LamaPLC: MAX30100/MAX30102 Heart Rate Click Sensor Module

The MAX30102 and MAX30100 are integrated pulse oximetry and heart-rate monitor sensor modules commonly used in wearable health devices. While both use red and infrared LEDs to measure blood oxygen (SpO2) and heart rate (BPM), the MAX30102 is the upgraded version with significant technical improvements.

Key Differences

Feature MAX30100 MAX30102 (Upgrade) FIFO Buffer 16-deep (smaller storage) 32-deep (stores more data) ADC Resolution 14-bit 18-bit (higher sensitivity) Voltage 1.8V and 3.3V 1.8V (logic) & 3.3V–5.0V (LEDs) Temp Sensor No internal temperature sensor Includes on-chip temperature sensor Motion Rejection Basic Improved ambient light and motion rejection

Practical Hardware Notes

On-Chip Temperature: The MAX30102 features a temperature sensor (±1°C accuracy) used to compensate for environmental changes and improve reading accuracy. Interfacing: Both use the I2C protocol (SDA/SCL) and are compatible with microcontrollers like Arduino, ESP32, and STM32. Common Issues: Users often encounter power supply issues with breakout boards (especially the 1.8V vs 3.3V requirements). It is highly recommended to use the MAX30102 Datasheet to verify voltage levels for your specific module. Accuracy: Calibrated tests show roughly 95.8% to 97% accuracy for heart rate monitoring.

MAX30102, MAX30100, Heart Rate Click, sensor, arduino, code