AP NOTE
Ver.0d

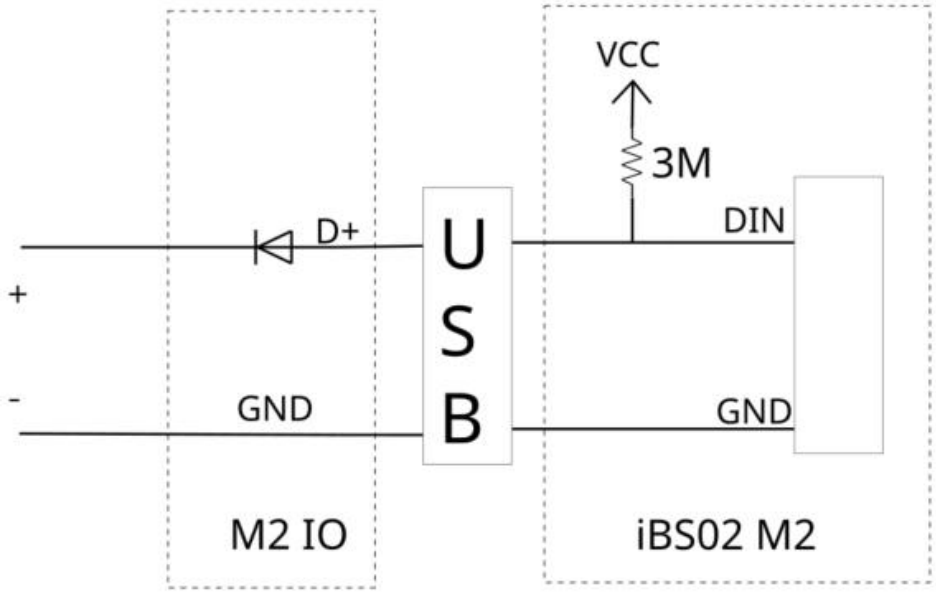
iBS02M2 I/O Guide

Introduction

iBS02M2 is a BLE beacon used for detecting external Hi/Lo events. For convenience, an I/O board is developed to connect external events with iBS02M2. The external event can be a dry contact, like a switch or wet contact, like a DC power or a signal from another system.

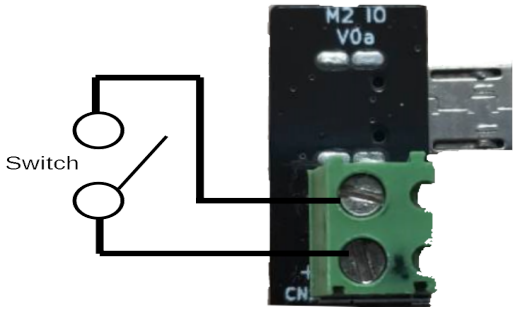
Basic Operation

The Terminal block connects Vin+ and Vin- and the micro USB connects to iBS02M2.



Dry Contact:

- **As a switch**



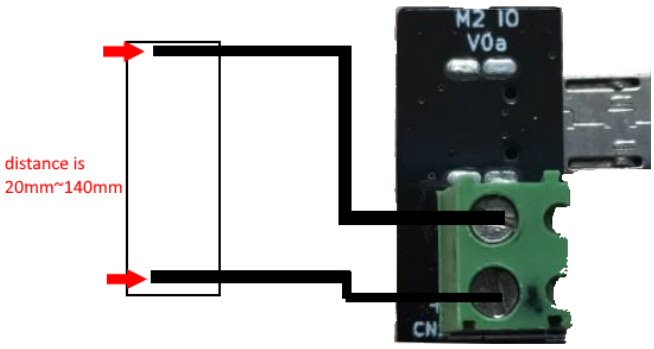
	Logic	iBS02M2 Event
Switch Open	Hi	0x00
Switch Closed	Low	0x40

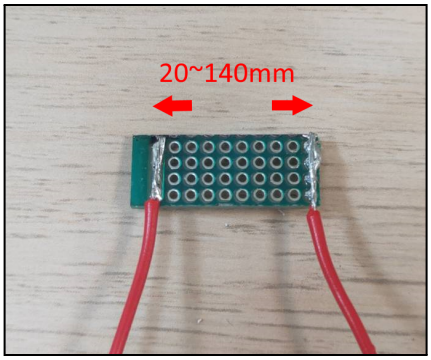
- **As a flood sensor**

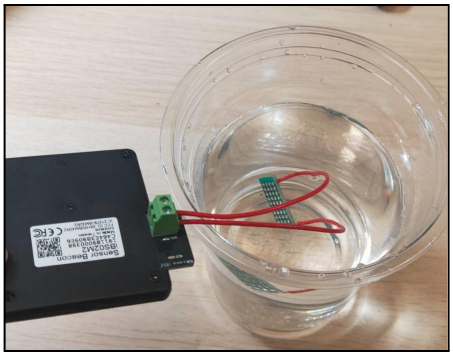
Connect two wires to iBS02M2's terminal and put the other ends close enough (several centimeters). These two wire ends can be used to detect if there is water or not.

