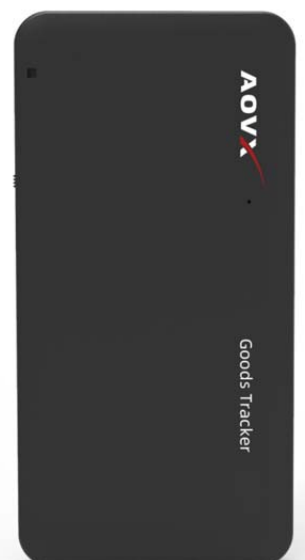


WE TRACK AND
PROTECT YOUR **ASSETS**



Assets Tracker Cloud Platform Protocol G Series



V1.1

www.aovx.com

History

Revision	Date	Author	Description
V1.0	2020-10-13	Lee	Initial
V1.1	2021-9-13	Lee	Upgrade

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1 Device Report Data

1.1 Communication Protocol

TCP

1.2 Data Report Format (JSON)

```
{  
  
  "type": "A",  
  
  "time": "20/08/31 14:46:59",  
  
  "IMEI": "1234567890",  
  
  "ICCID": "11223344556677",  
  
  "signal quality": "23",  
  
  "locate mode": "LBS",  
  
  "lat": "23.45678",  
  
  "lon": "23.34578",  
  
  "speed": "1.23",  
  
  "light": "123",  
  
  "light status": "Open",  
  
  "motion status": "Motion",  
  
  "x": "0.000000",  
  
  "y": "-0.062500",  
  
  "z": "-1.000000",  
  
  "battery": "98"  
}
```

Note: When DM is set to data mode, device won't be positioned. Then the following parameter will be set as below:

"locate mode": "Unfix",

"lat": "0.000000",

"lon": "0.000000",

"speed": "0.00",

1.3 Parameters Description

Parameter	Detail	Value/Format	Note
type	Device type	A	A Series Tracker
time	Date&time	YY/MM/DD HH:MM:SS	
IMEI	Device IMEI		
ICCID	SIM ICCID		
Signal quality	Signal quality	0-31, 99 represents no signal	0-31, the larger the signal, the better.
Locate Mode	Locate Mode	LBS: Base station positioning GNSS: Beidou or GPS positioning WIFI: WIFI positioning BT: BT positioning Unfix: unfixed	If position is unfixed, longitude, latitude and speed will be 0. In data mode, this parameter is set to "Unfix".
lat	Latitude	Latitude(+: north, -: south)	In data mode, this parameter is set to

			“0”
lon	Longitude	Longitude(+: east, -: west)	In data mode, this parameter is set to “0”
speed	Speed	Km/h	1 Capture in BD/GPS mode 2 In data mode, this parameter is set to “0”
Light	Light	Lux	
Light Status	Light Status	Open/Close	Open(disassemble)/Close(installation)
Motion Status	Motion Status	Motion/Motionless	Motion/Motionless/Crash
Battery	Battery	1-100	101 represents charging
x	X-axis acceleration		Unit: g
y	Y-axis acceleration		Unit: g
z	Z-axis acceleration		Unit: g

2 Configurable Parameters

2.1 Configurable Parameters List

Parameters	Detail	Value	Default	Note
IP	Server IP	length≤100	139.196.47.170	①
Com	Server Com	1-65535	9501	
APN	APN	length≤50		②

AUN	APN Username	length≤50		
APD	APN Password	length≤50		
RP	Reporting Period	>0s	3600s	③
SP	Sampling Period	>0s	600s	
MT	Motion Time	>0s	60s	④
MC	Motion Count	>0	10 次	
MLT	Motionless Time	>0s	1800s	
LL	Light limit	0.01~ 83k (Lux)	50lux	⑤
GR	Gravity range	2:±2g 4:±4g 8:±8g 16:±16g	±4g	⑥
MDS	Motion Detection Sensitivity	high in low	中	⑦
LM	locate mode	0:GNSS>WIFI>LBS S 1:WIFI>LBS>GNSS S	0	⑧
GNSS	GNSS Switch	0: off 1: on	1	⑨
WiFi	WiFi Switch	0: off	1	

		1: on		
LBS	LBS Switch	0: off 1: on	1	
DM	Data Mode	0: data mode 1: locate mode	1	

Example:

【configure IP、Com locally】

Send: [SMSCFG]IP:111.222.333.444;Com:8080;

Return: Succeed !

