

# UFM144

## TECHNICAL DATA

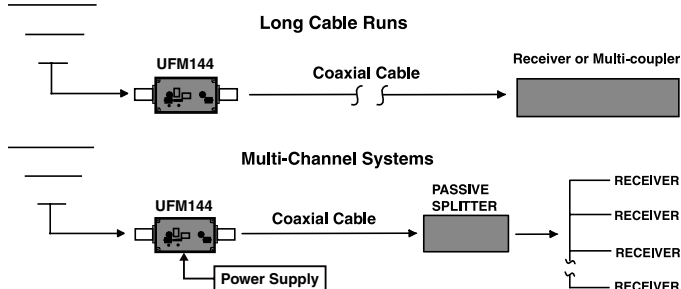
### UHF Filter/Amplifier Module

- 144 MHz passband from 470 to 614 MHz
- Ceramic resonator filters
- GaAsFET RF amplifier
- +27 dBm (input) and +41 dBm (output) 3rd Order Intercept
- Switching regulator for 8-16V power at constant power dissipation to minimize heat
- Jumpers set gain at +5dB, +8dB or +12dB
- Powered from external DC source or DC bias from Lectrosonics multicouplers and Venue Series receivers
- Bias voltage (phantom power) pass-thru for antenna powering

The UFM144 is used to configure antenna systems requiring long cable runs or distribution to multiple receivers. RF filtering before gain minimizes intermodulation (IM) products and prevents overload. Two transmission line ceramic resonators at the input provide filtering with a 144 MHz bandwidth, followed by 12dB of gain using a high quality GaAsFET RF amplifier with an excellent +41dBm output IP3.

Power can be applied to a side panel connector, or from DC bias on the RF output jack from a receiver or multicoupler. A switching regulator is used in the power supply to control current consumption over an input voltage range of 8 to 16 volts. The regulator maintains low current consumption and low heat dissipation which is especially useful in mobile field production applications.

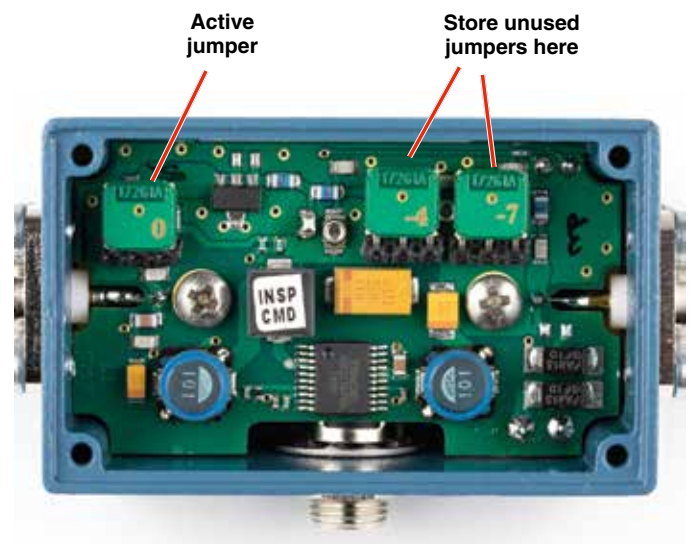
The housing is constructed of cast aluminum with a brushed aluminum cover plate. Two rugged BNC connectors and a threaded, locking power jack provide secure connections for reliability in field production and long-term installations.



The UFM144 is placed near the antenna to apply gain ahead of long cable runs, or to compensate for splitter and cable loss in a multi-channel signal distribution system. A power supply for the UFM144 must be used since the passive splitter will not pass DC supplied by the receivers.



The RF amplifier is fixed at 12 dB of gain. Adjustments to the gain are made by inserting attenuators. The gain can be adjusted to +12dB, +8dB or +5dB using the 0, -4 and -7 jumpers. Remove the four screws and the bottom cover for access to the internal connections and jumpers.



The power input on the side panel is a thread-locking (LZR type) connector.



## Calculating Required Gain

### Long Cable Runs

Connect the RF input of the UFM144 to the antenna with a short coaxial cable and the RF output to the receiver or splitter with an appropriate coaxial cable. Set the jumpers to achieve a gain value as close as possible to the loss in the coaxial cable connected to the RF output.

### Optional Lectrosonics coaxial cables:

Model	Attenuation (loss)
ARG2	1 dB
ARG15	2 dB
ARG25	1.9 dB
ARG50	2.8 dB
ARG100	4.6 dB

### Multi-channel Signal Distribution

An effective antenna multicoupler can be configured with the UFM144 and a passive splitter. Add up the loss through the coaxial cable and the splitter (total loss) and set the jumpers in the UFM144 for a gain value as close to the total loss as possible.

For example, using a 4-way passive splitter (ZFSC41) with 6 dB of loss at each output and a coaxial cable (ARG15) with 2 dB of loss, the total loss is 8 dB between the antenna and the receiver input. In this case, the 4 dB attenuator reduces the 12 dB of gain in the amplifier to the 8 dB of gain that is needed ( $12 - 4 = 8$ ).

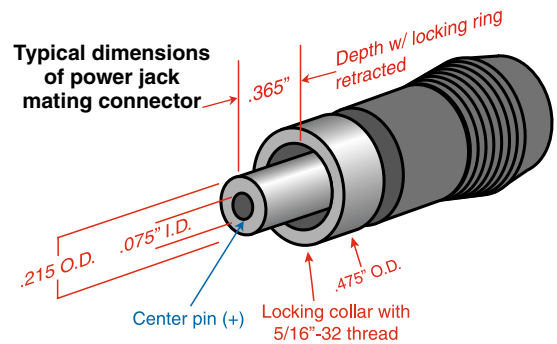
### Optional Mini-Circuits passive splitters:

Model	Attenuation (loss)
ZSC24 (2-way)	3 dB
ZSC41 (4-way)	6 dB
ZSC843 (8-way)	9 dB

NOTE: Mini-Circuits splitters are available from Lectrosonics and various parts distributors

## Specifications

<b>Third Order Intercept:</b>	Input IP3 = +27 dBm (+41 dBm output)
<b>Connectors:</b>	
RF IN:	50 ohm BNC
DC IN:	2.1 mm locking power jack
RF OUT (phantom power in):	50 ohm BNC
<b>Freq Range:</b>	470 - 614 MHz
<b>Filter Bandwidth:</b>	144 MHz, factory set.
<b>RF Gain:</b>	+12 dB with 0dB attenuator +8 dB with 4dB attenuator +5 dB with 7dB attenuator
<b>Power Requirements:</b>	8V to 16V DC at the input jack; auto reset poly fuse protection circuit; constant power switching supply <ul style="list-style-type: none"> <li>• 8V DC (125 to 145 mA)</li> <li>• 12V DC (83 to 106 mA)</li> <li>• 14.4V DC (69 to 89 mA)</li> <li>• 16V DC (60 to 80 mA)</li> </ul>
<b>DC Bias/Phantom Powering:</b>	DC voltage supplied via coaxial cable by UMC16B or VRM input jack or BIAS-T power inserter (70 to 80 mA)
<b>Power Consumption:</b>	1 Watt nominal (switching regulator)
<b>Dimensions:</b>	2.26 x 1.39 x 1.14 inches (not including BNC connectors)
<b>Weight:</b>	3.3 ozs.; 94 grams



Mating split-pin on side panel jack may need to be widened slightly for a secure fit

## FCC Compliance

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.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between this equipment and receiver
- Connect this equipment into an outlet on a circuit different from that which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

