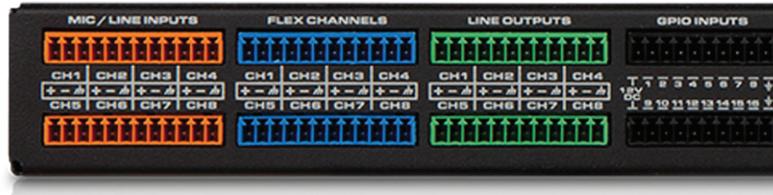




Technical Notes

Q-SYS Core 110f



Using Flex Channels in the Core 110f

The Q-SYS Core 110f features eight dedicated mic/line level analog balanced inputs (with individually selectable +48V phantom power as well). These are the orange pluggable “Euro-style” terminal blocks. The core also features eight dedicated analog balanced outputs, on the green terminal blocks.

In between, on blue terminal blocks, are eight Flex channels, an exclusive QSC feature. These are balanced analog audio connections that can be configured individually as mic/line inputs (with selectable phantom power) or as analog outputs, in real time via software. Thus, the analog I/O complement of the core can be changed dynamically to fit the situation, in any arrangement from 16 inputs + eight outputs through eight inputs + 16 outputs.

The system designer therefore can dynamically assign auxiliary inputs for laptop computers and playback devices, or outputs to recording systems, without the cost of additional I/O devices. When configured as a mic/line input, the flex channel has microphone detection capability for applications that require monitoring the presence or fault status of a microphone.

Pinout

The flex channel connections keep the same balanced pinout for both input and output functions: +, -, and shield/screen (Figure 1).

For unbalanced connections, link the - pin to the shield/screen pin. If this results in a ground loop or other system ground fault, you may remove the link and connect the cable shield to the - pin instead; this is a “quasi-balanced” connection.

Cautions

To prevent damage to equipment in the system, make sure each flex channel is properly configured for the devices to be connected to it before the physical connection is actually made. For example, a flex channel that is to serve as an output feeding the input of a power amp must *not* be configured even inadvertently as a mic/line input with the phantom power active.

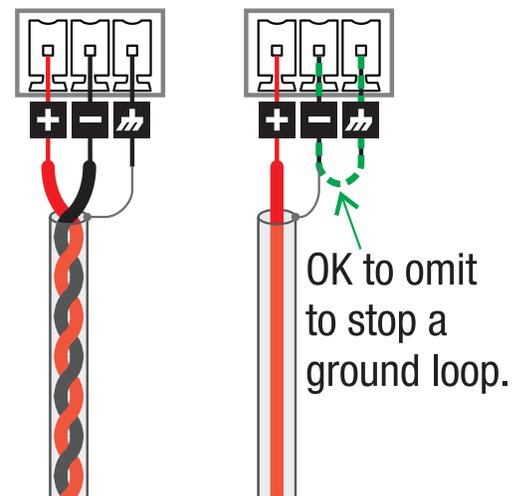


Figure 1. Left: Balanced connection; Right: Unbalanced with ground connection (most common type of unbalanced connection), or as “quasi-balanced” to avoid ground loops

Configuration in Q-SYS Designer

Double-clicking on the **Flex In** component in Q-SYS Designer opens the input configuration box (Figure 2), where you can set which channels are inputs and which are outputs. You can also set mic detection on inputs, as well as preamp gain (similar in concept to adjustable input preamp gain on a mixer). Click a channel's **Input** button to set its status as an input.

Other settings and indications on each channel are a peak input level metering (in dB referenced to full scale), a clip indicator, a clip hold button (to hold the clip indicator on after an incident of clipping), and phantom power button. There is also the **Invert** button (which flips the polarity of the audio signal), the **Mute** button (which silences the signal), and a gain control.

