Microphones 2004

Introduction

Over seventy five years ago, Electro-Voice pioneers were on the scene charting new paths in a fledgling industry - developing successful microphones to meet growing consumer demand - advancing microphone design with breakthrough technology - establishing standards for acoustic excellence and reliable performance.

From WWI to the first steps on the moon, from the first radio broadcasts to the evening news, from the garage band next door to the King, from Knute Rockne to this years' Super Bowl, our products have been there and we continue to build on this tradition.

Our engineers strive to bring you the best solutions to the microphone challenges you face every day, and the new RE-2 is proof of that. Incredibly complex, yet simple to operate - the RE-2 is the most advanced, easiest to use wireless microphone available today.

If you don't find what you're looking for here, please visit us on the web at www.electrovoice.com. We appreciate your considering our products and are confident that you'll be glad that you made the decision to "Step up to EV".

Wired Microphones

Wireless Microphones

N/DYM series | excellent and clear so

The N/DYM Series is different than other microphones. Excellent sound quality suitable for both live and studio performance, EV's unique VOB technology and N/DYM magnetic structure, comfortable handling and rugged durability all mark EV's N/DYM Series. As part of a fixed installation, on the road, or in the studio, EV N/DYM microphones outperform any other microphone in their class.

N/D267 a

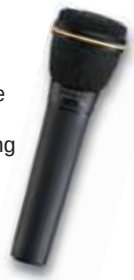
- Vocal and speech microphone
- Entry into the world of high-performance mics
- Includes accessories
- On/off-Switch (as version)

N/D367 s

- Vocal microphone
- On/off-Switch
- Includes accessories

N/D767 a

- Top-class vocal microphone
- Multi-stage shock mount for unmatched low-handling noise
- Includes accessories



N/D967

- Concert sound vocal mic
- Highest gain before feedback
- Ultra low handling noise
- Includes accessories

specs

	N/D267a	N/D367	N/D767a	N/D967
Element	Dynamic	Dynamic	Dynamic	Dynamic
Polar pattern	Cardioid	Supercardioid	Supercardioid	Supercardioid
Impedance, Low-Z balanced	300 ohms	300 ohms	300 ohms	
Frequency Response (-3 dB), close response	45 - 15,000 Hz	25 - 20,000 Hz	35 - 22,000 Hz	50 - 13,000 Hz
Frequency Response (-3 dB), far response	100 - 15,000 Hz	55 - 20,000 Hz	70 - 22,000 Hz	120 - 13,000 Hz
Output Level(0dB = 1 m W/Pascal) at 1.000 Hz	- 52 dB	- 53 dB	- 51 dB	- 52 dB
Open Circuit Voltage (at 1.000 Hz)	2.9 mV/Pascal	2.2 mV/Pascal	3.1 mV/Pascal	4.0 mV/Pascal
Equivalent Noise (0 dB=20 micropascal) A-weighted	—	< 17 dB SPL	–	< 16 dB SPL
Magnetic Circuit	N/DYM®	N/DYM®	N/DYM®	N/DYM®
Case Material	Metal	Metal	Metal	Metal
Finish	Nonreflecting black	Nonreflecting black	Nonreflecting black	Nonreflecting black
Included accessories	Stand adapter, soft zippered carrying pouch	Stand adapter, soft zippered carrying pouch	Stand adapter, soft zippered carrying pouch	Stand adapter, soft zippered carrying pouch
Connector type	3-pin XLR	3-pin XLR	3-pin XLR	3-pin XLR
Dimension (Length x max. Diameter)	181 x 52 mm	181 x 52 mm	181 x 52 mm	173 x 52 mm
Weight net	238 g	200 g	260 g	205 g

N/D468

- Instrument microphone
- Unique pivoting head insures perfect mic placement
- Accurate response, even in high SPLs
- Extreme low self-noise
- Includes accessories

N/D478

- Universal microphone
- Ideal to mic drums, percussion or guitars, also as vocal "spare" mic
- Smooth response
- Includes accessories

N/D868

- Designed specifically for kickdrums
- Large diameter "RE20 type" dynamic capsule
- Extended "lows" to tighten mixes
- Frequency response typically eliminating the need of an EQ
- Extreme low self-noise
- Includes accessories

specs

	N/D468	N/D478	N/D868
Element	Dynamic	Dynamic	Dynamic
Polar pattern	Supercardioid	Cardioid	Cardioid variant
Impedance, Low-Z balanced	150 ohms	300 ohms	150 ohms
Frequency Response (-3 dB), close response	30 - 22,000 Hz	45 - 15,000 Hz	20 - 10,000 Hz
Frequency Response (-3 dB), far response	60 - 22,000 Hz	100 - 15,000 Hz	–
Output Level(0dB = 1 m W/Pascal) at 1.000 Hz	- 51 dB	-52 dB	-52 dB
Open Circuit Voltage (at 1.000 Hz)	3.1 mV/Pascal	2.9 mV/Pascal	1.0 mV/Pascal
Equivalent Noise (0 dB=20 micropascal) A-weighted	< 14 dB SPL	–	< 17 dB SPL
Magnetic Circuit	N/DYM®	N/DYM®	N/DYM®
Case Material	Metal	Metal	Metal
Finish	Nonreflecting black	Nonreflecting black	Nonreflecting black
Included accessories	Stand adapter, soft zippered carrying pouch	Stand adapter, soft zippered carrying pouch	Stand adapter, soft zippered carrying pouch
Connector type	3-pin XLR	3-pin XLR	3-pin XLR
Dimension (Length x max. Diameter)	115 x 52 mm	181 x 52 mm	133 x 160 mm
Weight net	190 g	247 g	295 g

Cobalt series | roadworthy perfo

Cobalt microphones are EV's newest microphone product line. All five models offer great sound, roadworthy performance, and solid ergonomics at an affordable price, From the classic condenser sound of the Co11, to the versatility of the Co5, and the amazing sound of the Co4, there is a model for every need. Finally - outstanding performance at an unbelievable price.

CO11

Condenser Vocal Mic

The new Co11 offers extended frequency response and wide dynamic range. Ideal for anyone who appreciates the crisp high end and warm proximity effect that can only come from a top performing condenser mic. If features a high compliance shock mount that makes handling noises "disappear" and comes in a rugged die cast housing with EV's famous Memraflex™ dent resistant grille screen.

CO9

Premium Vocal Mic

The Co9 is a favorite among vocalists across all musical genres. Regardless of the live performance application, sound technicians and engineers feel confident with this mic. A slight bass roll-off and accentuated midrange make this a superb, world-class sound transducer.

specs

	CO11	CO9
Element	Self-biased condenser	Dynamic
Polar pattern	Cardioid	Cardioid
Impedance, Low-Z balanced	Low-Z balanced (250 Ohms)	600 ohms
Frequency Response (-3 dB)	50 - 20,000 Hz	50 - 18,000 Hz
Open Circuit Voltage (at 1,000 Hz)	—	3.2 mV/Pascal
Power requirement (Phantom power)	24 to 48 Vdc	N/A
Current Consumption	N/A	N/A
Magnetic Circuit	N/A	N/DYM®
Specials	—	—
Case Material	Die cast zinc	Die cast zinc
Finish	cobalt	cobalt
Included accessories	Stand adapter, zippered vinyl carrying pouch	Stand adapter zippered vinyl carrying pouch
Connector type	3-pin XLR	3-pin XLR
Dimension (Length x max. Diameter)	170 x 53 mm	173 x 53 mm
Weight net	292 g	335 g

CO7

Crossroad Vocal Mic

The Co7 is the perfect choice for the performer who wants hassle free sound — a mic that performs in high volume situations without feedback. Built to the same standards of EV's N/DYM® microphones, this mic's low handling noise also makes it ideal in critical acoustic settings.

