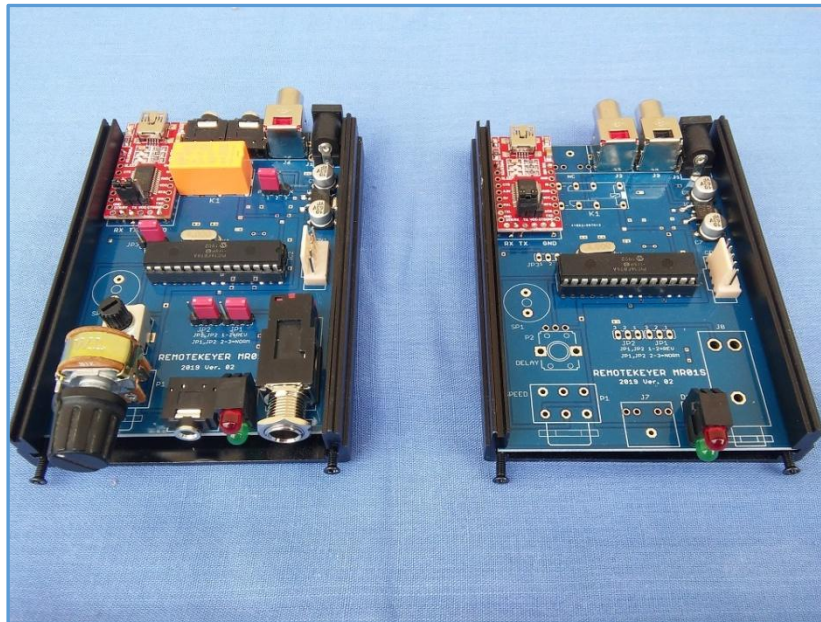


# CW REMOTE KEYER with PTT

09.10.2025



## 1. Introduction

It is not easy to find a cheap and suitable solution for remote radio keying over the internet.

That is why I developed the **MR-01C Client** and **MR-01S Server Remote Keyer** units.

- **Client side:**

- Built-in electronic keyer with external mechanics,
- Manual keyer connection option,
- Ability to key via PC keyboard (contest programmes),
- Option to connect headphones; switch to sidetone when transmitting,
- Radio PTT switch-on option (automatic PTT bit on CW, footswitch on SSB),
- USB connection to PC (serial–USB converter inside),
- Keying speed adjustable from 5 to 40 WPM.

- **Server side:**

- Key output to radio,
- PTT radio TX on/off,
- USB connection to PC (serial–USB converter inside).

## 2. Execution

Both units are physically housed on the same printed circuit board.

The PIC contains both client- and server-side software, so the same microcontroller can be used on both panels.

Power is supplied via the USB port. An external power supply can also be connected. 12V/50mA.

The panels are mounted in a standard 105×78×35 mm aluminium box.



### 3. Commissioning

- **Client side:**

Connect the USB cable to the unit.

On the front of the client unit, plug in the keyboard mechanics (6 mm jack), plug in the manual keyer into the 3.5 mm jack socket, or connect a serial port-controlled keyer. The input jack of the client unit connects to the audio output of the PC, and the output connects to the headphones.

By default, this is used to hear the radio audio, and when transmitting, the key's sidetone.

This is necessary because the delay would prevent correct keying.

When you press the key lever, you hear the sidetone. If necessary, the PTT delay can be adjusted with a trimmer on the internal panel.

A footswitch can be connected to the PTT jack on the rear panel, allowing you to conveniently switch your radio to on-air in SSB mode.

**Never use the footswitch in CW mode!**

- **Server side:**

Connect the USB cable to the unit.

The PTT jack on the rear panel connects to the radio PTT input, and the KEY jack connects to the radio key input.

The green LEDs on both units indicate ready status, and the red LEDs indicate PTT active status.

