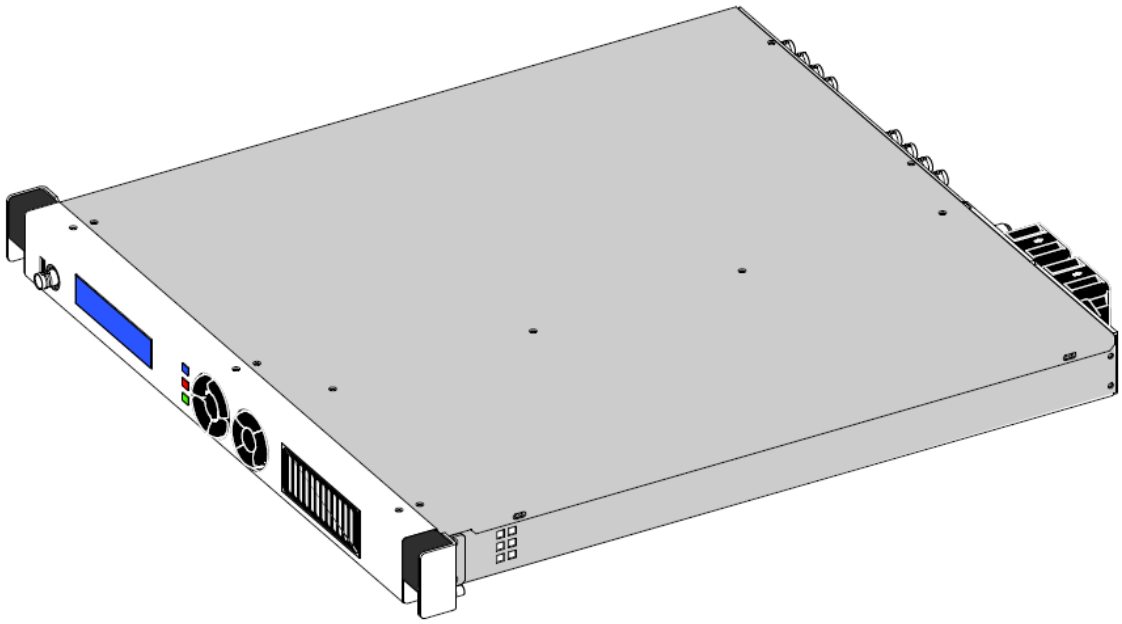
Broadcast Electronics Inc.
4100 North 24th Street, Quincy, Illinois 62305 USA • Phone (217) 224-9600 • Fax (217) 224-9607 • www.bdcast.com • bdcast@bdcast.com



ModEX // Multimode UHF Exciter
Quick Startup Guide

Revision B
7/2/20

ModEX *//* Multimode UHF Exciter
Quick Startup Guide

Revision B
7/2/20

Introduction:

Once your new Genesis Elite or Genesis Compact TV transmitter is physically installed, this guide will help you quickly configure your ModEX *II* Multimode Exciter.
This guide will give you the basics for:

- Logging in to the exciter web-based UI
- Setting your frequency / channel
- Selecting primary and secondary Inputs
- Configuring primary/secondary failover monitoring
- Setting Linear and Non-Linear Adaptive Pre-Correction Values
- Viewing Alarms and Mute triggers

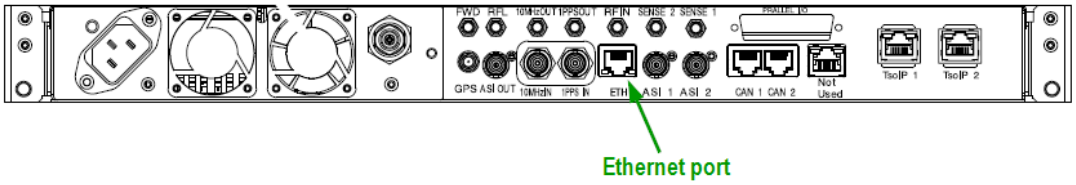
It is highly recommended that you thoroughly review and understand the complete product manuals, available here: https://bdcast.freshdesk.com/en/support/search?term=genesis

Logging in to the Exciter:

1. If you don't already know the IP address of your exciter, you can find it from the front panel.

Using the 4-point controller-keyboard button on the Exciter front-panel, navigate to the < EXC. IP > menu. This will display the Exciter's IP Address and Netmask.
Pressing the Left or Right arrow keys will cycle through the menus, while the Up and Down arrows scroll through the items within each menus. The OK button will select that item.

