

DY271-China

0.1

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Chapter 1

New Class for the GY271-Fakesensor

When you have a GY271-Magnetometer with the I2C-address 0x0D, you can use this library. You can get the magneticfield in different Formats, like (floats)Gaus, μ T, mT and (int)RAW

Simple usage:

```
#include "MechaQMC5883.h"
#include <Wire.h>

//Objects must be declared before Setup
MechaQMC5883 qmc(0x0D);

void setup() {
    Wire.begin();                //Is needed for the Sensor
    Serial.begin(9600);          //Is needed for print_xx-methods

    qmc.init();                  //Init with Defaultmode
    qmc.setMode(Mode_Continuous,ODR_10Hz,RNG_2G,
                OSR_512);        //Change the Sensormode
    qmc.setCalibValues(1.377,1.314,1.47); //Setup the CalibrationValues if needed in order
                                     of (x,y,z) //To get these Values use the "Calibration.ino"
}

void loop() {
    qmc.print_uT();              //Print the Magneticfield in  $\mu$ T
    qmc.print_T();              //Print the Temperature in  $^{\circ}$ C
}
```


Chapter 2

Class Index

2.1 Class List

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

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Use the GY271-QMC5883-Magnetometer	8
RAWDATA	15

Chapter 3

File Index

3.1 File List

Here is a list of all files with brief descriptions:

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C:/Users/Privat/Desktop/GY271-Magnetometer-China/Full-Demo/ MechaQMC5883.h	17

Chapter 4

Class Documentation

4.1 FLOATDATA Struct Reference

```
#include <MechaQMC5883.h>
```

Collaboration diagram for FLOATDATA:

Public Attributes

- float [x](#)
- float [y](#)
- float [z](#)

4.1.1 Detailed Description

Datacontainer for xyz Floats (like Gaus, μ T, mT)

Author

Philipp Heise

Date

02.06.2017

4.1.2 Member Data Documentation

4.1.2.1 float FLOATDATA::x

4.1.2.2 float FLOATDATA::y

4.1.2.3 float FLOATDATA::z

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

- C:/Users/Privat/Desktop/GY271-Magnetometer-China/Full-Demo/[MechaQMC5883.h](#)

4.2 MechaQMC5883 Class Reference

Use the GY271-QMC5883-Magnetometer.

```
#include <MechaQMC5883.h>
```

Collaboration diagram for MechaQMC5883:

Public Member Functions

- [MechaQMC5883](#) ()
- [MechaQMC5883](#) (uint8_t addr)
- void [init](#) ()
- void [setMode](#) (uint8_t mode, uint8_t odr, uint8_t rng, uint8_t osr)
- void [setCalibValues](#) (float x, float y, float z)
- [RAWDATA](#) [getRaw](#) ()
- [FLOATDATA](#) [get_Gaus](#) ()
- [FLOATDATA](#) [get_mT](#) ()
- [FLOATDATA](#) [get_uT](#) ()
- [FLOATDATA](#) [calc_Gaus](#) ([RAWDATA](#) xyzRAW)
- [FLOATDATA](#) [calc_mT](#) ([RAWDATA](#) xyzRAW)
- [FLOATDATA](#) [calc_uT](#) ([RAWDATA](#) xyzRAW)
- void [print_Raw](#) ()
- void [print_Gaus](#) ()
- void [print_mT](#) ()
- void [print_uT](#) ()
- void [print_Gaus](#) (int dez)
- void [print_mT](#) (int dez)
- void [print_uT](#) (int dez)
- int [getRawT](#) ()
- float [get_T](#) ()
- float [calc_T](#) (int RAWT)
- void [print_RawT](#) ()
- void [print_T](#) ()
- void [print_T](#) (int dez)
- void [softReset](#) ()

4.2.1 Detailed Description

Use the GY271-QMC5883-Magnetometer.

The class for the GY271-Fake

Author

Philipp Heise

Date

02.06.2017

If the class not working, checkout your wiring. Use different methods to get the Values which you want.

4.2.2 Constructor & Destructor Documentation

4.2.2.1 MechaQMC5883::MechaQMC5883 ()

Here is the call graph for this function:

4.2.2.2 MechaQMC5883::MechaQMC5883 (uint8_t addr)

If needed you can use a other Sensor-Address

Here is the call graph for this function:

4.2.3 Member Function Documentation

4.2.3.1 FLOATDATA MechaQMC5883::calc_Gaus (RAWDATA xyzRAW)

Can use to calculate the Gaus-Value from spezified RAWDATA-Input

Parameters

in	RAWDATA	The RAWDATA which you want to calculate.
----	-------------------------	--

Returns

[FLOATDATA](#) as Gaus

Here is the caller graph for this function:

4.2.3.2 FLOATDATA MechaQMC5883::calc_mT (RAWDATA xyzRAW)

Can use to calculate the mT-Value from spezified RAWDATA-Input

Parameters

in	RAWDATA	The RAWDATA which you want to calculate.
----	-------------------------	--

