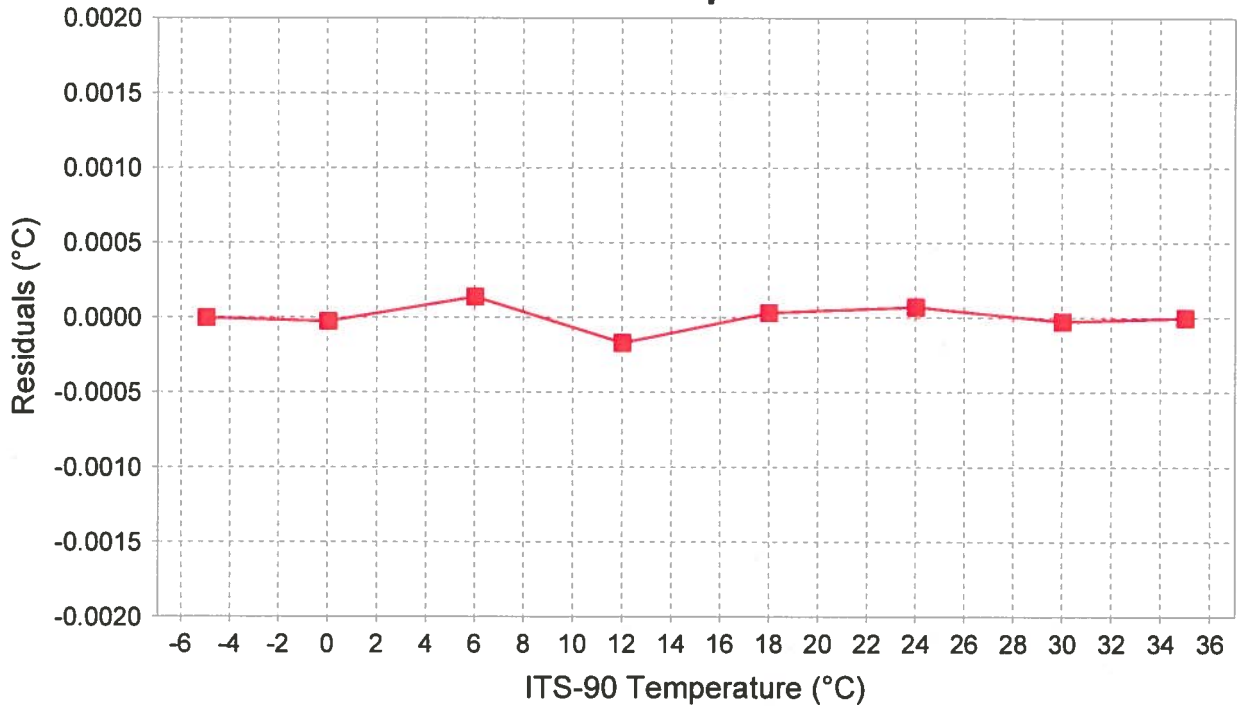


RBR Temperature Calibration Certificate

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

Reference Temperature, ITS-90	Voltage ratio, V	Measured Temperature, ITS-90	Calibration error	Coefficients
-4.94888	0.800329	-4.94888	-0.00000	C0: 0.003370961915839
0.04901	0.755176	0.04898	-0.00003	C1: -0.000254175219206
6.04628	0.694822	6.04641	0.00014	C2: 0.000002330984181
12.04328	0.629533	12.04311	-0.00017	C3: -0.000000077094087
18.03332	0.561800	18.03335	0.00003	
24.03016	0.494097	24.03023	0.00007	
30.03064	0.428894	30.03061	-0.00003	
35.02670	0.377955	35.02669	-0.00000	

Residuals vs. Temperature



Calibration Date: 5/Jun/2017
 Issue Date: 6/Jun/2017
 Calibration ID: 20836

Operator: *Carla Mazerolle*
 cmazerolle

Approver: *J. Bucknor*
 sbucknor

Pressure Calibration Certificate

RBRmaestro C.T.D.DO.FI.FI.PAR.Trans.Tu.V s/n: 80331

Sensor rating: 500 dbar s/n: I003548

Nominal accuracy: 0.05%FS (0.25 dbar)

