VARA UND VARAC

JÜRGEN WIEGAND
WWW.DL6WAB.DE

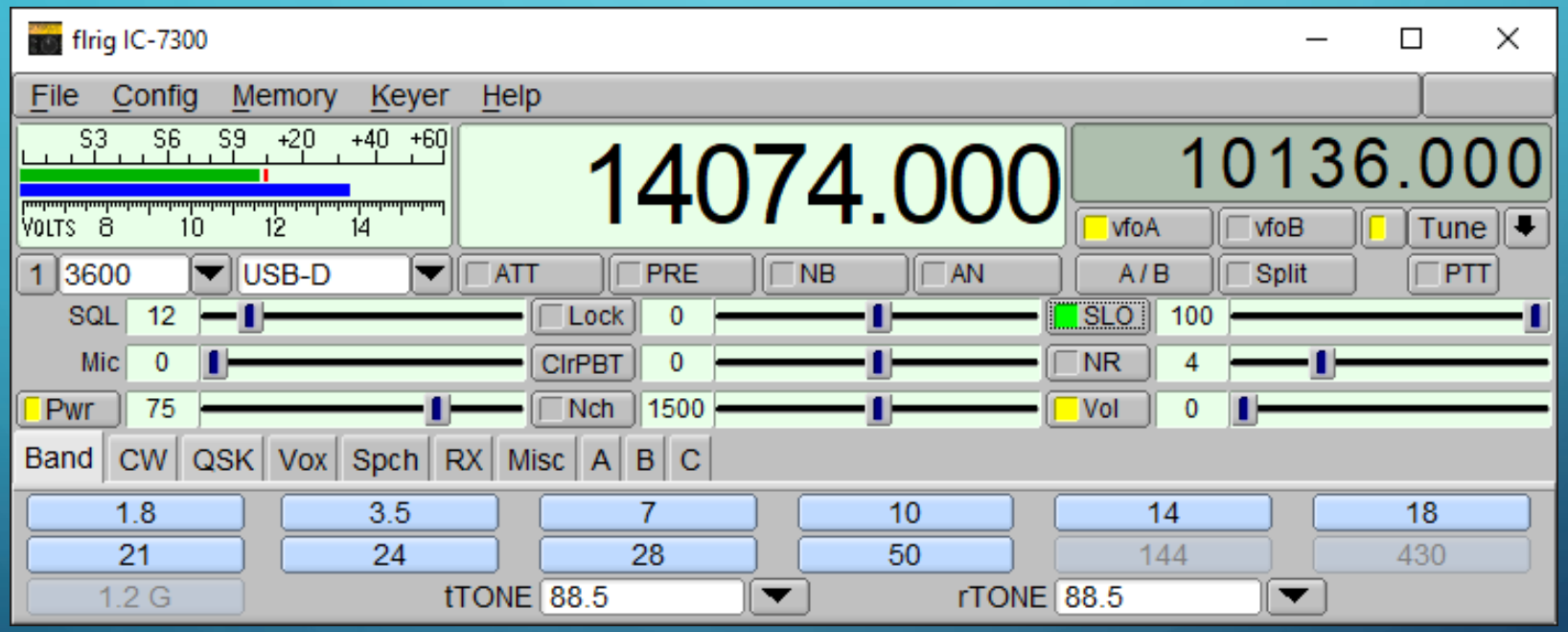
WELCHE GERÄTE?

- TRX (Transceiver, SSB (HF), FM (VHF, UHF)
  - ACC Buchse (Zubehörbuchse, mehrpolig)
  - Remote Buchse (3,5 mm Klinke, CI-V Kommandos, ICOM Geräte)
  - USB Buchse
- PC (Windows)
- Evtl. „Soundkarteninterface“ (Audio, PTT, CAT)

FUNKTIONEN?

- AUDIO Interface (Audio IN, Audio OUT)
- PTT Steuerung (Push to Talk)
- CAT Steuerung (Computer Aided Transceiver)

CAT STEUERUNG IC 7300 (FLRIG GUI)



CAT INTERFACE (CI-V ICOM GERÄTE)

SCHNITTSTELLEN IC 718

ACC BUCHSE IC 718

ACC	PIN #	NAME	DESCRIPTION	SPECIFICATIONS
 Rear panel view	1	8 V	Regulated 8 V output.	Output voltage : 8 V ±0.3 V Output current : Less than 10 mA
	2	GND	Connects to ground.	————
	3	SEND	Input/output pin. Goes to ground when transmitting. When grounded, transmits.	Ground level : –0.5 V to 0.8 V Input current : Less than 20 mA
	4	BDT	Data line for the optional AT-180.	————
	5	BAND	Band voltage output. (Varies with amateur band)	Output voltage : 0 to 8.0 V
	6	ALC	ALC voltage input.	Control voltage : –4 to 0 V Input impedance : More than 10 kΩ
	7	NC	————	————
	8	13.8 V	13.8 V output when power is ON.	Output current : Max. 1 A
	9	TKEY	Key line for the AT-180.	————
	10	FSKK	RTTY keying input.	Ground level : –0.5 to 0.8 V Input current : Less than 10 mA
	11	MOD	Modulator input.	Input impedance : 10 kΩ Input level : Approx. 100 mV rms
	12	AF	AF detector output. Fixed, regardless of [AF] position.	Output impedance : 4.7 kΩ Output level : 100 to 300 mV rms
	13	SQLS	Squelch output. Goes to ground when squelch opens.	SQL open : Less than 0.3 V/5 mA SQL closed : More than 6.0 V/100 µA

INTERFACE


USB Interface III
microHAM
TX
RX
PWR SQL CONTROL PTT CW MIN MAX MIN MAX

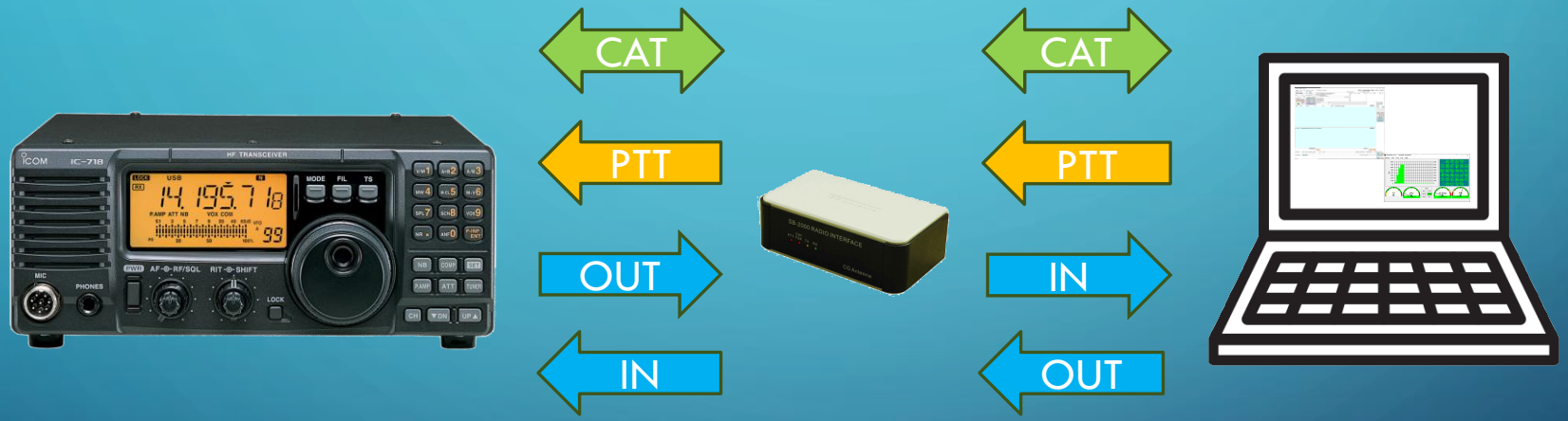

YAESU
USB INTERFACE UNIT SCU-17
MIN MAX MIN MAX
FSK
PTT
POWER
RX LEVEL TX


SB-2000 RADIO INTERFACE
PTT CW/FSK TX RX
CG Antenna


RigExpert TI-8
ON CW PTT CAT FSK
Main
Sub
TX


SignaLink™ USB
PWR
PTT
TX
RX
DLY
Integrated USB Sound Card

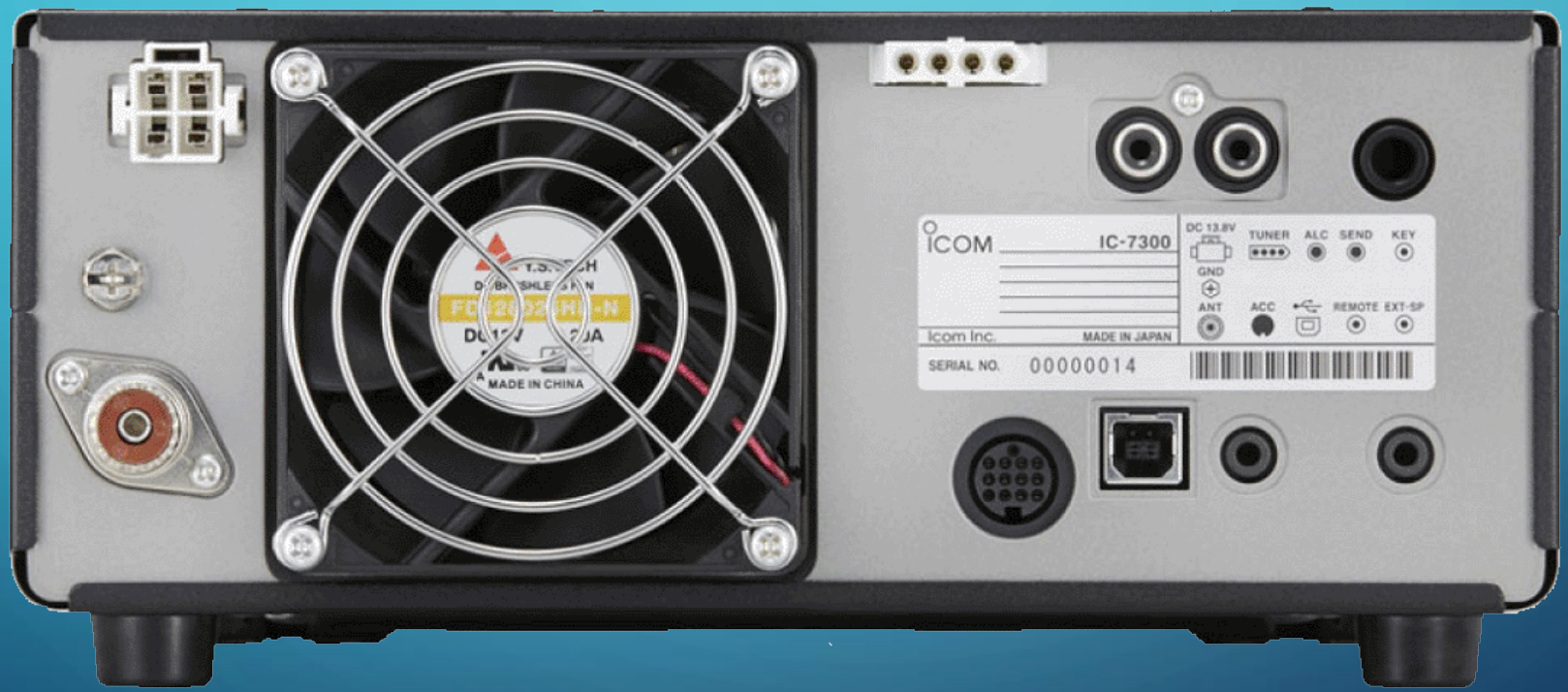
MIT EXTERNEM INTERFACE (ACC, REMOTE)



INTERFACE LINKS

- https://www.cgantenna.be (SB 2000)
- https://tigertronics.com (Signalink)
- https://unicomradio.com (Kabelinterface)
- https://www.microham.com (USB Interface III)

SCHNITTSTELLEN IC 7300 (USB)



ACC BUCHSE IC 7300

• ACC socket

ACC	PIN No.	NAME	DESCRIPTION	SPECIFICATIONS
13-pin  Rear panel view ① brown ⑧ gray ② red ⑨ white ③ orange ⑩ black ④ yellow ⑪ pink ⑤ green ⑫ light blue ⑥ blue ⑦ purple ⑬ light green Color refers to the cable strands of the supplied cable.	1	8 V	Regulated 8 V output. (Used as the reference voltage for the band voltage.)	Output voltage: 8 V ±0.3 V Output current: Less than 10 mA
	2	GND	Connects to ground.	—
	3	SEND*1	Input/output pin. An external unit controls the transceiver. When this pin goes to ground, the transceiver transmits.	Input voltage (RX): 2.0 to 20.0 V Input voltage (TX): –0.5 to +0.8 V Current flow: Maximum 20 mA
			The pin goes low when the transceiver transmits.	Output voltage (TX): Less than 0.1 V Current flow: Maximum 200 mA
	4	BDT	Not used.	—
	5	BAND	Band voltage output. (Varies with the selected amateur band)	Output voltage: 0 to 8.0 V
	6	ALC	ALC voltage input.	Input level: –4 to 0 V Input impedance: More than 3.3 kΩ
	7	NC	—	—
	8	13.8 V	13.8 V output when power is ON.	Output current: Maximum 1 A
	9	TKEY	Not used.	—
	10	FSKK	Controls RTTY keying.	High level: More than 2.4 V Low level: Less than 0.6 V Output current: Less than 2 mA
	11	MOD	Modulator input.	Input impedance: 10 kΩ Input level: 100 mV rms*3
	12	AF/IF (IF=12 kHz)*2	Fixed AF detector or receive IF (12 kHz) signal output.	Output impedance: 4.7 kΩ Output level: 100 ~ 300 mV rms*4
	13	SQL S	Squelch output. Grounded when the squelch opens.	SQL open: Less than 0.3 V/5 mA SQL closed: More than 6.0 V/100 µA

