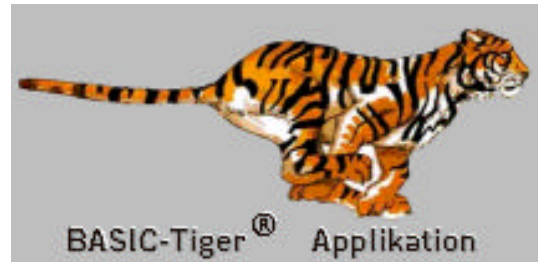


Virtual potentiometers

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1. Input help for numeric data

Many programs for the BASIC-Tiger need the input of values, like limit values, constants, defaults for calculations etc. For such inputs usually special hardware is used, like e.g. a keyboard or an encoder. In this application another possibility is pointed out. We are using the input possibilities of the PC (Keyboard, mouse) to set arbitrary numeric values, which are then passed on serially to the BASIC-Tiger. That should be done elegantly and optically appealing, with as little hard- and software expenditure as possible and with many individual default possibilities. With the each other fitting programs WERT_01.TST and WERT_01.TIG we continue the series of TestPoint applications for the BASIC-Tiger. We already learned for applications with TestPoint how to install and use such run-time modules, so that here only a few remarks are needed. The ZIP archive contains besides this report the file WERT_01.TIG, which you have to load into the BASIC-Tiger for first aha experiences. Later you can without any problem adapt the program to your needs. It is not that easy to adapt the program WERT_01.TST, you can only do this with the full version of TestPoint. The installation however is very simple, just start SETUP.EXE from the archive WERT_01.ZIP. This installs the run-time module WERT_01.TST on your PC and you can begin immediately.

2. The PC program WERT_01.TST

After starting WERT_01.TST its window appears as shown in fig. 1. At first sight with many, many details, but very easy and nevertheless effective to use after a settling-in period. At first we see two independent components of the program:

The settings of the serial interface

Here different COM interfaces with almost all parameters can be set. The procedure is simple, select the appropriate parameters and all valid settings are shown. These must naturally fit the BASIC-Tiger program, which is the case with the preset setting (if necessary only a free COM interface has to be selected). Clicking the button "Setzen" sets these parameters for the further works.

The control unit

We see four identical units with slider controls, each having 3 input fields underneath. The inscription already almost says it all, we can freely specify a starting value, an end value and the step size for each "potentiometer". The preset values start (0), step (0.1) and end (10) appear again on each start of the program (just as the preset values for the serial interface). In fig. 1 we already see the variety of possible settings.

The operation is easy, moving the slider controls is done simply by clicking the control's handle with the left mouse button and pushing it with left mouse button pressed. But you have other possibilities, so you can enter the value with the keyboard in the field below the control. For extremely sensitive adjustments you can use a third way – again click with the mouse the requested control – then use the cursor keys up/down to shift the control a minimum step, with additionally pressed shift key ten times faster.

With this technology the program can be easily adapted to your needs:

Data in byte format	0 to 1...255
In Word format	0 to 1...65535
Degree setting	0 to 1...360
Normalized to 1	0 to 0.001...1 etc.

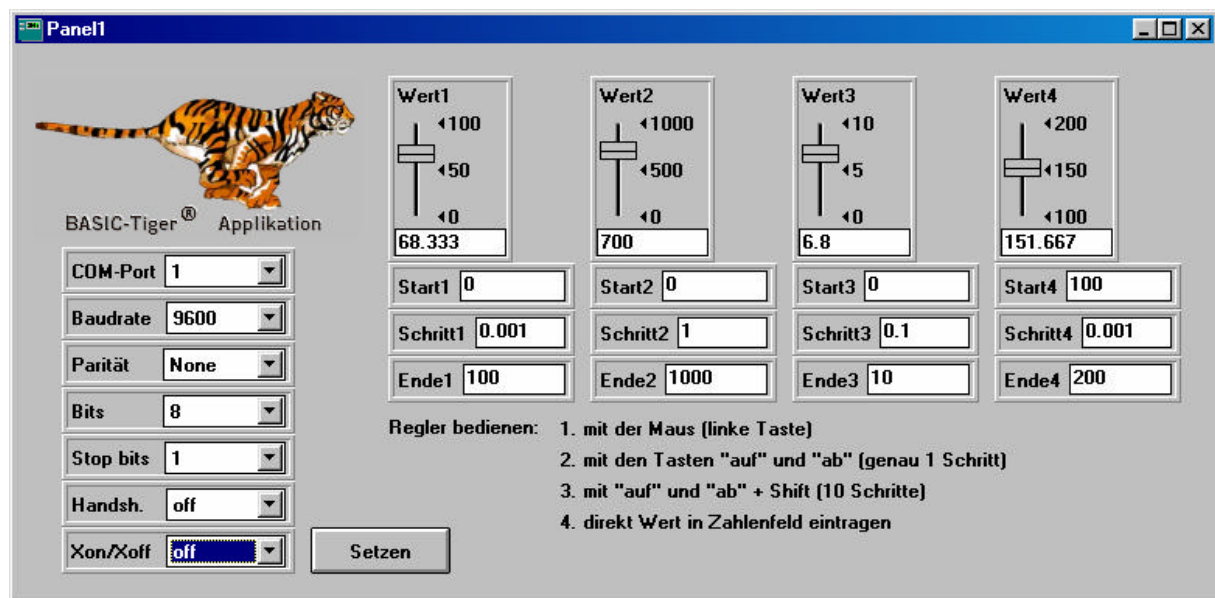


Fig. 1 WERT_01.TST while “working“

Is everything clear?

Then here some words about the rather “hidden” qualities of the program. The virtual potentiometers can of course be adjusted much more exactly than the “real” ones – the digital display allows an exact setting of the desired value. With the different setting methods this goes quite fast, too.

The setting possibilities are however only half the truth, at least just as interesting is the method of data transmission. If you do nothing at the controls, the PC won't do anything at the serial interface. I.e. data is only transmitted when a control was adjusted and then only for this control. The appropriate control then sends a string through the serial interface to the BASIC-Tiger in this format:

W1: 5.234

“W” is used for initial recognition of a data string, the “1” represents the number of the control, “5.234” is the value itself in string format. As each setting value sends along its own identification number, the later allocation in BASIC-Tiger is quite simple.

3. The BASIC-Tiger program WERT_01.TIG

Actually the program shows in its present version only the four setting values (Fig. 2). As you can see, the data format adapts itself exactly to the settings of the sliding controls in the PC program.



Fig. 2 That's how WERT_01.TIG shows the transmitted setting values

The structure of the BASIC-Tiger program is easy to grasp. We have an own task for receiving and evaluating the serial data. The serial interface is watched until the character "W" appears, which is placed in front of each transmission by the PC program. The next character is interpreted as channel number and transferred together with the setting value. Each transmission ends with "CR", which lets the program repeat the whole cycle. Thus gradually the old values are overwritten and with it a constant updating takes place. Since values are only changed by a new transmission, you can also abort the serial transmission if e.g. you only need the initial values. Just quit the PC program and if necessary remove the serial cable.

Of course such a program system isn't particularly useful yet. But it will be when you develop your own applications from this initial stage. Control e.g. engine r.p.m., lighting installations, vehicle models or antenna systems with your potentiometers. Enter temperature limit values for different rooms into a heating system or control a remote video camera.