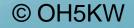


Fully Remote SDR station

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My Motivation

- I have been a DX-marathon chaser and a contester from early on. Then there was long semi -QRT period until the remote control era started.
- Already on last century (1985..) I had a dream to remote control my station.
- I thought: Let's do that when I'm RETIRED. But after studying how many sunspot maximums there are left for me: I realized, that I'm definitely retired ALREADY. If I want to "work them all" - SBB and CW and Digi –it is time to start.
- Remote controlling was like a new start for my hobby!

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History

- -First remote QSO 30.10.2006 in the same room.
- From 1/2007->Real remote controlling the whole station



- 2006 it was easy enough to start (Ham Radio Deluxe –software, Yaesu FT1000MP MK V and ADSL internet connection)
- Yaesu band data to home brew relay box. EA4TX antenna control system via remote desktop control (VNC, Timbuktu Pro or Teamweaver)
- Lightning -overvoltage damaged Yaesu power measurement diodes. Better protection needed!
- CW with 5 preprogrammed messages -> hundreds of new bandpoints worked!
- SSB with IPSound or Skype
- From 2010 -> Remoterig RRC-1258



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Flex500A

- Next radio was Flex 5000 via remote desktop and Remoterig RRCs. SDR advantage already, even controlled via remote desktop. Lightning damaged the RX ant OUT port once. CMOS RX-ant relay is sensitive to overvoltage.
- Key to success was QoS in ADSL router. ->Privilege given to RemoteRig protocols instead of graphics on the screen

How to make your remote station to survive 24/7/365

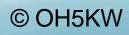


Single ground point and cable conduit OHDXF Cruise 2017

- Ground based cabling
- Single point grounding! Reduces noise and RFI also.
- Bewerage ant –protection



- *QST FEB 2017 Gas Discharge Tubes Putting the Lid on Lightning
- <--Use Metal Oxide Varistors on all control lines
- DO REGULAR SERVICE TO YOUR MAST EVERY SUMMER!
- Use electrical heating for mast rotor.
- Limit switches for the mast rotor are must. Errors DO happen when you are remoting



Links and ideas

- <u>http://www.arrl.org/lightning-</u> protection
- Radioamatööriaseman maadoitus OH2ID, Radioamatööri 1/2017
- <u>https://www.youtube.com/watch?v</u> =aUPRy7Sskxg
- Damages occur between networks: Radio connected via USB to PC - connected via Ethernet to LAN etc. -Where ever best ground is found for lightning energy. Use single point grounding for ALL networks and all lines with overvoltage protectors.
- Build extensive ground network.

The Lightning Killer \rightarrow



Cables grounded at mast base.

© OH5KW

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It happens!



Damaged lightning arrestor

- <u>https://www.arraysolutions.co</u>
 <u>m/surge-and-rf-protection</u>
- <u>https://www.dxengineering.co</u>
 <u>m</u>
- Protect also the RX output port
- Use professional grade solutions, spend time and money.
- KY6LA: "How To Buil a Quiet Satation –v2"

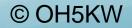
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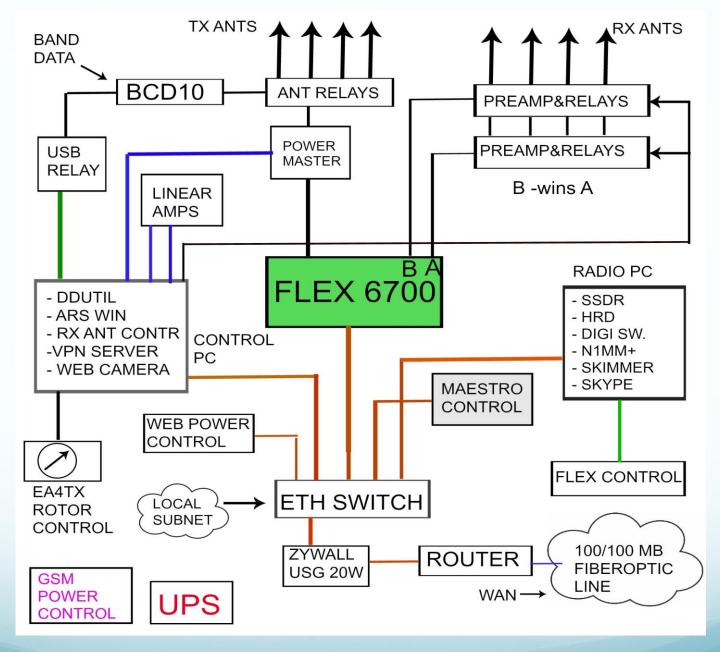
FLEX 6700 remote



