User Manual

OM241 0° incidence
OM261 90° incidence
Semi-permanent Outdoor Microphone

BSWA Technology Co., Ltd.

1. Introduction

1.1 General Description

OM241/OM261 semi-permanent outdoor microphone is developed by BSWA Tech for outdoor noise monitor. Semi-permanent outdoor microphone has no built-in calibration device and therefore requires periodic calibration using a sound calibrator for short-term noise measurement.

The frequency response of **OM241** is optimized for 0° incidence, primarily for aircraft and airport noise measurement. The **OM261** is optimized for 90° incidence, primarily for urban, traffic and industrial noise measurement. Both of two types of microphones have been specially designed to achieve the free-field frequency response in specified direction of incidence within the limits of IEC 61672-1. Each microphone is supplied with an individual calibration certificate that contains the actual sensitivity and free-field frequency response data for the complete set of outdoor microphones. Users can use the calibration data to correct the measurement data for more accurate results.

OM241/OM261 meets the IP55 ingress protection rating. The 90mm windscreen, internal rain hood and dust mesh can fully protect microphone to against wind, rain, snow, dust and other severe weathers. The bird spike prevents impact of perching birds to the measurement.

1.2 Applications

- Aircraft and airport noise measurement
- Urban, traffic and industrial noise measurement
- Acoustic measurement in severe weathers

1.3 Features

- Optimized for 0° and 90° incidence to meet IEC 61672-1
- Delivered with Individual calibration data
- IP55 enclosure to against rain, dust and perching birds
- The protection kit can be quickly remove for calibration
- ICCP power supply, low inherent noise, typical noise level is approx. 17dBA

1.4 Specification

Specification		
Type	OM241	OM261
Application	Aircraft and airport noise	Urban, traffic and industrial noise
Incidence	0°	90°
Standard	GB/T 3785.1-2010 1 级 IEC 61672-1:2013 Class 1 ANSI S1.4-1983 Type 1	
Built-in Microphone	1/2" prepolarized measurement microphone	
Sound Field	Free-field	
Open-circuit Sensitivity	50mV/Pa	
Frequency Response	10Hz~20kHz (According to IEC 61672-1）	
Dynamic Range	17dBA~134dBA（50mV/Pa）	
Peak SPL	137dBA peak	
Maximum Output Voltage	5Vrms	
Inherent Noise	~17dBA	
Output Impedance	<30Ω	
Power Supply	ICCP power supply (2mA~20mA，4mA Typ.)	
Conditions	Temperature: -30℃~80℃, Humidity: 0%~95%RH	
Connector	BNC	
Mounting Thread	1/4" thread	
Enclosure	IP55	
Size(mm)	Ø90x222 (without extension rod) Ø90x372 (with extension rod)	
Weight	89g (without extension rod) 203g (with extension rod)	

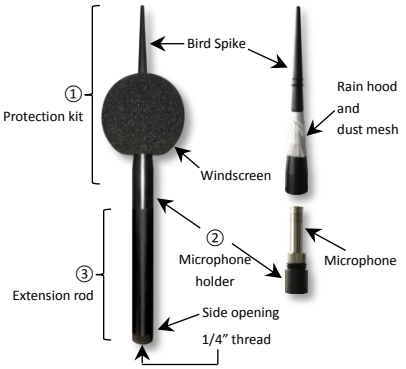
1.5 Packing List

No.	Type	Description
Standard		
1	OM241, 0° incidence OM261, 90° incidence	Semi-permanent outdoor microphone, select by incidence
2	WS002-9	90mm windscreen
3	Certificate of Calibration	Sensitivity and frequency response data
4	User Manual	Operation guide
5	Case	Paper case
Option		
6	WS002-9	Replacement windscreen
7	Dust Mesh	Replacement dust mesh

2. Operation

2.1 General Structure

Semi-permanent outdoor microphone consists of: ①protection kit ②microphone holder ③extension rod

