

# QuickGuide



## DU200 DucTester



### Unpack, connect gauge



Check boxes for each step.

- ☐ Remove everything from the case.
- ☐ Press  on the gauge, then tap the screen, and check the battery state indicator at the top right: 
- ☐ If not green, connect USB to power outlet to charge the gauge.
- ☐ Connect yellow, green and blue tube to gauge.



*Gauge remains connected like this for all tests.*

## Prepare the gauge

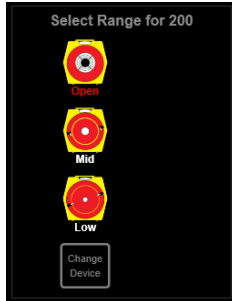
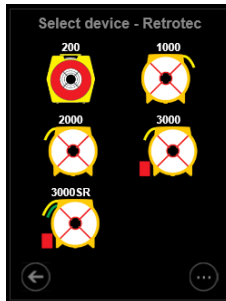


Make sure a DucTester is showing on the **Home** screen with "Mid" Range.

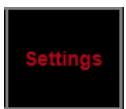
If not, tap the fan picture, then



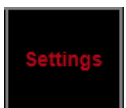
Tap the DucTester, then "Mid"



Tap on [**Channel B**] to change the type of result or units. Select based on "Get the results you need" on page 4.



Tap [**Settings**] then [**Time averaging**] and select 5 seconds.



Tap [**Settings**] then



Make sure the [**Default @ Pressure**] is 25 Pa. Make sure "n" value is set to 0.60 for Ducts.



Tap to return to the **Home** screen.

Next, prepare the ducts, house and fan following Steps 1 through 3.

## Step 1: Prepare ducts and house

- ☐ Seal all supply and return grills/registers, including any exterior air inlets, with Grill Mask or tape.
- ☐ Open all interior doors leading to rooms containing a supply or return register, and open an exterior door or window.
- ☐ Shut off all HVAC (exhaust fans, dryers, A/C, furnaces).



## Step 2: Connect to ducts

- ☐ Turn off air-handler and remove all filters.



- ☐ Tape Flange to main return or air handler cabinet using masking tape.



- ☐ Attach Flex Duct to Flange.

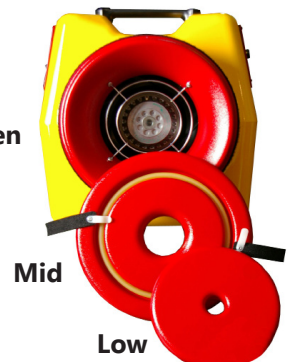



- ☐ Install Mid-Range Ring to start, as most systems can be tested on this Range Configuration.



Remove Range Rings for leakier ducts, add Rings for tighter ducts.

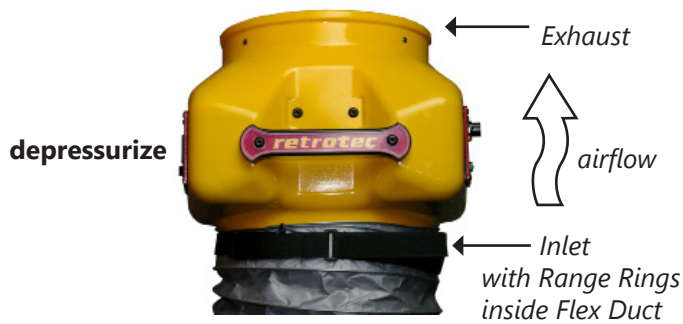
Open



- ☐ Tap  on gauge and select range to match fan, whenever a Range Ring is changed.

## Step 2: Connect to ducts (cont'd)

- Connect Flex Duct to fan **inlet** for depressurization.



Depressurization is easiest and permitted in all States except CA & WA where it can still be used to evaluate, but not for a final result.

To pressurize, connect the Flex Duct to fan **exhaust**. All other connections remain the same



## Step 3: Connect gauge & fan

- Connect power cord.
- Switch to on: "I". Green light indicates that power is connected.
- Connect yellow and green tubes to matching color ports on fan. Ethernet style Speed Control Cable will disable the knob. It is connected later in Step 4.

