

Digital Wireless Microphone System

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DWM-01

Digital Wireless Microphone

DWR-R01D

Digital Wireless Receiver

RMU-01

Remote Control Unit

AN-01

UHF Antenna

DWX
DIGITAL WIRELESS

Sony's New DWX™ Boosts Sound Quality and Operational Convenience

With its new, cutting-edge digital wireless microphone system, Sony combines advanced digital technologies, world-leading analog microphone expertise, wireless audio transmission technologies, and an enviable reputation for stability.

By incorporating the very latest digital technologies, the DWX is set to revolutionize live stage performances...in much the same way as the music recording industry changed when Sony applied advanced digital technologies to recorders, mixing consoles, and signal processing equipment.

The DWX ensures superb sound quality, convenient multi-channel operation, and innovative workflow without compromise.

Once again, Sony opens new doors to the digital world.



Technologies

WiDIF-HP

Sony's Original Wireless Interface, WiDIF™-HP

A new high-profile format for the digital audio interface on UHF - WiDIF-HP - has been developed for the DWX.

Superb Quality Wireless Transmission

WiDIF-HP transmits high-quality 24-bit/48-kHz sampling digital audio signals in real time, with a wide dynamic range of more than 106 dB, a wide frequency response of 20 Hz to 22 kHz, and a low system latency of 3.4 ms*. Additionally, there is no compander, a device commonly used in conventional analog wireless systems which can degrade audio performance.

Greater Flexibility with Multi-channel Operation

WiDIF-HP enables large-scale multi-channel operation. Thanks to a digital modulator, WiDIF-HP realizes inter-modulation-free, equally spaced channel allocation, which enables a significant increase in the number of simultaneous digital wireless systems in comparison with current analog wireless systems. For example, up to 12 channels of simultaneous operation are supported using a 6-MHz bandwidth TV channel in the USA. WiDIF-HP supports approximately 50 percent more systems simultaneously than current analog wireless systems. This format allows the use of existing WL-800 Series analog wireless channel plans. In this configuration, the DWX reliably operates along with WL-800 Series analog wireless systems, with no risk of analog/digital wireless system interference.

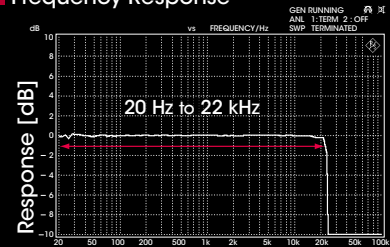
Stable and Secure Transmission

WiDIF-HP allows highly stable wireless transmission without audio degradation - transmission that is both secure and extremely tolerant to interference waves. The format is digitally modulated and encrypted to minimize any risk of interception, providing highly secure transmission. For confidential communication, WiDIF-HP provides two communication modes:

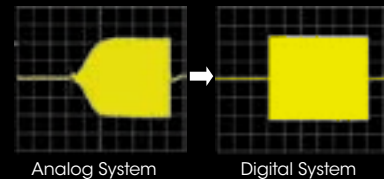
Secure key mode: Wireless communication between a transmitter and receiver can be established by exchanging an encryption key that is generated by the transmitter.

Password mode: Multiple transmitters and receivers can be configured by setting all devices with the same user-designated password. In addition, password mode is for broadcast communication, enabling multiple receivers to receive audio signals from a single transmitter.

Frequency Response



Dynamic Response



More Simultaneous Multi-channel Operations



WiDIF-HP Specifications

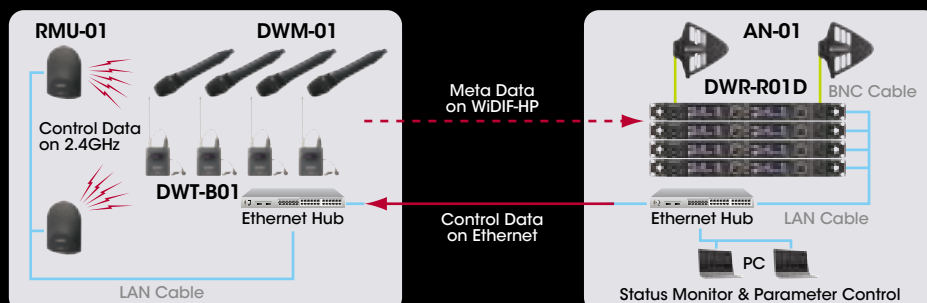
Sampling frequency	48 kHz
Quantization bit length	24 bit
Frequency response	20 Hz to 22 kHz
Dynamic range	106 dB typical (A-weighted)
Distortion (T.H.D)	0.03% or less
Occupied RF bandwidth	192 kHz or less
Modulation method	$\pi/4$ Shift QPSK
Audio delay	3.4 ms*

* When DWM-01 and DWR-R01 are used in combination.

