



**SEA-BIRD ELECTRONICS, INC.**

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**Digiquartz Pressure Calibration dP/dT Corrected Coefficients**

*(Changed coefficients are posted in italics)*

Pressure Transducer Serial Number: 142850

Original Calibration Date: 08-Jun-18

Date of Correction: 2018-06-12

Installed in: SBE 9Plus S/N 1365

**PRESSURE COEFFICIENTS**

|           |                      |                               |
|-----------|----------------------|-------------------------------|
| <i>C1</i> | <i>-46700.17</i>     | <i>psia</i>                   |
| <i>C2</i> | <i>0.662317</i>      | <i>psia/deg C</i>             |
| <i>C3</i> | <i>1.237300e-002</i> | <i>psia/deg C<sup>2</sup></i> |

|           |                      |
|-----------|----------------------|
| <i>D1</i> | <i>3.900500e-002</i> |
| <i>D2</i> | <i>0.000000e+000</i> |

|           |                      |                               |
|-----------|----------------------|-------------------------------|
| <i>T1</i> | <i>30.10334</i>      | <i>μsec</i>                   |
| <i>T2</i> | <i>-1.13503e-04</i>  | <i>μsec/deg C</i>             |
| <i>T3</i> | <i>3.648920e-006</i> | <i>μsec/deg C<sup>2</sup></i> |
| <i>T4</i> | <i>3.282390e-009</i> | <i>μsec/deg C<sup>3</sup></i> |
| <i>T5</i> | <i>0.000000e+000</i> |                               |

Slope = 1.0

Offset = 0.0

Corrected at Sea-Bird Electronics as per Paroscientific Calibration and Sea-Bird Electronics dP/dT tests. The original calibration from Paroscientific assumes an operating temperature range of 0 to 125 degrees C. dP/dT correction adjusts this operating range to a nominal range of 0 to 22 degrees C. This increases the accuracy of the transducer in this temperature range.

NOTE: Original coefficients from Paroscientific are attached to this form for informational purposes and should not be used.

# CALIBRATION COEFFICIENTS

SERIAL NO : 142850

PRESSURE TRANSDUCER

DATE : 05-24-2018

|                     |                                     |                                 |        |
|---------------------|-------------------------------------|---------------------------------|--------|
| MODEL :<br>410K-134 | PRESSURE RANGE :<br>0 to 10000 psia | TEMP. RANGE :<br>0 to 125 deg C | PORT : |
|---------------------|-------------------------------------|---------------------------------|--------|

## PRESSURE COEFFICIENTS

U = temperature  
(deg C)

$$C = C_1 + C_2U + C_3U^2$$

$$D = D_1 + D_2U$$

$$T_0 = T_1 + T_2U + T_3U^2 + T_4U^3 + T_5U^4$$

T = pressure period  
(μsec)

Pressure : (psia)

$$P = C \left(1 - \frac{T_0^2}{T^2}\right) \left(1 - D \left(1 - \frac{T_0^2}{T^2}\right)\right)$$

|                |                                     |
|----------------|-------------------------------------|
| C <sub>1</sub> | -46699.24 psia                      |
| C <sub>2</sub> | 6.69675E-01 psia/deg C              |
| C <sub>3</sub> | 1.23730E-02 psia/deg C <sup>2</sup> |

|                |          |
|----------------|----------|
| D <sub>1</sub> | 0.039005 |
| D <sub>2</sub> | 0        |

|                |                                     |
|----------------|-------------------------------------|
| T <sub>1</sub> | 30.10362 μsec                       |
| T <sub>2</sub> | -1.11318E-04 μsec/deg C             |
| T <sub>3</sub> | 3.64892E-06 μsec/deg C <sup>2</sup> |
| T <sub>4</sub> | 3.28239E-09 μsec/deg C <sup>3</sup> |
| T <sub>5</sub> | 0                                   |

(05-24-2018)

**PAROSCIENTIFIC, INC.**

4500 148th AVENUE N.E.  
REDMOND, WA. 98052

CUSTOMER : SEABIRD ELECTRONICS, INC.

SALES ORDER : 35632

PREPARED BY : WMR



**CALIBRATION COEFFICIENTS**SERIAL NO : **142850**

PRESSURE TRANSDUCER

DATE : **05-24-2018**

|                     |                                     |                                 |        |
|---------------------|-------------------------------------|---------------------------------|--------|
| MODEL :<br>410K-134 | PRESSURE RANGE :<br>0 to 10000 psia | TEMP. RANGE :<br>0 to 125 deg C | PORT : |
|---------------------|-------------------------------------|---------------------------------|--------|

**PRESSURE COEFFICIENTS AT FIXED TEMPERATURE**

(only valid at specified temperature)

T = pressure period ( $\mu\text{sec}$ )

Pressure equation : (psia)

$$P = C \left(1 - \frac{T_0^2}{T^2}\right) \left(1 - D \left(1 - \frac{T_0^2}{T^2}\right)\right)$$

Temperature: 21.0 C

|                                    |           |  |  |  |  |
|------------------------------------|-----------|--|--|--|--|
| C (psia)                           | -46679.72 |  |  |  |  |
| D                                  | 0.039005  |  |  |  |  |
| T <sub>0</sub> ( $\mu\text{sec}$ ) | 30.10292  |  |  |  |  |

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