CO5

Classic Vocal Mic

Designed for the performer who prefers a careful balance of highs, midrange and bass, the Co5, with on/off switch, offers exceptional vocal intelligibility with controlled proximity effect. With the Co5, you get clarity and grit – when YOU want it.

CO4

Instrument Mic

Designed to yield outstanding performance in applications requiring the miking of acoustic and electric instruments. Excellent for stage or studio, the rugged Co4's versatility will make it a "must have" in any microphone mix.

specs

	CO7	CO5	CO4
Element	Dynamic	Dynamic	Dynamic
Polar pattern	Cardioid	Cardioid	Cardioid
Impedance, Low-Z balanced	600 ohms	600 ohms	600 ohms
Frequency Response (-3 dB)	50 - 18,000 Hz	50 - 18,000 Hz	50 - 18,000 Hz
Open Circuit Voltage (at 1,000 Hz)	3.2 mV/Pascal	2.8 mV/Pascal	2.2 mV/Pascal
Power requirement (Phantom power)	N/A	N/A	N/A
Current Consumption	N/A	N/A	N/A
Magnetic Circuit	N/DYM®	N/DYM®	N/DYM®
Specials	—	Low-noise On/off-Switch	—
Case Material	Die cast zinc	Die cast zinc	Die cast zinc
Finish	cobalt	cobalt	cobalt
Included accessories	Stand adapter, zippered vinyl carrying pouch	Stand adapter zippered vinyl carrying pouch	Stand adapter, zippered vinyl carrying pouch
Connector type	3-pin XLR	3-pin XLR	3-pin XLR
Dimension (Length x max. Diameter)	170 x 53 mm	170 x 53 mm	148 x 23 mm
Weight net	332 g	306 g	340 g

RE series

| smooth & accurate sou

The RE Series is the first choice of microphones for smooth and accurate sound reproduction. Its unique and famous performance make it a favorite in the broadcast, studio and professional touring business.

For studio recording or professional concert sound jobs, the RE20 and our condenser models, RE200, RE410 and RE510, provide you with the tools you need to get the sound you're after when recording vocals, guitars, drums, strings or brass.

RE510

- Professional self-biased condenser vocal microphone
- Selectable low-end roll-off
- Supercardioid pattern
- Excellent off-axis rejection
- Wide dynamic range
- Large diameter diaphragm for clear, warm sound
- Warm grip handle for great feel and low handling noise

RE410

- Versatile handheld condenser microphone
- Ideal for both vocals and spoken word use
- Cardioid pattern for excellent feedback rejection and acoustic isolation
- Warm grip handle for comfortable feel
- High-compliance shock mount effectively eliminates handling noise

specs

	RE510	RE410
Element	Condenser (self-biased)	Condenser (self-biased)
Polar pattern	Supercardioid	Cardioid
Impedance, Low-Z balanced	150 ohms	250 ohms
Frequency Response (-3 dB)	50 - 20,000 Hz	50 - 20,000 Hz
Sensitivity, open circuit voltage, 1kHz	2.5 mV	3.2 mV
Equivalent Noise (0 dB=20 micropascal) A-weighted	18 dB SPL	<26 dB SPL
Maximum SPL (1% distortion, 1,000 Hz)	140 dB SPL	140 dB SPL
Power requirement (Phantom power)	12 - 52 VDC	24 - 48 VDC
Current Consumption	N/A	N/A
Magnetic Circuit	N/A	N/A
Specials	transformerless output device	—
Filters	switchable low-freq roll-off	—
Case Material	Metal	Metal
Finish	Warm-Grip black handle	Warm-Grip black handle
Included accessories	Stand adapter, zippered vinyl carrying pouch	Stand adapter, soft zippered 'gig' bag
Connector type	3-pin XLR	3-pin XLR
Dimension (Length x max. Diameter)	180 x 50 mm	182 x 51 mm
Weight net	215 g	260 g

RE200

- True condenser capsule
- Ultra-low mass, gold laminated diaphragm
- Very low self-noise
- Transformerless output
- AcoustiDYM shock-mount system
- Ideal for use on hi-hat, overheads, and on strings
- Comes with accessories

specs

	RE200
Element	True condenser
Polar pattern	Cardioid
Impedance, Low-Z balanced	200 ohms
Frequency Response (-3 dB)	50 - 18,000 Hz
Sensitivity, open circuit voltage, 1kHz	10 mV
Equivalent Noise (0 dB=20 micropascal) A-weighted	21 dB SPL
Maximum SPL (1% distortion, 1,000 Hz)	130 dB
Power requirement (Phantom power)	12 - 52 VDC
Current Consumption	3.5 mA
Magnetic Circuit	N/A
Specials	AcousticDYM, transformerless output device
Filters	—
Case Material	Metal
Finish	Semi-glosse camera black
Included accessories	Stand adapter, windscreen
Connector type	3-pin XLR
Dimension (Length x max. Diameter)	137 x 28 mm
Weight net	185 g

EV's Variable-D® design used in the RE20 and RE27 N/D broadcast studio products was developed to ensure true and accurate response across all frequencies without the up-close boominess associated with "proximity effect". As a result, these microphones have become the industry standard for radio studios worldwide.

RE20

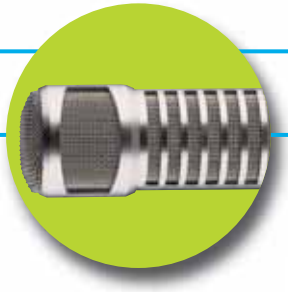
- Variable-D® for minimal proximity effect
- True cardioid with no coloration at 180° off-axis
- Ultra-flat frequency response
- Studio condenser response
- Large diaphragm
- Humbucking coil
- Integral wind and blast filter
- Switchable EQ (down -4.5 dB from 400 to 100 Hz)
- Comes with accessories
- Works with 309A suspension shock mount, sold separately (see page 13)

RE27 N/D

- Variable-D® for minimal proximity effect
- N/DYM® element design brings 6 dB more sensitivity
- Ultra-flat frequency response
- Studio condenser performance
- Large diaphragm
- 3 selectable filters: -6 dB, 250-100 Hz / -12 dB, 1000-100 Hz/-3 dB high frequency roll-off
- Integral wind and blast filter
- Comes with accessories
- Works with 309A suspension shock mount, sold separately (see page 13)

specs

	RE20	RE27
Element	Dynamic	Dynamic
Polar pattern	Cardioid	Cardioid
Impedance, Low-Z balanced	150 ohms	150 ohms
Frequency Response (-3 dB)	45 - 18,000 Hz	45 - 20,000 Hz
Power Level (0dB = 1 mW/Pascal) at 1.000 Hz	- 57 dB	- 51 dB
Open Circuit Voltage (at 1,000 Hz)	1.5 mV/Pascal	3.1 mV/Pascal
Equivalent Noise (0 dB=20 micropascal) A-weighted	—	—
Maximum SPL (1% distortion, 1,000 Hz)	—	—
Power requirement (Phantom power)	N/A	N/A
Current Consumption	N/A	N/A
Magnetic Circuit	—	N/DYM®
Specials	Variable-D®	Variable-D®
Filters	Tilt-down EQ	3 selectable EQs
Case Material	Steel	Steel
Finish	Fawn beige	Satin nickel
Included accessories	Stand adapter, zippered vinyl carrying pouch, hard-shell case	Stand adapter zippered vinyl carrying pouch, hard-shell case
Connector type	3-pin XLR	3-pin XLR
Dimension (Length x max. Diameter)	217 x 54 mm	217 x 54 mm
Weight net	737 g	709 g



EV´s 635 and RE50 microphones are famous in broadcast, television, and radio OBs (outside broadcasts). These microphones set world standards for ENG (electronic news production) and EFP (electronic field production). They are extremely rugged, can withstand high humidity, temperature extremes and corrosive effects such as salt-air yet provide excellent sound performance.

