LW003-B APP Guide







APP Guide

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Version 1.0

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1 About This Manual

The purpose of this manual is to outline how to use MKLoRa APP for LW003-B.

2 MKLoRa APP

For the detailed operation of the MKLoRa app to configure and read device information, please refer to the following instructions:

2.1 Install MKLoRa APP

User can get the APP download link by search "MKLoRa" in your phone APP store: Please allow Bluetooth to be enabled during the installation process. This APP communicates with the device via Bluetooth, and it only supports above android 4.4 and IOS 9.0 system.

Note: After the successful installation of the APP, the APP will request some mobile phone permissions, such as Bluetooth access permissions. Please click "OK", otherwise the APP will not work well.

2.2 Connect to LW003-B

After the device is turned on, the device Bluetooth will start broadcasting. Open the MKLoRa APP and choose LW003-B, then you can search the LW003-B device by click the refresh icon. The default broadcast name of the device: LW003-B-XXXX, XXXX is the last 4 bits of device MAC addresses.

The Edit Filter at the top can help user filter the keywords and RSSI. RSSI ranges from -100dBm to 0dBm;



The distance between the phone and the device should be kept within 10m without wall obstruction. Otherwise, the device will not be searched. After searching for the device, click the "CONNECT" to connect the device that you want to configure. Then you should enter the password, the default password is "Moko4321".

Note: If a password is not entered within one minute, the login box will disappear, you should click "CONNECT" again.

2.3 Configure LW003-B Parameters

When you log into the device successfully, you will enter the main page. There are four parts of the parameter configuration: LORA, SCANNER, SETTING and DEVICE.

	LOI	RA		
LoRa Setting		OTAA/EU8	68/Clas	sA >
Network Check			Connect	ed 🗦
Multicast Settin	g		0	FF >
Time Sync Inter	val		1	н
Uplink Payload				>
0		 	E	J.

At the bottom of the main page, you can enter the interface by touching the corresponding interface name.

Note: If there is no action within two minutes after login, the system will automatically login out.

2.3.1 LORA Parameter

In this page, you can set all the settings for LoRa Part:

-

oRa Setting OTAA/EU868/ClassA letwork Check Connected fulticast Setting OFF ime Sync Interval 1 plink Payload >	<	LORA	a
letwork Check Connected > futlicast Setting OFF > ime Sync Interval <u>1</u> H plink Payload >	oRa Setting	OTAA/EU	868/ClassA 🗦
tulticast Setting OFF > ime Sync Interval H plink Payload >	letwork Check		Connected >
ime Sync Interval <u>1</u> H plink Payload >	Aulticast Setting		OFF >
plink Payload	Time Sync Interval		1 Н
	plink Payload		>

15:46 🕸 📽	1.2K/s	🕸 atl atl 🕆 🛤
<	LoRa Setting	G
LoRaWAN Me	ode	ΟΤΑΛ
DevEUI	f98cdbffffae0f0d	
AppEUI	70b3d57ed0026b87	
АррКеу	2b7e151628aed2a6at	of7158809cf4f3
Region/Subn	et	AU91
Message Typ	e	Unconfirme
Device Type		Class
Advanced	Setting(Optional)	•
Note:Please on necessary.	do not modify advanced	settings unless
сн	0	7
*It is only use	d for US915,AU915,CN4	70
ADR		•
DR		0
*DR only can	be changed after the AD	R off.
UplinkDellTir	ne	1
*lt is only use limit,1:Dell Ti	d for AS923 and AU915. me 400ms.	0: Dell Time no

In the LoRa setting page, we can get and configure the LoRaWAN Mode, DevEUI, AppEUI, AppKey, DevAddr, AppSKey, NwkSKey, Region/Subnet, Message Type, Device type.

Click the Advanced Setting (Optional) button, you can set some advanced parameters.

CH: Channel Setting, Generally, the default value is fine. When you are using TTN server and the frequency band is US915 or AU915, the CH should be set to 8-15.

DR: This is the DR setting for data transmission. The larger the DR, the smaller the transmission distance and the faster the transmission speed.

Note: Please do not modify advanced settings unless necessary.

<	LORA	6
LoRa Setting	OTAA/EU8	68/ClassA >
Network Check		Connected >
Multicast Setting		OFF >
Time Sync Interval		1Н
Uplink Payload		>
		E.

