LivaNova
Health innovation that matters

Connect™

Assists clinicians and I.T. professionals in improving clinical processes, data integration and integrity

Intuitive software and hardware designed to ensure data integrity for efficient, effective perfusion data management prior, during and after cardiopulmonary bypass.

Connect

What is Connect?

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

It's an electronic charting system that allows near real-time data recording and trends visualization aimed to support clinicians and institutions in their perfusion management and documentation goals, prior, during and after cardiac surgery.

How does Connect work?

Prior to surgery, a case is created for each patient, either manually or automatically, through the hospital EMR system. This import contains all relevant demographic and other surgery related information. During surgery, a 15" medical-grade computer, attached to the LivaNova Heart-Lung Machine (HLM) collects all the online vital patient data from the HLM and other external patient monitoring devices. Post-operatively, the perfusionist can create a complete electronic medical record of the patient, which can then be uploaded to various destinations, such as patient's EMR record.

Connect is designed to improve quality of patient care, decrease human errors associated with medical practice and control healthcare expenditure.

"Connect makes data management during Cardiopulmonary simple and the addition of GDP Monitor (Goal-Directed-Perfusion) offers a new level of physiological control in line with Goal Directed Therapy"

Paul Exton, Sr. Clinical Perfusionist at University Hospital South Manchester, Manchester, United Kingdom

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 electronic perfusion case reports
- Allows full customization of Connect Recorder according to user preferences
- Can be installed on any Windows 7 hospital computer

The **Connect Recorder®**:

- Collects and visualizes data from HLM and other external devices
- Offers a 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®

CONNECTIVITY

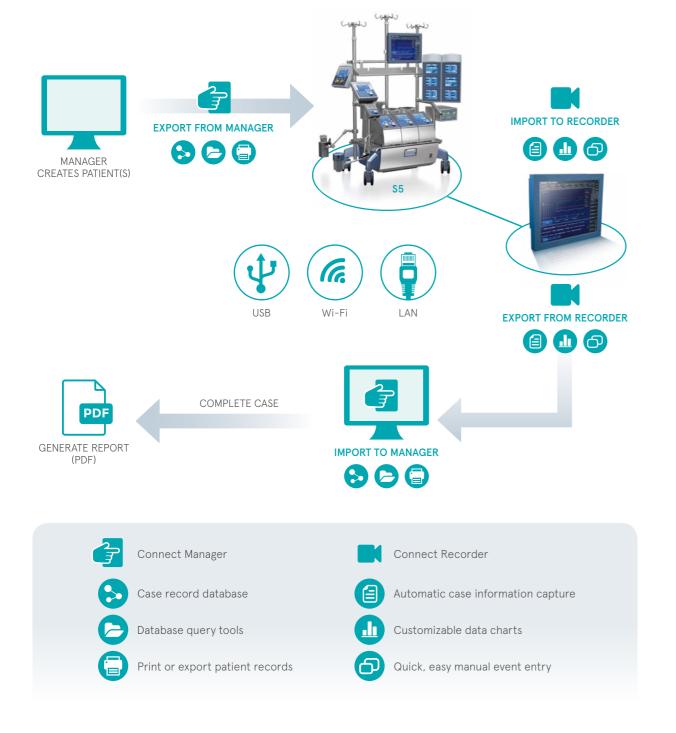Connect may be installed with a variety of connectivity options:

1. Basic, local installation
2. Full network installations with 1 Manager
3. Full network with multiple Manager installations
4. Direct network transfer between Manager and Recorder
5. HL7 integration with hospital EMR systems

Setups may be tailored to suit hospital requirements. The LivaNova technical support team works together with relevant hospital I.T. departments to identify the most appropriate setup.

TYPICAL CLINICAL WORKFLOW

The **Connect** workflow system minimizes transcription errors, bias and all the drawbacks associated with manual operations.[1] 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.[1] All data is then exported back to the Manager database where the clinician may consult case per case for data query and inventory analysis, generate and export or print complete electronic perfusion case reports.