RE50 B RE50 N/D B

- Extremely low handling noise via Dyna-Damp "mic-in-a mic" shock mount system
- Impervious to wind noise and p-pops thanks to integrated four-stage pop-filter, integral wind screen and blast filter
- Withstands high humidity, temperature extremes, and corrosive salt air
- Acoustalloy diaphragm material for very smooth response over a wide frequency range
- N/D version offers higher output thanks to NDYM capsule design
- No muddy lows when used near lips
- On-camera use with 422A desk stand (see page 13)
- Comes with accessories

ENG618

- Integrated Shotgun/Boom-pole Microphone
- Designed for ENG / Broadcast news gathering
- Hypercardioid-line back-electret condenser mic
- Ultra-lightweight boom-pole extends from 18" to 6ft length
- Includes built-in headphone pre-amp
- Operates from either Phantom or battery power

635A (beige)

635A/B (black)

- Linear frequency response
- Completely pop-free performance
- Four-stage pop and dust filter
- Internal effective shock absorber
- Comes with accessories

RE16

- Variable-D Dynamic Supercardioid handheld
- Great for podium or handheld use
- Unique blast filter makes close-up use possible without popping
- Uniform response independent of angle
- Humbucking coil reduces electromag netic hum pickup
- Bass roll-off switch
- Memraflex grille means screen keeps its shape

specs

	RE50/B (RE50N/D B)	635A(B)	635N/D B	ENG 618	RE16
Element	Dynamic	Dynamic	Dynamic	Condenser, back electret	Dynamic
Polar pattern	Omnidirectional	Omnidirectional	Omnidirectional	Hypercardioid-line	Supercardioid
Impedance, Low-Z balanced	150 ohms	150 ohms	150 ohms	100 ohms	150 ohms
Frequency Response (-3 dB)	80 - 13,000 Hz	80 - 13,000 Hz	80 - 13,000 Hz	50 - 8,000 Hz, 200Hz roll-off switch	80-15,000 Hz
Power Level (0dB = 1 mW/Pascal) at 1,000 Hz	- 55 dB (-51 dB)	- 55 dB	- 51 dB	-55 dB	-56 dB
Open Circuit Voltage (at 1,000 Hz)	— (2.0 mV/Pascal)	—	2.0 mV/Pascal	19 mV/Pascal	1.4 mV/Pascal
Equivalent Noise (0 dB=20 micropascal) A-weighted	—	—	—	15 dB SPL, A-weighted	—
Maximum SPL (1% distortion, 1.000 Hz)	—	—	—	—	150 dB
Power requirement (Phantom power)	N/A	N/A	N/A	12 - 52 V dc phantom supply or 9V battery	
Current Consumption	N/A	N/A	N/A	2mA phantom, 20 mA battery (20 hr estimated battery life)	N/A
Magnetic Circuit	Alnico (N/DYM®)	Alnico	N/DYM®	N/A	Alnico
Specials	Dyna-Damp™ (Dyna-Damp™ Memraflex)	—	Acoustalloy®	—	Variable-D
Filters	—	—	—	High pass	
Case Material	Aluminum	Steel	Steel	—	Steel
Finish	Semi-gloss camera black	Fawn beige (A) Semi-gloss black (A/B)	Semi-gloss camera black	Semi-gloss camera black	Fawn beige micomatte
Included accessories	Stand adapter zippered vinyl carrying pouch hard-shell case	Stand adapter	Stand adapter	Windscreen & vinyl utility pouch with belt loop	Stand adapter Zippered vinyl pouch Model 310A
Optional accessories	see page 13	see page 13	see page 13	see page 13	see page 13
Connector type	3-pin XLR	3-pin XLR	3-pin XLR	3-pin XLR	3-pin XLR
Dimension (Length x max. Diameter)	197 x 49	151 x 36 mm	151 x 36 mm	1800 x 90 mm (extended) 460 x 90 mm (collapsed)	187 x 45,2 x 19,1 mm
Weight net	269 g	170 g	170 g	910 g	227 g

wired accessories

EV Wired Microphone Accessories

422A	Desk stand with rubber shock mount - accepts mic stand clamps, black
309A	Suspension shock mount for RE20, RE27, black
323S	Mic stand clip for 1.0 inch diameter microphones (RE50, BK-1), black
311	Mic stand clamp for all EV 3/4-inch diameter microphones (635A, RE16, RE200, N/D468), black
MSA-COI	Stand clamp for Cobalt® Co4 instrument microphone, black
320	Stand clamp for RE20, RE27, N/D868
376/379	Windscreen pop filter, 376 - gray, 379-1 - black, 379-2 - red.
CPSM	Shock mount for RE90P and PolarChoice™ gooseneck mics, black
FMK	Flange mount for RE90P and PolarChoice™ gooseneck mics, black
368	Drum mic mounting clamp (N/D468, N/D478), black
314E	(not pictured) Windscreen pop filter for use with 635 series mics, gray

EV MICROPHONE APPLICATION TABLE

MICS	APPLICATIONS																	
	VOICE SOUND REINFORCEMENT						VOICE STUDIO		INSTRUMENT									BROAD CAST
	Female	Male	Rock	Jazz	Speech	Choir	Vocal	Speech	Kick Drum	Snare	Toms	HiHat/ Overhead	Guitar Amp	Saxophone/ Woodwinds	Trumpet/ Brass	Piano	Accordeon	Guitar/ Strings	ENG
Cobalt Co4										+	+		+		+			+	
Cobalt Co5	+	+																	
Cobalt Co7	+	+	+	+															
Cobalt Co9	+	+	+																
Cobalt Co11	+	+		+	+							+		+				+	
N/D 367s	++	+	+	+			+												
N/D 267a(s)	+	+	+							+									
N/D 767a	++	++	+	+			+												
N/D 967	+	+	++																
N/D 468										++	++		++	+	+		+	+	
N/D 868									++		+		+						
N/D 478										+	+		+				+		
RE 200					+	+						++				++	+	++	
RE 20						++	+	++	++	++	+		++	++	++		++	++	
RE 27						++	+	++	++	++	+		++	++	++		++	++	
RE 510	++	++		++	+	+	+	+		+		++	+	+	+	+	+	++	
RE 410	+	+		+	+							+		+				+	
RE 50B/NDB																			++
635A (B) / NDB																			++
ENG618																			++

+ recommended
++ optimal

GENERAL MICROPHONE USE GUIDELINES

1. Always point the microphone at the desired source and away from the sources of any unwanted sound.
2. The microphone should be located close to the sound source to minimize interference from other potential sound sources.
3. Use the 3-to-1 rule when using multiple microphones: place each microphone three times farther away from other microphones as it is from the desired sound source. (if the microphone is 1 foot away from the sound source, it should be 3 feet away from the next closest microphone).
4. Minimize over-handling of the microphone to reduce unwanted mechnical noise.
5. Positioning the microphone close to the sound source will increase gain before feedback and will also increase the bass tone of the signal.

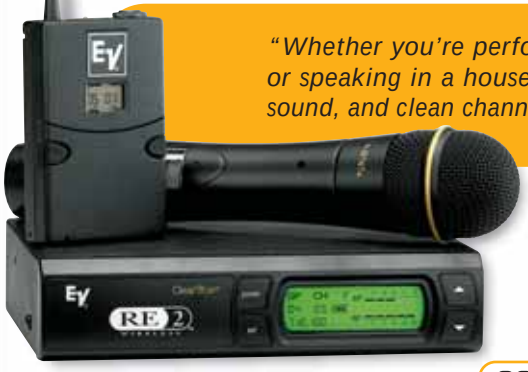
MICROPHONE TECHNIQUES FOR MUSICAL INSTRUMENTS

Miking techniques are a matter of personal preference. These are merely guidelines to assist in the placement of the microphone to achieve optimal performance.

