

Pico Macom's splitters, couplers, multitaps and other distribution passives are designed to improve network flexibility.

- ◆ Splitters
- ◆ Couplers
- ◆ Taps
- ◆ Separators
- ◆ Combiners
- ◆ Diplexers
- ◆ Equalizers
- ◆ Filters
- ◆ Attenuators
- ◆ Terminators
- ◆ Matching Transformers
- ◆ Switches

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Distribution Passive Components



TSHP-M Series

1 GHz 100 dB EMI Digital Multitaps



- ◆ Digital Optimized Broadband 5~1000 MHz frequency range
- ◆ Interchangeable faceplates enable “on the fly” redesign for maximum time savings and further reduced costs associated with splicing in new tap housings with every change
- ◆ High tap-to-output isolation provides spurious carrier protection and minimizes undesired customer to customer interaction, reducing picture distortion and return data interference
- ◆ High-performance glass epoxy printed board circuitry with premium components provides low intermodulation distortion to ensure excellent performance with digital signals
- ◆ Powder coated aluminum alloy housing with double tongue in groove interface provides 100 dB effective EMI/RFI shielding to reduce signal egress/ingress issues
- ◆ Extended connector collars provide shoulder for a positive heat shrink shield, eliminating connector water migration and extending the life of housing
- ◆ Triple sealed F-ports are pressure sealed to 15 psi for watertight operation even in harsh environments
- ◆ Rotating internal seizing pins provide increased installation flexibility by allowing simplified pedestal and lockbox mounting options
- ◆ Performance tests conducted conforming with SCTE standards IPS TP-201, 202, 203, 403A, 406

Bandwidth		
In-Out	DC~1000 MHz	
In-Tap	5~1000 MHz	
Isolation Port-Port		
Avg @ 5 MHz	>18 dB	
Avg @ 1GHz	>18 dB	

(See Loss Chart page C-16)

Return Loss		
Avg @ 5 MHz	>15 dB	
Avg @ 1GHz	>16 dB	
Tap loss equal to value	±2%	

Ordering Information

TSHP-M2-XX	2-port Multitap + (Tap Value) 4T 8 11 14 17 20 23 26 29 32 35
TSHP-M4-XX	4-port Multitap + (Tap Value) 8T 11 14 17 20 23 26 29 32 35
TSHP-M8-XX	8-port Multitap + (Tap Value) 11T 14 17 20 23 26 29 32 35
A-22	Strand Stand Off Bracket

TSHP-C Series

1 GHz 100 dB EMI Digital Directional Couplers



- ◆ Digital Optimized Broadband 5~1000 MHz frequency range
- ◆ Interchangeable faceplates enable “on the fly” redesign for maximum time savings and further reduced costs associated with splicing in new tap housings with every change
- ◆ High tap-to-output isolation provides spurious carrier protection and minimizes undesired customer to customer interaction, reducing picture distortion and return data interference
- ◆ High-performance glass epoxy printed board circuitry with premium components provides low intermodulation distortion to ensure excellent performance with digital signals
- ◆ Powder coated aluminum alloy housing with double tongue in groove interface provides 100 dB effective EMI/RFI shielding to reduce signal egress/ingress issues
- ◆ Extended connector collars provide shoulder for a positive heat shrink shield, eliminating connector water migration and extending the life of housing
- ◆ Rotating internal seizing pins provide increased installation flexibility by allowing simplified pedestal and lockbox mounting options
- ◆ Performance tests conducted conforming with SCTE standards IPS TP-201, 202, 203, 403A, 406

Bandwidth		
In-Out	DC~1000 MHz	
In-Tap	DC~1000 MHz	
Isolation Port-Port		
Avg @ 5 MHz	>19 dB	
Avg @ 1 GHz	>18 dB	

(See Loss Chart page C-16)

Return Loss		
Avg @ 5 MHz	>10 dB	
Avg @ 1 GHz	>10 dB	
Directional Coupler tap loss equal to value	±2%	

Ordering Information

TSHP-C8	8 dB Directional Coupler
TSHP-C12	12 dB Directional Coupler
TSHP-C16	16 dB Directional Coupler
A-22	Strand Stand Off Bracket

TSHP-PI

1 GHz 100 dB EMI Digital Power Inserter



TSHP-PI

A-22
Strand
Stand-off
Bracket
p. D-19



- ◆ Digital Optimized Broadband 5~1000 MHz frequency range
- ◆ Interchangeable faceplates enable “on the fly” replacement for maximum time savings and further reduced costs associated with splicing in new tap housings with every change
- ◆ High-performance glass epoxy printed board circuitry with premium components provides low intermodulation distortion to ensure excellent performance with digital signals
- ◆ Powder coated aluminum alloy housing with double tongue in groove interface provides 100 dB effective EMI/RFI shielding to reduce signal egress/ingress issues
- ◆ Extended connector collars provide shoulder for a positive heat shrink shield, eliminating connector water migration and extending the life of housing
- ◆ Rotating internal seizing pins provide increased installation flexibility by allowing simplified pedestal and lockbox mounting options
- ◆ Performance tests conducted conforming with SCTE standards IPS TP-201, 202, 203, 403A, 406

Bandwidth	
In-Out	DC~1000 MHz
In-Tap	DC~1000 MHz
Isolation Port-Port	
Avg @ 5 MHz	>60 dB
Avg @ 1 GHz	>53 dB

(See Loss Chart page C-16)

