



# **ActiveX Control element for MFC 8800 – DC / EM Bluetooth I/O-board**

## **Application guide**

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The content of this publication was carefully examined for agreement with the hardware and software described. Nevertheless, discrepancies cannot be ruled out. Any liability and warranty for the accuracy of this information is excluded.

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## **Printing instruction**

Print this document on A4-paper, selecting the printer option “2 pages per sheet”.

## Introduction

The activeX element 8800\_activex.ocx is a ready to use software-component for the MFC 8800 DC/EM bluetooth I/O-board. It allows an easy software integration of board functionalities in user specific programs. Integration into Visual Basic, Visual C++ or HTML documents can be done in a few minutes.

The control has a graphical user interface that allows immediate access to the board functions. It may also be used invisible, representing an interface between the user software and the board hardware.

You may use several 8800-controls in one application in order to control up to 7 MFC 8800-DC/EM boards simultaneously. (Bluetooth specification is limiting the number of simultaneous connections to 7).

## VB Sample project

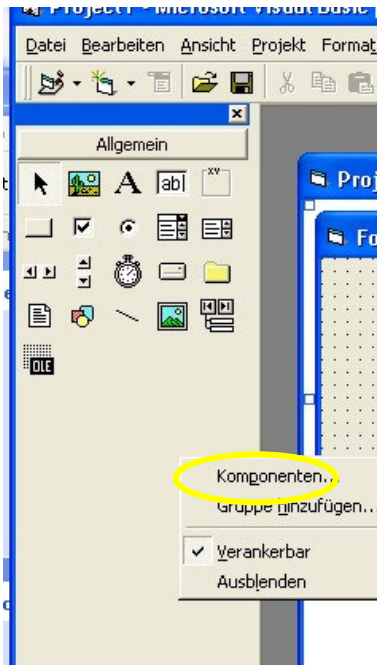
Required: VB 6

### Step 1. - Copy activeX-file to the system directory

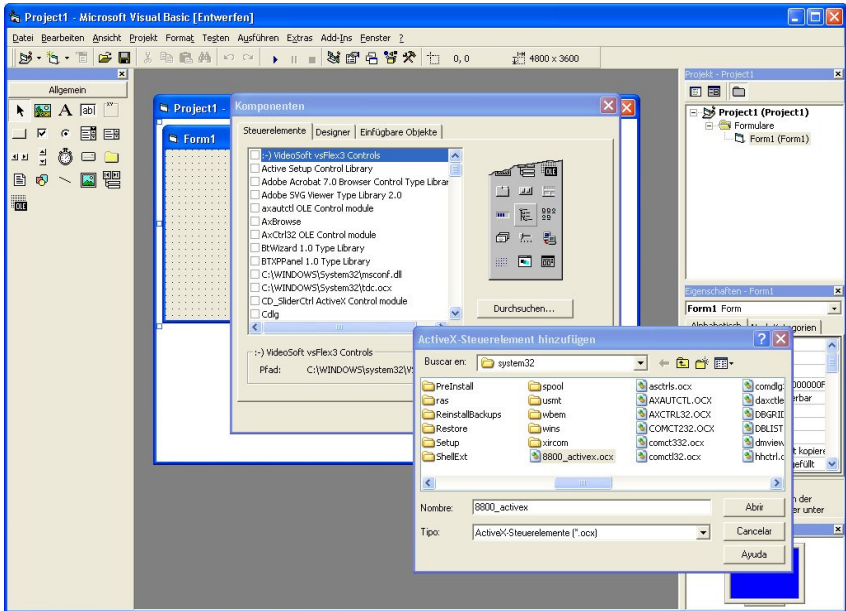
Copy the file **8800\_activeX.ocx** to the system32-directory. (Usually C:\Windows\system32)

### Step 2. – Add 8800-ActiveX to the toolbar

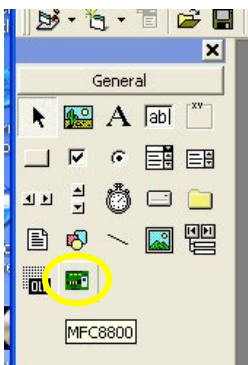
Open a new project and right-click on the toolbar.



Click on “**Components**” in order to add the 8800\_activeX.ocx.



Browse to the system32 directory. (Usually C:\Windows\system32)  
Select the file **8800\_activeX.ocx** and confirm 2 times.



