**Concept**

The *corpuls*® offers a unique and revolutionary device concept. The patient monitor with integrated defibrillator/pacer is distinguished from all other compact devices by its modular design. It can be taken apart into:

- **Monitoring unit**
- **Patient box**
- **Defibrillator/pacer**

The enhancement achieved in terms of ergonomics and flexibility has been appreciated by users in over 60 countries worldwide since introduction to the market. Become an avid user of this innovative technology.

"Made in Germany" to the highest quality.

**Wireless communication**

The unique wireless technology allows the components to communicate with each other as though they were physically connected.

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**General specifications:**

- Dust- and splash-proof (IP56)
- Vibration- and shock-tested in accordance with DIN EN 1789
- RTCA DO 160 G - Sections 4, 5, 6, 10, 21, 25 (Airborne Equipment)
- MIL-STD 810 G - Categories 4, 9 (US Military Standard)
- Running times up to 10 hours as compact device
- Operating temperatures ranging from -20 °C to +55 °C (basic function)
- Power supply 12 V DC or 100 to 250 V AC with mains adapter by magnetic plug
- Complete unit weight: 6.3 kg (with SLIM module and basic configuration)
- Dimensions of complete device (HxWxD): 29.6 cm x 30.5 cm x 19.5 cm
Patientbox
Uninterrupted monitoring from the EMS-site to the hospital
The patient box is responsible for transmission and analysis of the ECG signals and sensor signals. The lightweight module along with its pre-connected sensors and cables, stored in spacious accessory bags, can remain directly with the patient. Thus, the patient can be continuously monitored even while being transferred.

- 12-lead diagnostic ECG, heart rate
- Masimo Rainbow SET® technology for measuring SpO₂, PP, PI, SpCO₂, SpMet, SpHb
- Automated non-invasive blood pressure measurement (SunTech®)
- CO₂ measurement with capONE® main-stream technology (even in non-intubated patients)
- 2 channels for temperature measurement
- 4 channels for measurement of invasive pressures (arterial/venous and intracranial)
- corPatch CPR feedback sensor
- Separate display to indicate vital parameters and remaining runtime
- Data export via CompactFlash® or Bluetooth®
- Weight only 1.3 kg

Defibrillator/pacer SLIM
Optimised in terms of ergonomics and flexibility during missions
The modular design of the corpuls3 allows the complete undocking of the defibrillator/pacer. This saves weight on the one hand, while on the other hand shocks can be emitted from a safe distance via the monitoring unit in conjunction with corPatch therapy electrodes.

- Biphasic rectangular waveform, impedance-compensated
- 2 to 200 joules, configurable energy protocol
- AED and manual defibrillator
- AED protocol according to the current ERC/INA guidelines
- Use with hard paddles as well as internal shock paddles possible
- Pre-connected corPatch therapy electrodes in own bag
- Pacer with 3 modes: FIX, DEMAND, OVERDIVE
- Weight only 2.0 kg

Modules
Maximum mobility, easy to operate, quick diagnosis
The monitoring unit not only serves to display all curves and vital parameters, but is at the same time the operating interface of corpuls3. The intuitive user interface supports the user and facilitates operations during each mission. The functionally shaped handle and the all-around shock protection furthermore ensure that the lightweight monitor withstands even the toughest conditions.

- Large, transflective colour display (8.4″)
- Up to 6 curves and 13 parameter values can be generously depicted
- 12-lead diagnostic ECG with preview
- Views can be freely configured and named
- 3G-modem or LAN interface for data transmission or liveviewing
- Wide printer (108 mm) with simultaneous real-time printout of up to 6 curves
- 7 softkeys and function keys for quick access to important menu items
- Intuitive user interface with jog dial for fast and easy menu control
- 1-2-3 operation in defibrillation mode
- Weight only 2.7 kg
Emergency medical service

Person stuck in a vehicle after a road accident; rescue in the narrow bathroom; buried person or transportation through a staircase. In the emergency medical service not only the missions are very manifold, but so also are the requirements for personnel and equipment. Due to its modular concept, the corpuls3 offers a high degree of ergonomics and flexibility in nearly every situation:

- Wireless communication of the individual modules for continuous monitoring from the incident scene to the hospital
- Intuitive and safe operation for comprehensive monitoring, diagnosis and therapy in any situation
- Live data transmission using the integrated 3G-modem to corpuls.web

**sEM®**

The benefits owed to the ingenious energy management system of the corpuls3 include battery running times of up to 10 hours, extremely short recharging times and a forecast of the remaining running time in minutes.

