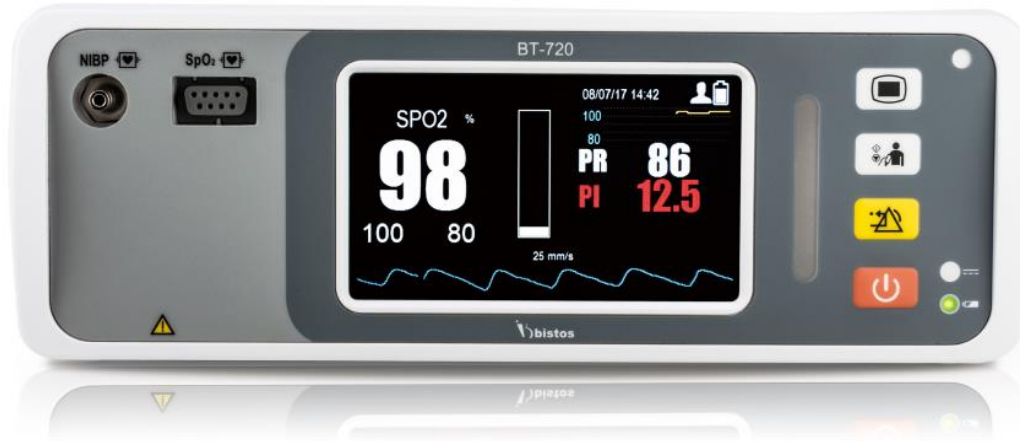


Bio Signal Total Solution

Total Health care for everyone



Bio Signal Total Solution



BT-720

Vital Signs Monitor

Int. Sales Team
Bistos Co., Ltd.



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Introduction - Use of Vital Signs Monitor

BT-720

❖ Main Purpose :

- To measure and show patient's vital signs with graphs & numbers

❖ Object:

- Patients in recovery room, ICU room, operating rooms & others for many purposes

❖ Main Feature:

- The monitored data can be recorded continuously or intermittently on a strip chart recorder at the operator's discretion;
 - ✓ SpO₂
 - ✓ NIBP (option)
 - ✓ Temperature (option)



Introduction - Features

BT-720

- ❖ 4.3" color TFT touch screen
- ❖ SpO2, Pulse, NIBP, Masimo SpO2
- ❖ Short/long trend graphic / trend table display
- ❖ Audio & visual alarm, adjustable alarm limit
- ❖ Automatic brightness adjustment
- ❖ Accurate SpO2 performance during motion and low perfusion
- ❖ Perfusion Index data / bar graph display
- ❖ Pitch tone variation for pulse rate
- ❖ Internal memory for data storage
- ❖ SD card for easy software upgradation
- ❖ Over 8 hours continuous working on rechargeable lithium-ion battery
- ❖ Specialized PC software for data review and analysis
- ❖ Option for Masimo SpO2, NIBP
- ❖ HL7 export to clinical information systems (option)



Specification

BT-720

❖ General

Display	4.3" Color TFT-LCD Touch screen
Battery	11.1V Li-ion 4,400mA, Run time 8hrs, Charging time 4hrs
Alarm	Visual, audible
Trend	168hrs Graphic/tabular
Interface	RJ45, SD card (software upgrade)
Dimension	256(W) x 185(D) x 90(H)mm
Weight	Main unit: < 1.5kg, packing: 2.1kg
Certificate	CE
Warranty	2 years



Specification

BT-720

❖ SpO2

Measurement Range	0-100%
Accuracy	Adult/Pediatric : 70 ~ 100% $\pm 2\%$ Neonate : 70 ~ 100% $\pm 3\%$ 0~69%: unspecified
PR range	25-250bpm
PR accuracy	$\pm 2\%$ or ± 2 bpm, whichever is greater

❖ Temperature (option)

Type	Skin temperature sensor
Measurement Range	0-50 °C (32-122°F)
Accuracy	± 0.3 °C
Resolution	0.1 °C



Specification

BT-720

❖ NIBP (option)

