M10 M12

Patient Monitor



Size and Weight

Size	M12:	198mm X 320mm X 262mm
	M10:	193mm X 288mm X 236mm
Weight	M12:	< 4kg
	M10:	< 3kg

Power

Standard According to IEC 60601-1 and IEC 60601-1-2

Input voltage	AC (100-240) V(±10%)
Frequency	50Hz/60Hz
Input power	100VA

Display

Type	Color TFT LCD	
Size(diagonal)	12.1" / 10.4" (M12 / M10)	
Resolution	M12:	1280×800 pixels
	M10:	1024×600 pixels

Recorder(Option)

Type	Thermal dot array (BTR50S)
Paper width	50 mm ±1mm
Recording speed	12.5 mm/s, 25 mm/s, 50 mm/s
Recording waveform	Maximum 3 tracks

Battery

Type	Rechargeable Li-ion battery 11.1V 2.5Ah / 5.0Ah
Operating time	>240 / 480 minutes (2.5Ah / 5.0Ah)

(1 new and fully charged battery at 25°C temperature, connecting SpO2 sensor & NIBP work on AUTO mode for 30 minutes interval)

Charge time	<8 / 12 hours(2.5Ah / 5.0Ah)

Data Storage

Alarm event	3000 groups and associated waveform
Trend	1800h，minimum resolution is 10min
	180h，minimum resolution is 1min
	6h, minimum resolution is 5s
ARR event	3000 groups and associated waveform
NIBP	2400 groups
Holographic waveform	72 hours

Interfacing & I/O devices

Shortcut Keys	NIBP Start/Stop, alarm reset, alarm pause, Freeze
Control Knob	1
Keyboard & Mouse	Support
Barcode Scanner	Support 1D barcode (USB connector)
Wired network	1 standard RJ45 interfaces
Wifi (option)	Protocol: IEEE802.11a/b/g/n
Wifi frequency	Dual Band: 2.4G/5G
USB socket	2 sockets
Video output	1 VGA (option)
Multifunctional port	nurse call / defibrillation sync. / analog output

ECG

Lead	3 lead: I, II, III
	5 lead: I, II, III, aVR, aVL, aVF, Vx
	6-lead: I, II, III, aVR, aVL, aVF,Va, Vb
	Auto: identify leads automatically
Lead standard	AHA, IEC
Gain	Auto, 2.5 mm/Mv (×0.25), 5 mm/mV (×0.5),
	10 mm/mV (×1), 20 mm/mV (×2), 40 mm/mV (×4)
CMRR	Monitor / Operation mode ≥ 110 dB
	Diagnostic mode ≥ 100 dB
Bandwidth (-3dB)	Monitor mode: 0.5 Hz to 40 Hz
	Operation mode: 1 Hz to 25Hz
	Diagnostic mode: 0.05Hz～150Hz
	ST mode: 0.05Hz～40Hz
Input impedance	≥ 5.0 MΩ
Input signal range	-10.0mV~+10.0mV

Electrode offset potential ± 500 Mv d.c.

System noise	≤ 30 μVpp (RTI)

Recovery time after defibrillation: waveform recover to baseline in 10s

Sweep speed	6.25mm/s, 12.5 mm/s, 25 mm/s, 50mm/s.

ST segment

Measurement range	-2.0 mV to +2.0 mV
Accuracy	-0.8 mV to +0.8 mV: ±0.02 mV or ±10%
	(whichever is greater)
Resolution	0.01mV

Heart Rate

Measurement range	Adult	10 bpm to 300 bpm
	Pediatric & Neonatal	10 bpm to 350 bpm
Resolution	1 bpm	
Accuracy	±1% or ±1 bpm, whichever is greater	

Arrhythmia analysis

27 Kinds Asystole, Vent Fib/Tach, V-Tach, Vent Brady, Extreme Tachy,Extreme Brady,R on T,Tachy,Brady,Nonsustained V-Tach, Vent Rhythm, PNC, PNP, Pause, Pauses/min High, Run PVCs, Couplet, Bigeminy, Trigeminy, Frequent PVCs, PVC, Missed Beat, A-Fib, A-Fib End, ECG Noise, Irregular Rhythm, Irregular RhythmEnd.

Respiration

Lead	Selected from: Ⅰ (RA-LA) or Ⅱ (RA-LL)
Measurement range	0 rpm to 150 rpm
Resolution	1 rpm
Accuracy	±2 rpm or ±2% , whichever is the greater
Delay of apnea alarm	Adjustable delay time: 10s ~ 60s

NIBP

Measurement way	Automatic oscillometry
Measurement mode	Manual , Auto, STAT, Sequence

Intervals for Auto measurement: 1/2/2.5/3/5/10/15/20/30min, 1/1.5/2/3/4/8h

STAT mode cycle time 5 minutes.

Sequence mode	Up to 5 group, and each group individually sets
	the interval and number of periodic measurement.

