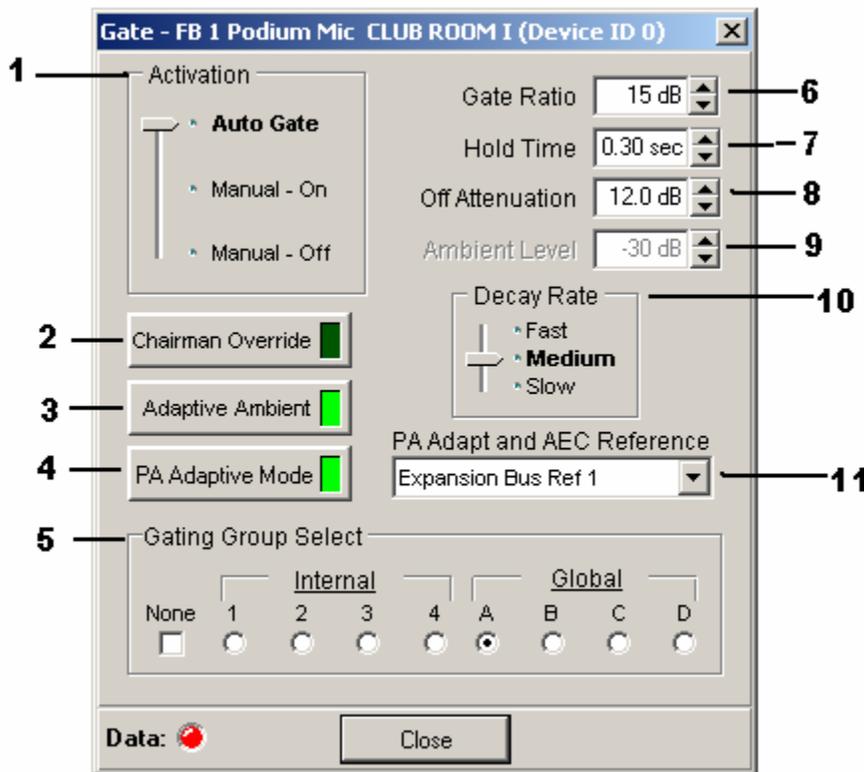


### Gating Parameters Explained

Gating is the ability of a mixer to raise or attenuate microphones according to the level received at the microphone inputs. The goal of this feature is to bring to the forefront the audio we want to hear (speech) and to subdue the audio we don't (background ambience). The XAP system gives us many controls to aid us in achieving this balance.



#### 1. Activation

- **Auto Gate** – This is the default setting. The system listens and makes decisions as to when this microphone will gate on and off.
- **Manual On** – The microphone will be latched in a constant gated on state. The microphone is still subject to gating rules such as Max Number of Mics. Usually a microphone in this setting is also set to None in the gating group select. This keeps it from taking one of the max number of mic resources from Auto-Gating microphones.
- **Manual Off** – This microphone will be latched off. This state is different than a mute in that the microphone will still pass audio at its off attenuation level.

#### 2. Chairman Override

This feature gives the microphone priority over all other microphones within the same gating group. When a chairman mic gates on, all other microphones gate off. If multiple chairmans are in the same group, the one who gated on first has control until the microphone gates off naturally.

### 3. Adaptive ambient

In any room there is a level of noise. This noise is usually perceived as a constant “white noise” which fills the room. Generally caused by HVAC equipment or other devices in the area, this noise needs to be accounted for when gating decisions are made. The adaptive ambient feature enables the XAP unit to listen to the room and identify the ambient level of noise in the room automatically.

### 4. PA Adaptive mode

When audio from the remote site passes into the conference room, there is the danger that it will gate on microphones. This happens when the mic, sensing audio above its gating threshold, opens. To counter this, the PA adaptive feature, monitoring the PA adapt and AEC reference channel, raises the gate ratio of the microphone in accordance with the level seen at the reference. This effectively lets the system know when audio is being received from the remote site and limits the channels ability to gate accordingly.

### 5. Gating Groups

This feature allows our system to separate microphones into different groups. This becomes necessary if the XAP or group of XAPs is used across multiple rooms. This logical division allows different groups of microphones to gate independently from the other gating groups in the system.