2. Connect a laptop/PC to the Exciter via ethernet cable. There are several similar-looking ports in the back of the exciter. Make sure you use the one labeled "ETH".



The specifics will vary depending on your PC Operating System, but you will need to change your computer's IP address to use the same subnet and netmask as what is shown on the Exciter. The last digit of your IP address must be different from the Exciter's but the other digits should be the same. For example, if the Exciter IP and subnet is 10.0.11.150 / 255.255.0.0, set your PC's IP address and subnet to 10.0.11.152 / 255.255.0.0.

3. Using your favorite modern web browser, enter the Exciter's IP into the address bar.
4. Login to the Exciter Web UI using the default username: **admin** and default password: **system**.
5. You should now be connected to the Exciter and see the main interface.

Navigating the Exciter Web Interface:

The UI is divided into two key sections: a schematic overview on the top and 3 configuration panes on the bottom.

The functional blocks in the schematic overview are color-coded to indicate their status.

GREEN: Normal functionality / operation

RED: Alarm condition

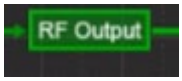
GRAY: Function is unused or disabled

Most of the functional blocks can be dragged into any of the Configuration panes to reveal relevant settings or parameters. If a functional block will not drag into a Configuration pane, it means there is nothing to see or do with it.

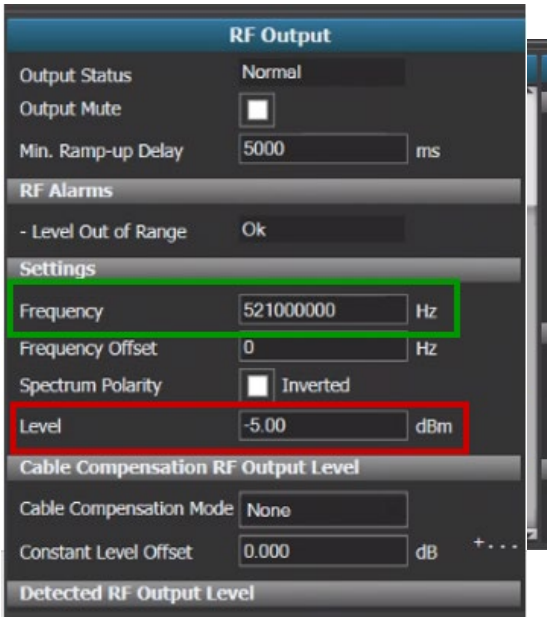
NB: The Apply button must be clicked in order for any changes to take effect.

Setting Frequency / Channel:

Most Exciters are pre-configured at the factory to broadcast at the desired frequency. It's a good thing to check at initial start-up, though.



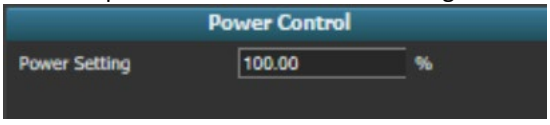
1. Drag the RF Output functional block to one of the Configuration panes.
2. In the RF Output configuration pane, you can Mute your output (go Off Air, set your Min. Ramp up Delay, and change your frequency. Unless you absolutely know what you are doing, **DO NOT adjust the Level from its factory preset**.
3. Note that the Frequency is shown in Hertz. To convert this to North American TV channels, visit this website and enter your desired channel to convert between the two units: https://otadtv.com/frequency/index.html
4. Make your desired changes and click Apply.



