daM3System

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Chapter 1

daM3System code documentation

1.1 Introduction

daM3System stands for data acquisition magnetic moments and MOKE.
This software is designed for controlling VSM and MOKE setups. Please find more abstract ducumentation here: (/doc/ppt). You need MATLab® and the Data Acquisition Toolbox™ and optional the Statistics Toolbox™ in order to compile this software.

Files

```
\VSM-Prog

        +PkgAdvGUI\               : Class package
        +PkgAnalogIO\             : Class package
        +PkgHardwExt\             : Class package

        @Config\                  : Class in seperate directory
        @DataFilter\              : Class in seperate directory
        @ErrorHandler\            : Class in seperate directory
        @MagField\                : Class in seperate directory
        @MagnetizationCurve\      : Class in seperate directory
        @Measurement\             : Class in seperate directory
        @MeasurementFile\         : Class in seperate directory
        daM3System\               : Class in seperate directory
        daM3System_resources\     : Class in seperate directory
        doc\                      : Code documentation
        doxygen\                  : Temporary path for doxygen generation
        .git\                     : GitHub distributed code revision

        .gitattributes            : GitHub
        .gitignore                : GitHub
        Doxyfile                  : Doxygen configuration file
        daM3System.m              : Application main file
        daM3System.prj            : Compiler project
        daqtest.txt               : Hardware DAQ test report
        error_log.mat             : ErrorHandler log file (track some exceptions using ErrorHandler class)
        fake_pickup.dat           : Data file for Fake_AnalogInAndOut hardware emulation
        fake_pickup_dn.dat        : Data file for Fake_AnalogInAndOut hardware emulation
        fake_pickup_up.dat        : Data file for Fake_AnalogInAndOut hardware emulation
        figCfgMain.fig            : Main configuration window
        figCfgMain.m              : Main configuration window
        figFieldControl.fig       : Manual field control and hall probe calibration window
        figFieldControl.m         : Manual field control and hall probe calibration window
        fileReadSample.m          : Example for loading measurement data files for further processing throu
       Matlab
        findjobj.m                : Access Java handles
        findjobj_license.txt      : Access Java handles licence file from findjobj-author
        fMPlot.fig                : Measurement setup window
        fMPlot.m                  : Measurement setup window
        gen_cpp.bat               : Doxygen: generate cpp header files
        GuiCfg.m                  : Central GUI configuration for VSM and MOKE (string table and some
      default values)
        Logo.png                  : Splash
        Logo3_k.png               : Icon
        mag_curce_sample.dat      : Data file for Fake_AnalogInAndOut hardware emulation
        MFieldCalibration_1.mat   : Magnet calibration file
        MFieldCalibration_2.mat   : Magnet calibration file
        MFieldCalibration_3.mat   : Magnet calibration file
        MFieldCalibration_4.mat   : Magnet calibration file
```

```
prepareDocu.m             : Prepare code for Doxygen
Singleton.m               : Singleton design pattern
VSM_Config.mat            : Default configuration file
```

Chapter 2

Hierarchical Index

2.1 Class Hierarchy

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

AnalogIn_digilent . . . 9
AnalogIn_mcc . . . 11
  AnalogIO . . . 17
AnalogOut_mcc . . . 28
  AnalogIO . . . 17
ArduinoIO . . . 33
CfgBoolean . . . 35
CfgStrOrNum . . . 43
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hgsetget . . . 77
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PhyEditBox . . . 105
Singleton . . . 116
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SweepPanel . . . 117
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Chapter 3

Class Index

3.1 Class List

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

AnalogIn_digilent
: AnalogIO class . . . 9

AnalogIn_mcc
: Handles analog input for cards using DAQ-toolbox leagacy interface . . . 11

AnalogIO
: Anaolog In/Out implementation using DAQ-Toolbox legacy interface (tested with Measurement Computing and National Instruments Hardware) . . . 17

AnalogOut_mcc
: AnalogIO class . . . 28

ArduinoIO . . . 33

CfgBoolean
: Extends a check box in order to automatically update the corresponding Config parameter . . . 35

CfgRange
: Extends a text box in order to accept numeric ranges (2 dim arrays like "-10 10") and automatically update the corresponding Config parameter . . . 37

CfgStr
: Extends a text box in order to accept string values and automatically update the corresponding Config parameter . . . 41

CfgStrOrNum
: Extends a text box in order to accept numeric an string values and automatically update the corresponding Config parameter . . . 43

Config
: Configuration class . . . 46

CustomController . . . 59

DataFilter
: DataFilter class (filters noise of acquired data) . . . 61

DataPlot
: DataPlot class (graphical representation of data) . . . 62

ErrorHandler
: Logs Exceptions and stores them in error_log.mat Most IO and other Exceptions are saved in error_log.mat and hence can be reviewed using static functions of the ErrorHandler class . . . 68

Fake_AnalogInAndOut
: AnalogIO class . . . 69

GuiCfg . . . 75

hgsetget . . . 77

HWController . . . 78

InterlockGUIElements
You can add GUI elements (eg. at window initialization) and enable/disable them all together enywhre else . . . 80
LevelBar
Extends an Axes object to act as a level bar . . . 81
MagField
MagField class; magnetic field calculation, calibration . . . 85
MagnetizationCurve
MagnetizationCurve class (represents data of entire magnetization curve) . . . 90
Measurement
Main functions for Measurement and Calibration; Contains main parts of measurement logic . . . 95
MeasurementFile
MeasurementFile class (saves/loads measured data); See m for an example . . . 96
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NoController . . . 103
PhyEditBox
Extends a text box in order to show SI values with units (kg, mA, ...) . . . 105
RangeTable
Extends a UITable with PhyEditBox capabilities . . . 108
Singleton . . . 116
SweepPanel
Holds and organizes all tables options and buttons for the sweep configuration inside the fMPlot window . . . 117
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Extends a UITable with PhyEditBox capabilities and and provides the sweep sequence . . . 121
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Chapter 4

File Index

4.1 File List

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C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/findjobj.cpp . . . 152
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C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/GuiCfg.cpp . . . 159
C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/HWController.cpp . . . 159
C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/InterlockGUIElements.cpp . . . 159
C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/LevelBar.cpp . . . 160
C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/M3System.cpp . . . 160
C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/MagField.cpp . . . 160
C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/MagnetizationCurve.cpp . . . 160
C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/magnetizationLoop.cpp . . . 160
C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/Measurement.cpp . . . 160
C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/MeasurementFile.cpp . . . 161
C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/NetIO.cpp . . . 161
C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/NoController.cpp . . . 161
C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/PhyEditBox.cpp . . . 161
C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/prepareDocu.cpp . . . 161
C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/RangeTable.cpp . . . 162

C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/show_stddev.cpp 162
C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/Singleton.cpp 162
C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/sinum.cpp 162
C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/sipre.cpp 162
C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/SweepPanel.cpp 163
C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/SweepTable.cpp 163
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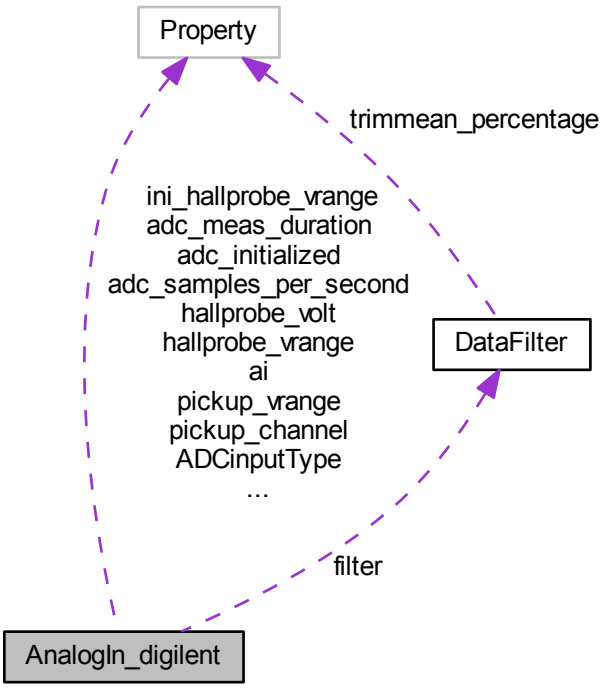
Chapter 5

Class Documentation

5.1 AnalogIn_digilent Class Reference

AnalogIO class.

Collaboration diagram for AnalogIn_digilent:



Public Member Functions

- function AnalogIn_digilent ()
- function _delete (in obj)
- function getHWinfoADC (in obj)

- function getInputRanges (in obj)
- function acquire_adc (in obj)
- function setPickupVrange (in obj, in range)

Public Attributes

- Constant Property ADCCard_device_id
- Constant Property ADCinputType
- Constant Property pickup_channel
- Constant Property pickup_q_channel
- Constant Property ini_pickup_vrange
- Constant Property ini_hallprobe_vrange
- Property adc_initialized
- Property pickup
- Property pickup_q
- Property hallprobe_volt
- DataFilter filter

Protected Attributes

- Property ai
- Property pickup_vrange
- Property hallprobe_vrange
- Property adc_samples_per_second
- Property adc_meas_duration

Private Member Functions

- function cleanUp (in obj)

5.1.1 Detailed Description

AnalogIO class.

reads and filters from ADC-hardware + writes to DAC

5.1.2 Constructor & Destructor Documentation

5.1.2.1 function AnalogIn_digilent ( )

5.1.3 Member Function Documentation

5.1.3.1 function _delete (in *obj*)

5.1.3.2 function acquire_adc (in *obj*)

5.1.3.3 function cleanUp (in *obj*) [private]

5.1.3.4 function getHWinfoADC (in *obj*)

5.1.3.5 function getInputRanges (in *obj*)

5.1.3.6 function setPickupVrange (in *obj,* in *range*)

5.1.4 Member Data Documentation

5.1.4.1 Property adc_initialized

5.1.4.2 Property adc_meas_duration [protected]

5.1.4.3 Property adc_samples_per_second [protected]

5.1.4.4 Constant Property ADCCard_device_id

5.1.4.5 Constant Property ADCinputType

5.1.4.6 Property ai [protected]

5.1.4.7 DataFilter filter

5.1.4.8 Property hallprobe_volt

5.1.4.9 Property hallprobe_vrange [protected]

5.1.4.10 Constant Property ini_hallprobe_vrange

5.1.4.11 Constant Property ini_pickup_vrange

5.1.4.12 Property pickup

5.1.4.13 Constant Property pickup_channel

5.1.4.14 Property pickup_q

5.1.4.15 Constant Property pickup_q_channel

5.1.4.16 Property pickup_vrange [protected]

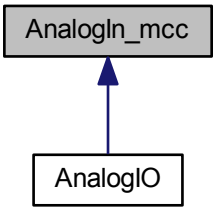
The documentation for this class was generated from the following file:

- C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/AnalogIn_digilent.cpp

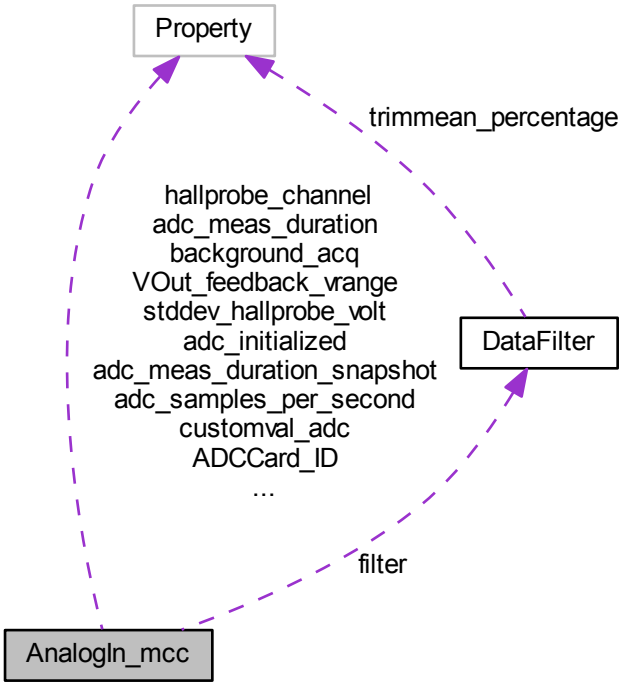
5.2 AnalogIn_mcc Class Reference

Handles analog input for cards using DAQ-toolbox leagacy interface.

Inheritance diagram for AnalogIn_mcc:



Collaboration diagram for AnalogIn_mcc:



Public Member Functions

- function AnalogIn_mcc ()
- function _delete (in obj)
- function getHWinfoADC (in obj)

  Returns short hardware configuration report.
- function getInputRanges (in obj)
- function acquire_adc (in obj, in meas_duration)

Captures all configured analog input channels.

- function fetchBuffer_adc (in obj)

  Used with background capture mode; Processes analog data captured so far and clears data buffer.
- function startBackground_adc (in obj)

  Starts continuous data acuisition in the background.
- function stopBackground_adc (in obj)

  Stops continuous data acuisition in the background.
- function setPickupVrange (in obj, in range)
- function setHallprobeVrange (in obj, in range)

Public Attributes

- Constant Property ADCinputType

  Input type to verify; use InstaCal to change.
- Constant Property VOut_feedback_vrange

  has to be >= magnet_powersupply_vrange !!
- Property ai
- Property adc_initialized

  sucessfully initialized analog input
- Property pickup

  Pickup/Signal ADC input returned by .acquire()
- Property pickup_q

  Quadrature/Signal2 ADC input returned by .acquire()
- Property hallprobe_volt

  Hall probe amplifier ADC input returned by .acquire()
- Property customval_adc

  Custom ADC input returned by .acquire()
- Property stddev_pickup

  Standard deviation of filtered signal input.
- Property stddev_pickup_q

  Standard deviation of filtered signal2 input.
- Property stddev_hallprobe_volt

  Standard deviation of magnetic field readings.
- DataFilter filter

  Raw measurement data Filter. Filters data for a single data point.
- Property background_acq

  continuously background acquisition is running

Protected Attributes

- Property ADCCard_ID

  Unique Card identification used by Matlab ('DEV1',0,...)
- Property pickup_channel

  channel of pickup/signal
- Property pickup_q_channel

  channel of quadrature/another signal to capture
- Property hallprobe_channel

  channel of hall prope amplifier
- Property feedback_channel

  connected to V-Out for correct startup of DAC output; optional

- Property customval_channel

  optional channel for additional analog data (eg. angle)
- Property pickup_vrange

  Input range [Volt] for pickup/signal channels.
- Property hallprobe_vrange

  Input range [Volt] for hallprobe channels.
- Property adc_samples_per_second
- Property adc_meas_duration

  meas. duration of .acquire()
- Property adc_meas_duration_snapshot

  duration of .acquire_snapshot()
- Property initial_magnet_vout

  initial output of DAC

Private Member Functions

- function cleanUp (in obj)

5.2.1 Detailed Description

Handles analog input for cards using DAQ-toolbox leagacy interface.

reads and filters from ADC-hardware

5.2.2 Constructor & Destructor Documentation

5.2.2.1 function AnalogIn_mcc ( )

5.2.3 Member Function Documentation

5.2.3.1 function _delete (in *obj*)

5.2.3.2 function acquire_adc (in *obj,* in *meas_duration*)

Captures all configured analog input channels.

Parameters

meas_duration	[s] Measurement time for capturing analog data

Return values

ok	1=success, 0=error

5.2.3.3 function cleanUp (in *obj*) [private]

5.2.3.4 function fetchBuffer_adc (in *obj*)

Used with background capture mode; Processes analog data captured so far and clears data buffer.

Data is stored in properties pickup, pickup_q, ...

Return values

ok	1=success, 0=error

5.2.3.5 function getHWinfoADC (in *obj*)

Returns short hardware configuration report.

Return values

hw_info	short hardware info as string

5.2.3.6 function getInputRanges (in *obj*)

5.2.3.7 function setHallprobeVrange (in *obj,* in *range*)

5.2.3.8 function setPickupVrange (in *obj,* in *range*)

5.2.3.9 function startBackground_adc (in *obj*)

Starts continuous data acuisition in the background.

Sample rate is defined in Config.adc_samplerate_cont Use .fetchBuffer_adc to receive data.

Return values

ok	1=success, 0=error

5.2.3.10 function stopBackground_adc (in *obj*)

Stops continuous data acuisition in the background.

Return values

ok	1=success, 0=error

5.2.4 Member Data Documentation

5.2.4.1 Property adc_initialized

sucessfully initialized analog input

5.2.4.2 Property adc_meas_duration [protected]

meas. duration of .acquire()

5.2.4.3 Property adc_meas_duration_snapshot [protected]

duration of .acquire_snapshot()

5.2.4.4 Property adc_samples_per_second [protected]

5.2.4.5 Property ADCCard_ID [protected]

Unique Card identification used by Matlab ('DEV1',0,...)

5.2.4.6 Constant Property ADCinputType

Input type to verify; use InstaCal to change.

5.2.4.7 Property ai

5.2.4.8 Property background_acq

continuously background acquisition is running

5.2.4.9 Property customval_adc

Custom ADC input returned by .acquire()

5.2.4.10 Property customval_channel [protected]

optional channel for additional analog data (eg. angle)

5.2.4.11 Property feedback_channel [protected]

connected to V-Out for correct startup of DAC output; optional

5.2.4.12 DataFilter filter

Raw measurement data Filter. Filters data for a single data point.

5.2.4.13 Property hallprobe_channel [protected]

channel of hall prope amplifier

5.2.4.14 Property hallprobe_volt

Hall probe amplifier ADC input returned by .acquire()

5.2.4.15 Property hallprobe_vrange [protected]

Input range [Volt] for hallprobe channels.

5.2.4.16 Property initial_magnet_vout [protected]

initial output of DAC

5.2.4.17 Property pickup

Pickup/Signal ADC input returned by .acquire()

5.2.4.18 Property pickup_channel [protected]

channel of pickup/signal

5.2.4.19 Property pickup_q

Quadrature/Signal2 ADC input returned by .acquire()

5.2.4.20 Property pickup_q_channel [protected]

channel of quadrature/another signal to capture

5.2.4.21 Property pickup_vrange [protected]

Input range [Volt] for pickup/signal channels.

5.2.4.22 Property stddev_hallprobe_volt

Standard deviation of magnetic field readings.

5.2.4.23 Property stddev_pickup

Standard deviation of filtered signal input.

5.2.4.24 Property stddev_pickup_q

Standard deviation of filtered signal2 input.

5.2.4.25 Constant Property VOut_feedback_vrange

has to be >= magnet_powersupply_vrange !!

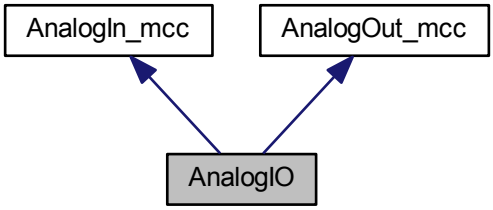
The documentation for this class was generated from the following file:

- C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/AnalogIn_mcc.cpp

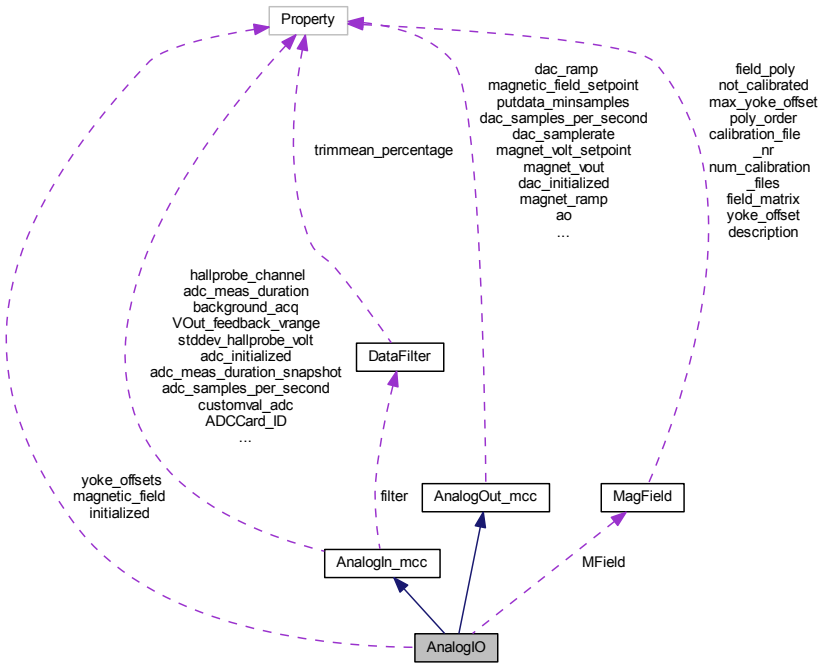
5.3 AnalogIO Class Reference

Anaolog In/Out implementation using DAQ-Toolbox legacy interface (tested with Measurement Computing and National Instruments Hardware)

Inheritance diagram for AnalogIO:



Collaboration diagram for AnalogIO:



Public Member Functions

- function AnalogIO ()

  Class constructor Establishes connection to Analog In/Out Hardware.
- function acquire (in obj)

  Captures all configured analog channels Data is stored in properties pickup, pickup_q, ...
- function acquire_snapshot (in obj)

  Captures analog data just for a short time interval ADC duration: `Config.adc_snapshot_duration` Data is stored in properties pickup, pickup_q, ...
- function fetchBuffer (in obj)

  Used with background capture mode; Processes analog data captured so far and clears data buffer.

- function getHWinfo (in obj)

  Returns short hardware configuration report.
- function setMField (in obj, in field, in monotone)

  Drives magnet power supply using yoke calibration in order to reach a specified field strength.
- function getReachTimeField (in obj, in field)

  Get time amount it takes to reach a spectified field strength.
- function resetFieldOffset (in obj)

  Clears recorded offset list (field setpoint vs.
- function checkFieldOffset (in obj)

  Get time amount it takes to reach a spectified field strength.
- function constrain (in obj, in inval, in range)
- function failSafe (in obj)

  Try to sweep down field in case of an error; if connection to hardware is broken reestablishes connection and tries again.
- function _delete (in obj)
- function getHWinfoADC (in obj)

  Returns short hardware configuration report.
- function getInputRanges (in obj)
- function acquire_adc (in obj, in meas_duration)

  Captures all configured analog input channels.
- function fetchBuffer_adc (in obj)

  Used with background capture mode; Processes analog data captured so far and clears data buffer.
- function startBackground_adc (in obj)

  Starts continuous data acuisition in the background.
- function stopBackground_adc (in obj)

  Stops continuous data acuisition in the background.
- function setPickupVrange (in obj, in range)
- function setHallprobeVrange (in obj, in range)
- function _delete (in obj)
- function getHWinfoDAC (in obj)

  Returns short hardware configuration report.
- function getOutputRanges (in obj)
- function getReachTime (in obj, in volt_setpoint)

  Get time amount it takes to reach a spectified output voltage by DAC.
- function reachMagnet (in obj, in volt_setpoint)

  Drives DAC output for magnet power supply.
- function getDACout (in obj)

  Currently expected output voltage of DAC.

Static Public Member Functions

- static function interrupt (in cmd, in AnaIO)

  Interrupts data acquisition; used for measurement abortion
  `interrupt('set', AnaIO)` *: Set AnaIO as current Analog in/out connection that should be able to be interrupted*
  `interrupt('ai')` *: Interrupt current analog output*
  `interrupt('ao')` *: Interrupt current analog input acquisition*
  `interrupt()` *: Interrupt current analog input and output*
  `interrupt('reset')` *: Remove currend AnaIO object*

Public Attributes

- Property initialized
- Property magnetic_field

  [Oe] determined by hallprobe
- MagField MField

  Functions for magnet and field.
- Property yoke_offsets

  :field_sp :offset
- Constant Property ADCinputType

  Input type to verify; use InstaCal to change.
- Constant Property VOut_feedback_vrange

  has to be >= magnet_powersupply_vrange !!
- Property ai
- Property adc_initialized

  sucessfully initialized analog input
- Property pickup

  Pickup/Signal ADC input returned by .acquire()
- Property pickup_q

  Quadrature/Signal2 ADC input returned by .acquire()
- Property hallprobe_volt

  Hall probe amplifier ADC input returned by .acquire()
- Property customval_adc

  Custom ADC input returned by .acquire()
- Property stddev_pickup

  Standard deviation of filtered signal input.
- Property stddev_pickup_q

  Standard deviation of filtered signal2 input.
- Property stddev_hallprobe_volt

  Standard deviation of magnetic field readings.
- DataFilter filter

  Raw measurement data Filter. Filters data for a single data point.
- Property background_acq

  continuously background acquisition is running
- Constant Property magnet_powersupply_vrange

  DACCard_ID = 0 DAC_samplerate = 1000 magnet_powersupply_channel = 0.
- Constant Property putdata_minsamples

  Moke IO card requires at least 6 samples.
- Property ao
- Property dac_samples_per_second

  current rate
- Property dac_initialized
- Property magnet_vout
- Property magnetic_field_setpoint

Protected Attributes

- Property ADCCard_ID

  Unique Card identification used by Matlab ('DEV1',0,...)
- Property pickup_channel

  channel of pickup/signal
- Property pickup_q_channel

  channel of quadrature/another signal to capture
- Property hallprobe_channel

  channel of hall prope amplifier
- Property feedback_channel

  connected to V-Out for correct startup of DAC output; optional
- Property customval_channel

  optional channel for additional analog data (eg. angle)
- Property pickup_vrange

  Input range [Volt] for pickup/signal channels.
- Property hallprobe_vrange

  Input range [Volt] for hallprobe channels.
- Property adc_samples_per_second
- Property adc_meas_duration

  meas. duration of .acquire()
- Property adc_meas_duration_snapshot

  duration of .acquire_snapshot()
- Property initial_magnet_vout

  initial output of DAC

5.3.1 Detailed Description

Anaolog In/Out implementation using DAQ-Toolbox legacy interface (tested with Measurement Computing and National Instruments Hardware)

reads and filters from ADC-hardware + writes to DAC

5.3.2 Constructor & Destructor Documentation

5.3.2.1 function AnalogIO ( )

Class constructor Establishes connection to Analog In/Out Hardware.

