Calibration Tables

vGauge/SeaGauge utilizes twelve modifiable calibration tables to convert sensor data into user readable display information. The internal Analog-to-Digital converter converts sensor voltages to 10-bit values. The converter can resolve voltages to 2.5/1024 = 2.4 mVolts. These values are averaged and then used to lookup 8 character values form a 256 point lookup table. The use of a lookup table allows for accurate readings from non-linear sensors like temperature senders. The lookup table also allows for easy modification of display values to suit individual preferences and senders.

Following is an example of a partial table used to display battery voltage. The actual table has 256 indexed values. The measured voltage has a range from 0 to 3.3 volts. In this example it is desired to measure battery voltage from 0 to 18 volts so the input voltage from the battery is scaled down using a voltage divider ratio of 3.3/18 = 0.1833. The scaled down voltage is converted to an averaged digital value and then used as an index lookup in the table. For example an Input voltage of 1.178 volts becomes index value 18 in the table which corresponds to the 8 character display value of 1.1 vdc. Using this method allows the SeaGauge to display just about any range of values form a large variety of sensors/senders.

Index	Input Voltage	Measured Voltage	Display value
1	0.065	0.012968	0 vdc
2	0.131	0.025936	0.1 vdc
3	0.196	0.038904	0.1 vdc
4	0.262	0.051872	0.2 vdc
5	0.327	0.06484	0.3 vdc
6	0.393	0.077808	0.3 vdc
7	0.458	0.090776	0.4 vdc
8	0.523	0.103744	0.5 vdc
9	0.589	0.116712	0.5 vdc
10	0.654	0.12968	0.6 vdc
11	0.720	0.142649	0.7 vdc
12	0.785	0.155617	0.7 vdc
13	0.851	0.168585	0.8 vdc
14	0.916	0.181553	0.9 vdc
15	0.981	0.194521	0.9 vdc
16	1.047	0.207489	1.0 vdc
17	1.112	0.220457	1.1 vdc
18	1.178	0.233425	1.1 vdc
19	1.243	0.246393	1.2 vdc
20	1.309	0.259361	1.3 vdc
21	1.374	0.272329	1.3 vdc
22	1.439	0.285297	1.4 vdc
23	1.505	0.298265	1.5 vdc
24	1.570	0.311233	1.5 vdc
25	1.636	0.324201	1.6 vdc
26	1.701	0.337169	1.7 vdc
27	1.767	0.350137	1.7 vdc