



Q-Light

HID(USB) Library

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HID(USB) Library

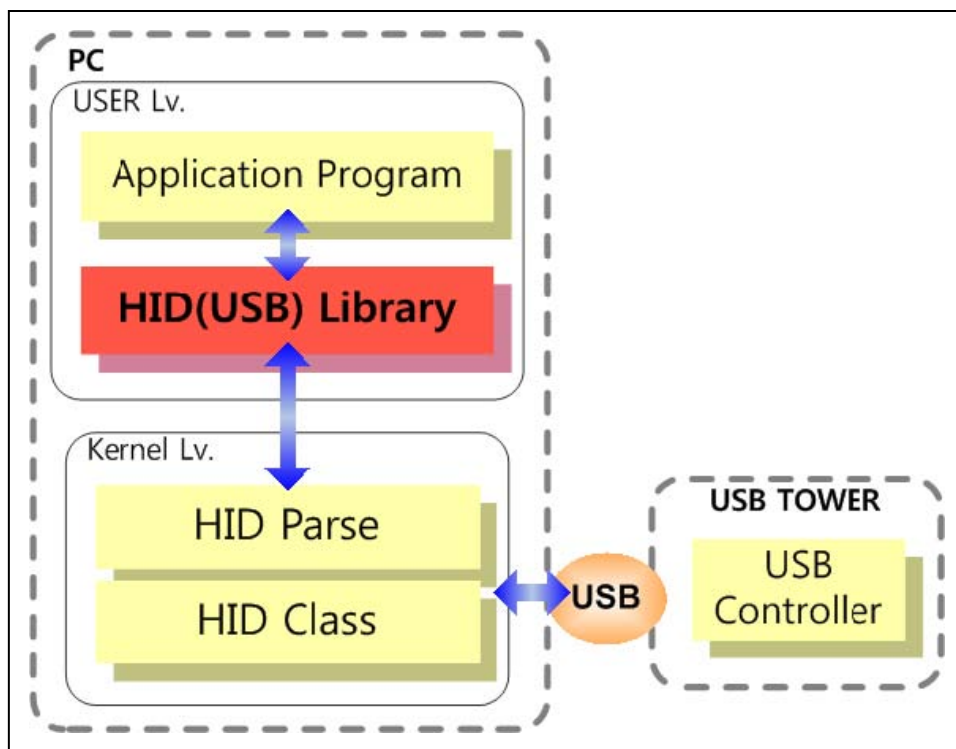
1. Introduction

HID(USB) Library is API which is prepared to control Q-LIGHT USB Tower Lamp on MS Window. It is a library supplied to the developers of application so that they can develop a control program for USB Tower Lamp easily.

USB Tower Lamp is a device that belongs to Windows의 HID(Human Interface Device) class and can simply control HID class supplied by MS Window without Device Driver.

2. HID Architecture

HID(USB) Library controls USB Tower Lamp through HID class of system level(Windows Kernel) as one of application program on PC as below structured diagram.



3. Function Reference

Remarks 1)

Qu_index(0-3)-- Index number(Tower lamp identification number in case of connecting plural tower lamps with one PC)

* In case of 1 tower lamp with 1 PC : index_0

* In case of plural tower lamps(max. 4) with 1 PC : index_0,index_1,index_2,index3

** For plural tower lamp connection with 1 PC, prior request should be followed when purchase the product.*

Remarks 2)

Qu_type(0-4) 2 Options for Sound Tone

1) Tower Lamp with 8 harmony WM or WA and Buzzer : Qu_type = 0

2) Tower Lamp with WS, WP, WB(buzzer sound from speaker) and WM or WA without harmony : Qu_type 0-WS,1-WP,2-WM,3-WA,4-WB

○ **Usb_Qu_Open**

Prototype	void Usb_Qu_Open (void)
Header file	
Parameter	
Return value	
Description	Initialize various parameters and handle related to USB tower lamp.

