CPR Lilly™ (P70) und CPR LillyPRO™ (P71)

Contents

Introduction .......................................................... 3
Delivery contents .................................................. 3
Quick introduction .................................................. 4
Assembly, start-up and use ....................................... 5
Simulations ........................................................... 6
Medical procedures ............................................... 14
General safety instructions ....................................... 16
FAQ ................................................................. 16
Maintenance and care .............................................. 17
Replacement parts list ............................................. 18
Technical data ....................................................... 19
Introduction

Thank you for choosing this 3B Scientific® product. Please read the operating instructions carefully before setting up the device. This will ensure that it works correctly, and that you can work satisfactorily with this product.

CPR Lilly™ and CPR Lilly PRO™ are training simulators for cardio-pulmonary resuscitation (CPR). The simulator meets the latest CPR guidelines of the AHA (American Heart Association) and the ERC (European Resuscitation Council). The simulator has a robust construction, is easy to use, and offers realistic working scenarios. It is therefore suitable both for medical training and for first aid courses in schools and associations. It offers all the necessary features for learning about the life-saving algorithm comprising heart massage and artificial respiration for adults. Its features are:

- Torso with shoulders and the necessary anatomical features for finding the ideal pressure point for cardiac massage
- Head with airways for mouth-to-mouth and mouth-to-nose resuscitation
- Head tilt to open the airways
- Resuscitator ventilation is possible
- Realistic thoracic spring force and the required compression depth of 5 cm prepare the trainee for a situation with a real person
- A sound indicates that the required compression depth has been reached
- Thanks to the disposable respiration bags the mannequin is hygienic, and is easy to clean and maintain
- CPR Lilly™ and CPR Lilly PRO™ have two respiratory systems that are disconnected from each other. The advantage: the user’s breath goes into the disposable throat bag only. The inner circulation is not contaminated.
- CPR Lilly™ and CPR Lilly PRO™ are developed and made in Germany.
- While developing CPR Lilly™ and CPR Lilly PRO™, we paid special attention to creating a simulator that would be quick and easy to use, especially with regard to hygiene and for large training groups. The face mask is dish-washer safe and replacements can be bought. For maximum hygiene you can provide each course participant with his or her own mask and disposable throat bag.

Delivery contents:

CPR Lilly™ (P70) and CPR Lilly PRO™ (P71) each comprise 1 simulator
5 Lower face masks (including teeth)
25 Throat bags
1 Carry case
1 Tracksuit top
1 Android tablet PC (version P71)
1 Plug adaptor for the charger (version P71)
1 Charger (version P71)
Assembly (start-up and use)

Instructions (safety and general information)

• Fully charge the CPRLillyPRO™ and the Android tablet using the power pack provided before using it for the first time! For the CPRLillyPRO™ this may take up to 3 hours. While on charge, the LED indicator will flash orange quickly. When the LED flashes orange slowly, the battery is fully charged. (Version P71)

• To avoid getting moisture into the inner circulation, respiration may only be carried out when a throat bag has been inserted.

• The throat bag should not be changed in the rain, because water could get into the inner circulation. The CPRLilly™ and CPRLillyPRO™ could get damaged.

• When being used, “noises” will be heard (version P71).
  This does not mean that the simulator is not working properly!

Assembly / Installation

• Removing the face mask

• Putting in a new bag

• Attaching a face mask

• Disinfecting the face mask
Power supply (Version P71)
The CPR LillyPRO™ is powered via the small-device 15 Volt socket. CPR LillyPRO™ comes with a multinational mains adaptor for use in over 150 countries. It can operate between 100 and 240 Volts and at a mains frequency of 50 or 60 Hz. We recommend always charging the CPR LillyPRO™ with the supplied mains adaptor included.

Changing/charging the battery
Doing a course with a flat battery
Even if the battery is flat, you can still do your course! Simply connect the mains adaptor to the CPR LillyPRO™.

Extended period of non-use
If the device is not used for an extended period of time, ensure that CPR LillyPRO™ is charged at least every two years, so that the battery is not damaged by becoming completely discharged.

If you intend to not use the device for an extended period, charge the battery up completely until the LED flashes orange slowly.

