IPL5XCom

Communication DLL dedicated to IPL5X

DEVELOPER GUIDE

Rev. No.	History
0.0.1.6	Work in progress

Features

IPL5XCom.dll is a dll dedicated to the USB HID communication with the interface IPL5X which is a 5 axes linear interpolator.
It takes care of all the low level functions and incorporates many controls and timeout functions.

USB Details

IPL5X is a USB 2.0 device working at full speed.

It identifies itself on the system as a HID compatible device with the following IDs:
VENDOR ID   0x04D8
PRODUCT ID   0x00AA

USB input and output buffers length are 36 Bytes.

Polling time is set to 1ms.

Functions

Function	Description
IPL5X_Dll_Version	DLL version
IPL5X_IsConnected	Verify IPL5X connection status
IPL5X_Open	Open the communication with IPL5X
IPL5X_Close	Close the communication with IPL5X
IPL5X_Send	Send and receive bytes to/from IPL5X

IPL5X_Dll_Version

Description:
This function returns a value corresponding to the current version of the dll.

Declarations:

C :
```
long   __stdcall IPL5X_Dll_Version(void);
```

VB :
```
Public Declare Function IPL5X_Dll_Version Lib "IPL5XCom.dll" () As Long
```

Return code:

xx   DLL version

IPL5X_IsConnected

Description:
This function checks if IPL5X is connected by trying to open a communication channel with IPL5X.

Declarations:
C :
```
long   __stdcall IPL5X_IsConnected(void);
```

VB :
```
Public Declare Function IPL5X_IsConnected Lib "IPL5XCom.dll" () As Long
```

Return codes:

1   IPL5X is connected and communication opened
-200   IPL5X is not found

IPL5X_Open

Description:

This function tries to open a communication channel with IPL5X.

Declarations:

C :
```
long  __stdcall IPL5X_Open(void);
```

VB :
```
Public Declare Function IPL5X_Open Lib "IPL5XCom.dll" () As Long
```

Return codes:

1   IPL5X is connected and communication opened
-201   Can't open communication channel

IPL5X_Close

Description:

This function closes the communication channel with IPL5X.
It should be called before the program ends. This is not mandatory since the dll will automatically close the communication when the calling process detach.

Declarations:

C :
```
void  __stdcall IPL5X_Close(void);
```

VB :
```
Public Declare Sub IPL5X_Close Lib "IPL5XCom.dll" ()
```

Return codes:

None

IPL5X_Send

Description:

This function sends/receives data to/from IPL5X.

Data to send are stored in a table of bytes.

The content of this table is always overwritten with a valid or invalid stream coming from the interface. The validity of the stream must be checked using the function return code.

Table size should be more than 37 bytes otherwise the function will fail to execute.

Byte 0 must always be 0.

Byte 1 must contain the command.

Byte 2-36 contains the needed data.

The parameter Fast can take 2 values:
- Fast=0 -> normal operations
  - o   Read timeout is set to 400ms
  - o   Open a communication if one was not opened
  - o   Cancel any previous stream to ensure proper send/receive
- Fast=1 -> buffer/data activities
  - o   Read timeout is set to 40ms
  - o   No check of the previous status of the communication channel

Declarations:

C :
```
long  __stdcall IPL5X_Send(SAFEARRAY **TableStruct,long *Fast);
```

VB :
```
Public Declare Function IPL5X_Send Lib "IPL5XCom.dll" (Data() As Byte, Fast As Long) As Long
```

Return codes:

1	Send/receive OK, data stream is valid
-101	Can't lock the table
-102	Table is too small
-200	IPL5X not found
-201	Can't open communication channel
-202	An error occurred while sending data to IPL5X
-203	An error occurred while receiving data to IPL5X
-204	Send/receive data mismatch

Error codes

You'll find below a summary of all error codes.

-101   Can't lock the table
-102   Table is too small
-200   IPL5X not found
-201   Can't open communication channel
-202   An error occurred while sending data to IPL5X
-203   An error occurred while receiving data to IPL5X
-204   Send/receive data mismatch