stryker

NEW LUCAS® 3

Chest Compression System, version 3.1

Data Sheet

Setting the standard
for mechanical CPR

We continue to innovate the LUCAS platform with Wi-Fi® connection to the LIFENET® System and integration into CODE-STAT™ Data Review Software. The new LUCAS 3, v3.1, allows for tailored rates to meet your protocols, alerts configured to improve compliance, Post-Event Reports to your inbox, and asset notifications by e-mail.

Device configuration via the LIFENET System

Wirelessly set device presets to align with your protocols

- Adjustable rate: 102, 111, 120 ± 2 compressions per minute – fixed or variable during operation
- Adjustable depth: 1.8 to 2.1 ± 0.1 inches/45 to 53 ± 2mm – fixed during operation
- Audible CPR timer: 1-15 minutes (in 1 minute increments)
- Adjustable ventilation alerts, pause length and count
- Auto-lowering of the piston (AutoFit or QuickFit)
- Pressure pad release to allow for chest rise during ventilation

Post-Event reporting

- Receive device Post-Event Report (PDF) via e-mail after device check-in over Wi-Fi
- Transmit reports wirelessly to any predetermined e-mail addresses (configurable in LIFENET)
- Integration with CODE-STAT 11*

Asset management via LIFENET

- Asset dashboard for fleet status at latest device check-in
- Notifications of expiring and expired LUCAS batteries
- Notifications of upcoming or missed service

The world's most used mechanical CPR device

- Over 15 years of experience, over 24,000 devices deployed, and 200+ publications**
- Unique device design: piston with suction cup designed to stabilize the compression point and follow the chest
- Used in the field all the way into the cardiac cath lab

Proven safe and effective, quick and easy

- Highest level of evidence showing safety and efficacy[1]
- Simple 1-2-3 step user interface
- Quick: A median 7 sec. interruption at transition from manual to mechanical CPR in clinical use[2]

Proven to perform. Reliably.

- Easy to maintain and own
- Compact and lightweight
- >99% operational reliability in clinical use[1]

*Commercially available mid-2018
**As of April 2018

Specifications

Device and Therapy

Type of chest compression

- Piston with suction cup designed to stabilize the compression point
- Factory default settings consistent with AHA and ERC Guidelines 2015

Compression rate

- Configurable to 102 – 111 – 120 compressions per minute, fixed, or variable during use
- Factory default setting: 102 ± 2 compressions per minute

Compression depth

- Configurable to a fixed value between 1.8 to 2.1 ± 0.1 inches / 45 to 53 ± 2 mm
- Factory default setting: 2.1 ± 0.1 inches / 53 ± 2 mm for nominal patients
  Note: 1.5 to 2.1 inches / 40 to 53 mm for chest height < 7.3 inches / 185 mm

Pressure pad during ventilation

- To allow for chest rise during ventilation the pressure pad can be configured to move up 0.4 inch / 10 mm above start position during pauses or during continuous compressions
- Factory default setting: pressure pad remains in start position

Compression duty cycle: 50 ± 5%

Compression modes (operator selectable)

- ACTIVE 30:2 mode: 30:2 (factory default setting) or 50:2 (setup option) compression to ventilation ratio
- ACTIVE Continuous mode

Ventilation alerts

- ACTIVE 30:2 mode: LED blinks and audible alert signals before ventilation pause
- ACTIVE Continuous mode: LED blink. Configurable to 6 to 10 alerts per minute (factory default setting: 10 alerts per minute). Audible alert configurable ON/OFF (factory default setting: OFF)

Ventilation pause duration

- ACTIVE 30:2 mode: configurable to 3 to 5 sec. (factory default setting: 3 sec.)
- ACTIVE Continuous mode: configurable to 0.3 to 2 sec. (factory default setting: 0.3 sec.)

Device and Therapy (cont.)

Suction cup start position

- Configurable:
  - QuickFit (factory default setting): Manual lowering of the suction cup. Automatic fine-tuning will occur when locking the start position
  - AutoFit: Automatic lowering of the suction cup from its upper position down to the chest
  - Manual: Manual lowering of the suction cup to the chest. No automatic fine-tuning will occur when locking the start position

Suction cup in ADJUST mode: The device can be setup so that the suction cup automatically returns up from the chest when the operator pushes the ADJUST key coming from PAUSE or ACTIVE (30:2 or Continuous) modes (factory default setting: OFF)

Audible timers

- 1 to 15 minutes, in 1 minute increments (factory default setting: OFF)
- The timer can be setup as either CPR Timer or Continuous Timer
  - CPR Timer: the device only measures the time in uninterrupted ACTIVE (30:2 or Continuous) modes
  - Continuous Timer: the device measures the time continuously, independent of what mode the device is in

Safety system controls

- Automatic self-test at each Power ON
- Advanced control of delivered compression depth, rate and duty cycle, with safety alarm
- Soft Start at beginning of compressions
- Automatic adjustment of compression force to reach the set compression depth in individual chests

Patients eligible for treatment

- 6.7 to 11.9 inches / 17.0 to 30.3 cm chest height
- 17.7 inches / 44.9 cm maximum chest width
- No patient weight limitation

