

## REGATRON TC.ACS Series

Full 4-quadrant Grid simulators  
Full 4-quadrant power amplifiers  
Programmable RL electronic loads

## GRIDSIm Full Function Grid Simulation Software

### 1. Basic description

GRIDSIm comes as an enhancement option to the basic ACSControl operation and service software. It opens up a full access to the advanced functionality of the TC.ACS Series Grid Simulators. GRIDSIm software can be ordered at REGATRON Customer Support Division and then activated by a hash code.

### 2. GRIDSIm software at a glance

While the product-included ACSControl software provides the operator for basic grid simulation tasks, service and diagnosis jobs, the optional GRIDSIm package makes the full set of the TC.ACS Function Engine available.

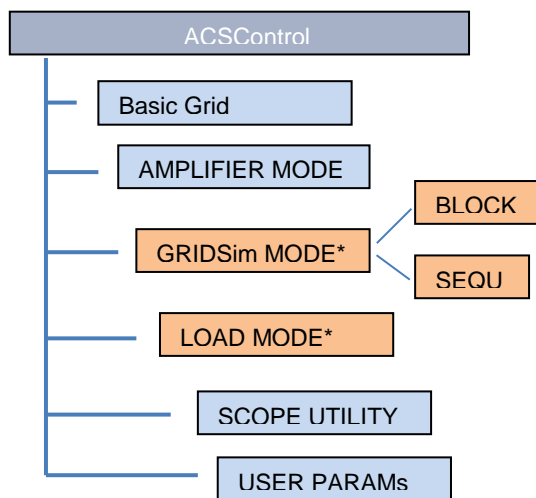


Figure 1: Functional scheme of ACSControl software  
\* Exclusively available within GRIDSIm option

According to figure 1 the GRIDSIm software enables the following programmable features:

#### 2.1 The BLOCK menu

- edits and programs the basic phase waveforms
- allows for different waveform modulation types:
  - amplitude modulation
  - frequency modulation
  - phase angle modulation
- allows to add superimposed waveforms
- displays a preview of programmed waveforms

- processes a given number of Block repetitions
- processes a dedicated operation time interval
- allows to save, recall and re-edit a Block structure

Figure 2: Amplitude modulation sub-window (Block level)

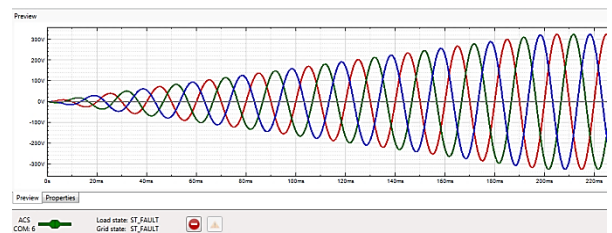
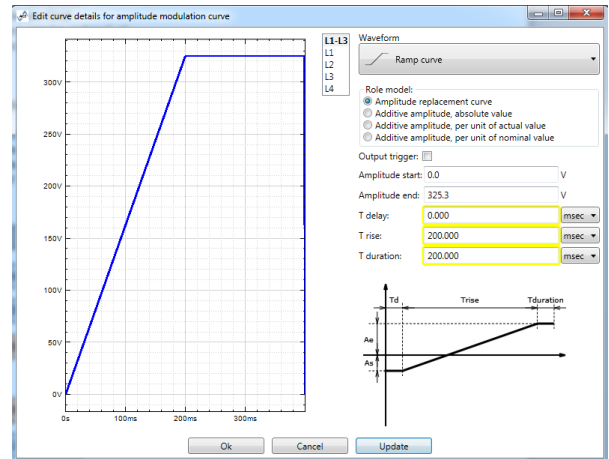
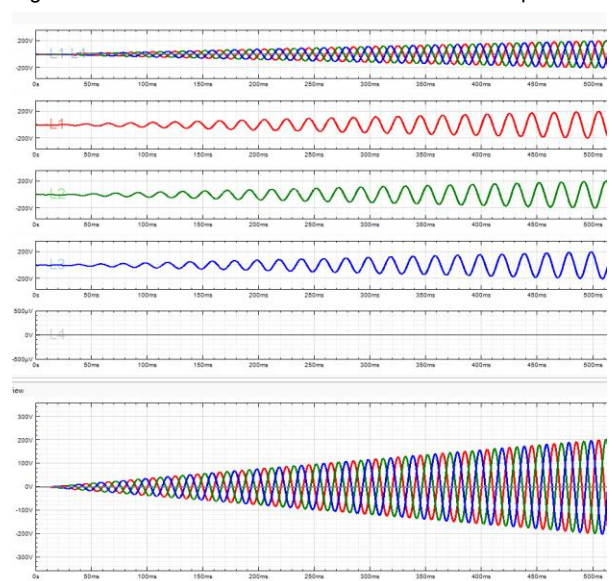


Figure 3: Resulting Simulator phase output preview

In order to inspect the shape of each individual phase voltage in detail, a separate 'Preview Window' is included. Refer to figure 4 below.

