

### P4HW Hardwired Personal Monitor



## **WARNING!**

**USING THIS SYSTEM AT EXCESSIVE VOLUMES CAN CAUSE PERMANENT HEARING DAMAGE.**

**USE AS LOW A VOLUME AS POSSIBLE.**

In order to use this system safely, avoid prolonged listening at excessive sound pressure levels. Please use the following guidelines established by the Occupational Safety Health Administration (OSHA) on maximum time exposure to sound pressure levels before hearing damage occurs.

90 dB SPL at 8 hours

95 dB SPL at 4 hours

100 dB SPL at 2 hours

105 dB SPL at 1 hour

110 dB SPL at  $\frac{1}{2}$  hour

115 dB SPL at 15 minutes

**120 dB SPL - avoid or damage may occur**

It is difficult to measure the exact Sound Pressure Levels (SPL) present at the eardrum in live applications. In addition to the volume setting on the PSM, the SPL in the ear is affected by ambient sound from floor wedges or other devices. The isolation provided by the fit of quality earphones is also an important factor in determining the SPL in the ear.

Here are some general tips to follow in the use of this product to protect your ears from damage:

1. Turn up the volume control only far enough to hear properly.
2. Ringing in the ears may indicate that the gain levels are too high. Try lowering the gain levels.
3. Have your ears checked by an audiologist on a regular basis. If you experience wax buildup in your ears, stop using the system until an audiologist has examined your ears.
4. Wipe the earphones with an antiseptic before and after use to avoid infections. Stop using the earphones if they are causing great discomfort or infection.



This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this unit.

# ENGLISH

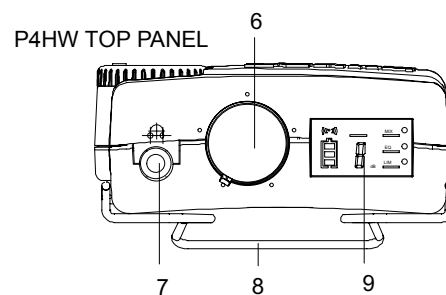
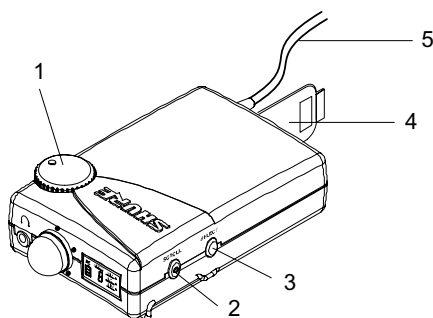
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Thank you for choosing the P4HW Hardwired Personal Monitor bodypack. The P4HW is a component of the PSM<sup>®</sup> 400 family of personal monitors that provides the advantages of an in-ear monitoring system, including the following:

- **Improved Sound Quality** - high fidelity without the risk of feedback
- **Personal Control** - volume and mix are controlled from the bodypack
- **Portability** - clips to belt or guitar strap

For details on the PSM 400 system, see the PSM 400 Hardwired Personal Performance Pack user's guide, available on the web at [www.shure.com](http://www.shure.com).

## Controls and Features



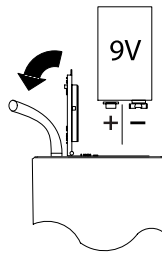
1. **Balance Knob:** Adjusts the left/right balance when the unit is in stereo and the Mix 1/Mix 2 balance when the unit is in MixMode<sup>®</sup>.
2. **Scroll Button:** Controls the functions in the LCD screen. See *Using the Bodypack Features* on page 7.
3. **Select Button:** Controls the functions in the LCD screen. See *Using the Bodypack Features* on page 7.
4. **Battery Compartment:** Contains one 9 V battery.
5. **Cable:** Attached 9 foot (2.74 m) female XLR "Y" cable for connection to audio source.
6. **ON/OFF/VOLUME Knob:** Turn clockwise past click to turn ON. Continue to turn clockwise to increase volume, counterclockwise to decrease volume.
7. **1/8" Stereo Earphone Output Jack:** Connects to earphones.
8. **Belt Clip:** Attaches to a belt, guitar strap or waist band.
9. **LCD Screen:** Displays the current status of each function. See *Reading the LCD Screen* on page 6.

