User's Guide

Guide to Thermistor Coefficient Calculator Tool - BQ769x2

ABSTRACT

The BQ769x2 family of battery monitors can support multiple external thermistors. The device includes an internal pullup resistor to bias the thermistor during measurement. The internal pullup resistor has two options which can set the pullup to 18 kΩ or 180 kΩ. The 18-kΩ option is intended for thermistors that have a 10-kΩ resistance at room temperature. The 180-kΩ option is intended for higher resistance thermistors that have a 200-kΩ resistance at room temperature.

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1 Required Data

The GPC tool requires a single .zip file containing one configuration file, and one data file, as input. The name of the .zip file is not important. The .zip file must contain these files:

- config.txt
- thermistor.txt

Configuration File

The configuration file is a text file named config.txt and is an ASCII text dictionary that contains this information:

- – **ProcessingType = 7** Determines the type of tool used. Value must be 7 for the Thermistor Coefficient Calculator
  – **Rpullup = 18k or 180k** depending on the pullup resistance needed for the thermistor.

Example config.txt File:

```
ProcessingType=7
Rpullup=18k
```

thermistor.txt File

The thermistors.txt file lists the resistances (in Ohms) and temperatures (in degrees C) from the thermistor datasheet. Do not alter from the example provided.

Example thermistors.txt file:

```
# Resistances (Ohms)
329500
247700
188500
144100
111300
86430
67770
53410
42470
33900
27280
22050
17960
14690
12090
10000
8313
6940
5827
4911
4160
3536
3020
2588
2228
1924
1668
1451
1266
1108
973.1
857.2
757.6

# Temperatures (degreesC)
-50
-45
-40
-35
-30
-25
-20
-15
```

```
-10
-5
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
105
110
```

2 Data Submission

The zip file created as previously described must be submitted to the GPC tool through the web interface here: https://www.ti.com/powercalculator/docs/gpc/gpcUpload.tsp. After processing, an e-mail with a report that includes the calculated coefficients is sent to the e-mail address you provide when logging in. The report contains the log file, calculated coefficients, and graph showing the expected performance of the calculated coefficients. If any format or other errors are present, they are reflected in the report.

If using the 18-k pullup option, enter these numbers into the ***Calibration:18K Temperature Model*** register settings for the BQ769x2 device. If using the 180-k pullup option, enter these numbers into the ***Calibration:180K Temperature Model*** register settings. When configuring the thermistor pins, make sure to select the correct temperature model using the ***OPT[3:2]*** bits for the pin configuration registers.

3 Revision History

NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

DATE	REVISION	NOTES
June 2022	*	Initial Release

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