

All compensators

With the new enhanced Equation Editor you can now define your own **compensator transfer function**, so any converter with any control is possible in SmartCtrl.

Analog or Digital?

Just select the checkbox to define which solution you need.

Analog predefined compensators:

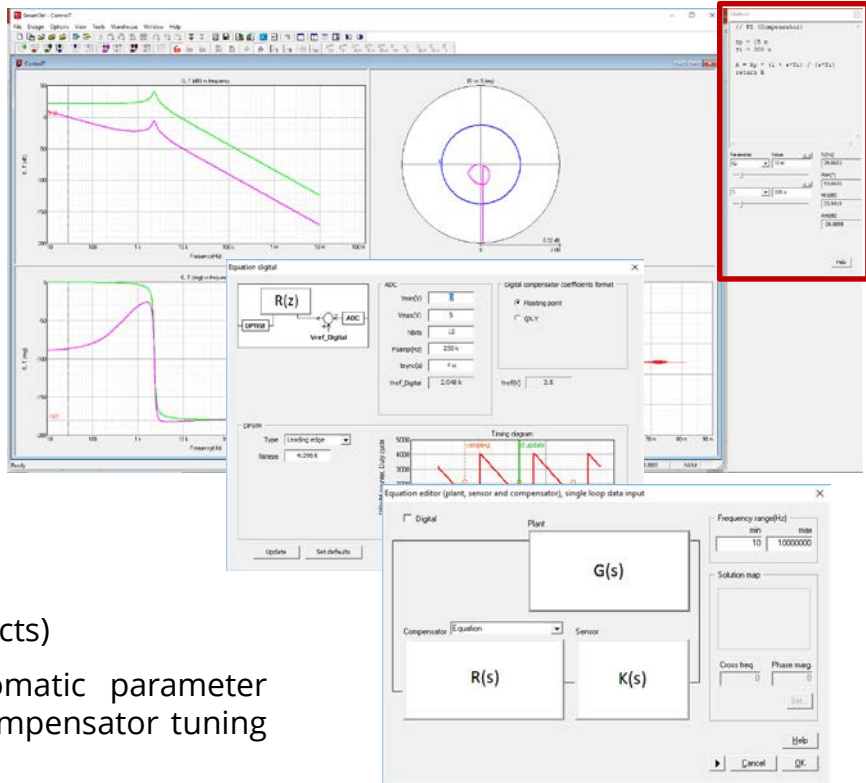
- Type I, II & III
- PI & PID

Digital predefined compensators:

- PI & PID (With ADC and SPWM Effects)

User defined compensators, with automatic parameter identification, applying all the SmartCtrl compensator tuning algorithms to the user design:

- In S or Z domain



Any compensator you may need, we can help you with the design, **contact with PSC team for information**

All in Z domain

In order to define a **real DIGITAL control**, SmartCtrl works directly in **Z domain**.

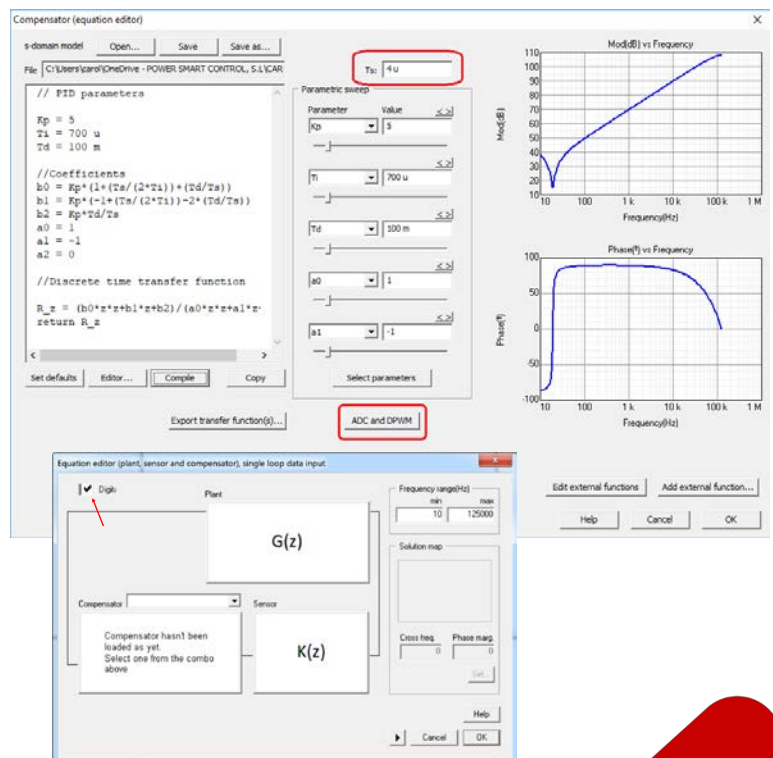
Power converter new modelling approach is based on multivariable z-domain models.

SmartCtrl allows the designer to work with discrete models to **get the best performance and the highest bandwidths** for the digital control loop.

