

# Wizkers:Radio

A new kind of HAM Radio controller and toolbox



<http://www.wizkers.io/wizkersradio>



Wizkers.io

Listen

Store data

Visualize

Monitor

Configure

Share



# What makes Wizkers different

**Universal:** all OS, all hardware



**Open:** shares data with 3rd parties. Open Source, MIT license

# What is Wizkers:Radio ?



**User experience** : realistic radio controls and panels + quick controls

**Monitoring**: Monitor operating parameters on the radios and instrumentation

**Open**: supports multiple rig control protocols - simultaneously!

**Configuration**: in-depth configuration of your equipment

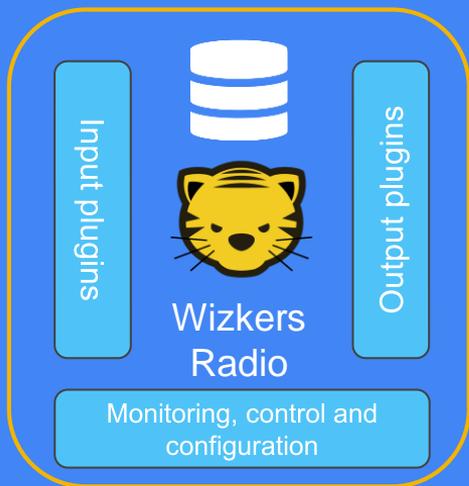
**Toolbox**: Supports HAM-related equipment beyond rigs

# Wizkers:Radio at a glance

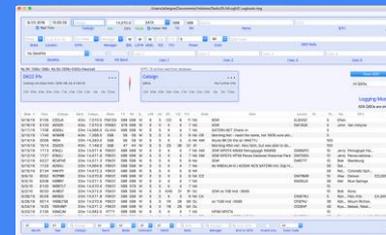
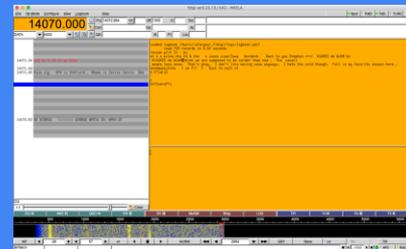


Your rig

Wifi  
Ethernet  
USB  
Serial  
Bluetooth  
...



