

## Installing an iVAC Contactor

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For larger dust collectors or ones that draw too much inrush current at start up you will need to install an iVAC Contactor along with your Pro Switch or Switch Box. Without the contactor the amount of current drawn by your dust collector will destroy the relay inside the iVAC Switch. From this point on in this document, iVAC Switch means either the Pro Switch or Switch Box.

Contactor is a fancy word for a really big relay and, like a relay, a contactor has two inputs and one output. The first input is for the contactor coil which generates the magnetic force required to close the contacts. The second input is for the power to run the dust collector and the output delivers the power to the dust collector when the iVAC Switch tells the contactor to close its contacts. iVAC supplies the control cable that connects to the contactor coil. You must supply the cables for the power circuit.

The iVAC Contactor has a 115 volt ac coil so you must use a 115 volt Pro Switch (or a Switch Box) to control it. The 115 volt Pro Switches in production at the time of writing this article are the S11520-A-NA and the S11520-A-NA-MRT. Either of these is suitable for use with the iVAC Contactor. Any of the obsolete Pro Switches whose model number begins with S115... is also suitable. The MRT option is for larger dust collectors. Before ordering a Pro Switch whose model number ends with MRT be sure you understand this option and that you want it. See the document "[High Power Dust Collectors and Minimum Run Time](#)" under the HELP! tab on the [ivacswitch.com](http://ivacswitch.com) website for an explanation of this option.

It is important that you not add too much additional cable to the dust collector power circuit when installing a contactor and that you use cable of adequate size for your dust collector. A good rule of thumb is to use cable of the same type and wire gauge as supplied with your dust collector and to keep the additional wire to less than 10 or 12 feet long. If you have to add more wire it's a good idea to use one wire gauge larger than that supplied with your dust collector. If you have to add more than 25 feet of cable you should consult a licensed electrician to be sure the wire used is adequate.

The contactor coil draws very little power so much smaller cable is sufficient for this purpose and it can be quite long without causing any problems. If you need more cable than iVAC supplies just add a 16 gauge extension cord.

Where you install the contactor in the dust collector power circuit depends on whether or not your dust collector has a magnetic switch (often called a magnetic starter). Some dust collector manufacturers use an off the shelf magnetic switch and others build the same functionality into their proprietary control circuitry. If your dust collector has a remote control or a timer it almost certainly has the magnetic starter functionality built in.

### **The Magnetic Switch Test**

A sure fire test to determine if you have a magnetic starter or not is to plug the dust collector into power and turn it on. While it is running, pull the plug out of the wall socket. Do not turn the dust collector off. When the dust collector has stopped plug it back into the power source. If the dust collector starts

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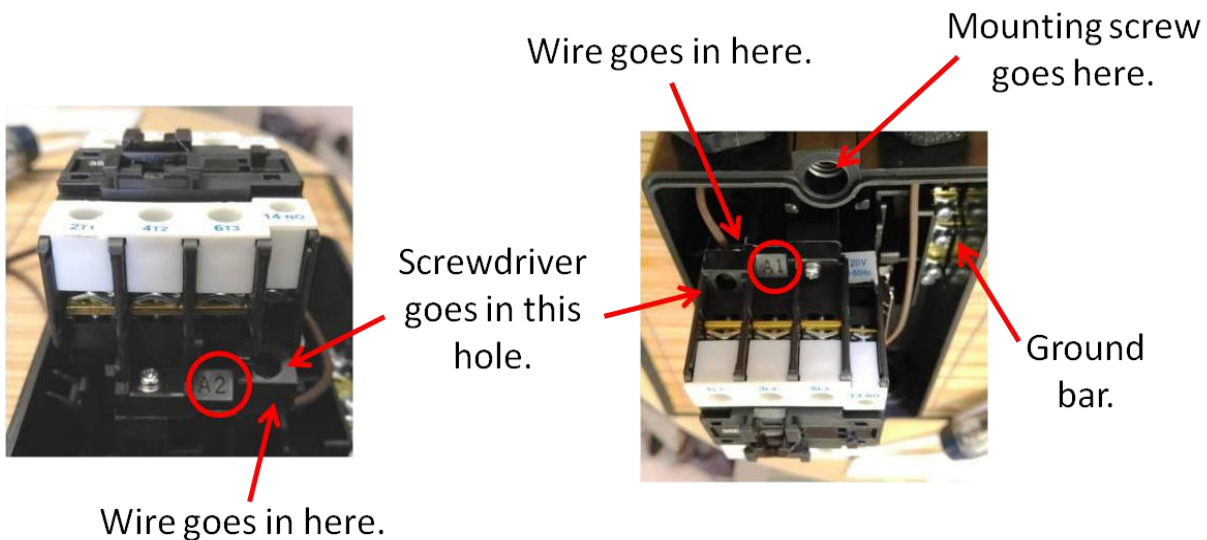
immediately you DO NOT HAVE a magnetic switch. If the dust collector does not start, press the Start or On button on the dust collector switch. If it starts when you press the On button then you DO HAVE a magnetic switch.

