MadeleineStein_lab9

0.1

Generated by Doxygen 1.8.6

Mon Jun 26 2017 09:31:28

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1.1 File List

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

Chapter 2

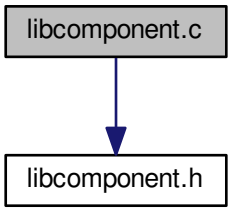
File Documentation

2.1 libcomponent.c File Reference

Function for counting resistance.

```
#include "libcomponent.h"
```

Include dependency graph for libcomponent.c:



Functions

- int e_resistance (float orig_resistance, float *res_array)

  Get the closest E12 replacement resistance with up to 3 resistors.

Variables

- float **e12_resistors** [61]

2.1.1 Detailed Description

Function for counting resistance.

Author

Marcus Valtonen Örnhag

2.1.2 Function Documentation

2.1.2.1 int e_resistance (float *orig_resistance*, float * *res_array*)

Get the closest E12 replacement resistance with up to 3 resistors.

Parameters

orig_resistance	The resistance to approximate.
res_array	The resulting array of resistances (out param)

Returns

The number of resistors used (between 0-3).

2.1.3 Variable Documentation

2.1.3.1 float e12_resistors[61]

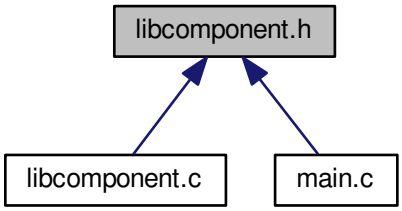
Initial value:

```
=
    {10e0, 12e0, 15e0, 18e0, 22e0, 27e0, 33e0, 39e0, 47e0, 56e0, 68e0, 82e0,
     10e1, 12e1, 15e1, 18e1, 22e1, 27e1, 33e1, 39e1, 47e1, 56e1, 68e1, 82e1,
     10e2, 12e2, 15e2, 18e2, 22e2, 27e2, 33e2, 39e2, 47e2, 56e2, 68e2, 82e2,
     10e3, 12e3, 15e3, 18e3, 22e3, 27e3, 33e3, 39e3, 47e3, 56e3, 68e3, 82e3,
     10e4, 12e4, 15e4, 18e4, 22e4, 27e4, 33e4, 39e4, 47e4, 56e4, 68e4, 82e4,
     10e5}
```

2.2 libcomponent.h File Reference

Function for counting resistance.

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



Macros

- #define **NBR_E12** 61

Functions

- int e_resistance (float orig_resistance, float *res_array)

  Get the closest E12 replacement resistance with up to 3 resistors.

2.2.1 Detailed Description

Function for counting resistance.

Author

Marcus Valtonen Örnhag

2.2.2 Function Documentation

2.2.2.1 int e_resistance (float *orig_resistance*, float * *res_array*)

Get the closest E12 replacement resistance with up to 3 resistors.

Parameters

orig_resistance	The resistance to approximate.
res_array	The resulting array of resistances (out param)

Returns

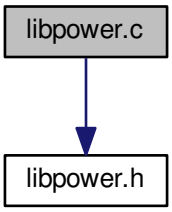
The number of resistors used (between 0-3).

2.3 libpower.c File Reference

Function for calculate power.

```
#include "libpower.h"
```

Include dependency graph for libpower.c:



Functions

- float calc_power_r (float volt, float resistance)

  Calculate power from resistance.
- float calc_power_i (float volt, float current)

  Calculate power from current.

2.3.1 Detailed Description

Function for calculate power.

Author

Madeleine Stein

2.3.2 Function Documentation

2.3.2.1 float calc_power_i (float *volt*, float *current*)

Calculate power from current.

Parameters

volt	The voltage (V)
current	The resistance in ampere (A)

Returns

The calculated power in watt (W)

2.3.2.2 float calc_power_r (float *volt*, float *resistance*)

Calculate power from resistance.

