

BeneView T5 | T8

PATIENT MONITORS



Display

Type:	BeneView T8: 17" colour TFT touchscreen BeneView T5: 12.1" colour TFT touchscreen
Resolution:	BeneView T8: 1280 x 1024 pixels BeneView T5: 800 x 600 pixels
Waveforms:	BeneView T8: 12 selectable BeneView T5: 8 selectable

ECG (3 and 5-Lead)

Leads:	I, II, III, aVR, aVL, aVF, V
Gain Selection:	x0.125, x0.25, x0.5, x1, x2, auto
Sweep Speed:	12.5mm/sec, 25mm/sec, 50mm/sec
Bandwidth	Diagnostic Mode: 0.05-150Hz Monitor Mode: 0.5-40Hz Surgical Mode: 1-20Hz
Defibrillator Overload Protection:	Withstand 4000VAC/50Hz voltage in isolation against electrosurgical interference and defibrillation
Recovery Time:	<5sec
CMRR:	Diagnostic Mode: ≥ 90 dB Monitor Mode: ≥ 105 dB Surgical Mode: ≥ 105 dB (Notch filter set to off)

Heart Rate Meter

Measurement Range:	Adult: 15-300bpm Paediatric/Neonate: 15-350bpm
Accuracy:	± 1 bpm or $\pm 1\%$, whichever is greater
Resolution:	1bpm
Pacer Rejection:	When tested in accordance with the ANSI/AAMI EC13-2002: Sections 4.1.4.1 and 4.1.4.3, the heart rate meter rejects all pulses meeting the following conditions: Amplitude: ± 2 to ± 700 mV Width: 0.1 to 2ms Rise time: 10 to 100 μ s
Tall T-Wave Rejection:	When tested in accordance with the ANSI/AAMI EC13-2002 Section 4.1.2.1 c, the heart rate meter will reject all 100ms QRS complexes with less than 1.2mV of amplitude, and T-waves with T-wave interval of 180ms and those with Q-T interval of 350ms
Scaling Signal:	1mV $\pm 5\%$

ST Analysis

Adult/Paediatric Only	
Measurement Range:	-2.0mV to 2.0mV
Accuracy:	-0.8 to 0.8mV: ± 0.02 mV or $\pm 10\%$, whichever is greater
ST Adjust Scale:	60ms after J point, 80ms after J point (default: 60ms after J point)
ISO Adjust Scale:	4-200ms before R-Wave (default: 80ms) Step: 4ms
J Point Adjust Scale:	4-200ms after R-Wave (default: 48ms)

Pace Pulse

Pulse Indicator:	Pace pulses meeting the following conditions are marked by the PACE indicator: Amplitude: ± 2 to ± 700 mV Width: 0.1 to 2ms Rise time: 10 to 100 μ s
Pulse Rejection:	When tested in accordance with the ANSI/AAMI EC13-2002: Sections 4.1.4.1 and 4.1.4.3, the heart rate meter rejects all pulses meeting the following conditions: Amplitude: ± 2 to ± 700 mV Width: 0.1 to 2ms Rise time: 10 to 100 μ s

Arrhythmia Analysis

Adult/Paediatric Only

Asystole, ventricular fibrillation, ventricular tachycardia, pacer non-paced, pacer non-capture, ventricular rhythm, couplet, VT>2, bigeminy, trigeminy, R on T PVC, multiform PVC, irregular rhythm, missed beats, bradycardia, tachycardia

Respiration

Measurement Range:	Adult: 0-120bpm Paediatric/Neonate: 0-150bpm
Resolution:	1bpm
Accuracy:	7-150bpm: ± 2 bpm or $\pm 2\%$, whichever is greater 0-6bpm: undefined
Lead:	I or II (default: lead II)
Sweep Speed:	6.25mm/sec, 12.5mm/sec, 25mm/sec

Non-Invasive Blood Pressure

Measurement Method:	Oscillometric
Measurement Modes:	Manual, auto, stat
Connector Type:	Rectus
Units of Measure:	mmHg, kPa (user-selectable)
Resolution:	1mmHg
Systolic Range:	Adult: 40-270mmHg Paediatric: 40-200mmHg Neonate: 40-135mmHg
Diastolic Range:	Adult: 10-210mmHg Paediatric: 10-150mmHg Neonate: 10-100mmHg
Mean Range:	Adult: 20-230mmHg Paediatric: 20-165mmHg Neonate: 20-110mmHg
Accuracy:	Mean error is $< \pm 5$ mmHg Standard deviation is < 8 mmHg
Cuff Deflation Technique:	Step bleed