Method	Automatic Oscillometric		
Size	Large adult, adult, pediatric, neonate		
Operation Mode	Manual / Auto / STAT		
Measurement accuracy	Maximum average error: ± 5 mmHg Maximum standard deviation: 8mmHg		
Measurement Range	Adult : Systolic: 30-280mmHg Diastolic: 10-220mmHg Mean: 10-240mmHg	Pediatric : Systolic: 30-230mmHg Diastolic: 10-165mmHg Mean: 10-175mmHg	Neonatal : Systolic: 30-145mmHg Diastolic: 10-105mmHg Mean: 10-115mmHg
Interval for measurement	1/2/3/4/5/10/15/30/60/90/120/180/240/480min		
Over-pressure protection	Adult: 320-330mmHg Pediatric: 265-275mmHg Neonate: 160-165mmHg		



Specification

BT-720

❖ Others (option)

Masimo SpO2	
Cart	5 wheels, basket, handle
HL7	





Configuration - Outlook

BT-720

➤ Front View



➤ Rear View










➤ Portable Design





Configuration - Options & Accessories

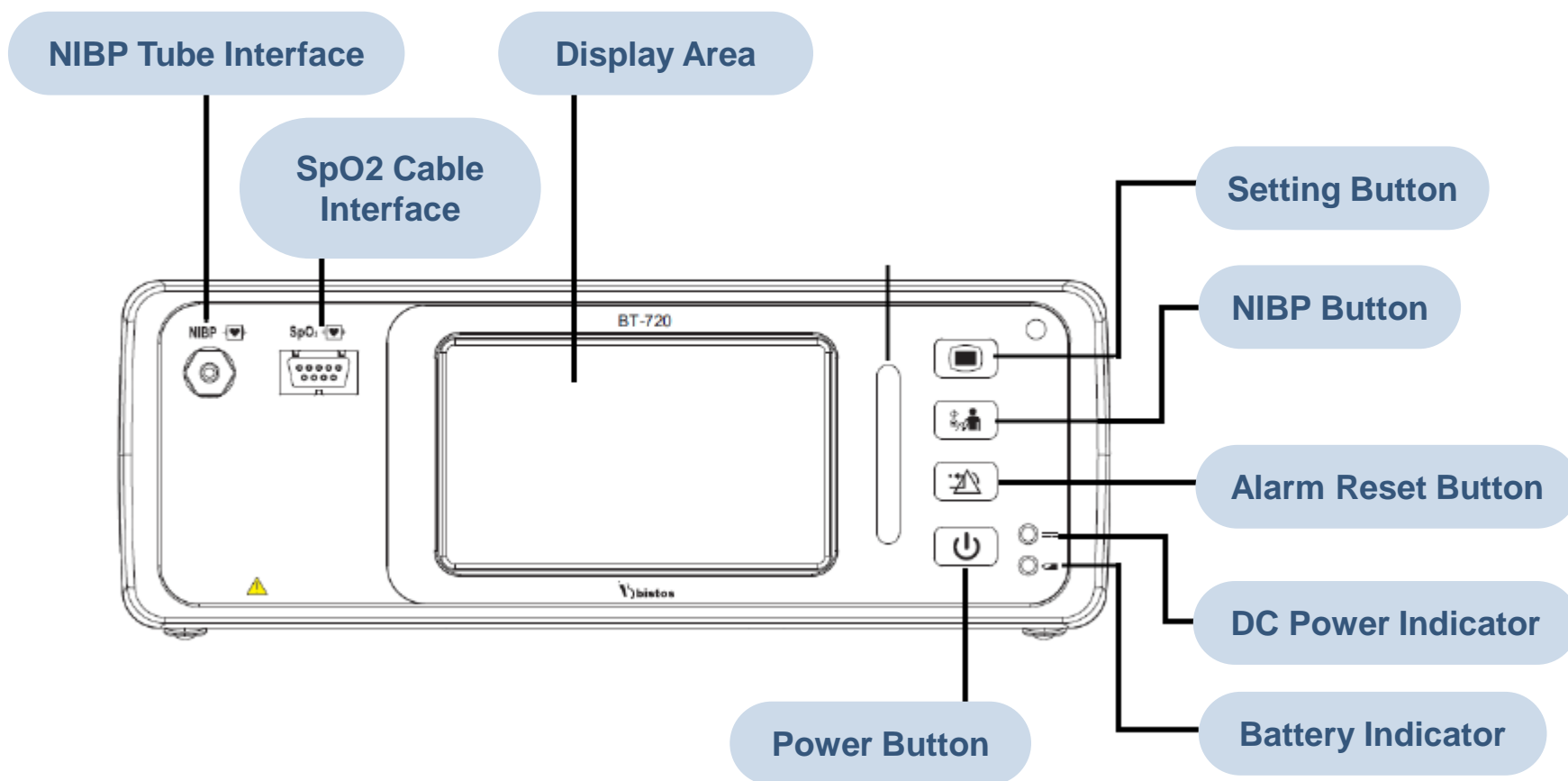
BT-720

	Name	Description		Name	Description
	SpO2 adult reusable sensor	SpO2 sensor for adult		Temperature sensor	Measures the body temperature
	SpO2 extension tube	Cord to connect the SpO2 sensor and main body		Power adaptor	For power supply
	Adult NiBP cuff	Measures NIBP for adult		Cart (option)	5 wheels, basket, handle
	NiBP extension tube	Tube to connect the NIBP cuff and main body			



