Kingwo

User Manual(MT02S+)

March,2020

Declaration

The contents of this manual might be updated from time to time without prior notice; the updated content will be added to the new version of this manual. Langocloud reserve the rights to update the products or procedures described in the manual at any time. If there is a description of the product in the manual that does not match the actual product, the actual product shall prevail. Langocloud owns the final interpretation rights of this manual.

Contents

Chapter 1: Photo

Chapter 2: Product Feature

1、 Support GPS/Beidou, AGPS, LBS,with accurate position performance；

2、 Built in high sensitive G-sensor accelerometer

3、 Driving behavior monitor

4、 Supports intelligent self-diagnosis, intelligent power save mode, remote fuel and power cut off, AC detection or SOS,OTA and alarm functions

5、 Small in size and wide voltage, especially designed for scooter, motorcycle, electric vehicles and automotive financial risk control project

6、 Small and convenient for conceal installation

7、 Support Kingwo,GT220 protocol and JT808 protocol

Chapter 3: Technical Specification

3.1 Main Unit

Physical	Dimension	82mm*23mm*13mm
	Weight	28g
Cellular	GSM module	Fibocom G500GL
	Frequency	Working Frequency: 850/900/1800/1900MHz Network 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
GPS		Channels: 50 Sensitivity: -147dBm Position accuracy:5-10m Accuracy: 5m CEP Cold start: <27s Hot start: <1s
Power	Input voltage	9-100V
	Battery	NI-MH AAA 3.6V/90mA, 2 hours working time based on 2-3 minutes upload
	Power consumption	Average Current: <30mA (DC 12V) Maximum current: <10mA (DC 12V)
Interface	Digital input(2)	Ignition detect and Air condition status detect
	Digital output(1)	Relay
	GSM antenna	Internal High Gain
	GPS antenna	Internal High Gain
	SIM	Microsim
	Indicator	2 status LEDs, Green: GPS, Red: GSM
	Memory	1300 pcs
Environmental Parameter	Working Temperature	-20℃ ~ +70℃

	Humidity	5% ~ 95% (no fog)
	Ingress Protection Rating	IP65

Chapter 4: Functions

4.1 【Basic function-Tracking function】

Including timely upload, blind zone compensation, speed mileage statistics, area monitoring and other functions, the backend sends positioning commands, and the device uploads data including longitude, latitude, speed, direction, and status information.

4.1.1Timely tracking, speed upload and distance upload(Default is timely upload)

The device can be set to upload the position and vehicle status information to the backend at a certain time or a certain period or at a certain time interval.

The device can be configured to send packet at a certain distance

The device can be also configured to send packets when it detects a certain speed change.

4.1.2 Blind area data storage (Default ON)

When the vehicles enters the GPRS blind area, the device will store the GPS data upon 15s interval, the track data will be saved at the shortest 15S interval, those data will be uploaded to the backend server once GPRS network recovered, minimum 1000 pcs of data can be stored.

4.1.3 Cornering Compensation (Default ON)

If the device detects that the vehicle driving direction has certain angular deviation(default 15 degrees), the device will upload a packet extra to make sure the driving trace is more accurate.

4.1.4 LBS (Default OFF)

If GPS is not available, the device will automatically switch to LBS mode, and acquire the LBS each 30s and upload the based information, the server shall interprets the specific location on the map, please to use this function, it would require your server software support LBS function.

4.1.5 AGPS (Default ON)

The device supports AGPS, once the device is connected to GPRS, the AGPS can be used to speed up the positioning and improve accuracy,

Important notice: if your SIM card has IP access limitation, we strongly suggest you to whitelist the below IP for AGPS access: 119.23.233.52

4.2 【Basic function-Alarm function】

4.2.1 Low Voltage Alarm (Default ON)

When the battery voltage on the vehicle is too low (0-11V or 19-22V), device will report a low voltage alarm to the backend

4.2.2 Over speed alarm (Default OFF)

When the vehicle speed is higher than the preset alarm value, the device will notify the backend. Similarly, when the vehicle speed is lower than preset alarm value, a low speed alarm will be uploaded to the backend, this value is configurable.

4.2.3 Driving behavior alarm (Default OFF)

The device is built in with G-sensor, which can detect collision, hard deceleration, hard acceleration and sharp turn alarm

4.2.5 Turn over alarm(Default OFF)

If someone turn over the device, it will report an alarm.

