



# Installation Guide & User Manual

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**SoundFocus FM™**


Classroom Amplification System

Models CFM 801, CFM 802, CFM 803 and CFM 804

Transmitter Model T31

Receiver Model R802, Speaker Model SPK 016





# **SOUNDFOCUS™ CLASSROOM AMPLIFICATION SYSTEM**

## **MODEL CFM 802/804**

### **INSTALLATION AND USER MANUAL**

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## SYSTEM OVERVIEW

Thank you for purchasing the SoundFocus FM™ Classroom Amplification System from Williams Sound Corp. Anyone needing auditory assistance to overcome background noise, reverberation, or distance from the sound source can benefit from the SoundFocus System.

Your SoundFocus System has three principal parts: the transmitter, the receiver, and the speakers. Much like a miniature radio station, the transmitter and microphone pick up the sounds you want to hear and broadcast them over an FM radio signal which the receiver picks up as far as 100 feet away. The amplifier built into the receiver then plays the signal through speakers.

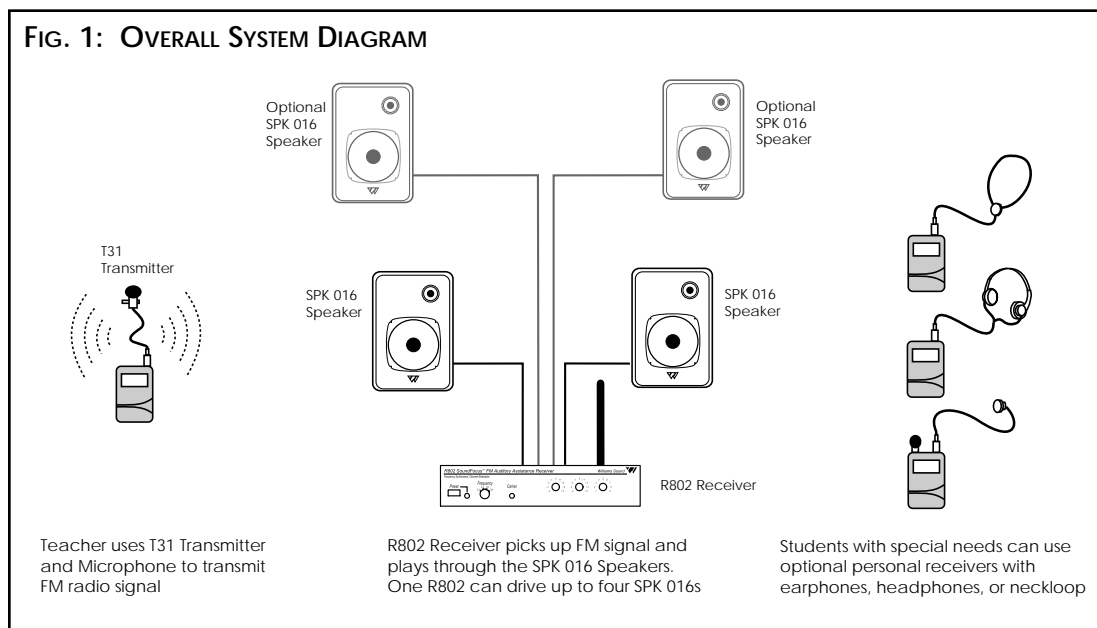
To avoid difficulties, please read through these instructions as you begin to use the system. Then save them for questions that arise as you continue to use your Williams Sound SoundFocus FM™ Classroom Amplification System.

If you have problems with the system, don't hesitate to call us toll-free at 1-800-843-3544.

## SYSTEM COMPONENTS (CFM 802)

- FM Body Pack Transmitter (T31)
- (2) Speakers (SPK 016)
- 3 V Multi Charger (CHG 200)
- Nylon belt (BLT 001)
- Transmitter Belt Clip Case (CCS 001)
- FM Receiver/Amplifier (R802)
- (2) Rechargeable AA batteries (BAT 026)
- Omnidirectional Mic (MIC 081)
- Instruction Manual
- Speaker Wire

*The CFM 400 includes one R802 Receiver and four SPK 016 Speakers*

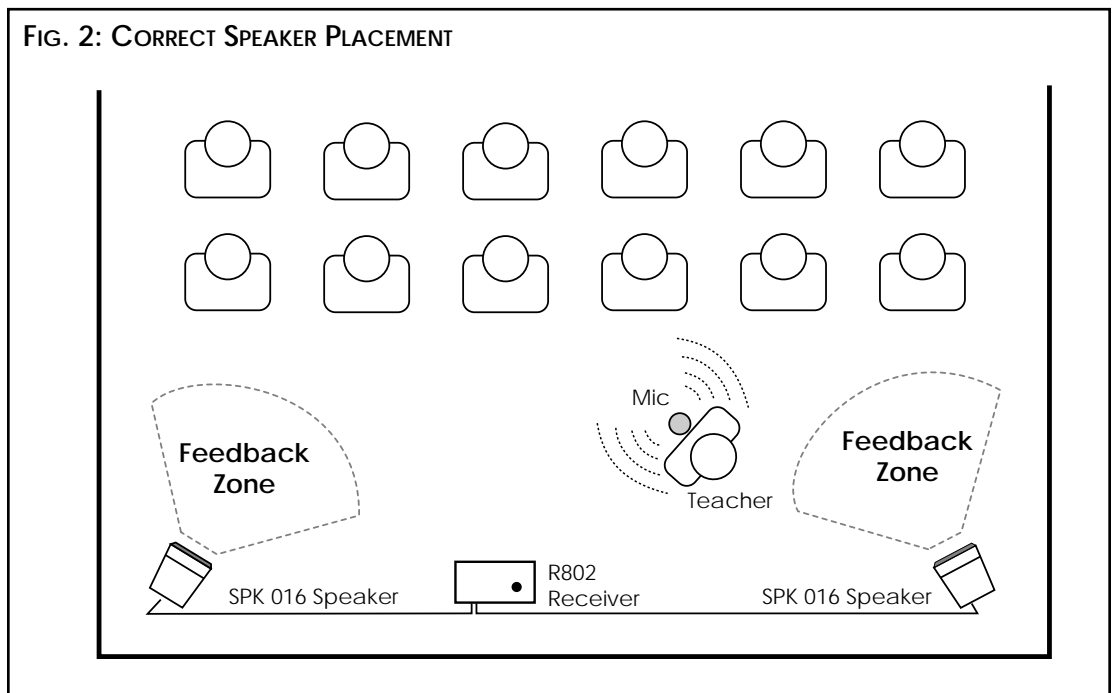


## QUICK START INSTRUCTIONS

1. Charge the transmitter batteries first! See pages 10 and 11 for directions.
2. Plug the microphone into the transmitter mic jack. Clip the microphone onto a collar, lapel, or tie, as close to the speaker's mouth as is practical.
3. Turn the T31's FM switch to ON. The transmitter can be placed in a pants pocket, or clipped onto a belt or waistband with the belt clip carry case.

The microphone cord is the transmitting antenna. Do not bunch up the cord, wrap it around the transmitter, or place the transmitter in a shirt pocket. It should hang as straight as possible.

4. Install the antenna on the R802 Receiver. Thread the "rubber duckie" antenna onto the mounting stud on top of the receiver.
5. Locate the SPK 016 Speakers near the front corners of the room, pointing at the class.
6. Connect the R802 Receiver to the SPK 016 Speakers with the speaker wire included.
7. Plug the R802 Receiver into an AC wall outlet.
8. Set the volume control to minimum on the R802 Receiver. Make sure the T31's mic switch is ON.
9. Turn the R802 Power switch ON. Adjust the volume to appropriate level. The volume should be set below the point at which feedback occurs. Avoid getting too close to the speakers when you're wearing the microphone or feedback can occur.
10. Charge the transmitter every night. Turn the transmitter FM switch OFF while charging.

