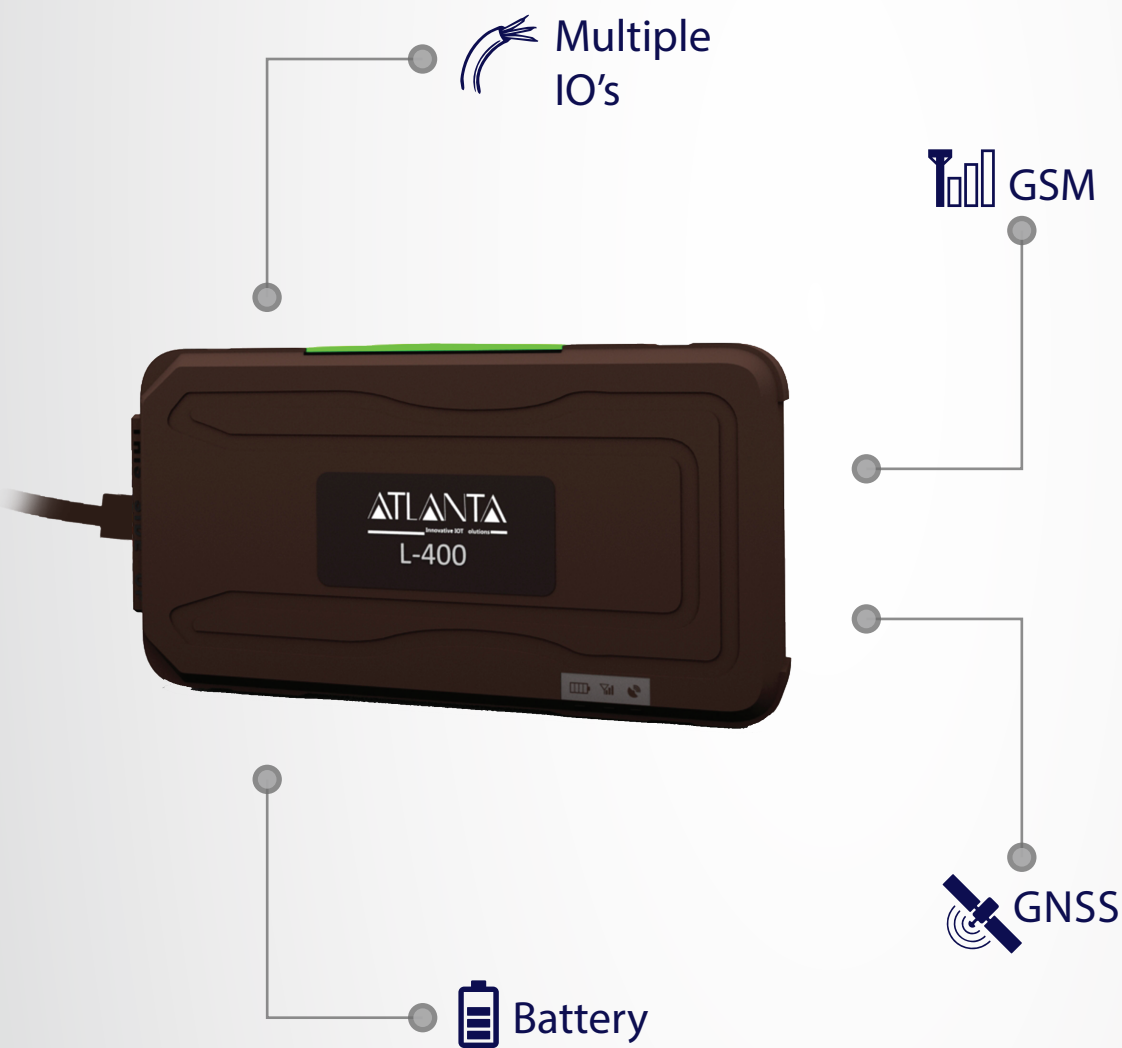


L-400

PROTOCOL



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SL#	Version	Prepared by	Date
1	VTS_GPRS_L4_V1.0	Vijith V.Nair	24/12/2021