4.2.6 Vibration alarm (Default OFF)

The device supports vibration alarm, 10 minutes after the ignition off (Arm range 1-20 minutes), the device generates vibration (Delay range 1-10 mins) without ACC connected, the device will upload vibration alarm.

4.2.7 Towing alarm (Default OFF)

An alarm is generated when the device is set to a displacement of more than 100 meters (message mode prompt), and the alarm information is reported when the displacement radius exceeds 100 meters when the device is turned off. (Note: displacement range 100~2000m).

The device will send SMS if the vehicle is moved in ignition off status, if the radius is more than 100 meters, will upload towing alarm (Towing range:100-2000m).

4.2.8 Wire cut off alarm (Default ON,can not be disabled)

The device is allowed to connect a power off relay for power and fuel cut off function in case a car stolen happens, a command can be sent to the device to remote cut off the fuel and power , please note only the preconfigured center number can send such command .

4.2.9 Air condition status detect and SOS (Default ON)

This device has an extra wire for detecting the air condition status (On/Off) in the cars or connecting a SOS for emergency alarm, when connect SOS, please make sure 1 wire is connected to the white wire of the device, and another wire is connected to the red power wire of the device .

4.2.10 GPS error alarm (Default ON)

When the device detects that the GPS/BD module is working abnormally, it reports the GPS receiver failure alarm to the backend.

4.3 【Basic function-Intelligent function】

4.3.1 Power Save (Default 5 mins after static status)

The device has a built-in high-sensitivity G-sensor accelerometer that monitors the vehicle for motion in real time. When no motion is detected for a long time, the device automatically enters the power saving state, meanwhile turns off the GPS/BD module, and GSM enters the heartbeat return mode. In this state, the power consumption of the device is extremely low, which can save power consumption from the vehicle battery.

4.3.2 Self-Diagnosis (Default ON)

The device can perform self-diagnosis. In case there is malfunction regarding GPS and GSM, it will report error message to the backend, and the backend .The backend can query the current model, version, configuration, running status, and device functions.

4.3.3 Static Drift Suppression (Default ON)

The device has a built-in high-sensitivity G-sensor accelerometer and a complete positioning data-filtering algorithm that filters out most of the static drift data to ensure the accuracy of GPS data.

4.3.4 Mileage Calculation (Default ON)

Mileage data is calculated based on the speed from GPS, The vehicle mileage data is uploaded to the backend along with the vehicle positioning data; the initial mileage can be configured when initially the device is set up.

4.3.5 Remote Configuration (Default ON)

To remote set device parameters including IP, center number and various of monitoring parameters via the backend or SMS.

4.3.6 Remote Upgrade (OTA) (Default ON)

As long as GPRS is connected, remote firmware upgrade can be done remotely, if your SIM card needs to has IP access limitation, we strongly suggest you to whitelist the below IP for OTA function: 119.23.233.52

