

## ACS-101

### Amplified Broadband UHF Combiner-Splitter

#### *General Description*

The ACS-101 (Antenna Combiner Splitter 10 to 1) is an amplified and filtered broadband splitter-combiner. It allows up to 10 base stations to use only one (1) transmit and one(1) receive antenna.

The antenna combiner section contains innovative hybrid coupling, amplifying and matching technology to combine 10 transmitters to one (1) output with very low intermod distortion.

The antenna splitter section has broadband input filtering and amplification to maintain signal levels through the splitters. High output isolation between pots is also achieved.

The industrial strength power supply of the ACS-101 supplies voltage and current to two (2) outputs on the product. Each output can supply up to 5Amps at 12VDC.

**IMPORTANT:** Using products that deliver more than 50mW of transmit power to the ACS-101 is not recommended, and may cause damage to the unit or accompanying gear.

#### *Specifications*

##### **Overall**

Antenna Connectors .....	Standard TNC Receptacles
AC Input Power .....	100–120VAC, 60Hz, 6A max.
AC Input Fuse .....	10A, 250V, 3AG
DC Output Power .....	12VDC, 5A for each output
DC Output Jacks .....	Two, 5.5mm x 2.1mm Jacks
DC Output Fuses .....	5A, 250V, 5mm x 20mm
Size .....	3.50” (88.9mm) H x 16.75” (426mm) W x 14.63” (372mm) D
Weight .....	10lbs., 4oz. (4.65kg)

##### **Antenna Splitter**

Frequency Range.....	614–746MHz
Output IP3 .....	Greater than 30dB
Net Gain .....	0dB, typical
Noise Figure.....	less than 4.5dB
Minimum Isolation.....	20dB between adjacent ports; greater than 20dB between non-adjacent ports

##### **Antenna Combiner**

Frequency Range.....	470–608MHz
Net Gain .....	0dB max.
Noise Figure.....	10dB typical
Output IP3 .....	-55dBc @ +17dBm input on each transmitter

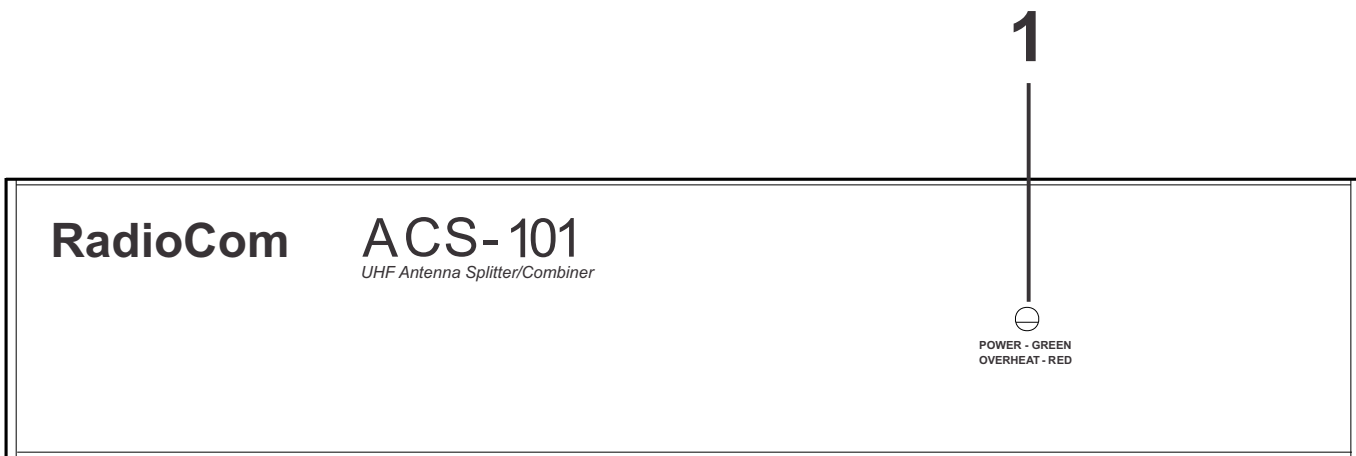
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## *ACS-101 Product Features*

- Ideal for use with BTR-1, BTR-500, BTR-600, BTR-700 wireless intercom systems.
- Two (2) power outputs to supply up to 10 transceivers (5 on each daisy-chain run) which makes large systems easier to implement
- Standard IEC 320 power input connector
- 115VAC or 230VAC operation
- High Quality TNC connectors for consistent impedance across the entire frequency range
- Rack mount brackets included for 19" (482.6mm) rack

