

# 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: 9354  
CALIBRATION DATE: 12-Mar-16

Slocum Payload CTD TEMPERATURE CALIBRATION DATA  
ITS-90 TEMPERATURE SCALE

## COEFFICIENTS:

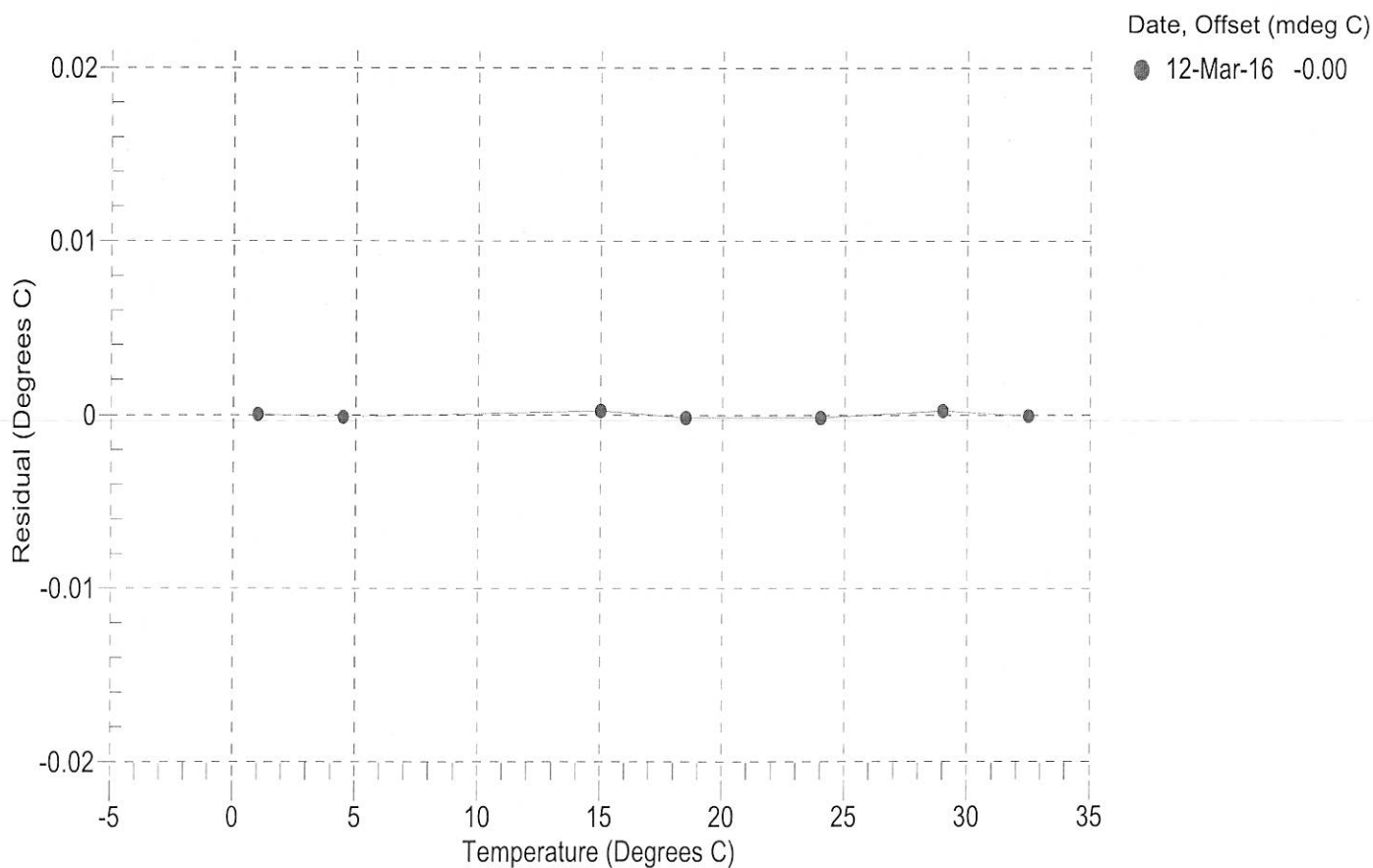
a0 = -1.435108e-004  
a1 = 3.128101e-004  
a2 = -4.758505e-006  
a3 = 2.085150e-007