Usage	Best Mic Placement & Suggested EV mic for this usage
Snare Drum	Place mic 1-3“ above the heads, 1-2“ in from the rim. Aim each mic at the top head angled down 45 degrees. If the drum rings, tape deadening material to the head or use damping rings. For more ”snare“ sound, place a 2nd mic under the drum aimed up at the bottom head. Suggested mics: **N/D 478, N/D 468, Co4**
Electric Guitar	Place microphone approximately 1-2“ from and at a 90 degree angle to the speaker cone. To reduce boominess, move the Bass microphone off axis to the cone from 90 degress to 45 degrees, or move mic from center of cone to the edge. Suggested Guitar Amplifier mics: **RE20, N/D 868, N/D 468, Co4**
Tom-Toms	On double headed toms, place mic 1-3“ over the top of the drum head at a 45 degree angle to the drum surface and 1/2“ from the drum edge. On single headed toms, use above method or place mic inside tom from underneath at a 90 degree angle from the center of head, 3-5“ away. Suggested mics: **N/D 468**, for floor tom - **RE20, N/D 868**
Cymbals	Place microphone one to two feet above the top of cymbals. Suggested mics: **RE200**
High-Hat	Place 5“ above outside edge at a 45 degree down angle. Suggested mics: **RE200**
Brass	6-24“ away, and on axis with the bell of the instrument. Suggested mics: **RE20, Co4, N/D 468**
Acoustic Guitar	Place mic 6-12“ from where finger board joins the body. Suggested mics: **N/D 468, N/D 478, Co4, RE20, RE200**

RE-2 System

"Whether you're performing at the local rock club, lecturing at a corporate seminar, or speaking in a house of worship, the Electro-Voice® RE-2™ brings ease of use, clear sound, and clean channels to wireless."



UHF-RECEIVER

Features	Benefits
• One touch Auto-ClearScan	• Finds the clearest channel in the clearest group in seconds
• Programmable in 25kHz steps across 28 MHz operating bandwidth	• 1112 possible frequencies so it will always find a clear channel
• Backlit LCD displays the Group, Channel, Frequency, transmitter battery level, diversity operation, and RF and Audio signal level meters	• Professional systems costing twice as much don't provide this much information
• Balanced XLR audio output for Microphone or Line level signals and a 1/4 inch line level jack	• Compatible with any application
• Fourth generation Secure-phase™ diversity and advanced audio circuits	• Provide maximum range and professional sound quality
• Unique "Guitar" setting	• Turns a standard receiver/bodypack into an optimized guitar wireless system
• Detachable 1/4 wave antennas	• Flexibility — use with optional rackmount kits, antenna distributors and cables for permanent installations

UHF-TRANSMITTER

Features	Benefits
• Unique "smart" battery	• Impossible to put the battery in wrong, great for quick changes on a dark stage
• LCD Displays Group and Channel, Frequency, or Battery Level	• All the info you need at a glance
• Low battery LED	• Tells you when to change the battery
• One On/Off button that also acts as a mute	• Great for pauses in presentations & worship services
• On/Off button can be disabled	• Prevents accidental turnoffs during a performance

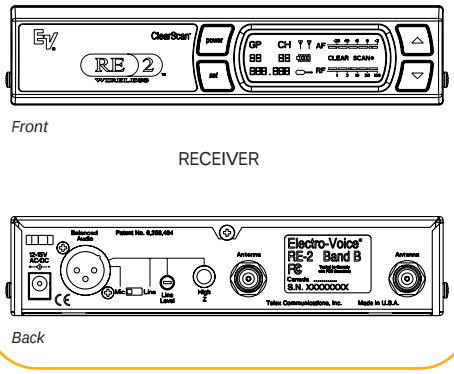
UHF-HANDHELD

Features	Benefits
• Available with 3 different microphone elements	• Fits the vocalist's style and environment
• N/DYM 267a Dynamic element	• Classic dynamic sound and performance in applications ranging from Rock and Roll to spoken word
• RE 410 Condenser	• Low handling noise, crisp condenser sound and off mic performance. Perfect for schools, houses of worship and any other multitasking application.
• NDYM® 767a Dynamic premium vocal microphone with VOB™ (Vocal-Optimized-Bass)	• Excellent sound and gain-before-feedback for high SPL stages
• Internal 1/2 wave antenna	• Excellent range and it stays out of harms way

Special Guitar Feature:

The RE-2 Bodypack system is the only wireless in the world with software controlled optimization for guitar operation. Hold the SET button down while you turn on the receiver or bodypack and a guitar symbol on the LCD display shows you that it is now in guitar mode. Plug in the MAC-G3 accessory guitar cord and you are ready to rock.

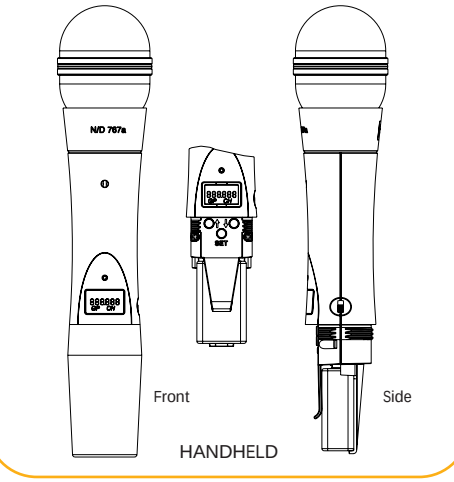
Features	Benefits
• Cell phone style beltclip	• Offers quick and easy attachment
• Optional pouches available	• For use under costumes or for more vigorous applications like aerobics
• A wide selection of lapel and headworn microphone accessories are available	• So you can select the microphone suited to your application



Front

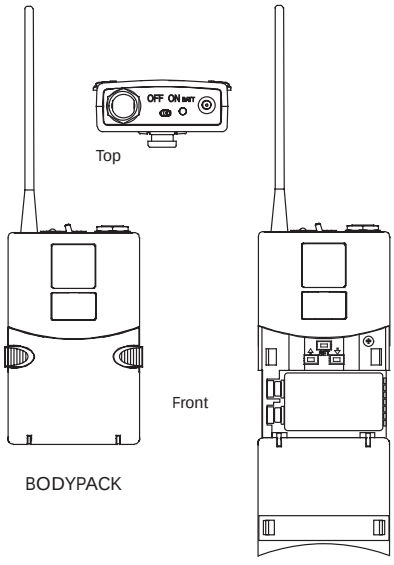
RECEIVER

Back



Front Side

HANDHELD



Top

Front

BODYPACK

SPECS

RE-2 Receiver

Receiver Type	Synthesized PLL
Frequency Range (RF)	A Band 648 – 676 MHz • B Band 696 – 724 MHz D Band 798 – 822 MHz • E Band 841 – 865 MHz
Number of Channels	1112 possible channels; programmable in 25 kHz steps
Modulation	+/- 40 kHz
Diversity	Digital Secure-Phase™ True Diversity
RF Sensitivity	< 1.0 mV for 12 dB SINAD
Image Rejection	> 60 dB
Squelch	Tone Code plus Amplitude
Ultimate Quieting	> 100 dB
FCC Certification	Approved under Part 15
Power Requirements	12 V AC/DC 300 mA
Antennas	Detachable 1/4 wave
Dimensions (H x W x D) mm	44 x 190 x 150 mm

Audio Parameters

Frequency Response	50 – 15 kHz +/- 2 dB
Balanced Output (max @ 40 kHz deviation)	
Mic Position	-10 dBV
Line Position	Adjustable 10 mV-2V RMS
Unbalanced Output	Adjustable 10 mV-1V RMS
Distortion	<1.0%, 0.5% typical (ref 1 kHz, 40 kHz deviat)
Signal-to-Noise Ratio	>100 dB A Weighted
Dynamic Range	>100 dB

Transmitters, Bodypack (BPU-2) and handheld (HTU-2)

Radiated Output	30 mW typical
Microphone Head Electro-Voice 767a	N/D 767a Supercardioid N/DYM Dynamic
Microphone Head Electro-Voice 267a	N/D 267a Versatile Cardioid Dynamic
Microphone Head Electro-Voice RE 410	RE 410 Classic Cardioid condenser
Standard Lavalier Microphone	EV RE 90Tx MicroMini™
Omni-Directional Condenser	
TA4 Connector Wiring	Pin 1: Ground; Pin 2 Mic Input; Pin 3: +5V bias; Pin 4: +5V bias through a 3kW resistor
Audio Gain Adjustment	40 dB (handheld 26 dB)
Power Requirements	9 Volt Alkaline Battery
Battery Life (Typical)	> 8 hours with 9-Volt Alkaline Typical
Bodypack Antenna	Flexible external 1/4 wave
Handheld Antenna	Internal 1/2 wave
Dimensions, Handheld (L) mm	240 mm long
Dimensions, Bodypack (H x W x D) mm	96.5 x 66.0 x 23.4 mm

RE-1 System

When only the best in professional wireless technologies will do, step up the EV RE-1 Wireless!

