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Titolo	Practical industrial data networks : design, installation and troubleshooting / / Steve Mackay ... [et al.]
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ISBN	9786611009069 9781281009067 1281009067 9780080480213 0080480217
Descrizione fisica	1 online resource (438 p.)
Altri autori (Persone)	MackaySteve
Disciplina	621.382
Soggetti	Data transmission systems Digital communications
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	Cover; Contents; Preface; Introduction; Introduction; Modern instrumentation and control systems; Open systems interconnection (OSI) model; Protocols; Standards; Overall methodology; Introduction; Common problems and solutions; General comments on troubleshooting; A specific methodology; Grounding/shielding and noise; Sources of electrical noise; Electrical coupling of noise; Shielding; Cable ducting or raceways; Cable spacing; Earthing and grounding requirements; Suppression techniques; Filtering; EIA-232 overview; EIA-232 interface standard (CCITT V.24 interface standard) The major elements of EIA-232Half-duplex operation of the EIA-232 interface; Summary of EIA/TIA-232 revisions; Limitations; Troubleshooting; Introduction; Typical approach; Test equipment; Typical EIA-232 problems; Summary of troubleshooting; EIA-485 overview; The EIA-485 interface standard; Troubleshooting; Introduction; EIA-485 vs EIA-422; EIA-485 installation; Noise problems; Test equipment; Summary; Current loop and EIA-485 converters overview; The 20 mA current loop; Serial interface converters; Troubleshooting; Troubleshooting converters; Fiber optics

overview; Introduction

Applications for fiber optic cables; Fiber optic cable components; Fiber optic cable parameters; Types of optical fiber; Basic cable types; Aerial cable; Underground cable; Sub-aqueous cables; Indoor cables; Connecting fibers; Connection losses; Splicing fibers; Connectors; Connector handling; Optical couplers; Splicing trays/organizers and termination cabinets; Splicing trays; Splicing enclosures; Termination in patch panels and distribution frames; Troubleshooting; Introduction; Standard troubleshooting approach; Tools required; Fiber installation rules; Clean optical connectors

Locating broken fibers; Modbus overview; General overview; Modbus protocol structure; Function codes; Read coil or digital output status (function code 01); Read digital input status (function code 02); Read holding registers (function code 03); Reading input registers (function code 04); Force single coil (function code 05); Preset single register (function code 06); Read exception status (function code 07); Loopback test (function code 08); Force multiple coils or digital outputs (function code 0F); Force multiple registers (function code 10); Troubleshooting; Common problems and faults

Description of tools used; Detailed troubleshooting; Conclusion; Modbus Plus protocol overview; General overview; Troubleshooting; Common problems and faults; Description of tools used; Detailed troubleshooting; Conclusion; Data Highway Plus/DH485 overview; Allen Bradley Data Highway (Plus) protocol; Overview of Allen Bradley protocol; Physical layer (hardware layer); Full-duplex data link layer; Troubleshooting; Introduction; Data Highway Plus wiring troubleshooting; Data Highway Plus network diagnostics; HART overview; Introduction to HART and smart instrumentation; HART protocol

Physical layer

Sommario/riassunto

There are many data communications titles covering design, installation, etc, but almost none that specifically focus on industrial networks, which are an essential part of the day-to-day work of industrial control systems engineers, and the main focus of an increasingly large group of network specialists.The focus of this book makes it uniquely relevant to control engineers and network designers working in this area. The industrial application of networking is explored in terms of design, installation and troubleshooting, building the skills required to identify, prevent and fix