



**USING THE DG-1000 WITH THE  
MINNEAPOLIS DUCT BLASTER**

## CONDUCTING A TOTAL LEAKAGE PRESSURIZATION TEST

### Before the Test

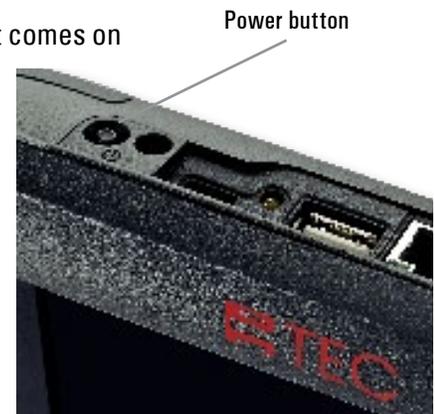
- Connect the Duct Blaster fan to the duct system. For instructions about how to do this, please see the pressurization section of the [Duct Blaster Manual](#).
- Prepare the duct system and house for the test. For instructions about how to do this, please see the [Minneapolis Duct Blaster: Before and After the Test Quick Guide](#).

### Tubing Hookup

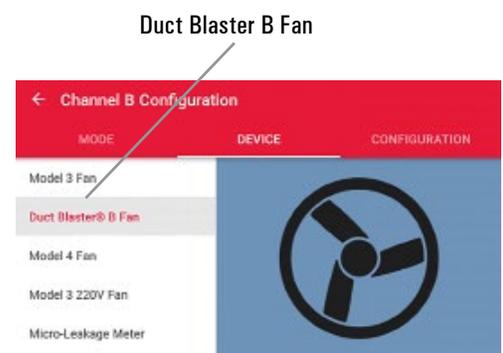
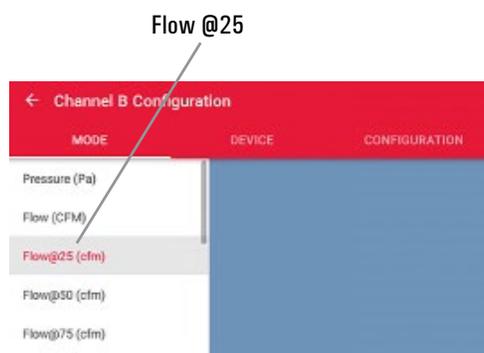
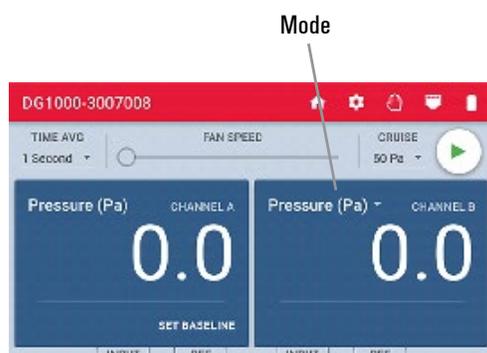
1. Attach one end of the green tube to the Channel A input tap. Connect the other end of the green tube to the duct system, either by inserting it into a sealed register, or by connecting it to the end of the installed static pressure probe.
2. Attach one end of the red tube to the Channel B input tap. Attach the other end of the red tube to the pressure tap on the Duct Blaster fan.

### Conducting the Test

1. Turn on the DG-1000 gauge by pressing and holding the power button until the green light comes on
2. After the Home screen loads, touch Gauge to open the Gauge app



3. Touch the mode area to open the Channel B Configuration menu. Set the mode to Flow @25. Touch Device to open the Device menu and select Duct Blaster B Fan. Touch the arrow in the upper left of the screen to return to the Gauge app screen.



## Total leakage pressurization continued



4. Install the flow ring which best matches the needed fan flow (see table below) and then select the same ring in the Configuration menu.

