ATMOS S 61 Servant vision
ENT treatment unit
Further information, accessories, consumables and spare parts are available from:

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1.1 Notes on operating instructions

These operating instructions contain important notes on how to operate the ATMOS S 61 Servant vision safely, correctly and effectively. Therefore, they are intended not only for new operating personnel to be instructed in its use, but also for use as a reference manual. They help to avoid risks, and also to reduce repair costs and down-time. Furthermore, reliability and service-life of the equipment will be increased. For these reasons these operating instructions must always be kept available near the appliance. Prior to first use please peruse the chapter 2.0 "For your safety", in order to be prepared for any possible dangerous situation.

Care and safety inspections in conjunction with professional execution provide for operational safety and readiness for use of your ATMOS S 61 Servant vision and are therefore a must besides regular cleaning. Repair work and safety inspections may be carried out only by expert personnel authorised by ATMOS. By applying only original spare parts you will have the guarantee that operational safety, readiness for work and the value of your ATMOS S 61 Servant vision will be preserved.

● The product ATMOS S 61 Servant vision bears CE marking according to the EC Directive of the council for medical products 93/42/EEC and meets the basic requirements of annex I of this directive.
● The product ATMOS S 61 Servant vision complies with all applicable requirements of the directive 2011/65/EC restricting the use of certain hazardous substances in electrical and electronic equipment ("RoHS").
● The declaration of conformity can be obtained on our website at www.atmosmed.com.
● The quality management system applied at ATMOS has been certified according to international standards EN ISO 9001 and EN ISO 13485.
● Prior to start-up please peruse chapter 2.0 „For your safety”, in order to be prepared for any possible dangerous situations.

1.2 Zweckbestimmung

Name: ATMOS® S 61 Servant vision

Main functions:
- Light sources
- Storage and heating of endoscopes
- Visualization
- Stroboscopy for larynx diagnostic

Med. indications/ application:
Standard ENT examination and/or therapy

Specification of the main function:
- Light source 15 V, 150 W
- Light source 24 V, 150 W
- LED light source, 700 mA
- camera (ATMOS Cam)
- stroboscope (ATMOS Strobo 21 LED)

Application organ:
Mouth to pharynx, auditory canal to the ear drum and the nasal cavities.

Application time:
- ENT unit: Short term use on the patient (up to 30 days)
- Suction / Compressed air / ear rinsing / light source: Temporary application on the patient (less than 60 minutes)

Application site:
Application sites are clinics and practices for ENT doctors and phoniatrists. The examination and/or therapy with the ENT unit may only be executed by medically trained persons.

Contraindications:
May not be used for irrigation of the paranasal sinuses. The ear irrigation should not be applied to an infected auditory canal or a perforated eardrum.

The product is: X active □ not active

Sterility: The ENT unit is no sterile product.

Single use product / reprocessing:
The ENT workstation is designed for multiple use. The device and part of the accessories are reusable, for information on reprocessing and disinfection please see the operating instructions.

1.3 Function

- Coldlight channels (halogen, LED)
- Automatic activation over light barrier, headlight hook, microscope arm
- Endoscope storage without/with heating
- Disinfectant timer
- Integration ATMOS Cam
- Integration ATMOS LED Strobo
- Instrument illumination
1.4 Explanation of pictures and symbols

Short cuts / symbols contained in this manual

- Follow the arrows whilst proceeding, sequence
- Please press where the dot indicates
- Activate the optional foot switch
- Please read, important information
- General information
- Numeration
- Subnumeration
- Check
- Move, plug ... in this direction
- Turn, shift ... in this direction
- Replace
- Engage, check correct fit

Pictures contained in this manual

- Warning, especial diligent notice
- Fuse according to IEC 417/5016, DIN 30600/0186
- Application part type BF
- Potential equalization

IEEE 1394  Digital Interface

- Signal input
- Signal output
- Signal in- and output
- Foot switch
- Ground wire connection
- Alternating current
- On (feed-in, power connection)
- Off (feed-in, power connection)
Important notes on safety

- The ATMOS S 61 Servant vision is produced according to IEC 601/EN 60601 and listed in the following classes:
  - VDE Class of protection 1
  - Class IIa (EEC 93/42).
- The unit may be connected only to a fixed connection installed according to the rules of the trade.
- The unit should not be positioned directly next to a wall, because of the ventilation openings on the rear side!
- Attention! Mirror and endoscope heaters may generate temperatures above 40°C!
- **Attention with the cold-light source!**
  Because of the high energy of the light there is a large amount of heat emission at the point of the optical system. Avoid too small a distance between the tissue and the field of light emission of the light guide resp. of the endoscope, as this may cause coagulation of the patient’s tissue. When using the endoscope avoid the direct contact between area of light emission and the tissue.
- **Attention, Fire Hazard!**
  Do never place the area of light emission from the light guide or from the endoscope onto heat-absorbing surfaces (dark pieces of cloth, etc.), because this will cause unacceptable high heating or even ignition of the material. Switch the light off when you do not require the light over a prolonged period of time.
  Care is to be paid in respect to light sources when working with endoscopes. Harmful heat rays are eliminated by special built-in filters: but the intensity of the light is very high. Do not look directly into the light outlets! In case of possible light failure remove the endoscope from the working area.
- The ATMOS S 61 Servant vision may be used in supervised operation by qualified personnel only which has been authorised by ATMOS and which has been trained for operating the appliance (IEC 601-1/EN 60601-1).
- The mains voltage specified on the type plate must correspond with the data of the power supply system.
- ATMOS recommends a safety-related inspection to be performed once a year by an authorised specialist.
- Never leave the patient unattended at the treatment unit.
- Make sure prior to every application of the equipment that it is technically safe and in proper condition. **Damaged leads and hoses must be replaced immediately!**
- Display instruments and valves must be checked for correct function in regular intervals!
- Correct configuration in assembly of country-specific connections:
  - green/yellow: protective conductor (PE)
  - blue: neutral conductor (N)
  - black resp. brown: phase (L)
- Please note:
  A medical insulating transformer with earth leakage monitor or any similar safety system acc. to EN 60 601-1 is required, if several devices are connected over one common power supply. The transformer must correspond the power consumption of all the devices to be connected.
- Do not place used contaminated instruments on the ENT unit!
- The ambient conditions specified in section „Technical specifications“ must be strictly observed!
- Switch off main switch after finishing work in practice.
- The ATMOS S 61 Servant vision may be operated only in rooms used for medical purposes, but not in areas subject to explosion hazard and in oxygen rich environments.
- The ATMOS S 61 Servant vision fully complies with the electromagnetic immunity requirements of standard IEC 601-1-2 / EN 60601-1-2 „Electromagnetic compatibility - Medical Electrical Equipment“.
- The ATMOS S 61 Servant vision may not be operated with units not complying with the requirements of standard EN 60601-1 „Medical Electrical Equipment“ and EN 60601-1-2 „Electromagnetic compatibility (Medical Electrical Equipment)“.
- ATMOS is not liable for personal injury and damage to property if
  - no original ATMOS parts are being used,
  - the advice for use in these operating instructions is not being observed,
  - assembly, new settings, alterations, extensions and repairs have been carried out by personnel not authorised by ATMOS.
- These operation instructions corresponds with the construction of the unit and with the current status of safety-related standards at the time of printing. Proprietary rights are existing for all described circuits, processes, names, software programs and units.
- Never touch the interface of the device and the patient at the same time!
- The unit may only be opened by a specialist authorised by ATMOS! Switch off the main switch of the device and disconnect it from the mains supply prior to opening.
### 3.0 Assembly: Connecting conditions

