

TECHNIQUES FOR MINIMIZING IM PRODUCT SPECIFICATIONS

The TX-8 brings a new level of IM performance to combiner systems, using advanced technology not found in any other system. While IM products are still produced in any combined antenna system, they are at much lower levels with the TX-8.

Techniques for dealing with IM products caused by combining, such as careful selection of transmit frequencies, judicious adjustment of power levels, and minimizing antenna SWR are all well-known.

PROPER PORT SELECTION IS AN ADDITIONAL WAY TO MINIMIZE IM PRODUCTS WHEN USING THE TX-8.

Because of the nature of combiners, some ports have more isolation between them than others. The TX-8 is no different in this regard, and knowing which ports have the highest isolation can be of benefit in reducing unwanted IM products.

THERE ARE EIGHT TRANSMITTER PORTS ON THE TX-8. EACH IS NUMBERED ACCORDINGLY.



FOLLOWING PORT PAIRS HAVE THE LEAST ISOLATION BETWEEN THEM:

- Ports 1-2, 3-4, 5-6, and 7-8. Generally, you should use these paired ports for the widest spaced frequency pairs, or alternatively, for pairs where the IM products will not create problems.
- Higher isolation is available between the following ports: Ports 1-3, 1-4, 2-3, 2-4, as well as 5-7, 5-8, 6-7 and 6-8. These can be used for more troublesome frequency pairs, resulting in better IM performance overall.
- The highest isolation is found between the ports from 1 through 4 and the ports from 5 through 8.

FOR SERIOUS IM ISSUES, MAKE SURE THE OFFENDING TRANSMITTER PORTS ARE SEPARATED ACCORDINGLY.

For example, if you have one transmitter on a port from 1 through 4, you would need to put the other transmitter on any port from 5 through 8. This would provide the highest level of transmitter to transmitter isolation.

TX-8 ANTENNA COMBINER QUICK START GUIDE



The TX-8 antenna combiner allows the connection of up to 8 UHF transmitters to one antenna. Advanced active-linear design reduces intermodulation products to exceptionally low levels to minimize interference, and provides compatibility with all forms of modulation, including FM, AM, SSB, ENB, as well as a variety of digital forms, including FSK, and MIMO. Individual channel indicators show RF activity and amplifier faults. An antenna fault indicator warns of excessive antenna VSWR. Output power is selectable to 50, 100 or 250 mW, independent of input power level.

The modular design with built-in power supply provides the ultimate in reliability and a compact, clean installation. Intelligent rear-panel layout simplifies system connections and reduces installation time. Rugged rack mount chassis and internal construction are designed to provide years of reliable service.



PRODUCT SPECIFICATIONS

OPERATING FREQUENCY RANGE	470-698 MHz
NUMBER OF RF INPUTS	8
NOMINAL INPUT & OUTPUT IMPEDANCE	50 OHMS
INPUT POWER RANGE, EACH CHANNEL	25-250 mW, up to 400 mW for white space units
OUTPUT POWER, PER CHANNEL (SELECTABLE, EACH CHANNEL)	50, 100, 250 mW, up to 400 mW for white space units
IN-CHANNEL INTERMODULATION PRODUCTS	Better than -35 dB
CHANNEL TO CHANNEL INTERMODULATION PRODUCTS	Better than -65 dB
ALL HARMONIC LEVELS: EXCEEDS FCC PART 74 and PART 15 REQUIREMENTS	Better than -40 dB
ANTENNA VSWR INDICATOR THRESHOLD	Greater than 2:1
OPERATING TEMPERATURE RANGE	-20 TO +60° C
AC LINE OPERATING VOLTAGE & FREQUENCY	90-264 VAC 47-63 Hz
POWER CONSUMPTION	< 120 WATTS
DIMENSIONS (INCLUDING FRONT PANEL HANDLES AND KNOBS, AND REAR PANEL CONNECTORS)	19 INCH RACK 1U HIGH 15" DEEP
RF CONNECTIONS	BNC

INITIAL SETUP INSTRUCTIONS

- I. Connect the IEC power cord to the AC power cord jack on the back
The input range is auto-ranging from 120 VAC to 220 VAC
- II. Connect the antenna to the jack marked **OUT**
- III. Connect up to eight transmitters to the various inputs
- IV. Turn the front panel power switch to **ON**
- V. Set the power levels to desired output
OFF, 50 mW, 100 mW, or MAX (nominally 250 mW)
- VI. If an input channel is not in use, turn the output switch to **OFF**

INDICATOR LIGHTS

• POWER LIGHT

1. GREEN: Combiner is powered
2. No Light: Combiner is OFF

• ANTENNA STATUS LIGHT

1. GREEN: SWR optimal, antenna and cable are OK
2. YELLOW: SWR greater than 2:1. Marginal antenna operation
3. RED: SWR High greater than 3:1. Indicates bad antenna and/or bad cable

• CHANNEL INDICATOR LIGHTS

1. OFF: No power detected at input
2. GREEN: Input power present. Output power of choice operating correctly
3. RED: Channel amplifier fail