Return Loss	
Avg @ 5 MHz	>10 dB
Avg @ 1 GHz	>10 dB

Ordering Information

TSHP-PI	Power inserter
A-22	Strand Stand Off Bracket

TSHP-S Series

1 GHz 100 dB EMI Digital Splitters



TSHP-S2

A-22
Strand
Stand-off
Bracket
p. D-19



- ◆ Digital Optimized Broadband 5~1000 MHz frequency range
- ◆ Interchangeable faceplates enable “on the fly” redesign for maximum time savings and further reduced costs associated with splicing in new tap housings with every change
- ◆ High-performance glass epoxy printed board circuitry with premium components provides low intermodulation distortion to ensure excellent performance with digital signals
- ◆ Powder coated aluminum alloy housing with double tongue in groove interface provides 100 dB effective EMI/RFI shielding to reduce signal egress/ingress issues
- ◆ Extended connector collars provide shoulder for a positive heat shrink shield, eliminating connector water migration and extending the life of housing
- ◆ Rotating internal seizing pins provide increased installation flexibility by allowing simplified pedestal and lockbox mounting options
- ◆ Performance tests conducted conforming with SCTE standards IPS TP-201, 202, 203, 403A, 406

Bandwidth	
In-Out	DC~1000 MHz
Isolation Port-Port	
Avg @ 5 MHz	>22 dB
Avg @ 1 GHz	>18 dB

(See Loss Chart page C-16)

Return Loss	
Avg @ 5 MHz	>10 dB
Avg @ 1 GHz	>10 dB

Ordering Information

TSHP-S2	2-port Splitter
TSHP-S3	3-port Splitter
A-22	Strand Stand Off Bracket



TSB-GFR Series

1 GHz 130 dB EMI Premium Digital CATV Splitters



- ◆ Premium performance Digital-Ready Broadband 5~1000 MHz frequency range
- ◆ Gold-plated beryllium-copper 360° round seizing pin maximizes center conductor surface contact, provides excellent retention even after repeated entry and minimizes electrolysis to dramatically improve signal transfer for superb return loss performance
- ◆ Reduced aperture flat-ended ports compliant to SCTE/ANSI IPS-SP-407 standard maximize connector-shield to connector-surface-contact and reduces moisture migration
- ◆ High-performance printed board circuitry including capacitor coupling at all ports provides effective DC voltage blocking and excellent hum modulation and intermodulation parameters to ensure excellent digital/HDTV performance and signal quality
- ◆ Ultra-low intermodulation distortion (second harmonic) >-105 dB with +55 dBmV carrier input for consistent interference-free video and data distribution after five 6kV A3 surge spikes applied at each port
- ◆ High isolation >-40 dB at 5~45 MHz sub-bands provides for high level upstream signals
- ◆ Solder-back cover-plate provides maximum EMI-RFI shielding >-130 dB, eliminating signal ingress to guarantee distortion-free pictures
- ◆ 6kV 200A 0.5u-100kHz category A3 ring-wave surge withstand complies with SCTE IPS-TP-210 rev-4 standard against costly accidental damage to equipment

Bandwidth		Insertion Loss	
In-Out	5~1000 MHz	Avg @ 5 MHz	3.1/6.6 dB
		Avg @ 1 GHz	<3.8/7.5 dB
Isolation Port-Port		Return Loss	
Avg @ 5 MHz	>40 dB	Avg @ 5 MHz	>26 dB
Avg @ 1 GHz	>30 dB	Avg @ 1 GHz	>33 dB

Ordering Information

TSB-41GFR	4-output Splitter
TSB-31GFR	3-output Splitter
TSB-21GFR	2-output Splitter

TSB-G Series

1 GHz 130 dB EMI Digital CATV Splitters



- ◆ Digital-Ready Broadband 5~1000 MHz frequency range
- ◆ Solder-back cover-plate provides maximum EMI-RFI shielding >-130 dB, eliminating signal ingress to guarantee distortion-free pictures
- ◆ High-performance printed board circuitry provides low intermodulation distortion >-100 dB to ensure excellent digital performance
- ◆ High isolation >-40 dB at 5~45 MHz sub-bands provides for high level upstream signals
- ◆ TSB-1G series features capacitor coupling circuitry at all ports for effective DC voltage blocking. TSB-1GDC series provide DC power passage to one port while blocking DC power to all other ports, providing for remote powering applications and powering the antenna preamplifier directly from the headend
- ◆ 1-inch centered 1/2" long precision machined F-connector threads ensure improved port-to-connector interface and accommodate external security devices
- ◆ Internal seizing pins provide improved connectivity to connector center lead

Bandwidth		Insertion Loss	
In-Out	5~1000 MHz	Avg @ 5 MHz	<3.4/7.2 dB
		Avg @ 1 GHz	<3.8/7.5 dB
Isolation Port-Port		Return Loss	
Avg @ 5 MHz	>40 dB	Avg @ 5 MHz	>25 dB
Avg @ 1 GHz	>30 dB	Avg @ 1 GHz	>24 dB

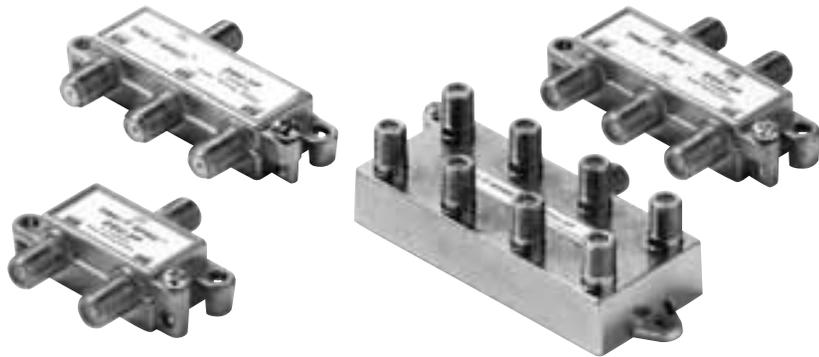
TSB-GDC Passes power in one leg only

Ordering Information

TSB-41GDC	4-output Splitter	TSB-41G	4-output Splitter
TSB-31GDC	3-output Splitter	TSB-31G	3-output Splitter
TSB-21GDC	2-output Splitter	TSB-21G	2-output Splitter