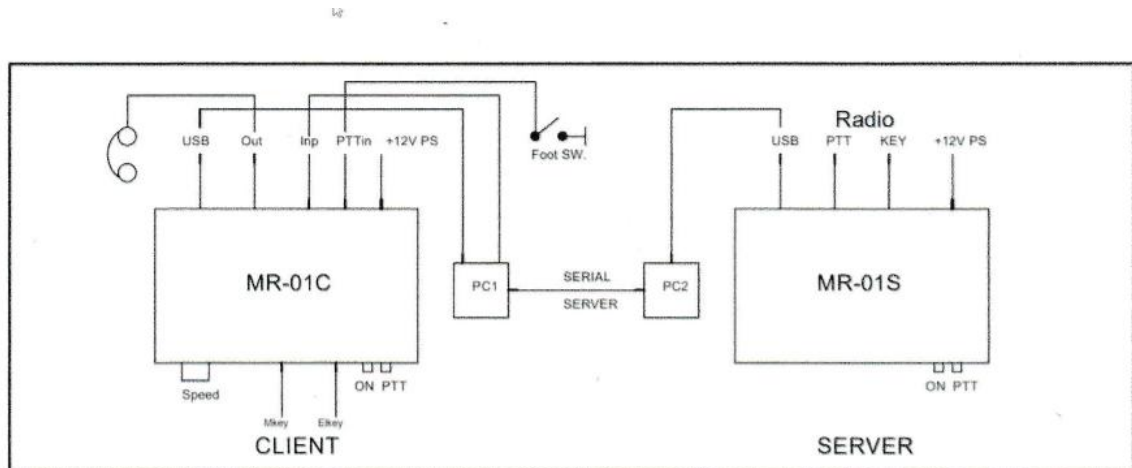
For keying to function, a serial server program must be installed between the client-side PC and the server-side PC.

This could be a program created within the HRD suite, or a simple server program by SM7LCB, but other similar serial programs may also be used.

#### 4. Experiences

The equipment has been operating flawlessly for several years at my remote station. Based on experience, keying works well even with 200–300 ms access time. This simple remote keyer can be used with any type of radio and remote control system.

#### 5. Wiring Diagram:



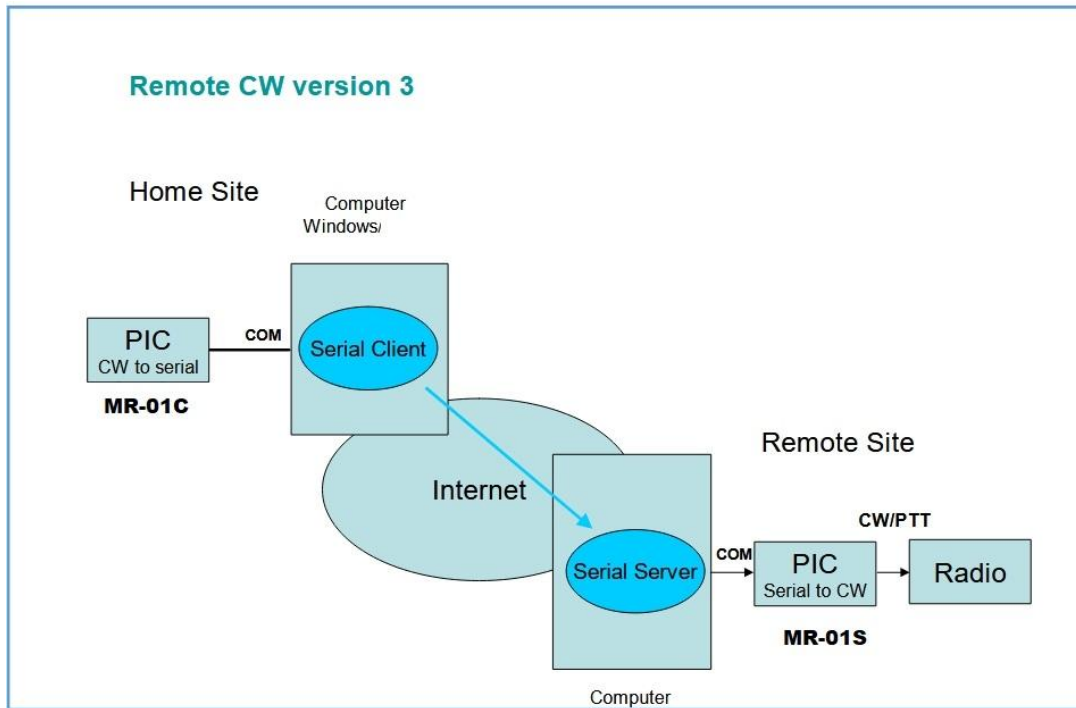
The wiring diagram illustrates the connections between the **client** and **server** units, including:

- Power supply (12V DC input for both units)
- USB connections to the PCs (built-in serial–USB converters)
- Audio input and output lines (for sidetone and monitoring)
- Key and PTT lines between the server unit and the transceiver
- Footswitch input (SSB operation only)

Ensure all connections are made according to the schematic before powering on the system.