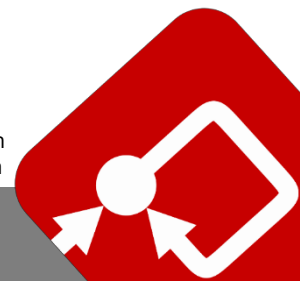
Improve your design compared to S discretized models.

Plant, sensor and compensator can be defined in Z Domain (Z Z Z)* or **Multidomain Operation**, mixing (S S Z) * or any possible combination.

Check our Digital Control application note to learn more.



* Z Z Z, Plant in Z domain, Sensor in Z domain and Compensator in Z domain
 * S S Z, Plant in S domain, Sensor in S domain and Compensator in Z domain



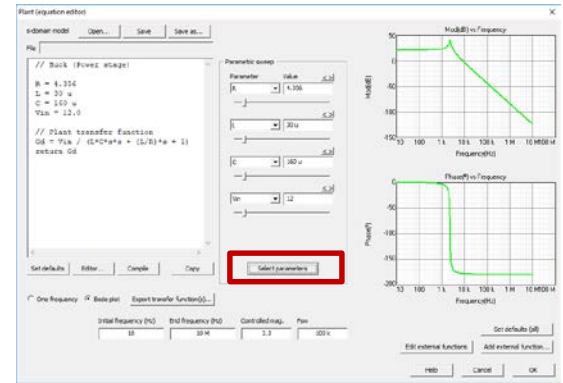
What's new in SmartCtrl 4.1

New parameter sweep and Check for updates

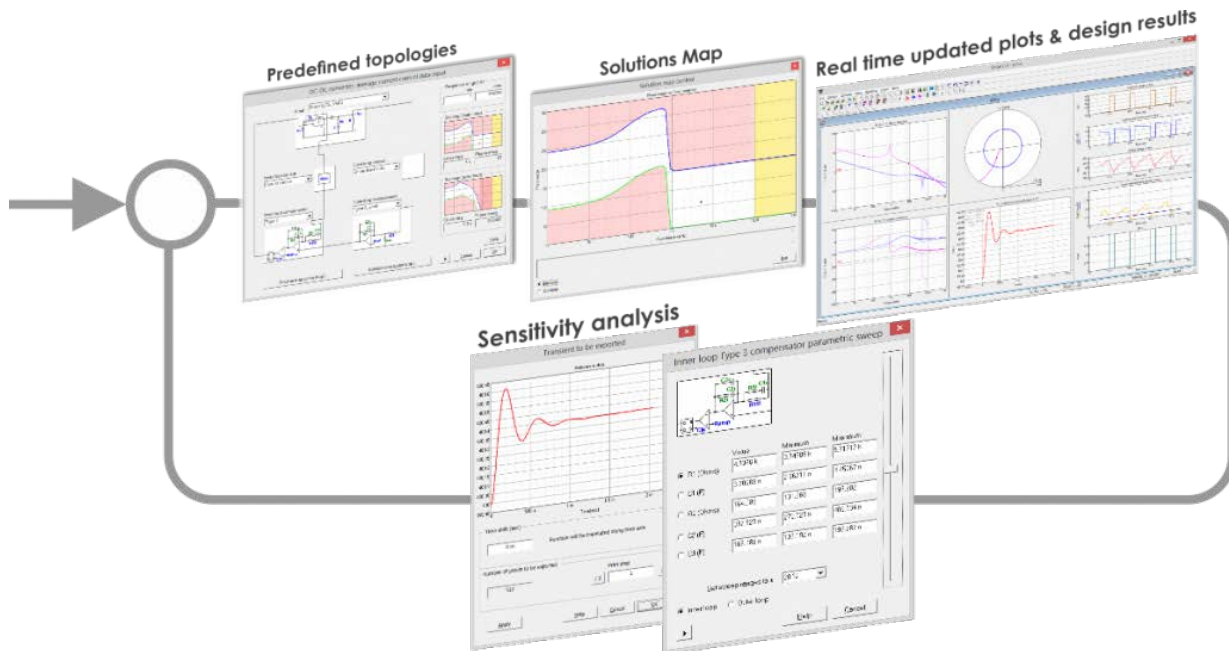
Just click in the **"Select parameters"** button and SmartCtrl will automatically detect the parameters in the transfer function defining the plant, sensor or compensator in the Equation Editor.

Save time and effort to get the best possible solution.

New **Check for Software updates** option to look for new SmartCtrl releases.



