Roc 10/31/2018.

RBR Conductivity Calibration Certificate

RBRmaestro C.T.D.DOrinko.FI.FI.PAR.trans.Tu.V|fast6 s/n: 80331

References: Autosal8400B#66289, MS-315#15506, SSW P160, RC#002

Reference Resistance (ohm)	Reference Conductivity (mS/cm)	Voltage Ratio, V	Measured Conductivity (mS/cm)	Calibration Error (mS/cm)
open	0.0000	-0.000091	0.0008	0.0008
694.020	6.2227	0.039507	6.2226	-0.0000
331.920	13.0111	0.082711	13.0110	-0.0001
150.010	28.7891	0.183123	28.7884	-0.0007
100.014	43.1805	0.274718	43.1803	-0.0002
75.017	57.5694	0.366290	57.5686	-0.0008
55.514	77.7939	0.495017	77.7949	0.0009

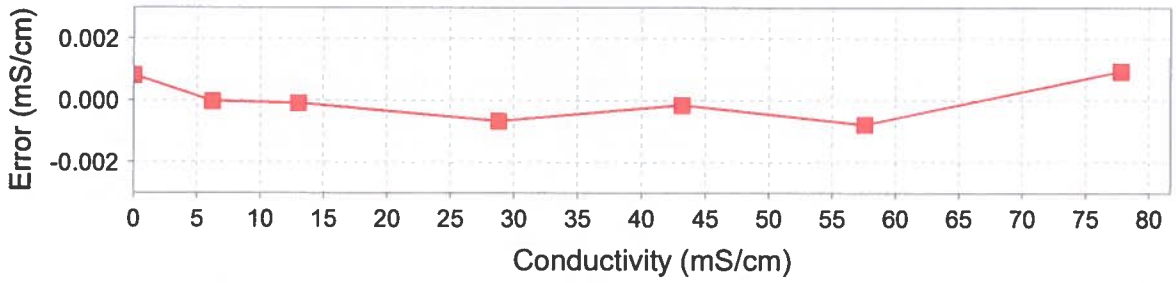
Coefficients	
C0:	15.059239E-3
C1:	157.12569
X0:	202.57342E-6
X1:	-19.139177E-6
X2:	600E-9
X3:	15.014443
X4:	10

Bath	Voltage Ratio	Temperature (ITS-90)	Salinity (PSS-78)	Conductivity (mS/cm)
T15S35	0.2731870	15.01444	35.0073	42.9398
T25S35	0.3371009	24.93753	34.9885	52.9903

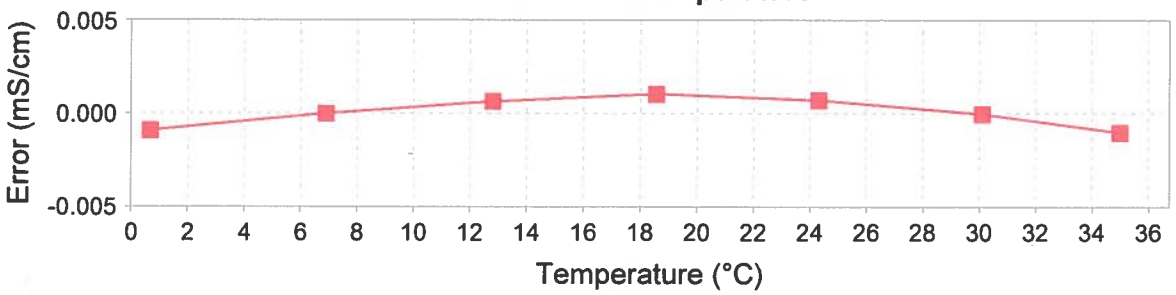
Cell Constant @T15S35 = 4.31865 1/cm

$$C_{cor} = \frac{C_0 + C_1 * V - X_0 * (T - X_3)}{1 + X_1 * (T - X_3) + X_2 * (P - X_4))}$$

Calibration error vs. Conductivity



Calibration error vs. Temperature



Calibration Date: 26/Oct/2018
Issue Date: 26/Oct/2018
File Name: 080331_20181026_1358C.rsk