Setting Output Power:

Power output is set as a percentage of the Exciter's maximum Output Power.

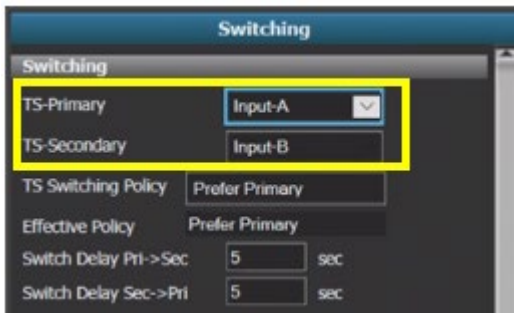
1. Drag the Power functional block to one of the Configuration panes.
2. In the Power configuration pane, you can specify a percentage of Total Output Power in the "Power Setting" field.

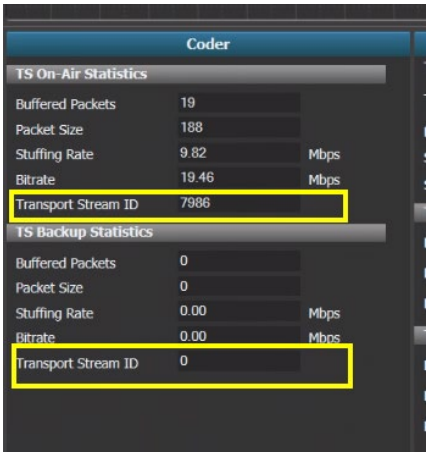


3. Click Apply.

Setting Primary and Secondary Inputs:

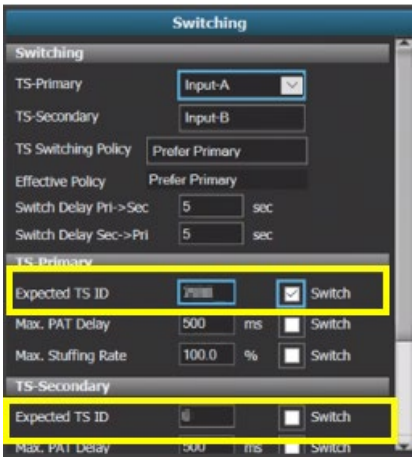
1. Drag the Switching functional block into any Configuration pane.
2. In the Switching configuration pane, select your TS-Primary and TS-TS-Secondary inputs from the drop-down lists. Select ASI1, ASI2, or TSoIP according to your situation.
3. You can check the operation of your input streams by dragging the Coder functional block into any Configuration pane.





Configuring Primary and Secondary Failover Monitoring:

1. In the Switching Configuration pane, set TS-Switching Policy to Prefer Primary.
2. Enter the TSID of your Primary and Secondary programming inputs. This will allow the Exciter software to monitor for drops and fail-over to the alternate source if it is available, returning to Primary when it is restored.
3. You can also select threshold failover values for PAT delay and stuffing rate.
4. Select the Switch checkboxes for each applicable input.
5. Click Apply.



Setting Linear and Non-Linear Adaptive Precorrection Values:

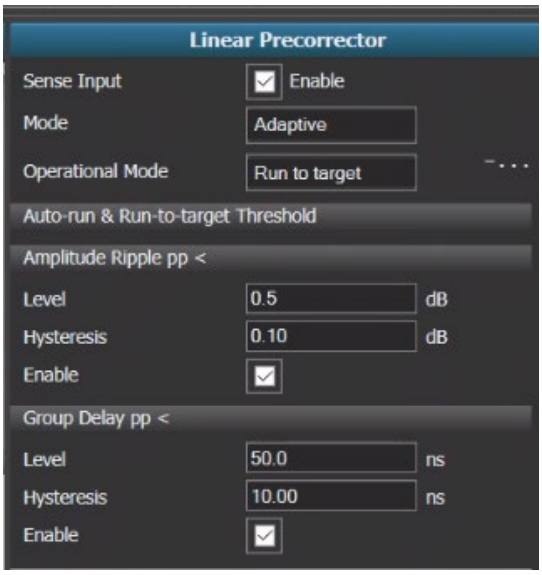
There are 3 corrector functions which can be run to improve performance. Start with Linear, as this can take the longest amount of time and can then be set to "Monitoring". Then move to Non-Linear. Performance improvements from Clipping correction will be subtle and are best done in conjunction with a Spectrum Analyzer. Tweak those later, at your convenience. A detailed guide to the Adaptive Precorrector Function is available here: link.

