

Title	Demonstrate knowledge of distributed control systems		
Level	4	Credits	2

Purpose	<p>People credited with this unit standard are able to demonstrate knowledge of:</p> <ul style="list-style-type: none"> – distributed control systems; and – signal transmission used in distributed control systems.
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Classification	Industrial Measurement and Control > Industrial Measurement and Control - Theory
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Available grade	Achieved
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Guidance Information

None.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of distributed control systems.

Performance criteria

- 1.1 Describe limitations of panel mounted discrete controllers.
 - Range lack of flexibility, wiring, panel space.
- 1.2 Describe advantages of distributed control systems.
 - Range flexibility, reduced cabling, multiple operator workstations, reduced hardware, data highway.
- 1.3 Describe and compare distributed control system interconnection methods.
 - Range loop, star, serial, multidrop, nodes, gateways.
- 1.4 Describe and compare cable types for connections.
 - Range twin axial, coaxial, fibre optic, unshielded twisted pair (UTP).

1.5 Describe, with the aid of diagrams, simple distributed control systems.

Range ring nodes, supervisory computer, distributed controllers, engineering workstation, personal computer.

Outcome 2

Demonstrate knowledge of signal transmission used in distributed control systems.

Performance criteria

2.1 Explain digital data transmission terminology.

Range parity, baud rate, software, hardware.

2.2 Describe and compare data transmission methods.

Range serial RS232, serial RS422, serial RS485, parallel, synchronous, asynchronous, Universal Serial Bus (USB).

2.3 Describe and compare distributed control system data transmission protocols.

Range carrier sense multiple access/collision detection (CSMA/CD), token passing.

2.4 Describe the differences between transmission control protocol (TCP) and TCP/internet protocol (IP).

2.5 Describe and compare data control systems (DCS) and a programmable logic controller (PLC).

2.6 Describe applications for each PLC and DCS and explain the integration between the two.

Planned review date	31 December 2021
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	31 October 1995	31 December 2013
Revision	2	30 October 1997	31 December 2013
Revision	3	3 April 2001	31 December 2013
Review	4	22 June 2001	31 December 2013
Review	5	19 May 2008	31 December 2019
Review	6	28 November 2013	N/A
Rollover	7	28 June 2018	N/A

Consent and Moderation Requirements (CMR) reference	0003
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Comments on this unit standard

Please contact The Skills Organisation reviewcomments@skills.org.nz if you wish to suggest changes to the content of this unit standard.