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OEM SOLUTIONS

Advanced OEM Module

Prime Innovation for Medical Application

CONTENTS

ZUG MEDICAL SYSTEMS

Multi-parameter
Module MMP3D

It is used to monitor the patient's blood oxygen, blood pressure, electrocardiogram, respiration, body temperature, heart rate, and pulse

Dimension： 140mm×85mm×25mm

3/5 lead ECG | SPO2 | NIBP | HR | RR | PR | 2×TEMP

Features

> With pulse oxygen, pulse rate monitoring function.
> With monitoring function of systolic blood pressure, diastolic blood pressure and mean pressure.
> With 3/5 lead ECG, 1 breathing, 2 body temperature monitoring functions.
> Provide three patient modes: adult, child and newborn mode.
> Module thickness is only 25mm, exquisite and compact.
> Integrated blood pressure gas circuit system design, no need for tracheal connection.
> The working status of the real-time transmission module: hardware status, software status and sensor status, the upper computer can alarm in time according to the information.
> When the perfusion index is as low as 0.075%, the blood oxygen monitoring is accurate and reliable, meeting the application of surgery and ICU.
> Both blood oxygen and blood pressure adopt advanced algorithms, with anti-motion interference and weak signal measurement performance.
> Blood pressure measurement has three modes: manual, automatic and continuous mode.
> Blood pressure measurement has hardware and software dual overvoltage protection functions.
> Double timeout protection for blood pressure measurement (module timeout protection, provide timing trigger port of host computer).
> The measurement results of the ECG measurement part include heart rate, body temperature, respiration, ST segment offset values of I, II, and V1 channels, and arrhythmia results.
> ECG measurement has diagnosis, monitoring, HARDEST and surgery modes.
> Has 18 arrhythmia analysis functions.

Specifications

ECG

Range	0.15Mv-5.5mV
Accuracy	Undefined
Resolution	2.36uV/LSB
lead type	3 Lead:I or II or III 5Lead:I ,II,III,AVR,AVL,AVF,V1

RR

Range	0~120rpm
Accuracy	15-120rpm: ±2rpm or ±2%; Undefined(<15rpm)
Base resistance	500-2000Ω
Variable resistance	0.2-3.0Ω

HR

Range	adult: 15~300bpm Child/Newborn: 15~350bpm
Accuracy	±1bpm
Resolution	1bpm

SPO2

Range	0~100%
Accuracy	±2%(70%~100%)Undefined(0~69%)
Resolution	1%

NIBP

Pressure Range	0-300mmHg
Pressure Accuracy	±2mmHg or ±1% (Whichever is greater)
Resolution	1mmHg
Systolic Range	Adult : 40–270mmHg Pediatric : 40–200mmHg Neonate : 40–130mmHg
Distolic Range	Adult : 10–210mmHg Pediatric:10–162mmHg Neonate:10–90mmHg
Mean Range	Adult : 20–230mmHg Pediatric : 20–170mmHg Neonate : 20–100mmHg
Accuracy	The mean deviation<±5mmHg The standard deviation<8mmHg

PR

Range	25~250bpm
Accuracy	±2bpm or ±2(Whichever is greater)
Resolution	1bpm

PI

Range	0~20%
Accuracy	Undefined
Resolution	0.001%

TEMP

Range	0-50℃
Accuracy	±0.1℃
Resolution	0.1℃

Electrical Specifications

Power supply	DC.12V±5%
Power consumption	≤6W
Communication	TTL,USART
Temperature	Operating 10℃~ 40℃ (50℉ ~ 104℉) Storage -20℃~ 70℃ (4℉ ~ 158℉)

Compliance

Standard	IEC 60601-2-25-2011	IEC 60601-2-30-1996-A1:1999	EN 1060-1-1995
	EN1060-3-1997	ISO 80601-2-61:2011	AAMI EC57-2012

Multi-parameter
Module MMP12

It is used to monitor the patient's blood oxygen, blood pressure, electrocardiogram, respiration, body temperature, heart rate, and pulse

