Masimo LiDCO®

Plug-and-Play Haemodynamic Monitoring

Masimo LiDCO provides the PulseCO® algorithm for beat-to-beat advanced haemodynamic monitoring to support informed decision-making in high-acuity care areas such as the Operating Theater.

> Uses existing arterial line and blood pressure transducer to monitor haemodynamic parameters

> The LiDCO algorithm converts beat-to-beat blood pressure into its constituent parts, flow and resistance, scaled to each patient's age, height, and weight.

> Reliable on patients on vasoactive drugs[1]

[1] Costa M, et al. Intensive Care Med 34, 257–263 (2008)

Masimo®

Parameters and Indicators

The beat−to−beat parameters offer immediate feedback about a patient's fluid and haemodynamic status.

The PulseCO algorithm in Masimo LiDCO calculates a variety of parameters including:

> **Stroke Volume (SV):** The amount of blood pumped by the left ventricle of the heart in one contraction

> **Cardiac Output (CO):** The amount of blood the heart pumps through the circulatory system in a minute, calculated by multiplying the stroke volume by the patient's heart rate

> **Systemic Vascular Resistance (SVR):** The resistance to flow, calculated as the quotient of pressure and cardiac output

> **Oxygen Delivery (DO2):** The amount of oxygen delivered to the tissues, calculated as the product of cardiac output and oxygen concentration

> **Stroke Volume Variation (SVV):** The variation in stroke volume across at least one respiratory cycle; a dynamic variable that can predict fluid responsiveness in mechanically ventilated patients

> **Pulse Pressure Variation (PPV):** The variation in arterial pulse pressure across at least one respiratory cycle; like SVV, a dynamic variable that can predict fluid responsiveness in mechanically ventilated patients
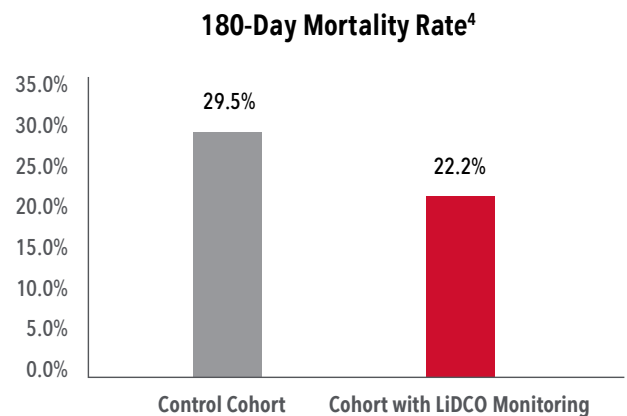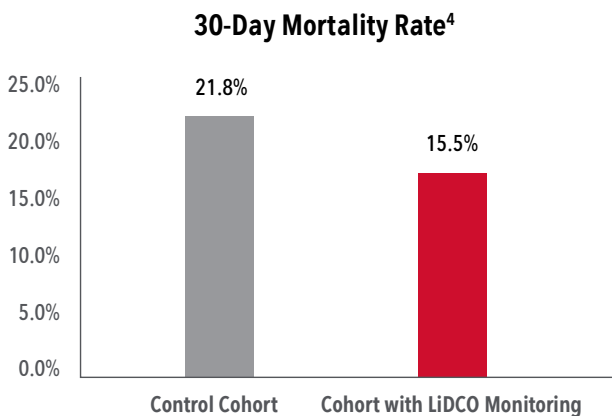
Clinical Evidence

Reductions in Postoperative Complications and Costs

> In a randomised, controlled trial of 743 patients undergoing major abdominal surgery, researchers found haemodynamic optimisation with LiDCO led to a 15.7% reduction in postoperative complication rates[2] and, as a result, patients monitored with LiDCO were on average $530 less expensive to treat than control patients who were not monitored.[3]

Reductions in 30-Day and 180-Day Mortality

> In a study comparing the outcomes of 600 emergency laparotomy patients, researchers found that, following the implementation of a program including LiDCO technology, there was a significant decrease in mortality at 30 days (from 21.8% to 15.5%) and 180 days (from 29.5% to 22.2%).[4]

30-Day Mortality Rate[4]

Control Cohort	Cohort with LiDCO Monitoring
21.8%	15.5%

180-Day Mortality Rate[4]