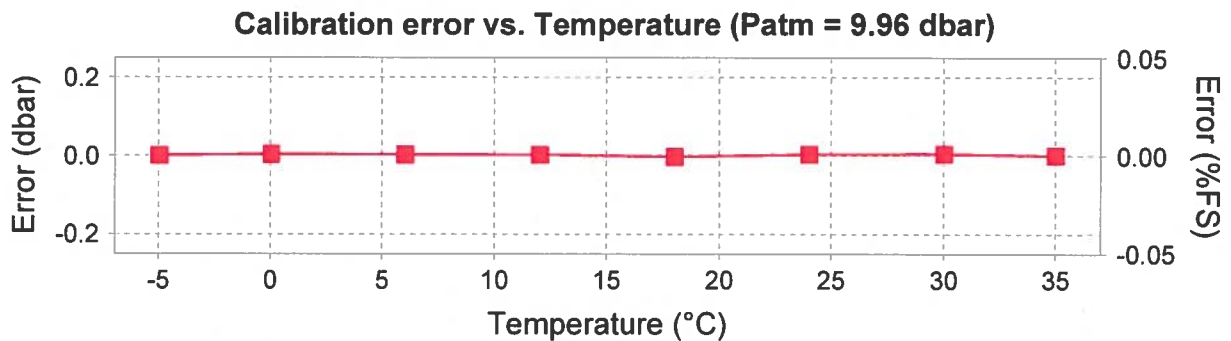
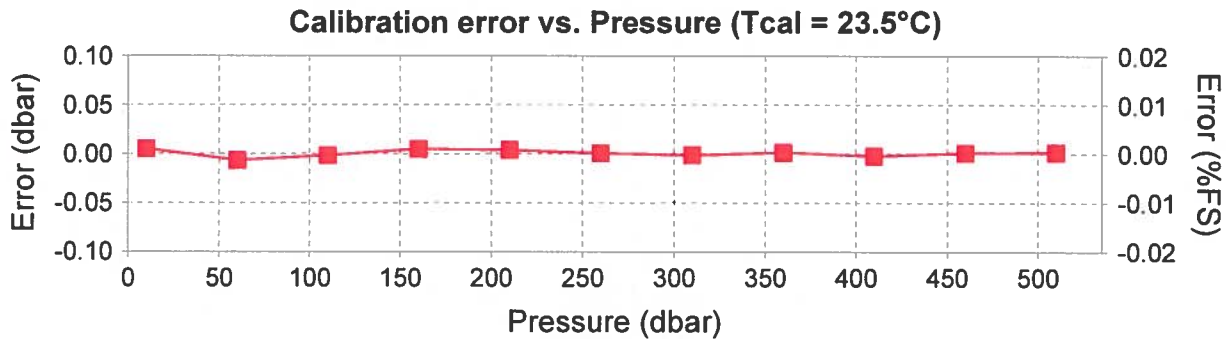
Reference instrument: Mensor CPC6000 s/n: 612676

Applied pressure, P _{app} (dbar)	Voltage ratio, V	Measured pressure, P _{meas} (dbar)	Calibration error (dbar)	Coefficients
10.0740	-0.033951	10.0785	0.0045	C0: 87.95675021
59.9996	-0.012026	59.9922	-0.0073	C1: 2283.11693279
109.9996	0.009879	109.9973	-0.0023	C2: 141.66678479
159.9991	0.031725	160.0033	0.0042	C3: -16.51692131
209.9993	0.053510	210.0026	0.0033	X0 (Patm): 10.073
259.9994	0.075237	259.9995	0.0001	X1: -0.19078139
309.9993	0.096908	309.9974	-0.0019	X2: -0.00030139
359.9990	0.118526	360.0000	0.0010	X3: 0.00000226
409.9990	0.140086	409.9963	-0.0027	X4: -0.00012476
459.9990	0.161595	459.9993	0.0003	X5 (Tcal): 23.5
510.0023	0.183052	510.0032	0.0009	

$$P_{meas} = C_0 + C_1 \cdot V + C_2 \cdot V^2 + C_3 \cdot V^3$$

$$P_{icor} = X_0 + \frac{P_{meas} - X_0 - X_1(T - X_5) - X_2(T - X_5)^2 - X_3(T - X_5)^3}{1 + X_4(T - X_5)}$$

Head (mm) = 527



Calibration Date: 7/Jun/2017
 Issue Date: 7/Jun/2017
 File Name: 080331_20170607_1317P.rsk

