New as of: 09.2011



Sirona Dental CAD/CAM System CEREC AC

Operating Instructions for the Acquisition Unit



Table of contents

1	Dear	Customer,	5
2	Gene	eral information	6
	2.1	Structure of the document	6
		2.1.1 Identification of danger levels	6
		2.1.2 Formats and symbols used	7
	2.2	Warranty	7
	2.3	Battery warranty	7
	2.4	Legend	7
3	Gene	eral description	8
	3.1	Certification	8
	3.2	Intended use	9
	3.3	Further use of Sirona Dental CAD/CAM System	9
4	Safe	ty	10
	4.1	Basic safety information	10
		4.1.1 Prerequisites	10
		4.1.2 Connecting the unit	10
		4.1.3 General safety information	10
		4.1.4 Maintenance and repair	11
		4.1.5 Changes to the product	11
		4.1.6 Accessories	11
		4.1.6.1Included accessories	12
	4.2	Safety labels	12
	4.3	Electrostatic charge	15
		4.3.1 ESD warning labels	15
		4.3.2 ESD protective measures	15
		4.3.3 About the physics of electrostatic charges	16
	4.4	Wireless phone interference with equipment	17
	4.5	Disturbance of data transmission	17
	4.6	Integration in a network or connection to a modem	18
5	Tech	nical data	19

6	Instal	lation and startup	21
	6.1	Transport and unpacking	21
	6.2	Disposal of packaging materials	21
	6.3	Scope of supply	21
	6.4	Initial startup	22
		6.4.2 Operating state LED	25
		6.4.4 Dive connections	25
		6.4.4 Plug connections	26 27
		6.4.6 Using a trackball	28
		6.4.7 Changing from right-handed to left-handed operation	28
		6.4.8 Switching the units on	28
		6.4.9 Switching the units off	30
	6.5	Battery-backed operation (optional)	30
7	Opera	ation	34
	7.1	Setting the acquisition system to 3D camera	34
	7.2	General	34
	7.3	Preparations 7.3.1 Surface	35 35
		7.3.2 CEREC Optispray	36
		7.3.3 Direction of application	36
		7.3.4 Marking the cervical step	36
	7.4	Camera support	37
	7.5	Preparing the optical impression	37
	7.6	Acquisition control with software version 3.8	38
	7.7	Acquisition control with CEREC SW	40
	7.8	Acquiring a 3-unit bridge	41
8	Maint	tenance	42
	8.1	Care and cleaning agents	42
	8.2	Care and cleaning of the monitor screen	43
	8.3	Surfaces (without monitor)	43
	8.4	Cleaning and setting the trackball cover ring	44

	8.5	Calibrating the Bluecam	44
	8.6	Care of the Bluecam	47
		8.6.1 Prismatic tube without sapphire glass	47
		8.6.2 Prismatic tube with sapphire glass	49
		8.6.3 Disinfecting the prismatic tube with sapphire glass	51
	8.7	Replacing the main fuse	52
	8.8	Replacing fuse F3	53
	8.9	Charge battery (optional)	53
	8.10	Replace battery (optional)	54
9	Dispo	sal	55
	9.1	Disposal of the storage battery pack	56
10	Apper	ndix	57
	10.1	DVD playback	57
	10.2	Making backup copies	57
		10.2.1 Creating (burning) a CD	57
	10.3	Seal on PC slide-in module	58
	10.4	PC diagnostics tool	58
		10.4.1 Starting the diagnostic tool	58
		10.4.2 Test procedure	60
		10.4.2.1Customer Diagnostics	60
		10.4.2.2Technician Diagnostics	61
		10.4.2.3Sirona Windows Diagnostics	63
		10.4.3 Rebooting the PC	64
	Index		65

Dear Customer,

Thank you for purchasing your CEREC AC® from Sirona.

This device enables you to produce dental restorations, e.g. from ceramic material with a natural appearance (**CE**ramic **REC**onstruction).

Improper use and handling can create hazards and cause damage. Please read and follow these operating instructions carefully and always keep them within easy reach.

To prevent personal injury or material damage, it is important to observe all safety information.

To safeguard your warranty claims, please complete the attached **Installation Report / Warranty Passport** when the system is handed over and send it to the indicated fax number.

Your CEREC AC Team

General information

Please read this document completely and follow the instructions exactly. You should always keep it within reach.

Original language of the present document: German.

2.1 Structure of the document

2.1.1 Identification of danger levels

To prevent personal injury and material damage, please observe the warning and safety information provided in this document. Such information is highlighted as follows:

A DANGER

An imminent danger that could result in serious bodily injury or death.

MARNING

A possibly dangerous situation that could result in serious bodily injury or death.

⚠ CAUTION

A possibly dangerous situation that could result in slight bodily injury.

NOTICE

A possibly harmful situation which could lead to damage of the product or an object in its environment.

IMPORTANT

Application instructions and other important information.

Tip: Information on making work easier.

2.1.2 Formats and symbols used

The symbols and character formats used in this manual have the following meaning:

√ 1. 2.	Prerequisite First action step Second action step	Requests you to do something.
or	Alternative actionResult	
	e "Formats and symbols ed [→ 7]"	Identifies a reference to another text passage and specifies its page number.
•	List	Identifies a list.
"Co	ommand/menu item"	Identifies commands, menu items or quotations.

2.2 Warranty

To safeguard your warranty claims, please complete the attached Installation Report / Warranty Passport when the unit is handed over. Then fax it to the specified fax no.

2.3 Battery warranty

The battery is subject to wear and the warranty period of 6 months therefore deviates from the period specified for the entire device.

2.4 Legend

Year of manufacture

Safety labels

Identifies labels/imprints on the unit (see Safety labels).

Product disposal symbol (see "Disposal").

Storage battery pack disposal symbol (see "Disposal of the storage battery pack" [\rightarrow 56])

Storage battery pack recycling symbol (see "Disposal of the storage battery pack" [\rightarrow 56])









3 General description

3.1 Certification

CE mark

This product bears the CE mark in accordance with the provisions of Council Directive 93/42/EEC of June 14, 1993 concerning medical devices.

NOTICE

CE mark for connected products

Further products which are connected to this unit must also bear the CE mark.

Compliance

Any person who assembles or modifies a medical electrical system complying with the standard EN 60601-1-1:2001 based on IEC 60601-1-1:2000 (safety requirements for medical electrical equipment) / UL 60601-1 Part 1: first edition 2003) by combining it with other equipment is responsible for ensuring that the requirements of this regulation are met to their full extent for the safety of the patients, the operators and the environment.



3.2 Intended use

The Sirona Dental CAD/CAM System is intended for use in partially or fully edentulous mandibles and maxillae in support of single or multiple-unit cement retained restorations. The system consists of three major parts: TiBase, inCoris mesostructure, and CAD/CAM software. Specifically, the inCoris mesostructure and TiBase components make up a two-piece abutment which is used in conjunction with endosseous dental implants to restore the function and aesthetics in the oral cavity. The inCoris mesostructure may also be used in conjunction with the Camlog Titanium base CAD/CAM (types K2244.xxxx) (K083496) in the Camlog Implant System. The CAD/CAM software is intended to design and fabricate the inCoris mesostructure. The inCoris mesostructure and TiBase two-piece abutment is compatible with the following implants systems:

- Nobel Biocare Replace (K020646)
- Nobel Biocare Branemark (K022562)
- Friadent Xive (K013867)
- Biomet 3i Osseotite (K980549)
- Astra Tech Osseospeed (K091239)
- Zimmer Tapered Screw-Vent (K061410)
- Straumann SynOcta (K061176)

For the USA only

CAUTION: According to US Federal Law, this product may be sold only to or by instruction of physicians, dentists, or licensed professionals.

3.3 Further use of Sirona Dental CAD/CAM System

The Sirona Dental CAD/CAM System is also an optical impression system for computer assisted design and manufacturing (CAD/CAM) according to 21 CFR 872.3661. The system records the topographical characteristics of teeth, dental impressions, or stone models for use in the computer-assisted design and manufacturing of dental restorative prosthetic devices. Such devices are exempt from the premarket notification procedures.

4 Safety

4.1 Basic safety information

4.1.1 Prerequisites

NOTICE

Important information on the building installation

The building installation must be performed by a qualified expert in compliance with the national regulations. DIN VDE 0100-710 applies in Germany.

NOTICE

Restrictions regarding installation site

The system is not intended for operation in areas subject to explosion hazards.

NOTICE

Do not damage the unit!

The unit can be damaged if opened improperly.

It is expressly prohibited to open the unit with tools!

4.1.2 Connecting the unit

Perform connection by following the directions given in the present operating instructions.

4.1.3 General safety information

CAUTION

Do not damage the monitor

DO NOT touch the LCD screen with sharp or pointed objects.

If the LCD monitor is damaged (e.g. the glass screen is broken), prevent any leaking liquid from contacting your skin, mucous membranes (eyes, mouth) or foodstuffs and be careful not to inhale any escaping vapors.

Rinse any parts of your body or items of clothing already contaminated by the liquid with ample amounts of water and soap.

