



Preface

Thank you for your interest in this book. I've been developing the material and delivering the CODESYS Intensive training for many years, but I have always wanted the materials to benefit a wider audience. The one silver lining of the COVID crisis is that it removed all distractions and provided the time to make this a reality. I hope you find this to have been a valuable effort.

I began my career with the Chevron Corporation in 1982 (which was then known as Standard Oil of California). My career meandered through Instrumentation & Controls, hardware and circuit board design, firmware and software programming, medical image processing, gas turbine controls, and returning to Industrial Controls. Throughout that journey, I have used hundreds of different development environments with many dozens of different languages ranging from machine code, through C/C++ and VHDL/Verilog, all the way to IEC 61131-3. Of all those environments and languages, CODESYS and IEC 61131-3 are two of my favorites. If you haven't already, it won't take much longer to realize I am a huge enthusiast and advocate of both. I hope by the end of this book you will be too.

To maintain complete independence and the ability to talk about the good as well as the bad and the ugly, this book is entirely self-funded. For that reason, you will definitely find aspects of this book which could benefit from a professional's touch. Hopefully, the early editions will provide enough funds to allow for that in later editions. On a similar note, I've been told by other authors that perfection is the enemy of progress and that it is possible to edit a manuscript an infinite number of times and still find imperfections and areas for improvement. So, after slightly less than infinite edit cycles, I've decided the book will do more good in the hands of CODESYS users now than a slightly improved version someday in the distant future. Rest assured that I am aware many imperfections exist and will address them in future editions of the book (along with the new features CODESYS releases between now and then). You are welcome to add your thoughts for future improvements at BookOfCodesys.com.

To accommodate both visual and verbal learners, the book is made up of alternating graphics and text. The graphics often provide a quick overview and the text provides more detail and context. The graphics also provide screen shots or additional information that is best conveyed graphically (a picture is worth a thousand words). I am interested in your feedback on this format. Is the summary text embedded in the graphics helpful, or is it an unnecessary use of paper? Please leave your comments at BookOfCodesys.com.

Also, please excuse the resolution of the IDE screen shots. Unfortunately, the CODESYS IDE still uses the old 8-dot VGA fonts, so it is impossible to generate high resolution screen shots. I also struggle with the tradeoff between keeping a concept on a single graphic versus spreading it over several graphics. The former sometimes result in graphics that are small and hard to read and the latter often requires multiple page-flipping to grasp the entire concept. As you will see, I personally prefer to keep the concept on one graphic. Again, feel free to let me know your thoughts.

This book is meant to complement the CODESYS Help documents. The CODESYS Help will always contain the latest information. It is a great forest, but can at time get lost in the trees. The purpose of this book is to present the subject in a logical flow that is best for learning, and to fill in detail and provide clarity where it is necessary. It is best to set aside a week, read the book cover to cover, and complete the exercises as if it were a formal training class. If you do need to refer back, the Detailed Table of Contents at the end of the book is probably your best resource.

To help solidify the information, most chapters end with a practical hands-on lab with step-by-step instructions, and less structured “Extra Credit” exercises. The lab instructions get progressively less explicit as the reader is expected to be accumulating knowledge from earlier chapters. The Extra Credit exercises are intended to be challenging and may at times require consulting outside resources (such as the CODESYS Help, FAQ, and Forum). The book concludes with an unstructured “Final Project” which has opportunities for multiple levels of achievement each progressively more challenging. For help with or answers to the Extra Credit and Final Project, attend a CODESYS Intensive Training class.

This book is mostly based on CODESYS 3.5 Service Pack 16, but does include some features of Service Pack 17.

A trainer package is available to qualified professional instructors, professors, and teachers which includes the original power-point presentation, answers to the extra credits and final project, and other helpful information. The license for this material allows for the material to be customized for specific applications. Please contact me for more information.

Again, enjoy the book, and enjoy becoming a CODESYS expert!

Respectfully,

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