

A'Funk kompakt 03-26 Innsbruck

Remotebetrieb - ein Praxisbericht

Enrico Donà – IZ4AFL / OE7AFT

20.3.2026 Klubheim Innsbruck

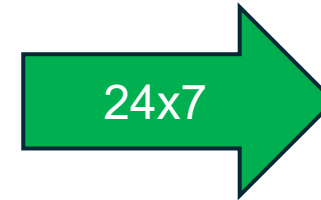
ICH HABE NICHTS ERFUNDEN

NUR KOMMERZIELLE PRODUKTE
EINGESETZT

Motivation für eine Remote Station - 1



Motivation für eine Remote Station - 2



Motivation für eine Remote Station - 3



Meine Motivation für eine Remotestation

- Platz für Drahtantennen
- CW Ragchewing
- Aktivitäten im Urlaub und auf beruflichen Reisen



Ziele

- Remote Kurzwellenstation
- CW mit Taste (Straight Key, Paddle, Bug) und Tastatur
- Niedrige Kosten (<1.000€)
- Flexibel / erweiterbar

Bisheriges System: Remoterig®



Bisheriges System: Remoterig®

✓ Kein PC nötig

✓ „Echtes“ Stationsfeeling

✓ Sehr zuverlässig

✗ Black Box

✗ Gerätespezifisch
(TS-480)

✗ Kein Wasserfall

✗ Teuer

✗ Nicht mehr unterstützt?

High End Lösung

ICOM IC-7610

✓ LAN Server



✗ 3.700€ NP (~2.500€ gebraucht)

✗ Zusatzlösung für manuelles CW immer noch benötigt

High End Lösung

ICOM IC-7300MKii

✓ LAN Server

✗ 1.500€ NP

✗ Beim Start des Projektes noch nicht verfügbar
Ich kaufe keinen neuen Transceiver

✗ Zusatzlösung für manuelles CW immer noch benötigt



High End Lösung

FlexRadio

✓ LAN Server

✗ >4.000€ NP



Softwarelösungen

RemoteTX

- ✓ Keine Öffentliche IP
- ✓ Läuft auf Raspberry PI

- ✗ 70 \$/Jahr
- ✗ CW nur mit Tastatur
- ✗ Verfügbarkeit

The image shows the RemoteTX website and its user interface. The website header features the RemoteTX logo with the tagline "Operate Anywhere" and a navigation menu with links: HOME, RADIOS, LIVE DEMO, HARDWARE, RESOURCES, CONTACT, FREE TRIAL, PRICING, SHOP, and CART. A search bar is located on the right. Below the navigation menu, the text "Ham Radio Remote Control from Anywhere." is displayed. The main interface is a screenshot of the RemoteTX control panel, which includes a frequency display showing 14.267.00 MHz, a "Down" button, an "UP" button, and a "B" frequency of 14.100.00 MHz. It also features a "Band Selection" menu with options like 160m, 80m, 40m, 30m, 20m, 17m, 15m, 12m, 10m, and 6m. The interface includes various status indicators like "Radio Status: ON", "IC-7300", and "Latency (ms): 41". There are also buttons for "RIT", "XIT", "Reset", and "TX / RX". The bottom section shows "TX Control" with a "RF Power" slider and "MOD-SOURCE" options like "USB", "CW", "CW-R", and "RTTY".

RemoteTX
Operate Anywhere

HOME RADIOS LIVE DEMO HARDWARE RESOURCES CONTACT FREE TRIAL PRICING SHOP CART

Search ...

Ham Radio Remote Control from Anywhere.

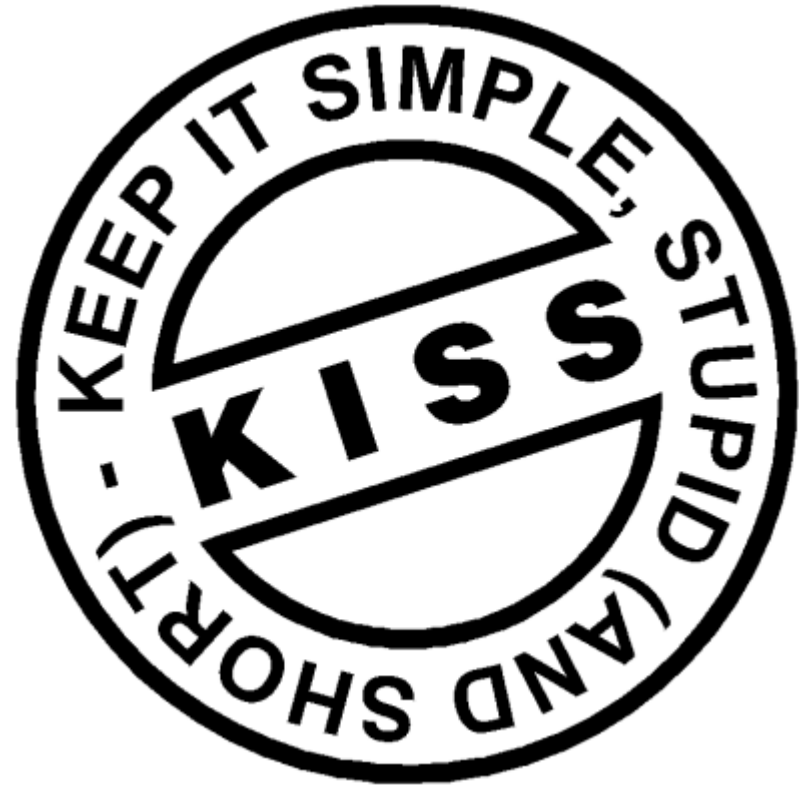
Remote Control Radios

- Robo Dog 3x1 Antenna Switch **NEW**
- Icom 7100 (HF/vhf/uhf)
- Icom 7200
- Icom 7300
- Icom 7300-Scope
- Icom 7610
- Icom 7610-Scope

Goldene Regeln für eine Remotestation

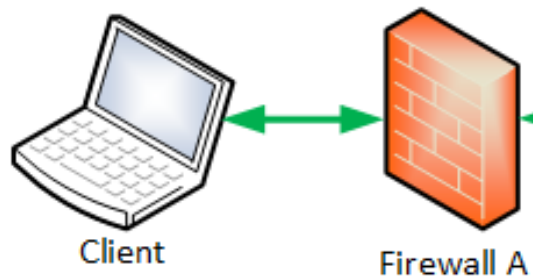
Murphy's Laws

1. In jedem beliebigen Betätigungsfeld wird alles schiefgehen, was schiefgehen kann.
2. Wenn Dinge sich selbst überlassen werden, wird es immer nur noch schlimmer.
3. Wenn es die Möglichkeit gibt, dass verschiedene Dinge schiefgehen können, wird das schiefgehen, das die größte Zerstörung verursacht.
4. Die Natur stellt sich immer auf die Seite des verborgenen Fehlers.
5. Wenn alles gut zu laufen scheint, hast du offensichtlich etwas übersehen.

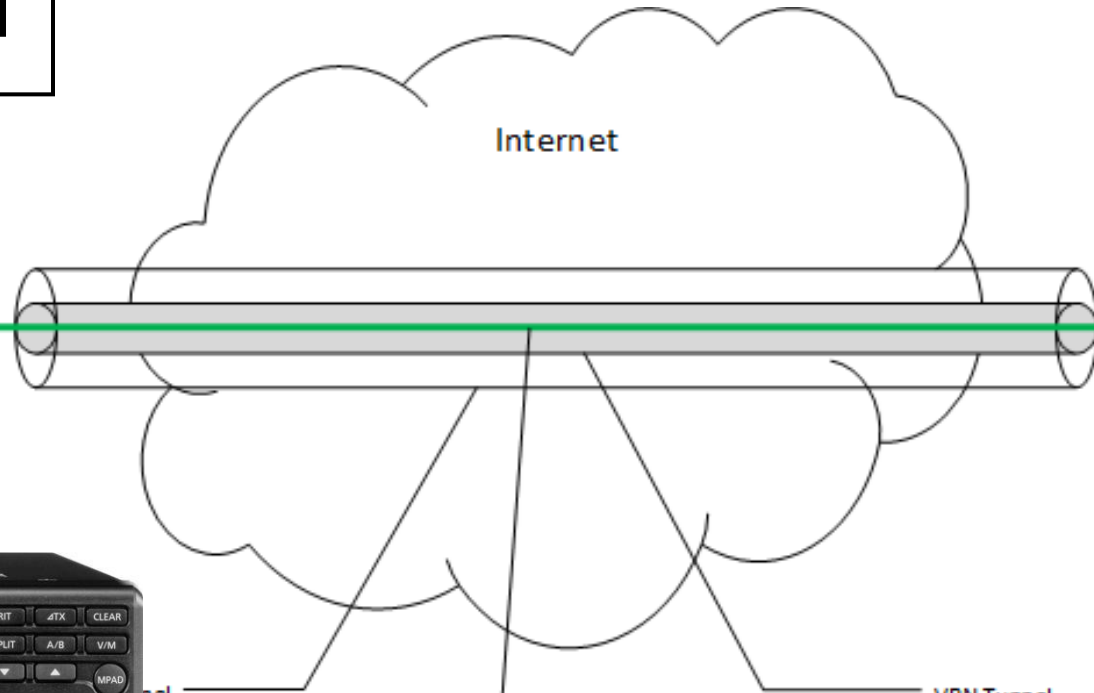


Transceiver

Private IP

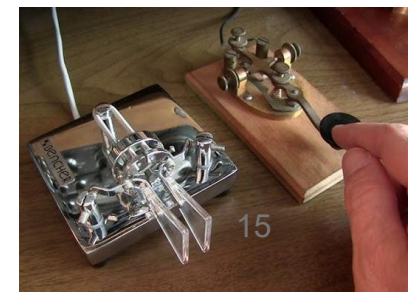
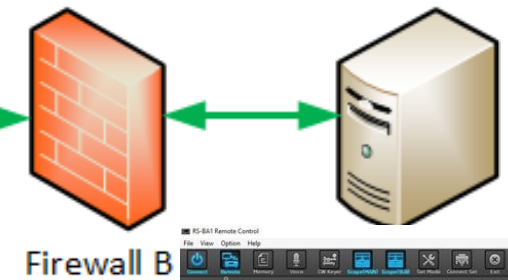


