

Specifications : BT-710 Handheld Pulse Oximeter

Functional Characteristics	
SpO2	
Display range	0% ~ 100%
SpO2 display resolution	1%
	Adult/Pediatric : 70 ~ 100% ±2%
SpO2 accuracy	Neonate : 70 ~ 100% ±3%
	0 ~ 69% : unspecified
SpO2 alarm preset limits	Upper alarm limit : 86% ~ 100%
	Lower alarm limit : 85% ~ 99%
SpO2 alarm preset accuracy	±1%
SpO2 alerting signal generates delay	No delay
SpO2 value refresh period	1s/time
SpO2 value refresh delay	< 10s
	Low sensitivity : 7 ~ 8s
Average period	Intermediate sensitivity : 4 ~ 6s
	Advanced sensitivity : 2 ~ 3s
	Low sensitivity : < 8s
Alarm condition delay period	Intermediate sensitivity : < 6s
	Advanced sensitivity : < 3s
Alarm sign generates delay period	0s
Pulse Rate	
Measuring range	25 ~ 250bpm
Resolution	±1bpm
Accuracy	±2% or ±2bpm, whichever is greater
Display	
Type	Color TFT touch screen LCD
Size	4.3"
Function	
Sleep mode	
Perfusion index	
Multi-language	
Trend	168hours
Alarm	
SpO2 alarms	SpO2 high/low PR high/low PI high/low
System alarms	Spo2 sensor no/off/error SpO2 search timeout/pulse SpO2 signal unstable SpO2 board failure Low perfusion Too much light Battery low System will shutdown
PC Interface	
SD card interface	S/W upgrade
Others	
Liquid Inlet Protection Grade	IPX2
Power	
Adaptor	Input : AC 100 ~ 240V (50/60Hz) Output : DC 5V/2A
Rechargeable battery	3.7V Li-ion 3,800mA Operating time : 8hrs Charging time : 4hrs

Standard Configurations	
Adult SpO2 probe	1ea
Carrying pouch	1ea
Operation manual	1ea
Power adaptor	1ea
Physical Characteristics	
Dimension	
Main unit	84(W) x 34.5(D) x 158.5(H)mm
Packing (one unit)	201(W) x 106(D) x 69(H)mm
Carton box (10ea)	355(W) x 230(D) x 220(H)mm
Weight	
Main unit	300g
Packing (one unit)	620g
Carton box (10ea)	6.6Kg
Environmental Conditions	
Operating temperature	10 ~ 40°C (50 ~ 104°F)
Operating humidity	5 ~ 85% non-condensing
Storage temperature	-20 ~ 60°C (-4 ~ 140°F)
Storage humidity	0 ~ 95% non-condensing
Warranty	
Main unit	2 years
Optional sensor & accessory	1 year
Certificates	
KFDA, CE	

Specifications : BT-770 12.1" Multi-parameter Patient Monitor

Functional Characteristics	
Display	
Type	Color TFT touch screen LCD
Size and resolution	12.1", 800 x 600 pixels
LED	
Alarm indicator	Yellow & red
Adaptor power indicator	1 green
Battery status indicator	1 green
Audio	
Speaker	Alarm sound (45 ~ 85dB), key pressing sound QRS sound, PR sound Alarm sound meets the IEC60601-1-8
Data Storage	
Trend	168hours, resolution : 1min
Alarm event	200 physiological and 100 technical alarm events
NiBp measurement result	1,000 groups
Function	
Multi-language	English, France, Spanish, Turkey
Trend	Graphic/tabular
Alarm	
Mode	Visual, audible, information, parameter flashing
Alarm delay	Off, 1s, 2s, 3s, 4s, 5s, 6s, 7s, 8s
Pause duration	1, 2, 3, 4, 5, 10, 15min or permanent
System	Low battery
Interface	
Auxiliary	Nurse call
RJ45 (LAN)	CMS
USB	S/W upgrade
ECG	
Standard compliance	IEC60601-2-27
Lead type	3Lead : I, II, III 5Lead : I, II, III, aVR, aVL, aVF, V
Display sensitivity (gain)	Auto, 1.25, 2.5, 5, 10, 20mm/mV
Wave sweep speed	12.5, 25, 50mm/s
Band width	Diagnostic mode : 0.05 ~ 130Hz Monitoring mode : 0.5 ~ 40Hz Surgery mode : 1 ~ 25Hz Strong filter mode : 5 ~ 20Hz
CMRR	> 100dB
Notch	50/60Hz (can be set on or off)
Differential input	> 5MΩ
Electrode polarization voltage range	±400mV
Baseline recovery time	< 5s after defibrillation (monitor and surgery mode)
Calibration signal	1mV (peak-peak), accuracy ±3%
Lead-off detection current	Measuring electrode : < 0.1µA Drive electrode : < 1µA
HR measuring range	Adult : 15 ~ 300bpm Pediatric/Neonate : 15 ~ 350bpm
HR measuring resolution	1bpm
HR measurement accuracy	±1bpm or ±1%, whichever is greater
HR accuracy & response to irregular rhythm	Ventricular bigeminy : 80±1bpm Slow alternating ventricular bigeminy : 60±1bpm Rapid alternating ventricular bigeminy : 120±1bpm Bidirectional systoles : 90±2bpm
HR time to alarm for tachycardia	0.5/1/2mV, 206bpm ventricular tachycardia : < 10s 1/2/4mV, 195bpm ventricular tachycardia : < 5s

HR alarm upper limit (bpm)	Adult : 16 ~ 300, 1bpm step Pediatric/Neonate : 16 ~ 350, 1bpm step
HR alarm lower limit (bpm)	Adult : 15 ~ 299, 1bpm step Pediatric/Neonate : 15 ~ 349, 1bpm step
Pacing pulse identification	Detection range : $\pm 2\text{mV} \sim \pm 700\text{mV}$ Pulse width : 0.2ms ~ 2.0ms
Pacing pulse average HR	15s data
Pacing pulse interval of HR Refreshing	Every second
Pacing pulse HR change response time	$\leq 10\text{sec}$
Pacing pulse tall T-wave suppression	2mV
Alarm	Communication, configuration, selfcheck error Lead off HR high/low, PVCS high Asystole, VF/VTA, R on T, Tachycardia/bradycardia, PVC frequent/couplet/singlr/bigeminy/trigeminy, Miss Beat Pacemaker not capture/work Signal weak, ST-I, II, III high/low

Respiration

Measurement method	Thoracic electrical bio impedance method
Measuring lead	Lead RA-LA, RA-LL
Wave gain	X0.5, x1, x2
Respiratory impedance range	0.2 ~ 3 Ω
Base line impedance	500 ~ 2,000 Ω
Gain	10 grades
Wave sweep speed	6.25mm/s, 12.5mm/s, 25mm/s
Measurement accuracy	$\pm 2\text{rpm}$
Measurement range	0 ~ 120rpm
Alarm	RR high/low Apnea Respiration artifact

