

# 2-Way 0° POWER SPLITTER/COMBINERS

## ZSC-2 SERIES



MODEL	FREQUENCY	Z (Ohms)	Cost
ZSC-2-1	100 KHz - 400 MHz	50	\$27.95 (4-24)
ZSC-2-1W	1 MHz - 650 MHz	50	\$32.95 (4-24)
ZSC-2-2	2 KHz - 60 MHz	50	\$37.95 (4-24)

NATIONAL STANDARD NUMBERS ZSC-2-1B NSN 5820-00-270-3055  
ZSC-2-2-75B NSN 5915-01-012-8162

For 75Ω models see page 113.

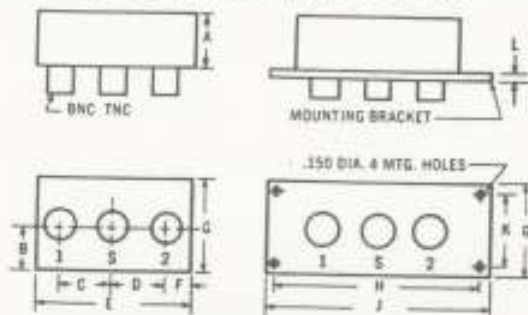
ZSC-2-2-75B ... 75Ω equivalent of ZSC-2-2.

**DESCRIPTION** — The Series ZSC 2-way power splitter/combiner is a high performance broad band hybrid junction. Signals fed into the input S port are equally divided, in phase, to the two output ports. Similarly, signals fed into ports 1 and 2 are vectorially summed at the output S port. Typically, over most of the frequency range, the phase balance is within 2 degree and the amplitude balance is within .05 dB.

Housed in a die cast aluminum case, these rugged units are double shielded to meet tough EMI requirements. The case is finished with a blue baked enamel per Federal Standard 595 #25109 or phosphoric etch per MIL-C-15328A.

High reliability is associated with every MCL unit. Every unit is 100% tested and carries a one year guarantee.

## DIMENSIONS AND CONNECTIONS



MOUNTING BRACKET AVAILABLE ON REQUEST.

Add suffix B to part number and add \$1.50 to unit cost.

CONNECTORS BNC Std., TNC on request.

	A	B	C	D	E	F	G	H	J	K	L
IN.	0.15	.63	.750	.730	2.25	.385	1.40	2.95	3.25	1.10	.000
MM	29	16	19	18.5	57	9.7	35.5	74.9	82.5	28	2.0

WEIGHT

74.0 grams

2.60 ounces

**Mini-Circuits** 2625 E. 14th St., Brooklyn, NY 11235 (212) 769-0200/Dom. Telex 125460/Int'l. Telex 620156

## FEATURES

- Broadband, 2 KHz to 650 MHz
- Excellent Balance, typically, phase balance within 1°, amplitude balance within 0.05 dB
- Low Insertion Loss, typically less than 0.6 dB
- High Isolation, typically better than 25 dB
- Connectors, available with BNC or TNC
- Mounting, available with bracket as option
- Compact, 2.25" width, 1.4" height, 1.15" depth
- High Reliability, 100% tested, one year guarantee
- Low Cost, as little as \$27.95 in small quantity

## APPLICATIONS

- Split an input signal into two equal in-phase outputs
- Combine signals from two different sources
- Add signals vectorially
- Provide RF logic capability

## ABSOLUTE MAXIMUM RATINGS

- Operating and Storage Temp. -55°C to +100°C
- Environmental Specifications: See Index Page

## TWO-TONE INTERMODULATION MEASUREMENT

### RF INPUT CONDITIONS

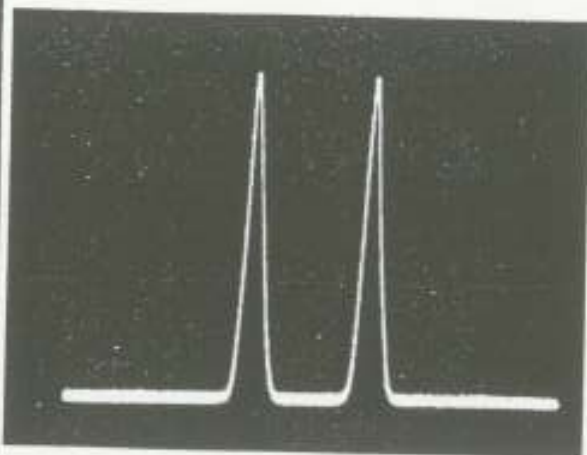
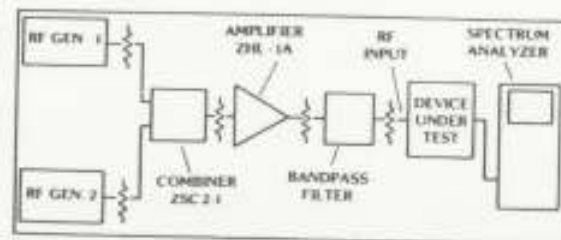
TONE 1 - 10 MHz at +7dBm INPUT

