Telex®

TELEX COMMUNICATIONS, INC. 12000 Portland Ave. South, Burnsville, MN 55337

Instruction Sheet

ACS-101

AMPLIFIED BROADBAND UHF COMBINER-SPLITTER

PN 803984

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 transmit and one receive antenna.

The antenna combiner section contains innovative hybrid coupling, amplifying and matching technology to combine 10 transmitters to 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 ports is also achieved.

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

SPECIFICATIONS

Overall

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

Antenna Splitter

Frequency Range ....614 - 746 MHz
Output IP3...Greater than 30 dBm
Net Gain..0 dB Typical
Noise Figure ....Less than 4.5 dB
Minimum Isolation..20 dB between adjacent ports.
Greater than 20 dB between non-adjacent ports

Antenna Combiner

Frequency Range ....470 - 608 MHz
Net Gain..0 dB (Maximum)
Noise Figure...10 dB Typical
Output IP3 ....-55 dBc @ + 17 dBm input on each transmitter

ACS-101 Product Features:

- Ideal for use with BTR-1, BTR-500, BTR-600, BTR-700 wireless intercom systems.

- Two 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

- 115 VAC or 230 VAC operation

- High-Quality TNC connectors for consistent impedance across the entire frequency range.

- Rack mount brackets included for 19" (482.6 mm) rack
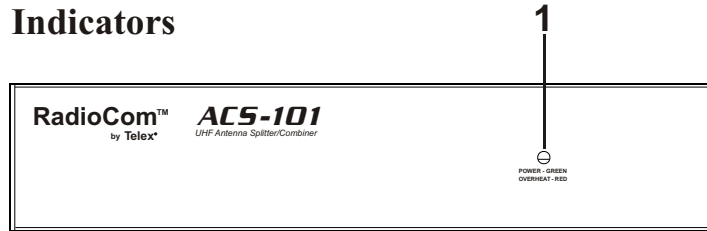
Connections, Fuses and Indicators

Figure 1 ACS-101 Front View

1. **Power/Overheat Light -**

    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 75º C (167 F).
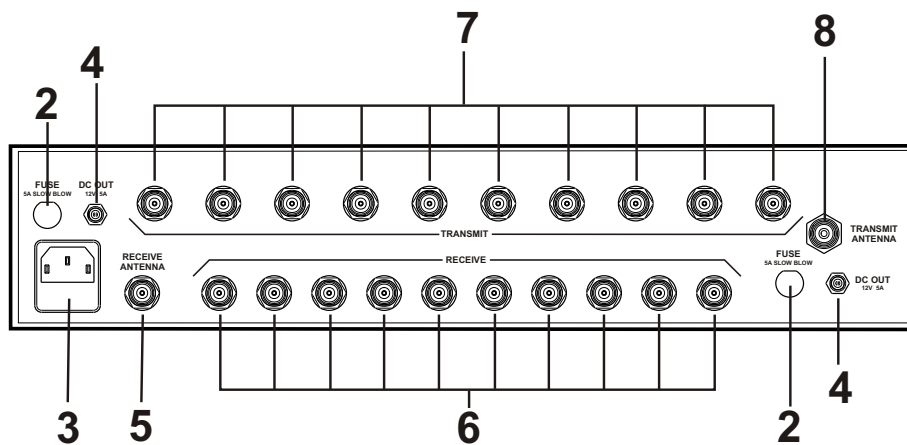

Figure 2
ACS-101 Rear View

2. **DC Outlet Fuses -** 5 Amp, SlowBlow, 250 VDC. Size is 3AG.

3. **IEC Power Inlet with Fuse -** IEC-320 power inlet with a 10 Amp, 250 VDC Fuse. Size is 5mm by 20mm.

4. **DC Power Output Jacks -** Threaded 5.5mm x 2.1mm Jacks. 12 VDC up to 5 Amps is available at each jack.

5. **Receive Antenna Jack -** This TNC female connector is where the receive antenna connects.

6. **Receive Splitter Jacks -** These ten TNC Female connectors are the outputs for the receive signals. **NOTE: All unused jacks should be terminated with 50 Ohm loads (See accessories listed at the end of this document).**

7. **Transmit Combiner Jacks -** These ten TNC female connectors are the inputs for the transmitters.

8. **Transmit Antenna Jack -** This TNC female connector is where the transmit antenna connects.