Temperature

Standard compliance	ISO80601-2-56
Measurement method	Thermistor
Measuring range	0°C ~ 50.0°C (32°F ~ 122.0°F)
Resolution	0.1°C
Measurement accuracy	$\pm 0.3^\circ\text{C}$
Number of channel	2
T1/T2 alarm upper limit	0.1°C ~ 50.0°C, 0.1°C/F step
T1/T2 alarm lower limit	0°C ~ 49.9°C, 0.1°C/F step
Temperature difference alarm upper limit	0°C ~ 50.0°C, 0.1°C/F step
Alarm	T1, T2 Sensor off T1/T2 high/low, TD high

NiBp

Standard compliance	IEC80601-2-30
Measurement method	Automatic oscillometric method
Operating mode	Manual, automatic, continuous(STAT)
Useful life	100,000times
Measurement interval in automatic mode	1/2/3/4/5/10/15/30/60/90/120/180/240/480min
Typical measurement time	20~40s
Normal mode measuring range (mmHg)	Systolic : Adult(40~270), Pediatric(40~200), Neonate(40~130) Mean : Adult(20~230), Pediatric(20~175), Neonate(20~100) Diastolic : Adult(10~210), Pediatric(10~162), Neonate(10~90)
Measurement accuracy	Maximum average error: $\pm 5\text{mmHg}$ Maximum standard deviation: 8mmHg
Resolution	1mmHg
Initial inflation pressure (mmHg)	Adult : 150(default), 80~240(pressure setting range) Pediatric : 100(default), 80~200(pressure setting range) Neonate : 100(default), 60~120(pressure setting range)

Overpressure protection point (software)	Adult: 300mmHg Pediatric: 240mmHg Neonate: 150mmHg
Overpressure protection point (hardware)	Adult: 320~330mmHg Pediatric: 265~275mmHg Neonate: 160~165mmHg
Static Pressure accuracy	±3mmHg
Supply voltage	10V~14VDC
Maximum power consumption	3.6W
Quiescent current	50mA
Maximum current during measurement	180mA
Maximum current during inflation	300mA
Alarm	Communication, selfcheck, CFG error System error, measurement timeout Cuff loose, no, leak, type error Air pressure error Over range, signal weak/unstable/saturated Over pressure Module reset failed Systolic, mean, diastolic high/low
SpO2	
Standard compliance	ISO80601-2-61
Display range	0% ~ 100%
SpO2 display resolution	1%
SpO2 accuracy	Adult/Pediatric : 70 ~ 100% ±2% Neonate : 70 ~ 100% ±3% 0 ~ 69% : Unspecified
Wave sweep speed	12.5mm/s, 25mm/s
Wave mode	Scan, fill
Pulse volume	0, 1, 2, 3, 4, 5, 6, 7, 8, 9 level
SpO2 alarm preset limits	Upper Alarm Limit : 86% ~ 100% Lower Alarm Limit : 85% ~ 99%
SpO2 alarm preset accuracy	±1%
SpO2 alerting signal generates delay	No Delay
SpO2 value refresh period	1s/time
SpO2 value refresh delay	< 10s
Average period	Low Sensitivity : 7 ~ 8s Intermediate Sensitivity : 4 ~ 6s Advanced Sensitivity : 2 ~ 3s
Alarm condition delay period	Low Sensitivity : < 8s Intermediate Sensitivity : < 6s Advanced Sensitivity : < 3s
Alarm sign generates delay period	0s
Perfusion index	0.05 ~ 20%
PR Measurement Range	25 ~ 254bpm
PR Resolution	±1bpm
PR Measurement accuracy	±2% or ±2bpm, whichever is greater
Alarm	Communication stop/error No sensor/ sensor off Search timeout Search pulse(weak) SpO2, RR high/low
IBP (Option)	
Standards compliant	IEC60601-2-34
Pressure measurement range	-50 ~ 400 mmHg
Pressure measurement accuracy	±3 mmHg or ±2%, whichever is greater
Pressure resolution	1 mmHg
PR measurement range	35 ~ 250 bpm

PR measurement accuracy	$\pm 3\text{bpm}$
PR resolution	1bpm
Transducer sensitivity	$5\mu\text{V/V/mmHg}$
Transducer resistance range	300-5,000 Ω
Supply voltage	+12VDC
Maximum power consumption	$\leq 5\text{W}$
Scan speed	12.5mm/s, 25mm/s
	IBP1, 2 communication stop/error
	IBP1, 2 sensor off
Alarm	Art-sys, PA-sys, P1-sys, P2-sys high Art-dia, PA-dia, P1-dia, P2-dia high Art-mean, PA-mean, CVP-mean, LAP-mean, RAP-mean, ICP-mean, P1-mean, P2-mean high

EtCO2 Mainstream & Sidestream (Option)

Measurement parameters	EtCO2、FiCO2、AwRR
Measuring range	EtCO2 : 0~150mmHg, AwRR : 0~150rpm
Resolution	EtCO2/FiCO2 : 1mmHg, AwRR : 1rpm
Apnea delay	20s, 25s, 30s, 35s, 40s, 45s, 50s, 55s, 60s
Operating mode	Standby, measure
O2 compensation	Low, mid, high
N2O compensation	On, off
	EtCO2 lower limit : 0~149mmHg
Alarm limit	EtCO2/FiCO2 upper limit : 1~150mmHg AWRR lower limit : 0~119rpm AWRR upper limit : 1~120rpm
	Communication stop/error
	CO2 sensor off/error
	O2 sensor error/replace
	adaptor/sampling line no/check
	Parameter accuracy error
	O2, Air calibration error
	S/W, H/W error
	Motor accuracy error
	CO2 factory calibration error
Alarm	Adaptor, sampling line replace
	O2 port error
	CO2, O2, N2O out of accuracy
	CO2 temp., pressure out of accuracy
	CO2 zero required
	CO2 zeroing/sleeping
	CO2 module calibrating/calibration error
	EtCO2, FiCO2, AWRR high/low
	Apnea

C.O. (Cardiac Output : Option)

Measurement range	C.O. : 0.2 ~ 20 L/min BT : 23 ~ 45°C ± 0.5 °C IT : 0 ~ 20°C ± 0.5 °C
Resolution factor	C.O. : 0.1L/min BT, IT : 0.1°C
Accuracy	C.O. : $\pm 5\%$ or ± 0.1 L/min, subject to the bigger one BT, IT : ± 0.1 °C (sensor exclusive)
Scope of alarm limit	BT high limit : (Low limit +0.1) ~ 43°C BT low limit : 23.0 ~ (high limit -0.1) °C Step size : 0.1°C
Alarm	BT sensor off BT high/low C.O. high

