

The RS232 interface

RS232 = **R**ecommended **S**tandard **232** (Serial interface)

The program only uses the four control lines of the RS232 interface of the PC or the USB/RS232 converter on the PC.

The two inputs:

CTS **C**lear **T**o **S**end

DSR **D**ata **S**et **R**eady

And the two outputs:

DTR **D**ata **T**erminal **R**eady

RTS **R**equest **T**o **S**end

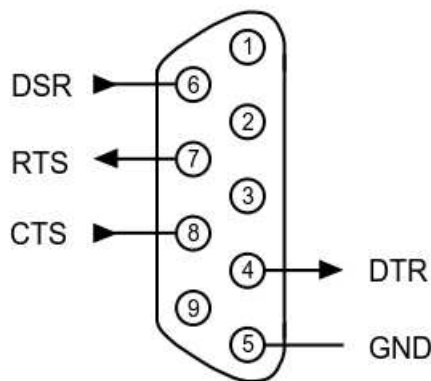
Important: Before plugging a USB/RS232 converter into the USB port of a PC for the first time, it is essential to install the appropriate driver for the converter.

Windows automatically assigns a number to each serial interface, e.g. COM 9.

The RS232 connector

The PC or the USB/RS232 converter has a 9-pin male D-Sub connector [O|O] .

You therefore need the counterpart. The following picture shows the solder side of this 9-pin female D-Sub connector with the numbered contacts.



Only the following five contacts are connected:

- The common ground **5 = GND**
- The two inputs **8 = CTS** and **6 = DSR**
- The two outputs **4 = DTR** and **7 = RTS**

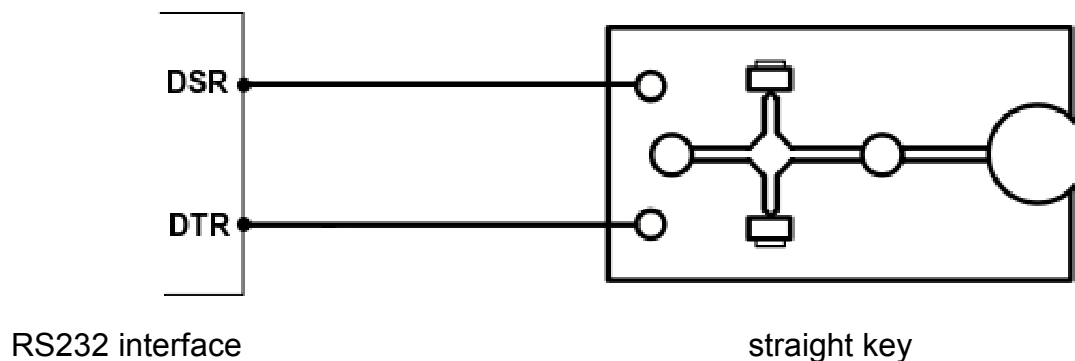
Connection of a straight key

One of the two outputs (DTR or RTS) and one of the two inputs (CTS or DSR) are required to connect a straight key.

When the contact is closed with the straight key, the positive voltage of the output (e.g. 4 = DTR) is connected to the input (e.g. 6 = DSR). The selected output therefore only serves as a voltage source.

Attention: For any transmitter keying, you must use the other output (e.g. 7 = RTS) and the common ground connection (5 = GND).

The following figure shows the connection diagram.



Connection of an electronic keyer

The straight key can also be replaced by an electronic keyer with its own monitoring tone. The sidetone reacts without delay to the closing and opening of the paddle contacts. This makes it easier to key Morse code even at high speeds. (The program's synthesizer is not required and can be switched off).

Note: With a straight key, it does not matter which of the two connections is connected to the input or output of the interface. This is not the case with an electronic keyer.

Important: The keyer's output must be connected to the output of the interface (DTR or RTS) and the ground connection of the keyer must be connected to the input of the interface (CTS or DSR).

The selection of the correct control lines on the **Settings** form depends on the design of the interface and the connection cable used.

I recommend testing these settings before using the keyer for the first time. If you have done everything correctly, the program reacts to the keying of long or short tones with a flashing display of the selected input (DSR or CTS).

Important: To decode the keyed Morse code, you must know the speed of the electronic keyer and set it in the program. This setting is not critical, i.e. you can try it out.

For advanced users only:

An electronic keyer can be used not only for keying practises but also for listening practises using the **Stop after each word** method. With this method, you can also key the Morse code characters you hear with an electronic keyer instead of typing them in. However, this is challenging because you have to use two different sound sources at the same time, the program's synthesizer and the keyer's sidetone.

Connection of a paddle

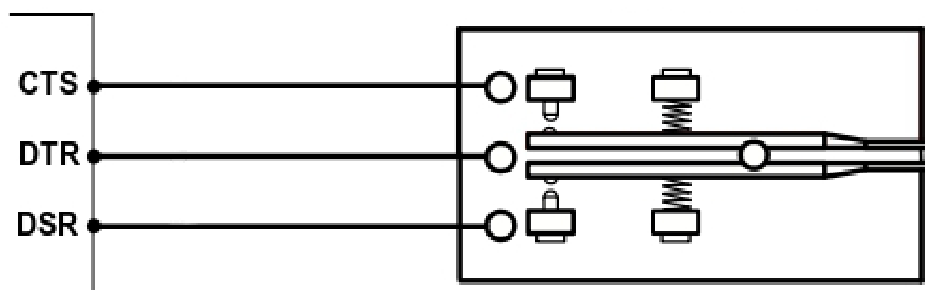
To connect a paddle, you need one of the two outputs (DTR or RTS) and the two inputs (CTS and DSR).