Dimension： 140mm×85mm×25mm

12 leads ECG | SPO2 | NIBP | HR | RR | PR | 2×TEMP

Features

- With pulse oxygen and pulse rate monitoring function
- With monitoring function of systolic blood pressure, diastolic blood pressure and mean pressure
- With 12-lead ECG, 3/5-lead ECG, 1 breathing, 2 body temperature monitoring functions
- Provide three patient modes: adult, child and newborn mode
- The module thickness is only 25mm, exquisite and compact
- Design of integrated blood pressure airway system
- The working status of the real-time transmission module: hardware status, software status and sensor status, the upper computer can alarm in time according to the information
- When the perfusion index is as low as 0.075%, the blood oxygen monitoring is accurate and reliable, meeting the application of surgery and ICU
- Both blood oxygen and blood pressure adopt advanced algorithms, with anti-motion interference and weak signal measurement performance
- Blood pressure measurement has three modes: manual, automatic and continuous mode
- Blood pressure measurement has hardware and software dual overvoltage protection functions
- Double timeout protection for blood pressure measurement (module timeout protection, provide timing trigger port of host computer)
- The measurement results of the ECG measurement part include heart rate, body temperature, respiration and ST segment off set values of I, II, and V1 channels
- ECG measurement has diagnosis, monitoring, HARDEST and surgery modes
- ECG diagnostic analysis results include arrhythmia, conduction block, myocardial infarction, STT changes, ventricular hypertrophy, atrial enlargement, electrical axis deviation and other heart diseases

Specifications

ECG

Range	0.15Mv-5.5mV
Accuracy	Undefined
Resolution	2.36uV/LSB
lead type	3 Lead:I or II or III 5Lead:I ,II,III,AVR,AVL,AVF,V1 12lead: I ,II,III,AVR,AVL,AVF,V1,V2,V3,V4,V5,V6

RR

Range	0~120rpm
Accuracy	15-120rpm: ±2rpm or ±2%; Undefined(<15rpm)
Base resistance	500-2000Ω
Variable resistance	0.2-3.0Ω

HR

Range	adult: 15~300bpm Child/Newborn: 15~350bpm
Accuracy	±1bpm
Resolution	1bpm

SPO2

Range	0~100%
Accuracy	±2%(70%~100%)Undefined(0~69%)
Resolution	1%

NIBP

Pressure Range	0-300mmHg
Pressure Accuracy	±2mmHg or ±1% (Whichever is greater)
Resolution	1mmHg
Systolic Range	Adult : 40–270mmHg Pediatric : 40–200mmHg Neonate : 40–130mmHg
Distolic Range	Adult : 10–210mmHg Pediatric:10–162mmHg Neonate:10–90mmHg
Mean Range	Adult : 20–130mmHg Pediatric : 20–170mmHg Neonate : 20–100mmHg
Accuracy	The mean deviation<±5mmHg The standard deviation<8mmHg

PR

Range	25~250bpm
Accuracy	±3bpm
Resolution	1bpm

PI

Range	0~20%
Accuracy	Undefined
Resolution	0.001%

TEMP

Range	0-50°C
Accuracy	±0.1°C
Resolution	0.1°C

Electrical Specifications

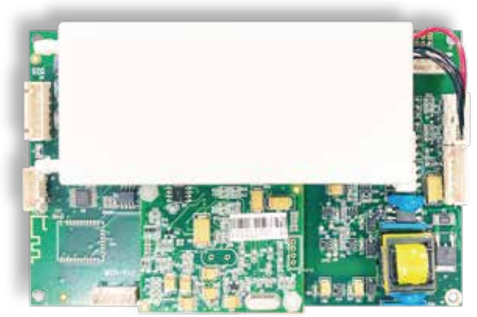
Power supply	DC.12V±5%
Power consumption	≤6W
Communication	TTL,USART
Temperature	Operating 10°C~ 40°C (50°F ~ 104°F) Storage -20°C~ 70°C (4°F ~ 158°F)

Compliance

Standard	IEC 60601-2-25-2011	IEC 60601-2-30-1996-A1:1999	EN 1060-1-1995
	EN1060-3-1997	ISO 80601-2-61:2011	AAMI EC57-2012

Multi-parameter
Module MMP1

The MMP1 integrated multi-parameter module can measure parameters such as ECG, body temperature, blood pressure, blood oxygen, and pulse.



