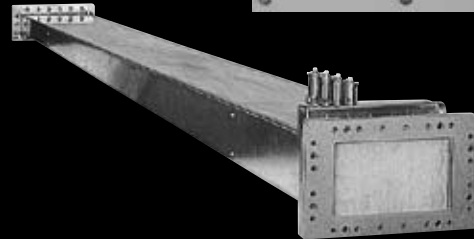
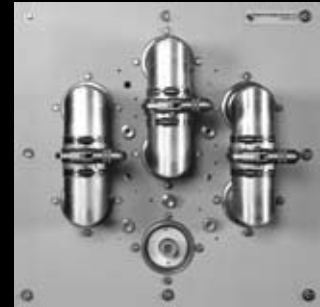




## RF Components

Directional Couplers, Patch Panels, Switches, RF Loads, Waveguide Elbows



### Complete Line of RF Components

ERI has decades of expertise and experience in engineering and designing high quality RF components. For this reason, broadcasters, both within the U.S. and around the world, turn to ERI for their most demanding applications.

#### ERI's Line of RF Components includes:

- Directional Couplers
- Patch Panels
- Coaxial Loads
- Waveguide Loads
- Coaxial Motorized Switches
- Waveguide Motorized Switches
- Waveguide Elbows and Mitres



# RF Components

## Directional Couplers, Patch Panels, Switches, RF Loads, Waveguide Elbows

### CD Series

#### VHF-UHF Couplers

ERI CD Series VHF/UHF Adjustable Directional Couplers are designed and manufactured to cover 50 MHz to 860 MHz with a broad coupling range and corresponding directivity, all within one of the smallest packages in the broadcast industry. The coupling loop provides high accuracy in forward and/or reflected power measurements necessary for determining VSWR, component or system losses, line power, or other operations. Etched angle and penetration scales provide ease and accuracy in measuring coupling values across the FM/VHF/UHF frequency bands. Nominal Directivity is at least 30 dB and typical values of directivity can be significantly higher upon final adjustment. These couplers can be implemented in any of the standard coaxial line sizes. Single, dual, triple, and quad couplers are also available.

Saddle type field install couplers are also available with the same functionality and performance as the ERI CD Series VHF/ UHF Adjustable Directional Couplers.

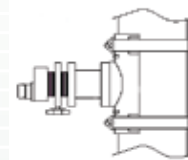
#### Common Features

- -30 to -70 dB Coupling Range
- 1.03:1 or better VSWR
- 30 dB or better Directivity
- 50 to 860 MHz Frequency Range
- 50 ohms Impedance



#### VHF-UHF Adjustable Directional Couplers

Part Number	Connector Size	# of Ports
CD208-N	1-5/8" EIA, N Female	1
CD209-N	1-5/8" EIA, N Female	2
CD210-N	1-5/8" EIA, N Female	3
CD211-N	1-5/8" EIA, N Female	4
CD308-N	3-1/8" EIA, N Female	1
CD309-N	3-1/8" EIA, N Female	2
CD310-N	3-1/8" EIA, N Female	3
CD311-N	3-1/8" EIA, N Female	4
CD408-N	4-1/16", N Female	1
CD409-N	4-1/16", N Female	2
CD410-N	4-1/16", N Female	3
CD411-N	4-1/16", N Female	4
CD608-N	6-1/8" EIA, N Female	1
CD609-N	6-1/8" EIA, N Female	2
CD610-N	6-1/8" EIA, N Female	3
CD611-N	6-1/8" EIA, N Female	4



#### VHF-UHF Saddle Type Field Install Couplers

Part Number	Coax Size	# of Ports
CD314-N	3-1/8"	1
CD414-N	4-1/16"	1
CD614-N	6-1/8"	1



# RF Components

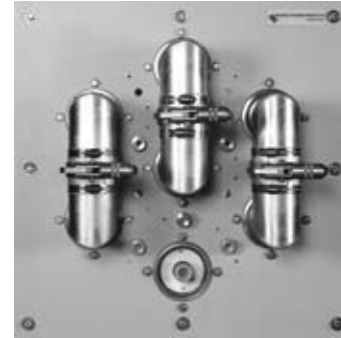
## Directional Couplers, Patch Panels, Switches, RF Loads, Waveguide Elbows

### FM, VHF, and UHF Patch Panels

Broadcast system designers and engineers can select a coaxial patch panel to best match their system performance and budget requirements with a choice of two patch panel options from ERI.

