

In the latest version 8.2, a context menu has been added to the character selection input field. This makes it easier to select letters, numbers, and other important characters without having to type them in individually.

This feature is useful for advanced users who are already familiar with Morse code but still want to practice with groups of characters. In this version, you can now also practice with individual characters and pairs of characters.

Select the **Characters screen** for tasks with characters and the **Text screen** for exercises with texts (incl. HTC Morse code exam). To play an exercise, the program automatically switches to the **Run screen**.

Settings

Global settings such as the user profile, the language, the sound, the two speeds and the configuration of the RS232 interface (if available) are made on this screen.

The character speed and the transmit speed

Two different units are commonly used for the speed of Morse code. The larger and more commonly used unit **wpm** (= words per minute) is five times as large as the smaller unit **cpm** (= characters per minute). This has historical background and has to do with the pattern word (= paris) used to measure the speed.

At a speed of 20 wpm, for example, the pattern word is transferred 20 times in one minute. With 5 letters per word, this results in a speed of 100 bpm. However, this measurement is only correct if you take the intended short pause after each letter and after each word. On the other hand, a CW operator can extend the pause after each character and the pause after each word. The program also offers this option. Yes, you can even pause the playback completely after each word. (To resume playback, press the space bar.)

If only the pause after each character (within a word) is increased, this has the same effect as if the characters were keyed more slowly. The program therefore distinguishes between the actual, faster character speed and the slower speed of the transmission. (**Farnsworth timing**)

The character speed is always higher (or the same) as the speed of the transmission and cannot fall below a value of 60 cpm.

Note: The higher the character speed, the shorter the sound pulses. At 60 cpm a short tone has a duration of 100 ms, at 100 cpm only 60 ms.

The RS232 interface

Since modern PCs and notebooks no longer have an RS232 interface, a USB/RS232 converter must be used. This can also be built into a USB interface, e.g. the Morsetasten-Interface of the HTC.

The Program only requires the four control lines of the RS232 interface, the two inputs (**CTS** and **DSR**) and the two outputs (**DTR** and **RTS**) as well as the common ground (**GND**).

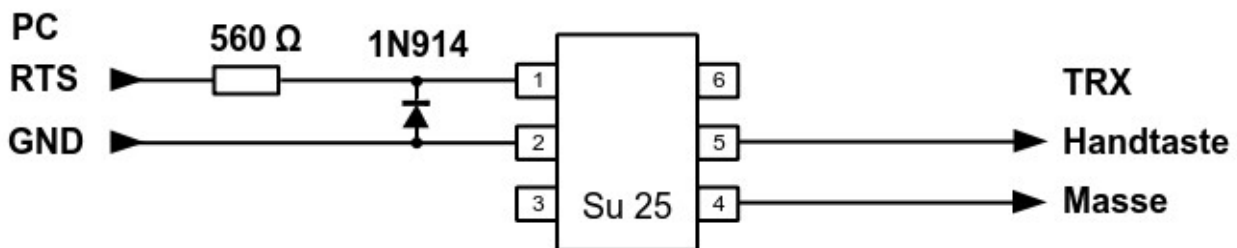
The contacts of the paddle are connected to the two inputs (**CTS** and **DSR**) and the ground connection to one of the two outputs (**DTR** or **RTS**).

(The ground connection of the paddle requires a permanent positive voltage from this output.)

The other output is used to key the transmitter or a sound generator. However, you still need a simple interface for this purpose. An optocoupler is ideal. It provides electrical isolation between the PC and TRX.

The key input of a sound generator or of a transmitter (TRX) is connected to the other output and to the common ground via a small interface (optocoupler or transistor). The 560 Ohm resistor and the 1N914 diode protect the input of the optocoupler from excessive voltage.

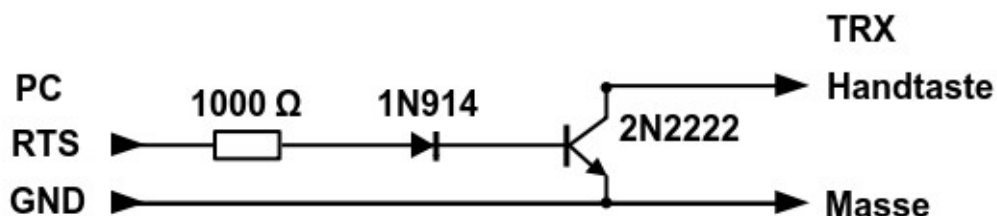
Interface with optocoupler:



Note: Handtaste = Straight key input of the TRX, Masse = Ground of TRX

If you want to do without galvanic isolation, you can replace the optocoupler with a transistor. A 1000 Ohm resistor is used here to limit the voltage and the 1N914 diode protects against a negative voltage at the base of the transistor.

