

# 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: 9361  
CALIBRATION DATE: 01-Apr-16

Slocum Payload CTD PRESSURE CALIBRATION DATA  
1450 psia S/N 10087782

## COEFFICIENTS:

PA0 =	-1.431110e-001	PTCA0 =	5.245207e+005
PA1 =	4.645779e-003	PTCA1 =	-5.161263e+000
PA2 =	-2.811986e-011	PTCA2 =	1.678928e-001
PTEMPA0 =	1.217276e+002	PTCB0 =	2.495537e+001
PTEMPA1 =	-7.023824e-002	PTCB1 =	7.500000e-005
PTEMPA2 =	1.156992e-007	PTCB2 =	0.000000e+000

## PRESSURE SPAN CALIBRATION

PRESSURE (PSIA)	INSTRUMENT OUTPUT (counts)	THERMISTOR OUTPUT (volts)	COMPUTED PRESSURE (PSIA)	RESIDUAL (%FSR)	TEMP (°C)	THERMISTOR OUTPUT (volts)	INSTRUMENT OUTPUT (counts)
14.70	527695.0	1412.0	14.74	0.00	32.50	1273	527816.80
314.94	592337.0	1405.0	314.90	-0.00	29.00	1323	527802.20
615.00	656995.0	1407.0	614.90	-0.01	24.00	1394	527791.40
914.94	721703.0	1405.0	914.90	-0.00	18.50	1474	527781.00
1214.76	786408.0	1403.0	1214.65	-0.01	15.00	1523	527752.00
1465.01	840483.0	1402.0	1464.97	-0.00	4.50	1674	527800.80
1214.90	786494.0	1403.0	1215.04	0.01	1.00	1724	527801.20
914.88	721727.0	1403.0	915.01	0.01			
614.95	657007.0	1404.0	614.96	0.00	TEMPERATURE (°C)	SPAN (mV)	
313.95	592385.0	1407.0	315.13	0.08	-5.00	24.95	
14.70	527685.0	1406.0	14.69	-0.00	35.00	24.96	

## THERMAL CORRECTION

y = thermistor output (counts)

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

$$x = \text{instrument output} - PTCA0 - PTCA1 * t - PTCA2 * t^2$$

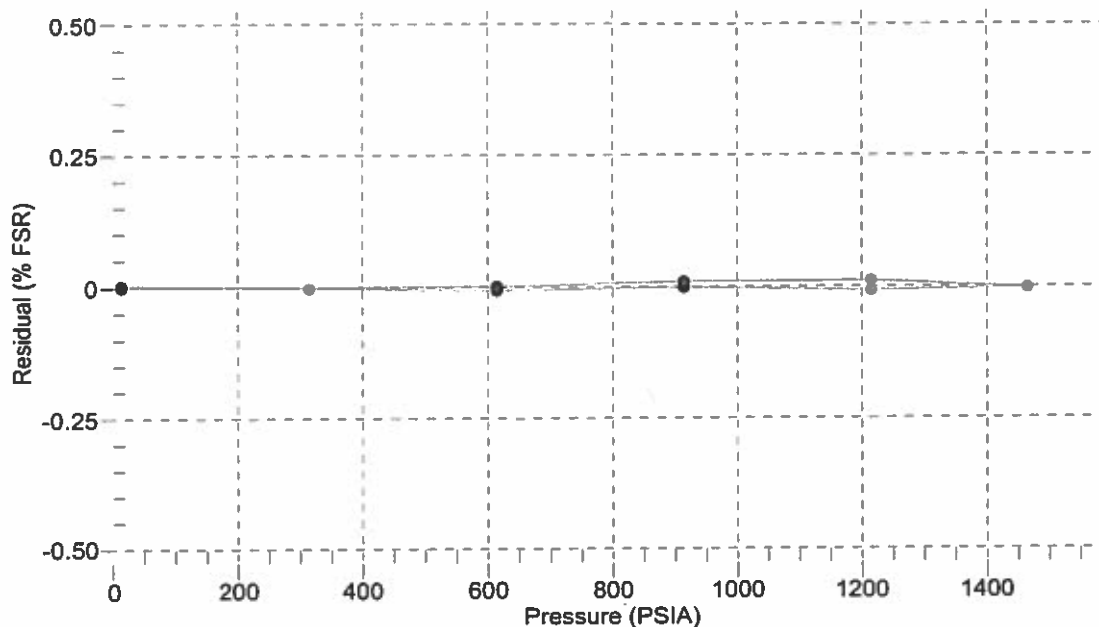
$$n = x * PTCB0 / (PTCB0 + PTCB1 * t + PTCB2 * t^2)$$

$$\text{pressure (PSIA)} = PA0 + PA1 * n + PA2 * n^2$$

$$\text{Residual (\%FSR)} = (\text{computed pressure} - \text{true pressure}) * 100 / \text{Full Scale Range}$$

Date, Offset (%FSR)

● 01-Apr-16 -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: 9361  
CALIBRATION DATE: 06-Apr-16