Returns

instance of AnalogIO.

5.3.3 Member Function Documentation

5.3.3.1 function _delete (in *obj*) [inherited]

5.3.3.2 function _delete (in *obj*) [inherited]

5.3.3.3 function acquire (in *obj*)

Captures all configured analog channels Data is stored in properties pickup, pickup_q, ...

Return values

ok	1=success, 0=error

5.3.3.4 function acquire_adc (in *obj,* in *meas_duration*) [inherited]

Captures all configured analog input channels.

Parameters

meas_duration	[s] Measurement time for capturing analog data

Return values

ok	1=success, 0=error

5.3.3.5 function acquire_snapshot (in *obj*)

Captures analog data just for a short time interval ADC duration: `Config.adc_snapshot_duration` Data is stored in properties pickup, pickup_q, ...

Return values

ok	1=success, 0=error

5.3.3.6 function checkFieldOffset (in *obj*)

Get time amount it takes to reach a specified field strength.

Parameters

field	Magnetic field setpoint

Return values

rtime	Time in seconds

5.3.3.7 function constrain (in *obj,* in *inval,* in *range*)

5.3.3.8 function failSafe (in *obj*)

Try to sweep down field in case of an error; if connection to hardware is broken reestablishes connection and tries again.

5.3.3.9 function fetchBuffer (in *obj*)

Used with background capture mode; Processes analog data captured so far and clears data buffer.

Data is stored in properties pickup, pickup_q, ...

Return values

ok	1=success, 0=error

5.3.3.10 function fetchBuffer_adc (in *obj*) [inherited]

Used with background capture mode; Processes analog data captured so far and clears data buffer.

Data is stored in properties pickup, pickup_q, ...

Return values

ok	1=success, 0=error

5.3.3.11 function getDACout (in *obj*) [inherited]

Currently expected output voltage of DAC.

Return values

volt	Currently expected output voltage of DAC

5.3.3.12 function getHWinfo (in *obj*)

Returns short hardware configuration report.

Return values

hw_info	short hardware info as string

5.3.3.13 function getHWinfoADC (in *obj*) [inherited]

Returns short hardware configuration report.

Return values

hw_info	short hardware info as string

5.3.3.14 function getHWinfoDAC (in *obj*) [inherited]

Returns short hardware configuration report.

Return values

hw_info	short hardware info as string

5.3.3.15 function getInputRanges (in *obj*) [inherited]

5.3.3.16 function getOutputRanges (in *obj*) [inherited]

5.3.3.17 function getReachTime (in *obj,* in *volt_setpoint*) [inherited]

Get time amount it takes to reach a spectified output voltage by DAC.

Parameters

volt_setpoint	DAC voltage setpoint

Return values

rtime	Time in seconds

5.3.3.18 function getReachTimeField (in *obj,* in *field*)

Get time amount it takes to reach a spectified field strength.

Parameters

field	Magnetic field setpoint

Return values

rtime	Time in seconds

5.3.3.19 static function interrupt (in *cmd,* in *AnalO*) [static]

Interrupts data acquisition; used for measurement abortion
`interrupt('set', AnaIO)`: Set AnaIO as current Analog in/out connection that should be able to be interrupted
`interrupt('ai')`: Interrupt current analog output
`interrupt('ao')`: Interrupt current analog input acquisition
`interrupt()`: Interrupt current analog input and output
`interrupt('reset')`: Remove currend AnaIO object

Parameters

cmd	What to do (see description)
AnaIO	AnalogIO object

5.3.3.20 function reachMagnet (in *obj,* in *volt_setpoint*) [inherited]

Drives DAC output for magnet power supply.

Speed is defined in Config.dac_ramp

Parameters

volt_setpoint	DAC voltage setpoint

Return values

ok	1=success, 0=error

5.3.3.21 function resetFieldOffset (in *obj*)

Clears recorded offset list (field setpoint vs.

measure field value)

5.3.3.22 function setHallprobeVrange (in *obj,* in *range*) [inherited]

5.3.3.23 function setMField (in *obj,* in *field,* in *monotone*)

Drives magnet power supply using yoke calibration in order to reach a specified field strength.

Parameters

field	Magnetic field setpoint
monotone	Either 'monotone' or left open; Ensures monotone raise/fall of DAC_out for magnet power supply (regardless of any yoke calibration)

5.3.3.24 function setPickupVrange (in *obj,* in *range*) [inherited]

5.3.3.25 function startBackground_adc (in *obj*) [inherited]

Starts continuous data acuisition in the background.

Sample rate is defined in Config.adc_samplerate_cont Use .fetchBuffer_adc to receive data.

Return values

ok	1=success, 0=error

5.3.3.26 function stopBackground_adc (in *obj*) [inherited]

Stops continuous data acuisition in the background.

Return values

ok	1=success, 0=error

5.3.4 Member Data Documentation

5.3.4.1 Property adc_initialized [inherited]

sucessfully initialized analog input

5.3.4.2 Property adc_meas_duration [protected], [inherited]

meas. duration of .acquire()

5.3.4.3 Property adc_meas_duration_snapshot [protected], [inherited]

duration of .acquire_snapshot()

5.3.4.4 Property adc_samples_per_second [protected], [inherited]

5.3.4.5 Property ADCCard_ID [protected], [inherited]

Unique Card identification used by Matlab ('DEV1',0,...)

5.3.4.6 Constant Property ADCinputType [inherited]

Input type to verify; use InstaCal to change.

5.3.4.7 Property ai [inherited]

5.3.4.8 Property ao [inherited]

5.3.4.9 Property background_acq [inherited]

continuously background acquisition is running

5.3.4.10 Property customval_adc [inherited]

Custom ADC input returned by .acquire()

5.3.4.11 Property customval_channel [protected], [inherited]

optional channel for additional analog data (eg. angle)

5.3.4.12 Property dac_initialized [inherited]

5.3.4.13 Property dac_samples_per_second [inherited]

current rate

5.3.4.14 Property feedback_channel [protected], [inherited]

connected to V-Out for correct startup of DAC output; optional

5.3.4.15 DataFilter filter [inherited]

Raw measurement data Filter. Filters data for a single data point.

5.3.4.16 Property hallprobe_channel [protected], [inherited]

channel of hall prope amplifier

5.3.4.17 Property hallprobe_volt [inherited]

Hall probe amplifier ADC input returned by .acquire()

5.3.4.18 Property hallprobe_vrange [protected], [inherited]

Input range [Volt] for hallprobe channels.

5.3.4.19 Property initial_magnet_vout [protected], [inherited]

initial output of DAC

5.3.4.20 Property initialized

5.3.4.21 Constant Property magnet_powersupply_vrange [inherited]

DACCard_ID = 0 DAC_samplerate = 1000 magnet_powersupply_channel = 0.

5.3.4.22 Property magnet_vout [inherited]

5.3.4.23 Property magnetic_field

[Oe] determined by hallprobe

5.3.4.24 Property magnetic_field_setpoint [inherited]

5.3.4.25 MagField MField

Functions for magnet and field.

5.3.4.26 Property pickup [inherited]

Pickup/Signal ADC input returned by .acquire()

5.3.4.27 Property pickup_channel [protected], [inherited]

channel of pickup/signal

5.3.4.28 Property pickup_q [inherited]

Quadrature/Signal2 ADC input returned by .acquire()

5.3.4.29 Property pickup_q_channel [protected], [inherited]

channel of quadrature/another signal to capture

5.3.4.30 Property pickup_vrange [protected], [inherited]

Input range [Volt] for pickup/signal channels.

5.3.4.31 Constant Property putdata_minsamples [inherited]

Moke IO card requires at least 6 samples.

5.3.4.32 Property stddev_hallprobe_volt [inherited]

Standard deviation of magnetic field readings.

5.3.4.33 Property stddev_pickup [inherited]

Standard deviation of filtered signal input.

5.3.4.34 Property stddev_pickup_q [inherited]

Standard deviation of filtered signal2 input.

5.3.4.35 Constant Property VOut_feedback_vrange [inherited]

has to be >= magnet_powersupply_vrange !!

5.3.4.36 Property yoke_offsets

:field_sp :offset

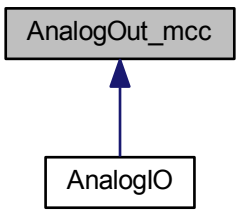
The documentation for this class was generated from the following file:

- C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/AnalogIO.cpp

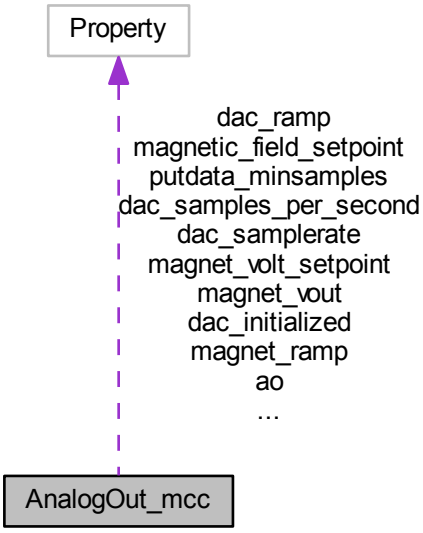
5.4 AnalogOut_mcc Class Reference

AnalogIO class.

Inheritance diagram for AnalogOut_mcc:



Collaboration diagram for AnalogOut_mcc:



Public Member Functions

- function AnalogOut_mcc ()
- function _delete (in obj)
- function getHWinfoDAC (in obj)

  Returns short hardware configuration report.
- function getOutputRanges (in obj)
- function getReachTime (in obj, in volt_setpoint)

  Get time amount it takes to reach a spectified output voltage by DAC.
- function reachMagnet (in obj, in volt_setpoint)

  Drives DAC output for magnet power supply.
- function getDACout (in obj)

  Currently expected output voltage of DAC.

Public Attributes

- Constant Property magnet_powersupply_vrange

  DACCard_ID = 0 DAC_samplerate = 1000 magnet_powersupply_channel = 0.
- Constant Property putdata_minsamples

  Moke IO card requires at least 6 samples.
- Property ao
- Property dac_samples_per_second

  current rate
- Property dac_initialized
- Property magnet_vout
- Property magnetic_field_setpoint

Private Member Functions

- function cleanUp (in obj)
- function constrain (in obj, in inval, in range)

Private Attributes

- Property magnet_volt_setpoint

  used by reachMagnet & getDACout
- Property magnet_ramp

  "
- Property magnet_powersupply_channel
- Property dac_samplerate

  Hz.
- Property dac_ramp

  V/s.

5.4.1 Detailed Description

AnalogIO class.

reads and filters from ADC-hardware + writes to DAC

5.4.2 Constructor & Destructor Documentation

5.4.2.1 function AnalogOut_mcc ( )

5.4.3 Member Function Documentation

5.4.3.1 function _delete (in *obj*)

5.4.3.2 function cleanUp (in *obj*) [private]

5.4.3.3 function constrain (in *obj,* in *inval,* in *range*) [private]

5.4.3.4 function getDACout (in *obj*)

Currently expected output voltage of DAC.

Return values

volt	Currently expected output voltage of DAC

5.4.3.5 function getHWinfoDAC (in *obj*)

Returns short hardware configuration report.

Return values

hw_info	short hardware info as string

5.4.3.6 function getOutputRanges (in *obj*)

5.4.3.7 function getReachTime (in *obj,* in *volt_setpoint*)

Get time amount it takes to reach a spectified output voltage by DAC.

Parameters

volt_setpoint	DAC voltage setpoint

Return values

rtime	Time in seconds

5.4.3.8 function reachMagnet (in *obj,* in *volt_setpoint*)

Drives DAC output for magnet power supply.

Speed is defined in Config.dac_ramp

Parameters

volt_setpoint	DAC voltage setpoint

Return values

ok	1=success, 0=error

5.4.4 Member Data Documentation

5.4.4.1 Property ao

5.4.4.2 Property dac_initialized

5.4.4.3 Property dac_ramp [private]

V/s.

5.4.4.4 Property dac_samplerate [private]

Hz.

5.4.4.5 Property dac_samples_per_second

current rate

5.4.4.6 Property magnet_powersupply_channel [private]

5.4.4.7 Constant Property magnet_powersupply_vrange

DACCard_ID = 0 DAC_samplerate = 1000 magnet_powersupply_channel = 0.

5.4.4.8 Property magnet_ramp [private]

"

5.4.4.9 Property magnet_volt_setpoint [private]

used by reachMagnet & getDACout

5.4.4.10 Property magnet_vout

5.4.4.11 Property magnetic_field_setpoint

5.4.4.12 Constant Property putdata_minsamples

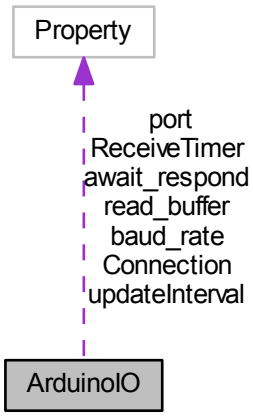
Moke IO card requires at least 6 samples.

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

- C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/AnalogOut_mcc.cpp

5.5 ArduinoIO Class Reference

Collaboration diagram for ArduinoIO:



Public Member Functions

- function ArduinoIO ()
- function _delete (in obj)
- virtual function processCommands (in obj, in commands)

Public Attributes

- Constant Property updateInterval

  seconds

Protected Member Functions

- function startConnection (in obj)
- function stopConnection (in obj)
- function processReadbuffer (in obj)

- function sendData (in obj, in txt)
- function waitforAnswerTo (in obj, in txt)
- function timedReceive (in obj, in event)

Protected Attributes

- Property Connection

  serial object
- Property port
- Property baud_rate
- Property read_buffer
- Property ReceiveTimer
- Property await_respond

  wait for receiving answer

5.5.1 Constructor & Destructor Documentation

5.5.1.1 function ArduinoIO ( )

5.5.2 Member Function Documentation

5.5.2.1 function _delete (in *obj*)

5.5.2.2 virtual function processCommands (in *obj,* in *commands*) [virtual]

5.5.2.3 function processReadbuffer (in *obj*) [protected]

5.5.2.4 function sendData (in *obj,* in *txt*) [protected]

5.5.2.5 function startConnection (in *obj*) [protected]

5.5.2.6 function stopConnection (in *obj*) [protected]

5.5.2.7 function timedReceive (in *obj,* in *event*) [protected]

5.5.2.8 function waitforAnswerTo (in *obj,* in *txt*) [protected]

5.5.3 Member Data Documentation

5.5.3.1 Property await_respond [protected]

wait for receiving answer

5.5.3.2 Property baud_rate [protected]

5.5.3.3 Property Connection [protected]

serial object

5.5.3.4 Property port [protected]

5.5.3.5 Property read_buffer [protected]

5.5.3.6 Property ReceiveTimer [protected]

5.5.3.7 Constant Property updateInterval

seconds

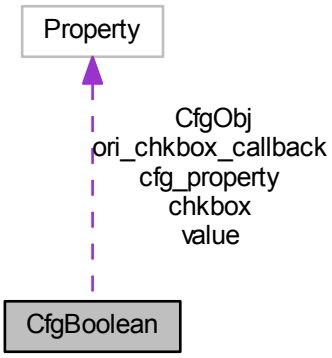
The documentation for this class was generated from the following file:

- C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/ArduinoIO.cpp

5.6 CfgBoolean Class Reference

Extends a check box in order to automatically update the corresponding Config parameter.

Collaboration diagram for CfgBoolean:



Public Member Functions

- function CfgBoolean (in chkbox, in CfgObj, in cfg_property)
- function chkbox_Callback (in obj, in hObject, in eventdata, in handles)

  Internal callback function.
- function chkboxChanged (in obj)
- function getValue (in obj)
- function setValue (in obj, in val)

Protected Attributes

- Property chkbox

  check box object used
- Property ori_chkbox_callback

  original callback of check box

- Property CfgObj

  config object
- Property cfg_property

  parameter name of config
- Property value

  value of check box

5.6.1 Detailed Description

Extends a check box in order to automatically update the corresponding Config parameter.

The Axes and Text objects can be placed using Mathworks's GUIDE(TM)

usage: `guiobj = PkgAdvGUI.CfgBoolean(hObject, cfg_obj, cfg_varname)` `hObject` Handle of text box object `cfg_obj` Optional; An object or structure that should get automatically updated on value changes of the PhyEditBox `cfg_varname` Optional; The property of cfg_obj which will be updated

The value can be changed with: `guiobj.setValue(value);`

5.6.2 Constructor & Destructor Documentation

5.6.2.1 function CfgBoolean (in *chkbox,* in *CfgObj,* in *cfg_property*)

5.6.3 Member Function Documentation

5.6.3.1 function chkbox_Callback (in *obj,* in *hObject,* in *eventdata,* in *handles*)

Internal callback function.

5.6.3.2 function chkboxChanged (in *obj*)

5.6.3.3 function getValue (in *obj*)

5.6.3.4 function setValue (in *obj,* in *val*)

5.6.4 Member Data Documentation

5.6.4.1 Property cfg_property [protected]

parameter name of config

5.6.4.2 Property CfgObj [protected]

config object

5.6.4.3 Property chkbox [protected]

check box object used

5.6.4.4 Property ori_chkbox_callback [protected]

original callback of check box

5.6.4.5 Property value [protected]

value of check box

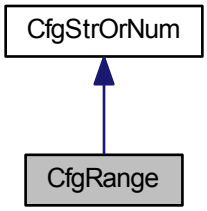
The documentation for this class was generated from the following file:

- C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/CfgBoolean.cpp

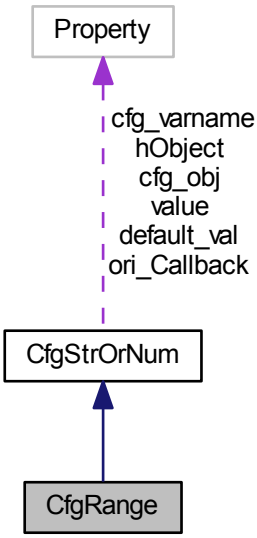
5.7 CfgRange Class Reference

Extends a text box in order to accept numeric ranges (2 dim arrays like "-10 10") and automatically update the corresponding Config parameter.

Inheritance diagram for CfgRange:



Collaboration diagram for CfgRange:



Public Member Functions

- function CfgRange (in hObject, in default_val, in cfg_obj, in cfg_varname)
- function _delete (in obj)
- function internal_Callback (in obj, in hObject, in eventdata, in handles)

  Internal callback function for the text change event; Regular callback function will be called after this method.
- function getValue (in obj)
- function setValue (in obj, in sval)

  Interpret sval as string and as number.

Public Attributes

- Property default_val

Protected Member Functions

- function checkValue (in obj, in str, in val)

  Interpret and accept or reject entered text.

Protected Attributes

- Property hObject

  text box object used
- Property ori_Callback

  original callback of text box
- Property value

  construed value of entered text
- Property cfg_obj

  config object
- Property cfg_varname

  parameter name of config

5.7.1 Detailed Description

Extends a text box in order to accept numeric ranges (2 dim arrays like "-10 10") and automatically update the corresponding Config parameter.

The Axes and Text objects can be placed using Mathworks's GUIDE(TM)

usage: `guiobj = PkgAdvGUI.CfgRange(hObject, default_val, cfg_obj, cfg_varname)` `hObject` Handle of text box object `default_val` Default value; ignored whe cfg_obj is used `cfg_obj` Optional; An object or structure that should get automatically updated on value changes of the PhyEditBox `cfg_varname` Optional; The property of cfg_obj which will be updated

The value can be changed with: `guiobj.setValue(value);`

5.7.2 Constructor & Destructor Documentation

5.7.2.1 function CfgRange (in *hObject,* in *default_val,* in *cfg_obj,* in *cfg_varname*)

5.7.3 Member Function Documentation

5.7.3.1 function _delete (in *obj*) [inherited]

5.7.3.2 function checkValue (in *obj,* in *str,* in *val*) [protected]

Interpret and accept or reject entered text.

Parameters

str	Entered text interpreted as string
val	Entered text interpreted as numeric value

Return values

rval	accepted value of accepted datatype or [] if entered text is rejected

5.7.3.3 function getValue (in *obj*) [inherited]

5.7.3.4 function internal_Callback (in *obj,* in *hObject,* in *eventdata,* in *handles*) [inherited]

Internal callback function for the text change event; Regular callback function will be called after this method.

5.7.3.5 function setValue (in *obj,* in *sval*) [inherited]

Interpret sval as string and as number.

Calls checkValue to verify entered value

Parameters

sval	entered text as string

5.7.4 Member Data Documentation

5.7.4.1 Property cfg_obj [protected], [inherited]

config object

5.7.4.2 Property cfg_varname [protected], [inherited]

parameter name of config

5.7.4.3 Property default_val [inherited]

5.7.4.4 Property hObject [protected], [inherited]

text box object used

5.7.4.5 Property ori_Callback [protected], [inherited]

original callback of text box

5.7.4.6 Property value [protected], [inherited]

construed value of entered text

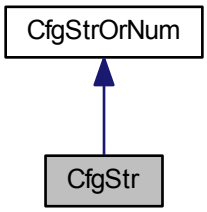
The documentation for this class was generated from the following file:

- C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/CfgRange.cpp

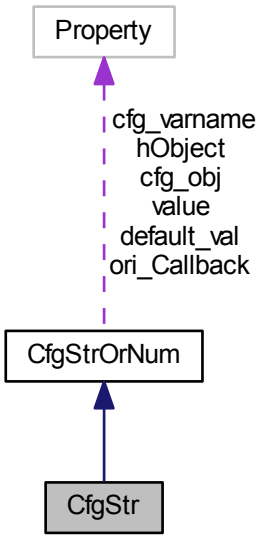
5.8 CfgStr Class Reference

Extends a text box in order to accept string values and automatically update the corresponding Config parameter.

Inheritance diagram for CfgStr:



Collaboration diagram for CfgStr:



Public Member Functions

- function CfgStr (in hObject, in default_val, in cfg_obj, in cfg_varname)
- function _delete (in obj)
- function internal_Callback (in obj, in hObject, in eventdata, in handles)

  Internal callback function for the text change event; Regular callback function will be called after this method.
- function getValue (in obj)
- function setValue (in obj, in sval)

  Interpret sval as string and as number.

Public Attributes

- Property default_val

Protected Member Functions

- function checkValue (in obj, in str, in val)

  Interpret and accept or reject entered text.

Protected Attributes

- Property hObject

  text box object used
- Property ori_Callback

  original callback of text box
- Property value

  construed value of entered text
- Property cfg_obj

  config object
- Property cfg_varname

  parameter name of config

5.8.1 Detailed Description

Extends a text box in order to accept string values and automatically update the corresponding Config parameter.

The Axes and Text objects can be placed using Mathworks's GUIDE(TM)

usage: `guiobj = PkgAdvGUI.CfgStr(hObject, default_val, cfg_obj, cfg_varname)` `hObject` Handle of text box object `default_val` Default value; ignored whe cfg_obj is used `cfg_obj` Optional; An object or structure that should get automatically updated on value changes of the PhyEditBox `cfg_varname` Optional; The property of cfg_obj which will be updated

The value can be changed with: `guiobj.setValue(value);`

5.8.2 Constructor & Destructor Documentation

5.8.2.1 function CfgStr (in *hObject,* in *default_val,* in *cfg_obj,* in *cfg_varname*)

5.8.3 Member Function Documentation

5.8.3.1 function _delete (in *obj*) [inherited]

5.8.3.2 function checkValue (in *obj,* in *str,* in *val*) [protected]

Interpret and accept or reject entered text.

Parameters

str	Entered text interpreted as string
val	Entered text interpreted as numeric value

Return values

rval	accepted value of accepted datatype or [] if entered text is rejected

5.8.3.3 function getValue (in *obj*) [inherited]

5.8.3.4 function internal_Callback (in *obj,* in *hObject,* in *eventdata,* in *handles*) [inherited]

Internal callback function for the text change event; Regular callback function will be called after this method.

5.8.3.5 function setValue (in *obj,* in *sval*) [inherited]

Interpret sval as string and as number.

Calls checkValue to verify entered value

Parameters

sval	entered text as string

5.8.4 Member Data Documentation

5.8.4.1 Property cfg_obj [protected], [inherited]

config object

5.8.4.2 Property cfg_varname [protected], [inherited]

parameter name of config

5.8.4.3 Property default_val [inherited]

5.8.4.4 Property hObject [protected], [inherited]

text box object used

5.8.4.5 Property ori_Callback [protected], [inherited]

original callback of text box

5.8.4.6 Property value [protected], [inherited]

construed value of entered text

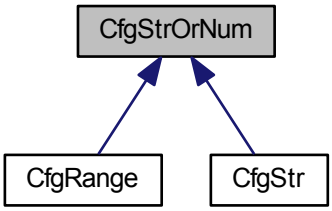
The documentation for this class was generated from the following file:

- C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/CfgStr.cpp

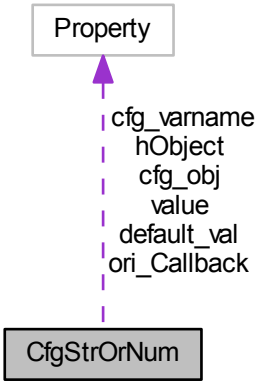
5.9 CfgStrOrNum Class Reference

Extends a text box in order to accept numeric an string values and automatically update the corresponding Config parameter.

Inheritance diagram for CfgStrOrNum:



Collaboration diagram for CfgStrOrNum:



Public Member Functions

- function CfgStrOrNum (in hObject, in default_val, in cfg_obj, in cfg_varname)
- function _delete (in obj)
- function internal_Callback (in obj, in hObject, in eventdata, in handles)

  Internal callback function for the text change event; Regular callback function will be called after this method.
- function getValue (in obj)
- function setValue (in obj, in sval)

  Interpret sval as string and as number.

Public Attributes

- Property default_val

Protected Member Functions

- function checkValue (in obj, in str, in val)

  Interpret and accept or reject entered text.

Protected Attributes

- Property hObject

  text box object used
- Property ori_Callback

  original callback of text box
- Property value

  construed value of entered text
- Property cfg_obj

  config object
- Property cfg_varname

  parameter name of config

5.9.1 Detailed Description

Extends a text box in order to accept numeric an string values and automatically update the corresponding Config parameter.