### Contactor Preparation

The iVAC Contactor comes with a control cable, 1 small cable gland and 2 larger cable glands. The small cable gland is for the control cable. The larger glands are for the power cables that you must supply.

Decide where you will mount the contactor and where each cable will enter the contactor enclosure. Knock out the filler in the appropriate holes of the contactor enclosure and install the cable glands. Mount the enclosure in your preferred location using round or pan head screws (and a washer if necessary) through the holes where the cover securing screws go.

Put the end of the control cable through the small gland and secure it by tightening the gland cover nut. Connect the spade connectors to terminals A1 and A2 of the contactor. It doesn't matter which wire (black or white) goes on which terminal. Connect the green ground wire with the ring terminal to the ground bar in the bottom of the contactor enclosure.



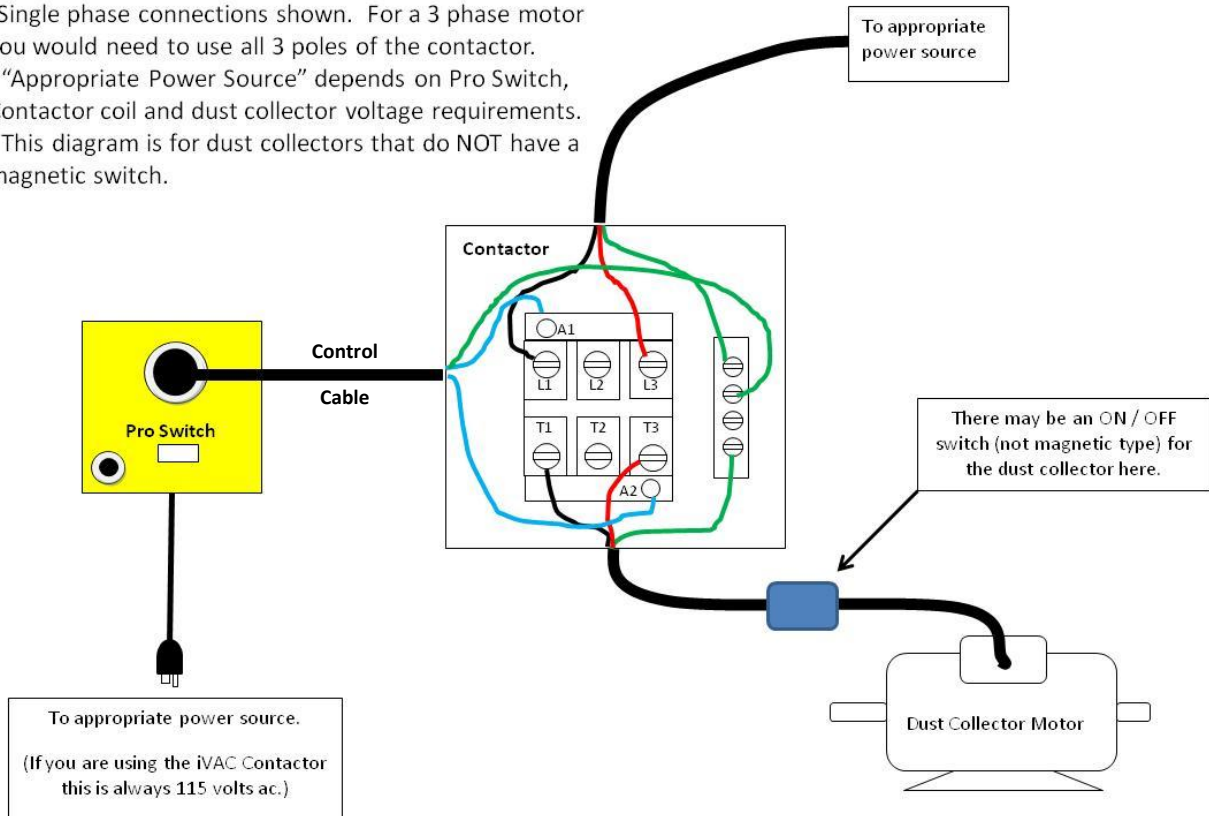
### Installing the Contactor with a Dust Collector that DOES NOT HAVE a Magnetic Switch

