



Power Genius™ XL Release Notes

March 4, 2021

This is a general release for use with the Power Genius XL amplifiers. The focus of this release is improving thermal management. Please refer to that for details on the new features.

Power Genius XL Firmware: v3.5.23

IMPROVED PTT (RX to TX TRANSITION) TIMES:

- Minimize changes to the power supply status (on/off) and Vdd (DC supply voltage), so the amplifier does not instruct exciter to wait unnecessarily for the power supply to respond to a change request when the amplifier is keyed. This change also ensures DC power and bias are stable before RF is accepted at the input and minimizes SWR excursions.
- Improved tracking of FLEX-6000 exciter slice state to reduce occurrences of last-moment changes in band selection.

THERMAL MANAGEMENT:

This version links Thermal Management profiles (Standard, Contest, and Broadcast) to logic that manages the power supply and bias voltages. This change impacts the primary exciter integration point, the exciter-enforced TX Delay setting. All exciters should set their TX Delay to 20ms.

The following applies to when the amplifier is in the Operate state.

- **Standard Thermal Mode:**

Fans:

The fans will turn off once the PA temperature is below 50°C and the amplifier has been idle for more than two minutes. During operation, as PA or Harmonic Load temperatures increase or decrease, the fans will turn on or off and will increase or decrease speed following the Standard profile.

Power Supply and PTT Behavior:

When the PA temperature falls below 50°C and the amplifier has been idle for two minutes, the PGXL will enter an idle sub-state. While idle, DC power is disabled, and fans are turned off. An exit from the idle state requires between 250ms-500ms for the power supply to reestablish power and bias. Please note this is longer than the recommended 20ms TX Delay and requires reviewing how your amplifier and exciter are integrated.

Exciters should not emit RF until the PGXL is ready to accept RF.

FLEX-6000 Signature Series exciters configured to use LAN PTT utilize an interlock mechanism specifically designed to prevent RF from being emitted before the amplifier is ready to accept it. No additional configuration is required.

All other types of exciters should configure the amplifier and exciter so that the amplifier keys the exciter, which it will do only when it is ready for RF. Connect the PTT OUT line from the PGXL to the PTT IN line on the exciter. Connect your PTT device (footswitch, etc.) to the PTT IN on the PGXL. This wired configuration will ensure your exciter waits for the appropriate interval before emitting RF.

Special Note:

When using the Standard Thermal Mode and the amplifier is in the idle state, we recommend keying the transmitter briefly before transmission. This procedure will "wake up" the power supply in the PGXL and prepare it for use.

- **Contest Thermal Mode**

Fans:

Fans will remain on and operate at a speed determined by the temperature of the PA heatsink. Fans remain on as long as the amplifier is in Operate state. In the Standby state, they will turn off once the PA temperature falls below 50°C. During operation, as PA or Harmonic Load temperatures increase or decrease, the fans will increase or decrease speed following the Contest profile.

Power Supply and PTT Behavior:

The PGXL will never enter the idle sub-state. The amplifier will always be ready for transmission, DC Power and bias will always be applied. The TX transition after PTT is asserted will occur in less than 20ms.

Special Note

Because the PA transistors are always biased, the fans remain on to control the amplifier's temperature.

- **Broadcast Thermal Mode**

Fans:

Fans always run at full speed while the amplifier is in Operate state. In Standby, the fans will turn off once the PA heatsink temperature falls below 50°C.

Power Supply and PTT Behavior:

The PGXL will never enter the idle sub-state. The amplifier will always be ready for transmission, DC Power and bias will always be applied to the PA transistors, and the TX transition after PTT is asserted will always occur in less than 20ms.

OUTPUT FILTER FAN NOISE ABATEMENT:

- **Standard, Contest, and Broadcast Thermal Modes**

The firmware accumulates total key-down time over the last few minutes of operation and calculates a key-down duty cycle. The key-down duty cycle is used in a hysteresis calculation applied to the output filter fan speed to ensure the filter's components are adequately cooled as the duty cycle increases.

Power Genius XL Utility: v2.2.10

No changes for this release.

Important Release Details

Known Issues

- #403 ICOM CIV only works at 9600 baud
CIV interfaces currently run only at 9600 baud. When other baud rates are selected, CIV does not work.
- #395 DHCP-IDLE flashing on the front panel
The IP address on the amplifier's front panel will cycle between DHCP Idle and an IP address on some networks. This condition is cosmetic.

Power Genius XL Documentation Available on www.flexradio.com

Updated documentation and quick start guides for the Power Genius XL are available as a convenient download from the FlexRadio website.

[Power Genius XL Brochure, Quick Start, User's Guide, Software and Firmware](#)

Obtaining Technical Support

If you encounter any issues installing or operating SmartSDR for Windows with your FlexRadio Systems' Signature Series software defined radio, please use our online [Community](#) to query for information about SmartSDR for Windows and the FLEX-6000. If you need assistance using the Community, please refer to the community topic "[How to use the FlexRadio Systems Support Community](#)".

If you are unable to find an existing answer to your issue via the Community, please contact FlexRadio Systems Technical Support by opening a HelpDesk support ticket online at <https://helpdesk.flexradio.com/>

For details on how to submit a HelpDesk support ticket, please refer to the following URL: <https://helpdesk.flexradio.com/hc/en-us/articles/202118688-How-to-Submit-a-Request-for-Technical-Support>.

Hours of Operation: Our Technical Support engineers are available Monday-Friday from 7:00 AM-4:00 PM Central Time. If you open a HelpDesk ticket after business hours, on a holiday, or weekend, we will respond to your request for assistance during regular business hours in the order your HelpDesk ticket was received.

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FlexRadio
4616 W. Howard Lane
Suite 1-150
Austin, TX USA 78728
+1 (512) 535-4713
www.flexradio.com