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# Pink Floyd

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# classic gear

In-Ear Monitors | Rob Halliday ...



The belief that size isn't everything is ably demonstrated by this classic: it's tiny - one core component

literally the size of your ear. Yet it has arguably given the live concert industry the freedom of scale it enjoys today . . .

That traditional approaches to sound wouldn't scale to the biggest venues was clearly demonstrated when The Beatles walked on stage at New York's Shea Stadium in 1965; the noise from 55,600 screaming fans meant that not only could the crowd not hear the band, but the band couldn't hear each other. Legend has it that a cunning technician turned some of the loudspeakers around to point towards the band, in a moment inventing foldback, the technique for letting a band hear themselves that would become standard for the next 20 years or more.

It worked, but it wasn't ideal. In attempting to overcome the noise, it actually added more noise - leading to incredibly high noise levels which weren't good for the performer's hearing, or for the intelligibility or control of the audio being directed towards the audience. Plus, to keep some semblance of control, these foldback speakers - wedges - were usually only located at key points on stage, meaning a performer who strayed too far away would still lose contact with the rest of the band.

A live sound engineer called Chrys Lindop is generally credited with figuring out that there might be a different, better solution. A first experiment saw Howard Jones fitted with wired headphones fed with a foldback mix during a live show. It proved the concept, though the wire was a bit of an issue . . .

Stevie Wonder provided the motivation for the next evolutionary step. Performing at Wembley Stadium in the late 1980s, he didn't want to be stuck at his keyboards. Lindop put together a wireless system based around a



Chrys Lindop

community radio FM transmitter, an Apex Dominator limiter, a pocket FM receiver and a set of Sony Walkman earbuds. The system worked (with the bonus of allowing the crew to relay safety messages to the performer as he enjoyed his new-found freedom to move) - albeit that anyone in West London who stumbled across the frequency could listen in!

Lindop and radio-frequency engineer Martin Noar evolved the idea into a company called Garwood, offering 'personal monitoring' under its 'Radio Station' brand name, now with custom (lower powered!) transmitters and rugged body-worn receivers.

The next phase of improvement was in the earpiece. Lindop started installing Walkman drivers into custom shells moulded from a performer's own ears. Monitor engineer Jerry Harvey, touring with Van Halen, did the same thing but with a custom two-way driver. In

each case, the key was the tight seal between moulding and ear, giving dramatically improved acoustic isolation from the surroundings and so the ability to run the foldback at lower levels; albeit needing some ambient crowd noise added to the mix, so the performers didn't feel completely disconnected from the crowd.

The descendants of these systems, in-ear monitors (IEMs) as they have come to be known, have largely replaced wedges as the standard tool for on-stage foldback. Now the performers have the ability to hear what they're doing and the freedom to go wherever they like, however big the stage, the venue or the crowd. And as a bonus, the current generation of performers will hopefully be left with less hearing damage than the last. ☒

Rob has been working in and writing about lighting for more than 25 years, on shows around the world. He wonders if this makes him a classic... or just old!

**IEM History:**

➤ [www.sensorcom.com/images/sample-data/products/IEM\\_History.pdf](http://www.sensorcom.com/images/sample-data/products/IEM_History.pdf)

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