

Screen

Keypad

The DM-2 has two independent differential-pressure sensors (Channel A and B) plus an automatic controller that will control a compatible fan.

Channel A always displays the difference in pressure between the blue "Input A(+)" and the red "Ref A(-)" in units of Pascals, inches of water or pounds per square foot. "PrA" on the screen refers to Pressure on channel A.

Channel B may similarly indicate pressure (between "Input B(+)" and "Ref B(-)" when "PrB" is displayed. When a flow device is connected, this pressure can be converted to flow when the correct flow Device and results Mode is selected.

For the latest Retrotec documentation, visit us at: <http://www.retrotec.com/info/>

## 1 Unpack the DM-2 kit

The kit contains:

- 1.1 1 - DM-2 Gauge.
- 1.2 4 - AA NiMH Batteries installed.
- 1.3 1 - AC power adapter.
- 1.4 Laptop-style case.
- 1.5 1 - Computer interface cable (mini-USB to USB).

Note: additional tubes and cables may be included.

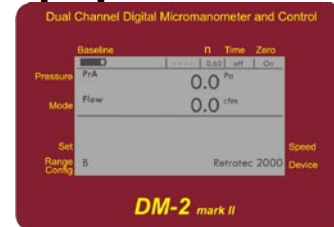
## 2 Charge batteries overnight

- 2.1 Remove battery compartment cover on back of DM-2, install 4 NiMH batteries and replace cover.
- 2.2 Plug the AC power adapter into the back of the DM-2 and into the wall.
- 2.3 Press [On/Off] and the Retrotec screen should appear:



**Note** The DM-2 will not start charging unless it is turned on.

- 2.4 Press [Exit] to advance to the main screen.



- 2.5 Allow batteries to charge for 12 hours.
- 2.6 The battery indicator in the top left corner will be solid black when fully charged.
- 2.7 Press and hold [On/Off] until the DM-2 turns off.
- 2.8 Unplug the DM-2. It is recommended that the DM-2 be unplugged for day to day use to: protect the charging socket from damage, maintain a constant screen contrast, improve backlight performance and allow the batteries to discharge fully, increasing battery life.

**Note** The DM-2 can be turned off after AC power is connected.  
**Note** The message "Charging ..." is displayed on the screen until charging is complete.

- 2.9 If the gauge stops responding, press [Reset] to clear the system memory and turn the gauge on.



### 3 Turn gauge on with Backlight



**[On/Off]** turns the DM-2 on and off and turns the backlight on and off.

- 3.1 Press **[On/Off]** to turn the DM-2 on.
- 3.2 Press **[Exit]** to clear the Retrotec screen.

To use the backlight:

- 3.3 Press **[On/Off]** to turn the display backlight on permanently.
- 3.4 Press **[On/Off]** a second time to turn the backlight off.

**Tip** Leaving the backlight on discharges the battery at a faster rate.

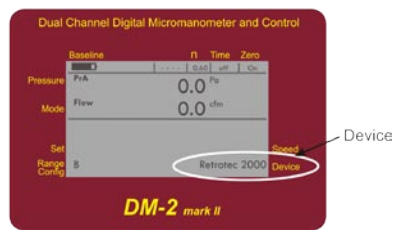
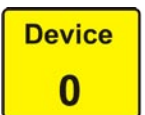
### 4 Locate the [Exit] key



**[Exit]** backs out of menus, cancels data input and stops the various control modes.

- 4.1 Press **[Exit]** to:
  - Clear the splash screen.
  - Stop the fan and cancel **[Set Speed]** mode.
  - Stop the fan and cancel **[Set Pressure]** mode.
  - Clear and cancel **[Baseline]** mode.
  - Move back or exit the **[Setup]** menus.
  - Cancel Volume and Area inputs.
  - Cancel other data entry.

### 5 Scroll through the enabled fans



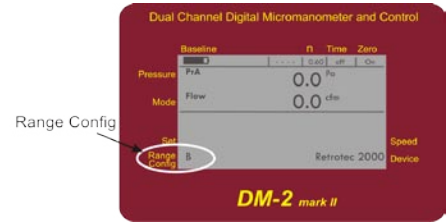
**[Device]** selects a fan. The DM-2 currently supports all Retrotec, Energy Conservatory and Infiltec fans. Choosing the correct fan is required to get meaningful results.

- 5.1 Press **[Device]** repeatedly to scroll through the enabled fans.

**Note** From the factory, the Retrotec DU200, Retrotec 2000, Retrotec 3000 and Retrotec 3000SR are enabled. All other fans are disabled.

**Tip** To reduce confusion and errors, disable fans that won't be used, in the **[Setup]** menu. See section 17.

### 6 Scroll through fan ranges

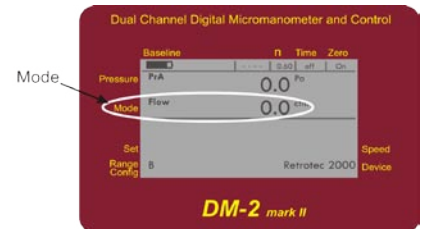
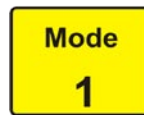


**[Range Config]** is used to select the range configuration of the selected fan. Selecting the correct range is required to achieve correct results.