Dimension： 140mm×85mm×25mm

3-lead ECG | SPO2 | NIBP | HR | PR | TEMP

Features

- With pulse oxygen, pulse rate monitoring function
- With monitoring function of systolic blood pressure, diastolic blood pressure and mean blood pressure
- With 3-lead ECG, 1-channel body temperature monitoring function
- Module thickness is only 25mm, exquisite and compact
- Integrated blood pressure gas circuit system design, no need for tracheal connection
- With arrhythmia analysis function
- The working status of the real-time transmission module: hardware status, software status and sensor status, the upper computer can alarm in time according to the information

Specifications

ECG	
Range	0.15mV-5.5mV
Accuracy	Undefined
Resolution	2.36uV/LSB
Lead type:3 lead	

SPO2	
Range	0~100%
Accuracy	±2%(70%~100%)
	Undefined(0~69%)
Resolution	1%

HR	
Range:	15~300bpm
Accuracy:	±1bpm
Resolution:	1bpm

TEMP	
Range	0-50℃
Accuracy	±0.1℃
Resolution	0.1℃

PR	
Range:	25~250bpm
Accuracy:	±2bpm or ±2(Whichever is greater)
Resolution:	1bpm

PI	
Range	0~20%
Accuracy	Undefined
Resolution	0.001%

NIBP			
Pressure Range	0-300mmHg		
Pressure Accuracy	±2mmHg or ±1% (Whichever is greater)		
Resolution	1mmHg		
Systolic Range	Adult : 40–270mmHg	Pediatric : 40–200mmHg	Neonate : 40–130mmHg
Distolic Range	Adult : 10–210mmHg	Pediatric:10–162mmHg	Neonate:10–90mmHg
Mean Range	Adult : 20–230mmHg	Pediatric : 20–170mmHg	Neonate : 20–100mmHg
Accuracy	The mean deviation<±5mmHg		
	The standard deviation<8mmHg		

Electrical Specifications

Power supply	DC.12V±5%
Power consumption	≤6W
Communication	TTL,USART
Temperature	Operating 10℃~ 40℃ (50℉ ~ 104℉) Storage -20℃~ 70℃ (4℉ ~ 158℉)

Compliance

Standard	AAMI EC57-2012

3/5 Leads ECG
Module MECG3

The MECG3 monitoring ECG measurement module can measure ECG, respiration, and body temperature, and is used in patient monitoring.

Dimension： 125mm×90mm×15mm

3/5 lead ECG

HR

RR

2×TEMP

Features

- With 3/5-lead ECG, 1 breathing, 2 body temperature monitoring functions
- Patient model: adults, children and newborns
- Unique ECG analysis function, verified by MIT, AHA database, and passed EC57 standardized test
- The measurement results include heart rate, body temperature, respiration and ST segment offset values of I, II, and V1 channels
- Provide four measurement modes: diagnosis, monitoring, HARDEST and surgery mode
  - Diagnosis mode: filter range is 0.05hz~130hz
  - Monitoring mode: filter range is 0.5hz~40hz
  - HARDEST mode: the filtering range is 5hz~20hz
  - Surgery mode: filter range is 1hz~25hz
- ECG calibration: input 1mv standard voltage to record the waveform amplitude
- Gain setting: adjust the amplitude of ECG waveform and respiratory waveform
- Heart rate calculation channel: Heart rate I, II and V1 can be selected as the heart rate calculation channel or set as an independent choice
- Lead setting: Lead I, Lead II, Lead AVL, Lead AVR, Lead AVF can be selected as the signal of channel I and channel II
- Notch mode: 50Hz, 60Hz, 50/60Hz and close notch mode commands can be selected