CAUTION

Note on the prevention, recognition and elimination of unintended electromagnetic effects:

The CEREC AC acquisition unit is a Class B unit (classified according to CISPR 11, EN 60601-1-2: 2006 based on IEC 60601-1-2:2001 and A1:2004).

This system may be operated in a residential area provided that it is used under the responsibility of a medical specialist.

NOTICE

Install only approved software

To prevent interference with the runtime reliability of the program, only approved software may be installed.

NOTICE

Ventilation openings must not be obstructed.

4.1.4 Maintenance and repair

As manufacturers of dental instruments and laboratory equipment, we can assume responsibility for the safety properties of the unit only if the following points are observed:

- The Maintenance and repair of this unit may be performed only by Sirona or by agencies authorized by Sirona.
- Components which have failed and influence the safety of the unit must be replaced with original (OEM) spare parts.

Please request a certificate whenever you have such work performed. It should include:

- The type and scope of work.
- Any changes made in the rated parameters or working range.
- Date, name of company and signature.

4.1.5 Changes to the product

Modifications to this unit which may affect the safety of the operator, patients or third parties are prohibited by law!

4.1.6 Accessories

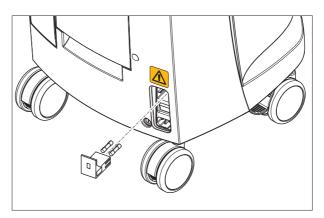
In order to ensure product safety, this product may be operated only with original Sirona accessories or third-party accessories expressly approved by Sirona. The user assumes the risk of using non-approved accessories.

4.1.6.1 Included accessories

• Camera support (6 pcs), Order No.: 59 45 360

4.2 Safety labels

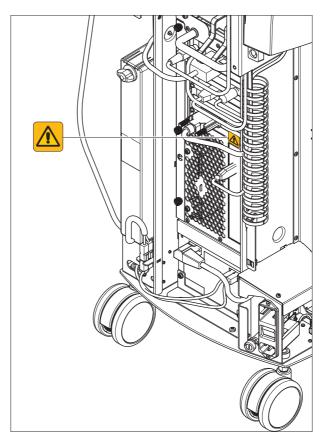
Fuses



NOTICE

Use ONLY fuses of the same type!

Plug connections of external interfaces



CAUTION

Additional devices connected to external interfaces must be tested according to the relevant standards, e.g.:

EN 60601-1:1990 + A1:1993 + A2:1995 based on IEC 60601-1, EN 60950-1:2001 based on IEC 60950-1:2001, EN61010-1:2001 based on IEC 61010-1:2001, UL 60601-1 Part1: first edition 2003, UL 60950 third edition 2000, UL 3101-1 Part 1 first edition 1993).

They must be installed outside of the patient area (a radius of 1.5m surrounding the patient).

⚠ CAUTION

Low voltages are applied to the sockets for connecting external interfaces.

Do not touch the pins of the connectors.

NOTICE

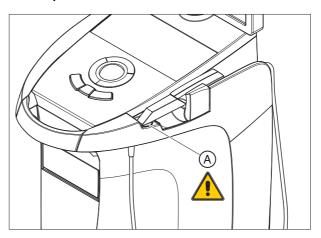
The externally connected cables must not be subjected to pulling stress.



CAUTION

In order to maintain electrical safety, the rear doors of the acquisition unit must be kept closed while it is in operation. The acquisition unit must not be operated inside of the patient area (within a radius of 1.5 m surrounding the patient) with the doors open.

Heater plate





Risk of burns due to hot surface!

➤ Never touch the heater plate (A)!

Electrostatic charge

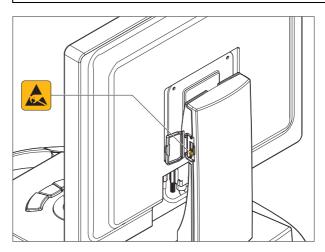
4.3.1 **ESD** warning labels

ESD warning label



CAUTION

Connector pins or sockets bearing ESD warning labels must not be touched or interconnected without ESD protective measures.



4.3.2 ESD protective measures

ESD protective measures include:

ESD stands for ElectroStatic Discharge.

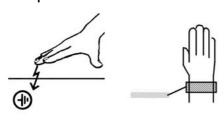
- Procedures for preventing electrostatic charge build-up (e.g. air conditioning, air moistening, conductive floor coverings and nonsynthetic clothing)
- Discharging the electrostatic charges of your own body on the frame of the UNIT, the protective ground wire or large metallic objects
- Connecting yourself to ground using a wrist band.

We therefore recommend that all persons working with this system be instructed on the significance of this warning label. Furthermore, they also should receive training in the physics of electrostatic discharges which can occur in the practice and the destruction of electronic components which may result if such components are touched by electrostatically charged USERS.

The content of this training is explained in the Chapter "About the physics of electrostatic charges" [→ 16].

ESD

ESD protective measures



Training

4.3.3 About the physics of electrostatic charges

What is an electrostatic charge?

An electrostatic charge is a voltage field on and in an object (e.g. a human body) which is protected against conductance to ground potential by a nonconductive layer (e.g. a shoe sole).

Formation of an electrostatic charge



Electrostatic charges generally build up whenever two bodies are rubbed against each other, e.g. when walking (shoe soles against the floor) or driving a vehicle (tires against the street pavement).

Amount of charge

The amount of charge depends on several factors:

Thus the charge is higher in an environment with low air humidity than in one with high air humidity; it is also higher with synthetic materials than with natural materials (clothing, floor coverings).

NOTICE

Electrostatic discharge must be preceded by electrostatic charging.

The following rule of thumb can be applied to assess the transient voltages resulting from an electrostatic discharge.

An electrostatic discharge is:

- perceptible at 3,000 V or higher
- audible at 5,000 V or higher (cracking, crackling)
- visible at 10,000 V or higher (arc-over)

The transient currents resulting from these discharges have a magnitude of 10 amperes. They are not hazardous for humans because they last for only several nanoseconds.

Integrated circuits (logical circuits and microprocessors) are used to implement a wide variety of functions in dental/X-ray/CAD/CAM systems.

The circuits must be miniaturized to a very high degree in order to include as many functions as possible on these chips. This leads to structure thicknesses as low as a few ten thousandths of a millimeter.

It is obvious that integrated circuits which are connected to plugs leading outside of the unit via cables are sensitive to electrostatic discharge.

Even voltages which are imperceptible to the user can cause breakdown of the structures, thus leading to a discharge current which melts the chip in the affected areas. Damage to individual integrated circuits may cause malfunction or failure of the system.

Background



To prevent this from happening, the ESD warning label next to the plug warns of this hazard. ESD stands for **E**lectro**S**tatic **D**ischarge.

4.4 Wireless phone interference with equipment

The use of mobile wireless phones in practice or hospital environments must be prohibited to ensure safe operation of the unit.

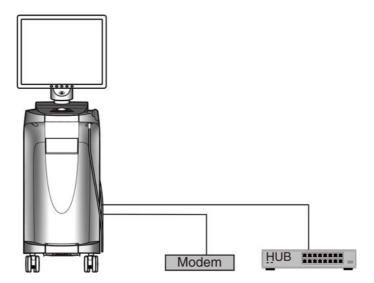
4.5 Disturbance of data transmission

Note on wireless communication

Data communication between the acquisition unit and the CEREC MC XL milling unit should preferably be implemented via the wireless H&W interface or WLAN. As for all wireless connections (e.g. mobile telephones) heavy utilization of the available radio channels or shielding caused by building installations (e.g. metal-shielded X-ray enclosures) may impair the quality of the connection. This may become noticeable through a reduction in range and/or a slower data transmission rate. In extreme cases, it will be impossible to establish a wireless connection at all.

Sirona has selected the best possible configuration for data communication via the wireless H&W interface or WLAN, which generally provides perfect functioning of this connection. However, in individual cases unrestricted wireless data communication may be impossible for the reasons mentioned above and/or due to local circumstances. In such cases, a cable LAN connection should be selected to ensure uninterrupted operation. If the only LAN interface on the rear of the CEREC AC is occupied by another plug, remove this H&W wireless interface connection and instead connect the LAN cable with the CEREC MC XL milling unit.

Integration in a network or connection to a modem



NOTICE

Observe the following installation regulations

The following installation regulations apply to integration of the acquisition unit in a network or connection of the acquisition unit to a modem:

Network

The acquisition unit may only be operated in a network if it is connected to a HUB/switch. The HUB/switch must:

- be located in the room where the acquisition unit is operated, permanently installed.
- be grounded via an additional ground wire.

Cross-section of the protective laid protected 2.5 mm^{2} ground wire laid unprotected 4 mm^2

Modem

At least one of the following specifications must be fulfilled in order to operate the acquisition unit on a modem:

- If a modem is connected, the acquisition unit may only be operated outside of the patient area (radius of 1.5 m surrounding the patient).
- An RS232 isolator compliant with EN 60 601-1-1 with a dielectric strength of at least 1.5 kV must be installed at the modem end in the RS232 connecting cable between the acquisition unit and the modem.

