BECKHOFF
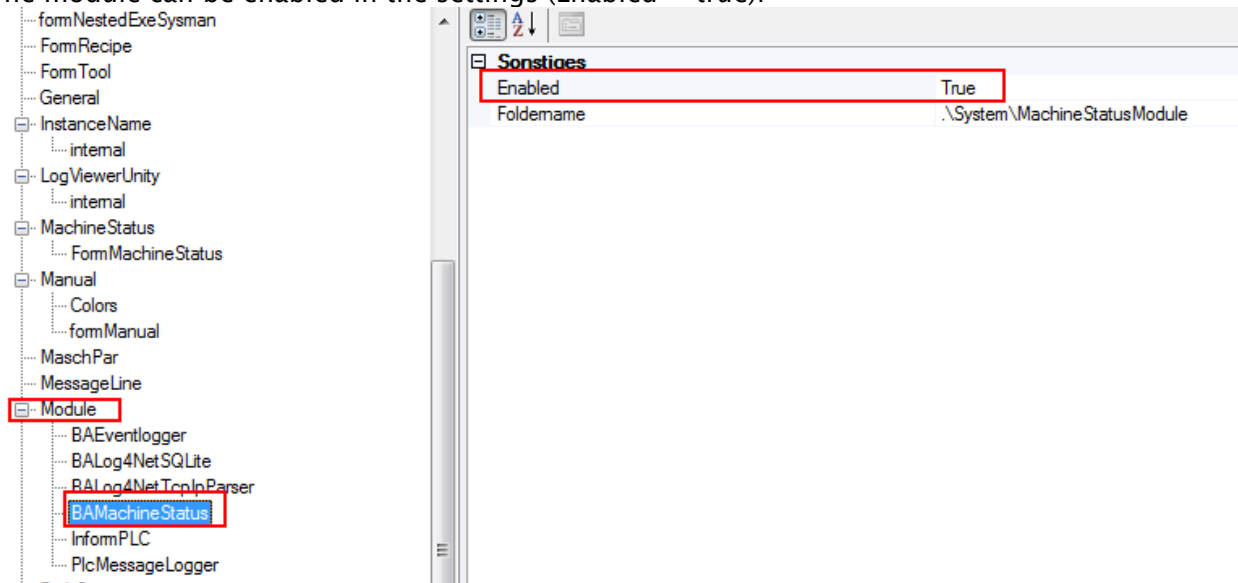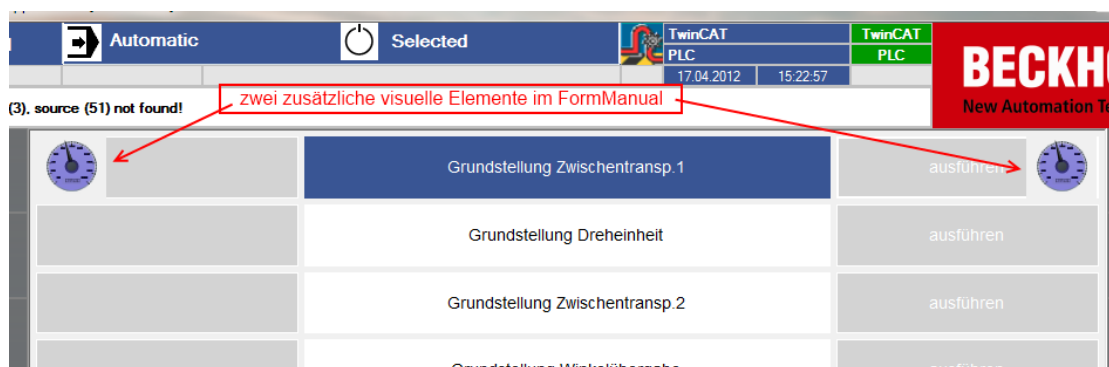
Machine Status (Module)

The module "Beckhoff.App.Module.BAMachineStatus" allows additional visual elements to be displayed on any form. The configuration is done via XML files that must be created for each element.
The module can be enabled in the settings (Enabled = true):