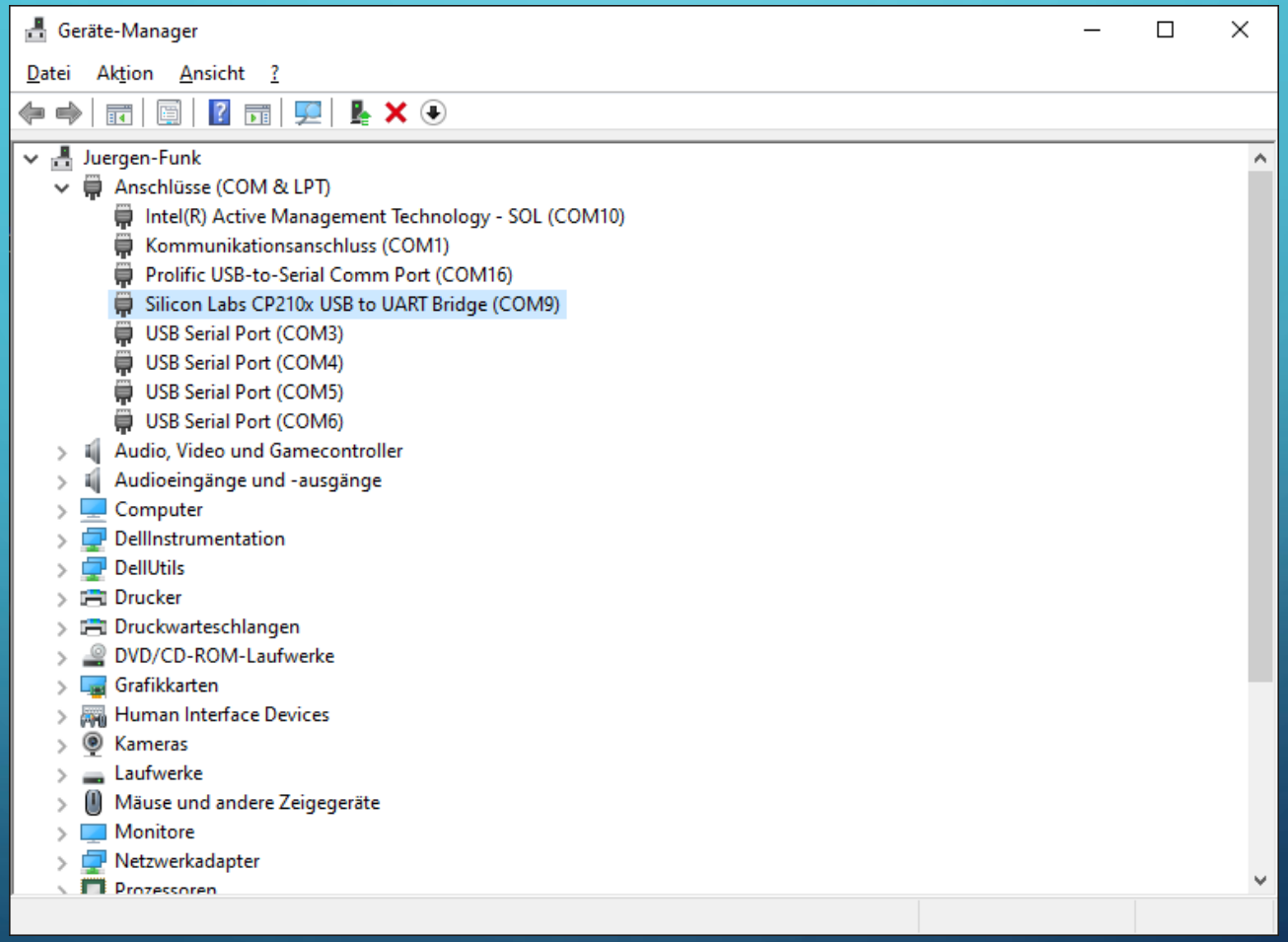
OHNE EXTERNES INTERFACE

Audio, PTT, CAT (USB)

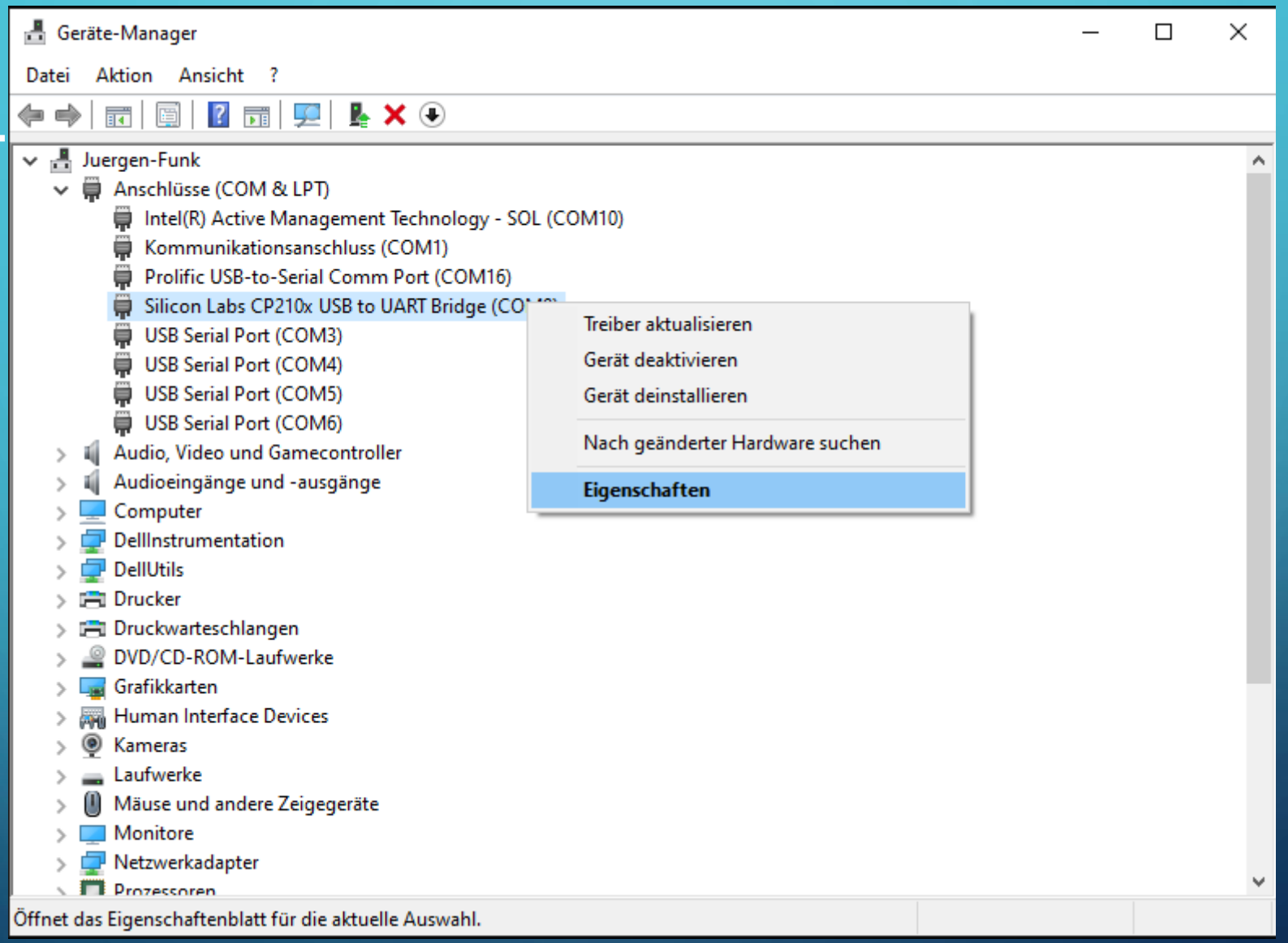
INTERFACE IDENTIFIZIEREN

- 1 oder 2 neue serielle Schnittstellen (COM)
  - CAT
  - PTT
- 0 oder 1 neuen Audiocontroller (Soundkarte)
  - neuer Audioeingang
  - neuer Audioausgang

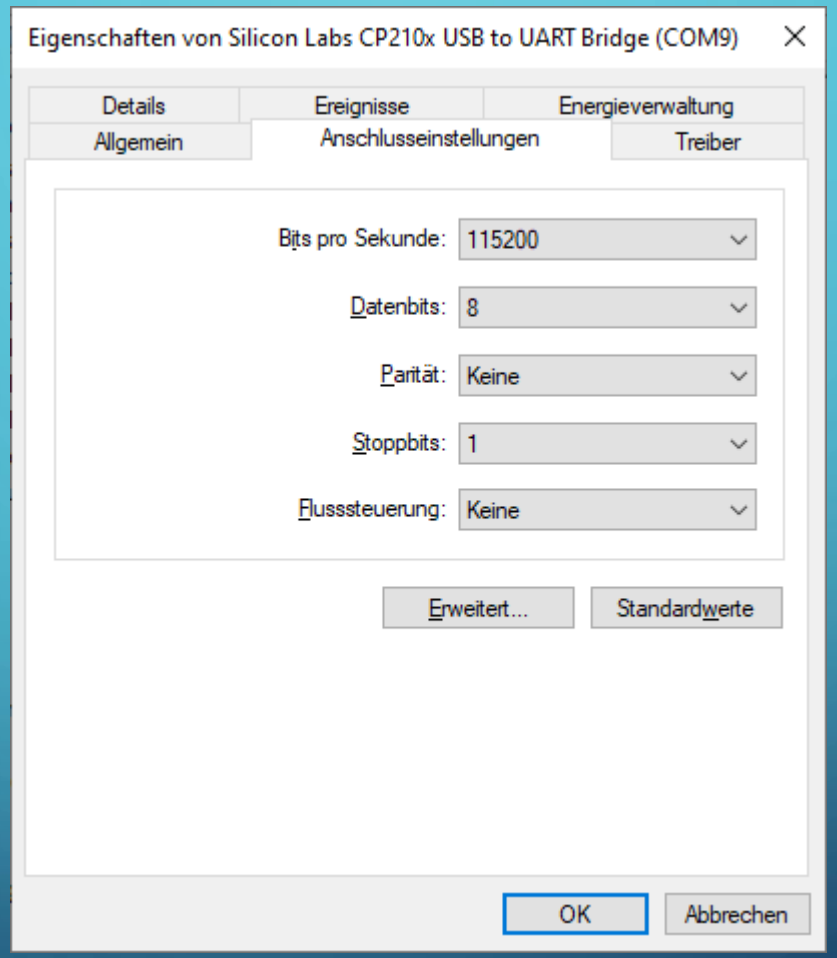
SERIELL


Geräte-Manager
Datei
Aktion
Ansicht
?
Juergen-Funk
Anschlüsse (COM & LPT)
Intel(R) Active Management Technology - SOL (COM10)
Kommunikationsanschluss (COM1)
Prolific USB-to-Serial Comm Port (COM16)
Silicon Labs CP210x USB to UART Bridge (COM9)
USB Serial Port (COM3)
USB Serial Port (COM4)
USB Serial Port (COM5)
USB Serial Port (COM6)
Audio, Video und Gamecontroller
Audioeingänge und -ausgänge
Computer
DellInstrumentation
DellUtils
Drucker
Druckwarteschlangen
DVD/CD-ROM-Laufwerke
Grafikkarten
Human Interface Devices
Kameras
Laufwerke
Mäuse und andere Zeigegeräte
Monitore
Netzwerkadapter
Prozessoren

