

# VENUS

## Specifications

### Physical Specifications

Display  
15.6" TFT Touch screen  
Resolution: 1366 x 768  
Number of traces: 10, up to 12 ECG waveforms  
Dimension: 398x302x183mm(WxHxD)  
Weight: < 7 kg under standard configuration  
LAN: 1 standard RJ45 port  
WLAN: IEEE 802.11b/g/n  
USB: 2 USB connectors  
HDMI: 1 HDMI monitor connector  
Output: 1 connector for Nurse call, Defib Sync Analog Output

### ECG

Lead type: 3-lead, 5-lead, 12-lead (optional)  
ECG waveform: 2 channels, 7 channels, 12 channels  
Display sensitivity (wave gain):  
1.25mm/mV (x0.125), 2.5mm/mV (x0.25), 5mm/mV (x0.5),  
10mm/mV (x1.0), 20mm/mV (x2.0), 40mm/mV (x4.0),  
Auto  
Wave sweep speed:  
3.125mm/s, 6.25mm/s, 12.5 mm/s, 25 mm/s, 50 mm/s  
Bandwidth

Diagnostic mode: 0.05Hz~150Hz  
Monitor mode: 0.5Hz~40Hz  
Surgery mode: 0.5Hz~25Hz  
Strong filter mode: 5Hz~25Hz

CMRR > 100dB  
Notch: 50/60Hz notch filter can be set to on or off  
Differential input impedance > 5MΩ  
Electrode polarization voltage range: ±400mV  
HR range: 15 - 350 bpm  
Baseline recovery time < 3s after defibrillation (in monitor and surgery mode)  
Calibration signal: 1mV (peak - peak), accuracy ±3%

### RESP

Measurement method: Thoracic electrical bioimpedance  
Measuring lead: Lead I, II  
Wave gain: x0.25, x0.5, x1, x2  
Respiratory impedance range: 0.5-5Ω  
Respiration range: 0 - 150bpm  
Baseline impedance: 500-4000Ω  
Gain: 10 grades  
Scan speed: 3.125mm/s, 6.25mm/s, 12.5 mm/s, 25mm/s

### TEMP

Accuracy: ±0.1°C or ±0.2°F (without probe)  
Measurement range: 5~50°C (41~122°F)  
Channel: Two channels  
Resolution: 0.1°C

### SpO2

Measurement range: 0-100%  
Parameter monitoring: Perfusion Index (PI)  
Pleth Variability Index (PVI)

Resolution: 1%  
Accuracy: ±2% or ±2bpm  
Refreshing Rate: 1s  
Pleth wave speed: 3.125mm/s, 6.25mm/s, 12.5 mm/s, 25mm/s

### Masimo SET® SpO2 (Optional)

Measurement range: 0-100%  
Resolution: 1%  
Accuracy: ±2% (70-100%, Adult/Pediatric, non-motion, low perfusion);  
±3% (70-100%, Neonate, non-motion);  
±3% (70-100%, motion);  
0-69%, unspecified  
Refreshing Rate: 1s

### Pulse Rate

Range: 30~300 bpm  
Resolution: 1bpm  
Accuracy: ±2bpm (non-motion)  
±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 40-280  
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: ±5mmHg  
Maximum standard deviation: 8mmHg  
Resolution: 1mmHg  
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: 0-300mmHg

### IBP (Optional)

Channel: 2-channel or 4-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:  
±2% or ±1mmHg, whichever is greater (without sensor)  
Sensitivity: 5uV/mmHg/V  
Impedance range: 300 to 3000Ω

### 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.: ±5% or ±0.1L/min, whichever is greater  
TB, T1: ±0.5°C (without sensor)

### Northern Mainstream CO2 (Optional)

Measurement range: 0-19.7%, 150mmHg, or 0-20kPa  
Resolution: 0.1mmHg  
Measurement accuracy  
0 - 40 mmHg: ± 2 mmHg  
41 - 70 mmHg: ± 5% of reading  
71 - 100 mmHg: ± 8% of reading  
101 - 150 mmHg: ± 10% of reading

Respiration rate: 3-150 bpm  
Respiration rate accuracy: 1% ± 1bpm  
Warm-up time: 97% within 8s, full accuracy within 20s

### Northern Sidestream CO2 (Optional)

Measurement range: 0-20% (0 - 150mmHg)  
Accuracy: < 5.0% CO 2: ± 2 mmHg  
> 5.0% CO 2: < 6% of reading  
Respiration rate: 2 ~ 150 BPM  
Respiration rate accuracy: 1% ± 1BPM  
Warm-up time: 97% within 45s, full accuracy within 10 min  
Rise times (t10-90%): About 100ms, when flow is 100 ml/min, adult water trap, 1.5m sampling tube  
Delay time: < 3sec when flow is 100 ml/min, adult water trap, 1.5m 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: 12.5mm/s, 25 mm/s, 50 mm/s  
Number of waveform channels: 3

