

KaVo ProXam iCam

Instructions for use



The manufacturer, assembler and importer are responsible for the safety, reliability and performance of the unit only if:

- installation, calibration, modification and repairs are carried out by qualified authorised personnel
- electrical installations are carried out according to the appropriate requirements such as IEC 60364
- equipment is used according to the operating instructions.

Dentall Co., Ltd. pursues a policy of continual product development. Although every effort is made to produce up-to-date product documentation this publication should not be regarded as an infallible guide to current specifications. We reserve the right to make changes without prior notice.

Copyright Dentall Co., Ltd.

Publication number 2.023.8071 Revision 5

Released 23 October 2023

Table of contents

1	Introduction to KaVo ProXam iCam.....	1
2	Associated documentation.....	3
3	Symbols on product labels.....	4
4	For your safety.....	6
5	Package contents.....	9
6	Operating intraoral camera.....	10
6.1	Placing hygienic cover on intraoral camera.....	11
6.2	Intraoral camera placed in dentist element of KaVo treatment unit.....	11
6.3	Intraoral camera as stand-alone version.....	13
6.4	Disconnecting cable from intraoral camera.....	15
7	Troubleshooting.....	16
8	Cleaning and disinfection.....	17
9	Service.....	18
10	Terms and conditions of warranty.....	19
11	Disposal.....	20
12	Technical specifications.....	21

1 Introduction to KaVo ProXam iCam

This manual describes how to set up and use the KaVo ProXam iCam intraoral camera.

The intraoral camera KaVo ProXam iCam is meant to be used together with Romexis or KaVo software (CONNECTbase, CONEXIO or TWAIN Interface). It can be used in dental practices as a tool for diagnosis, treatment planning and patient motivation.

The intraoral camera KaVo ProXam iCam can either be connected to a KaVo treatment unit or used as a standalone version.

The intraoral camera KaVo ProXam iCam is a medical device, and the user must be familiar with its operation. Read this manual carefully before using the equipment.



The KaVo ProXam iCam intraoral camera unit fulfils the requirements of Directives of (EU) 2017/745 (CE-MDR) and 2015/863/EU (RoHS).

NOTE

If the intraoral camera KaVo ProXam iCam is used together with Romexis, Romexis software version 5.2.0.R or later is required.

NOTE

If the intraoral camera KaVo ProXam iCam is used together with a KaVo treatment unit, ensure that the intraoral camera is connected to the treatment unit before you switch on the treatment unit.

NOTE

The device fulfils the requirements of IEC 60601-1-2. Radio sending equipment, like mobile phones, shall not be used in close conjunction with the device, this can affect the device functions.

NOTE

Handle the intraoral camera according to the instructions given in this manual. The limited warranty does not cover damage which is due to misuse, e.g. dropping the instrument, neglect, or any cause other than ordinary application.

NOTE

Special care must be taken when using equipment creating high disturbances, like diathermy, so that for instance diathermy cables are not laid upon or near the device.

NOTE

In doubtful situations contact equipment responsible person or supplier.

NOTE

External equipment intended for connection to signal input, signal output or other connectors, shall comply with relevant IEC standard (e.g. IEC IEC 60950-1 or IEC 62368-1 for IT equipment or IEC 60601-1 for medical electrical equipment). In addition, all such combinations - systems - shall comply with the standard IEC 60601-1-1, Safety requirements for medical electrical systems. Equipment not complying to IEC 60601 shall be kept outside the patient area, as defined in the standard.

NOTE

Any person who connects external equipment to signal input, signal output or other connectors has formed a system and is therefore responsible for the system to comply with the requirements of IEC 60601-1-1. If in doubt, contact qualified technician or your local representative.

NOTE

The PC and other equipment connected to the system must be:

- approved by local authorities: e.g. IEC-approved (CE marked), UL / CSA approved
- located outside the patient area
- protectively earthed.

2 Associated documentation

KaVo treatment units are delivered with the following manuals:

- Instructions for use
For dental care professionals. Describes the treatment unit and its different parts as well as instructs how to operate and clean the treatment unit.
- Assembly instructions
For service personnel. Describes how to install the treatment unit.
- Technician's instructions
For service personnel. Gives instructions for service situations.

