BY-WM6

UHF Wireless Microphone System

Instruction Manual

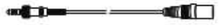
Thanks for choosing BOYA!

The BOYA BY-WM6 is an UHF wireless microphone system, designed for ENG (electronic news gathering), EFP (electronic field production), DSLR video, and other professional applications.
The receiver and the transmitter are lightweight and simple menu for easy operation.

The BY-WM6 consists of a body-pack transmitter, a portable receiver, and their accessories as following:

Omni-directional lavalier microphone

Stereo 3.5mm mini plug cable



XLR output cable

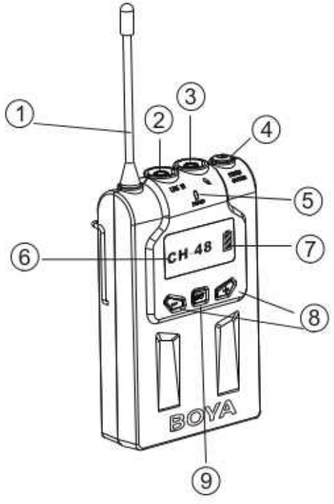
Microphone Holder clip

Wind screen

Belt clip

Shoe mount adapter

Transmitter

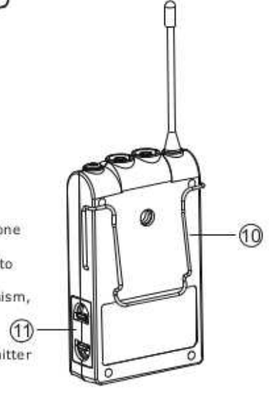


1. Antennat

2. Line In

3. Microphone input
Connect the supplied lavalier microphone here. Fully insert the microphone's 3.5mm plug and make sure it clicks into place, then lock the plug.
To remove,release the locking mechanism, then pull the plug out.

4. Power/ Mute button
1) Long press the power of the transmitter ON or OFF
2) Short press for muting



5. Power LED
1) The power LED glows blue when the unit is on.
2) The power LED glows red when low power.

For more details about LED indicator, please refer to as following:

Situation	Transmitter	Receiver
The transmitter and the receiver connects.	Stays blue	Stays blue
The transmitter and the receiver disconnects.	Stays blue	Flash blue

6. CH (Channel) indication
Shows the transmission channel.

7. Battery indication
Shows the battery condition

⚠

NOTE

When the battery power icon is empty and blinking, the batteries are almost out of power, and you will need to change the batteries immediately.

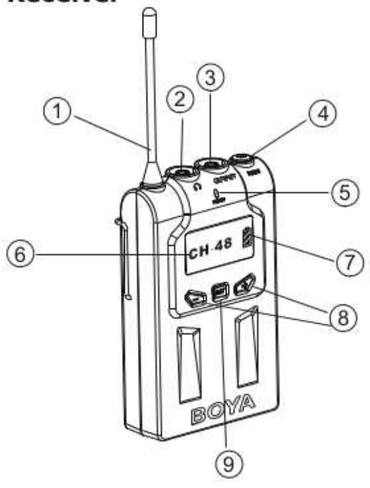
8. + (+ selection)/ – (- selection) buttons
Press these buttons to set the transmission channel, or attenuation level of the input signal.
For details, please see "How to set up channel and VOL" on page 13.

9. SET button
Press to change and enter display parameters.
For details, please see "How to set up channel and VOL" on page 13.

10. Belt clip

11. Battery compartment
Accommodates two AA batteries.
For more details, please see "Installing batteries" on page 7.

Receiver



1. Antenna

2. Monitor Connector
(3.5mm diameter stereo mini jack)
To monitor the receiver output, connect the headphones to this connector.

