



User Guide

Combine 6 Active Antenna Combiner



Safety Instructions

RISK OF ELECTRIC SHOCK OR FIRE

- ONLY USE the power supply provided with the unit.
- ONLY CONNECT the power supply to a properly grounded outlet.
- DO NOT use an adapter or in any way defeat the line cord grounding or polarization provided by the plug.
- DO NOT expose to moisture.
- DO NOT use the unit near water.
- DO NOT use the unit where liquid spills may occur.
- ONLY clean with a dry cloth.
- DO NOT use if the power supply cords are damaged.

RISK OF EQUIPMENT DAMAGE

- DO NOT block ventilation openings at the front and back of the unit.
- DO NOT operate the unit outside of the specified temperature range.
- DO NOT overload the RF inputs.
- DO NOT remove the cover or front panel. There are no user serviceable components.

Licensing and Regulatory Information

FCC ID: 2BDOJ-COMBINE6

Certified under FCC Part 74

It is the user's responsibility to comply with all applicable regional telecommunication regulations and licensing requirements when integrating this equipment into a wireless microphone or in-ear monitor system. Consult your regional authority for licensing guidance, authorized frequencies, allowed radiated power levels and bandwidth restrictions. This equipment is intended for commercial installation and use in professional audio applications by qualified personnel. Modifications to the device may void FCC or other authorization to use the equipment.

Radio Frequency Exposure Information: This equipment complies with FCC radiation exposure limits for an uncontrolled environment. Locate the connected transmit antenna a minimum distance of 20 cm from operators and bystanders. Maximum allowed antenna gain for use with this equipment is 11.15 dBi.

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: 1) this device may not cause harmful interference and 2) this device must accept any interference received, including interference that may cause undesired operation.

Package Contents

- Combine 6 Active Combiner Unit
- PSC6 Power Supply Unit and AC line cord
- Six 50-ohm coaxial cables with male BNC plugs
- Rack mounting kit
- User guide

General Description

The RF Venue Combine 6 Active Antenna Combiner accepts inputs from up to six in-ear monitor (IEM) transmitters and combines them for output to a single antenna. With the Combine 6, the number of antennas and associated cabling is substantially reduced.

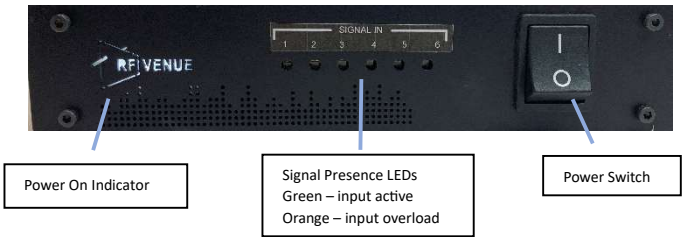
The device supports operation over the UHF 470 MHz – 608 MHz band. Each input is amplified with an ultra-high-linearity gain stage to compensate for combining loss, and merged with the other channels such that the nominal gain through the device on a per-channel-basis is 0 dB (i.e. unity gain).

The device also provides a separate passive combiner that facilitates using a pair of units so that the outputs of up to 12 transmitters can be delivered to a single antenna.

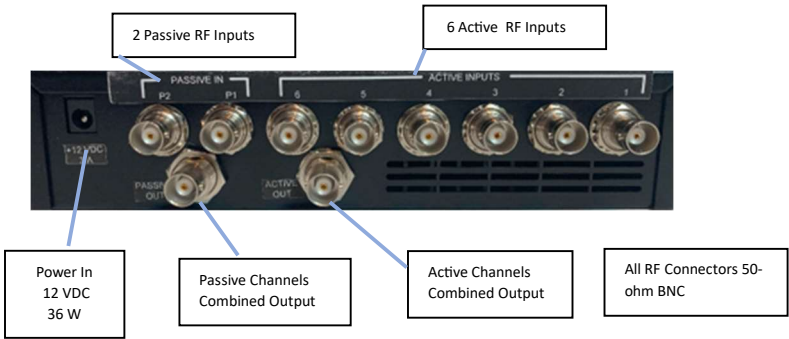
Combine 6 is enclosed in a rugged steel 1U half-rack width enclosure and is provided with hardware to facilitate rack mounting.

Features

Front Panel Controls and Indicators



Rear Panel Inputs and Outputs



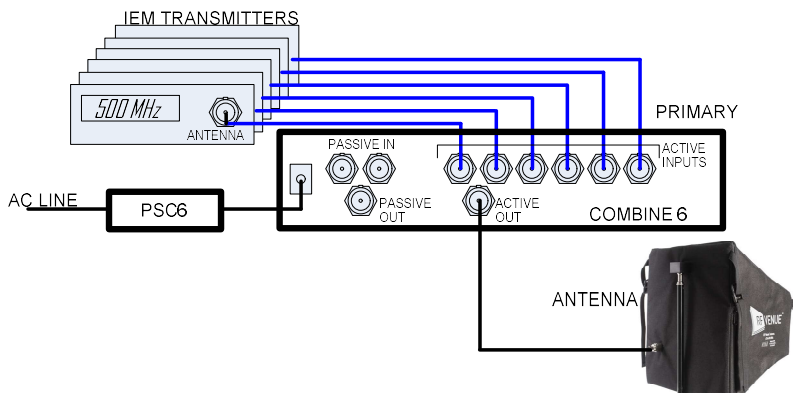
Using Combine 6

Initial Setup and Installation

- Combine 6 may be set up for use on any flat horizontal surface or rack-mounted using the provided hardware accessories.
- Ensure the front and back ventilation openings are not blocked.
- When operating in a rack enclosure, ensure that the temperature inside the rack is within Combine 6 operating limits (see Specification section).