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## *Connections, Fuses and Indicators*



**FIGURE 4.** ACS-101 Front Panel

### 1. Power/OverHeat Light

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|---------|--|
| Green - | The unit has power   |
| Red -   | The unit has overheated and the combiner amplifiers have shutdown. There is a sensor on the combiner amplifier heatsink that senses if the heat rises above 75°C (167°F) |

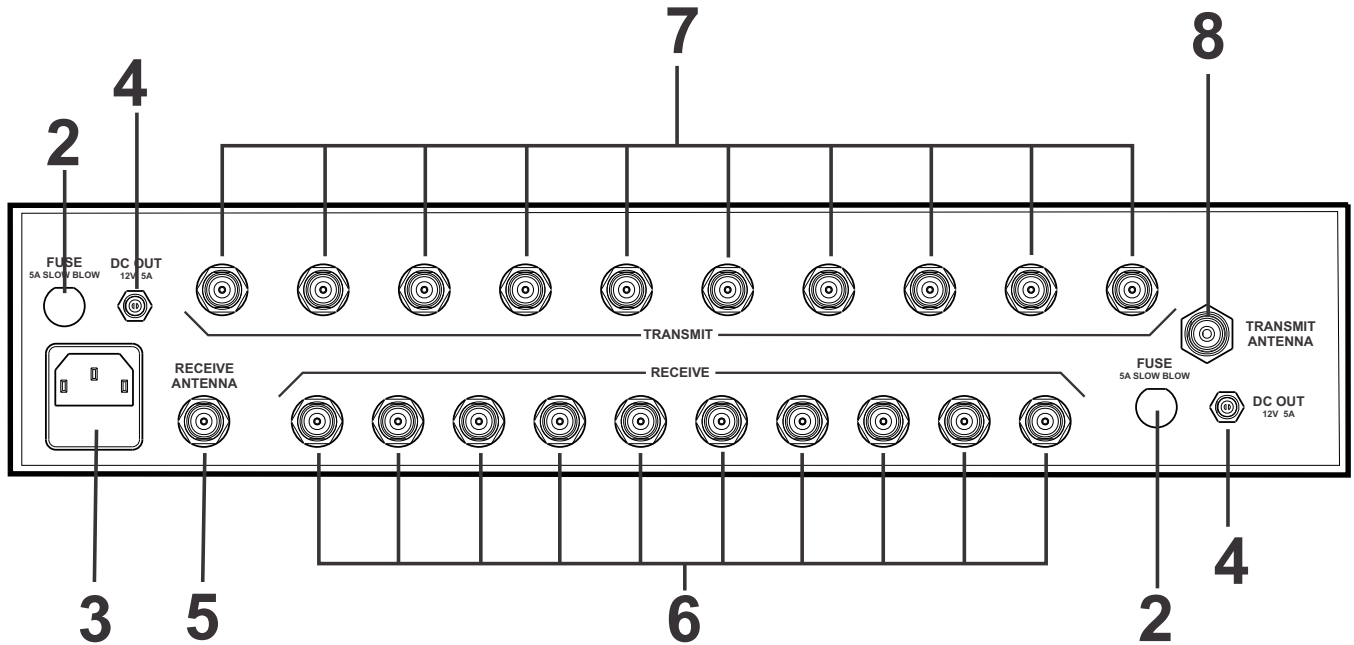
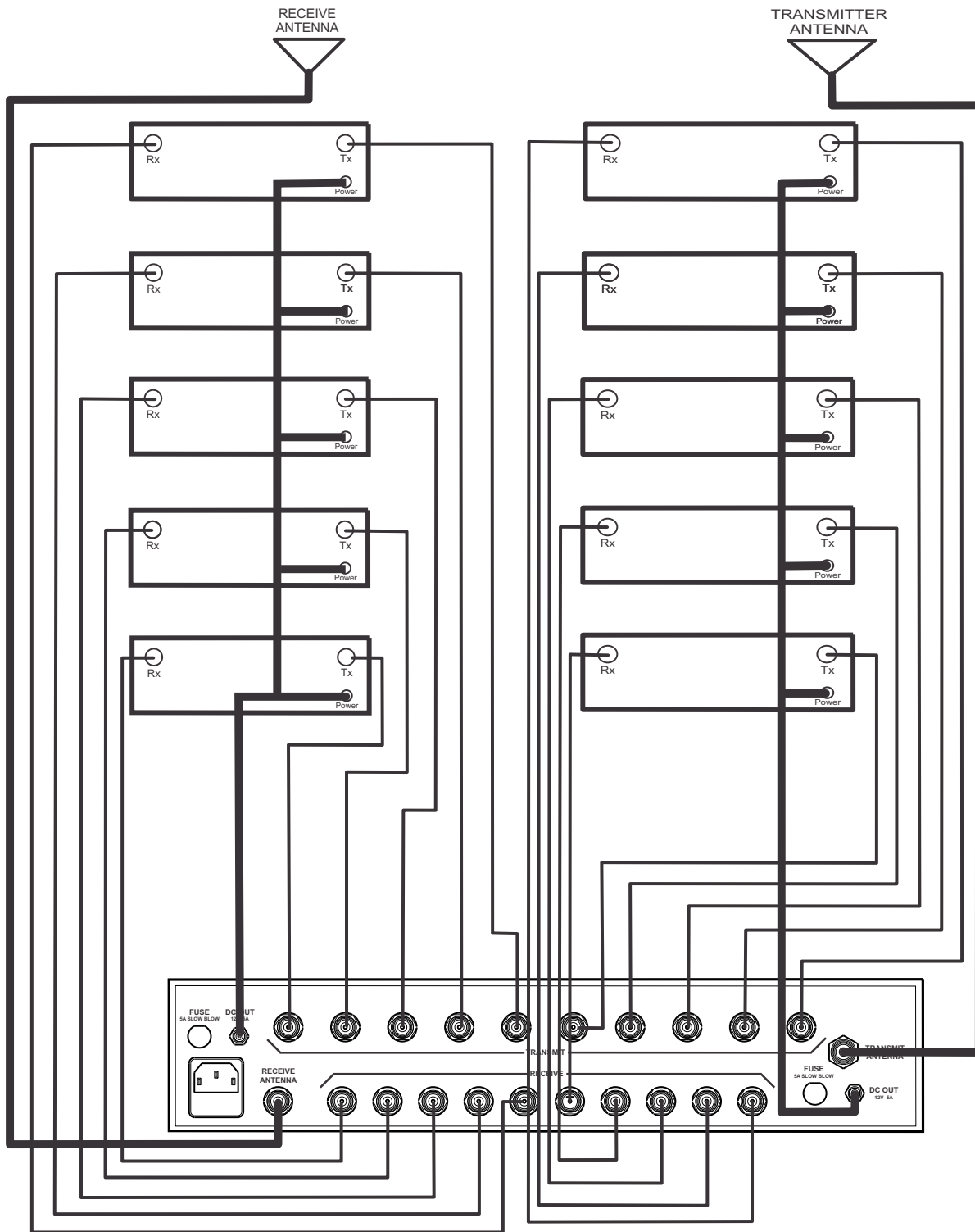