Ring	Flow Range in CFM
Open (no flow ring)	1,500 - 600
Ring 1	800 - 225
Ring 2	300 - 90
Ring 3	125 - 10
Ring 4	25 - 2.4

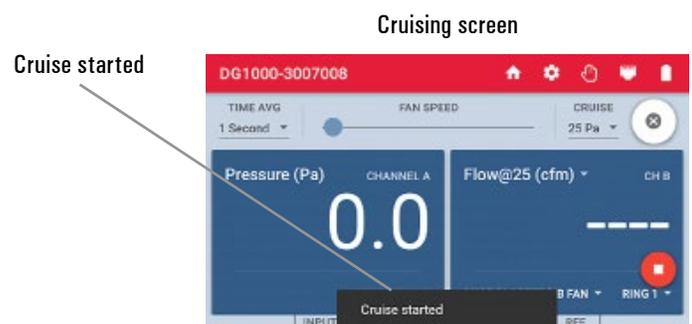
## Using Cruise Control

1. Turn the Duct Blaster speed control knob to the “just on” position (the controller is on but turned all the way down).



2. Set the cruise target by touching the Cruise menu and selecting 25 Pa.

3. Touch the green play icon to start cruise. Once cruise is started, the fan speed slider will move on it's own. The green play icon will change to an X, and a red stop icon will appear in the lower right of the screen. A pop-up will appear at the bottom of the screen to indicate that cruise has started.



4. The Duct Blaster fan will slowly increase speed until the duct pressure displayed on Channel A is approximately 25 Pa.

## Total leakage pressurization continued

- Cruise will turn off when the X is touched, but the fan will continue running. When the X is touched, a pop-up will appear at the bottom of the screen that says "Cruise canceled." Touch the red stop icon in the bottom right corner of the screen to stop the fan. When the fan is stopped a pop-up will appear at the bottom of the screen that says "Fan stopped."



Cruise canceled



Fan stopped

## 5.1 Controlling the Fan with the Gauge app



Touch and slide the dot on the fan speed slider in the Gauge app to adjust the fan speed using the DG-1000. As the fan speed increases, the duct pressure displayed on Channel A should also increase. Continue to increase the fan speed until the duct pressure shown on Channel A is between 20 and 30 Pa.

## 5.2 Manually Controlling the Fan



Gradually increase the fan speed by slowly turning the fan controller clockwise. As the fan speed increases, the duct pressure displayed on Channel A should also increase. Continue to increase the fan speed until the pressure shown on Channel A is between 20 and 30 Pa.

### Total leakage pressurization continued

6. Channel B will display the one-point 25 Pa leakage estimate. Record this number. If the leakage estimate is fluctuating more than desired, try changing the time average setting on the gauge by touching the Time Average menu and choosing the 5 or 10 second or long-term averaging period.
7. Turn off the Duct Blaster fan. If you are using cruise control, this is done by touching the red stop icon in the Gauge app.
8. If Low or ---- appears on Channel B then the gauge can't display a reliable fan flow reading.
  - ---- is continuously displayed when the duct test pressure from Channel A is below a minimum value of 5 Pa. Estimating duct leakage results when the test pressure is below this value may result in large errors. If possible, install a larger flow ring or remove the flow rings to generate more fan flow. Be sure the fan is off when changing flow rings.
  - Low is continuously displayed when there is negligible air flow through the test device.
  - Low alternates with a flow reading when the air flow reading through the device is unreliable. If possible, change to a smaller flow ring and change the device configuration on the DG-1000 to match the new flow ring.

### CONDUCTING A TOTAL LEAKAGE DEPRESSURIZATION TEST

#### Before the Test

- Connect the Duct Blaster fan to the duct system. For instructions about how to do this, please see the depressurization section of the [Duct Blaster Manual](#).
- Prepare the duct system and house for the test. For instructions about how to do this, please see the [Minneapolis Duct Blaster: Before and After the Test Quick Guide](#).