#### 3.1 Required connections for all units of ATMOS S 61 Servant

<table>
<thead>
<tr>
<th>Unit / Device</th>
<th>Maximum required connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATMOS S 61 Servant ENT workstation</td>
<td>1x earthing contact socket outlet</td>
</tr>
<tr>
<td>ATMOS S 61 Servant vision</td>
<td>1x fixed connection</td>
</tr>
<tr>
<td>ATMOS S 61 Servant instruments</td>
<td>1x earthing contact socket outlet</td>
</tr>
<tr>
<td>ATMOS S 61 Servant therapy</td>
<td>2x earthing contact socket outlet</td>
</tr>
<tr>
<td>Water separating system (WTA)</td>
<td>1x earthing contact socket outlet</td>
</tr>
<tr>
<td>Monitor</td>
<td>1x earthing contact socket outlet</td>
</tr>
<tr>
<td>Patient chair</td>
<td>1x earthing contact socket outlet</td>
</tr>
</tbody>
</table>

⚠️ The fixed connection of the ATMOS S 61 Servant vision has to be connected to a separate electric circuit!

#### 3.2 Connection to electrical power line

- According to the directions of VDE 0107 and VDE 0100, medically used rooms have to be equipped with a leakage current protective circuit (FI protective circuit) with a nominal leakage current of < 0.03 A. Installation must correspond with VDE 0107.
- The ATMOS S 61 Servant vision is connected to a fixed connection which is to be mounted near the unit (max. 3 m, see fig.). Only qualified personnel authorised by ATMOS is allowed to proceed this.
- The power consumption of the ATMOS S 61 Servant vision comes to 300 VA max.
- An adequate number of socket outlets with earthing contact should be mounted for possible connection of further electrically operated units which may be installed at doctor’s work station (e.g. installation of an electrically operated patient chair, camera, monitor, etc.)
4.0 Operation

First start-up
Prior to shipment each ATMOS S 61 Servant is being inspected by the manufacturer for function and safety. In order to make sure that the appliance is working safely after transport and installation, the following points should be observed: The user should put the appliance into operation only if

1. a functional test on the appliance at the place of operation has been carried out.
2. the operating instructions have been read and noticed.

Following transportation at low temperatures the appliance must be held for up to fours hours at ambient temperature before first start-up. When the appliance has not been acclimatised the formation of condensation water is possible and a malfunction might be the result.

4.1 Front-view: Controls and options
4.0 Operation

4.2 Connections

First channel: Microscope (if applicable) / headlight (if applicable) / coldlight / LED / none

Please note:
Please take care that the protective cap on the light guide is only removed after having pulled the microscope light guide through the light conducting channel.

Second channel: Headlight (if applicable) / coldlight / LED / none

Third channel: Coldlight / LED / none

Fourth channel: Coldlight / LED / none

4.3 On / off switch

After switching on the mains switch, all integrated and connected devices are ready for operation.

-> green light at mains switch: mains voltage switched on

When the device gets switched on, all LEDs are lit for a short while. Please check them each time you switch on the device.
4.4 Light modules and controls

Light modules

- Hook for headlight
  When the headlight is taken off the hook, it switches on automatically. The same way, when you hang it up again it switches off.

- LED headlight

Controls

- LED light source

- Manual activation/deactivation of light ports

- Activation disinfectant times

- Display light module

- Adjustment of brightness resp. disinfectant timer

- Display of level of brightness resp. of time when switching on the disinfectant timer

- After switching on, the light module is displayed amongst the corresponding light port (LED, halogen or no display). The kind of display depends on the presetting from installing resp. your purchased options.
- Activate light module by taking the cable out of the light port resp. take off the headlight.
- In the case that more than one light guide is taken out, the last removed one will be activated. As soon as this light guide is put back, the light source of the other light guide is switched on again.
  When two light guides are taken out and it should be impeded that the unused channel is activated, it can be switched off manually immediately after removal.
- If two ports are activated resp. taken off:
  switch between them by using the foot switch or manually choose by pressing the button on the unit.
  It is only possible to activate one port!
- Adjustment of brightness:
  Choose port, press the up/down button on the right side (possible: from 100% until 70%). When switching off the device the last adjustment will be kept.

Burning time-inspection of halogen lamps

Burning time of halogen lamps is controlled by the control system of the unit. After reaching 90% of the manufacturer stated lamp the LED light at the activation button glows orange instead of the usual green.

Please keep in mind to get replacement lamps in time!

After exchanging the lamp the service hour counter has to be set to “0”. Therefore keep the activation button of the light port pressed while switching on the unit.

Pay attention:

As life duration of halogen lights is subject to strong tolerances, the display can only be an approximate indication for life duration. No guarantee can be assumed that lamps cannot break before stated life duration!
4.5 Endoscope management

4.5.1 Overview

- Metal quiver for storage of clean optics, optionally heating (removable)
- Plastics quiver for storage of used endoscopes and filling with disinfectant dilution (removable)

Please treat the instruments carefully, when inserting resp. removing.

4.5.2 Endoscope heating

Fire hazard!
Prior to each use on your patient check your instruments’ temperature (on the back of your hand or similar).

- Only store and heat clean instruments!
- Clean and disinfect the storage quivers regularly! Therefore please note the instructions in chapter “5.0 Cleaning”.

4.5.3 Disinfection monitoring

- Only fill quivers with admitted and nonhazardous disinfectants and always note application advices of the manufacturer. Read more in chapter “5.0 Cleaning”.
- Please note that the disinfecting quivers can be heated up to max. 42°C!
- Additionally please observe the maximal and minimal allowed residence time of instruments in the disinfectant dilution and check the adjusted time prior to use!
- Please inform yourself about the maximal allowed residence time of instruments in the disinfectant dilution!!
4.0 Operation

Adjustment of disinfection time

When switching on the unit the disinfection time is taken over from prior use.

<table>
<thead>
<tr>
<th>Displayed illuminated segments</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time in mins</td>
<td>5</td>
<td>15</td>
<td>30</td>
<td>60</td>
<td>90</td>
<td>120</td>
<td>150</td>
<td>180</td>
<td>210</td>
<td>240</td>
</tr>
</tbody>
</table>

Perform disinfection

- No disinfection
- Disinfection is executed (red)
- Disinfection finished (green)

Stop disinfection

Switch off timer by pressing the button again when timer is active!

An additional acoustic signal results after end of disinfection.
The integrated ATMOS ENT camera ATMOS Cam 21 / 31 features separate operating instructions. Please note: Read these separate operating instructions attentively and follow the stated notes for your safety to guarantee ideal and safe use of all functions!

