corpuls³
LIFE-SAVING MULTI-TALENT
The corpuls®3 is not only a device – it is a 3 module system:

- Monitoring Unit
- Patient Box
- Defibrillator | Pacer

The modules can be separated at any time, as and when required. They communicate wirelessly, eliminating annoying cables.

The corpuls®3 adapts optimally to the users needs. Legendary and still unique, the corpuls®3 is used successfully by hundreds of organizations around the world.

COMMUNICATION PROFESSIONAL

The built-in connectivity functions such as 4G modem, WLAN or LAN are ideal for telemedicine and the corpuls communication platform: corpuls mission.

The corpuls®3 is available in three versions:
- corpuls®3 TOUCH
- corpuls®3 CLASSIC SLIM
- corpuls®3 CLASSIC

MODULAR AND UNIQUE

- Constant monitoring from the emergency site to the hospital
- Uninterrupted monitoring from a safe distance (e.g. CT scan)
- Better ergonomics for patient transport by separating the modules
- Increases patient safety by recording and storing parameters in direct proximity to patients
- More flexibility at the mission site due to the separation of different tasks: Display, data recording and therapy

SPECIFICATIONS

- Transflective 8.4” display, with optional Touch
- Wide printer (10.6 cm)
- Weight: 6.5 kg (SLIM, basic configuration)
- Dimensions of complete device (WxHxD): 30.5 cm x 29.6 cm x 19.5 cm (corpuls®3 SLIM CLASSIC & TOUCH)
- Extremely high dust and splash protection (IP55)
- Battery life: 7-10 hours, according to settings and demand
- Operating environment: -20 °C to +55 °C
  (basic functions: ECG monitoring and defibrillation)
- EN 1789
- Conforms with selected sections of the international Standard for Airborne Equipment RTCA DO 160 G
- Conforms with selected sections of the US Military Standard MIL STD 810 G

Additionally the corpuls®3 is also available as a TOUCH version – the CIT.
THE MONITORING UNIT

The Monitoring Unit is the control centre of the corpuls3. At just 2.9 kg, including the battery and printer paper, it is compact and can be comfortably held in one hand.

FULL CONTROL

Up to 6 curves and 13 vital parameters can be displayed simultaneously on the brilliant 8.4” display. Fully customisable, freely namable and - in case of the NIBP display - with quality indicator. In addition, up to 6 curves can be printed in real time.

INTUITIVE OPERATION

The corpuls3 has a unique operating concept, which is simple and safe, especially in stressful situations operation allows:

- Softkeys and function keys
- JogDial

All critical and important functions are controlled directly via the keys. The JogDial is used for all additional functions and the configuration of the device. This allows all other corpuls3 menus to be easily navigated.

In addition, the JogDial is used as an alarm light. Technical and patient-related alarms are signaled to the user via a powerful integrated LED.

Alarm visualization via glowing JogDial as well as warning tones.
THE PATIENT BOX

The Patient Box is the “heart” of the system. It collects, records, and stores all vital parameters and measurements. Values recorded via pre-connected sensors are transmitted in real time wirelessly to the monitoring unit, where they are displayed and/or processed.

CONSTANT COMPANION

Due to its low weight (between 1.1 and 1.4 kg, depending on features) the Patient Box is so compact that it can stay with the patient during transport. This also means that all the sensors and cables can remain on the patient. This not only keeps them out of harm’s way, but also enables seamless monitoring – for example, when transporting a patient through a narrow stairwell.

The Patient Box can operate completely autonomously. The backlit monochrome display enables patient observation even without a monitoring unit (including voice recording and acoustic alarms).

All data can be stored for later transmission.

Data export via:
- Bluetooth Classic | BLE
- Mobile Network 4G-LTE & WLAN (in the monitoring unit)
- CompactFlash® Card via corpuls.manager

Respiration rate is an important vital parameter in Emergency Medicine. With Masimo®’s Respiration Rate from the Pleth (RRp®) feature, this can now be measured automatically via the pulse oximetry sensor. Pressure changes in the chest, which are caused by respiration, among other things, cause a baseline variation in the plethysmographic waveform. The respiration rate (RRp®) can be derived from these changes in the plethysmographic waveform. This new parameter is a quick and easy tool to measure or monitor the patient’s respiration rate.
THE DEFIBRILLATOR | PACER

The modular design of the corpuls3 allows complete mechanical separation of the Defibrillator/Pacer. However, the modules remain wirelessly connected. This significantly reduces the weight of the corpuls3 system, which improves the mobility and flexibility of the system during urgent patient transfers, such as from the ambulance to the hospital. In this configuration, the patient can be remotely shocked from a safe distance via the monitoring unit (in connection with the corPatch therapy electrodes).

