BMeasure-lib

1.0.0

Generated by Doxygen 1.8.15

Chapter 1

Main Page

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Version

1.0.0

Date

2020-02-09

1.1 Introduction

The Beam BMeasure-125i unit is a flexible and powerful IoT system for data capture, data logging and control in the laboratory, industrial and remote sensing arenas. It is based around an 8 channel, fully differential, synchronous sampling, 24 bit ADC that can sample at speeds up to 128 ksps. Multiple units can be connected together to provide more synchronously sampled channels.

This reference information describes the data types and functions provided by the host API library allowing programs to be written to control the operation of a BMeasure unit and acquire the data from it. The API operates over a number of different physical interfaces including: USB 2.0, Ethernet, Wifi and RS485.

In addition there is a software manual providing an overview of using this API which should be read first. This document is available at:: https://portal.beam.ltd.uk/files/products/bmeasure-125i/doc/↩ BMeasure-lib.pdf

1.2 Overview

The BMeasure API library, bmeasure-lib, is implemented in the C++ computer language. It has bindings layered on top of this for Python, with Matlab due to be supported soon. The API has an object orientated architecture. It has been designed as a general purpose API library for the Beam BMeasure-125i and future BMeasure products. Currently it has ports to Linux (Redhat7, Fedora29, Debian) and Microsoft Windows 7, 8 and 10.

The API provides the following functionality:

- Find BMeasure units on the USB bus or local Ethernet and Wifi networks.
- Connect to one or more BMeasure units.
- Fetch information and configure the BMeasure units.
- Start the BMeasure unit capturing and processing the sensor inputs.
- Capture the data from all of the analogue and digital channels from one or a combined set of BMeasure units running in sync.
- Access the data log files on the unit and download them to the host.
- Configure the AWG to produce waveforms or set voltages on the analogue output channels.
- Operate relays, read switches and other auxiliary operations.

The BMeasure API is implemented using the Beam BOAP (Beam Object Access protocol) communications system. It offers an BMeasureUnit API class to access an individual BMeasure unit in a relatively low level manner and an BMeasureUnits API class to access a set of BMeasure units synchronised together to operate as a single unit and with a queued data reception system..

The API supports threaded and non-threaded operation.

The referenve information provided describes the API from a C++ programming perspective. The Python and other language bindings are very similar the differences being noted under the particular language bindings section in the software manual..

1.3 API Usage

To use the API the core procedure is:

1. Either find the available BMeasure units using: BMeasureApi::BMeasureUnit::findDevices() or use a B↩ Measure URL string..
2. Choose to use the simple single unit interface BMeasureApi::BMeasureUnit or the BMeasureApi::BMeasureUnits classes.
3. If using the simple single unit interface, connect to the unit using the BMeasureApi::BMeasureUnit::connect() function.
4. If using the multiple unit interface, add the units using the BMeasureApi::BMeasureUnits::unitAdd() function and connect using the BMeasureApi::BMeasureUnits::unitsConnect() function.
5. Use the interface to communicate to the unit.

See the examples below and the software manual for more details.

1.4 API Usage

There are some examples of client applications using the BMeasure API in the **examples** directory of the source code. Some simple client examples are listed below:

Simple example to access and read single sets of data samples in C++

```
/*****************************************************************************
 *      Example005-dataClient-single.cpp
 *      T.Barnaby,      BEAM Ltd,       2019-10-09
 *****************************************************************************
 */
#include <BMeasureUnit.h>
#include <unistd.h>
using namespace BMeasureApi;
// Function to read some data
BError test1(){
        BError                          err;
        BList<BMeasureUnitDevice>       devices;
        BString                         device;
        BMeasureUnit                    bmeasure;
        Information                 info;
        Configuration                   config;
        MeasurementConfig           mc;
        DataBlock                   data;
        BUInt                           c;

        printf("Start Processing Task\n");
        bmeasure.start();

        printf("Find BMeasure units\n");
        if(err = BMeasureUnit::findDevicesUsb(devices)){
                return err;
        }
        if(devices.number() == 0){
                return err.set(1, "No USB BMeasure units found\n");
        }
        device = devices[0].device;

        printf("Connect\n");
        if(err = bmeasure.connect(device))
                return err;

        //printf("Exit\n"); return err;
        printf("Get Info\n");
        if(err = bmeasure.getInformation(info))
                return err;

        printf("NumChannels: %d\n", info.numChannels);
        //printf("Exit\n"); return err;
        printf("Configure measurement\n");
        mc.measureMode = MeasureModeOneShot;
        mc.triggerMode = TriggerModeOff;
        mc.triggerConfig = TriggerConfigNone;
        mc.triggerChannel = 0;
        mc.triggerLevel = 0;
        mc.triggerDelay = 0;
        mc.sampleRate = 8000.0;
        mc.measurePeriod = 0;
        mc.numSamples0 = 1;
        mc.numSamples1 = 0;
        if(err = bmeasure.setMeasurementConfig(0, mc))
                return err;

        printf("Run single measurement\n");
        if(err = bmeasure.measure(DataTypeFloat32, data))
                return err;

        printf("DataBlock: from: %d numChannels: %d numSamples: %d\n", data.source, data.numChannels,
       data.numSamples);
        for(c = 0; c < data.numChannels; c++){
                printf("%f ", data.data[c]);
        }
        printf("\n");
        return err;
}
int main(){
        BError    err;
        if(err = test1()){
                printf("Error: %d %s\n", err.getErrorNo(), err.str());
                return 1;
        }
        printf("Complete\n");
        return 0;
}
```

Simple example to access and read single sets of data samples in Python

```
#!/usr/bin/python3
import sys
import time
import getopt
from threading import Thread
from bmeasure import *
# Function to read some data
def test1():
        bmeasure = BMeasureUnit(True);
        print("Find BMeasure units");
        (err, devices) = BMeasureUnit.findDevicesUsb();
        if(err):
                return err;
        if(devices.number() == 0):
                return err.set(1, "No USB BMeasure units found\n");
        print("Found", len(devices));
        device = devices[0].device;
        print("Start Processing Task");
        bmeasure.start();
        print("Connect to BMeasure");
        err = bmeasure.connect(device);
        if(err):
                return err;
        print("Get Info");
        (err, info) = bmeasure.getInformation();
        if(err):
                return err;

        print("NumChannels: ", info.numChannels);
        print("Configure measurement");
        mc = MeasurementConfig();
        mc.measureMode = MeasureModeOneShot;
        mc.triggerMode = TriggerModeOff;
        mc.triggerConfig = TriggerConfigNone;
        mc.triggerChannel = 0;
        mc.triggerLevel = 0;
        mc.triggerDelay = 0;
        mc.sampleRate = 4000;
        mc.numSamples0 = 1;
        mc.numSamples1 = 0;
        mc.measurePeriod = 0;
        err = bmeasure.setMeasurementConfig(False, mc);
        if(err):
                return err;

        print("Run single measurement");
        (err, data) = bmeasure.measure();
        if(err):
                return err;
        print("DataBlock: from: %d numChannels: %d numSamples: %d" % (data.source, data.numChannels,
       data.numSamples));
        for c in range(0, data.numChannels):
                print("Chan:", c, data.data[c]);
        return err;
def main():
        err = test1();
        if(err):
                print("Error:", err.getErrorNo(), err.getString());
                return 1;
        print("Complete");

        return 0;
if __name__ == "__main__":
        main();
```

Simple example to show operating the relays in Python

```
#!/usr/bin/python3
import sys
import time
import getopt
from threading import Thread
from bmeasure import *
# Function to set the relays on/off
def test1():
        bmeasure = BMeasureUnit(True);
        print("Find BMeasure units");
        (err, devices) = BMeasureUnit.findDevicesUsb();
        if(err):
                return err;
        if(devices.number() == 0):
                return err.set(1, "No USB BMeasure units found\n");
        print("Found", len(devices));
        device = devices[0].device;
        print("Start Communications Task");
        bmeasure.start();
```

```
        print("Connect");
        err = bmeasure.connect(device);
        if(err):
                return err;
        print("Get Info");
        (err, info) = bmeasure.getInformation();
        if(err):
                return err;

        print("NumChannels: ", info.numChannels);
        # Toggle relay1
        state = 0;
        for i in range(0, 6):
                if(state):
                        state = False;
                else:
                        state = True;
                print("Set relay 0: %d" % (state));
                err = bmeasure.setRelay(0, state);
                if(err):
                        return err;

                time.sleep(1);
        return err;
def main():
        if(0):
                err = find();
                if(err):
                        print("Error:", err.getErrorNo(), err.getString());
                        return 1;
        err = test1();
        if(err):
                print("Error:", err.getErrorNo(), err.getString());
                return 1;
        print("Complete");

        return 0;
if __name__ == "__main__":
        main();
```

Chapter 2

Namespace Index

2.1 Namespace List

Here is a list of all namespaces with brief descriptions:

Chapter 3

Hierarchical Index

3.1 Class Hierarchy

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

Chapter 4

Class Index

4.1 Class List

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

Chapter 5

File Index

5.1 File List

Here is a list of all files with brief descriptions:

Chapter 6

Namespace Documentation

6.1 BMeasureApi Namespace Reference

Classes

- class AlarmConfig
- class AwgConfig
- class BMeasure
- class BMeasureUnit
- class BMeasureUnit1
- class BMeasureUnitDevice
- class BMeasureUnits
- class BMeasureUnitsDataBlock
- class BoardConfig
- class CalibrateInfo
- class ChannelConfig
- class CommsNet
- class CommsSerial
- class CommsUsb
- class ConfigItem
- class Configuration
- class DataBlock
- class DataBlockProc
- class DataFile
- class DataProc
- class FileData
- class FileInfo
- class FilesysInfo
- class InfoBlock
- class Information
- class MeasurementConfig
- class NodeInfo
- class NodeStatus
- class Version

Typedefs

- typedef **BArray**< ChannelConfig > ChannelConfigs

Enumerations

- enum ErrorNum { ErrorNumSystem = 64, ErrorNumDataOverrun = 65, ErrorNumToFast = 66 }
- enum NodeType { NodeTypeNone = 0, NodeTypeBMeasure1 = 1 }
- enum SecurityMode { SecurityModeBasic, SecurityModeConfig, SecurityModeFull }
- enum Status {
  StatusNone = 0x00, StatusError = 0x01, StatusWarning = 0x02, StatusRun = 0x04,
  StatusTriggerWait = 0x08, StatusEnd0 = 0x10, StatusEnd1 = 0x20, StatusDataOverrun = 0x40,
  StatusFpgaOverrun = 0x80, StatusAlarm = 0x0100 }
- enum Mode {
  ModeIdle = 0, ModeRun = 1, ModeRunProgram = 2, ModeInternal = 3,
  ModeSleep = 4, ModeDemo1 = 5 }
- enum BlockTypes { BlockTypeInfo = 0x424E4531, BlockTypeData = 0x424E4532 }
- enum ChannelType {
  ChannelTypeNone = 0, ChannelTypeAnalogueIn = 1, ChannelTypeAnalogueOut = 2, ChannelTypeDigitalIn = 3,
  ChannelTypeDigitalOut = 4 }
- enum SampleType {
  SampleTypeNone = 0, SampleTypeBool = 1, SampleTypeInt8 = 2, SampleTypeInt16 = 3,
  SampleTypeInt32 = 4, SampleTypeFloat32 = 5, SampleTypeFloat64 = 6 }
- enum SyncMode { SyncModeOff = 0, SyncModeMaster = 1, SyncModeSlave = 2 }
- enum MeasureMode { MeasureModeOff = 0, MeasureModeOneShot = 1, MeasureModeRepeat = 2, MeasureModeContinuous = 3 }
- enum MeasureOption { MeasureOptionNone = 0, MeasureOptionProcess = 0x01 }
- enum TriggerMode { TriggerModeOff = 0, TriggerModePositive = 1, TriggerModeNegative = 2 }
- enum TriggerConfig { TriggerConfigNone = 0 }
- enum DigitalMode {
  DigitalModeInput = 0, DigitalModeOutput = 1, DigitalModeInOut = 2, DigitalModeSyncMaster = 3,
  DigitalModeSyncSlave = 4 }
- enum AwgMode {
  AwgModeNone, AwgModeDc, AwgModeSine, AwgModeSquare,
  AwgModeTriangle, AwgModeNoise, AwgModeTrackRms, AwgModeTrackMean,
  AwgModeArbitrary }
- enum AwgOutput { AwgOutputNone, AwgOutputAO0, AwgOutputAO1, AwgOutputAO01 }
- enum FileType { FileTypeNone, FileTypeFile, FileTypeDir }
- enum FilesysDeleteType { FilesysDeleteTypeNone, FilesysDeleteTypeData, FilesysDeleteTypeFormat }
- enum LogData { LogDataOff, LogDataRaw = 0x01, LogDataProcessed = 0x02 }
- enum LogDataMode { LogDataModeNormal, LogDataModeDeleteOld }
- enum DataType { DataTypeFloat32, DataType125i, DataTypeProc }
- enum DataSend { DataSendOff, DataSendStatus = 0x01, DataSendRaw = 0x02, DataSendProcessed = 0x04 }
- enum CalibrateStage {
  CalibrateStageNone = 0, CalibrateStageClear = 1, CalibrateStageSettle = 2, CalibrateStageAdcOffsets = 3,
  CalibrateStageDacOffsets = 4, CalibrateStageDacScaling0 = 5, CalibrateStageDacScaling1 = 6,
  CalibrateStageAdcScaling = 7,
  CalibrateStageAttenScaling = 8, CalibrationStageFiveVolts = 9 }
- enum MessageSource {
  MessageSourceGeneral = 0, MessageSourceDebug = 1, MessageSourceTest = 2, MessageSourceWifi = 3,
  MessageSourceWifiTest = 4 }
- enum NetworkMode { NetworkModeOff = 0, NetworkModeDhcp = 1, NetworkModeManual = 2 }
- enum WifiMode { WifiModeOff, WifiModeClient, WifiModeAp }
- enum AlarmMode { AlarmModeOff, AlarmModeHigh, AlarmModeLow, AlarmModeRange }
- enum AlarmOutput {
  AlarmOutputOff, AlarmOutputDioHigh, AlarmOutputDioLow, AlarmOutputRelayOn,
  AlarmOutputRelayOff }
- enum EventMode { EventModeOff, EventModeAlarm, EventModeSecond }

- enum Rs485Mode { Rs485ModeOff, Rs485ModeBoap }
- enum BMeasFileType { BMeasFileTypeBlock512, BMeasFileTypeStream }
- enum TdsDataType {
  TdsTypeVoid, TdsTypeI8, TdsTypeI16, TdsTypeI32,
  TdsTypeI64, TdsTypeU8, TdsTypeU16, TdsTypeU32,
  TdsTypeU64, TdsTypeSingleFloat, TdsTypeDoubleFloat, TdsTypeExtendedFloat,
  TdsTypeSingleFloatWithUnit =0x19, TdsTypeDoubleFloatWithUnit, TdsTypeExtendedFloatWithUnit,
  TdsTypeString =0x20,
  TdsTypeBoolean =0x21, TdsTypeTimeStamp =0x44, TdsTypeFixedPoint =0x4F, TdsTypeComplexSingleFloat
  =0x08000c,
  TdsTypeComplexDoubleFloat =0x10000d, TdsTypeDAQmxRawData =0xFFFFFFFF }

Functions

- **BString** toBString (ErrorNum v)
- **BError** fromBString (**BString** str, ErrorNum &v)
- **BString** toBStringJson (**BString** n, ErrorNum v)
- **BString** toBString (NodeType v)
- **BError** fromBString (**BString** str, NodeType &v)
- **BString** toBStringJson (**BString** n, NodeType v)
- **BString** toBString (SecurityMode v)
- **BError** fromBString (**BString** str, SecurityMode &v)
- **BString** toBStringJson (**BString** n, SecurityMode v)
- **BString** toBString (Status v)
- **BError** fromBString (**BString** str, Status &v)
- **BString** toBStringJson (**BString** n, Status v)
- **BString** toBString (Mode v)
- **BError** fromBString (**BString** str, Mode &v)
- **BString** toBStringJson (**BString** n, Mode v)
- **BString** toBString (BlockTypes v)
- **BError** fromBString (**BString** str, BlockTypes &v)
- **BString** toBStringJson (**BString** n, BlockTypes v)
- **BString** toBString (ChannelType v)
- **BError** fromBString (**BString** str, ChannelType &v)
- **BString** toBStringJson (**BString** n, ChannelType v)
- **BString** toBString (SampleType v)
- **BError** fromBString (**BString** str, SampleType &v)
- **BString** toBStringJson (**BString** n, SampleType v)
- **BString** toBString (SyncMode v)
- **BError** fromBString (**BString** str, SyncMode &v)
- **BString** toBStringJson (**BString** n, SyncMode v)
- **BString** toBString (MeasureMode v)
- **BError** fromBString (**BString** str, MeasureMode &v)
- **BString** toBStringJson (**BString** n, MeasureMode v)
- **BString** toBString (MeasureOption v)
- **BError** fromBString (**BString** str, MeasureOption &v)
- **BString** toBStringJson (**BString** n, MeasureOption v)
- **BString** toBString (TriggerMode v)
- **BError** fromBString (**BString** str, TriggerMode &v)
- **BString** toBStringJson (**BString** n, TriggerMode v)
- **BString** toBString (TriggerConfig v)
- **BError** fromBString (**BString** str, TriggerConfig &v)
- **BString** toBStringJson (**BString** n, TriggerConfig v)
- **BString** toBString (DigitalMode v)

- **BError** fromBString (**BString** str, DigitalMode &v)
- **BString** toBStringJson (**BString** n, DigitalMode v)
- **BString** toBString (AwgMode v)
- **BError** fromBString (**BString** str, AwgMode &v)
- **BString** toBStringJson (**BString** n, AwgMode v)
- **BString** toBString (AwgOutput v)
- **BError** fromBString (**BString** str, AwgOutput &v)
- **BString** toBStringJson (**BString** n, AwgOutput v)
- **BString** toBString (FileType v)
- **BError** fromBString (**BString** str, FileType &v)
- **BString** toBStringJson (**BString** n, FileType v)
- **BString** toBString (FilesysDeleteType v)
- **BError** fromBString (**BString** str, FilesysDeleteType &v)
- **BString** toBStringJson (**BString** n, FilesysDeleteType v)
- **BString** toBString (LogData v)
- **BError** fromBString (**BString** str, LogData &v)
- **BString** toBStringJson (**BString** n, LogData v)
- **BString** toBString (LogDataMode v)
- **BError** fromBString (**BString** str, LogDataMode &v)
- **BString** toBStringJson (**BString** n, LogDataMode v)
- **BString** toBString (DataType v)
- **BError** fromBString (**BString** str, DataType &v)
- **BString** toBStringJson (**BString** n, DataType v)
- **BString** toBString (DataSend v)
- **BError** fromBString (**BString** str, DataSend &v)
- **BString** toBStringJson (**BString** n, DataSend v)
- **BString** toBString (CalibrateStage v)
- **BError** fromBString (**BString** str, CalibrateStage &v)
- **BString** toBStringJson (**BString** n, CalibrateStage v)
- **BString** toBString (MessageSource v)
- **BError** fromBString (**BString** str, MessageSource &v)
- **BString** toBStringJson (**BString** n, MessageSource v)
- **BString** toBString (NetworkMode v)
- **BError** fromBString (**BString** str, NetworkMode &v)
- **BString** toBStringJson (**BString** n, NetworkMode v)
- **BString** toBString (WifiMode v)
- **BError** fromBString (**BString** str, WifiMode &v)
- **BString** toBStringJson (**BString** n, WifiMode v)
- **BString** toBString (AlarmMode v)
- **BError** fromBString (**BString** str, AlarmMode &v)
- **BString** toBStringJson (**BString** n, AlarmMode v)
- **BString** toBString (AlarmOutput v)
- **BError** fromBString (**BString** str, AlarmOutput &v)
- **BString** toBStringJson (**BString** n, AlarmOutput v)
- **BString** toBString (EventMode v)
- **BError** fromBString (**BString** str, EventMode &v)
- **BString** toBStringJson (**BString** n, EventMode v)
- **BString** toBString (Rs485Mode v)
- **BError** fromBString (**BString** str, Rs485Mode &v)
- **BString** toBStringJson (**BString** n, Rs485Mode v)
- **BString** toBString (BMeasFileType v)
- **BError** fromBString (**BString** str, BMeasFileType &v)
- **BString** toBStringJson (**BString** n, BMeasFileType v)
- const char ∗ channelTypeString (ChannelType type)
- const char ∗ sampleTypeString (SampleType type)

- **BFloat32** toFloat (**BUInt32** v)
- static int unitSort (BMeasureUnit1 *&u1, BMeasureUnit1 *&u2)
- static **BUInt32** roundDown512 (**BUInt32** size)
- const **BUInt32** TocMetaData (1<< 1)
- const **BUInt32** TocNewObjList (1<< 2)
- const **BUInt32** TocRawData (1<< 3)
- const **BUInt32** TocInterleavedData (1<< 5)
- const **BUInt32** TocBigEndian (1<< 6)
- const **BUInt32** TocDaqRawData (1<< 7)
- **BUInt32** round512 (**BUInt32** s)

Variables

- const **BUInt32** apiVersion = 0

6.1.1 Typedef Documentation

6.1.1.1 ChannelConfigs

```
typedef BArray<ChannelConfig> BMeasureApi::ChannelConfigs
```

6.1.2 Enumeration Type Documentation

6.1.2.1 AlarmMode

```
enum BMeasureApi::AlarmMode
```

Enumerator

AlarmModeOff	
AlarmModeHigh	
AlarmModeLow	
AlarmModeRange	

6.1.2.2 AlarmOutput

```
enum BMeasureApi::AlarmOutput
```

Enumerator

AlarmOutputOff	
AlarmOutputDioHigh	
AlarmOutputDioLow	
AlarmOutputRelayOn	
AlarmOutputRelayOff	

6.1.2.3 AwgMode

`enum BMeasureApi::AwgMode`

Enumerator

AwgModeNone	
AwgModeDc	
AwgModeSine	
AwgModeSquare	
AwgModeTriangle	
AwgModeNoise	
AwgModeTrackRms	
AwgModeTrackMean	
AwgModeArbitrary	

6.1.2.4 AwgOutput

`enum BMeasureApi::AwgOutput`

Enumerator

AwgOutputNone	
AwgOutputAO0	
AwgOutputAO1	
AwgOutputAO01	

6.1.2.5 BlockTypes

`enum BMeasureApi::BlockTypes`

Enumerator

BlockTypeInfo	
BlockTypeData	

6.1.2.6 BMeasFileType

`enum BMeasureApi::BMeasFileType`

Enumerator

BMeasFileTypeBlock512	
BMeasFileTypeStream	

6.1.2.7 CalibrateStage

`enum BMeasureApi::CalibrateStage`

Enumerator

CalibrateStageNone	
CalibrateStageClear	
CalibrateStageSettle	
CalibrateStageAdcOffsets	
CalibrateStageDacOffsets	
CalibrateStageDacScaling0	
CalibrateStageDacScaling1	
CalibrateStageAdcScaling	
CalibrateStageAttenScaling	
CalibrationStageFiveVolts	

6.1.2.8 ChannelType

`enum BMeasureApi::ChannelType`

Enumerator

ChannelTypeNone	
ChannelTypeAnalogueIn	
ChannelTypeAnalogueOut	
ChannelTypeDigitalIn	
ChannelTypeDigitalOut	

6.1.2.9 DataSend

enum BMeasureApi::DataSend

Enumerator

DataSendOff	
DataSendStatus	
DataSendRaw	
DataSendProcessed	

6.1.2.10 DataType

enum BMeasureApi::DataType

Enumerator

DataTypeFloat32	
DataType125i	
DataTypeProc	

6.1.2.11 DigitalMode

enum BMeasureApi::DigitalMode

Enumerator

DigitalModeInput	
DigitalModeOutput	
DigitalModeInOut	
DigitalModeSyncMaster	
DigitalModeSyncSlave	

6.1.2.12 ErrorNum

enum BMeasureApi::ErrorNum

Enumerator

ErrorNumSystem	
ErrorNumDataOverrun	
ErrorNumToFast	

6.1.2.13 EventMode

`enum BMeasureApi::EventMode`

Enumerator

EventModeOff	
EventModeAlarm	
EventModeSecond	

6.1.2.14 FilesysDeleteType

`enum BMeasureApi::FilesysDeleteType`

Enumerator

FilesysDeleteTypeNone	
FilesysDeleteTypeData	
FilesysDeleteTypeFormat	

6.1.2.15 FileType

`enum BMeasureApi::FileType`

Enumerator

FileTypeNone	
FileTypeFile	
FileTypeDir	

6.1.2.16 LogData

enum BMeasureApi::LogData

Enumerator

LogDataOff	
LogDataRaw	
LogDataProcessed	

6.1.2.17 LogDataMode

enum BMeasureApi::LogDataMode

Enumerator

LogDataModeNormal	
LogDataModeDeleteOld	

6.1.2.18 MeasureMode

enum BMeasureApi::MeasureMode

Enumerator

MeasureModeOff	
MeasureModeOneShot	
MeasureModeRepeat	
MeasureModeContinuous	

6.1.2.19 MeasureOption

enum BMeasureApi::MeasureOption

Enumerator

MeasureOptionNone	
MeasureOptionProcess	

6.1.2.20 MessageSource

enum BMeasureApi::MessageSource

Enumerator

MessageSourceGeneral	
MessageSourceDebug	
MessageSourceTest	
MessageSourceWifi	
MessageSourceWifiTest	

