



# Evolution Wireless Digital EW-DX MKE2 SET | Lavalier Set



## Designed for Those Who Appreciate Freedom of Movement

This wireless lavalier microphone set consists of 2 x EW-DX SK (wireless bodypack transmitter), 2 x MKE 2 (omni-directional clip-on lavalier microphone), 1 x EW-DX EM 2 rackmount receiver (2 channels) and 2 x BA 70 rechargeable batteries.

### FEATURES EW-DX EM 2

- 2 channel half rack (9.5')
- Up to 88 MHz switching bandwidth
- PoE IEEE 802.3af Class 3
- Equidistant Channel Spacing: 146 channels in standard mode; 293 channels in Link Density Mode
- Network enabled for control with Sennheiser Control Cockpit/media control system through a number of 3rd party modules
- Clear and easy focused user interface with OLED display
- Ethernet connectivity (IPv4 and IPv6)
- Secure AES 256 encryption
- External PSU 12V/1A
- All-metal housing

### DELIVERY INCLUDES

- EW-DX EM 2 rack receiver
- 2 EW-DX SK bodypack transmitters
- 2 MKE 2 lavalier microphones
- 2 rod antennas
- power supply with country adapters
- 2 mic clamps
- GA 3 rackmount set
- 4 rubber feet
- 2 BA 70 rechargeable battery packs
- quick guide
- safety guide
- manufacturer declaration sheet

### FEATURES EW-DX SK

- 3,5 mm jack or 3-pin connector variants
- 10mW RF power with up to 100m/328ft working range
- Charging contacts for in-device charging with CHG 70N
- Persistent eInk display - parameters visible on screen even when device is not powered on
- Programmable mute switch - customize the device depending on your professional needs
- Extended runtime with lithium ion batteries - up to 12 hours operation time
- Mic input trim control
- Metal housing



# Evolution Wireless Digital

## EW-DX MKE2 SET | Lavalier Set

### PRODUCT VARIANTS

<b>EW-DX MKE2 SET (Q1-9)</b>	470.2 - 550 MHz	Art. no. 509314
<b>EW-DX MKE2 SET (R1-9)</b>	520 - 607.8 MHz	Art. no. 509315
<b>EW-DX MKE2 SET (S1-10)</b>	606.2 - 693.8 MHz	Art. no. 509316
<b>EW-DX MKE2 SET (S1/10)</b>	606.2 - 637.8 MHz & 650.2 - 693.8 MHz	Art. no. 509317
<b>EW-DX MKE2 SET (S2-10)</b>	614.2 - 693.8 MHz	Art. no. 509319
<b>EW-DX MKE2 SET (S4-10)</b>	630 - 693.8 MHz	Art. no. 509320
<b>EW-DX MKE2 SET (U1/5)</b>	823.2 - 831.8 MHz & 863.2 - 864.8 MHz	Art. no. 509321
<b>EW-DX MKE2 SET (V3-4)</b>	925.2 - 937.3 MHz	Art. no. 509323
<b>EW-DX MKE2 SET (V5-7)</b>	941.7 - 951.8 MHz & 953.05 - 956.05 MHz & 956.65 - 959.65 MHz	Art. no. 509324
<b>EW-DX MKE2 SET (X1-6)</b>	1350.2 - 1398.8 MHz	Art. no. 509325
<b>EW-DX MKE2 SET (X9-18)</b>	1435.2 - 1524.8 MHz	Art. no. 509326
<b>EW-DX MKE2 SET (Y1-3)</b>	1785.2 - 1799.8 MHz	Art. no. 509327