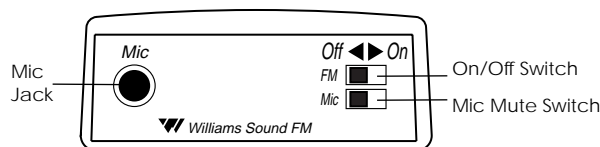


## USING THE T31 TRANSMITTER

The T31 Transmitter's microphone cord is the transmitting antenna. Do not bunch up the cord or wrap it around the transmitter. For maximum range, the cord should hang as straight as possible. The transmitter can be placed in a pants pocket, or clipped onto a belt or waistband. Make sure the transmitter is turned OFF when not in use.

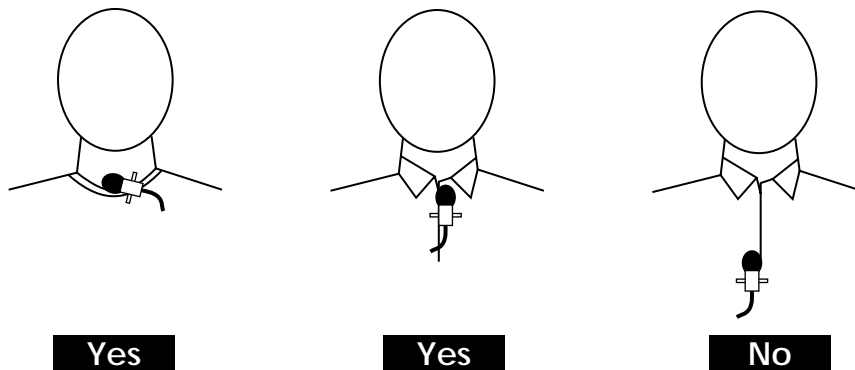
1. Make sure there are two charged AA batteries in the transmitter. If batteries are not installed, see the section *Battery Information on page 12*.
2. Plug the microphone cord into the "Mic" jack on top of the Transmitter.

FIG. 3: T31 TRANSMITTER TOP VIEW



3. Place the transmitter in the belt clip case provided.
4. Turn the power switch on top of the transmitter to "On."
5. Clip the microphone onto a collar, lapel, or tie. It should be as close to the speaker's mouth as is practical. (See Figure 4.)

FIGURE 4: CORRECT MICROPHONE PLACEMENT



The SoundFocus System comes with an omnidirectional, lapel-clip style microphone. It should be clipped to a collar, lapel, tie, or neckline as close to the mouth as possible and centered on the body as shown.

6. Turn the Mic Switch to "On" when you are ready to speak. This switch allows you to mute your microphone without turning off the transmitter. Listeners cannot hear you through the system, and also do not hear the noise which may be present when only the receiver is on.

## USING THE R802 RECEIVER & SPK 016 SPEAKERS

The R802 is a combination FM receiver and amplifier which drives the SPK 016 Speakers. Most rooms will require just the two speakers, placed in the front corners of the room. For larger rooms, additional speakers may be added to the rear corners.

### R802 FEATURES

#### POWER ON/OFF SWITCH

Turns R802 power on or off.

#### POWER LED INDICATOR

Glowes when the R802's power is on.

#### FM CHANNEL SWITCH

The selected receiver channel must match the transmitter channel. The system is pre-set to 72.9 MHz. Change the receiver channel only if the transmitter channel has been changed. See page 14 for instructions on changing the transmitter channel.

#### FM CARRIER LED INDICATOR

Glowes when a carrier frequency is present.

#### VOLUME, TREBLE, AND BASS CONTROLS

Adjusts speaker loudness, high and low frequencies

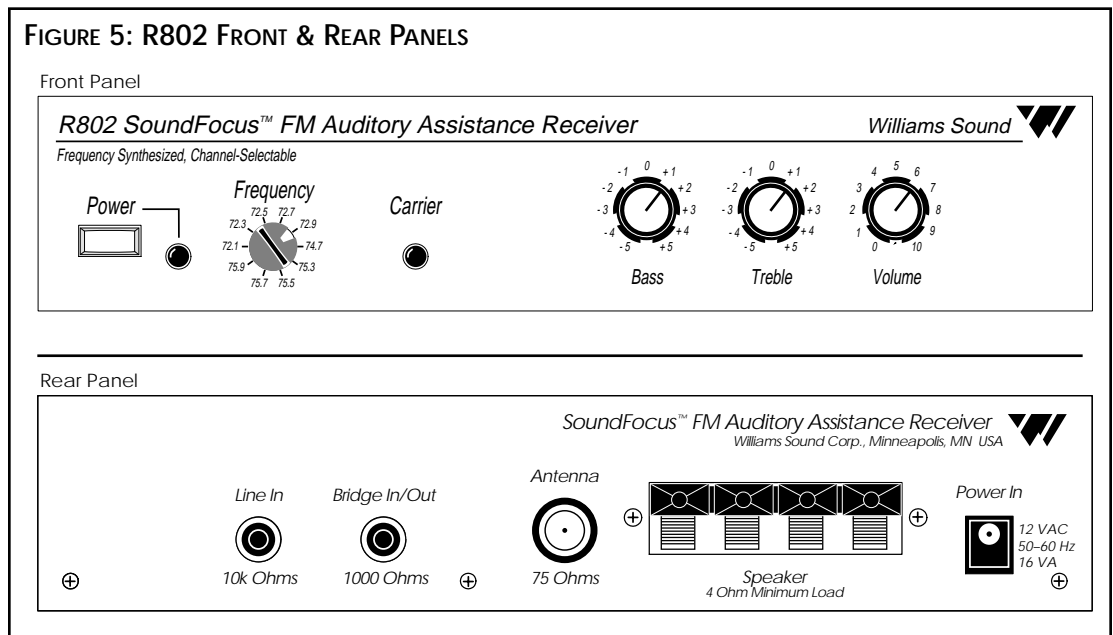
#### LINE INPUT

This unbalanced RCA jack accepts line-level signals from tape players, VCRs, etc. This feature allows the entire class to hear audio and video presentations through the system. You cannot use the transmitter when using the line input.

#### BRIDGE IN/OUT JACK

This unbalanced RCA jack lets you connect two R802s for team teaching applications.

FIGURE 5: R802 FRONT & REAR PANELS



REMOTE ANTENNA CONNECTOR  
“F-type” connector for 75Ω Coaxial Antenna

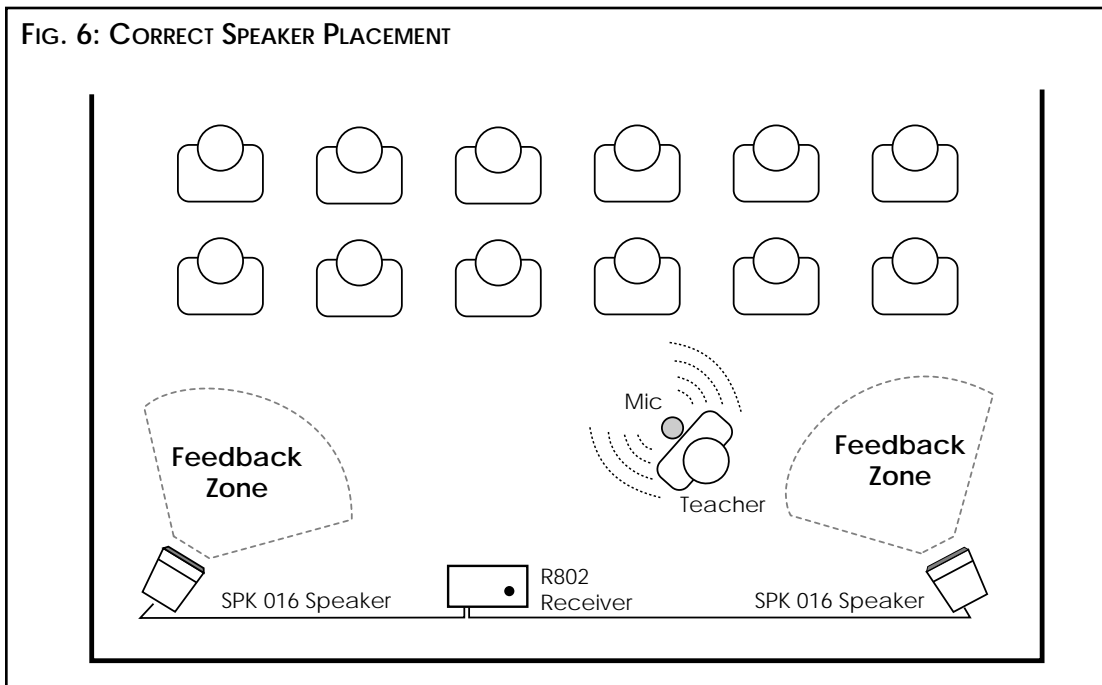
REMOTE SPEAKER CONNECTORS  
Connects R802 to the SPK 016s. Up to four speakers may be used.

