

Myo bracelet Connector

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Chapter 1

Hierarchical Index

1.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

Communicator	7
DeviceListener	
DataCollector	8
PeakDetector< T >	13

Chapter 2

Class Index

2.1 Class List

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

Communicator	7
DataCollector	8
PeakDetector< T >	13

Chapter 3

File Index

3.1 File List

Here is a list of all files with brief descriptions:

Communicator.cpp	17
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DataCollector.h	17
Myo.cpp	18
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PeakDetector.h	19

Chapter 4

Class Documentation

4.1 Communicator Class Reference

```
#include <Communicator.h>
```

Public Member Functions

- **Communicator** (uint8_t portNumber, DWORD CBR_baudRate)
- **Communicator** (uint8_t portNumber, DWORD CBR_baudRate, byte byteSize)
- **Communicator** (uint8_t portNumbe, DWORD CBR_baudRate, byte byteSize, byte parity)
- bool **Write** (const char *message, int messageLength)
- ~**Communicator** ()

4.1.1 Constructor & Destructor Documentation

4.1.1.1 Communicator() [1/3]

```
Communicator::Communicator (
    uint8_t portNumber,
    DWORD CBR_baudRate )
```

4.1.1.2 Communicator() [2/3]

```
Communicator::Communicator (
    uint8_t portNumber,
    DWORD CBR_baudRate,
    byte byteSize )
```

4.1.1.3 Communicator() [3/3]

```
Communicator::Communicator (
    uint8_t portNumbe,
    DWORD CBR_baudRate,
    byte byteSize,
    byte parity )
```

4.1.1.4 ~Communicator()

```
Communicator::~~Communicator ( )
```

4.1.2 Member Function Documentation

4.1.2.1 Write()

```
bool Communicator::Write (
    const char * message,
    int messageLength )
```

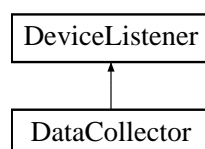
The documentation for this class was generated from the following files:

- **Communicator.h**
- **Communicator.cpp**

4.2 DataCollector Class Reference

```
#include <DataCollector.h>
```

Inheritance diagram for DataCollector:



Public Member Functions

- **DataCollector** ()
- void **onOrientationData** (myo::Myo *myo, uint64_t timestamp, const myo::Quaternion< float > &rotation)
- void **onAccelerometerData** (myo::Myo *myo, uint64_t timestamp, const myo::Vector3< float > &accel)
- void **onGyroscopeData** (myo::Myo *myo, uint64_t timestamp, const myo::Vector3< float > &gyro)
- void **onEmgData** (myo::Myo *myo, uint64_t timestamp, const int8_t *emg)
- void **onBatteryLevelReceived** (myo::Myo *myo, uint64_t timestamp, uint8_t level)
- void **onRssi** (myo::Myo *myo, uint64_t timestamp, int8_t rssi)
- void **onConnect** (myo::Myo *myo, uint64_t timestamp, myo::FirmwareVersion firmwareVersion)
- void **onDisconnect** (myo::Myo *myo, uint64_t timestamp)
- myo::Quaternion< float > **getRotation** ()
Gets rotation values. (updates automatically if class is conneced to myo::Hub)
- myo::Vector3< float > **getGyroscope** ()
Gets the Gyroscope values. (updates automatically if class is conneced to myo::Hub)
- myo::Vector3< float > **getAccelerometer** ()
Gets all 8 EMG sensor Values. (updates automatically if class is conneced to myo::Hub)
- void **getEMG** (std::array< int8_t, 8 > *data)
Gets all 8 EMG sensor Values. (updates automatically if class is conneced to myo::Hub)
- float **getRotation_roll** ()
Calculated Roll from rotation data.
- float **getRotation_pitch** ()
Calculated pitch from rotation data.
- float **getRotation_yaw** ()
Calculated yaw from rotation data.
- uint8_t **getBatteryLevel** ()
Battery: This value wont update periodically. update via MYO::requestBatteryLevel()
- int8_t **getBluetoothRange** ()
Bluetooth: This value wont update periodically. update via update via MYO::requestRssi();.
- bool **getConnectionStatus** ()
This value is automaticly updated.