Basic Info - Description of Monitor

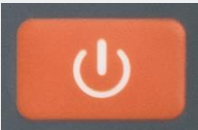

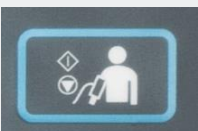

BT-720





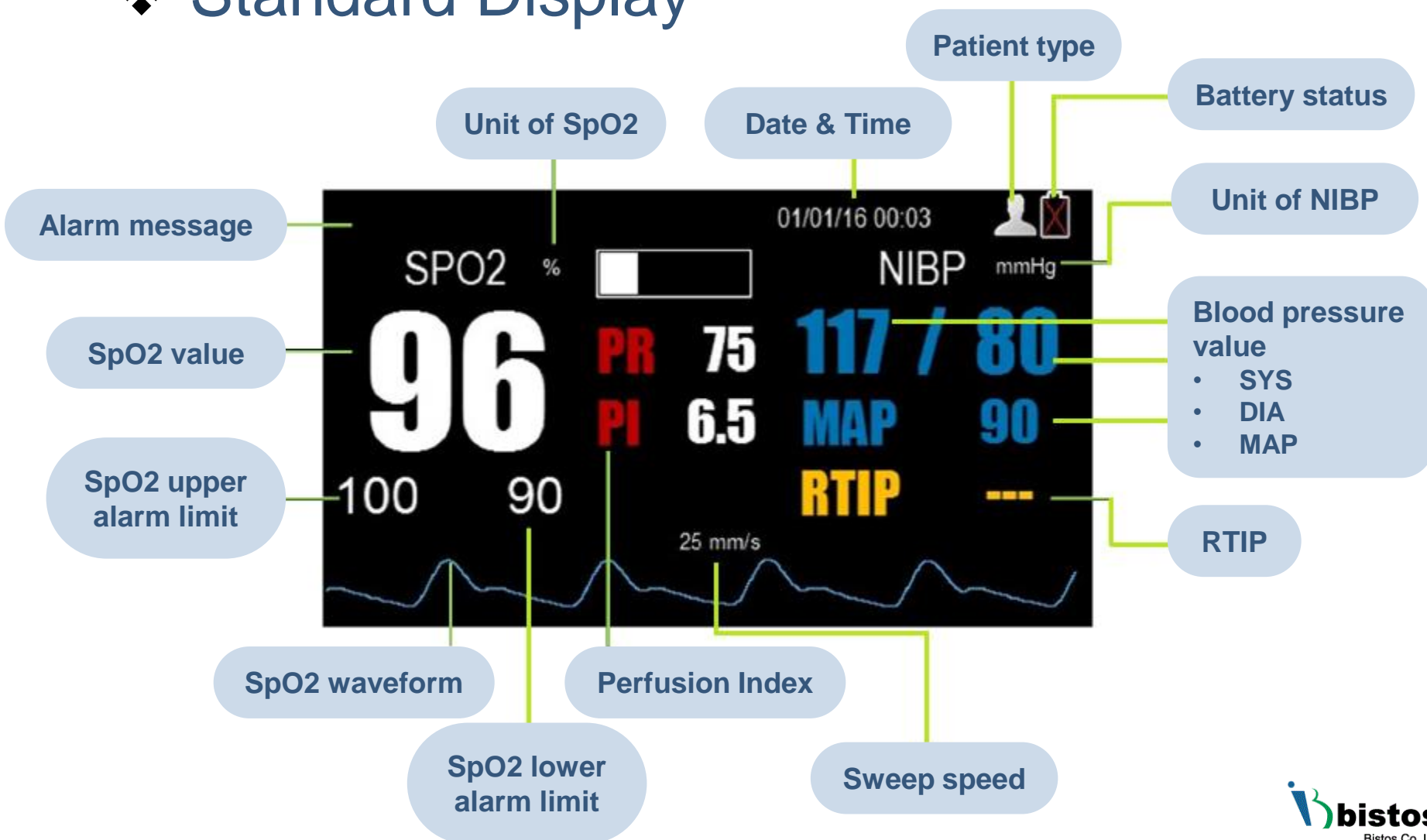
Basic Info - Key Operation

BT-720

Symbol	Name	Description
	Power	<ul style="list-style-type: none">- Power On: Press down the key more than 2 seconds.- Power off: Press down the keys more than 2 seconds and the system will display the alarm message “The system will shut down 3 seconds”.
	Alarm reset	To reset the alarm condition.
	NIBP start/stop	Start and stop the non-invasive blood pressure measurement manually. This is option. When you purchase only with SpO2, this button will be deleted.
	Setting	Enter to the setting mode. Press again to close the setting mode.



❖ Standard Display












Basic Info - Configuration Settings



BT-720

- ❖ In the main screen, Press  [Setting] key enter the setup menu.

Patient Type	Alarm Delay	Alarm Volume
Adult ▼	4s ▼	4
Backlight	Alarm Reminder Signal	
3 ▼	On ▼	
Alarm Reminder Interval		
3min ▼		
		
		

Date (YMD)	2016	01	01
Time (24H)	01	46	32
Date Format	MM-DD-YYYY ▼		
			

Displays	Language	Network
SpO2+NIBP ▼	English ▼	On ▼
Requires restart		
Default		Network Setup
04/17/2018 15:30:01		
V1.25 SVN:399 IAP : 52		
		
		

Passwords	15	05	20
Hu; FaSpO2; SV2.00; HV1.00 20170903			
SpO2	S-089 ▼		
Hu; uNBP; SV1.04; HV1.10; 20171125;			
NIBP	N-089 ▼		
			

❖ SpO2

- Blood oxygen saturation (SpO2) is the percentage of oxyhemoglobin (HbO2) capacity bound by oxygen in the blood in the total hemoglobin (Hb) capacity that can be combined, that is, the concentration of oxygen in the blood.

➤ Settings

Wave Speed	Wave Mode	Average Time