5 Technical data

Type designation CEREC AC acquisition unit

Rated line voltage for Europe 230 VAC / 50Hz

Rated current for Europe 1.5 A

Rated line voltage for USA 115VAC / 60Hz

Rated current for USA 2.7 A

Rated line voltage for Japan 100VAC / 50Hz and 60Hz

Rated current for Japan 3.0 A

Type of protection against electric shock

Type of protection against electric shock

(Bluecam)

Class I device

Type BF applied part



Degree of protection against ingress of

water

Ordinary device (without protection against ingress

of water)

Operating mode Continuous operation

Battery-backed operation

for 6 minutes

Storage battery pack for battery-backed

operation

24 VDC / 2.5 Ah Sirona Order Number: 61 87 582 D3492

Observe accompanying

documents



Label: CAUTION

Transport and storage conditions

Temperature -25 °C to 60 °C

(-13° F to 140° F)

Relative humidity 10% to 75%

Air pressure 700 hPa to 1060 hPa

Operating conditions

Ambient temperature 10°C to 35°C

(50° F to 95° F)

Relative humidity 30% to 85%

No condensation

Air pressure 700 hPa to 1060 hPa

Dimensions and weight

Dimensions (WxHxD)

in mm 350 x 1210 x 470mm in inches 13¾ x 47 % x 18½"

Weight

• without monitor and battery pack approx.

38 kg (83.8 lbs)

• Monitor approx.

4 kg (8.8 lbs)

2 kg (4.4 lbs)

Battery pack approx.

Installation and startup

6.1 Transport and unpacking

All Sirona products are carefully checked prior to shipment. Please perform an incoming inspection immediately after delivery.

- 1. Check the delivery note to ensure that the consignment is complete.
- 2. Check whether the product shows any visible signs of damage.

NOTICE

Damage during transport

If the product was damaged during transport, please contact your carrying agent.

If return shipment is required, please use the original packaging for shipment.

To prevent damage to the LCD monitor, it must be removed during transport of the unit.

6.2 Disposal of packaging materials

The packaging must be disposed of in compliance with the relevant national regulations. Please observe the regulations applicable in your country.

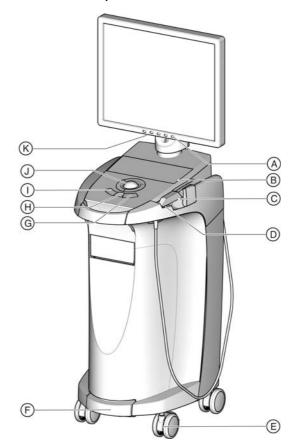
6.3 Scope of supply

The detailed scope of supply is specified in the document "Scope of supply".

6.4 Initial startup

6.4.1 Controls and functional elements

Overview of the front panel

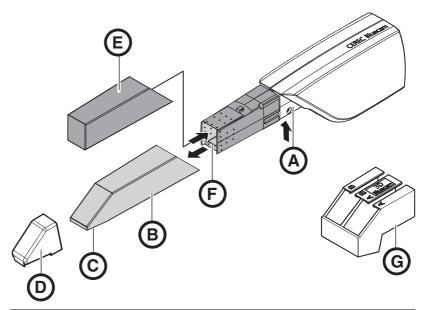


Α	Monitor ON/OFF switch	Н	Center trackball button
В	Membrane keyboard	I	Left trackball button
С	CEREC camera	J	Trackball
D	Heater plate for prismatic tube	K	Keys for monitor settings
Е	Locking brake		
F	Foot control/Foot pedal		
G	Right trackball button		



Α	Operating state LED
В	ON button

Components of the Bluecam



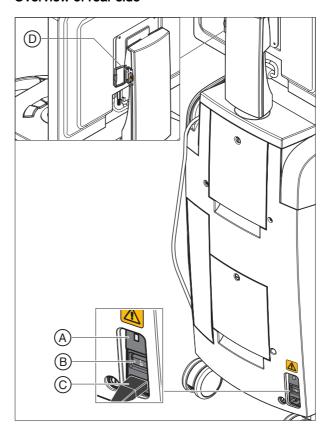
Α	Press detent to release	Е	Protective cap
В	Prismatic tube	F	Front lens
С	Prism	G	Bluecam calibration set
D	Camera support (6 pcs), Order No.: 59 45 360		

NOTICE

CEREC Bluecam is calibrated

The CEREC Bluecam is calibrated ex works (see "Calibrating the Bluecam").

Overview of rear side



A Fuses C Power of	connection
B Main switch D USB po	rt

NOTICE

Waiting time after shutting down

If you have shut down the device using the main switch, wait at least 10 seconds before restarting.

If you do not observe the waiting time, the PC power supply cannot be switched on.

- ✓ You have not waited the specified time. The PC power supply cannot be switched on.
- Switch the unit off.
- ➤ Wait a further 10 seconds.
- > Switch the unit on again.

6.4.2 Operating state LED



Α	Operating state LED
В	ON button

LED not lit: Acquisition unit is switched off at main switch.

LED lights up yellow: Acquisition unit is switched on at main switch,

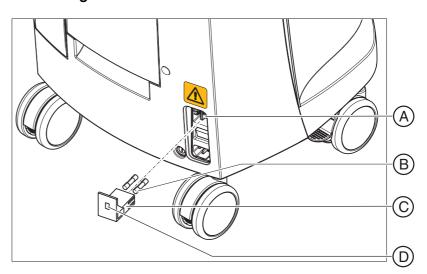
Windows is shut down and the PC is switched

off.

LED lights up green: Acquisition unit is switched on at ON button and

ready for operation.

6.4.3 Line voltage



Α	Voltage selection insert	С	Fuse module
В	Main fuses	С	Window

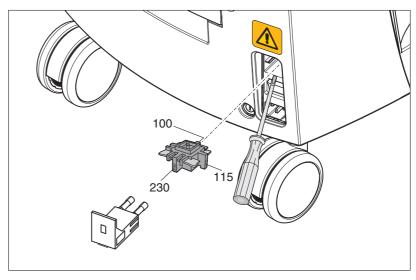
➤ Check the set line voltage. The value of the line voltage must be visible in the window with the module inserted (230V in Europe, 100V in Japan and 115V in the USA). If the set voltage does not agree with the actual line voltage, you must change this setting:

MARNING

Risk of electric shock

Electric shock due to inserted power plug.

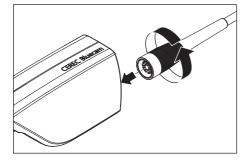
- ➤ Disconnect the power plug before selecting the line voltage.
- ✓ The line voltage can be switched from 230V to 100V or 115V and vice versa.



- To do this, unlatch the fuse module with a screwdriver and pull the module out.
- 2. Then pull out the voltage selection insert and turn it so that the correct line voltage value is visible after it is reinserted.
- 3. Reinsert the fuse module.

6.4.4 Plug connections

- 1. Connect the unit to the line voltage with the power cord.
- 2. Carefully plug the connector of the camera cable into the Bluecam, watching out for the guide nose and screw it down tight clockwise.
- 3. Check the plug connections of the power supply and the Bluecam. The camera cable must be connected to the Bluecam and securely screwed on. The Bluecam always remains connected.



NOTICE

The Bluecam is a high-precision optoelectronic scanning instrument for non-contact impression taking which requires careful handling. Incorrect handling (impacts, dropping) leads to failure of the Bluecam.

- ➤ Always deposit the sensitive Bluecam in its holder!
- **4.** If the Bluecam must be replaced, carefully plug in the connector, watching out for the guide nose, and screw it down tight.



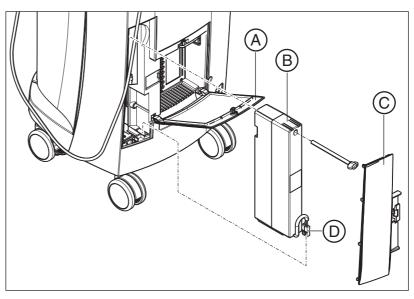
Notes on network installation

The network card is installed.

The cable with the RJ-45 connectors establishes the network connection. The network software and the driver for the network card must be installed by your network administrator.

The acquisition unit is equipped with a WLAN card that is preconfigured for operation with an MC XL milling unit. The integration of the acquisition unit into the practice network with the aid of the WLAN card is not supported by Sirona.

6.4.5 Insert battery (optional)



Α	Bottom door	С	Battery cover
В	Storage battery	D	Battery connector

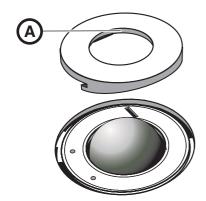
1. Open the lower door on the back panel.

NOTICE

Open with coin.

Use a coin to open the latch. Turn counter-clockwise.

- 2. Remove the battery cover.
- 3. Insert the battery into the battery compartment with the mounting screw and screw it down.
- **4.** Plug in the battery plug.
- 5. Attach the battery cover.
- 6. Put the door back in position and lock it.



6.4.6 Using a trackball

- 1. Turn the collar (A) counterclockwise and remove it.
- 2. Insert the ball supplied.
- 3. Lay the collar (A) into position and turn it clockwise until it snaps into place.