4.6.1 Controls and front view

4.6.2 Camera head
By switching on the unit the ENT camera is automatically switched on also.

Choose light source

1.) at the treatment unit:
Take out the wanted light source. The adjustments (LED, Halogen) has been set ex works.

2.) directly at the camera:
Take out the wanted light source (see above). Choose desired optics by pressing the button at the camera (①). Choose the used light source (⑧). When using the camera next time, all adjustments will be taken over from prior use.
4.0 Operation

4.7 ATMOS LED stroboscope – quick start

The integrated ATMOS LED stroboscope ATMOS Strobo 21 LED features separate operating instructions.

Please note:
Read these separate operating instructions attentively and follow the stated notes for your safety to guarantee ideal and safe use of all functions!

4.7.1 Controls and front view

4.7.2 Operation

1
2
3

Phonation

read measured average values

4.7.3 Operating the foot switch

Permanent light

Slow motion

Reflection of individual phases/positions of vocal cord oscillations
5.0 Cleaning

5.1 General information on cleaning and disinfection

Prior to cleaning
Medical devices like the ATMOS S 61 Servant vision must always be safe to operate. Therefore, we recommend prior to each application:

5.1.1 Cleaning the unit surface

- The surfaces of the ATMOS S 61 Servant vision are resistant against all surface disinfectants listed in chapter „Recommended disinfectant“.  
- Wipe the unit surface with a cloth moistened with a cleaning or disinfecting solution.  
- You may also use disinfectant sprays or disinfectant tissues for cleaning and disinfection.  
  - Long-term use of disinfectants with alcohol might affect the flexibility and transparency of the protective covers.  
- Please take care that all surfaces are dry wiped. Use a single-use cloth to absorb any liquid.  
- In case that any disinfectant is spilled, please take care to dry wipe the surface immediately in order that no liquid may penetrate gaps and edges.

- Only deposit clean instruments on the board!  
- Clean and disinfect the instruments deposit regularly!

5.1.2 Instrument trays

- Before disinfection, thoroughly rinse the trays under running water. You may, of course, add a cleanser (detergent) or surface disinfectant.  
  - Use water to thoroughly rinse all residues of these substances.  
  
Trays made of anodized aluminium and melamine cannot be sterilized!

5.1.3 Endoscope quivers

- The metal quivers of the endoscope holder are to be used solely for holding the endoscopes, these first having been cleaned and disinfected. The quivers are to be cleaned daily and subsequently disinfected. For doing this, the stopper at the lower end should be taken off.
### 5.2 Recommended instrument disinfectants

#### Manual disinfection of instruments

<table>
<thead>
<tr>
<th>Disinfectant</th>
<th>Ingredients</th>
<th>(in 100 g)</th>
<th>Manufacturer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Korsolex basic</td>
<td>Glutaral (ethylene-dioxy)dimethanol tensides, salts, corrosion inhibitors</td>
<td>15.2 g</td>
<td>Bode Chemie, Hamburg</td>
</tr>
<tr>
<td>(Application concentrate)</td>
<td>Corrosion inhibitors</td>
<td>19.7 g</td>
<td></td>
</tr>
<tr>
<td>Korsolex extra</td>
<td>(ethylene-dioxy)dimethanol</td>
<td>15.3 g</td>
<td>Bode Chemie, Hamburg</td>
</tr>
<tr>
<td>(Application concentrate)</td>
<td>Glutaral</td>
<td>7.5 g</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Benzyl-C12-C18-alkyldimethyl- ammonium chloride, tensides,</td>
<td>1.0 g</td>
<td></td>
</tr>
<tr>
<td></td>
<td>didecylmethylammonium chloride corrosion inhibitors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>neodisher Septo MED</td>
<td>dodecylbispropylentriamine</td>
<td>9.2 g</td>
<td>Dr. Weigert, Hamburg</td>
</tr>
<tr>
<td>(Application concentrate)</td>
<td>Didecyl dimethyl ammonium chloride non-ionic tensides, fragrances</td>
<td>13.0 g</td>
<td></td>
</tr>
<tr>
<td>Sekusept aktiv</td>
<td>sodiumpercarbonate, phosphonates non-ionic tensides</td>
<td></td>
<td>Ecolab, Düsseldorf</td>
</tr>
<tr>
<td>(Application concentrate)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gigasept FF new</td>
<td>succinic acid dialdehyde dimethoxy tetrahydrofurane corrosion inhibitors</td>
<td>11.0 g</td>
<td>Schülke &amp; Mayr, Norderstedt</td>
</tr>
<tr>
<td>(Application concentrate)</td>
<td></td>
<td>3.0 g</td>
<td></td>
</tr>
</tbody>
</table>

#### Machine disinfection of instruments

<table>
<thead>
<tr>
<th>Disinfectant</th>
<th>Ingredients</th>
<th>(in 100 g)</th>
<th>Manufacturer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dismoclean 24 Vario</td>
<td>tensides, micro-encapsulated enzymes corrosion inhibitors complexing agent</td>
<td></td>
<td>Bode Chemie, Hamburg</td>
</tr>
<tr>
<td>(Application concentrate)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dismoclean twin basic/twin zyme</td>
<td>alkali dispenser, complexing agent corrosion inhibitors</td>
<td></td>
<td>Bode Chemie, Hamburg</td>
</tr>
<tr>
<td>Dismoclean twin basic</td>
<td>surface active materials, enzymes, stabilisers, corrosion inhibitors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dismoclean twin zyme</td>
<td>non-ionic tensides</td>
<td>&lt;5 g</td>
<td>Dr. Weigert, Hamburg</td>
</tr>
<tr>
<td>(Application concentrate)</td>
<td>NTA (nitrilotriacetic acid) enzymes, preservative agent</td>
<td>5-15 g</td>
<td></td>
</tr>
<tr>
<td>neodisher MediClean forte</td>
<td>phosphates, silicates, potassium hydroxide corrosion inhibitors</td>
<td></td>
<td>Ecolab, Düsseldorf</td>
</tr>
<tr>
<td>(Application concentrate)</td>
<td>non-ionic tensides</td>
<td>&lt;5 g</td>
<td>Schülke &amp; Mayr, Norderstedt</td>
</tr>
<tr>
<td>Sekumatic MultiClean</td>
<td>anionic tensides, enzymes polyacryl, corrosion inhibitors</td>
<td>&lt;5 g</td>
<td></td>
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<tr>
<td>(Application concentrate)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Thermosept alka clean forte</td>
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<td></td>
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<tr>
<td>(Application concentrate)</td>
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</table>