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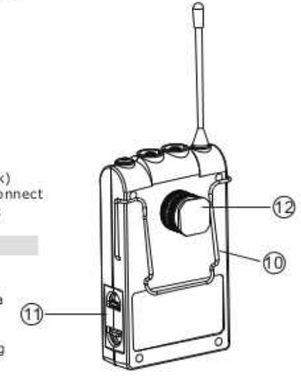
NOTE

Do not connect headphones with a monaural mini jack.
This may lead to short-circuiting of the headphone output, resulting in distorted sound output.



3. OUTPUT (audio output) connector (3.5mm diameter stereo mini jack)
Connect one end of the supplied stereo 3.5mm mini plug-BMP conversion or XLR-BMP conversion output cable here, and the other end to the microphone input on a DSLR camera, camcorder, mixer, or amplifier etc.

4. Power
Press this button to turn the receiver ON or OFF.

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10. Belt clip

11. Battery compartment
Accommodates two AA batteries.
For details on how to insert the batteries, please see "Installing batteries" on page 7.

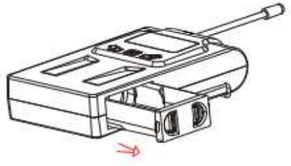
12. Shoe mount adapter

Installing Batteries

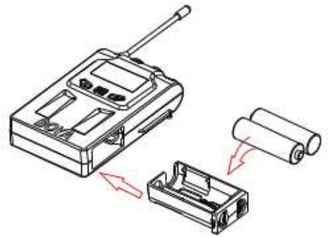
The transmitter, receiver are each powered by two AA batteries. To install batteries, please follow these steps:

1. Turn OFF the units, Slide the battery-compartment catches inward (in the direction of the arrows "<, >").

2. Take out the battery holder.



3. Insert the batteries into the battery compartment by matching their polarities to the indications inside the compartment. Then, set the battery holder in the original position.



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NOTE

Please make sure the units is turned OFF, because taking out the battery compartment during signal transmission may cause high noise.

Battery indication

When you turn the power on, the battery condition is shown by the BATT indication in the display section.
Be sure to check the expiration date printed on the new batteries before using them.

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NOTE

1. The indicated battery condition may not be correct if the batteries were not new when installed. If you plan to use the units for a long period, it is recommended that you replace the batteries with brand new ones.
2. Insufficient battery power can decrease the ability of transmitter and receiver. Therefore, make sure your batteries start out with a full charge when using this system, and always carry spare batteries.

Notes on battery

Batteries may leak or explode if mistreated.
Be sure to follow these instructions:

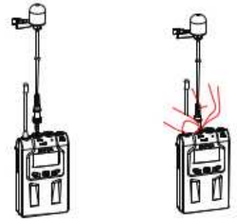
1. Make sure install the batteries with correct polarity.
2. Always replace two batteries together.
3. Do not use different types of batteries or old and new one together.
4. When not using the components for a long period of time, remove the batteries to avoid leakage. If the batteries do leak, clean all leakage from the battery compartment and the component.

Leakage left in the compartment and the component may cause poor battery contact. If there seems to be poor battery contact, please consult our local dealer.

Attachment and Installation Procedures

Attaching the supplied accessories to the body-pack transmitter

To attach the microphone



For a secure connection, be sure to turn and lock the connector cover.

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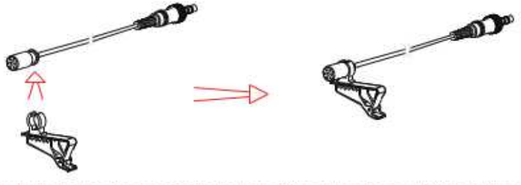
NOTE

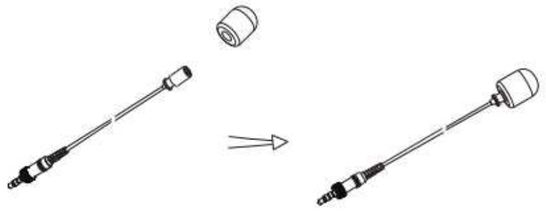
Make sure to attach or remove the microphone after turning off the transmitter.

