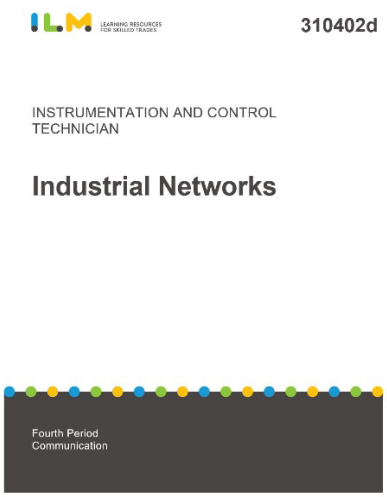
Instrumentation and Control Technician Publishing Release Notes 2022-23

ILM ModuleWorks

In 2022, ILM and the Alberta Instrumentation programs implemented a pilot project titled ModuleWorks, where a selection of modules were elected for a full revision update. The objective of this development project was to update and validate the content and objectives in the fourth period modules that had been developed in 2016-2020. Based on feedback received and in collaboration with the instructors, our team successfully **combined and restructured booklets 310402dA and 310402dB into a single module booklet 310402d** that has been organized into topics, reordering AIT objectives to enhance delivery and flow. Similarly, the Distributed Control Systems: 310403bA, bB and bC booklets have been updated and validated. For more details refer to the tables below.

Discontinued Module Number and Title:	New Module Number and Title:
310402dA24 - Industrial Networks: Part A	310402d25 - Industrial Networks
310402dB24 - Industrial Networks: Part B	

Content notes for the four (4) redeveloped modules:

Product Cover	Topics/Objectives	Content Summary
	**Booklet Section Titles** / **AIT Objectives** Network Topologies — 4 Area Networks and Their Applications — 1 Transmission Techniques — 3 Network Components and Characteristics. — 2 Methods of Networking PLCs and DCSs. — 5 Implementing Industrial Applications. — 6 Assemble and Configure a Wireless Network. — 7	This module discusses the basic concepts of industrial networks, including different network topologies such as star, multidrop bus, ring, and mesh. It covers the importance of understanding the OSI model and its physical and data link layers, as well as the significance of network hardware, electrical signaling methods, and transmission techniques. The content emphasizes the advantages and disadvantages of each topology, the characteristics of message frame structure, error detection, physical addressing, and media access method in the data link layer. It also highlights the importance of industrial networks in integrating control system components and the use of either baseband or modulated signaling to encode data.