DSU Series

1 GHz 70 dB EMI MATV Splitters



- ◆ Broadband 5~1000 MHz frequency range
- ◆ High-performance printed board circuitry provides improved hum modulation and intermodulation parameters to ensure superior signal quality (DSU-P Series)
- ◆ Yellow-chromate plated zinc-alloy diecast housing ensures excellent ground bonding and long corrosion-free service life in indoor/outdoor applications
- ◆ Epoxy-sealed back cover provides effective EMI-RFI shielding >-70 dB, eliminating signal ingress to provide distortion-free pictures
- ◆ 1-inch centered 3/8" long precision machined F-connector threads ensure improved port-to-connector interface and accommodate external security devices
- ◆ High retention internal seizing pins provide improved connectivity to connector center lead

DSU-P Bandwidth	
In-Out	5~1000 MHz
DSU-P Isolation Port-Port	
Avg @ 5 MHz	>23 dB
Avg @ 1 GHz	>23 dB

DSU-P Insertion Loss	
Avg @ 5 MHz	<3.4/6.6/10 dB
Avg @ 1 GHz	<4.1/8.2/12.1 dB
DSU-P Return Loss	
Avg @ 5 MHz	>23 dB
Avg @ 1 GHz	>18 dB

Ordering Information

DSU-8P	8-output Splitter
DSU-4P	4-output Splitter
DSU-4	4-output Splitter
DSU-3P	3-output Splitter

DSU-3	3-output Splitter
DSU-2P	2-output Splitter
DSU-2	2-output Splitter
MS-2D	2-output Splitter

TSV Series

1 GHz 90 dB/130 dB EMI CATV Vertical Splitters



- ◆ Broadband 5~1000 MHz frequency range
- ◆ Vertical port design allows close mounting in lock boxes for easy access of cable connections
- ◆ 1-inch centered 1/2" long precision machined F-connector threads ensure improved port-to-connector interface and accommodate external security devices
- ◆ Standard TSV series splitters feature an epoxy-sealed back cover that provides effective EMI-RFI shielding >-90 dB, reducing signal ingress. TSV-SB series feature a solder-sealed back cover plate, providing maximum EMI-RFI shielding >-130 dB and eliminating signal ingress to guarantee distortion-free pictures
- ◆ Silver-coated zinc-alloy diecast housing ensures excellent ground bonding and long corrosion-free service life in indoor/outdoor applications
- ◆ Capacitor coupling circuitry at all ports provides effective DC voltage blocking
- ◆ Internal seizing pins provide improved connectivity to connector center lead

Bandwidth	
In-Out	5~1000 MHz
Isolation Port-Port	
Avg @ 5 MHz	>27 dB
Avg @ 1 GHz	>25 dB

Insertion Loss	
Avg @ 5 MHz	<3.2/6.3/8.7/9.7 dB
Avg @ 1 GHz	<3.8/8.2/11/11.8 dB
Return Loss	
Avg @ 5 MHz	>23 dB
Avg @ 1 GHz	>20 dB

Ordering Information

TSV-8	8-output Vertical Port Splitter (TSV-8SB soldered back)
TSV-6	6-output Vertical Port Splitter (TSV-6SB soldered back)
TSV-4	4-output Vertical Port Splitter (TSV-4SB soldered back)
TSV-3	3-output Vertical Port Splitter (TSV-3SB soldered back)
TSV-2	2-output Vertical Port Splitter (TSV-2SB soldered back)

HFS Series

2150 MHz 90 dB EMI Satellite Splitters



- ◆ High frequency range 900~2150 MHz L-Band suitable for analog and digital satellite applications
- ◆ HFS series provide DC power passage to one port while blocking DC power to all other ports for improved hum modulation and Intermodulation performance. HFS-P series provide DC power passage to all ports for remote LNB-powering applications and powering the antenna preamplifier directly from the headend
- ◆ High-performance printed board circuitry provides improved hum modulation and intermodulation parameters to ensure superior signal quality
- ◆ Yellow-chromate plated zinc-alloy diecast housing ensures excellent ground bonding and long corrosion-free service life in indoor/outdoor applications
- ◆ Epoxy-sealed back cover provides effective EMI-RFI shielding >-70 dB, eliminating signal ingress to provide distortion-free pictures
- ◆ 1-inch centered 3/8" long precision machined F-connector threads ensure improved port-to-connector interface and accommodate external security devices

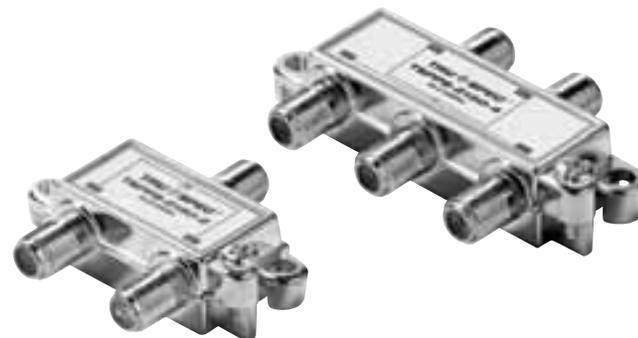
Bandwidth		Insertion Loss	
In-Out	900~2150 MHz	Avg @ 900 MHz	<3.3/6.8 dB
		Avg @ 2.15 GHz	<5.1/9.9 dB
Isolation Port-Port:		Return Loss:	
Avg @ 900 MHz	>19 dB	Avg @ 900 MHz	>13 dB
Avg @ 2.15 GHz	>10 dB	Avg @ 2.15 GHz	>8 dB

Ordering Information

HFS-4P	4-output Port Splitter (1 Port Pass)
HFS-4	4-output Port Splitter (All Port Pass)
HFS-2P	2-output Port Splitter (1 Port Pass)
HFS-2	2-output Port Splitter (All Port Pass)

