

FR4133-INA226 Reference Manual

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Chapter 1

FR4133-INA226

Library for [INA226](#) BoosterPack

Developed with [embedXcode+](#)

Author

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<http://embeddedcomputing.weebly.com>

Date

Jan 30, 2018 15:51

Version

101

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See also

ReadMe.txt for references

Chapter 2

Hierarchical Index

2.1 Class Hierarchy

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

Description	9
INA226	9
Print	
LCD_LAUNCHPAD	12

Chapter 3

Data Structure Index

3.1 Data Structures

Here are the data structures with brief descriptions:

Description	9
INA226	9
LCD_LAUNCHPAD	12

Chapter 4

File Index

4.1 File List

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

FR4133_INA226.ino	
Main sketch	13
INA226.h	
Class library header	15
LCD_Launchpad.h	??

Chapter 5

Data Structure Documentation

5.1 Description Class Reference

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

- [INA226.h](#)

5.2 INA226 Class Reference

Public Member Functions

- [INA226](#) ()
Constructor.
- void [begin](#) (int32_t maxCurrent=1000, uint16_t parameter=(0b000<< 9|0b100<< 6|0b100<< 3|0b111))
Initialisation.
- String [WhoAmI](#) ()
Who am I?
- void [get](#) ()
Read all measures.
- int32_t [voltageShunt](#) ()
Get shunt voltage.
- float [voltageShuntFloat](#) ()
- int32_t [voltageBus](#) ()
Get bus voltage.
- float [voltageBusFloat](#) ()
- int32_t [current](#) ()
Get bus current.
- float [currentFloat](#) ()
- int32_t [power](#) ()
Get bus power.
- float [powerFloat](#) ()

5.2.1 Member Function Documentation

5.2.1.1 begin()

```
void INA226::begin (
    int32_t maxCurrent = 1000,
    uint16_t parameter = ( 0b000 << 9 | 0b100 << 6 | 0b100 << 3 | 0b111 )
)
```

Initialisation.

Parameters

<i>maxCurrent</i>	maximum expected current, in mA
<i>parameter</i>	default parameters

5.2.1.2 current()

```
int32_t INA226::current ( )
```

Get bus current.

Returns

bus voltage in mA

5.2.1.3 get()

```
void INA226::get ( )
```

Read all measures.

Read voltage shunt, voltage, current and power

5.2.1.4 power()

```
int32_t INA226::power ( )
```

Get bus power.

Returns

bus voltage in mW

5.2.1.5 voltageBus()

```
int32_t INA226::voltageBus ( )
```

Get bus voltage.

Returns

bus voltage in mV

5.2.1.6 voltageShunt()

```
int32_t INA226::voltageShunt ( )
```

Get shunt voltage.

Returns

shunt voltage in mV

5.2.1.7 WhoAmI()

```
String INA226::WhoAmI ( )
```

Who am I?

Returns

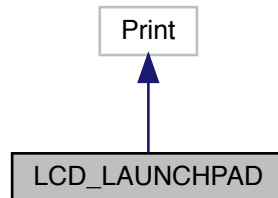
Who am I? string

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

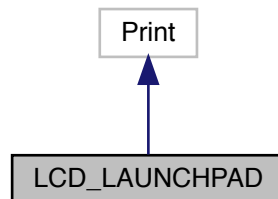
- [INA226.h](#)
- [INA226.cpp](#)

5.3 LCD_LAUNCHPAD Class Reference

Inheritance diagram for LCD_LAUNCHPAD:



Collaboration diagram for LCD_LAUNCHPAD:



Public Member Functions

- void **init** ()
- void **displayText** (String s)
- void **displayText** (String s, char pos)
- void **displayText** (char *s, char pos)
- void **displayScrollText** (char *s, unsigned int wait)
- void **showChar** (char, int)
- void **showSymbol** (char symbol, int status)
- void **clear** (void)
- virtual size_t **write** (uint8_t c)

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

- LCD_Launchpad.h
- LCD_Launchpad.cpp

Chapter 6

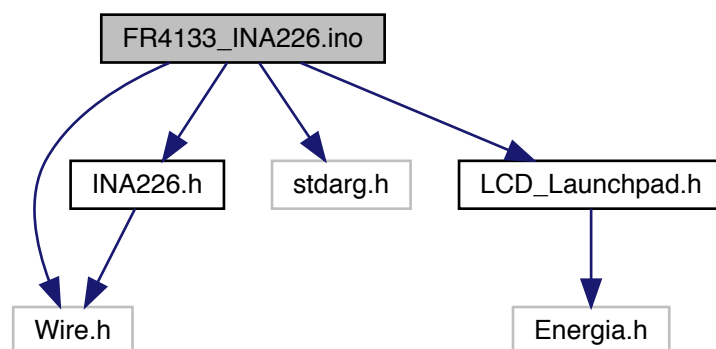
File Documentation

6.1 FR4133_INA226.ino File Reference

Main sketch.

```
#include "Wire.h"
#include "INA226.h"
#include "stdarg.h"
#include "LCD_Launchpad.h"
```

Include dependency graph for FR4133_INA226.ino:



Macros

- `#define USE_UART 1`
- `#define USE_LCD 1`

Functions

- String **formatString** (const char *format,...)
- void **blink** (uint8_t pin, uint8_t times, uint16_t ms)
- void **myMeasureISR** ()
- void **myUnitISR** ()
- void **setup** ()
- void **loop** ()

Variables

- [LCD_LAUNCHPAD](#) **myLCD**
- const uint8_t **myButtonMeasure** = PUSH1
- const uint8_t **myButtonUnit** = PUSH2
- [INA226](#) **myINA226**
- char **bufferOut** [128]
- uint8_t **fsmMeasure** = 0
- uint8_t **fsmUnit** = 0
- LCD_ICONS **decimalPoint** = LCD_SEG_DOT5
- LCD_ICONS **lastDecimalPoint** = LCD_SEG_DOT5

6.1.1 Detailed Description

Main sketch.