### ACCESSORIES

<b>EW-D ASA (Q-R-S)</b>	Active Antenna Splitter	470 - 694 MHz	Art. no. 508879
<b>EW-D ASA (T-U-V-W)</b>	Active Antenna Splitter	694 - 1075 MHz	Art. no. 508880
<b>EW-D ASA (X-Y)</b>	Active Antenna Splitter	1350 - 1805 MHz	Art. no. 508881
<b>EW-D ASA CN/ANZ (Q-R-S)</b>	Active Antenna Splitter	470 - 694 MHz	Art. no. 508998
<b>EW-D AB (Q)</b>	Antenna Booster	470 - 550 MHz	Art. no. 508873
<b>EW-D AB (R)</b>	Antenna Booster	520 - 608 MHz	Art. no. 508874
<b>EW-D AB (S)</b>	Antenna Booster	606 - 694 MHz	Art. no. 508875
<b>EW-D AB (U)</b>	Antenna Booster	823 - 865 MHz	Art. no. 508876
<b>EW-D AB (V)</b>	Antenna Booster	902 - 960 MHz	Art. no. 508877
<b>EW-D AB (Y)</b>	Antenna Booster	1785 - 1805 MHz	Art. no. 508878
<b>ADP UHF (470 - 1075 MHz)</b>	Passive directional antenna	470 - 1075 MHz	Art. no. 508863
<b>BA 70</b>	Rechargeable battery pack for SK and SKM-S		Art. no. 508860
<b>L 70 USB</b>	Charger for BA 70 rechargeable battery pack		Art. no. 508861
<b>EW-D CHARGING SET</b>	Set of L 70 USB charger and 2 BA 70 rechargeable battery packs		Art. no. 508862
<b>EW-D COLOR CODING SET</b>	Colored labels for wireless link identification for EM, SKM-S, SK		Art. no. 508989
<b>EW-D SK COLOR CODING</b>	Colored labels for wireless link identification for SK		Art. no. 508990
<b>EW-D SKM COLOR CODING</b>	Colored labels for wireless link identification for SKM-S		Art. no. 508991
<b>EW-D EM COLOR CODING</b>	Colored labels for wireless link identification for EM		Art. no. 508992



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### MICROPHONE COMPATIBILITY

#### Lavalier and headset microphones compatible with the EW-DX SK bodypack transmitter

<b>ME 2</b>	Omni-directional lavalier microphone Models produced from 2021 onward, featuring a gold-plated connector*
<b>ME 4</b>	Cardioid lavalier microphone Models produced from 2021 onward, featuring a gold-plated connector*
<b>MKE Essential Omni</b>	Omni-directional lavalier microphone
<b>MKE 2 Gold</b>	Omni-directional lavalier microphone Models produced from 2018 onward, featuring a blue serial number plate
<b>MKE 1</b>	Omni-directional lavalier microphone
<b>ME 3</b>	Cardioid headset microphone Models produced from 2021 onward, featuring a gold-plated connector*
<b>HSP Essential Omni</b>	Omni-directional headset microphone
<b>HSP 2</b>	Omni-directional headset microphone Models produced from March 2020 onward (featuring code 1090 or later)
<b>HS 2</b>	Omni-directional headset microphone Models produced from 2021 onward, featuring a gold-plated connector*
<b>SL Headmic 1</b>	Omni-directional headset microphone

\* Models produced prior to 2021 will feature a nickel connector. Earlier models may pick up noise when placed close to the transmitter and are not recommended for use



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### SPECIFICATIONS

<b>System</b>	
Audio link frequency ranges	Q1-9 470.2 - 550 MHz R1-9 520 - 607.8 MHz S1-10 606.2 - 693.8 MHz S2-10 614.2 - 693.8 MHz S4-10 630 - 693.8 MHz U1/5 823.2 - 831.8 MHz & 863.2 - 864.8 MHz V3-4 925.2 - 937.3 MHz V5-7 941.7 - 951.8 MHz & 953.05 - 956.05 MHz & 956.65 - 959.65 MHz X1-6 1350.2 - 1398.8 MHz X9-18 1435.2 - 1524.8 MHz Y1-3 1785.2 - 1799.8 MHz
Bluetooth® Low Energy (BLE) frequency range	2402 - 2480 MHz
Audio frequency response	20 Hz - 20 kHz (-3 dB) @ 3 dBfs
Audio THD	≤ -60 dB for 1 kHz @ -3 dBfs input level
Dynamic range	134 dB
System latency	1.9 ms
Operating temperature	-10 °C - +55 °C (14 °F - 131 °F)
Relative humidity	5 - 95 % (non-condensing)
<b>EW-DX EM 2 (Rack Receiver)</b>	
Input voltage	11 - 13 V $\overline{=}$ or PoE IEEE 802.3af Class 0 (CAT5e or higher)
Input current	≤ 1 A
Transmit power (radiated)	BLE: max. 10 mW EIRP
Audio output power	18 dBu max.
Headphone output	2x 70 mW @ 32 Ω
Ethernet	RJ-45 socket, IEEE802.3 100Base-TX (half+full duplex) 10Base-T (half+full duplex) (CAT5e or higher)
Dimensions	212 x 44 x 189 mm (8.35" x 1.73" x 7.44")
Weight	approx. 1000 g (2.2 lbs) (without antennas and power supply)

