

TZ-BT04 User Manual V1.6



1 Product overview

TZ-BT04 is Bluetooth Low Energy temperature and humidity data logger with the latest Bluetooth 4.0 technology and Nordic NRF51822 chip. It can collect temperature and humidity of the surrounding environment . Such data can be recorded as history data. BT04 can store up to 12000 pieces of the temperature and humidity data. Mobile phone with Bluetooth 4.0 or above can download and install App.It can store and monitor temperature and humidity of the environment comprehensively. Its characteristics are small-sized, low-weighted, easily portable and highly accurate for wide use in cold chain logistics, archives, labs, museums, etc.



2 Product application

- 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. High accuracy and stability;
- 2. Bluetooth 4.0;
- 3. Long distance wireless transfer;
- 4. Built-in highly sensitive temperature and humidity sensor;
- 5. Real-time display temperature and humidity;
- 6. It can store 12000 pieces of temperature and humidity data;
- 7. You can set the alarm temperature range;
- 8. Can be set the scope of temperature alarm;
- 9. Can be set normal storage temperature and humidity data interval and alarm storage temperature and humidity data interval;
- 10. Can choose time to query data, the stored data can be saved in history;
- 11. History report can be sent to specified email;
- 12. By pairing Bluetooth printer to print the data report;
- 13. Can by OTA update version.

4 Product specification

Item	Specification
Signal transmission frequency	2.400 - 2.4835GHz
Protocol standard	Bluetooth 4.0
Modulation mode	GFSK
Send interval	2S, adjustable
Built in battery	CR2450,550mAh /3V

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Output power	-4dBm, adjustable	
Communication rate	1Mbps	
Transmission distance	55 meters, adjustable	
Storage	Can be save 12000 temperature and humidity data	
battery life	300 day (Depends on the mode of operation, can replace battery)	
Net weight	30g	
Outline size	50mm*50mm*20mm	
Detect temperature range	-40°C~+125°C	
Operating temperature range	-25°C~+60°C	
Humidity detection range	0~100%RH	
Temperature detection accuracy	±0.3 °C	
Humidity detection accuracy	±3%RH	

5 Caution

- 1. Keep away from metal objects. Do not place it in a contained space of metal;
- 2. Note the distance between TZ-BT04 and the receiver to guarantee the accuracy of receiving
- 3. Keep away from water and corrosive objects.

6 Switch Instructions

Device status	Operation	LED light instruction	Instructions
Turn on	Under unopened state, long press button for 3 seconds	The Green led Flashes continuous 3 seconds on, then flashes once every 10 seconds	Turn the device, start send the real-time data,need to open the router,then start record the data
Turn off	Open state, long press the button for 3 seconds	The Red led Flashes 5 times, then off	Turn off the device

7 APP

'temperature data logger' is a free mobile applications which provided by our company to the users, can connect the BT04 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 system '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', 'Query', 'Configure'; 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 devices;

2. The mobile phone size must more than 4.7 and the resolution must more than $1280 \ensuremath{^{\circ}720}$

As shown below picture:



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	\leftarrow		tory	
1	Number: 111627632017060610232532 Report Name: RT_T(11162763) - 0017060 Generation time: 2017-06-06 18:23:25	1	Number: 11162763 Report Name: RT_T(201270 Generation time: 201	2017060610232532 11162763) - en 7-06-06 18:23:25	0
2	Number: 111627622017060610143972 Report Name: RT_T(11162762) - 2017060 Generation time: 2017-06-06 18:14:39	2	Number: 11162762: Report Name: RT_T(2017060610143972 11162762) -	9
3	Number: 111627612017060610123019 Report Name: RT_T(11162761) - 2017060 Generation time: 2017-06-06 18:12:30	IC	0:111627632017	060610232532	•
4	Number: 111627602017060609042569 Report Name: RT_T(11162760) - 2017060 Generation time: 2017-06-06 17:04:25		Cancel 20120 Generation time: 201	Confirm 60 7-06-06 17:04:25	
5	Number: 111627592017060608010523 Report Name: RT_T(11162759) - 2017050 Generation time: 2017-06-06 16:01:05	5	Number: 111627593 Report Name: RT_T(20170 Generation time: 201	2017060608010523 11162759) - 60 7-06-06 16:01:05	0
6	Number: 131613192017060604294299 Report Name: BT05(13161319)	6	Number: 13161319 Report Name: 8T05(20170	2017060604294299 13161319) -	0

Select the matching printer, print history report data:

Def	ault Printer -	-		
Sele	ect Printer (Searchir	ng)		
1	HTC Wildfire S	A510e	D4:2 0:6D: 3F:1	Paired
2	(Galaxy S4)	10:D5:42 7:74	2:81:5	Paired
3	T10 BT Printer	00:02:5 C:8A	B:20:6	Paired

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

← Checker	← Checker
Please enter the device serial number(SN) 11162764 Confirm	 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 ************************************

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.

