VENUS

Specifications

Physical Specifications

Display
15.6" TFT Touch screen
Resolution: 1366 x 768
Number of traces: 10, up to 12 ECG waveforms
Dimension: 398×302×183mm(W×H×D)
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 connnector
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(×0.125), 2.5mm/mV (×0.25), 5mm/mV (×0.5),
10mm/mV (×1.0), 20mm/mV (×2.0)，40mm/mV (×4.0),
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: ×0.25, ×0.5, ×1, ×2
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℃ or ±0.2℃ °F (without probe)
Measurement range: 5~50℃ (41~122°F)
Channel：Two channels
Resolution: 0.1℃

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:1,2,3,4,5,10,15,30,60,90,120,180,240,480minutes
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 ℃
        T1: -1 to 27℃
Accuracy:C.O.:±5% or ±0.1L/min，whichever is greater
TB,T1：±0.5℃ (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 rage: 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
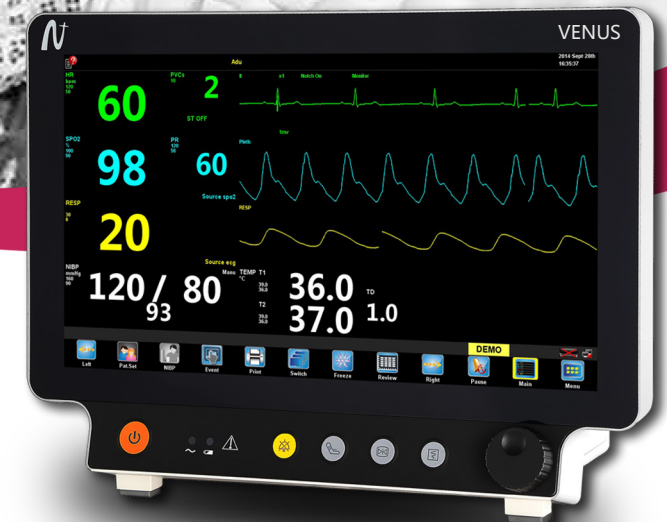EEG bandwidth between: 0.25Hz~110Hz

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℃(accuracy±5℃)

Operation Environment

Power: AC 100-250V, 50/60Hz
Temperature: 5-40℃
Humidity: <80%
Patient Range: Adult, Pediatric, Neonate

NORTHERN
MEDITEC

Committed to Excellence

VENUS

60	2	
98	60	
20		
120 / 80	36.0	
93	37.0	1.0

Venus
Critical Care Patient Monitor

Northern Meditec Limited

TUV SÜD CE 0123

Venus Critical Care Patient Monitor

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

Bispectrial 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
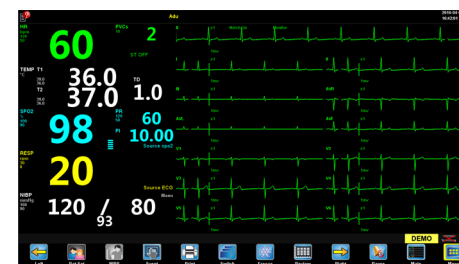Allows selection of the modality
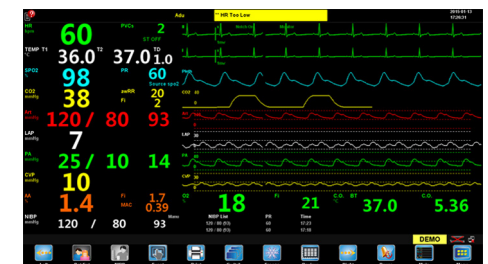best suited to the application

NMT
Neuromuscular monitoring

IBP
2-4 Channel, support IBP waveform
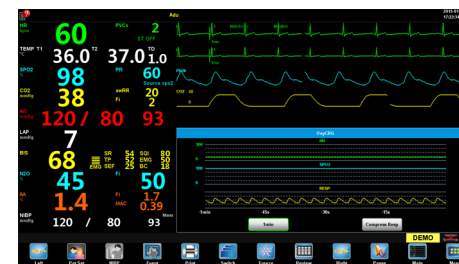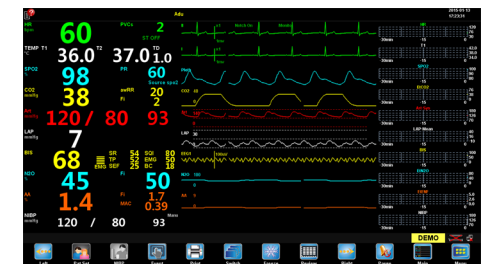overlapping display

C.O.
Cardiac Output

Features

- 15.6" High resulotion 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, venipucture mode

- Trolley/wall mount braket 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
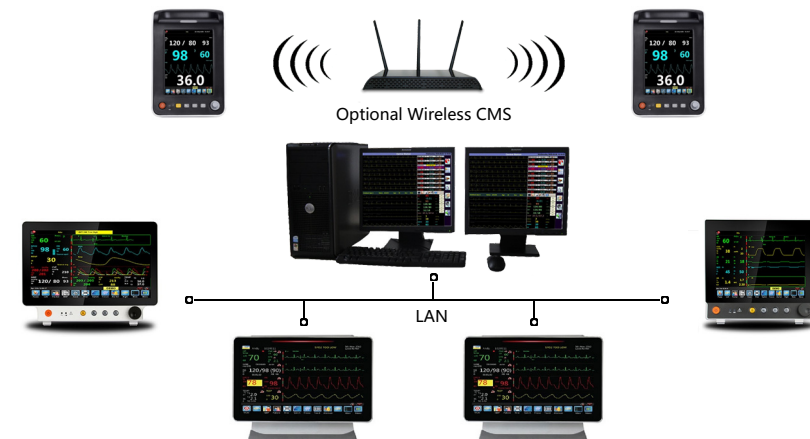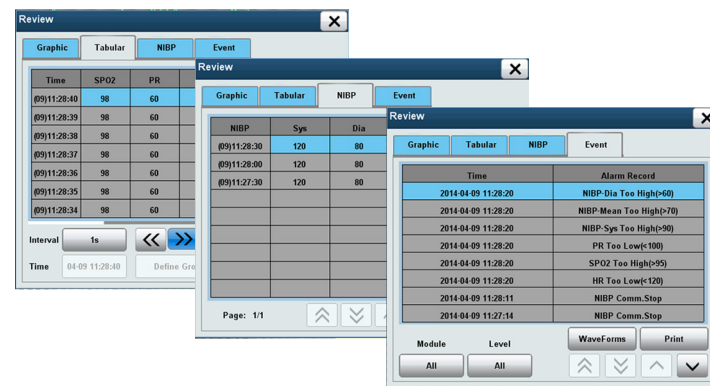
Central Monitoring System

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

Optional Wireless CMS

LAN

12-Lead ECG

4 channel IBP

OxyCRG screen

Dynamic trends