Linear Adaptive Precorrection:

1. Drag the Linear functional block into any Configuration pane.
2. In the Linear Precorrector Configuration panel, ensure the following settings:

Mode: Adaptive
Operational Mode: Run to target
Amplitude Ripple Level: 0.5 dB
Amplitude Ripple Hysteresis: 0.10 dB
Group Delay Level: 50.0 ns
Group Delay Hysteresis: 10.0 ns
All Enable boxes checked

3. Click Apply
4. This process can take a while to complete. Let it run for 30 minutes or so, until monitoring indicates the levels are within set parameters.
5. Set Operational Mode back to **Monitoring**.
6. Click Apply.

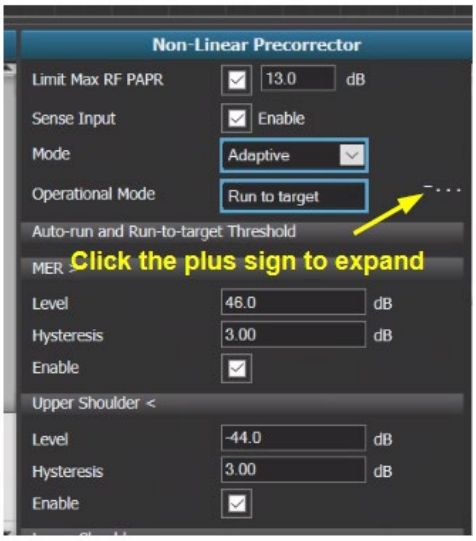


Non-Linear Adaptive Precorrection:

1. Drag the Non-Linear functional block into any Configuration pane.
2. In the Non-Linear Precorrector configuration panel, ensure the following settings:

Mode = Adaptive
Operational Mode: Run to target
MER Level: 46.0 dB
MER Hysteresis: 3.00 dB
Upper Shoulder: Level: -44.0 dB
Upper Shoulder Hysteresis: 3.00 dB
Lower Shoulder: Level: -44.0 dB
Lower Shoulder Hysteresis: 3.00 dB
All Enable boxes checked

3. Click Apply
4. This process can take a while to complete. Let it run for 30 minutes or so, until monitoring indicates the levels are within

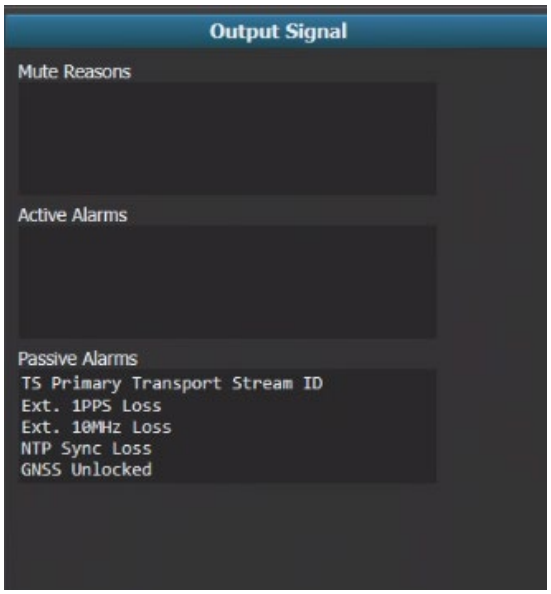


set parameters.(Click the minus sign to contract the menu and reveal the monitoring pane).

