

# **TZ-BT05**

### --- User Manual v1.4



# **1 Product Overview**

TZ-BT05 is a low power consumption Bluetooth data logger, using the latest Bluetooth 4.0 technology, Nordic NRF51822 chip development and design, It can collect temperature of the surrounding environment and recording and preservation of historical data, can store up to 12000 pieces temperature data, Bluetooth 4.0 can be downloaded over the phone APP,to achieve full stage real-time temperature recording. It has the small size, light weight, easy to carry, high accuracy and other characteristics, widely used in various other areas of refrigerated storage and transport, archives, experimental (test) rooms, museums and other temperature testing.

# **2** Applications

- 1. Refrigerated storage and transportation;
- 2. Archives;
- 3. Experimental (test) rooms;
- 4. Workshop;
- 5. Museums;
- 6. Pharmaceutical environment;
- 7. Fresh transport.

# **3 Product Features**

- 1. The high precision and high stability;
- 2. Bluetooth 4.0;
- 3. The long-distance wireless communication;
- 4. Built-in high sensitivity NTC temperature sensor;
- 5. Real-time display temperature;
- 6. Can store 12000 temperature data;
- 7. You can set the alarm temperature range;
- 8. The temperature graph can be automatically generated in the APP;
- 9. Can choose time to query data, the stored data can be saved in history;
- 10. Temperature data can be generate a PDF/CSV report and sent to specified email;
- 11. By pairing Bluetooth printer to print the data report;
- 12. Can by OTA update version.



# **4 Product specification**

Item	Specification		
Frequency signal transmission	2.400 - 2.4835GHz		
Protocol	Bluetooth 4.0		
Modulation	GFSK		
Transmission interval	28		
Internal battery	CR2450,550mAh/3V		
Output power	-4dBm, adjustable		
Maximum transmission distance	55 meters (-4dbm)		
Storage	can store 12000 pieces data		
Battery life	1 year (depends on working mode, can replace battery)		
Net weight	25g		
Dimension	50mm*35mm*15mm		
Temperature detecting range	-25°C~+60°C		
Temperature detecting accuracy	$\pm 0.5 ^{\circ}\text{C}(-20 ^{\circ}\text{C} \rightarrow +40 ^{\circ}\text{C}), \pm 1 ^{\circ}\text{C}(\text{Other temperature })$		

# **5** Caution

1, Away from metal objects, not placed in a sealed metal and small space;

2,Note that the distance between the TZ-BT05 and the receiver to ensure the reception accuracy;

3, Away from water and corrosive materials.

# **6** Switch Instructions

Device status	Operation	LED light instruction	Instructions
Turn on	Under unopened state, long press button for 3	Flashes continuous 3s on, then flashes once every 10	Data logger starts, start the real-time
	seconds	seconds	temperature record
Turn off	Open state, long press the button for 3 seconds	Flashes 5 times, then off	Close data logger, keep record of temperature data



### 7 APP software

'Temperature data logger' is a free mobile applications which provided by our company to the users, can connect the BT05 through the Bluetooth of the mobile devices and do the settings, data transmission, recording, synchronization, send to email. Apply the Bluetooth BLE way, so you can use Android, IOS phone for temperature monitoring.

#### 7.1 Android phone 'temperature data logger' App use.

Client can download App by scan the QR code below:



Open the 'Temperature data logger' software, the first to see is the scan code interface; there are three interface buttons, they are 'real time data', 'data extraction',

'Configure Devices'; and the upper-left corner of the menu button. Whether you need to enter which interface of this three interface, devices are required SN code, SN code can be scanned, entered directly using the phone keypad, also can directly click Real time/Query/Configure and see the device list:

Note: 1. One mobile phone APP only can scan 300 devces;

2. The mobile phone size must more than 4.7 and the resolution must more than 1280\*720



Press the Menu key to query historical data extraction, pairing a Bluetooth printer, update the firmware by OTA and inspection equipment, as shown below:



Historical records which stores all the history report, you can delete the report when you press the report and hold on for a while.

