MEITRACK Tire Pressure Sensor GPRS Protocol

Applicable Model: T333/T1

Change History

File Name	MEITRACK Tire Pressure Sensor GPRS Protocol	Created By	Kyle Lv
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Contents

1 Copyright and Disclaimer

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2 Tracker Command Format

$$<Data identifier><Data length>,<IMEI>,<Command type>,<Event code>,<(-)Latitude>,<(-)Longitude>,<Date and time>,<Positioning status>,<Number of satellites>,<GSM signal strength>,<Speed>,<Direction>,<Horizontal dilution of precision (HDOP)>,<Altitude>,<Mileage>,<Run time>,<Base station info>,<I/O port status>,<Analog input value><Geo-fence number>/<Assisted event info>,<Customized data>,<Extended protocol version>,<Fuel percentage>,<Temperature sensor 1 value|Temperature sensor 2 value|……Temperature sensor n value>,<Data of tire pressure sensor 1|Data of tire pressure sensor 2|……Data of tire pressure sensor n><*Checksum >\r\n

Note:

- A comma (,) is used to separate data characters. The character type is the American Standard Code for Information Interchange (ASCII). (Hexadecimal is represented as 0x2C.)
- Symbols "<" and ">" will not be present in actual data, only for documentation purpose only.
- All multi-byte data complies with the following rule: High bytes are prior to low bytes.
- The size of a GPRS data packet is about 160 bytes.

Descriptions about GPRS packets from the tracker are as follows:

Parameter	Description	Example
@@	Indicates the GPRS data packet header sent from the server to the tracker. The header type is ASCII. (Hexadecimal is represented as 0x40.)	@@
$$	Indicates the GPRS data packet header sent from the tracker to the server. The header type is ASCII. (Hexadecimal is represented as 0x24.)	$$
Data identifier	Contains 1 byte. The type is the ASCII, and its value ranges from 0x41 to 0x7A.	Q
Data length	Indicates the length of characters from the first comma (,) to \r\n. Decimal. Example: $$<*Data identifier*><*Data length*>,<*IMEI*>,<*Command type*>,<*Command*><**Checksum*>\r\n	25
IMEI	Indicates the tracker's IMEI number. The number	353358017784062

	type is ASCII. It has 15 digits generally.	
Command type	Hexadecimal	AAA
Event code	Decimal	1
Latitude (-)yy.dddddd	Unit: degree Decimal When a minus (-) exists, the tracker is in the southern hemisphere. When no minus (-) exists, the tracker is in the northern hemisphere. **yy** indicates the degree. **dddddd** indicates the decimal part.	22.756325 (indicates 22.756325°N) -23.256438 (indicates 23.256438°S)
Longitude (-)xxx.dddddd	Unit: degree Decimal When a minus (-) exists, the tracker is in the western hemisphere. When no minus (-) exists, the tracker is in the eastern hemisphere. **xxx** indicates the degree. **dddddd** indicates the decimal part.	114.752146 (indicates 114.752146°E) -114.821453 (indicates 114.821453°W)
Date and time yymmddHHMMSS	**yy** indicates year. **mm** indicates month. **dd indicates day**. **HH** indicates hour. **MM** indicates minute. **SS** indicates second. Decimal	091221102631 Indicates 21 December 2009, 10:26:31 am.
Positioning status	Indicates the GPS signal status. **A** = Valid **V** = Invalid	A The GPS is valid.
Number of satellites	Indicates the number of received GPS satellites. Decimal	5 Five GPS satellites are received.
GSM signal strength	Value: 0–31 Decimal	12 The signal strength is 12.
Speed	Unit: km/h Decimal	58 The speed is 58 km/h.
Direction	Indicates the driving direction. The unit is degree. When the value is **0**, the direction is due north. The value ranges from 0 to 359. Decimal	45: indicates that the location is at northeast. 90: indicates that the location is at due east.
HDOP	The value ranges from 0.5 to 99.9. The smaller the value is, the more the accuracy is. Decimal When the accuracy value is **0**, the signal is invalid. 0.5–1: Perfect 2–3: Wonderful	5 The HDOP is 5.

