< 80

Ambient conditions during storage and transport

Temperature	°C	< 45
	°F	< 113
Relative humidity	%	< 80

Dimensions of intraoral image plates

Size 0	mm	22 x 35
	in	0.87 x 1.38
Size 1	mm	24 x 40
	in	0.94 x 1.57
Size 2	mm	31 x 41
	in	1.22 x 1.61
Size 3	mm	27 x 54
	in	1.06 x 2.13
Size 4	mm	57 x 76
	in	2.24 x 2.99
Size 4C	mm	48 x 54
	in	1.89 x 2.13



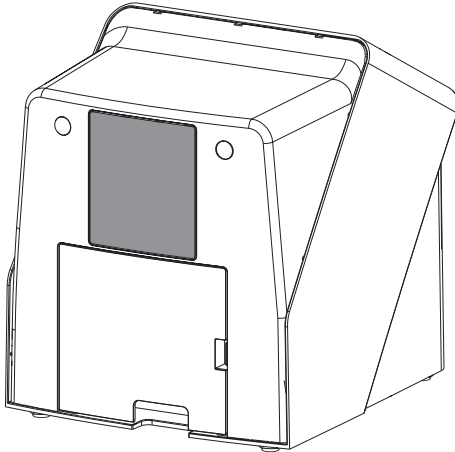
Product description

Dimensions of intraoral image plates

Size 5	mm	57 x 94
	in	2.24 x 3.70
Size R3	mm	22 x 54
	in	0.87 x 2.13

4.3 Type plate

The type plate is located on the rear of the device.



REF Order number

SN Serial number

4.4 Evaluation of conformity

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

4.5 Simplified declaration of conformity

The manufacturer hereby declares that the unit complies with Directive 2014/53/EU as well as others.

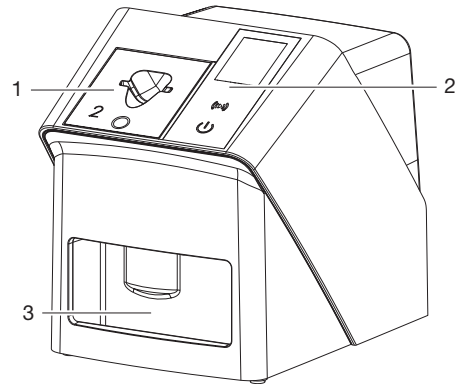
The full text of the EU declaration of conformity can be viewed online at the Download Center:



<http://q-r.to/VET-downloads>

5 Operation

5.1 Image plate scanner



- 1 Plate guides:
- 2 User interface and display
- 3 Collection tray

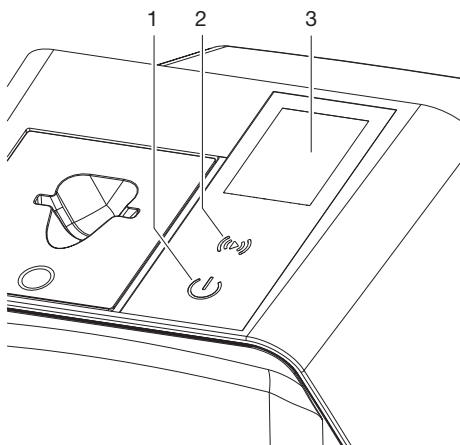
The image plate scanner is used to read image data stored on an image plate and to transfer the data to the imaging software (e.g. Vet-Exam Pro) on a computer.

The transport mechanism guides the image plate through the device. The image plate is read using a laser inside the scanner unit. The scanned data is converted into a digital image and transferred to the imaging software.

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

The image plate is then ejected for re-use.



Operating elements



- 1 On / off switch
- 2 Confirm button
- 3 Display

On / off switch

The on / off switch shows different states of the unit:

-  Unit off
To start simply press the on / off switch.
-  The unit switches on or is ready for use
The start screen appears as soon as the unit can be used.

Confirm button

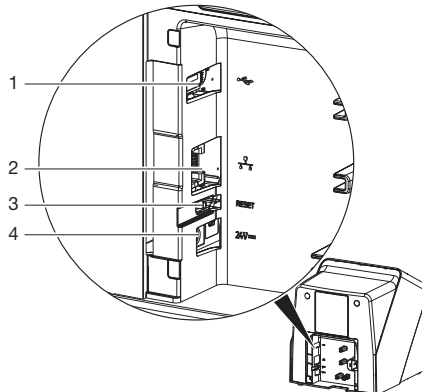
The Confirm button is used to confirm messages on the display. The button flashes when a message requiring confirmation is displayed.

Display

The display shows information provided by the imaging software.

Connections

The connections are located on the rear of the unit, underneath the cover.



- 1 USB port (additional accessory)
- 2 Network connection
- 3 Reset button
- 4 Connection for power supply unit

SmartScan

With SmartScan an image plate is assigned to a specific patient via the imaging software. As soon as an image plate has been assigned to a patient in the imaging software, all devices that support SmartScan go into imaging standby. Image plates that have previously been linked to a patient can now be read in at any device in any order. The images are then automatically assigned to this patient by the imaging software. SmartScan functions with the following imaging programs:

- Vet-Exam Pro from DÜRR MEDICAL

5.2 Image plate

The image plate stores X-ray energy, which is re-emitted in the form of light after excitation via the laser. This light is then converted to image information in the image plate scanner.

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

When used properly, image plates can be exposed, read and erased several hundred times provided there is no mechanical damage. The image plate 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.

Intraoral

Inactive side	Active side
	
White, printed with the word "back" and the size and manufacturer's information	Light blue, with positioning aid 3

The positioning aid is visible on the X-ray image and makes it easier to align the image correctly during diagnosis.



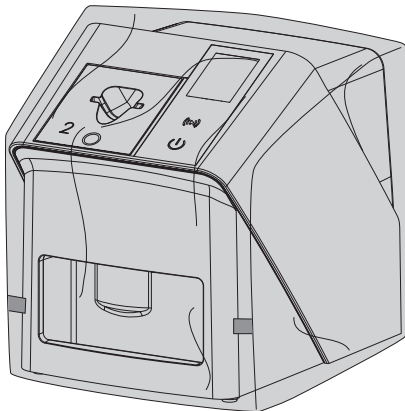
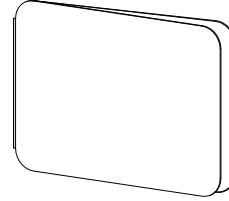
Only use the IPX image plate with the unit. The unit is unable to read any other types of image plates.

5.3 Light protection cover

The light protection cover protects the image plate against light.


5.4 Protective cover

The protective cover protects the device against dust and dirt, e. g. during extended periods in which it is not in use.

**5.5 Bite protector (optional)**

The bite protector protects the image plate S4 as well as the light protection cover against heavy mechanical damage, e. g. If the patient bites down too hard during the X-ray exposure.

Assembly

 Only qualified specialists or persons trained by DÜRR MEDICAL are permitted to install, connect and commission the unit.


6 Requirements

6.1 Installation/setup room

The room chosen for set up must fulfil 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 large fields of interference (e.g. strong magnetic fields) present that can interfere with the correct operation of the unit.
- Refer to the requirements for environmental conditions in "4 Technical data".

6.2 System requirements

 For details of the system requirements for computer systems refer to the separate information sheet (order number 9000-608-100) or visit the website at www.duerr-medical.de.

6.3 Monitor

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

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

7 Installation

7.1 Setting up the unit



NOTICE

Risk of damage to sensitive components in the unit as a result of shocks or vibrations

- › Do not expose the unit to any strong vibrations or shocks.
- › Do not move the unit during operation.

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

1. Do not stack the unit next to or together with other appliances.
2. 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.

