



# **Message Format for Beam Communication's Tracking Product**

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## Message format

Beam tracking devices uses predefined message format. These can be one of following the message formats.

1. Plain text format
2. Binary format.

Following Beam products utilize these message formats.

- PotsDOCK (9555PD)
- IridiTRAK (RST430)
- LeoTRAK (RST470, RST480)

## Plain text format

The plain text message is composed of two components: header and content.

- The message header can be either just a simple UNIX Timestamp (UT) or an Alarm Message Header comprising Message Type (AL), Unix Time (TU) and Sequence Number (SQ).
- The content of a message can be Location Information (LT, LG), Speed (VL), Altitude(HT), Direction(DR) , IMEI(II).

The message is composed of the information fields separated by a comma.

The table below shows an example of how each field in the message is formatted.

Field	Default Prefix	Example
Time UNIX Format	FU	FU1184816146
Alarm Information Includes three fields: Alarm Type (AL) Unix Time(TU) Sequence number (SQ)	AL  TU  SQ	AL23  TU1184816146  SQ23
Lat and Long(+HHH.HHHHH)	LT  LG	LT-37.92043  LG145.14886
Speed (meters per hour)	VL	VL12000
Altitude (meters above sea level)	HT	HT23
Direction (degrees)	DR	DR234
IMEI	II	II300015000000000

For an example message format: AL, TU, SQ, LT, LG.

- The associated Track Message: AL03, TU1184816146, SQ01, LT-37.92043, LG145.14886
- The associated Emergency Message: AL18, TU1184816146, SQ01, LT-37.92043, LG145.14886

## Binary format

Binary messages can be of one of predefined format:

- 10bytes binary messages
- 20bytes binary messages

**NOTE:** Only some Beam Tracing products supports binary message format.

### Parsing Binary Message Format

The data message will arrive in your email client Inbox as a binary attachment.

**Open** the email message.

**Save** the binary attachment (.sbd file) to the file system.

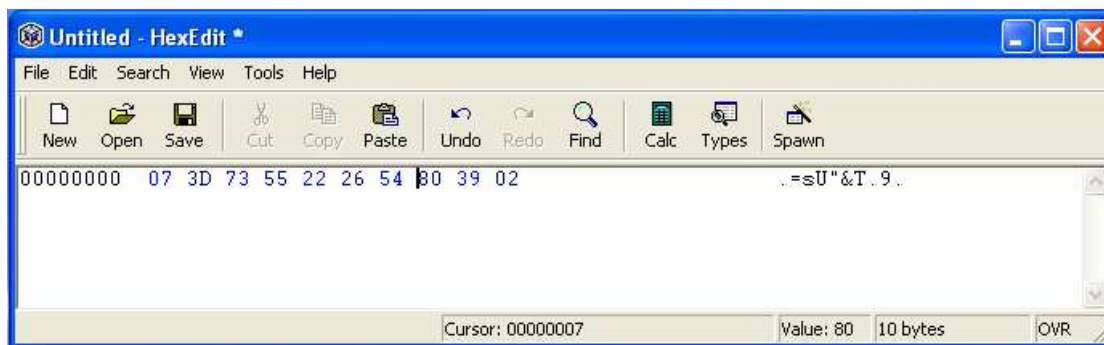
**Download** the freeware Windows program called Hexedit to view the binary data.

Hexedit can be downloaded from <http://www.catch22.net/software/hexedit.asp>.