The Axes and Text objects can be placed using Mathworks's GUIDE(TM)

usage: `guiobj = PkgAdvGUI.CfgStrOrNum(hObject, default_val, cfg_obj, cfg_varname)` `hObject` Handle of text box object `default_val` Default value; ignored whe cfg_obj is used `cfg_obj` Optional; An object or structure that should get automatically updated on value changes of the PhyEditBox `cfg_varname` Optional; The property of cfg_obj which will be updated

cfg_varname will be an integer if entered value (by user) is numeric or string otherwise

The value can be changed with: `guiobj.setValue(value);`

5.9.2 Constructor & Destructor Documentation

5.9.2.1 function CfgStrOrNum (in *hObject,* in *default_val,* in *cfg_obj,* in *cfg_varname*)

5.9.3 Member Function Documentation

5.9.3.1 function _delete (in *obj*)

5.9.3.2 function checkValue (in *obj,* in *str,* in *val*) [protected]

Interpret and accept or reject entered text.

Parameters

str	Entered text interpreted as string
val	Entered text interpreted as numeric value

Return values

rval	accepted value of accepted datatype or [] if entered text is rejected

5.9.3.3 function getValue (in *obj*)

5.9.3.4 function internal_Callback (in *obj,* in *hObject,* in *eventdata,* in *handles*)

Internal callback function for the text change event; Regular callback function will be called after this method.

5.9.3.5 function setValue (in *obj,* in *sval*)

Interpret sval as string and as number.

Calls checkValue to verify entered value

Parameters

sval	entered text as string

5.9.4 Member Data Documentation

5.9.4.1 Property cfg_obj [protected]

config object

5.9.4.2 Property cfg_varname [protected]

parameter name of config

5.9.4.3 Property default_val

5.9.4.4 Property hObject [protected]

text box object used

5.9.4.5 Property ori_Callback [protected]

original callback of text box

5.9.4.6 Property value [protected]

construed value of entered text

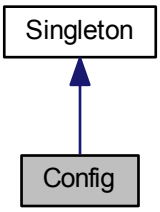
The documentation for this class was generated from the following file:

- C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/CfgStrOrNum.cpp

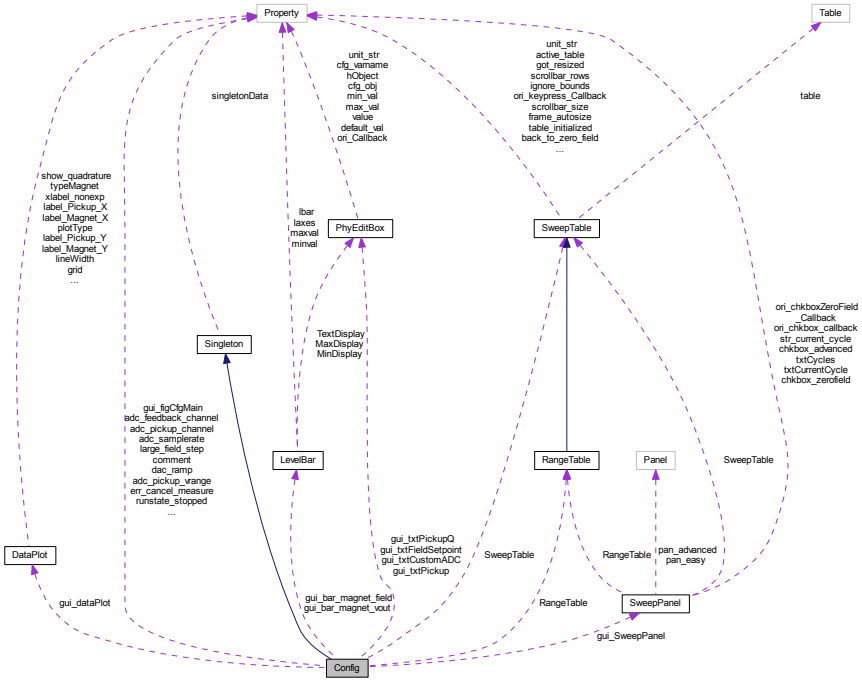
5.10 Config Class Reference

Configuration class.

Inheritance diagram for Config:



Collaboration diagram for Config:



Public Member Functions

- function saveMe (in cfg)

  Save configuration to default file.
- function saveMeAs (in cfg)

  Save configuration to different file (with file dialog)
- function hasChanged (in obj)

  Check if there are any unsaved parameters (changed window position will also apply)
- function saveDialog (in cfg, in dialog_text)

  Message box asking if configuration shall be saved.
- function getSingletonData (in obj)
- function setSingletonData (in obj, in singletonData)

Static Public Member Functions

- static function instance (in loaded_obj)

  Returns singleton instance of Config and loads parameters from file if needed.
- static function loadFrom ()

  Loads configuration from different file (closes all windows)
- static function getTest ()
- virtual static instance ()

Public Attributes

- Constant Property autoload_on_first_use

  automatically load Config on first access of Config.instance()
- Constant Property config_filename

  name of default config file
- Constant Property sw_version
- Constant Property runstate_stopped

  state definition
- Constant Property runstate_running

  state definition
- Constant Property runstate_pleasestop

  state definition
- Constant Property runstate_pleasestop_user

  state definition
- Constant Property mplotview_std

  appearance of fmplot window
- Constant Property mplotview_viewcalibration

  view magnet calibration
- Constant Property mplotview_magnetcalibration

  calibrate magnet
- Constant Property mplotview_measure

  measure magnetization curve
- Constant Property mplotview_viewdatafile

  view magnetization curve
- Constant Property adc_snapshot_duration

  seconds; fixed to fit in Measurements timer interval
- Constant Property err_cancel_measure

  Exceptions.
- Constant Property err_IO_init
- Property daq_filter_idx

  nr of DAQ filter
- Property datfile_path

  last used filepath to measurement files
- Property use_tempcontroller

  whether to use the temperature controller HW extension class
- Property use_customcontroller

  whether to use the custom controller HW extension class
- Property file_ext

  file extension for data files
- Property intermediate_datasaving

  save Loops after every completed Loop

- Property pause_large_fieldstep

  seconds
- Property large_field_step

  Oe.
- Property pause_between_datapoints

  seconds
- Property ADCDriver

  Hardware properties :
- Property ADCCard_ID
- Property adc_samplerate

  samples/sec
- Property adc_duration

  seconds
- Property adc_samplerate_cont

  continuous background sample rate
- Property adc_pickup_channel
- Property adc_pickup_q_channel
- Property adc_hallprobe_channel
- Property adc_feedback_channel
- Property adc_customval_channel
- Property adc_pickup_vrange
- Property adc_hallprobe_vrange
- Property adc_use_customval
- Property adc_customval_factor
- Property adc_use_feedback_channel

  feedback channel to get last VOut value
- Property adc_lockin_sensitivity

  0: always start at zero field (VOut)
- Property DACDriver
- Property DACCard_ID
- Property dac_magnet_powersupply_channel
- Property dac_samplerate

  Hz.
- Property dac_ramp

  V/s.
- Property check_lockin_sensitivity

  ask if lock-in sensitivity is set correctly
- Property check_saveconfig_before_meas

  ask if config shall be saved before measurement starts
- Property hallprobe_factor

  Oe/V.
- Property hallprobe_offset

  V.
- Property magnet_min_field

  Oe.
- Property magnet_max_field

  Oe.
- Property magnet_calibration_min_volt

  volt
- Property magnet_calibration_max_volt

  volt
- Property magnet_calibration_step_volt

volt

- Property magnet_calibration_file_nr

  1-9
- Property magnet_dynamic_offset

  determine current offset due to yoke remanence
- Property plot_show_quadrature

  show in signal2 data in plot window
- Property plot_show_average

  show in average data in plot window
- Property plot_show_points

  show data points in plot window instead of line
- SweepTable SweepTable

  initalize sweep table, %
- RangeTable RangeTable

  initalize range table, %
- Property winpos_MPlot

  mFieldSweeps = struct('from', [] Window positions: Window position
- Property winpos_MainCfg

  Window position.
- Property winpos_FieldCtl

  Window position.
- Property comment

  a comment for measurement files
- Property test

  delme
- Property runstate

  set to 0 to abort measurements
- Property plot_window

  store plot window object
- Property manual_temperature_val

  temperature set by user when no HWController is used
- Property timestamp_start

  start of measurement
- Property timestamp_end

  end of measurement

- Property gui_loop_pause

  gui helper variables (used as global variables)
  pause button CfgBoolean object
- Property gui_yoke_offsets

  missmatch betweet setpoints and real field value
- Property gui_fMPlot

  handles to opened window
- Property gui_figFieldControl

  handles to opened window
- Property gui_figCfgMain

  handles to opened window
- LevelBar gui_bar_magnet_vout

  vout level bar (fMPlot window)
- LevelBar gui_bar_magnet_field

  magn. field level bar (fMPlot window)

- DataPlot gui_dataPlot

  data plot object (fMPlot window)
- SweepPanel gui_SweepPanel

  sweep sequence (points to advanced sweep table in fMPlot)
- PhyEditBox gui_txtFieldSetpoint

  numerical display (fMPlot window)
- PhyEditBox gui_txtPickup

  numerical display (fMPlot window)
- PhyEditBox gui_txtPickupQ

  numerical display (fMPlot window)
- PhyEditBox gui_txtCustomADC

  numerical display (fMPlot window)
- Property guiInterlock

  Disable (grey) GUI elements during DAQ.

Private Member Functions

- function Config ()

5.10.1 Detailed Description

Configuration class.

loads / saves parameters for measurement cycles

5.10.2 Constructor & Destructor Documentation

5.10.2.1 function Config ( ) [private]

5.10.3 Member Function Documentation

5.10.3.1 function getSingletonData (in *obj*) [inherited]

5.10.3.2 static function getTest ( ) [static]

5.10.3.3 function hasChanged (in *obj*)

Check if there are any unsaved parameters (changed window position will also apply)

Return values

changed	1 if parameters have changed; 0 otherwise

5.10.3.4 virtual static instance ( ) [static],[virtual],[inherited]

5.10.3.5 static function instance (in *loaded_obj*) [static]

Returns singleton instance of Config and loads parameters from file if needed.

Return values

obj	Singleton instance of Config

5.10.3.6 static function loadFrom ( ) [static]

Loads configuration from different file (closes all windows)

Return values

did_it	1=new config has been loaded; 0 otherwise

5.10.3.7 function saveDialog (in *cfg,* in *dialog_text*)

Message box asking if configuration shall be saved.

Parameters

dialog_text	Optional. Text shown in question dialog

5.10.3.8 function saveMe (in *cfg*)

Save configuration to default file.

5.10.3.9 function saveMeAs (in *cfg*)

Save configuration to different file (with file dialog)

5.10.3.10 function setSingletonData (in *obj,* in *singletonData*) [inherited]

5.10.4 Member Data Documentation

5.10.4.1 Property adc_customval_channel

5.10.4.2 Property adc_customval_factor

5.10.4.3 Property adc_duration

seconds

5.10.4.4 Property adc_feedback_channel

5.10.4.5 Property adc_hallprobe_channel

5.10.4.6 Property adc_hallprobe_vrange

5.10.4.7 Property adc_lockin_sensitivity

0: always start at zero field (VOut)

5.10.4.8 Property adc_pickup_channel

5.10.4.9 Property adc_pickup_q_channel

5.10.4.10 Property adc_pickup_vrange

5.10.4.11 Property adc_samplerate

samples/sec

5.10.4.12 Property adc_samplerate_cont

continuous background sample rate

5.10.4.13 Constant Property adc_snapshot_duration

seconds; fixed to fit in Measurements timer interval

5.10.4.14 Property adc_use_customval

5.10.4.15 Property adc_use_feedback_channel

feedback channel to get last VOut value

5.10.4.16 Property ADCCard_ID

5.10.4.17 Property ADCDriver

Hardware properties :

5.10.4.18 Constant Property autoload_on_first_use

automatically load Config on first access of Config.instance()

5.10.4.19 Property check_lockin_sensitivity

ask if lock-in sensitivity is set correctly

5.10.4.20 Property check_saveconfig_before_meas

ask if config shall be saved before measurement starts

5.10.4.21 Property comment

a comment for measurement files

5.10.4.22 Constant Property config_filename

name of default config file

5.10.4.23 Property dac_magnet_powersupply_channel

5.10.4.24 Property dac_ramp

V/s.

5.10.4.25 Property dac_samplerate

Hz.

5.10.4.26 Property DACCard_ID

5.10.4.27 Property DACDriver

5.10.4.28 Property daq_filter_idx

nr of DAQ filter

5.10.4.29 Property datfile_path

last used filepath to measurement files

5.10.4.30 Constant Property err_cancel_measure

Exceptions.

5.10.4.31 Constant Property err_IO_init

5.10.4.32 Property file_ext

file extension for data files

5.10.4.33 LevelBar gui_bar_magnet_field

magn. field level bar (fMPlot window)

5.10.4.34 LevelBar gui_bar_magnet_vout

vout level bar (fMPlot window)

5.10.4.35 DataPlot gui_dataPlot

data plot object (fMPlot window)

5.10.4.36 Property gui_figCfgMain

handles to opened window

5.10.4.37 Property gui_figFieldControl

handles to opened window

5.10.4.38 Property gui_fMPlot

handles to opened window

5.10.4.39 Property gui_loop_pause

gui helper variables (used as global variables)

pause button CfgBoolean object

5.10.4.40 SweepPanel gui_SweepPanel

sweep sequence (points to advanced sweep table in fMPlot)

5.10.4.41 PhyEditBox gui_txtCustomADC

numerical display (fMPlot window)

5.10.4.42 PhyEditBox gui_txtFieldSetpoint

numerical display (fMPlot window)

5.10.4.43 PhyEditBox gui_txtPickup

numerical display (fMPlot window)

5.10.4.44 PhyEditBox gui_txtPickupQ

numerical display (fMPlot window)

5.10.4.45 Property gui_yoke_offsets

missmatch betweet setpoints and real field value

5.10.4.46 Property guiInterlock

Disable (grey) GUI elements during DAQ.

5.10.4.47 Property hallprobe_factor

Oe/V.

5.10.4.48 Property hallprobe_offset

V.

5.10.4.49 Property intermediate_datasaving

save Loops after every completed Loop

5.10.4.50 Property large_field_step

Oe.

5.10.4.51 Property magnet_calibration_file_nr

1-9

5.10.4.52 Property magnet_calibration_max_volt

volt

5.10.4.53 Property magnet_calibration_min_volt

volt

5.10.4.54 Property magnet_calibration_step_volt

volt

5.10.4.55 Property magnet_dynamic_offset

determine current offset due to yoke remanence

5.10.4.56 Property magnet_max_field

Oe.

5.10.4.57 Property magnet_min_field

Oe.

5.10.4.58 Property manual_temperature_val

temperature set by user when no HWController is used

5.10.4.59 Constant Property mplotview_magnetcalibration

calibrate magnet

5.10.4.60 Constant Property mplotview_measure

measure magnetization curve

5.10.4.61 Constant Property mplotview_std

appearance of fmplot window

5.10.4.62 Constant Property mplotview_viewcalibration

view magnet calibration

5.10.4.63 Constant Property mplotview_viewdatafile

view magnetization curve

5.10.4.64 Property pause_between_datapoints

seconds

5.10.4.65 Property pause_large_fieldstep

seconds

5.10.4.66 Property plot_show_average

show in average data in plot window

5.10.4.67 Property plot_show_points

show data points in plot window instead of line

5.10.4.68 Property plot_show_quadrature

show in signal2 data in plot window

5.10.4.69 Property plot_window

store plot window object

5.10.4.70 RangeTable RangeTable

initalize range table, %

5.10.4.71 Property runstate

set to 0 to abort measurements

5.10.4.72 Constant Property runstate_pleasestop

state definition

5.10.4.73 Constant Property runstate_pleasestop_user

state definition

5.10.4.74 Constant Property runstate_running

state definition

5.10.4.75 Constant Property runstate_stopped

state definition

5.10.4.76 Constant Property sw_version

5.10.4.77 SweepTable SweepTable

initalize sweep table, %

5.10.4.78 Property test

delme

5.10.4.79 Property timestamp_end

end of measurement

5.10.4.80 Property timestamp_start

start of measurement

5.10.4.81 Property use_customcontroller

whether to use the custom controller HW extension class

5.10.4.82 Property use_tempcontroller

whether to use the temperature controller HW extension class

5.10.4.83 Property winpos_FieldCtl

Window position.

5.10.4.84 Property winpos_MainCfg

Window position.

5.10.4.85 Property winpos_MPlot

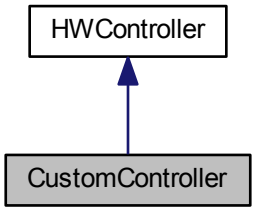
mFieldSweeps = struct('from', [] Window positions: Window position

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

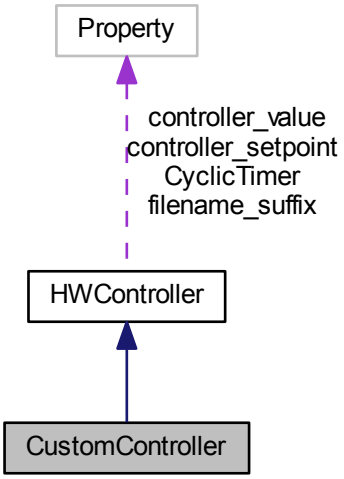
- C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/Config.cpp

5.11 CustomController Class Reference

Inheritance diagram for CustomController:



Collaboration diagram for CustomController:



Public Member Functions

- function CustomController ()
- function _delete (in obj)
- function beforeAllLoops (in obj, in cycles)
- function afterAllLoops (in obj, in restart_measure)
- function beforeLoop (in obj)
- function afterLoop (in obj)
- function getValue (in obj)
- function setValue (in obj, in val)

Public Attributes

- Property filename_suffix

Protected Member Functions

- function timedFunction (in obj)
- function abortMeasurement (in obj)
- function cyclicTimer (in obj, in event)
- function setupTimer (in obj, in time_interval_s)
- function stopTimer (in obj)

Protected Attributes

- Property controller_value

  internal storage
- Property controller_setpoint
- Property CyclicTimer

  Timer for timedFunction.

5.11.1 Constructor & Destructor Documentation

5.11.1.1 function CustomController ( )

5.11.2 Member Function Documentation

5.11.2.1 function _delete (in *obj*)

5.11.2.2 function abortMeasurement (in *obj*) [protected], [inherited]

5.11.2.3 function afterAllLoops (in *obj,* in *restart_measure*)

5.11.2.4 function afterLoop (in *obj*)

5.11.2.5 function beforeAllLoops (in *obj,* in *cycles*)

5.11.2.6 function beforeLoop (in *obj*)

5.11.2.7 function cyclicTimer (in *obj,* in *event*) [protected], [inherited]

5.11.2.8 function getValue (in *obj*)

5.11.2.9 function setupTimer (in *obj,* in *time_interval_s*) [protected], [inherited]

5.11.2.10 function setValue (in *obj,* in *val*) [inherited]

5.11.2.11 function stopTimer (in *obj*) [protected], [inherited]

5.11.2.12 function timedFunction (in *obj*) [protected], [inherited]

5.11.3 Member Data Documentation

5.11.3.1 Property controller_setpoint [protected], [inherited]

5.11.3.2 Property controller_value [protected],[inherited]

internal storage

5.11.3.3 Property CyclicTimer [protected],[inherited]

Timer for timedFunction.

5.11.3.4 Property filename_suffix [inherited]

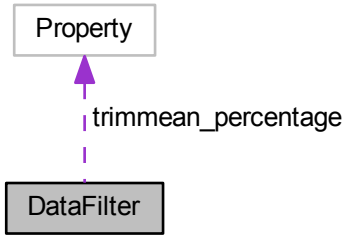
The documentation for this class was generated from the following file:

- C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/CustomController.cpp

5.12 DataFilter Class Reference

DataFilter class (filters noise of acquired data)

Collaboration diagram for DataFilter:



Public Types

- enum DataFilter {
  median_filter, mean_filter, trimmed_mean_filter, cryo_moke_1,
  cryo_moke_2, histogram }

Public Member Functions

- function filter (in obj, in data_array)

  Filter function.

Public Attributes

- Constant Property trimmean_percentage

  'mean value', ...

5.12.1 Detailed Description

DataFilter class (filters noise of acquired data)

holds differend types of filters to improve measured data

5.12.2 Member Enumeration Documentation

5.12.2.1 enum DataFilter

Enumerator

median_filter

mean_filter

trimmed_mean_filter

cryo_moke_1

cryo_moke_2

histogram

5.12.3 Member Function Documentation

5.12.3.1 function filter (in *obj,* in *data_array*)

Filter function.

Parameters

data_array	acquired data matrix

5.12.4 Member Data Documentation

5.12.4.1 Constant Property trimmean_percentage

'mean value', ...

'trimmed mean'} percentage of expected outliers

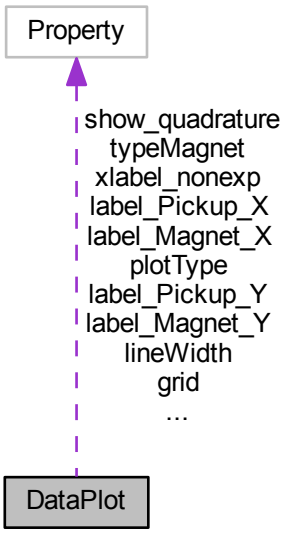
The documentation for this class was generated from the following file:

- C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/DataFilter.cpp

5.13 DataPlot Class Reference

DataPlot class (graphical representation of data)

Collaboration diagram for DataPlot:



Public Member Functions

- function DataPlot (in parent_axes)

  Class constructor.
- function _delete (in obj)
- function updateData (in obj)

  Updates plot data.
- function configMagnetView (in obj, in dataObject)

  Set up axes for viewing magnet calibration data.
- function configPickupView (in obj, in dataObject, in pxlim, in pylim)

  Set up axes for viewing measurement data.
- function updateAverage (in obj)

  Calculate average of loops for further plotting.

Public Attributes

- Constant Property lineWidth

  Line width of line plot.
- Constant Property marker

  Marker type for `show_points = 1`
- Constant Property xylim_factor

  10%> larger x- & ylim
- Property show_quadrature

  at `typePickup`*-View plot quadrature signal*
- Property show_average

  at `typePickup`*-View plot average of all loops*

- Property show_points

  plot datapoints instead of line
- Property grid

  show grid
- Property xlabel_nonexp

  use non exponential labels on X-Axis
- Property dataObject

  the data object containing data for plotting (of type `MagField` or `MagnetizationCurve`)
- Property dataLoopAvg

  stores averaged loop of dataObject if `show_average == 1`
- Property plotIdx

  if `dataObject` is an array of `MagnetizationCurve` this indicates which loop to plot index of dataObject if dataObject is an array

- Constant Property typeNone

  data type of plot
- Constant Property typeMagnet
- Constant Property typePickup

- Constant Property label_Magnet_X

  axes labels and legends for each data type
- Constant Property label_Magnet_Y
- Constant Property label_Pickup_X
- Constant Property label_Pickup_Y
- Constant Property legend_pickup
- Constant Property legend_magnet

- Property pickup_xlim

  view area of plot in pickup view
- Property pickup_ylim

Protected Attributes

- Property plotAxes

  axes object
- Property plotType

  plot type eg. `typePickup`
- Property plotObj1

  handle to 1st plot (layer) eg. pickup
- Property plotObj2

  handle to 2nd plot (layer)
- Property plotObj3

  handle to 3rd plot (layer)

5.13.1 Detailed Description

DataPlot class (graphical representation of data)

Controls an Axes object and handles the graphical representation of data. PlotType specifies the data type:

- `typeMagnet`: Calibration data where dataObject is of type MagField

  - Raw data is grey-colored while polyomial is red

- `typePickup`: Measurement data of type MagnetizationCurve
  - Pickup signal shows up in grey, Quadrature in green and the average of recently measured Pickup loops is shown in red

The colors grey, green and red are defined in the axes' `ColorOrder` index 1,2 and 3. It is therefore possible to redefine them there

5.13.2 Constructor & Destructor Documentation

5.13.2.1 function DataPlot (in *parent_axes*)

Class constructor.

Parameters

parent_axes	axes object which schould be used for plotting

Returns

instance of DataPlot class.

5.13.3 Member Function Documentation

5.13.3.1 function _delete (in *obj*)

5.13.3.2 function configMagnetView (in *obj,* in *dataObject*)

Set up axes for viewing magnet calibration data.

Parameters

dataObject	the data object of type `MagField`

5.13.3.3 function configPickupView (in *obj,* in *dataObject,* in *pxlim,* in *pylim*)

Set up axes for viewing measurement data.

Parameters

dataObject	The data object of type `MagnetizationCurve`
pxlim	Optional; Range of x-axis eg. [-100 100] or 'auto'; Set to 'auto' if omitted
pylim	Optional; Range of y-axis eg. [-100 100] or 'auto'; Set to lock-in sensitivity if omitted

5.13.3.4 function updateAverage (in *obj*)

Calculate average of loops for further plotting.

5.13.3.5 function updateData (in *obj*)

Updates plot data.

5.13.4 Member Data Documentation

5.13.4.1 Property dataLoopAvg

stores averaged loop of dataObject if `show_average == 1`

5.13.4.2 Property dataObject

the data object containing data for plotting (of type `MagField` or `MagnetizationCurve`)

5.13.4.3 Property grid

show grid

5.13.4.4 Constant Property label_Magnet_X

axes labels and legends for each data type

5.13.4.5 Constant Property label_Magnet_Y

5.13.4.6 Constant Property label_Pickup_X

5.13.4.7 Constant Property label_Pickup_Y

5.13.4.8 Constant Property legend_magnet

5.13.4.9 Constant Property legend_pickup

5.13.4.10 Constant Property lineWidth

Line width of line plot.