Well suited for remote control. Radio (server) is Ethernet controlled
Can stream bandmap and audio to a remote device
Supports multiple control clients
Good receiver, diversity, full duplex
8 receivers on several bands at the same time
Native WAN support coming –less bitts out, no VPN server setup
New features are added to software many times a year
Can be remote controlled with handheld devices too
Macintosh software available

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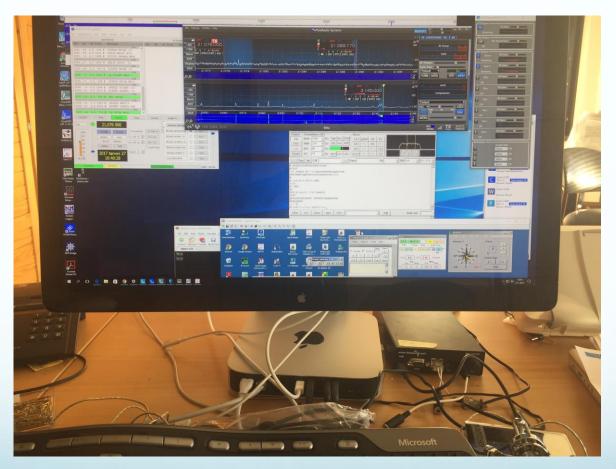




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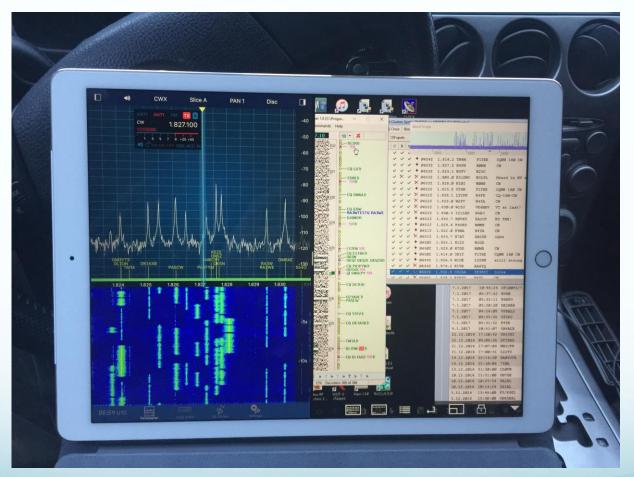
Super Simplified Flow Chart © OH5KW