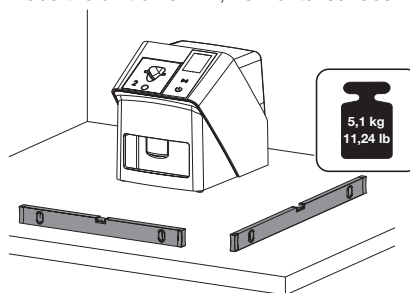
The unit can be set up as a tabletop unit or mounted on a wall using the wall bracket. The load-bearing capacity of the table or wall must be suitable for the weight of the unit (see "4 Technical data").

Setting the unit on a table



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

1. Place the unit on a firm, horizontal surface.



Installing the unit with the wall mounting bracket

The unit can be mounted on a wall with the wall mounting bracket (see "3.3 Optional items").

7.2 Electrical connections

Safety when making electrical connections

1. The device must only be connected to a correctly installed power outlet.
2. Do not place non-fixed multi-socket units on the floor. Follow the requirements in section 16 of IEC 60601-1 (EN 60601-1).
3. Do not operate any other systems using the same multiple socket.
4. Make sure that none of the electrical cables leading to the unit are under any mechanical tension.
5. Before initial start-up check 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. For this reason it is important that the unit is set up in such a way that the plug can be easily accessed and unplugged if required.

Requirements:

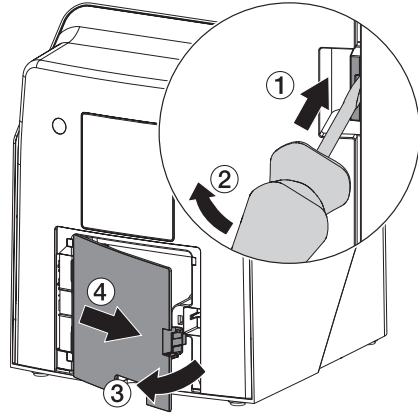
- ✓ Properly installed power outlet close to the unit (observe the max. mains cable length)
- ✓ Easily accessible power outlet
- ✓ Mains voltage must match the information shown on the type plate of the power supply unit



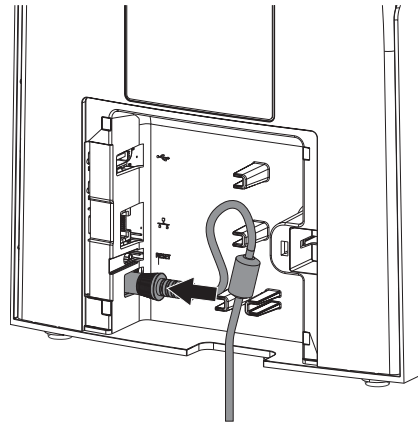
Only approved power supply units may be used:
 9000150006 EM1024KR or
 9000101790 TR30RDM240

1. Attach the matching country-specific adapter to the power supply unit.

2. Remove the cover from the back of the unit using a suitable tool (e.g. slotted-head screwdriver).

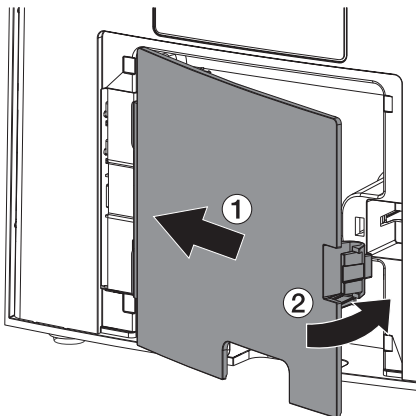


3. Plug in the connecting plug of the power supply unit into the socket connection of the device.



4. Plug the mains plug into the power outlet.

5. Refit the cover.



When operating the device, the rear side cover must be mounted.

7.3 Connecting the device to the network

The unit must be connected to a network for operation.

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 unit settings
- Activate test functions
- Transmit data for archiving
- Provide documents concerning the units

Combining devices safely

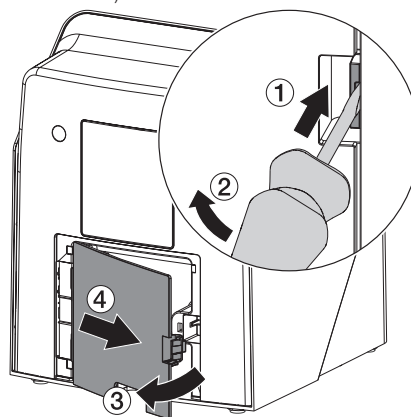
- The overall safety of the unit and its main performance features are independent of the network. The device is designed for operation independent of a network. However, some of the functions are not available in this case.
- Incorrect manual configuration can lead to significant network problems. The expert knowledge of a network administrator is required for configuration.
- The device is not suitable for direct connection to the public Internet.

Take care when connecting units together or to parts of other systems as there is always an element of risk (e.g. due to leakage currents).

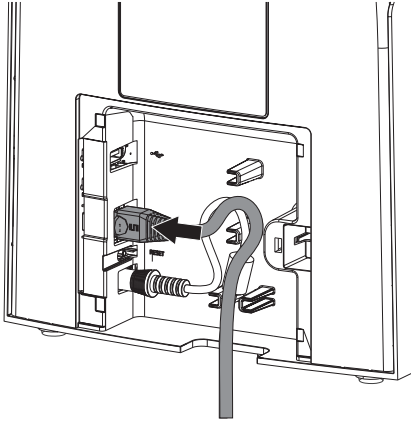
1. Only connect units when there can be no question of danger to operator or to patient.
2. Only connect units when it is safe to do so and when there is no risk of damage or harm to the surroundings.
3. If it is not 100% clear from the unit data sheet that such connections can be safely made or if you are in any doubt, always get a suitably qualified person (e.g. the manufacturer) to verify that the setup is safe.
4. Observe the specifications of IEC 60601-1 (EN 60601-1) when connecting the appliance with other appliances, e.g. a PC system, both in and outside the patient environment.
5. Only connect peripheral units (e. g. computer, monitor, printer) that conform at least to the requirements set out in IEC 60950-1 or IEC 62368-1.
6. The connected computer must conform to EN 55032 (class B) and EN 55024.

Connecting the unit via the network cable

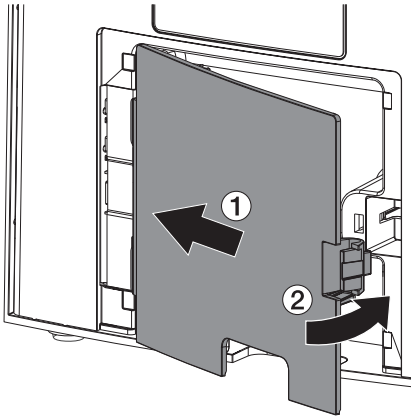
1. Remove the cover from the back of the unit using a suitable tool (e.g. slotted-head screwdriver).




2. Connect the supplied network cable to the network connection of the device.



3. Refit the cover.



 When operating the device, the rear side cover must be mounted.

8 Commissioning



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 it is dry.

The unit supports the following imaging programs:

- Vet-Exam Pro from DÜRR MEDICAL



Always use the current version of the imaging program and VistaScan service tools.

8.1 Configuring the network

Network configuration

Various options are available for network configuration:

- ✓ Automatic configuration via DHCP.
- ✓ Automatic configuration via Auto-IP for direct connection of unit and computer.
- ✓ Manual configuration.

1. Configure the network settings of the unit using the software or, if applicable, the touch screen.
2. Check the firewall and release the ports, if applicable.

Network protocols and ports


Port	Purpose	Service
1900 UDP	Device detection	
80 TCP	Device detection	
438 TCP	Device data	
22 TCP	Diagnosis	SSH
n/a	Check that the device is switched on	ICMP / ping



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

8.2 Configuring the unit

The VistaScan service tool is used to configure the unit.