Romexis software is delivered with the following manuals:

- Romexis instructions for use
For dental care professionals. Describes how to monitor and control the activities as well as gather data related to dental treatments.
- Romexis quick installation instructions
For service personnel. Describes how to install Romexis software.
- Romexis technician's instructions
For service personnel. Gives instructions for service situations.

3 Symbols on product labels

-  Keep dry
-  Temperature limitation
-  Humidity limitation
-  Atmospheric Pressure Limitation
-  Stacking limitation
-  Distributor (Standard ISO 15223)
-  Medical Device (Standard ISO 15223-1:2020).
-  CE Mark
-  Manufacturer (Standard ISO 7000).
-  Date of manufacture (Standard ISO 7000).
-  Serial number (Standard ISO 7000).
-  Unique Device Identifier
-  Type BF applied part for specified dental instruments (Standard IEC 60417).
-  Direct current



Consult instructions for use (Standard ISO 15223).



Refer to instruction manual/booklet (Standard ISO 7010).



Disposable item. Do not reuse (Standard ISO 7000).



Authorized representative in the European Community



Swiss authorised representative



Health Industry Bar Code

4 For your safety

CAUTION

The intraoral camera must be stored and operated in a dry and ventilated place.

CAUTION

Turn off the intraoral camera when you are not using it.

CAUTION

When performing maintenance or when the intraoral camera is not to be used for a long period of time, disconnect it from the dental unit or computer to ensure safety. Leaving or storing while plugged in could cause insulation degradation, short-circuit, etc., which could cause a fire.

CAUTION

Use the intraoral camera after fitting the specified hygienic cover. Using the intraoral camera without fitting the specified hygienic cover could cause infection, device breakage and accidental ingestion of broken parts.

CAUTION

Use a new hygienic cover for each patient. Reusing the hygienic cover could cause infection.

CAUTION

Before and after using the intraoral camera, wipe it with gauze or a similar material containing ethanol for disinfection. Using the intraoral camera in an unsanitary condition could cause infection.

CAUTION

Do not use a torn hygienic cover. If you use a torn hygienic cover, it may cause infection or camera handpiece malfunction.

CAUTION

Do not disassemble or modify the intraoral camera. Order repairs and inspections of the inside of the intraoral camera from your local dealer.

CAUTION

Do not damage the camera cable. (Do not scratch, modify, put near hot devices, forcibly turn, bend, twist, tug, place heavy items upon, or knot). For repairs of the cable, please contact your local dealer.

CAUTION

Do not use a damaged camera handpiece or USB cable. This could cause accidental ingestion of damaged parts or electric shock.

CAUTION

Only the supplied camera cable should be used. Using a cable other than the one supplied with the intraoral camera could cause electric shock or short-circuit.

CAUTION

Protect the intraoral camera and USB cable from liquids and sharp objects.

CAUTION

Do not use the camera handpiece when it is wet. This could cause electric shock or product malfunction. If water gets inside the intraoral camera, contact your local dealer.

CAUTION

The PC connected to the intraoral camera must conform to IEC 60950-1, IEC 62368-1 or IEC 60601-1. When connecting the intraoral camera to other devices, there is a risk that the leakage current may increase.

The combination and installation shall conform to IEC 60601-1. Any person who connects this intraoral camera is responsible for ensuring that the system conforms to IEC 60601-1.

If there is anything that you do not understand, please contact your local dealer.

CAUTION

If there is lightning or thunder, do not touch the intraoral camera or the devices to which it is connected. This could cause electric shock.

CAUTION

Do not directly touch the head of the intraoral camera for a long period of time with the power turned on. The temperature of the LED light exceeds 41°C (it reaches to maximum 48°C after 10 minutes of use). In order to prevent burns caused by heat, be careful not to let the LED light part continuously touch the inside of the patient's mouth.

Direct, prolonged contact with the hot parts of the intraoral camera could cause low-temperature burns*. * Persons that have poor blood flow (vascular disorders, blood circulation impairment, diabetes, high blood pressure) or persons that have weak skin sensation, etc. tend to get low-temperature burns.

CAUTION

Do not use the intraoral camera near persons that use pacemakers and other similar devices. The radio waves from the intraoral camera could affect the operation of pacemakers, etc.

CAUTION

The operator must not touch the patient and the PC connected to the intraoral camera simultaneously. This could cause electric shock.

CAUTION

Prevent a patient from touching the PC connected to the intraoral camera. The camera handpiece and the camera cable are suitable for use within the patient environment.