←	History	←		listory		
1	Number: 111627632017060610232532 Report Name: RT_T(11162763) -	<b>&gt;</b> 1	Number: 11162 Report Name: RT	7632017060610232532 _T(11162763) - 12050	0	
	Generation time: 2017-06-06 18:23:25		Generation time:	2017-06-06 18:23:25		
1	Number: 111627622017060610143972		Number: 11162	7622017060610143972		
2	Report Name: RT_T(11162762) -	2 2	Report Name: RT	_T(11162762) -	9	
	Generation time: 2017-06-06 18:14:39	X Do you want to delete ?				
	Number: 111627612017060610123019			un to delete i		
3	Report Name: RT_T(11162761) -	ID:111627632017060610232532				
	Generation time: 2017-06-06 18:12:30					
	Number: 111627602017060609042569		Cancel	Confirm	- 11	
4	Report Name: RT_T(11162760) -	9 EL	Garicer	Commit		
	Generation time: 2017-06-06 17:04:25		Generation time:	2017-06-06 17:04:25		
	Number: 111627592017060608010523		Number: 11162	7592017060608010523		
5	Report Name: RT_T(11162759) -	5	Report Name: RT	_T(11162759) -	0	
	Generation time: 2017-06-06 16:01:05		Generation time:	2017-06-06 16:01:05		
	Number: 131613192017060604294299		Number: 131613	3192017060604294299		
6	Report Name: BT05(13161319)	0 6	Report Name: 87	05(13161319) -	0	

Select the matching printer, print history report data:

- Printer				
Default Printer				
Select Printer (Searching)				
HTC Wildfire S	A510e	D4:2 0:6D: 3F:1	Paired	
(Galaxy S4)	10:D5:42 7:74	2:81:5	Paired	
T10 BT Printer	00:02:5 C:8A	B:20:6	Paired	
T10 BT Printer	C:8A	0.20.0	Paire	
	Pri ault Printer ect Printer (Searchin HTC Wildfire S (Galaxy S4) T10 BT Printer	Printer ault Printer ect Printer (Searching) HTC Wildfire S A510e (Galaxy S4) 10:D5:4: 7:74 T10 BT Printer 00:02:5 C:8A	Printer         ault Printer          ect Printer (Searching)          HTC Wildfire S A510e       D4:2 0:6D: 3F:1 0:05:42:81:5         (Galaxy S4)       10:D5:42:81:5 7:74         T10 BT Printer       00:02:5B:20:6 C:8A	

Inspection tool can check the phone and machine information and the connection.

← Checker	← Checker
Please enter the device serial	1、Phone Information: -> App Version: v2.5.1.39 -> Model: H60-L01 -> System: Android 4.4.2(19) -> Bluetooth BLE: Support -> Bluetooth On/Off: On
number(SN)	******
11162764	-> SN: 11162764 -> BroadcastService: Init Ok
Confirm	<ul> <li>broadcastService: Scanning for perpiteral devices</li> <li>&gt; BroadcastService: The device has been found! Time4084ms</li> <li>&gt; SN: 11162764</li> <li>&gt; HardwareModel: 3901</li> <li>&gt; Firmware: v23</li> <li>&gt; RSSI: -80</li> <li>&gt; BroadcastService: Close Scan</li> <li>&gt; ConfigService: Connecting the device</li> <li>&gt; ConfigService: Connected device! Time 7835 ms</li> <li>&gt; ConfigService: Getting Services, Characteristic</li> <li>&gt;&gt; Services, Characteristic info</li> </ul>

Click on the lower left corner of the set key, can see the software Settings, the system time zone, temperature unit, download the firmware update and checker.

← Settings	
v2.5.1.39	
Settings	>
Time Zone	
Temperature Unit	
Download firmware	
Check for updates	

Can be set up mobile phone connection timeout time machine:





Can set the local time zone, the PDF/CSV report will become the current time:

$\leftarrow$	Time Zone	
+8.0		
+8.0		

Can set the temperature of the unit you need:



BT05\_V11 and above version have OTA function, choose the firmware update, the latest version on the server can be detected and downloaded to mobile phones, then choose the need to update he machine ID, input the password, you can update to the latest version, when update is completed you will be prompted to update successful.

← Firmware	← Firmware
Ready	1% Updating
Please enter the device serial number(SN)	Prompt: During the upgrade process, please do not exit the program, so as to avoid permanent damage
Confirm	to the equipment!