AC POWER SUPPLY  
Connects to 120VAC, 50/60 Hz outlet.

FLEXIBLE “RUBBER DUCKIE” ANTENNA  
Threads onto the mounting stud on top of the receiver.

### RECEIVER/SPEAKER SET-UP

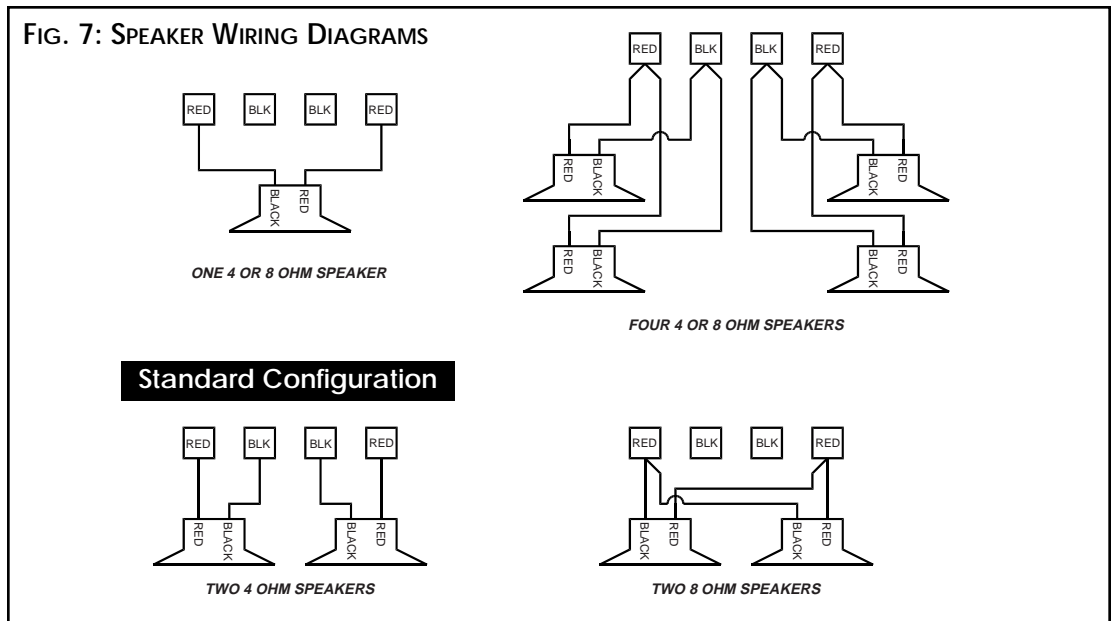
- 1: Place the SPK 016 Speakers at the front of the room as shown in Figure 6.
- 2: Set the height for both at about 4–5 feet above the floor, but not at the same height as the microphone.



- 3: Connect the SPK 016 Speakers to the R802 Receiver using the black speaker cable provided. (See Figure 7.) Pull apart the two strands as necessary. **Observe that one strand’s insulation is furrowed or ridged, while the other is smooth.**

To make the connection, press the connector buttons on both the speaker and receiver, inserting the furrowed or ridged wire into the red connector on both the R802 and SPK 016. After the wire has been inserted, release the button and tug lightly to make sure the cable has been secured. (If you need more cable, contact Williams Sound or visit your local electronic parts store.)

**FIG. 7: SPEAKER WIRING DIAGRAMS**



- 4: Set the volume on the R802 below the level at which feedback occurs. To minimize the chances of feedback, don't walk directly in front of the speaker while wearing the microphone. Stay out of the feedback zone.

The system is not intended to play loudly. It should slightly boost the teacher's voice above normal background noise levels. (Approximately +10dB)

### USING ADDITIONAL RECEIVERS & SPEAKERS

Depending on the size of the room, it may be necessary to use more than two SPK 016 Speakers. If you're using four SPK 016s, place the additional speakers in the rear corners of the room. Personal receivers are also available for students with special listening needs. (See Page 18 for more information on optional personal receivers.)

### USING AN ALTERNATE ANTENNA

The standard ANT 016 Rubber Duckie Antenna provides sufficient coverage for almost all applications and is the best choice for multiple classroom situations. Three optional antennas are also available:

#### ANT 025 Whip

This 40" whip antenna threads onto the mounting stud on top of the receiver. It provides improved range compared to the standard ANT 016 antenna.

#### ANT 005 Coaxial Antenna

This optional dipole wall mount antenna provides the greatest range. It connects to the Remote Antenna Connector on the back of the R802 Receiver.

#### ANT 024 Dipole Antenna

This optional antenna provides the best filtering in "hostile RF" environments (for instance, near TV transmitter towers). It connects to the Remote Antenna Connector on the back of the R802 Receiver.

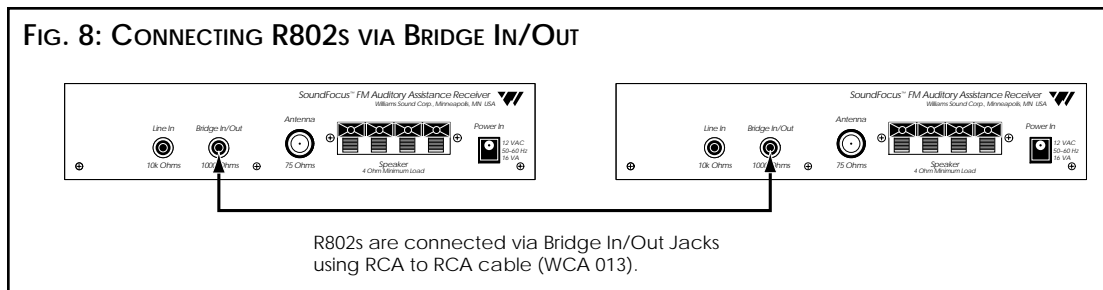


## TEAM TEACHING APPLICATIONS

Team teaching applications require an additional T31 Transmitter and R802 Receiver. A Team Teaching Kit (CFM 803) is available from Williams Sound to provide this capability.

### TEAM TEACHING SETUP

1. Make sure both T31 Transmitters are tuned to different frequencies.
2. Tune the R802 Receivers to frequencies that correspond to the T31 Transmitters.
3. Connect the R802 Receivers using the RCA to RCA Audio Cable (WCA 013).



4. Turn all units on and use.

The R802s share their signals via Bridge In/Out Jacks, allowing both signals to be played simultaneously through all speakers.

**Note:** Students using optional personal receivers must change channels as needed to match the frequency of the teacher speaking.