The entry "Foldername" is set to the directory under which the additional controls are stored for each Form. After enabling the module, the directories for each form used in the application will be created automatically (on Form Load). In the directory of the respective forms the XML files described below can now be copied, so that then the controls are generated when calling.
Now the Menumanager will also include the Types "MachineStatus.ToggleFilename" and "Machinestatus.ReloadElements". These must be selected to trigger the "Create Control" and "ToggleFileNamesOfControls" which are described below.
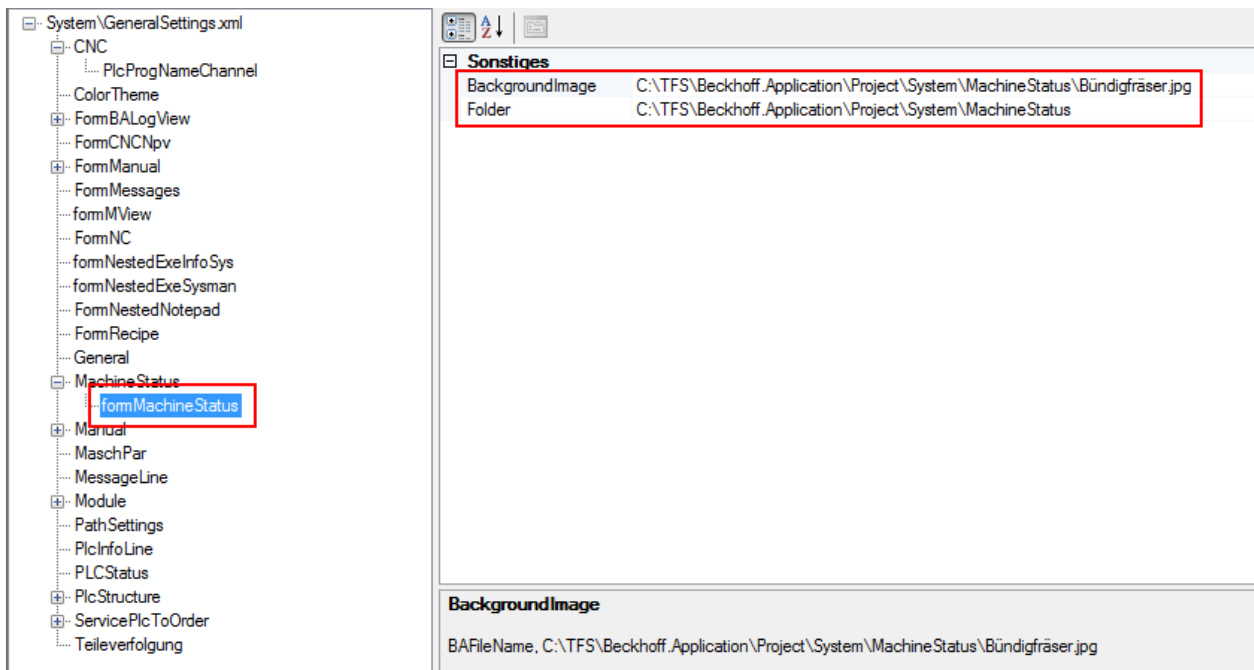
Machine Status (Form)

In the DLL Beckhoff.App.MachineStaus.dll the definition of `FormMachineStatus` exists. The form provides the ability to display a graphic and put on this graph different elements that enable interaction.

After the first start of the instance, in the settings under "Machine Status / InstanceName" the entries "Folder" and "Background Image" is generated.
The "Background Image" is shown as a background image.
In the Folder file an XML file is stored per-displayed element that is read at startup.

BECKHOFF

Type „MSCircle" and „MSSquare":

An element of type MSCircle represents a circle. An Ellipse can be represented with modified parameters. (Similarly, the type Beckhoff.App.MachineStatus.MSSquare is to be used for rectangles)

Example XML file:

```xml
<?xml version="1.0" encoding="utf-8"?>
<UIElement xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">

<TypeOfUiElement>Beckhoff.App.MachineStatus.MSCircle</TypeOfUiElement>
  <Text>Ein</Text>
  <Enabled>true</Enabled>
  <Rect>
    <Position>
      <X>295</X>
      <Y>327</Y>
    </Position>
    <Dimension>
      <X>30</X>
      <Y>30</Y>
    </Dimension>
  </Rect>
  <PlcVarNameText>Prg_Test.sFarbe</PlcVarNameText>
  <PlcVarNameColor>Prg_Test.nFarbeCircle1</PlcVarNameColor>
  <PlcSetVar>Prg_Test.bCircle1</PlcSetVar>
  <TextColor>White</TextColor>
  <TextSize>12.2</TextSize>
  <BackColor>Salmon</BackColor>
  <EventType>Form</EventType>
  <TextLeftAlign>true</TextLeftAlign>
  <Data>FormWebBrowser</Data>
  <Data2>http://infosys.beckhoff.com</Data2>
  <DllName>modules\Beckhoff.App.Module.ATF.dll</DllName>
</UIElement>
```

