Title	**Demonstrate knowledge of automation in own work area in a primary products food processing operation**		
Level	**3**	**Credits**	**8**

Purpose	People credited with this unit standard are able to describe: the concepts of an automated control system; input and output devices and signal types used; and, the operating principles of programmable controllers used, in a primary products food processing operation. They will also be able to demonstrate knowledge of the application of the components of an automated control system in a primary products food processing operation.

Classification	Primary Products Food Processing > Primary Products Food Processing - Operational Skills

Available grade	Achieved

Guidance Information

None.

Outcomes and performance criteria

Outcome 1

Describe the concepts of an automated control system in a primary products food processing operation.

Performance criteria

1.1 Describe an automated control system in terms of actions handled on the basis of programmed instructions.

1.2 Describe components of an automated control system in terms of function and interaction.

Range components may include but are not limited to – control unit, control logic, input and output (I/O) signals, measuring devices, controlled devices, operator interface;
evidence of two different types of automated control systems is required.

1.3 Describe advantages of closed-loop control over open-loop control in terms of determination of system response to output commands.

1.4 Describe digital and analogue controls in terms of discrete (on/off) versus variable values.

Outcome 2

Describe input and output devices and signal types used in a primary products food processing operation.

Performance criteria

2.1 Describe input devices in terms of digital or analogue type and application.

Range input devices may include but are not limited to – limit switches, reed switches, proximity sensors, level switches, photoelectric sensors, temperature measurement, flow measurement, pressure measurement, level measurement;
evidence of two input devices is required.

2.2 Describe output devices in terms of digital or analogue type and application.

Range output devices may include but are not limited to – solenoid valves, motor relays, alarms, control valves, variable speed drives, screen displays;
evidence of two output devices is required.

2.3 Describe digital and analogue signal types in terms of voltage and amperage levels used for each type of process.

Range evidence of two examples from the candidate's workplace is required.

Outcome 3

Describe the operating principles of programmable controllers used in a primary products food processing operation.

Performance criteria

3.1 Describe operating principles of programmable controllers in terms of standalone and network control.

3.2 Describe operating principles of programmable controllers in terms of the functions of system components.

Range components may include but are not limited to – central processor unit, local and remote input and output devices, memory devices, operator interface;
evidence of two components is required.

Outcome 4

Demonstrate knowledge of the application of the components of an automated control system in a primary products food processing operation.

Performance criteria

4.1 Describe components of an automated control system in terms of their applications in the workplace.

Range components may include but are not limited to – central processor unit, input and output devices, memory device, control interface, operating system software;
evidence of two components is required.

4.2 Describe an operating sequence in terms of its functional description.

4.3 Describe advantages of an automated control system compared to a manual control system in relation to workplace operating processes.

Range advantages include but are not limited to – safety, product quality, plant reliability, process optimisation.

4.4 Identify documentation on a control system and describe its use in relation to workplace operating processes.

Range documentation may include but are not limited to – functional descriptions, process flow diagrams, operation descriptions, fault diagnosis;
evidence of two types of documentation is required.

Replacement information	This unit standard replaced unit standard 19528.

Planned review date	31 December 2025

Last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	18 June 2015	31 December 2023
Review	2	10 December 2020	N/A

Consent and Moderation Requirements (CMR) reference	0022

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.

Comments on this unit standard

Please contact the Primary Industry Training Organisation standards@primaryito.ac.nz if you wish to suggest changes to the content of this unit standard.