### Masimo 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% (±0.2% of the reading)  
15~25%, unspecified  
Rise time: 200ms, typical at 50ml/min flow rate  
Total response time:  
within 3 seconds (with 2 m Momoline sampling line)  
AWRR Range: 0-150bpm  
AWRR Accuracy: ±1 breath

### Masimo IRMA™ Mainstream CO2 (Optional)

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

### Masimo Multi-gas ISA AX+ Mainstream CO2 (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%: ±(0.2%+2% of the reading)  
0-15%: ±(0.3%+2% of the reading)  
N2O Accuracy: 0-100%: ±(2%+2% of the reading)  
HAL, ISO, ENF: 0-8%: ±(0.15%+5% of the reading)  
SEV: 0-10%: ±(0.15%+5% of the reading)  
DES: 0-22%: ±(0.15%+5% of the reading)  
Agent identification time: < 20s (typical < 10s)  
AWRR range: 0-150bpm  
AWRR accuracy: +/- 1bpm  
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: 0.5Hz~30Hz  
TP: 40~100Db  
EEG Measurement:  
Input impedance > 5MΩ  
Noise (RTI) < 2μV (0.25~50Hz)  
Input signal range: ± 1Mv  
EEG bandwidth between: 0.25Hz~110Hz

### NMT (Optional)

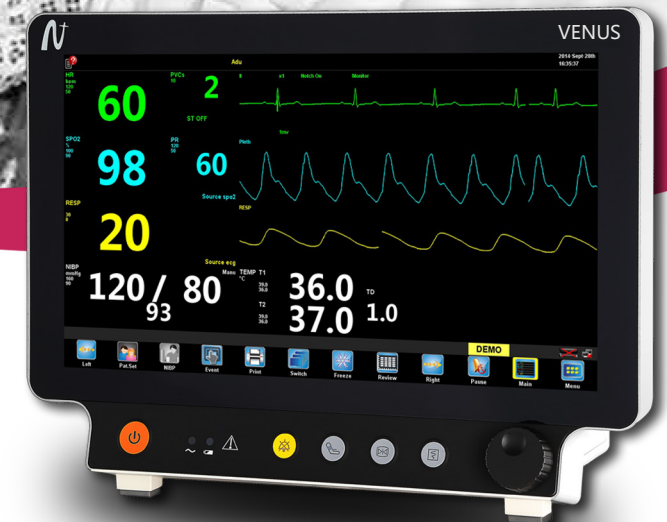
Microprocessor-controlled  
Stimulation Mode: TOF, TOFS, PTC, 1Hz Twitch, 0.1Hz Twitch, DBS DBS3.3 and 3.2 (Double Burst), Tetanic Stimulation (Burst), 5s - 50Hz or 100Hz  
Output (accuracy ± 5% of full scale value)  
Surface electrodes:  
Constant current, 0-60mA (0-12/18μC) up to 5KOhm.  
Monophasic, 200μs or 300μs pulse width  
Needle electrodes:  
Constant current, 0-6mA (0-0.24μC) up to 5KOhm.  
Monophasic, 40μs 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 100-250V, 50/60Hz  
Temperature: 5-40°C  
Humidity: < 80%  
Patient Range: Adult, Pediatric, Neonate



Committed to Excellence



## Venus Critical Care Patient Monitor

## Northern Meditec Limited

Add: 4th Floor, Building C, Jin Wei Yuan Industrial Park, Julongshan Area, Kengzi St, Pingshan District, Shenzhen, P.R.China

Tel: +86 755 29970566 Fax: +86 755 86528647

Email: info@northernmeditec.com

Website: http://www.northernmeditec.com



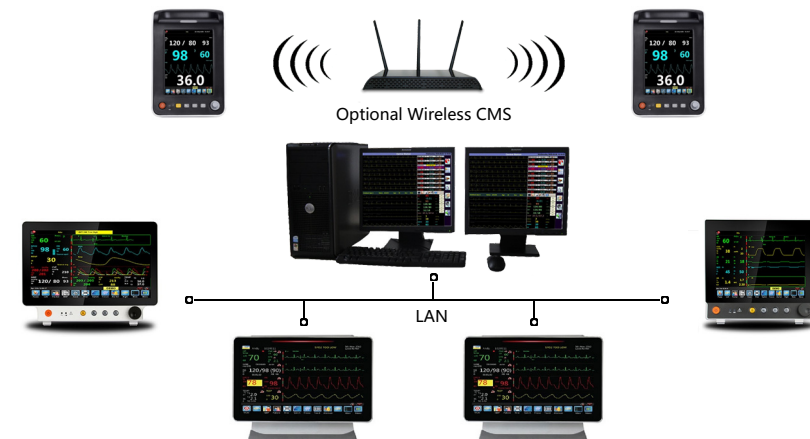
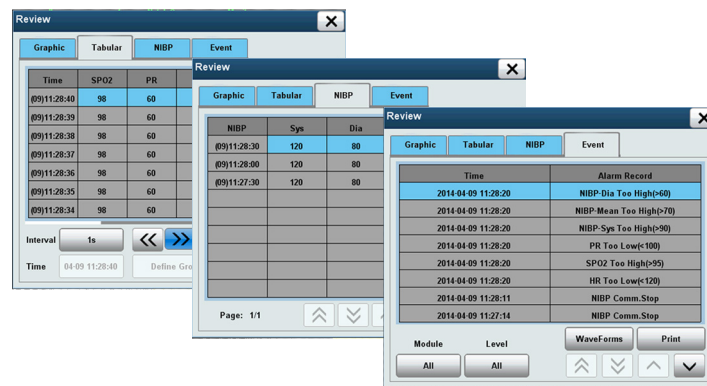


