



PICOTURN®

Application Note

Using PuTTY.EXE as a Port Monitor for the PICOTURN-2G System

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The Present Application Note

PicoTurn® is a system for measuring the revolution speed of turbo chargers. Its functional principle and use are explained in the pertaining User Guides; for the understanding of the present you are requested to refer to the following document, available in the „Download Section“ from www.acam.de:

- **PicoTurn-2G, User Guide (DB_PicoTurn2G_e.pdf)**

Most customers use the conditioner box PicoTurn PT2G-BX or -BD for conditioning and interfacing the sensor signal. A particular characteristic of the BX variant is the presence of a 9-pole D-sub connector and an EIA-232, formerly “RS-232 “ serial interface.

In the following paper it is assumed that you are using a PicoTurn PT2G-BX box and a computer operated under Windows®.

Furthermore it is assumed that you correctly set the number of vanes pertaining to your individual turbocharger. This “number of vanes” setting is made with a screwdriver at a selector, see User Guide.

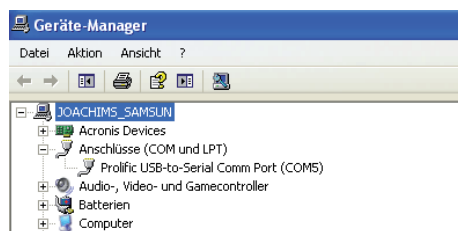
“PuTTY.EXE” is a widely used freeware program that permits various kind of terminal emulation by a desktop or laptop computer. Even if pretty powerful, it does not exceed 400 kilobytes or so and needs no installation. It operates directly as an executable file without special linking and registry modification.

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The Connection

If your laptop computer is equipped with an RS-232 port, mostly accompanied by a 9-pole D-sub connector, then simply connect the PicoTurn PT2G-BX to your laptop computer through a classical modem cable. An advantage of this situation is the possibility of arresting the connectors by screws, so that they will not easily come loose. Your Windows® OS will probably address this connection as COM1.

Figure 1 Correct installation of a USB to serial Converter



If your computer has USB only, then you will need a Serial-to-USB converter widely used on the market. Such a converter needs to be installed on your computer; please follow the instructions by the converter supplier. It may be wise to reboot your computer, even if sometimes dispensable.

Equally wise will be opening the device manager, you will probably find some entry “COM and LPT ports” with your USB-to-Serial converter mentioned and, most importantly, the COM number which your converter has been assigned, COM5 in the example.

