

FanDRIVE

FanDRIVEs are a cost-effective way to increase the capacity of your fan control system. Installation is simple and there is no additional configuration required; FanDRIVEs follow the programming of the master control. The following Phason controls can be a master control.

- ◆ AutoFlex ◆ SEC-DC ◆ PBx-10
- ◆ Supra ◆ SSV-DC ◆ PBx-11

FanDRIVEs can control fans connected to any phase. This gives you the ability to distribute loads between all phases on a three-phase system.

There are two FanDRIVE models available. Model FD-2-7 has two stages, model FD-1-14 has one stage. Each stage accepts a 0 to 10 VDC input signal that sets the variable AC output.

Two control modes

- ◆ In **default mode**: when the input is 0 V, fans will be at 0%. When the input is 10 V, fans will be at 100 %.
- ◆ In **safety mode**: when the input is 0 V, fans will be at 100%. When the input is 10 V, fans will be at 0 %. The advantage of safety mode is that if there is a problem with the master control, fans will still operate and ventilation.

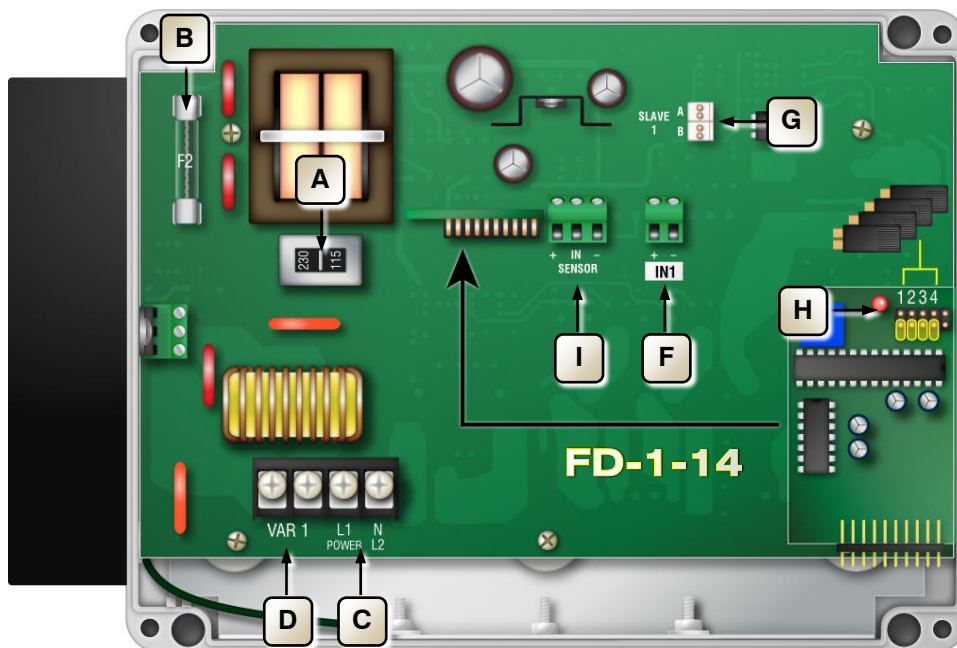
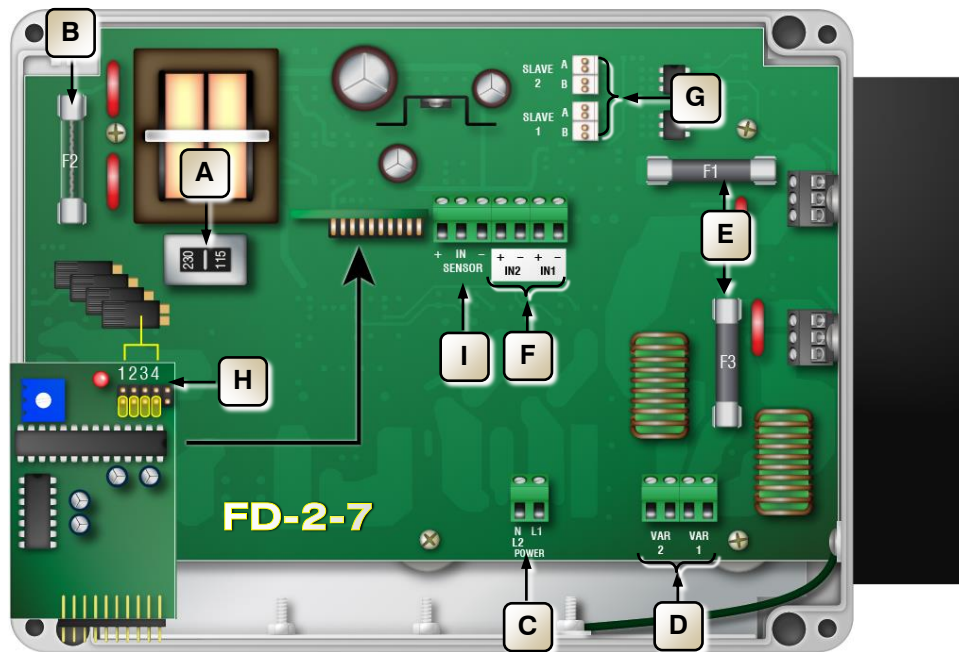
Features

