

G30 User Manual

Content

G30 User Manual	1
1. Product Overview	2
2. Product specifications	2
3. Instructions for use	4
3.1. Start-up and setup process.....	4
3.2 Connection Diagram.....	5
3.3 Application note about SOS and recording function.....	6
3.4 Application Notes on ACC ON/OFF.....	6
3.6 MODE 2 and MODE 21 Operating Modes	7
3.7 Vehicle Guard Alarm and Low Battery Alarm.....	8
3.8 Device Photosensitive Alarm Description	9
3.9 Vehicle collision alarm parameter setting instructions	9
3.10 Vehicle acceleration/deceleration and sharp turning parameter settings.....	9
3.11 About time zone settings and related instructions	11
3.14 Common Query Commands.....	11
3.15 Common Setting Instructions.....	12
4. Manage your device	12
5. Cautions	13

1. Product Overview

- 2G/3G/4G Global Frequency Bands Supported;
- Support cell ID base LBS(Location base service);
- Support all Global Navigation Satellite Systems (GNSS) that have been deployed, default GPS+Beidou hybrid mode;
- Support MODE, 2 real-time tracking, device enter low power mode automatically when [ACC OFF];
- Support MODE,21 real-time tracking with ultra-low power mode when [ACC OFF], the working current <1mA;
- Wide range input voltage from 8-45V;
- Built-in anti-reverse connection and 1500W anti-surge protection circuit;
- High-temperature safety explosion-proof rechargeable lithium polymer battery;
- Built-in hardware monitoring circuit;
- Support remote control for fuel or electricity;
- Support hardware ACC detection and smart ACC detection without wiring;
- Support SOS alarm with the SOS button accessory;
- Support MIC accessory for voice recording;
- Built-in light detection alarm;
- Support wire cut alarm;
- Support low battery alarm;
- Support collision alarm and flip alarm;
- Support reporting for rapid acceleration, rapid deceleration, and sharp turns;
- Support weak signal alarm and signal recovery notification;
- Support real-time reporting of satellite signal strength;
- Support real-time reporting of network signal strength;
- Support real-time reporting of working voltage;
- Support real-time reporting of temperature; [optional]
- Support remote firmware upgrade;
- IP67 waterproof design.

2. Product specifications

- **Frequency Band:**
 - Module CLM920_TE3: Version for EMEA/Korea/Thailand
 - 4G LTE FDD: B5
 - 4G LTE TDD: B41
 - 3G UMTS/HSPA+:B5
 - 2G GPRS/EDGE: 850MHz
 - Module CLM920_TD3NA: Version for North America
 - 4G LTE FDD: B5
 - 4G LTE TDD: B41
 - 3G UMTS/HSPA+: B5

GPRS/EDGE: 850MHz

■ **Module CLM920_TD3AU: Version for Australia/South America**

4G LTE FDD: B5

3G UMTS/HSPA+: B5

GPRS/EDGE: 850MHz

● **Working Voltage:**

Input Voltage: 8 - 45V.

Applicable for motorcycles, cars, trucks, boats etc .;

● **Working Current:**

MODE 2/21 Working current: <20mA @ 12V

MODE 2 flame-out sleep current: <10mA @ 12V

MODE, 21 Flame-out sleep current: <1mA @ 12V

● **GPS Fixed Time:**

Cold start <29s (Open sky)

Warm start <29s

Hot start <1s (open sky)