To attached the holder clip to the microphone



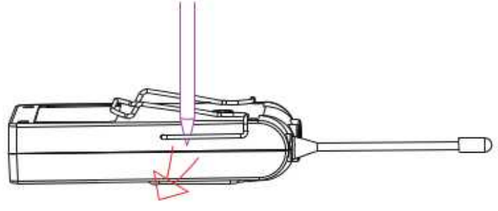
Push the holder clip against the bottom of the microphone until the holder clip clicks into place.

To attach the wind screen to the microphone



Insert the microphone into the hole at the bottom of the windscreen.

To remove the belt clip



Insert a pointed object such as a ballpoint pen between the belt clip and the transmitter to make some space between them, and then remove the end of the belt clip from the hole on the side of the transmitter.

Attaching the supplied accessories to the body-pack transmitter

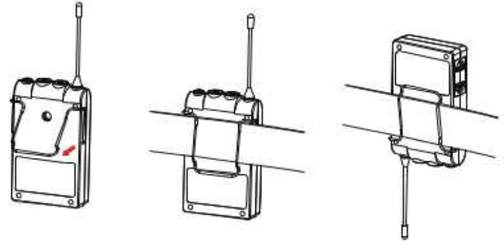
To connect the supplied conversion cable to the OUTPUT connector

For a secure connection, be sure to turn and lock the connector cover.

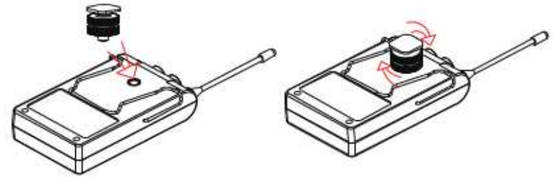
To attach the shoe mount adapter
Before attaching the shoe mount adapter, attach the belt clip.

Reorienting the belt clip: The BY-WM6's belt clip can easily be removed and reattached to the body pack, so you can mount it upside down. To reorient the belt clip, please follow the below steps:

1. Push outward on the belt clip at one of the hinges, so one side of the clip pops out.
2. Push the belt clip out from the other hinge to completely remove the clip from the body pack.
3. Realign the belt clip with the body pack, making sure the clip is facing the desired direction.
4. Insert the two-way belt clip into the body pack, one hinge at a time.



To attach the shoe mount adapter



Connecting the Transmitter and the Receiver

To connect the transmitter and the receiver, follow these steps:

1. Make sure the supplied lavalier microphone connect to the transmitter's microphone input or plug a line-level source into the transmitter's line input.

   Note: If you are connecting the receiver to a sound system, mute the sound system. Do not monitor with the headphones at the stage. Anytime you are changing the channel, remove your headphones and mute connected sound systems to avoid audible RF noise bursts.

2. Turn on the transmitter and the receiver.
3. Set the transmitter and the receiver to the same channel. If you are experiencing interference or noise on one channel, try a different channel.

   Noted: 1) If you are using multiple BY-WM6 wireless systems, make sure each system is set to a different channel, which can reduce the chance of intermodulation.

   2) If the transmitter and the receiver connect, the power indicator stays blue. Otherwise, if the power indicator flash blue, that means, the transmitter and the receiver is disconnected.

   3) The results are stored in memory automatically. The stored channel number will appear in the display section in next time if you turn on the transmitter and the receiver.

4. With the headphone volume low, plug your headphones into the receiver and gradually raise the level to a comfortable volume for monitoring the transmission.

5. The Channel and Volume of the Transmitter and the Receiver are "CH-1" and "VOL-24" when turn on them for the first time.
   - Adjust channel as you need.
   - Adjust as necessary to make sure an ample level is being transmitted to the receiver.
   The objective is to transmit the highest level without distortion for the best signal-to-noise ratio throughout the signal path.

6. Once you have determined the transmission quality and level are good, mount the transmitter and the receiver.

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NOTE
1. When you are setting the transmission channel, the transmitter cannot be used to transmit signals.
2. Do not remove the batteries while setting the transmission channel.