Specifications

ECG	
Range	0.15mV-5.5mV
Accuracy	Undefined
Resolution	2.36uV/LSB
lead type	3 Lead:I or II or III
	5Lead:I ,II,III,AVR,AVL,AVF,V1

TEMP	
Range	0-50℃
Accuracy	±0.1℃
Resolution	0.1℃

HR	
Range	15~300bpm
Accuracy	±1bpm
Resolution	1bpm

AwRR	
Range	0-120rpm
Basic resistance	500-2000Ω
Varistor value	0.2Ω~3.0Ω

Electrical Specifications

Power supply	DC.12V±5%
Power consumption	≤3W
Communication	TTL,USART
Temperature	Operating 10°C~ 40°C (50°F ~ 104°F)
	Storage -20°C~ 70°C (4°F ~ 158°F)

Compliance

Standard	AAMI EC57-2012
	IEC60601-2-25-2011

12 Leads ECG

MECG12

The MECG12 diagnostic ECG measurement module is a 12-lead ECG, which is used in the diagnosis and analysis of the patient's ECG.

Dimension： 130mm×70mm×13mm

Features

> With 12-lead ECG waveform display

> With unique ECG analysis function, verified by MIT database and CSE database

> Support 255 kinds of auxiliary diagnosis such as arrhythmia, conduction block, myocardial infarction, ventricular hypertrophy, etc.

> The filter mode can be switched freely

Low-pass filter: 70Hz, 100Hz, 150Hz

High-pass filter: 0.05Hz, 0.1Hz, 0.2Hz, 0.5Hz

EMG filter: 25Hz, 35Hz, 45Hz

AC filter: 50Hz, 60Hz, closed

ECG calibration function: input 1mv standard voltage to record the waveform amplitude, accuracy ±5%

> Gain setting: adjust the amplitude of the ECG waveform

> Notch mode: 50Hz, 60Hz and close notch mode commands can be selected.

> Linkage detection: identify and judge the state of the lead

> Channel overload prompt

> Heart rate calculation: automatically switch the calculation channel according to the state

> Intelligent judgment pacing detection function

> Support ECG waveform characteristic interval measurement: including PR interval, QRS interval, QT interval, QTC, P axis, QRS electrical axis, T axis measurement, and RV5, SV1 amplitude measurement

> Support to provide printable diagnostic analysis results: including arrhythmia, conduction block, myocardial infarction, STT changes, ventricular hypertrophy, atrial enlargement, electrical axis deviation and other diagnostic results of various heart diseases

Specifications

ECG

Range	0.15mV-5.5mV
Accuracy	Undefined
Resolution	2.3uV/LSB
Lead type	3 Lead:I or II or III 5Lead:I ,II,III,AVR,AVL,AVF,V1 12lead: I ,II,III,AVR,AVL,AVF,V1,V2,V3,V4,V5,V6

HR

Range	15~300bpm
Accuracy	±1bpm
Resolution	1bpm

Operating Environment

Power supply	DC.12V±5%
Power consumption	≤3W
Communication	TTL,USART
Temperature	Operating 10°C~ 40°C (50°F ~ 104°F) Storage -20°C~ 70°C (4°F ~ 158°F)

Single Channel ECG
Module MECG1

The MECG1 single Channel ECG measurement module can measure ECG and is used in patient monitoring.

Dimension： 77mm×53mm×17mm

Features

> With 3-lead ECG monitoring function

> Patient model: adult, pediatric and newborn

> 26 arrhythmia analysis functions, verified by MIT and AHA databases, and passed EC57 standardized tests

> Provides four measurement modes: diagnosis, monitoring, HARDEST and surgery mode

Diagnosis mode: filter range is 0.05hz~130hz

Monitoring mode: filter range is 0.5hz~40hz

HARDEST mode: the filtering range is 5hz~20hz

Surgery mode: filter range is 1hz~25hz

> ECG calibration: input 1mv standard voltage to record the waveform amplitude

> Gain setting: adjust the amplitude of the ECG waveform

> Notch mode: 50Hz, 60Hz, 50/60Hz and close notch mode commands can be selected

Specifications

ECG		HR	
Range	0.15Mv-5.5mV	Range	15~300bpm
Accuracy	Undefined	Accuracy	±1bpm
Resolution	2.36uV/LSB	Resolution	1bpm
lead type	3 Lead:I or II or III		