#### 7.1.1 Configure logger

After entering the SN code or scanning device, or directly click 'Configure Devices' and select the device, on the home page, or enter the configuration interface, as shown below:

← Configure	← Configure
Device Name BT2703	Storage 60 30 s
SN 17062703	
Password 000000	Alarm -20 60 Settings
TX power -4dBm	Memory Clear OFF
Storage 60 30 s	Note
	Description
Alarm -20 60 Settings	Save Settings
Memory Clear OFF	Default Settings
Note	

The interface can be configured BT05 password(6 byte), if the transmit power(-30~4dbm), Normal/Alarm storage space(10~3600s), and the upper and lower temperature limits(-25~60° C), empty stored data .The appropriate value of the transmit power can be selected in the drop-down list; storage interval and alarm settings directly enter numbers according to individual needs; memory is cleared, you can choose to open or close(open will clear historical data). According to individual requirements click Save Settings then can write in, if save successfully, will be prompted the 'Save Configuration successful.'the'Default Setting' button will reset the device to default.

Note: the above BT05\_V6 version can be set device name(no more than 7 byte), note and description(no more than 20byte),BT05\_V11 and above version have OTA function, BT05\_V12 and above versions have selected time quick query data model.



#### 7.1.2 Real time data

'Real time data' displays the device name, real-time temperature and power, the interface for viewing real-time temperature, if the temperature exceed the limits then the figure change to be red, or else black font, this interface does not provide editing function . As shown below:

- RealTir	ne
BT05(17062703)	Battery 32%
27.6℃	%
2017-09-22 15:	05:33
2011/05/22/10.	00.00

#### 7.1.3 Query data

'Query Data' screen, can choose extraction time,(BT05\_V12 and above versions have this function), displays SN code,Storage interval,Alarm settings,the total number of data recorded ,the maximum/minimum/Avg/MKT temperature during recording, start time, end time, total time,temperature graph and Bluetooth printing, the interface is mainly used for reading temperature data recorded in a specific time period, the same as the historical record,the report includes data report, data record, temperature chart,set report,send report and print report,As shown below:

	– Data Records		G	D	ata Records
	Data Record Please select the extraction	٦	D	ata Record	13161217
	period?	0	St	torage interval	10 s
ſ			D	larm Settings ata Total	6482
1	3 day		M	lax Temp lin Temp	64.4 ℃ -24.8 ℃
1	7 day	0	A	vg Tempe	7.0 ℃
1	30 day	0	M	lax Humidity	-%
ļ	Set the time range	0	A	vg Humidity	-%
E	tart Time 0000-00-00 00:00:00 End Time 0000-00-00 00:00:00		S1 Ei	tartTime ndTime	2017-01-10 14:19:54 2017-01-13 13:36:51
į	Fotal Time		то	otal Time	2:23:16:57

📀 🛛 Data Records	📀 🛛 Data Records
Temperature and humidity graph	Report Setting
60.0	Report Name BT05(44556677) - 20161201
40.0	Note
20.0	Description
0.0	Save Settings
-20.0	
7/01/10 14:19:54 2017/01/10 18:14:54 2017/01/10 22:0	Send Report
Temperature C 30.0 10.0	Revice Email name@example.com
Demont Cotting	Send
Report Setting	
Report Name BT05(13161217) – 20170113	Print Report

### 7.1.4 History record

Every click on the "query data", the data will be stored in the historical data ,you can into the historical record, the report includes data report, data record, temperature chart, set report, send report and print report, as shown below:



0	Historical	•	History
	Terraris	Data Report	
Data Report		Number	131612172017011305383590
Document	445566772016120106262455	Access code	6318
Access code	5309	Create Time	2017-01-13 13:38:35
Data Record		Data Record	
SN	44556677	SN	13161217
Storage interval	30 s	Storage interval	10 s
Total Records	2556	Alarm Settings	10.0, 30.0 ℃
Max Temp	24.1 ℃	Total Records	6482
Min Temp	19.5 ℃	Max Temp	64.4 ℃
Max Humidity	%	Min Temp	-24.8 ℃
Min Humidity	%	Avg Tempe	7.0 ℃
StartTime	2016-11-30 17:01:04	МКТ	33.0 ℃
EndTime	2016-12-01 14:23:23	Max Humidity	%
		Min Humidity	%

Note: Red line: high temperature threshold, blue line: low temperature threshold

C History	Historical     reports
Temperature and humidity graph	Report Setting
60.0	Report Name BT05(44556677) – 20161201
40.0	Note
20.0	Description
0.0	Save Settings
-20.0	
2017/01/10 18:14:54 2017/01/10 22:09	Send Report
Temperature C 30.0 10.0	Revice Email lisa@tzonedigital.com
Report Setting	Send
Report Name BT05(13161217) - 20170113	
Noto	Print Report