1. Start the service tool from Vet-Exam Pro:
Select  > **Units** > **Configure** > **Maintenance** > **Service Tool**.
Alternatively: Start the service tool from the Windows Start menu:
Start > **VistaScan Service Tool** > **VistaScan Service Tool**

2. Mark the connected unit in the list.



If the unit connected does not appear in the list, check that the unit is switched on and connected to the network. Then click **Find again**.

3. Click **OK**.
If connecting fails, an error message appears.
4. Select **001 Initial commissioning** procedure.
5. Follow the instructions provided by the service tool.

Entering a permanent IP address (recommended)



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

1. Select **Network settings**.
2. Change **Use DHCP** to **off**.
3. Enter the IP address, subnet mask and gateway.
4. Click **Save changes**.
The configuration is saved.

8.3 Security settings

Communication between the imaging software and the unit is always encrypted. On delivery, communication is protected by a standard password: 123456. For increased security, this password must be changed in the imaging software settings. For further information, see the manual for the imaging software.

8.4 Testing the device

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

1. Open Vet-Exam Pro.
2. Create an X-ray station for the connected unit.
3. Log in a demo patient.
4. Select the image type (e. g. Intraoral).
5. Scan an image plate, see "10 Operation".

8.5 X-ray unit settings

The following table provides 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 determined using a dental X-ray unit with a DC emitter (focal spot 0.7 mm; tube length 20 cm). The exposure times for a tube length of 30 cm were calculated from the exposure times for a tube length of 20 cm.

	DC emitter, 7 mA Tube length 20 cm		DC emitter, 7 mA Tube length 30 cm	
	60 kV	70 kV	60 kV	70 kV
Upper jaw				
Incisors	0.1 s	0.08 s	0.2 s	0.16 s
Premolars	0.125 s	0.1 s	0.25 s	0.2 s
Molars	0.16 s	0.125 s	0.32 s	0.25 s
Lower jaw				
Incisors	0.1 s	0.08 s	0.2 s	0.16 s
Premolars	0.125 s	0.1 s	0.25 s	0.2 s
Molars	0.125 s	0.1 s	0.25 s	0.2 s



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

1. Carry out unit-specific checks and adjustments of the X-ray units based on the standard values.

8.6 Acceptance tests

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

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

Usage

9 Correct use of image plates



WARNING

Risk 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).



CAUTION

The image data on the image plate is not permanent.

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 and clarity.

- › 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 or after the scanning process. Do not X-ray during the scanning process if the unit is in the same room as the X-ray tube.
- › Image plates must only be read using an image plate scanner that is approved by DÜRR MEDICAL.



CAUTION

Image plates are toxic

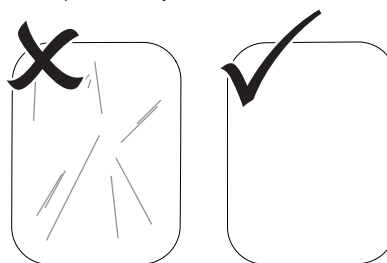
Image plates that are not packed in a light protection cover can lead to poisoning when placed in the mouth or swallowed.

- › Only place image plates in the patient's mouth in a light protection cover.
- › Do not swallow the image plate or parts of it.
- › If the image plate or parts of it have been swallowed, consult a specialist doctor immediately and remove the image plate.
- › If the light protection cover has been damaged in the patient's mouth, rinse the mouth thoroughly with lots of water. Do not swallow the water in the process.

1. Image plates are flexible like X-ray film. However, the image plates should not be bent.



2. Do not scratch the image plates. Do not subject the image plates to pressure from hard or pointed objects.



3. Do not soil the image plates.

4. Protect the image plates against sunlight and ultraviolet light.
Store image plates in a light protection cover or intraoral/extraoral foil cassette of the correct size.
5. Image plates will be pre-exposed on exposure 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.
6. Do not store image plates under hot or moist conditions. Observe the correct ambient conditions (see "4 Technical data").
7. 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. if the protective layer is damaged or there are visible scratches that impair the quality of the diagnosis.
Also replace the image plate if the RFID tag is damaged or becoming detached.
8. Image plates that have a production or packaging defect will be replaced by DÜRR MEDICAL in the same quantity. Claims can only be accepted within 7 working days after receipt of the goods.
9. Clean image plates properly (see "11 Cleaning and disinfection").

10 Operation




CAUTION

The image data on the image plate is not permanent.

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 and clarity.

- › 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 or after the scanning process. Do not X-ray during the scanning process if the unit is in the same room as the X-ray tube.
- › Image plates must only be read using an image plate scanner that is approved by DÜRR MEDICAL.

10.1 Switch on the unit.

1. Switch on the unit by tapping the on / off switch .

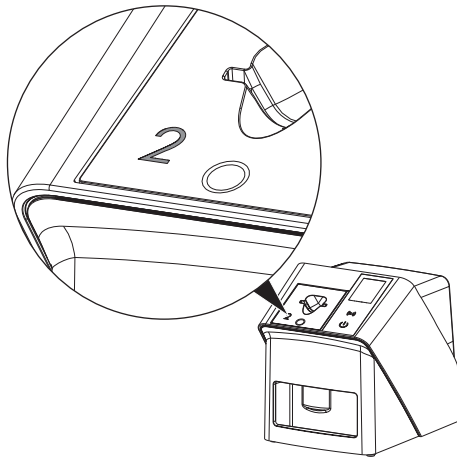
The on / off switch lights up briefly and the unit starts.

As soon as the unit is ready for operation, the on/off switch lights up blue and the start screen is displayed.

10.2 Changing the plate guide

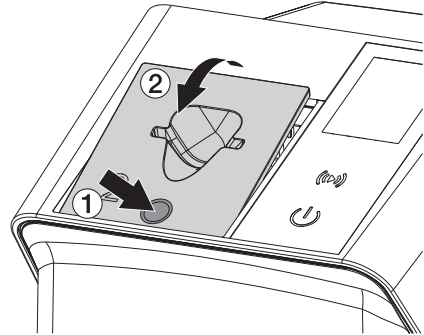
The unit can read S0 to S5 image plates. Each size of image plate requires the matching plate guide.

The size of the image plate is marked on the plate guide.



The plate guide can be changed at any time. To avoid loss of image quality, do not change the plate guide during a scan.

1. Press your finger into the recess and at the same time tilt the plate guide forwards.



2. Insert the plate guide from above.



CAUTION

Loss of image information and equipment damage if an incorrect plate guide is used

- › Always use the correct size of plate guide for the image plate being used.
- › Before each scanning process, compare the image plate size with the markings on the plate guide.





The following plate guides are compatible with the following image plates:

Plate guide S0 / R3 is used for image plates S0 and R3.

Plate guide S4 / S5 is used for image plates S4 and S5.

10.3 X-ray

-  The procedure is described using an IPX S2 image plate as an example.
-  Only use the IPX image plate with the unit. The unit is unable to read any other types of image plates.

Required accessories:

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



WARNING

Risk 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).



WARNING

Danger due to re-use of products intended for single use

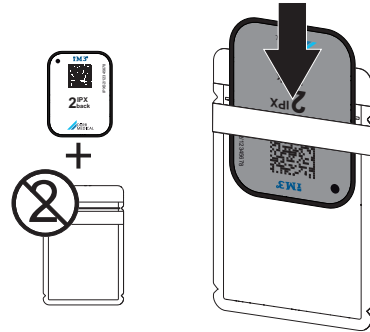
The disposable item is damaged after use and cannot be reused.

- › Dispose of disposable items after use.