Observe polarity and connector orientation to avoid damage.

## Usage of SM7LCB Serial Server with the Keyer:



The SSB mode works seamlessly with a laptop or PC, for example, and the remote station can be controlled as described above.

For CW keying, you need a **Remote Keyer „Client” Interface (MR-01C)** on the PC. This interface creates a serial port. A similar **Remote Keyer “Server” Interface (MR-01S)** is connected to the remote PC, which also creates a serial port and performs the radio keying and switching to transmit at the remote station. The two serial ports are connected by the server program.

The signals generated for client-side keying and radio PTT activation can be transmitted from the client to the remote station over a serial network. This is achieved using the server program written by SM7LCB, which must be run on both the client and server machines. On the server (radio) side, this program is always running, along with **Remaud**.

To send our CW signals to the radio, we need to start the keyboard server program on our PC. Once the connection has been established, we can use the hotkey built into the Remote Keyer to key the radio over the Internet.

The program also sends a PTT switch-on bit at the beginning of the packets, which switches the remote radio to transmit. No VOX or PTT switching is required.

If we connect a footswitch to the Remote Keyer client interface, we can control the radio in SSB mode with this footswitch (the pedal is connected to the red RCA socket).

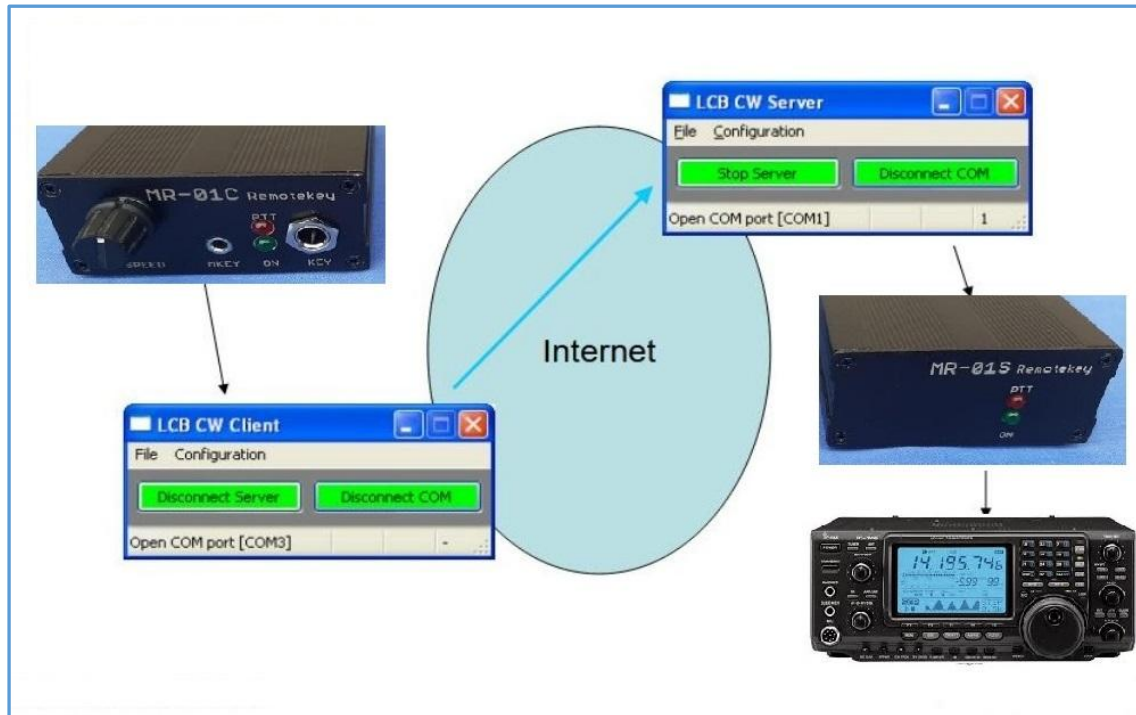
**Do not use the footswitch on CW because it causes signal distortion.**

The client hardware features a 6.3" and a 3.5" socket.

