Operating Instructions

BY-WM8 Pro

UHF Dual-Channel Wireless Microphone System

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Thanks for choosing BOYA!

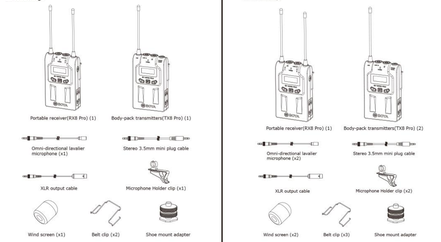
The BOYA BY-WM8 Pro is an upgraded, UHF Dual-Channel Wireless Microphone System for capturing audio with dual subjects, features an easy-to-read LCD display, a wide switching RF bandwidth, PLL-synthesized tuning and digital companding circuitry.

The package is suitable for a wide range of wireless applications such as interviews, electronic news gathering (ENG), electronic field productions (EFP), film production, business and educational applications, and more.

Features:

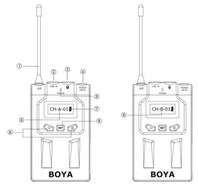
- Dual-Channel Wireless Receiver
- 48 UHF Channels
- Selectable Stereo and Mono Mode
- Mic and Line-in
- Selectable Mute function
- Easy-to-read LCD displays
- Automatic LCD-locked Function
- Monitoring sound by headphone output (Receiver)
- More than 6 Hours Continuous Operation
- Operation range can reach up to 100m(300') (without obstacle)
- Two AA batteries for both transmitter and receiver

The **BY-WM8 Pro-K1** consists of one body-pack transmitter(TX8 Pro), a portable receiver(RX8 Pro), and their accessories as following:



The **BY-WM8 Pro-K2** consists of two body-pack transmitters(TX8 Pro), a portable receiver(RX8 Pro), and their accessories as following:

Transmitter A **Transmitter B**



1. Antenna
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 of transmitter glows red when low power.

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

Situation	Receiver	Transmitter A	Transmitter B
The transmitter and the receiver connects.	ANT-A and ANT-B Stay blue.	Stays blue	Stays blue
The transmitter A and the receiver connects; The transmitter B and the receiver disconnects.	ANT-A stays blue; ANT-B light off.	Stays blue	/
The transmitter A and the receiver disconnects; The transmitter B and the receiver connects.	ANT-A light off; ANT-B stays blue.	/	Stays blue
The transmitter and the receiver disconnects.	ANT-A and; ANT-B light off.	Stays blue	Stays blue

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

IMPORTANT: Both two transmitters can be used for Transmitter A or Transmitter B.

How to exchange Transmitter A and Transmitter B, please kindy refer to Page 15.

7. Battery indication
Shows the battery condition

NOTE

1. 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.
2. The indicated battery condition may not be correct if the batteries were not new when installed. If you plan to use the component for a long period, it is recommended that you replace the batteries with brand new ones.

8. + (+ selection)/ – (- selection) buttons
Press these buttons to set the transmission channel, or attenuation level of the input signal.

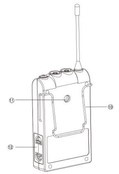
For details, please see "How to set up channel ,VOL, STEREO and MONO" on page 24.

9. SET button
Press to change and enter display parameters.
For details, please see "How to set up channel, VOL, STEREO and MONO" on page 24.

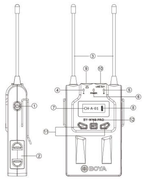
10. Belt clip

11. 1/4" Thread

12. Battery compartment
Accommodates two AA batteries.
For more details, please see "Installing batteries" on page 16.



Receiver



1. POWER OFF/ON
2. Battery compartment
3. Antenna

4. Power LED (ANT-A)
5. Power LED (ANT-B)
6. Power LED (POWER)
1) The power LED glows blue when the unit is on.
2) The power LED of receiver glows red when low power.

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

8. Battery indication
Shows the battery condition

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

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.

10. LINE OUT (audio output) connector
(3.5mm diameter stereo mini jack)
Connect one end of the supplied stereo 3.5mm mini plug-8MP conversion or XLR-8MP conversion output cable here, and the other end to the microphone input on a DSLR camera, camcorder, mixer, or amplifier etc.

11. + (+ selection)/ – (- selection) buttons
Press these buttons to set the transmission channel, attenuation level of the input signal, or "STEREO" and "MONO" mode.