Changing the battery
The CPR LillyPRO™ has a very long-life NiMH battery that only discharges very slowly. It should only be changed by a specialist or an authorised electrician. You can order a replacement battery from the accessory list if necessary. The instructions for inserting the new battery are provided with the battery.

If the LED flashes red, either a battery defect has been detected, or the connected charger is not powerful enough. If the LED is flashing red, but you are using the original mains adaptor, please contact the customer service.

Simulations

Switching the device on/off (Version P71)

1. Switching on the device

The electronics inside the CPR Lilly™ automatically switch off after 5 minutes of inactivity, or the device can be switched off manually by holding down the on/off button.
2. Switching on the tablet and starting up the programme

The app can also be used offline without connecting to CPRLillyPRO™. Some functions are not available without an existing connection.

3. About the software

3.1. Selecting the language
Upon initial set-up the app is automatically set to English. Once the tablet has booted up, the select dialogue-box for the language of the application software is displayed on the touch-sensitive screen. To change language, select Settings, then Language.

3.2. Function menu
The following application notification is displayed. The heart turns red when a connection to CPRLillyPRO™ exists. The connection display indicates the strength of the connection.
3.3. Setting up/removing a Bluetooth connection
To connect another CPRLillyPRO™, Bluetooth can be deleted or set up again via the Settings function. Only one CPRLillyPRO™ can be connected to the tablet at a time.

3.4. Starting a new simulation
3.4. Displaying / evaluating the graphs

3.5. Exporting the data
It is only possible to export data if the CPRLillyPRO™ is switched off and/or the Bluetooth connection has been deactivated. If CPRLillyPRO™ is connected, the Print icon is deactivated.
Compression

If fewer than 30 compressions per cycle are made, the remainder will be allocated 0 points. If more than 30 compressions per cycle are made, the additional compressions will not be assessed.

<table>
<thead>
<tr>
<th>green</th>
<th>in mm</th>
<th>in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>lower</td>
<td>&gt;=50</td>
<td>&gt;=83</td>
</tr>
<tr>
<td>upper</td>
<td>∞</td>
<td>∞</td>
</tr>
</tbody>
</table>

Compression frequency

If fewer than 30 compressions per cycle are made, only the completed compressions will be counted. If more than 30 compressions per cycle are made, the additional compressions will not be assessed. The BPM values can only be shown after the first 2 compressions; otherwise 0 is shown. An average compression frequency is given for all compressions made.

<table>
<thead>
<tr>
<th></th>
<th>lower yellow</th>
<th>green</th>
<th>upper yellow</th>
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</thead>
<tbody>
<tr>
<td>BPM</td>
<td>in BPM</td>
<td>in BPM</td>
<td>in BPM</td>
</tr>
<tr>
<td>lower</td>
<td>&gt;=85</td>
<td>&gt;=95</td>
<td>&gt;105</td>
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<tr>
<td>upper</td>
<td>&lt;95</td>
<td>&lt;=105</td>
<td>&lt;115</td>
</tr>
</tbody>
</table>

Volumen

If fewer than 2 ventilations per cycle are made, the remainder will be allocated 0 points. If more than 2 ventilations per cycle are made, the additional ventilations will not be assessed.

<table>
<thead>
<tr>
<th></th>
<th>lower orange</th>
<th>lower yellow</th>
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</thead>
<tbody>
<tr>
<td>BPM</td>
<td>in ml/s</td>
<td>in %</td>
<td>in ml/s</td>
<td>in %</td>
<td>in ml/s</td>
</tr>
<tr>
<td>lower</td>
<td>&gt;=360</td>
<td>&gt;=48</td>
<td>&gt;=384</td>
<td>&gt;=48</td>
<td>&gt;=464</td>
</tr>
<tr>
<td>upper</td>
<td>&lt;384</td>
<td>&lt;48</td>
<td>&lt;464</td>
<td>&lt;58</td>
<td>&lt;608</td>
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</table>

Pressure

If fewer than 2 ventilations per cycle are made, the remainder will be allocated 0 points. If more than 2 ventilations per cycle are made, the additional ventilations will not be assessed.

