The first innovative and intuitive perfusion data management system designed to improve clinical efficiency and enable Goal-Directed Perfusion Therapy.
CONNECT™

is LivaNova’s innovative and intuitive perfusion data management system designed by perfusionists, for perfusionists.

The CONNECT System consists of two core components:

- **The CONNECT Manager:**
  - Manages all case data in one central SQL database
  - Provides retrospective data analysis with included statistics tool
  - Generates and exports EMRs
  - Allows full customization of CONNECT Recorder according to preferences

- **The CONNECT Recorder:**
  - Collects and visualizes data from HLM and other external devices
  - Offers high level of customization to optimize viewing preferences
  - Offers quick single-touch event entries at any time
  - Enables Goal Directed Perfusion parameters via GDP™ Monitor

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**COMING SOON**

and optionally available:

Upgrade your CONNECT System with our new HL7 module and experience LivaNova’s continued commitment to empowering perfusionists to improve clinical and data efficacy through an integrated patient data management system.

- CONNECT Manager
- CONNECT Recorder
- HL7 Interface Engine*
- Hospital EMR System

**Main clinical benefits of CONNECT HL7:**
- Simplification of the clinical data workflow
- Improved data integrity
- Enhanced legibility
- Reduction in manual processes

**Main features of CONNECT HL7:**
- New graphical user interface with a powerful HL7 search engine to search for patient data in the EMR system and seamlessly import it into either CONNECT Manager or CONNECT Recorder
- Automatic upload of the post-operative PDF patient record into the EMR system
- Post-operative export of recorded patient data during Extra Corporeal Circulation (ECC) directly into the graphical user interface of the EMR system
- Full customization options to reflect hospital specific EMR and emergency workflows

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**CONNECT**

- **Minimize**
  - Transcription errors and bias.

- **Diminish**
  - Inefficiencies of manually entering product traceability data.

- **Decrease**
  - Limitations of analyzing manually recorded data.

- **Reduce**
  - Occurrence of Acute Kidney Injury

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**CONNECT**

- Allows trending while centralizing all patient data on one screen.

- Automatic transfer of information from LivaNova disposables and creation of electronic patient records.

- Customizable online quality indicators and post-op electronic quality reports.

- Enables Goal-Directed Perfusion (GDP) Therapy through monitoring of critical metabolic patient parameters with GDP Monitor.
**Improved clinical practice**

The CONNECT workflow system minimizes transcription errors, bias and all the drawbacks associated with manual operations. CONNECT allows trending and electronic transfer of data from LivaNova disposables.

The perfusionist accesses all perfusion data on one screen allowing more time to concentrate on the patient and circuit facilitating optimal patient management. All data is then exported back to the Manager database where the clinician may consult case per case for statistical and inventory analysis, generate and export or print complete electronic medical records.

**All the information you need on one screen**

Easy, intuitive and complete Graphical User Interface (GUI).

During the operation, the perfusionist can view, in real-time, data and patient parameters in the form of graphs or charts according to personal preference. The perfusionist may also enter any data as well as comments and event entries in order to have complete documentation during the case.

The CONNECT system may also be configured to collect data electronically from a variety of patient monitors, blood gas devices, ACT meters, cerebral oximetry devices, etc.
GDP™ Monitor
Critical patient parameters at your fingertips

Empowering Goal-Directed Perfusion Therapy
with the optional GDP Monitor feature

Goal-Directed Perfusion is a perfusion therapy aimed at reducing the occurrence of Acute Kidney Injury (AKI), shortening ICU and hospital length of stay, and potentially decreasing Red Blood Cell (RBC) transfusions by respecting the metabolic needs of each patient during cardiac procedures.

5 GUIDING RULES TO IMPLEMENT GOAL-DIRECTED PERFUSION 1, 2, 3, 5, 6, 7, 8, 9

1. Limit hemodilution on CPB (Hct management)*
2. Oxygen Delivery index \( \text{DO}_2i \) to be kept \( >270 \text{ ml} / \text{min} / \text{m}^2 \)
3. Increase the \( \text{DO}_2 \) by acting on pump flow, \( \text{PaO}_2 \)
4. Oxygen Delivery to Carbon Dioxide production ratio \( \text{DO}_2i / \text{VCO}_2i \), to be kept \( >5 \)
5. Transfuse RBC based on \( \text{SvO}_2 \) and \( \text{O}_2\text{ER}^{**} \) rather than HCT

LivaNova, together with leading clinicians that have studied the clinical benefits and improved patient outcomes associated with Goal-Directed Perfusion, are at the forefront in creating global awareness of the advantages of this therapy. Furthermore, LivaNova implements and transparently provides the GDP formulas patented by Dr Marco Ranucci.