An Elkey mechanism can be connected to the 6.3" socket, while a manual key or a PC serial keyboard can be connected to the 3.5" input.

This allows our remote radio to be controlled using traditional contest programs (DxLog, N1MM, etc.)

## 6. Installing the SM7LCB Serial Network (example)



### Installing the SM7CLB serial port server program:

Download the SM7LCB Remote Serial Network software from the location above. Click to left-click on “Run as Administrator.”

Download the SM7LCB Remote Serial Network software from the location above. Click to left-click on “Run as Administrator.”

The program runs in Administrator mode ONLY!

### Install the local serial port to connect to the Remote Keyer:

Click on **Configuration** again, then on **Configure COM Port**.

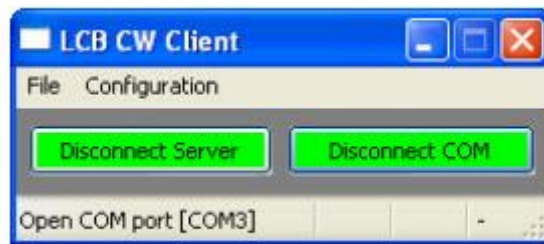
In the PC Device Manager, check which COM port the Remote Client key appears on your computer.

The package contains two boxes: one client and one server device.

For remote control, the **SM7LCB serial server program** is required, which must be installed on both the client and server machines.

**Client machine:** (from which the CW control is performed; here we use the client box, which also contains the keyboard)

Under the Application selector, select “**LCB CW Client.**” After the LCB icon appears, a small square will show up. Here, you need to configure the key on the serial port and the serial server network itself.

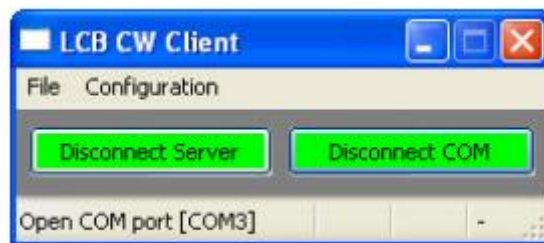


#### Client PC:

1. The SM7LCB program must be started **by the system administrator only**.
2. Connect the client hardware to the computer using the appropriate USB cable.
3. In the Device Manager, check which COM port the computer assigns to the device (e.g., COM15).
4. Start the software on the client machine and select **LCB CW Client mode** in the program.
5. Click on the **Configuration** menu.
6. Enter the COM port, activate **Autostart**, then click **OK**. (speed 9K6)
7. Click on **Connect COM**. If it turns green, the client box is successfully connected to the PC.
8. Click on the **Server** menu. Enter the server IP address and port (e.g., 8810) in the **Server Name** field. This port must be the same on both machines.
9. Activate the **Server Autostart** option, then click **OK**.
10. Click on the **File** menu and save the configuration under a specific name.

#### Server PC:

Under the Application selector, select “**LCB CW Server.**” After the LCB icon appears, a small square will show up. Here, you need to configure the key on the serial port and the serial server network itself.



1. Follow the same procedure and connect the server hardware.
2. Check the assigned COM port.
3. First, configure the COM side in a manner similar to the client side.
4. Configure the server side.
5. Save the configuration via the **File** menu when you are ready.

- If the network is being used under a router or a special program, you will see **“localhost”** as the IP address under the **Server** menu.
  - If the client and server are in different IP address ranges (separate networks), enter the IP address of the server PC instead.
6. In the server network router, for a separate network, ensure that the entered port (e.g., 8810) is enabled for the server machine under **port forwarding**.

If everything has been configured correctly, start the **SM7LCB program** after powering on the server machine. Both squares in the pop-up window should turn green.

If the program is also started on the client machine, both squares will turn green there as well.

On the client machine, connect the CW manipulator and headphones to the box (you will hear your own keying in the headphones). When you press a key, the **PTT LED** will turn red.

The same behaviour can be observed on the server machine; the **PTT LED** will turn red during transmission.

**Note:** The label on the back of the box is incorrect: **PTT is red, Key is black**. Connect the radio accordingly.

After turning on the server machine, the server program should start automatically.

Upon startup, it will load the saved configuration.

In the field, you should see that the client machine is connected and sending data.