



## Patient Monitoring Solutions





## PAVO Vital Sign Monitor

### Features

- 8" color TFT LCD Screen (touch screen optional)
- Portable, lightweight and sturdy design
- Flexible parameters configuration for different clinical environments
- Rechargeable Li-ion Battery (up to 12 hours uninterrupted work)
- Big font and font color display setting
- Spot-check and continuous monitoring mode
- Selectable for Adult, Pediatric and Neonatal patients
- Wired/Wireless CMS, support HL7 protocol to HIS
- Barcode scanner support
- Thermal recorder support
- Graphical & tabular trend review
- 48 hours holographic wave review for each patient (stored in SD card)



## For Out-Patient Department, Spot-check, Transport, Ward and other Basic Monitoring.

### Configuration

### Optional

SpO2 + NIBP, Li-ion battery	Masimo/Nellcor SpO2, Quick Temp, Barcode scanner
SpO2+NIBP+ECG+TEMP, Li-ion battery	Masimo/Nellcor SpO2, EtCO2, Quick Temp, Barcode scanner, Thermal Recorder

## Technical Specifications

### Display

8" color TFT LCD Screen, resolution: 800 x 600

### ECG

Lead type

3-lead: I, II, III

5-lead: I, II, III, aVR, aVL, aVF, V

Display sensitivity:

2.5 mm/mV (x0.25), 5 mm/mV (x0.5),

10 mm/mV (x1.0), 20 mm/mV (x2.0)

Wave sweep speed: 6.25 mm/s, 12.5 mm/s,

25 mm/s, 50 mm/s

Bandwidth

Diagnostic mode: 0.05Hz~100Hz

Monitor mode: 0.5Hz~40Hz

Surgery mode: 1Hz~20Hz

Strong filter mode: 5Hz~20Hz CMRR

>100dB

Notch: 50/60 Hz notch filter can be set to on or off

Differential input impedance >5 MΩ

Electrode polarization voltage range: ±400 mV

Baseline recovery time <3 s after defibrillation (in monitor and surgery mode)

Calibration signal: 1 mV (peak - peak), accuracy ±3%

### RESP

Measurement method: Thoracic electrical bioimpedance

Rate: 0 – 150 bpm

Measuring lead: Lead I, II

Wave gain: x0.25, x0.5, x1, x2

Respiratory impedance range: 0.5-5 Ω

Baseline impedance: 500-4000 Ω

Gain: 10 grades

Scan speed: 6.25 mm/s, 12.5 mm/s, 25 mm/s

### TEMP

Measurement method: Thermistor

Measuring range: 5~50 °C (41~122 °F)

Resolution: 0.1 °C

Measurement accuracy: ±0.1 °C

### Recorder (optional)

Built-in, Thermal dot array

Horizontal resolution: 16 dots/mm (25 mm/s paper speed)

Vertical resolution: 8 dots/mm

Paper speed: 25 mm/s, 50 mm/s

Number of waveform channels: 3

# PAVO Vital Sign Monitor

## Technical Specifications

### NIBP

Measurement method: Automatic oscillometric method

Operating mode: Manual, automatic, continuous

Measurement unit: mmHg/kPa selectable

Typical measurement time: 20~40 s

Measurement type: Systolic, Diastolic, Mean

Measurement range (mmHg)

Range of Systolic pressure:	Adult	40-270
	Pediatric	40-230
	Neonatal	40-135

Range of Diastolic pressure:	Adult	10-210
	Pediatric	10-150
	Neonatal	10-100

Range of Mean pressure:	Adult	20-230
	Pediatric	20-165
	Neonatal	20-110

Measurement accuracy

Maximum average error:  $\pm 5$  mmHg

Maximum standard deviation: 8 mmHg

Resolution: 1 mmHg

Interval: 1, 2, 3, 4, 5, 10, 15, 30, 60, 90, 120, 180, 240, 480 minutes

Overpressure protection: Software and hardware, double safety protection

Cuff pressure range: 0-280 mmHg

### Standard SpO2

Measurement range: 0-100%

Resolution: 1%

Accuracy:  $\pm 2\%$  (70-100%, Adult/Pediatric);  
 $\pm 3\%$  (70-100%, Neonate);  
0-69%, unspecified

Refreshing Rate: 1s

### Masimo SpO2 (optional)

Measurement range: 0-100%

Resolution: 1%

Accuracy:  $\pm 2\%$  (70-100%, Adult/Pediatric),  
non-motion, low  
 $\pm 3\%$  (70-100%, Neonate,  
non-motion);  
 $\pm 3\%$  (70-100%, motion);  
0-69%, unspecified

Refreshing Rate: 1s



Portable Design



Touch Screen  
(Optional)



Quick Temp  
(Infrared Ear Thermometer)



### Infrared Ear Thermometer (optional)

Displayed range: 34~42.2 °C (93.2~108 °F)

Operation ambient temperature range:

10~40 °C (50~104 °F)

Accuracy for displayed temperature range:

≥35 °C (95.9 °F) ~ ≤42.2 °C (107.6 °F) range

±0.2 °C (0.4 °F)

<35 °C (95.9 °F) ~ ≥34 °C (93.2 °F) range

±0.3 °C (0.5 °F)



