

OutputFormat=0 (raw frequencies and voltages in Hex)

Data is output in the order listed, with no spaces or commas between parameters. Shown with each parameter is the number of digits, and how to calculate the parameter from the data (use the decimal equivalent of the hex data in the equations).

Notes:

- If you will be using Seasave to acquire real-time data, you must set OutputFormat=0.
- When using Seaterm232's Upload menu, Seaterm232 always uploads data from memory in raw hex, regardless of the user-programmed format, providing the data in a format that SBE Data Processing can use.
- Our software uses the equations shown to perform these calculations; alternatively, you can use the equations to develop your own processing software.
- The pressure sensor is an absolute sensor, so its raw output includes the effect of atmospheric pressure (14.7 psi). As shown on the Calibration Sheet, Sea-Bird's calibration (and resulting calibration coefficients) is in terms of psia. However, when outputting pressure in engineering units, the 19plus V2 outputs pressure relative to the ocean surface (i.e., at the surface the output pressure is 0 decibars). The 19plus V2 uses the following equation to convert psia to decibars:
pressure (db) =
[pressure (psia) - 14.7] * 0.689476
- Although OutputFormat=0 outputs raw data for temperature, conductivity, etc., it outputs engineering units for SBE 38, GTD, and Optode data.

1. Temperature
A/D counts = ttttt
2. Conductivity
conductivity frequency (Hz) = cccccc / 256
3. Strain-gauge pressure sensor Pressure (if PType=1)
A/D counts = pppppp
4. Strain-gauge pressure sensor temperature compensation (if PType=1)
pressure temperature compensation voltage = vvvv / 13,107
5. Quartz pressure sensor pressure (if PType=3)
pressure frequency (Hz) = pppppp / 256
6. Quartz pressure sensor temperature compensation (if PType=3)
temperature compensation voltage = vvvv / 13,107
7. External voltage 0 (if Volt0=Y)
external voltage 0 = vvvv / 13,107
8. External voltage 1 (if Volt1=Y)
external voltage 1 = vvvv / 13,107
9. External voltage 2 (if Volt2=Y)
external voltage 2 = vvvv / 13,107
10. External voltage 3 (if Volt3=Y)
external voltage 3 = vvvv / 13,107
11. External voltage 4 (if Volt4=Y)
external voltage 4 = vvvv / 13,107
12. External voltage 5 (if Volt5=Y)
external voltage 5 = vvvv / 13,107
13. SBE 38 secondary temperature (if SBE38=Y)
SBE 38 temperature (°C, ITS-90) = (ttttt / 100,000) - 10
14. GTD #1 pressure (if GTD=Y or DualGTD=Y)
GTD #1 pressure (millibars) = pppppppp / 100,000
15. GTD #1 temperature (if GTD=Y or DualGTD=Y)
GTD #1 temperature (°C, ITS-90) = (ttttt / 100,000) - 10
16. GTD #2 pressure (if DualGTD=Y)
GTD #2 pressure (millibars) = pppppppp / 100,000
17. GTD #2 temperature (if DualGTD=Y)
GTD #2 temperature (°C, ITS-90) = (ttttt / 100,000) - 10
18. Optode oxygen (if Optode=Y)
Optode oxygen (micromoles/liter) = (oooooo / 10,000) - 10
19. Time (Moored mode [MM] only)
seconds since January 1, 2000 = sssssss

Example: Profiling mode, strain-gauge pressure sensor, 2 external voltages sampled,
example scan = tttttccccccccppppppvvvvvvvvvvvv
= 0A53711BC7220C14C17D8203050594

- Temperature = ttttt = 0A5371 (676721 decimal);
temperature A/D counts = 676721
- Conductivity = cccccc = 1BC722 (1820450 decimal);
conductivity frequency = 1820450 / 256 = 7111.133 Hz
- Pressure = pppppp = 0C14C1 (791745 decimal);
pressure A/D counts = 791745
- Pressure sensor temperature compensation =
vvvv = 7D82 (32,130 decimal);
Pressure temperature = 32,130 / 13,107 = 2.4514 volts
- First external voltage = vvvv = 0305 (773 decimal);
voltage = 773 / 13,107 = 0.0590 volts
- Second external voltage = vvvv = 0594 (1428 decimal);
voltage = 1428 / 13,107 = 0.1089 volts