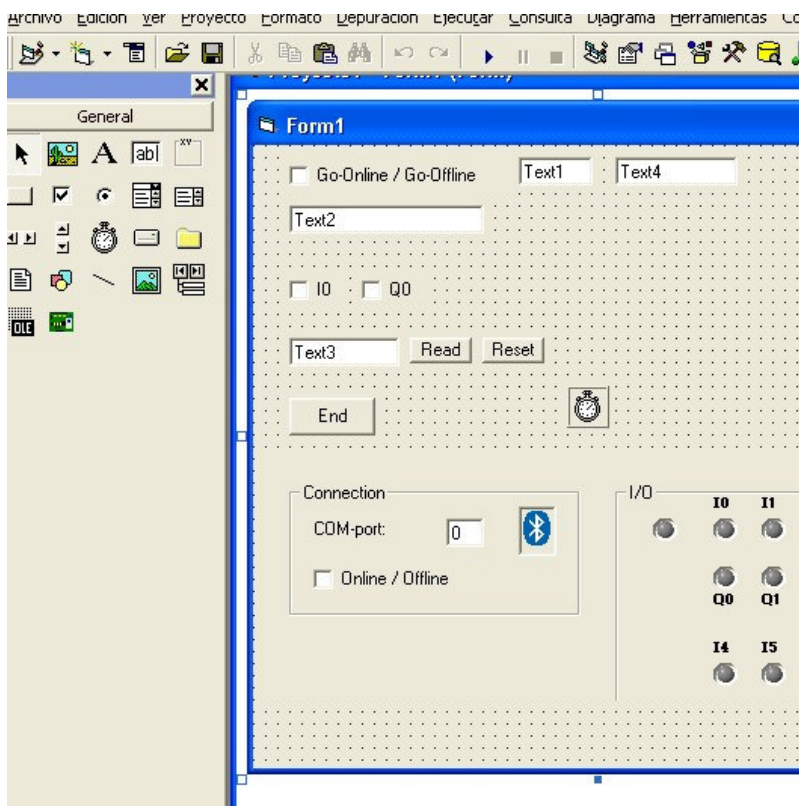
The MFC 8800 control element will now be available in the toolbar.

### Step 3. – Insert required components

Open a form and add the following components

- Checkbox 1 - Change Caption property to **Go-Online / Go-Offline**  
This checkbox will be used to connect / disconnect the board
- Checkbox 2 - Change Caption property to **I0**  
This checkbox will indicate the state of input I1.
- Checkbox 3 - Change Caption property to **Q0**  
This checkbox will be used to set output Q0
- Textbox 1 - Here, the port-number has to be put in, prior to be able to open a connection
- Textbox 2 - The devices name will be displayed in this box
- Textbox 3 - The actual state of counter C0 will be displayed here
- Textbox 4 - In this box it will be indicated whether a connection is active or not.
- Button 1 - This button will end the application (Caption “**End**”)
- Button 2 - This button initiates the reading of the state of counter C0 (Caption “**Read**”)
- Button 3 - This button resets counter C0 (Caption “**Reset**”)
- MFC8800 - Place this component somewhere on your form. In this application, the MFC8800 - control will be invisible, so its size is not important. Change the Visible – property to **False**
- Timer 1 - This timer updates the process variables. Set the interval to **10 ms**

Your Form should look now something like this:



#### Step 4 – Insert the code

Insert the following code in the Form :

```
'Terminates Program
Private Sub Command1_Click()
    End
End Sub
```



```

'The following 2 Events generate a short pulse of the
'counter reset-bit, when clicking on the reset button
Private Sub Command3_MouseDown(Button As Integer, Shift As
    Integer, X As Single, Y As Single)
    MFC88001.CO_Reset = 1
End Sub
Private Sub Command3_MouseUp(Button As Integer, Shift As
    Integer, X As Single, Y As Single)
    MFC88001.CO_Reset = 0
End Sub

'The following 2 Events generate a short pulse of the
'counter read-bit, when clicking on the read button
Private Sub Command2_MouseDown(Button As Integer, Shift As
    Integer, X As Single, Y As Single)
    MFC88001.CO_Read = 1
End Sub
Private Sub Command2_MouseUp(Button As Integer, Shift As
    Integer, X As Single, Y As Single)
    MFC88001.CO_Read = 0
End Sub

Private Sub Form_Load()
    Me.Show
End Sub

'the Timer cyclically updates the process variables
Private Sub Timer1_Timer()
    'Assigns the port-number to the activeX
    MFC88001.PortNumber = Text1.Text
    'Opens or closes the connection to the board
    MFC88001.Online = Check1.Value
    'Sets or resets output Q0
    MFC88001.Set_Q0 = Check3.Value
    'Gets device-name of the board
    Text2.Text = MFC88001.DeviceName
    'Gets status of input I0
    Check2.Value = MFC88001.I0
    'Gets state of counter 0
    Text3.Text = MFC88001.CO_State
    'Indicates if an active connection exists or not
    If MFC88001.PortStatus = 1 Then
        Text4.Text = "Online"
    Else
        Text4.Text = "Offline"
    End If
End Sub

