

BT_LF (Bartec Low Frequency DLL) for Pocket PC

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General

Language: Visual Studio 2005, VB.NET

Actual Firmware for the Bartec-OEM-Board:

- btrw-hdx.v1.40.frm for all TIRIS, UNIQUE32/64, ZOODIAC
- btrw-rw.v1.40.frm for Q5, HITAG-S(1), HITAG-II, EM4305
- btrw-ti.v1.40.frm for TITAN, UNIQUE32/64, ZOODIAC

Supported Transponder-Types :

- 0 - EM 41xx (UNIQUE) - RO
- 1 - HITAG S - RW
- 2 - FDX-B ISO 11784/5-RO
- 3 - Q5 / 5557 -- RW
- 4 - HDX Transponder (TI)-RW
- 5 - HITAG 2 - RW
- 6 - EM 4305 - RW
- 7 - EM4450/4550 (TITAN)-RW

1.0 Property

1.1 *Comport*

Property **Comport()** As [Integer](#)

Summary:

Checks the connection for the communication or defines it. This includes all available COM-ports.

Parameter:

Comport-No as number value 1 = Comport 1, 2 = Comport 2..etc.

1.2 *Active*

Property **Active()** As [Boolean](#)

Summary:

Opens a new serial connection.

Parameter:

True, to activate the interface, otherwise false. The standard value is false.

1.3 *DTR*

Property **DTR()** As [Boolean](#)

Summary:

Checks a value, which activates the Data Terminal Ready (DTR)-signal while a serial communication will be activated, or defined.

Return values:

True, to activate Data Terminal Ready (DTR) otherwise false. The standard value is false.

1.4 *RTS*

Property **RTS()** As [Boolean](#)

Summary:

Checks a value, which represents the Request to Send (RTS)-signal while a serial communication will be activated, or defined.

Return values:

True, to activate Request to Transmit (RTS) otherwise false. The standard value is false.

1.5 *TimeOut*

Property **TimeOut()** As [Integer](#)

Summary:

Input of the Delay-value for the Timeout of the Read/Write process. Standard value 2000 ms.

Parameter:

Number value in ms.

1.6 *ShutDownActive*

Property **ShutDownActive()** As [Boolean](#)

Summary:

Activates the event „ReadyToShutDown“. This will be enabled as soon as the Pocket PC will be put into the docking station.

Parameter:

True, if the ShutDown should be activated.

1.7 *CDInfo*

ReadOnly Property **CDInfo()** As [Boolean](#)

Summary:

Checks the status of the row for the identification of the carrier for the connection.

Return values:

True, if the carrier was identified otherwise false.

1.8 *CTSInfo*

ReadOnly Property **CTSInfo()** As [Boolean](#)

Summary:

Checks the status of the Clear-to-Send-row.

Return values:

True, if the Clear-to-Send-row was identified otherwise false.

1.9 *DSRInfo*

ReadOnly Property **DSRInfo()** As [Boolean](#)

Summary:

Checks the status of the DSR (Data Set Ready)-signal.

Return values:

True, if a Data Set Ready-signal was sent, otherwise false.

1.10 DLLVersion

ReadOnly Property **DLLVersion()** As [String](#)

Summary:

Checks the version number of the DLL.

Return values:

Version number of the DLL.

2.0 Variables

2.1 Hitag2Password

Public **Hitag2Password** As [String](#)

Summary:

Parameter for the Hitag2Password, which is needed for Read/Write.

Parameter:

8 characters Hexadecimal

2.2 IsTagSelect

Public **IsTagSelect** As [Boolean](#)

Summary:

Checks the selected transponder type. This parameter will be set automatically if the function SelectTag is in process.

Parameter:

True for a transponder has been selected, False if not.

2.3 TitanPassword

Public **TitanPassword** As [String](#)

Summary:

Parameter for the TitanPassword, which is needed for Read/Write.

Parameter:

8 characters Hexadecimal

3.0 Function

3.1 ASCIIToHex

Function **ASCIIToHex**(ByVal *Input* As [String](#)) As [String](#)

Summary:

Converts ASCII-characters to Hexadecimal- characters

Parameter:

Input ASCII-character

Return values:

Hexadecimal- characters

3.2 HexToASCII

Function **HexToASCII**(ByVal *Input* As [String](#)) As [String](#)

Summary:

Converts Hexadecimal- characters to ASCII-characters

Parameter:

Input Hexadecimal- character

Return values:

ASCII-character String

3.3 ChangeHitag2Password

Function **ChangeHitag2Password**(ByVal *OldPassword* As [String](#), ByVal *NewPassword* As [String](#)) As [String](#)

Summary:

Change of the Hitag2 Password. The Hitag2 will be selected with the old Password. After the selection the new Password will be written into the Password block. If successful the return value is a „+“. If not the return value is a „-“.