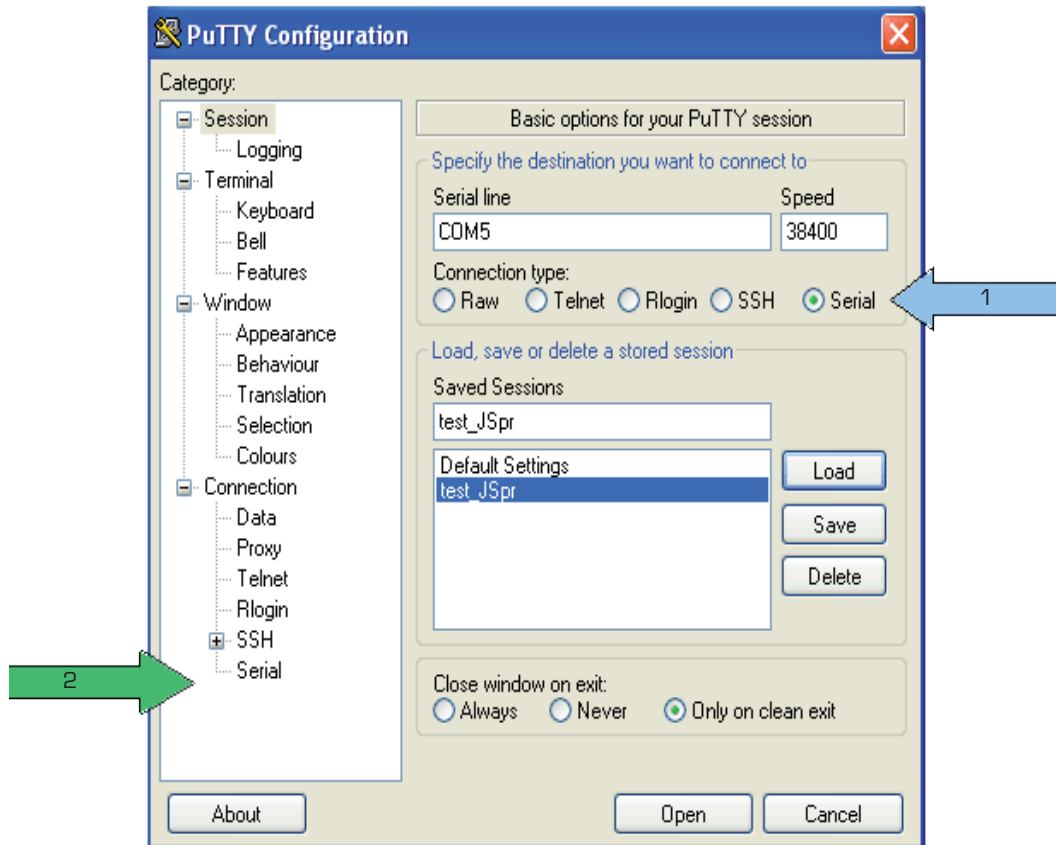
3 The Port Monitor Software

It is assumed that you have already copied the PuTTY software to your machine. If you have not, ask a copy from a friend, from ACAM or take it from a reliable download source on the internet. Do not forget to subject the EXE file to a good virus detector before running it. One is never too careful.

4 Preparing The COM Port

Inside PuTTY, please proceed as follows

Figure 2 Com Port Monitor Setup

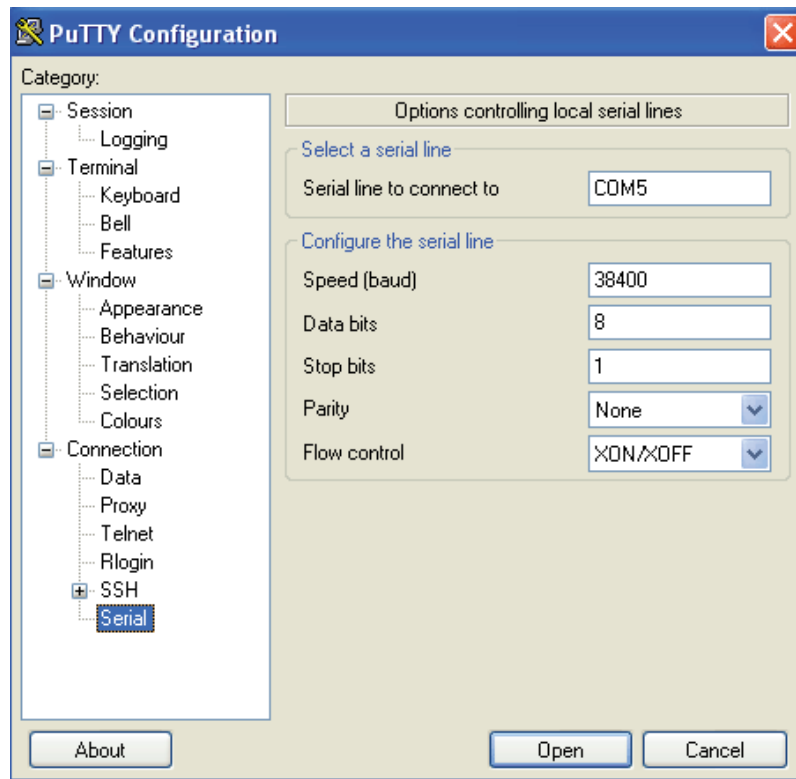


In the start menu, activate the click box “Serial” (blue arrow labelled “1”). Choose your COM port, it may be COM1 in your system. It is COM5 in the above example because of the USB/COM converter in the system. Choose 38400 as a speed. Then go to the “Category” sub-window and in the tree structure choose “Connection / Serial” (green arrow labelled “2”).

4 Preparing the COM Port

In the now appearing menu, set up as follows:

Figure 3 RS232 Settings



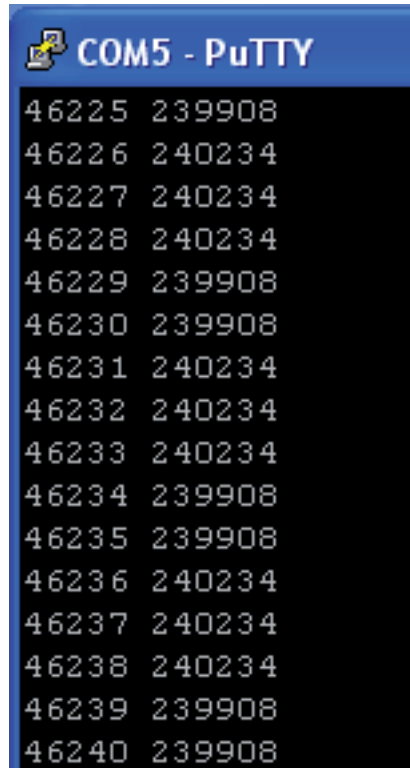
COM port number and speed as before, then number of data bits, number of stop bits, parity and flow control as indicated. Do not forget to save your setting parameters. To do so, go back to the "Session" window (the start menu) and follow the "Saved Sessions" dialogue, creating a setting name.