<table>
<thead>
<tr>
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<th>lower orange</th>
<th>lower yellow</th>
<th>green</th>
<th>upper yellow</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPM</td>
<td>in cm H²O</td>
<td>in %</td>
<td>in cm H²O</td>
<td>in %</td>
</tr>
<tr>
<td>lower</td>
<td>&gt;=10,56</td>
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<td>&gt;=57</td>
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<tr>
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<td>&lt;12,54</td>
<td>&lt;57</td>
<td>&lt;14,3</td>
<td>&lt;65</td>
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</table>
Hand placement

Depending on the compressions.

<table>
<thead>
<tr>
<th>Richtig</th>
<th>wrong</th>
</tr>
</thead>
<tbody>
<tr>
<td>green</td>
<td>red</td>
</tr>
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</table>

Head tilt

The head tilt is only assessed in connection with respiration. For a movement of 23 degrees or more from the resting position, the head tilt display lights up green. The assessment may show a yellow symbol for the head tilt, regardless of the mean over the simulation round.

<table>
<thead>
<tr>
<th>red</th>
<th>yellow</th>
<th>green</th>
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<tbody>
<tr>
<td>&lt;50%</td>
<td>&gt;=50%</td>
<td>&gt;=80%</td>
</tr>
</tbody>
</table>

3.6. Settings

Instead of the metronome, the song „Stayin' alive“ can be selected.

In online mode, the firmware versions of the CPRLillyPRO™ can be queried via the tablet. They are not visible unless a doll is connected.
3.7. Introduction

Medical procedures

1. Heart massage

   a) Talk to the patient (eyes open)
   The “speak to doll” function (that opens the eyes) can be set via the tablet.

   b) Check the pulse (settings via the tablet)
   If you have a P70, please connect two squeeze balls to the connectors for eye-blinking and pulse. By compressing the balls, you can control the pulse and eye-blinking as a trainer. To control the pulse and eye-blinking via the software, please activate the learning mode using the “Settings” and “General” menus.

The pulse can be adjusted with the white squeeze ball (P70) or via the software (P71).
c) Expose the chest

2. Clearing the mouth and pharynx area

To free the airways, the simulator head can be rotated by 90°. A blunt foreign body may be introduced into the mouth of the CPR Lilly™ or the CPR Lilly PRO™. Even semi-liquid foreign bodies, such as shaving foams, can and should be introduced for practice purposes. They can then be thrown away with the throat bag.

**Important:** Sharp foreign bodies or removing items with sharp foreign bodies are not permitted. The respiratory system of CPR Lilly™ or CPR Lilly PRO™ would be damaged by this.

3. Artificial respiration
General safety instructions

• The CPR Lilly™ and CPR Lilly PRO™ packaging is not a toy – there is a risk of suffocation!
• Intubation is not possible
• Do not „fish around“ for the throat bag with sharp objects (such as a knife)!
• The CPR Lilly™ or the CPR Lilly PRO™ should not be used near open flames.
• Do not use the CPR Lilly™ or CPR Lilly PRO™ outside in heavy rain
• Do not plunge the CPR Lilly™ or CPR Lilly PRO™ under water
• Do not use sharp objects to operate the touch screen
• Joint in the head: Do not remove the studs (risk of injury)
• When in operation, „noises“ will occur. This does not mean that the simulator is not working properly!
• Important! Do not press on the abdomen area. There is a risk of damaging the electronics.
• The CPR Lilly™ or the CPR Lilly PRO™ should only be used for artificial respiration if a throat bag has been inserted
• It is not advisable to change the bag in the rain (water can enter the inner respiratory system of the CPR Lilly™ or the CPR Lilly PRO™)

FAQ

• Can I use my own song for the simulation?
  No.

• Where do I choose the languages?
  In the settings window under the language section

• How do I switch the acoustic rhythm output to the song?
  In the settings window under the section 100 bpm rate

• Where can I find the silence button?
  You can find this in the simulator window if the teaching mode has been activated

• What do the colours on the LED button mean?
  green light → The CPR Lilly PRO™ is switched on and ready for use
  no light → CPR Lilly PRO™ is switched off
  green-red flashing light → the battery is almost flat
  flashing slowly orange → the battery is charged
  flashing quickly orange → the battery is being charged
  flashing red only → device error

• What should I do if the LED is flashing red?
  Remove the USB cable from the device
  Hold the LED button down for five seconds until the device switches off.
  Plug the cable back in and press the LED button.
  If, after trying the LED button several times, the red light keeps flashing, contact your supplier.