6.1.2.21 Mode

enum BMeasureApi::Mode

Enumerator

ModeIdle	
ModeRun	
ModeRunProgram	
ModeInternal	
ModeSleep	
ModeDemo1	

6.1.2.22 NetworkMode

enum BMeasureApi::NetworkMode

Enumerator

NetworkModeOff	
NetworkModeDhcp	
NetworkModeManual	

6.1.2.23 NodeType

enum BMeasureApi::NodeType

Enumerator

NodeTypeNone	
NodeTypeBMeasure1	

6.1.2.24 Rs485Mode

`enum BMeasureApi::Rs485Mode`

Enumerator

Rs485ModeOff	
Rs485ModeBoap	

6.1.2.25 SampleType

`enum BMeasureApi::SampleType`

Enumerator

SampleTypeNone	
SampleTypeBool	
SampleTypeInt8	
SampleTypeInt16	
SampleTypeInt32	
SampleTypeFloat32	
SampleTypeFloat64	

6.1.2.26 SecurityMode

`enum BMeasureApi::SecurityMode`

Enumerator

SecurityModeBasic	
SecurityModeConfig	
SecurityModeFull	

6.1.2.27 Status

enum BMeasureApi::Status

Enumerator

StatusNone	
StatusError	
StatusWarning	
StatusRun	
StatusTriggerWait	
StatusEnd0	
StatusEnd1	
StatusDataOverrun	
StatusFpgaOverrun	
StatusAlarm	

6.1.2.28 SyncMode

enum BMeasureApi::SyncMode

Enumerator

SyncModeOff	
SyncModeMaster	
SyncModeSlave	

6.1.2.29 TdsDataType

enum BMeasureApi::TdsDataType

Enumerator

TdsTypeVoid	
TdsTypeI8	
TdsTypeI16	
TdsTypeI32	
TdsTypeI64	
TdsTypeU8	
TdsTypeU16	
TdsTypeU32	
TdsTypeU64	
TdsTypeSingleFloat	
TdsTypeDoubleFloat	

Enumerator

TdsTypeExtendedFloat	
TdsTypeSingleFloatWithUnit	
TdsTypeDoubleFloatWithUnit	
TdsTypeExtendedFloatWithUnit	
TdsTypeString	
TdsTypeBoolean	
TdsTypeTimeStamp	
TdsTypeFixedPoint	
TdsTypeComplexSingleFloat	
TdsTypeComplexDoubleFloat	
TdsTypeDAQmxRawData	

6.1.2.30 TriggerConfig

`enum BMeasureApi::TriggerConfig`

Enumerator

TriggerConfigNone	

6.1.2.31 TriggerMode

`enum BMeasureApi::TriggerMode`

Enumerator

TriggerModeOff	
TriggerModePositive	
TriggerModeNegative	

6.1.2.32 WifiMode

`enum BMeasureApi::WifiMode`

Enumerator

WifiModeOff	
WifiModeClient	
WifiModeAp	

6.1.3 Function Documentation

6.1.3.1 channelTypeString()

```
const char * BMeasureApi::channelTypeString (
            ChannelType type )
```

6.1.3.2 fromBString() [1/31]

```
BError BMeasureApi::fromBString (
            BString str,
            ErrorNum & v )
```

6.1.3.3 fromBString() [2/31]

```
BError BMeasureApi::fromBString (
            BString str,
            NodeType & v )
```

6.1.3.4 fromBString() [3/31]

```
BError BMeasureApi::fromBString (
            BString str,
            SecurityMode & v )
```

6.1.3.5 fromBString() [4/31]

```
BError BMeasureApi::fromBString (
            BString str,
            Status & v )
```

6.1.3.6 fromBString() [5/31]

```
BError BMeasureApi::fromBString (
            BString str,
            Mode & v )
```

6.1.3.7 fromBString() [6/31]

```
BError BMeasureApi::fromBString (
            BString str,
            BlockTypes & v )
```

6.1.3.8 fromBString() [7/31]

```
BError BMeasureApi::fromBString (
            BString str,
            ChannelType & v )
```

6.1.3.9 fromBString() [8/31]

```
BError BMeasureApi::fromBString (
            BString str,
            SampleType & v )
```

6.1.3.10 fromBString() [9/31]

```
BError BMeasureApi::fromBString (
            BString str,
            SyncMode & v )
```

6.1.3.11 fromBString() [10/31]

```
BError BMeasureApi::fromBString (
            BString str,
            MeasureMode & v )
```

6.1.3.12 fromBString() [11/31]

```
BError BMeasureApi::fromBString (
            BString str,
            MeasureOption & v )
```

6.1.3.13 fromBString() [12/31]

```
BError BMeasureApi::fromBString (
            BString str,
            TriggerMode & v )
```

6.1.3.14 fromBString() [13/31]

```
BError BMeasureApi::fromBString (
            BString str,
            TriggerConfig & v )
```

6.1.3.15 fromBString() [14/31]

```
BError BMeasureApi::fromBString (
            BString str,
            DigitalMode & v )
```

6.1.3.16 fromBString() [15/31]

```
BError BMeasureApi::fromBString (
            BString str,
            AwgMode & v )
```

6.1.3.17 fromBString() [16/31]

```
BError BMeasureApi::fromBString (
            BString str,
            AwgOutput & v )
```

6.1.3.18 fromBString() [17/31]

```
BError BMeasureApi::fromBString (
            BString str,
            FileType & v )
```

6.1.3.19 fromBString() [18/31]

```
BError BMeasureApi::fromBString (
            BString str,
            FilesysDeleteType & v )
```

6.1.3.20 fromBString() [19/31]

```
BError BMeasureApi::fromBString (
            BString str,
            LogData & v )
```

6.1.3.21 fromBString() [20/31]

```
BError BMeasureApi::fromBString (
            BString str,
            LogDataMode & v )
```

6.1.3.22 fromBString() [21/31]

```
BError BMeasureApi::fromBString (
            BString str,
            DataType & v )
```

6.1.3.23 fromBString() [22/31]

```
BError BMeasureApi::fromBString (
            BString str,
            DataSend & v )
```

6.1.3.24 fromBString() [23/31]

```
BError BMeasureApi::fromBString (
            BString str,
            CalibrateStage & v )
```

6.1.3.25 fromBString() [24/31]

```
BError BMeasureApi::fromBString (
            BString str,
            MessageSource & v )
```

6.1.3.26 fromBString() [25/31]

```
BError BMeasureApi::fromBString (
            BString str,
            NetworkMode & v )
```

6.1.3.27 fromBString() [26/31]

```
BError BMeasureApi::fromBString (
            BString str,
            WifiMode & v )
```

6.1.3.28 fromBString() [27/31]

```
BError BMeasureApi::fromBString (
            BString str,
            AlarmMode & v )
```

6.1.3.29 fromBString() [28/31]

```
BError BMeasureApi::fromBString (
            BString str,
            AlarmOutput & v )
```

6.1.3.30 fromBString() [29/31]

```
BError BMeasureApi::fromBString (
            BString str,
            EventMode & v )
```

6.1.3.31 fromBString() [30/31]

```
BError BMeasureApi::fromBString (
            BString str,
            Rs485Mode & v )
```

6.1.3.32 fromBString() [31/31]

```
BError BMeasureApi::fromBString (
            BString str,
            BMeasFileType & v )
```

6.1.3.33 round512()

```
BUInt32 BMeasureApi::round512 (
            BUInt32 s )
```

6.1.3.34 roundDown512()

```
static  BUInt32 BMeasureApi::roundDown512 (
            BUInt32 size )  [static]
```

6.1.3.35 sampleTypeString()

```
const char * BMeasureApi::sampleTypeString (
            SampleType type )
```

6.1.3.36 toBString() [1/31]

```
BString BMeasureApi::toBString (
            ErrorNum v )
```

6.1.3.37 toBString() [2/31]

```
BString BMeasureApi::toBString (
            NodeType v )
```

6.1.3.38 toBString() [3/31]

```
BString BMeasureApi::toBString (
            SecurityMode v )
```

6.1.3.39 toBString() [4/31]

```
BString BMeasureApi::toBString (
            Status v )
```

6.1.3.40 toBString() [5/31]

```
BString BMeasureApi::toBString (
            Mode v )
```

6.1.3.41 toBString() [6/31]

```
BString BMeasureApi::toBString (
            BlockTypes v )
```

6.1.3.42 toBString() [7/31]

```
BString BMeasureApi::toBString (
            ChannelType v )
```

6.1.3.43 toBString() [8/31]

```
BString BMeasureApi::toBString (
            SampleType v )
```

6.1.3.44 toBString() [9/31]

```
BString BMeasureApi::toBString (
            SyncMode v )
```

6.1.3.45 toBString() [10/31]

```
BString BMeasureApi::toBString (
            MeasureMode v )
```

6.1.3.46 toBString() [11/31]

```
BString BMeasureApi::toBString (
            MeasureOption v )
```

6.1.3.47 toBString() [12/31]

```
BString BMeasureApi::toBString (
            TriggerMode v )
```

6.1.3.48 toBString() [13/31]

```
BString BMeasureApi::toBString (
            TriggerConfig v )
```

6.1.3.49 toBString() [14/31]

```
BString BMeasureApi::toBString (
            DigitalMode v )
```

6.1.3.50 toBString() [15/31]

```
BString BMeasureApi::toBString (
            AwgMode v )
```

6.1.3.51 toBString() [16/31]

```
BString BMeasureApi::toBString (
            AwgOutput v )
```

6.1.3.52 toBString() [17/31]

```
BString BMeasureApi::toBString (
            FileType v )
```

6.1.3.53 toBString() [18/31]

```
BString BMeasureApi::toBString (
            FilesysDeleteType v )
```

6.1.3.54 toBString() [19/31]

```
BString BMeasureApi::toBString (
            LogData v )
```

6.1.3.55 toBString() [20/31]

```
BString BMeasureApi::toBString (
            LogDataMode v )
```

6.1.3.56 toBString() [21/31]

```
BString BMeasureApi::toBString (
            DataType v )
```

6.1.3.57 toBString() [22/31]

```
BString BMeasureApi::toBString (
            DataSend v )
```

6.1.3.58 toBString() [23/31]

```
BString BMeasureApi::toBString (
            CalibrateStage v )
```

6.1.3.59 toBString() [24/31]

```
BString BMeasureApi::toBString (
            MessageSource v )
```

6.1.3.60 toBString() [25/31]

```
BString BMeasureApi::toBString (
            NetworkMode v )
```

6.1.3.61 toBString() [26/31]

```
BString BMeasureApi::toBString (
            WifiMode v )
```

6.1.3.62 toBString() [27/31]

```
BString BMeasureApi::toBString (
            AlarmMode v )
```

6.1.3.63 toBString() [28/31]

```
BString BMeasureApi::toBString (
            AlarmOutput v )
```

6.1.3.64 toBString() [29/31]

```
BString BMeasureApi::toBString (
            EventMode v )
```

6.1.3.65 toBString() [30/31]

```
BString BMeasureApi::toBString (
            Rs485Mode v )
```

6.1.3.66 toBString() [31/31]

```
BString BMeasureApi::toBString (
            BMeasFileType v )
```

6.1.3.67 toBStringJson() [1/31]

```
BString BMeasureApi::toBStringJson (
             BString n,
            ErrorNum v )
```

6.1.3.68 toBStringJson() [2/31]

```
BString BMeasureApi::toBStringJson (
             BString n,
            NodeType v )
```

6.1.3.69 toBStringJson() [3/31]

```
BString BMeasureApi::toBStringJson (
             BString n,
            SecurityMode v )
```

6.1.3.70 toBStringJson() [4/31]

```
BString BMeasureApi::toBStringJson (
             BString n,
            Status v )
```

6.1.3.71 toBStringJson() [5/31]

```
BString BMeasureApi::toBStringJson (
             BString n,
            Mode v )
```

6.1.3.72 toBStringJson() [6/31]

```
BString BMeasureApi::toBStringJson (
            BString n,
            BlockTypes v )
```

6.1.3.73 toBStringJson() [7/31]

```
BString BMeasureApi::toBStringJson (
            BString n,
            ChannelType v )
```

6.1.3.74 toBStringJson() [8/31]

```
BString BMeasureApi::toBStringJson (
            BString n,
            SampleType v )
```

6.1.3.75 toBStringJson() [9/31]

```
BString BMeasureApi::toBStringJson (
            BString n,
            SyncMode v )
```

6.1.3.76 toBStringJson() [10/31]

```
BString BMeasureApi::toBStringJson (
            BString n,
            MeasureMode v )
```

6.1.3.77 toBStringJson() [11/31]

```
BString BMeasureApi::toBStringJson (
            BString n,
            MeasureOption v )
```

6.1.3.78 toBStringJson() [12/31]

```
BString BMeasureApi::toBStringJson (
            BString n,
            TriggerMode v )
```

6.1.3.79 toBStringJson() [13/31]

```
BString BMeasureApi::toBStringJson (
            BString n,
            TriggerConfig v )
```

6.1.3.80 toBStringJson() [14/31]

```
BString BMeasureApi::toBStringJson (
            BString n,
            DigitalMode v )
```

6.1.3.81 toBStringJson() [15/31]

```
BString BMeasureApi::toBStringJson (
            BString n,
            AwgMode v )
```

6.1.3.82 toBStringJson() [16/31]

```
BString BMeasureApi::toBStringJson (
            BString n,
            AwgOutput v )
```

6.1.3.83 toBStringJson() [17/31]

```
BString BMeasureApi::toBStringJson (
            BString n,
            FileType v )
```

6.1.3.84 toBStringJson() [18/31]

```
BString BMeasureApi::toBStringJson (
            BString n,
            FilesysDeleteType v )
```

6.1.3.85 toBStringJson() [19/31]

```
BString BMeasureApi::toBStringJson (
            BString n,
            LogData v )
```

6.1.3.86 toBStringJson() [20/31]

```
BString BMeasureApi::toBStringJson (
            BString n,
            LogDataMode v )
```

6.1.3.87 toBStringJson() [21/31]

```
BString BMeasureApi::toBStringJson (
            BString n,
            DataType v )
```

6.1.3.88 toBStringJson() [22/31]

```
BString BMeasureApi::toBStringJson (
            BString n,
            DataSend v )
```

6.1.3.89 toBStringJson() [23/31]

```
BString BMeasureApi::toBStringJson (
            BString n,
            CalibrateStage v )
```

6.1.3.90 toBStringJson() [24/31]

```
BString BMeasureApi::toBStringJson (
            BString n,
            MessageSource v )
```

6.1.3.91 toBStringJson() [25/31]

```
BString BMeasureApi::toBStringJson (
            BString n,
            NetworkMode v )
```

6.1.3.92 toBStringJson() [26/31]

```
BString BMeasureApi::toBStringJson (
            BString n,
            WifiMode v )
```

6.1.3.93 toBStringJson() [27/31]

```
BString BMeasureApi::toBStringJson (
            BString n,
            AlarmMode v )
```

6.1.3.94 toBStringJson() [28/31]

```
BString BMeasureApi::toBStringJson (
            BString n,
            AlarmOutput v )
```

6.1.3.95 toBStringJson() [29/31]

```
BString BMeasureApi::toBStringJson (
            BString n,
            EventMode v )
```

6.1.3.96 toBStringJson() [30/31]

```
BString BMeasureApi::toBStringJson (
            BString n,
            Rs485Mode v )
```

6.1.3.97 toBStringJson() [31/31]

```
BString BMeasureApi::toBStringJson (
            BString n,
            BMeasFileType v )
```

6.1.3.98 TocBigEndian()

```
const BUInt32 BMeasureApi::TocBigEndian (
            1<< 6 )
```

6.1.3.99 TocDaqRawData()

```
const BUInt32 BMeasureApi::TocDaqRawData (
            1<< 7 )
```

6.1.3.100 TocInterleavedData()

```
const BUInt32 BMeasureApi::TocInterleavedData (
            1<< 5 )
```

6.1.3.101 TocMetaData()

```
const BUInt32 BMeasureApi::TocMetaData (
            1<< 1 )
```

6.1.3.102 TocNewObjList()

```
const BUInt32 BMeasureApi::TocNewObjList (
            1<< 2 )
```

6.1.3.103 TocRawData()

```
const  BUInt32 BMeasureApi::TocRawData (
             1<< 3 )
```

6.1.3.104 toFloat()

```
 BFloat32 BMeasureApi::toFloat (
              BUInt32 v )  [inline]
```

6.1.3.105 unitSort()

```
static int BMeasureApi::unitSort (
             BMeasureUnit1 *& u1,
             BMeasureUnit1 *& u2 )  [static]
```

6.1.4 Variable Documentation

6.1.4.1 apiVersion

```
const  BUInt32 BMeasureApi::apiVersion = 0
```

Chapter 7

Class Documentation

7.1 BMeasureApi::AlarmConfig Class Reference

`#include <BMeasureD.h>`

Static Public Member Functions

- static const **BObjMember** * getMembers ()

Public Attributes

- AlarmMode mode
  Alarm mode.
- AlarmOutput output
  Alarm output.
- **BUInt8** outputChannel
  Alarm output channel.
- **BUInt8** spare
- **BFloat32** levelHigh
  Alarm level high.
- **BFloat32** levelLow
  Alarm level low.

7.1.1 Member Function Documentation

7.1.1.1 getMembers()

`const BObjMember * BMeasureApi::AlarmConfig::getMembers ( ) [static]`

7.1.2 Member Data Documentation

7.1.2.1 levelHigh

BFloat32 BMeasureApi::AlarmConfig::levelHigh

Alarm level high.

7.1.2.2 levelLow

BFloat32 BMeasureApi::AlarmConfig::levelLow

Alarm level low.

7.1.2.3 mode

AlarmMode BMeasureApi::AlarmConfig::mode

Alarm mode.

7.1.2.4 output

AlarmOutput BMeasureApi::AlarmConfig::output

Alarm output.

7.1.2.5 outputChannel

BUInt8 BMeasureApi::AlarmConfig::outputChannel

Alarm output channel.

7.1.2.6 spare

BUInt8 BMeasureApi::AlarmConfig::spare

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

- BMeasureD.h
- BMeasureD.cpp

7.2 BMeasureApi::AwgConfig Class Reference

#include <BMeasureD.h>

Static Public Member Functions

- static const **BObjMember** * getMembers ()

Public Attributes

- AwgMode mode
  The mode including waveform type.
- AwgOutput output
  The output channels.
- **BUInt8** trackChannel
  Input channel to track.
- **BUInt8** spare
- **BFloat32** frequency
  The frequency.
- **BFloat32** amplitude
  The peak amplitude in Volts.
- **BFloat32** offset
  The DC offset in volts.
- **BFloat32** duty
  The Duty cycle in %.
- **BUInt32** numSamples
  The number of samples when using arbitary waveforms.

7.2.1 Member Function Documentation

7.2.1.1 getMembers()

const **BObjMember** * BMeasureApi::AwgConfig::getMembers ( ) [static]

7.2.2 Member Data Documentation

7.2.2.1 amplitude

BFloat32 BMeasureApi::AwgConfig::amplitude

The peak amplitude in Volts.

7.2.2.2 duty

BFloat32 BMeasureApi::AwgConfig::duty

The Duty cycle in %.

7.2.2.3 frequency

BFloat32 BMeasureApi::AwgConfig::frequency

The frequency.

7.2.2.4 mode

AwgMode BMeasureApi::AwgConfig::mode

The mode including waveform type.

7.2.2.5 numSamples

BUInt32 BMeasureApi::AwgConfig::numSamples

The number of samples when using arbitary waveforms.

7.2.2.6 offset

```
BFloat32 BMeasureApi::AwgConfig::offset
```

The DC offset in volts.

7.2.2.7 output

```
AwgOutput BMeasureApi::AwgConfig::output
```

The output channels.

7.2.2.8 spare

```
BUInt8 BMeasureApi::AwgConfig::spare
```

7.2.2.9 trackChannel

```
BUInt8 BMeasureApi::AwgConfig::trackChannel
```

Input channel to track.

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

- BMeasureD.h
- BMeasureD.cpp

7.3 BFirmwareInfo Struct Reference

Public Attributes

- **BUInt32** magic
- **BUInt32** length
- **BUInt32** checksum
- **BUInt8** type
- **BUInt8** ver0
- **BUInt8** ver1
- **BUInt8** ver2

7.3.1 Member Data Documentation

7.3.1.1 checksum

BUInt32 BFirmwareInfo::checksum

7.3.1.2 length

BUInt32 BFirmwareInfo::length

7.3.1.3 magic

BUInt32 BFirmwareInfo::magic

7.3.1.4 type

BUInt8 BFirmwareInfo::type

7.3.1.5 ver0

BUInt8 BFirmwareInfo::ver0

7.3.1.6 ver1

BUInt8 BFirmwareInfo::ver1

7.3.1.7 ver2

BUInt8 BFirmwareInfo::ver2

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

- Dfu.cpp

7.4 BMdns Class Reference

```
#include <BMdns.h>
```

Public Member Functions

- BMdns ()
- ~BMdns ()
- **BError** init ()
- **BError** findServices (**BString** service, **BUInt32** timeoutMs, **BList**< BMdnsService > &services)

Private Attributes

- **BSocket** osocket
- **BUInt32** otransactionId

7.4.1 Constructor & Destructor Documentation

7.4.1.1 BMdns()

```
BMdns::BMdns ( )
```

7.4.1.2 ~BMdns()

```
BMdns::~BMdns ( )
```

7.4.2 Member Function Documentation

7.4.2.1 findServices()

```
BError BMdns::findServices (
            BString service,
            BUInt32 timeoutMs,
            BList< BMdnsService > & services )
```

Unicast response, class IN

7.4.2.2 init()

```
BError BMdns::init ( )
```

7.4.3 Member Data Documentation

7.4.3.1 osocket

```
BSocket BMdns::osocket  [private]
```

7.4.3.2 otransactionId

```
BUInt32 BMdns::otransactionId  [private]
```

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

- BMdns.h
- BMdns.cpp

7.5 BMdnsService Class Reference

```
#include <BMdns.h>
```

Public Attributes

- **BString** name
- **BSocketAddressINET** address
- **BString** hostname
- BStringList extra

7.5.1 Member Data Documentation

7.5.1.1 address

```
BSocketAddressINET BMdnsService::address
```

7.5.1.2 extra

```
BStringList BMdnsService::extra
```

7.5.1.3 hostname

```
BString BMdnsService::hostname
```

7.5.1.4 name

```
BString BMdnsService::name
```

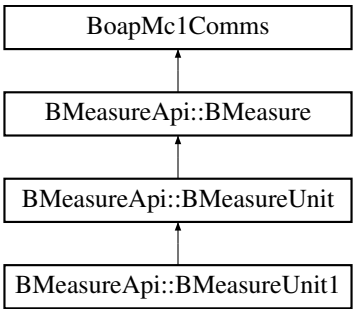
The documentation for this class was generated from the following file:

- BMdns.h

7.6 BMeasureApi::BMeasure Class Reference

```
#include <BMeasureB.h>
```

Inheritance diagram for BMeasureApi::BMeasure:



Public Member Functions

- BMeasure (**Bool** threaded=0, **BUInt** reqSize=512)
- **BError** getNodeInfo (NodeInfo &nodeInfo)

  Get node information.
- **BError** login (const **BString** &userid, const **BString** &password)

  Provides user/password information for secure connection.
- **BError** logout ()

  Logs out.
- **BError** changePassword (const **BString** &userid, const **BString** &oldPassword, const **BString** &new↩ Password)

  Changes the users password.
- void factoryReset (const **Bool** &bootLoader, const **Bool** &resetConfig)

  Factory reset.
- void sendTime (const **BTimeUs** &time)

  Sends the current time.
- **BError** setMode (const Mode &mode)

  Set the current operational mode.
- **BError** getStatus (NodeStatus &nodeStatus)

  Get the node status.
- void sendStatus (const NodeStatus &nodeStatus)

  Sends the current status.
- **BError** getInformation (Information &info)
- **BError** getInfoBlock (InfoBlock &infoBlock)
- **BError** getChannelConfig (const **BUInt32** &channelNumber, ChannelConfig &channelConfig)
- **BError** setChannelConfig (const **BUInt32** &channelNumber, const ChannelConfig &channelConfig)
- **BError** setChannelConfigFull (const **BUInt64** &key, const **BUInt32** &channelNumber, const ChannelConfig &channelConfig)
- **BError** getConfig (Configuration &config)

  Return units configuration.
- **BError** setConfig (const Configuration &config)

  Set units configuration.
- **BError** getMeasurementConfig (const **Bool** &saved, MeasurementConfig &measurementConfig)

  Get measurement config.
- **BError** setMeasurementConfig (const **Bool** &save, const MeasurementConfig &measurementConfig)

  Set measurement config.
- **BError** sendDataEnable (const **BUInt8** &sendSet)

  Enable the sending of different data streams.
- **BError** measure (const DataType &dataType, DataBlock &dataBlock)

  Performs a single sample measurement.
- void sendInfo (const InfoBlock &infoBlock)

  Sends an info block.
- void sendData (const DataBlock &dataBlock)

  Sends a data block.
- void sendChannelConfig (const ChannelConfig &channelConfig)

  Sends a ChannelConfig block.
- **BError** getAwgConfig (const **Bool** &saved, AwgConfig &awgConfig)

  Get AWG Configuration.
- **BError** setAwgConfig (const **Bool** &save, const AwgConfig &awgConfig)

  Configure AWG.
- **BError** setAwgWaveform (const **BUInt32** &chan, const **BUInt32** &pos, const FileData &dataBlock)

  Configure AWG Arbitrary waveform.

