FuelTank Reference Manual

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Contents

Chapter 1

FuelTankLibrary

Libray for the Fuel Tank BoosterPack

Library

Developed with embedXcode+

Author

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Date

Dec 20, 2013

Version

101

Copyright

See Also

ReadMe.txt for references

- Fuel Tank BoosterPack
- Datasheet http://www.ti.com/lit/gpn/bq27520-g3
- White paper http://www.ti.com/lit/wp/slpy002/slpy002.pdf
- Reference http://www.ti.com/lit/pdf/sluua35
- Comparison BQ27520-G3 to -G4 http://www.ti.com/lit/pdf/slua658

Chapter 2

Class Index

2.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

Chapter 3

File Index

3.1 File List

Here is a list of all documented files with brief descriptions:

Chapter 4

Class Documentation

4.1 FuelTank Class Reference

Class for the Fuel Tank BoosterPack.

`#include <FuelTankLibrary.h>`

Public Member Functions

- FuelTank ()
  Constructor.
- void begin ()
  Initialise.
- String WhoIAm ()
  Who I Am.
- void get ()
  Acquire all the measures.
- uint16_t temperature_oCx10 ()
  Temperature in units of 0.1 ℃ measured by the fuel gauge.
- uint16_t voltage_mV ()
  Measured voltage of the cell-pack.
- uint16_t flags ()
  Flags.
- uint16_t nominalAvailableCapacity_mAh ()
  Uncompensated battery capacity remaining.
- uint16_t fullAvailableCapacity_mAh ()
  Uncompensated capacity of fully battery.
- uint16_t remainingCapacity_mAh ()
  Compensated battery capacity remaining.
- uint16_t fullChargeCapacity_mAh ()
  Compensated capacity of fully charged battery.
- int16_t averageCurrent_mA ()
  Average current flow.
- uint16_t timeToEmpty_mn ()
  Predicted remaining battery life at the present rate of discharge.
- int16_t standbyCurrent_mA ()
  Measured standby current.
- uint16_t standbyTimeToEmpty_mn ()

Predicted remaining battery life at the standby rate of discharge.

- uint16_t stateOfHealth_Index ()

  Percentage of the ratio of predicted calculated full charge capacity over nominal capacity of a new pack.
- uint16_t cycleCount ()

  Number of cycles.
- uint16_t stateOfCharge_Percent ()

  Predicted remaining battery capacity expressed as a percentage of full charge capacity.
- int16_t instantaneousCurrent_mA ()

  Instantaneous current flow.
- uint16_t internalTemperature_oCx10 ()

  Internal temperature sensor in units of 0.1 ℃ measured by the fuel gauge.
- uint16_t resistanceScale ()

  Resistance scale.
- uint16_t operationConfiguration ()

  Operation configuration.
- uint16_t designCapacity_mAh ()

  Theoretical or nominal capacity of a new pack.

4.1.1 Detailed Description

Class for the Fuel Tank BoosterPack.

Based on BQ27510

4.1.2 Member Function Documentation

4.1.2.1 int16_t FuelTank::averageCurrent_mA ( )

Average current flow.

Updated once per second

Returns

value in mA

4.1.2.2 void FuelTank::begin ( )

Initialise.

Note

For compatibility only. No operation is performed.

4.1.2.3 uint16_t FuelTank::cycleCount ( )

Number of cycles.

Returns

number of cycles

4.1.2.4 uint16_t FuelTank::designCapacity_mAh ( )

Theoretical or nominal capacity of a new pack.

Returns

value in mAh

4.1.2.5 uint16_t FuelTank::flags ( )

Flags.

Returns

See BQ27510 datasheet

4.1.2.6 uint16_t FuelTank::fullAvailableCapacity_mAh ( )

Uncompensated capacity of fully battery.

Returns

value in mAh

4.1.2.7 uint16_t FuelTank::fullChargeCapacity_mAh ( )

Compensated capacity of fully charged battery.

Returns

value in mAh

4.1.2.8 int16_t FuelTank::instantaneousCurrent_mA ( )

Instantaneous current flow.

Returns

value in mA

4.1.2.9 uint16_t FuelTank::internalTemperature_oCx10 ( )

Internal temperature sensor in units of 0.1℃ measured by the fuel gauge.