### Phasein IRMA™ Sidestream CO2 (optional)

Warm-up time: Full accuracy within 10 seconds

Sampling flow rate: 50 ml/min (+/-10/min)

Accuracy: ± (0.2% +2% of the reading)

Measurement Range: 0 -15%

Rise time: 200 ms, typical at 50 ml/min flow rate

Total response time: within 3 seconds (with 2m Momoline sampling line)

AWRR Range: 0-150 bpm

AWRR Accuracy: ±1 breath

### Phasein IRMA™ Mainstream CO2 (optional)

Measurement Range: 0-15%

Warm-up time: Full accuracy within 10 seconds

Accuracy: ± (0.2% +2% of the reading)

AWRR Range: 0-150 bpm

AWRR Accuracy: ±1 breath

### Operation Environment

Power: AC 100-250 V, 50/60 Hz

Temperature: 0-40 °C

Humidity: 15-85%

Patient Range: Adult, Pediatric, Neonate

Battery backup: Standard 4-5 hrs (2.600 mAh), optional 8-10 hrs (5.200 mAh) or 12-15 hrs (7.800 mAh)





## CETUS x12 Patient Monitor

### Features

- 12.1" color TFT LCD screen
- 8 waveform display, up to 12-lead ECG analysis
- Useful calculation  
(Hemodynamic, Drug Dose, Oxygenation, Ventilation)
- Pacemaker detection
- ST & arrhythmia analysis
- OxyCRGs screen
- Wired/Wireless CMS, support HL7 protocol to HIS
- SpO2 pulse-tone modulation (Pitch Tone)
- MEWS (Modified Early Warning Score)
- Graphical & tabular trend review (120 hours)
- Rechargeable Lithium-Ion Battery (2600 mAh)



## 12.1" color TFT LCD screen, wide and flat screen design, economic and reliable

Configuration: ECG+SpO2+NIBP+2TEMP+PR+RESP, Li-ion battery

Optional: Touch-Screen, 12-lead ECG, Masimo SpO2, 2/4/6 IBP, C.O., EtCO2, Multi-Gas, BIS, NMT, VGA, Thermal Recorder, Wired/Wireless CMS

### Technical Specifications

#### Display

12.1" TFT (touch screen optional)

Resolution: 800 x 600

Number of traces: 8 waveforms

#### ECG

Lead type: 3-lead, 5-lead, 12-lead

ECG waveform: 2 channels, 7 channels, 12 channels

Display sensitivity: 2.5 mm/mV (x0.25), 5 mm/mV (x0.5), 10 mm/mV (x1.0), 20 mm/mV (x2.0)

Wave sweep speed: 6.25 mm/s, 12.5 mm/s, 25 mm/s, 50 mm/s

Bandwidth

Diagnostic mode: 0.05 Hz~100 Hz

Monitor mode: 0.5 Hz~40 Hz

Surgery mode: 1Hz~20Hz

Strong filter mode: 5 Hz~20 Hz

CMRR >100 dB

Notch: 50/60 Hz notch filter can be set to on or off

Differential input impedance >5MΩ

Electrode polarization voltage range: ±400 mV

Baseline recovery time <3s after defibrillation (in monitor and surgery mode)

Calibration signal: 1mV (peak - peak), accuracy ±3%

#### RESP

Measurement method: Thoracic electrical bioimpedance

Rate: 0 – 150 bpm

Measuring lead: Lead I, II

Wave gain: x0.25, x0.5, x1, x2

Respiratory impedance range: 0.5-5Ω

Baseline impedance: 500-4000Ω

Gain: 10 grades

Scan speed: 6.25 mm/s, 12.5 mm/s, 25 mm/s

#### Pulse Rate

Range: 30~254 bpm

Resolution: 1bpm

Accuracy: ±2bpm (non-motion)  
±5bpm (motion)

Refreshing rate: 1s

#### TEMP

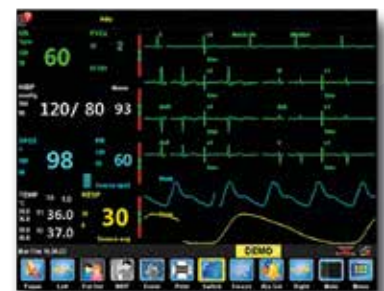
Accuracy: ±0.1 °C or ±0.2 °C °F (without probe)

Measurement range: 5~50 °C (41~122 °F)

Channel: Two channels

Resolution: 0.1 °C

Parameters: T1, T2 and TD



7-lead ECG



# CETUS x12 Patient Monitor

## Technical Specifications

### NIBP

Measurement method: Automatic oscillometric method

Operating mode: Manual, automatic, continuous

Measurement unit: mmHg/kPa selectable

Typical measurement time: 20~40 s

Measurement type: Systolic, Diastolic, Mean

Measurement range (mmHg)