Entries:

<TEXT>:	Label. If there is an entry for PLCVarNameText then the label is prefixed. If the value of the PLC variables from PLCVarNameText should appear in the middle of the text, then a placeholder {0} should be used:

e.g.:

```xml
<Text>Ist:{0}°</Text>
<PlcVarNameText>.main.istwert</PlcVarNameText>
```

Ist:47.1°

<Enabled>:	FALSE: Element is not shown
<Rect>:	Position and Dimension of the element on the screen
<PLCVarNameText>:	PLC variable that changes the caption of the Circle

BECKHOFF

<PLCVarNameColor>: PLC variable that changes the background color (Type DINT)

16#AARRGGBB, in which

AA = Alpha (Full Color = FF)

RR = Red

GG = Green

BB = Blue

e.g. : Full Green = 16#FF00FF00

<EventType>:   Event that is triggered when you click on the item.

<TextLeftAlign>   true -> alignment of text is on left side instead of middle

<Data>:   Data for EventType

<Data2>:   Data2 for EventType

<TextColor>:   Font Color

<TextSize>:   Font Size

<BackColor>:   Background Color (the color can be changed at runtime with

<PLCVarNameColor>.)

<DllName>:   DLL's defined element

With the help of "EventType" all functions known in the menu manager can be accessed, for example toggling a PLC variable or a different form call. (see documentaion for Menumanger)

Type „MsGauge"

In the XML file for a pointer element "MsGauge" boost or cut elements may be used, which are described in "MsCircle" and "MsSquare". In addition there are the following entries:

- PlcVarNameValue: Symbol name of the PLC variable that contains the value to be displayed.

- Minimum: smallest scale value (Default 0)

- Maximum: largest scale value (Default 100)