#### 5.3 Recommended surface disinfectants

<table>
<thead>
<tr>
<th>Disinfectant</th>
<th>Ingredients</th>
<th>(in 100 g)</th>
<th>Manufacturer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dismozon pur</td>
<td>magnesium monoperoxyphthalate hexahydrate</td>
<td>80 g</td>
<td>Bode Chemie, Hamburg</td>
</tr>
<tr>
<td>(Application concentrate)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green &amp; Clean SK</td>
<td>alkyl-dimethyl-benzyl-ammonium chloride dialkyl-dimethyl-ammonium chloride-</td>
<td>&lt;1 g</td>
<td>Metasys, Rum (Austria)</td>
</tr>
<tr>
<td>(Application concentrate)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perform</td>
<td>Pentakalium bis(peroxymonosulfate)-bis(sulfate)</td>
<td>45.0 g</td>
<td>Schülke &amp; Mayr, Norderstedt</td>
</tr>
</tbody>
</table>

If using aldehyde-containing or amine-containing disinfectants at the same object, this may result in discolourations.
# Cleaning and disinfection plan

**ATMOS S 61 Servant**

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<th>Recommendations</th>
<th>When</th>
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<td><strong>Monthly</strong></td>
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<tr>
<td><strong>Hygiene plan</strong></td>
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</tr>
</tbody>
</table>

## Secretion canister

- **Hose connection (nozzle)**
  - C: X
  - D: X
  - S: X
  - Recommendations: Cleaning and disinfection (automatic or manual)
  - When: X
- **Suction lid**
  - C: X
  - D: X
  - S: X
  - Recommendations: Cleaning and disinfection (automatic or manual)
  - When: X
- **Gasket**
  - C: X
  - D: X
  - S: X
  - Recommendations: Cleaning and disinfection (automatic or manual)
  - When: X
- **Bacterial filter**
  - C: X
  - D: X
  - S: X
  - Recommendations: Cleaning and disinfection (automatic or manual)
  - When: X
- **Splash protection**
  - C: X
  - D: X
  - S: X
  - Recommendations: Cleaning and disinfection (automatic or manual)
  - When: X
- **Float ball**
  - C: X
  - D: X
  - S: X
  - Recommendations: Cleaning and disinfection (automatic or manual)
  - When: X
- **Suction hose in the canister**
  - C: X
  - D: X
  - S: X
  - Recommendations: Cleaning and disinfection (automatic or manual)
  - When: X
- **Secretion collection canister**
  - C: X
  - D: X
  - S: X
  - Recommendations: Empty when the canister is full; at least daily
  - When: X
- **Disposable collection system**
  - C: X
  - D: X
  - S: X
  - Recommendations: Exchange and disposal of full canister
  - When: X

## Hose irrigation system

- **Suction nozzle for hose irrigation**
  - C: X
  - D: X
  - S: X
  - Recommendations: Wipe cleaning and disinfection
  - When: X
- **Silicone attachment piece**
  - C: X
  - D: X
  - S: X
  - Recommendations: Cleaning and disinfection (automatic or manual)
  - When: X
- **Suction nipple**
  - C: X
  - D: X
  - S: X
  - Recommendations: Manual cleaning after each patient
  - When: X
- **Secretion suction hose**
  - C: X
  - D: X
  - S: X
  - Recommendations: Rinse the secretion hose with the hose irrigation system after each procedure
  - When: X
- **Storage container for hose irrigation system**
  - C: X
  - D: X
  - S: X
  - Recommendations: Cleaning with a brush; Manual or automatic cleaning and disinfection
  - When: X

## Ear irrigation / Thermal nystagmus stimulation

- **Ear irrigation bowl**
  - C: X
  - D: X
  - S: X
  - Recommendations: Manual or automatic cleaning and disinfection
  - When: X
- **Handle**
  - C: X
  - D: X
  - S: X
  - Recommendations: Wipe cleaning and wipe disinfection
  - When: X
- **Jet connection**
  - C: X
  - D: X
  - S: X
  - Recommendations: Manual or automatic cleaning and disinfection
  - When: X
- **Splash protection**
  - C: X
  - D: X
  - S: X
  - Recommendations: Cleaning and disinfection (automatic or manual)
  - When: X
- **Hose tip (disposable)**
  - C: X
  - D: X
  - S: X
  - Recommendations: Exchange after each application
  - When: X
- **Rinsing attachment**
  - C: X
  - D: X
  - S: X
  - Recommendations: Manual or automatic cleaning and disinfection
  - When: X
- **Hygiene filter**
  - C: X
  - D: X
  - S: X
  - Recommendations: See operating instructions for hygiene filter
  - When: X
- **Rinsing lid with rinsing hose**
  - C: X
  - D: X
  - S: X
  - Recommendations: Manual or automatic cleaning and disinfection
  - When: X
- **Rinsing bottle**
  - C: X
  - D: X
  - S: X
  - Recommendations: Cleaning and disinfection; cleaning in the dishwasher with the glass care programme
  - When: X

## Medication nebulisation / Politzer

- **Handle for compressed air**
  - C: X
  - D: X
  - S: X
  - Recommendations: Manual cleaning and disinfection
  - When: X
- **Sprayer jet**
  - C: X
  - D: X
  - S: X
  - Recommendations: Cleaning after each application
  - When: X
- **Sprayer head**
  - C: X
  - D: X
  - S: X
  - Recommendations: Manual or automatic cleaning and disinfection
  - When: X
- **Hose at sprayer head**
  - C: X
  - D: X
  - S: X
  - Recommendations: Weekly exchange of the hose or when changing the medication
  - When: X
- **Sprayer bottle**
  - C: X
  - D: X
  - S: X
  - Recommendations: Cleaning in a cleaning and disinfection device; weekly or when changing the medication
  - When: X
- **Politzer olive**
  - C: X
  - D: X
  - S: X
  - Recommendations: Exchange after each application
  - When: X
- **Politzer connection**
  - C: X
  - D: X
  - S: X
  - Recommendations: Exchange after each application
  - When: X

## Endoscope management

- **Plastic quiver**
  - C: X
  - D: X
  - S: X
  - Recommendations: Cleaning with a brush; disinfection
  - When: X
- **Metal quiver**
  - C: X
  - D: X
  - S: X
  - Recommendations: Cleaning with a brush; disinfection (automatic or manual)
  - When: X
- **Insertion adapter for plastic quiver**
  - C: X
  - D: X
  - S: X
  - Recommendations: Manual or automatic cleaning and disinfection
  - When: X
- **Protective sleeve (teflon element for metal quiver)**
  - C: X
  - D: X
  - S: X
  - Recommendations: Manual or automatic cleaning and disinfection
  - When: X
### Instrument management

<table>
<thead>
<tr>
<th>Instrument</th>
<th>C</th>
<th>D</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENT instruments</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Instrument bowl</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Instrument bowl with cover</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Intraluminal instruments into solution immediately after use. Complete wetting is required. Air must be removed from any cavities. After the contact time instruments must be rinsed with water, have to be dried and sterilised afterwards. Please also observe the ATMOS operating instructions for ENT instruments.