Range of Systolic pressure:	Adult	40-270
	Pediatric	40-200
	Neonatal	40-135

Range of Diastolic pressure:	Adult	10-210
	Pediatric	10-150
	Neonatal	10-95

Range of Mean pressure:	Adult	20-230
	Pediatric	20-165
	Neonatal	20-105

Measurement accuracy

Maximum average error:  $\pm 5$  mmHg

Maximum standard deviation: 8 mmHg

Resolution: 1 mmHg

Interval: 1, 3, 4, 5, 10, 15, 30, 60, 90, 120, 180, 240, 480 minutes

Overpressure protection: Software and hardware, double safety protection

Cuff pressure range: 0-280 mmHg

### SpO2

Measurement range: 0-100%

Resolution: 1%

Accuracy:  $\pm 2\%$  (70-100%, Adult/Pediatric);  
 $\pm 3\%$  (70-100%, Neonate);  
0-69%, unspecified

Refreshing Rate: 1s

### Masimo SET® SpO2 (Optional)

Measurement range: 0-100%

Resolution: 1%

Accuracy:  $\pm 2\%$  (70-100%, Adult/Pediatric, non-motion, low perfusion);  
 $\pm 3\%$  (70-100%, Neonate, non-motion);  
 $\pm 3\%$  (70-100%, motion);  
0-69%, unspecified

Refreshing Rate: 1s

### Recorder (Optional)

Built-in, Thermal dot array

Horizontal resolution: 16 dots/mm (25 mm/s paper speed)

Vertical resolution: 8 dots/mm

Paper speed: 25 mm/s, 50 mm/s

Number of waveform channels: 3

### Operation Environment

Power: AC 100-250V, 50/60Hz

Temperature: 5-40 °C

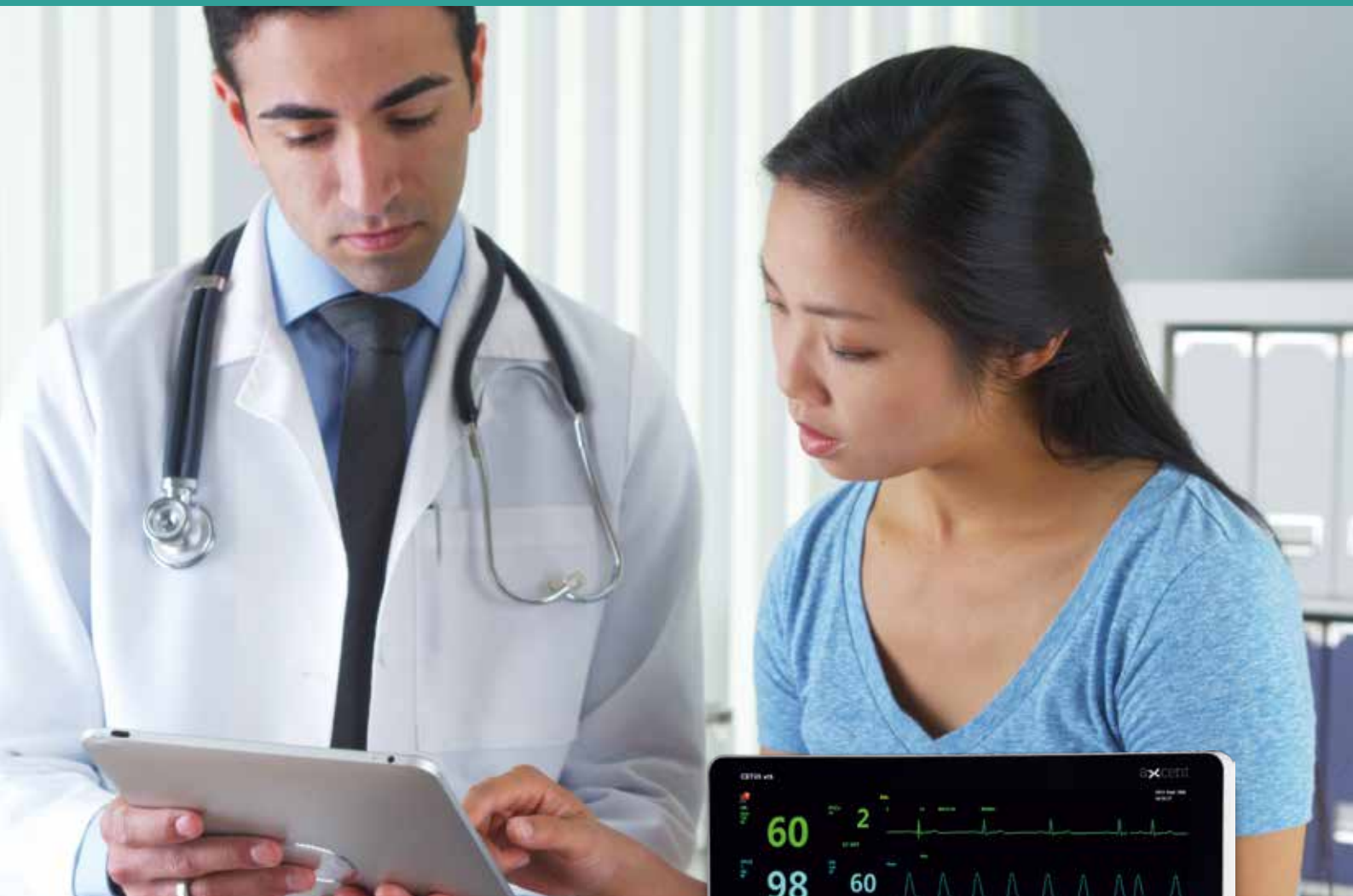
Humidity: <80%

Patient Range: Adult, Pediatric, Neonate

Battery backup: Standard 2-3 hrs (2.600 mAh), optional 3-5 hrs (4.800 mAh)







