GPS unit ICD

**FORMAT EXPLANATION**

Single read message is of the following form:

START, 0x85 [42, RD], B1, B2, B3, …, Bn , STOP

0x85 is the combined 7-bit device address (0x42) and read bit (1). Bytes B1 through Bn are read by the master from the slave device.

Single write message is of the following form:

START, 0x84 [42, WR], B1, B2, B3, …, Bn , STOP

0x84 is the combined 7-bit device address (0x42) and write bit (0). Bytes B1 through Bn are written from the master to the slave device.

Write-read combination message is of the following format:

START, 0x84 [42, WR], Breg, RESTART, 85 [42, RD], B1, B2, B3, …, Bn , STOP

After START, one byte Breg is written by the master to the slave device, which contains the address of a specific register from which to read next. After RESTART, the master reads bytes B1 through Bn from the register at address Breg

**MESSAGES SENT AND RECEIVED BY GPS UNIT:**

**Initialization:**

START, 0x84 [0x42, WR], STOP (write command with no contents, necessary for some reason)

Write the following 9 bytes to start initialization

START, 0x84 [0x42, WR], 0xB5, 0x62, 0x06, 0x00, 0x01, 0x00, 0x00, 0x07, 0x21, STOP

Check how many data bytes are available, this value is found in the FD register. Should be equal to 0x26

START, 0x84 [0x42, WR], 0xFD, RESTART, 0x85 [0x42, RD], 0x00, 0x26, STOP

Read 38 bytes, the value of these bytes is not used, however reading them seems to still be necessary for the unit to function properly

START, 0x85 [0x42, RD], [32 bytes read], STOP

START, 0x85 [0x42, RD], [6 bytes read], STOP

**Reading data:**

Write the following 8 bytes to tell unit to start collecting data:

START, 0x84 [0x42, WR], 0xB5, 0x62, 0x01, 0x07, 0x00, 0x00, 0x08, 0x19, STOP

Run the following command to check how many bytes are available, this value is found in the register at address FD. Repeat this command until the second byte read is equal to 0x64 (100 decimal) or a timeout of 1 second is reached.

START, 0x84 [0x42, WR], 0xFD, RESTART, 0x85 [0x42, RD], [2 bytes read], STOP

Run the following four read commands to read the full contents of the data available, equal to 100 bytes

START, 0x85 [0x42, RD], [32 bytes read], STOP

START, 0x85 [0x42, RD], [32 bytes read], STOP

START, 0x85 [0x42, RD], [32 bytes read], STOP

START, 0x85 [0x42, RD], [4 bytes read], STOP

The 100 bytes read above contain all of the PVT data, from which the latitude and longitude can be extracted. If all bytes are concatenated into an array in the order in which they are read, longitude is represented by the four bytes starting at position 30, and latitude is the four bytes starting at position 34.