Sea-Bird Electronics, Inc.
13431 NE 20th Street, Bellevue, WA 98005-2010 USA
Phone: (+1) 425-643-9866 Fax (+1) 425-643-9954 Email: seabird@seabird.com

SENSOR SERIAL NUMBER: 50128
CALIBRATION DATE: 07-Mar-17

SBE 19plus V2 TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:
a0 = 1.212645e-003
a1 = 2.763218e-004
a2 = -5.702287e-007
a3 = 1.646498e-007

| BATH TEMP (°C)	INSTRUMENT OUTPUT (counts)	INST TEMP (°C)	RESIDUAL (°C)
1.0000	554128.222	0.9999	-0.0001
4.5000	490445.600	4.5002	0.0002
15.0001	334417.156	15.0000	-0.0001
18.4999	292945.222	18.4999	-0.0000
24.0000	236869.733	24.0000	-0.0000
29.0000	194328.911	29.0002	0.0002
32.5000	168681.622	32.4999	-0.0001

n = Instrument Output (counts)

$MV = (n - 524288) / 1.6e+007$

$R = (MV * 2.900e+009 + 1.024e+008) / (2.048e+004 - MV * 2.0e+005)$

Temperature ITS-90 (°C) = $1/\{a0 + a1[ln(R)] + a2[ln^2(R)] + a3[ln^3(R)]\} - 273.15$

Residual (°C) = instrument temperature - bath temperature
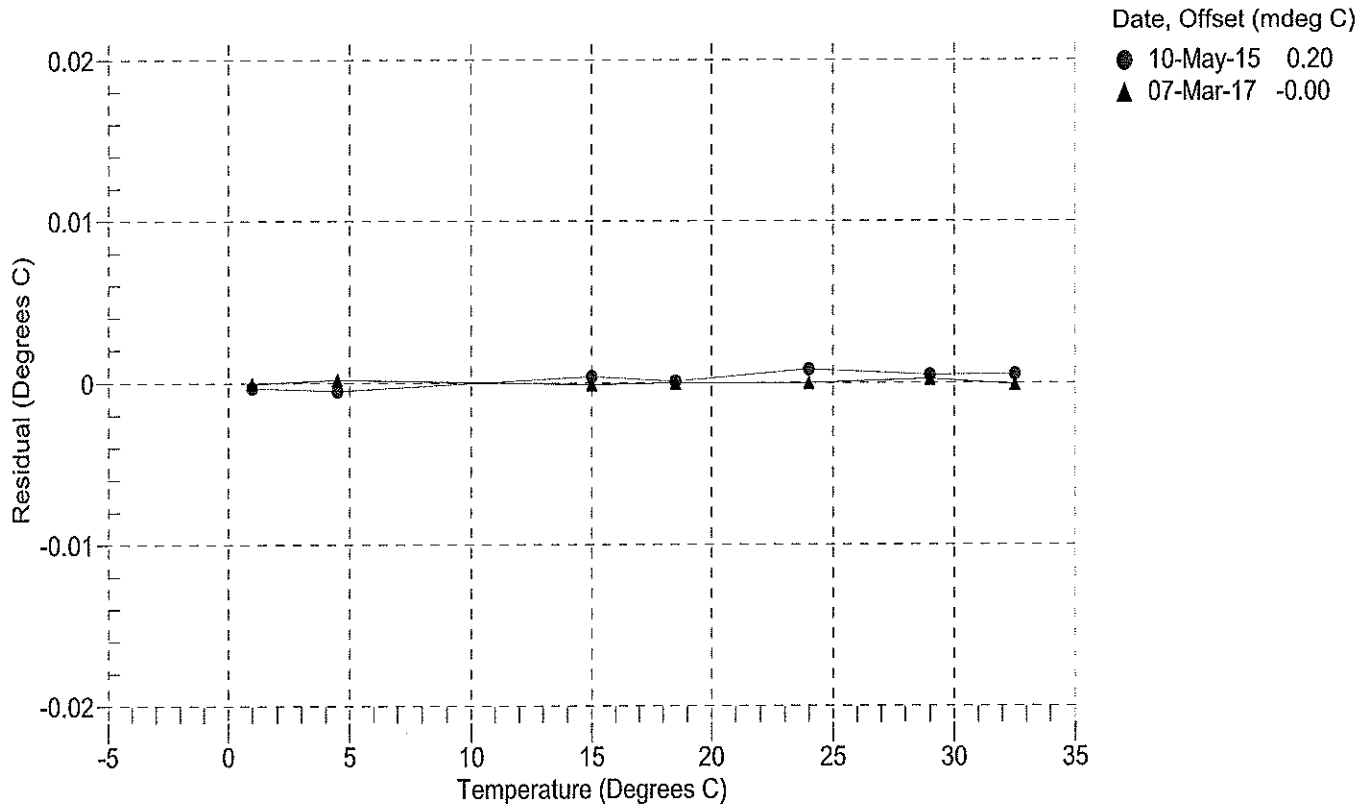
Date, Offset (mdeg C)
● 10-May-15   0.20
▲ 07-Mar-17 -0.00

