

## APPLICATION NOTE

# DECODER FOR NAVIS

## ENGINEERING DATA

---

Kim Martini                      October 4, 2017

The following is a decoder to convert engineering values reported in Navis Autonomous Profiling Float ".msg" files to scientific units. Listed here are the variable names, units contained in the .msg file, the equation for conversion and the units of the converted values.

### 1 Decoder for 'vanilla floats'

#### ActiveBallastAdjustments

**.msg units:** # of active bladder adjustments

**conversion:** none needed

**converted units:** n/a

#### AirBladderPressure

**.msg units:** 8-bit counts from a/d converter

**conversion:** inHg = counts./3.469 – 29.92

**converted units:** pressure in inches of Mercury (Hg)

#### AirPumpAmps

**.msg units:** 12-bit counts from a/d converter

**conversion:** I = counts.\*3.3./4096./0.698

**converted units:** current in amps

#### AirPumpVolts

**.msg units:** 12-bit counts from a/d converter

**conversion:** V = counts.\*19.767./4096

**converted units:** voltage in volts

#### BuoyancyPumpOnTime

**.msg units:** seconds

**conversion:** none needed

**converted units:** n/a

#### BuoyancyPumpAmps

**.msg units:** 12-bit counts from a/d converter

**conversion:** I = counts.\*3.3./4096./0.698

**converted units:** current in amps

#### BuoyancyPumpVolts

**.msg units:** 12-bit counts from a/d converter

**conversion:** V = counts.\*19.767./4096

**converted units:** voltage in volts

#### CurrentBuoyancyPosition

**.msg units:** buoyancy output in 10-bit counts [0-1023]

**conversion:** none needed

**converted units:** n/a

#### DeepProfileBuoyancyPosition

**.msg units:** buoyancy output in 10-bit counts [0-1023]

**conversion:** none needed

**converted units:** n/a

### GpsFixTime

**.msg units:** seconds  
**conversion:** none needed  
**converted units:** n/a

### FlashErrorsCorrectable

**.msg units:** # of correctable flash errors  
**conversion:** none needed  
**converted units:** n/a

### FlashErrorsUncorrectable

**.msg units:** # of uncorrectable flash errors  
**conversion:** none needed  
**converted units:** n/a

### FlashErrorsUncorrectable

**.msg units:** # of uncorrectable flash errors  
**conversion:** none needed  
**converted units:** n/a

### FloatId

**.msg units:** Navis float id #  
**conversion:** none needed  
**converted units:** n/a

### ParkDescentPCnt

**.msg units:** # of pressure measurements made during descent  
**conversion:** none needed  
**converted units:** n/a

### ParkDescentP[xx]

**.msg units:** pressure measurement made during descent in decibars  
**conversion:** none needed  
**converted units:** n/a

### ParkBuoyancyPosition

**.msg units:** buoyancy output in 10-bit counts [0-1023]  
**conversion:** none needed  
**converted units:** n/a

### ParkObs

**.msg units:** units in output string  
**conversion:** none needed  
**converted units:** n/a

### ProfileId

**.msg units:** profile #  
**conversion:** none needed  
**converted units:** n/a

### ObsIndex

**.msg units:** # of discrete samples made during ascent  
**conversion:** none needed  
**converted units:** n/a

### QuiescentAmps

**.msg units:** 12-bit counts from a/d converter  
**conversion:** I = counts.\*3.3./4096./0.698  
**converted units:** current in amps

### QuiescentVolts

**.msg units:** 12-bit counts from a/d converter

**conversion:**  $V = \text{counts} \cdot 19.767 / 4096$

**converted units:** voltage in volts

### RtcSkew

**.msg units:** difference between clock and gps time in seconds

**conversion:** none needed

**converted units:** n/a

### Sbe41cpAmps

**.msg units:** 12-bit counts from a/d converter

**conversion:**  $I = \text{counts} \cdot 3.3 / 4096 / 0.698$

**converted units:** current in amps

### Sbe41cpVolts

**.msg units:** 12-bit counts from a/d converter

**conversion:**  $V = \text{counts} \cdot 19.767 / 4096$

**converted units:** voltage in volts

### Sbe41cpStatus

**.msg units:** text string of eight Sbe41cp 'status' bits starting with 0x

**conversion:** none needed

**converted units:** n/a

### status

**.msg units:** text string of eight 'status' bits starting with 0x

**conversion:** none needed

**converted units:** n/a

### SurfaceBuoyancyPosition

**.msg units:** buoyancy output in 10-bit counts [0-1023]

**conversion:** none needed

**converted units:** n/a

### SurfacePressure

**.msg units:** pressure at the surface in decibars

**conversion:** none needed

**converted units:** n/a

### Vacuum

**.msg units:** 8-bit counts from a/d converter [0-255]

**conversion:** none needed

**converted units:** n/a