

Preface

Proportional integral (PI) and proportional integral derivative (PID) controllers have been at the heart of control engineering practice for over seven decades. However, in spite of this, the PID controller has not received much attention from the academic research community until the past two decades, when work by K.J. Åström, T. Hägglund and F.G. Shinskey, among others, sparked a revival of interest in the use of this ‘workhorse’ of controller implementation.

There is strong evidence that PI and PID controllers remain poorly understood and, in particular, poorly tuned in many applications. It is clear that the many controller tuning rules proposed in the literature are not having an impact on industrial practice. One reason is that the tuning rules are not accessible, being scattered throughout the control literature; in addition, the notation used is not unified. The purpose of this book, now in its third edition, is to bring together and summarise, using a unified notation, tuning rules for PI and PID controllers. The author restricts the work to tuning rules that may be applied to the control of processes with time delays (dead times); in practice, this is not a significant restriction, as most process models have a time delay term. In this edition, the structure of the book has been modified from the previous edition, with controller tuning rules for non-self-regulating process models being summarised in a different chapter from those for self-regulating process models.

It is the author’s belief that this book will be useful to control and instrument engineering practitioners and will be a useful reference for students and educators in universities and technical colleges.

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