MPIP-618W-A User Manual

V1.2.0

China Aerospace Telecommunications Ltd

Content

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, temperature alarm, etc.

2. Disclaimer

1. 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)using it is under some shelters like indoors, in the underground parking lot or under a footbridge;

2. MPIP-618W-A in-vehicle terminal is a radio communication equipment. The product in use 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, etc, where radio frequency suppressors may be installed;

3. Because data communication is conducted between the system adopting GSM technology and the monitoring center, the user must use SIM cards supporting GPRS data traffic offered by the public communication network operators that offer support to the region within which the vehicle operates. Besides, the SIM card shall always contain sufficient value installed. Do not use SIM cards subject to limitations of regions;

4. Please use accessories provided by the original manufacturer to guarantee normal operation of the product;

3. Product overview

Main Box

GMOUSE

GSM antenna

multi-functional cable

SOS button

Installation kit

HT-196

Fuel sensor Temperature sensor

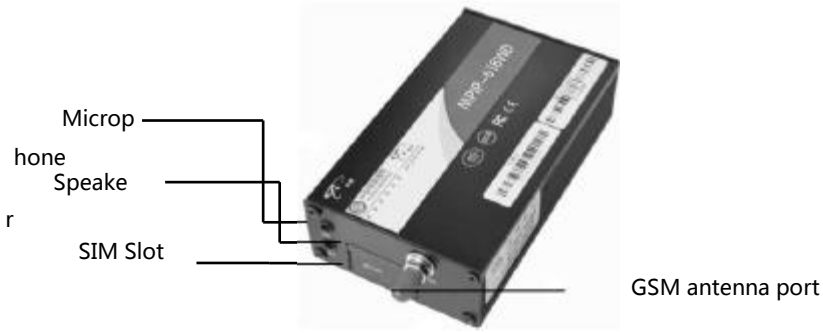
Microphone Speaker

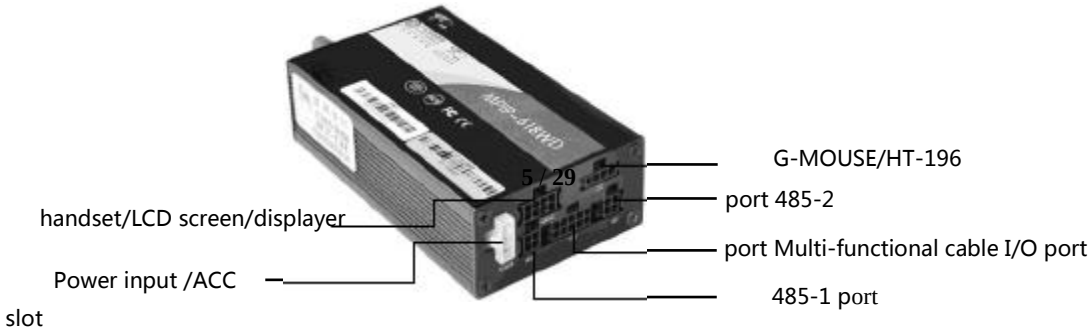
192-OBD auto inspection part

4. External port

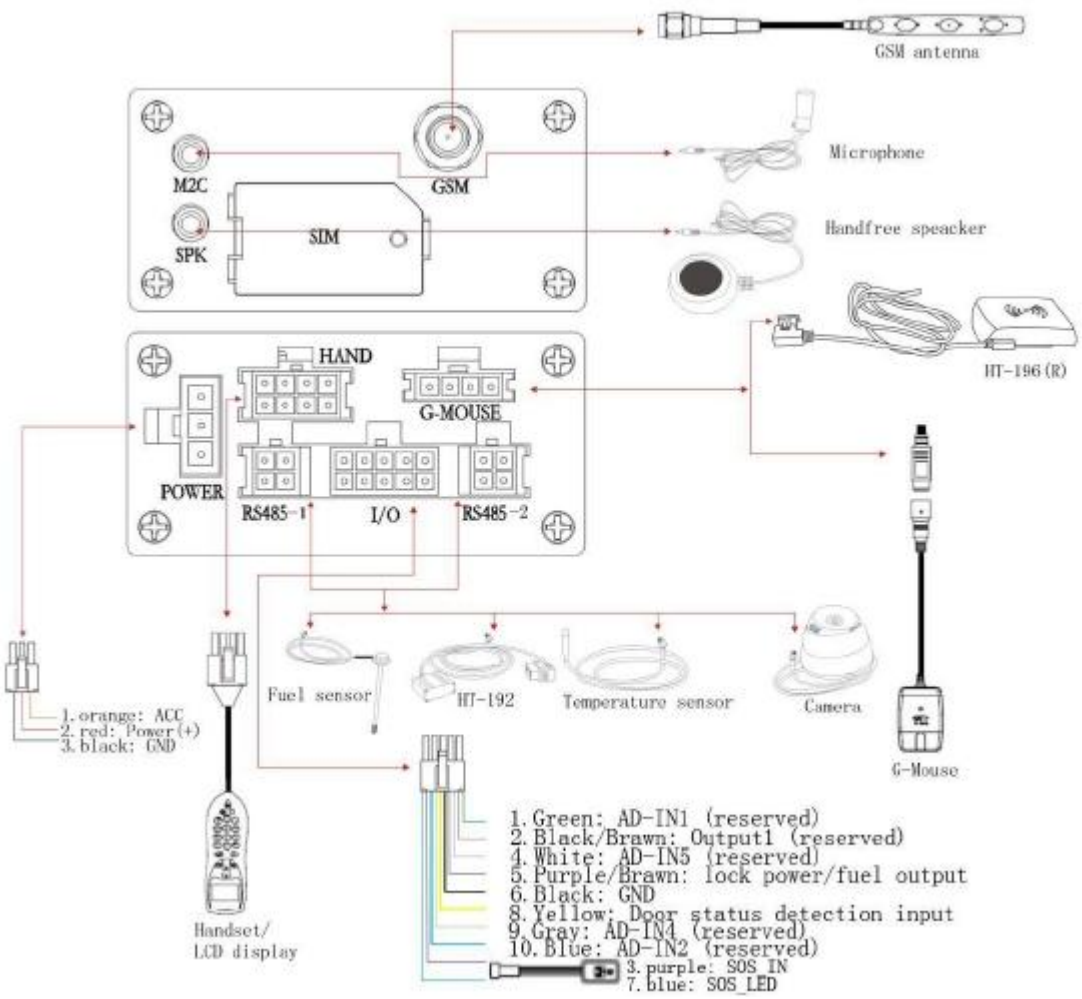
4.1 Port introduction

MPIP-618W-A has 10 external port, including multi-functional cable port, power cable port, G-mouse port(including RS232 port),GSM antenna port, SIM slot, double RS485 port, handset or LCD screen interface (including RS232 port) ,microphone port, speaker port, pls check following picture:





4.2 Port connection diagram



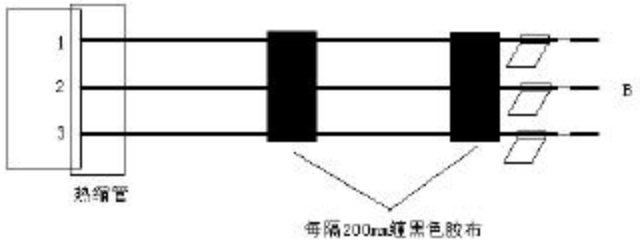
2.1 10PIN multi-functional cable

Definition of 10 PIN multi-functional cable

zone	pin	zone	pin	function	color	tag
A	1	C		IN1	Green	AD-IN1
	2			O/P1	Black/Brawn	open/close the door
	4			IN5	white	AD5
	5			CUT1	purple/brawn	lock power/fuel
	6			GND	black	GND
	8			IN3	yellow	door status detection cable
	9			IN4	gray	AD4
	10			IN2	blue	AD2
	3	B	1,3	SOS_IN	purple	SOS button
	7		2	SOS_LED	blue	

Remarks: function IN1-5 is input detection line,OUT1-2 is output control line, can define according to actual use, for example: door open/close check, power/fuel cut off.

2.2 3PIN power cable



Definition of 3 PIN power cable

zone	pin	zone	in	function	color	tap
A	1	B		ACC	orange	ACC
	2			power(+)	red	power (+)
	3			power(-)	black	power (-)

5. In-vehicle terminal functions

