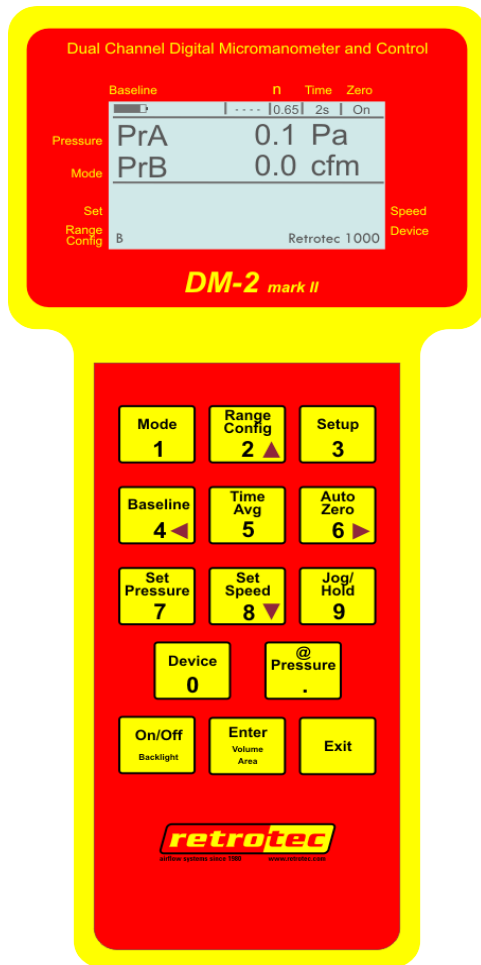


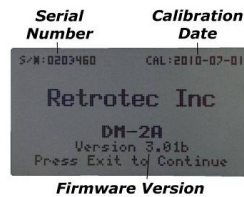
## DM-2 Mark II Digital Gauge



### Step 1: Batteries

- 4 AA NiMH rechargeable batteries are supplied.
- Install by removing the lower compartment cover on the back of the DM-2.
- Fully charge the batteries on first use, but avoid prolonged charging.
- Press **[On/Off]** and the Retrotec screen shown below appears.

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



- The batteries are fully charged when the indicator is solid black.
- Non-rechargeable batteries can be used. To protect the DM-2 from damage, press **[Setup]**, scroll to "Battery Type" and select "Rechargeable" or "Not Rechargeable". Press **[Exit]** to save selection.

**Note:** If "Not Rechargeable" is selected, no recharging will occur.

**Warning:** Non rechargeable batteries may explode if charged. Only charge rechargeable NiMH batteries.

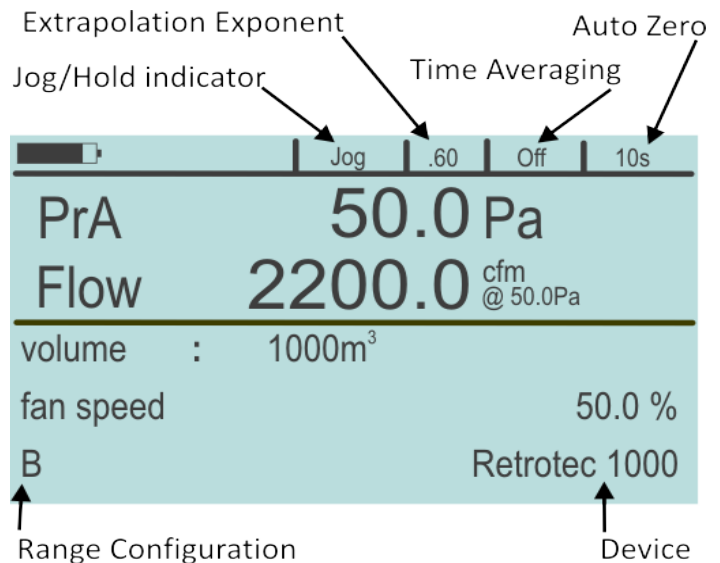
The DM-2 has two independent differential-pressure sensors (Channel A and B) and an automatic controller that will control all Retrotec fans.

