



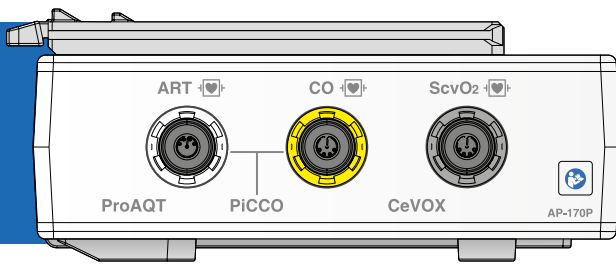
Hemodynamic Unit

The hemodynamic solution to enhance patient safety at every level

Nihon Kohden's Hemodynamic Unit is a module that combines three innovative technologies for hemodynamic measurements for the first time in one device to provide smart data reviews.

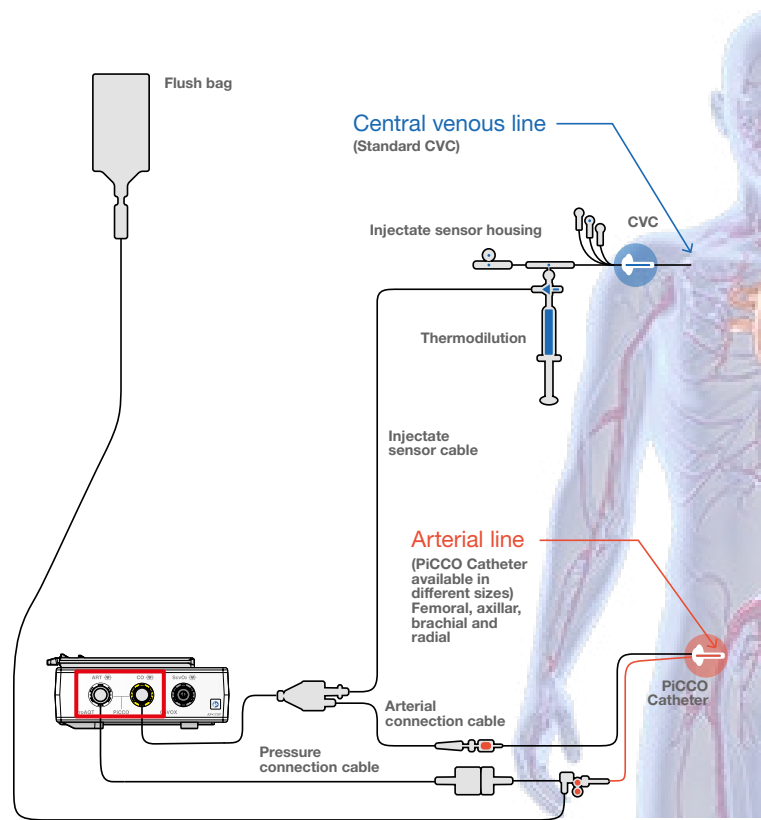
A comprehensive solution to provide the full range of hemodynamic monitoring with Nihon Kohden bedside monitors including PiCCO, ProAQT and CeVOX to meet the challenges of each acuity level.

Hemodynamic Unit



PiCCO® Technology

- The PiCCO® technology is an easy, less invasive and cost-efficient tool for determining the main hemodynamic parameters of critically ill patients.
- It enhances the accuracy and precision of hemodynamic monitoring by the innovative combination of arterial pulse contour analysis calibrated via transpulmonary thermodilution.
- The precise PiCCO® parameters allow physicians to perform patient-individualized therapy with optimal use of inotropes and vasopressors.
- PiCCO® enables the measurement of extravascular lung water for pulmonary oedema assessment.
- Clinically proven and widely accepted minimally-invasive alternative to the pulmonary artery catheter.
- PiCCO supports understanding complex conditions such as: Septic shock, cardiogenic shock or ARDS.



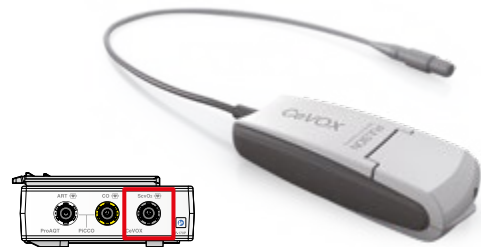
ProAQT® Technology

- The ProAQT®-Technology provides beat to beat cardiac trend output for optimal perioperative hemodynamic management.
- It works with standard arterial line for easy and quick setup.
- ProAQT® allows the reliable and validated interpretation of the patient's hemodynamic status to recognize patient instability early.
- It enables detection of dynamic fluid responsiveness.
- Multicenter studies are showing a reduction in complications.
- ProAQT® supports manual calibration using external reference cardiac output values (e.g. echocardiography).