#### Tube Hookup

1. Attach one end of the green tube to the Channel A input tap. Connect the other end of the green tube to the duct system, either by inserting it into a sealed register, or by connecting it to the end of the installed static pressure probe.
2. Attach one end of the red tube to the Channel B input tap. Attach the other end of the red tube to the pressure tap on the Duct Blaster fan.
3. Attach one end of the clear tube to the Channel B reference tap. Connect the other end to the pressure tap on the round transition piece.

#### Conducting the Test

To conduct the depressurization test, follow the same instructions provided in the pressurization test section of this guide, which starts on page 2.

## CONDUCTING A LEAKAGE TO THE OUTSIDE PRESSURIZATION TEST

### Test Description

This test is for measuring the duct leakage rate to the outside only, and requires simultaneous use of both the Minneapolis Blower Door and Minneapolis Duct Blaster Systems.

### Before the Test

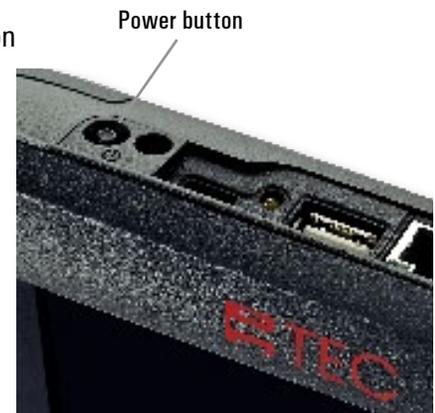
- Install the blower door frame, panel and fan into an exterior doorway. For instructions about how to do this, please see [Chapter 2 of the Minneapolis Blower Door User Manual](#).
- Prepare the building for the blower door test. For instructions about how to do this, please see the [Minneapolis Blower Door: Before and After the Test Quick Guide](#).
- Connect the Duct Blaster fan to the duct system. For instructions about how to do this, please see the [Duct Blaster Manual](#).
- Prepare the duct system and house for the test. For instructions about how to do this, please see the [Minneapolis Duct Blaster: Before and After the Test Quick Guide](#).

### Tubing Hookup for the Blower Door

1. Attach one end any tube to the Channel A reference tap on the blower door DG-1000. Run the other end to the outside of the house.

### Cruise the Blower Door

1. Turn on the DG-1000 by pressing and holding the power button until the green light comes on
2. After the Home screen loads, touch Gauge to open the Gauge app



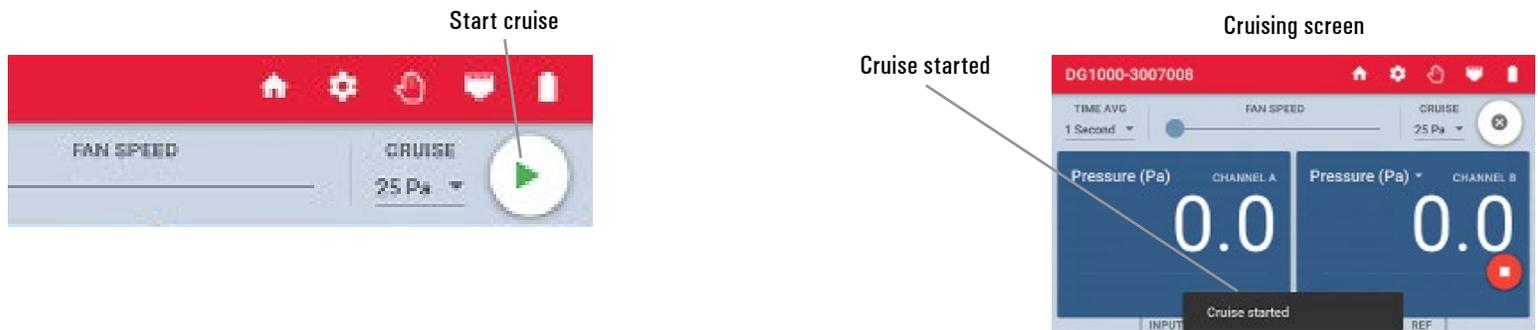
3. Turn the blower door speed control knob to the "just on" position (the controller is on but turned all the way down).