**Channel A** always displays the pressure difference between the blue "Input A(+)" and the red "Ref A(-)". "PrA" on the screen refers to Pressure on channel A.

**Channel B** similarly measures pressure between "Input B(+)" and "Ref B(-)". This pressure is converted to flow or other units when a Device and Mode is selected. See Page 4 to change the enabled Devices and Modes.

The DM-2 contains:

- 1 — DM-2 Gauge
- 4 — AA NiMH rechargeable Batteries
- 1 — AC power adapter
- 1 — Laptop-style case
- 1 — Computer interface cable (mini-USB to USB)
- 1 — Color coded set of tubes and connectors
- 1 — Ethernet cable to connect to Device



Follow steps 1-15 to learn the basic gauge functions.

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

# QuickGuide DM-2 Mk II

## Step 1: On/Off/Backlight

On / Off

Backlight

- Press **[On/Off]** to turn the DM-2 On.
- Press and hold **[On/Off]** to turn the DM-2 Off.

To use the backlight (when gauge is on):

- Press **[On/Off]** to set and hold the display backlight on/off.

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

## Step 2: Exit

Exit

- Press **[Exit]** to:
  - Clear the splash screen.
  - Stop the fan and cancel Set Speed or Set Pressure mode.
  - Clear and cancel the set Baseline.

- Move back or exit the Setup menus.
- Cancel Volume and Area inputs.
- Cancel other data entry.

## Step 3: Enter

Enter

Volume  
Area

- Press **[Enter]** to acknowledge inputs and allow data entry:
  - Change volume in Air Chg mode.
  - Change area in Flow/Area and Leakage/Area modes.

- Accept indicated Baseline pressure.
- Accept input fan speed or pressure.

## Step 4: Select Device

Device

0

The DM-2 calculates flows for all Retrotec, TEC and Infiltec fans. Choosing the right fan or flow device is required to get correct results.

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

**Note:** From the factory, the Retrotec DU200, Retrotec 1000, Retrotec 2000 and Retrotec 3000SR are enabled. All other Devices are disabled. See Page 4 to add or remove Devices to save time and reduce errors.

## Step 5: Select fan Range

Range  
Config

2

Press **[Range Config]** to scroll through the enabled Flow Ranges for the currently selected device.

**Note:** Selecting the incorrect range will yield incorrect results.

**Tip:** Disable the other Flow Ranges using **[Setup]** to save time and reduce errors.

## Step 6: Select the Mode

Mode

1

- Press **[Mode]** repeatedly to scroll through the enabled results.
- The DM-2 supports on-the-fly calculation of all currently used results worldwide, including Flow, Air Changes, Leakage Areas, Normalized Leakage Area, Specific Leakage, Permeability and many others.

**Note:** By default, Flow, Air Changes, and EqLA are enabled. All other results can be enabled manually from the Setup Menu. See Page 4.

## Step 7: Explore Time Averaging

Time  
Avg  
5

Results are averaged over the selected time period.

- Time averaging should always be On.
- Press **[Time Avg]** to scroll through the possible time periods.

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

## Step 8: Discover AutoZero

Auto  
Zero  
6

When AutoZero is active, the gauge automatically zeros itself every 8 seconds, even while making measurements.

- Press **[Auto Zero]** until "On" appears.
- AutoZero should be left on under normal operation.

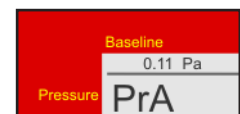
**Tip:** Auto Zero can be turned off to conserve batteries when not taking readings.

## Step 9: Learn about Baseline mode

Baseline  
4

Remove bias/offset/background/Baseline pressures due to wind or stack that are present before test pressures are applied.

