

## AT-1.0 Amplified Terminator

### INSTALLATION INSTRUCTIONS

The AT-1.0 provides a convenient means of interconnecting SpeakerCraft (and industry compatible) IR products in IR repeating systems. It includes a wide bandwidth amplifier for robust operation. It has blaster drive power capability and is reverse voltage protected.

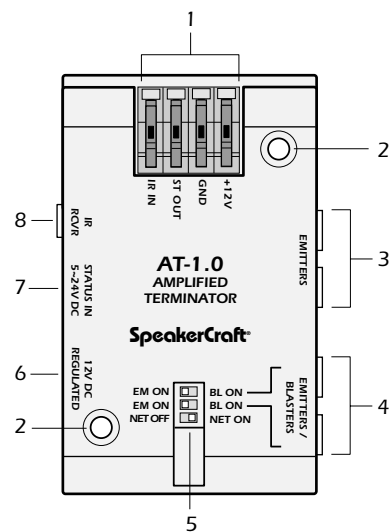


Fig. 1

### FEATURE DESCRIPTIONS (Refer to Fig. 1)

- Spring-loaded EZ-Connect Terminals accept wire sizes 14 to 28 AWG for connection of the following:
  - +12V DC – Powers connected IR Receivers, Keypads, etc.
  - GND – Return for Power, IR signal and Status indicators
  - ST OUT – Connects status voltage to Status Indicators in IR Receivers, Keypads, etc.
  - IR IN – Receives IR control signals from IR Receivers, Keypads, etc.
- Mounting Holes – Attaches the AT-1.0 to any flat surface using the two screws provided.
- EMITTERS – Two 3.5mm jacks drive two emitters at medium power.
- EMITTERS/BLASTERS – Two 3.5mm jacks drive two emitters at medium power or two blasters at very high power.

- DIP Switch (3 position) – The upper two positions switch between emitter power (EM ON) and blaster power (BL ON) for the two corresponding EMITTERS/BLASTERS jacks.

**CAUTION:** The BL ON position sets the AT-1.0 to very high blaster power. Be sure to return the DIP switch to Emitter On (EM ON) position when driving normal emitters. **Failure to do so will smoke the emitters!**

**Network Terminator.** The bottom DIP position allows the IR IN and IR RCVR inputs to be terminated with a 500Ω resistor (NET ON), or un-terminated (NET OFF). The NET ON position should be chosen when using long lengths of wire (over 50', shielded in particular) between the IR receiver, keypad, etc. and the AT-1.0. This ensures best operation for high data rate IR codes. If using two or more AT-1.0s in a paralleled network system (see Fig. 4), be sure **only ONE** of the AT-1.0 Terminators is set to the NET ON position.

- 12V DC REGULATED – 2.1mm jack, center pin +, accepts 12V DC regulated power supplies to power the IR system. Calculate the current required, then use SpeakerCraft power supplies PS-1.0 (200 mA) or PS-2.0 (1.2 A). **Note:** The “no signal” current draw of the AT-1.0 is zero.
- STATUS IN 5-24V DC - 2.1mm jack, center pin +, accepts 5V through 24V DC power supplies to power system ON/OFF Status Indicators of connected IR receivers, keypads, etc.
- IR RCVR – Exclusive four-circuit 3.5mm jack provides connection for SpeakerCraft direct plug-in IR Receivers. Connections are made, not only for Power, Signal and Ground, but for the Status Indicator in the IR Receivers as well.

### SYSTEM CONNECTIONS

The following are a few typical applications of the AT-1.0 for IR repeater systems.

#### A Basic System

Fig. 2 shows a basic installation, such as controlling components that are behind closed cabinet doors.