Example for [INA226](#) BoosterPack on MSP430FR4133 LaunchPad with LCD
Developed with [embedXcode+](#)

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See also

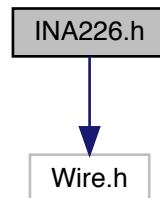
ReadMe.txt for references

6.2 INA226.h File Reference

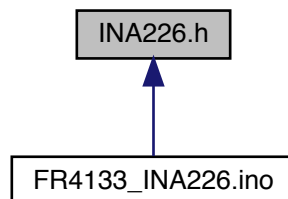
Class library header.

```
#include "Wire.h"
```

Include dependency graph for INA226.h:



This graph shows which files directly or indirectly include this file:



Data Structures

- class [INA226](#)

Macros

- `#define` [INA226_RELEASE](#)
Release.
- `#define` [INA226_DEBUG](#) 0
Debug flag.
- `#define` **INA226_I2C_ADDRESS** 0x40
- `#define` **INA226_RESET** 1 << 15
- `#define` **INA226_AVERAGES_1** 0b000 << 9
- `#define` **INA226_AVERAGES_4** 0b001 << 9

- `#define INA226_AVERAGES_16 0b010 << 9`
- `#define INA226_AVERAGES_64 0b011 << 9`
- `#define INA226_AVERAGES_128 0b010 << 9`
- `#define INA226_AVERAGES_256 0b101 << 9`
- `#define INA226_AVERAGES_512 0b110 << 9`
- `#define INA226_AVERAGES_1024 0b111 << 9`
- `#define INA226_AVERAGES_DEFAULT INA226_AVERAGES_1`
- `#define INA226_VOLTAGE_TIME_140 0b000 << 6`
- `#define INA226_VOLTAGE_TIME_204 0b001 << 6`
- `#define INA226_VOLTAGE_TIME_332 0b010 << 6`
- `#define INA226_VOLTAGE_TIME_588 0b011 << 6`
- `#define INA226_VOLTAGE_TIME_1100 0b100 << 6`
- `#define INA226_VOLTAGE_TIME_2116 0b101 << 6`
- `#define INA226_VOLTAGE_TIME_4156 0b110 << 6`
- `#define INA226_VOLTAGE_TIME_8244 0b111 << 6`
- `#define INA226_VOLTAGE_TIME_DEFAULT INA226_VOLTAGE_TIME_1100`
- `#define INA226_SHUNT_TIME_140 0b000 << 3`
- `#define INA226_SHUNT_TIME_204 0b001 << 3`
- `#define INA226_SHUNT_TIME_332 0b010 << 3`
- `#define INA226_SHUNT_TIME_588 0b011 << 3`
- `#define INA226_SHUNT_TIME_1100 0b100 << 3`
- `#define INA226_SHUNT_TIME_2116 0b101 << 3`
- `#define INA226_SHUNT_TIME_4156 0b110 << 3`
- `#define INA226_SHUNT_TIME_8244 0b111 << 3`
- `#define INA226_SHUNT_TIME_DEFAULT INA226_SHUNT_TIME_1100`
- `#define INA226_SHUTDOWN 0b000`
- `#define INA226_TRIGGERED_SHUNT_VOLTAGE 0b001`
- `#define INA226_TRIGGERED_BUS_VOLTAGE 0b010`
- `#define INA226_TRIGGERED_SHUNT_BUS 0b011`
- `#define INA226_SHUTDOWN 0b100`
- `#define INA226_CONTINUOUS_SHUNT_VOLTAGE 0b101`
- `#define INA226_CONTINUOUS_BUS_VOLTAGE 0b110`
- `#define INA226_CONTINUOUS_SHUNT_BUS 0b111`
- `#define INA226_MODE_DEFAULT INA226_CONTINUOUS_SHUNT_BUS`
- `#define INA226_DEFAULT (INA226_AVERAGES_DEFAULT | INA226_VOLTAGE_TIME_DEFAULT | INA226_SHUNT_TIME_DEFAULT | INA226_MODE_DEFAULT)`
- `#define INA226_REGISTER_CONFIGURATION 0x00`
- `#define INA226_REGISTER_SHUNT_VOLTAGE 0x01`
- `#define INA226_REGISTER_BUS_VOLTAGE 0x02`
- `#define INA226_REGISTER_POWER 0x03`
- `#define INA226_REGISTER_CURRENT 0x04`
- `#define INA226_REGISTER_CALIBRATION 0x05`
- `#define INA226_REGISTER_MANUFACTURER_ID 0xfe`
- `#define INA226_REGISTER_DIE_ID 0xff`

6.2.1 Detailed Description

Class library header.

Library for [INA226](#) BoosterPack

Project FR4133-INA226

Developed with [embedXcode+](#)

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See also

ReadMe.txt for references

6.2.2 Macro Definition Documentation

6.2.2.1 INA226_DEBUG

```
#define INA226_DEBUG 0
```

Debug flag.

verbosity 1 or 2 for debugging messages, 0 = no

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