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Non-Invasive Blood Pressure (continued)

Initial Cuff Inflation:	Adult: 178 ±5mmHg Paediatric: 133 ±10mmHg Neonate: 87 ±5mmHg
Over Pressure Protection:	Double safety protection (hardware and software)
Pulse Rate Range:	40-240bpm
Pulse Rate Accuracy:	±3bpm or ±3%, whichever is greater

Invasive Blood Pressure

Measurement Range:	-50 to 300mmHg
Resolution:	1mmHg
Accuracy:	1mmHg or ±2%, whichever is greater
Zero Offset Range:	±200mmHg
Excitation:	5V DC, ±2%
Frequency Response:	DC to 12.5Hz ±1 Hz, -3db
Waveform Scales:	ART/Ao/UAP/BAP/FAP: 0 to 300mmHg PA: -6 to 120mmHg CVP/UDP: -10 to 40mmHg RAP/LAP/ICP: -10 to 40mmHg IBP1-IBP8: -50 to 300mmHg

Pulse Rate from Invasive Blood Pressure

Measurement Range:	25-350bpm
Resolution:	1bpm
Accuracy:	25-200bpm: ±1bpm or ±1%, whichever is greater 201-350bpm: ±2%

Pulse Oximetry

With Masimo SET® SpO₂

Measurement Range:	1-100%
Resolution:	1%
Accuracy:	±2% (70-100%, Adult/Paediatric, no motion) ±3% (70-100%, Neonate, no motion) ±3% (70-100%, Adult/Paediatric/Neonate, motion) 0-69% unspecified

Pulse Rate with Masimo SET SpO₂

Measurement Range:	25-240bpm
Resolution:	1bpm
Accuracy:	±3bpm (no motion) ±5bpm (motion)

With Mindray SpO₂

Measurement Range:	0-100%
Resolution:	1%
Accuracy:	±2% (70-100%, Adult/Paediatric, no motion) ±3% (70-100%, Neonate, no motion) ±3% (70-100%, Adult/Paediatric/Neonate, motion) 0-69% unspecified

Pulse Oximetry (continued)

Pulse Rate with Mindray SpO₂

Measurement Range:	20-254bpm
Resolution:	1bpm
Accuracy:	±3bpm (no motion) ±5bpm (motion)

With Nellcor® SpO₂

Measurement Range:	1-100%
Accuracy:	±2% (70-100%, MAX-A, MAX-AL, MAX-N, MAX-P, MAX-I and MAX-FAST sensors) ±2.5% (70-100%, OxiClq A, OxiClq N, OxiClq P and OxiClq I sensors) ±3% (70-100%, D-YS, DS-100A, OXI-A/N and OXI-P/I sensors) ±3.5% (70-100%, MAX-R, D-YSE and D-YSPD sensors) 0-69% unspecified
Alarm Range:	0-100%

Pulse Rate with Nellcor SpO₂

Measurement Range:	20-300bpm
Resolution:	1bpm
Accuracy:	20-250bpm ±3bpm 251-300 unspecified
Alarm Range:	20-250bpm

CO₂ with Mindray Sidestream

Measurement Range:	0-99mmHg
Resolution:	1mmHg
Accuracy:	0-40mmHg: ±2mmHg 41-76mmHg: ±5mmHg 77-99mmHg: ±10mmHg
Waveform Recognition:	0-40mmHg: ±2mmHg 41-76mmHg: ±5% reading 77-99mmHg: ±10% reading
Start-up Time:	<1min from start-up, module enters warming up status. 1min later, module enters ready-to-measure status (full accuracy mode)
Sampling Rate:	70ml/min or 100 ml/min (default: 100ml/min)
Auto-Zeroing Interval:	30sec, 10min and 30min after entering measurement mode and at every odd hour (1, 3, 5, 7, etc.) during operation after that
Respiration	
Measurement Range:	0-120bpm
Respiration Accuracy:	0-70bpm: ±2bpm >70bpm: ±5bpm

