

image maker

SOPRO 617

USER MANUAL

 SoproTouch



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FOREWORD


Thanks for trusting us by purchasing this device.

In order to optimize the use of the device, while taking all the necessary precautions, it is recommended to carefully read and follow the user manual.

Always carefully consider the messages CAUTION, WARNING, and NOTE when using the system.

 **CAUTION:** *the term CAUTION describes potential incidents likely to jeopardize safety.*

 **WARNING:** *the term WARNING refers to the incidents likely to disturb the smooth running of the imaging system.*

 **NOTE:** *the term NOTE highlights particular points in order to facilitate the system maintenance or to clarify important information.*

DENTAL CAMERA INTRODUCTION

It is an intra-oral camera designed for dental applications. It allows visualization of anatomical and pathological details that cannot be seen with the naked eye, as well as the pathology control before and after treatment. Its extra-light handpiece, sensitivity and resolution performance, as well as fidelity with respect to shades make it an ideal medical tool.

This dental camera is composed of a camera handpiece (SOPRO 617) and a connection box (DOCK M_USB2 or DOCK M_VIDEO MU_USB2 or DOCK MU_VIDEO), as well as various accessories necessary for it to work.

SOPRO 617

- 10 dental barriers.
- 1 handpiece integrating the camera electronics and lighting.
- 1 handpiece holder.

DOCK M_VIDEO

- A connection box with integrated image memory.
- Power supply.
- A 2.5 metre cable to link the handpiece to the connection box (5 metres and 7 metres optional).
- A Y/C «S-Video» video cable.
- An RCA video cable.
- An user's manual.
- Imaging software (in demo version).

DOCK M_USB2

- A connection box with integrated image memory and USB2 digital output.
- Power supply.
- A 2.5 metre cable to link the handpiece to the connection box (5 metres and 7 metres optional).
- A Y/C «S-Video» video cable.
- An RCA video cable.
- A USB cable.
- An user's manual.
- Imaging software (in demo version).

DOCK MU_VIDEO

- A connection box with integrated image memory.
- A 2.5-metre cable to link the handpiece to the connection box (5 and 7 metres optional).
- An user's manual.
- An installation manual.
- Imaging software (in demo version).

DOCK MU_USB2

- A connection box with integrated image memory and digital USB output2.
- A 2.5-metre cable to link the handpiece to the connection box (5 metres and 7 metres optional).
- An user's manual.
- An installation manual.
- Imaging software (in demo version).

DOCK USB2

- A connection box with a 3.5 metre cable to link the handpiece to the computer USB port.
- Imaging software (in demo version).
- An user's manual.

This equipment was packaged in a custom carton. This carton should be kept for possible transportation. As a complement of the dental camera, some dental barriers necessary to the intra-oral use of the camera are included.

For more details about these products, please refer to our catalog or contact our commercial service.

SAFETY INSTRUCTIONS

- Do not expose the dental camera to water spray and do not store it in a humid environment (electrocution risk).
- Install the dental camera in a clean, dry, and well-ventilated place.
- Disconnect the camera from the power supply if you are not going to use it for several days. Do not pull on the cable.
- Never compress or nip the handpiece cable.
- Never expose the product to high vibrations.
- Do not drop the camera.
- This camera should in no way be immersed in any liquid, nor should it be autoclaved.
- The surface temperature in the light emission area can be just above 41°C (after several minutes using it). So, avoid maintaining this emission area in contact with the patient's mouth.
- The SOPRO 617 camera is a product using class II LEDs according to IEC 60825. Do not stare at them in order to avoid any ocular risk.
- For each new patient, it is essential to use the dental barriers provided with the camera or provided as a complement. Before using the camera, make sure it does not have any sharp edges.

**NOTE:**

If the hygienic protection is torn while examining a patient or if the handpiece was "infected" while withdrawing the hygienic protector, it is essential to totally disinfect the handpiece. In order to do this: please refer to the maintenance chapter.

REGULATORY REQUIREMENTS

4.1. COMPLIANCE WITH STANDARDS AND REGULATIONS

This product was designed and manufactured by a company having an authorized quality system. It meets the requirements of the European directive 93/42/EEC, relative to medical devices. Therefore, it particularly meets electrical safety and electromagnetic compatibility standards (IEC) (CEM).