Printer (Option)	
Type	Thermal dot array
Print speed	12.5, 25, 50mm/s
Paper size	58mm(W) x 42m
Power	
Adaptor	Input : AC 100 ~ 240V (50/60Hz) Output : DC 15V/2.4A
Consumption	13.5W
Rechargeable battery	11.1V Li-ion 4,400mA Operating Time : 5hrs Charging Time : 4hrs
Standard Configurations	
ECG cables and lead wire	1ea(5lead)
ECG electrode for adult	1pack(25pcs)
SpO2 adult reusable sensor	1ea
SpO2 extension cable	1ea
NiBp adult cuff	1ea
NiBp extension tube	1ea
Temperature sensor	1ea
Power adaptor	1ea
Bracket	1ea
Operation manual	1ea
Options (Function)	
IBP	Sensor cable & package
EtCO2 Mainstream (Bistos)	Airway adaptor & module
EtCO2 Sidestream (Bistos)	Sampling tube
EtCO2 IRMA Mainstream (Masimo)	Airway adaptor & module
EtCO2 ISA Sidestream (Masimo)	Sampling tube
C.O.	Sensor cable
Printer	Printer & paper
Cart	
Options (Accessory)	
ECG cables and lead wire	5/3 lead
ECG electrode	adult/neonate
SpO2 reusable sensor	adult/pediatric/neonate
SpO2 disposable sensor	adult/pediatric/neonate
Skin & rectal temperature sensor	adult/pediatric/neonate
NiBp cuff	adult(27~35cm)/pediatric(14~21.5cm)/neonate(4*9cm)
Physical Characteristics	
Dimension	
Main unit	320(W) x 65(D) x 250(H)mm
Packing	400(W) x 350(D) x 290(H)mm
Weight	
Main unit	< 2.8Kg
Packing	4.6Kg
Environmental Conditions	
Operating temperature	10 ~ 40°C (50 ~ 104°F)
Operating humidity	5 ~ 85% non-condensing
Storage temperature	-20 ~ 60°C (-4 ~ 140°F)
Storage humidity	0 ~ 95% non-condensing
Warranty	
Main unit	2 years
Optional sensor & accessory	1 year
Certificates	
KFDA, CE	

Specifications : BT-780 15.6" Multi-parameter Patient Monitor

Functional Characteristics	
Display	
Type	Color TFT touch screen LCD
Size and resolution	15.6", 1366 x 768 pixels
LED	
Alarm indicator	Yellow & red
Adaptor power indicator	1 green
Battery status indicator	1 green
Audio	
Speaker	Alarm sound (45 ~ 85dB), key pressing sound QRS sound, PR sound Alarm sound meets the IEC60601-1-8
Data Storage	
Trend	168hours, resolution : 1min
Alarm event	200 physiological and 100 technical alarm events
NiBp measurement result	1,000 groups
Function	
Multi-language	English, Turkish, Spanish, French, Polish, German, Italian, Hungarian
Trend	Graphic/tabular
Alarm	
Mode	Visual, audible, information, parameter flashing
Alarm delay	Off, 1s, 2s, 3s, 4s, 5s, 6s, 7s, 8s
Pause duration	1, 2, 3, 4, 5, 10, 15min or permanent
System	Low battery
Interface	
Auxiliary	Nurse call
RJ45 (LAN)	CMS
USB	S/W upgrade
ECG	
Standard compliance	IEC60601-2-27
Lead type	3Lead : I, II, III 5Lead : I, II, III, aVR, aVL, aVF, V
Display sensitivity (gain)	Auto, 1.25, 2.5, 5, 10, 20mm/mV
Wave sweep speed	12.5, 25, 50mm/s
Band width	Diagnostic mode : 0.05 ~ 130Hz Monitoring mode : 0.5 ~ 40Hz Surgery mode : 1 ~ 25Hz Strong filter mode : 5 ~ 20Hz
CMRR	> 100dB
Notch	50/60Hz (can be set on or off)
Differential input	> 5MΩ
Electrode polarization voltage range	±400mV
Baseline recovery time	< 5s after defibrillation (monitor and surgery mode)
Calibration signal	1mV (peak-peak), accuracy ±3%
Lead-off detection current	Measuring electrode : < 0.1µA Drive electrode : < 1µA
HR measuring range	Adult : 15 ~ 300bpm Pediatric/Neonate : 15 ~ 350bpm
HR measuring resolution	1bpm
HR measurement accuracy	±1bpm or ±1%, whichever is greater
HR accuracy & response to irregular rhythm	Ventricular bigeminy : 80±1bpm Slow alternating ventricular bigeminy : 60±1bpm Rapid alternating ventricular bigeminy : 120±1bpm Bidirectional systoles : 90±2bpm

HR time to alarm for tachycardia	0.5/1/2mV, 206bpm ventricular tachycardia : < 10s 1/2/4mV, 195bpm ventricular tachycardia : < 5s
HR alarm upper limit (bpm)	Adult : 16 ~ 300, 1bpm step Pediatric/Neonate : 16 ~ 350, 1bpm step
HR alarm lower limit (bpm)	Adult : 15 ~ 299, 1bpm step Pediatric/Neonate : 15 ~ 349, 1bpm step
Pacing pulse identification	Detection range : $\pm 2\text{mV} \sim \pm 700\text{mV}$ Pulse width : 0.2ms ~ 2.0ms
Pacing pulse average HR	15s data
Pacing pulse interval of HR Refreshing	Every second
Pacing pulse HR change response time	$\leq 10\text{sec}$
Pacing pulse tall T-wave suppression	2mV
	Communication, configuration, selfcheck error
	Lead off
	HR high/low, PVCS high
Alarm	Asystole, VF/VTA, R on T, Tachycardia/bradycardia, PVC frequent/couplet/singlr/bigeminy/trigeminy, Miss Beat Pacemaker not capture/work Signal weak, ST-I, II, III high/low

Respiration

Measurement method	Trans-Thoracic impedance
Operation modes	Auto
Measuring lead	Lead RA-LA, RA-LL, LA-RL, LL-RL
Wave gain	X0.5, x1, x2
Respiratory impedance range	0.2 ~ 3 Ω
Base line impedance	500 ~ 2,000 Ω
Sensitivity	1,2,3,4,5
Wave sweep speed	6.25mm/s, 12.5mm/s, 25mm/s
Measurement accuracy	$\pm 2\text{rpm}$
Measurement range	0 ~ 120rpm
	RR high/low
Alarm	Apnea Respiration artifact