Cross Remote

Innovative Monitor/Control Function, Cross Remote™

Cross Remote allows up to 82 transmitters to be managed centrally by establishing a remote network system. The Cross Remote function of the DWX is one of the most distinctive features made possible by digital transmission technology. It allows monitoring of the transmitter's status (such as the remaining battery capacity, RF level, and transmitter name) and control of its parameters (such as power on/sleep, attenuator level, low-cut filter frequency, and RF power output level) from a remote receiver. This is achieved by combining metadata on the WiDIF-HP and 2.4-GHz IEEE802.15.4 communication technology. Audio RF signals of digital and analog wireless microphone systems are unaffected by 2.4-GHz communication. These remote monitoring and control capabilities are ideal for large-scale multi-channel system management, and effectively lower power consumption.



DWX Microphone series

DWM-01 Digital Wireless Microphone

The DWM-01 is a handheld digital wireless microphone supporting WiDIF-HP and Cross Remote. This microphone is suitable for live stage performances and other events, broadcast studios, halls, and theater applications.



Dynamic type

DWM-01 /F31 30
DWM-01 /F31 42
DWM-01 /F31 62

Condenser type

DWM-01 /C31 30
DWM-01 /C31 42
DWM-01 /C31 62

WiDIF-HP
Cross Remote

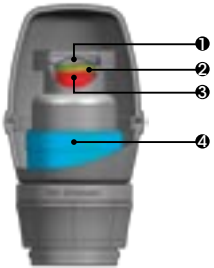
High-quality Sound with Sony's Consolidated Technologies

The DWM-01 adopts the WiDIF HP codec, and analog-to-digital audio conversion takes place after the transmitter's head amplifier. The audio signal remains in digital throughout. With its robust body, the microphone realizes excellent sound quality and has characteristics to minimize acoustic feedback, making it ideal on stage in the loudest sound environments.

Two Models with Newly Developed Capsules

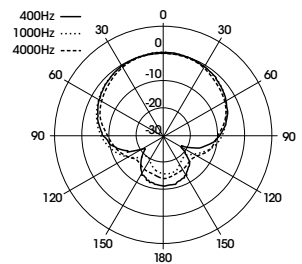
Users can choose from two model variants: the dynamic model and the condenser model, according to the voice quality or style of the artist. The dynamic model is suitable for bold and clear expression even in a loud environment. The condenser microphone is suitable for delicate and rich expression in any frequency range.

DWM-01 /F31 (Dynamic Capsule)

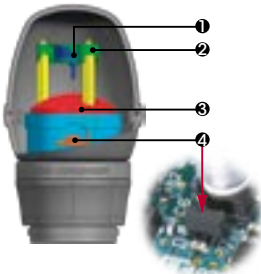


Parts	Features	Pros
① Diaphragm	Double Dome Film (Polyester) With natural silk for center anchorage	Robust mechanism achieves stable sound characteristics withstanding very high sound pressure levels Natural and smooth transduction
② Voice Coil	CCAW (Copper Clad Aluminum Wire) With edge-wise coil	Less distortion; clear sound High output with high occupancy
③ Magnet	Alnico magnet	Mechanical strength ensures steady core sound
④ Unit Holder	Magnesium	Minimizes unwanted vibration to achieve bright and well-balanced sound at all frequencies

Directional Charts

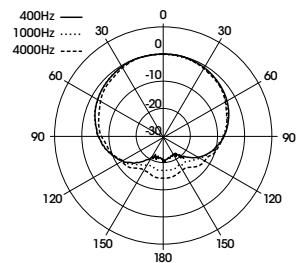


DWM-01 /C31 (Condenser Capsule)



