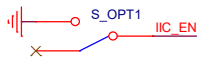
Interface

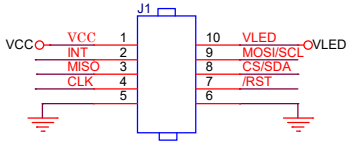
Communication Interface Selection

GH3011 supports both SPI and IIC communication interfaces which can be selected by configuring IIC_EN pin status.

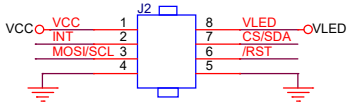
S_OPT1	Communication Interface
IIC_EN is connected to GND.	SPI
IIC_EN is left floating.	IIC



Select SPI Communication



Select IIC Communication



Note:

When IIC communication interface is selected, the IIC addresses can be configured through MISO and CLK. The MISO and CLK pins are left floating by default, which correspond to the IIC write address 0x28 and the IIC read address 0x29.

Note:

1. When the chip is powered off, please make sure that VDDIO is powered off before VCC, or VDDIO and VCC are powered off at the same time. See GH3011 Datasheet for timing details.
2. If no I/O pin is available on the host side for the module to control /RST, please make sure that the VCC power supply (LDO) can be powered on or off through software; otherwise, the sensor may fail to be reset when malfunctions occur, and thus, it is recommended that /RST should be retained.

System Power Supply Selection

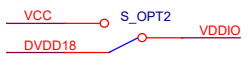
Scheme	Power Supply	Requirements on VCC Power Supply	Requirements on VLED Power Supply	Remark
Scheme 1 (Preferred)	VCC and VLED share the same power supply.	3.3±0.1V ≥120mA		1.VCC and VLED nets should be shorted together in the schematic. 2.Requirements of VLED power supply on LED voltage drop: a. Red/IR LED voltage drop: Vf @60mA≤ VLED-0.4V. b. Green LED voltage drop: Vf @100mA≤ VLED-0.5V.
Scheme 2	VCC and VLED are powered independently by different power supplies.	2.1-3.3V ≥40mA	3.3-4.5V ≥120mA	Requirements of VLED power supply on LED voltage drop: a. Red/IR LED voltage drop: Vf @60mA≤ VLED-0.4V. b. Green LED voltage drop: Vf @100mA≤ VLED-0.5V.

Note:

If VLED is powered by the battery, evaluation on whether the voltage/current is able to meet the application requirements when the battery power is low should be implemented.

Interface voltage Level Selection

Communication Voltage Level



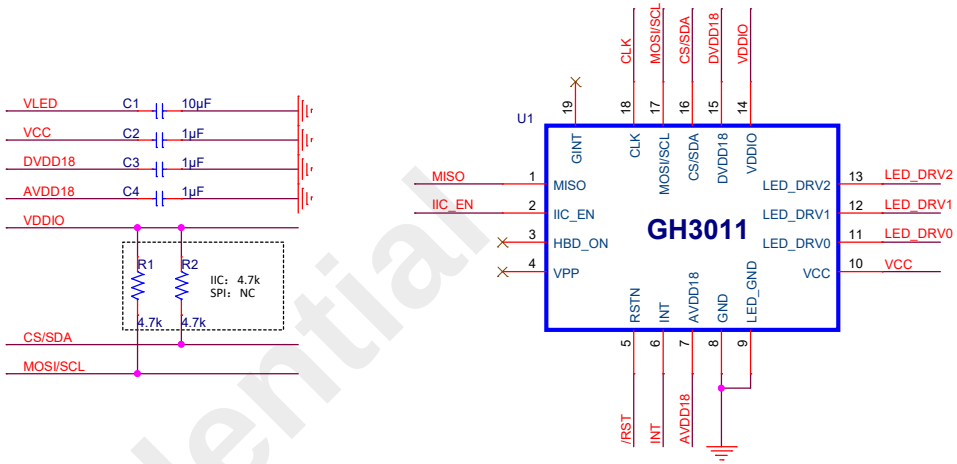
1. When VDDIO is connected to DVDD18, the interface voltage level is 1.8V.

2.When VDDIO is connected to VCC, the interface voltage level is the same as VCC voltage.

Note:

When the interface voltage level on the host side is not VCC or 1.8V, the main board should supply power to the VDDIO pin of GH3011 module to ensure that the interface voltage level on the host side is identical with that on the module side.

GH3011

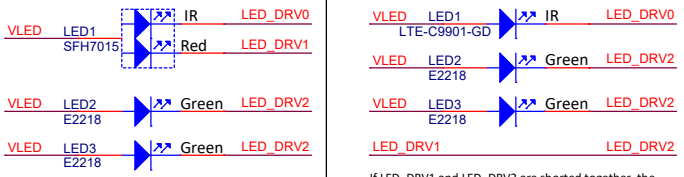


Note:

1. Pay attention to the heights of the components during mechanical design, in case that there is interference between components.
2. IIC pull-up resistors can be placed either on the main board or on FPC. Please do not place them repeatedly.

Optics Application Schemes

Drive Channel	SpO2+HR Application Scheme		Heart Rate Application Scheme		SpO2 Application Scheme	
	LED Selection	Function	LED Selection	Function	LED Selection	Function
LED_DRV0	IR	Wearing detection SpO2 detection	IR	Wearing detection	IR	Wearing detection SpO2 detection
LED_DRV1	Red	SpO2 detection	Green	Heart rate detection	Red	SpO2 detection
LED_DRV2	Green	Heart rate detection	Green	Heart rate detection	NC	



If LED_DRV1 and LED_DRV2 are shorted together, the maximum drive current can reach up to 200mA.

G-sensor Selection

Parameter	Requirement	Description
Measurement range	±4g (g refers to gravitational acceleration)	Resolution< 0.002 g/LSB
Width	≥12 bits	
Sampling frequency	>GH3011 sampling frequency	The sampling frequency of GH3011 can be configured through register and is related to the acutal application; commonly used maximum sampling frequency is 200Hz.

Note:

G-sensor is usually placed on the main board.

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Size	Project Name	Rev
Custom	GH3011 Schematic	1.3
Date: Wednesday, April 20, 2022	Sheet 1 of 1	

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