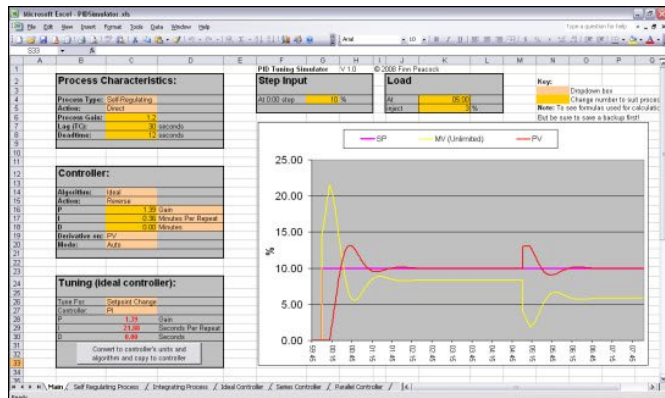


# PID Tuning Blueprint

The PID Tuning Blueprint contains all the tools and training materials you need to tune a PID loop using a methodical, step-by-step, scientifically based tuning procedure.

It is a professional toolkit that:

- Provides a comprehensive overview of PID Control and the PID algorithm so you fully understand how a PID Control System works before you being the tuning.
- Provides a comprehensive checklist of pre-tuning checks (and fixes) that you must do to ensure that your process is ready for tuning.
- Walks you step-by-step through the benchmarking of your process so you can quantify the post-tuning improvements.
- Provides an interactive log-book to record and calculate the tuning process.
- Provides PID Tuning Simulator and Gain Calculator for MS Excel to allow you to practice your tuning and simulate it before touching your plant (Pro package only)
- Is guaranteed to tune your loop (60 day unconditional guarantee)



## Written/Developed by:

Finn Peacock, a Chartered Professional Engineer with over 12 years experience as a Control Systems Engineer.



## Contents:

### **PID Tuning Blueprint: Guidebook**

A step-by-step guide explaining my unique PID Tuning technique, and how to apply it to your specific process. It's 65 pages filled with only what you need to know. You can begin implementing the steps immediately.

### **PID Tuning Cheat Sheet**

Once you've used the Blueprint to tune your first loop, you can progress to using this 2 sided cheat-sheet to quickly tune subsequent loops. The cheat sheet is a super condensed guide to the tuning process that you can easily refer to out on the plant, to ensure that your loops get tuned as efficiently as possible.

### **PID Tuning Logbook**

Fill in the blanks in a fresh copy of this logbook as you tune each loop, you will have a record that will show exactly what you did to improve the process -- and crucially how much you improved it by

### **PID Tuning Simulator and Tuning Calculator for MS Excel (*Pro Package only*)**

The best PID tuners in the business are those who try out their newly calculated tuning parameters on a 'fit for purpose' simulation before investing in both the effort and downtime required to implement them on their physical process.

This sophisticated spreadsheet actually simulates your process and controller right inside the familiar environment of MS Excel. Here's how it fits into your PID loop tuning process:

- a) You follow steps 1-7 as per the Blueprint (despite what some software vendors may claim - these essential steps cannot be automated).
- b) You go through each configurable cell on the main worksheet and dial in your process, controller and desired performance characteristics.
- c) The algorithms in the spreadsheet automatically calculate your optimum tuning constants (using the exact same rules as described in the Blueprint). The spreadsheet also automates the process of converting the raw tuning constants to values that your specific controller type can use.
- d) The simulator shows you how your simulated process will respond to those tuning parameters based on setpoint and/or load changes.
- e) You spot any mistakes in your tuning well before you touch your plant, and gain confidence in the tuning technique that you have just learned.

This is also a great learning tool for playing with the controller setup and seeing how the different parameters affect the process performance.

I have written this in Excel so that you have complete access to all the algorithms that drive the simulation and the tuning. I hate 'black boxes' as much as the next engineer. If you want to understand exactly why something is happening in the simulation or the calculator - simply unprotect the sheet (no password required) and the workings are there for you to see.

## The Complete Idiot's Guide to the PID Algorithm

This guide to the PID algorithm and the mathematical concepts that underpin it - is written so that anyone can get an intuitive understanding of how the algorithm works and why.

This crash course uses the analogy of a car on a freeway changing lanes to represent the process under control and walks you through easy to visualize "thought experiments" to cement the concepts in your mind.

## Automated Process Linearizer for MS Excel

A critical step of any tuning process is to ensure that your process responds linearly to your controller output (See the Blueprint Guidebook Section 8).

This Macro automates the linearizing process. You simply paste your process data in - and the macro works out a lookup table that you can use in your controller to hugely improve the performance of your loop.

## Cascade Control: The Definitive Guide

This definitive guide to cascade control tells you everything you need to know about cascade control so you know when to use it and how to tune it.

### Prices (USD):

PID Tuning Blueprint Digital Basic Edition: Digital Downloads of everything except the PID Simulator and Gain Calculator	\$97
PID Tuning Blueprint Pro Package: Digital download of everything above including the PID Simulator and Gain Calculator	\$197
PID Tuning Blueprint Deluxe: Immediate downloads as per the Pro Package plus hard copies of the Blueprint, and Software on CD shipped to you. Includes ½ hour of personal consulting with Finn Peacock.	\$297
Site Licence: Everything in the Deluxe Package plus the rights to distribute the materials and software to up to 20 people in your company.	\$997

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Or visit: [www.pidtuning.net/actionform.html](http://www.pidtuning.net/actionform.html)

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