

# Introduction

A Shure Educational Publication

## Personal Monitor Systems



**SHURE**<sup>®</sup>

# [What's Inside?]



## Personal Monitor Systems

Throughout this introductory publication, components and systems common to Shure Personal Monitor Systems are referred to as PSM®.

[p.1]

### Introduction

Discover the small, wearable monitoring systems that give you superior sound quality anywhere onstage.

[p.2]

### Product Glossary

Learn the components that make up a Personal Monitor System.

[p.4]

### Needs Analysis

Dial into exactly which personal monitor components and systems work for you.

[p.6]

### Setup Snapshots

Easy-to-understand diagrams that show examples of personal monitor system setups for specific applications.

[p.8]

### Ideal Applications

Learn PSM application possibilities and benefits to solve the unique challenges of your performance situation.

[p.9]

### Advanced Concepts

Find out more about the advanced capabilities of PSM.

# Introduction

Learning about personal monitor systems begins with understanding what monitoring is and why it's necessary. Monitoring boils down to being able to hear (monitor) your performance as you perform, so you know exactly what you and the other musicians are doing onstage.

Stage monitoring got its start in the 1960s, as progressively louder rock bands started to discover that if everyone in a group can hear each other, they can perform better. This was accomplished by sending specific sound mixes to onstage floor-resting loudspeaker monitors ("floor wedges"). They ushered in the age of monitoring, but were noisy, bulky and centered their sound in one place.

Today, Personal Monitors enable you to personally hear just what you want without affecting what others hear. These systems are comfortable, wearable amplification devices designed to replace floor wedges with earphones worn "In Ear." With them, you can stay in one place onstage or roam freely and not lose sound quality. They provide a more comfortable, more accurate way to monitor and they eliminate the feedback and loud stage noise that often result from booming floor wedges.

## Big advantages. Small packages.

### > **Sound Quality**

When you're In Ear, you enjoy a clear mix at lower volume levels, high-fidelity sound and less interruption from outside noise.

### > **Mobility**

With PSM, the speakers are in your ears, so you can expand your range onstage and hear yourself perfectly anywhere you go.

### > **Control**

Adjust what you hear while you perform. Create your own monitor mix.

### > **Portability**

An entire PSM system fits in a briefcase that goes where you go. Not only are floor wedges noisy, they're also bulky onstage and heavy to load out.

# Product Glossary

## Two ways to get In Ear: Wired and Wireless

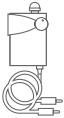
Both of these Personal Monitor systems are made up of complementary components that enable you to hear your monitor mix In Ear. These include:

- Earphones – compact, high-fidelity stereo In Ear monitors
- Bodypack Receivers – sleek, wearable units that receive sound and give you control
- Transmitters – modules that send sound for wireless systems
- Personal Mixers – modules that allow for advanced levels of control

Wired Signal Path

Wired components receive sound via a cable that connects the Bodypack directly to the mixing console. Systems typically include an input cable, a Wired Bodypack and a set of Earphones.

### [1] Receiving ..... [2] Monitoring



#### Wired Bodypack

Gives stationary performers as much mobility as they need while receiving sound straight from the mixer. They also offer convenient body-mounted controls and readouts.



#### High-fidelity, Isolating Earphones

They're small, but in your ears the sound is huge. Designed for use with PSM systems, each provides a personalized fit and great isolation from outside noise.

Wireless Signal Path

A wireless bodypack receives sound without a cable from a Transmitter. These systems typically include a Transmitter, Bodypack Receiver and a set of Earphones.

### [1] Transmitting .....



#### Transmitter (Wireless Only)

Models vary in features and flexibility, but each PSM wireless transmitter offers the ability to send monitor mixes to a Bodypack receiver.

#### TransMixer (Wireless Only)

This unit is a transmitter, but has two inputs and level controls for added flexibility in creating a personal monitor mix. It will accept a variety of inputs, including microphones.

## Shared components



### Personal Monitor Mixer

This optional mixer is used by a performer to combine up to six inputs from the stage, the house mixer or both before the mix is sent to the transmitter. So you can get the same mix at every venue and even make quick adjustments to your mix while you are onstage.



### Hybrid Bodypack Receiver

These Bodypacks can be used with a wired or a wireless system. So you can start out wired and upgrade to wireless when your budget permits. Or use the system in either configuration, depending on your setting.



### Earphone Foams and Sleeves

Isolating Earphones include an assortment of interchangeable sleeves to ensure a comfortable fit and maximum sound isolation.

#### Foam Sleeves

Soft, disposable foam; compresses to fit in the ear canal and expands to form a secure, tight seal.

#### Flex Sleeves

Reusable, pliable plastic sleeves that allow for easy insertion. Available in a variety of sizes.

