ZUG
MEDICAL SYSTEMS

Prime Innovation for Medical Application

CO+2IBP Module

Zug CO+2IBP module, referred herein after as MCO2IBP module is used for adult, children and neonate invasive blood pressure and cardiac output measurement in ICUs, CCU and OR.

Invasive blood pressure measurement is also known as direct blood pressure measurement. Our module measures SBP, DBP, MAP, PI by proprietary signal processing method and algorithm.

CO+2IBP Module

MCO2IBP

Features

- Systolic BP, Mean Arterial Pressure, Diastolic BP and Pulse Rate monitoring
- 1 channel Cardiac Output monitoring with all hemodynamic parameters
- 2 channels IBP monitor
- SBP, DBP, MAP and PR parameters
- Response time setting
- Use ZUGMED protocol
- Support OEM for multi-parameter monitor

Application

- IBP and CO monitoring function of Patient Monitor

Overview

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Cardiac output monitoring is a thermal measurement method based on indirect dilution method. This method is an intermittent measurement method. It uses the floating catheter of Swan-Ganz. While injecting a certain amount of ice water (10/5/3ml) or a certain temperature solution (physiological saline, glucose solution, etc.) into the injection port of the floating catheter through the arranged injection device, the module monitors the change of blood temperature by using the temperature sensor of floating catheter, the temperature sensor of the injection device on the connecting cable and cardiac output module. Based on the information of the temperature of the injection, the area of temperature change associated with cardiac output is obtained by integrating the change of blood temperature with time, and the cardiac output is calculated by the algorithm based on heat balance equation, at the same time the blood temperature is calculated.

Functions

Cardiac Output

- CO measurement;
- 12 hemodynamic parameters can be calculated after input the related parameters;
- Ti related information setting;
- Floating catheter coefficient setting;
- Set the CO measurement interval;

Invasive Blood Pressure

- Independent IBP measurements of two channels, including: SBP, DBP, MAP and PR;
- Set the channel information;
- Set the IBP average time;
- Zero calibration operation of each channel;
- Each channel filter Setting;

Performance

Blood pressure

Range ..... *-50 ~ 350 mmHg*
Accuracy ..... *±3mmHg or ±1% of the reading (whichever is greater)*
Resolution *1mmHg*

PR

Range ..... *25– 250 bpm*
Accuracy ..... *±3mmHg or ±2% of the reading (whichever is greater)*
Resolution *1bpm*

Tb

Range ..... *23.0 ~ 45.0°C*
Accuracy ..... *±0.5°C*
Resolution ..... *0.1°C*

Ti

Range ..... *-1.0 ~ 27.0°C*
Accuracy ..... *±0.5°C*
Resolution ..... *0.1°C*

CO

Range ..... *0.20 ~ 20.00L/Min*
Accuracy ..... *±5%*
Resolution ..... *0.01 L/Min*

Standards compliance description

Standard NO.	Number of standard	Version
YY0783-2010	*The special requirements for the safety and basic performance of invasive pressure monitoring equipment*	*2010*

Electrical characteristics

Input Voltage ..... *External power supply should provide +12V DC*
Voltage offset range should between ±10% of voltage full range

