Multimeter GUI

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Chapter 1

multimeterGUI

GUI for the Radio Shack 22-812 multimeter when used in RS232 mode.

This is a QT GUI to interface the RS 22-812. It has been developed with QT5 in OpenSuse Leap.

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Chapter 2

Namespace Index

2.1 Namespace List

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

Ui 9

Chapter 3

Hierarchical Index

3.1 Class Hierarchy

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

Flags 11
QGraphicsItem
    plotGraph 14
QLabel
    LCD 12
QMainWindow
    MainWindow 13
QObject
    RS22812 15
    SerialPort 18

Chapter 4

Class Index

4.1 Class List

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

Flags 11
LCD 12
MainWindow 13
plotGraph 14
RS22812 15
SerialPort 18

Chapter 5

Namespace Documentation

5.1 Ui Namespace Reference

5.1.1 Detailed Description

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Chapter 6

Class Documentation

6.1 Flags Struct Reference

`#include <rs22812.h>`

Public Member Functions

- bool operator== (const Flags &f2) const

  operator == Equality operator for Flags struct.
- bool **operator!=** (const Flags &f2)

Public Attributes

- bool **Hz**
- bool **Ohms**
- bool **k**
- bool **M**
- bool **F**
- bool **A**
- bool **V**
- bool **m**
- bool **u**
- bool **n**
- bool **dBm**
- bool **s**
- bool **percent**
- bool **hFE**
- bool **REL**
- bool **MIN**
- bool **Beep**
- bool **Diode**
- bool **continuity**
- bool **Bat**
- bool **Hold**
- bool **dash**
- bool **tilde**
- bool **RS232**
- bool **Auto**
- bool **MAX**
- int **DP**
- bool **checksum**

6.1.1 Detailed Description

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RS22812 Decoding of the data sent by the Radio Shack 22-812. Part of the information was obtained from http://sigrok.org/wiki/RadioShack_22-812 and https://code.google.com/archive/p/rs22812/

RS 22-812 sends 9bytes packets. Each packect is a mapping of the LCD of the screen plus some extra information. Bit Byte 7 6 5 4 3 2 1 0 0 ----------— Mode ----------— 1 Hz Ohms K M F A V m 2 u n dBm s % hFE REL MIN 3 4D 4C 4G 4B DP3 4E 4F 4A 4 3D 3C 3G 3B DP2 3E 3F 3A 5 2D 2C 2G 2B DP1 2E 2F 2A 6 1D 1C 1G 1B MAX 1E 1F 1A 7 Beep Diode Bat Hold - ∼ RS232 Auto 8 ----------— Checksum ----------—

The LED mapping is: |–A–| | | F B | | |–G–| | | E C | | |–D–|

So, the equivalence between int value and digit are: 215 : "0", 80 : "1", 181 : "2", 241 : "3", 114 : "4", 227 : "5", 231 : "6", 81 : "7", 247 : "8", 243 : "9", 39 : "F", 55 : "P", 167 : "E", 135 : "C", 134 : "L", 118 : "H", 6 : "I", 102 : "h", 36 : "r", 166 : "t", 100 : "n", 32 : "-", 0 : " "

And the possible modes are: 0=DC V 1=AC V 2=DC uA 3=DC mA 4=DC A 5=AC uA 6=AC mA 7=AC A 8=OHM 9=CAP 10=HZ 11=NET HZ 12=AMP HZ 13=DUTY 14=NET DUTY 15=AMP DUTY 16=WIDTH 17=NET WIDTH 18=AMP WIDTH 19=DIODE 20=CONT 21=HFE 22=LOGIC 23=DBM 24=EF 25=TEMP

6.1.2 Member Function Documentation

6.1.2.1 bool Flags::operator== (const Flags & *f2*) const [inline]

operator == Equality operator for Flags struct.

Parameters

f1	
f2	

Returns

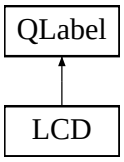
The documentation for this struct was generated from the following file:

- rs22812.h

6.2 LCD Class Reference

`#include <lcd.h>`

Inheritance diagram for LCD:



Public Member Functions

- LCD (const RS22812 *data, QWidget *parent=0)

Protected Member Functions

- void **paintEvent** (QPaintEvent *event)

6.2.1 Detailed Description

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6.2.2 Constructor & Destructor Documentation

6.2.2.1 LCD::LCD (const RS22812 * *data*, QWidget * *parent* = 0) [explicit]

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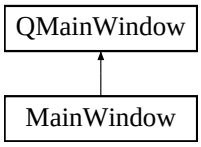
The documentation for this class was generated from the following files:

- lcd.h
- lcd.cpp

6.3 MainWindow Class Reference

Inheritance diagram for MainWindow:



Public Member Functions

- MainWindow (QWidget ∗parent=0)