25 mm/s ▼	Scan ▼	4-8 s ▼
Pulse Volume		
3		
<div>◀ ▶ X</div>		

SpO2 Low Limit	SpO2 High Limit	Alarm Level
90	100	Mid ▼
PR Low Limit	PR High Limit	Alarm
50	120	Default
PI Low Limit	PI High Limit	
0.00	20.00	
<div>▶ ◀ X</div>		

❖ NIBP

- The monitor uses oscillometric method to measure noninvasive blood pressure (NIBP).
- The oscillometric method for measuring blood pressure is to inflate a cuff with a certain amount of pressure until the arterial blood flow has been completely blocked. As applied pressure decreases, the arterial blood flow which was completely occluded gradually opened, and completely opened. Then, the pulsation of the arterial vascular wall will generate a shock wave in the cuff. SBP, MAP, and DBP are obtained by measuring and analyzing cuff pressure oscillations when deflating.
- Settings

Patient Type	Interval	
Adult ▼	Manual ▼	Start Measurement
Unit	Initial Pressure	Continuous Measurement
mmHg ▼	160	Reset
<div>◀ ▶ X</div>		

SYS Low Limit	DIA Low Limit	Alarm Level
90	50	High ▼
SYS High Limit	DIA High Limit	Alarm
160	90	Default
<div>◀ ▶ X</div>		

Calibration
Leak Test
RTIP : ---
<div>◀ ▶ X</div>



❖ Temperature

- The temperature sensor will measure the body temperature. The monitor is designed for defibrillation proof, so the monitor operates normally after defibrillation.
- The normal measuring range of monitor is $0^{\circ}\text{C} \sim 50^{\circ}\text{C}$, and the accuracy is consistent in this range. The environmental temperature range for body temperature measuring is $5^{\circ}\text{C} \sim 40^{\circ}\text{C}$. Get the right temperatures for the shortest measurement time is 40s, and the measuring interval is 1s.