BATH TEMP (° C)	INSTRUMENT OUTPUT (counts)	INST TEMP (° C)	RESIDUAL (° C)
1.0000	561936.4	1.0000	0.0000
4.5000	481067.2	4.4999	-0.0001
15.0000	307790.8	15.0002	0.0002
18.5000	266881.8	18.4998	-0.0002
24.0000	214571.2	23.9998	-0.0002
29.0000	177043.4	29.0002	0.0002
32.5000	155271.2	32.4999	-0.0001

n = Instrument Output (counts)

Temperature ITS-90 (°C) =  $1 / \{a_0 + a_1[\ln(n)] + a_2[\ln^2(n)] + a_3[\ln^3(n)]\} - 273.15$

Residual (°C) = instrument temperature - bath temperature



# 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: 9354  
CALIBRATION DATE: 12-Mar-16

Slocum Payload CTD CONDUCTIVITY CALIBRATION DATA  
PSS 1978: C(35,15,0) = 4.2914 Siemens/meter

**COEFFICIENTS:**

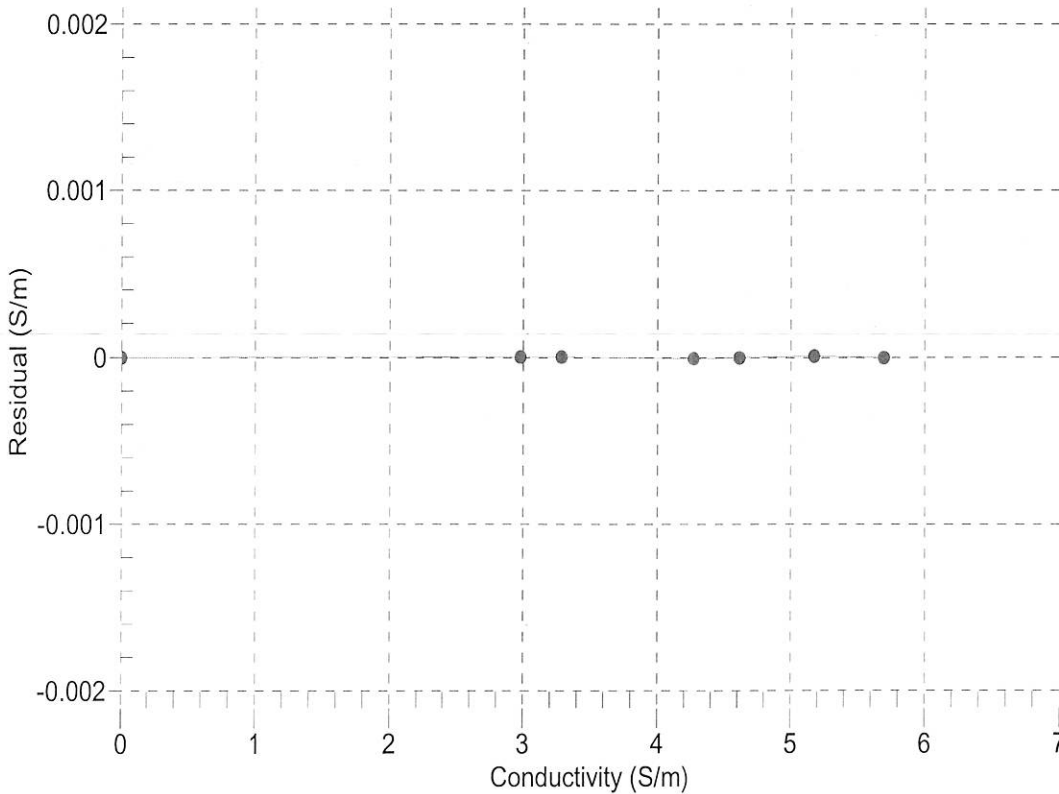
g = -9.912014e-001  
h = 1.306013e-001  
i = -1.332160e-004  
j = 2.679142e-005