### Visualisation

<table>
<thead>
<tr>
<th>ATMOS Cam 21 / 31</th>
<th>C</th>
<th>D</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wipe cleaning and wipe disinfection</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

### Radiofrequency surgery

<table>
<thead>
<tr>
<th>ATMOS H2 221</th>
<th>C</th>
<th>D</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wipe cleaning and wipe disinfection</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

### Surfaces

<table>
<thead>
<tr>
<th>Housing</th>
<th>C</th>
<th>D</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wipe cleaning and wipe disinfection</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Roller shutter</th>
<th>C</th>
<th>D</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wipe cleaning and wipe disinfection</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>System frame</th>
<th>C</th>
<th>D</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wipe cleaning and wipe disinfection</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drawers</th>
<th>C</th>
<th>D</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wipe cleaning and wipe disinfection</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Writing surface</th>
<th>C</th>
<th>D</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wipe cleaning and wipe disinfection</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Instrument deposit</th>
<th>C</th>
<th>D</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wipe cleaning and wipe disinfection</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mirror pre-heater</th>
<th>C</th>
<th>D</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wipe cleaning and wipe disinfection</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tongue patches and swab dispenser</th>
<th>C</th>
<th>D</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wipe cleaning and wipe disinfection, every day or when relining</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Waste disposal</th>
<th>C</th>
<th>D</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wipe cleaning and wipe disinfection, every day or when emptying the container</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Instrument tray</th>
<th>C</th>
<th>D</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wipe cleaning and wipe disinfection, daily when replacing with new instruments</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Recommended disinfectants

- Quick disinfection B 30 (Orochemie)
- Surface disinfection FD 312 (Dürr Dental)
- Dismozon® pur (Bode Chemie)
- Kohrsolin® FF (Bode Chemie)
- Bacillocid® rasant (Bode Chemie)
- Perform® (Schülke & Mayr)
- Terralin® Protect (Schülke & Mayr)
- Thermosept® alka clean forte (Schülke & Mayr)
- neodisher® MediClean forte (Dr. Weigert)
- neodisher® FA forte (Dr. Weigert)
- neodisher® FA (Dr. Weigert)
- Dismoclean®
- Dismoclean® 28 alka one (Bode Chemie)
- Dismoclean® 24 Vario (Bode Chemie)
- Thermosept®
- neodisher® FA (Dr. Weigert)
- Dismoclean®
- Dismozon® pur (Bode Chemie)
- RKN-zym
- Twin basic/twin zyme (Bode Chemie)
- ATMOS RS 221
- Radiofrequency surgery
- Headlight
- Light source
- Microscope
- Light conductor
- Laryngoscope
- Rigid scope
- Flexible scope
- Instrument bowl
- Instrument bowl with cover
- Instrument tray

### Important information

- Wipe cleaning and wipe disinfection: All surfaces have to be wiped with a clean (non-absorbent) wipe which is dipped with disinfectant solution; the entire surface has to be wiped thoroughly and may require three applications.
- Microscope: Use of enzymatic detergents.
- Battery-powered/external instruments: After each procedure.
-写的英文

**Note:** The above stated hygiene requirements are based on the regulations according to the Medical Devices Act, the Medical Devices Operator Ordinance, §18 IfSG and the recommendations of the Robert Koch Institute. The necessary reprocessing steps result from the recommendations of the Robert Koch Institute. Requirements for the reprocessing of medical products were categorised in the risk groups uncritical, moderate, critical, intermediate and critical. The reprocessing measures mentioned in the cleaning and disinfection plan are a recommendation of ATMOS MedizinTechnik. Any additional reprocessing measures are at the operator’s discretion.

All the recommended disinfectants which are stated/mentioned are basic disinfectants (VAH/RKI) and have been tested on their suitability of use on the ATMOS 9.11 Server. ATMOS MedizinTechnik cannot be held liable for any damage caused by wrong concentration of the disinfectants or by the application of any other disinfectants. The responsible person -> overhead marker.

**ATMOS MedizinTechnik GmbH & Co. KG**

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**Phone:** +49 7653 689-0  **Fax:** +49 7653 689-190

**Email:** atmos(at)atmosmed.de  **Website:** www.atmosmed.de

**REF:** 534.2103.0  **Date:** 2013-12  **Index:** 07
7.0 Maintenance and servicing

- A safety related control has to be proceeded each year. Additionally we recommend a yearly maintenance according to service instructions.

7.1 Replacement of fuse

7.1.1 Earthing contact socket outlet

7.1.2 Fixed connection

7.2 Changing bulbs

⚠ Prior to opening the device switch off the mains switch and pull the mains plug out of the socket!

⚠ Please note that used halogen lamps can still be hot!

⚠ Never directly touch the head of a new lamp with your fingers! Use a soft cloth.

A)

Loosen the screws at the front of the unit.

Carefully open the cover towards the front. Attention: the cables are connected to the unit!

Carefully pull out the used lamp to the front out of its holder.

Put in the new lamp and check correct positioning.

B)

Loosen the lever downwards.

Take out the lamp to the front
### Description | Possible cause | Procedure
--- | --- | ---
**Light module**
Illuminated light on halogen port glow constantly red  
> Fan is defective  
> Fan is blocked  
No light  
> Lamp is broken  
> Electronics defective  
> Fuse for halogen transformer is defective  
LED at the activation button glows orange instead of green  
> 90% of the manufacturer stated halogen lamp duration is reached.
Green control light at mains switch does not glow, device does not work  
> AC power line not connected  
> Device fuse is defective
Green control light at mains switch glows, but device does not work  
> AC power line defective  
> AC power line fuse defective
**Foot switch**
No switch of light port when using the foot switch  
> foot switch not or not correctly connected  
> foot switch defective  
> Just one light port available
**Microscope**
No activation / deactivation of microscope light port via microscope column  
> Cable of switching contact is not or not correctly connected  
> Switching contact in microscope column is defective / misaligned
## Accessories

### Accessories for halogen coldlight source
- Adapter sleeve for Storz connection  507.0940.5
- Adapter sleeve for Olympus connection  507.0940.6
- Adapter sleeve for Pentax connection  507.0940.7
- Adapter sleeve for Wolf connection  507.0940.8

### Accessories for LED light module
- **LED light source ATMOS LS 21 LED** 507.4600.0
  LED light source for direct connection to endoscopes and laryngoscopes with high performance white light LED, 2 Watt / 50 Lumen, LED service life approx. 50.000 h, Connection with quick coupling to any desired scope.

### Accessories for LED light sources
- **Lithium-ionic rechargeable battery for the mobile use** 507.4510.0
  For ATMOS LED light source resp. LED headlight with power and eco mode, charging indication and holding clip, with power and eco display.

- **Universal battery quick charging power supply unit (100-240 V)** 011.1199.0
  including multinational adapter plug

### Accessories for endoscope management
- **Shock protection adapter** 508.0777.5
  for endoscopes Ø2.8-4 mm, teflon element for metal quiver
- **Fixation adapter for plastics quiver** 508.0782.0

### Accessories for LED stroboscope
- **Body sound stroboscope adapter** 507.4775.0
### Technical specifications at complete equipment

Please note the technical specifications of the single devices in the separate operating instructions!