Rather than creating a new setting name, you may choose to replace the default settings by punching "Default Settings" as a setting name. You need to punch it letter by letter, attempts with mouse clicks have not been fruitful.

5 Operating The COM Port

Now click the “Open” button, Putty should open a terminal window, and data should scroll like this:

Figure 4 Display of Measurement Results



The first row of numbers (here: 46225 to 46239) gives a time stamp in units of 3.84 milliseconds. The second row, separated by a “space” (ASCII-32) character , indicates turbo speed in revolutions per minute. In the above example (a laboratory fake), the turbo is very fast, about 240 thousand R.P.M.

The convenient R.P.M. reading is subject to the condition that vane-numbers be correctly set as described above.

Please keep in mind that the 2G computer interface is unidirectional; it serves as a data output (from box to computer) only. The settings at the controller box, especially the “number of vanes” setting are made on hardware level only. Attempts to send data from the computer to the box will be ignored.

6 Creating An Output File

PuTTY will optionally dump the received data into a text file called “log file”. To do so, go to the “Session / Logging” window, activate the click box “Printable output”, click the “browse” button and define path and file name. Then click “Open”. Now, your terminal window will be displayed, and in the background a log file will be prepared. As soon as you close your terminal session, the log file will appear at the location previously defined.

The data may be read by a simple text editor and easily imported into a spreadsheet program so as to filter the measured values, to calculate mean values from them and to make diagrams.

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Your Contact

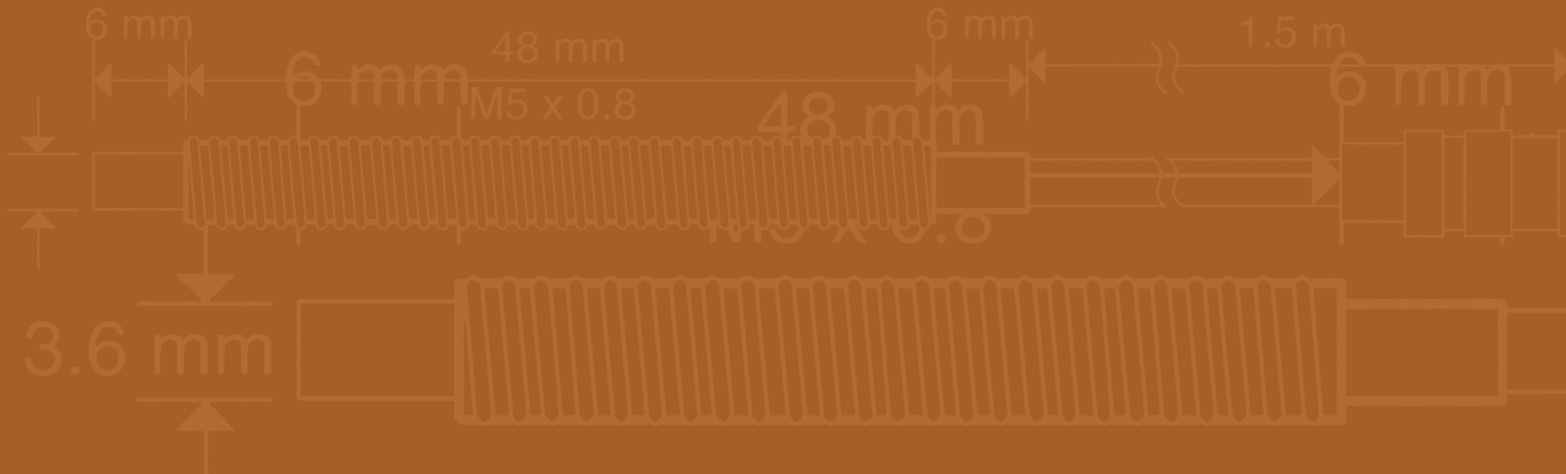
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Change Log

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