

MPIP-618W-A

User Manual

REV2.0.1



China Aerospace Telecommunications Ltd

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Version information

version	editor	date	Modified clause
V1.3.0	Kang kuan ming	2014.08.06	Artificial
V2.0.0	Liu yunfei	2015.02.06	Revision content
V2.0.1	Liu yunfei	2015.08.06	Modify the relay connection way and description

Scope of application

This user manual is applicable to MPIP-618W-A vehicle terminal product.

1、Product introduction

MPIP-618W-A in-vehicle terminal integrates internationally leading technologies of GPS, GSM, intelligent automatic control and anti-theft alarming. It is able to monitor the position, safety, operation and technical status of the moving target 24 hours a day, and it can provide you real-time tracking, fleet management, anti-theft of vehicle, asking for help in case of accident, fault repair, data checking, fuel consumption statistics, mileage statistics, maintenance reminder, driving behavior analyzer, RFID attendance statistics, SMS alarm, Geo-fence alarm, easy installation, read the total fuel consumption, read the fault alarm, read the engine speed alarm and temperature alarm, etc. Note: some function shall be required to purchase some accessories

2、Disclaimer

- MPIP-618W-A in-vehicle terminal is developed based on the GPS applied technology of the United States. Since its GPS receiver must always keep direct communication with the satellite in the course of operation, the equipment may be affected when it operates in electromagnetic shielded areas or when the carrier (such as a vehicle) is under some shelters like indoors, in the underground parking lot or under a footbridge.
- MPIP-618W-A in-vehicle terminal is a RF communication equipment. The product shall be kept as far away as possible from areas that might lead to explosion like fuel warehouses, chemical plants, and so on. The product may be affected in places sensitive to external radio-frequency signals, such as gas stations, hospitals, schools, where radio frequency suppressors may be installed.
- Because data communication is conducted between the system adopting GSM technology and the monitoring center, user must make sure the SIM card support GPRS data traffic offered by

the public communication network operators. Besides, the SIM card shall always contain sufficient fee. Please do not use SIM cards subject to limitations of regions;

3、Packing list and the optional accessories

3.1 Terminal standard configuration list

Name	Quantity	unit	Description
Main unit	1	PCS	GPS terminal
Power cable	1	PCS	GPS terminal power cable
GSM antenna	1	PCS	GPS terminal GSM antenna
GPS MOUSE	1	PCS	GPS MOUSE
SOS button	1	PCS	SOS button
Multi-function	1	PCS	GPS terminal extension function cable
Installation kit	1	set	Including fuse, Velcro, cable tie
CD disk	1	PCS	Including user manual and warranty card

3.2 Optional accessories

Name	Quantity	unit	Description
USB setting cable	1	PCS	CASTELECOM PC Tools setting cable
Microphone	1	PCS	Monitoring and
Speaker	1	PCS	Hands-free communication
Relay	1	PCS	12V or 24V optional, remote cut-off/restore the ignition system
camera	1~4	PCS	Photos and upload to platform in time, user can check thought the platform. The cable length can be customized.
Temperature sensor	1~2	PCS	Check the environment temperature. The cable length can be customized.

Fuel sensor	1	PCS	Detect the remaining tank fuel level, including a corrector。 The cable length can be customized。
HT-192B	1	PCS	OBD vehicle diagnosis module. read diagnostic data, including vehicle speed, RPM, mileage, fuel consumption ,ECT etc.
HT-196R	1	PCS	Driving behavior, inbuilt GPS, GPS. functions: acceleration/deceleration/quick lane changing/sharp turn/ collision, buzzer and light instructions, RFID(optional)

4、 Special words

4.1 position data

the datagram including “location, alarm, status” which the terminal send to the platform.

4.2 SMS command

Send to device SIM card number including the read and setting parameters .(the device SIM card should have SMS function)

4.3 Security key

The key is the legality of the SMS command validation. The length of the key is fixed 6 characters, default is last 6 number of the device serial number (can modify) .Please get more details from platform operator.

4.4 User phone number

For receiving the SOS alarm ,low battery voltage alarm, power-off alarm.

4.5 Platform service

Platform service providers (Platform) paid for the computer automation and artificial service, convenient for users to get vehicle information such as location, alarm, status. The service content and the charges agreed jointly by the providers and users.

5、Terminal product features

5.1 Special functions

5.1.1 Intelligent power save

Device supports none power-save mode and half power-save mode. After ACC turns off for 5 minutes, device will upload the last available location. At the same time, device will disconnect GPRS, stop supplying power to all peripheral unit(except fuel sensor and temperature sensor) and set GSM module to standby.