MANAGER CREATES PATIENT(S)

EXPORT FROM MANAGER

IMPORT TO RECORDER

S5

USB   Wi-Fi   LAN

EXPORT FROM RECORDER

COMPLETE CASE

GENERATE REPORT (PDF)

IMPORT TO MANAGER

Connect Manager

Connect Recorder

Case record database

Automatic case information capture

Database query tools

Customizable data charts

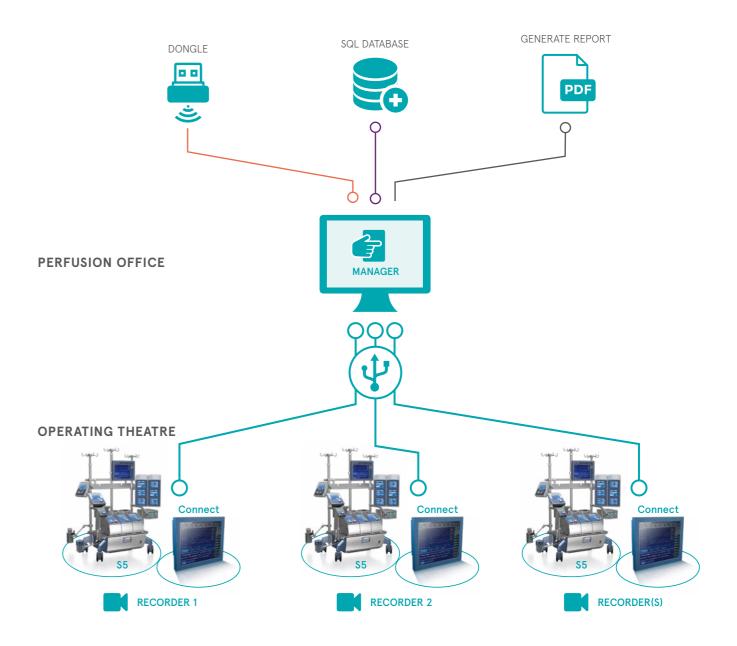Print or export patient records

Quick, easy manual event entry

LOCAL INSTALLATION

The most basic setup is with one Manager installed locally (one station) on either a PC or a Laptop.

In this case, it is sufficient to install the SQL database locally and insert the necessary USB dongle to the workstation where the Manager is installed. The PDF report will also be stored locally.

With a local SQL database set-up, a backup system is recommended to safeguard against any corruption. All patient data and settings can be easily exchanged between the Manager and Recorder using the USB stick.
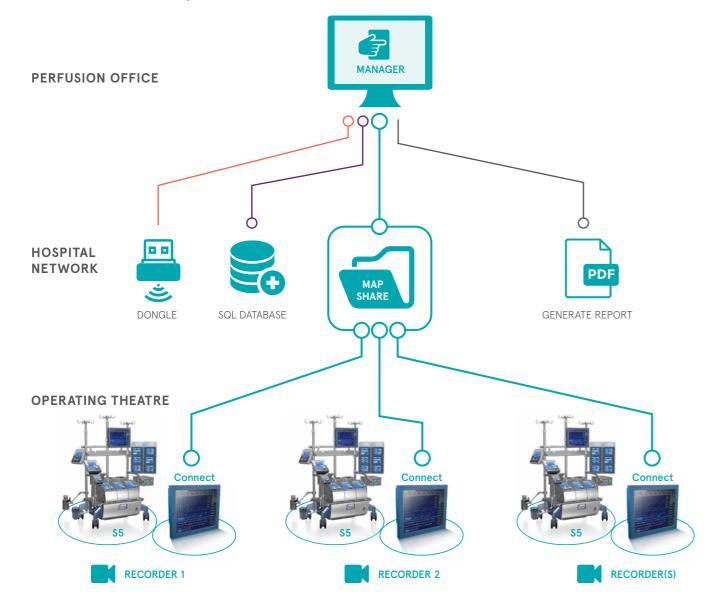
DONGLE   SQL DATABASE   GENERATE REPORT

PDF

PERFUSION OFFICE

MANAGER

OPERATING THEATRE

S5   Connect   S5   Connect   S5   Connect

RECORDER 1   RECORDER 2   RECORDER(S)

FULL NETWORK INSTALLATION WITH **ONE MANAGER**

With this set-up, the Manager is installed locally (one station) while the other components, USB Dongle, SQL database and a Map Share Folder, are installed in the hospital network. The Manager needs hospital network connection to access the components. The final PDF report will also be stored in the hospital network.