- **Global** – These four groups (A,B,C,D) are common throughout all units linked together. Any microphones assigned to one of these groups will follow the rules set for that group.
- **Internal** – These four groups (1,2,3,4) are only for microphones local to the unit. The mics set to any one of these groups will follow the gating rules set for that group.
- **None** – Microphones set to this “group” are independent of any other microphones. While they may gate on and off, they are not bound to any max number of microphones or first mic priority limitations. This mode is also usually selected when setting up a microphone input as a line input.

### 6. Gate Ratio

The Gate ratio is actually one of two numbers the system looks at to make the decision of whether to attempt to “gate on” an individual microphone. This number is in decibels and is defined as the number of decibels above the noise floor the audio needs to be before the mic is gated on.

### 7. Hold time

When people speak, they do not speak in a continuous stream. Hold time will keep a gate open for the selected amount of time allowing for these stop and starts. If the gate closed every time audio fell below the gating level speech could be lost and sound “choppy”.

### 8. Off Attenuation

When a microphone is gated off, we do not completely disable it from passing audio. Instead the microphone is attenuated an amount specified here. This keeps the system from sounding “switched” and keeps some ambience passing to the listener, which makes the system, sound natural.

### 9. Manual ambient

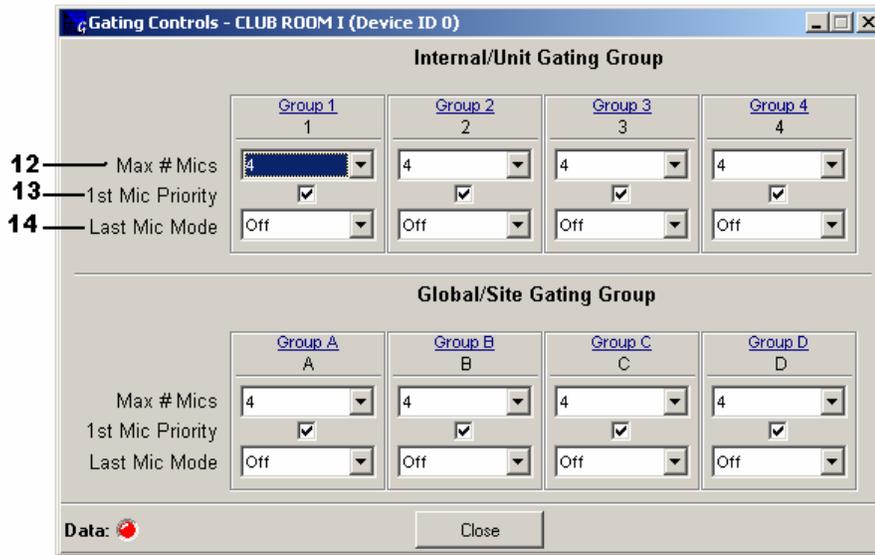
This feature is used in specific circumstances. This feature is used by the system if the automated “Manual Ambient” feature is off. Instead of the system deciding ambient level in the room this decibel number gives a set reference value of noise.

### 10. Decay Rate

When a microphone gate has decided to turn off this feature allows the microphone to “slope” down to it attenuated level. This feature is designed to soften the gating effect of the microphone and avoid a “switched off” effect. Extending this feature does have drawbacks. A microphone will not gate on if it is still in the process of gating off. So in lengthening the decay rate, the gating response can suffer.

**11. PA Adapt and AEC reference**

In order for the PA adaptive to work, the gating system needs a sample of the audio that is passing into the room. This setting is tied also to the AEC reference for echo cancellation, as they are invariably associated with one another.



**12. Max # Mics**

For each microphone group within the system, we have the ability to specify how many microphones are capable of gating on at any one time. While many features in the system will attempt to limit microphone activity, this number is an absolute upper limit.

**13. 1<sup>st</sup> Mic Priority**

This feature is invaluable in the smaller or more reflective rooms. When audio is picked up across multiple microphones in the same gating group. The first mic priority feature evaluates each channel and attempts to only gate on the microphone with the loudest pickup. This translates to a cleaner pickup of the speaker with less “phasing” of the audio.

**14. Last Mic Mode**

This feature allows you to select a specific microphone to leave on when all other microphones gate off. This is useful to raise ambience in the room, or if there is a conference lead/keynote speaker. Other options under this feature are- **Last On**, where the system will not gate a microphone off until another microphone opens. And the default- **Off**, where the system behaves normally and all mics are allowed to gate off naturally.