4. Set the cruise target by touching the Cruise menu and selecting 25 Pa.

## Leakage to the outside pressurization continued

5. Touch the green play icon to start cruise. Once cruise is started, the fan speed slider will move on it's own. The green play icon will change to an X, and a red stop icon will appear in the lower right of the screen. A pop-up will appear at the bottom of the screen to indicate that cruise has started.



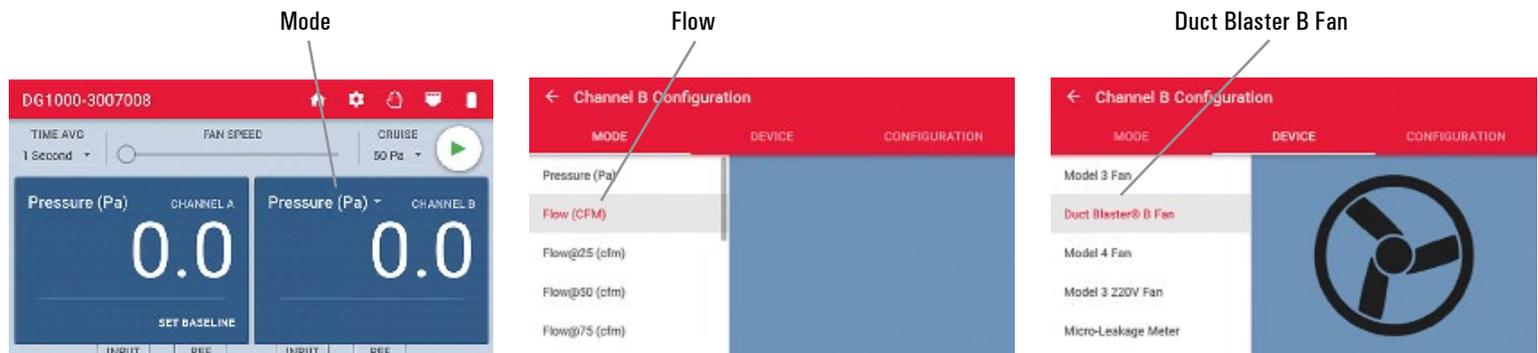
6. The blower door fan will now slowly increase speed until the building pressurization displayed on Channel A is approximately 25 Pa.

## Tube Hookup for the Duct Blaster

1. Attach one end of the green tube to the Channel A input tap on the Duct Blaster DG-1000. Connect the other end of the green tube to the duct system, either by inserting it into a sealed register, or by connecting it to the end of the installed static pressure probe inserted into the supply trunkline.

## Conducting the Test

2. Touch the mode area to open the Channel B Configuration menu. Set the mode to Flow. Touch Device and select Duct Blaster B Fan. Touch the arrow in the upper left of the screen to return to the Gauge app screen.



3. Install the flow ring which best matches the needed fan flow (see table below) and then select the same ring in the Configuration menu.



Ring	Flow Range in CFM
Open (no flow ring)	1,500 - 600
Ring 1	800 - 225
Ring 2	300 - 90
Ring 3	125 - 10
Ring 4	25 - 2.4

### Leakage to the outside pressurization continued

4. Slowly increase the speed of the Duct Blaster fan until Channel A reads zero using either the fan speed slider in the Gauge app or by slowly turning the knob on the fan speed controller.



5. Channel B on the Duct Blaster DG-1000 will display the CFM25 leakage to outside estimate. If the leakage estimate is fluctuating too much, change the time average setting by touching Time Avg in the Gauge app and select 5 second, 10 second or long-term.
6. Record the CFM25 leakage to outside estimate and turn off the blower door and Duct Blaster fans.
7. If Low appears on Channel B of the Duct Blaster DG-1000, then the gauge can't display a reliable fan flow reading. The word Low appears on Channel B under the following conditions:
  - Low is continuously displayed when there is negligible air flow through the test device.
  - Low alternates with a flow reading when the air flow reading through the device is unreliable. If possible, change to a smaller flow ring and change the device configuration on the DG-1000 to match the new flow ring.