4.2. ELECTROMAGNETIC INTERFERENCE AND ELECTROSTATIC DISCHARGES

Electromagnetic compatibility (CEM) is the ability of electronic device elements to correctly interact in an electronic environment. Although this dental camera system was designed according to this compatibility and complies with the electromagnetic interference thresholds established by the regulatory agency, there is no guarantee about the interference likely to occur on a particular installation.

If the device generates interference with radio communication services (which can be determined by switching it off and on), the user is recommended to try to correct this phenomenon by taking whole or part of the following measures:

- Change the receiving antenna orientation.
- Reposition the product according to the receiver.
- Take away the computer from the receiver.


SOPRO 617 dental camera system is designed and tested to be used in a home environment, class B Group 1, according to CISPR11 standard.

4.3. MEDICAL DEVICE VIGILANCE

As any medical device, this device is subjected to the medical device vigilance dispositions; any serious dysfunction should then be the subject of a description to the competent authorities and to the manufacturer as soon as possible and as precisely as possible.

4.4. END OF LIFE

This device bears the recycling symbol according to the European directive 2002/96/EC about electric and electronic equipment waste (DEEE or WEEE). Properly disposing of this device will contribute to avoiding any damage done to the environment or human health.

The symbol  present on the device or on the accompanying documentation indicates this product cannot be in any case treated as household waste. Therefore, it should be given to a waste collection centre in charge of electric and electronic equipment recycling.

For scrapping, respect the standards relative to waste disposal in force in the installation country. For more details about the device treatment, recuperation and recycling, please contact your dental device distributor (or failing that, the group ACTEON site), so that you can be provided the proper procedure.


4.5. ELECTROMAGNETIC COMPATIBILITY

Guide and declaration of the manufacturer - electromagnetic emissions		
SOPRO device is intended to be used in the electromagnetic environment specified below. The user should make sure it is used in this environment.		
Emission trial	Compliance	Electromagnetic environment - Guide
RF emissions CISPR 11	Group 1	SOPRO device only uses radio energy for its internal functions. Therefore, its RF emissions are very low and are not likely to cause interference with near electronic devices.
RF emissions CISPR 11	Class B	SOPRO device may be used in every domestic premises, including the ones directly connected to the public low voltage power distribution network used to supply household buildings.
Harmonic emissions EN 61000-3-2	No applicable	
Voltage fluctuations / Flicker EN 61000-3-3	No applicable	

Guide and declaration of the manufacturer - electromagnetic immunity			
SOPRO device is intended to be used in the electromagnetic environment specified below. The user should make sure it is used in this environment.			
Immunity trial	CEI 60601 Severity level	Compliance level	Electromagnetic environment Guide
Electrostatic discharges EN 61000-4-2	± 6 kV when in contact ± 8 kV in the air	± 6 kV ± 8 kV	The floor should be wooden, concrete or tile. If the floor is covered with a synthetic material, the relative humidity should be at least 30%.
Far transient bursts EN 61000-4-4	± 2 kV for the feed cables ± 1 kV for the input/output cables	± 2 kV ± 1 kV	The main power supply quality should be one of a traditional commercial or hospital environment.
Voltage shocks EN 61000-4-5	Differential mode ± 1 kV Common mode ± 2 kV	± 1 kV N.A.	The main power supply quality should be one of a traditional commercial or hospital environment.
Dips, brief outages and power voltage variation EN 61000-4-11	<ul style="list-style-type: none"> • <5% U_T - for 10 ms • 40% U_T - for 100 ms • 70% U_T - for 500 ms • <5% U_T - for 5 s 	<5% U_T 10 ms <40% U_T 100 ms <70% U_T 500 ms <5% U_T 5 s	The main power supply quality should be one of a traditional commercial or hospital environment. If the user of SOPRO device requires it to continue to operate during main power supply outages, it is recommended SOPRO device is fed by an inverter or a battery.
Magnetic field with the network frequency (50/60 Hz)	3 A/m	3 A/m	The magnetic field with the network frequency should be at a characteristic level of a location in a traditional commercial or hospital environment.
<i>Note: U_T is the power voltage nominal value applied during the trial.</i>			

Guide and declaration of the manufacturer - electromagnetic immunity

SOPRO device is intended to be used in the electromagnetic environment specified below.
The user should make sure it is used in this environment.