TONE 2 - 9 MHz at +7dBm INPUT

### SPECTRUM DISPLAY

RESOLUTION - 500kHz PER DIVISION

VERTICAL - 10 dB PER DIVISION

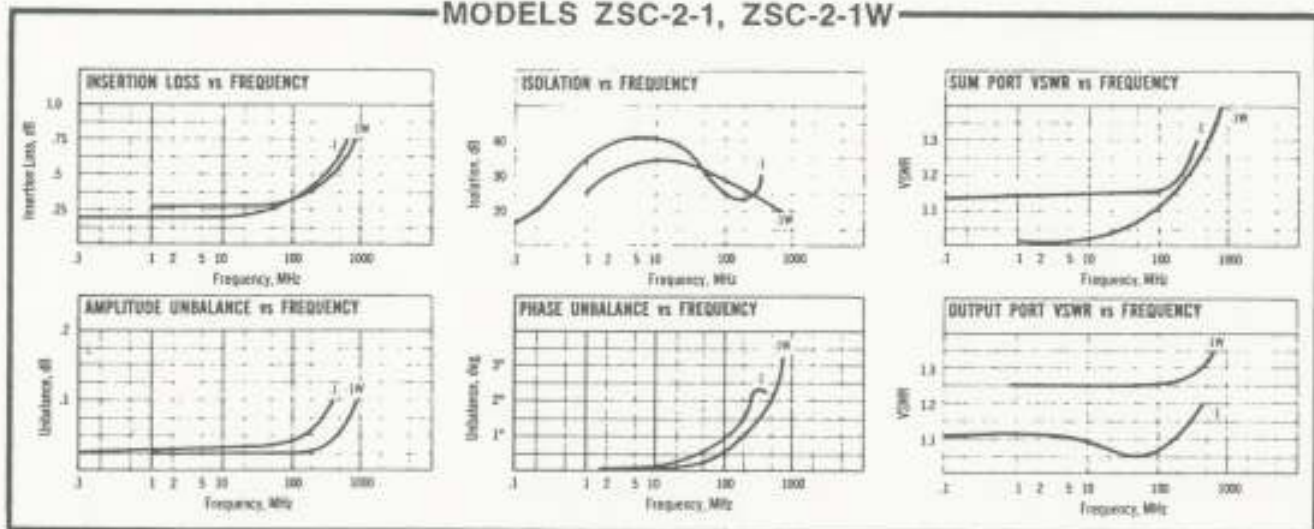


ZSC-2 Series  
2 KHz to 650 MHz

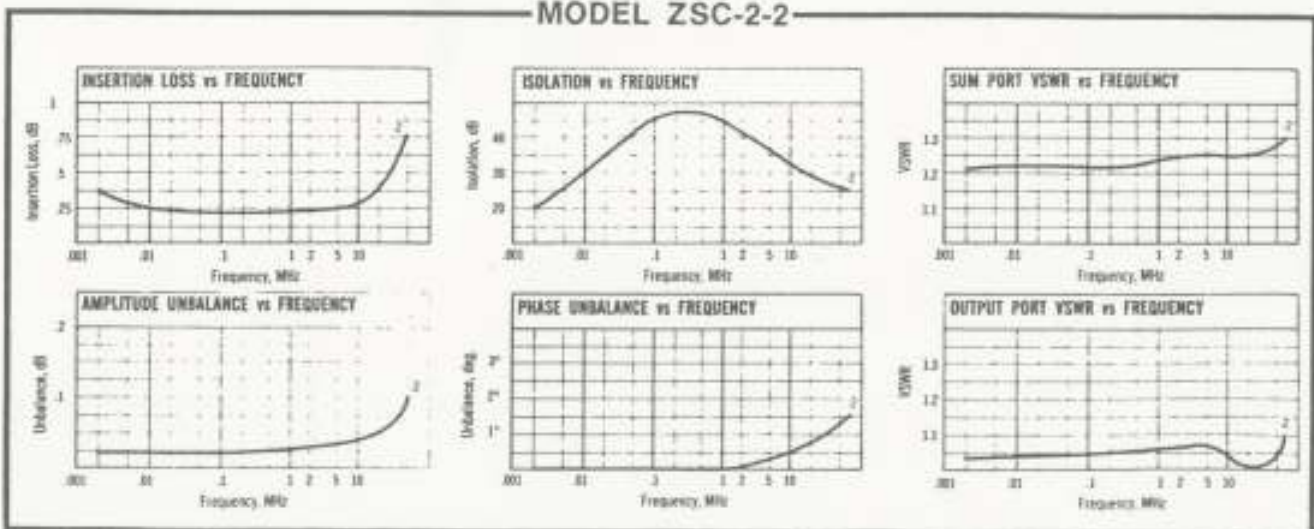
# Mini-Circuits

MODEL	ZSC-2-1	ZSC-2-1W	ZSC-2-2
FREQ. RANGE [MHz]	0.1-400	1-650	2 KHz-60 MHz
NOMINAL PHASE	0°	0°	0°
IMPEDANCE, ALL PORTS	50 ohms	50 ohms	50 ohms
ISOLATION BETWEEN OUTPUT 1 and 2, dB	Typ. Min. 2-40 MHz 40 30 0.4-400 MHz 25 20 0.1-0.4 MHz 20 15	Typ. Min. 10-200 MHz 35 25 1-650 30 20	Typ. Min. 15 KHz-5 MHz 40 30 4 KHz-60 MHz 27 20
INSERTION LOSS, dB (above 3dB splR)	Typ. Max. 0.1-100 MHz 0.2 0.5 100-200 MHz 0.4 0.75 200-400 MHz 0.6 1.0	Typ. Max. 1-200 MHz 0.2 0.5 200-500 MHz 0.5 0.8 500-650 MHz 0.7 1.0	Typ. Max. 10 KHz-3 MHz 0.2 0.4 2 KHz-20 MHz 0.3 0.6 20 MHz-60 MHz 0.6 1.0
PHASE UNBALANCE, DEGREES	Typ. Max. 0.1-100 MHz 0.5 2 100-200 MHz 1 3 200-400 MHz 2 4	Typ. Max. 1-100 MHz 0.5 2.0 100-400 MHz 1.0 3.0 400-650 MHz 2.0 4.0	Typ. Max. 10 KHz-3 MHz 0.5 2 2 KHz-20 MHz 1 3 20 MHz-60 MHz 2 4
AMPLITUDE UNBALANCE, dB	Typ. Max. 0.1-100 MHz 0.05 0.15 100-200 MHz 0.05 0.2 200-400 MHz 0.1 0.3	Typ. Max. 1-100 0.05 0.15 100-400 MHz 0.05 0.20 400-650 MHz 0.10 0.30	Typ. Max. 2 KHz-20 MHz 0.05 0.15 20 MHz-60 MHz 0.1 0.3