### USING THE CONTROLS IN TEAM TEACHING

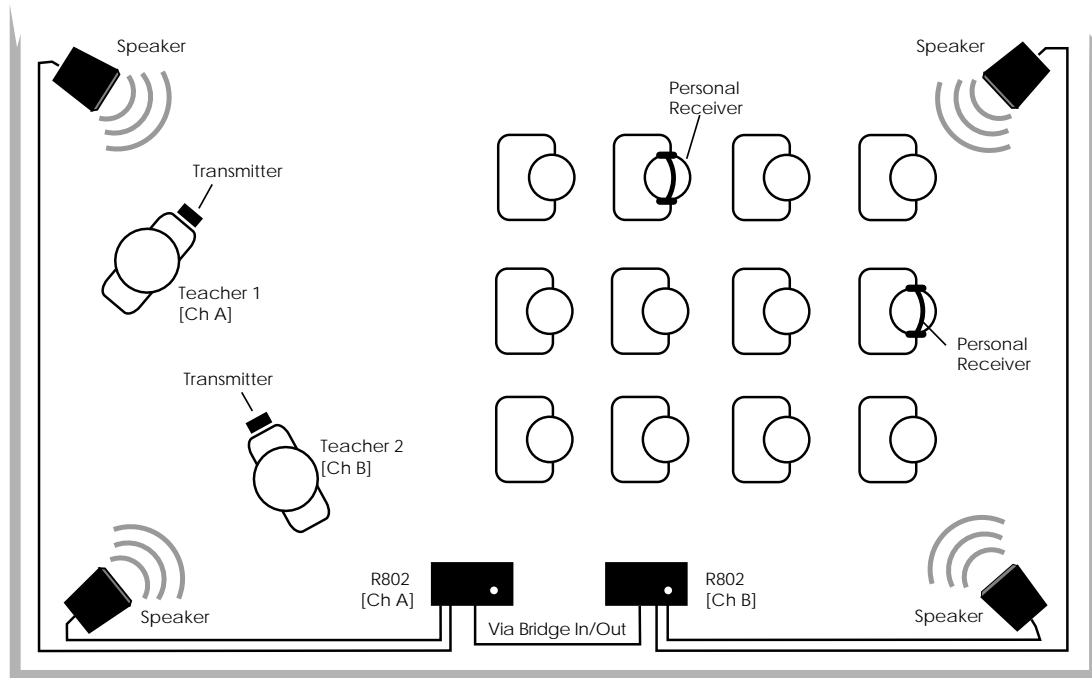
#### To Adjust Volume

Once both R802s are connected together properly, adjust the volume control of Teacher 1's R802 to a comfortable speaker output level. Then adjust the volume control of Teacher 2's R802 to a comfortable output level. All speakers operate at the same output level.

#### To Adjust Bass and Treble Controls

Treble and Bass controls affect only the speakers directly connected to the R802.

FIG. 9: TYPICAL TEAM TEACHING CONFIGURATION



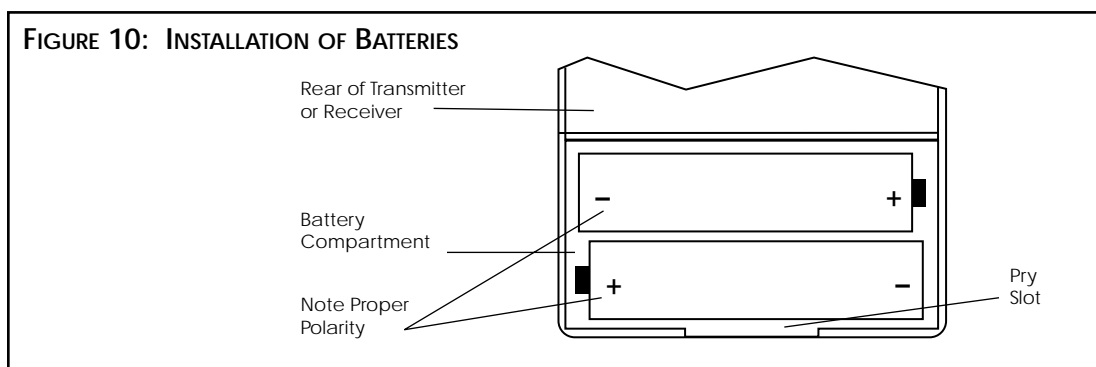
Both Teacher 1 and Teacher 2 use T31 Transmitters and microphones to simultaneously transmit different FM radio signals to R802 Receivers on corresponding frequencies. By connecting the R802s via Bridge In/Out jacks using an RCA to RCA cable, both teachers are heard through all speakers.

Note: Students using optional personal receivers must change channels as needed to match the frequency of the teacher speaking.

## BATTERY INFORMATION

### INSTALLATION

Open the battery compartment using a coin in the slot in the bottom of the transmitter. Press the batteries into place, observing proper polarity. (See Figure 10.)



Incorrect insertion of the battery is difficult, and may cause both mechanical and electrical damage not covered by the 5 year warranty to transmitters or receivers. Units will not work with the battery incorrectly installed.

### DISPOSABLE BATTERIES

In normal use, two AA 1.5 V alkaline batteries will last about 12 hours in the T31 Transmitter and approximately 80 hours in the optional R31 and R32 Receivers, respectively.

If the sound becomes weak or distorted, replace the batteries. The indicator light may still be on, even with batteries that are weak. Do not leave dead batteries in the receivers. Battery corrosion is not covered by the Williams Sound five year warranty.

### RECHARGEABLE BATTERIES

The T31 Transmitter and optional R31 and R32 Receivers can use rechargeable AA batteries (BAT 026). On an overnight charge, these Ni-Cad batteries are designed to operate a T31 Transmitter for about 10 hours, R31 and R32 Receivers about 50 and 60 hours, respectively.

The battery installed in the receiver may be recharged in the receiver only if it is a Nickel Cadmium or NiMH battery, and only if the Williams Sound CHG 200A charger is used. Damage from improper charging is not covered by the Williams Sound five year warranty.

#### **!! IMPORTANT WARNINGS !!**

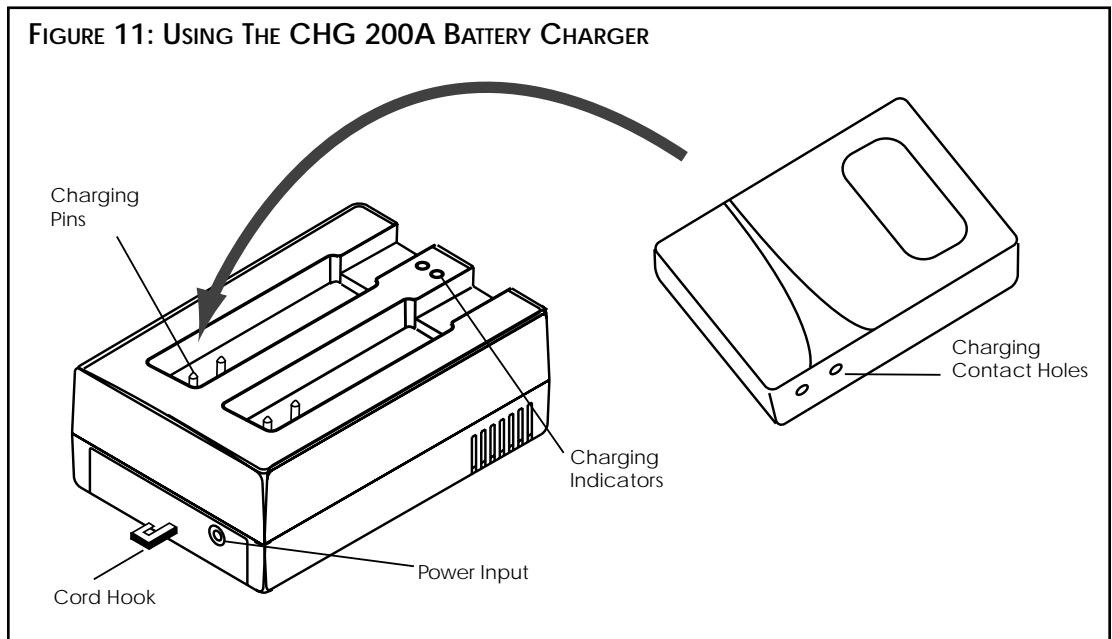
**DO NOT ATTEMPT TO RECHARGE RAYOVAC ALKALINE RECHARGEABLE, ZINC CARBON ("HEAVY DUTY"), ALKALINE, OR LITHIUM BATTERIES!**

**DO NOT ATTEMPT TO RECHARGE DISPOSABLE BATTERIES.** The batteries may heat up and burst, causing possible injury and damage to the equipment. Avoid shorting the plus and minus battery terminals together with metal objects. Battery damage and burns can result!

