



**Audio Specialties Group  
Products Division**

**MAS-518  
2x1 Transmitter Combiner  
Technical Specifications**



Audio Specialties Group and any of its vendors, dealers or representatives forbid the use of the MAS-518 in any way that is contrary to FCC Regulations.

Utilizing the MAS-518 in a way that is contrary to FCC Regulations is expressly forbidden.

Maintaining power levels to within FCC regulations is the sole responsibility of the user.

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## SECTION 1 INTRODUCTION

The MAS-518 2x1 Transmitter Combiner is a 1-HP (horizontal pitch) module that is compatible with the ASG MAS-Rack Series 500 system. It is a passive device used for combining up to two transmit signals into a single connector output.

## SECTION 2 FEATURES

The design of the combiner is based on a Wilkinson, non-lumped topology with ceramic surface mount resistors and trim-capacitors. The capacitors allow the combiner to be ideally matched for the frequency placed on any input. Unlike lumped, non adjustable topologies, the products and artifacts generated by combining are absolutely minimized for the four specific frequencies being combined.

## SECTION 3 OPERATION

### 3.1 PRECAUTIONS

#### 3.1.1 Explanations



Identifies important performance information



Identifies safety information

*Note*

Identifies important operator actions

#### 3.1.2 Environmental



Do not expose the MAS-518 to rain or direct sunlight.



Maintain proper ventilation for temperature specification.

#### 3.1.3 Electrical



The Ceramic impedance matching resistors on the MAS-518 combining PCB can get very HOT. Use caution when RF power is applied to any input to avoid burns.



Emission specifications will only be met if operated within the guidelines of this manual. Operating the MAS-518 other than as specified can generate unwanted radio frequency radiation that could adversely affect the proper operation of other electrical equipment.



Do not remove output transmission cabling or radiating device from the transmission cable while RF power is active. High power RF energy can cause burns and electrical shock. Damage can occur in the power amplifier stage if the output becomes unloaded.

### 3.1 Connections

A single RF connection is provided for each input. The combined output is available as a full power output and optionally can have a front panel TEST output which allows the output signal to be monitored without interrupting the transmission line feed.

### 3.2 Tuning and Adjustments

Determine the frequency of the four signals to be used for desired operation. Measure and record the amplitude of each of these signals. (A worksheet is provided at the back of this manual for recording this information.). Connect the output of the MAS-518 to a RF spectrum analyzer.



Verify that the signal level does not exceed the analyzer's maximum input specification.

#### **Note**

The MAS-518 can only be optimized for known frequencies. If frequencies change, the optimization is negated and the unit must be re-tuned.

#### **Note**

A ceramic or other type of non-metallic adjustment tool must be used.

#### **Note**

Common practice is to place the lowest frequency signal on input #1 and the highest on input #4. This allows the spectrum analyzer to display the carriers left to right on the screen as inputs 1-4 in order of ascending frequency. This is *not* required for proper operation.

- 1 Connect the lowest frequency signal to input #1. Terminate inputs 2  
Adjust C? for maximum amplitude. Input match trimmer. .
- 2 Connect the next highest frequency test signal to input #2. Terminate inputs 1  
Adjust C? for maximum amplitude. Input match trimmer.

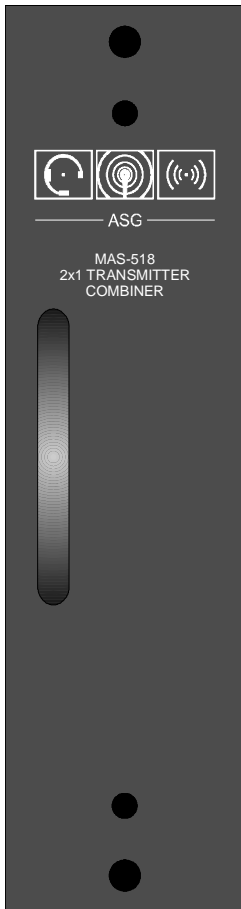
The inputs are now optimized for each frequency.

- 5 Remove all terminators and connect each signal to its determined input. .
- 6 Adjust C?, for minimum products. Input 1,2 first stage match trimmer,  
Adjust C?, for minimum products. Input 1,2 combine node trimmer
- 9 Adjust C?, 4-way combine node trimmer, for minimum products
- 10 Adjust C? for maximum amplitude. Output match trimmer. Once set, it should not need to be touched again.

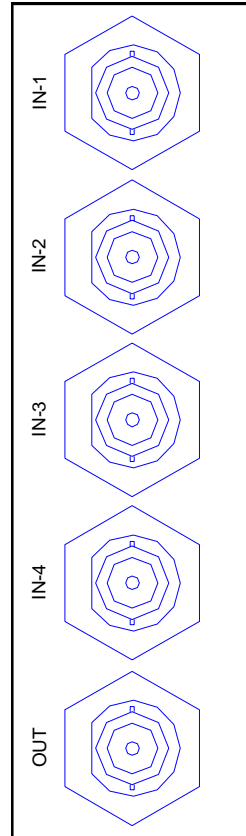
As each capacitor is adjusted, several readjustments will be required beginning at step #6 of these procedures.

## 3.2 PANEL LAYOUTS

### 3.2.1 Front Panel Layout



### 3.2.2 Rear Panel Layout



## SECTION 4 SPECIFICATIONS

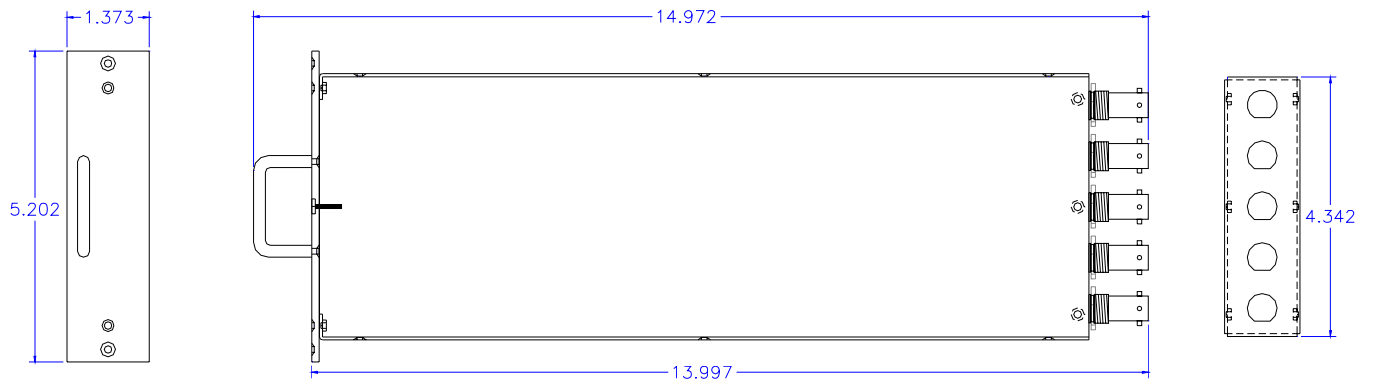
### 4.1 Electrical Specifications

RF Bandwidth:	450-800MHz
Maximum RF Input level:	+33 per input, single carrier
Output Level:	-7dBm below input amplitude

### 4.2 Operational Conditions

Temperature 20 Degrees Celsius to 60 Degrees Celsius

### 4.3 Mechanical Parameters



Specifications subject to change without notice.



**TYPICAL APPLICATION**