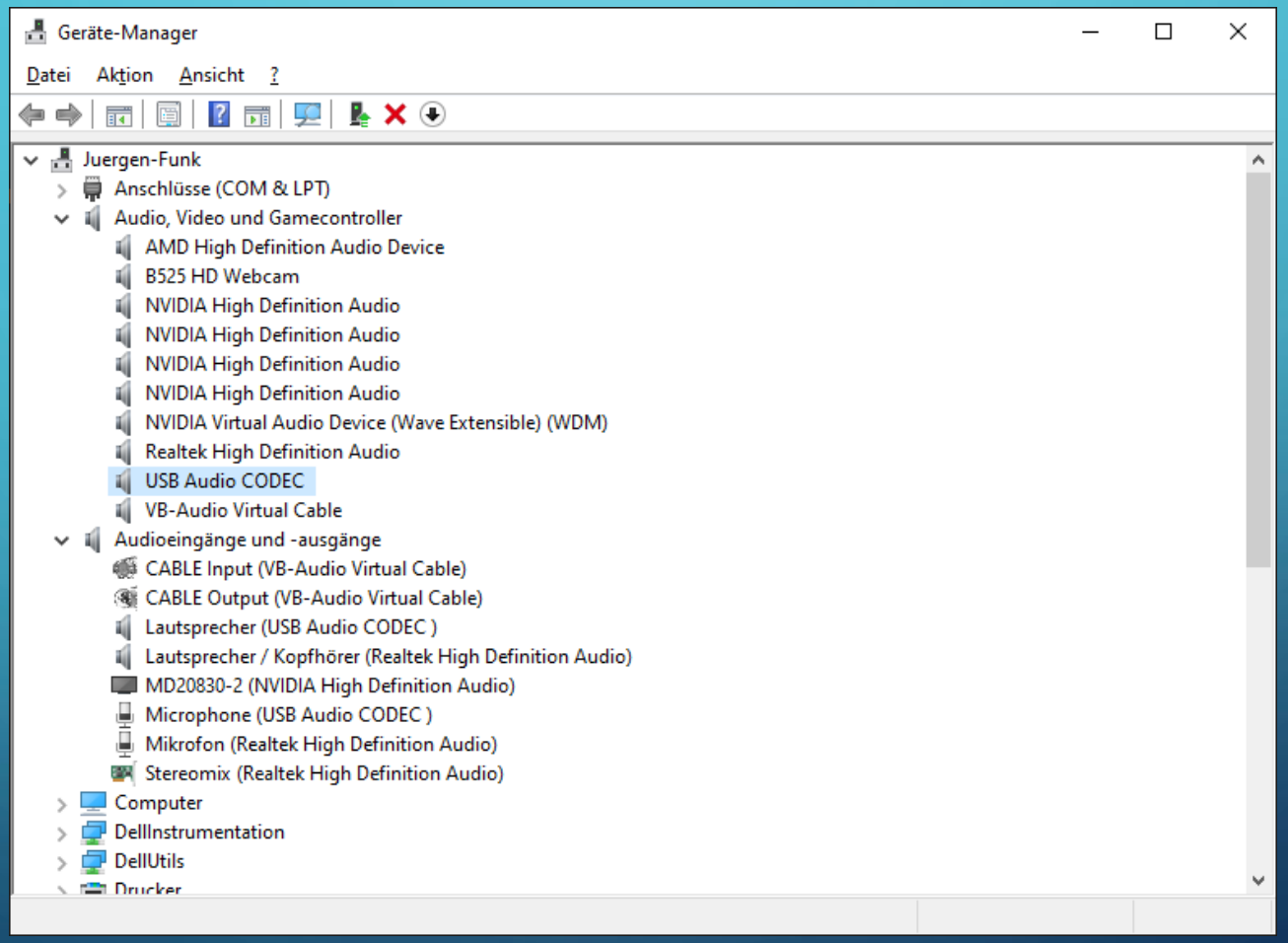
SERIEL


Geräte-Manager
Datei
Aktion
Ansicht
?
Juergen-Funk
Anschlüsse (COM & LPT)
Intel(R) Active Management Technology - SOL (COM10)
Kommunikationsanschluss (COM1)
Prolific USB-to-Serial Comm Port (COM16)
Silicon Labs CP210x USB to UART Bridge (CO
USB Serial Port (COM3)
USB Serial Port (COM4)
USB Serial Port (COM5)
USB Serial Port (COM6)
Audio, Video und Gamecontroller
Audioeingänge und -ausgänge
Computer
DellInstrumentation
DellUtils
Drucker
Druckwarteschlangen
DVD/CD-ROM-Laufwerke
Grafikkarten
Human Interface Devices
Kameras
Laufwerke
Mäuse und andere Zeigegeräte
Monitore
Netzwerkadapter
Prozessoren
Treiber aktualisieren
Gerät deaktivieren
Gerät deinstallieren
Nach geänderter Hardware suchen
Eigenschaften
Öffnet das Eigenschaftenblatt für die aktuelle Auswahl.

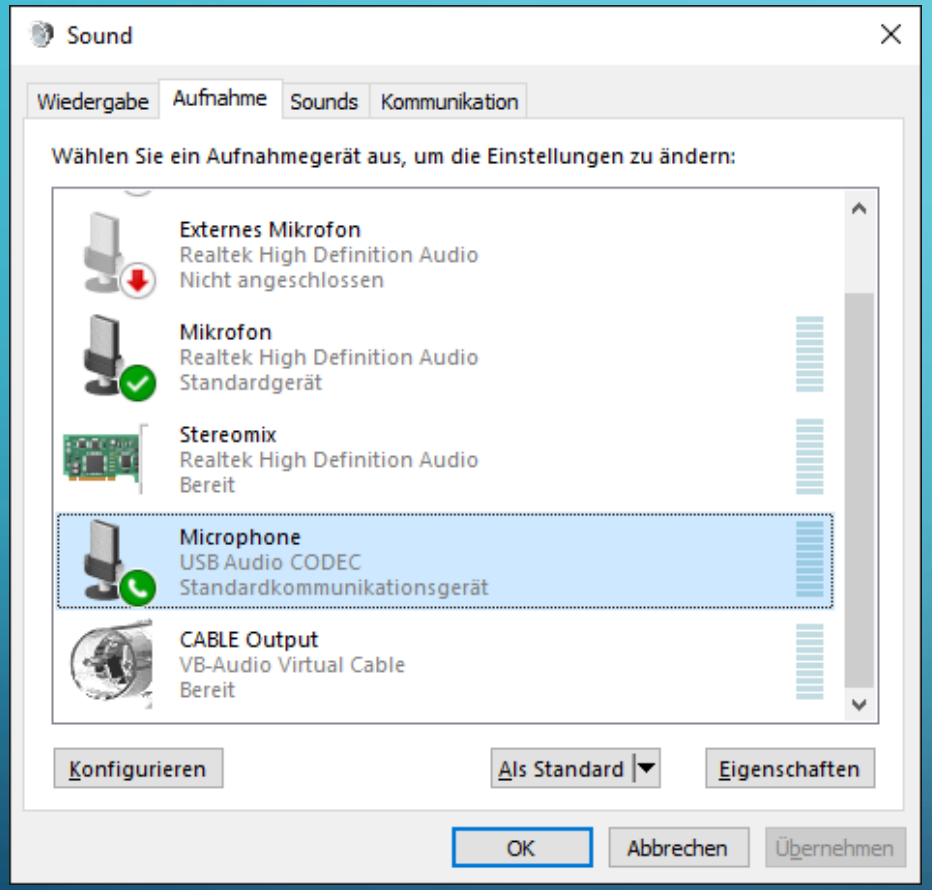
SERIELL

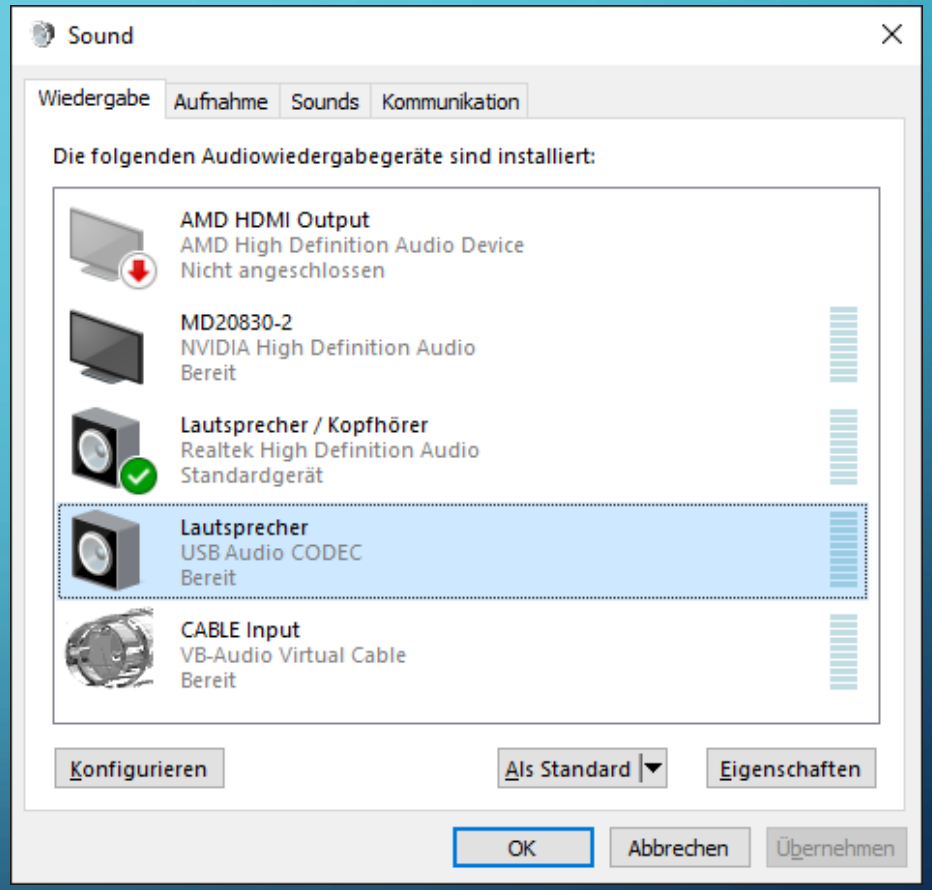

Eigenschaften von Silicon Labs CP210x USB to UART Bridge (COM9)
Details
Ereignisse
Energieverwaltung
Allgemein
Anschlusseinstellungen
Treiber
Bits pro Sekunde:
115200
Datenbits:
8
Parität:
Keine
Stoppbits:
1
Flusssteuerung:
Keine
Erweitert...
Standardwerte
OK
Abbrechen

AUDIO


Geräte-Manager
Datei
Aktion
Ansicht
?
Juergen-Funk
Anschlüsse (COM & LPT)
Audio, Video und Gamecontroller
AMD High Definition Audio Device
B525 HD Webcam
NVIDIA High Definition Audio
NVIDIA High Definition Audio
NVIDIA High Definition Audio
NVIDIA High Definition Audio
NVIDIA Virtual Audio Device (Wave Extensible) (WDM)
Realtek High Definition Audio
USB Audio CODEC
VB-Audio Virtual Cable
Audioeingänge und -ausgänge
CABLE Input (VB-Audio Virtual Cable)
CABLE Output (VB-Audio Virtual Cable)
Lautsprecher (USB Audio CODEC)
Lautsprecher / Kopfhörer (Realtek High Definition Audio)
MD20830-2 (NVIDIA High Definition Audio)
Microphone (USB Audio CODEC)
Mikrofon (Realtek High Definition Audio)
Stereomix (Realtek High Definition Audio)
Computer
DellInstrumentation
DellUtils
Drucker

AUDIO


Sound
Wiedergabe
Aufnahme
Sounds
Kommunikation
Wählen Sie ein Aufnahmegerät aus, um die Einstellungen zu ändern:
Externes Mikrofon
Realtek High Definition Audio
Nicht angeschlossen
Mikrofon
Realtek High Definition Audio
Standardgerät
Stereomix
Realtek High Definition Audio
Bereit
Microphone
USB Audio CODEC
Standardkommunikationsgerät
CABLE Output
VB-Audio Virtual Cable
Bereit
Konfigurieren
Als Standard
Eigenschaften
OK
Abbrechen
Übernehmen


Sound
Wiedergabe
Aufnahme
Sounds
Kommunikation
Die folgenden Audiowiedergabegeräte sind installiert:
AMD HDMI Output
AMD High Definition Audio Device
Nicht angeschlossen
MD20830-2
NVIDIA High Definition Audio
Bereit
Lautsprecher / Kopfhörer
Realtek High Definition Audio
Standardgerät
Lautsprecher
USB Audio CODEC
Bereit
CABLE Input
VB-Audio Virtual Cable
Bereit
Konfigurieren
Als Standard
Eigenschaften
OK
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Übernehmen

INTERFACE UND TRX

Fragen?

VARA (MODEM)

- VARA bezeichnet eine digitale Betriebsart im Amateurfunkdienst.
- Es wurde für die Verwendung mit WinLink auf Kurzwelle (VARA HF) und im VHF- und UHF-Bereich (VARA FM) entwickelt und ermöglicht das Übertragen von Daten, z. B. E-Mails, über Funk.
- Zum Betrieb über den geostationären Amateurfunk-Satelliten QO-100 dient die Variante VARA SAT.

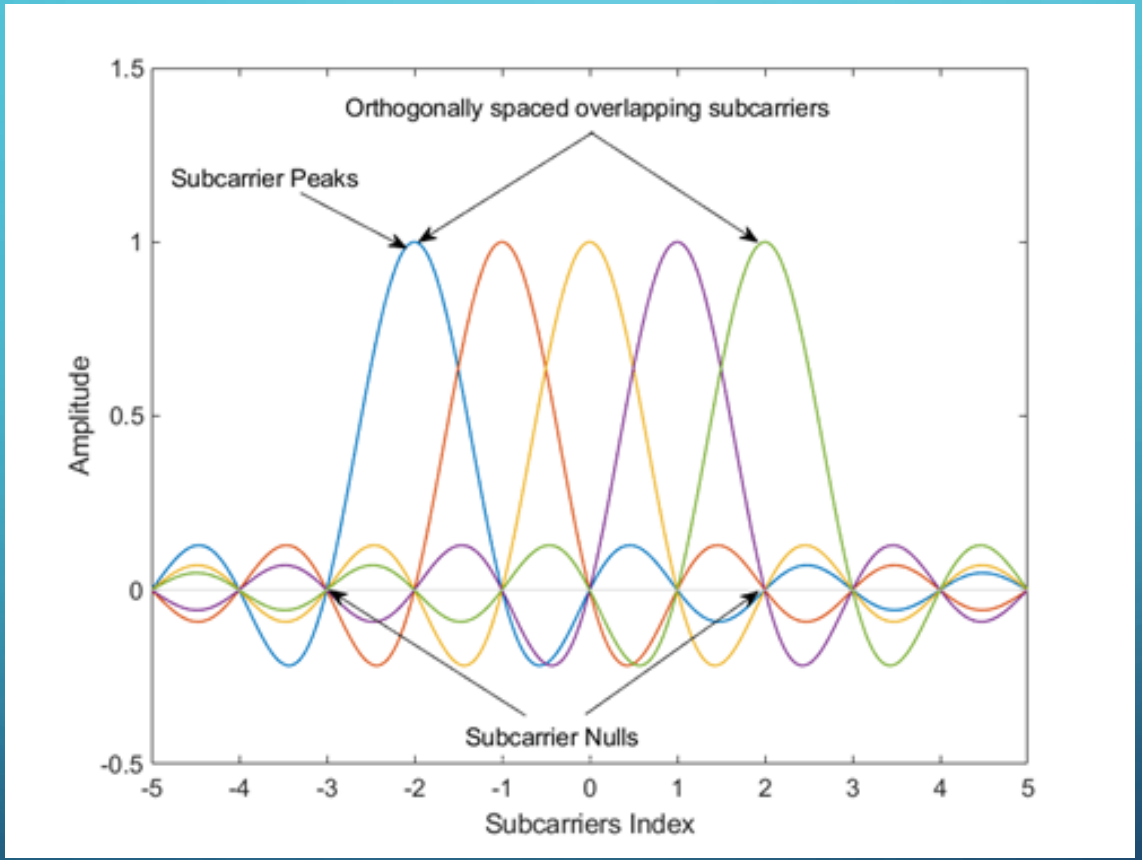
VARA (MODEM)

- Entwickelt vom spanischen Funkamateur José Alberto Nieto Ros (EA5HVK), ebenfalls Autor des Protokolls ROS
- Kommt ohne Hardware-TNC aus
- Datenübertragungsrate den Hardware-Protokollen (z.B. PACTOR) ebenbürtig
- Es gibt eine freie VARA Version mit Einschränkungen (Übertragungsrate 500 bps) und eine Kaufversion (59.- €) ohne Einschränkungen

VARA (MODEM)

- VARA verwendet zur bitgenauen Datenübertragung ein ARQ-Protokoll (Automatic Repeat reQuest), welches nach jedem übertragenen Datenblock eine Bestätigung der Gegenstation erfordert.
- Die Modulation erfolgt durch ein OFDM-Verfahren (Orthogonal Frequency-Division Multiplexing), indem innerhalb der verfügbaren Bandbreite mehrere phasenmodulierte Träger mit Redundanzinformation gesendet werden.

