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Assigning a User-defined Procedure to a Softkey

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Sample Program

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Assigning a User-defined Procedure to a Softkey

Executing a Procedure with a Softkey (User Menu Function)

The E5070B/E5071B lets you perform procedures assigned to specific softkeys (**[Macro Setup] - User Menu - Button 1/2/3/4/5/6/7/8/9/10**) without using user forms by an event that the softkey is pressed. This function is called the user menu function.

NOTE You do not have to execute any VBA program when using the user menu function.

Preparation for Using the User Menu Function

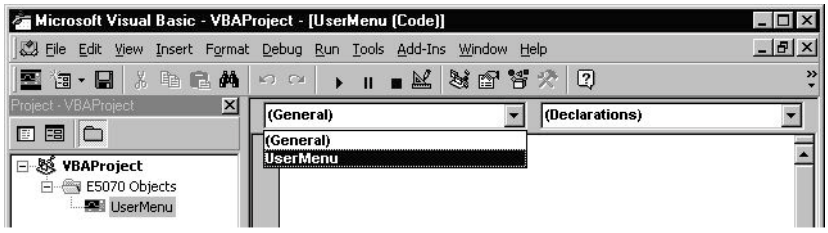
Before using the user menu function, perform the following preparation.

Coding of a Procedure Assigned to a Softkey

Follow these steps to create a procedure assigned to a specific softkey in the "UserMenu" object in the "E5070 Objects" folder.

Step 1. Double-click the "UserMenu" icon in the "E5070 Objects" folder to open the code window.

Step 2. In the object box in the code window, click **UserMenu** as shown below.



Step 3. In the **UserMenu_OnPress(ByVal id As Long)** procedure, create a program you want to assign to a specific softkey (specify with the *id* variable). For actual use example, see Line 70 to 430 in the Example 1-2.

NOTE During processing an event (during execution of a procedure for a key pressed), another event (an interrupt by a procedure for another softkey pressed) cannot be accepted.

NOTE You cannot save (export) the "UserMenu" object by module basis; save it by project basis.

Settings for Softkey Label and Softkey Enabled/Disenabled

When you want to change the softkey labels for the user menu function, use the following COM object. For more information on this object, see Chapter 7, “COM Object Reference” in E5070B/E5071B VBA Programmer’s Guide.

- **UserMenu.Item(id).Caption**

When you want to set the softkey enabled/disenabled for the user menu function, use the following COM object. For more information on this object, see Chapter 7, “COM Object Reference” in E5070B/E5071B VBA Programmer’s Guide.

- **UserMenu.Item(id).Enabled**

Moreover, when you want to preset the above settings for the user menu function, use the following COM object. For more information on this object, see Chapter 7, “COM Object Reference” in E5070B/E5071B VBA Programmer’s Guide.

- **UserMenu.PRESet**

NOTE The above user menu setting is also presetted by pressing **[Macro Setup] - Preset User Menu** on the E5070B/E5071B front panel.

How to Use the User Menu Function

To execute a procedure assigned to a softkey, you need to generate an event of pressing the softkey. To generate an event, the manual method and the COM object method are available.

Method by Manual Operation

Step 1. Click the specific softkey as follows:

- **[Macro Setup] - User Menu - Button No.**

  "**No.**" represents a button number. You can set the label for "**Button No.**" as you like. For detail, refer to the “Settings for Softkey Label and Softkey Enabled/Disenabled.” section.

Method by COM Object

You can use the following COM object to perform the same operation as pressing a specific softkey. For more information on this object, see Chapter 7, “COM Object Reference” in E5070B/E5071B VBA Programmer’s Guide.

- **UserMenu.Press(id)**

Simple Example

The sample program disk contains a sample program, named “meas_user.vba“, that demonstrates how to use the user menu function. This VBA program consists of the following standard module and the "UserMenu" object.

Object name	Module type	Content
mdlUserMenu	Standard module	Sets the softkey labels and enables interrupts from the softkeys.