http  
XML-RPC  
Rigctl  
WebRTC  
TCP/IP

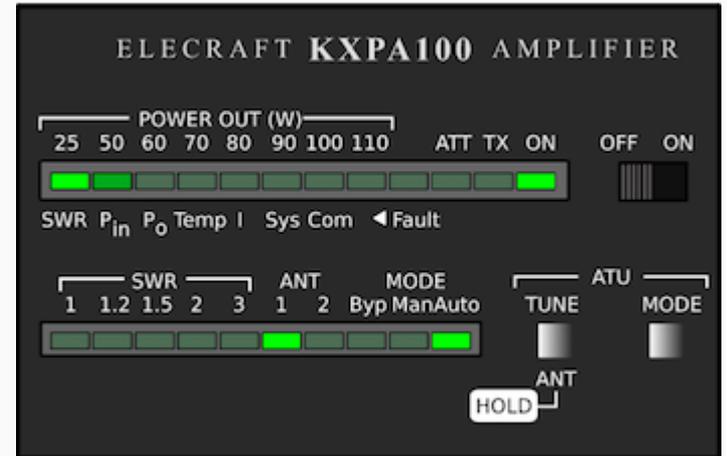


Management & Visualisation

Ham Radio Software

#0 Supported equipment

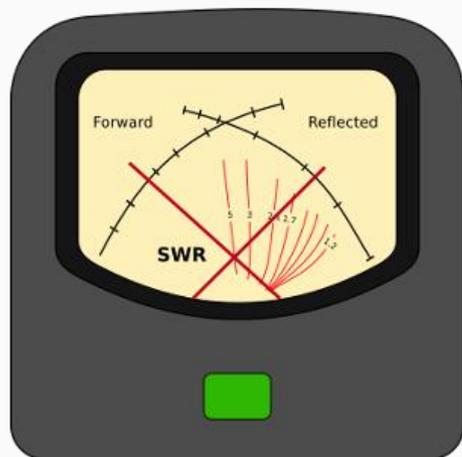
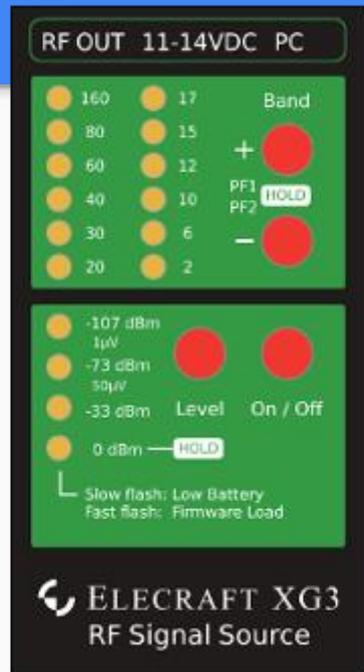
# Elecraft rig support



... and a couple of others too



# Non-radio



#1: Rig connection

# Connect any way you want

- Direct serial/USB
  - Any serial to USB cable
  - Any serial cable if your computer has one!
  - Native USB (not serial over USB)
- Bluetooth dongle
  - “Classic” bluetooth 100% supported
  - Bluetooth LE support coming up
- Wifi dongle
  - Pignology Piglet works great!



# #2: How to run Wizkers:Radio

# Run it anywhere!



## Run on a Single Board Computer

Widely tested on Raspberry Pi and BeagleBone

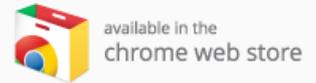
Built-in access control

Provides a web interface that is 100% identical to the desktop app

## Run on your laptop/desktop as a desktop app

Linux, Windows and MacOS supported

Both as “Chrome App” and native



#3 So what does it do?

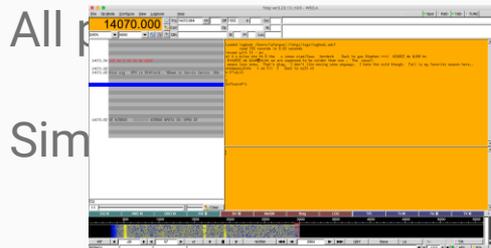
# #1 “Classic” rig control

Frequency, mode, etc

Support for:

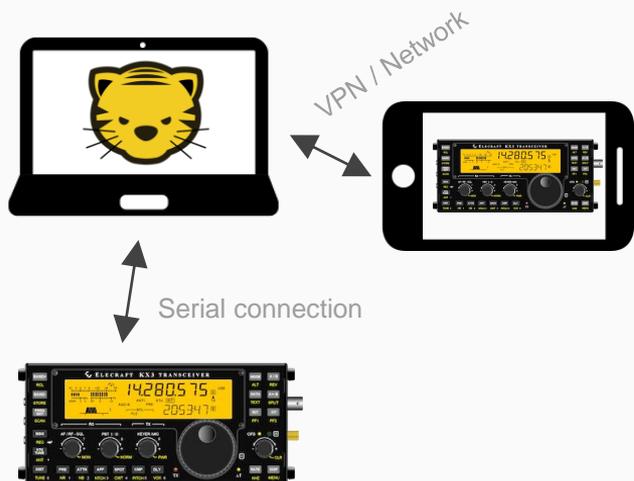
XML-RPC (fldigi)