12. SET button

13. Shoe mount adapter
For more details, please see "To attach the shoe mount adapter" on page 22.

LCD Display Operation Guide

Receiver

① Channel A
② Channel number (1-48)
③ Battery indication

④ The volume of Channel A (1-31)

⑤ Press the +/- (+/- selection) button to OFF

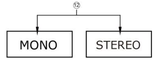
⑥ Press the +/- (+/- selection) button to ON

⑦ Channel B
⑧ Channel number (1-48)

⑨ The volume of Channel B (1-31)

⑩ Channel B ON
Press the +/- (+/- selection) button to OFF

⑪ Channel B OFF
Press the +/- (+/- selection) button to ON



⑫ Press the +/- (+/- selection) button to MONO or STEREO

How to set "MONO" and "STEREO"
1. Press "SET" button , the display section shows "MONO".
2. Press the "+" or " –" (+/- selection) button, choose "MONO" and "STEREO" .

Important: The Mode that the factory set is "MONO".

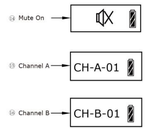
The results are stored in memory, and the change becomes effectively when you turn on the transmitters next time.

Mode	Transmitter A		Transmitter B	
	Left Channel	Right Channel	Left Channel	Right Channel
MONO	√	√	√	√
STEREO	√			√

*** √=Available**

⑬ LCD will be locked automatically in 30 seconds
Long press bottoms "+" and "-" to unlock.

Transmitter



How to change tranmitters A and B

Both two transmitters can be used with A or B.

1. How to change tranmitter A to transmitter B
   1) Set display section shows "CH-A-1".
   2) Long press "SET" button till display shows "CH-B-1".

Important: Set from any channel (1-48) is OK, for example, if display shows "CH-A-4", after long press "SET" bottom, it will show " CH-B-4".

2. How to change tranmitter B to transmitter A, just redo the 1) and 2) steps as above.

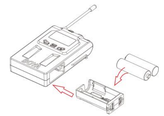
Installing Batteries

The transmitters and the 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.



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.

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 transmitters 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.

CAUTION

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by manufacturer.
When you dispose of the battery, you must obay the law in the relative area or country.

Attachment and Installation Procedures

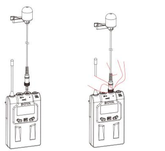
To attached the holder clip to the microphone

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.

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.

NOTE

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

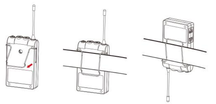
For a secure connection, be sure to turn and lock the connector cover.

To attach the belt clip

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

Reorientering the belt clip: The BY-WM8 Pro'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 Transmitters and the Receiver

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

1. Make sure the supplied lavalier microphones are connected to the transmitters' microphones input or plug a line-level source into the transmitters' 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 transmitters and the receiver.
3. Set the transmitters and the receiver to the same channel. If you are experiencing interference or noise on one channel, try a different channel.

NOTE:

1. The Channel-A and Channel-B of receiver can be adjusted separately, when use two transmitters, transmitter A and transmitter B doesn't need to keep same channel.
   Just need to keep Channel-A of receiver as same channel as Transmitter A, Channel-B of receiver as same channel as Transmitter B.

Noted:1) If you are using multiple BY-WM8 Pro wireless systems, make sure each system is set to a different channel, which can reduce the chance of intermodulation.
2) If the transmitters and the receiver connect, the power indicator stays blue. Otherwise, if the power indicator of receiver light off, that means, the transmitters and the receiver is disconnected.
   For more details, please kindly refer to page 5 .
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 transmitters 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 Transmitters 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.

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.
3. Make sure that the selected channel is the same on the transmitters and receiver being used in the same system.

For setting up the channel ,VOL, STEREO and MONO for receiver, please follow the below steps:

Set up Channel

1) Set up Channel A
   - Press "SET" button of Receiver, the display section shows "CH-A",
   - Press the + (+ selection) button to increase the channel.
   - Press the – (- selection) button to decrease the channel.
   - Long press +/- buttons, the channel will increase and decrease automatically.

2) Set up Channel B
   - Press "SET" button of Receiver, the display section shows "CH-B"
   - Press the + (+ selection) button to increase the channel.
   - Press the – (- selection) button to decrease the channel.
   - Long press +/- buttons, the channel will increase and decrease automatically.

Set up Volume

1) Set up Channel A
   - Press "SET" button of Receiver, the display section shows "VOL-A".
   - Press the + (+ selection) button to increase the volume.
   - Press the – (- selection) button to decrease the volume.
   - Long press +/- buttons, the volume will increase and decrease automatically.