VSWR	1.2 typ.	1.2 typ.	1.2 typ.
MATCHED POWER RATING	1 watt max.	1 watt max.	1 watt max.
INTERNAL LOAD DISS.	0.25 watt	0.25 watt	0.25 watt

## MODELS ZSC-2-1, ZSC-2-1W



## MODEL ZSC-2-2



PROMPT SERVICE / ONE WEEK DELIVERY

Mini-Circuits

# ELECTRONIC ATTENUATOR/SWITCH

## ZAS SERIES



MODEL	FREQUENCY	Z (Ohms)	COST
ZAS-1	5 MHz - 450 MHz	50	\$45.95 (4-24)
ZAS-3	1 MHz - 200 MHz	50	\$46.95 (4-24)

**DESCRIPTION**—The ZAS series of electronic attenuator/switches enable attenuation control of RF signals with a maximum of only 20 mA of control current. Due to the specific properties of these attenuators, for a single frequency input all harmonics even and odd order, are virtually eliminated at the output. As a consequence the intercept point is greater than +45 dBm.

The attenuator/switches are economically priced while covering the very broad frequency range from 1 to 450 MHz. They offer low insertion loss, 1.5 dB, high isolation 50 dB, and exceptional unit to unit matched performance.

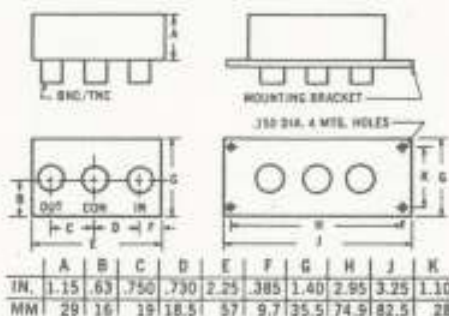
Having BNC connectors as a standard, the ZAS series has as an option TNC connectors at no cost.

