



Wiring Instructions for the ATR131 Temperature Controller and Thermoelectric Air Conditioners TAC-50 and TAC-60

There are a variety of ways to configure the ATR131 temperature controller and our TAC Series™ air conditioners. Following is the method we recommend.

Before you start, obtain a small straight-edge (jeweler's) screwdriver for the terminal post screws on the controller and a standard phillips-head screwdriver for the power supply terminal posts. You will also need three additional pieces of wire. One should be about 3 inches (8cm) preferably red that will be a "jumper" while the other two should be sufficient in length to reach the power supply when installed. Typically about 2 feet long (60cm) is sufficient - one red, one black.



Caution! Risk of electric shock. Your new ATR131 temperature controller and our air conditioners are designed for use from a DC power source. Do not connect directly to line voltage (110-220V AC) sources.

**FAILURE TO SUPPLY THE CORRCET INPUT VOLTAGE CAN
DESTORY COMPONENTS AND BE A SERIOUS FIRE HAZARD.**

All electrical wiring for the air conditioner/s is intended to be inside an enclosure when completed. We recommend attaching the AC unit to the enclosure door or wall if possible, then wiring. Otherwise pass the wires through the opening for connection to your power source.

1.) If you have purchased a power supply (AC-to-DC transformer) from us, it is capable of working anywhere in the world. First, confirm that the AC input voltage is correctly selected for your area.

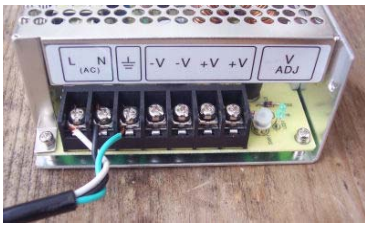


A red switch, typically located on the side, can be set for "115" or "230." If you are in North America, it should be set for 110/115 unless you are in a high voltage/industrial environment where you should check. Europe and many other parts of the world are likely to deliver 220-230 VAC so you will select 230 but confirm, and set the red switch as appropriate.

2.) Attach a grounded power cord. Unless otherwise ordered we supply a 3-prong cord for use North America. Obtain an appropriate, 3-prong cord for your wall outlet if your requirement is different. On the back of the supply, locate the two terminal posts in the (AC) input section of the power supply. Typically these are the first two posts on the left hand side of the unit. Connect the white wire from the power cord



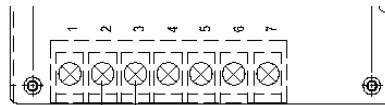
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to the 1st post marked "L" and the black wire to the 2nd post marked "N." Finally connect the green wire to the terminal post marked with the ground symbol \perp in the 3rd terminal post position. As a safety precaution, **do not plug the power cord in until you have connected the Air Conditioner leads to the power supply.**

Terminal Pin. No Assignment

Pin No.	Assignment	Pin No.	Assignment
1	AC/L	4,5	DC OUTPUT -V
2	AC/N	6,7	DC OUTPUT +V
3	FG \perp		



Typically there are two pairs of DC output terminal posts on all of our power supplies rated for 300 Watts or less. Two adjacent posts are marked "-V" near the center in positions 4 and 5 and those marked "+V" on the right hand side are numbered 6 and 7. Post numbered 4 and 6, the first from the left of each V- and V+, are a pair and remaining set numbered 5 and 7 are a pair.

3.) Connect both sets of fan leads to from the air conditioner directly to the power supply using post 5 for the black lead and 7 for the red. Our fan leads are typically thinner than the leads for the TEC/s and usually have white shrink wrap protection exiting the air conditioner. Twist the leads together or mount on either side of the terminal post screw.

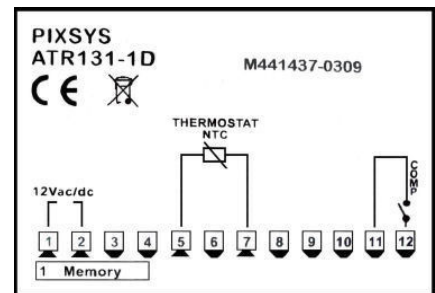


Connecting the fans directly to the power supply will ensure that they are supplied a constant nominal voltage.

We will connect the remaining leads (TECs) shortly however; you may want to confirm that you have the leads attached correctly by plugging in the power cord and observing that the fans spin. If the fans don't work, unplug the power cord and connect the other pair of leads to the supply in those positions. After confirming the fans are operational unplug the power cord.