CAUTION

The operator must not touch the patient and the metal part of the camera cable connected to the PC simultaneously. This could cause electric shock.

CAUTION

Do not connect additional multiple socket-outlets or extension cord for power supply to the intraoral camera system. This could cause electric shock.

CAUTION

To avoid an infection risk, when disposing of this intraoral camera, you must obey the laws applicable in your area and country and comply with the regulations of your hospital.

CAUTION

When using an intraoral camera that has not been used for a long time, ensure that it operates normally and safely before use.

CAUTION

In the following situations, stop using the intraoral camera and disconnect the plug:

- smoke rises from the product
- the intraoral camera is abnormally hot
- the intraoral camera smells burnt
- abnormal noise is heard from the intraoral camera
- if water or foreign bodies get inside the product
- the external case of the intraoral camera is damaged.

Continuing to use the intraoral camera could cause fire or electric shock.

CAUTION

Do not place the intraoral camera in an unstable location (On an uneven table or an incline, etc.). If the intraoral camera falls, this could cause injury or product malfunction.

CAUTION

Do not expose to direct sunlight for a long period of time.

CAUTION

This equipment is not suitable for use in the presence of flammable anesthetics or oxygen.

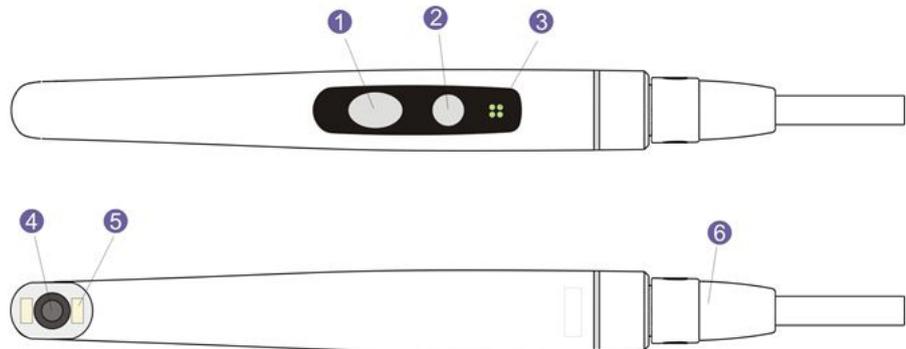
5 Package contents

The package contains the following items:

- 1 intraoral camera
- 1 USB cable

6 Operating intraoral camera

Handpiece



- 1 Image control button
- 2 Power/macro button
- 3 Indicator light
- 4 Camera lens
- 5 Light source (LED)
- 6 USB cable

Prerequisites

The intraoral camera KaVo ProXam iCam can be used either with the KaVo TWAIN Interface or with Romexis software:

- **Option 1: KaVo TWAIN Interface**

The KaVo TWAIN Interface must be installed. When the TWAIN Interface is running, the intraoral camera is continuously connected to the software.

See also *User Manual KaVo TWAIN Interface*.

- **Option 2: Romexis software**

Romexis software must be installed. When Romexis is running, the intraoral camera is continuously connected to the software.

When the intraoral camera is used together with a KaVo treatment unit, the following must apply:

- The connection between the intraoral camera and the treatment unit must be enabled.
- Either KaVo CONNECTbase or KaVo CONEXIO must be installed on the KaVo treatment unit.

See *User Manual KaVo CONNECTbase* and *User Manual KaVo CONEXIO*.

Operating the intraoral camera

Before using the intraoral camera, place a hygienic cover on the camera. For instructions, see section "Placing hygienic cover on intraoral camera" on page 11.

The intraoral camera can be placed in the adapter for camera standing at the dentist element. For instructions on how to operate the camera, see sections

- "Intraoral camera placed in dentist element of KaVo treatment unit" on page 11
- "Intraoral camera as stand-alone version" on page 13.

6.1 Placing hygienic cover on intraoral camera

Before using the intraoral camera, place a hygienic cover on the camera so that the lens of the camera points toward the paper sheet (as demonstrated in the picture below). Remove the paper sheet before using the intraoral camera.



The order code for the hygienic cover (500 pieces) is 2.023.8002.

6.2 Intraoral camera placed in dentist element of KaVo treatment unit

For more detailed information on how to use the intraoral camera from the KaVo treatment unit, see the user manuals of the KaVo treatment unit, KaVo CONNECTbase and KaVo CONEXIO.