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>230 V~ ± 10 %; 50/60 Hz Special voltage: 100 V~ ± 10 %; 50/60 Hz 115 V~ ± 10 %; 60 Hz 127 V~ ± 10 %; 60 Hz</td>
</tr>
<tr>
<td>Power input</td>
<td>max. 1.3 A (230 V~) max. 3.0 A (100 V~)</td>
</tr>
<tr>
<td>Power consumption</td>
<td>max. 300 VA</td>
</tr>
<tr>
<td>Kind of connection</td>
<td>Fixed connection</td>
</tr>
<tr>
<td>Fuses</td>
<td>T 6.3 A/H</td>
</tr>
<tr>
<td>Sonstige/Sicherungseinrichtung</td>
<td>Internal fuses on control circuit board and in transformer</td>
</tr>
<tr>
<td>Halogen cold light</td>
<td>15 V, 150 W, 50 h life duration of lamps, removable adaptor system, Standard = Storz</td>
</tr>
<tr>
<td>Halogen cold light high performance</td>
<td>24 V, 150 W, 300 h life duration of lamps, removable adaptor system, Standard = Storz</td>
</tr>
<tr>
<td>LED light module</td>
<td>LED electric power supply 700 mA regulated</td>
</tr>
<tr>
<td>Removable adaptor</td>
<td>Olympus, Wolf, Pentax</td>
</tr>
<tr>
<td>Endoscope management</td>
<td>For rigid and flexible optics (max. length 500 mm), one quiver per clean and contaminated optics.</td>
</tr>
<tr>
<td>Inspection of disinfection time</td>
<td>Timer adjustable</td>
</tr>
<tr>
<td>Kind of operation</td>
<td>Continuous operation</td>
</tr>
<tr>
<td>Protective earth conductor resistance</td>
<td>max. 0.2 Ω at fixed connection</td>
</tr>
<tr>
<td>Earth leakage current</td>
<td>max. 5.0 mA at fixed connection</td>
</tr>
<tr>
<td>Ambient conditions</td>
<td></td>
</tr>
<tr>
<td>Transport/storage Operation</td>
<td>-10...+50°C</td>
</tr>
<tr>
<td></td>
<td>+30...95 % air humidity without condensation at air pressure 500...1060 hPa</td>
</tr>
<tr>
<td></td>
<td>+10...+35°C</td>
</tr>
<tr>
<td></td>
<td>30...95 % air humidity without condensation at air pressure 700...1060 hPa</td>
</tr>
<tr>
<td>Dimensions</td>
<td>88.5 x 41.2 x 54.0 cm</td>
</tr>
<tr>
<td>Weight</td>
<td>15 - 30 kg</td>
</tr>
<tr>
<td>Regular safety relevant inspections</td>
<td>after 12 months. ATMOS recommends a yearly maintenance acc. to service instructions.</td>
</tr>
<tr>
<td>Protection class (EN 60601-1)</td>
<td>I</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>Type BF</td>
</tr>
<tr>
<td>Protection category</td>
<td>IP X0</td>
</tr>
<tr>
<td>Classification acc. to Annex IX EEC directions 93/42/ EEC</td>
<td>I</td>
</tr>
<tr>
<td>CE marking</td>
<td>CE</td>
</tr>
<tr>
<td>Applied standards</td>
<td>EN 60 601-1 EN 60 601-1-2 EN 60 601-2-18</td>
</tr>
<tr>
<td>UMDNS-Code</td>
<td>10-585 ENT treatment unit</td>
</tr>
<tr>
<td>GMDN-Code</td>
<td>11585</td>
</tr>
<tr>
<td>Ident-Nr.</td>
<td>531.0000.0 (230 V); 531.0001.0 (100 V); 531.0002.0 (115 V); 531.0003.0 (127 V)</td>
</tr>
</tbody>
</table>

**Accessories for halogen cold light source**
- Adapter sleeve for Storz connection 507.0940.5
- Adapter sleeve for Olympus connection 507.0940.6
- Adapter sleeve for Pentax connection 507.0940.7
- Adapter sleeve for Wolf connection 507.0940.8

**Accessories for LED light module**
- LED light source ATMOS LS 21 LED
- LED light source for direct connection to endoscopes and laryngoscopes with high performance white light LED, 2 Watt / 50 Lumen, LED service life approx. 50.000 h, Connection with quick coupling to any desired scope.
- 507.4600.0

**Accessories for LED light sources**
- Lithium-ionic rechargeable battery for the mobile use
- For ATMOS LED light source resp. LED headlight with power and eco mode, charging indication and holding clip, with power and eco display.
- 507.4510.0
- Universal battery quick charging power supply unit (100-240 V) including multinational adapter plug 011.1199.0
11.0 Disposal

- The materials of the housing can be recycled completely.
- The ATMOS S 61 Servant vision does not contain any hazardous goods.
- The component parts of the ATMOS S 61 Servant vision must be disposed of correctly and the materials are to be separated carefully.
12.1 Guidelines and Manufacturer’s Declaration - Emissions

The ATMOS S 61 Servant vision is intended for use in the electromagnetic environment specified below. The customer or user of the ATMOS S 61 Servant vision should ensure that it is used in such an environment.

<table>
<thead>
<tr>
<th>Emissions Test</th>
<th>Compliance</th>
<th>Electromagnetic Environment - Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF Emissions CISPR 11</td>
<td>Group 1</td>
<td>The ATMOS S 61 Servant vision 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.</td>
</tr>
<tr>
<td>RF Emissions CISPR 11</td>
<td>Class B</td>
<td>The ATMOS S 61 Servant vision is suitable for use in all establishments, including domestic, and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.</td>
</tr>
<tr>
<td>Harmonics IEC 61000-3-2</td>
<td>Class A</td>
<td></td>
</tr>
<tr>
<td>Flicker IEC 61000-3-3</td>
<td>Inapplicable</td>
<td></td>
</tr>
</tbody>
</table>

12.2 Guidelines and Manufacturer’s Declaration - Immunity for ATMOS S 61 Servant vision

The ATMOS S 61 Servant vision is intended for use in the electromagnetic environment specified below. The customer or user of the ATMOS S 61 Servant vision should ensure that it is used in such an environment.

<table>
<thead>
<tr>
<th>Immunity Test</th>
<th>IEC 60601-Test Level</th>
<th>Compliance Level</th>
<th>Electromagnetic Environment - Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESD IEC 61000-4-2</td>
<td>± 6 kV Contact</td>
<td>± 6 kV Contact</td>
<td>Floors should be wood, concrete, or ceramic tile. If floors are synthetic, the relative humidity should be at least 30%.</td>
</tr>
<tr>
<td></td>
<td>± 8 kV Air</td>
<td>± 8 kV Air</td>
<td></td>
</tr>
<tr>
<td>EFT IEC 61000-4-4</td>
<td>± 2 kV Mains</td>
<td>± 2 kV Mains</td>
<td>Mains power quality should be that of a typical commercial or hospital environment.</td>
</tr>
<tr>
<td></td>
<td>± 1 kV I/Os</td>
<td>Inapplicable</td>
<td></td>
</tr>
<tr>
<td>Surges IEC 61000-4-5</td>
<td>± 1 kV symmetric</td>
<td>± 1 kV symmetric</td>
<td>Mains power quality should be that of a typical commercial or hospital environment.</td>
</tr>
<tr>
<td></td>
<td>± 1 kV symmetric</td>
<td>± 1 kV symmetric</td>
<td></td>
</tr>
<tr>
<td>Power Frequency 50/60 Hz</td>
<td>3 A/m</td>
<td>Inapplicable</td>
<td>Power frequency magnetic fields should be that of a typical commercial or hospital environment.</td>
</tr>
</tbody>
</table>
### 12.0 Notes on EMC

