

<b>Title</b>	<b>Demonstrate knowledge of automation in own work area in a primary products food processing operation</b>		
<b>Level</b>	<b>3</b>	<b>Credits</b>	<b>3</b>

<b>Purpose</b>	<p>This theory-based entry-level unit standard is for people who work in a processing role in a primary products food processing operation.</p> <p>People credited with this unit standard are able to demonstrate knowledge of: the concepts of an automated control system; input and output devices used; the operating principles of programmable controllers used; and the application of the components of an automated control system, in a primary products food processing operation.</p>
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<b>Classification</b>	Primary Products Food Processing > Primary Products Food Processing - Operational Skills
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<b>Available grade</b>	Achieved
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**Explanatory notes**

Evidence is required of two different types of automation in the candidate’s work area.

**Outcomes and evidence requirements**

**Outcome 1**

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

**Evidence requirements**

- 1.1 Automation is defined in terms of actions handled by a control system on the basis of programmed instructions.
- 1.2 The components of an automated control system are described in terms of function and interaction in the control system.
  - Range components include but are not limited to – control unit, control logic, input and output (I/O) signals, measuring devices, controlled devices, operator interface.
- 1.3 Advantages of closed-loop control over open-loop control are described in terms of determination of system response to output commands.

- 1.4 Digital and analogue controls are differentiated in terms of discrete (on/off) versus variable values.

## Outcome 2

Demonstrate knowledge of input and output devices used in a primary products food processing operation.

### Evidence requirements

- 2.1 Input devices are differentiated 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 is required of two input devices.

- 2.2 Output devices are differentiated 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 is required of two output devices.

- 2.3 Digital and analogue signal types are differentiated in terms of voltage and amperage levels used for each type of process.

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

## Outcome 3

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

### Evidence requirements

- 3.1 The operating principles of programmable controllers are described in terms of standalone and network control.

- 3.2 The operating principles of programmable controllers are described in terms of the functions of system components.

Range components include but are not limited to – central processor unit, local and remote input and output devices, memory devices, operator interface.

**Outcome 4**

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

**Evidence requirements**

4.1 The components of an automated control system are described in terms of their applications in the workplace.

Range components include but are not limited to – central processor unit, input and output devices, memory device, control interface, operating system software.

4.2 An operating sequence is outlined in terms of its functional description.

4.3 Advantages of an automated system are compared to manual control.

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

4.4 Documentation on a control system is identified and its use described in relation to the workplace.

Range documentation includes but is not limited to – functional descriptions, process flow diagrams, operation descriptions, fault diagnosis.

<b>Replacement information</b>	This unit standard replaced unit standard 19528.
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<b>Planned review date</b>	31 December 2020
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**Last date for assessment for superseded versions**

Process	Version	Date	Last Date for Assessment
Registration	1	18 June 2015	N/A

<b>Consent and Moderation Requirements (CMR) reference</b>	0022
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

**Please note**

Providers must be granted consent to assess against standards (accredited) by NZQA, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be granted consent to assess against standards by NZQA before they can register credits from assessment against unit standards.

Providers and Industry Training Organisations, which have been granted consent and which are assessing against unit standards must engage with the moderation system that applies to those standards.

Requirements for consent to assess and an outline of the moderation system that applies to this standard are outlined in the Consent and Moderation Requirements (CMRs). The CMR also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

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### **Comments on this unit standard**

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