\leftarrow	Settings	
	v2.5.1.39	
Settings	1	>
Time Zon	ie	>
Temperat	ture Unit	>
Download	d firmware	>
Check for	r 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		

Can set the temperature of the unit you need:



BT04_V24 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 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 Upgrade
Ready	1% Updating
Please enter the device serial number(SN) 43210001	Prompt: During the upgrade process, please do not exit the program, so as to avoid permanent damage to the equipment!
Confirm	

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:

\leftarrow	Configure	← Configure
Device Name	RT1801	Storage 60 30 s
SN	11161801	
Password	000000	Alarm -20 100 Settings
TX power	-4dBm	Travel Records ON
Storage (50 30 s	Note
Alarm - Settings	20 100	Save Settings
Travel Records	ON	Default Settings
Note		



The interface can be configured BT04 password(6 byte),transmit power(-30~4dbm), Normal/Alarm storage space(10~3600s), and the upper and lower temperature limits(-25~100° C), Travel Records .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; Travel Records, if you want Save the data, you must open it, when you close and open again, it 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.

7.1.2 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:



7.1.3 Query data

'Query Data' screen, can choose extraction time, 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 during



recording, start time, end 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 and humidity chart, set report, send report and print report, as shown below:

← Data Records	O	Data Records
Data Record	Data Reco	ord
Please select the extraction period?	SN Storage inter	55551101
All	Alarm Setting	gs -20.0,100.0 ℃
1 day	Data Total Max Temp	312 26.0 °C
3 day	Min Temp	18.8 °C
7 day	Avg Tempe MKT	23.0 °C 23.0 °C
30 day	Max Humidit	y 39.0 %
Set the time range	Avg Humidity	/ 30.0 %
Start Time 0000-00-00 00:00:00 End Time 0000-00-00 00:00:00	StartTime EndTime	2017-01-17 14:43:32 2017-01-17 23:50:32
Total Time	Total Time	09:07:00
Data Records	0	Data Records
Temperature and humidity grap	h Report Se	etting
100	Report Nam	RT_T(10012002) - 20161202
80	Note	
40	Description	
20		Save Settings
-20		
/01/17 14:43:32 2017/01/17 16:04:02 201 ■ Temperature ℃ ■ Humidity% ■ 100.0 ■ -20.	^{7/01/17 16:51} Send Rep	port
	Revice Emai	il lisa@tzonedigital.com
Beport Setting		Send
Report Setting		
Report Name RT_T10(55551101) - 2017011	7	

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 and humidity chart and send report and print reports, as shown below:

Data Report Number 1 Access code 2 Data Record	100120022016120210570662 2808	Data Record SN Storage interval Alarm Settings Total Records Max Temp	55551101 60 s -20.0 , 100.0 ℃ 312 26.0 ℃
Data Report	100120022016120210570662 2808	SN Storage interval Alarm Settings Total Records Max Temp	55551101 60 s -20.0 , 100.0 °C 312 26.0 °C
Number Access code 2 Data Record	100120022016120210570662 2808	Storage interval Alarm Settings Total Records Max Temp	60 s -20.0 , 100.0 °C 312 26.0 °C
Access code	2808	Alarm Settings Total Records Max Temp	-20.0 , 100.0 ℃ 312 26.0 ℃
ata Record	2808	Total Records Max Temp	-20.0 , 100.0 ℃ 312 26.0 ℃
ata Record		Max Temp	26.0 ℃
ata Record		Max remp	20.0 C
		Min Toman	10.0 %
N 1	10012002		18.8 C
orage interval	60 s	Avg rempe	23.0 °C
tal Records	1508	MRI	23.0 C
ax Temp 3	30.0 ℃	Max Humidity	39.0 %
n Temp 1	19.0 °C		20.0 %
ax Humidity	79.0 %	Avg Humidity	30.0 %
in Humidity	43.0 %	StartTime	2017-01-17 14:43:32
artTime	2016-12-02 02:57:42	Endlime	2017-01-17 23:50:32
ndTime 2	2016-12-02 18:55:51	Total Time	09:07:00

Note: Red line: high temperature threshold, blue line: low temperature threshold In the report Settings can be set up report name, comment and description, also can be directly set in configure logger, as shown below:

History	History
Temperature and humidity graph	Report Setting Report Name RT_T(10012002)-20161202
80	Note
60	Description
20	Save Settings
0 -20 	Send Report
■ Temperature [®] C ■ Humidity [®] s ■ 100.0 ■ -20.0	Revice Email lisa@tzonedigital.com
Report Setting	Send
Report Name RT_T10(55551101) - 20170117	Print Report

