Pulse Oximeter

BH66F2560

Overview

- Product Description
- Measurement Principle
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- Competitive Advantage
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Product Description

Pulse oximeter introduction

Pulse oximeter is a non-invasive device used to quickly measure SpO_2 and pulse rate. It helps users conveniently and safely assess oxygen supply status.

Specifications

Measurement Parameters	Detection Range	Accuracy
SpO_2	35% ~ 100%	±2%
Pulse Rate (PR)	25 ~ 250 bpm	±2 bpm or ±2%
Perfusion Index (PI)	0.3% ~ 20%	0.1% ~ 2%: ±0.2% 2% ~ 20%: ±1%

Product Description

Pulse oximeter interface introduction

Product Description

Targeted users

High-altitude travelers

Elderly people

Patients with cardiovascular and cerebrovascular diseases

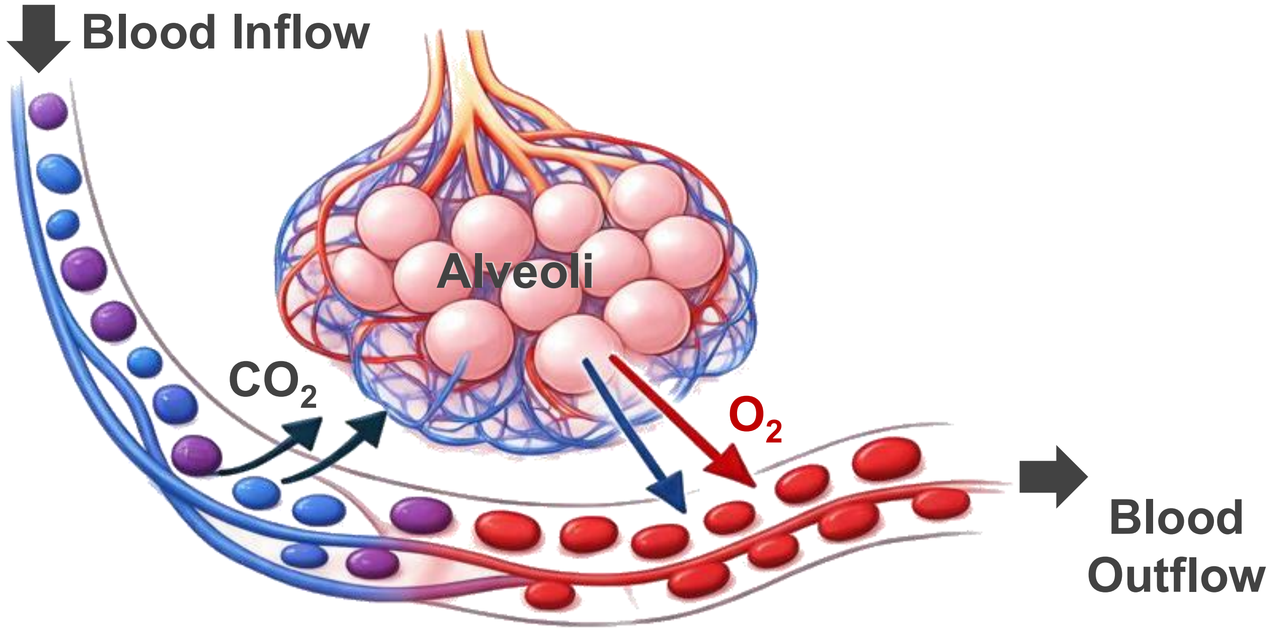
People who work long hours

People working in confined environments

Measurement Principle

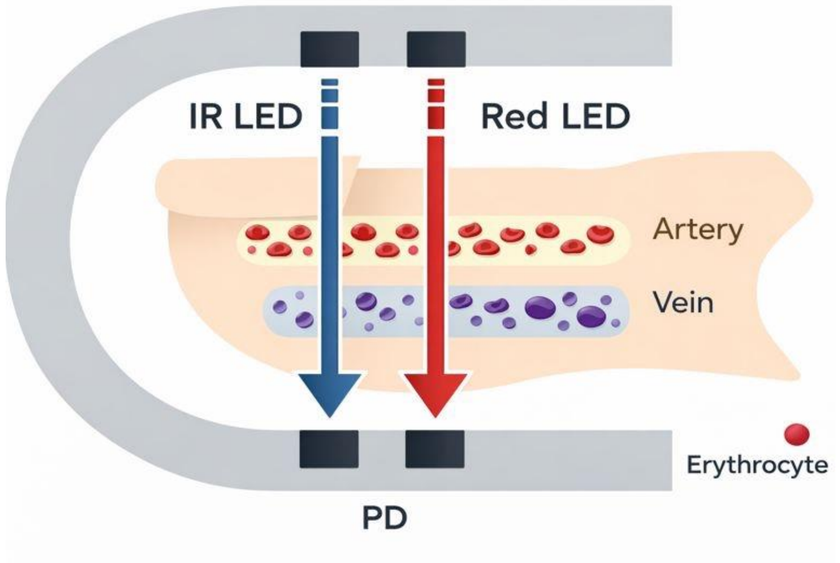
Introduction to blood oxygen saturation

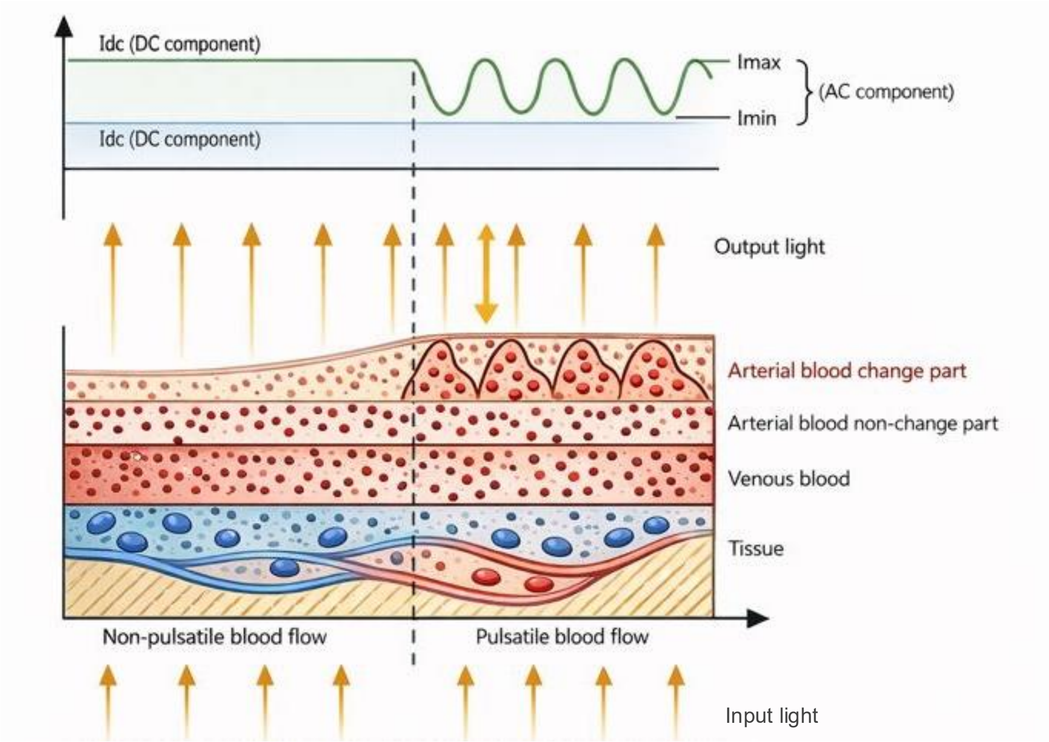
Blood oxygen saturation (SpO_2) refers to the percentage of oxyhemoglobin in the total hemoglobin in the blood. It indicates the degree to which oxygen is bound to hemoglobin and is an important parameter reflecting the body's oxygenation status.



