

VIZOR

PATIENT MONITORING SYSTEMS



VIZOR 10 - 17

PATIENT MONITORING SYSTEMS

General Specification

| | |
|-----------------------------|---------------------------------------------------------------------------------------------------------------|
| Safety | Based on IEC 60601-1, Class I, Type CF |
| Usage | Continuous Operation Equipment |
| Harmful liquid proof degree | Ordinary equipment (without Liquid Proof) |
| Protection | Against electro surgery and defibrillator |
| AC power | 90 – 260 V AC, 50/60 Hz |
| Internal battery | Sealed lead acid – 12 V, 3.3 Ah, rechargeable Usage: more than 1 hours (full charge) Charging time: 16h |
| DC power plug | 12 – 14 V, 3 A (6 A with recorder) |
| Dimension (cm) | |
| VizOR 10 | 26 (W) x 29 (H) x 19 (D) |
| VizOR 12 | 31 (W) x 28 (H) x 19 (D) |
| VizOR 15 | 42 (W) x 36 (H) x 17 (D) |
| VizOR 17 | 42 (W) x 36 (H) x 17 (D) |
| Weight | |
| VizOR 10 | approx. 5.5 kg |
| VizOR 12 | approx. 6 kg |
| VizOR 15 | approx. 6 kg |
| VizOR 17 | approx. 6 kg |

Display

| | |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Color display | |
| VizOR 10 | 10.4" TFT, 800x600 |
| VizOR 12 | 12.1" TFT, 800x600 |
| VizOR 15 | 15" TFT, 1024x768 |
| VizOR 17 | 17" TFT, 1024x768 |
| Waveforms | ECG, PLETH, RESP, IBP, Capnogram (all freezable) |
| Sweep speed | 12.5, 25, 50 mm/sec |
| Numeric parameters | HR, PVCs, ST, Pulse Rate, SpO ₂ , RR, Dual Temp, CO ₂ (EtCO ₂ , FiCO ₂ , AWRR), NIBP (SYS, DIA, MAP), IBP (SYS, DIA, MAP), Alarm Limits, GAS (Et & Fi (CO ₂ , O ₂ , N ₂ O, 5AA)) |
| Operation method | Rotary knob & membrane |

Input / Output

| | |
|------------|-------------------------------------|
| Network | Digital, Serial, RS422, Full Duplex |
| Connection | 8 or 16 beds to one Central Station |

Recorder (optional)

| | |
|----------------|-------------------------------------|
| Model | General scanning / thermal recorder |
| Printing speed | 12.5, 25, 50 mm/sec |
| Paper | 58 mm by 20 m roll |

Respiration

| | |
|-------------------|----------------|
| Method | Impedance |
| Base resistance | 250 – 1250 Ohm |
| Dynamic range | 0.2 – 2 Ohm |
| Breath rate range | 6 – 150 bpm |

Temperature

| | |
|------------|------------------------------|
| Probe type | YSI-400 / YSI-700 compatible |
| Range | 0 – 50°C |
| Accuracy | ± 0.2°C |

Alarm

| | |
|------------------|----------------------------------------------------------------------|
| Sources | Error messages, all other parameter limits |
| Alarm on/off | Selectable for all parameters |
| Lead fault alarm | Auditory and visual |
| Alert | Blinking on display, volume selectable audio alarms, light indicator |

Trend

| | |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sources | HR, PVCs, ST, SpO ₂ , RR, IBP1 (SYS, DIA, MAP), IBP2 (SYS, DIA, MAP), T1, T2, EtCO ₂ , FiCO ₂ , AWRR, EtO ₂ , FiO ₂ , EtN ₂ O, FiN ₂ O, EtAA, FIAA |
| Trend time | 15 min, 30 min, 1,2,4,8,12,24,36,48,60,72 hours |
| Resolution | 20 sec |