After device falls asleep, it will be woke up by: ACC on, door open, engine cut off, SOS alarm, coolant temperature alarm, fuel alarm, OBD plug out and called. Then it will register GSM network and supply power to peripheral unit. Once device log in platform, it will upload above alarm, including the latest available GPS location. At the same time, device will start upload regularly as preset time interval until next ACC off.

Terminal default mode is half power-save ,you can set the mode by Castelecom PCTOOLS.

5.1.2 Positioning

Call the device “user number” or SMS to device user number, After receives command from platform, terminal will send GPS information for one time immediately

5.1.3 Maintenance reminder

User can set maintenance reminder from platform(time or mileage). Platform will calculate vehicle’s record and issue reminder once time or mileage condition are triggered.

5.1.4 GPS

Terminal can get locations globally by GPS technology。

5.1.5 Easy installation/OBD plug and play

HT-192 provides power supply and ACC signal to terminal. Operator doesn’t need to search for the power supply and ACC cable from vehicle, which reduces time and cost.

5.2 Positioning and tracking

5.2.1 Roll call

After receives command from platform, terminal will send GPS information for one time immediately.

5.2.2 Timing track

After receives command from platform, terminal will send GPS information as preset communication channel, time interval and duration.

5.2.3 Fixed Upload

The main unit upload the GPS information and OBD data according to the time interval to the platform, user can sent the time interval under ACC on or ACC off. Default OBD data including: the total fuel, residual fuel, total mileage.

5.2.4 Compressed upload

Terminal uploads a package compressed by 8 pieces of time-interval data to platform.

5.2.5 Real-time monitoring

The vehicle terminal have the communication function, update the information to platform/server.

5.2.6 Mileage statistics

The device can read mileage information every 5s and then send the accumulative mileage to the server/server.

5.2.7 Store and Re-upload

When there's no GSM signal, terminal will store the GPS information and upload them by sequence after GSM is connected. Storage capacity of blind area's data is 3000 pieces.

5.3 Status detection and function control

5.3.1 Vehicle status detection

Device can detect ignition on/off ,door open/close, OBD connection, peripheral units connection and upload the abnormality.

5.3.2 Vehicle Diagnosis

Terminal acquires fault code (store & pending) from HT-192B every 5 minutes and upload the abnormality.

5.3.3 Temperature sensor

Device can detect temperature in vehicle by temperature sensor and upload the value.

5.3.4 Camera

Device supports 2 kinds of photo taking mode:

- 1、Command from call center. Device will take and upload photo after receives command from platform. User can send one time photo taking command, or continuously command with time interval.
- 2、SOS alarm. When SOS alarm is triggered, device will control all cameras take photos and upload.

5.3.5 Voice monitor

After receives monitor command from platform, terminal will call the monitoring number automatically. Voice monitor can be stopped after monitoring number hang up the call.

5.3.6 Fuel consumption

Terminal acquires fuel consumption from HT-192B every 5 seconds and upload the value.

Device can detect remaining fuel level by temperature sensor and upload the value.

5.3.7 Read vehicle battery voltage

Device acquires vehicle's battery condition every 2 seconds and upload the abnormality.

5.3.8 Remote cut-off ignition system & restore

When vehicle is confirmed to be stolen, user can cut off engine from platform through 12V/24V relay. Vice versa.

Remark: in order to guarantee the safety, engine can only be cut-off when ACC is off.

5.3.9 RFID

Device can analyze driving behaviors and read RFID identification by HT-196R.

Driving behavior includes crash, suddenly turn, acceleration, deceleration and lane change.

5.4 Alarm functions

- User can set whether to enable alarm and set the alarm thresholds by the platform.
- When the device trigger the alarm, alarm information will upload to platform within location data, the alarm status in the location data will always be “effective” until the platform confirm the alarm.
- When the terminal have received the alarm acknowledge. The alarm status in the location data no need to set as” effective” including door open/close alarm, SOS alarm ,ACC ON/OFF, acceleration, deceleration, quick lane changing、sharp turn, collision alarm.
- These alarms including idle engine, GPS fault alarm, temperature alarm ,fatigue driving alarm, high RPM, high speeding , high ECT, power cable cut-off alarm, low voltage alarm, when the platform have confirmed them, the alarm status in the location data should be set according to the real-time vehicle status.
- The platform should response the device’s alarm. If the device don’t receive the response ,the device will repeat 3 times ,every 1 minute. but the high speed and high RPM only report 1 times.
- All alarms trigger once ,upload once. After upload, the device alarm status automatically be cleared,(before the alarm status do not return to normal, can’t trigger the alarm again).
- The device will send the SOS alarm max 5 times , every 1 minute when the device don’t get the platform’s response.

