

**TecAt LE x TecAt Pro x TecAt Plus**  
*functions compare, uses and notes*  
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**1. Functions**

function	TecAt LE 6.2	TecAt Pro 6.2	TecAt Plus 6.2
resistivity stratification in 2 layers	X	X	X
same, 3 layers		X	X
same, 4 layers		X	X
verification of external calculation <sup>(1)</sup>		X	X
resistance of simple grids in 2 layer soil	5 configurations, compare resistance, cost and time <sup>(2)</sup>	5 configurations, compare resistance, cost and time <sup>(2)</sup>	5 configurations, compare resistance, cost and time <sup>(2)</sup>
resistance of complex grids in 2 layer soil		X	X
same, 3 layers		X	X
same, 4 layers		X	X
Add two grids		X	X
compare resistance, cost and time		X	X
Surface potentials in 3 dimensions (2, 3 or 4 layer soil) <sup>(3)</sup>			X
same, grid potentials			X
Surface potentials in 2 dimensions			X
same, touch potentials			X
same, step potentials			X
wizards for grid construction		X	X
Text and graphical reports	X	X	X
Conductor cross section dimensioning		X	X
safety potentials			X
PDF export of reports		X	X
Materials list	X	X	X
XLS export		X	X
Simulation of grid resistance measure			X
Manual, e-book, tutorials, course presentations	X	X	X

(1) - check the errors for a stratification done manually or with another software (need the field measurements)

(2) - calculates 21 to 28 grids simultaneously, presenting comparative charts of resistance, cost and time to build.

(3) - compare with tolerable potentials; it's necessary to enter the grid current and the duration of the fault

**Notes:**

- All the TecAt LE, Pro and Plus calculations are numeric, we do not use approximations, reductions, apparent or equivalent workarounds, and our algorithms has been developed for 25 years, so you get the highest possible precision from your field data.
- That said, no software is 100% bug-proof, we do our best to eliminate any know error, but the project

responsibility remains with the user.

- We use a license authorization sent to the user at the installation process, no dongles needed.

## **2. Purposes and uses**

### **2.1 - TecAt LE**

Version **TecAt LE** - or **Learning Edition** - is meant to be used as a learning tool for grounding grid design. It has reduced functions but full documentation and theory as the professional versions.

**TecAt LE** does the stratification of resistivity only with a 2-layer soil model, then calculates the resistance of several configuration of simple grids, like a rectangular ring of horizontal cable with up to 16 rods, so yes, it can be used beyond learning, in applications like lightning protection systems, low voltage and telecom, as long as the soil adjusts well to 2-layer and the grid isn't too big, let's say it's OK for a residential building but not for a shopping center or an industry - as with **TecAt Pro** and **Plus**, the **LE** also points to the stratification results in case the 2-layer model doesn't adjust well, so you'll know when the limit has been reached. Another possible use for **TecAt LE** is on the field, for a quick calculation while you are taking the measures of resistivity, to check for measurement errors and detecting if the soil has potential problems.

### **2.2 - TecAt Pro**

**TecAt Pro** version calculates the soil resistivity stratification in 2-, 3- or 4-layer model, with significant more precision than competing 2-layer only software; as a bonus, TecAt Pro also has the function to verify a stratification made by other software or manually, giving you the errors of each measure and the RMS error of the full data set, so you can compare it with the results from **TecAt Pro**.

For grid resistance calculations, TecAt Pro goes way beyond TecAt LE, allowing to build and calculate the resistance in 2-, 3- and 4-layer soil models, with thousands of elements, any geometry, any configuration, with precision placement and dimensions of electrodes, using (x, y, z) coordinates for both ends of an electrode - you can even have an inclined element.

In order to facilitate the data entry in big grids, TecAt Pro has "wizards" to help generate the electrodes coordinates; for example, if you have a grid with a "L" arrangement, you just need to run twice the wizard for rectangular area to generate the electrodes list.

### **2.3 - TecAt Plus**

**TecAt Plus** has all the functions of version **Pro**, and add the calculations for touch, step and surface potentials, all necessary for safety verification of power stations.

Instead of approximations used on graphical and simplified models, **TecAt Plus** makes all calculations for potentials also in up to 4-layer numerical model, considering the interaction of all electrodes of the grid, as well as mapping the potentials over all the grid area and around it - so you can check also the safety of people outside the station..

It's also possible to quickly build grids with geometrical distribution (meshes bigger on the center of grid and smaller at the borders) to get a substantial economy on both electrodes, connections and time to build the grid.

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