

Quick Guide DB-DEP700

One-Point 25 Pascal Total Leakage Duct Depressurization Test (pulling air out of the duct system) Using the Minneapolis Duct Blaster® and DG-700 Digital Gauge

1. Connect the Duct Blaster fan to the duct system.

- a) Choose a location to install the Duct Blaster fan. In single, double or triple returned systems, the largest and closest return to the air handler is usually the best choice. **Note:** In multi-return systems (a return in every room), installing at the air handler cabinet is often best.
- b) Remove any remote filters from the chosen return and then connect the black square transition piece to the return using temporary tape. Completely seal the remaining open area of the return with tape.
- c) Pull the Duct Blaster fan and flex duct out of the carrying case. Disconnect the flex duct from the fan and insert the foam flow conditioner into the round transition piece. Connect the flex duct along with one of the Flow Rings to the inlet side of the fan (i.e. the side without the metal guard) using the round transition piece and connect trim. When installing the Flow Ring, sandwich it between the round transition piece and the fan inlet flange. Use the Flow Ring which you think best matches the needed fan flow. Connect the open end of the flex duct to the square transition piece using the velcro strap on the flex duct.
- d) Connect the fan speed controller to the fan and plug it into a 110V outlet.

Fan Configuration	Flow Range (cfm) For Series B Duct Blaster
Ring 1	800 – 225
Ring 2	300 – 90
Ring 3	125 – 10

2. Prepare the duct system and house for the Test.

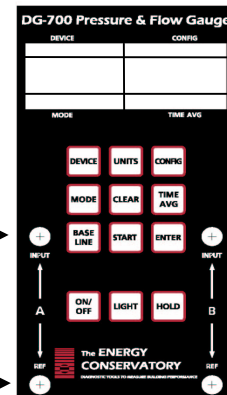
- a) Adjust the HVAC system controls so that the air handler does not turn on during the Test.
- b) Temporarily seal off all remaining supply and return registers, and combustion or ventilation air inlets which are connected to the duct system. Use *Duct Mask™* temporary register sealing material provided with your Duct Blaster, or use painters tape and paper.
- c) Turn off any exhaust fans, vented dryers, and room air conditioners.
- d) Remove all central filters (i.e. in air handler or return plenum).
- e) Open a door or window between the house and outside to prevent changes in house pressure when the Duct Blaster is running.
- f) If the Duct Blaster is installed in an attic, garage or crawlspace - open vents or access panels or doors from these spaces to the outside.

3. Connect tubing to the DG-700 Pressure Gauge.

- a) Select a location to measure duct pressure. The best location for measuring duct pressure is often in the supply trunkline or plenum. Drill a small hole (1/4" to 3/8" OD) into the duct to allow a static pressure probe to be installed. Install the static pressure probe with the end of the probe pointing into the air flow that will be coming from the Duct Blaster fan. If the duct system is reasonably airtight (e.g. less than 200 cfm25 of leakage), duct pressures can be measured at any supply register by inserting a piece of tubing through the temporary register seal.
- b) Connect tubing to the DG-700 as shown in the illustration to the right.

Connect the Green (or Clear) tubing to the Channel A Input tap. The other end of the tubing should be connected to the duct system (by either inserting into a sealed register, or connecting to the end of the installed static pressure probe).

Connect to inside of house (if gauge is located in the house, leave this tap open). Be sure window is open.



Connect the Red tubing to the Channel B Input tap. The other end of the red tubing should be connected to the brass tap in the middle of the DB fan housing.

Connect a piece of tubing from the Channel B Reference tap to the plastic tap on the Round Transition Piece.