Internet

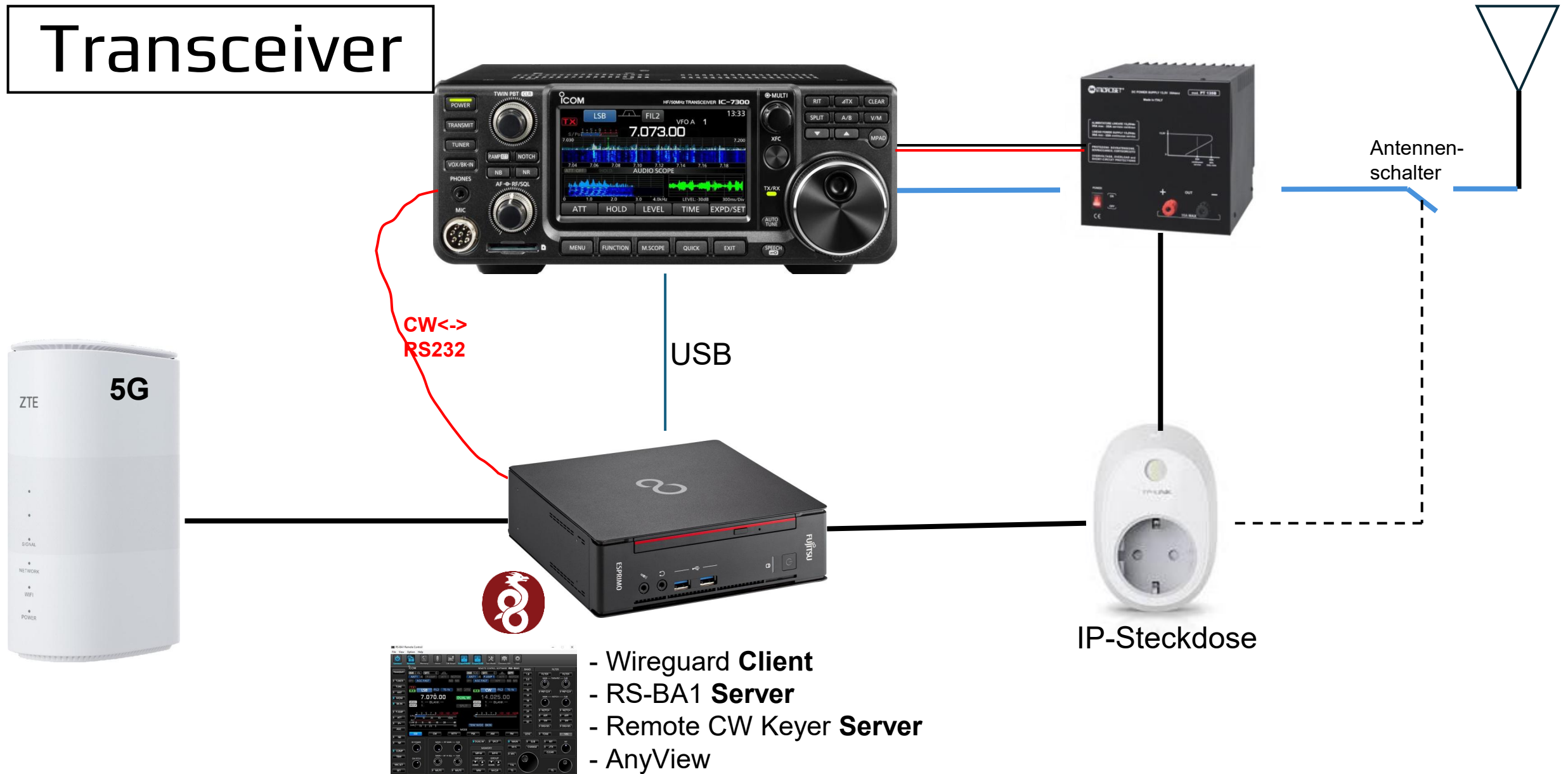


Steuerung

Öffentliche IP

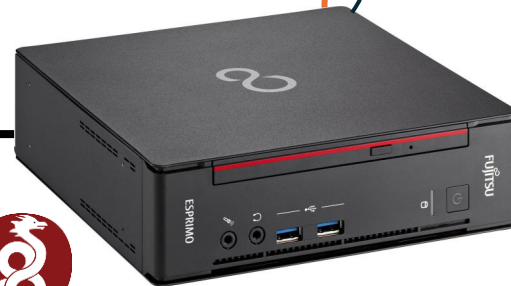


Transceiver



Steuerung

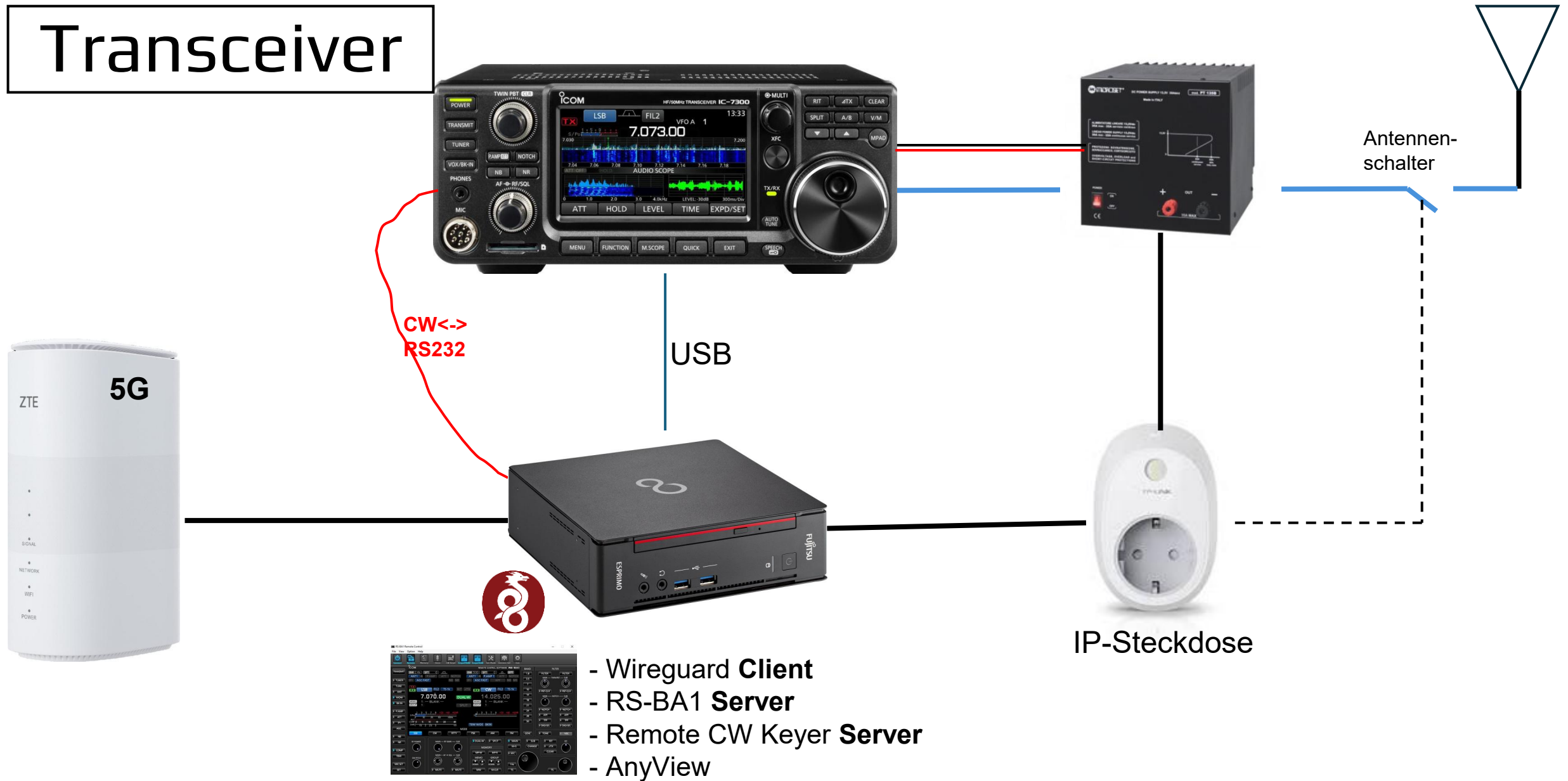
Fiber



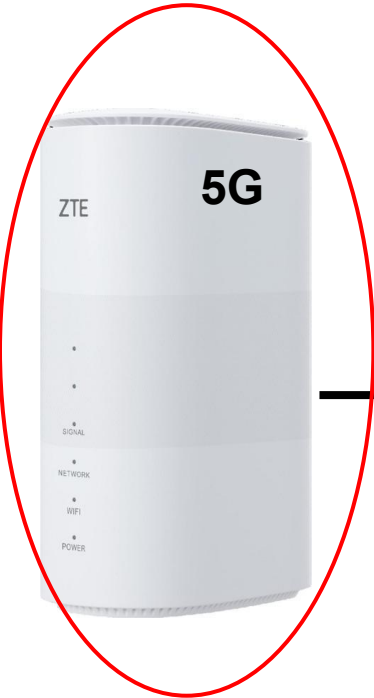
- Wireguard **Server**
- RS-BA1 **Client**
- Remote CW Keyer **Client**
- Dynu (DNS)
- AnyView



Transceiver



Transceiver



CW<->
RS232

USB



- Wireguard **Client**
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- AnyView



Antennen-
schalter



IP-Steckdose

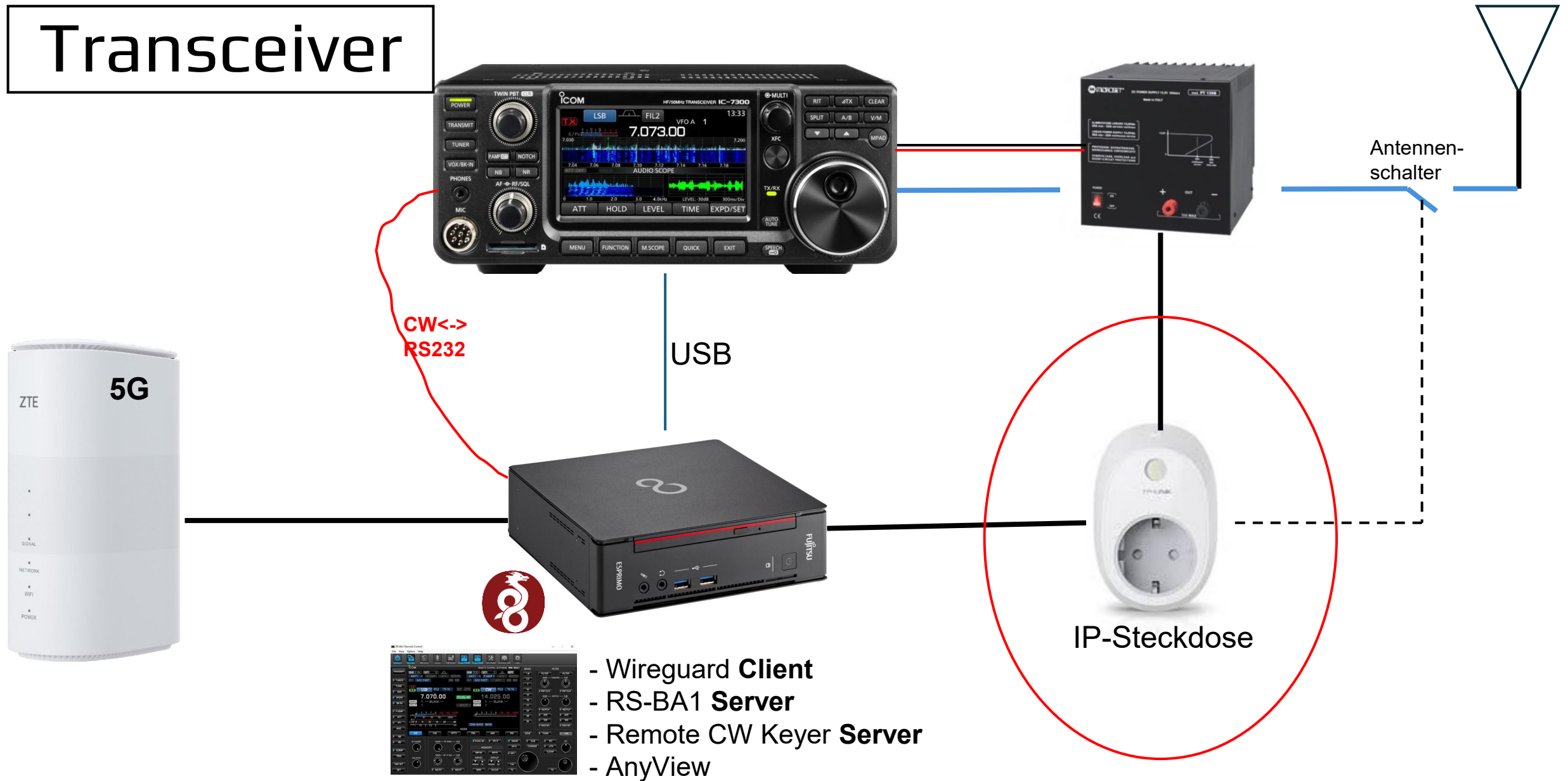


Netzwerkanforderungen

- Eine öffentliche IP-Adresse, entweder beim Transceiver oder bei der Steuerung
 - Öffentliche IP-Adresse beim Transceiver → einfach
 - Öffentliche IP-Adresse nur bei der Steuerung → schwieriger (VPN)
 - Keine öffentliche IP-Adresse → noch schwieriger („externer“ VPN server) (weder beim Transceiver noch bei der Steuerung)