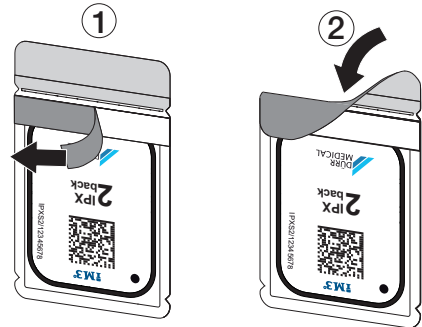
Preparing to X-ray without SmartScan

- ✓ The image plate has been cleaned.
 - ✓ The image plate is not damaged.
 - ✓ The adhesive film adheres to the inactive side of the image plate. If the adhesive film peels off, replace the image plate.
1. If using it for the first time or if it has been stored for over a week: erase the image plate (see "10.6 Erasing the image plate").

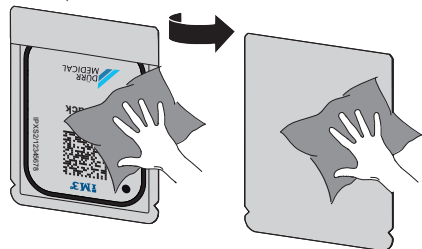
2. Completely slide the image plate into the light protection cover. The white (inactive) side of the image plate must be visible.



3. Pull off the adhesive strip, fold down the flap and close the light protection cover tightly by pressing together firmly.



4. The light protection cover must be disinfected using a suitable disinfectant wipe immediately before positioning (see "3.4 Consumables").

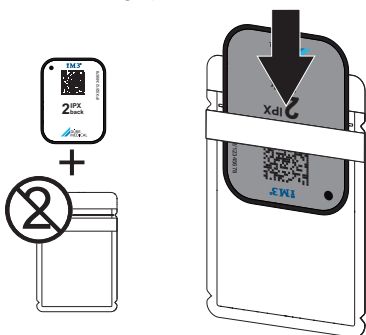


5. Allow the light protection cover to fully dry.

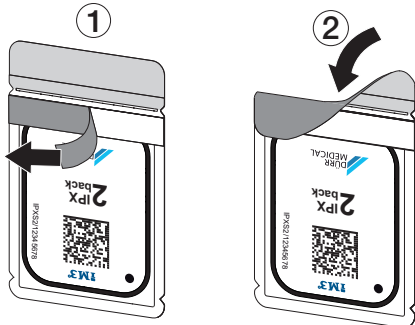
Preparing to X-ray with SmartScan

- ✓ The image plate has been cleaned.
- ✓ The image plate is not damaged.
- ✓ The adhesive film adheres to the inactive side of the image plate. If the adhesive film peels off, replace the image plate.

1. If using it for the first time or if it has been stored for over a week: erase the image plate (see "10.6 Erasing the image plate").
2. Completely slide the image plate into the light protection cover. The white (inactive) side of the image plate must be visible.

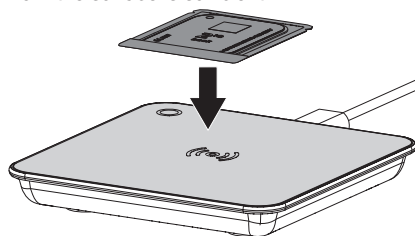


3. Pull off the adhesive strip, fold down the flap and close the light protection cover tightly by pressing together firmly.



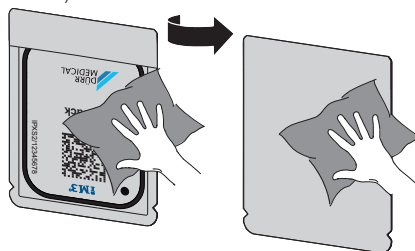
4. Press the on / off switch \odot to switch on the unit.
5. Switch on the computer and monitor.
6. Start Vet-Exam Pro.
7. Select the patient.

8. Click (\blacktriangleright) in the menu bar.
The dialog window opens.
The status LED Smart Reader lights up green \odot .
9. If multiple X-ray positions have been created for an image plate scanner, select the X-ray emitter.
10. Present the image plate to the Smart Reader.
The image plate must not be placed on the Smart Reader. A distance of about 1 cm from the surface is sufficient.



The image plate is assigned to the logged-in patient.
The status LED Smart Reader lights up green \odot , ascending audio signal is heard ♪ (if configured).
Multiple image plates can also be assigned to the patient.

11. The light protection cover must be disinfected using a suitable disinfectant wipe immediately before positioning (see "3.4 Consumables").



12. Allow the light protection cover to fully dry.

Taking the X-ray image



NOTICE

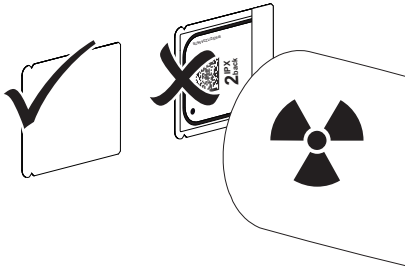
Damage to the image plate caused by a sharp-edged holding system

- › Only use holding systems that 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.

1. Place the image plate in the light protection cover on the patient. When doing this, make sure that the active side of the image plate points towards the X-ray tube.



2. Set the exposure time and setting values on the X-ray unit (see "8.5 X-ray unit settings").
3. Record an X-ray image. The image data must be scanned within 30 minutes.

Preparing for scanning



CAUTION

Light erases the image data on the image plate

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



Wear protective gloves.

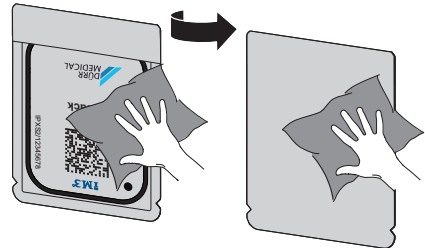
1. Remove the light protection cover with image plate from the patient.



WARNING

Contamination of the unit

- › Clean and disinfect the light protection cover before removing the image plate.
2. In the event of heavy soiling, e.g. from blood, dry clean the light protection cover and protective gloves, e.g. wipe with a clean cellulose cloth.
 3. Disinfect the light protection cover and protective gloves with a suitable disinfection wipe; see "11.2 Light protection cover".



4. Allow the light protection cover and image plate to dry completely.
5. Pull off the protective gloves and disinfect the hands.



NOTICE

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

- › Completely clean all traces of the protective glove powder from your hands before handling the image plate.
6. Tear off the light protection cover.



10.4 Scanning the image data via a computer without SmartScan

Starting the image plate scanner and software

i The process of reading out the data is described here for the imaging software Vet-Exam Pro.
For further information on using the imaging software, refer to the relevant manual.

1. Start Vet-Exam Pro.
2. Select the patient.
3. Select the corresponding image type in the menu bar.
4. Select the device.
5. Set acquisition mode.
Recording starts directly.

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

i Only insert the image plate when the bar above the animated sequence has turned to green.
Do not insert any more imaging plates as long as the animation bar is blue.

Scanning the image plate

1. If necessary, read in additional image plates.
When you have finished the last image plate, click *Finish imaging*.

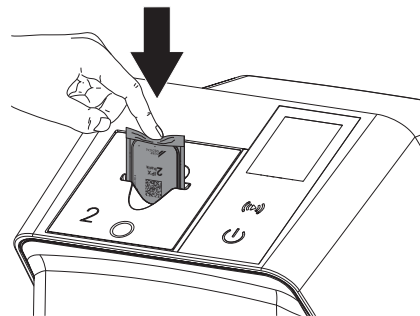
i Heed the information on the display.
When inserting the image plate, make sure that it is assigned to the correct patient.

2. Place the light protection cover with the image plate centrally and straight onto the plate guide. The opened side of the light protection cover faces down, the inactive side of the image plate faces the operator.

i The unit automatically detects if the image plate has been inserted the wrong way round (active side towards the operator) and a message to this effect appears on the display. Turn the image plate over (inactive side towards the operator) and re-insert it immediately.