System Configuration

Figure 4 illustrates the typical system configuration using the ACS-101 to support 10 BTR-1 base stations.
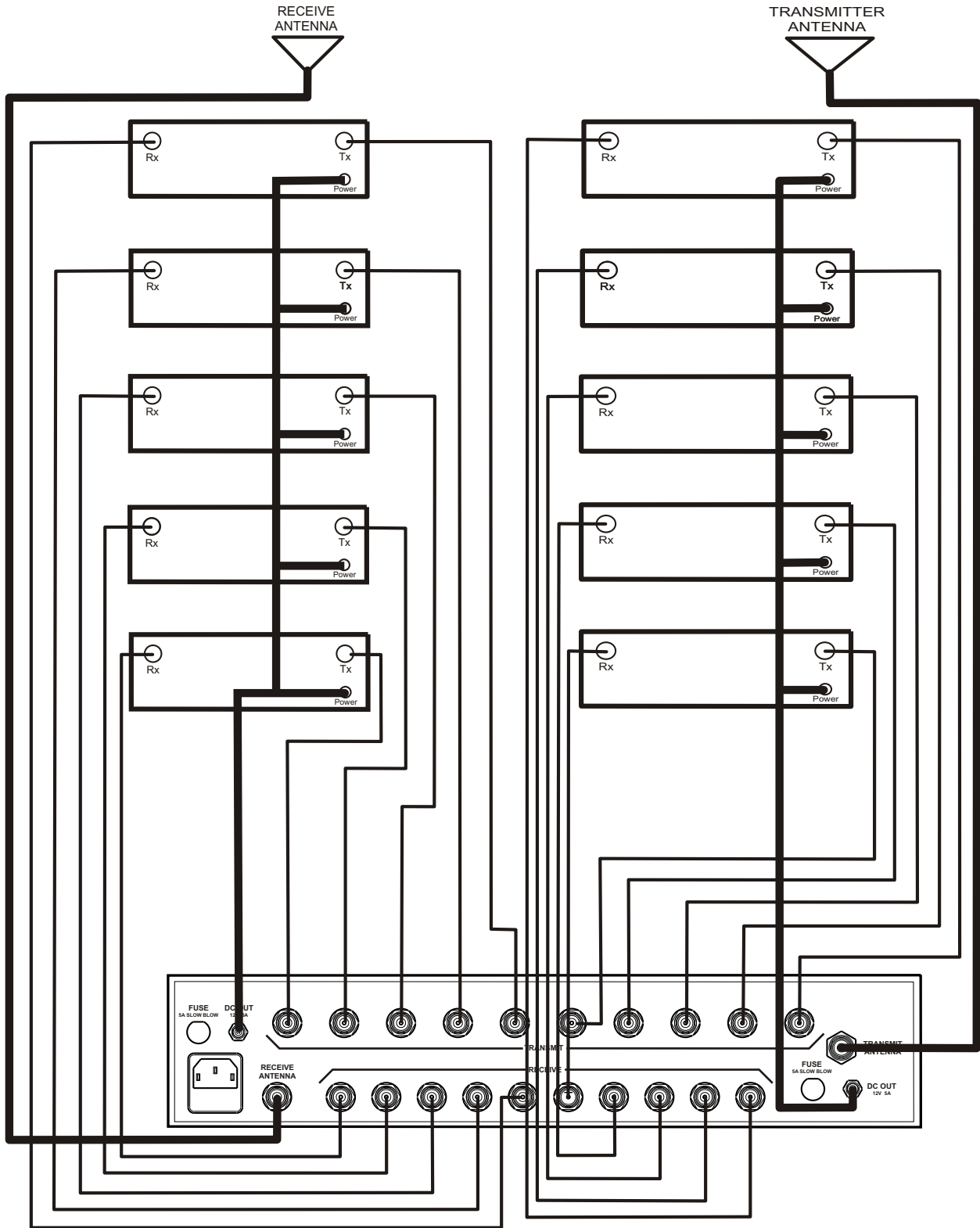

Figure 4
System Configuration

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 5) or, the ALP-600 Bi-directional log periodic antenna (See Figure 6).

Good results may also be obtained with 1/2 wave antennas (See Figure 7). All antennas are sold separately.

When using 1/2 wave antennas, we recommend using the higher frequency model when the receivers operate in more than one band. If the receivers are more than one 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.
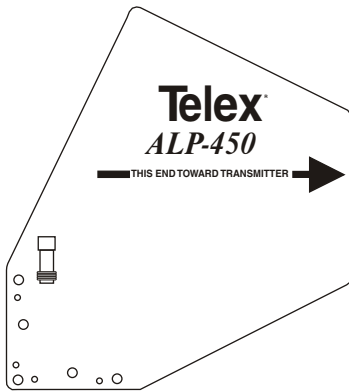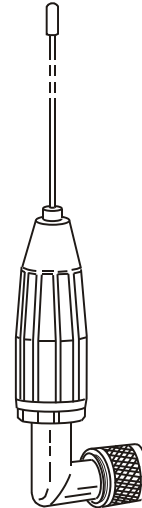
Figure 5
ALP-450
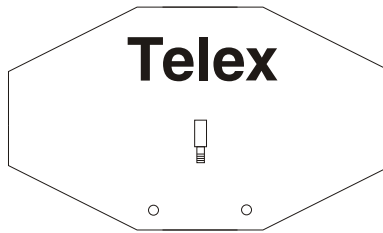
Figure 6
ALP-600

