
Let's connect our BASCOM test board to the PC

The number of BASCOM users is increasing quickly and so are the questions about programming microcontrollers. BASCOM users program and use microcontrollers virtually everywhere. One of my friends, has used an AT89C2051 as a "system" microcontroller on heavy motorbikes, and the program was, of course, written in BASCOM. I will now show you how to connect a PC to the BASCOM test board. RS232 protocol will serve as a serial communication pathway.

Different types of connections and networks are pretty standard stuff in electronics nowadays. A lot has been written about the subject so I won't get into any details regarding the RS232 protocol. Most of you probably know it already. For the rest, RS232 is a serial protocol, created for *point-to-point* connections. It's a serial connection, designed to connect two systems or microcontrollers. Connection can be either duplex or simplex, in accordance with our needs. A duplex connection often makes sense since it offers advantages; specifically a two-way communication.

One side of this connection is usually occupied by a personal computer and the other with some kind of an electronic device, sending data to the computer or receiving data from it. Our examples are based upon this type of connection as well.

All examples are tested on the BASCOM test board and all element markings are related to it. Perhaps we should provide a proper connection between the PC and our working area before we start programming.

The connection cable is actually quite simple. Since I'm using PG302 as a programmer I already know which serial port it's connected to (the cable). It is important that you know which port your cable is connected to; it can save you hours of

unsuccessful troubleshooting. So, I used the programmer's serial cable to connect the BASCOM test board to the PC. The cable remained connected to the same PC port as usual. You still need to create a short adapter to connect the BASCOM test board and serial cable. The best way to do is to use 10-wire flat cable (we don't really need 10 wires, but it really simplifies connector mounting) and an IDC-10F connector (female), while the other side of the cable ends with the DB-9F (also female). Connections are made as described in the schematic on figure 2: IDC-10F connector side: pin 10 to RX, pin 8 connects to TX and pin 2 connects to ground (GND) DB-9F connector side: RX goes to pin 3, TX goes to pin number 2 and GND goes to pin 1, 2 and 6. Connector DB-9F finally needs to be housed into an appropriate enclosure. I advise you not to try and save money here, such enclosures are cheap and make connecting much more reliable and convenient, especially when both DB-9 connectors (male on cable from the PC, female on the adaptor cable with the IDC-10F) are neatly housed (see figure 2). This is a good way to avoid accidental disconnections. Insert the female IDC-10 connector into the K5 connector on the BASCOM test board. Place the jumper JP19, insert the MAX232 (or compatible RS232 integrated circuit) and the BASCOM test board will be ready. Don't forget to place JP16, it enables the keys and we will need them.

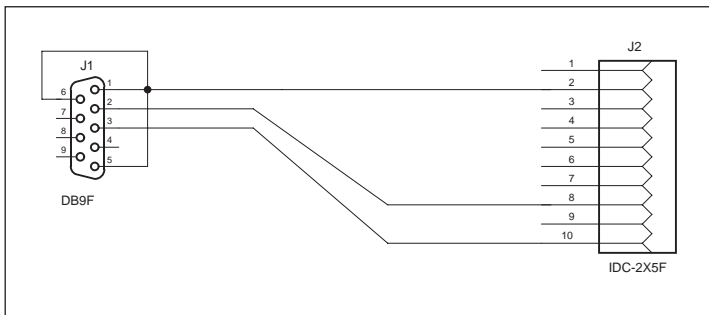


Figure 1: Schematic diagram of cable connection between BASCOM test board and PC

So, we have taken care of the basic prerequisites, it's time for the real stuff – the programs.

Our first example will print out some of the previously written text on the screen of a PC. This can be done with the help of the terminal program, which is embedded in BASCOM. But we do recommend that you use the standard Windows terminal program; it has more options. In Windows simply click Start->Run and enter "Terminal.exe" in the provided field. Then press OK to run the emulator. You'll have to set the terminal program to the correct communications port. However,