- ◆ Variable AC stage(s)
- ◆ DC signal input (0 to 10 V)
- ◆ Two control modes
- ◆ Manual override
- ◆ Four motor curve options
- ◆ Expandable capacity using additional units
- ◆ Rugged enclosure (corrosion resistant, water resistant, and fire retardant)
- ◆ CSA approval
- ◆ Limited warranty (two years)

Electrical ratings

	FD-2-7	FD-1-14
Input power	120/230 VAC, 50/60 Hz	
Input fuse	250 V, 1 A fast-acting glass	
Variable AC stages	2x 7 FLA at 120/230 VAC, PSC motor 1/2 HP at 120 VAC, 1 HP at 230 VAC, PSC motor	1x 14 FLA at 120/230 VAC, PSC motor 1 HP at 120 VAC, 2 HP at 230 VAC, PSC motor
Variable AC fuses	2x 15 A, 250 VAC ABC-type ceramic	none
Variable DC signals	0 to 10 V	

FanDRIVE layout



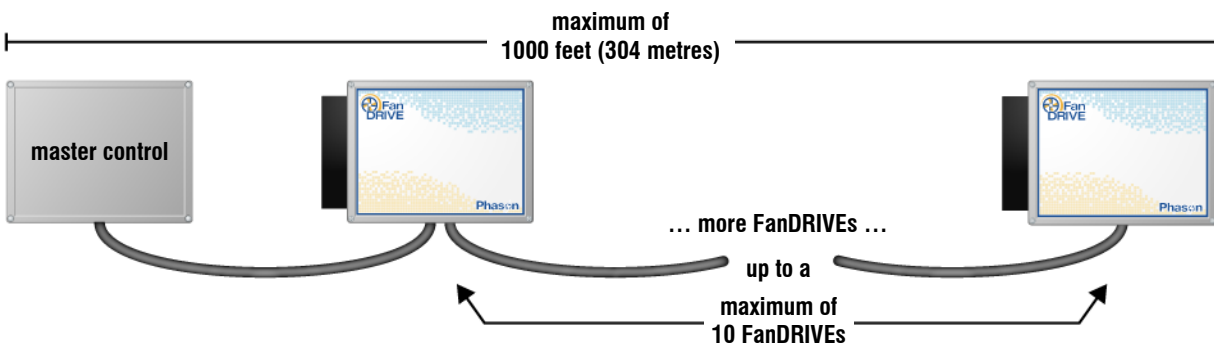
- A Voltage switch:** set this switch to the correct voltage before installing the FanDRIVE.
- B Control fuse:** 250 V, 1 A fast-acting glass
- C Incoming power terminal:** connect the incoming power (120/230 VAC, 50/60 Hz) to this terminal
- D Variable AC terminals:** connect variable speed fans to these terminals.
- E Variable AC fuses (FD-2-7 only):** 15 A, 250 VAC ABC-type ceramic
- F DC signal input terminals:** connect the 0 to 10 VDC signal from the master control to these terminals.
- G Single-Phase Slave connections:** you can connect a Phason PSU-20 to these connectors.
- H Configuration jumpers:** you can change how the FanDRIVE operates. For information, read **Configuring the FanDRIVE** on page 5.
- I Sensor terminal:** is not used.