Returns

value in oC x 10

4.1.2.10 uint16_t FuelTank::nominalAvailableCapacity_mAh ( )

Uncompensated battery capacity remaining.

Returns

value in mAh

4.1.2.11 uint16_t FuelTank::operationConfiguration ( )

Operation configuration.

Returns

See BQ27510 datasheet

4.1.2.12 uint16_t FuelTank::remainingCapacity_mAh ( )

Compensated battery capacity remaining.

Returns

value in mAh

4.1.2.13 uint16_t FuelTank::resistanceScale ( )

Resistance scale.

Returns

See BQ27510 datasheet

4.1.2.14 int16_t FuelTank::standbyCurrent_mA ( )

Measured standby current.

Returns

value in mA

4.1.2.15 uint16_t FuelTank::standbyTimeToEmpty_mn ( )

Predicted remaining battery life at the standby rate of discharge.

Returns

value in minutes

4.1.2.16 uint16_t FuelTank::stateOfCharge_Percent ( )

Predicted remaining battery capacity expressed as a percentage of full charge capacity.

Returns

value in %

4.1.2.17 uint16_t FuelTank::stateOfHealth_Index ( )

Percentage of the ratio of predicted calculated full charge capacity over nominal capacity of a new pack.

Returns

value in %

4.1.2.18 uint16_t FuelTank::temperature_oCx10 ( )

Temperature in units of 0.1℃ measured by the fuel gauge.

Returns

in oC x10

4.1.2.19 uint16_t FuelTank::timeToEmpty_mn ( )

Predicted remaining battery life at the present rate of discharge.

Returns

value in minutes

4.1.2.20 uint16_t FuelTank::voltage_mV ( )

Measured voltage of the cell-pack.

Returns

in mV

4.1.2.21 String FuelTank::WhoIAm ( )

Who I Am.

Returns

Short description, String

The documentation for this class was generated from the following files:

- FuelTankLibrary.h
- FuelTankLibrary.cpp

Chapter 5

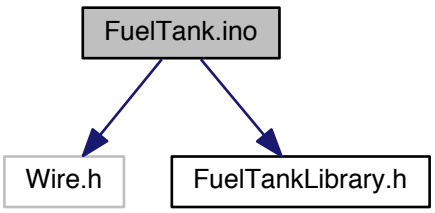
File Documentation

5.1 FuelTank.ino File Reference

Main sketch.

```
#include "Wire.h"
#include "FuelTankLibrary.h"
```

Include dependency graph for FuelTank.ino:



Functions

- void display (String message, int32_t value, int16_t unit=1)

  Display routine.
- void setup ()

  Setup code.
- void loop ()

  Loop code.

Variables

- FuelTank myFuelTank

  Fuel tank instantiation.

5.1.1 Detailed Description

Main sketch. Example for the Fuel Tank BoosterPack libray

Developed with embedXcode+

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5.1.2 Function Documentation

5.1.2.1 void display (String *message,* int32_t *value,* int16_t *unit* = 1)

Display routine.

Based on integers to save memory!

Parameters

message	message, string
value	actually value x unit
unit	1=default, otherwise 10, 100, ...

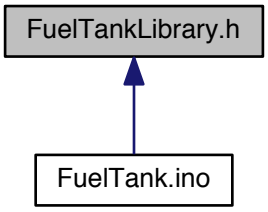
Note

value=12, unit=10 means 12/10 = 1.2

5.2 FuelTankLibrary.h File Reference

Library header.

This graph shows which files directly or indirectly include this file:



Classes

- class FuelTank

  Class for the Fuel Tank BoosterPack.

Macros

- #define FuelTankLibrary_RELEASE 101

  Library release.
- #define BQ27510_RELEASE 3

  BQ27510 release.

5.2.1 Detailed Description

Library header.

Project FuelTankLibrary

Developed with `embedXcode+`

Author

Rei Vilo
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Date

20/12/2013 16:49

Version

101

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See Also

ReadMe.txt for references

5.2.2 Macro Definition Documentation

5.2.2.1 #define BQ27510_RELEASE 3

BQ27510 release.

2 to BQ27510-G2, 3 for BQ27510-G3

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