Control Cohort	Cohort with LiDCO Monitoring
29.5%	22.2%

[2] Pearse R et al. JAMA 2014; 311(21):2181-90. [3] Sadique et al. Perioperative Medicine (2015) 4:13 DOI 10.1186/s13741-015-0024-x. [4] Tengberg LT et al. Br J Surg 2017; 104:463-471.
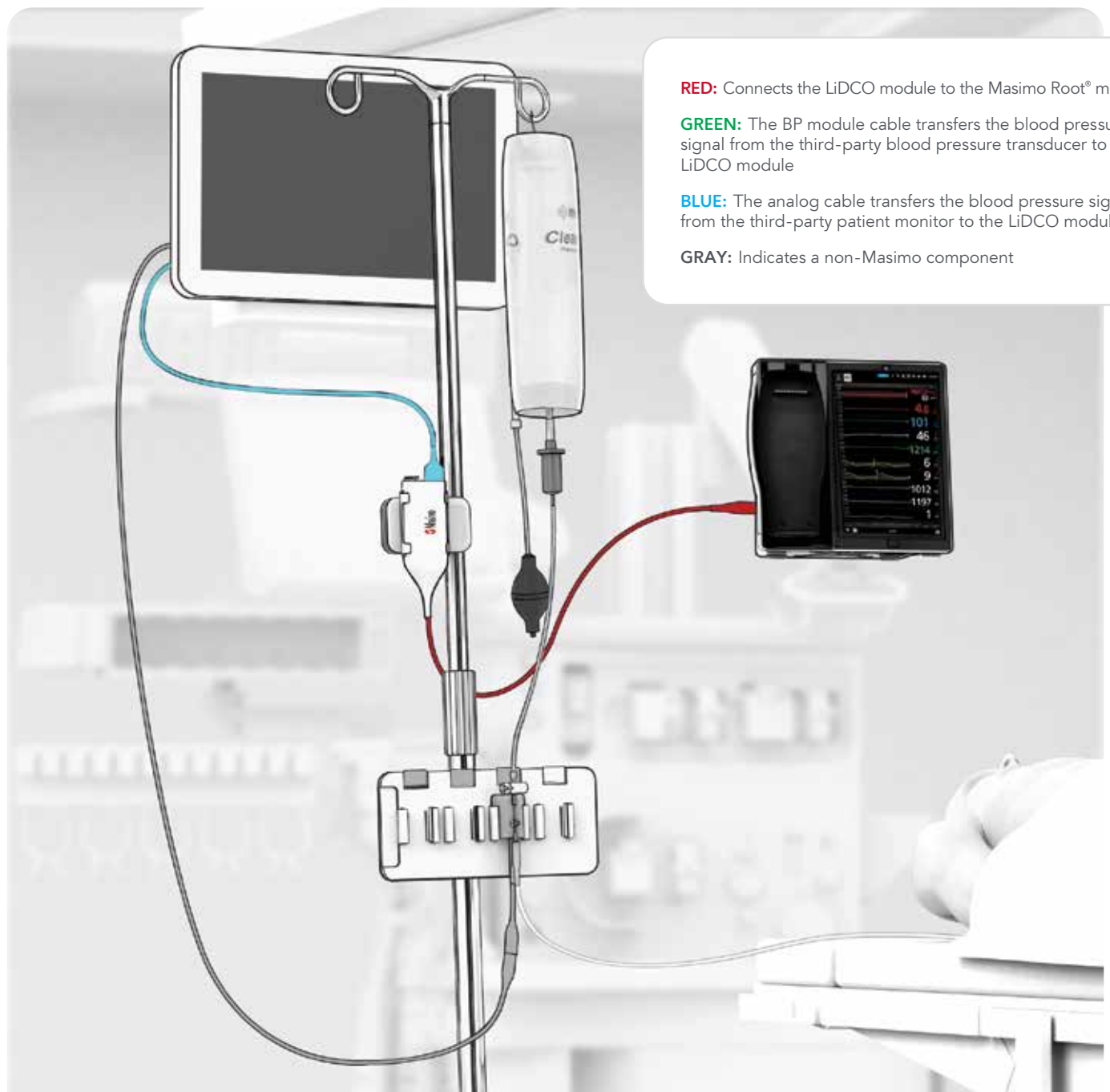
Easy Setup and Operation

Masimo LiDCO is designed for efficient setup and simple operation, with an intuitive, easy-to-interpret display:

> Plug-and-play operation using the invasive blood pressure output port on the third-party patient monitor

> Monitor using the existing blood pressure transducer, eliminating the need for an additional disposable

Two Setup Options:

OPTION 1: Analog Cable Setup
This cable receives blood pressure signals from the third-party patient monitor and sends the information to the LiDCO module.

