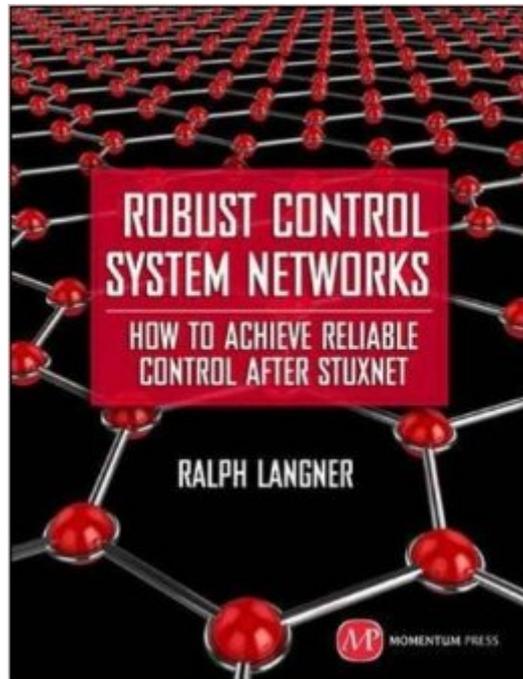


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# Robust Control System Networks



## Synopsis

From the researcher who was one of the first to identify and analyze the infamous industrial control system malware "Stuxnet," comes a book that takes a new, radical approach to making Industrial control systems safe from such cyber attacks: design the controls systems themselves to be "robust." Other security experts advocate risk management, implementing more firewalls and carefully managing passwords and access. Not so this book: those measures, while necessary, can still be circumvented. Instead, this book shows in clear, concise detail how a system that has been set up with an eye toward quality design in the first place is much more likely to remain secure and less vulnerable to hacking, sabotage or malicious control. It blends several well-established concepts and methods from control theory, systems theory, cybernetics and quality engineering to create the ideal protected system. The book's maxim is taken from the famous quality engineer William Edwards Deming, "If I had to reduce my message to management to just a few words, I'd say it all has to do with reducing variation." Highlights include: - An overview of the problem of "cyber fragility" in industrial control systems - How to make an industrial control system "robust," including principal design objectives and overall strategic planning - Why using the methods of quality engineering like the Taguchi method, SOP and UML will help to design more "armored" industrial control systems.

## Book Information

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## Customer Reviews

It would have been easy for Ralph Langner to write a first hand book on the twists and turns of the

Stuxnet story. Instead, he goes in a completely different direction by writing essentially an engineering practices book, *Robust Control System Networks*. And it is one heck of a second act to Stuxnet. This is the first great, 5-star ICS security book ... and Ralph will probably protest that it is not an ICS security book. It is the book you should give to ICS engineers who have been pushing back on cyber security. It is the book you should give to ICS security professionals who need to know how to intellectually reach an ICS engineer. I think an honest engineer reading this book will be embarrassed at the realization of how he has allowed fragility in the form of 'cyber' to live in his SCADA or DCS. Importantly it is not a book to learn what SCADA and DCS are, how firewalls, IDS/IPS, and other technical security controls should be applied to ICS, or how to perform an ICS security assessment. ICS security professionals have been preaching security and cajoling owner/operators to implement security controls for a decade now with very limited success. In this book, Mr. Langner takes a different approach. He talks about inputs and outputs to a process, controlling variances and other techniques that ICS engineers use all the time. But he applies it to the cyber / information realm making the argument that the ICS community has allowed these applications, systems and networks to be built with a fragility that would not be accepted in the physical systems they design. Langner argues a robust system should both limit and be able to handle variances, while a fragile system may not work properly with a variance from expected inputs.

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