



深圳市龙桥科技发展有限公司

SHENZHEN DRAGON BRIDGE TECHNOLOGY LTD COMPANY

*Application :Rental cars, insurance cars, trucks, buses*

*Wireless Fleet management Solution Innovator*

*GSM/GPRS/GPS Tracker*

## User Manuel

BK-800

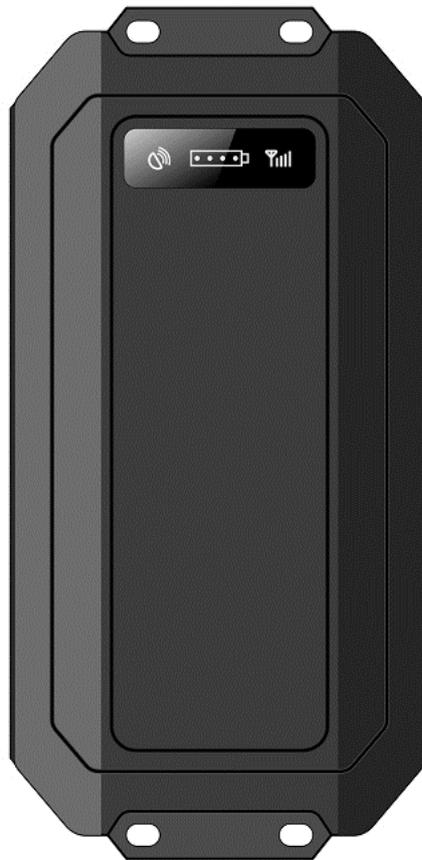


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# PART 01 Product Overview

## 1.1 Appearance



Enclosure	IP67 waterproof
Magnets	To stick the device to metal surface
Power button	Inside the enclosure for hidden installation purpose, to turn on or turn off device
Light sensor	To detect removal alarm ,remove the sticker on the light sensor, when the device expose to light, it will trigger a removal alarm
Type-C port	Used for recharge the device and configure the device spec

## 1.2 LED status

	Event	Status
Cellular LED (Red)	Network connecting	Fast flash
	Network connected	Slow flash
	Module error	Solid on
Position LED(Green)	GPS position	Solid on
	LBS position	0.5 seconds on, 0.5 seconds off
	Wifi Position	2 seconds on, 2 seconds off
	No position	Off
Charging LED( Blue)	is charging	4 lights flash in rotation
	100% charging	4 lights solid on
	75%-80% charging	3 lights solid on and 1 light flash
	56%-74% charging	3 lights solid on and 1 light off
	50%-55% charging	2 lights solid on, 1 light off,1 light flash
	30%-49% charging	2 lights solid on, 2 lights off
	25%-29% charging	1 lights solid on, 2 lights off,1 light flash
	10%-24% charging	1 lights solid on, 3 lights off
	1%-9% charging	1 light flash,3 lights off

## 1.3 Product features summary

- ◆ No wired needed, easy for installation
- ◆ Built in G-sensor
- ◆ Temperature monitor
- ◆ 12000mah rechargeable battery
- ◆ Battery can be last from 15 days to one year each full charge
- ◆ Ultra low consumption, decrease to 5uA below when in sleep mode
- ◆ Strong magnetic and screws installation
- ◆ Support tamper proof alarm
- ◆ Multiple position mode: GPS, Wifi,AGPS, LBS ,Bluetooth
- ◆ Jamming detection
- ◆ IP67 waterproof
- ◆ Periodic tracking/Adaptive tracking/Movement based tracking/Sleep mode