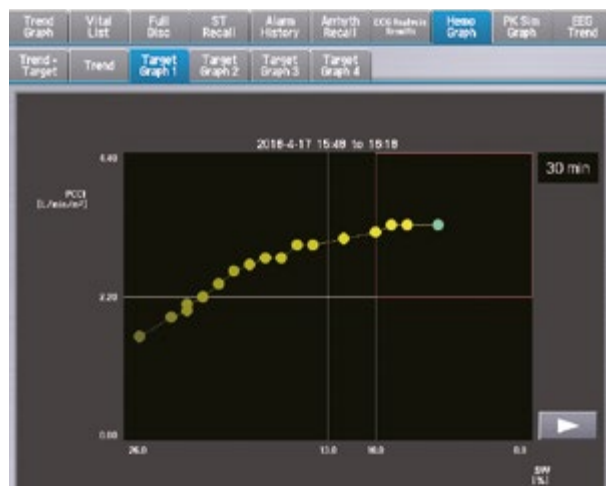
CeVOX® Technology

- The CeVOX®-Module enables continuous monitoring of the central venous oxygen saturation (ScvO₂).
- It is based on measurement via fibreoptic CeVOX® probe and CeVOX® module.
- CeVOX® allows tracking of early goal directed therapy effects to improve the patient outcome.
- ScvO₂ is highly sensitive to tissue hypoxia and enables early indication of perfusion deficit.



Smart data review

Nihon Kohden monitors provide a simple to follow user interface on the display. View all the hemodynamic parameters at a glance and visualize volumetric information for faster intervention.



Measuring methods for invasive hemodynamic monitoring

Method		PiCCO	ProAQT	CeVOX
Pulse contour analysis (continuous)	Flow	PCCI, SVI	PCCI, SVI	
	Contractility	dPmax, CPI	dPmax, CPI	
	Afterload	SVRI	SVRI	
	Volume responsiveness	SVV, PPV	SVV, PPV	
Thermodilution (discontinuous)	Flow	CI		
	Preload	GEDVI		
	Contractility	CFI, GEF		
Oxymetry	Pulmonary edema	ELWI, PVPI		
	Oxygen saturation			ScvO ₂

Specifications

Hemodynamic Unit (AP-170P)

Function and performance

Power	The hemodynamic unit turns on when the connected bedside monitor is turned on.
Measurement items	Depends on the measurement mode and connected cables and sensors.
Arterial pressure	<i>Available technology:</i> PiCCO® or ProAQT® <i>Measuring range:</i> -30 to +300 mmHg Available measuring range for parameter calculation is 0 to 300 mmHg. <i>Measuring accuracy:</i> ±4 mmHg (when the specified cable and pressure transducer are used)
Injectate temperature	<i>Available technology:</i> PiCCO® <i>Measuring range:</i> 0 to 30°C (32 to 86°F)
Blood temperature	<i>Available technology:</i> PiCCO® <i>Measuring range:</i> 25 to 45°C (77 to 113°F)
Central venous oxygen saturation	<i>Available technology:</i> CeVOX® <i>Measuring range:</i> 1 to 99%

Dimensions and weight

Dimensions	154W × 63H × 190D mm (Cable length: approx. 650 mm)
Weight	Approx. 780 g

Standard items

Hemodynamic unit	AP-170P
Cables	IBP connection cord for PiCCO, JP-170P CO connection cord for PiCCO, JT-170P

Environment conditions

Storage and transport environment	<i>Surrounding temperature:</i> -20 to +65°C (-4 to +149°F) <i>Relative humidity:</i> 10 to 95% <i>Atmospheric pressure:</i> 700 to 1060 hPa
Operating environment	<i>Surrounding temperature:</i> 5 to 40°C (41 to 104°F) <i>Relative humidity:</i> 30 to 85% (noncondensing) <i>Atmospheric pressure:</i> 700 to 1060 hPa <i>Cooling system:</i> Natural cooling (no fan)
Power	<i>Rated voltage:</i> Supplied by the connected bedside monitor <i>Allowable voltage fluctuation range:</i> <ul style="list-style-type: none">• DC 12 V (DC 11.4 to 12.6 V)• DC 5 V (DC 4.75 to 5.25 V) <i>Power consumption:</i> 6.5 W or less

Options available only by Getinge (Pulsion Medical Systems SE)

For PiCCO® technology	PiCCO monitoring kit PiCCO catheters PiCCO catheter kit Injectate sensor cable
For ProAQT® technology	ProAQT sensor cable ProAQT sensor
For CeVOX® technology	CeVOX module CeVOX fiberoptic probes

Connectibility

Nihon Kohden Life Scope series bedside monitors.



NIHON KOHDEN EUROPE GmbH
Raiffeisenstr. 10, 61191 Rosbach, Germany
Phone: +49 (0) 6003 827-0, Fax: +49 (0) 6003 827-599
Internet: www.nihonkohden.com, E-mail: info@nke.de



NIHON KOHDEN CORPORATION
1-31-4 Nishiochiai, Shinjuku-ku, Tokyo 161-8560, Japan
Phone: +81 (3) 59 96-80 36, Fax: +81 (3) 59 96-81 00
Internet: www.nihonkohden.com