LibraryLibLidarLms151

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1.1 File List

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

Chapter 2

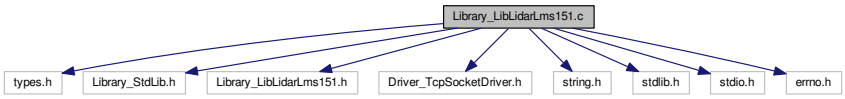
File Documentation

2.1 Library_LibLidarLms151.c File Reference

Fichier Source du Service LibLidarLms151.

```
#include "types.h"
#include "Library_StdLib.h"
#include "Library_LibLidarLms151.h"
#include "Driver_TcpSocketDriver.h"
#include <string.h>
#include <stdlib.h>
#include <stdio.h>
#include <errno.h>
```

Include dependency graph for Library_LibLidarLms151.c:



Macros

- #define K_BUFFER_SIZE_MAX 262144ul /∗! buffer maximal size value ∗/
- #define **K_START** 1 /∗! Start value ∗/
- #define **K_AMOUNT_OF_ENCODERS_MAX** 3 /∗! Maximum amount of encoders ∗/
- #define **K_AMOUNT_OF_16BITS_CHANNELS_MAX** 2 /∗! Maximum amount of 16bits channels ∗/
- #define **K_AMOUNT_OF_8BITS_CHANNELS_MAX** 2 /∗! Maximum amount of 8bits channels ∗/

Enumerations

- enum te_command_status { **E_COMMAND_ERROR** =0, **E_COMMAND_SUCCESS** }

  define the command status
- enum te_start_status { **E_START_NO_ERROR** =0, **E_START_NOT_ALLOWED** }

  define the start status
- enum te_subState { **E_IDLE** = 0, E_READ, E_ERROR }

  define the mode substate
- enum te_ReadStatus { **E_READ_BUSY** =0, E_READ_FINISH, E_READ_NO_DATA }

define the read status

- enum te_ContentOutChannel { **E_OUT_DIST1** = 0, E_OUT_DIST2, E_OUT_RSSI1, E_OUT_RSSI2 }

  define the lidar Content Out channel

Functions

- Std_ReturnType LibLidarLms151_Initialize (void)

  this function initialize module
- Std_ReturnType LibLidarLms151_Configure (const ts_LibLidarLms151_Configuration ∗const ps_LibLidarLms151_Configuration)
- Std_ReturnType LibLidarLms151_Manage (void)

  this function is the central point of the library, it manage the laser
- Std_ReturnType LibLidarLms151_Open (void)

  this function will open Tcp Socket needed for communication with Lms151
- Std_ReturnType LibLidarLms151_Close (void)

  this function will close Tcp Socket needed for communication with Lms151
- Std_ReturnType LibLidarLms151_Get_Timestamp (uint32 ∗const pu32_Timestamp)

  this function will return Laser data Timestamp
- Std_ReturnType LibLidarLms151_Get_Scan (ts_LibLidarLms151_scan_data ∗const ps_LibLidarLms151_scan_data)

  this function will return scan values
- Std_ReturnType LibLidarLms151_Get_InternalState (te_InternalStateMachine ∗const pe_State)

  this function will return internal state
- Std_ReturnType LibLidarLms151_Get_Status (te_LibLidarLms151_device_status ∗const pe_LibLidarLms151_device_status)

  this function will return laser status
- Std_ReturnType LibLidarLms151_Get_Mode (te_mode ∗const pe_Mode)

  this function will return global mode

2.1.1 Detailed Description

Fichier Source du Service LibLidarLms151. $Source: Library_LibLidarLms151.c $Author: Slo $Date: 2016/01/14

2.1.2 Macro Definition Documentation

2.1.2.1 #define K_BUFFER_SIZE_MAX 262144ul /∗! buffer maximal size value ∗/

Global constant Reserved value "1"

2.1.3 Enumeration Type Documentation

2.1.3.1 enum te_ContentOutChannel

define the lidar Content Out channel

Enumerator

E_OUT_DIST2 Content channel is DIST1

E_OUT_RSSI1 Content channel is DIST2

E_OUT_RSSI2 Content channel is RSSI1

Content channel is RSSI2

2.1.3.2 enum te_ReadStatus

define the read status

Enumerator

E_READ_FINISH Read busy

E_READ_NO_DATA Read finished
No data read

2.1.3.3 enum te_subState

define the mode substate

Enumerator

E_READ Mode is in IDLE state

E_ERROR Mode is actually in Read state
Mode is in Error state

2.1.4 Function Documentation

2.1.4.1 Std_ReturnType LibLidarLms151_Close (void)

this function will close Tcp Socket needed for communication with Lms151

Parameters

none	

Returns

Std_ReturnType :
- E_NOT_OK if module is not initialized or Tcp socket return an error
- else E_OK

Tcp Socket Close Error, t_Close_Status is set to E_NOT_OK

no Tcp Socket Close Error, t_Close_Status is set to E_OK

Module is not initialized, Halt

2.1.4.2 Std_ReturnType LibLidarLms151_Configure (const ts_LibLidarLms151_Configuration *const *ps_LibLidarLms151_Configuration*)