Electrical Specifications

Power supply	DC 5V±5%
Power consumption	≤3W
Communication	TTL,USART
Temperature	Operating 10°C~ 40°C (50°F ~ 104°F) Storage -20°C~ 70°C (4°F ~ 158°F)

Compliance

Standard	AAMI EC57-2012
	IEC60601-2-25-2011

ECG algorithm

Database	Sensitivity of QRS wave detection/ Q Se	Positive predictive degree of QRS complex detection/Q +P	Sensitivity of room early detection/ V Se	Early detection accuracy rate /V +P	False positive rate of early detection /V FPR
MIT	99.60%	99.72%	92.0%	92.5%	0.52%
AHA	99.66%	99.91%	90.0%	89.31%	0.638%

Pulse Arterial Oxygen Saturation **Module MISPO2**

The MISPO2 module is used to monitor the patient's pulse oximetry, pulse, and perfusion index

Dimension： 88.9mm×50.8mm×7mm

SPO2 PR PI PVI

Features

> With 3-lead ECG monitoring function

> Patient model: adult, pediatric and newborn

> 26 arrhythmia analysis functions, verified by MIT and AHA databases, and passed EC57 standardized tests

> Provides four measurement modes: diagnosis, monitoring, HARDEST and surgery mode

Diagnosis mode: filter range is 0.05hz~130hz

Monitoring mode: filter range is 0.5hz~40hz

HARDEST mode: the filtering range is 5hz~20hz

Surgery mode: filter range is 1hz~25hz

> ECG calibration: input 1mv standard voltage to record the waveform amplitude

> Gain setting: adjust the amplitude of the ECG waveform

> Notch mode: 50Hz, 60Hz, 50/60Hz and close notch mode commands can be selected

Specifications

SPO2	PR
Range: 0~100%	Range: 25~250bpm
Accuracy: ±2%(70%~100%)	Accuracy: ±2bpm
Undefined(0~69%)	Resolution: 1bpm
Resolution: 1%	

PI	PVI
Range: 0~20%	Range: 100%
Accuracy: Undefined	Accuracy: Undefined
Resolution: 0.001%	Resolution: 1%

Electrical Specifications

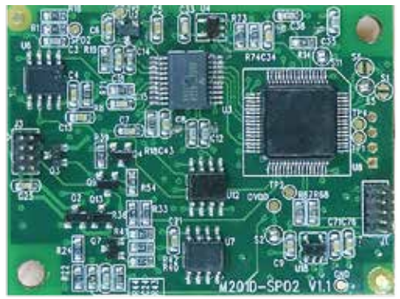
Power supply	DC.12V±5%
Power consumption	≤3W
Communication	TTL,USART
Temperature	Operating 10°C~ 40°C (50°F ~ 104°F) Storage -20°C~ 70°C (4°F ~ 158°F)

Compliance

Standard	IEC 80601-2-61:2011 IEC 60601-1-2

Pulse Arterial Oxygen Saturation **Module MSPO2**

The MSPO2 module is used to monitor the patient's pulse oximetry, pulse, and perfusion index



Dimension： 51mm×38.1mm×7mm

SPO2 PR PI PVI

Features

> With the monitoring function of pulse oxygen, pulse rate, perfusion index and variation index

> Patient model: adult, child and newborn

> Real-time transmission module working status: hardware status, software status and sensor status

> It has the function of setting the average time of calculation parameters, and obtains the response time of different calculation parameters

> When the blood perfusion index is as low as 0.075%, the measurement is accurate and reliable, which can meet the application of surgery and ICU

> Adopt advanced anti-motion algorithm, with strong anti-motion performance

Specifications

SPO2	PR
Range: 0~100%	Range: 25~250bpm
Accuracy: ±2%(70%~100%)	Accuracy: ±2bpm
Undefined(0~69%)	Resolution: 1bpm
Resolution: 1%	