Immunity trial	CEI 60601 Severity level	Compliance level	Electromagnetic environment Guide
Conducted RF EN 61000-4-6	3 Vrms 150 kHz to 80 MHz	3V	<p>Portable and mobile RF communication devices should not be used at a distance from SOPRO device, including the cables, lower than the recommended separation distance, calculated with the applicable formulas depending on the emitter frequency.</p> <p>Recommended separation distance</p> $d = 1,16\sqrt{P}$
Radiated RF EN 61000-4-3	3 V/m 80 MHz to 2.5 GHz	3V/m	$d = 1,16\sqrt{P}$ 80 MHz to 800 MHz $d = 2,33\sqrt{P}$ 800 MHz to 2.5 GHz <p>where P is the maximum rated output of the transmitter in watts (W) by the transmitter manufacturer and d the recommended separation distance in metres (m).</p> <p>The field levels emitted by the fixed RF transmitters, determined by an electromagnetic measurement of the site^a, should be lower than the compliance level in each frequency band.</p> <p>Interference may occur in the vicinity of the devices bearing the following symbol:</p> <div style="text-align: center;">  </div>

Note 1: At 80 MHz and 800 MHz, the higher frequency band applies.

Note 2: These recommendations may not apply in every situation. Electromagnetic wave propagation is modified by the absorption and reflection due to the structures, objects and persons.

- a The fixed transmitter field levels, such as the base stations of the radio telephones (cellular/wireless) and the terrestrial mobile radios, amateur radio, AM, FM, and TV radio communication cannot be theoretically assessed precisely. To obtain the electromagnetic environment due to the fixed RF transmitters, a site measurement should be performed. If a field level measured in the use environment of SOPRO device exceeds the compliance levels above applicable, the good operation of SOPRO device should be checked. If abnormal operations are proved, some further measures should be taken, such as reorientation or relocation of the standard device.
- b Above the 150 kHz to 80 MHz frequency band, the field level should be lower than 3 V/m.

Recommended separation distances between the portable and mobile RF communication devices and SOPRO device

SOPRO device is intended to be used in an electromagnetic environment in which the irradiated RF disturbances are checked. The user of SOPRO device can help to avoid electromagnetic interference by maintaining a minimal distance between the portable and mobile RF communication devices (transmitters) and the recommended SOPRO device such as recommended below, depending on the maximal output power of the communication device.

Rated maximal output power of the transmitter W	Separation distance depending on the transmitter frequency m		
	150 kHz to 80 MHz	80 MHz to 800 MHz	800 MHz to 2,5 GHz
	$d = 1,16\sqrt{P}$	$d = 1,16\sqrt{P}$	$d = 2,33\sqrt{P}$
0.01	0.116	0.116	0.233
0.1	0.366	0.366	0.736
1	1.16	1.16	2.33
10	3.66	3.66	7.36
100	11.6	11.6	23.3

For the transmitters whose maximal output is not listed above, the recommended separation distance d in metres (m) can be determined by using the equation applicable to the transmitter frequency, where P is the maximal output of the transmitter in watts (W) rated by the transmitter manufacturer.

Note 1: At 80 MHz and at 800 MHz, the separation distance given in the higher frequency band applies.

Note 2: These recommendations may not apply in every situation. The electromagnetic wave propagation is modified by absorption and reflection due to the structures, objects and persons.

5

INSTALLATION

5.1. COMMISSIONING

Fastening the handpiece holder:

1. Choose a plain area that can be easily accessible for use;
2. Use the wipe provided to clean the surface on which you are going to fasten the holder;
3. Remove the double-sided tape adhesive protection that is on the holder, place it and press it several times to correctly fix. The maximum sticking performance is obtained after two hours so avoid any stress on the holder during this period.

 **CAUTION:**

This holder is equipped with magnets that can damage devices sensitive to magnetic fields. Make sure you do not install this holder near these devices (cathode ray tube video screen, magnetic videotapes, etc.).

5.2. FURTHER CONNECTION BOXES *(optional)*

You can install a connection box near each dental chair (no limitation). You will just have to transport the handpiece from one chair to the other.



The handpiece holder is intended to maintain the connecting cable connector when the cable is not linked to the handpiece.

When you disconnect the handpiece connecting cable to take it to another chair, or when you put the handpiece on its holder, the last stored image displays on the screen* (or the last four if you were in four-image mode, or the color-bar pattern if no image was stored).