【query locally】

send: [SMSQUERY]

return:

IP:fanhua.qicp.vip;

Com:32319;

APN;;

AUN;;

APD;;

RP:3600

SP:600;

T_Max:80;

T_Min:0;

H_Max:100;

H_Min:0;

LL:1;

GR:1;

LM:1;

GNSS:1;

WIFI:1;

LBS:1;

2.2 Configuration Method and Protocol

Method	Flag	
	Configure	Query
local	LOCALCFG	LOCALQUREY
Server	SERVERCFG	SERVERQUREY

2.2.1. Basic Format of Parameter Configuration (must be English characters).

Parameter name: parameter value.

2.2.2. Parameter Configuration Description

Examples:

【configure locally: IP、Com】

send: [LOCALCFG]IP: 111.222.333.444; Com: 8080;

echo: LOCALCFG Succeed!

【configure locally: IP、 Com、 sampling period】

send: [LOCALCFG]IP:111.222.333.444;Com:8080;SP:1000;

echo: LOCALCFG Succeed!

【query locally】

send: [LOCALQUERY]

echo:

DeviceSeries:G;DeviceType:GM95;SoftVersion:V1.5_2021/5/20_Bate;HardVersion:V2.0;IP:139.196.47.170;
Com:9501;APN::AUN::APD::RP:3600;SP:600;T_Max:80;T_Min:0;H_Max:80;H_Min:0;LL:50;GR:4;MDS:240;H
GT:170;LM:0;GNSS:1;WIFI:0;LBS:1;DM:1;

3 Equipment Test Mode

3.1 Communication Port

Serial port (115200, 8-bit data bit, 1-bit stop bit, no verification, no flow control).

3.2 Test command

Enter or exit test mode: [MODELTESTMODE]

Command echo:

Enter test mode: [Enter Model Test Mode]

Exit test mode: [Exit Model Test Mode]

3.3 Data Output Format

Error Code	Detail	Normal Criterion	Unit
10001	Abnormal communication of light sensor	Chip ID = 3001	
10002	Sensor occlusion	Result>50	Lux
10006	Abnormal communication of three-axis sensor	Chip ID = F9	
10007	Abnormal triaxial measurement	$-2 < (\text{Accd_X} + \text{Accd_Y} + \text{Accd_Z}) < 2$	g
10008	Abnormal charging detection	Battery = 101	%
10009	Abnormal battery voltage detection	$3200 < \text{Battery_Vlotage} < 4400$	mV
10010	MCU voltage detection abnormality	$3250 < \text{MCU_Vlotage} < 3350$	mV
10011	Abnormal charging voltage detection	$4500 < \text{Charging_Vlotage} < 5500$	mV
10012	GPS communication abnormality	The GPS has NMEA statement output	
10013	Cat1 communication abnormality	Cat1_IMEI	
10014	SIM card identification exception	SIM_IMEI	

3.4 Output Example

-----[OPT3001]-----

ChipID:3001

Result:4028

Statue:Open

-----[HDC2080]-----

ChipID:FFFF

Temperature:125.0 °C

Humidity:100.0

[error:10003]

[error:10004]

[error:10005]

-----[BMA250E]-----

ChipID:F9

Accd_X:-0.12

Accd_Y:-0.19

Accd_Z:0.94

-----[POWER]-----

Battery:101

Battery_Vlotage:4275

MCU_Vlotage:3307

Charging_Vlotage:5009

-----[GPS]-----

[GPS Normal]

-----[CAT1]-----

Cat1_IMEI:868540050913223

SIM_IMEI :460115468146123

4 Wireless Module Debug Mode

4.1 Communication Port

Debug Serial port: 115200, 8 data bits, 1 stop bit, no parity, no flow control

4.2 Test Command

enter\exit test mode: [WIRELESSDEBUGMODE]

response:

enter: [Enter Wireless Debug Mode]

exit: [Exit Wireless Debug Mode]

open: [OPEN CAT1]

close: [CLOSE CAT1]

4.3 Test Response

In this mode, the serial port data is transmitted through, and the wireless communication module can be debugged directly by using the USB data line direct connection equipment.

Please refer to the *Module at instruction manual*.

5 Other Instructions

Operation	Instructions	Response	Note
Get device information	Get Device Info.	Device Series:A; DeviceType:A42; SoftVersion:V1.2.1_2021/1/14; HardVersion:V1.3;	
Open CAT1send printf	Cat1PrintfEnable	Cat1Printf Enable	
Close CAT1send printf	Cat1PrintfDisable	Cat1Printf Disable	
Open GPS send printf	GPSPrintfEnable	GPSPrintf Enable	
Open GPS send printf	GPSPrintfDisable	GPSPrintf Disable	
Open Debug send printf	DebugPrintfEnable	DebugPrintf Enable	
Open Debug send printf	DebugPrintfDisable	DebugPrintf Disable	
Open MCU send printf	MCUPrintfEnable	MCUPrintf Enable	
Opemd MCU send printf	MCUPrintfDisable	MCUPrintf Disable	

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