Sea-Bird Electronics, Inc.
13431 NE 20th Street, Bellevue, WA 98005-2010 USA
Phone: (+1) 425-643-9866 Fax (+1) 425-643-9954 Email: seabird@seabird.com

SENSOR SERIAL NUMBER: 50128
CALIBRATION DATE: 07-Mar-17

SBE 19plus V2 CONDUCTIVITY CALIBRATION DATA
PSS 1978: C(35,15,0) = 4.2914 Siemens/meter

COEFFICIENTS:
g = -9.988708e-001
h = 1.540856e-001
i = -1.386707e-004
j = 3.439992e-005

CPcor = -9.5700e-008
CTcor = 3.2500e-006

BATH TEMP (° C)	BATH SAL (PSU)	BATH COND (S/m)	INSTRUMENT OUTPUT (Hz)	INSTRUMENT COND (S/m)	RESIDUAL (S/m)
22.0000	0.0000	0.00000	2547.16	0.0000	0.00000
1.0000	34.6760	2.96511	5069.09	2.9651	-0.00001
4.5000	34.6565	3.27113	5260.45	3.2711	0.00001
15.0001	34.6143	4.24946	5829.48	4.2495	-0.00000
18.4999	34.6054	4.59339	6016.52	4.5934	0.00000
24.0000	34.5955	5.14940	6306.88	5.1494	-0.00000
29.0000	34.5897	5.66937	6566.53	5.6694	-0.00000
32.5000	34.5857	6.04031	6745.50	6.0403	0.00000

f = Instrument Output (Hz) / 1000.0

t = temperature (°C); p = pressure (decibars); δ = CTcor; ε = CPcor;

Conductivity (S/m) = $(g + h * f^2 + i * f^3 + j * f^4) / 10 (1 + \delta * t + \varepsilon * p)$

Residual (Siemens/meter) = instrument conductivity - bath conductivity

Date, Slope Correction
● 07-Mar-17 1.0000000
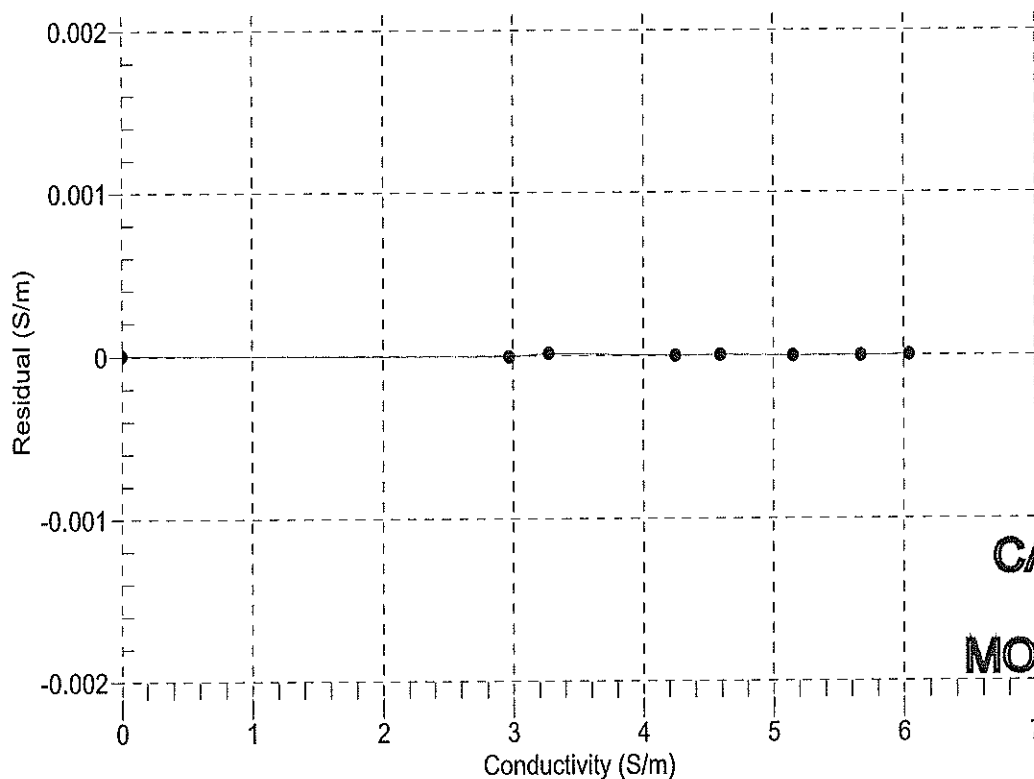
CALIBRATION AFTER MODIFICATIONS