Hamlib rigctld

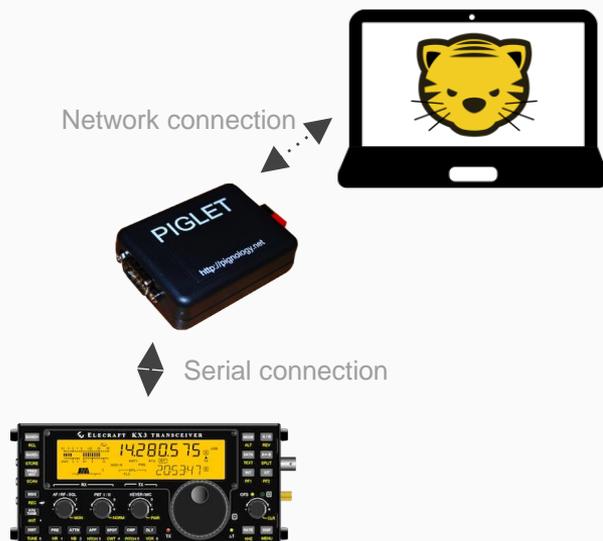


## #2 Remote rig control

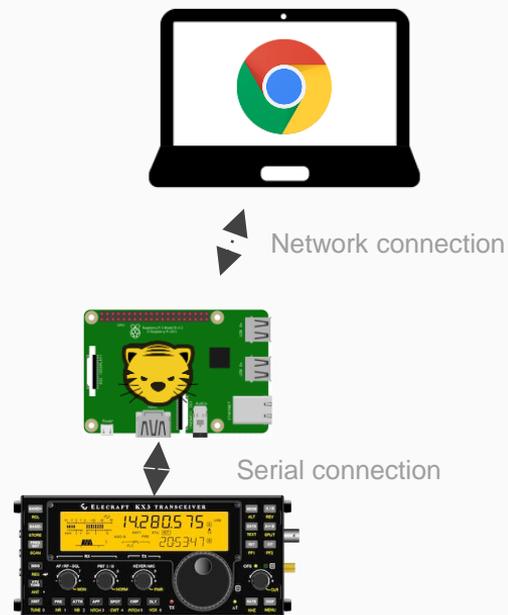
“Wizkers Netlink”  
Wizkers to Wizkers



“Piglet” or similar  
(Serial-over-WiFi)



Remote through  
Web browser



... no audio, not firewall/router traversal  
Yet.

# #3 Rig monitoring

Wizkers:Radio Instruments Data outputs Settings About

CONNECT TO KX3 DEVICE SETUP

Real time screen updates Including SWR/Power

Power, temperature, voltage, current monitor

Device monitoring NO TCP CLIENT

PA.X: 31.7°C

Input: 0W, Output: 0W, Reflected: 0W

Supply: 0 A, 12.88 V

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# #3 Rig monitoring: KXPA100 example

Wizkers:Radio

Instruments

Data outputs

Settings

About

DISCONNECT KXPA100

## Amplifier

Fault: NO FAULT

PA Bypass

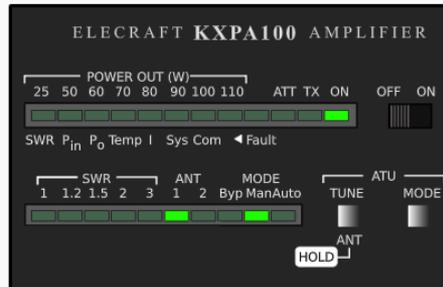
Attenuator

Dissipated Power: 0.0

Drain Current: 0

Supply Voltage: 13.14

Temperature: 22.1



Input Power: 0

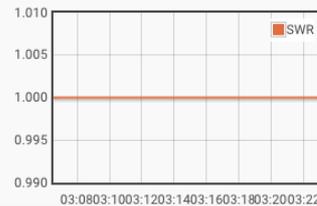
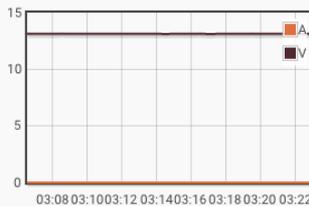
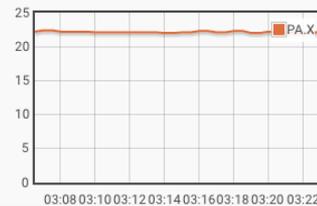
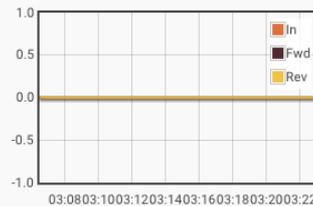
Reflected Power: 0

Frequency: 00000

Forward Power: 0

Last SWR: 1

Band: 05



## Antenna Tuner

Mode: Manual

Capacitance (pF)

Inductance (nH)

Antenna: 1

Total: 72

Total: 480

Tune

ATU Bypassed

Caps on Tx side

1360

660

300

150

82

40

22

10

9000

4400

2100

1000

480

230

110

50

# #4 Configuration - Elecraft

Elecraft's CAT protocol is extremely extensive and enables in-depth rig configuration