Speed Control Cable

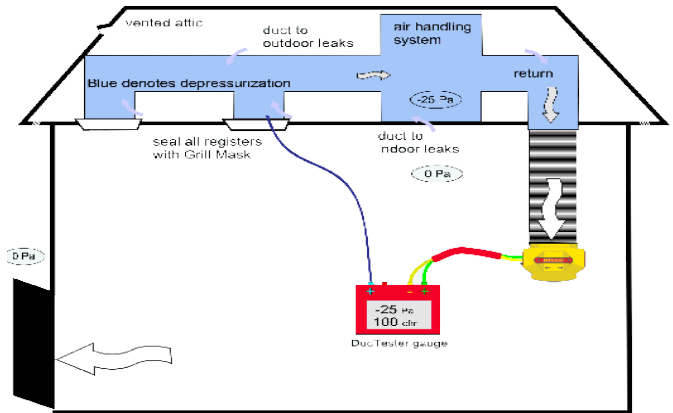


- Insert blue tube into the supply register closest to the air handler.



## Total Duct Leakage Test: Depressurize

Ready to conduct the test by depressurizing the ducts:



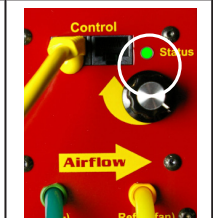
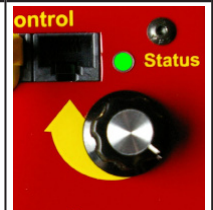
Depressurizing works best because the fan pulls the Grill Mask tight on the registers during the test.

If Pressurizing, see tubing setup on page 7.

## Step 4: Conduct test

- Go to **Home** screen on gauge.
- Adjust fan speed knob clockwise until **[Channel A]** reaches test pressure.
- If not possible, go to Step 5 for advice on changing setup.
- Connect Speed Control Cable to fan.

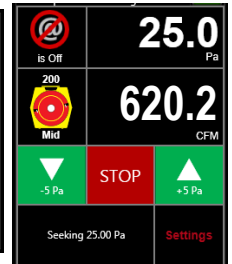
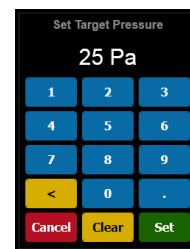
Solid green Status light indicates gauge is ready to control speed.




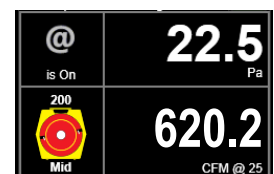
- For a test pressure of 25 Pa \*, tap



- Enter 25, tap **[Set]**



- Tap  to display what the result would be at exactly 25 Pa \*.



- Read results directly from the gauge.

\* 50 Pa for Northwest ENERGY STAR.



## Get the results you need

- Tap the **[Channel B]** key to select a different Result, or tap the **[Result to be displayed]** key on the **[Settings]** menu.

### Flow: CFM

Flow at the induced pressure is the simplest result. (Also available in metric units).

### Flow/Area: CFM/sq ft Flow normalized by area

Flow per square foot is required in some states such as WA. (Enter an area)

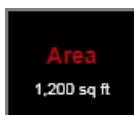
### Flow/Area: CFM/100 sq ft Flow normalized by area

Flow per 100 sq ft is required in many states.

(Enter an area)

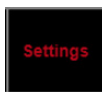
CT	ID	MD	NY	TX
DC	IL	MA	NC	VT
DE	IA	NH	PA	
GA	ME	NJ	RI	

When a Result is chosen that requires an area or volume,



will be shown on the **Home** screen. Tap to change.

The area and volume can also be changed from the



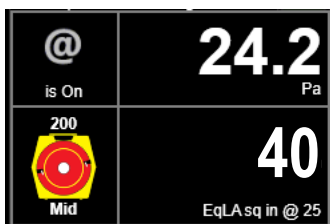
menu.