Set Laser configuration

Set data configuration

Set socket configuration

Module is not initialized, Halt

2.1.4.3 Std_ReturnType LibLidarLms151_Get_InternalState (te_InternalStateMachine *const *pe_State*)

this function will return internal state

Parameters

te_InternalState-Machine	∗pe_State : state parameter

Returns

Std_ReturnType :

- E_NOT_OK if pe_State is null or module is not initialized
- else E_OK

Module is not initialized, Halt

2.1.4.4 Std_ReturnType LibLidarLms151_Get_Mode (te_mode ∗const *pe_Mode*)

this function will return global mode

Parameters

te_mode	∗pe_Mode : mode parameter

Returns

Std_ReturnType :

- E_NOT_OK if pe_Mode is null or module is not initialized
- else E_OK

Module is not initialized, Halt

2.1.4.5 Std_ReturnType LibLidarLms151_Get_Scan (ts_LibLidarLms151_scan_data ∗const *ps_LibLidarLms151_scan_data*)

this function will return scan values

Parameters

ts_LibLidar-Lms151_scan_-data	∗ps_LibLidarLms151_scan_data : scan parameter

Returns

Std_ReturnType :

- E_NOT_OK if ps_LibLidarLms151_scan_data is null or module is not initialized
- else E_OK

Module is not initialized, Halt

2.1.4.6 Std_ReturnType LibLidarLms151_Get_Status (te_LibLidarLms151_device_status ∗const *pe_LibLidarLms151_device_status*)

this function will return laser status

Parameters

te_LibLidar-Lms151_device-_status	∗pe_LibLidarLms151_device_status : device status parameter

Returns

Std_ReturnType :

- E_NOT_OK if pe_LibLidarLms151_device_status is null or module is not initialized
- else E_OK

Module is not initialized, Halt

2.1.4.7 Std_ReturnType LibLidarLms151_Get_Timestamp (uint32 ∗const *pu32_Timestamp*)

this function will return Laser data Timestamp

Parameters

uint32	∗pu32_Timestamp : timestamp parameter

Returns

Std_ReturnType :

- E_NOT_OK if pu32_Timestamp is null or module is not initialized
- else E_OK

Module is not initialized, Halt

2.1.4.8 Std_ReturnType LibLidarLms151_Initialize (void)

this function initialize module

Parameters

none	

Returns

Std_ReturnType :

- E_OK if SrvConf_Get_Lms151TcpSocket, LibLidarLms151_Open and SrvConf_Get_Lms151Output-Mode return functions are E_OK
- E_NOT_OK if not

2.1.4.9 Std_ReturnType LibLidarLms151_Manage (void)

this function is the central point of the library, it manage the laser

Parameters

none	

Returns

Std_ReturnType :

- E_OK if good return function
- E_NOT_OK if not

Check Module is Initialized and configured

Module Initialized, it has to be configured

set ge_InternalStateMachine to E_LIBLMS151_STATUS_CONFIGURATION

set ge_Mode to E_MODE_LOGIN

set ge_SubState to E_IDLE

log into laser for parameters modifications

Check login command has been well sent

if check is ok, set ge_mode to E_MODE_SET_FREQUENCY_AND_RESOLUTION and ge_SubState to E_IDLE

Configure laser Frequency and resolution

Check laser frequency and resolution configuration well done

if check is ok, set ge_mode to E_MODE_CONFIGURE_SCAN_DATA_CONTENT and ge_SubState to E_IDLE

Configure scan data content

Check scan data content configuration has been well done

if check is ok, set ge_mode to E_MODE_CONFIGURE_SCAN_DATA_OUTPUT and ge_SubState to E_IDLE

configure laser scan data output

check scan data output laser command has been well sent

if check is ok, set ge_mode to E_MODE_STORE_PARAMETERS and ge_SubState to E_IDLE

Store parameters in laser eeprom

if check is ok, set ge_mode to E_MODE_START_MEAS and ge_SubState to E_IDLE

Start Measurements

Check start measurements command has been well sent

if check is ok, set ge_mode to E_MODE_ASK_STATUS and ge_SubState to E_IDLE and ge_InternalStateMachine to E_READY

Ask laser state

Check laser ask state command has been well sent

if check is ok, set ge_mode to E_MODE_LOGOUT and ge_SubState to E_IDLE

log out to run laser

Check log out command has been well sent

if check is ok, set ge_mode to E_MODE_SCAN_CONTINUOUS and ge_SubState to E_IDLE and ge_InternalStateMachine to E_STATE_SCAN

Configure permanent scan

if check is ok, set ge_mode to E_MODE_GET_DATA and ge_SubState to E_IDLE and gu32_FramePosition to 0

Receive data from laser

Module is not initialized, Halt

2.1.4.10 Std_ReturnType LibLidarLms151_Open (void)

this function will open Tcp Socket needed for communication with Lms151

Parameters

none	

Returns

Std_ReturnType :

- E_NOT_OK if module is not initialized or Tcp socket return an error
- else E_OK

Tcp Socket Open Error, t_Open_Status is set to E_NOT_OK

no Tcp Socket Open Error, t_Open_Status is set to E_OK

Module is not initialized, Halt

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