



DEVINE

WMD-24 Bodypack 2.4 GHz Wireless Bodypack with Microphones



User Manual

The information included in this user manual is subject to change at any time and without notification:

Version: 1.0 **Date and author initials:** 04-08-2020 RV

Revision date and author initials: -

Introduction

Thank you for purchasing the Devine WMD-24 bodypack system. Before unpacking the box and included components, we recommend reading this user manual thoroughly to ensure that you are completely familiar with all of the functions this product has to offer. When unpacking the box, please make sure that all of the components and accessories listed below have been included. In the event that the product does not function as it should, switch off the power and remove the power cable from the mains power socket before contacting your local retailer for further advice.

Box contents:

- Devine WMD-24 bodypack
- plug-in lavalier microphone with cable
- plug-in headset microphone with cable
- 2x AA batteries (for testing)

Inspection of the device and included accessories

In the event that the device or any of the included accessories have been damaged or rendered defective in transit, please contact your local retailer for advice.

Please note: The products seen in the images included in this manual may differ slightly from the product received.

Contact:

Devine Pro Audio Products
Verrijn Stuartweg 18
4462 GE Goes
The Netherlands

Please do not send any physical products to this correspondence address.

Should you wish to send a product for repairs or for a refund, please contact your retailer for an RMA request (Return Merchandise Authorisation)

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WARNING!



Keep this device away from moisture, water and rain
to prevent any danger of electric shocks!

Safety Instructions

Every person involved with the installation, operation and maintenance of this device must:

- Be qualified.
- Be skilled.
- Have read the instructions included in this user manual.
- Be sure that neither the device nor the included accessories are damaged. Should the device or the included accessories be damaged, please contact your retailer for further advice.
- Ensure that the device is in good working condition and is safe to operate. Please follow the advice and instructions as they are described in this user manual.

Damage caused by misuse and/or modifications made to the device are not covered by the warranty.

This device does not contain any parts that can be repaired or replaced by the user. Should maintenance or repairs be necessary, they must be carried out by a qualified technician.

Important information regarding health and safety:

- Do not remove any labels or stickers from this device.
- Do not leave any cables lying around where they are in danger of causing a tripping hazard.
- The housing of this device must not be opened and any hardware or software that may be present must not be modified.
- For optimal performance, any inputs of the device should not be fed with a signal higher than necessary.
- The device must only be used indoors; contact with water, rain and moisture must always be avoided. Do not place any objects containing liquid on top of the device.
- Remove the device from any nearby flames or heat sources; do not place it near flammable fluids, gasses or objects.
- Disconnect this device from a power source if it is not being used for a long period of time, if maintenance is necessary, or if it needs to be cleaned.
- Do not pull or tug on the cable to remove a plug as this may cause damage.
- Do not use any cables other than those specified in this manual. Do not use defective cables. Please contact your retailer if the included or necessary cables do not function properly with this device.
- In the event that the device is exposed to extreme temperature changes (e.g. transported from a cold outdoor environment into a warm indoor environment), it should not be turned on until it has reached room temperature. This is necessary to prevent moisture (condensation) from forming inside the device, which may cause electric shocks.

Use & Operation Guidelines:

- This device is intended for indoor use and must only be operated by adults.
- This device is not suitable for use by children and must always be operated by an adult.
- This device can only be used in appropriate environments where no damage to the device can occur. Do not use the device in moist or dusty environments such as:
 - indoor swimming pools where chlorine is used
 - beaches or any location where sand and/or salt is present
 - outdoors
 - in indoor spaces where intense heat sources are present, or where it can reach temperature levels that would be considered uncomfortable for a person.
- Avoid impact and collisions during use and transport. Do not move or transport the device while it is in use. Avoid using excessive force when installing and operating the device.
- Any user must become familiar with the functions of this device before using it.
- Should the device not be used in the manner described in this user manual, damages or even injuries could occur. Devine cannot be held responsible for any injuries or damages that occur as a result of improper use of this product.

Storage & Transport:

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1.0

- This product has been designed for mobile use and can be transported in its original packaging as long as it is well protected against shocks and impact. It is also possible to transport the device in an appropriate case or flight case with a lined, protective interior that provides a secure fit for all components so that they are unable to shift in transit.
- This device has not been designed for continuous (24/7) use. The expected lifespan of the device is increased when the device is turned off regularly.
- When the device is not in use for long periods of time, always disconnect the device from the mains power and store it in a dust free environment.
- Do not expose the device to extreme temperature shifts.