The image plate must not be pushed out of the light protection cover before it has been placed on the plate guide. There is the risk of image information being erased by ambient light (see "9 Correct use of image plates").

3. Slide the image plate out of its light protection cover downwards into the device until the image plate is automatically drawn in.



The light protection cover is held in place by the plate guide and is not drawn into the unit.

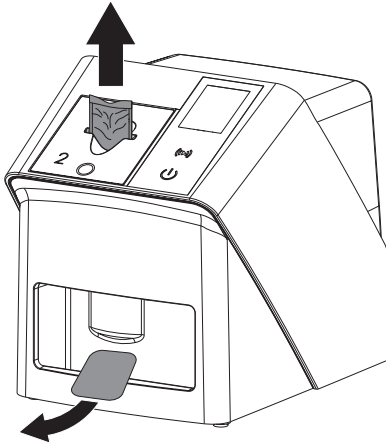
Make sure that only the image plate, and not the light protection cover, is inserted into the unit.

The image data is automatically transmitted to the imaging software.

After it has been scanned, the image plate is erased and drops into the collection tray.


4. Remove the empty light protection cover.

5. Remove the image plate and prepare it for taking a new X-ray.




10.5 Scanning the image data via a computer with SmartScan


Starting the image plate scanner and software

 The process of reading out the data is described here for the imaging software Vet-Exam Pro.

For further information on using the imaging software, refer to the manual.

Depending on the configuration, the unit is automatically set to readout readiness by the imaging software or this must be established manually via the touch screen. The X-ray image is automatically transferred to the imaging software and assigned to the corresponding patient as soon as the image plate is inserted, (see "SmartScan" and the imaging software manual).


1. Check that the unit is ready for use. If the unit is not ready for use, touch .
2. The unit will display an animated visual symbol requesting insertion of the image plate.

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

Do not insert any more imaging plates as long as the animation bar is blue.

Scanning the image plate

1. If necessary, read in additional image plates. Readout readiness for SmartScan ends automatically at all units in the network as soon as all images to linked patients have been transmitted to Vet-Exam Pro.


 To avoid mixing up X-Ray images, check which workflow is active.

If the SmartScan workflow is active, only image plates that have been previously assigned to a patient in the imaging software may be scanned.

If a patient is displayed, only the image plates for the displayed patient may be scanned.

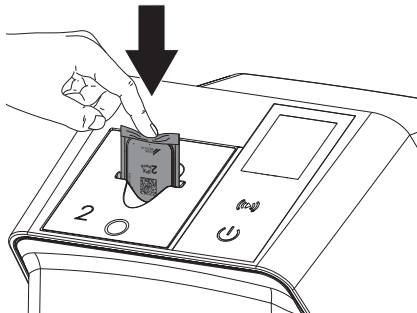
If a scan job without SmartScan and a scan job with SmartScan have been scheduled at the same time, both jobs are displayed in a list when ScanManager is active.

2. Place the light protection cover with the image plate centrally and straight onto the plate guide. The opened side of the light protection cover faces down, the inactive side of the image plate faces the operator.

 The unit automatically detects if the image plate has been inserted the wrong way round (active side towards the operator) and displays a message to this effect on the touch screen. Turn the image plate over (inactive side towards the operator) and re-insert it immediately.

The image plate must not be pushed out of the light protection cover before it is has been placed on the plate guide. There is the risk of image information being erased by ambient light (see "9 Correct use of image plates").

- Slide the image plate out of its light protection cover downwards into the device until the image plate is automatically drawn in.



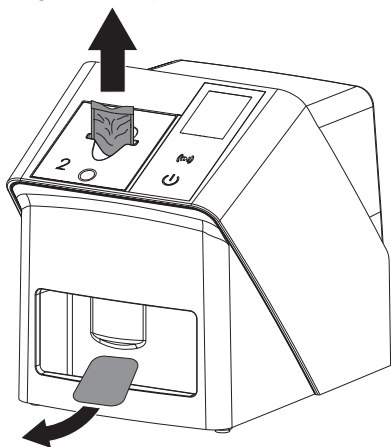
The light protection cover is held in place by the plate guide and is not drawn into the unit.

Make sure that only the image plate, and not the light protection cover, is inserted into the unit.

The image data is automatically transmitted to the imaging software.

After it has been scanned, the image plate is erased and drops into the collection tray.

- Remove the empty light protection cover.
- Remove the image plate and prepare it for taking a new X-ray.



10.6 Erasing the image plate

The image data is automatically erased after scanning.


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

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

- The first time the image plate is used, or if it is stored for longer than a week.
- Due to an error, the image data on the image plate has not been erased (software error message).

- Select the special **ERASE** mode in the software.
- Insert the image plate (see "Scanning the image plate").

10.7 Switch off the unit.


- Switch off the unit by tapping the on / off switch .

The on / off switch lights up briefly and the unit shuts down.

As soon as the unit has shut down it switches off completely.



After you switch off the unit, wait 10 s before switching the unit on again.

- In the event of an error, a hard shutdown of the unit can be performed. To perform a hard shutdown, press and hold the on / off switch  for about 5 seconds.

The unit switches off immediately.

Using the protective cover

The protective cover protects the device against dirt and dust during extended periods in which it is not used.

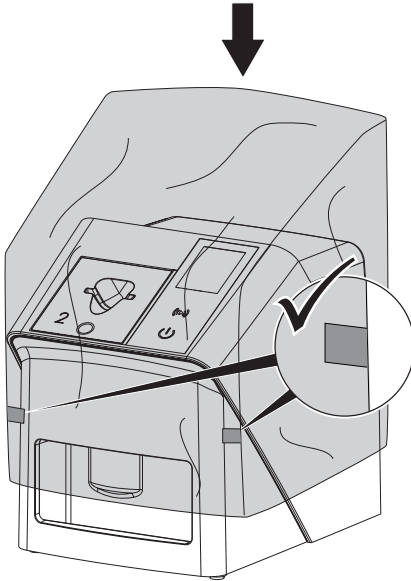


WARNING

Danger of suffocation

- › Store the protective cover out of the reach of children.

1. Pull the protective cover over the device so that it is completely covered. Make sure that the markings are at the front.



2. Store the protective cover in a safe place when it is not in use.

11 Cleaning and disinfection

When cleaning and disinfecting the unit and its accessories, observe country-specific directives, standards and specifications for veterinary products as well as the specific specifications for veterinary practices and clinics.

NOTICE

The use of unsuitable agents and methods can damage the unit and accessories as well as adversely affect the health of animals

- Do not use any products based on phenolic compounds, halogen-releasing compounds, strong organic acids or oxygen-releasing compounds, as they may damage the materials.
- › DÜRR MEDICAL recommends that any soiling be removed with a soft, lint-free cloth that has been dampened with cold tap water.
- › For disinfection, DÜRR MEDICAL recommends using 70% 2-propanol (isopropyl alcohol) on a soft, lint-free cloth.
- › Read the operating instructions for the disinfectants.



Wear protective gloves.

11.1 Image plate scanner

Unit surfaces



The plate guide must be removed prior to cleaning and disinfection (see "10.2 Changing the plate guide").

For cleaning and disinfecting the plate guide, see "Plate guides:".

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

NOTICE

Liquid can cause damage to the unit.

- › Do not spray the unit with cleaning and disinfectant agents.
- › Make sure that liquid does not get inside the unit.

1. Remove any soiling with a soft, lint-free cloth that has been dampened with cold tap water.
2. To disinfect, use 70 % 2-propanol (isopropyl alcohol) on a soft, lint-free cloth.

Plate guides:

The plate guide must be cleaned and disinfected if there are indications of contamination or visible dirt.



NOTICE

Heat can damage plastic parts.

- › Do not use a thermal disinfectant or steam steriliser on any parts of the device.