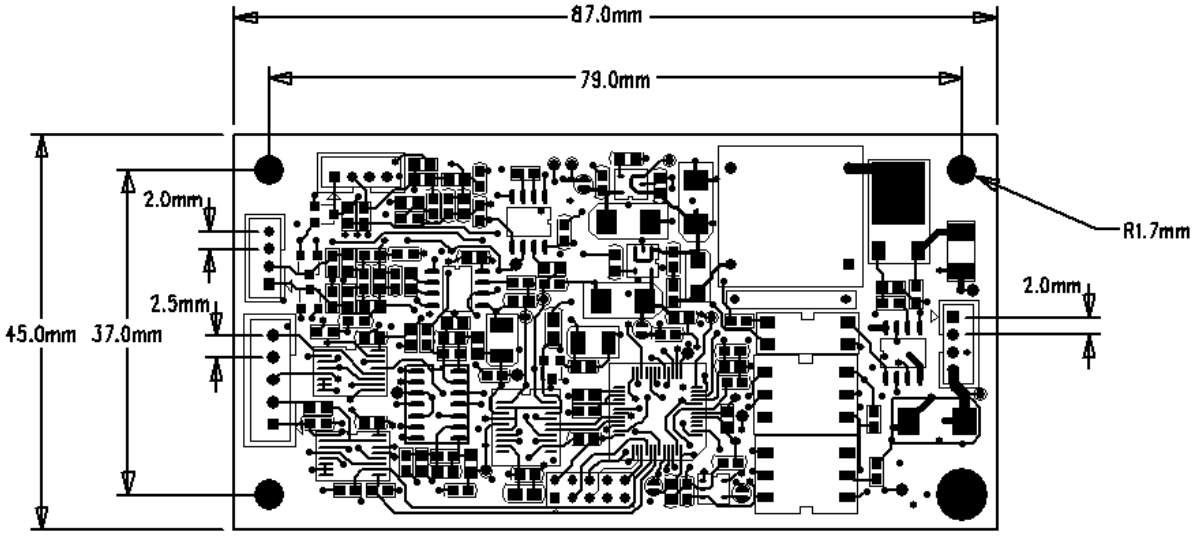
Power Consumption ..... *≤ 1.5W*

Environment characteristics

	Operating environment	Storage environment
Temperature	*10°C to 45°C (50°F to 113°F)*	*-20°C to +55°C (4°F to 131°F)*
Humidity	*0% ~ 85% non-condensing*	*15% ~ 93% non-condensing*
Altitude	*-500 m to +5000 m*	*-500 m to +13200 m*

Dimensions

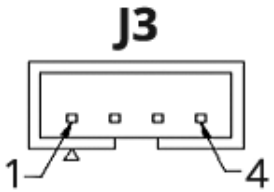
The board dimensions are given in millimeters: 87 x 45 mm, height 13 mm, holes Ø 3.2mm



Connectors

Power and Communication

The connector J3 shown below is used for the purpose of communication and power supply. The pin 1 is actually indicated by an arrow on the PCB.

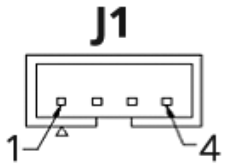


The table shows the pin assignment of this connector.

Pin No	Signal	Description
1	*TXD*	*UART Sending data from module to host*
2	*RXD*	*UART Receiving data from host to the module*
3	*GND*	*Ground*
4	*+12V*	*Power Supply input 12V DC*

IBP channel 1

The connector J1 shown below is used for the purpose of communication and data transmissions of IBP channel 1. The pin 1 is actually indicated by an arrow on the PCB.

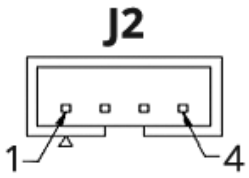


The table shows the pin assignment of this connector.

Pin No	Signal	Description
1	*IBP1+*	*Pressure input +*
2	*IBP1-*	*Pressure input -*
3	*GND*	*Ground*
4	*AVCC*	*Power Supply*

IBP channel 2

The connector J2 shown below is used for the purpose of communication and data transmissions of IBP channel 2. The pin 1 is actually indicated by an arrow on the PCB.

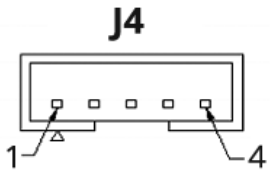


The table shows the pin assignment of this connector.

Pin No	Signal	Description
1	*IBP1+*	*Pressure input +*
2	*IBP1-*	*Pressure input -*
3	*GND*	*Ground*
4	*AVCC*	*Power Supply*

Cardiac Output

The connector J4 shown below is used for the purpose of communication and data transmissions of CO. The pin 1 is actually indicated by an arrow on the PCB.



The table shows the pin assignment of this connector.

Pin No	Signal	Description
1	*TI_IN1*	*Injection temperature signal pin*
2	*TIGND*	*Injection temperature signal pin*
3	*TB_IN*	*Blood temperature signal pin*
4	*TBGND*	*Blood temperature signal pin*
5	*TB_CAL_IN*	*Temperature calibration signal pin*

Sensors

Sensor must comply with safety standard and technical requirement below:

IBP Sensor Specification

Sensitivity of IBP sensor = 5uv/mmHg/V

CO Sensor Specification

Sensitivity of CO sensor(Tb) = 520Ω/°C
Basic resistance:14K

Ordering

Our CO+2IBP module part number is **MCO2IBP.**

For ordering our module, please contact directly our sales team by email at **sales@zugmed.com** or refer to our website **www.zugmed.com** for further information.

Headquarter
Zug Medical Systems SAS
2000 Route Des Lucioles, CS 90029
06901 Sophia Antipolis
France

W www.zugmed.com
E sales@zugmed.com
T +33 (0)9 78 234 726
F +33 (0)9 57 135 843

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