Protocol

0x20START CHARATERSIGNATUREIMEI,GPS DATA(\$GPRMC STRINGS) (80 CHAR)\$LOC,LOCATION NAME,#1112I3I4I5I6I7I8I9I10I11I12I13I14, ADC1 value, ADC2 value,1-wire,ODO READING(7Sg), Internal battery voltage,GSM signal strength,MCC,MNC,LAC,CellID,SIGNATURE END CHARACTER Checksum

Example :-

- Live data

```
0x200x01ATL356895037533745,$GPRMC,111719.000,A,2838.0045,N,07713.3707,E,0.00,,120810,,,A*75$,#01100111001010,6.5,0,0,12345.67,24.4,4.2,21,MCC,MNC,LAC,CellIDATL0x020x7A
```

- Memory data

```
0x200x03ATL356895037533745,$GPRMC,111719.000,A,2838.0045,N,07713.3707,E,0.00,,120810,,,A*75$,#01100101101010,6.5,0,0,12345.67,24.4,4.2,21,MCC,MNC,LAC,CellIDATL0x040x7A
```

Protocol Description

The protocol is having the following parts

- 0x20
 - Starting character
 - Signature of protocol
 - IMEI number of device
 - GPRMC strings
 - Alerts
 - Signature
 - End character
 - Checksum
-
- 0x20----Fixed(Space)
 - 0x01/0x03 ----Starting Character of protocol
0x01—for live data and 0x03---for Memory data
 - ATL ---Signature of the Protocol
 - 356895037533745 - IMEI -15 CHAR
 - \$GPRMC - GPS DATA -66 CHAR

THIS SECTION RELATES TO GPS DATA. \$GPRMC STRING CONTAINS 13 FIELDS, WHICH ARE AS FOLLOWS:

- \$GPRMC - GPS DATA -66 CHAR

\$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=Differential, E=Estimated, N=Data not valid)
*70	CHECKSUM

• ALERTS

THIS SECTION RELATES TO VARIOUS ALERTS RAISED ON THE BASIS OF SYSTEM STATUS.

#0110010011101,6.5,2345,0,12345.67,4.2,21,MCC,MNC,LAC,CellID
 1 2 3 4 5 6 7 8 9 10 11 12

Sl.No.	Value	Description
1	#	FIXED
2	11011001001010	STATUS OF VARIOUS I/O FROM I1 to I14
3	6.5	ADC1 Voltage
4	0	ADC2 Voltage
5	0	1-Wire data*
6	12345.90	ODOMETER READING
7	4.2	Device internal battery voltage
8	21	GSM signal Strength
9	MCC	Mobile country code[3 digits]
10	MNC	Mobile Network Code[3 digits]
11	LAC	Location area code(Mobile)[6 digits]
12	CellId	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
- 0x02/0x04 -----end character
- 0x02 -----for live data and 0x04 -----for memory data
- 0x7A-----check sum

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 1B, due to some data sending limitation we cannot send 1B. So adjust the same at server end.

Checksum Calculating Method :-

```
voidchksum_gprs(char * ptr)
{
  unsignedint i = 0;
  charchksum=0;
  for(i=0;i<1000 && *ptr != 0x00;i++)
  {
    chksum ^= *ptr++;
  }
  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	Door
I3	Low sense	SOS
I4	Low sense	Reserved for future use
I5	Low sense	Reserved for future use
I6	High Sense	A/C , 0=OFF and 1=ON
I7	Low sense	Reserved for future use
I8	High Sense	Main Power(Fixed), 0=OFF and 1=ON
I9	Harsh speeding	0=normal
I10	Harsh braking	0= normal
I11	ARM/DIASRM	1=ARM & 0=DISARM
I12	Sleep Status	1=Not in Sleep & 0= in Sleep
I13	General relay status	Reserved for future use
I14	Status of accelerometer	1=In motion& 0= Not in motion

GPRS Commanding

The format for GPRS command would be

\$MSG,Command&

Sl.No.	Content	Discription
1	\$MSG	Fixed header of command
2	Command	Command to device
3	&	End field

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.