5.13.4.11 Constant Property marker

Marker type for `show_points = 1`

5.13.4.12 Property pickup_xlim

view area of plot in pickup view

5.13.4.13 Property pickup_ylim

5.13.4.14 Property plotAxes [protected]

axes object

5.13.4.15 Property plotIdx

if `dataObject` is an array of `MagnetizationCurve` this indicates which loop to plot index of dataObject if dataObject is an array

5.13.4.16 Property plotObj1 [protected]

handle to 1st plot (layer) eg. pickup

5.13.4.17 Property plotObj2 [protected]

handle to 2nd plot (layer)

5.13.4.18 Property plotObj3 [protected]

handle to 3rd plot (layer)

5.13.4.19 Property plotType [protected]

plot type eg. `typePickup`

5.13.4.20 Property show_average

at `typePickup`-View plot average of all loops

5.13.4.21 Property show_points

plot datapoints instead of line

5.13.4.22 Property show_quadrature

at `typePickup`-View plot quadrature signal

5.13.4.23 Constant Property typeMagnet

5.13.4.24 Constant Property typeNone

data type of plot

5.13.4.25 Constant Property typePickup

5.13.4.26 Property xlabel_nonexp

use non exponential labels on X-Axis

5.13.4.27 Constant Property xylim_factor

10%> larger x- & ylim

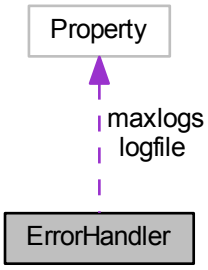
The documentation for this class was generated from the following file:

- C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/DataPlot.cpp

5.14 ErrorHandler Class Reference

Logs Exceptions and stores them in error_log.mat Most IO and other Exceptions are saved in error_log.mat and hence can be reviewed using static functions of the ErrorHandler class.

Collaboration diagram for ErrorHandler:



Static Public Member Functions

- static function logError (in Exception, in error_info, in comment)

  Logs an Exception.
- static function getLog ()
- static function getList ()

  Briefly lists all saved exceptions.
- static function report (in nr)

  Get detailed information about the exception.

Public Attributes

- Constant Property logfile
- Constant Property maxlogs

  maximum number of errors in log file

5.14.1 Detailed Description

Logs Exceptions and stores them in error_log.mat Most IO and other Exceptions are saved in error_log.mat and hence can be reviewed using static functions of the ErrorHandler class.

5.14.2 Member Function Documentation

5.14.2.1 static function getList ( ) [static]

Briefly lists all saved exceptions.

Return values

A	String containing a list of exceptions

5.14.2.2 static function getLog ( ) [static]

5.14.2.3 static function logError (in *Exception,* in *error_info,* in *comment*) [static]

Logs an Exception.

Parameters

Exception	The error as an MException class
error_info	Short info e.g. what were we doing, where did it happen
comment	Additional comment

5.14.2.4 static function report (in *nr*) [static]

Get detailed information about the exception.

Parameters

nr	The number in the exception list

Return values

description	of the exception

5.14.3 Member Data Documentation

5.14.3.1 Constant Property logfile

5.14.3.2 Constant Property maxlogs

maximum number of errors in log file

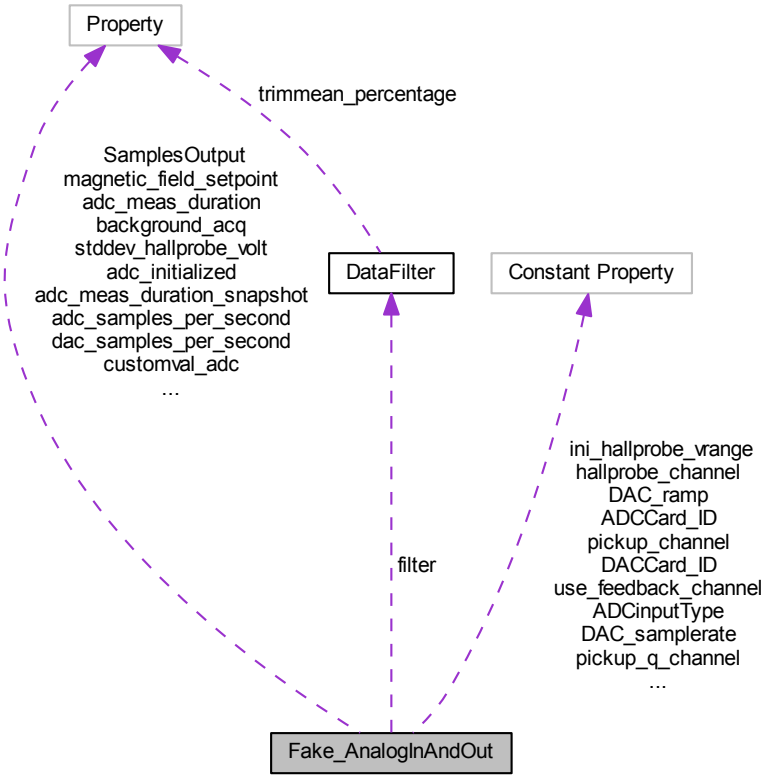
The documentation for this class was generated from the following file:

- C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/ErrorHandler.cpp

5.15 Fake_AnalogInAndOut Class Reference

AnalogIO class.

Collaboration diagram for Fake_AnalogInAndOut:



Public Member Functions

- function Fake_AnalogInAndOut ()
- function _delete (in obj)
- function getReachTime (in obj, in volt)
- function fakeHallSig (in obj, in volt)
- function getHWinfoADC (in obj)
- function getInputRanges (in obj)
- function acquire_adc (in obj, in meas_duration)
- function fetchBuffer_adc (in obj)
- function startBackground_adc (in obj)
- function stopBackground_adc (in obj)
- function setPickupVrange (in obj, in range)
- function setHallprobeVrange (in obj, in range)
- function getHWinfoDAC (in obj)
- function getOutputRanges (in obj)
- function reachMagnet (in obj, in volt_setpoint)
- function getDACout (in obj)

Public Attributes

- Constant Property ADCCard_ID

- Constant Property ADCinputType
- Constant Property pickup_channel
- Constant Property pickup_q_channel
- Constant Property hallprobe_channel
- Constant Property use_feedback_channel
- Constant Property ini_pickup_vrange
- Constant Property ini_hallprobe_vrange
- Constant Property DACCard_ID
- Constant Property DAC_samplerate
- Constant Property DAC_ramp

  V/s.
- Constant Property magnet_powersupply_channel
- Constant Property magnet_powersupply_vrange
- Property adc_initialized
- Property dac_initialized
- Property magnet_vout
- Property pickup
- Property pickup_q
- Property hallprobe_volt
- Property customval_adc
- Property stddev_pickup
- Property stddev_pickup_q
- Property stddev_hallprobe_volt
- DataFilter filter
- Property initial_magnet_vout
- Property background_acq
- Property magnetic_field_setpoint

Protected Attributes

- Property ai

  ^ *vrange used in MPlot Levelbars; has to be const (or redefine in Config)*
- Property pickup_vrange
- Property hallprobe_vrange
- Property adc_samples_per_second
- Property adc_meas_duration
- Property adc_meas_duration_snapshot
- Property ao
- Property dac_samples_per_second

  current rate
- Property fake_yoke
- Property fake_mag_curve_up
- Property fake_mag_curve_dn

Private Member Functions

- function cleanUp (in obj)

Private Attributes

- Property magnet_volt_setpoint

  used by reachMagnet & getDACout
- Property magnet_ramp

  "
- Property SamplesOutput

5.15.1 Detailed Description

AnalogIO class.

reads and filters from ADC-hardware + writes to DAC

5.15.2 Constructor & Destructor Documentation

5.15.2.1 function Fake_AnalogInAndOut ( )

5.15.3 Member Function Documentation

5.15.3.1 function _delete (in *obj*)

5.15.3.2 function acquire_adc (in *obj,* in *meas_duration*)

5.15.3.3 function cleanUp (in *obj*) [private]

5.15.3.4 function fakeHallSig (in *obj,* in *volt*)

5.15.3.5 function fetchBuffer_adc (in *obj*)

5.15.3.6 function getDACout (in *obj*)

5.15.3.7 function getHWinfoADC (in *obj*)

5.15.3.8 function getHWinfoDAC (in *obj*)

5.15.3.9 function getInputRanges (in *obj*)

5.15.3.10 function getOutputRanges (in *obj*)

5.15.3.11 function getReachTime (in *obj,* in *volt*)

5.15.3.12 function reachMagnet (in *obj,* in *volt_setpoint*)

5.15.3.13 function setHallprobeVrange (in *obj,* in *range*)

5.15.3.14 function setPickupVrange (in *obj,* in *range*)

5.15.3.15 function startBackground_adc (in *obj*)

5.15.3.16 function stopBackground_adc (in *obj*)

5.15.4 Member Data Documentation

5.15.4.1 Property adc_initialized

5.15.4.2 Property adc_meas_duration [protected]

5.15.4.3 Property adc_meas_duration_snapshot [protected]

5.15.4.4 Property adc_samples_per_second [protected]

5.15.4.5 Constant Property ADCCard_ID

5.15.4.6 Constant Property ADCinputType

5.15.4.7 Property ai [protected]

^ vrange used in MPlot Levelbars; has to be const (or redefine in Config)

5.15.4.8 Property ao [protected]

5.15.4.9 Property background_acq

5.15.4.10 Property customval_adc

5.15.4.11 Property dac_initialized

5.15.4.12 Constant Property DAC_ramp

V/s.

5.15.4.13 Constant Property DAC_samplerate

5.15.4.14 Property dac_samples_per_second [protected]

current rate

5.15.4.15 Constant Property DACCard_ID

5.15.4.16 Property fake_mag_curve_dn [protected]

5.15.4.17 Property fake_mag_curve_up [protected]

5.15.4.18 Property fake_yoke [protected]

5.15.4.19 DataFilter filter

5.15.4.20 Constant Property hallprobe_channel

5.15.4.21 Property hallprobe_volt

5.15.4.22 Property hallprobe_vrange [protected]

5.15.4.23 Constant Property ini_hallprobe_vrange

5.15.4.24 Constant Property ini_pickup_vrange

5.15.4.25 Property initial_magnet_vout

5.15.4.26 Constant Property magnet_powersupply_channel

5.15.4.27 Constant Property magnet_powersupply_vrange

5.15.4.28 Property magnet_ramp [private]

"

5.15.4.29 Property magnet_volt_setpoint [private]

used by reachMagnet & getDACout

5.15.4.30 Property magnet_vout

5.15.4.31 Property magnetic_field_setpoint

5.15.4.32 Property pickup

5.15.4.33 Constant Property pickup_channel

5.15.4.34 Property pickup_q

5.15.4.35 Constant Property pickup_q_channel

5.15.4.36 Property pickup_vrange [protected]

5.15.4.37 Property SamplesOutput [private]

5.15.4.38 Property stddev_hallprobe_volt

5.15.4.39 Property stddev_pickup

5.15.4.40 Property stddev_pickup_q

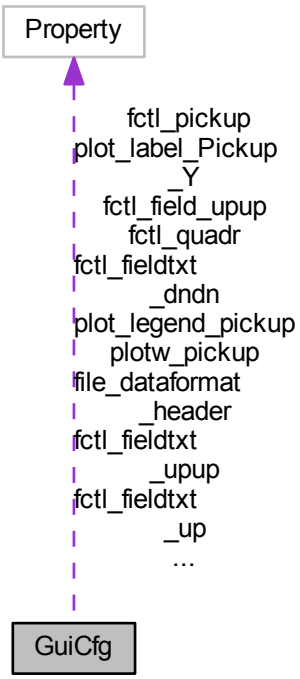
5.15.4.41 Constant Property use_feedback_channel

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

- C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/Fake_AnalogInAndOut.cpp

5.16 GuiCfg Class Reference

Collaboration diagram for GuiCfg:



Public Attributes

- Constant Property cfgmain_signal1ch

  Config window.
- Constant Property cfgmain_signal2ch
- Constant Property cfgmain_show_ask_lockin

  whether option 'ask if lockin sensitivity is set up correctly' is shown
- Constant Property cfgmain_show_ask_saveconfig_before_meas

  whether option 'ask if config shall be saved before measurement starts' is shown
- Constant Property plotw_showquadr

  Plot window.
- Constant Property plotw_lockin
- Constant Property plotw_pickup
- Constant Property plotw_quadr
- Constant Property plotw_aux
- Constant Property plot_label_Pickup_Y

  Plot graph text.
- Constant Property plot_legend_pickup
- Constant Property plot_legend_magnet
- Constant Property fctl_pickup

  Manual field control.

- Constant Property fctl_quadr
- Constant Property fctl_customADC
- Constant Property fctl_customADC_unit
- Constant Property fctl_fieldtxt_dndn
- Constant Property fctl_field_dndn
- Constant Property fctl_fieldtxt_dn
- Constant Property fctl_field_dn
- Constant Property fctl_fieldtxt_up
- Constant Property fctl_field_up
- Constant Property fctl_fieldtxt_upup
- Constant Property fctl_field_upup
- Constant Property file_dataformat_header

  Save File.

5.16.1 Member Data Documentation

5.16.1.1 Constant Property cfgmain_show_ask_lockin

whether option 'ask if lockin sensitivity is set up correctly' is shown

5.16.1.2 Constant Property cfgmain_show_ask_saveconfig_before_meas

whether option 'ask if config shall be saved before measurement starts' is shown

5.16.1.3 Constant Property cfgmain_signal1ch

Config window.

5.16.1.4 Constant Property cfgmain_signal2ch

5.16.1.5 Constant Property fctl_customADC

5.16.1.6 Constant Property fctl_customADC_unit

5.16.1.7 Constant Property fctl_field_dn

5.16.1.8 Constant Property fctl_field_dndn

5.16.1.9 Constant Property fctl_field_up

5.16.1.10 Constant Property fctl_field_upup

5.16.1.11 Constant Property fctl_fieldtxt_dn

5.16.1.12 Constant Property fctl_fieldtxt_dndn

5.16.1.13 Constant Property fctl_fieldtxt_up

5.16.1.14 Constant Property fctl_fieldtxt_upup

5.16.1.15 Constant Property fctl_pickup

Manual field control.

5.16.1.16 Constant Property fctl_quadr

5.16.1.17 Constant Property file_dataformat_header

Save File.

5.16.1.18 Constant Property plot_label_Pickup_Y

Plot graph text.

5.16.1.19 Constant Property plot_legend_magnet

5.16.1.20 Constant Property plot_legend_pickup

5.16.1.21 Constant Property plotw_aux

5.16.1.22 Constant Property plotw_lockin

5.16.1.23 Constant Property plotw_pickup

5.16.1.24 Constant Property plotw_quadr

5.16.1.25 Constant Property plotw_showquadr

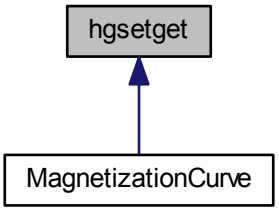
Plot window.

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

- C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/GuiCfg.cpp

5.17 hgsetget Class Reference

Inheritance diagram for hgsetget:

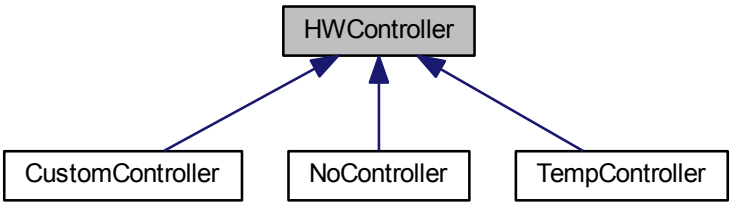


The documentation for this class was generated from the following file:

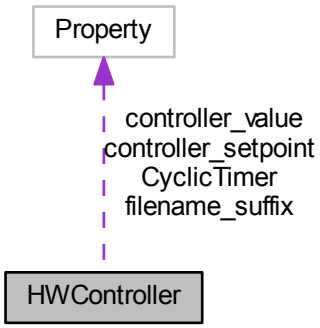
- C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/MagnetizationCurve.cpp

5.18 HWController Class Reference

Inheritance diagram for HWController:



Collaboration diagram for HWController:



Public Member Functions

- function HWController ()
- function _delete (in obj)
- function beforeAllLoops (in obj, in cycles)
- function afterAllLoops (in obj, in restart_measure)
- function beforeLoop (in obj)
- function afterLoop (in obj)
- function getValue (in obj)
- function setValue (in obj, in val)

Public Attributes

- Property filename_suffix

Protected Member Functions

- function timedFunction (in obj)
- function abortMeasurement (in obj)
- function cyclicTimer (in obj, in event)
- function setupTimer (in obj, in time_interval_s)
- function stopTimer (in obj)

Protected Attributes

- Property controller_value

  internal storage
- Property controller_setpoint
- Property CyclicTimer

  Timer for timedFunction.

5.18.1 Constructor & Destructor Documentation

5.18.1.1 function HWController ( )

5.18.2 Member Function Documentation

5.18.2.1 function _delete (in *obj*)

5.18.2.2 function abortMeasurement (in *obj*) [protected]

5.18.2.3 function afterAllLoops (in *obj,* in *restart_measure*)

5.18.2.4 function afterLoop (in *obj*)

5.18.2.5 function beforeAllLoops (in *obj,* in *cycles*)

5.18.2.6 function beforeLoop (in *obj*)

5.18.2.7 function cyclicTimer (in *obj,* in *event*) [protected]

5.18.2.8 function getValue (in *obj*)

5.18.2.9 function setupTimer (in *obj,* in *time_interval_s*) [protected]

5.18.2.10 function setValue (in *obj,* in *val*)

5.18.2.11 function stopTimer (in *obj*) [protected]

5.18.2.12 function timedFunction (in *obj*) [protected]

5.18.3 Member Data Documentation

5.18.3.1 Property controller_setpoint [protected]

5.18.3.2 Property controller_value [protected]

internal storage

5.18.3.3 Property CyclicTimer [protected]

Timer for timedFunction.

5.18.3.4 Property filename_suffix

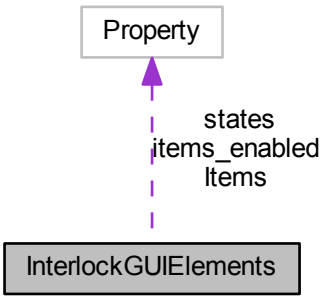
The documentation for this class was generated from the following file:

- C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/HWController.cpp

5.19 InterlockGUIElements Class Reference

You can add GUI elements (eg. at window initialization) and enable/disable them all together enywhre else.

Collaboration diagram for InterlockGUIElements:



Public Member Functions

- function addControlEl (in obj, in handle)
  Add a GUI element.
- function addPanel (in obj, in handle)
  Add all elements inside a frame/panel.
- function disableItems (in obj)
  Disable all GUI elements.
- function enableItems (in obj)
  Enable all GUI elements.
- function garbageCollect (in obj)
  Remove Objects that do not exist anymore, but are still in list.
- function _delete (in obj)

Public Attributes

- Property Items
- Property states
- Property items_enabled

5.19.1 Detailed Description

You can add GUI elements (eg. at window initialization) and enable/disable them all together enywhre else.

5.19.2 Member Function Documentation

5.19.2.1 function _delete (in *obj*)

5.19.2.2 function addControlEl (in *obj,* in *handle*)

Add a GUI element.

Parameters

handle	Handle of the GUI element

5.19.2.3 function addPanel (in *obj,* in *handle*)

Add all elements inside a frame/panel.

Parameters

handle	Handle of the GUI element

5.19.2.4 function disableItems (in *obj*)

Disable all GUI elements.

5.19.2.5 function enableItems (in *obj*)

Enable all GUI elements.

5.19.2.6 function garbageCollect (in *obj*)

Remove Objects that do not exist anymore, but are still in list.

5.19.3 Member Data Documentation

5.19.3.1 Property Items

5.19.3.2 Property items_enabled

5.19.3.3 Property states

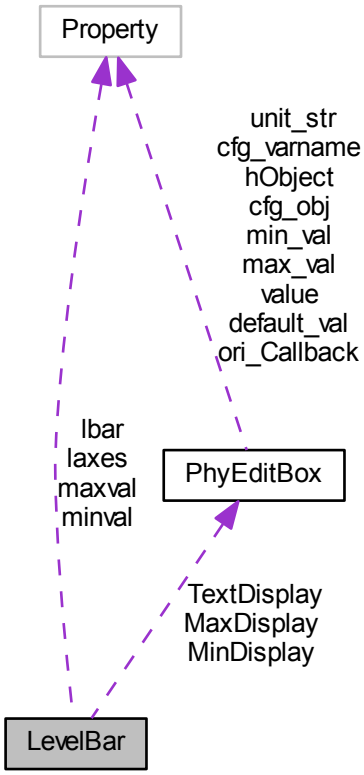
The documentation for this class was generated from the following file:

- C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/InterlockGUIElements.cpp

5.20 LevelBar Class Reference

Extends an Axes object to act as a level bar.

Collaboration diagram for LevelBar:



Public Member Functions

- function LevelBar (in parent_axes, in min_value, in max_value, in color)

  Class constructor.
- function _delete (in obj)
- function setValue (in obj, in value)

  set current value of level bar
- function setTextDisplay (in obj, in TextBox, in unit_str)

  set textboxes for displaying the current value
- function setMinMaxDisplay (in obj, in MinTextBox, in MaxTextBox, in unit_str)

  set textboxes for displaying min/max boudaries

Public Attributes

- PhyEditBox TextDisplay

  handle of Text display %
- PhyEditBox MinDisplay

  handle of minimum boundary display %
- PhyEditBox MaxDisplay

  handle of maximum boundary display %

Protected Attributes

- Property laxes

  Axes object.
- Property lbar

  the bar plot
- Property minval

  minimum value of boundary
- Property maxval

  maximum value of boundary

5.20.1 Detailed Description

Extends an Axes object to act as a level bar.

The Axes and Text objects can be placed using Mathworks's GUIDE(TM)

usage: `LevelBar(parent_axes, min_value, max_value, color)` `parent_axes` Handle of Axes object `min_value` Minimum value of bar `max_value` Maximum Value of bar `color` Optional; Color of the LevelBar; if not specified: `ColorOrder` index 1 of Axes object ist used

```
lvlBar = PkgAdvGUI.LevelBar(handles.axVOut, range(1), range(2));
```

optionally set textboxes or lables for displaying the current value parameters are the text box handle and the unit specifier (g, V, A) 'cfg.gui_bar_magnet_vout.setTextDisplay (handles.txtVOut, 'V');' and for minimum and maximum values 'cfg.gui_bar_magnet_vout.setMinMaxDisplay (handles.txtMin,handles.txtMax, 'V');'

The value can be changed with: `lvlBar.setValue(value);`

5.20.2 Constructor & Destructor Documentation

5.20.2.1 function LevelBar (in *parent_axes,* in *min_value,* in *max_value,* in *color*)

Class constructor.

Parameters

parent_axes	Handle of Axes object
min_value	Minimum value of bar
max_value	Maximum Value of bar
color	Optional; Color of the LevelBar; if not specified: `ColorOrder` index 1 of Axes object ist used

Returns

instance of the classDocumentationExample class.

5.20.3 Member Function Documentation

5.20.3.1 function _delete (in *obj*)

5.20.3.2 function setMinMaxDisplay (in *obj,* in *MinTextBox,* in *MaxTextBox,* in *unit_str*)

set textboxes for displaying min/max boudaries

Parameters

MinTextBox	handle to minimum text box
MaxTextBox	handle to maximum text box
unit_str	Unit of value or 0 to deactivate SI representation

5.20.3.3 function setTextDisplay (in *obj,* in *TextBox,* in *unit_str*)

set textboxes for displaying the current value

Parameters

TextBox	handle to text box
unit_str	Unit of value or 0 to deactivate SI representation

5.20.3.4 function setValue (in *obj,* in *value*)

set current value of level bar

Parameters

new	value of level bar

5.20.4 Member Data Documentation

5.20.4.1 Property laxes [protected]

Axes object.

5.20.4.2 Property lbar [protected]

the bar plot

5.20.4.3 PhyEditBox MaxDisplay

handle of maximum boundary display %

5.20.4.4 Property maxval [protected]

maximum value of boundary

5.20.4.5 PhyEditBox MinDisplay

handle of minimum boundary display %

5.20.4.6 Property minval [protected]

minimum value of boundary

5.20.4.7 PhyEditBox TextDisplay

handle of Text display %

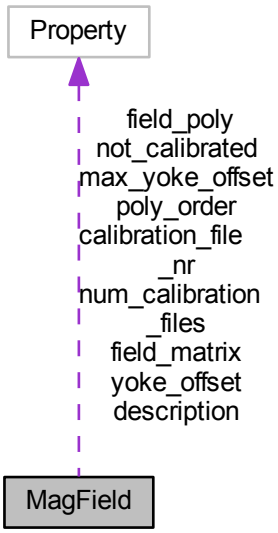
The documentation for this class was generated from the following file:

- C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/LevelBar.cpp

5.21 MagField Class Reference

MagField class; magnetic field calculation, calibration.

Collaboration diagram for MagField:



Public Member Functions

- function MagField (in calibration_file_nr)

  Class constructor.
- function _delete (in obj)
- function save_calib (in obj)

  Save calibration matrix and polynom as file.
- function FieldToVolt (in obj, in field)

  Calculates required power supply control voltage in order to reach a desired field value.
- function VoltToField (in obj, in volt)

  Calculates expected field value from power supply control voltage.
- function HallprobeToField (in obj, in volt)

  Converts hall amplifier voltage into magn.
- function polyFitMatrix (in obj)

  Calculates calibration polynom from calibration matrix.

Static Public Member Functions

- static function calibrationFiles (in num_files)

  Returns List of calibration files plus descrition plus date of calibration.
- static function getDescription (in calib_nr)

  Get description of calibration file.
- static function getDate (in calib_nr)

  Get calibration date of calibration file.
- static function setDescription (in calib_nr, in description)

  Alters description of certain calibration file.