Starting intraoral camera

To turn on the intraoral camera, pick it up from the dentist element (only possible with S-table treatment units).

Alternatively, you can turn the intraoral camera on by pressing either of the buttons on the camera handpiece (**Power/macro** or **Image control** button).

When the intraoral camera turns on,

- the indicator light on the handpiece turns blue,
- you will hear a short sound signal,
- the live image is displayed on the treatment unit screen.

Once the intraoral camera is activated, you can operate it

- from the treatment unit's foot control, if using it in connection with KaVo CONNECTbase or KaVo CONEXIO, or
- from the camera handpiece.

You can use the camera in normal or macro mode, as well as freeze and save the image. The LED on the handpiece is turned on and off simultaneously with the intraoral camera.

Macro on/off

A short sound signal indicates that the macro mode is turned on/off. When the macro mode is on, autofocus is off and the indicator light on the handpiece is lilac.

Interface	Action
Handpiece	Press the Power/macro button to turn the macro mode on/off.

Freezing/unfreezing image

A short sound signal indicates the freeze/unfreeze of an image. When the image is frozen, the indicator light on the handpiece is green. When you unfreeze the image, the camera goes back to live stream (indicated by the blue indicator light on the handpiece).

Interface	Action
Foot control	Push the foot control pedal of the KaVo treatment unit short once to freeze/unfreeze the image.
Handpiece	Press the Image control button halfway to freeze/unfreeze the image.

Saving image

A frozen image can be saved from the treatment unit and the handpiece. From the handpiece you can save an image also without freezing the image first.

A long sound signal indicates that an image is saved. When the image is being saved, the indicator light on the handpiece blinks orange. After the image is saved, the camera goes back to live stream (indicated by the blue indicator light on the handpiece).

Interface	Action
Foot control	Push the foot control pedal of the KaVo treatment unit long to save the image.
Handpiece	Press the Image control button for two seconds. Note! When saving an image from the handpiece, you can, but do not have to freeze the image first.

Turning off intraoral camera

When you return the intraoral camera to the dentist element, the camera is automatically turned off and the indicator light on the handpiece goes off (only possible with S-table treatment units).

The intraoral camera can also be turned off by

- pressing the **Power/macro** button on the handpiece for two seconds, or by
- not using the intraoral camera for 60 seconds.

6.3 Intraoral camera as stand-alone version

When the intraoral camera is used as a stand-alone version, it is not connected to a KaVo treatment unit, but directly to a computer. It is operated either from the camera handpiece, from the Romexis user interface or from the KaVo TWAIN user interface.

For more detailed information on how to use the intraoral camera from Romexis, see *Romexis user's manual*.

For more detailed information on how to use the intraoral camera from the KaVo TWAIN Interface, see *User Manual KaVo TWAIN Interface*.

Starting intraoral camera

OPTION 1 - TWAIN INTERFACE

Open your external software and the TWAIN interface. The camera is automatically activated. The camera can alternatively be activated by:

- pressing the **Power** button on the camera handpiece, or by
- pressing the **Play/Pause** button in the TWAIN interface.

NOTE

If multiple cameras are used simultaneously within the TWAIN interface, the desired camera must be chosen with the camera selection button in the TWAIN interface.

The indicator light on the handpiece turns blue and the intraoral camera livestream is displayed on the computer monitor.

Once the intraoral camera is activated, you can operate it

- from the camera handpiece,
- from the KaVo Foot Control Vision Full HD, or
- remotely from the TWAIN user interface.

OPTION 2 - ROMEXIS

Before you turn on the intraoral camera, first select the patient and the 2D module in Romexis. Then, pick up the camera and activate it by:

- pressing the **Power** button on the camera handpiece, or by
- pressing the **Intra Cam** button in Romexis.

The indicator light on the handpiece turns blue and the Romexis intraoral camera view is displayed on the computer monitor.

Once the intraoral camera is activated, you can operate it

- from the camera handpiece, or
- remotely from the Romexis user interface.

You can use the camera in normal or macro mode, as well as freeze and save the image. The LED on the handpiece is turned on and off simultaneously with the intraoral camera.

Macro on/off

A short sound signal indicates that the macro mode is turned on/off. When the macro mode is on, autofocus is off and the indicator light on the handpiece is lilac.

Interface	Action
Handpiece	Press the Power/macro button to turn the macro mode on/off.