Parts	Features	Pros
① Capsule	Polyester film with gold evaporation Ceramic back plate	Well-balanced sound characteristics from low to high frequencies Clear detail and transparent sound
② Capsule Housing	Monocoque housing with 3-point support with SUS hexagonal cylinder	Rigid mechanism ensures less distortion and greater sound sensitivity
③ Reflector	Sphere reflector	Achieves a smooth frequency response by minimizing standing wave
④ FET	Original FET	Developed from the ground up, and designed exclusively for the microphone, this FET achieves ample bass sound

Directional Charts



Wide RF Carrier Frequency Range

The DWM-01 covers an extremely wide RF carrier frequency range. The USA models can cover a 66-MHz bandwidth and 60-MHz bandwidth respectively — much wider than the 24-MHz of an analog wireless microphone system, while the European model can cover a 48-MHz bandwidth. This remarkably wide coverage on a single model offers cost efficiency and operational convenience, because it allows one microphone to be operated in many different environments.

Selectable RF Output Power

The transmitter provides a choice of RF output powers. The 1 and 10 mW output selections are suitable for multi-channel operation such as theater and studio productions, while 50 mW output is intended for long-distance transmissions such as sports and news coverage.

Beautiful and Practical Design

Created for professional use, each beautifully designed yet practical microphone model can be deployed up-front on center stage, or used every day as a hardworking, heavy-duty unit.

Head: This combines smart design with high-quality sound by packing Sony's technical acoustic design knowledge into a head so compact that it will not overwhelm an artist's face or detract from their performance.

Grip: The monocoque structure of the duralumin body enables a lightweight yet rugged design. User comfort is ensured with a single-handed grip by optimizing precise shape and weight balance.

Antenna: Distinct design of built-in helical antenna supports both of RF stability and visual appeal.

Holder: An original shock-mount mechanism improves sound quality by preventing unwanted vibration, and users prefer this holder to a rigid clamp because they find it easy to insert and eject the microphone from it.

Color Rings for Identification

Nine colors of replaceable ring are supplied with each microphone, to simplify microphone identification over distances by using color coding. (Black ring is standard.)

Malfunction-proof Mechanism

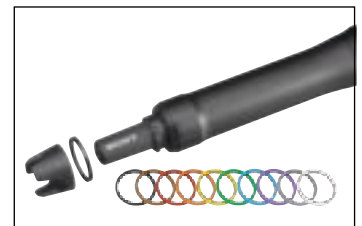
The operational switches are hidden in the body to prevent mis-operation. By opening the grip, the switches can be revealed and this also provides access to the battery compartment for battery replacement.

OLED Menu Display

Since the display is bright and has a high level of visibility, menu settings can be easily seen in any type of lighting environment.

Long Battery Life

Five continuous hours of operation are achieved with two of Sony LR6 AA-size alkaline batteries at 10 mW output. Refer to the specification for detail condition.



Specifications

	DWM-01 / F31 (Dynamic type)	DWM-01 / C31 (Condenser type)
Transmitting section		
Wireless Interface	WiDIF-HP	
Oscillator type	Crystal-controlled PLL synthesizer	
Carrier frequencies	30 (US model)	566.125 MHz to 637.875 MHz (TV-30 to TV-41 channels, except TV-37 channel)
	42 (US model)	638.125 MHz to 697.875 MHz (TV-42 to TV-51 channels)
	62 (European model)	798.025 MHz to 862.000 MHz (TV-62 to TV-69 channels, except TV-65 and TV-66 channel)
Channel step	30/42 (US model)	125 kHz
	62 (European model)	25 kHz
RF power output	1 mW/10 mW/50 mW (e.r.p.) selectable	
Antenna type	Helical antenna	
Audio section		
Microphone capsule	Dynamic	Electret Condenser
Directivity	unidirectional (super cardioid)	unidirectional (cardioid)
Maximum input level	151 dB SPL (with 21 dB attenuator)	
Audio attenuator adjustment range (pad)	0 to 21 dB (3dB steps)	
Frequency response	60 Hz to 18 kHz	60 Hz to 20 kHz
Signal-to-noise ratio (A-weighted, 94dB SPL, 1KHz)	70 dB or more	66 dB or more
Audio Delay	1.5 ms	