6.4.7 Changing from right-handed to left-handed operation

In the factory default setting, the left button trackball button corresponds to a foot control entry. If you would like to change this assignment to the right trackball button, your CEREC service technician can do this for you.

6.4.8 Switching the units on

NOTICE

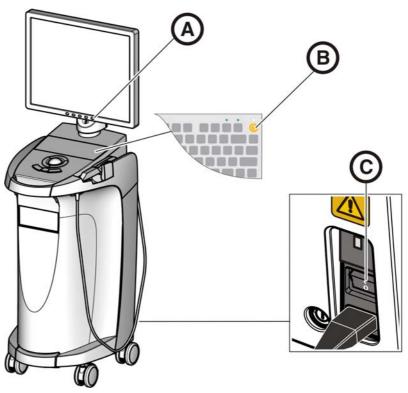
Do not put the unit into operation at low temperatures!

If you move the unit to the operating site from a cold environment, condensation may form and result in a short circuit.

- ✓ Install the unit at room temperature.
- > Wait until the unit has reached room temperature and is absolutely dry (for at least one hour)
- ♦ The unit is dry and can be put into operation.

If the acquisition unit is switched on at the main switch, it can be activated with the **ON button**. The monitor is switched on and off automatically (if it was switched on before the acquisition unit was switched off).

You can switch the monitor on and off with the monitor ON/OFF switch.



Α	Monitor ON/OFF switch	С	Main switch
В	ON button		

- 1. Switch the acquisition unit on at the main switch.
- 2. Switch the acquisition unit on at the ON switch.

NOTICE

Possible data loss and PC malfunction:

Switching the exposure unit off at the ON button during operation may cause data loss and PC malfunctions.

- > Always switch the unit off as described in the chapter "Switching the units off".
- 3. Switch the monitor on.
- 4. Switch the milling unit on (see the **Operating Instructions for the Milling Unit**).
- **5.** After loading the operating system, start the CEREC application by double-clicking on the CEREC button.
- **6.** For descriptions of further software actions, an online help function can be invoked with "F1" or via the **Help...** menu option.

NOTICE

Internet Explorer V 5.0 or higher must be installed on your system in order to use the online help function.

6.4.9 Switching the units off

NOTICE

Proper shutdown procedure

The operating system must always be shut down properly to prevent data loss.

- 1. Exit all programs.
- 2. Power down the operating system.
 - The PC automatically switches off. The operating state LED lights up yellow.

NOTICE

Do not switch off while battery (optional) is being charged

The battery will be charged only if the power cord is plugged in and the main switch at the back of the unit is switched on (see also Charging the battery (optional) [\rightarrow 53]).

- 3. Switch the acquisition unit off at the main switch.
 - ♦ The operating state LED goes out.

NOTICE: Now you can also switch the milling unit off if necessary.

6.5 Battery-backed operation (optional)

Introduction

The acquisition unit PC has a battery-backed power supply. It is thus possible to operate the acquisition unit for a short time with no line voltage connected.

! CAUTION

No treatment without connected line voltage

Patients must not be treated (generation of intra-oral impressions) unless the unit is connected to the practice's electricity-supply system.

The following parameters are constantly checked by the installed monitoring software in order to monitor the battery back-up function:

- Line voltage present
- Charge set of storage battery pack
- Fan function
- Temperature of power supply

When the unit is running in the battery-powered mode, this is indicated by a message displayed at the bottom of the screen. It is accompanied by a rhythmic beep.

This beep changes to a continuous signal 30 seconds before the system shuts down due to insufficient battery power. A corresponding display then appears in the center of the screen. The user thus has time to finish his last actions on the PC.

As soon as 30 seconds have elapsed, the operating system is shut down.

NOTICE

The operating time of the storage batteries is not constant. It depends on the charge state, the load and the age of the storage batteries.

Monitoring program

The monitoring program is represented in the task bar by the following symbol:



The color of the symbol has the following meaning:

- Green = line voltage present, fan functioning, temperature OK.
- Yellow = Unit running in battery-powered mode, all other operating parameters OK.
- Red = error

Following a double-click on the symbol, the following monitoring window opens:

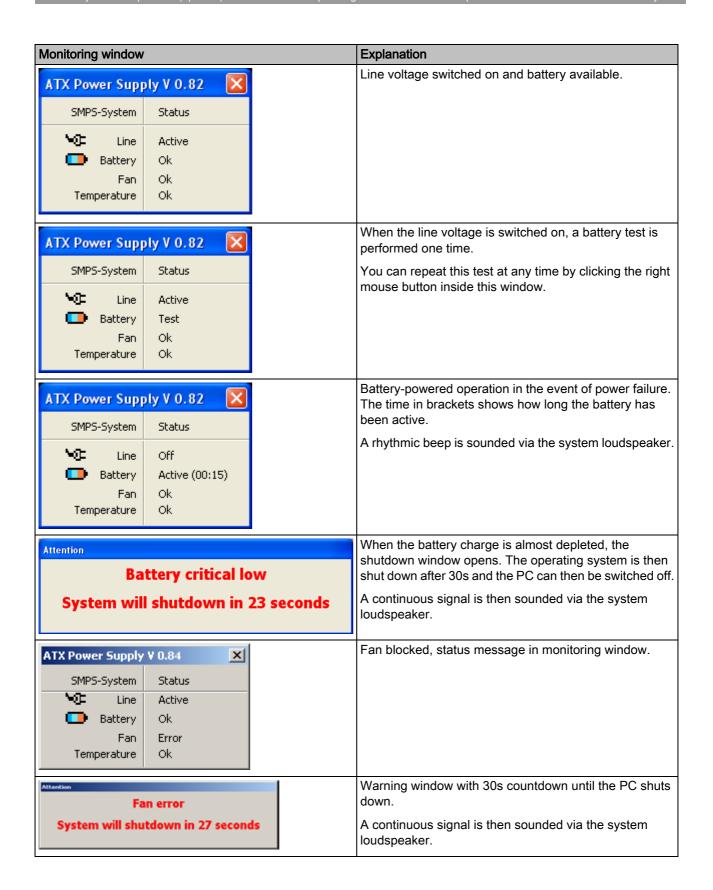


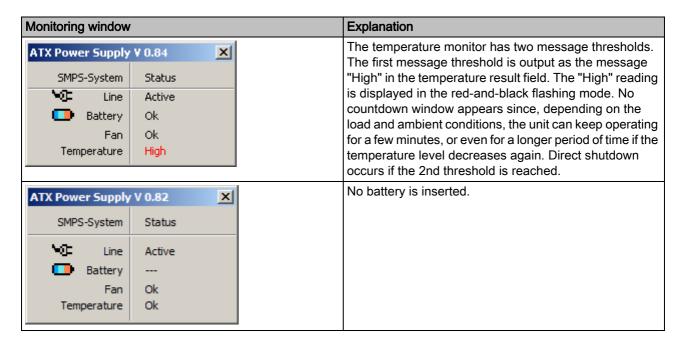
The following information is displayed in the monitoring window:











Restarting delay

Once the power supply has been switched off, it can only be switched back on again after 10 seconds have elapsed.

7 Operation

7.1 Setting the acquisition system to 3D camera

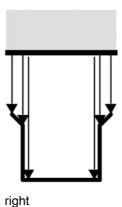
- √ To use the 3D camera, the acquisition system must be set to "3D camera".
- ✓ You can only execute the following settings if the "Settings" menu is changed to "Master Mode".
- 1. In the menu line, select the command "Settings" | "Configuration" | "Acquisition system".
 - ♥ The "Configuration" window appears.
- 2. Select "3D camera" and confirm with "OK".
- The 3D camera will remain selected until it is set back to "Scanner" or "inEos".

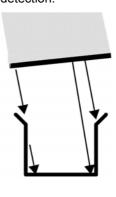
7.2 General

Aligning the Bluecam

The direction of acquisition must coincide with the insertion axis of the preparation prepared by the dentist.

If the Bluecam is held at an oblique angle to the prepared insertion axis, the wall closer to the lens will be registered with an undercut; the wall further away from the lens will be fully displayed, thus causing the occlusal margin angle to be presented unfavorably there and obstructing the automatic margin detection.



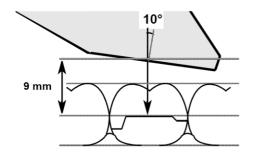


Depth of focus and focusing

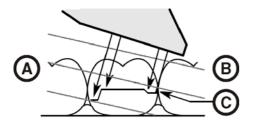
The telecentric optics, which cause objects to be displayed with a constant size regardless of how far away from the prism they are, have a depth of focus which is sufficient to capture deep preparations.

wrong

The image definition is determined by the distance between the Bluecam and the preparation.



Check the monitor to determine whether the cervical steps and the occlusal margins are simultaneously displayed with sufficient definition. The center of focus should be aimed at the vertical center of the preparation, e.g. at the occlusal base.



Angle of incidence/steepness

If the angle of incidence of the Bluecam is too large, the mesial cervical step moves outside of the focal depth range of the Bluecam as shown in the illustration. Distally, the cervical step is concealed by the distal neighbors with the excessively steep angle shown here. This leads to an inadequate "optical impression".