Receiver Features

- Optimized channel groups allow up to 16 systems to operate simultaneously in one frequency band. For groups larger than 16, EV can help with the coordination and custom groups are easily programmed.
- Programmable in 25 kHz steps across 24 MHz operating bandwidth, there are over 950 possible channels so you can always find a clear channel.
- Advanced ClearScan™, automatic group and channel selections, allows quick, simple setup.
- Backlit LCD Display shows the Sound Engineer the Group/Channel, transmitter battery status, diversity operation, RF and Audio level meters, and space for a custom name (2 lines, 10 characters each).
- Specially designed "Sound Check" mode provides the ability for one person to walk test the microphone in the performance space with tangible results.
- Patented DSP Secure-Phase™ Diversity System for maximum range and audio quality.
- Balanced XLR microphone output and 1/4-inch unbalanced adjustable line-level output to match the application.
- CDR-1000 Dual Receiver includes internal power supply, headphone monitoring jack, balanced line-level output, antenna pass through, DC power on antenna jacks for optional RF amplifier, and RE-OneLink™ PC software for remote monitoring and control.
- Rackmount hardware included.
- Three-Year Limited Warranty.

Transmitter Features

- Unique "smart" battery circuit in the transmitters means there is no way to put the battery in wrong.
- LCD display and the same four control buttons as the receiver so programming a channel or frequency is quick and easy.
- Low battery LED will light when the battery needs a replacment.
- One on/off switch that also acts as a mute, great for pauses in presentations and worship services.
- On/off button can be disabled to prevent accidental turnoffs during a performance.
- Normal and High power transmit means you use just enough power for the application, which maximizes the number of simultaneous systems and limits RF spill over into adjacent buildings/theaters.

Handheld Features

- Interchangeable microphone head allows a choice of elements to fit the vocalist's style and environment.
- N/DYM® 767a premium dynamic vocal microphone with VOB™ (Vocal-Optimized Bass), excellent gain-before-feedback for high SPL stages.
- The new RE-510 premium condenser vocal microphone for experienced vocalists, spoken word and quieter stages.
- Internal 1/2-wave antenna for excellent range; stays out of harm's way.
- An over-molded Warm-Grip™ handle reduces handling noise and encourages proper microphone technique for better performances.

CSR-1000 Receiver

RF Specifications Frequency Range:	A Band 680-704 MHz / D Band 798.1 – 821.9 MHz B Band 722-746 MHz / E Band 841.1 – 864.9 MHz
Number of Channels:	950 possible (programmable in 25kHz steps) per band
Diversity:	DSP SecurePhase True Diversity
Squelch:	Tone Code plus Adjustable Amplitude
Receiver Type:	Synthesized PLL Agile UHF
RF Sensitivity:	<0.8uV for 12 dB SINAD
FCC Type Acceptance:	Approved under Part 15
Audio Specifications Frequency Response:	100 – 15 kHz +/- 2 dB Microphone 30 – 15 kHz +/- 2 dB Instrument
Audio Output Level: Line Level Balanced	 8 mV - 0.775V RMS @ 100 k ohm load -10 dBV max (@ 40kHz deviation)
Distortion:	Less that 0.5% (@ 1kHz, 40 kHz deviation)
Signal to Noise Ratio:	> 110 dB (A)
Dynamic Range:	>100 dB
General Specifications Power Supply:	 External 12 VAC 750mA in-line with cord
Size:	1.72 in. H x 7.50 in. W x 8.38 in. D 43.69 mm H x 190.50 mm W x 212.85 mm D
Controls Front Panel: Rear Panel:	 On/Off, Menu, Set, Up, Down Buttons 1/4 in. output level
Indicators LCD Backlit Display:	Group, Channel, Diversity, Label, Set-up Transmitter Battery Level, Audio Signal Amplitude and RF Signal Strength, Squelch
Connectors Back Panel:	 1/4 in. unbalanced adjustable line level output XLR balanced mic level output USB programming port
Antennas:	Detachable 1/4 wave

CDR-1000 Dual Receiver

Additional Audio Output:	Adjustable Balance Line Level at XLR
Additional Controls:	1/4 in. Headset Jack with Selector and Volume Control
Antenna Output:	TNC
Powerered Antenna Inputs:	12Vdc,15mA
Power Supply:	Internal, Universal Cord
USB Monitoring & Contol:	RE-OneLink Software
Size:	1.72 in. H x 16 in. W x 12 in. D 43.69 mm H x 406.4 mm W x 304.8 mm D

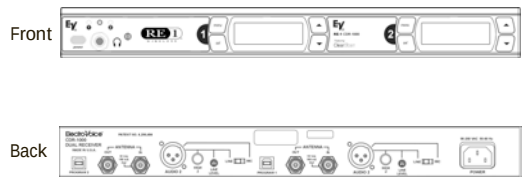
CSB-1000 Bodypack Transmitter

Controls:	Power On/Off, Audio Gain Adjustment with 40 dB range, Transmit Power Switch, Microphone/Instrument Switch (0,-20 dB), Menu, Set, Up, Down Buttons
Indicators:	Red LED Low Battery Indicator, LCD displays one of the following: Channel/Group, Frequency, or Battery Level
Battery Life:	8 hours with 9V alkaline typical
Antenna:	External 1/4 wave detachable
Connector:	TA4F input for microphone Pin 1 ground, Pin 2 Mic input Pin 3 +5V Bias, Pin 4 +5V through 3k ohm
RF Output: Normal: High:	 5 mW typical 50 mW typical
Case Material:	Cast Magnesium
Size:	3.75 in. H x 2.6 in. W x 0.9 in. D 94 mm H x 66 mm W x 23 mm D

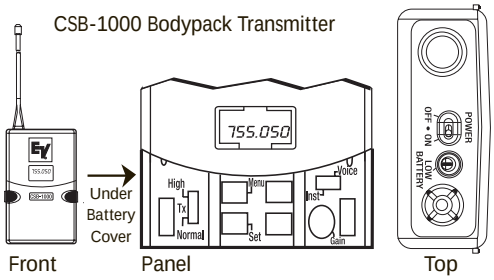
CSH-1000 Handheld Transmitter

Controls:	Power On/Off, Audio Gain Adjustment with 40 dB range Transmit Power Switch, Menu, Set, Up, Down Buttons
Displays:	Red LED Low Battery Indicator, LCD displays one of the following: Channel/Group, Frequency, or Battery Level
Battery Life:	8 hours with 9V alkaline typical
Antenna:	Internal 1/2 wave
Microphone Elements:	EV N/D 767a Dynamic or RE-510 Condenser
RF Output: Normal: High:	 5 mW typical 50 mW typical
Size:	10.5 in. (26.8 cm) long