## CETUS x15

### Critical Care Patient Monitor

#### Features

- 15.6" High resolution TFT LCD Touch screen
- 10 waveform display, up to 12-lead ECG analysis
- Useful calculation (Hemodynamic, Drug Dose, Oxygenation, Ventilation)
- Pacemaker detection
- ST & arrhythmia analysis
- SpO2 support PVI and PI, low perfusion 0.2%
- Aspect BISx module, NMT module optional
- Wired/Wireless CMS, support HL7 protocol to HIS
- SpO2 pulse-tone modulation (Pitch Tone)
- VGA support external display
- Graphical & tabular trend review (120 hours)
- 48 hours full disclosure wave review for each patient



# CETUS x15 Critical Care Patient Monitor

## Multiple parameter options satisfy the need for ICU, CCU, NICU.

Configuration: ECG, SpO2, NIBP, TEMP, Resp, PR; Li-ion battery

Optional: Touch-Screen, 12-lead ECG, Masimo SpO2, 2/4/6 IBP, C.O., EtCO2, Multi-Gas, BIS, NMT, VGA, Thermal Recorder, Wired/Wireless CMS



**Masimo SET® SpO2**  
Provides anti-motion and anti-low perfusion SpO2 measurement.



**Bispectral Index™** by Aspect  
Monitor the level of consciousness of the patient under general anesthesia or sedation. provides BIS, SQI, EMG, SR, SEF, TP, PC value and EEG wave.



**Masimo Phasein IRMA™/ISA**  
Sidestream/Mainstream EtCO2  
Allows selection of the modality best suited to the application, monitoring with infrared absorption technique.



**NMT**  
Intergrade Organon TOF-Watch® SX



**IBP**  
2-4 Channel, support IBP waveform overlapping display



**C.O.**  
Cardiac Output

## Technical Specifications

### Display

15.6" TFT (touch screen optional)  
Resolution: 1366 x 768  
Number of traces: 10 waveforms

### I/O

LAN: 1 standard RJ45 port  
WLAN: IEEE 802.11b/g/n  
USB: 2 USB connectors  
SD: 1 SD card socket  
VGA: 1 VGA monitor connector  
Output: 1 connector for Nurse call,  
Defib Sync Analog Output

### ECG

Lead type: 3-lead, 5-lead, 12-lead  
ECG waveform: 2 channels, 7 channels,  
12 channels  
Display sensitivity: 2.5 mm/mV (×0.25),  
5 mm/mV (×0.5), 10 mm/mV (×1.0),  
20 mm/mV (×2.0)  
Wave sweep speed: 6.25 mm/s, 12.5 mm/s,  
25 mm/s, 50 mm/s  
Bandwidth  
Diagnostic mode: 0.05 Hz~100 Hz  
Monitor mode: 0.5 Hz~40 Hz  
Surgery mode: 1 Hz~20 Hz  
Strong filter mode: 5Hz~20 Hz  
CMRR>100 dB

## Technical Specifications

Notch: 50/60 Hz notch filter can be set to on or off

Differential input impedance >5M $\Omega$

Electrode polarization voltage range:  $\pm$ 400mV

Baseline recovery time <3s after defibrillation (in monitor and surgery mode)

Calibration signal: 1 mV (peak - peak), accuracy  $\pm$ 3%

### RESP

Measurement method: Thoracic electrical bioimpedance

Rate: 0 – 150 bpm

Measuring lead: Lead I, II

Wave gain:  $\times$ 0.25,  $\times$ 0.5,  $\times$ 1,  $\times$ 2

Respiratory impedance range: 0.5-5  $\Omega$

Baseline impedance: 500-4000  $\Omega$

Gain: 10 grades

Scan speed: 6.25 mm/s, 12.5 mm/s, 25 mm/s

### TEMP

Accuracy:  $\pm$ 0.1 or  $\pm$ 0.2  $^{\circ}$ F (without probe)

Measurement range: 5~50 $^{\circ}$ C (41~122  $^{\circ}$ F)

Channel: Two channels

Resolution: 0.1 $^{\circ}$ C

Parameters:  $\square$ T1, T2 and TD

### SpO2

Measurement range: 0-100%

Resolution: 1%

Accuracy:  $\pm$ 2% (70-100%, Adult/Pediatric);  
 $\pm$ 3% (70-100%, Neonate);  
0-69%, unspecified

Refreshing Rate: 1s

### Masimo SET<sup>®</sup> SpO2(Optional)

Measurement range: 0-100%

Resolution: 1%

Accuracy:  $\pm$ 2% (70-100%, Adult/Pediatric, non-motion, low perfusion);  
 $\pm$ 3% (70-100%, Neonate, non-motion);  
 $\pm$ 3% (70-100%, motion); 0-69%, unspecified

Refreshing Rate: 1s

### Pulse Rate

Range: 30~254 bpm

Resolution: 1 bpm

Accuracy:  $\pm$ 2bpm (non-motion)  
 $\pm$ 5bpm (motion)