Interface with transistor:



Note: Handtaste = Straight key input of the TRX, Masse = Ground of TRX

The RS232 interface must be configured and activated. The internal sound generator is switched off when you activate the RS232 interface (COM port).

Character

The **Character screen** is used to learn 40 preselected Morse code characters. It starts with the alphabet. This is followed by the numbers and the following four additional characters: slash, question mark, period and comma. The syllables **di** and **dah** are suitable for phonetically memorizing the sound pattern of an (acoustic) Morse character (di for the short tones, dah for the long tones, e.g. **dah dah di di di** for the Morse code of the number **7**).

Important: First learn each character individually and then together with those already learned at the desired character speed (at least 80 cpm).

Initially, the character selection input field is empty and the two panels (**Morse trainer** and **Practices with groups**) are hidden. Only when it contains at least two different characters (e.g. the letters a and b) the two panels become visible.

Now you learn to distinguish between the characters. The program offers two methods for this, the Morse trainer for single characters and practices with character groups. You now switch alternately between these two methods.

At some point, however, it will be time to learn the next character and add it to the selection. (You want to master all the characters as soon as possible.)

Die einzelnen Morsezeichen muss man auch sauber tasten können! Also bereits zu Beginn Gebeübungen mit Paddel und Keyer machen.

You must also be able to key the individual Morse characters cleanly! So start by practicing with the paddle and keyer or with a straight key.

The Morse trainer

If you start the Morse trainer, you will hear the first Morse character. Now type the letter or number you hear into the small field or click on the appropriate button.

Whether you have heard the correct character is indicated by the input field turning green or red. The next one sounds immediately afterwards. If you want to play the last character again, press the space bar or click on a free space next to the buttons.

The number of buttons is limited to eight. If there are more than eight different characters in the selection, the Morse trainer only uses the last eight.

Practices with character groups

As an addition to the Morse trainer, you can also carry out practices with character groups. The same character set is used. The groups played can be written down or typed into the lower text field and immediately compared with the template in the upper text field (see **Run screen**).

For practices with groups, you can extend the pause after each group or interrupt the playback (press the space bar to continue).

Each group is normally only played once. However, they can also be played several times.

The size of the character groups (single characters, groups of 2, 3, 4, or 5) and the number of groups per sequence (max. 50 groups) can also be set.

You can practice with the entire selection of characters or you can limit yourself to the selection of the Morse trainer (≤ 8 different characters).

If you select the entire character set, multiple characters in the set are played more often than others. In contrast, the last three characters (the 6th, 7th and 8th) are played more frequently in the selection of the Morse trainer.

As a general rule, you should limit the number of characters in the selection. This is because the probability that it will be played decreases with each additional character.

Note: When you click on the **Start button**, the program automatically switches to the **Run screen**.

Text

The **Text screen** is intended for people who already know the Morse code. You should at least have learned the alphabet and/or the numbers (1, 2 ... 0).

You can carry out practices with any text or you can use a text collection (with individual words or whole sentences) from the program's database. Exercises with the HTC Morse code exam are also particularly challenging.

Practices with suitable texts

There is a large text input field at the top of the **Text screen**. You can enter a suitable text or open a text file (**File menu**) and edit it further.

The usual context menu is available in this text field (open the menu with the right mouse button). You can use the menu to cut, copy and paste parts of text via the clipboard or select the entire text. Instead of the menu, you can also use the usual shortcuts, e.g. **[Ctrl]+C** to **copy**, **[Ctrl]+V** to **paste**, **[Ctrl]+X** to **cut**.

You can also save the entire text in a text file after editing (**File menu**).

As with the practices with character groups, there are two options. Either you choose a pause after each word (e.g. of 2 s, 3 s or 4 s) or you stop the playback after each word. However, this only works with texts that do not contain macros. (Texts with macros are displayed in the upper preview field at the start of playback.)

Macros

Macros are markers in the text that temporarily change the speed, for example. The program recognizes macros by the angle brackets that enclose them.

The macro <70F80> sets the speed of the transmission to 70 cpm and the character speed to 80 cpm.

Multiple spaces are also macros. They influence the length of the pause. It takes 2 seconds for two spaces, 3 seconds for three spaces and 4 seconds for more than three spaces. (For single spaces, a normal pause is made depending on the speed.)

Geschwindigkeitsmakros sowie mehrfache Leerzeichen werden z.B. in Texten für Morseübungssendungen gebraucht.