# Operation

## BATTERY INSTALLATION

1. Open the battery door by pushing down and sliding towards cable.
2. Insert a fresh 9 V alkaline battery with the +/- terminals properly positioned (see Figure 1).
3. Close the battery door.

**NOTE:** If battery compartment door will not close, the battery is not properly inserted.



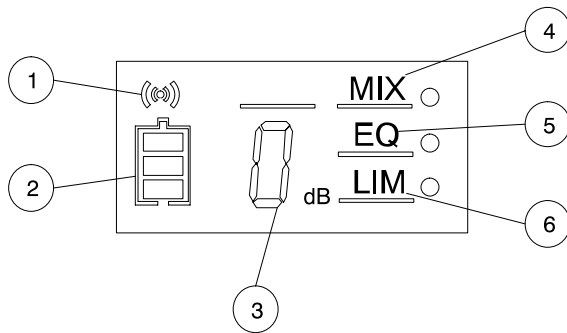
**FIGURE 1**

## CONNECTING TO MIXER AND CHECKING SIGNAL

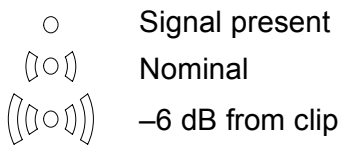
1. Connect the "Y" cable of the bodypack to a line level audio source.
2. Turn the ON/OFF/VOLUME knob clockwise past click (ON).
3. Observe input level meter in LCD screen. Adjust the level of audio source so the outside indicators of the meter flicker occasionally.
4. Plug earphones into earphone output jack.
5. Insert earphones into ears as instructed in the earphone user's guide.
6. Increase the volume slowly to a comfortable listening level.
7. Attach the bodypack to a belt or guitar strap.

## READING THE LCD SCREEN

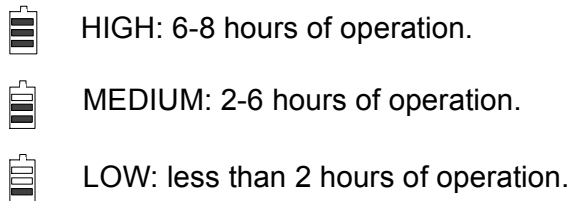
The LCD screen displays the status of each function, as follows:



1. **Input Level Meter:** 3-segment input level meter displays level of incoming signal. Always check for clipping prior to inserting earphones into ears.



2. **Battery Life Meter:** Indicates the amount of voltage left in the battery. If no indicators are present, change the battery as soon as possible.



**NOTE:** Battery life depends on many variables, including battery type (brand), earphones used, and volume setting.

3. **Input Attenuation:** Displays the sensitivity of the bodypack's input. Use "0 dB" attenuation for low levels (-10 dBu), and use "-15 dB" attenuation for higher levels (+4 dBV).
4. **MixMode (MIX):** Allows the user to receive the monitor mix in either MixMode (MIX ON) or Stereo (MIX OFF). If the bodypack is receiving only one signal, use MIX ON. See *Mono, Stereo and MixMode Control* on page 8.
5. **High Frequency Equalization (EQ):** Adds 6 dB at 10 kHz for improved treble response.
6. **Limiter (LIM):** Activates and deactivates an internal limiter which provides protection against loud signals.



