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Functions	CentralStaiton	CentralStaiton Server Edition*	WorkStation	ViewStation	CMS Viewer	Mobile Viewer
Manage networked devices	Yes	Yes	No	No	No	No
Store monitoring data locally	Yes	Yes	No	No	No	No
Admit/Discharge /Transfer patients	Yes	No	Yes	No	No	No
Manage alarm	Yes	No	Yes	No	No	No
Change monitoring devices' settings	Yes	No	Yes	No	No	No
Give visual and audio alarm indicators	Yes	No	Yes	Yes	Only visual	Only visual
Perform real-time monitoring	Yes	No	Yes	Yes	Yes	Yes
Change display settings	Yes	No	Yes	Yes	Yes	Yes
Review online patients	Yes	No	Yes	Yes	Yes	Only events
Review discharged patient	Yes	No	Yes	Yes	Yes	No
Print reports	Yes	No	Yes	Yes	Yes	No

BeneVision™
Central Monitoring System

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healthcare within reach

System Components

Software

CentralStation	System center which connects bedside devices and other remote access devices
WorkStation	Remote station with interactive capability
ViewStation	Remote station with the view-only capability
CMS Viewer	Windows based remote access software running on PC
Mobile Viewer	Remote access software running on mobile device
Mobile Server	Service running on standalone server or integrated with CentralStation for Mobile Viewer remote access

Hardware

Main unit	Traditional PC
	All-in-one PC with 23-inch touch screen
	1U Blade Server
	Mini PC
Display	24-inch TFT LCD screen
	23-inch PCT touch screen
Printer	Network laser printer
UPS	1000 VA, 220V / 50Hz
recorder	3-channel thermal recorder

Main System Software Specifications

Basic

Components	CentralStation(CS), WorkStation(WS), ViewStation(VS)
Number of devices	Up to 64 monitoring devices per station
	Up to 128 monitoring devices for CentralStation Server Edition*
Devices supported	BeneVision N series, BeneView T series, iPM series, iMEC series, uMEC series, PM series, MEC series, ePM Series patient monitors VS series vital signs monitors TMS-6016, BeneVision TM80/TD40 telemetry BeneHeart series defibrillator
Integrated devices	Devices (such as Ventilators, anesthesia machines) connected to patient monitors via the Benelink module

Display

Resolution	1920x1080, 1280x1024
Max number of displays	Up to 4 displays
Display config	Up to 36 patients on one display with 1920x1080 resolution
	Up to 16 patients on one display with 1280*1024 resolution
Trace	Up to 8 waveforms per patient in the sectors
	Up to 12 waveforms for specific patient in the ViewBed window
Patient sector layout	Normal Screen, Big Numerics
ViewBed screen layout	Normal Screen, OxyCRG, Minitrends, Integrated Devices, ECG Full-Screen, ECG 12- Lead, EWS

Parameters and Waveforms

Parameters	HR, ST, PVCS, QT/QTc, RR, SpO_2, PR, NIBP, TEMP, IBP, CO, $EtCO_2$, Multi-gas, O_2, N_2O, CCO, $ScVO_2$, ICG, RM, BIS, EEG, NMT, rSO_2, parameters from integration
Waveforms	ECG, Pleth, Resp, CO_2, IBP, O_2, N_2O, Agent, ICG,RM, BIS, pArt/pCVP, EEG

Telemetry ECG

ECG vector	I, II, III, aVR, aVL, aVF, V/V1, V2, V3, V4, V5, V6
Algorithm	Mindray
ARR detection	Asystole, VFib/VTac, Vtac, Vent. Brady, Extreme Tachy, Extreme Brady, PVCs/min, Pauses/min, R on T, Run PVCs, Couplet, Multif. PVC, PVC, Bigeminy, Trigeminy, Tachy, Brady, Pacer Not Pacing, Pacer Not Capture, Missed Beat, Nonsus. Vtac, Vent. Rhythm, Pause, Irr. Rhythm and Afib
ST analysis	Supported
QT analysis	Supported

Alarm

Category	Physiological alarm, technical alarm, and system prompt
Priority	High, mediate, low and message
Notification	Audible and visual
Remote control	Alarm switch, alarm limits, alarm priority, alarm pause, and alarm reset
Alarm analysis	Support alarm statistics

Review

Trend review	Most recent 240 hours of tabular trends and graphic trends for all parameters
Full disclosure	Most recent 240 hours of full-disclosure waveforms and compressed waveforms
Events	Most recent 3000 events, including the parameter name and 16-second waveforms before and after an alarm is triggered
NIBP review	Most recent 3000 NIBP measurements
C.O. review	Most recent 720 C.O. measurements
OxyCRG review	Most recent 48 hours OxyCRG
12-lead review	Most recent 720 12-lead analysis results, with 12 analysis waveforms for each analysis result
ST review	Most recent 240 hours of ST segments
Historic review	At least 200 discharged patients' data depending on the storage volume
Minitrends	Most recent 8 hours for all parameters