Double click on the **Flex Out** component to open the output configuration box (Figure 3). Click a channel's **Output** button to set it as an output. The box also features these analog functions: peak output level metering, muting, and control over maximum output level. The digital functions included are peak output level metering, clip indication (with clip hold available), invert, muting, and gain.

Mic detection

If the project requires notification that a microphone has been disconnected or is faulty, use the mic detection feature.

Click the **Mic Detection** tab to open the configuration box (Figure 4). Select **Enable** for each channel that requires mic detection.

After you enable mic detection on a channel, it will detect the microphone's impedance and, within a few seconds, display the value in the **Impedance** field. Once the displayed value stabilizes, click the **Set Thresholds** button to automatically set the high and low limits of acceptable impedance. You can use the **High Impedance** and **Low Impedance** knobs to adjust these thresholds manually.

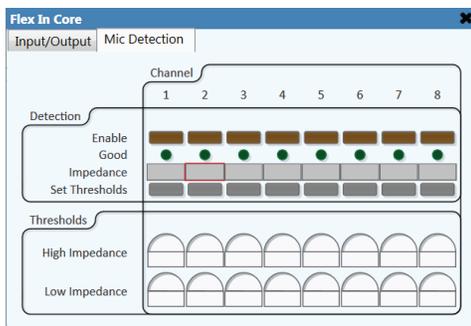


Figure 4. The mic detect configuration box.

There are a number of control pins associated with each channel's mic detection. The one most likely to be put to use is the **Mic Detection Good** control pin, which is a virtual logic output that stays high or "true" as long as the microphone remains connected and has not failed.

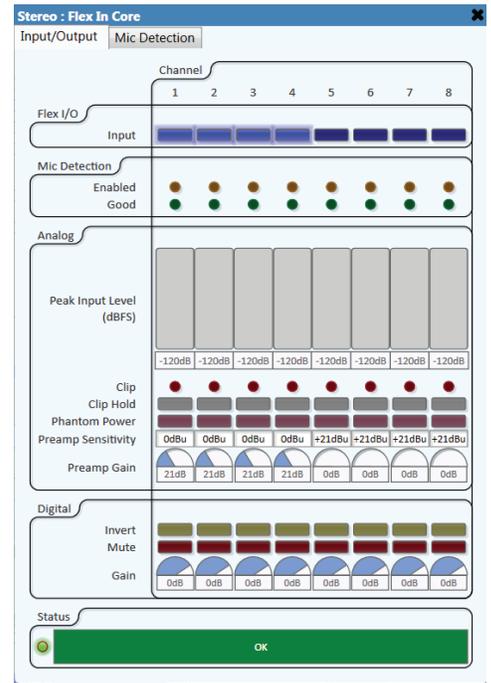


Figure 2. The input configuration box for the flex channels.

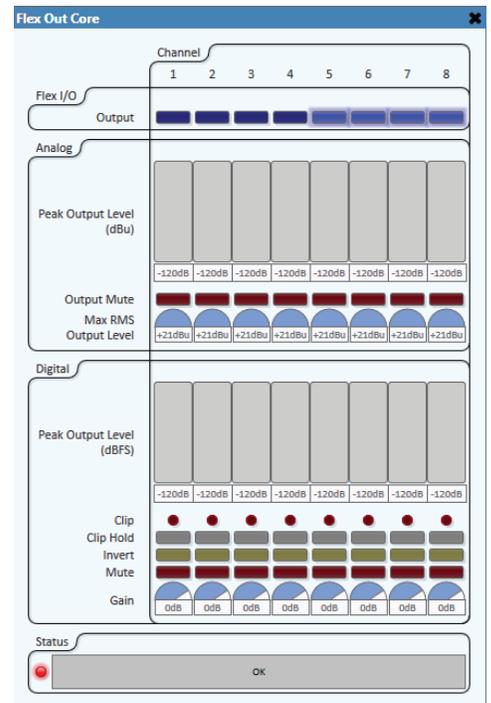


Figure 3. The output configuration box for the flex channels.