*Except on Dock USB2.

CONNECTING TO A VIDEO SCREEN







6.1. DOCK M_VIDEO OR DOCK M_USB2 CONNECTION

- Connect the video cable (preferably Y/C «S-video») between the connection box and the monitor video input.
- Connect the connecting cable between the connection box and the handpiece.
- If you prefer using a footswitch rather than Sopratoch  to freeze the image, you just have to connect the footswitch (optional) to the connection box. With this configuration, Sopratoch  is inhibited.
- Connect the power supply to the outlet and to the connection box (the green indicator light should be on).
- Only use the power supply provided with the connection box.

6.2. DOCK MU_USB2 OR DOCK MU_VIDEO CONNECTION

- Please refer to the integration manual of DOCK MU_USB2 / DOCK MU_VIDEO for its connections.
- Connect the connecting cable to the handpiece.
- Connect the video cable (preferably Y/C «S-video») between the connection box and the monitor video input.

6.3. SOPROTOUCH IMAGE FREEZING OPERATION



- When powering on, the camera automatically selects the one-image mode.
- To switch to four-image mode, press for more than three seconds (until a black flash appears on the screen) Sopratoch  (or if you have chosen to use a footswitch, press it for more than three seconds).
- Perform the same handling to switch back to one-image mode.
- In one-image mode, you just have to slightly touch Sopratoch  (or to briefly press the footswitch once) as soon as the desired image appears on the monitor. The image is automatically stored in the camera and displayed on the screen. If you want to return to direct mode, you just have to slightly touch the Sopratoch  (or press the footswitch) once more.
- Another little gentle touch of the Sopratoch  (or press of the footswitch) will freeze another image by deleting the previous one.
- In four-image mode, the image is stored in one of the quarters of the screen when you slightly touch Sopratoch  (or press the footswitch) and remains displayed on the screen. Another little light touch on Sopratoch  (or press of the footswitch) will return the image to direct mode. A third little light touch (or press) will store a second image in another quarter of the screen and so on until obtaining the four images.

CONNECTING TO A COMPUTER

You should start by checking that your computer meets the following minimum use requirements:

- PC-type computer
- PC complying with IEC 60950
- Pentium III - 500 Mhz processor
- 20 Gb hard disk
- 512 Mb RAM internal storage
- Windows 2000 Pro SP4 / XP Pro SP1
- Two 2.0 Hi-Speed USB ports
- 32 Mb RAM graphic board not shared compatible DirectX 9
- USB chipset: Intel or NEC
- Screen resolution: 1024 x 768

7.1. DOCK M_USB2 OR DOCK USB2 CONNECTION

- Connect the USB cable between the connection box and one of the computer USB ports.
- Connect the connecting cable between the connection box and the handpiece.
- If you prefer using a footswitch (only DOCK M_USB2) rather than SoproTouch  to freeze the image, you just have to connect the footswitch (optionally provided) to the connection box. With this configuration, SoproTouch  is inhibited.
- Connect the power supply to the outlet and to the connection box: the green indicator light should be on (only DOCK M_USB2).

7.2. DOCK MU_USB2 CONNECTION

- Refer to the DOCK MU_USB 2 integration manual.
- Connect the connecting cable to the handpiece.
- Connect the USB cable between the connection box and one of the computer USB ports.

7.3. SOPRO IMAGING SOFTWARE INSTALLATION

- Insert the SOPRO Imaging CD-ROM into the driver. It automatically executes.

 **WARNING:**

If the CD-ROM does not automatically run or if the operating system is lower than Windows XP SP1, follow the below instructions:

- Go to the Start menu > Execute.
- Type D:\setup.exe (replace D by the letter of the CD-ROM driver).
- And then, click on OK. The file instantly runs... then follow the steps from the below point.

 **NOTE:**

Clicking on the key "Browse this CD-ROM" allows access to a Windows browse window from which it is possible to consult the whole content of the CD-ROM.

At the CD-ROM root, there are the files allowing the automatic launch and/or the manual setup.

- in the directory "Document" and its subdirectories, there are all the documents about the Imaging SOPRO software and the Sopix system; these documents are in PDF format. Make sure to correctly install Acrobat Reader in case of reading difficulties.
- the Drivers directories contain the drivers necessary to use the hardware accepted by SOPRO Imaging (Sopix system, SOPRO cameras in USB 1 and USB 2, Hasp protection key).
- the directory SOPRO Imaging contains the SOPRO Imaging installation program.
- the directory "Tools" contains the Microsoft Direct X 9.0 c and ADOBE Acrobat Reader installation programs.

