



# uMEC 100/120/150

Patient Monitor

Data Sheet



## Physical Specifications

Weight	uMEC 100: 3.5 kg uMEC 120: 4 kg uMEC 150: 5 kg (Standard configuration, standard battery excluding recorder and accessories.)
Size	uMEC 100: 300 x 210 x 165 mm uMEC 120: 350 x 250 x 180 mm uMEC 150: 430 x 300 x 190 mm
Display screen	Color touchscreen uMEC 100: 10.1-inch, 1024 x 600 pixels uMEC 120: 12.1-inch, 1280 x 800 pixels uMEC 150: 15.6-inch, 1366 x 768 pixels
Display channel	uMEC 100: Up to 8 waveform channels uMEC 120: Up to 10 waveform channels uMEC 150: Up to 12 waveform channels
Drop test	0.75m

## ECG

Meet standards of IEC 60601-2-27 and IEC 60601-2-25.

Lead set	3-lead: I, II, III 5-lead: I, II, III, aVR, aVL, aVF, V 6-lead: I, II, III, aVR, aVL, aVF, Va, Vb 12-lead: I, II, III, aVR, aVL, aVF, V1 to V6
Automatic 3/5/6/12 - lead recognition.	
Input signal range	± 10 mV (p-p)
Electrode offset potential tolerance	± 800 mV
Sweep speed	6.25 mm/s, 12.5 mm/s, 25 mm/s, 50 mm/s
Gain	x 0.125, x 0.25, x 0.5, x 1, x 2, x 4, Auto
Waveform format	Standard, Cabrera
Bandwidth	Diagnostic mode: 0.05 to 150 Hz Monitor mode: 0.5 to 40 Hz Surgical mode: 1 to 20 Hz ST mode: 0.05 to 40 Hz Emphasis mode: 2 to 18 Hz Customise mode: available Highpass frequencies (0.01Hz, 0.05Hz, 0.15Hz, 0.25Hz, 0.32Hz, 0.5Hz, 0.67Hz); available Lowpass frequencies (25Hz, 35Hz, 45Hz, 75Hz, 100Hz, 150Hz)
CMRR	Diagnostic mode: >90 dB Monitor, Surgical, ST, Emphasis mode: >105 dB Customise mode: >105 dB (Lowpass frequency <40Hz), >90 dB (Lowpass frequency >40Hz)
Pace detection	Amplitude: ± 2 mV to ± 700 mV Width: 0.1 to 2 ms Rise time: 10 to 100 µs
Defib. protection	Withstand 5000V (360J) defibrillation
Baseline recovery time	<5 s
Multi-lead(2) algorithm	Yes
Provides Glasgow resting 12-lead ECG algorithm	

## Heart Rate

HR rang	Adult: 10 to 300 bpm Pediatric/Neonate: 10 to 350 bpm
HR accuracy	± 1 bpm or ± 1%, whichever is greater.
HR resolution	1 bpm

## Arrhythmia Analysis

Intended use for adult, pediatric and neonate.  
Multi-lead, 27 classifications. Asystole, V-Fib/V-Tach, V-Tach, Vent Brady, Extreme Tachy, Extreme Brady, Vent Rhythm, PVCs/min, Pauses/min, Couplet, Bigeminy, Trigeminy, R on T, Run PVCs, PVC, Tachy, Brady, Missed Beats, PNP, PNC, Multiform PVC, Nonsus V-Tach, Pause, Irregular Rhythm, A-Fib (for adult only), SVT, SVCs/min.