5.4.1 Terminal alarm type

Alarm type	description
SOS	It will trigger SOS alarm when user presses SOS button for more than 3 seconds.
Low voltage alarm	Terminal automatic detect the external power supply, trigger when the external voltage is less than 10.5V (12 v model) or 21V (24v model), default setting is enable
Power failure (power cable cut-off alarm)	In-built backup battery, trigger when the external voltage is less than 8V and automatic switch to backup battery supply, default setting is enable
GPS failure	Trigger when the G-mouse or HT-196 failure ,or trigger when don’t receive the GPS information in 2 minutes, default setting is enable
Speed alarm	Trigger when the vehicle speed is more than the preset threshold for 60 seconds, default setting is enable, speed threshold is 120Km/h, detecting time is 60 seconds(0-300 seconds optional)
ACC on/off	ACC ON trigger when the ACC status changed from off to on, last 2 seconds, on the contrary, trigger the ACC OFF alarm. default setting is close
The first door open/close	Trigger the open alarm when the door status changed from close to open, last 2 seconds, on the contrary , trigger the close alarm. default setting is close.
fatigue driving	Trigger when the continuous driving time is more than the preset threshold, the

	alarm information include the continuous driving time and the threshold. default setting is close.
idle engine	Trigger when the idle time is more than preset threshold , default setting is close.
Geo-fence alarm	Trigger when the vehicle enter or exit the preset area, can set by the platform: rectangle circle ,polygon area(up to 64 area), supplied by the platform
Route offset alarm	The terminal upload the positioning data, the platform automatically determine whether conform to the default preset route on the platform. supplied by the platform.
Road speed limit	The terminal upload the positioning data, the platform automatically determine whether conform to the default preset road speed limit on the platform. supplied by the platform.
Fuel level alarm	Trigger when the consumption of fuel is more the preset threshold percentage(10%/minute adjustable),report the alarm to platform(optional external fuel sensor) , default setting is close.
Temperature alarm	Trigger when the temperature is more the preset threshold ,last 30 seconds ,report the alarm to platform, default setting is close.

5.4.2 HT-192 alarm type

Alarm type	Description
High RPM	Triggered when the vehicle RPM is greater than the preset threshold of RPM. check the OBD data every 1s , otherwise using the last data
High ECT(engine coolant temperature)	Triggered when greater than the preset threshold of ECT.。 check the OBD data every 5s, otherwise using the last data. Default :98℃ , threshold range:-40 ~ 200℃

5.4.3 HT-196 alarm type

Alarm type	Description
collision	built-in G –sensor 3 axis acceleration sensor chip, when over the alarm threshold, the device will send alarm to platform.
Sharp turn	built-in G –sensor 3 axis acceleration sensor chip, when over the alarm threshold, the device will send alarm to platform.
Accelerate	built-in G –sensor 3 axis acceleration sensor chip, when over the alarm threshold, the device will send alarm to platform.
Decelerate	built-in G –sensor 3 axis acceleration sensor chip, when over the alarm threshold, the device will send alarm to platform.
quick lane changing	built-in G –sensor 3 axis acceleration sensor chip, when over the alarm threshold, the device will send alarm to platform.

5.4.4 SMS alarm reminder

Device sends SMS to user phone number when alarm occurs, including SOS alarm, power supply off alarm, low voltage alarm and vehicle trouble.

6、 Setting guidance

Terminal parameters can be set by Castelecom PCTools, platform and SMS.

6.1 SMS parameters setting

Any mobile number can send the SMS command to the terminal SIM card number to read and set terminal parameters.

6.2 Castelecom PCTools

Please download the castelecom PCtools from the website:

<http://www.castelecom.com/pc-tools>

6.3 Platform parameters setting

Terminal have connected the platform, please get the account and password from platform operators. Then you can read and set the parameters. The platform website :

<http://www.freelivetrack.com/>

7、 SMS functions

7.1 Phone location

Dial the SIM card number in device and hang up the call (in 6 seconds) before it is caught, then device will send a message with location information to initiator. User can check location on map by clicking the linkage in message.

Example: A12345,xx,yy,A/V!<http://maps.google.com/?q=22.7643750,114.3974383>

xx: CSQ value, yy: number of valid GPS stars, A / V: A=valid location, V=void location.

7.2 SMS location

Send a SMS command "security key,LBG" to the device SIM card number through any phone number, Device will reply a location SMS to the sender phone. The location SMS includes Google map link.

example: A12345,xx,yy,A/V!<http://maps.google.com/?q=22.7643750,114.3974383>

7.3 Alarm SMS alert (have set the user phone numbers)

When the device trigger the low voltage alarm, SOS, power failure alarm, the terminal SIM card number will send the alarm SMS to the user phone numbers.