5.1 specific function

1) Easy installation OBD port plug-n-play

Power on by OBD port, no need for external cable.OBD plug and play, can be self-adaption 12VDC and 24VDC

2) GPS global position

The terminal can get locations globally with GPS technology.

3) Real-time location check

To dial the SIM number by cell phone, before it is connected successfully with the device, the user can get a SMS message with location info, click the map link, then user can check location on the map directly.

If the device is connected successfully by the cell phone, then the user will not get SMS. Location info is followed:

“now! map link? language& latitude& longitude”

Example:

now!http://maps.google.com/maps?hl=en&q=22.7643750,114.3974383 (map link must support English& Chinese conversion, Chinese version hl=ch,English version hl=en)

4) Platform management & E-mail forwarder of reports

After successful connection between platform and terminal, the platform can check real-time data and store it, to form specific reports, sent by email automatically.

5) Intelligent power saving

Device support No save power model and half save power model

Half Save Power model

GPS will turn off after ACC OFF 5 minutes ,disconnect GPRS ,GSM will be power on state ,under this situation ,can get the calling and SMS ,upload last location ,extra device will turn off(Except Fuel sensor/ temperature sensor)

When device into half save power model ,the terminal will ready for : ACC on ,Door open ,Cut power ,SOS theft ,Abnormal Temperature ,Abnormal Fuel ,calling ,unplug of OBD, wake up to normal working state ,GPS power on ,GPRS ready ,terminal upload alarm data (whatever locate or not ,if can't locate ,will upload last value location) Meanwhile keep online working state and upload data(whatever locate or not) until second detect ACC off ,will goes into sleep mode after 5 minutes.

6) Location Inquiry

After sending command from call center, the device can upload GPS info immediately.

7) Command from call center

The call center can send text message to device via GPRS, the text message will show on LCD screen& handset.

8) Maintenance reminder

The user can do maintenance reminder on the platform according to time period or mileage, after setting it on platform, the system will remind once the time/mileage is up to the data pre-set.

5.2 Locate and tracking function

9) Vehicle location query

User can check vehicle current location on any computer with network.

10) Tracking by interval

After sending command from call center, the device will upload GPS info by interval.