Use only Williams Sound supplied chargers and batteries.

## USING THE CHG 200A BATTERY CHARGER

1. Plug the CHG 200's power supply into the Power Input on the charger's side and a standard AC wall outlet.
2. Route the power cord around the Cord Hook. (See Figure 11.) This will minimize strain on the cord and jack and insure that the power cord is not detached during charging.



3. Make sure the transmitter or receiver units to be charged are turned OFF.
4. Place the transmitters/receivers in the slots so that the CHG 200's Charging Pins and units' side panel contacts are coupled. Make sure that the charging contact holes line up with the charging pins. The transmitters/receivers should drop easily into the slots. **DO NOT FORCE THEM IN BACKWARDS.**
5. The Charging Indicators will light, indicating that charging is in process. It takes 14–16 hours to fully charge the batteries. Remove the transmitters or receivers when charging is completed.

### Further Suggestions

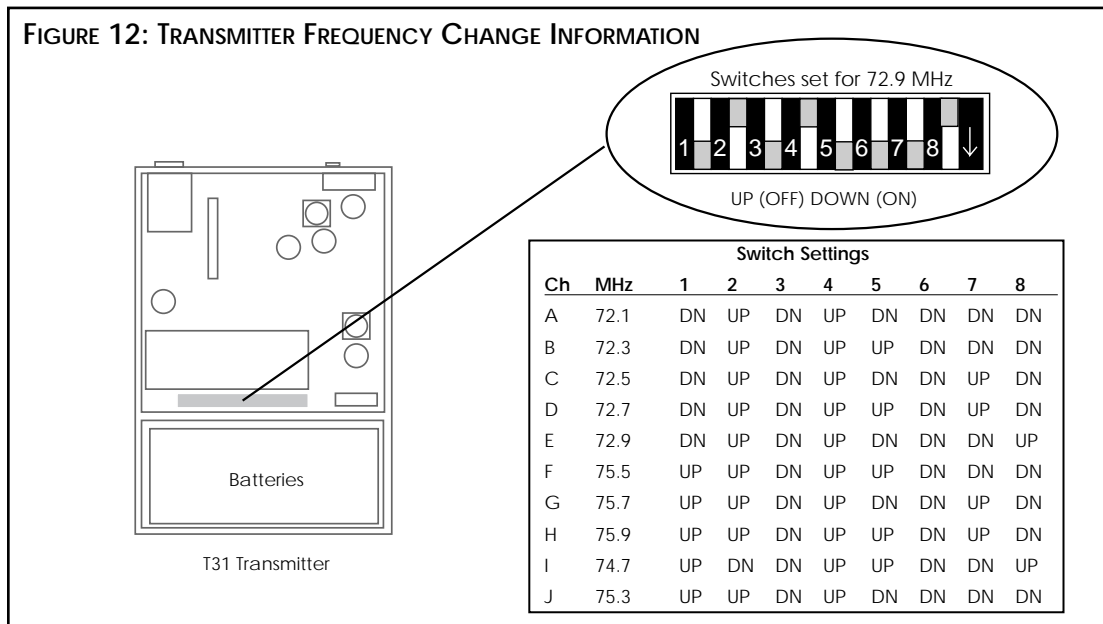
- Receivers and transmitters **SHOULD NOT** be left charging continuously when not in use. Receivers and transmitters should always be turned OFF while charging.
- It's best to allow the batteries to fully discharge before charging.
- If the batteries are near end of life and the LED turns off while the receiver is operating, this is an indication to change or recharge your batteries. Approximately one hour of battery life remains.
- Repeatedly charging the batteries after short periods of use (1–2 hours) will shorten battery life.
- Rechargeable batteries may need to be replaced after 1–2 years of use.

## CHANGING FREQUENCIES

If you experience FM signal interference, you can easily adjust your transmitter and receiver to use different frequencies.

### CHANGING THE PFM T31 TRANSMITTER FREQUENCY

1. Open the battery compartment using a coin in the slot in the bottom of the transmitter. Remove the batteries.
2. Lift the flap up and to your left. The back of the transmitter case will open like a book, exposing the circuit board.
3. Use the diagram in Figure 12 to locate the channel selector switches.



4. Use the tip of a paper clip or a small screwdriver (not a pencil point) to move the switches to correspond with the switch positions on the programming chart in Figure 10. Do not touch any other adjustments.
5. Close the back of the transmitter, reinstall the batteries, then close the battery compartment door.
6. Plug the microphone in and turn the transmitter on to provide a tuning signal for the receivers.
7. Change the R802 to the corresponding channel.

## USING MULTIPLE SYSTEMS

When multiple systems are used in adjacent rooms, it is important to coordinate which channel is being used in each room to avoid interference.

Follow the channel assignment diagram in Figure 13 to minimize the chances of interference.

**FIG. 13: MULTIPLE SYSTEM CHANNEL PLAN**

72.1 MHz Room 1	72.3 MHz Room 3	72.5 MHz Room 5	72.7 MHz Room 7	72.9 MHz Room 9	74.7 MHz Room 11	75.3 MHz Room 13	75.5 MHz Room 15	75.7 MHz Room 17	75.9 MHz Room 19
74.7 MHz Room 2	75.3 MHz Room 4	75.5 MHz Room 6	75.7 MHz Room 8	75.9 MHz Room 10	72.1 MHz Room 12	72.3 MHz Room 14	72.5 MHz Room 16	72.7 MHz Room 18	72.9 MHz Room 20

To avoid poor performance, **DO NOT** operate two transmitters on the same channel in the same room. Make sure the transmitter and receiver channels match. Consult your dealer or Williams Sound for help if needed.



## IN CASE OF DIFFICULTY

### IF NO SOUND IS PRODUCED

1. Make sure the batteries are fresh or completely charged and that the “plus” and “minus” terminals are installed correctly in the transmitter.
2. Make sure the transmitter FM switch is ON and the MIC switch is ON.
3. Make sure the microphone is plugged into the T31 Transmitter
4. Make sure the R802’s power switch is ON.
5. Make sure the transmitter and receiver are set to the same channel.
6. Move the transmitter and receiver closer together. You may be out of range. When using the system indoors, it’s normal for the signal to momentarily disappear in certain locations. This is called a “drop-out.” Moving a few feet will restore the signal.

### IF FEEDBACK OCCURS

1. Do not stand with the microphone directly in front of the speaker.
2. Place the speakers as shown in Figure 2. Avoid pointing speakers directly perpendicular to a wall.
3. Turn the volume down. Remember, the system is not intended to play loudly. It should slightly boost the teacher’s voice above normal background noise levels.
4. Turn down the treble control. This will reduce the volume of higher frequencies.
5. Use the MIC 074 Headset Microphone. This brings the microphone closer to the sound source (the speaker’s mouth) and thus reduces the amount of amplification required to achieved the desired volume.