7.3 Preparations

7.3.1 Surface

The surface of the preparation is captured with an especially fast and precisely functioning optical measuring technique. This measuring technique requires a non-glare, diffusely reflecting surface. The surface must be covered with a thin, opaque coating in order to obtain even light dispersion, exclude blinding effects and obtain clear surface definition. This is the precondition for a high-contrast image and good optical acquisition.

NOTICE

Thin and even coating

Please try to deposit as thin and even a coating as possible on all surfaces, especially in the edge and marginal regions.

NOTICE

The extraoral 3D image acquisition of a model may be adversely affected by bright light.

Set the model up so that it is not located directly in the beam path of an extreme light source and not exposed to direct sunlight.

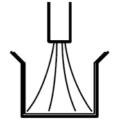


7.3.2 CEREC Optispray

- 1. Clean and dry the surface to be coated.
- 2. Place the spray head with cannula/nozzle onto the spray can.
- 3. Check that the cannula/nozzle is seated correctly before each use by pulling it gently.
- 4. Shake the container before use.
- 5. Cover the respective area with the spray in a targeted manner. The cannula/nozzle can be rotated as required to enable optimal coating from all directions. The spray nozzle should be held approx. 10-15 mm away from the object.
- **6.** Take an optical impression with the Bluecam as usual.
- 7. After taking the 3D optical impression, clean the surface with an air/water spray.
- 8. Replace the cannula/nozzle after each use.

7.3.3 Direction of application

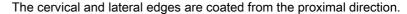




wrong

It is essential that the material is applied perfectly, especially in the edge and marginal areas. It is therefore advisable to aim the cannula directly at all edge and marginal areas. Spraying directly onto the base may result in an excessively thick layer, which in turn can result in fitting inaccuracy.

7.3.4 Marking the cervical step



If the cervical step is located at the same height as the edge of the gingiva, the spray may cover the borderline between these two structures.

This boundary can be marked again by running a fine probe along the step or laterally pulling a rubber cofferdam.

Before you start spraying, you can loosely insert dental floss and then carefully remove it again.



Avoid applying too much or not enough coating. We recommend blowing the object clean with compressed air after spraying.

7.4 Camera support

Using the camera support gives you the following advantages:

- You obtain acquisitions free of motion blurring.
- You avoid damage to the prism.
- You avoid touching the prepared tooth.

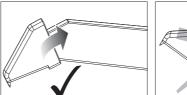
CAUTION

Using the camera support

Clean the camera support by wiping or spraying it with disinfectant prior to use. Designed for one-time use only.

7.5 Preparing the optical impression

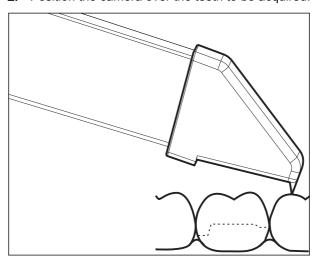
1. Push the camera support onto the camera as illustrated.





Pushing on the camera support

2. Position the camera over the teeth to be acquired.



Supporting the 3D camera

3. Support the camera with the front part of the camera support on a tooth so that you can hold it quietly during the acquisition phase.

NOTICE

Powder on the surface of the prism

If the prism touches powdered surfaces, then powder usually remains on the prism surface and generates dark spots in the image.

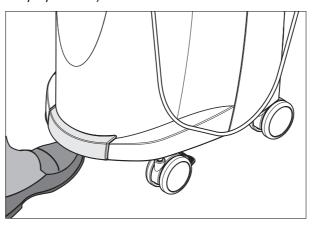
The powder can be wiped off from the prism with a soft cloth.

7.6 Acquisition control with software version 3.8

The acquisition control of the Bluecam functions as follows:

Manual acquisition control

- ✓ A window is opened for a new restoration.
- Position the cursor on the acquisition icon (e.g. "Acquire preparation").

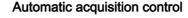


- 2. Press the foot control upward and keep it pressed.
 - A live video image appears with a green cross.
- 3. Release the foot control.
 - The optical impression is automatically transferred to the 3D preview (e.g. the Preparation image field).
- Additional optical impressions can be captured by repeating steps 1 to 3
- **5.** By positioning the cursor on another acquisition icon (e.g. "Acquire occlusion" or "Acquire antagonist") and repeating steps 2 to 4, additional acquisitions can be taken in the occlusion or antagonist models.
- 6. To exit the acquisition process, click the icon marked "Next".

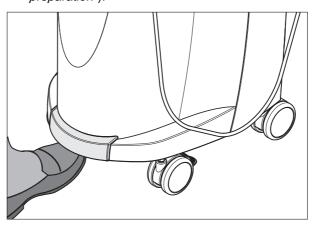








- ✓ A window is opened for a new restoration.
- **1.** Position the cursor on the acquisition icon (e.g. "Acquire preparation").



- 2. Press the foot control upward briefly.
 - As soon as a sharp optical impression can be captured, images are automatically generated and transferred to the 3D preview.
- 3. Press the foot control upward briefly.
 - ♦ The optical impression is completed.
- **4.** By positioning the cursor on another acquisition icon (e.g. "Acquire occlusion" or "Acquire antagonist") and repeating steps 2 to 3, additional acquisitions can be taken in the occlusion or antagonist models.
- 5. To exit the acquisition process, click the icon marked "Next".



Changing from automatic to manual acquisition control

If you press the **foot control upward** and **keep it pressed** during an automatic exposure, this changes the program back to manual acquisition control.

7.7 Acquisition control with CEREC SW

With the CEREC camera you can switch between two acquisition modes:

- manual
- automatic

After being switched on, the CEREC camera is set to automatic acquisition control.

NOTICE

Image brightness

The image brightness during the scan is controlled automatically, so that there is always optimum image brightness, largely independent of the distance between the CEREC camera and the tooth.

The surroundings of the tooth to be acquired should be as weakly illuminated as possible. Avoid any type of external light. Switch off the dental light.

Changing from automatic to manual acquisition control

You can switch from automatic to manual acquisition control.

- ✓ You are in automatic acquisition control.
- **1.** Move the mouse cursor over the camera icon.
- 2. Press the foot control upward and keep it pressed.
 - A green cross appears in the live image. Manual acquisition control is enabled.

You can leave manual acquisition control by following the same process.

Automatic acquisition control

To help avoid blurred acquisitions caused by withdrawing the CEREC camera too early, an acoustic signal sounds as soon as the acquisition is completed. Make sure that neither the Windows volume control is at the lowest position nor "Sound off" is activated.

- 1. Position the CEREC camera as described above the powdered tooth.
- Once a sharp acquisition is possible, images are generated and transmitted to the 3D preview automatically.Observe undercuts on all lateral edge lines of the preparation.
- 3. Move the camera until all required images have been acquired.
 - The model is restored automatically in the 3D preview during the acquisition.
- 4. Then check the above points once again. Take care that the optical impression is sufficiently bright, sharp and free of motion blurring. If you do not observe these points, one of them may have a negative effect upon the subsequent procedure.

If you click the scan icon of the upper jaw, lower jaw or buccal registration, you can take additional acquisitions of the upper jaw, lower jaw and the buccal registration.

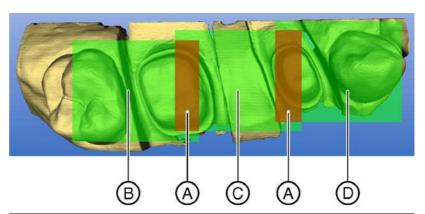


Manual acquisition control

- 1. Press the foot control upward and keep it pressed.
 - ♦ A green cross appears in the live image in the camera view.
- 2. Release the foot control.
 - ♥ The acquisition is automatically transferred to the 3D preview.
- **3.** Additional acquisitions can be created by repeating steps 1 and 2.
 - The model is restored automatically in the 3D preview during the acquisition.
- 4. Then check the above points once again. Take care that the optical impression is sufficiently bright, sharp and free of motion blurring. If you do not observe these points, one of them may have a negative effect upon the subsequent procedure.

If you click the acquisition icon of the upper jaw, lower jaw or buccal registration, you can take additional acquisitions of the upper jaw, lower jaw and the buccal registration.

7.8 Acquiring a 3-unit bridge



Α	Overlap area	С	2. optical impression
В	1. optical impression	D	3. optical impression

To produce bridge frameworks of up to 3 elements, you can acquire the tooth situation with the CEREC Bluecam. Make sure there is always dental substance visible in the overlap area of the acquisitions (areas **A**). Start by taking the 1st scan on the distal end. Then guide the camera over the preparation in the mesial direction.

8 Maintenance

NOTICE

Some countries have legal regulations which require regular safety inspections of electrical devices or systems by the operator.

NOTICE

Annual maintenance performed by trained technical personnel is recommended.

8.1 Care and cleaning agents

NOTICE

Approved care and cleaning agents

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

Approved care and cleaning agents

NOTICE

Not for LCD monitors

Do not use the agents listed in the following for the LCD monitor!

You can use these agents for all other surfaces, including the camera.