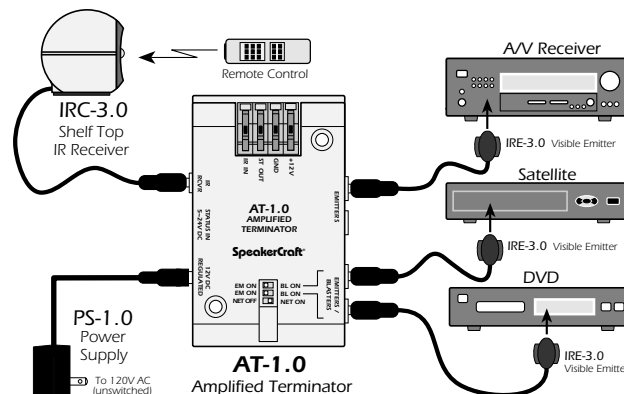


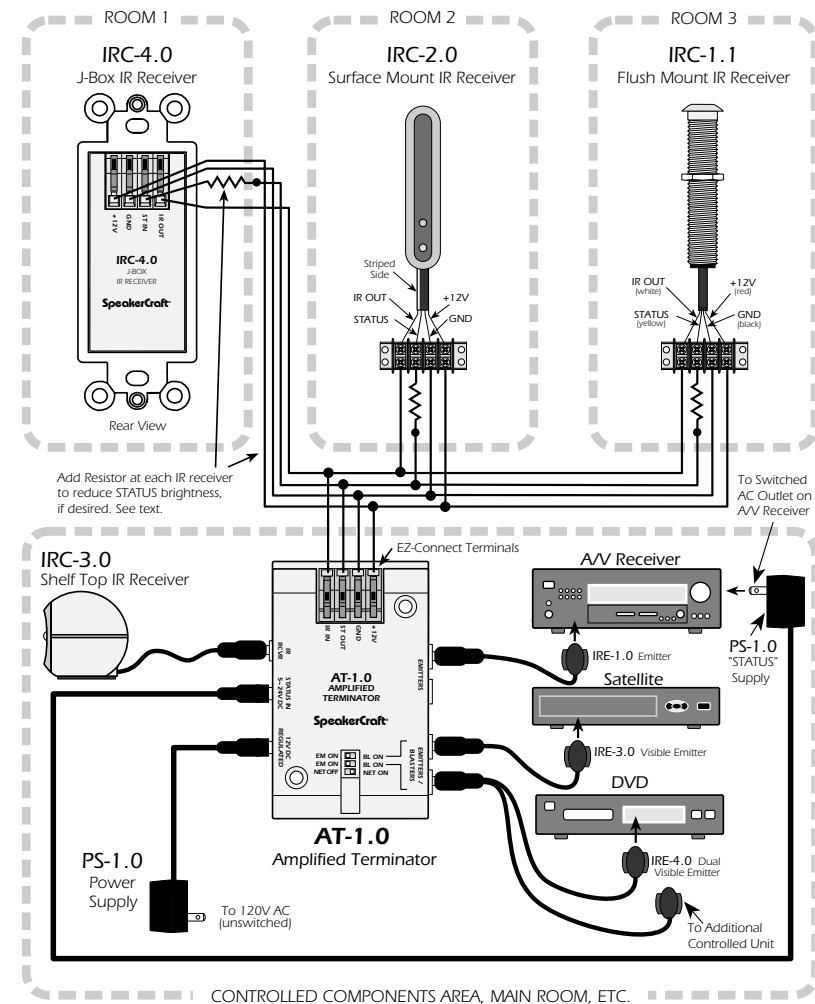
Fig. 2

- Plug in the IR Receiver and Emitters as shown.
  - Note:** Since the AT-1.0 employs emitter current sharing, you may use any of the IRE-1.0, 2.0, 3.0, or 4.0 SpeakerCraft emitters in any combination you wish.
- Set the DIP switches to EM ON and NET ON or NET OFF.
- Plug in the Power Supply.
- The AT-1.0 system should now control the components.

#### A Multi-Room System

Fig. 3 is an example of a multi-room (not multi-zone) system. SpeakerCraft IR receivers in each room, plus a local IR receiver, control the various components in the main room or equipment area.

Fig. 3



1. Pull four-conductor wire from each room (home runs) to the AT-1.0 near the controlled components.

**Note:** Use 24 gauge unshielded solid or stranded copper wire up to 1200' (Cat. 5e ok), 22 gauge up to 2000', 20 gauge up to 3000' and 18 gauge up to 5300'. Total lengths include all wire runs from each room added together, not just the longest single run. If using shielded wire, these lengths would be reduced by approx. 30%.

Also, to achieve operation with long lengths, the DIP switch must be set to the NET ON position.