## Show leakage area Result

Equivalent Leakage Area (EqLA) describes the leakage area in terms of one large hole in a flat surface.

Tap the **[Channel B]** key, then and select "EqLA: sq in"

**[Channel A]** shows the duct pressure and **[Channel B]** "EqLA" shows the combined size of all the holes in the ducts.



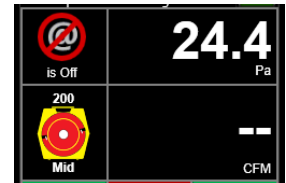
Leakage area is not a required result, but is a nice way to visualize the size of the hole in the ducts.

## Step 5: Desired results not achieved?

### Flow reads "--" at test pressure?

If the test pressure has been reached, but "--" appears, the fan is running too slowly to accurately measure flow.

- Add the next lower Range
- Change **[Range]** to match

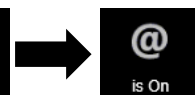
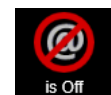


- Re-adjust fan speed.

### Cannot achieve test pressure at full speed?

If fan reaches 100% speed before reaching 25 Pa:

- Remove a Range Ring and try again.
- Change **[Range]** on the gauge to match.
- Check seals on all registers. Look for disconnected ducts or ducts open to outdoors.
- Tap **[@ Pressure]** to get the gauge to calculate what the flow would be at exactly 25 Pa.

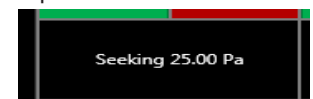


## Jog speed or pressure and Hold display

Tap **Set Speed** **[50] [Set]** to set the fan speed to 50%



Tap **Set Pressure** **[25] [Set]** to set pressure to 25 Pa



The Jog keys become active on the Home screen.

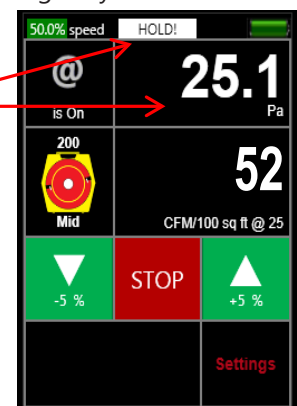


Use the keys to decrease or increase the target by 5 Pa or 5%.

Tap **[Channel A]** to "HOLD!" Result.

Result will remain frozen on display until Jog is used or **[Channel A]** is tapped again.

Tap **[Channel B]** when "HOLD!" is on, to see other Results.



## We're here to help!

- Sign up for our monthly gauge setup webinars.

**[retrotec.com/SupportCenter/SetupWebinars](http://retrotec.com/SupportCenter/SetupWebinars)**

- Bookmark our blog! Everything from new testing techniques to industry updates.

**[retrotec.com/blog](http://retrotec.com/blog)**

- Our tech support is always ready to field phone-in troubleshoot and testing questions. Give us a call!

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## Free Training Videos

- Access all Retrotec training videos here: **[youtube.com/RetrotecTraining](http://youtube.com/RetrotecTraining)**



Check out Retrotec's YouTube page, with all the videos you'll need to help you setup, run, or trouble-shoot your equipment!



### ***Retrotec's playlist includes:***

#### **Duct Testing**

Watch universal training videos including:

- Set up
- Procedures
- Troubleshooting

#### **Leakage: Blower Door**

Watch video demonstrations including:

- Blower Door set up
- Common leak locations
- Software
- House preparation

#### **Pressure: Gauge Training**

Get help to successfully set up and use digital pressure gauges:

- Gauge set up
- Discover modes & devices
- Perform calibration checks

# Optional Test

## Duct Leakage to Outdoors: Depressurize

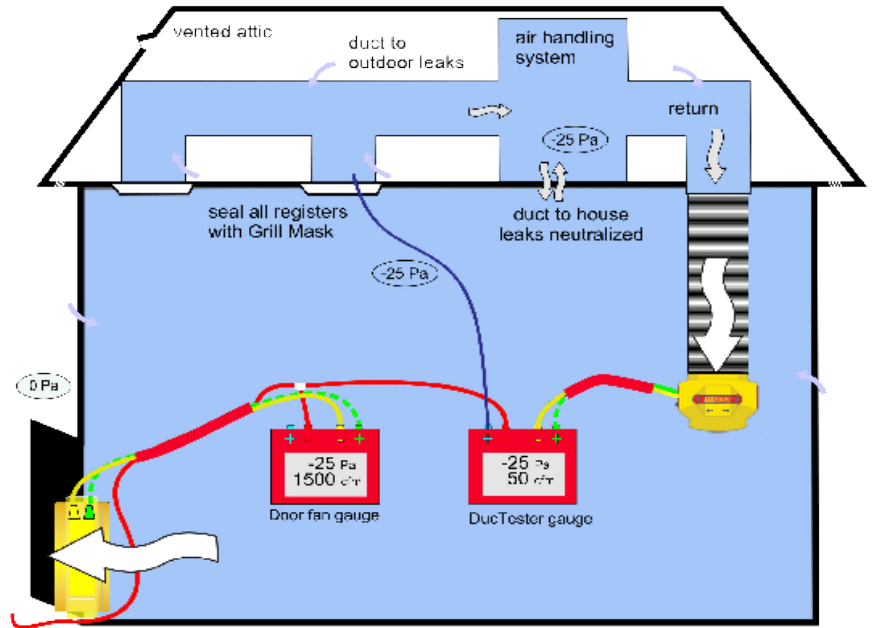
To measure the air leakage from the duct system to outdoors requires both a DucTester and a Blower Door system.

The Door Fan depressurizes the house and the DucTester depressurizes the ducts so leakage from the duct system back into the conditioned space of the home is neutralized.

Method 1 uses the DucTester set up the same as for the Total Duct Leakage test, and allows use of the **[@ Pressure]** to increase accuracy.

Results are easier to visualize since both the duct and house pressures can be seen.

Method 2 does not require connecting a red tube to the DucTester gauge, but **[@ Pressure]** cannot be used while setting to 0 pressure.

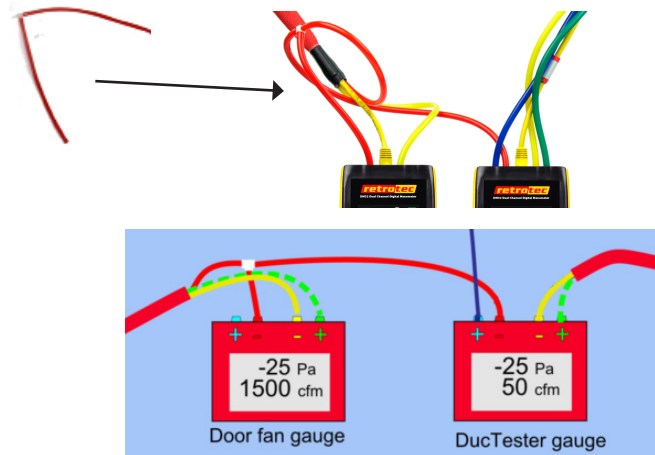


Method# 1

### Method #1:

#### Both gauges at -25 Pa \*\*

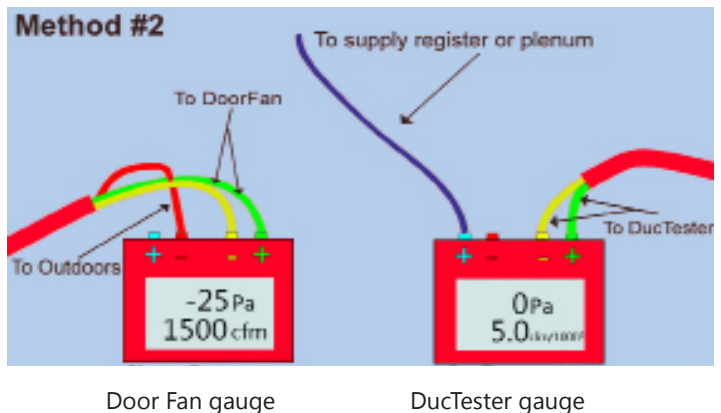
- ☐ Connect the red T-connected tubes to red ports and all other tubes per diagram.
- ☐ Tap **[Set Pressure] [25] [Enter]** on DucTester gauge then on Door Fan gauge.
- ☐ Tap **[@ Pressure]** on DucTester gauge to display the results "@25Pa".
- ☐ When "-25 Pa" +/- 1 is achieved on both gauges, record duct leakage to outdoors from the DucTester gauge.