- Press **[Baseline]** to begin sampling and press **[Enter]** after 15 to 60 seconds.
- The displayed average pressure is subtracted from all future readings.
- Pressing **[Exit]** at any time will clear the Baseline.



# QuickGuide DM-2 Mk II

## Step 10: The @ Pressure extrapolation



Fig 1: Fan adjusted to achieve exactly 50 Pa

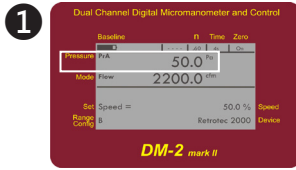


Fig 2: Fan adjusted to achieve about 50 Pa

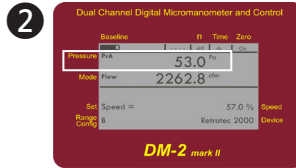
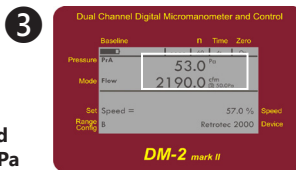


Fig 3: @-mode enabled to estimate flow @ 50 Pa



- [**@ Pressure**] provides an estimate of the results (e.g. Flow) at a target pressure, even if the exact pressure has not been reached.
- If the fan is running in Set Speed mode, press [**@ Pressure**] until “@50 Pa” (or the value set in the Mode Setup sub-menu) appears. The results are now displayed as if the pressure is 50 Pa.
- If the fan is running in Set Pressure mode, press [**@ Pressure**] once to view the results at the target pressure. If the Set Pressure is 35 Pa, then “@35 Pa” is displayed. Press [**@ Pressure**] a second time and “@50 Pa” (or the value set in the Mode Setup sub-menu) appears.
- Press [**@ Pressure**] again to clear the @ value, and view the results at the current pressure.

## Step 11: Manually set fan speed



The fan speed of all Retrotec Model 1000, 2200/2350, and 3000 series fans can be controlled automatically by the DM-2. Connect the fan to the gauge with the Ethernet style cable.

- Press [**Set Speed**], input a desired percent speed between 1-100. Press [**Enter**]. The fan will accelerate and hold at the set speed.
- Press [**Exit**] to stop the fan and cancel the set speed.
- Press [**Set Speed**] [0] [**Enter**] to stop the fan, without clearing the Baseline.

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

## Step 12: Automatically control to a pressure



The DM-2 can automatically control the fan speed to reach a target pressure on any Retrotec 1000, 2200/2350, and 3000 series fan, or any other system using the Retrotec Q Automatic Adapter.

- Press [**Set Pressure**], input a desired test pressure, and press [**Enter**]. The fan will accelerate to reach the set pressure.
- The DM-2 adjusts the fan speed to hold the set pressure, even if the enclosure changes (i.e. opening/closing windows/doors, air sealing).
- Press [**Exit**] to stop the fan and cancel the set pressure.
- If pressure is set to “0”, the DM-2 will adjust the fan speed to bring the existing pressure to zero.

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

## Step 13: Hold display and jog speed



• Press [**Jog/Hold**] until “Hold” appears. *The display will be frozen with the current values.*

- Press [**Exit**] to cancel “Hold”.
- Press [**Jog/Hold**] until “Jog” appears.
- The [**▲**] [**▼**] keys will adjust the speed just like a TV remote. In Set Speed mode the % speed changes. In Set Pressure mode the pressure changes.

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

## Step 14: System reset if gauge locks up

- If the gauge stops responding, press [**Reset**] for 2 seconds, then turn the gauge on.

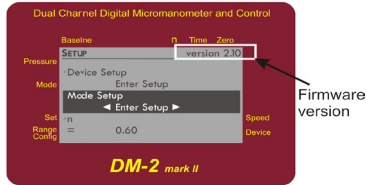


# QuickGuide DM-2 Mk II

## Set up gauge

### Setup 3

The Setup Menu provides configuration options for all of the DM-2's functions and capabilities. Depending on the firm ware version, some options may not be available. Properly setting up the gauge can eliminate confusion and incorrect results.