PI	PVI
Range: 0~20%	Range: 100%
Accuracy: Undefined	Accuracy: Undefined
Resolution: 0.001%	Resolution: 1%

Electrical Specifications

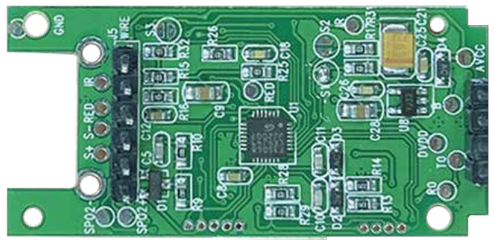
Power supply	DC 5 V±5%	
Power consumption	≤3W	
Communication	TTL,USART	
Temperature	Operating 10°C~ 40°C (50°F ~ 104°F)	Storage -20°C~ 70°C (4°F ~ 158°F)

Compliance

Standard	IEC 80601-2-61:2011 IEC 60601-1-2

Pulse Arterial Oxygen Saturation **Module MTSPO2**

The MTSPO2 module is used to monitor the patient's pulse oximetry, pulse, and perfusion index



Dimension： 48mm×23mm

SPO2 PR PI PVI

Features

> With the monitoring function of pulse oxygen, pulse rate, perfusion index and variation index

> Patient model: adult, child and newborn

> Real-time transmission module working status: hardware status, software status and sensor status

> It has the function of setting the average time of calculation parameters, and obtains the response time of different calculation parameters

> Pin installation method

The measurement method is based on the absorption of pulsed 660 and 905 nanometer red light and infrared spectra by pulsatile blood, and the photoelectric sensor receives the red light and infrared light signal transmitted through the finger, and then transmits it to the photocurrent signal amplifier, and then passes it to the photocurrent signal amplifier. Voltage amplification, filtering, digitization, feature recognition and algorithms are processed to obtain measurement results of related parameters such as oxygen saturation and pulse rate.

Specifications

SPO2	PR
Range: 0~100%	Range: 25~250bpm
Accuracy: ±2%(70%~100%)	Accuracy: ±2bpm
Undefined(0~69%)	Resolution: 1bpm
Resolution: 1%	

PI	PVI
Range: 0~20%	Range: 100%
Accuracy: Undefined	Accuracy: Undefined
Resolution: 0.001%	Resolution: 1%

Electrical Specifications

Power supply	DC 5 V±5%	
Power consumption	≤3W	
Communication	TTL,USART	
Temperature	Operating 10°C~ 40°C (50°F ~ 104°F)	Storage -20°C~ 70°C (4°F ~ 158°F)

Compliance

Standard	IEC 80601-2-61:2011 IEC 60601-1-2

Non-Invasive Blood Pressure Module

MNIBP

MNIBP is used to measure related parameters such as systolic blood pressure, diastolic blood pressure, average blood pressure and pulse rate.

Dimension： 105mm x 72mm x 31mm

SYS

DIA

MAP

PR

Features

- With the monitoring function of parameters such as systolic blood pressure, mean blood pressure, diastolic blood pressure and pulse rate
- Three measurement modes: manual, automatic and continuous
- Three patient measurement modes: adult, child, and newborn
- Real-time transmission of module working status, including hardware status, software status and sensor status
- Adopting a unique algorithm, with the ability to resist motion interference and weak signal measurement
- Pressure calibration function: continuously provide cuff pressure value to calibrate pressure accuracy
- It has the function of gas leakage detection to detect whether the gas path is leaking
- With double overvoltage protection (hardware overvoltage protection and software over-voltage protection)
- Double timeout protection (module timeout protection, provide timing trigger port of upper computer)

Specifications

SYS

Range: adult: 40~270bpm
Child: 40~200bpm
Newborn: 40~130bpm
Accuracy: Average deviation<±5mmHg
Standard deviation<±8mmHg