		4–6: Good 7–8: Medium 9–20: Below average 21–99.9: Poor	
Altitude		Unit: meter Decimal	118
Mileage		Unit: meter Decimal Indicates the total mileage. The maximum value is 4294967295. If the value exceeds the maximum value, it will be automatically cleared.	564870
Run time		Unit: second Decimal Indicates the total time. The maximum value is 4294967295. If the value exceeds the maximum value, it will be automatically cleared.	2546321
Base station info		The base station information includes: MCC|MNC|LAC|CI The MCC and MNC are decimal, while the LAC and CI are hexadecimal. Note: Base station information in an SMS is empty.	460|0|E166|A08B
I/O port status		Hexadecimal Status values of eight input ports and eight output ports: Bits 0–7 correspond to status of output ports 1–8. Bits 8–15 correspond to status of input ports 1–8.	0421 (hexadecimal) = 0000 0100 0010 0001
Analog input value		Separated by "|". Hexadecimal AD1|AD2|AD3|Battery analog|External power analog Voltage formula of analog AD (AD1, AD2, AD3, AD4, and AD5): AD/100	123|456|235|1456|222 (Hexadecimal)
Assisted event info	System flag	Contains 4 bytes; hexadecimal Bit 0: Whether to modify the EEP2 parameter. When the value is 1, the EEP2 parameter is modified. Bits 1–31: reserved. Only available by GPRS event code 35.	00000001 The EEP2 parameter is modified.
Customized data		Reserved A separator still exists.	
Extended protocol version		Decimal	4 The extended protocol version is 4.

Fuel percentage	Contains 4 hexadecimal characters. When the fuel level sensor type is **0**, the sensor is not connected and the value is empty.	0E2E The fuel percentage is 36.30%.
Temperature sensor No. + Temperature value	Contains 6 hexadecimal characters. The first two characters indicate the temperature sensor No. The last four characters indicate the temperature value (actual temperature x 100; including the integer and decimal parts; -327.67°C to +327.67°C).	011A09|021A15|06FB2E There are 3 temperature sensors. Temperature sensor 1: 66.65°C Temperature sensor 2: 66.77°C Temperature sensor 6: -12.34°C
Tire pressure sensor data	At most 64 tire pressure sensors are supported. Contains 18 hexadecimal characters. ● First two characters: indicates the installation location of a tire pressure sensor; 1 byte (2 characters). Bits 7–5: indicate the vehicle head or trailer. 000(B): vehicle head; 001(B): trailer 1; 010(B): trailer 2; 011(B): trailer 3; 100(B): trailer 4. Bits 4–0: indicate the tire number. For example, 00001(B), indicating the first tire. ● The 3rd to 10th characters: indicates a tire pressure sensor's ID number; 4 bytes (8 characters); unsigned. ● The 11th to 14th characters: indicates the tire pressure; 2 bytes (4 characters); formula: obtained value x 0.025; unit: bar. ● The 15th and 16th characters: indicates the tire temperature; 1 byte (2 characters); formula: obtained value – 50; unit: °C; unsigned. ● The 17th and 18th characters: indicates the tire status; 1 byte (2 characters); unsigned. Bit 7: indicates the battery voltage status of the transmitter. 0: normal voltage; 1: low voltage. Bit 6: Whether to receive data from the transmitter. If you do not receive data from the transmitter within 15 minutes, the parameter value will be reset to 1. Bit 5: reserved. Bit 4: When the value is 1, the air pressure is high. Bit 3: When the value is 1, the air pressure is	0A0012345602587801| 0B0012345702587801| 0C0012345802587801 There are 3 tire pressure sensors. Tire pressure sensor 1: ● 0A: The sensor is installed on the 10th tire of the vehicle head. ● 00123456: The tire pressure sensor ID is 0x00123456 (hexadecimal). ● 0258: The tire pressure is 15 bar. 0258 (hexadecimal) = 600 (decimal) 600 x 0.025 = 15 ● 78: The tire temperature is 70°C. 78 (hexadecimal) = 120 (decimal) 120 - 50 = 70 ● 01: A fast air leak alert is generated. Tire pressure sensor 2: ● 0B: The sensor is installed on the 11th tire of the vehicle head. ● 00123457: The tire pressure sensor ID is 0x00123457 (hexadecimal). ● 0258: The tire pressure is

