

CDI OneView™ Monitoring System

An industry benchmark of excellence with real-time monitoring of up to 22 vital patient parameters.



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CDI OneView Monitoring System

Enhancing patient care and cost savings

In-line continuous monitoring of oxygen delivery (DO_2) is a key parameter clinicians use to reduce the risk of acute kidney injury (AKI), improve patient outcomes, and save hospital costs. The CDI OneView System allows you to bring DO_2 and any combination of 22 vital parameters into a single view. With a few touches of the screen, you have precise control over seeing parameters that matter most. Research shows that the largest area under the DO_2 curve (AUC) is an independent risk factor for AKI.* **Managing indexed oxygen delivery (DO_{2i}) in relation to oxygen extraction ratio (O_2ER)** has been shown to reduce the incidence of hyperlactatemia (HL) during surgery as well as reduce postoperative serum creatinine, mechanical ventilation time, and intensive care unit (ICU) stay.*

A comprehensive interface for enhanced monitoring

The CDI OneView System builds on the critical information clinicians have come to rely on with the addition of cerebral oximetry values and blood gases visible on the same screen. The system measures or calculates potential of hydrogen (pH), partial pressure of carbon dioxide (pCO_2), partial pressure of oxygen (pO_2), potassium (K^+), temperature, oxygen saturation (SO_2), hematocrit (HCT), hemoglobin (Hgb), base excess (BE), bicarbonate (HCO_3^-), cardiac index (CI), O_2ER , oxygen consumption (VO_2), DO_2 AUC, and flow. The system is designed for expansion as new parameters become available.

Intuitive control and advanced customization

The CDI OneView System also offers a full range of advanced features, including optical fluorescence technology, new probe design, and measured flow options. The user-friendly Touchscreen Display enables interaction with flexible customization and configurability for up to 12 case profiles — allowing intuitive navigation at the touch of a finger. User-defined thresholds provide alerts to ensure timely attention to potential concerns and make immediate adjustments if necessary.

Seamless connectivity and customizable data visualization

The modular system offers the flexibility to easily connect a variety of probes and devices such as Flow Sensors, regional cerebral oxygen saturation (rSO_2), and external data management devices. This flexibility extends to how the data can be viewed and analyzed, allowing users to observe the collected information in real-time and choose from numerical representations, multi-parameter or single graphical displays, and even customize the visualizations to suit specific needs and preferences.

Informed decision-making

Built on proven CDI System technology, the CDI OneView System delivers exceptional performance and convenience in real-time.*



CDI OneView Monitoring System

Flow Module



Touchscreen Display



Flow Sensor



Processing Core



Blood Parameter Modules (BPM)