Network Check interval: It is used to check the status of the LoRaWAN network, if the device is detected to be offline, the device will try to rejoin the LoRaWAN network. The default value is 0. 0 means disable. The value ranges from 0 -720H.

2 H

LoRa Setting OTAA/EU868/ClassA Network Check Connected Multicast Setting OFF Time Sync Interval 1 н Uplink Payload ٢ 0 Ø E.

	Multicast Setting	
Multicast Gro	ир	
McAddr	025e6458	
McAppSkey	2b7e151628aed2a6abf7158809	cf4f3c
McNwkSkey	2b7e151628aed2a6abf7158809	cf4f3c

Multicast Switch: configure the multicast function on or off. The default setting is off.

Multicast Address: 4 bytes. The default setting is 025e6458.

Multicast NwkSKey: 16 bytes. The default setting is 2B7E151628AED2A6ABF7158809CF4F3C.

Multicast AppSKey: 16 bytes. The default setting is 2B7E151628AED2A6ABF7158809CF4F3C.

<	LORA	6	8
LoRa Setting	OTAA/I	EU868/ClassA	>
Network Check		Connected	>
Multicast Setting		OFF	>
Time Sync Interval			н
Uplink Payload			>
0)	E.	

Time Sync Interval: It is used to synchronize the time of the device from the LoRa server.

The default value is 1H that means the device will send Device Time MAC Command to LoRa server get the system time every one hour. The value ranges from 0-240H.

If it is set to 0, it means that never synchronize the time of the device from the LoRa server.

Note: When the APP connect with the device

LORA Setting OTAA/EU868/ClassA Vetwork Check Connected Multicast Setting OFF Time Sync Interval 1 Jplink Payload Imestanp Imestanp MAC	<	LORA		<	Uplink Payload	
letwork Check Connected hulticast Setting OFF ime Sync Interval 1 Halticast Setting Mac Ime Synce Ime Synce Ime Syncone Ime Synce	oRa Setting	OTAA/EU868/Clas	sa >	Device Info Paylo	ad	
Aulticast Setting OFF Time Sync Interval <u>1</u> H Applink Payload Applink Payload Aulticast Setting OFF Time Sync Interval <u>1</u> H Applink Payload Aulticast Setting OFF Beacon Construction MAC Report Data Content Timestamp MAC Resonse Raw Data Report Data Max Length <u>1</u> ************************************	etwork Check	Connect	ted >	Report Interval	1	Mi
ime Sync Interval 1 H plink Payload	fulticast Setting	o	OFF >	Beacon Payload		
Jplink Payload Jplink Payload	ime Sync Interval	1		iBeacon		
Upplink Payload	ine sync interval			ddystone		
Report Data Content Timestamp MAC Resort Data Max Length Report Data Max Length Cone report data packet. 1: mas262 bytes: 2: max 111 bytes Report Interval 20 5 COMMER SECTINGS DEVICE	plink Payload		6	🗹 unknown		
Image: Second Stress Image: Second Stress <td></td> <td></td> <td></td> <td>Report Data Conte</td> <td>ent</td> <td></td>				Report Data Conte	ent	
✓ MAC ✓ RSSI ✓ Broadcast Raw Data ✓ Response Raw Data ✓ Report Data Max Length 1 *Max length for one report data packet. 1: mas242 bytets, 2: mas121 *Max length for one report data packet. 1: mas242 bytets, 2: mas121 *Max length for one report data packet. 1: mas242 bytets, 2: mas121 *Max length for one report data packet. 1: mas242 bytets, 2: mas121 *Max length for one report data packet. 1: mas242 bytets, 2: mas121 ************************************				🗹 Timestamp		
				MAC		
				RSSI		
				🗹 Broadcast Rai	w Data	
Report Data Max Length 1 "Max length for one report data packet. 1: max802 bytes. 2: max 111 bytes Report Interval 30 COM SCANNER SETTINGS DEVICE				🗹 Response Rav	w Data	
*Max length for one report data packet. 1: max #Q bytes, 2: max 111 bytes Report Interval CORA SCANNER SETTINGS DEVICE				Report Data Max I	Length	1
Image: Scanner Settings Device				*Max length for one re bytes	port data packet. 1: max 242 bytes	2: max 11
O O C C C C C C C C C C C C C C C C C C				Report Interval	30	1
		NER SETTINGS DEV	D, ICE		١	\ \

The max length of each payload can be set 242bytes or 115 bytes. The longer the length, the more data can be reported per Payload, but the longer the reporting time will be. The report interval of device info payload. Default value is 720 mins. The value ranges from 1 – 14400 mins.

