1.1.1 DEV_DRV_STATUS_RES

This message is issued by Alti device in response to DRV_DEV_LOG_COMMAND message.

Byte	Meaning	Value	Notes
0	Message ID	2	Status response message
1,2,3,4	Device ID	1 to 0xFFFFFFFE	Serial number. 0x00000000 and 0xFFFFFFFF are not allowed
5	HW version major	0 to 0xFF	
6	HW version minor	0 to 0xFF	
7	Code version major	0 to 0xFF	Major version number
8	Code version minor	0 to 0xFF	Minor version number
9	Battery voltage	0 to 0xFFFF	Value in decivolts
10,11	non-empty sectors	0x0000 - 0x03FF	for 4 MB flash
12	hour	0x00 - 0x17	hh out of hhmmss
13	minute	0x00 - 0x3B	mm out of hhmmss
14	second	0x00 - 0x3B	ss out of hhmmss
15	day	0x00 - 0x1F	dd out of ddmmyy
16	month	0x00 - 0x0C	mm out of ddmmyy
17	year	0x0B - 0xFF	yy out of ddmmyy

Table 1: DEV_DRV_STATUS_RES

Battery Voltage Battery voltage is reported in units of tenth of a volt - decivolts.

NV_storage status This is a combined status of Log Book and Track-log storage.

Non-empty sectors This is the number of all flash memory sectors that are written to.

1.1.2 DRV_DEV_LOG_COMMAND

This message commands the device to execute one of the log type tasks.

Command	Response	Note:
[erase all]	DEV_DRV_STATUS_RES	(Send until non empty sectors == 0)
[upload track-log]	DEV_DRV_UPLOAD_SECTOR	(Send until block number == 0)
[erase track-log]	DEV_DRV_LIST_TRACKS	(Send until flight number is == 0)
[read track-logs]	DEV_DRV_LIST_TRACKS	(Send until block number == 0)

Byte	Meaning	Value	Notes
0	Message ID	3	Log file command
1	Command ID	0 to 0xFF	0,1 - not valid, 2 - erase all, 3 – upload track-log, 4 – erase track-log, 5 – read track-logs
2,3	flight number	0x0000 - 0x012C	this value is only valid for command ID 4. 0x0000 is a read all command

Table 2: DRV_DEV_LOG_COMMAND

1.1.3 DEV_DRV_UPLOAD_SECTOR

This message transfers one segment of flash data. The message preserves the original format as specified in the LOG module. The number and type of sectors transferred depends on the corresponding DRV_DEV_LOG_COMMAND message. To transfer the next segment of flash another invocation of DRV_DEV_LOG_COMMAND is required.

For DRV_DEV_LOG_COMMAND with [upload all] command ID:
This message transfers all non empty sectors in the device NV storage to the host.

For DRV_DEV_LOG_COMMAND with [upload track-log] command ID:
This message transfers all sectors in the device NV storage that contain data for the flight number specified.

Byte	Meaning	Value	Notes
0	Message ID	4	sector upload
1,2	Block number	0 to 0xFFFF	0 – last block, 1 – first block,
3	Block size	0 to 0xFF	0 – full block of 256 bytes.
4 - (4+n)	Flight data	any	raw data, Log Data Flash Header followed by time and location records

1.1.4 Log Data flash Header

Each Track log includesa header that starts at the beginning of the sector as specified in the following table.

Byte	Meaning	Value	Notes
0	header type	0xFE	Track-log sector
1,2	Flight number	0x0001 - 0xFF00	Byte 1 is MSB,
3-6	Internal Memory Storage value	----	Reserved
7,8	Data size	0x00xx - 0x0100	byte 7 is MSB, n = data size
9 - (9 + n)	data		

Table 3: Header type - flight block

Flight number — The flight number assigned to this series of flight track-log blocks. The number starts from 1 and increments for each new flight.
Flight number value of 0x0000 invalidates this entry.

	Flight number value of 0xFFFF is reserved.
Flight block number	A single flight log may span several flash memory sectors, each sector storing a block of data for the flight referenced by the flight number. The first block is marked 1, the second block is marked 2 and so on.
Next flight sector	This is the sector number where the next block of data for this flight is stored. This number is picked randomly from all available (erased) sectors. Sector value of 0xFFFF indicates that this is the last block of data for this flight log.
Data size	The number of bytes of flight log data in this block. This parameter allows block data to end on a record boundary and have un-written bytes between the last record and the end of a sector.
Data	Time and Location Records.