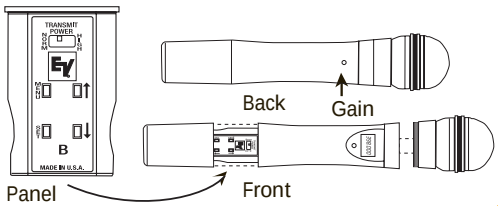
CDR-1000 Receiver



CSB-1000 Bodypack Transmitter



CSH-1000 Handheld Transmitter



SPECS

Accessories and Parts

	Model #
Omnidirectional MicroMini™ Lapel Mic:	RE90TX
Unidirectional Cardioid Lapel Mic:	RE92TX
Headworn Cardiod Condenser Mic:	HM7
1/2 Wave Rx Antenna	FA-1
1/2 Wave Antenna Bracket:	AB-2
UHF Antenna Amplifier	UAA-500
Antenna /Pwr Distribution	APD- 4
Termination Plug For APD-4:	TP-2
Directional Rx Antenna (450-900 MHz):	LPA-500
Low Loss Coaxial Antenna Cable:	CXU-25 ft CXU-50 ft
1/4 Wave Super-Flex Tx Antenna:	AN-Sflex
Bodypack Pouch:	WP-1000
Guitar Cord:	MAC-G2
767a Dynamic Head for CSH-1000:	RC767A
RE510 Condenser Head for CSH-1000:	RC510
Mic Stand Adapter for CSH-1000:	MSA-1000

RE-2 PRO SYSTEM

RE-2 PRO RECEIVER

All of the great RF and Audio features of the RE-2 receiver (see also page 16-17) plus all of the rack hardware to install it including front mount antenna cables.

RE-2 PRO HANDHELD

All of the great features of the RE-2 handheld (see also page 16-17) plus detachable microphone heads, RE510 mic head, and Normal/High transmit power.

RE-2 PRO BODYPACK

All of the great features of the RE-2 transmitter (see also page 16-17) plus a cast magnesium metal housing, detachable antenna and Normal/High transmit power.

SPECS

Transmitters, Bodypack (BPU2PRO) and handheld (HTU2PRO) Additional Features

Radiated Output	Normal 5 mW / High 50 mW typical
Interchangeable Microphone Heads	767a Supercardioid N/DYM Dynamic RE 510 Supercardioid Condenser
Bodypack Antenna	Detachable Flexible external 1/4 wave
Handheld Antenna	Internal 1/2 wave
Dimensions, Handheld (L) mm	268 mm long
Dimensions, Bodypack (H x W x D), mm	96.5 x 66,0 x 23.4 mm, Cast Magnesium

R-100 COBALT R-100 VHF

R-100 VHF SYSTEM

The COBALT R-100 VHF systems operate in the frequency band between 174.100 and 185.350 MHz (channels 7-8 in the TV band). With the R100 Series, having EV wireless freedom has never been more affordable, cost-effective or practical. The R-100's rock-solid RF performance is the result of superior design and state-of-the-art manufacturing. The R-100 receiver can also be rack mounted with the optional RMR accessory kit.

SPECS R-100

RF Frequency Range:	174.100-203.200 MHz (11 stock frequencies)
Audio Frequency Response:	20 Hz-15 kHz +/- 2 dB
Harmonic Distortion:	<0.5%
Radiated RF Output:	35-45 mW typical, 50 mW maximum
Audio Output Level:	.775 V rms into 100 kΩ load
Battery Life:	8-12 hours typical
Available Systems:	R100VHC7 Electro-Voice Co7 Handheld Dynamic • R100VHC11 Electro-Voice Co11 Handheld Condenser R100VL Electro-Voice OLM10 Lavalier Condenser • R100VE Electro-Voice HM2 Headworn Condenser R100VG Electro-Voice Guitar System

RTM-1000 REMOTE TEST SYSTEM

transmitter

RTM-1000 transmitter is shown with the mounting strap and cable adapter. (Microphone and mic stand not included)

Reduce the hassle and improve the results of your pre-concert soundchecks with the RTM-1000 Remote Test Wireless System. This system provides a wireless link between your calibrated measurement microphone and audio analyzer. That means you can quickly test multiple locations from the front row to the nosebleed seats in the time it would take to haul long mic cables to just one spot.

- Wireless link between test microphone and audio analyzer allows faster, easier measurement of large performance spaces
- Works with most measurement microphones
- Non-companded transmission does not affect audio quality

The key feature of the RTM-1000 is the compander on/off switches on both the receiver and bodypack transmitter. Wireless mic systems normally use companding (compressing/expanding) to stuff more dynamic range through narrow wireless channels. But companding can also add coloration or distortion to the signal. The RTM-1000 lets you defeat the compander circuit, leaving the signal from mic to analyzer unchanged.

- **MOUNTING STRAP**
- **LEMO-to-XLR ADAPTER CABLE**
- **AC ADAPTER (as pictured at left)**

SPECS RTM-1000

Receiver

Controls	
Front Panel:	Power On/Off
Rear Panel:	Microphone Output Adjustment
Indicators	
Diversity Lights:	Indicates antenna phase relationship
Audio Meter:	Shows audio signal level from the transmitter
RF Meter:	Shows the RF signal strength
Connectors	XLR balanced output
Antennas	Detachable 1/2- wave ground independent
RF Specifications	
Frequency:	722-746 MHz Fully Programmable
Diversity:	Full True Diversity
RF Sensitivity:	<0.5uV for 12 dB SINAD
FCC type acceptance:	Approved under Part 15
Audio Specifications	(compander active)
Frequency Response:	50 Hz – 15 kHz ± 1 dB
Audio Output Level:	-50 dBm to –10 dBm into 200 Ohms
Distortion:	Less that 0.5%
Dynamic Range:	100 dB
Audio Specifications	(compander inactive)
Signal to Noise Ratio:	62 dB typical

