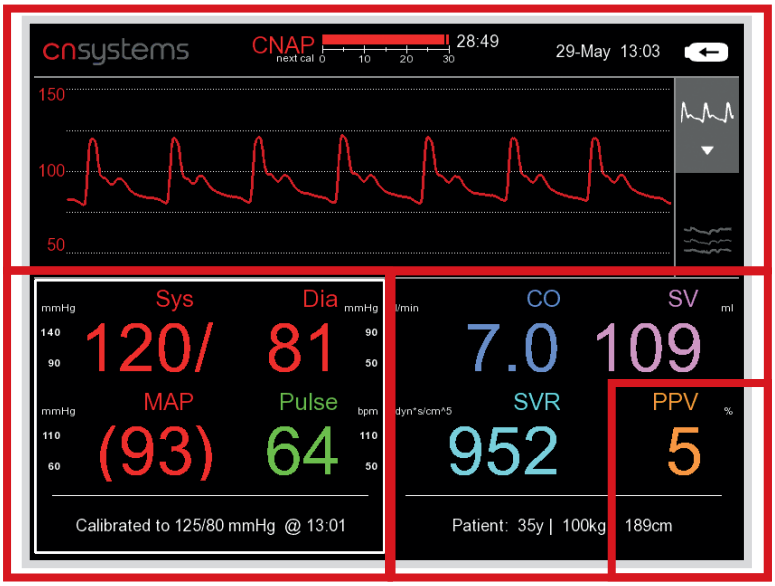
CONTINUOUS NONINVASIVE
BLOOD PRESSURE & HEMODYNAMICS

THE NEXT GENERATION OF
NONINVASIVE MONITORING

cnap® hemodynamic control

CONTINUOUS NONINVASIVE HEMODYNAMIC CONTROL

FULL HEMODYNAMIC PICTURE



Hemodynamics

> Continuous noninvasive blood pressure waveform / trendview

> Cardiac Output
CO, CI, SV, SI

> Vascular Resistance
SVR, SVRI

Dynamic Fluid Management

> PPV, SVV

> **Continuous Blood Pressure:** Sys, Dia, MAP, Pulse *and* **Upper arm NBP:** Sys, Dia

CONVENIENT CNAP® FINGER SENSOR - NONINVASIVE

EASY-TO-USE AND QUICK

> Quick set-up and error-free application

> Blood pressure waveform and values immediately available

ACCURATE AND RELIABLE

> Comparable with invasive clinical standards[1-11, 21]

> Reliable tracking (e.g. in patients with volatile blood pressure; during Goal Directed Therapy)

> Noninvasive hemodynamic monitoring can be used as an addition to arterial line

COST EFFECTIVE

> Up to 77% cost savings through reusable CNAP® double finger sensor

EASY-TO-USE
QUICK START UP
COST EFFECTIVE

cnap® hemodynamic control

PROVEN ACCURACY IN CLINICAL SETTINGS

> CNAP® measurements are comparable to invasive arterial line measurements in terms of continuity, accuracy and waveform dynamics.[1,2,3]

> CNAP® delivers reliable results for the efficient treatment of ICU and ER patients.[4,5, 6,7]

> CNAP® provides immediate hemodynamic status and detects blood pressure drops during the induction of anesthesia.[8]

> CNAP® shows outstanding performance in monitoring pediatric patients without an arterial catheter.[9,10]

EASY & RELIABLE TOOL FOR RESEARCH [11,12,13, 14]

> Noninvasive measurement

> Easy-to-use: all from *one* sensor

> Reliability clinically validated

FAST & ACCURATE HEMODYNAMIC OVERVIEW [16,17]

> Early recognition[15]

> Fast intervention

> Detection of hemodynamic reactions

> ...without arterial catheter

REDUCING RISK & IMPROVING OUTCOME THROUGH GOAL DIRECTED THERAPY

> Noninvasive CNAP® PPV / SVV is an accurate predictor of fluid responsiveness in anaesthetized patients.[18,19]

> Goal directed therapy with CNAP® HD significantly reduces postoperative infections, organ complications and number of transfusions.[20]

> Noninvasive CO with CNAP® HD performs comparably to invasive CO monitoring.[21]