Temperature

Standard compliance	ISO80601-2-56
Measurement method	Thermistor
Measuring range	0°C ~ 50.0°C (32°F ~ 122.0°F)
Resolution	0.1°C
Measurement accuracy	$\pm 0.1^\circ\text{C}$ or $\pm 0.2^\circ\text{F}$ (without probe)
Number of channel	2
T1/T2 alarm upper limit	0.1°C ~ 50.0°C, 0.1°C/F step
T1/T2 alarm lower limit	0°C ~ 49.9°C, 0.1°C/F step
Temperature difference alarm upper limit	0°C ~ 50.0°C, 0.1°C/F step
	T1, T2 Sensor off
Alarm	T1/T2 high/low, TD high

NiBp

Standard compliance	IEC80601-2-30
Measurement method	Automatic oscillometric method
Operating mode	Manual, automatic, continuous(STAT)
Useful life	100,000 times
Measurement interval in automatic mode	1/2/3/4/5/10/15/30/60/90/120/180/240/480min
Typical measurement time	20~40s
Normal mode measuring range (mmHg)	Systolic : Adult(30~280), Pediatric(30~230), Neonate(30~145) Mean : Adult(10~240), Pediatric(10~175), Neonate(10~115) Diastolic : Adult(10~220), Pediatric(10~165), Neonate(10~105)
Measurement accuracy	Maximum average error: $\pm 5\text{mmHg}$ Maximum standard deviation: 8mmHg
Resolution	1mmHg

Initial inflation pressure (mmHg)	Adult : 160 (default) Pressure setting range:140mmHg, 160mmHg, 180mmHg Pediatric : 140 (default) Pressure setting range:140mmHg, 160mmHg Neonate : 100 (default) Pressure setting range:100mmHg, 120mmHg
Overpressure protection point (software)	Adult: 300mmHg Pediatric: 240mmHg Neonate: 150mmHg
Overpressure protection point (hardware)	Adult: 320~330mmHg Pediatric: 265~275mmHg Neonate: 160~165mmHg
Static Pressure accuracy	±3mmHg
Supply voltage	10V~14VDC
Maximum power consumption	3.6W
Quiescent current	50mA
Maximum current during measurement	180mA
Maximum current during inflation	300mA
Alarm	Communication, selfcheck, CFG error System error, measurement timeout Cuff loose, no, leak, type error Air pressure error Over range, signal weak/unstable/saturated Over pressure Module reset failed Systolic, mean, diastolic high/low

SpO2

Standard compliance	ISO80601-2-61
Display range	0% ~ 100%
SpO2 display resolution	1%
SpO2 accuracy	Adult/Pediatric : 70 ~ 100% ±2% Neonate : 70 ~ 100% ±3% 0 ~ 69% : Unspecified
Wave sweep speed	12.5mm/s, 25mm/s
Wave mode	Scan, fill
Pulse volume	0, 1, 2, 3, 4, 5, 6, 7, 8, 9 level
SpO2 alarm preset limits	Upper Alarm Limit : 86% ~ 100% Lower Alarm Limit : 85% ~ 99%
SpO2 alarm preset accuracy	±1%
SpO2 alerting signal generates delay	Off,1s,2s,3s,4s,5s,6s,7s,8s
SpO2 value refresh period	1s/time
SpO2 value refresh delay	< 10s
Average period	Low Sensitivity : 7 ~ 8s Intermediate Sensitivity : 4 ~ 6s Advanced Sensitivity : 2 ~ 3s
Perfusion index	0.05 ~ 20%
PR Measurement Range	25 ~ 250 bpm
PR Resolution	±1 bpm
PR Measurement accuracy	±2% or ±2bpm, whichever is greater
Alarm	Communication stop/error No sensor/ sensor off Search timeout Search pulse(weak) SpO2, RR high/low
IBP (Option)	
Standards compliant	IEC60601-2-34
Channel	2-ch, 4-ch
Pressure measurement range	-50 ~ 400 mmHg

Pressure measurement accuracy	±3 mmHg or ±2%, whichever is greater
Pressure resolution	1 mmHg
PR measurement range	35 ~ 250 bpm
PR measurement accuracy	±3bpm
PR resolution	1bpm
Transducer sensitivity	5µV/V/mmHg
Transducer resistance range	300-3,000Ω
Supply voltage	+12VDC
Maximum power consumption	≤5W
Scan speed	12.5mm/s, 25mm/s
	IBP1, 2 communication stop/error
	IBP1, 2 sensor off
Alarm	Art-sys, PA-sys, P1-sys, P2-sys high Art-dia, PA-dia, P1-dia, P2-dia high Art-mean, PA-mean, CVP-mean, LAP-mean, RAP-mean, ICP-mean, P1-mean, P2-mean high

EtCO2 Mainstream & Sidestream (Option)

Measurement parameters	EtCO2、FiCO2、AwRR
Measuring range	0-15%
Accuracy	±0.2%+2% of the reading
Resolution	EtCO2/FiCO2 : 1mmHg, AwRR : 1rpm
Rise time	200ms, typical at 50ml/min flow rate
Total response time	within 3 seconds(within 2m Nomoline sampling)
AWRR range	0-150bpm
AWRR Accuracy	±1 breath
Apnea delay	20s, 25s, 30s, 35s, 40s, 45s, 50s, 55s, 60s
Warm-up time	Full accuracy within 10 seconds
Sampling flow rate	50ml/min(+/-10ml/min)
Operating mode	Standby, measure
O2 compensation	Low, mid, high
N2O compensation	On, off
	EtCO2 lower limit : 0~149mmHg
Alarm limit	EtCO2/FiCO2 upper limit : 1~150mmHg AWRR lower limit : 0~119rpm AWRR upper limit : 1~120rpm
	Communication stop/error
	CO2 sensor off/error
	O2 sensor error/replace
	adaptor/sampling line no/check
	Parameter accuracy error
	O2, Air calibration error
	S/W, H/W error
	Motor accuracy error
	CO2 factory calibration error
Alarm	Adaptor, sampling line replace
	O2 port error
	CO2, O2, N2O out of accuracy
	CO2 temp., pressure out of accuracy
	CO2 zero required
	CO2 zeroing/sleeping
	CO2 module calibrating/calibration error
	EtCO2, FiCO2, AWRR high/low
	Apnea

C.O. (Cardiac Output : Option)

Method	Thermodilution
	C.O. : 0.2 ~ 20 L/min
Measurement range	BT : 23 ~ 45°C±0.5 °C
	IT : 0 ~ 20°C±0.5 °C