FIGURE 5. ACS-101 Rear View

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>2. DC Outlet Fuses</li> <li>3. IEC Power Inlet with Fuse</li> <li>4. DC Power Output Jacks</li> <li>5. Receive Antenna Jack</li> <li>6. Receive Splitter Jacks</li> </ul> | <p>5Amp, SlowBlow, 250VDC. Size 3AG</p> <p>IEC-320 power inlet with a 10Amp, 250VDC Fuse. Size is 5mm by 20mm.</p> <p>Threaded 5.5mm x 2.1mm Jacks. 12 VDC up to 5Amps is available at each jack.</p> <p>This TNC female connector is where the receive antenna connects.</p> <p>These 10 TNC female connectors are the outputs for the receive signals.</p> |
| <p><b>NOTE:</b> All unused jacks should be terminated with 50 Ohm loads. See Accessories on page X.</p>  |  |
| <ul style="list-style-type: none"> <li>7. Transmit Combiner Jacks</li> <li>8. Transmit Antenna Jack</li> </ul>   | <p>These 10 TNC female connectors are the inputs for the transmitters.</p> <p>This TNC female connector is where the transmit antenna connects.</p>  |

## System Configuration

Figure 6 illustrates the typical system configuration using the ACS-101 to support 10 BTR-1 base stations.