Arrhythmia Analysis

| | |
|----------|----------------------------------------------------------------------------------------------|
| Type | ASYS, VFIB, VTAC, RUN, AIVR, COUPLET, BIGEMINY, TRIGEMINY, TACHY, BRADY, PAUS, FREQUENT PVCs |
| Learning | Rapid learning; only 20 sec required to recognition of dominant rhythm |
| Method | Real time arrhythmia detection with innovative feature |
| Memory | Capability of storing the latest 80 ARR events (waveform and parameters) |

ST Analysis

| | |
|--------------------|-------------------------------------------------------------------|
| Display resolution | 0.01 mV |
| Measurement range | -2 mV to +2 mV |
| Alarm range | -2 mV to +2 mV |
| Features | User-adjustable Isoelectric and ST Point Trending of ST values |
| Update period | 5 sec |

ECG

| | |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Leads | 3 or 5 wires 3 wires: RA / LA / LL 5 wires: RA / RL / C / LA / LL |
| Waveforms | 4 channel |
| Dynamic range | ±5 mV |
| Leakage current | < 10 µA |
| Lead off current | < 90 nA |
| Gain | 4, 2, 1, 1/2, 1/4, auto |
| Calibration | 1 mV, 0.5 sec |
| Filters | MONITOR (0.5 – 28 Hz) NORMAL (0.5 – 40 Hz) EXTENDED (0.05 – 100 Hz) |
| CMRR | > 98 dB |
| Internal noise | < 30 µV RTI |
| Input impedance | > 5 MOhm |
| QRS detection | Duration: 40 – 120 msec Amplitude: 0.5 – 5 mV for Adult 0.2 – 5 mV for Neonate |
| Heart rate range | 15 – 300 bpm Adult 15 – 350 bpm Pediatrics |
| Tall T-wave | Reject up to 1.2 mV Amp. |
| Pace Detection / Rejection | Duration: 0.1 – 2 msec Amp: ±2 to ±700 mV (without over / undershoot) Reject from heart rate counter Re-insert into ECG to display on screen |
| Protection | Defibrillator and electro surgery |
| Standards | ANSI/AAMI EC-13 |

SPO₂ (Pulse Oximetry) Masimo SET

| | |
|------------------|-------------------------------|
| Method | 2 wave length pulse wave type |
| Range | 50% to 100% |
| Accuracy | 71 – 100% ±2% 50 – 70% ±3% |
| Pulse rate range | 25 – 250 bpm |

NIBP

| | |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Measurement method | Oscillometric |
| Measurement mode | Manual / automatic (intervals between 1 min – 24 hours) / STAT |
| Measurement time | 18 – 26 sec (excluding cuff pressurizing time) |
| Measurement range | Adult: SYS 25 – 250 mmHg DIA 10 – 220 mmHg MAP 15 – 250 mmHg Neonate: SYS 25 – 135 mmHg DIA 10 – 110 mmHg MAP 15 – 125 mmHg |
| Pressure transducer accuracy | ±3 mmHg full range |
| Initial inflation target | Adult 150 mmHg Neonate 70 mmHg |
| Overall system efficacy | Meet ANSI/AAMI SP-10 |
| Memory | up to 100 records |

IBP (optional)

| | |
|-----------------------------|------------------------------------------------------------|
| Channel | 2 |
| Measurement range | -50 – 300 mmHg (SYS, DIA, MAP) |
| Pressure sensor sensitivity | 5 µV/mmHg |
| Pressure sensor impedance | 300 – 2500 Ohm |
| Resolution | 1 mmHg |
| Accuracy | 1% or 1 mmHg (every one which is more) excluded transducer |
| Alarm range | 20 – 300 mmHg |
| Filters | Adjustable 8, 16, 22 Hz |

Main-Stream Multi Gas (optional) – IRMA CO₂, AX+

| | |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Method | Main-stream infrared absorption |
| Measuring parameters | IRMA CO ₂ CO ₂ , AWRR IRMA AX+ CO ₂ , N ₂ O, 5 anesthesia agent (HAL, ENF, ISO, DES, SEV – Auto ID), AWRR |