Hematocrit/Oxygen
Saturaton (H/S) Probe

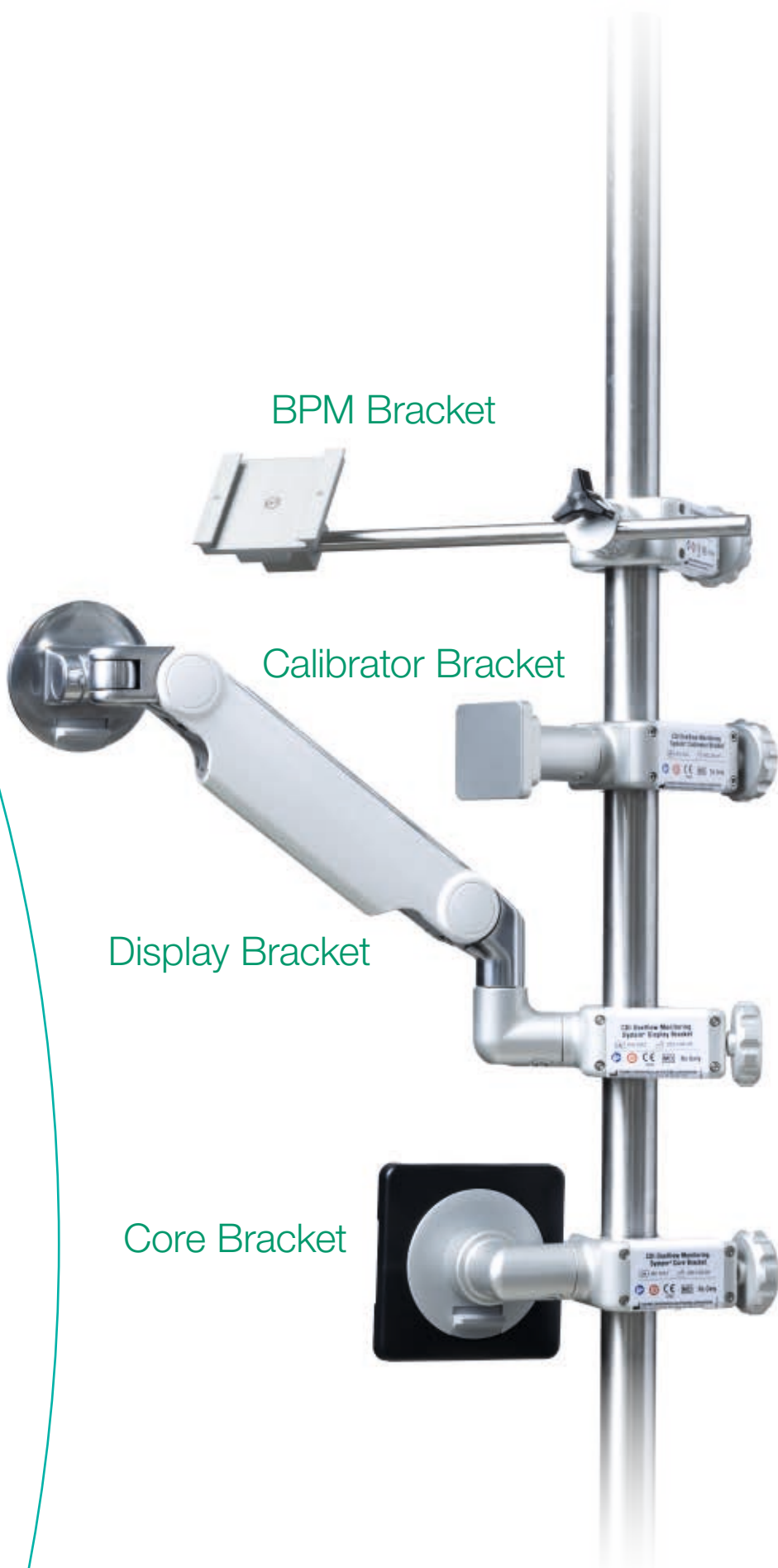


Calibrator



Data Modules

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BPM Bracket

Calibrator Bracket

Display Bracket

Core Bracket



Designed for Maximum Configurability

CDI OneView Monitoring System Components

Touchscreen Display

- Graphical user interface and touchscreen technology provide quick access to clinician-defined customizable parameters and view configurations.
- Compact, low profile display lends to maximizing the view of the operative field.
- Self-diagnostic system verifies proper functions of electronics and optics — offering early notification of equipment function.*
- System alerts provide visual indicators and system alarms provide visual and audible indicators when parameters fall outside user-specified limits.
- Integrated camera for barcode scanning.
- Monitors blood temperature at either actual or 37 °C to allow for alpha-stat or pH-stat management.
- Displays parameter values in numeric and graphic formats.

Calibrator

- Rapid two-point gas calibration ensures the Shunt Sensor is operating according to designated specifications.
- Small footprint and built-in handle for transportability.
- May be mounted either on a tabletop or to a bracket.

Processing Core

- Serves as a connectivity hub, routing information from the Blood Parameter Module (BPM), Hematocrit/Oxygen Saturation (H/S) Probe, and Flow Sensors to the Touchscreen Display. May be conveniently mounted vertically or horizontally to the heart-lung machine (HLM) or on a flat surface.
- Integrated battery pack ensures uninterrupted operation for at least 25 minutes.

Data Modules

- HLM Data Module accepts flow input from the pumping system to use for calculations and display blood flow (\dot{Q}).
- rSO_2 Module allows values to stream and display on the CDI OneView System Touchscreen Display from Medtronic INVOS™, Edwards ForeSight Elite®, and Nonin SenSmart® X-100.
- Data Management System (DMS) Module allows the CDI OneView System data to stream to external data management systems or electronic medical records (EMR).
- Connectivity with EMR streamlines data management, potentially enhancing efficiency.
- Data management connectivity allows documentation of the system's self-diagnostics, calibration verification, and displayed values.

Flow Sensing

- Measured flow from the extracorporeal circuit is used to calculate critical goal-directed perfusion (GDP) parameters.
- In pediatric cases with multiple circuit shunts, measured flow is more accurate than calculated arterial flow from a roller pump.
- Flow sensors are available in three sizes: $\frac{3}{8}$ " x $\frac{3}{32}$ ", $\frac{1}{4}$ " x $\frac{3}{32}$ ", and $\frac{1}{4}$ " x $\frac{1}{16}$ ".

