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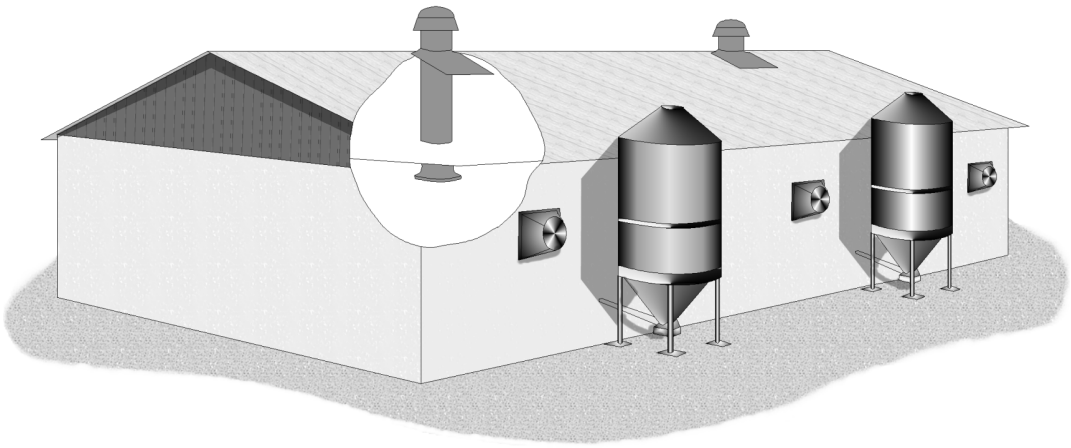
Technical Services Bulletin No. 11– Chimney Ventilation

Phason controls can operate dampers and fans in chimney (through-the-roof) ventilation systems.

Chimney ventilation, already common in Europe, is becoming more popular in North America. With this in mind, we have tested three actuators with our controls. This bulletin contains instructions and wiring diagrams for connecting the following actuators to our controls.

- Skov DA 74AV –A variable, direct coupled actuator
- Belimo LM24-10P (US) –An on-off/floating point, direct coupled actuator with feedback
- Belimo LF230-S (US) –An on-off, direct coupled actuator with spring return

The Skov DA 74AV and Belimo LM24-10P (US) provide proportional damper control for variable speed chimney fans. The Belimo LF230-S (S) controls the draft cut-off damper for single speed chimney fans.



We hope this bulletin helps you. If you have any questions about this bulletin, or Phason controls, please ask your dealer. You can also contact Phason at 204-233-1400 or support@phason.ca.

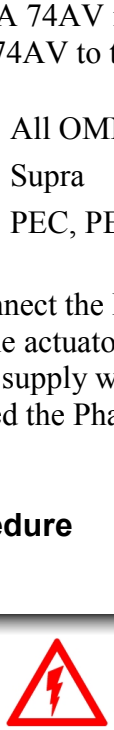
1. Connecting a Skov DA 74AV to a Phason Control

The DA 74AV is designed to operate dampers in chimney ventilation systems. You can connect a DA 74AV to the following Phason controls.

- All OMNI-4000 Power Blocks, except the PB-6
- Supra
- PEC, PEC+, SEC-HD+

To connect the DA 74AV, you will need a DC power supply. Although the DA 74AV manual says the actuator requires +/– 24 VDC power, you can also use +/– 18 VDC. A +/– 18 VDC power supply will position the shutter slower and more accurately. In our tests, and the example, we used the Phason 124-0 DC Actuator Power Supply.

Procedure



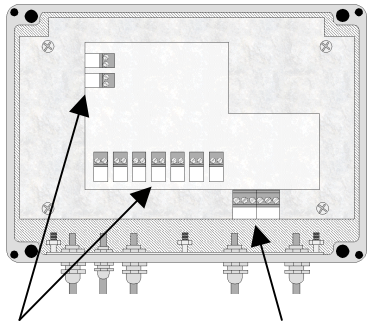
Before doing any wiring, turn OFF the power to the control.