## [2] Receiving



### Wireless Bodypack

Sleek and lightweight, these clip to a belt, guitar strap or pocket. With it, mobile performers can receive sound and access body-mounted controls and readouts.

## [3] Monitoring



### High-fidelity, Isolating Earphones

They're small, but in your ears the sound is huge. Designed for use with PSM systems, each provides a personalized fit and great isolation from outside noise.

# Needs Analysis

1

## Are you a stationary or mobile onstage performer?

### Stationary performers

If you're in one place the majority of the time, like a drummer, keyboardist or back-up singer, wired systems are an easy choice and a lower-cost alternative.

### Mobile performers

If you need to move when you perform, go wireless and leave the cables behind. You'll hear a great mix no matter where you are onstage. Wireless systems are more complex than wired, but offer greater flexibility.

## Are you in a traveling band?

If so, PSM systems can provide a consistent mix every night no matter where you are. Where you travel will help determine the best PSM system for you. Wireless PSM systems transmit over unused television frequencies. If you play primarily in one metropolitan area or at a permanent location, you can find one frequency and stick with it. Traveling to multiple areas or countries means finding open frequencies to use in each location. Each PSM system offers varying degrees of available frequencies and frequency agility.

2

## Can you share a monitor mix with others or do you require a personal monitor mix?

### Personal mix

In a band or ensemble situation, performers often want to receive a monitor mix tailored to their preferences (some singers who like to hear vocals and guitar at a louder volume than bass and drums). Both wired and wireless systems provide this capability. You can also gain further control of the mix you hear by adding a Personal Monitor Mixer. (See page 3.)

### Shared mix

With a shared wireless mix, everyone in your group with a Wireless Bodypack receiver can hear the same monitor mix from a single transmitter. It's a cost-effective way for a band to monitor In Ear.

### 3

## Do you require a stereo-quality monitor mix or is a mono mix OK?

### **Stereo mix**

A stereo mix means you're listening to the fullest, most accurate monitor sound possible through your earphones. Nearly every PSM system features this option (and other listening modes), all of which can be controlled from your Bodypack.

### **Mono mix**

In mono, both earphones reproduce the same audio. More advanced PSM systems offer the ability to send and receive mixes in mono as well as other modes. However, many performers, such as vocalists, do not benefit from stereo imaging. Mono-only systems are a cost-effective way for these performers to go In Ear and enjoy many of the same benefits of other personal monitor systems.

### 4

[Wireless system users only]

## Can you share a monitor mix with other wireless system users or do you require a personal mix?

### **Shared wireless mix**

Multiple users can easily share the same mono or stereo mix simply by tuning into the same channel.

### **Personal wireless mix**

You may want to transmit separate mixes to individual performers or groups of performers. If so, you will need to determine the number of mono and stereo signals you would like to transmit, and then ensure you select a system that offers sufficient multichannel capabilities.

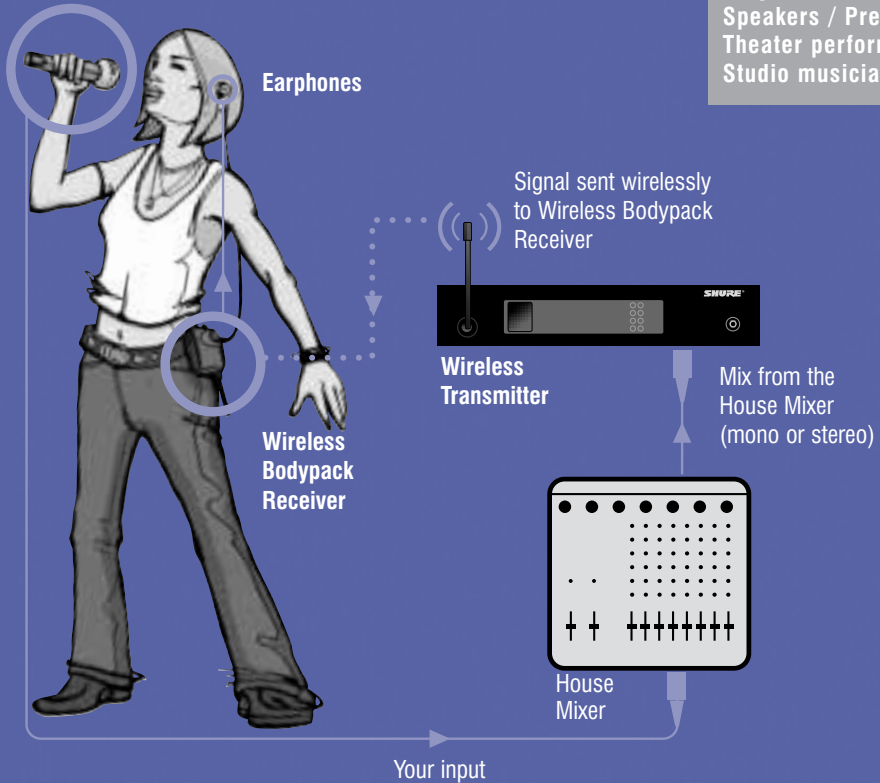
## What's your budget?