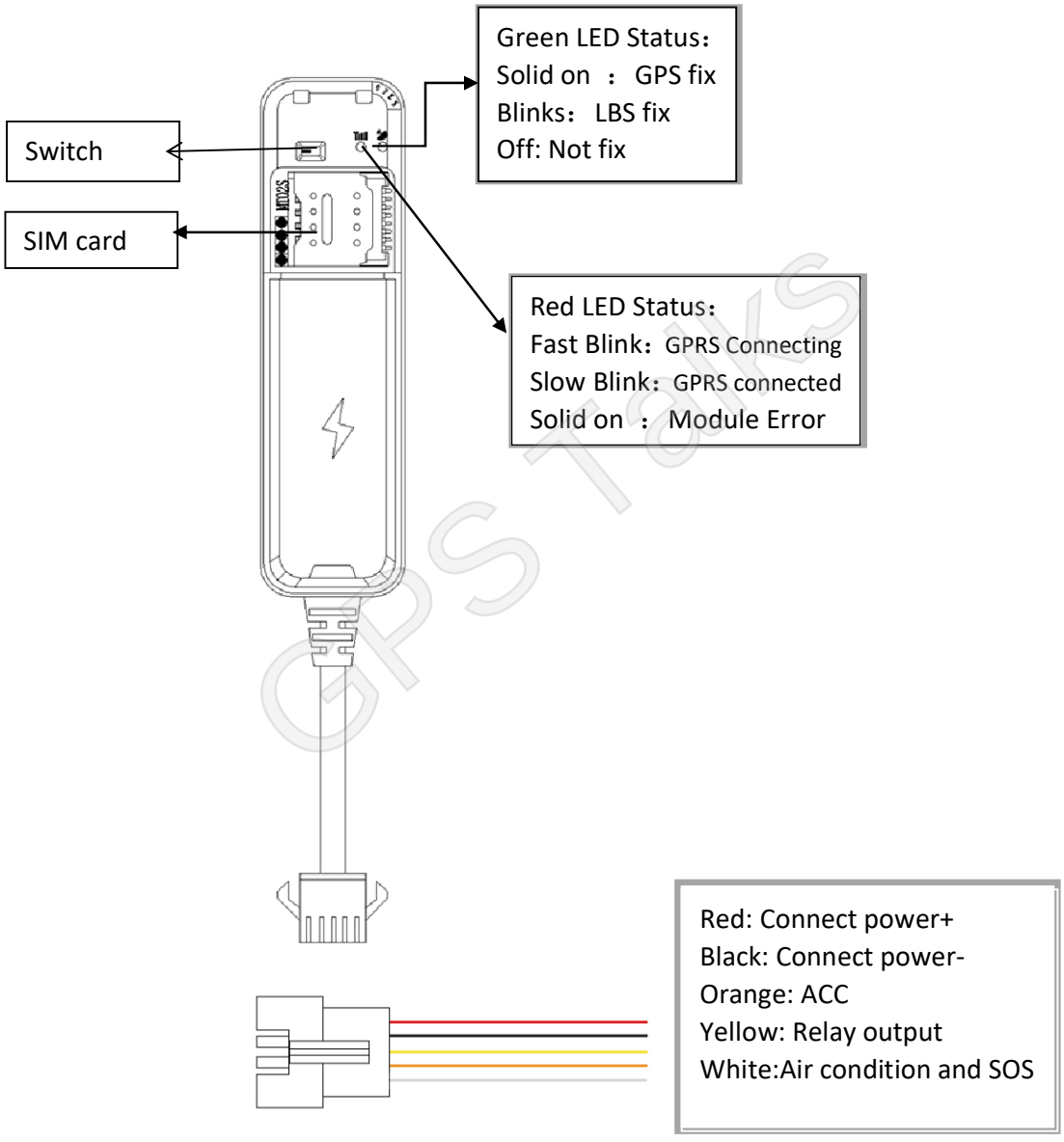
4.3.7 Dual IP or Domain (Default ON)

The device supports dual IP connection between the primary server and the standby server. The default connection is the primary server. If there is a problem with the primary server, the device automatically switches to the standby server. The primary server and the standby server can be set in either IP or domain name.

4.3.8 GT220 protocol (Default ON)

The device is compatible with GT220 protocol, if customer already integrate this protocol, no extra integration is required.

5.1 Installation Diagram



5.2 Installation and debugging process

5.2.1 SIM installation

Open the top cover of the device, insert the prepared SIM card into the SIM cardholder, and then confirm that the SIM card button is in place. Please make sure that the SIM card has the GPRS function enabled in advance and know the SIM card number.

5.2.2 Main unit power on

After installing the SIM card, turn the battery switch to the ON position. At this time, the red light starts to blink, indicating that the device is power on

5.2.3 Parameter setting by SMS

Note: The device is with unique ID number, the factory can preset t IP, port and APN, generally do not need to do parameter setting; if you need to modify the IP, follow the below instructions, make sure the SIMs has SMS functions available:

APN,apn,user,pswd#	**Set APN, User name and password** For example： APN,CMNET,internet,internet# APN:CMNET Username: internet Password: internet
IP,ip or dns,port,type#	**Set IP, port and communication type of primary server** 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