Connect the DA 74AV to your Phason control as shown on the next page.

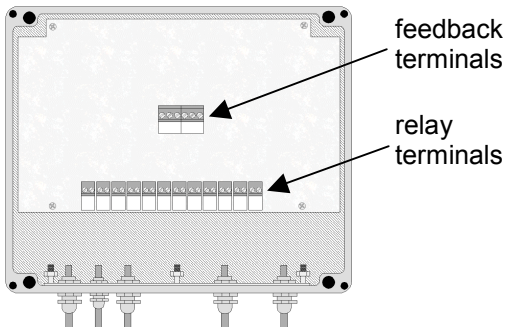
The layout of the OMNI-4000 PB-2 and Supra are shown below. For information about other controls, see your user manual or ask your dealer.

You will also need to configure your control to operate this actuator. For more information, see the actuator section of your control's user manual.

OMNI-4000 Power Block (PB-2)



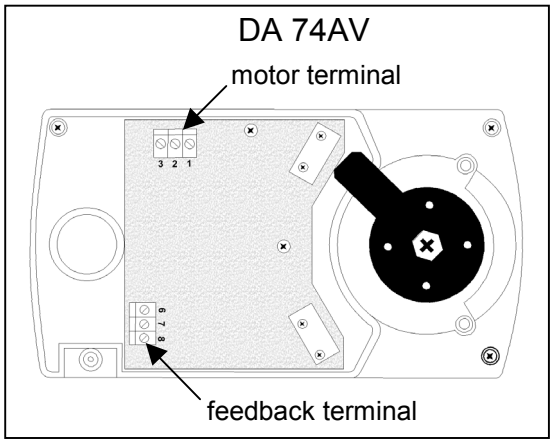
Supra



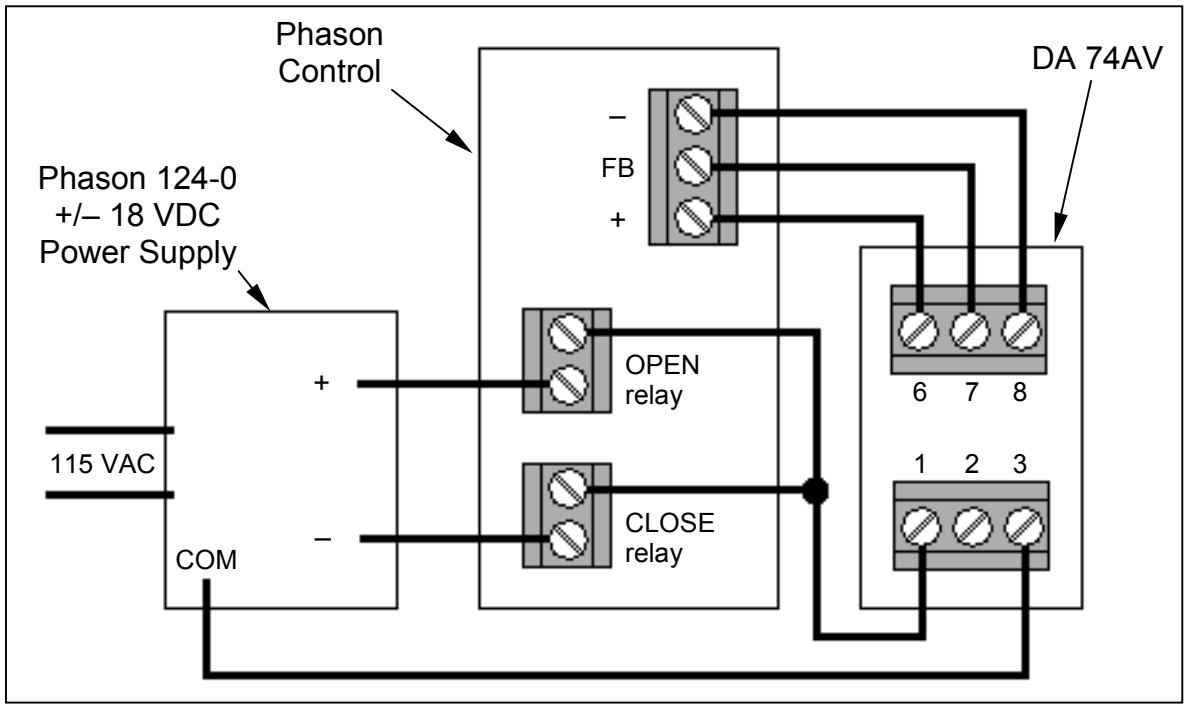
Follow the steps and diagram below to connect a Skov DA 74AV to your Phason control.