<b>MKE 2 (Lavalier Microphone)</b>	
Transducer principle	pre-polarized condensor microphone
Pick-up pattern	omni-directional
Sensitivity (free field, no load) (1 kHz)	5 mV/Pa +- 3 dB
Max. SPL at 1 kHz	142 dB
Frequency response	20 to 20,000 Hz
Equivalent noise level A-weighted	26 dB
Connector	3.5 mm jack
Cable length	approx. 1.60 m (62.99")
Supply voltage	7.5 V

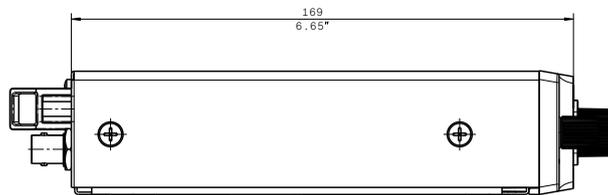
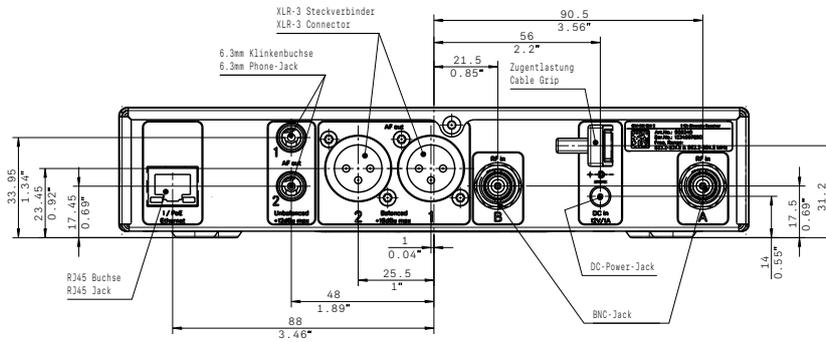
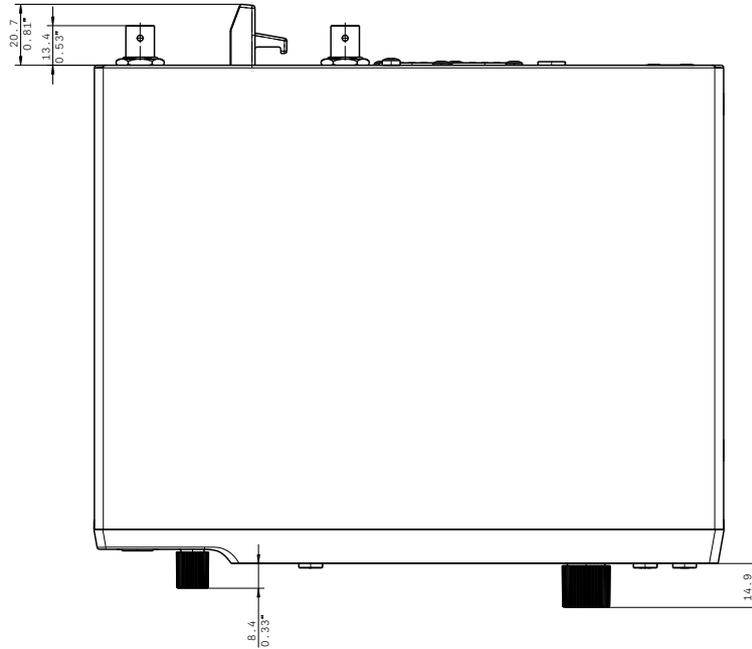
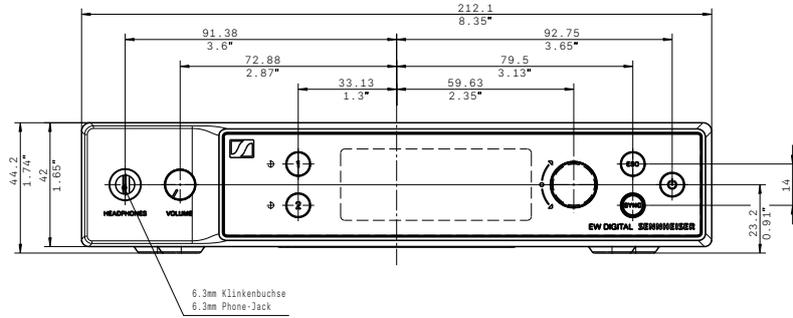
<b>EW-DX SK (Bodypack Transmitter)</b>	
Input voltage	2.0 - 4.35 V
Input current	< 300 mA
Power supply	2 AA batteries 1.5 V (alkali manganese) or BA 70 rechargeable battery pack
Occupied bandwidth	200 kHz
Transmit power (radiated)	Audio link: 10 mW ERP (Range Y1-3: 12 mW ERP) LD mode: 10 mW ERP BLE: max. 10 mW EIRP
Dimensions (without antenna)	63.5 x 85 x 20 mm (2.5" x 3.35" x 0.79")
Weight (without batteries)	approx. 115-120 g (0.26-0,27 - lbs)