Public Attributes

- Constant Property num_calibration_files

  Maximum number of calibration Files.
- Constant Property not_calibrated

  Description text for non existing calibration.
- Constant Property poly_order

  order of yoke calibration polynom
- Constant Property max_yoke_offset

  Oe, offsets between field setpoint and actual field.
- Property field_matrix

  :field, :volt (calibration matrix)
- Property field_poly

  calibration polynom
- Property calibration_file_nr

  number of used calibration file
- Property description

  description (name) of calibration file
- Property yoke_offset

  offset between field setpoint and actual field (current remanence or calibr error)

5.21.1 Detailed Description

MagField class; magnetic field calculation, calibration.

reads hall probe for determining current magnetic field and controls power supply

5.21.2 Constructor & Destructor Documentation

5.21.2.1 function MagField (in *calibration_file_nr*)

Class constructor.

Parameters

calibration_file_nr	Number of calibration file (1-9) to load

5.21.3 Member Function Documentation

5.21.3.1 function _delete (in *obj*)

5.21.3.2 static function calibrationFiles (in *num_files*) [static]

Returns List of calibration files plus descrition plus date of calibration.

Parameters

num_files	Optional; also obsolete

Return values

str	List of calibration files plus descrition

5.21.3.3 function FieldToVolt (in *obj,* in *field*)

Calculates required power supply control voltage in order to reach a desired field value.

Parameters

field	Desired magnetic field

Return values

volt	Remote control voltage for magnet power supply

5.21.3.4 static function getDate (in *calib_nr*) [static]

Get calibration date of calibration file.

Parameters

calib_nr	Calibration file number

Return values

str	Date string

5.21.3.5 static function getDescription (in *calib_nr*) [static]

Get description of calibration file.

Parameters

calib_nr	Calibration file number

Return values

str	Description (Name)

5.21.3.6 function HallprobeToField (in *obj,* in *volt*)

Converts hall amplifier voltage into magn.

field value using calibration factor and offset

Parameters

volt	Output voltage of hall amplifier

Return values

field	Magnetic field

5.21.3.7 function polyFitMatrix (in *obj*)

Calculates calibration polynom from calibration matrix.

5.21.3.8 function save_calib (in *obj*)

Save calibration matrix and polynom as file.

5.21.3.9 static function setDescription (in *calib_nr,* in *description*) [static]

Alters description of certain calibration file.

Parameters

calib_nr	Calibration file number
description	Description(name)

Return values

str	List of calibration files plus descrition

5.21.3.10 function VoltToField (in *obj,* in *volt*)

Calculates expected field value from power supply control voltage.

Parameters

volt	Desired magnetic field

Return values

field	Remote control voltage for magnet power supply

5.21.4 Member Data Documentation

5.21.4.1 Property calibration_file_nr

number of used calibration file

5.21.4.2 Property description

description (name) of calibration file

5.21.4.3 Property field_matrix

:field, :volt (calibration matrix)

5.21.4.4 Property field_poly

calibration polynom

5.21.4.5 Constant Property max_yoke_offset

Oe, offsets between field setpoint and actual field.

5.21.4.6 Constant Property not_calibrated

Description text for non existing calibration.

5.21.4.7 Constant Property num_calibration_files

Maximum number of calibration Files.

5.21.4.8 Constant Property poly_order

order of yoke calibration polynom

5.21.4.9 Property yoke_offset

offset between field setpoint and actual field (current remanence or calibr error)

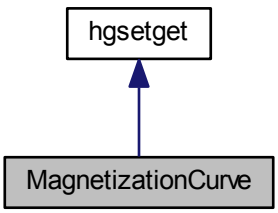
The documentation for this class was generated from the following file:

- C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/MagField.cpp

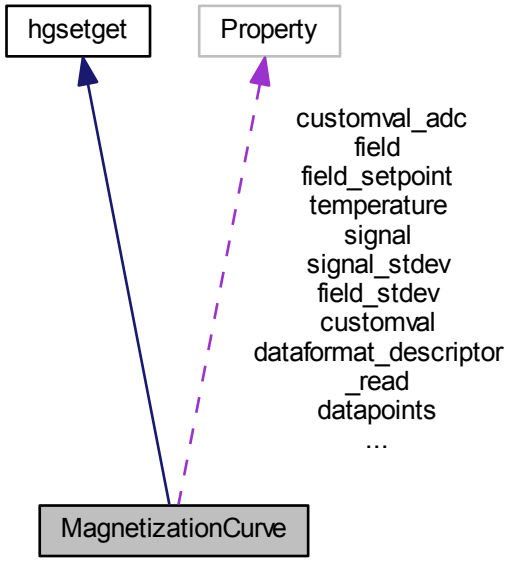
5.22 MagnetizationCurve Class Reference

MagnetizationCurve class (represents data of entire magnetization curve)

Inheritance diagram for MagnetizationCurve:



Collaboration diagram for MagnetizationCurve:



Public Member Functions

- function MagnetizationCurve (in data)

  Constructor.
- function set datapoints (in obj, in val)

  set data points.
- function get datapoints (in obj)

  Returns entire data matrix.
- function addDataPoint (in obj, in val)

  Add a data point; see Measurement.magnetizationLoop() near Line 143 for an example.
- function addElementStruct (in ElStruct)

  obsolete. structure to array
- function averageLoop (in obj, in loops)

  Fill MagnetizationCurve with an average loop.

Public Attributes

- Constant Property dataformat_header

  how .data is written in to m3dat files# moved to GuiCfg; VSM/MOKE edition
- Constant Property dataformat_descriptor

  format string for writing to m3dat files
- Constant Property dataformat_descriptor_read

  format string for reading from m3dat files
- Property datapoints

  combined value: ElStruct.signal_stdev ElStruct.customval ElStruct.customval_adc]; format = :field_setpoint :field_↩ meas :signal :signalQ :temp :field_stdev :signal_stdev :customval :customval_adc(aux_adc)

Private Attributes

- Property field_setpoint

  array of setpoints
- Property field

  array of measured field values
- Property signal

  array of signal from detector
- Property signal_quadr

  array of signal 2
- Property temperature

  array of temperature values (from tempctl or manually entered)
- Property customval

  array of values (from customctl)
- Property customval_adc

  array of auxilliary ADC input
- Property field_stdev

  array of standard deviation in field measurement
- Property signal_stdev

  array of standard deviation in signal measurement

5.22.1 Detailed Description

MagnetizationCurve class (represents data of entire magnetization curve)

represents data of entire magnetization curve

5.22.2 Constructor & Destructor Documentation

5.22.2.1 function MagnetizationCurve (in *data*)

Constructor.

MagnetizationCurve([data])

Parameters

data	Optional. Data from another MagnetizationCurve

5.22.3 Member Function Documentation

5.22.3.1 function addDataPoint (in *obj,* in *val*)

Add a data point; see Measurement.magnetizationLoop() near Line 143 for an example.

Parameters

val	structure od entire data matrix/array

5.22.3.2 function addElementStruct (in *ElStruct*)

obsolete. structure to array

5.22.3.3 function averageLoop (in *obj*, in *loops*)

Fill MagnetizationCurve with an average loop.

Parameters

loops	array of MagnetizationCurve to be averaged

5.22.3.4 function set datapoints (in *obj,* in *val*)

set data points.

To delete all: obj.datapoints = 0; set property example

5.22.3.5 function get datapoints (in *obj*)

Returns entire data matrix.

Return values

val	matrix of all measured values

5.22.4 Member Data Documentation

5.22.4.1 Property customval [private]

array of values (from customctl)

5.22.4.2 Property customval_adc [private]

array of auxilliary ADC input

5.22.4.3 Constant Property dataformat_descriptor

format string for writing to m3dat files

5.22.4.4 Constant Property dataformat_descriptor_read

format string for reading from m3dat files

5.22.4.5 Constant Property dataformat_header

how .data is written in to m3dat files# moved to GuiCfg; VSM/MOKE edition

5.22.4.6 Property datapoints

combined value: ElStruct.signal_stdev ElStruct.customval ElStruct.customval_adc]; format = :field_setpoint :field↩
_meas :signal :signalQ :temp :field_stdev :signal_stdev :customval :customval_adc(aux_adc)

5.22.4.7 Property field [private]

array of measured field values

5.22.4.8 Property field_setpoint [private]

array of setpoints

5.22.4.9 Property field_stdev [private]

array of standard deviation in field measurement

5.22.4.10 Property signal [private]

array of signal from detector

5.22.4.11 Property signal_quadr [private]

array of signal 2

5.22.4.12 Property signal_stdev [private]

array of standard deviation in signal measurement

5.22.4.13 Property temperature [private]

array of temperature values (from tempctl or manually entered)

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

- C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/MagnetizationCurve.cpp

5.23 Measurement Class Reference

Main functions for Measurement and Calibration; Contains main parts of measurement logic.

Static Public Member Functions

- static function updateMagnetVout (in obj, in event, in AnaIO)

  Timer function that updates current measurement values in GUI display.
- static function degaussYoke (in AnaIO)

  Demagnitizise Yoke.
- static function viewFile ()

  Load a measument data file.
- static function ipause (in seconds)

  interruptible pause; interrupts if runstate != running; exploits java sleep function (seems to be more accurate)

5.23.1 Detailed Description

Main functions for Measurement and Calibration; Contains main parts of measurement logic.

5.23.2 Member Function Documentation

5.23.2.1 static function degaussYoke (in *AnaIO*) [static]

Demagnitizise Yoke.

Produces a decaying alternating magn. field

Parameters

AnalO	Running AnalogIO object

5.23.2.2 static function ipause (in *seconds*) [static]

interruptible pause; interrupts if runstate != running; exploits java sleep function (seems to be more accurate)

Parameters

seconds	time in seconds

5.23.2.3 static function updateMagnetVout (in *obj,* in *event,* in *AnalO*) [static]

Timer function that updates current measurement values in GUI display.

Period about 0.3 sec

Parameters

AnalO	Running AnalogIO object

5.23.2.4 static function viewFile ( ) [static]

Load a measument data file.

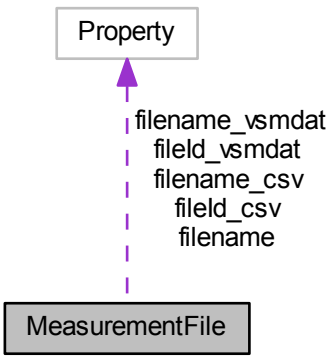
The documentation for this class was generated from the following file:

- C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/Measurement.cpp

5.24 MeasurementFile Class Reference

MeasurementFile class (saves/loads measured data); See m for an example.

Collaboration diagram for MeasurementFile:



Public Member Functions

- function MeasurementFile (in filename)

  Create data file handling object. Usage:
- function _delete (in obj)
- function setFilenameSuffix (in obj, in suffix)

  Changes `filename.m3dat` *to* `filename_suffix.m3dat;`.
- function saveMagnetizationCurve (in obj, in mag_curve, in simple_dat)

  Saves the measured data.
- function loadMagnetizationCurve (in obj)

  Loads data file.
- function readConfigFromHeader (in obj, in Header, in CfgObj, in cfgproperty, in fileproperty)

  Extract parameter from Header structure and overwrites parameter in Config.
- function getHeaderValue (in obj, in Header, in property)

  Extract parameter from Header structure and return value.

Public Attributes

- Property filename

  file path to measurement file

Private Attributes

- Property fileId_csv

  data separated by tabstop 'TAB', no header
- Property filename_csv
- Property fileId_vsmdat

  header + data
- Property filename_vsmdat

5.24.1 Detailed Description

MeasurementFile class (saves/loads measured data); See m for an example.

saves/loads measured data (csv files)

5.24.2 Constructor & Destructor Documentation

5.24.2.1 function MeasurementFile (in *filename*)

Create data file handling object. Usage:

see fileReadSample.m for an example usage. `MF = MeasurementFile(filename)` `filename` = path to data file or `filename = 'new'` File dialog asking for new filename `filename = 'exist'` File dialog asking for existing file

Parameters

filename	Path to data file or 'new' or 'exist'

5.24.3 Member Function Documentation

5.24.3.1 function _delete (in *obj*)

5.24.3.2 function getHeaderValue (in *obj,* in *Header,* in *property*)

Extract parameter from Header structure and return value.

Parameters

Header	Header structure returned by loadMagnetizationCurve()
property	name of parameter in data file

Return values

strvalue	value of parameter as string
numvalue	value of parameter as integer

5.24.3.3 function loadMagnetizationCurve (in *obj*)

Loads data file.

Return values

Loops	array of MagnetizationCurve contains measured data
Header	File header as structure

5.24.3.4 function readConfigFromHeader (in *obj,* in *Header,* in *CfgObj,* in *cfgproperty,* in *fileproperty*)

Extract parameter from Header structure and overwrites parameter in Config.

Parameters

Header	Header structure returned by loadMagnetizationCurve()
CfgObj	Config object
cfgproperty	parameter name in Config object
fileproperty	name of parameter in data file

5.24.3.5 function saveMagnetizationCurve (in *obj,* in *mag_curve,* in *simple_dat*)

Saves the measured data.

Parameters

mag_curve	MagnetizationCurve object with measured data
simple_dat	1: data also saved in simple tab seperated .dat file

5.24.3.6 function setFilenameSuffix (in *obj,* in *suffix*)

Changes `filename.m3dat` to `filename_suffix.m3dat`;.

Parameters

suffix	String to add after filename like '_25°C'

5.24.4 Member Data Documentation

5.24.4.1 Property fileId_csv [private]

data separated by tabstop 'TAB', no header

5.24.4.2 Property fileId_vsmdat [private]

header + data

5.24.4.3 Property filename

file path to measurement file

5.24.4.4 Property filename_csv [private]

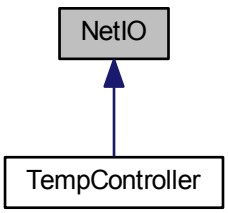
5.24.4.5 Property filename_vsmdat [private]

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

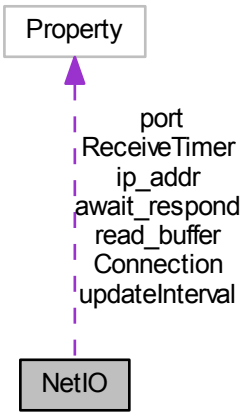
- C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/MeasurementFile.cpp

5.25 NetIO Class Reference

Inheritance diagram for NetIO:



Collaboration diagram for NetIO:



Public Member Functions

- function NetIO ()
- function _delete (in obj)
- virtual function processCommands (in obj, in commands)

Public Attributes

- Constant Property updateInterval

  seconds

Protected Member Functions

- function startConnection (in obj)
- function stopConnection (in obj)
- function processReadbuffer (in obj)
- function sendData (in obj, in txt)
- function waitforAnswerTo (in obj, in txt)
- function timedReceive (in obj, in event)

Protected Attributes

- Property Connection

  tcpclient object
- Property ip_addr
- Property port
- Property read_buffer
- Property ReceiveTimer
- Property await_respond

  wait for receiving answer

5.25.1 Constructor & Destructor Documentation

5.25.1.1 function NetIO ( )

5.25.2 Member Function Documentation

5.25.2.1 function _delete (in *obj*)

5.25.2.2 virtual function processCommands (in *obj,* in *commands*) [virtual]

Reimplemented in TempController.

5.25.2.3 function processReadbuffer (in *obj*) [protected]

5.25.2.4 function sendData (in *obj,* in *txt*) [protected]

5.25.2.5 function startConnection (in *obj*) [protected]

5.25.2.6 function stopConnection (in *obj*) [protected]

5.25.2.7 function timedReceive (in *obj,* in *event*) [protected]

5.25.2.8 function waitforAnswerTo (in *obj,* in *txt*) [protected]

5.25.3 Member Data Documentation

5.25.3.1 Property await_respond [protected]

wait for receiving answer

5.25.3.2 Property Connection [protected]

tcpclient object

5.25.3.3 Property ip_addr [protected]

5.25.3.4 Property port [protected]

5.25.3.5 Property read_buffer [protected]

5.25.3.6 Property ReceiveTimer [protected]

5.25.3.7 Constant Property updateInterval

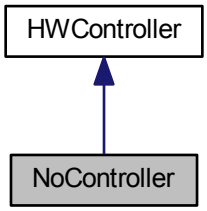
seconds

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

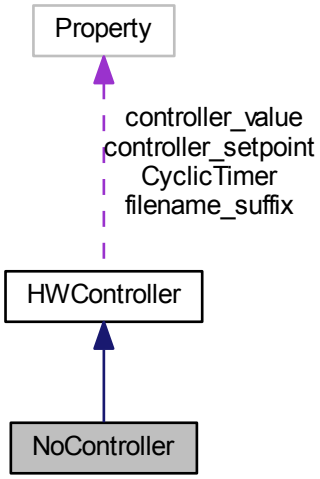
- C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/NetIO.cpp

5.26 NoController Class Reference

Inheritance diagram for NoController:



Collaboration diagram for NoController:



Public Member Functions

- function NoController ()
- function _delete (in obj)
- function beforeAllLoops (in obj, in cycles)
- function afterAllLoops (in obj, in restart_measure)
- function getValue (in obj)
- function beforeLoop (in obj)
- function afterLoop (in obj)
- function setValue (in obj, in val)

Public Attributes

- Property filename_suffix

Protected Member Functions

- function timedFunction (in obj)
- function abortMeasurement (in obj)
- function cyclicTimer (in obj, in event)
- function setupTimer (in obj, in time_interval_s)
- function stopTimer (in obj)

Protected Attributes

- Property controller_value

  internal storage
- Property controller_setpoint
- Property CyclicTimer

  Timer for timedFunction.

5.26.1 Constructor & Destructor Documentation

5.26.1.1 function NoController ( )

5.26.2 Member Function Documentation

5.26.2.1 function _delete (in *obj*)

5.26.2.2 function abortMeasurement (in *obj*) [protected], [inherited]

5.26.2.3 function afterAllLoops (in *obj,* in *restart_measure*)

5.26.2.4 function afterLoop (in *obj*) [inherited]

5.26.2.5 function beforeAllLoops (in *obj,* in *cycles*)

5.26.2.6 function beforeLoop (in *obj*) [inherited]

5.26.2.7 function cyclicTimer (in *obj,* in *event*) [protected], [inherited]

5.26.2.8 function getValue (in *obj*)

5.26.2.9 function setupTimer (in *obj,* in *time_interval_s*) [protected], [inherited]

5.26.2.10 function setValue (in *obj,* in *val*) [inherited]

5.26.2.11 function stopTimer (in *obj*) [protected], [inherited]

5.26.2.12 function timedFunction (in *obj*) [protected], [inherited]

5.26.3 Member Data Documentation

5.26.3.1 Property controller_setpoint [protected], [inherited]

5.26.3.2 Property controller_value [protected],[inherited]

internal storage

5.26.3.3 Property CyclicTimer [protected],[inherited]

Timer for timedFunction.

5.26.3.4 Property filename_suffix [inherited]

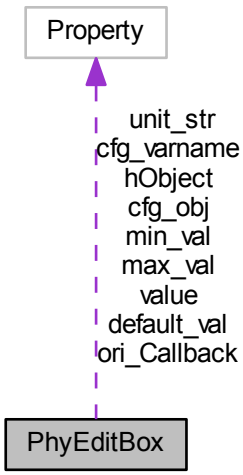
The documentation for this class was generated from the following file:

- C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/NoController.cpp

5.27 PhyEditBox Class Reference

Extends a text box in order to show SI values with units (kg, mA, ...)

Collaboration diagram for PhyEditBox:



Public Member Functions

- function PhyEditBox (in hObject, in unit_str, in default_val, in min_val, in max_val, in cfg_obj, in cfg_varname)

  Class constructor.
- function _delete (in obj)
- function internal_Callback (in obj, in hObject, in eventdata, in handles)

  Internal callback function for the text change event; Regular callback function will be called after this method.
- function getValue (in obj)
- function setValue (in obj, in val)

Static Public Member Functions

- static function checkVal (in value_text, in use_bounds, in min_val, in max_val, in unit_str)

Public Attributes

- Property min_val
  minimum value allowed
- Property max_val
  maximum value allowed
- Property default_val
  default value (in case of invalid input)
- Property unit_str
  Unit specifier 'V', 'Oe', '', 0 (deactivate SI)

Protected Member Functions

- function checkValue (in obj)

Protected Attributes

- Property hObject
  hande of text box
- Property ori_Callback
  original text changed callback of text box
- Property value
  current value
- Property cfg_obj
  An object or structure that should get automatically updated on value changes of the PhyEditBox.
- Property cfg_varname
  The property of cfg_obj which will be updated.

5.27.1 Detailed Description

Extends a text box in order to show SI values with units (kg, mA, ...)

The Axes and Text objects can be placed using Mathworks's GUIDE(TM)

usage: `PhyEditBox(hObject, unit_str, default_val, min_val, max_val, [cfg_obj], [cfg_varname])` `hObject` Handle of text box object `unit_str` Unit string (V, A, Oe, ...); 0 deactivates SI representation `default_val` Default value; ignored whe cfg_obj is used `min_val` Minimum value allowed `max_val` Maximum value allowed `cfg_obj` Optional; An object or structure that should get automatically updated on value changes of the PhyEditBox `cfg_varname` Optional; The property of cfg_obj which will be updated

'edBox = PkgAdvGUI.PhyEditBox(handles.field, 'Oe', 0, 0, 30000, cfg, 'magnet_max_field');'

The value can be changed with: `lvlBar.setValue(value);`

5.27.2 Constructor & Destructor Documentation

5.27.2.1 function PhyEditBox (in *hObject,* in *unit_str,* in *default_val,* in *min_val,* in *max_val,* in *cfg_obj,* in *cfg_varname*)

Class constructor.

Parameters

hObject	Handle of text box object
unit_str	Unit string (V, A, Oe, ...); 0 deactivates SI representation
default_val	Default value; ignored whe cfg_obj is used
min_val	Minimum value allowed
max_val	Maximum value allowed
cfg_obj	Optional; An object or structure that should get automatically updated on value changes of the PhyEditBox
cfg_varname	Optional; The property of cfg_obj which will be updated

Returns

instance of the class

5.27.3 Member Function Documentation

5.27.3.1 function _delete (in *obj*)

5.27.3.2 static function checkVal (in *value_text,* in *use_bounds,* in *min_val,* in *max_val,* in *unit_str*) [static]

5.27.3.3 function checkValue (in *obj*) [protected]

5.27.3.4 function getValue (in *obj*)

5.27.3.5 function internal_Callback (in *obj,* in *hObject,* in *eventdata,* in *handles*)

Internal callback function for the text change event; Regular callback function will be called after this method.

5.27.3.6 function setValue (in *obj,* in *val*)

5.27.4 Member Data Documentation

5.27.4.1 Property cfg_obj [protected]

An object or structure that should get automatically updated on value changes of the PhyEditBox.

5.27.4.2 Property cfg_varname [protected]

The property of cfg_obj which will be updated.

5.27.4.3 Property default_val

default value (in case of invalid input)

5.27.4.4 Property hObject [protected]

hande of text box

5.27.4.5 Property max_val

maximum value allowed

5.27.4.6 Property min_val

minimum value allowed

5.27.4.7 Property ori_Callback [protected]

original text changed callback of text box

5.27.4.8 Property unit_str

Unit specifier 'V', 'Oe', '', 0 (deactivate SI)

5.27.4.9 Property value [protected]

current value

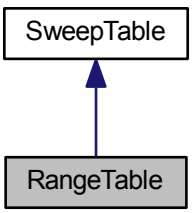
The documentation for this class was generated from the following file:

- C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/PhyEditBox.cpp

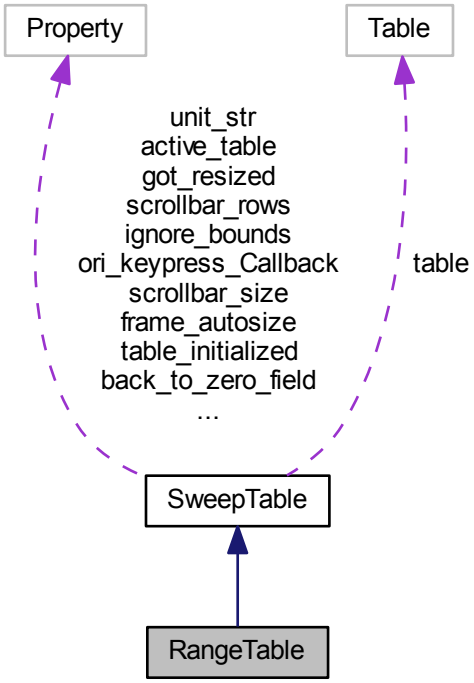
5.28 RangeTable Class Reference

Extends a UITable with PhyEditBox capabilities.

Inheritance diagram for RangeTable:



Collaboration diagram for RangeTable:



Public Member Functions

- function RangeTable ()
- function createSweepTable (in obj)

  generate data for sweep table
- function firstSweep (in obj)

  Begin sequence.
- function nextSweep (in obj)

  Walk through sequence.
- function stopSweep (in obj)

  Reset sequence.
- function setTable (in obj, in table)

  Set UITable object which sould become a sweep table.
- function setData (in obj, in data)

  Insert data from float array into table.
- function getData (in obj)

  Set UITable object which sould become a sweep table.
- function internal_Callback (in obj, in hObject, in eventdata, in handles)

  Internal callback function for the text change event; Regular callback function will be called after this method.
- function internal_KeyPress_Callback (in obj, in hObject, in eventdata, in handles)

  Internal callback function for the key pressed event; Regular callback function will be called after this method.
- function checkFields (in obj, in correct)

  Set UITable object which sould become a sweep table.