Freezing/unfreezing image

A short sound signal indicates the freeze/unfreeze of an image. When the image is frozen, the indicator light on the handpiece is green. When you unfreeze the image, the camera goes back to live stream (indicated by the blue indicator light on the handpiece).

Interface	Action
Handpiece	Press the Image control button halfway to freeze and unfreeze the image.
Romexis	Press the Freeze button to freeze the image. Press the Resume button to unfreeze the image. The buttons are located at the bottom of the intraoral camera window.
TWAIN Interface	Press the Play/Pause button to freeze the image. Press the Play/Pause button again to unfreeze the image. The buttons are located at the top of the TWAIN interface.
Foot Control Vision Full HD	Push the foot control pedal short to freeze/unfreeze the image.

Saving image

A frozen image can be saved from the handpiece, the TWAIN Interface and Romexis. From the handpiece you can save an image also without freezing the image first.

A long sound signal indicates that an image is saved. When the image is being saved, the indicator light on the handpiece blinks orange. After the image is saved, the camera goes back to live stream (indicated by the blue indicator light on the handpiece).

Interface	Action
Handpiece	Press the Image control button for two seconds. Note! When saving an image from the handpiece, you can, but do not have to freeze the image first.
Romexis	When the image is frozen, press the Save button at the bottom of the intraoral camera window.
TWAIN Interface	Press the "Save" button to save the image. The button is located at the top of the TWAIN interface.
Foot Control Vision Full HD	Push the foot control pedal long to save the image.

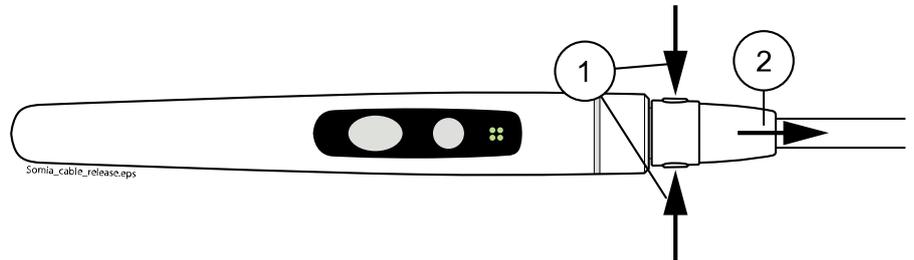
Turning off intraoral camera

When you have finished working with the intraoral camera, deactivate it by pressing the **Power** button on the camera handpiece.

When the camera is deactivated, the indicator light on the handpiece turns off.

6.4 Disconnecting cable from intraoral camera

To disconnect the USB cable from the intraoral camera, hold the camera with one hand, press the buttons on both sides of the USB cable connector with the other hand (1) and pull the cable away from the camera (2).



7 Troubleshooting

The table below describes the most common error situations. If you are unable to solve the problem, contact your local dealer.

Problem	Solution
The monitor shows a frozen intraoral image although you are moving the intraoral camera.	<p>The intraoral image might be frozen. In this case, unfreeze the image.</p> <p>If the intraoral camera has been turned off, turn it back on. When the intraoral camera is on, the LED lights around the camera lens are on.</p> <p>If this does not solve the situation, turn off the intraoral camera and the treatment unit / computer, ensure that the camera is connected to the treatment unit / computer, and then turn on the treatment unit / computer and the intraoral camera (in this order).</p>
The intraoral camera is turned on, but there is no intraoral image on the monitor.	<p>Ensure that you have selected a patient and the 2D module in Romexis.</p> <p>If this does not solve the situation, turn off the intraoral camera and the treatment unit / computer, ensure that the camera is connected to the treatment unit / computer, and then turn on the treatment unit / computer and the intraoral camera (in this order).</p>
The frame is twinkling after freezing.	The handpiece must be kept still when freezing an image. Retake the image.

8 Cleaning and disinfection

Disconnect the camera from the USB port and detach the USB cable from the handpiece before starting any cleaning procedures. Do not immerse the handpiece in fluids. Do not spray any cleaning solutions directly on the handpiece.

To clean the handpiece housing, use a soft, clean, and lint-free cloth dampened with non-corrosive disinfectant solution (max. 70% alcohol).

It is recommended to use alcohol as a disinfectant solution, and if an untested disinfectant solution is used, handpiece housing may be damaged.