Refer to the drawing below for installing a contactor with a dust collector that does not have a magnetic switch.

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### Generic iVAC Contactor Installation for a Dust Collector WITHOUT a Magnetic Switch

- Single phase connections shown. For a 3 phase motor you would need to use all 3 poles of the contactor.
- "Appropriate Power Source" depends on Pro Switch, Contactor coil and dust collector voltage requirements.
- This diagram is for dust collectors that do NOT have a magnetic switch.



Place the power cable that will bring power from the source to the dust collector through the chosen gland and secure it by tightening the gland cover nut. Connect the green ground wire in this cable to the ground bar in the bottom of the contactor enclosure.

Connect the black wire in the cable to one of the L1, L2 or L3 terminals of the contactor. It doesn't matter which one you choose. Connect the white wire in the cable to one of the remaining L terminals. Again it doesn't matter which one. The third terminal will be a spare if your dust collector is a single phase machine. You will need the third terminal only if your dust collector is a 3 phase machine.

Place the cable that will take power from the contactor to the dust collector through the other large cable gland and secure it by tightening the gland cover nut. Connect the green ground wire to the ground bar in the bottom of the contactor enclosure. Connect the black wire in this cable to the T terminal that matches the L terminal with the black wire. (For instance, if you connected the black wire of the source cable to terminal L1, connect the black wire of the dust collector cable to terminal T1.) Connect the white wire of this cable to the T terminal that matches the L terminal with the white wire.

Put the cover back on the iVAC Contactor.