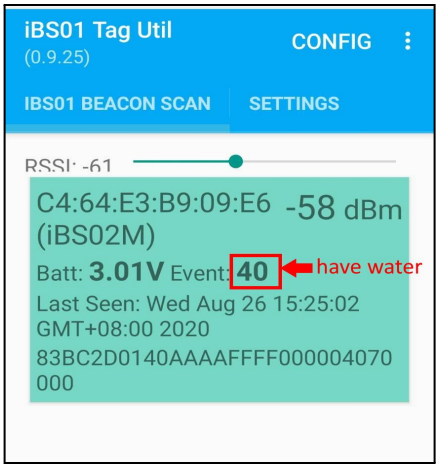
Example:

Use empty board to connect 2 lines, board distance is 20~140mm

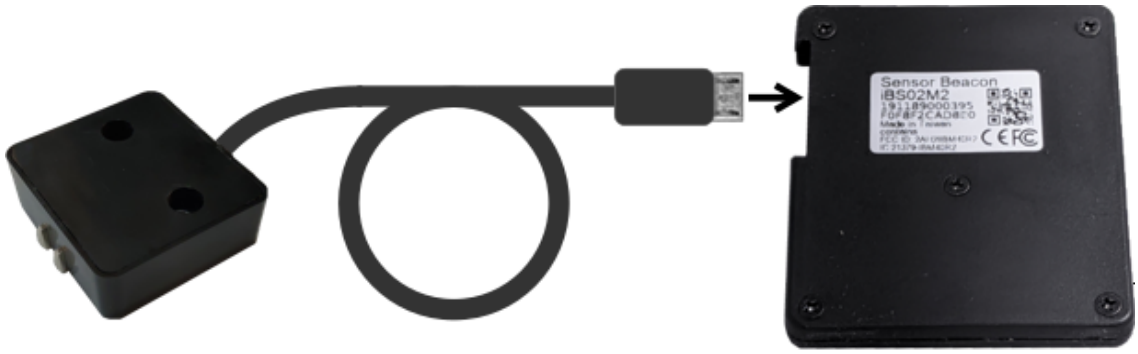






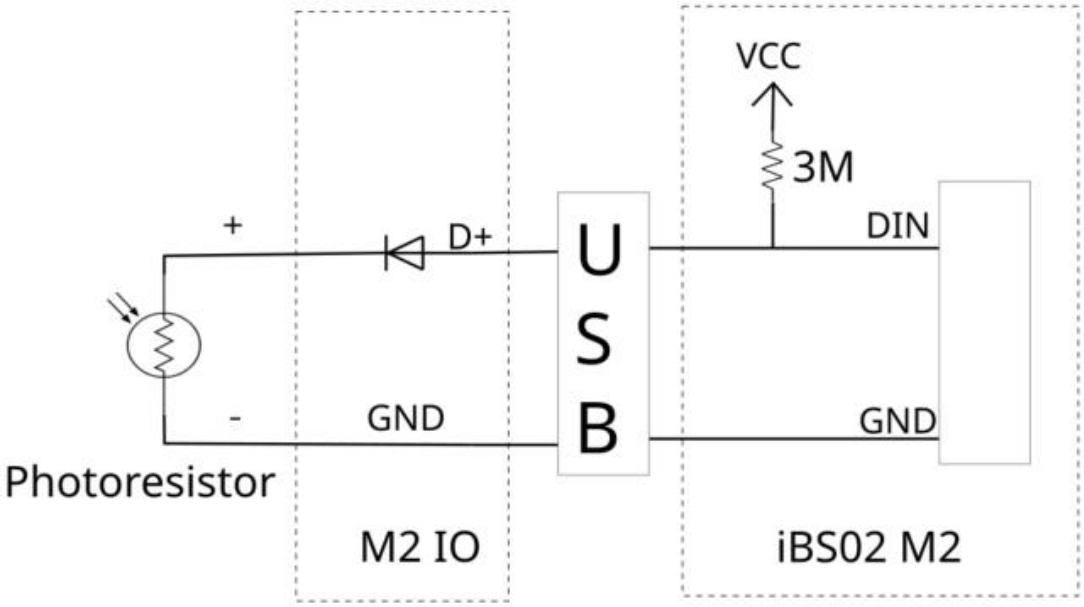


- Please check the INGICS Flood Sensor for iBS02M2.