For systems where cost savings is a dominant factor, ERI offers its lower cost Dura-Patch Coaxial Patch Panel. This patch panel offers the same quality and RF performance that broadcasters have come to expect from ERI patch panels, but at much lower cost. Using the traditional "hose clamp" U-Link capturing system, the Dura-Patch Coaxial Patch Panel offers a quality solution for manual transmitter/ antenna/ load or any other RF routing needs that a broadcaster may have.

For systems requiring premium performance, ERI provides the Quick Patch Coaxial Patch Panel. Known for its unique U-Link release and capture system, the Quick Patch Coaxial Patch Panel offers the easiest and quickest U-Link remove and replace action in the industry.



Both the Dura-Patch and Quick Patch Coaxial Patch Panel U-Links are made with a lightweight aluminum outer conductor and high conductivity copper inner conductor. Double pole, double throw (DPDT) interlock switches are options for both styles.

### Common Features

- <1.04:1 VSWR
- 90% of line size Power Rating
- FM,VHF, UHF Frequency Range
- 50 ohms Impedance

Part Number	Size	# of Ports
<b>QUICK-Patch Patch Panels - Flanged</b>		
CP235-EIA	1-5/8"	3
CP245-EIA	1-5/8"	4
CP255-EIA	1-5/8"	5
CP275-EIA	1-5/8"	7
CP335-EIA	3-1/8"	3
CP345-EIA	3-1/8"	4
CP355-EIA	3-1/8"	5
CP375-EIA	3-1/8"	7
CP435-EIA	4-1/16"	3
CP445-EIA	4-1/16"	4
CP455-EIA	4-1/16"	5
CP475-EIA	4-1/16"	7
CP635-EIA	6-1/8"	3
CP645-EIA	6-1/8"	4
CP655-EIA	6-1/8"	5
CP675-EIA	6-1/8"	7
<b>QUICK-Patch Patch Panels - Unflanged</b>		
CP235-ONF	1-5/8"	3
CP245-ONF	1-5/8"	4
CP255-ONF	1-5/8"	5
CP275-ONF	1-5/8"	7
CP335-ONF	3-1/8"	3
CP345-ONF	3-1/8"	4
CP355-ONF	3-1/8"	5
CP375-ONF	3-1/8"	7
CP435-ONF	4-1/16"	3
CP445-ONF	4-1/16"	4
CP455-ONF	4-1/16"	5
CP475-ONF	4-1/16"	7
CP635-ONF	6-1/8"	3
CP645-ONF	6-1/8"	4
CP655-ONF	6-1/8"	5
CP675-ONF	6-1/8"	7

Part Number	Size	# of Ports
<b>DURA-Patch Patch Panels - Flanged</b>		
CPLC235-EIA	1-5/8"	3
CPLC245-EIA	1-5/8"	4
CPLC255-EIA	1-5/8"	5
CPLC275-EIA	1-5/8"	7
CPLC335-EIA	3-1/8"	3
CPLC345-EIA	3-1/8"	4
CPLC355-EIA	3-1/8"	5
CPLC375-EIA	3-1/8"	7
CPLC435-EIA	4-1/16"	3
CPLC445-EIA	4-1/16"	4
CPLC455-EIA	4-1/16"	5
CPLC475-EIA	4-1/16"	7
CPLC635-EIA	6-1/8"	3
CPLC645-EIA	6-1/8"	4
CPLC655-EIA	6-1/8"	5
CPLC675-EIA	6-1/8"	7
<b>DURA-Patch Patch Panels - Unflanged</b>		
CPLC235-ONF	1-5/8"	3
CPLC245-ONF	1-5/8"	4
CPLC255-ONF	1-5/8"	5
CPLC275-ONF	1-5/8"	7
CPLC335-ONF	3-1/8"	3
CPLC345-ONF	3-1/8"	4
CPLC355-ONF	3-1/8"	5
CPLC375-ONF	3-1/8"	7
CPLC435-ONF	4-1/16"	3
CPLC445-ONF	4-1/16"	4
CPLC455-ONF	4-1/16"	5
CPLC475-ONF	4-1/16"	7
CPLC635-ONF	6-1/8"	3
CPLC645-ONF	6-1/8"	4
CPLC655-ONF	6-1/8"	5
CPLC675-ONF	6-1/8"	7