● **Backup Battery:**

170mAh lithium polymer battery

4 hours working for reporting per hour

● Working environment temperature: -20 °C ~ + 70 °C

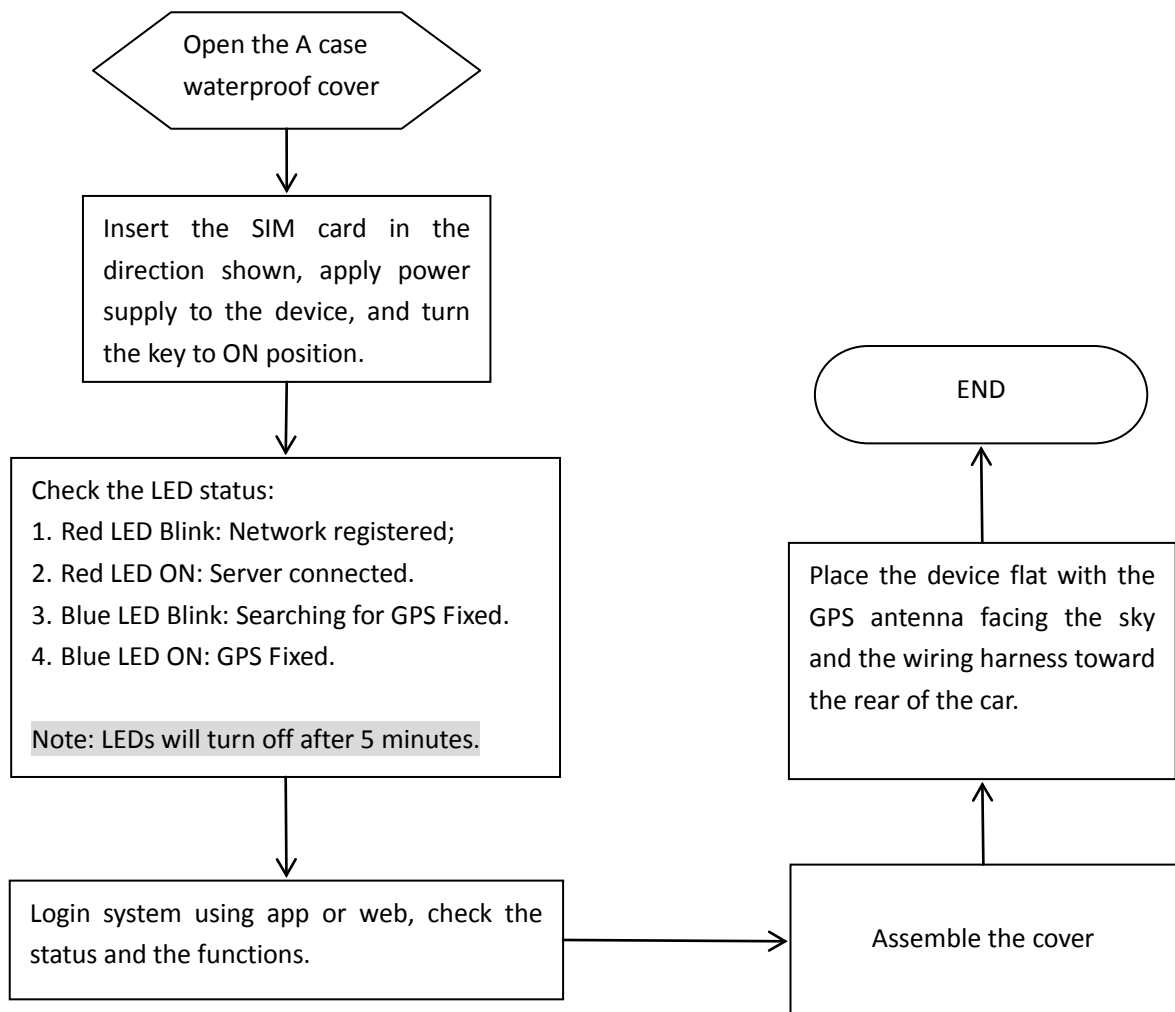
● Physical size: 84 * 41 * 17 (mm)

● Weight: <45g

3. Instructions for use

3.1. Start-up and setup process

After the device is connected to the vehicle power supply, the recommended installation flowchart is as follows:



Note:

- First Insert SIM, then turn power key on.
- Please make sure the SIM with data service from your operator.
- If your SIM card with a PIN code, please refer to your mobile phone user manual to remove the PIN code.