Device post-event data and connectivity

Connectivity

- Wireless connectivity: Device can communicate via Bluetooth™ (factory default setting ON) and connect to configured Wi-Fi networks to receive and transmit data when not in clinical use.
- Local Bluetooth connection for setting up local Wi-Fi network, and for Post-Event Report generation and software updates (if Wi-Fi cannot be used)
- Ability to disable Bluetooth and/or Wi-Fi

Wi-Fi and LIFENET capabilities

- Manual or automatic data transmission (configurable): push the TRANSMIT key in range of known network (factory default setting), or setup option for automatic data transmission whenever the device is off, charging and in range of known network
- Setup options: Device functionality can be configured with setup options via secure, online platform (LIFENET) and be transmitted to the device wirelessly. A single setup profile can be applied to entire fleet or individual setup options for each device
- Post-Event Reports: Device can transmit Post-Event Reports (PDF) wirelessly and send to any predetermined e-mail addresses.
- Device readiness status: Device can transmit device readiness and battery notifications wirelessly to any predetermined e-mail addresses

Post-Event Report contents: Easy to read Post-Event Report (PDF) showing:

- Summary of device use: compression time, ratio, rate, count, number of pauses > 10 sec. and duration of longest compression pause
- Visual timeline showing device compressions, rate and pauses
- Event log showing user interactions, battery alerts and alarms
- Full display of device setup for quick reference
- Comprehensive post-event review in CODE-STAT 11 Data Review Software (optional)

Device post-event data and connectivity (cont.)

Device readiness data: Configurable in LIFENET to send e-mail notifications on latest device check-in status including:

- Battery nearing expiration
- Battery expired
- Failed device self-test

Reporting software over Bluetooth

- Report Generator software (DTX, included with device purchase for download online) with ability to download, print, save and share device reports of each use (PDF format)
- The Report Generator (DTX) can be downloaded on a pc with Windows® 7, 8.1 or 10

Device data storage: 4GB (estimated to store more than two uses per day over the lifetime of the device, 8 years)

Device physical specifications

Device dimensions when assembled (HxWxD): 22.0 x 20.5 x 9.4 inches / 56 x 52 x 24 cm

Device dimensions while stored in carrying case (HxWxD): 22.8 x 13.0 x 10.2 inches / 58 x 33 x 26 cm

Battery dimensions (HxWxD): 5.1 x 3.5 x 2.2 inches / 13.0 × 8.8 × 5.7 cm

Weight of the device with Battery (no straps): 17.7 lbs / 8.0 kg

Battery weight: 1.3 lbs / 0.6 kg

Back plate: Thin and lightweight back plate (0.6 inches / 15mm and 2.5 lbs / 1.1 kg)

Device environmental specifications

Operating temperature

- +32°F to +104°F / +0°C to +40°C
- -4°F / -20°C for 1 hour after storage at room temperature

Storage temperature: -4°F to +158°F / -20°C to +70°C

Relative humidity: 5% to 98%, non-condensing

Device IP classification (IEC60529): IP43

Operating input voltage: 12-28 V DC

Atmospheric pressure: 62-107 kPa -1253 to 13000 ft (-382 to 4000 m)

Power specifications

Power source: Proprietary battery alone or with external power supply or car power cable

Power supply input: 100-240VAC, 50/60Hz, 2.3A, Class II

Power supply output: 24VDC, 4.2A

Car power cable: 12-28VDC/0-10A

Battery type: Rechargeable Lithium-ion Polymer (LiPo)

Battery capacity: 3300 mAh (typical), 86 Wh

Battery voltage (nominal): 25.9 V

Battery run time (nominal patient): Battery run time 45 minutes (typical) Extended run time connecting to external power supply

Power specifications (cont.)

Maximum Battery charge time: Charged in the device using external power supply:

- Less than two hours at room temperature (+72°F / +22°C)

Charged in the external battery charger:

- Less than four hours at room temperature (+72°F / +22°C)

Battery service life (interval for recommended replacement)

- Recommendation to replace the battery every 3 to 4 years or after 200 uses (of more than 10 minutes each time)
- End of Battery service life will be indicated by a constant yellow LED to the far right on the Battery charge indicator

Battery IP classification (IEC60529): IP44

Battery charge temperature

- +32°F to +104°F / +0°C to +40°C
- (+68°F to +77°F / +20°C to +25°C preferred)

Battery storage temperature

- -4°F to +104°F / -20°C to +40°C
- +105°F to +158°F / +41°C to +70°C ambient for less than a month

References

1. Rubertsson S, Lindgren E, Smekal D, et al. Mechanical chest compressions and simultaneous defibrillation vs conventional cardiopulmonary resuscitation in out-of-hospital cardiac arrest. The LINC randomized trial. *JAMA*. 2013;311(1):53-61.
2. Levy M, Yost D, Walker R, et al. A quality improvement initiative to optimize use of a mechanical chest compression device within a high-performance CPR approach to out-of-hospital cardiac arrest. *Resuscitation*. 2015;92:32-37.

The LUCAS 3 device is for use as an adjunct to manual CPR when effective manual CPR is not possible (e.g., transport, extended CPR, fatigue, insufficient personnel).

Physio-Control is now part of Stryker.

For further information, please contact your Stryker or Physio-Control representative or visit our website at www.physio-control.com

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