Refreshing rate: 1s

### NIBP

Measurement method: Automatic oscillometric method

Operating mode: Manual, automatic, continuous

Measurement unit: mmHg/kPa selectable

Typical measurement time: 20~40 s

Measurement type: Systolic, Diastolic, Mean Measurement range (mmHg)

Range of Systolic pressure:	Adult	40-270
	Pediatric	40-200
	Neonatal	40-135
Range of Diastolic pressure:	Adult	10-210
	Pediatric	10-150
	Neonatal	10-95

# CETUS x15 Critical Care Patient Monitor

## Technical Specifications

Range of Mean pressure:	Adult	20-230
	Pediatric	20-165
	Neonatal	20-105

Measurement accuracy

Maximum average error:  $\pm 5$  mmHg

Maximum standard deviation: 8 mmHg

Resolution: 1 mmHg

Interval: 1, 2, 3, 4, 5, 10, 15, 30, 60, 90, 120, 180, 240, 480 minutes

Overpressure protection: Software and hardware, double safety protection

Cuff pressure range: 0-280 mmHg

### IBP (Optional)

Channel: 2, 4 or 6-channel

ART: 0 to 300 mmHg

PA: -6 to 120 mmHg

CVP/RAP/LAP/ICP: -10 to 40 mmHg

Measurement range: P1/P2 -50 to 300 mmHg

Resolution: 1mmHg

Accuracy:  $\pm 2\%$  or  $\pm 1$ mmHg, whichever is greater (without sensor)

Sensitivity: 5uV/mmHg/V

Impedance range: 300 to 3000  $\Omega$

### C.O. (Optional)

Method: Thermodilution

Range: C.O.: 0.2 to 20 L/min

TB: 23 to 45  $\mu$

T1: -1 to 27  $\mu$

Accuracy: C.O.:  $\pm 5\%$  or  $\pm 0.1$ L/min, whichever is greater

TB, T1  $\pm 0.5\mu$  (without sensor)

### Standard Mainstream CO2 (Optional)

Measurement range: 0-19.7%, 150 mmHg, or 0-20 kPa

Resolution: 0.1 mmHg

Measurement accuracy

0-40 mmHg:  $\pm 2$  mmHg

41-70 mmHg:  $\pm 5\%$  of reading

71-100 mmHg:  $\pm 8\%$  of reading

101-150 mmHg:  $\pm 10\%$  of reading

Respiration rate: 3-150 bpm

Respiration rate accuracy:  $1 \pm 1$ bpm

Warm-up time: 97% within 8 s,

full accuracy within 20 s

### Standard Sidestream CO2 (Optional)

Measurement range: 0-20% (0-150 mmHg)

Accuracy:  $< 5.0\%$  CO<sub>2</sub>:  $\pm 2$  mmHg

$> 5.0\%$  CO<sub>2</sub>:  $< 6\%$  of reading

Respiration rate: 2~150 BPM

Respiration rate accuracy:  $1\% \pm 1$ BPM

Warm-up time: 97% within 45 s, full accuracy within 10 min.

Rise times ( $t_{10-90\%}$ ): About 100 ms, when flow is 100 ml/min, adult water trap, 1.5 m sampling tube

Delay time:  $< 3$  sec when flow is 100 ml/min, adult water trap, 1.5 m sampling tube

### Recorder (Optional)

Built-in, Thermal dot array

Horizontal resolution: 16 dots/mm (25 mm/s paper speed)

Vertical resolution: 8 dots/mm

Paper speed: 25 mm/s, 50 mm/s

Number of waveform channels: 3



12-lead ECG



4 channel IBP



OxyCRG screen



Dynamic trends

### Phasein ISA Sidestream CO2 (Optional)

Warm-up time: Full accuracy within 10 seconds  
 Sampling flow rate: 50ml/min(+/-10/min)  
 Measurement Range: 0-25%  
 Accuracy: 0~15% ( $\pm 0.2\%$  of the reading)  
 15~25%, unspecified  
 Rise time: 200 ms, typical at 50 ml/min flow rate  
 Total response time: within 3 seconds (with 2 m Nomoline sampling line)  
 AWRR Range: 0-150 bpm  
 AWRR Accuracy:  $\pm 1$  breath

### Phasein IRMA™ Mainstream CO2 (Optional)

Measurement Range: 0-25%  
 Accuracy: 0~15% ( $\pm 0.2\%$  of the reading)  
 15~25%, unspecified  
 Warm-up time: Full accuracy within , 10 seconds  
 AWRR Range: 0-150 bpm  
 AWRR Accuracy:  $\pm 1$  breath

### Phasein IRMA™ AX+ Mainstream Multi-gas (Optional)

Gas: CO2, N2O, HAL, ISO, ENF, SEV, DES with automatic identification  
 Warm-up time: Full accuracy within 20 seconds for IRMA  
 AX+ CO2 Accuracy:  
 0-10%:  $\pm (0.2\%+2\%$  of the reading)  
 0-15%:  $\pm (0.3\%+2\%$  of the reading)  
 N2O Accuracy:  
 0-100%:  $\pm (2\%+2\%$  of the reading)  
 HAL, ISO, ENF:  
 0-8%:  $\pm (0.15\%+5\%$  of the reading)  
 SEV:0-10%:  $\pm (0.15\%+5\%$  of the reading)  
 DES:0-22%:  $\pm (0.15\%+5\%$  of the reading)  
 Agent identification time: <20 s (typical <10 s)  
 AWRR range: 0-150 bpm  
 AWRR accuracy:  $\pm 1$  breath  
 Apnea time: 20~60 s