Sea-Bird Electronics, Inc.
13431 NE 20th Street, Bellevue, WA 98005-2010 USA
Phone: (+1) 425-643-9866 Fax (+1) 425-643-9954 Email: seabird@seabird.com

SENSOR SERIAL NUMBER: 50128
CALIBRATION DATE: 10-Feb-17

SBE 19plus V2 PRESSURE CALIBRATION DATA
5076 psia S/N 10288841

COEFFICIENTS:

PA0	=	2.546203e+000	PTCA0 =	5.254498e+005
PA1	=	1.565137e-002	PTCA1 =	1.035043e+001
PA2	=	-6.501645e-010	PTCA2 =	-1.321762e-001
PTEMPA0	=	-6.154199e+001	PTCB0 =	2.519351e+001
PTEMPA1	=	5.087226e+001	PTCB1 =	-4.987531e-004
PTEMPA2	=	1.013924e-002	PTCB2 =	0.000000e+000

PRESSURE SPAN CALIBRATION

PRESSURE (PSIA)	INSTRUMENT OUTPUT (counts)	THERMISTOR OUTPUT (volts)	COMPUTED PRESSURE (PSIA)	RESIDUAL (%FSR)
14.46	526383.9	1.6	14.65	0.00
1026.86	591185.4	1.6	1026.51	-0.01
2039.13	656351.4	1.6	2038.55	-0.01
3051.35	721922.2	1.6	3051.31	-0.00
4063.57	787834.6	1.6	4063.71	0.00
5075.93	854075.8	1.6	5075.46	-0.01
4063.62	787863.0	1.6	4064.14	0.01
3051.39	721958.8	1.6	3051.87	0.01
2039.14	656389.4	1.6	2039.14	-0.00
1026.82	591199.0	1.6	1026.71	-0.00
14.46	526387.5	1.6	14.68	0.00

THERMAL CORRECTION

TEMP (°C)	THERMISTOR OUTPUT (volts)	INSTRUMENT OUTPUT (counts)
32.50	1.85	526511.16
29.00	1.78	526504.29
24.00	1.68	526488.90
18.50	1.57	526460.57
15.00	1.50	526440.51
4.50	1.30	526357.88
1.00	1.23	526326.25

TEMPERATURE (°C)	SPAN (mV)
-5.00	25.20
35.10	25.18

y = thermistor output (counts)

$t = PTEMPA0 + PTEMPA1 * y + PTEMPA2 * y^2$

x = instrument output - PTCA0 - PTCA1 * t - PTCA2 * t^2

$n = x * PTCB0 / (PTCB0 + PTCB1 * t + PTCB2 * t^2)$

pressure (PSIA) = PA0 + PA1 * n + PA2 * n^2

Residual (%FSR) = (computed pressure - true pressure) * 100 / Full Scale Range

Date, Offset (%FSR)

● 10-Feb-17   -0.00

CALIBRATION AFTER MODIFICATIONS