1. Connect the control's feedback terminal to the actuator's feedback terminal.

Control terminal	DA 74AV terminal
+	6
FB	7
–	8



2. Connect the left terminal of the OPEN relay to the power supply's + wire.
3. Connect left terminal of the CLOSE relay to the power supply's – wire.
4. Connect the right terminal of the OPEN relay to the right terminal of the CLOSE relay.
5. Connect the right side of the CLOSE relay to the actuator's terminal 1.
6. Connect the power supply's common wire to the actuator's terminal 3.



2. Connecting a Belimo LM24-10P (US) to a Phason Control

The LM24-10P is designed to operate dampers in chimney ventilation systems. You can connect an LM24-10P to the following Phason controls.

- All OMNI-4000 Power Blocks, except the PB-6
- Supra
- PEC, PEC+, SEC-HD+

To connect the LM24-10P (US), you will need a 24 VAC or 24 VDC power supply. In our tests, and the example, we used a Phason AC Transformer (ACT), which supplies 24 VAC power.

Procedure

Before doing any wiring, turn OFF the power to the control.

Connect the LM24-10P (US) to your Phason control as shown on the next page. For more information, refer to the user manual for your equipment.

NOTE: We did the test with the actuator switch in position R. For more information, see the LM24 Series installation guide.

You will also need to configure your control to operate this actuator. For more information, see the actuator section of your control's user manual.

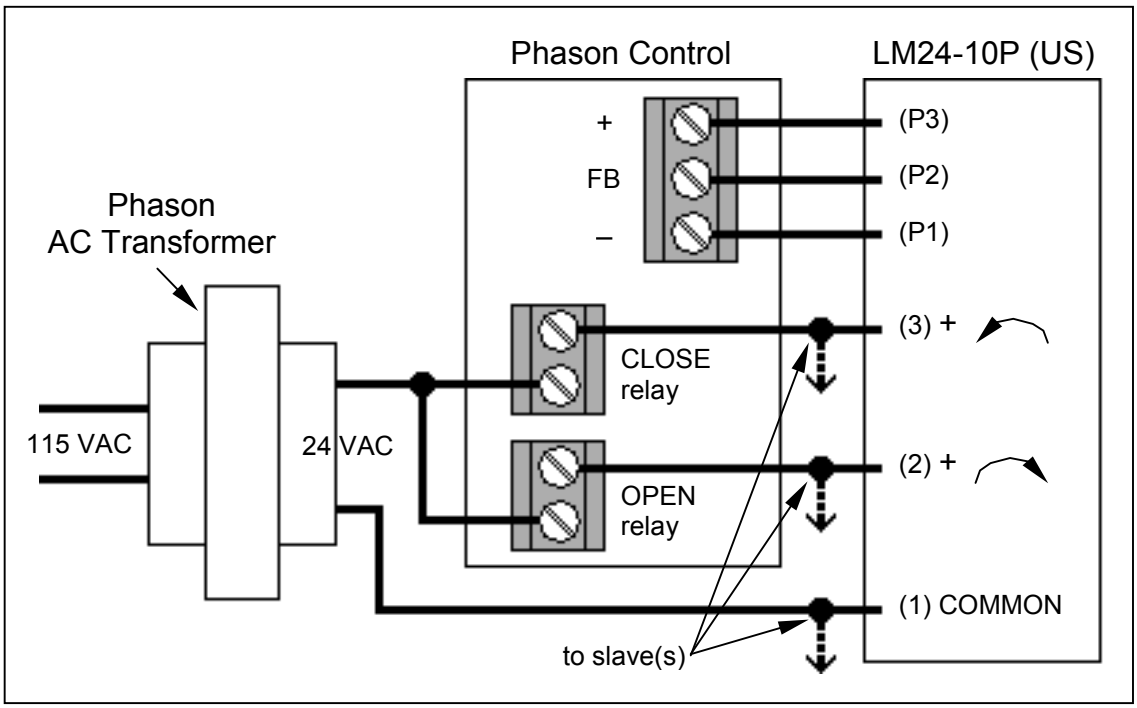
Follow the steps and diagram below to connect a Belimo LM24-10P (US) to your Phason control.

