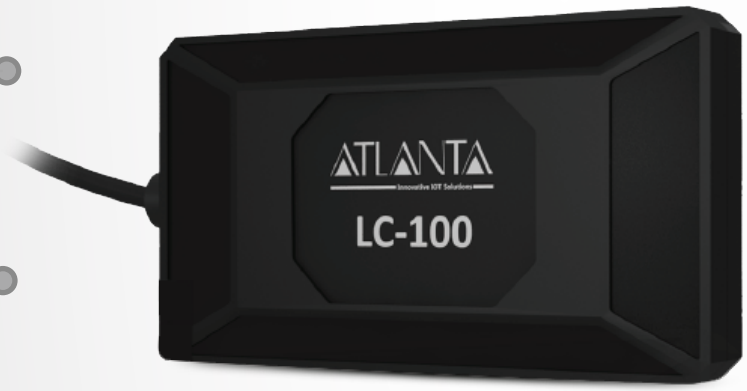
VEHICLE TRACKER

ATLANTA
Innovative IOT Solutions

LC-100
PROTOCOL

Vehicle Immobilization

GSM



Battery

GNSS

ATLANTA SYSTEMS PVT. LTD.

+91 9990333888 / +91-11-49039700(100 Lines) enquiry@atlantasys.com www.atlantasys.com

M-135, 2nd Floor, Connaught Place, New Delhi - 110001

Telematics | IOT and Industrial IOT | Electric Vehicle Solutions | ADAS & DMS Solutions | Smart City Solutions

SL#	Version	Prepared by	Date
1	VTS_LC_V3.1	Vijith V.Nair	05/07/2022

Protocol

0×20START CHARATERSIGNATUREIMEI,GPS DATA($GPRMC STRINGS) (80 CHAR)$LOC,LOCATION NAME, #I1I2I3I4I5I6I7I8I9I10I11I12I13I14, ADC value(2Sg),1-wire,I-button,ODO READING(7Sg),On-BoardTemp., internal battery voltage(3Sg),GSM signal strength(%2),MCC(3 digit),MNC(3 digit),LAC(6 char),CellID(5Digits) SIGNATURE END CHARACTER Checksum

Example

- Live Data

0×200×01ATL356895037533745,$GPRMC,111719.000,A,2838.0045,N,07713.3707,E,0.00,,120810,,,A*75$,
#01100111001010,6.5,0,0,12345.67,24.4,4.2,21,MCC,MNC,LAC,CellIDATL0×020×7A

- Memory Data

0×200×03ATL356895037533745,$GPRMC,111719.000,A,2838.0045,N,07713.3707,E,0.00,,120810,,,A*75,
#01100101101010,6.5,0,0,12345.67,24.4,4.2,21,MCC,MNC,LAC,CellIDATL0×040×7A

- Bulk Packets

0×200×01ATL356895037533745,$GPRMC,111719.000,A,2838.0045,N,07713.3707,E,0.00,,120810,,,A*75$,
#01100111001010,6.5,0,0,12345.67,24.4,4.2,21,MCC,MNC,LAC,CellIDATL0×020×7A
0×200×01ATL356895037533745,$GPRMC,111719.000,A,2838.0045,N,07713.3707,E,0.00,,120810,,,A*75$,
#01100111001010,6.5,0,0,12345.67,24.4,4.2,21,MCC,MNC,LAC,CellIDATL0×020×7A
0×200×01ATL356895037533745,$GPRMC,111719.000,A,2838.0045,N,07713.3707,E,0.00,,120810,,,A*75$,
#01100111001010,6.5,0,0,12345.67,24.4,4.2,21,MCC,MNC,LAC,CellIDATL0×020×7A
0×200×01ATL356895037533745,$GPRMC,111719.000,A,2838.0045,N,07713.3707,E,0.00,,120810,,,A*75$,
#01100111001010,6.5,0,0,12345.67,24.4,4.2,21,MCC,MNC,LAC,CellIDATL0×020×7A

Protocol Description

The protocol is having the following parts

- 0×20
- Starting character
- Signature of protocol
- IMEI number of device
- GPRMC strings
- Alerts
- Signature
- End character
- Checksum

0×20	Fixed(Space)
0×01/0×03	Starting Character of protocol (0x01 - For Live Data, 0x03 - For Memory Data)
ATL	Signature of the Protocol
56895037533745	IMEI -15 CHAR

• $GPRMC- GPS DATA (66 CHAR)