"Given the fact that CNAP® is a reliable device to assess the arterial AP continuously, [...] its noninvasiveness facilitates its use for any operation with a need to assess, document, and maintain hemodynamic stability."[1]

"CNAP® can be used as an alternative to intra-arterial pressure" [4]

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TECHNICAL SPECIFICATIONS

CNAP® – CONTINUOUS NONINVASIVE ARTERIAL PRESSURE			NBP – OSCILLOMETRIC BLOOD PRESSURE	
Measuring range	Sys:	40 - 250 mmHg	Measuring range	Sys: Adult 40 - 260 mmHg, Pediatric 40 - 230 mmHg
	Dia:	30 - 210 mmHg		Dia: Adult 20 - 200 mmHg, Pediatric 20 - 160 mmHg
	Mean:	35 - 230 mmHg		
	Pulse rate:	30 - 200 bpm		
Degree of protection	BF	(defibrillation proof)	Degree of protection	BF (defibrillation proof)
Automatic scaling to brachial pressure (NBP)				

CNAP® HEMODYNAMICS: CO, CI, SV, SVR, SVI, SVRI				
Measuring range	CO	0.0 - 15 l/min	CI	0.0 - 8 l/min/m^2
	SV	0 - 200 ml	SI	0 - 100 ml/m^2
	SVR	0 - 3000 dyne*s/cm^5	SVRI	0 - 6000 dyne*s*m^2/cm^5

FLUID RESPONSIVENESS: CNAP® PPV AND SVV		
Measuring range	PPV: 0.2 - 40%;	SVV: 0 - 40%

ELECTRICAL			
Nominal voltage	100 - 240 VAC	Battery:	sealed lead-gel, operating time: 2 hours (fully charged battery)
Supply frequency	~50/60 Hz		

PHYSICAL	
Weight	7,5 kg (16,6 lbs) including accessories and cables
Height	280 x 270 x 250 mm (11 x 10,6 x 9,8 inch)

ENVIRONMENTAL			
Temperature	operation:	10°C - 40°C (50°F - 104°F)	storage: 0°C - 40°C (32°F - 104°F)
Humidity	operation:	15% - 85% non condensing	storage: 15% - 95%, non condensing, wrapped
Altitude	operation:	647 - 1060 hPa	storage: 500 - 1060 hPa

SCREEN	
Type	TFT-LCD, 800 x 600 pixel
Size	8,4 inch diagonally

USER INTERFACE	
Controls	click-wheel control, fast access keys
Indicators	visual and audible alarm indication, battery status, printer status, power LED
Trend Display	customized configuration: numeric, graphic, alarm history

ADJUSTABLE ALARMING SYSTEM	
Alarms	physiological: med priority, technical: low priority

CONNECTIVITY	
BP Wave Out	easy integration in all standard patient monitoring systems (2 - 10 VDC supply voltage)
AUX Analog Out	analog output of calibrated continuous blood pressure waveform and additional configurable hemodynamic parameters (0V to 5V; -5V to 5V)

USB PORT	
Version	USB 1.1 (bandwidth 12 MBits/s)

PRINTER	
Type	integrated thermal printer, 58 mm

COMPLIANCE AND APPROVALS			
Safety class II (IEC 60601)	> IEC 60601-1	> IEC 60601-1-6	> EN 1060-4 (NBP)
Class II b (93/42/EEC)	> IEC 60601-1-2	> IEC 60601-1-8	> ISO 81060-2 (NBP)
Patient applied part type BF	(defibrillation proof)	> IEC 80601-2-30	

INTELLECTUAL PROPERTY			
Patents	> US 6,669,648	> US 8,343,062	> JP 20075508872
	> EP 1 179 991	> EP 2 493 370	> CN 102647940
	> US 8,114,025	> US 8,814,800 B2	
	> EP 1 675 507	> EP 2 493 373	plus additional 66 patents

The CNAP® Monitor is CE approved. All parameters in section "CNAP® hemodynamics" and "fluid responsiveness" currently have no FDA clearance.

CNAP® – Setting new standards for continuous and noninvasive hemodynamic monitoring.




cnsystems

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