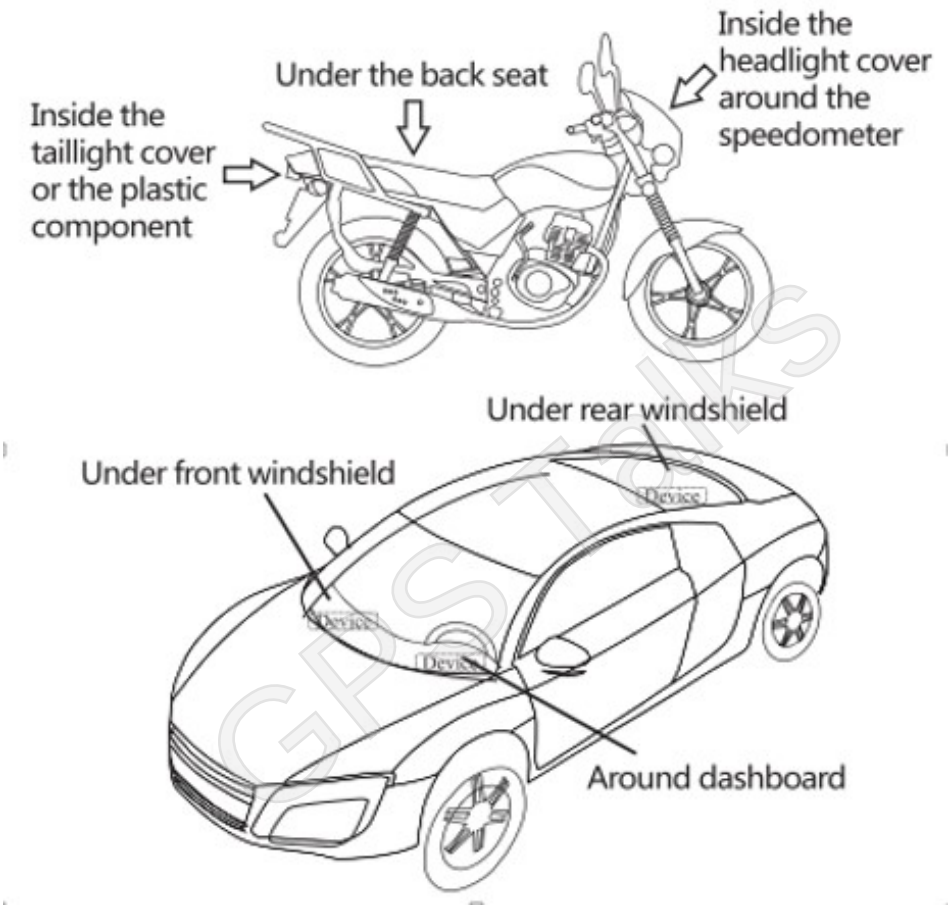
	UDP
IP2,ip or dns,port,type#	**Set IP, port and communication type of backup server** IP2,119.23.233.52,6000,1# Set the backend server IP:119.23.233.52,port 6000，communication type is TCP IP2,www.365qczx.com,6000,0# Set the backend server domain:www.365qczx.com，port 6000，communication type: UDP IP2,,0,0# Delete backend server parameter
HC,<T1>,<T2>,<T3>#	**Set the upload interval in real time tracking mode:** T1: upload interval in ignition on status, range,5-300s ,default 120s T2: Upload interval in ignition off status ,range 5-300 s, default 120 s T3：Sleep return interval, range 10-1800 s, default 180 For example: HC,30,90# Set the upload interval as 30s in ignition on and 90s in ignition off HC,30,90,300# Set the upload interval as 30s, 90 s in ignition off and 300s while in sleep mode
MINDISTANCE,C#	**Set upload intervalaccording to distance :** C,distance,Unit：meter , when C=0 means function OFF Example: MINDISTANCE,200# Upload data each 200 meter MINDISTANCE,0# Turn off this function
MINSPEEDDELTA,V#	**Set data upload according to speed difference** V， Speed change value，Unit：km/h, 0 indicates this function off Example:
Protocol Switch:	Kingwo Protocol:Protocol,1# GT220 protocol: Protocol,3,1# JT808 protocol: PROTOCOL,2,2#
UTC,TTTT#	**Set time zone:** unit minutes, default UTC+8:00 For example: UTC,480# Time zone UTC+8:00 UTC,330# Time zone UTC+5:30 UTC,-480# Time zone UTC-8:00 UTC,-210# Time zone UTC-3:30

WY,<A>[,R,M]#	**Set towing alarm:** A: On and off，1:On 0:Off Default is off R: Towing radius，Default 500 meters，Range：100-2000 meters M: Alarm mode，Optional M=0:GPRS,M=1:SMS+GPRS Eg：WY,1,100,1# towing alarm on，radius 100 meters notification mode:GPRS+SMS
LEVEL,S#	**Set Vibration sensitivity**: S: Sensitivity 1/2/3/4/5 indicates, highest/high/middle/low/lowest LEVEL,1# Sensivity: Higest LEVEL# Query
ZD,**<A>[,M]**#	**Set vibration alarm:** A=1:Vibration alarm ON A=0:Vibration alarm off Default is off M: Alarm mode，M=0 Only GPRS,M=1:SMS+GPRS Example: ZD,1,1#， Vibration alarm ON, notification mode: GPRS+SMS ZD,0# Vibration Alarm Off ZD#
CORNER,**A**#	**Set cornering compensation angle:** Default is 15 degree, value range 5-180 degree CORNER,15# CORNER,0#(Delete cornering upload function)
XM,**tttt**#	**Set enter sleep mode time while in static status:** Default is 5 minutes XM,5# Sleep after 5 mins without vibration XM,0# Disable sleep mode function XM# Query
Query IMEI/ICCID/IMSI	IMEI# ICCID#
Set blind data storage ON and Off，A=1 Off；A=0 ，Default ON	BLIND,1# Turn off blind data storage function BLIND# Query
*44*6DDDDD#	**Set initial mileage:** Unit KM, range 0-999999km *44*61000#，Initial mileage is :1000Km