Introduction to the measurement principle

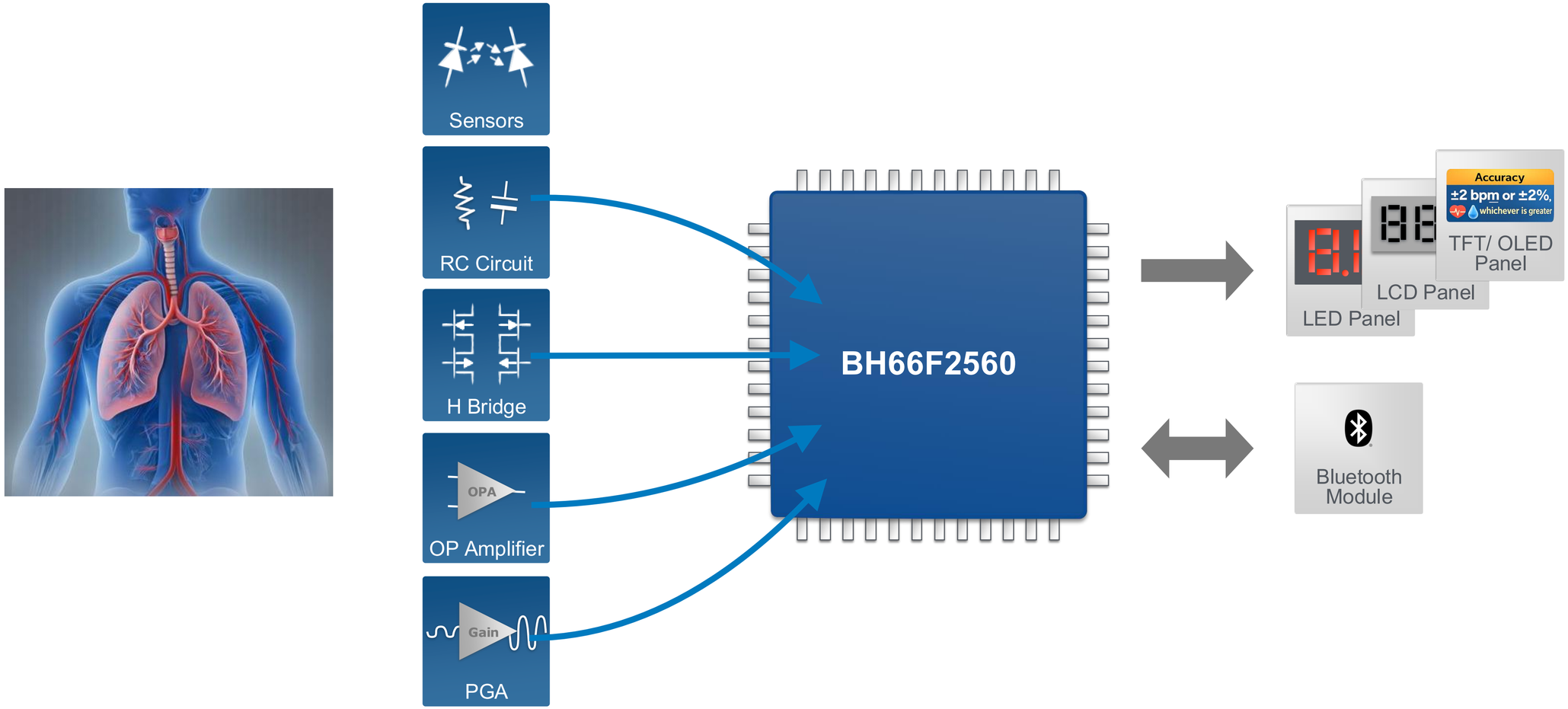
The pulse oximeter emits red and infrared light through the finger. Changes in the proportion of oxyhemoglobin in the blood cause variations in the intensity of the received light. By analyzing the optical signals, the blood oxygen saturation (SpO_2) can be obtained.