AED

- Pre-connected corPatch therapy electrodes
- Pacer
- Only 2.5 kg
- Battery charge for up to 200 shocks

THE DEFIBRILLATOR | PACER

- AED
- Manual mode
  - Cardioversion
  - Defibrillation
- corPatch therapy electrodes
- Pacer
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primeCPR-FEEDBACKSENSOR

To increase the quality of resuscitation, the corpuls3 is equipped with CPR feedback. For this purpose, the primeCPR feedback sensor is placed on the lower half of the sternum. It measures the pressure frequency and depth of the chest compressions during resuscitation. Depending on the configuration, the quality of the chest compressions is shown on the display (bar graphs) and improved by voice guidance. The bar graph shows the pressure depth and quality of the chest compressions. This view serves as support and feedback for the rescuer.

1 Source: F. Lakomek et al.: Real-time feedback improves chest compression quality in out-of-hospital cardiac arrest: A prospective cohort study
2 only when using a primeCPR feedback sensor. The reusable sensor is a product of Schiller AG.
When designing the corpuls cpr, we focused on two things: A seamless rescue chain from out-of-hospital, to air rescue, to in-hospital – as well as the shortest possible hands-off time.

This is why the corpuls cpr arm can be aligned and fixed over the patient with just one movement in just a few seconds. During the therapy the corpuls cpr checks the position of the stamp after each ventilation pause or after 100 compressions when in continuous mode. If the thorax has collapsed, the corpuls cpr automatically corrects the distance between the stamp and the thorax. Thus ensuring that the set compression depth is always achieved.

With three different boards made of radiolucent carbon, the user is optimally equipped for every mission.

The synchronisation means that the corpuls cpr is virtually the fourth module of the corpuls3 and we are again a step closer to our target of a seamless rescue chain.

The synchronisation of corpuls3 and corpuls cpr during resuscitation. Our objective was to lift resuscitation procedures to a new level of quality. The corpuls3 is primarily distinguished from other compact units by its revolutionary modular design. It can be divided into the monitoring unit, patient box and defibrillator/pacer. Synchronised therapy can greatly reduce the stress in the team. corpuls3 and corpuls cpr act as one unit, they are integrated into the team and the two of them working together make the resuscitation procedure even more efficient. The hands-off time is significantly reduced and the patients' chance of survival is increased, even under very confined conditions.

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THE CORPULS REVOLUTION

Over 20 years ago, corpuls introduced the 12-lead ECG to the emergency services. It has been the gold standard in ECG diagnostics ever since. Now corpuls is revolutionising the ECG again.

ECGmax

22-LEAD ECG

With ECGmax you get not only the classic 12, but 22-leads and thus 10 additional perspectives on the course of electrical activity in the heart muscle.

The current European Society for Cardiology (ESC) guidelines recommend examining the additional leads V7–V9 and the right cardiac leads V3r–V6r. No additional effort is required and no other electrodes have to be attached or positioned. The additional leads are calculated on a server. They can be displayed and measured in corpuls.mission LIVe or forwarded to the recipient as a PDF by e-mail or fax via the corpuls Gateway.

GLASGOW ECG INTERPRETATION

The corpuls3 has integrated the Glasgow ECG Interpretation Program. Since its development in the 1960s by Prof. Macfarlane, the program has been further refined and investigated in scientific studies. In addition to adults, the ECG interpretation of pediatric patients is also possible.

- Diagnostic support with 22-leads
- Posterior leads V7–V9
- Right cardiac leads V3r–V6r
- Orthogonal leads X, Y, Z and associated vectorloops
- Only 10 electrodes, extremities and chest leads
- Display on every corpuls3 with telemetry option

CEB'

CARDIAC ELECTRICAL BIOMARKER

In addition, ECGmax can calculate the Cardiac Electrical Biomarker CEB' from the same leads. To do so the electrical field of the heart is measured and the user can immediately recognise whether myocardial ischemia is present – with comparable sensitivity and specificity to troponin.

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- Simple interpretation using the traffic light concept
- Correlation of the CEB' with troponin
- Fast reaction by measuring the electrical field
- Non-invasive measurement
- Continuous value
- High sensitivity and specificity
- No additional electrodes required

CONNECTIVITY

Various interfaces and connection options are available for the connection to the corpuls digital products. The data transmission is always encrypted.

- For the mobile phone connection, corpuls optionally offers additional security through M2M SIM cards.
- For local communication with an ePCR device, the corpuls3 has a combined Bluetooth Classic and Bluetooth Low Energy (BLE) module, which enables the transfer of patient and master data, vital data, trends or the resting ECG as a PDF file.