The program (object name: mdlUserMenu) is described in detail below:

Line 70	Stores True into the State variable.
Lines 90 to 150	Sets the first to third softkey (*id*: 1 to 3) enabled, and sets the fourth to tenth softkey (*id*: 4 to 10) disenabled.
Lines 170 to 190	Sets the first softkey label (*id*: 1) to “Setup” the second softkey label (*id*: 2) to “Meas” the third softkey label (*id*: 3) to “Exit”.
Line 210	Displays the buttons for the user menu function in the softkey area.
Lines 230 to 250	Processing repeated until the State variable is True (State = True).
	Line 240: Detects an event that a specific softkey is pressed and enables the interrupt from the event.

Example 1-1 **Sample program using user menu (object name: mdlUserMenu)**

```
 10|  Public State As Boolean
 20|
 30|  Sub Main()
 40|
 50|    Dim I As Long, J As Long
 60|
 70|    State = True
 80|
 90|    For I = 1 To 3
100|      UserMenu.Item(I).Enabled = True
110|    Next I
120|
130|    For J = 4 To 10
140|      UserMenu.Item(J).Enabled = False
150|    Next J
160|
170|    UserMenu.Item(1).Caption = "Setup"
180|    UserMenu.Item(2).Caption = "Meas"
190|    UserMenu.Item(3).Caption = "Exit"
200|
210|    UserMenu.Show
220|
230|    Do While State
240|      DoEvents
250|    Loop
260|
270|  End Sub
```

The procedures of the "UserMenu" object are described below.

Lines 70 to 190 The procedure when the first softkey (*id*: 1) is pressed.

Line 90: Returns the E5070B/E5071B to the preset state.

Lines 110 to 130 For channel 1, sets the sweep start value to 1.73 GHz, the sweep stop value to 1.83 GHz, and the number of measurement points to 51.

Lines 150 to 170 After aborting the measurement, sets the trigger source to the bus trigger and turns on the continuous trigger startup mode for channel 1.

Line 190: Displays the buttons for the user menu function in the softkey area.

Lines 210 to 320 The procedure when the second softkey (*id*: 2) is pressed.

Lines 230 to 240 Generates a trigger to start a single sweep and waits until the measurement finishes (1 is read out with the **SCPI.IEEE4882.OPC** object).

Line 260: Retrieves the number of points in channel 1 and stores that number into the Nop variable.

Lines 280 to 290 Specifies trace 1 of channel 1 to the active trace, retrieves the formatted data array, and stores the data into the FmtData variable.

Lines 310 to 320 Displays the echo window in the lower part of the LCD screen.

Lines 340 to 360: Displays 2 measurement data values (primary value and secondary value) for each measurement point in the echo window.

Lines 380 to 430 The procedure when the third softkey (*id*: 3) is pressed.

Line 400: Displays a program closing message.

Line 410: Stores False into the sta variable to terminate the main program.

Example 1-2 **Sample program using user menu ("UserMenu" object)**

```
 10|  Private Sub UserMenu_OnPress(ByVal id As Long)
 20|
 30|  Dim I As Integer
 40|  Dim Nop As Long, Dmy As Long
 50|  Dim FmtData As Variant
 60|
 70|  If id = 1 Then
 80|
 90|      SCPI.SYSTem.PRESet
100|
110|      SCPI.SENSe(1).FREQuency.STARt = 1730000000#
120|      SCPI.SENSe(1).FREQuency.STOP = 1830000000#
130|      SCPI.SENSe(1).SWEep.POINts = 51
140|
150|      SCPI.ABORt
```

```
160|      SCPI.TRIGger.SEQuence.Source = "BUS"
170|      SCPI.INITiate(1).CONTinuous = True
180|
190|      UserMenu.Show
200|
210|  ElseIf id = 2 Then
220|
230|      SCPI.TRIGger.SEQuence.SINGle
240|      Dmy = SCPI.IEEE4882.OPC
250|
260|      Nop = SCPI.SENSe(1).SWEep.POINts
270|
280|      SCPI.CALCulate(1).PARameter(1).SELect
290|      FmtData = SCPI.CALCulate(1).SELected.DATA.FDATa
300|
310|      SCPI.DISPlay.TABLe.TYPE = "ECHO"
320|      SCPI.DISPlay.TABLe.State = True
330|
340|      For I = 1 To Nop - 1
350|      ECHO FmtData(2 * I - 2), FmtData(2 * I - 1)
360|      Next I
370|
380|  ElseIf id = 3 Then
390|
400|      MsgBox "Program ended!"
410|      State = False
420|
430|  End If
440|
450|  End Sub
```