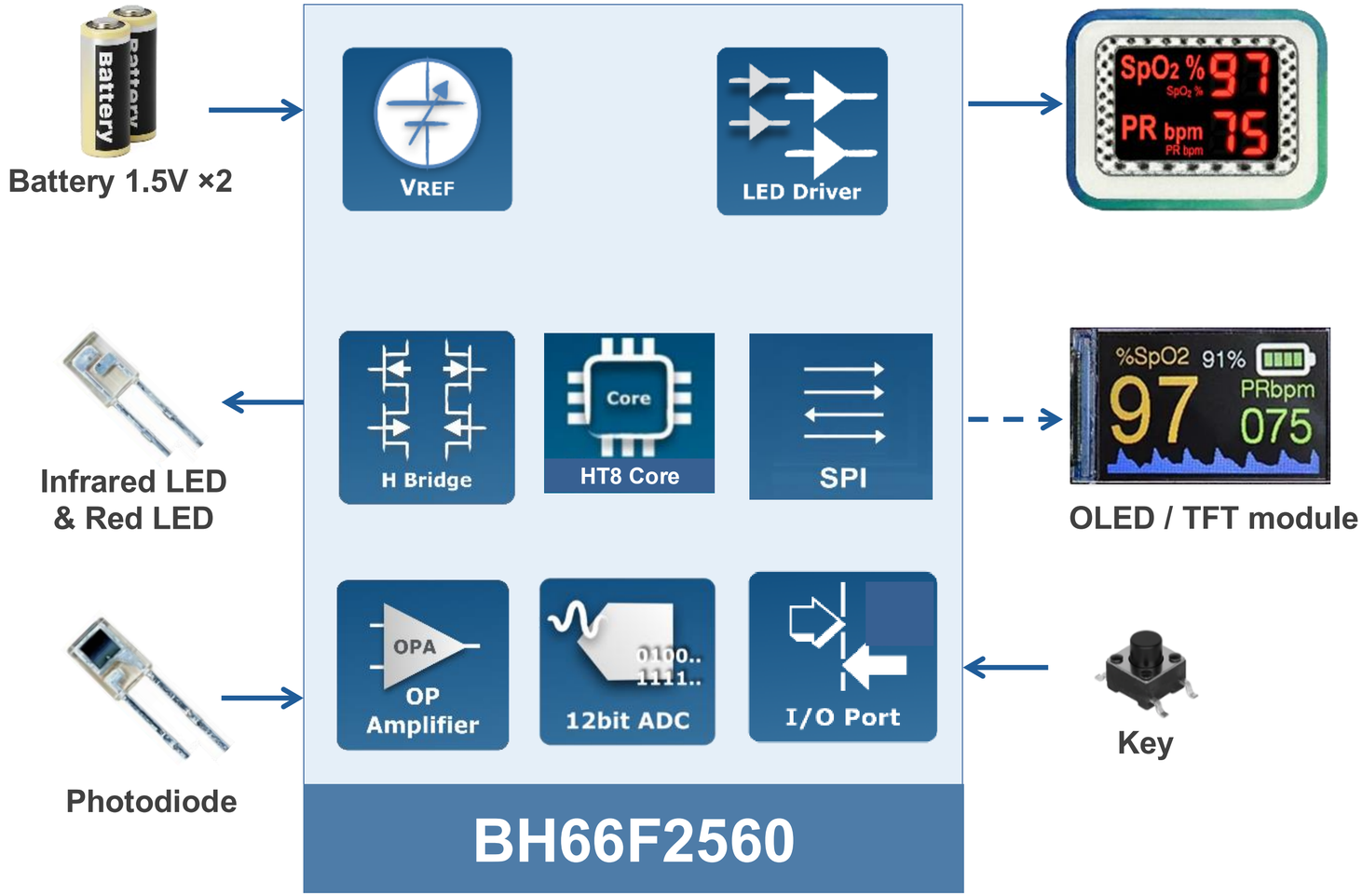


Solution Description

Blood oxygen measurement – BH66F2560 solution



Solution Description – Block Diagram



Solution Description – MCU Specification

Part number	BH66F2560
VDD	2.2V - 5.5V
HIRC	4 / 8 / 12MHz
ROM (Word)	16K × 16
EEPROM (Byte)	1024 × 8
RAM (Byte)	1024 × 8
I/O	24 (4 selectable current levels, directly driving the LED)
ADC	12-bit × 8
TM	10-bit PTM × 1 10-bit STM × 2
Interface	SPI / I^2C / UART
SpO_2 receiving AFE	√ (No external components required)
Constant current H-bridge	√
Package	32QFN