Wie kommt man zu einer öffentlichen IP → Frag die Gaming Community

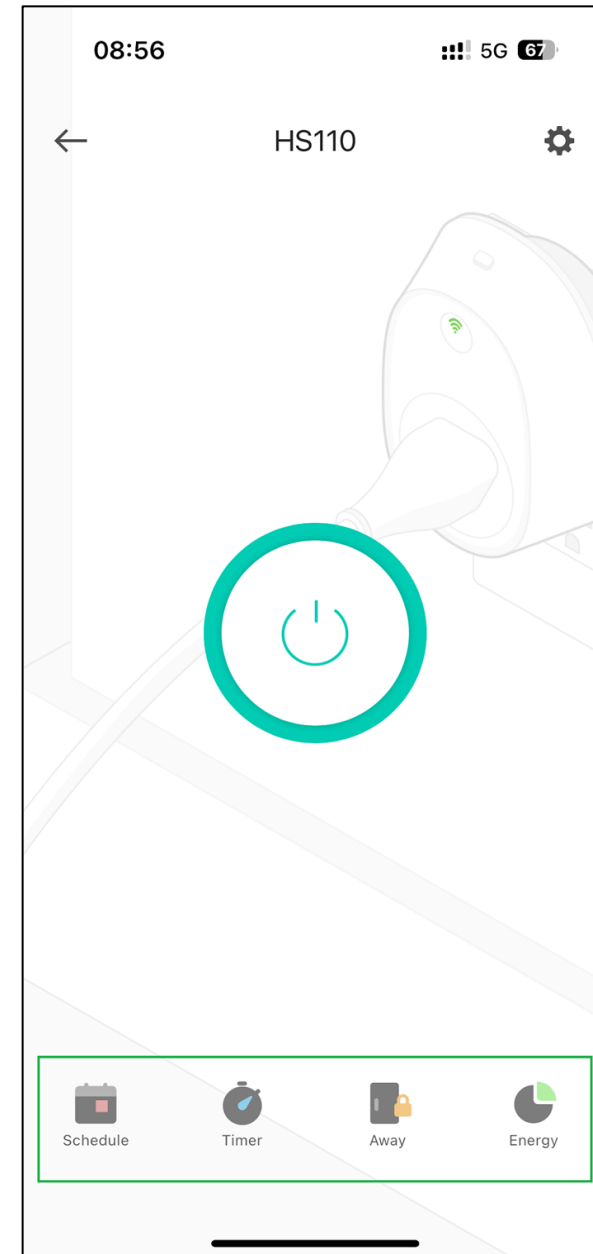
Transceiver



Transceiver



Kosten: ~10 €

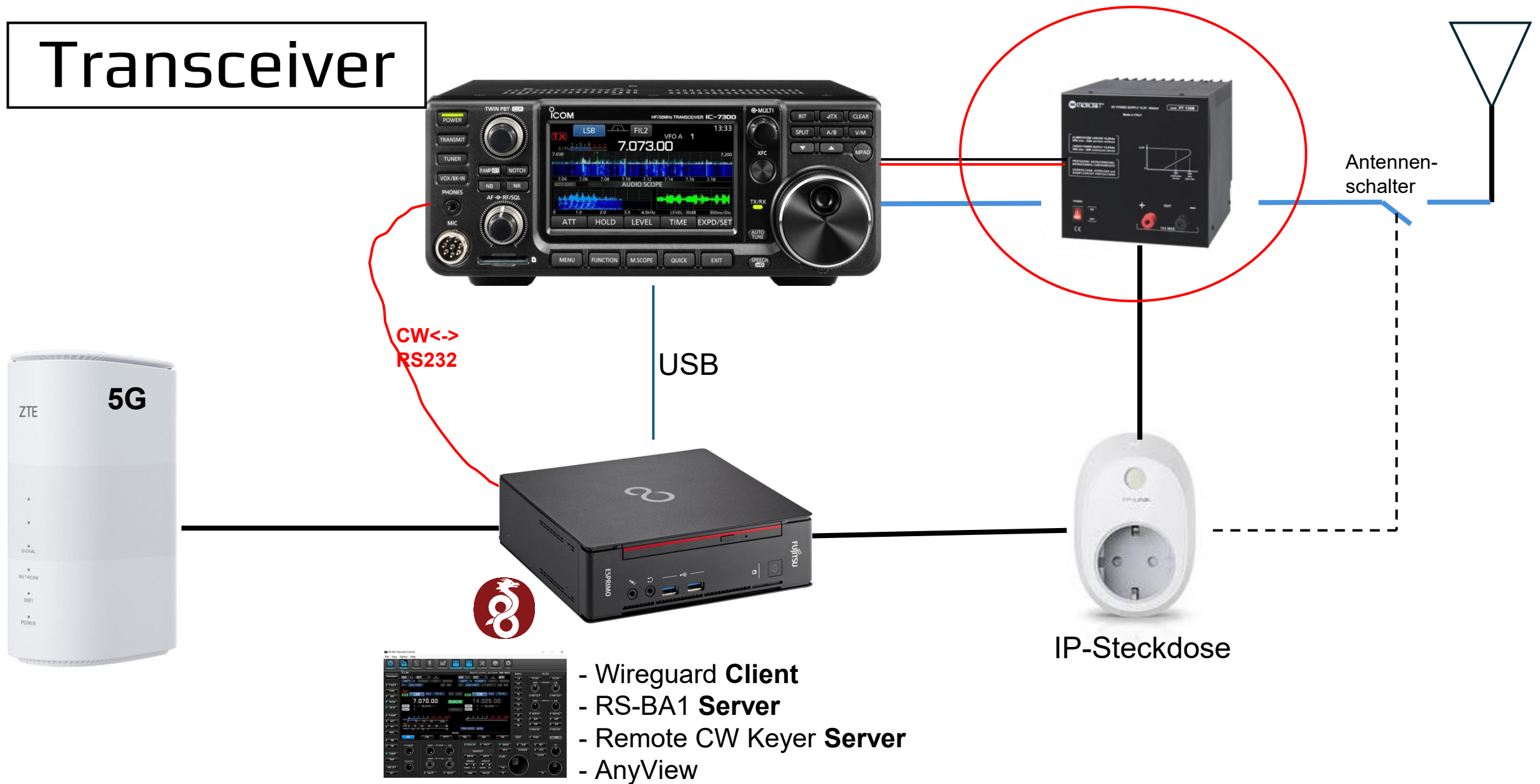


Transceiver





Transceiver



CAUTION

1. Even though the chassis of the unit is negatively grounded, use correct terminals to connect cable.
2. When plugging the unit into a wall outlet, it must be turned off.
3. Place the unit in a dry and well ventilated area.
4. Never touch the unit while it is working. Even though it is designed for high efficiency, the unit will still get hot.
5. A current limiting system will protect the unit from overloading.
6. If a short circuit occurs while outputing, the unit will be protected by a short circuit protection function. Turn off the unit and repair the cause of the short circuit immediately, then turn it back on.
7. Do not use the unit for devices that require high current input at the start, such as motorized equipment. Do not use the unit to charge a car battery.
8. Do not use a car cigarette lighter in the cigarette plug socket on the unit.
9. Before replacing a fuse make sure that the unit has been turned off. Be sure to use the specified type of fuse.
10. Make sure the product is always suitably grounded to prevent electric shock and to reduce noise.
11. Never disassemble, modify, and touch the inside of the unit unnecessarily. That could cause damage to the product and make the warranty invalid.