Housing:

- Frequently inspect the housing of the device and always just before use. Avoid operating the device if any large dents or cracks are found in the housing, or if screws are missing. Do not use the device if the housing is not in good condition. Contact your local retailer or a qualified technician if you are unsure about the state of the device.
- Check the device and screws for any corrosion. If any corrosion is found, do not use the device. Contact your dealer or a qualified technician if the screws or housing show any signs of corrosion.
- Ensure that every power and signal socket is securely fitted. Do not use the device if any of the sockets are not secure.
- Avoid the build up of any dust and dirt. Clean the device once a month by disconnecting it from the power supply and wiping it down with a dry or slightly moist cloth. If the device is used frequently, the device should also be cleaned more frequently.

Symbol Explanation:

	<p>Ensure that this device is disposed of properly. This product falls under the WEEE (Waste Electrical and Electronic Equipment) directive. The requirements of this directive apply to all manufacturers and producers of electronic devices in the EU. Do not throw this product away with normal refuse. Please contact your local authority for more information about how to recycle and dispose of these products in your region. By recycling this product in the proper manner, we can work together to ensure that we can continue to enjoy these kinds of products and still protect the environment as much as possible.</p>
	<p>CE: The CE logo indicates that this product meets the European norms and requirements to which it must legally conform.</p>
	<p>Suitable for indoor use only: This product was designed for indoor use only. The maximum environmental temperature must not exceed 40 degrees Celsius (104 degrees Fahrenheit).</p>

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Battery safety:

WARNING!

- If the battery is replaced incorrectly, this may cause the battery to explode.
- Only replace a battery with the same battery type.
- Never expose batteries to intense heat, including sunlight, open flames, etc.
- Never store batteries in a hot, high temperature environment. This may cause the battery to explode as well as the leakage of flammable liquids or gasses.
- Never expose batteries to an open flame or place them in or near a hot oven.
- Never purposefully damage batteries or try to cut into them as this may cause the battery to explode.
- Do not expose batteries to extremely low air pressures (at high altitudes) since this may cause the battery to explode as well as the leakage of flammable liquids or gasses.
- If the device is not in use for a long period of time (a few months, for example), ensure that any batteries are removed from the device before it is stored.
- Always immediately remove empty batteries from the device.
- Avoid carrying batteries in a pocket, wallet, or bag. Contact with metal objects like coins, keys and similar can cause damage, leakages, or short-circuits.
- Always ensure that batteries are kept out of reach of children.

Recycling:

Never dispose of batteries via household waste. Batteries can contain substances that are damaging to the environment. If a battery is recycled using the correct methods, it can be a valuable source of reusable materials. Contact your local council for more information about how best to dispose of batteries.

Using the Bodypack & Microphones

This wireless microphone system provides a large number of options and features. It is therefore recommended that the tips and advice included below is read in detail to ensure that you get the best out of this system while using it safely.

Please note that the WMD-24 Bodypack is not a stand-alone system and will only function when used in combination with the WMD-24 Basic Duo or WMD-24 Pro Duo. Channel linking with either receiver is performed using the same process as with handheld microphones, so please see the applicable receiver manual for channel link instructions.

Legal Use of the 2.4 GHz Band

This microphone system operates using the 2.4 GHz wireless band. This is the same band used by WiFi networks, Bluetooth, and other comparable signals.

This frequency band can be used freely worldwide, and as such, this microphone system can also be used freely worldwide.

Ensure Optimal Transmitter and Receiver Signal Strength

The biggest disadvantage of using the 2.4 GHz frequency band is that many locations may already be busy with wireless signal traffic like WiFi networks, Bluetooth signals, and similar signals that operate within or near the same frequency range. It may also be the case that audience members may have smartphones or similar gadgets that are constantly scanning for an available signal.

In the worst case, this can cause serious problems with the performance of the WMD-24 microphone system.