- **BError** setAnalogueOut (const **BUInt32** &chan, const **BFloat32** &value)

  Set analogue output value.
- **BError** setDigital (const **BUInt32** &bits)

  Set digital bits.
- **BError** getDigital (**BUInt32** &bits)

  Get digital bits.
- **BError** setRelay (const **BUInt32** &relayNum, const **Bool** &state)

  Set relay.
- **BError** getSwitch (const **BUInt32** &switchNum, **Bool** &state)

  Get digital bits.
- **BError** alarmsClear (const **BUInt32** &bits)

  Clear alarms.
- **BError** filesysInfo (const **BString** &path, FilesysInfo &filesysInfo)
- **BError** filesysDelete (const **BString** &path, const FilesysDeleteType &deleteType)
- **BError** fileList (const **BString** &path, const **BUInt32** &pos, FileInfo &fileInfo)
- **BError** fileOpen (const **BString** &name, const **BString** &mode, **BUInt32** &handle)
- **BError** fileRead (const **BUInt32** &handle, const **BUInt32** &pos, const **BUInt32** &len, FileData & **data**)
- **BError** fileWrite (const **BUInt32** &handle, const **BUInt32** &pos, const FileData & **data**)
- **BError** fileClose (const **BUInt32** &handle)
- **BError** fileDelete (const **BString** &name)
- **BError** functionUnLock (const **BUInt32** &unlocks, const **BString** &key)

  UnLock/Lock special functions.
- **BError** getBoardConfig (BoardConfig &config)

  Get the boards configuration.
- **BError** setBoardConfig (const BoardConfig &config)

  Sets the boards configuration, requires key.
- **BError** runBoardTest (const **BString** &test)

  Runs the given board test.
- **BError** calibrate (const CalibrateInfo &calibInfo)

  Calibrate system.
- void sendMessage (const **BUInt32** &source, const **BString** &message)

  Send text messages.
- **BError** processRequest ()
- virtual **BError** getNodeInfoServe (NodeInfo &nodeInfo)
- virtual **BError** loginServe (const **BString** &userid, const **BString** &password)
- virtual **BError** logoutServe ()
- virtual **BError** changePasswordServe (const **BString** &userid, const **BString** &oldPassword, const **BString** &newPassword)
- virtual void factoryResetServe (const **Bool** &bootLoader, const **Bool** &resetConfig)
- virtual void sendTimeServe (const **BTimeUs** &time)
- virtual **BError** setModeServe (const Mode &mode)
- virtual **BError** getStatusServe (NodeStatus &nodeStatus)
- virtual void sendStatusServe (const NodeStatus &nodeStatus)
- virtual **BError** getInformationServe (Information &info)
- virtual **BError** getInfoBlockServe (InfoBlock &infoBlock)
- virtual **BError** getChannelConfigServe (const **BUInt32** &channelNumber, ChannelConfig &channelConfig)
- virtual **BError** setChannelConfigServe (const **BUInt32** &channelNumber, const ChannelConfig &channel↩ Config)
- virtual **BError** setChannelConfigFullServe (const **BUInt64** &key, const **BUInt32** &channelNumber, const ChannelConfig &channelConfig)
- virtual **BError** getConfigServe (Configuration &config)
- virtual **BError** setConfigServe (const Configuration &config)

- virtual **BError** getMeasurementConfigServe (const **Bool** &saved, MeasurementConfig &measurement↩ Config)
- virtual **BError** setMeasurementConfigServe (const **Bool** &save, const MeasurementConfig &measurement↩ Config)
- virtual **BError** sendDataEnableServe (const **BUInt8** &sendSet)
- virtual **BError** measureServe (const DataType &dataType, DataBlock &dataBlock)
- virtual void sendInfoServe (const InfoBlock &infoBlock)
- virtual void sendDataServe (const DataBlock &dataBlock)
- virtual void sendChannelConfigServe (const ChannelConfig &channelConfig)
- virtual **BError** getAwgConfigServe (const **Bool** &saved, AwgConfig &awgConfig)
- virtual **BError** setAwgConfigServe (const **Bool** &save, const AwgConfig &awgConfig)
- virtual **BError** setAwgWaveformServe (const **BUInt32** &chan, const **BUInt32** &pos, const FileData &data↩ Block)
- virtual **BError** setAnalogueOutServe (const **BUInt32** &chan, const **BFloat32** &value)
- virtual **BError** setDigitalServe (const **BUInt32** &bits)
- virtual **BError** getDigitalServe (**BUInt32** &bits)
- virtual **BError** setRelayServe (const **BUInt32** &relayNum, const **Bool** &state)
- virtual **BError** getSwitchServe (const **BUInt32** &switchNum, **Bool** &state)
- virtual **BError** alarmsClearServe (const **BUInt32** &bits)
- virtual **BError** filesysInfoServe (const **BString** &path, FilesysInfo &filesysInfo)
- virtual **BError** filesysDeleteServe (const **BString** &path, const FilesysDeleteType &deleteType)
- virtual **BError** fileListServe (const **BString** &path, const **BUInt32** &pos, FileInfo &fileInfo)
- virtual **BError** fileOpenServe (const **BString** &name, const **BString** &mode, **BUInt32** &handle)
- virtual **BError** fileReadServe (const **BUInt32** &handle, const **BUInt32** &pos, const **BUInt32** &len, FileData & **data**)
- virtual **BError** fileWriteServe (const **BUInt32** &handle, const **BUInt32** &pos, const FileData & **data**)
- virtual **BError** fileCloseServe (const **BUInt32** &handle)
- virtual **BError** fileDeleteServe (const **BString** &name)
- virtual **BError** functionUnLockServe (const **BUInt32** &unlocks, const **BString** &key)
- virtual **BError** getBoardConfigServe (BoardConfig &config)
- virtual **BError** setBoardConfigServe (const BoardConfig &config)
- virtual **BError** runBoardTestServe (const **BString** &test)
- virtual **BError** calibrateServe (const CalibrateInfo &calibInfo)
- virtual void sendMessageServe (const **BUInt32** &source, const **BString** &message)

Additional Inherited Members

7.6.1 Constructor & Destructor Documentation

7.6.1.1 BMeasure()

```
BMeasureApi::BMeasure::BMeasure (
            Bool threaded = 0,
            BUInt reqSize = 512 )
```

7.6.2 Member Function Documentation

7.6.2.1 alarmsClear()

```
BError BMeasureApi::BMeasure::alarmsClear (
            const  BUInt32 & bits )
```

Clear alarms.

7.6.2.2 alarmsClearServe()

```
BError BMeasureApi::BMeasure::alarmsClearServe (
            const  BUInt32 & bits )  [virtual]
```

7.6.2.3 calibrate()

```
BError BMeasureApi::BMeasure::calibrate (
            const CalibrateInfo & calibInfo )
```

Calibrate system.

7.6.2.4 calibrateServe()

```
BError BMeasureApi::BMeasure::calibrateServe (
            const CalibrateInfo & calibInfo )  [virtual]
```

7.6.2.5 changePassword()

```
BError BMeasureApi::BMeasure::changePassword (
            const  BString & userid,
            const  BString & oldPassword,
            const  BString & newPassword )
```

Changes the users password.

7.6.2.6 changePasswordServe()

```
BError BMeasureApi::BMeasure::changePasswordServe (
            const  BString & userid,
            const  BString & oldPassword,
            const  BString & newPassword )  [virtual]
```

7.6.2.7 factoryReset()

```
void BMeasureApi::BMeasure::factoryReset (
            const  Bool & bootLoader,
            const  Bool & resetConfig )
```

Factory reset.

7.6.2.8 factoryResetServe()

```
void BMeasureApi::BMeasure::factoryResetServe (
            const  Bool & bootLoader,
            const  Bool & resetConfig )  [virtual]
```

7.6.2.9 fileClose()

```
BError BMeasureApi::BMeasure::fileClose (
            const  BUInt32 & handle )
```

7.6.2.10 fileCloseServe()

```
BError BMeasureApi::BMeasure::fileCloseServe (
            const  BUInt32 & handle )  [virtual]
```

7.6.2.11 fileDelete()

```
BError BMeasureApi::BMeasure::fileDelete (
            const  BString & name )
```

7.6.2.12 fileDeleteServe()

```
BError BMeasureApi::BMeasure::fileDeleteServe (
            const  BString & name )  [virtual]
```

7.6.2.13 fileList()

```
BError BMeasureApi::BMeasure::fileList (
            const  BString & path,
            const  BUInt32 & pos,
            FileInfo & fileInfo )
```

7.6.2.14 fileListServe()

```
BError BMeasureApi::BMeasure::fileListServe (
            const  BString & path,
            const  BUInt32 & pos,
            FileInfo & fileInfo )  [virtual]
```

7.6.2.15 fileOpen()

```
BError BMeasureApi::BMeasure::fileOpen (
            const  BString & name,
            const  BString & mode,
             BUInt32 & handle )
```

7.6.2.16 fileOpenServe()

```
BError BMeasureApi::BMeasure::fileOpenServe (
            const  BString & name,
            const  BString & mode,
             BUInt32 & handle )  [virtual]
```

7.6.2.17 fileRead()

```
BError BMeasureApi::BMeasure::fileRead (
            const  BUInt32 & handle,
            const  BUInt32 & pos,
            const  BUInt32 & len,
            FileData & data )
```

7.6.2.18 fileReadServe()

```
BError BMeasureApi::BMeasure::fileReadServe (
            const  BUInt32 & handle,
            const  BUInt32 & pos,
            const  BUInt32 & len,
            FileData & data )  [virtual]
```

7.6.2.19 filesysDelete()

```
BError BMeasureApi::BMeasure::filesysDelete (
            const  BString & path,
            const FilesysDeleteType & deleteType )
```

7.6.2.20 filesysDeleteServe()

```
BError BMeasureApi::BMeasure::filesysDeleteServe (
            const  BString & path,
            const FilesysDeleteType & deleteType )  [virtual]
```

7.6.2.21 filesysInfo()

```
BError BMeasureApi::BMeasure::filesysInfo (
            const  BString & path,
            FilesysInfo & filesysInfo )
```

7.6.2.22 filesysInfoServe()

```
BError BMeasureApi::BMeasure::filesysInfoServe (
            const  BString & path,
            FilesysInfo & filesysInfo )  [virtual]
```

7.6.2.23 fileWrite()

```
BError BMeasureApi::BMeasure::fileWrite (
            const  BUInt32 & handle,
            const  BUInt32 & pos,
            const FileData & data )
```

7.6.2.24 fileWriteServe()

```
BError BMeasureApi::BMeasure::fileWriteServe (
            const  BUInt32 & handle,
            const  BUInt32 & pos,
            const FileData & data )  [virtual]
```

7.6.2.25 functionUnLock()

```
BError BMeasureApi::BMeasure::functionUnLock (
            const  BUInt32 & unlocks,
            const  BString & key )
```

UnLock/Lock special functions.

7.6.2.26 functionUnLockServe()

```
BError BMeasureApi::BMeasure::functionUnLockServe (
            const  BUInt32 & unlocks,
            const  BString & key )  [virtual]
```

7.6.2.27 getAwgConfig()

```
BError BMeasureApi::BMeasure::getAwgConfig (
            const  Bool & saved,
            AwgConfig & awgConfig )
```

Get AWG Configuration.

7.6.2.28 getAwgConfigServe()

```
BError BMeasureApi::BMeasure::getAwgConfigServe (
            const  Bool & saved,
            AwgConfig & awgConfig )  [virtual]
```

7.6.2.29 getBoardConfig()

```
BError BMeasureApi::BMeasure::getBoardConfig (
            BoardConfig & config )
```

Get the boards configuration.

7.6.2.30 getBoardConfigServe()

```
BError BMeasureApi::BMeasure::getBoardConfigServe (
            BoardConfig & config )  [virtual]
```

7.6.2.31 getChannelConfig()

```
BError BMeasureApi::BMeasure::getChannelConfig (
            const  BUInt32 & channelNumber,
            ChannelConfig & channelConfig )
```

7.6.2.32 getChannelConfigServe()

```
BError BMeasureApi::BMeasure::getChannelConfigServe (
            const  BUInt32 & channelNumber,
            ChannelConfig & channelConfig )  [virtual]
```

7.6.2.33 getConfig()

```
BError BMeasureApi::BMeasure::getConfig (
            Configuration & config )
```

Return units configuration.

7.6.2.34 getConfigServe()

```
BError BMeasureApi::BMeasure::getConfigServe (
            Configuration & config )  [virtual]
```

7.6.2.35 getDigital()

```
BError BMeasureApi::BMeasure::getDigital (
             BUInt32 & bits )
```

Get digital bits.

7.6.2.36 getDigitalServe()

```
BError BMeasureApi::BMeasure::getDigitalServe (
            BUInt32 & bits )  [virtual]
```

7.6.2.37 getInfoBlock()

```
BError BMeasureApi::BMeasure::getInfoBlock (
            InfoBlock & infoBlock )
```

7.6.2.38 getInfoBlockServe()

```
BError BMeasureApi::BMeasure::getInfoBlockServe (
            InfoBlock & infoBlock )  [virtual]
```

7.6.2.39 getInformation()

```
BError BMeasureApi::BMeasure::getInformation (
            Information & info )
```

7.6.2.40 getInformationServe()

```
BError BMeasureApi::BMeasure::getInformationServe (
            Information & info )  [virtual]
```

7.6.2.41 getMeasurementConfig()

```
BError BMeasureApi::BMeasure::getMeasurementConfig (
            const  Bool & saved,
            MeasurementConfig & measurementConfig )
```

Get measurement config.

7.6.2.42 getMeasurementConfigServe()

```
BError BMeasureApi::BMeasure::getMeasurementConfigServe (
            const  Bool & saved,
            MeasurementConfig & measurementConfig )  [virtual]
```

7.6.2.43 getNodeInfo()

```
BError BMeasureApi::BMeasure::getNodeInfo (
            NodeInfo & nodeInfo )
```

Get node information.

7.6.2.44 getNodeInfoServe()

```
BError BMeasureApi::BMeasure::getNodeInfoServe (
            NodeInfo & nodeInfo )  [virtual]
```

7.6.2.45 getStatus()

```
BError BMeasureApi::BMeasure::getStatus (
            NodeStatus & nodeStatus )
```

Get the node status.

7.6.2.46 getStatusServe()

```
BError BMeasureApi::BMeasure::getStatusServe (
            NodeStatus & nodeStatus )  [virtual]
```

7.6.2.47 getSwitch()

```
BError BMeasureApi::BMeasure::getSwitch (
            const  BUInt32 & switchNum,
             Bool & state )
```

Get digital bits.

7.6.2.48 getSwitchServe()

```
BError BMeasureApi::BMeasure::getSwitchServe (
            const  BUInt32 & switchNum,
             Bool & state )  [virtual]
```

7.6.2.49 login()

```
BError BMeasureApi::BMeasure::login (
            const  BString & userid,
            const  BString & password )
```

Provides user/password information for secure connection.

7.6.2.50 loginServe()

```
BError BMeasureApi::BMeasure::loginServe (
            const  BString & userid,
            const  BString & password )  [virtual]
```

7.6.2.51 logout()

```
BError BMeasureApi::BMeasure::logout ( )
```

Logs out.

7.6.2.52 logoutServe()

```
BError BMeasureApi::BMeasure::logoutServe ( )  [virtual]
```

7.6.2.53 measure()

```
BError BMeasureApi::BMeasure::measure (
            const DataType & dataType,
            DataBlock & dataBlock )
```

Performs a single sample measurement.

7.6.2.54 measureServe()

```
BError BMeasureApi::BMeasure::measureServe (
            const DataType & dataType,
            DataBlock & dataBlock )  [virtual]
```

7.6.2.55 processRequest()

```
BError BMeasureApi::BMeasure::processRequest ( )
```

7.6.2.56 runBoardTest()

```
BError BMeasureApi::BMeasure::runBoardTest (
            const  BString & test )
```

Runs the given board test.

7.6.2.57 runBoardTestServe()

```
BError BMeasureApi::BMeasure::runBoardTestServe (
            const  BString & test )  [virtual]
```

7.6.2.58 sendChannelConfig()

```
void BMeasureApi::BMeasure::sendChannelConfig (
            const ChannelConfig & channelConfig )
```

Sends a ChannelConfig block.

7.6.2.59 sendChannelConfigServe()

```
void BMeasureApi::BMeasure::sendChannelConfigServe (
            const ChannelConfig & channelConfig )  [virtual]
```

7.6.2.60 sendData()

```
void BMeasureApi::BMeasure::sendData (
            const DataBlock & dataBlock )
```

Sends a data block.

7.6.2.61 sendDataEnable()

```
BError BMeasureApi::BMeasure::sendDataEnable (
            const  BUInt8 & sendSet )
```

Enable the sending of different data streams.

7.6.2.62 sendDataEnableServe()

```
BError BMeasureApi::BMeasure::sendDataEnableServe (
            const  BUInt8 & sendSet )  [virtual]
```

7.6.2.63 sendDataServe()

```
void BMeasureApi::BMeasure::sendDataServe (
            const DataBlock & dataBlock )  [virtual]
```

Reimplemented in BMeasureApi::BMeasureUnit.

7.6.2.64 sendInfo()

```
void BMeasureApi::BMeasure::sendInfo (
            const InfoBlock & infoBlock )
```

Sends an info block.

7.6.2.65 sendInfoServe()

```
void BMeasureApi::BMeasure::sendInfoServe (
            const InfoBlock & infoBlock )  [virtual]
```

7.6.2.66 sendMessage()

```
void BMeasureApi::BMeasure::sendMessage (
            const  BUInt32 & source,
            const  BString & message )
```

Send text messages.

7.6.2.67 sendMessageServe()

```
void BMeasureApi::BMeasure::sendMessageServe (
            const  BUInt32 & source,
            const  BString & message )  [virtual]
```

Reimplemented in BMeasureApi::BMeasureUnit1.

7.6.2.68 sendStatus()

```
void BMeasureApi::BMeasure::sendStatus (
            const NodeStatus & nodeStatus )
```

Sends the current status.

7.6.2.69 sendStatusServe()

```
void BMeasureApi::BMeasure::sendStatusServe (
            const NodeStatus & nodeStatus )  [virtual]
```

7.6.2.70 sendTime()

```
void BMeasureApi::BMeasure::sendTime (
            const  BTimeUs & time )
```

Sends the current time.

7.6.2.71 sendTimeServe()

```
void BMeasureApi::BMeasure::sendTimeServe (
            const  BTimeUs & time )  [virtual]
```

7.6.2.72 setAnalogueOut()

```
BError BMeasureApi::BMeasure::setAnalogueOut (
            const  BUInt32 & chan,
            const  BFloat32 & value )
```

Set analogue output value.

7.6.2.73 setAnalogueOutServe()

```
BError BMeasureApi::BMeasure::setAnalogueOutServe (
            const  BUInt32 & chan,
            const  BFloat32 & value )  [virtual]
```

7.6.2.74 setAwgConfig()

```
BError BMeasureApi::BMeasure::setAwgConfig (
            const  Bool & save,
            const AwgConfig & awgConfig )
```

Configure AWG.

7.6.2.75 setAwgConfigServe()

```
BError BMeasureApi::BMeasure::setAwgConfigServe (
            const  Bool & save,
            const AwgConfig & awgConfig )  [virtual]
```

7.6.2.76 setAwgWaveform()

```
BError BMeasureApi::BMeasure::setAwgWaveform (
            const  BUInt32 & chan,
            const  BUInt32 & pos,
            const FileData & dataBlock )
```

Configure AWG Arbitrary waveform.

7.6.2.77 setAwgWaveformServe()

```
BError BMeasureApi::BMeasure::setAwgWaveformServe (
            const  BUInt32 & chan,
            const  BUInt32 & pos,
            const FileData & dataBlock )  [virtual]
```

7.6.2.78 setBoardConfig()

```
BError BMeasureApi::BMeasure::setBoardConfig (
            const BoardConfig & config )
```

Sets the boards configuration, requires key.

7.6.2.79 setBoardConfigServe()

```
BError BMeasureApi::BMeasure::setBoardConfigServe (
            const BoardConfig & config )  [virtual]
```

7.6.2.80 setChannelConfig()

```
BError BMeasureApi::BMeasure::setChannelConfig (
            const  BUInt32 & channelNumber,
            const ChannelConfig & channelConfig )
```

7.6.2.81 setChannelConfigFull()

```
BError BMeasureApi::BMeasure::setChannelConfigFull (
            const  BUInt64 & key,
            const  BUInt32 & channelNumber,
            const ChannelConfig & channelConfig )
```

7.6.2.82 setChannelConfigFullServe()

```
BError BMeasureApi::BMeasure::setChannelConfigFullServe (
            const  BUInt64 & key,
            const  BUInt32 & channelNumber,
            const ChannelConfig & channelConfig )  [virtual]
```

7.6.2.83 setChannelConfigServe()

```
BError BMeasureApi::BMeasure::setChannelConfigServe (
            const  BUInt32 & channelNumber,
            const ChannelConfig & channelConfig )  [virtual]
```

7.6.2.84 setConfig()

```
BError BMeasureApi::BMeasure::setConfig (
            const Configuration & config )
```

Set units configuration.

7.6.2.85 setConfigServe()

```
BError BMeasureApi::BMeasure::setConfigServe (
            const Configuration & config )  [virtual]
```

7.6.2.86 setDigital()

```
BError BMeasureApi::BMeasure::setDigital (
            const  BUInt32 & bits )
```

Set digital bits.

7.6.2.87 setDigitalServe()

```
BError BMeasureApi::BMeasure::setDigitalServe (
            const  BUInt32 & bits )  [virtual]
```

7.6.2.88 setMeasurementConfig()

```
BError BMeasureApi::BMeasure::setMeasurementConfig (
            const  Bool & save,
            const MeasurementConfig & measurementConfig )
```

Set measurement config.

7.6.2.89 setMeasurementConfigServe()

```
BError BMeasureApi::BMeasure::setMeasurementConfigServe (
            const  Bool & save,
            const MeasurementConfig & measurementConfig )  [virtual]
```

7.6.2.90 setMode()

```
BError BMeasureApi::BMeasure::setMode (
            const Mode & mode )
```

Set the current operational mode.

7.6.2.91 setModeServe()

```
BError BMeasureApi::BMeasure::setModeServe (
            const Mode & mode )  [virtual]
```

7.6.2.92 setRelay()

```
BError BMeasureApi::BMeasure::setRelay (
            const  BUInt32 & relayNum,
            const  Bool & state )
```

Set relay.