Systolic range	Adult	30 to 270 mmHg
	Pediatric	30 to 235 mmHg
	Neonatal	30 to 135 mmHg
Diastolic range	Adult	10 to 220 mmHg
	Pediatric	10 to 220 mmHg
	Neonatal	10 to 110 mmHg
Mean range	Adult	20 to 235 mmHg
	Pediatric	20 to 235 mmHg
	Neonatal	20 to 125 mmHg
Pressure accuracy	Static:	±3 mmHg (±0.4kPa)
	Clinic:	mean error ±5 mmHg
	Standard deviation:	≤8 mmHg
PR range	40 bpm to 240 bpm	
PR accuracy	±3bpm or ±3%, whichever is greater	
Measurement time	20s to 45s (typical value)	
Software overpressure protection	Adult	(297±3) mmHg
	Pediatric	(252±3) mmHg
	Neonatal	(147±3) mmHg

BLT SpO2

Measurement range	0% ~ 100%
Accuracy(clinical)	70% ~ 100% ≤3% (SpO2 probe included)
	0% ~ 69% unspecified

PR

Measurement range	25 bpm to 300 bpm
Resolution	1bpm
Accuracy	± 3bpm

PI

Measurement range	0.05~20.00%
Resolution	0.01%
Accuracy	±0.1% or ±10% of reading, whichever is greater

RESP (from pleth)

Measurement range	0 rpm ~90 rpm
Resolution	1 rpm
Accuracy	± 2rpm

Temperature

Parameter	T1,T2,TD
Probe	YSI400 series probe (2252Ω@25℃)
Measurement range	0.0℃ to 50.0℃(32℉ to 122℉)
Accuracy	±0.1℃ or ±1℉ (exclusive of probe)
Resolution	0.1℃ or 1℉
Unit	℃ or ℉

2-IBP (option for M12 only)

Sensitivity of transducer	5uV/V/ mmHg, ±2%
Impedance of transducer	300Ω to 3000Ω
Measurement range	-50 mmHg to +360 mmHg
Measurement accuracy	±2 mmHg or ±2% of the reading, whichever is the greater (exclusive of transducer)
Resolution	1 mmHg
Unit	mmHg, kPa, cmH2O
Transducer sites	ART/CVP/ICP/PA/Ao/UAP/BAP/FAP//LAP/RAP/UVP LV/PAWP, additionally, P1 & P2 are arbitrary sites

PPV

Measurement range	0~50%
Resolution	1.00%

PR

Measurement range	30 bpm to 300 bpm
Resolution	1bpm
Accuracy	±1% or ±1bpm whichever is greater

MicroFlow CO2 (option for M12 only) (Masimo ISA Capno)

Measurement range	0% to 25% (0 mmHg to 190 mmHg)
Unit	0.1% or 1mmHg
Unit	%, mmHg, kPa
Accuracy	± (0.43% + 8% of reading)
Preheating time	<10s (Report concentration and achieve highest accuracy)
Rise time	<3s (including delay time and rise time)
Sample Flow Rate	50±10mL/min
awRR range	0 rpm to 150 rpm
awRR accuracy	±1 rpm

Mainstream CO2 (option for M12 only)(Masimo IRMA)

Measurement range	0% to 25% (0 mmHg to 190 mmHg)
Resolution	0.1% or 1mmHg
Preheating time	<10s
Rise time	<90ms
Unit	%, mmHg, kPa
Accuracy	± (0.43% + 8% of reading)
awRR range	0 rpm to 150 rpm
awRR accuracy	±1 rpm

MicroFlow CO2 (option for M12 only) (BLT Capno S)

Measurement range	0% to 19.7% (0 mmHg to 150 mmHg)
Unit	0.1% or 1mmHg
Unit	%, mmHg, kPa
Accuracy	± (0.43% + 8% of reading)
Preheating time	97% of the design accuracy can be reached in 45s the design accuracy can be fully reached in 2 min
Rise time	<3s (including delay time and rise time)
Sample Flow Rate	50±10mL/min
awRR range	3 rpm to 150 rpm
awRR accuracy	±1 rpm

Mainstream CO2 (option for M12 only)(BLT Capno M)

Measurement range	0% to 19.7% (0 mmHg to 150 mmHg)
Resolution	0.1% or 1mmHg
Preheating time	97% of the design accuracy can be reached in 8s the design accuracy can be fully reached in 20s
Rise time	About 70ms
Unit	%, mmHg, kPa
Accuracy	± (0.43% + 8% of reading)
awRR range	3 rpm to 150 rpm
awRR accuracy	±1 rpm

Standard configuration:

3/5/6 lead ECG, HR, Resp, SpO2, PI, RR(from pleth), NIBP, Temp, Rechargeable Li-ion battery (2.5Ah).

Option:

Touch Screen, Thermal Printer, Rolling stand, Wall mount, nurse call / defibrillation sync. / analog output, VGA output, Rechargeable Li-ion battery (5Ah). For M12 only: 2-IBP, Mainstream/Microflow EtCO2.