### Method #2:

#### DucTester at 0 Pa, Door Fan at -25 Pa \*\*

- ☐ Connect tubes to gauges per diagram.
- ☐ With DucTester off,
- ☐ Set the Door Fan gauge to -25 Pa by tapping **[Set Pressure] [25] [Enter]**.
- ☐ Set the DucTester to "0 Pa" by tapping **[Set Pressure] [0] [Enter]**.
- ☐ When "0 Pa" +/- 1 is achieved, record duct leakage to outdoors from DucTester gauge.



\*\* If 50 Pa test pressure required, use 50 in all instructions.

# Options

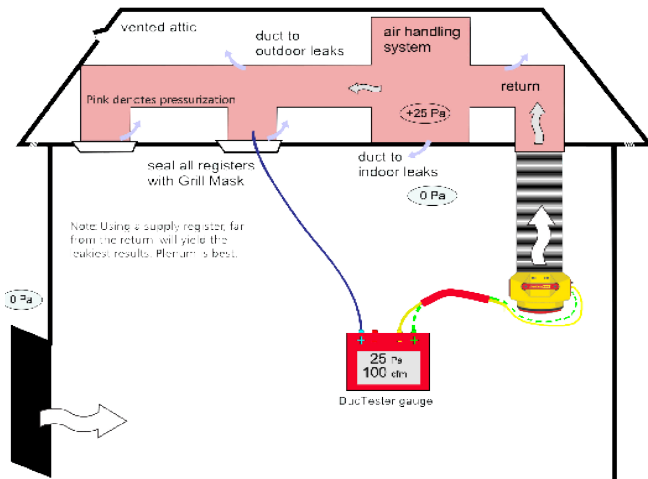
## Total Duct Leakage: Pressurize

- ☐ Connect Flex Duct to fan **exhaust**.

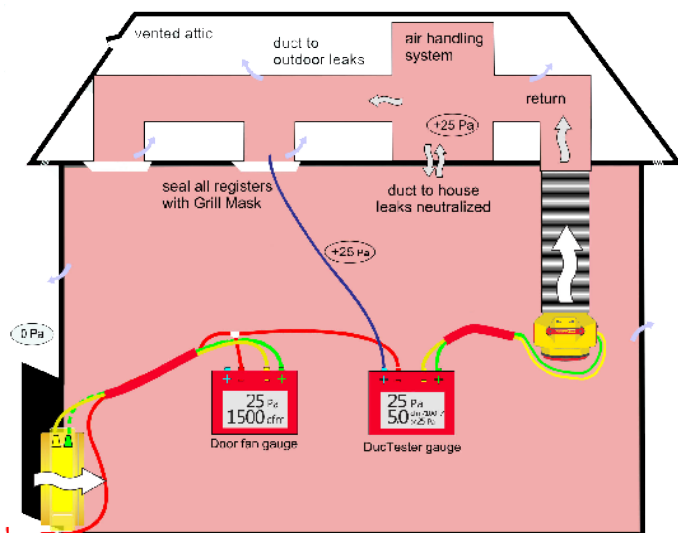


- ☐ Check that tubing is connected the same as for depressurize test (step 3).
- ☐ Conduct test (step 4).

Pressurizing can blow the Grill Mask off the registers!



## Duct Leakage to Outdoors: Pressurize



Follow depressurize test method (page 6) except both fan directions are reversed.