Combined time and location records are as follows:

T[start] L[1] … L[n] T[1] L[n+1] … L[n+m] T[2] L[n+m+1] … L[n+2*m] T[3] …T[x] L[n+x*m] …L[y]

T[start]	The first record is “Time” of log recording start
L[1]	“Location” record at the time of T[start]
L[n]	“Location’ record spaced every “Logging Period”
T[1]	“Time” record of the next even minute (ss out of hhmmss = 00)
L[n+1]	“Location” record at time of T[1]
T[x]	The last “Time” record
L[y]	The last “Location” record

1.1.5 Log record - Time

Byte	Meaning	Value	Notes
0	record type	0xFE	time record
1	hour	0x00 - 0x17	hh out of hhmmss
2	minute	0x00 - 0x3B	mm out of hhmmss
3	second	0x00 - 0x3B	ss out of hhmmss
4	day	0x00 - 0x1F	dd out of ddmmyy
5	month	0x00 - 0x0C	mm out of ddmmyy
6	year	0x0B - 0xFF	yy out of ddmmyy

Table 4: Log record – Time

1.1.6 DEV_DRV_LIST_TRACKS

This message transfers, in multi-blocks message, a list of all track-log entries. This message responds to DRV_DEV_LOG_COMMAND with [erase track-log] or [read track-logs] command.

Byte	Meaning	Value	Notes
0	Message ID	5	List of track-logs
1,2	Block number	0 to 0xFFFF	0 – last block, 1 – first block,
3	Block size	0 to 0xFF	0 – full block of 256 bytes.
4-5	number of logs	0x0001 - 0x012C	now max at 300 tracks
6-7	flight number	0x0001 - 0xFFFE	Current Flight number being reported
8	hour	0x00 - 0x17	hh out of hhmmss
9	minute	0x00 - 0x3B	mm out of hhmmss
10	day	0x00 - 0x1F	dd out of ddmmyy
11	month	0x00 - 0x0C	mm out of ddmmyy
12	year	0x0B - 0xFF	yy out of ddmmyy
13-14	duration	0x0000 - 0xFFFF	flight duration in minutes
15-16	Start altitude		
17-18	End altitude		
19-20	Max altitude		
21-22	Max distance		
23-24	Max lift		
25-26	Avg lift		
27-28	Max sink		
29	Max temperature		
30	Min temperature		
31-32	Launch latitude integer		
33-34	Launch latitude fraction		
35-36	Launch longitude integer		
37-38	Launch longitude fraction		
39	Launch GPS bit		
40-41	Landing latitude integer		
42-43	Landing latitude fraction		
44-45	Landing longitude integer		
45-47	Landing longitude fraction		
48	Landing GPS bit		

Table 5: DEV_DRV_LIST_TRACKS

Log record - Location

Byte	Meaning	Value	Notes
0	record type	0xF8 - 0xFB	location record
1,2	latitude integer	0x0000 - 0x22FF	ddmm out of ddmm.mmmm
3,4	latitude fraction	0x0000 - 0x270F	mmmm out of ddmm.mmmm
5,6	longitude integer	0x0000 - 0x4627	dddmm out of dddmm.mmmm
7,8	longitude fraction	0x0000 - 0x270F	mmmm out of dddmm.mmmm
9,10	elevation	0x0000 - 0xFFFF	elevation in meters
11,12	ground speed	0x0000 - 0xFFFF	in deci kilometer per hour

Table 6: Log record - Location

Record type Values from 0xF8 to 0xFB are location records.
0xF8 is for West-North location
0xF9 is for West-South location
0xFA is for East-North location
0xFB is for East-South location

1.1.7 DRV_DEV_DEVICE_UNITS

This message tells the driver which units and settings the user has selected on the unit. The data is stored in the lower four bits of the only byte returned. For example, the Temperature units are stored in the least significant bit of the returned byte.

Byte	Meaning	Value	Notes
0	record type	13	List device units
1.0	Temperature units	0-1	0: Celsius 1: Fahrenheit
1.1	Distance/Speed units	0-1	0: km, kph 1: miles, mph
1.2	Altitude/Lift units	0-1	0: meters, m/s 1: feet, ft/min
1.3	Date format	0-1	0: dd/mm/yyyy 1: mm/dd/yyyy