The advantages are:

- Greater security, as components cannot be misplaced
- Data integrity, as all data is preserved within the I.T. department and can be synchronized with other applications
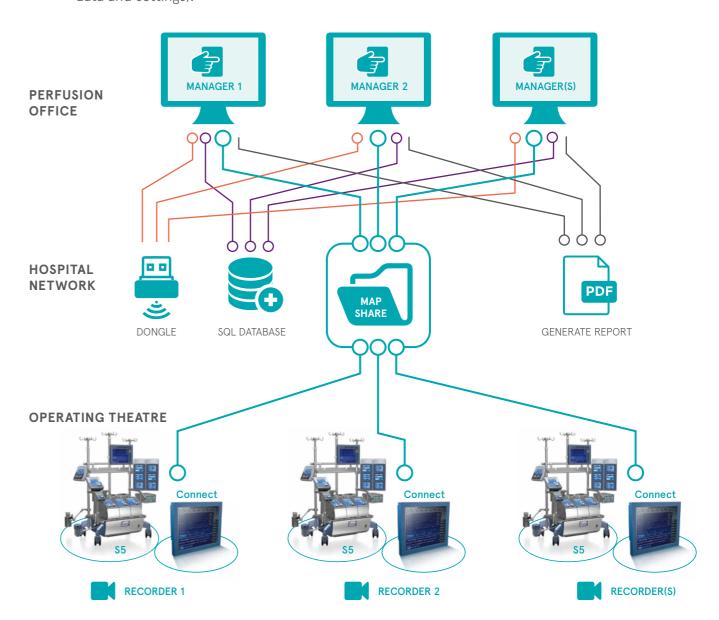- More efficiency, as data transfer is smoother and more stable.

FULL NETWORK INSTALLATION WITH **MULTIPLE MANAGERS**

This set-up is similar to option number 2 but allows the possibility of multiple Manager installations.

A single Manager/Dongle license may be accessed by various Manager stations within the hospital, but only one Manager may run at a time. All components should be installed in the hospital network. The final PDF report will also be stored in the hospital network (subject to the sum of Manager licenses).

The Map Share folder allows the exchange of data between the Manager and Recorder (patient data and settings).

PERFUSION OFFICE — MANAGER

HOSPITAL NETWORK — DONGLE · SQL DATABASE · MAP SHARE · GENERATE REPORT (PDF)

OPERATING THEATRE — Connect · S5 · RECORDER 1 · Connect · S5 · RECORDER 2 · Connect · S5 · RECORDER(S)

PERFUSION OFFICE — MANAGER 1 · MANAGER 2 · MANAGER(S)

HOSPITAL NETWORK — DONGLE · SQL DATABASE · MAP SHARE · GENERATE REPORT (PDF)

OPERATING THEATRE — Connect · S5 · RECORDER 1 · Connect · S5 · RECORDER 2 · Connect · S5 · RECORDER(S)
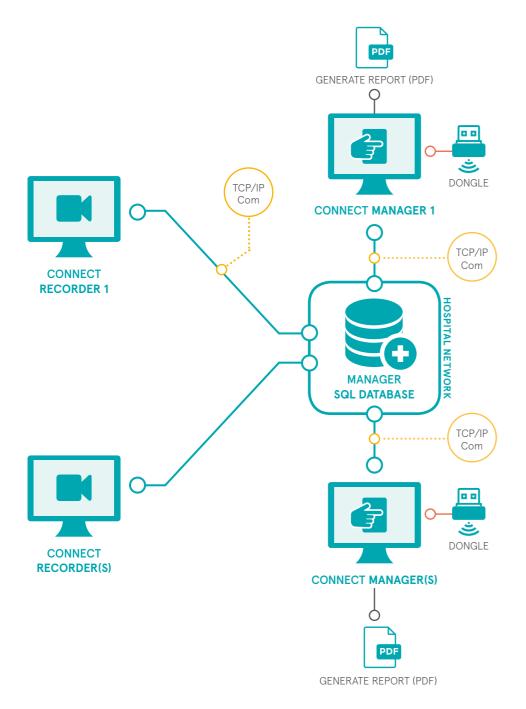
DIRECT NETWORK TRANSFER