2. Connect IR receivers in each room to the four-conductor runs as shown.
3. Connect the four four-conductor home run wires to the correct terminals on the EZ-Connect Terminals.
4. Install and plug the various emitters into the AT-1.0.
5. Set the DIP switches to EM ON (or BL ON if using blasters behind closet doors) and NET ON.
6. Plug the local IR receiver into the IR RCVR jack.
7. Plug in the Power Supply.
8. The AT-1.0 system should now control the components.

**Power Supply Note:** The SpeakerCraft PS-1.0 12V DC 200 mA power supply is adequate for this application and for most installations using only SpeakerCraft IR Receivers. However, if you use one or more keypads in the system, be sure to add up all the currents for each keypad, IR receiver, emitter and blaster (if used) and determine the total current (see specifications for the keypads, IR receivers, etc.). If the total current exceeds 200 mA, then you will need to use the SpeakerCraft PS-2.0 12V DC 1.2 A power supply.

An example may serve to illustrate: Suppose you have two keypads (80 mA each), five IR receivers (6 mA each), three emitters (15 mA each) and one blaster (150 mA each). The total current is:  $2 \times 80 + 5 \times 6 + 3 \times 15 + 150 = 385$  mA. Therefore, the PS-2.0 Power Supply would be necessary.

**CAUTION:** Never connect regulated power supplies in parallel! If you need more current; always step up to a higher current supply, as in this example.

### STATUS Brightness

Fig. 3 also shows how an external resistor can be added to reduce the brightness of the Status LEDs on SpeakerCraft IR Receivers to any desired level.

In this example, a PS-1.0 12V Power Supply is used as the voltage source to indicate ON/OFF status of an AV Receiver.

Choose a resistor value that achieves the brightness you desire (about 2.2k to 12k, 1/8 W). Connect it in series with the STATUS terminal on each IR receiver desired, as shown.

### Bi-Directional IR Control

Fig. 4 is an example of a two-room system using two AT-1.0's for Bi-Directional control on a common IR Network. This type of connection permits IR receivers (or keypads if used), located in each room, to control the various components in both rooms, whether local or remote.