Resolution factor	C.O. : 0.1L/min BT, IT : 0.1°C
Accuracy	C.O. : ±10% TB, TI : ±0.5°C
Scope of alarm limit	BT high limit : (Low limit +0.1) ~ 43°C BT low limit : 23.0 ~ (high limit -0.1) °C Step size : 0.1°C
Alarm	BT sensor off BT high/low C.O. high

Printer (Option)

Type	Thermal dot array
Print speed	12.5, 25, 50mm/s
Paper size	50mm(W) x 2m

Power

Adaptor	Input : AC 100 ~ 240V (50/60Hz) Input Current: 1.6-0.6A
Consumption	13.5W
Rechargeable battery	11.1V Li-ion 4,400mA Operating Time : 5hrs Charging Time : 4hrs

Standard Configurations

ECG cables and lead wire	1ea (5lead)
ECG electrode for adult	1pack (25pcs)
SpO2 adult reusable sensor	1ea
SpO2 extension cable	1ea
NiBp adult cuff	1ea
NiBp extension tube	1ea
Temperature sensor	1ea
Power adaptor	1ea
Bracket	1ea
Operation manual	1ea

Options (Function)

IBP	Sensor cable & package
EtCO2 Mainstream (Bistos)	Airway adaptor & module
EtCO2 Sidestream (Bistos)	Sampling tube
EtCO2 IRMA Mainstream (Masimo)	Airway adaptor & module
EtCO2 ISA Sidestream (Masimo)	Sampling tube
C.O.	Sensor cable
Printer	Printer & paper
Cart	

Options (Accessory)

ECG cables and lead wire	5/3 lead
ECG electrode	adult/neonate
SpO2 reusable sensor	adult/pediatric/neonate
SpO2 disposable sensor	adult/pediatric/neonate
Skin & rectal temperature sensor	adult/pediatric/neonate
NiBp cuff	adult(27~35cm)/pediatric(14~21.5cm)/neonate(4*9cm)

Physical Characteristics

Dimension

Main unit	410(W) X 298(H) X 120(D)
Packing	495(W) x 295(D) x 385(H)mm

Weight

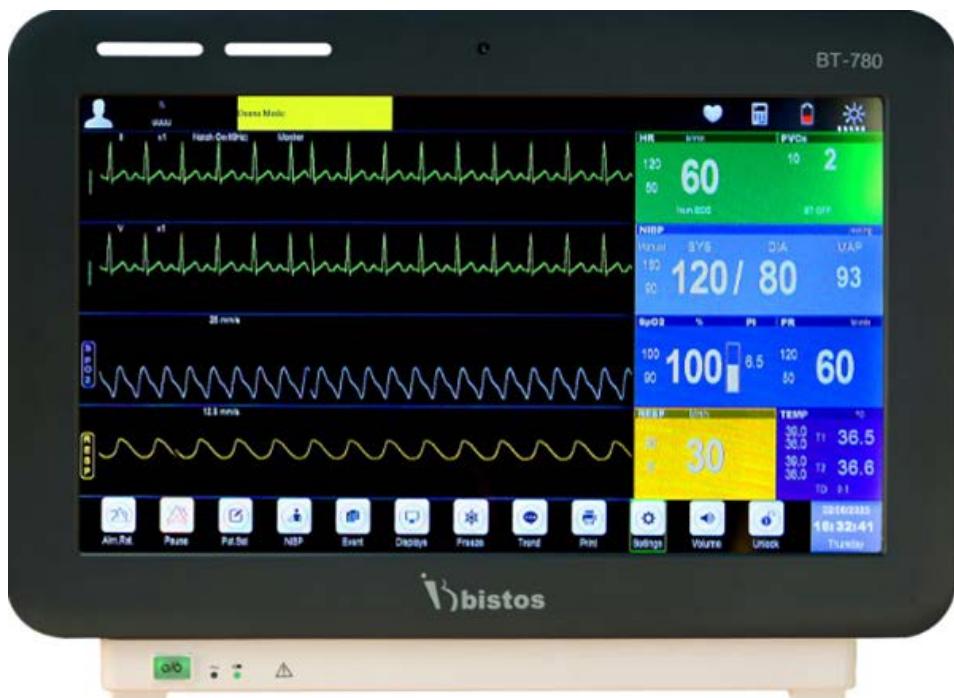
Main unit	< 4.9Kg
Packing	7kg

Environmental Conditions

Operating temperature	5 ~ 40°C (41 ~ 104°F)
Operating humidity	30 ~ 85% non-condensing

Storage temperature	-20 ~ 60°C (-4 ~ 140°F)
Storage humidity	0 ~ 95% non-condensing
Warranty	
Main unit	2 years
Optional sensor & accessory	1 year
Certificates	
KFDA, CE	

BT-780 PATIENT MONITOR



15.6" Multi-Parameter Patient Monitor
ECG, Resp., SpO₂, NIBP, Temperature

Optional CO₂, IBP, Multi-gas, C.O., Masimo SpO₂
Touch screen

Central station / Ultra slim design / Over 5 hours battery use



Dual Screen Central monitoring station

:: Technical Specification

Model		BT-780	
Category		Patient Monitor	
Display		15.6" Color Touch LCD	
ECG	Lead Type	3/5 lead	
	Gain Selection	x0.125, x0.25, x0.5, x1, x2, x4, auto	
	Sweep Speed (mm/s)	12.5, 25, 50	
	Bandwidth : Diagnostic Mode	0.05-100 Hz	
	Monitoring Mode	0.5-40 Hz	
	Surgery Mode	1-25 Hz	
	Strong Mode	5-20 Hz	
Heart Rate Range (bpm)		Adult : 15-300 Pediat / Neonate : 15-350	
Respiration	Method	Trans-thoracic Impedance	
	Measurement Range	0-120 rpm	
	Sweep Speed (mm/s)	6.25, 12.5, 25	
Measurement Range		0-100 %	
SpO ₂	Accuracy (70-100%)	Adult / Pediatric	±2 %
		Neonate	±3 %
	Accuracy (0-69%)		Unspecified
	Perfusion Index		0.05-20 %
	Pulse Rate Range (bpm)		25-250
Method		Automatic Oscillometric	
Operation Mode		Manual / Auto / STAT	
Parameter		Systolic, Diastolic, Mean	
NIBP**	Systolic Range (mmHg)	Adult	30-280
		Pediatric	30-230
		Neonate	30-145
	Diastolic Range (mmHg)	Adult	10-220
		Pediatric	10-165
		Neonate	10-105
	Mean Range (mmHg)	Adult	10-240
		Pediatric	10-175
		Neonate	10-115
Temperature	Range		0-50 °C (41 to 122 °F)
	Parameter		T1, T2, and TD
IBP*	Channel		2 Channel / 4 Channel
	Range (mmHg)		-50 to 400
Printer*	Type		Thermal dot array
	Print Speed (mm/s)		12.5, 25, 50
	Paper size (mm)		50
CO ₂ *	Method		Masimo ISA / Bistos
	Range		Masimo IRMA / Bistos
Multi-gas/O ₂ *			Masimo ISA
SpO ₂ -Masimo*			Masimo SpO ₂
CO ₂ *	Method		Thermodilution
	Range		0.2-20 L/min
Battery	Type (capacity)		Li-ion (4400 mAh)
	Run Time		5 hour
	Charging Time		4 hour
PC Software Interface			RJ45, USB, Nursing call
Warranty			2 year



Bistos Co., Ltd.