❖ Alarms

Type	Source	Alarm Message
Physiological alarms	SpO2	SpO2 Too High, SpO2 Too Low, PR Too High, PR Too Low
	NIBP	Systolic Too High, Systolic Too Low, Mean pressure Too High, Mean Pressure Too Low, Diastolic Too High, Diastolic Too Low
Technical alarms	SpO2	SpO2 Communication Stop, SpO2 Communication Error, SpO2 No Sensor, SpO2 Sensor Off, SpO2 Search Timeout, SpO2 Search Pulse
	NIBP	NIBP Communication Stop, NIBP self-check error, Cuff type error, Cuff loose or no cuff, Cuff leak, Air pressure error, NIBP signal weak, NIBP over range, NIBP signal unstable, NIBP over pressure, NIBP signal saturated, NIBP system error, Measurement timeout



Central Monitoring System

BT-720

❖ Dual Screen Central Monitoring Station

➤ Up to 30 units can be connected to PC with dual screen

➤ Basic Hardware configuration

1. Computer configuration

- CPU: 1GHz or above
- Memory: 4G or above
- Hard disc: 500GB or above
- NIC: 100M self-adaptive
- Sound card: 16-bit
- Monitor: 19 inch or above Operating system: WINDOWS 7 or above

2. Printing system: printer

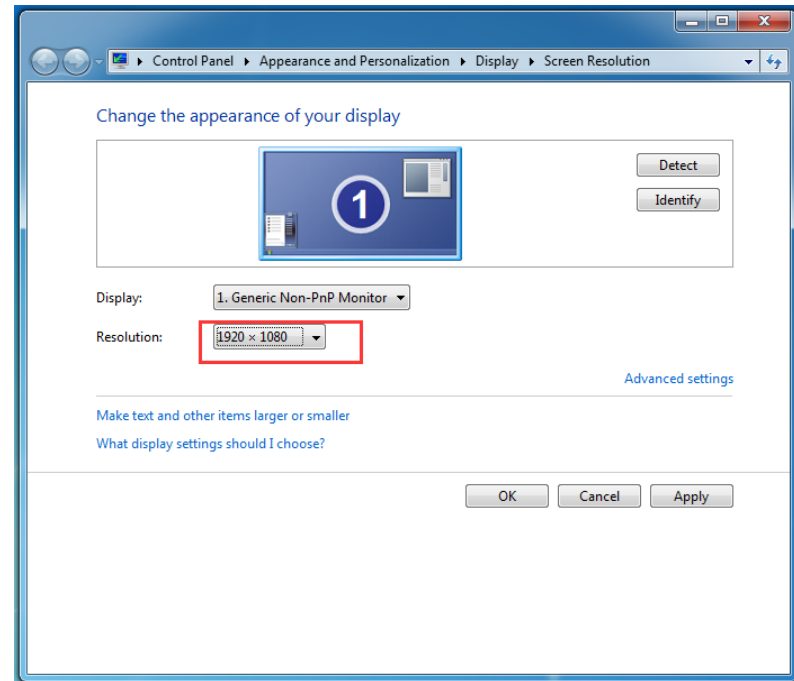
3. Switch/ Hub: 10M/100M self-adaptive

4. Network cable: Straight-through cables (same color definition for the 2 ends)



❖ Computer installation

- Install the operating system (WIN7)
- Install the network card and its driver
- Set the monitor display resolution to 1920*1080 following below method:
right click on desktop → “Property” → “Setting”