Side-Stream Multi Gas (optional) – ISA CO₂, AX+, OR+

| | |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Method | Side-stream Infrared absorption |
| Measuring parameters | ISA CO ₂ CO ₂ , AWRR ISA AX+ CO ₂ , N ₂ O, 5 anesthesia agent (HAL, ENF, ISO, DES, SEV – Auto ID), AWRR ISA OR+ CO ₂ , N ₂ O, O ₂ paramagnetic, 5 anesthesia agent (HAL, ENF, ISO, DES, SEV – Auto ID), AWRR |

Cerebral State Monitor (optional)

| | |
|----------------------|---------------------------------------------------------------------|
| Function | Measure the direct effect of anesthesia and sedative drugs on brain |
| Measuring parameters | CSI%, BS%, SQI%, EMG (Bar) |
| Waveform | EEG |
| Connection | Wireless |

| CLASSIFICATION | |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Safety | Based on IEC 60601-1, Class I, Type CF for all modules (except Multi-gas & NIBP module that are BF) |
| Usage | Continues Operation Equipment |
| Harmful Liquid Proof Degree | Ordinary Equipment, (without Liquid Proof) |
| DISPLAY | |
| B9 Display | TFT COLOR 1366 × 768, 18.5" |
| Waveforms | ECG, SPO2, IBP1, IBP2, RESP/GAS, EEG |
| Sweep Speed | 12.5, 25, 50 mm/sec |
| Numeric Parameters | HR, PVCs, ST, SPO2, NIBP (SYS, DIA, MAP), IBP1(SYS, DIA, MAP), IBP2(SYS, DIA, MAP), RR, T1, T2, DT, EtCo2, FiCo2, AWRR, EtN2O, FiN2O, EtO2, FIO2, EtAA, FIAA, CSI, BS%, EMG%, SQI% |
| Operation Method | Membrane and rotary knob, Touch Screen (Optional) |
| ECG | |
| Leads | 3/5 leads |
| Dynamic Range | ± 5 mV |
| Leakage Current | < 10 µA |
| Lead Off Current | < 90 nA |
| Gain | 4, 2, 1, 1/2, 1/4, Auto |
| Calibration | 1mV, 0.5 sec |
| Filters | "MONITOR" (0.5 – 24 Hz) "NORMAL" (0.5 – 40 Hz) "EXTENDED" (0.05 – 100 Hz) |
| CMRR | > 98 dB |
| Internal Noise | < 30 µV RTI |
| Input Impedance | > 5 Mohm |
| QRS Detection | Duration: 40 to 120 msec Amplitude: 0.25 to 5 mV for Adult 0.2 to 5 mV for Neonate |
| Heart Rate Range | 15 – 300 bpm for Adult 15 – 350 bpm for Neonate Accuracy: ±1% or 2 bpm |
| Tall T-Wave | Reject up to 1.2 mV Amp. |
| Pace Detection / Rejection | Duration: 0.1 – 2 msec Amp: ± 2 to ± 700 mV (Without over/undershoot) Reject From Heart Rate Counter Re-insert into ECG to display on screen |
| Protection Standards | Defibrillator and Electro surgery ANSI/AAMI EC-13 |
| Arrhythmia Analysis | |
| Type | ASYS, VFIB, VTAC, RUN, AIVR, COUPLET, BIGEMINY, TRIGEMINY, TACHY, BRADY, AFIB, PAUS, FREQUENT, PVCs |
| Learning | Rapid Learning: only 20 Seconds Required or Recognition of Dominant Rhythm |
| Method | Real Time Arrhythmia Detection with Innovative Feature. |
| Memory | Capability of storing the latest 80 ARR event. (waveform and Parameters) |
| ST Analysis | |
| Display resolution: | 0.01 mV |
| Measurement Rang | -2mV to +2mV |
| Alarm Range: | -2mV to +2mV |
| Features: | User Adjustable Isoelectric and ST Point Trending of ST Values |
| Update period: | 5 Sec. |
| Masimo SET SPO2 | |
| Method | 2 Wave Length Pulse Wave Type |
| Range | 50% to 100% |
| Accuracy | ±2% (SPO2 71 ~ 100%) ±3% (SPO2 50 ~ 70%) |
| Pulse Rate Range | 25-250 bpm |
| NIBP | |
| Measurement method | Oscillometric |
| Measurement mode | Manual/Automatic(intervals between 5min-24hour) / STAT |
| Measurement time | 18-26 sec (excluding cuff pressurization time) |
| Measurement Range | Adult: SYS 25 ~ 250 mmHg DIA 10 ~ 220 mmHg MAP 15 ~ 250 mmHg Neonate: SYS 25 ~ 135 mmHg DIA 10 ~ 110 mmHg MAP 15 ~ 125 mmHg |
| Pressure Transducer accuracy | ±3 mmHg full range |
| Initial Inflation Target | Adult 150 mmHg Neonate 70 mmHg |
| Overall System Efficacy | Meet ANSI/AAMI SP-10/1992 |
| Memory | Up to 100 Records |
| IBP (optional) | |
| Channel | 2 Channels |
| Measurement Range | SYS -50 ~ 300 mmHg DIA -50 ~ 300 mmHg MAP -50 ~ 300 mmHg |
| Pressure sensor sensitivity | 5 µV / V / mmHg |
| Pressure sensor Impedance | 300-2500 ohm |
| Resolution | 1 mmHg |
| Accuracy | 1 % or 1mmHg (every one is which is more) Without Transducer |
| Alarm range | 20-300 mmHg |
| Filters | Adjustable 8, 16, 22 Hz |