7th Fl., A Bldg., Woolim Lions Valley 5-cha, 302, Galmachi-ro, Jungwon-gu,
Seongnam-si, Gyeonggi-do, Korea (zip. 462-739)
Tel : 82 31 750 0340 Fax : 82 31 750 0344



Patient Monitoring Systems

Patient Monitor
Vital Sign Monitor
Pulse Oximeter

bistos

Patient Monitor

BT-780

15.6"



BT-770

12.1"



BT-740

8.4"

Patient Monitor

- 15.6," 12.1," 8.4 " color TFT touch screen
- ECG, Resp., SpO₂, NIBP, Temp., CO₂, IBP, Multi-gas, C.O., Masimo SpO₂
- Precise ECG measurement with pacemaker detection
- ST segment and 16 types of arrhythmia analysis
- Double overpressure protection for NIBP
- Intelligent cuff inflation pressure adjustment
- Smart Hook/Stand design, provide multiple placement modes
- Plug & Play Modular IBP& C.O., Modular Printer
- Multiple configuration options: 4-channel IBP, CO₂, invasive C.O., Multi-gas
- Over 5 hours continuous working on battery
- 12-15V wide range DC input, suitable for ambulance
- Capable to connect with central monitoring system
- HL7 export to clinical information systems (UP TO MAX 30)
- Option for WIFI



Touch screen



Dual Screen Central monitoring station



Ultra Slim design



Smart hook/Stand

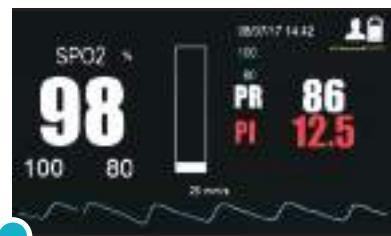


IBP, CO, Printer module

Vital Sign Monitor



Portable design



SpO₂



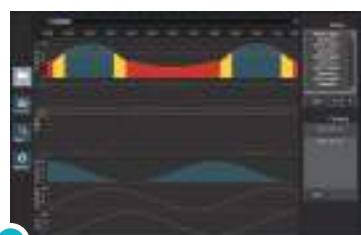
SpO₂+NIBP



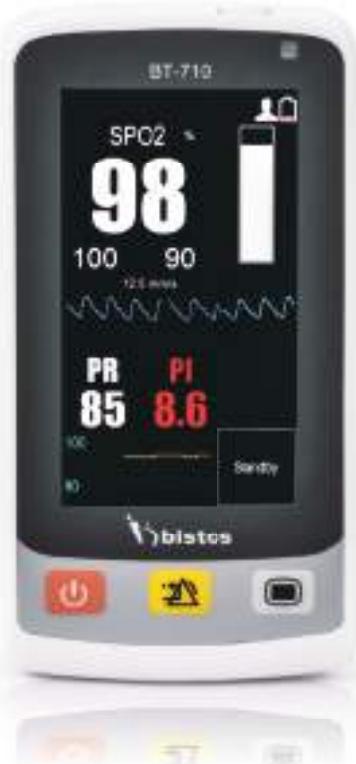
Trend Graphic

BT-720

- 4.3" color 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, Temp.
 - HL7 export to clinical information systems



Pulse Oximeter



BT-710

- 4.3" color touch screen
- Handheld style
- SpO₂, Pulse
- Accurate SpO₂ performance during motion and low perfusion
- Specialized PC software for data review and analysis
- Over 5 hours continuous working on rechargeable lithium-ion battery
- 5V DC input with convenient Micro-USB charger
- Battery can be charged by external USB battery
- Suitable for adult, pediatric and neonate
- Option for ETCO₂



Handheld size

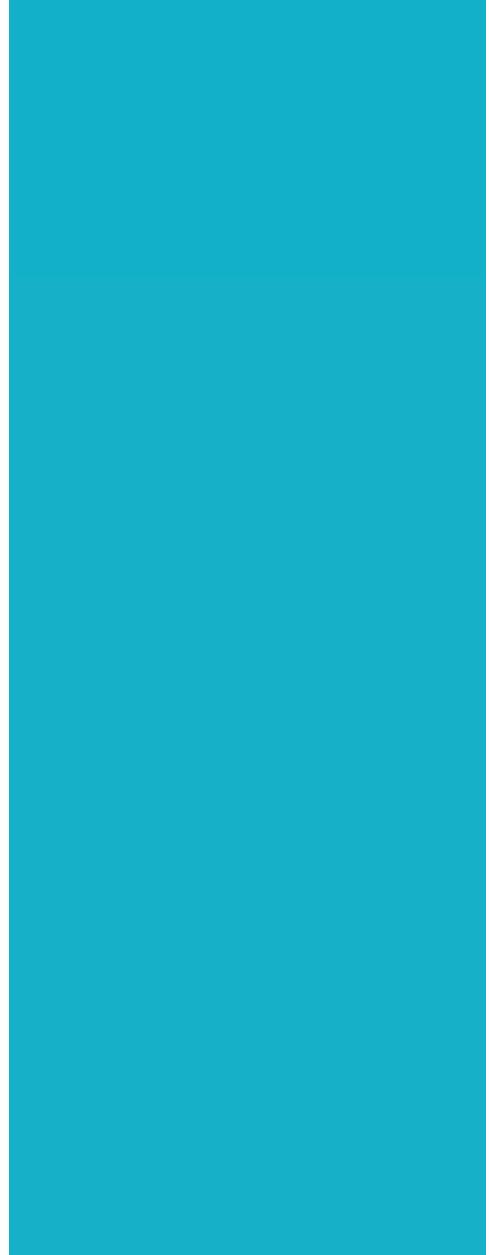
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08/01/2017 15:49	98
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BISTOS Patient Monitor Technical Specification