Remote controlling with PC



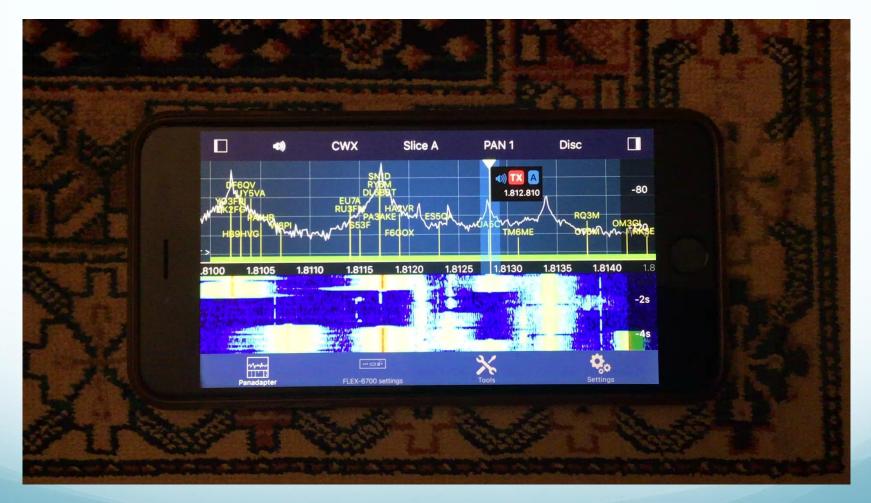
Two digimodes decoded and SSB listened on two bands at the same time. OHDXF Cruise 2017 © OH5KW

Remote controlling with iPad



Waiting in my car...systems running; skimmer and HRD logbook. OHDXF Cruise 2017 © OH5KW

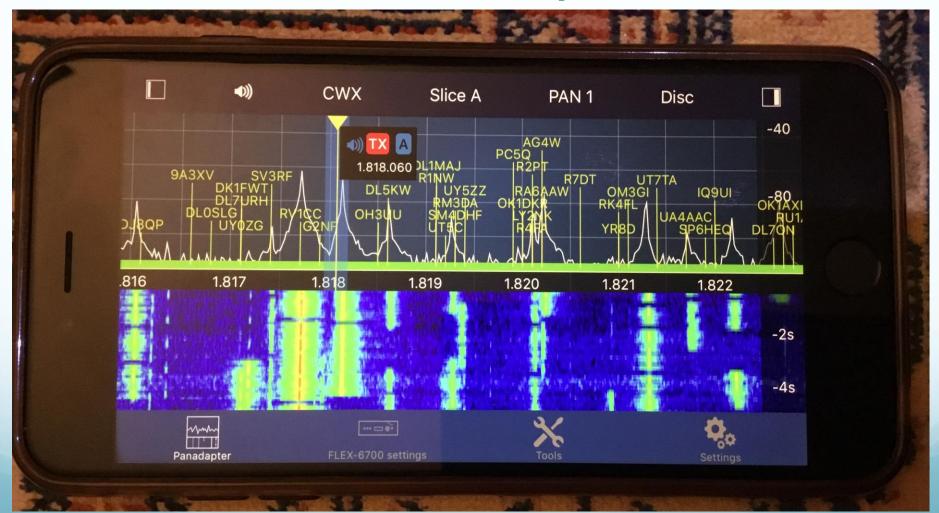
Remote controlling with iPhone



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video

iPhone screen filled with local Skimmer-spots

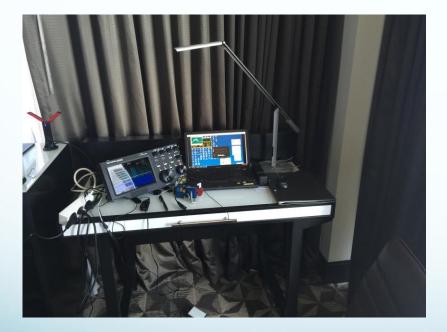


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On the road with a Maestro

Setup

CY9C BBS, a new modepoint, W4-remote





video

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Summa Summarum

- There is no easy way to do remote controlling, SDR or legacy
- If something is not working, as it often happens: Be like Kimi Räikkönen; Stay calm! -Every remote QSO is better than NO QSO at all!
- Do it like professionals; Double systems, do not go to cheap solutions, protect your investments against mother nature
- Flex6000 ecosystem is growing; bright future ahead. More HW support is coming. WAN remote support in software is soon here!
- Remote contesting is possible, SO2R with one radio doable
- Take the challenge now –next sunspot maximum is on it's way

Pse QRX, a demo will start soon...

• Thank you

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