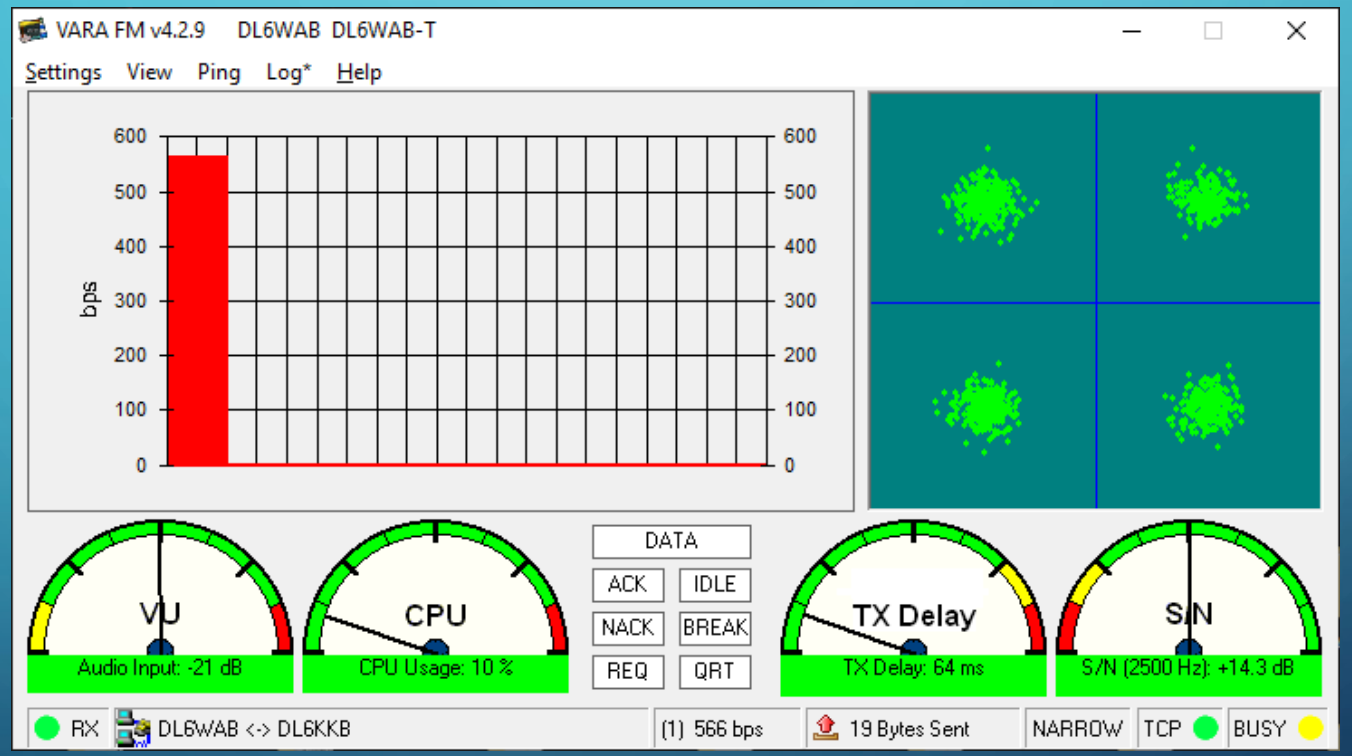
VARA MODEM OFDM



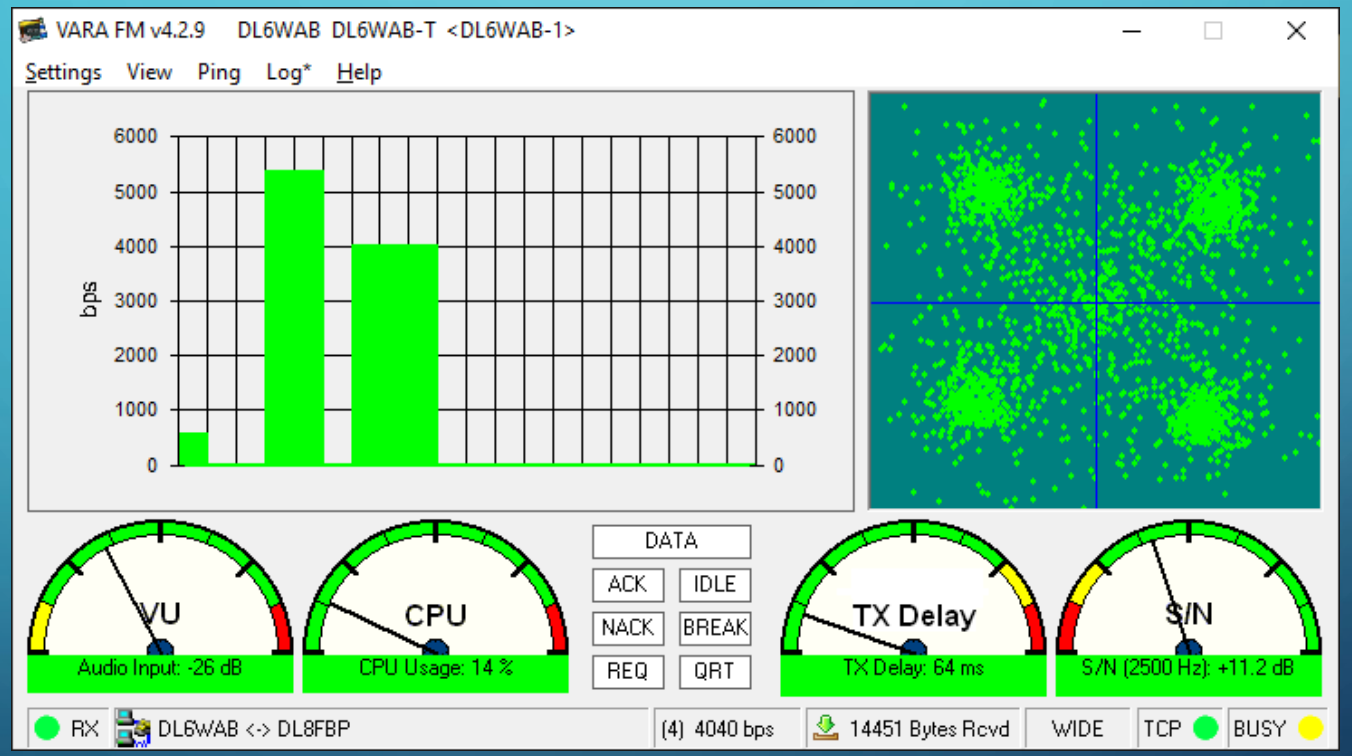
VARA (MODEM)

- VARA ist ein proprietärer Software-TNC (Terminal Node Controller).
- Ein Computer mit Audiocontroller und ein Transceiver sind zum Modulieren und Demodulieren erforderlich.
- VARA **HF** erreicht bei einer Bandbreite von 2300 Hz (VarAC 500 Hz) eine Datenübertragungsrate von über 5 kBit/s.
- Mit VARA **FM** sind Datenübertragungsraten bis zu 25 kBit/s möglich.

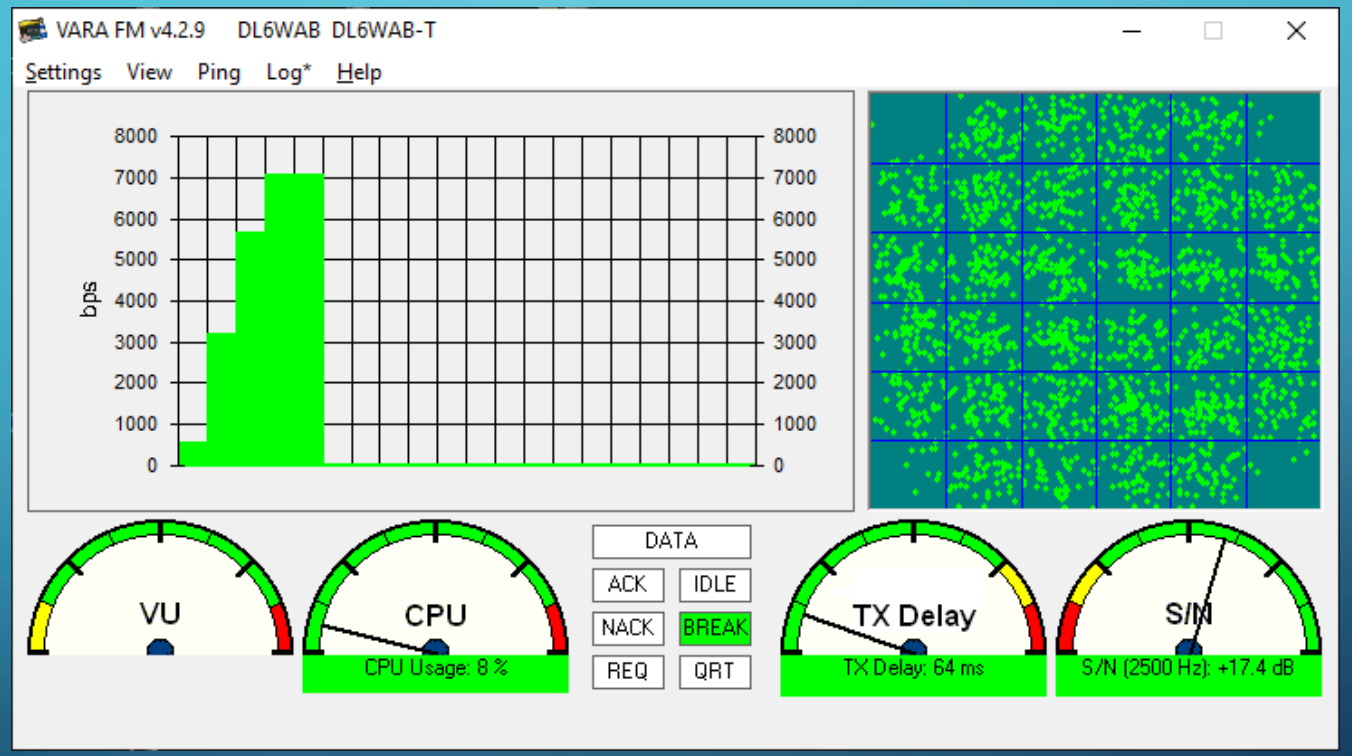
VARA FM MODEM FREE (GUI)



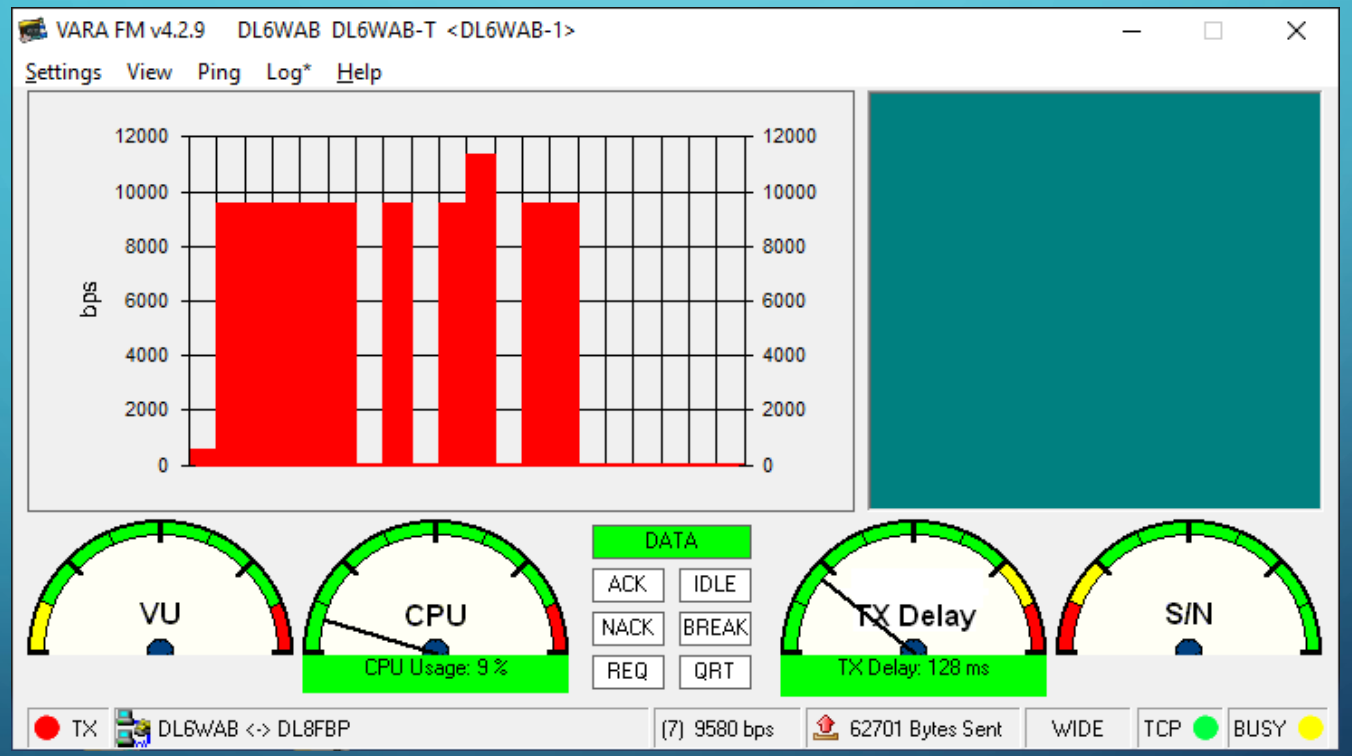
VARA FM MODEM LICENSED (GUI)