Example:

12345,low voltage, xx,yy,A/V!http://maps.google.com/?q=38.870941,-77.056114

12345,power failure,xx,yy,A/V!http://maps.google.com/?q=38.870941,-77.056114

12345,SOS,xx,yy,A/V!http://maps.google.com/?q=38.870941,-77.056114

7.3.1 Remote cut-off & restore by the control ignition system

Send a SMS command to the device SIM card number through any phone number, Device will be cut off/restore the electric.

SMS command format:

Remote engine off: "security key, Engine off"

Remote engine on: "security key, Engine on"

The function can be achieved through the platform, the use of remote oil cut-off, please contact the service providers or distributor for technical support to ensure the safety.

7.3.2 Restart

Send a SMS command "security key, restart" to the device SIM card number through any phone number, Device will restart. Reply: restart, ok. If unsuccessful execution, there is no any reply.

7.3.3 SMS parameters setting

- Set language

Can send SMS command "security key, EN/CN" to set the language of device.

EN is English. CN is Chinese.

For example:

SMS command: 123456, EN

Reply: EN, ok

- Set user phone number

Send SMS command "security key, SP, no1, no2, no3" to the number in device through any phone. When some position phone is not needed to set, pls write nothing in this position. Specially, send SMS "security key, SP" to clear all of user phone numbers

For example:

SMS command: 123456, SP, 13600000001, ,,

Reply: SP, 13600000001, ,, ok

SMS command: 123456, SP

Reply: SP, ok

- Set GPRS parameters

Send SMS command “SMS security key,SG,DialMode,IP/Domain,Port,APN,user,password” to the number in device through any phone.

DialMode

=0, express domain mode

=1, express IP mode

For example:

SMS command: 123456,SG,0,www.freelivetrack.com,16190,cmnet,,

Reply: SG,ok.

8、Technical specification & interface introduction

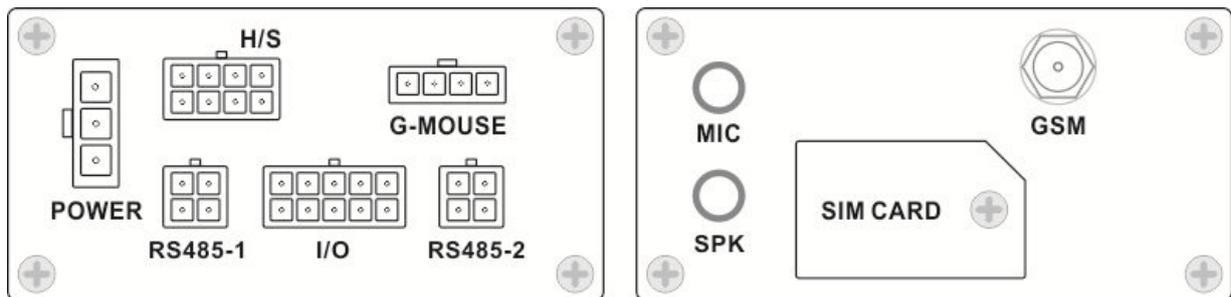
8.1 Technical specification

Item	description
Dimension	66mm (W)*30mm (H)*110mm (L)
Weight	260g
IP rate	IP30
Shape	Aluminum alloy
Working Voltage	DC9V~36V
Battery	3.7V/500mAH Lithium battery
Normal working current	≤85mA@13.8V (no including accessory)
Max working current	≤250mA@13.8V (no including accessory)
Current when data transmission	≤150 mA@13.8V (no including accessory)
Current when ACC OFF	≤90mA@12V/24V (no including accessory)
Power saving mode(sleep mode)	≤40mA@12V/24V (no including accessory)
Working environment	-30℃~+70℃, relative humidity 5%~95% (Not frosting)
Storage environment	-40℃~+85℃, relative humidity 5%~95% (Not frosting)
Communication	GPRS (Quad-band:GSM 850/900/1800/1900MHz)
Position	GPS
GPS	Sensitivity:-159dB, positional accuracy ≤15m, speed accuracy ≤0.1m/s
Certification	FCC / CE / E-Mark
Camera (optional)	0.3mega pixel, max 4 PCS,
Temperature sensor (optional)	detection range -40~+80℃
Fuel sensor (optional)	detection the tank depth 20-200CM (customization)
HT-192B (optional)	OBD passenger vehicle protocol: standard OBD II

	OBD commercial vehicle protocol: SAE J1939 CAN (29 bit ID, 250 kbaud), SAE J1587/J1708 (9.6 kbaud)
HT-196R (optional)	RFID attendance and driving behavior , RFID frequency 125KHz

Note: Above current value is acquired by testing of 12V power supply with good network signal, the actual current may be different according to local circumstance

8.2 Terminal panel diagram



8.3 Product interface definition

interface	Function description
POWER	Power supply, ACC state detection (3PIN)
H/S	Connect the USB to serial cable for PCTOOLS parameters setting
G-MOUSE	Connect G-Mouse, or HT-196R
I/O	Multi-function cable (10PIN)
RS485-1	Connect : camera(1-4); temperature sensor(1-2); fuel sensor (alternative)
RS485-2	Connect the HT192B
MIC	microphone
SPK	speaker
GSM antenna	GSM antenna
SIM CARD	Install the SIM card inside

notice: ①please choose the optional accessories according to your application environment.