# CETUS x15 Critical Care Patient Monitor

## Technical Specifications

### Aspect BISx module (Optional)

Parameter Measurement:

BC: 0~30 (Only limited to the combined use of an external sensor with a BIS module)

EMG: 30~55 dB (bar chart) with intensity between 30 dB and 80 dB (tendency chart)

BIS: 0~100

SQI: 0%~100%

SR: 0%~100%

SEF: 0.5 Hz~30 Hz

TP: 40~100 Db

EEG Measurement:

Input impedance >5 MΩ

Noise (RTI) <2 μV (0.25~50 Hz)

Input signal range: ±1 Mv

EEG bandwidth between: 0.25 Hz~110 Hz

### NMT Tof-Watch® SX (Optional)

Microprocessor-controlled

Stimulation Mode: TOF, TOFS, PTC, 1 Hz Twitch, 0.1 Hz Twitch, DBS DBS3.3 and 3.2 (Double Burst), Tetanic Stimulation (Burst), 5s – 50 Hz or 100 Hz

Output (accuracy ±5% of full scale value)

Surface electrodes:

Constant current, 0-60 mA (0-12/18μC) up to 5 KΩm.

Monophasic, 200 μs or 300 μs pulse width

Needle electrodes:

Constant current, 0-6 mA (0-0.24 μC) up to 5 KΩm.

Monophasic, 40 μs pulse width

Acceleration transducer: Accuracy ±5% of full scale value

Temperature sensor: Range 20.0-41.5°C (accuracy ±5 °C)

### Operation Environment

Power: AC 100-250 V, 50/60 Hz

Temperature: 5-40 °C

Humidity: <80%

Patient Range: Adult, Pediatric, Neonate

Battery backup: Standard 2-3 hrs (2.600 mAh), optional 3-5 hrs (4.800 mAh)





axcent  
medical





## CETUS xl Advanced Patient Monitor

### Features

- 15.6"/17/19" switchable TFT LCD Touch Screen
- Aluminium material shell
- Fanless design suitable for quiet care environment
- 10 waveform display, up to 12-lead ECG analysis
- Useful calculation (Hemodynamic, Drug Dose, Oxygenation, Ventilation)
- SpO2 support PVI and PI, low perfusion 0.2%
- Aspect BISx module, NMT module optional
- Wired/Wireless CMS, support HL7 protocol to HIS
- SpO2 pulse-tone modulation (Pitch Tone)
- VGA support external display
- Graphical & tabular trend review (120 hours)
- 48 h full disclosure wave review for each patient



# CETUS xl Advanced Patient Monitor

## Multiple parameter options satisfy the needs of ICU, CCU, NICU

Configuration: ECG, SpO2, NIBP, Resp, PR; Li-ion battery

Optional: 12-lead ECG, Masimo SpO2, 2/4/6 IBP, C.O., EtCO2, Multi-gas, BIS, NMT;  
VGA, Thermal Recorder, Wired/Wireless CMS



**Masimo SET® SpO2**  
Provides anti-motion and anti-low perfusion SpO2 measurement.



**Bispectral Index™** by Aspect  
Monitor the level of consciousness of the patient under general anesthesia or sedation. provides BIS, SQI, EMG, SR, SEF, TP, PC value and EEG wave.



**Masimo Phasein IRMA™/ISA**  
Sidestream/Mainstream EtCO2  
Allows selection of the modality best suited to the application, monitoring with infrared absorption technique.



**NMT**  
Intergrade Organon TOF-Watch® SX



**IBP**  
2-4 Channel, support IBP waveform overlapping display



**C.O.**  
Cardiac Output

## Technical Specifications

### Display

15.6" TFT Touch screen  
Resolution: 1366 x 768  
Number of traces: 10 waveforms

### I/O

LAN: 1 standard RJ45 port  
WLAN: IEEE 802.11b/g/n  
USB: 2 USB connectors  
SD: 1 SD card socket  
VGA: 1 VGA monitor connector  
Output: 1 connector for Nurse call,  
Defib Sync Analog Output

### ECG

Lead type: 3-lead, 5-lead, 12-lead  
ECG waveform: 2 channels, 7 channels,  
12 channels  
Display sensitivity: 2.5 mm/mV (×0.25),  
5 mm/mV (×0.5), 10 mm/mV (×1.0),  
20 mm/mV (×2.0)  
Wave sweep speed: 6.25mm/s, 12.5 mm/s,  
25 mm/s, 50 mm/s  
Bandwidth  
Diagnostic mode: 0.05 Hz~100 Hz  
Monitor mode: 0.5 Hz~40 Hz  
Surgery mode: 1 Hz~20 Hz  
Strong filter mode: 5Hz~20 Hz

# CETUS xl Advanced Patient Monitor

## Technical Specifications

CMRR>100dB

Notch: 50/60Hz notch filter can be set to on or off

Differential input impedance >5 M $\Omega$

Electrode polarization voltage range:  $\pm$ 400 mV

Baseline recovery time <3s after defibrillation (in monitor and surgery mode)

