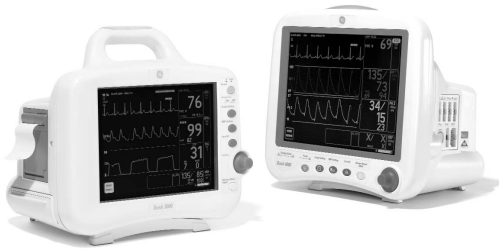


Dash 3000 & 4000

Variable-Acuity Monitoring



Superior bedside adaptability

The Dash® 3000 & 4000 are portable monitors designed to be as flexible as they are easy to use. They allow the acuity of any bed to be modified instantaneously to meet changing patient needs.

Gold standard algorithms and technology

Dash monitors revolutionize patient care and assessment by combining the most complete selection of gold standard patient monitoring parameters with leading-edge cardiac technology.

Enterprise networking

Superior hard-wired and wireless network connectivity – including access to CIS, CVIS, PACS, RIS, HIS and more than 350 beds without central station support – contributes to the Dash monitors' unprecedented ability to adapt to changing patient acuity demands.



Product Specifications

Display	
Size	Dash 3000 – 8.5 in., Dash 4000 – 10.4 in. (diagonal)
Type	Active-matrix color LCD
Resolution	640 by 480 pixels
Number of traces	6 (maximum)
Number of seconds/trace	4.9 at 25 mm/sec
Sweep speed	6.25, 12.5, 25 mm/sec (with erase bar)
Controls	
TrimKnob® control	
Five hard keys	Silence Alarm, Graph Go/Stop, NBP Go/Stop, Zero All and Power On/Off
Remote control option	Available
Alarms	
Categories	Patient status and system status
Priority	4 levels – Crisis, Warning, Advisory and Message
Notification	Audible and visual
Setting	Default and individual
Silencing	1 minute, current alarm only
Pause	5 minutes in Adult ICU mode, 3 minutes in Neonatal ICU mode and 5 minute, 15 minute, or permanent pause in OR mode
Volume	Default 70 dB measured at 1 meter

Invasive Blood Pressure

Number of channels	1 to 4 (optional); 3rd and 4th invasive lines only available with Masimo® SpO ₂
Transducer sites	Arterial, femoral artery, pulmonary arterial, central venous, right atrial, left atrial, intracranial and special
Transducer requirements	Excitation voltage: 5 V dc ± 0.1%
Transducer output	5 µV/mmHg
Input specifications	
Range	-25 mmHg to 300 mmHg
Offset	± 150 mmHg
Output specifications	
Frequency response	dc to 50 Hz (-3 dB)
Zero balance range	± 150 mmHg
Zero balance accuracy	± 1 mmHg
Zero balance drift	± 1 mmHg over 24 hours
Accuracy	± 2% or ± 1 mmHg, whichever is greater (exclusive of transducer)
Alarms	User-selectable upper and lower limits for systolic, diastolic and mean pressures

ECG

Standard leads available	I, II, III, V, aVR, aVL and aVF
3, 5 and 10 leadwire cable	I, II, III, V, aVR, aVL, aVF, V2, V3, V4, V5 and V6
Leads analyzed simultaneously	I, II, III and V (multi-lead mode)
Lead fail	Identifies failed lead
Alarms	User-selectable upper and lower heart rate limits
Input specifications	
Voltage range	± 0.5 mV to ± 5 mV
Signal width	40 ms to 120 ms (Q to S)
Heart rate range	30 to 300 bpm
Input impedance	Common mode > 10 M Ω at 50/60 Hz Differential > 2.5 M Ω from dc to 60 Hz Common mode rejection 90 dB minimum at 50 or 60 Hz
Output specifications	
Impulse response	For an impulse of 3 mV applied for 100 ms Displacement following impulse < 0.1 mV Slope following impulse < 0.3 mV/s
Frequency response	Response of non-permanent displays is limited by resolution to 40 Hz (-3 dB) @25 mm/s. Specified upper frequency limits may vary by ± 2 Hz.
Diagnostic mode	0.67 Hz (+0.4 dB) to 100 Hz (-3 dB)
For compliance with China National Standard	1.0 Hz (+0.4dB) to 75 Hz (-3 dB)
Monitoring mode	0.67 (+0.4 dB) to 40 Hz (-3 dB)
Moderate mode	0.67 (+0.4 dB) to 25 Hz (-3 dB)
Maximum mode	5.0 Hz (-0.3 dB) to 25 Hz (-3 dB)
Noise	< 30 μ V (referred to input)
Pacemaker detection/rejection	
Input voltage range	± 2 mV to ± 700 mV
Input pulse width	0.1 ms to 2 ms
Rise time	10 μ s to 100 μ s
Over/under shoot	2 mV (max)
Baseline drift	< 0.5 mV per hour with a ± 700 mV, 2 ms
Pacemaker pulse	Applied

