HMC5883L Driver

Generated by Doxygen 1.9.6

Chapter 1

HMC5883L Driver Component

This is a driver component for HMC5883L magnetometer.

The sensor's datasheet can be found here.

1.1 Installation

No installation instructions available at the moment.

1.2 Getting Started

No instructions available at the moment

1.3 Next versions updates & fixes

- Single mode
- Status Register usage

Chapter 2

Data Structure Index

2.1 Data Structures

Here are the data structures with brief descriptions:

Chapter 3

File Index

3.1 File List

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

Chapter 4

Data Structure Documentation

4.1 hmc5883l_config_t Struct Reference

Data Fields

- hmc5883l_sample_avg_t **samples_avg**
- hmc5883l_output_rate_t **output_rate**
- hmc5883l_measurement_mode_t **m_mode**
- hmc5883l_fs_t **gain**
- hmc5883l_highspeed_t **hs**
- hmc5883l_mode_t **mode**

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

- include/hmc5883l.h

4.2 hmc5883l_dev_t Struct Reference

Data Fields

- i2c_port_t **bus**
- uint16_t **dev_addr**

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

- hmc5883l.c

4.3 mag_field_raw_t Struct Reference

Data Fields

- int16_t **raw_x**
- int16_t **raw_y**
- int16_t **raw_z**

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

- include/hmc5883l.h

4.4 mag_field_t Struct Reference

Data Fields

- float **x**
- float **y**
- float **z**

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

- include/hmc5883l.h

Chapter 5

File Documentation

5.1 hmc5883l.h

```
00001 #ifndef HMC5883L_H
00002 #define HMC5883L_H
00003
00004 #include "driver/i2c.h"
00005 #include "driver/gpio.h"
00006
00007 #define HMC5883L_ADDRESS 0x1E
00008
00009 typedef void* hmc5883l_handle_t;
00010
00011 typedef enum {
00012     MAG_FS_0_88GA   = 0,
00013     MAG_FS_1_3GA    = 1,
00014     MAG_FS_1_9GA    = 2,
00015     MAG_FS_2_5GA    = 3,
00016     MAG_FS_4_0GA    = 4,
00017     MAG_FS_4_7GA    = 5,
00018     MAG_FS_5_6GA    = 6,
00019     MAG_FS_8_1GA    = 7
00020 } hmc5883l_fs_t; // TODO RENAME
00021
00022 typedef enum {
00023     MAG_MEASUREMENT_MODE_NORMAL     = 0,
00024     MAG_MEASUREMENT_MODE_POS_BIAS   = 1,
00025     MAG_MEASUREMENT_MODE_NEG_BIAS   = 2
00026 } hmc5883l_measurement_mode_t;
00027
00028 typedef enum {
00029     MAG_CONTINUOUS  = 0,
00030     MAG_SINGLE      = 1,
00031     MAG_IDLE        = 2,
00032     MAG_IDLE_2      = 3
00033 } hmc5883l_mode_t;
00034
00035 typedef enum {
00036     HMC5883L_HIGHSPEED_DISABLED = 0,
00037     HMC5883L_HIGHSPEED_ENABLED = 1
00038 } hmc5883l_highspeed_t;
00039
00040 typedef enum {
00041     HMC5883L_OUTPUT_RATE_0_75_HZ = 0,
00042     HMC5883L_OUTPUT_RATE_1_5_HZ = 1,
00043     HMC5883L_OUTPUT_RATE_3_HZ = 2,
00044     HMC5883L_OUTPUT_RATE_7_5_HZ = 3,
00045     HMC5883L_OUTPUT_RATE_15_HZ = 4,
00046     HMC5883L_OUTPUT_RATE_30_HZ = 5,
00047     HMC5883L_OUTPUT_RATE_75_HZ = 6
00048 } hmc5883l_output_rate_t;
00049
00050 typedef enum {
00051     HMC5883L_SAMPLE_AVG_1 = 0,
00052     HMC5883L_SAMPLE_AVG_2 = 1,
00053     HMC5883L_SAMPLE_AVG_4 = 2,
00054     HMC5883L_SAMPLE_AVG_8 = 3
00055 } hmc5883l_sample_avg_t;
00056
00057 typedef struct {
00058     hmc5883l_sample_avg_t samples_avg;
```

```
00059     hmc5883l_output_rate_t output_rate;
00060     hmc5883l_measurement_mode_t m_mode;
00061     hmc5883l_fs_t gain;
00062     hmc5883l_highspeed_t hs;
00063     hmc5883l_mode_t mode;
00064 } hmc5883l_config_t;
00065
00066 typedef struct {
00067     int16_t raw_x;
00068     int16_t raw_y;
00069     int16_t raw_z;
00070 } mag_field_raw_t;
00071
00072 typedef struct {
00073     float x;
00074     float y;
00075     float z;
00076 } mag_field_t;
00077
00078
00079
00080 extern hmc5883l_handle_t hmc5883l_create(i2c_port_t port, uint16_t addr); // dev addresse are fixed
00081 extern esp_err_t hmc5883l_delete(hmc5883l_handle_t sensor);
00082
00083 extern esp_err_t hmc5883l_config(hmc5883l_handle_t sensor, const hmc5883l_config_t cfg);
00084
00085 extern esp_err_t hmc5883l_get_gain(hmc5883l_handle_t sensor, uint16_t* gain);
00086 extern esp_err_t hmc5883l_get_raw_mag_field(hmc5883l_handle_t sensor, mag_field_raw_t* mag);
00087 extern esp_err_t hmc5883l_get_mag_field(hmc5883l_handle_t sensor, mag_field_t* mag);
00088
00089 #endif
```

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