To prevent or overcome these possible problems, the following measures can be taken:

- Make sure that any other transmitting or receiving device or equipment that operates using the same or similar frequency band is moved at least 1 metre away from the system.
- As much as possible, try to maintain a clear 'line of sight' between the transmitter and receiver and ensure that nothing is blocking the signal transmission. Obstructions can include walls, furniture, or audience members. The less the signal is blocked, the more stable the signal becomes.
- A good tip is to place the receiver in a relatively high position. This will increase the 'line of sight' of the receiver so that it can better detect the signal from the transmitter (bodypack).

Switching the Receiver On

Before switching the receiver on, ensure that it is placed in an optimum position (as described above) and on a stable surface. Connect the DC power supply to the power input of the receiver and plug the power supply into a compatible mains power socket. Use the Power button of the receiver to switch it on and off.

Microphone Technique & Choosing the Correct Microphone

A microphone is not a complicated device. Anyone can speak into a microphone and the device will ensure that the sound is sent to any connected external audio equipment. But, to ensure optimum sound quality and prevent causing damage to any external audio equipment, using the correct microphone technique is essential.

The largest advantage of using a bodypack system is that the speaker is able to perform hands-free and without fear of dropping the microphone.

The WMD-24 Bodypack set includes the choice of two different kinds of microphone: a lavalier microphone and a headset microphone. Both microphones can be linked to a receiver, but not at the same time.

Performing with either a lavalier or headset microphone has both benefits and drawbacks. Below, a brief overview of the pros and cons of using either a lavalier or headset microphone has been included:

Lavalier microphone:

- + since it's a clip-on microphone, it's easily fastened to clothing
- + discreet and almost invisible
- in loud environments, it can be more difficult to register the clear speech of the performer, since a lot of ambient noise may also be registered by the microphone
- very directional and position sensitive

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1.0

- can be less secure since it is not designed for intensive movement
- registers less sound if the speaker is moving their head from side to side while speaking

Headset microphone:

- + rests easily and securely on the head
- + microphone is easily positioned near the mouth of the speaker
- + performs better in louder environments
- is much more visible
- can easily move or be repositioned by the speaker, so that the sound is not registered as efficiently
- may register and amplify harsh plosives which can affect the sound quality (plosives are harder speech sounds like P, S, T, K etc. where a short burst of air is released)

In practice, choosing the right microphone that works for a specific situation is a question of experimentation.

Both microphones can be directly connected to the bodypack transmitter.

Prevent any performer that is wearing either the lavalier or headset microphone from moving too close to the speakers of the connected audio system. This is because the microphone may re-register the sound amplified by the speakers, causing a signal repeat that leads to an endless feedback loop.

This can result in a piercing sound that in the worst case can damage the audio system irreparably!

Devine cannot be held responsible for any damage caused to any audio system due to the use of incorrect microphone technique.

Connecting the Microphone System to an Audio System

Start by setting the volume faders or controls of your mixer to zero. This includes any 'gain' or 'trim' controls.

After connecting the receiver to your mixer, speak into the linked microphone using the correct microphone technique, and then gradually begin to raise the volume on your mixer to a standard level (maximum 0dB, or, if your system does not have a level indicator, bring it gradually to the halfway or three-quarter way point). By slowly increasing the volume, you will notice as soon as it is brought to an appropriate level and you can then start to fine-tune the whole system.

If the signal strength is not sufficient, use the 'trim' or 'gain' controls to raise the signal strength to an appropriate level. If this does not solve the problem or your system does not include these controls, raise the volume of the corresponding channel on the receiver.

If this is still unable to solve the problem, then another component of the signal chain needs to be adjusted, like the master volume of the mixer.

Using More Than One System at the Same

If you intend to operate multiple WMD-24 systems at the same time, it is important to note that the systems are unlikely to be the only devices using the frequency band. In theory, it is possible to link approximately two to three systems together (for a 4 to 6 microphone set-up) and operate them at the same time.

However, please note that any nearby devices or equipment that operate using the same or similar frequency band, as well as the distance between the different transmitters, can dramatically affect the result.

If you do decide to operate more than one system at the same time, then make sure that any equipment or devices likely to cause signal interference are placed as far away as possible, and that the selected channels of each system are as far apart as possible.