- 6.1 Press **[Range Config]** repeatedly to scroll through the possible range plate configurations for the currently selected device.

**Note** Flow and other results will be calculated based on the flow equations for the selected fan and range. Refer to the Flow curve or Range Configuration chart for a particular fan (such as "QuickGuide-RangeConfig2000&3000.pdf").

### 7 Scroll through the enabled results



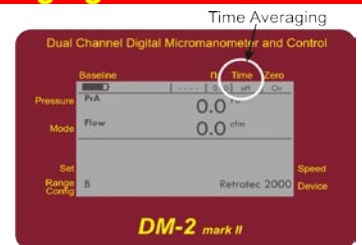
**[Mode]** selects the results that are to be displayed. The DM-2 supports on-the-fly calculation of almost any measurement that might be needed including Flow, Air Changes, Leakage Areas and many others.

- 7.1 Press **[Mode]** repeatedly to scroll through the enabled results.

**Note** By default, Flow, Air Changes, and EqLA are enabled. All other results are disabled.

**Tip** To reduce confusion and errors, disable results that won't be used. See section 18.

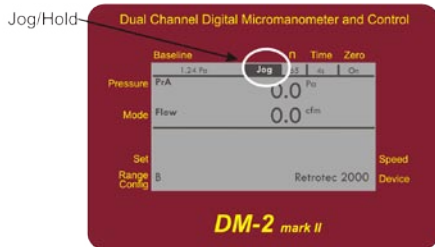
### 8 Explore time averaging



When time averaging is active, the DM-2 will display results and pressures that are averaged over the selected time period.

**Note** 1s, 2s, 4s, 8s: Display updates every 1 second.  
10s, 20s, 1min, 2min: Display updates every 10 seconds.

## 9 Hold / Jog



**[Jog/Hold]** will “freeze” the display when “Hold” is displayed, and allow adjustment of the speed or target pressure when “Jog” is displayed.

- 9.1 Press **[Jog/Hold]** until “Hold” appears. The display will be frozen with the current values.
- 9.2 Press **[Jog/Hold]** or **[Exit]** to cancel display-hold.
- 9.3 Press **[Jog/Hold]** until “Jog” appears. The **[▲]** **[▼]** keys will adjust the speed (in Set Speed mode) or pressure (in Set Pressure mode) up or down.

**Note** “Jog” is only available in the Set Speed or Set Pressure mode.

## 10 @ Pressure

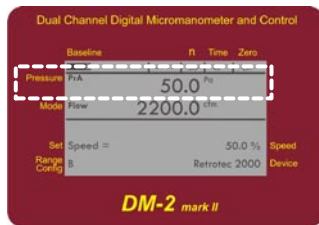


Fig 1 – Fan adjusted to achieve exactly 50 Pa

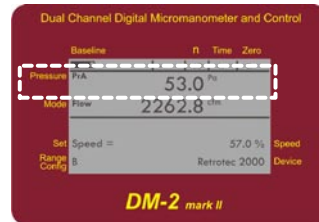


Fig 2 – Fan adjusted to achieve about 50 Pa

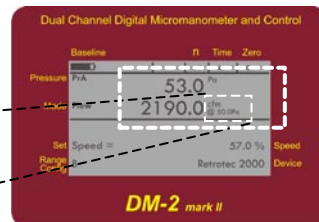
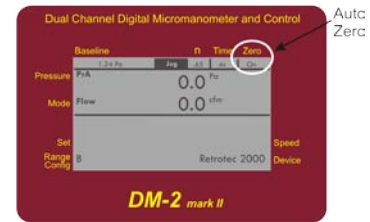


Fig 3 – @-mode enabled to estimate flow @ 50 Pa

- 10.1 **[@ Pressure]** provides an estimate of the results (e.g. Flow) at a target pressure, even if the target pressure cannot be reached.
- 10.2 **[@ Pressure]** has no effect when mode is “PrB”.
- 10.3 Press **[@ Pressure]** until “@50 Pa” appears under “cfm”. Results are displayed for 50 Pa, even if the pressure is not 50 Pa.

## 11 Discover AutoZero



When Auto Zero is active, the gauge will automatically zero itself every 8 seconds. This effectively cancels the effects of background pressure.

- 11.1 Press **[Auto Zero]** until “On” appears.

**Tip** AutoZero should be left ‘On’ under normal operation.

## 12 The [Enter] key



The **[Enter]** key is used to acknowledge inputs and to allow data entry.

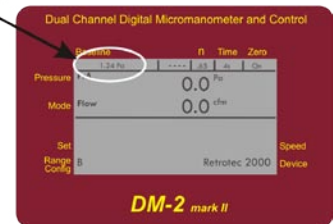
- 12.1 Press **[Enter]** to:
  - Change volume in Air Chg mode.
  - Change area in Flow/Area and Leakage/Area modes.
  - Accept the indicated Baseline pressure.
  - Accept the input fan speed or PrA pressure.