- Press **[Setup]** to view the main setup menu.
- Use the **[▼]**, **[▲]**, to navigate around the menu. Press **[◀]**, and **[▶]** to change the current selection. Press **[Enter]** to enter a sub-menu or to change a configurable numeric value.

- **n**: sets the slope of the @-Pressure extrapolation line. Use 0.65 for tight houses and 0.60 for ducts and large buildings.
- **Power Down Hour**: If the DM-2 remains inactive for this length of time, it turns off automatically. The DM-2 will never turn off if a value of "0" is entered.
- **Surface Area Unit**: For building envelope or floor areas used in Flow or Leakage Area/Building Area results.
- **Building Volume Unit**: Units for air-change calculations.
- **European, Separator**: "No" displays one thousand as "1.000", "Yes" displays one thousand as "1,000".
- **Sig Figs**: Eg. 1134 is displayed as 1135 for 3.5 **Significant Figures**, 1130 for 3.0 and 1150 as 2.5.
- **Device Setup**: Add or remove Devices and Ranges.
- **Mode Setup**: Add or remove Modes.
- **Full Screen Timeout**: If no keys are pressed, the DM-2 will change to the large format screen after this length of time.
- **Restore Settings**: Select "Yes" to restore the gauge to factory settings upon leaving the Setup Menu.
- **Language**: Choose the language displayed.
- **Battery Type**: Choose type, (not) rechargeable.
- **Display Version Info**: Select "Yes" to view the current DM-2 version information. Press **[Exit]** to return to the Setup Menu.

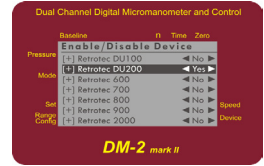
- Press **[Exit]** to return to the main screen.



## Add/remove Devices

The Device Setup sub-menu allows fans and ranges to be added or removed from the selections available when **[Device]** is pressed. Eliminate all unused Devices to avoid confusion.

- Press **[Setup]** and then **[▼]** until "Device Setup" appears. Press **[Enter]** to view available Devices.
- Scroll through the Devices. Press **[▶]** to select "Yes" to add, or "No" to remove.
- Press **[Exit]** twice to return to the main screen.



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

### Enable:

- "Retrotec DU200" for Q32 DucTester system
- "Retrotec 1000" for 1000 systems
- "Retrotec 2000" for Q46 and Q56 systems
- "Retrotec 3000SR" for Q4E, Q5E, and QMG door fan systems with green and yellow connection ports on the fan.

## Add/remove Ranges

Unused ranges may be removed to speed up cycling between useful ranges.

- Select a fan from the Device Setup sub-menu, press **[Enter]** to view the possible ranges for that device.
- Scroll through the possible ranges. Press **[▶]** to select "Yes" to add a range, or "No" to remove a range.
- Press **[Exit]** once to return to the Device Setup sub-menu, three times to return to the main screen.

## Enable/disable results Mode

Use the Mode Setup sub-menu to add or remove displayed results (Flow, EqLA, ACH, etc.), to select units and to change the default extrapolation pressures that appear when **[@ Pressure]** is used.

- Press **[Setup]** and then **[▼]** until "Mode Setup" appears. Press **[Enter]** to view all modes that will be available when **[Mode]** is pressed.
- Scroll through possible modes. Press **[▶]** to select units or select "Off"; that mode will not appear.
- Most modes have an associated "@Pressure", the pressure at which the displayed results will be extrapolated to, when **[@]** is pressed.
- To change the "@Pressure", press **[Enter]** and input a value between **[1-200]**, then press **[Enter]** again to save.
- Press **[Exit]** twice to return to the main screen.
- Pressure cannot be disabled. All other results can be disabled.