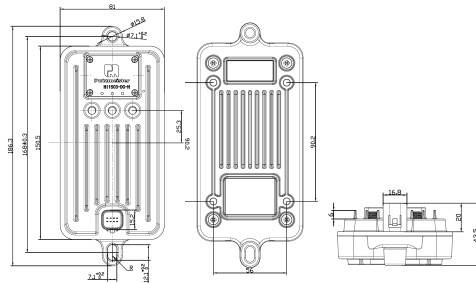


1. Product introduction

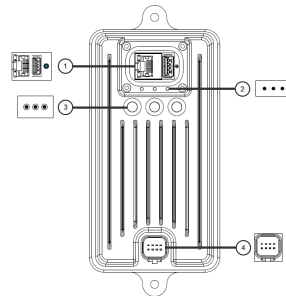
This product is designed for engineering vehicle.
Main function include: Operation data collection, control parameter download, GSP features and Irootech cloud communication.

2. Product specification



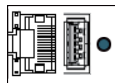
2.2 Product weight: 360g
(not include other accessories in packaging box)

3. Product connector



3.1 Connector instruction:

3.1.1 Area① : Debug Area



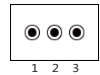
1. Internet
2. USB
3. Reset

3.1.2 Area② : LEDs Area



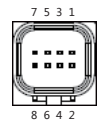
1. Power light Red : Normal working
2. Online or offline light: Green : Have connected with 4G
3. Data light: Green twinkle: Data is uploading or downloading

3.1.3 Area③ : Antennas Area



1. 4G Diversity antenna
2. GPS antenna
3. 4G Main antenna

3.1.4 Area④ : Data Connector Area



1. Power in +
2. Power in -
3. DI (Reserved)
4. D0 (Reserved)
5. CAN1 - L
6. CAN1 - H
7. CAN2 - L
8. CAN2 - H

4. HW parameter

Power Supply	9-36V DC
Power Consumption sleep mode	<5mA (24V)
Power Connector	TE 1411001-1
Load Dump	Protection automotive standard
Operating Temperature	-40℃~+85℃
Storage Temperature	-40 to 85℃
Cooling	No active cooling
Relative Humidity	10 ~ 95% RH @ 40° C, non-condensing
Network Access	4G Module FDD LTE: B2/B4/B12 WCDMA: B2/B4/B5
SIM	1 * SIM Chip
Communication	BLE 4.0
GNSS	GPS, Glonass, Beidou Cold start < 40s Hot Start <12s
CAN	2 * CAN bus 2 * ISO 11898-2 / -5
CAN Connector	TE 1411001-1
CPU	Freescale I.MX6UL ARM Cortex-A7 528MHz
Memory	DDR3L 128MB
Flash	eMMC FLASH 4G
Method to updating software	4G Network / USB port
Mechanical	Shock 400m/S ² IEC60068-2-27
IP Class	IP67
Antenna	External
Antenna Connector	SMA

EMClock	Real Time Clock
Encryption	TLS 1.2
LED Status	1 Power, 2* RG
OS	Linux
EMCC	CISPR25 ISO 11452-2

5. Antenna Characteristics

5.1 Antenna

Antenna model	DAS1595 (25*25*4mm)
Frequency Range	GPS: 1575.42MHz±1.02 MHz/B1:1561.098±2.046 MHz GLONASS: 1602MHz±6 MHz
V.S.W.R	1.5:1
Band Width	GPS: > 10 MHz / BD: > 10 MHz/ GLONASS: > 20MHz
Impedance	50 ohm
Gain	5dBic Based on 7×7cm ground plane
Polarization	RHCP

5.2 LNA

Frequency Range	GPS: 1575.42MHz±1.02 MHz/B1:1561.098±2.046 MHz GLONASS: 1602MHz±6 MHz
DC Voltage	3.3V
Gain	28dB
Output VSWR (MAX)	2.0
Noise Figure(MAX)	1.5
DC current(TPY)	9.0±3mA (3.3V)

5.3 LTE Antenna

Frequency Range	B2	B4	B5	B12
	1850-1910MHz	1710-1785MHz	824-849MHz	699-716MHz
V.S.W.R	3.5:1			
Impedance	50 ohm			
Gain	1.51dbi@700	0.46dbi@708	0.51dbi@716	
	-1.40dbi@824	-0.76dbi@836	-0.21dbi@848	
	0.83dbi@1710	1.55dbi@1746	1.65 dbi@1785	
	0.55dbi@1850	-0.68 dbi@1880	-1.43dbi@1910	
Polarization	linear			
Direction	Omni-directional			

6. SW function:

- 6.1 Support uploading Vehicle controller data to Irootech SAAS platform.
- 6.2 Support downloading control parameter from Irootech SAAS platform to vehicle controller.
- 6.3 It can save the operation data into flash if the T-box offline, and upload the saved data to SAAS platform when 4G resumed.
- 6.4 Support collecting the error code of vehicle controller.
- 6.5 Support OTA upgrade.
- 6.6 Support GPS located.

7. Certification

This product has passed FCC & CE, etc.

FCC STATEMENT :

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.

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

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

- Consult the dealer or an experienced radio/TV technician for help.

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.