## CONDUCTING A LEAKAGE TO THE OUTSIDE DEPRESSURIZATION TEST

### Before the Test

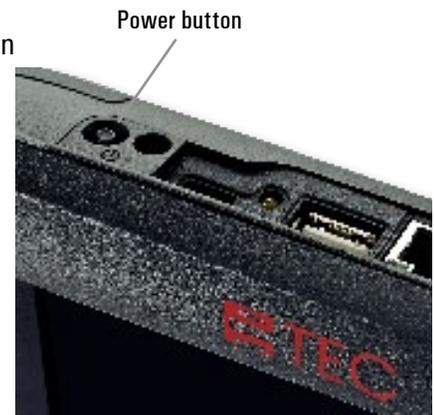
- Install the blower door frame, panel and fan into an exterior doorway. For instructions about how to do this, please see Chapter 2 of the [Minneapolis Blower Door User Manual](#).
- Prepare the building for the blower door test. For instructions about how to do this, please see the [Minneapolis Blower Door: Before and After the Test Quick Guide](#).
- Connect the Duct Blaster fan to the duct system. For instructions about how to do this, please see the [Duct Blaster Manual](#).
- Prepare the duct system and house for the test. For instructions about how to do this, please see the [Minneapolis Duct Blaster: Before and After the Test Quick Guide](#).

### Tubing Hookup for the Blower Door

1. Attach one end any tube to the Channel A reference tap on the blower door DG-1000. Run the other end to the outside of the house.

### Cruise the Blower Door

1. Turn on the DG-1000 by pressing and holding the power button until the green light comes on
2. After the Home screen loads, touch Gauge to open the Gauge app



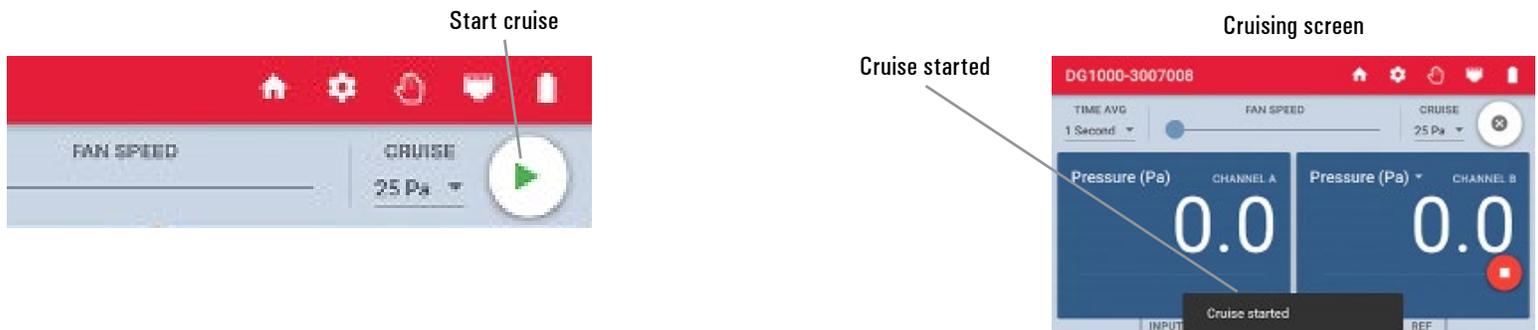
3. Turn the blower door speed control knob to the “just on” position (the controller is on but turned all the way down).



4. Set the cruise target by touching the Cruise menu and selecting 25 Pa.

## Leakage to the outside depressurization continued

5. Touch the green play icon to start cruise. Once cruise is started, the fan speed slider will move on it's own. The green play icon will change to an X, and a red stop icon will appear in the lower right of the screen. A pop-up will appear at the bottom of the screen to indicate that cruise has started.