### IF INTERFERENCE OCCURS

1. Do not try to use more than one transmitter on the same channel in close proximity to each other. **MORE THAN ONE TRANSMITTER ON THE SAME CHANNEL WILL RESULT IN INTERFERENCE IF THEY ARE CLOSE TOGETHER.** Keep the systems 50—100 feet apart or use separate channels for each system used.
2. If you are still hearing interference on the receiver, turn the transmitter off and listen with a receiver. If you hear the interference with the transmitter off, you need to change to a clear channel. See the frequency change instructions elsewhere in this manual.
3. Make sure that the transmitter and optional personal receivers are tuned to the same channel. The units have stickers inside the back cover identifying the channel. Unless the transmitter channel has been changed, set the personal receiver to channel 1.



## IF OTHER PROBLEMS OCCUR

1. If the rechargeable batteries will only work for a short period of time (less than 1 hour) even after they are fully charged, they must be regenerated. Leave them in the transmitter or personal receiver with the unit turned on for 5 - 6 hours. Then turn the transmitter or personal receiver off, place it in the charger, and charge for 14 - 16 hours. This should restore normal battery life. Rechargeable batteries will gradually lose their capacity over time and should be replaced every year.
2. If you're using the SoundFocus System with the optional PFM R31 Receiver, make sure that the earphone has been plugged into the earphone jack and not into the R31 Receiver's microphone jack.

## IF PROBLEMS REMAIN

If none of the remedies above provides the solution, call Williams Sound's Customer Service Department at 1-800-843-3544 (8:00 AM– 4:30 PM Central Time).



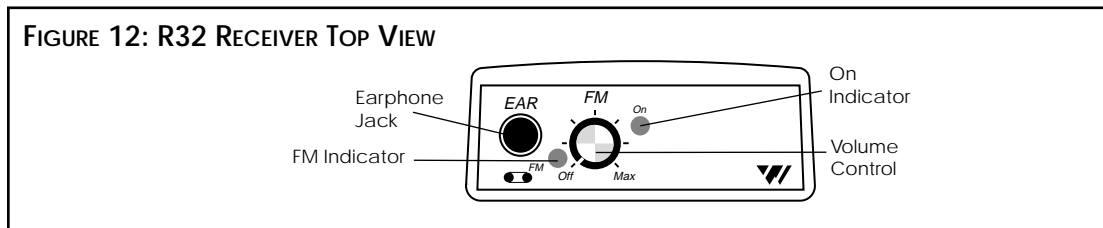
## OPTIONAL PERSONAL RECEIVERS

The optional PFM R32 and PFM R31 Personal Receivers can both be used with the SoundFocus™ System. On each, the earphone cord is also the receiving antenna. Do not bunch up the cord or wrap it around the receiver. For best reception, the cord should hang as straight as possible. Make sure receivers are turned OFF when not in use. The channel selector on both receivers can be used to switch between an individual and a group channel.

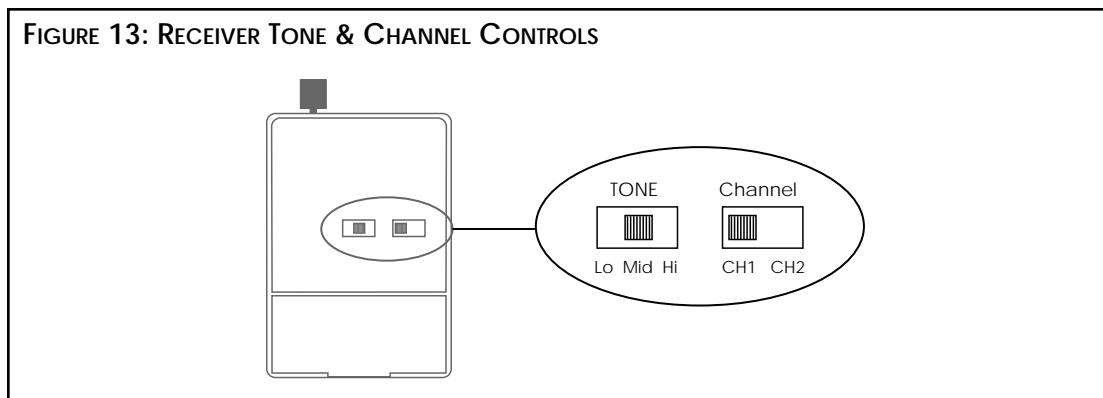
### USING THE PFM R32 RECEIVER:

Receiver Model PFM R32 has a single volume control and an earphone output jack.

1. Make sure there are two charged AA batteries in the receiver. If batteries are not installed, see *Battery Information* on page 12.
2. Plug the earphone or headphone into the “Ear” jack on top of the receiver.



3. Turn the power on by rotating the volume control knob on top of the receiver.
4. Place the earphone in your ear.

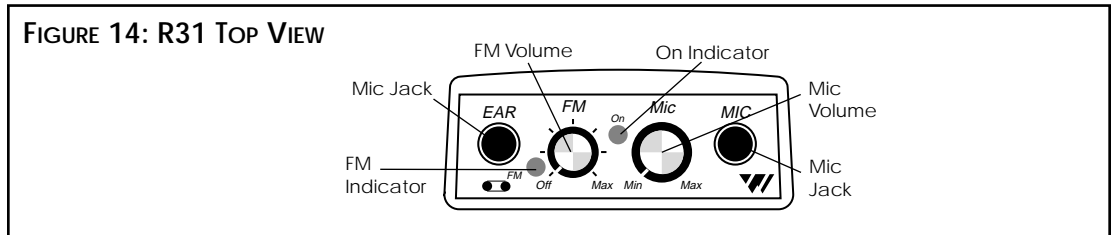


5. Choose the correct channel using the right switch on the R32's back panel. Unless you have changed the transmitter channel, set the receiver to channel 1. If the transmitter is on and tuned to channel 1, the FM Indicator light on the R32 will light.
6. Adjust the receiver volume control to a comfortable listening level. You should be able to hear someone speaking into the transmitter microphone.
7. Adjust the receiver tone control to your needs. (See Figure 13.)  
Lo = more low frequencies; Mid = some low frequency cut; Hi = maximum low frequency cut, emphasizes higher frequencies.

- Place the receiver in the belt clip case provided. The receiver can be placed in a pants pocket, or clipped onto a belt, harness, or waistband.

#### USING THE PFM R31 RECEIVER:

Receiver Model PFM R31 has two volume control knobs (one for the FM signal, one for environmental sounds), a microphone input jack, and an earphone output jack.



- Make sure there are two charged AA batteries in the receiver. If batteries are not installed, see *Battery Information* on page 12.
- Insert the small Plug Mount Microphone (MIC 014) into the “Mic” jack on top of the R31 Receiver. (See Figure 14.)
- Plug the earphone or headphone into the “Ear” jack on top of the receiver.
- Turn the power on by rotating the taller “FM” volume control on top of the receiver.
- Place the earphone in your ear.
- Choose the correct channel using the right switch on the R31’s back panel. If the transmitter is on and tuned to channel 1, the FM Indicator light on the R31 will light.
- Adjust the receiver tone control to your needs. (See Figure 13.)  
Lo = more low frequencies; Mid = some low frequency cut; Hi = maximum low frequency cut, emphasizes higher frequencies.
- Place the receiver in the belt clip case provided. The receiver can be placed in a pants pocket, or clipped onto a belt, harness, or waistband.