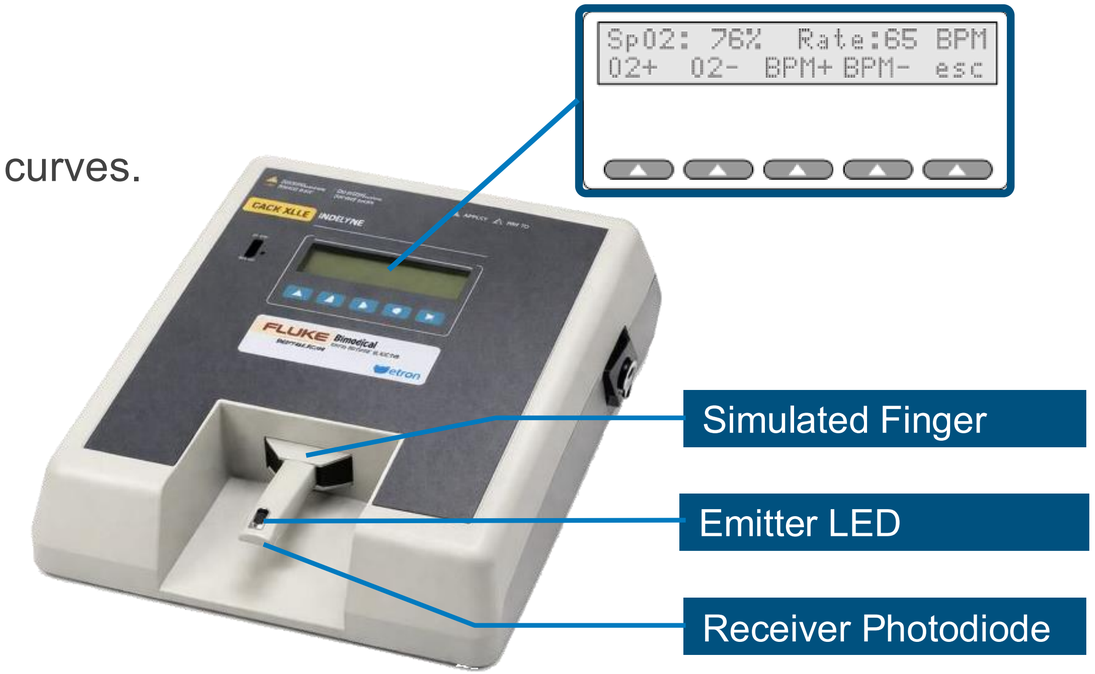
Product calibration and testing

- No calibration is required as long as the sensor wavelengths are fixed.
- Before leaving the factory, the product is tested using a blood oxygen saturation simulator to verify the measurement accuracy of SpO_2, pulse rate (PR), and perfusion index (PI).

The Index2 comes preloaded with 10 manufacturer ratio curves.

Simulation Conditions:

- Oxygen Saturation: 35% ~ 100%
- Pulse Rate Simulation: 30 ~ 250BPM
- Perfusion Index Simulation: 0% ~ 20%
- Interference: sunlight, 50 Hz, 60 Hz



Fluke Index2 Simulator

Competitive Advantage

- High level of integration, reducing overall component count and system cost
- Compact footprint (3×3 mm^2), suitable for use in a wide range of application
- Mature, production-ready solution with complete reference code and algorithm library
- Shortened development cycle, accelerating time-to-market
- Support rapid transition to mass production

Technical Support

Demo & Services

- Product Demo Code
- Evaluation Board (EVB)
- Custom Development Services
- Engineering Support for Mass Production Ramp-up
- Technical Issue Resolution

Technical Contact

- Best Health: service@e-besthealth.com
- Holtek: sales@holtek.com

Video