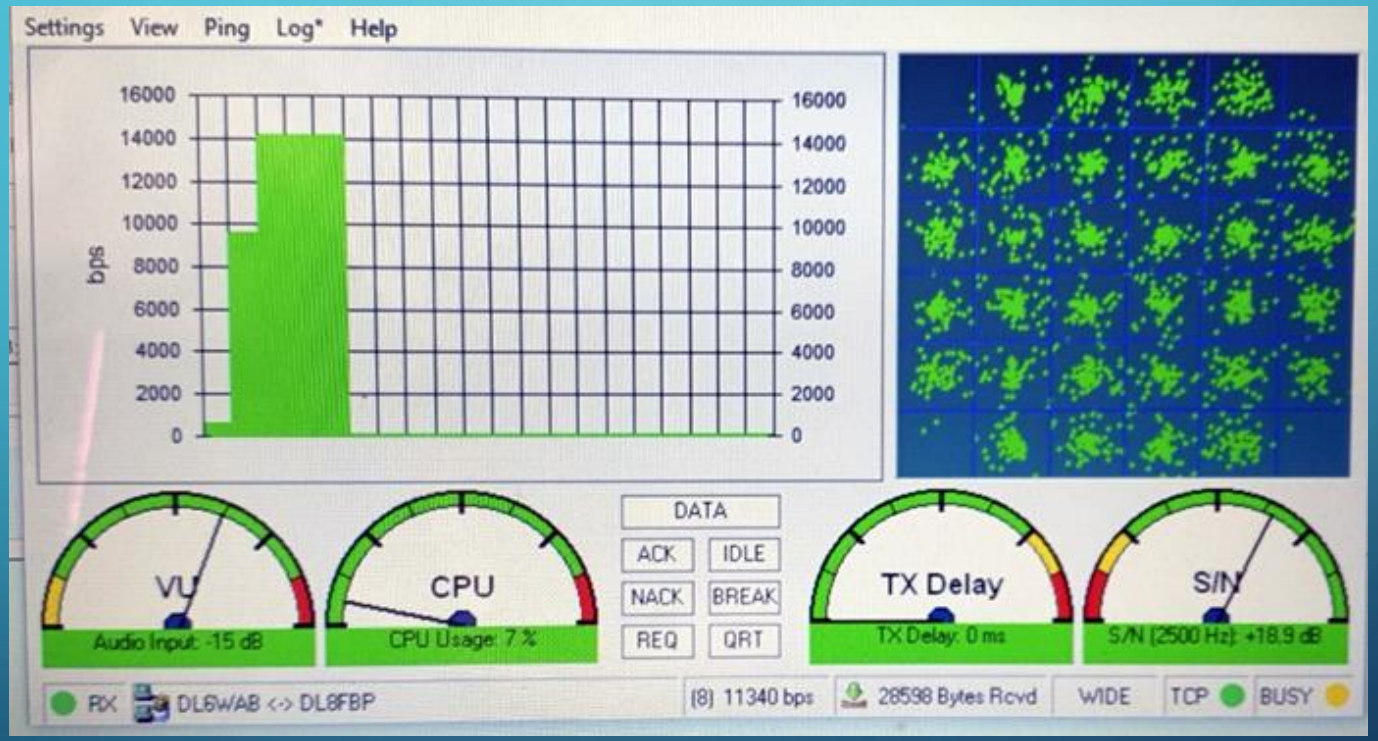
VARA FM MODEM LICENSED (GUI)



VARA FM MODEM LICENSED (GUI)



VARA FM MODEM LICENSED (GUI)



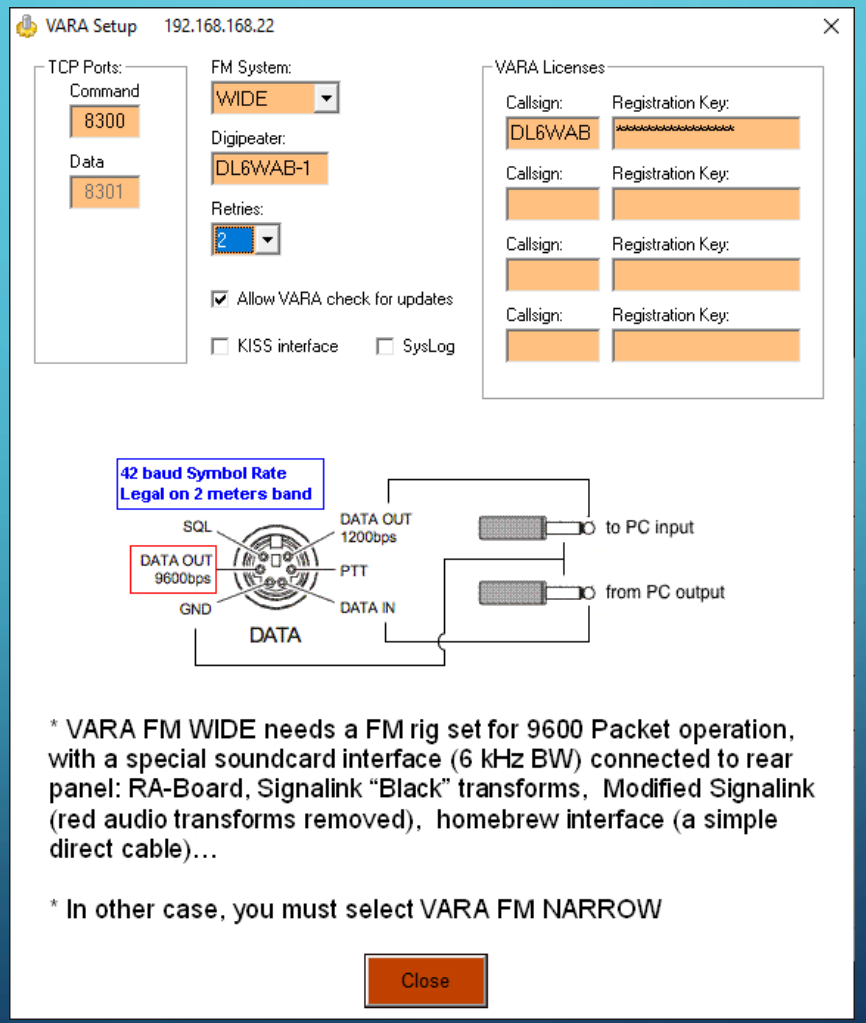
VARA BEISPIELKONFIGURATION

VARA BEISPIELKONFIGURATION

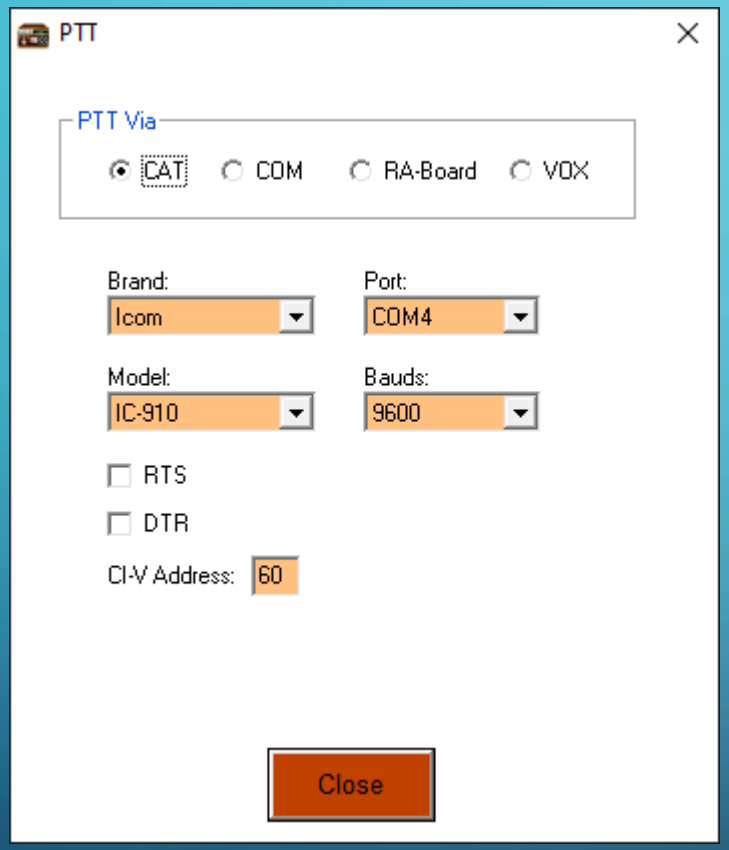
VARA BEISPIELKONFIGURATION (SB2K-IC8)

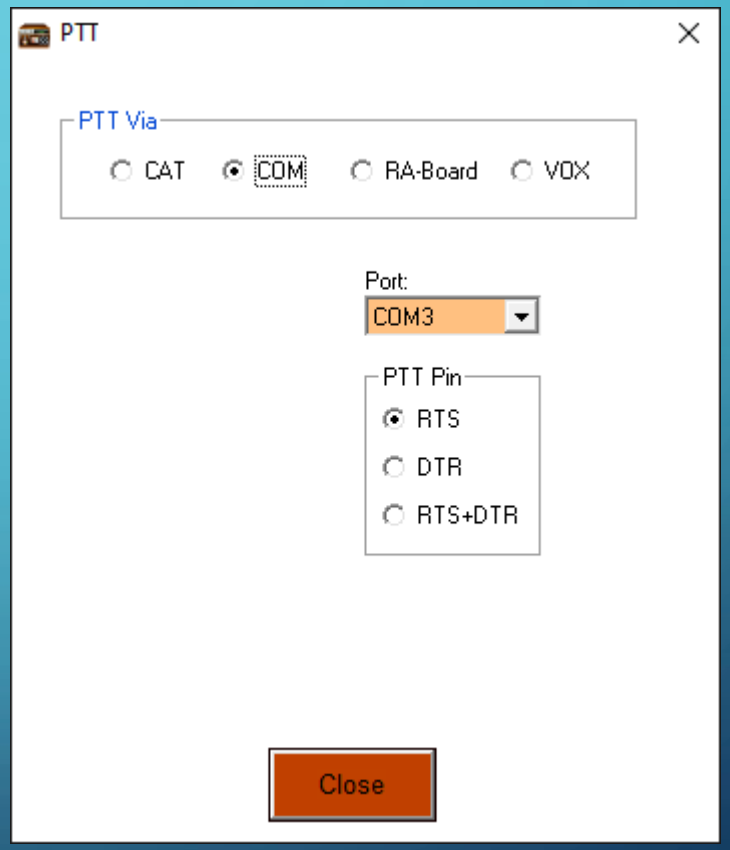
VARA BEISPIELKONFIGURATION

VARA FM KONFIGURATION (IC 910)

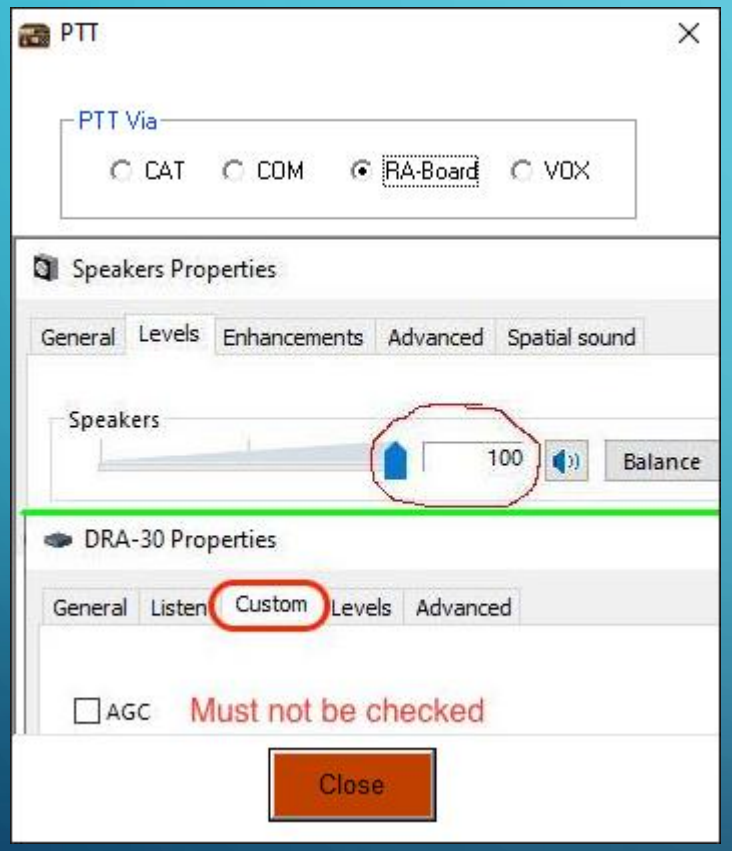


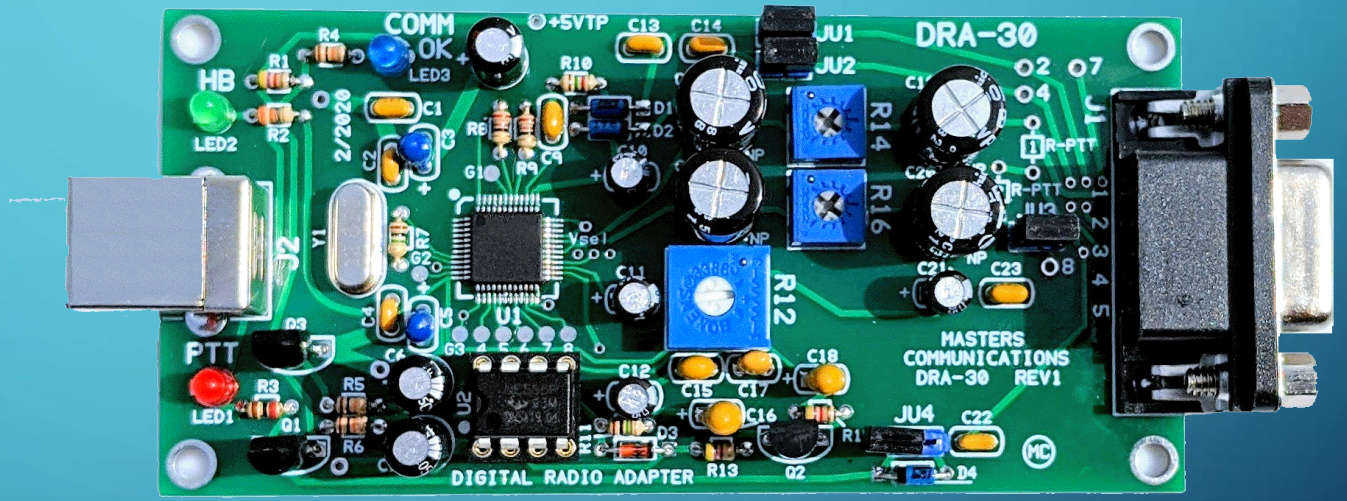
VARA FM PTT

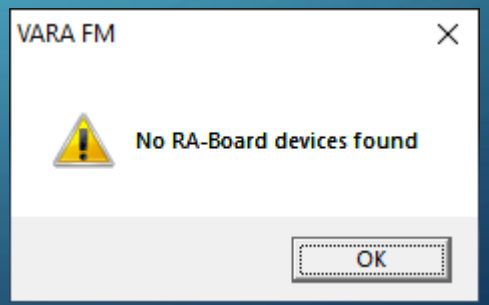

PTT
PTT Via
CAT
COM
RA-Board
VOX
Brand:
Icom
Port:
COM4
Model:
IC-910
Bauds:
9600
RTS
DTR
CI-V Address:
60
Close