Each time a new payload is uploaded, the interval calculation needs to be restarted.

 Select the type of data reported in beacon payload. It is multiple choice.
 Example: If only iBeacon is selected, the device will only report the data of iBeacon.

Select the content of the beacon payload. The user can select the content to be reported according to their needs, in order to reduce the length of the payload, so that more beacons can be reported per piece of data.

The report interval of beacon payload. Default value is 10 s. The value ranges from 10 - 65535 s.

2.3.2 SCANNER Parameter

16:29 🕸 🕲 0.3K/s		to to *	○ 35
<	SCANNER		
Scan Switch			
Scan Window		2	x5ms
Over-limit Indication			
Over-limit RSSI			
🛜 RSSI: ———	•		-75dBm
Over-limit MAC Quar	tities		5
Duration		1	0 s
*The duration for trigger M	IAC and RSSI.		
Filter Options			>

Scan Window: The larger the scanning window, the stronger the scanning function. The default value is 10, unit is 5ms. The value ranges from 1-16.

If the scan window is too large, it will affect the performance of Bluetooth broadcast.

Over-limit RSSI: The smaller the value, the bigger the coverage of the over-limit function. The default is -75dBm. The value ranges from $0 \sim -127$ dBm.

Over-limit Quantities: The default value is 5. The value ranges from 1-255.

Duration: The duration for trigger MAC and RSSSI. The default value is 10, unit is s. The value ranges from 1-600.



16:29 🔌 🕲	0.3K/s	\$ all all ≎ IS
	SCANNER	
Scan Switch		
Scan Window	v	2 x5ms
Over-limit In	dication	•
Over-limit R	SSI	-75dBm
Over-limit M	AC Quantities	5
Duration		10 s
*The duration fo	or trigger MAC and RSSI.	
Filter Option	s	>

16:30 🕸 🍯 0.0K/s		* atl atl २ 📧
< Fi	lter Optio	าร
Filter Condition A		on >
Filter Condition B		OFF >
Filter Condition A	Or	Filter Condition B
Filter Repeating Data		мас

The relationship between Filter Condition A and Filter Condition B can be set OR or AND.

Filter Repeating Data: Filter out duplicate data within one scan period. The default value is NO and Filter Repeating Data can be configured as one of the following data: NO, MAC, MAC+Data Type, MAC+Raw Data.

The contents of A and B are the same. They will be described in detail on the next page

(O) LORA B

16:31 🔌 😂	0.4K/s		∲ all all	÷ 35
	FILTER C	Conditio	on A	
RSSI Filter	127dBm~0dBm			
				-71dBm
*The device will u	alink valid ADV	data with	RSSI no less than	n -71 dBm.
Filter by MAC	Address			
Whitelist				
Filter by ADV I	Name			
Whitelist				
Filter by iBeac	on Major			
writtenst		_		
From 0~65		То		
Filter by iBeac	on Minor			
Whitelist				
From 0~65		То		
Filter by Raw A	ADV Data		+ -	- •
Whitelist				
			~	Byte
Raw data f				
Filter Conditio	n A			

Turn on the Filter Condition A ,all filtration of this page will take effect. Turn off the Filter Condition A, all filtration of this page will not RSSI FILTER: The default value is -127 dBm, the range of this value is from -127dBm to 0 dBm. For example, if user set this value to -100dBm, the device will store valid ADV data which's RSSI is bigger than -100dBm.

Whitelist: Checking this box means reverse filter.

Filter by MAC Address: The default status is off. When we click the button on the right, the status will be on and user can edit the Keyword that include part or all of MAC Address. The device will store valid ADV data that meets the filter content. For example, the Filter content is AA BB and whitelist is open. Suppose there is a beacon whose MAC is CC AA BB DD EE FF,so it does not meet the filter content and will not be saved and uploaded

Filter by ADV Name: The default status is off. When we click the button on the right, the status will be on and user can edit the Keyword that include part or all of ADV name. The device will store valid ADV data that meets the filter content.