BECKHOFF

Sample File:

```xml
<?xml version="1.0" encoding="utf-8"?>
<UIElement xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">

<TypeOfUiElement>Beckhoff.App.MachineStatus.MSGauge</TypeOfUiElement>
  <Enabled>true</Enabled>
  <Rect>
    <Position>
      <X>075</X>
      <Y>127</Y>
    </Position>
    <Dimension>
      <X>150</X>
      <Y>150</Y>
    </Dimension>
  </Rect>
  <PlcVarNameColor>MachineStatusV2.nFarbe</PlcVarNameColor>
  <Maximum>200</Maximum>
  <Minimum>10</Minimum>
  <PlcVarNameValue>MachineStatusV2.value</PlcVarNameValue>
</UIElement>
```
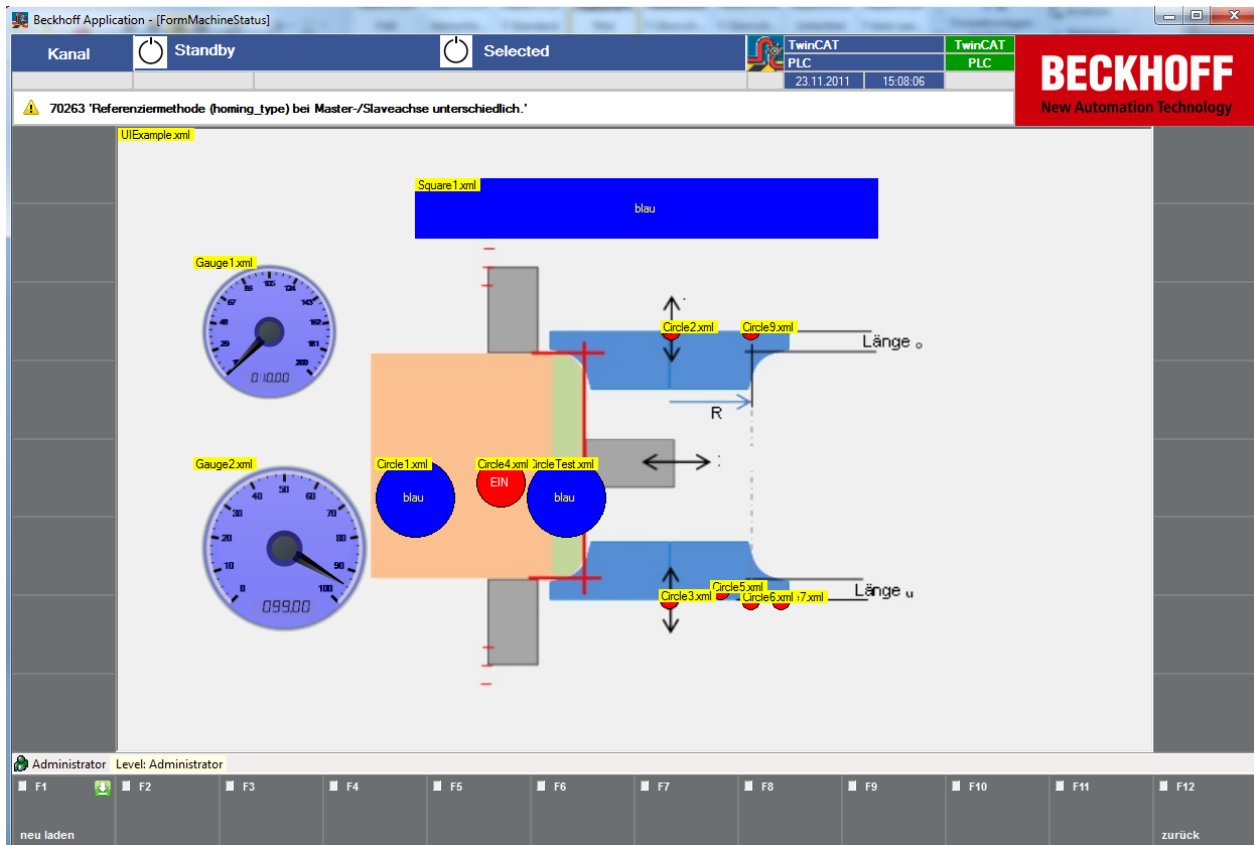
Using the method "ToggleFileNamesOfControls" (accessed via CallMethod), the filename for eache item is shown.

Calling the default assignment (Ctrl <Shift> click on a button (as administrator)), the keys are assigned as follows:

- **<F1>** callMethod „CreateControls" caption: „neu laden" (reload)
  The folder registered in the Settings is searched for XML files and its defined controls are loaded and displayed.
  The background image set in the settings will be reloaded.
- **<Alt><F1>** callMethod „ToggleFileNamesOfControls"
  Switch: Toggles whether each element of the XML displays file name or not.
- **<Alt><F2>** callMethod „ToggleFileSystemWatch"
  The directory is monitored for changes. With each change, the elements are automatically reloaded. Thus, the XML files can be edited using an external editor and then reloaded automatically when saving.
  If this function is activated, the corresponding F button is displayed RED.

BECKHOFF

PLC variable definition in the XML file

In the XML file, the area <PlcVariables> PLC variables that may affect the item are defined.

Thus, the definitions <PLCVar…> etc are overwritten.

```xml
<?xml version="1.0" encoding="utf-8"?>
<UIElement xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema
    <TypeOfUiElement>Beckhoff.App.Module.ATF.ucMainHeating</TypeOfUiElement>
    <DllName>modules\Beckhoff.App.Module.ATF.dll</DllName>
    <Text>Ein</Text>
    <Enabled>true</Enabled>
    <Rect>
        <Position>
            <X>105</X>
            <Y>127</Y>
        </Position>
        <Dimension>
            <X>280</X>
            <Y>80</Y>
        </Dimension>
    </Rect>
    <EventType>PlcSetAndResetVar</EventType>
    <Data>prg_test.btest</Data>
    <TextColor>Black</TextColor>
    <PlcVariables>
        <PosX>PRG_Test.posx1</PosX>
        <PosY>PRG_Test.posy1</PosY>
        <Visible>PRG_Test.Visible</Visible>
        <Color>PRG_Test.color</Color>
        <Value>.plcValue</Value>
        <SizeX>PRG_Test.dimx1</SizeX>
        <SizeY>PRG_Test.dimy1</SizeY>
        <Text>PRG_Test.text</Text>
    </PlcVariables>
</UIElement>
```