

Description

BT_LF (Bartec Low Frequency DLL)

Version 20.01.2009

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1. General

1.1 Programming Language

Language: Visual Studio 2005, C

1.2 Firmware Version

Actual firmware for the BARTEC board:

Firmware version Btrw-rw.V.1.40.frm	Firmware version Btrw-hdx.V.1.40.frm	Firmware version Btrw-ti.V.1.40.frm
HITAG S256	HDX -RO	EM 4450/4550
HITAG S 2 kbit	HDX (Multipage)	EM4xxx(UNIQUE)
HITAG 1	EM4xxx(UNIQUE)	FDX-B
HITAG 2	FDX-B	BDE
Q5	BDE	ISO 11784/5
ATA5567	ISO 117845	ISO Animal
EM4305	ISO Animal	

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

2. Property

2.1 Comport

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

Summary	Calls or stipulates the connection for the communication, including all available COM connections.
Parameter	Comport no. as numerical value. 1 = Comport 1, 2 = Comport 2, etc.

2.2 Active

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

Summary	Opens a new serial connection.
Parameter	True, in order to activate the interface, otherwise false. The standard value is false.

2.3 DTR

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

Summary	Calls or stipulates a value, which activates the Data Terminal Ready (DTR) Signal during a serial communication.
Return values	True, in order to activate Data Terminal Ready (DTR), otherwise false. The standard value is false.

2.4 RTS

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

Summary	Calls or stipulates a value, which states whether the Request to Send (RTS) signal is activated during the serial communication.
Return values	True, in order to activate Request to Transmit (RTS), otherwise false. The standard value is false.

2.5 TimeOut

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

Summary	Input of the delay value for the timeout of the reading/writing process. The standard value is 2000 milliseconds
Return values	Numerical value in milliseconds

2.6 ShutDownActive

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

Summary	Activates the event "ReadyToShutDown". It is triggered off as soon as the Pocket PC has been connected to the Docking Station.
Parameter	True, if the ShutDown is to be activated.

2.7 CDInfo

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

Summary	Calls the status of the line for identifying the carrier for the connection.
Return values	True, if the carrier is identified, otherwise false.

2.8 CTSInfo

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

Summary	Calls the status of the Clear-to-Send line.
Return values	True, if the Clear-to-Send line is identified, otherwise false.

2.9 DSRInfo

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

Summary	Calls the status of the DSR (Data Set Ready)-Signal.
Return values	True, if a Data Set Ready-Signal was sent to the connection, otherwise false.

2.10 DLLVersion

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

Summary	Calls the version number of the DLL.
Return values	Version number of the DLL

3. Variables

3.1 Hitag2Password

Public Hitag2Password As [String](#)

Summary	Parameter for the Hitag2Password, which is required for reading/writing.
Parameter	8 characters hexadecimal

3.2 IsTagSelect

Public IsTagSelect As [Boolean](#)

Summary	Calls the status of the selection of a transponder. This parameter is set automatically if the function SelectTag is carried out.
Parameter	True, if a transponder is selected, false if not.

3.3 TitanPassword

Public TitanPassword As [String](#)

Summary	Parameter for the Hitag2Password, which is required for reading/writing.
Parameter	8 characters hexadecimal

4. Function

4.1 ASCIIToHex

Function **ASCIIToHex**(ByVal *Input* As String) As String

Summary	Converts ASCII-characters into hexadecimal characters.
Parameter	<i>Input</i> as ASCII-characters
Return values	Hexadecimal characters

4.2 HexToASCII

Function **HexToASCII**(ByVal *Input* As String) As String

Summary	Converts hexadecimal characters into ASCII characters.
Parameter	<i>Input</i> as hexadecimal characters
Return values	ASCII-characters as String

4.3 ChangeHitag2Password

Function **ChangeHitag2Password**(ByVal *OldPassword* As String, ByVal *NewPassword* As String) As String

Summary	Change of the Hitag2 password. The Hitag2 is selected with the old password. After the selection the new password is written in the password block. The successful writing is confirmed as a return value with a "+" sign. A "-" sign is returned if it is unsuccessful.
Parameter	<i>OldPassword</i> as 8 characters hex. e.g. "00000000" <i>NewPassword</i> as 8 characters hex. e.g.: "11111111"
Return values	"+" sign as OK "-" sign as error
Example	<pre> 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 </pre>

4.4 ChangeTitanPassword

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

Summary	Change of the Titan Password. The Titan is selected with the old password. After the selection the new password is written in the password block. The successful writing is confirmed as a return value with a "+" sign. A "-" sign is returned if it is unsuccessful.
Parameter	<i>OldPassword</i> as 8 characters hex. e.g: "00000000" <i>NewPassword</i> as 8 characters hex. e.g.: "11111111"
Return values	"+" characters as OK "-" characters as error
Example	<pre> 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 </pre>

4.5 GetVersion

Function **GetVersion**() As **String**

Summary	Calls the actual version number of the firmware from the reader.
Return values	Actual firmware which is loaded in the Reader. e.g: BARTEC-btrw-rw.[bartec].v1.40

