

New as of:

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CEREC AC

Technical data

English



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1 Technical description

CAD system for high-precision intraoral optical impressions

- High-resolution, heated oral measuring camera (3D- camera) with removable prismatic tube (prismatic tube sterilizable with hot air)
- Integrated image processing
- High processing power due to state-of-the-art processor
- Trackball
- Hand and foot controlled enter keys
- Wipe-disinfectable membrane keyboard
- Hard disk
- DVD-R(W)/CD-R(W) drive
- Ethernet port
- Parallel and serial ports
- 1 integrated loudspeaker

High-resolution 3D intraoral measuring camera with control and image processing electronics

- Measuring technique: active triangulation
- Pixel size: 28 μ m x 28 μ m
- Low-noise CCD sensor: 680 x 480 pixels (=326,400 pixels)
- Light source: Blue LED, polarized, 470nm
- Image acquisition: Image control inside the camera
- Image acquisition: 16MB ultrafast SDRAM
- Image processing: Intensity measurement of 1.4 mil. pixels in 0.070 sec.
- Image data transfer: Dependent on fast USB 2.0 standard

Monitor

- 19" TFT LCD flat display, true color, resolution SXGA (1280 x 1024 pixels)

PC hardware

Special PC with the following equipment:

- Processor: Intel Core2Quad, Q9400
- Memory: 2 x 2048MB, 800MHz DDR2-RAM
- DVD-R(W)/CD-R(W): SH-S223 combi drive
- Hard disk: Western Digital WD320xYS (320GB Serial ATA)
- Network card: Ethernet 10/100/1000MBit/s onboard
- WLAN card: Linksys WMP110
- Sound card: Realtek HD Audio onboard
- Graphics card: N9800GT T2D512-OC (PCIe 16x, 512MB)
- Power supply board: 61 37 413 D3492 Sirona

PC software



- Operating system: Windows Vista Business 32-bit
- Installation: The operating system and applications are installed at the factory.

Housing

All units are integrated in a mobile housing with easily movable/lockable castors.

No water or air connection required.

2 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	Class I device
Type of protection against electric shock (Bluecam)	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	24VDC / 2.5Ah Sirona Order Number: 61 87 582 D3492
 Label: CAUTION	Observe accompanying documents

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 ⅝ x 18½"
Weight	
• without monitor and battery pack approx.	38 kg (83.8 lbs)
• Monitor approx.	4 kg (8.8 lbs)
• Battery pack approx.	2 kg (4.4 lbs)

3 Electromagnetic compatibility

Compliance with the following instructions is necessary to ensure safe operation with regard to EMC aspects.

CEREC AC complies with the requirements for electromagnetic compatibility (EMC) according to IEC 60601-1-2:2001 and A1:2004.

CEREC AC is hereinafter referred to as "UNIT".

3.1 Electromagnetic emission

The **UNIT** is intended for operation in the electromagnetic environment specified below.

The customer or user of the **UNIT** should make sure that it is used in such an environment.


Emission measurement	Conformity	Electromagnetic environment – guidelines
RF emissions according to CISPR 11	Group 1	The UNIT uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions according to CISPR 11	Class B	The UNIT is intended for use in all facilities, including residential areas and in any facilities connected directly to a public power supply providing electricity to buildings used for residential purposes.
Harmonics according to IEC 61000-3-2	Class A	
Voltage fluctuations/flicker according to IEC 61000-3-3	Complies	

3.2 Interference immunity

The **UNIT** is intended for operation in the electromagnetic environment specified below.

The customer or user of the **UNIT** should make sure that it is used in such an environment.

Interference immunity tests	IEC 60601-1-2 test level	Compliance level	Electromagnetic environment – guidelines
Electrostatic discharge (ESD) according to IEC 61000-4-2	± 6 kV contact ± 8 kV air	± 6 kV contact ± 8 kV air	Floors should be wood, concrete, or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst according to IEC 61000-4-4	± 1 kV for input and output lines ± 2 kV for power supply lines	± 1 kV for input and output lines ± 2 kV for power supply lines	The quality of the line power supply should be that of a typical commercial or hospital environment.
Surge voltages according to IEC 61000-4-5	± 1 kV differential mode voltage ± 2 kV common mode voltage	± 1 kV differential mode voltage ± 2 kV common mode voltage	The quality of the line power supply should be that of a typical commercial or hospital environment.