Returns

[FLOATDATA](#) as mT

Here is the caller graph for this function:

4.2.3.3 float MechaQMC5883::calc_T (int RAWT)

Calculate °C from RAW-Input

Parameters

in	<i>RAWT</i>	The value that you want to cast
----	-------------	---------------------------------

Returns

Temperature as Float

Here is the caller graph for this function:

4.2.3.4 FLOATDATA MechaQMC5883::calc_uT (RAWDATA xyzRAW)

Can use to calculate the uT-Value from spezified RAWDATA-Input

Parameters

in	<i>RAWDATA</i>	The <i>RAWDATA</i> which you want to calculate.
----	----------------	---

Returns

FLOATDATA as uT

Here is the caller graph for this function:

4.2.3.5 FLOATDATA MechaQMC5883::get_Gaus ()

Reads the Sensordata and calculate the Gaus-Value

Returns

FLOATDATA as Gaus

Here is the call graph for this function:

Here is the caller graph for this function:

4.2.3.6 FLOATDATA MechaQMC5883::get_mT ()

Reads the Sensordata and calculate the mT-Value

Returns

FLOATDATA as mT

Here is the call graph for this function:

Here is the caller graph for this function:

4.2.3.7 float MechaQMC5883::get_T ()

Reads the Temperature in RAW and calculate °C

Returns

Temperature as Float

Here is the call graph for this function:

Here is the caller graph for this function:

4.2.3.8 FLOATDATA MechaQMC5883::get_uT ()

Reads the Sensordata and calculate the μ T-Value

Returns

FLOATDATA as μ T

Here is the call graph for this function:

Here is the caller graph for this function:

4.2.3.9 RAWDATA MechaQMC5883::getRaw ()

Reads the Sensordata

Returns

RAWDATA from the Sensor as an Integer

Here is the caller graph for this function:

4.2.3.10 int MechaQMC5883::getRawT ()

Reads the Temperature in RAW from the Sensor

Returns

temperature as Integer

Here is the caller graph for this function:

4.2.3.11 void MechaQMC5883::init ()

Setup the Sensor in Continuous-Mode and 200Hz Samplerate by Fullscale-Range (+-8 Gaus)

Here is the call graph for this function:

4.2.3.12 void MechaQMC5883::print_Gaus ()

Print the Gaus-Data like "|x=...|y=...|z=...|Gaus\r\n"

Warning

You must use Serial.begin() in Setup-Loop

Here is the call graph for this function:

4.2.3.13 void MechaQMC5883::print_Gaus (int *dez*)

Print the Gaus-Data like "|x=...|y=...|z=...|Gaus\r\n" with variable precision

See also

[print_Gaus\(\)](#)

Parameters

in	<i>dez</i>	Percision
----	------------	-----------

Warning

You must use Serial.begin() in Setup-Loop

Here is the call graph for this function:

4.2.3.14 void MechaQMC5883::print_mT ()

Print the mT-Data like "|x=...|y=...|z=...|mT\r\n"

Warning

You must use Serial.begin() in Setup-Loop

Here is the call graph for this function:

4.2.3.15 void MechaQMC5883::print_mT (int *dez*)

Print the mT-Data like "|x=...|y=...|z=...|mT\r\n" with variable precision

See also

[print_mT\(\)](#)

Parameters

<code>in</code>	<code>dez</code>	Percision
-----------------	------------------	-----------

Warning

You must use `Serial.begin()` in Setup-Loop

Here is the call graph for this function:

4.2.3.16 void MechaQMC5883::print_Raw ()

Print the RAW-Data like "`|x=...|y=...|z=...|RAW\r\n`"

Warning

You must use `Serial.begin()` in Setup-Loop

Here is the call graph for this function:

4.2.3.17 void MechaQMC5883::print_RawT ()

Print the Temperature like "`|Temp=...|RAW\r\n`"

Warning

You must use `Serial.begin()` in Setup-Loop

Here is the call graph for this function:

4.2.3.18 void MechaQMC5883::print_T ()

Print the Temperature like "`|Temp=...|C\r\n`"

Warning

You must use `Serial.begin()` in Setup-Loop

Here is the call graph for this function:

4.2.3.19 void MechaQMC5883::print_T (int dez)

Print the Gaus-Data like "`|Temp=...|C\r\n`" with variable precision

See also

[print_T\(\)](#)

Parameters

<code>in</code>	<code>dez</code>	Percision
-----------------	------------------	-----------

Warning

You must use `Serial.begin()` in Setup-Loop

Here is the call graph for this function:

4.2.3.20 `void MechaQMC5883::print_uT ()`

Print the uT-Data like "`|x=...|y=...|z=...|uT\r\n`"

Warning

You must use `Serial.begin()` in Setup-Loop

Here is the call graph for this function:

4.2.3.21 `void MechaQMC5883::print_uT (int dez)`

Print the uT-Data like "`|x=...|y=...|z=...|uT\r\n`" with variable precision

See also

[print_mT\(\)](#)

Parameters

<code>in</code>	<code>dez</code>	Percision
-----------------	------------------	-----------

Warning

You must use `Serial.begin()` in Setup-Loop

Here is the call graph for this function:

4.2.3.22 `void MechaQMC5883::setCalibValues (float x, float y, float z)`

Calibrate the Sensordata

Warning

Factors are not used with [RAWDATA](#)

Parameters

in	<i>x</i>	Is the factor which is multiplied with the Original-x-Value
in	<i>y</i>	Is the factor which is multiplied with the Original-y-Value
in	<i>z</i>	Is the factor which is multiplied with the Original-z-Value

Here is the caller graph for this function:

4.2.3.23 `void MechaQMC5883::setMode (uint8_t mode, uint8_t odr, uint8_t rng, uint8_t osr)`

Change the Sensormode

Parameters

in	<i>mode</i>	Valid Values are: Mode_Standby,Mode_Continuous
in	<i>odr</i>	Valid Values are: ODR_10Hz,ODR_50Hz,ODR_100Hz,ODR_200Hz
in	<i>rng</i>	Valid Values are: RNG_2G,RNG_8G
in	<i>osr</i>	Valid Values are: OSR_512,OSR_256,OSR_128,OSR_64

Here is the caller graph for this function:

4.2.3.24 `void MechaQMC5883::softReset ()`

Perform a Softreset on the Sensor

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

- C:/Users/Privat/Desktop/GY271-Magnetometer-China/Full-Demo/[MechaQMC5883.h](#)
- C:/Users/Privat/Desktop/GY271-Magnetometer-China/Full-Demo/[MechaQMC5883.cpp](#)

4.3 RAWDATA Struct Reference

```
#include <MechaQMC5883.h>
```

Collaboration diagram for RAWDATA:

Public Attributes

- `int x`
- `int y`
- `int z`

4.3.1 Detailed Description

Datacontainer for xyz Integers

Author

Philipp Heise

Date

02.06.2017

4.3.2 Member Data Documentation

4.3.2.1 int RAWDATA::x

4.3.2.2 int RAWDATA::y

4.3.2.3 int RAWDATA::z

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

- C:/Users/Privat/Desktop/GY271-Magnetometer-China/Full-Demo/[MechaQMC5883.h](#)

Chapter 5

File Documentation

5.1 C:/Users/Privat/Desktop/GY271-Magnetometer-China/Full-Demo/MechaQMC5883.cpp File Reference

```
#include "MechaQMC5883.h"
#include <Wire.h>
Include dependency graph for MechaQMC5883.cpp:
```

5.2 C:/Users/Privat/Desktop/GY271-Magnetometer-China/Full-Demo/MechaQMC5883.h File Reference

```
#include "Arduino.h"
#include <Wire.h>
Include dependency graph for MechaQMC5883.h: This graph shows which files directly or indirectly include this file:
```

Classes

- struct [RAWDATA](#)
- struct [FLOATDATA](#)
- class [MechaQMC5883](#)

Use the GY271-QMC5883-Magnetometer.

Macros

- #define [QMC5883_ADDR](#) 0x0D
- #define [Mode_Standby](#) 0b00000000
- #define [Mode_Continuous](#) 0b00000001
- #define [ODR_10Hz](#) 0b00000000
- #define [ODR_50Hz](#) 0b00000100
- #define [ODR_100Hz](#) 0b00001000
- #define [ODR_200Hz](#) 0b00001100
- #define [RNG_2G](#) 0b00000000
- #define [RNG_8G](#) 0b00010000
- #define [OSR_512](#) 0b00000000
- #define [OSR_256](#) 0b01000000
- #define [OSR_128](#) 0b10000000
- #define [OSR_64](#) 0b11000000

5.2.1 Macro Definition Documentation

5.2.1.1 `#define Mode_Continuous 0b00000001`

5.2.1.2 `#define Mode_Standby 0b00000000`

5.2.1.3 `#define ODR_100Hz 0b00001000`

5.2.1.4 `#define ODR_10Hz 0b00000000`

5.2.1.5 `#define ODR_200Hz 0b00001100`

5.2.1.6 `#define ODR_50Hz 0b00000100`

5.2.1.7 `#define OSR_128 0b10000000`

5.2.1.8 `#define OSR_256 0b01000000`

5.2.1.9 `#define OSR_512 0b00000000`

5.2.1.10 `#define OSR_64 0b11000000`

5.2.1.11 `#define QMC5883_ADDR 0x0D`

5.2.1.12 `#define RNG_2G 0b00000000`

5.2.1.13 `#define RNG_8G 0b00010000`

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