- function getFieldRange (in obj)

  Determine highest and lowest field value of sequence.
- function checkFrameSize (in obj, in init)

  align outer frame of table to the real size of the table

Public Attributes

- Constant Property dataformat_header

  data block headline of m3dat files
- Constant Property dataformat_descriptor

  how .data is written to m3dat files
- Constant Property dataformat_descriptor_read

  how to rad .data from m3dat files
- Constant Property use_unofficial_java

  restore scrollbar position after editing table, etc ..;
- Property data

  this might cause problems on some systems
- Property from

  start of selected field sweep
- Property to

  end of selected field sweep
- Property step

  step size of selected field sweep
- Property fieldarray

  contains the discrete sequence of field value from..to
- Property cycles

  number of loops to measure
- Property use_rangetable

  only one sweep (back and forth)
- Property scrollbar_rows

  show scrollbar if nr of rows above this value
- Property autoextend

  add aditional rows when last row gets edited
- Property scrollbar_size

  size of scrollbar for adjusting the table's frame
- Property ignore_bounds

  ignore allowed min/max value
- Property lastedit_row

  row of last text change
- Property back_to_zero_field
- Property frame_autosize

  adjust frame size automatically
- Property got_resized

  1: use scrollbar, do not autosize height
- Property active_table

  range and unit checking after each input (use checkValues)
- Property minval

  Config.instance.magnet_min_field.
- Property maxval

  Config.instance.magnet_max_field.
- Property unit_str

Protected Member Functions

- function checkValue (in obj, in value_text, in out_of_bounds, in correct)

  Check if value ist valid and between min/max.
- function fillTable (in obj)

  fill numeric values of .data into Table
- function getJavaHandle (in obj)

  access java gui handle of uitable
- function generateFieldArray (in obj)

  generate discrete field values for a field sweepusing (.from .to .step) and store them in .fieldarray

Protected Attributes

- Table table

  UITable object.
- Property sweep_idx
- Property ori_Callback

  original callback function of table
- Property ori_keypress_Callback

  original callback function of table
- Property table_initialized

  needed for restoring scrollbar position
- Property tableJavaHandle

5.28.1 Detailed Description

Extends a UITable with PhyEditBox capabilities.

5.28.2 Constructor & Destructor Documentation

5.28.2.1 function RangeTable ( )

5.28.3 Member Function Documentation

5.28.3.1 function checkFields (in *obj,* in *correct*) [inherited]

Set UITable object which sould become a sweep table.

Parameters

correct	Constrain values that are out of bounds

Return values

out_of_bounds	= 1: some values are out of bounds

5.28.3.2 function checkFrameSize (in *obj,* in *init*) [inherited]

align outer frame of table to the real size of the table

Parameters

init	1 = window ist opened (initial start up of sweep table)

5.28.3.3 function checkValue (in *obj,* in *value_text,* in *out_of_bounds,* in *correct*) [protected],[inherited]

Check if value ist valid and between min/max.

Parameters

value_text	New Text as string
out_of_bounds	out of bounds condition of last check
correct	Constrain value to min/max

Return values

value	Numeric value
value_text	Formatted string of value
out_of_bounds	set to 1 if values exceed min/max

5.28.3.4 function createSweepTable (in *obj*)

generate data for sweep table

Return values

swdata	numeric array for SweepTable.setData

5.28.3.5 function fillTable (in *obj*) [protected],[inherited]

fill numeric values of .data into Table

5.28.3.6 function firstSweep (in *obj*) [inherited]

Begin sequence.

Set first sweep of table as current sweep. Sweep values can be accessed via .from, .to, .step. See Measurement.↩ magnetizationLoop() Line 97

Return values

sequence_end	= 1 if last line of table is reached

5.28.3.7 function generateFieldArray (in *obj*) [protected],[inherited]

generate discrete field values for a field sweepusing (.from .to .step) and store them in .fieldarray

5.28.3.8 function getData (in *obj*) [inherited]

Set UITable object which sould become a sweep table.

Return values

data	array of float

5.28.3.9 function getFieldRange (in *obj*) [inherited]

Determine highest and lowest field value of sequence.

Return values

field_range	2 dim array whith lowest and highest field value

5.28.3.10 function getJavaHandle (in *obj*) [protected], [inherited]

access java gui handle of uitable

Return values

jhandle	Java hande

5.28.3.11 function internal_Callback (in *obj,* in *hObject,* in *eventdata,* in *handles*) [inherited]

Internal callback function for the text change event; Regular callback function will be called after this method.

5.28.3.12 function internal_KeyPress_Callback (in *obj,* in *hObject,* in *eventdata,* in *handles*) [inherited]

Internal callback function for the key pressed event; Regular callback function will be called after this method.

5.28.3.13 function nextSweep (in *obj*) [inherited]

Walk through sequence.

Set next sweep of table as current sweep. Sweep values can be accessed via .from, .to, .step. See Measurement.↩ magnetizationLoop()

Return values

sequence_end	= 1 if last line of table is reached

5.28.3.14 function setData (in *obj,* in *data*) [inherited]

Insert data from float array into table.

Parameters

data	array of numbers

5.28.3.15 function setTable (in *obj,* in *table*) [inherited]

Set UITable object which sould become a sweep table.

Parameters

table	Existing UITable

5.28.3.16 function stopSweep (in *obj*) [inherited]

Reset sequence.

5.28.4 Member Data Documentation

5.28.4.1 Property active_table [inherited]

range and unit checking after each input (use checkValues)

5.28.4.2 Property autoextend [inherited]

add aditional rows when last row gets edited

5.28.4.3 Property back_to_zero_field [inherited]

5.28.4.4 Property cycles [inherited]

number of loops to measure

5.28.4.5 Property data [inherited]

this might cause problems on some systems
:from :to :step :active

5.28.4.6 Constant Property dataformat_descriptor [inherited]

how .data is written to m3dat files

5.28.4.7 Constant Property dataformat_descriptor_read [inherited]

how to rad .data from m3dat files

5.28.4.8 Constant Property dataformat_header [inherited]

data block headline of m3dat files

5.28.4.9 Property fieldarray [inherited]

contains the discrete sequence of field value from..to

5.28.4.10 Property frame_autosize [inherited]

adjust frame size automatically

5.28.4.11 Property from [inherited]

start of selected field sweep

5.28.4.12 Property got_resized [inherited]

1: use scrollbar, do not autosize height

5.28.4.13 Property ignore_bounds [inherited]

ignore allowed min/max value

5.28.4.14 Property lastedit_row [inherited]

row of last text change

5.28.4.15 Property maxval [inherited]

Config.instance.magnet_max_field.

5.28.4.16 Property minval [inherited]

Config.instance.magnet_min_field.

5.28.4.17 Property ori_Callback [protected], [inherited]

original callback function of table

5.28.4.18 Property ori_keypress_Callback [protected], [inherited]

original callback function of table

5.28.4.19 Property scrollbar_rows [inherited]

show scrollbar if nr of rows above this value

5.28.4.20 Property scrollbar_size [inherited]

size of scrollbar for adjusting the table's frame

5.28.4.21 Property step [inherited]

step size of selected field sweep

5.28.4.22 Property sweep_idx [protected], [inherited]

5.28.4.23 Table table [protected], [inherited]

UITable object.

5.28.4.24 Property table_initialized [protected],[inherited]

needed for restoring scrollbar position

5.28.4.25 Property tableJavaHandle [protected],[inherited]

5.28.4.26 Property to [inherited]

end of selected field sweep

5.28.4.27 Property unit_str [inherited]

5.28.4.28 Property use_rangetable [inherited]

only one sweep (back and forth)

5.28.4.29 Constant Property use_unofficial_java [inherited]

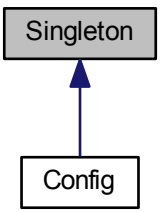
restore scrollbar position after editing table, etc ..;

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

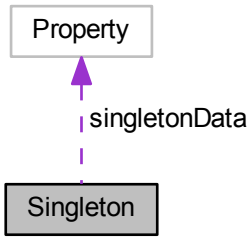
- C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/RangeTable.cpp

5.29 Singleton Class Reference

Inheritance diagram for Singleton:



Collaboration diagram for Singleton:



Public Member Functions

- function getSingletonData (in obj)
- function setSingletonData (in obj, in singletonData)

Static Public Member Functions

- virtual static instance ()

Private Attributes

- Property singletonData

5.29.1 Member Function Documentation

5.29.1.1 function getSingletonData (in *obj*)

5.29.1.2 virtual static instance ( ) [static],[virtual]

5.29.1.3 function setSingletonData (in *obj,* in *singletonData*)

5.29.2 Member Data Documentation

5.29.2.1 Property singletonData [private]

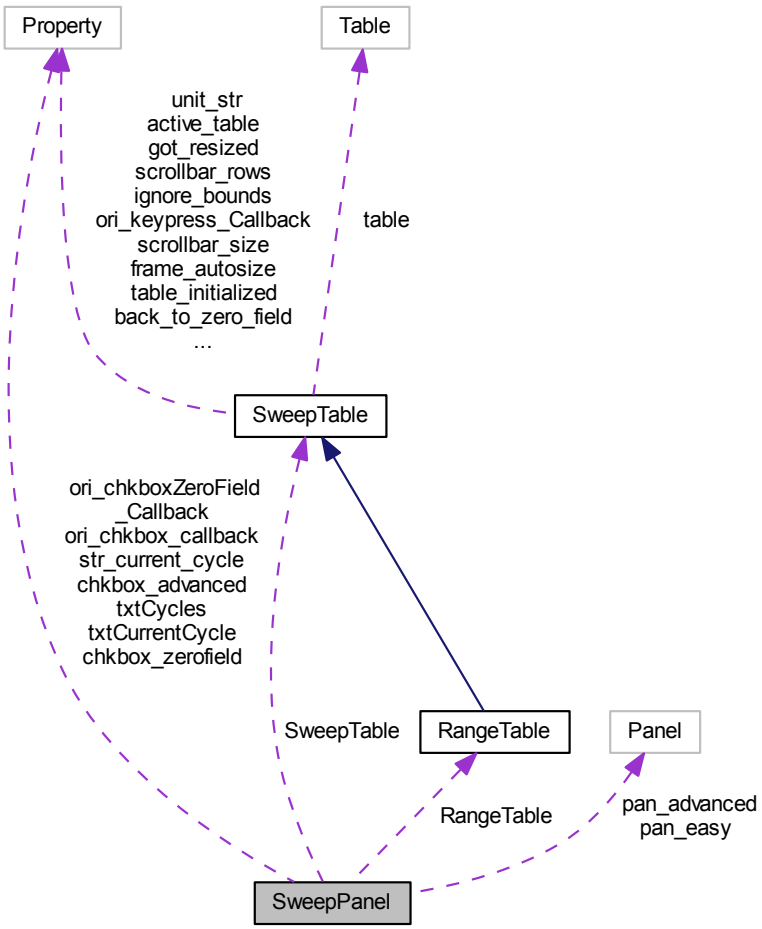
The documentation for this class was generated from the following file:

- C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/Singleton.cpp

5.30 SweepPanel Class Reference

Holds and organizes all tables options and buttons for the sweep configuration inside the fMPlot window.

Collaboration diagram for SweepPanel:



Public Member Functions

- function SweepPanel (in chkbox_advanced, in chkbox_back_to_zerofield, in txt_cycles, in txt_current_cycle, in tab_fieldranges, in tab_sweepsequence, in pan_easy, in pan_advanced)

  Class constructor.
- function setCurrentCycle (in obj, in cycle)

  set current cycle number which is then shown in txt_current_cycle
- function chkbox_Callback (in obj, in hObject, in eventdata, in handles)

  internal callback
- function showSweepSequence (in obj, in true_false)

  Switch between simple and advanced field sweep setup.
- function chkboxChanged (in obj)
- function chkboxZeroField_Callback (in obj, in hObject, in eventdata, in handles)

  internal callback
- function chkboxZeroFieldChanged (in obj)

Public Attributes

- Constant Property str_current_cycle
- Property chkbox_advanced

  option (checkbox) for using a table of sweeps instead of simple min and max field of a loop
- Property chkbox_zerofield

  checkbox whether magn. field should be set to zero after measurement
- Property txtCycles

  text box with number of cycles to measure
- Property txtCurrentCycle

  text box with "Current cycle: ..."
- SweepTable SweepTable

  table with explicit field sweep sequence (advanced table)
- RangeTable RangeTable

  table with field sweep ranges
- Panel pan_easy

  hide and show advanced sweep feature
- Panel pan_advanced

  hide and show advanced sweep feature
- Property ori_chkbox_callback

  original checkbox callback
- Property ori_chkboxZeroField_Callback

  original checkbox callback

5.30.1 Detailed Description

Holds and organizes all tables options and buttons for the sweep configuration inside the fMPlot window.

5.30.2 Constructor & Destructor Documentation

5.30.2.1 function SweepPanel (in *chkbox_advanced,* in *chkbox_back_to_zerofield,* in *txt_cycles,* in *txt_current_cycle,* in *tab_fieldranges,* in *tab_sweepsequence,* in *pan_easy,* in *pan_advanced*)

Class constructor.

Parameters

chkbox_advanced	checkbox field range table/advanced sweep setup
chkbox_back_to_zerofield	checkbox sweep back to 0 field after measurement
txt_cycles	textbox number of sweep sequence cycles
txt_current_cycle	textbox/label for indicating current cycle number
tab_fieldranges	field RangeTable
tab_sweepsequence	field SweepTable
pan_easy	frame with elements for simple setup
pan_advanced	frame with elements for advanced sweep setup

Returns

instance of the SweepPanel class.

5.30.3 Member Function Documentation

5.30.3.1 function chkbox_Callback (in *obj,* in *hObject,* in *eventdata,* in *handles*)

internal callback

5.30.3.2 function chkboxChanged (in *obj*)

5.30.3.3 function chkboxZeroField_Callback (in *obj,* in *hObject,* in *eventdata,* in *handles*)

internal callback

5.30.3.4 function chkboxZeroFieldChanged (in *obj*)

5.30.3.5 function setCurrentCycle (in *obj,* in *cycle*)

set current cycle number which is then shown in txt_current_cycle

5.30.3.6 function showSweepSequence (in *obj,* in *true_false*)

Switch between simple and advanced field sweep setup.

Parameters

true_false	1 = advanced setup / 0 = simple setup

5.30.4 Member Data Documentation

5.30.4.1 Property chkbox_advanced

option (checkbox) for using a table of sweeps instead of simple min and max field of a loop

5.30.4.2 Property chkbox_zerofield

checkbox whether magn. field should be set to zero after measurement

5.30.4.3 Property ori_chkbox_callback

original checkbox callback

5.30.4.4 Property ori_chkboxZeroField_Callback

original checkbox callback

5.30.4.5 Panel pan_advanced

hide and show advanced sweep feature

5.30.4.6 Panel pan_easy

hide and show advanced sweep feature

5.30.4.7 RangeTable RangeTable

table with field sweep ranges

5.30.4.8 Constant Property str_current_cycle

5.30.4.9 SweepTable SweepTable

table with explicit field sweep sequence (advanced table)

5.30.4.10 Property txtCurrentCycle

text box with "Current cycle: ..."

5.30.4.11 Property txtCycles

text box with number of cycles to measure

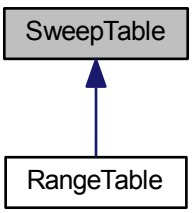
The documentation for this class was generated from the following file:

- C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/SweepPanel.cpp

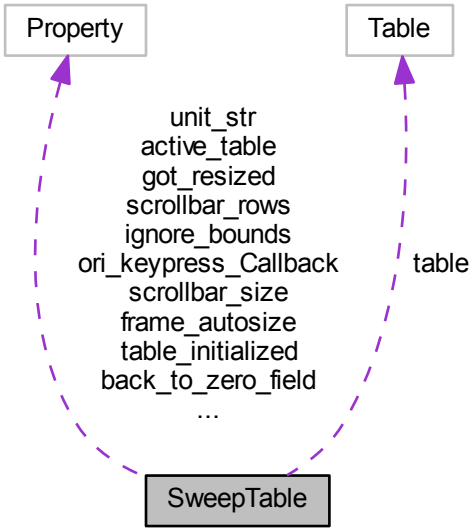
5.31 SweepTable Class Reference

Extends a UITable with PhyEditBox capabilities and and provides the sweep sequence.

Inheritance diagram for SweepTable:



Collaboration diagram for SweepTable:



Public Member Functions

- function SweepTable (in value_min, in value_max, in unit_string)

  Class constructor.
- function firstSweep (in obj)

  Begin sequence.
- function nextSweep (in obj)

  Walk through sequence.
- function stopSweep (in obj)

  Reset sequence.
- function setTable (in obj, in table)

  Set UITable object which sould become a sweep table.
- function setData (in obj, in data)

  Insert data from float array into table.
- function getData (in obj)

  Set UITable object which sould become a sweep table.
- function internal_Callback (in obj, in hObject, in eventdata, in handles)

  Internal callback function for the text change event; Regular callback function will be called after this method.
- function internal_KeyPress_Callback (in obj, in hObject, in eventdata, in handles)

  Internal callback function for the key pressed event; Regular callback function will be called after this method.
- function checkFields (in obj, in correct)

  Set UITable object which sould become a sweep table.
- function getFieldRange (in obj)

  Determine highest and lowest field value of sequence.
- function checkFrameSize (in obj, in init)

  align outer frame of table to the real size of the table

Public Attributes

- Constant Property dataformat_header

  data block headline of m3dat files
- Constant Property dataformat_descriptor

  how .data is written to m3dat files
- Constant Property dataformat_descriptor_read

  how to rad .data from m3dat files
- Constant Property use_unofficial_java

  restore scrollbar position after editing table, etc ..;
- Property data

  this might cause problems on some systems
- Property from

  start of selected field sweep
- Property to

  end of selected field sweep
- Property step

  step size of selected field sweep
- Property fieldarray

  contains the discrete sequence of field value from..to
- Property cycles

  number of loops to measure
- Property use_rangetable

  only one sweep (back and forth)
- Property scrollbar_rows

  show scrollbar if nr of rows above this value
- Property autoextend

  add aditional rows when last row gets edited
- Property scrollbar_size

  size of scrollbar for adjusting the table's frame
- Property ignore_bounds

  ignore allowed min/max value
- Property lastedit_row

  row of last text change
- Property back_to_zero_field
- Property frame_autosize

  adjust frame size automatically
- Property got_resized

  1: use scrollbar, do not autosize height
- Property active_table

  range and unit checking after each input (use checkValues)
- Property minval

  Config.instance.magnet_min_field.
- Property maxval

  Config.instance.magnet_max_field.
- Property unit_str

Protected Member Functions

- function checkValue (in obj, in value_text, in out_of_bounds, in correct)

  Check if value ist valid and between min/max.
- function fillTable (in obj)

  fill numeric values of .data into Table
- function getJavaHandle (in obj)

  access java gui handle of uitable
- function generateFieldArray (in obj)

  generate discrete field values for a field sweepusing (.from .to .step) and store them in .fieldarray

Protected Attributes

- Table table

  UITable object.
- Property sweep_idx
- Property ori_Callback

  original callback function of table
- Property ori_keypress_Callback

  original callback function of table
- Property table_initialized

  needed for restoring scrollbar position
- Property tableJavaHandle

5.31.1 Detailed Description

Extends a UITable with PhyEditBox capabilities and and provides the sweep sequence.

5.31.2 Constructor & Destructor Documentation

5.31.2.1 function SweepTable (in *value_min,* in *value_max,* in *unit_string*)

Class constructor.

Parameters

value_min	Minimum value allowed
value_max	Maximum value allowed
unit_str	Unit string ('V', 'A', 'Oe', ...); 0 deactivates SI representation

Returns

instance of the class

5.31.3 Member Function Documentation

5.31.3.1 function checkFields (in *obj,* in *correct*)

Set UITable object which sould become a sweep table.

Parameters

correct	Constrain values that are out of bounds

Return values

out_of_bounds	= 1: some values are out of bounds

5.31.3.2 function checkFrameSize (in *obj,* in *init*)

align outer frame of table to the real size of the table

Parameters

init	1 = window ist opened (initial start up of sweep table)

5.31.3.3 function checkValue (in *obj,* in *value_text,* in *out_of_bounds,* in *correct*) [protected]

Check if value ist valid and between min/max.

Parameters

value_text	New Text as string
out_of_bounds	out of bounds condition of last check
correct	Constrain value to min/max

Return values

value	Numeric value
value_text	Formatted string of value
out_of_bounds	set to 1 if values exceed min/max

5.31.3.4 function fillTable (in *obj*) [protected]

fill numeric values of .data into Table

5.31.3.5 function firstSweep (in *obj*)

Begin sequence.

Set first sweep of table as current sweep. Sweep values can be accessed via .from, .to, .step. See Measurement.↩ magnetizationLoop() Line 97

Return values

sequence_end	= 1 if last line of table is reached

5.31.3.6 function generateFieldArray (in *obj*) [protected]

generate discrete field values for a field sweepusing (.from .to .step) and store them in .fieldarray

5.31.3.7 function getData (in *obj*)

Set UITable object which sould become a sweep table.

Return values

data	array of float

5.31.3.8 function getFieldRange (in *obj*)

Determine highest and lowest field value of sequence.

Return values

field_range	2 dim array whith lowest and highest field value

5.31.3.9 function getJavaHandle (in *obj*) [protected]

access java gui handle of uitable

Return values

jhandle	Java hande

5.31.3.10 function internal_Callback (in *obj,* in *hObject,* in *eventdata,* in *handles*)

Internal callback function for the text change event; Regular callback function will be called after this method.

5.31.3.11 function internal_KeyPress_Callback (in *obj,* in *hObject,* in *eventdata,* in *handles*)

Internal callback function for the key pressed event; Regular callback function will be called after this method.

5.31.3.12 function nextSweep (in *obj*)

Walk through sequence.

Set next sweep of table as current sweep. Sweep values can be accessed via .from, .to, .step. See Measurement.↩ magnetizationLoop()

Return values

sequence_end	= 1 if last line of table is reached

5.31.3.13 function setData (in *obj,* in *data*)

Insert data from float array into table.

Parameters

data	array of numbers

5.31.3.14 function setTable (in *obj,* in *table*)

Set UITable object which sould become a sweep table.

Parameters

table	Existing UITable

5.31.3.15 function stopSweep (in *obj*)

Reset sequence.

5.31.4 Member Data Documentation

5.31.4.1 Property active_table

range and unit checking after each input (use checkValues)

5.31.4.2 Property autoextend

add aditional rows when last row gets edited

5.31.4.3 Property back_to_zero_field

5.31.4.4 Property cycles

number of loops to measure

5.31.4.5 Property data

this might cause problems on some systems
:from :to :step :active

5.31.4.6 Constant Property dataformat_descriptor

how .data is written to m3dat files

5.31.4.7 Constant Property dataformat_descriptor_read

how to rad .data from m3dat files

5.31.4.8 Constant Property dataformat_header

data block headline of m3dat files

5.31.4.9 Property fieldarray

contains the discrete sequence of field value from..to

5.31.4.10 Property frame_autosize

adjust frame size automatically

5.31.4.11 Property from

start of selected field sweep

5.31.4.12 Property got_resized

1: use scrollbar, do not autosize height

5.31.4.13 Property ignore_bounds

ignore allowed min/max value

5.31.4.14 Property lastedit_row

row of last text change

5.31.4.15 Property maxval

Config.instance.magnet_max_field.

5.31.4.16 Property minval

Config.instance.magnet_min_field.

5.31.4.17 Property ori_Callback [protected]

original callback function of table

5.31.4.18 Property ori_keypress_Callback [protected]

original callback function of table

5.31.4.19 Property scrollbar_rows

show scrollbar if nr of rows above this value

5.31.4.20 Property scrollbar_size

size of scrollbar for adjusting the table's frame

5.31.4.21 Property step

step size of selected field sweep

5.31.4.22 Property sweep_idx [protected]

5.31.4.23 Table table [protected]

UITable object.

5.31.4.24 Property table_initialized [protected]

needed for restoring scrollbar position

5.31.4.25 Property tableJavaHandle [protected]

5.31.4.26 Property to

end of selected field sweep

5.31.4.27 Property unit_str

5.31.4.28 Property use_rangetable

only one sweep (back and forth)

5.31.4.29 Constant Property use_unofficial_java

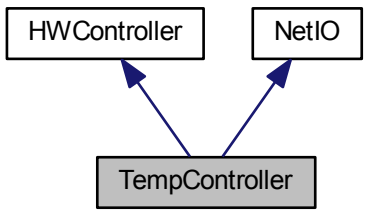
restore scrollbar position after editing table, etc ..;

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

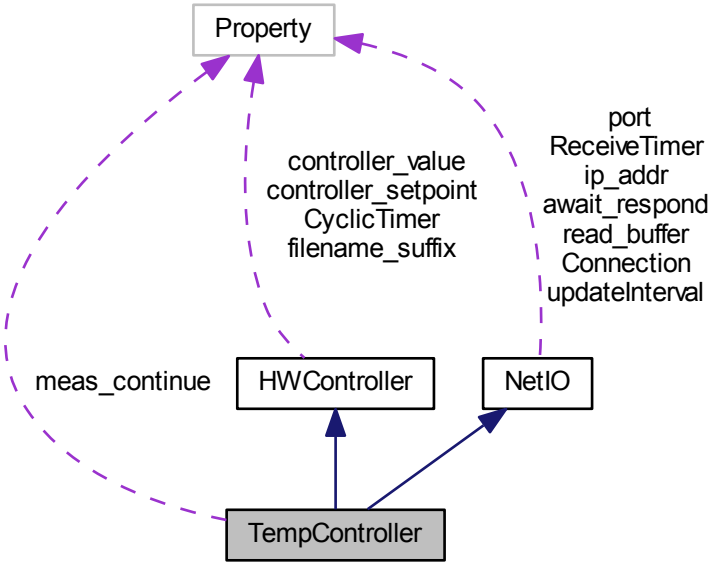
- C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/SweepTable.cpp

5.32 TempController Class Reference

Inheritance diagram for TempController:



Collaboration diagram for TempController:



Public Member Functions

- function TempController ()
- function _delete (in obj)
- function beforeAllLoops (in obj, in cycles)
- function afterAllLoops (in obj, in restart_measure)
- function beforeLoop (in obj)
- function afterLoop (in obj)
- function getValue (in obj)
- function setValue (in obj, in val)

Public Attributes

- Property meas_continue
- Property filename_suffix
- Constant Property updateInterval

  seconds

Protected Member Functions

- function processCommands (in obj, in commands)
- function timedFunction (in obj)
- function abortMeasurement (in obj)
- function cyclicTimer (in obj, in event)
- function setupTimer (in obj, in time_interval_s)
- function stopTimer (in obj)

- function startConnection (in obj)
- function stopConnection (in obj)
- function processReadbuffer (in obj)
- function sendData (in obj, in txt)
- function waitforAnswerTo (in obj, in txt)
- function timedReceive (in obj, in event)

Protected Attributes

- Property controller_value

  internal storage
- Property controller_setpoint
- Property CyclicTimer

  Timer for timedFunction.
- Property Connection

  tcpclient object
- Property ip_addr
- Property port
- Property read_buffer
- Property ReceiveTimer
- Property await_respond

  wait for receiving answer

5.32.1 Constructor & Destructor Documentation

5.32.1.1 function TempController ( )

5.32.2 Member Function Documentation

5.32.2.1 function _delete (in *obj*)

5.32.2.2 function abortMeasurement (in *obj*) [protected], [inherited]

5.32.2.3 function afterAllLoops (in *obj,* in *restart_measure*)

5.32.2.4 function afterLoop (in *obj*) [inherited]

5.32.2.5 function beforeAllLoops (in *obj,* in *cycles*)

5.32.2.6 function beforeLoop (in *obj*) [inherited]

5.32.2.7 function cyclicTimer (in *obj,* in *event*) [protected], [inherited]

5.32.2.8 function getValue (in *obj*) [inherited]

5.32.2.9 function processCommands (in *obj,* in *commands*) [protected], [virtual]

Reimplemented from NetIO.