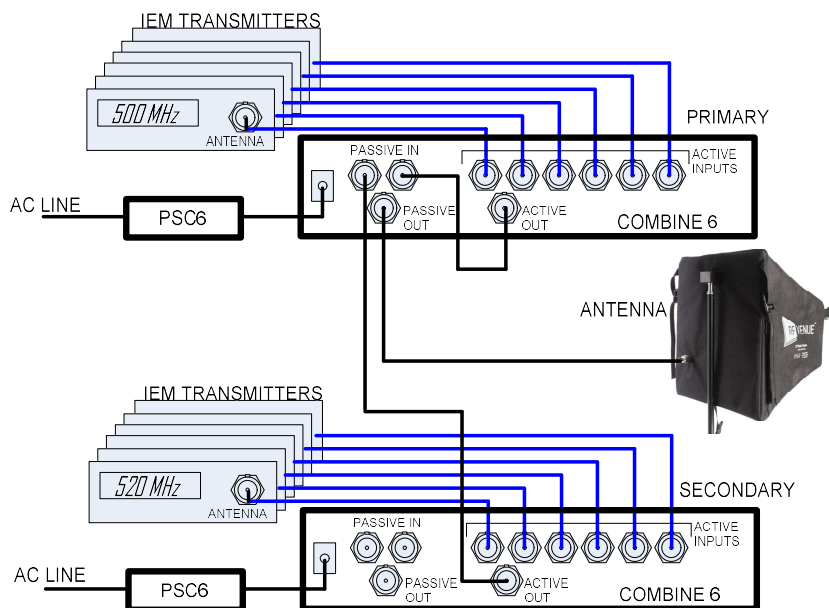
Connect IEM Transmitters and Antenna

- Connect the outputs of up to six IEM transmitters to Combine 6 Active Input ports using high-quality 50-ohm coaxial cables with male BNC plugs.
- Unused Active Input ports may be left unconnected.
- Connect the system antenna to the Active Out port using a 50-ohm coaxial cable with male BNC plugs.
- Connect the PSC6 power supply unit output to the Combine 6 and plug it into a suitable source of AC power.
- When RF is present at the input to a channel, the corresponding front panel LED will illuminate green. If excessive RF is present, the indicator will illuminate orange.



Using the Cascade Passive Combiner

- See the connection diagram below that illustrates using a pair of Combine 6 devices to support up to 12 IEM transmitters with a single antenna.
- Make all connections with high-quality 50-ohm coaxial BNC cables.
- In this configuration, connect the Active Output of the primary Combine 6 to one of the Passive Input ports on the primary unit.
- Connect the Active Output of the secondary Combine 6 to the other passive input on the primary unit.
- Connect the Passive Output of the primary Combine 6 to the antenna.
- Note that this configuration will introduce a typical 3.5 dB loss for each transmit signal.



Maintenance

- Periodically inspect the ventilation openings at the front and rear of the unit for dust buildup and remove as needed.
- Clean only with a dry cloth
- Periodically inspect the power supply cords for any signs of damage or wear. Replace the power supply or line cord if needed.

Troubleshooting

- If there is intermittent behavior on a single channel, inspect and/or replace the BNC cable between the transmitter and Combine 6. Cable failures are a common issue.
- If the unit overheats, internal protection may activate. Allow the device to cool down to room temperature and retry the system.
- If an internal failure of the Combine 6 has occurred, the front panel power indicator may not illuminate. In this case, return the unit for service.
- If poor reception occurs, the general approach is to move the antenna around and evaluate the effect. Conductive objects or walls with embedded steel may affect antenna performance. Combine 6 by itself in general has no impact on the RF link performance.

Specifications

All RF power levels are specified on a per-channel basis.

Frequency Range	470 to 608 MHz
Input Power, Active Channels	4 to 15 dBm
Active Channel Gain	-2 to +1 dB
Maximum Input, Active Channels	20 dBm
Input Port Isolation, Active Channels	50 dB, typical
Output-Input Isolation, Active Channels	50 dB, typical
Input Power, Passive Channels	3.0 to 23 dBm
Passive Channel Loss	4 dB typical
Maximum Input Power, Passive Channels	23 dBm
Input Port Isolation, Passive Channels	20 dB, typical
Signal Present Threshold	4 dBm, typical
Signal Overload Threshold	17 dBm, typical
RF Connectors	BNC
RF Input and Output Impedance	50 Ω
DC Power	+12 V, 35 W
Operating Temperature Range	-20° C to +55° C
PSC6 Power Supply Input	100 to 240 VAC, 50/60 Hz, 1A
Dimensions (H x W x D)	44 x 210 x 240 mm
Weight	1.6 kg (3.7 lbs.)