# RF Components

## Directional Couplers, Patch Panels, Switches, RF Loads, Waveguide Elbows

### CS Series

#### FM, VHF, and UHF Coaxial Motorized Switches

ERI CS series coaxial motorized switches are designed for operation within FM, VHF, and UHF broadcast systems. The switches are engineered to provide high capability and long life. A Geneva drive mechanism provides exact 90 degree rotation of the contacts. The switch drive can be powered by either 115 VAC or 230 VAC. Control voltage can be either 12 VDC or 24 VDC. Manual operation is provided via a hex drive Tee Wrench through a hole in the switch case. If power to the drive is interrupted, the control circuit provides involatile memory so that the switch either holds its position or continues its transition upon re-application of AC power.



#### Common Features

- 50 ohms Impedance
- 0.06 dB Max. Insertion Loss
- 60 dB Min. Isolation

#### CS Series FM and VHF Coaxial Motorized Transfer Switches

Part Number	Size	# of Ports	VSWR	Power Rating			Shorting Cap Part Number**
				Peak	Average (25 MHz)	Average (250 MHz)	
CS250-XY* <sup>*</sup>	1-5/8"	4**	<1.03:1	165 kW	30 kW	9 kW	CS008
CS350-XY* <sup>*</sup>	3-1/8"	4**	<1.03:1	300 kW	55 kW	28 kW	CS009
CS450-XY* <sup>*</sup>	4-1/16"	4**	<1.03:1	500 kW	125 kW	40 kW	CS011
CS650-XY* <sup>*</sup>	6-1/8"	4**	<1.03:1	1000 kW	250 kW	100 kW	FF145

#### CS Series UHF Coaxial Motorized Transfer Switches

Part Number	Size	# of Ports	VSWR	Power Rating			Shorting Cap Part Number**
				Peak	Average (250 MHz)	Average (806 MHz)	
CS252-XY* <sup>*</sup>	1-5/8"	4**	<1.05:1	165 kW	9 kW	4 kW	CS008
CS352-XY* <sup>*</sup>	3-1/8"	4**	<1.05:1	300 kW	28 kW	7 kW	CS009
CS452-XY* <sup>*</sup>	4-1/16"	4**	<1.05:1	500 kW	40 kW	20 kW	CS011

\*\*X indicates first number in drive voltage - 1=115 VAC 2=230 VAC. YY indicates control voltage - 12=12 VDC 24=24 VDC

\*\*For 3 Port Configuration, add Shorting Cap



# RF Components

Directional Couplers, Patch Panels, Switches, RF Loads, Waveguide Elbows

## WS Series

### Waveguide Motorized Switches

ERI WS series Waveguide motorized switches are designed for operation within UHF broadcast systems. The switches are engineered to provide high capability and long life. A Geneva drive mechanism provides exact 90 degree rotation of the contacts. The switch drive can be powered by either 115 VAC or 230 VAC. Control voltage can be either 12 VDC or 24 VDC. Manual operation is provided via a 9/16" socket head that is accessible through a hole in the switch case. If power to the drive is interrupted, the control circuit provides involatile memory so that the switch either holds its position or continues its transition upon re-application of AC power.



### Common Features

- <1.03:1 VSWR (Single Channel)
- 240 Kw Average Power Rating
- 50 ohms Impedance
- 0.06 dB Max. Insertion Loss
- 70 dB Min. Isolation

### WS Series UHF Waveguide Motorized Transfer Switches

Part Number	Waveguide Size	Plane	Frequency Range
WS104	WR1150	E	640-860 MHz
WS106	WR1150	H	640-860 MHz
WS503	WR1500	E	490-700 MHz
WS508	WR1500	H	490-700 MHz
WS801	WR1800	E	470-625 MHz

NOTE: Consult ERI for Higher Power Ratings



# RF Components

## Directional Couplers, Patch Panels, Switches, RF Loads, Waveguide Elbows

### CL Series

#### UHF Coaxial Loads

ERI CL Series UHF Coaxial Loads offer a proven design for handling high power at low cost. The load employs a solution of glycol and water as both coolant and resistive material. The power dissipated by the load heats the solution and is removed by the coolant's constant flow. The loads are extremely rugged since the resistor is liquid and no finger contacts are used. A dielectric transformer on the inner conductor distributes power evenly throughout the coolant and provides excellent thermal stability over a wide range of temperature and power levels. The loads can be furnished with ERI replaceable element dual directional couplers upon request.