**WARNING!**  
*Turning the Limiter OFF defeats protection against hazardous sound levels.*

## USING THE BODYPACK FEATURES

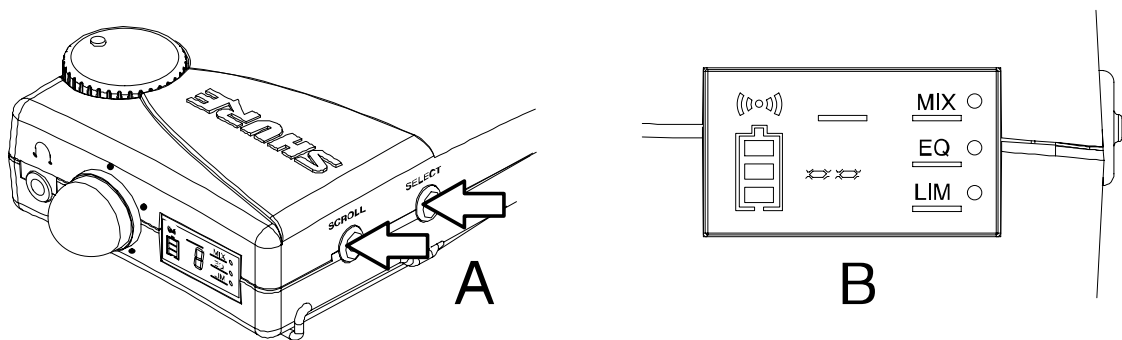
1. Push either the SCROLL or SELECT button to activate the LCD screen.
2. Push and hold the SCROLL button until the desired function (0/-15, MIX, EQ, or LIM) is underscored.
3. Push the SELECT button to toggle the function ON or OFF. A function is ON when a dot appears to the right of the function symbol.
4. Push the SCROLL button to confirm the change.

## LOCKING THE DISPLAY

1. Adjust all functions to desired settings.
2. Hold down the SCROLL and SELECT buttons simultaneously for five seconds. See Figure 2A. The display will show two dashed lines to signify that lock-out is engaged. See Figure 2B.

**NOTE:** When lock-out is engaged, the SCROLL and SELECT buttons will still light the LCD screen, but will not change the status of any of the functions.

3. To unlock the display, hold the SCROLL and SELECT buttons simultaneously for five seconds until the LCD returns to a numeric display.



**FIGURE 2**

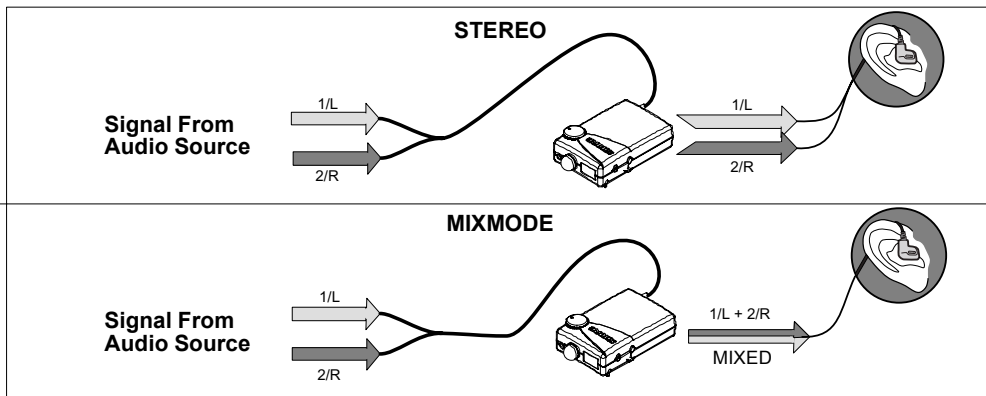
# MONO, STEREO AND MIXMODE CONTROL

The bodypack provides simple configuration of a monitor mix and enables the user to customize an individual mix in a multiple mix environment. Three monitoring modes are available - mono, stereo, and MixMode.