Interference immunity tests	IEC 60601-1-2 test level	Compliance level	Electromagnetic environment – guidelines
Voltage dips, short interruptions and variations of the power supply according to IEC 61000-4-11	<p><5% U_T for ½ period (>95% dip of U_T)</p> <p>40% U_T for 5 periods (60% dip of U_T)</p> <p>70 % U_T for 25 periods (30% dip of U_T)</p> <p><5% U_T for 5sec. (>95% dip of U_T)</p>	<p><5% U_T for ½ period (>95% dip of U_T)</p> <p>40% U_T for 5 periods (60% dip of U_T)</p> <p>70 % U_T for 25 periods (30% dip of U_T)</p> <p><5% U_T for 5sec. (>95% dip of U_T)</p>	<p>The quality of the line power supply should be that of a typical commercial or hospital environment.</p> <p>Continued operation of the UNIT is possible following interruptions of the power supply, since the UNIT is powered by an uninterruptible power supply backed up by a storage battery.</p>
Magnetic field of power frequencies (50/60 Hz) according to IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
Remarks: U_T is the AC supply voltage prior to application of the test level.			
			<p>Portable and mobile radio equipment must not be used within the recommended working clearance from the UNIT and its cables, which is calculated based on the equation suitable for the relevant transmission frequency.</p> <p>Recommended working clearance:</p>
Conducted RF interference IEC 61000-4-6	3 V_{eff} 150 kHz to 80 MHz	3 V_{eff}	$d = [1.2] \sqrt{P}$
Radiated RF interference IEC 61000-4-3	<p>3 V/m 80 MHz to 800 MHz</p> <p>3 V/m 800 MHz to 2.5 MHz</p>	<p>3 V/m</p> <p>3 V/m</p>	<p>$d = [1.2] \sqrt{P}$ at 80 MHz to 800 MHz</p> <p>$d = [2.3] \sqrt{P}$ at 800 MHz to 2.5 MHz</p> <p>where P is the nominal transmitter output in watts (W) specified by the transmitter manufacturer and d is the recommended working clearance in meters (m).</p> <p>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey¹ should be less than the compliance level² in each frequency range.</p> <p>Interference is possible in the vicinity of equipment bearing the following</p> <div style="text-align: center;">  </div> <p>graphic symbol.</p>

Remark 1

The higher frequency range applies at 80 MHz and 800 MHz.

Remark 2

These guidelines may not be applicable in all cases. The propagation of electromagnetic waves is influenced by their absorption and reflection by buildings, objects and persons.

- 1 Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM/FM radio and TV broadcasts, cannot be predicted theoretically with accuracy. An investigation of the location is recommended to determine the electromagnetic environment resulting from stationary RF transmitters. If the measured field strength in the location in which the **UNIT** is used exceeds the applicable RF compliance level specified above, the **UNIT** should be observed to verify normal operation. If unusual performance characteristics are observed, it may be necessary to take additional measures such as reorientation or repositioning of the **UNIT**.
- 2 Over the frequency range 150kHz to 80MHz, field strengths should be less than 3V/m.

3.3 Working clearances

Recommended working clearances between portable and mobile RF communication devices and the UNIT

The **UNIT** is intended for operation in an electromagnetic environment, where radiated RF interference is checked. The customer or the user of the **UNIT** can help prevent electromagnetic interference by duly observing the minimum distances between portable and/or mobile RF communication devices (transmitters) and the **UNIT**. These values may vary according to the output power of the relevant communication device as specified below.

Rated maximum output power of transmitter [W]	Working clearance according to transmission frequency [m]		
	150 kHz to 80 MHz	80 MHz to 800 MHz	800 MHz to 2.5 GHz
	$d = [1.2] \sqrt{P}$	$d = [1.2] \sqrt{P}$	$d = [2,3] \sqrt{P}$
0,01	0,12	0,12	0,23
0,1	0,38	0,38	0,73
1	1,2	1,2	2,3
10	3,8	3,8	7,3
100	12	12	23

For transmitters whose maximum nominal output is not specified in the above table, the recommended working clearance d in meters (m) can be determined using the equation in the corresponding column, where P is the maximum nominal output of the transmitter in watts (W) specified by the transmitter manufacturer.

Remark 1

An additional factor of 10/3 is applied when calculating the recommended working clearance between transmitters in the 80 MHz to 2.3 GHz frequency range in order to reduce the probability that a mobile/portable communication device unintentionally brought into the patient area could lead to interference.

Remark 2

These guidelines may not be applicable in all cases. The propagation of electromagnetic waves is influenced by their absorption and reflection by buildings, objects and persons.

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

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