

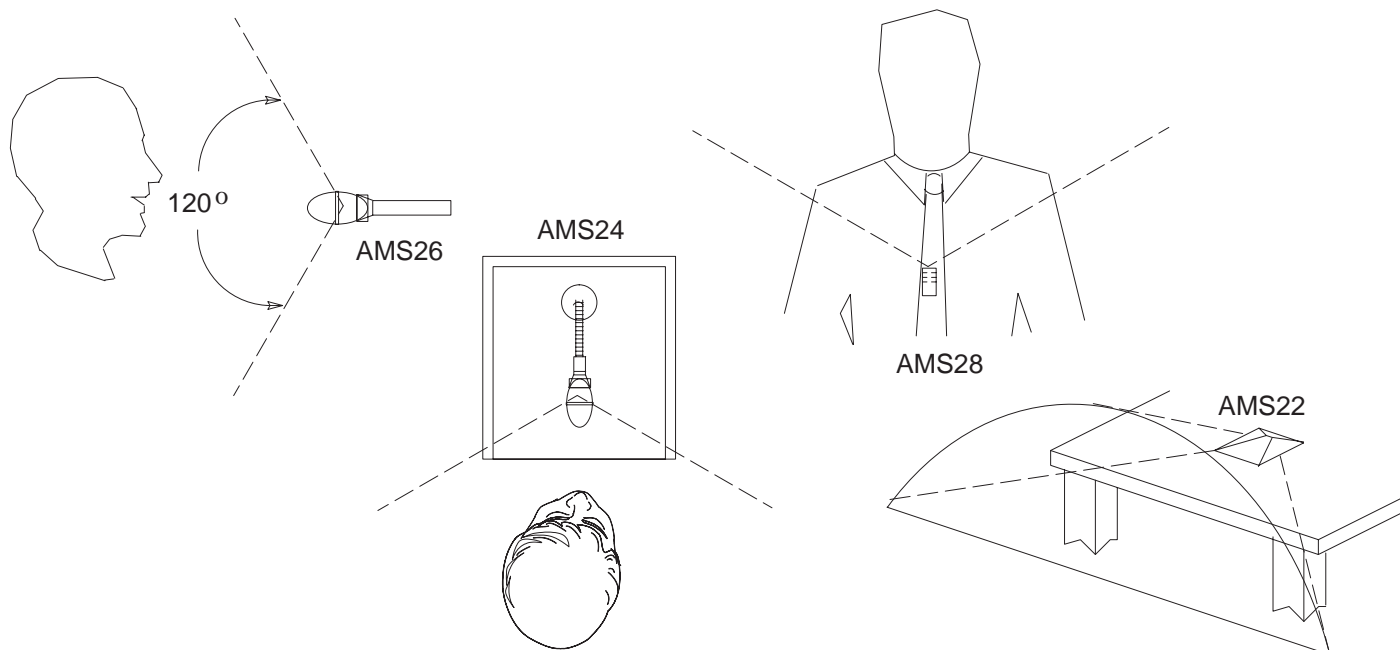


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## AMS MICROPHONES

## Specification Sheet



### GENERAL

The AMS Series Condenser Microphones are designed for use **only** with the Shure Automatic Microphone System (AMS), a patented method of activating microphones only when and if they are needed. When used with the Shure AMS4000 and AMS8000 mixers, these microphones provide excellent performance in multi-microphone installations such as conference rooms, legislatures, churches, courtrooms, broadcast studios, and distant learning classrooms.

Unlike conventional microphones, the AMS microphones contain electronic circuitry and a unique two-transducer configuration to make them compatible with Shure AMS mixers. **AMS microphones should not be connected to standard phantom or non-phantom powered microphone inputs; they will not function properly.**

AMS microphones, in conjunction with the patented circuitry in the AMS mixers, uniquely discriminate between desired sounds that originate within a 120° front acceptance angle and all other sounds. Sounds within the 120° acceptance angle will activate the associated AMS mixer channel. Sounds outside the acceptance angle will not activate the AMS channel. When an AMS microphone is activated, it operates like a unidirectional cardioid microphone. (The AMS22 operates like a hemi- or half-cardioid microphone when placed on a flat surface.) Each AMS microphone oper-

ates independently in analyzing its local sound field and deciding whether or not a sound source is within its 120° front acceptance angle.

The microphone cable is a standard two conductor shielded microphone cable. Under most circumstances, lengths of 150 meters (500 ft) or more of good quality microphone cable can be used as an extension between AMS microphones and AMS mixer inputs. **Note that the same conductor must be wired to the same numbered pin at both ends of the cable to ensure proper functioning of the units.** The shield must be connected to pin 1 at both ends of the cable. Accepted installation practice dictates that microphone and extension cables be grounded only to the AMS mixer chassis.