How to set up channel and VOL, please follow the below steps:

Set up Channel

Turn on the transmitter and the receiver, if the display section shows "CH".

-Press the + (+ selection) button for increasing the channel number.
-Press the – (- selection) button for decreasing the channel number.
-Long press +/- buttons, the channel number will increase and decrease automatically.

Set up Volume

-Press "SET" button, the display section shows "VOL"
-Press the + (+ selection) button for increasing the volume number.
-Press the – (- selection) button for decreasing the volume number.
-Long press +/- buttons, the volume number will increase and decrease automatically.

For more details about VOL function, please see the below:

VOL	Transmitter	Receiver
+/-	Adjust attenuation level of the input signal.	1. Adjust sound recording level. 2. Adjust monitor sound level.

Important Notes

On usage and storage

. Operating the BY-WM6 components near electrical equipment (motors, transformers, or dimmers) may cause it to be affected by electromagnetic induction.

Keep the BY-WM6 components as far as from such equipment as possible.

. The presence of the lighting equipment may produce electrical interference over the entire frequency range. Position the BY-WM6 components so that interference is minimized.
. To avoid degradation of the signal-to-noise ratio, DO NOT use the BY-WM6 components in noisy

Place or in locations subject to vibration, such as the following:
- Near electrical equipment, such as motors, transformers, or dimmers.
- Near air condition equipment or places subject to direct air flow from an air conditioner.
- Near public address loudspeaker.
- Where adjacent equipment might knock against the receiver.

Keep the BY-WM6 components as far from such equipment as possible or use buffering materials.

On cleaning

Clean the surface and the connectors of the BY-WM6 components with a dry, soft cloth. Never use thinner, benzene, alcohol or any other chemicals, since these may mar the finish.

Troubleshooting

If you have any problem using the BY-WM6 components, use the following checklist.
If any problem persist, please consult our local dealer, or contact us directly.

Symptom	Meanings	Remedy
The units does not turn on	The polarity orientation of the batteries in the battery compartment is incorrect.	Insert the batteries with the correct polarity orientation.
	The batteries are exhausted.	Replace the batteries with new ones.
	The battery terminals in the transmitter are dirty	Clean the + and - terminals with cotton swab.
The batteries become drained quickly.	The batteries are exhausted.	Replace the batteries with new ones.
	Manganese batteries are being used.	Use alkaline batteries. The battery life of a manganese battery is less than half that of an alkaline battery.
	The BY-WM6 components is being used under cold conditions.	The batteries drain quickly under cold conditions.
The channel cannot be changed	An attempt was made to change the channel by pressing the SET button only.	Restart the unit, then change the channel with the + and - buttons.
There is no sound.	The channel setting on the transmitter is different from that on the receiver.	Use the same channel setting on both the transmitter and receiver.
The sound is weak.	The attenuation level on the transmitter is too high.	The input level of the transmitter is low. Press the - button on the transmitter in attenuation level setting mode to decrease the attenuation level.
	The line input is selected on the transmitter.	Pull the cable out from LINE IN.
There is distortion in the sound	The attenuation level on the transmitter is too low.	The input level of the receiver is extremely high. Press the + button on the transmitter in attenuation level setting mode to increase the attenuation level.