BPM

- Capability to be employed in venous or arterial applications.
- The LED indicator lights display the assignment.
- Housings have been redesigned for usability allowing smooth insertion to the Calibrator slot.

H/S Probe

- Capability to be employed in venous or arterial applications.
- The LED indicator lights display the assignment.
- The spring clip was designed with user-friendliness in mind and can be detached for cleaning purposes.
- Color chip referencing can be performed when needed.

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*Case summary provides documentation of the system's self-diagnostics and calibration verification, as well as displayed values.



DO₂ Monitoring: Enhancing Perfusion Safety and Precision During Cardiopulmonary Bypass (CPB)*

Precision Monitoring for Perfusion Safety and CPB

Ensuring constant in-line monitoring throughout CPB is a pivotal element in upholding perfusion safety and enhancing patient outcomes. Research has demonstrated that precise management of blood gas parameters is indispensable in preventing adverse outcomes associated with inadequate control of these parameters.*



DO₂ Monitoring

DO₂ is an indicator of the amount of oxygen (O₂) being delivered to the patient during CPB and is a standard in patient parameter monitoring - refer to 2019 EACTS/EACTA/EBCP guidelines on cardiopulmonary bypass in adult cardiac surgery 7.9. DO₂ is a calculated value based on the blood Hgb oxygen saturation (SaO₂), arterial flow, and the arterial partial pressure of oxygen (PaO₂). It can be indexed to the size of the patient by using body surface area (BSA) in the formula. The CDI OneView System allows the clinician to enter the patient's BSA. DO₂ is expressed in mL/min or mL/min/m² if indexed to BSA.

Preventing AKI

The kidneys are sensitive to the oxygen level in the blood as well as the flow rate. Less-than-optimal DO₂ can cause organ damage. AKI is a sudden or rapid decline in renal filtration function. It is kidney damage/failure that happens within a few hours or days and causes a build-up of waste products in the blood, making it difficult for the kidneys to keep the right balance of fluid in the body. Kidney injury can be chronic or acute and increases morbidity and mortality. AKI results in longer ICU/hospital stays and higher costs, most specifically when the patient requires dialysis.

The Critical Importance of DO₂ and VO₂ in CPB

DO₂ and VO₂ values provide the clinician valuable information for the maintenance of optimal metabolic performance of the patient while being supported on CPB — ensuring that the O₂ requirements of essential organs such as the brain, intestines, liver, and kidneys are being adequately fulfilled on an individual basis. The kidneys are particularly sensitive to even a short-term O₂ deficit. The CDI OneView System uses the AmSECT recommended formula to calculate DO₂. Numerous clinical studies have demonstrated that careful monitoring of DO₂ during cardiac surgery and maintaining a threshold level during CPB dramatically reduce AKI.*

*Please refer to the CDI OneView Monitoring System Clinical Reference brochure for further information.

Proprietary Technology Ensuring Precision



The Shunt Sensor is placed in the BPM.



The H/S Cuvette is installed into the H/S Probe.



Shunt Sensor

- Proprietary optical fluorescence technology is used to measure pH, pCO₂, pO₂, and K⁺.
- Simple installation into the shunt line using luer connections.
- May be added after the initiation of bypass, facilitating quick set up in emergency cases.
- Treated with covalently bound, non-leaching heparin.



H/S Cuvette

- Optical reflectance technology provides accurate readings of arterial and venous oxygen saturation (SO₂)/HCT/Hgb.
- The H/S Cuvette easily clips to the H/S Probe.
- Available in three sizes: 1/4" x 1/4", 3/8" x 3/8", and 1/2" x 1/2".



CDI OneView Monitoring System.