#### Adjusting The R31 Volume Controls

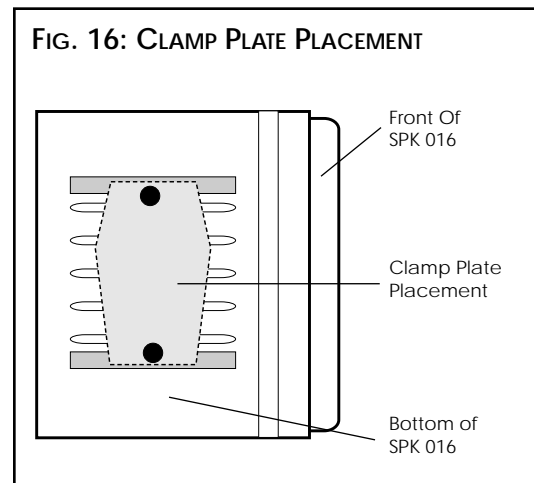
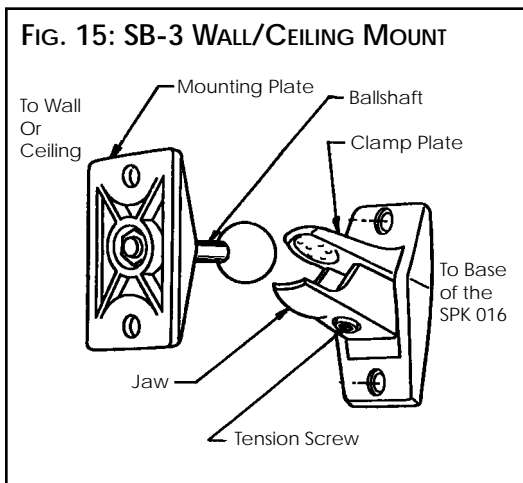
- Adjust the taller “FM” volume control to a comfortable listening level. You should be able to hear someone speaking into the transmitter microphone.
- Now adjust the shorter “Mic” volume control until you can hear sounds picked up by the environmental microphone on top of the receiver.
- Adjust the two volume controls for a comfortable mix of FM and environmental sounds. You will normally want to have the FM signal louder than the environmental Mic signal to avoid picking up extra background noise. If no environmental sounds are desired, turn the “Mic” control to “Min”. If you want to hear nearby conversation or your own voice, turn the “Mic” control up.

## OPTIONAL MOUNTING KITS

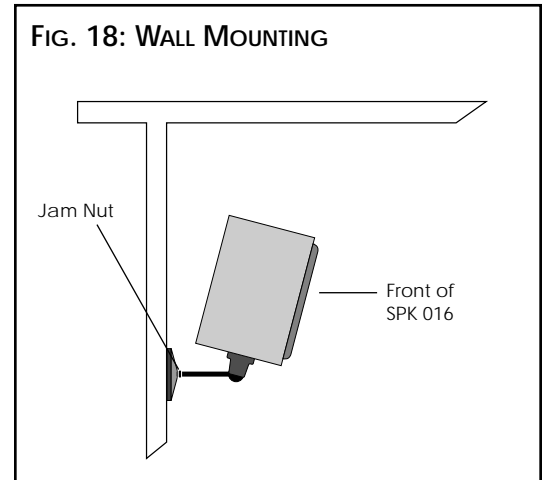
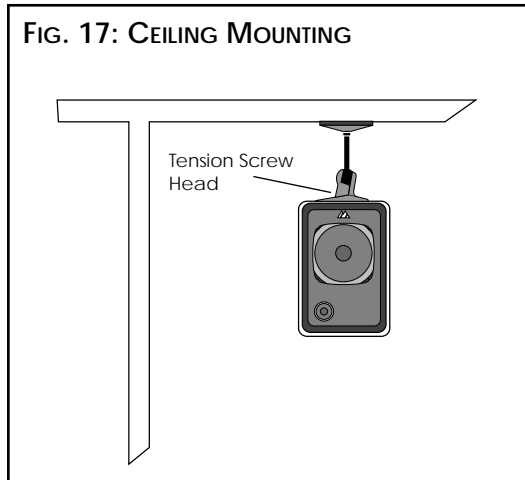
Williams Sound offers two optional mounting kits for use with the SoundFocus FM System. Use the SB-3 Wall/Ceiling Mount Kit to mount an SPK 016 Speaker to a wall or ceiling. The SS-3 Floor Stand Kit includes an adjustable stand and flange which allow you to elevate the SPK 016 as you choose. To order these optional components, contact your dealer or Williams Sound Corp.

### INSTALLING THE SB-3 WALL/CEILING MOUNT KIT

1. Use the 5/32" allen wrench to loosen the tension screw in the Clamp Assembly enough to release the ball. DO NOT unscrew the tension screw completely. (See Figure 15.)
2. Position the Clamp Plate LENGTHWISE on the BOTTOM of the SPK 016 Speaker. (See Figure 16.) Mark TWO hole locations for drilling.



3. Using your hole markings as a guide, drill TWO pilot holes using a 3/16" bit.  
**Caution: The speaker walls are 1/4" thick. Drill only deep enough to pass through the enclosure wall and no more than 1".**
4. Attach the Clamp Plate to the speaker, using the two screws provided.
5. Using the Wall/Ceiling Mounting Plate as a template, mark TWO holes on the wall, ceiling, or other surface upon which you will be mounting the SPK 016. (See Figures 17 and 18.)
6. Drill TWO pilot holes.
7. Use fasteners appropriate for the mounting surface (wood screws, lag bolts, wall anchors) to attach the Mounting Plate. Recommended fastener size is 1/4".
8. Place the Receiver-Clamp Plate Assembly onto the the Mounting Plate ballshaft. Aim the receiver/speaker at the desired angle and support it fully while using the allen wrench to tighten the tension screw.



After initial installation, the ball will slowly compress under pressure. Check the tension screw after 15 minutes and re-tighten if necessary. **DO NOT OVER TIGHTEN.**

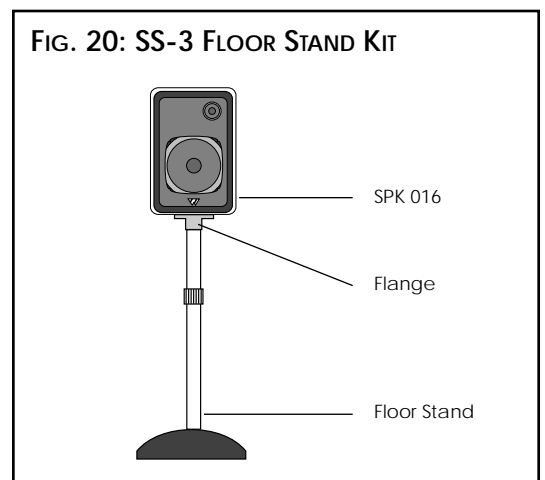
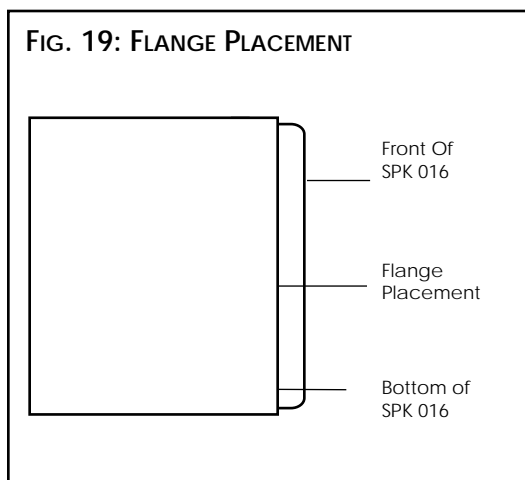
If rotational adjustment is required, use a 7/16" open-end wrench to loosen the jam nut on the ballshaft. Rotate the receiver/ speaker and re-tighten the jam nut.

#### INSTALLING THE SS-3 FLOOR STAND KIT

1. Position the metal flange on the bottom of the speaker as shown in figure 19. Mark three hole locations for drilling.
2. Using your hole locations as a guide, drill three pilot holes using a 1/8" bit.

Caution: the speaker walls are 1/4" thick. Drill only deep enough to pas through the enclosure wall and no more than 1".

3. Secure the metal flange to the speaker using the three screws provided.
4. Set the resulting flange/speaker assembly on the threaded top of the floor stand and turn until secure. **DO NOT OVER TIGHTEN.** (See Figure 20.)