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CO₂ with Oridion® Microstream®

Measurement Range:	0-99mmHg
Resolution:	Numeric: 1mmHg Waveform: 0.1mmHg
Accuracy:	0-38mmHg: ± 2 mmHg 39-99mmHg: $\pm 5\% + 0.08\% \times (\text{reading} - 38\text{mmHg})$
Waveform Recognition:	0-38mmHg: ± 2 mmHg 39-99mmHg: $\pm 5\%$ of reading + 0.08% for every 1mmHg
Start-up Time:	30sec typical. Reaches 5% steady-state accuracy within 3min
Sampling Rate:	50ml/min: -7.5ml/min +15ml/min
Auto-Zeroing Interval:	At start-up, and every 12hrs thereafter
Respiration	
Measurement Range:	0-150bpm
Respiration Accuracy:	0-70bpm: ± 1 bpm 71-120bpm: ± 2 bpm 121-150bpm: ± 3 bpm

Anaesthesia Gases

Sampling Rate:	Adult/paediatric: 120, 150, 200ml/min (user-selectable) (default: 120ml/min) Neonatal: 70, 90, 120ml/min (user-selectable) (default: 70/ml/min)
Sampling Delay Time:	<4sec
Refresh Rate:	1sec
Warm-up Time:	45sec to warm-up status 10min to ready-to-measure status
Normal Operating Conditions After Warm-up:	Ambient Temperature: 10 to 55°C (50 to 131°F) Ambient Pressure: 700–1200hPa Ambient Humidity: 10–95% RH, non-condensing
Measurement Range:	CO ₂ : 0-30% N ₂ O: 0-100% Des: 0-30% Sev: 0-30% Enf/Iso/Hal: 0-30% O ₂ : 0-100% AwRR: 2-100bpm
Resolution:	CO ₂ : 1mmHg AwRR: 1bpm
Accuracy:	CO ₂ : 0-1%: $\pm 0.1\%$ 1-5%: $\pm 0.2\%$ 5-7%: $\pm 0.3\%$ 7-10%: $\pm 0.5\%$ >10%: unspecified N ₂ O: 0-20%: $\pm 2\%$ 20-100%: $\pm 3\%$

Anaesthesia Gases (continued)

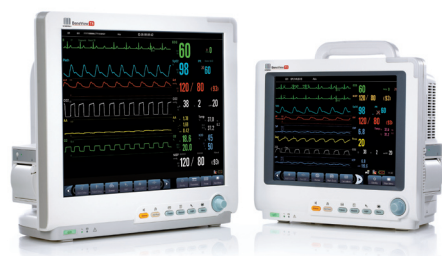
Accuracy:	Des:	0-1%: $\pm 0.15\%$ 1-5%: $\pm 0.2\%$ 5-10%: $\pm 0.4\%$ 10-15%: $\pm 0.6\%$ 15-18%: $\pm 1\%$ >18%: unspecified
	Sev:	0-1%: $\pm 0.15\%$ 1-5%: $\pm 0.2\%$ 5-8%: $\pm 0.4\%$ >8%: unspecified
	Enf/Iso/Hal:	0-1%: $\pm 0.15\%$ 1-5%: $\pm 0.2\%$ >5%: unspecified
	O ₂ :	0-25%: $\pm 1\%$ 25-80%: $\pm 2\%$ 80-100%: $\pm 3\%$
	AwRR:	2-60bpm: ± 1 bpm >60bpm: unspecified
Measurement Rise Time:	Sampling flow 120ml/min, using the DRYLINE™ water trap and neonatal DRYLINE™ 2.5m sampling line CO ₂ : ≤ 250 ms N ₂ O: ≤ 250 ms O ₂ : ≤ 600 ms Hal/Iso/Sev/Des: ≤ 300 ms Enf: ≤ 350 ms Sampling flow 200ml/min, using the DRYLINE™ water trap and adult DRYLINE 2.5m sampling line CO ₂ : ≤ 250 ms N ₂ O: ≤ 250 ms O ₂ : ≤ 500 ms Hal/Iso/Sev/Des: ≤ 300 ms Enf: ≤ 350 ms	