Mounting the FanDRIVE

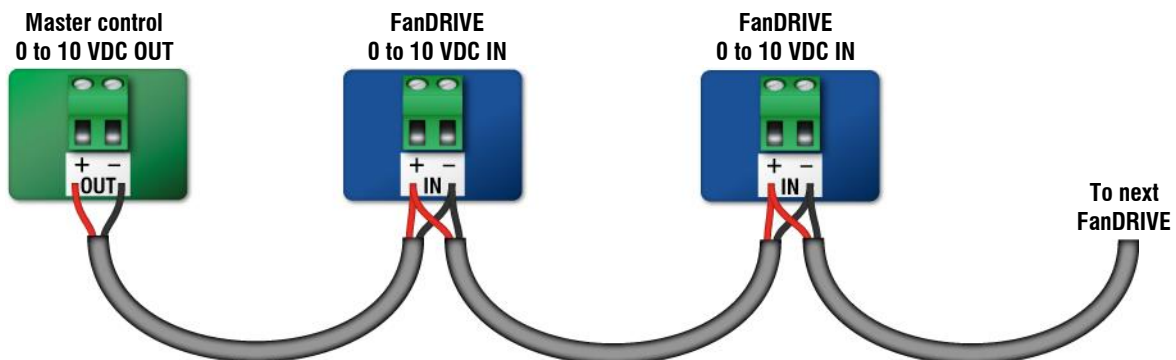
1. Select a location for the FanDRIVE that is close enough to connect the slave cable from the FanDRIVE to the master control.
2. Remove the screws from the front cover and then lift it off.
3. Mount the enclosure to a wall using the four screws provided with the control. Insert the screws into the large holes in each corner of the box and then tighten.

Connecting FanDRIVES to the master control

You can connect a maximum of 10 FanDRIVES to a master control. The total length of cable between the master control and last FanDRIVE cannot be more than 1000 feet.



Use at least 20-gauge cable. Phason has 1000-foot spools of 20-gauge, 2-conductor cable (model **W20/2X1000**) that is ideal for connecting FanDRIVES. This is the same durable cable used in Phason temperature probes. For more information, contact your dealer.

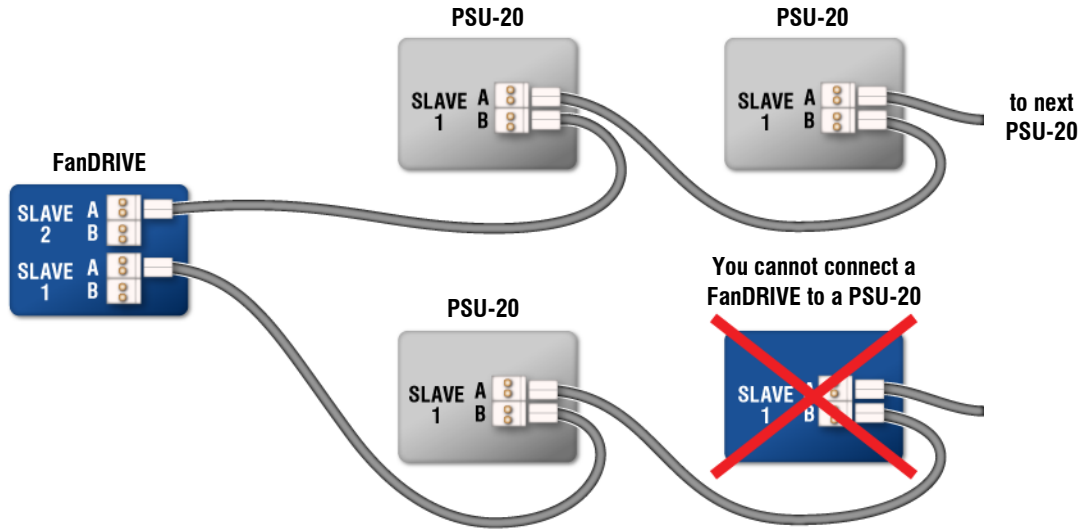


Excess line noise can cause the FanDRIVE to lag behind the master control. To help prevent line noise:

- ◇ Do not run the wires in the same conduit as AC power cables.
- ◇ Do not run the wires beside AC power cables or near electrical equipment.
- ◇ When crossing other cables or power lines, cross them at a 90-degree angle.

