



corpuls®

FOCUS - ON - PATIENTS



CAT

THE NEXT GENERATION OF **CORPULS3**

CAT

CORPULS3 THE NEXT GENERATION

The corpuls3 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 **corpuls3 TOUCH** adapts optimally to the users needs. Legendary and still unique, the **corpuls3** 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**.

Den corpuls3 gibt es in drei Ausführungen:

- **corpuls3 TOUCH**
- **corpuls3 CLASSIC SLIM**
- **corpuls3 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 (**corpuls3 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)
- **DIN 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



► The unique wireless RF technology allows the modules to communicate with one another as if they were physically connected.

► Illustration of the corpuls3T.



► Our corpuls3 CLASSIC SLIM is naturally also still available for purchase.



THE MONITORING UNIT

The Monitoring Unit is the control centre of the **corpuls3 TOUCH**. 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.

OPERATING CONCEPT "TOUCH 'N DIAL"

For the **C3T**, we have implemented a new operating concept - with the aim of combining the best of the two operating worlds. The result: **TOUCH 'N DIAL**

- On the one side, **classic operation using softkeys or function keys and JogDial**
- On the other side, **intuitive operation using Touch.**

Because there are mission where either one or the other mode works more reliably. This is the exact aim of this concept: optimal operation at the right moment.

And in the end, it is also a **safety aspect:**

If Touch does not work as expected, operation via keys and JogDial is always possible, especially in the case of a resuscitation.

EXTREMELY ROBUST TOUCH TECHNOLOGY

Not your standard Touch. This is very important when the circumstances of the mission are more demanding. We rely on the latest generation of Touch control. The touch display of the **corpuls3 TOUCH** is

- **Insensitive to liquids** and
- Can be **safely operated with disposable gloves.**

Together with the high-quality bonded display, you get a device with optimal contrast and minimal reflection resulting in excellent usability.



► Touch 'N DIAL on the C3T: Operation via JogDial or optionally via Touch



► Illustration of the corpuls3 TOUCH Monitor.



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.



► The small screen is located on the front of the Patient Box.

Data export via:

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



► Illustration of the corpuls3 TOUCH Patient Box.

RESPIRATION RATE FROM THE PLETH (RRp®)

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.





► Illustration of the corpuls3 TOUCH Defibrillator | Pacer

THE DEFIBRILLATOR | PACER

The modular design of the **corpuls3 TOUCH** allows complete mechanical separation of the Defibrillator/Pacer. However, the modules remain wirelessly connected. This significantly reduces the weight of the **corpuls3 TOUCH** 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).

COMPACT UNIT

The **corpuls3 TOUCH** Defibrillator/Pacer offers exactly what's required in critical missions. Weight and size are reduced to the necessary minimum without any compromise in functionality. The pre-connected therapy electrodes and the optional accessory bag also optimise handling.



► Shock spoon in three sizes for use during open heart surgery.

PERFECT TEAMWORK

SYNCHRONISATION OF CORPULS3 TOUCH & CORPULS CPR

This has long been our vision: the perfect interaction between **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 TOUCH** 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.



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



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.

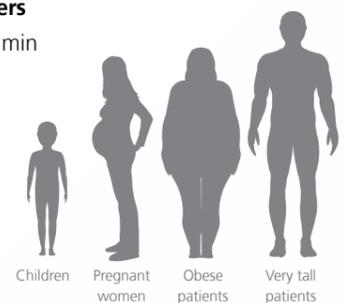
This is why the **corpuls cpr** arm can be aligned and fixed over the patient with just one movement in just a few seconds. During the therapy the **corpuls cpr** checks the position of the stamp after each ventilation pause or after 100 compressions

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.

SPECIFICATIONS corpuls cpr

- **Weight:** 5.5 kg (arm with battery and stamp)
- **Compression depth:** 2–6 cm
- **Frequency:** 80–120/min
- **Therapy mode:** 30:2 | 15:2 | continuous
- **Bluetooth and NFC**
- **Intuitive user interface:** therapy start/stop button with alarm function and 4 softkeys
- **Customisable therapy parameters**
- **Battery running time:** up to 80 min
- **Radiolucent boards**
- **Fast secure adjustment**
- **Children from the age of 8, pregnant women and obese patients can also be treated**



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 revolutionizing 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.