## ST Segment Analysis

Intended use for adult,	pediatric and neonate.
ST range	- 2.5 to + 2.5 mV RTI
ST accuracy	± 0.02 mV or ± 10%, whichever is greater (- 0.8 to + 0.8 mV)
ST resolution	0.01 mV

## QT Analysis

Intended use for adult,	pediatric, and neonate.
Parameters	QT, QTc, ΔQTc
QTc formula	Bazett, Fridericia, Framingham, or Hodges
QT/QTc range	200 to 800 ms
QT accuracy	± 30 ms
QT resolution	4 ms
QTc resolution	1 ms
QT-HR range	Adult: 15 to 150 bpm Pediatric/Neonate: 15 to 180 bpm

## Respiration

Lead	I, II and Auto
RR range	0 to 200 rpm (RR source is CO <sub>2</sub> or ECG) 4 to 70 rpm (RR source is SpO <sub>2</sub> )
RR accuracy	when RR source is CO <sub>2</sub> or ECG: ± 1 rpm (0 to 120 rpm) ± 2 rpm (121 to 200 rpm) when RR source is SpO <sub>2</sub> : Arms ≤3rpm, mean deviation: [-1,1]rpm 1 rpm
RR resolution	1 rpm
Sweep speed	3 mm/s, 6.25 mm/s, 12.5 mm/s, 25 mm/s, 50 mm/s
Apnea time	10 s, 15 s, 20 s, 25 s, 30 s, 35 s, 40 s

## SpO<sub>2</sub>

Meet standards of ISO 80601-2-61.

Module	Mindray
Range	0 to 100 %
Resolution	1%
Accuracy	± 2% (70 to 100%, Adult/Pediatric): ± 3% (70 to 100%, Neonate) Unspecified (0 to 69%)
Refreshing rate	≤2 s
Perfusion index (PI)	Yes
Pitch tone	Yes
PR	
PR range	20 to 300 bpm (from SpO <sub>2</sub> ) 20 to 350 bpm (from IBP, available for uMEC 120 and uMEC 150 only) 30 to 300 bpm (from NIBP)
PR accuracy	± 3 bpm (20 to 300 bpm, from SpO <sub>2</sub> ) ± 1 bpm or ± 1 %, whichever is greater (from IBP, available for uMEC 120 and uMEC 150 only) ± 3 bpm or ± 3 %, whichever is greater (from NIBP)
Refreshing rate	≤ 2 s

## Temperature

Meet standard of ISO 80601-2-56.

Technique	Thermal resistance
Channels	1 or 2 channels (for uMEC 120 & uMEC 150 only)
Temp range	0 to 50 °C (32 to 122 °F)
Temp accuracy	± 0.1 °C or ± 0.2 °F (without probe)
Temp resolution	0.1 °C
Refreshing rate	≤ 2 s

## NIBP

Meet standards of ISO 80601-2-30.

Technique	Oscillometry
Operation mode	Manual, Auto, STAT, Sequence, Clock
Parameters	Systolic, Diastolic, Mean
Max measurement time	Adult/Pediatric: 120 s, Neonate: 90 s
Systolic range	Adult: 25 to 290 mmHg Pediatric: 25 to 240 mmHg Neonate: 25 to 140 mmHg
Diastolic range	Adult: 10 to 250 mmHg Pediatric: 10 to 220 mmHg Neonate: 10 to 115 mmHg
Mean range	Adult: 15 to 260 mmHg Pediatric: 15 to 225 mmHg Neonate: 15 to 125 mmHg
NIBP accuracy	Max mean error: $\pm 5$ mmHg Max standard deviation: 8 mmHg
NIBP resolution	1 mmHg
Assisting venous puncture	Yes

## IBP (for uMEC 120 & uMEC 150 only)

Meet standard of IEC 60601-2-34.

Channels	2 channels
Sensitivity	5 $\mu$ V/V/mmHg
Impedance range	300 to 3000 $\Omega$
IBP range	-50 to 360 mmHg
IBP accuracy	$\pm 1$ mmHg or $\pm 2$ %, whichever is greater (without sensor)
IBP resolution	1 mmHg
PPV range	0 to 50 %
PAWP	Yes
ICP measurement	Yes
Support waveforms overlapping.	