Not approved in the USA

Alpro	Minuten Spray classic
	Minuten Wipes
	Plasti Sept
	Plasti Sept Wipes
Merz	Pursept-A
Dürr	• FD 312

Approved in the USA

Kerr Corporation	•	CaviCide
	•	Cavi Wipes

8.2 Care and cleaning of the monitor screen

Cleaning

The monitor screen can be wiped off with a soft cloth.



NOTICE

Never spray the monitor screen with a disinfectant or cleaning agent!

8.3 Surfaces (without monitor)

NOTICE

Use only care and cleaning agents which have been approved by Sirona (see Care and cleaning agents)!

Cleaning

NOTICE

Do not allow liquids to penetrate into the ventilation slots!

NOTICE

Never use corrosive cleaning agents, wax or solvents.

Remove any dirt and disinfectant residues **regularly** using a mild commercial cleaning agent.

Do not use any **colored cloths** for cleaning, since they may cause discoloration of the surfaces, e.g. in combination with disinfectants!

Protection against medicaments

Due to their high concentrations and the substances they contain, many medicaments can dissolve, etch, bleach or discolor surfaces.

NOTICE

The only way to prevent damage is to **wipe off medicaments immediately** with a damp cloth and a cleaning agent!

A

8.4 Cleaning and setting the trackball cover ring

- 1. Rotate the cover ring counterclockwise and remove it.
- 2. Clean inner surface of cover ring (A) with ethanol (commercially available cleaning alcohol).
- 3. Remove the ball.
- 4. Wipe out the calotte (spherical cap).
- 5. Insert the ball.
- 6. Fit the cover ring and turn it clockwise until it is firmly tightened.

NOTICE

Setting the ease of action of the ball

For cover rings with various detent positions, the ease of action of the ball can be set by selecting the corresponding detent position.

8.5 Calibrating the Bluecam

IMPORTANT

If you are using software version 3.8, calibrate the Bluecam with the installed CEREC SW or CEREC Connect SW software.

The scanning technique used by the system requires the use of a calibrated Bluecam. The Bluecam is factory calibrated. If calibration should be required, you can use the supplied "Bluecam calibration set".

NOTICE

Make sure that the surfaces of part A and part B in "Bluecam calibration set" are free from contamination.

Recalibrate the CEREC Bluecam in the following cases:

- following transport (shaking stress),
- after storage in unheated or un-air-conditioned rooms (temperature differences exceeding 30°C),
- with temperature differences of over 15°C between the last calibration and operation.

NOTICE

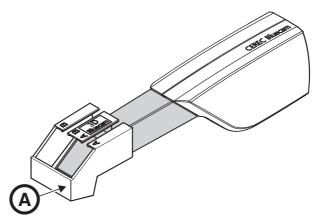
The "Bluecam calibration set" must not be powdered.

Start calibration

- **1.** In the software, navigate to the system menu and click on the *"Configuration"* button.
- 2. Click on the "Devices" button.
- 3. Click on the "Camera" button.
- 4. Click on the "Calibrate" button.

Part A Calibration

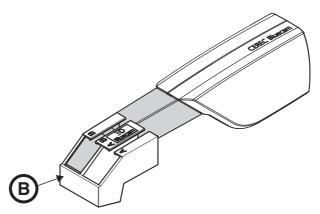
You will be prompted to fasten the **calibration set** with **part A** to the Bluecam.



- A Part A
- 1. Slide the calibration set with part A as far as it will go toward the camera handle.
- 2. Click on the "OK" button.

Part B Calibration

You will be prompted to fasten the calibration set to the Bluecam with **part B**.



B Part B

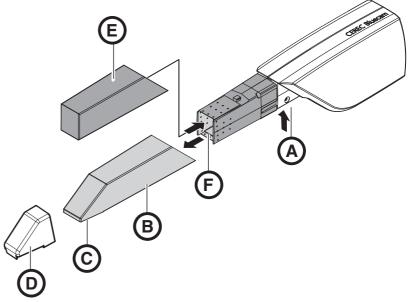
- 1. Slide the calibration set with part B as far as it will go toward the camera handle.
- 2. Click on the "OK" button.

Completing the calibration

- ✓ The software reports that calibration is complete.
- ➤ Click on the "OK" button.
 - ♥ The Bluecam is calibrated.

8.6 Care of the Bluecam

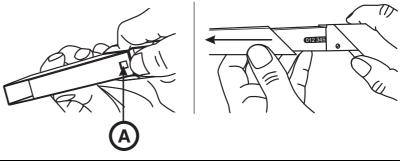
8.6.1 Prismatic tube without sapphire glass



A	Press detent to release		Camera support 6 pcs., Order No. 5945360
В	Prismatic tube	Е	Protective cap
С	Prism	F	Front lens

The Bluecam is a very sensitive optical device and must therefore be handled with the **utmost care**. Protect the front lens and the prism against scratching and clean them with a lint-free cloth and ethanol (commercially available cleaning alcohol).

Removing the prismatic tube



A Detent

- 1. Press the prismatic tube against the camera body.
- 2. Press detent A.

NOTICE

Risk of damaging the front lens or prism.

> Push the prismatic tube straight toward the front, do not tilt it.

Disinfecting

Sterilizing

Fitting the prismatic tube

3. Pull off the prismatic tube.

Do not use CEREC 2 / CEREC 3 prismatic tubes.

NOTICE

NOTICE

Risk of damaging the front lens or prism.

- > The prismatic tube must not touch the front lens.
- > Push the prismatic tube straight toward the camera body; do not tilt it.
- > Carefully refit the prismatic tube until it locks in place.

NOTICE

Do not spray the Bluecam with or immerse it in cleaning agents or disinfectants!

➤ Disinfect the Bluecam with a cloth which has been soaked in the agent specified in the section "Care and cleaning agents".

NOTICE

Not sterilizable!

Do not under any circumstances sterilize the Bluecam or the video cable!

The camera support cannot be sterilized.

The prismatic tube can be sterilized with hot air (180°C, 30 min) (not in the autoclave!).

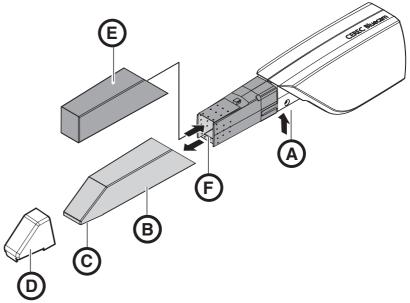
Temporarily place the protective cap over the front lens to protect it.

If the Bluecam accidentally falls down, check to make sure that the front lens and prism are not damaged. If the Bluecam has been damaged, it must not be used on patients any more.

The Bluecam must be recalibrated in any case.

63 33 582 D3492 D3492.201.01.09.23 09.2011

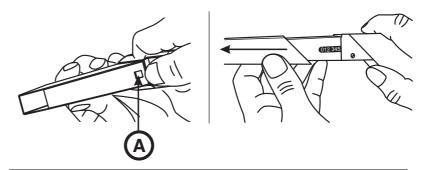
8.6.2 Prismatic tube with sapphire glass



A	Press detent to release		Camera support 6 pcs., Order No. 5945360
В	Prismatic tube	Е	Protective cap
С	Prism	F	Front lens

The Bluecam is a very sensitive optical device and must therefore be handled with the **utmost care**. Protect the front lens and the prism against scratching and clean them with a lint-free cloth and ethanol (commercially available cleaning alcohol).

Removing the prismatic tube



A Detent

- 1. Press the prismatic tube against the camera body.
- 2. Press detent A.

NOTICE

Risk of damaging the front lens or prism.

- > Push the prismatic tube straight toward the front, do not tilt it.
- 3. Pull off the prismatic tube.
- 4. Replace protective cap (E).

Disinfecting Bluecam

NOTICE

Do not spray the Bluecam (with the exception of the prismatic tube with sapphire glass*) with or immerse it in cleaning agents or disinfectants!

- *Disinfect the prismatic tube with sapphire glass as described in the chapter "Disinfecting the prismatic tube with sapphire glass [→ 51]".
- Disinfect the Bluecam (except the prismatic tube with sapphire glass) with a cloth which has been soaked in the agent specified in the section "Care and cleaning agents" in the operating instructions for the acquisition unit.

Sterilizing

NOTICE

Not sterilizable!

Do not under any circumstances sterilize the Bluecam or the video cable!

The camera support cannot be sterilized.



CAUTION

If the Bluecam accidentally falls down, check to make sure that the front lens and prism are not damaged. If the Bluecam has been damaged, it must not be used on patients any more.

The Bluecam must be recalibrated in any case.

NOTICE

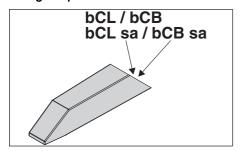
Risk of damaging the prismatic tube!

The prismatic tube with sapphire glass is not suitable for hot air sterilization and autoclaving!

The permissible temperature range is: -25°C to +60°C.

1. Pull off the protective cap (**E**).

Fitting the prismatic tube



NOTICE

Do not use CEREC 2 / CEREC 3 prismatic tubes.

Only use prismatic tubes marked with "bCL sa", "bCB sa", "bCL" or "bCB".

NOTICE

Risk of damaging the front lens or prism.