TSPPS-2150 Series

40~2150 MHz 130 dB EMI Satellite Splitters



- ◆ High frequency broadband range 40~2150 MHz L-Band suitable for analog and digital satellite applications
- ◆ DC power passage to all ports provides for remote LNB-powering applications and powering the antenna preamplifier directly from the headend
- ◆ Solder-sealed back cover plate provides maximum EMI-RFI shielding >-130 dB, eliminating signal ingress to guarantee distortion-free pictures
- ◆ High-performance printed board circuitry provides low intermodulation distortion to ensure excellent digital performance
- ◆ 1-inch centered 1/2" long precision machined F-connector threads ensure improved port-to-connector interface and accommodate external security devices
- ◆ Internal seizing pins provide improved connectivity to connector center lead
- ◆ Cast-in integrated ground block with convenient mounting screws enables easy and cost-effective installations

Bandwidth		Insertion Loss	
In-Out	40~2150 MHz	Avg @ 40 MHz	<3.2/7.4 dB
		Avg @ 2.15 GHz	<4.6/12.1 dB
Isolation Port-Port		Return Loss	
Avg @ 40 MHz	>39 dB	Avg @ 40 MHz	>18 dB
Avg @ 2.15 GHz	>15 dB	Avg @ 2.15 GHz	>12 dB

Ordering Information

TSPPS-2150-4	4-output Port Splitter
TSPPS-2150-2	2-output Port Splitter

TSC Series

1 GHz 70/140 dB EMI Digital Directional Couplers



- ◆ Digital-Ready Broadband 5-1000 MHz frequency range
- ◆ Standard TSC series feature epoxy-sealed back cover plates for effective EMI-RFI shielding >-90 dB to reduce signal ingress. TSC-SB series feature a solder-sealed back cover-plate to provide maximum EMI-RFI shielding >-140 dB, eliminating signal ingress and guarantee distortion-free pictures
- ◆ High tap-to-output isolation provides spurious carrier protection and minimizes undesired channel interaction, reducing picture distortion
- ◆ High-performance printed board circuitry provides low intermodulation distortion to ensure excellent digital performance
- ◆ Capacitor coupling circuitry at all ports provide effective DC voltage blocking for improved hum modulation and intermodulation
- ◆ 1-inch centered 1/2" long precision machined F-connector threads ensure improved port-to-connector interface and accommodate external security devices

Bandwidth (In-Out, In-Tap)	5-1000 MHz
Return Loss	18 dB min.
TSC, TSC-SB	
Tap Loss (± 1.0 dB):	6, 9, 12, 16, 20, 24, 27, 30 dB
Insertion Loss (max.):	6; 2.7dB 9; 2.1dB 12; 1.6dB 16; 1.0dB 20; 1.4dB 24; 0.9dB 27; 0.7dB 30; 1.3dB
Isolation (Tap-Out) (min.):	6 to 20 dB 18 dB + Coupling Value 24 to 30 dB 38 dB min.
TSC2, TSC2-SB	
Tap Loss (± 1.0 dB):	6, 9, 12, 16, 20, 24, 27, 30 dB
Insertion Loss (max.):	6; 3.7dB 9; 4.6dB 12; 2.2dB 16; 1.6dB 20; 0.7dB 24; 0.7dB 27; 0.7dB 30; 0.8dB

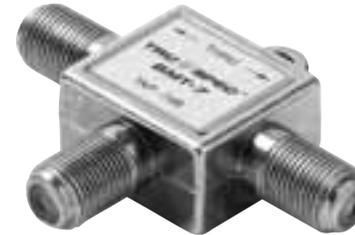
Isolation (Tap-Out):	6 to 20 dB 18 dB + Coupling Value 24 to 30 dB 38 dB min.
Isolation (Tap-Tap):	22 min., 30 dB (typ.)
TSC4, TSC4-SB	
Tap Loss (± 1.0 dB):	8, 12, 16, 20, 24, 30
Insertion Loss (max.):	8; terminated 12; 3.7dB 16; 1.8dB 20; 1.0dB 24; 1.0dB 30; 1.0dB
Isolation (Tap-Out):	8 dB terminated 12 to 20 dB 18 dB + Coupling Value 24 to 30 dB 38 dB min.
Isolation (Tap-Tap):	25 min., 30 dB (typ.)

Ordering Information

TSC4-(value)-SB	4 Tapped Port Coupler	TSC4-(value)	4 Tapped Port Coupler
TSC2-(value)-SB	2 Tapped Port Coupler	TSC2-(value)	2 Tapped Port Coupler
TSC-(value)-SB	1 Tapped Port Coupler	TSC-(value)	1 Tapped Port Coupler

BMT

900 MHz Back-Matched Drop Tap



- ◆ Broadband 5-900 MHz frequency range
- ◆ Bi-directional thru-port ensures simple foolproof installation
- ◆ DC power passing at thru-port and power blocked at tap-port provides for remote powering applications and powering the antenna preamplifier directly from the headend
- ◆ Yellow-chromate plated zinc-alloy diecast housing ensures excellent ground bonding and long corrosion-free service life in indoor/outdoor applications
- ◆ Epoxy-sealed back cover provides effective EMI-RFI shielding >-70 dB, eliminating signal ingress to provide distortion-free pictures
- ◆ Voltage blocking capacitor on tap port for improved hum modulation and intermodulation performance ensures superior picture quality
- ◆ Used with TruSpec's BP1 wall-plate for easy installation

Bandwidth	
In-Out	5-900 MHz
In-Tap	5-900 MHz
Insertion Loss	
Avg @ 5 MHz	<3.2 dB
Avg @ 900 MHz	<3.0 dB

Return Loss	
Avg @ 5 MHz	>12 dB
Avg @ 900 MHz	>13 dB
Tap loss equal to value	$\pm 2\%$

Ordering Information

BMT-(value)	Bidirectional Coupler
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TSCW Series