7.6.2.93 setRelayServe()

```
BError BMeasureApi::BMeasure::setRelayServe (
            const  BUInt32 & relayNum,
            const  Bool & state )  [virtual]
```

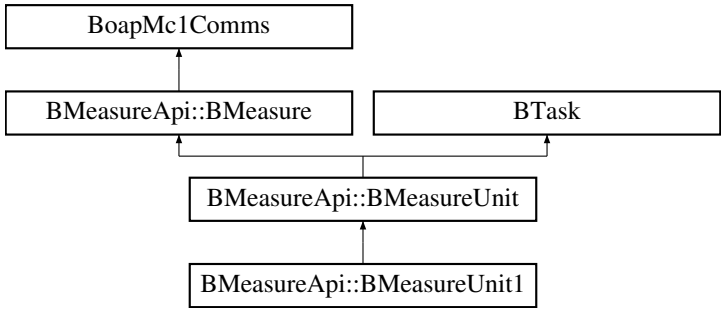
The documentation for this class was generated from the following files:

- BMeasureB.h
- BMeasureB-1.cpp
- BMeasureB.cpp

7.7 BMeasureApi::BMeasureUnit Class Reference

`#include <BMeasureUnit.h>`

Inheritance diagram for BMeasureApi::BMeasureUnit:



Public Member Functions

- BMeasureUnit (**Bool** threaded=0, **BUInt** reqSize=2048)
- virtual ~BMeasureUnit ()
- **BError** connect (**BString** device)

  Connect to a device.
- void disconnect ()
- **BString** device ()
- **BString** serialNumber ()
- **BString** info ()
- **BUInt** numChannels ()

  The number of channels of data.
- void run ()

  Threaded run mode.
- virtual void disconnected ()
- virtual void sendDataServe (const DataBlock &dataBlock)
- virtual void sendDataServe1 (const DataBlock &dataBlock)
- virtual **BError** setMeasurementConfig (const **Bool** &save, const MeasurementConfig &configMeasurement)
- virtual **BError** setChannelConfig (const **BUInt8** &channelNumber, const ChannelConfig &channelConfig)

Static Public Member Functions

- static **BError** findDevices (**BList**< BMeasureUnitDevice > &devices)

  Find available devices.
- static **BError** findDevicesUsb (**BList**< BMeasureUnitDevice > &devices)

  Find available devices on USB bus.
- static **BError** findDevicesNetwork (**BList**< BMeasureUnitDevice > &devices)

  Find available devices on Network.
- static void processdataBlock (const DataBlock &dataBlock, DataBlock *dataBlockOut)

Static Public Attributes

- static int blockNumChannels = 16
- static int blockNumSamples = 13

Protected Attributes

- **BString** odevice
- NodeInfo onodeInfo
- Information oinfo

  Instrument info.
- MeasurementConfig oconfigMeasurement
- **BArray**< ChannelConfig > ochannels
- DataBlock * odataBlock
- **BUInt32** osequenceNext
- **BUInt32** osampleCount
- **BUInt32** oblockCount
- **Bool** odisconnecting

Additional Inherited Members

7.7.1 Constructor & Destructor Documentation

7.7.1.1 BMeasureUnit()

```
BMeasureApi::BMeasureUnit::BMeasureUnit (
              Bool threaded = 0,
              BUInt reqSize = 2048 )
```

7.7.1.2 ~BMeasureUnit()

```
BMeasureApi::BMeasureUnit::~BMeasureUnit ( )  [virtual]
```

7.7.2 Member Function Documentation

7.7.2.1 connect()

```
BError BMeasureApi::BMeasureUnit::connect (
              BString device )
```

Connect to a device.

7.7.2.2 device()

```
BString BMeasureApi::BMeasureUnit::device ( )
```

7.7.2.3 disconnect()

```
void BMeasureApi::BMeasureUnit::disconnect ( )
```

7.7.2.4 disconnected()

```
void BMeasureApi::BMeasureUnit::disconnected ( )  [virtual]
```

Reimplemented in BMeasureApi::BMeasureUnit1.

7.7.2.5 findDevices()

```
BError BMeasureApi::BMeasureUnit::findDevices (
            BList< BMeasureUnitDevice > & devices )  [static]
```

Find available devices.

7.7.2.6 findDevicesNetwork()

```
BError BMeasureApi::BMeasureUnit::findDevicesNetwork (
            BList< BMeasureUnitDevice > & devices )  [static]
```

Find available devices on Network.

7.7.2.7 findDevicesUsb()

```
BError BMeasureApi::BMeasureUnit::findDevicesUsb (
            BList< BMeasureUnitDevice > & devices )  [static]
```

Find available devices on USB bus.

7.7.2.8 info()

```
BString BMeasureApi::BMeasureUnit::info ( )
```

7.7.2.9 numChannels()

```
BUInt BMeasureApi::BMeasureUnit::numChannels ( )
```

The number of channels of data.

7.7.2.10 processdataBlock()

```
void BMeasureApi::BMeasureUnit::processdataBlock (
            const DataBlock & dataBlock,
            DataBlock * dataBlockOut )  [static]
```

7.7.2.11 run()

```
void BMeasureApi::BMeasureUnit::run ( )  [virtual]
```

Threaded run mode.

Reimplemented from **BTask**.

7.7.2.12 sendDataServe()

```
void BMeasureApi::BMeasureUnit::sendDataServe (
            const DataBlock & dataBlock )  [virtual]
```

Reimplemented from BMeasureApi::BMeasure.

7.7.2.13 sendDataServe1()

```
void BMeasureApi::BMeasureUnit::sendDataServe1 (
            const DataBlock & dataBlock )  [virtual]
```

Reimplemented in BMeasureApi::BMeasureUnit1.

7.7.2.14 serialNumber()

```
BString BMeasureApi::BMeasureUnit::serialNumber ( )
```

7.7.2.15 setChannelConfig()

```
BError BMeasureApi::BMeasureUnit::setChannelConfig (
            const  BUInt8 & channelNumber,
            const ChannelConfig & channelConfig )  [virtual]
```

7.7.2.16 setMeasurementConfig()

```
BError BMeasureApi::BMeasureUnit::setMeasurementConfig (
            const  Bool & save,
            const MeasurementConfig & configMeasurement )  [virtual]
```

7.7.3 Member Data Documentation

7.7.3.1 blockNumChannels

```
int BMeasureApi::BMeasureUnit::blockNumChannels = 16  [static]
```

7.7.3.2 blockNumSamples

```
int BMeasureApi::BMeasureUnit::blockNumSamples = 13  [static]
```

7.7.3.3 oblockCount

```
BUInt32 BMeasureApi::BMeasureUnit::oblockCount  [protected]
```

7.7.3.4 ochannels

```
BArray<ChannelConfig> BMeasureApi::BMeasureUnit::ochannels  [protected]
```

7.7.3.5 oconfigMeasurement

```
MeasurementConfig BMeasureApi::BMeasureUnit::oconfigMeasurement  [protected]
```

7.7.3.6 odataBlock

```
DataBlock* BMeasureApi::BMeasureUnit::odataBlock  [protected]
```

7.7.3.7 odevice

```
BString BMeasureApi::BMeasureUnit::odevice  [protected]
```

7.7.3.8 odisconnecting

```
Bool BMeasureApi::BMeasureUnit::odisconnecting  [protected]
```

7.7.3.9 oinfo

```
Information BMeasureApi::BMeasureUnit::oinfo  [protected]
```

Instrument info.

7.7.3.10 onodeInfo

```
NodeInfo BMeasureApi::BMeasureUnit::onodeInfo  [protected]
```

7.7.3.11 osampleCount

```
BUInt32 BMeasureApi::BMeasureUnit::osampleCount  [protected]
```

7.7.3.12 osequenceNext

```
BUInt32 BMeasureApi::BMeasureUnit::osequenceNext  [protected]
```

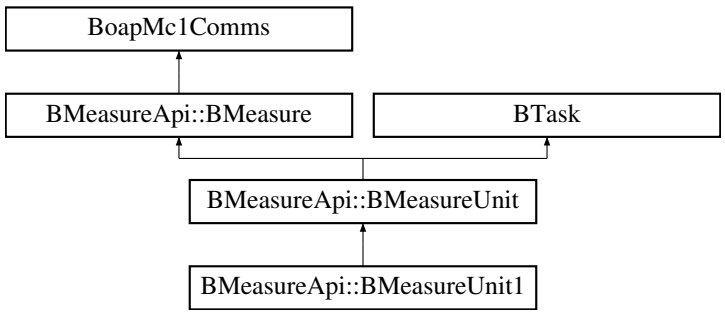
The documentation for this class was generated from the following files:

- BMeasureUnit.h
- BMeasureUnit.cpp

7.8 BMeasureApi::BMeasureUnit1 Class Reference

```
#include <BMeasureUnits.h>
```

Inheritance diagram for BMeasureApi::BMeasureUnit1:



Public Member Functions

- BMeasureUnit1 (BMeasureUnits &measureUnits, **BString** device, **Bool** threaded=0, **BUInt** reqSize=2048)
- **BString** serialNumber ()
- void setSerialNumber (**BString** serialNumber)
- void disconnected ()
- void sendDataServe1 (const DataBlock &dataBlock)
- void sendMessageServe (const **BUInt32** &source, const **BString** &message)

Public Attributes

- BMeasureUnits & omeasureUnits
- **Bool** oenabled
- **Bool** oconnected
- **BUInt** oorder
- **BUInt** osource
- **BString** oserialNumber

Additional Inherited Members

7.8.1 Constructor & Destructor Documentation

7.8.1.1 BMeasureUnit1()

```
BMeasureApi::BMeasureUnit1::BMeasureUnit1 (
            BMeasureUnits & measureUnits,
             BString device,
             Bool threaded = 0,
             BUInt reqSize = 2048 )
```

7.8.2 Member Function Documentation

7.8.2.1 disconnected()

```
void BMeasureApi::BMeasureUnit1::disconnected ( )  [virtual]
```

Reimplemented from BMeasureApi::BMeasureUnit.

7.8.2.2 sendDataServe1()

```
void BMeasureApi::BMeasureUnit1::sendDataServe1 (
            const DataBlock & dataBlock )  [virtual]
```

Reimplemented from BMeasureApi::BMeasureUnit.

7.8.2.3 sendMessageServe()

```
void BMeasureApi::BMeasureUnit1::sendMessageServe (
            const  BUInt32 & source,
            const  BString & message )  [virtual]
```

Reimplemented from BMeasureApi::BMeasure.

7.8.2.4 serialNumber()

```
 BString BMeasureApi::BMeasureUnit1::serialNumber ( )
```

7.8.2.5 setSerialNumber()

```
void BMeasureApi::BMeasureUnit1::setSerialNumber (
            BString serialNumber )
```

7.8.3 Member Data Documentation

7.8.3.1 oconnected

```
Bool BMeasureApi::BMeasureUnit1::oconnected
```

7.8.3.2 oenabled

```
Bool BMeasureApi::BMeasureUnit1::oenabled
```

7.8.3.3 omeasureUnits

```
BMeasureUnits& BMeasureApi::BMeasureUnit1::omeasureUnits
```

7.8.3.4 oorder

```
BUInt BMeasureApi::BMeasureUnit1::oorder
```

7.8.3.5 oserialNumber

```
BString BMeasureApi::BMeasureUnit1::oserialNumber
```

7.8.3.6 osource

```
BUInt BMeasureApi::BMeasureUnit1::osource
```

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

- BMeasureUnits.h
- BMeasureUnits.cpp

7.9 BMeasureApi::BMeasureUnitDevice Class Reference

`#include <BMeasureUnit.h>`

Public Member Functions

- BMeasureUnitDevice (**BString** serialNumber="", **BString** device="")

Public Attributes

- **BString** serialNumber
- **BString** device

7.9.1 Constructor & Destructor Documentation

7.9.1.1 BMeasureUnitDevice()

```
BMeasureApi::BMeasureUnitDevice::BMeasureUnitDevice (
              BString serialNumber = "",
              BString device = "" )  [inline]
```

7.9.2 Member Data Documentation

7.9.2.1 device

```
BString BMeasureApi::BMeasureUnitDevice::device
```

7.9.2.2 serialNumber

```
BString BMeasureApi::BMeasureUnitDevice::serialNumber
```

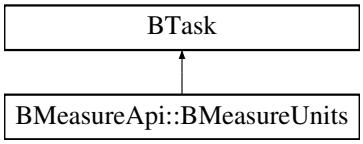
The documentation for this class was generated from the following file:

- BMeasureUnit.h

7.10 BMeasureApi::BMeasureUnits Class Reference

`#include <BMeasureUnits.h>`

Inheritance diagram for BMeasureApi::BMeasureUnits:



Public Member Functions

- BMeasureUnits (**Bool** threaded=0)
- virtual ~BMeasureUnits ()
- void clear ()
- **BError** unitsFind ()
- **BError** unitAdd (**BString** serialNumber, **BString** device)
- **BError** unitDelete (**BString** device)
- **BUInt32** unitsNum ()
- **BUInt32** unitsConnectedNum ()
- BMeasureUnit1 & unit (**BUInt** u)
- BMeasureUnit1 & unitMaster ()
- **BError** unitsConnect ()
- **Bool** unitsConnected ()
- **BError** unitsDisconnect ()
- virtual void disconnected ()
- **BError** unitSetOrder (**BUInt** u, **BUInt** order, **Bool** move)
- **BError** unitSetEnabled (**BUInt** u, **Bool** enable)
- **BError** dataSetNumStreams (**BUInt** num)

  Set the number of data output channels.
- void dataStreamEnable (**Bool** on)

  Enable the streaming of data.
- void dataClear ()
- **BUInt** dataAvailable (**BUInt** stream)
- **BError** dataWait (**BUInt** stream, **BTimeout** timeoutUs= **BTimeoutForever**)
- virtual void dataEvent (**BUInt** stream)
- DataBlock * dataRead (**BUInt** stream)
- void dataDone (**BUInt** stream)
- virtual void dataProcEvent (**BUInt** stream)
- DataBlockProc * dataProcRead (**BUInt** stream)
- void dataProcDone (**BUInt** stream)
- void run ()

  Threaded run mode.
- void sendDataQueue (const DataBlock &dataBlock)
- void sendDataProcQueue (const DataBlock &dataBlock)
- void sendDataProcess ()
- void sendDataProcessTrigger ()
- void outputBlock (BMeasureUnitsDataBlock *block)
- virtual **BError** getNodeInfo (NodeInfo &nodeInfo)
- virtual **BError** login (const **BString** &userid, const **BString** &password)

- virtual **BError** logout ()
- virtual **BError** changePassword (const **BString** &userid, const **BString** &oldPassword, const **BString** &newPassword)
- virtual **BUInt** numChannels ()

  The number of channels of data.
- virtual **BError** setMode (const Mode &mode)

  Set the current operational mode.
- virtual **BError** getStatus (NodeStatus &nodeStatus)
- virtual void sendTime (const **BTimeUs** &time)

  Sends the current time.
- virtual **BError** getInformation (Information &info)
- virtual **BError** getInfoBlock (InfoBlock &infoBlock)
- virtual **BError** getChannelConfig (const **BUInt8** &channelNumber, ChannelConfig &channelConfig)
- virtual **BError** setChannelConfig (const **BUInt8** &channelNumber, const ChannelConfig &channelConfig)
- virtual **BError** getConfig (Configuration &config)

  Should we have this, not generic for different instruments ?
- virtual **BError** setConfig (const Configuration &config)

  Should we have this, not generic for different instruments ?
- virtual **BError** getMeasurementConfig (const **Bool** &saved, MeasurementConfig &measurement)

  Get measurement config.
- virtual **BError** setMeasurementConfig (const **Bool** &save, const MeasurementConfig &measurement)

  Set measurement config.
- virtual **BError** sendDataEnable (const DataSend &dataSend)

  Enables the sending of data.
- virtual **BError** getAwgConfig (const **Bool** &saved, AwgConfig &awgConfig)

  Get AWG Configuration.
- virtual **BError** setAwgConfig (const **Bool** &save, const AwgConfig &awgConfig)

  Configure AWG.
- virtual **BError** alarmsClear (const **BUInt32** &bits)

  Clear all alarms.
- virtual void sendDataServe1 (const DataBlock &dataBlock)
- virtual void sendMessage (**BUInt32** &source, **BString** &message)
- virtual void sendMessageServe (const **BUInt32** &source, const **BString** &message)
- void debugPrint ()

Private Member Functions

- BMeasureUnitsDataBlock * getFreeBlock (**BUInt** numSamples)

Private Attributes

- **BSemaphoreBool** oprocEnable

  Enable processing.
- **BSemaphoreBool** oprocRunning

  Processing is running.
- **BMutex** olockUnits
- **BList**< BMeasureUnit1 * > ounits
- **BInt** ounitMaster
- **BUInt** onumConnected
- **BUInt** onumChannels
- **BUInt** odataStreamNum

- **BUInt32** ofill
- **BUInt** onumBlocks
- **BMutex** olockInput
- **BList**< BMeasureUnitsDataBlock * > odataBlocksFree
- **BList**< BMeasureUnitsDataBlock * > odataBlocksIn
- **BList**< BMeasureUnitsDataBlock * > odataBlocksProcess
- **BCondInt** odataBlocksProcessNum
- **BMutex** olockOutput
- **BList**< BMeasureUnitsDataBlock * > odataBlocksOut [2]
- **BCondInt** odataBlocksOutCount [2]
- **BMutex** olockProcInput
- **BList**< DataBlock > odataProcBlocks
- MeasurementConfig olocalTrigger
- **Bool** otriggered
- **BUInt** ostartSample

Additional Inherited Members

7.10.1 Constructor & Destructor Documentation

7.10.1.1 BMeasureUnits()

```
BMeasureApi::BMeasureUnits::BMeasureUnits (
            Bool threaded = 0 )
```

7.10.1.2 ~BMeasureUnits()

```
BMeasureApi::BMeasureUnits::~BMeasureUnits ( )  [virtual]
```

7.10.2 Member Function Documentation

7.10.2.1 alarmsClear()

```
BError BMeasureApi::BMeasureUnits::alarmsClear (
            const  BUInt32 & bits )  [virtual]
```

Clear all alarms.

7.10.2.2 changePassword()

```
BError BMeasureApi::BMeasureUnits::changePassword (
            const  BString & userid,
            const  BString & oldPassword,
            const  BString & newPassword )  [virtual]
```

7.10.2.3 clear()

```
void BMeasureApi::BMeasureUnits::clear ( )
```

7.10.2.4 dataAvailable()

```
BUInt BMeasureApi::BMeasureUnits::dataAvailable (
             BUInt stream )
```

7.10.2.5 dataClear()

```
void BMeasureApi::BMeasureUnits::dataClear ( )
```

7.10.2.6 dataDone()

```
void BMeasureApi::BMeasureUnits::dataDone (
             BUInt stream )
```

7.10.2.7 dataEvent()

```
void BMeasureApi::BMeasureUnits::dataEvent (
             BUInt stream )  [virtual]
```

7.10.2.8 dataProcDone()

```
void BMeasureApi::BMeasureUnits::dataProcDone (
             BUInt stream )
```

7.10.2.9 dataProcEvent()

```
void BMeasureApi::BMeasureUnits::dataProcEvent (
              BUInt stream )  [virtual]
```

7.10.2.10 dataProcRead()

```
DataBlockProc * BMeasureApi::BMeasureUnits::dataProcRead (
              BUInt stream )
```

7.10.2.11 dataRead()

```
DataBlock * BMeasureApi::BMeasureUnits::dataRead (
              BUInt stream )
```

7.10.2.12 dataSetNumStreams()

```
 BError BMeasureApi::BMeasureUnits::dataSetNumStreams (
              BUInt num )
```

Set the number of data output channels.

7.10.2.13 dataStreamEnable()

```
void BMeasureApi::BMeasureUnits::dataStreamEnable (
              Bool on )
```

Enable the streaming of data.

7.10.2.14 dataWait()

```
 BError BMeasureApi::BMeasureUnits::dataWait (
              BUInt stream,
              BTimeout timeoutUs =  BTimeoutForever )
```

7.10.2.15 debugPrint()

```
void BMeasureApi::BMeasureUnits::debugPrint ( )
```

7.10.2.16 disconnected()

```
void BMeasureApi::BMeasureUnits::disconnected ( )  [virtual]
```

7.10.2.17 getAwgConfig()

```
BError BMeasureApi::BMeasureUnits::getAwgConfig (
            const  Bool & saved,
            AwgConfig & awgConfig )  [virtual]
```

Get AWG Configuration.

7.10.2.18 getChannelConfig()

```
BError BMeasureApi::BMeasureUnits::getChannelConfig (
            const  BUInt8 & channelNumber,
            ChannelConfig & channelConfig )  [virtual]
```

7.10.2.19 getConfig()

```
BError BMeasureApi::BMeasureUnits::getConfig (
            Configuration & config )  [virtual]
```

Should we have this, not generic for different instruments ?

7.10.2.20 getFreeBlock()

```
BMeasureUnitsDataBlock * BMeasureApi::BMeasureUnits::getFreeBlock (
             BUInt numSamples )  [private]
```

7.10.2.21 getInfoBlock()

```
BError BMeasureApi::BMeasureUnits::getInfoBlock (
            InfoBlock & infoBlock )  [virtual]
```

7.10.2.22 getInformation()

```
BError BMeasureApi::BMeasureUnits::getInformation (
            Information & info )  [virtual]
```

7.10.2.23 getMeasurementConfig()

```
BError BMeasureApi::BMeasureUnits::getMeasurementConfig (
            const  Bool & saved,
            MeasurementConfig & measurement )  [virtual]
```

Get measurement config.

7.10.2.24 getNodeInfo()

```
BError BMeasureApi::BMeasureUnits::getNodeInfo (
            NodeInfo & nodeInfo )  [virtual]
```

7.10.2.25 getStatus()

```
BError BMeasureApi::BMeasureUnits::getStatus (
            NodeStatus & nodeStatus )  [virtual]
```

7.10.2.26 login()

```
BError BMeasureApi::BMeasureUnits::login (
            const  BString & userid,
            const  BString & password )  [virtual]
```

7.10.2.27 logout()

```
BError BMeasureApi::BMeasureUnits::logout ( )  [virtual]
```

7.10.2.28 numChannels()

```
BUInt BMeasureApi::BMeasureUnits::numChannels ( )  [virtual]
```

The number of channels of data.

7.10.2.29 outputBlock()

```
void BMeasureApi::BMeasureUnits::outputBlock (
            BMeasureUnitsDataBlock * block )
```

7.10.2.30 run()

```
void BMeasureApi::BMeasureUnits::run ( )  [virtual]
```

Threaded run mode.

Reimplemented from **BTask**.

7.10.2.31 sendDataEnable()

```
BError BMeasureApi::BMeasureUnits::sendDataEnable (
            const DataSend & dataSend )  [virtual]
```

Enables the sending of data.

7.10.2.32 sendDataProcess()

```
void BMeasureApi::BMeasureUnits::sendDataProcess ( )
```

7.10.2.33 sendDataProcessTrigger()

```
void BMeasureApi::BMeasureUnits::sendDataProcessTrigger ( )
```

7.10.2.34 sendDataProcQueue()

```
void BMeasureApi::BMeasureUnits::sendDataProcQueue (
            const DataBlock & dataBlock )
```

7.10.2.35 sendDataQueue()

```
void BMeasureApi::BMeasureUnits::sendDataQueue (
            const DataBlock & dataBlock )
```

7.10.2.36 sendDataServe1()

```
void BMeasureApi::BMeasureUnits::sendDataServe1 (
            const DataBlock & dataBlock )  [virtual]
```

7.10.2.37 sendMessage()

```
void BMeasureApi::BMeasureUnits::sendMessage (
             BUInt32 & source,
             BString & message )  [virtual]
```

7.10.2.38 sendMessageServe()

```
void BMeasureApi::BMeasureUnits::sendMessageServe (
            const  BUInt32 & source,
            const  BString & message )  [virtual]
```

7.10.2.39 sendTime()

```
void BMeasureApi::BMeasureUnits::sendTime (
            const  BTimeUs & time )  [virtual]
```

Sends the current time.

7.10.2.40 setAwgConfig()

```
BError BMeasureApi::BMeasureUnits::setAwgConfig (
            const  Bool & save,
            const AwgConfig & awgConfig )  [virtual]
```

Configure AWG.

7.10.2.41 setChannelConfig()

```
BError BMeasureApi::BMeasureUnits::setChannelConfig (
            const  BUInt8 & channelNumber,
            const ChannelConfig & channelConfig )  [virtual]
```

7.10.2.42 setConfig()

```
BError BMeasureApi::BMeasureUnits::setConfig (
            const Configuration & config )  [virtual]
```

Should we have this, not generic for different instruments ?

7.10.2.43 setMeasurementConfig()

```
BError BMeasureApi::BMeasureUnits::setMeasurementConfig (
            const  Bool & save,
            const MeasurementConfig & measurement )  [virtual]
```

Set measurement config.

7.10.2.44 setMode()

```
BError BMeasureApi::BMeasureUnits::setMode (
            const Mode & mode )  [virtual]
```

Set the current operational mode.