Data Storage

Trend Data:	120hrs at 1min resolution 1hr at 1sec resolution
Alarm Events:	100 alarm events and associated waveforms (selectable waveform lengths: 8sec, 16sec or 32sec)
Arrhythmia Events:	100 arrhythmia events and associated waveforms (selectable waveform lengths: 8sec, 16sec or 32sec)
NIBP Measurements:	1,000 (systolic, diastolic, mean pressure, pulse rate and measurement time)
Full Disclosure Waveforms:	Maximum 24hrs (Specific storage time depends on the type and number of waveforms stored)

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Recorder

Type:	Thermal array
Speed:	25mm/sec, 50mm/sec
# Traces:	3

Interfacing

Connectors:	1 AC power connector
	1 RJ45 network connector, 100 BASE-TX (BeneView T5)
	2 RJ45 network connector, 100 BASE-TX (BeneView T8)
	4 USB 1.1 connectors (BeneView T5)
	10 USB 1.1 connectors (BeneView T8)
	1 nonstandard USB SMR connector
	1 50-pin CF revision 2.0 connector
	1 standard DVI-D video interface connector
	1 BNC connector
	1 equipotential grounding connector
	1 RJ11 defib sync connector
	1 CIS connector (BeneView T5)
	1 Micro D connector (BeneView T5)

Battery

Type:	Rechargeable lithium ion
Number of Batteries:	2
Run Time:	Lithium ion: 2hrs using 2 new, fully charged batteries and monitoring ECG, SpO ₂ and auto NIBP measurements every 15min at 25°C
Recharge Time:	6hrs maximum

Physical Dimensions

BeneView T8	
Monitor Size:	37cm(H) x 40cm(W) x 19.3cm(D) 14.6" (H) x 15.7" (W) x 7.6" (D)
BeneView T5	
Monitor Size:	29.7cm(H) x 33.6cm(W) x 18.6cm(D) 11.7" (H) x 13.2" (W) x 7.3" (D)
BeneView T8	
Monitor Size:	Less than 14.5kg (31.9lbs) including 17" touchscreen display, MPM, AG module, 2 lithium batteries, recorder, and CF components
BeneView T5	
Monitor Size:	7.2kg (15.8lbs) including 12.1" touchscreen display, MPM, and ECG, NIBP, SpO ₂ accessories

Environmental

Operating Temperature:	0°C to 40°C (BeneView T5 main unit/MPM/IBP module/recorder) 5°C to 40°C (BeneView T8 main unit/MPM/IBP module/recorder) 0°C to 40°C (Microstream CO ₂ module) 5°C to 35°C (Sidestream CO ₂ module) 10°C to 40°C (AG module)
Storage Temperature:	-20°C to 60°C (main unit/MPM/IBP module/recorder) -20°C to 60°C (Microstream CO ₂ module) -20°C to 60°C (Sidestream CO ₂ module) -20°C to 70°C (AG module)
Operating Humidity:	15% to 95%, non-condensing (main unit/MPM/IBP module/recorder/Microstream CO ₂ module/Sidestream CO ₂ module/AG module)
Storage Humidity:	10% to 95%, non-condensing (main unit/MPM/IBP module/recorder/Microstream CO ₂ module/AG module) 15% to 95%, non-condensing (Sidestream CO ₂ module)
Operating Atmospheric Pressure:	425-809mmHg (main unit/MPM/IBP module/recorder) 430-795mmHg (Microstream CO ₂ module) 428-790mmHg (Sidestream CO ₂ module) 525-900mmHg (AG module)
Storage Atmospheric Pressure:	120-809mmHg (main unit/MPM/IBP module/recorder) 430-795mmHg (Microstream CO ₂ module) 428-790mmHg (Sidestream CO ₂ module) 525-900mmHg (AG module)

Power Requirements

AC Voltage:	100 to 240VAC, 50/60Hz
BeneView T8 Current:	2.8 to 1.6A
BeneView T5 Current:	2.5 to 1.4A

Safety

Type of Protection:	Class I (main unit and secondary display only)
Degree of Protection:	Sidestream CO ₂ module/Microstream CO ₂ module/AG module: BF MPM/IBP module: CF
Protection Against Ingress of Fluids:	Not protected

Mindray (UK) Limited
3 Percy Road, St John's Park, Huntingdon, Cambridgeshire, PE29 6SZ
Tel: 01480 416840 Fax: 01480 436588 www.mindray.com

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