11) Fixed upload

The terminal can upload the GPS data, OBD data to the platform by time interval .no times limited, The default OBD data includes total fuel consumption data, residual oil volume and total mileage.

12) Compressed uploading

The device can upload GPS info to the platform after it gathered 8 GPS info and with OBD data also.

13) Real-time tracking

The terminal can send GPS data and other data to backend sever.

14) Mileage statistics

The device can read mileage info every 5s and then send the accumulative mileage to center.

15) Store and resend in blind area

Under GSM blind area, GPS data & OBD data can be stored and resend to server when GPRS is OK.

5.3 State detection and controlling

16) Vehicle status detection

The device can check ignition on/off status, OBD connection status, external accessory connection detection, etc.

17) Read battery voltage

Battery voltage can be updated every 2S, if the value is lower than the parameters pre-set before, then it will alarm.

18) Vehicle diagnosis

Terminal requests a fault code (STORE and PENDING) to HT-192 (OBD automotive test) in every 5 minutes, if the fault code changed, then will uploaded, platform will display this fault code.

19) Temperature Check

The device can connect with additional Temperature sensor, and check the inside temperature of the car, this Temperature data can upload with GPS data together

20) Fuel check

This model design can support connect extra fuel detector (Part) to monitor the Fuel, Can manage the fuel consumption.

Device will analyze the fuel value and upload the call center, meanwhile support synchronized upload with fixed data, and compressed pass back also.

21) Read Remaining Fuel Value

1. Connect extra fuel Detector to detect the fuel and monitor, device will analyze the fuel value and upload call center, the platform will display the remain fuel percent

2. Terminal read the remaining oil volume data from HT-192and upload to platform. Terminal read the present oil volume data from the HT-192 in every 5S, then terminal upload to the platform (if vehicle can’t support reading such data, then the data can’t be displayed on the platform).

22) Read the total fuel consumption

Terminal read the total fuel consumption of HT-192and upload to the platform. Terminal will update fuel consumption by every 5S,it will update the latest data to the platform if it can’t read the real-time data from the HT-192.

23) RFID identification check and attendance statistics

Device can analyze driving behaviors, RFID identification check, attendance statistics.

As for driving behavior analysis: the device can send collision alarm, sudden turning, sudden acceleration, sudden deceleration, quick lane-changing to platform.

24) Remote engine on/off

When confirmed there is illegal use of the vehicle, user can send engine cut-off command to control the vehicle remotely.

Remarks: in order to guarantee the safety, the engine cut-off command will be activated when ACC off and the vehicle is in stationary.

25) Monitor& hands-free call

The user can send monitor command on the platform, then the device will dial the monitoring number automatically.

When stop dial, then end monitor.

Hands-free call: it needs to add hands-free speaker.

26) Image capture

The device has 2 ways of capturing pictures

1. Command from call center, then device will capture pictures immediately and then upload the pictures, the center can also send command with specific interval for taking pictures.

2. When under SOS circumstance, device will take pictures automatically and upload the pictures to server; if the device is under sleeping mode while there is SOS, device still take picture ,after finish, it will go to sleep mode.

5.4 Terminal alarm function

27) SMS alarm

The device can support SOS alarm, power cable cut alarm, low voltage alarm, etc.

28) SOS alarm

When there is emergency, press SOS button 3 seconds, the device will send SOS alarm to call center for help.

29) Geo-fence alarm

The device can set areas, when the vehicle travels out of the area, it will send alarm.

30) Abnormal alarms

ACC on/off alarm, abnormal temperature, abnormal fuel level, fatigue driving, over-speed, route rotation, speed limitations in different sections, door status alarm, GPS failure alarm, Power off alarm,(cut of power cable, impact alarm, shock alarm, sharp turning alarm, all of these alarms will be sent to the platform.

31) Alarms showing on LCD screen

When there are alarms, device will send them to center, at the same time, the device will send the alarms to the LCD screen to show it

32) Compatible with commercial vehicle / passenger car OBD protocol

1. Commercial vehicle protocol: SAE J1939 CAN (29 bit ID, 250 k baud); SAE J1587/J1708 (9.6 k baud)

2. Passenger car protocol: Standard OBD protocols II

3. Systems of the OBD

OBD II/SAE J1939: Engine

SAEJ1587/J1708:

Engine/Transmission/Brake/InstrumentPanel/VehicleManagement/FuelSystem/Cab Climate/Particulate

5.5 Terminal maintenance

33) Setting tool maintenance

We can change or modify the terminal parameters, terminal operating parameters, alarm parameters etc though PC tool namedMPIP-618W Enterprise Standard PC Tool

34) Setting by SMS

All the phone number can set up the terminal network parameters.

After preset the number at the platform, the preset number can set the network parameters VIA SMS

35) Remote setting and Protect

Call center will though Internet or Platform monitoring software remote set up terminal parameters and protect.

6. Setting Guide

Terminal parameters can be set through CASTELECOM PC Tool, platform and SMS.

6.1 CASTELECOM PC Tool Setting

Professional setting tool “CASTELECOM PC Tool” can be installed in your computer. For detailed using method, please refer to user manual. CASTELECOM PC Tool User Manual EN V0.2.pdf

For detailed description of PC Tool and PC Tool software, please download from http://www.castelecom.com .