Wizkers:Radio Instruments Data outputs Settings About

Diagnostics **KX3** KXPA100 PX3

Audio Band config **Memories** Flash Explorer

### Radio Memories

Memory to read: 6  READ ALL FROM RADIO

ID	Label	Description	VFO A	Mode A	Data Mode	VFO B	Split	Mode B	Offset	PL Tone
1	TEST2	.....23	14.123456	DATA-REV	FSK D	14.123456	<input type="checkbox"/>	USB	0	
2	CW	C	4.5	CW	DATA A	4.5	<input type="checkbox"/>	CW	0.5	
3	FM1	FM setting no tones	145.123456	FM	DATA A	144.39	<input type="checkbox"/>	AM	0	
4	FM2	FM with PL/Tones	145.123456	FM	DATA A	144.39	<input type="checkbox"/>	FM	-1.7	94.8
5	FM3	FM with offset no PL	145.123456	FM	DATA A	144.39	<input type="checkbox"/>	FM	-1.7	
6	TEST4	test_test_test_test_te	14.123456	DATA	DATA A	14.123456	<input type="checkbox"/>	USB	0	

# #4 Configuration - Memory management

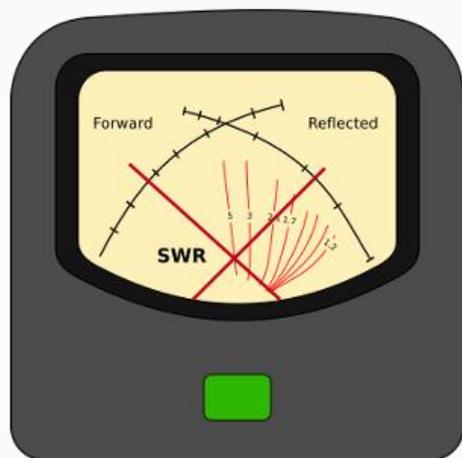
READ FROM RADIO

## Memories

0 to 99 100 to 199 200 to 299 300 to 399 400 to 499 500 to 599 600 to 699 700 to 799 800 to 899 900 to 999

ID	Name	Freq	Mode	SQL Mode	Tone	CTCSS	DCS	Duplex	Offset	Tune Step	Skip	
0	N6NFI	145.23	FM	Tone	100	88.5	23	-	0.6	5.0	<input type="checkbox"/>	⊕
1	N0ARY	145.09	FM	None	100	88.5	23	Off	0	5.0	<input type="checkbox"/>	⊕
2	APRS	144.39	FM	None	67	67	23	Off	0	5.0	<input type="checkbox"/>	⊕
3	NORCAL	145.05	FM	None	67	67	23	Off	0	5.0	<input type="checkbox"/>	⊕
4	WL2K-1	145.63	FM	None	67	67	23	Off	0	5.0	<input type="checkbox"/>	⊕
5	N1NSA	444.1	FM	Tone	218.1	67	23	+	5	6.25	<input type="checkbox"/>	⊕
6	W6ASH	145.27	FM	Tone	100	67	23	-	0.6	5.0	<input type="checkbox"/>	⊕
7			FM	None	67	67	23	Off	0	5.0	<input type="checkbox"/>	⊕
8			FM	None	67	67	23	Off	0	5.0	<input type="checkbox"/>	⊕

# #5 - Instrumentation



# Extended XG3 Utility

**Wizkers:Radio** Instruments Data outputs Settings About

▶ CONNECT TO XG3 DEVICE SETUP RECORD

**RF OUT 11-14VDC PC**

Band

160 17  
80 15  
60 12  
40 10 PF1 HOLD  
30 6 PF2  
20 2

-107 dBm 1μV  
-73 dBm  
-33 dBm Level On / Off  
0 dBm HOLD

Slow flash: Low Battery  
Fast flash: Firmware Load

**ELECRAFT XG3**  
RF Signal Source

**Direct control**

Current frequency (MHz) 14.070

Enable output

**Beacon Mode**

Beacon

SYNTAX HELP SEND BEACON

Send immediately

SEND AS CW SEND AS RTTY

Morse WPM

**Frequency Memories** SAVE

160	1.82	17	18.12
80	3.52	15	21.02
60	5.3305	12	24.9
40	7.02	10	28.02
30	10.12	6	50.12
20	14.02	2	144.22