5. Set Operational Mode back to **Monitoring**.
6. Click Apply.

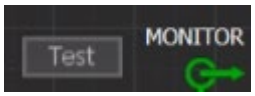
View Alarms and Mute Triggers:

1. Drag the RF functional block into any Configuration pane.
2. This will display any alarms associated with your Output Signal

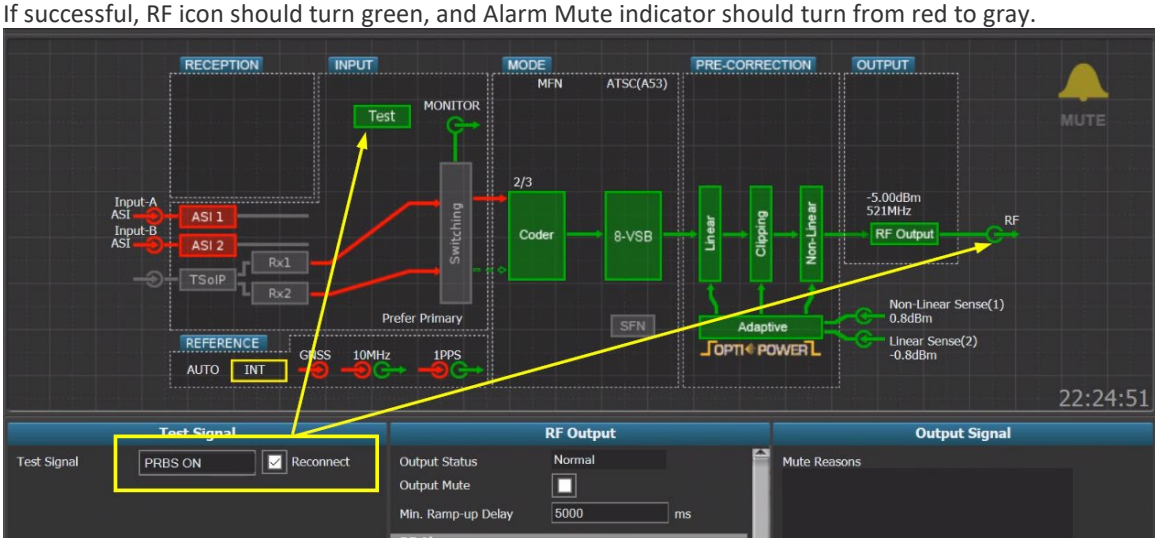


Other Tips and Tricks:

Even without ASI1, ASI2, or TSoIP inputs, you can go On Air to test your broadcast signal.

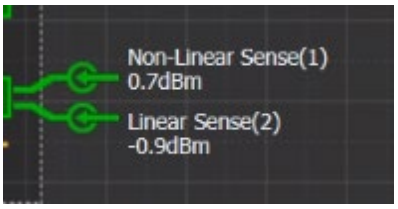


1. Drag the Test functional block into any Configuration pane.
2. In the Test Signal Configuration pane, select PRBS ON from the Test Signal drop-down list.
3. Click Apply.
4. If successful, RF icon should turn green, and Alarm Mute indicator should turn from red to gray.