4.2.1 Constructor & Destructor Documentation

4.2.1.1 DataCollector()

```
DataCollector::DataCollector ( )
```

4.2.2 Member Function Documentation

4.2.2.1 getAccelerometer()

```
myo::Vector3<float> DataCollector::getAccelerometer ( ) [inline]
```

Gets all 8 EMG sensor Values. (updates automatically if class is connected to myo::Hub)

Returns

accel myo::Vector3<float> use raw value : .x() .y() .z().

4.2.2.2 getBatteryLevel()

```
uint8_t DataCollector::getBatteryLevel ( ) [inline]
```

Battery: This value wont update periodically. update via MYO::requestBatteryLevel()

Returns

Battery Level in procentage.

4.2.2.3 getBluetoothRange()

```
int8_t DataCollector::getBluetoothRange ( ) [inline]
```

Bluetooth: This value wont update periodically. update via update via MYO::requestRssi();.

Returns

bluetooth range 0-127.

4.2.2.4 getConnectionStatus()

```
bool DataCollector::getConnectionStatus ( ) [inline]
```

This value is automaticly updated.

Returns

connection status (bool) true = Connected | false = disconnected.

4.2.2.5 getEMG()

```
void DataCollector::getEMG (
    std::array< int8_t, 8 > * data ) [inline]
```

Gets all 8 EMG sensor Values. (updates automatically if class is conneced to myo::Hub)

Parameters

<code>in, out</code>	<code>data</code>	returns emg data if <code>*data != null</code> .
----------------------	-------------------	--

4.2.2.6 `getGyroscope()`

```
myo::Vector3<float> DataCollector::getGyroscope ( ) [inline]
```

Gets the Gyroscope values. (updates automatically if class is conneced to myo::Hub)

Returns

accel myo::Vector3<float> use raw value : `.x()` `.y()` `.z()`.

4.2.2.7 `getRotation()`

```
myo::Quaternion<float> DataCollector::getRotation ( ) [inline]
```

Gets rotation values. (updates automatically if class is conneced to myo::Hub)

Returns

myo::Quaternion<float> use raw value: `.x()` `.y()` `.z()` `.w()`.

4.2.2.8 `getRotation_pitch()`

```
float DataCollector::getRotation_pitch ( ) [inline]
```

Calculated pitch from rotation data.

Returns

Pitch in radial.

4.2.2.9 `getRotation_roll()`

```
float DataCollector::getRotation_roll ( ) [inline]
```

Calculated Roll from rotation data.

Returns

Roll in radial.

4.2.2.10 getRotation_yaw()

```
float DataCollector::getRotation_yaw ( ) [inline]
```

Calculated yaw from rotation data.

Returns

Yaw in radial.

4.2.2.11 onAccelerometerData()

```
void DataCollector::onAccelerometerData (
    myo::Myo * myo,
    uint64_t timestamp,
    const myo::Vector3< float > & accel )
```

4.2.2.12 onBatteryLevelReceived()

```
void DataCollector::onBatteryLevelReceived (
    myo::Myo * myo,
    uint64_t timestamp,
    uint8_t level )
```

4.2.2.13 onConnect()

```
void DataCollector::onConnect (
    myo::Myo * myo,
    uint64_t timestamp,
    myo::FirmwareVersion firmwareVersion )
```

4.2.2.14 onDisconnect()

```
void DataCollector::onDisconnect (
    myo::Myo * myo,
    uint64_t timestamp )
```


4.2.2.15 onEmgData()

```
void DataCollector::onEmgData (
    myo::Myo * myo,
    uint64_t timestamp,
    const int8_t * emg )
```

4.2.2.16 onGyroscopeData()

```
void DataCollector::onGyroscopeData (
    myo::Myo * myo,
    uint64_t timestamp,
    const myo::Vector3< float > & gyro )
```

4.2.2.17 onOrientationData()

```
void DataCollector::onOrientationData (
    myo::Myo * myo,
    uint64_t timestamp,
    const myo::Quaternion< float > & rotation )
```

4.2.2.18 onRssi()

```
void DataCollector::onRssi (
    myo::Myo * myo,
    uint64_t timestamp,
    int8_t rssi )
```