Figure 4: Detail of the 'PREVIEW WINDOW' for a ramp



Programming of a Block opens up all imaginable variations of 1 to 3-phase voltage shapes. The preview option allows for easily checking and aligning the effects of a programming step.

Various timing functions facilitate the adaption of a Block content to the desired task.

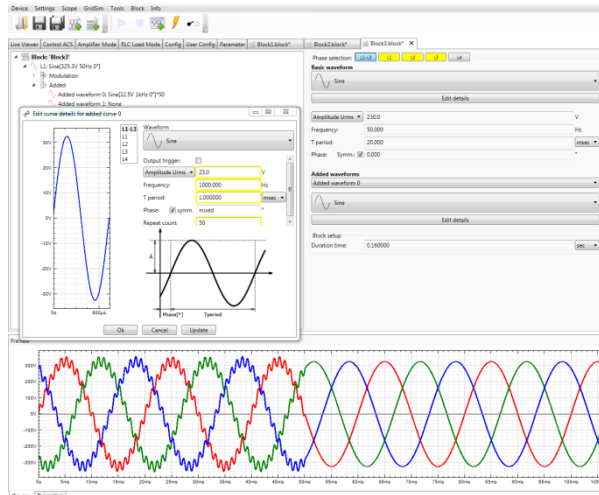


Figure 5: Example of superimposed 1 kHz "Burst"

Another helpful topic is the ability to define system output trigger signals. At predefined time points of a Block a trigger event may be generated and sent to the system trigger output. By this, external measurement equipment may be synchronized with the Grid Simulator pattern, a big help for in-deep analysis of the load circuitry response.

Blocks may be labelled with a short description of the respective functionality. By this the identification of a Block within an entire sequence is greatly facilitated.

## 2.2 The SEQUENCE menu

Individual BLOCKS may be sequentially chained in order to form a SEQUENCE. By this feature, a series of grid events and procedures will be processed in a precisely defined timely order. Again, number of repetitions as also duration of the process can be programmed.

The SEQUENCE function is mainly useful for composed test procedures, where a predefined sequence of individual steps has to be worked out. Main application fields are

- EMI/EMC test patterns
- End-of-line device testing
- R+D laboratory test setup's
- General lab test work

The sequence menu also provides many editing functions to the operator. Blocks may be added, deleted, changed in order, saved, re-edited and more. Of course, entire SEQUENCE files may also be stored, loaded and edited.

## 2.3 The RL-Load mode

Special real time data processing capabilities allow the TC.ACS Grid Simulator to simulate also the electrical behaviour of resistive, inductive and mixed ohmic-inductive loads. TC.ACS behaves electrically as given by this load circuitry when connected to an AC-source. 3-phase as well as single phase operation is possible.

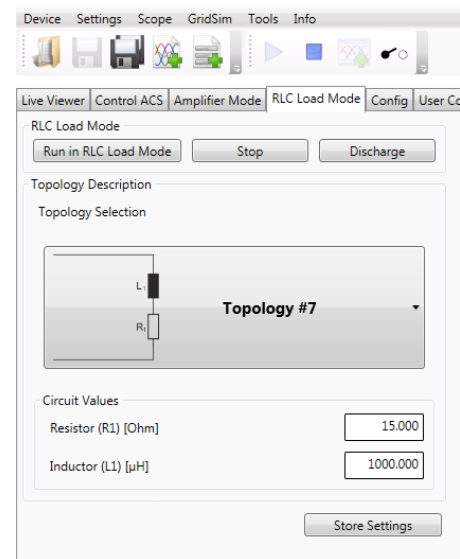


Figure 8: Load mode window

## 2.4 The Fourier tool

By the FOURIER tool various superimposed waveforms may be created by the TC.ACS Function Engine, which performs a FOURIER synthesis calculation. Due to the extremely wide modulation bandwidth, harmonic content up to 5000 Hz may be processed.

## 3. Conclusion

By their exceptional performance, TC.ACS Grid Simulators offer highest versatility compared to competitors on the world market. Very high frequency ranges and highest modulation bandwidth privilege the system even for complex future applications. ACSControl software expanded by GRIDSim option features a convenient access to the different operation modes.

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