Operator: I. Shkvorets
ishkvorets

Approver: T. Akuetteh
takuetteh

RBR Temperature Calibration Certificate

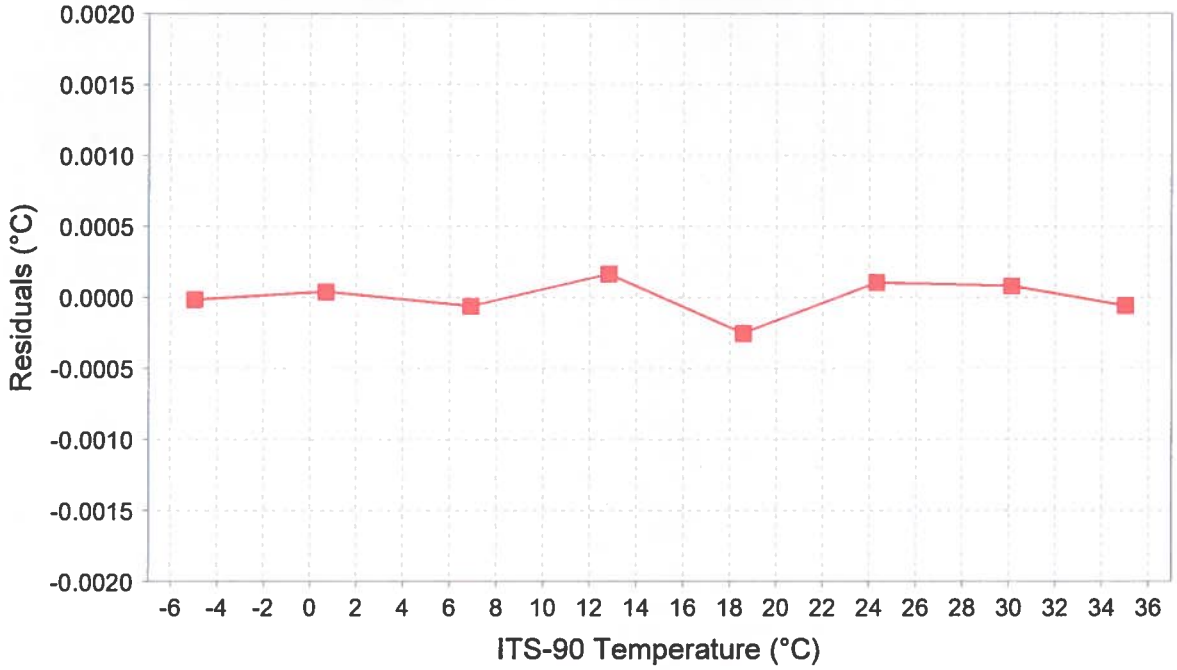
Logger ID: RBRmaestro Serial No: 80331 Channel No: 2

Reference Temperature, ITS-90	Voltage ratio, V	Measured Temperature, ITS-90	Calibration error
-4.97497	0.800532	-4.97499	-0.00002
0.66964	0.749200	0.66968	0.00004
6.89566	0.685806	6.89560	-0.00006
12.80377	0.620999	12.80394	0.00016
18.57318	0.555653	18.57293	-0.00025
24.31703	0.490894	24.31713	0.00010
30.11157	0.428032	30.11165	0.00008
34.99726	0.378238	34.99720	-0.00006

Coefficients

C0: 0.003370972352645
C1: -0.000254187230509
C2: 0.000002339522291
C3: -0.000000072199298

Residuals vs. Temperature



Calibration Date: 23/Oct/2018
Issue Date: 24/Oct/2018
Calibration ID: 28778

Operator: cmazerolle

Approver: ishkvorets

RBR Pressure Calibration Certificate

RBRmaestro C.T.D.DOrinko.FI.FI.PAR.trans.Tu.V|fast6 s/n: 80331

Sensor rating: 500 dbar s/n: I003548

Nominal accuracy: 0.05%FS (0.25 dbar)

Reference instrument: Mensor CPC6050 s/n: 41000CAM

Applied pressure, P_{app} (dbar)	Voltage ratio, V	Measured pressure, P_{meas} (dbar)	Calibration error (dbar)
10.1184	-0.033030	10.1199	0.0015
59.9995	-0.011137	59.9960	-0.0035
109.9990	0.010761	110.0013	0.0023
159.9980	0.032604	159.9988	0.0008
210.0010	0.054396	209.9996	-0.0014
259.9990	0.076136	259.9970	-0.0020
309.9990	0.097828	310.0022	0.0032
360.0000	0.119465	360.0012	0.0012
409.9980	0.141050	409.9969	-0.0011
459.9990	0.162586	459.9965	-0.0025
510.0000	0.184073	510.0016	0.0016