1 GHz 70/140 dB EMI Digital Directional Couplers



- ◆ Digital-Ready Broadband 5~1000 MHz frequency range
- ◆ Standard TSC series feature epoxy-sealed back cover plates for effective EMI-RFI shielding >-90 dB to reduce signal ingress. TSC-SB series feature a solder-sealed back cover-plate to provide maximum EMI-RFI shielding >-140 dB, eliminating signal ingress and guarantee distortion-free pictures
- ◆ High tap-to-output isolation provides spurious carrier protection and minimizes undesired channel interaction, reducing picture distortion
- ◆ High-performance printed board circuitry provides low intermodulation distortion to ensure excellent digital performance
- ◆ Capacitor coupling circuitry at all ports provide effective DC voltage blocking for improved hum modulation and intermodulation
- ◆ 1-inch centered 1/2" long precision machined F-connector threads ensure improved port-to-connector interface and accommodate external security devices
- ◆ Designed for mounting in TruSpec's BP1 wall-plate for easy installation

Bandwidth	
In-Out	5~1000 MHz
In-Tap	5~1000 MHz
Tap Loss (± 1.0 dB):	6, 9, 12, 16, 20, 24, 27, 30 dB
Insertion Loss (max.):	
6; 2.7dB	9; 2.1dB
12; 1.6dB	16; 1.0dB
20; 1.4dB	24; 0.9dB
27; 0.7dB	30; 1.3dB

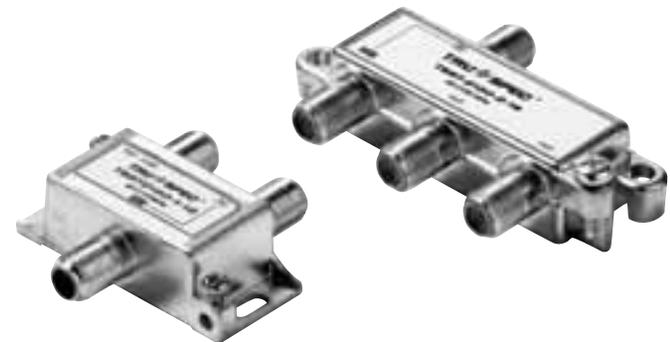
Return Loss	18dB min.
Isolation (Tap-Out) (min.)	
6 to 20 dB	18dB + Coupling Value
24 to 30 dB	38dB min.

Ordering Information

TSCW-(value)-SB 1 Tapped Port Coupler
TSCW-(value) 1 Tapped Port Coupler

TSST-2150 Series

40~2150 MHz Wideband Directional Couplers



- ◆ High frequency broadband range 40~2150MHz L-Band suitable for analog and digital satellite applications
- ◆ Capacitor coupling circuitry effectively blocks DC voltage at tapped ports while DC power is allowed passage from input to output for remote LNB-powering applications and powering the antenna preamplifier directly from the headend
- ◆ High-performance printed board circuitry provides low intermodulation distortion to ensure excellent digital performance
- ◆ Solder-sealed back cover-plate provides maximum EMI-RFI shielding >-130 dB, eliminating signal ingress to guarantee distortion-free pictures
- ◆ 1-inch centered 1/2" long precision machined F-connector threads ensure improved port-to-connector interface and accommodate external security devices
- ◆ Internal seizing pins provide improved connectivity to connector center lead

Bandwidth	
In-Out	40~2150 MHz
In-Tap	40~2150 MHz
Isolation Port-Port	
Avg @ 40 MHz	>14 dB
Avg @ 2.15 GHz	>11 dB

Insertion Loss	
Avg @ 40 MHz	<3.2 dB
Avg @ 2.15 GHz	<4.4 dB
Directional Coupler tap loss equal to value $\pm 2\%$	

Ordering Information

TSST-2150-2-(value) 2 Tapped Port Coupler
TSST-2150-1-(value) 1 Tapped Port Coupler

SUB-CATV

Separator-Combiner



- ◆ Separates and isolates Sub-Band (5~48 MHz) from CATV/UHF/VHF (54~1000 MHz) signals, providing for clean insertion into modulators and data translators
- ◆ Filters and mixes Sub-Band and CATV/UHF/VHF signals to single output, reducing reverse path ingress
- ◆ Used as amplifier Sub-Band bypass enabling cost-effective reverse path upgrade, converting unidirectional amplifiers to bi-directional
- ◆ Analog and digital signal compatible
- ◆ Prevents VHF/UHF ingress into return path channels
- ◆ Min Rejection 50 dB/Sub
- ◆ Sub-Band Power Passive for remote powering applications
- ◆ Zinc Diecast Housing

Bandwidth	Common	5~1000 MHz
	SUB	5~42 MHz
	CATV	50~1000 MHz
Rejection	SUB	>50 dB
	CATV	>60 dB
Insertion Loss	SUB	<1.0 dB
	CATV	<1.5 dB
Return Loss	SUB	>20 dB
	CATV	>25 dB

T3

TV-Satellite Triplexer



- ◆ Ideally suited for use with stacked satellite polarity systems and bi-directional CATV/SMATV systems that employ return modem and video signal
- ◆ Separates and isolates Sub-Band (5~48 MHz), CATV/SMATV (54~1000 MHz) and satellite (950~2300 MHz) signals, providing for clean combining and separation of signals
- ◆ Filters and mixes three signal bands to single output, allowing two-way cable and satellite signals on single cable
- ◆ Prevents paging, cellular and ham radio signals from interference with satellite, CATV and cable modem signals
- ◆ Can be used to cost-effectively upgrade distribution systems with satellite and cable modem services by allowing continued use of existing amplifiers
- ◆ 550 mA power passing satellite-port, enabling LNB powering

Bandwidth	Common	5~2300 MHz
	SUB	5~42 MHz
	CATV	50~806 MHz
	SAT	950~2300 MHz
Rejection	SUB	>50 dB
	CATV	>45 dB
	SAT	>40 dB
Insertion Loss	SUB	<1.0 dB
	CATV	<1.5 dB
	SAT	<2.5 dB