The **Direct Network Transfer** option uses a direct TCP/IP connection to exchange data between components, without the need for a Map Share folder.
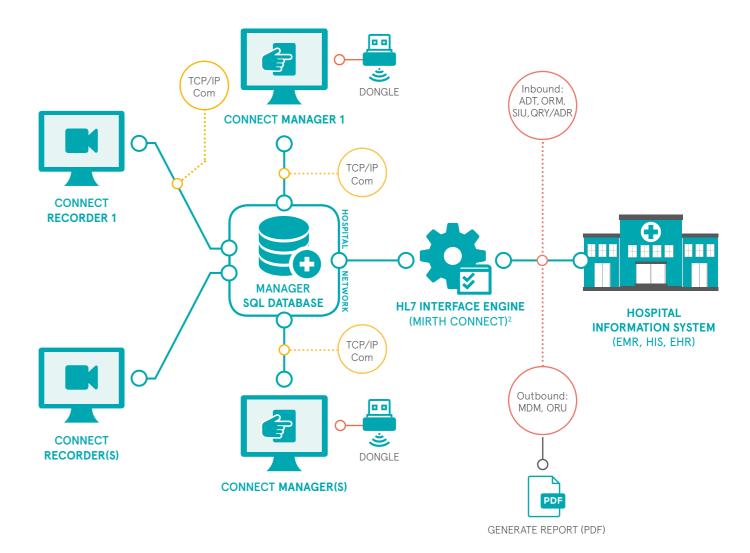

GENERATE REPORT (PDF)

CONNECT MANAGER 1

DONGLE

TCP/IP Com

TCP/IP Com

CONNECT RECORDER 1

MANAGER SQL DATABASE

HOSPITAL NETWORK

TCP/IP Com

CONNECT RECORDER(S)

DONGLE

CONNECT MANAGER(S)

GENERATE REPORT (PDF)

CONNECT HL7 INTERFACE TO HOSPITAL EMR SYSTEMS

The **Connect HL7 interface engine** allows direct data exchange between Connect and the Hospital EMR System (HIS). It's the keystone for the exchange, integration, sharing and retrieval of electronic health information. ADT, ORM, SIU, QRY/ADR message types are supported for Manager and Recorder data inbound, while MDM and ORU message types can be used to upload the final patient PDF record to the EMR and post-operative Datapoints.*

For a detailed HL7 interface specification please get in contact with your local LivaNova representative.

CONNECT MANAGER 1

DONGLE

TCP/IP Com

TCP/IP Com

CONNECT RECORDER 1

MANAGER SQL DATABASE

HOSPITAL NETWORK

HL7 INTERFACE ENGINE (MIRTH CONNECT)[2]

Inbound: ADT, ORM, SIU, QRY/ADR

HOSPITAL INFORMATION SYSTEM (EMR, HIS, EHR)

Outbound: MDM, ORU

TCP/IP Com

CONNECT RECORDER(S)

DONGLE

CONNECT MANAGER(S)

GENERATE REPORT (PDF)

* Datapoints are all the individual instances of data, not repetitive and not characterized by any trending.

CLINICAL WORKFLOW WITH
HL7 INTEGRATION

Connect with **HL7** integration simplifies data exchange between the **Connect** components and the Hospital EMR System (HIS). LivaNova provides technical assistance to successfully implement **Connect HL7** to the hospital environment, installation of all necessary software and personalization of HL7 communication software.