## C.O. (for uMEC 120 & uMEC 150 only)

Technique	Thermodilution
C.O. range	0.1 to 20 L/min
C.O. accuracy	$\pm 0.1$ L/min or $\pm 5$ %, whichever is greater
C.O. resolution	0.1 L/min
TB range	23 to 43 $^{\circ}$ C
TI range	0 to 27 $^{\circ}$ C
TB & TI accuracy	$\pm 0.1$ $^{\circ}$ C (without sensor)
TB & TI resolution	0.1 $^{\circ}$ C

## Artema Sidestream CO<sub>2</sub> (for uMEC 120 & uMEC 150 only)

Meet standard of ISO 80601-2-55.

CO <sub>2</sub> sample flow rate	120 ml/min (DRYLINE II™ watertrap for adult/pediatric) 90/70 ml/min (DRYLINE II™ watertrap for neonate)
CO <sub>2</sub> sample flow rate accuracy	$\pm 15$ ml/min or $\pm 15$ %, whichever is greater.
CO <sub>2</sub> response time	$\leq 5.0$ s @ 120ml/min (for adult/pediatric) $\leq 4.5$ s @ 90 ml/min (for neonate) $\leq 5.0$ s @ 70 ml/min (for neonate)
CO <sub>2</sub> range	0-150 mmHg
CO <sub>2</sub> accuracy	Full accuracy mode: 0 - 40 mmHg: $\pm 2$ mmHg 41 - 76 mmHg: $\pm 5$ % of reading 77 - 150 mmHg: $\pm 10$ % of reading ISO accuracy mode: Add $\pm 2$ mmHg to the full accuracy mode
CO <sub>2</sub> resolution	1 mmHg
awRR range	0 to 150 rpm
awRR accuracy	$\pm 1$ rpm (0 to 60 rpm) $\pm 2$ rpm (61 to 150 rpm)
Apnea time	10 s, 15 s, 20 s, 25 s, 30 s, 35 s, 40 s

## Oridion Microstream CO<sub>2</sub> (for uMEC 120 & uMEC 150 only)

Meet standard of ISO 80601-2-55.

Sample flow rate	50 <sup>+15</sup> -7.5 ml/min
Initialization time	30 s (typical)
Response time	4.6 s (typical)
CO <sub>2</sub> range	0 to 99 mmHg
CO <sub>2</sub> accuracy	$\pm 2$ mmHg (0 to 38 mmHg) $\pm 5$ % of the reading (8% increased in error for every 1 mmHg if the reading is more than 38 mmHg) (39 to 99 mmHg)
awRR range	0 to 150 rpm
awRR accuracy	$\pm 1$ rpm (0 to 70 rpm) $\pm 2$ rpm (71 to 120 rpm) $\pm 3$ rpm (121 to 150 rpm)
Apnea time	10 s, 15 s, 20 s, 25 s, 30 s, 35 s, 40 s

## Mindray Mainstream CO<sub>2</sub> (for uMEC 120 & uMEC 150 only)

Meet standard of ISO 80601-2-55.

Rise time	< 60 ms
CO <sub>2</sub> range	0 to 150 mmHg
CO <sub>2</sub> accuracy	$\pm 2$ mmHg (0 to 40 mmHg) $\pm 5$ % of the reading (41 to 70 mmHg) $\pm 8$ % of the reading (71 to 100 mmHg) $\pm 10$ % of the reading (101 to 150 mmHg)
awRR range	0 to 150 rpm
awRR accuracy	$\pm 1$ rpm
Apnea time	10 s, 15 s, 20 s, 25 s, 30 s, 35 s, 40 s

## Data Review

For internal card

Trends data	Up to 4 hours @ 5 s Up to 120 hours @ 1min Up to 1200 hours @ 10 min
Events	Up to 1000 events, including parameter alarms, arrhythmia events technical alarms, and so on. 128 arrhythmia events
NIBP	Up to 1600 sets

For external card

Trends data	Up to 240 hours @ 1min Up to 2400 hours @ 10 min
Events	Up to 5000 events, including parameter alarms, arrhythmia events technical alarms, and so on. 128 arrhythmia events
NIBP	Up to 5000 sets

For internal & external card

OxyCRG	Up to 24 hours of OxyCRG events
ST review	Up to 120 hours, one group of ST segment waveforms is stored every 5 min.
Full disclosure	Up to 120 hours for one waveform. The specific storage time depends on the waveforms stored and the number of stored waveforms.