This section relates to GPS Data. $GPRMC string contains 13 fields, which are as follows:

$GPRMC,220516,A,5133.82,N,00042.24,W,173.8,231.8,130694,004.2,W,A*70

Info	Description
$GPRMC	Fixed
220516	TIME STAMP (GMT)
A	VALIDITY A- VALID, V - INVALID
5133.82	CURRENT LATITUDE
N	NORTH/SOUTH(S)
00042.24	CURRENT LOGITUDE
W	WEST /EAST(E)
173.8	SPEED IN KNOTS
231.8	TRUE COURSE
130694	DATE STAMP (DDMMYY)
004.2	MAGNETIC VARIATION DEGREE
W	WEST/ EAST(E) of magnetic variation
A	Mode indicator, (A=Autonomous, D=Differen al, E=Es mated,
	N=Data not valid)
*70	CHECKSUM

• ALERTS

This section relates to GPS Data. $GPRMC string contains 13 fields, which are as follows:

,#0110010011101,6.5,2345,0,12345.67,24.4,4.2,21,MCC,MNC,LAC,Cell ID

1 2 3 4 5 6 7 8 9 10 11 12 13

S.No.	Value	Description
1	#	FIXED
2	11011001001010	STATUS OF VARIOUS I/O FROM I1 to I14
3	6.5	ADC Voltage
4	0	1-Wire temperature reading *
5	0	I-bu on data *
6	12345.90	ODOMETER READING
7	24.4	ON-Board temp./Device Version
8	4.2	Device internal ba ery voltage
9	21	GSM signal Strength
10	MCC	Mobile country code[3 digits]
11	MNC	Mobile Network Code[3 digits]
12	LAC	Loca on area code(Mobile)[6 digits]
13	Cell Id	GSM cell ID[5 digits]

Note:- In field number 7 there may be two different values in protocol.

1. Temperature of module OR

2. Firmware version _mobile no. (if mobile number is not available, the IMSI number would come)

• ATL Signature

• 0×02/0×04 End Charactor (0x02 - For Live Data, 0x04 - For Memory Data)

• 0×7A Checksum

Note:-

- The start character and end character are ASCII in protocol need to convert to hex.
- The checksum is ASCII in protocol need to convert to hex.
- If checksum is FF read it as FF/1B/1A/00, due to some data sending limitation we cannot send 1B,1A and 00. So adjust the same at server end

ATLANTA
Innovative IOT Solutions

Checksum Calculating Method:

```
Void chksum_gprs(char * ptr)
{
        unsignedint i = 0;
        charchksum=0;
        for(i=0;i<1000 && *ptr != 0x00;i++)
        {
                chksum ^= *ptr++;
        }
        If (chksum == (char) 0X1B || (chksum == (char) 0X1A) || (chksum == (char) 0X00))
        chksum = 0XFF;
        return(chksum);
}
```

Note:- For all Data Packets, at last you would get
Checksum of all bytes in packet between starting character and end character (including both starting character and end character)

Input Details

Inputs	Use	Description
I1	High Sense	Ignition, 0=OFF&1=ON
I2	Low sense	Reserved for future use
I3	Low sense	SOS
I4	Low sense	Reserved for future use
I5	Low sense	Reserved for future use
I6	High Sense	Reserved for future use
I7	Low sense	Reserved for future use
I8	High Sense	Main Power(Fixed), 0=OFF and 1=ON
I9	Harsh speeding	0=normal, 1=HA
I10	Harsh braking	0=normal
I11	ARM/DIASRM	1=ARM & 0=DISARM
I12	Over Speed	0 =Normal, 1=Over Speed
I13	General relay status	Reserved for future use
I14	Status of accelerometer	1=In motion& 0= Not in motion

Input Details

The format for GPRS command would be
$MSG,Command,&

S.No.	Field	Description
1	$MSG	Fixed header of command
2	Command	Command to device
3	&	End field

ATLANTA
Innovative IOT Solutions

Sample Command

GPRS command to check Version is

$MSG,VERSION<6906>&

Note:-

1. The protocol structure is for standard hardware, some hardware may not have the values for all field.
2. The L100 hardware supports only one 1-wire port, so either temperature or i-button would work at a time.
3. Please refer user manual of product for commands.
4. LC100 devices will send data as a bulk packet when there are multiple data packets available in memory. The bulk packet would contain multiple packets with same protocol format including start character, end character and checksum. The bulk packet may contain maximum of 6 individual packets.