②camera, fuel sensor, temperature sensor only can connect to the RS485-1, the device will close the power supply for the RS-4851 when sleep mode,(except fuel sensor and temperature sensor). ③HT-192B only can connect the RS485-2.

8.4 Power cable (3PIN)

overview	function	PIN	color	Function description
	ACC	1	Orange	ACC state detection, when connect HT-192B, check HT-192B output signal
	power (+)	2	red	power (+)
	power (-)	3	black	power (-)

8.5 Multi-function cable (10PIN)

overview	Pin mark	Pin	Pin cable color	Function description
	AD-IN1	1	green	Input detection ,reserved
	O/P1	2	brown	Control output1,reserved
	SOS_IN	3	purple	SOS input signal detection
	AD-IN5	4	white	Input detection ,reserved
	CUT1	5	purple	Control output2, connect the Relay
	AD-IN2	6	Blue	Door 3 status input detection
	AD-IN4	7	Gray	Door 2 status input detection
	AD-IN3	8	Yellow	Door 1 status input detection
	SOS_LED	9	Blue	LED indicator (terminal working status)
	GND	10	black	GND

Remarks: IN1-IN5 are input detection cables, OUT1-OUT2 is output control cables that can be defined by customer such as door open/close detection, engine cut off.

9、Installation Guide

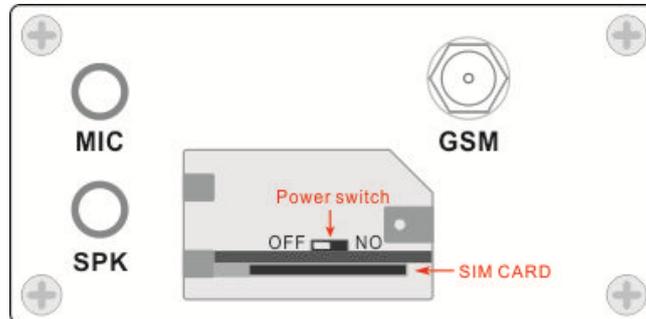
! WARNING:

- below operation are for reference, we suggest the device to be installed by professional engineer. CASTEL will not take responsibility for any vehicle circuit fault caused by user's operation.

9.1 SIM card installation

Insert the SIM card before installation of the main unit. The installation processes of SIM card are below:

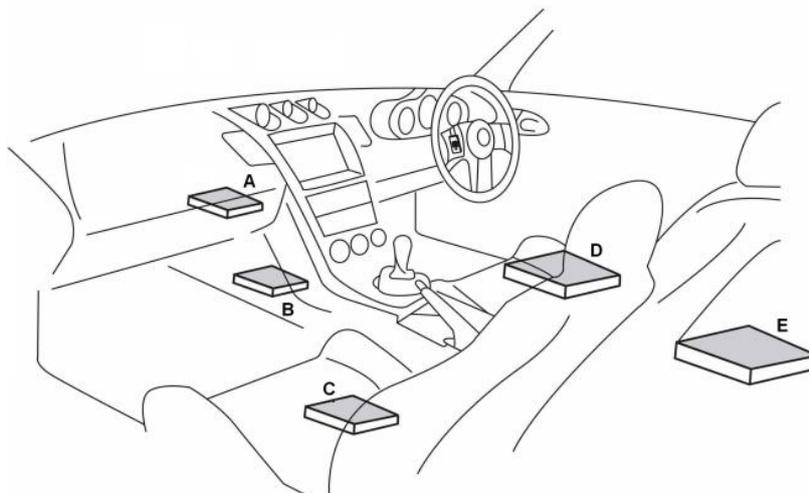
- Open the side plate of the main unit with screw driver (make sure the switch to “off” before inserting the SIM card);
- Insert the SIM card to the card seat, then put the switch to “ON” side.
- Fix the side plate to the main unit, fasten the screw.



Notice: please make sure the SIM card have SMS and GPRS function.

