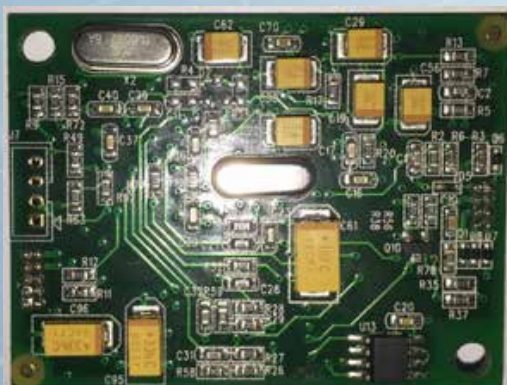


SpO₂ Module

Zug SpO₂ module, referred herein after as MSPO₂ module is used for adult, children oximetry measurement for patient monitors, pulse oximeters and vital sign monitors.

This SpO₂ module measures the absorption of red LED during pulsation. The red LED emits at wave length of 660 nm and the infrared ray LED at 905 nm. The principle of the method is to measure SpO₂ according to cyclic congestion status of the tissue during the pulsation.

SpO₂ Module
MSPO₂



OVERVIEW

Zug SpO2 module, referred herein after as MSPO2 module is used for adult, children oximetry measurement for patient monitors, pulse oximeters and vital sign monitors.

SpO2 module measures the absorption of red LED during pulsation. The red LED emits at wavelength of 660 nm and the infrared ray LED at 905 nm. The prin-

ciple of the method is to measure SpO2 according to cyclic congestion status of the tissue during the pulsation. The method tests how much light emitted from the light source of the sensor penetrate the patient's tissue (finger or ear, for example) and reach the receiver. Thanks to an internal accurate algorithm and complex signal processing, waveforms and parameters will be displayed.

FEATURES

- High Motion Interference Rejection with advanced anti-movement algorithm
- Compatible with ZUGMED protocol and OEM protocol
- Accuracy compliant with the requirements of ISO80601
- Support OEM design, an excellent choice for SpO2 monitor and multi-parameter monitor
- Small size for convenient assembly
- Real time transmission of pulse wave signal
- Real time transmission of module states: hardware state, software state and sensor state
- Average time setting
- High accuracy and reliability even with low blood perfusion down to 0.075%, allowing application in OR and ICU

APPLICATION

- SpO2 function of pulse oximeter, vital sign monitor and Patient Monitor

FUNCTIONS

- Measure the real-time SpO2, pulse rate and perfusion index (PI), and Variability of Pulse Index (PIV).
- Transfer the real-time pulse wave signal, based on the absorption of infrared spectrum.
- Show the real-time working status of the module, including hardware, software and transducers.
- Calculate the different parameters response time according the average time setting time.

PERFORMANCE

SpO2

Measurement Range	0 - 100%
Accuracy Range	70 - 100 %, ±2% < 70%, Undefined
Resolution	1%

PULSE RATE

Measurement Range	25 - 250 BPM
Accuracy Range	±2%
Resolution	1 BPM

PI

Measurement Range	0 - 20%
Resolution	0.001%

PIV

Measurement Range	0 - 100%
Accuracy Range	Undefined
Resolution	1%

STANDARDS COMPLIANCE DESCRIPTION

Standard NO.	Number of standard	Version
IEC60601-1-2	Medical Electrical Equipment – Part1: General Requirements for Safety – 2. Collateral Standard – Electromagnetic compatibility – Requirements and tests	2001
ISO80601-2-61:2011	Medical electrical equipment -- Part 2-61: Particular requirements for basic safety and essential performance of pulse oximeter equipment	2011

ELECTRICAL CHARACTERISTICS

Input Voltage External power supply should provide +5V DC,
Voltage offset range should between $\pm 10\%$ of voltage full range

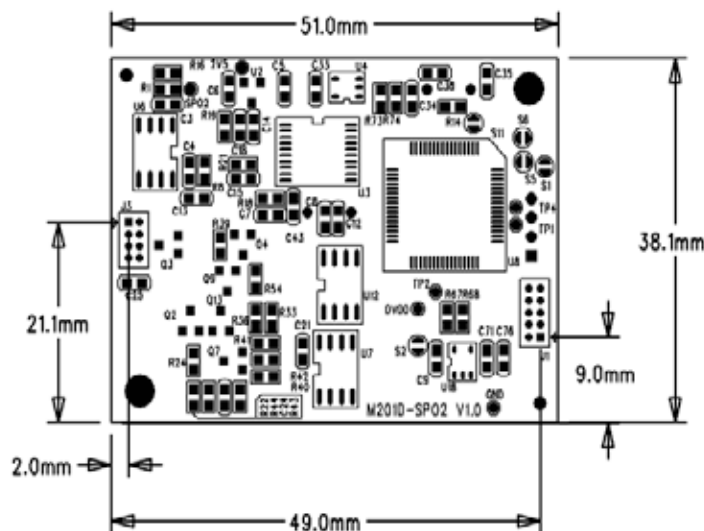
Power Consumption $\leq 0.75W$

ENVIRONMENT CHARACTERISTICS

	Operating environment	Storage environment
Temperature	10°C to 40°C (32°F to 104°F)	-20°C to +55°C (4°F to 130°F)
Humidity	0% - 85% non-condensing	0% - 93% non-condensing
Altitude	-500 m to +5000 m	-500 m to +13200 m

DIMENSIONS

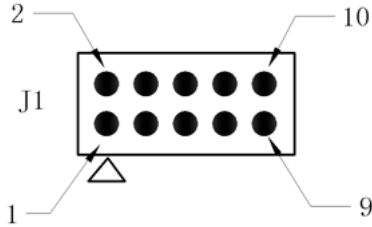
The board dimensions are given in millimeters.



INTERFACES

POWER AND COMMUNICATION INTERFACE

The connector J1 shown below is used for the purpose of communication and power supply. The pin 1 is actually indicated by an arrow on the PCB.



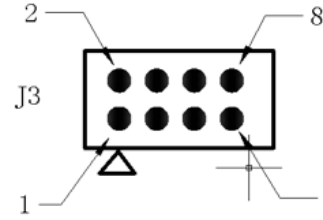
The table shows the pin assignment of this connector.

Note: TXD pin is used for the data sent from the SpO2 module to the host, TTL level.

Pin No	Signal	Description
1	NC	Not Connected
2	NC	Not Connected
3	TXD	UART Sending data from module to host
4	RXD	UART Receiving data from host to the module
5	GND	Ground
6	NC	Not Connected
7	NC	Not Connected
8	AVCC	Power Supply input +5V DC
9	NC	Not Connected
10	GND	Ground

TRANSDUCER INTERFACE

The connector J3 shown below is used for the purpose of signal reception from the SPO2 probe. 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	SpO2-	Light Signal -
2	SpO2+	Light Signal +
3	GND	Ground
4	GND	Ground
5	NC	Not Connected
6	Probe	Sensor Detection Signal
7	IR	IR LED Positive electrode
8	RED	RED LED positive electrode

ORDERING

Our SpO2 module part number is **MSPO2**.

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.

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