RED: Connects the LiDCO module to the Masimo Root® monitor

GREEN: The BP module cable transfers the blood pressure signal from the third-party blood pressure transducer to the LiDCO module

BLUE: The analog cable transfers the blood pressure signal from the third-party patient monitor to the LiDCO module

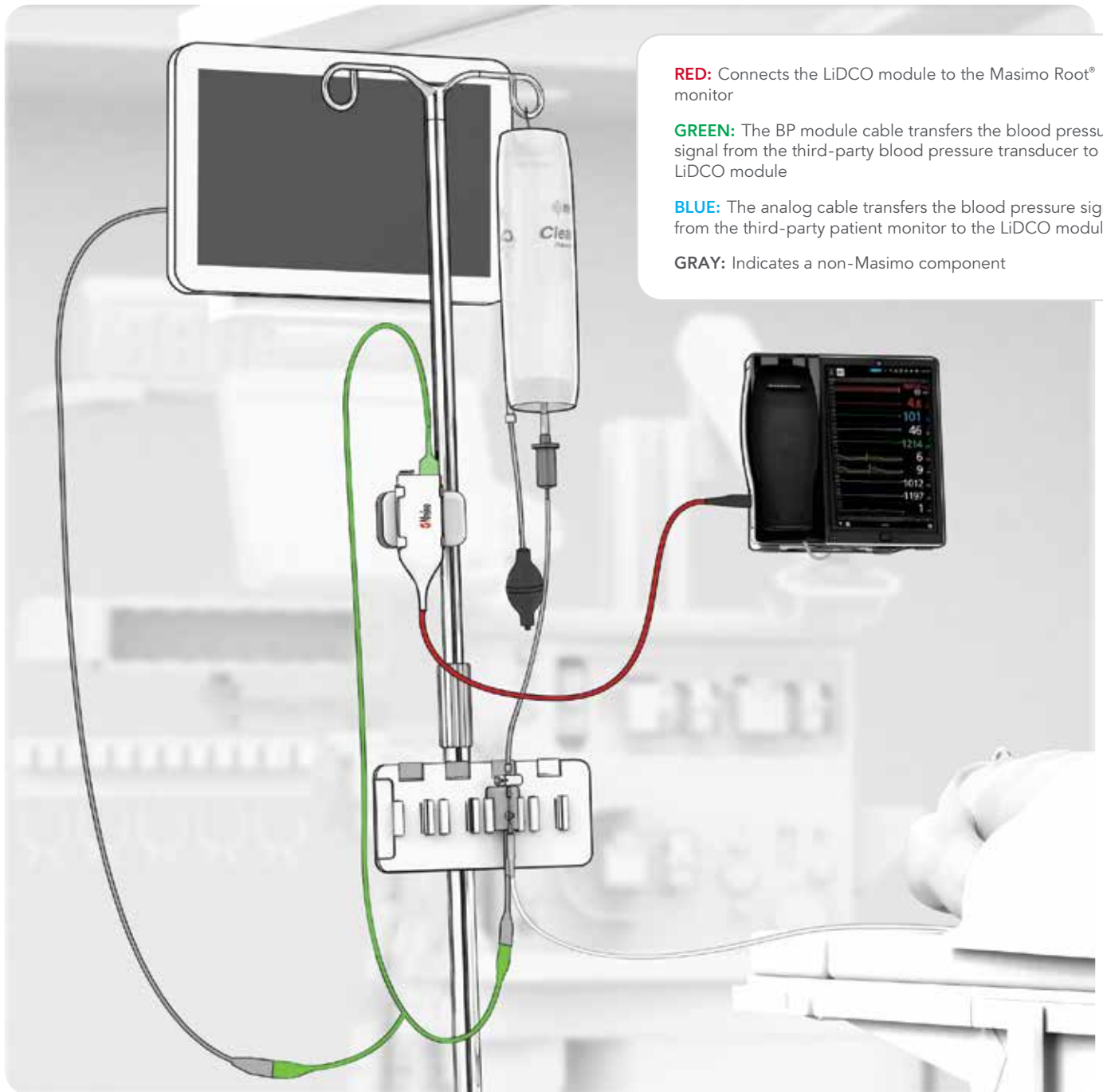**GRAY:** Indicates a non-Masimo component

Easy Setup and Operation (cont.)