	low. Bit 2: indicates temperature status. 1: high temperature; 0: normal temperature. Bits 1–0: indicates the alert status. 00: no alert; 01: fast air leak alert; 10: slow air leak alert; 11: tire inflation alert.	15 bar. 0258 (hexadecimal) = 600 (decimal) 600 x 0.025 = 15 ● 78: The tire temperature is 70°C. 78 (hexadecimal) = 120 (decimal) 120 - 50 = 70 ● 01: A fast air leak alert is generated. Tire pressure sensor 3: ● 0C: The sensor is installed on the 12th tire of the vehicle head. ● 00123458: The tire pressure sensor ID is 0x00123458 (hexadecimal). ● 0258: The tire pressure is 15 bar. 0258 (hexadecimal) = 600 (decimal) 600 x 0.025 = 15 ● 78: The tire temperature is 70°C. 78 (hexadecimal) = 120 (decimal) 120 - 50 = 70 ● 01: A fast air leak alert is generated.
*	Separates commands from checksums. 1 byte and ASCII (Hexadecimal is represented as 0x2A)	*
Checksum	2 bytes. The parameter indicates the sum of all data (excluding the checksum and ending mark). It is a hexadecimal character. Example: $$<*Data identifier*><*Data length*>,<*IMEI*>,<*Command type*>,<*Command*><**Checksum*>\r\n	BE
\r\n	2 bytes. The parameter is an ending character. The type is ASCII. (Hexadecimal value: 0x0d 0x0a)	\r\n

3 Command Details

3.1 Obtaining All Alert Parameters of a Tire Pressure Sensor – DA0

GPRS Sending	DA0
GPRS Reply	DA0,*<High pressure threshold of the first axle><Low pressure threshold of the first axle><High pressure threshold of the second axle><Low pressure threshold of the second axle><High pressure threshold of the third axle><Low pressure threshold of the third axle><High pressure threshold of the fourth axle><Low pressure threshold of the fourth axle><High pressure threshold of the trailer><Low pressure threshold of the trailer><High temperature threshold>*
Description	High pressure threshold of the first axle: hexadecimal; unsigned; 1 byte; formula: obtained value/10; unit: bar. Low pressure threshold of the first axle: hexadecimal; unsigned; 1 byte; formula: obtained value/10; unit: bar. High pressure threshold of the second axle: hexadecimal; unsigned; 1 byte; formula: obtained value/10; unit: bar. Low pressure threshold of the second axle: hexadecimal; unsigned; 1 byte; formula: obtained value/10; unit: bar. High pressure threshold of the third axle: hexadecimal; unsigned; 1 byte; formula: obtained value/10; unit: bar. Low pressure threshold of the third axle: hexadecimal; unsigned; 1 byte; formula: obtained value/10; unit: bar. High pressure threshold of the fourth axle: hexadecimal; unsigned; 1 byte; formula: obtained value/10; unit: bar. Low pressure threshold of the fourth axle: hexadecimal; unsigned; 1 byte; formula: obtained value/10; unit: bar. High pressure threshold of the trailer: hexadecimal; unsigned; 1 byte; formula: obtained value/10; unit: bar. Low pressure threshold of the trailer: hexadecimal; unsigned; 1 byte; formula: obtained value/10; unit: bar. High temperature threshold: hexadecimal; unsigned; 1 byte; formula: obtained value – 50; unit: °C.
Example	
GPRS Sending	@@Q25,863835020877432,DA0*72\r\n
GPRS Reply	$$Q90,863835020877432,DA0,020800100000000000004576*46\r\n

