

MotionAC Software Library

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Modules

Here is a list of all modules:

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▼ **MIDDLEWARES**

 ▼ **MOTION_AC**

MOTION_AC_Exported_Types

MOTION_AC_Exported_Functions

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Modules

MIDDLEWARES

Modules

MOTION_AC

Detailed Description

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MOTION_AC

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MOTION_AC_Exported_Types

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MOTION_AC_Exported_Types

[MIDDLEWARES](#) » [MOTION_AC](#)

Data Structures

```
struct MAC_input_t
```

```
struct MAC_output_t
```

Enumerations

```
enum MAC_CalQuality_t { MAC_CALQSTATUSUNKNOWN = 0,  
                        MAC_CALQSTATUSPOOR, MAC_CALQSTATUSOK,  
                        MAC_CALQSTATUSGOOD }
```

Detailed Description

Enumeration Type Documentation

enum MAC_CalQuality_t

Enumerator	
MAC_CALQSTATUSUNKNOWN	
MAC_CALQSTATUSPOOR	
MAC_CALQSTATUSOK	
MAC_CALQSTATUSGOOD	

Definition at line **64** of file **motion_ac.h**.

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MAC_input_t Struct Reference	MIDDLEWARES » MOTION_AC » MOTION_AC_Exported_Types			

```
#include <motion_ac.h>
```

Data Fields

float **Acc** [3]

int **TimeStamp**

Detailed Description

Definition at line **72** of file **[motion_ac.h](#)**.

Field Documentation

float Acc[3]

Definition at line [74](#) of file [motion_ac.h](#).

int TimeStamp

Definition at line [75](#) of file [motion_ac.h](#).

The documentation for this struct was generated from the following file:

- [algorithms/Middlewares/ST/STM32_MotionAC_Library/Inc/motion_](#)

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MAC_output_t Struct Reference				

MIDDLEWARES » **MOTION_AC** » **MOTION_AC_Exported_Types**

```
#include <motion_ac.h>
```

Data Fields

float **AccBias** [3]

float **SF_Matrix** [3][3]

MAC_CalQuality_t CalQuality

Detailed Description

Definition at line **78** of file **[motion_ac.h](#)**.

Field Documentation

float AccBias[3]

Definition at line **80** of file **motion_ac.h**.

MAC_CalQuality_t CalQuality

Definition at line **82** of file **motion_ac.h**.

float SF_Matrix[3][3]

Definition at line **81** of file **motion_ac.h**.

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- [algorithms/Middlewares/ST/STM32_MotionAC_Library/Inc/motion_](#)
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Functions

MOTION_AC_Exported_Functions

[MIDDLEWARES](#) » [MOTION_AC](#)

Functions

void **MotionAC_Initialize** (int sampletime, unsigned short int enable)
Initialize the MotionAC engine. [More...](#)

void **MotionAC_Update** (**MAC_input_t** *data_in)
Run accelerometer calibration algorithm. [More...](#)

void **MotionAC_GetCalParams** (**MAC_output_t** *data_out)
Get the accelerometer compensation parameters. [More...](#)

uint8_t **MotionAC_GetLibVersion** (char *version)
Get the library version. [More...](#)

Detailed Description

Function Documentation

void MotionAC_GetCalParams (MAC_output_t * data_out)

Get the accelerometer compensation parameters.

Parameters

data_out pointer to actual accelerometer offset [g], scale factor correction matrix [-] and quality factor

Return values

none

uint8_t MotionAC_GetLibVersion (char * version)

Get the library version.

Parameters

version pointer to an array of 35 char

Return values

Number of characters in the version string

**void MotionAC_Initialize (int sampletime,
 unsigned short int enable
)**

Initialize the MotionAC engine.

Parameters

sampertime period in [ms] between the update function call
enable enable or disable the library

Return values

none

void MotionAC_Update (MAC_input_t * data_in)

Run accelerometer calibration algorithm.

Parameters

data_in pointer to acceleration [g] and timestamp values [ms]

Return values

none

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Data Structures

Here are the data structures with brief descriptions:

[!\[\]\(dfd2df6cc884969130953c94dfde9751_img.jpg\) MAC_input_t](#)

[!\[\]\(528cbe9ac1a51f0d9458cf024e824c0c_img.jpg\) MAC_output_t](#)

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Data Structure Index

M

M

[MAC_output_t](#)

[MAC_input_t](#)

M

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All	Variables		

Here is a list of all struct and union fields with links to the structures/unions they belong to:

- Acc : [MAC_input_t](#)
- AccBias : [MAC_output_t](#)
- CalQuality : [MAC_output_t](#)
- SF_Matrix : [MAC_output_t](#)
- TimeStamp : [MAC_input_t](#)

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- Acc : [MAC_input_t](#)
- AccBias : [MAC_output_t](#)
- CalQuality : [MAC_output_t](#)
- SF_Matrix : [MAC_output_t](#)
- TimeStamp : [MAC_input_t](#)

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File List

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[detail level [1](#) [2](#) [3](#) [4](#) [5](#) [6](#)]

 algorithms	
 Middlewares	
 ST	
 STM32_MotionAC_Library	
 Inc	
 motion_ac.h	Header for motion_ac module

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algorithms Directory Reference

Directories

directory **Middlewares**

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Middlewares Directory Reference

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directory **ST**

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ST Directory Reference

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directory **STM32_MotionAC_Library**

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STM32_MotionAC_Library

STM32_MotionAC_Library Directory Reference

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directory **Inc**

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[Inc](#)

Inc Directory Reference

Files

file [**motion_ac.h**](#) [code]

Header for motion_ac module.