Model	BT780 / BT-770/ BT-740		
Category	Patient Monitor		
Display	15.6"Color Touch Screen	12.1"Color Touch Screen	8.4"Color Touch Screen
ECG	Lead Type	3/5 Lead	
	Gain Selection	x0.125, x0.25, x0.5, x1, x2, auto	
	Sweep Speed (mm/s)	12.5, 25, 50	
	Bandwidth : Diagnostic Mode	0.05-100Hz	
	Monitoring Mode	0.5-40Hz	
	Surgery Mode	1-25 Hz	
	Hert Rate Range (bpm)	Adult: 15-300 Pediatric/Neonate: 15-350	
Respiration	Method	Trans-thoracic impedance	
	Measurement Range	0-120 rpm	
	Sweep Speed (mm/s)	6.25, 12.5, 25	
SpO ₂	Measurement Range	0-100%	
	Accuracy (70-100%)	Adult/Pediatric	±2%
		Neonate	±3%
	Accuracy (0-69%)	unspecified	
	Perfusion Index	0.05-20%	
	Pulse Rate Range (bpm)	25-250	
	Method	Automatic Oscillometric	
NIBP**	Operation Mode	Manual/Auto/STAT	
	Parameter	Systolic Diastolic, Mean	
	Systolic Range (mmHg)	Adult	30-280
		Pediatric	30-230
		Neonate	30-145
	Diastolic Range (mmHg)	Adult	10-220
		Pediatric	10-165
		Neonate	10-105
	Mean Range (mmHg)	Adult	10-240
		Pediatric	10-175
		Neonate	10-115
Temperature **	Range	0-50cC(41 to122 F)	
	Parameter	T1, T2 and TD	
IBP *	Channel	2 Channel / 4 Channel	
	Range (mmHg)	-50 to 400	
Printer *	Type	Thermal dot array	
	Print Speed (mm/s)	12.5, 25, 50	
	Paper size (mm)	50mm x 2m	
CO ₂ *	Sidestream	Masimo ISA/Bistos	
	Mainstream	Masimo IRMA/Bistos	
Multi-gas/O ₂ *		Masimo ISA/Masimo IBMA/Bistos	
SpO ₂ -Masimo *		Masimo SPO ₂	
C.O. *	Method	Thermodilution	
	Range	0.2- 20L/min	
Battery	Type (capacity)	Li-ion(4400mAh)	
	Run Time	5hour	
	Charging Time	4hour	
PC Software Interface		RJ45, USB, Nursing call	
Warranty		2year	

* Option ** Option (BT-720)

BT-750	BT-720	BT-710
Patient Monitor	Vital Sign Monitor	Handheld Pulse Oximeter
10.4" Color LCD	4.3" Touch LCD	4.3" Touch LCD
3/5 lead		
5, 10, 20mm/mV		
12.5, 25, 50		
Adult : 20 - 250		
Adult : 20 - 250		
Trans-thoracic impedance		
0-150 rpm		
6.25, 12.5, 25		
0-100 %	0-100 %	0-100 %
±2%	±2%	±2%
±3%	±3%	±3%
unspecified	unspecified	unspecified
0.05-20%	0.05-20%	0.05-20%
20-250	25-250	25-250
Automatic Oscillometric	Automatic Oscillometric	
Manual / Auto / STAT	Manual / Auto / STAT	
Systolic, Diastolic, Mean	Systolic, Diastolic, Mean	
50-255	30-280	
50-255	30-230	
30-130	30-145	
30-220	10-220	
30-220	10-165	
20-100	10-105	
40-235	10-240	
40-235	10-175	
25-120	10-115	
10-45°C (50 to 113 °F)	0-50°C (41 to 122 °F)	
T1, T2	T1, T2 and TD	
2 Channel		
-50 to 300		
Thermal dot array		
50		
50.8		
Respironics		
	Masimo SpO ₂	
Li-ion (2200mAh)	Li-ion (4400mAh)	Li-ion (3000mAh)
4 hour	8 hour	5 hour
4 hour	4 hour	4 hour
RJ45*, RS232C	RJ45, SD card slot	SD card slot
2 year	2 year	2 year



BIO SIGNAL TOTAL SOLUTION

Bistos Co., Ltd. (Headquarter)

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Fax. +1-949-614-8745

Site. www.bistosamerica.com

E-mail. info@bistosamericainc.com

EC CERTIFICATE

Full Quality Assurance System

Certificate No.: 243269-2017-CE-KOR-NA-PS Rev. 4.0

Project No.: PRJC-533956-2015-MSL-KOR

Valid Until: 01 September 2023

This is to certify that the quality system of:

Bistos Co., Ltd.

7th Fl., A Bldg., Woolim Lions Valley 5-cha, 302, Galmachi-ro, Jungwon-gu, Seongnam-si,
Gyeonggi-do, Korea

For design, production and final product inspection/testing of:

**Monitoring devices of vital physiological parameters and Utilising
non-ionizing radiation**

Has been assessed with respect to:

**The conformity assessment procedure described in Annex II
excluding section 4 of Council Directive 93/42/EEC on Medical
Devices, as amended**

and found to comply

Further details of the product(s) and conditions for certification are given overleaf

Place and date:
Høvik, 26 April 2021

For the issuing office:
Notified Body 2460
DNV Product Assurance AS

[Check Validity](#)




Eugenie Winger Husebye
Technical Reviewer

Notice: The Certificate is subject to terms and conditions as set out in the Certification Agreement. Failure to comply may render this Certificate invalid.

NOTIFIED BODY 2460: DNV Product Assurance AS, Veritasveien 3, 1363 Høvik, Norway, Tel +47 67 57 88 00, www.dnv.com

ICP-4-5-i1-MDD-f2, rev.0

Certificate No.: 243269-2017-CE-KOR-NA-PS Rev. 4.0
Place and date: Høvik, 26 April 2021

Jurisdiction

Application of Council Directive 93/42/EEC of 14 June 1993, adopted as "Forskrift om Medisinsk Utstyr" by the Norwegian Ministry of Health and Care Services.