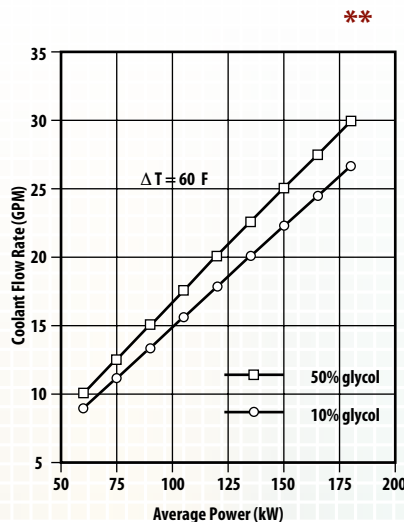
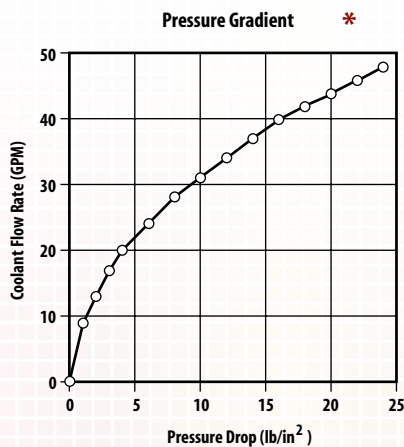


#### UHF High Power Coaxial Water Loads

Part Number	Connector Size	Peak Power	Average Power
CL301	3-1/8" EIA	500 kW	50 kW
CL401	4-1/16" EIA	1500 kW	70 kW
CL601	6-1/8" EIA	2000 kW	100 kW

#### Common Features

- 1:05:1 VSWR (Any TV Channel)
- 1.20:1 VSWR (470-860 MHz)
- 3/4" NGH or 3/4" NPT Coolant Connections
- 80 psi Coolant Pressure\*
- 10% to 50% Glycol/Water Coolant Mixture\*\*





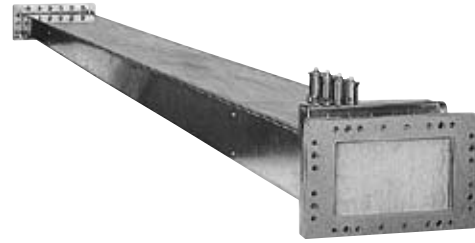
# RF Components

## Directional Couplers, Patch Panels, Switches, RF Loads, Waveguide Elbows

### WL Series

#### UHF Waveguide Loads

ERI uniquely designed tapered Waveguide water loads utilize a technique involving two coaxial dielectric tubes that carry the water/glycol solution (which functions as a heat dissipater and RF absorber). The WL Series provides an efficient and low cost method for dissipating unwanted RF. As an option, a tuning section may be added. Any combination of coolant inlet and outlet adapters is available as well.

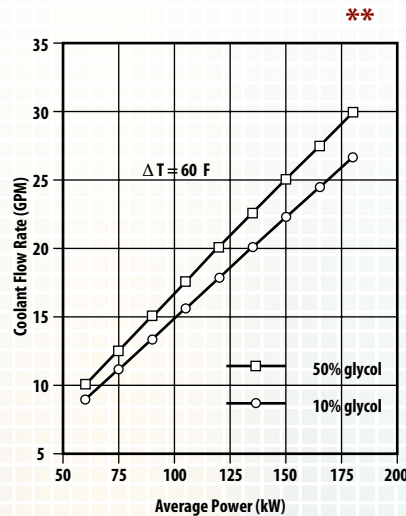
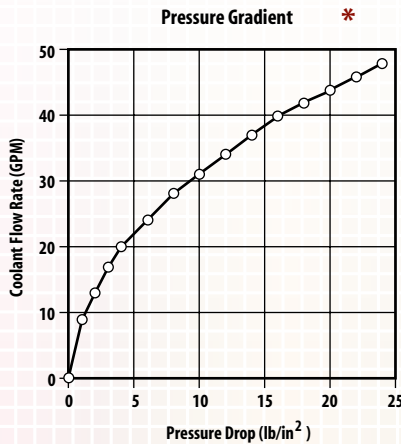