7.10.2.45 unit()

```
BMeasureUnit1 & BMeasureApi::BMeasureUnits::unit (
            BUInt u )
```

7.10.2.46 unitAdd()

```
BError BMeasureApi::BMeasureUnits::unitAdd (
            BString serialNumber,
            BString device )
```

7.10.2.47 unitDelete()

```
BError BMeasureApi::BMeasureUnits::unitDelete (
            BString device )
```

7.10.2.48 unitMaster()

```
BMeasureUnit1 & BMeasureApi::BMeasureUnits::unitMaster ( )
```

7.10.2.49 unitsConnect()

```
BError BMeasureApi::BMeasureUnits::unitsConnect ( )
```

7.10.2.50 unitsConnected()

```
Bool BMeasureApi::BMeasureUnits::unitsConnected ( )
```

7.10.2.51 unitsConnectedNum()

```
BUInt BMeasureApi::BMeasureUnits::unitsConnectedNum ( )
```

7.10.2.52 unitsDisconnect()

```
BError BMeasureApi::BMeasureUnits::unitsDisconnect ( )
```

7.10.2.53 unitSetEnabled()

```
BError BMeasureApi::BMeasureUnits::unitSetEnabled (
            BUInt u,
            Bool enable )
```

7.10.2.54 unitSetOrder()

```
BError BMeasureApi::BMeasureUnits::unitSetOrder (
            BUInt u,
            BUInt order,
            Bool move )
```

7.10.2.55 unitsFind()

```
BError BMeasureApi::BMeasureUnits::unitsFind ( )
```

7.10.2.56 unitsNum()

```
BUInt BMeasureApi::BMeasureUnits::unitsNum ( )
```

7.10.3 Member Data Documentation

7.10.3.1 odataBlocksFree

```
BList<BMeasureUnitsDataBlock*> BMeasureApi::BMeasureUnits::odataBlocksFree  [private]
```

7.10.3.2 odataBlocksIn

BList<BMeasureUnitsDataBlock*> BMeasureApi::BMeasureUnits::odataBlocksIn [private]

7.10.3.3 odataBlocksOut

BList<BMeasureUnitsDataBlock*> BMeasureApi::BMeasureUnits::odataBlocksOut[2] [private]

7.10.3.4 odataBlocksOutCount

BCondInt BMeasureApi::BMeasureUnits::odataBlocksOutCount[2] [private]

7.10.3.5 odataBlocksProcess

BList<BMeasureUnitsDataBlock*> BMeasureApi::BMeasureUnits::odataBlocksProcess [private]

7.10.3.6 odataBlocksProcessNum

BCondInt BMeasureApi::BMeasureUnits::odataBlocksProcessNum [private]

7.10.3.7 odataProcBlocks

BList<DataBlock> BMeasureApi::BMeasureUnits::odataProcBlocks [private]

7.10.3.8 odataStreamNum

BUInt BMeasureApi::BMeasureUnits::odataStreamNum [private]

7.10.3.9 ofill

BUInt32 BMeasureApi::BMeasureUnits::ofill [private]

7.10.3.10 olocalTrigger

MeasurementConfig BMeasureApi::BMeasureUnits::olocalTrigger [private]

7.10.3.11 olockInput

BMutex BMeasureApi::BMeasureUnits::olockInput [private]

7.10.3.12 olockOutput

BMutex BMeasureApi::BMeasureUnits::olockOutput [private]

7.10.3.13 olockProcInput

BMutex BMeasureApi::BMeasureUnits::olockProcInput [private]

7.10.3.14 olockUnits

BMutex BMeasureApi::BMeasureUnits::olockUnits [private]

7.10.3.15 onumBlocks

BUInt BMeasureApi::BMeasureUnits::onumBlocks [private]

7.10.3.16 onumChannels

BUInt BMeasureApi::BMeasureUnits::onumChannels [private]

7.10.3.17 onumConnected

BUInt BMeasureApi::BMeasureUnits::onumConnected [private]

7.10.3.18 oprocEnable

```
BSemaphoreBool BMeasureApi::BMeasureUnits::oprocEnable [private]
```

Enable processing.

7.10.3.19 oprocRunning

```
BSemaphoreBool BMeasureApi::BMeasureUnits::oprocRunning [private]
```

Processing is running.

7.10.3.20 ostartSample

```
BUInt BMeasureApi::BMeasureUnits::ostartSample [private]
```

7.10.3.21 otriggered

```
Bool BMeasureApi::BMeasureUnits::otriggered [private]
```

7.10.3.22 ounitMaster

```
BInt BMeasureApi::BMeasureUnits::ounitMaster [private]
```

7.10.3.23 ounits

```
BList<BMeasureUnit1*> BMeasureApi::BMeasureUnits::ounits [private]
```

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

- BMeasureUnits.h
- BMeasureUnits.cpp

7.11 BMeasureApi::BMeasureUnitsDataBlock Class Reference

```
#include <BMeasureUnits.h>
```

Public Member Functions

- BMeasureUnitsDataBlock (**BUInt** numChannels=0, **BUInt** numSamples=0)
- ~BMeasureUnitsDataBlock ()
- void init (**BUInt** numChannels, **BUInt** numSamples)

Public Attributes

- DataBlock * odataBlock
- **BUInt32** ofill
- **BUInt** oinUse

7.11.1 Constructor & Destructor Documentation

7.11.1.1 BMeasureUnitsDataBlock()

```
BMeasureApi::BMeasureUnitsDataBlock::BMeasureUnitsDataBlock (
              BUInt numChannels = 0,
              BUInt numSamples = 0 )
```

7.11.1.2 ~BMeasureUnitsDataBlock()

```
BMeasureApi::BMeasureUnitsDataBlock::~BMeasureUnitsDataBlock ( )
```

7.11.2 Member Function Documentation

7.11.2.1 init()

```
void BMeasureApi::BMeasureUnitsDataBlock::init (
              BUInt numChannels,
              BUInt numSamples )
```

7.11.3 Member Data Documentation

7.11.3.1 odataBlock

```
DataBlock* BMeasureApi::BMeasureUnitsDataBlock::odataBlock
```

7.11.3.2 ofill

```
BUInt32 BMeasureApi::BMeasureUnitsDataBlock::ofill
```

7.11.3.3 oinUse

```
BUInt BMeasureApi::BMeasureUnitsDataBlock::oinUse
```

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

- BMeasureUnits.h
- BMeasureUnits.cpp

7.12 BMeasureApi::BoardConfig Class Reference

```
#include <BMeasureD.h>
```

Static Public Member Functions

- static const **BObjMember** * getMembers ()

Public Attributes

- **BUInt32** magic
- Version hardwareVersion
- **BChar** serialNumber [12]
- **BTime** buildTime
- **BUInt8** macAddress [6]
- **BUInt8** testMode
- **BUInt8** spare0
- **BTime** calibTime
- **BFloat32** calibTemp
- **BFloat64** calibDacOffsets [2]
- **BFloat64** calibDacScales [2]
- **BFloat64** calibAdcOffsets [8]
- **BFloat64** calibAdcScales [8]
- **BFloat64** calibAttenScales [8]
- **BFloat64** calibFiveVolts
- Version fpgaVersion
- Version wifiVersion
- **BUInt32** spare [8]

7.12.1 Member Function Documentation

7.12.1.1 getMembers()

```
const BObjMember * BMeasureApi::BoardConfig::getMembers ( ) [static]
```

7.12.2 Member Data Documentation

7.12.2.1 buildTime

BTime BMeasureApi::BoardConfig::buildTime

7.12.2.2 calibAdcOffsets

BFloat64 BMeasureApi::BoardConfig::calibAdcOffsets[8]

7.12.2.3 calibAdcScales

BFloat64 BMeasureApi::BoardConfig::calibAdcScales[8]

7.12.2.4 calibAttenScales

BFloat64 BMeasureApi::BoardConfig::calibAttenScales[8]

7.12.2.5 calibDacOffsets

BFloat64 BMeasureApi::BoardConfig::calibDacOffsets[2]

7.12.2.6 calibDacScales

BFloat64 BMeasureApi::BoardConfig::calibDacScales[2]

7.12.2.7 calibFiveVolts

BFloat64 BMeasureApi::BoardConfig::calibFiveVolts

7.12.2.8 calibTemp

BFloat32 BMeasureApi::BoardConfig::calibTemp

7.12.2.9 calibTime

BTime BMeasureApi::BoardConfig::calibTime

7.12.2.10 fpgaVersion

Version BMeasureApi::BoardConfig::fpgaVersion

7.12.2.11 hardwareVersion

Version BMeasureApi::BoardConfig::hardwareVersion

7.12.2.12 macAddress

BUInt8 BMeasureApi::BoardConfig::macAddress[6]

7.12.2.13 magic

BUInt32 BMeasureApi::BoardConfig::magic

7.12.2.14 serialNumber

```
BChar BMeasureApi::BoardConfig::serialNumber[12]
```

7.12.2.15 spare

```
BUInt32 BMeasureApi::BoardConfig::spare[8]
```

7.12.2.16 spare0

```
BUInt8 BMeasureApi::BoardConfig::spare0
```

7.12.2.17 testMode

```
BUInt8 BMeasureApi::BoardConfig::testMode
```

7.12.2.18 wifiVersion

```
Version BMeasureApi::BoardConfig::wifiVersion
```

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

- BMeasureD.h
- BMeasureD.cpp

7.13 BMeasureApi::CalibrateInfo Class Reference

```
#include <BMeasureD.h>
```

Static Public Member Functions

- static const **BObjMember** * getMembers ()

Public Attributes

- **BUInt32** stage

  Stage to run.
- **BFloat64** calibrateFrequency

  The Awg frequency for calibration.
- **BFloat64** calibrateAmplitude

  The Awg amplitude for calibration.
- **BFloat64** calibrateTime

  Number of seconds to calibrate over (synced to multiple AWG cycles)
- **BFloat64** value

  Target/Set Value.

7.13.1 Member Function Documentation

7.13.1.1 getMembers()

```
const  BObjMember * BMeasureApi::CalibrateInfo::getMembers ( )  [static]
```

7.13.2 Member Data Documentation

7.13.2.1 calibrateAmplitude

```
BFloat64 BMeasureApi::CalibrateInfo::calibrateAmplitude
```

The Awg amplitude for calibration.

7.13.2.2 calibrateFrequency

```
BFloat64 BMeasureApi::CalibrateInfo::calibrateFrequency
```

The Awg frequency for calibration.

7.13.2.3 calibrateTime

```
BFloat64 BMeasureApi::CalibrateInfo::calibrateTime
```

Number of seconds to calibrate over (synced to multiple AWG cycles)

7.13.2.4 stage

```
BUInt32 BMeasureApi::CalibrateInfo::stage
```

Stage to run.

7.13.2.5 value

```
BFloat64 BMeasureApi::CalibrateInfo::value
```

Target/Set Value.

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

- BMeasureD.h
- BMeasureD.cpp

7.14 BMeasureApi::ChannelConfig Class Reference

```
#include <BMeasureD.h>
```

Static Public Member Functions

- static const **BObjMember** * getMembers ()

Public Attributes

- **BUInt8** number
  The channel number.
- **BUInt8** enabled
  Channel is enabled.
- **BUInt8** attenuator
  Attenuator number in use.
- ChannelType type
  The channel type.
- SampleType sampleType
  The sample type.
- **BUInt8** spare0 [3]
- **BUInt32** dataChannel
  Data channel.
- **BChar** id [16]
- **BChar** name [16]
- **BChar** siUnits [8]
- **BFloat64** calibOffset
  The calibration data offset.
- **BFloat64** calibScale

The calibration data scale factor to volts.

- **BFloat64** calibScaleAtten1

  Attenuator 1 scaling.

- **BFloat64** pgaGain

  The PGA gain.

- **BFloat64** scale

  The user data scale factor.

- **BFloat64** offset

  The user data offset.

- **BChar** process [32]

7.14.1 Member Function Documentation

7.14.1.1 getMembers()

```
const BObjMember * BMeasureApi::ChannelConfig::getMembers ( ) [static]
```

7.14.2 Member Data Documentation

7.14.2.1 attenuator

```
BUInt8 BMeasureApi::ChannelConfig::attenuator
```

Attenuator number in use.

7.14.2.2 calibOffset

```
BFloat64 BMeasureApi::ChannelConfig::calibOffset
```

The calibration data offset.

7.14.2.3 calibScale

```
BFloat64 BMeasureApi::ChannelConfig::calibScale
```

The calibration data scale factor to volts.

7.14.2.4 calibScaleAtten1

BFloat64 BMeasureApi::ChannelConfig::calibScaleAtten1

Attenuator 1 scaling.

7.14.2.5 dataChannel

BUInt32 BMeasureApi::ChannelConfig::dataChannel

Data channel.

7.14.2.6 enabled

BUInt8 BMeasureApi::ChannelConfig::enabled

Channel is enabled.

7.14.2.7 id

BChar BMeasureApi::ChannelConfig::id[16]

7.14.2.8 name

BChar BMeasureApi::ChannelConfig::name[16]

7.14.2.9 number

BUInt8 BMeasureApi::ChannelConfig::number

The channel number.

7.14.2.10 offset

BFloat64 BMeasureApi::ChannelConfig::offset

The user data offset.

7.14.2.11 pgaGain

BFloat64 BMeasureApi::ChannelConfig::pgaGain

The PGA gain.

7.14.2.12 process

BChar BMeasureApi::ChannelConfig::process[32]

7.14.2.13 sampleType

SampleType BMeasureApi::ChannelConfig::sampleType

The sample type.

7.14.2.14 scale

BFloat64 BMeasureApi::ChannelConfig::scale

The user data scale factor.

7.14.2.15 siUnits

BChar BMeasureApi::ChannelConfig::siUnits[8]

7.14.2.16 spare0

BUInt8 BMeasureApi::ChannelConfig::spare0[3]

7.14.2.17 type

```
ChannelType BMeasureApi::ChannelConfig::type
```

The channel type.

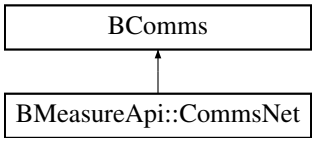
The documentation for this class was generated from the following files:

- BMeasureD.h
- BMeasureD.cpp

7.15 BMeasureApi::CommsNet Class Reference

```
#include <CommsNet.h>
```

Inheritance diagram for BMeasureApi::CommsNet:



Public Member Functions

- CommsNet (**BUInt** rxFifoSize=1024, **BUInt** txFifoSize=1024)
- ~CommsNet ()
- **BError** init ()
- **BError** connect (**BString** host, **BUInt16** port)
- **BError** disconnect ()
- **BUInt** readAvailable ()
- **BError** wait (**BUInt32** eventSet, **BTimeout** timeout=-1, **BUInt32** num=1)
- **BError** read (void * **data**, **BUInt32** num, **BUInt32** &nt)
- **BUInt** writeAvailable ()
- **BError** write (const void * **data**, **BUInt32** nBytes, **BUInt32** &nt)
- **BError** writeChunks (const **BDataChunk** *chunks, **BUInt** nChunks, **BUInt32** &nt)

Protected Attributes

- **BSocket** osocket
- **Bool** oinWait
- **Bool** oterminating

Additional Inherited Members

7.15.1 Constructor & Destructor Documentation

7.15.1.1 CommsNet()

```
BMeasureApi::CommsNet::CommsNet (
              BUInt rxFifoSize = 1024,
              BUInt txFifoSize = 1024 )
```

7.15.1.2 ~CommsNet()

```
BMeasureApi::CommsNet::~CommsNet ( )
```

7.15.2 Member Function Documentation

7.15.2.1 connect()

```
BError BMeasureApi::CommsNet::connect (
              BString host,
              BUInt16 port )
```

7.15.2.2 disconnect()

```
BError BMeasureApi::CommsNet::disconnect ( )  [virtual]
```

Reimplemented from **BComms**.

7.15.2.3 init()

```
BError BMeasureApi::CommsNet::init ( )  [virtual]
```

Reimplemented from **BComms**.

7.15.2.4 read()

```
BError BMeasureApi::CommsNet::read (
            void * data,
              BUInt32 num,
              BUInt32 & nt )  [virtual]
```

Implements **BComms**.

7.15.2.5 readAvailable()

```
BUInt BMeasureApi::CommsNet::readAvailable ( )  [virtual]
```

Reimplemented from **BComms**.

7.15.2.6 wait()

```
BError BMeasureApi::CommsNet::wait (
            BUInt32 eventSet,
            BTimeout timeout = -1,
            BUInt32 num = 1 )
```

7.15.2.7 write()

```
BError BMeasureApi::CommsNet::write (
           const void * data,
            BUInt32 nBytes,
            BUInt32 & nt )  [virtual]
```

Implements **BComms**.

7.15.2.8 writeAvailable()

```
BUInt BMeasureApi::CommsNet::writeAvailable ( )  [virtual]
```

Reimplemented from **BComms**.

7.15.2.9 writeChunks()

```
BError BMeasureApi::CommsNet::writeChunks (
           const  BDataChunk * chunks,
            BUInt nChunks,
            BUInt32 & nt )  [virtual]
```

Reimplemented from **BComms**.

7.15.3 Member Data Documentation

7.15.3.1 oinWait

```
Bool BMeasureApi::CommsNet::oinWait  [protected]
```

7.15.3.2 osocket

```
BSocket BMeasureApi::CommsNet::osocket  [protected]
```

7.15.3.3 oterminating

```
Bool BMeasureApi::CommsNet::oterminating  [protected]
```

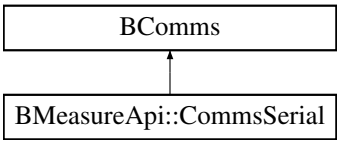
The documentation for this class was generated from the following files:

- CommsNet.h
- CommsNet.cpp

7.16 BMeasureApi::CommsSerial Class Reference

```
#include <CommsSerial.h>
```

Inheritance diagram for BMeasureApi::CommsSerial:



Public Member Functions

- CommsSerial ()
- ~CommsSerial ()
- **BError** connect (**BString** device)
- **BError** disconnect ()
- **BUInt** readAvailable ()
- **BError** read (void * **data**, **BUInt32** num, **BUInt32** &nTrans)
- **BError** write (const void * **data**, **BUInt32** num, **BUInt32** &nTrans)
- **BError** wait (**BUInt32** eventSet, **BTimeout** timeout=-1, **BUInt32** num=1)

Private Attributes

- **BString** odevice
- int oserialPort

Additional Inherited Members

7.16.1 Constructor & Destructor Documentation

7.16.1.1 CommsSerial()

```
BMeasureApi::CommsSerial::CommsSerial ( )
```

7.16.1.2 ~CommsSerial()

```
BMeasureApi::CommsSerial::~CommsSerial ( )
```

7.16.2 Member Function Documentation

7.16.2.1 connect()

```
BError BMeasureApi::CommsSerial::connect (
            BString device )
```

7.16.2.2 disconnect()

```
BError BMeasureApi::CommsSerial::disconnect ( )  [virtual]
```

Reimplemented from **BComms**.

7.16.2.3 read()

```
BError BMeasureApi::CommsSerial::read (
           void * data,
            BUInt32 num,
            BUInt32 & nTrans )  [virtual]
```

Implements **BComms**.

7.16.2.4 readAvailable()

```
BUInt BMeasureApi::CommsSerial::readAvailable ( )  [virtual]
```

Reimplemented from **BComms**.

7.16.2.5 wait()

```
BError BMeasureApi::CommsSerial::wait (
            BUInt32 eventSet,
            BTimeout timeout = -1,
            BUInt32 num = 1 )
```

7.16.2.6 write()

```
BError BMeasureApi::CommsSerial::write (
           const void * data,
            BUInt32 num,
            BUInt32 & nTrans )  [virtual]
```

Implements **BComms**.

7.16.3 Member Data Documentation

7.16.3.1 odevice

```
BString BMeasureApi::CommsSerial::odevice  [private]
```

7.16.3.2 oserialPort

```
int BMeasureApi::CommsSerial::oserialPort  [private]
```

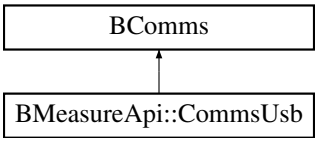
The documentation for this class was generated from the following file:

- CommsSerial.h

7.17 BMeasureApi::CommsUsb Class Reference

`#include <CommsUsb.h>`

Inheritance diagram for BMeasureApi::CommsUsb:



Public Member Functions

- CommsUsb ()
- ~CommsUsb ()
- **BError** connect (**BString** device)
- **BError** disconnect ()
- **BUInt** readAvailable ()
- **BError** read (void * **data**, **BUInt32** num, **BUInt32** &nTrans)
- **BError** write (const void * **data**, **BUInt32** num, **BUInt32** &nTrans)
- **BError** wait (**BUInt32** eventSet, **BTimeout** timeout=-1, **BUInt32** num=1)

Private Member Functions

- **BError** readChunk ()

Private Attributes

- **BString** odevice
- libusb_context * ocontext
- libusb_device_handle * odev
- char obuffer [102400]
- **BUInt** onum
- **Bool** oterminated
- **Bool** oterminating

Additional Inherited Members

7.17.1 Constructor & Destructor Documentation

7.17.1.1 CommsUsb()

`BMeasureApi::CommsUsb::CommsUsb ( )`

7.17.1.2 ~CommsUsb()

```
BMeasureApi::CommsUsb::~CommsUsb ( )
```

7.17.2 Member Function Documentation

7.17.2.1 connect()

```
BError BMeasureApi::CommsUsb::connect (
            BString device )
```

7.17.2.2 disconnect()

```
BError BMeasureApi::CommsUsb::disconnect ( )  [virtual]
```

Reimplemented from **BComms**.

7.17.2.3 read()

```
BError BMeasureApi::CommsUsb::read (
           void * data,
            BUInt32 num,
            BUInt32 & nTrans )  [virtual]
```

Implements **BComms**.

7.17.2.4 readAvailable()

```
BUInt BMeasureApi::CommsUsb::readAvailable ( )  [virtual]
```

Reimplemented from **BComms**.

7.17.2.5 readChunk()

```
BError BMeasureApi::CommsUsb::readChunk ( )  [private]
```

7.17.2.6 wait()

```
BError BMeasureApi::CommsUsb::wait (
            BUInt32 eventSet,
            BTimeout timeout = -1,
            BUInt32 num = 1 )
```

7.17.2.7 write()

```
BError BMeasureApi::CommsUsb::write (
           const void * data,
            BUInt32 num,
            BUInt32 & nTrans )  [virtual]
```

Implements **BComms**.

7.17.3 Member Data Documentation

7.17.3.1 obuffer

```
char BMeasureApi::CommsUsb::obuffer[102400]  [private]
```

7.17.3.2 ocontext

```
libusb_context* BMeasureApi::CommsUsb::ocontext  [private]
```

7.17.3.3 odev

```
libusb_device_handle* BMeasureApi::CommsUsb::odev  [private]
```

7.17.3.4 odevice

```
BString BMeasureApi::CommsUsb::odevice  [private]
```

7.17.3.5 onum

```
BUInt BMeasureApi::CommsUsb::onum  [private]
```

7.17.3.6 oterminated

```
Bool BMeasureApi::CommsUsb::oterminated  [private]
```

7.17.3.7 oterminating

```
Bool BMeasureApi::CommsUsb::oterminating  [private]
```

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

- CommsUsb.h
- CommsUsb.cpp

7.18 BMeasureApi::ConfigItem Class Reference

```
#include <BMeasureD.h>
```

Static Public Member Functions

- static const **BObjMember** * getMembers ()

Public Attributes

- **BChar** name [16]
- **BUInt8** type

  The type of data.
- **BUInt8** spare [3]
- **BChar** value [16]

7.18.1 Member Function Documentation

7.18.1.1 getMembers()

```
const BObjMember * BMeasureApi::ConfigItem::getMembers ( )  [static]
```

7.18.2 Member Data Documentation

7.18.2.1 name

```
BChar BMeasureApi::ConfigItem::name[16]
```

7.18.2.2 spare

```
BUInt8 BMeasureApi::ConfigItem::spare[3]
```

7.18.2.3 type

```
BUInt8 BMeasureApi::ConfigItem::type
```

The type of data.

7.18.2.4 value

```
BChar BMeasureApi::ConfigItem::value[16]
```

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

- BMeasureD.h
- BMeasureD.cpp

7.19 BMeasureApi::Configuration Class Reference

```
#include <BMeasureD.h>
```

Static Public Member Functions

- static const **BObjMember** * getMembers ()

Public Attributes

- **BUInt32** version

  The configuration version.
- **BChar** name [16]
- **BChar** location [16]
- Mode mode

  The boot run mode.
- SecurityMode securityMode

  The security mode.
- **BUInt8** logData

  Log the data.
- **BUInt8** logDataMode

  Log data mode.
- **BUInt8** logDataDevice

  The device to store data.
- **BUInt8** source

  The source number if multiple units are in use.
- **BUInt8** sampleFrequencyMode

  The base sample frequency mode.
- DigitalMode digitalMode

  The digital mode.
- **BUInt8** digitalPins [8]
- NetworkMode networkMode

  The network mode (0 - off, 1 - dhcp, 2 - manual)
- **BUInt8** spare1 [3]
- **BUInt32** networkAddress

  The network IP address.
- **BUInt32** networkMask

  The network netmask.
- **BUInt32** networkGateway

  The network gateway.
- **BUInt32** networkNameServer0

  The network nameserver.
- **BUInt32** networkTimeServer

  The network timeserver.
- Rs485Mode rs485Mode

  The RS485 mode.
- **BUInt8** rs485Bits

  The RS485 number of bits.
- **BUInt8** rs485StopBits

  The RS485 stop bits.
- **BUInt8** spare2
- **BUInt32** rs485BaudRate

  The RS485 baud rate.
- WifiMode wifiMode

  The wifi mode.
- **BUInt8** spare3 [3]
- **BChar** wifiAp0 [32]
- **BChar** spare4 [32]
- AlarmConfig alarms [16]
- EventMode mqttMode

MQTT mode.

- **BUInt8** spare5 [3]
- **BChar** mqttServer [32]
- **BUInt32** mqttPort

  The MQTT port.

