Dräger medical
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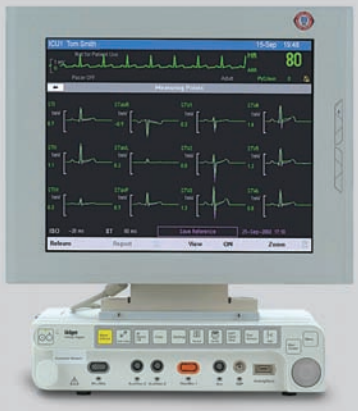
Infinity® Kappa Patient Monitor

TECHNICAL DATA



The Infinity® Kappa monitor combines the power of Infinity patient monitoring with your choice of display. The standard monitor includes a CPU base unit that is compatible with any standard medical grade flat-panel display. Order the Kappa with an optional VGA flat-panel display, or use the monitor with your choice of display.

Designed for fixed monitoring at the bedside, Infinity Kappa has a built-in power supply and Infinity Network card. It offers comprehensive monitoring, with a parameter set that includes multiple-lead ECG, respiration, comprehensive arrhythmia classification, dual temperature, cardiac output, multiple invasive pressures and noninvasive blood pressure.

Features

- Includes the advanced power and flexibility of Infinity monitoring software
- Provides Infinity monitoring with your choice of display
- Supports high acuity monitoring and all care units

Monitoring Capabilities

Neonatal, pediatric and adult applications

ECG

Displays up to 12 leads

Available leads	I, II, III, aVR, aVF, aVL, V, V+, V1 - V6 [V, aVR, aVF, aVL only with 5- and 6-lead set, V+ only with 6-lead set, V1 to V6 only with 12-lead pod (12-lead not intended for neonatal)].
	TruST™ 12-lead reduced lead-set (6-wire): I, II, III, aVL, aVR, aVF, dV1, V2, dV3, dV4, V5 and dV6 (indicated for adults and pediatrics).[1]
Measuring range	15 to 300 bpm
Accuracy	±2 bpm or ±1% (whichever is greater)
Frequency ranges	Filter off: 0.05 to 40 Hz display; 0.05 to 125 Hz printer
	Monitoring filter: 0.5 to 40 Hz
	ESU filter: 0.5 to 16 Hz

QRS Detection Range

Amplitude	0.5 to 5 mV
Duration	Adult and pediatric: 70 to 120 msec Neonatal: 40 to 120 msec
Alarms	User-selectable upper and lower limits
Pacer detection (adult/pediatric)	Leads: I, II or III Amplitude: ±2 to ±700 mV Width (d_p): 0.2 to 2.0 msec
Accessories	3-, 5- or 6-lead electrode set or 12-lead pod

ST (not intended for neonatal)

Available leads	Choice of any 3 available ECG leads
ST complex length	892 msec (-300 to +600 msec from fiducial point)
Sample rate	225 samples/sec
Frequency response	0.05 – 40 Hz

Isoelectric measurement point

Measuring range	Start of ECG complex
Default	QRS onset – 28 msec

ST measurement point

Adjustment range	Fiducial point to end of ECG complex
Point default	QRS offset +80 msec
Minimum number of normal beats	1 beat/updated interval
Update interval	15 sec
Averaging	Any valid beat in 15 sec
Resolution	±0.1mm
Trends	Graphical and tabular, as provided by monitor function
INOP Alarm	Yes
Upper and lower ST alarms	±15 mm, ±0.1 mm increments
Alarm delay	None, 15, 30, 45, 60 seconds

[1] Optimum performance of TruST leads is based on a minimum 0.3mV amplitude and QRS duration <180 milliseconds on patients with a body surface area (BSA) of 1.5 – 2.5 m^2

Respiration

Sensing leads	I, II (user-selectable)
Measuring method	Impedance pneumography
Auxiliary current	≤10µA for any active electrode
Detection threshold	0.2Ω to 4.0Ω in manual mode (user adjustment) 0.3Ω to 1.5Ω in auto mode (automatic adjustment)
Measuring range	0 to 155 breaths per min
Accuracy	±1 breath/min or 2% of rate (whichever is greater)
Alarms	User-selectable upper and lower respiration rate

Pulse Oximetry (SpO_2)

Displayed parameters	Saturation (fraction of oxyhemoglobin to functional hemoglobin) and pulse (rate and curve)
Measuring method	Absorption-spectrophotometry
Measuring range	SpO_2: 1 to 100% Pulse: 30 to 250 bpm
Accuracy	SpO_2: 0 to 69%: not specified SpO_2: 70 to 100%: ±2% (except Masimo® LNOP-Ear which is ±3.5%, and Nellcor® DS100A which is ±3%) Saturation accuracy range increases by ±1 digit for neonates Pulse: ±3 bpm or ±3% (whichever is greater)
Alarms	User-selectable upper and lower limits for SpO_2 and pulse rate Life-threatening desaturation alarm in neonatal mode only
Accessories	Dräger Medical-approved Masimo or Nellcor sensors Dräger Medical reusable SpO_2 probes (not intended for neonates)