Calibration signal: 1 mV (peak - peak), accuracy  $\pm$ 3%

### RESP

Measurement method: Thoracic electrical bioimpedance

Rate: 0 – 150 bpm

Measuring lead: Lead I, II

Wave gain:  $\times$ 0.25,  $\times$ 0.5,  $\times$ 1,  $\times$ 2

Respiratory impedance range: 0.5-5  $\Omega$

Baseline impedance: 500-4000  $\Omega$

Gain: 10 grades

Scan speed: 6.25 mm/s, 12.5 mm/s, 25 mm/s

### TEMP

Accuracy:  $\pm$ 0.1  $^{\circ}$ C or  $\pm$ 0.2  $^{\circ}$ F (without probe)

Measurement range: 5~50  $^{\circ}$ C (41~122  $^{\circ}$ F)

Channel: Two channels

Resolution: 0.1  $^{\circ}$ C

Parameters: T1, T2 and TD

### SpO2

Measurement range: 0-100%

Resolution: 1%

Accuracy:  $\pm$ 2% (70-100%, Adult/Pediatric);  
 $\pm$ 3% (70-100%, Neonate);  
0-69%, unspecified

Refreshing Rate: 1s

### Masimo SET<sup>®</sup> SpO2(Optional)

Measurement range: 0-100%

Resolution: 1%

Accuracy:  $\pm$ 2% (70-100%, Adult/Pediatric, non-motion, low perfusion);  
 $\pm$ 3% (70-100%, Neonate, non-motion);  
 $\pm$ 3% (70-100%, motion);  
0-69%, unspecified

Refreshing Rate: 1s

### Pulse Rate

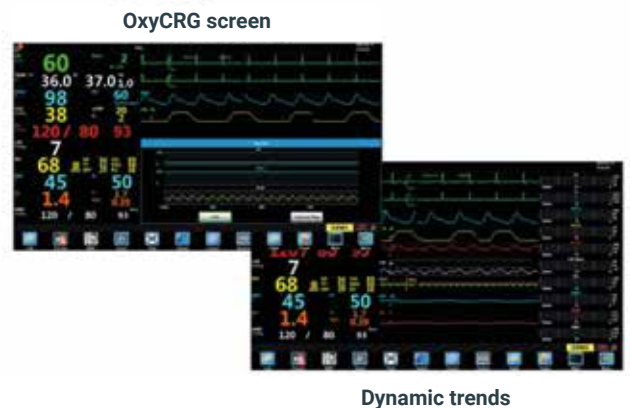
Range: 30~254 bpm

Resolution: 1bpm

Accuracy:  $\pm$ 2bpm (non-motion)  
 $\pm$ 5bpm (motion)

Refreshing rate: 1s





## NIBP

Measurement method: Automatic oscillometric method

Operating mode: Manual, automatic, continuous

Measurement unit: mmHg/kPa selectable

Typical measurement time: 20~40s

Measurement type: Systolic, Diastolic, Mean

Measurement range (mmHg)

Range of Systolic pressure:	Adult	40-270
	Pediatric	40-200
	Neonatal	40-135

Range of Diastolic pressure:	Adult	10-210
	Pediatric	10-150
	Neonatal	10-95

Range of Mean pressure:	Adult	20-230
	Pediatric	20-165
	Neonatal	20-105

Measurement accuracy

Maximum average error:  $\pm 5$  mmHg

Maximum standard deviation: 8 mmHg

Resolution: 1 mmHg

Interval: 1, 2, 3, 4, 5, 10, 15, 30, 60, 90, 120, 180, 240, 480 minutes

Overpressure protection: Software and hardware, double safety protection

Cuff pressure range: 0-280mmHg

## IBP (Optional)

Channel: 2, 4 or 6-channel

ART: 0 to 300 mmHg

PA: -6 to 120 mmHg

CVP/RAP/LAP/ICP: -10 to 40 mmHg

Measurement range: P1/P2 -50 to 300 mmHg

Resolution: 1 mmHg

Accuracy:  $\pm 2\%$  or  $\pm 1$  mmHg, whichever is greater (without sensor)

Sensitivity: 5uV/mmHg/V

Impedance range: 300 to 3000  $\Omega$

## C.O. (Optional)

Method: Thermodilution

Range: C.O.: 0.2 to 20 L/min

TB: 23 to 45 °C

T1: -1 to 27 °C

Accuracy: C.O.:  $\pm 5\%$  or  $\pm 0.1$ L/min, whichever is greater TB, T1:  $\pm 0.5^\circ\text{C}$  (without sensor)

# CETUS xl **Advanced Patient Monitor**

## Technical Specifications

### Standard Mainstream CO<sub>2</sub> (Optional)

Measurement range: 0-19.7%,  
150 mmHg, or 0-20kPa  
Resolution: 0.1 mmHg  
Measurement accuracy  
    0 - 40 mmHg:  $\pm 2$  mmHg  
    41 - 70 mmHg:  $\pm 5\%$  of reading  
    71 - 100 mmHg:  $\pm 8\%$  of reading  
    101 - 150 mmHg:  $\pm 10\%$  of reading  
Respiration rate: 3-150 bpm  
Respiration rate accuracy:  $1\% \pm 1$  bpm  
Warm-up time: 97% within 8s, full accuracy  
within 20s