- EventMode emailMode

  Email mode.

- **BUInt8** spare6 [3]
- **BChar** emailAddress [32]
- **BChar** program [32]

7.19.1 Member Function Documentation

7.19.1.1 getMembers()

```
const BObjMember * BMeasureApi::Configuration::getMembers ( ) [static]
```

7.19.2 Member Data Documentation

7.19.2.1 alarms

```
AlarmConfig BMeasureApi::Configuration::alarms[16]
```

7.19.2.2 digitalMode

```
DigitalMode BMeasureApi::Configuration::digitalMode
```

The digital mode.

7.19.2.3 digitalPins

```
BUInt8 BMeasureApi::Configuration::digitalPins[8]
```

7.19.2.4 emailAddress

```
BChar BMeasureApi::Configuration::emailAddress[32]
```

7.19.2.5 emailMode

```
EventMode BMeasureApi::Configuration::emailMode
```

Email mode.

7.19.2.6 location

```
BChar BMeasureApi::Configuration::location[16]
```

7.19.2.7 logData

```
BUInt8 BMeasureApi::Configuration::logData
```

Log the data.

7.19.2.8 logDataDevice

```
BUInt8 BMeasureApi::Configuration::logDataDevice
```

The device to store data.

7.19.2.9 logDataMode

```
BUInt8 BMeasureApi::Configuration::logDataMode
```

Log data mode.

7.19.2.10 mode

```
Mode BMeasureApi::Configuration::mode
```

The boot run mode.

7.19.2.11 mqttMode

```
EventMode BMeasureApi::Configuration::mqttMode
```

MQTT mode.

7.19.2.12 mqttPort

```
BUInt32 BMeasureApi::Configuration::mqttPort
```

The MQTT port.

7.19.2.13 mqttServer

```
BChar BMeasureApi::Configuration::mqttServer[32]
```

7.19.2.14 name

```
BChar BMeasureApi::Configuration::name[16]
```

7.19.2.15 networkAddress

```
BUInt32 BMeasureApi::Configuration::networkAddress
```

The network IP address.

7.19.2.16 networkGateway

BUInt32 BMeasureApi::Configuration::networkGateway

The network gateway.

7.19.2.17 networkMask

BUInt32 BMeasureApi::Configuration::networkMask

The network netmask.

7.19.2.18 networkMode

NetworkMode BMeasureApi::Configuration::networkMode

The network mode (0 - off, 1 - dhcp, 2 - manual)

7.19.2.19 networkNameServer0

BUInt32 BMeasureApi::Configuration::networkNameServer0

The network nameserver.

7.19.2.20 networkTimeServer

BUInt32 BMeasureApi::Configuration::networkTimeServer

The network timeserver.

7.19.2.21 program

BChar BMeasureApi::Configuration::program[32]

7.19.2.22 rs485BaudRate

BUInt32 BMeasureApi::Configuration::rs485BaudRate

The RS485 baud rate.

7.19.2.23 rs485Bits

BUInt8 BMeasureApi::Configuration::rs485Bits

The RS485 number of bits.

7.19.2.24 rs485Mode

Rs485Mode BMeasureApi::Configuration::rs485Mode

The RS485 mode.

7.19.2.25 rs485StopBits

BUInt8 BMeasureApi::Configuration::rs485StopBits

The RS485 stop bits.

7.19.2.26 sampleFrequencyMode

BUInt8 BMeasureApi::Configuration::sampleFrequencyMode

The base sample frequency mode.

7.19.2.27 securityMode

SecurityMode BMeasureApi::Configuration::securityMode

The security mode.

7.19.2.28 source

BUInt8 BMeasureApi::Configuration::source

The source number if multiple units are in use.

7.19.2.29 spare1

BUInt8 BMeasureApi::Configuration::spare1[3]

7.19.2.30 spare2

BUInt8 BMeasureApi::Configuration::spare2

7.19.2.31 spare3

BUInt8 BMeasureApi::Configuration::spare3[3]

7.19.2.32 spare4

BChar BMeasureApi::Configuration::spare4[32]

7.19.2.33 spare5

BUInt8 BMeasureApi::Configuration::spare5[3]

7.19.2.34 spare6

BUInt8 BMeasureApi::Configuration::spare6[3]

7.19.2.35 version

```
BUInt32 BMeasureApi::Configuration::version
```

The configuration version.

7.19.2.36 wifiAp0

```
BChar BMeasureApi::Configuration::wifiAp0[32]
```

7.19.2.37 wifiMode

```
WifiMode BMeasureApi::Configuration::wifiMode
```

The wifi mode.

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

- BMeasureD.h
- BMeasureD.cpp

7.20 BMeasureApi::DataBlock Class Reference

```
#include <BMeasureD.h>
```

Static Public Member Functions

- static const **BObjMember** * getMembers ()

Public Attributes

- **BUInt64** time
  The time in microseconds since 1970-01-01 to TAI.
- **BUInt16** source
  The source unit,.
- **BUInt16** status
- **BUInt16** numChannels
  The number of data channels.
- **BUInt16** numSamples
  The number of samples.
- **BUInt32** sequence
  The sequence number.
- DataType type
  The type of data block.
- **BUInt8** spare [7]
- **BFloat32** data [117]

7.20.1 Member Function Documentation

7.20.1.1 getMembers()

```
const BObjMember * BMeasureApi::DataBlock::getMembers ( ) [static]
```

7.20.2 Member Data Documentation

7.20.2.1 data

```
BFloat32 BMeasureApi::DataBlock::data[117]
```

7.20.2.2 numChannels

```
BUInt16 BMeasureApi::DataBlock::numChannels
```

The number of data channels.

7.20.2.3 numSamples

```
BUInt16 BMeasureApi::DataBlock::numSamples
```

The number of samples.

7.20.2.4 sequence

```
BUInt32 BMeasureApi::DataBlock::sequence
```

The sequence number.

7.20.2.5 source

```
BUInt16 BMeasureApi::DataBlock::source
```

The source unit,.

7.20.2.6 spare

```
BUInt8 BMeasureApi::DataBlock::spare[7]
```

7.20.2.7 status

```
BUInt16 BMeasureApi::DataBlock::status
```

7.20.2.8 time

```
BUInt64 BMeasureApi::DataBlock::time
```

The time in microseconds since 1970-01-01 to TAI.

7.20.2.9 type

```
DataType BMeasureApi::DataBlock::type
```

The type of data block.

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

- BMeasureD.h
- BMeasureD.cpp

7.21 BMeasureApi::DataBlockProc Class Reference

```
#include <BMeasureD.h>
```

Static Public Member Functions

- static const **BObjMember** * getMembers ()

Public Attributes

- **BUInt64** time

  The time in microseconds since 1970-01-01 to TAI.
- **BUInt16** source

  The source unit,.
- **BUInt16** status
- **BUInt16** numChannels

  The number of data channels.
- **BUInt16** numSamples

  The number of samples.
- **BUInt32** sequence

  The sequence number.
- DataType type

  The type of data block.
- **BUInt8** spare [7]
- DataProc analogueData [8]
- **BUInt32** digitalData

  Digital channel data.

7.21.1 Member Function Documentation

7.21.1.1 getMembers()

```
const BObjMember * BMeasureApi::DataBlockProc::getMembers ( ) [static]
```

7.21.2 Member Data Documentation

7.21.2.1 analogueData

```
DataProc BMeasureApi::DataBlockProc::analogueData[8]
```

7.21.2.2 digitalData

```
BUInt32 BMeasureApi::DataBlockProc::digitalData
```

Digital channel data.

7.21.2.3 numChannels

BUInt16 BMeasureApi::DataBlockProc::numChannels

The number of data channels.

7.21.2.4 numSamples

BUInt16 BMeasureApi::DataBlockProc::numSamples

The number of samples.

7.21.2.5 sequence

BUInt32 BMeasureApi::DataBlockProc::sequence

The sequence number.

7.21.2.6 source

BUInt16 BMeasureApi::DataBlockProc::source

The source unit,.

7.21.2.7 spare

BUInt8 BMeasureApi::DataBlockProc::spare[7]

7.21.2.8 status

BUInt16 BMeasureApi::DataBlockProc::status

7.21.2.9 time

```
BUInt64 BMeasureApi::DataBlockProc::time
```

The time in microseconds since 1970-01-01 to TAI.

7.21.2.10 type

```
DataType BMeasureApi::DataBlockProc::type
```

The type of data block.

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

- BMeasureD.h
- BMeasureD.cpp

7.22 BMeasureApi::DataFile Class Reference

```
#include <DataFile.h>
```

Public Member Functions

- DataFile ()
- ~DataFile ()
- void init ()

  Initialise.
- **BError** open (**BString** fileName, **BString** mode, **BString** format="")

  Open the file for read or write.
- **BError** close ()

  Close the file.
- **BString** getFileName ()

  Return the file name.
- **BError** writeInfo (const InfoBlock &infoBlock, const ChannelConfigs &channels)
- **BError** writeData (DataBlock * **data**)

  Write a block of data.
- **BError** writeData (DataBlockProc * **data**)

  Write a block of processed data.
- **BError** writeEnd ()
- **BError** readInfo (**BString** &format, InfoBlock &infoBlock, ChannelConfigs &channels)
- **BError** readData (DataBlock * **data**)

  Read a block of data.

Private Member Functions

- **BError** validateFormat (**BString** format)
- **BError** writeInfoCsv (const InfoBlock &infoBlock, const ChannelConfigs &channels)
- **BError** writeInfoTdms (const InfoBlock &infoBlock, const ChannelConfigs &channels)
- **BError** writeInfoBMeas (const InfoBlock &infoBlock, const ChannelConfigs &channels)

Private Attributes

- **BString** ofileName
- **BString** omode
- **BString** oformat
- **BFile** ofile
- **BUInt32** opacketLen
- **BoapMc1Packet** * opacket

7.22.1 Constructor & Destructor Documentation

7.22.1.1 DataFile()

```
BMeasureApi::DataFile::DataFile ( )
```

7.22.1.2 ~DataFile()

```
BMeasureApi::DataFile::~DataFile ( )
```

7.22.2 Member Function Documentation

7.22.2.1 close()

```
BError BMeasureApi::DataFile::close ( )
```

Close the file.

7.22.2.2 getFileName()

```
BString BMeasureApi::DataFile::getFileName ( )
```

Return the file name.

7.22.2.3 init()

```
void BMeasureApi::DataFile::init ( )
```

Initialise.

7.22.2.4 open()

```
BError BMeasureApi::DataFile::open (
            BString fileName,
            BString mode,
            BString format = "" )
```

Open the file for read or write.

7.22.2.5 readData()

```
BError BMeasureApi::DataFile::readData (
           DataBlock * data )
```

Read a block of data.

7.22.2.6 readInfo()

```
BError BMeasureApi::DataFile::readInfo (
            BString & format,
           InfoBlock & infoBlock,
           ChannelConfigs & channels )
```

7.22.2.7 validateFormat()

```
BError BMeasureApi::DataFile::validateFormat (
            BString format )  [private]
```

7.22.2.8 writeData() [1/2]

```
BError BMeasureApi::DataFile::writeData (
            DataBlock * data )
```

Write a block of data.

7.22.2.9 writeData() [2/2]

```
BError BMeasureApi::DataFile::writeData (
            DataBlockProc * data )
```

Write a block of processed data.

7.22.2.10 writeEnd()

```
BError BMeasureApi::DataFile::writeEnd ( )
```

7.22.2.11 writeInfo()

```
BError BMeasureApi::DataFile::writeInfo (
            const InfoBlock & infoBlock,
            const ChannelConfigs & channels )
```

7.22.2.12 writeInfoBMeas()

```
BError BMeasureApi::DataFile::writeInfoBMeas (
            const InfoBlock & infoBlock,
            const ChannelConfigs & channels )  [private]
```

7.22.2.13 writeInfoCsv()

```
BError BMeasureApi::DataFile::writeInfoCsv (
            const InfoBlock & infoBlock,
            const ChannelConfigs & channels )  [private]
```

7.22.2.14 writeInfoTdms()

```
BError BMeasureApi::DataFile::writeInfoTdms (
            const InfoBlock & infoBlock,
            const ChannelConfigs & channels )  [private]
```

7.22.3 Member Data Documentation

7.22.3.1 ofile

```
BFile BMeasureApi::DataFile::ofile  [private]
```

7.22.3.2 ofileName

```
BString BMeasureApi::DataFile::ofileName  [private]
```

7.22.3.3 oformat

```
BString BMeasureApi::DataFile::oformat  [private]
```

7.22.3.4 omode

```
BString BMeasureApi::DataFile::omode  [private]
```

7.22.3.5 opacket

```
BoapMc1Packet* BMeasureApi::DataFile::opacket  [private]
```

7.22.3.6 opacketLen

```
BUInt32 BMeasureApi::DataFile::opacketLen  [private]
```

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

- DataFile.h
- DataFile.cpp

7.23 BMeasureApi::DataProc Class Reference

`#include <BMeasureD.h>`

Static Public Member Functions

- static const **BObjMember** * getMembers ()

Public Attributes

- **BFloat32** mean

  Processed data mean.
- **BFloat32** rms

  Processed data RMS.
- **BFloat32** peakHigh

  Processed data highest peak.
- **BFloat32** peakLow

  Processed data lowest peak.
- **Bool** alarm

  An alarm condition on this channel.
- **BUInt8** spare [3]

7.23.1 Member Function Documentation

7.23.1.1 getMembers()

`const BObjMember * BMeasureApi::DataProc::getMembers ( ) [static]`

7.23.2 Member Data Documentation

7.23.2.1 alarm

`Bool BMeasureApi::DataProc::alarm`

An alarm condition on this channel.

7.23.2.2 mean

BFloat32 BMeasureApi::DataProc::mean

Processed data mean.

7.23.2.3 peakHigh

BFloat32 BMeasureApi::DataProc::peakHigh

Processed data highest peak.

7.23.2.4 peakLow

BFloat32 BMeasureApi::DataProc::peakLow

Processed data lowest peak.

7.23.2.5 rms

BFloat32 BMeasureApi::DataProc::rms

Processed data RMS.

7.23.2.6 spare

BUInt8 BMeasureApi::DataProc::spare[3]

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

- BMeasureD.h
- BMeasureD.cpp

7.24 Dfu Class Reference

The Dfu access class.

`#include <Dfu.h>`

Public Member Functions

- Dfu ()
- ~Dfu ()
- **BError** init (**Bool** verbose)

  Initialise.
- **BError** detectDevice ()

  Check if DFU devuce exists.
- **BError** validateFile (**BString** filename, **BUInt** type, **BString** &version)

  Check if file is valid firmware.
- **BError** connect ()

  Connect to USB DFU device.
- **BError** disconnect ()

  Disconnect from USB DFU device.
- **BError** reset ()

  Reset.
- **BError** clearStatus ()
- **BError** getStatus (DfuStatus &status)
- **BError** upload (**BString** filename, **BUInt** type)

  Upload a file.
- **BError** upload_cmd (**BUInt8** **cmd**, **BUInt32** address)

Private Attributes

- **Bool** overbose
- **Bool** oconnected
- libusb_context * ocontext
- libusb_device_handle * odev

7.24.1 Detailed Description

The Dfu access class.

7.24.2 Constructor & Destructor Documentation

7.24.2.1 Dfu()

```
Dfu::Dfu ( )
```

7.24.2.2 ~Dfu()

```
Dfu::~Dfu ( )
```

7.24.3 Member Function Documentation

7.24.3.1 clearStatus()

```
BError Dfu::clearStatus ( )
```

7.24.3.2 connect()

```
BError Dfu::connect ( )
```

Connect to USB DFU device.

7.24.3.3 detectDevice()

```
BError Dfu::detectDevice ( )
```

Check if DFU devuce exists.

7.24.3.4 disconnect()

```
BError Dfu::disconnect ( )
```

Disconnect from USB DFU device.

7.24.3.5 getStatus()

```
BError Dfu::getStatus (
            DfuStatus & status )
```

7.24.3.6 init()

```
BError Dfu::init (
             Bool verbose )
```

Initialise.

7.24.3.7 reset()

```
BError Dfu::reset ( )
```

Reset.

7.24.3.8 upload()

```
BError Dfu::upload (
            BString filename,
            BUInt type )
```

Upload a file.

7.24.3.9 upload_cmd()

```
BError Dfu::upload_cmd (
            BUInt8 cmd,
            BUInt32 address )
```

7.24.3.10 validateFile()

```
BError Dfu::validateFile (
            BString filename,
            BUInt type,
            BString & version )
```

Check if file is valid firmware.

7.24.4 Member Data Documentation

7.24.4.1 oconnected

```
Bool Dfu::oconnected  [private]
```

7.24.4.2 ocontext

```
libusb_context* Dfu::ocontext  [private]
```

7.24.4.3 odev

```
libusb_device_handle* Dfu::odev  [private]
```

7.24.4.4 overbose

```
Bool Dfu::overbose  [private]
```

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

- Dfu.h
- Dfu.cpp

7.25 DfuStatus Struct Reference

```
#include <Dfu.h>
```

Public Attributes

- **BUInt8** status
- **BUInt** pollTimeout
- **BUInt8** state
- **BUInt8** iString

7.25.1 Member Data Documentation

7.25.1.1 iString

```
BUInt8 DfuStatus::iString
```

7.25.1.2 pollTimeout

```
BUInt DfuStatus::pollTimeout
```

7.25.1.3 state

```
BUInt8 DfuStatus::state
```

7.25.1.4 status

```
BUInt8 DfuStatus::status
```

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

- Dfu.h

7.26 BMeasureApi::FileData Class Reference

```
#include <BMeasureD.h>
```

Static Public Member Functions

- static const **BObjMember** * getMembers ()

Public Attributes

- **BUInt32** length
  The data length.
- **BUInt8** data [512]

7.26.1 Member Function Documentation

7.26.1.1 getMembers()

```
const BObjMember * BMeasureApi::FileData::getMembers ( ) [static]
```

7.26.2 Member Data Documentation

7.26.2.1 data

```
BUInt8 BMeasureApi::FileData::data[512]
```

7.26.2.2 length

```
BUInt32 BMeasureApi::FileData::length
```

The data length.

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

- BMeasureD.h
- BMeasureD.cpp

7.27 BMeasureApi::FileInfo Class Reference

```
#include <BMeasureD.h>
```

Static Public Member Functions

- static const **BObjMember** * getMembers ()

Public Attributes

- **BChar** name [128]
- **BTime** time

  The file date/time.
- FileType fileType

  The file type.
- **BUInt8** spare [3]
- **BUInt64** fileLength

  The file length.

7.27.1 Member Function Documentation

7.27.1.1 getMembers()

```
const BObjMember * BMeasureApi::FileInfo::getMembers ( ) [static]
```

7.27.2 Member Data Documentation

7.27.2.1 fileLength

```
BUInt64 BMeasureApi::FileInfo::fileLength
```

The file length.

7.27.2.2 fileType

```
FileType BMeasureApi::FileInfo::fileType
```

The file type.

7.27.2.3 name

```
BChar BMeasureApi::FileInfo::name[128]
```

7.27.2.4 spare

```
BUInt8 BMeasureApi::FileInfo::spare[3]
```

7.27.2.5 time

```
BTime BMeasureApi::FileInfo::time
```

The file date/time.

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

- BMeasureD.h
- BMeasureD.cpp

7.28 BMeasureApi::FilesysInfo Class Reference

`#include <BMeasureD.h>`

Static Public Member Functions

- static const **BObjMember** * getMembers ()

Public Attributes

- **BChar** name [128]
- **BUInt64** size

  The store size.
- **BUInt64** free

  The store free space.

7.28.1 Member Function Documentation

7.28.1.1 getMembers()

`const BObjMember * BMeasureApi::FilesysInfo::getMembers ( ) [static]`

7.28.2 Member Data Documentation

7.28.2.1 free

`BUInt64 BMeasureApi::FilesysInfo::free`

The store free space.

7.28.2.2 name

`BChar BMeasureApi::FilesysInfo::name[128]`

7.28.2.3 size

```
BUInt64 BMeasureApi::FilesysInfo::size
```

The store size.

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

- BMeasureD.h
- BMeasureD.cpp

7.29 BMeasureApi::InfoBlock Class Reference

```
#include <BMeasureD.h>
```

Static Public Member Functions

- static const **BObjMember** * getMembers ()

Public Attributes

- **BUInt64** time

  The time in microseconds since 1970-01-01 to TAI.
- **BUInt16** source

  The source unit.
- **BUInt16** numChannels

  The number of data channels.
- **BUInt16** version

  The info/data version.
- BMeasFileType fileType

  The file structure type.
- DataType dataType

  The data type file contents.
- **BChar** name [16]
- **BChar** location [16]
- NodeInfo nodeInfo

  Information on the unit.
- MeasurementConfig measureConfig

  The measurement configuration.

7.29.1 Member Function Documentation

7.29.1.1 getMembers()

```
const BObjMember * BMeasureApi::InfoBlock::getMembers ( ) [static]
```

7.29.2 Member Data Documentation

7.29.2.1 dataType

```
DataType BMeasureApi::InfoBlock::dataType
```

The data type file contents.

7.29.2.2 fileType

```
BMeasFileType BMeasureApi::InfoBlock::fileType
```

The file structure type.

7.29.2.3 location

```
BChar BMeasureApi::InfoBlock::location[16]
```

7.29.2.4 measureConfig

```
MeasurementConfig BMeasureApi::InfoBlock::measureConfig
```

The measurement configuration.

7.29.2.5 name

```
BChar BMeasureApi::InfoBlock::name[16]
```

7.29.2.6 nodeInfo

```
NodeInfo BMeasureApi::InfoBlock::nodeInfo
```

Information on the unit.

7.29.2.7 numChannels

BUInt16 BMeasureApi::InfoBlock::numChannels

The number of data channels.

7.29.2.8 source

BUInt16 BMeasureApi::InfoBlock::source

The source unit.

7.29.2.9 time

BUInt64 BMeasureApi::InfoBlock::time

The time in microseconds since 1970-01-01 to TAI.

7.29.2.10 version

BUInt16 BMeasureApi::InfoBlock::version

The info/data version.

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

- BMeasureD.h
- BMeasureD.cpp

7.30 BMeasureApi::Information Class Reference

`#include <BMeasureD.h>`

Static Public Member Functions

- static const **BObjMember** * getMembers ()

Public Attributes

- NodeInfo nodeInfo
- **BUInt8** numConfigItems

  The number of config items.
- **BUInt8** numChannels

  The number of channels.
- **BUInt8** spare0 [2]
- **BTimeUs** time

  The system time.
- **BUInt32** networkMode

  The network Mode.
- **BUInt8** networkMacAddress [6]
- **BUInt8** spare1 [2]
- **BUInt32** networkAddress

  The network IP address.
- **BUInt32** networkMask

  The network netmask.
- **BUInt32** networkGateway

  The network gateway.
- **BUInt32** networkNameServer0

  The network nameserver.
- **BUInt32** networkTimeServer

  The network time server.
- **BUInt32** wifiMode

  The Wifi mode.
- **BUInt8** wifiMacAddress [6]
- **BUInt8** spare2 [2]
- **BUInt32** wifiAddress

  The Wifi IP address.
- **BUInt32** wifiMask

  The Wifi netmask.
- **BUInt32** wifiGateway

  The Wifi gateway.
- **BTime** calibTime

  The last calibration time.
- **BUInt8** spare3 [28]

7.30.1 Member Function Documentation

7.30.1.1 getMembers()

```
const BObjMember * BMeasureApi::Information::getMembers ( ) [static]
```

7.30.2 Member Data Documentation

7.30.2.1 calibTime

BTime BMeasureApi::Information::calibTime

The last calibration time.

7.30.2.2 networkAddress

BUInt32 BMeasureApi::Information::networkAddress

The network IP address.

7.30.2.3 networkGateway

BUInt32 BMeasureApi::Information::networkGateway

The network gateway.

7.30.2.4 networkMacAddress

BUInt8 BMeasureApi::Information::networkMacAddress[6]

7.30.2.5 networkMask

BUInt32 BMeasureApi::Information::networkMask

The network netmask.

7.30.2.6 networkMode

BUInt32 BMeasureApi::Information::networkMode

The network Mode.

7.30.2.7 networkNameServer0

BUInt32 BMeasureApi::Information::networkNameServer0

The network nameserver.

7.30.2.8 networkTimeServer

BUInt32 BMeasureApi::Information::networkTimeServer

The network time server.

7.30.2.9 nodeInfo

NodeInfo BMeasureApi::Information::nodeInfo

7.30.2.10 numChannels

BUInt8 BMeasureApi::Information::numChannels

The number of channels.

7.30.2.11 numConfigItems

BUInt8 BMeasureApi::Information::numConfigItems

The number of config items.

7.30.2.12 spare0

BUInt8 BMeasureApi::Information::spare0[2]

7.30.2.13 spare1

BUInt8 BMeasureApi::Information::spare1[2]

7.30.2.14 spare2

BUInt8 BMeasureApi::Information::spare2[2]

7.30.2.15 spare3

BUInt8 BMeasureApi::Information::spare3[28]

7.30.2.16 time

BTimeUs BMeasureApi::Information::time

The system time.

