

# THE MOST POWERFUL SIZING & DESIGN SOFTWARE IN THE INDUSTRY

DESIGNED FOR ENGINEERS.  
BY ENGINEERS.

# POWER DESIGN PRO

## NEXT GENERATION GENSET SIZING SOFTWARE

The most powerful electrical and mechanical design and sizing tool on the market, Generac Industrial Power's Power Design Pro is a one stop solution center for the consulting engineer. In addition to state of the art generator sizing and analysis, it includes spec sheets, installation drawings, emission information and exhaust sizer.

Generac Industrial Power has incorporated almost 60 years of power generation experience into Power Design Pro with the goal of making specifying generators as easy as possible. It incorporates innovative algorithms that accurately model a load's true characteristics and includes full harmonic and transient analysis to ensure complete generator-to-load compatibility. This ability to accurately size and design generator solutions is unmatched by any other software in the industry.

## NEW FEATURES IN THIS VERSION

The latest version of Power Design Pro also includes the following key features and enhancements:

- Cloud-based architecture to allow you the fastest, most accurate and up-to-date sizing software on the market
- Sharing and collaboration capabilities
- Safe, secure cloud saving capabilities to access your projects from multiple devices and locations with a single login
- Medium voltage product options for sizing your projects
- Dynamic calculations give you real-time results
- Now multi-lingual
- Regulatory filters
- Easier to use

## USING POWER DESIGN PRO

The Power Design Pro offers project sharing, easy collaboration, and the capability of connecting you to your trusted expert. By moving to the cloud, Power Design Pro users are no longer constricted to a desktop computer or laptop. Now, users will have the freedom to use the tool on any device that connects to the internet, allowing you to start from home and then to pick up right where you left off at work. The cloud provides users with the ability to share project files with other users, facilitating a virtually seamless collaboration. By giving colleagues the ability to share their input on the same project, it makes certain that the optimal solution is delivered.

## TRUE HARMONIC ANALYSIS

Traditional market sizing programs use simple rule of thumb multipliers to size the generator for non linear loads. Given the vast variation between different types of loads from different manufacturers, simple multiplier sizing is just not adequate for today's complex loads. Power Design Pro utilizes harmonic analysis to limit the harmonic voltage distortion to acceptable levels.

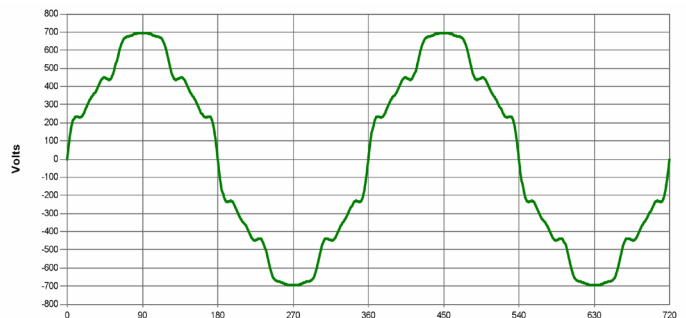
The program automatically selects an appropriate harmonic current signature for each load type but gives the user the ability to modify it to accurately model any load. Once the loads are entered, Power Design Pro calculates the resulting harmonic voltage distortion as that load is applied to various generators.

### HARMONIC ANALYSIS

Harmonic Profile: Application Total (running)  
kVA Nonlinear Load: 104.0  
kVA Base (all non-linear): 104.0  
Sequence: (Total)  
THID: 30% THVD: 11.0%  
Selected sequence(s) harmonic alternator loading: 52.0%

### SELECTED HARMONIC CURRENT AND VOLTAGE PROFILES

Profile	3rd	5th	7th	9th	11th	13th	15th	17th	19th
Current	0.0%	26.1%	10.4%	0.0%	7.7%	4.9%	0.0%	3.8%	3.6%
Voltage	0.0%	7.6%	4.3%	0.0%	5.0%	3.7%	0.0%	1.9%	2.0%



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## COMPLETE LOAD MANAGEMENT TOOLS

### ACCURATE LOAD MODELING

Does your current sizing software ask questions applicable to your application, such as: Is the UPS technology passive, line interactive, ferro-resonant, or double conversion? Is the variable frequency drive input 6 pulse unfiltered, filtered, or IGBT? How many compressor motors are being utilized in that 100 ton chiller system and is reheat being applied?

Most sizing programs don't. How can a load's true nature be accurately captured without asking the pertinent questions? The Power Design Pro system approach expertly provides safe default settings when specific information is limited while incorporating applicable questions in order to model the load's true characteristics. For unusual applications, Power Design Pro allows users to build their own load types inclusive of starting, running, and harmonic characteristics.

### LOAD SHEDDING

When designing redundant power solutions, load shedding schemes are often implemented to maintain system integrity. Power Design Pro provides the ability to shed loads that are entered into the program and allows the user to then evaluate the effects of running those loads against any generator configuration the user selects. The goal is not to simply provide a sizing recommendation, but provide an indepth analysis tool that allows the user to compare multiple scenarios for the best possible solution.

### NATURAL LOAD SEQUENCING, CYCLIC LOADING AND LOAD FACTORS

A common limitation and misapplication of traditional sizing programs occurs when too many loads are entered into a single step, resulting in a fictitious situation that assumes all the loads are running and starting simultaneously. To cope with this limitation, users were forced to manipulate the loads into some arbitrary load groupings. Power Design Pro easily overcomes this issue by supporting natural load sequencing, cyclic loading, and user definable load factors in addition to the traditional concurrent starting-load step method.

## TRANSIENT ANALYSIS

Most sizing programs use a simple voltage dip model to analyze motor starting transients and provide very limited analysis. Power Design Pro uses voltage and frequency tolerances that are customized for each load versus a single parameter for the entire project. It also provides the user with a detailed transient analysis which identifies the load sequences and the loads in that sequence that are causing the greatest system transients – voltage and frequency.

### TRANSIENT ANALYSIS

Most difficult alternator transient requirements (voltage dip)

Sequence	Priority
Load	#13
skVA	300.0
Voltage Dip Tolerance	15%
Voltage Dip Expected	7.7%

Most difficult engine transient requirements (frequency dip)

Sequence	Step 2
Load	#15
skW	150.0
Frequency Dip Tolerance	5
Frequency Dip Expected	2.6

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