DIA

Range: adult: 20~210bpm
Child: 10~162bpm
Newborn: 10~90bpm
Accuracy: Average deviation<±5mmHg
Standard deviation<±8mmHg

MAP

Range: adult: 15~300bpm
Child: 20~175bpm
Newborn: 20~100bpm
Accuracy: Average deviation<±5mmHg
Standard deviation<±8mmHg

PR

Range: adult: 30~240bpm
Child: 30~240bpm
Newborn: 40~240bpm
Accuracy: ±2bpm
Resolution: 1bpm

Cuff Pressure

Range: 0~300mmHg
Accuracy: ±2mmHg or ±1% of reading (whichever is greater)
Resolution: 1mmHg

Electrical Specifications

Power supply	DC 12 V±5%
Power consumption	≤5W
Communication	TTL,USART
Temperature	Operating 10°C~ 40°C (50°F ~ 104°F) Storage -20°C~ 70°C (4°F ~ 158°F)

External Pulse Oximeter

SatEx

Sensitive Accurate PnP

SPO2 Sensor Connector

Customisable Connector

SPO2 PR PI PVI

Features

Compact, low-power, easy-to-integrate external pulse oximeter :

- > Highly reliable medical grade application module.
- > Plug and play,Satisfied accuracy after power-on.
- > Size :85*30.3*23mm(L*W*H),Overall length of cable:1800mm.
- > Support real-time monitoring of adults,children and infant.
- > Integrated outside the equipment,suitable pulse oximetry solution for medical products.

- ○ Durable,lightweight design
- ○ Plug and play
- ○ Anti-motion interference
- ○ Low perfusion measurement
- ○ Customisable connectors

Specifications

SPO2		PR	
Range:	0~100%	Range	25~250bpm
Accuracy:	±2%(70%~100%)Undefined(<69%)	Accuracy	±3bpm
Resolution:	1%	Resolution	1bpm

PI		PVI	
Range:	0~20%	Range	100%
Accuracy:	Undefined	Accuracy	Undefined
Resolution:	0.001%	Resolution	1%

Electrical Specifications

Power supply	DC.5V±5%		
Power consumption	≤3W		
Communication	RS232,USART		
Temperature	Operating 10°C~ 40°C (50°F ~ 104°F)	Storage	-20°C~ 70°C (4°F ~ 158°F)

Compliance

Standrad	IEC 80601-2-61:2011

CO2 Sensor

CapnoSET®/TiniStream®

It is used to monitor the end-breath carbon dioxide, respiration rate and real-time capnography of intubated and non-intubated patients

Features

> Light weight, small size, high precision
> plug and play
> Service life is greater than 40,000 hours
> System response time is less than 1S
> Efficient anti-condensation design
> Automatic air pressure, temperature, manual anesthetic gas compensation
> Multiple defined interfaces, support customer customization

▲ CapnoSET®

▲ Infant

▲ Adult/Pediat-

▲ TiniSteam® Plug-in Side-Stream

> Ergonomic design, beautiful and exquisite
> Micro flow sampling, high precision
> Working life is greater than 20000 hours
> Perform automatic zero calibration after booting
> Effectively sterilize and prevent clogging by condensate
> Support sampling tube falling off monitoring
> The standard DB9 interface is consistent with the mainstream module, and the main and side streams can be switched at will
> Equipped with independent hanging bracket

> High precision, support side flow and micro flow applications
> Working life of continuous pumping is greater than 20000 hours
> Rise time is less than 180ms; system response time is less than 2s
> Automatic zero calibration, the measurement of respiratory rate reaches 150rpm
> Dehydration bottle prevents water and secreted liquid from entering the module
> Automatic atmospheric pressure, temperature, manual anesthetic gas compensation, and manual btps compensation.