## Alarms

Audible indicator	Yes, 3 different alarm tones
Visible indicator	Red/yellow LED, and alarm message display
Provide AlarmSight infographic alarm indicator.	

## Special Functions

Clinical Assistive Application (CAA): ST Graphic™, EWS, GCS, 24h ECG summary, NIBP analysis  
Calculations (Drug, Hemodynamic, Oxygenation, Ventilation, Renal), and Titration table.

### Wi-Fi Communications

Protocol	IEEE 802.11a/b/g/n/ac
Modulation mode	BPSK, QPSK, 16QAM, 64QAM, 256QAM
Operating frequency	2.412 to 2.472 GHz 5.18 to 5.32 GHz 5.5 to 5.7 GHz 5.745 to 5.825 GHz
Wireless baud rate	IEEE 802.11a: 6 to 54 Mbps IEEE 802.11b: 1 to 11 Mbps IEEE 802.11g: 6 to 54 Mbps IEEE 802.11n: MCS0-MCS7 IEEE 802.11ac: MCS0-MCS8
Output power	< 20dBm (CE requirement: detection Mode: RMS) < 30dBm (FCC requirement: detection Mode: peak power)
Operating mode	As station, access AP for data transmission
Data security	Standards: WPA-PSK, WPA2-PSK, WPA-Enterprise, WPA2-Enterprise EAP method: EAP-FAST, EAP-TLS, EAP-TTLS, PEAP-GTC, PEAP-MSCHAPv2, PEAP-TLS, LEAP Encryption: TKIP and AES

### Interfacing

Main unit	AC power connector (1) VGA port (1) Network connector (1), RJ45 USB 2.0 connector (2) Equipotential grounding terminal (1) Analog output / defibrillator Synchronization / nurse call (1)
Barcode scanner	Support 1D and 2D barcode
Thermal recorder	3 traces (paper 50 mm width, 20 m length)
Network printer	Support

### Power

Line voltage	100 to 240 VAC ( $\pm 10\%$ )
Maximum current	2.0A
Frequency	50/60 Hz
Battery	Rechargeable lithium-ion battery, 2600mAh/5200mAh uMEC 100 $\geq 6$ hours run time (2600mAh) uMEC 100 $\geq 12$ hours run time (5200mAh) uMEC 120 $\geq 4.5$ hours run time (2600mAh) uMEC 120 $\geq 10$ hours run time (5200mAh) uMEC 150 $\geq 4$ hours run time (2600mAh) uMEC 150 $\geq 9$ hours run time (5200mAh)
Recharge time	3.5 hours to 90% (2600mAh, power off) 7 hours to 90% (5200mAh, power off)

### Environmental requirements

Temperature	Operating: 0 to 40 °C Storage: -20 to 60 °C
Humidity	Operating: 15 to 95 % (noncondensing) Storage: 10 to 95 % (noncondensing)
Barometric	Operating: 427.5 to 805.5 mmHg (57 to 107.4 kPa) Storage: 120 to 805.5 mmHg (16 to 107.4 kPa)

-----  
Not all of the functions are available in all geographies. Please contact your local Mindray sales representative for the most current information.

[www.mindray.com](http://www.mindray.com)

P/N:ENG- uMEC 100/120/150 Datasheet-210285x4P-20230628

©2023 Shenzhen Mindray Bio-Medical Electronics Co.,Ltd. All rights reserved.

**mindray**  
healthcare within reach