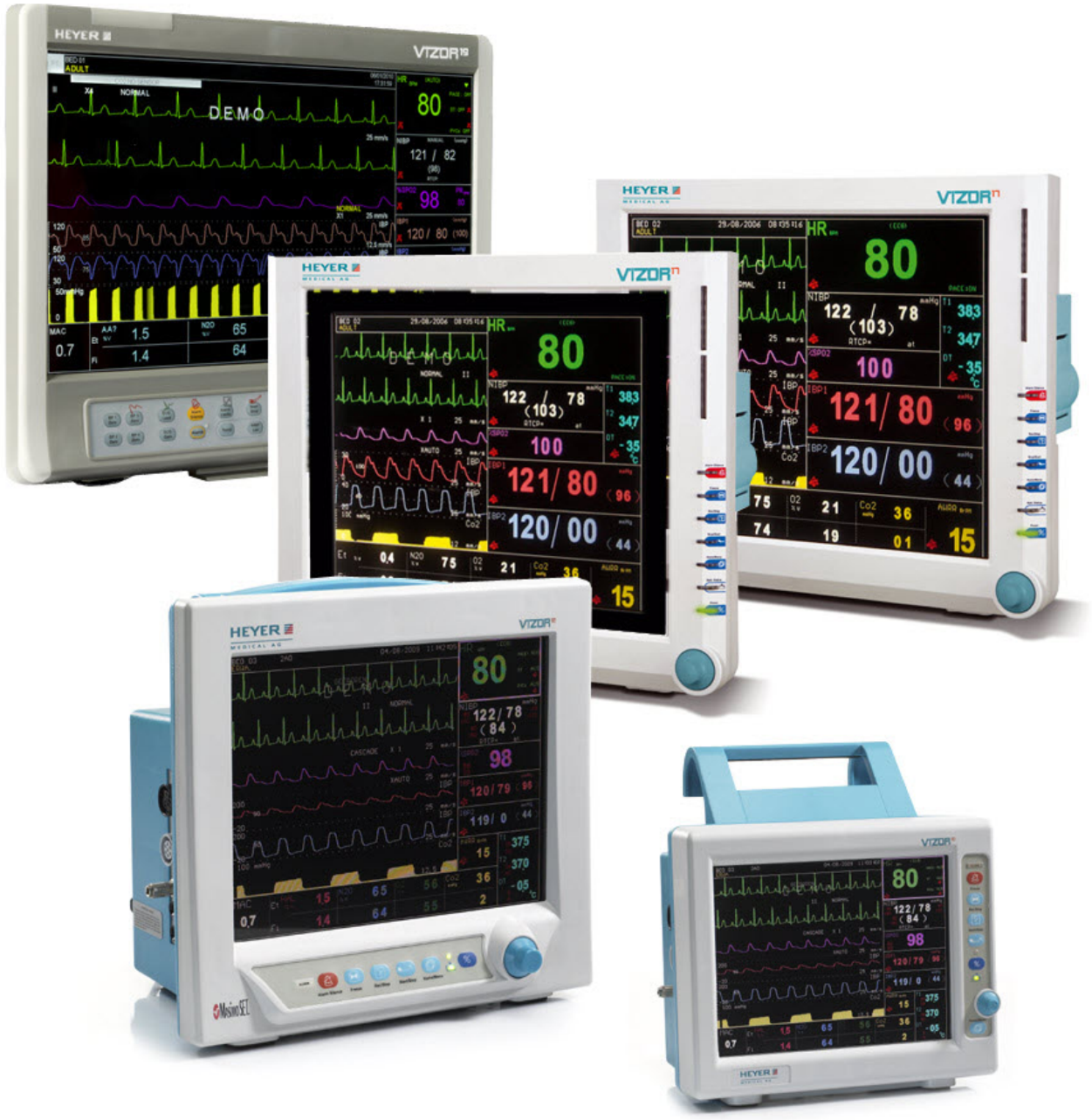
VIZOR

PATIENT MONITORING SYSTEMS



HEYER MEDICAL AG

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_2O, 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_2O, FiN_2O, 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

SPO_2 (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/v/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 CO_2, AX+

Method	Main-stream infrared absorption
Measuring parameters	
IRMA CO_2	CO_2, AWRR
IRMA AX+	CO_2, N_2O, 5 anesthesia agent (HAL, ENF, ISO, DES, SEV – Auto ID), AWRR

Side-Stream Multi Gas (optional) – ISA CO_2, AX+, OR+

Method	Side-stream Infrared absorption
Measuring parameters	
ISA CO_2	CO_2, AWRR
ISA AX+	CO_2, N_2O, 5 anesthesia agent (HAL, ENF, ISO, DES, SEV – Auto ID), AWRR
ISA OR+	CO_2, N_2O, 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

HEYER Medical AG
Carl-Heyer-Str. 1-3 - D-56130 Bad Ems, Germany
Tel.: +49 2603 791 3 - Fax: +49 2603 70424
info@heyermedical.de - www.heyermedical.de

CE 0044

Subject to changes without notice.
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VITOR 19

PATIENT MONITORING SYSTEMS

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	Defibrillator and Electro surgery
Standards	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 µ V / 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) , EtN20,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		

HEYER Medical AG
Carl-Heyer-Str. 1-3 - D-56130 Bad Ems, Germany
Tel.: +49 2603 791 3 - Fax: +49 2603 70424
info@heyermedical.de - www.heyermedical.de

CE PENDING

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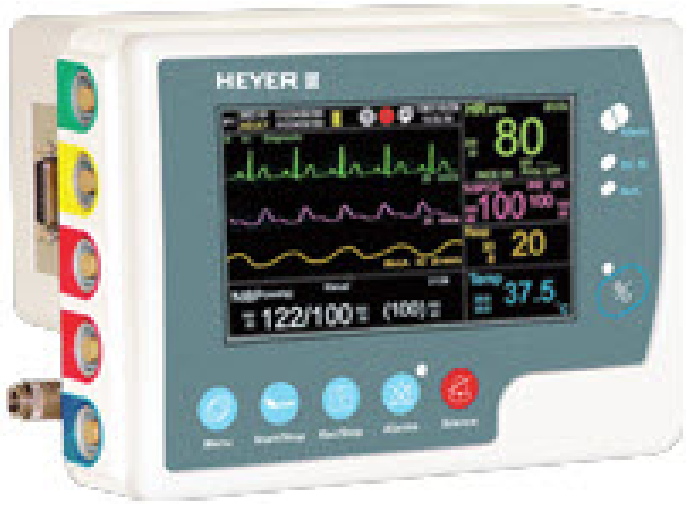
VITOR 6

PATIENT MONITORING SYSTEMS



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	Meeting rigorous environmental standards, IPX II, Vibration, Shock
Protection	EMC, Electrosurgery, Electroshock
Network	LAN Cable (TCP/IP), WiFi Optional
Patient Mode	Adult, Neonatal
Configuration	ECG, RESP, TEMP, IBP, NIBP, SPO2 (Masimo), Arr & ST
Options	RAINBOW Set, Multigas , CO, ICP
Trend	96 hours graphic and tabular trends of all parameters
Power	AC Adapter,Rechargeable Battery, User Replaceable
Run time	Up to 2 hours (fully charged)
User interface	Touchscreen, Membrane
Alarm	Visual and Audible
Safety	Meets the requirements of IEC 60601 series
Operational environment	Temperature: 0 ~ 40 °C Humidity: 15% ~ 95% non-condencing

HEYER Medical AG
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