20.03.2026

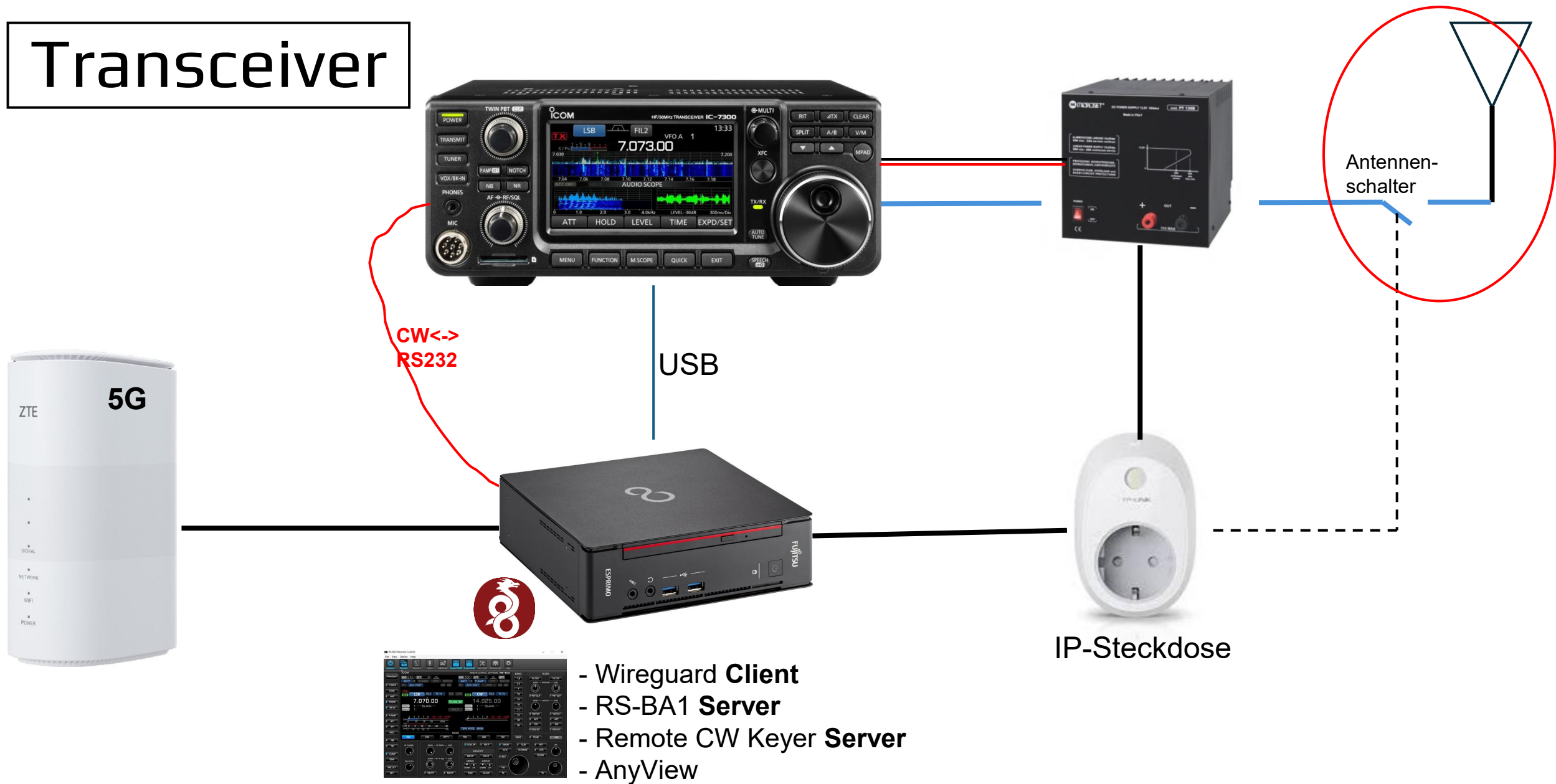


SWITCHING MODE DC REGULATED POWER SUPPLY

PSU-1228.DIG

INSTRUCTION MANUAL

Transceiver

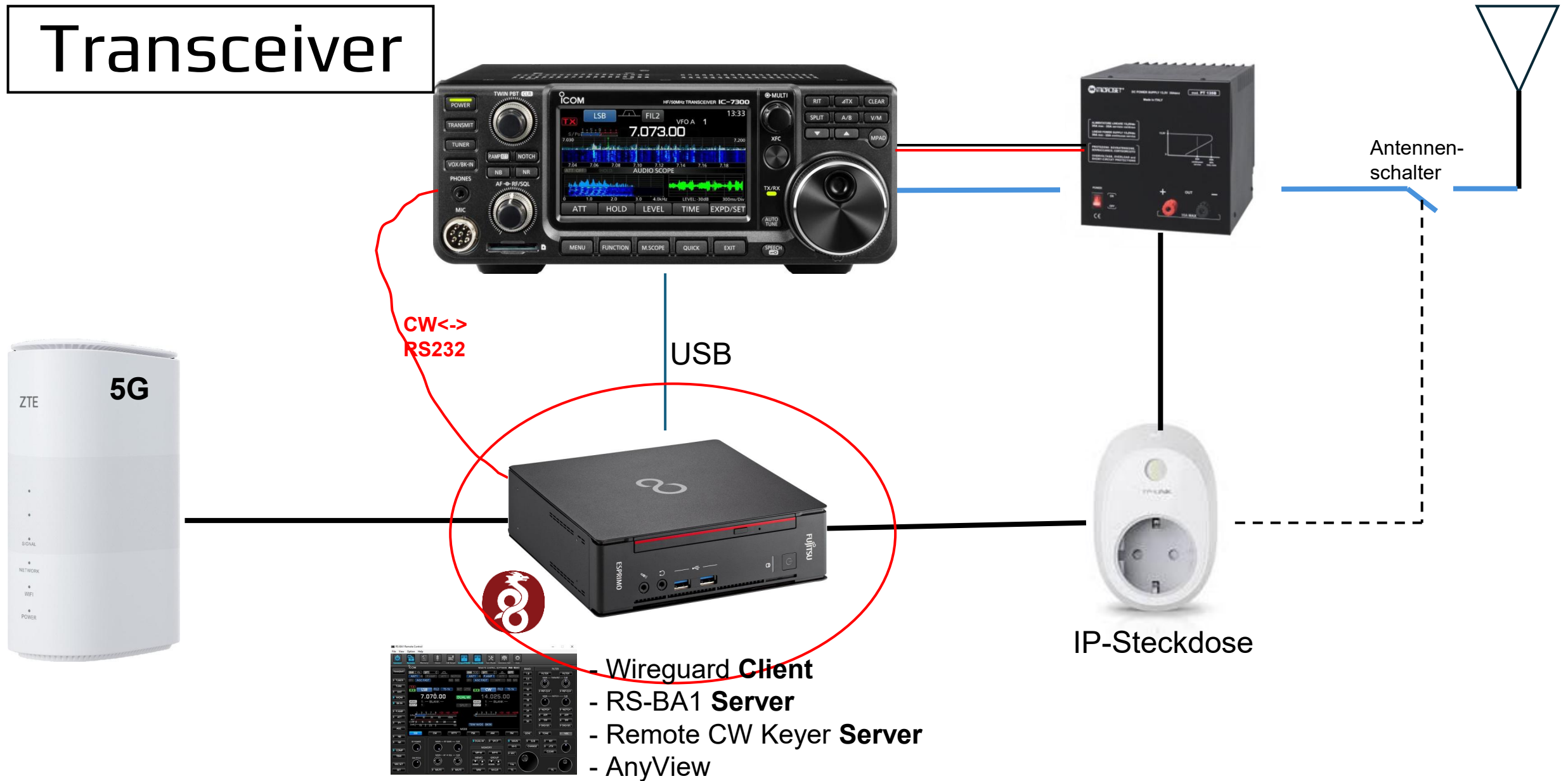


Antenne Remote ein-/ausstecken



<https://www.youtube.com/watch?v=qmNzCDaAMF8&t=4s>

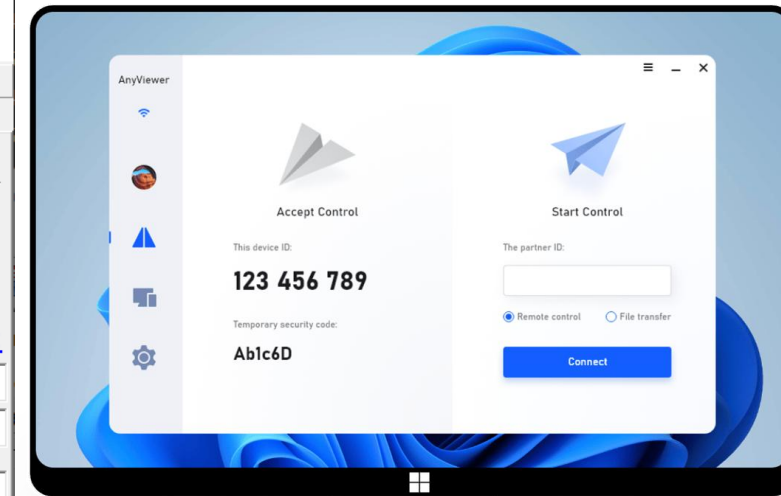
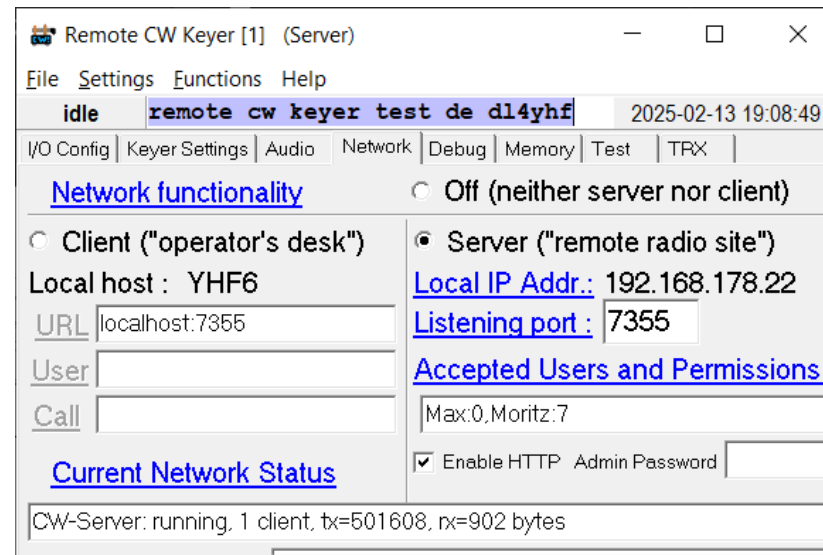
Transceiver



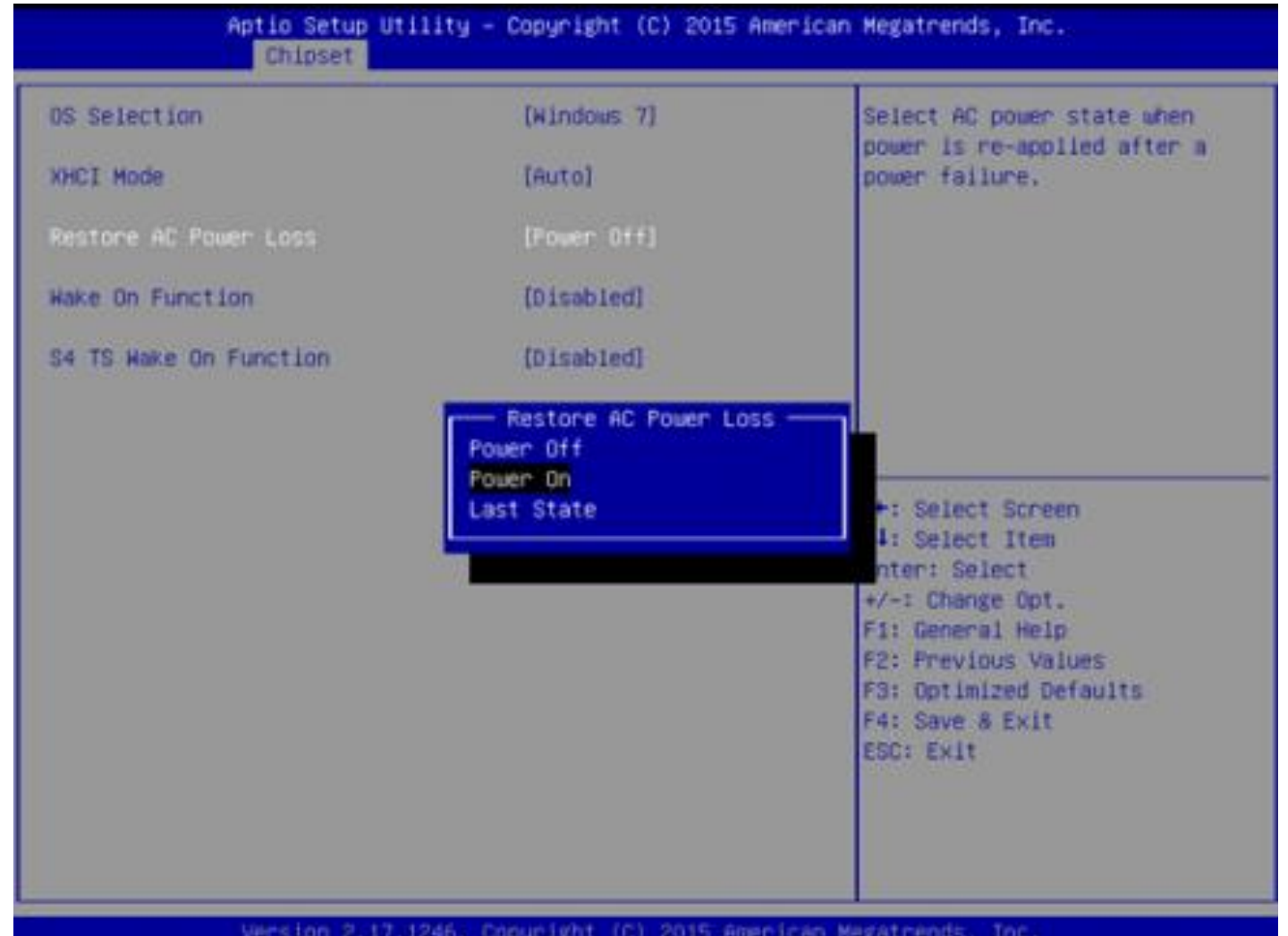
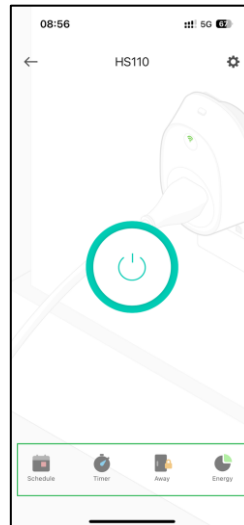
Transceiver PC