#### Common Features

- 240 kW Peak Power
- 1:05:1 VSWR (Any TV Channel)
- 1.20:1 VSWR (470-860 MHz)
- Coolant Connections
- Inlet 3/4" or 1" NPTF
- Outlet 3/4" or 1" NPTF
- 80 psig Max. Coolant Pressure\*
- 10% to 50% Glycol/Water Coolant Mixture\*\*

#### WL Series Waveguide Loads

Part Number	Waveguide Size	Channel Range
WL111	WR1150	40-69
WL511	WR1500	14-19
WL512	WR1500	20-29
WL513	WR1500	30-39
WL514	WR1500	40-49
WL811	WR1800	14-19





# RF Components

Directional Couplers, Patch Panels, Switches, RF Loads, Waveguide Elbows

## WE Series

### Waveguide Elbows-Mitres (Unpressurized)

ERI manufactures a number of Waveguide components. Among them are E-plane and H-Plane elbows available in WR1150,WR1500, and WR1800 sizes.

Contact ERI for information on our Waveguide fixed couplers, Waveguide fine matchers, and the rest of our waveguide components.



### WE Series

Part Number	Waveguide Size	Plane	Size
WE105	WR1150	H	12 x 12
WE106*	WR1150	E	9 x 9
WE110**	WR1150	H	16 x 16
WE505	WR1500	H	12 x 12
WE506†	WR1500	E	9 x 9
WE524‡	WR1500	H	18 x 18
WE801	WR1800	E	12 x 12
WE802	WR1800	H	18 x 18
WE809§	WR1800	E	8.5 x 8.5

\*\*This is a one for one replacement for Waveguide Switch WS104.

\*\*This is a one for one replacement for Waveguide Switch WS106.

†This is a one for one replacement for Waveguide Switch WS503.

‡This is a one for one replacement for Waveguide Switch WS508.

§This is a one for one replacement for Waveguide Switch WS801.





# Around the World, Across the Spectrum, Your Single Source For Broadcast Solutions

Antennas | Transmission Line | Filters/Combiners | Towers | Broadcast Services



## About Electronics Research, Inc.

Founded in 1943, Electronics Research, Inc. delivers high quality, innovative, integrated solutions to broadcasters across the U.S. and around the world. Our dedicated staff of engineers, designers, fabricators, and project managers take pride in contributing to your success by providing AM, FM, VHF, UHF, BRS-EBS, and Mobile Media broadcast systems including the industry's best antenna, transmission line, filter and combining, and tower and structural support systems. In addition to manufacturing the full range of broadcast system components and installation accessories, ERI offers all of the engineering and field services needed to plan, install, optimize, and maintain your broadcast facility. We are your single source for broadcast solutions.

## Broadcast Antenna Systems

- ROTOTILLER® FM Radio Antenna
- LYNX™ Dual Input for IBOC FM Radio Antenna
- 1105 Circularly Polarized FM Radio Antenna
- 100 Low Power Circularly Polarized FM Radio Antenna
- FM Low Power Horizontally Polarized Educational FM Radio Antenna
- P300/P350 Series Vertically Polarized FM Radio Antenna
- 1180 and 1090 Series Broadband Panel FM Radio Antenna
- SLIMWING™ Batwing VHF Television Antenna
- CRUCIS™ Crossed Dipole VHF Television Antenna
- STINGRAY™ Broadband Panel VHF Television Antenna
- TRASAR® High Power Traveling Wave Television Antenna
- AGW Guided Wave Quick-Deploy Emergency UHF Television Antenna
- STINGRAY™ Broadband Panel UHF Television Antenna
- ALP Low and Medium Power UHF Television Antenna
- AL PLUS Low and Medium Power UHF Television Antenna
- AL8 Low Power UHF Television Antenna
- VELA™ Low Power Vertically Polarized Broadband UHF Television Antenna
- HMD BRS-EBS Antenna
- SHADOWMASTER® Shadow-Filling BRS-EBS Antenna

## Transmission Line Systems

- MACXLine® Rigid Transmission Line with Bellows
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Electronics Research, Inc.  
7777 Gardner Road  
Chandler, Indiana 47610-9219  
USA

877 ERI-LINE (toll-free: North America)  
www.eriinc.com (web)  
+1 812 925-6000 (international)  
+1 812 925-4030 (fax)

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