Parameters

volt	The voltage (V)
resistance	The resistance (Ohm)

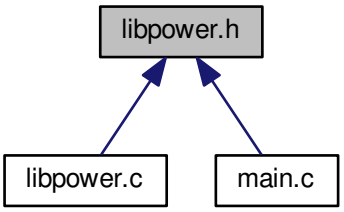
Returns

The calculated power in watt (W)

2.4 libpower.h File Reference

Function for calculate power.

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



Functions

- float calc_power_r (float volt, float resistance)

Calculate power from resistance.

- float calc_power_i (float volt, float current)

  Calculate power from current.

2.4.1 Detailed Description

Function for calculate power.

Author

Madeleine Stein

2.4.2 Function Documentation

2.4.2.1 float calc_power_i (float *volt*, float *current*)

Calculate power from current.

Parameters

volt	The voltage (V)
current	The resistance in ampere (A)

Returns

The calculated power in watt (W)

2.4.2.2 float calc_power_r (float *volt*, float *resistance*)

Calculate power from resistance.

Parameters

volt	The voltage (V)
resistance	The resistance (Ohm)

Returns

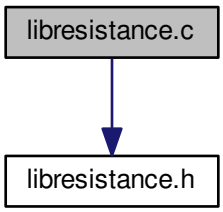
The calculated power in watt (W)

2.5 libresistance.c File Reference

Calculate equivalent resistance of several parallel or serial connected resistances.

```
#include "libresistance.h"
```

Include dependency graph for libresistance.c:



Functions

- float calc_resistance (int count, char conn, const float *array)

  Equivalent resistance of parallel or serial connected resistances.

2.5.1 Detailed Description

Calculate equivalent resistance of several parallel or serial connected resistances.

Author

Arvid Axelsson

2.5.2 Function Documentation

2.5.2.1 float calc_resistance (int *count*, char *conn*, const float * *array*)

Equivalent resistance of parallel or serial connected resistances.

Parameters

count	The number of connected resistances.
conn	Should be 'S' or 'P' to indicate serial or parallel connection.
array	Array of values of the resistances.

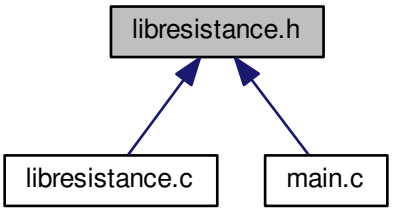
Returns

Value of the equivalent resistance.

2.6 libresistance.h File Reference

Find equivalent resistance of parallel or serial connected resistances.

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



Functions

- float calc_resistance (int count, char conn, const float ∗array)

  Equivalent resistance of parallel or serial connected resistances.

2.6.1 Detailed Description

Find equivalent resistance of parallel or serial connected resistances.

Author

Arvid Axelsson

2.6.2 Function Documentation

2.6.2.1 float calc_resistance (int *count*, char *conn*, const float ∗ *array*)

Equivalent resistance of parallel or serial connected resistances.

Parameters

count	The number of connected resistances.
conn	Should be 'S' or 'P' to indicate serial or parallel connection.
array	Array of values of the resistances.

Returns

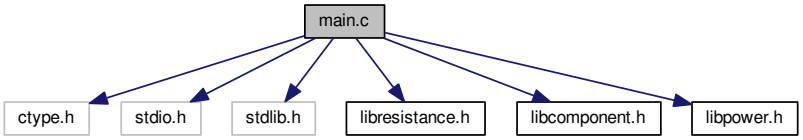
Value of the equivalent resistance.

2.7 main.c File Reference

Program to test all the functionality of the shared libraries.

```
#include <ctype.h>
#include <stdio.h>
#include <stdlib.h>
#include "libresistance.h"
#include "libcomponent.h"
#include "libpower.h"
```

Include dependency graph for main.c:



Functions

- int **main** (void)

2.7.1 Detailed Description

Program to test all the functionality of the shared libraries.

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