	DWM-01 / F31 (Dynamic type)	DWM-01 / C31 (Condenser type)
Remote Control Section		
Wireless remote control	Cross Remote (2.4-GHz IEEE802.15.4 compliant)	
General		
Operating voltage	3 V DC, with two LR6 (AA) alkaline batteries	
Battery life	Continuous operating time 5 hours (at 25 °C (77 °F), 10-mW output using Sony LR6 (AA)-size alkaline batteries with the wireless remote control function off and DIMMER MODE set to AUTO OFF)	
Operating temperature	0 to 50 °C (32 to 122 °F)	
Storage temperature	-20 to +60 °C (-4 to +140 °F)	
Dimensions	ø47.6 mm (1 7/8 inch), L=257 mm (10 1/8 inch)	ø47.6 mm (1 7/8 inch), L=249 mm (9 7/8 inch)
Mass (including batteries)	323 g (11.4 oz)	298 g (10.5 oz)
Supplied accessories	Identification ring (1 set), Microphone holder (1), USB adapter cable (1), USB cable (1), Carrying case (1), Operating Instructions (1), CD-ROM (1), Stand adapter (1) (For the model available in the U.S.A.: PF1/2 to W5/8 type, For the model available in Europe.: PF1/2 to W3/8 type), Warranty card (US models only) (1)	

DWX Transmitter series



DWT-B01

Digital Wireless Transmitter
 • Bodypack transmitter corresponding WiDIF-HP and Cross Remote.*



DWT-P01

Digital Wireless Transmitter
 • Plug-on transmitter corresponding WiDIF-HP and Cross Remote.*



ECM-77BC/9X
 ECM-66BC/9X
 ECM-55BC/9X
 ECM-44BC/9X

Lavalier Microphone For DWT-B01
 (Photo shows ECM-77BC/9X)

K-1161

Guitar Cable For DWT-B01

* To Control DWT-B01 or DWT-P01 in network remote control function, firmware of the transmitter must be version 1.1 or later.

DWX Receiver series

DWR-R01D Digital Wireless Receiver

The DWR-R01D is a two-channel rack-mountable (1U-size) receiver supporting WiDIF-HP and Cross Remote. This receiver is suitable for live concert and other events, broadcast studios, halls, and theater applications.



Technologies Support Outstanding Sound Quality

With a high-precision digital-to-analog converter and DC servo amplifier in an analog audio circuit, high-fidelity sound can be reproduced from the transmitter's digital audio signal. The large size of the toroidal transformer and the linear regulator, which operates independently from the digital circuit in the power supply circuit, contribute to the high-performance response in digital transmission as well as to superb sound quality. The clock signal has a jitter suppression circuit to ensure high-fidelity sound reproduction.

Wide Array of Interfaces

As well as analog audio output, the DWR-R01D comes equipped with three AES/EBU outputs up to 24-bit/96-kHz*. A Word Sync input/output is also available for an external word sync signal of 32-kHz to 96-kHz.

The DWR-R01D supports diversity reception, and includes two antenna input terminals. The DC power output for the external antenna is either 9V or 12V. Up to 8 DWR-R01D units can be cascaded, and 16-channel operation is possible. With the optional WD-850 UHF Antenna Divider, more than 16 channels can be operated simultaneously.

*When internal sync signal is used, AES/EBU output is 24bit/48KHz fixed.

When external sync signal is used, AES/EBU output follows external word sync. (32KHz to 96KHz. Bit-depth is fixed as 24bit)



Note: Built-in whip antenna was removed for photo shooting.

Coverage of Wide RF Bandwidth

The DWR-R01D covers a wide bandwidth of 72 MHz. The US models cover a 66-MHz bandwidth and 60-MHz bandwidth respectively — much wider than the 24-MHz of an analog wireless microphone system - while the European model can cover a 48-MHz bandwidth. This remarkably wide coverage on a single unit offers cost efficiency and operational convenience, because it allows one microphone to be operated in many different environments.

Preprogrammed Wireless Channel Plans for Simultaneous Multi-channel Operation

The DWR-R01D has many preprogrammed channel groups, meaning combinations of wireless channels each of which enable simultaneous operation of multiple channels without inter-modulation. The DWR-R01D also has channel plans for a multi-channel system which combines digital and analog wireless systems, to simplify the task of channel setting.

Auto Channel Scanning Functions

The DWR-R01D comes with two auto channel scanning functions (active channel scan and clear channel scan) that allow for fast, easy, and safe frequency channel changes.

Easy Menu Setting with Large-scale OLED Display and Jog Dial

Users enjoy a high level of visibility with the large-scale OLED (Organic Light-Emitting Diode) display provided for each channel, and can achieve quick menu settings with the user-friendly menu button and jog dial.