SmartCtrl 4.1 overview

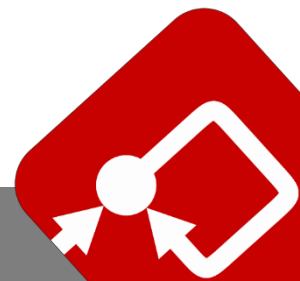


SmartCtrl, a friendly interface, simple workflow, and easy to understand display of control loop stability and performance...**and now, more**

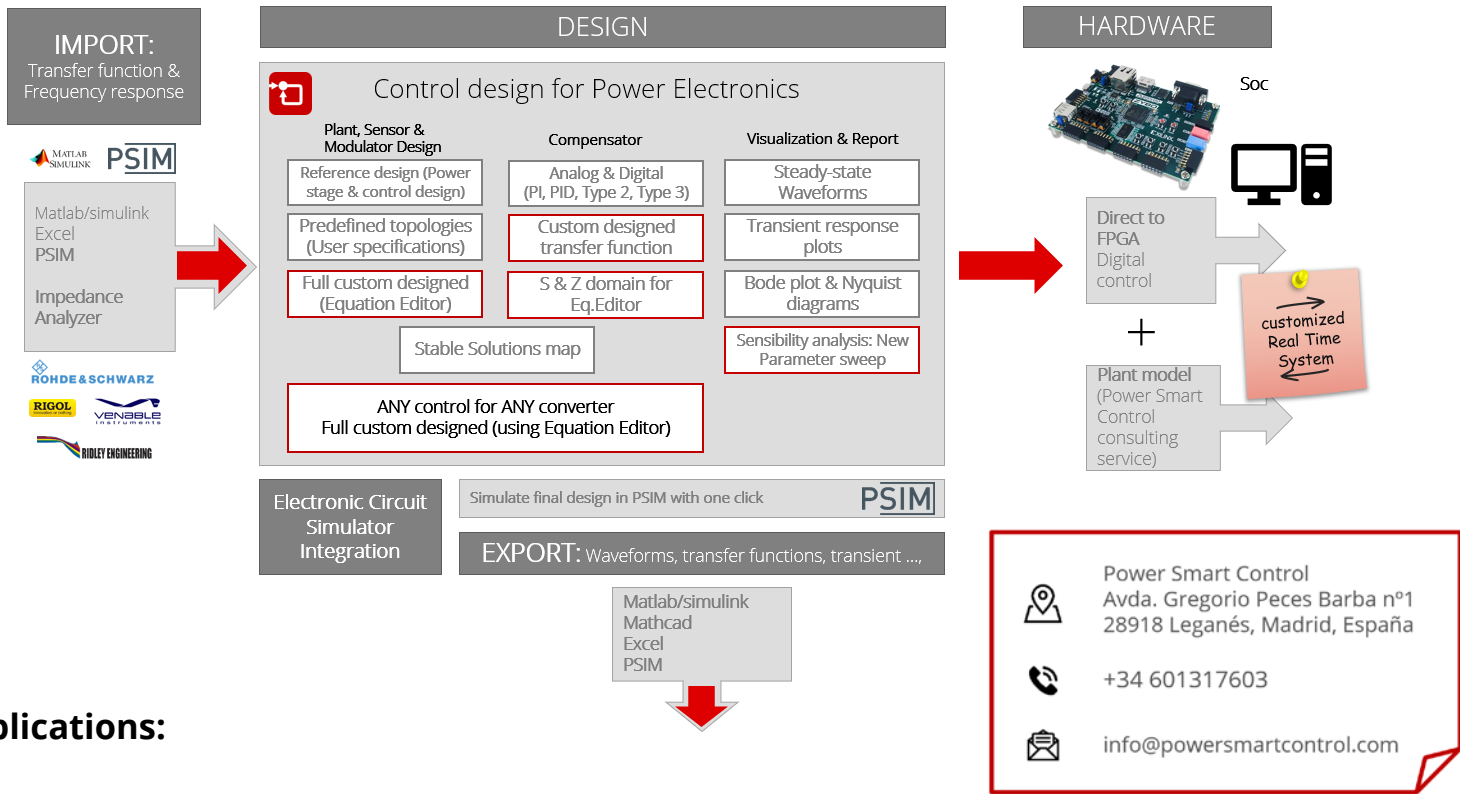
Do you need to define a motor drive?

Use the SmartCtrl **enhanced Equation Editor** to define the system transfer functions, in **S domain** or **Z domain**, any plant, any compensator and any sensor is possible. Use the new parametric sweep, with automatic parameter detection, and the SmartCtrl graphical interface to select the best control option.

SmartCtrl is widely used in Education, not only for cutting edge technology researches but also as teaching tool for future engineers and developers.



The ultimate control design tool for power electronics



Applications:

Consumer electronics, Renewable energy, Transportation, Aerospace and Defense, Industrial, Education, Power Supplies, Lighting control systems, Inverters for PV solar systems...

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After **over 20 years of experience** in the field of power electronics systems SmartCtrl software is being developed as a platform in which, our knowledge related to control in power electronic systems, is collected.

SmartCtrl can solve the control design problem for ANY power converter.

How can SmartCtrl do that?

From the most simple DC-DC model using a basic template to the most complex PFC Boost converter with a double control loop, just with the design specifications.

The final result from SmartCtrl is the control design (ready to be exported and simulated in PSIM) and all the compensator parameters (Analog or Digital). Complete converter, control loop and magnetics design for the most common topologies.

Use the import frequency response option to get your plant transfer function into SmartCtrl, then continue with the guided control design process to get the best control for your system.