In the report Settings can be set up report name, comment and description, also can be directly set in configure logger, as shown below:



Historical reports
Ig
BT05(44556677) – 20161201
room1
test
lisa@tzonedigital.com

In "send report" can be set up to receive email, the first please set the email account on the mobile, click send, you can change the report start and end time and set the graph scaling, click confirm, it is will generate PDF/CSV files and into write email, you can input mail content, red box for sending, click it, the PDF/CSV report will be sent to the designated email, as shown below:

0	Historical reports	📀 Send Email		
Description	test Save Settings	Set the display time range 2017-01-10 14:19:54 ~ 2017-01-13 13:36:51 🧪		
		Set the PDF graph scaling		
Send Report	t	60.0		
Revice Email	lisa@tzonedigital.com	40.0		
	Send	20.0		
		0.0		
Print Report	t	-20.0		
Select Printer	T10 BT Printer	7/01/10 14:19:54 2017/01/10 18:14:54 2017/01/10 22:0		
	Print	■ Temperature <sup>®</sup> C ■ 30.0 ■ 10.0		



×	Compose		Δ
To:	lisa@tzonedigital.com		
Cc/Bcc:			
Subject	BT05(17062703) - 2017091	9	
2 files (	6.44KB/50MB)		^
POF	1706270320102470936.pd	f 15.33KB	×
Ð	17062703201702470936.cs	SV 1.12KB	×
来自我的	的华为手机		
	0 =		
	Attach file Men	u	

Can be in the specified mailbox to see to this email and generate PDF/CSV report, as shown below:





#### 7.2 IOS system 'temperature data logger' App use.

Client can download App by App Store : Search: Humiture Recorder

	H	umiture Ian liao	Record	er 获取
无 SIM ÷ ♥	<sup>下午2:06</sup> 查找设备	≋ 100% <b>■●</b> + 扫描	无 SIM + ♥ <b>く</b> 查找设备	下午2:06 非 100% ■●●● 历史报告
	編人並命序判句(1 实时数据 查询数据 起置设备 历史报表		单据编号: 查询码: 生成时间: 单据编号: 查询码: 生成时间: 单据编号: 查询码: 生成时间: 单据编号: 查询码: 生成时间:	1316004420181019143137 1234 2016-10-19 14:31:37 999999920161019131024 1234 2016-10-19 13:10:24 1316004420161014105304 1234 2016-10-14 10:53:04 1316004420161013181517 1234

Open the 'Temperature data logger' software, the first to see is the scan code interface; there are three interface buttons, they are 'Real time', 'Query', 'Configure'; and the upper-right corner of the search button. Whether you need to enter which interface of this three interface, devices are required SN code, SN code can be scanned or entered directly using the phone keypad or also can directly see equipment list after clicking on search.

As shown below picture:

Note: 1. One mobile phone APP only can scan 300 devices;

2. The mobile phone size must more than 4.0 and more than the IPhone5 mobile phone, suggest that it is best to use the IPhone6 above, to ensure smooth operation



Find Device Scan	K Find Dev	ice Scan	Device	
Enter the device serial number	hahaxix Temperature: Battery: SN:	24.08°C 60% 99887766	Humidity: RSSI: Model:	64.51% -41dBm BT04 (v17)
	BT05 Temperature: Battery: SN:	22.56°C 42% ffffffff	Humidity: RSSI: Model:	% -74dBm BT05 (v05)
	RT_T Temperature: Battery: SN:	23.3°C 99% 999999999	Humidity: RSSI: Model:	60.42% -84dBm BT04 (v15)
	BT05 Temperature: Battery: SN:	22.41°C 54% 13160044	Humidity: RSSI: Model:	% -73dBm BT05 (v03)
RealTime Query Configure	RT Temperature: Battery:	21.81°C 87%	Humidity: RSSI:	62.63% -73dBm
history	SN:	11111111	Model:	BT04 (v03)

BT05\_V11 and above version have OTA function, choose the firmware update, the Choose the firmware update, the latest version on the server can be detected and downloaded to mobile phones, then choose the need to update the machine ID, input the password, you can update to the latest version, when update is completed you will be prompted to update successful.