Central Monitoring System

BT-720

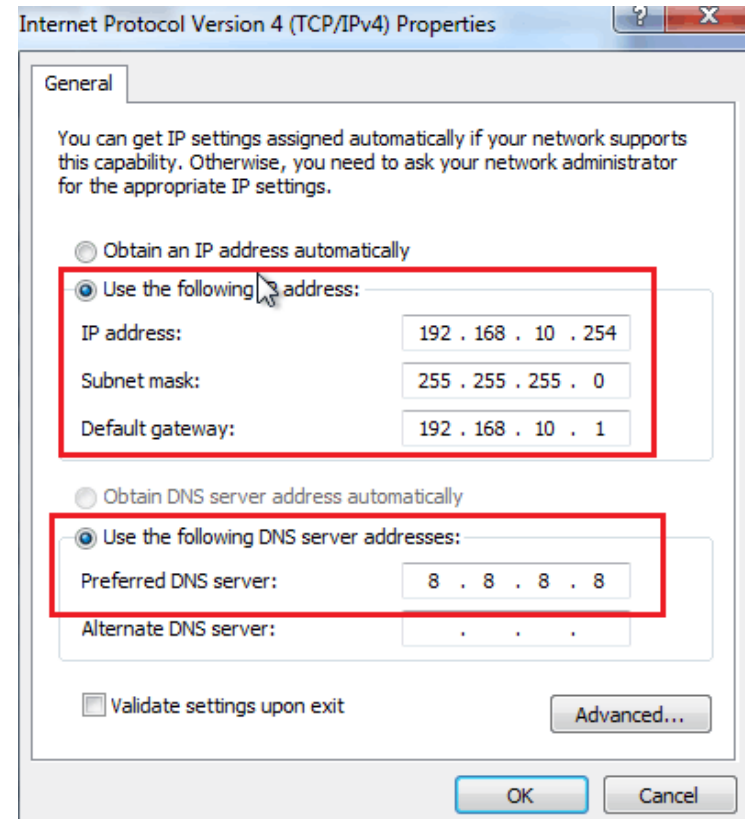
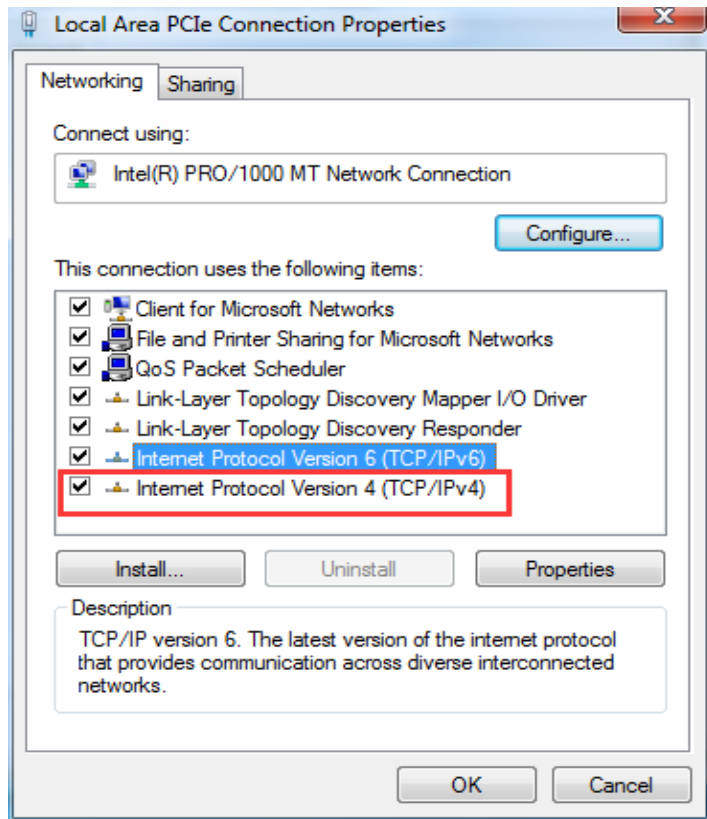
❖ Network connection

- Use a network cable to connect one end of the Hub to the network card interface of the Central Unit and the other end to any port of a 16-port Hub.
- Use another network cable to connect any port of a 16-port Hub and the other end to the network interfaces of Bed Side Units.



❖ Network Setting

- The IP address settings for the Central monitor system





Central Monitoring System

BT-720

❖ Network Setting

➤ Bed Number Setting

Network Setup X

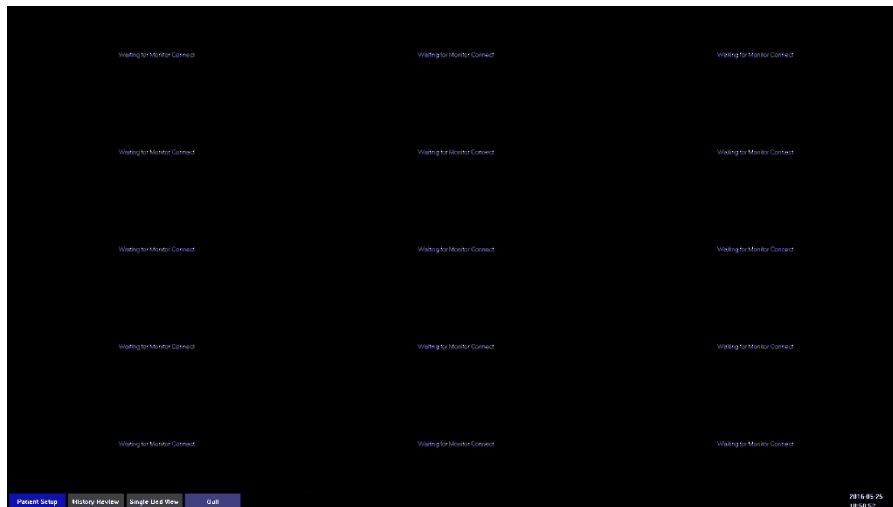
Net Type	LAN			
Local IP	192	168	10	56
Remote IP	192	168	10	254
Subnet Mask	255	255	255	0
Gateway	192	168	10	1
Remote Port	2528			