3.2 Connection Diagram

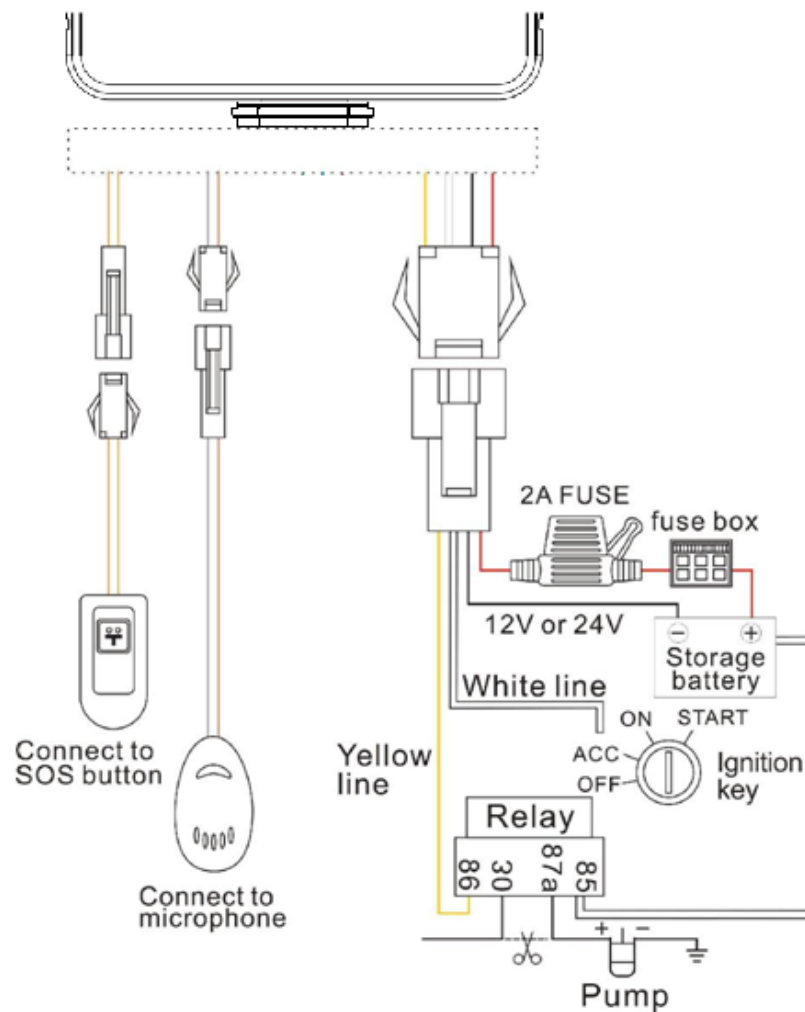


Figure1. Connection Diagram

Serial number	Description	Colour	Use
1	Equipment positive/V +	Red	Can be connected to vehicles with working voltage of 8 ~ 36V, max 45V
2	Ignition test/ACC	White	Vehicle ignition detection line, active high
3	Relay driver/RELAY	Yellow	Relay or speaker driver line, MAX 1A @ 3-45V
4	Equipment negative/V-	Black	Vehicle negative

5	Microphone positive/MIC +	Brown	5/6 line can be used as an external MIC [standard function] or NTC temperature detection [optional function]
6	Microphone negative/MIC-/GND	Gray	Equipment ground
7	Serial Receive/RXD	Orange	7/8 line can be used as SOS line access [standard function]
8	Serial transmission/TXD	Orange	Or 6/7/8 line for UART communication, compatible with 3.3V/5.0V UART [optional function]

3.3 Application note about SOS and recording function

- 1) After the user presses the SOS button 3S, the device automatically starts recording for 60s and reports the SOS distress alarm;
- 2) Send the JT instruction and the device will start recording.

