GPS-server TCP/UDP protocol 1.0

This is a simple dynamic parameter protocol developed by our team, it can be used by any device manufacturer as a base to develop device communication between device and server.

Protocol format

$gs;imei;event;date;time;latitude;longitude;altitude;angle;speed;gps_status;gps_satellites;gsm_level;hdop;io1;io2;io(n)#

Field name	Description
$gs	Message header
imei	Device IMEI number
event	Event type (see “Event types” table below)
date	Date in 0 UTC time zone YYYYMMDD format
time	Time in 0 UTC time zone and HHMMSS format
latitude	Latitude in DD.MMMMMM format
longitude	Longitude in DD.MMMMMM format
altitude	Altitude in meters
angle	Angle in degree
speed	Speed in km/h
gps_status	GPS signal status, 1 is valid and 0 is invalid
gps_satellites	Number of GPS satellites
gsm_level	GSM signal strength
hdop	Horizontal dilution of precision
io1	Custom assignable parameter field, for example can be used for digital input/output, analog input or any other data. In GPS server platform it will appear as “io1” parameter.
io2	Custom assignable parameter field, for example can be used for digital input/output, analog input or any other data. In GPS server platform it will appear as “io2” parameter.
io(n)	Dynamic custom assignable parameter field(s), it is allowed to assign up to 128 parameter fields. In GPS server platform it will appear as “io(n)” parameter. Where “(n)” it is field number.
#	Message end

Event types

Event type	Description
sos	When SOS button pressed
bracon	Bracelet on or handcuffs are fastened
bracoff	Bracelet off or handcuffs are opened
dismount	GPS device dismount
disassem	GPS device disassembled
door	Door opened
mandown	When lies on the ground, used to monitor people body position
shock	GPS device shake
tow	Object movement with turned off ignition
pwrcut	GPS device power leads were disconnected
gpscut	GPS antenna is cut, not connected or broken
jamming	When GSM/GPS signal jamming detected
lowdc	When DC voltage is too low
lowbat	If too low battery voltage
haccel	GPS device detects sudden object acceleration
hbrake	GPS device detects sudden object braking
hcorn	GPS device detects sudden object cornering

Examples

Location, battery voltage and four digital inputs
$gs;123456789012345;null;20221101;103000;54.687046;25.282911;100;90;0;1;15;10;0.5;4.3;1;0;0;0#

Location, low battery event, battery voltage and two analog inputs

$gs;123456789012345;lowbat;20221101;103000;54.687046;25.282911;100;90;0;1;15;10;0.5;4.3;12.5;13.4#

No valid location, one digital input and one analog input

$gs;123456789012345;null;20221101;103000;0;0;0;0;0;0;0;10;0.5;1;12.5#

No valid location, SOS event, two digital inputs, two digital outputs and two analog inputs

$gs;123456789012345;sos;20221101;103000;0;0;0;0;0;0;0;10;0.5;1;0;0;0;12.5;13.4#