Robust Chassis

The monocoque side frame ensures robustness during repeated transportation.

Network Remote Control Function

The DWR-R01D supports the Cross Remote function. The receiver itself can control two transmitters via a built-in 2.4-GHz antenna, and there's an Ethernet terminal to enhance the network remote control function, utilizing RMU-01 and PC control software.

* To control the DWT-B01 or DWT-P01 in the network remote control function, transmitter firmware must be version 1.1 or later.

Wireless Studio Supplied Software

Wireless Studio, the software supplied with the DWR-R01D, enables users to manage the status and parameters of multiple transmitters* so that they can detect system problems and correct them immediately. This software also allows easy changing, storing, and recall of transmitter and receiver settings from a PC, ensuring speedy installation, preparation, and monitoring.

* Version 1.0 of Wireless Studio supports system monitoring functions.

Version 2.0 supports monitoring and control functions.



Wireless Studio™

System Requirement

Operating system : Windows XP (service pack 3 or higher)/Windows Vista (service pack 1 or higher)/
Windows 7 (32 bits/64 bits)

CPU/RAM : Conforming to the recommended system requirements for your OS

Available hard disk space : At least 1 GB

Monitor : At least 1024 X 768 pixel resolution (recommended)

Other requirements : Displaying English, 100Base-TX LAN card, CD-ROM drive

Specifications

Tuner section		
Wireless interface	WiDIF-HP (x2)	
Type of reception	Space diversity	
Circuit system		
Double superheterodyne		
Receiving frequency range	30 (US model)	566.125 MHz to 637.875 MHz (TV-30 to TV-41 channels, except TV-37 channel)
	42 (US model)	638.125 MHz to 697.875 MHz (TV-42 to TV-51 channels)
	62 (European model)	798.025 MHz to 862.000 MHz (TV-62 to TV-69 channels, except, TV-65, and TV-66 channel)
Channel step	30/42 (US model)	125 kHz
	62 (European model)	25 kHz
Local oscillators	Crystal-controlled PLL synthesizer	
ANTENNA a/b IN connectors	BNC-R, 50 ohms (x2)	
ANTENNA a/b OUT connectors	BNC-R, 50 ohms (x2)	
Sensitivity	20 dBμ or less (at bit error rate = 1×10^{-5} , no decline in S/N ratio $0dB_{\mu}=1dB_{\mu V_{EMF}}$)	
Audio section		
ANALOG OUT 1/2 connectors	XLR-3-32 type, (male) (x2)	
DIGITAL OUT 1/2/3 connectors	XLR-3-32 type, (male) (x2), BNC-R (x1)	
Reference output level	Analog	-58 dBu (Mic output), -12dBu (Line output)
	Digital	-36 dBFS
Dynamic range	106 dB or more (A-weighted)	
T.H.D	0.03% or less	
Audio delay	1.9 ms (analog output), 1.9 ms (digital output)	
WORD SYNC IN/OUT connectors	BNC-R (input 1, output 1) with a 75Ω switch	
External Word Sync	32-kHz to 96-kHz	
Remote control section		
Wireless remote control	Cross Remote (2.4-GHz IEEE802.15.4 compliant)	
LAN (10/100) connector	RJ-45 modular jack (x1)	
General		
Operating voltage	30/42 (US model)	120 V AC
	62 (European model)	230 V AC
Power consumption	22 W	
Operating temperature	0 to 50 °C (32 to 122 °F)	
Storage temperature	-20 to +60 °C (-4 to +140 °F)	
Dimensions (W x H x D)	482 x 44 x 335 mm (19 x 1 3/4 x 13 1/4 inches)	
Mass	4.1 kg (9 lb 1 oz) (including the attached antenna)	
Supplied accessories	Whip antenna (2), Antenna mount with BNC connector (2), AC power cord (1), Foot (4), Operating Instructions (1), PC control software (CD-ROM) (1), Warranty card (US models only) (1)	

DWX Receiver series



DWR-S01D

Digital Wireless Receiver

- Digital two-channel slot-in corresponding WiDIF-HP and Cross Remote.*
- * Network remote control function is not available.

DWX Adapter



DWA-01D

Digital Wireless Adapter

- Adapter for DWR-S01D with two-channels of AES and analog output.
- * Network remote control function is not available.