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

- **DataCollector.h**
- **DataCollector.cpp**

4.3 PeakDetector< T > Class Template Reference

```
#include <PeakDetector.h>
```

Public Member Functions

- **PeakDetector** (int measureLength, T minimumSampleDifference, T minimumPeakThreshold, T minimumPeakOffset)
Peakdetector detects peaks in realtime signals by calculating the direction of the signal.
- **~PeakDetector** ()
- void **Calculate** (T Sample)
*Calculates the signal if a direction is detected. use **GetPeak()** (p. 15) to see if a peak is detected.*
- **PeakType** **GetPeak** ()
*Call **Calculate(T sample)** (p. 14) before Getting the peakvalue.*
- T **GetRawPeakValue** ()
*Call **Calculate(T sample)** (p. 14) before Getting the RawPeakValue.*

4.3.1 Constructor & Destructor Documentation

4.3.1.1 PeakDetector()

```
template<class T >
PeakDetector< T >:: PeakDetector (
    int measureLength,
    T minimumSampleDifference,
    T minimumPeakThreshold,
    T minimumPeakOffset )
```

Peakdetector detects peaks in realtime signals by calculating the direction of the signal.

Parameters

<i>measureLength</i>	Length of the sampling array, has to be an even number.
<i>minimumSampleDifference</i>	If The sample is lower then previous sampleDifference the sample is discarded.
<i>minimumPeakThreshold</i>	Minimum Threshold relative to Peakoffset. If Sample is lower than Peakthreshold no peak will be detected. this value is the same for positive and negative samples.
<i>mimimumPeakOffset</i>	Sets the baseline of the peakthreshold.

4.3.1.2 ~PeakDetector()

```
template<class T >
PeakDetector< T >::~~ PeakDetector ( )
```

4.3.2 Member Function Documentation

4.3.2.1 Calculate()

```
template<class T >
void PeakDetector< T >::Calculate (
    T sample )
```

Calculates the signal if a direction is detected. use **GetPeak()** (p. 15) to see if a peak is detected.

Parameters

<i>sample</i>	signal to calculate
---------------	---------------------

4.3.2.2 GetPeak()

```
template<class T >
PeakType PeakDetector< T >::GetPeak ( )
```

Call **Calculate(T sample)** (p. 14) before Getting the peakvalue.

4.3.2.3 GetRawPeekValue()

```
template<class T >
T PeakDetector< T >::GetRawPeekValue ( )
```

Call **Calculate(T sample)** (p. 14) before Getting the RawPeekValue.

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

- **PeakDetector.h**
- **PeakDetector.cpp**

Chapter 5

File Documentation

5.1 Communicator.cpp File Reference

```
#include "Communicator.h"
```

5.2 Communicator.h File Reference

```
#include <Windows.h>
#include <tchar.h>
#include <stdio.h>
#include <string>
#include <exception>
```

Classes

- class **Communicator**

5.3 DataCollector.cpp File Reference

```
#include "DataCollector.h"
#include <cmath>
```

5.4 DataCollector.h File Reference

```
#include <myo/myo.hpp>
#include <array>
```

Classes

- class **DataCollector**

5.5 Myo.cpp File Reference

```
#include <iostream>
#include <iomanip>
#include <stdexcept>
#include <string>
#include <string.h>
#include <fstream>
#include <myo/myo.hpp>
#include "DataCollector.h"
#include "Communicator.h"
#include "PeakDetector.h"
```

Macros

- #define **_USE_MATH_DEFINES**

Functions

- int **main** (int argc, char **argv)

Variables

- constexpr auto **Connected** = true
- const char **filename** [] = "test.txt "

5.5.1 Macro Definition Documentation

5.5.1.1 _USE_MATH_DEFINES

```
#define _USE_MATH_DEFINES
```

5.5.2 Function Documentation

5.5.2.1 main()

```
int main (
    int argc,
    char ** argv )
```

5.5.3 Variable Documentation

5.5.3.1 Connected

```
constexpr auto Connected = true
```

5.5.3.2 filename

```
const char filename[] = "test.txt "
```

5.6 PeakDetector.cpp File Reference

```
#include "PeakDetector.h"
#include <algorithm>
#include <vector>
```

5.7 PeakDetector.h File Reference

```
#include <vector>
```

Classes

- class **PeakDetector**< **T** >

Enumerations

- enum **PeakType** : uint8_t { **positive**, **negative**, **noneDetected** }

5.7.1 Enumeration Type Documentation

5.7.1.1 PeakType

```
enum PeakType : uint8_t
```

Enumerator

positive	
negative	
noneDetected	

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