5.32.2.10 function processReadbuffer (in *obj*) [protected], [inherited]

5.32.2.11 function sendData (in *obj,* in *txt*) [protected], [inherited]

5.32.2.12 function setupTimer (in *obj,* in *time_interval_s*) [protected], [inherited]

5.32.2.13 function setValue (in *obj,* in *val*) [inherited]

5.32.2.14 function startConnection (in *obj*) [protected], [inherited]

5.32.2.15 function stopConnection (in *obj*) [protected], [inherited]

5.32.2.16 function stopTimer (in *obj*) [protected], [inherited]

5.32.2.17 function timedFunction (in *obj*) [protected], [inherited]

5.32.2.18 function timedReceive (in *obj,* in *event*) [protected], [inherited]

5.32.2.19 function waitforAnswerTo (in *obj,* in *txt*) [protected], [inherited]

5.32.3 Member Data Documentation

5.32.3.1 Property await_respond [protected], [inherited]

wait for receiving answer

5.32.3.2 Property Connection [protected], [inherited]

tcpclient object

5.32.3.3 Property controller_setpoint [protected], [inherited]

5.32.3.4 Property controller_value [protected], [inherited]

internal storage

5.32.3.5 Property CyclicTimer [protected], [inherited]

Timer for timedFunction.

5.32.3.6 Property filename_suffix [inherited]

5.32.3.7 Property ip_addr [protected], [inherited]

5.32.3.8 Property meas_continue

5.32.3.9 Property port [protected], [inherited]

5.32.3.10 Property read_buffer [protected], [inherited]

5.32.3.11 Property ReceiveTimer [protected], [inherited]

5.32.3.12 Constant Property updateInterval [inherited]

seconds

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

- C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/TempController.cpp

Chapter 6

File Documentation

6.1 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/AnalogIn_digilent.cpp File Reference

Classes

- class AnalogIn_digilent

  AnalogIO class.

6.2 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/AnalogIn_mcc.cpp File Reference

Classes

- class AnalogIn_mcc

  Handles analog input for cards using DAQ-toolbox leagacy interface.

6.3 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/AnalogIO.cpp File Reference

Classes

- class AnalogIO

  Anaolog In/Out implementation using DAQ-Toolbox legacy interface (tested with Measurement Computing and National Instruments Hardware)

6.4 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/AnalogOut_mcc.cpp File Reference

Classes

- class AnalogOut_mcc

  AnalogIO class.

6.5 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/ArduinoIO.cpp File Reference

Classes

- class ArduinoIO

6.6 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/calibrateMagnet.cpp File Reference

Functions

- function calibrateMagnet (in description)
  Calibrates yoke.

6.6.1 Function Documentation

6.6.1.1 function calibrateMagnet (in *description*)

Calibrates yoke.

Parameters

description	New name of calibration

6.7 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/CfgBoolean.cpp File Reference

Classes

- class CfgBoolean
  Extends a check box in order to automatically update the corresponding Config parameter.

6.8 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/CfgRange.cpp File Reference

Classes

- class CfgRange
  Extends a text box in order to accept numeric ranges (2 dim arrays like "-10 10") and automatically update the corresponding Config parameter.

6.9 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/CfgStr.cpp File Reference

Classes

- class CfgStr

Extends a text box in order to accept string values and automatically update the corresponding Config parameter.

6.10 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/CfgStrOrNum.cpp File Reference

Classes

- class CfgStrOrNum

  Extends a text box in order to accept numeric an string values and automatically update the corresponding Config parameter.

6.11 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/Config.cpp File Reference

Classes

- class Config

  Configuration class.

6.12 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/CustomController.cpp File Reference

Classes

- class CustomController

6.13 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/daM3System.cpp File Reference

6.14 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/DataFilter.cpp File Reference

Classes

- class DataFilter

  DataFilter class (filters noise of acquired data)

6.15 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/DataPlot.cpp File Reference

Classes

- class DataPlot

  DataPlot class (graphical representation of data)

6.16 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/ErrorHandler.cpp File Reference

Classes

- class ErrorHandler

  Logs Exceptions and stores them in error_log.mat Most IO and other Exceptions are saved in error_log.mat and hence can be reviewed using static functions of the ErrorHandler class.

6.17 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/export2karamoke.cpp File Reference

6.18 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/Fake_AnalogIn↩ AndOut.cpp File Reference

Classes

- class Fake_AnalogInAndOut

  AnalogIO class.

6.19 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/figCfgMain.cpp File Reference

Functions

- function figCfgMain (in varargin)

  Main configuration window.
- function disableGUI (in handles)
- function enableGUI (in handles)
- function updateTimePerDataPoint (in handles)

  Update text field for acquisition time per data point.
- function onoff (in bool)

  Boolean to on/off.
- function figCfgMain_OpeningFcn (in hObject, in eventdata, in handles, in varargin)

  Window opening function.
- function figCfgMain_OutputFcn (in hObject, in eventdata, in handles)
- function cmdCalibrateMagnet_Callback (in hObject, in eventdata, in handles)

  Run magnet Calibration; Executes on button press.
- function lstMFieldCalib_Callback (in hObject, in eventdata, in handles)
- function lstMFieldCalib_CreateFcn (in hObject, in eventdata, in handles)
- function txtMFieldDescr_Callback (in hObject, in eventdata, in handles)
- function txtMFieldDescr_CreateFcn (in hObject, in eventdata, in handles)
- function txtHallFactor_Callback (in hObject, in eventdata, in handles)
- function txtHallFactor_CreateFcn (in hObject, in eventdata, in handles)
- function cmdSaveDescr_Callback (in hObject, in eventdata, in handles)

  Rename magnet calibration; Executes on button press.
- function cmdViewCalib_Callback (in hObject, in eventdata, in handles)

  View magnet calibration data; Executes on button press.

- function cmdManualField_Callback (in hObject, in eventdata, in handles)

  Show manual field control window; Executes on button press.
- function txtmcal_minfield_Callback (in hObject, in eventdata, in handles)
- function txtmcal_minfield_CreateFcn (in hObject, in eventdata, in handles)
- function txtmcal_maxfield_Callback (in hObject, in eventdata, in handles)
- function txtmcal_maxfield_CreateFcn (in hObject, in eventdata, in handles)
- function txtmcal_Vmin_Callback (in hObject, in eventdata, in handles)
- function txtmcal_Vmin_CreateFcn (in hObject, in eventdata, in handles)
- function txtmcal_Vmax_Callback (in hObject, in eventdata, in handles)
- function txtmcal_Vmax_CreateFcn (in hObject, in eventdata, in handles)
- function txtmcal_Vstep_Callback (in hObject, in eventdata, in handles)
- function txtmcal_Vstep_CreateFcn (in hObject, in eventdata, in handles)
- function lstFilter_Callback (in hObject, in eventdata, in handles)
- function lstFilter_CreateFcn (in hObject, in eventdata, in handles)
- function txtPauseLargeStep_Callback (in hObject, in eventdata, in handles)
- function txtPauseLargeStep_CreateFcn (in hObject, in eventdata, in handles)
- function txtPauseBetween_Callback (in hObject, in eventdata, in handles)
- function txtPauseBetween_CreateFcn (in hObject, in eventdata, in handles)
- function txtADCsamples_Callback (in hObject, in eventdata, in handles)
- function txtADCsamples_CreateFcn (in hObject, in eventdata, in handles)
- function txtADCduration_Callback (in hObject, in eventdata, in handles)
- function txtADCduration_CreateFcn (in hObject, in eventdata, in handles)
- function txtADCsamplescont_Callback (in hObject, in eventdata, in handles)
- function txtADCsamplescont_CreateFcn (in hObject, in eventdata, in handles)
- function txtLockin_Callback (in hObject, in eventdata, in handles)
- function txtLockin_CreateFcn (in hObject, in eventdata, in handles)
- function cmdTestADC_Callback (in hObject, in eventdata, in handles)

  Run hardware test; Executes on button press.
- function cmdSaveSettings_Callback (in hObject, in eventdata, in handles)
- function figCfgMain_CloseRequestFcn (in hObject, in eventdata, in handles)

  Executes when window is getting closed.
- function cmdMeasureWindow_Callback (in hObject, in eventdata, in handles)

  Show measurement setup window; Executes on button press.
- function txtADCPickupCh_Callback (in hObject, in eventdata, in handles)
- function txtADCPickupCh_CreateFcn (in hObject, in eventdata, in handles)
- function txtADCPickupQCh_Callback (in hObject, in eventdata, in handles)
- function txtADCPickupQCh_CreateFcn (in hObject, in eventdata, in handles)
- function txtADCHallCh_Callback (in hObject, in eventdata, in handles)
- function txtADCHallCh_CreateFcn (in hObject, in eventdata, in handles)
- function txtADCFeedbackCh_Callback (in hObject, in eventdata, in handles)
- function txtADCFeedbackCh_CreateFcn (in hObject, in eventdata, in handles)
- function chkADCuseFeedback_Callback (in hObject, in eventdata, in handles)
- function txtADCPickupVRange_Callback (in hObject, in eventdata, in handles)
- function txtADCPickupVRange_CreateFcn (in hObject, in eventdata, in handles)
- function txtADCHallVRange_Callback (in hObject, in eventdata, in handles)
- function txtADCHallVRange_CreateFcn (in hObject, in eventdata, in handles)
- function txtADCCardID_Callback (in hObject, in eventdata, in handles)
- function txtADCCardID_CreateFcn (in hObject, in eventdata, in handles)
- function txtDACCardID_Callback (in hObject, in eventdata, in handles)
- function txtDACCardID_CreateFcn (in hObject, in eventdata, in handles)
- function txtDACPowerSupplCh_Callback (in hObject, in eventdata, in handles)
- function txtDACPowerSupplCh_CreateFcn (in hObject, in eventdata, in handles)
- function txtDACsamplerate_Callback (in hObject, in eventdata, in handles)
- function txtDACsamplerate_CreateFcn (in hObject, in eventdata, in handles)

- function txtDACramp_Callback (in hObject, in eventdata, in handles)
- function txtDACramp_CreateFcn (in hObject, in eventdata, in handles)
- function chkDynamicYokeOffset_Callback (in hObject, in eventdata, in handles)
- function txtADCDriver_Callback (in hObject, in eventdata, in handles)
- function txtADCDriver_CreateFcn (in hObject, in eventdata, in handles)
- function txtDACDriver_Callback (in hObject, in eventdata, in handles)
- function txtDACDriver_CreateFcn (in hObject, in eventdata, in handles)
- function txtFileExt_Callback (in hObject, in eventdata, in handles)
- function txtFileExt_CreateFcn (in hObject, in eventdata, in handles)
- function chkLockinSensitivity_Callback (in hObject, in eventdata, in handles)
- function cmdViewDataFile_Callback (in hObject, in eventdata, in handles)
- function txtTimePerDatapoint_Callback (in hObject, in eventdata, in handles)
- function txtTimePerDatapoint_CreateFcn (in hObject, in eventdata, in handles)
- function cmdCfgAdvanced_Callback (in hObject, in eventdata, in handles)

  Show advanced configuration window; Executes on button press.
- function cmdCfgHardware_Callback (in hObject, in eventdata, in handles)

  Show hardware configuration window; Executes on button press.
- function mnuNormal_Callback (in hObject, in eventdata, in handles)

  Show standard configuration window; Executes when menu entry is clicked.
- function mnuAdvanced_Callback (in hObject, in eventdata, in handles)

  Show advanced configuration window; Executes when menu entry is clicked.
- function mnuHardware_Callback (in hObject, in eventdata, in handles)

  Show hardware(all) configuration window; Executes when menu entry is clicked.
- function mnuConfigView_Callback (in hObject, in eventdata, in handles)
- function cmdViewFieldoffset_Callback (in hObject, in eventdata, in handles)
- function txtLargeStep_Callback (in hObject, in eventdata, in handles)
- function txtLargeStep_CreateFcn (in hObject, in eventdata, in handles)
- function lstDACDriver_Callback (in hObject, in eventdata, in handles)
- function lstDACDriver_CreateFcn (in hObject, in eventdata, in handles)
- function lstDACCardID_Callback (in hObject, in eventdata, in handles)
- function lstDACCardID_CreateFcn (in hObject, in eventdata, in handles)
- function lstADCDriver_Callback (in hObject, in eventdata, in handles)
- function lstADCDriver_CreateFcn (in hObject, in eventdata, in handles)
- function lstADCCardID_Callback (in hObject, in eventdata, in handles)
- function lstADCCardID_CreateFcn (in hObject, in eventdata, in handles)
- function txtADCCustomValCh_Callback (in hObject, in eventdata, in handles)
- function txtADCCustomValCh_CreateFcn (in hObject, in eventdata, in handles)
- function txtADCCustomValCalib_Callback (in hObject, in eventdata, in handles)
- function txtADCCustomValCalib_CreateFcn (in hObject, in eventdata, in handles)
- function chkCustomValADC_Callback (in hObject, in eventdata, in handles)
- function chkTempCtl_Callback (in hObject, in eventdata, in handles)
- function chkCustomCtl_Callback (in hObject, in eventdata, in handles)
- function mnuLoadSave_Callback (in hObject, in eventdata, in handles)
- function mnuSave_Callback (in hObject, in eventdata, in handles)

  Save current configuration; Executes when menu entry is clicked.
- function mnuSaveAs_Callback (in hObject, in eventdata, in handles)

  Show current configuration in different file (not the standard VSM_config.mat); Executes when menu entry is clicked.
- function mnuLoadFrom_Callback (in hObject, in eventdata, in handles)

  Load configuration from different file and restart application; Executes when menu entry is clicked.
- function chkSaveconfigMeas_Callback (in hObject, in eventdata, in handles)

6.19.1 Function Documentation

6.19.1.1 function chkADCuseFeedback_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.2 function chkCustomCtl_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.3 function chkCustomValADC_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.4 function chkDynamicYokeOffset_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.5 function chkLockinSensitivity_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.6 function chkSaveconfigMeas_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.7 function chkTempCtl_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.8 function cmdCalibrateMagnet_Callback (in *hObject,* in *eventdata,* in *handles*)

Run magnet Calibration; Executes on button press.

6.19.1.9 function cmdCfgAdvanced_Callback (in *hObject,* in *eventdata,* in *handles*)

Show advanced configuration window; Executes on button press.

6.19.1.10 function cmdCfgHardware_Callback (in *hObject,* in *eventdata,* in *handles*)

Show hardware configuration window; Executes on button press.

6.19.1.11 function cmdManualField_Callback (in *hObject,* in *eventdata,* in *handles*)

Show manual field control window; Executes on button press.

6.19.1.12 function cmdMeasureWindow_Callback (in *hObject,* in *eventdata,* in *handles*)

Show measurement setup window; Executes on button press.

6.19.1.13 function cmdSaveDescr_Callback (in *hObject,* in *eventdata,* in *handles*)

Rename magnet calibration; Executes on button press.

6.19.1.14 function cmdSaveSettings_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.15 function cmdTestADC_Callback (in *hObject,* in *eventdata,* in *handles*)

Run hardware test; Executes on button press.

6.19.1.16 function cmdViewCalib_Callback (in *hObject,* in *eventdata,* in *handles*)

View magnet calibration data; Executes on button press.

6.19.1.17 function cmdViewDataFile_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.18 function cmdViewFieldoffset_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.19 function disableGUI (in *handles*)

6.19.1.20 function enableGUI (in *handles*)

6.19.1.21 function figCfgMain (in *varargin*)

Main configuration window.

Parameters

varargin	not used

Return values

varargout	not used

6.19.1.22 function figCfgMain_CloseRequestFcn (in *hObject,* in *eventdata,* in *handles*)

Executes when window is getting closed.

6.19.1.23 function figCfgMain_OpeningFcn (in *hObject,* in *eventdata,* in *handles,* in *varargin*)

Window opening function.

6.19.1.24 function figCfgMain_OutputFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.25 function lstADCCardID_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.26 function lstADCCardID_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.27 function lstADCDriver_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.28 function lstADCDriver_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.29 function lstDACCardID_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.30 function lstDACCardID_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.31 function lstDACDriver_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.32 function lstDACDriver_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.33 function lstFilter_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.34 function lstFilter_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.35 function lstMFieldCalib_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.36 function lstMFieldCalib_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.37 function mnuAdvanced_Callback (in *hObject,* in *eventdata,* in *handles*)

Show advanced configuration window; Executes when menu entry is clicked.

6.19.1.38 function mnuConfigView_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.39 function mnuHardware_Callback (in *hObject,* in *eventdata,* in *handles*)

Show hardware(all) configuration window; Executes when menu entry is clicked.

6.19.1.40 function mnuLoadFrom_Callback (in *hObject,* in *eventdata,* in *handles*)

Load configuration from different file and restart application; Executes when menu entry is clicked.

6.19.1.41 function mnuLoadSave_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.42 function mnuNormal_Callback (in *hObject,* in *eventdata,* in *handles*)

Show standard configuration window; Executes when menu entry is clicked.

6.19.1.43 function mnuSave_Callback (in *hObject,* in *eventdata,* in *handles*)

Save current configuration; Executes when menu entry is clicked.

6.19.1.44 function mnuSaveAs_Callback (in *hObject,* in *eventdata,* in *handles*)

Show current configuration in different file (not the standard VSM_config.mat); Executes when menu entry is clicked.

6.19.1.45 function onoff (in *bool*)

Boolean to on/off.

Parameters

bool	boolean

Return values

val	on or off

6.19.1.46 function txtADCCardID_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.47 function txtADCCardID_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.48 function txtADCCustomValCalib_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.49 function txtADCCustomValCalib_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.50 function txtADCCustomValCh_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.51 function txtADCCustomValCh_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.52 function txtADCDriver_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.53 function txtADCDriver_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.54 function txtADCduration_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.55 function txtADCduration_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.56 function txtADCFeedbackCh_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.57 function txtADCFeedbackCh_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.58 function txtADCHallCh_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.59 function txtADCHallCh_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.60 function txtADCHallVRange_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.61 function txtADCHallVRange_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.62 function txtADCPickupCh_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.63 function txtADCPickupCh_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.64 function txtADCPickupQCh_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.65 function txtADCPickupQCh_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.66 function txtADCPickupVRange_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.67 function txtADCPickupVRange_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.68 function txtADCsamples_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.69 function txtADCsamples_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.70 function txtADCsamplescont_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.71 function txtADCsamplescont_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.72 function txtDACCardID_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.73 function txtDACCardID_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.74 function txtDACDriver_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.75 function txtDACDriver_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.76 function txtDACPowerSupplCh_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.77 function txtDACPowerSupplCh_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.78 function txtDACramp_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.79 function txtDACramp_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.80 function txtDACsamplerate_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.81 function txtDACsamplerate_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.82 function txtFileExt_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.83 function txtFileExt_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.84 function txtHallFactor_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.85 function txtHallFactor_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.86 function txtLargeStep_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.87 function txtLargeStep_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.88 function txtLockin_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.89 function txtLockin_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.90 function txtmcal_maxfield_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.91 function txtmcal_maxfield_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.92 function txtmcal_minfield_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.93 function txtmcal_minfield_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.94 function txtmcal_Vmax_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.95 function txtmcal_Vmax_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.96 function txtmcal_Vmin_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.97 function txtmcal_Vmin_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.98 function txtmcal_Vstep_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.99 function txtmcal_Vstep_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.100 function txtMFieldDescr_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.101 function txtMFieldDescr_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.102 function txtPauseBetween_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.103 function txtPauseBetween_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.104 function txtPauseLargeStep_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.105 function txtPauseLargeStep_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.106 function txtTimePerDatapoint_Callback (in *hObject,* in *eventdata,* in *handles*)

6.19.1.107 function txtTimePerDatapoint_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.19.1.108 function updateTimePerDataPoint (in *handles*)

Update text field for acquisition time per data point.

Parameters

handles	the window handles structure

6.20 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/figFieldControl.cpp File Reference

Functions

- function figFieldControl (in varargin)

  Manual field control and hall probe calibration window.
- function figFieldControl_OpeningFcn (in hObject, in eventdata, in handles, in varargin)

  Window opening function.
- function updateFields (in obj, in event, in handles)

  Timer function; Updates all measured values shown in the window.
- function disableButtons (in handles)

  Disable output control buttons.
- function enableButtons (in handles)

  Enable output control buttons.
- function driveMagnet (in vout, in handles)

  Linear approaches DAC output to setpoint (vout)
- function driveMagnet_relative (in delta_vout, in handles)

  Linear approaches DAC output to setpoint (relative) (current+delta_vout)
- function setField (in field, in handles)

  Reach magnetic field.
- function setField_ralative (in delta_field, in handles)

  Reach magnetic field relative to previous field.
- function figFieldControl_OutputFcn (in hObject, in eventdata, in handles)
- function txtHallFct_Callback (in hObject, in eventdata, in handles)
- function txtHallFct_CreateFcn (in hObject, in eventdata, in handles)
- function txtField_Callback (in hObject, in eventdata, in handles)
- function txtField_CreateFcn (in hObject, in eventdata, in handles)
- function txtVOut_Callback (in hObject, in eventdata, in handles)
- function txtVOut_CreateFcn (in hObject, in eventdata, in handles)
- function cmdZero_Callback (in hObject, in eventdata, in handles)

  Set DAC voltage to zero; Executes on button press.
- function cmdUp_Callback (in hObject, in eventdata, in handles)

  Increase DAC voltage (small step); Executes on button press.
- function cmdUpUp_Callback (in hObject, in eventdata, in handles)

  Increase DAC voltage (large step); Executes on button press.
- function cmdDn_Callback (in hObject, in eventdata, in handles)

  Decrease DAC voltage (small step); Executes on button press.
- function cmdDnDn_Callback (in hObject, in eventdata, in handles)

  Decrease DAC voltage (large step); Executes on button press.
- function txtHallVolt_Callback (in hObject, in eventdata, in handles)
- function txtHallVolt_CreateFcn (in hObject, in eventdata, in handles)
- function cmdAdjustHall_Callback (in hObject, in eventdata, in handles)

  Runs hall probe calibration (linear calibration factor); Executes on button press.
- function cmdAdjustVOut_Callback (in hObject, in eventdata, in handles)
- function cmdSetVOut_Callback (in hObject, in eventdata, in handles)

Set DAC output voltage, which is connected to power supply remote; Executes on button press.

- function figFieldCtl_CloseRequestFcn (in hObject, in eventdata, in handles)

  Executes when user attempts to close window; Executes on button press.
- function txtVOutNow_Callback (in hObject, in eventdata, in handles)
- function txtVOutNow_CreateFcn (in hObject, in eventdata, in handles)
- function cmdInterrupt_Callback (in hObject, in eventdata, in handles)

  Immediately stops ramping up powersupply (kind of emergency stop); Executes on button press.
- function txtPickup_Callback (in hObject, in eventdata, in handles)
- function txtPickup_CreateFcn (in hObject, in eventdata, in handles)
- function txtPickupQ_Callback (in hObject, in eventdata, in handles)
- function txtPickupQ_CreateFcn (in hObject, in eventdata, in handles)
- function cmdFZero_Callback (in hObject, in eventdata, in handles)

  Set field to zero; Executes on button press.
- function cmdFUp_Callback (in hObject, in eventdata, in handles)

  Raises magnetic field (small step); Executes on button press.
- function cmdFUpUp_Callback (in hObject, in eventdata, in handles)

  Raises magnetic field (large step); Executes on button press.
- function cmdFDn_Callback (in hObject, in eventdata, in handles)

  Decreases magnetic field (small step); Executes on button press.
- function cmdFDnDn_Callback (in hObject, in eventdata, in handles)

  Decreases magnetic field (large step); Executes on button press.
- function txtFieldSetpoint_Callback (in hObject, in eventdata, in handles)
- function txtFieldSetpoint_CreateFcn (in hObject, in eventdata, in handles)
- function cmdSetField_Callback (in hObject, in eventdata, in handles)

  Set field setpoint; Executes on button press.
- function txtHallOff_Callback (in hObject, in eventdata, in handles)
- function txtHallOff_CreateFcn (in hObject, in eventdata, in handles)
- function cmdAdjustHallOffset_Callback (in hObject, in eventdata, in handles)

  Determine offset voltage of hall probe amplifier; Executes on button press.
- function chkWriteProtect_Callback (in hObject, in eventdata, in handles)
- function cmdDegauss_Callback (in hObject, in eventdata, in handles)

  Demagnetize yoke (degauss); Executes on button press.
- function txtCustomADC_Callback (in hObject, in eventdata, in handles)
- function txtCustomADC_CreateFcn (in hObject, in eventdata, in handles)

6.20.1 Function Documentation

6.20.1.1 function chkWriteProtect_Callback (in *hObject,* in *eventdata,* in *handles*)

6.20.1.2 function cmdAdjustHall_Callback (in *hObject,* in *eventdata,* in *handles*)

Runs hall probe calibration (linear calibration factor); Executes on button press.