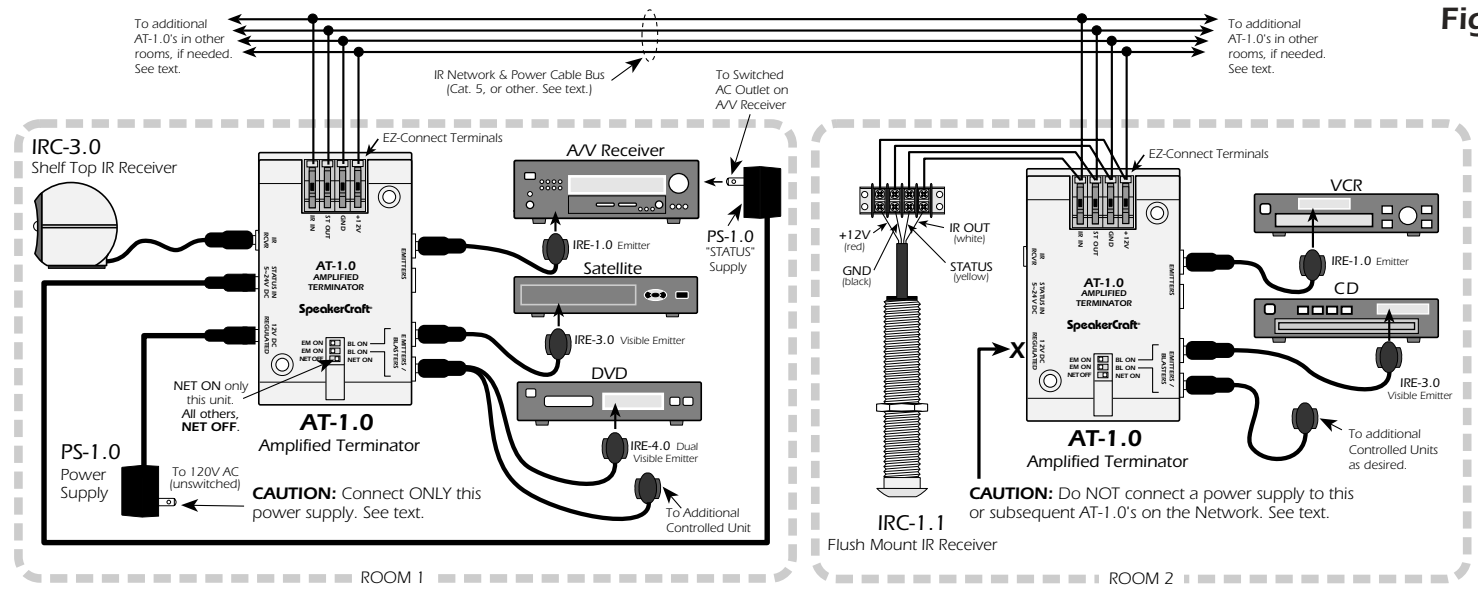


Fig. 4

1. Pull four-conductor wire between each room and connect them to the AT-1.0's as shown.
2. Connect the local IR receivers in each room to the IR RCVR jacks or in parallel with the four-conductor runs at the AT-1.0 EZ-Connect Terminals as shown.
3. Install and plug the various emitters into both AT-1.0's as shown.
4. Set the DIP switches to EM ON (or BL ON if using blasters behind closet doors). Set NET ON at one of the AT-1.0's and to NET OFF on the other one.
5. Plug a Power Supply into only ONE of the AT-1.0's.
6. All components should now be controllable from either room.

**Note:** Additional AT-1.0's may be wired into other rooms on the same IR Network, up to about ten AT-1.0's maximum. In every case, be sure only ONE of the AT-1.0 Terminators on the network is set to the NET ON position – all the others must be set to NET OFF!

### Blaster Operation

Fig. 5 shows a typical basic system using the SpeakerCraft IRE-5.0 Blaster to control a stack of components. For further details, refer to the IRE-5.0 Instructions.

1. Plug the IRE-5.0 Blaster(s) into the EMITTERS/BLASTERS port(s) on the SpeakerCraft AT-1.0 Amplified Terminator (see Fig. 5).
2. Set the DIP switch(s) on the Terminator to the BL ON (Blaster ON) position.

**CAUTION:** The BL ON position sets the AT-1.0 to very high Blaster Power. Be sure to return the DIP switch to EM ON (Emitter ON) position when driving normal emitters. **Failure to do so will smoke the emitters!**

3. Power the AT-1.0. Assuming other system connections have been properly made, the components will now respond to Blaster control.

**Note:** Blasters draw considerable current (150 mA) when passing IR commands. If using two blasters, power the AT-1.0 with the PS-2.0 Power Supply, not the PS-1.0.

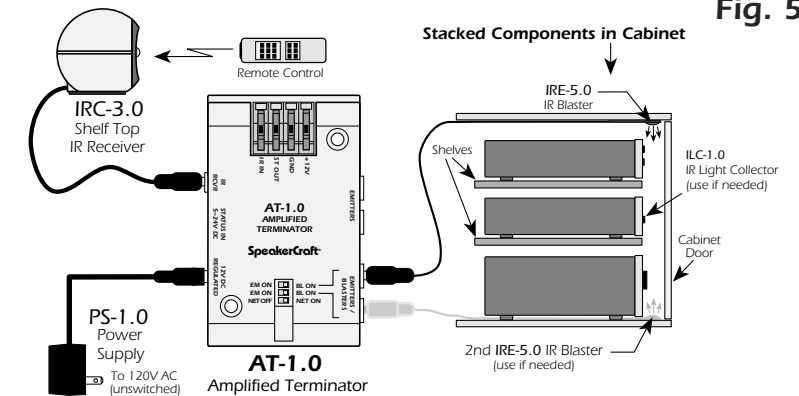


Fig. 5

### LIMITED 5-YEAR WARRANTY

SpeakerCraft warrants this product to be free of defects in materials or workmanship. This extends for five years from the date of purchase by the original consumer. Any products returned to SpeakerCraft and found to be defective by SpeakerCraft within the warranty period will be repaired or replaced, at SpeakerCraft's option, at no charge. SpeakerCraft will not be responsible for the actual cost of installation or removal of the product, nor for any incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you. This warranty gives you specific legal rights. You may have additional legal rights that vary from state to state.

**SpeakerCraft**

SpeakerCraft • 940 Columbia Ave., Riverside, CA 92507 • 800-448-0976 • Fax 888-599-9059  
www.speakercraft.com