



## EA011 / EA012 Electrostatic Actuator

### Features:

- EA011 is suitable for 1-inch and 1/2-inch microphone
- EA012 is suitable for 1/2-inch and 1/4-inch microphone
- Small and portable

### Applications:

- Pressure field frequency response measurement of condenser microphone
- Phase response measurement of condenser microphone



### Introduction

EA011/EA012 electrostatic actuator is developed by BSWA for determine the frequency response of condenser microphone.

In practice, sound measurements are made in a variety of environments, where different types of sound fields exist. The sensitivity and frequency response of measurement microphones depend on the type of sound field, so it is advisable to calibrate the microphone using a similar type of field to that which exists on the measurement site. The various types of sound fields are generally approximated by three idealized fields: free-field, diffuse-field and pressure-field.

However, it is difficult to create idealized sound fields for calibration of measurement microphones. This is because it requires expensive acoustical laboratory facilities. Therefore, the electrostatic actuator method is used to determine a relative frequency response of measurement microphones and it does not require such expensive facilities.

Electrostatic actuators are used to simulate the pressure response of condenser microphone by apply an alternating electrostatic force in front of the diaphragm and measuring the consequent response of the microphone. The electrostatic force comprising a high polarization voltage (generally 800 VDC) superimposed with a smaller AC voltage. The condenser microphone under test must be metal diaphragm and meet the requirement of IEC 61094, thus it can be tested by the electrostatic actuator.

EA011/EA012 can be connected directly to the actuator power supply. EA011 is 1-inch actuator and also available for 1/2-inch microphone with thread adaptor. EA012 is 1/2-inch actuator and also available for 1/4-inch microphone with thread adaptor.

The "1 inch to 1/2 inch", "1 inch to 1/4 inch", and "1/2 inch to 1/4 inch" cylindrical adapters are also can be providing to work with CS012 microphone stand for large-scale microphone measurement (it is not recommended for professional metrology institute to use cylindrical adapters, thread adapters can provide more accurate and stable measurement results).

All adapters are optional and need to be ordered separately.

### Specifications

Type	EA011	EA012
Application	1-inch, 1/2-inch IEC standard microphone	1/2-inch, 1/4-inch IEC standard microphone
Standard	GB/T 20441.6, IEC 61094-6, ANSI S1.10	
Temperature Range	-30 °C ~ 80 °C	



Humidity Range	0 %RH ~ 95 %RH	
Size (mm)	Φ45 x 17	Φ23 x 10.5
Weight	84g (include connector)	21g (include connector)

### Option

Thread Adapter	1-inch to 1/2-inch	For EA011 to measure 1/2-inch microphone and can be connected to the protect cover thread of WS2 microphone
Thread Adapter	1/2-inch to 1/4-inch	For EA012 to measure 1/4-inch microphone and can be connected to the protect cover thread of WS3 microphone

### Option (for large-scale measurement, not recommended for metrology institute)

Cylindrical adapter	1-inch to 1/2-inch	For EA011 to measure 1/2-inch microphone and needs to be installed on a dedicated calibration support (CS012)
Cylindrical adapter	1-inch to 1/4-inch	For EA011 to measure 1/4-inch microphone and needs to be installed on a dedicated calibration support (CS012)
Cylindrical adapter	1/2-inch to 1/4-inch	For EA012 to measure 1/4-inch microphone and needs to be installed on a dedicated calibration support (CS012)

### Photo of EA011/EA012

