

Setting the initial gain structure of a XAP system

Description

This document describes how to configure the initial gain structure of a XAP system. All input sources and outputs should be connected properly to the XAP unit(s) before starting this procedure. The procedure will get your system to a good starting point and only minor adjustments should be necessary afterwards.

Note: Turn off all processing functions including AGC, noise cancellation, filters, speech leveler, etc. before starting this procedure.

It is important to correctly set up the gain structure to maximize the signal to noise ratio and get a proper mix of inputs where each input signal is at the same level. If the gain structure is not configured properly, echo cancellation, duplex, and processing may not perform at their optimal level.

To set up the initial gain structure on microphone inputs

1. Open the mic/line Inputs 1–8/1–4 window in G-Ware.
2. Select the Post Gain meter check box for the first mic.
3. Have somebody give a test count at a normal distance from the microphone (generally this would be seated at the conference table or positioned for a video/teleconference).
4. Monitor the Post Gain meter. Since this meter is a peak meter, you will be looking for a peak just hitting the yellow (approx. +6dB). If the meter stays green, the level may be too low. If it goes red, the signal will be clipped.
5. Start with the course gain (0dB, 25dB or 55dB) and get as close to 0dB on the meter as you can with it.
6. Adjust the fine gain to bring the level even closer to an average of 0dB.
7. Repeat steps 1-6 with each microphone input into the system.

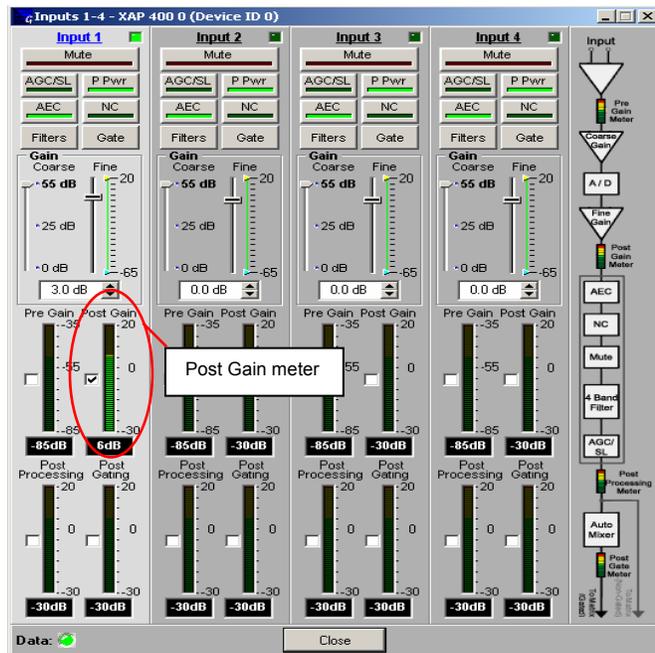


Figure 1. When set to 55dB (coarse) and 3dB (fine), the input signal level in this example causes the meter to touch yellow in the Post Gain meter.

To set up the initial gain structure on line inputs

- Line inputs are configured in the same manner as the mic inputs. Using the source that will be on each input, enable the Post Gain meter and adjust the gain to average 0dB. (Figure 2)

Note: Line sources might include video codecs and consumer grade CD players, DVD players or VCRs etc. It is common for these types of devices to require 10-12 dB of gain to bring their levels up to 0 dB.

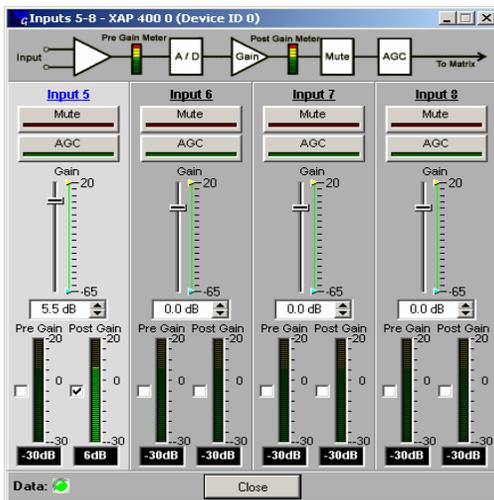


Figure 2. Here we used a 5.5 dB setting on Input 5 to get the level to meter into the yellow.

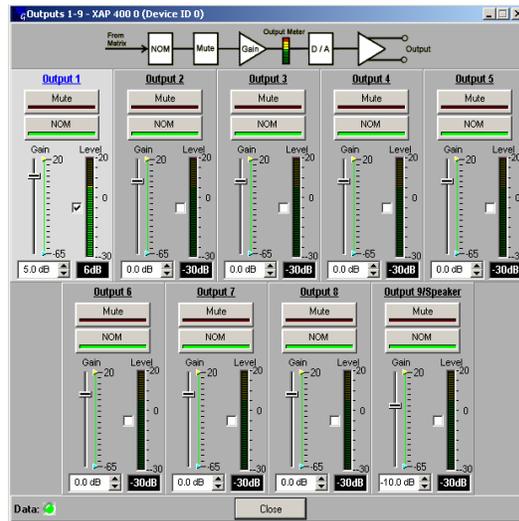


Figure 3. Here we used a 5.0dB setting on Output 1 to get the meter to touch yellow.

To set up initial gain structure for Telco (XAP 400/XAP TH2)

1. Open the Telco window in G-Ware.
2. Adjust the telco receive (line in from TH2 in a XAP 800/XAP TH2 system) with someone talking on the phone. This is best done using a standard handset on the far end since levels can be unpredictable from speakerphones or amplified headsets.
3. With the microphones routed to the telco transmit, adjust the gain while monitoring the level meter for an average of 0dB while someone speaks into the microphones. (See Figure 3.)
4. With the telco receive routed to the room output, adjust the gain while monitoring the level meter for an average of 0dB. (This will affect the level coming into the room. If an external amplifier is being used, it will need to be adjusted to compensate for this change.)

Once gain levels have been set for mic and line inputs and telco, the room levels should be acceptable and the gain through the XAP units is approximately unity. Adjustment for room acoustics and personal preference can now be made. Also, any desired processing can be enabled such as noise cancellation, AGC/SL, filters, etc.