Second Pulse Oximetry (SpO_2)

Displayed parameters	Saturation, Pulse, Delta (Δ)
Measuring method	Absorption-spectrophotometry
Measuring range	SpO_2: 1 to 100% Pulse: 30 to 250 bpm
Accuracy	Refer to $MicrO_2$+® Telemetry Pulse Oximetry datasheet
Alarms	ΔSpO_2 % upper alarm limit only Default: adult/pediatric 20%, neonatal 10% ΔSpO_2 range: 1 to 100%, 1% resolution

Temperature

Displayed parameters	Absolute and delta temperatures
Measuring range	Absolute: -5° C to 50° C Delta: 0° C to 55° C
Accuracy	Absolute: ±0.1° C Delta: ±0.2° C
Alarms	User-selectable upper and lower limits for absolute and delta values
Accessories	Dräger Medical-approved core and skin probes

Noninvasive Blood Pressure (NBP)

Displayed parameters	Systolic, mean and diastolic pressures
Measuring method	Oscillometric utilizing step deflation

Modes of operation

Manual (single measurement)	Interval and Continuous (5 minutes)
Interval times	1, 2, 2.5, 3, 5, 10, 15, 20, 25, 30, 45, 60, 120 and 240 minutes

Measuring range (default)

Adult (270 mmHg)	Heart rate: 30 to 240 bpm Systolic: 30 to 250 mmHg Mean: 20 to 230 mmHg Diastolic: 10 to 210 mmHg
Pediatric (180 mmHg)	Heart rate: 30 to 240 bpm Systolic: 30 to 170 mmHg Mean: 20 to 150 mmHg Diastolic: 10 to 130 mmHg
Neonatal (140 mmHg)	Heart rate: 30 to 240 bpm Systolic: 30 to 130 mmHg Mean: 20 to 110 mmHg Diastolic: 10 to 100 mmHg

Cuff pressure

Default inflation pressure	Adult (270): 160 mmHg ±10 mmHg Pediatric (180): 120 mmHg ±10 mmHg Neonatal (140): 110 mmHg ±10 mmHg
Inflation pressure after a valid measurement	Adult (270): Systolic +25 mmHg ±10 mmHg Pediatric (180): Systolic +25 mmHg ±10 mmHg Neonatal (140): Systolic +30 mmHg ±10 mmHg
Maximum inflation pressure	Adult (270): 265 mmHg ±5 mmHg Pediatric (180): 180 mmHg ±10 mmHg Neonatal (140): 142 mmHg ±10 mmHg
Minimum inflation pressure	Adult (270): 110 mmHg ±10 mmHg Pediatric (180): 90 mmHg ±10 mmHg Neonatal (140): 70 mmHg ±10 mmHg
Connector	Quick-release connector with single airway

Invasive Blood Pressure

Displays up to 8 pressures	
Measuring method	Resistive strain gauge transducer
Display resolution	1 mmHg
Measuring range	-50 to 400 mmHg
Frequency ranges	DC to 8 Hz, DC to 16 Hz, and DC to 32 Hz (user-selectable)
Zero balance	±200 mmHg
Transducer specifications	Dräger Medical-approved transducers with a resistance of 200 Ω to 3000 Ω and an equivalent pressure sensitivity of 5µV/V/mmHg ±10%
Accuracy	±1 mmHg or ±3%, exclusive of transducer (whichever is greater)
IBP alarms	User-selectable upper and lower limits for systolic, mean and diastolic pressures
Accessories	Dräger Medical-approved pressure transducers

Battery type
Lithium-ion battery
(internal)

Display Specifications

Type	Any medical grade VGA or SVGA (VE) monitor
Resolution	800 x 600 pixels
Channels	4 channels standard, 6, 8 channels optional

User Interface

Rotary knob	Easy-to-use menu structure and fixed keys
Three alarm levels	Life-threatening, Serious and Advisory

Connections

MultiMed® pod, Masimo SET® SmartPod®, HemoMed™ pod, 3 Pod Comm, NBP input, analog output, QRS sync output, RS 232, remote keypad, alarm output, video output, R50 recorder, Scio® Four modules

Analog Output

Signals	ECG, arterial blood pressure
Delay	< 25 msec

Physical Specifications

Cooling	Fan
Size (H x W x D)	102 x 368 x 368 mm (4 x 14.5 x 14.5 in.)
Weight	8.4 kg (19 lbs.)