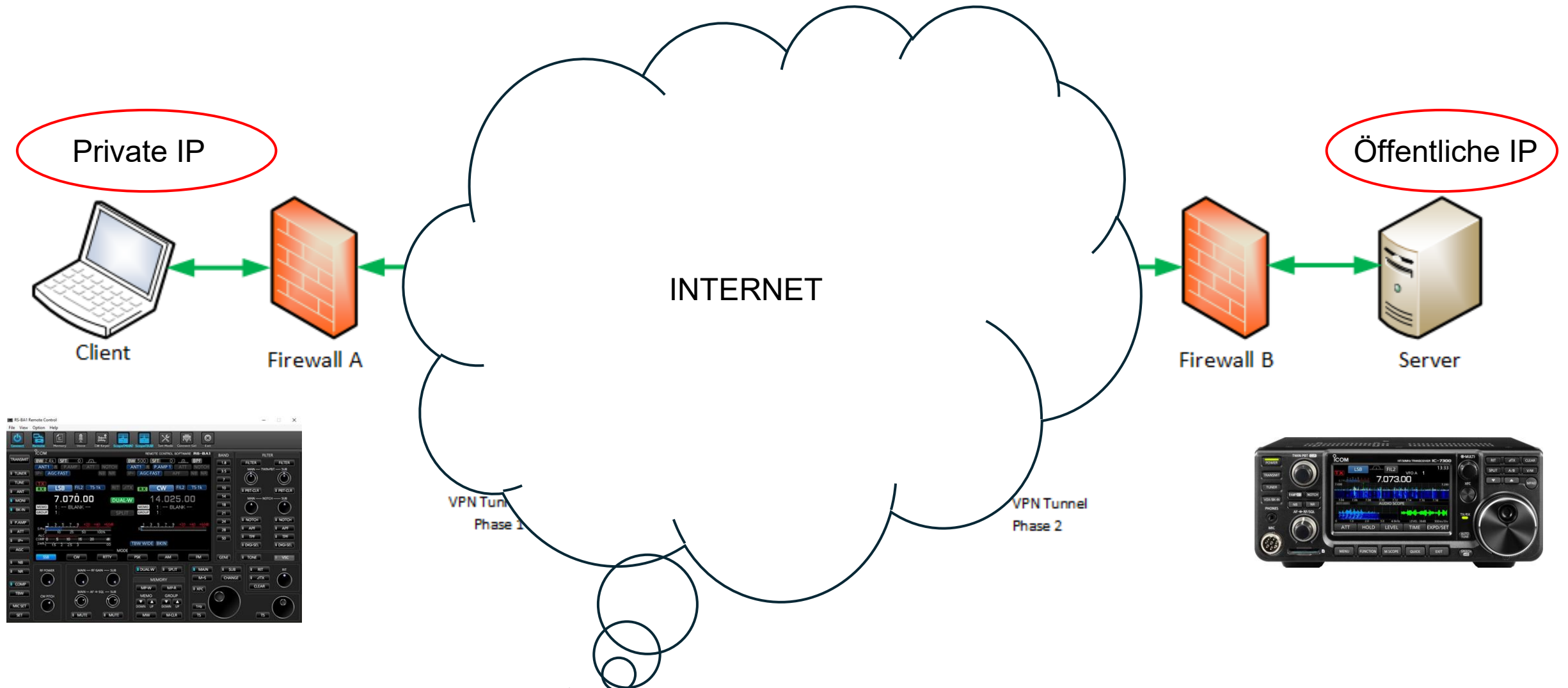
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- RS-BA1 **Server**
- Remote CW Keyer **Server**
- AnyView



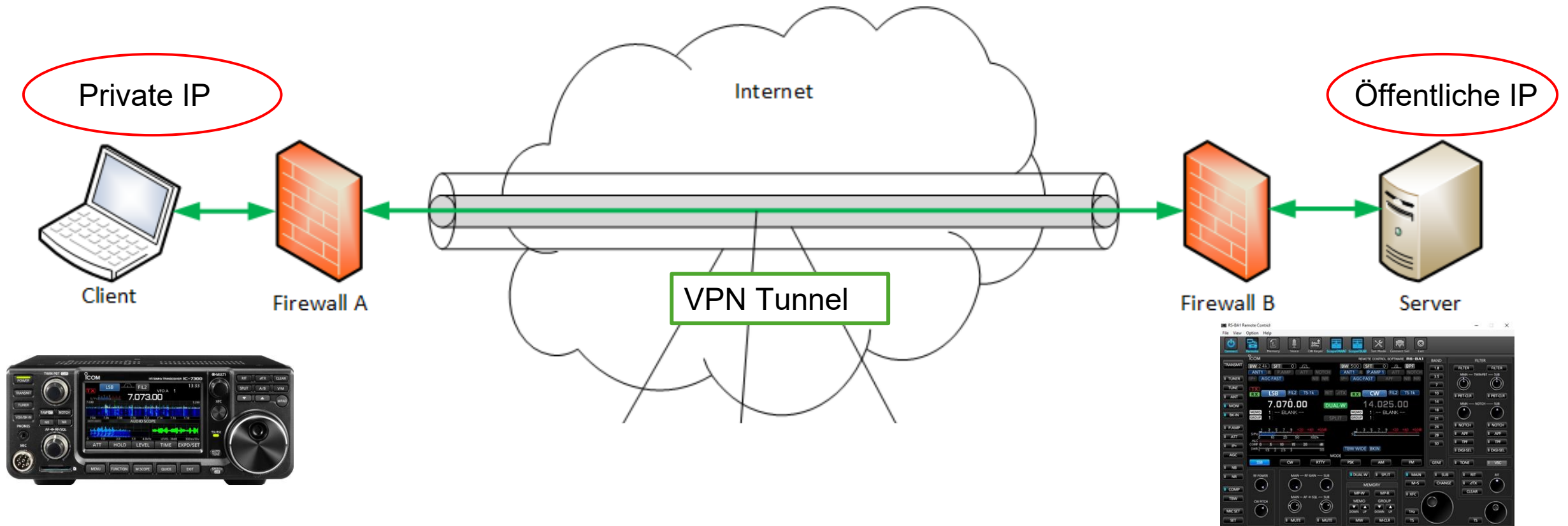
Transceiver PC – BIOS Einstellungen



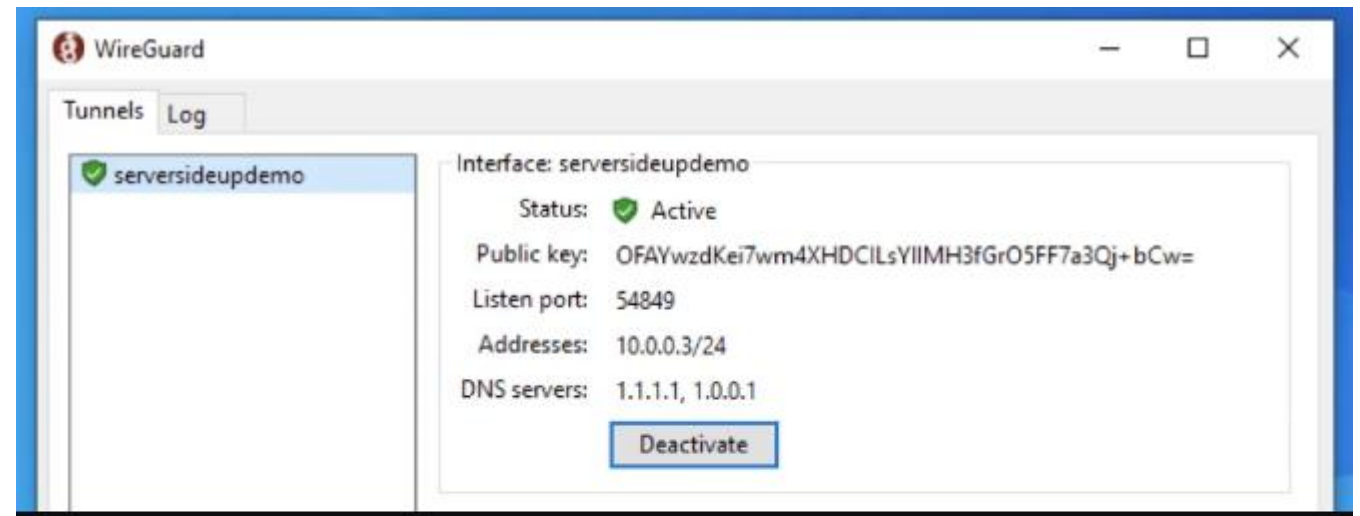
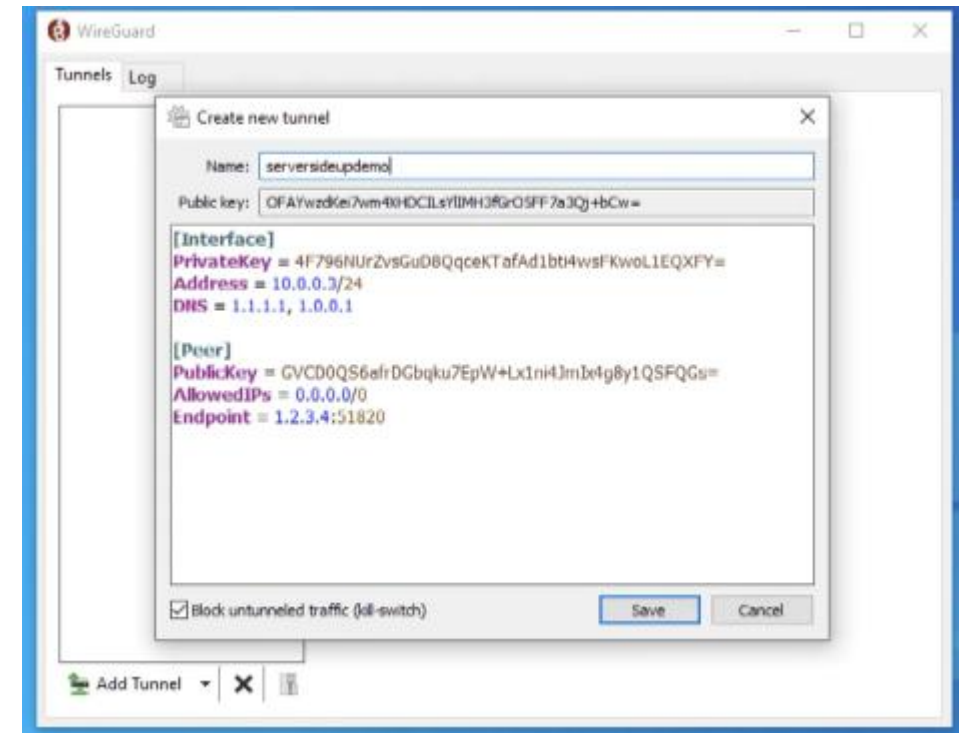
Transceiver PC <-> Steuerungs PC