Use a new hygienic cover for each patient. Reusing the hygienic cover could cause infection.

Daily inspection

The operator checks the handpiece, connector, and cable for damage every day. If damage is found, discontinue use and contact your local dealer.

9 Service

Service

Service hotline: +49 7351 56-2700

Service.Multimedia@kavo.com

Please refer to the serial number of the product in all inquiries. The serial number can be found on the camera handpiece.



For further information, please visit: www.kavo.com

Technical customer service

The technical support for KaVo products is primarily offered by the dental supplier.

KaVo provides ongoing training and special courses for dealer technicians.

To guarantee constant readiness for use and maintenance of value of the KaVo products, the products must be regularly serviced.

10 Terms and conditions of warranty

KaVo provides the final customer with a warranty that the product cited in the handover certificate will function properly and guarantees zero defects in the material or processing for a period of 12 months from date of installation subject to the following conditions:

Upon justified complaints of flaws or a short delivery, KaVo will make good its warranty by replacing the product free of cost or repairing it according to the choice of KaVo. Other claims of any nature whatsoever, in particular with respect to compensation, are excluded. In the event of default and gross negligence or intent, this shall only apply in the absence of mandatory legal regulations to the contrary.

KaVo cannot be held liable for defects and their consequences due to natural wear, improper cleaning or servicing, non-compliance with operating, servicing or connection instructions, calcification or corrosion, contaminated air or water supplies or chemical or electrical factors deemed abnormal or impermissible in accordance with factory specifications.

The warranty does not usually cover bulbs, glassware, rubber parts, software, scanner tips, batteries, tubes, screws, nuts, and other fasteners, imaging plates and the colourfastness of plastics.

Defects or their consequences that can be attributed to interventions on or changes made to the product by the customer, or a third party are excluded from the warranty.

Claims from this warranty can only be asserted when the transfer form (copy) belonging to the product has been sent to KaVo, and the original can be presented by the operator or user.

11 Disposal

In order to reduce the environmental load over the product's entire lifecycle, our products are designed to be as safe as possible to dispose of. Our products fulfil the requirements of directives RoHS, REACH and WEEE.

Disposal of obsolete units is the responsibility of the waste possessor. The risks involved and the necessary precautions must be taken into account when handling waste products.

Parts which can be recycled should always be taken to the appropriate processing centres, after hazardous waste has been removed. All parts and components containing hazardous materials must be disposed of in accordance with waste legislation and instructions issued by the local environmental authorities.

12 Technical specifications

Manufacturer information	Dentall Co., Ltd. 301-905 Bucheon techno-park, 345 Seokcheon-ro, Bucheon-si, Gyeonggi-do 14501, South Korea
Authorised representative	Obelis S.A. Bd General Wahis, 53, 1030 Brussels, Belgium
Distributor	KaVo Dental GmbH Bismarckring 39 88400 Biberach, Germany
Image sensor	CMOS/ 5 Mp
Image resolution	800 x 600
Light source	2 white LEDs
Focus range	9 mm - 35 mm
Angle of view	62°
Dimensions	176 x 22.5 x 21.7 mm
Weight	33 g
Medical Devices Regulation ((EU) 2017/745)	Class I
Electrical classification	Type BF applied part 
Power supply	5 VDC, 500mA (through USB 2.0 port)
Environmental conditions, operating limits	Temperature: +15°C to +35°C (+59°F to +95°F) Humidity: 5 - 95% RH; non-condensing humidity Atmospheric pressure range: 700 - 1060 hPa (10 - 15 psi)
Environmental conditions, transportation limits	Temperature: -20°C to +60°C (-4°F to +140°F) Humidity: 5 - 95% RH; non-condensing humidity Atmospheric pressure range: 700 - 1060 hPa (10 - 15 psi)
Environmental conditions, storage limits	Temperature: -5°C to +60°C (+23°F to +140°F) Humidity: 5 - 95% RH; non-condensing humidity Atmospheric pressure range: 700 - 1060 hPa (10 - 15 psi)
Conformed safety standard	IEC 60601-1: 2005 + CORR. 1 (2006) + CORR. 2 (2007) +AM1(2012) or IEC60601-1:2012 +AM2(2021) or IEC60601-1:2021 EMC: EN 60601-1-2 : 2022
Max. altitude for operation	Up to 3000 m
Degree of protection against ingress of water	IPX0