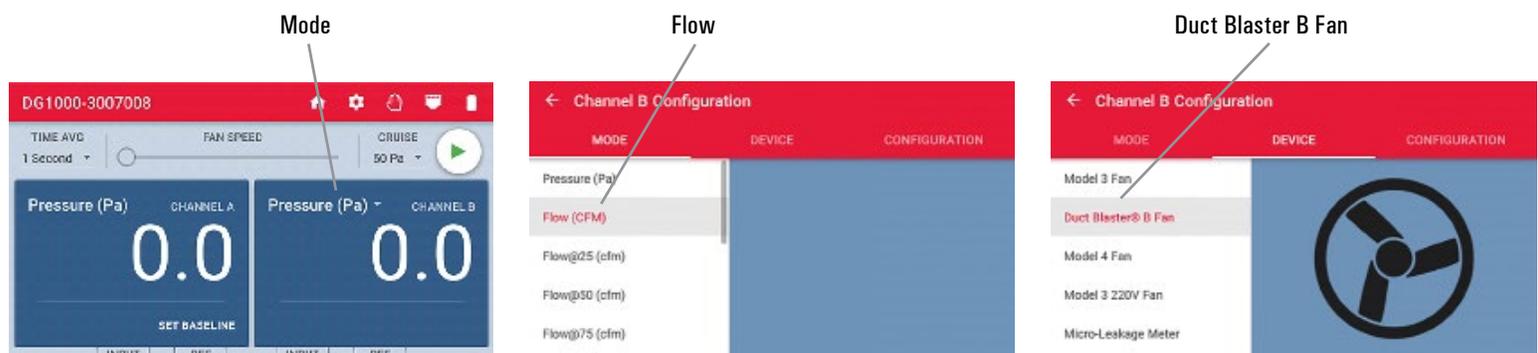
6. The blower door fan will now slowly increase speed until the building depressurization displayed on Channel A is approximately -25 Pa.

## Tube Hookup for the Duct Blaster

1. Attach one end of the green tube to the Channel A input tap on the Duct Blaster DG-1000. Connect the other end of the green tube to the duct system, either by inserting it into a sealed register, or by connecting it to the end of the installed static pressure probe.
2. Attach one end of the red tube to the Channel B input tap on the Duct Blaster DG-1000. Connect the other end of the red tube to the pressure tap on the Duct Blaster fan.
3. Attach one end of the clear tube to the Channel B reference tap on the Duct Blaster DG-1000. Connect the other end to the plastic pressure tap on the round transition piece.

## Conducting the Test

1. Touch the mode area to open the Channel B Configuration menu. Set the mode to Flow. Touch Device then select Duct Blaster B Fan. Touch the arrow in the upper left of the screen to return to the Gauge app screen.



## Leakage to the outside depressurization continued

2. Install the flow ring which best matches the needed fan flow (see table below) and then select the same ring in the Configuration menu.



Ring	Flow Range in CFM
Ring 1	800 - 225
Ring 2	300 - 90
Ring 3	125 - 10
Ring 4	25 - 2.4

3. Check (and adjust if necessary) the configuration (i.e. flow ring) shown in the Gauge app to match the flow ring being used in the test.
4. Slowly increase the speed of the Duct Blaster fan until Channel A reads zero using either the fan speed slider in the Gauge app or by slowly turning the knob on the fan speed controller.



5. Channel B on the Duct Blaster DG-1000 will display the CFM25 leakage to outside estimate. If the leakage estimate is fluctuating too much, change the time average setting by touching Time Avg in the Gauge app and select 5 second, 10 second or long-term.
6. Record the CFM25 leakage to outside estimate and turn off the blower door and Duct Blaster fans.
7. If Low appears on Channel B of the Duct Blaster DG-1000, then the gauge can't display a reliable fan flow reading. The word Low appears on Channel B under the following conditions:
  - Low is continuously displayed when there is negligible air flow through the test device.
  - Low alternates with a flow reading when the air flow reading through the device is unreliable. If possible, change to a smaller flow ring and change the device configuration on the DG-1000 to match the new flow ring.