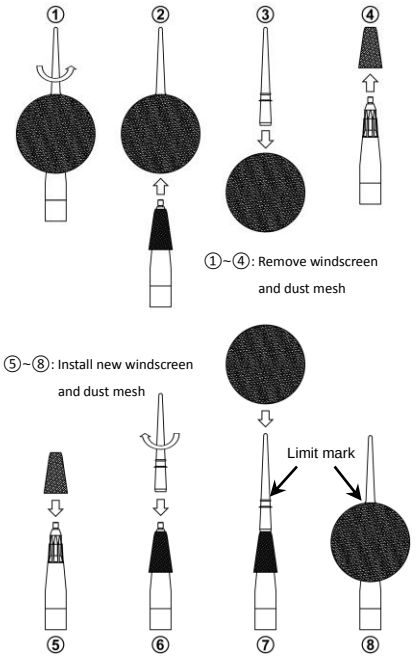


Protection kit (including bird spike, windscreen, rain hood and dust mesh) should be keep as a whole body, it can only be disassembled when replace the windscreen and dust mesh. The rain hood and dust mesh are placed inside the windscreen to prevent water and dust from entering the interior of the microphone.

The microphone is attached to the microphone holder, and the protection kit can be screwed into the microphone holder. BNC cable can be connected through the extension rod and line out from the side opening at the root of extension rod. A 1/4" thread on the bottom of the extension rod can be mounted on common tripods.

2.2 Replace Windscreen and Dust Mesh

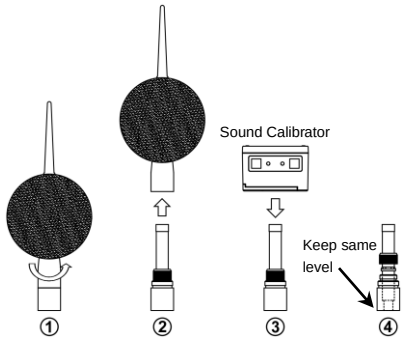
Replace windscreen and dust mesh as shown below. Note that the windscreen must be installed until the limit mark is exposed.



2.3 Calibrate by Sound Calibrator

The OM241 and OM261 do not have built-in calibration device. To ensure the accuracy of the measurement, it should be calibrated periodically by sound calibrator. Since the protection kit has a certain influence on the sensitivity of the microphone in specified incidence, please use the corrections in 2.4.2 to correct. To calibrate the outdoor microphone, please refer to the following steps:

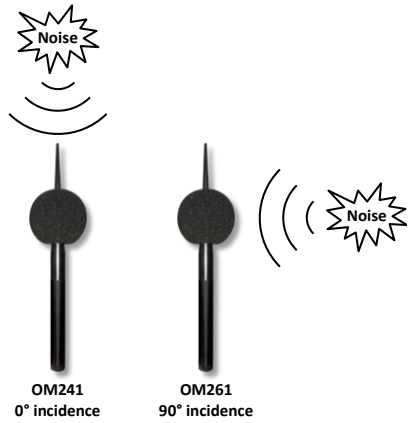
1. Rotate the protection kit as shown, make sure that the microphone holder do not rotate together.
2. Unscrew the protection kit and disconnect it from the microphone holder to expose the internal microphone.
3. Use sound calibrator to insert into the microphone for sound calibration.
4. If the microphone has been removed, keep the lower edge of the microphone and microphone holder as the same level.



2.4 Acoustic Performance

2.4.1 Directivity Response

The OM241 and OM261 are optimized for 0° and 90° incidence, respectively. Be careful not to mix the two microphones, or they may affect the test results.

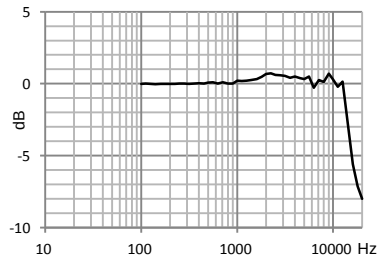


2.4.2 Free-field Sensitivity

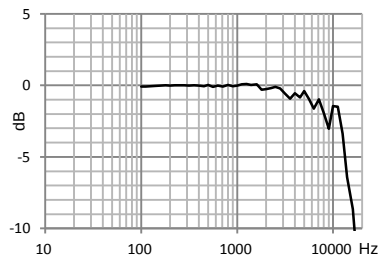
The effect of the protection kit on the free-field sensitivity in the specified incident direction as shown below:

Type	250Hz	1kHz
OM241	0.00dB	+0.14dB
OM261	-0.06dB	-0.10dB

2.4.3 Influence of Protection Kit on Microphone Free-field Frequency Response of 0° Incidence *



2.4.4 Influence of Protection Kit on Microphone Free-field Frequency Response of 90° Incidence *



*Please contact BSWA for more detail data.

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