6.20.1.3 function cmdAdjustHallOffset_Callback (in *hObject,* in *eventdata,* in *handles*)

Determine offset voltage of hall probe amplifier; Executes on button press.

6.20.1.4 function cmdAdjustVOut_Callback (in *hObject,* in *eventdata,* in *handles*)

6.20.1.5 function cmdDegauss_Callback (in *hObject,* in *eventdata,* in *handles*)

Demagnetize yoke (degauss); Executes on button press.

6.20.1.6 function cmdDn_Callback (in *hObject,* in *eventdata,* in *handles*)

Decrease DAC voltage (small step); Executes on button press.

6.20.1.7 function cmdDnDn_Callback (in *hObject,* in *eventdata,* in *handles*)

Decrease DAC voltage (large step); Executes on button press.

6.20.1.8 function cmdFDn_Callback (in *hObject,* in *eventdata,* in *handles*)

Decreases magnetic field (small step); Executes on button press.

6.20.1.9 function cmdFDnDn_Callback (in *hObject,* in *eventdata,* in *handles*)

Decreases magnetic field (large step); Executes on button press.

6.20.1.10 function cmdFUp_Callback (in *hObject,* in *eventdata,* in *handles*)

Raises magnetic field (small step); Executes on button press.

6.20.1.11 function cmdFUpUp_Callback (in *hObject,* in *eventdata,* in *handles*)

Raises magnetic field (large step); Executes on button press.

6.20.1.12 function cmdFZero_Callback (in *hObject,* in *eventdata,* in *handles*)

Set field to zero; Executes on button press.

6.20.1.13 function cmdInterrupt_Callback (in *hObject,* in *eventdata,* in *handles*)

Immediately stops ramping up powersupply (kind of emergency stop); Executes on button press.

6.20.1.14 function cmdSetField_Callback (in *hObject,* in *eventdata,* in *handles*)

Set field setpoint; Executes on button press.

6.20.1.15 function cmdSetVOut_Callback (in *hObject,* in *eventdata,* in *handles*)

Set DAC output voltage, which is connected to power supply remote; Executes on button press.

6.20.1.16 function cmdUp_Callback (in *hObject,* in *eventdata,* in *handles*)

Increase DAC voltage (small step); Executes on button press.

6.20.1.17 function cmdUpUp_Callback (in *hObject,* in *eventdata,* in *handles*)

Increase DAC voltage (large step); Executes on button press.

6.20.1.18 function cmdZero_Callback (in *hObject,* in *eventdata,* in *handles*)

Set DAC voltage to zero; Executes on button press.

6.20.1.19 function disableButtons (in *handles*)

Disable output control buttons.

Parameters

handles	the window handles structure

6.20.1.20 function driveMagnet (in *vout,* in *handles*)

Linear approaches DAC output to setpoint (vout)

Parameters

vout	DAC output voltage setpoint
handles	the window handles structure

6.20.1.21 function driveMagnet_relative (in *delta_vout,* in *handles*)

Linear approaches DAC output to setpoint (relative) (current+delta_vout)

Parameters

delta_vout	change in DAC output voltage
handles	the window handles structure

6.20.1.22 function enableButtons (in *handles*)

Enable output control buttons.

Parameters

handles	the window handles structure

6.20.1.23 function figFieldControl (in *varargin*)

Manual field control and hall probe calibration window.

Parameters

varargin	not used

Return values

varargout	not used

6.20.1.24 function figFieldControl_OpeningFcn (in *hObject,* in *eventdata,* in *handles,* in *varargin*)

Window opening function.

6.20.1.25 function figFieldControl_OutputFcn (in *hObject,* in *eventdata,* in *handles*)

6.20.1.26 function figFieldCtl_CloseRequestFcn (in *hObject,* in *eventdata,* in *handles*)

Executes when user attempts to close window; Executes on button press.

6.20.1.27 function setField (in *field,* in *handles*)

Reach magnetic field.

Parameters

field	magnetic field setpoint
handles	the window handles structure

6.20.1.28 function setField_ralative (in *delta_field,* in *handles*)

Reach magnetic field relative to previous field.

Parameters

delta_field	change in magnetic field setpoint
handles	the window handles structure

6.20.1.29 function txtCustomADC_Callback (in *hObject,* in *eventdata,* in *handles*)

6.20.1.30 function txtCustomADC_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.20.1.31 function txtField_Callback (in *hObject,* in *eventdata,* in *handles*)

6.20.1.32 function txtField_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.20.1.33 function txtFieldSetpoint_Callback (in *hObject,* in *eventdata,* in *handles*)

6.20.1.34 function txtFieldSetpoint_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.20.1.35 function txtHallFct_Callback (in *hObject,* in *eventdata,* in *handles*)

6.20.1.36 function txtHallFct_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.20.1.37 function txtHallOff_Callback (in *hObject,* in *eventdata,* in *handles*)

6.20.1.38 function txtHallOff_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.20.1.39 function txtHallVolt_Callback (in *hObject,* in *eventdata,* in *handles*)

6.20.1.40 function txtHallVolt_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.20.1.41 function txtPickup_Callback (in *hObject,* in *eventdata,* in *handles*)

6.20.1.42 function txtPickup_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.20.1.43 function txtPickupQ_Callback (in *hObject,* in *eventdata,* in *handles*)

6.20.1.44 function txtPickupQ_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.20.1.45 function txtVOut_Callback (in *hObject,* in *eventdata,* in *handles*)

6.20.1.46 function txtVOut_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.20.1.47 function txtVOutNow_Callback (in *hObject,* in *eventdata,* in *handles*)

6.20.1.48 function txtVOutNow_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.20.1.49 function updateFields (in *obj,* in *event,* in *handles*)

Timer function; Updates all measured values shown in the window.

6.21 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/fileReadSample.cpp File Reference

6.22 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/findjobj.cpp File Reference

Functions

- function findjobj (in container, in varargin)
- function warnInvisible (in varargin)
- function paramSupplied (in paramsList, in paramName)
- function getCurrentFigure ()
- function getRootPanel (in hFig)
- function traverseContainer (in jcontainer, in level, in parent)
- function getXY (in jcontainer)
- function getNumMenuComponents (in jcontainer)
- function removeDuplicateNode (in thisIdx)
- function processArgs (in varargin)
- function processPrintArgs (in varargin)
- function processPositionArgs (in varargin)
- function processSizeArgs (in varargin)
- function processClassArgs (in varargin)
- function processPropertyArgs (in varargin)
- function processDepthArgs (in varargin)
- function charizeData (in data)
- function setProp (in list, in name, in value, in category)
- function getTreeData (in data)
- function getCbsData (in obj, in stripStdCbsFlag)
- function getRalativeDivlocation (in jDiv)
- function setTreeNodeIcon (in treenode, in container)
- function presentObjectTree ()
- function resizeImg (in varargin)
- function disableDbstopError ()
- function restoreDbstopError (in identifiers)
- function expandNode (in progressBar, in tree, in tree_h, in parentNode, in parentRow)
- function createJButton (in nameStr, in handler, in toolTipText)
- function flashComponent (in jComps, in delaySecs, in numTimes)
- function nodeSelected (in src, in evd, in tree)
- function iff (in test, in trueVal, in falseVal)
- function getPropsHtml (in nodeHandle, in dataFields)

- function updateNodeTooltip (in nodeHandle, in uiObject)
- function nodeExpanded (in src, in evd, in tree)
- function setIconSize (in iconImage)
- function getChildrenNodes (in tree, in parentNode, in isRootHGNode)
- function getNodeName (in hndl, in charsLimit)
- function stripStdCbs (in evNames)
- function cbHideStdCbs_Callback (in src, in evd, in callbacksTable, in varargin)
- function btWebsite_Callback (in src, in evd, in varargin)
- function btRefresh_Callback (in src, in evd, in varargin)
- function btExport_Callback (in src, in evd, in varargin)
- function btFocus_Callback (in src, in evd, in varargin)
- function btInspect_Callback (in src, in evd, in varargin)
- function btCheckFex_Callback (in src, in evd, in varargin)
- function checkVersion ()
- function getTopSelectedObject (in jTree, in root)
- function tbCallbacksChanged (in src, in evd, in object, in table)
- function revertCbTableModification (in table, in modifiedRowIdx, in modifiedColIdx, in cbName, in object, in errMsg)
- function getLabelsJavaPos (in container)
- function traverseHGContainer (in hcontainer, in level, in parent)
- function dispError ()
- function ischar (in data)
- function setTreeContextMenu (in obj, in node, in tree_h)
- function treeMousePressedCallback (in hTree, in eventData, in tree_h)
- function menuRemoveItem (in hObj, in eventData, in jmenu, in item)
- function getNodeTitleStr (in obj, in node)
- function treeMouseMovedCallback (in hTree, in eventData)
- function requestFocus (in hTree, in eventData, in obj)

6.22.1 Function Documentation

6.22.1.1 function btCheckFex_Callback (in *src,* in *evd,* in *varargin*)

6.22.1.2 function btExport_Callback (in *src,* in *evd,* in *varargin*)

6.22.1.3 function btFocus_Callback (in *src,* in *evd,* in *varargin*)

6.22.1.4 function btInspect_Callback (in *src,* in *evd,* in *varargin*)

6.22.1.5 function btRefresh_Callback (in *src,* in *evd,* in *varargin*)

6.22.1.6 function btWebsite_Callback (in *src,* in *evd,* in *varargin*)

6.22.1.7 function cbHideStdCbs_Callback (in *src,* in *evd,* in *callbacksTable,* in *varargin*)

6.22.1.8 function charizeData (in *data*)

6.22.1.9 function checkVersion ( )

6.22.1.10 function createJButton (in *nameStr,* in *handler,* in *toolTipText*)

6.22.1.11 function disableDbstopError ( )

6.22.1.12 function dispError ( )

6.22.1.13 function expandNode (in *progressBar,* in *tree,* in *tree_h,* in *parentNode,* in *parentRow*)

6.22.1.14 function findjobj (in *container,* in *varargin*)

6.22.1.15 function flashComponent (in *jComps,* in *delaySecs,* in *numTimes*)

6.22.1.16 function getCbsData (in *obj,* in *stripStdCbsFlag*)

6.22.1.17 function getChildrenNodes (in *tree,* in *parentNode,* in *isRootHGNode*)

6.22.1.18 function getCurrentFigure ( )

6.22.1.19 function getLabelsJavaPos (in *container*)

6.22.1.20 function getNodeName (in *hndl,* in *charsLimit*)

6.22.1.21 function getNodeTitleStr (in *obj,* in *node*)

6.22.1.22 function getNumMenuComponents (in *jcontainer*)

6.22.1.23 function getPropsHtml (in *nodeHandle,* in *dataFields*)

6.22.1.24 function getRalativeDivlocation (in *jDiv*)

6.22.1.25 function getRootPanel (in *hFig*)

6.22.1.26 function getTopSelectedObject (in *jTree,* in *root*)

6.22.1.27 function getTreeData (in *data*)

6.22.1.28 function getXY (in *jcontainer*)

6.22.1.29 function iff (in *test,* in *trueVal,* in *falseVal*)

6.22.1.30 function ischar (in *data*)

6.22.1.31 function menuRemoveItem (in *hObj,* in *eventData,* in *jmenu,* in *item*)

6.22.1.32 function nodeExpanded (in *src,* in *evd,* in *tree*)

6.22.1.33 function nodeSelected (in *src,* in *evd,* in *tree*)

6.22.1.34 function paramSupplied (in *paramsList,* in *paramName*)

6.22.1.35 function presentObjectTree ( )

6.22.1.36 function processArgs (in *varargin*)

6.22.1.37 function processClassArgs (in *varargin*)

6.22.1.38 function processDepthArgs (in *varargin*)

6.22.1.39 function processPositionArgs (in *varargin*)

6.22.1.40 function processPrintArgs (in *varargin*)

6.22.1.41 function processPropertyArgs (in *varargin*)

6.22.1.42 function processSizeArgs (in *varargin*)

6.22.1.43 function removeDuplicateNode (in *thisIdx*)

6.22.1.44 function requestFocus (in *hTree,* in *eventData,* in *obj*)

6.22.1.45 function resizeImg (in *varargin*)

6.22.1.46 function restoreDbstopError (in *identifiers*)

6.22.1.47 function revertCbTableModification (in *table,* in *modifiedRowIdx,* in *modifiedColIdx,* in *cbName,* in *object,* in *errMsg*)

6.22.1.48 function setIconSize (in *iconImage*)

6.22.1.49 function setProp (in *list,* in *name,* in *value,* in *category*)

6.22.1.50 function setTreeContextMenu (in *obj,* in *node,* in *tree_h*)

6.22.1.51 function setTreeNodeIcon (in *treenode,* in *container*)

6.22.1.52 function stripStdCbs (in *evNames*)

6.22.1.53 function tbCallbacksChanged (in *src,* in *evd,* in *object,* in *table*)

6.22.1.54 function traverseContainer (in *jcontainer,* in *level,* in *parent*)

6.22.1.55 function traverseHGContainer (in *hcontainer,* in *level,* in *parent*)

6.22.1.56 function treeMouseMovedCallback (in *hTree,* in *eventData*)

6.22.1.57 function treeMousePressedCallback (in *hTree,* in *eventData,* in *tree_h*)

6.22.1.58 function updateNodeTooltip (in *nodeHandle,* in *uiObject*)

6.22.1.59 function warnInvisible (in *varargin*)

6.23 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/fMPlot.cpp File Reference

Functions

- function fMPlot (in varargin)

  Measurement, Calibration and Plot window usage:
- function fMPlot_OpeningFcn (in hObject, in eventdata, in handles, in varargin)

  Window opening function.
- function resizeOriginal (in hObject, in wsize)
- function resizeGUI (in winObject, in handles, in oldsize, in newsize)
- function setUnitPixels (in handles)
- function setUnitNormalized (in handles)
- function fMPlot_OutputFcn (in hObject, in eventdata, in handles)
- function figMPlot_CloseRequestFcn (in hObject, in eventdata, in handles)

  Executes when user attempts to close figMPlot.

- function cmdStopMeasurement_Callback (in hObject, in eventdata, in handles)

  Immediately abort measurement; Executes on button press.
- function chkAdvanced_Callback (in hObject, in eventdata, in handles)
- function chkZeroField_Callback (in hObject, in eventdata, in handles)
- function txtCycles_Callback (in hObject, in eventdata, in handles)
- function txtCycles_CreateFcn (in hObject, in eventdata, in handles)
- function txtEasyTo_Callback (in hObject, in eventdata, in handles)
- function txtEasyTo_CreateFcn (in hObject, in eventdata, in handles)
- function txtEasyStep_Callback (in hObject, in eventdata, in handles)
- function txtEasyStep_CreateFcn (in hObject, in eventdata, in handles)
- function grpAdvancedSweeps_CreateFcn (in hObject, in eventdata, in handles)
- function txtVOut_Callback (in hObject, in eventdata, in handles)
- function txtVOut_CreateFcn (in hObject, in eventdata, in handles)
- function txtFieldOut_Callback (in hObject, in eventdata, in handles)
- function txtFieldOut_CreateFcn (in hObject, in eventdata, in handles)
- function txtPickup_Callback (in hObject, in eventdata, in handles)
- function txtPickup_CreateFcn (in hObject, in eventdata, in handles)
- function txtPickupQ_Callback (in hObject, in eventdata, in handles)
- function txtPickupQ_CreateFcn (in hObject, in eventdata, in handles)
- function cmdMeasure_Callback (in hObject, in eventdata, in handles)

  Start measuement (advanced sweep table); Executes on button press.
- function cmdCreateSequenceAndMeasure_Callback (in hObject, in eventdata, in handles)

  Start simplified measurement; Create sweep table from field range table and start; Executes on button press.
- function figMPlot_SizeChangedFcn (in hObject, in eventdata, in handles)
- function figMPlot_WindowButtonDownFcn (in hObject, in eventdata, in handles)
- function figMPlot_ButtonDownFcn (in hObject, in eventdata, in handles)
- function txtLockin_Callback (in hObject, in eventdata, in handles)
- function txtLockin_CreateFcn (in hObject, in eventdata, in handles)
- function txtFieldSetpoint_Callback (in hObject, in eventdata, in handles)
- function txtFieldSetpoint_CreateFcn (in hObject, in eventdata, in handles)
- function chkShowPoints_Callback (in hObject, in eventdata, in handles)
- function txtComment_Callback (in hObject, in eventdata, in handles)

  Update measurement comment; Executes on button press.
- function txtComment_CreateFcn (in hObject, in eventdata, in handles)
- function lstLoopPlots_Callback (in hObject, in eventdata, in handles)
- function lstLoopPlots_CreateFcn (in hObject, in eventdata, in handles)
- function chkShowAverage_Callback (in hObject, in eventdata, in handles)
- function chkShowQuadrature_Callback (in hObject, in eventdata, in handles)
- function togglebutton1_Callback (in hObject, in eventdata, in handles)
- function chkLoopPause_Callback (in hObject, in eventdata, in handles)
- function figMPlot_KeyPressFcn (in hObject, in eventdata, in handles)
- function txtTempManual_Callback (in hObject, in eventdata, in handles)
- function txtTempManual_CreateFcn (in hObject, in eventdata, in handles)
- function txtCustomADC_Callback (in hObject, in eventdata, in handles)
- function txtCustomADC_CreateFcn (in hObject, in eventdata, in handles)
- function chkTemperatureCtl_Callback (in hObject, in eventdata, in handles)
- function chkCustomCtl_Callback (in hObject, in eventdata, in handles)

6.23.1 Function Documentation

6.23.1.1 function chkAdvanced_Callback (in *hObject,* in *eventdata,* in *handles*)

6.23.1.2 function chkCustomCtl_Callback (in *hObject,* in *eventdata,* in *handles*)

6.23.1.3 function chkLoopPause_Callback (in *hObject,* in *eventdata,* in *handles*)

6.23.1.4 function chkShowAverage_Callback (in *hObject,* in *eventdata,* in *handles*)

6.23.1.5 function chkShowPoints_Callback (in *hObject,* in *eventdata,* in *handles*)

6.23.1.6 function chkShowQuadrature_Callback (in *hObject,* in *eventdata,* in *handles*)

6.23.1.7 function chkTemperatureCtl_Callback (in *hObject,* in *eventdata,* in *handles*)

6.23.1.8 function chkZeroField_Callback (in *hObject,* in *eventdata,* in *handles*)

6.23.1.9 function cmdCreateSequenceAndMeasure_Callback (in *hObject,* in *eventdata,* in *handles*)

Start simplified measurement; Create sweep table from field range table and start; Executes on button press.

6.23.1.10 function cmdMeasure_Callback (in *hObject,* in *eventdata,* in *handles*)

Start measuement (advanced sweep table); Executes on button press.

6.23.1.11 function cmdStopMeasurement_Callback (in *hObject,* in *eventdata,* in *handles*)

Immediately abort measurement; Executes on button press.

6.23.1.12 function figMPlot_ButtonDownFcn (in *hObject,* in *eventdata,* in *handles*)

6.23.1.13 function figMPlot_CloseRequestFcn (in *hObject,* in *eventdata,* in *handles*)

Executes when user attempts to close figMPlot.

6.23.1.14 function figMPlot_KeyPressFcn (in *hObject,* in *eventdata,* in *handles*)

6.23.1.15 function figMPlot_SizeChangedFcn (in *hObject,* in *eventdata,* in *handles*)

6.23.1.16 function figMPlot_WindowButtonDownFcn (in *hObject,* in *eventdata,* in *handles*)

6.23.1.17 function fMPlot (in *varargin*)

Measurement, Calibration and Plot window usage:

Usage:

```
plotwindow = fMPlot(window_appearance, additional_windowtext);

@b additional_windowtext: additional text displayed in window title
@b window_appearance:
    window_appearance = Config.mplotview_magnetcalibration :  window
      layout for magnet calibration
    window_appearance = Config.mplotview_measure           :  window layout for a
      normal measurement
    window_appearance = Config.mplotview_viewcalibration   :  window layout
      for viewing a voltage-field plot of a magnet calibration file
```

```
window_appearance = Config.mplotview_viewdatafile      :  window layout for
   viewing previously measured magnetization data
```

Parameters

varargin	Integer defined by Config.mplotview_∗; specifying use case related window appeareance

Return values

varargout	not used

6.23.1.18 function fMPlot_OpeningFcn (in *hObject,* in *eventdata,* in *handles,* in *varargin*)

Window opening function.

6.23.1.19 function fMPlot_OutputFcn (in *hObject,* in *eventdata,* in *handles*)

6.23.1.20 function grpAdvancedSweeps_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.23.1.21 function lstLoopPlots_Callback (in *hObject,* in *eventdata,* in *handles*)

6.23.1.22 function lstLoopPlots_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.23.1.23 function resizeGUI (in *winObject,* in *handles,* in *oldsize,* in *newsize*)

6.23.1.24 function resizeOriginal (in *hObject,* in *wsize*)

6.23.1.25 function setUnitNormalized (in *handles*)

6.23.1.26 function setUnitPixels (in *handles*)

6.23.1.27 function togglebutton1_Callback (in *hObject,* in *eventdata,* in *handles*)

6.23.1.28 function txtComment_Callback (in *hObject,* in *eventdata,* in *handles*)

Update measurement comment; Executes on button press.

6.23.1.29 function txtComment_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.23.1.30 function txtCustomADC_Callback (in *hObject,* in *eventdata,* in *handles*)

6.23.1.31 function txtCustomADC_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.23.1.32 function txtCycles_Callback (in *hObject,* in *eventdata,* in *handles*)

6.23.1.33 function txtCycles_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.23.1.34 function txtEasyStep_Callback (in *hObject,* in *eventdata,* in *handles*)

6.23.1.35 function txtEasyStep_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.23.1.36 function txtEasyTo_Callback (in *hObject,* in *eventdata,* in *handles*)

6.23.1.37 function txtEasyTo_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.23.1.38 function txtFieldOut_Callback (in *hObject,* in *eventdata,* in *handles*)

6.23.1.39 function txtFieldOut_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.23.1.40 function txtFieldSetpoint_Callback (in *hObject,* in *eventdata,* in *handles*)

6.23.1.41 function txtFieldSetpoint_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.23.1.42 function txtLockin_Callback (in *hObject,* in *eventdata,* in *handles*)

6.23.1.43 function txtLockin_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.23.1.44 function txtPickup_Callback (in *hObject,* in *eventdata,* in *handles*)

6.23.1.45 function txtPickup_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.23.1.46 function txtPickupQ_Callback (in *hObject,* in *eventdata,* in *handles*)

6.23.1.47 function txtPickupQ_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.23.1.48 function txtTempManual_Callback (in *hObject,* in *eventdata,* in *handles*)

6.23.1.49 function txtTempManual_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.23.1.50 function txtVOut_Callback (in *hObject,* in *eventdata,* in *handles*)

6.23.1.51 function txtVOut_CreateFcn (in *hObject,* in *eventdata,* in *handles*)

6.24 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/GuiCfg.cpp File Reference

Classes

- class GuiCfg

6.25 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/HWController.cpp File Reference

Classes

- class HWController

6.26 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/InterlockGUIElements.cpp File Reference

Classes

- class InterlockGUIElements

  You can add GUI elements (eg. at window initialization) and enable/disable them all together enywhre else.

6.27 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/LevelBar.cpp File Reference

Classes

- class LevelBar

  Extends an Axes object to act as a level bar.

6.28 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/M3System.cpp File Reference

6.29 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/MagField.cpp File Reference

Classes

- class MagField

  MagField class; magnetic field calculation, calibration.

6.30 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/MagnetizationCurve.cpp File Reference

Classes

- class MagnetizationCurve

  MagnetizationCurve class (represents data of entire magnetization curve)

6.31 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/magnetizationLoop.cpp File Reference

Functions

- function magnetizationLoop ()

  Main measurement function; proceeds a complete measurement.

6.31.1 Function Documentation

6.31.1.1 function magnetizationLoop ( )

Main measurement function; proceeds a complete measurement.

6.32 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/Measurement.cpp File Reference

Classes

- class Measurement

  Main functions for Measurement and Calibration; Contains main parts of measurement logic.

6.33 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/MeasurementFile.cpp File Reference

Classes

- class MeasurementFile

  MeasurementFile class (saves/loads measured data); See m for an example.

6.34 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/NetIO.cpp File Reference

Classes

- class NetIO

6.35 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/NoController.cpp File Reference

Classes

- class NoController

6.36 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/PhyEditBox.cpp File Reference

Classes

- class PhyEditBox

  Extends a text box in order to show SI values with units (kg, mA, ...)

6.37 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/prepareDocu.cpp File Reference

Functions

- function prepareDocu ()
- function prepareMFiles ()
- function postprocessCPP ()
- function recursdir (in baseDir, in searchExpression)

6.37.1 Function Documentation

6.37.1.1 function postprocessCPP ( )

6.37.1.2 function prepareDocu ( )

6.37.1.3 function prepareMFiles ( )

6.37.1.4 function recursdir (in *baseDir,* in *searchExpression*)

6.38 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/RangeTable.cpp File Reference

Classes

- class RangeTable

  Extends a UITable with PhyEditBox capabilities.

6.39 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/show_stddev.cpp File Reference

6.40 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/Singleton.cpp File Reference

Classes

- class Singleton

6.41 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/sinum.cpp File Reference

Functions

- function sinum (in str, in uni)

6.41.1 Function Documentation

6.41.1.1 function sinum (in *str,* in *uni*)

6.42 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/sipre.cpp File Reference

Functions

- function sipre (in val, in sgf, in pfx, in trz)

6.42.1 Function Documentation

6.42.1.1 function sipre (in *val,* in *sgf,* in *pfx,* in *trz*)

6.43 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/SweepPanel.cpp File Reference

Classes

- class SweepPanel

  Holds and organizes all tables options and buttons for the sweep configuration inside the fMPlot window.

6.44 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/SweepTable.cpp File Reference

Classes

- class SweepTable

  Extends a UITable with PhyEditBox capabilities and and provides the sweep sequence.

6.45 C:/Users/VSM/Documents/MATLAB/VSM-Prog/doxygen/cpp_vs/TempController.cpp File Reference

Classes

- class TempController