Operator: *cmazerolle*
 cmazerolle

Approver: *s.bucknor*
 sbucknor

RBR Conductivity Calibration Certificate

RBRmaestro C.T.D.DO.FI.FI.PAR.Trans.Tu.V s/n: 80331

References: Autosal8400B#66289, MS-315#15506, SSW P159, RC#002

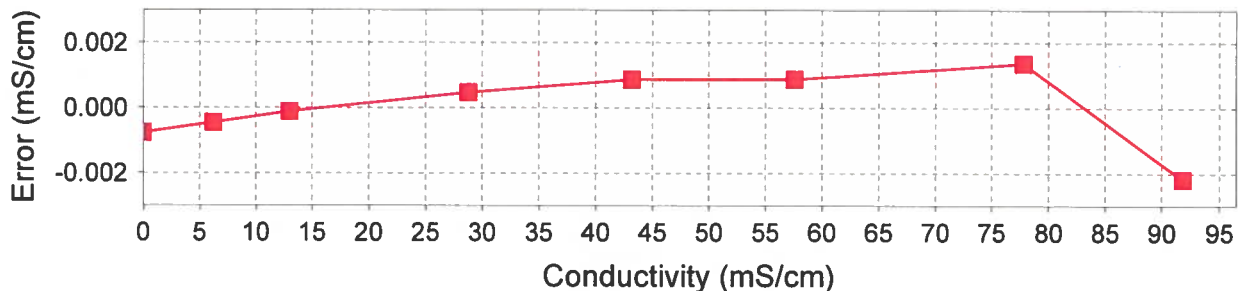
Reference Resistance (ohm)	Reference Conductivity (mS/cm)	Voltage Ratio, V	Measured Conductivity (mS/cm)	Calibration Error (mS/cm)	Coefficients
open	0.0000	-0.000038	-0.0008	-0.0008	C0: 0.0052
694.020	6.2244	0.039207	6.2239	-0.0005	C1: 158.6142
331.923	13.0146	0.082018	13.0145	-0.0001	X0: 0.000075
150.010	28.7971	0.181524	28.7975	0.0005	X1: -0.000010
100.014	43.1924	0.272284	43.1933	0.0009	X2: 0.0000006
75.014	57.5872	0.363037	57.5881	0.0009	X3: 15.0
55.510	77.8211	0.490607	77.8224	0.0014	X4: 10
47.015	91.8823	0.579235	91.8801	-0.0022	

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

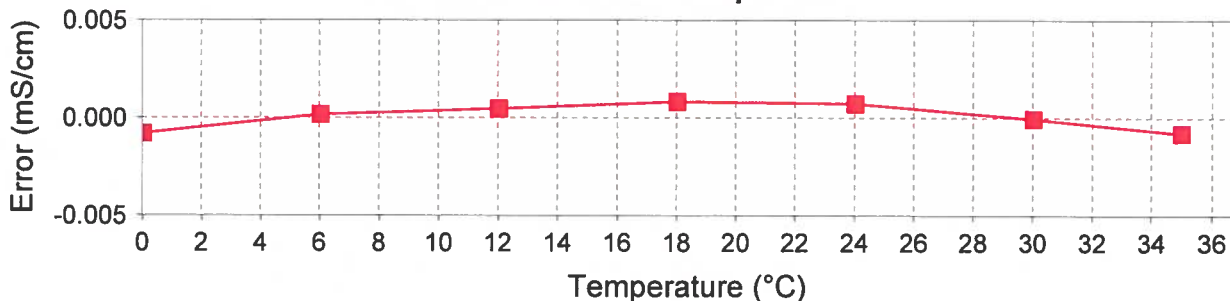
Bath	Voltage Ratio	Temperature (ITS-90)	Salinity (PSS-78)	Conductivity (mS/cm)
T15S35	0.2706378	15.00943	35.0049	42.9322
T25S35	0.3403225	25.86917	35.0067	53.9901

Cell Constant @T15S35 = 4.31985 1/cm

Calibration error vs. Conductivity



Calibration error vs. Temperature



Calibration Date: 8/Jun/2017
 Issue Date: 8/Jun/2017
 File Name: 080331_20170608_1304C.rsk

Operator: *I. Shkvetsov*
 ishkvrets

Approver: *J. Bucknor*
 sbucknor

RBR

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DO Calibration Certificate
Rinko-III ARO-CAV# 0282
RBRmaestro C.T.D.DO.FI.FI.PAR.Trans.Tu.V #80331

N	Reference DO, %	Rinko DO, %	DO Error, %	Old Calibration Coefficients	New Calibration Coefficients
1	0.000	0.127	0.127	G'(C0) = 0.000	G(C0) = -0.136
2	98.208	92.068	-6.140	H'(C1) = 1.00000	H(C1) = 1.06816

Calibration conditions:

Temperature: 23.1 °C
Patm: 99.56 kPa
Salinity: 0

Calibration Date:
Issue Date:

09-Jun-17
09-Jun-17

Operator: I. Shkvet Calibration Manager: S. Bucknor
I. Shkvorets S. Bucknor