



PolarChoice™ White Paper

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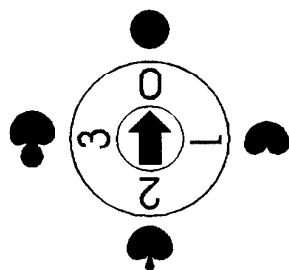
Introduction

There is no shortage of good quality podium microphones available in the market today. Most major microphone manufacturers offer models with various pickup patterns and on-axis responses. Even some models offer interchangeable capsules for added flexibility.

This wide selection of products requires the system designer to guess or make a decision of which model will give them the best performance and the greatest acoustic isolation.

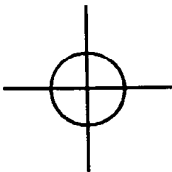
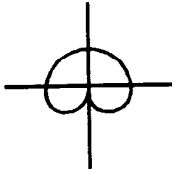
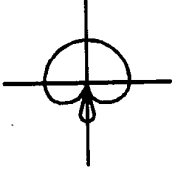
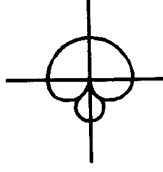
Electro-Voice Engineers have listened to the contractor's problems and concerns then designed a new series of gooseneck microphones. PolarChoice microphones address these concerns with innovative solutions.

Electro-Voice's PolarChoice 12 and 18 microphones have four user-selectable transducer polar patterns built in to eliminate purchasing the wrong microphone or capsule. The contractor can choose between cardioid, supercardioid, hypercardioid, or omnidirectional patterns by simply rotating a selector switch.



Switch Positions:
0 Omnidirectional
1 Cardioid
2 Supercardioid
3 Hypercardioid

This power to choose allows the contractor to instantly compare the polar patterns and select the polar with the greatest gain-before-feedback. And the microphone can adapt as the sound system evolves with the change of microphone or speaker placement.

SHAPE				
POLAR PATTERN	Omnidirectional	Cardioid	Supercardioid	Hypercardioid
PICKUP ANGLE (3dB down)	—	131°	115°	105°
DISTANCE FACTOR	1.0	1.7	1.9	2.0
OFF-AXIS ANGLE FOR MINIMUM OUTPUT	—	180°	±125°	±110°
SWITCH POSITION	0	1	2	3

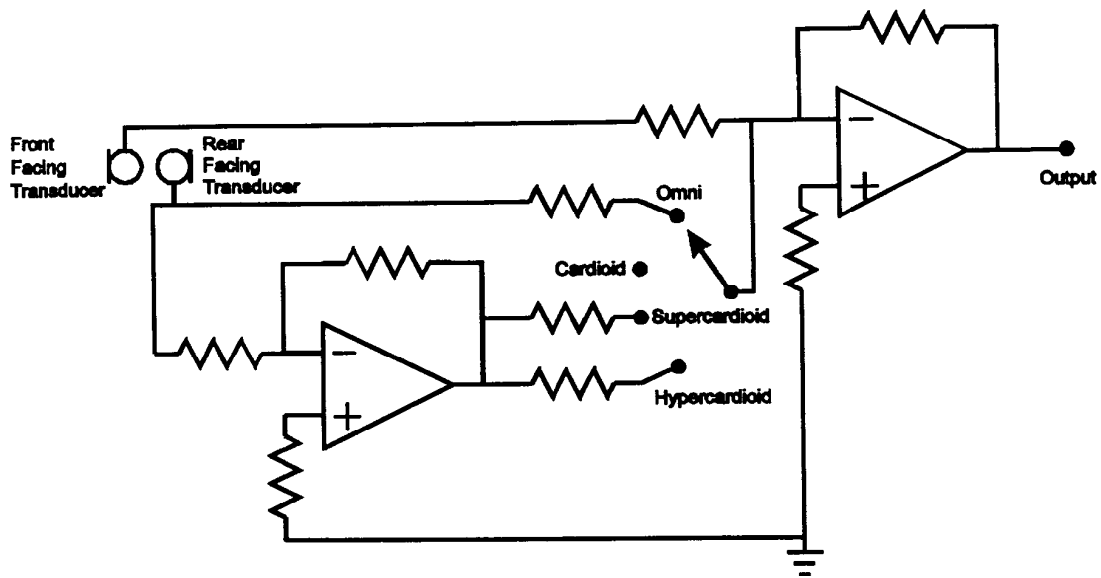
Polar Patterns Available from PolarChoice

Field testing the PolarChoice.

In field tests, acoustically the PolarChoice has a balanced sound, as one observer stated: "more full bodied — more meat and potatoes." The robustly designed external pop filter with the two-stage internal pop filter designed for PolarChoice does a magnificent job of attenuating breath noises and p-pop. The ability to select the best polar pattern for the particular test site allowed the PolarChoice to display exceptional gain-before-feedback when compared to rival microphones. The electronics design has a wide dynamic range with no premature clipping of the signal at high sound pressure levels. The PolarChoice can operate from phantom voltages from 9 to 52 Vdc. Consequently, the PolarChoice can operate from most any mixing console phantom supply.

How does the PolarChoice create multiple polar patterns?

The transducer on a typical gooseneck governs the microphone's directional and response characteristics. These properties are altered by requiring the contractor to purchase and replace the transducer with the desired traits. Therefore each polar pattern will require a specific transducer. PolarChoice's unique design scraps this old notion of offering a series of transducers by summing the output of two fixed transducers to produce the four most effective polar patterns: cardioid, supercardioid, hypercardioid, and omnidirectional. The switch function sets the amount of rear signal to be summed to the output of the front cardioid. Two fixed transducers produce four patterns, not individual transducers for each pattern.



Schematic

Advantages of the PolarChoice design:

Other than the renown ruggedness of Electro-Voice products and one of the best warranties, the following advantages of PolarChoice are:

- One microphone with four polar responses: omnidirectional, cardioid, supercardioid, and hypercardioid
- No need to order, wait, then change transducers in the field
- The PolarChoice can adapt to a changing acoustical environment
- No noticeable change in the free field response in the directional patterns
- The microphone can change with the rotation of a switch to accommodate changes in the microphone or speaker placement
- The sound engineer can **immediately** select the best polar pattern for maximum gain-before-feedback
- Specially designed pop filter to greatly attenuate breath noise and p-pop
- Electronics has a wide dynamic range and can handle high sound pressure levels without clipping
- The PolarChoice is available in 12-inch and 18-inch gooseneck versions

Why should you buy a PolarChoice?

If you know exactly what you need in a microphone AND you know that the sound reinforcement system will remain static then you don't need one. But:

- if you are starting from scratch or will operate in an unknown environment or in a continually changing environment then the PolarChoice is the best microphone.
- if you are looking for a microphone that will INSTANTLY adapt to an evolving sound reinforcement system, then the PolarChoice is the best microphone.
- if you want a microphone with the best gain-before-feedback, the PolarChoice is the best microphone.
- if you want a microphone with a specially designed pop filter offering the best breath noise and p-pop rejection, the PolarChoice is the best microphone.

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