### Standard Sidestream CO<sub>2</sub> (Optional)

Measurement range: 0-20% (0-150 mmHg)  
Accuracy: < 5.0% CO<sub>2</sub>:  $\pm 2$  mmHg  
            > 5.0% CO<sub>2</sub>: < 6% of reading  
Respiration rate: 2~150 BPM  
Respiration rate accuracy:  $1\% \pm 1$ BPM  
Warm-up time: 97% within 45s, full accuracy  
within 10 min  
Rise times (t<sub>10-90%</sub>): About 100 ms, when  
flow is 100 ml/min, adult water trap $\times$ 1.5m  
sampling tube  
Delay time: <3sec when flow is 100 ml/min,  
adult water trap $\times$ 1.5 m sampling tube

### Recorder (Optional)

Built-in, Thermal dot array  
Horizontal resolution: 16 dots/mm (25 mm/s  
paper speed)  
Vertical resolution: 8 dots/mm  
Paper speed: 25 mm/s, 50 mm/s  
Number of waveform channels: 3

### Phasein ISA Sidestream CO<sub>2</sub> (Optional)

Warm-up time: Full accuracy within 10 se-  
conds  
Sampling flow rate: 50ml/min(+/-10/min)  
Measurement Range: 0 -25%  
Accuracy: 0~15% ( $\pm 0.2\%$  of the reading)  
            15~25%, unspecified  
Rise time: 200 ms, typical at 50 ml/min  
flow rate  
Total response time: within 3 seconds  
(with 2 m Nomoline sampling line)  
AWRR Range: 0-150 bpm  
AWRR Accuracy:  $\pm 1$  breath

### Phasein IRMA™ Mainstream CO<sub>2</sub> (Optional)

Measurement Range: 0 -25%  
Accuracy: 0~15% ( $\pm 0.2\%$  of the reading)  
            15~25%, unspecified  
Warm-up time: Full accuracy within  
10 seconds  
AWRR Range: 0-150 bpm  
AWRR Accuracy:  $\pm 1$  breath

### Phasein IRMA™ AX+ Mainstream Multi-gas (Optional)

Gas: CO<sub>2</sub>, N<sub>2</sub>O, HAL, ISO, ENF, SEV, DES with  
automatic identification  
Warm-up time: Full accuracy within  
20 seconds for IRMA AX+  
CO<sub>2</sub> Accuracy:  
    0-10%:  $\pm (0.2\%+2\%$  of the reading)  
    0-15%:  $\pm (0.3\%+2\%$  of the reading)  
N<sub>2</sub>O Accuracy:  
0-100%:  $\pm (2\%+2\%$  of the reading)  
HAL, ISO, ENF:  
0-8%:  $\pm (0.15\%+5\%$  of the reading)



Vivid visualized icons ... Engineered for the most impressive operation

SEV:0-10%:  $\pm$  (0.15%+5% of the reading)  
 DES:0-22%:  $\pm$  (0.15%+5% of the reading)  
 Agent identification time: <20s(typical <10s)  
 AWRR range: 0-150 bpm  
 AWRR accuracy: +/-1 bpm  
 Apnea time: 20~60s

### Aspect BISx module (Optional)

Parameter Measurement:  
 BC: 0~30 (Only limited to the combined use of an external sensor with a BIS module)  
 EMG: 30~55dB (bar chart) with intensity between 30dB and 80dB (tendency chart)  
 BIS: 0~100  
 SQI: 0%~100%  
 SR: 0%~100%  
 SEF: 0.5 Hz~30Hz  
 TP:40~100 Db  
 EEG Measurement: Input impedance >5 M $\Omega$   
 Noise (RTI) <2 $\mu$ V (0.25~50 Hz)  
 Input signal range:  $\pm$ 1 Mv  
 EEG bandwidth between: 0.25 Hz~110 Hz

### NMT Tof-Watch® SX (Optional)

Microprocessor-controlled  
 Stimulation Mode: TOF, TOFS, PTC, 1Hz Twitch, 0.1Hz Twitch, DBS DBS3.3 and 3.2 (Double Burst), Tetanic Stimulation (Burst), 5s – 50 Hz or 100 Hz  
 Output (accuracy  $\pm$ 5% of full scale value)  
 Surface electrodes:  
 Constant current,0-60mA(0-12/18 $\mu$ C) up to 5 KOhm.  
 Monophasic, 200  $\mu$ s or 300  $\mu$ s pulse width  
 Needle electrodes:  
 Constant current, 0-6 mA (0-0.24  $\mu$ C) up to 5 KOhm.  
 Monophasic, 40 $\mu$ s pulse width  
 Acceleration transducer: Accuracy  $\pm$ 5% of full scale value  
 Temperature sensor: Range 20.0-41.5  $^{\circ}$ C (accuracy  $\pm$ 5  $^{\circ}$ C)

### Operation Environment

Power: AC 100-250 V, 50/60 Hz  
 Temperature: 5-40  $^{\circ}$ C  
 Humidity: <80%  
 Patient Range: Adult, Pediatric, Neonate  
 Battery backup: Standard 2-3 hrs (2.600 mAh), optional 3-5 hrs (4.800 mAh)



# Patient Monitoring Solutions

For more information, please contact us.

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