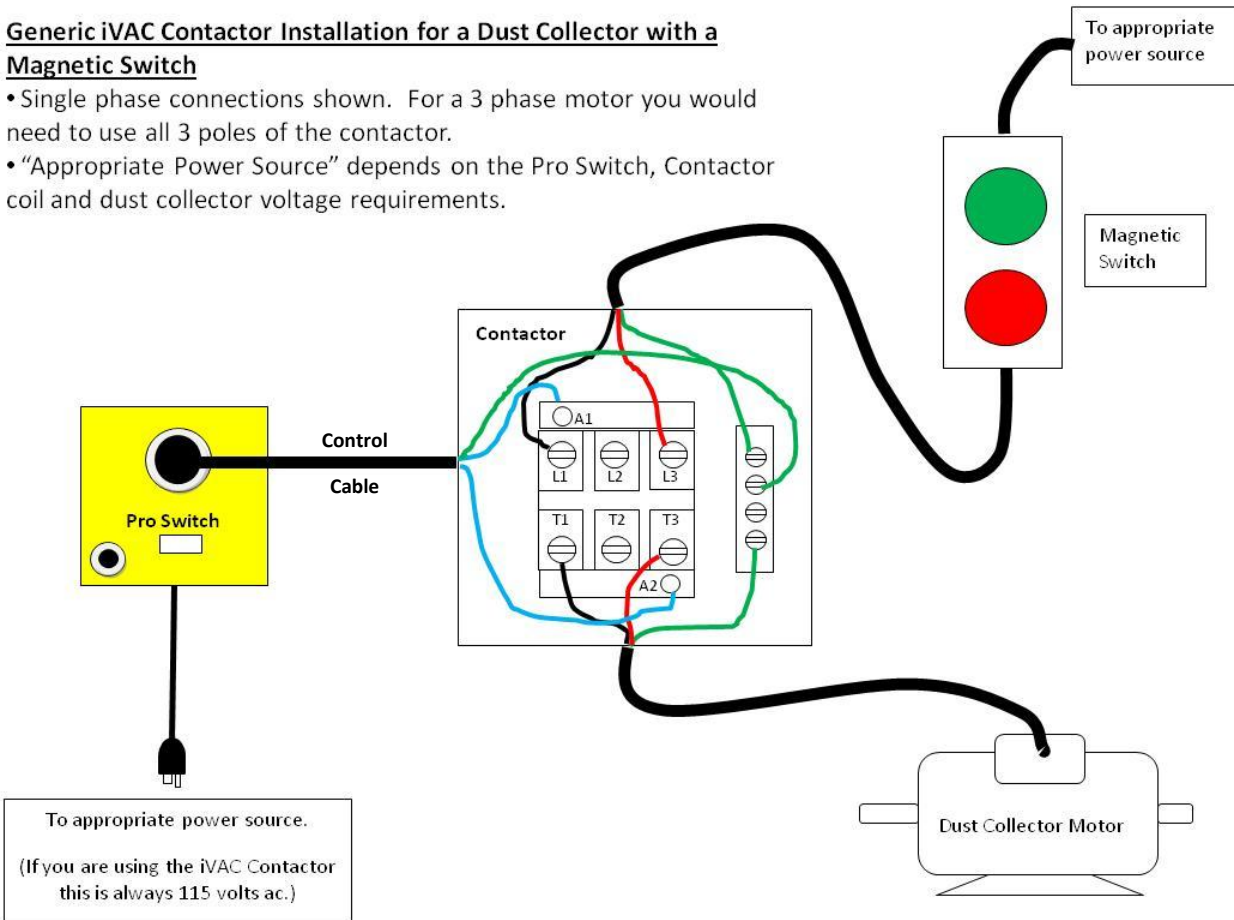
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## Installing the Contactor with a Dust Collector that DOES HAVE a Magnetic Switch

Refer to the drawing below for installing a contactor with a dust collector that does have a magnetic switch.

### Generic iVAC Contactor Installation for a Dust Collector with a Magnetic Switch

- Single phase connections shown. For a 3 phase motor you would need to use all 3 poles of the contactor.
- “Appropriate Power Source” depends on the Pro Switch, Contactor coil and dust collector voltage requirements.



Remove the cover from the dust collector’s magnetic switch. Make a note of the terminals where the wires of the cable that goes to the dust collector motor are connected. These are most likely labelled “T”. Disconnect this cable from the output terminals of the magnetic switch. Also disconnect the green ground wire of this cable. Loosen the clamp that holds the cable and remove the cable from the magnetic switch enclosure. Install a new piece of cable into the magnetic switch and secure it by tightening the clamp. Connect the black, white and green wires of this new piece of cable to the same terminals to which the previously removed cable was connected. Replace the cover on the magnetic switch.

Insert the other end of the new cable into the iVAC Contactor enclosure through one of the large cable glands and secure it by tightening the gland cover nut. Connect the green ground wire in this cable to the ground bar in the bottom of the contactor enclosure. Connect the black wire in the new cable to one of the L1, L2 or L3 terminals of the contactor. It doesn’t matter which one you choose. Connect the

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white wire in the cable to one of the remaining L terminals. Again it doesn't matter which one. The third terminal will be a spare if your dust collector is a single phase machine. You will need the third terminal only if your dust collector is a 3 phase machine.