Transceiver PC <-> Steuerungs PC



WireGuard VPN



Transceiver PC <-> Steuerungs PC



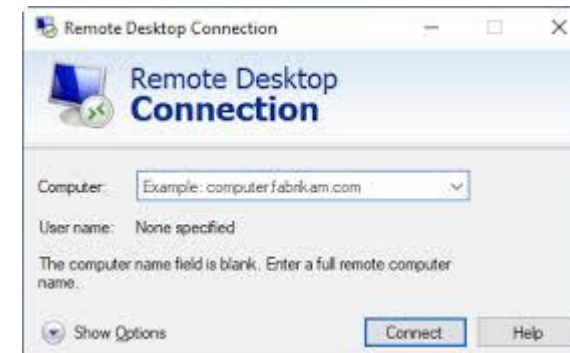
✓



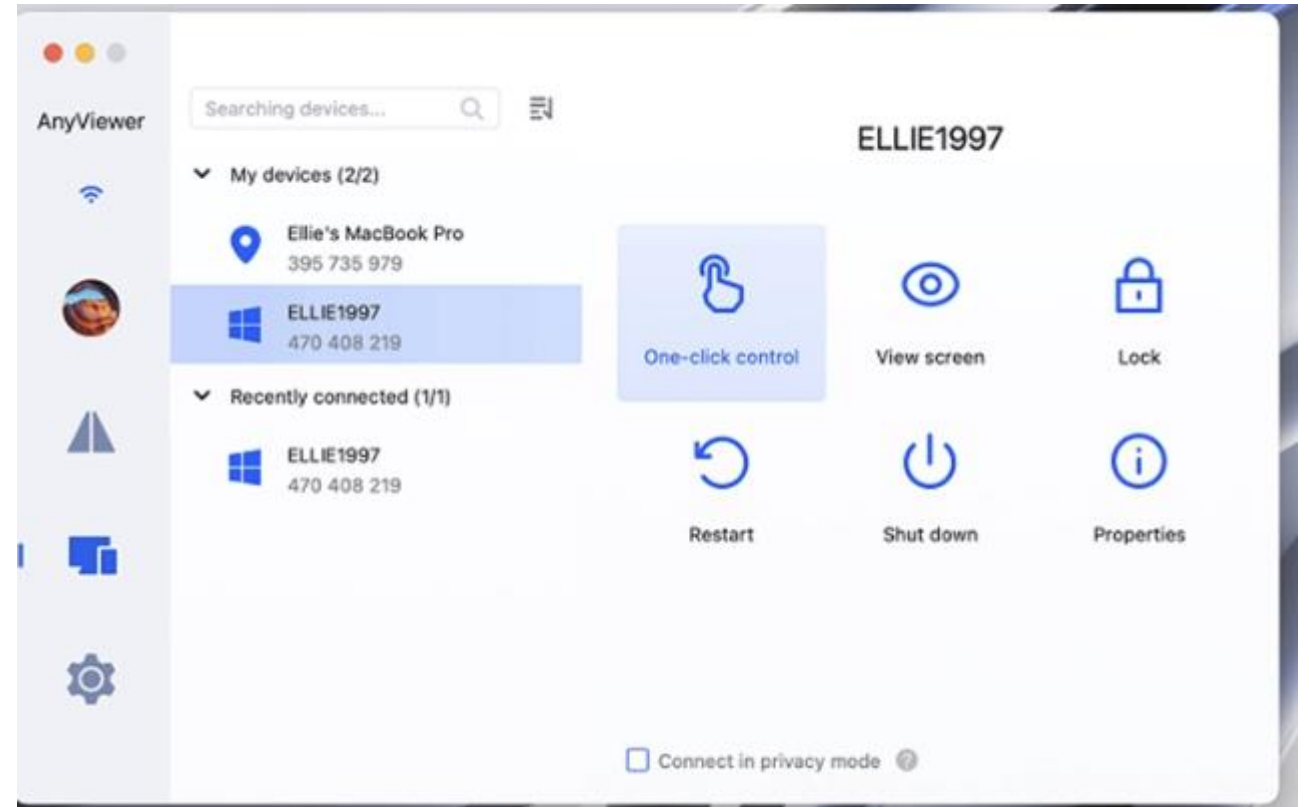
✗

 **TeamViewer**

✗



Transceiver PC <-> Steuerungs PC

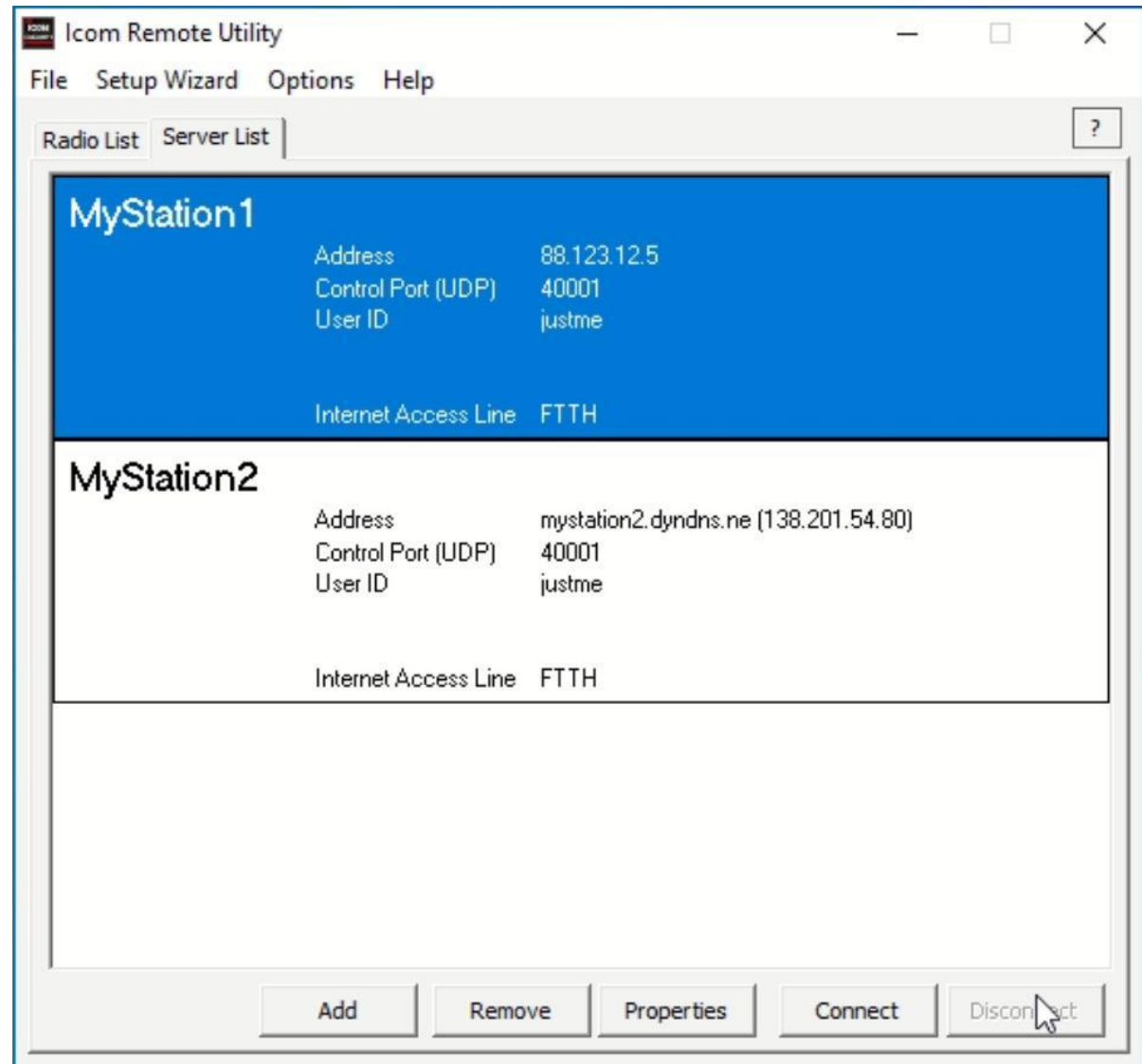


am Transceiver PC: Energiesparmodus/Sleepmodus deaktivieren!

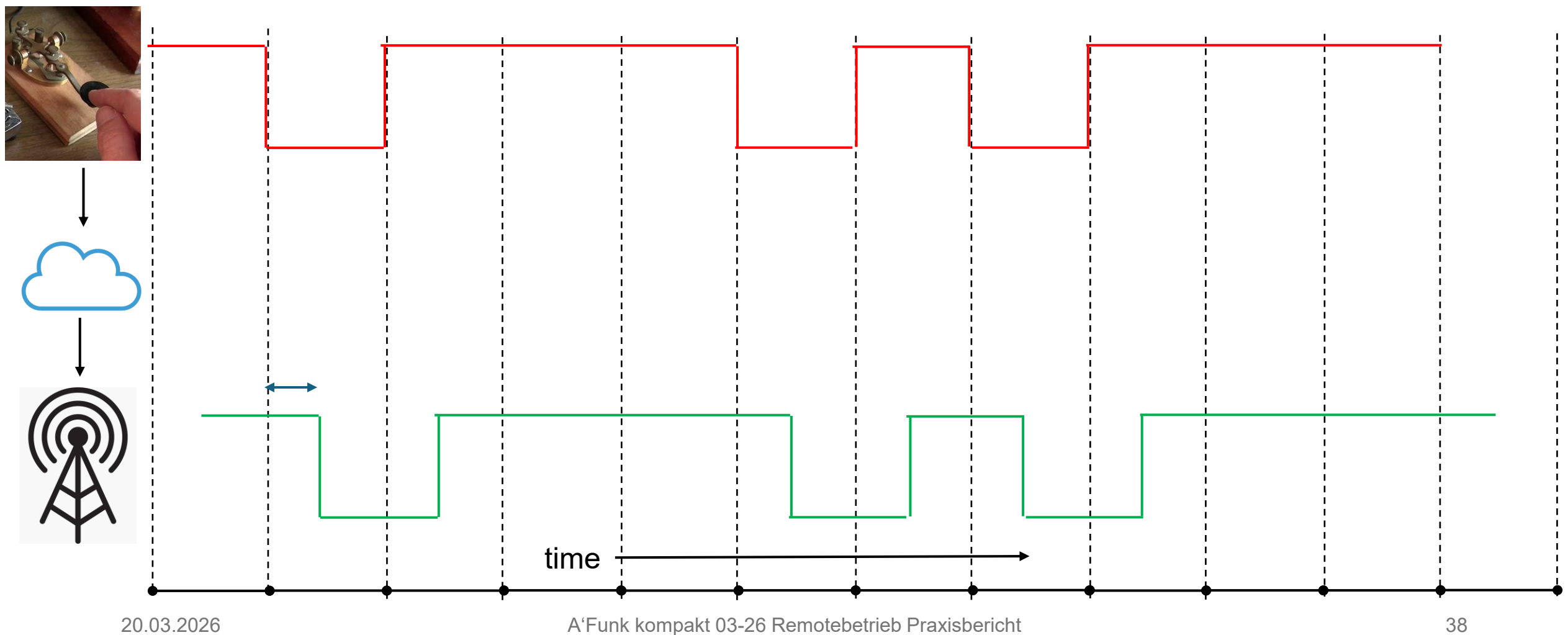
Transceiver PC



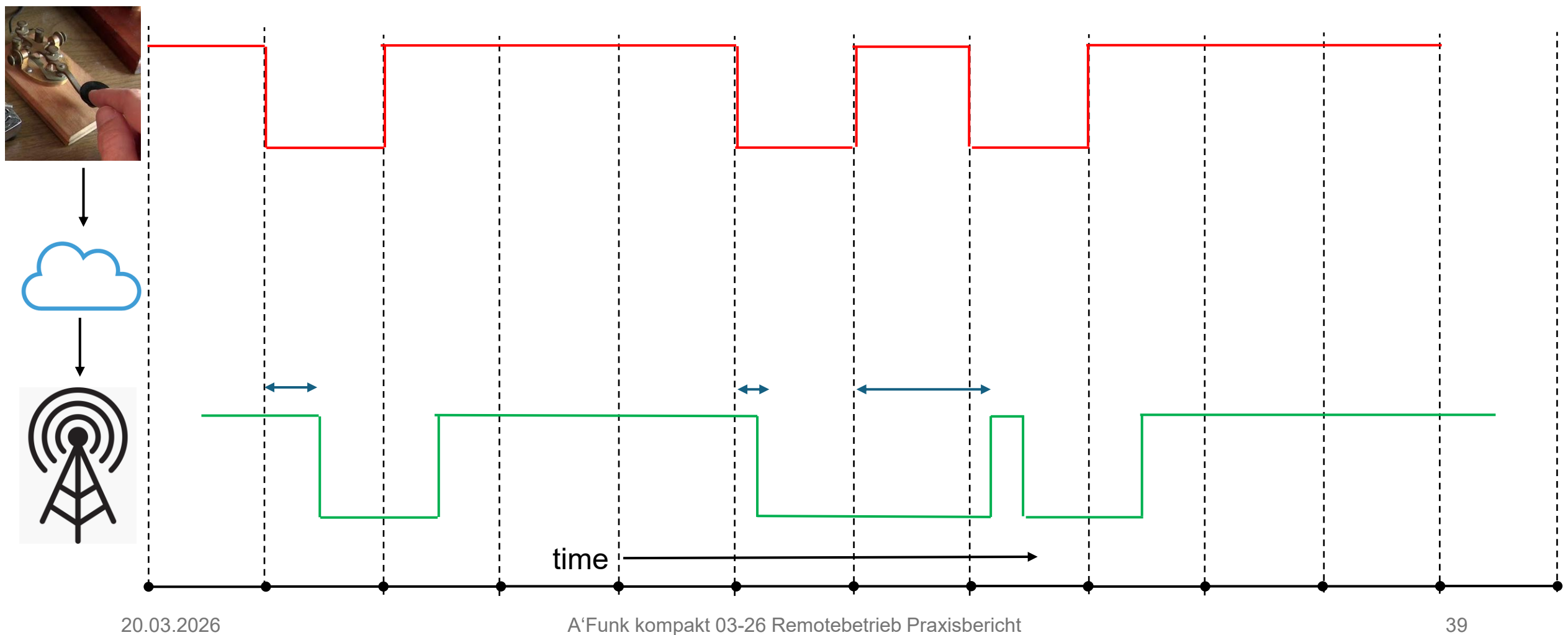
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CW Betrieb: Latenz