1	JT,<time>	Enable device monitoring, time: 10 ~ 300 (default 60s)
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3.4 Application Notes on ACC ON/OFF

- 1) ACC switch and GPS switch related instructions: ACCCTLGNSS;
- 2) Parameter setting and related instructions of vehicle voltage and ACC switch: FCG = SET1/SET2.
- 3) Pay attention to the relationship between ACCCTLGNSS and MODE, 21. The MODE, 21 instruction is valid only when ACCCTLGNSS, 1 #.

1	ACCCTLGNSS, A # instruction	A = 0, GPS is forcibly turned on when there is external power A = 1, GPS turns on when ACC ON; GPS turns off when ACC OFF Default 1
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2	FCG = SET1, ACCON1, ACCOFF1, A # Automatic ACC detection configuration for 12V battery-powered vehicles such as cars and motorcycles.	ACCON1: ACC ON voltage, default 132 ACCOFF1: ACC OFF voltage, default 128 A: 1. Enable the function of judging ACC status based on voltage (default) 0, forbidden Remarks: 132 means 13.2V, query instruction FCG = SET1
3	FCG = SET2, ACCON2, ACCOFF2, A # Automatic ACC detection configuration for trucks, trucks and other 24V powered battery vehicles.	ACCON2: ACC ON voltage, default 264 ACCOFF2: ACC OFF voltage, default 256 A: 1. Enable the function of judging ACC status based on voltage (default) 0, forbidden

3.6 MODE 2 and MODE 21 Operating Modes

1) Pay attention to the relationship between ACCCTLGNSS and MODE, 21. The MODE, 21 instruction is only valid when ACCCTLGNSS, 1 #.

1	Device real-time online instructions: MODE, 2, T #	T: Position reporting period when the vehicle is moving, unit: second T = [3,60], default T = 10 Example: Mode, 2,10 # Device factory default
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2	Device intelligent reporting instructions: MODE, 21, <T1>, <T2>, <T3> # instruction Remarks:	1. When ACC OFF: Enter this mode automatically, GPS, 4G will be turned off at this time Module and MCU goes to sleep. 2. When ACC ON: automatically exit this mode and turn on GPS, 4G Module, MCU wakes up. 3. T1, T2, and T3 are the time points reported by the device to wake up after the device sleeps. Format: HHMM 4. Example: MODE, 21,1818 # When the device is in ACC OFF, the daily 18:18 Forced wake-up report.
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3.7 Vehicle Guard Alarm and Low Battery Alarm

- 1) The parking guard alarm function is the default support function of the vehicle, which must be set. It will take effect automatically when the vehicle is ACC OFF;
- 2) If the device perceives vehicle movement: If ACC is ON within 1 minute, the device cancels the alarm; otherwise, the device reports a guard alarm;
- 3) Note: The equipment needs to be connected to external power test.
- 4) Low battery alarm

1	Low battery alarm command LOWW, <Low_Value>, 0	Set low voltage alarm value Low_Value is three digits, and the last digit is a decimal point. For example: 122 for 12.2v Example: LOWW, 118,0 # The device reports a low power alarm if it is lower than 11.8V.
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3.8 Device Photosensitive Alarm Description

1). Place the device in a dark place for more than 60S. When the mobile device sees light for more than 1S, it will trigger a photosensitive alarm.

1	ALARMMODE,L1/L0	L1 light sensitive: Default is on; L0 light sensitive is off
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3.9 Vehicle collision alarm parameter setting instructions

Used to adjust parameters according to actual installation and use.

