

PROFESSIONAL ENTERTAINER MODEL PE86L UNIDIRECTIONAL DYNAMIC MICROPHONE



PE86L-LC: Low impedance;
Supplied without cable

The best vocal microphone in the world, the PE86L is the standard by which others are judged. Take an acoustic design that approaches the theoretical ideal and couple it with a very effective pop and wind filter in the ball-type grille. Make it with traditional Shure ruggedness and quality, and you have a microphone that is the professional's choice for every occasion and every application. The PE86L is the best!

- Very wide frequency response, ideally shaped for vocals or instruments
- Unusually effective and uniform unidirectional (cardioid) pickup pattern minimizes feedback in live performance
- Ball-type pop filter grille reduces "p-popping" and breath and wind noise
- Very effective internal shock mount minimizes handling noise
- Nonreflective dark gray finish for professional appearance onstage
- Extremely rugged and reliable
- Backed by the Shure guarantee

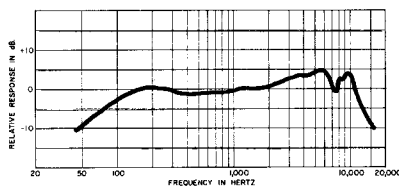
SPECIFICATIONS

Type

Dynamic

Frequency Response

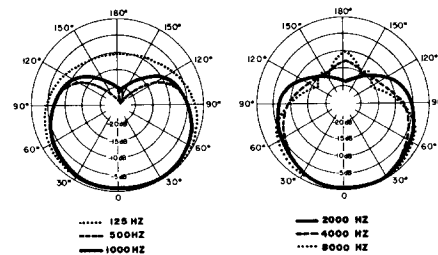
50 to 15,000 Hz (see Figure 1)



TYPICAL FREQUENCY RESPONSE
FIGURE 1

Polar Pattern

Cardioid (unidirectional) See Figure 2



TYPICAL POLAR PATTERNS
FIGURE 2

Impedance

Low (150 ohms rating)

Output Level (at 1,000 Hz)

Open Circuit Voltage* -75.5 dB
*0 dB = 1V/ μ bar (0.17 mV)

Power Level** -56.5 dB
**0 dB = 1 mW/10 μ bar

Phasing

Positive pressure on diaphragm produces positive voltage on pin 2 of connectors

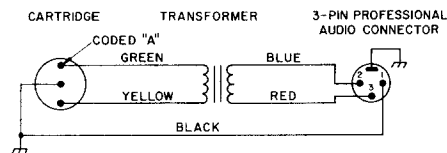


FIGURE 3

Cartridge Shock Mount

Internal rubber vibration isolator

Case

Dark gray with dark gray spherical screen

Net Weight

298 grams (10½ oz)

Swivel Adapter

Positive action, adjustable from vertical to horizontal, for mounting on 5/8"-27 thread

FURNISHED ACCESSORIES

Swivel Adapter A25B
Padded Gig Bag 26A13

OPTIONAL ACCESSORIES

Windscreen A58WS
Floor Stand (Weighted base) MS-10C
Floor Stand (Tripod base) S15
Baby Boom BB-44
Cable: 7.6m (25 ft) 2-conductor shielded with 3-socket and 3-pin professional audio connectors C25B

REPLACEMENT PARTS

Cartridge 90ET2600
Screen and Grille RK225G

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SHURE—QUALITY IS OUR FIRST CONSIDERATION

Congratulations on the purchase of your new Shure microphone. It will serve you faithfully even in the most difficult circumstances. Because more than 50 years of experience with microphones has taught us one thing: they are not always used under ideal conditions. Far from it! So Shure develops, designs, builds, and tests them for the worst conditions we can imagine.

We know they'll be flung into equipment boxes after performances. We know they'll be called upon to function at humidity levels near 100%. We know they'll be left in the direct rays of the midday sun for hours, waiting for outdoor concerts to begin. Professional vocalists depend upon their microphones much as musicians depend upon their instruments, but many don't hesitate to throw their Shure microphones across the stage and down on the floor—violently—as part of their performance. They never give it a second thought. They know that Shure microphones shrug off abuse that would make others fail.

Shure reliability begins during the design stage. Shure has a staff of specialists whose sole function is to uncover any weaknesses before Shure microphones are put into quantity production. During the testing process, microphones are:

- Heated at temperatures up to 85°C (185°F) often for entire days
- Frozen down to -46°C (-50°F) for half-hour periods **during** the heat test
- Shaken from side to side, back and forth, and up and down, simultaneously and violently
- Subjected to steamy humidities—up to 100% at room temperature and 93% at 38°C (100°F)
- Subjected to ultraviolet rays, salt sprays, alcohol, sand, and water
- And for good measure, dropped repeatedly 2 meters (6 ft) onto hardwood floors.

That is our **standard** test procedure. All during production, units chosen at random are put through these same tests. Failure of any one microphone brings production to a halt until the original design requirements are again met.