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	History		•		History		
Report Setti	ng		Description		cheking		
Report Name	RT_T(10012002) - 20161202				ave Settings		
Note	room			0	ave settings		
Description	cheking		Send Rep	ort			
	Save Settings		Revice Ema	il	lisa@tzonedi	gital.com	n
					Send		
Send Report	t						
Revice Email	lisa@tzonedigital.com		Print Rep	ort			
	Send		Select Print	er			
					Print		
\bigcirc	Send Email	>	<		Compose		Δ
Set the displa	ay time range	То	: lisa@tzo	onedigita	al.com		
2017-01-17 14:43	3:32 ~ 2017-01-17 23:50:32 🧪	Co	:/Bcc:				
		Su	bject: BT04(1	11618	01) 20170917	•	
Set the PDF g	graph scaling	21	iles (19.84KB/	50MB)			~
100			Por 1116	180120	109201463.pdf	17.51KB	\times
80			@ 1116	180120	1709201463.cs	v 2.34KB	×
40							
20		D					
0		来	自我的华为手	机			
/01/17 14:43:32	2017/01/17 16:04:02 2017/01/17 16	:51					
Temperature °C	C 📕 Humidity% 📕 100.0 📕 -20.0						
				<i>C</i> Attach file	Menu		

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

Note: it is recommended to use Adobe Reader XI software to view the PDF report, there may be other third-party software font incompatibilities.



🎲 Compose	« Back Reply Reply All Forward Delete Delete Permanently R			
Check	BT04B(17060703) 20170918 ☆ From: lisa <lisa@tzonedigital.com></lisa@tzonedigital.com>			
Inbox(1322) Starred *	Date : Monday, Sep 18, 2017 7:08 PM To : lisa <lisa@tzonedigital.com> Att : 2 (上170607032017091811073682.pdf)</lisa@tzonedigital.com>			
Announcement Draft(14) Sent Trash [Clear] Spam(9) [Clear]				
⊞ My Folders Other Mailboxes	Attachment(2)			
Upcoming	Normal Attachment (Scanned by Avira antivirus engine) + Download All Q Preview			
Notepad Enterprise Drive	170607032017091811073682.pdf (41.96K) Download Open Preview			
Online File Storage	Download 170607032017091811073682.csv (47.03K)			

7.2 IOS system 'temperature data logger' App use.

Client can download App by App Store :

Search: Humiture Recorder

Q humiture recorder		\otimes
Humiture yuan liao	Recorde	r 获取
无 SIM 卡 ♥ 下年2:06 非 100% ● +	无 SIM 卡 ♥	下午2:06 第 100% 👄 +
业权收倍 打描 用版人业态作为14000 实计数据 全计数据 配置设备 历史指表	全接投资格 单据编号: 1 查询码: 生成时间:: 单报编号: 1 查询码: 4 生成时间:: 单据编号: 1 查询码: 4 在成时间:: 章报编号: 1 查询码: 4 如识时间:: 章报编号: 1 查询码: 4 查询码: 4 如识时间::	が安整合 1316004420161019143137 1234 2016-10-19 14:31:37 199999999020161019131024 1234 2016-10-19 13:10:24 1316004420161014105304 1234 2016-10-14 10:53:04 1316004420161013181517 1234
	生成时间::	2016-10-13 18:15:17

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



BT04 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 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
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	



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	ave
SN		111618	01
Password		000000	>
Transmit Po	wer	-4(dBm)	>
Storage Inte	erval	60,30(s)	>
Alarm Settin	ngs -	-20.0,100°C	>
Trip Record)
Device Nam	e	RT1801	>
Remarks			>
Description			>

The interface can be configured BT04 transmit power, Normal/Alarm storage space, and the upper and lower temperature limits, Travel Records .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; Travel Records, if you want Save the data, you must open it, when you close and open again, it 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&humidity and power, the interface for viewing real-time temperature&humidity, 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:

'ZON	■ 深圳天 TZONE I	圆数码科 DIGITAL T	技有限公司 ECHNOLOGY	COLTD
<	Find Device RealTin	ne		
	11161801(BT04)	75%		
	27.9°C	52%		
	2017-09-22 15	::54:38		

7.2.3 Query data

'Query Data' screen, can choose extraction time, displays SN code, Storage interval, the total number of data recorded , the maximum and minimum temperature during recording, start time, end time, temperature and humidity chart, send report and Bluetooth printing, the interface is mainly used for reading temperature and humidity 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:

Find Device Device data records	Find Device	Deivce data records
Please select the extraction period	Data records	
	SN	99887766
	Storage interval	10
All	Total	11047
	Max Temperature	26.0°C
1 Day	Min Temperature	21.0°C
THE SAFE	Max Humidity	79.0%
3 Day	Min Humidity	57.0%
o bay	BeginTime	2016-12-10 15:25:06
1 week	EndTime	2016-12-11 22:06:26
1 Month	Temperature	& Humidity Chart
Customize		
Cancel	State 6 or production state	Sector 141 1000000 0 Sector 141 1000000 0 Sector 141 100000 0 Sector 141 1000000 0 Sector 141 1000000 0 Sector 141 1000000000 0 Sector 141 1000000000000000000000000000000000

深圳天圆数码科技有限公司 TZONE DIGITAL TECHNOLOGY	COLTD
Find Device Deivce data records	
Send Report	
Receive Email name@example.com	
Send	
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 humidity chart, send report and print reports, as shown in the figure below:

< History Dei	vce data records	K History Deiv	vce data records
Data records	3	alan bar atalaan ala asa asa asa asa	an ang ang ang ang ang ang ang ang ang a
SN	99887766		
Storage interval	10		
Total	14152	Send Report	
Max Temperature	26.0°C		
Min Temperature	16.0°C	Receive Email	lisa@tzonedigital.co
Max Humidity	70.0%		
Min Humidity	34.0%		Send
BeginTime	2016-12-07 15:39:56		
EndTime	2016-12-09 07:51:25		
	& 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:

Г

Compose	« Back Reply Reply All Forward Delete Delete Permanently Repo
Check Contacts	BT(11161801) ☆ From:forrest wu <tzone2017@icloud.com></tzone2017@icloud.com>
Inbox(1322) Starred 🔆	Date : Tuesday, Sep 19, 2017 3:23 PM To : lisa <lisa@tzonedigital.com> Att : 2 (@1116180120170919152233.html)</lisa@tzonedigital.com>
Draft(14) Sent	
Trash [Clear] Spam(9) [Clear]	
⊡ My Folders Other Mailboxes	
Upcoming Notepad	发自我的 iPhone
Enterprise Drive	Attachment(2)
Online File Storage	Normal Attachment (Scanned by Avira antivirus engine) ↓ Download All Q Preview Download Open Preview 1116180120170919152233.csv (11.99K) Download



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:

く返回	Select the printer
T10 BT	Printer
	printing

	C-02to Time, 2017-01-21 18-51.40	
	No. 131612592017012110514610	
	SN+ 13161259	
	Max Temperature: 55.2°C	
	Min Temperature: -22.0°C	
	Start Time: 2017-01-19 13:32:39	
	End Time: 2017-01-21 18:49:40	
	List:	
	2017-01-19 13:32:39 24.4 0	
	2017-01-19 13:33:39 23.2 C	
	2017-01-19 13:34:39 24.4 C	
	2017-01-19 13:35:39 18.8 C	
	2017-01-19 13:36:39 13.6 C	
	2017-01-19 13:37:39 9.6 C	
	2017-01-19 13:38:39 5.4 C	
	2017-01-19 13:39:39 4.0 C	
	2017-01-19 13:40:39 2.00	
	2017-01-19 13:41:35 0.0 0	
	2817-01-19 13:43:39 -3.67	
	2017-01-19 13:44:39 -5.6 0	
	2017-01-19 13:45:39 -7.2 C	
	2017-01-19 13:46:39 -8.8 C	
	2017-01-19 13:47:39 -10.4 C	
	2017-01-19 13:48:39 -11.6 C	
	2017-01-19 13:49:39 -12.4 C	
	2017-01-19 13:50:39 -13.2 C	
	2017-01-19 13:51:39 -14.00	
	2017-01-19 13:52:33 -14.00	
	2017-01-19 13:54:39 -14.8 C	
11	2017-01-19 13:55:39 -14.8 C	
	2017-01-19 13:56:39 -15.2 C	
	2017-01-19 13:57:39 -15.6 C	
	2017-01-19 13:58:39 -15.6 (
	2017-01-19 13:59:39 -10.01	
	2817-81-19 14:80:39 -16.81	
	2017-01-19 14:02:39 -17.6°C	
	2017-01-19 14:03:39 -18.4°C	
	2017-01-19 14:04:39 -18.8 C	
	2017-01-19 14:05:39 -19.21	ı
	2017-01-19 14:07:39 -19.6 (ı
	2012 DI SH IA HORIST TO ALL	1
SPR	T	1
	RODE FEED POWER	
	e e ±	I
		1
		1

FCC/IC 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.

NOTE: Any changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.