

The deTekta Power Pollution Meter – from Equilibra

The Power Pollution Meter is a revolutionary device for measuring electromagnetic interference (EMI) on AC circuits, also known as **Dirty Electricity (DE)**, in homes and other buildings.

It can be used to measure the...

- Average level of DE (EMI/Noise)) on a circuit before installation of one or more dirty electricity filters
- New level of DE on the circuit after installation of DE Filter/s
- Percentage of total DE reduction on the circuit as a result of DE filtration between 2KHz and 10MHz



The display screen on the meter above shows the average level of DE (EMI) on a circuit near an outlet before a dirty electricity filter is installed. In this case 110mV. The Meter also shows the new level of local DE (EMI) after installation of filter/s. In this case 30mV, as well as the total percentage reduction achieved in DE levels by filtration. In this case total DE (EMI) levels are reduced by 92% through the use of DE Filters

KEY FEATURES

1. Measures broadest range of DE (EMI) signals available

Measures dirty electricity (EMI) signals from 2 kilohertz up to 10 megahertz, a range that extends 10 times lower and 20 times higher than the range covered by other dirty electricity meters on the market.

2. First plug-in EMI Meter to measure dirty electricity in millivolts

Displays DE measurements in internationally accepted and standardised electrical units (mV).

3. Easy to use

Simply plug the Meter into an outlet (socket) to see how much DE is on the circuit (wiring) near to the outlet. Plug a DE Filter into another outlet and the Meter will show the new level of DE (EMI) and the total percentage of DE reduced by the Filter.

4. Makes 'Before Filter' and 'After Filter' DE Level comparison very easy

DE readings *before* and *after* DE Filters are plugged in are shown simultaneously on the same display screen to make it easy to establish the *correct positioning* of Filters and the *number required*. The 'After Filter' display screen also shows the total percentage reduction in DE Levels on that circuit between the ranges of 2 KHz and 10 MHz.

5. Includes special audio function so you can HEAR the difference in DE pollution levels

The Meter converts total DE (EMI) signals into representative audio so you can listen to the dirty electricity on any circuit when the Meter is plugged in. HEAR the DE noise decrease when you install/plug-in one of more DE Filters in the socket/s

Full instructions and guidelines on next page

Using the deTekta Power Pollution Meter

Important Note:

This unit can be used to measure DE (EMI) on circuits with single-phase voltage between 200-250 volts. Do NOT attempt to use the meter on circuits with voltages outside of this range. Doing so will damage the meter and void the warranty. Also do NOT exchange or adapt the cord/plug that comes with the meter in an effort to make it fit into a non-standard outlet in your environment.

Meter Instructions

Step One

Measuring the local level of DE on an electrical circuit

Plug the Power Pollution Meter into any socket on the circuit to be measured

Initial DE reading:

After you plug the meter in you will be able to hear the 'noise' on the circuit being measured. This is the level of DE riding on your electrical wiring. The louder the 'noise' the higher the level of DE there is on the circuit. This 'noise' is also known as transients/harmonics, which is colloquially referred to today as 'dirty electricity'. Once the 'average' measurement of DE has been calculated the top mV reading will stop flashing. However, the bottom DE reading will continue to flash showing the ongoing fluctuations in DE levels on that circuit. This will only stop when you either unplug the Meter or plug in a DE Filter into any other socket on that circuit. Make a note of the initial reading, although if you leave the Meter plugged in that reading will remain at the top of the display.

Audio Function:

When you plug the Meter in you will be able to hear the DE 'noise' on the circuit. This is similar to the 'noise' you hear when using an Acousticom 2 or Acoustimeter with the audible setting on.

Step Two:

Switch off all of your electrical equipment at the socket.

The reason for doing this is to establish how much of the DE pollution is created by your own equipment and how much is actually coming in externally through the electrical supply. With all of your electrical equipment switched off take a note of the 'new' reading on the display underneath the original reading. The difference between the top and bottom readings is the amount of DE created by your own electrical equipment. If there is no real significant drop in DE levels, then most of the DE pollution is coming into your home through the electrical supply.