Glossary of Acronyms and Abbreviations

AKI	Acute Kidney Injury	HL	Hyperlactatemia
AUC	Area Under the $\dot{D}O_{2i}$ Curve	HLM	Heart-lung Machine
BE	Base Excess	ICU	Intensive Care Unit
BPM	Blood Parameter Module	K⁺	Potassium Ion
BSA	Body Surface Area	O₂	Oxygen
CI	Cardiac Index	O₂ER	Oxygen Extraction Ratio
CPB	Cardiopulmonary Bypass	PaO₂	Arterial Partial Pressure of Oxygen
DMS	Data Management System	pCO₂	Partial Pressure of Carbon Dioxide
DO₂	Oxygen Delivery	pH	Potential of Hydrogen
DO_{2i}	Indexed Oxygen Delivery	pO₂	Partial Pressure of Oxygen
EMR	Electronic Medical Records	Q	Blood Flow Rate
GDP	Goal-Directed Perfusion	rSO₂	Cerebral Regional Oxygen Saturation
H/S	Hematocrit/Oxygen Saturation	SaO₂	Arterial Oxygen Saturation
HCO₃⁻	Bicarbonate	SO₂	Oxygen Saturation
HCT	Hematocrit	SvO₂	Venous Oxygen Saturation
Hgb	Hemoglobin	VO_{2i}	Indexed Oxygen Consumption

Product Components

Catalog #	Description	Units/Case
CDI750	Processing Core	1
CDI751	Touchscreen Display	1
CDI752	Display Power Cable	1
CDI753	BPM Probe	1
CDI754	H/S Probe	1
Calibrator Components		
CDI740	Calibrator	1
CDI741	Calibrator Cable	1
CDI746	Calibration Gas 1	1
CDI747	Calibration Gas 2	1
Flow Sensors		
CDI763	Flow Sensor $\frac{3}{8}$ " x $\frac{3}{32}$ " (9.5 mm x 2.4 mm)	1
CDI764	Flow Sensor $\frac{1}{4}$ " x $\frac{3}{32}$ " (6.4 mm x 2.4 mm)	1
CDI768	Flow Sensor $\frac{1}{4}$ " x $\frac{1}{16}$ " (6.4 mm x 1.6 mm)	1
External Data Modules (EDMs)		
CDI760	Flow Interface Module	1
CDI770	HLM Interface Module	1
CDI771	DMS Interface Module	1
CDI772	RSO ₂ Interface Module	1
Mounting Arms		
CDI780	Core	1
CDI781	Display	1
CDI782	BPM	1
CDI783	Calibrator	1
Disposable Sensors		
CDI510H	Shunt Sensor, Heparin Treated	20
Disposable CDI H/S Cuvettes		
6914	$\frac{1}{4}$ " Connectors	20
6913	$\frac{3}{8}$ " Connectors	20
6912	$\frac{1}{2}$ " Connectors	20
6934	$\frac{1}{4}$ " with 6" (15.2 cm) Extension Tube	10
6933	$\frac{3}{8}$ " with 6" (15.2 cm) Extension Tube	10
6932	$\frac{1}{2}$ " with 6" (15.2 cm) Extension Tube	10

Product Specifications

Parameters	Display Range	Resolution
pH	6.50 to 8.50	0.01
pCO ₂	10 to 200 mmHg 1.3 to 26.7 kPa	1 0.1
pO ₂	10 to 700 mmHg 1.3 to 93.3 kPa	1 0.1
K ⁺	1.0 to 9.9 mmol/L	0.1
Shunt Temp	1 to 45 °C	0.1
SO ₂	35 to 100%	1%
HCT	12 to 45%	1%
Hgb	4.0 to 15.0 g/dL 40 to 150 g/L	0.1
Q	0 to 10.00 L/min 0 to 10,000 mL/min	0.001 < 1.00 L/min 0.01 ≥ 1.00 L/min
CI	0.1 to 10.0 L/min/m ²	0.1
BE	-25 to 25 mEq/L	1
HCO ₃ ⁻	0 to 50 mEq/L	1
VO ₂	1 to 400 mL/min	1
VO ₂ i	1 to 1000 mL/min/m ²	1
DO ₂	1 to 3000 mL/min	1
DO ₂ i	1 to 1000 mL/min/m ²	1
rSO ₂	Match in all four locations	Match in all four locations
Q (from HLM)	Match in all four locations	Match in all four locations
O ₂ ER	0.00 to 100%	1.00%
SaO ₂ calc	35 to 100%	1%
SvO ₂ calc	35 to 100%	1%

(*) When no unit is listed, the same unit as listed in the Display Range applies.

System Power Requirements and Specifications

100-240 VAC, 50/60 Hz

14.4-volt backup battery

Model CDI 510H Shunt Sensor

Sterile, heparin-treated

Priming volume 1.2 mL

System Display Update*

Every 1 second

System Measurement Cycle Time*

pH, pCO₂, pO₂, SO₂, HCT, Hgb, Q = one measurement per second

K⁺ = one measurement per six seconds



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*Internal testing data on file.