<table>
<thead>
<tr>
<th>Immunity Test</th>
<th>IEC 60601- Test Level</th>
<th>Compliance Level</th>
<th>Electromagnetic Environment - Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage Dips / Dropout</td>
<td>IEC 61000-4-11</td>
<td>&lt; 5 % $U_t$</td>
<td>Mains power quality should be that</td>
</tr>
<tr>
<td></td>
<td></td>
<td>($&gt; 95 %$ Dip of the $U_t$) for 0.5 Cycle</td>
<td>of a typical commercial or hospital</td>
</tr>
<tr>
<td></td>
<td></td>
<td>40 % $U_t$</td>
<td>environment. If the user of the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>($60%$ Dip of the $U_t$) for 5 Cycles</td>
<td>ATMOS S 61 Servant vision demands</td>
</tr>
<tr>
<td></td>
<td></td>
<td>70 % $U_t$</td>
<td>continued function even in case of</td>
</tr>
<tr>
<td></td>
<td></td>
<td>($30%$ Dip of the $U_t$) for 25 Cycles</td>
<td>interruptions of the energy supply, it</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&lt; 5 % $U_t$</td>
<td>is recommended to supply the ATMOS S 61</td>
</tr>
<tr>
<td></td>
<td></td>
<td>($&gt;95%$ Dip of the $U_t$) for 5 s</td>
<td>Servant vision from an uninterruptible</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>current supply or a battery.</td>
</tr>
</tbody>
</table>

**NOTE** $U_t$ is the mains alternating current prior to application of the test levels.

### 12.3 Guidelines and Manufacturer´s Declaration - Immunity

The ATMOS S 61 Servant vision is intended for use in the electromagnetic environment specified below. The customer or user of the ATMOS C161 should ensure that it is used in such an environment.

<table>
<thead>
<tr>
<th>Immunity Test</th>
<th>IEC 60601- Test Level</th>
<th>Compliance Level</th>
<th>Electromagnetic Environment - Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conducted RF</td>
<td>IEC 61000-4-6</td>
<td>3 V$_{eff}$</td>
<td>Portable and mobile communications</td>
</tr>
<tr>
<td></td>
<td></td>
<td>150 kHz bis 80 MHz</td>
<td>equipment should be separated from the</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RS 221 incl. the cables by no less than</td>
</tr>
<tr>
<td>Radiated RF</td>
<td>IEC 61000-4-3</td>
<td>3 V/m</td>
<td>the distances calculated/listed below.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>80 MHz bis 2,5 GHz</td>
<td>Field strengths from fixed transmitters, as</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>determined by an electromagnetic site (a)</td>
</tr>
</tbody>
</table>

**Recommended distances:**

\[
d = 1,167 \times \sqrt{P}
\]

\[
d = 1,167 \times \sqrt{P}
\]

\[
d = 2,33 \times \sqrt{P}
\]

where „$P$“ is the max. power in watts (W) and $D$ is the recommended separation distance in meters (m).

Field strengths from fixed transmitters, as determined by an electromagnetic site (a) survey, should be less than the compliance level (b). Interference may occur in the vicinity of equipment containing following symbol 

![Interference symbol]
12.4 Recommended separations between portable and mobile RF Communications equipment and the ATMOS S 61 Servant vision

The ATMOS S 61 Servant vision is intended for use in electromagnetic environment in which radiated disturbances are controlled. The customer or user of the ATMOS S 61 Servant vision can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF Communications equipment and the ATMOS S 61 Servant vision as recommended below, according to the maximum output power of the communications equipment.

<table>
<thead>
<tr>
<th>Separation distance, depending on transmit-frequency m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal output of the transmitter</td>
</tr>
<tr>
<td>W</td>
</tr>
<tr>
<td>0,01</td>
</tr>
<tr>
<td>0,1</td>
</tr>
<tr>
<td>1,0</td>
</tr>
<tr>
<td>10</td>
</tr>
<tr>
<td>100</td>
</tr>
</tbody>
</table>

For transmitters for which the maximum nominal output is not indicated in the above table, the recommended separation distance \( d \) in meters (m) can be determined using the equation belonging to the respective column whereas \( P \) is the maximum nominal output of the transmitter in watts (W) acc. to manufacturer’s specification.

NOTE 1 With 80 MHz and 800 MHz the higher frequency range applies.

NOTE 2 These guidelines might not be applicable in any case. The propagation of electromagnetic sizes is influenced by absorptions and reflections of buildings, objects and people.
1. General:
Our General Standard Terms and Conditions apply exclusively. Client’s terms and conditions which are contrary to or deviate from our General Standard Terms and Conditions are not recognized unless their validity is expressly confirmed and binding. Our General Standard Terms and Conditions also apply even if we deliver to clients without reservation, in the knowledge of the client’s contrary terms and conditions. Our General Standard Terms and Conditions also apply to all future business with that client.

2. Proposal - Order Confirmation
Our proposals are subject to change without notice unless otherwise stated in our order confirmation. Each order is only accepted by us following our written order confirmation.

3. Orders
Every order requires an exact description of all of our product’s details. We assume no liability for errors and damage caused by inaccurate or incomplete ordering details.

4. Prices
Unless otherwise stated in the order confirmation, our prices in the order confirmation are ex factory prices and exclude packaging and value added tax. Packaging is charged separately at cost price in the invoice. Value added tax is charged separately in the invoice according to the legal rate on the invoice date. We reserve the right to change prices appropriately should price reductions or increases, especially due to raw material developments, changes in the price of materials or currency fluctuations, be incurred. Proof of such changes will be provided for the client on request.

5. Payment Conditions - Balancing
Unless otherwise stated in the order confirmation, our invoices are payable with a 3% discount within 10 days (except for repair and assembly services) or within 21 days from the invoice date net cash; money receipts is decisive for complying with this term. We are entitled to charge interest after the due date at a rate 2% above the relevant basic interest rate of the German Federal Bank. Should the client have payment arrears, we are entitled to charge interest on arrears at a rate 5% above the relevant basic interest rate of the German Federal Bank. Should we be able to prove higher damages due to arrears, we are also entitled to claim these. The client only has the right to balance invoices against its own claims should such claims be confirmed in a court of law as correct.