6.3.1 Constructor & Destructor Documentation

6.3.1.1 MainWindow::MainWindow (QWidget ∗ *parent* = 0) [explicit]

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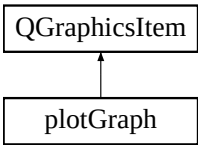
The documentation for this class was generated from the following files:

- mainwindow.h
- mainwindow.cpp

6.4 plotGraph Class Reference

`#include <plotgraph.h>`

Inheritance diagram for plotGraph:



Public Member Functions

- plotGraph ()
- **plotGraph** (QGraphicsScene ∗scene)
- void paint (QPainter ∗painter, const QStyleOptionGraphicsItem ∗option, QWidget ∗widget)

  plotGraph::paint
- QRectF **boundingRect** () const
- void **setXaxis** (qint64 minVal, qint64 maxVal)
- void **setYaxis** (qreal minVal, qreal maxVal)
- void **setXsticks** (int nSticks)

- void **setYsticks** (int nSticks)
- void **linkData** (const QVector< QPair< qint64, qreal > > *dat)
- void **setUnit** (int U)
- void **setScene** (QGraphicsScene *scene)

6.4.1 Detailed Description

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6.4.2 Constructor & Destructor Documentation

6.4.2.1 plotGraph::plotGraph ( )

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6.4.3 Member Function Documentation

6.4.3.1 void plotGraph::paint (QPainter * *painter,* const QStyleOptionGraphicsItem * *option,* QWidget * *widget*)

plotGraph::paint

Parameters

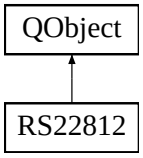
painter	
option	
widget	

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

- plotgraph.h
- plotgraph.cpp

6.5 RS22812 Class Reference

Inheritance diagram for RS22812:



Public Slots

- void newValue (const QByteArray &data)

  RS22812::newValue Reads a new packet and reformats the data.

Signals

- void **newMode** ()
- void **newData** ()

Public Member Functions

- RS22812 (QObject *parent=0)
- float getVal () const

  RS22812::getVal Returns the numeric value of the reading.
- Flags **getFlags** () const
- QString **getDigitString** () const
- uint **getMode** () const

6.5.1 Constructor & Destructor Documentation

6.5.1.1 RS22812::RS22812 (QObject * *parent* = 0) [explicit]

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6.5.2 Member Function Documentation

6.5.2.1 float RS22812::getVal ( ) const

RS22812::getVal Returns the numeric value of the reading.

Returns

6.5.2.2 void RS22812::newValue (const QByteArray & *data*) [slot]

RS22812::newValue Reads a new packet and reformats the data.

Parameters

data	

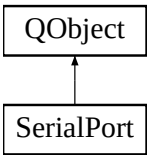
The documentation for this class was generated from the following files:

- rs22812.h
- rs22812.cpp

6.6 SerialPort Class Reference

`#include <serialport.h>`

Inheritance diagram for SerialPort:



Public Slots

- void ready ()

  SerialPort::ready Re-emits the readyRead signal.

Signals

- void **readyRead** (QByteArray buffer)

Public Member Functions

- SerialPort (QObject ∗parent=0)
- bool openPort (const QString portName)

  SerialPort::openPort Opens a serial port for reading. If port name is empty, it does nothing. If port name is not available. Does nothing and raises a warning.
- bool closePort ()

  SerialPort::closePort.
- QList< QSerialPortInfo > listPorts ()

  SerialPort::listPorts Obtains and return the list of available ports.

6.6.1 Detailed Description

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SerialPort

Class to manage the communication with a serial port.

RS 22-812 sends 9bytes long packets with the codified information. This class is meant to read those packets and send it to the RS22812 class to store and interpret.

6.6.2 Constructor & Destructor Documentation

6.6.2.1 SerialPort::SerialPort (QObject * *parent* = 0) [explicit]

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SerialPort

Class to manage the communication with a serial port.

RS 22-812 sends 9bytes long packets with the codified information. This class is meant to read those packets and send it to the RS22812 class to store and interpret.

6.6.3 Member Function Documentation

6.6.3.1 bool SerialPort::closePort ( )

SerialPort::closePort.

Returns

6.6.3.2 QList< QSerialPortInfo > SerialPort::listPorts ( )

SerialPort::listPorts Obtains and return the list of available ports.

Returns

QList<QSerialPortInfo>

6.6.3.3 bool SerialPort::openPort (const QString *portName*)

SerialPort::openPort Opens a serial port for reading. If port name is empty, it does nothing. If port name is not available. Does nothing and raises a warning.

Parameters

portName	Name of the port as returned from QSerialPortInfo.

Returns

If sucessful, returns 1. Else it returns 0;

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

- serialport.h
- serialport.cpp

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