 **NOTE:**

To obtain better performance (if possible) when using the Imaging SOPRO software, it is recommended to install DirectX 9.0c. In order to do this, click on the key "Install DirectX 9.0c" and then, follow the displayed instructions. DirectX 9.0c is a Microsoft® product. In case of difficulties when installing this product, consult the information provided by this editor.

In order to ensure maximal compatibility with all the installed systems (computers, Windows, and word processing version) it was decided to provide the documents available on the CD-ROM in PDF format.

This format developed by ADOBE® Company can be read with the Acrobat Reader service program.

If Acrobat Reader is not installed on the computer or the version is not recent enough, click on the key "Install Acrobat Reader" and then, follow the instructions. Acrobat Reader is an ADOBE® product. In case of difficulties when installing this product, consult the information provided by this editor.



- *A dialog box opens - it is the main menu window allowing the installation of a certain number of programs related to SOPRO Imaging application.*
- *Click on "Install SOPRO Imaging". A window displays; select the desired language during the installation process.*
- *A dialog box opens. It displays the software license to be entirely read to continue the installation. Once the terms are read, click on "Next".*
- *By default, the Imaging SOPRO software will automatically install in the directory "C:\Program Files\SOPRO Imaging". To start installing the software, click on "Next".*
- *Once the installation is completed, a dialog box displays. Click on "Finish".*

7.4. SOPRO IMAGING SOFTWARE CONFIGURATION

Refer to the installation and configuration manual of the USB connections for Sopro camera that is on the Sopro Imaging CD-ROM in the document directory.

DESCRIPTION OF THE CONNECTION BOXES


8.1. DOCK M_USB2 OR DOCK M_VIDEO POWER SUPPLY

The dental camera power supply is connected to the power outlet. The other end of the cord is connected to the dock where the symbol 6V  is located (PHIHONG, PSA 10R-060 or FRIWO Model, MPP15 FW 7555M/06 model). The power supply automatically adapts to the electric networks 110 V~ - 230 V~; 50 Hz - 60 Hz; 0.5 A. The camera voltage is powered by 6V of a continuous low voltage type  (1.67 A).

8.2. DOCK MU_USB2 OR MU_VIDEO POWER SUPPLY

The electrical connection of this connection box should be performed by the installer. The dental camera electrical supply is realized through the connection box that should be connected 24 V~ 50 Hz - 60 Hz; 10 VA.


8.3. DOCK USB2 POWER SUPPLY

The dental camera electrical supply is directly performed through the computer USB port. The voltage powering the camera is of continuous 5 V low voltage type  (0.5 A).

8.4. VIDEO AND USB OUTPUTS

This camera has two independent video outputs - a composite one and a Y/C "S-Video". One of these two outputs must be connected to the monitor video input (preferably Y/C "S-Video"). This camera has a digital USB 2.0 output that can be connected to the USB port2 of a computer.

8.5. FOOTSWITCH

The footswitch should be connected here  .if you have selected it to freeze the image (only available on DOCK M_USB2 and DOCK M_VIDEO). For DOCK MU_USB2, DOCK MU_VIDEO, please refer to the product integration instructions.

8.6. IDENTIFICATION

The indications born on the boxes identify the dental camera according to the international standards CEI 601-1 and CEI 417.



Video output.



Handpiece connection.



Footswitch connection.



Continuous voltage.

USB  USB2 output.



“BF type camera”.



Caution, please consult the ACCOMPANYING DOCUMENTS.



Disposal of electric and electronic equipment marketed after 01/August/2005.



For active medical devices, this symbol is associated to the manufacturing year (expressed with four digits).



For active medical devices, this symbol is associated to the manufacturer name and address.



Product compliance according to the European directive 93/42/EEC relative to medical devices.



Grounding.

The devices that connect to video or USB outputs should comply with IEC 60950 standard.

MAINTENANCE

For each new patient, it is essential to use the dental barriers provided with the camera or provided as a complement.

Before first using it, it is imperative to follow the complete disinfecting procedure.