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Inc			
		Data Structures	Enumerations
			Functions

motion_ac.h File Reference

Header for motion_ac module. [More...](#)

#include <stdint.h>

[Go to the source code of this file.](#)

Data Structures

```
struct MAC_input_t
```

```
struct MAC_output_t
```

Enumerations

```
enum MAC_CalQuality_t { MAC_CALQSTATUSUNKNOWN = 0,  
                        MAC_CALQSTATUSPOOR, MAC_CALQSTATUSOK,  
                        MAC_CALQSTATUSGOOD }
```

Functions

void **MotionAC_Initialize** (int sampletime, unsigned short int enable)
Initialize the MotionAC engine. [More...](#)

void **MotionAC_Update** (**MAC_input_t** *data_in)
Run accelerometer calibration algorithm. [More...](#)

void **MotionAC_GetCalParams** (**MAC_output_t** *data_out)
Get the accelerometer compensation parameters. [More...](#)

uint8_t **MotionAC_GetLibVersion** (char *version)
Get the library version. [More...](#)

Detailed Description

Header for motion_ac module.

Author

MEMS Application Team

Version

V2.0.0

Date

01-May-2017

Attention

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Definition in file [motion_ac.h](#).

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Here is a list of all functions, variables, defines, enums, and typedefs with links to the files they belong to:

- MAC_CALQSTATUSGOOD : [motion_ac.h](#)
- MAC_CALQSTATUSOK : [motion_ac.h](#)
- MAC_CALQSTATUSPOOR : [motion_ac.h](#)
- MAC_CALQSTATUSUNKNOWN : [motion_ac.h](#)
- MAC_CalQuality_t : [motion_ac.h](#)
- MotionAC_GetCalParams() : [motion_ac.h](#)
- MotionAC_GetLibVersion() : [motion_ac.h](#)
- MotionAC_Initialize() : [motion_ac.h](#)
- MotionAC_Update() : [motion_ac.h](#)

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- MotionAC_GetCalParams() : [motion_ac.h](#)
- MotionAC_GetLibVersion() : [motion_ac.h](#)
- MotionAC_Initialize() : [motion_ac.h](#)
- MotionAC_Update() : [motion_ac.h](#)

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- MAC_CalQuality_t : [motion_ac.h](#)

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- MAC_CALQSTATUSGOOD : [motion_ac.h](#)
- MAC_CALQSTATUSOK : [motion_ac.h](#)
- MAC_CALQSTATUSPOOR : [motion_ac.h](#)
- MAC_CALQSTATUSUNKNOWN : [motion_ac.h](#)

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motion_ac.h

Go to the documentation of this file.

```
1
38 /* Define to prevent recursive inclusion ---
   *-----*/
39 #ifndef _MOTION_AC_H_
40 #define _MOTION_AC_H_
41
42 #ifdef __cplusplus
43 extern "C"
44 {
45 #endif
46
47 /* Includes -----
   *-----*/
48 #include <stdint.h>
49
58 /* Exported types -----
   *-----*/
59
64 typedef enum
65 {
66     MAC_CALQSTATUSUNKNOWN = 0,
67     MAC_CALQSTATUSPOOR,
68     MAC_CALQSTATUSOK,
69     MAC_CALQSTATUSGOOD
70 } MAC_CalQuality_t;
```

```
71
72 typedef struct
73 {
74     float Acc[3];                      /* Acceleration in X, Y, Z axis in [g] */
75     int TimeStamp;                     /* Time stamp for accelerometer sensor output in [ms] */
76 } MAC_input_t;
77
78 typedef struct
79 {
80     float AccBias[3];                  /* Accelerometer offset value in [g] */
81     float SF_Matrix[3][3];            /* Scale factor correction matrix (diagonal matrix) */
82     MAC_CalQuality_t CalQuality;    /* Quality factor */
83 } MAC_output_t;
84
89 /* Exported constants -----
-----*/
90 /* Exported variables -----
-----*/
91 /* Exported macro -----
-----*/
92
97 /* Exported functions -----
-----*/
98
105 void MotionAC_Initialize(int sampletime,
    unsigned short int enable);
106
112 void MotionAC_Update(MAC_input_t *data_in);
113
119 void MotionAC_GetCalParams(MAC_output_t
    *data_out);
```

```
120
126 uint8_t MotionAC_GetLibVersion(char
 *version);
127
140 #ifdef __cplusplus
141 }
142 #endif
143
144 #endif /* _MOTION_AC_H_ */
145
146 /***** (C) COPYRIGHT
STMicroelectronics *****END OF FILE****/
```