Respiration

Measurement technique	Impedance variation detection
Range	0-200 breaths per minute for variations of 1.0 – 10.0 Ω
Respiration rate	0-200 breaths per minute
Base impedance	100-1000 Ω at 52.6 kHz
Detection sensitivity	0.4 to 10 Ω variation
Waveform display bandwidth	0.1 to 1.8 Hz (-3 dB)
Alarms	User-selectable upper and lower respiration rate limits, and user-selectable apnea limit

Temperature

Number of channels	2
Input specifications	
Probe type	YSI Series 400 or 700 (determined by input cable)
Temperature range	0°C to 45°C (32°F to 113°F)
Resolution	± 0.1°C
Output specifications	
Parameters displayed	T1, T2
Accuracy	(independent of source) ± 0.1°C for YSI series 400
Probes	± 0.3°C for YSI series 700 probes
Alarms	User-selectable upper and lower limits for T1, T2

Cardiac Output

Input specifications	
Probe type	In-line or bath probe
Catheter size	5F, 6F, 7F, 7.5F and 8F
Injectate volume	3, 5 or 10 cc
Output specifications	
Parameters displayed	Cardiac output, blood temperature, injectate temperature and trial number
Range	
Cardiac output	0.2-15 (liters per minute)
Blood temperature	30-42°C
Injectate temperature	0-30°C
Accuracy	
Cardiac output	± 5%
Blood temperature	± 0.2°C
Injectate temperature	± 0.3°C
Frequency response	dc to 15 Hz ± 2 Hz

Pulse Oximetry

Parameters monitored	Arterial oxygen saturation (SpO ₂) and peripheral pulse rate (PPR)
SpO ₂ range	Nellcor®-compatible 50-100%; Masimo 30-100%
PPR range	Nellcor-compatible 30-300 BPM; Masimo 25-240 BPM
Accuracy	Actual accuracy depends on probe. Please reference manufacturer's specifications.
Nellcor compatible SpO ₂	± 2% (70-100% SpO ₂); ± 3% (50-69% SpO ₂)
Masimo SpO ₂	± 2% Adults/Pediatric (70-100% SpO ₂); SpO ₂ ± 3% Neonates ≤ 69% unspecified
PPR	± 3 beats per minute
Alarms	User-selectable upper and lower limits for SpO ₂ and PPR

DINAMAP® Non-Invasive Blood Pressure

Technology	DINAMAP classic and SuperSTAT™ (SuperSTAT only available with Masimo SpO ₂)
Measurement technique	Oscillometric
Displayed parameters	Systolic, diastolic and mean pressures, time of last measurement
Measurement modes	Adult ICU and OR modes; manual, auto and stat, neonatal mode; manual and auto
Systolic	
Adult	30-285 mmHg
Pediatric	30-235 mmHg
Neonate	30-140 mmHg
Map	
Adult	20-260 mmHg
Pediatric	20-220 mmHg
Neonate	20-125 mmHg
Diastolic	
Adult	10-220 mmHg
Pediatric	10-210 mmHg
Neonate	10-110 mmHg
Pulse rate, as displayed in tabular trends	
Adult	30-200 bpm
Pediatric	30-200 bpm
Neonate	30-220 bpm
Other specifications	
Overall system accuracy	Meets or exceeds SP 10-1992 AAMI standards
Automatic cycle times	0-8 hours
Tubing length	12 feet adult, 8 feet neonatal
Automatic cuff deflation	Cycle time exceeding 3 minutes (90 seconds neonatal), French mode – Cycle time exceeding 2 minutes (60 seconds neonatal), power off, or cuff pressure exceeds 294 mmHg (± 6 mmHg) adult, 250 (± 5 mmHg) pediatric, 147 (± 3 mmHg) neonatal
Cuff sizes	Thigh, large adult, adult, small adult, child, infant and neonatal, sizes #5 - #1 and assorted long sizes
Alarms	User-selectable upper and lower limits for systolic, diastolic and mean pressures

