

Je zendontvanger remote via het Internet bedienen wat komt daar zoal bij kijken



Hoe hebben Gerard en Tijmen dit opgelost?



Er zijn verschillende
wegen die naar Rome
leiden.

Remote via een Web browser /
Bijvoorbeeld via RemoteHamradio.com

Via een Remote Desktop / Je neemt de
PC over die thuis in de Shack staat.

Met behulp van een software applicatie.

**Via een Remote frontpanel
bijvoorbeeld Elecraft of Flex radio.**

Wat willen we remote kunnen bedienen

Zendontvanger

Antenne sturen

Rotor besturing

Eindtrap bedienen

220V schakelen

Misschien ook camera toezicht



Een betrouwbare internet verbinding is de sleutel voor succes

Fiber of kabel geven de beste resultaten, wanneer geen keuze dan wifi of 4G;

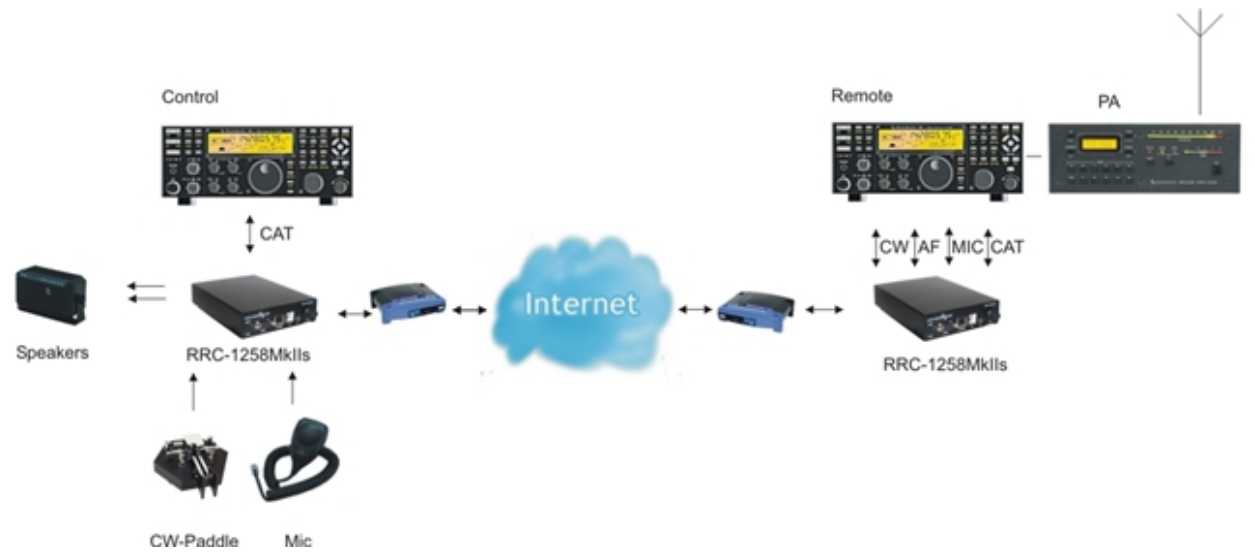
Alleen pure snelheid is niet de enige maatstaf voor een kwalitatief goede verbinding;

Overweeg een hoge uploadsnelheden;

Latentie is het probleem, vooral voor CW;

Gebruik het liefst een vaste ethernet verbinding om je apparatuur op aan te sluiten.

Met alleen een internet
verbinding en een
transceiver zijn we er nog
niet



Wat voor type
verbinden moeten er
gerealiseerd worden
om de K3/ Flex
remote te kunnen
bedienen

Audio van de zender transport via SIP protocol;

Besturing van de zender CAT via RS232;

Besturing van de roter via RS232;

Besturing Antenne via RS232;

Gebruik het liefst een vaste ethernet
verbinding om je apparatuur op aan te sluiten.

Elecraft K3/S transceiver voor het eerst op de markt in 2008

De Flexradio 6600M kwam in 2018 op de markt





K3/0 en Flexradio Maestro remote bediening

K3/0 Hardware

K3 Remote Software

RCC Nano pro

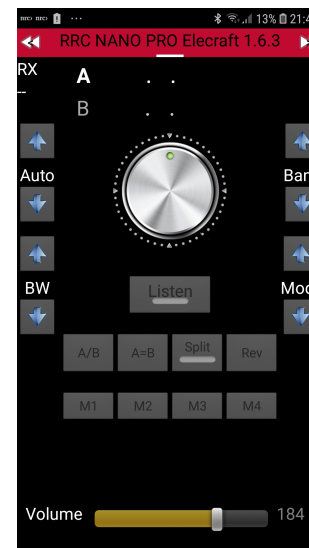
- **K3/0-Mini Control Head**



Figure 1. K3/0-Mini Control Head.

- **Remote Rig Equipment**

- **RRIGSET:** RemoteRig RRC-1258MKII SET including both remote site and control site units.



RCC Nano



RCC micro PC Client

Flexradio bediening met de Maestro of SDR software



The image shows three panels for SDR software, each with a different background color and OS logo.

- Windows Panel (Left):** Features the Windows logo. Text: "SSDR for Windows", "The new industry standard.", and three buttons: "DOWNLOAD LATEST V3 RELEASE", "DOWNLOAD LATEST V2 RELEASE", and "DOWNLOAD LATEST V1 RELEASE".
- Mac Panel (Middle):** Features the Apple logo. Text: "SSDR for Mac", "Now available for Mac OS!", and three buttons: "DOWNLOAD THE MAC APP", "VIEW THE MACOS USER GUIDE", and "LEARN MORE".
- iOS Panel (Right):** Features the iOS logo. Text: "SSDR for iOS", "Bring SDR to your iPhone or iPad!", and three buttons: "DOWNLOAD THE IOS APP", "VIEW THE IOS USER GUIDE", and "LEARN MORE".

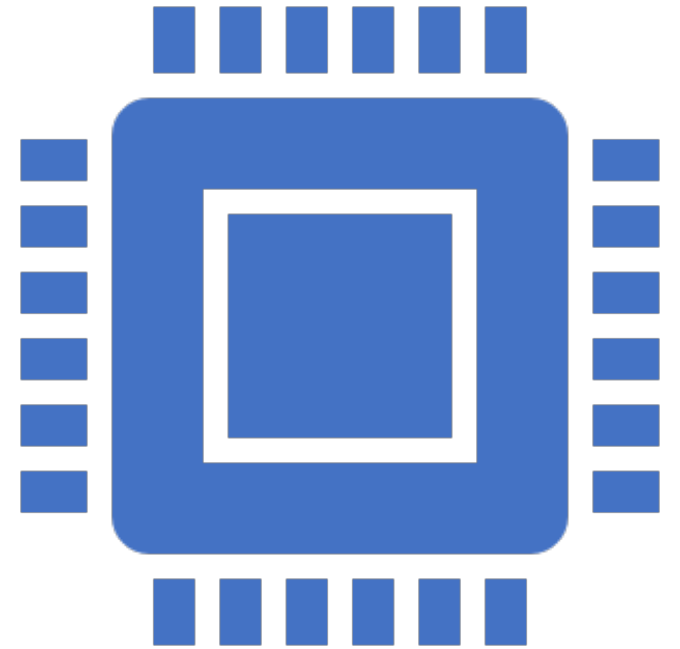
Nu de rest van de zendinstallatie

Antenne besturing

Roter

Eindtrap

220volt schakelen



Gebruik altijd USB naar RS232 converters met een FDTI Chip



↓ Voor 22u besteld, morgen in huis.

Versie: 2.0 - HighSpeed,
Aansluiting 1: USB A male,
Aansluiting 2: 9-polig serieel male,
Lengte: 1.5 meter.
Productcode: 933

...
Huidige voorraad: 1.662

€ 11,99
(Incl. BTW)
Productcode: 933

Meer artikelen? Meer korting!

Aantal 1-9:
Aantal 10-49:

€ 11,99
€ 11 57



↓ Voor 22u besteld, morgen in huis.

Versie: 2.0 - HighSpeed,
Aansluiting 1: USB A male,
Aansluiting 2: DE-9 serieel male.
Productcode: 1684480

...
Huidige voorraad: 2.009

€ 13,99
(Incl. BTW)
Productcode: 1684480

RemoteQTH Server - great Linux features for everyone

Software running on the Raspberry PI and configuring Linux programs through a web interface for use with your remote station. All software is the Open-source.

► **Tip** - for **audio transfer** you can use [remoteAudio from DH1TW](#) - required MQTT broker available run from [web interface RemoteQTH server](#).

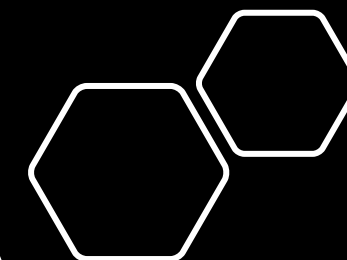
Main functions:

- Based on **RaspberryPI** with consumption **one watt** - support up to version 3.
- Contains **MQTT broker** Mosquitto
- Contains **Node-RED** - visual tool for wiring the Internet of Things
- Support Serial to FSK device - **RTTY**
- System is configured via **web interface**, with password protection.
- Control up to 8 arduino (K3NG code) **rotators modules** (manually / web interface / telnet).
- **Azimuth maps** of rotators show actual grayline with position of the sun.
- Web control for **24 relays**.
- **Cluster support** - control relay and rotators on other servers from one place (up to 72 rotators/216 relays!)
- **Band decoder** - read frequency via rigctl daemon and switch relays according to the preset range.
- Remote control are also possible with a smartphone.
- Up to **8 temperature sensors**.
- Up to **2 A/D sensors** with four voltage inputs.
- One click **server update**.
- **Access without public IP addresses** via n2n vpn.
- CW keying from web interface or by network - the choice between software cwdaemon (listen on UDP port) or, hardware Arduino cw keyer with firmware by K3NG (listen on TCP port).
- **RTTY** transmit via **Serial to FSK** interface.
- Simple **contest Web Log**.
- Export up to **8 serial ports to IP** network.
- **SSH access** allows you to run applications directly on the server (Tucnak log).
- **QRcode** generator for simply mobile access.
- **Backup** server configuration.
- **Webcam** with RaspiCam support.
- **Web VNA** based on [RigExpert AA-30-ZERO](#).
- Running on Raspbian-lite (Debian Jessie).

Hardware requirements:

- **Raspberry Pi** single-board computer (or else linux compatible pc).
- **SD** memory card (min 2GB).
- **RaspiCam**
- **24 relay board**.
- Arduino **rotor control** with USB/UART converter (up to eight).
- I2C **A/D converter** with four voltage inputs (one or two).
- I2C **temperature sensor** (up to eight).
- Arduino **CW keyer interface**.
- Arduino **FSK RTTY interface**.
- **5V power supply**.
- **USB hub** with external power supply.

The screenshot displays the RemoteQTH Server web interface. At the top, there is a 'Changelog' link and a 'Last build' section indicating the software was built on 20171203 from a December 03 2017 version. Below this, several interactive panels are visible: 'One click server update' with an 'update' button; 'Not necessary public IP address' with a red 'X' icon; 'Grayline in azimuth map' with a small map thumbnail; a large circular azimuth map showing the sun's position and a grayline; 'Cluster of rotators' with a tree diagram; and 'Antenna switching' with a diagram of antenna elements. At the bottom of the map, there are control buttons for 'CCW', 'STOP', and 'CW'.



RemoteQTH Server

Afbeelding configuratie
Remoterig op een Raspberry
en Trueport.

Transport RS232 over internet.

com2

Connected device name: Spid Rotator

Export on IP port: 10002

Baudrate: 1200 baud

Databits: 8

Stopbit: 1

Parity: None

Detect device: exactly by IDs (recommended) [Find USB by id's and sn](#)

USB Vendor id: 0403

USB Product id: 6001

USB sn: A602P741

Perle TruePort Adapter Settings

Number of ports: 3

- Perle TruePort Adapter
- COM7 (Connect: 10001)
- COM8 (Connect: 10002)
- COM9 (Connect: 10003)

Properties

TruePort Adapter Properties

Adapter Name: Perle TruePort Adapter

Device Server Network Location

IP Address:

Host Name:

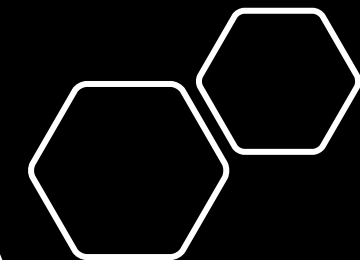
Global Advanced Options

Check for duplicate TCP port numbers

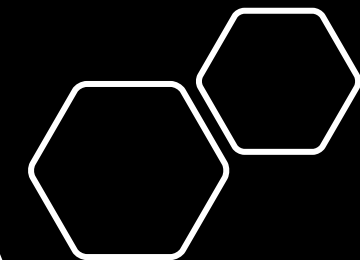
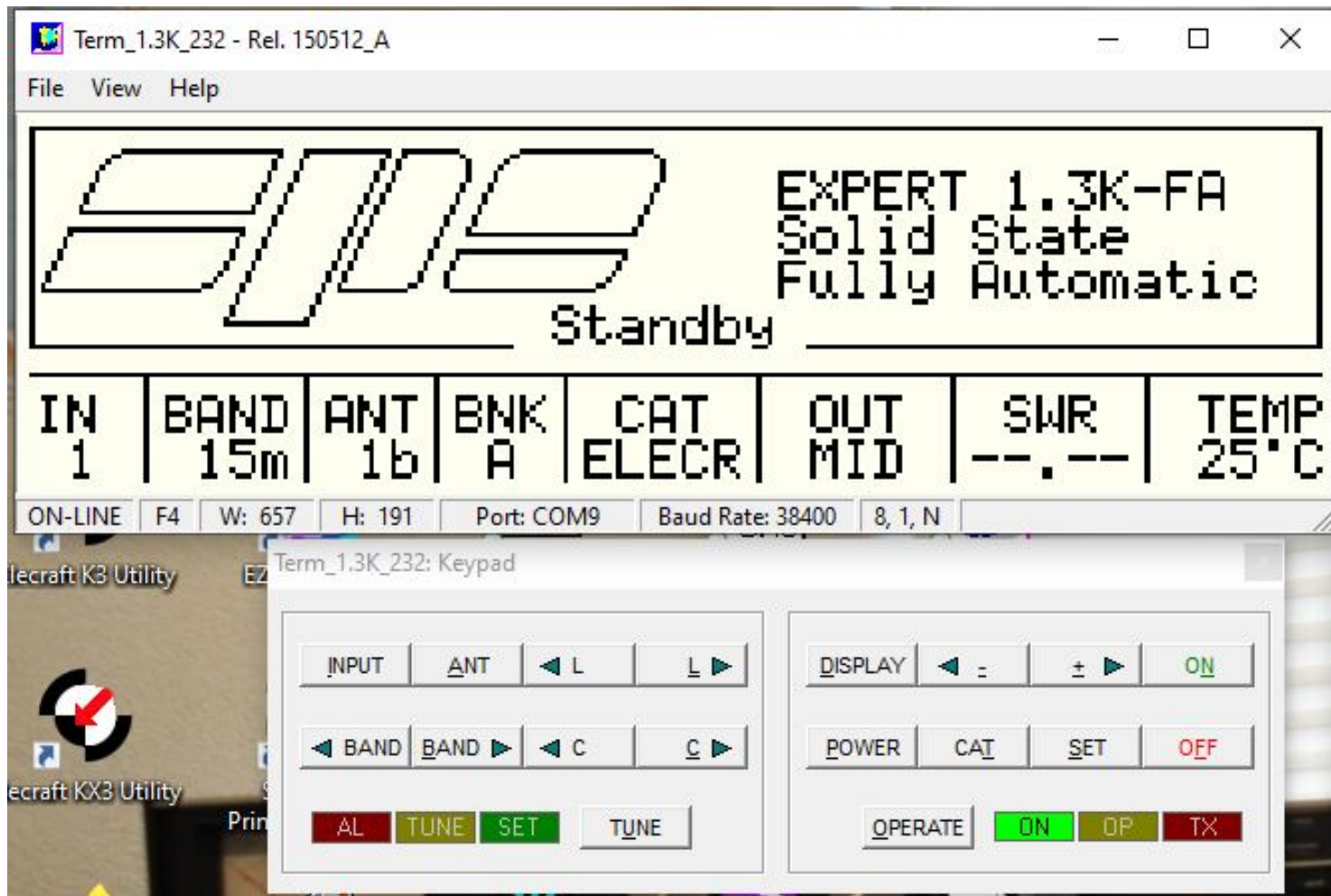
Reset All TCP Ports

Buttons: Add Ports, Remove Ports, Copy Settings To..., Restore Defaults, OK, Cancel, Apply

The screenshot displays a multi-panel software interface for antenna control. On the left, a weather window for Hoogland shows wind speed at 10.2 km/h, direction at 318 deg, and temperature at 15.0 C. The central panel, titled 'PstRotatorAz', features a circular rotator control with a map and a 'GO' button. The right panel, 'UltraBeam Controller', shows frequency settings for 'To UltraBeam' and 'From UltraBeam' both at 21.050, along with various control buttons like 'Retract', 'Calibrate', and 'Bi-Dir'.



Pst RotatorAz
Rotor en antenne besturing



SPE amplifier
Remote besturing

Term_1.3K_232 - Rel. 150512_A

File View Help

IN 1 BAND 15m ANT 1b BNK A CAT ELEC OUT MID SWR --- TEMP 25°C

ON-LINE F4 W: 657 H: 191 Port: COM9 Baud Rate: 38400 8, 1, N

Term_1.3K_232: Keypad

INPUT ANT L L DISPLAY - + ON

BAND BAND C C POWER CAT SET OFF

AL TUNE SET TUNE OPERATE ON OP TX

QRZ.COM XML

#129236 non-subscriber

Ros Buryat-Zade Nofim Israel

WX Info

Hoogland ID: 2753686

Wind Speed: 10.2 km/h
Wind Direction: 318 deg
Wind Gust: 16.1 km/h
Temperature: 14.8 C
Pressure: 1030 mb
Humidity: 85 %
Precipitation: -

PstRotorAz - Registered to PA3GRM ...

Communication Setup Tracker Map View Help

Mode Manual Tracking

Az 118 298 GO

BD 0 90 ANT 1 STOP

UltraBeam Controller

Setup Radio View

To UltraBeam 21.050 From UltraBeam 21.050

Bands 40 30 20 17 15 12 10 6

Retract Bi-Dir

UcxLog 8.15 - PA3GRM - Licensed 03/2022

QSO Contest QSL View Scan Windows Network Settings Update Help Exit

Country 4X [121° 3275 km (LP 301°) Loc: KM72NC IOTA

Israel [SR 03:26 - SS 15:37 Local: 20h Cont: AS ITU 39 CQ 20

1.8 3.5 7 10 14 18 21 24 28 50

Sep 21, 2021 17:55 UTC Loaded QSOs: 48013 SR 05:22 - SS 17:38 Online

QSO Work - PA3GRM - Licensed 03/2022

New QSO DXpedition

Date Online Reset Time 21203.7 kHz SSB Add Call Sign Clublog

Call sign Worked 4Z5LA RST sent 59 RST rcvd 59 Recall QSO DX Spot

Name QTH Remarks ROS QZ COM Remove QSO Log

IOTA District/State Locator Note Manager Note QSL Print Mark Award

Worked 6 x

4Z5LA QSL: ->	14020 CW	2021/05/08 15:11	599201	59938	KM72NC ROS CQM_contest
4Z5LA QSL: ->L	7017 CW	2019/11/02 16:47	599184	59999	KM72NC ROS URDX_contest
4Z5LA QSL: ->L	3790 SSB	2016/04/16 18:39	59	59	KM72NC ROS h14k
4Z5LA QSL: ->L	28480 SSB	2015/03/27 17:42	59	59	KM72NC ROS
4Z5LA QSL: ->L	24895 CW	2015/03/21 07:47	599	599	KM72NC ROS
4Z5LA QSL: ->L	28023 CW	2013/11/23 09:39	59941	599	PA3GRM> KM72NC WWDX contest

Send FONE

VOX (send until cursor) CW Speed / CPM 140 Incr / Decr 10 % Short figure in RST+ Nr 0 1 3 F1 repeat sec Monitor

MOX

F1 pa3grm F2 59100 F3 73gl F4 F5 F6 F7 F8 F9 F10

<Shift+F12> <Set 2> <F12>

Telnet 1

Host	Port	Login	Passwd	Offset
5 dxc.pi4cc.nl	8000	PA3GRM	*****	0 MHz

Command Send Connected auto Disconnect

```

DX de YO3LW: 7026.0 IK3SVT CW 17532
DX de EA7KI: 10111.2 T24AM heard up l grv 17532
DX de W3LPL: 21008.4 ZALME Heard in MD 17542
DX de DG3BCZ: 10111.0 T24AM Tnx...hr 50 W es simple dipole 17542
DX de LY2ED: 7076.6 RK4FA tnx QSO, 73! 17542
DX de W3A: 21074.0 ZC4GR 17542
DX de ZS6DCF: 21185.0 ZS6DCF CQ CQ FROM AFRICA 17552
DX de F4ESO: 7170.0 EW1MM LSB JN39he -> K033tv 17552
DX de SV1VS: 21074.0 W3A FT8 -11dB 995Hz 17552
DX de FA1ZV: 14280.0 1663 17552
  
```

Telnet 2

Host	Port	Login	Passwd	Offset
3 telnet.reversebeacon.net	7000	PA3GRM		0 MHz

Command Send Connected auto Disconnect

```

bye or Ctrl-D disconnect
You can add "CW" or "RTTY" to each sh/dx command to restrict which spots are displa
DX de PA3GRM-#: 21023.0 YU1YV 12 dB 26 WPM CQ 17542
I don't recognize that command.
Valid commands are:
sh/dx shows the last 10 spots
sh/dx XX shows the last XX spots
sh/dx LXB shows spots from the last XX minutes
bye or Ctrl-D disconnect
You can add "CW" or "RTTY" to each sh/dx command to restrict which spots are displa
  
```

Bandmap

21 FONE <-TRX age < min 50

Origin EU

21.185

21.190 D60AC

21.195

21.200

21.205 UY1IX 210° USB IM7

21.210

EB1DJ 231°

21.215

21.220

21.225

DX Cluster

Call	Power	Country	Remarks
1700 4Z5LA	21275.0	Israel	< 9A5THR
1705 E75M	21014.2	Bosnia-Herzegovina	< PA3GRM
1706 T12001	21026.0	Costa Rica	< S51DV
1707 9A1KDE	21284.5	Croatia	< F1ICS
1707 D60AC	21190.0	Comoros	< DG8BCF
1709 R6MI	21020.0	European Russia	< PA3GRM
1711 SP9GMI	21018.0	Poland	< PA3GRM
1712 SP9GMI	21018.0	Poland	< PA2EVR
1714 SV5/DL3DRN	21009.0	Dodecanese Isl.	< PA3GRM
1714 YT11914DRI	21020.9	Serbia	< PA2EVR
1715 E75M	21014.3	Bosnia-Herzegovina	< PA2EVR
1721 SP9GMI	21018.0	Poland	< PA3GRM
1721 D60AC	21190.0	Comoros	< SP9FDW
1728 EB1DJ	21212.0	Spain	< SV8JNH
1730 D60AC	21190.0	Comoros	< SV8JNH
1732 9A/DE3WYC	21016.5	Croatia	< PA3GRM
1735 YU1YV	21007.0	Serbia	< PA3GRM
1737 9A/DE3WYC	21014.5	Croatia	< PA3GRM
1738 AC410	21011.0	United States of America	< PA3GRM
1738 IK4DCX	21019.0	Italy	< PA3GRM
1739 4Z5LA	21275.0	Israel	< IZ6KPR
1744 YU1YV	21023.0	Serbia	< PA3GRM
1744 UY1IX	21205.0	Ukraine	< EA4HKF
1747 CX2SA	21009.5	Uruguay	< DL5TT
1751 HA8FK	21020.0	Hungary	< PA3GRM
1754 YU1YV	21023.0	Serbia	< PA3GRM

Terminal

57 / 1082

max. age 80 min

1.8 3.5 6.3 7 10 14 18 21 24 28 50

21.185

21.190 D60AC

21.195

21.200

21.205 UY1IX 210° USB IM7

21.210

EB1DJ 231°

21.215

21.220

21.225

Suppression with same band/mode

Wkd calls

Countries Cfmd worked IOTA Cfmd Squares NDXF

Origin: EU

Display DX Contest

Set Watch + Colors

SPL A K 80 | 3 | 1

by e or Ctrl-D disconnect

You can add "CW" or "RTTY" to each sh/dx command to restrict which spots are displa

DX de PA3GRM-#: 21023.0 YU1YV 12 dB 26 WPM CQ 17542

I don't recognize that command.

Valid commands are:

- sh/dx shows the last 10 spots
- sh/dx XX shows the last XX spots
- sh/dx LXB shows spots from the last XX minutes
- bye or Ctrl-D disconnect

You can add "CW" or "RTTY" to each sh/dx command to restrict which spots are displa

Term_1.3K_232 - Rel. 150512_A

File View Help

IN 1 BAND 15m ANT 1b BNK A CAT ELEC R OUT MID SWR ---.--- TEMP 25°C

ON-LINE F4 W: 657 H: 191 Port: COM9 Baud Rate: 38400 | 8, 1, N

Term_1.3K_232: Keypad

INPUT ANT L R DISPLAY : : ON

BAND BAND C

POWER CAI SET OFF

AL TUNE SET TUNE OPERATE ON OP TX

UcxLog 8.15 - PA3GRM - Licensed 03/2022

QSO Contest QSL View Scan Windows Network Settings Update Help Exit

Country 4X 121° 3275 km (LP301) Loc: KM7ZNC IOTA

Israel SR 03:26 - SS 15:37 Local 20h Cont: AS ITU 39 CQ 20

Set Country Show QSOs Set Rigor

Set Rotor

21 185 21.190 D60AC 21.195 21.200 21.205 UY1X 210° USB IM7 21.210 21.215 21.220 21.225

21 190 D60AC 21.195 21.200 21.205 UY1X 210° USB IM7 21.210 21.215 21.220 21.225

21 195 21.200 21.205 UY1X 210° USB IM7 21.210 21.215 21.220 21.225

21 200 21.205 UY1X 210° USB IM7 21.210 21.215 21.220 21.225

21 205 UY1X 210° USB IM7 21.210 21.215 21.220 21.225

21 210 21.215 21.220 21.225

21 215 21.220 21.225

21 220 21.225

21 225

QSO Work - PA3GRM - Licensed 03/2022

New QSO DXpedition

Date Online Reset Time Band Mode Add Call Sign Clublog

2021-09-21 17:58 UTC 21203.7 kHz SSB Use TRX Recall QSO DX Spot

Call sign Worked RST sent RST rcvd Undo Log QRZ.COM Log

4Z5LA 59 59 Remove QSO

Name QTH Remarks

ROS

IOTA District/State Locator Note Manager Note Ok QSL Print Mark Award Count

KM7ZNC

Worked 6x

4Z5LA QSL:-> 14020 CW 2021/05/08 15:11 599201 59938 KM7ZNC ROS COM contest

4Z5LA QSL:->L 7017 CW 2019/11/02 16:47 599184 59989 KM7ZNC ROS URDX contest

4Z5LA QSL:->L 3790 SSB 2016/04/16 18:39 59 59 KM7ZNC ROS h14tk

4Z5LA QSL:->L 28480 SSB 2015/03/27 17:42 59 59 KM7ZNC ROS

4Z5LA QSL:->L 24895 CW 2015/03/21 07:47 599 599 KM7ZNC ROS

4Z5LA QSL:->L 28023 CW 2013/11/23 09:39 59941 599 PA3GRM> KM7ZNC WVDX contest

Send FONE

VOX (send until cursor) CW Speed / CPM Incr / Decr Short figure F1 repeat Monitor

MOX <Pause> 140 <Pg Up> <Pg Down> 10 % by +/- 0 1 9 3 3 sec Tune

F1 pa3grm F5

F2 59100 F6

F3 73g F7

F4 F8

F9 F9

F10 F10

<Shift+F12> < Set 2 > <F12>

Telnet 1

Host	Port	Login	Passwd	Offset
5 dxc.pi4cc.nl	8000	PA3GRM	*****	0 MHz

Command Send Connected auto Disconnect

```

DX de YO3LW: 7027.8 OE120XFG CW 1756Z
DX de UT6IE: 14074.0 KE7NJ tnx QSO 73! 1756Z
DX de LY2ED: 7076.5 UI6A tnx QSO, 73! 1756Z
DX de DL4MFF: 21074.0 UT6EPP JN87IW->KN67OU tnx ft8 1756Z
DX de SV1VS: 21074.0 E74K FT8 -17dB 1263Hz 1756Z
DX de IU8MNI: 24985.0 IU8MNI cq cq cq 1755Z
DX de IU9DCE: 28074.0 SV2CBA FT8 -09dB from KN10 1845Hz 1757Z
DX de RU9DOK: 10111.2 T242M tnx QSO 73! up! 1757Z
DX de W0OP: 18100.7 EAL1OK 1757Z
DX de ON4LDU: 10111.2 T242M CW GE Jeff 1758Z

```

Telnet 2

Host	Port	Login	Passwd	Offset
3 telnet.reversebeacon.net	7000	PA3GRM		0 MHz

Command Send Connected auto Disconnect

```

bye or Ctrl-D disconnect
You can add "CW" or "RTTY" to each sh/dx command to restrict which spots are displa
SETT: vNormal CQ 21000.0-21070.0
I don't recognize that command.
Valid commands are:
sh/dx shows the last 10 spots
sh/dx XX shows the last XX spots
sh/dx XXm shows spots from the last XX minutes
bye or Ctrl-D disconnect
You can add "CW" or "RTTY" to each sh/dx command to restrict which spots are displa

```

Bandmap

Terminal

Call	Power	Country	Mode
1705 E75M	21014.2	Bosnia-Herzegovina	< PA3GRM
1705 112001	21026.0	Costa Rica	< S51DV
1707 9A1KDE	21284.5	Croatia	< FI1CS
1707 D6BAC	21190.0	Comoros	< D68RCF
1709 R6MI	21020.0	European Russia	< PA3GRM
1711 SP9GMI	21018.0	Poland	< PA3GRM
1712 SP9GMI	21018.0	Poland	< PA2EVR
1714 SV5/DL3DRN	21009.0	Dodecanese Isl	< PA3GRM
1714 Y11914DRI	21020.9	Serbia	< PA2EVR
1715 E75M	21014.3	Bosnia-Herzegovina	< PA2EVR
1721 SP9GMI	21018.0	Poland	< PA3GRM
1721 D6BAC	21190.0	Comoros	< SP9FDW
1728 EB1DJ	21212.0	Spain	< SV8JVH
1730 D6BAC	21190.0	Comoros	< SV8JVH
1732 9A/OE3WYC	21016.5	Croatia	< PA3GRM
1735 YU1YV	21007.0	Serbia	< PA3GRM
1737 9A/OE3WYC	21014.5	Croatia	< PA3GRM
1738 ACAT0	21011.0	United States of America	< PA3GRM
1738 IK4DCX	21019.0	Italy	< PA3GRM
1739 4Z5LA	21275.0	Israel	< I26KPP
1744 YU1YV	21023.0	Serbia	< PA3GRM
1744 UY1IX	21205.0	Ukraine	< EA4HKF
1747 CX2SA	21009.5	Uruguay	< DL5TT
1751 HA8FK	21020.0	Hungary	< PA3GRM
1754 YU1YV	21023.0	Serbia	< PA3GRM
1755 IU8MNI	24985.0	Italy	< IU8MNI