



Japan's most original microphone maker

# CSS-5

## Shotgun Stereo Microphone

The remarkable performance of the CSS-5 is based on an array of five new directional condenser elements, with new PPS (Poly-Phenylene-Sulfide) diaphragms to provide optimum humidity/temperature stability. Developed in conjunction with NHK, the CSS-5 is equally responsive in the horizontal and vertical planes with high sensitivity, wide frequency response and excellent dynamic range.

For episodic television, film/video documentaries, and major broadcast events, it has become desirable to record targeted sounds precisely, with the added option of capturing realistic stereophonic perspectives. In many cases, multiple microphone configurations impair field mobility and sonic consistency. Stereophonic localization depends primarily on signal accuracy and channel separation in the 400Hz to 3kHz range. Pattern control of the CSS-5 has been optimized in this range. Very low and very high frequency response has been optimized along the frontal axis so that the "target" on-axis sounds are clearly delineated. The result in playback accentuates the frontal image, with side signals positioned slightly behind.

Conventional shotgun microphones use a line capsule array and a pipe with slits in front of the capsule to create high directivity by utilizing phase interference inside the casing. With this design, high directivity at low frequencies requires a length of more than one meter in length. In the CSS-5, second-order pressure gradient design enables excellent directional response by using multiple cardioid elements in a front-back array. The three directional capsules combine line microphone performance and second-order gradient response in a single system. High directivity is achieved in a microphone less than 12 inches in length.

The revolutionary CSS-5 is small and lightweight with switchable mono/stereo functions. The standard 19mm diameter permits use of a wide range of accessories developed for enhanced performance and field mobility. The CSS-5 provides three switchable modes to satisfy the various needs of location and studio recording.

### NORMAL

- In the NORMAL mode, the CSS-5 clearly picks up the targeted sound as well as extremely accurate stereo localization.

### MONO

- In the MONO mode, sharp directivity is maintained over a wide frequency range for the aimed frontal sound sources, using the combination of a second gradient microphone and a line microphone. It is significant that the CSS-5 picks up the chosen sound source very clearly — even in a noisy ambient situation or in a long reverberation space.



### WIDE

- The WIDE mode is designed for stereo recording of sound effects where dialogue will be dubbed in at a later date. This mode allows a wider 140 degree pickup, whereas conventional M-S microphones have a maximum of 127 degrees.

### Mono-Stereo Compatibility

In stereo recordings, frequency response of the MONO summed output often exhibits interference, or "comb filtering." This phenomenon is caused by phase differences between the Left and Right signals. This does not occur in single point recording, either X-Y or M-S, but does happen with two microphone stereo recording because of the time intervals between the two. In the CSS-5, the three-capsule line array is for frontal pickup, and are arranged vertically along the same axis, so Mono/Stereo compatibility is superb.

### Non-Proximity Effect

When a directional microphone is near the sound source, the proximity effect results in a boosting of certain low frequencies and slight masking of others. Some designs utilize this effect to reduce surrounding noise, but microphone response greatly varies with the changing distance between the source and the microphone. This effect becomes more pronounced when the directionality becomes greater. By contrast, the CSS-5 virtually eliminates the proximity effect in spite of sharp directivity, while the sonic characteristics do not change with varied distances between source and microphone. This is a significant advantage over all other directional microphones.