**FIGURE 6.** System Configuration

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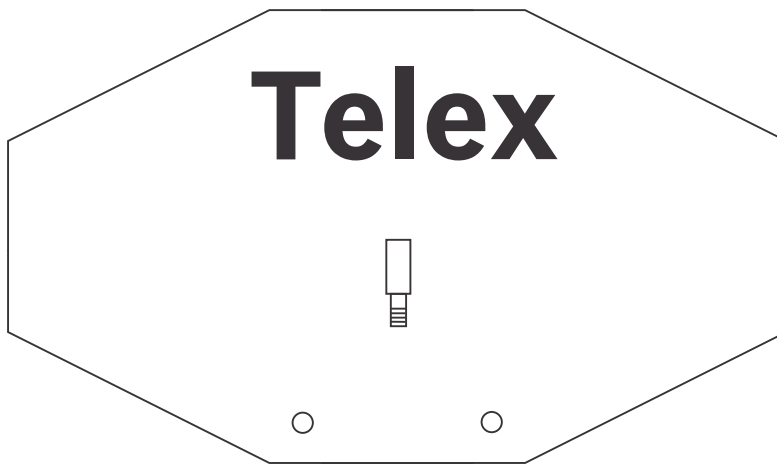
## *Antenna Requirements*

The ACS-101 may be used with a variety of antennas. For best results, use a pair of ALP-450 directional log periodic antennas (See Figure 5Figure 2.) or, the ALP-600 Bi-directional log periodic antenna (See Figure 1).

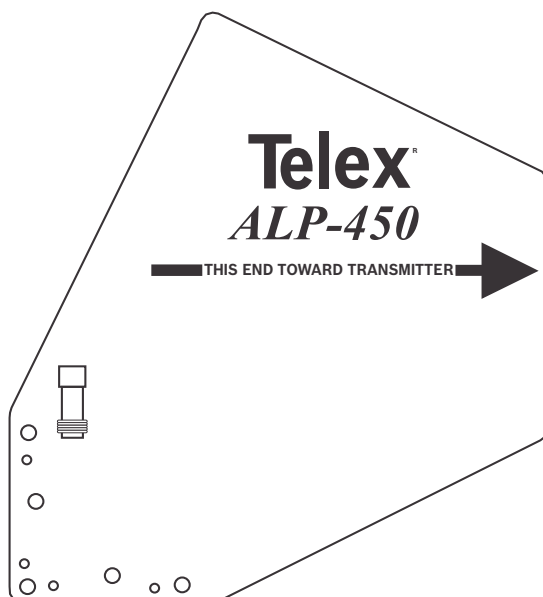
Good results may also be obtained with ½ wave antennas (See Figure 3. All antennas are sold separately.

When using ½ wave antennas, we recommend using the higher frequency model when the receivers operate in more than one (1) band. If the receivers are more than one (1) band apart, such as yellow and white, we strongly recommend using the ALP-450, or ALP-600 depending on the application.

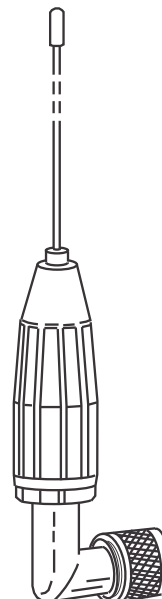
Place the ACS-101 with antennas in a location that is in direct view of the beltpacks for best results.



**FIGURE 1.** ALP-600



**FIGURE 2.** ALP-450



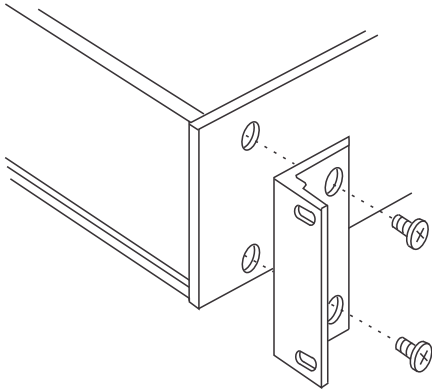
**FIGURE 3.** ½ Wave Antenna

## *Antenna Placement for Optimum Range and Rack Mounting*

For maximum range and when rack mounting, the antennas must be remotely located.

The ALP-450 and the ALP-600 antennas come complete with a variety of mounting hardware and 10ft. (3m) of low loss coaxial cable. A combination mounting bracket with 10ft of coaxial cable is available for ½ wave antennas (Model No. AB-2).

Antennas should be placed in a location with a clear signal path to the beltpacks. This path should be as short and free of obstruction as possible. Obstructions, such as walls, ceilings, and metal objects, reduce range and performance.