SYSTEM SPECIFICATIONS
MANAGER, RECORDER AND SQL DATABASE

SPECIFICATIONS:

Connect Manager
Operating system: Microsoft® Windows® XP service pack 3 / Microsoft® Windows® 7 / Windows 10 Enterprise LTSC 2018 64-bit
.NET used: 3.5 SP1
Database: Microsoft® SQL Server 2017.

DataPad for Connect Recorder
Operating system: Windows 10 Enterprise LTSC 2018 64-bit
CPU: Intel® Celeron® 2002E 1.5GHz
RAM: 4GB DDR3L 1600
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
Database: Microsoft® SQL Express 2017
15" Resistive touch screen

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

SYSTEM SPECIFICATIONS
Mirth® Connect

- Mirth Connect is a cross-platform HL7 interface engine that enables bidirectional sending of HL7 messages between Connect and other systems and applications over multiple transports.

- For more detailed information please refer to the Connect HL7 Interface Specification document which can be received through your local LivaNova representative.

Order Guide

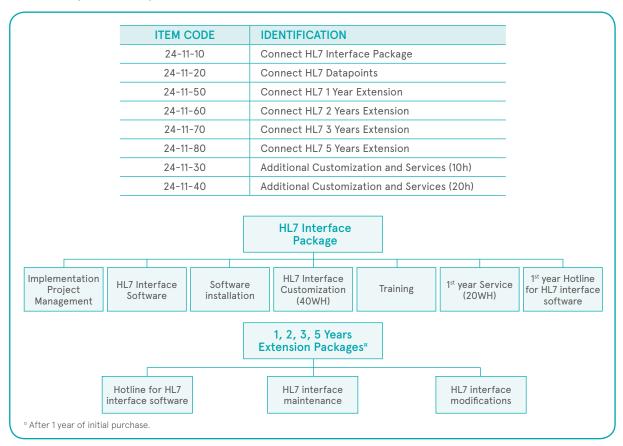| ITEM CODE	IDENTIFICATION	DESCRIPTION	QUANTITY / BOX
24-90-80	Connect Recorder	for S5	1
24-90-81	Connect Recorder	for S3	1
24-90-45	Connect Manager		1

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

The following item codes are available as upgrade options to the Connect packages. The Connect HL7 Interface package is the main code and includes 1 year service and maintenance.* While the license extension packages are available to ensure HL7 can be used beyond the year of initial purchase.

The additional working hour packages are offered if the working hours for initital customization and yearly maintenance have been consumed.*

The Datapoints license (24-11-20) is not subject to annual renewal: this license is valid until the HL7 Interface Package (24-11-10) is valid.

* Please refer to your local sales representative for more details.

ITEM CODE	IDENTIFICATION
24-11-10	Connect HL7 Interface Package
24-11-20	Connect HL7 Datapoints
24-11-50	Connect HL7 1 Year Extension
24-11-60	Connect HL7 2 Years Extension
24-11-70	Connect HL7 3 Years Extension
24-11-80	Connect HL7 5 Years Extension
24-11-30	Additional Customization and Services (10h)
24-11-40	Additional Customization and Services (20h)

HL7 Interface Package
- Implementation Project Management
- HL7 Interface Software
- Software installation
- HL7 Interface Customization (40WH)
- Training
- 1st year Service (20WH)
- 1st year Hotline for HL7 interface software

1, 2, 3, 5 Years Extension Packages¤
- Hotline for HL7 interface software
- HL7 interface maintenance
- HL7 interface modifications

¤ After 1 year of initial purchase.

Reference:

1. The future of the perfusion record: Automated data collection vs. manual recording.
   Ottens J et al., JECT 2005;37:355-359J Extra Corpor Technol. 2005 Dec;37(4):355-9.

2. https://www.mirth.com/

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www.livanova.com

ETHICAL COLLABORATION IN HEALTHCARE **CERTIFIED**
Licensed by Eucomed

The LivaNova Deutschland Quality System complies with:
EN ISO 13485:2012

CE 0123 According to Annex II (Full Quality System) of MDD 93/42/EEC as amended by directive 2007/47/EEC

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