Flood Sensor iBS02M2

- **Light/Dark detection with a photoresistor**



Test result

	Light	Dark
Light Meter (lux) (*1)	≒600	≒0.09
Photoresistor resistance (ohm) (*2)	5k	>20M
iBS02M2 event	Low (0x40)	High (0x00)

*1:Light Meter:TES-1335

*2:Photoresistor:GL5549 (dark resistance: 10M ohm)

For better dark detection, a light filter (to reduce light) can be applied

Wet Contact: a DC Power

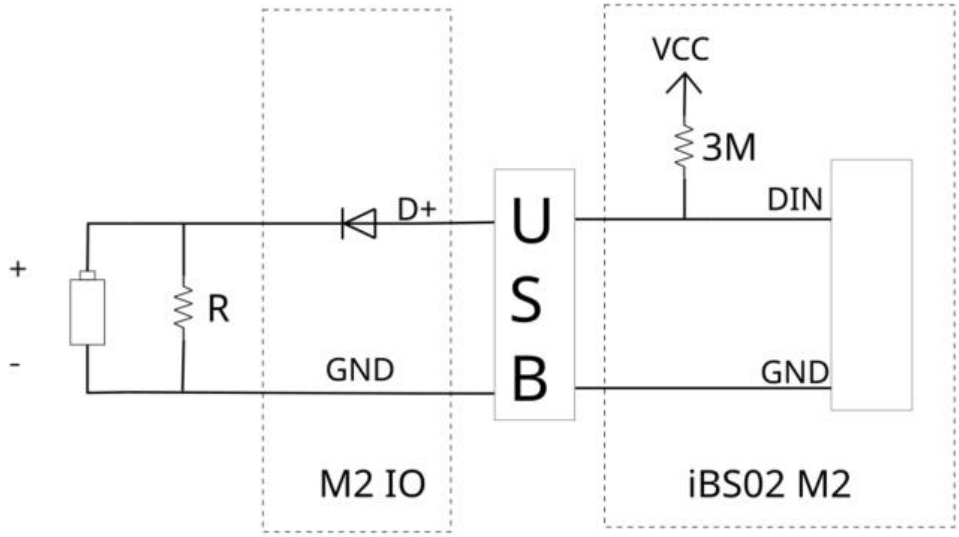
- **The DC Power system have High and Low status**

	iBS02M2 event	min	max
DC off / Vin (Lo)	0x40	0V	0.5V
DC on / Vin (Hi)	0x00	2V	50V

Accepted Input Range

- **DC Power system without low state while powered off**

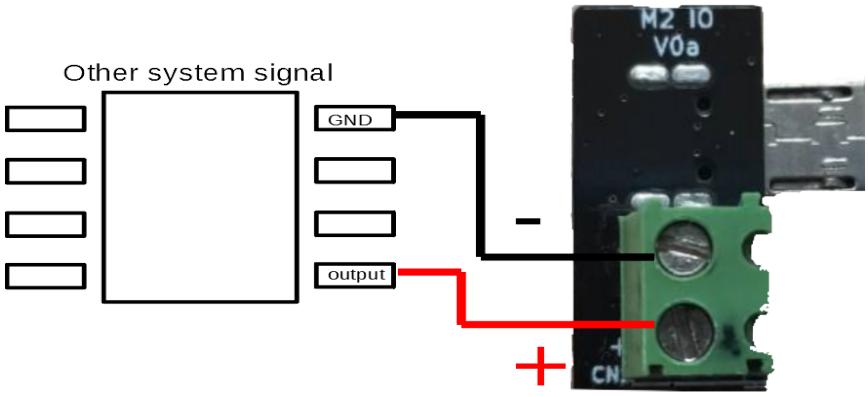
For some DC Power systems which can't maintain a low state while powered off, an external pull-low resistor is required. * Recommended resistor R : 100K~300K ohm.



	iBS02M2 event	min	max
DC off / Vin (Lo)	0x40	0V	0.5V
DC on / Vin (Hi)	0x00	2V	50V

Accepted Input Range

Wet Contact: a signal



	iBS02M2 event	min	max
Vin (Lo)	0x40	0V	0.5V
Vin (Hi)	0x00	2V	50V

Accepted Input Range

Revision History

DATE	REVISION	CHANGES
Dec 12, 2019	0a	Initial release
Feb 06, 2020	0b	Add a DC Power system which can't maintain a low level state while powered off.
Aug 26,2020	0c	Add flood sensor application
Nov 9,2022	0d	1.Add Light/Dark detection with a photoresistor application 2. Content optimization and add block diagram