7.30.2.17 wifiAddress

BUInt32 BMeasureApi::Information::wifiAddress

The Wifi IP address.

7.30.2.18 wifiGateway

BUInt32 BMeasureApi::Information::wifiGateway

The Wifi gateway.

7.30.2.19 wifiMacAddress

BUInt8 BMeasureApi::Information::wifiMacAddress[6]

7.30.2.20 wifiMask

BUInt32 BMeasureApi::Information::wifiMask

The Wifi netmask.

7.30.2.21 wifiMode

```
BUInt32 BMeasureApi::Information::wifiMode
```

The Wifi mode.

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

- BMeasureD.h
- BMeasureD.cpp

7.31 BMeasureApi::MeasurementConfig Class Reference

```
#include <BMeasureD.h>
```

Static Public Member Functions

- static const **BObjMember** * getMembers ()

Public Attributes

- MeasureMode measureMode
- **BUInt8** measureOptions

  Measure option bit set.
- **BUInt8** peakFilter

  Peak filtering number of samples.
- **BUInt8** spare1
- TriggerMode triggerMode
- TriggerConfig triggerConfig

  Trigger config including direction, filters etc.
- **BUInt8** triggerChannel
- **BUInt8** spare2
- **BFloat64** triggerLevel
- **BInt32** triggerDelay

  Trigger delay in samples.
- **BFloat64** sampleRate
- **BUInt32** numSamples0

  The number of samples in a chunk for display and/or repeat.
- **BUInt32** numSamples1

  The number of samples per each data processing cycle. 0 disables this processing.
- **BUInt32** numSamples2

  The number of samples to capture. 0 is continuous.
- **BUInt32** measurePeriod

  Time in seconds between measurement sample bursts. 0 is continuous.
- **BUInt32** numSamplesBlock

  The number of samples per block. 0 is default setting.
- **BChar** description [64]

7.31.1 Member Function Documentation

7.31.1.1 getMembers()

```
const BObjMember * BMeasureApi::MeasurementConfig::getMembers ( ) [static]
```

7.31.2 Member Data Documentation

7.31.2.1 description

```
BChar BMeasureApi::MeasurementConfig::description[64]
```

7.31.2.2 measureMode

```
MeasureMode BMeasureApi::MeasurementConfig::measureMode
```

7.31.2.3 measureOptions

```
BUInt8 BMeasureApi::MeasurementConfig::measureOptions
```

Measure option bit set.

7.31.2.4 measurePeriod

```
BUInt32 BMeasureApi::MeasurementConfig::measurePeriod
```

Time in seconds between measurement sample bursts. 0 is continuous.

7.31.2.5 numSamples0

```
BUInt32 BMeasureApi::MeasurementConfig::numSamples0
```

The number of samples in a chunk for display and/or repeat.

7.31.2.6 numSamples1

BUInt32 BMeasureApi::MeasurementConfig::numSamples1

The number of samples per each data processing cycle. 0 disables this processing.

7.31.2.7 numSamples2

BUInt32 BMeasureApi::MeasurementConfig::numSamples2

The number of samples to capture. 0 is continuous.

7.31.2.8 numSamplesBlock

BUInt32 BMeasureApi::MeasurementConfig::numSamplesBlock

The number of samples per block. 0 is default setting.

7.31.2.9 peakFilter

BUInt8 BMeasureApi::MeasurementConfig::peakFilter

Peak filtering number of samples.

7.31.2.10 sampleRate

BFloat64 BMeasureApi::MeasurementConfig::sampleRate

7.31.2.11 spare1

BUInt8 BMeasureApi::MeasurementConfig::spare1

7.31.2.12 spare2

BUInt8 BMeasureApi::MeasurementConfig::spare2

7.31.2.13 triggerChannel

BUInt8 BMeasureApi::MeasurementConfig::triggerChannel

7.31.2.14 triggerConfig

TriggerConfig BMeasureApi::MeasurementConfig::triggerConfig

Trigger config including direction, filters etc.

7.31.2.15 triggerDelay

BInt32 BMeasureApi::MeasurementConfig::triggerDelay

Trigger delay in samples.

7.31.2.16 triggerLevel

BFloat64 BMeasureApi::MeasurementConfig::triggerLevel

7.31.2.17 triggerMode

TriggerMode BMeasureApi::MeasurementConfig::triggerMode

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

- BMeasureD.h
- BMeasureD.cpp

7.32 BMeasureApi::NodeInfo Class Reference

#include <BMeasureD.h>

Static Public Member Functions

- static const **BObjMember** * getMembers ()

Public Attributes

- **BUInt32** apiVersion
- Version hardwareVersion
- Version fpgaVersion
- Version wifiVersion
- Version softwareVersion
- **BChar** variant [12]
- **BChar** serialNumber [12]
- SecurityMode securityMode
- **BUInt8** spare [7]

7.32.1 Member Function Documentation

7.32.1.1 getMembers()

```
const BObjMember * BMeasureApi::NodeInfo::getMembers ( ) [static]
```

7.32.2 Member Data Documentation

7.32.2.1 apiVersion

```
BUInt32 BMeasureApi::NodeInfo::apiVersion
```

7.32.2.2 fpgaVersion

```
Version BMeasureApi::NodeInfo::fpgaVersion
```

7.32.2.3 hardwareVersion

```
Version BMeasureApi::NodeInfo::hardwareVersion
```

7.32.2.4 securityMode

```
SecurityMode BMeasureApi::NodeInfo::securityMode
```

7.32.2.5 serialNumber

```
BChar BMeasureApi::NodeInfo::serialNumber[12]
```

7.32.2.6 softwareVersion

```
Version BMeasureApi::NodeInfo::softwareVersion
```

7.32.2.7 spare

```
BUInt8 BMeasureApi::NodeInfo::spare[7]
```

7.32.2.8 variant

```
BChar BMeasureApi::NodeInfo::variant[12]
```

7.32.2.9 wifiVersion

```
Version BMeasureApi::NodeInfo::wifiVersion
```

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

- BMeasureD.h
- BMeasureD.cpp

7.33 BMeasureApi::NodeStatus Class Reference

```
#include <BMeasureD.h>
```

Static Public Member Functions

- static const **BObjMember** * getMembers ()

Public Attributes

- **BTimeUs** time
- **BUInt32** status
- **BUInt32** error
- **BChar** errorStr [32]
- Mode mode
- **BUInt8** ethernetStatus
- **BUInt8** wifiStatus
- **BUInt8** spare [9]

7.33.1 Member Function Documentation

7.33.1.1 getMembers()

```
const BObjMember * BMeasureApi::NodeStatus::getMembers ( ) [static]
```

7.33.2 Member Data Documentation

7.33.2.1 error

```
BUInt32 BMeasureApi::NodeStatus::error
```

7.33.2.2 errorStr

```
BChar BMeasureApi::NodeStatus::errorStr[32]
```

7.33.2.3 ethernetStatus

```
BUInt8 BMeasureApi::NodeStatus::ethernetStatus
```

7.33.2.4 mode

```
Mode BMeasureApi::NodeStatus::mode
```

7.33.2.5 spare

BUInt8 BMeasureApi::NodeStatus::spare[9]

7.33.2.6 status

BUInt32 BMeasureApi::NodeStatus::status

7.33.2.7 time

BTimeUs BMeasureApi::NodeStatus::time

7.33.2.8 wifiStatus

BUInt8 BMeasureApi::NodeStatus::wifiStatus

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

- BMeasureD.h
- BMeasureD.cpp

7.34 BMeasureApi::Version Class Reference

#include <BMeasureD.h>

Static Public Member Functions

- static const **BObjMember** * getMembers ()

Public Attributes

- **BUInt8** type
- **BUInt8** ver0
- **BUInt8** ver1
- **BUInt8** ver2

7.34.1 Member Function Documentation

7.34.1.1 getMembers()

```
const BObjMember * BMeasureApi::Version::getMembers ( ) [static]
```

7.34.2 Member Data Documentation

7.34.2.1 type

```
BUInt8 BMeasureApi::Version::type
```

7.34.2.2 ver0

```
BUInt8 BMeasureApi::Version::ver0
```

7.34.2.3 ver1

```
BUInt8 BMeasureApi::Version::ver1
```

7.34.2.4 ver2

```
BUInt8 BMeasureApi::Version::ver2
```

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

- BMeasureD.h
- BMeasureD.cpp

Chapter 8

File Documentation

8.1 BMdns.cpp File Reference

```
#include <BMdns.h>
#include <BDebug.h>
#include <stdio.h>
#include <errno.h>
#include <sys/ioctl.h>
#include <sys/socket.h>
#include <arpa/inet.h>
#include <netdb.h>
#include <net/if.h>
```

Macros

- #define BDEBUGL1 0

Enumerations

- enum MdnsRecordType {
  MDNS_RECORDTYPE_IGNORE = 0, MDNS_RECORDTYPE_A = 1, MDNS_RECORDTYPE_PTR = 12,
  MDNS_RECORDTYPE_TXT = 16,
  MDNS_RECORDTYPE_AAAA = 28, MDNS_RECORDTYPE_SRV = 33 }
- enum MdnsEntryType { MDNS_ENTRYTYPE_ANSWER = 1, MDNS_ENTRYTYPE_AUTHORITY = 2,
  MDNS_ENTRYTYPE_ADDITIONAL = 3 }
- enum MdnsClass { MDNS_CLASS_IN = 1 }

Functions

- static int mdns_write_string (**BUInt8** *buffer, **BUInt8** *p, **BString** str)
- static int mdns_read_string (void *buffer, **BUInt8** *p, **BString** &str)
- static int mdns_read_strings (void *buffer, **BUInt8** *p, **BString** &str)

8.1.1 Macro Definition Documentation

8.1.1.1 BDEBUGL1

```
#define BDEBUGL1 0
```

8.1.2 Enumeration Type Documentation

8.1.2.1 MdnsClass

```
enum MdnsClass
```

Enumerator

MDNS_CLASS_IN	

8.1.2.2 MdnsEntryType

```
enum MdnsEntryType
```

Enumerator

MDNS_ENTRYTYPE_ANSWER	
MDNS_ENTRYTYPE_AUTHORITY	
MDNS_ENTRYTYPE_ADDITIONAL	

8.1.2.3 MdnsRecordType

```
enum MdnsRecordType
```

Enumerator

MDNS_RECORDTYPE_IGNORE	
MDNS_RECORDTYPE_A	
MDNS_RECORDTYPE_PTR	
MDNS_RECORDTYPE_TXT	
MDNS_RECORDTYPE_AAAA	
MDNS_RECORDTYPE_SRV	

8.1.3 Function Documentation

8.1.3.1 mdns_read_string()

```
static int mdns_read_string (
             void * buffer,
              BUInt8 * p,
              BString & str )  [static]
```

8.1.3.2 mdns_read_strings()

```
static int mdns_read_strings (
             void * buffer,
              BUInt8 * p,
              BString & str )  [static]
```

8.1.3.3 mdns_write_string()

```
static int mdns_write_string (
              BUInt8 * buffer,
              BUInt8 * p,
              BString str )  [static]
```

8.2 BMdns.h File Reference

```
#include <BSocket.h>
```

Classes

- class BMdnsService
- class BMdns

8.3 BMeasureB-1.cpp File Reference

```
#include <BMeasureB.h>
#include <string.h>
```

Namespaces

- BMeasureApi

8.4 BMeasureB.cpp File Reference

```
#include <BMeasureB.h>
#include <string.h>
```

Namespaces

- BMeasureApi

8.5 BMeasureB.h File Reference

```
#include <BTypes.h>
#include <BComplex.h>
#include <BoapMc1.h>
#include <BMeasureD.h>
```

Classes

- class BMeasureApi::BMeasure

Namespaces

- BMeasureApi

Variables

- const **BUInt32** BMeasureApi::apiVersion = 0

8.6 BMeasureD.cpp File Reference

```
#include <BMeasureD.h>
```

Namespaces

- BMeasureApi

Macros

- #define boffsetof(T, F) ((**BUInt**)((char∗)&((T∗)0L)->F - (char∗)0L))

Functions

- **BString** BMeasureApi::toBString (ErrorNum v)
- **BError** BMeasureApi::fromBString (**BString** str, ErrorNum &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, ErrorNum v)
- **BString** BMeasureApi::toBString (NodeType v)
- **BError** BMeasureApi::fromBString (**BString** str, NodeType &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, NodeType v)
- **BString** BMeasureApi::toBString (SecurityMode v)
- **BError** BMeasureApi::fromBString (**BString** str, SecurityMode &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, SecurityMode v)
- **BString** BMeasureApi::toBString (Status v)
- **BError** BMeasureApi::fromBString (**BString** str, Status &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, Status v)
- **BString** BMeasureApi::toBString (Mode v)
- **BError** BMeasureApi::fromBString (**BString** str, Mode &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, Mode v)
- **BString** BMeasureApi::toBString (BlockTypes v)
- **BError** BMeasureApi::fromBString (**BString** str, BlockTypes &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, BlockTypes v)
- **BString** BMeasureApi::toBString (ChannelType v)
- **BError** BMeasureApi::fromBString (**BString** str, ChannelType &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, ChannelType v)
- **BString** BMeasureApi::toBString (SampleType v)
- **BError** BMeasureApi::fromBString (**BString** str, SampleType &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, SampleType v)
- **BString** BMeasureApi::toBString (SyncMode v)
- **BError** BMeasureApi::fromBString (**BString** str, SyncMode &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, SyncMode v)
- **BString** BMeasureApi::toBString (MeasureMode v)
- **BError** BMeasureApi::fromBString (**BString** str, MeasureMode &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, MeasureMode v)
- **BString** BMeasureApi::toBString (MeasureOption v)
- **BError** BMeasureApi::fromBString (**BString** str, MeasureOption &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, MeasureOption v)
- **BString** BMeasureApi::toBString (TriggerMode v)
- **BError** BMeasureApi::fromBString (**BString** str, TriggerMode &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, TriggerMode v)
- **BString** BMeasureApi::toBString (TriggerConfig v)
- **BError** BMeasureApi::fromBString (**BString** str, TriggerConfig &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, TriggerConfig v)
- **BString** BMeasureApi::toBString (DigitalMode v)
- **BError** BMeasureApi::fromBString (**BString** str, DigitalMode &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, DigitalMode v)
- **BString** BMeasureApi::toBString (AwgMode v)
- **BError** BMeasureApi::fromBString (**BString** str, AwgMode &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, AwgMode v)
- **BString** BMeasureApi::toBString (AwgOutput v)
- **BError** BMeasureApi::fromBString (**BString** str, AwgOutput &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, AwgOutput v)

- **BString** BMeasureApi::toBString (FileType v)
- **BError** BMeasureApi::fromBString (**BString** str, FileType &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, FileType v)
- **BString** BMeasureApi::toBString (FilesysDeleteType v)
- **BError** BMeasureApi::fromBString (**BString** str, FilesysDeleteType &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, FilesysDeleteType v)
- **BString** BMeasureApi::toBString (LogData v)
- **BError** BMeasureApi::fromBString (**BString** str, LogData &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, LogData v)
- **BString** BMeasureApi::toBString (LogDataMode v)
- **BError** BMeasureApi::fromBString (**BString** str, LogDataMode &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, LogDataMode v)
- **BString** BMeasureApi::toBString (DataType v)
- **BError** BMeasureApi::fromBString (**BString** str, DataType &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, DataType v)
- **BString** BMeasureApi::toBString (DataSend v)
- **BError** BMeasureApi::fromBString (**BString** str, DataSend &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, DataSend v)
- **BString** BMeasureApi::toBString (CalibrateStage v)
- **BError** BMeasureApi::fromBString (**BString** str, CalibrateStage &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, CalibrateStage v)
- **BString** BMeasureApi::toBString (MessageSource v)
- **BError** BMeasureApi::fromBString (**BString** str, MessageSource &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, MessageSource v)
- **BString** BMeasureApi::toBString (NetworkMode v)
- **BError** BMeasureApi::fromBString (**BString** str, NetworkMode &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, NetworkMode v)
- **BString** BMeasureApi::toBString (WifiMode v)
- **BError** BMeasureApi::fromBString (**BString** str, WifiMode &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, WifiMode v)
- **BString** BMeasureApi::toBString (AlarmMode v)
- **BError** BMeasureApi::fromBString (**BString** str, AlarmMode &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, AlarmMode v)
- **BString** BMeasureApi::toBString (AlarmOutput v)
- **BError** BMeasureApi::fromBString (**BString** str, AlarmOutput &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, AlarmOutput v)
- **BString** BMeasureApi::toBString (EventMode v)
- **BError** BMeasureApi::fromBString (**BString** str, EventMode &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, EventMode v)
- **BString** BMeasureApi::toBString (Rs485Mode v)
- **BError** BMeasureApi::fromBString (**BString** str, Rs485Mode &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, Rs485Mode v)
- **BString** BMeasureApi::toBString (BMeasFileType v)
- **BError** BMeasureApi::fromBString (**BString** str, BMeasFileType &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, BMeasFileType v)

8.6.1 Macro Definition Documentation

8.6.1.1 boffsetof

```
#define boffsetof(
              T,
              F ) (( BUInt)((char*)&((T*)0L)->F - (char*)0L))
```

8.7 BMeasureD.h File Reference

```
#include <BTypes.h>
#include <BObj.h>
#include <BTime.h>
#include <BTimeUs.h>
#include <BArray.h>
#include <BComplex.h>
#include <BoapMc.h>
```

Classes

- class BMeasureApi::Version
- class BMeasureApi::NodeInfo
- class BMeasureApi::NodeStatus
- class BMeasureApi::BoardConfig
- class BMeasureApi::ChannelConfig
- class BMeasureApi::Information
- class BMeasureApi::AlarmConfig
- class BMeasureApi::Configuration
- class BMeasureApi::ConfigItem
- class BMeasureApi::MeasurementConfig
- class BMeasureApi::DataBlock
- class BMeasureApi::DataProc
- class BMeasureApi::DataBlockProc
- class BMeasureApi::InfoBlock
- class BMeasureApi::AwgConfig
- class BMeasureApi::FilesysInfo
- class BMeasureApi::FileInfo
- class BMeasureApi::FileData
- class BMeasureApi::CalibrateInfo

Namespaces

- BMeasureApi

Enumerations

- enum BMeasureApi::ErrorNum { BMeasureApi::ErrorNumSystem = 64, BMeasureApi::ErrorNumDataOverrun = 65, BMeasureApi::ErrorNumToFast = 66 }
- enum BMeasureApi::NodeType { BMeasureApi::NodeTypeNone = 0, BMeasureApi::NodeTypeBMeasure1 = 1 }
- enum BMeasureApi::SecurityMode { BMeasureApi::SecurityModeBasic, BMeasureApi::SecurityModeConfig, BMeasureApi::SecurityModeFull }
- enum BMeasureApi::Status { BMeasureApi::StatusNone = 0x00, BMeasureApi::StatusError = 0x01, BMeasureApi::StatusWarning = 0x02, BMeasureApi::StatusRun = 0x04, BMeasureApi::StatusTriggerWait = 0x08, BMeasureApi::StatusEnd0 = 0x10, BMeasureApi::StatusEnd1 = 0x20, BMeasureApi::StatusDataOverrun = 0x40, BMeasureApi::StatusFpgaOverrun = 0x80, BMeasureApi::StatusAlarm = 0x0100 }
- enum BMeasureApi::Mode { BMeasureApi::ModeIdle = 0, BMeasureApi::ModeRun = 1, BMeasureApi::ModeRunProgram = 2, BMeasureApi::ModeInternal = 3, BMeasureApi::ModeSleep = 4, BMeasureApi::ModeDemo1 = 5 }
- enum BMeasureApi::BlockTypes { BMeasureApi::BlockTypeInfo = 0x424E4531, BMeasureApi::BlockTypeData = 0x424E4532 }
- enum BMeasureApi::ChannelType { BMeasureApi::ChannelTypeNone = 0, BMeasureApi::ChannelTypeAnalogueIn = 1, BMeasureApi::ChannelTypeAnalogueOut = 2, BMeasureApi::ChannelTypeDigitalIn = 3, BMeasureApi::ChannelTypeDigitalOut = 4 }
- enum BMeasureApi::SampleType { BMeasureApi::SampleTypeNone = 0, BMeasureApi::SampleTypeBool = 1, BMeasureApi::SampleTypeInt8 = 2, BMeasureApi::SampleTypeInt16 = 3, BMeasureApi::SampleTypeInt32 = 4, BMeasureApi::SampleTypeFloat32 = 5, BMeasureApi::SampleTypeFloat64 = 6 }
- enum BMeasureApi::SyncMode { BMeasureApi::SyncModeOff = 0, BMeasureApi::SyncModeMaster = 1, BMeasureApi::SyncModeSlave = 2 }
- enum BMeasureApi::MeasureMode { BMeasureApi::MeasureModeOff = 0, BMeasureApi::MeasureModeOneShot = 1, BMeasureApi::MeasureModeRepeat = 2, BMeasureApi::MeasureModeContinuous = 3 }
- enum BMeasureApi::MeasureOption { BMeasureApi::MeasureOptionNone = 0, BMeasureApi::MeasureOptionProcess = 0x01 }
- enum BMeasureApi::TriggerMode { BMeasureApi::TriggerModeOff = 0, BMeasureApi::TriggerModePositive = 1, BMeasureApi::TriggerModeNegative = 2 }
- enum BMeasureApi::TriggerConfig { BMeasureApi::TriggerConfigNone = 0 }
- enum BMeasureApi::DigitalMode { BMeasureApi::DigitalModeInput = 0, BMeasureApi::DigitalModeOutput = 1, BMeasureApi::DigitalModeInOut = 2, BMeasureApi::DigitalModeSyncMaster = 3, BMeasureApi::DigitalModeSyncSlave = 4 }
- enum BMeasureApi::AwgMode { BMeasureApi::AwgModeNone, BMeasureApi::AwgModeDc, BMeasureApi::AwgModeSine, BMeasureApi::AwgModeSquare, BMeasureApi::AwgModeTriangle, BMeasureApi::AwgModeNoise, BMeasureApi::AwgModeTrackRms, BMeasureApi::AwgModeTrackMean, BMeasureApi::AwgModeArbitrary }
- enum BMeasureApi::AwgOutput { BMeasureApi::AwgOutputNone, BMeasureApi::AwgOutputAO0, BMeasureApi::AwgOutputAO1, BMeasureApi::AwgOutputAO01 }
- enum BMeasureApi::FileType { BMeasureApi::FileTypeNone, BMeasureApi::FileTypeFile, BMeasureApi::FileTypeDir }
- enum BMeasureApi::FilesysDeleteType { BMeasureApi::FilesysDeleteTypeNone, BMeasureApi::FilesysDeleteTypeData, BMeasureApi::FilesysDeleteTypeFormat }
- enum BMeasureApi::LogData { BMeasureApi::LogDataOff, BMeasureApi::LogDataRaw = 0x01, BMeasureApi::LogDataProcess = 0x02 }
- enum BMeasureApi::LogDataMode { BMeasureApi::LogDataModeNormal, BMeasureApi::LogDataModeDeleteOld }

- enum BMeasureApi::DataType { BMeasureApi::DataTypeFloat32, BMeasureApi::DataType125i, BMeasureApi::DataTypeProc }
- enum BMeasureApi::DataSend { BMeasureApi::DataSendOff, BMeasureApi::DataSendStatus = 0x01, BMeasureApi::DataSendRaw = 0x02, BMeasureApi::DataSendProcessed = 0x04 }
- enum BMeasureApi::CalibrateStage { BMeasureApi::CalibrateStageNone = 0, BMeasureApi::CalibrateStageClear = 1, BMeasureApi::CalibrateStageSettle = 2, BMeasureApi::CalibrateStageAdcOffsets = 3, BMeasureApi::CalibrateStageDacOffsets = 4, BMeasureApi::CalibrateStageDacScaling0 = 5, BMeasureApi::CalibrateStageDac = 6, BMeasureApi::CalibrateStageAdcScaling = 7, BMeasureApi::CalibrateStageAttenScaling = 8, BMeasureApi::CalibrationStageFiveVolts = 9 }
- enum BMeasureApi::MessageSource { BMeasureApi::MessageSourceGeneral = 0, BMeasureApi::MessageSourceDebug = 1, BMeasureApi::MessageSourceTest = 2, BMeasureApi::MessageSourceWifi = 3, BMeasureApi::MessageSourceWifiTest = 4 }
- enum BMeasureApi::NetworkMode { BMeasureApi::NetworkModeOff = 0, BMeasureApi::NetworkModeDhcp = 1, BMeasureApi::NetworkModeManual = 2 }
- enum BMeasureApi::WifiMode { BMeasureApi::WifiModeOff, BMeasureApi::WifiModeClient, BMeasureApi::WifiModeAp }
- enum BMeasureApi::AlarmMode { BMeasureApi::AlarmModeOff, BMeasureApi::AlarmModeHigh, BMeasureApi::AlarmModeLo BMeasureApi::AlarmModeRange }
- enum BMeasureApi::AlarmOutput { BMeasureApi::AlarmOutputOff, BMeasureApi::AlarmOutputDioHigh, BMeasureApi::AlarmOutputDioLow, BMeasureApi::AlarmOutputRelayOn, BMeasureApi::AlarmOutputRelayOff }
- enum BMeasureApi::EventMode { BMeasureApi::EventModeOff, BMeasureApi::EventModeAlarm, BMeasureApi::EventModeSecond }
- enum BMeasureApi::Rs485Mode { BMeasureApi::Rs485ModeOff, BMeasureApi::Rs485ModeBoap }
- enum BMeasureApi::BMeasFileType { BMeasureApi::BMeasFileTypeBlock512, BMeasureApi::BMeasFileTypeStream }