There is distortion in the sound	The transmitter and the receiver are set to different channels.	Set the transmitter to the same channel.
	Headphones with a mon-aural min jack is used.	Use the headphones with a stereo mini jack.
The audio is noisy or distorted. This can include drop outs, white noise, bursts, pops and clicks.	RF interference	.Try a different channel. Make sure both units are on the same channel. .Try to position the antennas at a 45° angle in relation to each other. There can be a lot of RF interference outdoors. .Try moving indoors, where there is less RF interference. .Keep the units' antennas at least 2'(0.6m) away from conductive objects like metal and water. .Overhead telephone lines, fluorescent lighting, and metal fences can all cause interference. .Turn off all nearby computers and mobile phones.
	RF signal is weak.	Make sure there is an unobstructed line of sight between the transmitter's and the receiver's antennas. Keep in mind that your body, clothes, and onstage sets are possible obstructions. Make sure the receiver and the transmitter are within 328'(100m) range. If there are obstructions, you may need to move closer.
	The input level on the camera, recorder, or mixer is too high.	Turn down the audio input level on your camera or recording device. Lower the audio output level on the receiver. Turn down the gain on your mixer. If there is no adjustment on the device, and the level is still high, adjust the microphone level on the transmitter. Keep this level as high as possible without distortion.

Too much ambience is being picked up.	When using an omnidirectional microphone like the one included with this system, the microphone may be picking up too much ambience.	Make sure the microphone is as close as to the subject.

FCC STATEMENT:

1. This device complies with part 15 of the FCC Rules.
   Operation is subject to the following two conditions:
   (1) This device may not cause harmful interference.
   (2) This device must accept any interference received, including interference that may cause undesired operation.

2. Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

IMPORTANT FCC USER RESTRICTION:

This product shall not be used by the general public. This product is limited for those who create meda for broadcase service, any other shall not use this product without permission.

Specifications:

System

Oscillator type: PLL Synthesized Control Oscillator
Carrier Frequency Range: 584 MHz-608 MHz
Channels: 48
Frequency response: 60Hz-15 KHz+/-3 dB
Operation range: 100m (300')(without obstacle)
Operating temperature: 14° F to 122° F (-10℃ to +50℃)
Storage temperature: 14° F to 131° F (-10℃ to +55℃)

Transmitter

RF output power:
Antenna: Flexible
Spurious emission: 250 nW or less
Audio input connector: 3.5mm mini jack
Audio input level: 600 mV-2000 mV
Reference deviation: ±7KHz (-60 dBV, 1 KHz input)
Input frequency range: 20 Hz-20 KHz
Power supply: Two AA batteries
Operation time: 8 hours
Dimensions: (H x W x L) 4.2" x 2.6" x 1.1"
(10.6 x 6.7 x 2.9 cm)
Weight: 95g (3.4 oz) without batteries

Receiver

Antenna: Flexible
Audio input connector: 3.5mm mini jack
Signal-to-noise ratio: 80 dB
Distortion: 0.8% (-60 dBV, 1 KHz input)
Earphone output level: 60 mW, 32 Ohms/1KHz
Audio output level: 120 mV
Power supply: Two AA batteries
Operation time: 8 hours
Dimensions: (H x W x L) 4.2" x 2.6" x 1.1"
(10.6 x 6.7 x 2.9 cm)
Weight: 98g (3.5 oz) without batteries

Lavalier Microphone

Transducer: Back electret Condenser
Polar pattern: Omni-directional
Frequency Range: 35Hz ~ 18 KHz
Signal / Noise: 74dB SPL
Sensitivity: -30dB +/-3dB / 0dB=1V/Pa, 1 kHz
Connector: 3.5mm locking mini plug
Length: 1.2m (4')

Frequency Chart

Channel (CH)	Frequency(MHZ)	Channel (CH)	Frequency(MHZ)
1	584.4	25	588.8
2	585.9	26	590.3
3	587.4	27	591.8
4	588.9	28	593.3
5	590.4	29	594.8
6	591.9	30	596.3
7	593.4	31	597.8
8	594.9	32	599.3
9	596.4	33	600.8
10	597.9	34	602.3
11	599.4	35	603.8
12	600.9	36	605.3
13	586.6	37	590.9
14	588.1	38	592.4
15	589.6	39	593.9
16	591.1	40	595.4
17	592.6	41	596.9
18	594.1	42	598.4
19	595.6	43	599.9
20	597.1	44	601.4
21	598.6	45	602.9
22	600.1	46	604.4
23	601.6	47	605.9
24	603.1	48	607.4

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