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## DIMENSIONS

### EW-DX EM 2





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## EW-DX MKE2 SET | Lavalier Set

### ARCHITECT'S SPECIFICATION

#### EW-DX EM 2 rack receiver

The stationary two-channel receiver with switching diversity technology shall be for use with up to two companion transmitters as part of a digital wireless RF transmission system.

The receiver shall operate within the following UHF frequency ranges, with a switching bandwidth of up to 88 MHz: 470.2 – 550 MHz, 520 – 607.8 MHz, 606.2 – 693.8 MHz, 614.2 – 693.8 MHz, 630 – 693.8 MHz, 823.2 – 831.8 MHz, 863.2 – 846.8 MHz, 925.2 – 937.3 MHz, 941.7 – 951.8 MHz, 953.05 – 956.05 MHz, 956.65 – 959.65 MHz, 1350.2 – 1398.8 MHz, 1435.2 – 1524.8 MHz, 1785.2 – 1799.8 MHz. Different frequency variants shall be available depending on country-specific regulations.

The receiver shall feature Bluetooth® Low Energy (BLE) at a frequency range between 2402 and 2480 MHz for remote controlling the devices via a control App for iOS and Android.

The receiver shall feature an automatic frequency setup function with spectrum scan functionality in order to establish an equidistant frequency grid with 146 channels in standard mode and 293 channels in Link Density Mode.

The audio frequency response shall be between 20 Hz and 20 kHz (-3 dB). Audio total harmonic distortion (THD) shall be  $\leq -60$  dB for 1 kHz @ -3 dBfs input level. Dynamic range shall be 134 dB. System latency shall be 1.9 ms.

The receiver shall be menu-driven with an OLED display showing the current frequency, channel number, metering of RF level, metering of AF level, lock status, muting function, antenna switching diversity, app connection, gain, audio output level, menu and battery status for each of the two associated transmitters. An auto-lock feature shall be provided to prevent settings from being accidentally altered.

The following settings shall be configurable by function buttons and an encoder for each channel in the menu: frequency, channel name, gain, trim, AF output, low cut, AES 256 encryption, test tone, network settings, integrated antenna booster settings, display brightness, device name, auto setup settings for automatic frequency setup.

For each of the two channels the receiver shall feature a balanced XLR-3M audio output with a maximum output of +18 dBu along with an unbalanced 6.3 mm (¼") audio output with a maximum output of +12 dBu.

For secure transmission the receiver shall feature AES 256 encryption.