Parameter:

OldPassword = 8 characters Hex. for example: „00000000“

NewPassword = 8 characters Hex. for example: „11111111“

Return values:

„+“ for OK

„-“ for failure

Example:

```
Private Sub ChangePasswordHitag2()  
    Dim Res As String  
    Res = BTLF_DLL.ChangeHitag2Password("00000000","11111111")  
    If Res Like "+*" Then  
        MsgBox("OK")  
    ElseIf Res Like "*- 4*" Then  
        MsgBox("No Transponder selected")  
    Else  
        MsgBox("[ " & Res & "]Error")  
    End If  
End Sub
```

3.4 ChangeTitanPassword

Function **ChangeTitanPassword**(ByVal *OldPassword* As String, ByVal *NewPassword* As String) As String

Zusammenfassung:

Change of the Titan Password. The Titan will be selected with the old Password. After the selection the new Password will be written into the Password block. If successful the return value is a „+“. If not the return value is a „-“.

Parameter:

OldPassword = 8 characters Hex. for example: „00000000“

NewPassword = 8 characters Hex. for example: „11111111“

Return values:

„+“ for OK

„-“ for failure

Example:

```
Private Sub ChangePasswordTitan()  
    Dim Res As String  
    Res = BTLF_DLL.ChangeTitanPassword(„00000000“,„11111111“)   
    If Res Like "+*" Then  
        MsgBox("OK")  
    ElseIf Res Like "*- 4*" Then  
        MsgBox("No Transponder selected")  
    Else  
        MsgBox("[ " & Res & "]Error")  
    End If  
End Sub
```

3.5 GetVersion

Function **GetVersion**() As String

Summary:

Checks the actual Version-number of the Firmware of the Reader.

Return values:

Actual Version-number of the loaded Firmware in the Reader for example: BARTEC-btrw-rw.[bartec].v1.40

3.6 SelectTag

Function **SelectTag**(ByVal *TagType* As Integer) As String

Summary:

Selects a transponder. After successful reading the UID of the transponders an 8 character long Hexadecimal string will be transferred. If not an Errorcode will be transferred. In parallel the Parameter „IsTagSelect“ will be set.

If it is a Titan transponder the Password „TitanPassword“ has to be set.

Parameter:

TagType:

- 0 - EM 41xx (UNIQUE) -RO
- 1 - HITAG S - RW
- 2 - FDX-B ISO 11784/5-RO
- 3 - Q5 / 5557 -- RW
- 4 - HDX Transponder (TI)-RW
- 5 - HITAG 2 - RW
- 6 - EM 4305 - RW
- 7 - EM4450/4550 (TITAN)-RW

Return values:

UID

(8 characters Hexadecimal long)

„- 1“ „- 2“ „- 3“ „- 4“ „- 5“ or „- 99“ for general Reader-Error

3 characters, Minus character + one blank + one number (depends on the transponder-Type)

„Error: 54“

Transponder-Type is not supported from the actual Firmware.

Example: Selection of a Hitag S transponder

Private Sub SelectTransponder()

Dim UIDData As String

If TagType = 7 Then

// Nur bei Titan

BTLF_DLL.TitanPassword = "00000000" // Nur bei Titan

End If

// Nur bei Titan

UIDData = BTLF_DLL.SelectTag(1)

if (UIDData Like "*" - 1*) Or (UIDData Like "*" - 2*) Or (UIDData Like "*" - 3*) Or (UIDData Like "*" - 4*)

Or (UIDData Like "*" - 5*) Then

MsgBox("[" & UIDData & "] No Transponder selected")

Elseif UIDData = "Error: 54" Then

MsgBox("[54] Not available in this firmware")

Elseif UIDData = "- 99" Then

MsgBox("[- 99] Reader-Error")

Else

MsgBox("TAG-Nr. : " & UIDData)

End If

End Sub**3.7 ReadTagData**Function **ReadTagData**(ByVal TagType As Integer, ByVal Block As String) As String**Summary:**

Read of data from a transponder. Parameters Transponder-Type and the blockaddress will be transferred. Before read operation the transponder type has to be selected with the function „SelectTransponder“. By selecting a transponder the UID will be put out and the Parameter „IsTagSelect“ will be set.

After successful reading the return value of the block which was read be transferred as 8 character data string.

There are tag types where it is not possible to read out data.