Certificate history:

Revision	Description	Issue Date
0.0	Replaces certificate EU1308401, Rev2.0 (NB 0470) following transfer of Notified Body functions to DNV GL Nemko Presafe AS (NB 2460)	01 September 2017
1.0	EU Rep change	13 April 2018
2.0	Re-certification for Fetal monitor and Neonatal Phototherapy unit (BT-300, BT-350, FM-20, Biocare FM-1, BT-400) Scope extension for pulse oximeter and patient monitor (BT-710, BT-720, BT-740, BT-770) The accessories (Feotal Doppler system probe and Cardiotocograph transducers) are removed (AY-DOP-300, AY-DOP-350, AY-UC-300, AY-UC-350)	01 September 2018
3.0	Editorial change	13 February 2020
4.0	Scope extension to new model (BT-780)	26 April 2021

Products covered by this Certificate:

Product Description	Product Name	Class
Fetal monitor	<ul style="list-style-type: none">▪ BT-200▪ BT-350▪ FM-20▪ Biocare FM-1	IIa
Neonatal Phototherapy unit	<ul style="list-style-type: none">▪ BT-400	IIa
Pulse Oximeter	<ul style="list-style-type: none">▪ BT-710	IIb
Patient Monitor	<ul style="list-style-type: none">▪ BT-720▪ BT-740▪ BT-770▪ BT-780	IIb

The complete list of devices is filed with the Notified Body

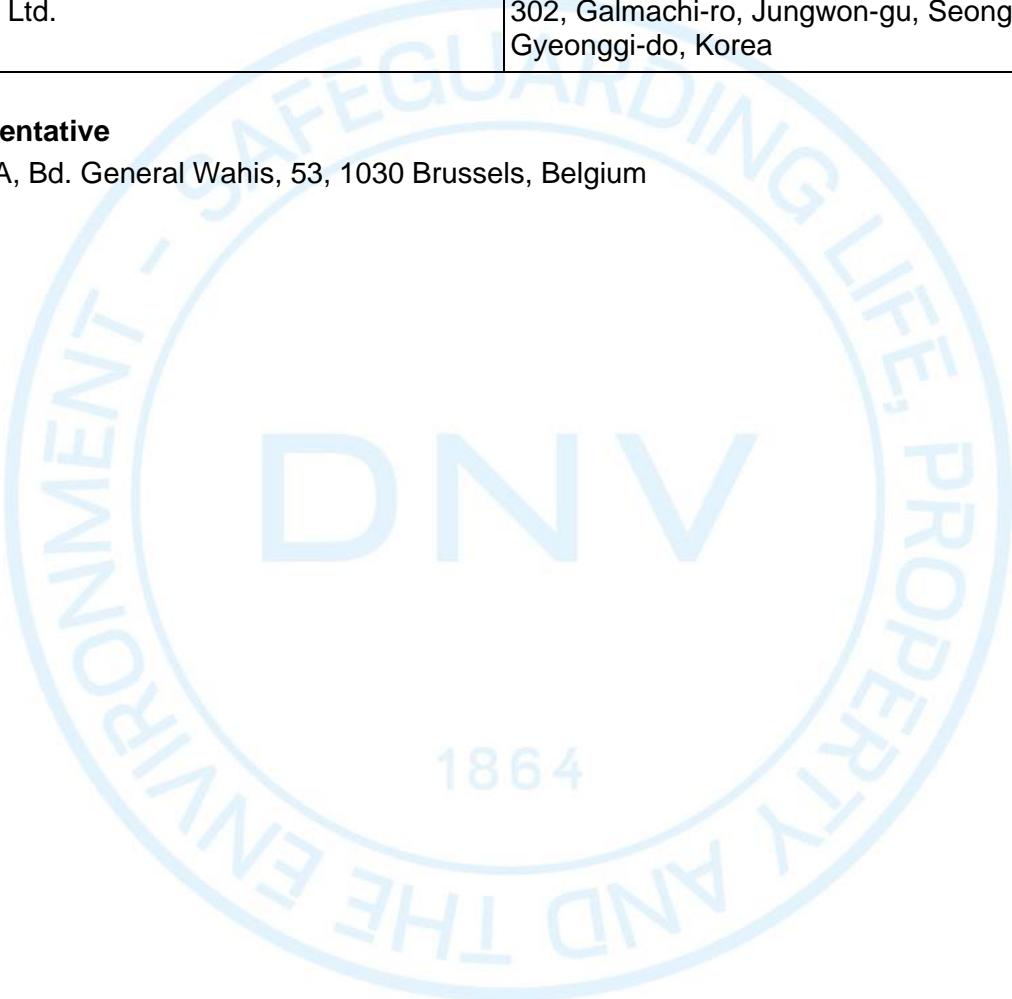
Certificate No.: 243269-2017-CE-KOR-NA-PS Rev. 4.0
Place and date: Høvik, 23 April 2021

Sites covered by this certificate

Site Name	Address
Bistos Co., Ltd.	7th Fl., A Bldg., Woolim Lions Valley 5-cha, 302, Galmachi-ro, Jungwon-gu, Seongnam-si, Gyeonggi-do, Korea

EU Representative

OBELIS S.A, Bd. General Wahis, 53, 1030 Brussels, Belgium



Certificate No.: 243269-2017-CE-KOR-NA-PS Rev. 4.0
Place and date: Høvik, 23 April 2021

Terms and conditions

The certificate is subject to the following terms and conditions:

- Any producer (see 2001/95/EC for a precise definition) is liable for damage caused by a defect in his product(s), in accordance with directive 85/374/EEC, as amended, concerning liability of defective products.
- The certificate is only valid for the products and/or manufacturing premises listed above.
- The Manufacturer shall fulfil the obligations arising out of the quality system as approved and uphold it so that it remains adequate and efficient.
- The Manufacturer shall inform the Notified Body of any intended updating of the quality system and the Notified Body will assess the changes and decide if the certificate remains valid.
- Periodical audits will be held, in order to verify that the Manufacturer maintains and applies the quality system. the Notified Body reserves the right, on a spot basis or based on suspicion, to pay unannounced visits.

The following may render this Certificate invalid:

- Changes in the quality system affecting production.
- Periodical audits not held within the allowed time window.

Conformity declaration and marking of product

When meeting with the terms and conditions above, the producer may draw up an EC declaration of conformity and legally affix the CE mark followed by the Notified Body identification number.

End of Certificate



Management System Certificate

Certificate No.:
243275-2017-AQ-KOR-NA-PS Rev. 2.0

Project No.:
PRJC-533956-2015-MSL-KOR

Initial Certification Date:
12 August 2004

Valid Until:
09 SEPTEMBER 2021

This is to certify that the management system of:

Bistos Co., Ltd.

7th Fl., A Bldg., Woolim Lions Valley 5-cha, 302, Galmachi-ro, Jungwon-gu,
Seongnam-si, Gyeonggi-do, Korea

Complies with the requirements of:

ISO 13485:2016/NS-EN ISO 13485:2016

The Certificate is valid for the following scope:

Design, manufacturing, Sales, Distribution, and servicing of Ultrasound Doppler system, Fetal monitor, Phototherapy, Patient Monitor, Pulse Oximeter, Incubator, Head-worn light, Infant Warmer and Electric Breast Pump.

Place and Date:
Høvik, 12 September 2018



For:
DNV GL PRESAFE AS

Tone Kolpus

Tone Elise Kolpus

The Certificate has been digitally signed.
See www.presafe.com/digital_signatures for more info

Notice: The Certificate is subject to terms and conditions as set out in the Certification Agreement. Failure to comply may render this Certificate invalid.