As with any purchasing decision, the amount you have to spend becomes a factor in deciding what product features are essential. Even the most affordable PSM systems handle a number of performance demands. But as your monitoring requirements change, there are PSM systems to meet them in every price range.

# Setup Snapshots

Personal Monitor Systems are easy for any performer to set up and use. Here are examples of wired and wireless setups, along with other suggestions and considerations for special situations.

## Wireless: Vocalist Setup



## Applications Profiles

A wireless setup is great for any performer who wants a personal monitor mix and the ability to move freely. Ideal for:

- Singers / Vocalists
- Speakers / Presenters
- Theater performers
- Studio musicians

## Complementary Components

### Transmixers

Both the Transmixer and the Hybrid Bodypack Receiver offer the ability to add extra inputs to expand what you hear and give you additional control. This extra versatility means you can plug in extras like a click track or even an entire band mix.

### Personal Monitor Mixers

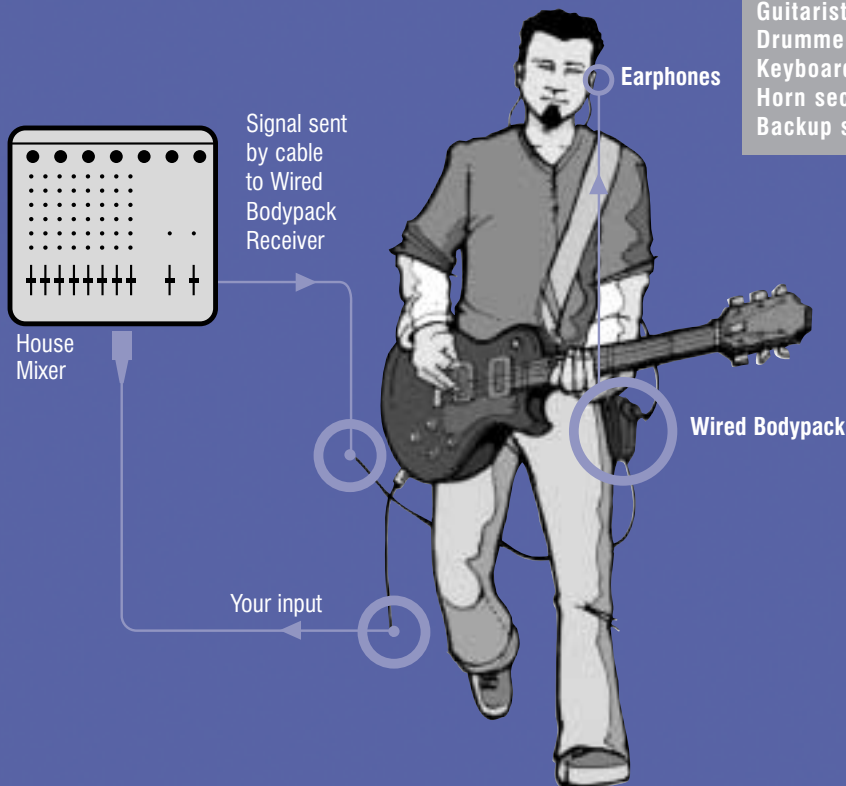
A Personal Monitor Mixer has extra inputs, so you can combine effects and mixes from the stage, the house mixer, or both. No matter whether you're wireless or wired, get the same mix at every show without annoying setup hassles. Even make quick adjustments to your mix levels onstage, without having to get the engineer's attention.

## Applications Profiles

A wired setup works for any performer who generally stays in one place during a performance but wants a personal monitor mix. For example:

**Guitarists**  
**Drummers**  
**Keyboardists**  
**Horn sections**  
**Backup singers**

## Wired: Guitarist Setup



## Hybrid Bodypack Receivers

Hybrid Bodypack Receivers are capable of working with either wired or wireless systems. So you can start out with a wired system and switch easily to a wireless system as your budget permits. With a Hybrid Bodypack you can match your system configuration to the wired or wireless needs of your specific setting (studio, live performance, rehearsal).

# Ideal Applications

Personal monitors provide clear, comfortable sound and multiple advantages in any application where users must monitor themselves in order to perform better.