4. Conducting the Test.

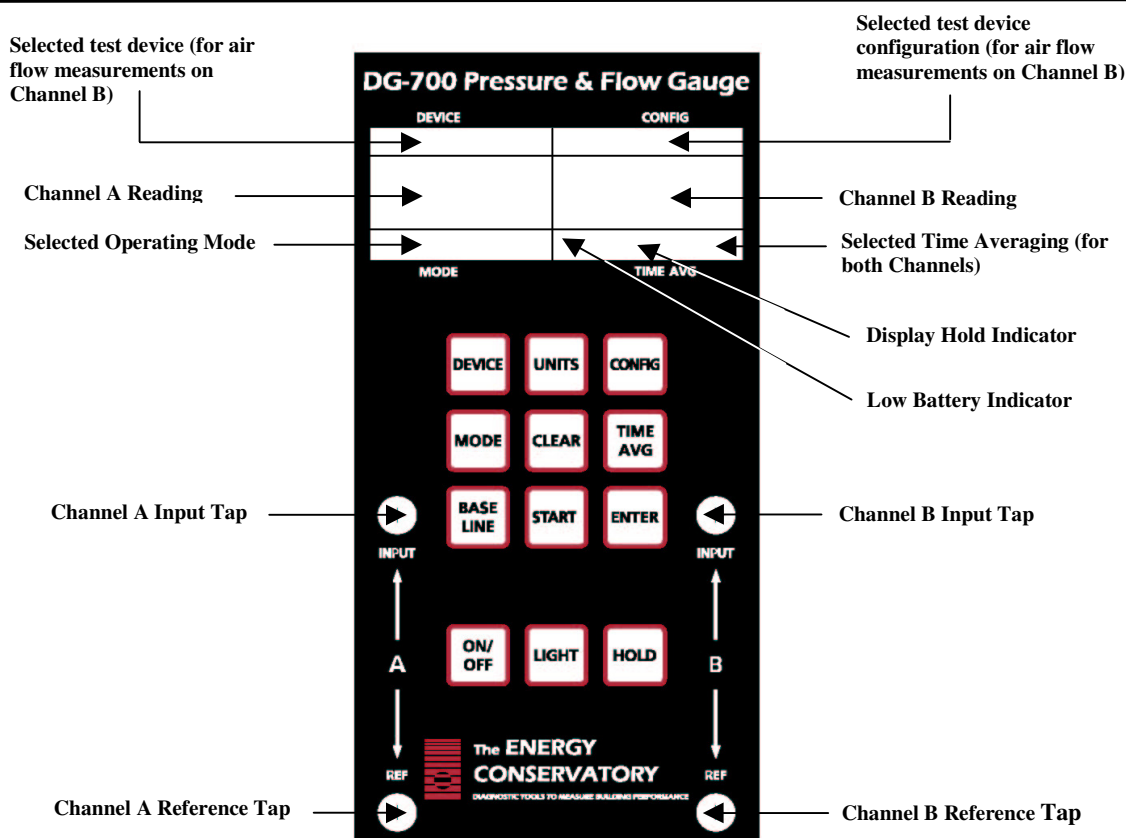
- a) Turn on the gauge by pressing the ON/OFF button.
- b) Press the MODE button three times to put the gauge into the PR/ FL @25 Mode. In this Mode, Channel A is used to measure duct system pressure while Channel B is used to display estimated duct leakage at a test pressure of -25 Pascals. (The leakage estimate shown on Channel B is determined by mathematically adjusting the actual air flow from the Duct Blaster fan using the real-time Channel A duct system pressure reading and a Can't Reach Pressure factor.)
- c) Check (and adjust if necessary) the selected test Device (i.e. fan) and Configuration (i.e. Flow Ring) shown in the upper part of the gauge display to match the fan and Flow Ring being used in the test. For example, the Device icon for the Series B Duct Blaster fan is **DB B**, and the Configuration icon for Ring 2 is **B2**. Press the DEVICE button to change the selected fan. Press the CONFIG button to change the selected Flow Ring.
- d) Turn on the Duct Blaster fan 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 duct depressurization shown on Channel A is between -20 and -30 Pascals. Do not waste time adjusting and re-adjusting the fan speed control to achieve a test pressure of exactly -25 Pascals.
- e) Channel B will now display the One-Point 25 Pascal Total Duct Leakage estimate. Record this number. If the leakage estimate is fluctuating more than desired, try changing the Time Averaging setting on the gauge by pressing the TIME AVG button and choosing the 5 or 10 second or *Long-term* averaging period. (If "-----" or "LO" appear on Channel B, see #5 on other side).

5. “-----” or “LO” appearing on Channel B

Whenever “-----” or “LO” appears on **Channel B** in the **PR/ FL @ 25 Mode**, the DG-700 can not calculate a reliable leakage estimate. The messages “-----” and “LO” appear on **Channel B** under the following three conditions:

- “-----” is continuously displayed when the duct test pressure from **Channel A** is below a minimum value of 5 Pascals. Estimating duct leakage results when the test pressure is below this value may result in large errors. If possible, install a larger Flow Ring to generate more fan flow.
- “LO” is continuously displayed when there is negligible air flow through the test device.
- “LO” alternates with a flow reading when the air flow reading through the device is unreliable (i.e. you are trying to measure a flow outside of the calibrated range of the test device in its current configuration). If possible, you should change the test device configuration to match the flow rate being measured (e.g. install a smaller Flow Ring).

Note: If you change the Flow Ring on the fan, be sure to change the Configuration setting on the gauge to match the installed Ring.



<u>Button</u>	<u>Purpose</u>	<u>Button</u>	<u>Purpose</u>
DEVICE	Used to select the Energy Conservatory test device connected to Channel B (not active in PR/PR mode).	BASELINE	Initiates Baseline pressure measurement procedure on Channel A (not active in PR/AH mode).
UNITS	Selects the pressure and air flow units for Channels A and B .	START	Used to start measurement procedure for Baseline and NSOP measurements. Also used to reset time averaging buffers and manually initiate auto-zero procedure.
CONFIG	Used to select the configuration for the currently chosen test device (not active in PR/PR mode).	ENTER	Used to accept and enter Baseline and NSOP pressure readings. After entering Baseline reading, Channel A will display baseline adjusted pressure.
MODE	Selects the current operating mode.	ON/OFF	Turns gauge On and Off.
CLEAR	Used to exit out of a Baseline pressure measurement procedure. When in PR/AH mode, resets gauge back to beginning of AH flow measurement procedure (i.e. NSOP measurement).	LIGHT	Turns display backlight On and Off.
TIME AVG	Used to select the time averaging mode (not active during Baseline and NSOP measurements).	HOLD	Turns display Hold feature On and Off.