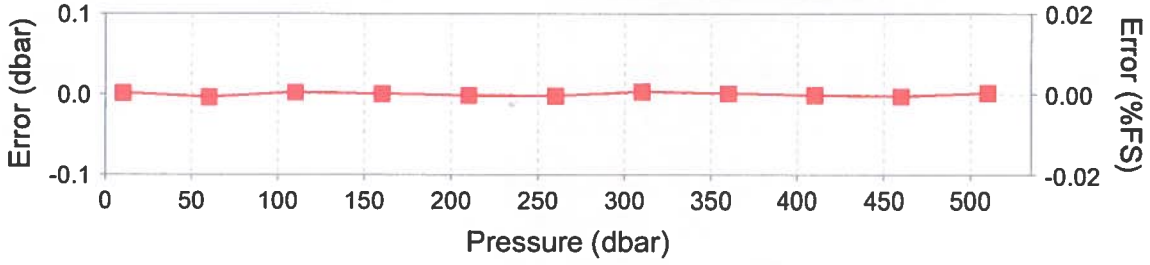
Coefficients

C0:	85.82749301
C1:	2283.61152354
C2:	123.26731144
C3:	9.71945717
X0(Patm):	10.117
X1:	-0.19150664
X2:	-0.00030181
X3:	0.00000312
X4:	-0.00013445
X5(Tcal):	22.6

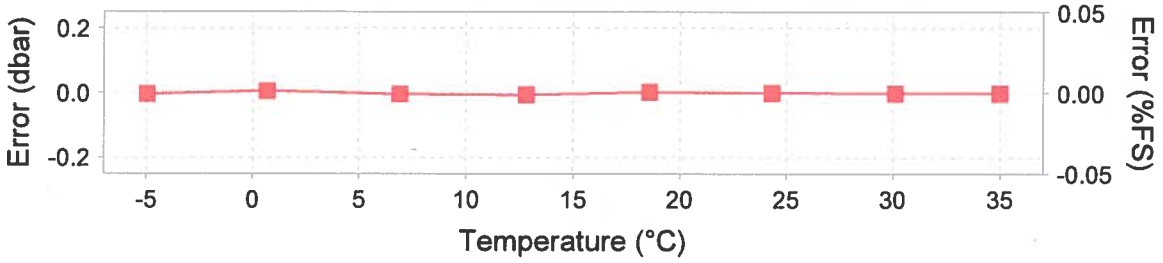
$$P_{meas} = C_0 + C_1 \cdot V + C_2 \cdot V^2 + C_3 \cdot V^3 \qquad P_{corr} = X_0 + \frac{P_{meas} - X_0 - X_1 \cdot (T - X_5) - X_2 \cdot (T - X_5)^2 - X_3 \cdot (T - X_5)^3}{1 + X_4 \cdot (T - X_5)}$$

Head (mm) = 414

Calibration error vs. Pressure (Tcal = 22.6°C)



Calibration error vs. Temperature (Patm = 10.05 dbar)



Calibration Date: 24/Oct/2018
Issue Date: 24/Oct/2018
File Name: 080331_20181024_1230P.rsk

Operator: dluong

Approver: ishkvorets

RBR

DO Calibration Certificate

RBRmaestro s/n: 80331

Sensor: Rinko-III ARO-CAV s/n: 282

Channel: 4

Reference DO (%)	Rinko DO (%)
0.000	3.1364788
99.842	103.9391157

Coefficients

C0:	-3.241
C1:	1.058
X0:	-44.68289
X1:	138.76861
X2:	-0.31466
X3:	0.01023
X4:	0.00400
X5:	0.00005
X6:	4.16000
X7:	0.00000
X8:	0.00000

Calibration conditions

Temperature:	24.3 °C
Patm:	101.17 kPa
Salinity:	0.0 PSU

Calibration Date: 24/Oct/2018
Issue Date: 24/Oct/2018

Operator: T. Akuetteh
takuetteh

Approver: I. Shkvorets
ishkvorets