- > The prismatic tube must not touch the front lens.
- Push the prismatic tube straight toward the camera body; do not tilt it.
- 2. Carefully refit the prismatic tube until it locks in place.

8.6.3 Disinfecting the prismatic tube with sapphire glass



Disinfectants: Cidex OPA, Cidex Plus 28 day solution, Pro-Cide-D-Plus Observe the manufacturer's safety information!

- 1. Pour max. 40 ml of disinfectant into the container supplied.
- **2.** Remove the prismatic tube from the CEREC Bluecam (see "Removing the prismatic tube").
- 3. Remove the CEREC camera support (if present).



Damage to the prismatic tube

Do not allow liquids to penetrate into the prismatic tube!

- > Ensure that no liquids get inside the prismatic tube.
- 4. Insert the prismatic tube in the correct position (glass down).
 If the tube is inserted the wrong way round by mistake, dry it before reinserting it correctly.
- 5. Place the lid on the container and leave it for as long as is specified in the manufacturer's documentation.

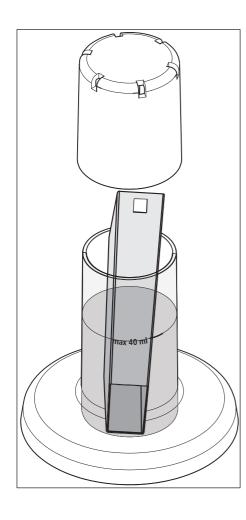
NOTICE

Damage to the prismatic tube

Do not allow splashes to penetrate into the prismatic tube!

- ➤ Ensure that no splashes from disinfectants or spray water get inside the prismatic tube.
- **6.** Rinse the outside of the prismatic tube (see instructions for disinfectant too).
- 7. Dry it with a soft, lint-free cloth.
- **8.** Refit the prismatic tube (see "Fitting the prismatic tube").

You can order the "Cidex OPA", "Cidex Plus 28 day solution" and "Pro-Cide-D-Plus" disinfectants from your "Patterson Dental" sales partner.



8.7 Replacing the main fuse

MARNING !

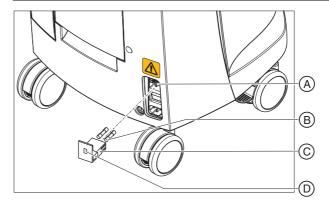
Electric shock

Disconnect the power plug at the unit end before replacing the fuses.

NOTICE

Fuse type

Use only fuses of the same type in the fuse module!



Α	Voltage selection insert	С	Fuse module
В	Main fuses	D	Window

Fuses: T8A H 250V O

Order No. 62 33 188

- ✓ The power plug must be disconnected.
- 1. Unlatch the fuse module with a screwdriver and pull the module out.
- 2. Replace the defective fuses.
- 3. Reinsert the fuse module.

8.8 Replacing fuse F3

MARNING

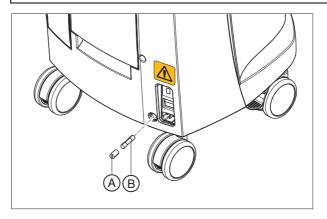
Electric shock

Disconnect the power plug at the unit end before replacing the fuses.

NOTICE

Fuse type

Use only fuses of the same type!



A Fuse holder B Fuse

Fuses:

T2,5A L 250V

Order No. 46 57 656

- ✓ The power plug must be disconnected.
- 1. Use a screwdriver to unscrew the fuse holder.
- 2. Replace the defective fuse.
- 3. Screw the fuse holder back in.

8.9 Charge battery (optional)

NOTICE

Reduced buffer cycles

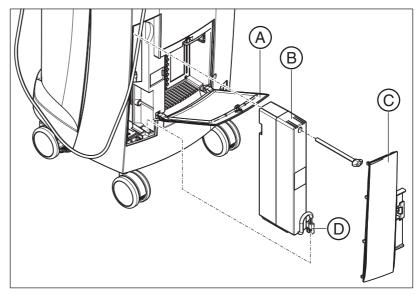
After around 1000 buffer cycles the capacity of the battery fades due to the nature of the battery technology used.

If the buffer times are too short, you should replace the battery.

The storage battery is permanently charged during operation on line voltage. This allows brief buffer operation after one hour of charging.

For a complete charge, the battery must be charged without interruption for at least 12 hours. Keeping the acquisition unit connected to the mains voltage and the power switch on is sufficient here. The PC does not have to be switched on for the charging process.

8.10 Replace battery (optional)



Α	Bottom door	С	Battery cover
В	Storage battery	D	Battery connector

1. Open the lower door on the back panel.

NOTICE

Open with coin.

Use a coin to open the latch. Turn counterclockwise.

- 2. Remove the battery cover.
- 3. Unplug the battery connector.
- **4.** Unscrew the fastening screw and remove the battery.
- **5.** Insert the new battery into the battery compartment with the fastening screw and screw it down.
- **6.** Plug in the battery plug.
- 7. Attach the battery cover.
- 8. Put the door back in position and lock it.





O Disposal

Your product is marked with the adjacent symbol. Within the European Economic Area, this product is subject to Directive 2002/96/EC as well as the corresponding national laws. This directive requires environmentally sound recycling/disposal of the product. The product must not be disposed of as domestic refuse!

Please observe the disposal regulations applicable in your country.

Disposal procedure

Please note that this product is subject to the stipulations in EC Directive 2002/96 governing waste electrical and electronic equipment and must be disposed of in line with these special requirements within the European Union (EU).

Prior to disassembly / disposal of the product, it must be fully prepared (cleaned / disinfected / sterilized).

When disposing of equipment permanently, please proceed as follows:

In Germany:

To initiate return of the electrical device, please send a disposal order to "enretec GmbH".

- You can find a form for placing a disposal order on the company's homepage (www.enretec.de) under the menu item "Entsorgung elektrischer und elektronischer Geräte" (Disposal of electric and electronic devices). The form can either be downloaded or completed online.
- 2. Fill out the form with the corresponding details and send it as an online order or fax it to enretec GmbH at +49(0)3304 3919 590. You can also get in touch with the following contacts for disposal orders and any questions relating to this you may have: Phone: +49(0)3304 3919 500;

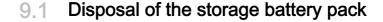
E-mail: pickup@eomRECYCLING.com
Mailing address: enretec GmbH, Geschäftsbereich eomRECYCLING
Kanalstrasse 17, 16727 Velten

Any nonpermanently installed equipment will be picked up at its installation site in the practice. Permanently installed equipment will be picked up curbside at your address by appointment.

All disassembly, transport and packaging costs are to be borne by the owner/operator of the equipment. The disposal itself is free of charge.

Worldwide (outside Germany):

Please contact your local dental equipment specialist for country-specific information on disposal.







The storage battery pack located in the acquisition unit must be subjected to recycling if it becomes defective or reaches the end of its service life. Recycling is performed via Sirona.

The storage battery pack is marked with the adjacent symbol. Disposal of the storage battery pack with domestic refuse is not compatible with the objectives of environmentally sound recycling/disposal. Send in the replaced storage battery pack to Sirona (see the reverse side of these operating instructions for the mailing address).

1 Appendix

10.1 DVD playback

DVD videos can be played back on the acquisition unit via "Windows Media Center".

➤ Start the program via the corresponding icon or via "Start" | "All Programs" | "Windows Media Center"

The program features an online help function to familiarize you with the operation of the software.

10.2 Making backup copies

To increase the system's data security and protect themselves against data losses, users should make backup copies of the data regularly.

10.2.1 Creating (burning) a CD

The Nero Multimedia Suite 10 Essentials program is installed on the acquisition unit for burning data CDs.

➤ Start the program via the corresponding icon or via "Start" | "All Programs" | "Nero" | "Nero 10" | "NeroExpress".

The program features an online help function (F1) to familiarize you with the operation of the software.

NOTICE

The front panel must remain open when completing the write operation.

NOTICE

Do **not** work with other programs and do **not** put the acquisition unit in the non-operative state during a write operation.

Checking the CD

Insert the CD in the drive and check its contents with the Windows Explorer.

10.3 Seal on PC slide-in module



NOTICE

If the seal is broken, all warranty claims regarding the PC slide-module automatically expire.

The PC slide-in module may be opened only by an authorized dental technician. Only spare parts approved by us may be used in this module.

Following a repair, the seal supplied along with the spare parts must be affixed at the specified location (A).

10.4 PC diagnostics tool

10.4.1 Starting the diagnostic tool

Test	Suitable for
Customer Diagnostics	Suitable for the user, in order to check the PC components.
Technician Diagnostics	Suitable for the technician, in order to check the PC components.
Sirona Windows Diagnostics	Windows Stress Test, in order to test the PC at permanent load.

Tip: If one of the following steps does not work, further steps can be found in the Service Manual.

✓ The PC is switched off.

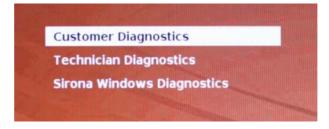


- 1. Switch on the PC and wait until the above message appears.
- **2.** Hold down the "F11" key on the keyboard until the boot menu appears.