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Revision date and author initials: -

1.0

This wireless system can be operated using the following channels and corresponding frequencies:

Channel	Frequency 1	Frequency 2	Channel	Frequency 1	Frequency 2
1	2406 MHz	2446 MHz	9	2422 MHz	2462 MHz
2	2408 MHz	2448 MHz	10	2424 MHz	2464 MHz
3	2410 MHz	2450 MHz	11	2426 MHz	2466 MHz
4	2412 MHz	2452 MHz	12	2428 MHz	2468 MHz
5	2414 MHz	2454 MHz	13	2430 MHz	2470 MHz
6	2416 MHz	2456 MHz	14	2432 MHz	2472 MHz
7	2418 MHz	2458 MHz	15	2434 MHz	2474 MHz
8	2420 MHz	2460 MHz	16	2404 MHz	2444 MHz

A third-party smartphone app can be downloaded and used to scan for WiFi signals. This will provide an overview of available WiFi networks, their signal strength, and useful information regarding the transmission frequency.

WiFi networks send a signal using the harmonised channels included below, with a 5 MHz interval between each (except channel 14).

WiFi channels that can have a strong influence over the performance of the WMD-24 channels are underlined below. However, this does not mean that other strong WiFi signals will not affect the performance of the WMD-24. The included frequencies are measured at their peaks, which are also present with adjacent frequencies (but gradually weaken as the signal moves further away from the source).

Channel	Frequency	Channel	Frequency
<u>1</u>	<u>2412 MHz</u>	8	2447 MHz
2	2417 MHz	9	2452 MHz
<u>3</u>	<u>2422 MHz</u>	10	2457 MHz
4	2427 MHz	11	2462 MHz
<u>5</u>	<u>2432 MHz</u>	12	2467 MHz
6	2437 MHz	13	2472 MHz
7	2442 MHz	14	2484 MHz

Using multiple systems at the same time without encountering any problems cannot be guaranteed. Since every situation and set-up is different, it is not possible to state with certainty that it would perform perfectly.

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Wireless Microphone Trouble Shooting

If you happen to encounter any problems while using your wireless microphone system, it's recommended that this trouble shooting section is checked to see if a solution can be found. If none of the suggestions included below solve your problem, please contact your local retailer for further advice.

This trouble shooting section includes all of the most common possible problems and is not a complete list of every possible fault, defect, and their subsequent solution. This section is generally focussed on solving problems regarding the use of wireless microphones. As such, it may be that some of the included problems, causes, and solutions do not apply to your situation since product specifications can differ.

Problem	Common Cause	Solution
Receiver is not switching on	Mains power socket not active	Check that the mains power socket is active, especially if it's (for example) a power block with a switch or a power sockets fitted with power sockets.
	Power supply not securely connected	Check that the power supply is securely connected to the receiver and that the plug is securely connected to an active mains power supply socket.
	Power button has not been pushed	Make sure that the power button of the receiver has been pressed.
Microphone is not switching on	No batteries	Check that batteries have been installed in the battery compartment.
	Batteries incorrectly installed	It might be that the batteries have been installed the wrong way around. Always ensure that the batteries are installed so that the polarity (+/-) matches the polarity indicated in the compartment.
	Batteries are empty	Replace the batteries with new, high-quality batteries.
No sound	Volume is too low	Turn the receiver volume control up a little and check that the SIG indication LED lights up when the microphone is spoken into. If this is the case, then the device is receiving the signal as it should. If this does not solve the problem, then check the rest of the audio signal chain.
	Mixer channel on mute or not properly set	Check the basic PA mixer controls like the mute switch, master volume level, trim or gain level, master volume, EQ control settings etc.
	Microphone is not coupled with receiver	Make sure that the microphone is actively coupled with the receiver by following the instructions included in this manual.
Signal interference or signal drop	Receiver positioning is not optimum	Where possible, always ensure that the receiver is positioned so it can achieve the best possible 'line of sight' of the microphone transmitters.
	Microphone is too far away from receiver	If the microphone is held more than 10 metres away from the receiver, this can cause a break in the signal since the signal from the microphone transmitter can no longer reach the receiver.

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1.0

Problem	Common Cause	Solution
	2.4 GHz error	When the performance space is full of different devices operating on the same (or close to) 2.4 GHz frequency band, like laptops, smartphones, tablets and other wireless gadgets and equipment, this can cause wireless microphone system issues. Try switching to a different microphone signal or try to improve the 'line of sight' and reduce the distance between the receiver and microphone transmitter.
Distorted sound	Sound settings are not optimal	Check the volume level and other audio system components that may be affecting the sound quality by overdriving the signal.
	Incorrect microphone technique is being used	Check that the microphone technique of the performer is correct. If the sound is distorted or dull, then it is likely that the microphone grille is being covered by a hand.