4.6 SelectTag

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

Summary	<p>Selects a transponder. With the successful reading the UID of the transponder is handed over as 8 character hexadecimal. In case of an error an error code is returned. At the same time the parameter "IsTagSelect" is set.</p> <p>The password „TitanPassword“ must be set in advance with the Titan transponder.</p>
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Parameter	<p>TagType:</p> <p>0 - EM 41xx (UNIQUE) -RO</p> <p>1 - HITAG S - RW</p> <p>2 - FDX-B ISO 11784/5-RO</p> <p>3 - Q5 / 5557 -- RW</p> <p>4 - HDX Transponder (TI)-RW</p> <p>5 - HITAG 2 - RW</p> <p>6 - EM 4305 - RW</p> <p>7 - EM4450/4550 (TITAN)-RW</p>
Return values	<p>UID</p> <p>(as 8 character hexadecimal.)</p> <p>"- 1" "- 2" "- 3" "- 4" "- 5" or "- 99" for general reader error</p> <p>3 characters, minus sign + one space + one number (dependent on the transponder type)</p> <p>„Error: 54“</p> <p>Transponder type is not supported in the actual firmware.</p>
Example	<p>Selection of a Hitag S Transponder</p> <pre> Private Sub SelectTransponder() Dim UIDData As String If TagType = 7 Then // Only with Titan BTLF_DLL.TitanPassword = "00000000" // Only with Titan End If // Only with 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-No. : " & UIDData) End If End Sub </pre>

4.7 ReadTagData

Function **ReadTagData**(ByVal *TagType* As Integer, ByVal *Block* As String) As String

Summary	<p>Reading of data from a transponder. The transponder type and the block address have to be handed over as parameters. Beforehand the transponder has to be selected with the function „SelectTransponder“. The UID is issued when selecting a transponder and the parameter „IsTagSelect“ is set.</p> <p>After the successful reading the read block is handed over as 8 character String as return value. Data cannot be read from every transponder.</p>
Parameter	<p>TygTyp</p> <p>Supported transponder types:</p> <ul style="list-style-type: none">1 - HITAG S - RW3 - Q5 / 5557 -- RW4 -HDX Transponder (TI)-RW5 - HITAG 2 - RW6 - EM 4305 - RW7 - EM4450/4550 (TITAN)-RW <p>Block as address</p>
Return values	<p>8 characters hexadecimal with successful reading.</p> <p>“ - 1” or “ - 2” for errors</p> <p>“ - 1 “ transponder has not been selected</p> <p>“ - 2 “ error during reading</p>

Example	<p>Reading of data from a Hitag S, Block 10</p> <pre> 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 </pre>
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4.8 WriteTagData

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

Summary	<p>Writing of data on a transponder. The transponder type block address and the data have to be handed over as parameters. Beforehand the transponder has to be selected with the function „SelectTag“. The UID is issued when selecting a transponder and the parameter „IsTagSelect“ is set.</p> <p>After the successful reading the read block is handed over as 8 character String as return value. Data cannot be written in every transponder.</p>
Parameter	<p>TagTyp</p> <p>Supported transponder types:</p> <ul style="list-style-type: none"> 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 <p>Block: as address</p> <p>Data: 8 characters hexadecimal</p>

Return values	<p>8 characters hexadecimal with successful reading.</p> <p>“ - 1 ” “ - 2 ” “ - 3 ” for errors</p> <p>“ - 1 ” transponder has not been selected</p> <p>“ - 2 ” error during reading</p> <p>“ - 3 ” false block length</p>
Example	<p>Writing of data in a Hitag S, Block 10 with 8 hexadecimal characters “11111111”</p> <pre> 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 </pre>

4.9 SendDataToReader

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

Summary	Additional <i>Low Level</i> function for transmitting commands to the reader. The reader will react to the commands immediately and return the results immediately.
Parameter	Command as String
Return values	ASCII and hexadecimal characters
Example	<p>Query of the firmware version in the reader</p> <pre> Private Sub SendData() Dim Result As String Result = BTLF_DLL.SendDataToReader("sv") If Result <> "" Then MsgBox("Version" & Result) End If End Sub </pre>

5. Event

5.1 ReadyToShutDown

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

Summary	The event is triggered off when “ShutDownActive” has been activated and the Pocket PC has been connected to the Docking Station. Through this event you have the possibility e.g to end the software with the deactivation of the reader.
Parameter	ReaderDown = True, if the electricity supply for the reader has been interrupted

5.2 TLMDData

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

Summary	The event is always triggered off if data is transferred between the reader and the application.
Parameter	Direction: “>” = Data which are sent to the reader. “<” = Data which come from the reader.
Data	Data from the data transfer.

6. Error Code

6.1 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

6.2 ReadData

- 1 No Transponder selected
- 2 Read Error

6.3 WriteData

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

This PPA-software enables you to make a firmware update at the LF-reader. There are 3 different firmware versions which support different transponder types.

1. btrw-hdx.v1.40.frm

Transponder: TIRIS, UNIQUE32/64, ZOODIAC

2. btrw-rw.v1.40.frm

Transponder: Q5, HITAG-S(1), HITAG-II, EM4305

3. btrw-ti.v1.40.frm

Transponder: TITAN, UNIQUE32/64, ZOODIAC

6.4 Installation

Copy the CAB-file "TIDTalkPDA.CAB" by using *Microsoft ActiveSync* from the PC in a folder "for example: My Documents" to the connected PDA.

After one "double click" on the file you can start the installation process and the software will be installed.

Afterwards please copy the firmware files (frm-files) from the PC to the PDA (folder "My Documents").

It is important that these files will be copied into the folder because otherwise *TIDTalkPDA* cannot find these files.