LEARNING RESOURCES FOR SKILLED TRADES

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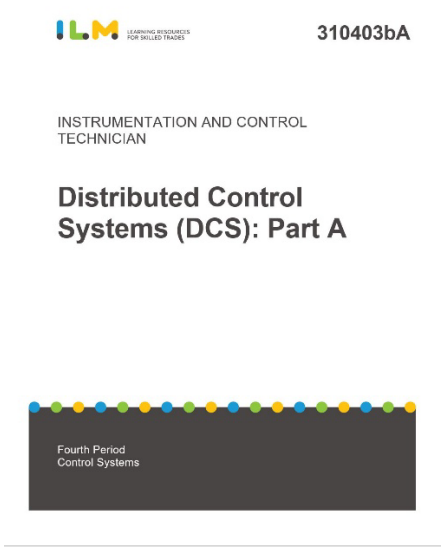
<td> 
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<tr><th>Booklet Section Titles</th><th>AIT Objectives</th></tr>
<tr><td>Hardware components and Buses</td><td>1</td></tr>
<tr><td>Software Programs</td><td>2</td></tr>
<tr><td>Data flow, Scan Cycle, and Databases</td><td>3</td></tr>
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<td>This booklet introduces distributed control systems (DCS) used in industrial processes such as petrochemical, power, and pulp and paper industries. The DCS consists of subsystems that can be physically separate but functionally integrated. Communication between devices such as PLCs and RTUs is facilitated by communication modules that support various protocols such as RS-232, RS-422/485, Modbus, and Ethernet. The DCS architecture includes the fieldbus/process level, controller level, operations/engineering level, and enterprise level. The levels perform various functions and can be expanded or reduced based on scalability needs. DCS systems are wired to individual I/O terminal points or through electronic marshalling systems. The system uses analog and discrete control loops, and the information is communicated digitally or wirelessly.</td>
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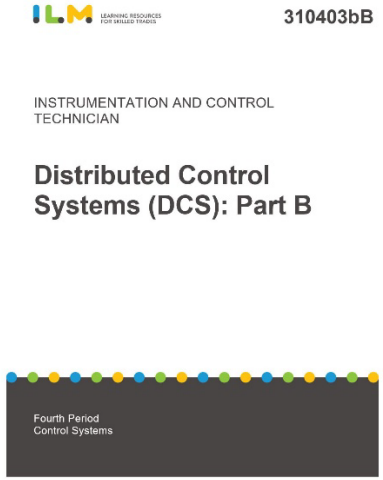
<td> 
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<tr><td>Function Block Programs and Communication</td><td>4</td></tr>
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<td>This booklet, the second in the series covering various aspects of distributed control systems (DCS), discusses their function block programming and communication. DCS systems automate industrial processes and are vendor-specific with their own unique forms of function block programming. Function block programming can be distributed into field equipment, a combination of field equipment and a DCS controller, or entirely through the DCS controller. Redundancy and change management are important considerations for DCS systems.</td>
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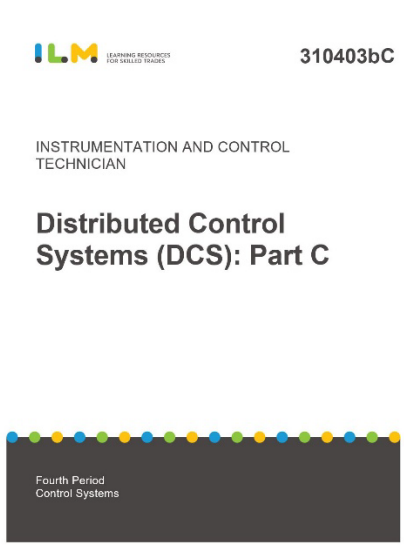
Product Cover	Topics/Objectives	Content Summary
	**Booklet Section Titles** / **AIT Objectives** Alarm and history Management Concepts — 5 Security and Access Privileges — 6 Redundancy — 7 Change Management and Audit Trail — 8 Safety Considerations — 9 Cumulative practical objectives **not covered in this booklet.** — 10, 11, 12, 13, 14, 15, 16	The final booklet in the series covers topics including alarm and history management, security and access privileges, redundancy, change management, safety considerations, and hardware and software components. The content emphasizes the importance of alarm management and rationalization to avoid off-quality product and emission. It also outlines the alarm lifecycle stages and the roles and responsibilities of the operators and maintenance team. Overall, the content aims to teach the learners to select, configure, and maintain DCS effectively.

QA Maintenance and Other ILM Product Updates

In addition to the changes in ModuleWorks, 13 Maintenance comments were resolved impacting 5 additional modules in 2022.

For more information on the ILM Comments and QA Maintenance process, please visit our website:

- ILM Maintenance : https://www.ilmlearning.ca/ilm-maintenance
- Comments: https://www.ilmlearning.ca/comments

***All-Trades Product Update:** Due to changes resulting from the new Skilled Trades and Apprenticeship Education Act, the content within **Alberta's Industry Network** and **Apprenticeship Training Program** modules are no longer valid. When the provincial apprenticeship system changes are final, these products will be updated accordingly. Until then, they are not available to order.

The table below lists all new modules impacted by QA maintenance edits, the above all-trades modules discontinuation and moduleworks into one summary.

	Booklet Number	Module Title	Change Notes	Category	Version
1st Period					
1	310101aB	Introduction to Apprenticeship, Safety, and Occupational Skills: Part B		**QA Maintenance**	25
2nd Period					
2	310204a	Drawings and Symbols		**QA Maintenance**	25
3rd Period					
3	310303aB	Matter: Part B		**QA Maintenance**	
4th Period					
4	310404f	Ultraviolet Analyzers		**QA Maintenance**	25
5	310404j	Alberta's Industry Network	Content no longer accurate.	**Discontinued**	24
AIT (65) All Trades Discontinued Modules					
1	*650101d	Apprenticeship Training Program	Content no longer accurate.	**Discontinued**	24
2	*650401a	Alberta's Industry Network	Content no longer accurate.	**Discontinued**	24
ModuleWorks Summary					
6	310402d	Industrial Networks	Updated/Validated content.	**ModuleWorks**	25
7	310403bA	Distributed Control Systems: Part A	Updated/Validated content.	**ModuleWorks**	25
8	310403bB	Distributed Control Systems: Part B	Updated/Validated content.	**ModuleWorks**	25
9	310403bC	Distributed Control Systems: Part C	Updated/Validated content.	**ModuleWorks**	