

HCP
communication products

Hunter
GPS/GPRS



Hunter GPS/GPRS terminal
- communication protocol -



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Communication

Description: HCP Hunter terminal communicates with server via GPRS based on simple TCP/IP connection on predefined IP (number and port). All data from Hunter are stored in packets (explained below) which device sends to server in one transaction. On every sent transaction device expects acknowledge (confirmation) from server that data is accepted safely.

Hunter in one transaction can send one or more packet of data, for that reason there are two different scenarios of sending data to server.

Scenario 1: Hunter sends only one packet and server backs ACK for that packet.

Scenario 2: Hunter sends first one byte which defines number of packets which will be sent in transaction and then sends that number of packets. Server must return ACK for this transaction what means that all packets are accepted.

In order to distinguish what kind of packet has been sent server must check first byte of packet. For scenario 1 first byte will be in range from 30 up to 200, while for scenario 2 first byte will be in range from 2 up to 20.

NEW CONNECTION:

At the beginning of every new TCP connection HCP Hunter is identifying itself to server sending one packet with identification flag event

HCPI sentence - Identification

Description	Offset(bytes)	Length(bytes)	value	Unit
Event flag	0	1	100	This flag defines that this is identification packet.
Vehicle ID	1	8	Char[]	Identification number of vehicle
IMEI	9	15	Char[]	IMEI of device
Software ver.	24	3	Char[]	
Not used	27	3		

Track data

Description	Offset(bytes)	Length(bytes)	Type	Unit
Event flag	0	1		
Not used	1	1		
DateTime	2	4	Int32	Date and time as number of seconds from 01.01.1980.00:00:00
Latitude	6	4	Int32	Value * 10 ⁷ (degrees)
Longitude	10	4	Int32	Value * 10 ⁷ (degrees)
Altitude	14	2	Int16	meters
Speed	16	2	Int16	km/h
Course	18	2	Int16	degrees
FIX	20	1	Byte	Number of satellites in view
IO	21	1	Byte	Table 1.3.
ADC1	22	2	Short	mV
ADC2	24	2	Short	mV
Pulse Count	26	4	Int32	Current state of pulse counter/ measured distance by GPS

Server acknowledgement

When server successfully receives record packet from device, it sends acknowledgement like confirmation. Server can send two different types of acknowledgement.

- First type of acknowledgement contains only one byte with value 0x15. This type server sends all the time when just want to inform device that packet has been received successfully and there is no any additional data for device.

Description	Offset(bytes)	Length(bytes)	Value
ACK	0	1	0x15

- Second type contains two bytes. First byte has value 0x16 by which this type of acknowledgment is defined. Second byte contains a value of GPIO output pins (4 LSB bits) that has to be set on device. (0 – low level, 1 high level)

Description	Offset(bytes)	Length(bytes)	Value
ACK	0	1	0x16
GPIO out	1	1	0xFy

	MSB			LSB	
Description	Not used	GPIO out 3	GPIO out 2	GPIO out 1	GPIO out 0
Length(bits)	4	1	1	1	1

This is the end of certain communication cycle which repeats for every received packet.

IO Byte Explained

IO Byte of track data consist states of 8 Inputs

Table 1.3 IO States

Bit	Description	
0	Input PIN 1 state	0=low; 1=high
1	Input PIN 2 state	0=low; 1=high
2	Input PIN 3 state	0=low; 1=high
3	Running power state	0=Running on external power supply; 1=Running on battery
4	Output PIN 1 state	0=low; 1=high
5	Output PIN 2 state	0=low; 1=high
6	Output PIN 3 state	0=low; 1=high
7	Output PIN 4 state	0=low; 1=high

HCP Hunter Events

Table 1.4 Events

Event ID	Description
30	Stop Mode Interval Trigger
31	Transition from Stop Mode to Run Mode
32	Run Mode Interval Trigger
33	Transition from Run Mode to Stop Mode
34	Input PIN 1 transition from 0 to 1
35	Input PIN 1 transition from 1 to 0
36	Input PIN 2 transition from 0 to 1
37	Input PIN 2 transition from 1 to 0
38	Input PIN 3 transition from 0 to 1
39	Input PIN 3 transition from 1 to 0
40	Reserved
41	Reserved
42	Course changed
43	Distance trigger
44	Acceleration trigger
45	Transition from External to battery power
46	Transition from Battery to External power
60	GPS signal is lost
61	GPS signal is valid
62	Last known position before GPS signal was lost.
100	Identification event
200	Command Executed