D2

TV-Satellite Diplexer



- ◆ Ideally suited for use with stacked satellite polarity systems
- ◆ Separates and isolates satellite (950~2300 MHz) from UHF/VHF (54~806 MHz) signals, providing for clean insertion into satellite receivers
- ◆ Filters and mixes UHF/VHF and satellite signals to single output, allowing antenna and satellite signals on single cable
- ◆ Prevents paging and cellular signals from interference with satellite signals
- ◆ Can be used to bypass signals around amplifiers, enabling cost-effective satellite overlay upgrade
- ◆ Hi-Q filter response for excellent satellite to VHF/UHF rejection crossover
- ◆ 550 mA power passing satellite-port, enabling LNB powering

Bandwidth	Common	5~2300 MHz
	CATV	50~806 MHz
	SAT	950~2300 MHz
Rejection	CATV	>45 dB
	SAT	>40 dB
Insertion Loss	CATV	<1.5 dB
	SAT	<2.5 dB

TSDM-2150

TV-Satellite Diplexer



- ◆ Separates and isolates satellite (950~2150 MHz) from UHF/VHF (54~806 MHz) signals, providing for clean insertion into satellite receivers
- ◆ Filters and mixes UHF/VHF and satellite signals to single output allowing antenna and satellite signals on single cable
- ◆ Prevents paging and cellular signals from interference with satellite signals
- ◆ 550 mA power passing satellite-port, enabling LNB powering

Bandwidth	Common	5~2300 MHz
	CATV	50~806 MHz
	SAT	950~2300 MHz
Rejection	CATV	>21 dB
	SAT	>38 dB
Insertion Loss	CATV	<2.0 dB
	SAT	<2.6 dB



UVSJ

UHF-VHF Band Separator-Combiner



- ◆ Separates and isolates VHF (54~216 MHz) from UHF high (470~809 MHz) signals, providing for clean insertion into headend strip amplifier
- ◆ Filters and mixes VHF and UHF signals, allowing mixing of multiple antenna onto single cable
- ◆ Reduces harmonics and out of band interference for improved amplifier performance
- ◆ Low insertion loss 0.5 dB max
- ◆ Impedance 75 Ohms
- ◆ VHF-Band DC Power Passive for remote preamplifier powering
- ◆ Machined F-Connector Threads
- ◆ Epoxy Sealed Back Cover
- ◆ Yellow-Chromate Plated Zinc Diecast Housing

Bandwidth	Common	50~806 MHz
	VHF	54~216 MHz
	UHF	470~806 MHz
Rejection	VHF	>30 dB
	UHF	>42 dB
Insertion Loss	VHF	<0.5 dB
	UHF	<0.5 dB
Return Loss	VHF	>15 dB
	UHF	>15 dB

HLSJ

VHF Band High-Low Separator-Combiner



- ◆ Separates and isolates VHF low (54~108 MHz) from VHF high (175~216 MHz) signals for clean insertion into headend strip amplifier
- ◆ Filters and mixes VHF low and VHF high signals, allowing mixing of multiple antenna onto single cable
- ◆ Reduces harmonics and out of band interference for improved amplifier performance
- ◆ Low insertion loss 0.5 dB max
- ◆ Impedance 75 Ohms
- ◆ VHF-Low-Band DC Power Passive for remote preamplifier powering
- ◆ Machined F-Connector Threads
- ◆ Epoxy Sealed Back Cover
- ◆ Yellow-Chromate Plated Zinc Diecast Housing

Bandwidth	Common	50~216 MHz
	Low	54~108 MHz
	High	175~216 MHz
Rejection	Low	>23 dB
	High	>26 dB
Insertion Loss	Low	<0.5 dB
	High	<0.4 dB
Return Loss	Low	>12 dB
	High	>14 dB

SC Series

Channel-3 and 4 Filter-Combiners



- ◆ Cost-effective high-quality channel combiners used with multiple TV sets for decoded programming, simultaneous premium-channel viewing and recording, TV remote switching between off-air and premium channels
- ◆ Precision-tuned 6-stage bandpass-bandstop filters provide 6 MHz carrier-free environment for locally originated channel insertion
- ◆ High Skirt Selectivity Sharp Frequency Cut Off
- ◆ Easy Balancing Adjustment Tuning – High Unwanted Signal Attenuation
- ◆ Rejection Depth >25 dB
- ◆ Adjacent Channel Loss 5.5 dB+1 dB
- ◆ Low Insertion Loss 3 dB+2 dB
- ◆ Adjustable Balancing Attenuators

SC-3

Bandwidth	
Band Pass	54~1000 MHz
Band Stop	60~66 MHz
Insertion Loss	
Band Pass	<4 dB
Band Stop	<7 dB
Rejection	
Band Pass	>20 dB
Band Stop	>25 dB

SC-4

Bandwidth	
Band Pass	54~1000 MHz
Band Stop	66~72 MHz
Insertion Loss	
Band Pass	<4 dB
Band Stop	<7 dB
Rejection	
Band Pass	>20 dB
Band Stop	>25 dB

LPF Series

In-Line Band Pass Filters



- ◆ Removes channels for insertion of security or other locally originated channels
- ◆ Passes channels below cutoff frequency
- ◆ Blocks higher channels allowing clean insertion of channels
- ◆ Frequency Range 5~230 MHz (LPF-230), 5~450 MHz (LPF-450), 5~550 MHz (LPF-550), 5~700 MHz (LPF-700)
- ◆ Pass-Band Insertion Loss <0.5 dB
- ◆ Stop-Band Rejection >-50 dB, SMD High Stability
- ◆ High EMI Shielded Tube Case
- ◆ Nickel Plated Precision Brass Threads
- ◆ Custom design available

	LPF-230	LPF-450	LPF-550	LPF-700
Bandwidth				
Band Pass (MHz)	5~230	5~450	5~550	5~700
Band Stop (MHz)	300~1000	530~1000	630~1000	800~1000
Insertion Loss				
Band Pass (dB)	<1.0	<1.0	<1.0	<1.0
Band Stop (dB)	>50	>50	>50	>50