CPcor = -9.5700e-008  
CTcor = 3.2500e-006  
WBOTC = 6.0454e-008

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	2756.63	0.00000	0.00000
1.0000	34.8442	2.97812	5511.28	2.97812	0.00000
4.5000	34.8246	3.28543	5719.91	3.28543	0.00000
15.0000	34.7825	4.26791	6340.22	4.26790	-0.00001
18.5000	34.7737	4.61333	6544.08	4.61333	-0.00000
24.0000	34.7640	5.17171	6860.52	5.17172	0.00001
29.0000	34.7587	5.69395	7143.46	5.69394	-0.00000
32.5000	34.7557	6.06662	7337.70	6.06503	-0.00159

f = Instrument Output(Hz) \* sqrt(1.0 + WBOTC \* t) / 1000.0  
t = temperature (°C); p = pressure (decibars); δ = CTcor; ε = CPcor;  
Conductivity (S/m) = (g + h \* f<sup>2</sup> + i \* f<sup>3</sup> + j \* f<sup>4</sup>) / 10 (1 + δ \* t + ε \* p)  
Residual (Siemens/meter) = instrument conductivity - bath conductivity

Date, Slope Correction  
● 12-Mar-16 1.0000000



# 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: 9354  
CALIBRATION DATE: 25-Feb-16

Slocum Payload CTD PRESSURE CALIBRATION DATA  
1450 psia S/N 4451230

**COEFFICIENTS:**

PA0 =	1.411229e-001	PTCA0 =	5.242082e+005
PA1 =	4.411475e-003	PTCA1 =	5.419472e+000
PA2 =	-2.024001e-011	PTCA2 =	-1.795926e-001
PTEMPA0 =	1.497098e+002	PTCB0 =	2.509137e+001
PTEMPA1 =	-6.174921e-002	PTCB1 =	-1.250000e-004
PTEMPA2 =	-1.413827e-007	PTCB2 =	0.000000e+000

**PRESSURE SPAN CALIBRATION**

**THERMAL CORRECTION**

PRESSURE (PSIA)	INSTRUMENT OUTPUT (counts)	THERMISTOR OUTPUT (volts)	COMPUTED PRESSURE (PSIA)	RESIDUAL (%FSR)	TEMP (°C)	THERMISTOR OUTPUT (volts)	INSTRUMENT OUTPUT (counts)
14.71	527547.0	2055.0	14.73	0.00	32.50	1890	527492.00
314.99	595619.0	2052.0	314.96	-0.00	29.00	1946	527518.80
615.00	663680.0	2051.0	614.96	-0.00	24.00	2026	527531.00
914.85	731739.0	2046.0	914.76	-0.01	18.50	2115	527544.20
1214.90	799924.0	2049.0	1214.92	0.00	15.00	2171	527551.80
1464.91	856736.0	2047.0	1464.87	-0.00	4.50	2339	527527.60
1214.82	799908.0	2047.0	1214.85	0.00	1.00	2395	527513.20
914.87	731793.0	2049.0	914.99	0.01			
614.98	663679.0	2050.0	614.95	-0.00			
314.94	595623.0	2053.0	314.98	0.00	TEMPERATURE (°C)	SPAN (mV)	
14.71	527538.0	2051.0	14.69	-0.00	-5.00	25.09	
					35.00	25.09	

y = thermistor output (counts)  
 $t = PTEMPA0 + PTEMPA1 * y + PTEMPA2 * y^2$   
 x = instrument output - PTCA0 - PTCA1 \* t - PTCA2 \* t<sup>2</sup>  
 $n = x * PTCB0 / (PTCB0 + PTCB1 * t + PTCB2 * t^2)$   
 pressure (PSIA) = PA0 + PA1 \* n + PA2 \* n<sup>2</sup>  
 Residual (%FSR) = (computed pressure - true pressure) \* 100 / Full Scale Range

Date, Offset (%FSR)

● 25-Feb-16 -0.00