6.2 Platform Parameter Setting

After Terminal insert SIM card and power on, it will login into platform, then can set almost all parameters remotely through platform. Such as the upload time interval, Area alarm, Temperature alarm area, Preset Number etc.

6.3 SMS Setting

The first any phone number that be used to set or read parameters through SMS will become the super authorized phone number. The other two authorized phone numbers can be set by the super authorized phone number. For detailed using method, please reference as below :

1.1.1 Summary

Any phone number will be the super authorized phone number through which any valid SMS command was sent to SIM card in in-vehicle terminal. The other two usual authorized phone numbers were only set through the super authorized phone number. And we could only clear all of authorized phone numbers through the super authorized phone number including itself. For the details, please refer to the below contents.

1.1.2 Read parameters

1） Read network parameters

Write the short message command as followed, then send it to the SIM card in in-vehicle terminal.
After receiving the short message, the in-vehicle terminal will respond the followed response short message.
SMS Command: *read net;0#
Response: *read net result;0,13400000001,211.139.169.166,2001,cmnet,,,0#

Introduction:
Introduction of response short message:
All parameters are separated by commas. The parameters are sequentially numbered 1, 2, etc.
1: parameter type, 0 express main parameter, 1 express sub parameter, 2 express upgrading parameter.
2: Device ID, the length of device ID is less than 20 characters.
3: IP address, the length of IP address is less than 15 characters.
4: Port, the length of port is less than 5 characters.
5: APN, access point name of network, the length is less than 30 characters.
6: User name, the length of the user name is less than 50 characters.
7: Password, the length is less than 50 characters.
8: Communication protocol type, 0 express TCP communication protocol, 1 express UDP communication protocol.

2） Read other parameters

Write the short message command as followed, then send it to the SIM card in in-vehicle terminal.
After receiving the short message, the in-vehicle terminal will respond the followed response short message.
SMS Command: *read other;#
Response: *read other result;sv1.0.0 hv1.0.0,粤 B12345,green,123456789#

Introduction:
Introduction of response short message:
All parameters are separated by commas. The parameters are sequentially numbered 1, 2, etc.
1: Firmware version, the length of firmware version is less than 30 characters.
2: Vehicle number, the length of vehicle number is less than 15 characters.
3: color of vehicle number, the length of color of vehicle number is less than 20 characters.
4: Group fee count number, the length of group fee count number is less than 20 characters.

3） Read authorized phone number

Write the short message command as followed **with any phone number**, then send it to the SIM card in in-vehicle terminal.
After receiving the short message, the in-vehicle terminal will respond the followed response short message.
SMS Command: *read authorized num;1#
Response: *read authorized num result;1,123456#

Introduction:
1. Introduction of SMS command:
The only parameter of the command is sequent number of authorized phone number. Its value means that. 0 express super authorized phone number, 1 express the second authorized phone number, 2 express the third authorized phone number.

2. Introduction of response short message:
All parameters are separated by commas. The parameters are sequentially numbered 1, 2, etc.
1: Sequent number of authorized phone number, its value can be 0, 1, 2.
2: Authorized phone number, the length of authorized phone number is less than 20 characters.

1.1.3 Set parameters

1） Set network parameters

Write the short message command as followed, then send it to the SIM card in in-vehicle terminal.
After receiving the short message, the in-vehicle terminal will respond the followed response short message.
SMS Command: *set net;0,**13400000001**,211.139.169.166,2001,cmnet,,,0#
Response: *set net result;0,ok#

Introduction:
Introduction of SMS command:
All parameters are separated by commas. The parameters are sequentially numbered 1, 2, etc.
1: parameter type, 0 express main parameter, 1 express sub parameter, 2 express upgrading parameter.
2: Device ID, the length of device ID is less than 20 characters.
3: IP address, the length of IP address is less than 15 characters.
4: Port, the length of port is less than 5 characters.
5: APN, access point name of network, the length is less than 30 characters.

6: User name, the length of the user name is less than 50 characters.
7: Password, the length is less than 50 characters.
8: Communication protocol type, 0 express TCP communication protocol, 1 express UDP communication protocol.

Specially note:
If some parameter do not need to been set, we can fill the parameter item with empty value. Specially, if we want to clear some parameter, we can fill the parameter item with space value.

2） Set other parameters

Write the short message command as followed, then send it to the SIM card in in-vehicle terminal.
After receiving the short message, the in-vehicle terminal will respond the followed response short message.
SMS Command: *set other;粤 B12345,green,12345#
Response: *set other result;ok#

Introduction:
Introduction of SMS command:
All parameters are separated by commas. The parameters are sequentially numbered 1, 2, etc.
1: Vehicle number, the length of vehicle number is less than 15 characters.
2: color of vehicle number, the length of color of vehicle number is less than 20 characters.
3: Group fee count number, the length of group fee count number is less than 20 characters.

3） Set authorized phone number

Write the short message command as followed **with super authorized phone number**, then send it to the SIM card in in-vehicle terminal.
After receiving the short message, the in-vehicle terminal will respond the followed response short message.
SMS Command: *set authorized num;1,12345#
Response: *set authorized num result;ok#

Introduction:
Introduction of SMS command:
All parameters are separated by commas. The parameters are sequentially numbered 1, 2, etc.
1: Sequent number of authorized phone number, its value can be 1, 2.
2: Authorized phone number, the length of authorized phone number is less than 20 characters.