CW Betrieb: Jitter



Transceiver PC



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Remote CW Keyer [1] (Server)

File Settings Functions Help

idle remote cw keyer test de dl4yhf 2025-02-13 19:08:49

I/O Config | Keyer Settings | Audio | Network | Debug | Memory | Test | TRX

Network functionality

☐ Off (neither server nor client)

☒ **Server ("remote radio site")**

Local host : YHF6

URL localhost:7355

User

Call

Local IP Addr.: 192.168.178.22

Listening port : 7355

Accepted Users and Permissions:

Max:0,Moritz:7

☒ Enable HTTP Admin Password

Current Network Status

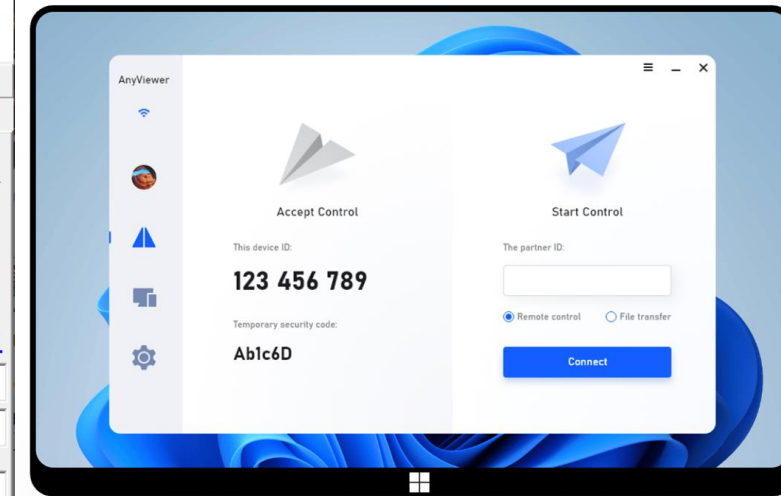
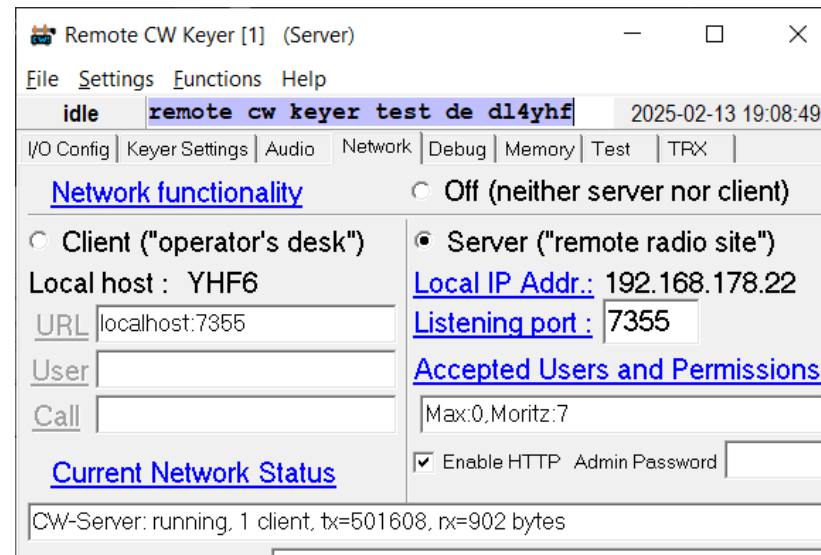
CW-Server: running, 1 client, tx=501608, rx=902 bytes

Quelle: DL4YHF

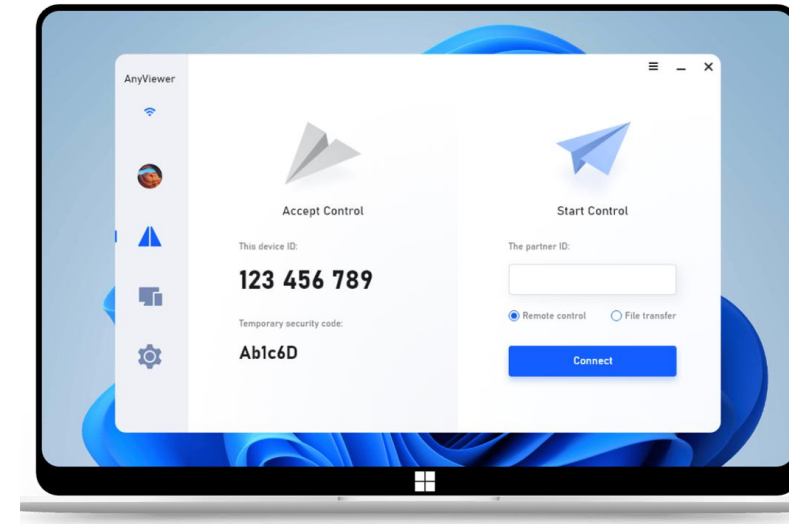
Steuerungs PC



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Remote CW Keyer [1] (Server)

File Settings Functions Help

idle remote cw keyer test de dl4yhf 2025-02-13 19:08:49

I/O Config | Keyer Settings | Audio | Network | Debug | Memory | Test | TRX |

Network functionality

☐ Off (neither server nor client)

☐ Client ("operator's desk")

Local host : YHF6

URL localhost:7355

User

Call

☒ Server ("remote radio site")

Local IP Addr.: 192.168.178.22

Listening port : 7355

Accepted Users and Permissions:

Max:0,Moritz:7

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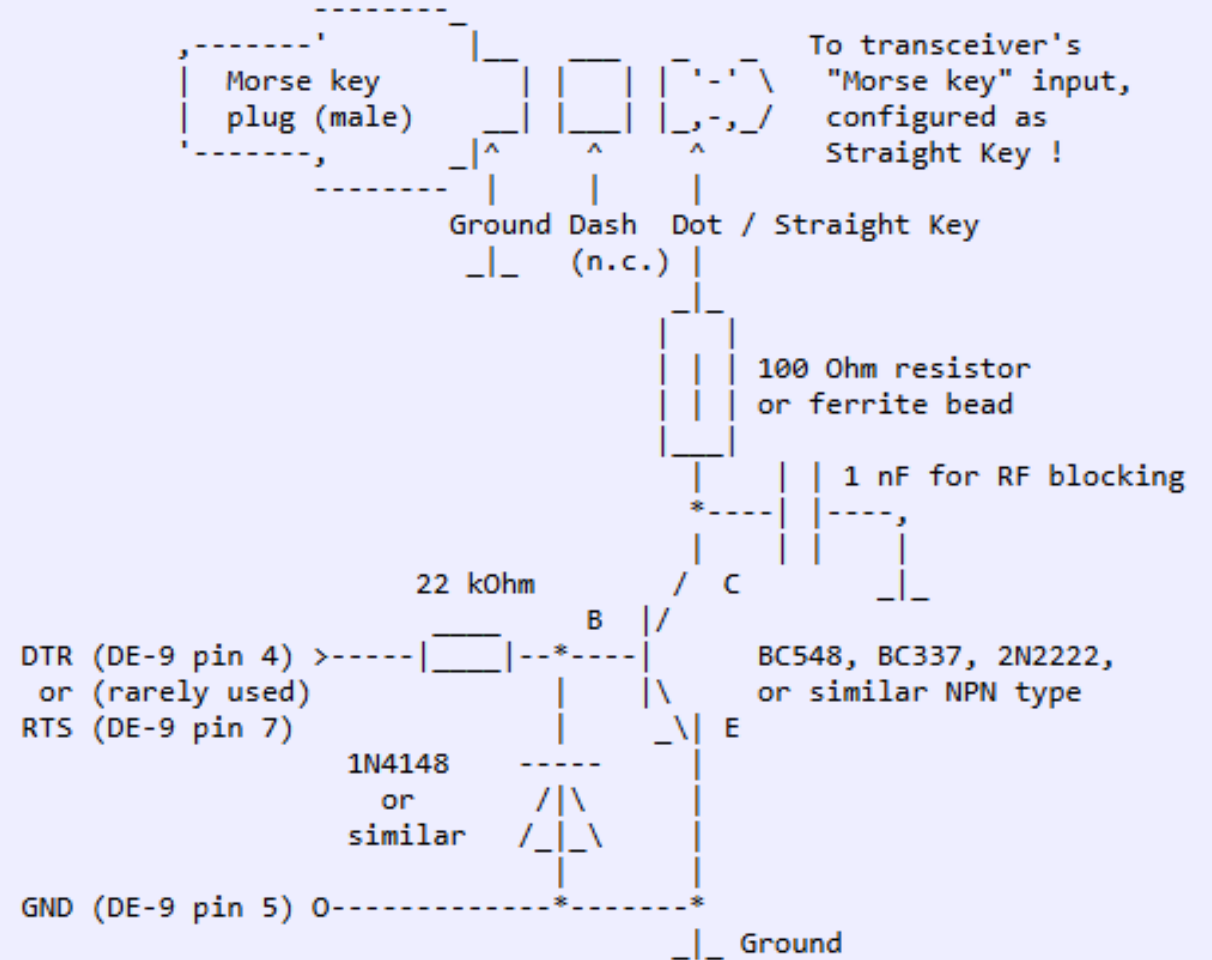
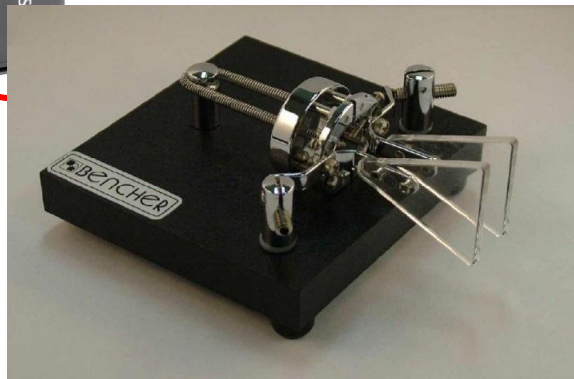
Current Network Status