**Features**

- 15.6" High resolution TFT LCD Touch screen
- 10 waveform display, up to 12-lead ECG analysis
- Powerful calculation (Hemodynamic, Dose, Oxygenation, Ventilation)
- MEWS (Modified Early Warning Score)
- Pacemaker detection
- ST & arrhythmia analysis (26 types)
- SpO2 support PVI and PI, low perfusion 0.2%
- Night mode, standby mode, venipuncture mode
- Trolley/wall mount bracket solutions
- Support BIS module, NMT module
- Wired/Wireless/4G connection, support HL7 protocol to HIS
- SpO2 pulse-tone modulation (Pitch Tone)
- VGA/HDMI support external display
- Graphical & tabular trend review
- Rechargeable Lithium-ion Battery
- 72 hours full disclosure wave review for each patient

**Easy access to view the historical data**

- 240** Hours long trend
- 120** Min short trend
- 1000+** NIBP measurement
- 200** alarm event



**Central Monitoring System**

Up to 64 beds  
 Net work is compatible to wired or wireless CMS  
 Auto adaptable to different screen resolution

**Configuration**

5-lead ECG, SpO2, NIBP, TEMP, Resp, PR; Touchscreen, HDMI, Li-ion battery

**Optional**

12-Lead ECG, Masimo/Nellcor SpO2, IBP, C.O., EtCO2, Multi-gas, BIS, NMT; Thermal Recorder, Wired/Wireless CMS, 4G module



**Masimo SET® SpO2**  
 Measure-through Motion and Low Perfusion pulse oximetry delivers accurate and reliable oxygenation



**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 Gas Technology**  
 IRMA™ Mainstream & ISA™ Sidestream Analyzers  
 Allows selection of the modality best suited to the application



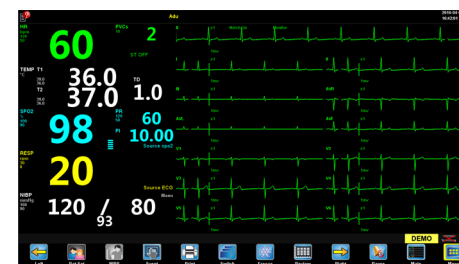
**NMT**  
 Neuromuscular monitoring



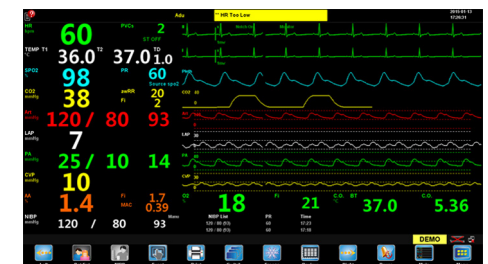
**IBP**  
 2-4 Channel, support IBP waveform overlapping display



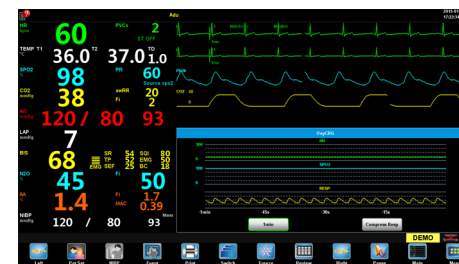
**C.O.**  
 Cardiac Output



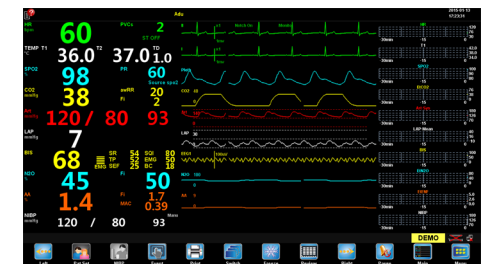
12-Lead ECG



4 channel IBP



OxyCRG screen



Dynamic trends