CO₂

Technology	
Supports Novametrix CapnoStat (mainstream) and LoFlo (low-flow sidestream) CO ₂ technologies	
Principle of operation	Non-dispersive infrared (NDIR) single beam optics, dual wavelength and no moving parts
Warm-up time	2 minutes warm-up time to meet accuracy specifications; waveform immediate upon power up, calculated end tidal after two breaths
Cable length (mainstream)	8 foot (2.4 m)
Sample line length (low-flow sidestream)	7 foot (2.1 m)
Information displayed	
Inspired and expired CO ₂ concentrations in %, mmHg or kPa; respiratory rate, continuous CO ₂ waveform	
Measurement range (at 760 mmHg at an ambient temperature of 25°C)	
0-100 mmHg, 0-13%, 0-12.5 kPa	
PiCO ₂ /FiCO ₂	0-50 mmHg, 0-6.5%, 0-6.25 kPa
Respiration rate range	Low-flow SS 0-150 breaths/min Mainstream 0-120 breaths/min
Accuracy (at 760 mmHg at an ambient temperature of 25°C)	
MS	±2 mmHg or 5%, whichever is greater
SS	0-40 mmHg ± 2 mmHg; 41-70 mmHg ± 5% of reading; 71-100 mmHg ± 8% of reading; all specifications ± 12% of actual from 80-150 BrPM
Display resolution	1 mmHg
Rise time	Less than 200 ms (low-flow sidestream); less than 60 ms (mainstream adult reusable or SPU); less than 50 ms (mainstream infant reusable or SPU)
Respiration rate accuracy	± 1 breath/min
Compensations	
Automatic barometric pressure	± 25 mmHg from 530-785 mmHg
Operator-selectable O ₂ /N ₂ O compensation	
Calibration	
Mainstream	No routine user calibration required 15 second airway adapter zero performed when changing to a different style of airway adapter
Low-flow sidestream	No routine user calibration required
Airway adapters and sample lines – mainstream (airway adapters)	
Types	Adult reusable (standard), adult disposable, infant
Deadspace	Adult reusable/disposable < 5 cc Infant disposable < 1 cc Taper meets ISO 5356-1
Low-flow sidestream airway adapters	
Types	Adult reusable (standard), adult disposable, infant
Deadspace	Adult reusable/disposable < 7.3 cc Infant disposable < 1 cc
Low-flow sidestream sample lines	
Adult, pediatric and infant	Nasal CO ₂ and nasal CO ₂ /O ₂
Adult and pediatric	Nasal/oral CO ₂ and nasal/oral CO ₂ /O ₂
Alarms	
CO ₂	High inspired CO ₂ ; high/low expired CO ₂
Respiratory rate	Adjustable high and low

Paper Recorder

Method	Thermal dot array
Horizontal resolution	480 dots/in. @25 mm/sec.
Vertical resolution	200 dots/in.
Number of waveform channels	four
Paper width	50 mm (1.97 in.)
Paper length	30 m (100 ft.)
Paper speed	0.1, 0.5, 1, 5, 10, 12.5, 25 and 50 mm/sec. ($\pm 2\%$)

Analog Output

ECG	
Gain	1 V/mV $\pm 10\%$
DC offset	± 100 mV (max)
Noise	< 5 mV peak to peak 0-300 Hz
Frequency response	Refer to Frequency Response section under ECG
Blood pressure	
Gain	10 mV/mmHg $\pm 2\%$
DC offset	± 20 mV (max)
Noise	< 5 mV peak to peak 0-300 Hz
Frequency response	dc to 50 Hz -0/+2 Hz

Battery

Battery type	Exchangeable Lithium-Ion
Maximum number of batteries	2
Voltage	11.1 V (nominal)
Capacity	≥ 3.45 Ah (varies with manufacturers)
Charge time	Less than 4 hours each
Run time	4 to 5 hours
Battery life	500 cycles to 50% capacity

Wireless LAN

Operating frequency	2.4 to 2.5 GHz
Transmit power	100 mW
Data rate	1Mbps and 2Mbps per channel
Radio technology	Frequency-hopping spread spectrum
Communication protocol	IEEE 802.11
UL 1950 Listed (ITE 9B97), CE Mark RF Standard	
US	FCC Part 15 Class B, Europe: ETS 300 328 and ETS 300 826

Environmental Specifications

Power requirements	90-132 VAC 50/60 Hz 2.0A 190-264 VAC 50/60 Hz 1.0A
Power consumption	75 W (fully loaded)
Cooling	Convection
Heat dissipation	240 Btu/hr. (max)

Operating Conditions

Ambient temperature	0-40°C (32-104°F)
While charging batteries	0-35°C (32-95°F)
CO ₂ sensor	10-40°C (50-104°F)
Relative humidity	5-95% @40°C
Vibration	MIL-STD 810E, Method 514.4, Category 1
Altitude	-273 m to 2,943 m (-896 to 9,655 ft.)

Storage Conditions

Do not exceed	
Maximum	70°C (158°F) at 95% relative humidity
Minimum	-40°C (-40°F)
CO ₂ sensor	-30 to 65°C (-22 to 149°F)
Batteries	-20 to 60°C (-4 to 140°F)

Physical Specifications

Dash 4000	
Height	27.4 cm (10.8 in.)
Depth	24.3 cm (9.6 in.)
Width	29.3 cm (11.5 in.)
Weight	5.08 kg (11.2 lbs.)
Dash 3000	
Height	26 cm (10.25 in.)
Depth	20 cm (8 in.)
Width	28 cm (11.0 in.)
Weight	5.08 kg (11.2 lbs.)

Certification

UL 2601-1 classified
UL classified for CAN/CSA C22.2 No. 601.1
IEC 60601-1 certified
CE Marking for the 93/42/EEC
Medical Device Directive

Warranty

Standard warranty is one year.

Ordering Information

Visit gehealthcare.com or contact your local GE Healthcare representative.

GE Healthcare

Waukesha, Wisconsin U.S.A.
www.gehealthcare.com

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04-9164 4/04 Printed in USA

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