Any intra-oral camera returning from service or maintenance should follow the complete disinfecting procedure before being used.

! WARNING :

Do not use products containing:

- *Ammoniac, trichloroethylene*
- *Dichloroethylene*
- *Ammonium hydrochlorid*
- *Chlorinated and aromatic hydrocarbon*
- *Ethylene dichloride*
- *Methylene chloride*
- *Ketones*

Deterioration risks of the plastic parts.

! WARNING :

Do not directly spray disinfecting products on SOPRO products.

9.1. HANDPIECE AND CONNECTION BOX MAINTENANCE:

DESCRIPTION	RECOMMENDATIONS	USE INSTRUCTIONS AND PRECAUTIONS	
		✓	✗
Disinfecting.	<ul style="list-style-type: none"> • Surface cleaning and disinfecting wipes of Wipes Septol™ type - Pierre Rolland. 	<ul style="list-style-type: none"> ✓Take the wipe, wring it, and then scrub the equipment until obtaining visible cleanliness. ✓Allow to dry in the open air. ✓Carefully close the packaging box. 	<ul style="list-style-type: none"> ✗ Do not scrub ✗ Do not rinse. ✗ Do not immerse in a disinfecting liquid.

 **NOTE :**

In case of contact with blood or important soiling, it is strongly recommended to follow a disinfecting process. First of all, clean the handpiece with disinfecting wipes, then roll up several disinfecting wipes around the handpiece and leave on for 15 minutes.

AFTER-SALES SERVICE

10.1. WARRANTIES

SOPRO ensures its products to be free from material and manufacturing defects for a period of one (1) year coming into force at the purchase date. This warranty does not apply to misused, modified, unintended, or accidentally damaged products, or products subject to abnormal use and handling conditions. The distributors, other than ACTEON Group's subsidiaries, are not authorized to apply a warranty more extended on behalf of SOPRO.

The entire liability of SOPRO is limited to its convenience when replacing or repairing, free of charge, the defective product if it has been sent to SOPRO After-Sales Service. This applies to the warranty period.

Out of France, the access to the warranty is only possible if the product was bought in one of the points of sale authorized by SOPRO in the country where it will be used.

THIS WARRANTY CONSTITUTES THE ONLY AND UNIQUE REMEDY. IT REPLACES ANY OTHER WARRANTY, FOR EXAMPLE, OF ADEQUACY TO A PARTICULAR AIM, SHOULD IT BE EXPLICIT OR IMPLICIT. SOPRO SHALL NOT BE LIABLE FOR ANY PARTICULAR DAMAGE, INDIRECT, ACCIDENTAL OR CONSEQUENTIAL, OR FOR ANY DETERIORATION OR DATA LOSS, ON A CONTRACTUAL, NON-CONTRACTUAL OR OTHER BASIS.

The liability exclusion or limitation for direct or indirect damage does not apply under the regulatory or legal rules in force in some countries and the present exclusion may not apply to a purchaser in those countries.

10.2. IN CASE OF FAILURE

PROBLEMS	CAUSES	SOLUTIONS
With a video monitor		
No image displays on the screen and the camera LEDs are not on.	<ul style="list-style-type: none"> Defective power supply. Connection problem. 	<ol style="list-style-type: none"> 1. Check the power supply is correctly connected to the network and to the connection box. 2. Check the connecting cable is correctly connected to the handpiece and to the connection box.
The camera switches on, but no image displays on the screen.	<ul style="list-style-type: none"> Defective monitor power supply. Connection problem. 	<ol style="list-style-type: none"> 1. Check the video cable is correctly connected to the monitor and to the connection box. 2. Check the monitor is switched on.
An image displays on the screen, but the quality is not satisfactory.	<ul style="list-style-type: none"> Monitor configuration. 	Check the video monitor configuration is correctly set up (brightness, contrast, saturation, etc.)
An image displays, but it is not really clear (blurry)	<ul style="list-style-type: none"> Hygienic protector. 	Check the hygienic protector is correctly positioned on the camera head.
With a computer		
No image displays on the screen and the camera LEDs are not on.	<ul style="list-style-type: none"> Defective power supply. Connection problem. 	<ol style="list-style-type: none"> 1. Check the power supply is correctly connected to the network and to the connection box. 2. Check the connecting cable is correctly connected to the handpiece and to the connection box.
The camera switches on, but no image displays on the screen.	<ul style="list-style-type: none"> Configuration. Driver. Connection problem. 	<ol style="list-style-type: none"> 1. Check the camera is correctly set up in Sopro Imaging (please, refer to Sopro Imaging owner's manual). 2. Check the camera is correctly detected in the device driver (correct installation of its driver). 3. Check the USB cable coming from the DOCK is correctly connected to the HUB.
An image displays on the screen, but the quality is not satisfactory.	<ul style="list-style-type: none"> Camera driver configuration. 	Check the camera configuration in the Sopro Imaging software (brightness, contrast, saturation, etc.). Please refer to Sopro Imaging owner's manual.
An image displays, but it is not very clear (blurry)	<ul style="list-style-type: none"> Hygienic protector. 	Check the hygienic protector is correctly positioned on the camera head.