Two Setup Options:

OPTION 2: BP Module Cable Setup

This cable receives blood pressure signals from the third-party blood pressure transducer and sends the information to the LiDCO module without interrupting the blood pressure signal sent to the third-party patient monitor.

RED: Connects the LiDCO module to the Masimo Root® monitor

GREEN: The BP module cable transfers the blood pressure signal from the third-party blood pressure transducer to the LiDCO module

BLUE: The analog cable transfers the blood pressure signal from the third-party patient monitor to the LiDCO module

GRAY: Indicates a non-Masimo component

Key Features of LiDCO on Root Display Monitor

Trend Screen

Root Monitor

Haemodynamic Parameters

- Mean Arterial Pressure (MAP)
- Cardiac Output (CO)
- Stroke Volume (SV)
- Heart Rate (HR)
- Systemic Vascular Resistance (SVR)
- Stroke Volume Variation (SVV)
- Pulse Pressure Variation (PPV)
- Oxygen Delivery (DO_2)
- Oxygen Consumption (VO_2)
- Heart Rate Variation (HRV)

LiDCO Module
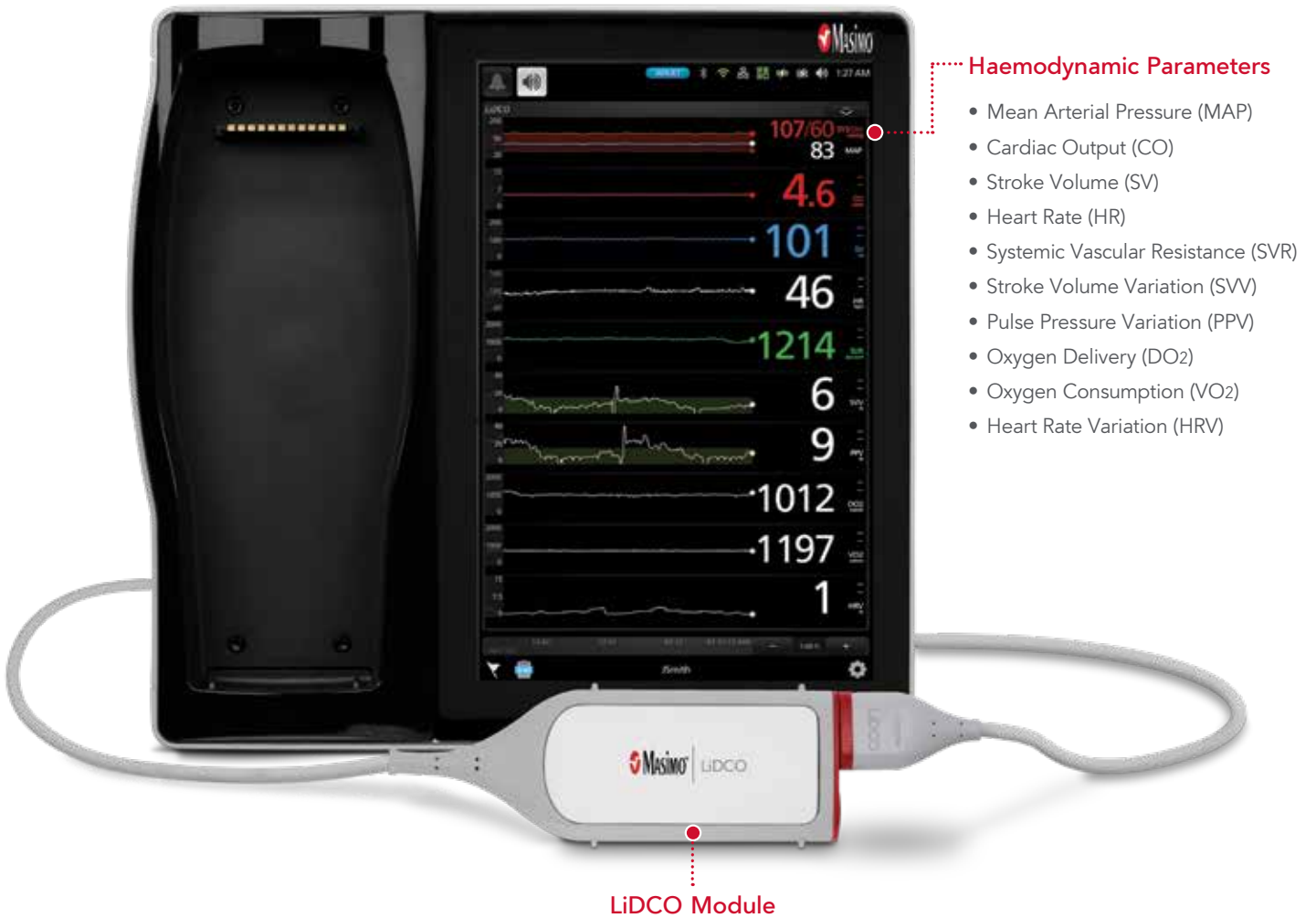
Automating Clinical Protocols