Place the dust collector motor cable through the other large cable gland and secure it by tightening the gland cover nut. Connect the green ground wire to the ground bar in the bottom of the contactor enclosure. Connect the black wire in this cable to the T terminal that matches the L terminal with the black wire. (For instance, if you connected the black wire of the source cable to terminal L1, connect the black wire of the dust collector motor cable to terminal T1.) Connect the white wire of this cable to the T terminal that matches the L terminal with the white wire.

Put the cover back on the iVAC Contactor.

### **Alternate method**

Alternatively, you can perform this installation from the motor end of the cable that connects the magnetic switch to the dust collector's motor. In this case, open the cover of the junction box on the dust collector motor. Note which colour of wire in the cable goes to which wire or terminal in the motor junction box or better, take a picture. Remove any tape on the connections and remove the wire nuts. If your dust collector has a terminal block here, remove the wires of the motor cable from the terminals. Disconnect the green ground wire and remove the cable from the junction box. Feed the now free end of this cable into the iVAC Contactor enclosure through the gland and secure it by tightening the gland cover nut. Connect the wires in this cable to the L terminals of the iVAC contactor. Connect the green ground wire to the ground bar in the bottom of the contactor enclosure.

Connect a new piece of cable to the dust collector motor using the wire nuts and fresh tape if desired. Make sure to connect the black and white wires to the same motor wires or terminals as the original cable. Replace the cover on the junction box.

Place the new motor cable through the other large cable gland of the iVAC Contactor and secure it by tightening the gland cover nut. Connect the green ground wire to the ground bar in the bottom of the contactor enclosure. Connect the black wire in this cable to the T terminal that matches the L terminal with the black wire. (For instance, if you connected the black wire of the source cable to terminal L1, connect the black wire of the dust collector motor cable to terminal T1.) Connect the white wire of this cable to the T terminal that matches the L terminal with the white wire.

If your dust collector is a 3 phase machine then you will have to use all three sets of contacts in the iVAC Contactor.

Put the cover back on the iVAC Contactor.

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### **Final Steps**

Plug the control cable from the iVAC Contactor into the outlet on the front of the iVAC Switch. Plug the iVAC Switch into a wall outlet. If your Pro Switch is a 20 amp model and your outlet is for 15 amps, use the adapter cable that comes with the Pro Switch to make the connection.

Set the dust collector's power switch to ON. If your dust collector has a magnetic switch, press the green or START button on the magnetic switch or use the dust collector's remote control to turn it on. You will not have to do this again until you press the Red or Stop button or there is a power failure.

Set the mode switch on the front of the iVAC Switch to ON and the dust collector should start. If it does not, check the circuit breaker for the dust collector circuit in your distribution panel and your wiring. You can plug a light or small power tool into the Pro Switch to make sure it is working. If neither of these is the source of the trouble, double check your wiring. If you can hear the contactor make a big "clunk" noise when you turn the iVAC Switch on or off then the iVAC Switch and the contactor are both working. If the dust collector started when you set the mode switch on the iVAC Switch to ON, then set the mode switch to OFF to stop the dust collector. Then set the mode switch to AUTO to allow the iVAC System to control your dust collector automatically.

### **Using the iVAC Contactor with an iVAC Switch Box (model SB-NA)**

Install the iVAC Contactor with your dust collector, using the instructions above for dust collectors with or without a magnetic switch as appropriate.

Mount the iVAC Switch Box where you want it and plug the Tool Input cord (the long one) into a working 115 volt outlet. Plug the Vacuum Power input cord (the short one) into the Auxiliary socket on the Switch Box. Plug the control cable from the contactor into the Vacuum Power socket on the Switch Box. Plug your power tool into the Tool Power outlet on the Switch Box.

Turn your dust collector power switch to the ON position.

Move the mode Switch on the Switch Box to ON. The contactor should make a big "clunk" noise and the dust collector should start. When you move the mode switch to OFF the contactor will make the "clunk" noise again and the dust collector will shut off. Move the mode switch to the Auto position and the Switch Box will start and stop your dust collector automatically when you turn the power tool plugged into the Tool Power outlet on and off.

If you are having difficulty please contact iVAC Technical Support for help.