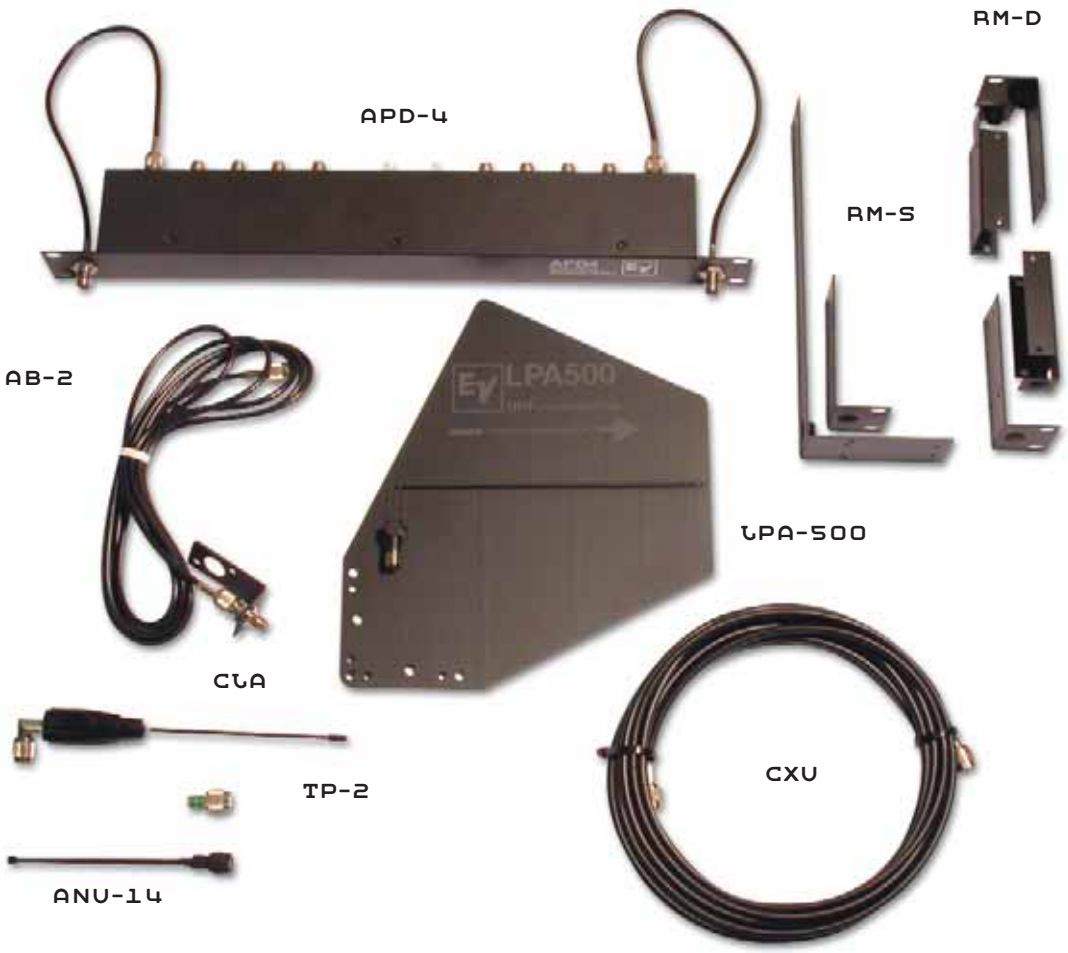
Transmitters

Controls	Power on/off switch
	Audio mute on/off switch
	Audio gain adjustment with 40 dB range
Indicators	Red LED low battery indicator
Battery Life	7 hours with 9-volt alkaline
Antenna	1/4-wave detachable
Connector	Microphone input 4-Pin TA4M
	Pin 1: ground; Pin 2: Mic input;
	Pin 3: +5V bias; Pin 4: +5V through 3k ohm
RF Output	Adjustable 5 or 50 mW Typical
Size	94 mm x 66 mm x 23 mm

Wireless accessories

Electro-Voice Wireless Mic Accessories

OLM10	Omnidirectional lavalier mic with TA4F
RC767a	Dynamic N/D 767a mic cartridge for use with RE-1 wireless system
RC510	Condenser RE510 mic cartridge for use with RE-1 wireless system
AN-Flex X	1/4-wave RE-1 bodypack transmitter antenna - semi flexible (X denotes frequency band)
AN-Sflex X	1/4-wave RE-1 bodypack transmitter antenna - very flexible (X denotes frequency band)
RCSA	Mic stand adapter for handheld transmitters (NDYM, MS3000, R100/200) black
MSSA	Deluxe mic stand adapter (RE-1 and others)
BC1000	Beltclip with tab and screw for use with CSB-1000
WP1000	Leather pouch for RE-1 bodypack transmitter
HM2	Headworn cardioid mic with TA4F
ULM21	Unidirectional lavalier mic with TA4F
MAC-2	XLR to TA4F adapter cable
HM311	Crown model CM-311 touring level headworn cardioid mic with TA4F
HM7	Touring grade headworn cardioid mic with TA4F
MAC-G2	George L's© guitar cable for RE-1 bodypack transmitter (TA4F to 1/4" plug, incl. right angle & straight)
RE92TX	Cardioid lavalier mic with TA4F
RE90TX	Premium omnidirectional lavalier mic with TA4F
MAC-G3	Guitar cable, 3ft length, TA4F to 1/4-inch, for use with RE-2 bodypacks
HHCK	Handheld transmitter color kit for RE-1 and RE-2



Electro-Voice Wireless Accessories - Antennas etc.

APD-4	UHF Antenna/power distribution system (provides power and RF signals for 4 units) for use with NRSCU, MS3000 & RE-1
RM-S	Rack-mount kit - single (for one receiver) works with NDYM, RTM-1 and MS3000 receivers
RM-D	Rack-mount kit - double (for two receivers) works with NDYM, RTM-1 and MS3000 receivers
RM-R	(not pictured) Rack-mount kit for one or two Cobalt® receivers
AB-2	Universal mounting bracket for 1/2-wave antennas, with 10-foot coax cable
LPA500	Directional log periodic antenna with mounting hardware and 10-foot coax
CLA-X	1/2-wave UHF antenna (X denotes frequency band)
TP-2	50 ohm TNC termination plug for use with APD-4
CXU-X	Low-loss coax cable (X designates length, 25, 50, 75 or 100) for use with mote mount antennas
ANU-14	1/4-wave UHF antenna for use with MS3000 and NRSCU (part # 879010)

Wireless Guidelines

Choose the wireless system wisely!

It's important to note that all wireless systems are not created equal. Only a very few of the products on the market today are actually designed and built by the people selling them. Many of the most popular systems are built by microphone companies that only recently began to manufacture wireless devices. Telex/EV is unique in the world of wireless. Electro-Voice has been leading the way in microphone technology for 75 years and Telex practically invented professional wireless microphones 30 years ago. All Telex and EV wireless products are the result of this vast experience and technological know how.

As more and more wireless products get into the market, more problems in installation and performance are being encountered. Often times these problems are unique to the situation and require a trained professional with considerable RF experience to solve. Telex maintains a staff of highly trained RF engineers and designers to help our dealers and customers get systems to work in the most critical and demanding applications. Wherever possible, we build things into our new products to take care of problems before they start. The key for the selling dealer is that they have a large company with plenty of experience and talent backing-up their wireless installations.

Why Choose an Electro-Voice Wireless?

All EV wireless systems are designed and built to exacting standards in our 180,000 square foot Lincoln, Nebraska facility. State-of-the-art manufacturing techniques are employed in each wireless product, form the initial CAD design, to the advanced auto-inserted surface mount printed circuit board assembly. Every EV system is tested as components and then tested as a complete system to ensure reliable field performance.

We simply design and build each system better, so we stand behind them with the best warranties in the business. The EV RE-1 professional wireless systems are warranted against defects in components and workmanship for a period of three years. The RE-2 series is warranted for two years and the R100 series for one year. The best warranty is the one you'll never use, but it is nice to know that the manufacturer believes in their products.

In the unlikely event of a product failure, EV wireless service is available from the factory in Lincoln, Nebraska as well as authorized centers in Canada, Germany, Singapore, Hong Kong and several other places around the world.

EV has been in the business of providing quality wireless communications for demanding professional events for over twenty years. We have the experience and talent to solve any wireless need. When you are designing large multiple wireless installations, you can look to EV to provide the important frequency coordination, and system accessories for a turnkey installation.

Important Wireless Terminology

Like any other technical business, the wireless world is filled with technical jargon and concepts all its own. It is very important to understand the basics of this language, or overzealous marketing materials can easily mislead you.

The Basics

A wireless system at its most basic includes a transmitter, handheld or bodypack, and a receiver. There are many ways to get the signal from point A to point B and it is important to dispel any myths or preconceived notions that may have been picked up from various marketing materials. We will go through the more common technical terms and try to give you an objective outlook.

What is Diversity?

Diversity reception is a method of minimizing the effects of multi-path delays that create drop outs of the radio signal. This is done by combining or selecting two or more antenna sources for the same signal in order to produce a constantly usable signal. This always requires more than one antenna in different physical locations but not necessarily multiple receivers.

There are many diversity circuits used in wireless microphones on the market today, including twin receiver "switching" diversity, antenna diversity, switching antenna diversity, and the Telex patented Posi-Phase auto diversity. Each of these methods may be effective depending on the particular implementation of the circuitry by the manufacturer, provided other critical areas of the receiver circuitry are not compromised.