## 1.4 Hardware parameters

Physical	Dimension	154mm*82mm*30mm (L*W*H)
	Weight	350±5g
Cellular	Communication module	Quectel BG95
	Frequency	<p>Working frequency:            Cat M1: LTE-FDD B1/B2/B3/B4/B5/B8/B12/B13/B14/B18/B19/B20/B25/B26*/B27/B28/B66/B85</p> <ul style="list-style-type: none"> <li>• Cat NB2: LTE-FDD B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26*/B28/B66/B71/B85</li> <li>• EGPRS: 850/900/1800/1900MHz</li> </ul> <p>protocol: Embedded TCP/IP stack            Sensitivity:     -107dBm@850/900MHz                              -106dBm@1800/1900MHz            Output power:   Class 4 (2W)@850/900MHz                              Class 1 (1W)@1800/1900MHz            GPRS data: GPRS Class 10, Mobile Station Class B</p>
GPS		<p>Channels: 50            Sensitivity: -147dBm            Position accuracy:5-10m            Accuracy: 5m CEP            Cold start: &lt;27s            Hot start: &lt;1s</p>
Processor		STM32G070CB
Motion sensor		DA260
Wifi position		Wifi 4.0
Power	Battery	<p>Rechargeable Lithium-ion battery and ( 3.7V ,            12000mAh )            and ultra-low discharge rate : less than 2%, store            ONE months below 25°C</p>
	Power consumption	Average working current <50mA; Power save current <40uA;
	GSM antenna	Internal High Gain
	GPS antenna	Internal High Gain

	SIM	Microsim
	Indicator	3 status LEDs, Green: GPS, Red: Network, Blue: battery
Environmental Parameter	Working Temperature	-20°C ~ +70°C
	Humidity	5% ~ 95% (no fog)
	Ingress Protection Rating	IP67

## PART 02 Product Functions

### 2.1 Work modes

There are 3 working modes for BK800: real time tracking mode、 sleep mode、 clock mode.

Below is the explanation for work mode priorities:

- ◆ Real time tracking mode> Sleep mode>Clock mode
- ◆ The work mode which is equal can be replaced by each other, as the last configuration will prevail

The default working mode is real time tracking mode( upload interval 30S), the data packets information includes GPS status, longitude and latitude, cellular signal Strength, satellite numbers, battery level etc,

#### 2.1.1 Real time tracking mode

Mode	SMS Command	
Set Real time tracking mode	HC, <T1>, <T2>#;  For example: HC,30,14400# indicates device send data every 30S during movement, send data every 14400S during static	Command description:  T1:Upload interval in motion status,value5-1800 seconds,default 30seconds T2: Upload interval in static status, value 300-43200 seconds,default 14400seconds

**Note:**

Device judge whether it is still or moving by it's G-sensor;

When the value of T2 is bigger than 3600 seconds, the communication module is shut down after sleep, if T2 is less than 3600 seconds, the communication stays online when enters the sleep state.

## 2.1.2 Sleep Mode

Configuration	SMS Command	
Set sleep mode	HX,T# For example HX,1440# indicates device send data every 1440 minutes	T: Upload interval Unit: Minutes Value range: 5-43200minutes (2-30 days)
<b>Note:</b> Device will not wake up during sleep mode even if it is in movement. Device close GPS and communication module during sleep mode.		

## 2.1.4 Clock mode

Configuration	SMS Command	
Set clock mode	WAKEUP,T1,T2,T3,T4# For example : WAKEUP,0800,1000,1530,1900# Device send data only at 08:00AM 、 10:00AM 、 15:30PM、 19:00PM  WAKEUP,0900,1900# Device send data only at 09:00AM and 19:00PM	T1-T4 is time point, format is HHMM, for example 0800 indicates 08:00am
Delete clock mode	WAKEUP,#	
<b>Note:</b> When set clock mode, device will sleep except the clock time,during sleep ,Device will not wake up even if it is in movement.		