Parameter:

TagType

Supported transponder-types:

- 1 - HITAG S - RW
- 3 - Q5 / 5557 -- RW
- 4 -HDX Transponder (TI)-RW
- 5 - HITAG 2 - RW
- 6 - EM 4305 - RW
- 7 - EM4450/4550 (TITAN)-RW

Block: as Address

Return values:

8 characters Hexadecimal if reading was successful.

„- 1“ or „- 2“ for failure

„- 1 „ Transponder was not selected

„- 2 “ Failure during reading

Example: Reading data out of a Hitag S, Block 10.

```
Private Sub ReadData()  
    Dim UIDData As String  
    Dim TAGData As String  
    UIDData = BTLF_DLL.SelectTag(1)  
    If BTLF_DLL.IsTagSelect And (UIDData <> "") Then  
        TAGData = BTLF_DLL.ReadTagData(1, "10")  
        If (TAGData = "- 1") Then  
            MsgBox("No Transponder select")  
        ElseIf (TAGData = "- 2") Then  
            MsgBox("Read Error")  
        Else  
            txtData.Text = fc.RFIDData  
            MsgBox("Read OK")  
        End If  
    End If  
End Sub
```

3.8 WriteTagData

Function **WriteTagData**(ByVal TagType As Integer, ByVal Block As String, ByVal Data As String) As String

Summary:

Write of data to a transponder. The Parameters Transponder-Type, Block address and the data have to be transferred. Before write operation the transponder type has to be selected with the function „SelectTag“. By selecting a transponder the UID will be put out and the Parameter „IsTagSelect“ will be set. After successful reading the return value of the block which was read be transferred as 8 character data string. There are tag types where it is not possible to read out data.

Parameter:

TagType

Supported transponder-types:

- 1 - HITAG S - RW
- 3 - Q5 / 5557 -- RW
- 4 -HDX Transponder (TI)-RW
- 5 - HITAG 2 - RW
- 6 - EM 4305 - RW
- 7 - EM4450/4550 (TITAN)-RW

Block: as Address

Data: 8 characters Hexadecimal

Return values:

8 characters Hexadecimal if reading was successful.

„- 1„ or „- 2“ „-3„ for failure

„- 1 „ Transponder was not selected

„- 2 “ Failure during reading

„-3“ wrong block length

Example: Reading data out of a Hitag S, Block 10 8 characters Hexadecimal „11111111“

```
Private Sub WriteData()  
    Dim UIDData As String  
    Dim Result As String  
    UIDData = BTLF_DLL.SelectTag(1)  
    If BTLF_DLL.IsTagSelect And (UIDData <> "") Then  
        Result = BTLF_DLL.WriteTagData(1, "10", "11111111")  
        If (Result = "- 1") Then  
            MsgBox("No Transponder select")  
        ElseIf (Result = "- 2") Then  
            MsgBox("Write Error")  
            ElseIf (Result = "- 3") Then  
                MsgBox("Block length Error")  
            ElseIf (Result = "+") Then  
                MsgBox("Write OK")  
        End If  
    End If  
End Sub
```

3.9 SendDataToReader

Function **SendDataToReader**(ByVal Command As String) As String

Summary:

Additional *Low Level* function to send commands to the reader.

The reader reacts immediately on the commands and sends the result directly back.

Parameter:

Command as String

Return values:

ASCII and Hexadecimal characters

Example: Request of the Firmware version of Reader

```
Private Sub SendData()  
    Dim Result As String  
    Result = BTLF_DLL.SendDataToReader("sv")  
    If Result <> "" Then  
        MsgBox("Version" & Result)  
    End If  
End Sub
```

4.0 Event

4.1 ReadyToShutDown

Public Event **ReadyToShutDown**(ByVal Sender As Object, ByVal ReaderDown As Boolean)

Summary:

The Event will be processed, when "ShutDownActive" was activated and the Pocket PC is in the docking station.

The Event provides the possibility, for example to switch off the software during the deactivation of the reader.

Parameter:

ReaderDown = True, if the power supply of the reader is broken.

4.2 TLMDData

public Event **TLMDData**(ByVal Sender As Object, ByVal Direction As String, ByVal Data As String)

Summary:

The Event will be processed, when a data transfer between the reader and the application was done.

Parameter:

Direction:

„>“ = Data which will be sent to the reader.

„<“ = Data which came from the reader.

Data:

Data from Data transfer.

5.0 Errorcode

5.1 SelectTransponder

- 1 No Transponder selected
- 2 No Transponder selected
- 3 No Transponder selected
- 4 No Transponder selected
- 5 No Transponder selected

Error: 54 Not available in this firmware

- 99 Reader Error

5.2 ReadData

- 1 No Transponder selected
- 2 Read Error

5.3 WriteData

- 1 No Transponder selected
- 2 Read Error
- 3 Block length Error