**FIGURE 7.** Rack Mount Brackets

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## *Rack Mounting*

Rack mount brackets are supplied with the ACS-101.

To attach the brackets, do the following:

1. Align the rack mount bracket with the holes on the side of the unit (Figure 8).
2. Install flat head machine screws in two (2) holes.
3. Tighten securely.
4. Repeat, step 1 through 3 on the other side of the unit.

**NOTE:** For best alignment, perform the above steps while the unit and rack brackets are setting on a flat surface.

5. Insert the unit into a 19" rack enclosure and insert four (4) screws (not supplied) in each corner of the rack mount brackets and secure.

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## *Coax Cable*

For best results, it is recommended that cable losses be kept under 4dB. Every 3dB of signal loss results in a system operating distance reduction of 25%.

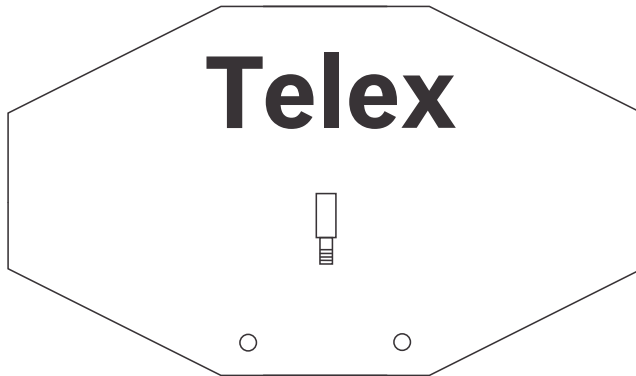
See the accessories section of this sheet for special low loss cable assemblies.

## ACS-101 Accessories and Replacement Parts

### ALP-600

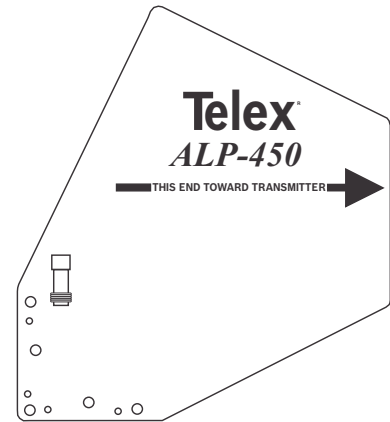
480-800MHz Bi-Directional log periodic antenna. Includes mounting hardware and 10ft. (3m) coaxial cable with TNC connectors.

Order No. - 878896



450-900 MHz Log Period Antenna. Includes mounting hardware and 10ft (3m) coaxial cable with TNC connectors

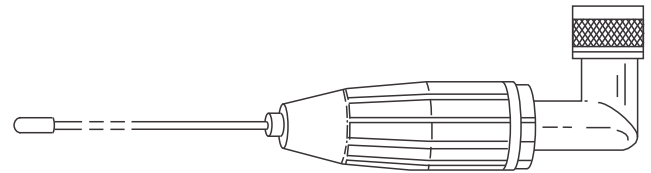
Order No. 71147000



### Low Loss Coaxial Antenna Cables with TNC Connectors

Model	Length	Order No.
CXU-10	10ft (3m)	690419
CXU-25	25ft (7.6m)	71151-025
CXU-50	50ft (15m)	71151-050
CXU-75	75ft (23m)	71151-075
CXU-100	100ft (30m)	71151-100

### ½ Wave Antenna (CLA-X)



Model	Part No.	Band Color	Frequency
CLA-1	870658-1	Blue	520-565MHz
CLA-2	870658-2	Yellow	565-615MHz
CLA-3	870658-3	Red	615-660MHz
CLA-4	870658-4	White	660-690MHz
CLA-5	870658-5	Green	690-725MHz
CLA-6	870658-6	Orange	725-760MHz
CLA-10	870658-10	Tan	470-518MHz
CLA-11	870658-11	Pink	515-548MHz
CLA-12	870658-12	Brown	542-575MHz

### TP-2 50 OHM/TNC Dummy Load

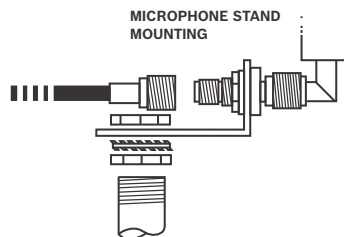
(For unused outputs)

Part No.650095

### AB-2

Bracket for ½ wave antenna with 10ft of coax.

Part No.71138000



### ALP-450