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Steuerungs PC

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Kosten



750€



80€



70€



10€



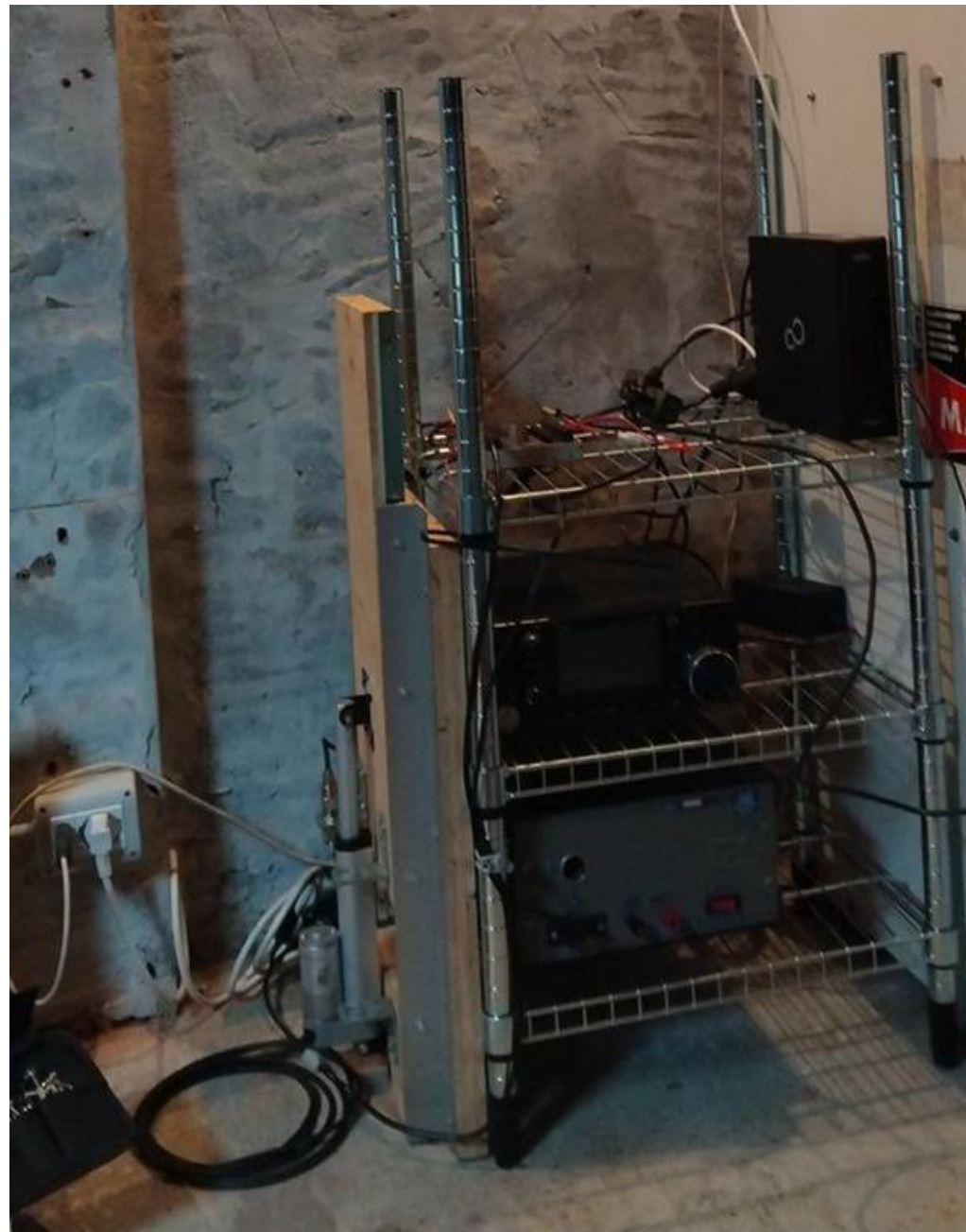
100€

Antennenswitch
Kabel
usw.

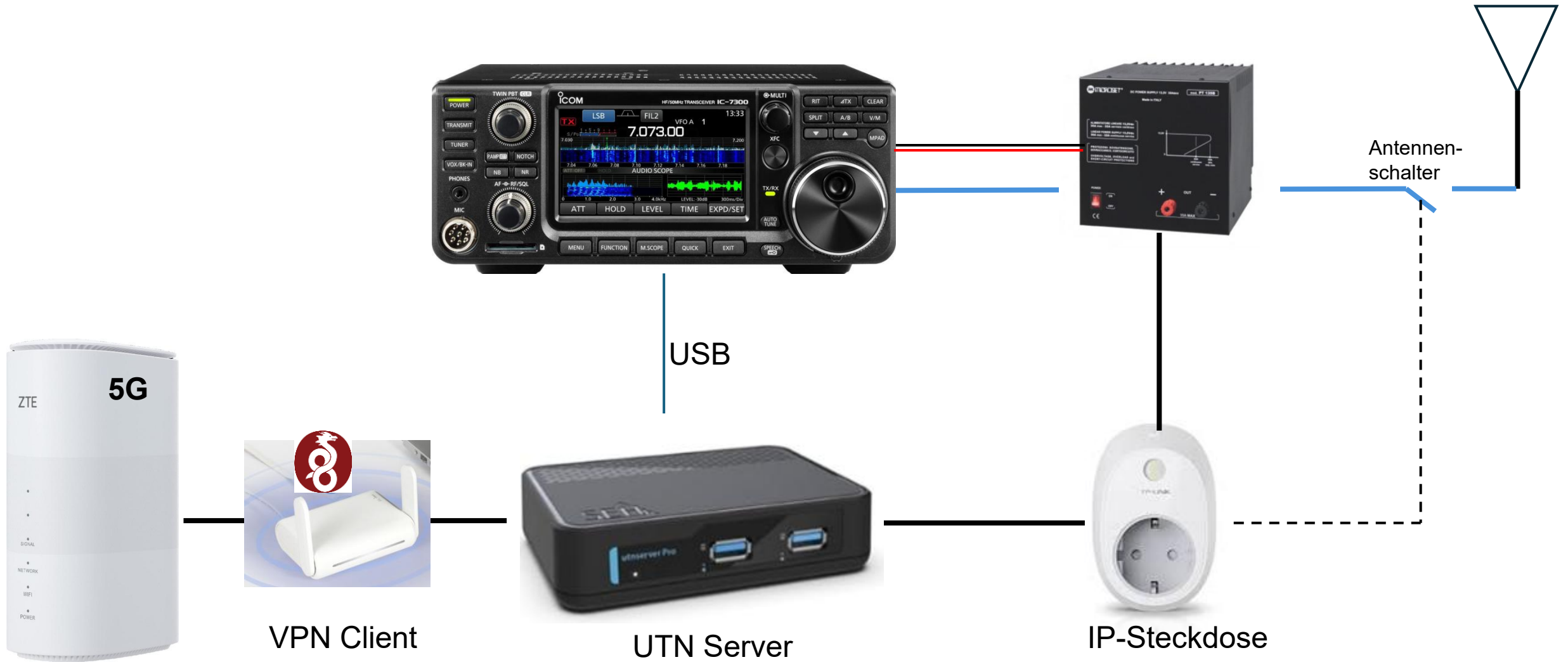
50€

~1.100€

~ “Radio in a Box”



Zukünftige Upgrades



Morse Code Network Interface

MORCONI



59A FIERA MERCATO NAZIONALE
DEL RADIOamatore
PESCARA

LA SOLUZIONE FINALE PER IL CW REMOTO

[HTTPS://WWW.MORCONI.COM](https://www.morconi.com)

MORCONI

von “Max” I8NHJ

Network Ready Endgerät

Latenzbehandlung

Dynamischer Puffer und eigenes Protokoll für die Latenzoptimierung

MORCONI Predictive Algorithmus

Vorhersage-Algorithmus und Timestamps zur Jitterkorrektur.

Internal Sidetone

MORCONI erzeugt lokal einen perfekten Sinuston, der sich problemlos in das Audiosignal des lokalen Computers oder anderer Audiogeräte integrieren lässt. Latenzfrei!

Kompatibel mit allen Transceivern

Monte della Guardia

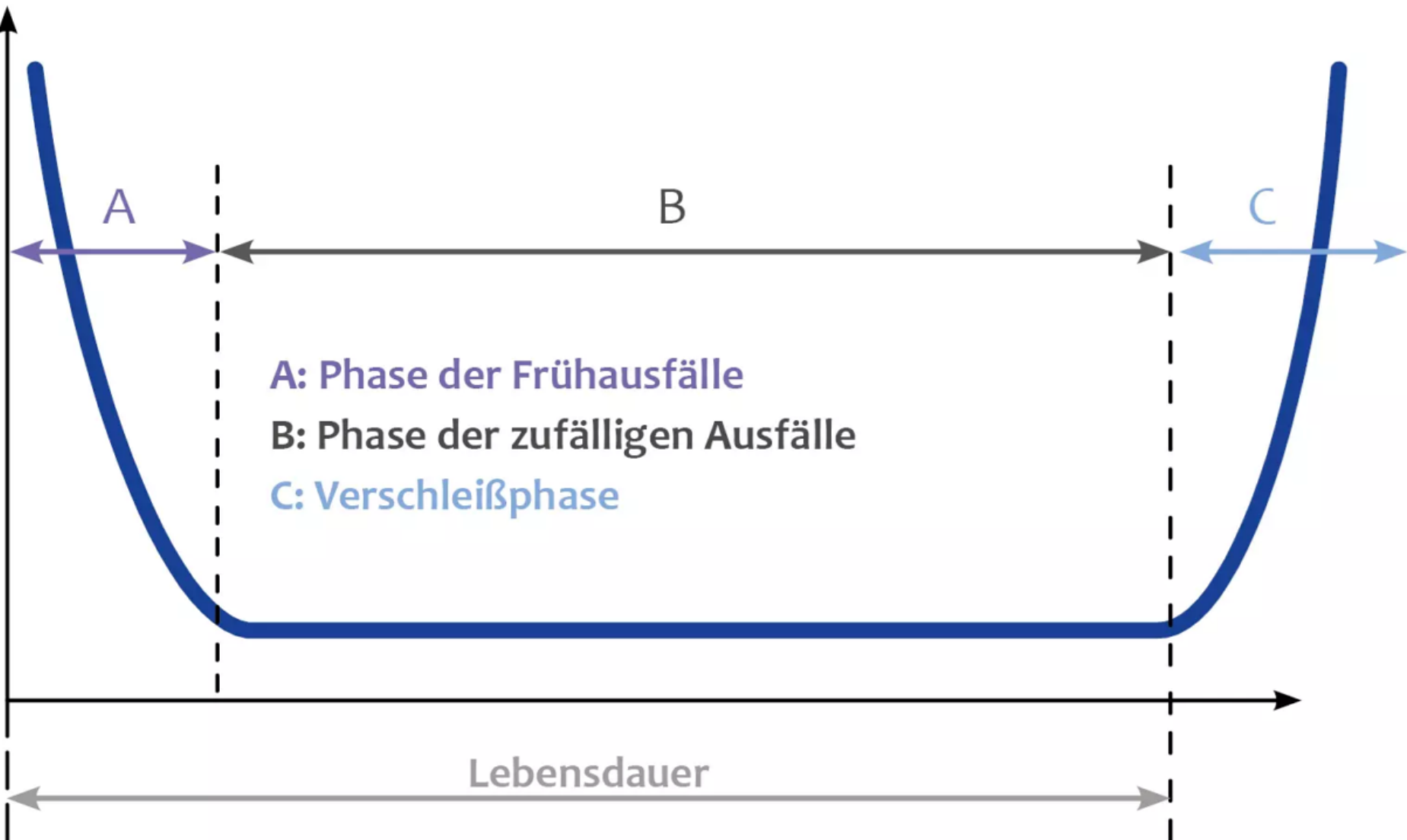


20.03.2026

A'Funk kompakt 03-26 Remotebetrieb Praxisbericht

Fehlerrate

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Links:

- [RemoteRig](#)
- [AnyViewer](#)
- [PL259 Stecker für Antennenschalter](#) (auch für N oder SMA)
- [Morconi](#)
- [WireGuard VPN](#)
- [DL4YHF Remote CW Keyer Utility](#)
- [Dynu DNS](#)
- [ICOM Remote Control Software](#)
- [Smart Fingerbot](#)