1. Remove the plate guide (see "10.2 Changing the plate guide").
2. Use 70% 2-propanol (isopropyl alcohol) on a soft, lint-free cloth to disinfect the cover, fixing mechanism and internal parts
3. Insert the plate guide from above.

11.2 Light protection cover

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

1. Before and after placement, disinfect the light protection cover with 70 % 2-propanol (isopropyl alcohol) on a soft, lint-free cloth.
2. Allow the light protection cover to completely dry before using it.

11.3 Image plate

Cleaning and disinfection wipes are unsuitable for cleaning image plates and may cause damage to them.

Only use a cleaning agent that is compatible with the materials:

DÜRR MEDICAL recommends the IP Image Plate Cleaning Wipe (see "3.4 Consumables"). Only

this product has been subjected to material compatibility testing by DÜRR MEDICAL.



NOTICE

Heat or humidity will damage the image plate.

- › Do not steam sterilise the image plate.
- › Do not immersion-disinfect the image plate.
- › Only use approved cleaning agents.

1. Soiling on both sides of the image plate should be cleaned off with a soft, lint-free wipe prior to every use.
2. Remove resistant or dried on dirt with the image plate cleaning wipe. When doing this, follow the instructions for use for the cleaning wipe.
3. Allow the image plate to completely dry before using it.

11.4 Protective cover

Clean the surface of the protective cover if it is obviously dirty.

1. Clean the protective cover with a soft, lint-free cloth that has been moistened with cold tap water.
2. Only fit the protective cover to a unit that has been cleaned and disinfected.

12 Maintenance

12.1 Recommended maintenance schedule



Only specialist, trained staff or personnel trained by DÜRR MEDICAL are permitted to service the unit.



Prior to working on the unit or in case of danger, disconnect it from the mains.

The recommended maintenance intervals are based on using the device for 15 intraoral images per day and 220 working days per year.

Maintenance interval	Maintenance work
Annually	<ul style="list-style-type: none">› Visually inspect the device.› Check the image plates for signs of scratches and change if necessary.› Check the belt drives, transport belts and springs, and replace if necessary.› Remove dust and dirt from accessible parts.› Carry out a system check.
Every 3 years	<ul style="list-style-type: none">› Change the light protection brushes.› Change the roller fixtures.› Change the drive belt.

? Troubleshooting

13 Tips for operators and service technicians



Any repairs exceeding routine maintenance may only be carried out by qualified personnel or our service.



Prior to working on the unit or in case of danger, disconnect it from the mains.

13.1 Poor X-ray image

Error	Possible cause	Remedy
Instead of the X-ray image, the software shows a completely white image or no image	Image plate not fed in straight and inactive side scanned	› Scan the image plate again immediately, protecting it against ambient light and making sure you feed it in correctly in the process.
	Image data on the image plate has been erased, e.g. by ambient light	› Always scan the image data of the image plate as quickly as possible.
	Fault on the unit	› Inform a Service Technician.
	No image data on image plate, image plate not exposed or not sufficiently exposed	› X-ray tubes / check unit settings › Expose the image plate.
	X-ray unit is faulty	› Inform a Service Technician.
	Incorrect cartridge, light protection cover was also pushed into the unit	› Use the correct cartridge for the size of image plate being used.
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 image plate has been exposed to ambient light	› Always scan the image data of the image plate as quickly 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 shadow	The X-ray dose on the image plate 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.

Error	Possible cause	Remedy
Top or bottom bulge in the X-ray image	Image plate fed in off-centre and at an angle	<ul style="list-style-type: none"> › Check the error code on the display. › Insert the image plate centrally and straight.
X-ray image is mirror-inverted	Image plate exposed on the wrong side.	<ul style="list-style-type: none"> › Insert the image plate correctly in the light protection cover. › Position the image plate correctly. › Heed the error message and manually mirror the X-ray image in the imaging software.
Ghosting or double exposure on X-ray image	Image plate exposed twice	<ul style="list-style-type: none"> › Only expose the image plate once.
	Image plate not sufficiently erased	<ul style="list-style-type: none"> › Check the erasure unit is working correctly. › Inform a service technician if the problem persists.
X-ray image mirrored in one corner	Image plate bent during X-ray exposure	<ul style="list-style-type: none"> › Do not bend the image plate.
Shadow on the X-ray image	Image plate removed from the light protection cover before scanning	<ul style="list-style-type: none"> › Do not handle image plates without a light protection cover. › Store the image plate in a light protection cover.
X-ray image cut off, 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 the patient. › Check X-ray tube.
	Faulty edge masking in imaging software	<ul style="list-style-type: none"> › Deactivate edge masking.
Software unable to 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 X-ray dose.
	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 a suitable scanning mode.
	The setting for the threshold value is too high	<ul style="list-style-type: none"> › Reduce the threshold value.

Error	Possible cause	Remedy
X-ray image has strips 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.
	Parts of image plate exposed to light during handling	<ul style="list-style-type: none"> › Do not expose used image plates to bright 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. › Replace scratched image plates.
Light strips in the scanning window	Too much incident ambient light during the scanning process	<ul style="list-style-type: none"> › Darken the room. › Turn the unit so that the light does not fall directly onto the input unit.
Horizontal, grey lines on the X-ray image, extending beyond the left and right image edge	Transport slipping	<ul style="list-style-type: none"> › Clean the transport mechanism, replace the transport belts if necessary.
X-ray image is stretched lengthwise with bright, horizontal stripes	Incorrect light protection cover or image plate used	<ul style="list-style-type: none"> › Only use original accessories.
X-ray image split vertically into two halves	Dirt in the laser slit (e.g. hair, dust)	<ul style="list-style-type: none"> › Clean the laser slit.
X-ray image with small bright spots or clouding	Micro scratches on the image plate	<ul style="list-style-type: none"> › Replace the image plate.
Lamination of the image plate becoming detached at the edge	Incorrect retainer system used	<ul style="list-style-type: none"> › Only use original image plates and film retainer systems.
	Image plate handled incorrectly.	<ul style="list-style-type: none"> › Use the image plate correctly. › Observe the operating instructions for the image plates and film retainer systems.
The X-ray image shows a pre-erasure at one end	After the light protection cover has been torn off and before pushing into the input unit, the image plate is pushed out of the light protection cover	<ul style="list-style-type: none"> › Do not push out the image plate until the torn-off light protection cover has been placed on the input unit.

13.2 Software error

Error	Possible cause	Remedy
"Too much ambient light"	Unit exposed to too much light	<ul style="list-style-type: none"> › Darken the room. › Turn the unit so that no light can fall directly into the entry slot.

Error	Possible cause	Remedy
"Incorrect power supply unit"	Incorrect power supply unit connected	› Use the supplied power supply unit.
"Overtemperature"	Laser or erasure unit too hot	› Switch off the unit and allow it to cool.
"Erasure unit fault"	LED defective	› Inform a Service Technician.
Imaging software does not recognise the unit	Unit not switched on	› Switch on the unit.
	Connecting cable between device 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 fault The IP address of the device is being used by another unit	› Inform a Service Technician. › Check the network settings (IP address and subnet mask) and assign a unique IP address to every device. › Inform a service technician if the problem persists.
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.
Software message "Vet-Exam Pro has detected that the image plate may have been exposed from the wrong side. Please check the orientation and the image quality before making a diagnosis."	The image plate was exposed on the back (inactive) side while the X-ray was being taken.	› When diagnosing the X-ray image, note that the X-ray image is displayed mirror-inverted.
"The selected unit cannot currently be accessed. Please check that the unit is switched on and correctly connected."	Connection to the unit interrupted while the software was still attempting to communicate with the unit.	› Restore the connection to the unit. › Repeat the process.