With the GDP Monitor the perfusionist may view advanced parameters such as \( \text{VCO}_2i \), \( \text{O}_2\text{ER} \) and the metabolic ratio \( \text{DO}_2i/\text{VCO}_2i \). Such parameters are relevant for optimal perfusion management where the metabolic needs of each patient during cardiac procedures is effectively respected 1, 2, 3, 5, 6, 7, 8, 9.

* Refer to LivaNova for more information

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Frank Münch, Chief perfusionist, University hospital Erlangen, Germany

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THE FIRST AUTOMATICALLY INTEGRATED PERFUSION MANAGEMENT SYSTEM

**PROVEN SAFE, FLEXIBLE AND MODULAR**

"I am using the S5 in various configurations according to the different weight of my patients. This helps me to achieve an optimum relation between the priming and blood volume of the patient. The flexible mast mounted pumps allow a very close positioning of the whole system to the patient"

Frank Münch, Chief perfusionist, University hospital Erlangen, Germany

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**IMPROVING CLINICAL DATA ACCURACY**

"The use of an automated system provides the opportunity to minimize transcription errors and bias"*

**REDUCING AKI & BLOOD TRANSFUSIONS**

"It is of note that with the use of ultra low prime oxygenators, GDP actually exerted its potential"**

**FOCussING ON NEUROLOGICAL PROTECTION**

"The new PFAT protocol featured in XTRA significantly increases fat elimination, yielding results comparable with continuous processing technology"**

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** \( \text{VO}_2i / \text{DO}_2i \): fraction of \( \text{DO}_2 \) that diffuses from capillaries into tissues: goal \( <35-39\%\) (\( \text{VO}_2 \): Oxygen Consumption)
References:

1. \( \text{O}_2 \) delivery and \( \text{CO}_2 \) production during cardiopulmonary bypass as determinants of acute kidney injury: Time for a Goal-Directed Perfusion management?

2. Oxygen delivery during cardiopulmonary bypass and acute renal failure after coronary operations.


4. The future of the perfusion record: Automated data collection vs. manual recording.

5. Transfusions during cardiopulmonary bypass: Better when triggered by venous oxygen saturation and oxygen extraction rate.

6. Outcome with high blood lactate levels during cardiopulmonary bypass in adult cardiac operation.
   Demers P, Elkouri S, Martinou R, Couturier A, Cartier R, Department of Surgery, Montreal Heart Institute, Quebec, Canada

7. Frequency, risk factors, and outcome of hyperlactatemia after cardiac surgery.

   Ranucci M, Igrò G, Romitti F, Mele S, Biagioli B, Giomarelli P, Department of Cardiothoracic Anesthesia, Policlinico San Donato, Milan, Italy

9. Hyperlactatemia during cardiopulmonary bypass: determinants and impact on postoperative outcome.
   Ranucci M, De Toffoli B, Igrò G, Romitti F, Conti D, Vicentini M, Department of Cardiovascular Anesthesia and Intensive Care, IRCCS Policlinico S. Donato, Via Morandi 30, 20097 San Donato Milanese, Milan, Italy

    Ranucci M, MD, FESC, Aloisio T, MD, Carboni G, CCP Ballotta A, MD, FESC, Pistuddi V, Menicanti L, MD, and Frigiola A, MD, Surgical and Clinical Outcome REsearch (SCORE) Group. Departments of Cardiothoracic and Vascular Anesthesia and Intensive Care and Department of Cardiac Surgery, IRCCS Policlinico San Donato, Milan, Italy

11. The impact of bowl size, program setup, and blood hematocrit on the performance of a discontinuous autotransfusion system.
    Seyfried T F et al., doi:10.1111/trf.13994; Transfusion 2017

Order Guide

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Additional packages for upgrades from DMS are available, please contact your local Representative for more details.

SPECIFICATIONS:

CONNECT Manager
Operating system: Microsoft® Windows® XP service pack 3 / Microsoft® Windows® 7
.NET used: .3 SP1
Database used: Microsoft® SQL Server 2008R2 or higher.

DataPad for CONNECT Recorder
Operating system: Microsoft® Windows® 7 Ultimate 32-bit
CPU: Intel® Celeron® 2002E 1.5GHz
RAM: 4GB DDR3L 1600 MHz
1x COM Port RS232
4x USB Port (2.0, EHCI)
1x DVI Port
1x IEEE 802.3u 100 Base-Tx Fast Ethernet compatible port
HDD: 64GB SSD
Removable HDD: 16GB CFAST

WLAN Module Specifications
Frequency Range: 2.4 GHz to 5 GHz
Wireless network standard: IEEE 802.11a/b/g/n

Manufacturer:
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Please always refer to the Instructions For Use manual provided with each product for detailed information, warnings, precautions and possible adverse side effects.

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