no need to change

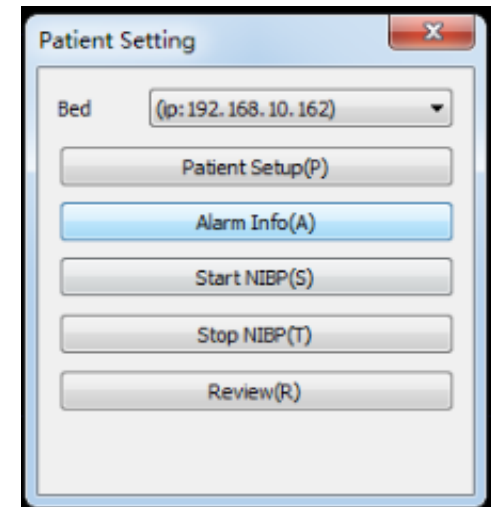
- User Maintenance -> Module Setup -> Network Setup
- Set the Local IP address to be 192.168.10.x(x can be 2 to 253)
- Set the Remote IP address to be 192.168.10.254

❖ CMS Screen Display

➤ Main Screen



➤ Settings





Central Monitoring System

BT-720



- ❖ RJ45 connection
 - Advantage : Low cost

Comparison Chart

BT-720



❖ General

Model	BT-720 	M3/M3B 	SureSigns VS2+ 	75MT-B 
Manufacturer	BISTOS	Edan	Philips	Welch Allyn
Display	4.3" Color TFT-LCD Touch screen	5.7" color TFT-LCD 640x480 pixels	4.3" TFT-AM LCD 480x272 pixels	3.4 X 6.5 Inch Color touch screen
Power Supply	Input : AC 100 ~ 240V (50/60Hz) Output : DC 15V/2.4A	AC 100 ~ 240V (50/60Hz)	AC 100 ~ 240V (50/60Hz)	
Battery	11.1V Li-ion 4,400mAh Operating Time : 8hrs Charging Time : 4hrs	14.8V Lithium-ion 4,400mAh Run time: 8hrs Charging time: < 6hrs	10.8V to 11.1V 2150mAh to 2300mAh Run Time : > 4.5hrs Charging Time : 4hrs	15V at 2.33A Run Time : 12hrs Charging Time : 4hrs
Alarm	Audible alarm(45-85dB), Visual alarm	Audible, Visual	Audible alarm(45-85dB) Visual alarm indicator	
Trends	168hrs *Large capacity	72hrs	Stores up to 100 patient records	
Interface	RJ45, SD card(software upgrade)	USB, wired or wireless network, Nurse call	Nurse call, ethernet, USB, wireless	Wi-Fi
Connectivity	HL7 (option)		HL7	
Dimension	256(W) x 185(D) x 90(H)mm	200.8(L) x 241(H) x 189mm(D)	18.4(W) x 20.5(H) x 15.0(D)cm	16.1(H) x 23.4(W) x 5.8(D)cm
Weight	1.5kg	3kg	2.0kg	1.3kg
Certificate	CE	CE	CE	

Comparison Chart

BT-720

❖ SpO2

Model	BT-720 	M3/M3B 	SureSigns VS2+ 	75MT-B 
Manufacturer	BISTOS	Edan	Philips	Welch Allyn
Measurement Range	0-100%	0-100%	0-100%	1-100%
Accuracy	Adult/Pediatric : 70 ~ 100% $\pm 2\%$ Neonate : 70 ~ 100% $\pm 3\%$ 0~69%: unspecified	Adult/Pediatric : 70 ~ 100% $\pm 2\%$ Neonate : 70 ~ 100% $\pm 3\%$ 0~70%: unspecified	70-100% Philips reusable sensors: Adult/Pediatric $\pm 2-3\%$, neonatal $\pm 4\%$ Philips disposable sensors: Adult/Pediatric $\pm 2\%$, neonatal $\pm 3\%$	Masimo: ± 2 digits Nellcor: ± 3 digits Nonin: ± 3 digits
PR range	25-250bpm	30-300bpm	30-300bpm	Masimo: 25 – 240 bpm Nellcor: 25 – 240 bpm Nonin: 40 – 240 bpm
PR Accuracy	$\pm 2\%$ or ± 2 bpm, whichever is greater	± 3 bpm	2% or 1bpm, whichever is greater	Masimo: ± 3 digits Nellcor: ± 3 digits Nonin: ± 3 digits