13.3 Fault on the unit

Error	Possible cause	Remedy
Unit does not switch on	No mains voltage	<ul style="list-style-type: none"> › Check the mains cable and plug connection and replace if necessary. › Check the power supply unit. › If the green status LED does not light up, replace the power supply unit. › Check the mains fuse in the building.
	On / off switch is defective	› Inform a Service Technician.
Unit switches back off after a short time	Mains cable or power supply unit plug not inserted correctly	› Check the mains cable and plug connections.
	Hardware fault	› Inform a Service Technician.
	Mains supply voltage too low	› Check the mains voltage.
Unit not shown in the imaging software	Network cable not installed	› Install the network cable.
	No DHCP server connected	<ul style="list-style-type: none"> › It may take some time for the imaging software to detect the unit. › Update the unit list.
	Network configuration incorrect	› Configure the network correctly.
Unit is on, but there is nothing on the display	Display initialisation fault	› Switch the unit off and back on again.
	Display defective	› Inform a service technician.
Loud operating noises after switching on lasting more than 30 seconds	Radiation deflector defective	› Inform a Service Technician.
Unit not responding	The unit has not yet completed the startup procedure	› After switching on, wait 20 - 30 seconds until the startup procedure has finished.
	Unit is blocked by the firewall	› Enable the ports for the unit in the firewall settings.
Image plate does not fit into the intake slot	Incorrect cartridge used	› Use the correct cartridge for the size of image plate being used.
Light protection cover slips into intake slot together with image plate	Incorrect cartridge used (too large)	› Use the correct cartridge for the size of image plate being used.

Error	Possible cause	Remedy
Network connection has been disconnected	WLAN stick not inserted	<ul style="list-style-type: none"> › Insert the WLAN stick into the unit.
	Distance to WLAN router too great	<ul style="list-style-type: none"> › Set up the unit closer to the WLAN router.
	Walls between WLAN router and unit too thick	<ul style="list-style-type: none"> › Set up the unit closer to the WLAN router.
	Another WLAN network is affecting the operation of the unit's WLAN network	<ul style="list-style-type: none"> › Change the frequency range of the WLAN network.
	Connecting cable between device and computer not correctly connected	<ul style="list-style-type: none"> › Check the connection cable.
	The IP address of the device is being used by another unit	<ul style="list-style-type: none"> › Check the network settings (IP address and subnet mask) and assign a unique IP address to every device. › Inform a service technician if the problem persists.
Unit ejects the image plate without the image data being transmitted to the imaging software. Error message: "Incorrect image plate type inserted"	Incorrect image plate guide used	<ul style="list-style-type: none"> › Use an approved image plate. The image was saved on the unit and can be imported into the imaging software via a network connection. › Connect the unit to the network. › Start the imaging software. › Start the image import via the imaging software (see software manual). › Save the image data. The image data on the unit is erased automatically as soon as the transfer has been successfully completed.

13.4 Error message on display

Error	Possible cause	Remedy
Error code -1008	Internal connection interrupted	› Update the firmware.
Error code 1010	Temperature of unit too high	› Allow the unit to cool down. › Inform a Service Technician.
Error code 1022	Subassembly not initialised	› Fault in software, update the software if required. › Inform a Service 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 entry 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	› Inform a Service Technician. › Check the belt drive. › Check for blockage, remove image plate from unit.
Error code 1153	Unit fault	› Switch the unit off and back on again. › Update the firmware.
Error code 1154	Internal data communication fault	› Switch the unit off and back on again. › Update the firmware.
Error code 1160	Final radiation deflector rotation speed not attained	› Inform a Service Technician. › Update the firmware. › Replace the radiation deflector subassembly if the problem occurs regularly.
Error code -1171	Fault on laser	› Send the unit for repair.
Error code 1172	SOL sensor timeout Fault on the laser, SOL sensor or radiation deflector assembly	› Inform a Service Technician. › Update the firmware.
Error code 10000	Unit exposed to too much light	› Darken the room. › Turn the unit so that no light can fall directly into the entry slot.

Error	Possible cause	Remedy
Error code 10009	Internal communication error warning; unit remains ready for operation	<ul style="list-style-type: none"> › Update the firmware.
Error code 10017	Unit shutting down	<ul style="list-style-type: none"> › Wait until the unit has shut down completely.
Error code -10022	No plate guide or it has been removed	<ul style="list-style-type: none"> › Insert plate guide.
Error code -10026	Image plate inserted on the wrong side	<ul style="list-style-type: none"> › Insert the image plate with the inactive side facing the operator.
Error code -10027	Incorrect plate guide used	<ul style="list-style-type: none"> › Always use the correct plate guide for the image plate size.
Error code -10028	Incorrect or damaged image plate used	<ul style="list-style-type: none"> › Use an approved image plate or check the image plate for damage. The image plate has been erased.
Error code -10030	Incorrect or damaged image plate used	<ul style="list-style-type: none"> › Use an approved image plate or check the image plate for damage. <p data-bbox="788 744 1101 847">The image was saved on the unit and can be imported into the imaging software via a network connection.</p> <ul style="list-style-type: none"> › Connect the unit to the network. › Start the imaging software. › Start the image import via the imaging software (see software manual). › Save the image data. The image data on the unit is erased automatically as soon as the transfer has been successfully completed.
Error code 2	System error during startup of the unit	<ul style="list-style-type: none"> › Switch the unit off and back on again. › Update the firmware.
Error code -78	Storage medium (e. g. memory card or memory stick) is full	<ul style="list-style-type: none"> › Transfer the image data to the computer. › Insert empty storage medium.
	Fault during memory cleanup	<ul style="list-style-type: none"> › Press and hold the reset button while switching on the unit. › Update the firmware. › Press and hold the reset button while switching on the unit.

Error	Possible cause	Remedy
Firmware not running	A firmware update has been carried out.	› Switch the unit off and back on again.
	Internal communication fault	› Switch the unit off and back 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.

 Appendix

14 Scanning times

The scanning time corresponds to the 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 computer system used and its work load. Times stated are approximate.

Theoretical resolution (LP/mm)	40	25	20	10
Pixel size (µm)	12.5	20	25	50
Size 0 (2 x 3)	26 s	16 s	13 s	6 s
Size 1 (2 x 4)	32 s	20 s	16 s	8 s
Size 2 (3 x 4)	32 s	20 s	16 s	8 s
Size 3 (2.7 x 5.4)	40 s	25 s	20 s	10 s
Size 4 (5.7 x 7.6)	53 s	33 s	27 s	14 s
Size 4C (4.8 x 5.4)	40 s	25 s	20 s	10 s
Size 5 (5.7 x 9.2)	70 s	42 s	35 s	16 s
Size R3 (2.2 x 5.4)	40 s	25 s	20 s	10 s

15 File sizes (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.

Theoretical resolution (LP/mm)	40	25	20	10
Pixel size (µm)	12.5	20	25	50
Size 0 (2 x 3)	9.86 MB	3.85 MB	2.46 MB	0.62 MB
Size 1 (2 x 4)	12.29 MB	4.80 MB	3.07 MB	0.77 MB
Size 2 (3 x 4)	16.27 MB	6.36 MB	4.07 MB	1.02 MB
Size 3 (2.7 x 5.4)	19.01 MB	7.43 MB	4.75 MB	1.19 MB
Size 4 (5.7 x 7.6)	55.45 MB	21.66 MB	13.86 MB	3.47 MB
Size 4C (4.8 x 5.4)	31.64 MB	12.36 MB	7.91 MB	1.98 MB
Size 5 (5.7 x 9.2)	64.00 MB	25.00 MB	16.00 MB	4.00 MB
Size R3 (2.2 x 5.4)	15.00 MB	6.00 MB	4.00 MB	1.00 MB