### FOUR AVAILABLE CONFIGURATIONS

- AMS22 Low Profile Microphone**  
Designed for surface mounting
- AMS24 Gooseneck Microphone**  
Supplied with attached 381 mm (15 in.) gooseneck
- AMS26 Probe Microphone**  
Designed for floor or desk stand mounting
- AMS28 Lavalier Microphone**  
Designed for chest worn operation

**AMS MICROPHONES OPERATE PROPERLY  
 ONLY WHEN USED WITH SHURE AMS MIXERS**

**THE AMS CONCEPT**

The Shure Automatic Microphone System (AMS) is based on the principle that two heads are better than one. Or, more precisely, that two microphone capsules are better than one. Disassemble an AMS microphone and you may be surprised to find two electret condenser capsule. These unidirectional (cardioid) capsules are placed back to back so that one is "looking" 180° opposite to the other.

When an AMS microphone is correctly positioned, one capsule (the front capsule) faces the talker. The other capsule (the rear capsule) faces away from the talker. The signals from the capsules are sent separately to the AMS mixer. (Pin 2 of the XLR connector is the front capsule and Pin 3 is the rear capsule.)

Now comes the magic. Each AMS mixer channel constantly compares the level it receives from the front capsule to the level from the rear capsule. Whenever the front exceeds the rear by at least 9 dB, "Voilà", the electronic gate on the AMS channel is opened and the signal from the front capsule is sent to the mixer output. The gate opens in 4/1000 of a second (4

milliseconds). How fast is 4 milliseconds? In that time, a sound wave travels only 4.5 feet.

It should now be clear how the AMS can be sensitive to the direction of a sound. If you talk into the rear of an AMS microphone, your voice will be much louder in the rear capsule than in the front capsule. The mixer keeps the gate closed. If you talk to the side of an AMS microphone, your voice will be equally loud in both capsules and the gate stays closed.

But talk to the front of the microphone and the gate will open as long as your voice is 9 dB higher in the front capsule than the sound coming into the rear capsule. This comparison principle is how the AMS obtains its 120° "window of acceptance". Outside the "window", it is impossible to make a sound that will be 9 dB louder in the front than in the rear.

The two-capsule design with its associated comparison circuitry is the heart of the AMS patent. This design allows the AMS to take advantage of acoustical data (direction) as well as electronic data (signal levels). It's the intelligent comparison of this data that makes this AMS so easy to use and so hard to fool.

**SPECIFICATIONS**

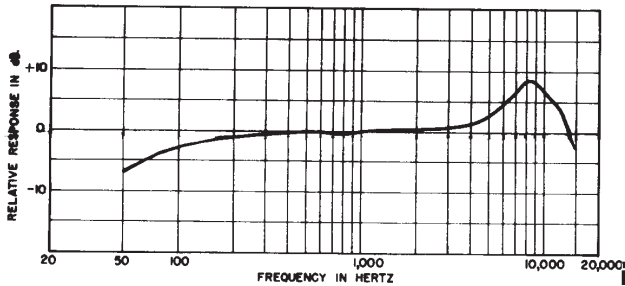
(All measurements taken at Direct Output of AMS mixer)

**Type**

Condenser (electret bias)

**Frequency Response**

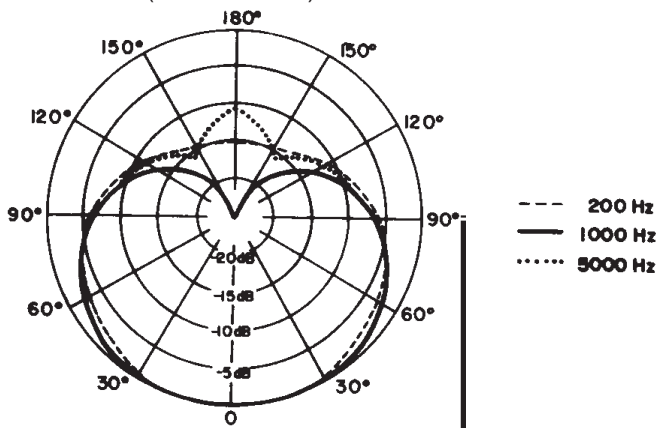
50 to 16,000 Hz,



TYPICAL FREQUENCY RESPONSE

**Polar Pattern**

Cardioid (Unidirectional)



TYPICAL POLAR PATTERNS

**Acceptance Angle**

Optimized for chest placement. Microphone activates for sounds within ±65° (typical) of front axis

**Output Level (at 1,000 Hz)**

Open Circuit Voltage: -53 dB typical (0 dB = 1V/μbar)

**Impedance**

900 Ω actual at Direct Output of AMS mixer

**Noise**

27 dB equivalent SPL typical, A-weighted

32.5 dB equivalent SPL typical, weighted per DIN 45405

**Polarity**

Pin 2 is front facing transducer; Pin 3 is rear facing transducer. Positive pressure on microphone diaphragm produces positive voltage on pin 2 relative to pin 3 at AMS mixer Mic/Line output, and negative voltage on tip terminal at AMS mixer Direct Output connector