2) Set up Channel B
   - Press "SET" button of Receiver, the display section shows "VOL-B".
   - Press the + (+ selection) button to increase the volume.
   - Press the – (- selection) button to decrease the volume.
   - Long press +/- buttons, the volume will increase and decrease automatically.

Turn Channel A or B ON or OFF

1) Set up Channel A
   - Press "SET" button of Receiver, the display section shows "CH-A-ON" Or "CH-A-OFF".
   - Press +/- buttons to OFF or ON.

2) Set up Channel B
   - Press "SET" button of Receiver, the display section shows "CH-B-ON" Or "CH-B-OFF".
   - Press +/- buttons to OFF or ON.

NOTE:
In order to save battery life, when you only use Transmitter A, please turn OFF Channel B of Receiver and vice versa.

Set up "MONO" and "STEREO"

For how to Set up "MONO" and "STEREO", please refer to page 14.

Troubleshooting

If you have any problem using the BY-WM8 Pro 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 are exhausted.	Replace the batteries with new ones.
The batteries become drained quickly.	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-WM8 Pro 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.
	The transmitter and the receiver are set to different channels.	Set the transmitter to the same channel.
	Headphones with a mono-aural mini 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 indoors. 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 as possible.

FCC STATEMENT:

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.

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.

NOTE: "This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.
These limits are designed to provide reasonable protection against harmful interference in a residential installation.
This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmfulinterference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

RF warning statement:
The device has been evaluated to meet general RF exposure requirement.
The device can be used in portable exposure condition without restriction.

Specifications:

System

Oscillator type:	PLL Synthesized Control Oscillator
Carrier Frequency Range:	556.71 MHz-575.98 MHz (Transmitter A) 576.39 MHz-595.66 MHz (Transmitter B)
Channels:	48
Frequency response:	40 Hz to 18 kHz (+/-3dB)
Operation range:	100m (300')(without obstacle)
Operating temperature:	14º F to 122º F (-10℃ to +50℃)
Storage temperature:	14º F to 131º F (-10℃ to +55℃)

Transmitter:

RF output power	≤10 mW
Antenna	1/4λ wire antenna
Spurious emission	250nW or less
Audio input connector	3.5mm jack
Reference audio input level	-60 dBV (MIC input, 0 dB attenuation)
Reference deviation:	±5 kHz (-60 dBV, 1 kHz input)
Input frequency range	20Hz-20KHz
Distortion	0.5% or less
Power supply	Two AA size batteries
Dimensions	208(H) × 67(W) × 29(L)mm
Weight	80g without batteries

Receiver:

Antenna	1/4λ wire antenna
Audio output connector	3.5mm jack
Signal to noise ratio	70 dB or more
Distortion	0.5% or less
Headphone output level	30mW (16 Ω)
Audio output level	−60 dBV
Power supply	Two AA size batteries
Dimensions	208(H) × 67(W) × 29(L)mm
Weight	90g 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

Transmitter A

Channel(CH)	Frequency(MHz)	Channel(CH)	Frequency(MHz)
1	556.710	25	566.550
2	557.120	26	566.960
3	557.530	27	567.370
4	557.940	28	567.780
5	558.350	29	568.190
6	558.760	30	568.600
7	559.170	31	569.010
8	559.580	32	569.420
9	559.990	33	569.830
10	560.400	34	570.240
11	560.810	35	570.650
12	561.220	36	571.060
13	561.630	37	571.470
14	562.040	38	571.880
15	562.450	39	572.290
16	562.860	40	572.700
17	563.270	41	573.110
18	563.680	42	573.520
19	564.090	43	573.930
20	564.500	44	574.340
21	564.910	45	574.750
22	565.320	46	575.160
23	565.730	47	575.570
24	566.140	48	575.980

Transmitter B

Channel(CH)	Frequency(MHz)	Channel(CH)	Frequency(MHz)
1	576.390	25	586.230
2	576.800	26	586.640
3	577.210	27	587.050
4	577.620	28	587.460
5	578.030	29	587.870
6	578.440	30	588.280
7	578.850	31	588.690
8	579.260	32	589.100
9	579.670	33	589.510
10	580.080	34	589.920
11	580.490	35	590.330
12	580.900	36	590.740
13	581.310	37	591.150
14	581.720	38	591.560
15	582.130	39	591.970
16	582.540	40	592.380
17	582.950	41	592.790
18	583.360	42	593.200
19	583.770	43	593.610
20	584.180	44	594.020
21	584.590	45	594.430
22	585.000	46	594.840
23	585.410	47	595.250
24	585.820	48	595.660

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