Filter by iBeacon Proximity UUID: The default status is off. When we click the button on the right, the status will be on and user can edit the Keyword that include part or all of UUID. The device will store valid ADV data that meets the filter conditions.

Filter by iBeacon major: The default status is off. When we click the button on the right, the status will be on and user can set the min value and max value of iBeacon Major. Both of these values range from 0-65535, and the max value must be no less on the min value. The device will store valid ADV data whose major value meets the scope requirements.

Filter by iBeacon minor: The default status is off. When we click the button on the right, the status will be on and user can set the min value and max value of iBeacon Minor. Both of these values range from 0-65535, and the max value must be no less on the min value. The device will store valid ADV data whose minor value meets the scope requirements.

Filter by Raw ADV Data: The default status is off. When we click the button on the right, the status will be on, and it can add five different filter data types in total when click "+", each with a length of 5 to 33 bytes. Data Type: 1byte, the data type value should meet Bluetooth Generic Access Profile. Data type definitions please refer to <u>https://www.bluetooth.com/specifications/assigned-numbers/generic-access-profile/</u>. Byte: the byte range under the data type, the max value is 62 bytes, the maximum byte range difference is 29. Raw data field: the length should match with the byte range.

2.3.3 SETTINGS Parameter

16:31 🕸 🧐 0.6K/s ≉ ail ail ≎ 📧 SETTINGS Advertiser LW003-B-0F0D Change Password Local Data Sync Default Power Status \odot ۲ E. LOR/ INNER SETTING DEVICE 17:47 🔉 🕲 Local Data Sync Ŵ Ð Time 2 Days Start Sync Empty Ex Sum:252 Count:252 Time:2021-05-05 02:53:50 MAC Address:C6:8B:24:87:99:E7 RSSI:-71dBm Raw Data:0201061aff4c000215212223242526272829303 1323334353600020003c5 Time:2021-05-05 02:50:44 MAC Address:C6:8B:24:87:99:E7 RSSI:-71dBm Raw Data:0201061aff4c000215212223242526272829303 1323334353600020003c5 Time:2021-05-05 02:49:09 MAC Address:C6:8B:24:87:99:E7 RSSI:-68dBm Raw Data:0201061aff4c000215212223242526272829303 1323334353600020003c5

You can set the parameter about general settings:

<	Advertiser	
ADV Name	LW003-B-0F0D	
ADV Interval	10 x 100ms	

ADV Name: ADV Name: User can enter the customized device name that meet the requirements of the standard field in the input box(1-15 bytes).

ADV interval: The default value is 1000ms.The adjustable interval of Advertising Interval is 100ms, and adjustable range of 100ms-10000ms.

Default Power Status: The state of the device when the device is powered back on, if it is "switch on", it means that the device will turn on automatically when the device is powered back on. The default value is "Revert to last status". The value can be configured as one of the following options: "Switch off", "Switch on" and "Revert to last status".

Local Data Sync: Users can read the last 1 to 65,536 days of stored data. After selecting the number of days, click Start, and the device will automatically read the data, and the Sync icon will rotate continuously. Users must manually click the Sync icon to stop data synchronization, and when the value of sum appear, it means that the data is synchronized completely.

After the data is synchronized completely and click the Sync icon to stop data synchronization, the user can delete and export the data.

2.3.4 DEVICE Parameter

You can check the device information in this page.

16:31 🔌 😂 0.6K/s	- 11 at ♀ 55
<	DEVICE
Battery Voltage	41%
Mac Address	F9:8C:DB:AE:0F:0D
Product Model	LW003-B
Software Version	nRF52-SDK17.2+1.0.3
Firmware Version	V2.0.6 DFU
Hardware Version	LW003-B_V2
Manufacture	MOKO TECHNOLOGY LTD.

Update Firmware (DFU): To update the firmware via the DFU should use the upgrade package that MOKO provides with ZIP format. If you use an android phone, place the ZIP file of firmware upgrade package into the phone folder, select the upgrade package file from the OTA page of the APP, and click to upgrade.

IOS phones need to share the upgrade package file with MKLoRa via computers and iTunes tools. and then select the upgrade package file from the OTA page of the APP, and click to upgrade.



3 Revision

Version	Description	Editor	Date
2.0	Initial version.	Allen	2021.5.27
	Suitable for firmware version V2.0.7 &HW		
	Version V2.1.		



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