Comparison Chart

BT-720

❖ NIBP

Model	BT-720 	M3/M3B 	SureSigns VS2+ 	75MT-B 
Manufacturer	BISTOS	Edan	Philips	Welch Allyn
Measurement Range	<p>Adult : Systolic: 30-280mmHg Diastolic: 10-220mmHg Mean: 10-240mmHg</p> <p>Pediatric : Systolic: 30-230mmHg Diastolic: 10-165mmHg Mean: 10-175mmHg</p> <p>Neonatal : Systolic: 30-145mmHg Diastolic: 10-105mmHg Mean: 10-115mmHg *Wide measurement range</p>	<p>Adult Mode SYS 40~270mmHg DIA 10~215mmHg MAP 20~235mmHg</p> <p>Pediatric Mode SYS 40~200mmHg DIA 10~150mmHg MAP 20~165mmHg</p> <p>Neonatal Mode SYS 40~135mmHg DIA 10~100mmHg MAP 20~110mmHg</p>	<p>Adult: SYS 30~270mmHg DIA 10~245mmHg MAP 20~255mmHg</p> <p>Pediatric SYS 30~180mmHg DIA 10~150mmHg MAP 20~160mmHg</p> <p>Neonatal Mode SYS 30~130mmHg DIA 10~100mmHg MAP 20~120mmHg</p>	<p>Systolic Range Adult/Pediatric: 30 – 260 mmHg Neonate: 20 – 120 mmHg Diastolic Range Adult/Pediatric: 20 – 220 mmHg Neonate: 10 – 110 mmHg MAP Range Adult/Pediatric: 23 – 230 mmHg Neonate: 13 – 110 mmHg</p>
Interval for measurement	<p>1/2/3/4/5/10/15/30/60/90/120/180/240/480min *Various interval</p>	<p>1/2/3/4/5/10/15/30/60/90/120/240/480min</p>		
Over-pressure protection	<p>Adult: 320-330mmHg Pediatric: 265-275mmHg Neonate: 160-165mmHg</p>	<p>Adult: 297 ±3mmHg Pediatric: 240 ±3mmHg Neonate: 145 ±3mmHg</p>		<p>Adult/Pediatric: 300 mmHg ± 15 mmHg Neonate: 150 mmHg maximum</p>

Comparison Chart

BT-720

❖ TEMP





Model	BT-720 	M3/M3B 	SureSigns VS2+ 	75MT-B 
Manufacturer	BISTOS	Edan	Philips	Welch Allyn
Measurement Range	0-50 °C (32-122 °F) *Wide measurement range	25-45 °C	Monitored mode: 26.7-43.3 °C (80-110 °F) Predictive mode: 34.4-40.6 °C (93.9-105 °F)	SureTemp® Plus: 80 - 110 °F (26.7 – 43.3 °C) Braun: 68 - 108 °F (20 – 42.2 °C)
Accuracy	±0.3 °C	±0.1 °C	±0.1 °C (±0.2 °F)	SureTemp Plus: ±0.2 °F (±0.1 °C) Braun: ±0.4 °F (for temps up to 107.6 °F), ±0.5 °F (for temps higher than 107.6 °F)
PR range	0.1 °C	0.1 °C	0.1 °C (0.2 °F)	



Comparison Chart

BT-720

❖ Others

Model	BT-720 	M3/M3B 	SureSigns VS2+ 	75MT-B 
Manufacturer	BISTOS	Edan	Philips	Welch Allyn
Respironics CO2 (Option)	X	Mainstream, Sidestream	X	X
		0-150mmHg		
		±2% 0 ~ 40 mmHg ±5% 41 ~ 70 mmHg ±8% 71 ~ 100 mmHg ±10% 101 ~ 150 mmHg		
Printer (Option)	X	Thermal dot array	Thermal	
		25	6.25, 12.5, 25, 50	
		48	58	
Barcode scanner (Option)	X	X	O	X

Thank You !