## Troubleshooting for leakage to the outside pressurization and depressurization tests

### What if the building can't be pressurized or depressurized to the test pressure by the blower door fan?

If the blower door is unable to pressurize or depressurize the building to the test pressure because one of the flow rings was installed on the blower door fan, remove the flow ring and repeat the test. If the blower door is unable to pressurize or depressurize the building to the test pressure because the building is too leaky, then conduct the test at the highest achievable building pressure and use the Can't Reach Pressure Factors (table below) to estimate the final duct leakage rate.

### Can't Reach Pressure Factors (25 and -25 Pa target)

Duct Pressure (Pa)	CRP Factor	Duct Pressure (Pa)	CRP Factor
(-) 24	1.02	(-) 14	1.42
(-) 23	1.05	(-) 13	1.48
(-) 22	1.08	(-) 12	1.55
(-) 21	1.11	(-) 11	1.64
(-) 20	1.14	(-) 10	1.73
(-) 19	1.18	(-) 9	1.85
(-) 18	1.22	(-) 8	1.98
(-) 17	1.26	(-) 7	2.15
(-) 16	1.31	(-) 6	2.35
(-) 15	1.36	(-) 5	2.36

$$\text{Can't Reach Pressure Factor} = \left\{ \frac{25}{\text{Current Test Pressure (Pa)}} \right\}^{0.60}$$

### What if the duct system can't be pressurized or depressurized to the same pressure as the building with the Duct Blaster fan?

If the Duct Blaster fan was unable to create a pressure difference of zero between the duct system and the building (while the blower door is pressurizing or depressurizing the building to the test pressure) because one of the flow rings was installed, remove the flow ring from the Duct Blaster fan and repeat the test. If a pressure difference of zero could not be created because the duct system is extremely leaky to the outside, then the test will need to be performed at a lower building pressure and the Can't Reach Pressure Factors (table above) used to estimate the final duct leakage rate.

## USING THE DG-1000 WITH THE MINNEAPOLIS DUCT BLASTER

---

### Software Information

The Energy Conservatory (TEC) offers a variety of Windows-based programs. These programs can be found and downloaded for free at [software.energyconservatory.com](http://software.energyconservatory.com).

TEC also offers driver support for the DG-500, DG-700 and DG-1000. The drivers are designed to work with Windows-based computers with the following operating systems:

- Windows 7
- Windows 8
- Windows 8.1
- Windows 10

The drivers are available through Windows Update, and the DG-500 and DG-700 drivers can be downloaded from TEC at [software.energyconservatory.com](http://software.energyconservatory.com).

TEC also offers mobile apps for Apple and Android devices that can be found in the Apple App Store or the Google Play Store.

### Instructional Videos

The Energy Conservatory (TEC) offers a variety of online instructional videos, including

- Minneapolis Blower Door Quick Guide
- Minneapolis Duct Blaster Quick Guide
- Field Calibration Checks for Gauges
- Pressure and Airflow Basics
- Exhaust Fan Flow Meter
- TECLOG3
- TECTITE 4.0
- And many more

Visit [www.YouTube.com/EnergyConservatory](http://www.YouTube.com/EnergyConservatory) to see all of TEC's instructional videos.

### More Duct Blaster Guides

All blower door guides are available online at [energyconservatory.com/ductblasterguides](http://energyconservatory.com/ductblasterguides)



THE ENERGY CONSERVATORY

© 2021 The Energy Conservatory

Updated Jan 2021, V2

2801 21st Avenue South  
Suite 160  
Minneapolis, Minnesota 55407

Phone: (612) 827-1117

Fax: (612) 827-1051

[info@energyconservatory.com](mailto:info@energyconservatory.com)

[energyconservatory.com](http://energyconservatory.com)