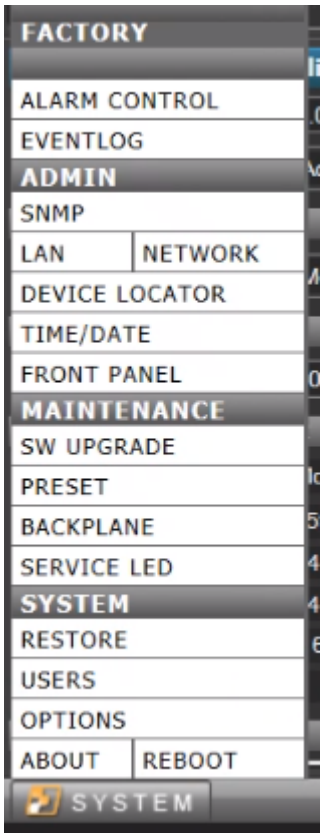
Monitor Linear Sense inputs

Linear Sense (1) and (2) should be between -10dBm and +7 dBm



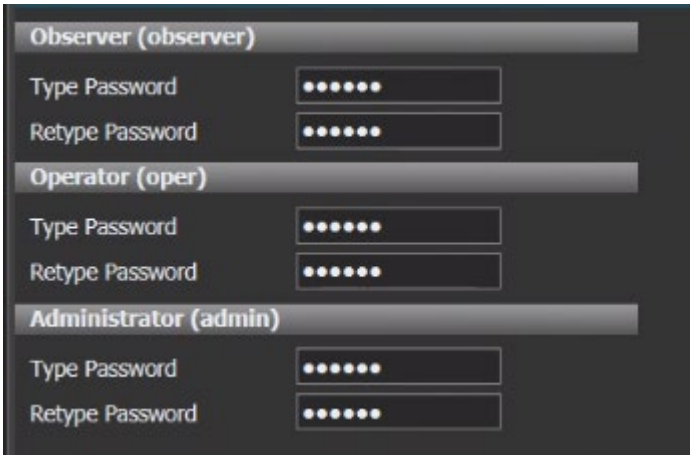
Change the IP Address of the Exciter

1. Click the System button in the lower-left corner of the GUI.
2. Click ADMIN > LAN
3. Change the IP address of the Exciter as desired,
4. Once changed, you will be disconnected from the Exciter and must log in again.
5. If you had changed your PC IP address to accommodate the Exciter's original IP address, you will need to change it back to accommodate the new IP address.



Change the Passwords of Exciter Accounts

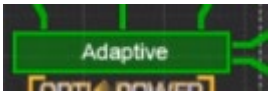
6. Click the System button in the lower-left corner of the GUI.

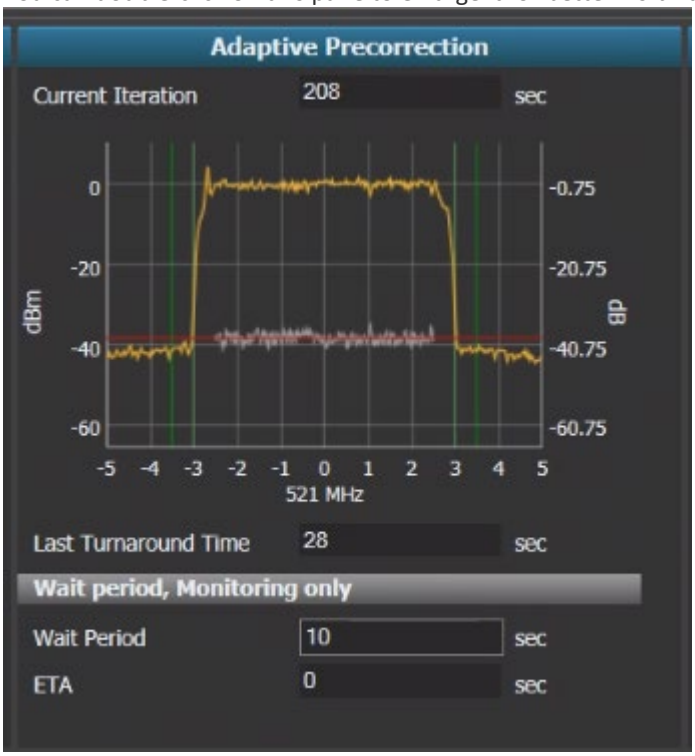


7. Click SYSTEM > USERS
8. Change the password for any of the predefined users
9. Click Apply

Monitor Adaptive Precorrection

1. Drag the Adaptive functional block to any Configuration pane.
2. The Amplitude / Frequency Response waveform is displayed in the Configuration pane.
3. You can double-click on this pane to enlarge it for better visibility.





END OF DOCUMENT