4. Next, let's wire up the ATR131 temperature controller. On the back of the ATR131 note the illustration detailing the 12 terminal posts.

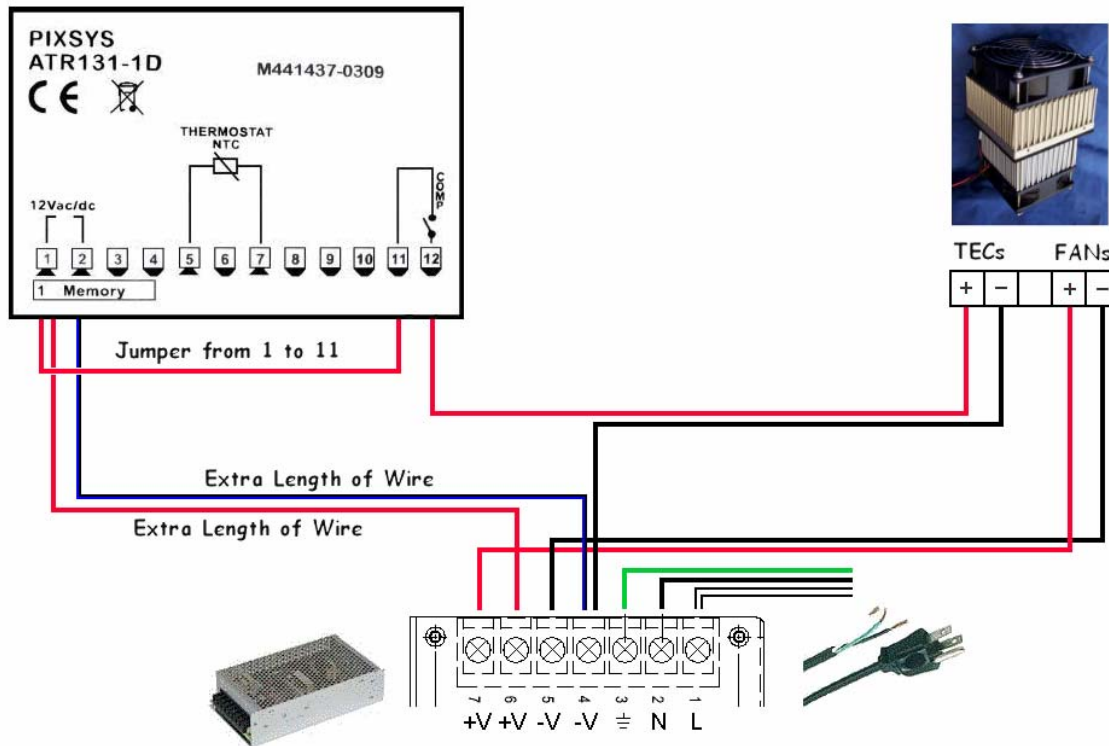
5. Terminals 1 and 2 are for "12V ac/dc" from the power supply. With a separate piece wire you obtained (red about two (2) feet long) connect +V output from post 6 (second from right) from the power supply to slot 1 on the ATR131 temperature controller then connect -V output from post 5 of the power supply to input 2 on the ATR131 with your black wire.





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- Using a spare piece of wire about 3 inches long make a “jumper” from ATR131's terminal slot 1 (also connected to the power supply with red wire) to terminal slot 11.
- Connect the red, positive lead from the TECs in the air conditioner to terminal post #12 identified by the letters “COMP” on the label above. The TEC leads may be identified as being slightly thicker than the fan leads and having blue protective shrink wrap exiting the cold plate.
- Connect the two leads from the NTC sensor into posts 5 and 7. Either lead can go into either slot (not illustrated below to avoid line clutter). You will place the sensor end of the wire into the location that you want to sample the air temperature.
- You may now plug in the power cord and begin the programming of the ATR131 for your application. You will find information on the various functions and procedure for setting up the controller in the *ATR131 USER MANUAL* located at electracool.com/ATR131Manual.pdf



*Layman's Schematic for Connecting Temperature Controller
ATR131 and Thermoelectric Air Conditioners TAC50™ and TAC60™*

If you encounter any problems we are delighted to assist our customers. From the United States, Canada and most of the Caribbean please call us toll-free at:

1-866-665-5434 otherwise e-mail: help@electracool.com