9.2 Placement of main unit

- The location for placement of main unit should be determined in advance. The location should allow secure installation, concealment, anti-humidity, avoidance of high-temperature area, and be far away from magnetic field, air bag, sound system, ABS system and other sensitive electronic equipment. In addition, it should be installed snugly.
- Recommended installation location: the concealed position inside the decorated board under the dashboard or under the seat. Refer to the following diagram for the specific installation location:



recommended installation location

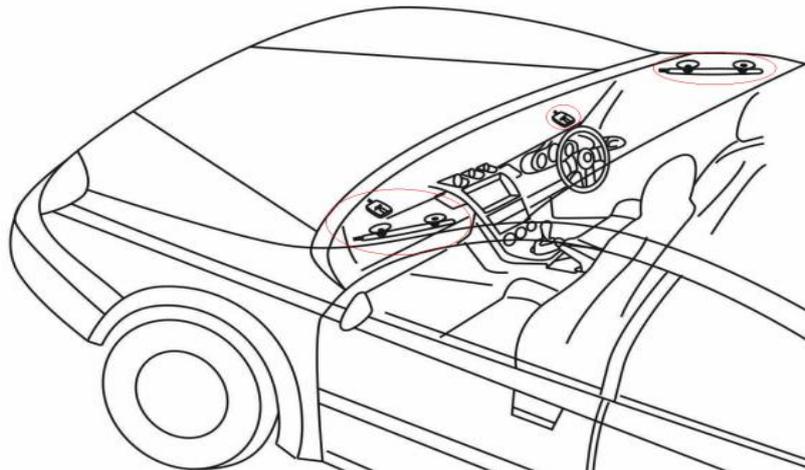
9.3 Installation of GSM antenna

GSM antenna is installed at a concealed place inside the vehicle but the place should not be closed too much. Generally it is placed inside the decorated plate under the steering wheel or at the included angle inside the decorated plate under the front or rear windshield to ensure smooth transmission of communication signals. Refer to the following diagram for the specific installation location:

9.4 G-Mouse installation

G-mouse can't be installed under metal baffle plate which will hinder the receipt of GPS signal, thus affecting the normal monitoring and positioning of the MPIP-618W main unit.

G-mouse is generally placed inside the decorated plate under the front or rear windshield or on the dashboard. Refer to the following diagram for the specific installation location:



9.5 HT-192 installation

- Plug OBD male port into vehicle's OBD diagnosis interface;
- Connect the power supply and ACC cable with power cable of main unit;
- Connect HT-192B with RS485-2 port of main unit.

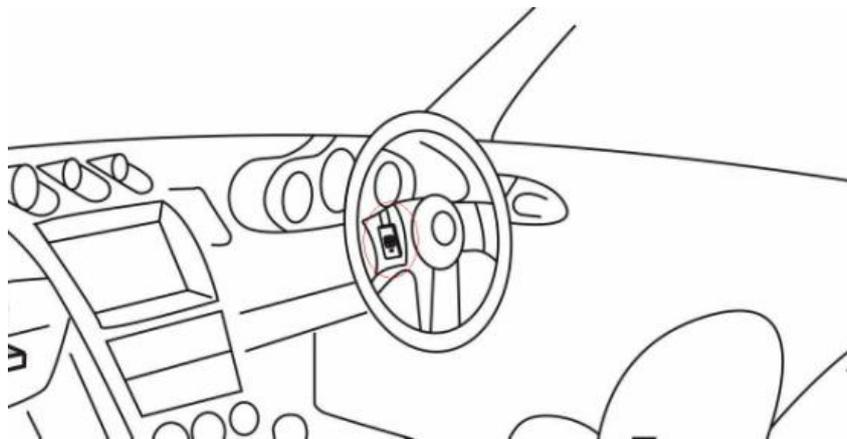
9.6 HT-196 installation

HT-196 Please don't put HT-196R under any metal or explosion prevention metal, user can attach it to the windshield or fix it under the windshield by double face adhesive tape.

Driving behavior analyzer should be kept horizontal, and the angle with ground shall not exceed 15 degrees inclination.

9.7 SOS button installation

The SOS button should be placed between the dashboard and the steering wheel to facilitate operation of the driver. The SOS button has adhesive tape stuck to its back. User can remove the adhesive tape and attach it to the intended position. Refer to the following diagram for the specific installation location:



9.8 Camera installation

Connect camera with RS485-1 port of main unit, and make sure the camera is fixed into the appropriate position.

9.9 Temperature installation

Connect temperature sensor with terminal's RS485-1 port, and fix the head to required position.