If the defect persists and you will return the dental camera to us, be sure to send it in its original packaging. In the same way, the dental camera should be sent to us in its totality (Connection box, handpiece, cables). Then, please, enclose with your packing list a brief explanatory note relative to the noticed defect.


If some parts constituting the camera happened to break, it is imperative to include everything so that the defective parts can be replaced.

When your material is returned to you, you should check its condition and note any reservation on the delivery slip, if necessary. You then have 48 hours to confirm by registered letter sent to the carrier. After this period, the carrier will be able to deny these reservations.

If any material returned to you is damaged during transportation, the repair charges will be billed to either the carrier (if the reservations were made within the period) or the recipient. So confirm as soon as possible that all materials are working properly.

TECHNICAL FEATURES

SOPRO 617

- high sensitivity CCD 1/4".
- Resolution: (752 x 582) PAL; (768 x 494) NTSC.
- Definition: 470 lines.
- Sensitivity: 2 lux.
- Lighting: 8 LED
- Adjustments: automatic
- Non-inverted image.
- Freeze image using SoproTouch  or foot control (optional)
- angle of view: 80°
- handpiece dimensions: L: 205; W: 28; H: 24 mm.
- Distal part dimensions: W: 16.5 x H: 10.8 mm.
- Handpiece weight: 55g.
- applied part of BF type.

DOCK M_USB2

- Memory 1 and 4 images.
- Power supply: 110 V- - 230 V-; 60 Hz - 50 Hz.
- Consumption: 9 VA.
- 1 PAL or NTSC video output.
- 1 PAL or NTSC S-video output.
- 1 digital USB output 2.0.
- Controller dimensions: L: 145; W: 130; H: 35 mm.
- Controller weight: 245 g.

DOCK M_VIDEO

- Memory 1 and 4 images.
- Power supply: 110 V- - 230 V-; 60 Hz - 50 Hz.
- Consumption: 9 VA.
- 1 PAL or NTSC Video output.
- 1 PAL or NTSC S-Video output.
- Controller dimensions: L: 145; W: 130; H: 35 mm.
- Controller weight: 245 g.

DOCK MU_USB2

- Memory 1 and 4 images.
- Power supply: 24 V-; 50 Hz - 60 Hz.
- Consumption: 10 VA.
- 1 PAL or NTSC video output.
- 1 PAL or NTSC S-video output.
- 1 digital USB output 2.0
- Controller dimensions: L: 100; W: 72; H: 36 mm.
- Dock weight: 190 g.

DOCK MU_VIDEO

- Memory 1 and 4 images.
- Power supply: 24 V-; 50 Hz - 60 Hz.
- Consumption: 10 VA.
- 1 PAL or NTSC video output.
- 1 PAL or NTSC S-video output.
- Controller dimensions: L: 100; W: 72; H: 36 mm.
- Dock weight: 190 g.

DOCK USB2

- Cable length: 3.5 m.
- 1 USB output 2.0.
- Dock dimension: L: 100; W: 46; H: 20 mm.
- Dock weight: 165 g.

- Operating temperature: +10 °C to +40°C.
- Storage temperature: -20°C to +45°C.
- Relative humidity: 10 % to 90 %.
- Atmospheric pressure: 900 hPa to 1,060 hPa.
- Continuous service.
- Not protected against water chutes (IPX0).
- Not adapted to the use in presence of an anaesthetic mixture flammable with air, oxygen or dinitrogen monoxide.
- Complies with the European directive 93/42/EEC.
- Complies with EC60601-1 standard.

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