• How do I set up a Bluetooth connection to the BLS simulator?
  Please go to the tablet settings and look for Bluetooth, then activate Bluetooth.
  The Bluetooth connection is switched on and configured upon leaving the factory.

• Is the simulation data lost if I accidentally touch the start screen button (home button)?
  Unfortunately, the simulation will be lost if you do this. The program is stopped and must be restarted.

• Why can I not breathe into the CPR Lilly™?
  The head has not been tilted back. Tilt back the head to enable respiration.
  The volume of the air contained inside is not sufficient. Please remove the throat bag briefly in order to fill the breathing system with air
Maintenance and care

Storage
• The CPRLilly™ or CPRLillyPRO™ is best stored in a dry place at room temperature
• Protect the CPRLilly™ or CPRLillyPRO™ from direct sunlight because heat of over 40°C can deform the material or make it brittle
• Never store the CPRLilly™ with a fully discharged battery. Not even for a short time.

Care instructions
All parts that come into contact with the trainee, such as the face skin, the mouthpiece and the airbag holder, can be disinfected. The disposable airways (airbag) also ensure that using the device is especially hygienic. Please do not use any harsh chemicals for cleaning, because they can damage the model materials.

The upper skin of the CPRLilly™ or the CPRLillyPRO™ may, if severely soiled, be cleaned in a washing machine without the spin cycle (e.g. using the wool programme) at a maximum of 40°C with usual washing products. The rest of the surface of the simulator can be cleaned with a mild soap solution. Do not use any cleaning products containing solvents because the surface could be damaged.

The tracksuit top can be washed by hand or in the washing machine using normal washing products in warm water up to a temperature of 40°C.
## Replacement part orders

<table>
<thead>
<tr>
<th>Article No</th>
<th>Replacement parts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1017737</td>
<td>Upper face mask light (1x)</td>
</tr>
<tr>
<td>1017764</td>
<td>Upper face mask dark (1x)</td>
</tr>
<tr>
<td>1017738</td>
<td>Lower face mask with teeth light (5x)</td>
</tr>
<tr>
<td>1017765</td>
<td>Lower face mask with teeth dark (5x)</td>
</tr>
<tr>
<td>1017739</td>
<td>Throat bag (pack of 50)</td>
</tr>
<tr>
<td>1017743</td>
<td>Throat bag (pack of 100)</td>
</tr>
<tr>
<td>1017744</td>
<td>Carry bag</td>
</tr>
<tr>
<td>1017746</td>
<td>Tracksuit top</td>
</tr>
<tr>
<td>1013678</td>
<td>Resuscitator</td>
</tr>
<tr>
<td>1017747</td>
<td>Torso skin light</td>
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<tr>
<td>1017766</td>
<td>Torso skin dark</td>
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<tr>
<td>1017748</td>
<td>Bag clip</td>
</tr>
<tr>
<td>1017749</td>
<td>Lower jaw</td>
</tr>
<tr>
<td>1017758</td>
<td>Eyes light (pair)</td>
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<tr>
<td>1017767</td>
<td>Eyes dark (pair)</td>
</tr>
<tr>
<td>1017759</td>
<td>Eye rings (pair), light</td>
</tr>
<tr>
<td>1017778</td>
<td>Eye rings (pair), dark</td>
</tr>
<tr>
<td>1017750</td>
<td>Squeeze ball (light blue)</td>
</tr>
<tr>
<td>1017751</td>
<td>Squeeze ball (white)</td>
</tr>
</tbody>
</table>
Technical data

Dimensions
• Simulator (H x W x D) 26 x 39 x 78 cm, Weight: P70 8 kg, P71 9 kg

Power requirements
• Supply voltage: 15 V
• Safety extra low voltage (device class III)

Operating conditions
• CPRLilly™ and CPRLillyPRO™ are splash-proof (protection class IP 45)
• Operating temperature: -10°C to 40°C
• Storage temperature: -20°C to +60°C

• The plastics used meet the requirements of the DIN EN 71-3/9 Toy Safety Directive
• The CPRLilly™ and CPRLillyPRO™ are designed for use outdoors and can therefore also be used outside.