Connecting Single-Phase Slaves to a FanDRIVE

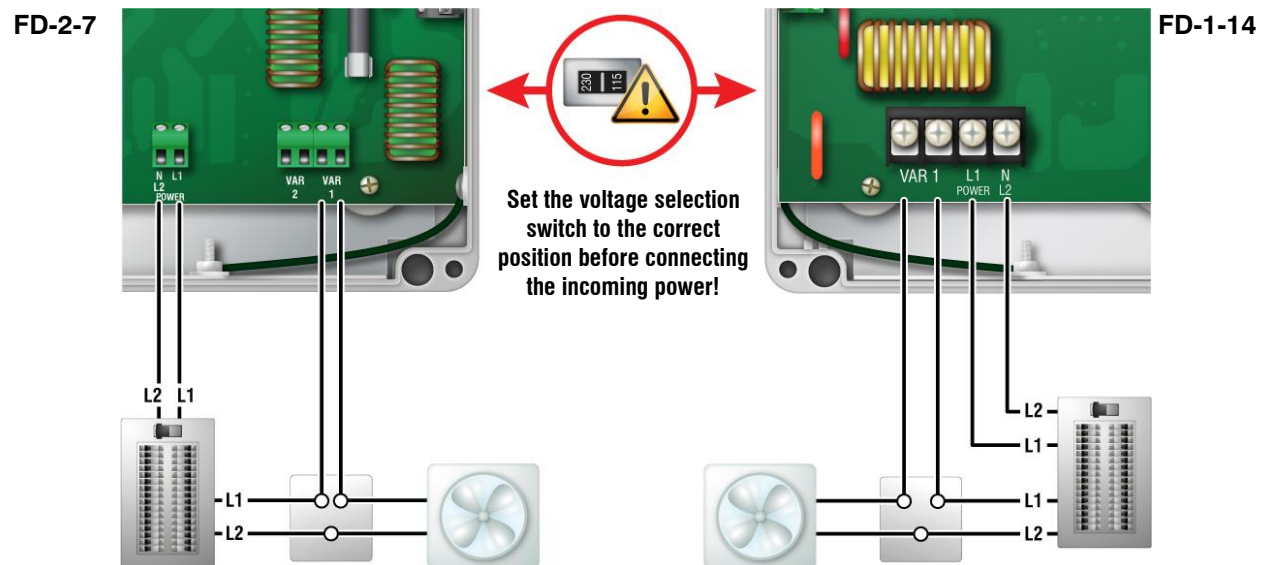
You can connect Single-Phase Slaves to a FanDRIVE. Single-Phase Slaves (**model PSU-20**) have one variable AC output to control fans. For more information about the Single-Phase Slave, contact your dealer or visit www.phason.ca.



NOTE A Single-Phase Slave must be on the same phase as the FanDRIVE it is connected to. For information about installing the Single-Phase Slave, read the **PSU-20** installation guide.

Connecting the fans and incoming power

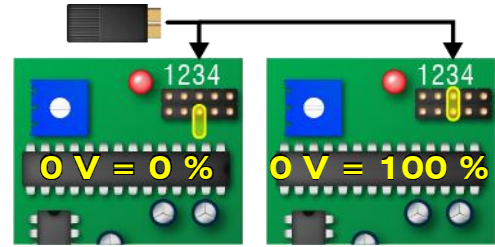
FanDRIVES can control fans connected to any phase; this gives you the ability to distribute loads between all phases on a three-phase system. Connect fans and incoming power to the FanDRIVE, as shown below.



Configuring the FanDRIVE

Changing the control mode

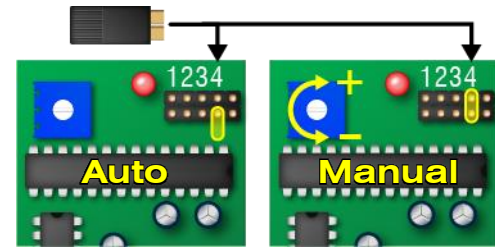
The FanDRIVE **default mode** is 0 V = 0 %. If you want to use **safety mode** where 0 V = 100%, change the position of jumper 3.