DWX Optional Accessories

RMU-01 Remote Control Unit

The RMU-01 is a network remote control unit which utilizes 2.4-GHz IEEE802.15.4 technology, and is essential equipment to establish a Cross Remote network function of DWX.



Extension of Remote Control Function

The RMU-01 is an alternative unit for the built-in 2.4-GHz antenna of the DWR-R01, which supports the Cross Remote function. The coverage area is approximately 10 meters in radius, and can be expanded by connecting the unit to a LAN cable and network hub, and placing it at an appropriate location.

Control of Up to 82 Transmitters*

Up to 9 RMU-01 units can be combined in a single system. The maximum number of transmitters that can be controlled in one system is 82, regardless of the number of RMU-01 units.

* To control the DWT-B01 or DWT-P01 in the network of Cross Remote function, transmitter firmware must be version 1.1 or later.

Two-way Powering of PoE or AC adapter

Either 48V (Power over Ethernet) or 12V (AC adapter) can be used for powering.

Specifications

Network section	
Radio system	Conforms to IEEE802.15.4
Frequency range of transmission/reception	2.405 GHz to 2.480 GHz
Antenna gain	2 dBi
RF power output	1 mW
Remote control distance	10 m (33 feet) at maximum (per unit)
LAN transmission speed	10M/100Mbps (automatic detection)
Connectors	LAN connector RJ45-type, 8-pin (accepts PoE power) AC adapter connector EIAJ-type4
General	
PoE power reception	Conforms to IEEE802.3af (supports mode A and B)
Supply voltage	When the PoE device is used 48 V DC When the AC adapter is used 12 V DC
Current consumption	When the PoE device is used 50 mA or less When the AC adapter is used 100 mA or less
Operation temperature	When the PoE device is used 0°C to 50°C (32°F to 122°F) When the AC adapter is used 0°C to 45°C (32°F to 113°F)
Storage temperature	-20°C to 60°C (-4°F to 140°F)
Dimensions (W x H x D)	107 x 151 x 30 mm (4 1/4 x 6 x 1 3/16 inch)
Mass	300 g (10.5 oz)
Supplied accessories	AC adapter (1), Bracket (2), Stand adapter (2), Screws (1 set), Safety wire (1), Operating Instructions (1), CD-ROM (1), Warranty booklet (1)

AN-01 UHF Antenna

The AN-01 UHF directional antenna is designed to be used with Sony wireless microphone receiving systems. This antenna can be used with an analog or digital systems.

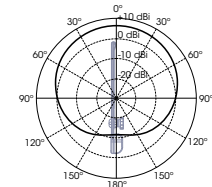


Wide Range of Reception

A single AN-01 can receive a wide range of frequency from 470 MHz to 862 MHz.

Directional Antenna with Log-periodic Dipole Array

This antenna provides improved practical reception sensitivity in its effective directivity, compared to a non-directional antenna.



Built-in Low-noise, Low-distortion Antenna Booster

Gain is selectable (18 dB/10 dB/0 dB), and either 9V or 12V can be used for powering supplied via BNC cable.

Specifications

Antenna section	
Frequency range	470 to 862 MHz
Antenna gain	5 dBi or more
Voltage standing wave ratio	2.5 or less
Half power angle	150 degrees or less
Front to back ratio	12 dB or more
Booster section	
Frequency range	470 to 862 MHz
Booster gain	18/10/0dB, switchable
Output impedance	50 ohms
Voltage standing wave ratio	3 or less
Noise figure	6 dB or less
Third order intermodulation	60 dB or more (95 dBμ V _{EMF} input)
Output connector	BNC-R type
General	
Supply voltage	9 V or 12 V DC
Current consumption	100 mA or less
Operation temperature	0 °C to 50 °C (32 °F to 122 °F)
Storage temperature	-20 °C to +60 °C (-4 °F to +140 °F)
Dimensions (W x H x D)	343 x 341 x 36 mm (13 5/8 x 13 1/2 x 1 7/16) excluding microphone stand attachment pole/grip
Mass	530 g (1 lb 3 oz)
Supplied accessories	Microphone stand attachment pole/grip (1 set), Stand Adapter (2), Operating Instructions (1), Warranty card (1), Warranty booklet (1)



AN-820A

UHF Antenna
• Non-directional antenna with built-in RF amplifier



WD-850

UHF Antenna Divider
• Provides diversity output for up to four receivers

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