The ZAS series is housed in a die cast aluminum case. These rugged units are double shielded to meet tough RFI requirements. The case is finished with a blue baked-enamel per Federal Standard 595 #25109 over phosphoric etch per MIL-C-15328A.

High reliability is associated with every MCL unit. Every production run is 100% tested and every unit must pass our rigid inspection and high quality standards.

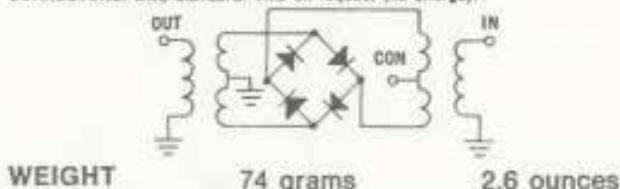
Naturally, our one year guarantee applies to these units.

## DIMENSIONS AND CONNECTIONS



**MOUNTING BRACKET AVAILABLE ON REQUEST.** Add suffix B to part number and \$1.50 to unit cost.

**CONNECTORS:** BNC standard. TNC on request (no charge).



## FEATURES

- Broadband:** 1 MHz to 450 MHz
- High On/Off Ratio:** Typically greater than 50 dB
- Low Insertion Loss:** Typically less than 1.5 dB
- Compact:** 2.25" W, 1.15" D, 1.4" H
- High Reliability:** 100% tested, 1 year guarantee
- Low Cost:** As low as \$45.95 in small quantity

## APPLICATIONS

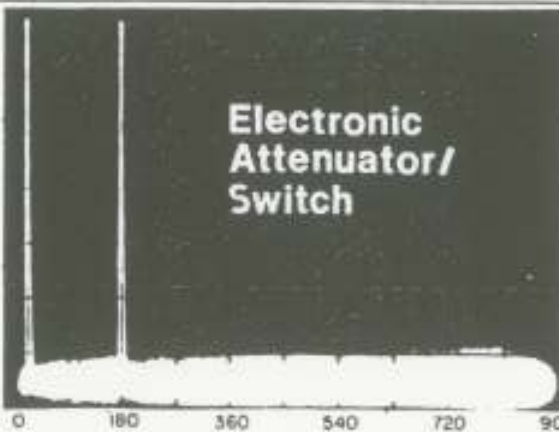
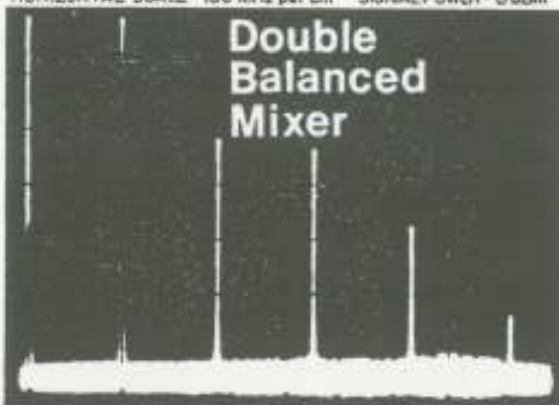
- Electronic Switching
- Current controlled attenuation
- Bi-phase modulation
- Power leveling

## ABSOLUTE MAXIMUM RATINGS

- Total Input Power: 1 Watt
- Total Input Current Peak: 40 mA
- Operating and Storage Temp.: -55°C to +100°C
- Environmental Specifications: See Index Page

## TYPICAL HARMONIC SPECTRUM COMPARING ATTENUATORS - CONTROL CURRENT SET FOR 10dB ATTN.

SIGNAL FREQUENCY - 180 MHz VERTICAL SCALE - 10 dB per cm  
HORIZONTAL SCALE - 100 MHz per cm SIGNAL POWER - 0 dBm