- 3. Insert the diagnostics tools CD into the drive.
- **4.** Use the arrow keys to select "CD/DVD:..." in the menu and hit the "Enter" key.
 - ♦ The PC boots from the CD.
- 5. Wait until the light on the drive goes out.
- **6.** Confirm your selection with the "Return" key on the keyboard.
 - The diagnostics tool starts and a selection menu appears. Tip: After one minute, if none of the arrow keys have been pressed, the "Customer Diagnostics" test starts automatically.

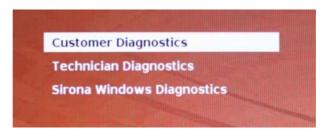




- **8.** Confirm your selection with the "Return" key on the keyboard.
 - ♦ The test starts.

10.4.2 Test procedure

10.4.2.1 Customer Diagnostics



✓ You have started the "Customer Diagnostics" test and the system configuration is displayed.



- Check the information in the system configuration to determine whether the system corresponds to the default settings. You can scroll up and down using the arrow keys.
 - **Tip:** The test will start automatically in 3 minutes if you do not press an arrow key first.
- **2.** Press the "Esc" key on the keyboard.

- The test starts. The entire test run takes approx. 20 minutes.
- The result, i.e. "Pass" or "Fail" appears at the end of the test (see sections entitled "Test result: "Pass" or "Test result: "Fail").
- 3. On completion of the test, press any key to go on to the test dialog. Tip: You can scroll to the individual test steps using the arrow keys. The corresponding result is shown in front of each test step.
- **4.** To quit the test, reboot the PC (see Rebooting the PC [\rightarrow 64]).

Test result: Pass

No fault was found in the PC-specific hardware. A replacement of the PC component or of the PC makes no sense.

- **1.** Perform the separate test for the supply board.
- 2. Perform an image restore with the restore set for troubleshooting.
- **3.** Check the service instructions for other possible fault sources.

Test result: Fail

A fault was found in the PC-specific hardware. A replacement of the PC component or of the PC makes sense when indicated. An image restore makes no sense.

- 1. Check to find out which components did not pass the test.
- 2. Note the number of the failed test and the error code if available and report them to the service engineer as soon as possible.
- **3.** Carry out the corresponding steps described in the chapter on Troubleshooting .

10.4.2.2 Technician Diagnostics



✓ You have started the "Technician Diagnostics" test and the system configuration is displayed.



 Using the information in the system configuration, check whether the system corresponds to the default settings. You can scroll up and down using the arrow keys.

Tip: The test starts automatically after 3 minutes if you do not press an arrow key.

2. Press the "Esc" key on the keyboard.

```
1 Display Script
2 Activity is rotating cursor
3 Test CPU 1
4 Dest Cru 2
5 Test NPU 1
6 Test NPU 2
7 Test Timer
8 Test KeyBoard Ctrl
9 Test INT #1
10 Test INT #1
11 Test DMA #1
12 Test DMA #1
12 Test DMA #2
13 Test SM Bus
14 Test WDC WD5001AALS-00L3B Short Self-test
15 Test 3 Minute(s) Drive #1 500.107 GB BmdRd
16 Test ATAPI #1 90000000-00005000
17 Test Active
18 Test Met #1 SelfTest
19 Test Base Memory
20 Test Cache Memory
```

- ♦ The test starts. The entire test run takes approx. 20 minutes.
- The result, i.e. "Pass" or "Fail", appears at the end of the test (see sections entitled "Test result: Pass" or "Test result: Fail").
- **3.** On completion of the test, press any key to go on to the test dialog. **Tip:** You can scroll to the individual test steps using the arrow keys. The corresponding result is shown in front of each test step.
- **4.** To quit the test, restart the PC (see Rebooting the PC [\rightarrow 64]).

Test result: Pass

No errors were found on the PC-specific hardware. Replacing the PC component or the PC is not advisable.

- **1.** Perform the separate test for the supply board.
- 2. Perform an image restore with the restore set for troubleshooting.

3. Check the service instructions for other possible fault sources.

Test result: Fail

An error was found on the PC-specific hardware. Replacing the PC component or the PC may be required.

An image restore is not advisable.

- 1. Check to find out which components did not pass the test.
- **2.** Carry out the appropriate steps in the chapter entitled Troubleshooting .
- 3. Note the number of the failed test and the error code if available. Attach this information to the returned PC when replacing a PC.

10.4.2.3 Sirona Windows Diagnostics

General

The "Sirona Windows Diagnostics" test loads the PC-specific components simultaneously over a long period of time. This period of time is determined by the user.

As a result of this load

- the temperature in the PC is significantly increased compared with normal operation.
 - The temperature behavior or any existing faults are thereby detected.
- Thanks to the temporal, unlimited test phase, sporadically occurring faults are more likely to be detected.

Tip: Do not perform this test if at least one of the <code>Customer</code> <code>Diagnostics</code> or <code>Technician Diagnostics</code> tests was not diagnosed as error free.

Performing the test

Tip: Allow the "Sirona Windows Diagnostics" test to run for at least 1 hour. For optimum results, allow the test to run overnight.



✓ You have started the "Sirona Windows Diagnostics" test and Windows starts in the test environment. The "Sirona Windows Diagnostics" test starts automatically.



➤ Check the result in the "Windows Stress Test" window.

Tip: You may have to rearrange the windows to be able to see the "Windows Stress Test" window.

Test result: Pass

No errors were found on the PC-specific hardware. Replacing the PC component or the PC is not advisable.

Test result: Fail

An error was found on the PC-specific hardware. Replacing the PC component or the PC may be required. An image restore is not advisable.

- 1. Check the "Windows Stress Test" window for those components that did not pass the test.
- **2.** Carry out the appropriate steps in the chapter entitled Troubleshooting .

Ending the "Sirona Windows Diagnostics" test

- ➤ Click the "Stop" button.
 - ♦ The individual test windows close.
 - ♥ The PC is switched off.

10.4.3 Rebooting the PC

> Switch the PC on again using the ON button.

Index

Numerics	С		
3D calibration set, 23	Camera support, 23, 47, 49		
3D camera, 34	Care agents		
Α	Care, 42		
	Care and cleaning agents		
Acquisition	approved care and cleaning agents, 42		
optical, 35	CE mark, 8 CEREC application, 29		
Acquisition unit			
Overview, 22	CEREC button, 29		
Air pressure	Cleaning agent, 43		
Operation, 19	Cleaning agents		
Storage, 19	Cleaning, 42		
Transport, 19	Compliance, 8		
Ambient temperature	Conditions		
Operation, 19	Operation, 19		
В	Storage, 19		
Bluecam	Transport, 19		
Acquisition control, 38	D		
Angle of incidence, 35	Dimensions, 20		
calibrating, 44	Disinfectant, 43		
Care, 47, 49	Disinfecting, 43		
Depth of focus, 34	Disposal		
Disinfecting, 48, 50	Disposal of electronic and electrical equipment, 55		
Focusing, 34			
Sterilizing, 48, 50	F		
Building installation, 10	Foot pedal, 22		
	Front lens, 23, 47, 49		
	Fuse		
	Fuse type, 52, 53		
	Order No., 52, 53		
	Replacement, 52, 53		
	Fuses, 24		

Н	Р
Heater plate, 22	Packaging, 21
HUB , 18	Patient area, 18
I	Plug connections, 26
	Power connection, 24
Insertion	Prism , 23, 47, 49
Trackball, 28	Prismatic tube , 23, 47, 49
L	Product safety, 11
Line voltage, 25	Protection against medicaments, 43
M	Protection class, 19
IVI	Protective cap , 23, 47, 49
Main fuses, 25, 52	Protective ground wire, 18
Main switch, 24, 25, 28	R
Maintenance, 11	Rated current , 19, 19, 19
Measuring technique, 35	
Modem, 18	Rated line voltage, 19, 19, 19
Monitor	Relative humidity
Cleaning, 42	Operation, 19
ON/OFF switch, 28	Storage, 19
N	Transport, 19
	repair, 11
Network, 18	S
Network installation, 27	Safety information, 6
0	Scope of supply, 21
ON button, 25, 28	Setting
Online help, 29	Trackball, 44
Operating mode, 19	Storage battery, 53
Operating state LED, 25	Storage battery pack, 19
	Disposal, 56
	Surface, 35
	Switch, 18
	Owner, 10

Т

Temperature

Storage, 19

Transport, 19

Trackball, 22

Cleaning, 44

trackball button

left, 28

right, 28

Trackball button

center, 22

left, 22

right, 22

Transport, 21

Type designation, 19

U

Unpacking, 21

٧

Voltage selection insert, 25, 52

W

Warranty, 7

Water, 19

Weight, 20

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

© Sirona Dental Systems GmbH 2010-2011 D3492.201.01.09.23 09.2011

Sprache: englisch (US) Ä.-Nr.: 114 581

Printed in Germany

Sirona Dental Systems GmbH

in the USA:

Fabrikstraße 31 Sirona Dental Systems LLC 64625 Bensheim 4835 Sirona Drive, Suite 100 Germany Charlotte, NC 28273 www.sirona.com USA

Order No **63 33 582 D3492**