▲ TiniSteam® Build-in Side-Stream

Specifications

CO2		RR	
Range	0~20.0vol%	Range	0~150rpm
Accuracy	0~12.0vol%:±(0.2vol%+2% of reading) 12.0~20.0vol%:±(0.2vol%+6% of reading)	Accuracy	CapnoSET: 0~150rpm,±1rpm TiniStream:0~69rpm,±1rpm 70~150rpm,Undefined
Resolution	1mmHg		

Physical Parmeter

Weight	CapnoSET: ≤ 35 g; TiniStream: ≤ 180g
Size	CapnoSET: 43x32x26mm; TiniStream: 90x66x31mm

Electrical Specifications

Power supply	DC.5V±5%
Power consumption	≤3W
Communication	RS232 or TTL,USART

Operating Environment

Temperature	CapnoSET: 0~50°C TiniStream: 10~40°C
Store temperature	-20~70°C
Operating humidity	CapnoSET: 15~90%RH,non-condensing TiniStream:<90%RH,non-condensing
Atmospheric pressure	400-1200hpa

Invasive Blood Pressure Cardiac Output

MCO2IBP

Used for integration in monitoring products, suitable for applications that require invasive blood pressure and cardiac output measurement in clinical ICU / CCU / OR and other places.

Dimension： 87mm×45mm×15mm

IBP PR Tb Ti CO

Features

- One-channel cardiac output measurement
- Carry out 12 hemodynamic parameter calculations after inputting relevant parameters
- Support Ti related information settings
- Support the setting of floating pipe coefficient
- Support setting CO measurement time interval
- Two independent IBP measurement channels, including: systolic blood pressure, diastolic blood pressure, average blood pressure, pulse rate calculation
- Support setting IBP channel information
- Support setting IBP average time
- Support zero calibration and calibration operations of each IBP channel
- Support filter settings of each IBP channel

Specifications

PR

Range: 25~250bpm
Accuracy: ±3bpm or ±2%(Whichever is greater)
Resolution: 1bpm

IBP

Range: -50~350mmHg
Accuracy: ±3bpm or ±1%(Whichever is greater)
Resolution: 1mmHg

Tb

Range: 23.0~45.0℃
Accuracy: ±0.5℃
Resolution: 0.1℃

Ti

Range: -1.0 ~ 27.0℃
Accuracy: ±0.5℃
Resolution: 0.1℃

CO

Range: 0.20~20.00L/Min
Accuracy: ±0.2L/Min or ±5%(Whichever is greater)
Resolution: 0.01 L/Min

Compliance

Standard: IEC60601-2-34-2000

Electrical Specifications

Power supply	DC 12 V±10%
Power consumption	≤5W
Communication	TTL,USART
Temperature	Operating 10℃~ 40℃ (50℉ ~ 113℉) Storage -20℃~ 55℃ (4℉ ~ 131℉)

Sensor characteristics requirements

IBP sensor

Sensitivity: 5uv/mmHg/V
Impedance: 300-5000Ω

CO sensor/Tb

Sensitivity: 520Ω/℃
Nominal resistance: 14KΩ

4-Channel
Invasive Blood Pressure
M4IBP

The M4IBP invasive pressure module is used in clinical ICU\CCU\OR and other places to measure invasive pressure.

Dimension： 87mm×45mm×15mm

Features

- > Four-channel independent IBP measurement, including: systolic blood pressure, diastolic blood pressure, average blood pressure, pulse rate calculation
- > Support setting IBP channel information
- > Support setting IBP average time
- > Support zero calibration and calibration operations of each IBP channel
- > Support filter setting of each IBP channel

Specifications

PR	IBP
Range: 35~250bpm Accuracy: ±3bpm Resolution: 1bpm	Range: -50~400mmHg Accuracy: ±2bpm or ±1%(Whichever is greater) Resolution: 1mmHg

Applicable sensor	Compliance
Sensitivity:5uV/mmHg Impedance::300-5000Ω	Standard: IEC60601-2-34-2000

Electrical Specifications

Power supply	DC 12 V±10%	
Power consumption	≤5W	
Communication	TTL,USART	
Temperature	Operating 10°C~ 40°C (50°F ~ 104°F)	Storage -20°C~ 70°C (4°F ~ 158°F)

Prime Innovation for Medical Application

ZUG MEDICAL SYSTEMS