Slocum Payload CTD TEMPERATURE CALIBRATION DATA  
ITS-90 TEMPERATURE SCALE

### COEFFICIENTS:

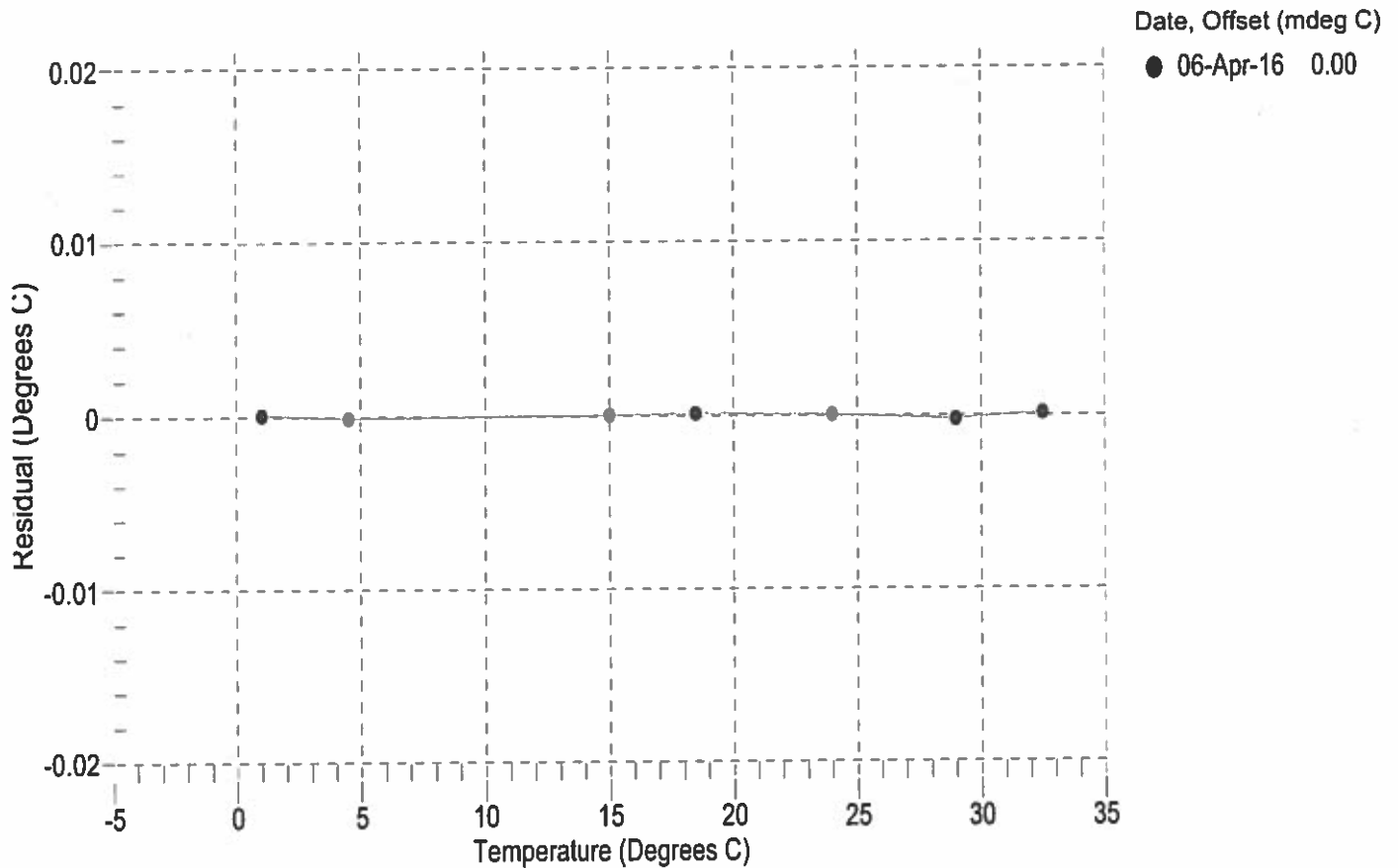
a0 = -1.788336e-004  
a1 = 3.173281e-004  
a2 = -5.044701e-006  
a3 = 2.159180e-007

BATH TEMP (° C)	INSTRUMENT OUTPUT (counts)	INST TEMP (° C)	RESIDUAL (° C)
1.0000	578215.4	1.0001	0.0001
4.5000	495271.8	4.4999	-0.0001
15.0000	317374.8	15.0000	0.0000
18.5000	275324.0	18.5001	0.0001
24.0000	221529.0	24.0000	0.0000
29.0000	182912.4	28.9998	-0.0002
32.5000	160489.2	32.5001	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: 9361  
CALIBRATION DATE: 06-Apr-16

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

## COEFFICIENTS:

g = -9.800101e-001  
h = 1.347673e-001  
i = -1.201724e-004  
j = 2.707758e-005

CPcor = -9.5700e-008  
CTcor = 3.2500e-006  
WBOTC = 2.1619e-007

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	2697.91	0.00000	0.00000
1.0000	34.7269	2.96905	5410.36	2.96906	0.00001
4.5000	34.7073	3.27545	5615.58	3.27544	-0.00001
15.0000	34.6650	4.25501	6225.73	4.25502	0.00000
18.5000	34.6561	4.59941	6426.21	4.59940	-0.00001
24.0000	34.6462	5.15611	6737.42	5.15612	0.00001
29.0000	34.6410	5.67683	7015.69	5.67682	-0.00000
32.5000	34.6384	6.04847	7207.22	6.04783	-0.00064

$$f = \text{Instrument Output(Hz)} * \text{sqrt}(1.0 + \text{WBOTC} * t) / 1000.0$$

t = temperature (°C); p = pressure (decibars);  $\delta$  = CTcor;  $\epsilon$  = CPcor;

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

$$\text{Residual (Siemens/meter)} = \text{instrument conductivity} - \text{bath conductivity}$$