PTT
PTT Via
CAT
COM
RA-Board
VOX
Port:
COM3
PTT Pin
RTS
DTR
RTS+DTR
Close

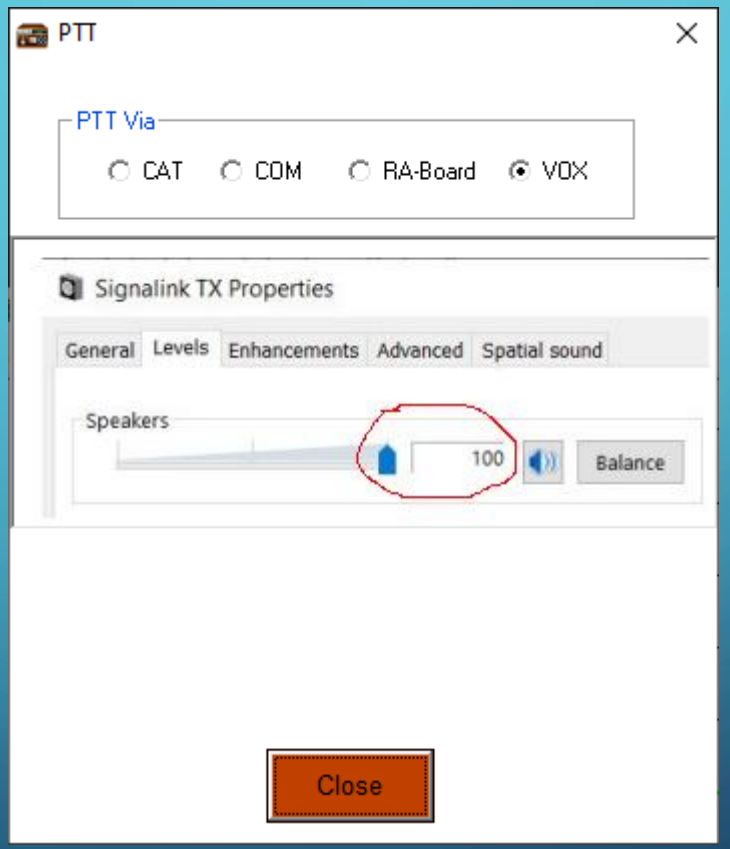
VARA FM PTT


PTT
PTT Via
CAT
COM
RA-Board
VOX
Speakers Properties
General
Levels
Enhancements
Advanced
Spatial sound
Speakers
100
Balance
DRA-30 Properties
General
Listen
Custom
Levels
Advanced
AGC
Must not be checked
Close

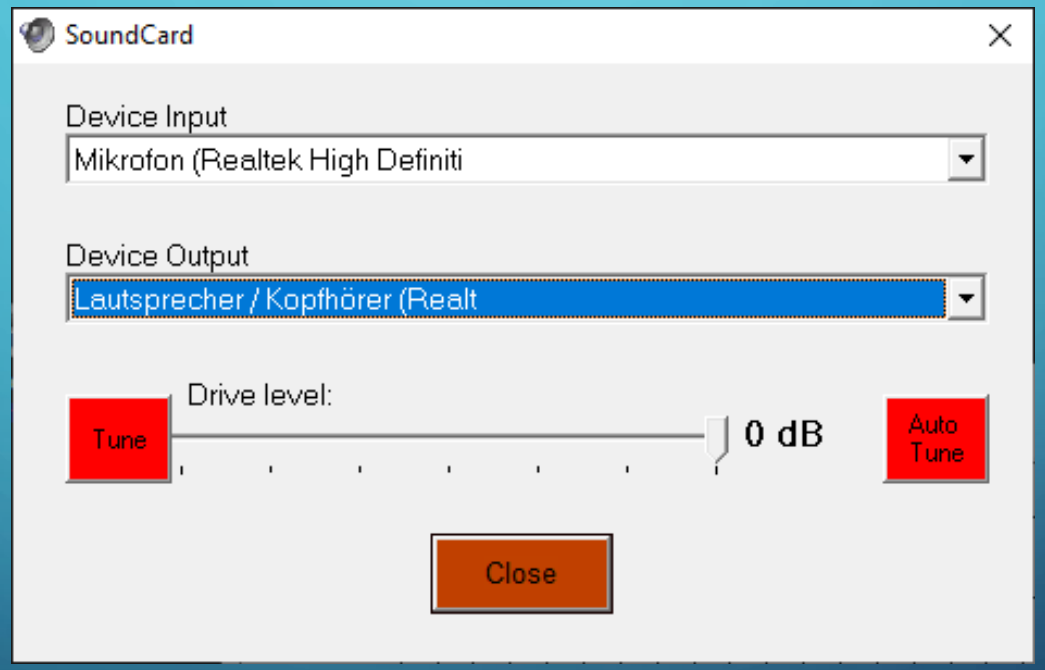

DRA-30
COMM OK
HB
PTT
MASTERS COMMUNICATIONS DRA-30 REV1
DIGITAL RADIO ADAPTER


VARA FM
No RA-Board devices found
OK

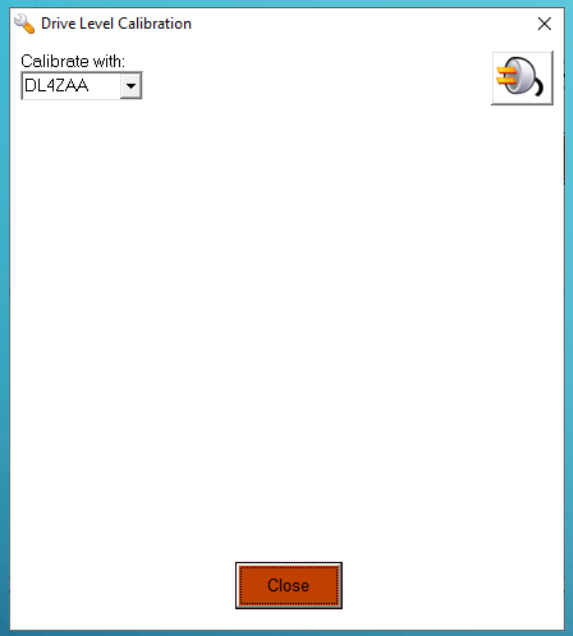
VARA FM PTT

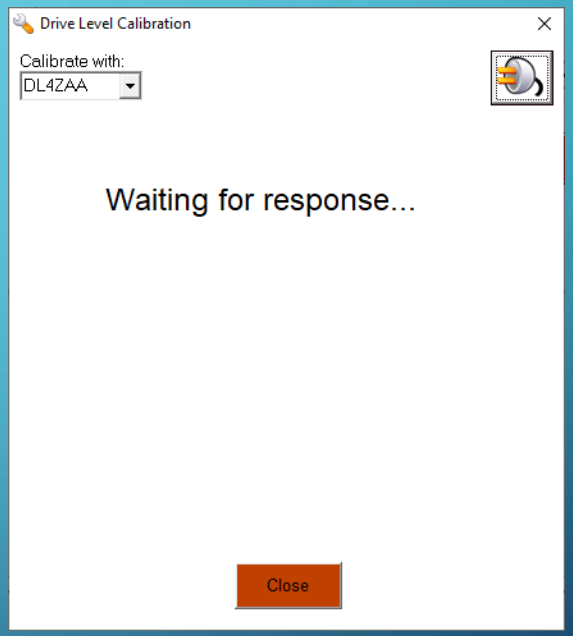

PTT
PTT Via
CAT
COM
RA-Board
VOX
Signalink TX Properties
General
Levels
Enhancements
Advanced
Spatial sound
Speakers
100
Balance
Close