9.10 Fuel sensor installation

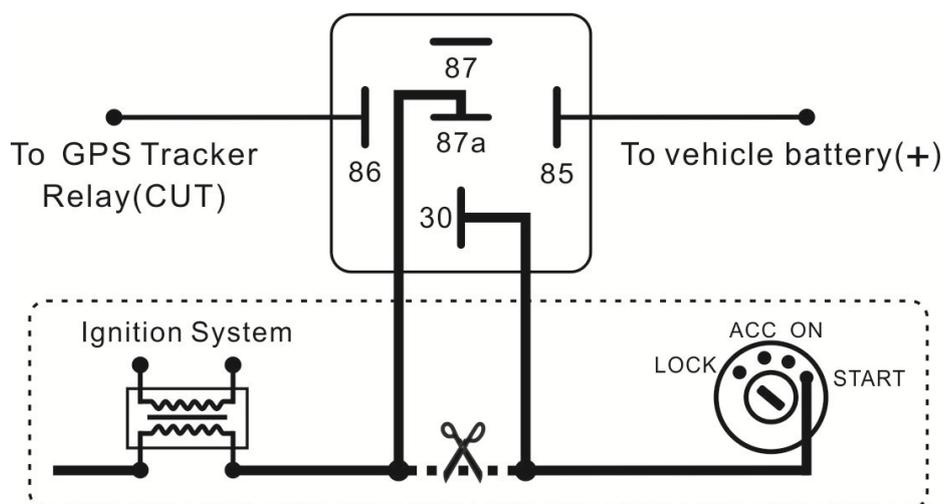
- 1) User can cut short fuel sensor as required before installation: make sure the length required and cut off the useless part, clear the rag on pipe orifice and axis by file. Then take down the filter screen and install it to sensor.
- 2) True up Fuel sensor: empty and full, the basic theory is to record& define the fuel level by sensor when fuel box is empty and full. After true up, when fuel level changes, fuel sensor will generate corresponding electrical signal to calculate current fuel level.

Notice: If fuel sensor is cut short, user needs to true up again; The true up is determined by height of fuel rather than the volume of fuel tank, so it can also be done indoor (make up a container filled up by fuel to simulate fuel tank); User must true up full level before empty level, or sensor would not switch to calibration mode.

- 3) Full calibration: After fill up fuel tank, put sensor into it. Wait for 30s until aluminum tube is filled up by fuel, then press full button on calibrator for 5s, green LED will start flashing which means sensor has entered calibration mode. 10s later, green LED will turn off which means calibration finished.
- 4) Empty calibration: Take out the sensor from fuel tank, and wait for all the fuel outflows. Then press empty button on calibrator for 5s, green LED will start flashing which means sensor has entered calibration mode. 10s later, green LED will turn off which means calibration finished.
- 5) After calibration, please disconnect the calibration, then connect Pin1 and PIN3 of sensor with power supply, after that calibration takes effect.

9.11 Relay installation

- Connect the CUT1 control line of the multi-function cable with relay's 86 pin.
- Connect the relay 85 with car battery anode, 87a.30 connect with two side of the ACC line as below:



Notice:

1, please don't install this relay in the flameout magnetic valve in the diesel engines, or vehicle power supply circuit.

2, please connect correctly the terminal ACC cable with the vehicle ACC;

3, the above diagram is only for your reference. Please choose the proper mode of the connection according to the different vehicle circuit.

9.12 Power cable and ACC cable connect

- In principle should not cut the original circuit loop except the Relay cut-off cable connect.
- Please make sure the main unit is insulated with the vehicle metal parts, power cable, SOS button or other cable should properly connect the battery positive/negative. The power cord fuse must be connected.
- The terminal ACC detection cable should be connected to the vehicle ACC port, otherwise, the remote cut-off oil/electric operation may be invalid, there is a hidden safety trouble.

9.13 Finish installation

- After all equipment is installed, please insert the fuse into the fuse seat and power on the main unit
- Meanwhile please start the vehicle to check if equipment works normally.
- Upon finding any abnormality, please turn off the main unit immediately and recheck all installation of wires or send it to a professional vehicle service center to check.
- Log on the platform to check if the vehicle is normally online and the positioning is proper. If there are problems, please refer to the User Manual for troubleshooting. Finally, please contact the local dealer if the problems cannot be solved.

9.14 Status

9.14.1 led indicator

Type	Color	Definition of status	remark
GSM (SOS button)	red	Off: Slumbering or no power Flashing: Registered successfully On: Registering Sleep mode: on 1S, off 4S	On the SOS button
GPS (G-Mouse)	green	Off: Slumbering or no power Flashing: GPS located On: search GPS information	G-MOUSE

GPS (HT-196)	Red,yellow&green	Red on: search GPS information Green on: GPS 3D located Yellow on: GPS 2D located Off: Slumbering or no power	HT-196
RFID (HT-196)	Yellow	Flashing(on 250ms, off 250ms): No ID card or illegal ID card On 1s: Searching for ID card Constantly on: ID card detected Off: power off within power on 1 minutes, or RFID power supply abnormality	HT-196
Driving Behavior (HT-196)	Yellow &Red	Yellow on 3s: General undesirable driving behavior Red on3s: Serious undesirable driving behavior off: No undesirable driving behavior	HT-196