Information Management Capabilities

Data storage	24 hours of trended parameter information
Data resolution	30-second sampling
Trend tables	1-, 5-, 15-, 30- or 60- minute display formats
Trend graphs	1-, 2-, 4-, 8-, 12- or 24-hour display formats

Electrical Specifications

Power requirements	100 to 120V AC, 2.5A 200 to 240V AC, 1.3A
Frequency	50 to 60 Hz
Isolation	Patient leakage current: ≤10µA
	Chassis leakage current: 300µA @ 120V AC 500µA @ 240V AC
	Protection class: Class 1 per IEC 60601-1
Battery type	Lithium-ion battery (internal) Battery capacity: 20 minutes Charging time: 3.5 hours at 25° C

Environmental Requirements

Temperature range	Operating: 10° C to 45° C Storage: -15° C to 50° C
Relative humidity	Operating: 20% to 90%, non-condensing Storage: 10% to 95% (with packaging)
Atmospheric pressure	Operating: 525 to 795 mmHg (70 to 106 kPa) Storage: 375 to 795 mmHg (50 to 106 kPa)

Standards

IEC 60601-1 and applicable particular and collateral standards, IEC 60601-1-2, Electromagnetic compatibility CISPR 11, Class B

The Infinity Kappa monitor complies with Medical Devices Directive (MDD) 93/42 EEC and bears the CE mark.

Ordering Information

Infinity Kappa Patient Monitor

Critical Care	8419930 (MS18853)
Perioperative Care	8604930 (MS18853)
Perinatal Care	MU20524 (MS18853)

Power cord, MultiMed, and all patient connection and intermediate cables must be ordered separately.

Standard with each monitor, basic arrhythmia monitoring including: asystole, ventricular fibrillation, ventricular tachycardia and artifact.

Arrhythmia II option augments basic arrhythmia monitoring to include: ventricular run, accelerated idioventricular rhythm, supra-ventricular tachycardia, couplet, bigeminy, tachycardia, bradycardia, pause, artifact, and also supports PVC/min parameter output.

Note: Bradycardia is available as a low heart rate alarm for neonates.

Power Cables (one required)

Europe, CEE 7	4321712
North America, 5-15R	4321720
Switzerland, SEV 1011	4321613
Great Britain, BS 1363	1851713
Australia, New Zealand, AS 3112	1851705
China, power cord	1859714
Danish power cord	1851721

MultiMed and SpO_2 Pods

MultiMed 5 Multi-parameter pods to monitor 3- or 5-lead ECG, impedance respiration, SpO_2 and one temperature (two temperatures with Y-cable)	3368391
MultiMed 6 Multi-parameter pods to monitor ECG using 3-, 5- and 6-lead, impedance respiration, SpO_2 and one temperature (two temperatures with Y-cable)	5191221
NeoMed The NeoMed pod supports monitoring of 3-lead ECG, impedance respiration, two temperatures, SpO_2 and FiO_2.	5590539
MultiMed 12 Pod (diagnostic12-lead ECG and SpO_2)	5589663

SpO_2 Pod

Masimo SET SpO_2 SmartPod (see individual datasheet for details)	MS16902

Software Options

6-waveform option	4322934
8-waveform option	5189738
Arrhythmia II option	4322967
ST analysis 12-lead ARIES option (Advanced Review of Ischemia Event System) Provides 12-lead ST analysis with MultiMed 12 Provides 8-lead ST analysis with MultiMed 6	5597328
ST analysis, 3-lead	5201988

Physiological Calculation option	5201996
Wireless option Wireless LAN PC card, and access point installation is required for wireless monitoring and must be ordered through your local Dräger Medical sales representative.	7498087

Optional Modules and Hardware Accessories

Hemodynamic Pods

2 IBP Y-adapter, 10-pin	5731281
2 IBP Y-adapter, 7-pin	5592147
HemoMed Pod*	5588822
Hemo2® Pod*	4319435
Hemo4® Pod*	4315961

$etCO_2$ Transutaneous O_2/CO_2 Monitoring
Respiratory Mechanics and Anesthesia Gas Monitoring

$etCO_2$ Pod*	5740738
$etCO_2$ Microstream® Pod	7870947
$tpO_2/tpCO_2$ Pod* (tpO_2 is intended for use in the neonatal population only when the patient is not under gas anesthesia)	5592535
$etCO_2$+ Respiratory Mechanics Pod*	5740704
Scio Four modules: (order through) Scio Four Oxi plus module Scio Four plus module Scio Four Oxi module Scio Four module	6871810
Kappa Advanced Communication Option II Provides memory for 4 additional user-defined setups plus Surgical Display Controller support. Up to 4 channels of MIB II support are added using 1-4 channel MIB option board.	7487205

Neurological Monitoring

EEG Pod*	5736744
Trident® SmartPod*	MS15007
BISx® SmartPod*	MS14796

Other Accessories

Remote keypad	5203042

*Please refer to individuals datasheets for additional information.

TFT-LCD Display

15" flat panel TFT-LCD display	MS16472
17" flat panel TFT-LCD display	MS16471
19" flat panel TFT-LCD display	MS16470
Display mounting kit	MS14583

Recorder Options

R50 2-channel recorder	5952630
R50N 2-channel network recorder	5740068
Infinity Network laser printer (115V)	6556513
Infinity Network laser printer (220V)	6556539

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The quality management system at Draeger Medical Systems, Inc. is certified according to ISO 13485, ISO 9001 and Annex II.3 of Directive 93/42/EEC (Medical devices).

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