Changing to manual mode

The FanDRIVE is set at the factory to run in automatic mode. In **automatic mode**, the FanDRIVE follows all the settings and programming of the master control.

To use **manual mode**, change the position of jumper 4. In manual mode, the FanDRIVE according to how you set the adjustment screw inside the FanDRIVE. Adjust the screw clockwise to increase, or counterclockwise to decrease output.



Changing the motor curve

Motor curves provide a way to proportionally increase or decrease speed, regardless of motor manufacturer. The FanDRIVE is set at the factory to use **motor curve 1**, which is suitable for most fan motors. Use one of curves 2, 3, or 4 **only if** one of the following problems occurs.

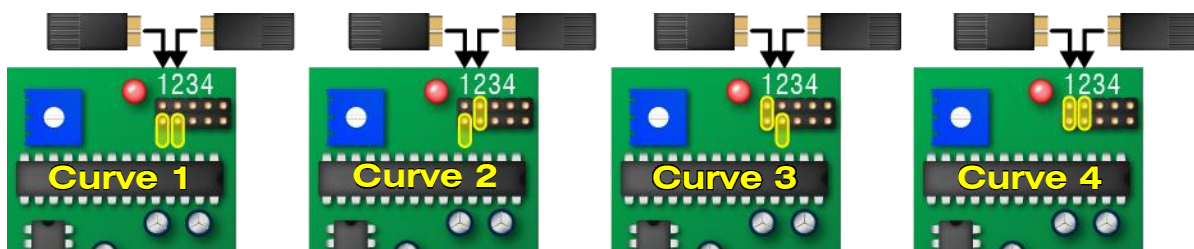
- ◆ The fan changes speed **only within** a small portion of the 0 to 100% range
- ◆ The fan runs at full speed regardless of the 0 to 100 percent range



- ◇ Use manual override or test mode at the main control to test and evaluate the operation and performance of your fan motors. For more information, read the section in your control's user manual.
- ◇ Before changing the motor curve, check if your motor manufacturer is listed in the **Motor curve table** on page 6.

To change the motor curve

To select a different motor curve, change the position of jumpers 1 and 2.



Motor curve table

Find your motor in the following table and then select the curve for your fan manufacturer and model/specification. If your motor is not listed, use the default curve (curve 1). If the default curve does not operate your motor correctly, test the motor from the main control using manual override or test mode while selecting the different curves.

Manufacturer	Diameter (inches)	Model	Specifications	Recommended curve
Aerotech	09	AT09Z2	3350 RPM	2
	36	AT36Z1		4
Airstream	12	APP12F	1/4 HP, 1765 RPM	3
	36	APP36		4
Baldor	14		1/4 HP, 1700 RPM	4
	18		1/3 HP, 1700 RPM	4
	24		1/3 HP, 1140 RPM	4
Canarm	09	PLF9	1/5 HP	4
	12	PLF12		2
	14	PLF14		2
	16	PLF16	1/4 HP	2
	18			2
Choretime (GE)	12		1/3 HP, 1140 RPM	1
Emerson	12		1/6 HP, 3400 RPM	2
Exafan	10		1/4 HP, 1700 RPM	2
	14		1/4 HP, 1700 RPM	2
	16		1/3 HP, 1700 RPM	2
	18		1/3 HP, 1700 RPM	2
	20		0.53 HP, 1700 RPM	2
	24		0.63 HP, 1700 RPM	2
Franklin	10		1/6 HP, 3450 RPM	2
Leeson	14		1/4 HP, 1625 RPM	2
	18		1/3 HP, 1625 RPM	2
	24		1/3 HP, 1140 RPM	2
	24		1/2 HP, 1625 RPM	2
	36		3/4 HP, 1625 RPM	2
Magnetek	12		1/6 HP, 3300 RPM	2
	12		1/6 HP, 1725 RPM	2
	36		1/2 HP, 840 RPM	4
Marathon	12		1/4 HP, 1625 RPM	2
	24		1/2 HP, 1625 RPM	2
Multifan	18	4E45	1600 RPM	4
	20	4E50		4

Phason Inc.

2 Terracon Place
Winnipeg, Manitoba Canada
R2J 4G7

Phone: 204-233-1400
Fax: 204-233-3252

E-mail: support@phason.ca
Web site: www.phason.ca