6. Delivery Period
For goods in our delivery duties requires the punctual and proper fulfilment of the client’s duties. The right to defense on the grounds of an unfilled contract is reserved. Should the client default in accepting the goods delivery or breach other cooperation duties, we are entitled to withdraw from the contract and claim compensation for any increased costs incurred up to that time without setting a further deadline. The right to make further claims is reserved. Furthermore, in such cases, the risk of coin-ordinate destruction or a coincidental deterioration in the quality of the delivered goods is transferred to the client in the case of default in accepting such goods or payment arrears. Acts of God or stoppages (due to insufficient supplies of material, industrial disputes etc.) entitle us either to demand an appropriate extension of delivery periods or to partly or entirely dissolve the delivery contract. This does not give the client the right to claim damages. We have fulfilled delivery periods if the delivery goods have left our factory or the client has been informed of the goods’ readiness for delivery within such delivery periods. Delivery periods stipulated by the client are not recognised by us unless they form part of our order confirmation. We adhere to legal terms and conditions in cases where, as a result of an undue delay in the delivery for which we are liable, the client is entitled to claim that his interests in a continued form of the contract have ceased. We also adhere to legal terms and conditions should a delay in delivery be caused by deliberate or grossly negligent action by us or our representatives for which we are responsible. We are also responsible for such actions by our representatives or agents. Should the delivery delay not be caused by our deliberate infringement of contractual duties for which we are responsible, our liability is limited to damage which is regarded as typical for that case. We are liable according to the legal terms and conditions if and in so far as the delivery delay for which we are responsible is caused by an infringement of a substantial contractual duty. In such cases, our liability is also limited to damage which is regarded as typical for that case. Should the delivery delay be caused by a culpable infringement of non-substantial contractual duties, our client is also entitled to claim a one-off damage compensation worth 3 percentage points of the delivery value of the goods for each week’s delay, up to a maximum which is no higher than 15 percentage points of the delivery value of the goods.

7. Delivery - Familiarisation
In the case of the delivery of the devices for the medico-technical industry which require assembly and/or familiarisation for the final customer using specialist trade personnel (such as Ear, Nose and Throat Apparatus and Suction Units), we reserve the right to deliver the goods exclusively to the relevant specialist traders. Should the trader not carry out assembly and/or familiarisation for the final customer, this is carried out by us. In such cases, we reserve the right to charge the client for the additionally created costs. Our specialist traders operate a recording system so that, if necessary, our products can be traced to the final customer. The specialist trader undertakes to immediately report to us all events and risks which must be reported in connection with our products.

8. Passage of Risk - Packaging
Unless otherwise stated in our order confirmation, delivery is agreed ex factory. The risk of the goods’ damage or loss is therefore transferred to the client as soon as the goods leave the factory or the client is in default of acceptance of the goods. This also applies to cases where we confirm prompt carriage. Transport packaging and all other packaging according to the packaging regulations is not refundable. Our client is responsible for disposing the packaging at its own cost. Our deliveries are insured by us at the client’s expense unless explicitly otherwise agreed. No insurance is arranged in the case of goods which are collected by our clients. In the case of transport damage, claims are only handled if the client receives confirmation of any damage, reduced weight or loss by the shipping company before accepting delivery.

9. Warranty
The client is responsible for examining the delivered goods immediately after receiving them to determine any eventual deficiencies or delivery errors, and to report these immediately. Should the client fulfill this examination and reporting responsibility, and should payment conditions be fulfilled, we shall be liable to the client within the scope of legal regulations. Our period of warranty shall in all cases be two years. Our client can make use of the warranty as follows, so long as he can provide first buyer proof (in the form of an invoice or delivery note) and provided that the product still has the original, unchanged serial number:

- a. We choose whether to fulfill our guarantee by providing repair services free of charge – either on the client’s premises or in our factory or – replacing the product. We can also provide these guarantee services through an authorised company;
- b. Should a product be returned to us, the client agrees to send the product in its original or similar packaging, offering the same protection as the original packaging, to our address or address notified by us. We guarantee to return all products within 2 weeks. Our client must receive confirmation of any damage, reduced weight or loss by the shipping company before accepting delivery.
- c. Our guarantee ceases to apply if changes of any kind have been made to our product, unless such changes have been made by us or a company authorised by us, or have been previously agreed upon in writing by us. Our guarantee also ceases to apply if third parties have carried out repairs to our products or replaced parts thereof. This applies regardless of the fact whether these measures individually or collectively led to a deficiency of the product;
- d. We accept no responsibility for damage defects caused by - operational wear and tear;
- incorrect installation or incorrect or insufficient maintenance;
- incorrect operation of the product (in contradiction to the operating instructions delivered with the product), improper use or operating faults, - inappropriate or negligent handling and care, especially with respect to dirt, dust, suction of fluids, inappropriate cleaning and sterilization; - using accessories and/or replacement parts which are not explicitly approved;
- incorrect assembly and/or initial operation by the client or third parties, - the client’s negligence in handling the product, - unacceptable operating conditions, such as humidity, temperatures, the power supply, vibrations;
- accidents, acts of God, especially lightning, water, fire, public unrest and insufficient ventilation. We are not liable for damage to other objects apart from our product itself, except in the case of any deliberate or grossly negligent actions by us or our representatives or agents. Should no deliberate breach of contract be claimed, our liability is limited to damage which is regarded as typical for that case. This applies in the case of our culpable infringement of substantial contractual duties. The indispensable conditions of German Liability Law remain unaffected thereby.

10. Reservation of Ownership
We retain ownership of our goods until the receipt of all payments arising from the business relationship, including all demands arising from installation orders, subsequent orders, repairs, accessory deliveries and replacement orders. Should we have agreed upon payment on the basis of cheque and bill transactions, the ownership reservation applies until the cheque received by us has been paid in, and does not expire through our credit upon receiving the client’s cheque. In the case of a breach of contract by the client, especially payment arrears, we are entitled to repossess our goods. Repossession of our goods re-enters a withdrawal from the contract, unless explicitly declared in writing by us. We have the right to utilise the product after its repossession, whereas the income from such use is balanced against the client’s arrears, after deducting appropriate utilisation costs. The client is responsible for handling the goods with care. Should maintenance and inspection work be necessary, the client must carry these out punctually at his own cost. Our client is entitled to sell the goods he has bought from us in a proper sale transaction. However, he must immediately assign all outstanding claims to the value of the final invoice sum (including value added tax) of our claims to his customers or third parties. The client is entitled to collect this claim even after such assignment. Our right to collect the claim remains unaffected thereby. We undertake to release the securities to which we are entitled if requested to do so by the client should the realisable value of the our securities be more than 10 percentage points higher than the outstanding claims. We reserve the right to choose the securities to be released.

11. Plans and Illustrations
We retain ownership of and copyrights to all plans, illustrations, calculations and other documents which are attached to our proposals. The client must receive explicit written permission before passing these on to third parties. Imitating our legally patented products is forbidden and will be prosecuted.

12. Jurisdiction and Place of Performance
Our central office is the place of performance for all disputes in connection with these General Standard Terms and Conditions and the contracts closed with clients under them. This jurisdiction excludes other jurisdiction relating to persons or subject-matter. Furthermore, our client is not entitled to bring charges against us in another court should he file counter-charges, carry out counter-balancing or declare retention. We, however, are entitled to bring charges against our client at their general place of jurisdiction or at another relevant court recognised by German or foreign law. Unless otherwise stated in the order confirmation, our central office is the place of performance.