Step-by-Step Guided Protocols

Masimo LiDCO automates established clinical protocols, such as a Fluid Challenge Guided Protocol, a Passive Leg Raise Guided Protocol and an End-Expiratory Occlusion Test Guided Protocol.

Example: Fluid Challenge Guided Protocol

Before the protocol begins, the initialising screen indicates that Masimo LiDCO is getting ready to provide data.

While the guided protocol is in progress, current and baseline data are displayed, along with a timer to measure progression of the protocol.

Upon the completion of the protocol, Masimo LiDCO calculates the change from baseline to completion, and provides a result. The Result screen displays the Starling Curve along with the results message.

Masimo LiDCO Specifications

PHYSICAL CHARACTERISTICS

Weight. . . . . 191g (0.4 lb.)
Length. . . . . 3.7m (12 ft)

ENVIRONMENTAL

Operating Temperature . . . . +0 to +40°C (+32 to +104°F) @ ambient humidity
Storage Temperature . . . .-40 to +70°C (-40 to +158°F) @ ambient humidity
Humidity . . . . .10 to 95% (non-condensing) @ ambient temperature
Atmospheric Pressure . . . . 500 to 1060 mBar @ ambient temperature and humidity

ORDERING INFORMATION

LiDCO Module Kit . . . . PN 95060
LiDCO Module . . . . .PN 95059
Root . . . . PN 9515
LiDCO License . . . . .Various

SAFETY CLASSIFICATIONS

Type of Protection . . . . Class II
Degree of Protection of Electrical Shock . . . . Defibrillation proof CF-Applied Part
Protection against harm from liquid ingress . . . . IP24, Protection against
vertically falling water drops
Mode of Operation . . . . Continuous operation

PARAMETERS SUPPORTED

Stroke Volume (SV)
Stoke Volume Index (SVi)
Cardiac Output (CO)
Cardiac Output Index (COi)
Systemic Vascular Resistance (SVR)
Systemic Vascular Resistance Index (SVRi)
Oxygen Delivery (DO_2)
Oxygen Delivery Index (DO_2i)
Stroke Volume Variation (SVV)
Pulse Pressure Variation (PPV)
Mean Arterial Pressure (MAP)
Heart Rate (HR)
Oxygen Consumption (VO_2)
Heart Rate Variation (HRV)
Body Surface Area (BSA)

SAFETY COMPLIANCE

ANSI/AAMI ES60601-1:2005/A1:2012
CAN/CSA C22.2 No. 60601-1:2014
EN 60601-1:2006/A12:2014
EN 60601-1-6:2010/A1:2015
EN 60601-2-34:2014
IEC 62304:2006/AMD1:2015

LiDCO is not licensed for sale in Canada.

For professional use. See instructions for use for
full prescribing information, including indications,
contraindications, warnings, and precautions.

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