Figure 7
1/2 Wave Antenna

-4-

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 ALP-600 antennas come complete with a variety of mounting hardware and 10 feet (3 meters) of low loss coaxial cable. A combination mounting bracket with 10 feet of coaxial cable is available for 1/2 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 obstructions as possible. Obstructions, such as walls ceilings, and metal objects, will reduce range and performance.
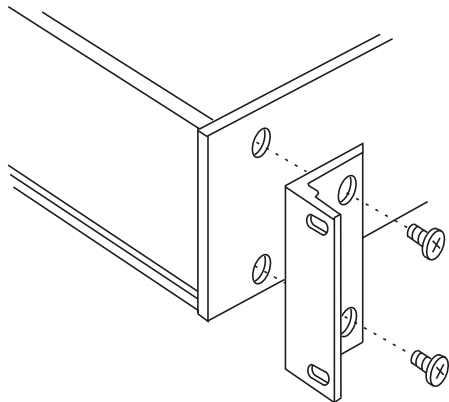
Figure 8
Rack Mount Brackets

Rack Mounting

- Rack mount brackets are supplied with the ACS-101. To attach the brackets, proceed as follows:

- Align the rack mount bracket with the holes on the side of the unit. See Figure 8.

- Install flat head machine screws in two holes. Tighten securely. Repeat on the other side of the unit. For best alignment, perform the above steps while the unit and rack brackets are setting on a flat surface.

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

Coax Cable

For best results, it is recommended that cable losses be kept under 4 dB. (Every 3 dB of signal loss results in a system operating distance reduction of 25%.
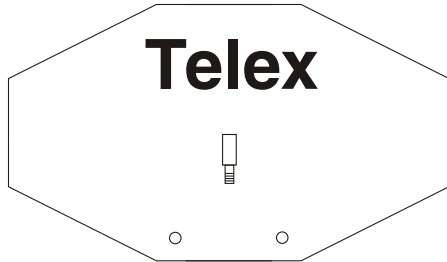
See the accessories section of this manual for special low loss cable assemblies.

ACS-101 Accessories and Replacement Parts

ALP-600
480-800 MHz Bi-Directional log periodic antenna
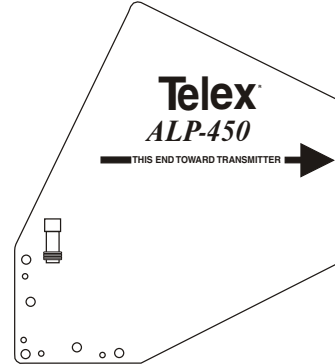Includes mounting hardware and 10 feet (3 meter) coaxial cable with TNC connectors
   Order No. 878896

ALP-450
450-900 MHz Log Periodic Antenna
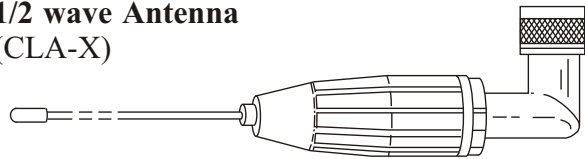Includes mounting hardware and 10 feet (3 meter) coaxial cable with TNC connectors
   Order No. 71147000

Low loss coaxial antenna cables with TNC connectors

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

TP-2 50 OHM/TNC dummy load
(For unused outputs)
   Part No. 650095

AB-2
Bracket for 1/2 wave Antenna with 10 ft. of coax
   Part No. 71138000

MICROPHONE STAND
MOUNTING

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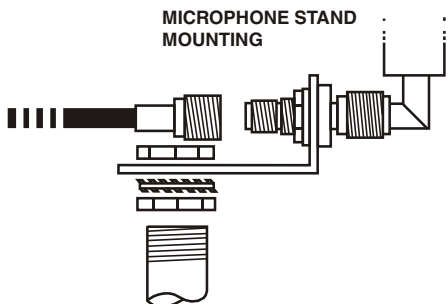
Model No.	Part No.	Band Color	Frequency
CLA-1	870658-1	Blue	520-565 MHz
CLA-2	870658-2	Yellow	565-615 MHz
CLA-3	870658-3	Red	615-660 MHz
CLA-4	870658-4	White	660-690 MHz
CLA-5	870658-5	Green	690-725 MHz
CLA-6	870658-6	Orange	725-760 MHz
CLA-10	870658-10	Tan	470-518 MHz
CLA-11	870658-11	Pink	515-548 MHz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

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