## APPLICATION: Feedback analyzer designed for use in live-sound situations.

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IF THERE'S ONE thing that most engineers would agree upon, it's that they dislike feedback. It's annoying, can distract the band, and if it gets out of control, it can disturb your audience. One of the most popular way**s** to help combat feedback is through the use of a 31 band, third-octave equalizer, and these units are most effective when the engineer can quickly recognize the frequency at which feedback is occurring.

For experienced monitor engineers, this might not be a problem. But for others the solution has been to carry a spectrum analyzer. The trouble with this **is** that good analyzers cost a lot of money and aren't always easily moved. to a remote location. What if you could have a compact analyzer that doesn't cost an arm and a leg, could be put in your pocket (OK, your briefcase) and would be accurate enough to help you identify the frequency feeding back? Enter the Gold Line FD23 Feedback Detector.

This new measurement tool from Gold Line is not intended to replace a spectrum analyzer, but it really augments an analyzer as a portable tool and serves people who don't have the dough to blow on an analyzer. The FD-23 is a self-contained unit (good move Gold Line) that contains an analyzer, condenser measurement microphone, and power supply in a case that is about the size of **a** walkie-talkie. And at a suggested list price of $259, purchase is a reality. The unit can be powered by eight alkaline AA batteries (which will die a rather quick death) or by eight rechargeable AAs.

When the unit is connected to an external wall-wart power supply (12 volts DC @ 200ma), the NiCads can be recharged while the unit is in operation. Do yourself a favor and go for the power supply and NiCads, because using alkalines is going to be expensive (and environmentally wasteful). [Gold Line states that alkaline battery life is between 15 and 24 hours.] An Internal switch selects use of either the NiCads or alkalines.

The way that the FD23 operates is relatively simple because it uses the same filters employed in Gold Line's big-boy analyzers. The only external control on the unit is an on/off/sensitivity dial, and by clicking this on (there is a five-second turn-on delay), the front-panel LED display will come to life. Now if you have an audio program playing, a bunch of LEDs will dance along to the groove, but the idea is that you need to turn the sensitivity control down until a minimum of LEDs are lit.

If a frequency is ringing and the sensitivity is set accurately, the display of the FD23 - which has LEDs for
third-octave frequencies from 80, Hz to 12.5 kHz - will light an LED representing the frequency that is ringing (within that third octave tolerance). Your 31 band equalizer just so happens to have gain adjustments at the same frequencies (how convenient), so move the slider that matches the frequency indicator on the Gold Line unit to reduce the ring. If the sensitivity is set too high, many LEDs will light, making it difficult to know what frequency is ringing. If the sensitivity is too low, you will not see any LEDs light

Gold Line suggests that you keep the FD23 at your house console position, turned on with the sensitivity adjusted so that some of the LEDs are barely lit (this is why you really need the power supply)-. If you begin to hear feedback, the display on the FD23 will light an LED at the closest offending frequency or frequencies. If you're quick on the draw for the EQ, you can kill the ring before it, chases the audience out of the room. If you don't have the unit powered up during performance, you're doomed the

five-second turn-on delay can seem like a lifetime of ear abuse while you're waiting to analyze the situation. If you play by the rules, the FD23 actually does what it is supposed to in this application.

During our road test, EQ tortured this device and took it into an application where the FD23 really excelled: using it to ring out a stage monitor system. You move to each monitor/mic (or sit in the drummers seat) with the FD23 powered up (thus the need for NiCads) and have the monitor engineer bring the level up on the wedge. When you hear the monitor start to ring, watch the FD23's display to see what frequency Is ringing and then tell the monitor engineer to adjust the EQ for that monitor. This really beats guessing what frequency is ringing and is also a lot better on your ears than letting the monitor guy bring EQ sliders up to exaggerate the ring in an effort to find it. Since the FD23 is so portable and self-contained, you don't have to drag an AC cable, measurement mic, stand, and an analyzer up to' the stage.

Beyond its usefulness as a monitor analysis tool, the FD23 can help you in situations even where feedback is not actually happening. If you are mixing house and hear a frequency that is building up (but not necessarily feeding back), the FD23 shows you that frequency by the LED most brightly lit. Then use the graphic in your house-drive rack to reduce the buildup. This can be really convenient when mixing in rooms where the console is located in a spot where the bass builds up. Since the FD23's display only runs up to 12.5 kHz, analyzing frequencies in the top octave will be left up to your experienced ear, but including those extra bands would put the cost of the unit over the top.

If you plan to take the FD23 on the road, Gold Line offers a padded case for an extra 12 bucks. The FD23's case is made of a material called Cycollac, which, I'm told, is nearly indestructible. While the FD23 will not replace your $2000 spectrum analyzer and it isn't designed to - it does give you accurate frequency analysis in a compact, easy to use, *portable* package. Check it out.

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