VARA FM AUDIO

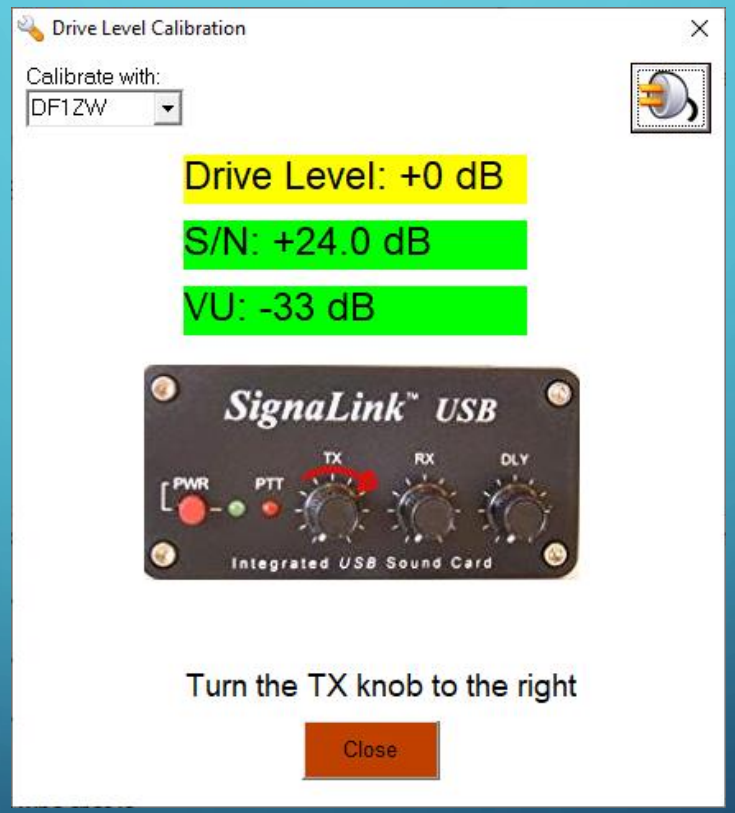


VARA FM CALIBRATION

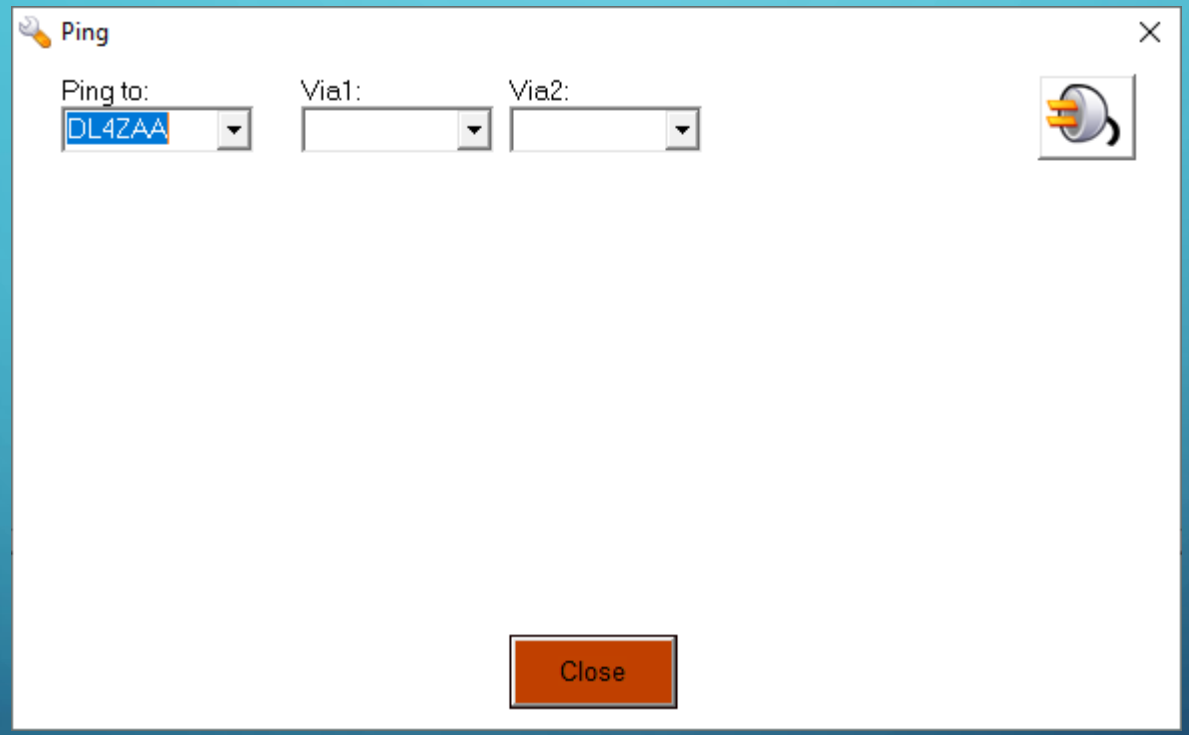




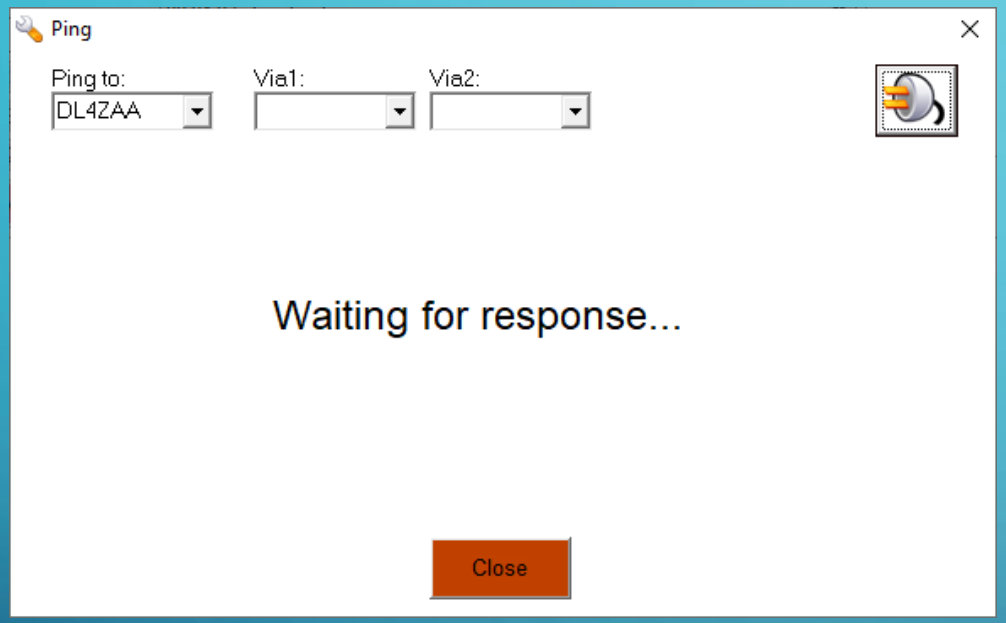
VARA FM CALIBRATION

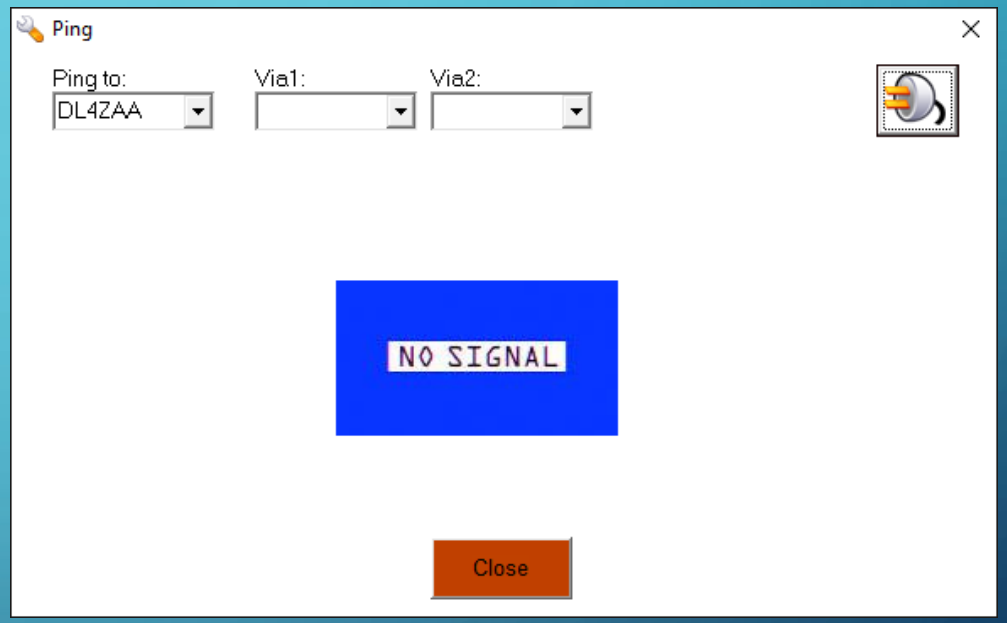


VARA FM PING

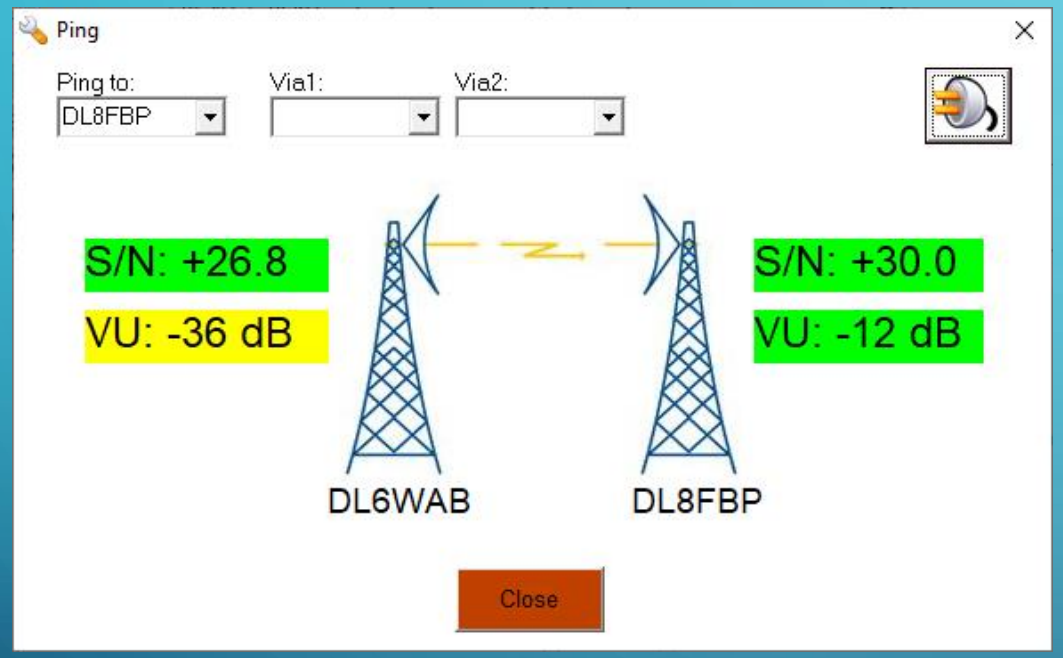


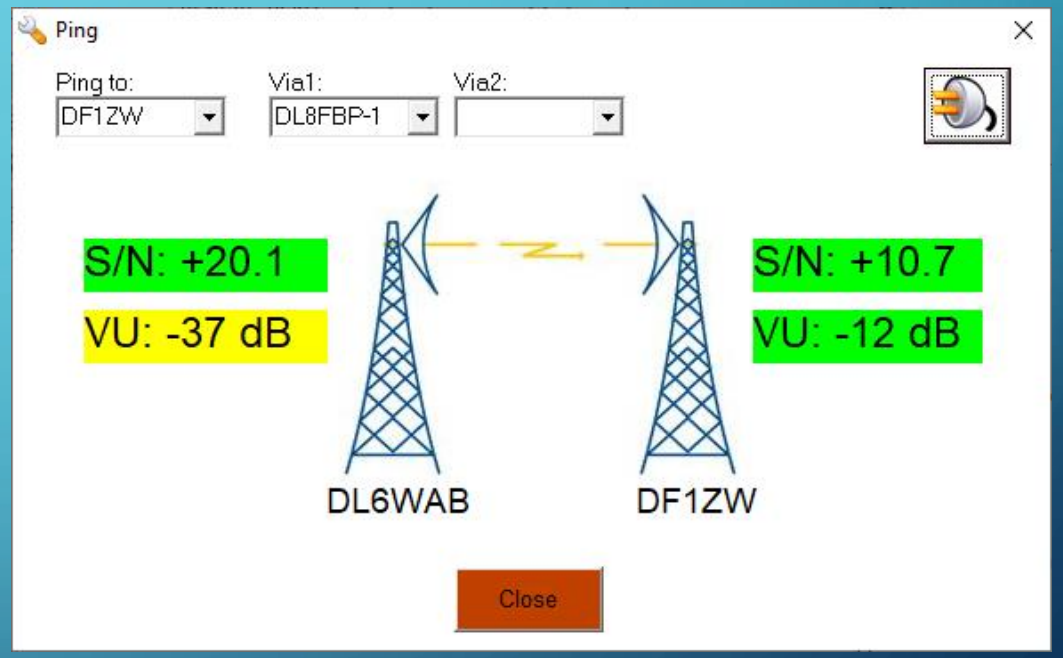
VARA FM PING


Ping
Ping to:
DL4ZAA
Via1:
Via2:
Waiting for response...
Close


Ping
Ping to:
DL4ZAA
Via1:
Via2:
NO SIGNAL
Close

VARA FM PING


Ping
Ping to:
DL8FBP
Via1:
Via2:
S/N: +26.8
VU: -36 dB
S/N: +30.0
VU: -12 dB
DL6WAB
DL8FBP
Close


Ping
Ping to:
DF1ZW
Via1:
DL8FBP-1
Via2:
S/N: +20.1
VU: -37 dB
S/N: +10.7
VU: -12 dB
DL6WAB
DF1ZW
Close

VARA MODEM

Fragen?

VARAC (VARA CHAT)

- Was ist VarAC?
- Entwickelt von Irad Deutsch (4Z1AC)
- VarAC ist eine kostenlose, moderne HF P2P (Point to Point) Echtzeit-Chat-Anwendung für den Funkamateur
- Nutzt das VARA-Protokoll
- Aktuelle Version 8.0.6

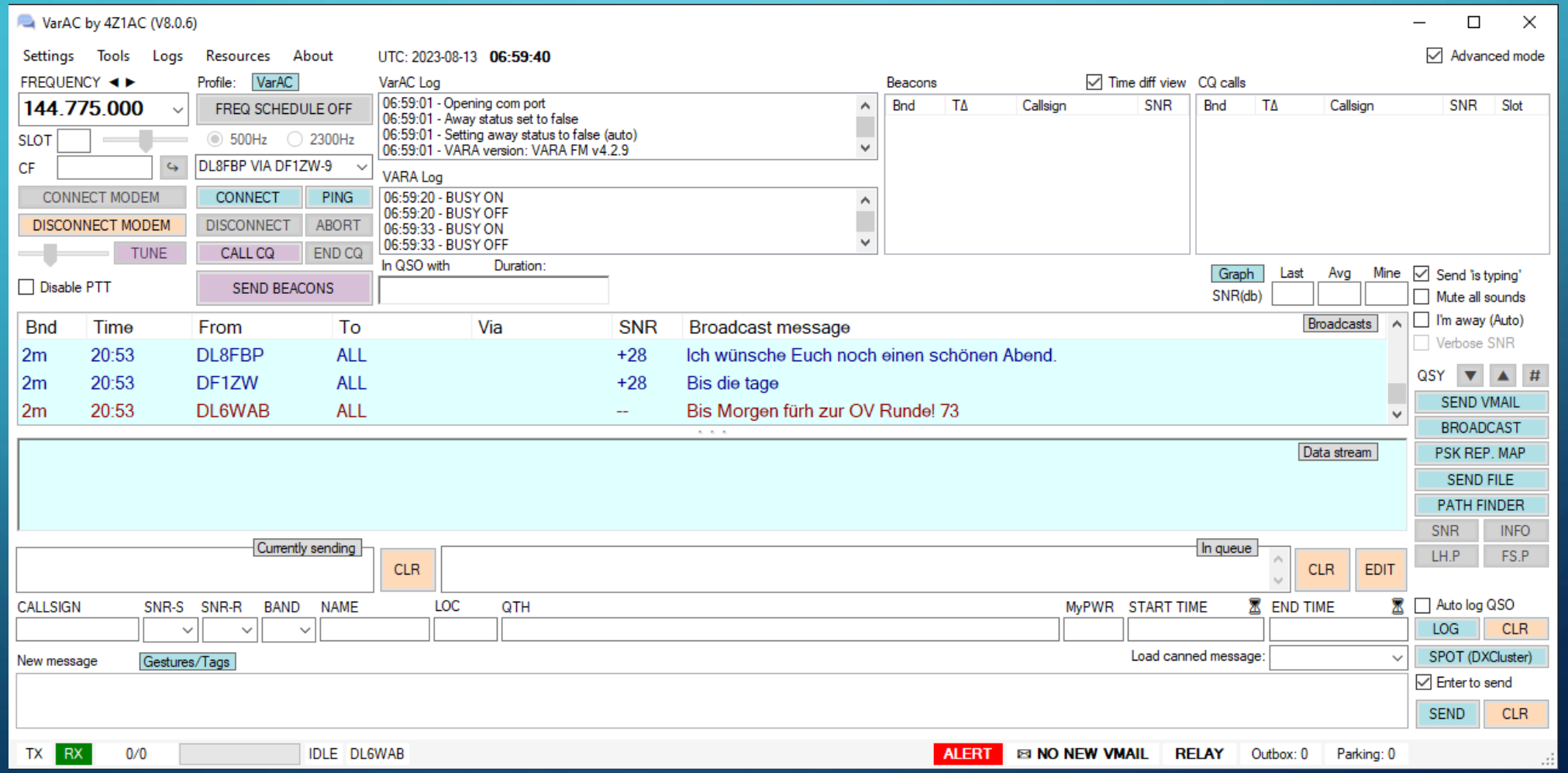
VARAC 8.0.6 FUNKTIONEN

- Beacon (Bake)
- Gruppenchat via Broadcast Meldung
- Einzelchat via Connect
- V-Mail (E-Mail via Funk und Repeater Funktion)
- Repeating (im VARA Modem Rufzeichen mit SSID (-1) eintragen)
- Filetransfer kleinerer Dateien

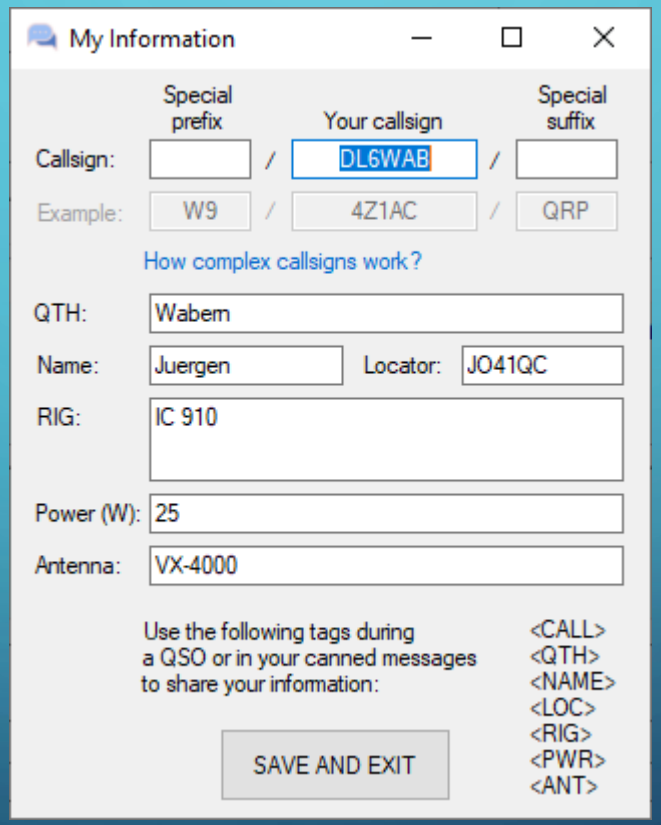
VARAC 8.0.6 FUNKTIONEN

- Alarmmeldungen
- Automatische Pfadsuche (Pathfinder)
- LH (Last Heard) Abfrage bei der Gegenstation
- Info Abfrage bei der Gegenstation
- Frequenz Schedule (HF)
- Band Hopping (HF)

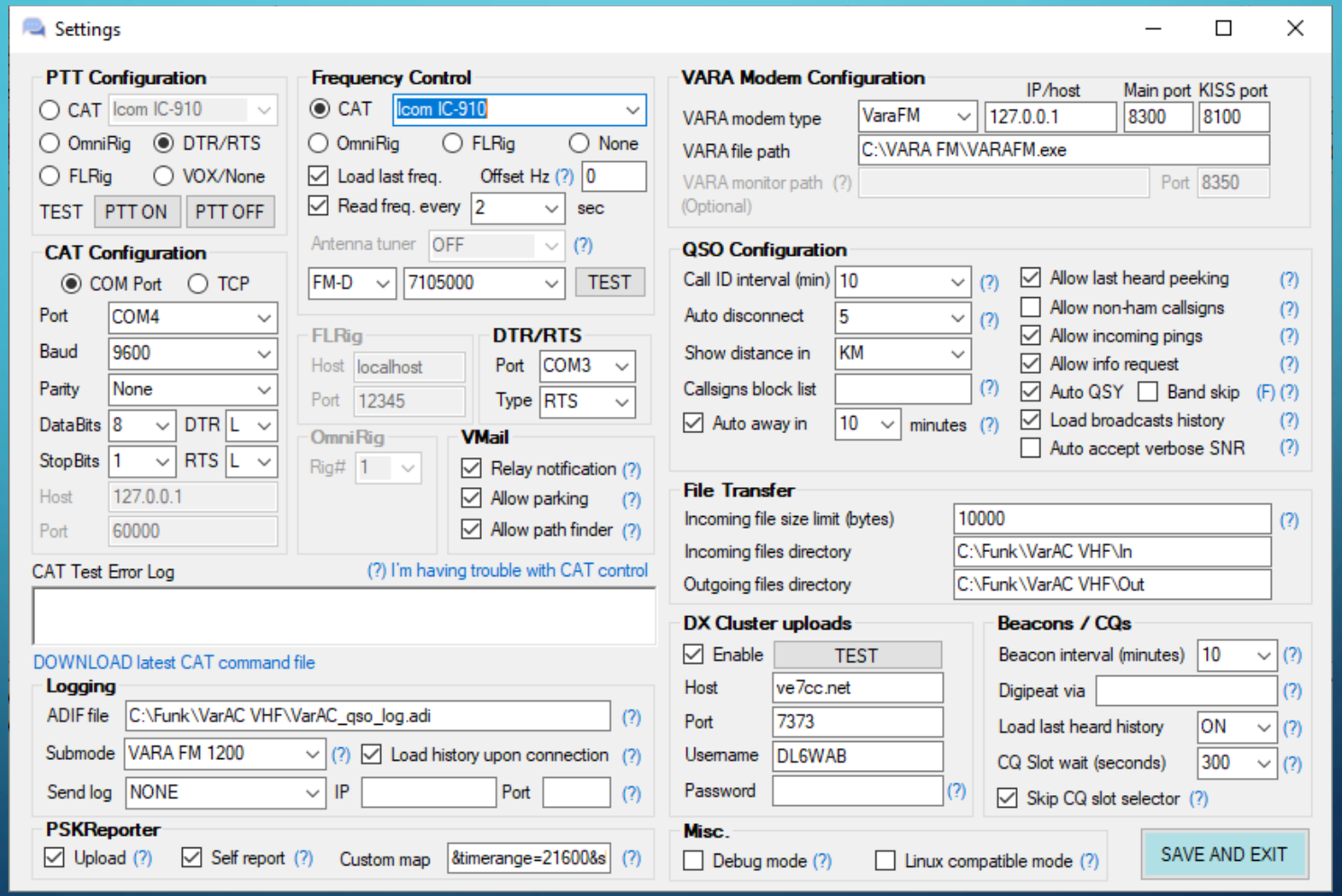
VARAC GUI 8.0.6



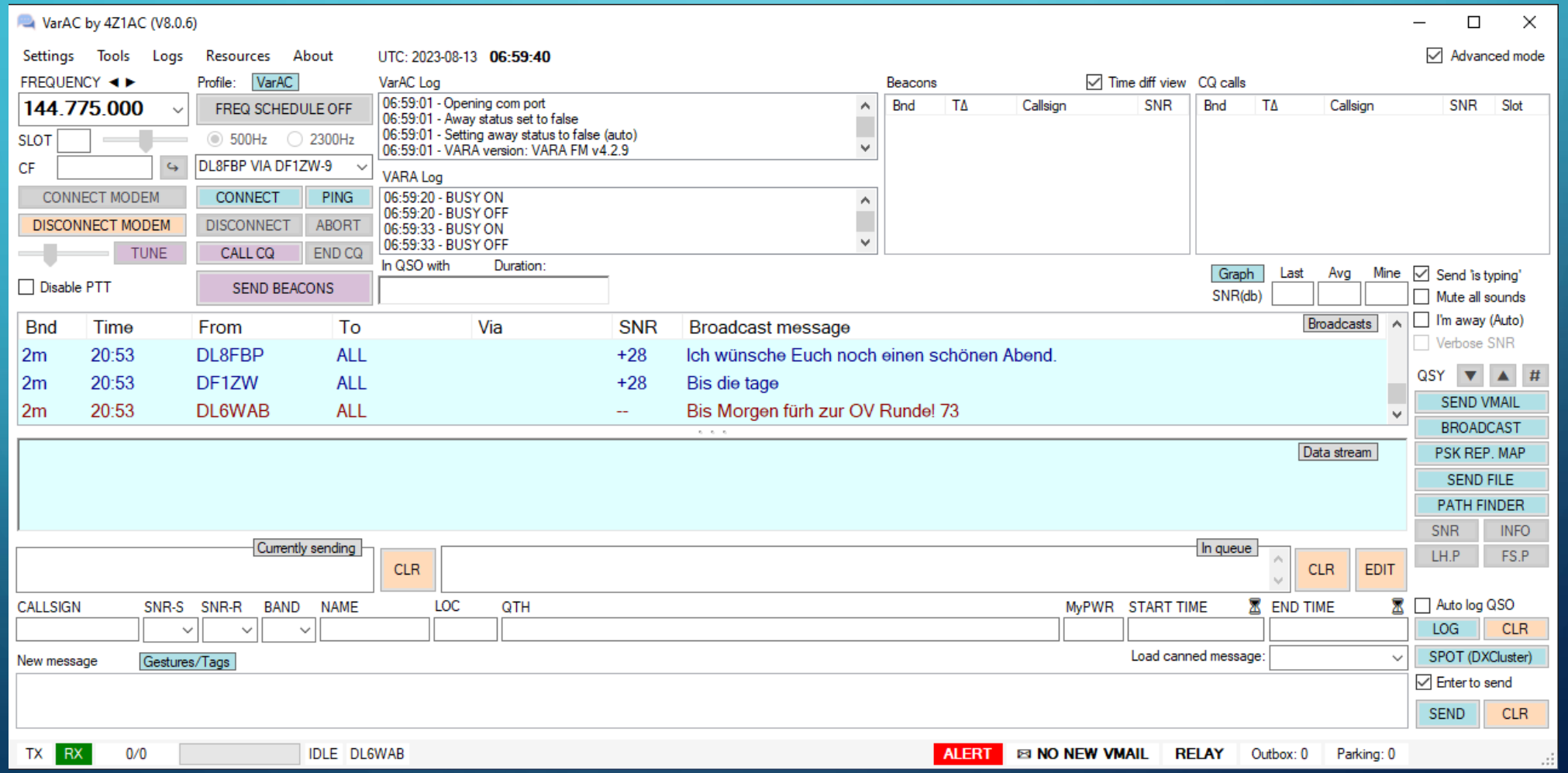
VARAC FM KONFIGURATION (IC 910)



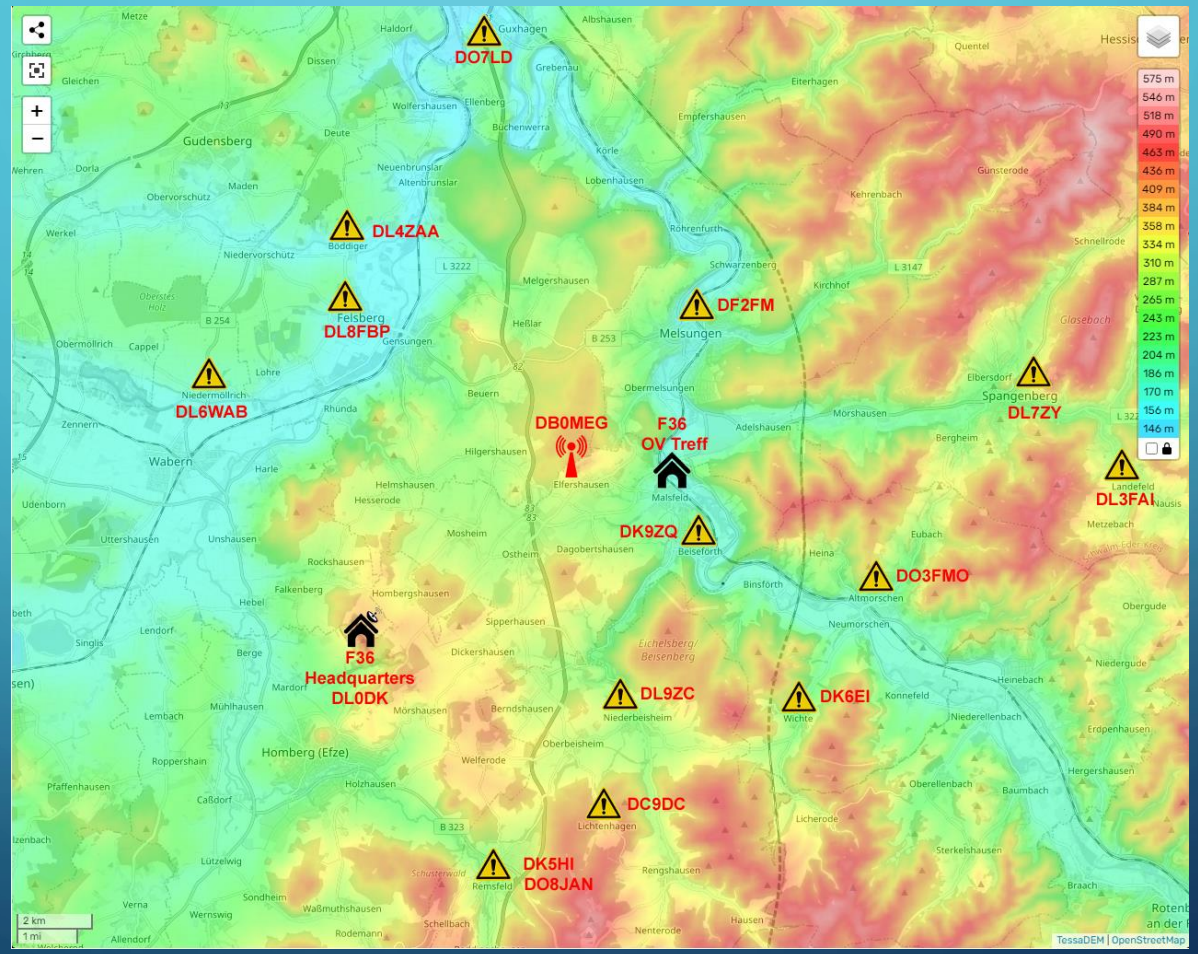
VARAC KONFIGURATION (IC 910)



VARAC GUI 8.0.6



VARAC GUI 8.0.6



VARA UND VARAC LINKS

- https://rosmodem.wordpress.com (VARA Modem)
- https://www.varac-hamradio.com (VarAC Software)
- https://www.dl6wab.de (Funktionsbeschreibung)

VARAC

Fragen?