Functions

- **BString** BMeasureApi::toBString (ErrorNum v)
- **BError** BMeasureApi::fromBString (**BString** str, ErrorNum &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, ErrorNum v)
- **BString** BMeasureApi::toBString (NodeType v)
- **BError** BMeasureApi::fromBString (**BString** str, NodeType &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, NodeType v)
- **BString** BMeasureApi::toBString (SecurityMode v)
- **BError** BMeasureApi::fromBString (**BString** str, SecurityMode &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, SecurityMode v)
- **BString** BMeasureApi::toBString (Status v)
- **BError** BMeasureApi::fromBString (**BString** str, Status &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, Status v)
- **BString** BMeasureApi::toBString (Mode v)
- **BError** BMeasureApi::fromBString (**BString** str, Mode &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, Mode v)
- **BString** BMeasureApi::toBString (BlockTypes v)
- **BError** BMeasureApi::fromBString (**BString** str, BlockTypes &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, BlockTypes v)
- **BString** BMeasureApi::toBString (ChannelType v)
- **BError** BMeasureApi::fromBString (**BString** str, ChannelType &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, ChannelType v)
- **BString** BMeasureApi::toBString (SampleType v)
- **BError** BMeasureApi::fromBString (**BString** str, SampleType &v)

- **BString** BMeasureApi::toBStringJson (**BString** n, SampleType v)
- **BString** BMeasureApi::toBString (SyncMode v)
- **BError** BMeasureApi::fromBString (**BString** str, SyncMode &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, SyncMode v)
- **BString** BMeasureApi::toBString (MeasureMode v)
- **BError** BMeasureApi::fromBString (**BString** str, MeasureMode &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, MeasureMode v)
- **BString** BMeasureApi::toBString (MeasureOption v)
- **BError** BMeasureApi::fromBString (**BString** str, MeasureOption &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, MeasureOption v)
- **BString** BMeasureApi::toBString (TriggerMode v)
- **BError** BMeasureApi::fromBString (**BString** str, TriggerMode &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, TriggerMode v)
- **BString** BMeasureApi::toBString (TriggerConfig v)
- **BError** BMeasureApi::fromBString (**BString** str, TriggerConfig &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, TriggerConfig v)
- **BString** BMeasureApi::toBString (DigitalMode v)
- **BError** BMeasureApi::fromBString (**BString** str, DigitalMode &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, DigitalMode v)
- **BString** BMeasureApi::toBString (AwgMode v)
- **BError** BMeasureApi::fromBString (**BString** str, AwgMode &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, AwgMode v)
- **BString** BMeasureApi::toBString (AwgOutput v)
- **BError** BMeasureApi::fromBString (**BString** str, AwgOutput &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, AwgOutput v)
- **BString** BMeasureApi::toBString (FileType v)
- **BError** BMeasureApi::fromBString (**BString** str, FileType &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, FileType v)
- **BString** BMeasureApi::toBString (FilesysDeleteType v)
- **BError** BMeasureApi::fromBString (**BString** str, FilesysDeleteType &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, FilesysDeleteType v)
- **BString** BMeasureApi::toBString (LogData v)
- **BError** BMeasureApi::fromBString (**BString** str, LogData &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, LogData v)
- **BString** BMeasureApi::toBString (LogDataMode v)
- **BError** BMeasureApi::fromBString (**BString** str, LogDataMode &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, LogDataMode v)
- **BString** BMeasureApi::toBString (DataType v)
- **BError** BMeasureApi::fromBString (**BString** str, DataType &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, DataType v)
- **BString** BMeasureApi::toBString (DataSend v)
- **BError** BMeasureApi::fromBString (**BString** str, DataSend &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, DataSend v)
- **BString** BMeasureApi::toBString (CalibrateStage v)
- **BError** BMeasureApi::fromBString (**BString** str, CalibrateStage &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, CalibrateStage v)
- **BString** BMeasureApi::toBString (MessageSource v)
- **BError** BMeasureApi::fromBString (**BString** str, MessageSource &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, MessageSource v)
- **BString** BMeasureApi::toBString (NetworkMode v)
- **BError** BMeasureApi::fromBString (**BString** str, NetworkMode &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, NetworkMode v)
- **BString** BMeasureApi::toBString (WifiMode v)
- **BError** BMeasureApi::fromBString (**BString** str, WifiMode &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, WifiMode v)

- **BString** BMeasureApi::toBString (AlarmMode v)
- **BError** BMeasureApi::fromBString (**BString** str, AlarmMode &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, AlarmMode v)
- **BString** BMeasureApi::toBString (AlarmOutput v)
- **BError** BMeasureApi::fromBString (**BString** str, AlarmOutput &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, AlarmOutput v)
- **BString** BMeasureApi::toBString (EventMode v)
- **BError** BMeasureApi::fromBString (**BString** str, EventMode &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, EventMode v)
- **BString** BMeasureApi::toBString (Rs485Mode v)
- **BError** BMeasureApi::fromBString (**BString** str, Rs485Mode &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, Rs485Mode v)
- **BString** BMeasureApi::toBString (BMeasFileType v)
- **BError** BMeasureApi::fromBString (**BString** str, BMeasFileType &v)
- **BString** BMeasureApi::toBStringJson (**BString** n, BMeasFileType v)

8.8 BMeasureLib.cpp File Reference

```
#include <BMeasureLib.h>
#include <BObjStringFormat.h>
#include <BDebug.h>
```

Namespaces

- BMeasureApi

Macros

- #define BDEBUGL1 0
- #define BDEBUGL2 0

Functions

- **BString** toBStringJson (**BString** n, BMeasureApi::Version v)
- **BString** toBStringJson (**BString** n, BMeasureApi::AlarmConfig v)
- **BString** toBStringJson (**BString** n, BMeasureApi::NodeInfo v)

8.8.1 Macro Definition Documentation

8.8.1.1 BDEBUGL1

```
#define BDEBUGL1 0
```

8.8.1.2 BDEBUGL2

```
#define BDEBUGL2 0
```

8.8.2 Function Documentation

8.8.2.1 toBStringJson() [1/3]

```
BString toBStringJson (
            BString n,
            BMeasureApi::Version v )
```

8.8.2.2 toBStringJson() [2/3]

```
BString toBStringJson (
            BString n,
            BMeasureApi::AlarmConfig v )
```

8.8.2.3 toBStringJson() [3/3]

```
BString toBStringJson (
            BString n,
            BMeasureApi::NodeInfo v )
```

8.9 BMeasureLib.h File Reference

```
#include <BMeasureD.h>
```

Namespaces

- BMeasureApi

Typedefs

- typedef **BArray**< ChannelConfig > BMeasureApi::ChannelConfigs

Functions

- **BString** toBStringJson (**BString** n, BMeasureApi::Version v)
- **BString** toBStringJson (**BString** n, BMeasureApi::AlarmConfig v)
- **BString** toBStringJson (**BString** n, BMeasureApi::NodeInfo v)

8.9.1 Function Documentation

8.9.1.1 toBStringJson() [1/3]

```
BString toBStringJson (
            BString n,
           BMeasureApi::Version v )
```

8.9.1.2 toBStringJson() [2/3]

```
BString toBStringJson (
            BString n,
           BMeasureApi::AlarmConfig v )
```

8.9.1.3 toBStringJson() [3/3]

```
BString toBStringJson (
            BString n,
           BMeasureApi::NodeInfo v )
```

8.10 BMeasureS.cpp File Reference

```
#include <BMeasureS.h>
#include <string.h>
```

Namespaces

- BMeasureApi

8.11 BMeasureUnit.cpp File Reference

```
#include <BMeasureUnit.h>
#include <CommsSerial.h>
#include <CommsNet.h>
#include <CommsUsb.h>
#include <BDir.h>
#include <BSys.h>
#include <libusb-1.0/libusb.h>
#include <BMdns.h>
#include <BDebug.h>
#include <unistd.h>
```

Namespaces

- BMeasureApi

Macros

- #define BDEBUGL1 0
- #define BDEBUGL2 0
- #define BDEBUGL3 0
- #define CONVERT_FLOAT 0

  Convert to floating point.

Functions

- const char * BMeasureApi::channelTypeString (ChannelType type)
- const char * BMeasureApi::sampleTypeString (SampleType type)
- **BFloat32** BMeasureApi::toFloat (**BUInt32** v)

8.11.1 Macro Definition Documentation

8.11.1.1 BDEBUGL1

```
#define BDEBUGL1 0
```

8.11.1.2 BDEBUGL2

```
#define BDEBUGL2 0
```

8.11.1.3 BDEBUGL3

```
#define BDEBUGL3 0
```

8.11.1.4 CONVERT_FLOAT

```
#define CONVERT_FLOAT 0
```

Convert to floating point.

8.12 BMeasureUnit.h File Reference

```
#include <BMeasureD.h>
#include <BMeasureB.h>
#include <BTask.h>
```

Classes

- class BMeasureApi::BMeasureUnitDevice
- class BMeasureApi::BMeasureUnit

Namespaces

- BMeasureApi

Functions

- const char * BMeasureApi::channelTypeString (ChannelType type)
- const char * BMeasureApi::sampleTypeString (SampleType type)

8.13 BMeasureUnits.cpp File Reference

```
#include <BMeasureUnits.h>
#include <BDebug.h>
#include <unistd.h>
```

Namespaces

- BMeasureApi

Macros

- #define BDEBUGL1 0
- #define BDEBUGL2 0
- #define BDEBUGL3 0

Functions

- static int BMeasureApi::unitSort (BMeasureUnit1 *&u1, BMeasureUnit1 *&u2)

8.13.1 Macro Definition Documentation

8.13.1.1 BDEBUGL1

```
#define BDEBUGL1 0
```

8.13.1.2 BDEBUGL2

```
#define BDEBUGL2 0
```

8.13.1.3 BDEBUGL3

```
#define BDEBUGL3 0
```

8.14 BMeasureUnits.h File Reference

```
#include <BMeasureUnit.h>
#include <BMutex.h>
#include <BSemaphore.h>
```

Classes

- class BMeasureApi::BMeasureUnit1
- class BMeasureApi::BMeasureUnitsDataBlock
- class BMeasureApi::BMeasureUnits

Namespaces

- BMeasureApi

8.15 CommsNet.cpp File Reference

```
#include <CommsNet.h>
#include <BPoll.h>
#include <BSys.h>
#include <BDebug.h>
#include <string.h>
```

Namespaces

- BMeasureApi

Macros

- #define BDEBUGL1 0
- #define BDEBUGL2 0
- #define BDEBUGL3 0

8.15.1 Macro Definition Documentation

8.15.1.1 BDEBUGL1

```
#define BDEBUGL1 0
```

8.15.1.2 BDEBUGL2

```
#define BDEBUGL2 0
```

8.15.1.3 BDEBUGL3

```
#define BDEBUGL3 0
```

8.16 CommsNet.h File Reference

```
#include <BComms.h>
#include <BSocket.h>
```

Classes

- class BMeasureApi::CommsNet

Namespaces

- BMeasureApi

8.17 CommsSerial.cpp File Reference

8.18 CommsSerial.h File Reference

```
#include <BComms.h>
```

Classes

- class BMeasureApi::CommsSerial

Namespaces

- BMeasureApi

8.19 CommsUsb.cpp File Reference

```
#include <CommsUsb.h>
#include <BSys.h>
#include <libusb-1.0/libusb.h>
#include <stdio.h>
#include <stdlib.h>
#include <BDebug.h>
```

Namespaces

- BMeasureApi

Macros

- #define BDEBUGL1 0
- #define BDEBUGL2 0

Functions

- static **BUInt32** BMeasureApi::roundDown512 (**BUInt32** size)

8.19.1 Macro Definition Documentation

8.19.1.1 BDEBUGL1

```
#define BDEBUGL1 0
```

8.19.1.2 BDEBUGL2

```
#define BDEBUGL2 0
```

8.20 CommsUsb.h File Reference

```
#include <BComms.h>
#include <BMutex.h>
#include <libusb-1.0/libusb.h>
```

Classes

- class BMeasureApi::CommsUsb

Namespaces

- BMeasureApi

8.21 DataFile.cpp File Reference

```
#include <DataFile.h>
#include <BoapMc1.h>
#include <BBuffer.h>
#include <BDebug.h>
#include <errno.h>
```

Namespaces

- BMeasureApi

Macros

- #define BDEBUGL1 0
- #define BDEBUGL2 0

Enumerations

- enum BMeasureApi::TdsDataType {
  BMeasureApi::TdsTypeVoid, BMeasureApi::TdsTypeI8, BMeasureApi::TdsTypeI16, BMeasureApi::TdsTypeI32,
  BMeasureApi::TdsTypeI64, BMeasureApi::TdsTypeU8, BMeasureApi::TdsTypeU16, BMeasureApi::TdsTypeU32,
  BMeasureApi::TdsTypeU64, BMeasureApi::TdsTypeSingleFloat, BMeasureApi::TdsTypeDoubleFloat,
  BMeasureApi::TdsTypeExtendedFloat,
  BMeasureApi::TdsTypeSingleFloatWithUnit =0x19, BMeasureApi::TdsTypeDoubleFloatWithUnit, BMeasureApi::TdsTypeExtend
  BMeasureApi::TdsTypeString =0x20,
  BMeasureApi::TdsTypeBoolean =0x21, BMeasureApi::TdsTypeTimeStamp =0x44, BMeasureApi::TdsTypeFixedPoint
  =0x4F, BMeasureApi::TdsTypeComplexSingleFloat =0x08000c,
  BMeasureApi::TdsTypeComplexDoubleFloat =0x10000d, BMeasureApi::TdsTypeDAQmxRawData =0xFF↩
  FFFFFF }

Functions

- const **BUInt32** BMeasureApi::TocMetaData (1<< 1)
- const **BUInt32** BMeasureApi::TocNewObjList (1<< 2)
- const **BUInt32** BMeasureApi::TocRawData (1<< 3)
- const **BUInt32** BMeasureApi::TocInterleavedData (1<< 5)
- const **BUInt32** BMeasureApi::TocBigEndian (1<< 6)
- const **BUInt32** BMeasureApi::TocDaqRawData (1<< 7)
- **BUInt32** BMeasureApi::round512 (**BUInt32** s)

8.21.1 Macro Definition Documentation

8.21.1.1 BDEBUGL1

```
#define BDEBUGL1 0
```

8.21.1.2 BDEBUGL2

```
#define BDEBUGL2 0
```

8.22 DataFile.h File Reference

```
#include <BString.h>
#include <BFile.h>
#include <BMeasureLib.h>
#include <BoapMc1.h>
```

Classes

- class BMeasureApi::DataFile

Namespaces

- BMeasureApi

8.23 Dfu.cpp File Reference

```
#include <Dfu.h>
#include <BFile.h>
#include <BDebug.h>
#include <unistd.h>
```

Classes

- struct BFirmwareInfo

Macros

- #define BDEBUGL1 0
- #define BDEBUGL2 0
- #define STATE_APP_IDLE 0x00
- #define STATE_APP_DETACH 0x01
- #define STATE_DFU_IDLE 0x02
- #define STATE_DFU_DOWNLOAD_SYNC 0x03
- #define STATE_DFU_DOWNLOAD_BUSY 0x04
- #define STATE_DFU_DOWNLOAD_IDLE 0x05
- #define STATE_DFU_MANIFEST_SYNC 0x06
- #define STATE_DFU_MANIFEST 0x07
- #define STATE_DFU_MANIFEST_WAIT_RESET 0x08
- #define STATE_DFU_UPLOAD_IDLE 0x09
- #define STATE_DFU_ERROR 0x0a
- #define DFU_STATUS_OK 0x00
- #define DFU_STATUS_ERROR_TARGET 0x01
- #define DFU_STATUS_ERROR_FILE 0x02
- #define DFU_STATUS_ERROR_WRITE 0x03
- #define DFU_STATUS_ERROR_ERASE 0x04

- #define DFU_STATUS_ERROR_CHECK_ERASED 0x05
- #define DFU_STATUS_ERROR_PROG 0x06
- #define DFU_STATUS_ERROR_VERIFY 0x07
- #define DFU_STATUS_ERROR_ADDRESS 0x08
- #define DFU_STATUS_ERROR_NOTDONE 0x09
- #define DFU_STATUS_ERROR_FIRMWARE 0x0a
- #define DFU_STATUS_ERROR_VENDOR 0x0b
- #define DFU_STATUS_ERROR_USBR 0x0c
- #define DFU_STATUS_ERROR_POR 0x0d
- #define DFU_STATUS_ERROR_UNKNOWN 0x0e
- #define DFU_STATUS_ERROR_STALLEDPKT 0x0f
- #define DFU_DETACH 0
- #define DFU_DNLOAD 1
- #define DFU_UPLOAD 2
- #define DFU_GETSTATUS 3
- #define DFU_CLRSTATUS 4
- #define DFU_GETSTATE 5
- #define DFU_ABORT 6
- #define DFU_IFF_DFU 0x0001 /∗ DFU Mode, (not Runtime) ∗/
- #define DFU_IFF_VENDOR 0x0100
- #define DFU_IFF_PRODUCT 0x0200
- #define DFU_IFF_CONFIG 0x0400
- #define DFU_IFF_IFACE 0x0800
- #define DFU_IFF_ALT 0x1000
- #define DFU_IFF_DEVNUM 0x2000
- #define DFU_IFF_PATH 0x4000

Enumerations

- enum dfuse_command { SET_ADDRESS, ERASE_PAGE, MASS_ERASE, READ_UNPROTECT }

Functions

- static **BInt32** pageNumber (**BUInt32** address)
- static **BUInt32** pageAddress (**BUInt32** page)

Variables

- const **BUInt32** BFirmwareInfoMagic = 0xBBEEAA00
- const **BUInt8** BFirmwareInfoEncrypt1 = 0x40

8.23.1 Macro Definition Documentation

8.23.1.1 BDEBUGL1

```
#define BDEBUGL1 0
```

8.23.1.2 BDEBUGL2

```
#define BDEBUGL2 0
```

8.23.1.3 DFU_ABORT

```
#define DFU_ABORT 6
```

8.23.1.4 DFU_CLRSTATUS

```
#define DFU_CLRSTATUS 4
```

8.23.1.5 DFU_DETACH

```
#define DFU_DETACH 0
```

8.23.1.6 DFU_DNLOAD

```
#define DFU_DNLOAD 1
```

8.23.1.7 DFU_GETSTATE

```
#define DFU_GETSTATE 5
```

8.23.1.8 DFU_GETSTATUS

```
#define DFU_GETSTATUS 3
```

8.23.1.9 DFU_IFF_ALT

```
#define DFU_IFF_ALT 0x1000
```

8.23.1.10 DFU_IFF_CONFIG

```
#define DFU_IFF_CONFIG 0x0400
```

8.23.1.11 DFU_IFF_DEVNUM

```
#define DFU_IFF_DEVNUM 0x2000
```

8.23.1.12 DFU_IFF_DFU

```
#define DFU_IFF_DFU 0x0001 /* DFU Mode, (not Runtime) */
```

8.23.1.13 DFU_IFF_IFACE

```
#define DFU_IFF_IFACE 0x0800
```

8.23.1.14 DFU_IFF_PATH

```
#define DFU_IFF_PATH 0x4000
```

8.23.1.15 DFU_IFF_PRODUCT

```
#define DFU_IFF_PRODUCT 0x0200
```

8.23.1.16 DFU_IFF_VENDOR

```
#define DFU_IFF_VENDOR 0x0100
```

8.23.1.17 DFU_STATUS_ERROR_ADDRESS

```
#define DFU_STATUS_ERROR_ADDRESS 0x08
```

8.23.1.18 DFU_STATUS_ERROR_CHECK_ERASED

```
#define DFU_STATUS_ERROR_CHECK_ERASED 0x05
```

8.23.1.19 DFU_STATUS_ERROR_ERASE

```
#define DFU_STATUS_ERROR_ERASE 0x04
```

8.23.1.20 DFU_STATUS_ERROR_FILE

```
#define DFU_STATUS_ERROR_FILE 0x02
```

8.23.1.21 DFU_STATUS_ERROR_FIRMWARE

```
#define DFU_STATUS_ERROR_FIRMWARE 0x0a
```

8.23.1.22 DFU_STATUS_ERROR_NOTDONE

```
#define DFU_STATUS_ERROR_NOTDONE 0x09
```

8.23.1.23 DFU_STATUS_ERROR_POR

```
#define DFU_STATUS_ERROR_POR 0x0d
```

8.23.1.24 DFU_STATUS_ERROR_PROG

```
#define DFU_STATUS_ERROR_PROG 0x06
```

8.23.1.25 DFU_STATUS_ERROR_STALLEDPKT

```
#define DFU_STATUS_ERROR_STALLEDPKT 0x0f
```

8.23.1.26 DFU_STATUS_ERROR_TARGET

```
#define DFU_STATUS_ERROR_TARGET 0x01
```

8.23.1.27 DFU_STATUS_ERROR_UNKNOWN

```
#define DFU_STATUS_ERROR_UNKNOWN 0x0e
```

8.23.1.28 DFU_STATUS_ERROR_USBR

```
#define DFU_STATUS_ERROR_USBR 0x0c
```

8.23.1.29 DFU_STATUS_ERROR_VENDOR

```
#define DFU_STATUS_ERROR_VENDOR 0x0b
```

8.23.1.30 DFU_STATUS_ERROR_VERIFY

```
#define DFU_STATUS_ERROR_VERIFY 0x07
```

8.23.1.31 DFU_STATUS_ERROR_WRITE

```
#define DFU_STATUS_ERROR_WRITE 0x03
```

8.23.1.32 DFU_STATUS_OK

```
#define DFU_STATUS_OK 0x00
```

8.23.1.33 DFU_UPLOAD

```
#define DFU_UPLOAD 2
```

8.23.1.34 STATE_APP_DETACH

```
#define STATE_APP_DETACH 0x01
```

8.23.1.35 STATE_APP_IDLE

```
#define STATE_APP_IDLE 0x00
```

8.23.1.36 STATE_DFU_DOWNLOAD_BUSY

```
#define STATE_DFU_DOWNLOAD_BUSY 0x04
```

8.23.1.37 STATE_DFU_DOWNLOAD_IDLE

```
#define STATE_DFU_DOWNLOAD_IDLE 0x05
```

8.23.1.38 STATE_DFU_DOWNLOAD_SYNC

```
#define STATE_DFU_DOWNLOAD_SYNC 0x03
```

8.23.1.39 STATE_DFU_ERROR

```
#define STATE_DFU_ERROR 0x0a
```

8.23.1.40 STATE_DFU_IDLE

```
#define STATE_DFU_IDLE 0x02
```

8.23.1.41 STATE_DFU_MANIFEST

```
#define STATE_DFU_MANIFEST 0x07
```

8.23.1.42 STATE_DFU_MANIFEST_SYNC

```
#define STATE_DFU_MANIFEST_SYNC 0x06
```

8.23.1.43 STATE_DFU_MANIFEST_WAIT_RESET

```
#define STATE_DFU_MANIFEST_WAIT_RESET 0x08
```

8.23.1.44 STATE_DFU_UPLOAD_IDLE

```
#define STATE_DFU_UPLOAD_IDLE 0x09
```

8.23.2 Enumeration Type Documentation

8.23.2.1 dfuse_command

```
enum dfuse_command
```

Enumerator

SET_ADDRESS	
ERASE_PAGE	
MASS_ERASE	
READ_UNPROTECT	

8.23.3 Function Documentation

8.23.3.1 pageAddress()

```
static BUInt32 pageAddress (
            BUInt32 page ) [static]
```

8.23.3.2 pageNumber()

```
static BInt32 pageNumber (
            BUInt32 address ) [static]
```

8.23.4 Variable Documentation

8.23.4.1 BFirmwareInfoEncrypt1

```
const BUInt8 BFirmwareInfoEncrypt1 = 0x40
```

8.23.4.2 BFirmwareInfoMagic

```
const BUInt32 BFirmwareInfoMagic = 0xBBEEAA00
```

8.24 Dfu.h File Reference

```
#include <BError.h>
#include <libusb-1.0/libusb.h>
```

Classes

- struct DfuStatus
- class Dfu

  The Dfu access class.

8.25 overview.dox File Reference

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