When the contact is closed with the left paddle, the positive voltage of the output (e.g. 4 = DTR) is connected to the input (e.g. 6 = DSR).

When closing the contact with the right paddle, the positive voltage of the output (e.g. 4 = DTR) is connected to the input (e.g. 8 = CTS). The selected output only serves as a voltage source for both paddles.

Attention: For any transmitter keying, you must use the other output (e.g. 7 = RTS) and the common ground connection (5 = GND).

The following figure shows the connection diagram of a paddle on the PC.



RS232 interface

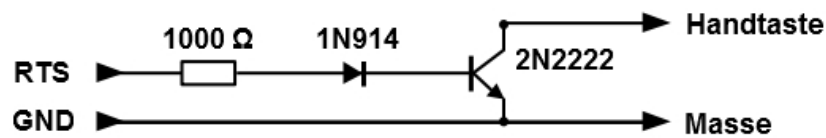
Paddle

It does not matter which contact of the paddle is connected to which input line. You can swap the two contacts at any time without changing anything on the connections (panel **Iambic Keyer**).

Interface for transmitter keying

One of the two output lines (DTR or RTS) can be used to key a transmitter. The other output can be connected to a straight key (Handtaste) or paddle. A simple interface ensures the correct connection between PC and transmitter. There are two versions, a simpler one with a switching transistor and an improved one with an optocoupler (with galvanic isolation).

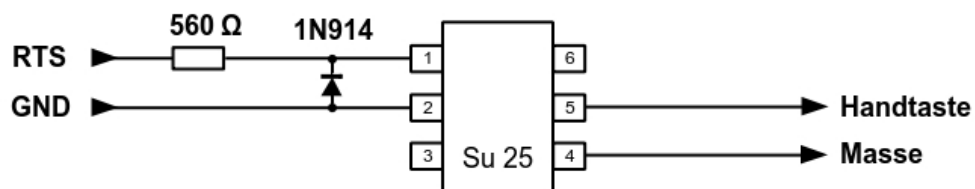
Interface with a switching transistor (z.B. 2N2222)



RS232 interface

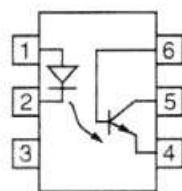
transmitter

Interface with an optocoupler (z.B. Su 25)

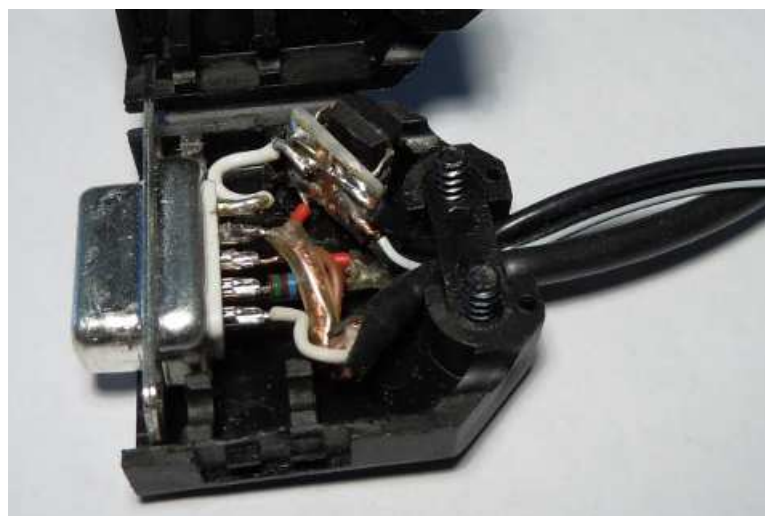


RS232 interface

transmitter



Optokoppler 4 N 28/Su 25



Built-in optocoupler

Configuring the interface

The operating elements for configuring and testing the interface are located on the panel **RS232** in the **Settings** form.



Use the left-hand combo box to select the number of the COM port.

Use the middle combo box to select the control lines for the key inputs. The built-in Iambic keyer requires a paddle and both key inputs. A straight key or an electronic keyer only require one key input.

Use the right-hand combo box to select the control line for DTR or RTS transmitter keying.

Attention: The program always requires both control lines, one for transmitter keying via the interface and the other as a positive voltage source for the inputs. If, for example, DTR is selected for keying, RTS has a constant positive potential.

Testing the interface

The keying inputs can be activated with the checkbox **Key (Taste)**.

With the straight key or paddle connected, you can easily check which input reacts to the closing of a contact. The activated input is displayed below the middle combo box.

Note: If the program does not respond to the closing of a contact, either the wrong COM port or the wrong keying output has been selected.

To activate the keying output, select the **TRX** checkbox on the right. With the interface connected and the transmitter switched on, you can briefly test the transmitter using the **Test** button.

Caution: If the transmitter is connected and switched on, selecting the wrong control line will result in spontaneous continuous keying. So change it immediately or disconnect the transmitter.

When the keying output is activated, the program's synthesizer is automatically muted. In this case, the transmitter's sidetone or an external synthesizer is used.