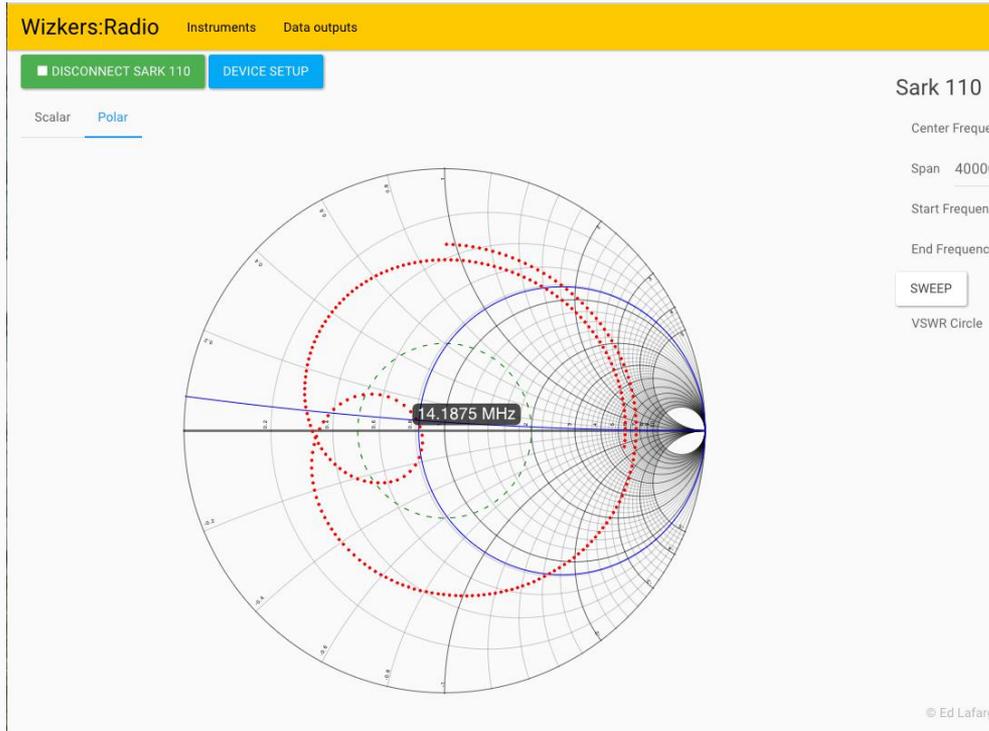
**Sweep control**

Start 14.0 End 14.1

Step 0.1 Step time (ms) 100

Repeat  SWEEP

# Graphing / SWR Reading / Monitoring



## Sark 110

Center Freq

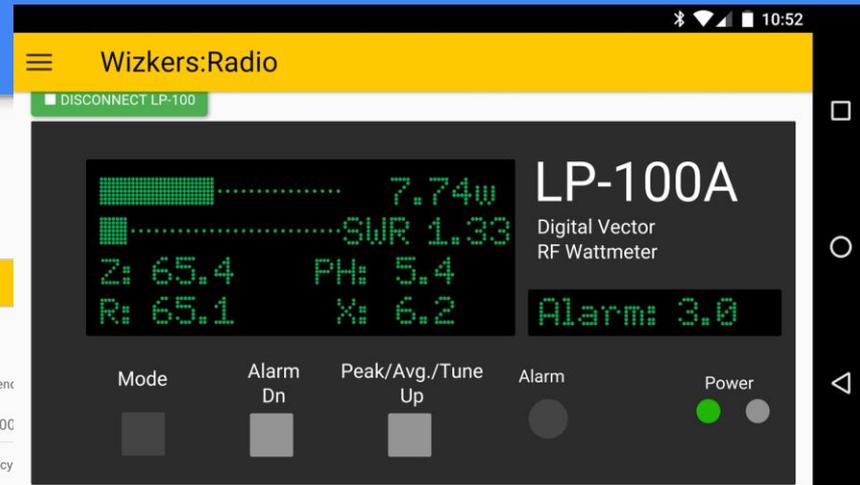
Span 400000

Start Frequency

End Frequency 16000000

SWEEP

VSWR Circle 2



# Using Radios for other tasks: S-Level monitoring, SWR Sweep



# Demo - Elecraft KX3 / KXPA100 / PX3

Main panel

Memories

Direct input

Rig main panel simulation

Amp monitoring

Rig configuration

PX3 Screenshots

Memory editor

Where to?

