
Product Specification

Product Name: PB-2 button

Model Name: Time Drops PB-2

Revision History

Specification		Sect.	Update Description	By
Rev	Date			
1.0	2021-02-01		New version release	WX

Approvals

<i>Organization</i>	<i>Name</i>	<i>Title</i>	<i>Date</i>

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1. Introduction

1.1 Description

Time Drops PB-2 is a portable wireless sports timing button. The product is developed based on Nordic's NRF52820 chip. It can be used with a proprietary gateway controller, and then can be used to measure elapsed time at sport competitions.

1.2 Application

- time measurement for sport competition (swimming)

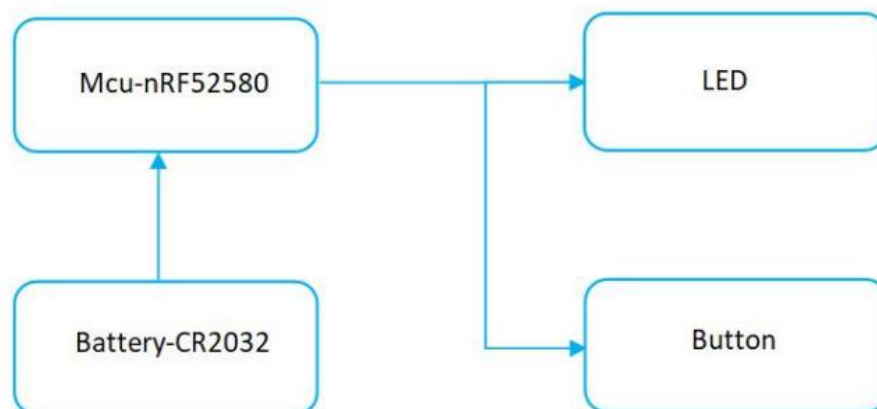
2. Appearance



Model List

Feature Mode	Bluetooth	Proprietary protocol	Beep	Installation
Time Drops PB-2	N/A	•	•	Lanyard

3. Hardware block diagram



4. Product specification

4.1 Performance

Item	Performance
	Time Drops PB-2
Outline Size	φ41mm
Net weight	~30g
Main IC	nRF52820
Protocol	Proprietary
Transmission frequency	2.400 - 2.4835GHz
TX power	-20 ~ +8dBm, default 0dBm
Receiving Sensibility	-103dBm
Transmission distance	100~200meters(open area)
Average power consumption	<65uA
Working voltage:	2.2~3.6VDC
Operation temperature	-10~65°C
Storage temperature	-30~85°C
Color	white
Built-in battery	CR2032 180mAh
Battery life	2Years (Depends on the mode of operation)
IP protection	IP68
Beep	support
Certification	CE, FCC, IC, SAA

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5. Function

5.1 Pairing and Unpairing

5.1.1 Pairing information is stored in the gateway controller only.

5.1.2 Press the button to power on the device

5.1.3 If the controller does not have pairing information, the device will not be bound and will flash rapidly for 30 seconds

5.1.4 After 30 seconds, the device will flash less rapidly for 150 seconds

5.1.5 During this time, the pairing information can be sent to the gateway controller using the provided app

5.1.6 Once pairing is complete, the device will flash once per second

5.1.7 If no pairing information is received after 3 minutes, the device will power off

5.2 Indicator status

Status	Description
Pairing mode	LED flashing rapidly (> 1 Hz)
Operating mode, connected to gateway controller	LED flashing at 1 Hz

5.3 Button functions

Button Action	Description
Short press the button once	Trigger a time measurement for competitive sports. If in power off mode, turn on the device

5.4 OTA

When the device is in the network state, the gateway or mobile APP issues an upgrade command to the device.

6. Caution

1. Being close to a metal object will interfere with the signal, causing the signal to be weakened.
2. Note the distance between Time Drops PB-2 and the receiver to guarantee the accuracy of receiving.
3. Keep away from the corrosive objects.

7. Reference usage

7.1 Gateway usage

- 1) Time Drops PB-2 paired to the controller gateway using proprietary protocol
- 2) controller gateway communicates with the app using Wi-Fi



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8. Installation

8.1 Lanyard

Can be worn on the neck.



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9. QA Requirements

Quality & Testing Information	
Information Description	Standard (Yes) custom (No)
ESD Testing	Yes
Battery life Testing	Yes
RF Antenna Analysis	Yes
Environmental Testing	Yes
Reliability Testing	Yes

10. WARNING

This device 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 device 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 device does cause harmful interference to radio or television reception, which can be determined by turning the device 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 device and receiver.
- Connect the device 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

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

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Part 15 of the FCC Rules and Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions: (1) This device may not cause interference. (2) This device must accept any interference, including interference that may cause undesired operation of the device

Cet appareil contient des émetteurs / récepteurs exemptés de licence conformes aux RSS (RSS) d'Innovation, Sciences et Développement économique Canada. Le fonctionnement est soumis aux deux conditions suivantes : (1) Cet appareil ne doit pas causer d'interférences. (2) Cet appareil doit accepter toutes les interférences, y compris celles susceptibles de provoquer un fonctionnement indésirable de l'appareil

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