

MadeleineStein\_lab9

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# Chapter 1

## File Index

### 1.1 File List

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

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## Chapter 2

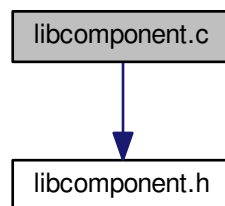
# File Documentation

### 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 Örnåhag

## 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

<i>orig_resistance</i>	The resistance to approximate.
<i>res_array</i>	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]`

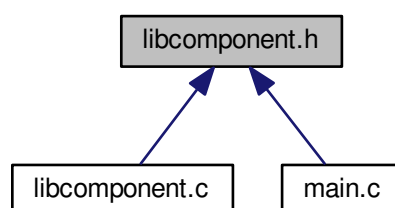
#### Initial value:

```
=
{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 Örnthag

### 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

<i>orig_resistance</i>	The resistance to approximate.
<i>res_array</i>	The resulting array of resistances (out param)

Returns

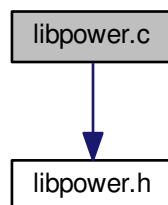
The number of resistors used (between 0-3).

## 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**

<i>volt</i>	The voltage (V)
<i>current</i>	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**

<i>volt</i>	The voltage (V)
<i>resistance</i>	The resistance (Ohm)

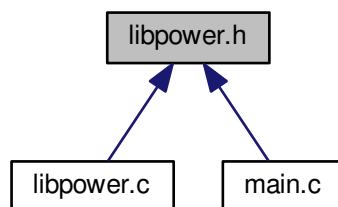
**Returns**

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

<i>volt</i>	The voltage (V)
<i>current</i>	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

<i>volt</i>	The voltage (V)
<i>resistance</i>	The resistance (Ohm)

**Returns**

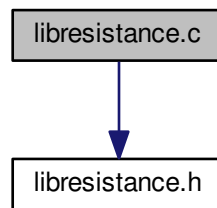
The calculated power in watt (W)

**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**

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

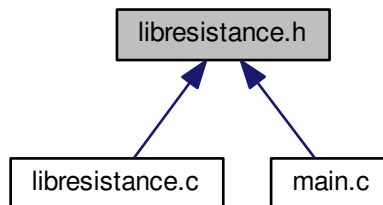
**Returns**

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

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

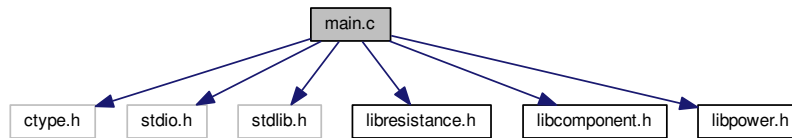
##### Returns

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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