9.14.2 HT-196 BUZZER

提示说明	备注
power on	Di (last 500ms)
read RFID card	Di (last 500ms)
illegal card	Di- Di (last 100ms per 200ms)
no card reminder	Di- Di (last 100ms per 1s)
general undesirable driving behavior	Di- Di -Di(last 100ms per 200ms)
serious undesirable driving behavior	Di- Di -Di -Di-Di (last 100ms per 200ms)
High RPM	Di- Di -Di(last 100ms per 100ms)
High speed	Di- Di -Di(last 100ms per 100ms)
Fatigue alarm	Di- Di -Di(last 100ms per 100ms 30S)
Idle engine	Di- Di -Di(last 100ms per 100ms 30S)

10、Maintenance

10.1 Maintenance instructions

- 1) The voltage range of normal power supply for terminal is DC 9V—36V, and the recommended operating voltage is 12V or 24V. Prior to installation, user shall make sure if the power supply falls within the range aforesaid.
- 2) When the in-Vehicle terminal is powered on, do not plug in or pullout the antenna or remove SIM card to avoid damage to the in-Vehicle terminal and SIM card.
- 3) The connection socket of the in-Vehicle terminal shall avoid direct contact with conductive body, otherwise it may result in short circuit and danger.
- 4) Do not use the in-Vehicle terminal in an environment where there is much dust. When washing the vehicle, try to prevent the terminal from being soaked or showered to avoid damage to the terminal.
- 5) Keep using the in-Vehicle terminal in normal temperature. The equipment may be damaged when operating for long in an environment where the temperature is above 85°C or lower than -40°C.
- 6) When the vehicle is inside building, tunnel or within a shielded area, receiving of GPS signals and GSM communication network signals will be affected. After the vehicle moves out of the area mentioned above, receiving of GPS signals and GSM network will automatically resume.
- 7) The main unit has built-in spare battery which will not be activated and begin working until the equipment is used for the first time and supplied with external power. After the battery is activated, when the external power supply is cut off, the equipment will automatically switch to operate with power supply from the built-in battery, and the operation can last for about 10 hours (calculated based on that the terminal data transmits once every 5 minutes).
- 8) The terminal equipment can use the accessories designated or recognized by CASTEL only. Unauthorized accessories may damage the terminal equipment.

- 9) If abnormality occurs to the terminal equipment or its accessories, thus leading to failure of normal operation, please contact the manufacturer or the local dealer.

10.2 Solution for troubleshooting

Failure	Analysis of possible causes and solutions
The equipment won't come online	<p>1. The fuse of the power cord is burned so that there is no power supply. Solution: change fuses.</p> <p>2. Improper setup of parameters Solution: check APN setting parameters and set up them again.</p> <p>3. Insufficient value installed for SIM card onion-support of GPRS function. Solution: reconfirm the SIM card function.</p> <p>4. Improper connection of GSM antenna and weak signal. Solution: check the GSM antenna.</p> <p>5. Failure of the MPIP-618W main unit Solution: send it to the designated maintenance center for repair.</p>
The equipment does not position the vehicle	<p>1. G-mouse is shielded by metal shielding object. Solution: remove the metal shielding object or reinstall G-mouse at another place.</p> <p>2. G-mouse failure. Solution: return it to the designated maintenance center for repair.</p> <p>3. Failure of the MPIP-618W main unit. Solution: send it to the designated maintenance center for repair.</p>
Power cut-off alarm occurs	<p>1. Fuse of the power source is burned. Solution: change fuses.</p> <p>2. The power cord is improperly connected with the ACC end. Solution: check the connection and reconnect it tithe common power cord.</p>
Fail to report the emergency alarm	<p>1. The SOS button has not been connected. Solution: check the SOS button.</p> <p>2. The MPIP-618W main unit won't come online so that the alarm information fails to be reported. Solution: analyze why the MPIP-618W main unit won't come online.</p>

	<p>3. Failure of the MPIP-618W main unit</p> <p>Solution: send it to the designated maintenance center for repair.</p>
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10.3 Warranty card

Warranty Card

User Name:

Contact Phone:

Contact Address:

Post:

Purchase time:

Device series NO.:

Agency and phone No.:

Note:

Remark: Please keep this card properly for get better after service. Details please see below information.

Agency (stamp):

Repair record

Device Model:

Date	Reason and status record		Repair man	Customer
	Repair reason	Record		

Note: Agency should fill this card completely when repair.

11、Claim

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