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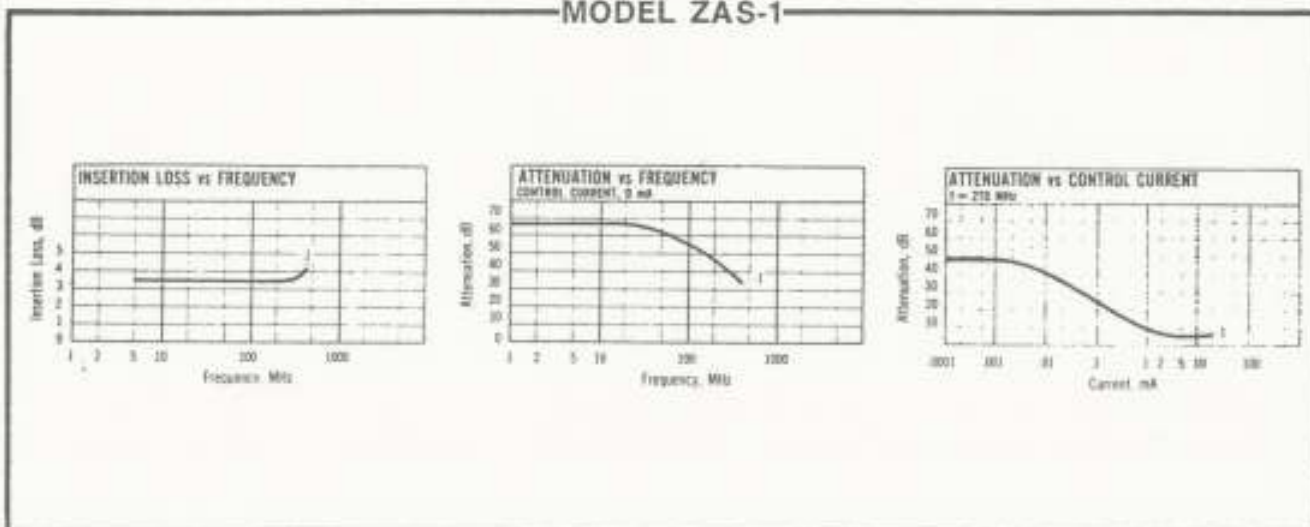
ZAS Series  
1 MHz to 450 MHz



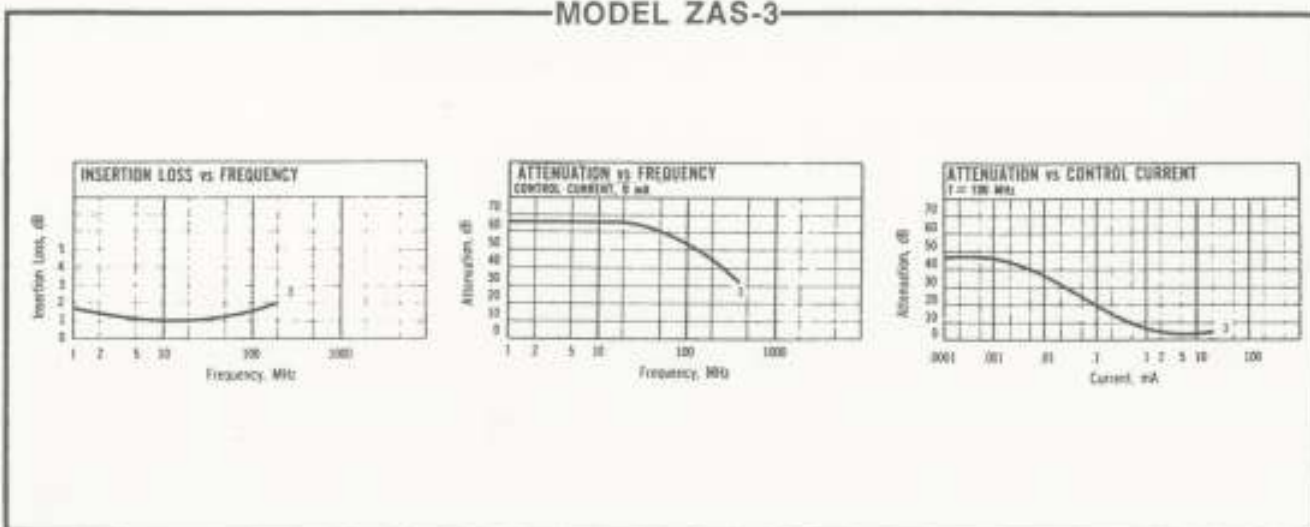
SPECIFICATIONS

Model No.	Frequency Range, MHz		Insertion Loss, dB				Isolation, dB											
			One Octave From Band Edge		Total Range		Lower Band Edge to One Decade Higher		Mid Range		Upper Band Edge to One Octave Lower							
	Input	Control	Typ.	Max.	Typ.	Max.	IN-OUT	IN-CON	IN-OUT	IN-CON	IN-OUT	IN-CON						
ZAS-1	5-450	DC-0.05	3.5	4.0	3.5	4.7	65	50	35	25	55	45	25	15	35	25	20	10
ZAS-3	1-200	DC-0.05	1.4	2.0	1.6	2.5	65	50	35	25	50	40	20	15	50	35	15	10

MODEL ZAS-1



MODEL ZAS-3



PROMPT SERVICE / ONE WEEK DELIVERY