## WARRANTY

The Williams Sound SoundFocus FM™ Classroom Amplification System is engineered and designed to provide you with many years of reliable service. Williams Sound warrants it against defects in materials and workmanship for FIVE (5) years EXCEPT FOR earphones, headphones, rechargeable batteries, chargers, cables, antennas, carry cases, and all other accessory products. Accessory products carry a 90 day warranty.

If the product fails within the specified warranty period, Williams Sound will determine whether to repair or replace the defective equipment. This warranty does not apply to physical damage, abuse, mis-use, or products that have been modified.

*If you experience difficulty with your system, call for Customer Assistance:  
1-800-328-6190.*

If it is necessary to return the system for service, a Williams Sound representative will give you a Return Authorization Number (RA) and shipping instructions. Pack the system carefully and send it to:

Williams Sound Corp.  
10399 West 70th Street  
Eden Prairie, MN 55344-3459 USA

Phone: 800-843-3544 / 612-943-2252  
Fax: 612-943-2174  
TTY: 612-943-9675  
e-mail: [info@williamssound.com](mailto:info@williamssound.com)

Your warranty becomes effective the date you purchase your system. Your returned warranty card is our way of knowing when your warranty begins. It also gives us important information about your system including the serial number. This information will help us serve you better in the future. Please take a moment to complete and mail the attached card. Thank you.

# SOUNDFOCUS FM™ SYSTEM SPECIFICATIONS

## SOUNDFOCUS FM TRANSMITTER, MODEL PFM T31

Dimensions:	3-5/8" L x 2-3/8" W x 7/8" H (92.1 mm x 60.3 mm x 22.2 mm)
Weight:	4.4 oz (125 g) with battery
Color:	Royal blue, shatter-resistant polypropylene
Battery Type:	Two (2) AA 1.5 V Non-rechargeable Alkaline batteries (BAT 001), 70 mA nominal current drain, 12 hours approx. life (OR) Two (2) AA 1.5 V Ni-Cad Rechargeable batteries (BAT 026), 70 mA nominal current drain, 10 hours per charge approx., recharges in 14-16 hours, uses CHG 200A Charger
Operating Freq's:	Selectable, 10 channels (72.1, 72.3, 72.5, 72.7, 72.9, 74.7, 75.3, 75.5, 75.7, 75.9 MHz*), Internal SIP switch
Stability:	+ .005%, frequency synthesized, crystal reference, PLL
Modulation:	Wide-band FM, 75 kHz, 75 $\mu$ S pre-emphasis
RF Output:	80,000 $\mu$ V/m at 3 meters, maximum, 40 mW typical
FCC ID:	CNM T31
Freq Response:	100 to 10 kHz, + 3 dB at 1% max. THD
Signal-Noise Ratio:	55 - 60 dB, with R31 or R32 Receiver
Auto Gain Control:	40 dB range, 30 mV threshold
Transmit Antenna:	Integral with microphone cord
Microphone:	Omnidirectional condenser, Lavalier-type, 39" cord, 3.5 mm mono phone plug (MIC 081); Optional mic available
Controls:	On/Off switch and Mic Mute Switch, slide-type
Mic Connector:	3.5 mm mono phone jack

## SOUNDFOCUS FM RECEIVER/AMPLIFIER, MODEL R802

Dimensions, Weight:	1.75" H x 8.45" W x 8.25" D, 3lbs.
Color:	Black epoxy paint with white legends
Rack Mount:	One EIA rack space high, 1/2 space wide, 1-2 units can be mounted in a single rack space with optional RPK 005 (single) or RPK 006 (double) Rack Mount kits.
Power:	12VAC, 50/60Hz, TFP 008 supplied
Power Indicator:	Green LED, Front panel
FCC ID:	R802
Operating Freq.:	10 Channel Selectable (72.1, 72.3, 72.5, 72.7, 72.9, 74.7, 75.3, 75.5, 75.7, 75.9 MHz*)
Freq. Accuracy:	0.01%, Frequency Synthesized, Crystal Reference
FM Deviation:	+/- 75kHz, 75 $\mu$ S de-emphasis
Sensitivity:	0.8 $\mu$ V at 12 dB Sinad with squelch defeated, squelches at 10 $\mu$ V for min. 50 dB S/N ratio.
Carrier Indicator:	Green LED, Front panel
Freq. Response:	50 to 18kHz, +1, -4 dB
Signal/Noise Ratio:	60 dB at 100 $\mu$ V.
Receiver Antenna:	Flexible "rubber duckie" type or optional 75 Ohm remote antenna
Controls:	Power On/Off, Volume, Bass, Treble, FM Channel.
Speaker Output:	4 Watts continuous, 4 or 8 Ohm
Speaker Cnnctrs:	Push type, quick connect terminals
Distortion:	less than 1.0% at rated power
Tone Controls:	Bass: +/- 18 dB at 100Hz, Treble: +/- 18dB at 10k.
Line Input:	Unbalanced, RCA, 350 mV rms min. for 4 Watts output, 10 k $\Omega$ input impedance
Bridge In/Out:	Unbalanced, RCA, 220mV rms, nominal, 1k impedance.

## BATTERY CHARGER, MODEL CHG 200A

Dimensions: 6-3/4" L x 3-5/8" W x 2-1/8" H (17.15 cm x 9.2 cm x 5.4 cm)  
Weight: 9.28 oz (260 g)  
Color: Black, pebble grain texture with white legends  
Power Input: 6 VDC  
Power Transformer: 110 V, polarized, 60 Hz, 1.8 VA  
Indicators: Charging in process

## OPTIONAL PERSONAL RECEIVERS, MODELS PFM R31 & PFM R32

Dimensions: 3-5/8" L x 2-3/8" W x 7/8" H (92.1 mm x 60.3 mm x 22.2 mm)  
Weight: 4.6 oz (130 g) with batteries  
Color: Royal blue, shatter-resistant polypropylene  
Battery Type: Two (2) AA 1.5 V non-rechargeable Alkaline batteries (BAT 001), 14 mA nom. current drain, 80 hours approx. life  
(OR)  
Two (2) AA 1.5 V Ni-Cad rechargeable batteries (BAT 026), 14 mA nominal current drain, 50 hours per charge approx., recharges in 14-16 hours, uses CHG 200 Charger  
FCC ID: CNM R31 / CNM R32  
Operating Freq's: Pre-Tuned, Field-tuneable, 72 MHz - 76 MHz\*.  
Pre-set channels are E (72.9 MHz) and G (75.7 MHz)  
FM Deviation: Wide-band, 75 kHz, 75  $\mu$ S de-emphasis  
AFC Range:  $\pm$  120 kHz  
Sensitivity: 4  $\mu$ V at 12 dB Sinad with squelch defeated, squelches at 10  $\mu$ V for min. 50 dB S/N ratio  
Freq Resp.: 100 to 10 kHz, + 3 dB  
Signal-Noise Ratio: 50 dB at 10  $\mu$ V  
Receive Antenna: Integral with earphone cord  
Audio Output: 35 mW, max. at 16  $\Omega$   
Output Connector: 3.5 mm mono phone jack  
Squelch: Set to turn off audio under weak or no signal condition  
Carrier Detect Ind: Red LED, turns on in the presence of a carrier  
Controls: Volume: rotary/on/off/volume;  
Tone: 3-way slide switch; Lo = flat response (20 Hz), Mid = -3 dB at 235 Hz, Hi = -3 dB at 730 Hz;  
Channel: 2-way slide switch; Ch 1 = 72.9 MHz, Ch 2 = 75.7 MHz  
Indicators: On/off and FM  
Note: Specifications are electrical performance

### PFM R31 Receiver Only

Mic Connector: 3.5 mm mono phone jack, supplies positive DC for Williams Sound electret mics  
Microphone: Plug mount condenser electret, omnidirectional, with windscreen, 3.5mm mono phone plug (MIC 014)  
Mic Volume: Rotary control