That's why at Shure we say, quality is our first consideration. The purchasers of the millions of microphones bearing the name Shure during past years, and those now buying their first Shure microphone can rely on us to continue to follow the philosophy and policies that keep Shure microphones working dependably—year after year after year.

Quality is our first consideration!

BASIC MICROPHONE TECHNIQUE

Good microphone technique will add to your effectiveness as a performer. Keep the following points in mind when using your Shure Professional Entertainer Microphone.

1. Maintain the proper distance from the microphone. When you want a warm, full sound, get close to the microphone and lower your voice. For a wide open, driving sound, raise your voice and back away from the microphone to avoid overdriving the amplifier into distortion.
2. Don't change your distance from the microphone needlessly as this will affect the level of sound coming from the loudspeakers.
3. Your Shure PE Microphone is your link to the audience. Consider the microphone an instrument and develop your technique through practice.

FEEDBACK AND UNIDIRECTIONAL MICROPHONES

A performer's worst enemy in using a microphone is "feedback". This is a harsh hum, howl, or squeal that occurs when the microphone picks up sound from the loudspeakers, reamplifies and rebroadcasts it over and over again. This vicious circle results in feedback.

A unidirectional microphone aids in preventing feedback because it rejects sound that originates from the sides and rear. Sound pickup from the sides is reduced by about one half, and pickup from the rear is reduced by about nine tenths. You can demonstrate this reduction in pickup by repeating "Test one, two" or some other convenient phrase as you rotate the microphone from front to back.

Using unidirectional microphones close to the performer or instrument ensures that the direct sound will be much louder than the

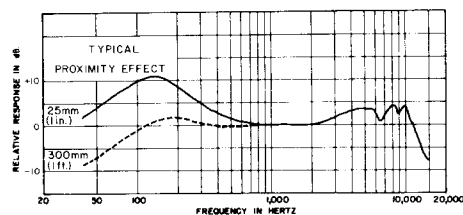
feedback-producing amplified sound. Because the amplifier gain can be turned up less to achieve the desired overall loudness, the amplified sound will likely remain below the volume that triggers feedback.

Other helps in preventing feedback are: keep the loudspeaker as far to the sides as possible; be sure that the microphones point toward the performers and away from the loudspeakers; and make certain that any stage monitor speakers are positioned in front of the performers and face the insensitive rear of the microphone.

UNIDIRECTIONAL MICROPHONES, OMNIDIRECTIONAL MICROPHONES, AND PROXIMITY EFFECT

Because of their usefulness in reducing the likelihood of feedback, unidirectional microphones are best in sound reinforcement and public address; while omnidirectional microphones are best in recording where feedback problems do not arise, or for close-miking instruments and amplifiers.

When unidirectional microphones are used close to a vocalist or musical instrument, there is an increase in bass (low-frequency) output called proximity effect. At a distance of about 6mm (1/4 in.) a typical increase is shown on the curve below.



Proximity effect can be used to improve your sound.

1. With vocalists, it increases warmth, giving a fuller quality to the voice.
2. With instruments, it provides a flat or boosted bass output without tone controls, simply by changing the distance between source and microphone; and close miking provides natural isolation by minimizing bass pickup of other instruments.

Most Shure unidirectional microphones are designed with a bass response that provides control at low frequencies yet still allows proximity effect to be used advantageously when desired. To employ proximity effect, you need to hear the amplified result. Just as you practice your instrument, you will want to practice your microphone technique to get the precise sound you want. (A good way to hear the actual result of proximity effect is to use monitor speakers or headphones if they are available.)

Omnidirectional microphones do not exhibit proximity effect when used closeup. Because the response does not change with angle or distance from the performer, an omnidirectional microphone is valuable when the sound must stay the same for several performers positioned around the microphone, or for a performer who moves from place to place during a play or interview. But be aware of feedback problems that may occur if omnidirectional microphones are used when sound amplification is present.

CHOOSING A MICROPHONE EXTENSION CABLE

Low-impedance microphones can be used with practically unlimited lengths of cable with no added noise or high-frequency loss. Any Shure 2-conductor balanced cables (e.g., C25E or C25F TRIPLE-FLEX®, or C25J, C50J, or C100J HI-FLEX) can be used as extension cables for Shure low-impedance microphones. These cables can also be used in any required lengths or combinations between a low-impedance microphone and an A95UF Low-to-High-Impedance Matching Transformer.

High-impedance microphone cables are usually limited to 6.1m (20 ft) to avoid high-frequency loss or possible noise pickup. If longer cables are needed with high-impedance microphones, use such Shure *low-impedance* cables as the C25B, C25E, C25F or C20H to reach the required distance. Then add the C20B or C15A high-impedance cable to plug into the equipment. Adjust the treble control on the equipment to compensate for the high-frequency rolloff caused by the extra length of cable.