The large selection of charging brackets, the unrestricted emergency operation with just one battery and the MagCode magnetic safety connector also contribute towards ensuring that the corpuls3 can be used reliably at any time.

**Military**

Whether in difficult terrain, in deep snow or in a sandstorm: the corpuls3 reliably delivers comprehensive patient data even in the most adverse weather conditions and is therefore the ideal patient monitor/defibrillator for military use.

- Approved and tested according to US Military Standard MIL STD 810 G
- Extremely high dust and splash protection in accordance with IP55
- Reliable operation at temperatures ranging from -20 °C to +55 °C
- Use in conjunction with night vision goggles possible (NVG mode)
- Specially designed hard-wearing bags and robust boxes for safe transport of the system and accessories

The corpuls3 is designed and certified for use under extreme conditions. Dust and splash protection in accordance with IP55, fulfilment of standards MIL STD 810 G (US military standard), and RTCA/DO 160 G (Airframe Equipment) make the corpuls3 the ideal patient monitor/defibrillator in well-nigh any situation. The all-around shock protection and the Makrolon® display protector together with the protective liner complete the concept.
**corpuls³ in action**

**Air rescue**

Almost every patient who is transported in a helicopter or an airplane is in a critical condition and has to be monitored continuously and comprehensively—time pressure, extremely confined space and loud volume greatly increases the stress factor for the personnel. The innovative concept of the corpuls³ optimally supports the user:

- Tested and approved to international standard RTCA DO 160 G (Airborne Equipment)
- Good visibility of alarm signal due to illumination of the jog dial
- Different mounting brackets available for the individual modules in any aircraft

**wiGONOMICS³**

The corpuls³ combines modern wireless technology with ergonomic working comfort. Users and thus patients benefit in almost every situation on the scene of the flexibility and ergonomics of the unique modular concept. The wireless communication eases work, improves treatment of patients and shortens EMS time.

**Hospital**

In the hospital setting the corpuls³ can be used in any area due to its versatility. A modular transport monitor of intensive care patients, resuscitation in the emergency room or patient monitoring while undergoing CT scan are just a few examples of the fields of application of the corpuls³:

- Uninterrupted monitoring of critical patients in the emergency room, during transport within the hospital, during medical examinations (e.g. CT) and in the ICU
- 12-lead ECG with measurement, interpretation support and large printer for reliable diagnosis
- Internal shock paddles in three different sizes
- 48.8 cm², 18.26 cm², 11 cm²

**InTUI³**

The intuitive user interface of the corpuls³ combines useful softkeys and a well arranged menu structure with custom configurable views and automated monitoring functions. Central functions such as alarm confirmation or therapy mode selection can be called up via the function keys. The softkeys assignments vary depending on the menu level, which ensures that important operational steps are quickly accessible. The jog dial enables easy navigation in the menus and entering of patient data, e.g. the age.

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A decisive criterion that determines the outcome for the patient is the quality of chest compressions. The new corPatch CPR feedback sensor is placed on the pressure point and measures compression rate and compression depth. The user immediately gets the feedback from the corpuls® and is thus able to optimise his compressions. The smartMetronome provides additional support during CPR by acoustically prompting compression frequency and ventilation interval.

- Display of compression rate (graphical/numeric) and compression depth (graphical)
- Display of the CPR curve
- Voice messages with feedback and advice for improvement (configurable)
- Reliable application thanks to adhesive surface
- Flexible use with corpPatch therapy electrodes or hard paddles
- Infection protection by virtue of one-time use
- Can be used for adults and children
- Specification of compression rate and ventilation intervals by smartMetronome

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Mission debriefing with corView2

Particularly after a mission involving resuscitation, detailed debriefing with the emergency medical staff involved in the mission is necessary. With corView2, the entire mission data can be read out, visualised and analysed.