HPFO-54MHz

54 MHz High-Pass Filter



- ◆ Prevents TV interference from cable-modem output signals
- ◆ Blocks ingress into upstream low-frequency (5~40 MHz) path
- ◆ Frequency Range 1~1000 MHz
- ◆ High Sub-band Rejection >-40 dB
- ◆ High Return Loss
- ◆ Insertion Loss <0.5 dB
- ◆ Rugged Weatherproof Construction
- ◆ Internal O-Ring for outdoor applications
- ◆ Nickel Plated Precision Machined Brass

	5~1000 MHz							
Band (MHz)	5~15	15~40	54~200	200~550	550~750	750~860	860~1000	
Insertion Loss Thru (dB)	n/a	n/a	-2	-0.2	-0.2	-0.3	-0.3	
Rejection (dB)	54	36	n/a	n/a	n/a	n/a	n/a	
Return Loss Input (dB)	-33	-34	-35	-25	-24	-22	-20	



FAM

Inline Attenuator Pads



- ◆ Reduces RF signal strength to reduce intermodulation caused by high input levels
- ◆ Frequency Range 5~2000 MHz
- ◆ Precision SMD Monolithic Ceramic Printed Circuit Board
- ◆ Etched Glazed Type Resistors
- ◆ Return Loss 20 dB typical
- ◆ Attenuation Values 1, 3, 6, 8, 10, 12, 16, 20 dB
- ◆ Flatness 0.5 dB
- ◆ 1% Tolerance components
- ◆ 22-Gauge Spring Steel Center
- ◆ Nickel Plated Precision Machined Brass

Bandwidth	5~2000 MHz
Flatness @ 1 GHz	>0.5 dB
Insertion Loss @ 1 GHz	value \pm 1 dB
Return Loss @ 1 GHz	>20 dB

PPFAM

2 GHz DC-Passing Inline Attenuator Pads

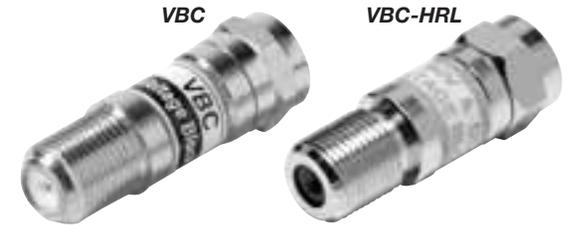


- ◆ Reduces RF signal strength to reduce intermodulation caused by high input levels
- ◆ Allows passage of DC power
- ◆ Frequency Range 5~2000 MHz
- ◆ Precision SMD Monolithic Ceramic Printed Circuit Board
- ◆ Etched Glazed Type Resistors
- ◆ Return Loss 20 dB typical at 1 GHz
- ◆ Attenuation Values 3, 6, 8, 10, 12, 16, 20 dB
- ◆ Flatness 0.5 dB
- ◆ 22-Gauge Spring Steel Center
- ◆ Nickel Plated Precision Machined Brass

Bandwidth	5~2000 MHz
Flatness @ 1 GHz	>0.5 dB
Flatness @ 2 GHz	>2.0 dB
Insertion Loss	value \pm 1 dB
Insertion Loss	value \pm 2 dB
Return Loss @ 1 GHz	>20 dB

VBC Series

DC-Voltage Blocking Couplers



- ◆ Used to stop voltage from entering a device
- ◆ Protects sensitive test equipment from damage test
- ◆ Two bandwidths available for use in CATV and Satellite applications
- ◆ Low insertion loss for transparent operation
- ◆ High return loss for unsurpassed performance in digital signal environments

VBC		VBC-HRL	
Bandwidth	5~1000 MHz	Bandwidth	5~3000 MHz
Flatness		Flatness	
@ 1 GHz	>0.5 dB	@ 1 GHz	>0.3 dB
@ 2 GHz	>0.5 dB	@ 2 GHz	>1.0 dB
Insertion Loss		Insertion Loss	
@ 1 GHz	<0.3 dB	@ 1 GHz	<0.1 dB
@ 2 GHz	<0.3 dB	@ 2 GHz	<0.3 dB
Return Loss		Return Loss	
@ 1 GHz	>20 dB	@ 1 GHz	>25 dB

Ordering Information

- VBC** 5-1000 MHz DC-Voltage Blocking Coupler
VBC-HRL 5-3000 MHz DC-Voltage Blocking Coupler

TSEQ-2150 Series

9-16 dB 40~2150 MHz Satellite IF Inline Slope Equalizers



- ◆ Slope equalizers compensate for long cable runs in Satellite and Broadband Distribution Networks
- ◆ Connects to amplifier input to present amplifier with flat and even signal level
- ◆ High Performance SMD Board Circuitry provides consistent performance
- ◆ Precision Machined F-Connector Threads ensures smooth connector interface

Bandwidth	40~2150 MHz		
Impedance	75 Ohms		
DC Pass-Thru Current	500 mA max		
Insertion Loss	40 MHz	1 GHz	2.1 GHz
TSEQ-2150-9	9 dB	4.5 dB	0.3 dB
TSEQ-2150-12	12 dB	5.5dB	0.3 dB
TSEQ-2150-16	16 dB	7 dB	0.3 dB

MX-7

Passive 7-Channel VHF Separator-Combiner



- ◆ 12 channel range 54~216 MHz (TV 2~13)
- ◆ Separator enables selection of up to 7 non-adjacent VHF channels (3 low-VHF and 4 high-VHF channels) from multiple off-air TV antennas for best picture quality mix-and-match system flexibility
- ◆ Combiner mixes up to 7 non-adjacent VHF channels (3 low-VHF and 4 high-VHF channels) from single channel off-air antenna sources into a composite output for headend insertion
- ◆ 10 dB per channel attenuation control provides easy level balancing
- ◆ Low 2.5 dB insertion loss provides optimum carrier-to-noise for improved picture quality
- ◆ Compatible with both analog and digital signals to provide format flexibility