1	Added GSENCOL, V, T, C # instructions	Used to set the sensitivity of collision alarm, default 32/2/3 V = 1-255, the higher the value, the less sensitive T = 0-11, the time to save the previous value C = 0-3, the number of interrupts Different vehicles have different parameters. It is recommended to set the parameters as follows: Motorcycle: GSENCOL, 128,3,3 # Car: GSENCOL, 48,3,3 #
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3.10 Vehicle acceleration/deceleration and sharp turning parameter settings

1	Driving habits algorithm selection: GPSGSE, <A> instruction	1. When A = 1, use GPS to calculate rapid acceleration, rapid deceleration, and sharp turns 2. When A = 0, use Gsesnor to calculate rapid acceleration, rapid deceleration, and sharp turns Default: A = 1,
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When GPSGSE, 1 #, the following settings about angle increment and speed increment are valid		
2	CARSET, A, B, C, D # instructions	A: Sharp turn angle: Degree B: Average turn speed: KM C: Rapid acceleration increment: KM D: Rapid deceleration reduction: KM, default: 75,20,8,18
When GPSGSE, 0 #, the following settings about Gsensor are valid		
1	GSENACC,A#	Used to set the sensitivity of device acceleration events (A = 1-6, Default: 5) The following value indicates that the acceleration event will be detected during the time X (unit: S) from 0 to 100KM/H. A = 1, X = 58; A = 2, X = 29; A = 3, X = 19; A = 4, X = 14; A = 5, X = 11; A = 6, X = 9
2	Added GSENDIR, D # instructions	Used to set the coordinate system of the device (D = 0-15), The default is D = 5: the GPS antenna is facing the sky, and the cable is facing the rear of the car. D = 7: GPS antenna is facing the sky, wire is facing the front D = 4; GPS antenna is facing the sky, wire is facing to the left D = 6; GPS antenna is facing the sky, wire is facing to the right
3	Added GSENCAL, D # instructions	Used to calibrate equipment When D = 1, the device will calibrate immediately after receiving the instruction When D = 0, the device will be calibrated next time after receiving the command Note: It is recommended to adjust the coordinate system under re-calibration

3.11 About time zone settings and related instructions

1	GMT,<A>,,<C>	Set time zone: A: E or W B: 0 ~ 12 time zone C: half time zone Example: GMT, E, 8 #
2	USELOCALTZ,1	Associated time zone: The reported data time is synchronized to the set time zone
3	USELOCALTZ,0	Non-associated time zone: The default reported data time is fixed to the time zone of UTC + 8

3.14 Common Query Commands

1	VERSION#	Query software version
2	PARAM#	Query the device parameters
3	STATUS#	Query working status
4	123	Query the device address, the device will force a position data to be reported to the server after receiving the 123 command.
5	FACTORY	Restore factory settings, IP and domain names will not be restored.
6	RESET#	Device restart.

3.15 Common Setting Instructions

1	SERVER,1,<domain/ip>,<port>	Set server command. <domain/ip>: server domain or IP <port>: server port
2	LANG,<language>	Set language. 1: Chinese 0: English Default: English
3	CENTER,A,<TelNumber>	Set the center number: PARAM # can check the center number information, which is use for some remote control.
4	CENTER,D,<TelNumber>	Delete center number.
5	APN,<name>	Set APN.
6	APN,AUTOAPN	Set to automatic APN.
7	RELAY,0/1#	1: Remote control set. 0: Remote control clear.
8	LED,0/1#	Controls whether the LED is always on: LED, 1 # is always on; LED, 0 # is off after five minutes (default is 0)

4. Manage your device

- 1) Manage device on WEB using the account and password provided by the your distributor to login for device management and location tracking.
- 2) Manage device on APP using the account and password provided by the your distributor to login for device management and location tracking.
- 3) You can use third party server to management your device, contact us for more detail information.

5. Cautions

- 1) Do not short circuit.
- 2) Do not put in fire or heat.
- 3) It is strictly prohibited for users to assemble or disassemble the battery by themselves.
- 4) Do not use outside the allowed temperature range.
- 5) It is strictly forbidden to knock, disassemble or disassemble this product for repair or modification.
- 6) The operating temperature environment and usage scenarios of the device will affect the battery discharge efficiency.

FCC Statement:

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator& your body.