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Specifications

- 2.4 GHz compact bodypack system from the Devine WMD-24 basic system
- including lavalier and headset microphone with cable and connector
- compact transmitter unit with LCD display
- operates using the 2.4 GHz frequency band, which can be used freely worldwide
- 16 channels can be selected per microphone to limit frequency band traffic interference, compatible with the WMD-24 Basic Duo and Pro Duo systems
- wireless channel synchronisation between bodypack and receiver
- GFSK modulation
- operation range: 20 – 30 metres, provided a clear and unobstructed line of sight is maintained between the transmitter and receiver, and no devices using the 2.4 GHz frequency band are close by.
- A/D and D/A conversion: 16-bit, 34.8 kHz.

Technical features:

- available channels: 16
- bandwidth: 2 MHz
- dynamic range: 85 dB
- total harmonic distortion: <0,1%

- signal-to-noise ratio: > 95 dB
- receiver sensitivity: – 80 dBm
- transmission strength: 10 mW
- modulation type: GFSK
- ultra-harmonics: < 20 dB
- batteries: 2x AA batteries (included)
- average battery lifespan: 5 hours of continuous use

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1.0



EC Declaration of Conformity

**Devine pro audio and studio products
Verrijn Stuartweg 18
4462 GE Goes
The Netherlands**

We declare under our sole responsibility that the following products

Article:	Product name:
Devine WMD-24 Pro Duo	Wireless microphone system (2.4 GHz) with 2 x handheld microphones.
Devine WMD-24 Basic Duo	Wireless microphone system (2.4 GHz) with 2 x handheld microphones.
Devine WMD-24 Bodypack set	Separate bodypack (2.4 GHz) with headset microphone and lavalier.

are fully in conformity with:

System:

Directive 2014/53/EU of the European Parliament and of the Council on the harmonization of the laws of the Member States relating to the making available on the market of radio equipment (RED).

Used standard: EN 62368-1:2014+A11:2017, EN 62479:2010, ETSI EN 301 489-1 V2.2.3 (2019-11), ETSI EN 301 489-9 V2.1.1 (2019-04), ETSI EN 300 422-1 V2.1.2 (2017-01).

Directive 2011/65/EU of the European Parliament and of the Council on the restriction of use of certain hazardous substances (RoHS) in electrical and electronic equipment.

Used standards: IEC 62321-3-1:2013, IEC 62321-4:2013, IEC 62321-5:2013, IEC 62321-6:2015, IEC 62321-7-1:2015, IEC 62321-7-2:2017, IEC 62321-8:2017.

AC/DC adapter:

Directive 2014/35/EU of the European Parliament and of the Council on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits (LVD).

Used standard: EN 62368-1:2014+A11.

Directive 2014/30/EU of the European Parliament and of the Council on the harmonisation of the laws of the Member States relating to electromagnetic compatibility (EMC).

Used standards: EN 55032:2015, EN IEC 61000-3-2:2019, EN 61000-3-3:2013+A1:2019, EN 55035:2017.

Directive 2009/125/EC of the European Parliament and of the Council establishing a framework for the setting of ecodesign requirements for energy-related products (ErP) and Commission Regulation (EU) 2019/1782 laying down ecodesign requirements for external power supplies pursuant to Directive 2009/125/EC of the European Parliament and of the Council and repealing Commission Regulation (EC) No 278/2009.

Used standards: EN 50563:2011+A1, IEC 62301:2011, EN 50564:2011.

Directive 2011/65/EU of the European Parliament and of the Council on the restriction of use of certain hazardous substances (RoHS) in electrical and electronic equipment.

Used standards: EN 62321:2009, IEC 62361-1:2013, IEC 62321-2:2013, IEC 62361-3-1:2013, IEC 62361-4:2013, IEC 62361-5:2013, IEC 62361-6:2015, IEC 62361-7-1:2015.

Signed for and on behalf of:

Devine pro audio and studio products

Goes, 04-12-2020

Jochanan Bax, Director

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