# Next steps

Visit <http://wizkers.io/wizkersradio>

Join <http://forum.wizkers.io/>

Visit <http://github.com/wizkers>



HOME PRODUCTS SHOWCASE BUY OR DIY SUPPORT NEWS ABOUT CONTACT

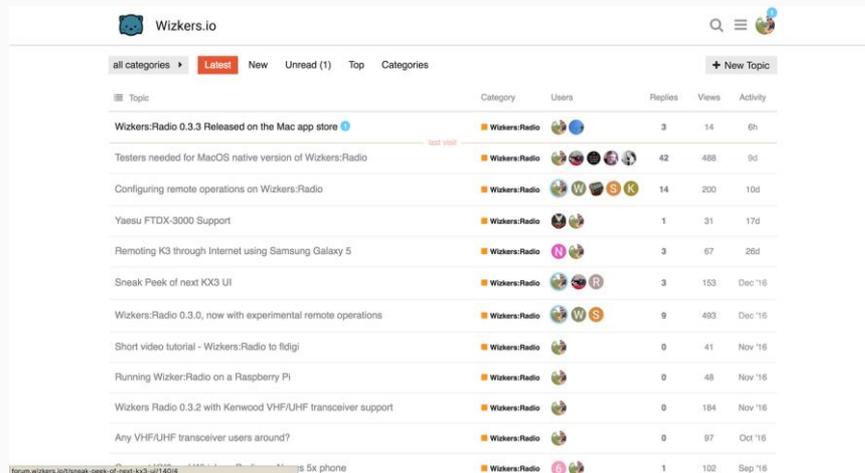
## Introducing Wizkers:Radio

Wizkers:Radio is a completely new type of rig controller, based on the Wizkers framework. It is the only rig controller app which will work as well on an Android phone or tablet, a Chromebook, or a Mac, Linux or Windows computer.

No matter what the device you are running it on, Wizkers:Radio gives you not only direct access to VFOs and a couple of settings, like most rig controllers do, but to a complete operation dashboard including unique capabilities such as

- Complete working copy of the radio front panel
- "Memory cards" for quick access to frequencies
- Monitoring and graphing of all radio and amplifier parameters: temperature, power, voltage, current

GET IT ON Google Play available in the Chrome web store Amazon Available at amazon Download on the Mac App Store



Wizkers.io

all categories Latest New Unread (1) Top Categories + New Topic

Topic	Category	Users	Replies	Views	Activity
Wizkers:Radio 0.3.3 Released on the Mac app store	Wizkers:Radio	2	3	14	6h
Testers needed for MacOS native version of Wizkers:Radio	Wizkers:Radio	10	42	488	9d
Configuring remote operations on Wizkers:Radio	Wizkers:Radio	10	14	200	10d
Yaesu FTDX-3000 Support	Wizkers:Radio	2	1	31	17d
Remoting K3 through Internet using Samsung Galaxy 5	Wizkers:Radio	2	3	67	26d
Sneak Peek of next KX3 UI	Wizkers:Radio	10	3	153	Dec '16
Wizkers:Radio 0.3.0, now with experimental remote operations	Wizkers:Radio	10	9	493	Dec '16
Short video tutorial - Wizkers:Radio to fldigi	Wizkers:Radio	1	0	41	Nov '16
Running Wizker:Radio on a Raspberry Pi	Wizkers:Radio	1	0	48	Nov '16
Wizkers Radio 0.3.2 with Kenwood VHF/UHF transceiver support	Wizkers:Radio	1	0	184	Nov '16
Any VHF/UHF transceiver users around?	Wizkers:Radio	1	0	97	Oct '16
forum.wizkers.io/sneak-peek-of-next-kx3-ui/1404	Wizkers:Radio	10	1	102	Sep '16

# Want to contribute ?



100% Javascript framework

Well documented code

Very modular architecture- adding a new radio/link/etc is just a couple of files

Large existing codebase - copy, adapt, improve

MIT License

# 2017 Roadmap

100% LCD emulation - nearly there!

IOS App

More radios and equipment - need access to hardware or volunteers! (hint hint)

Add audio for remote control using WebRTC

Simple logging

... open to suggestions from the crowd!

# Thank you!

wizkers.io  
ed@wizkers.io