4） Clear authorized phone numbers

Write the short message command as followed **with super authorized phone number**, then send it to the SIM card in in-vehicle terminal.
After receiving the short message, the in-vehicle terminal will respond the followed response short message.
SMS Command: *clear;#
Response: *clear result;ok#

Specially note:
The authorized phone numbers can be cleared by initialization command from platform or PCTool too.

7. Installation Guide

WARNING！ The operations below are for reference only. We recommend that the product shall be

installed by technicians specialized in vehicle circuit installation. We are not liable for damage to the vehicle circuit caused by improper operation of the client.

7.1 SIM CARD installation

Insert the SIM card before installation of the main unit. The installation process as below:

1) Open the side plate of the main unit with screw driver;

2) Insert the SIM cards by directing it at the card seat. Make sure that, during insertion, the dent of the slanting side of SIM card is directing outward;

3) Pull the switch on, the switch above the dent of the SIM card .

(warning: pls make sure to put switch on to make sure successful installation.

4) Fix the side plate to the main unit, fasten the screw and secure it.

7.2 Operation specifications of wire installation

1) Easy installation (HT-192)

HT-192 can provide the power and ACC signal for the terminal. No need to find the power supply and ACC line, this way can help save you a lot of work and man power cost.

HT-192 wire diagram:

1 Plug the OBD male head into the car OBD diagnosis interface

2. Connect the power supply (output from HT-192) to the terminal.

If user now choose HT-192 OBD port, power line and ACC connection described as below:

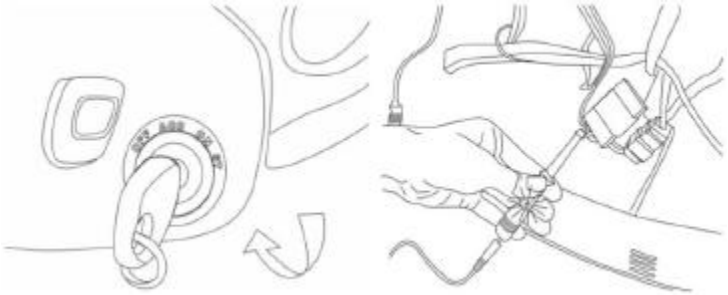
2) Method of wire checking

End-users may refer to the following instructions to locate the connection positions of functional cables in the vehicle.

(1) **Methods of locating the power wire**

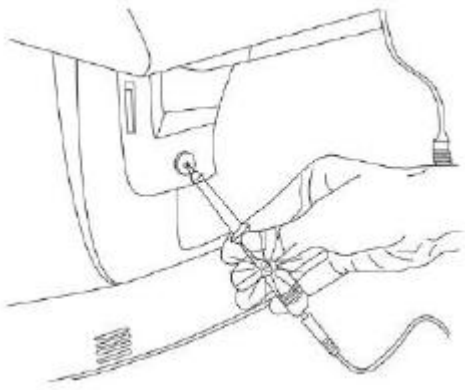
Power cord position: It is generally located in the wiring harness inside the baffle plate under the steering wheel, inside the door wiring harness of the driver's seat, or inside the fuse box. It can also be directly connected with the positive pole of the vehicle battery

Method of locating: ground one end of the test probe and put the other end on the power cord. The key is respectively in the position of OFF, ON or ACC, and the LED indicator of the test probe always lights constantly.



(2) Methods of locating the ground wire

The ground wire of vehicle generally adopts the mode of grounding.



(3) Methods of locating ACC detection wire (IGN+)

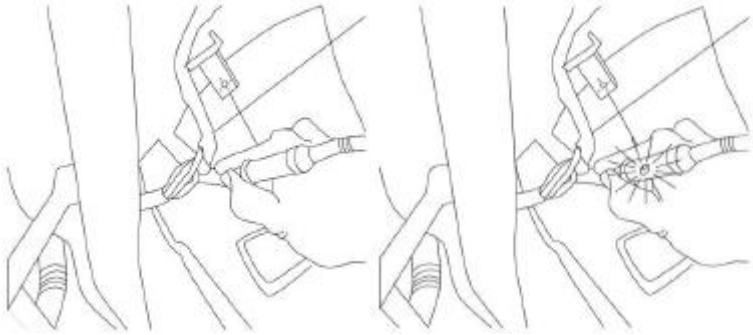
ACC detection wire (IGN+) is the ground based on which the main unit judges whether the vehicle is in the started mode, and it may be located in the wiring harness inside the baffle plate under the steering wheel or inside the fuse box. Method of locating: ground one end of the test probe and put the other end on the wire. When the vehicle key is respectively in the position of ACC, ON or START, the LED indicator of the test probe illuminates. When the key returns to the position of OFF, the LED indicator of the test probe goes off.

! **WARNING:** ACC detection wire (IGN+) must connected.

(4)**Methods of locating door pin switch**

The door pin switch input is the ground based on which the main unit judges the states of the vehicle door, and it is located in the wiring harness inside the right front door. There are high-level and low-level detections of vehicle door pin switch.

