

# User Manual

The Goodix GR551x family is a single-mode, low-power Bluetooth 5.1 System-on-Chip (SoC). It can be configured as a Broadcaster, an Observer, a Central, or a Peripheral and supports the combination of all the above roles, making it an ideal choice for Internet of Things (IoT) and smart wearable devices.

Based on ARM® Cortex®-M4F CPU core, the GR551x integrates Bluetooth 5.1 Protocol Stack, a 2.4 GHz RF transceiver, on-chip programmable Flash memory, RAM, and multiple peripherals.

EM7128 is a low-power I<sub>2</sub>C interface module includes Heart Rate Sensor (HRS) and internal LED Current Drivers with 1 Green LED. It can work in both continuous mode and pulse mode. It is designed for applications of Heart Beat Rate detection esp. such as smart watch etc.

Heart Rate Sensor in continuous mode is designed to monitor heart rate by optical detection. A 16-bit ADC detects the result constantly with adjustable gain and resolution.

HRS in continuous mode stores ADC output result into HRS registers, All pixels are controlled by analog-MUX in different modes.

## FCC Warning

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**Note:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- ▶ -Reorient or relocate the receiving antenna.
- ▶ -Increase the separation between the equipment and receiver.
- ▶ -Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- ▶ -Consult the dealer or an experienced radio/TV technician for help.

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.