**Start** the Hexedit program.

**Drag** the saved binary attachment file (.sbd file) inside the Hexedit program.

**View** the data.



**The 10bytes data message has the following format:**

Byte #	Content				
Byte 1	Message # In 8-bit binary				
Byte 2	SSSS:GPS:Lat:Lng:Msd where, SSSS(bits) = sequence # (mod16) <table border="1" data-bbox="422 1809 1217 2020"><tr><td>GPS FIX (GPS)</td><td>0 indicates GPS FIX was not obtained when message was generated. Due to this GPS information may be inaccurate.</td></tr><tr><td></td><td>1 indicates accurate GPS information</td></tr></table>	GPS FIX (GPS)	0 indicates GPS FIX was not obtained when message was generated. Due to this GPS information may be inaccurate.		1 indicates accurate GPS information
GPS FIX (GPS)	0 indicates GPS FIX was not obtained when message was generated. Due to this GPS information may be inaccurate.				
	1 indicates accurate GPS information				

	<table border="1"> <tr> <td rowspan="2">Latitude (Lat) =</td> <td>0 indicates positive latitude (North)</td> </tr> <tr> <td>1 indicates negative latitude (South)</td> </tr> <tr> <td rowspan="2">Longitude (Lng) =</td> <td>0 indicates positive longitude (East)</td> </tr> <tr> <td>1 indicates negative longitude (West)</td> </tr> </table> <p>Msd is MSDigit of longitude</p>	Latitude (Lat) =	0 indicates positive latitude (North)	1 indicates negative latitude (South)	Longitude (Lng) =	0 indicates positive longitude (East)	1 indicates negative longitude (West)
Latitude (Lat) =	0 indicates positive latitude (North)						
	1 indicates negative latitude (South)						
Longitude (Lng) =	0 indicates positive longitude (East)						
	1 indicates negative longitude (West)						
Byte 3,4	latitude HHMM (LSD in upper 4 bits, MSD in lower 4 bits)						
Byte 5,6	latitude .MMMM Byte 7,8						
Byte 7,8	longitude HHMM (LSD in upper 4 bits, MSD in lower 4 bits) '1' already encoded above						
Byte 9,10	longitude .MMMM						

The 20 byte data message has the following format:

Byte #	Content									
Byte 1	Message # In 8-bit binary									
Byte 2	<p>SSSS:GPS:Lat:Lng:Msd where, SSSS(bits) = sequence # (mod16)</p> <table border="1"> <tr> <td rowspan="2">GPS FIX (GPS)</td> <td>0 indicates GPS FIX was not obtained when message was generated. Due to this GPS information may be inaccurate.</td> </tr> <tr> <td>1 indicates accurate GPS information</td> </tr> </table> <table border="1"> <tr> <td rowspan="2">Latitude (Lat) =</td> <td>0 indicates positive latitude (North)</td> </tr> <tr> <td>1 indicates negative latitude (South)</td> </tr> <tr> <td rowspan="2">Longitude (Lng) =</td> <td>0 indicates positive longitude (East)</td> </tr> <tr> <td>1 indicates negative longitude (West)</td> </tr> </table> <p>Msd is MSDigit of longitude</p>	GPS FIX (GPS)	0 indicates GPS FIX was not obtained when message was generated. Due to this GPS information may be inaccurate.	1 indicates accurate GPS information	Latitude (Lat) =	0 indicates positive latitude (North)	1 indicates negative latitude (South)	Longitude (Lng) =	0 indicates positive longitude (East)	1 indicates negative longitude (West)
GPS FIX (GPS)	0 indicates GPS FIX was not obtained when message was generated. Due to this GPS information may be inaccurate.									
	1 indicates accurate GPS information									
Latitude (Lat) =	0 indicates positive latitude (North)									
	1 indicates negative latitude (South)									
Longitude (Lng) =	0 indicates positive longitude (East)									
	1 indicates negative longitude (West)									

Byte 3,4	latitude HHMM (LSD in upper 4 bits, MSD in lower 4 bits)
Byte 5,6	latitude .MMMM Byte 7,8
Byte 7,8	longitude HHMM (LSD in upper 4 bits, MSD in lower 4 bits) '1' already encoded above
Byte 9,10	longitude .MMMM
Byte 11-14	Unix Time
Byte 15, 16	Speed (10 meters per hour)
Byte 17, 18	Altitude (meters above sea level)
Byte 19, 20	Direction (degrees)