Speed macros and multiple spaces are used, for example, in texts for Morse code broadcasts.

Practices with texts from text collections

Depending on the collection, such texts can consist of individual words or small sentences.

Hörübungen mit solchen Texten erfolgen analog zu Übungen mit Zeichengruppen. Anstelle von Zeichengruppen werden hier aber aus einer Sammlung einzelne kurze Texte ausgewählt.

Practices with such texts are carried out in the same way as practices with groups of characters. Instead of groups of characters, however, individual short texts are selected from a collection.

The settings are almost identical to those for practices with character groups. Words are played in the same way as character groups, i.e. you can, for example, insert a pause after each word or interrupt playback after each word.

It is possible to import your own text collection. However, the required text file must contain at least 5 texts (5 lines) and the individual texts must not be longer than 100 characters on average.

The HTC Morse code exam

An HTC Morse code exam lasts 240 seconds at each speed of the exam (60, 80, 100 or 120 cpm). The speed of the exam is automatically determined from the setting of the character speed and displayed next to the start button.

The HTC Morse code exam contains various types of English texts as well as callsigns, qso texts and groups of three letters or numbers.

Important: The menu for **saving the exam** can be found in the **File menu**. You can write down the played characters first and the type them in and save it after the exam. There is no time pressure.

Instead of saving the exam, you can also use the **Display errors button**.

After starting an exam, the first name, surname and callsign must be entered first. This information is also saved in the encrypted text file.

Tip: Before you send in a saved exam, you can evaluate it yourself. To do this, you have to open them and display it in a special form (**menu file**).

It is not possible to change saved data as it is encrypted.

Run

On the right-hand side of the **Run screen** there are two text fields of the same size with multiple lines. The character groups or words played are displayed continuously in the upper field.

Nach dem Abspielen einer Sequenz kann man eine neue generieren und abspielen (Enter-Taste) oder man kann die aktuelle noch einmal abspielen lassen (Abspielbutton klicken).

After playing a sequence, you can generate a new one and play it (**Enter key**) or you can play the current one again (click the **play button**).

Morse code broadcast

To key the transmitter when broadcast Morse code, you must use an interface with an RS232 interface and activate it beforehand. The output of the interface must be connected to the Straight key input and the ground connection of the transmitter (TRX).

Achtung: Der interne Tongenerator wird bei aktivierter Schnittstelle automatisch ausgeschaltet. Der Text **RS232** in der Statusleiste signalisiert eine aktivierte RS232-Schnittstelle und somit den ausgeschalteten internen Tongenerator.

Note: The internal sound generator is automatically switched off when the RS232 interface is activated. The text **RS232** in the **status bar** indicates an activated RS232 interface and the switched off internal sound generator.

Audio Export

Instead of playing (or after playing), you can also export a practice as an MP3 file. While this process is running, the program is blocked. You therefore need to be patient and wait until it is complete. (A message is displayed in the status bar.)

Keying

An interface on an RS232 interface is absolutely necessary for keying. This applies both to the connection of the paddle or a straight key and to the connection of the external sound generator.

The character speed of the built-in iambic keyer can be set in steps of 10 cpm between 60 cpm and 200 cpm. The two contacts of the paddle can also be reversed in the software. The keyer's dot and dash memory can be deactivated. This memory is only used when squeezing, i.e. when both paddle contacts are opened prematurely. (The squeeze technique is very demanding and requires special training.)

Wer Lust hat, kann an Stelle eines Paddels auch eine Handtaste (oder einen externen elektronischen Keyer) benutzen. In diesem Fall muss der eingebaute iambic-Keyer deaktiviert werden.

If you prefer, you can also use a straight key instead of a paddle (or use an external electronic keyer). In this case, the built-in iambic keyer must be deactivated.

Attention: When connecting an external keyer instead of a straight key to the control lines of an RS232 interface, the external keyer's key output and its ground must be connected in reverse. (Do not connect ground to ground as usual.)

Permanent decoding

The keyed Morse code characters are permanently decoded and displayed in the lower text field. The decoder uses the speed of the built-in iambic keyer.

Note: If you wait too long after a Morse code character, the decoder regards this pause as the end of a word or group and inserts a space. If you wait too little time, it counts the new sound pulses towards the previous character. If it does not recognize a character, it displays an asterisk (*) in place of the character.

Virtual practicing in your mind

During the learning phase, phonetic practices have proved very effective. You don't need any aids. The practices only take place in your mind. The syllable **di** is used for the short tones and the syllable **dah** for the long ones.