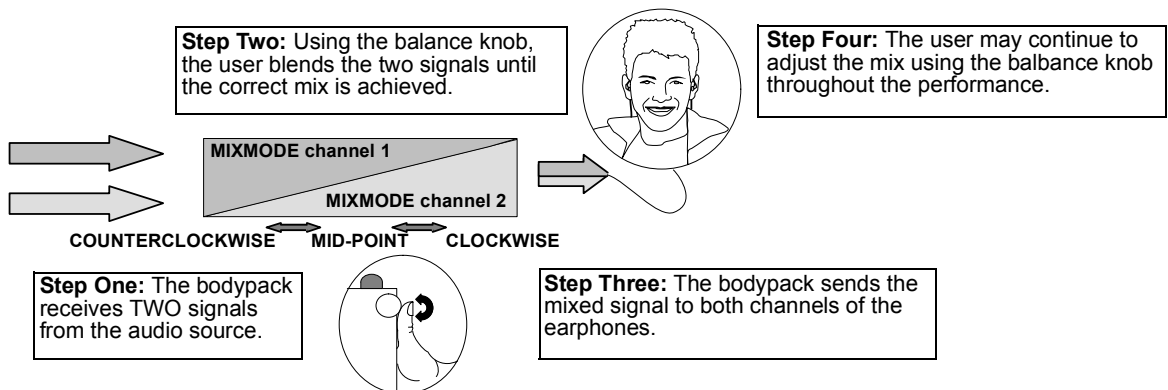
**Mono:** The bodypack receives one signal from the mixer and sends that signal to both earphones. For mono signals, use MixMode (MIX ON).

**Stereo:** The bodypack receives two signals (L and R) from the mixer and sends the signals to the left and right earphones, respectively. The balance knob adjusts the balance between the left and right earphones. For stereo signals, use the MIX OFF setting.

**MixMode:** Allows the performer to easily adjust the monitor mix *during* the performance. In Mix-Mode, the bodypack receives two signals, such as a band mix and a vocal mix. The balance knob adjusts the mix of these two signals. The mixed signal is sent to *both* the left and right earphones. For example, if the band is overpowering the vocals in the mix, the vocal levels can be increased and the band mix level decreased by simply adjusting the balance knob.



## USING MIXMODE



## **Specifications**

### **Frequency Response**

20 to 20,000 Hz

### **Total Harmonic Distortion**

< .1% (measured at -10 dBu out)

### **Channel Separation**

35 dB (minimum)

### **Signal-to-noise ratio**

85 dB (minimum)

### **Maximum Output Level**

+5 dBu at 1% THD

### **Maximum Input Level**

+7 dBu, input pad OFF

+22 dBu, input pad ON

### **Actual Input Impedance**

> 40 k $\Omega$

### **Audio Output Connector**

3.5 mm stereo (left=tip,  
right=ring, ground=sleeve)

### **Power Requirements**

9 V Alkaline battery

### **Battery Life**

Up to 8 hours, volume dependant

### **Phantom Power Protection**

Up to 60 VDC

## **Certification**

Authorized under the DECLARATION OF CONFORMITY provision FCC part 15 as a class B digital device.

Tested to comply with FCC standards. FOR HOME OR OFFICE USE. This product complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Changes or modifications not expressly approved by Shure Incorporated could void your authority to operate this equipment.

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and the receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

This class B digital apparatus complies with Canadian ICES-003.

Eligible to bear CE marking.

Conforms to European EMC directive 89/336/EEC: Professional Audio Products Standard EN 55103 (1996); Part 1 (emissions) and Part 2 (immunity). The P4HW is intended for use in environments E1 (residential) and E2 (light industrial) as defined in European EMC standard EN 55103. It meets the applicable tests and performance criteria found in the standard for these environments. EMC conformance is based on the use of shielded interconnecting cables.



## FCC DECLARATION OF CONFORMITY

We, of

Shure Incorporated  
5800 Touhy Ave.  
Niles, IL 60714-4608 U.S.A.  
(847) 600-2000

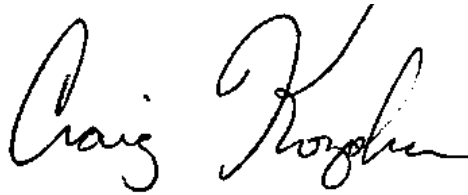
Declare under our sole responsibility that the following product,

Model: P4HW  
Description: Hard Wired Personal Monitor

Has been tested and found to comply with the limits of a Class B digital device, and approved under the Declaration of Conformity provision of the Part 15 of the FCC rules.

Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.



Signed:

Date: October 14, 2003

Name, Title: Craig Kozokar, EMC Project Engineer, Corporate Quality,  
Shure Incorporated



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