SPEED,V,T#	**Set speeding threshold and duration time** V: Speeding threshold：0-255km/h,0 is disable speeding alarm T:Duration time, value range >=5 seconds, default is 5 seconds: Example: SPEED,50,5# Speed threshold is 50km/h， duration time: 5 seconds SPEED# Query
VACC,v#	**Set ACC detect mode**: v, voltage critical value， unit is :0.1V v=0， Detect ACC status by ACC signal wire v=131， Detect ACC status via vibration and voltage, voltage critical value is 13.1V Example: VACC,0# Detect ACC status by ACC signal wire VACC,131# Detect ACC status via vibration and voltage, voltage critical value is 13.1V VACC# Query
UPGRADE,IP/domain,port,version# OTA,IP/domain,port,version#	**OTA command:** UPGRADE,119.23.233.52,7771,MT02S-4.12# OTA,www.365qczx.com,7771,MT02S-4.12# UPGRADE,0# Exit upgrade UPGRADE# Query upgrade status
25#	**Query OTA Status:** eg:192.168.1.1:8000,T;T8G-1.5;Wireless upgrade request succeed ,downloading data now!
COLLISION,N#	**Set collision class :** N indicates value range 0,10-3000 Default is 0: Disable the collision alarm Example: COLLISION,1000# collision class is :1000 COLLISION# Query
TURNOVER,A#	**Set turn over angle** : value range is :0-180 Default is 0: Disable the turn over alarm Example: TURNOVER,90# TURNOVER# Query

DRIVING,A,V1,V2,T#	**Set driving behavior parameter** A: Sharp turn，value range 0-180，default is 0: disable V1: hard acceleration ，value range 0-255，default is 0: disable the function V2:hard deceleration，value range 0-255， default is 0: disable the function T:Hard deceleration and acceleration time，1-30，default is 4 seconds Example: DRIVING,15,30,50,4# Direction changes exceedes 15°, indicates the vehicle is in sharp turn status 30km/h Speed increased 30km/h within 4 seconds, indicates vehicle is in hard deceleration status, 50km/h Speed reduced 50km/h, indicates the vehicles in hard deceleration status , DRIVING#
LBS,A#	**Set LBS ON and OFF**: ，A=1 ON ；A=0 OFF，Default is off Example: LBS,1# LBS ON LBS,0# LBS OFF LBS# Query
LOCKACCOFF,A#	**Set vehicle lock logic** : A=0 Receive lock command, execute immediately A=1 Receive lock command, if ACC is off, execute immediately, if ACC is on, store this command until ACC off A=2 Store the command, lock vehicle from ACC Off to On, if the communication is well, lock vehicle, otherwise wait for next turn For example：LOCKACCOFF,0# means execute the lock command immediately after receiving it
*22*2#	**Lock vehicle**
*22*3#	**Unlock vehicle**
*77*0number#	**Set center No.1**
*77*2 number#	**Set center No.2**
*11*1#	**Query center No.**
*11*2#	**Query longitude and latitude**
*11*3#	**Query device status** Eg: Online: IP1 CMNET,119.23.233.52:6000,T ID: 80222001633,id GPS=A,5;GSM=20 MT02S-4.12.128.10 2019-08-06
*22*1#	**Restore to factory setting**
*22*4#	**Reboot device**

5.2.4Recommended Installation place



5.2.5 Software

Web-based software: www.365qczx.net

Smart phone Application: Track Sense

MT02S+ usage requirements

The device is strictly forbidden to use according to the operating instructions ,disassemble, collide, charge, soak, over 80 °C, human failure, force majeure damage, etc. may cause short circuit, insufficient working time, battery deformation, liquid leakage, explosion, no warranty and compensation will be provided by Kingwo

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