

FP07 Temperature Probe Production Report

PROBE DETAILS

Probe SN: T2047
Probe PN: 012-006-20
Thermistor Resistance: 2.087 k Ω at 21 °C

PRESSURE TESTING DETAILS

Operator: Shiro Yasuda
Date: 2020-04-06
Depth Rating: 1000 m

DIP TEST DETAILS

Operator: Shiro Yasuda
Date: 2020-04-08
Voltage (Measured): 0.0250 V
Resistance (Calculated): 119 G Ω

CALIBRATION METHOD

This FP07 thermistor was **NOT** calibrated at the Rockland Production Facility. It is recommended that an *in situ* calibration be performed using data collected by a CTD-quality thermometer (usually a Sea-Bird SBE3F, or a JAC-CT) included on your Rockland instrument or on a nearby platform. Functions are available in Zissou Essentials and the ODAS Matlab Library to determine the coefficients (i.e. β , β_1 , β_2 , and/or T_0) for a first or second-order regression to the Steinhart-Hart equation (given below).

First-Order Model:

$$\frac{1}{\hat{T}} = \frac{1}{\hat{T}_0} + \frac{1}{\beta} \log_e \left(\frac{R_T}{R_0} \right)$$

Second-order Model:

$$\frac{1}{\hat{T}} = \frac{1}{\hat{T}_0} + \frac{1}{\beta_1} \log_e \left(\frac{R_T}{R_0} \right) + \frac{1}{\beta_2} \left(\log_e \left(\frac{R_T}{R_0} \right) \right)^2$$

$$[\hat{T}] \equiv K, \quad T \equiv \hat{T} - 273.15 \text{ [}^\circ\text{C]}$$



Uncalibrated Probe



This probe is extremely fragile! Do not touch probe tip with any solid object.

FREQUENTLY ASKED QUESTIONS

Q1) Why is the FP07 thermistor uncalibrated?

The FP07 is designed to be a fast thermistor not a stable thermistor. Due to the lack of stability, it is best to perform an *in situ* calibration. For more information see *Technical Note 047: Why Calibrate the FP07 Thermistor*, available for download on Rockland's website.

Q2) How to perform an *in situ* temperature calibration?

To perform the *in situ* temperature calibration, use the appropriate function supplied in either Zissou Essentials or the ODAS Matlab Library. Details are provided in Technical Note 039 titled "A Guide to Data Processing".

Q3) How to request a calibration of an FP07 thermistor probe?

To request a calibration of your FP07 Thermistor Probe, please contact support@rocklandscientific.com. This may be necessary if ancillary CTD data is not available.

Q4) What is the time response of the FP07 thermistor probe?

The time response of the FP07 thermistor is probe specific. Please see Sommer et al. (JTECH, 2013) for a discussion on this topic.



If you have questions or you suspect a FP07 thermistor probe may be broken, please contact support@rocklandscientific.com