## 2.2 AGPS

When the device successfully registers on network, AGPS is available to speed up the position speed and improve the position accuracy

## 2.3 LBS

If device enters into the blind zone and GPS cannot be fixed, the device will switch to LBS position, LBS provides the reference location which might not be accurate

## 2.4 Wi-Fi

The device has built in Wi-Fi Chip, it automatically connects to the WIFI hotspot nearby and filter the hotspot info then select the WIFI hotspots with strongest signal, the device will pack those hotspots info and saved into the packet that will be uploaded, after the backend receives Wi-Fi information, it will interpret the WIFI info and acquire the current location from the Wi-Fi database, The default setting is WIFI priority, once it detects WIFI Hotspot, it will upload WIFI info only , and do not use GPS, if WIFI is not detected, it will use GPS to position.

**Kindly reminder:** To use Wi-Fi feature, please make sure your software supports Wi-Fi database

## 2.5 Blind data storage

When the device enter into blind zone when in sleep mode, it will store the trace data according to the preconfigured time interval and it will upload the data in the blind zone to the backend when the cellular network recovers

## 2.6 Temperature detection

The device built-in temperature sensor, it detects the temperature once the device is turned on, then will read it every 16 seconds. The temperature accuracy 95%.

## 2.7 OTA commands from backend

Since the wake up of the device is normally short before enter into sleep mode, it is hardly to receive SMS , to ensure the command sending efficiently, we suggest an OTA commands to be sent from the platform, when the device is online, the backend will automatic send this command, to make sure the commands is properly received.

## 2.8 Strong Magnetic and waterproof function

BK-800 is with built-in with super strong magnet that can firmly stick the device to the metal surface, it is easy to install and conceal, and the device is with waterproof function, which can be installed on any assets that are outdoors

## 2.9 Tamper alarm

There is a high sensitive light sensor at the bottom, if the device is tampered, either the device is working or in sleep mode, it will be activated and enter into anti-removal status and switch on anti-removal alarm, and report the alarm info to the backend or preset phone number.

# PART 03 BK800 Setup

## 3.1 【Setup and debugging 】

### 3.1.1 SIM card installation

Unscrew the top cover of the device, insert the prepared SIM card into the SIM card holder, and then confirm that the SIM card button is well placed . Please make sure that the SIM card has data service available in advance and write down the SIM card number.

### 3.1.2 Main unit power on

After installing the SIM card, turn the battery switch to the ON position. When the red light starts to blink, indicating that the device is powered on.

### 3.1.3 Major parameter setting by SMS or SSCOM tool

#### SMS list:

APN,apn,user,pwd#	Set APN, User name and password For example: APN,CMNET,internet,internet# APN:CMNET Username: internet Password: internet APN,CMNET# APN:CMNET User name: Null Password:Null
IP and port	Set IP, port and communication type of primary server , For example: IP,119.23.233.52,6000,1# Set the primary server IP:119.23.233.52, port 6000, communication type:TCP IP,www.365qczx.com,6000,0# Set the primary server domain:www.365qczx.com, Port 6000, communication type UDP
UTC,TTTT#	Set time zone, unit minute ,default UTC+8:00
STATUS#	Query communication status of the device
FACTORY#	Device resume to factory setting
RESET#	Restart the device
CENTER,A,#	Set center number

## SSCOM configuration:

Please contact Roadragon team for configuration tools and documents.

## Mounting recommendations

Easy installation is one of the major advantages of our asset tracker. Here are some major ways of installation for our BK800 tracker

There are 4 ways of installation that are widely used by our partners around the world on assets such as trailers, containers, reefers, caravans, railcar, construction and agricultural equipments, power generators, etc.

1, Polyurethane Glue: no damage on the asset

2, Screws: stable and securely fixed

3, Cable Zip Ties: hanging

4, Magnets: easy removal

There are advantages of each way. Depending on the asset and position of installation, there must be a suitable way for your use case. The devices can be installed on the top, the side or hidden in the asset.

◆ Please do not put tracker in the metal environment which will affect the GPS signal.

## Safety Information

- ◆ Don't disassemble the device by yourself
- ◆ Avoid strong humidity, direct sunlight, and high temperature
- ◆ Don't use on airplane