If there is a significant drop in DE levels and you are curious to know what appliances are causing the most pollution, all you need to do is to switch them on one by one and check the bottom display to see which is causing the most pollution. This will be indicated by the amount the bottom reading increases by.

Step Three:

When all your equipment is switched back on we need to establish how much the local DE can be reduced by on that circuit. We do this by installing one or more dirty electricity filters into other sockets on that circuit:

Unplug the Power Pollution Meter (PPM), wait a few seconds, and then plug it back in until the top reading stops flashing. This will give you an average DE Level on that circuit. With the PPM still switched on plug a DE Filter (or more) into another socket/s. We are working out the best positioning of the filters and the number required to reduce the DE Levels below 100mV, and even lower which is possible.

New Post Filter DE Readings:

The 'new' local level of DE following installation of the filter/s will appear in millivolts (mV) below the original dirty electricity reading on the meter's display screen. The example on the first page shows an initial DE level was 110 mV. The new local level of DE after installation of the filter/s the outlet/s was 30 mV – a reduction in DE Levels of 92%, as indicated at the top of the display screen.

Percentage Reduction Reading:

The post filter display screen will also show (at the top) the total percentage reduction in DE Levels achieved on that circuit by installing the DE Filter/s. This makes the placing of the Filters and the number required easy when trying to achieve lowest levels of DE possible on that circuit. NOTE: The % age reduction measurement refers to the percentage change in total DE on that circuit between 2 KHz and 10 MHz, NOT the percentage change on voltage. If you want to calculate the % age reduction in voltage subtract the new post filter reading (the bottom reading, in this case 30mV) from the initial DE reading (the top reading, in this case 110mV), then divide by the initial mV measurement x 100. Thus: $110 - 30 = 80$. $80 / 110 \times 100 = 72.72\%$

Audio Function:

When you plug in a DE Filter the sound from the Power Pollution Meter indicating the level of DE noise on that circuit should decrease. Adding more Filters should reduce the 'noise' even further until there is little or no noise whatsoever. While listening to the 'noise' gives a clear indication of reduced DE Levels, always check the percentage reduction achieved and the 'new' level of DE measured. The aim is to reduce DE Levels to under 100mV, or at least by 85%-90%.

Experiment with Filter Placement:

There is no rhyme or reason to 'correct' filter placement because each household will be totally different, as will each circuit be due to different appliances etc. Therefore it is essential to play around with filter placement to achieve the best results that you can.

If you have high levels of DE coming INTO the house through the supply:

If this is the case, then it may be prudent to establish which is the first socket (outlet) nearest to the Electrical Fuse Box. Check with an electrician if you are unsure. When established, place an extension lead into that socket and try plugging in up to 4 Filters to see what happens to the DE Readings. The reason for this is to try and 'filter out' the DE as it comes into the house and before it travels through your electrical wiring. Then you can place one or two extra filters in other sockets to filter out the DE that your own equipment is creating. It is all about experimenting with Filter placement to achieve the best results possible.

To Finish:

Unplug the meter. Repeat DE measurements on a regular basis. As more and more people are having Solar Panels fitted, houses using more electronic equipment every day, levels of DE Pollution entering the home and created within the home are increasing every day. Reclining Chairs (motorised) and Adjustable Beds are two of the worst offenders within homes, as are low energy CFL and LED Bulbs. Therefore it is prudent to carry out regular checks by following the Steps above to keep your DE Levels down to a safe and healthy level.

What Level of DE (EMI) is Deemed Safe?

There is no current scientifically agreed 'safe levels' per se. However, based upon various published reports and recommendations it is advisable to aim to reduce total DE Levels in the Home to 100mV or less (75mV is my personal recommendation), or by an overall reduction of 85% if this cannot be achieved.

NOTE: If initial readings of total DE Levels are below 100mV, it is classed as 'Low Level Noise' and this will be indicated on the Display Screen. Installing DE Filters to reduce levels of DE where initial levels are below 100mV will therefore NOT show as a percentage reduction on the Display. However, the reduced level will show beneath the initial level and 'Low Level Noise' will be displayed on the Meter.