The data and parameters recorded are clearly itemised so that the resuscitation can easily be analysed. In this way, the emergency staff on the one hand get comprehensive feedback and the opportunity to analyse the effectiveness of the measures taken by them, while on the other hand a possible need for training can also be identified.

- CPR analysis of the complete resuscitation
- Analysis of compression rate and compression depth (in conjunction with corPatch CPR feedback sensor)
- Continuous recording of ECG curves and vital parameters
- Depiction of invasive blood pressure measurements as curves
- Evaluation and depiction of hands-off times
High availability, maintenance free and reliability – a must-have for modern medical technology.

The intelligent and sophisticated energy management of corpuls® meets these basic requirements.

Take the corpuls® always ready-to-use out of the bracket in the ambulance. Once the device is back in the bracket, the batteries are charged automatically and the corpuls® is ready for the next reason.

Just forget the time-consuming usage of external chargers and exchange of batteries. With the corpuls® the user can instead focus entirely on the patient.

The handy and identical batteries of the three modules are also extremely powerful and used in compact mode the battery reserves of the other modules. This guarantees a reliable and comprehensive monitoring and treatment with the defibrillator/pacer even during long-lasting operations.

- Battery run time as compact device of up to 10 hours
- Batteries fully charged in approx. 2 hours
- Remaining run time indicated on the display
- Charging via 12 V DC or 100-250 V AC with magnetic contact (MagCode)
- Unrestricted operation as a compact device, even with the loss of two batteries

The ergonomic benefit in the ambulance vehicle achieved by means of the modular design is supplemented by different brackets for the individual modules. Individual solutions are provided for each field of application: mounting on wall and floor, brackets with or without swivel mechanism, secure attachment on stretchers from different manufacturers etc.

All brackets have been approved in accordance with DIN EN 1789 and have been tested with up to 34 g instead of the prescribed 10 g. Furthermore, many of the brackets are optionally available with or without integrated power supply.

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Medical studies conducted in the last few years have proven that fast and professional treatment of patients already in the pre-hospital phase can decisively increase the survival rate. Medical data transmitted by the emergency medical service using the corpuls® are already displayed live in the browser-based application corpuls.web. In this way, the specialists in hospital can prepare optimally for the patient and his clinical picture and can furthermore support the staff on site with recommendations.

- Real time data transfer of all curves and vital parameters
- Display, measurement and forwarding of 12-lead diagnostic ECGs in various formats (e.g. PDF, SCP)
- Ability to forward the 12-lead diagnostic ECG to E-Mail addresses
- Time synchronization with the server
- Automatic FTP upload of recorded data when shutting off the corpuls® for further processing in corView2

Data protection with corpuls.web

The medical device certified application corpuls.web takes into consideration the comprehensive requirements in the area of data security:

- Separate transmission of patient data and medical data to the server
- Encryption of the patient data (128-bit AES encryption)
- Verified SSL certificate in server-to-client transmission
- Highest security standards due to the server-hoster (ISO 27001)
- 99.95% failure safety of server (extendable)

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Medical technology, setting the benchmark

GS Elektromedizinische Geräte GmbH has been developing and manufacturing innovative high-end devices for emergency and intensive care medicine for over 30 years. The systems and solutions for monitoring and treating patients with life-threatening trauma or cardiovascular conditions sold under the trade name corpuls® are used every day in over 60 countries worldwide.

corpuls® defibrillators and patient monitoring systems have always set standards in implementing the newest medical-scientific findings as well as with regard to innovation and ergonomy. They guarantee reliable and safe support in the ongoing struggle to save human lives. Long years of deployment of the devices in the toughest environments and tens of thousands of satisfied customers are the best proof for the success of our chosen path and provide daily motivation for our employees.

The outstanding innovative achievement of the GS team has been granted several awards lately, among others the German Industriepreis (Industrial Award) in the category medical technology, second place at the Deutscher Innovationspreis, as „Selected landmark“ in the „Germany - Land of Ideas“ competition and an award and special award for innovation at BAYEINS BEST 50.