1. Connect the control's feedback terminal to the actuator's feedback terminal.

Control terminal	LM24-10P (US) terminal
+	P1 (orange)
FB	P2 (blue)
–	P3 (yellow)

2. Connect one 24 VAC power supply wire to the actuator's common (black) wire.
3. Connect the other 24 VAC power supply wire to the left side of the control's OPEN relay.
4. Connect the left side of the control's OPEN relay to the left side of the CLOSE relay.
5. Connect the right side of the OPEN relay to the actuator's +↻ (red) wire.
6. Connect the right side of the CLOSE relay to the actuator's +↺ (white) wire.
7. If you are connecting LM24 (US) actuators as slaves, connect them as shown below. For more information, see the LM24 Series installation guide.

NOTE: If you want to use a 24 VDC power supply, see the LM24 Series installation guide for power connections.



3. Connecting a Belimo LF230-S (US) to a Phason Control

The LF230-S (US) is designed to operate dampers in chimney ventilation systems. You can connect an LF230-S (US) to the following Phason controls.

- All OMNI-4000 Power Blocks, except the PB-6
- Supra
- PEC+, SEC-HD+
- PEC, SEC-HD, TVS, AEC-2
- SSC-1D

The LF-230-S is a spring-return actuator. When power is applied to the actuator, the actuator opens. When there is no power to the actuator, the spring-return closes the actuator.

To connect the LF230-S, you will need a 240 V power contactor. In our tests, and the example, we used a Phason PC-240 Power Contactor. The power contactor, along with the auxiliary switch, allow the damper to partially open before the fan starts. This also closes the damper when the fan shuts off.

Procedure

Before doing any wiring, turn OFF the power to the control.

Connect the LF230-S (US) to your Phason control as shown on the next page. For more information, refer to the user manual for your equipment.

Since the actuator and fan operate only in ON or OFF mode (single-speed mode), you can connect it to any relay stage. You do not need to configure the control to operate an actuator, or connect a feedback terminal. For more information, see your control's user manual.

You need to adjust the actuator's auxiliary switch to operate at approximately 50% open (45 to 50°). For more information, see the LF230-S installation guide.

Follow the steps and diagram below to connect a Belimo LF230-S (US) to your Phason control.

1. Connect L1 to the left side of the control relay, power contactor terminal 6, and actuator wire S1.
2. Connect the right side of the control relay to actuator wire 1 (line in).
3. Connect L2 to actuator wire 2 (line in) and power contactor terminals 2 and 0.
4. Connect power contactor terminal 1 to actuator wire S3.
5. Connect power contactor terminal 8 to a single speed fan wire.
6. Connect power contactor terminal 4 to the other fan wire.
7. Adjust the auxiliary switch to close at approximately 45 to 50°. For more information, see the LF230-S installation guide.

NOTE:	For information about terminal assignments, see the PC-240 Power Contactor installation guide. To protect the power contactor, mount it in a moisture-proof enclosure.