16 Addresses

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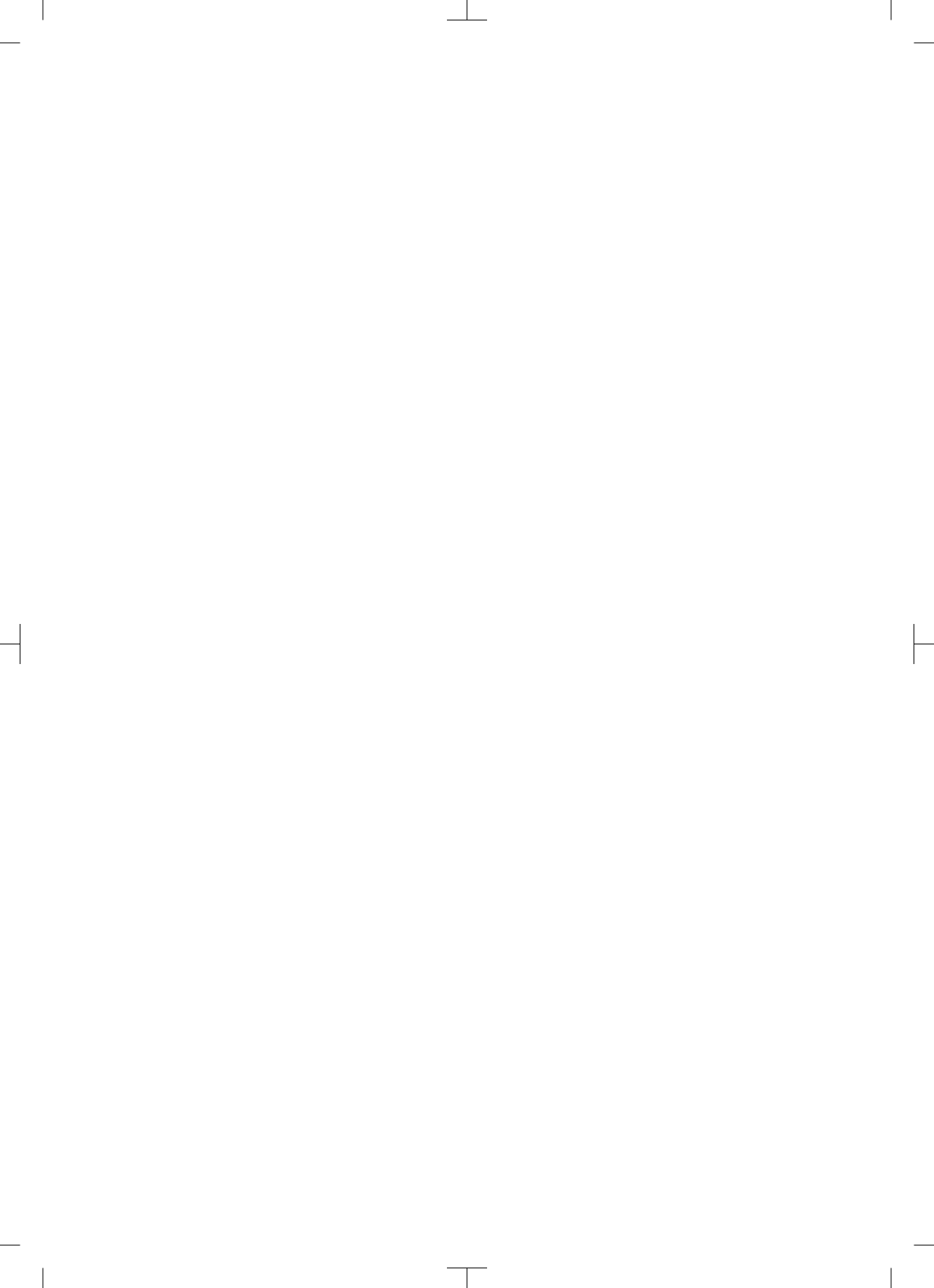
Europe, Russia, CIS countries, United Arab Emirates, North Africa

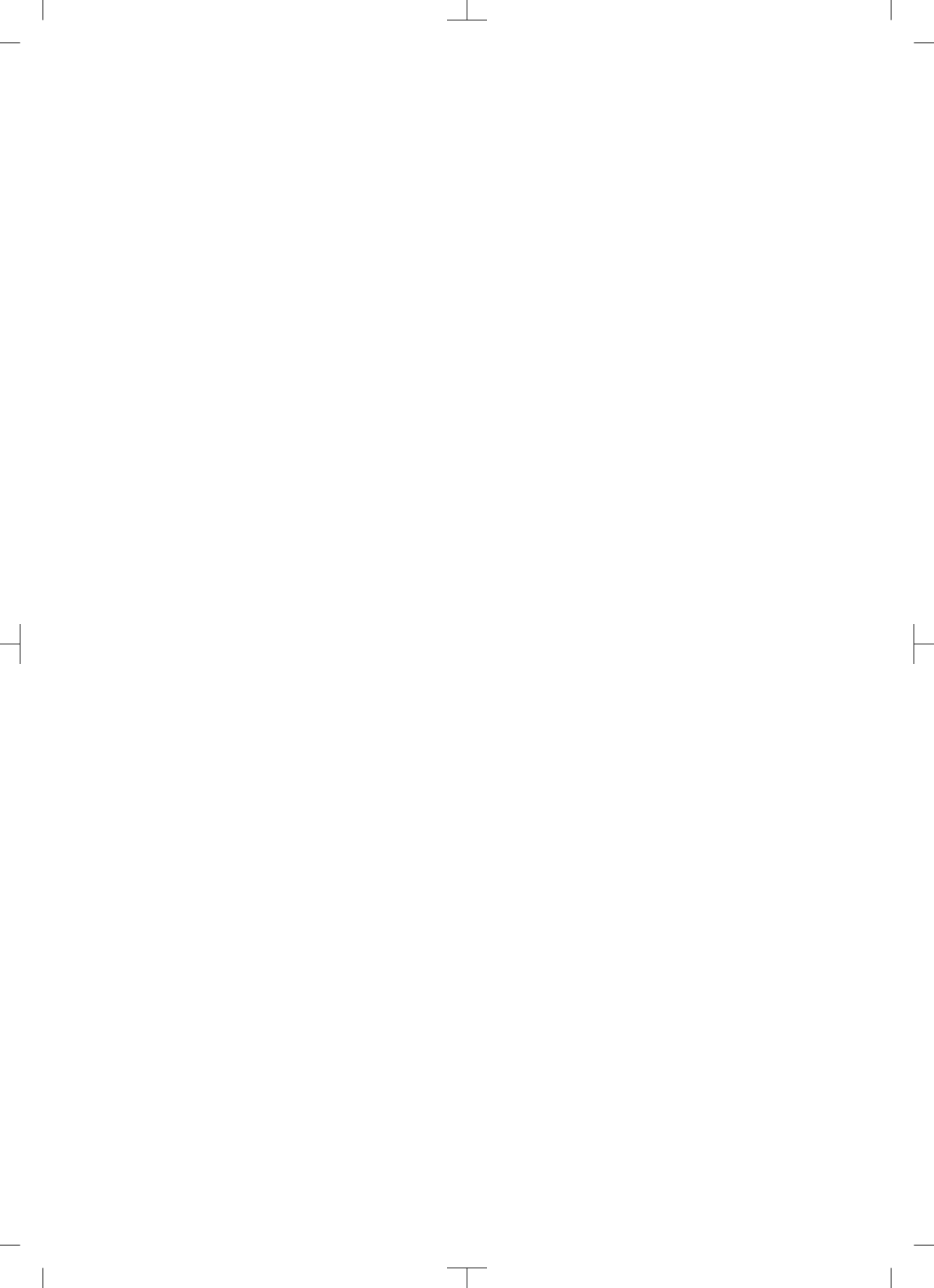
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