3.2 Obtaining Data of All Bound Tire Pressure Sensors – DA1

GPRS Sending	DA1
GPRS Reply	DA1,*<Location 1><ID1><Tire pressure 1><Temperature 1><Status 1>……<Location n><IDn><Tire pressure n><Temperature n><Status n>*
Description	● Location: indicates the installation location of a tire pressure sensor; 1 byte;

	unsigned; hexadecimal. Bits 7–5: indicate the vehicle head or trailer. 000(B): vehicle head; 001(B): trailer 1; 010(B): trailer 2; 011(B): trailer 3; 100(B): trailer 4. Bits 4–0: indicate the tire number. For example, 00001(B), indicating the first tire. ● ID: indicates a tire pressure sensor's ID number; 4 bytes; unsigned; hexadecimal. ● Tire pressure: 2 bytes; unsigned; hexadecimal; formula: obtained value x 0.025; unit: bar. ● Temperature: indicates the tire temperature; 1 byte; unsigned; hexadecimal; formula: obtained value – 50; unit: °C. ● Status: indicates the tire status; 1 byte; unsigned; hexadecimal. Bit 7: indicates the battery voltage status of the transmitter. 0: normal voltage; 1: low voltage. Bit 6: Whether to receive data from the transmitter. If you do not receive data from the transmitter within 15 minutes, the parameter value will be reset to 1. Bit 5: reserved. Bit 4: When the value is 1, the air pressure is high. Bit 3: When the value is 1, the air pressure is low. Bit 2: indicates temperature status. 1: high temperature; 0: normal temperature. Bits 1–0: indicates the alert status. 00: no alert; 01: fast air leak alert; 10: slow air leak alert; 11: tire inflation alert. Note: At most 64 tire pressure sensors are supported. In other words, the maximum value of *n* is 64.
Example	
GPRS Sending	@@Q25,863835020877432,DA1*82\r\n
GPRS Reply	$$Q90,863835020877432,DA1,020800100000000000000711010000000000000061001000000000000050101000000000000040001000000000000031100000000000000010185A000000BC*46\r\n

3.3 Obtaining Data of a Tire Pressure Sensor – DA2

GPRS Sending	DA2,*Location*
GPRS Reply	DA2,<*Location*><ID><*Tire pressure*><*Temperature*><*Status*>
Description	● Location: indicates the installation location of a tire pressure sensor; 1 byte; unsigned; hexadecimal. Bits 7–5: indicate the vehicle head or trailer. 000(B): vehicle head; 001(B): trailer 1; 010(B): trailer 2; 011(B): trailer 3; 100(B): trailer 4. Bits 4–0: indicate the tire number. For example, 00001(B), indicating the first tire. ● ID: indicates a tire pressure sensor's ID number; 4 bytes; unsigned; hexadecimal. ● Tire pressure: 2 bytes; unsigned; hexadecimal; formula: obtained value x 0.025; unit: bar. ● Temperature: indicates the tire temperature; 1 byte; unsigned; hexadecimal; formula: obtained value – 50; unit: °C. ● Status: indicates the tire status; 1 byte; unsigned; hexadecimal.

	Bit 7: indicates the battery voltage status of the transmitter. 0: normal voltage; 1: low voltage. Bit 6: Whether to receive data from the transmitter. If you do not receive data from the transmitter within 15 minutes, the parameter value will be reset to 1. Bit 5: reserved. Bit 4: When the value is 1, the air pressure is high. Bit 3: When the value is 1, the air pressure is low. Bit 2: indicates temperature status. 1: high temperature; 0: normal temperature. Bits 1–0: indicates the alert status. 00: no alert; 01: fast air leak alert; 10: slow air leak alert; 11: tire inflation alert.
Example	
GPRS Sending	@@g27,863835020877432,DA2,01*C8\r\n
GPRS Reply	$$g35,863835020877432,DA2,010185R000000K@*F2\r\n