○ **Usb_Qu_Close**

Prototype	void Usb_Qu_Close (void)
Header file	

Parameter	
Return value	
Description	Clear handles related to USB tower lamp. It should be run when exit.

○ **Usb_Qu_Getstate**

Prototype	int Usb_Qu_Getstate (void)
Header file	
Parameter	
Return value	Int in; In = Usb_Qu_Getstate()); if(in & 0x1) index_0 Connectecd else index_0 Disconnected if(in & 0x2) index_1 Connectecd else index_1 Disconnected if(in & 0x4) index_2 Connectecd else index_2 Disconnected if(in & 0x8) index_3 Connectecd else index_3 Disconnected
Description	It is used to confirm whether USB tower light is connected or disconnected. Making sure by confirmation Return Value of Bit. Bbit0 (index_0) - 0-Disonnected/ 1-Connected Bbit1 (index_1) - 0-Disonnected/ 1-Connected Bbit2 (index_2) - 0-Disonnected/ 1-Connected Bbit3 (index_3) - 0-Disonnected/ 1-Connected

○ **Usb_Qu_write**

Prototype	bool Usb_Qu_write(byte Qu_index, byte Qu_type, byte *pData)
Header file	
Parameter	<p>Qu_index(0-3) : TOWER LAMP index number Qu_type(0-4) Tower Lamp with 8 harmony WM or WA and Buzzer : (0) Tower Lamp with WS, WP, WB(buzzer sound from speaker) and WM or WA without harmony : (0-4) pData : Lamp and Sound Control Data Point byte bAcon[6]; bAcon[0] ~bAcon[4] : Lamp Control data(0-2) 0-OFF, 1-blink(on/off). 2-ON, Else –Don't change before state bAcon[0] – Red Lamp bAcon[1] – Yellow Lamp bAcon[2] – Green Lamp bAcon[3] – Blue Lamp bAcon[4] – White Lamp bAcon[5] : Sound Contro data(0-5) 0-OFF, 1-4(Sound Select), Else- Don't change before state</p>
Return value	<p>1 : Success in Writing 0 : Error in Writing</p>
Description	Turn on or off the signal light and soundf of USB tower lamp.

4. How to use Library

※ This library is written in Microsoft Visual C++ 6.0.

4-1. Visual C++

○ Place “Quvc_dll.lib,Quvc_dll.dll” file on the directory where main source

locates.

- Add Quvc_dll.lib to the item of additional dependency in project properties
(alt+f7)→composition properties→linker→input.(based on VC++6.0)
- After development of application program, build it and locate it together with
executaive file at same location for execution
- Refer to attached application program sample source developed from
Microsoft Visual C++ 6.0.

Cf) In case of developing by CLampTestDlg

```
extern "C" __declspec(dllimport) void Usb_Qu_Open();
extern "C" __declspec(dllimport) void Usb_Qu_Close();
extern "C" __declspec(dllimport) int  Usb_Qu_Getstate();
extern "C" __declspec(dllimport) bool Usb_Qu_write(byte Qu_index, char Qu_type,
char *pData);
```

```
BOOL CLampTestDlg::OnInitDialog()
{
    //
    //
    Usb_Qu_Open();
}
```

```
void CLampTestDlg::OnDestroy()
{
    //
    //.
    Usb_Qu_Close();
}
```

```
void CLampTestDlg::Read_state()
{
    // TODO: Add your control notification handler code here
    int i;

    i = Usb_Qu_Getstate();
```

```

        m_str = " Read Connect Usb  ";
        if(i & 0x1)      m_str = m_str + "Index0(O), ";
        else            m_str = m_str + "Index0(X), ";
        if(i & 0x2)      m_str = m_str + "Index1(O), ";
        else            m_str = m_str + "Index1(X), ";
        if(i & 0x4)      m_str = m_str + "Index2(O), ";
        else            m_str = m_str + "Index2(X), ";
        if(i & 0x8)      m_str = m_str + "Index3(O), ";
        else            m_str = m_str + "Index3(X), ";

        UpdateData(0);

    }
void CLampTestDlg::Lamp_write()

{
    // TODO: Add your control notification handler code here


#define   C_index      0           //
#define   C_type       0

#define   D_not        100        // Don't care  // Do not change
        before state
#define   C_lampoff    0
#define   C_lampon     1
#define   C_lampblink2

    bool b_chk;
    char c_char[6];

    c_char[0] = C_lampon;
    c_char[1] = C_lampblink;
    c_char[2] = C_lampoff;
    c_char[3] = D_not;