← Firmware	← Firmware Ungrade
Ready	1% Updating
Please enter the device serial number(SN)	Prompt:
43210001	During the upgrade process, please do not exit the program, so as to avoid permanent damage to the equipment!
Confirm	
	0

### 7.2.1 Configure logger

After entering the SN code or scanning device or clicking search on the home page,



will enter the configuration interface, as shown below:

Back	Setting	Sa	ve
SN		1706270	3
Password		000000	>
Transmit Pow	er	-4(dBm)	>
Storage Interv	val	60,30(s)	>
Alarm Setting	S	-20.0,60°C	>
Clear		$\bigcirc$	
Device Name		BT2703	>
Remarks			>
Description			>

'Setting' The interface can be configured BT05 transmit power, Normal/Alarm storage space, and the upper and lower temperature limits, empty stored data .The appropriate value of the transmit power can be selected in the drop-down list;storage interval and alarm settings directly enter numbers according to individual needs; memory is cleared, you can choose to open or close(open will clear historical data). According to individual requirements click Save Settings then can write in, if save successfully, will be prompted the 'Save Configuration successful.

#### 7.2.2 Real time data

'Real time data' displays the device name, real-time temperature and power, the interface for viewing real-time temperature, if the temperature exceed the limits then the figure change to be red, or else black font, this interface does not provide editing function. As shown below:



← RealTime			
BT05(17062703)	Battery 32%		
27.6℃	%		
2017-09-22 1	5:05:33		

#### 7.2.3 Query data

'Query Data' screen, can choose extraction time,(BT05\_V12 and above versions have this function), displays SN code, Storage interval, the total number of data recorded ,the maximum and minimum temperature during recording, start time, end time, temperature chart ,send report and Bluetooth printing, the interface is mainly used for reading temperature data recorded in a specific time period. There have send report and print report function(Please don't let the screen lock screen,or query will interrupt), As shown below:

Kind Device Device data records	Find Device	Deivce data records
Please select the extraction period	Data records	5
	SN	fffffff
and a second	Storage interval	10
All	Total	2468
	Max Temperature	25.0°C
1 Day	Min Temperature	19.2°C
14.00 C 200	Max Humidity	
3 Day	Min Humidity	-
C Day	BeginTime	2016-12-08 17:35:24
1 week	EndTime	2016-12-09 13:49:21
1 Month	Temperature	& Humidity Chart
Customize	my Li	m Ar
Cancel	4716-16.00 (0.16/00 (0.16/00) 90/00 (0.16/00 (0.16/00) 90/00 (0.16/00) 90/00 (0.16/00)	

E 深均	川天圆数码 E DIGITAL	科技有限公司 TECHNOLOGY	COLTD
C Find Device		rds <sup>mense</sup>	
Send Report Receive Email	name@example.c	om	
Print Report	Print		

### 7.2.4 History data

Every click query data, stored data will be stored in a history report, can enter the history report to see.

Find Devic	e History
No:	ffffffff20161209135521
Token:	1234
CreateTime:	2016-12-09 13:55:21
No:	9988776620161209075322
Token:	1234
CreateTime:	2016-12-09 07:53:22
No	9988776620161209001818
Token:	1234
CreateTime:	2016-12-09 00:18:18
No:	9988776620161208174543
Token:	1234
CreateTime:	2016-12-08 17:45:43
No:	8765432120161208174220
Token:	1234
CreateTime:	2016-12-08 17:42:20

And query data, the same history report includes data record, temperature and chart and send report and print reports, as shown in the figure below:



K History Dei	vce data records	K History Dei	vce data records	
Data records	5	distant period and a		
SN	fffffff		an ana ion an ion an an	
Storage interval	10			
Total	4283			
Max Temperature	30.5°C	Sond Roport	Sond Papart	
Min Temperature	15.4°C	Send Report		
Max Humidity		Receive Email	lisa@tzonedigital.co	
Min Humidity	m.			
BeginTime	2016-01-01 09:02:01		Sond	
EndTime	2016-12-08 13:30:15	8	Seriu	
	& Humidity Chart	Print Report	Print	

In sending report can be set receive email, the first please set the email account on the mobile, click send, can generate HTML/CSV form the report and sent to email address:





Turn on the Bluetooth printer, click print button, can automatically search the Bluetooth printer device name, click the device name, can automatically match and print this data report:

