TUNER GENIUS XL

PROTOCOL DESCRIPTION

DISCOVERY

Discovery is performed by listening for UDP broadcast packets on port **9010**.

Sample packet: `TunerGenius ip=192.168.1.193 v=1.1.8 serial=210387-1 nickname=Tuner_Genius_XL`

- **ip** / IP Address
- **v** / Firmware version
- **serial** / Serial number
- **nickname** / Device name (character '_' replaces space ' ' in order not to be confused with property separator)

MAIN COMMUNICATION

Main communication goes via TCP on port **9010**, mostly synchronously (each command gets immediate reply).

After initial TCP connection, TGXL replies with something like: `V1.1.8 AUTH`

This way, client again receives information about the firmware version and if authentication is required (AUTH is appended only when connecting to TGXL from the outside of local network). If AUTH is received, the only command that TGXL would process is **auth** command with appropriate code that must match the one that user configured.

Each command sent to TGXL must be in the following format:

C<sequence_no>**|**<command> <data><LF>

- **sequence_no** / Sequence number for tracking reply
- **command** / Command name
- **data** / Command data (check each command section)
- **LF** / Line feed (\n or hex 0x0A)

Each command will receive a response in the following format:

R<sequence_no>|<response_code>|<message>

- **sequence_no** / Sequence number for tracking reply
- **response_code** / 0 = OK, otherwise consult error table
- **message** / Response message containing additional data

Messages (warning/info) are transmitted in the following format:

M|<message>

- **message** / Message text [empty when message is cleared]

auth | Authenticates connection from outside of LAN

Example: **C1|auth mycode**
Reply (success): **R1|0|auth OK**
Reply (failed): **R1|0|Unauthorized**

btl | Resets TGXL into bootloader

Example: **C2|btl**
Reply: **C2|0|**

info | Gets basic info about the device

Example: **C3|info**
Reply: `R3|0|info serial=210387-1 version=1.1.8 nickname=Tuner_Genius_XL 3way=1`

Reply does not contain **3way** property in SO2R version.

ifconf | Network information

Example (read): **C4|ifconf read**
Reply: `R4|0|ifconf dhcp=1 ip=192.168.1.193 netmask=255.255.255.0 gateway=192.168.1.1`

Example (set): **C4|ifconf set dhcp=0 ip=192.168.1.100 netmask=255.255.255.0 gateway=192.168.1.1**
Reply: `R4|0|<reboot_required>` if <reboot_required> is 1, you must execute **reboot** command

setup | Configures basic device options

Example (read): **C5|setup read**
Reply: `R5|0|setup nickname=Tuner_Genius_XL code= backlight=128 bypass1=0 bypass2=0 tuneptt1=1 tuneptt2=1`

Example (set): **C5|0|setup set nickname=Tuner_Genius_XL1 code=123456 backlight=100 bypass1=1 bypass2=1 tuneptt1=0 tuneptt2=0**
Reply: `R5|0|`

- **nickname** / Device name (character '_' replaces space ' ' in order not to be confused with property separator)
- **code** / Authentication code
- **backlight** / Backlight intensity [1-128]
- **bypass**[**1**-**2**] / Channel RX bypass [0 or 1]
- **tuneptt**[**1**-**2**] / PTT OUT when tuning [0 or 1]

catradio | CAT configuration

Example (read all): **C6|catradio read**
Reply:
```
R6|0|catradio ch=1 active=0 type=KENWOOD baud=4800 control=8N2 civ=0
R6|0|catradio ch=2 active=0 type=KENWOOD baud=4800 control=8N2 civ=0
```

Example (get): **C6|catradio get ch=1**
Reply: `R6|0|catradio ch=1 active=0 type=KENWOOD baud=4800 control=8N2 civ=0`

Example (set): **C6|catradio set ch=1 active=1**
Reply: `R6|0|`

- **ch** / Channel number
- **active** / Channel CAT active [1 = YES, 0 = NO]
- **type** / Radio type [ICOM, KENWOOD, FT1000, FTDX]

- **baud** / Baud rate
- **control** / Serial control [8N1, 8N2, 9N1, 9N2, 8E1, 8E2, 8O1, 8O2]
- **civ** / CI-V address [for ICOM type only]

flexradio | Flex Radio configuration

Example (list): **C7|flexradio list**
Reply:
```
R7|0|radio serial=4315-5050-6700-6206 nickname=RATISEVINA callsign=4O1HQ
R7|0|radio serial=4315-5050-6700-6342 nickname=4O3A_MAIN callsign=4O3A
R7|0|
```

Example (read): **C7|flexradio read**
Reply:
```
R7|0|flexradio ch=1 active=1 serial=4315-5050-6700-6206 antenna=ANT1 source=LAN
R7|0|flexradio ch=2 active=1 serial=4315-5050-6700-6206 antenna=ANT2 source=LAN
```

Example (get): **C7|flexradio get ch=1**
Reply: `R7|0|flexradio ch=1 active=1 serial=4315-5050-6700-6206 antenna=ANT1 source=LAN`

Example (set): **C7|flexradio set ch=1 active=1 source=RCA**
Reply: `R7|0|`

- **ch** / Channel number [1 or 2]
- **active** / Flex integration active [1 = YES, 0 = NO]
- **serial** / Flex Radio serial number
- **antenna** / Bind channel to Flex Radio antenna port [ANT1, ANT2, XVRT]
- **source** / PTT IN source [LAN or RCA]

status | Get device status

Example: **C8|status**
Reply: (note that status reply starts with S)
```
S7|status fwd=23.63 peak=23.84 max=0.00 swr=-60.0000 pttA=0 bandA=0 modeA=0 flexA=RATISEVINA
freqA=0.000 bypassA=0 bypassRxA=0 antA=0 pttB=0 bandB=0 modeB=0 flexB= freqB=0.000 bypassB=0
bypassRxB=0 antB=0 state=1 active=1 tuning=0 bypass=0 ag=0 relayC1=0 relayL=0 relayC2=0
```

- **fwd** / Forward power [dBm]
- **peak** / Peak power [dBm]
- **max** / Max power [dBm]
- **swr** / SWR [db]
- **ptt[A/B]** / PTT asserted [1 = YES, 0 = NO]
- **mode[A/B]** / Active mode [0 = RF Sense, 1 = FLEX, 2 = CAT, 3 = P2B, 4 = BCD]
- **flex[A/B]** / Flex Radio nickname
- **freq[A/B]** / Current frequency
- **bypass[A/B]** / Channel bypassed [1 = YES, 0 = NO]
- **bypassRxA[A/B]** / Channel RX bypass enabled [1 = YES, 0 = NO]
- **ant[A/B]** / Antenna in use [3WAY version or when SO2R integrated with AG]
- **state** / Device state [0 = STANDBY, 1 = OPERATE]
- **active** / Channel selected [1 or 2]
- **tuning** / Tuning in progress [1 = YES, 0 = NO]
- **bypass** / Device bypassed [1 = YES, 0 = NO]
- **ag** / AG connected [1 = YES, 0 = NO]
- **relay[C1,L,C2]** / Relay network status [0 – 255]

operate | Operate / Standby

Example: **C9|operate set=1** [1 = OPERATE, 0 = STANDBY]
Reply: `R9|0|`

bypass | Device global bypass

Example: **C10|bypass set=1** [1 = BYPASS, 0 = IN LINE]
Reply: `R10|0|`

activate | Set active channel

Example (SO2R): **C11|activate ch=1** [1 = A, 2 = B]
Example (3WAY): **C11|activate ant=3** [1 = ANT1, 2 = ANT2, 3 = ANT3]
Reply: `R11|0|`

autotune | Initiates autotuning on selected channel

Example (SO2R): **C12|autotune**
Reply: `R12|0|`

save | Saving configuration changes (reboots device if needed)

Example (SO2R): **C13|save**
Reply: `R13|0|`

tune | Manual tuning of C1, L and C2

Example (SO2R): **C14|tune relay=1 move=1**
Reply: `R14|0|`

- **relay** / Relay to tune [1 = C1, 2 = L, 3 = C2]
- **move** / Delta moving [1 or -1]