## Live on stage

This includes situations where sound equipment and playing locations change often for performers (e.g., touring groups or wedding bands) or music venues that host a wide array of live performance acts. For these applications, PSM systems offer the ability to control your mix wherever you perform, as well as freedom of movement and easy portability.

## Rehearsal rooms

Personal monitors turn the worst rooms into good rehearsal spaces. You can save time too often spent fixing feedback and poor sound. You not only get more practice in, you also reduce vocal strain and ringing ears.

## The studio

In both multiroom and project studios, In Ear performers can control volume levels and adjust the click track volumes themselves. They also enjoy the comfort of small PSM earphones versus bulky traditional headphones. Isolating earphones also reduce outside noise and mic bleed during vocal overdubs.

## Churches and religious facilities

These environments are often reverberant, which creates the common problem of feedback for presenters, choral groups and musicians. PSM systems provide these performers with reduced feedback, personalized mix control and freedom of movement. They also increase intelligibility, which benefits any audience.

## Classical music performances

Classical music hall and orchestra pit acoustics are extremely sensitive and susceptible to disruption, especially from floor wedge systems. Onstage or in the pit, PSM systems provide discrete monitoring for performers without sacrificing the quality of sound the audience enjoys.

## Theater and stage performances

These performers appreciate the cleaner, less-cluttered stage, thanks to the absence of floor wedge monitors. But the greatest PSM advantage in these situations is the ability for actors, actresses and crew to monitor director instructions In Ear without the knowledge of the audience.

## Broadcast environments

Besides the sound advantages listed above, PSM systems help reporters and broadcast personalities isolate outside noise so they no longer have to cover their ears with their hands. They also enable cueing of events via a satellite link and can be used as a wireless interruptible foldback (IFB) system for camera operators, stage managers and on-camera talent.

# Advanced Concepts

More advanced aspects of personal monitoring with PSM:

## Operating modes

Each PSM system offers the flexibility of different listening modes, which you can control from each individual Bodypack. These include Mono, Stereo and a proprietary Shure feature called MixMode™. All PSM systems can operate in Mono. Most also offer Stereo and MixMode.



### Mono

Typically used when only one unique input signal is fed into the system.



### Stereo

Used when two input signals (left and right) are fed into the system.

Stereo might not be applicable in all situations, but a monitor mix created in stereo more accurately re-creates a realistic listening environment.



### MixMode

A dual-channel mode, enabling you to control relative levels of two separate signals (a vocal and band mix, for example), while hearing both signals in both ears at the same time.

## Wireless operation

Once you've decided on the number of mixes you'll need for your wireless application, there are still additional factors to consider when choosing, setting up and utilizing your system to avoid outside interference, as well as interaction between systems.

### Frequency compatibility

Wireless system frequencies cannot be chosen at random; they are preset. They are also pre-coordinated, which means they are all compatible to work with one another and avoid conflicts with other devices sharing nearby frequencies. Each PSM system offers different numbers of compatible frequencies. Where you play and how many mixes you require greatly impacts the number of compatible frequencies available to you and how many your system should support.

### Antenna combining

More advanced PSM wireless systems offer the ability to combine multiple transmitter antennas (eg., connecting up to four PSM wireless transmitters to one antenna). In these systems, reducing the number of transmitter antennas in close proximity to one another reduces the chance of experiencing sound drop-outs and is crucial to obtaining the best possible performance. A variety of accessories are available, including different antennas and combiners. Directional antennas can also be used to increase range and reduce the chances of drop-outs due to multi-path interference.



## Learn more.

### **Personal Monitor Systems: Selection & Operation Guide**

This booklet provides greater technical detail about the history of monitoring, specific PSM systems and components, usage applications, setup suggestions, wireless operation and system expansion. Receive your copy by contacting Shure at one of the numbers listed below.

You can also download a PDF of this guide and data sheets for any Shure PSM product at the Shure website:

- [www.shure.com/psm](http://www.shure.com/psm)
- [www.shure.com/datasheets](http://www.shure.com/datasheets)

### **Additional Shure educational publications available:**

- Audio Systems Guide for Houses of Worship
- Audio Systems Guide for Meeting Facilities
- Audio Systems Guide for Video Production
- Wireless Microphone Systems | Selection & Operation Guide
- Wireless Microphone Systems | Introduction Guide
- Mic Techniques for Music—Sound Reinforcement
- Mic Techniques for Music—Recording

### **Save your ears!**

The potential dangers of continual exposure to loud volumes in performance situations are well documented, and hearing conservation should be of concern to any live performer. Shure proudly supports hearing conservation. For more information, talk to your doctor or audiologist, or learn more at:

[www.shure.com/hearing](http://www.shure.com/hearing)

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AL1498

10/02 ©2002 Shure Incorporated

Printed in the USA 20K

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