| CO2 Main Stream (Optional) | |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Method | Infra-red absorption |
| Measuring Parameters | EtCo2, FiCo2, AWRR |
| Measuring range | Co2 0 – 10% AWRR 0-150 BrPM |
| Accuracy | Co2 ±(0.2 V% + 2% of reading) AWRR ± 1BrPM |
| CO2 side- Stream (Optional) | |
| Method | Infra-red absorption |
| Measuring Parameters | EtCo2, FiCo2, AWRR |
| Measuring range | Co2 0 -15% AWRR 0 – 150 BrPM |
| Accuracy | Co2 ±(0.2 V% + 2% of reading) AWRR ± 1BrPM |
| Multi gas Main Stream (Optional) | |
| Method | Infra-red absorption |
| Oxygen sensor type | Ultra fast response time galvanic oxygen sensor. |
| Measuring Parameters | CO2, O2, N2O, 5 Anesthesia Agent(HAL, ISO, ENF, SEV, DES), AWRR |
| Measuring range, Accuracy | CO2 0-10% ±(0.2 V% + 2% of reading) 10 – 15% ±(0.3 V% + 2% of reading) NO2 0-100% ±(0.2 V% + 2% of reading) HAL, ISO, ENF 0-8% ±(0.15 V% + 5% of reading) SEV 0-10% ±(0.15 V% + 5% of reading) DES 0-22% ±(0.15 V% + 5% of reading) O2 0-100% ±(1 V% + 2% of reading) AWRR 0-150BrPM ±1BrPM |
| Multi gas side- Stream (Optional) | |
| Method | Infra-red absorption |
| Oxygen sensor type | Ultra fast response time galvanic oxygen sensor. |
| Measuring Parameters | CO2, O2, N2O, 5 Anesthesia Agent(HAL, ISO, ENF, SEV, DES), AWRR |
| Measuring range, Accuracy | CO2 0-15% ±(0.2 V% + 2% of reading) NO2 0-100% ±(2 V% + 2% of reading) HAL, ISO, ENF 0-8% ±(0.15 V% + 5% of reading) SEV 0-10% ±(0.15 V% + 5% of reading) DES 0-22% ±(0.15 V% + 5% of reading) O2 0-100% ±(1 V% + 2% of reading) AWRR 0-150BrPM ±1BrPM |
| Cerebral State Monitor (optional) | |
| Function | Measure the direct effect of anesthesia and sedative drugs on brain |
| Measuring parameters | CSI%, BS%, SQI%, EMG (Bar) |
| Waveform | EEG |
| connection | Wireless |
| RESPIRATION | |
| Method | Impedance |
| Base Resistance | 250 – 1250 Ohm |
| Dynamic Range | 0.2 – 2 Ohm |
| Breath Rate Range | 6 – 150 BrPM |
| TEMPERATURE | |
| Probe Type | YSI 700 Compatible |
| Range | 0 – 50 °C |
| Accuracy | ± 0.2 °C |
| ALARM | |
| Sources | Error messages, all other Parameter Limits |
| Alarm On / Off | Selectable for All Parameters |
| Alert | Blinking on Display, Volume Selectable Audio Alarms, Light indicator |
| TREND | |
| Sources | HR, PVCs, ST, SPO2, RR, T1, T2, IBP1(SYS, DIA, MAP), IBP2(SYS, DIA, MAP), EtCo2, FiCo2, AWRR(sidestream, mainstream), EtN2O, FiN2O, EtO2, FIO2, EtAA, FIAA(ISO, DES, ENF, HAL, SEV) |
| Trend Time | 15, 30, 45 Min, 1, 2, 4, 8, 12, 16, 24, 36, 48, 72, 96 Hours |
| Resolution | 1 sec |
| INPUT/OUTPUT | |
| Network | Digital, Serial, RS422, Full Duplex |
| Connection | Up to 16 BEDs to one CENTRAL |
| GENERAL | |
| Safety | Based on IEC 60601-1 |
| Protection | Against Electro surgery and Defibrillator |
| AC Power | 90 – 240 VAC, 50/60 Hz |
| Internal Battery | Sealed Lead Acid, Rechargeable, 12 V, 3.3 AH Charge Time: 16 Hours Usage: More than 1:45 Hours (Full Charge) |
| DC Power Plug | 12 – 14V – 3A / (6A with recorder) |
| Dimension (cm) | 45 (W) × 35 (H) × 16 (D) |
| Weight | 7 Kg (approximately) |
| RECORDER (Optional) | |
| Model | General Scanning / Standard Thermal Printer |
| Printing Speed | 6, 12.5, 25, 50 mm/sec |
| Paper | 50mm(for GSI) / 58mm(for Standard) by 100 foot roll |
| ENVIRONMENTAL | |
| Temperature | Operating : 5 to 40°C (For Gas Module: 10 to 35°C) Storage : -20 to 60°C (For Gas Module: -20 to 50°C) |
| Humidity | 20-90% (Non condensing) |
| Altitude | -200 to 3000m |



