GE Healthcare

Continuous Cardiac Output Module, E-PiCCO

For less invasive continuous cardiac output monitoring

The E-PiCCO module provides continuous cardiac output (CCO) measurement based on pulse contour calculation, transpulmonary thermodilution cardiac output (C.O.) and blood pressure (P). When combined with a CARESCAPE™ modular monitor, the E-module enables a graphical view for quick hemodynamic status assessment. The system complies with IEC 60601-1 3rd edition.

Features

- Direct key on the module for zeroing invasive pressure channels
- Easy insertion/removal of module without interrupting other monitoring
- Uses Pulsion's PiCCO® catheters

When used with a CARESCAPE modular monitor the display can show:

- Up to six C.O. measurements, which can be edited for an averaged C.O.
- Hemodynamic calculation display view
- Graphical view from three to seven user-selectable parameters, including flow, volume and contractility
- Editing of calculation input data
- Trending of calculations

Technical specifications

Patient range	above 2 kg

The E-PiCCO patient module and accessories are indicated for human patients weighing over 2 kg. Index calculated only when patient is over 15 kg.

Direct function keys

Zero P8	Zeros invasive blood pressure P8

Flow
Cardiac output

Measurement method	C.O. is the amount of blood ejected by the heart to the peripheral circulation every minute. Continuous cardiac output uses the pulse contour method, and it is calibrated by using the thermodilution technique. Continuous cardiac output calculation also uses the CVP value, which is obtained automatically or can be set manually. If the algorithm does not get the CVP value automatically or manually, a default value of 5 mmHg is used.

Continuous cardiac output (CCO)

Measurement range	0.25-25 l/min (Pulse contour cardiac output)
Measurement accuracy	CoV ≤2% (coeff of variation)

Transpulmonary cardiac output (CO)

Measurement range	0.25-25 l/min
Measurement accuracy	CoV ≤2% (coeff of variation)

Stroke volume (SV)

Measurement range	1 – 250 ml
Measurement accuracy	CoV ≤2% (coeff of variation)

Cardiac index (CI)

Measurement range	0.10 – 15.0 l/min/m^2

Continuous cardiac output index (CCI)

Measurement range	0.1-15.0 l/min/m^2 (Pulse contour cardiac output index)

Stroke volume index (SVI)

Measurement range	1-125 ml/m^2

Preload
Global end-diastolic volume (GEDV)

Measurement range	40-4800 ml
Measurement accuracy	CoV ≤3% (coeff of variation)

Global end-diastolic volume index (GEDI)

Measurement range	80-2400 ml/m^2

Intrathoracic blood volume (ITBV)

Measurement range	50-6000 ml
Measurement accuracy	CoV ≤3% (coeff of variation)

Intrathoracic blood volume index (ITBI)

Measurement range	100-3000 ml/m^2

Stroke volume variation (SVV)

Measurement range	0-50%

Pulse pressure variation (PPV)

Measurement range	0-50%

Contractility
Global ejection fraction (GEF)

Measurement range	1-99%

Cardiac function index (CFI)

Measurement range	1-15 1/min

Index of left ventricular contractility (dPmx)

Measurement range	200-5000 mmHg/s

Afterload
Systemic vascular resistance (SVR)

Measurement range	1-30000 dyn*s*cm^{-5}, (when CVP is available)

Systemic vascular resistance index (SVRI)

Measurement range	1-30000 dyn*s*cm^{-5}*m^2

Organ function
Extravascular lung water (EVLW)

Measurement range	10-5000 ml
Measurement accuracy	Error ≤ ± 5% or 10ml, repeatability ≤ 6% (coeff of variation) or standard deviation ≤ 10ml

Extravascular lung water index (ELWI)

Measurement range	0-50 ml/kg

Cardiac power output (CPO)

Measurement range	0.1-9.9 W

Cardiac power index (CPI)

Measurement range	0.1-9.9 W/m2

Pulmonary vascular permeability index (PVPI)

Measurement range	0.1-9.9

Invasive blood pressure (IBP)

Measurement method	IBP is converted to an electrical signal by a pressure transducer. The signal is continuously displayed as a waveform and numeric value. The IBP setup consisting of connecting tubing, pressure transducer, an intravenous bag of normal saline all connected together by stopcocks, is attached to the catheter. The pressure transducer is placed at the same level with the heart and electrically zeroed.
Physiological measurement range	-25 to +320 mmHg
Measurement accuracy	±4% or ±4 mmHg

Pulse rate

Measurement range	30 to 250 bpm
Resolution	1 bpm
Measurement Accuracy	±5% or ±5 bpm, whichever is greater

Temperature

Injectate temperature range	0 °C to 30 °C (32 °F to 86 °F)
Blood temperature range	17 °C to 44 °C (63 °F to 111 °F)

System compatibility

CARESCAPE modular monitors.

Environmental specifications

Operating conditions

Temperature	10 to 40°C (50 to 104°F)
Relative humidity	10 to 90% non-condensing
Ambient pressure	700 to 1060 mbar

Storage conditions

Temperature	-20 to 60°C (-4 to 140°F)
Relative humidity	10 to 90% non-condensing

Physical specifications

Dimensions (H x W x D)	112 x 37 x 188 mm (4.4 x 1.5 x 7.4 in)
Weight	<0.5 kg (1.1 lb)

Imagination at work

Product may not be available in all countries and regions. Full product technical specification is available upon request. Contact a GE Healthcare Representative for more information. Please visit www.gehealthcare.com/promotional-locations.

Data subject to change.

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