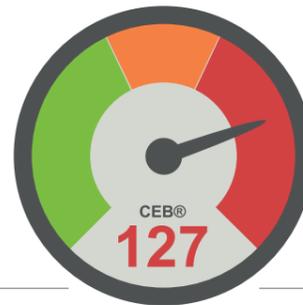
The current European Society for Cardiology (ESC) guidelines recommend examining the additional leads **V7-V9** and the right cardiac leads **V3r-V6r**.

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.

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.



- 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

- **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

GLASGOW ECG INTERPRETATION

The **corpuls3 TOUCH** 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.

- **Pediatric patient** interpretation
- **Gender, race and age specific** interpretation
- **LBBB criteria for STEMI**

- **ST measurement from J point**
- Continuous **development**¹
- **Studies** in both the in-hospital and out-of-hospital area²

¹ Macfarlane 1971 to Bosson et al. 2017
² Bosson et al. 2017

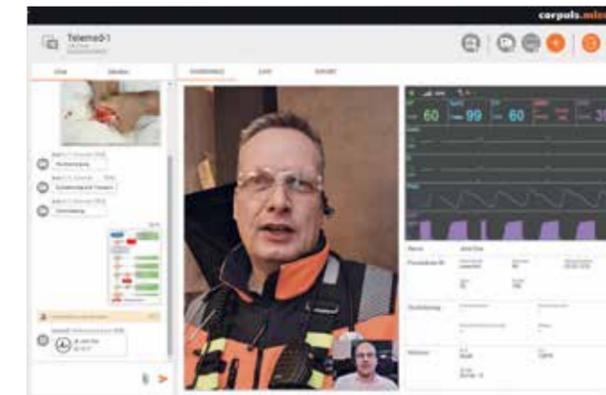
CONNECTIVITY

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 TOUCH** 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.

- **WLAN Interface** (also for "Enterprise" networks)
- **4G LTE Modem** (backwards compatible)
- **M2M SIM cards** for security via mobile connections through their **own APN** with connected **VPN tunnel**
- Combined **Bluetooth Classic and BLE Module** for local communication with an ePCR device

TELEMEDICINE & DATA MANAGEMENT

corpuls.mission and **corpuls.manager** are the optimal and digital complement to **corpuls3 TOUCH**. 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 TOUCH** 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, ECG's, 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 TOUCH** 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 from the **corpuls3 TOUCH** down to the second. Exactly what's required for optimal debriefing and the best possible documentation for quality assurance.

ENERGY MANAGEMENT

The best energy management is one that the user doesn't have to think about. **corpuls3 TOUCH** 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 TOUCH** 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.



► The individual **corpuls3/corpuls3 TOUCH** batteries can be exchanged if necessary.

BRACKETS



PATIENT BOX

- Adapter solutions for **common stretcher systems**
- **Simple attachment and unlocking**
- **12 V DC**
- **EN 1789**

MONITOR

- **Slim installation depth and light weight**
- Also suitable for **the combination of Monitor and Patient box**
- **12 V DC**
- **EN 1789**

COMPACT DEVICE

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



MONITOR

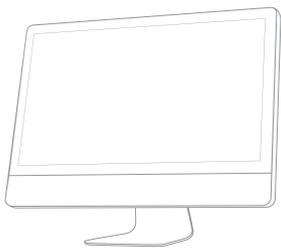
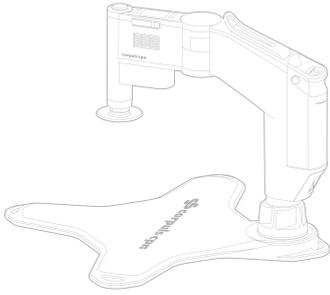
- Up to **6 curves and 13 vital parameters**
- Diagnostic **12-lead ECG preview**
- **Quick access** to important menu items via 7 softkeys and function buttons
- **1-2-3 operation** in defibrillation modes
- **Wide printer** (106mm) with simultaneous real-time printout of up to 6 curves
- **4G modem**, 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® Technologie for **SpO₂, PP, PI, SpCO, SpMet, SpHb, RRp®**
- **Non-invasive blood pressure measurement** (SunTech®)
- **Capnography** with mainstream technology capONE®
- 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

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



For almost 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.



Manufacturer:

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ECCmaxi/CEB® are products from
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NJ 07512 | USA