Channels	3 Low band, 4 High band	
Frequency Range	54-215 MHz	
Bandwidth	6 MHz	
Insertion Loss	Low band	2.5 dB
	High band	4.5 dB
Attenuator Range	0 to 10 dB	
Skirt Selectivity (Alternate Channel)	16 dB	
Impedance	75 Ohms	
Dimensions	13"(L) x 1.45(D) x 3.25"(H)	



ACU-1

Matching Transformer



- ◆ Converts television terminal connection to F-type connector
- ◆ 75-300-Ohm Impedance Matching Balun
- ◆ Frequency 5~900 MHz UHF-VHF-FM
- ◆ Suitable for Indoor Applications
- ◆ 3-Capacitor Circuitry
- ◆ Insertion Loss 1-2 dB typical
- ◆ Return Loss 16 dB min
- ◆ DC Power Blocking
- ◆ Firmly Staked F-Connector to Housing
- ◆ Machined Brass F Connector Port
- ◆ Shielded Housing

MTCB-1

Matching Transformer



- ◆ Filters out interference from local citizen band radio transmitters
- ◆ Converts television terminal connection to F-type connector
- ◆ 75-300-Ohm Impedance Matching Balun
- ◆ Frequency Range 54~550 MHz
- ◆ Suitable for Indoor Applications
- ◆ Filter Attenuation -40 dB at 35 MHz
- ◆ Insertion Loss 1 dB max
- ◆ Return Loss 16 dB min
- ◆ DC Power Blocking
- ◆ Firmly Staked F-Connector to Housing
- ◆ Machined Brass F Connector Port
- ◆ Shielded Housing

OB Series

Matching Transformers



- ◆ Converts antenna wing nut connection to F-type connector
- ◆ 75-300-Ohm Impedance Matching Baluns
- ◆ Frequency 5~900 MHz UHF-VHF-FM
- ◆ Suitable for Outdoor Applications
- ◆ Heavy-Duty Fully Sealed Weatherproof Housing
- ◆ Supplied with Protective Weather-Boot
- ◆ Insertion Loss 2-3 dB typical
- ◆ Return Loss 16 dB min
- ◆ DC Power Blocking
- ◆ Machined Brass F Connector Port

Ordering Information

- OB-1** 300-Ohm Twin Lead Crimped-Soldered Leads
- OB-3** 16-Gauge Solid Hook Terminals

CM-3P

Matching Transformer



- ◆ Adapts F-type connection for use with flat lead cable
- ◆ Quick-Connect 300-75-Ohm Impedance Matching Balun
- ◆ Frequency 5~900 MHz UHF-VHF-FM
- ◆ Suitable for Indoor Applications
- ◆ Insertion Loss 2-5 dB
- ◆ Balance Ratio 30 dB min
- ◆ Insulation-Piercing Screws

AB-4

A/B Push-Button Switch



- ◆ High Performance A/B Switch
- ◆ Switches between 2 input sources
- ◆ Front-Panel Push-Buttons
- ◆ Bandwidth 5~1000 MHz
- ◆ Impedance 75 Ohms
- ◆ High Isolation 60-90 dB
- ◆ Return Loss 15-20 dB min
- ◆ Insertion Loss <0.5 dB
- ◆ ABS Plastic-Covered Zinc Diecast Housing
- ◆ Machined F Connector Ports
- ◆ Mounting Screws Included

PAB-2

A/B Push-Button Switch



- ◆ High Performance A/B Switch
- ◆ Switches between 2 input sources
- ◆ Top-Panel Push-Buttons
- ◆ Bandwidth 5~1750 MHz
- ◆ Impedance 75 Ohms
- ◆ High Isolation 60-90 dB
- ◆ Return Loss 15-20 dB min
- ◆ Insertion Loss <0.5 dB
- ◆ DC Power Passing
- ◆ ABS Plastic-Covered Zinc Diecast Housing
- ◆ Machined F Connector Ports
- ◆ Mounting Screws Included

AB-75

Economy A/B Slide Switch



- ◆ Cost-Effective A/B Switch
- ◆ Switches between 2 input sources
- ◆ Bandwidth 5~900 MHz
- ◆ Impedance 75 Ohms
- ◆ Isolation 40-60 dB
- ◆ Return Loss 13-20 dB min
- ◆ Insertion Loss <1 dB
- ◆ DC Power Passing
- ◆ Zinc-Plated Heavy-Duty Diecast Housing
- ◆ Machined F Connector Ports
- ◆ Hardware and Double Adhesive Pad Included

TSHP Series

Loss Chart

Insertion Loss (TSHP-**):	M2	M4	M8	S2	S3	C8	C12	C16	PI
Avg. @ 5 MHz:	1.1	1.1	1.2	3.7	3.8/7.3	2.5	2.0	1.7	1.0
Avg. @ 1 GHz:	2.4	2.5	2.6	5.0	5.4/9.2	4.1	3.5	3.5	1.5

Isolation Port-Port (TSHP-**):	M2	M4	M8	S2	S3	C8	C12	C16	PI
Typ. @ 5 MHz:	24	34	33	25	25	28	28	28	60
Typ. @ 1 GHz:	25	30	28	22	22	26	25	25	53

Return Loss (TSHP-**):	M2	M4	M8	S2	S3	C8	C12	C16	PI
Typ. @ 5 MHz:	25	22	21	20	22	21	20	22	20
Typ. @ 1 GHz:	20	20	26	22	21	20	22	20	22

Tap Loss (Tap value minus): ± 2dB

Impedance: 75Ω

Power Capacity (TSHP-**):	M2	M4	M8	S2	S3	C8	C12	C16	PI
30-90 VAC (Amperes):	8	8	8	8	8	12	12	12	12

Connectors:

In: "KS" type female
 Out: "KS" type female
 Multitap: "F" type female

