

1. Record Nr.	UNINA9910970648203321
Titolo	Digital instrumentation and control systems in nuclear power plants : safety and reliability issues : final report / / Committee on Application of Digital Instrumentation and Control Systems to Nuclear Power Plant Operations and Safety, Board on Energy and Environmental Systems, Commission on Engineering and Technical Systems, National Research Council
Pubbl/distr/stampa	Washington, D.C., : National Academy Press, 1997
ISBN	9780309175159 0309175151 9780309524445 030952444X 9780585027470 0585027471
Edizione	[1st ed.]
Descrizione fisica	1 online resource (126 p.)
Disciplina	621.48/3
Soggetti	Nuclear power plants - Instruments Digital control systems
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Front Matter -- Preface -- Contents -- List of Tables and Figures -- Acronyms -- Executive Summary -- 1 Introduction -- 2 Key Issues -- 3 Systems Aspects of Digital Instrumentation and Control Technology -- 4 Software Quality Assurance -- 5 Common-Mode Software Failure Potential -- 6 Safety and Reliability Assessment Methods -- 7 Human Factors and Human-Machine Interfaces -- 8 Dedication of Commercial Off-the-Shelf Hardware and Software -- 9 Case-by-Case Licensing Process -- 10 Adequacy of Technical Infrastructure -- 11 Overview and Summary -- APPENDIX A Biographical Sketches of Committee Members -- APPENDIX B Committee Meetings (Phases 1 and 2) -- APPENDIX C U. S. Nuclear Regulatory Commission Licensing of Digital Instrumentation and Control Technology -- APPENDIX D Development of the Final List of Eight Issues -- APPENDIX E Excerpts from Licensing Regulations --

Sommario/riassunto

The nuclear industry and the U.S. Nuclear Regulatory Commission (USNRC) have been working for several years on the development of an adequate process to guide the replacement of aging analog monitoring and control instrumentation in nuclear power plants with modern digital instrumentation without introducing off-setting safety problems. This book identifies criteria for the USNRC's review and acceptance of digital applications in nuclear power plants. It focuses on eight areas: software quality assurance, common-mode software failure potential, systems aspects of digital instrumentation and control technology, human factors and human-machine interfaces, safety and reliability assessment methods, dedication of commercial off-the-shelf hardware and software, the case-by-case licensing process, and the adequacy of technical infrastructure.