3.4 Deleting Tire Pressure Sensors – DA3

GPRS Sending	DA3,<*Location 1*>……<*Location n*>
GPRS Reply	DA3,<*Location 1*>……<*Location n*>,OK
Description	Location: indicates the installation location of a tire pressure sensor; 1 byte; unsigned; hexadecimal. Bits 7–5: indicate the vehicle head or trailer. 000(B): vehicle head; 001(B): trailer 1; 010(B): trailer 2; 011(B): trailer 3; 100(B): trailer 4. Bits 4–0: indicate the tire number. For example, 00001(B), indicating the first tire. Note: 1. The maximum value of *n* is 64. 2. If the command is sent successfully, the installation locations of deleted tire pressure sensors will be received.
Example	
GPRS Sending	@@i27,863835020877432,DA3,0A*22\r\n
GPRS Reply	$$i34,863835020877432,DA3,0A,OK*56\r\n

3.5 Obtaining Data of Multiple Tire Pressure Sensors – DA4

GPRS Sending	DA4,<*Location 1*><ID1>……<*Location n*><ID*n*>
GPRS Reply	DA4,<*Location 1*><ID1>……<*Location n*><ID*n*>,OK
Description	● Location: indicates the installation location of a tire pressure sensor; 1 byte; unsigned; hexadecimal. Bits 7–5: indicate the vehicle head or trailer. 000(B): vehicle head; 001(B): trailer 1; 010(B): trailer 2; 011(B): trailer 3; 100(B): trailer 4. Bits 4–0: indicate the tire number. For example, 00001(B), indicating the first tire. ● ID: indicates a tire pressure sensor's ID number; 4 bytes; unsigned; hexadecimal. Note: 1. At most 64 tire pressure sensors are supported. In other words, the maximum

	value of *n* is 64. 2. If the command is sent successfully, the installation locations and ID numbers of bound tire pressure sensors will be received.
Example	
GPRS Sending	@@\31,863835020877432,DA4,9800100100*62\r\n
GPRS Reply	$$\59,863835020877432,DA4,0210000000!0100000080010010C11000000980010010 0010185R00,OK*A4\r\n

3.6 Setting Alert Thresholds of a Tire Pressure Sensor – DA5

GPRS Sending	DA5,*<High pressure threshold of the first axle><Low pressure threshold of the first axle><High pressure threshold of the second axle><Low pressure threshold of the second axle><High pressure threshold of the third axle><Low pressure threshold of the third axle><High pressure threshold of the fourth axle><Low pressure threshold of the fourth axle><High pressure threshold of the trailer><Low pressure threshold of the trailer><High temperature threshold>*
GPRS Reply	DA5,OK
Description	High pressure threshold of the first axle: hexadecimal; unsigned; 1 byte; formula: obtained value/10; unit: bar. Low pressure threshold of the first axle: hexadecimal; unsigned; 1 byte; formula: obtained value/10; unit: bar. High pressure threshold of the second axle: hexadecimal; unsigned; 1 byte; formula: obtained value/10; unit: bar. Low pressure threshold of the second axle: hexadecimal; unsigned; 1 byte; formula: obtained value/10; unit: bar. High pressure threshold of the third axle: hexadecimal; unsigned; 1 byte; formula: obtained value/10; unit: bar. Low pressure threshold of the third axle: hexadecimal; unsigned; 1 byte; formula: obtained value/10; unit: bar. High pressure threshold of the fourth axle: hexadecimal; unsigned; 1 byte; formula: obtained value/10; unit: bar. Low pressure threshold of the fourth axle: hexadecimal; unsigned; 1 byte; formula: obtained value/10; unit: bar. High pressure threshold of the trailer: hexadecimal; unsigned; 1 byte; formula: obtained value/10; unit: bar. Low pressure threshold of the trailer: hexadecimal; unsigned; 1 byte; formula: obtained value/10; unit: bar. High temperature threshold: hexadecimal; unsigned; 1 byte; formula: obtained value – 50; unit: °C.
Example	
GPRS Sending	@@l37,863835020877432,DA5,FF0000FFFFFF00000F19d*58\r\n
GPRS Reply	$$l31,863835020877432,DA5,OK*BC\r\n

If you have any questions, do not hesitate to email us at info@meitrack.com.