SPECIFICATIONS

| | |
|---------------------------------|----------------------------------------------------------------------|
| Application | Small enough to carry Powerful enough to monitor patient anywhere |
| Weight | Less than 1 Kg, Compact and Mobile Monitor |
| Size | 6.7 X 10.9 X 15 cm |
| Display | Color TFT 4.3", flexible display Configuration |
| Resolution | 480 X 272 |
| Traces | 4 Traces Up to 7 Waveforms |
| Sweep speed | 3, 6, 12.5, 25, 50 mm/sec |
| Environmental Protection | Meeting rigorous environmental standards, IPX II, Vibration, Shock |
| Network | EMC, Electrosurgery, Electroshock |
| Patient Mode | LAN Cable (TCP/IP), WiFi Optional |
| Configuration | Adult, Neonatal |
| Options | ECG, RESP, TEMP, IBP, NIBP, SPO2 (Masimo), Arr & ST |
| Trend | RAINBOW Set, Multigas, CO, ICP |
| Power | 96 hours graphic and tabular trends of all parameters |
| Run time | AC Adapter, Rechargeable Battery, User Replaceable |
| User interface | Up to 2 hours (fully charged) |
| Alarm | Touchscreen, Membrane |
| Safety | Visual and Audible |
| Operational environment | Meets the requirements of IEC 60601 series |
| | Temperature: 0 ~ 40 °C |
| | Humidity: 15% ~ 95% non-condensing |