```

```

c_char[4] = C_lampoff;
c_char[5] = 3;

b_chk = Usb_Qu_write(C_index,C_type,c_char);

if(b_chk)    m_str = "  [Success send] ";
else        m_str = "  [Send  Error] ";
UpdateData(0);

}

```

4-2. Visual Basic

※○ The attached is application program sample source developed from

Microsoft Visual C++ 6.0. Refer to it together with below description.

○ Copy Quvc_dll.lib,Quvc_dll.dll at the location where executive file generates.

```

Public Declare Sub Usb_Qu_Open Lib "Quvb_dll.dll" Alias "_Usb_Qu_Open@0" ()
Public Declare Sub Usb_Qu_Close Lib "Quvb_dll.dll" Alias "_Usb_Qu_Close@0" ()
Public Declare Function Usb_Qu_Getstate Lib "Quvb_dll.dll" Alias
    "_Usb_Qu_Getstate@0" () As Long
Public Declare Function Usb_Qu_write Lib "Quvb_dll.dll" Alias
    "_Usb_Qu_write@12" (ByVal Q_index As Byte, ByVal Q_type As Byte, ByRef
    pQ_data As Byte) As Boolean

```

```

Private Sub Form_Load()
    Usb_Qu_Open

```

```

End Sub

```

```

Private Sub Form_Unload(Cancel As Integer)

```



```

        Usb_Qu_Close

End Sub
Private Sub Exit_Click()
    End
End Sub

Private Sub Lamp_write_Click()

    Const C_index = 0
    Const C_type = 0

    Const D_not = 100          ' Don't care // Do not change before state
    Const C_lampoff = 0
    Const C_lampon = 1
    Const C_lampblink = 2

    Dim b_in As Boolean
    Dim bData(6) As Byte

    bData(0) = C_lampon        ' Red
    bData(1) = C_lampblink     ' Yellow
    bData(2) = D_not           ' Green
    bData(3) = C_lampon        ' Blue
    bData(4) = C_lampblink     ' White

    ' Sound      0-(off)   1-4(Sound select)
    ' Else ' Don't care   Do not change before state
    bData(5) = 0

    b_in = Usb_Qu_write(0, 0, bData(0))

```

```

If b_in Then
    Text1.Text = " Send Success"
Else
    Text1.Text = " Send Error.."
End If

'Text1.Text = b_in

End Sub

Private Sub Read_state_Click()
    Dim i As Long
    Dim mstr As String

    mstr = ""
    i = Usb_Qu_Getstate

    If (i And &H1) = &H1 Then
        mstr = mstr + "index_0(O)  "
    Else
        mstr = mstr + "index_0(X)  "
    End If

    If (i And &H2) = &H2 Then
        mstr = mstr + "index_1(O)  "
    Else
        mstr = mstr + "index_1(X)  "
    End If

    If (i And &H4) = &H4 Then
        mstr = mstr + "index_2(O)  "
    Else
        mstr = mstr + "index_2(X)  "
    End If

```

```
If (i And &H8) = &H8 Then
    mstr = mstr + "index_3(O)  "
Else
    mstr = mstr + "index_3(X)  "
End If
```

```
Text1.Text = mstr
```

```
End Sub
```

5. Contact Us

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