Reports

Style	Paper and paperless (PDF file) report
Size	A4 or letter
Type	Titration table report, hemodynamic calculation report, oxygenation calculation report, ventilation calculation report, renal calculation report, graphic trends report, tabular trends report, full disclosure overview report, full disclosure detail report, waveform segment report, event report, event list report, 12-lead interpretation report, multi-lead ECG report, ST report, QT report, Arrh statistics report, OxyCRG report, OxyCRG review report, OxyCRG event summary report, OxyCRG event detail report, realtime report, print on alarm report, EEG report, CSA report, hemoSight parameters report, alarm limits report, pace view report, summary report, freeze report, defibrillator selftest report, ECG 24H summary, typical strips, CPR report,rescue report, system settings report

Calculation

Hemodynamics	100 calculations for review
Oxygenation	100 calculations for review
Ventilation	100 calculations for review
Renal	100 calculations for review

Clinical Assistant Application

ST Graphic	ST histogram and ST vectogram
HemoSight	All hemographic data, spidervision
ABPM	Analysis and report printouts supported
24 hours ECG Summery	Statistics and report printouts supported
PACE View	Pace Magnifier and Spike Magnifier
EWS	Continual EWS score and dashboard

Data Interface

Connection Interface	Integrated eGateway or standalone eGateway
ADT	Support getting patient demographics from ADT system
CIS/EMR	Support physiological parameters output
	Support PDF/XML- format reports output
ECG System	Support full disclosure output
	Support XML-format 12 leads-report output, sample rate of 1000Hz for BeneVision N & ePM series patient monitor and of 500Hz for other patient monitors
Alarm system	Support alarm events output
Time	Support synchronizing with NTP server
	Support synchronizing with eGateway

Minimum Runtime Environment

CPU	4 cores and 2.9 GHz or above
RAM	4GB or above
	At least 16G when eGateway is integrated with CS and full disclosure output is supported
Hard drives	CS: 500G or above
	WS/VS: 100G or above
Networking	Ethernet 802.3
	100M or above self-adapted
Graphic card	Support dual or multiple displays
Speaker	Built in the host computer or display
	45 to 85dB alarm tones
USB port	two or more
Operating System	Windows 7/10 or Window Server 2008/2012/2016

CMS Viewer's Specifications

Operating System	Windows 7/10 or Window Server 2008/2012/2016
Resolution	Self-adaptation
	Optimum 1920x1080
Number of patients	View one patient at one time
Review	Tabular trends, graphic trends, events, full disclosure, 12-lead ECG, ST, Arr statistics, OxyCRG

Mobile Viewer's Specifications

Android system	Android 4.4 or above
	4 core and 1.3GHz CPU or above
	1.5GB RAM or above
iOS System	iOS 9.2 or above
	iPhone 6/plus or above
	iPad mini 2 or above
Resolution	Self-adaptation
	optimum 1920*1080
Number of patients	View up to 32 patients simultaneously
ViewBed	View parameters and waveforms monitored.
Events	Alarm events, arrhythmia events, manual events, operation-related events
Event Notification	Support vibration and sound
	Support configuring trigger condition
	Require Android 5.0 or above
	Not supported by iOS

Mobile Server Specifications

Standalone Mobile Server

Operating System	Windows 7/10 or Window Server 2008/2012/2016
CPU	4 cores and 2.9 GHz or above
RAM	4 GB or above
Hard drives	500GB or above
Number of beds	Up to 600 beds can be connected simultaneously
Number of Mobile Viewer	Up to 500 Mobile Viewers can be connected simultaneously

Integrated Mobile Server

Number of beds	Up to 64 beds can be connected simultaneously
Number of Mobile Viewer	Up to 200 Mobile Viewers can be connected simultaneously

Network Specifications

Infrastructure

Topology	3-layer network supported, applicable for both hospital networks and dedicated networks
Scale	Up to 1200 bedside monitoring devices for the whole network
Type	Wired, wireless, and dedicated WMTS network
IP config	DHCP and DNS supported
Communication quality	QoS supported
Security	LDAP authentication supported
	SSL encryption supported
	McAfee antivirus application (Solidcore Solidifier)
Safety	Raid 1 supported
	Backfilling data supported
	Redundancy supported
Virtualization	VMware supported

Environmental Specifications

Temperature	Operating: 10 to 35℃ (50 to 95°F)
	Non-operating: -30 to 60℃ (-22 to 140°F)
Humidity	Operating: 10% to 90%
	Non-operating: 5% to 95%
Altitude	Operating: 10,000 ft (3048 m)
	Non-operating: 30,000 ft (9144 m)

*means for the area only reqire CE