The receiver shall provide a walktest mode for monitoring the RF and AF signal status in the location over time.

Two BNC-type input sockets shall be provided for connecting the antennas. The receiver shall be usable with active and passive wide range UHF antennas for the entire supported RF spectrum.

A headphone output with headphone volume control shall be provided and shall utilize a 6.3 mm stereo jack socket.

The receiver shall have an Ethernet port (RJ-45) for remote network-based monitoring and control using the Sennheiser Control Cockpit software or the Sennheiser Wireless Systems Manager software.

The receiver shall operate on 12 V DC power supplied from the power supply unit or on Power over Ethernet (PoE IEEE 802.af Class 0). Power consumption shall be  $\leq 1$  A.

The receiver shall have a rugged metal housing; dimensions shall be approximately 212 x 44 x 206 mm (8.35" x 1.73" x 8.11"). Weight shall be approximately 1000 grams (2.2 lbs) without antennas and power supply. Operating temperature shall range from  $-10$  °C to  $+50$  °C ( $+14$  °F to  $+122$  °F).

The receiver shall be the Sennheiser EW-DX EM 2.



# Evolution Wireless Digital EW-DX MKE2 SET | Lavalier Set

## EW-DX SK bodypack transmitter

The bodypack transmitter shall be for use with a companion receiver as part of a digital wireless RF transmission system.

The bodypack transmitter shall operate within the following UHF frequency ranges, with a switching bandwidth of up to 88 MHz: 470.2 – 550 MHz, 520 – 607.8 MHz, 606.2 – 693.8 MHz, 614.2 – 693.8 MHz, 630 – 693.8 MHz, 823.2 – 831.8 MHz, 863.2 – 846.8 MHz, 925.2 – 937.3 MHz, 941.7 – 951.8 MHz, 953.05 – 956.05 MHz, 956.65 – 959.65 MHz, 1350.2 – 1398.8 MHz, 1435.2 – 1524.8 MHz, 1785.2 – 1799.8 MHz. Different frequency variants shall be available depending on country-specific regulations.

The audio frequency response shall be between 20 Hz and 20 kHz (-3 dB). Audio total harmonic distortion (THD) shall be  $\leq -60$  dB for 1 kHz @ -3 dBfs input level. Dynamic range shall be 134 dB. System latency shall be 1.9 ms.

Occupied bandwidth shall be 200 kHz. Transmit power (radiated) shall be 10 mW ERP (1785.2 – 1799.8 MHz Range: 12 mW ERP).

A programmable mute switch shall be provided for muting or unmuting either the audio signal or the radio signal. The mute switch can also be deactivated.

The bodypack transmitter shall be menu-driven with a backlit elnk display showing the relevant status information such as frequency, battery status or AES 256 encryption status.

All transmitter parameters shall be adjustable with function buttons on the device itself or by Bluetooth Low Energy (BLE) synchronization via the associated receiver. The function buttons shall be lockable against accidental misuse.

Power shall be supplied to the bodypack transmitter by two 1.5 V AA size batteries or by one Sennheiser BA 70 rechargeable battery pack. Operating time shall be typically 12 hours with a battery pack and up to 8 hours with AA batteries.

The bodypack transmitter shall feature charging contacts for direct charging of the transmitter with inserted BA 70 battery pack in a Sennheiser CHG 70N network-enabled charger.

The bodypack transmitter's microphone/line input shall utilize a lockable 3.5 mm Jack socket.

The bodypack transmitter shall be compatible with microphones for every application: Sennheiser lavalier microphones ME 2, ME 4, MKE 1, MKE 2 Gold and MKE Essential Omni, Sennheiser headset microphones HS 2, HSP 2, HSP Essential Omni, ME 3 and SL Headmic 1.

The bodypack transmitter shall have a rugged metal housing; dimensions shall be approximately 63.5 x 85 x 20 mm (2.5" x 3.35" x 0.79"). Weight without batteries shall be approximately 115 - 120 grams depending on antenna length. Operating temperature shall range from  $-10$  °C to  $+50$  °C ( $+14$  °F to  $+122$  °F).

The handheld transmitter shall be the Sennheiser EW-DX SK.