## Using the optional Flow Hood

Connect it quickly to ceiling level returns to measure duct leakage or use it with your DucTester as a Powered Flow Hood to accurately measure HVAC system flow rates.

- ☐ Pass the Flange through the 10 inch hole in the Flow Hood and tape it inside.
- ☐ Attach the Flex Duct.
- ☐ Secure the Flow Hood over the register

### To measure Duct leakage:

- ☐ Connect the Flex Duct to the fan and test as usual.

### To measure HVAC System Flow:

- ☐ For measuring supply flows, attach the Flex Duct to the inlet (suction) side of the fan.
- ☐ For measuring return flows, attach the Flex Duct to the exhaust (discharge) side of the fan.
- ☐ Connect the Umbilical to the DucTester.
- ☐ Attach the blue tube to the Flow Hood and gauge.
- ☐ Tap **[Channel B]** and select "Flow: CFM"

When a definite pressure appears on **[Channel A]**:

- ☐ Tap **[Set Speed]** and adjust with Jog keys until **[Channel A]** shows close to 0 pressure.

Or

- ☐ Tap **[Set Pressure] [0]** to have the DucTester automatically achieve a 0 pressure.
- ☐ Read the HVAC system flow result directly from the gauge

Flow Hood blue tube





## Field check system monthly

Check the DucTester system monthly with a known setup—if flow is outside the acceptable range then system needs full calibration.

- ☐ Tape the optional flow Verification Plate to the Flange and attach the red tube.
- ☐ Attach the Flex Duct to the exhaust side of the fan to pressurize the Flex Duct.
- ☐ Stretch the Flex Duct to it's full length.
- ☐ Set the DM32 to measure "Flow: CFM" @25 Pa.
- ☐ Tap **[Set Speed]**, then adjust with Jog keys until **[Channel A]** reads close to 25 Pa.
- ☐ Read the Verification Plate to determine the acceptable range for flow.



Optional DU159 Verification Plate shown.

Typically, 100 to 110 CFM is a pass.

## Field check gauge weekly

Check gauge operation and check for blocked, leaking or pinched tubes weekly, and anytime results are in question.



To perform the gauge check, you will need the gauge and Umbilical.

- ☐ Set **[Time Average]** to 5 seconds in **[Settings]**.
- ☐ Tap **[Channel B]** and select "Pressure: Pa".
- ☐ Connect the yellow tube between the red and yellow ports.

If readings on Channel A and Channel B are within 2% and don't drop rapidly, the tube is not blocked or leaking and the gauge is correct.

- ☐ Repeat between different ports with each of the tubes you use for testing.

Checking your gauge and tubes regularly will eliminate a common source of error in readings.



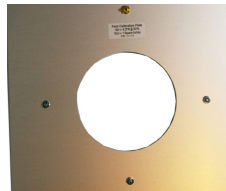
## Optional accessories

Flange to connect Flex Duct to register



Part #: DU157

Verification Plate



Part #: DU159

Flow Hood  
24 x 24 inches  
(61 x 61 cm)



Part #: PP105

12.5ft (3.8m)  
Flex Duct for  
DucTester



Part #: DU161

Mid-Range Ring  
& Low-Range  
Ring



(Mid) Part #: DU154  
(Low) Part #: DU155

Tubing Accessory Kit

35 ft (10 m) of blue, red, yellow and green 1/4 inch (12mm) outside diameter tubing. Static Pressure Probe, 4 inch (100 mm) x 1/8 inch (6 mm) outside diameter metal probe, 2 T and 2 male-to-male connectors. Red L for duct leakage to outdoors test.



Part #: TU119

Umbilical for  
DucTester  
fans, 7ft (2 m)



Part #: DM240

Grill Mask 12in x 160ft,  
12in perfs,  
Hi-stick Blue,  
Single Roll



Part #: GR116  
Part #: GR117 (for case of 3)

Deluxe Cordura Toolbag with  
Shoulder Strap



Part #: TL118