TELEMEDICINE & DATA MANAGEMENT

corpuls.mission and corpuls.manager are the optimal and digital complement to corpuls3. Missions become borderless in terms of space and time to support patient treatment on site and sustainably improve it for the future.

corpuls.mission LIVE

The telemedicine application corpuls.mission LIVE transmits data from the corpuls3 in real time to any suitable computer connected to the internet – browser-based and yet secure. Thus, medical data can be shared live, no matter how far away the mission site is from the hospital or the specialist.

corpuls.mission CONFERENCE

The communication solution corpuls.mission CONFERENCE brings the specific expertise required to the treatment location – any time. The specialists required are connected to the mission site via chat, telephony or video telephony and relevant images, audio recordings, ECGs, etc., can be easily and securely shared – all with a native app.

corpuls.manager ANALYSE

The data management solution corpuls.manager ANALYSE centrally and automatically manages all the data from your corpuls device fleet and enables data upload from the corpuls3 at the end of the mission. The filter, sort and search functions are ideal for quality management and controlling.

corpuls.manager REVIEW

With corpuls.manager REVIEW, you can review the mission form the corpuls3 down to the second. Exactly what’s required for optimal debriefing and the best possible documentation for quality assurance.

FOCUS – ON – PATIENTS
ENERGY MANAGEMENT

The best energy management is one that the user doesn’t have to think about. corpuls³ intelligent energy management fulfills this requirement precisely.

- Extremely powerful and identical batteries in all 3 modules
- No time-consuming manual charging and battery replacement required
- In compact mode, the battery reserves from the other modules are used

Simply remove the corpuls³ from the charging bracket in the emergency vehicle and, even during long missions, there will always be always enough power available to ensure comprehensive monitoring and therapy with the Defibrillator/Pacer.

BRACKETS

MONITOR

- Up to 6 curves and 13 vital parameters
- Diagnostic 12-lead ECG preview
- Quick access to important menu items via 7 softkeys and function buttons
- 1-2-3 operation in defibrillation modes
- Wide printer (106mm) with simultaneous real-time printout of up to 6 curves
- 4G modem, WLAN or LAN port for data transmission/telemedicine
- All-around impact protection
- Weighs only 2.9 kg
- Dimensions (WxHxD): 30.5 cm x 29.5 cm x 12 cm

PATIENT BOX

- 12-lead diagnostic ECG, heart rate
- ECG-Analysis and Information Software
- Masimo Rainbow SET® Technology for SpO₂, PP, PI, SpCO, SpMet, SpHb, RRp
- Non-invasive blood pressure measurement (SunTech®)
- Capnography with mainstream technology capONE®
- primeCPR Feedback® (disposable or reusable)
- 2 channels for temperature measurement
- 4 channels for invasive pressure measurement
- Display for vital parameters, remaining time and alarms
- Acoustic alarm indicator
- Microphone for audio recording
- Bluetooth and CompactFlash®
- Weight: 1.1–1.4 kg
- Dimensions (WxHxD): 26.5 cm x 13.5 cm x 5.5 cm

COMPACT DEVICE

- One-hand release via the handle
- Self-locking mechanism after 10 seconds
- 12 V DC (optional with power supply unit)
- EN 1789

DEFIBRILLATOR

- Biphasic, rectangular waveform, impedance compensated
- 2 to 200 Joule, configurable energy protocol
- AED and manual defibrillator
- AED protocol according to the current Guidelines, updateable anytime
- Pacer with FIX-, DEMAND- and OVERDRIVE mode
- Pre-connected corPatch therapy electrodes in separate bag
- Up to 200 shocks with fully charged battery
- Use with hard paddles as well as internal shock spoons possible
- Weight: 2.5 kg (corpuls³ SLIM)
- Measurements (WxHxD): 28 cm x 22 cm x 12 cm

* only when using a primeCPR feedback sensor. The reusable sensor is a product of Schiller AG.
For over 40 years, corpuls® has developed and produced innovative high-end equipment for emergency and intensive care medicine. Today, in our headquarters in Kaufering, over 400 hearts each beat around 80,000 times every work day while aspiring to meet the high standards of rescue workers from over 70 countries around the world.

Since day one, corpuls defibrillators, patient monitoring systems and chest compression devices have set the standard in the realisation of the most advanced insights in medical science, as well as in terms of innovation and ergonomics. Complemented by smart telemedicine and data analysis across devices, the corpuls system guarantees reliable and safe help in the fight for human lives.