## 13 Learn about Baseline mode



Fig 1 - Acquiring

Fig 2 Baseline active



- 13.1 Press **[Exit]** to clear previous settings.
- 13.2 Press **[Baseline]** once. The DM-2 will begin sampling the background pressure (see Fig 1).
- 13.3 Press **[Enter]** after several complete cycles of fluctuations, usually 60 seconds.
- 13.4 The average baseline pressure is displayed in the upper left corner of the DM-2 and will be subtracted from all future readings.
- 13.5 Press **[Exit]** to clear the Baseline, otherwise it will create erroneous results for new tests.

## 14 Manually set fan speed



Press **[Set Speed]** to set a fan speed on any Retrotec “Q” system, or any other system using the Retrotec Q Automatic Adapter.

*See:* The *QuickGuide* for the system in use.

## 15 Automatically control to a pressure

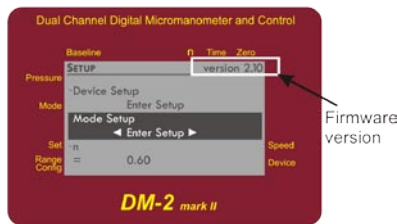


Press **[Set Pressure]**, to have the DM-2 automatically control the fan speed to reach the target pressure on any Retrotec “Q” system, or any other system using the Retrotec Q Automatic Adapter. When the pressure is **set to “0”**, the DM-2 will automatically adjust the fan speed to bring the existing pressure to zero.

**Caution:** Do not use the “@ Pressure” functions when using set to zero.

*See:* The *QuickGuide* for the system in use.

## 16 Set up gauge



- 16.1 Press **[Setup]** **[▼]** to view the main setup menu. Stop at:
- 16.2 “n”, sets the slope of the @-Pressure extrapolation line. Use 0.65 for tight houses and 0.60 for ducts and large buildings. Press **[Enter][0.6 to 0.65][Enter]**. Press **[▼]** once to see:
- 16.3 “**Power Down Hour**”. Enter a value to determine how long the DM-2 remains inactive before automatically turning off. Press **[Enter][2][Enter]** to have the DM-2 turn off in two hours. The DM-2 will never turn off if a value of “0” is entered. Press **[▼]** once to see:
- 16.4 “**Surface Area Unit**” for building envelope or floor areas used in Flow or Leakage Area / Building Area results. Press **[▶]** until the desired units for building area appear. Press **[▼]** to see:
- 16.5 “**Building Volume Unit**” units for air-change calculations. Press **[▶]** until the desired units for building volume appear. Press **[▼]** to see:
- 16.6 “**European , Separator**” Press **[▶]**, “**No**” displays one thousand as “**1.000**”, “**Yes**” displays one thousand as “**1,000**”. Press **[▼]** to see:
- 16.7 “**Sig Figs**” Press **[▶]** to change the number of significant figures displayed.
- 16.8 Press **[Exit]** to return to the main screen.

## 17 Add/Remove fans

The **Device Setup** sub-menu allows fans to be added or removed. Eliminate all unused fans avoid mistakes.

- 17.1 Press **[Setup]** and then **[▼]** until “**Device Setup**” appears. Then press **[Enter]** to view fans available when **[Device]** is used.
- 17.2 Press **[▼]** to scroll down through fans. Press **[▶]** until “**Yes**” appears beside the fans that may be used. Select “**No**” beside the fans that won’t be used. For Retrotec Systems: R43, E43, Q46 and Q56 select ‘Retrotec 2000’. Q4E, Q5E and QMG without green tube connected, select ‘Retrotec 3000’. 3000 fans with green flow tube connected, select ‘Retrotec 3000SR’. System: Q32, R31 select ‘Retrotec DU200’.
- 17.3 Disabled fans will not appear when **[Device]** is used but may be added back in later.
- 17.4 Press **[Exit]** twice to return to the main screen.

**Note** At least one fan must be enabled for correct DM-2 behavior!

## 18 Enable/disable results

Use the **Mode Setup** sub-menu to enable and disable the various results (Flow, EqLA, ACH, etc), to select units and to change the @-Pressures.

- 18.1 Press **[Setup]** and then **[▼]** until “**Mode Setup**” appears. Press **[Enter]** to view all available results available when the **[Mode]** key is used.
- 18.2 Press **[▼]** to scroll down through possible results and stop at “**Pressure**”. Press **[▶]** to select units.
- 18.3 Press **[▼]** to select “**Flow**”. Press **[▶]** to select flow units or select “**Off**” so flow does not appear when the **[Mode]** key is used.
- 18.4 Press **[▼]** to select “**@Pressure**” which is the pressure at which the results above will be extrapolated to when the **[@]** key is used.
- 18.5 Press **[Enter][4 to 70]** to change the “**@ Pressure**” or just leave the default value.
- 18.6 Similarly, add needed results and remove the rest to save time during tests. Change “**@ Pressure**” if required, otherwise use the original default value.
- 18.7 Disabled results will not appear when the **[Mode]** key is used but may be added back in if needed.
- 18.8 Press **[Exit]** twice to return to the main screen.

**Note** Pressure cannot be disabled. All other results can be disabled.