! WARNING: The door pin switch detecting wire of MPIP-618W main unit supports low-level detection only. If the vehicle adopts high-level detection, the negative signals must be converted into positive signals through external relay



The high-level detection mechanism is: When the vehicle door is closed, the voltage of door pin switch is low-level. When the vehicle door is open, the voltage of door pin switch turns into high-level, and the main unit judges that the door is opened;

The low-level detection mechanism is: When the vehicle door is closed, the voltage of door pin switch is high-level. When the vehicle door is open, the voltage of door pin switch turns into low-level, and the main unit judges that the door is opened;

Method of locating: most door pin switches are negative triggering. Connect one end of the test probe with the positive electricity and the other end put on the wire, and the LED indicator of test probe will go off when the vehicle door is closed. The LED indicator of test will light constantly when one vehicle door is opened.

(5)**Methods of locating fuel pump wire**

Characteristics of fuel pump wire: When the engine is not started, the wire has no voltage signal. When the engine is started, the wire has voltage signal. Location of fuel pump wire: It is generally located inside the wiring harness of the left or right front door side, inside the fuse box or under the back seat, close to the fuel tank.

3) Connection of multi-function cable

1) Refer to the explanation of functional ports as shown in the“MPIP-618W Port Connection Diagram”. Connect the ports to be used with the vehicle circuit;

2) The connecting of power cord requires that fuse seat among the installation accessories of connection should be installed within 0.3mfrom the joint. Principle of local grounding for the MPIP-618W main unit is adopted by the ground wire, and the grounding wire must not exceed 1m long.

3) All wire connector and wire must do the insulate protect, to avoid connector bareness and short circuit.

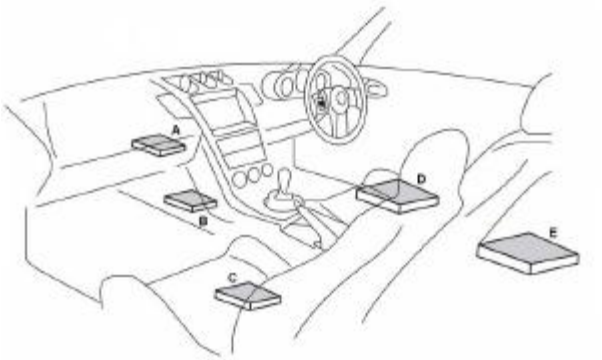
4) It request install the Fuse near 0.3meter of the wire connector when connect power wire, GND wire need connect Grand, the GND wire not over 1 meter.

7.3、Placement of the MPIP-618W main unit

1) The location for placement of the MPIP-618W 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 there sensitive electronic equipment. In addition, it should be installed here it is hard to be found.

2) Recommended installation location for the MPIP-618W main unit: he concealed position inside the decorated board under the dashboard or under the seat. Refer to the following diagram for the specific installation location:

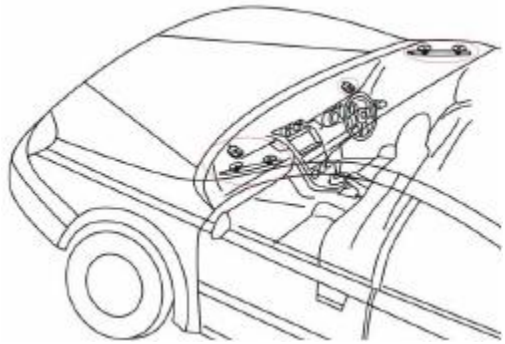


Magic tape can be used to fix the main unit to the vehicle body.

7.4、Installation of G-mouse (GPS receiver)

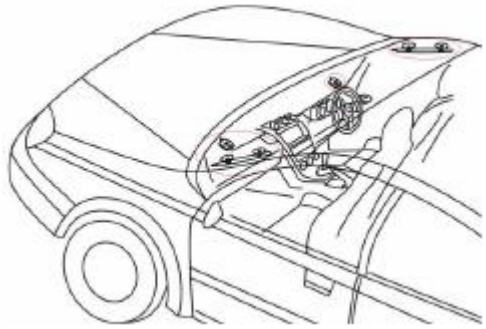
G-mouse must not be installed under metal baffle plate because it can hinder receipt of GPS signals, thus affecting the normal monitoring and positioning of the MPIP-618W main unit.

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:



7.5、 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:



7.6、Installation of SOS button

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. At the time of installation, remove the adhesive tape and attach it to the intended position. Refer to the following diagram for the specific installation location:

7.7、Installation HT-196 driving behavior analyzer

When install the driving behavior analyzer, please don't put under any metal or explosion prevention metal, Usually sorb the windshield or use double faced adhesive tape to fix under the windshield.

Driving behavior analyzer to maintain the level place, and the ground shall not exceed 15 degrees inclination.

7.8 Installation Temperature Sensor

Connect the sensor with Terminal's 485 port, head of the temperature sensor need fix the suitable position .When we check the refrigerator of truck, the metal tube is fixed at the ice box. The temperature detection has a certain delay, suggest setting fixed upload interval20 seconds.

7.9 Installation Fuel Sensor

1、When installation fuel sensor ,end-users can to cut short the relay as they need ,the step as below : end-users need confirm the wire distance of the relay ,and cut short the remain ,clear the wire port , eliminate no useful parts and re-install the sensor .

2.True up the Fuel sensor to check empty and full oil box ,the basic theory is record the data when it is empty oil box and full oil box ,confirm the position when oil box when it empty and full .when the oil level changed, oil sensor will check the change and account current oil level .