```

## Step 5 – Run the project

You are now ready to go. Save and build the project, then run it. Power the IO-board and place it near to your computer.

In textbox1, input the **port-number** that is assigned to the I/O board. (If you are not sure about the right port-number, please read **chapter 5** of the **Users manual**)

Click on the **Go-Online** checkbox.

After a few seconds, the blue LED on the board should indicate an active connection.

Text4 should show **“Online”** now.

Try the other controls to explore its functionality.



You may want to change the visible-property of the MFC8800 control to **True** in order to try its graphical user-interface



Do not run the project with the VB – Interpreter. Always build it and run it outside the VB development- environment. The application does work with the VB-Interpreter, but problems appear when the bluetooth-connection is interrupted, eg. when the device is out of range or without power supply. In this case VB is left with an open handle to your COM port. When you try to connect after that, you will not be able to establish a connection again and you must re-start VB itself. This behavior will lead to misinterpretation, because you might be searching for an error in your code, which explains the reason you can not connect to the board any more. So, better run the application outside the VB-IDE.

## Reference

The MFC8800-control provides the following properties that can be used by the application:

I0 - State of input I0 - type: Boolean  
 I1 - State of input I1 - type: Boolean  
 I2 - State of input I2 - type: Boolean  
 I3 - State of input I3 - type: Boolean  
 I4 - State of input I4 - type: Boolean  
 I5 - State of input I5 - type: Boolean  
 I6 - State of input I6 - type: Boolean  
 I7 - State of input I7 - type: Boolean

Q0 - State of output Q0 - type: Boolean  
 Q1 - State of output Q1 - type: Boolean  
 Q2 - State of output Q2 - type: Boolean  
 Q3 - State of output Q3 - type: Boolean  
 Q4 - State of output Q4 - type: Boolean  
 Q5 - State of output Q5 - type: Boolean  
 Q6 - State of output Q6 - type: Boolean  
 Q7 - State of output Q7 - type: Boolean

Set\_Q0 - Set/Reset output Q0 - type: Boolean  
 Set\_Q1 - Set/Reset output Q1 - type: Boolean  
 Set\_Q2 - Set/Reset output Q2 - type: Boolean  
 Set\_Q3 - Set/Reset output Q3 - type: Boolean  
 Set\_Q4 - Set/Reset output Q4 - type: Boolean  
 Set\_Q5 - Set/Reset output Q5 - type: Boolean  
 Set\_Q6 - Set/Reset output Q6 - type: Boolean  
 Set\_Q7 - Set/Reset output Q7 - type: Boolean

Online - Start/End bluetooth connection - type: Boolean  
 PortNumber - Number of virtual serial port - type: uns. Integer  
 PortStatus - Indicates an active connection - type: Boolean

C0\_Read - Initiate readout of counter 0 - type: Boolean  
 C1\_Read - Initiate readout of counter 1 - type: Boolean  
 C2\_Read - Initiate readout of counter 2 - type: Boolean  
 C3\_Read - Initiate readout of counter 3 - type: Boolean

C0\_Reset - Reset counter 0 - type: Boolean  
 C1\_Reset - Reset counter 1 - type: Boolean  
 C2\_Reset - Reset counter 2 - type: Boolean  
 C3\_Reset - Reset counter 3 - type: Boolean

C0\_State - Actual state of counter 0 - type: unsigned Long  
 C1\_State - Actual state of counter 0 - type: unsigned Long  
 C2\_State - Actual state of counter 0 - type: unsigned Long  
 C3\_State - Actual state of counter 0 - type: unsigned Long