The term "diversity" is derived from the word diverse, which according to the American Heritage Dictionary means, *varied*, or *unlike*. In the RF world, this translates to two or more unlike sources of received signal energy at the receiver. As long as the two sources of signal are unlike or varied from each other they are diverse hence the term "diversity". These days you hear a lot of hype about some systems that claim to be "true" diversity. If this were true, there would also have to be a "false" diversity. But, by definition, any receiver using two or more varied signal inputs has diversity, so the only "false" diversity would be single antenna non-diversity. Major manufacturers may differ in their particular implementation of the diversity circuitry, but all diversity systems use different sources of received energy from two or more antennas. The term "true" diversity is meaningless from an engineering standpoint.

What is Phase Cancellation?

Phase cancellation or multipath dropout is a phenomenon where a direct radio signal and a reflected radio signal combine in the receiver. The two signals are slightly out of phase from each other due to the delay in the reflected signal. The phase difference causes the two signals to interfere with each other and cause deterioration in the quality of signal at the receiver. When the distance and geometry are just right, the signals are 180 degrees out of phase and can cancel each other completely, often referred to as a dropout.

A very common example of phase cancellation or multipath dropout has occurred to most people at one time or another. If you have ever driven your car listening to your favorite FM radio station and pulled up to a stop light and noticed your radio station became fuzzy and faded away as you pull slowly forward, you have experienced phase cancellation. Did you notice that when you pulled your car up just a few feet the station came back to perfect reception?
Because multipath problems are related to the geometry of the set up, it is possible to walk test the transmitters and correct potential dropouts using tools like the Sound Check Screen in the RE-1and adjusting your antenna placements. But be wary, each time you change the scenery, arena, or even add people, the mix changes.

What is a Squelch Circuit?

Good receiver design begins with the RF & IF filtering, but another important part of the receiver circuitry is the squelch system, or RF detection circuitry. This circuitry is the "gate" that allows the audio to turn on or off based on the RF signals entering the receiver. Simple gate squelch circuits that are commonly used in most competitive wireless receivers have a detector circuit that opens the audio path as soon as a preset level of RF energy is reached. When the signal is below the preset level, the audio path is "closed" or grounded to be very quiet. The obvious problem with a simple gate squelch is that any RF energy including distortion, hiss, harmonics from such sources as lighting dimmers, CD or DVD players, computers, digital effects and electric motors are indistinguishable from the desired signal. This extraneous RF energy will open the squelch gate just as easily as the intended transmitter. So often times the user must "crank" up the squelch level all the way up to limit the sensitivity to noise, which reduces range and performance of the system.

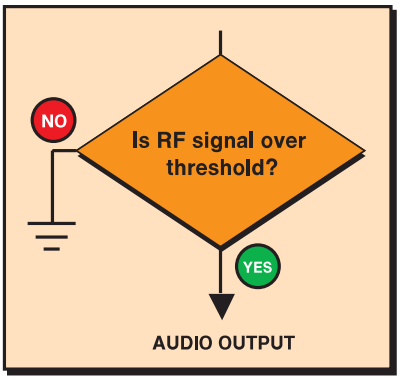


Figure 1

What is a Synthesized Radio?

In older wireless products, a reference crystal is used to directly generate the carrier frequency. To change the frequency it is necessary to change the crystal. In a "synthesized" radio, a Phase-Lock-Loop (PLL) circuit uses a reference crystal to generate multiple carrier frequencies controlled by a voltage-controlled-oscillator (VCO). This allows the radio to change the operating frequency with a rotary switch or touch of a button. With rise in Digital TV broadcasters and other RF devices, synthesized frequency agile wireless microphones are the wave of the future. Finding a clear, compatible frequency can become a problem with synthesized systems. That is where tools like Advanced ClearScan in the RE-1 and RE-2 products make finding clean channels as easy as pushing a button.

What other considerations should I think about?

When selecting a wireless system, consider the long-term use for the system and always purchase the complete solution. That is, if you eventually intend to add more systems, make sure you select a system that will allow for the total number of future systems. Also, don't forget to look at accessories such as antenna combiners, antennas, low loss coaxial cable, and microphone choices.

Electro-Voice has a complete line of wireless accessories for both VHF and UHF systems. These accessories allow the system to be tailored for the individual application and allow the user to get the most from their investment.

Wireless Microphone Antenna Guide

ANTENNA TYPES

Most products ship with 1/4 wave antennas to be mounted directly on the receiver or the rack mount hardware. These 1/4 wave antennas are not ground independent, meaning that they cannot be mounted remotely at the end of a run of coaxial cable. For remote mounting, use 1/2 wave or directional Log Periodic antennas such as the FA-500, CLA series or the LPA500

REMOTE MOUNTING

Antennas should be mounted with a direct line-of-sight to the performance area. Whenever possible that also means above the cast and crew, so mounting antennas ten feet in the air at the side of the stage is one of the best places for them. All coaxial cable has signal loss, so keep the cable runs to a minimum and use low loss cables to keep the maximum performance range. The CXU cables from EV use very low loss cables that will help maintain range.

ANTENNA DISTRIBUTION

When racking multiple receivers together, it is best to use an antenna distribution system like the APD4. The APD4 provides power and antenna connections for 4 receivers and can be cascaded (see Figure 2) to run antennas for up to 16 systems from 2 antennas (using 5 APD4 units). The important thing to keep in mind is to connect the input of each additional splitter to the output of the original APD4 (the one connected directly to the antennas) to prevent a loss of range.

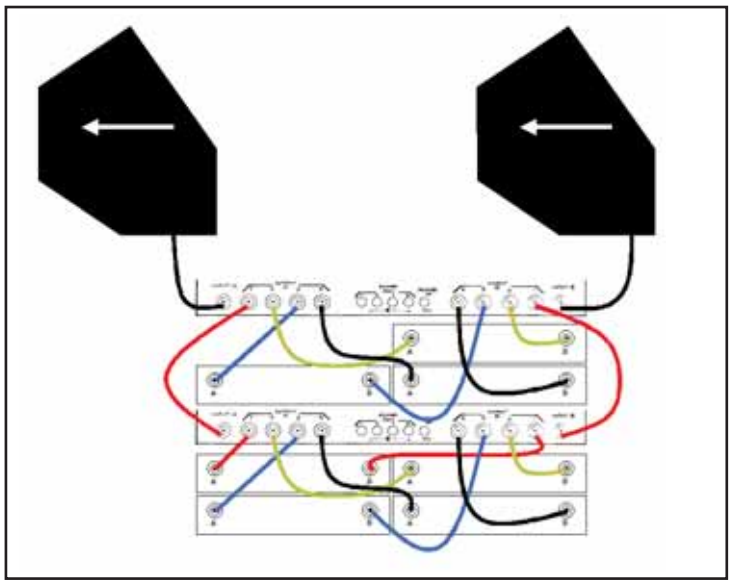


Figure 2: Seven wireless receivers with two antenna splitters

MICROPHONES 2004

Americas
Telex Communications Inc. 12000 Portland Ave South, Burnsville, MN 55337, USA
USA-Phone: 1-800-392-3497, Fax: 1-800-955-6831
Canada-Phone: 1-866-505-5551, Fax: 1-866-336-8467
Latin America-Phone: 1-952-887-5532, Fax: 1-952-736-4212

Europe, Africa & Middle-East
EVI Audio GmbH. Hirschberger Ring 45, D 94315, Straubing, Germany
Phone: +49 9421-706 0, Fax: +49 9421-706 265
France: EVI Audio France S.A. Parc de Courcerin, AllÈe Lech Walesa, F 77185 Lognes, France
Phone: +33 1-6480-0090, Fax: +33 1-6006-5103
UK: Shuttlesound Ltd., The Willows Centre, Willow Lane, Mitcham, Surrey CR4 4NX, UK
Phone: +44 208 646 7114, Fax: +44 208 640 7583

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Japan: EVI Audio Japan Ltd. 5-3-8 Funabashi, Setagaya-Ku, Tokyo, Japan 156-0055
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Singapore: Telex Pte. Ltd. 3015A Ubi Road 1, 05-10 Kampong Ubi Industrial Estate, Singapore 408705
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