Attention: after cut off the oil sensor ,must true up the fuel sensor , Empty oil box or full oil box has the relation with the gasoline and level, without relationship with the volume of the oil box , so we can do this test in house ,(made one vessel ,fill up Gas oil ,as the oil box) ,first need set up full oil box ,then set up empty oil box ,otherwise sensor will not into true up .

3、True up when Full oil box : after full the oil box ,put the oil sensor into the oil box ,after 30sec ,then the fuel sensor will full with the oil ,press the true up machine Full button and hold on 5 s, Until Green LED flash slow ,means sensor become full true up mode ,after 10 sec ,Green LED off ,means the full oil box data true up okay.

4．True up when empty oil box ,take out the sensor from the oil box ,keep it outside of the oil box ,after the oil outflow from the sensor ,press Empty button and hold on 5 s, Until Green LED flash quickly ,means Sensor become Empty true up mode ,after 10 sec ,GEREN LED off ,means the Empty oil box data true up okay.

5 .After True up finished ,disconnect true up machine ,Connect Pin 1 and Pin 3 of the sensor with the power , True up will be success after power on the sensor .Indicate : If press the wrong button when operate ,can disconnect the true up machine power and exit current state ,and repeat

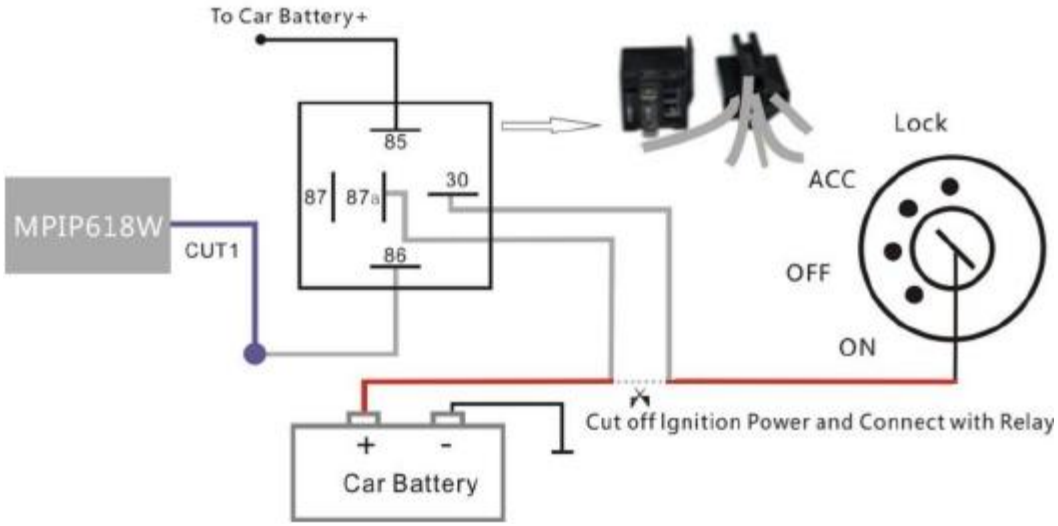
7.10 Installation Camera

Connect camera with Terminal 485 connector, check whether the camera is fixed into the appropriate position.

7.11 Installation Relay

1. Connect the CUT1 control line of the multi-function cable with relay 86 pin.

2. Connect the relay 85 with car battery anode, 87a.30 connect with two side of the ACC line as below:



7.12、Finishing the installation

1) After all equipment is installed, insert the fuse into the fuse seat to power on the main unit

2) In the meanwhile start the vehicle to check if equipment in the vehicle works normally.

3) Upon discovery of any abnormality, power off the MPIP-618W main unit. Recheck all installation wires or send it to a professional vehicle service center for check

4) Log on the “Client software of the monitoring center” or the “Internet-based WEB vehicle tracking system” to check if the vehicle is normally online and the positioning is proper. If there are problems, refer to Section X of the User Manual for problem solving. Contact the local dealer if the problems cannot be solved.

7.13、Indication of operation status of the main unit

LED Indicator

Type	Color	Definition of status	remark
GSM	Red Light	Extinguished: Slumbering or no power; Flickering: Logging successfully Constantly lighted: logged in failed	LED indicator on the SOS button
GPS	Gree n	Extinguished: Slumbering or no power; Flickering: GPS satellite positioning successful; Constantly lighted: Searching signals;	LED indicator on G-MOUSE
GPS	Red and Gree n lights	Red constantly on: Getting position, searching for satellite signal Green constantly on: signal well ,3D location status Yellow constantly on: bad signal, 2Dlocation status Extinguished: Slumbering or no power	LED indicator on HT196
RFID	Yello w	Flickering(on 250ms, off 250ms):No ID card or illegal ID card On 1s:getting the ID card Constantly on: Get ID card off: in power on 1 minutes, power off or RFID abnormal power supply	LED indicator on HT-196
Driving behavior	Yello w and Red lights	Yellow on 3s:normal not good driving behavior Red on3s:serial not good driving behavior Extinguished: no bad driving behavior	LED indicator on HT-196

buzzer:

voice:	Note
Di (last 500ms):power on Di (last 500ms):read RFID card	Buzzer on HT-196

Di- Di (last 100ms, every 100ms):illegal card Di- Di (last 100ms, every 100ms, 1s ring 1 time):get no card Di- Di -Di(last 100ms, every 100ms):normal not good driving behavior Di- Di -Di -Di-Di (last 100ms, every 100ms):serial not good driving behavior	

8. Packing List

8.1 Standard

standard	Quantity
MPIP-618W-A/B Main unit	1
Functional Cable	1
G-MOUSE	1
GSM antenna	1
SOS button	1
CD (user manual)	1
Installation accessory (including fuse、 sticker、 cable tie)	1

8.2 Optional

Optional Accessory	Mark	Quantity
USB Setting Cable		1
Relay	12V or 24V	1
Microphone		1
4Ω 2W speaker		1
Handset	alternative	1
LCD Screen		1
Camera	Refer to the RS485 interface accessory	1 to 4
Temperature Sensor		1
Fuel Sensor (with optional		1

calibrator)		
HT-192 OBD part		1
HT-196 (RFID optional)	If with this accessory, then G-mouse is not standard accessory as it has G-mouse function	1

RS485 interface accessory:

Interface	RS485-1	RS485-2
Solution 1	4 channel camera	1 fuel sensor
Solution 2	4 channel camera	1 temperature sensor
Solution 3	4 channel camera	1 HT-192B
Solution 4	1 fuel sensor	1 temperature sensor
Solution 5	1 fuel sensor	1 HT-192B
Solution 6	1 temperature sensor	1 fuel sensor
Solution 7	1 temperature sensor	1 HT-192B
Solution 8	1 HT-192B	1 fuel sensor
Solution 9	1HT-192B	1 temperature sensor

Note: 1 fuel sensor, 1 temperature sensor, 1 HT-192B can be connected to RS485-1 or RS485-2;

4 channel cameras suggested to connect RS485-1, as RS485-1 with power control, device in power saving mode would shut down the RS485-1 (only support power detection, no play and plug)

9. Technical specification

Item	description
Vehicle size	66mm (W)*30mm (H)*110mm (L)
Weight	260g
Shape	Aluminum alloy IP30
Working Voltage	9V - 36V DC
Battery	3.7V/600mAH Lithium battery
Stand by consumption	85mA
Max working power	<250mA@13.8V
Data transmission power consumption	<150 mA@13.8V(no including accessory)

Acc off consumption	<90mA@12V/24V (no including accessory)
Power saving mode	<40mA@12V/24V (no including accessory)
Working temperature	-30℃ ~ +70℃
Normal temperature	-40℃ ~ +85℃
Humidity	5%～95% (Not frost)
GSM	Quad band GSM 850/900/1800/1900MHz
Data transmission	GPRS
Location	GPS
GPS chip	SIRF 3
Location accurate	≤0.1m/s
GPS accurate	-159dB
Position accurate	≤15m
SOS button/ LED indicator	LED indicator/SOS button
Certification	FCC/CE/E-Mark
Camera	(Optional)0.3mega pixel, max 4 PCS, 3 meters cable
LCD Screen	(Optional)screen size 192*64 pixel, 3.0 meters cable
Handset	(Optional)screen size 128*64 pixel, 3.0 meters cable
Mic	(Optional)3 meters cable
Speaker	(Optional)4Ω, 2W
Temperature	(Optional)check range -40~+80℃ distance 1M-15M, 15 meters cable
Fuel	(Optional)check length 20-200CM, distance 5M, 5 meters cable
HT-192	OBD Passenger car communication protocol: SAE J1850 PWM (10.4 kbaud); SAE J1850 VPW (41.6 kbaud) ISO 9141-2 (5 baud init); ISO 14230-4 (5 buad init) ISO 14230-4 (fast init); ISO 15765-4 CAN (11 bit ID, 500 kbaud) ISO 15765-4 CAN (29 bit ID, 500 kbaud); ISO 15765-4 CAN (11 bit ID, 250 kbaud); ISO 15765-4 CAN (29 bit ID, 250 kbaud);
	OBD commercial vehicle communication protocol: SAE J1939 CAN (29 bit ID, 250 kbaud) SAE J1587/J1708 (9.6 kbaud)
HT-196R (Optional)	RFID Checking-in and driving behavior , RFID frequency 125KHz

I/O	4 digital /analog input (1 positive trigger, 3 negative trigger) 1 digital input(1 negative trigger) 2 digital output (engine cut , door open/close) 1 SOS button

Note: above current is getting from the 12V power circumstance, the actual would be little different according to local circumstance

10. Notes for Care and Maintenance

To ensure proper usage and extend service life of the in-Vehicle terminal, the following should be paid attention to in the course of installation, use, care and maintenance:

1) The voltage range of normal power supply for the in-Vehicle terminal is DC 9V—36V, and the recommended operating voltage is12V or 24V. Prior to installation, the user shall make sure if the power system 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℃ or lower than -40℃.

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, the equipment will, when the external power supply is cut off, 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.

11. Solutions to Common Failures

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

	3. Failure of the MPIP-618W main unit Solution: send it to the designated maintenance center for repair.

Warranty Card

User Name:
Contact Phone:
Contact Address:
Post:
Purchase time:
Device series NO.:
Agency and phone No.:
Note:

Please keep this card properly, for better service, and see below information.

Agency (stamp):

Repair record
Device Model:

Date	Reason and status record		Repair man	User
	Repair reason	Record		

Note: Agency should fill this card completely when repair.

12. Claim

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